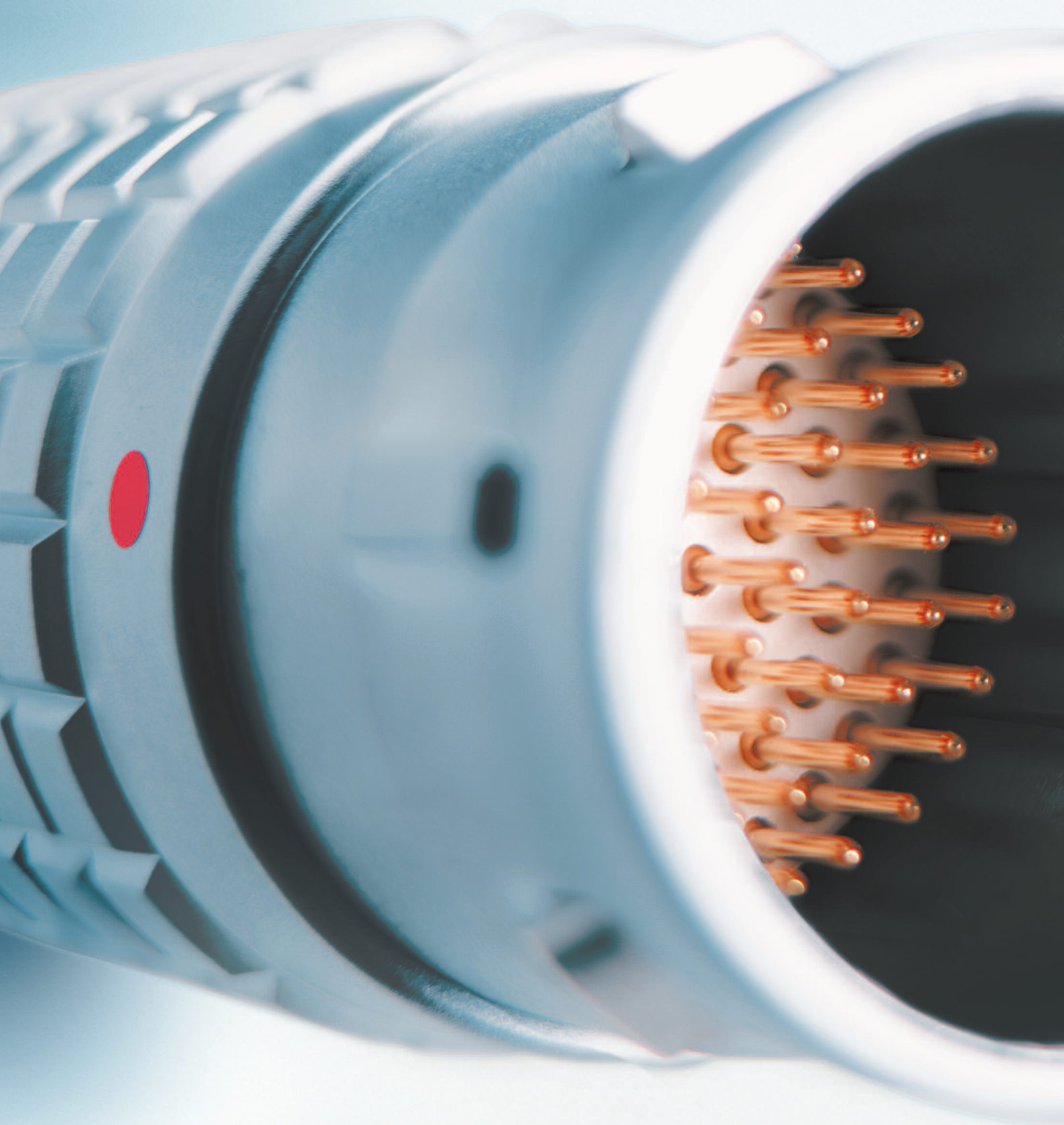


# UNIPOLE & MULTIPOLE CONNECTORS







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## LEMO unipole and multipole connectors

This catalogue gives the complete description of LEMO unipole and multipole type connectors. The LEMO manufacturing programme has been extended to almost 40 series divided into 7 product families with specific mating and environmental characteristics. Each series includes a wide variety of plug, socket, coupler and bridge plug models, available in contact configurations adapted to all round cables, including up to 114 conductors, and a maximum diameter of 30 mm. Watertight and vacuumtight models are also available. Since LEMO connectors are perfectly screened and designed to guarantee very low resistance to shell electrical continuity, they are particularly adapted to applications where electro-magnetic compatibility (EMC) is important.

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## Precision modular connectors to suit your application

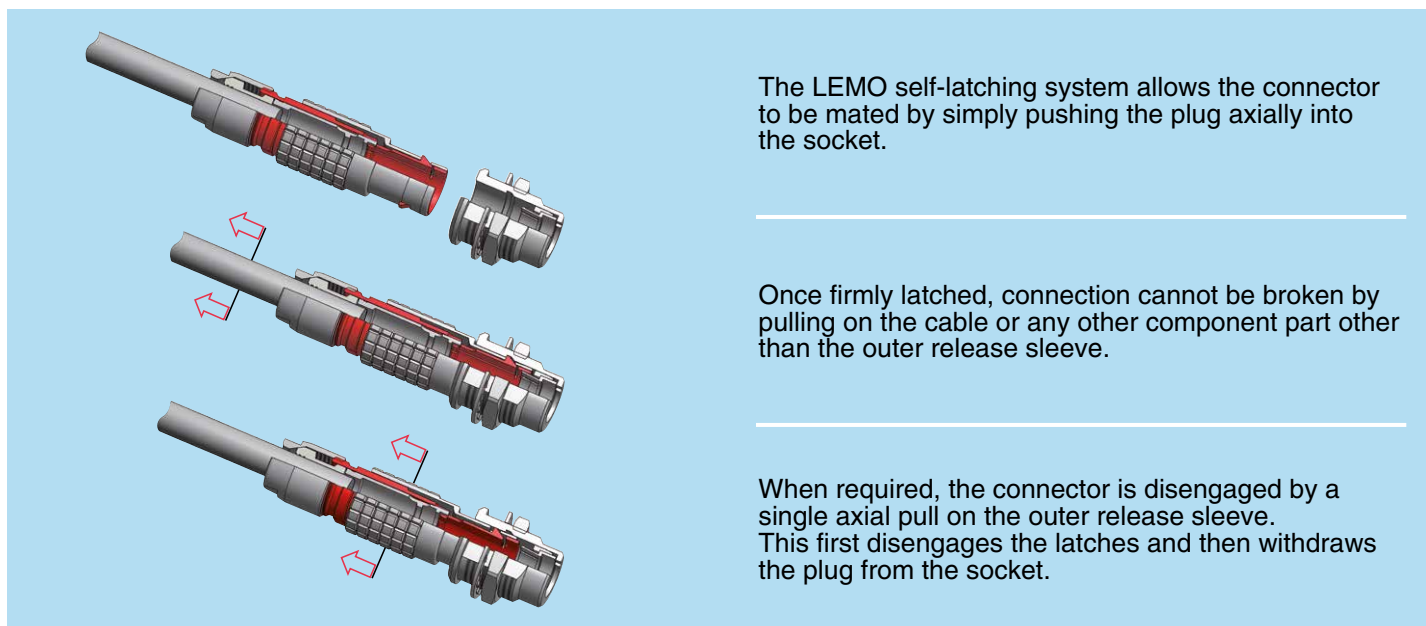
Since its creation in Switzerland in 1946 the LEMO Group has been recognized as a global leader of circular Push-Pull connectors and connector solutions. Today LEMO and its affiliated companies, REDEL and COELVER, are active in more than 80 countries with the help of over 40 subsidiaries and distributors.

## Over 75000 connectors

The modular design of the LEMO range provides over 75000 connectors from miniature  $\varnothing$  3 mm to  $\varnothing$  50 mm, capable of handling cable diameters up to 30 mm and for up to 114 contacts. This vast portfolio enables you to select the ideal connector configuration to suit almost any specific requirement in most markets, including medical devices, test and measurement instruments, machinery, audio video broadcast, telecommunications and military.

## LEMO's Push-Pull Self-Latching Connection System

This self-latching system is renowned worldwide for its easy and quick mating and unmating features. It provides absolute security against vibration, shock or pull on the cable, and facilitates operation in a very limited space.



## UL Recognition

LEMO connectors are recognized by the Underwriters Laboratories (UL). The approval of the complete system (LEMO connector, cable and your equipment) will be easier because LEMO connectors are recognized.

## CE marking

CE marking  means that the appliance or equipment bearing it complies with the protection requirements of one or several European safety directives. CE marking  applies to complete products or equipment, **but not to electromechanical components, such as connectors.**

## RoHS

LEMO connector specifications conforms the requirements of the RoHS directive (2011/65/EU) of the European Parliament and the latest amendments. This directive specifies the restrictions of the use of hazardous substances in electrical and electronic equipment marketed in Europe.

## Product safety notice & disclaimers

Please read and follow all instructions specified on the last page or on our [website](#) carefully and consult all relevant national and international safety regulations for your application. Improper handling, cable assembly, or wrong use of connectors can result in hazardous situations.

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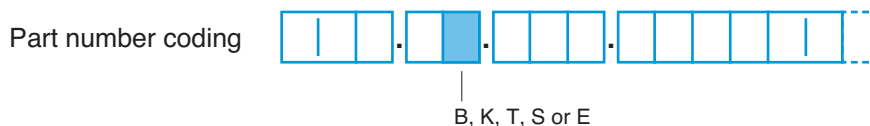




## 3 steps to select the right connector

### ● Step 1: Select connector series

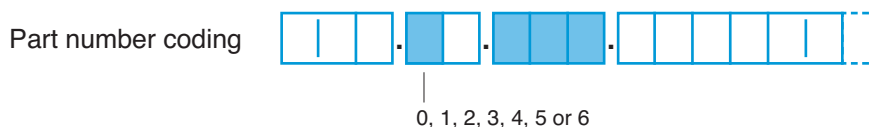
Select the appropriate LEMO connector series according to the environmental parameters that will affect your device or cable such as indoor, outdoor, temperature range, ingress protection of the mated connector and of your device. Use the table shown on page 4.



### ● Step 2: Select connector size

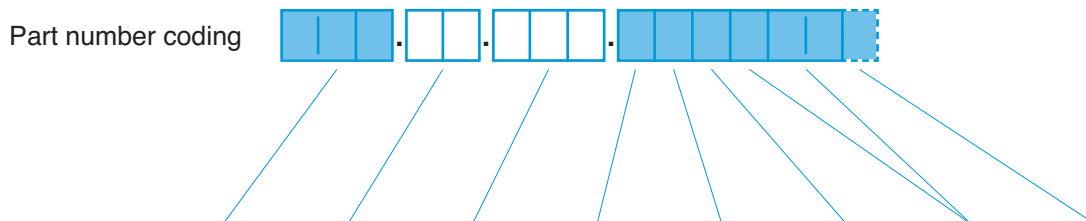
Use the section (mm<sup>2</sup>) or the AWG of your cable wire to select the optimal contact diameter (values vary between solder, crimp or print contact), see page 8.

Use this optimal contact diameter to determine the right connector size as well as the insert configuration, see page 6.



### ● Step 3: Complete the part number

Now that you know the series, as well as the insulator configuration, complete the part numbering system with the help of the following table.



|                                    | Model | Series | Insert configuration | Housing material | Insulator material | Contact | Collet | Variant |
|------------------------------------|-------|--------|----------------------|------------------|--------------------|---------|--------|---------|
| B Series (indoor, keyed)           | 14    | 14     | 57                   | 64               | 64                 | 64      | 67     | 71      |
| K Series (outdoor, keyed)          | 39    | 39     | 57                   | 64               | 64                 | 64      | 68     | 71      |
| T Series (outdoor, keyed)          | 53    | 53     | 57                   | 64               | 64                 | 64      | 70     | 71      |
| S Series (indoor, stepped insert)  | 76    | 76     | 103                  | 112              | 112                | 112     | 115    | 121     |
| E Series (outdoor, stepped insert) | 95    | 95     | 103                  | 112              | 112                | 112     | 119    | 121     |

**Note:** Figures in the above table refer to the catalogue pages.



## Step 1: Select Connector Series

### LEMO unipole and multipole connectors

#### The standard keyed Series (B, 00)

The characteristic feature of these connector series is a keying system which allows higher contact density and prevents all errors in alignment. The various keying alternatives prevent unwanted cross mating of otherwise similar connectors. It is also possible to use crimp contacts to reduce cable assembly time. These connector series, include the 0B to 5B range as well as the 00 multipole, some vacuumtight models are also available.

#### The watertight keyed Series (K, T)

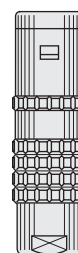
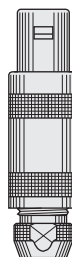
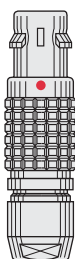
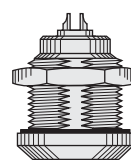
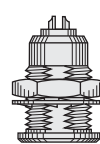
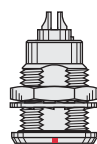
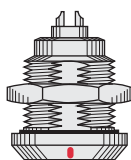
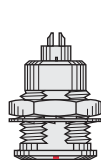
These series are watertight when mated and assembled to an appropriate cable. They include the 0K to 5K series and the TT to 3T series, available in the same types as the 0B to 5B series.

#### The standard Series (S, 00)

The characteristic feature of these connector series is the hermaphroditic insulator in the multipole version. They include principally the 0S to 6S series, as well as the 00 unipole series.

#### The watertight Series (E)

These series are watertight when mated and assembled to an appropriate cable. They include the 0E to 6E series and are available in the same types as the S series.



|                                  |                             |                              |           |                                        |                                 |
|----------------------------------|-----------------------------|------------------------------|-----------|----------------------------------------|---------------------------------|
| Series                           | 00 multipole<br>B           | K                            | T         | 00 unipole<br>S                        | E                               |
| Environment                      | indoor                      | outdoor or harsh environment |           | indoor                                 | outdoor or<br>harsh environment |
| Ingress protection <sup>1)</sup> | IP50                        | IP66 to IP68                 |           | IP50                                   | IP66 to IP68                    |
| Ingress protection <sup>2)</sup> | IP50 to IP68<br>vacuumtight | IP66 to IP68<br>vacuumtight  |           | IP50 to IP68<br>vacuumtight            | IP66 to IP68<br>vacuumtight     |
| Temperature range                | - 55 to 250°C               | - 55 to 200°C                |           | - 55 to 250°C                          | - 55 to 200°C                   |
| Latching                         | Push-Pull self-latching     |                              |           |                                        |                                 |
| Shell sizes                      | 8 metal<br>and 4 plastic    | 6 metal                      | 5 metal   | 7 metal<br>and 5 plastic               | 6 metal                         |
| Insulator type                   | Multipole                   |                              |           | Unipole or multipole<br>hermaphroditic |                                 |
| Contact type                     | Solder, crimp or print      |                              |           | Solder, crimp or print                 |                                 |
| Features                         | 13 keyways                  | 9 keyways                    | 4 keyways | Stepped insert                         |                                 |
| Page                             | 11 to 36                    | 37 to 50                     | 51 to 56  | 73 to 92                               | 93 to 102                       |

#### Note:

<sup>1)</sup> Mated connector. See ingress protection code p. 5. <sup>2)</sup> Your device. For selection of connectors for watertight and vacuumtight devices, see p. 5.



## Definition of Ingress Protection (IP code)

IEC 60529 outlines an international classification system for the sealing effectiveness of enclosures of electrical equipment against the intrusion into the equipment of foreign bodies (i.e. tools, dust, fingers) and moisture. This classification system utilizes the letters «IP» (Ingress Protection) followed by two digits.

**Example: IP 50 = IP 5 0**

IP letter code \_\_\_\_\_  
1st digit \_\_\_\_\_  
2nd digit \_\_\_\_\_

### Degrees of protection - First digit

The first digit of the IP code indicates the degree to which persons are protected against contact with moving parts and the degree that equipment is protected against solid foreign bodies intruding into an enclosure.

| Code | First digit description                                                                                    |
|------|------------------------------------------------------------------------------------------------------------|
| 0    | No special protection                                                                                      |
| 1    | Protection from a large part of the body such as hand or from solid objects greater than 50 mm in diameter |
| 2    | Protection against objects not greater than 80 mm in length and 12 mm in diameter                          |
| 3    | Protection from entry by tools, wires, etc., with a diameter or thickness greater than 2.5 mm              |
| 4    | Protection from entry by solid objects with a diameter or thickness greater than 1.0 mm                    |
| 5    | Protection from the amount of dust that would interfere with the operation of the equipment                |
| 6    | Dust-tight                                                                                                 |
| 7    | –                                                                                                          |
| 8    | –                                                                                                          |

### Degrees of protection - Second digit

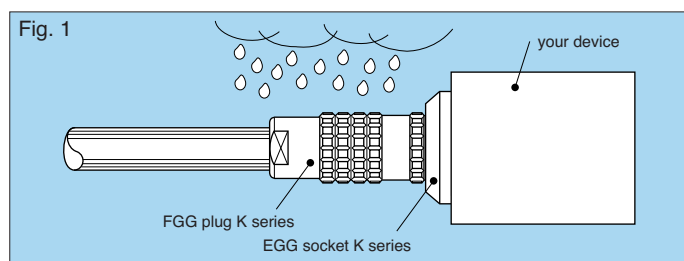
The second digit indicates the degree of protection of the equipment inside the enclosure against the harmful entry of various forms of moisture (e.g. dripping, spraying, submersion, etc.)

| Code | Second digit description                                   |
|------|------------------------------------------------------------|
| 0    | No special protection                                      |
| 1    | Protection from vertically dripping water                  |
| 2    | Protection from dripping water when tilted up to 15°       |
| 3    | Protection from sprayed water                              |
| 4    | Protection from splashed water                             |
| 5    | Protection from water projected from a nozzle              |
| 6    | Protection against heavy seas, or powerful jets of water   |
| 7    | Protection against temporary immersion                     |
| 8    | Protection against complete continuous submersion in water |

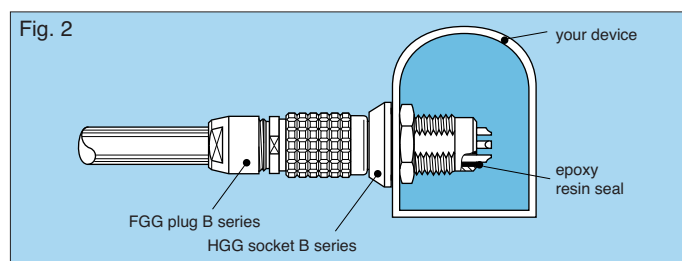
## Selection of connectors for watertight or vacuumtight devices

LEMO B and S series are rated IP50 only when mated. LEMO E, K and T series are rated IP66 (and over) only when mated. If a device must be watertight or vacuumtight when the connectors are unmated, it is important to select a watertight or vacuumtight socket. You can consider the following two situations:

A) Figure 1 shows a typical outdoor device. To ensure this device retains IP66 or above when connectors are unmated, it is important to choose a watertight socket from B, S, E, K or T series.



B) Figure 2 shows a device which is subjected to pressure difference such as a near vacuum or pressurized gas and must exhibit no leakage. To ensure the device maintains its sealing, the socket is additionally tested for helium leakage (according MIL 1344A).

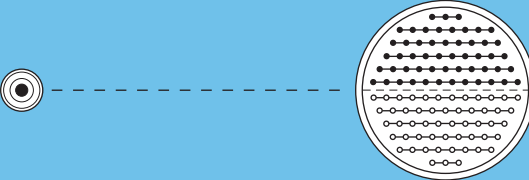


Check temperature range (see section on pages 30, 47, 55, 91 and 101).

## Step 2: Select Connector Size

### Select the right connector size and insert configuration

To be able to select the right connector size (0 to 6), it is important to define the contact diameter ( $\varnothing A$ ). Find out the available contact diameter ( $\varnothing A$ ) of the LEMO connector depending on the number of contacts required and depending on the rating required (see pages 57 to 63 and 103 to 111). The following table shows the contact diameter ( $\varnothing A$ ).

| Number of contacts |    | Insert configuration | Series                                                                            |          |          |     |          |          |       |       |                                                                                    |       |         |         |         |         |         |         |
|--------------------|----|----------------------|-----------------------------------------------------------------------------------|----------|----------|-----|----------|----------|-------|-------|------------------------------------------------------------------------------------|-------|---------|---------|---------|---------|---------|---------|
|                    |    |                      |  |          |          |     |          |          |       |       |  |       |         |         |         |         |         |         |
|                    |    |                      | 00-TT                                                                             | 0B-0K-0T | 1B-1K-1T | XB  | 2B-2K-2T | 3B-3K-3T | 4B-4K | 5B-5K | 00                                                                                 | 0S-0E | 1S-1E   | 2S-2E   | 3S-3E   | 4S-4E   | 5S-5E   | 6S-6E   |
| Unipole            | 1  | 113                  |                                                                                   |          |          |     |          |          |       |       | 1.3                                                                                |       |         |         |         |         |         |         |
|                    | 1  | 116                  |                                                                                   |          |          |     |          |          |       |       |                                                                                    | 1.6   |         |         |         |         |         |         |
|                    | 1  | 120                  |                                                                                   |          |          |     |          |          |       |       |                                                                                    |       | 2.0     |         |         |         |         |         |
|                    | 1  | 130                  |                                                                                   |          |          |     |          |          |       |       |                                                                                    |       | 3.0     | 3.0     |         |         |         |         |
|                    | 1  | 140                  |                                                                                   |          |          |     |          |          |       |       |                                                                                    |       |         | 4.0     | 4.0     | 4.0     |         |         |
|                    | 1  | 160                  |                                                                                   |          |          |     |          |          |       |       |                                                                                    |       |         |         | 6.0     | 6.0     |         |         |
|                    | 1  | 112                  |                                                                                   |          |          |     |          |          |       |       |                                                                                    |       |         |         |         |         | 12.0    |         |
| Multipole          | 2  | 302                  | 0.5                                                                               | 0.9      | 1.3      |     | 2.0      | 3.0      |       | 6.0   |                                                                                    | 0.9   | 1.3     | 1.6     | 2.0     | 4.0     | 6.0     |         |
|                    | 3  | 303                  | 0.5                                                                               | 0.9      | 1.3      |     | 1.6      | 2.0      |       |       |                                                                                    | 0.7   | 0.9     | 1.3     | 2.0     | 3.0     | 6.0/4.0 | 6.0     |
|                    | 4  | 304                  | 0.5                                                                               | 0.7      | 0.9      |     | 1.3      | 2.0      | 3.0   | 4.0   |                                                                                    | 0.7   | 0.9     | 1.3     | 2.0     | 3.0     | 4.0     | 8.0     |
|                    | 5  | 305                  | 0.35                                                                              | 0.7      | 0.9      |     | 1.3      | 1.6      |       |       |                                                                                    |       | 0.9/0.7 | 1.3     | 2.0/1.3 | 3.0/2.0 | 4.0/3.0 |         |
|                    | 6  | 306                  | 0.35                                                                              | 0.5      | 0.7      |     | 1.3      | 1.6      | 2.0   |       |                                                                                    |       | 0.7     | 1.3     | 1.3     | 2.0     | 3.0     |         |
|                    | 7  | 307                  |                                                                                   | 0.5      | 0.7      |     | 1.3      | 1.6      | 2.0   |       |                                                                                    |       |         | 1.3/0.9 | 1.3     | 2.0/1.3 |         |         |
|                    | 8  | 308                  |                                                                                   |          | 0.7      |     | 0.9      | 1.3      |       |       |                                                                                    |       |         | 0.9     | 1.3     | 1.3     | 3.0     |         |
|                    | 9  | 309                  |                                                                                   | 0.5      |          |     |          | 1.3/2.0  |       |       |                                                                                    |       |         |         |         | 1.3     |         |         |
|                    | 10 | 310                  |                                                                                   |          | 0.5      |     | 0.9      | 1.3      | 1.6   | 3.0   |                                                                                    |       |         | 0.9     | 1.3     | 1.3     | 2.0     |         |
|                    | 12 | 312                  |                                                                                   | 0.35     |          | 0.7 | 0.7      | 0.9      | 1.3   |       |                                                                                    |       |         |         | 0.9     | 1.3     | 2.0     | 4.0/5.0 |
|                    | 13 | 313                  |                                                                                   |          |          |     |          |          |       |       |                                                                                    |       |         |         | 0.9     | 1.3     |         |         |
|                    | 14 | 314                  |                                                                                   |          | 0.5      |     | 0.7      | 0.9      |       | 2.0   |                                                                                    |       |         |         | 0.9     | 1.3     | 3.0/2.0 |         |
|                    | 16 | 316                  |                                                                                   |          | 0.5      |     | 0.7      | 0.9      | 0.9   | 2.0   |                                                                                    |       |         |         | 0.9     | 0.9     | 2.0     | 3.0     |
|                    | 18 | 318                  |                                                                                   |          |          |     | 0.7      | 0.9      |       |       |                                                                                    |       |         |         | 0.9     | 0.9     | 3.0/1.6 | 4.0     |
|                    | 19 | 319                  |                                                                                   |          |          |     | 0.7      |          |       |       |                                                                                    |       |         |         |         |         |         |         |
|                    | 20 | 320                  |                                                                                   |          |          |     |          | 0.7      | 0.9   | 1.6   |                                                                                    |       |         |         |         | 0.9     | 1.6     | 3.0     |
|                    | 22 | 322                  |                                                                                   |          |          | 0.5 |          | 0.7      |       |       |                                                                                    |       |         |         |         | 0.9     | 3.0/1.6 |         |
|                    | 24 | 324                  |                                                                                   |          |          |     |          | 0.7      | 0.9   |       |                                                                                    |       |         |         |         |         | 0.9     | 1.6     |
|                    | 26 | 326                  |                                                                                   |          |          |     | 0.5      | 0.7      |       |       |                                                                                    |       |         |         |         |         |         |         |

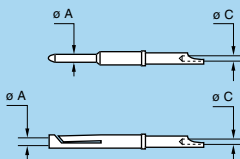
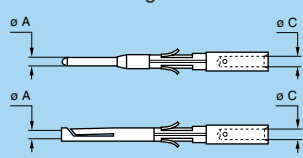
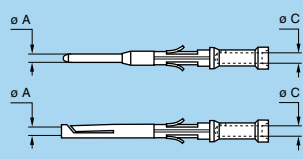
|           | Number of contacts | Insert configuration | Series                                                                            |          |          |    |          |          |       |       |                                                                                    |       |       |       |       |       |       |                   |
|-----------|--------------------|----------------------|-----------------------------------------------------------------------------------|----------|----------|----|----------|----------|-------|-------|------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------------------|
|           |                    |                      |  |          |          |    |          |          |       |       |  |       |       |       |       |       |       |                   |
|           |                    |                      | 00-TT                                                                             | 0B-0K-0T | 1B-1K-1T | XB | 2B-2K-2T | 3B-3K-3T | 4B-4K | 5B-5K | 00                                                                                 | 0S-0E | 1S-1E | 2S-2E | 3S-3E | 4S-4E | 5S-5E | 6S-6E             |
| Multipole | 30                 | 330                  |                                                                                   |          |          |    |          | 0.7      | 0.9   | 1.3   |                                                                                    |       |       |       |       |       | 1.3   | 2.0               |
|           | 32                 | 332                  |                                                                                   |          |          |    | 0.5      |          |       |       |                                                                                    |       |       |       |       |       |       | 2.0               |
|           | 36                 | 336                  |                                                                                   |          |          |    |          |          |       |       |                                                                                    |       |       |       |       |       | 1.3   | 2.0 <sup>1)</sup> |
|           | 40                 | 340                  |                                                                                   |          |          |    |          |          | 0.7   | 1.3   |                                                                                    |       |       |       |       |       | 1.3   | 2.0               |
|           | 44                 | 344                  |                                                                                   |          |          |    |          |          |       |       |                                                                                    |       |       |       |       |       | 1.3   |                   |
|           | 48                 | 348                  |                                                                                   |          |          |    |          |          | 0.7   | 1.3   |                                                                                    |       |       |       |       |       | 1.3   | 2.0               |
|           | 50                 | 350                  |                                                                                   |          |          |    |          |          |       | 0.9   |                                                                                    |       |       |       |       |       |       |                   |
|           | 54                 | 354                  |                                                                                   |          |          |    |          |          |       | 0.9   |                                                                                    |       |       |       |       |       |       |                   |
|           | 60                 | 360                  |                                                                                   |          |          |    |          |          |       |       |                                                                                    |       |       |       |       |       |       | 1.6               |
|           | 62                 | 362                  |                                                                                   |          |          |    |          |          |       |       |                                                                                    |       |       |       |       |       |       | 1.6               |
|           | 64                 | 364                  |                                                                                   |          |          |    |          |          |       | 0.9   |                                                                                    |       |       |       |       |       |       | 1.3               |
|           | 72                 | 372                  |                                                                                   |          |          |    |          |          |       |       |                                                                                    |       |       |       |       |       |       | 1.3               |
|           | 106                | 106                  |                                                                                   |          |          |    |          |          |       |       |                                                                                    |       |       |       |       |       |       | 0.9               |

**Note:** <sup>1)</sup> 2.0 is for 6S series, for 6E the values are 1.3 and 5.0.



## Verify the fitting to your wire

Verify if the selected contact diameter ( $\varnothing A$ ) of the LEMO connector fits to your cable wire diameter (AWG number or max. available section).

| Contact type                                                                                                                                                                                                                                                           | Contact           |                    |                  | Conductor        |                                       |          |                     |                            |                    | F <sub>r</sub> <sup>1)</sup><br>(N) | Notes |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|------------------|------------------|---------------------------------------|----------|---------------------|----------------------------|--------------------|-------------------------------------|-------|
|                                                                                                                                                                                                                                                                        |                   |                    |                  | Solid            |                                       | Stranded |                     |                            |                    |                                     |       |
|                                                                                                                                                                                                                                                                        | ø A<br>(mm)       | ø C<br>(mm)        | Form<br>per fig. | AWG<br>max.      | Section<br>max.<br>(mm <sup>2</sup> ) | AWG      |                     | Section (mm <sup>2</sup> ) |                    |                                     |       |
|                                                                                                                                                                                                                                                                        |                   |                    |                  |                  |                                       | min.     | max.                | min.                       | max.               |                                     |       |
| <div>Solder</div> <div></div>                                                                                                                                                         | 0.35              | 0.40               | —                | 28               | 0.09                                  | —        | 30                  | —                          | 0.05               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 0.5 <sup>2)</sup> | 0.40 <sup>2)</sup> | —                | 28               | 0.09                                  | —        | 30                  | —                          | 0.05               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 0.5               | 0.45 <sup>7)</sup> | —                | 28               | 0.09                                  | —        | 28                  | —                          | 0.09               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 0.7 <sup>3)</sup> | 0.60 <sup>3)</sup> | —                | 24               | 0.25                                  | —        | 26                  | —                          | 0.14               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 0.7               | 0.80               | —                | 22               | 0.34                                  | —        | 22 <sup>4)</sup>    | —                          | 0.34               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 0.9               | 0.80 <sup>6)</sup> | —                | 22 <sup>6)</sup> | 0.34 <sup>6)</sup>                    | —        | 22 <sup>4)</sup> 6) | —                          | 0.34 <sup>6)</sup> | —                                   |       |
|                                                                                                                                                                                                                                                                        | 1.3               | 1.00               | —                | 20               | 0.50                                  | —        | 20 <sup>4)</sup>    | —                          | 0.50               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 1.6               | 1.40               | —                | 16               | 1.00                                  | —        | 18                  | —                          | 1.00               | —                                   | ●     |
|                                                                                                                                                                                                                                                                        | 2.0               | 1.80               | —                | 14               | 1.50                                  | —        | 16                  | —                          | 1.50               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 3.0               | 2.70               | —                | 10               | 4.00                                  | —        | 12                  | —                          | 4.00               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 4.0               | 3.70               | —                | 10               | 6.00                                  | —        | 10                  | —                          | 6.00               | —                                   |       |
|                                                                                                                                                                                                                                                                        | 5.0               | 5.20               | —                | —                | —                                     | —        | 8                   | —                          | 10.00              | —                                   |       |
|                                                                                                                                                                                                                                                                        | 6.0               | 5.20               | —                | —                | —                                     | —        | 8                   | —                          | 10.00              | —                                   |       |
|                                                                                                                                                                                                                                                                        | 8.0               | 7.00               | —                | —                | —                                     | —        | 4                   | —                          | 21.00              | —                                   |       |
|                                                                                                                                                                                                                                                                        | 12.0              | 11.50              | —                | —                | —                                     | —        | 0                   | —                          | 50.00              | —                                   |       |
| <div>Crimp</div> <div><div>fig. 1</div><div></div></div> <div><div>fig. 2</div><div></div></div> | 0.5 <sup>5)</sup> | 0.45               | 1                | —                | —                                     | 32       | 28                  | 0.035                      | 0.09               | 12                                  | ●     |
|                                                                                                                                                                                                                                                                        | 0.7               | 0.80               | 1                | —                | —                                     | 26       | 22 <sup>4)</sup>    | 0.140                      | 0.34               | 22                                  | ●     |
|                                                                                                                                                                                                                                                                        | 0.7               | 0.45               | 2                | —                | —                                     | 32       | 28                  | 0.035                      | 0.09               | 22                                  | ○     |
|                                                                                                                                                                                                                                                                        | 0.9               | 1.10               | 1                | —                | —                                     | 24       | 20                  | 0.250                      | 0.50               | 30                                  | ●     |
|                                                                                                                                                                                                                                                                        | 0.9               | 0.80               | 2                | —                | —                                     | 26       | 22 <sup>4)</sup>    | 0.140                      | 0.34               | 30                                  | ○     |
|                                                                                                                                                                                                                                                                        | 0.9               | 0.45               | 2                | —                | —                                     | 32       | 28                  | 0.035                      | 0.09               | 30                                  | ○     |
|                                                                                                                                                                                                                                                                        | 1.3               | 1.40               | 1                | —                | —                                     | 20       | 18                  | 0.500                      | 1.00               | 40                                  | ●     |
|                                                                                                                                                                                                                                                                        | 1.3               | 1.10               | 2                | —                | —                                     | 24       | 20                  | 0.250                      | 0.50               | 40                                  | ○     |
|                                                                                                                                                                                                                                                                        | 1.3               | 0.80               | 2                | —                | —                                     | 26       | 22 <sup>4)</sup>    | 0.140                      | 0.34               | 40                                  | ○     |
|                                                                                                                                                                                                                                                                        | 1.6               | 1.90               | 1                | —                | —                                     | 18       | 14 <sup>4)</sup>    | 1.000                      | 1.50               | 50                                  | ●     |
|                                                                                                                                                                                                                                                                        | 1.6               | 1.40               | 2                | —                | —                                     | 22       | 18                  | 0.340                      | 1.00               | 50                                  | ○     |
|                                                                                                                                                                                                                                                                        | 2.0               | 2.40               | 1                | —                | —                                     | 16       | 12 <sup>4)</sup>    | 1.500                      | 2.50               | 65                                  | ●     |
|                                                                                                                                                                                                                                                                        | 2.0               | 1.90               | 2                | —                | —                                     | 18       | 14                  | 1.000                      | 1.50               | 65                                  | ○     |
|                                                                                                                                                                                                                                                                        | 3.0               | 3.20               | 1                | —                | —                                     | 14       | 10 <sup>4)</sup>    | 2.500                      | 4.00               | 75                                  | ●     |
|                                                                                                                                                                                                                                                                        | 4.0               | 4.00               | 1                | —                | —                                     | 12       | 10                  | 4.000                      | 6.00               | 90                                  | ●     |

### Note:

<sup>1)</sup> contact retention force in the insulator (according to IEC 60512-8 test 15 a).

<sup>2)</sup> for 00/TT multipole series.

<sup>3)</sup> for S, E series.

<sup>4)</sup> for a given AWG, the diameter of some stranded conductor designs is larger than the solder cup diameter. Make sure that the maximum conductor diameter is smaller than  $\varnothing C$ .

<sup>5)</sup> for 00 /TT multipole series or for 0B/OT and 1B/1T series with male contacts.

<sup>6)</sup> for 0B.302/0B.303, 0K.302/0K.303 and 0T.302/0T.303  $\varnothing C = 1.0$  mm, AWG max 20, section max (mm<sup>2</sup>) 0.50.

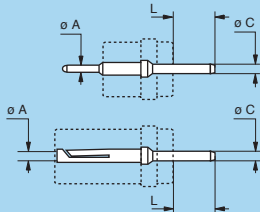
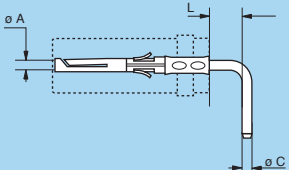
<sup>7)</sup> for 00/TT and 1B/1K/1T series, according to manufacturing and plating tolerance  $\varnothing C$  min = 0.43 mm.

● First choice alternative

○ Special order alternative

## Verify the fitting to your wire

Verify if the selected contact diameter ( $\varnothing A$ ) of the LEMO connector fits to your cable wire diameter (AWG number or max. available section).

| Contact type  | Contact                                                                           |             |                  | Conductor                                                                                        |                                       |          |      |                            |      | F <sub>r</sub> <sup>1)</sup><br>(N) | Notes |
|---------------|-----------------------------------------------------------------------------------|-------------|------------------|--------------------------------------------------------------------------------------------------|---------------------------------------|----------|------|----------------------------|------|-------------------------------------|-------|
|               |                                                                                   |             |                  | Solid                                                                                            |                                       | Stranded |      |                            |      |                                     |       |
|               | ø A<br>(mm)                                                                       | ø C<br>(mm) | Form<br>per fig. | AWG<br>max.                                                                                      | Section<br>max.<br>(mm <sup>2</sup> ) | AWG      |      | Section (mm <sup>2</sup> ) |      |                                     |       |
|               |                                                                                   |             |                  |                                                                                                  |                                       | min.     | max. | min.                       | max. |                                     |       |
| Print         |  |             |                  | L dimensions and C are detailed in the section on PCB drilling pattern.<br>See page 163 and 167. |                                       |          |      |                            |      |                                     |       |
| Print (elbow) |  |             |                  | L dimensions and C are detailed in the section on PCB drilling pattern.<br>See page 164 and 168. |                                       |          |      |                            |      |                                     |       |

**Note:** <sup>1)</sup> contact retention force in the insulator (according to IEC 60512-8 test 15 a).

## Verify the fitting to your cable

Verify if the selected connector size fits to your cable diameter.

| Series           | Cable diameter range (mm) |                    |                                  |                    |
|------------------|---------------------------|--------------------|----------------------------------|--------------------|
|                  | Collet                    |                    | Collet for fitting a bend relief |                    |
|                  | min.                      | max.               | min.                             | max.               |
| 00 <sup>1)</sup> | 1.4                       | 3.5                | 1.4                              | 3.5                |
| 0B               | 1.4                       | 5.6                | 1.4                              | 5.2                |
| 1B               | 2.2                       | 7.6                | 2.2                              | 7.2                |
| XB               | 4.4                       | 8.0                | 4.4                              | 7.0                |
| 2B               | 1.4                       | 9.9                | 1.4                              | 9.2                |
| 3B               | 4.2                       | 11.9               | 4.2                              | 11.0               |
| 4B               | 4.9                       | 16.0               | 4.9                              | 15.0               |
| 5B               | 9.6                       | 25.0               | 9.6                              | 15.5               |
| 0K               | 1.0                       | 5.0                | 1.0                              | 5.0                |
| 1K               | 1.3                       | 8.5 <sup>3)</sup>  | 1.3                              | 8.5 <sup>3)</sup>  |
| 2K               | 1.3                       | 10.5 <sup>3)</sup> | 1.3                              | 10.5 <sup>3)</sup> |
| 3K               | 2.6                       | 15.0 <sup>3)</sup> | 2.6                              | 15.0 <sup>3)</sup> |
| 4K               | 4.6                       | 23.5 <sup>3)</sup> | 4.6                              | 15.0               |
| 5K               | 9.6                       | 23.5               | —                                | —                  |

| Series           | Cable diameter range (mm) |                    |                                  |                    |
|------------------|---------------------------|--------------------|----------------------------------|--------------------|
|                  | Collet                    |                    | Collet for fitting a bend relief |                    |
|                  | min.                      | max.               | min.                             | max.               |
| TT               | 2.4                       | 3.0                | 2.4                              | 3.0                |
| 0T               | 1.0                       | 6.5 <sup>3)</sup>  | 1.0                              | 6.5 <sup>3)</sup>  |
| 1T               | 1.3                       | 8.5 <sup>3)</sup>  | 1.3                              | 8.5 <sup>3)</sup>  |
| 2T               | 1.3                       | 10.5 <sup>3)</sup> | 1.3                              | 10.5 <sup>3)</sup> |
| 3T               | 2.6                       | 15.0 <sup>3)</sup> | 2.6                              | 15.0 <sup>3)</sup> |
| 00 <sup>2)</sup> | 1.3                       | 4.4                | 1.3                              | 4.4                |
| 0S               | 1.3                       | 6.2 <sup>3)</sup>  | 1.3                              | 6.2 <sup>3)</sup>  |
| 1S               | 1.4                       | 8.7 <sup>3)</sup>  | 1.4                              | 8.7 <sup>3)</sup>  |
| 2S               | 1.3                       | 10.5 <sup>3)</sup> | 1.3                              | 10.5 <sup>3)</sup> |
| 3S               | 2.6                       | 13.0 <sup>3)</sup> | 2.6                              | 13.0 <sup>3)</sup> |
| 4S               | 4.1                       | 22.0 <sup>3)</sup> | 4.1                              | 13.0               |
| 5S               | 6.1                       | 30.0               | —                                | —                  |
| 6S               | 11.1                      | 30.0               | —                                | —                  |

| Series | Cable diameter range (mm) |                    |                                  |                    |
|--------|---------------------------|--------------------|----------------------------------|--------------------|
|        | Collet                    |                    | Collet for fitting a bend relief |                    |
|        | min.                      | max.               | min.                             | max.               |
| 0E     | 1.0                       | 5.0                | 1.0                              | 5.0                |
| 1E     | 1.3                       | 8.5 <sup>3)</sup>  | 1.3                              | 8.5 <sup>3)</sup>  |
| 2E     | 1.3                       | 10.5 <sup>3)</sup> | 1.3                              | 10.5 <sup>3)</sup> |
| 3E     | 2.6                       | 15.0 <sup>3)</sup> | 2.6                              | 15.0 <sup>3)</sup> |
| 4E     | 4.8                       | 23.5 <sup>3)</sup> | 4.8                              | 15.0               |
| 5E     | 9.6                       | 23.5               | —                                | —                  |
| 6E     | 13.0                      | 30.0               | —                                | —                  |

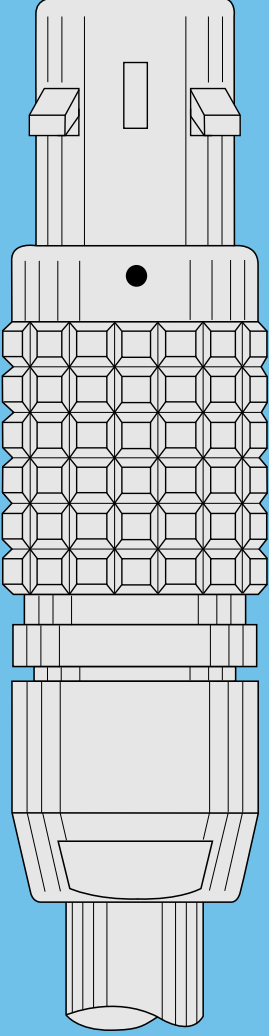
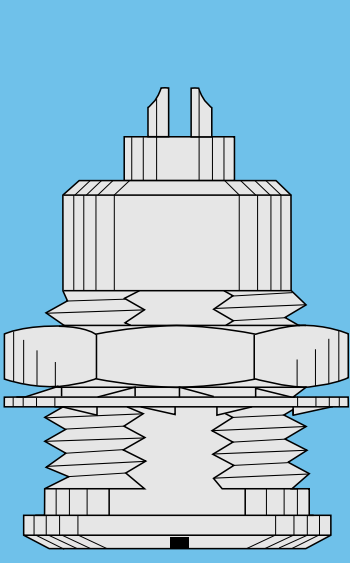
**Note:**

<sup>1)</sup> for multipole only.

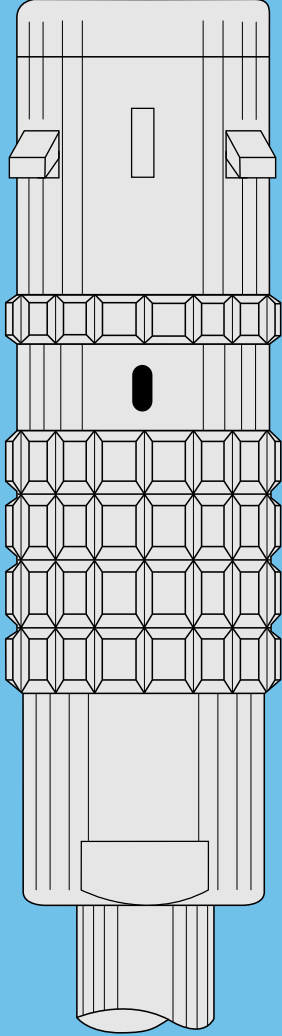
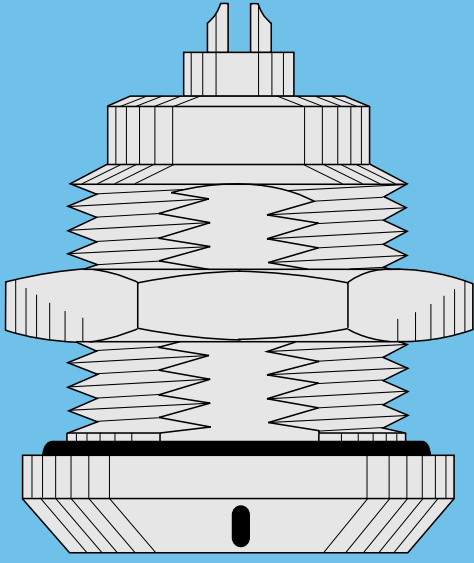
<sup>2)</sup> for unipole only.

<sup>3)</sup> for these series the maximum cable diameter require models with oversized cable collet (type K).

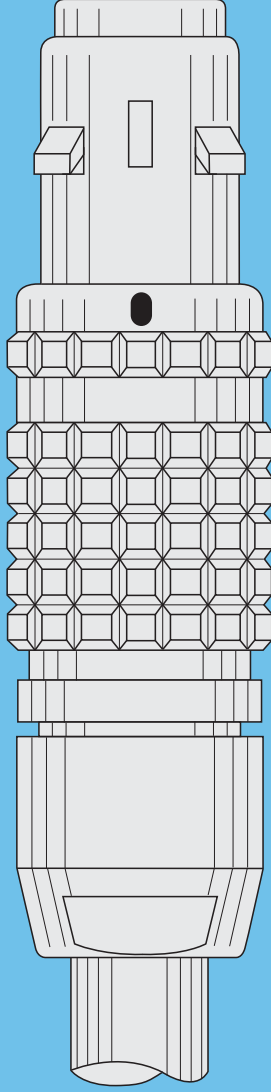
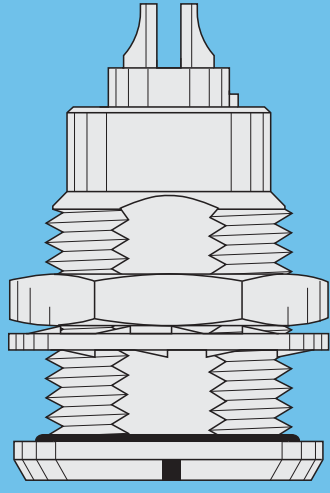




**B SERIES**



**K SERIES (watertight)**



**T SERIES (watertight)**

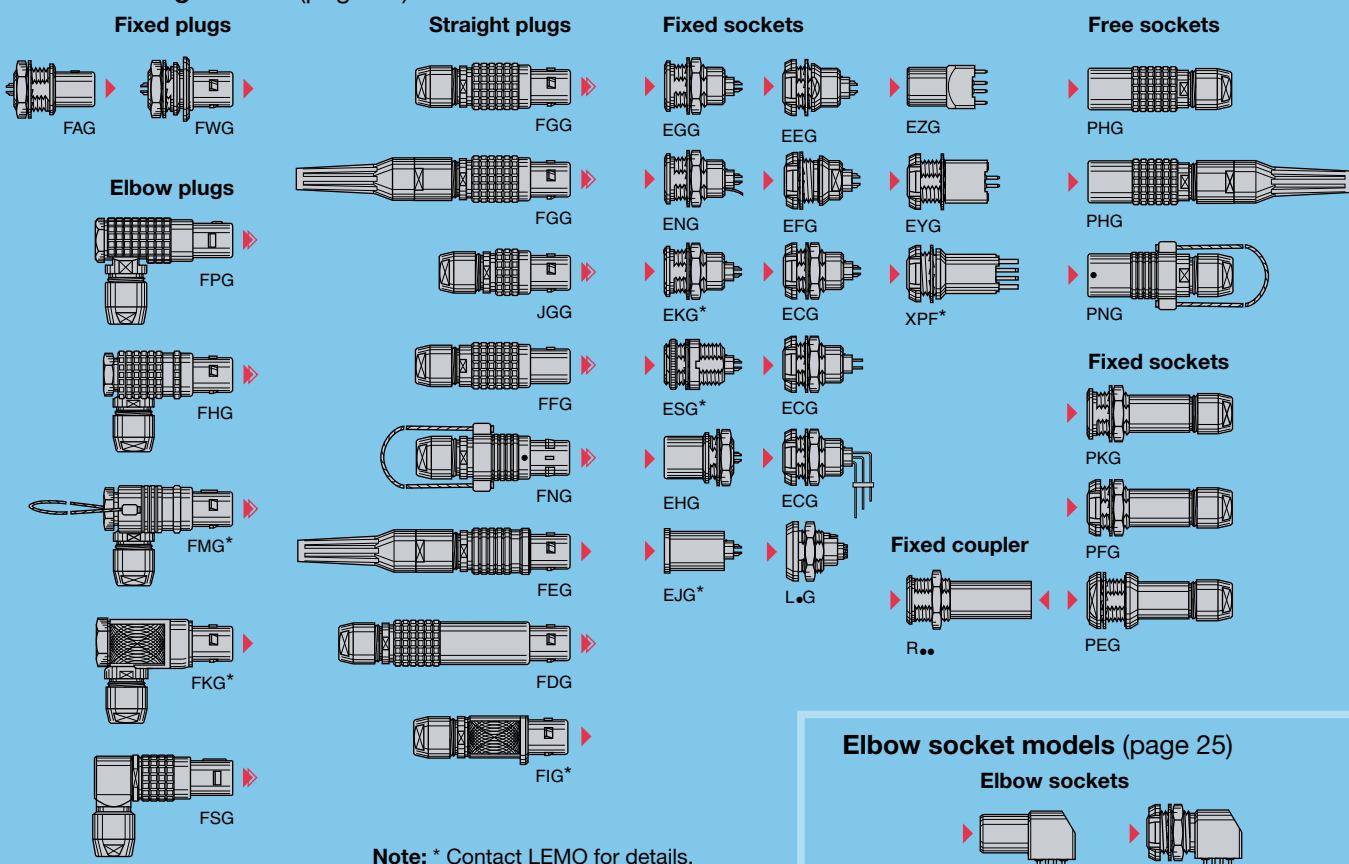


## B Series

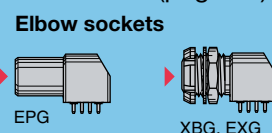
B series connectors provide the following main features:

- security of the Push-Pull self-latching system
- solder, crimp or print contacts (straight or elbow)
- multiple key options to avoid cross mating of similar connectors
- 360° screening for full EMC shielding.
- multipole types 2 to 64 contacts
- high packing density for space savings
- keying system («G» key standard) for connector alignment

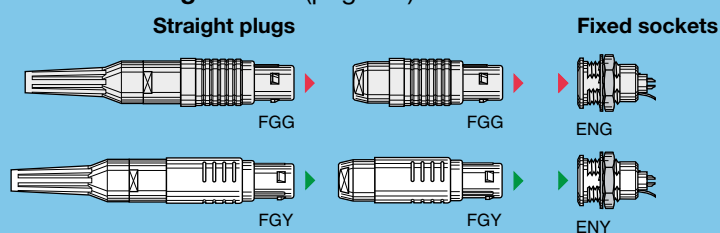
### Metal housing models (page 14)



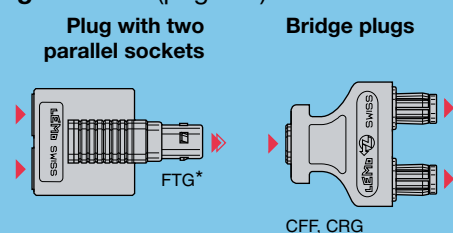
### Elbow socket models (page 25)



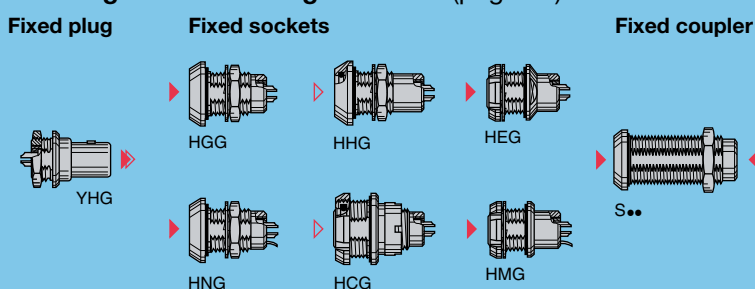
### Plastic housing models (page 28)



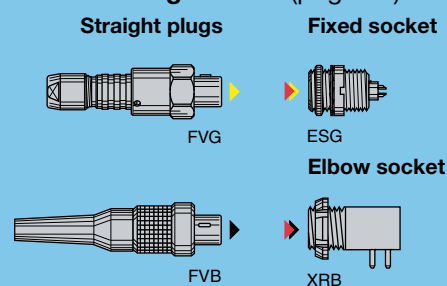
### Bridge models (page 34)



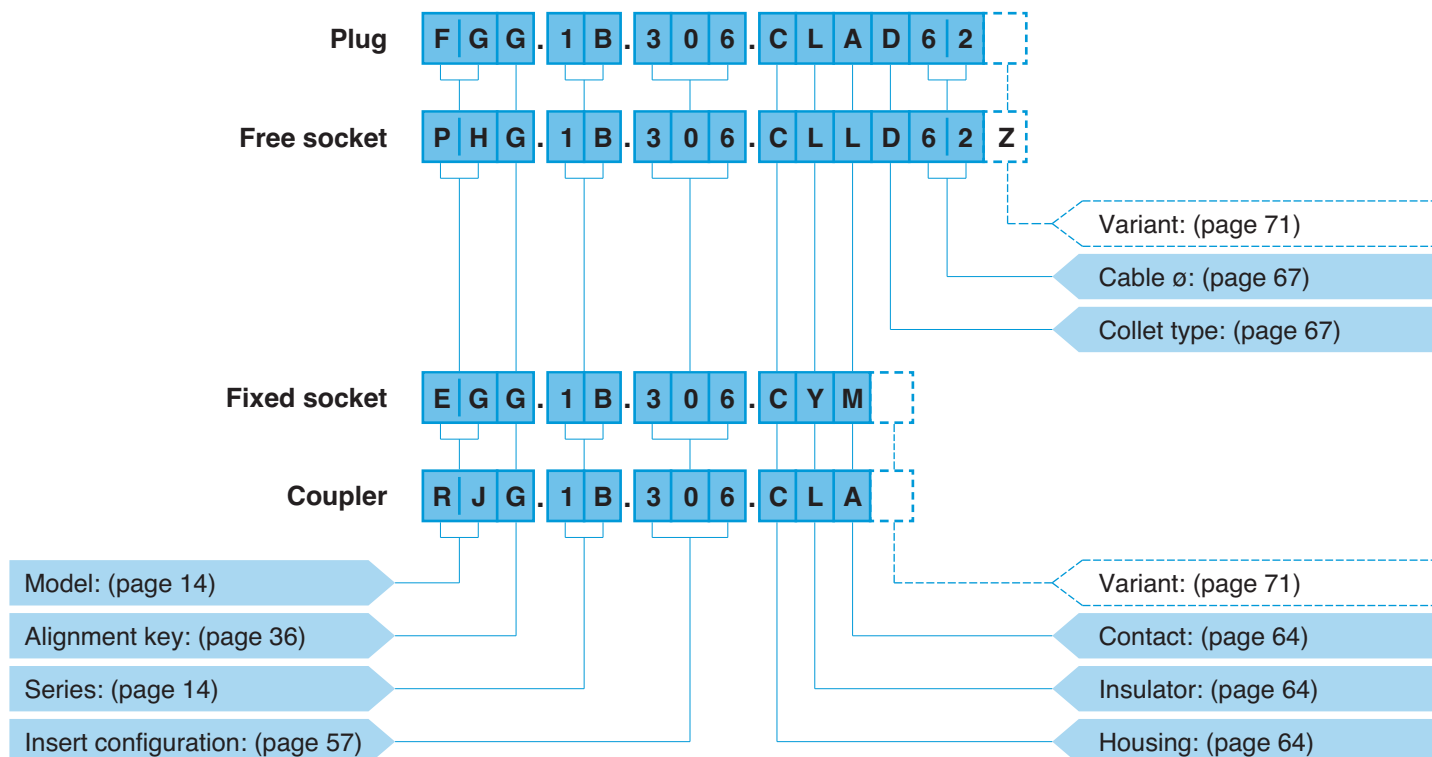
### Watertight or vacuumtight models (page 30)



### Threaded-latching models (page 35)



## Part Numbering System



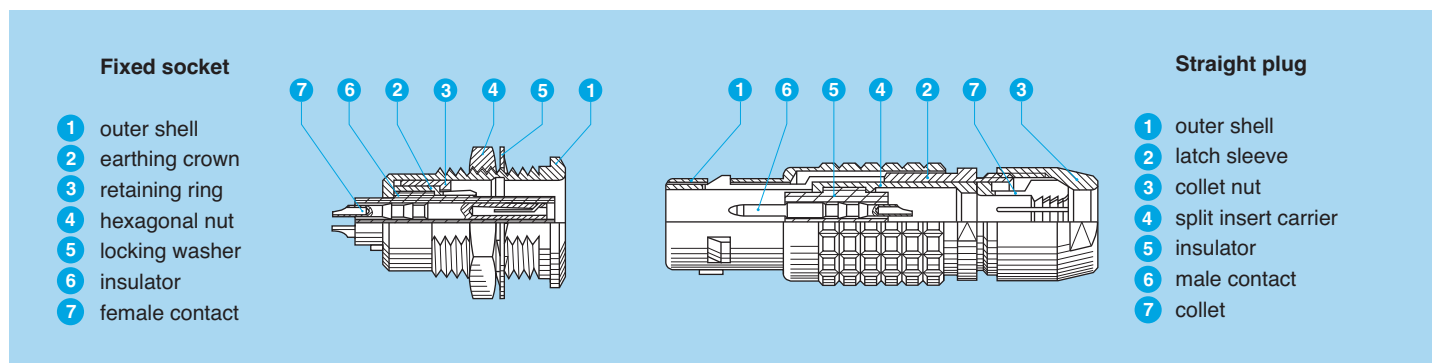
**FGG.1B.306.CLAD62** = straight plug with key (G) and cable collet, 1B series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, male solder contacts, D type collet for 6.0 mm diameter cable.

**PHG.1B.306.CLLD62Z** = free socket with key (G) and cable collet, 1B series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, female solder contacts, D type collet for 6.0 mm diameter cable and nut for fitting a bend relief.

**EGG.1B.306.CYM** = fixed socket, nut fixing, with key (G), 1B series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK extended insulator, female crimp contacts.

**RJG.1B.306.CLA** = straight fixed coupler with keys (J) at the flange end and key (G) at the other end, 1B series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, male-female contacts.

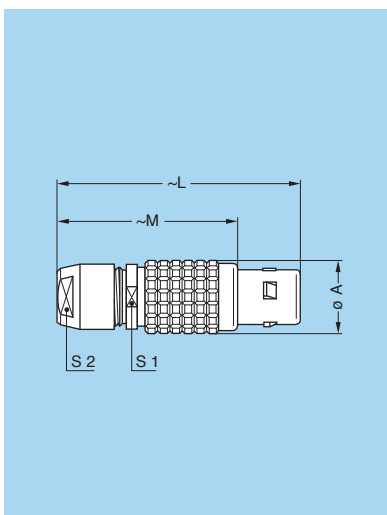
## Part Section Showing Internal Components



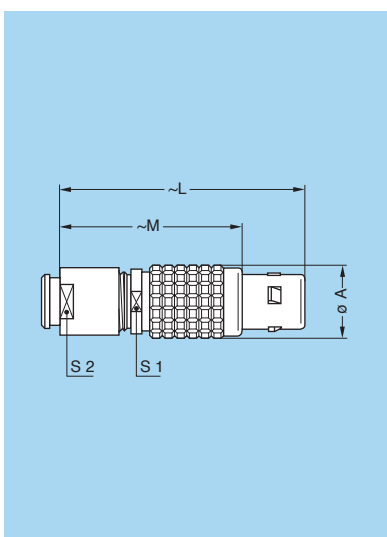
| Characteristics                         | Value              | Standard             |
|-----------------------------------------|--------------------|----------------------|
| Endurance <sup>1)</sup>                 | > 5000 cycles      | IEC 60512-5 test 9a  |
| Humidity                                | up to 95% at 60° C |                      |
| Temperature range                       | - 55° C, + 250° C  |                      |
| Resistance to vibrations                | 10-2000 Hz, 15g    | IEC 60512-4 test 6d  |
| Shock resistance                        | 100 g, 6 ms        | IEC 60512-4 test 6c  |
| Salt spray corrosion test <sup>2)</sup> | > 1000h            | IEC 60512-6 test 11f |
| Protection index (mated)                | IP 50              | IEC 60529            |
| Climatical category                     | 55/175/21          | IEC 60068-1          |

| Characteristics      |           | Value   | Standard      |
|----------------------|-----------|---------|---------------|
| Shielding efficiency | at 10 MHz | > 75 dB | IEC 60169-1-3 |
|                      | at 1 GHz  | > 40 dB | IEC 60169-1-3 |

- 1) see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.
- 2) for chrome plated product («C» material code).



| Reference |                  | Dimensions (mm) |       |      |      |    |
|-----------|------------------|-----------------|-------|------|------|----|
| Model     | Series           | A               | L     | M    | S1   | S2 |
| FGG       | 00 <sup>1)</sup> | 6.4             | 28.5  | 20.5 | 5.5  | 5  |
| FGG       | 0B               | 9.5             | 36.0  | 26.0 | 8.0  | 7  |
| FGG       | 1B               | 12.0            | 43.0  | 32.0 | 10.0 | 9  |
| FGG       | XB               | 13.0            | 44.0  | 33.5 | 11.0 | 10 |
| FGG       | 2B               | 15.0            | 50.0  | 38.0 | 13.0 | 12 |
| FGG       | 3B               | 18.0            | 58.0  | 43.0 | 15.0 | 14 |
| FGG       | 4B               | 25.0            | 75.0  | 57.0 | 21.0 | 20 |
| FGG       | 5B               | 35.0            | 103.0 | 78.0 | 31.0 | 30 |

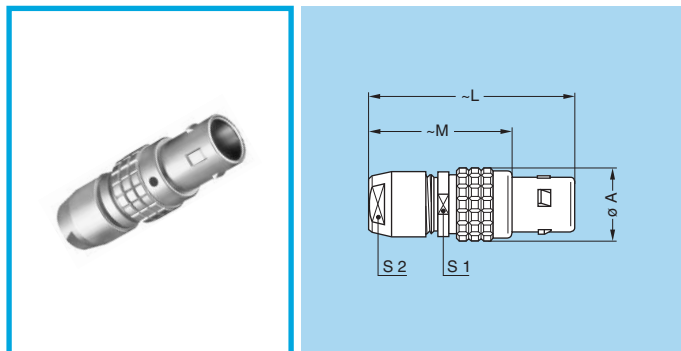


| Reference  |                        | Dimensions (mm) |      |      |      |    |
|------------|------------------------|-----------------|------|------|------|----|
| Model      | Series                 | A               | L    | M    | S1   | S2 |
| <b>FGG</b> | <b>00<sup>1)</sup></b> | 6.4             | 28.7 | 20.7 | 5.5  | 6  |
| <b>FGG</b> | <b>0B</b>              | 9.5             | 35.0 | 25.0 | 8.0  | 7  |
| <b>FGG</b> | <b>1B</b>              | 12.0            | 42.0 | 31.0 | 10.0 | 9  |
| <b>FGG</b> | <b>XB</b>              | 13.0            | 47.5 | 37.0 | 11.0 | 10 |
| <b>FGG</b> | <b>2B</b>              | 15.0            | 49.0 | 37.0 | 13.0 | 12 |
| <b>FGG</b> | <b>3B</b>              | 18.0            | 56.5 | 41.5 | 15.0 | 15 |
| <b>FGG</b> | <b>4B</b>              | 25.0            | 71.0 | 53.0 | 21.0 | 20 |

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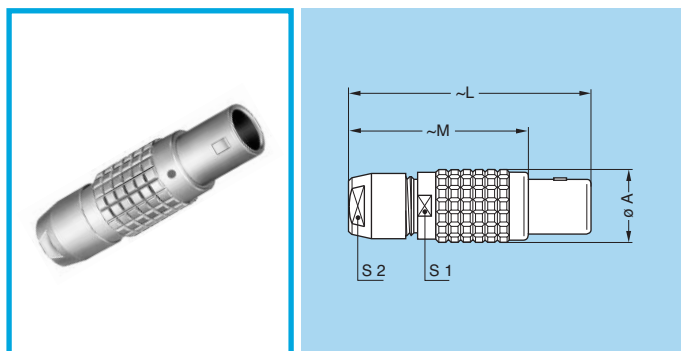
## JGG Straight plug, short version, key (G), cable collet



| Reference |        | Dimensions (mm) |    |    |    |    |
|-----------|--------|-----------------|----|----|----|----|
| Model     | Series | A               | L  | M  | S1 | S2 |
| JGG       | 0B     | 9.5             | 32 | 22 | 8  | 7  |

**M4** Cable assembly (page 171)

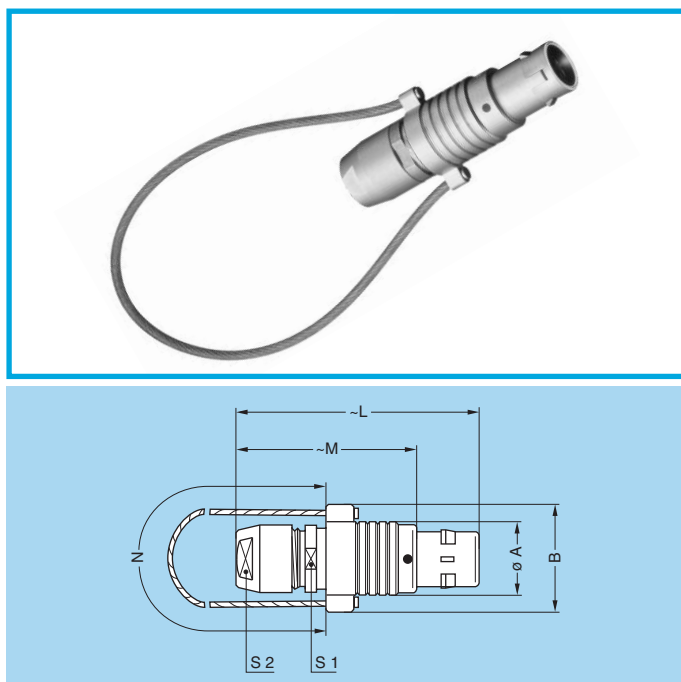
## FFG Straight plug, non-latching, key (G) or keys (A...M), cable collet



| Reference |        | Dimensions (mm) |    |    |    |    |
|-----------|--------|-----------------|----|----|----|----|
| Model     | Series | A               | L  | M  | S1 | S2 |
| FFG       | 0B     | 9.5             | 36 | 26 | 8  | 7  |
| FFG       | 1B     | 12.0            | 43 | 32 | 10 | 9  |
| FFG       | 2B     | 15.0            | 50 | 38 | 13 | 12 |
| FFG       | 3B     | 18.0            | 58 | 43 | 15 | 14 |
| FFG       | 4B     | 25.0            | 75 | 57 | 21 | 20 |

**M1** Cable assembly (page 169)

## FNG Straight plug, key (G) or keys (A...M and R), cable collet and lanyard release

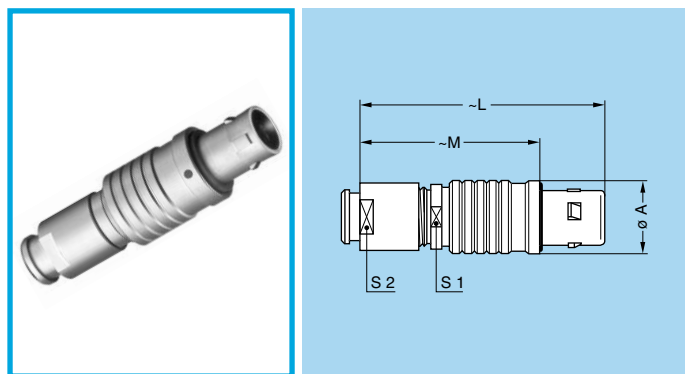


| Reference |        | Dimensions (mm) |      |       |      |     |    |    |
|-----------|--------|-----------------|------|-------|------|-----|----|----|
| Model     | Series | A               | B    | L     | M    | N   | S1 | S2 |
| FNG       | 0B     | 9.5             | 15.5 | 36.0  | 26.0 | 140 | 8  | 7  |
| FNG       | 1B     | 12.0            | 18.0 | 43.0  | 32.0 | 140 | 10 | 9  |
| FNG       | 2B     | 15.0            | 21.0 | 49.0  | 37.0 | 160 | 13 | 12 |
| FNG       | 3B     | 18.0            | 25.0 | 58.0  | 43.0 | 190 | 15 | 14 |
| FNG       | 4B     | 25.0            | 32.0 | 75.0  | 57.0 | 230 | 21 | 20 |
| FNG       | 5B     | 35.0            | 42.0 | 103.0 | 78.0 | 300 | 31 | 30 |

**M1** Cable assembly (page 169)

**Note:** cable material: stainless steel with Polyamide sheath.

## FEG Straight plug, key (G) or keys (A...L), cable collet, front seal and nut for fitting a bend relief <sup>1)</sup> (IP 54 protection index when mated)

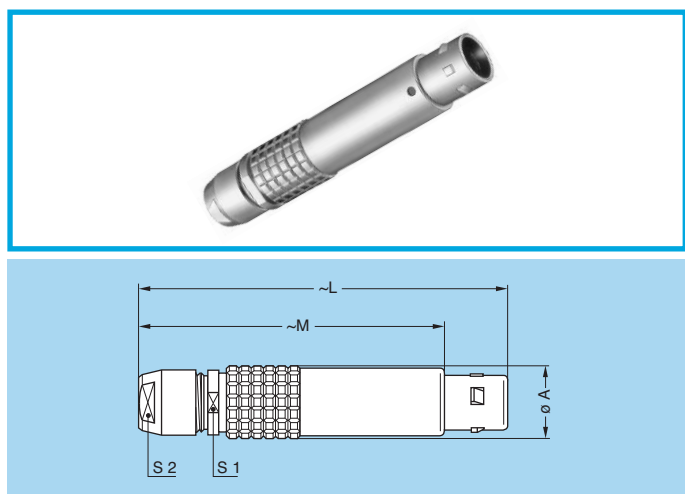


| Reference |        | Dimensions (mm) |      |      |    |    |
|-----------|--------|-----------------|------|------|----|----|
| Model     | Series | A               | L    | M    | S1 | S2 |
| FEG       | 0B     | 11.0            | 35.0 | 25.0 | 8  | 7  |
| FEG       | 1B     | 13.5            | 42.0 | 33.0 | 10 | 9  |
| FEG       | 2B     | 16.5            | 48.0 | 36.0 | 13 | 12 |
| FEG       | 3B     | 19.0            | 56.5 | 41.5 | 15 | 15 |

**M1** Cable assembly (page 169)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

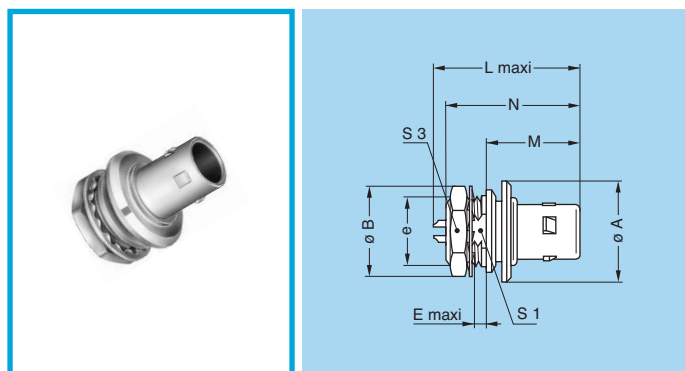
## FDG Straight plug, long version, key (G) or keys (A...L), cable collet



| Reference |        | Dimensions (mm) |    |    |    |    |
|-----------|--------|-----------------|----|----|----|----|
| Model     | Series | A               | L  | M  | S1 | S2 |
| FDG       | 1B     | 12              | 68 | 57 | 10 | 9  |
| FDG       | 2B     | 15              | 79 | 67 | 13 | 12 |

**M2** Cable assembly (page 171)

## FWG Fixed plug, nut fixing, key (G) or keys (A...L)



| Reference |        | Dimensions (mm) |      |         |     |      |      |                 |      |    |
|-----------|--------|-----------------|------|---------|-----|------|------|-----------------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M    | N <sup>1)</sup> | S1   | S3 |
| FWG       | 0B     | 14.0            | 12.4 | M9x0.6  | 1.8 | 22.5 | 14.5 | 19.5            | 8.2  | 11 |
| FWG       | 1B     | 18.0            | 15.8 | M12x1.0 | 2.9 | 24.9 | 17.0 | 24.8            | 10.5 | 14 |
| FWG       | 2B     | 19.5            | 19.2 | M15x1.0 | 4.1 | 28.6 | 18.0 | 27.3            | 13.5 | 17 |
| FWG       | 3B     | 25.0            | 25.0 | M18x1.0 | 4.2 | 32.1 | 23.0 | 31.5            | 16.5 | 22 |

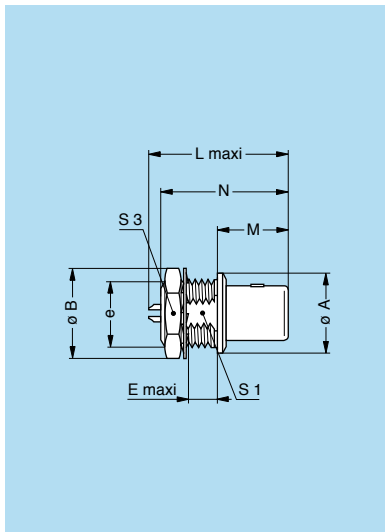
**P9** Panel cut-out (page 157)

**Note:** <sup>1)</sup> maximum length with crimp contacts





## FAG Fixed plug, non-latching, nut fixing, key (G) or keys (A...M and R)



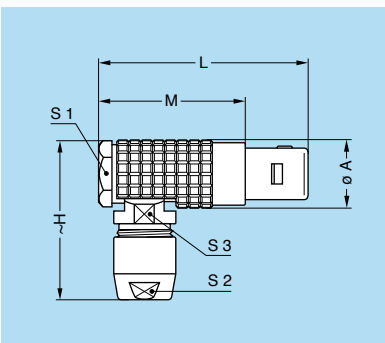
| Reference |        | Dimensions (mm) |      |         |     |      |      |                 |      |    |
|-----------|--------|-----------------|------|---------|-----|------|------|-----------------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M    | N <sup>1)</sup> | S1   | S3 |
| FAG       | 00     | 8               | 10.2 | M7x0.5  | 2.9 | 18.1 | 9.0  | 15.0            | 6.3  | 9  |
| FAG       | 0B     | 10              | 12.4 | M9x0.6  | 4.2 | 20.8 | 11.5 | 18.9            | 8.2  | 11 |
| FAG       | 1B     | 14              | 15.8 | M12x1.0 | 5.4 | 25.2 | 12.5 | 21.6            | 10.5 | 14 |
| FAG       | 2B     | 18              | 19.2 | M15x1.0 | 6.0 | 28.7 | 13.8 | 23.9            | 13.5 | 17 |
| FAG       | 3B     | 22              | 25.0 | M18x1.0 | 5.8 | 32.1 | 17.0 | 30.2            | 16.5 | 22 |
| FAG       | 4B     | 29              | 34.0 | M25x1.0 | 6.8 | 37.1 | 20.5 | 34.7            | 23.5 | 30 |
| FAG       | 5B     | 40              | 40.0 | M35x1.0 | 6.8 | 47.1 | 28.0 | 42.8            | 33.5 | —  |

**P1** Panel cut-out (page 157)

**Note:** The 5B series is delivered without locking washer or tapered washer and with a round nut.

**Note:** <sup>1)</sup> maximum length with crimp contacts.

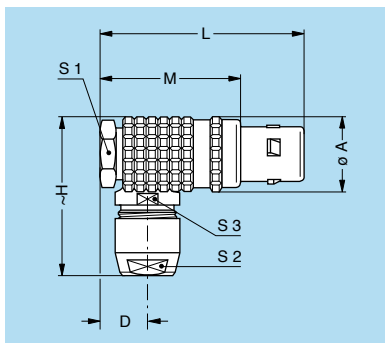
## FPG Elbow (90°) plug, key (G) or keys (A...M and R), cable collet



| Reference |        | Dimensions (mm) |    |      |      |      |    |      |
|-----------|--------|-----------------|----|------|------|------|----|------|
| Model     | Series | A               | H  | L    | M    | S1   | S2 | S3   |
| FPG       | 00     | 7.5             | 18 | 24.5 | 16.5 | 6.5  | 5  | 5.5  |
| FPG       | 0B     | 9.5             | 23 | 30.0 | 20.0 | 8.0  | 7  | 8.0  |
| FPG       | 1B     | 12.0            | 29 | 36.0 | 25.0 | 11.0 | 9  | 10.0 |
| FPG       | 2B     | 15.0            | 35 | 41.5 | 29.5 | 13.5 | 12 | 13.0 |

**M3** Cable assembly (page 169)

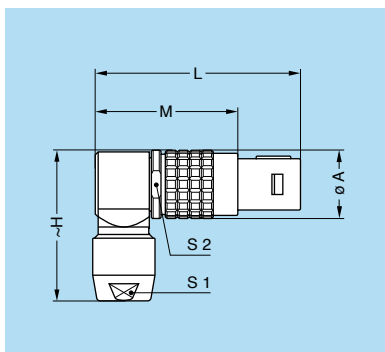
## FHG Elbow (90°) plug, key (G) or keys (A...M and R), cable collet



| Reference |        | Dimensions (mm) |    |    |    |    |    |    |    |
|-----------|--------|-----------------|----|----|----|----|----|----|----|
| Model     | Series | A               | D  | H  | L  | M  | S1 | S2 | S3 |
| FHG       | 3B     | 19              | 10 | 37 | 50 | 35 | 17 | 14 | 15 |
| FHG       | 4B     | 26              | 15 | 52 | 67 | 49 | 22 | 20 | 21 |
| FHG       | 5B     | 36              | 21 | 74 | 90 | 65 | 32 | 30 | 31 |

**M3** Cable assembly (page 169)

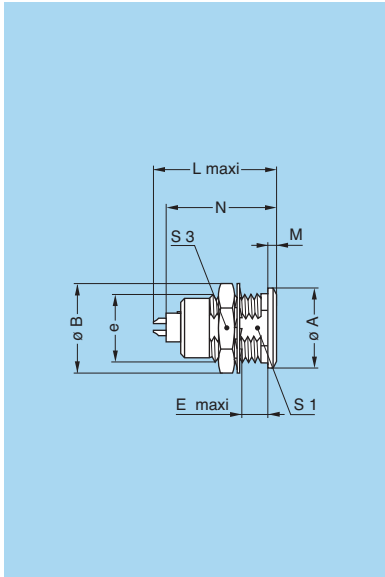
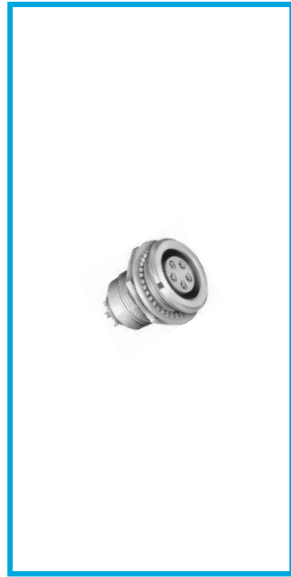
## FSG Anglissimo right angle plug, key (G) or keys (A...M), cable collet



| Reference |        | Dimensions (mm) |      |      |      |    |    |
|-----------|--------|-----------------|------|------|------|----|----|
| Model     | Series | A               | H    | L    | M    | S1 | S2 |
| FSG       | 00     | 8.0             | 18.1 | 24.8 | 16.8 | 5  | 7  |
| FSG       | 0B     | 10.0            | 22.4 | 30.3 | 20.3 | 7  | 9  |
| FSG       | 1B     | 12.0            | 26.4 | 36.5 | 25.5 | 9  | 11 |
| FSG       | 2B     | 16.5            | 34.5 | 44.0 | 32.0 | 12 | 15 |
| FSG       | 3B     | 20.0            | 39.2 | 52.4 | 37.4 | 14 | 19 |

**M5** Cable assembly (page 170)

## EGG Fixed socket, nut fixing, key (G) or keys (A...M and R)



| Reference |                  | Dimensions (mm) |      |         |      |      |     |                 |      |    |
|-----------|------------------|-----------------|------|---------|------|------|-----|-----------------|------|----|
| Model     | Series           | A               | B    | e       | E    | L    | M   | N <sup>1)</sup> | S1   | S3 |
| EGG       | 00               | 8               | 10.2 | M7x0.5  | 6.0  | 15.5 | 1.0 | 13.7            | 6.3  | 9  |
| EGG       | 0B               | 10              | 12.4 | M9x0.6  | 7.0  | 20.7 | 1.2 | 19.1            | 8.2  | 11 |
| EGG       | 1B               | 14              | 15.8 | M12x1.0 | 7.5  | 23.0 | 1.5 | 21.1            | 10.5 | 14 |
| EGG       | XB               | 16              | 19.0 | M14x1.0 | 7.0  | 23.5 | 1.5 | 20.0            | 12.5 | 17 |
| EGG       | 2B <sup>2)</sup> | 18              | 19.2 | M15x1.0 | 8.5  | 26.7 | 1.8 | 24.6            | 13.5 | 17 |
| EGG       | 3B               | 22              | 25.0 | M18x1.0 | 11.5 | 30.7 | 2.0 | 28.1            | 16.5 | 22 |
| EGG       | 4B               | 28              | 34.0 | M25x1.0 | 12.0 | 35.7 | 2.5 | 34.1            | 23.5 | 30 |
| EGG       | 5B               | 40              | 40.0 | M35x1.0 | 11.0 | 43.5 | 3.0 | 39.6            | 33.5 | —  |

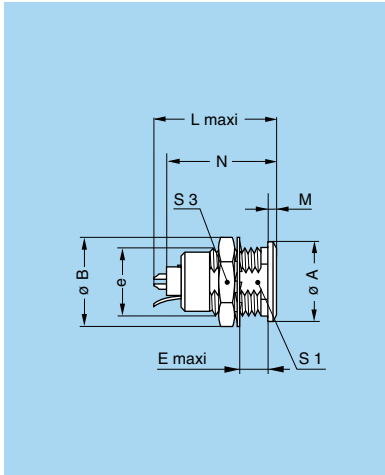
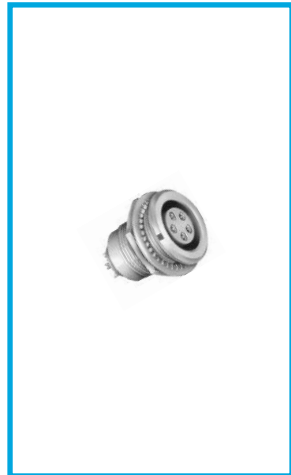
**P1** Panel cut-out (page 157)

**Note:** The 5B series is delivered with a tapered washer and a round nut.

**Note:** <sup>1)</sup> maximum length with crimp contacts.

<sup>2)</sup> EGG.2B.304.CLL and EGG.2B.307.CLL are UL 508A under file E119802.

## ENG Fixed socket with earthing tag, nut fixing, key (G) or keys (A...M)



| Reference |                  | Dimensions (mm) |      |         |      |      |     |                 |      |    |
|-----------|------------------|-----------------|------|---------|------|------|-----|-----------------|------|----|
| Model     | Series           | A               | B    | e       | E    | L    | M   | N <sup>1)</sup> | S1   | S3 |
| ENG       | 00               | 8               | 10.2 | M7x0.5  | 6.0  | 15.5 | 1.0 | 13.7            | 6.3  | 9  |
| ENG       | 0B               | 10              | 12.4 | M9x0.6  | 7.0  | 20.7 | 1.2 | 19.1            | 8.2  | 11 |
| ENG       | 1B <sup>2)</sup> | 14              | 15.8 | M12x1.0 | 7.5  | 23.0 | 1.5 | 21.1            | 10.5 | 14 |
| ENG       | 2B               | 18              | 19.2 | M15x1.0 | 8.5  | 26.7 | 1.8 | 24.6            | 13.5 | 17 |
| ENG       | 3B               | 22              | 25.0 | M18x1.0 | 11.5 | 30.7 | 2.0 | 28.1            | 16.5 | 22 |
| ENG       | 4B               | 28              | 34.0 | M25x1.0 | 12.0 | 35.7 | 2.5 | 34.1            | 23.5 | 30 |

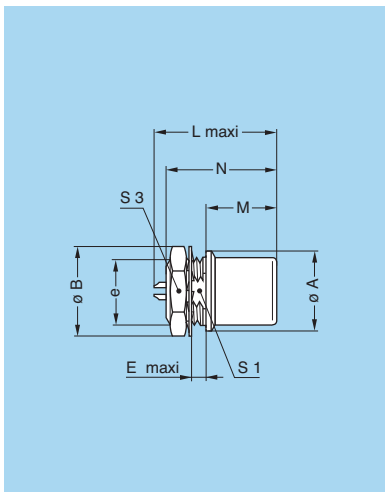
**P1** Panel cut-out (page 157)

**Note:**

<sup>1)</sup> maximum length with crimp contacts.

<sup>2)</sup> for the 1B series the earthing tag is on the same side of the key.

## EHG Fixed socket, nut fixing, key (G) or keys (A...M and R), and protruding shell



| Reference |        | Dimensions (mm) |      |         |     |      |      |                 |      |    |
|-----------|--------|-----------------|------|---------|-----|------|------|-----------------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M    | N <sup>1)</sup> | S1   | S3 |
| EHG       | 00     | 8               | 10.2 | M7x0.5  | 2.0 | 15.5 | 8.5  | 13.7            | 6.3  | 9  |
| EHG       | 0B     | 10              | 12.4 | M9x0.6  | 2.0 | 19.5 | 12.5 | 19.1            | 8.2  | 11 |
| EHG       | 1B     | 14              | 15.8 | M12x1.0 | 4.0 | 21.7 | 12.0 | 21.1            | 10.5 | 14 |
| EHG       | 2B     | 18              | 19.2 | M15x1.0 | 5.1 | 22.7 | 12.5 | 24.6            | 13.5 | 17 |
| EHG       | 3B     | 22              | 25.0 | M18x1.0 | 7.1 | 30.7 | 13.5 | 30.3            | 16.5 | 22 |
| EHG       | 5B     | 40              | 40.0 | M35x1.0 | 2.5 | 43.5 | 28.0 | 38.5            | 33.5 | —  |

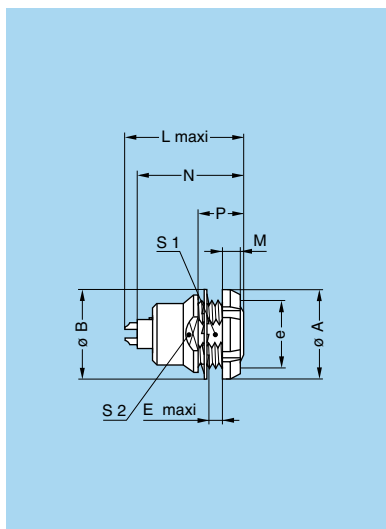
**P1** Panel cut-out (page 157)

**Note:** The 5B series is delivered without locking washer or tapered washer and with a round nut.

**Note:** <sup>1)</sup> maximum length with crimp contacts.



## EEG Fixed socket, nut fixing, key (G) or keys (A...M and R) (back panel mounting)



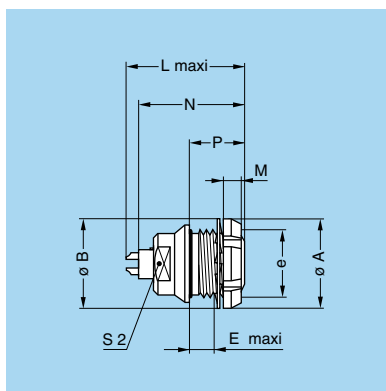
| Reference |        | Dimensions (mm) |      |         |      |      |     |                 |      |      |      |
|-----------|--------|-----------------|------|---------|------|------|-----|-----------------|------|------|------|
| Model     | Series | A               | B    | e       | E    | L    | M   | N <sup>1)</sup> | P    | S1   | S2   |
| EEG       | 00     | 10              | 9.5  | M7x0.5  | 2.3  | 15.5 | 2.5 | 13.7            | 6.0  | 6.3  | 7.5  |
| EEG       | 0B     | 12              | 12.5 | M9x0.6  | 2.4  | 20.7 | 2.5 | 19.1            | 6.3  | 8.2  | 9.0  |
| EEG       | 1B     | 16              | 16.0 | M12x1.0 | 6.5  | 23.0 | 3.5 | 21.1            | 11.0 | 10.5 | 13.0 |
| EEG       | 2B     | 20              | 20.0 | M15x1.0 | 4.3  | 26.7 | 3.5 | 24.6            | 9.0  | 13.5 | 15.0 |
| EEG       | 3B     | 24              | 25.0 | M18x1.0 | 6.1  | 30.7 | 4.5 | 28.1            | 12.0 | 16.5 | 20.0 |
| EEG       | 4B     | 30              | 32.1 | M25x1.0 | 10.6 | 35.7 | 4.5 | 34.1            | 16.5 | 23.5 | 26.0 |
| EEG       | 5B     | 41              | 40.0 | M35x1.0 | 13.5 | 43.5 | 5.0 | 39.6            | 19.5 | 33.5 | 38.0 |

**P1** Panel cut-out (page 157)

**Note:** The 3B, 4B and 5B series are delivered with a conical nut. The 5B series is delivered without locking washer or tapered washer.

**Note:** <sup>1)</sup> maximum length with crimp contacts.

## EFG Fixed socket, nut fixing, key (G) or keys (A...M), with two flats on the shell and O-ring (back panel mounting)

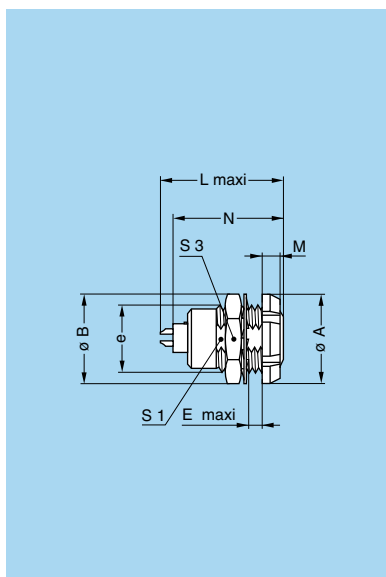


| Reference |        | Dimensions (mm) |      |        |     |      |     |                 |   |    |
|-----------|--------|-----------------|------|--------|-----|------|-----|-----------------|---|----|
| Model     | Series | A               | B    | e      | E   | L    | M   | N <sup>1)</sup> | P | S2 |
| EFG       | 0B     | 12              | 12.5 | M9x0.6 | 5.5 | 20.7 | 2.5 | 19.1            | 9 | 8  |

**P2** Panel cut-out (page 157)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

## ECG Fixed socket with two nuts, key (G) or keys (A...M and R) (back panel mounting)



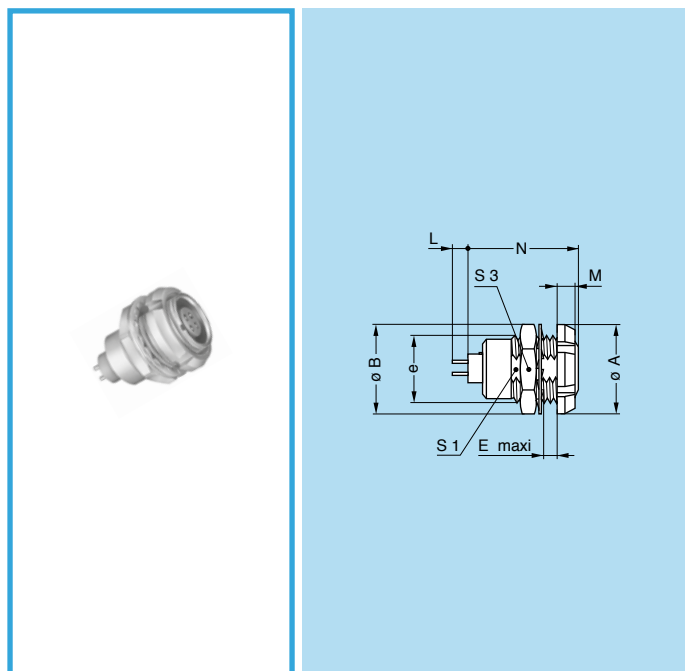
| Reference |        | Dimensions (mm) |      |         |      |      |     |                 |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|-----------------|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | N <sup>1)</sup> | S1   | S3 |
| ECG       | 00     | 10              | 10.2 | M7x0.5  | 4.3  | 13.7 | 2.5 | 13.7            | 6.3  | 9  |
| ECG       | 0B     | 12              | 12.4 | M9x0.6  | 5.5  | 20.7 | 2.5 | 19.1            | 8.2  | 11 |
| ECG       | 1B     | 16              | 15.8 | M12x1.0 | 6.0  | 23.0 | 3.5 | 21.1            | 10.5 | 14 |
| ECG       | XB     | 18              | 19.0 | M14x1.0 | 6.0  | 23.5 | 3.5 | 20.0            | 12.5 | 17 |
| ECG       | 2B     | 20              | 19.2 | M15x1.0 | 6.5  | 26.7 | 3.5 | 24.6            | 13.5 | 17 |
| ECG       | 3B     | 24              | 25.0 | M18x1.0 | 9.0  | 30.7 | 4.5 | 28.1            | 16.5 | 22 |
| ECG       | 4B     | 30              | 34.0 | M25x1.0 | 10.0 | 35.7 | 4.5 | 32.6            | 23.5 | 30 |
| ECG       | 5B     | 41              | 40.0 | M35x1.0 | 9.0  | 43.5 | 5.0 | 39.6            | 33.5 | –  |

**P1** Panel cut-out (page 157)

**Note:** The 3B, 4B and 5B series are delivered with a conical nut. The 5B series is delivered with a tapered washer and a round nut.

**Note:** <sup>1)</sup> maximum length with crimp contacts.

## ECG Fixed socket with two nuts, key (G) or keys (A...F and R) and straight contact for printed circuit (back panel mounting)



| Reference |        | Dimensions (mm) |      |         |      |     |      |      |    |
|-----------|--------|-----------------|------|---------|------|-----|------|------|----|
| Model     | Series | A               | B    | e       | E    | M   | N    | S1   | S3 |
| ECG       | 00     | 10              | 10.2 | M7x0.5  | 4.3  | 2.5 | 13.7 | 6.3  | 9  |
| ECG       | 0B     | 12              | 12.4 | M9x0.6  | 5.5  | 2.5 | 16.1 | 8.2  | 11 |
| ECG       | 1B     | 16              | 15.8 | M12x1.0 | 6.0  | 3.5 | 19.8 | 10.5 | 14 |
| ECG       | XB     | 18              | 19.0 | M14x1.0 | 6.0  | 3.5 | 20.0 | 12.5 | 17 |
| ECG       | 2B     | 20              | 19.2 | M15x1.0 | 6.5  | 3.5 | 21.8 | 13.5 | 17 |
| ECG       | 3B     | 24              | 25.0 | M18x1.0 | 9.0  | 4.5 | 25.8 | 16.5 | 22 |
| ECG       | 4B     | 30              | 34.0 | M25x1.0 | 10.0 | 4.5 | 29.8 | 23.5 | 30 |
| ECG       | 5B     | 41              | 40.0 | M35x1.0 | 9.0  | 5.0 | 36.8 | 33.5 | —  |

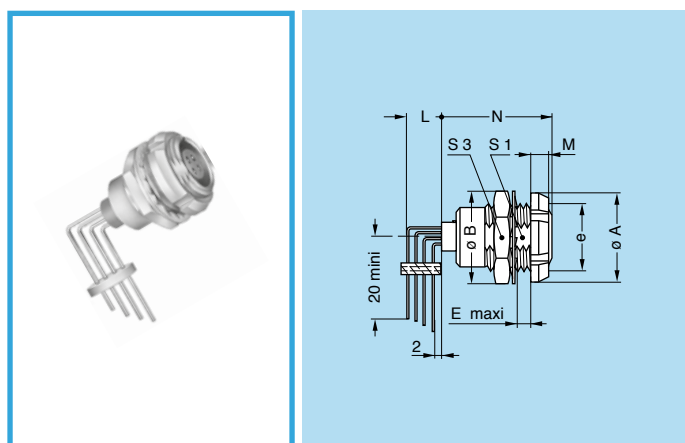
**P1** Panel cut-out (page 157)

**P15** PCB drilling pattern (page 160)

**Note:** The 3B, 4B and 5B series are delivered with a conical nut. The 5B series is delivered with a tapered washer and a round nut.

**Note:** This contact type is available for E● socket models fitted with female contacts. Length «L» depends on the number of contacts, see table on page 163.

## ECG Fixed socket with two nuts, key (G) or keys (A...F) with elbow (90°) contact for printed circuit (back panel mounting)



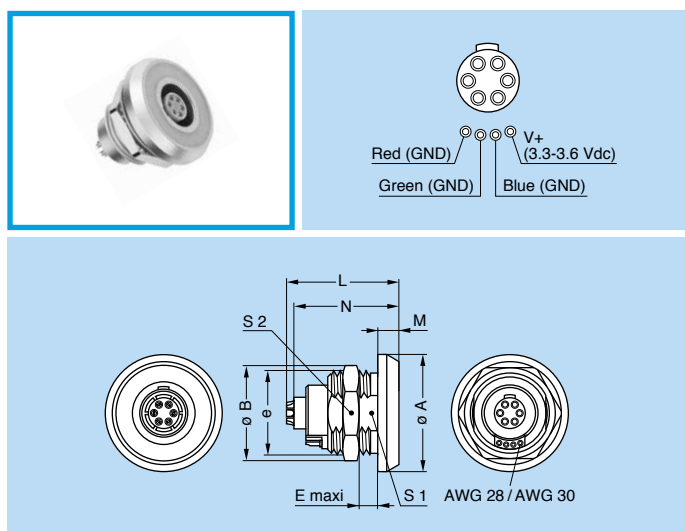
| Reference |        | Dimensions (mm) |      |         |     |     |                  |      |    |
|-----------|--------|-----------------|------|---------|-----|-----|------------------|------|----|
| Model     | Series | A               | B    | e       | E   | M   | N <sub>max</sub> | S1   | S3 |
| ECG       | 0B     | 12              | 12.4 | M9x0.6  | 5.5 | 2.5 | 18.3             | 8.2  | 11 |
| ECG       | 1B     | 16              | 15.8 | M12x1.0 | 6.0 | 3.5 | 20.3             | 10.5 | 14 |
| ECG       | 2B     | 20              | 19.2 | M15x1.0 | 6.5 | 3.5 | 22.3             | 13.5 | 17 |
| ECG       | 3B     | 24              | 25.0 | M18x1.0 | 9.0 | 4.5 | 27.8             | 16.5 | 22 |

**P1** Panel cut-out (page 157)

**P17** PCB drilling pattern (page 164)

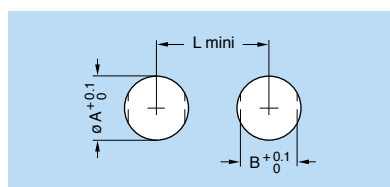
**Note:** The 3B series is delivered with a conical nut.

## L●G Fixed socket, nut fixing, key (G) or keys (A...L)



| Reference |        | Dimensions (mm) |      |          |     |      |   |      |      |    |
|-----------|--------|-----------------|------|----------|-----|------|---|------|------|----|
| Model     | Series | A               | B    | e        | E   | L    | M | N    | S1   | S2 |
| L●G       | 0B     | 19              | 18.0 | M13x0.75 | 4.0 | 20.7 | 4 | 19.1 | 11.5 | 16 |
| L●G       | 1B     | 22              | 20.2 | M15x1.00 | 6.5 | 23.0 | 4 | 21.1 | 13.5 | 16 |
| L●G       | 2B     | 25              | 27.0 | M20x1.00 | 7.5 | 26.7 | 4 | 24.6 | 18.5 | 24 |

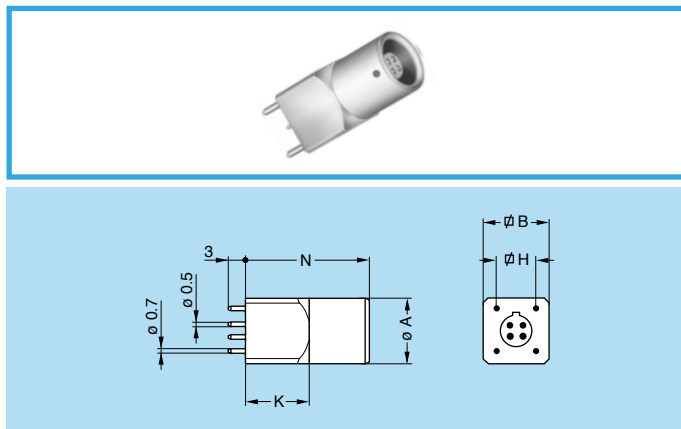
**Note:** Only available with solder or crimp contacts. LEG model is with LED flange, LNG model is with narrow LED flange and LMG model is with single standby LED flange.



| Series | Dim. (mm) |      |    |
|--------|-----------|------|----|
|        | A         | B    | L  |
| 0B     | 13.1      | 11.6 | 24 |
| 1B     | 15.1      | 13.6 | 26 |
| 2B     | 20.1      | 18.6 | 29 |



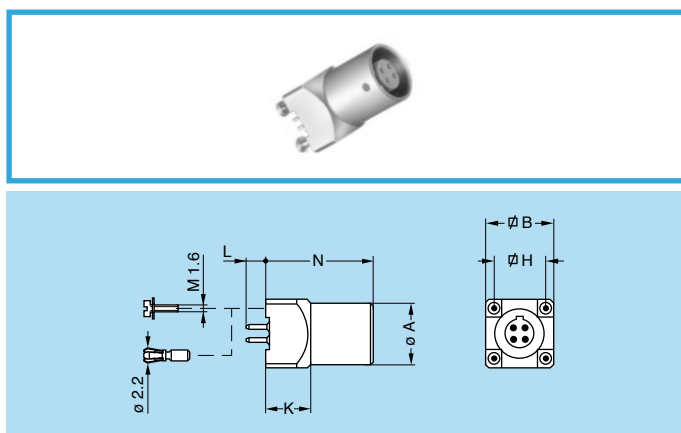
## EZG Straight socket for printed circuit, key (G) or keys (A, B)



| Reference  |           | Dimensions (mm) |   |      |   |    |
|------------|-----------|-----------------|---|------|---|----|
| Model      | Series    | A               | B | H    | K | N  |
| <b>EZG</b> | <b>00</b> | 6.8             | 7 | 5.08 | 7 | 14 |

**P15** + **P16** PCB drilling pattern (pages 160 and 163)

## EZG Straight socket for printed circuit, key (G) or keys (A...F)

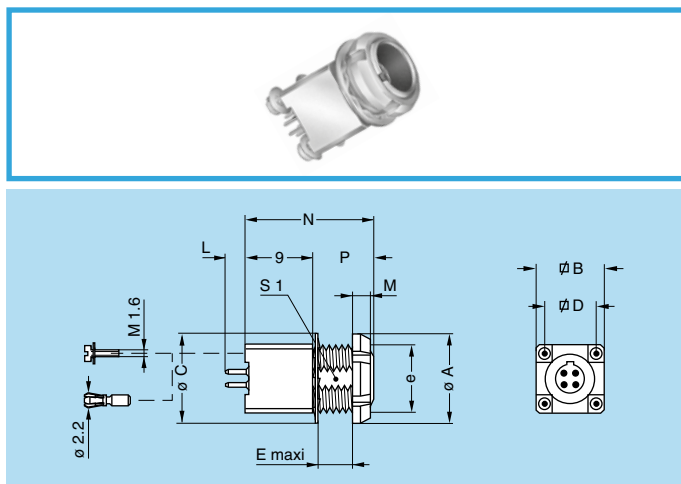


| Reference  |           | Dimensions (mm) |    |       |   |      |
|------------|-----------|-----------------|----|-------|---|------|
| Model      | Series    | A               | B  | H     | K | N    |
| <b>EZG</b> | <b>0B</b> | 9               | 10 | 7.62  | 8 | 15.0 |
| <b>EZG</b> | <b>1B</b> | 11              | 12 | 7.62  | 8 | 19.0 |
| <b>EZG</b> | <b>2B</b> | 14              | 15 | 10.16 | 9 | 22.5 |

**P15** + **P16** PCB drilling pattern (pages 160 and 163)

**Note:** Length «L» depends on the number of contacts, see page 163. Add letter «B» at the end of the reference to order with integrated harpoon pins (1.6 mm PCB thickness) (only for 0B and 1B series).

## EYG Fixed socket for printed circuit, nut fixing, key (G) or keys (A...F) (back panel mounting)



| Reference  |           | Dimensions (mm) |    |      |       |         |     |     |      |      |      |
|------------|-----------|-----------------|----|------|-------|---------|-----|-----|------|------|------|
| Model      | Series    | A               | B  | C    | D     | e       | E   | M   | N    | P    | S1   |
| <b>EYG</b> | <b>0B</b> | 12              | 10 | 12.5 | 7.62  | M9x0.6  | 2.6 | 2.5 | 15.0 | 6.0  | 8.2  |
| <b>EYG</b> | <b>1B</b> | 14              | 12 | 16.0 | 7.62  | M11x0.5 | 5.0 | 3.5 | 19.0 | 10.0 | —    |
| <b>EYG</b> | <b>2B</b> | 20              | 15 | 19.5 | 10.16 | M15x1.0 | 7.5 | 3.5 | 22.5 | 13.5 | 13.5 |

**P1** Panel cut-out 0B and 2B series (page 157)

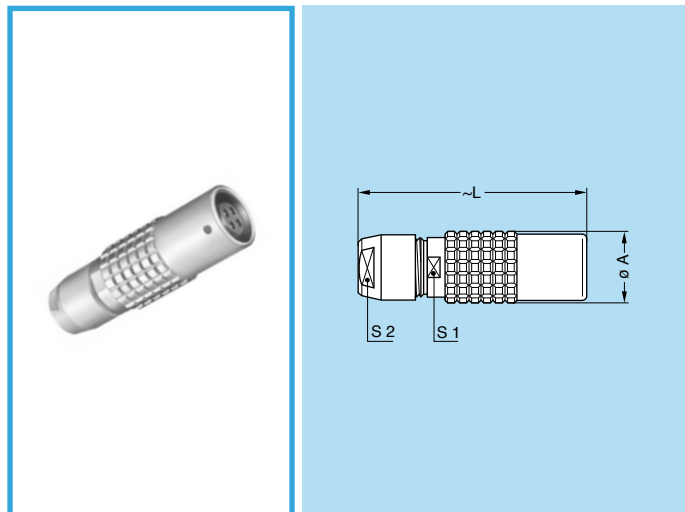
**P10** Panel cut-out 1B series (page 157)

**P15** + **P16** PCB drilling pattern (pages 160 and 163)

**Note:** Length «L» depends on the number of contacts, see page 163. Add letter «B» at the end of the reference to order with integrated harpoon pins (1.6 mm PCB thickness) (only for 0B and 1B series).



## PHG Free socket, key (G) or keys (A...M and R), cable collet

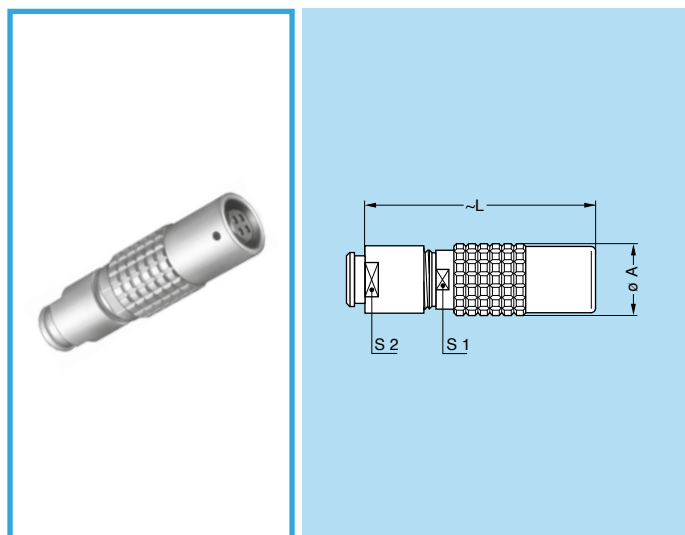


| Reference |                  | Dimensions (mm) |      |      |    |
|-----------|------------------|-----------------|------|------|----|
| Model     | Series           | A               | L    | S1   | S2 |
| PHG       | 00 <sup>1)</sup> | 6.8             | 26.0 | 5.5  | 5  |
| PHG       | 0B               | 9.5             | 35.5 | 8.0  | 7  |
| PHG       | 1B               | 12.5            | 40.5 | 10.0 | 9  |
| PHG       | XB               | 13.0            | 46.0 | 11.0 | 10 |
| PHG       | 2B               | 16.5            | 47.0 | 13.0 | 12 |
| PHG       | 3B               | 19.0            | 56.0 | 15.0 | 14 |
| PHG       | 4B               | 26.0            | 73.0 | 21.0 | 20 |
| PHG       | 5B               | 36.0            | 99.0 | 31.0 | 30 |

**M1** Cable assembly (page 169)

**Note:** <sup>1)</sup> the surface design of the 00 series is different.

## PHG Free socket, key (G) or keys (A...M), cable collet and nut for fitting a bend relief <sup>2)</sup>



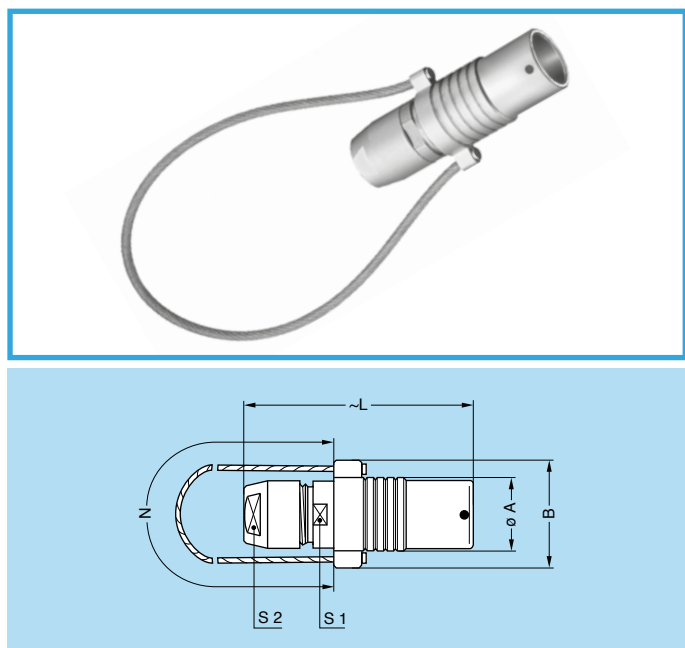
| Reference |                  | Dimensions (mm) |      |      |    |
|-----------|------------------|-----------------|------|------|----|
| Model     | Series           | A               | L    | S1   | S2 |
| PHG       | 00 <sup>1)</sup> | 6.8             | 34.0 | 5.5  | 6  |
| PHG       | 0B               | 9.5             | 34.5 | 8.0  | 7  |
| PHG       | 1B               | 12.5            | 39.5 | 10.0 | 9  |
| PHG       | XB               | 13.0            | 49.5 | 11.0 | 10 |
| PHG       | 2B               | 16.5            | 46.0 | 13.0 | 12 |
| PHG       | 3B               | 19.0            | 54.5 | 15.0 | 15 |
| PHG       | 4B               | 26.0            | 69.0 | 21.0 | 20 |

**M1** Cable assembly (page 169)

**Note:** <sup>1)</sup> the surface design of the 00 series is different.

**Note:** <sup>2)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).

## PNG Free socket, nut fixing, key (G) or keys (A...L and R), cable collet with lanyard release



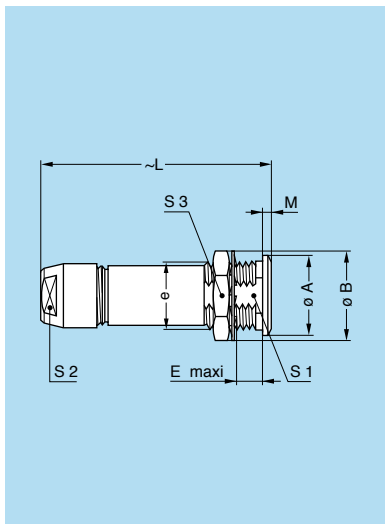
| Reference |        | Dimensions (mm) |      |      |     |    |    |
|-----------|--------|-----------------|------|------|-----|----|----|
| Model     | Series | A               | B    | L    | N   | S1 | S2 |
| PNG       | 1B     | 12.4            | 18.4 | 40.5 | 140 | 10 | 9  |
| PNG       | 2B     | 16.5            | 22.5 | 47.0 | 160 | 13 | 12 |
| PNG       | 3B     | 19.0            | 26.0 | 56.0 | 190 | 15 | 14 |
| PNG       | 4B     | 26.0            | 33.0 | 73.0 | 230 | 21 | 20 |
| PNG       | 5B     | 36.0            | 43.0 | 99.0 | 300 | 31 | 30 |

**M1** Cable assembly (page 169)

**Note:** cable material: stainless steel with Polyamide sheath.



## PKG Fixed socket, nut fixing, key (G) or keys (A...M and R), cable collet



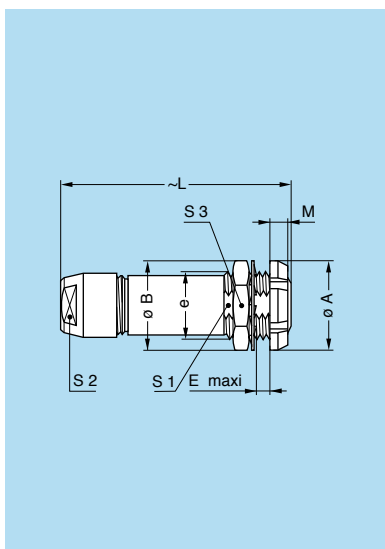
| Reference |        | Dimensions (mm) |      |         |      |      |     |      |    |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|----|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S2 | S3 |
| PKG       | 00     | 8               | 10.2 | M7x0.5  | 6.5  | 26.0 | 1.0 | 6.3  | 5  | 9  |
| PKG       | 0B     | 10              | 12.4 | M9x0.6  | 7.0  | 35.5 | 1.2 | 8.2  | 7  | 11 |
| PKG       | 1B     | 14              | 15.8 | M12x1.0 | 7.5  | 40.5 | 1.5 | 10.5 | 9  | 14 |
| PKG       | 2B     | 18              | 19.2 | M15x1.0 | 8.5  | 47.0 | 1.8 | 13.5 | 12 | 17 |
| PKG       | 3B     | 22              | 25.0 | M18x1.0 | 11.5 | 56.0 | 2.0 | 16.5 | 14 | 22 |
| PKG       | 4B     | 28              | 34.0 | M25x1.0 | 12.0 | 73.0 | 2.5 | 23.5 | 20 | 30 |
| PKG       | 5B     | 40              | 40.0 | M35x1.0 | 11.0 | 99.0 | 3.0 | 33.5 | 30 | —  |

**P1** Panel cut-out (page 157)

**M1** Cable assembly (page 169)

**Note:** the 5B series is delivered with a tapered washer and a round nut.

## PFG Fixed socket, with two nuts, key (G) or keys (A...M and R), cable collet (back panel mounting)



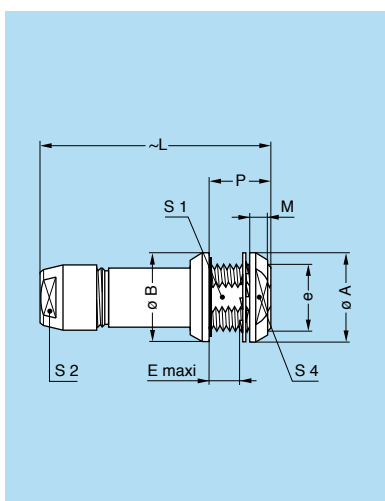
| Reference |        | Dimensions (mm) |      |         |      |      |     |      |    |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|----|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S2 | S3 |
| PFG       | 00     | 10              | 10.2 | M7x0.5  | 5.3  | 26.0 | 2.5 | 6.3  | 5  | 9  |
| PFG       | 0B     | 12              | 12.4 | M9x0.6  | 5.0  | 35.5 | 2.5 | 8.2  | 7  | 11 |
| PFG       | 1B     | 16              | 15.8 | M12x1.0 | 5.0  | 40.5 | 3.5 | 10.5 | 9  | 14 |
| PFG       | 2B     | 20              | 19.2 | M15x1.0 | 6.5  | 47.0 | 3.5 | 13.5 | 12 | 17 |
| PFG       | 3B     | 24              | 25.0 | M18x1.0 | 9.0  | 56.0 | 4.5 | 16.5 | 14 | 22 |
| PFG       | 4B     | 30              | 34.0 | M25x1.0 | 11.0 | 73.0 | 4.5 | 23.5 | 20 | 30 |
| PFG       | 5B     | 41              | 40.0 | M35x1.0 | 10.0 | 99.0 | 5.0 | 33.5 | 30 | —  |

**P1** Panel cut-out (page 157)

**M1** Cable assembly (page 169)

**Note:** the 3B, 4B and 5B series are delivered with a conical nut. The 5B series is delivered with a tapered washer and a round nut.

## PEG Fixed socket, nut fixing, key (G) or keys (A...L), cable collet (back panel mounting)



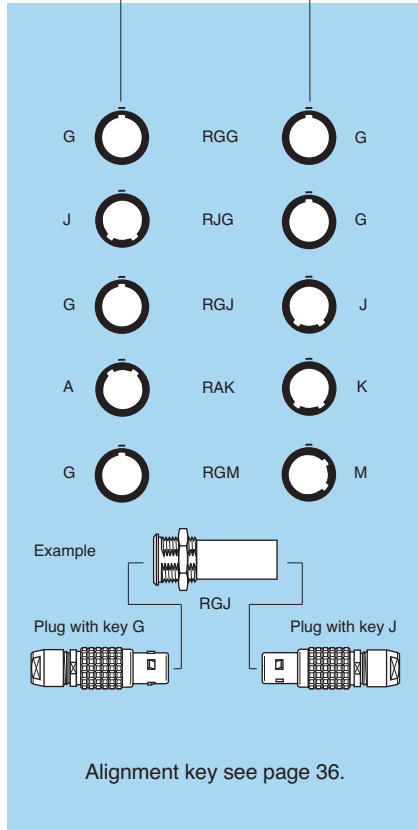
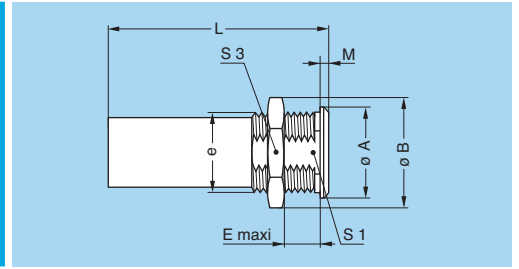
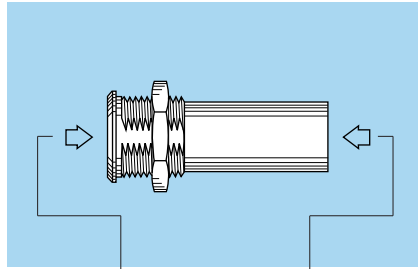
| Reference |        | Dimensions (mm) |    |         |      |    |     |    |      |    |    |
|-----------|--------|-----------------|----|---------|------|----|-----|----|------|----|----|
| Model     | Series | A               | B  | e       | E    | L  | M   | P  | S1   | S2 | S4 |
| PEG       | 3B     | 24              | 25 | M18x1.0 | 5.0  | 56 | 4.5 | 12 | 16.5 | 14 | 20 |
| PEG       | 4B     | 32              | 34 | M25x1.0 | 12.5 | 73 | 5.0 | 20 | 23.5 | 20 | 27 |

**P1** Panel cut-out (page 157)

**M1** Cable assembly (page 169)

**Note:** this model has an o-ring on the flange.

**R●● Fixed coupler, nut fixing, key (G) or keys (A and J) at the flange end and keys (J, K or M) at the other end**



| Reference         |        | Contacts        | Dimensions (mm) |      |          |      |    |     |      |    |
|-------------------|--------|-----------------|-----------------|------|----------|------|----|-----|------|----|
| Model             | Series | Type            | A               | B    | e        | E    | L  | M   | S1   | S3 |
| RGG <sup>1)</sup> | 0B     | female – female | 12              | 13.8 | M10x0.75 | 8.0  | 34 | 2.0 | 9.0  | 12 |
| RGG <sup>2)</sup> | 0B     | female – female | 12              | 13.8 | M10x0.75 | 8.0  | 43 | 2.0 | 9.0  | 12 |
| RJG               | 0B     | male – female   | 12              | 13.8 | M10x0.75 | 8.0  | 34 | 2.0 | 9.0  | 12 |
| RGJ               | 0B     | female – male   | 12              | 13.8 | M10x0.75 | 8.0  | 34 | 2.0 | 9.0  | 12 |
| RAK               | 0B     | female – male   | 12              | 13.8 | M10x0.75 | 8.0  | 34 | 2.0 | 9.0  | 12 |
| RGM               | 0B     | female – male   | 12              | 13.8 | M10x0.75 | 8.0  | 34 | 2.0 | 9.0  | 12 |
| RGG <sup>3)</sup> | 1B     | female – female | 16              | 19.2 | M14x1.00 | 8.5  | 47 | 2.5 | 12.5 | 17 |
| RJG               | 1B     | male – female   | 16              | 19.2 | M14x1.00 | 8.5  | 39 | 2.5 | 12.5 | 17 |
| RGJ               | 1B     | female – male   | 16              | 19.2 | M14x1.00 | 8.5  | 39 | 2.5 | 12.5 | 17 |
| RJG               | 2B     | male – female   | 20              | 21.5 | M16x1.00 | 12.0 | 44 | 4.0 | 15.0 | 19 |
| RGJ               | 2B     | female – male   | 20              | 21.5 | M16x1.00 | 12.0 | 44 | 4.0 | 15.0 | 19 |
| RGJ               | 3B     | female – male   | 25              | 27.0 | M20x1.00 | 32.0 | 53 | 4.0 | 18.5 | 24 |
| RGJ               | 4B     | female – male   | 34              | 34.0 | M25x1.00 | 50.0 | 65 | 4.0 | 23.5 | 30 |

**P4** Panel cut-out (page 157)

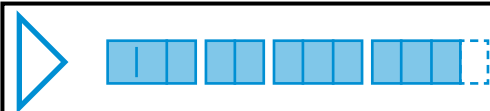
**Note:**

1) only available with two contacts.

2) RGG.0B only available from 3 till 5 contacts.

3) RGG.1B only available till 7 contacts.

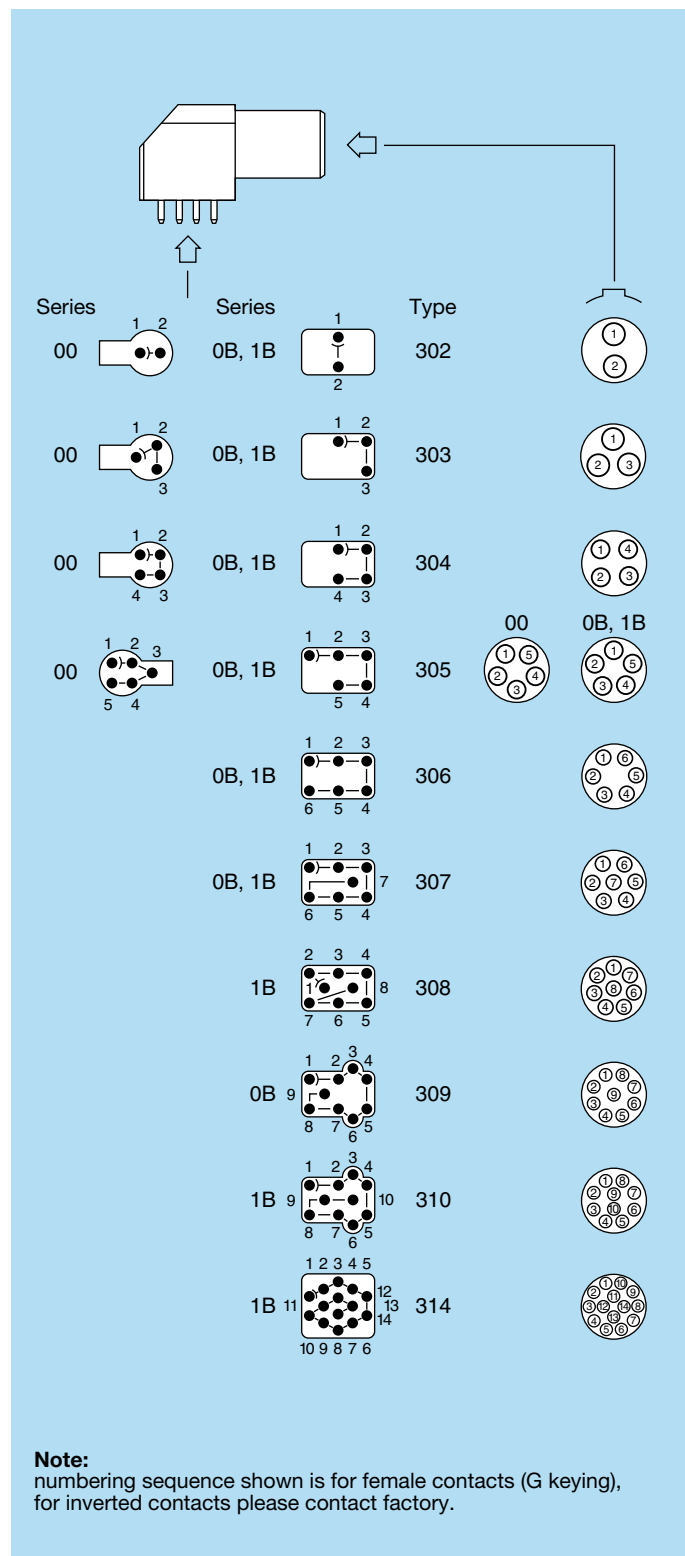
For this fixed coupler, the first contact type mentioned is always the one at the flange end. On request, these couplers can be produced in other series, with other keys.



## Elbow socket models

### Technical Characteristics

#### Types



### Materials and Treatment

| Component      | Material | Surface Treat. (µm) |    |     |
|----------------|----------|---------------------|----|-----|
|                |          | Cu                  | Ni | Au  |
| Housing        | PPS      | –                   |    |     |
|                | Brass    | 0.5                 | 3  | –   |
| Metallic parts | Brass    | 0.5                 | 3  | –   |
| Earthing crown | Bronze   | 0.5                 | 3  | –   |
| Insulator      | PEEK     | –                   |    |     |
| Female contact | Bronze   | 0.5                 | 3  | 1.5 |

#### Note:

The surface treatment standards are as follows:  
– Nickel: SAE AMS QQ N 290. – Gold: ISO 27874

### Electrical

| Model   | Series | Types           | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>1)</sup><br>Contact-shell | Rated current (A) <sup>1)</sup> |
|---------|--------|-----------------|--------------------------------------------------------|------------------------------------------------------|---------------------------------|
| EPG-XBG | 00     | 302-303-304-305 | 1.00                                                   | 1.00                                                 | 2.0                             |
| EPG-EXG | 0B     | 302             | 1.45                                                   | 1.20                                                 | 4.5                             |
| EPG-EXG | 0B     | 303             | 1.70                                                   | 1.60                                                 | 4.5                             |
| EPG-EXG | 0B     | 304             | 1.30                                                   | 1.10                                                 | 4.5                             |
| EPG-EXG | 0B     | 305             | 1.25                                                   | 1.20                                                 | 4.5                             |
| EPG-EXG | 0B     | 306             | 1.25                                                   | 1.20                                                 | 2.5                             |
| EPG-EXG | 0B     | 307             | 1.00                                                   | 1.00                                                 | 2.0                             |
| EPG-EXG | 0B     | 309             | 0.60                                                   | 0.50                                                 | 1.5                             |
| EPG-EXG | 1B     | 302             | 1.70                                                   | 1.45                                                 | 4.5                             |
| EPG-EXG | 1B     | 303             | 1.60                                                   | 1.85                                                 | 4.5                             |
| EPG-EXG | 1B     | 304             | 1.70                                                   | 1.80                                                 | 4.5                             |
| EPG-EXG | 1B     | 305             | 1.30                                                   | 1.55                                                 | 4.5                             |
| EPG-EXG | 1B     | 306             | 1.35                                                   | 1.45                                                 | 4.5                             |
| EPG-EXG | 1B     | 307             | 1.45                                                   | 1.45                                                 | 2.0                             |
| EPG-EXG | 1B     | 308             | 1.30                                                   | 1.30                                                 | 2.0                             |
| EPG-EXG | 1B     | 310             | 1.00                                                   | 1.00                                                 | 1.5                             |
| EPG     | 1B     | 314             | 1.00                                                   | 1.30                                                 | 1.0                             |

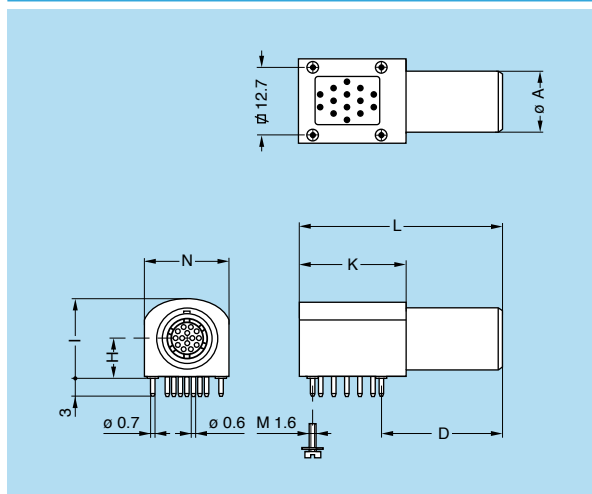
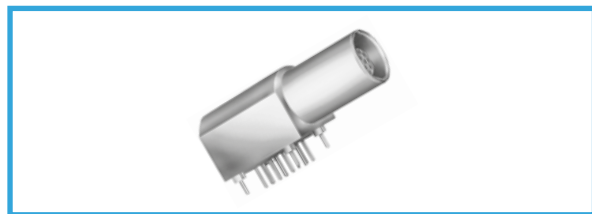
#### Note:

<sup>1)</sup> see calculation method, caution and suggested standard on page 190.

**P18** PCB drilling pattern (page 165)

**P19** PCB drilling pattern (page 165)

## EPG Elbow (90°) socket for printed circuit, key (G) or keys (A...F) (solder or screw fixing)

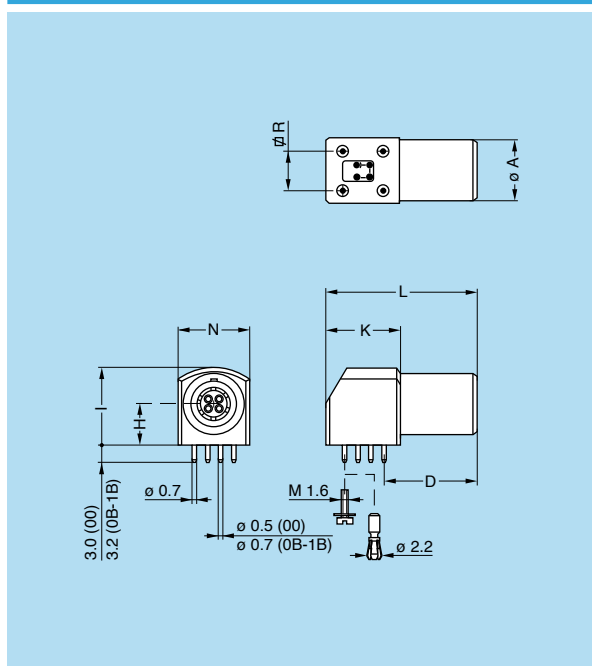


| Part number    | Dimensions (mm) |    |     |      |    |    |      |
|----------------|-----------------|----|-----|------|----|----|------|
|                | A               | D  | H   | I    | K  | L  | N    |
| EPG.1B.314.NLN | 11              | 21 | 7.7 | 14.3 | 19 | 36 | 15.4 |

**P20** PCB drilling pattern (page 165)

**Note:** to replace the 4 ground pins by 4 screws (M1.6) add an «S» to the end of the part number. (e.g.: EPG.1B.314.NLNS)

## EPG Elbow (90°) socket for printed circuit, key (G) or keys (A...F) (solder, screw or harpoon fixing)



| Part number    | Dimensions (mm) |      |     |      |      |    |      |      |
|----------------|-----------------|------|-----|------|------|----|------|------|
|                | A               | D    | H   | I    | K    | L  | N    | R    |
| EPG.00.302.HLN | 6.8             | 11.5 | 3.5 | 7.0  | 8.7  | 19 | 7.1  | 5.08 |
| EPG.00.303.HLN |                 |      |     |      |      |    |      |      |
| EPG.00.304.HLN |                 |      |     |      |      |    |      |      |
| EPG.00.305.HLN |                 |      |     |      |      |    |      |      |
| EPG.0B.302.HLN |                 |      |     |      |      |    |      |      |
| EPG.0B.303.HLN | 9.0             | 14.6 | 6.7 | 12.6 | 13.3 | 25 | 11.7 | 7.62 |
| EPG.0B.304.HLN |                 |      |     |      |      |    |      |      |
| EPG.0B.305.HLN |                 |      |     |      |      |    |      |      |
| EPG.0B.306.HLN |                 |      |     |      |      |    |      |      |
| EPG.0B.307.HLN |                 |      |     |      |      |    |      |      |
| EPG.0B.309.HLN | 11.0            | 16.6 | 7.5 | 14.0 | 13.3 | 27 | 12.6 | 7.62 |
| EPG.1B.302.HLN |                 |      |     |      |      |    |      |      |
| EPG.1B.303.HLN |                 |      |     |      |      |    |      |      |
| EPG.1B.304.HLN |                 |      |     |      |      |    |      |      |
| EPG.1B.305.HLN |                 |      |     |      |      |    |      |      |
| EPG.1B.306.HLN |                 |      |     |      |      |    |      |      |
| EPG.1B.307.HLN |                 |      |     |      |      |    |      |      |
| EPG.1B.308.HLN |                 |      |     |      |      |    |      |      |
| EPG.1B.310.HLN |                 |      |     |      |      |    |      |      |

**Note:** In the 0B and 1B series, it is possible to replace the 4 ground pins by 4 screws (M1.6) add an «S» to the end of the part number. (e.g.: EPG.0B.307.HLNS).  
A second alternative is to add an «B» at the end of the part number (EPG.0B.307.HLNB), the connector is delivered with integrated harpoon pins for rapidly assembly (1.6 mm PCB thickness).

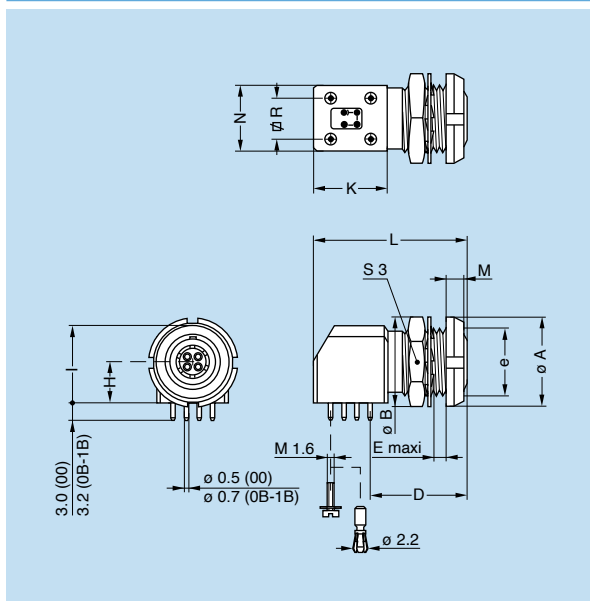
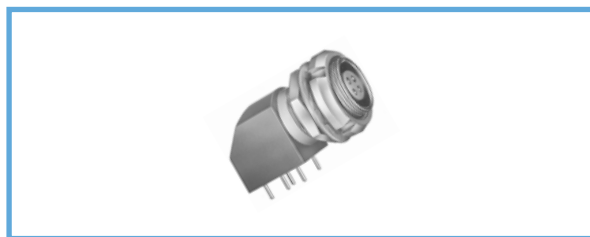
**P18** PCB drilling pattern 00 series (page 165)

**P19** PCB drilling pattern 0B, 1B series (page 165)



**EXG Elbow (90°) socket for printed circuit with two nuts, key (G) or keys (A...F) (solder, screw or harpoon fixing) (back panel mounting)**

**XBG Elbow (90°) socket fixing nut for printed circuit, key (G) or keys (A, B) (back panel mounting)**



**Note:** In the 0B and 1B series, it is possible to replace the 4 ground pins by 4 screws (M1.6) add an «S» to the end of the part number. (e.g.: EXG.0B.307.HLNS).  
A second alternative is to add an «B» at the end of the part number (EXG.0B.307.HLNB), the connector is delivered with integrated harpoon pins for rapidly assembly (1.6 mm PCB thickness).

| Part number           | Dimensions (mm) |      |      |         |     |     |      |      |    |     |      |      |    |
|-----------------------|-----------------|------|------|---------|-----|-----|------|------|----|-----|------|------|----|
|                       | A               | B    | D    | e       | E   | H   | I    | K    | L  | M   | N    | R    | S3 |
| <b>XBG.00.302.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>XBG.00.303.HLN</b> | 10              | 10.2 | 11.5 | M7x0.5  | 2.1 | 3.5 | 7.0  | 8.7  | 19 | 2.5 | 7.1  | 5.08 | 9  |
| <b>XBG.00.304.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.0B.302.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.0B.303.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.0B.304.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.0B.305.HLN</b> | 12              | 12.4 | 14.6 | M9x0.6  | 4.5 | 6.7 | 12.6 | 13.3 | 25 | 2.5 | 11.7 | 7.62 | 11 |
| <b>EXG.0B.306.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.0B.307.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.0B.309.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.1B.302.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.1B.303.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.1B.304.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.1B.305.HLN</b> | 14              | 15.0 | 16.6 | M11x0.5 | 4.5 | 7.5 | 14.0 | 13.3 | 27 | 3.5 | 12.6 | 7.62 | 13 |
| <b>EXG.1B.306.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.1B.307.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.1B.308.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |
| <b>EXG.1B.310.HLN</b> |                 |      |      |         |     |     |      |      |    |     |      |      |    |

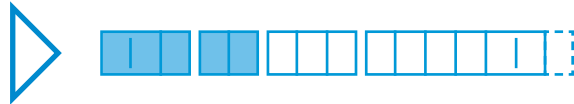
**P2** Panel cut-out 00, 0B series (page 157)

**P10** Panel cut-out 1B series (page 157)

**P18** PCB drilling pattern 00 series (page 165)

**P19** PCB drilling pattern 0B, 1B series (page 165)





## Plastic housing models

These connectors are particularly recommended for all applications requiring maximum electrical insulation when mated. The design, including a latch sleeve and a metal earthing crown, guarantees EMC screening efficiency to meet most requirements.

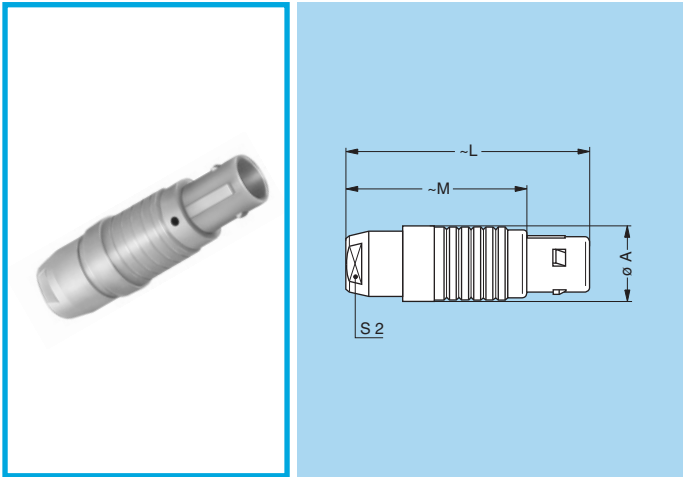
### Technical Characteristics

#### Mechanical and Climatical

| Characteristics                        | Value              |                  |                  | Standard            |
|----------------------------------------|--------------------|------------------|------------------|---------------------|
|                                        | PEEK               | PSU              | PPSU             |                     |
| Colour                                 | natural (beige)    | white or grey    | cream            | –                   |
| Endurance <sup>1)</sup>                | > 5000 cycles      | > 5000 cycles    | > 5000 cycles    | IEC 60512-5 test 9a |
| Humidity                               | up to 95% at 60° C |                  |                  | –                   |
| Temperature range                      | - 50° C/+ 250° C   | - 50° C/+ 150° C | - 50° C/+ 180° C | –                   |
| Sterilization resistance <sup>2)</sup> | > 200 cycles       | ~20 cycles       | > 100 cycles     | IEC 60601-1 § 44.7  |
| Resistance to solvents                 | very good          | limited          | good             | –                   |

**Note:** <sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force. <sup>2)</sup> Steam sterilization.

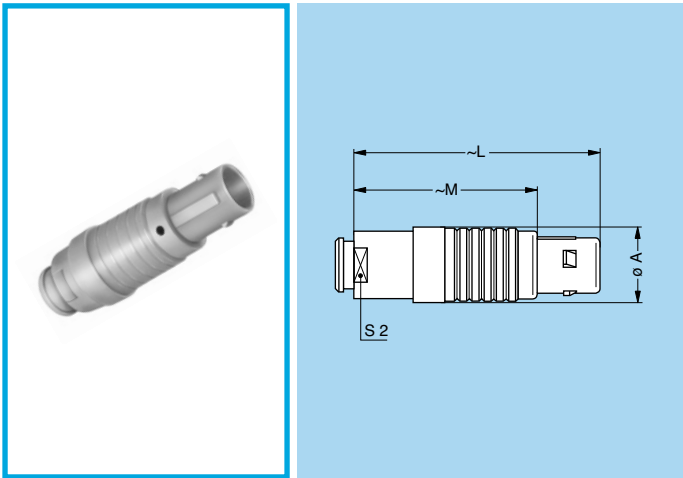
#### FGG Straight plug, key (G or J), cable collet, PEEK outer shell



| Reference |        | Dimensions (mm) |      |      |    |
|-----------|--------|-----------------|------|------|----|
| Model     | Series | A               | L    | M    | S2 |
| FGG       | 0B     | 11.0            | 37.4 | 27.4 | 8  |
| FGG       | 1B     | 13.5            | 43.0 | 32.0 | 10 |
| FGG       | 3B     | 19.0            | 62.0 | 47.0 | 15 |
| FGG       | 4B     | 26.0            | 78.5 | 60.5 | 20 |

**M1** Cable assembly (page 169)

#### FGG Straight plug, key (G or J), cable collet, PEEK outer shell and nut for fitting a bend relief <sup>1)</sup>



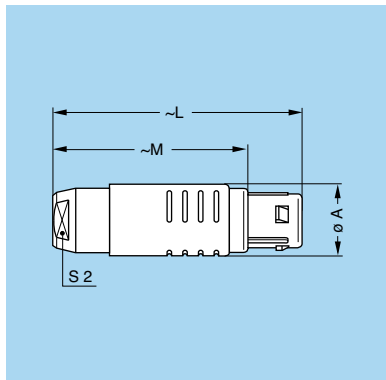
| Reference |        | Dimensions (mm) |      |      |    | Note on availability        |
|-----------|--------|-----------------|------|------|----|-----------------------------|
| Model     | Series | A               | L    | M    | S2 |                             |
| FGG       | 1B     | 13.5            | 42.2 | 31.2 | 10 | for all collet type         |
| FGG       | 4B     | 26.0            | 83.2 | 65.2 | 20 | only from collet M82 and up |

**M1** Cable assembly (page 169)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).



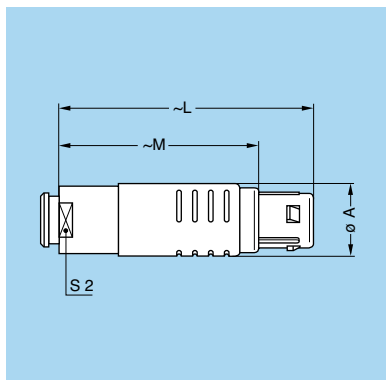
## FGY Straight plug, keys (Y), cable collet and PSU or PPSU outer shell



| Reference |        | Dimensions (mm) |      |      |    |
|-----------|--------|-----------------|------|------|----|
| Model     | Series | A               | L    | M    | S2 |
| FGY       | 2B     | 16.5            | 50.5 | 39.5 | 13 |
| FGY       | 3B     | 19.0            | 58.0 | 43.0 | 15 |
| FGY       | 4B     | 26.0            | 76.2 | 58.2 | 20 |

**M1** Cable assembly (page 169)

## FGY Straight plug, keys (Y), cable collet and PSU or PPSU outer shell and nut for fitting a bend relief <sup>1)</sup>

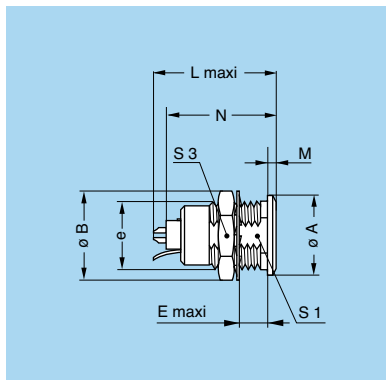


| Reference |        | Dimensions (mm) |      |      |    | Note on availability       |
|-----------|--------|-----------------|------|------|----|----------------------------|
| Model     | Series | A               | L    | M    | S2 |                            |
| FGY       | 2B     | 16.5            | 49.5 | 38.5 | 13 | only for collet M42 and up |
| FGY       | 3B     | 19.0            | 56.5 | 41.5 | 15 | only for collet D62 and up |
| FGY       | 4B     | 26.0            | 74.4 | 56.4 | 20 | only for collet D82 and up |

**M1** Cable assembly (page 169)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

## ENG Fixed socket with earthing tag, nut fixing, key (G or J), PEEK outer shell

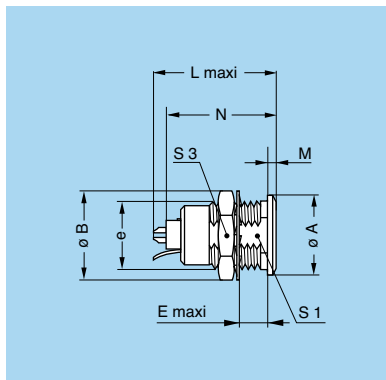


| Reference |        | Dimensions (mm) |      |         |      |      |     |                 |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|-----------------|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | N <sup>1)</sup> | S1   | S3 |
| ENG       | 0B     | 11              | 12.5 | M9x0.6  | 6.4  | 20.7 | 1.8 | 16.5            | 8.2  | 11 |
| ENG       | 1B     | 14              | 15.8 | M12x1.0 | 7.5  | 23.0 | 1.5 | 21.1            | 10.5 | 14 |
| ENG       | 3B     | 22              | 25.0 | M18x1.0 | 11.5 | 30.7 | 2.0 | 28.1            | 16.5 | 22 |
| ENG       | 4B     | 28              | 34.0 | M25x1.0 | 12.0 | 35.7 | 2.5 | 32.6            | 23.5 | 30 |

**P1** Panel cut-out (page 157)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

## ENY Fixed socket with earthing tag, nut fixing, keys (Y), PSU or PPSU outer shell



| Reference |        | Dimensions (mm) |      |         |      |      |     |                 |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|-----------------|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | N <sup>1)</sup> | S1   | S3 |
| ENY       | 2B     | 18              | 19.2 | M15x1.0 | 8.5  | 26.7 | 1.8 | 24.6            | 13.5 | 17 |
| ENY       | 3B     | 22              | 25.0 | M18x1.0 | 11.5 | 30.7 | 2.0 | 28.1            | 16.5 | 22 |
| ENY       | 4B     | 28              | 34.0 | M25x1.0 | 12.0 | 35.7 | 2.5 | 32.6            | 23.5 | 30 |

**P1** Panel cut-out (page 157)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

Other models with plastic outer shell are available on request.



## Watertight or vacuumtight models

These plug, socket and coupler models allow the device on which they are fitted to reach a protection index of IP68 as per IEC 60529. They are fully compatible with plugs of the same series and are widely used for portable radios, military, laboratory equipment, aviation, etc.

These models are identified by a letter «P» at the end of the reference.

Most of these models are also available in a vacuumtight version. Such models are identified by an additional letter «V» at the end of the part number (certificate on request).

Epoxy resin is used to seal these models.

## Technical Characteristics

### Mechanical and Climatical

| Characteristics                         | Value                                     | Standard                            |
|-----------------------------------------|-------------------------------------------|-------------------------------------|
| Endurance <sup>1)</sup>                 | > 5000 cycles                             | IEC 60512-5 test 9a                 |
| Humidity                                | up to 95% at 60° C                        |                                     |
| Temperature range                       | 00 to 1B<br>2B to 5B                      | - 20° C/+ 100° C<br>- 20° C/+ 80° C |
| Salt spray corrosion test <sup>4)</sup> | > 1000h                                   | IEC 60512-6 test 11f                |
| Climatical category                     | 20/80/21                                  | IEC 60068-1                         |
| Leakage rate (He) <sup>2)</sup>         | < 10 <sup>-7</sup> mbar.l.s <sup>-1</sup> | IEC 60512-7 test 14b                |

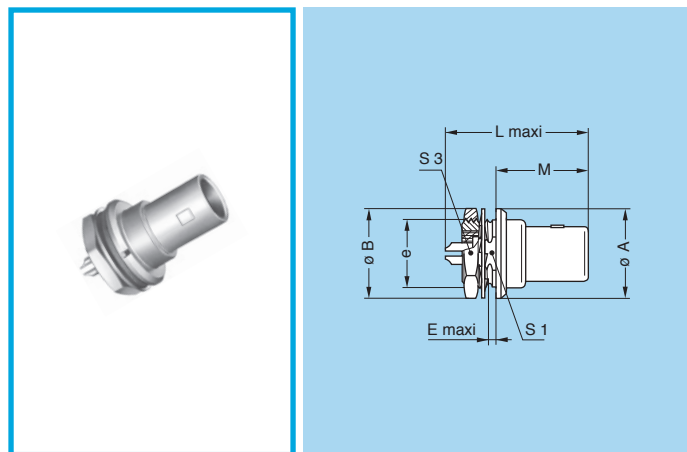
| Characteristics                          | Value | Standard |
|------------------------------------------|-------|----------|
| Maximum operating pressure <sup>3)</sup> | 00    | 60 bar   |
|                                          | 0B    | 60 bar   |
|                                          | 1B    | 60 bar   |
|                                          | 2B    | 40 bar   |
|                                          | 3B    | 30 bar   |
|                                          | 4B    | 15 bar   |
|                                          | 5B    | 5 bar    |

**Note:** <sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.

<sup>2)</sup> only for vacuumtight models. Residual traces of grease used during (He) leak testing are on the o-ring. Please contact us for further details.

<sup>3)</sup> this value corresponds to the maximum allowed pressure difference for the assembled socket. <sup>4)</sup> for chrome plated product («C» material code).

## YHG Fixed plug, nut fixing, non-latching, key (G) or keys (A...M)



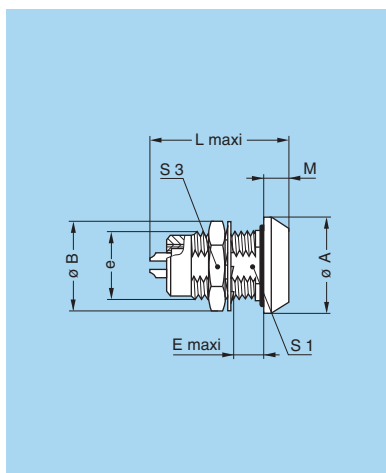
| Reference |        | Dimensions (mm) |      |         |     |      |      |      |    |
|-----------|--------|-----------------|------|---------|-----|------|------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M    | S1   | S3 |
| YHG       | 0B     | 13              | 12.4 | M9x0.6  | 2.4 | 24.1 | 14.2 | 8.2  | 11 |
| YHG       | 1B     | 16              | 15.8 | M12x1.0 | 3.9 | 28.0 | 16.2 | 10.5 | 14 |
| YHG       | 2B     | 19              | 19.2 | M15x1.0 | 5.5 | 33.1 | 17.8 | 13.5 | 17 |
| YHG       | 3B     | 22              | 25.0 | M18x1.0 | 5.1 | 38.2 | 22.2 | 16.5 | 22 |

**P9** Panel cut-out (page 157)

**Note:** this model does not include an O-ring behind the flange, it ensures only IP61 protection index. Consequently, it is not vacuumtight. Watertightness (when mated) is only ensured with HHG and HCG sockets.



## HGG Fixed socket, nut fixing, key (G) or keys (A...M and R), watertight or vacuumtight

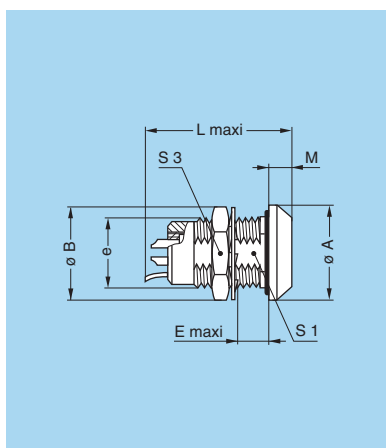


| Reference |        | Dimensions (mm) |      |         |      |      |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S3 |
| HGG       | 00     | 11              | 10.2 | M7x0.5  | 8.0  | 18.0 | 1.5 | –    | 9  |
| HGG       | 0B     | 13              | 12.4 | M9x0.6  | 7.0  | 21.5 | 3.0 | 8.2  | 11 |
| HGG       | 1B     | 18              | 15.8 | M12x1.0 | 7.0  | 26.6 | 4.5 | 10.5 | 14 |
| HGG       | 2B     | 20              | 19.2 | M15x1.0 | 8.0  | 31.6 | 4.0 | 13.5 | 17 |
| HGG       | 3B     | 25              | 25.0 | M18x1.0 | 11.5 | 36.1 | 4.0 | 16.5 | 22 |
| HGG       | 4B     | 34              | 34.0 | M25x1.0 | 11.0 | 43.1 | 4.0 | 23.5 | 30 |
| HGG       | 5B     | 45              | 40.0 | M35x1.0 | 11.0 | 53.6 | 5.0 | 33.5 | –  |

**P9** Panel cut-out (page 157)

**Note:** the 5B series is delivered with a tapered washer and a round nut.

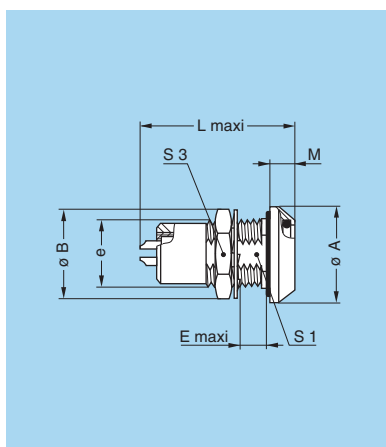
## HNG Fixed socket, nut fixing, with earthing tag, key (G) or keys (A...M), watertight or vacuumtight



| Reference |        | Dimensions (mm) |      |        |   |      |   |     |    |
|-----------|--------|-----------------|------|--------|---|------|---|-----|----|
| Model     | Series | A               | B    | e      | E | L    | M | S1  | S3 |
| HNG       | 0B     | 13              | 12.4 | M9x0.6 | 7 | 21.5 | 3 | 8.2 | 11 |

**P9** Panel cut-out (page 157)

## HHG Fixed socket, nut fixing, key (G) or keys (A...M), watertight or vacuumtight (watertight when mated)

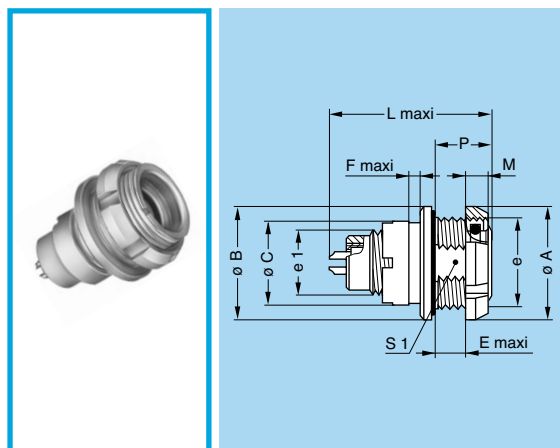


| Reference |        | Dimensions (mm) |      |         |      |      |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S3 |
| HHG       | 0B     | 13              | 12.4 | M9x0.6  | 7.0  | 24.5 | 4.8 | 8.2  | 11 |
| HHG       | 1B     | 18              | 15.8 | M12x1.0 | 7.0  | 30.3 | 5.2 | 10.5 | 14 |
| HHG       | 2B     | 22              | 19.2 | M15x1.0 | 8.0  | 35.6 | 6.0 | 13.5 | 17 |
| HHG       | 3B     | 25              | 25.0 | M18x1.0 | 11.5 | 41.3 | 7.2 | 16.5 | 22 |

**P9** Panel cut-out (page 157)

**Note:** this model ensures watertightness (IP66) in the mating area when mated with FGJ or similar plug.

## HCG Fixed socket, nut fixing, key (G) or keys (A...M), watertight or vacuumtight (watertight when mated) (back panel mounting)

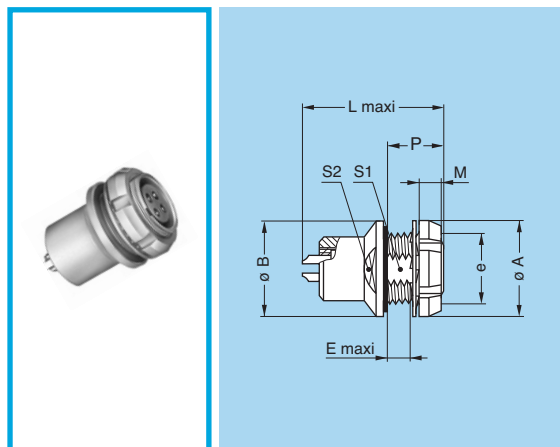


| Reference |        | Dimensions (mm) |    |      |         |         |     |     |      |     |      |      |
|-----------|--------|-----------------|----|------|---------|---------|-----|-----|------|-----|------|------|
| Model     | Series | A               | B  | C    | e       | e1      | E   | F   | L    | M   | P    | S1   |
| HCG       | 0B     | 18              | 18 | 12.0 | M14x1.0 | M9x0.6  | 3.9 | 1.0 | 24.5 | 3.5 | 7.5  | 12.5 |
| HCG       | 1B     | 20              | 20 | 14.5 | M16x1.0 | M12x1.0 | 6.2 | 2.0 | 30.3 | 3.5 | 10.0 | 14.5 |
| HCG       | 2B     | 24              | 24 | 17.5 | M19x1.0 | M14x1.0 | 6.7 | 1.5 | 35.6 | 3.5 | 11.3 | 17.0 |

**P3** Panel cut-out (page 157)

**Note:** this model ensures watertightness (IP66) in the mating area when mated with FGG or similar plug.

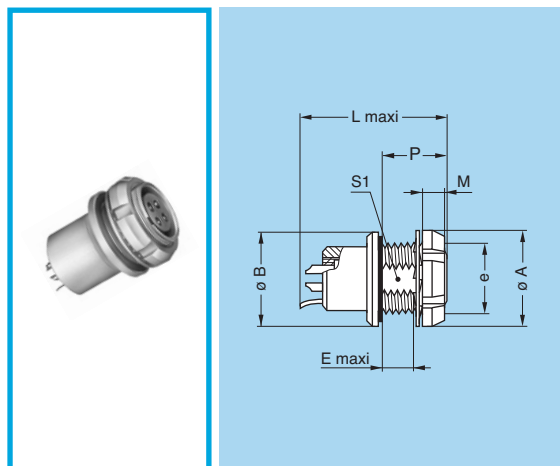
## HEG Fixed socket, nut fixing, key (G) or keys (A...M), watertight or vacuumtight (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |      |     |      |      |    |  |
|-----------|--------|-----------------|----|---------|-----|------|-----|------|------|----|--|
| Model     | Series | A               | B  | e       | E   | L    | M   | P    | S1   | S2 |  |
| HEG       | 00     | 10              | 11 | M7x0.5  | 2.5 | 18.2 | 2.5 | 6.0  | 6.3  | —  |  |
| HEG       | 0B     | 12              | 13 | M9x0.6  | 5.5 | 21.5 | 2.5 | 9.0  | 8.2  | —  |  |
| HEG       | 1B     | 16              | 18 | M12x1.0 | 6.5 | 26.6 | 3.5 | 11.0 | 10.5 | —  |  |
| HEG       | 2B     | 20              | 20 | M15x1.0 | 5.0 | 31.6 | 3.5 | 9.6  | 13.5 | 15 |  |

**P9** Panel cut-out (page 157)

## HMG Fixed socket with earthing tag, nut fixing, key (G) or keys (A...M), watertight or vacuumtight (back panel mounting)



| Reference |                  | Dimensions (mm) |    |         |     |      |     |      |      |  |  |
|-----------|------------------|-----------------|----|---------|-----|------|-----|------|------|--|--|
| Model     | Series           | A               | B  | e       | E   | L    | M   | P    | S1   |  |  |
| HMG       | 00               | 10              | 11 | M7x0.5  | 2.5 | 18.0 | 2.5 | 6.0  | 6.3  |  |  |
| HMG       | 0B               | 12              | 13 | M9x0.6  | 5.5 | 21.5 | 2.5 | 9.0  | 8.2  |  |  |
| HMG       | 1B               | 16              | 18 | M12x1.0 | 5.5 | 26.6 | 3.5 | 11.0 | 10.5 |  |  |
| HMG       | 2B <sup>1)</sup> | 20              | 20 | M15x1.0 | 5.5 | 31.6 | 3.5 | 9.6  | 13.5 |  |  |
| HMG       | 3B               | 24              | 25 | M18x1.0 | 7.5 | 36.1 | 4.5 | 14.0 | 16.5 |  |  |

**P9** Panel cut-out (page 157)

**Note:** <sup>1)</sup> the surface design of the 2B series is different.

**Note:** The 3B series is delivered with a conical nut and without washer.



**S●● Fixed coupler, nut fixing, key (G) or keys (A, B, J, K and L) at the flange end and key (G) or keys (A, B, J, K and L) at the other end, watertight or vacuumtight**

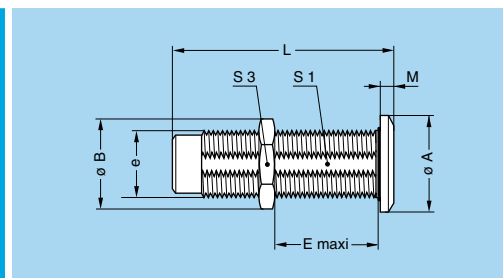
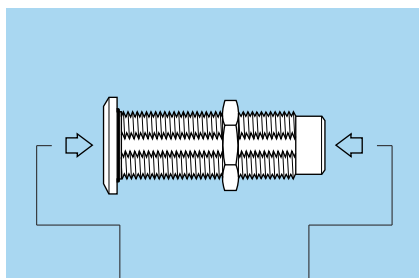


Diagram showing the alignment of keys (G, J, K, L, A, B) and the corresponding coupler models (SGJ, SJG, SKA, SLB, SAK, SBL) for watertight or vacuumtight connections.

Example: Plug with key G and Plug with key J connected by an SGJ coupler.

Alignment key see page 36.

| Reference |        | Contacts<br>Type | Dimensions (mm) |      |          |    |    |     |      |    |
|-----------|--------|------------------|-----------------|------|----------|----|----|-----|------|----|
| Model     | Series |                  | A               | B    | e        | E  | L  | M   | S1   | S3 |
| SGJ       | 0B     | female – male    | 14              | 13.8 | M10x0.75 | 17 | 34 | 2.0 | 9.0  | 12 |
| SJG       | 0B     | male – female    | 14              | 13.8 | M10x0.75 | 17 | 34 | 2.0 | 9.0  | 12 |
| SGJ       | 1B     | female – male    | 17              | 15.8 | M12x1.00 | 28 | 39 | 2.5 | 10.5 | 14 |
| SJG       | 1B     | male – female    | 17              | 15.8 | M12x1.00 | 28 | 39 | 2.5 | 10.5 | 14 |
| SGJ       | 2B     | female – male    | 20              | 21.5 | M16x1.00 | 25 | 44 | 4.0 | 15.0 | 19 |
| SJG       | 2B     | male – female    | 20              | 21.5 | M16x1.00 | 25 | 44 | 4.0 | 15.0 | 19 |
| SGJ       | 3B     | female – male    | 25              | 27.0 | M20x1.00 | 30 | 53 | 4.0 | 18.5 | 24 |
| SJG       | 3B     | male – female    | 25              | 27.0 | M20x1.00 | 30 | 53 | 4.0 | 18.5 | 24 |
| SAK       | 3B     | female – male    | 25              | 27.0 | M20x1.00 | 30 | 53 | 4.0 | 18.5 | 24 |
| SBL       | 3B     | female – male    | 25              | 27.0 | M20x1.00 | 30 | 53 | 4.0 | 18.5 | 24 |
| SAK       | 4B     | female – male    | 34              | 34.0 | M25x1.00 | 50 | 65 | 4.0 | 23.5 | 30 |
| SBL       | 4B     | female – male    | 34              | 34.0 | M25x1.00 | 50 | 65 | 4.0 | 23.5 | 30 |
| SGJ       | 4B     | female – male    | 34              | 34.0 | M25x1.00 | 50 | 65 | 4.0 | 23.5 | 30 |
| SJG       | 4B     | male – female    | 34              | 34.0 | M25x1.00 | 50 | 65 | 4.0 | 23.5 | 30 |
| SGJ       | 5B     | female – male    | 45              | 40.0 | M35x1.00 | 58 | 80 | 5.0 | 33.5 | –  |
| SJG       | 5B     | male – female    | 45              | 40.0 | M35x1.00 | 58 | 80 | 5.0 | 33.5 | –  |
| SAK       | 5B     | male – female    | 45              | 40.0 | M35x1.00 | 58 | 80 | 5.0 | 33.5 | –  |
| SLB       | 5B     | male – female    | 45              | 40.0 | M35x1.00 | 58 | 80 | 5.0 | 33.5 | –  |
| SAK       | 5B     | female – male    | 45              | 40.0 | M35x1.00 | 58 | 80 | 5.0 | 33.5 | –  |
| SBL       | 5B     | female – male    | 45              | 40.0 | M35x1.00 | 58 | 80 | 5.0 | 33.5 | –  |

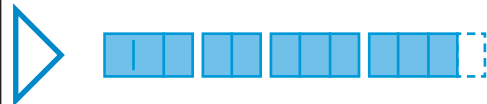
**P4** Panel cut-out (page 157)

**P9** Panel cut-out 1B series (page 157)

**Note:** The 5B series is delivered with a round nut.

**Note:** for this fixed coupler, the first contact type mentioned is always the one at the flange end. On request these couplers can be produced in other series, with other keys.





## Bridge models

### Technical Characteristics

#### Mechanical and Climatical

| Characteristics         | Value         | Standard            |
|-------------------------|---------------|---------------------|
| Endurance <sup>1)</sup> | > 1000 cycles | IEC 60512-5 test 9a |
| Working temperature     | maximum 90° C |                     |

**Note:** <sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.

#### Materials and Treatment

| Component       | Material  | Surface treat. (µm) |    |     |     |
|-----------------|-----------|---------------------|----|-----|-----|
|                 |           | Cu                  | Ni | Cr  | Au  |
| Plastic housing | Polyamide | –                   |    |     |     |
| Metallic parts  | Brass     | 0.5                 | 3  | –   | –   |
|                 | Brass     | 0.5                 | 3  | 0.3 | –   |
| Insulator       | PEEK      | –                   |    |     |     |
| Male contact    | Brass     | 0.5                 | 3  | –   | 1.0 |
| Female contact  | Bronze    | 0.5                 | 3  | –   | 1.5 |

**Note:** the surface treatment standards are as follows:  
– Nickel: SAE AMS QQ N 290, chrome: SAE AMS 2460, gold: ISO 27874

**Note:** the last letter of the part number indicates the colour of the housing.  
Ex. G (standard) is grey. To obtain another colour, replace this letter by the letter corresponding to the selected colour (see table on page 72).

#### Electrical

| Characteristics    | Value  | Standard            |
|--------------------|--------|---------------------|
| Contact resistance | < 6 mΩ | IEC 60512-2 test 2a |

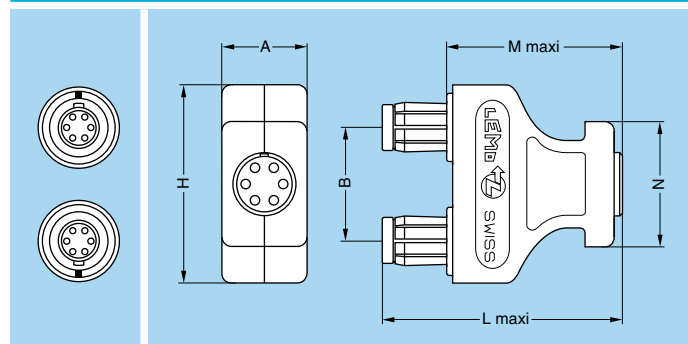
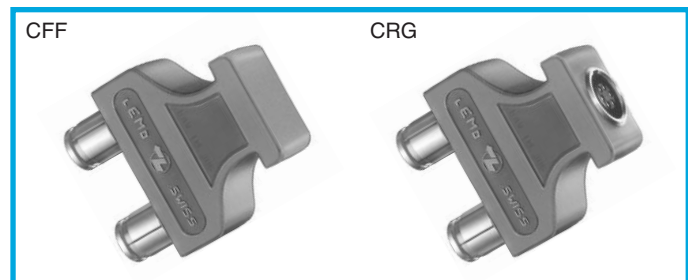
| Part number            | Series | Audio-Mono | Audio-Stereo | Test voltage (kV rms) <sup>1)2)</sup> | Rated current (A) |
|------------------------|--------|------------|--------------|---------------------------------------|-------------------|
| <b>CFF.0B.302.PLCG</b> | 0B     | ●          | –            | 1.05                                  | 4                 |
| <b>CRG.0B.302.PLEG</b> | 0B     | ●          | –            | 1.05                                  | 4                 |
| <b>CFF.0B.303.PLCG</b> | 0B     | ●          | –            | 0.80                                  | 4                 |
| <b>CRG.0B.303.PLEG</b> | 0B     | ●          | –            | 0.80                                  | 4                 |
| <b>CRG.0B.306.PLEG</b> | 0B     | –          | ●            | 0.40                                  | 2                 |
| <b>CFF.1B.303.PLCG</b> | 1B     | ●          | –            | 1.25                                  | 5                 |
| <b>CRG.1B.303.PLEG</b> | 1B     | ●          | –            | 1.25                                  | 5                 |
| <b>CFF.1B.306.PLCG</b> | 1B     | –          | ●            | 0.80                                  | 3                 |
| <b>CRG.1B.306.PLEG</b> | 1B     | –          | ●            | 0.80                                  | 3                 |

**Note:**

<sup>1)</sup> see calculation method, caution and suggested standard on page 190.  
<sup>2)</sup> lowest measured value; contact to contact or contact to shell.

**CFF** Bridge plug with two non-latching plugs

**CRG** Bridge plug with two non-latching plugs, and monitoring socket, key (G) or keys (A...M)



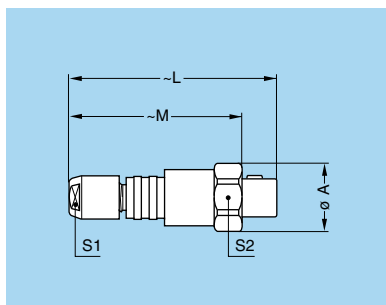
| Model          | Series    | Dimensions (mm) |    |      |      |      |      |
|----------------|-----------|-----------------|----|------|------|------|------|
|                |           | A               | B  | H    | L    | M    | N    |
| <b>CFF-CRG</b> | <b>0B</b> | 13.5            | 14 | 27.5 | 37.2 | 27.2 | 22.5 |
| <b>CFF-CRG</b> | <b>1B</b> | 15.0            | 20 | 35.0 | 42.0 | 31.0 | 22.0 |

**Note:** in order to provide the user with a coding system, the bridge plug housing, the double panel washers and the bend reliefs are available in nine colours.



## Threaded-latching models

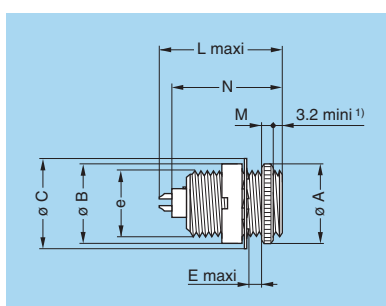
### FVG Straight plug, key (G) or keys (B), cable collet



| Reference  |           | Dimensions (mm) |      |    |    |    |
|------------|-----------|-----------------|------|----|----|----|
| Model      | Series    | A               | L    | M  | S1 | S2 |
| <b>FVG</b> | <b>00</b> | 9               | 28.5 | 24 | 5  | 8  |

**Note:** to be ordered with nut for fitting a bend relief to obtain the rating IP 64.

### ESG Fixed socket with two round nuts, key (G) or keys (B), long threaded shell (back panel mounting)

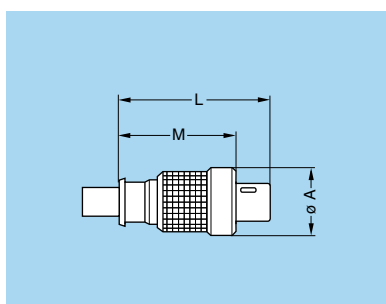


| Reference  |           | Dimensions (mm) |   |     |        |     |      |   |
|------------|-----------|-----------------|---|-----|--------|-----|------|---|
| Model      | Series    | A               | B | C   | e      | E   | L    | M |
| <b>ESG</b> | <b>00</b> | 9               | 9 | 9.5 | M7x0.5 | 3.2 | 15.5 | 2 |

**P2** Panel cut-out (page 157)

**Note:** <sup>1)</sup> minimum length of free thread to ensure mating.

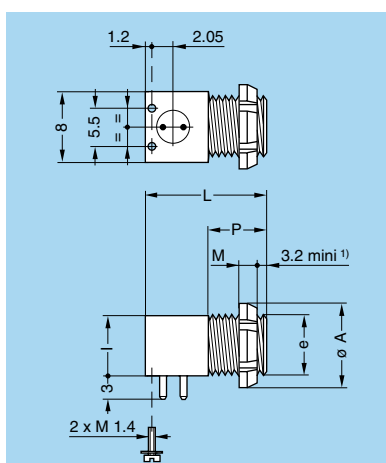
### FVB Straight plug, keys (B), short shell for special cable crimping and for fitting a bend relief



| Reference  |           | Dimensions (mm) |    |      |
|------------|-----------|-----------------|----|------|
| Model      | Series    | A               | L  | M    |
| <b>FVB</b> | <b>00</b> | 9               | 20 | 15.4 |

**Note:** part number for microphone applications: FVB.00.303.NLAE24. After assembly the special bend relief GMF.00.018.D● (to be ordered separately) is to be fitted.

### XRB Elbow (90°) socket for printed circuit, keys (B), short shell with one nut, screw fixing (back panel mounting)



| Reference  |           | Dimensions (mm) |        |   |    |     |   |
|------------|-----------|-----------------|--------|---|----|-----|---|
| Model      | Series    | A               | e      | I | L  | M   | P |
| <b>XRB</b> | <b>00</b> | 10              | M7x0.5 | 7 | 14 | 2.5 | 7 |

**P2** Panel cut-out (page 157)

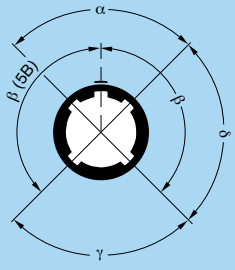
**P18** PCB drilling pattern for contact only (page 165)

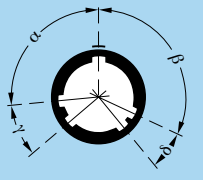
**Note:** <sup>1)</sup> minimum length of free thread to ensure mating.

# Alignment Key (B series)

## Alignment Key and Polarized Keying System

B series connector model part numbers are composed of three letters. The LAST LETTER indicates the key position and the contact type (male or female).

| Front view of a socket                                                           | Ref.     | Nb of keys | Angles   | Series |      |      | Ref.     | Nb of keys | Angles   | Series |        |       |        |       | Contact type |        | Note            |
|----------------------------------------------------------------------------------|----------|------------|----------|--------|------|------|----------|------------|----------|--------|--------|-------|--------|-------|--------------|--------|-----------------|
|                                                                                  |          |            |          | 00     | 0B   | 1B   |          |            |          | XB     | 2B     | 3B    | 4B     | 5B    | Plug         | Socket |                 |
|                                                                                  |          |            |          |        |      |      |          |            |          |        |        |       |        |       |              |        |                 |
|  | <b>G</b> | 1          | —        | 0°     | 0°   | 0°   | <b>G</b> | 1          | —        | 0°     | 0°     | 0°    | 0°     | 0°    | male         | female | ●               |
|                                                                                  | <b>A</b> | 2          | $\alpha$ | 30°    | 30°  | 30°  | <b>A</b> | 2          | $\alpha$ | 30°    | 30°    | 30°   | 30°    | 30°   | male         | female | ●               |
|                                                                                  | <b>B</b> | 2          | $\alpha$ | 60°    | 60°  | 60°  | <b>B</b> | 2          | $\alpha$ | —      | 45°    | 45°   | 45°    | 45°   | male         | female | ●               |
|                                                                                  | <b>C</b> | 2          | $\alpha$ | —      | 90°  | 90°  | <b>C</b> | 2          | $\alpha$ | —      | 60°    | 60°   | 60°    | 60°   | male         | female | ●               |
|                                                                                  | <b>D</b> | 2          | $\beta$  | —      | 135° | 135° | <b>D</b> | 2          | $\gamma$ | —      | 95°    | 95°   | 95°    | 95°   | male         | female | ○               |
|                                                                                  | <b>E</b> | 2          | $\beta$  | —      | 145° | 145° | <b>E</b> | 2          | $\beta$  | 120°   | 120°   | 120°  | 120°   | 120°  | male         | female | ○               |
|                                                                                  | <b>F</b> | 2          | $\beta$  | —      | 155° | 155° | <b>F</b> | 2          | $\beta$  | —      | 145°   | 145°  | 145°   | 145°  | male         | female | ○               |
|                                                                                  | <b>J</b> | 2          | $\gamma$ | 45°    | 45°  | 45°  | <b>J</b> | 2          | $\alpha$ | —      | 37.5°  | 37.5° | 37.5°  | 37.5° | female       | male   | ●               |
|                                                                                  | <b>K</b> | 2          | $\gamma$ | —      | 70°  | 70°  | <b>K</b> | 2          | $\alpha$ | —      | 52.5°  | 52.5° | 52.5°  | 52.5° | female       | male   | ○               |
|                                                                                  | <b>L</b> | 2          | $\gamma$ | —      | 80°  | 80°  | <b>L</b> | 2          | $\gamma$ | —      | 70°    | 70°   | 70°    | 70°   | female       | male   | ○               |
|                                                                                  | <b>M</b> | 2          | $\delta$ | —      | 110° | —    | <b>M</b> | 2          | —        | —      | —      | —     | —      | —     | female       | male   | ○               |
|                                                                                  | <b>Y</b> | 3          | —        | —      | —    | —    | <b>Y</b> | 3          | $\beta$  | —      | 112.5° | 126°  | 112.5° | —     | male         | female | ● <sup>1)</sup> |
|                                                                                  |          | 3          | —        | —      | —    | —    |          | 3          | $\gamma$ | —      | 100°   | 102°  | 147.5° | —     | male         | female | ● <sup>1)</sup> |

| Front view of a socket                                                             | Ref.     | Nb of keys | Angles   | Series |    |    | Ref.     | Nb of keys | Angles   | Series |    |    |    |      | Contact type |        | Note |
|------------------------------------------------------------------------------------|----------|------------|----------|--------|----|----|----------|------------|----------|--------|----|----|----|------|--------------|--------|------|
|                                                                                    |          |            |          | 00     | 0B | 1B |          |            |          | XB     | 2B | 3B | 4B | 5B   | Plug         | Socket |      |
|                                                                                    |          |            |          |        |    |    |          |            |          |        |    |    |    |      |              |        |      |
|  | <b>R</b> | 5          | $\alpha$ | —      | —  | —  | <b>R</b> | 5          | $\alpha$ | —      | —  | —  | —  | 95°  | male         | female | ●    |
|                                                                                    |          | 5          | $\beta$  | —      | —  | —  |          | 5          | $\beta$  | —      | —  | —  | —  | 115° | male         | female | ●    |
|                                                                                    |          | 5          | $\gamma$ | —      | —  | —  |          | 5          | $\gamma$ | —      | —  | —  | —  | 20°  | male         | female | ●    |
|                                                                                    |          | 5          | $\delta$ | —      | —  | —  |          | 5          | $\delta$ | —      | —  | —  | —  | 30°  | male         | female | ●    |

**Note:** FTG, FGY, ENY models are not available with all the keys. Please consult pages corresponding to these models. For R●● models see explanation on page 24 and for S●● models see explanation on page 33.

**Note:** <sup>1)</sup> only FGY and ENY models are available.

- First choice alternative
- Special order alternative

## K Series

K series connectors have been specifically designed for outdoor applications.

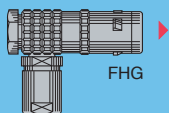
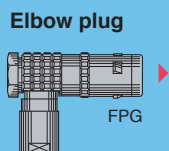
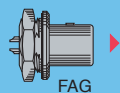
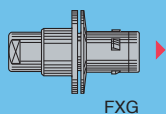
They include an inner sleeve and two seals to prevent penetration of solids or liquids into the housing formed by the plug, free socket, fixed socket or coupler. All models of this series are watertight when mated to give a protection index of IP68 as per IEC 60529 standard (in mated condition) when correctly assembled to an appropriate cable (IP66 otherwise).

K series connectors have the same insulators as the B series and have the following main features:

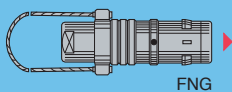
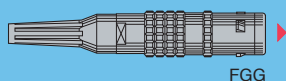
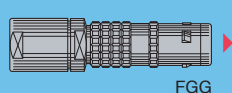
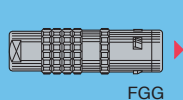
- security of the Push-Pull latching system
- multipole types 2 to 64 contacts
- keying system («G» key standard) for connector alignment
- 360° screening for full EMC shielding
- rugged housing for extreme working conditions.
- watertight connection (IP 68/IP 66)
- solder, crimp or print (straight or elbow) contacts
- multiple key options to avoid cross mating of similar connectors
- high packing density for space savings

### Metal housing models (page 39)

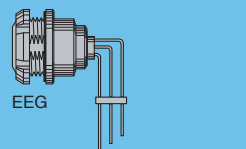
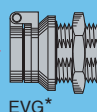
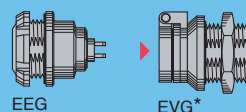
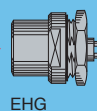
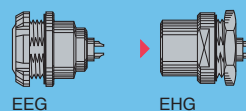
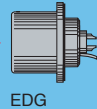
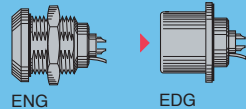
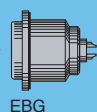
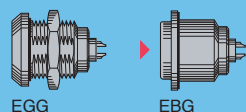
#### Fixed plugs



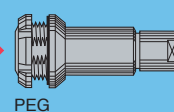
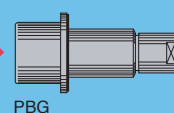
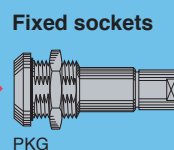
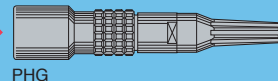
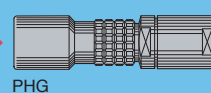
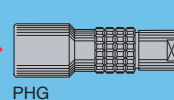
#### Straight plugs



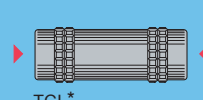
#### Fixed sockets



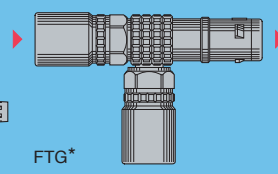
#### Free sockets



#### Free coupler

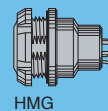
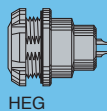
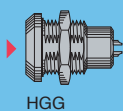


#### T-plug with sockets (90°)

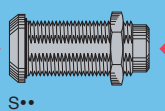


### Watertight or vacuumtight models (page 47)

#### Fixed sockets

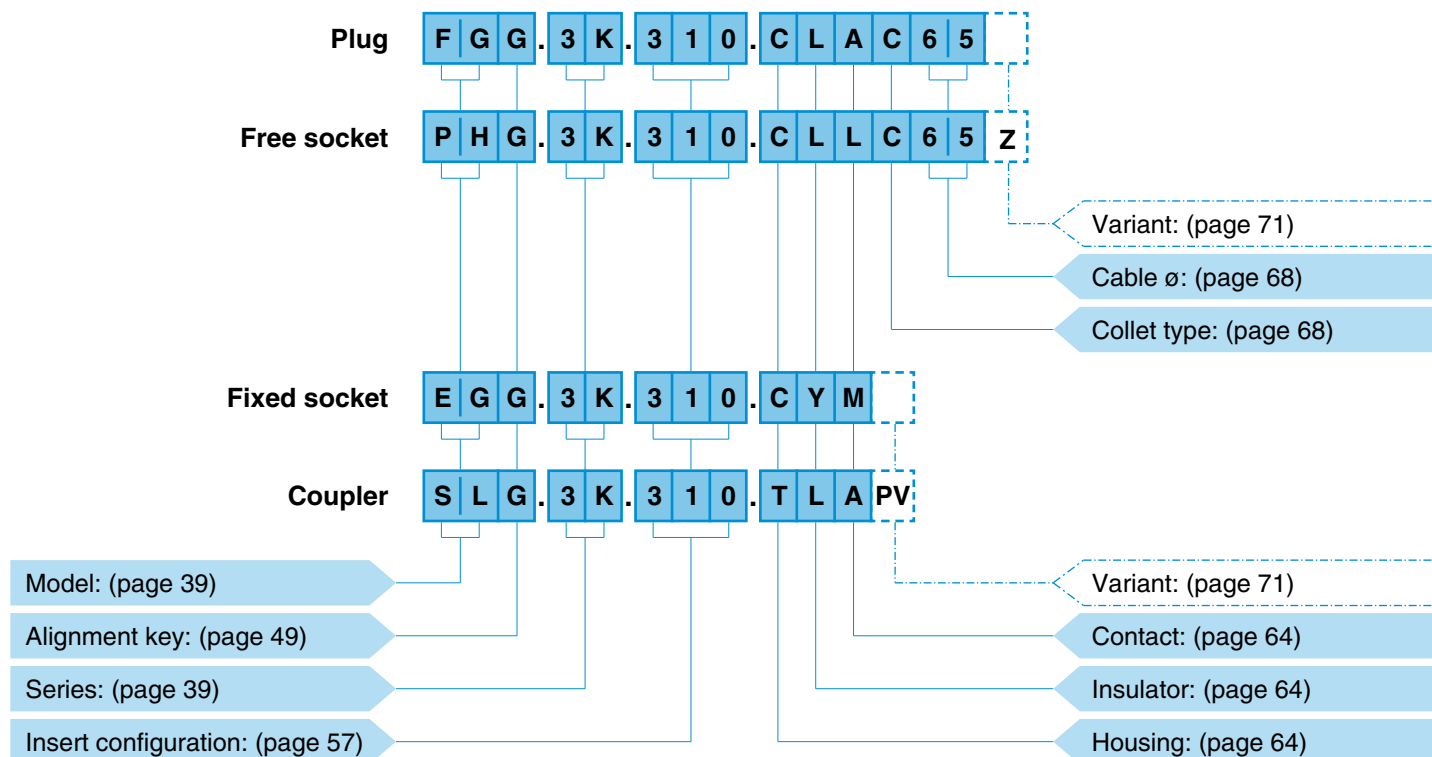


#### Fixed coupler



**Note:** \* Contact LEMO for details.

## Part Numbering System



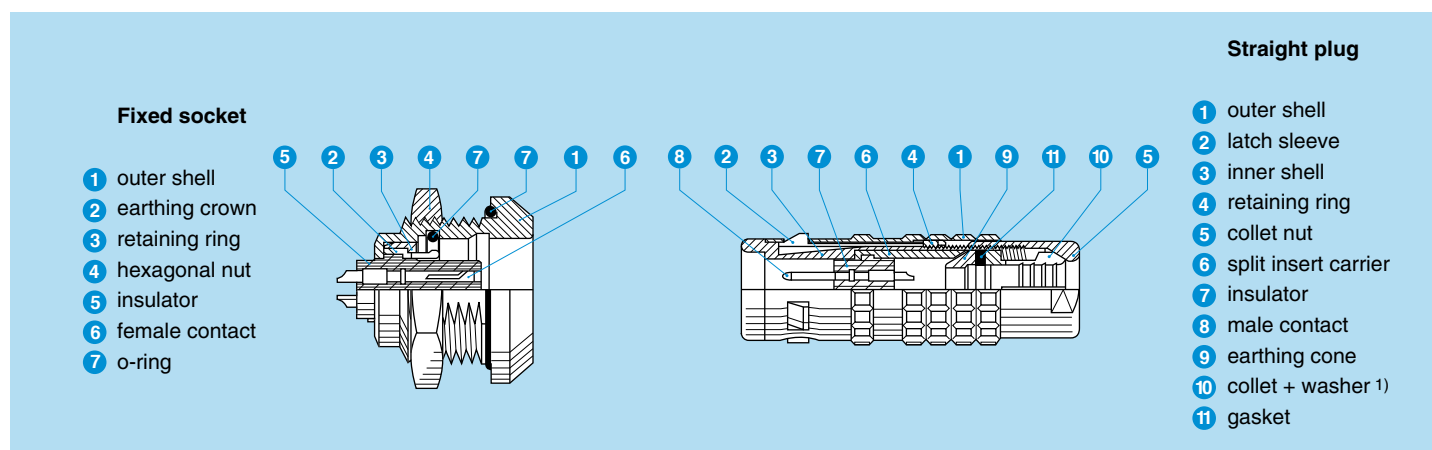
**FGG.3K.310.CLAC65** = straight plug with key (G) and cable collet, 3K series, multipole type with 10 contacts, outer shell in chrome-plated brass, PEEK insulator, male solder contacts, C type collet for 6.5 mm diameter cable.

**PHG.3K.310.CLLC65Z** = free socket with key (G) and cable collet, 3K series, multipole type with 10 contacts, outer shell in chrome-plated brass, PEEK insulator, female solder contacts, C type collet for 6.5 mm diameter cable and nut for fitting a bend relief.

**EGG.3K.310.CYM** = fixed socket, nut fixing, with key (G), 3K series, multipole type with 10 contacts, outer shell in chrome-plated brass, PEEK extended insulator, female crimp contacts.

**SLG.3K.310.TLAPV** = fixed coupler, nut fixing, keys (L) on the flange end and key (G) at the other end, 3K series, multipole type with 10 contacts, outer shell in stainless steel, PEEK insulator, male-female contacts, vacuumtight.

## Part Section Showing Internal Components



**Note:** <sup>1)</sup> depending on models.



## Metal housing models

### Technical Characteristics

#### Mechanical and Climatical

| Characteristics                         | Value              | Standard             |
|-----------------------------------------|--------------------|----------------------|
| Endurance <sup>1)</sup>                 | > 5000 cycles      | IEC 60512-5 test 9a  |
| Humidity                                | up to 95% at 60° C |                      |
| Temperature range <sup>2)</sup>         | - 55° C, + 200° C  |                      |
| Resistance to vibrations                | 10-2000 Hz, 15g    | IEC 60512-4 test 6d  |
| Shock resistance                        | 100 g, 6 ms        | IEC 60512-4 test 6c  |
| Salt spray corrosion test <sup>4)</sup> | > 1000h            | IEC 60512-6 test 11f |
| Protection index (mated) <sup>3)</sup>  | IP 68/IP 66        | IEC 60529            |
| Climatical category                     | 50/175/21          | IEC 60068-1          |

#### Electrical

| Characteristics      | Value     | Standard      |
|----------------------|-----------|---------------|
| Shielding efficiency | at 10 MHz | > 95 dB       |
|                      | at 1 GHz  | > 80 dB       |
|                      |           | IEC 60169-1-3 |
|                      |           | IEC 60169-1-3 |

#### Note:

the various tests have been carried out with FGG and EGG connector pairs, with chrome-plated brass shell, PEEK insulator and silicone O-ring. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical Characteristics on page 182.

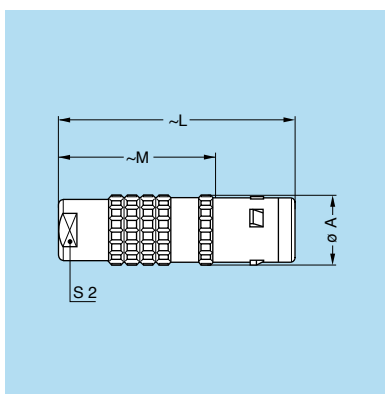
<sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.

<sup>2)</sup> minimum operating temperature is -20°C for sockets fitted with an FPM (Viton®) O-ring.

<sup>3)</sup> IP68 achieved providing that the cable is perfectly circular and that assembly process ensures a high integrity seal.

<sup>4)</sup> for chrome plated product («C» material code).

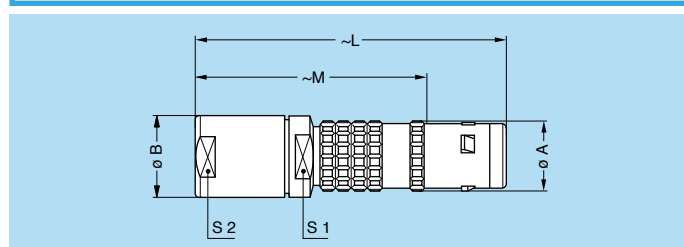
#### FGG Straight plug, key (G) or keys (A to F, L and R), cable collet



| Reference |        | Dimensions (mm) |    |      |    |
|-----------|--------|-----------------|----|------|----|
| Model     | Series | A               | L  | M    | S2 |
| FGG       | 0K     | 11              | 34 | 23.0 | 8  |
| FGG       | 1K     | 13              | 42 | 28.0 | 9  |
| FGG       | 2K     | 16              | 52 | 36.0 | 12 |
| FGG       | 3K     | 19              | 61 | 41.0 | 15 |
| FGG       | 4K     | 25              | 71 | 50.5 | 19 |
| FGG       | 5K     | 38              | 92 | 67.0 | 30 |

**M1** Cable assembly (page 172)

#### FGG Straight plug, key (G) or keys (A to F, L and R), cable collet and oversize cable collet <sup>1)</sup>

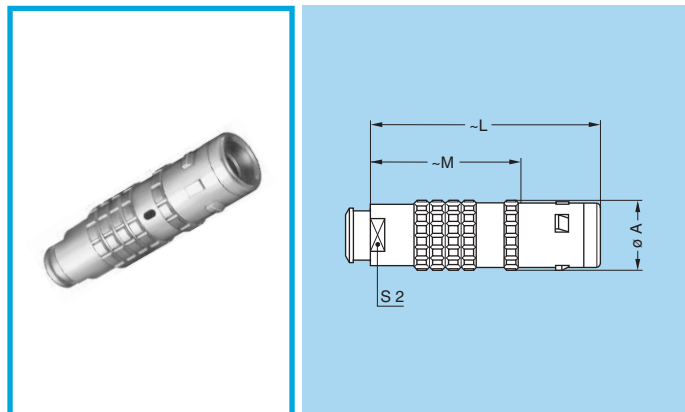


| Reference |        | Dimensions (mm) |      |       |    |    |    |
|-----------|--------|-----------------|------|-------|----|----|----|
| Model     | Series | A               | B    | L     | M  | S1 | S2 |
| FGG       | 1K     | 13              | 14.5 | 60.0  | 46 | 12 | 12 |
| FGG       | 2K     | 16              | 17.0 | 68.0  | 52 | 15 | 15 |
| FGG       | 3K     | 19              | 22.0 | 85.0  | 65 | 19 | 19 |
| FGG       | 4K     | 25              | 36.0 | 119.5 | 99 | 30 | 32 |

**M2** Cable assembly (page 173)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 68).

## FGG Straight plug, key (G) or keys (A to F, L and R), cable collet and nut for fitting a bend relief <sup>1)</sup>

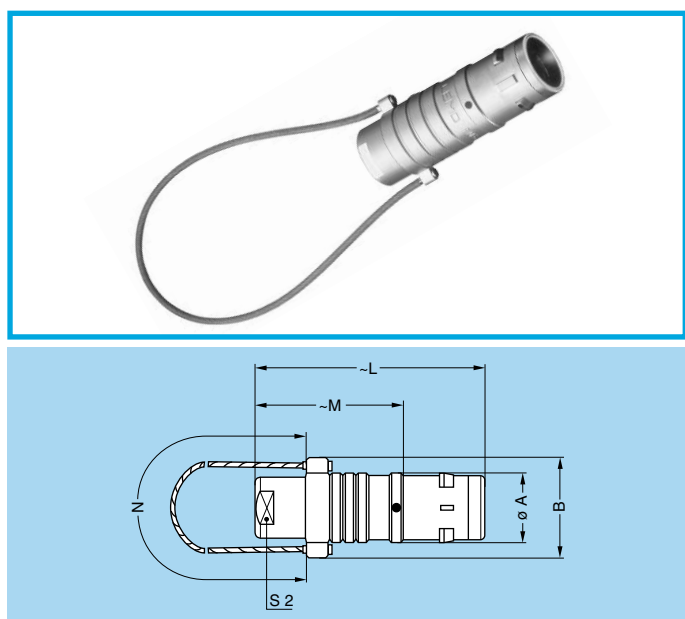


| Reference |        | Dimensions (mm) |    |      |    |
|-----------|--------|-----------------|----|------|----|
| Model     | Series | A               | L  | M    | S2 |
| FGG       | 0K     | 11              | 34 | 23.0 | 7  |
| FGG       | 1K     | 13              | 42 | 28.0 | 9  |
| FGG       | 2K     | 16              | 52 | 36.0 | 12 |
| FGG       | 3K     | 19              | 60 | 40.0 | 15 |
| FGG       | 4K     | 25              | 71 | 50.5 | 19 |

**M1** Cable assembly (page 172)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

## FNG Straight plug, key (G) or keys (A to F and L), cable collet and lanyard release

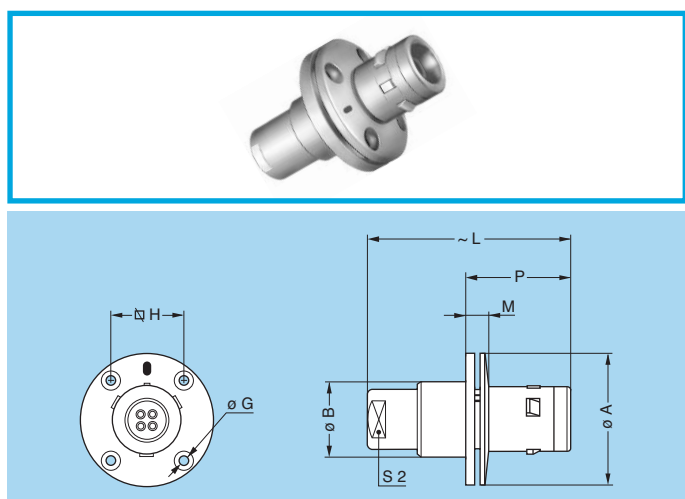


| Reference |        | Dimensions (mm) |    |    |      |     |    |
|-----------|--------|-----------------|----|----|------|-----|----|
| Model     | Series | A               | B  | L  | M    | N   | S2 |
| FNG       | 2K     | 16              | 22 | 52 | 36.0 | 160 | 12 |
| FNG       | 4K     | 25              | 32 | 71 | 50.5 | 230 | 19 |

**M1** Cable assembly (page 172)

**Note:** cable material: stainless steel with Polyamide sheath

## FXG Fixed plug with round flange, key (G) or keys (A to F, L and R) and screw fixing



| Reference |        | Dimensions (mm) |      |     |      |     |      |      |    |
|-----------|--------|-----------------|------|-----|------|-----|------|------|----|
| Model     | Series | A               | B    | G   | H    | L   | M    | P    | S2 |
| FXG       | 3K     | 38              | 22.5 | 3.4 | 20.6 | 61  | 10.0 | 30.0 | 15 |
| FXG       | 4K     | 47              | 28.5 | 3.4 | 27.0 | 71  | 11.0 | 32.0 | 19 |
| FXG       | 5K     | 65              | 42.5 | 4.4 | 38.0 | 100 | 12.5 | 38.5 | 30 |

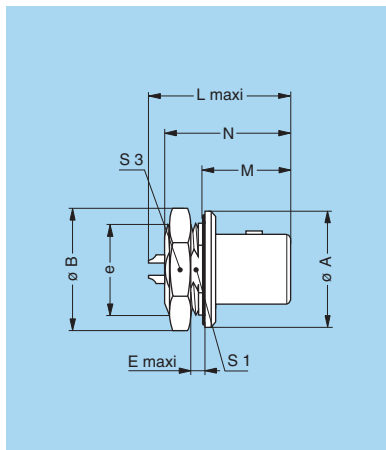
**P6** Panel cut-out (page 159)

**Note:** this model does not include an O-ring behind the flange, it allows the device on which it is fitted to reach only IP50 protection index.  
It does not have a cable collet.





## FAG Fixed plug, nut fixing, non-latching, key (G) or keys (A to F, L and R)



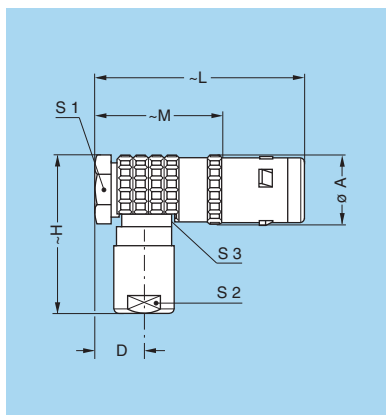
| Reference |        | Dimensions (mm) |      |         |     |      |      |                 |      |    |
|-----------|--------|-----------------|------|---------|-----|------|------|-----------------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M    | N <sup>1)</sup> | S1   | S3 |
| FAG       | 1K     | 20              | 21.5 | M16x1.0 | 2.3 | 22.6 | 16.0 | 22.5            | 14.5 | 19 |
| FAG       | 2K     | 25              | 27.0 | M20x1.0 | 4.5 | 33.6 | 18.0 | 28.3            | 18.5 | 24 |
| FAG       | 3K     | 31              | 34.0 | M24x1.0 | 4.0 | 34.3 | 22.5 | 33.8            | 22.5 | 30 |
| FAG       | 4K     | 37              | 40.5 | M30x1.0 | 4.0 | 35.3 | 23.0 | 36.3            | 28.5 | 36 |
| FAG       | 5K     | 55              | 54.0 | M45x1.5 | 4.0 | 43.5 | 28.5 | 42.3            | 42.5 | —  |

**P1** Panel cut-out (page 159)

**Note:** The 1K series is delivered with a locking washer.  
The 5K series is delivered with a round nut.

**Note:** <sup>1)</sup> maximum length with crimp contacts.

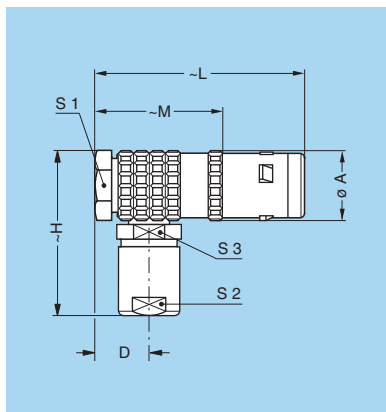
## FPG Elbow (90°) plug, key (G) or keys (A to F, L and R), cable collet



| Reference |        | Dimensions (mm) |      |    |    |    |    |    |    |
|-----------|--------|-----------------|------|----|----|----|----|----|----|
| Model     | Series | A               | D    | H  | L  | M  | S1 | S2 | S3 |
| FPG       | 0K     | 11              | 7.3  | 25 | 36 | 25 | 9  | 8  | 8  |
| FPG       | 1K     | 13              | 8.7  | 33 | 42 | 28 | 11 | 9  | 10 |
| FPG       | 2K     | 16              | 10.2 | 40 | 51 | 35 | 14 | 12 | 13 |

**M3** Cable assembly (page 172)

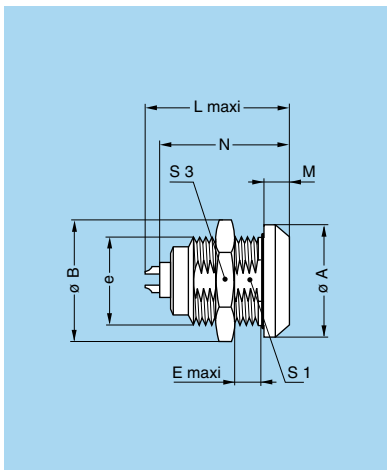
## FHG Elbow (90°) plug, key (G) or keys (A to F, L and R), cable collet



| Reference |        | Dimensions (mm) |      |    |    |      |    |    |    |
|-----------|--------|-----------------|------|----|----|------|----|----|----|
| Model     | Series | A               | D    | H  | L  | M    | S1 | S2 | S3 |
| FHG       | 3K     | 21.0            | 11.5 | 47 | 60 | 40.0 | 18 | 15 | 15 |
| FHG       | 4K     | 27.5            | 15.5 | 57 | 72 | 51.5 | 24 | 19 | 20 |

**M3** Cable assembly (page 172)

## EGG Fixed socket, nut fixing, key (G) or keys (A to F, L and R)



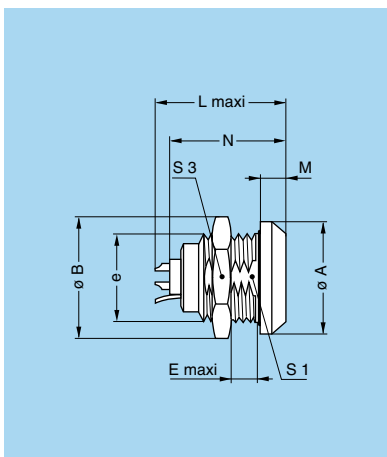
| Reference |        | Dimensions (mm) |      |         |    |      |     |                 |      |    |
|-----------|--------|-----------------|------|---------|----|------|-----|-----------------|------|----|
| Model     | Series | A               | B    | e       | E  | L    | M   | N <sup>1)</sup> | S1   | S3 |
| EGG       | 0K     | 18              | 19.2 | M14x1.0 | 6  | 21.7 | 4.0 | 20.1            | 12.5 | 17 |
| EGG       | 1K     | 20              | 21.5 | M16x1.0 | 9  | 27.0 | 4.5 | 25.1            | 14.5 | 19 |
| EGG       | 2K     | 25              | 27.0 | M20x1.0 | 9  | 30.7 | 5.0 | 28.6            | 18.5 | 24 |
| EGG       | 3K     | 31              | 34.0 | M24x1.0 | 11 | 36.2 | 6.0 | 33.6            | 22.5 | 30 |
| EGG       | 4K     | 37              | 40.5 | M30x1.0 | 9  | 40.2 | 6.5 | 38.6            | 28.5 | 36 |
| EGG       | 5K     | 55              | 54.0 | M45x1.5 | 10 | 47.5 | 9.0 | 43.6            | 42.5 | —  |

**P1** Panel cut-out (page 159)

**Note:** The 5K series is delivered with a round nut.

**Note:** <sup>1)</sup> maximum length with crimp contacts.

## ENG Fixed socket, nut fixing, key (G) or keys (A to F, L and R) and earthing tag

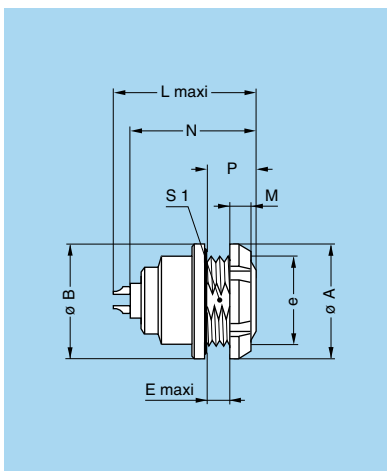


| Reference |        | Dimensions (mm) |    |         |      |      |   |                 |      |    |
|-----------|--------|-----------------|----|---------|------|------|---|-----------------|------|----|
| Model     | Series | A               | B  | e       | E    | L    | M | N <sup>1)</sup> | S1   | S3 |
| ENG       | 3K     | 31              | 34 | M24x1.0 | 11.3 | 36.2 | 6 | 33.6            | 22.5 | 30 |

**P1** Panel cut-out (page 159)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

## EEG Fixed socket, nut fixing, key (G) or keys (A to F, L and R) (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |      |     |                 |      |      |
|-----------|--------|-----------------|----|---------|-----|------|-----|-----------------|------|------|
| Model     | Series | A               | B  | e       | E   | L    | M   | N <sup>1)</sup> | P    | S1   |
| EEG       | 0K     | 18.0            | 18 | M14x1.0 | 3.4 | 21.7 | 3.5 | 20.1            | 7.0  | 12.5 |
| EEG       | 1K     | 20.0            | 20 | M16x1.0 | 6.2 | 27.0 | 3.5 | 25.1            | 10.0 | 14.5 |
| EEG       | 2K     | 25.0            | 25 | M20x1.0 | 5.0 | 30.7 | 3.5 | 28.6            | 10.0 | 18.5 |
| EEG       | 3K     | 30.0            | 31 | M24x1.0 | 7.5 | 36.2 | 4.5 | 33.6            | 12.0 | 22.5 |
| EEG       | 4K     | 41.5            | 37 | M30x1.0 | 6.0 | 40.2 | 7.0 | 38.6            | 13.5 | 28.5 |

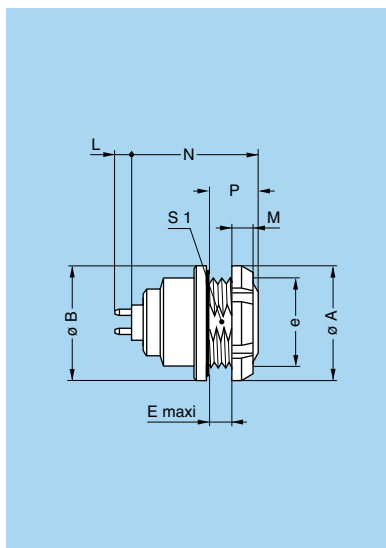
**P1** Panel cut-out (page 159)

**Note:** The 3K and 4K series are delivered with a conical nut.

**Note:** <sup>1)</sup> maximum length with crimp contacts.



## EEG Fixed socket, nut fixing, key (G) or keys (A to F and R) with straight print contacts for printed circuit (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |     |      |      |      |
|-----------|--------|-----------------|----|---------|-----|-----|------|------|------|
| Model     | Series | A               | B  | e       | E   | M   | N    | P    | S1   |
| EEG       | 0K     | 18.0            | 18 | M14x1.0 | 3.4 | 3.5 | 17.6 | 7.0  | 12.5 |
| EEG       | 1K     | 20.0            | 20 | M16x1.0 | 6.2 | 3.5 | 23.8 | 10.0 | 14.5 |
| EEG       | 2K     | 25.0            | 25 | M20x1.0 | 5.0 | 3.5 | 25.8 | 10.0 | 18.5 |
| EEG       | 3K     | 30.0            | 31 | M24x1.0 | 7.5 | 4.5 | 31.3 | 12.0 | 22.5 |
| EEG       | 4K     | 41.5            | 37 | M30x1.0 | 6.0 | 7.0 | 34.3 | 13.5 | 28.5 |

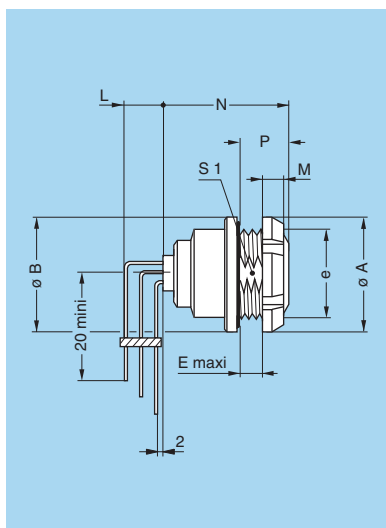
**P1** Panel cut-out (page 159)

**P15** PCB drilling pattern (page 160)

**Note:** The 3K and 4K series are delivered with a conical nut.

**Note:** this contact type is available for E● socket models fitted with female contact.  
Length «L» depends on the number of contacts, see table page 163.

## EEG Fixed socket, nut fixing, key (G) or keys (A to F and R) with elbow (90°) contacts for printed circuit (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |     |      |    |      |
|-----------|--------|-----------------|----|---------|-----|-----|------|----|------|
| Model     | Series | A               | B  | e       | E   | M   | N    | P  | S1   |
| EEG       | 0K     | 18              | 18 | M14x1.0 | 3.4 | 3.5 | 19.3 | 7  | 12.5 |
| EEG       | 1K     | 20              | 20 | M16x1.0 | 6.2 | 3.5 | 24.3 | 10 | 14.5 |
| EEG       | 2K     | 25              | 25 | M20x1.0 | 5.0 | 3.5 | 26.6 | 10 | 18.5 |
| EEG       | 3K     | 30              | 31 | M24x1.0 | 7.5 | 4.5 | 31.3 | 12 | 22.5 |

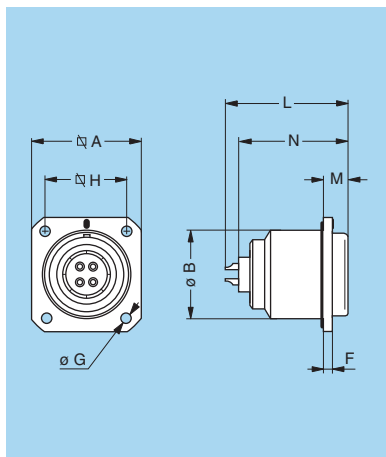
**P1** Panel cut-out (page 159)

**P17** PCB drilling pattern (page 164)

**Note:** length «L» depends on the number of contacts, see PCB drilling pattern page 164.

**Note:** The 3K series is delivered with a conical nut.

## EBG Fixed socket with square flange, key (G) or keys (A to F, L and R) and screw fixing

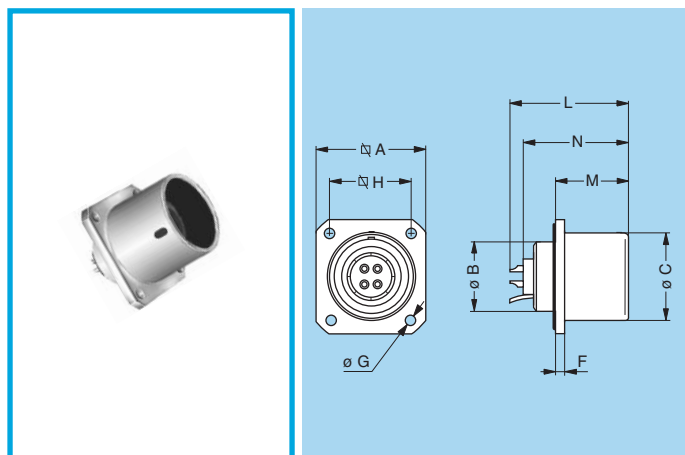


| Reference |        | Dimensions (mm) |    |   |     |    |      |     |                 |
|-----------|--------|-----------------|----|---|-----|----|------|-----|-----------------|
| Model     | Series | A               | B  | F | G   | H  | L    | M   | N <sup>1)</sup> |
| EBG       | 3K     | 29              | 23 | 3 | 3.4 | 23 | 36.2 | 6.0 | 32.6            |
| EBG       | 4K     | 37              | 30 | 3 | 3.4 | 29 | 40.2 | 6.5 | 36.6            |
| EBG       | 5K     | 54              | 45 | 4 | 4.4 | 44 | 47.5 | 8.0 | 42.1            |

**P7** Panel cut-out (page 159)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

**EDG** Fixed socket with square flange, key (G) or keys (A to F, L and R), protruding shell and earthing tag, screw fixing

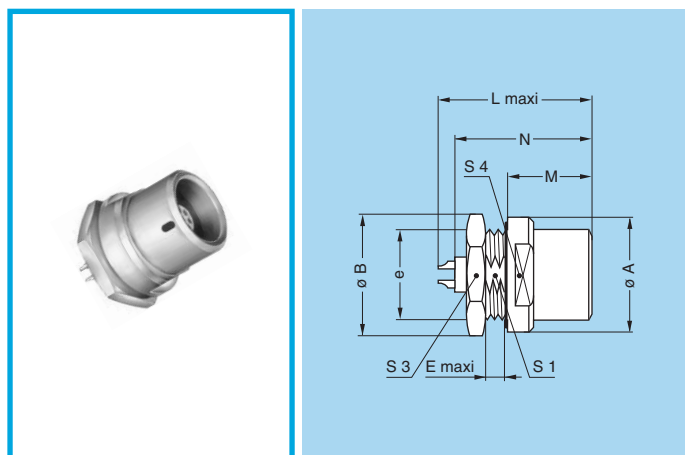


| Reference |        | Dimensions (mm) |    |    |   |     |    |      |      |                 |  |
|-----------|--------|-----------------|----|----|---|-----|----|------|------|-----------------|--|
| Model     | Series | A               | B  | C  | F | G   | H  | L    | M    | N <sup>1)</sup> |  |
| EDG       | 3K     | 29              | 18 | 23 | 3 | 3.4 | 23 | 36.2 | 22.5 | 32.6            |  |

**P7** Panel cut-out (page 159)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

**EHG** Fixed socket, nut fixing, key (G) or keys (A to F and L), protruding shell

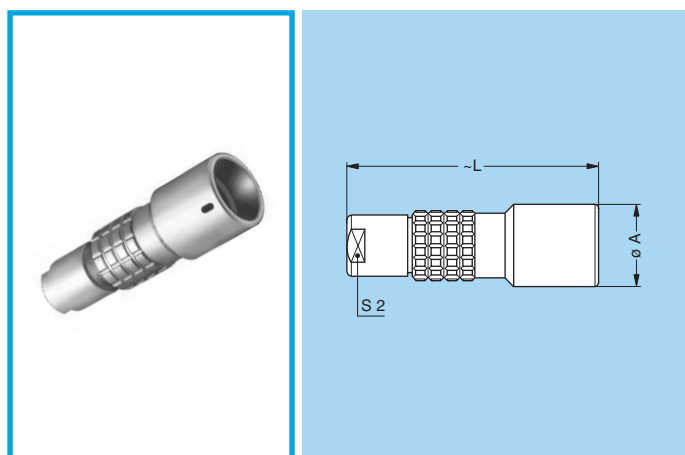


| Reference |        | Dimensions (mm) |      |         |     |      |      |                 |      |    |    |
|-----------|--------|-----------------|------|---------|-----|------|------|-----------------|------|----|----|
| Model     | Series | A               | B    | e       | E   | L    | M    | N <sup>1)</sup> | S1   | S3 | S4 |
| EHG       | 0K     | 18              | 19.2 | M14x1.0 | 1.5 | 21.7 | 10.5 | 20.1            | 12.5 | 17 | 15 |
| EHG       | 1K     | 20              | 21.5 | M16x1.0 | 1.5 | 27.0 | 15.5 | 25.1            | 14.5 | 19 | 17 |
| EHG       | 2K     | 25              | 27.0 | M20x1.0 | 1.5 | 30.7 | 17.0 | 27.1            | 18.5 | 24 | 20 |

**P1** Panel cut-out (page 159)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

**PHG** Free socket, key (G) or keys (A to F, L and R), cable collet

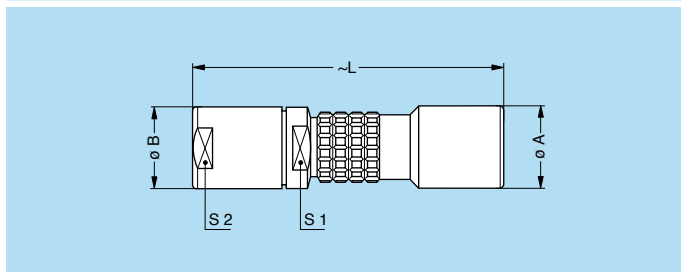
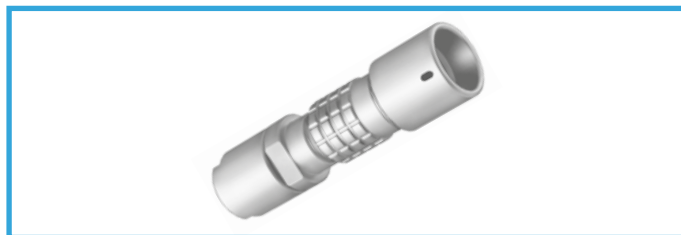


| Reference |        | Dimensions (mm) |      |    |
|-----------|--------|-----------------|------|----|
| Model     | Series | A               | L    | S2 |
| PHG       | 0K     | 13              | 34.0 | 8  |
| PHG       | 1K     | 15              | 45.0 | 9  |
| PHG       | 2K     | 19              | 54.0 | 12 |
| PHG       | 3K     | 23              | 65.0 | 15 |
| PHG       | 4K     | 29              | 75.5 | 19 |
| PHG       | 5K     | 42              | 95.0 | 30 |

**M1** Cable assembly (page 172)



## PHG Free socket, key (G) or keys (A to F, L and R), cable collet and oversize cable collet <sup>1)</sup>

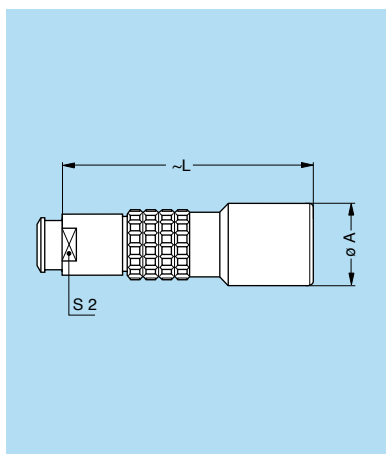


| Reference |        | Dimensions (mm) |      |     |    |    |
|-----------|--------|-----------------|------|-----|----|----|
| Model     | Series | A               | B    | L   | S1 | S2 |
| PHG       | 1K     | 15              | 14.5 | 63  | 12 | 12 |
| PHG       | 2K     | 19              | 17.0 | 70  | 15 | 15 |
| PHG       | 3K     | 23              | 22.0 | 89  | 19 | 19 |
| PHG       | 4K     | 29              | 36.0 | 124 | 30 | 32 |

**M2** Cable assembly (page 173)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 68).

## PHG Free socket, key (G) or keys (A to F, L and R), cable collet and nut for fitting a bend relief <sup>1)</sup>

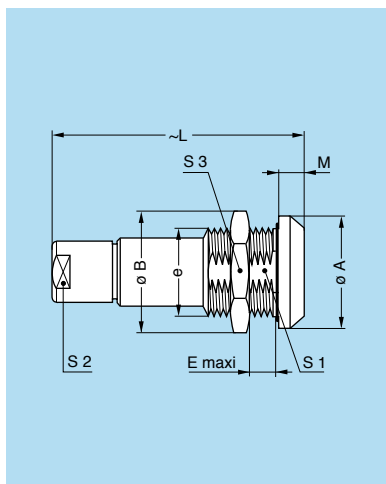


| Reference |        | Dimensions (mm) |      |    |
|-----------|--------|-----------------|------|----|
| Model     | Series | A               | L    | S2 |
| PHG       | 0K     | 13              | 34.0 | 7  |
| PHG       | 1K     | 15              | 45.0 | 9  |
| PHG       | 2K     | 19              | 54.0 | 12 |
| PHG       | 3K     | 23              | 64.0 | 15 |
| PHG       | 4K     | 29              | 75.5 | 19 |

**M1** Cable assembly (page 172)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).

## PKG Fixed socket, nut fixing, key (G) or keys (A to F, L and R), cable collet



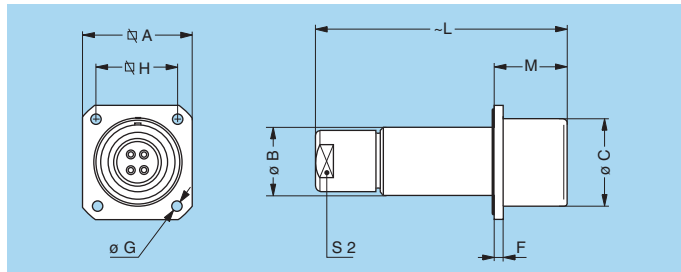
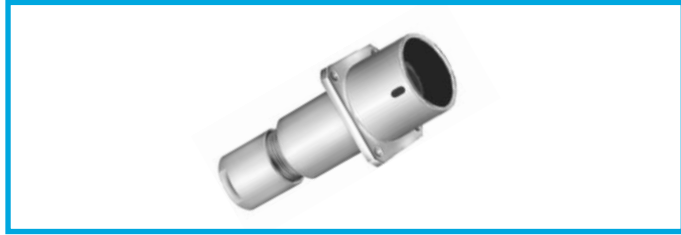
| Reference |        | Dimensions (mm) |      |         |      |      |     |      |    |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|----|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S2 | S3 |
| PKG       | 0K     | 18              | 19.2 | M14x1.0 | 9.0  | 35.2 | 4.0 | 12.5 | 8  | 17 |
| PKG       | 1K     | 20              | 21.5 | M16x1.0 | 9.5  | 46.2 | 4.5 | 14.5 | 9  | 19 |
| PKG       | 2K     | 25              | 27.0 | M20x1.0 | 9.0  | 54.5 | 5.0 | 18.5 | 12 | 24 |
| PKG       | 3K     | 31              | 34.0 | M24x1.0 | 11.5 | 65.7 | 6.0 | 22.5 | 15 | 30 |
| PKG       | 4K     | 37              | 40.5 | M30x1.0 | 9.0  | 75.5 | 6.5 | 28.5 | 19 | 36 |
| PKG       | 5K     | 55              | 54.0 | M45x1.5 | 15.0 | 98.0 | 9.0 | 42.5 | 30 | —  |

**P1** Panel cut-out (page 159)

**M1** Cable assembly (page 172)

**Note:** the 5K series is delivered with a round nut.

**PBG** Fixed socket, key (G) with square flange, cable collet and screw fixing

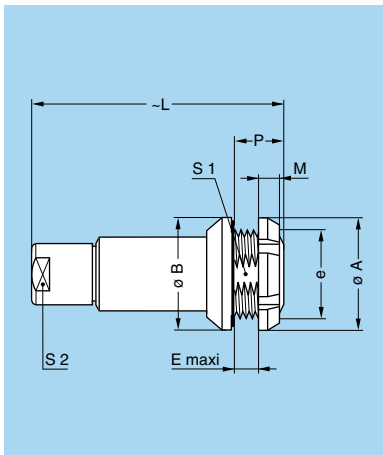


| Reference |        | Dimensions (mm) |    |    |   |     |    |    |      |    |
|-----------|--------|-----------------|----|----|---|-----|----|----|------|----|
| Model     | Series | A               | B  | C  | F | G   | H  | L  | M    | S2 |
| PBG       | 3K     | 29              | 19 | 23 | 3 | 3.4 | 23 | 65 | 22.5 | 15 |

**P7** Panel cut-out (page 159)

**M1** Cable assembly (page 172)

**PEG** Fixed socket, nut fixing, key (G) or keys (A to F, L and R), cable collet (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |    |     |      |      |    |
|-----------|--------|-----------------|----|---------|-----|----|-----|------|------|----|
| Model     | Series | A               | B  | e       | E   | L  | M   | P    | S1   | S2 |
| PEG       | 0K     | 18              | 18 | M14x1.0 | 5.0 | 34 | 3.5 | 8.5  | 12.5 | 8  |
| PEG       | 1K     | 20              | 20 | M16x1.0 | 6.5 | 45 | 3.5 | 10.0 | 14.5 | 9  |
| PEG       | 2K     | 25              | 25 | M20x1.0 | 4.0 | 54 | 3.5 | 7.5  | 18.5 | 12 |
| PEG       | 3K     | 30              | 31 | M24x1.0 | 7.5 | 65 | 4.5 | 12.0 | 22.5 | 15 |

**P1** Panel cut-out (page 159)

**M1** Cable assembly (page 172)

**Note:** the 3K series is delivered with a conical nut.



## Watertight or vacuumtight models

These socket and coupler models allow the device on which they are fitted to reach a protection index of IP68 as per IEC 60529. They are fully compatible with plugs of the same series and are widely used for portable radios, military, laboratory equipment, aviation, etc.

These models are identified by a letter «P» at the end of the reference.

Most of these models are also available in a vacuumtight version. Such models are identified by an additional letter «V» at the end of the part number (certificate on request).

Epoxy resin is used to seal these models.

## Technical Characteristics

### Mechanical and Climatical

| Characteristics                         | Value                                     | Standard                            |
|-----------------------------------------|-------------------------------------------|-------------------------------------|
| Endurance <sup>1)</sup>                 | > 5000 cycles                             | IEC 60512-5 test 9a                 |
| Humidity                                | up to 95% at 60° C                        |                                     |
| Temperature range                       | 0K-1K<br>2K to 5K                         | - 20° C/+ 100° C<br>- 20° C/+ 80° C |
| Salt spray corrosion test <sup>4)</sup> | > 1000h                                   | IEC 60512-6 test 11f                |
| Climatical category                     | 20/80/21                                  | IEC 60068-1                         |
| Leakage rate (He) <sup>2)</sup>         | < 10 <sup>-7</sup> mbar.l.s <sup>-1</sup> | IEC 60512-7 test 14b                |

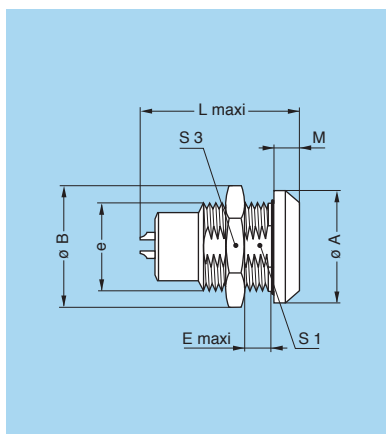
| Characteristics                          | Value | Standard |
|------------------------------------------|-------|----------|
| Maximum operating pressure <sup>3)</sup> | 0K    | 60 bar   |
|                                          | 1K    | 60 bar   |
|                                          | 2K    | 40 bar   |
|                                          | 3K    | 30 bar   |
|                                          | 4K    | 15 bar   |
|                                          | 5K    | 5 bar    |

**Note:** <sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.

<sup>2)</sup> only for vacuumtight models. Residual traces of grease used during (He) leak testing are on the o-ring. Please contact us for further details.

<sup>3)</sup> this value corresponds to the maximum allowed pressure difference for the assembled socket. <sup>4)</sup> for chrome plated product («C» material code).

### HGG Fixed socket, nut fixing, key (G) or keys (A to F and L), watertight or vacuumtight

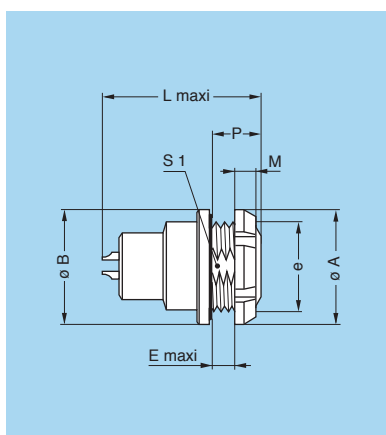


| Reference |        | Dimensions (mm) |      |         |      |      |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S3 |
| HGG       | 0K     | 18              | 19.2 | M14x1.0 | 5.5  | 23.0 | 4.0 | 12.5 | 17 |
| HGG       | 1K     | 20              | 21.5 | M16x1.0 | 9.0  | 30.0 | 4.5 | 14.5 | 19 |
| HGG       | 2K     | 25              | 27.0 | M20x1.0 | 13.0 | 33.7 | 5.0 | 18.5 | 24 |
| HGG       | 3K     | 31              | 34.0 | M24x1.0 | 16.0 | 41.7 | 6.0 | 22.5 | 30 |
| HGG       | 4K     | 37              | 40.5 | M30x1.0 | 14.0 | 49.2 | 6.5 | 28.5 | 36 |
| HGG       | 5K     | 55              | 54.0 | M45x1.5 | 10.0 | 55.7 | 9.0 | 42.5 | —  |

**P1** Panel cut-out (page 159)

**Note:** the 5K series is delivered with a round nut.

### HEG Fixed socket, nut fixing, key (G) or keys (A to F and L), watertight or vacuumtight (back panel mounting)

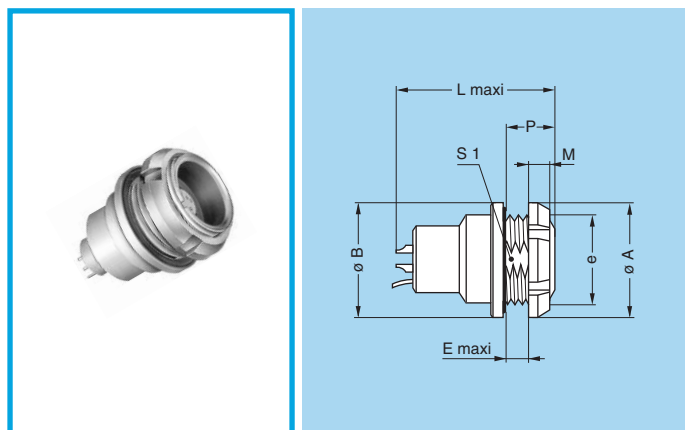


| Reference |        | Dimensions (mm) |    |         |     |      |     |    |      |
|-----------|--------|-----------------|----|---------|-----|------|-----|----|------|
| Model     | Series | A               | B  | e       | E   | L    | M   | P  | S1   |
| HEG       | 0K     | 18              | 18 | M14x1.0 | 3.4 | 23.0 | 3.5 | 7  | 12.5 |
| HEG       | 1K     | 20              | 20 | M16x1.0 | 6.2 | 30.0 | 3.5 | 10 | 14.5 |
| HEG       | 2K     | 25              | 25 | M20x1.0 | 5.0 | 33.7 | 3.5 | 10 | 18.5 |

**P1** Panel cut-out (page 159)



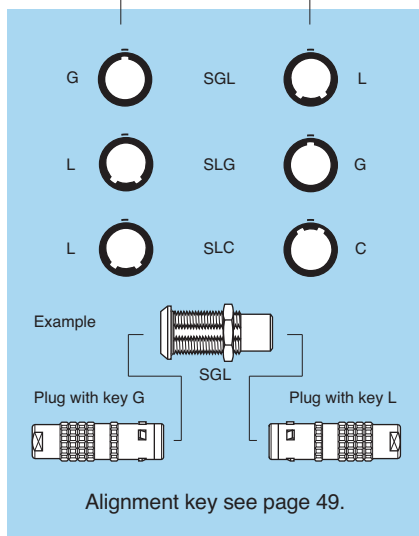
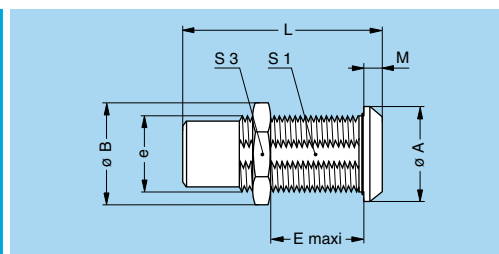
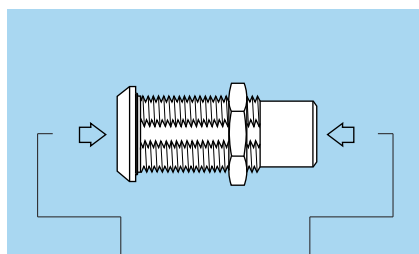
## HMG Fixed socket with earthing tag, nut fixing, key (G) or keys (A to F and L), watertight or vacuumtight (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |      |     |    |      |
|-----------|--------|-----------------|----|---------|-----|------|-----|----|------|
| Model     | Series | A               | B  | e       | E   | L    | M   | P  | S1   |
| HMG       | 1K     | 20              | 20 | M16x1.0 | 6.2 | 30.0 | 3.5 | 10 | 14.5 |
| HMG       | 2K     | 25              | 25 | M20x1.0 | 5.0 | 33.7 | 3.5 | 10 | 18.5 |

**P1** Panel cut-out (page 159)

## S●● Fixed coupler, nut fixing, key (G) or keys (L) at the flange end, and key (G) or keys (C or L) at the other end, watertight or vacuumtight

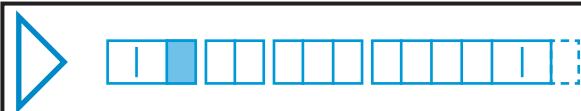


| Reference |        | Contacts      | Dimensions (mm) |      |         |    |      |     |      |    |
|-----------|--------|---------------|-----------------|------|---------|----|------|-----|------|----|
| Model     | Series | Type          | A               | B    | e       | E  | L    | M   | S1   | S3 |
| SGL       | 2K     | female – male | 25              | 27.0 | M20x1.0 | 25 | 52.4 | 5.0 | 18.5 | 24 |
| SLG       | 2K     | male – female | 25              | 27.0 | M20x1.0 | 25 | 52.4 | 5.0 | 18.5 | 24 |
| SLG       | 3K     | male – female | 31              | 34.0 | M24x1.0 | 33 | 64.0 | 6.0 | 22.5 | 30 |
| SLG       | 4K     | male – female | 37              | 40.5 | M30x1.0 | 48 | 74.0 | 6.5 | 28.5 | 36 |
| SLC       | 4K     | male – female | 37              | 40.5 | M30x1.0 | 48 | 74.0 | 6.5 | 28.5 | 36 |
| SLG       | 5K     | male – female | 55              | 54.0 | M45x1.5 | 58 | 88.0 | 9.0 | 42.5 | –  |
| SLC       | 5K     | male – female | 55              | 54.0 | M45x1.5 | 58 | 88.0 | 9.0 | 42.5 | –  |

**P1** Panel cut-out (page 159)

**Note:** for this fixed coupler, the first contact type mentioned is always the one at the flange end. On request, these couplers can be produced in other series, with other keys.

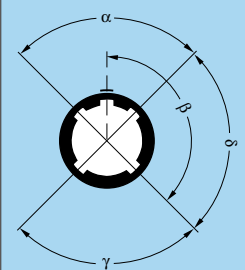
**Note:** The 5K series is delivered with a round nut.

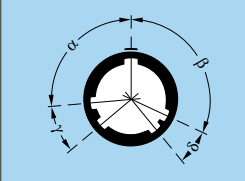


## Alignment Key (K series)

### Alignment Key and Polarized Keying System

K series connector model part numbers are composed of three letters. The LAST LETTER indicates the key position and the contact type (male or female).

| Front view of a socket                                                            | Ref.     | Nb of keys | Angles   | Series |      |      |      |      |      | Contact type |        | Note |
|-----------------------------------------------------------------------------------|----------|------------|----------|--------|------|------|------|------|------|--------------|--------|------|
|                                                                                   |          |            |          | 0K     | 1K   | 2K   | 3K   | 4K   | 5K   | Plug         | Socket |      |
|  | <b>G</b> | 1          | —        | 0°     | 0°   | 0°   | 0°   | 0°   | 0°   | male         | female | ●    |
|                                                                                   | <b>A</b> | 2          | $\alpha$ | 30°    | 30°  | 30°  | 30°  | 30°  | 30°  | male         | female | ●    |
|                                                                                   | <b>B</b> | 2          | $\alpha$ | 45°    | 45°  | 45°  | 45°  | 45°  | 45°  | male         | female | ●    |
|                                                                                   | <b>C</b> | 2          | $\alpha$ | 60°    | 60°  | 60°  | 60°  | 60°  | 60°  | male         | female | ●    |
|                                                                                   | <b>D</b> | 2          | $\gamma$ | 95°    | 95°  | 95°  | 95°  | 95°  | 95°  | male         | female | ○    |
|                                                                                   | <b>E</b> | 2          | $\beta$  | 120°   | 120° | 120° | 120° | 120° | 120° | male         | female | ○    |
|                                                                                   | <b>F</b> | 2          | $\beta$  | 145°   | 145° | 145° | 145° | 145° | 145° | male         | female | ○    |
|                                                                                   | <b>L</b> | 2          | $\gamma$ | 75°    | 75°  | 75°  | 75°  | 75°  | 75°  | female       | male   | ●    |

| Front view of a socket                                                             | Ref.     | Nb of keys | Angles   | Series |    |    |      |    |    | Contact type |        | Note |
|------------------------------------------------------------------------------------|----------|------------|----------|--------|----|----|------|----|----|--------------|--------|------|
|                                                                                    |          |            |          | 0K     | 1K | 2K | 3K   | 4K | 5K | Plug         | Socket |      |
|  | <b>R</b> | 5          | $\alpha$ | —      | —  | —  | 95°  | —  | —  | male         | female | ●    |
|                                                                                    |          | 5          | $\beta$  | —      | —  | —  | 115° | —  | —  | male         | female | ●    |
|                                                                                    |          | 5          | $\gamma$ | —      | —  | —  | 35°  | —  | —  | male         | female | ●    |
|                                                                                    |          | 5          | $\delta$ | —      | —  | —  | 25°  | —  | —  | male         | female | ●    |

**Note:** S●● and TGL models are not available with all the keys. For S●● models see explanation on page 48. Please consult the pages corresponding to these models.

- First choice alternative
- Special order alternative

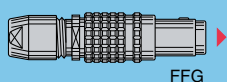
## T Series

T series connectors have been specifically designed for outdoor applications. They include an inner sleeve and seals to prevent penetration of solids or liquids. This series is watertight when mated to give a protection index of IP68 as per IEC 60529 standard and have the following main features:

- IP68 mated
- Push-Pull self-latching system
- Mechanical key (FGG) with multiple keys to avoid cross-mating
- High packing density for space savings
- 360° shielding for full EMC shielding
- Compatible with existing B sockets
- Same mounting hole as B sockets
- Black-chrome plated brass and plastic outershell available
- Multipole types 2 to 32 contacts
- For cables 1.0 up to 10.5 mm
- Solder, crimp or print contacts

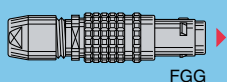
### Metal housing models (page 52)

#### Straight plug



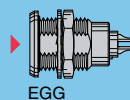
FFG

#### Straight plugs



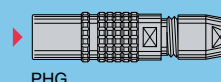
FGG

#### Fixed sockets



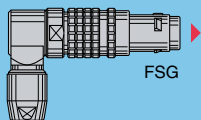
EGG

#### Free sockets

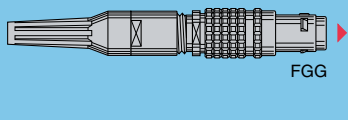


PHG

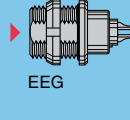
#### Elbow plug



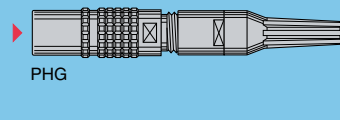
FSG



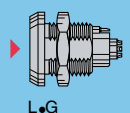
FGG



EEG



PHG



LGG

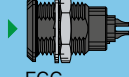
### Plastic housing models (page 56)

#### Straight plug



FGG

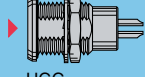
#### Fixed socket



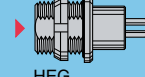
EGG

### Watertight or vacuumtight models (page 55)

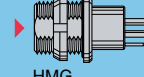
#### Fixed sockets



HGG



HEG

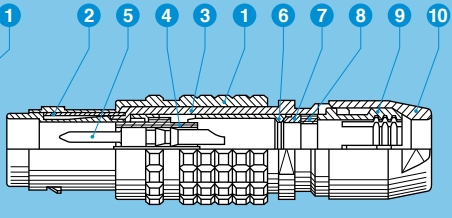
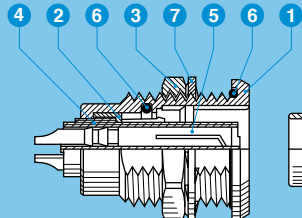


HMG

## Part Section Showing Internal Components

#### Fixed socket

- 1 outer shell
- 2 earthing crown
- 3 hexagonal nut
- 4 insulator
- 5 female contact
- 6 o-ring
- 7 locking washer

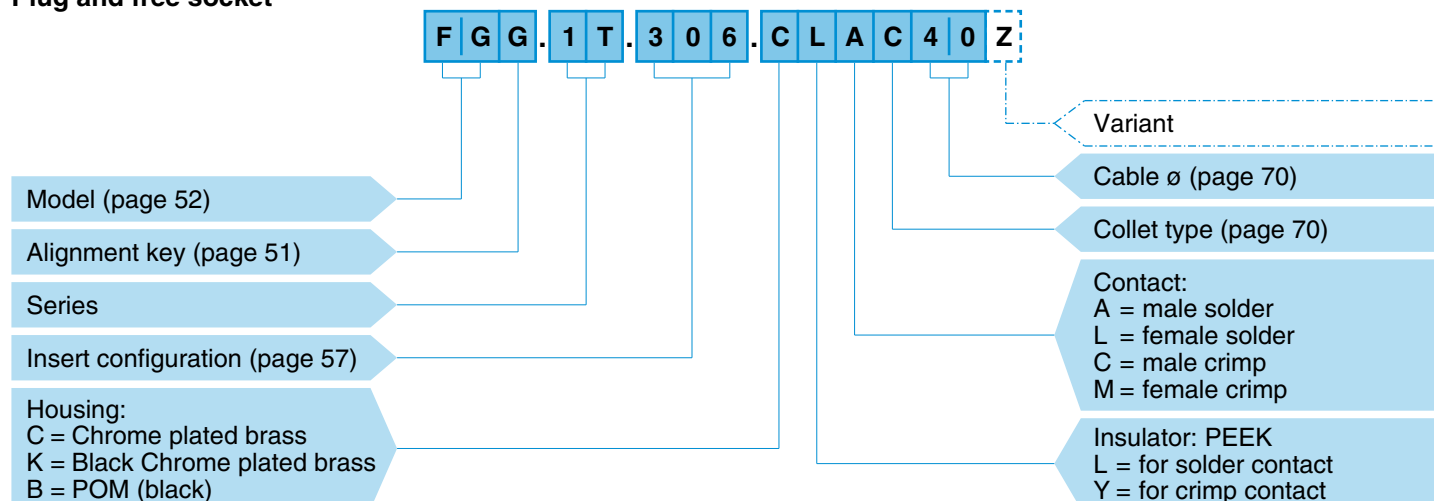


#### Straight plug

- 1 outer shell
- 2 latch sleeve
- 3 inner shell
- 4 insulator
- 5 male contact
- 6 split insert carrier
- 7 earthing cone
- 8 gasket
- 9 collet
- 10 collet nut

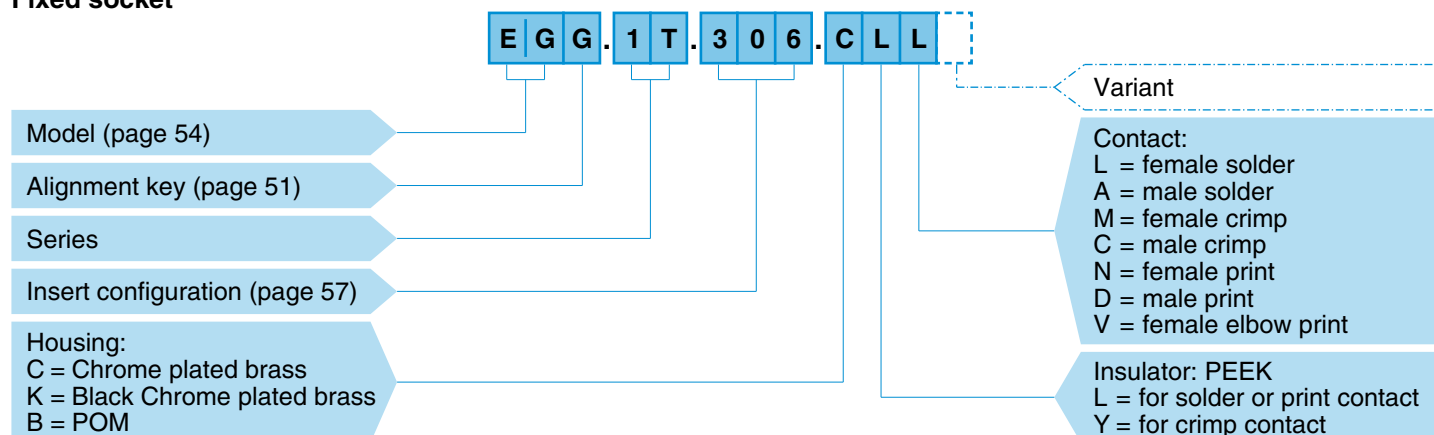
## Part Numbering System

### Plug and free socket

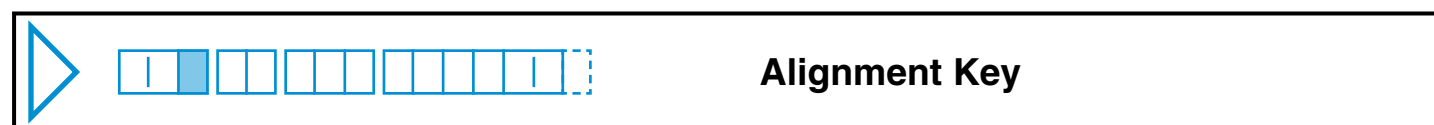


**FGG.1T.306.CLAC40Z** = Straight plug with key (G) and cable collet for bend relief, 1T series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, male solder contacts, C type collet for 4.0 mm diameter cable and nut for fitting a bend relief.

### Fixed socket



**EGG.1T.306.CLL** = fixed socket, nut fixing, with key (G), 1T series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, female solder contacts.



|  | Key | Contact type |        |
|--|-----|--------------|--------|
|  |     | Plug         | Socket |
|  | G   | male         | female |
|  | A   | male         | female |
|  | D   | male         | female |
|  | L   | female       | male   |
|  | J   | female       | male   |

**Note:** 1) for 2T and 3T series.

## Metal housing models

## Technical Characteristics

## Mechanical and Climatical

| Characteristics                           | Value                              | Standard             |
|-------------------------------------------|------------------------------------|----------------------|
| Endurance <sup>1)</sup>                   | > 3000 cycles                      | IEC 60512-5 test 9a  |
| Humidity                                  | up to 95% at 60° C                 |                      |
| Temperature range <sup>2)</sup>           | - 55° C, + 200° C / (-20°C, +80°C) |                      |
| Resistance to vibrations                  | 10-2000 Hz, 15g                    | IEC 60512-4 test 6d  |
| Shock resistance                          | 100 g, 6 ms                        | IEC 60512-4 test 6c  |
| Salt spray corrosion test <sup>6)</sup>   | > 1000h                            | IEC 60512-6 test 11f |
| Protection index (mated) <sup>3)</sup>    | IP 68/IP 66                        | IEC 60529            |
| Latching retention force <sup>4) 5)</sup> | From 85 N up to 300 N              |                      |
| Climatical category                       | 50/175/21                          | IEC 60068-1          |

**Note:**

<sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.

2) operating temperature is -20°C, +80°C for watertight or vacuumtight models fitted with an FPM (Viton®) o-ring and Epoxy.

<sup>3)</sup> IP68 achieved providing that the cable is perfectly circular and that assembly process ensures a high integrity seal.

4) average value.

5) depending of the size.

6) for chrome plated product («C» material code).

## Electrical

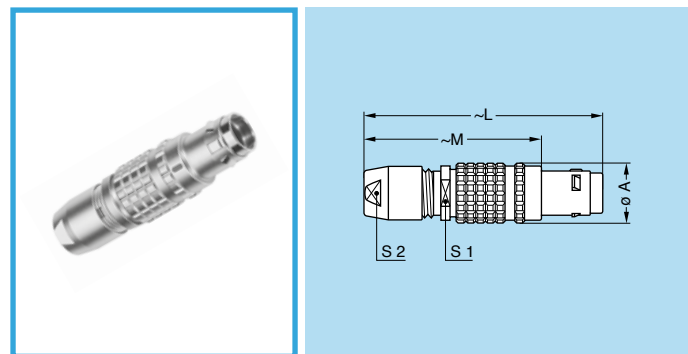
| Characteristics      |           | Value   | Standard      |
|----------------------|-----------|---------|---------------|
| Shielding efficiency | at 10 MHz | > 75 dB | IEC 60169-1-3 |
|                      | at 1 GHz  | > 40 dB | IEC 60169-1-3 |

**Note:**

**Note.** the various tests have been carried out with FGG and EGG connector pairs, with chrome-plated brass shell and PEEK insulator.

Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical Characteristics on page 182.

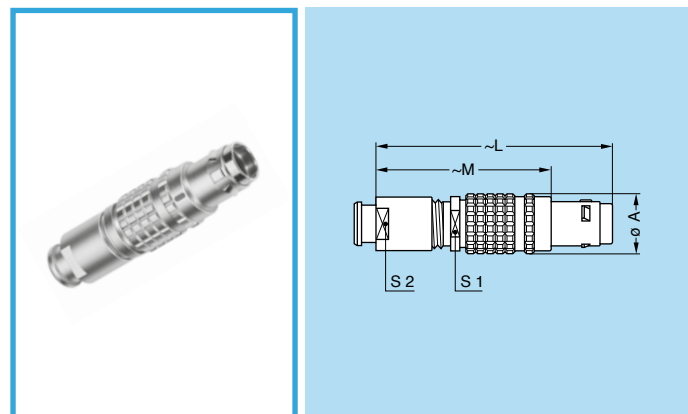
### FGG Straight plug, cable collet



| Reference  |           | Dimensions (mm) |      |      |      |    | Cable $\varnothing$ |      |
|------------|-----------|-----------------|------|------|------|----|---------------------|------|
| Model      | Series    | A               | L    | M    | S1   | S2 | min.                | max. |
| <b>FGG</b> | <b>TT</b> | 7.0             | 33.2 | 25.2 | 5.5  | 5  | 2.4                 | 3.0  |
| <b>FGG</b> | <b>0T</b> | 9.5             | 39.0 | 29.0 | 7.5  | 7  | 1.0                 | 5.0  |
| <b>FGG</b> | <b>1T</b> | 12.0            | 46.0 | 35.0 | 11.0 | 9  | 1.3                 | 6.5  |
| <b>FGG</b> | <b>2T</b> | 15.0            | 55.0 | 43.0 | 14.0 | 12 | 1.3                 | 8.5  |
| <b>FGG</b> | <b>3T</b> | 18.8            | 64.0 | 49.0 | 16.0 | 14 | 2.6                 | 10.5 |

**M1** Cable assembly (page 174)

### FGG Straight plug, cable collet and nut for fitting a bend relief <sup>1)</sup>



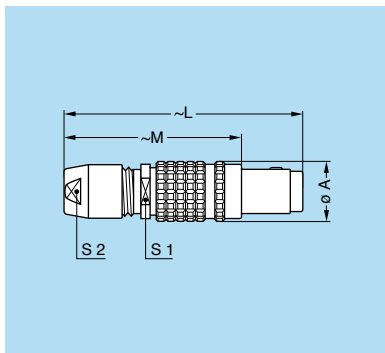
| Reference  |           | Dimensions (mm) |      |      |      |    | Cable $\phi$ |      |
|------------|-----------|-----------------|------|------|------|----|--------------|------|
| Model      | Series    | A               | L    | M    | S1   | S2 | min.         | max. |
| <b>FGG</b> | <b>TT</b> | 7.0             | 32.7 | 24.7 | 5.5  | 6  | 2.4          | 3.0  |
| <b>FGG</b> | <b>0T</b> | 9.5             | 38.0 | 28.0 | 7.5  | 7  | 1.0          | 5.0  |
| <b>FGG</b> | <b>1T</b> | 12.0            | 45.0 | 34.0 | 11.0 | 9  | 1.3          | 6.5  |
| <b>FGG</b> | <b>2T</b> | 15.0            | 54.0 | 42.0 | 14.0 | 12 | 1.3          | 8.5  |
| <b>FGG</b> | <b>3T</b> | 18.8            | 62.0 | 47.0 | 16.0 | 15 | 2.6          | 10.5 |

**M1** Cable assembly (page 174)

**Note:** 1) to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).



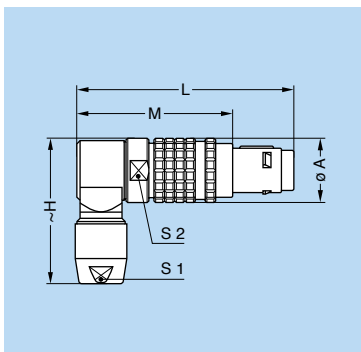
## FFG Straight plug, non latching, cable collet



| Reference |        | Dimensions (mm) |      |      |      |    | Cable ø |      |
|-----------|--------|-----------------|------|------|------|----|---------|------|
| Model     | Series | A               | L    | M    | S1   | S2 | min.    | max. |
| FFG       | TT     | 7.0             | 33.2 | 25.2 | 5.5  | 5  | 2.4     | 3.0  |
| FFG       | 0T     | 9.5             | 39.0 | 29.0 | 8.0  | 7  | 1.0     | 5.0  |
| FFG       | 1T     | 12.0            | 46.0 | 35.0 | 10.0 | 9  | 1.3     | 6.5  |
| FFG       | 2T     | 15.0            | 55.0 | 43.0 | 13.0 | 12 | 1.3     | 8.5  |
| FFG       | 3T     | 18.8            | 64.0 | 49.0 | 16.0 | 14 | 2.6     | 10.5 |

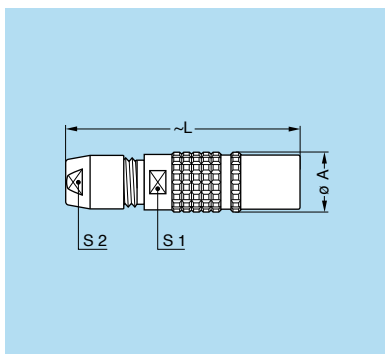
**M1** Cable assembly (page 174)

## FSG Adjustable right angle plug



| Reference |        | Dimensions (mm) |      |      |      |    |      | Cable ø |      |
|-----------|--------|-----------------|------|------|------|----|------|---------|------|
| Model     | Series | A               | H    | L    | M    | S1 | S2   | min.    | max. |
| FSG       | TT     | 8               | 20.0 | 28.5 | 20.5 | 5  | 7.5  | 2.4     | 3.0  |
| FSG       | 0T     | 10              | 23.0 | 36.0 | 26.0 | 7  | 9.5  | 1.0     | 5.0  |
| FSG       | 1T     | 13              | 30.0 | 43.5 | 32.5 | 9  | 12.0 | 1.3     | 6.5  |
| FSG       | 2T     | 17              | 37.5 | 54.0 | 42.0 | 12 | 16.0 | 1.3     | 8.5  |

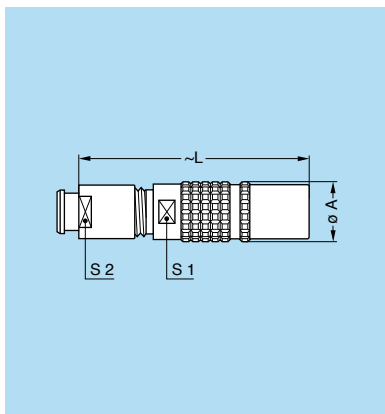
## PHG Free socket, cable collet



| Reference |        | Dimensions (mm) |      |      |    | Cable ø |      |
|-----------|--------|-----------------|------|------|----|---------|------|
| Model     | Series | A               | L    | S1   | S2 | min.    | max. |
| PHG       | TT     | 7.0             | 32.0 | 5.5  | 5  | 2.4     | 3.0  |
| PHG       | 0T     | 9.5             | 38.0 | 8.0  | 7  | 1.0     | 5.0  |
| PHG       | 1T     | 12.0            | 43.5 | 10.0 | 9  | 1.3     | 6.5  |
| PHG       | 2T     | 15.0            | 52.0 | 14.0 | 12 | 1.3     | 8.5  |
| PHG       | 3T     | 18.8            | 61.5 | 16.0 | 14 | 2.6     | 10.5 |

**M1** Cable assembly (page 174)

## PHG Free socket, cable collet and nut for fitting a bend relief <sup>1)</sup>

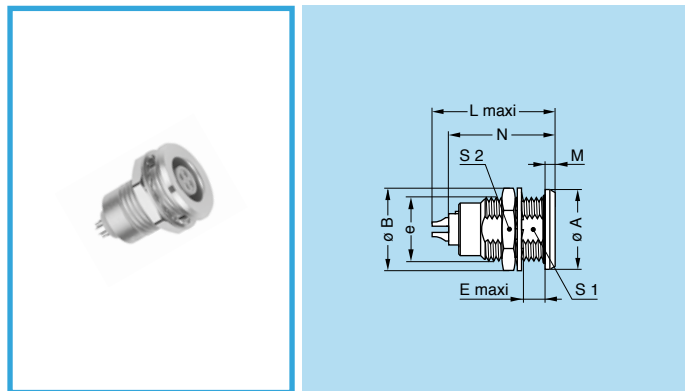


| Reference |        | Dimensions (mm) |      |      |    | Cable ø |      |
|-----------|--------|-----------------|------|------|----|---------|------|
| Model     | Series | A               | L    | S1   | S2 | min.    | max. |
| PHG       | TT     | 7.0             | 31.5 | 5.5  | 6  | 2.4     | 3.0  |
| PHG       | 0T     | 9.5             | 37.0 | 8.0  | 7  | 1.0     | 5.0  |
| PHG       | 1T     | 12.0            | 42.5 | 10.0 | 9  | 1.3     | 6.5  |
| PHG       | 2T     | 15.0            | 51.0 | 14.0 | 12 | 1.3     | 8.5  |
| PHG       | 3T     | 18.8            | 60.0 | 16.0 | 15 | 2.6     | 10.5 |

**M1** Cable assembly (page 174)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

## EGG Fixed socket, nut fixing

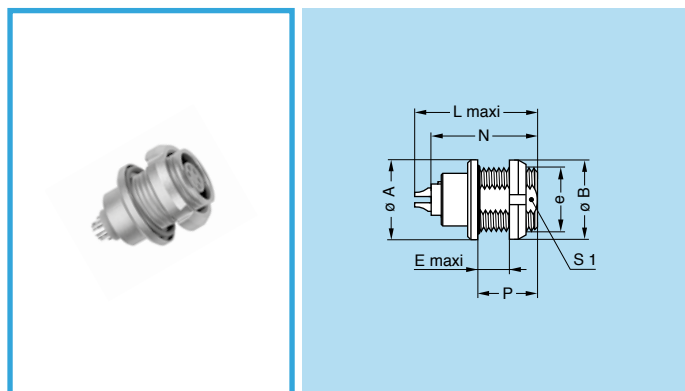


| Reference |        | Dimensions (mm) |      |         |     |      |     |                 |      |    |
|-----------|--------|-----------------|------|---------|-----|------|-----|-----------------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M   | N <sup>1)</sup> | S1   | S2 |
| EGG       | TT     | 10.0            | 10.2 | M7x0.5  | 5.5 | 16.0 | 1.2 | 13.5            | 6.3  | 9  |
| EGG       | 0T     | 12.0            | 12.5 | M9x0.6  | 6.0 | 21.0 | 1.5 | 19.1            | 8.2  | 11 |
| EGG       | 1T     | 15.5            | 16.0 | M12x1.0 | 6.0 | 23.0 | 1.8 | 21.5            | 10.5 | 14 |
| EGG       | 2T     | 18.5            | 19.6 | M15x1.0 | 7.5 | 26.5 | 1.8 | 24.6            | 13.5 | 17 |
| EGG       | 3T     | 23.5            | 25.1 | M18x1.0 | 9.6 | 30.1 | 2.5 | 25.0            | 16.5 | 22 |

**P1** Panel cut-out (page 157)

**Note:** <sup>1)</sup> maximum length with crimp contacts.

## EEG Fixed socket, nut fixing, back panel mounting

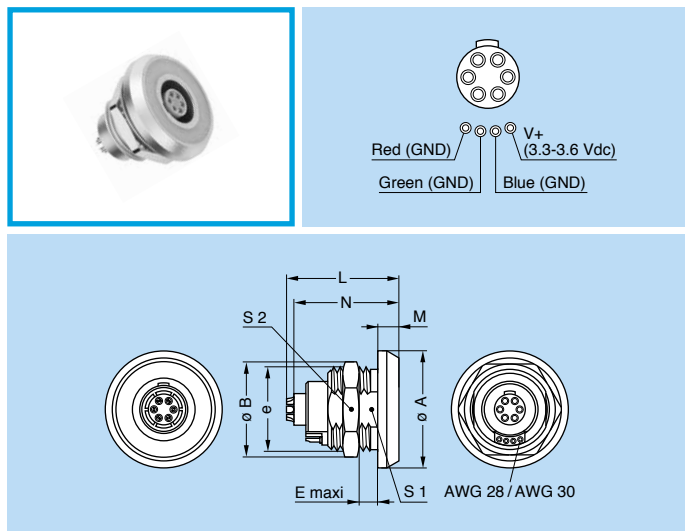


| Reference |        | Dimensions (mm) |      |         |     |      |                 |    |      |
|-----------|--------|-----------------|------|---------|-----|------|-----------------|----|------|
| Model     | Series | A               | B    | e       | E   | L    | N <sup>1)</sup> | P  | S1   |
| EEG       | TT     | 10.0            | 10.0 | M7x0.5  | 4.5 | 16.0 | 13.5            | 7  | 6.3  |
| EEG       | 0T     | 12.0            | 12.0 | M9x0.6  | 6.5 | 21.0 | 19.1            | 9  | 8.2  |
| EEG       | 1T     | 15.5            | 16.0 | M12x1.0 | 6.5 | 23.0 | 21.5            | 10 | 10.5 |
| EEG       | 2T     | 18.5            | 20.0 | M15x1.0 | 7.5 | 26.5 | 24.6            | 11 | 13.5 |
| EEG       | 3T     | 23.5            | 24.0 | M18x1.0 | 7.5 | 30.1 | 25.0            | 12 | 16.5 |

**P1** Panel cut-out (page 157)

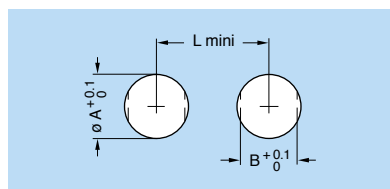
**Note:** <sup>1)</sup> maximum length with crimp contacts.

## L•G Fixed socket, nut fixing, key (G) or keys (A...L)



| Reference |        | Dimensions (mm) |      |          |     |      |   |      |      |    |
|-----------|--------|-----------------|------|----------|-----|------|---|------|------|----|
| Model     | Series | A               | B    | e        | E   | L    | M | N    | S1   | S2 |
| L•G       | 0T     | 19              | 18.2 | M13x0.75 | 4.0 | 18.5 | 5 | 16.0 | 11.5 | 16 |
| L•G       | 1T     | 21              | 19.2 | M15x1.00 | 5.8 | 21.0 | 5 | 18.5 | 13.5 | 17 |
| L•G       | 2T     | 25              | 27.0 | M20x1.00 | 6.5 | 24.1 | 5 | 21.5 | 18.5 | 24 |

**Note:** Only available with solder or crimp contacts.  
LEG model is with LED flange, LNG model is with narrow LED flange and LMG model is with single standby LED flange.



| Series | Dim. (mm) |      |    |
|--------|-----------|------|----|
|        | A         | B    | L  |
| 0T     | 13.1      | 11.6 | 24 |
| 1T     | 15.1      | 13.6 | 26 |
| 2T     | 20.1      | 18.6 | 29 |





## Watertight or vacuumtight models

These models are identified by a letter «P» at the end of the reference. Most of these models are also available in a vacuum-tight version. Such models are identified by an additional letter «V» at the end of the part number (certificate on request). Epoxy resin is used to seal these models. The temperature range is -20°C / +80°C.

### Part Number Example

HGG.0T.305.CLLP (5 contacts, resin potted)  
HGG.0T.305.CLLPV (5 contacts, resin potted and vacuumtight tested)

## Technical Characteristics

### Mechanical and Climatical

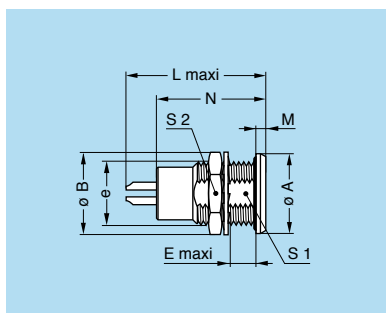
| Characteristics                           | Value                                     | Standard             |
|-------------------------------------------|-------------------------------------------|----------------------|
| Endurance <sup>1)</sup>                   | > 3000 cycles                             | IEC 60512-5 test 9a  |
| Humidity                                  | up to 95% at 60° C                        |                      |
| Temperature range <sup>2)</sup>           | -20°C, +80°C                              |                      |
| Resistance to vibrations                  | 10-2000 Hz, 15g                           | IEC 60512-4 test 6d  |
| Shock resistance                          | 100 g, 6 ms                               | IEC 60512-4 test 6c  |
| Salt spray corrosion test <sup>6)</sup>   | > 1000h                                   | IEC 60512-6 test 11f |
| Protection index (mated) <sup>3)</sup>    | IP 68/IP 66                               | IEC 60529            |
| Latching retention force <sup>4) 5)</sup> | From 85 N up to 300 N                     |                      |
| Climatical category                       | 50/175/21                                 | IEC 60068-1          |
| Leakage rate (He)                         | < 10 <sup>-7</sup> mbar.l.s <sup>-1</sup> | IEC 60512-7 test 14b |

| Characteristics                          | Value     | Standard             |
|------------------------------------------|-----------|----------------------|
| Maximum operating pressure <sup>7)</sup> | TT 60 bar | IEC 60512-7 test 14d |
|                                          | 0T 60 bar | IEC 60512-7 test 14d |
|                                          | 1T 60 bar | IEC 60512-7 test 14d |
|                                          | 2T 40 bar | IEC 60512-7 test 14d |

#### Note:

- <sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.
- <sup>2)</sup> operating temperature is -20°C, +80°C for watertight or vacuumtight models fitted with an FPM (Viton®) o-ring and Epoxy.
- <sup>3)</sup> IP68 achieved providing that the cable is perfectly circular and that assembly process ensures a high integrity seal.
- <sup>4)</sup> average value.
- <sup>5)</sup> depending of the size.
- <sup>6)</sup> for chrome plated product («C» material code).
- <sup>7)</sup> this value corresponds to the maximum allowed pressure difference for the assembled socket.

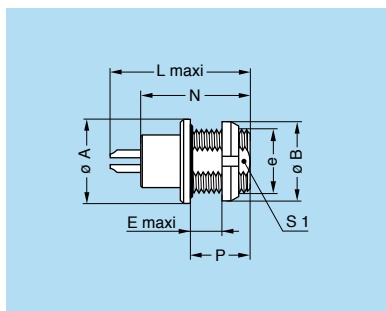
### HGG Fixed socket, nut fixing, watertight or vacuumtight



| Reference |        | Dimensions (mm) |      |         |     |      |     |                 |      |    |
|-----------|--------|-----------------|------|---------|-----|------|-----|-----------------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M   | N <sup>1)</sup> | S1   | S2 |
| HGG       | TT     | 10.0            | 10.2 | M7x0.5  | 5.5 | 18.0 | 1.2 | 15.0            | 6.3  | 9  |
| HGG       | 0T     | 12.0            | 12.5 | M9x0.6  | 6.5 | 22.0 | 1.5 | 18.5            | 8.2  | 11 |
| HGG       | 1T     | 15.5            | 16.0 | M12x1.0 | 6.0 | 26.0 | 1.8 | 21.5            | 10.5 | 14 |
| HGG       | 2T     | 18.5            | 19.6 | M15x1.0 | 8.0 | 30.5 | 1.8 | 25.0            | 13.5 | 17 |

**P9** Panel cut-out (page 157)

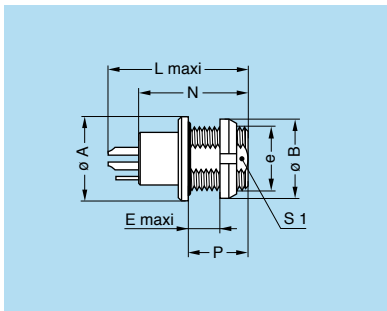
### HEG Fixed socket, nut fixing, watertight or vacuumtight, back panel mounting



| Reference |        | Dimensions (mm) |      |         |     |      |      |    |      |  |
|-----------|--------|-----------------|------|---------|-----|------|------|----|------|--|
| Model     | Series | A               | B    | e       | E   | L    | N    | P  | S1   |  |
| HEG       | TT     | 10.0            | 10.0 | M7x0.5  | 4.5 | 18.0 | 15.0 | 7  | 6.3  |  |
| HEG       | 0T     | 12.0            | 12.0 | M9x0.6  | 6.5 | 22.0 | 18.5 | 9  | 8.2  |  |
| HEG       | 1T     | 15.5            | 16.0 | M12x1.0 | 6.5 | 26.0 | 21.5 | 10 | 10.5 |  |
| HEG       | 2T     | 18.5            | 20.0 | M15x1.0 | 7.5 | 30.5 | 25.0 | 11 | 13.5 |  |

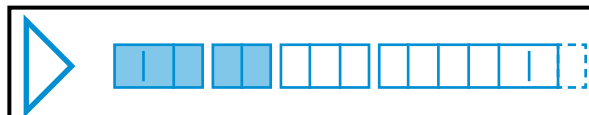
**P9** Panel cut-out (page 157)

## HMG Fixed socket with earthing tag, nut fixing, watertight or vacuumtight, back panel mounting



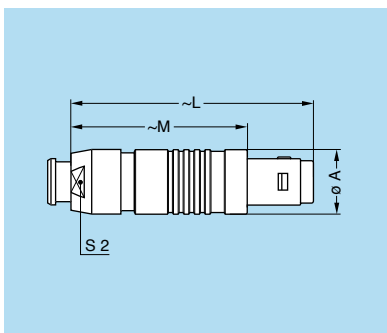
| Reference |        | Dimensions (mm) |      |         |     |      |      |    |      |
|-----------|--------|-----------------|------|---------|-----|------|------|----|------|
| Model     | Series | A               | B    | e       | E   | L    | N    | P  | S1   |
| HMG       | TT     | 10.0            | 10.0 | M7x0.5  | 4.5 | 18.0 | 15.0 | 7  | 6.3  |
| HMG       | 0T     | 12.0            | 12.0 | M9x0.6  | 6.5 | 22.0 | 18.5 | 9  | 8.2  |
| HMG       | 1T     | 15.5            | 16.0 | M12x1.0 | 6.5 | 26.0 | 21.5 | 10 | 10.5 |
| HMG       | 2T     | 18.5            | 20.0 | M15x1.0 | 7.5 | 30.5 | 25.0 | 11 | 13.5 |

**P9** Panel cut-out (page 157)



## Plastic housing models

## FGG Straight plug, cable collet and nut for fitting a bend relief, POM outer shell <sup>1)</sup>

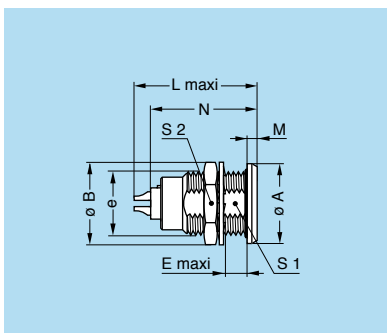


| Reference |        | Dimensions (mm) |      |      |    | Cable ø |      |
|-----------|--------|-----------------|------|------|----|---------|------|
| Model     | Series | A               | L    | M    | S2 | min.    | max. |
| FGG       | 0T     | 9.7             | 38.5 | 28.5 | 8  | 1.0     | 5.0  |
| FGG       | 1T     | 13.0            | 45.0 | 34.0 | 10 | 1.3     | 6.5  |

**M1** Cable assembly (page 174)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

## EGG Fixed socket, nut fixing, POM outer shell



| Reference |        | Dimensions (mm) |      |         |     |      |     |                 |      |    |
|-----------|--------|-----------------|------|---------|-----|------|-----|-----------------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | M   | N <sup>1)</sup> | S1   | S2 |
| EGG       | 0T     | 12.0            | 12.5 | M9x0.6  | 6.0 | 21.0 | 1.5 | 19.1            | 8.2  | 11 |
| EGG       | 1T     | 15.5            | 16.0 | M12x1.0 | 6.0 | 23.0 | 1.8 | 21.5            | 10.5 | 14 |

**P1** Panel cut-out (page 157)

**Note:** <sup>1)</sup> maximum length with crimp contacts.



## Insert configuration (B, K and T series)

### Multipole

|   |  |  | Reference | Series   | Contact ø (mm) | Contact type |       |                  |               | AWG           |       |    | Solder contact                                         |                                                      | Crimp contact                                          |                                                      | Rated current (A) <sup>1)</sup> |
|---|--|--|-----------|----------|----------------|--------------|-------|------------------|---------------|---------------|-------|----|--------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|---------------------------------|
|   |  |  |           |          |                | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |    | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>4)</sup><br>Contact-shell | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>4)</sup><br>Contact-shell |                                 |
| 2 |  |  | 302       | 00-TT    | 0.5            | ●            | ●     | ●                | ●             | 30            | 32    | 28 | 1.00                                                   | 0.95                                                 | 1.15                                                   | 1.20                                                 | 3.5                             |
|   |  |  |           | 0B-0K-0T | 0.9            | ●            | ●     | ●                | ●             | 20            | 32    | 20 | 1.00                                                   | 1.05                                                 | 1.45                                                   | 1.20                                                 | 10.0 <sup>2)</sup>              |
|   |  |  |           | 1B-1K-1T | 1.3            | ●            | ●     | ●                | ●             | 20            | 26    | 18 | 1.50                                                   | 1.35                                                 | 1.70                                                   | 1.45                                                 | 15.0 <sup>3)</sup>              |
|   |  |  |           | 2B-2K-2T | 2.0            | ●            | ●     | ●                | ●             | 16            | 18    | 12 | 2.10                                                   | 1.75                                                 | 2.85                                                   | 2.70                                                 | 25.0 <sup>3)</sup>              |
|   |  |  |           | 3B-3K-3T | 3.0            | ●            | ●     | ○                | —             | 12            | 14    | 10 | 2.10                                                   | 1.55                                                 | 2.30                                                   | 1.80                                                 | 35.0                            |
|   |  |  |           | 5B-5K    | 6.0            | ●            | —     | —                | —             | 8             | —     | —  | 3.60                                                   | 2.95                                                 | —                                                      | —                                                    | 50.0                            |
| 3 |  |  | 303       | 00-TT    | 0.5            | ●            | ●     | ●                | ●             | 30            | 32    | 28 | 0.80                                                   | 0.95                                                 | 1.35                                                   | 1.10                                                 | 3.0                             |
|   |  |  |           | 0B-0K-0T | 0.9            | ●            | ●     | ●                | ●             | 20            | 32    | 20 | 1.20                                                   | 0.90                                                 | 1.70                                                   | 1.60                                                 | 8.0 <sup>2)</sup>               |
|   |  |  |           | 1B-1K-1T | 1.3            | ●            | ●     | ●                | ●             | 20            | 26    | 18 | 1.30                                                   | 1.55                                                 | 1.60                                                   | 1.85                                                 | 12.0                            |
|   |  |  |           | 2B-2K-2T | 1.6            | ●            | ●     | ●                | ●             | 18            | 22    | 14 | 2.40                                                   | 1.85                                                 | 1.90                                                   | 1.90                                                 | 17.0 <sup>3)</sup>              |
|   |  |  |           | 3B-3K-3T | 2.0            | ●            | ●     | ●                | ○             | 16            | 18    | 12 | 1.90                                                   | 1.50                                                 | 3.20                                                   | 2.65                                                 | 25.0                            |
| 4 |  |  | 304       | 00-TT    | 0.5            | ●            | ●     | ●                | ●             | 30            | 32    | 28 | 0.80                                                   | 0.65                                                 | 1.05                                                   | 1.05                                                 | 2.0                             |
|   |  |  |           | 0B-0K-0T | 0.7            | ●            | ●     | ●                | ●             | 22            | 32    | 22 | 0.85                                                   | 0.70                                                 | 1.35                                                   | 1.10                                                 | 7.0 <sup>2)</sup>               |
|   |  |  |           | 1B-1K-1T | 0.9            | ●            | ●     | ●                | ●             | 22            | 32    | 20 | 1.35                                                   | 1.45                                                 | 1.70                                                   | 1.80                                                 | 10.0 <sup>2)</sup>              |
|   |  |  |           | 2B-2K-2T | 1.3            | ●            | ●     | ●                | ●             | 20            | 26    | 18 | 1.85                                                   | 1.85                                                 | 2.20                                                   | 2.20                                                 | 15.0 <sup>3)</sup>              |
|   |  |  |           | 3B-3K-3T | 2.0            | ●            | ●     | ●                | ●             | 16            | 18    | 12 | 1.45                                                   | 1.25                                                 | 2.50                                                   | 2.20                                                 | 19.0                            |
|   |  |  |           | 4B-4K    | 3.0            | ●            | ●     | ○                | —             | 12            | 14    | 10 | 2.10                                                   | 1.50                                                 | 1.80                                                   | 1.20                                                 | 30.0                            |
|   |  |  |           | 5B-5K    | 4.0            | ●            | ●     | ○                | —             | 10            | 12    | 10 | 2.95                                                   | 2.65                                                 | 3.20                                                   | 2.40                                                 | 35.0                            |
| 5 |  |  | 305       |          |                |              |       |                  |               |               |       |    |                                                        |                                                      |                                                        |                                                      |                                 |
|   |  |  |           | 00-TT    | 0.35           | ●            | —     | ●                | —             | 30            | —     | —  | 0.70                                                   | 1.00                                                 | —                                                      | —                                                    | 1.7                             |

- First choice alternative  
○ Special order alternative

**Note:** 1) see calculation method, caution and suggested standard on page 190.  
2) rated current = 6A for socket with elbow (90°) contact for printed circuit.  
3) rated current = 12A for socket with elbow (90°) contact for printed circuit.  
4) test voltage (kV) contact-shell is slightly lower for K and T series (values here are for B series).

## 8

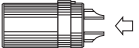
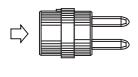
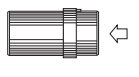
[illegible]

**Note:**

- 1) see calculation method, caution and suggested standard on page 190.
- 2) rated current = 6A for socket with elbow (90°) contact for printed circuit.
- 3) rated current = 12A for socket with elbow (90°) contact for printed circuit.
- 4) available only for connectors fitted with male contacts.
- 5) test voltage (kV) contact-shell is slightly lower for K and T series (values here are for B series).



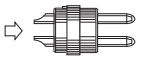
## Multipole

|                                                                                                                                                                     |                                                                                     | <div>Solder contacts</div> <div></div> |                  | <div>Crimp contacts</div> <div></div> |                | Reference | Series          | Contact ø (mm) | Contact type |          |                                                        |                                                      | AWG                                                    |                                                      |      | Solder contact |                   | Crimp contact |  | Rated current (A) <sup>1)</sup> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|-----------------|----------------|--------------|----------|--------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|------|----------------|-------------------|---------------|--|---------------------------------|
|   | Solder                                                                              | Crimp                                                                                                                                                                                                    | Print (straight) | Print (elbow)                                                                                                                                                                                           | Solder (max.)  |           |                 |                | Crimp        |          | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>4)</sup><br>Contact-shell | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>4)</sup><br>Contact-shell |      |                |                   |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                | min.         | max.     |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
| 9                                                                                                                                                                   |    |                                                                                                                         | 309              | 0B-0K-0T                                                                                                                                                                                                | 0.5            | ●         | ○ <sup>3)</sup> | ●              | ●            | 28       | 32                                                     | 28                                                   | 0.60                                                   | 0.50                                                 | 1.00 | 0.85           | 2.0               |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
| 9                                                                                                                                                                   |    |                                                                                                                         | 309              | 3B-3K-3T                                                                                                                                                                                                | 8x1.3<br>1x2.0 | ●         | ●               | ●              | –            | 20<br>16 | 26<br>18                                               | 18<br>12                                             | 1.35                                                   | 1.05                                                 | 1.10 | 1.05           | 6.0<br>15.0       |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
| 10                                                                                                                                                                  |   |                                                                                                                        | 310              | 1B-1K-1T                                                                                                                                                                                                | 0.5            | ●         | ● <sup>3)</sup> | ●              | ●            | 28       | 32                                                     | 28                                                   | 0.90                                                   | 1.50                                                 | 1.20 | 1.80           | 2.5               |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  | 2B-2K-2T                                                                                                                                                                                                | 0.9            | ●         | ●               | ●              | ●            | 22       | 32                                                     | 20                                                   | 1.45                                                   | 1.30                                                 | 1.80 | 2.10           | 8.0 <sup>2)</sup> |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  | 3B-3K-3T                                                                                                                                                                                                | 1.3            | ●         | ●               | ●              | ●            | 20       | 26                                                     | 18                                                   | 1.25                                                   | 0.90                                                 | 1.50 | 1.80           | 12.0              |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  | 4B-4K                                                                                                                                                                                                   | 1.6            | ●         | ●               | ○              | –            | 18       | 22                                                     | 14                                                   | 1.85                                                   | 1.30                                                 | 1.90 | 1.95           | 17.0              |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  | 5B-5K                                                                                                                                                                                                   | 3.0            | ●         | ●               | ○              | –            | 12       | 14                                                     | 10                                                   | 2.35                                                   | 2.30                                                 | 2.65 | 3.20           | 20.0              |               |  |                                 |
| 12                                                                                                                                                                  |  |                                                                                                                       | 312              | 0B-0K-0T                                                                                                                                                                                                | 0.35           | ●         | –               | ●              | –            | 30       | –                                                      | –                                                    | 0.80                                                   | 1.00                                                 | –    | –              | 1.5               |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
| 12                                                                                                                                                                  |  |                                                                                                                       | 312              | XB                                                                                                                                                                                                      | 0.7            | ●         | –               | ●              | –            | 22       | 32                                                     | 22                                                   | 1.35                                                   | 1.65                                                 | –    | –              | 5.0               |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |
| 12                                                                                                                                                                  |  |                                                                                                                       | 312              | 2B-2K-2T                                                                                                                                                                                                | 0.7            | ●         | ●               | ●              | ●            | 22       | 32                                                     | 22                                                   | 1.25                                                   | 1.35                                                 | 1.65 | 2.00           | 7.0 <sup>2)</sup> |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  | 3B-3K-3T                                                                                                                                                                                                | 0.9            | ●         | ●               | ●              | ●            | 22       | 32                                                     | 20                                                   | 1.45                                                   | 1.00                                                 | 1.65 | 1.85           | 9.0               |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  | 4B-4K                                                                                                                                                                                                   | 1.3            | ●         | ●               | ○              | –            | 20       | 26                                                     | 18                                                   | 1.45                                                   | 1.60                                                 | 1.90 | 1.85           | 12.0              |               |  |                                 |
|                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                          |                  |                                                                                                                                                                                                         |                |           |                 |                |              |          |                                                        |                                                      |                                                        |                                                      |      |                |                   |               |  |                                 |

- First choice alternative
- Special order alternative

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190.  
<sup>2)</sup> rated current = 6A for socket with elbow (90°) contact for printed circuit.  
<sup>3)</sup> available only for connectors fitted with male contacts.  
<sup>4)</sup> test voltage (kV) contact-shell is slightly lower for K and T series (values here are for B series).

## Multipole

| <div><div><br/>Solder contacts</div><div><br/>Crimp contacts</div></div> |                                                                                     |                                                                                     | Reference | Series   | Contact ø (mm) | Contact type     |                 |               |       | AWG  |                                                        |                                                      | Solder contact                                         |                                                      | Crimp contact |      | Rated current (A) <sup>1)</sup> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|----------|----------------|------------------|-----------------|---------------|-------|------|--------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|---------------|------|---------------------------------|
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | Solder   | Crimp          | Print (straight) | Print (elbow)   | Solder (max.) | Crimp |      | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>4)</sup><br>Contact-shell | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>4)</sup><br>Contact-shell |               |      |                                 |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           |          |                |                  |                 |               |       | min. |                                                        |                                                      |                                                        |                                                      | max.          |      |                                 |
| 14                                                                                                                                                                                                                                         |    |    | 314       | 1B-1K-1T | 0.5            | ●                | ● <sup>3)</sup> | ●             | ●     | 28   | 32                                                     | 28                                                   | 0.80                                                   | 1.20                                                 | 0.95          | 1.60 | 2.0                             |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 2B-2K-2T | 0.7            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 22                                                   | 1.15                                                   | 1.35                                                 | 1.55          | 1.55 | 6.5 <sup>2)</sup>               |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 3B-3K-3T | 0.9            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 20                                                   | 1.20                                                   | 1.20                                                 | 1.80          | 1.65 | 9.0 <sup>2)</sup>               |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 5B-5K    | 2.0            | ●                | ●               | ○             | —     | 16   | 18                                                     | 12                                                   | 2.10                                                   | 2.00                                                 | 2.85          | 2.95 | 18.0                            |
| 16                                                                                                                                                                                                                                         |    |    | 316       |          |                |                  |                 |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 1B-1K-1T | 0.5            | ●                | ● <sup>3)</sup> | ●             | ○     | 28   | 32                                                     | 28                                                   | 0.80                                                   | 1.25                                                 | 0.95          | 1.60 | 1.5                             |
| 16                                                                                                                                                                                                                                         |   |   | 316       | 2B-2K-2T | 0.7            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 22                                                   | 0.95                                                   | 1.25                                                 | 1.55          | 1.75 | 6.0                             |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 3B-3K-3T | 0.9            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 20                                                   | 1.20                                                   | 0.85                                                 | 1.80          | 1.50 | 8.0                             |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 4B-4K    | 0.9            | ●                | ●               | ●             | —     | 22   | 32                                                     | 20                                                   | 1.35                                                   | 1.50                                                 | 2.30          | 2.10 | 10.0                            |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 5B-5K    | 2.0            | ●                | ●               | ○             | —     | 16   | 18                                                     | 12                                                   | 1.85                                                   | 1.95                                                 | 2.45          | 3.05 | 12.0                            |
| 18                                                                                                                                                                                                                                         |  |  | 318       |          |                |                  |                 |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 2B-2K-2T | 0.7            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 22                                                   | 0.85                                                   | 1.20                                                 | 1.45          | 2.10 | 5.5                             |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 3B-3K-3T | 0.9            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 20                                                   | 1.20                                                   | 1.05                                                 | 1.85          | 1.60 | 7.0                             |
| 19                                                                                                                                                                                                                                         |  |  | 319       |          |                |                  |                 |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 2B-2K-2T | 0.7            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 22                                                   | 0.95                                                   | 1.25                                                 | 1.55          | 1.65 | 5.0                             |
| 20                                                                                                                                                                                                                                         |  |  | 320       |          |                |                  |                 |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
|                                                                                                                                                                                                                                            |                                                                                     |                                                                                     |           | 3B-3K-3T | 0.7            | ●                | ●               | ●             | ●     | 22   | 32                                                     | 22                                                   | 1.00                                                   | 0.90                                                 | 1.35          | 1.55 | 6.0                             |

- First choice alternative  
 ○ Special order alternative

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190.  
<sup>2)</sup> rated current = 6A for socket with elbow (90°) contact for printed circuit.  
<sup>3)</sup> available only for connectors fitted with male contacts.  
<sup>4)</sup> test voltage (kV) contact-shell is slightly lower for K and T series (values here are for B series).



## Multipole

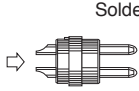
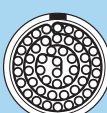
|    |  | <div>Solder contacts</div> <div>Crimp contacts</div> |  |  |     | Reference | Series | Contact ø (mm) | Contact type     |               |               |       | AWG |                                                        | Solder contact                                       |                                                        | Crimp contact                                        |      | Rated current (A) <sup>1)</sup> |  |
|----|--|------------------------------------------------------|--|--|-----|-----------|--------|----------------|------------------|---------------|---------------|-------|-----|--------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|------|---------------------------------|--|
|    |  |                                                      |  |  |     |           | Solder | Crimp          | Print (straight) | Print (elbow) | Solder (max.) | Crimp |     | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>2)</sup><br>Contact-shell | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>2)</sup><br>Contact-shell |      |                                 |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               | min.          | max.  |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
| 20 |  |                                                      |  |  | 320 | 4B-4K     | 0.9    | ●              | ●                | ●             | –             | 22    | 32  | 20                                                     | 1.35                                                 | 1.00                                                   | 1.05                                                 | 0.95 | 8.0                             |  |
|    |  |                                                      |  |  |     | 5B-5K     | 1.6    | ●              | ●                | ○             | –             | 18    | 22  | 14                                                     | 1.90                                                 | 1.70                                                   | 2.20                                                 | 2.40 | 10.0                            |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               |               |       |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
| 22 |  |                                                      |  |  | 322 | XB        | 0.5    | ●              | –                | ●             | –             | 28    | –   | –                                                      | 0.50                                                 | 0.90                                                   | –                                                    | –    | 1.5                             |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               |               |       |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               |               |       |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
| 22 |  |                                                      |  |  | 322 | 3B-3K-3T  | 0.7    | ●              | ●                | ●             | ○             | 22    | 32  | 22                                                     | 1.00                                                 | 0.90                                                   | 1.70                                                 | 1.45 | 5.5                             |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               |               |       |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               |               |       |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
| 24 |  |                                                      |  |  | 324 | 3B-3K-3T  | 0.7    | ●              | ●                | ●             | ●             | 22    | 32  | 22                                                     | 0.95                                                 | 0.80                                                   | 1.35                                                 | 1.35 | 4.0                             |  |
|    |  |                                                      |  |  |     | 4B-4K     | 0.9    | ●              | ●                | ●             | –             | 22    | 32  | 20                                                     | 1.20                                                 | 1.45                                                   | 1.80                                                 | 2.05 | 7.0                             |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               |               |       |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
| 26 |  |                                                      |  |  | 326 | 2B-2K-2T  | 0.5    | ●              | –                | ●             | ●             | 28    | –   | –                                                      | 0.95                                                 | 1.30                                                   | –                                                    | –    | 2.0                             |  |
|    |  |                                                      |  |  |     | 3B-3K-3T  | 0.7    | ●              | ●                | ●             | ●             | 22    | 32  | 22                                                     | 0.95                                                 | 0.70                                                   | 1.50                                                 | 1.30 | 4.0                             |  |
|    |  |                                                      |  |  |     |           |        |                |                  |               |               |       |     |                                                        |                                                      |                                                        |                                                      |      |                                 |  |
| 30 |  |                                                      |  |  | 330 | 3B-3K-3T  | 0.7    | ●              | ●                | ●             | ●             | 22    | 32  | 22                                                     | 0.80                                                 | 0.70                                                   | 1.35                                                 | 1.20 | 3.5                             |  |
|    |  |                                                      |  |  |     | 4B-4K     | 0.9    | ●              | ●                | ●             | –             | 22    | 32  | 20                                                     | 0.95                                                 | 0.85                                                   | 1.75                                                 | 1.45 | 5.0                             |  |
|    |  |                                                      |  |  |     | 5B-5K     | 1.3    | ●              | ●                | ○             | –             | 20    | 26  | 18                                                     | 1.45                                                 | 1.60                                                   | 2.05                                                 | 2.45 | 8.0                             |  |

- First choice alternative
- Special order alternative

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190.  
<sup>2)</sup> test voltage (kV) contact-shell is slightly lower for K and T series (values here are for B series).



## Multipole

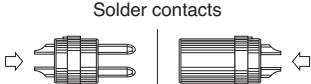
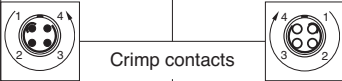
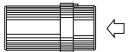
|    | <div><div>Solder contacts</div><div>Crimp contacts</div></div> |                                                                                     | Reference | Series   | Contact ø (mm) | Contact type     |               |               |       | AWG  |                                                        |                                                      | Solder contact                                         |                                                      | Crimp contact |      | Rated current (A) <sup>1)</sup> |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|----------|----------------|------------------|---------------|---------------|-------|------|--------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|---------------|------|---------------------------------|
|    | Solder                                                                                                                                                                                                                           | Crimp                                                                               |           |          |                | Print (straight) | Print (elbow) | Solder (max.) | Crimp |      | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>2)</sup><br>Contact-shell | Test voltage (kV rms) <sup>1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>2)</sup><br>Contact-shell |               |      |                                 |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               | min.  | max. |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
| 32 |                                                                                                                                                 |    | 332       | 2B-2K-2T | 0.5            | ●                | –             | ●             | ●     | 28   | –                                                      | –                                                    | 0.80                                                   | 1.20                                                 | –             | –    | 1.5                             |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
| 32 |                                                                                                                                                 |    | 332       | 3B-3K    | 0.7            | ●                | ○             | ●             | ●     | 22   | 32                                                     | 22                                                   | 0.75                                                   | 0.70                                                 | –             | –    | 3.0                             |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
| 40 |                                                                                                                                                |   | 340       | 4B-4K    | 0.7            | ●                | ●             | ●             | –     | 22   | 32                                                     | 22                                                   | 0.90                                                   | 0.90                                                 | 1.30          | 1.30 | 2.0                             |
|    |                                                                                                                                                                                                                                  |                                                                                     |           | 5B-5K    | 1.3            | ●                | ●             | ○             | –     | 20   | 26                                                     | 18                                                   | 1.30                                                   | 1.45                                                 | 2.00          | 1.95 | 7.0                             |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
| 48 |                                                                                                                                               |  | 348       | 4B-4K    | 0.7            | ●                | ●             | ●             | –     | 22   | 32                                                     | 22                                                   | 0.70                                                   | 0.70                                                 | 1.00          | 1.00 | 1.5                             |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
| 48 |                                                                                                                                               |  | 348       | 5B-5K    | 1.3            | ●                | ●             | ●             | –     | 20   | 26                                                     | 18                                                   | 1.20                                                   | 1.10                                                 | 2.00          | 1.55 | 6.0                             |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
| 50 |                                                                                                                                               |  | 350       | 5B-5K    | 0.9            | ●                | ●             | ●             | –     | 22   | 32                                                     | 20                                                   | 1.30                                                   | 1.60                                                 | 1.20          | 1.45 | 6.0                             |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |
|    |                                                                                                                                                                                                                                  |                                                                                     |           |          |                |                  |               |               |       |      |                                                        |                                                      |                                                        |                                                      |               |      |                                 |

● First choice alternative  
○ Special order alternative

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190.  
<sup>2)</sup> test voltage (kV) contact-shell is slightly lower for K and T series (values here are for B series).



## Multipole

|    | <div>Solder contacts</div> <div></div> |                                                                                   | Reference | Series | Contact ø (mm) | Contact type |       |                  |               | AWG           |       |      | Solder contact                                          |                                                       | Crimp contact                                           |                                                       | Rated current (A) <sup>(1)</sup> |
|----|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------|--------|----------------|--------------|-------|------------------|---------------|---------------|-------|------|---------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------|----------------------------------|
|    | <div>Crimp contacts</div> <div></div>  |                                                                                   |           |        |                | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |      | Test voltage (kV rms) <sup>(1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>(2)</sup><br>Contact-shell | Test voltage (kV rms) <sup>(1)</sup><br>Contact-contact | Test voltage (kV rms) <sup>(2)</sup><br>Contact-shell |                                  |
|    |                                        |  |           |        |                |              |       |                  |               |               | min.  | max. |                                                         |                                                       |                                                         |                                                       |                                  |
|    |                                                                                                                         |                                                                                   |           |        |                |              |       |                  |               |               |       |      |                                                         |                                                       |                                                         |                                                       |                                  |
| 54 |                                        |  | 354       | 5B-5K  | 0.9            | ●            | ●     | ●                | —             | 22            | 32    | 20   | 1.15                                                    | 1.55                                                  | 2.00                                                    | 2.10                                                  | 5.0                              |
| 64 |                                        |  | 364       | 5B-5K  | 0.9            | ●            | ●     | ●                | —             | 22            | 32    | 20   | 1.30                                                    | 1.55                                                  | 1.35                                                    | 1.85                                                  | 3.0                              |
|    |                                                                                                                         |                                                                                   |           |        |                |              |       |                  |               |               |       |      |                                                         |                                                       |                                                         |                                                       |                                  |
|    |                                                                                                                         |                                                                                   |           |        |                |              |       |                  |               |               |       |      |                                                         |                                                       |                                                         |                                                       |                                  |

- First choice alternative
- Special order alternative

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190.  
<sup>2)</sup> test voltage (kV) contact-shell is slightly lower for K and T series (values here are for B series).



## Housings (B, K and T series)

| Ref.     | Outer shell and collet nut |                            | Latch sleeve + earthing crown |                      | Other metallic components |                 | Remarks                                        | Note |
|----------|----------------------------|----------------------------|-------------------------------|----------------------|---------------------------|-----------------|------------------------------------------------|------|
|          | Material                   | Surf. treatment            | Material                      | Surf. treatment      | Material                  | Surf. treatment |                                                |      |
| <b>C</b> | Brass                      | chrome                     | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                                | ●    |
| <b>N</b> | Brass                      | nickel                     | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                                | ○    |
| <b>K</b> | Brass                      | black chrome <sup>3)</sup> | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                                | ●    |
| <b>S</b> | Stainless steel            | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                                | ●    |
| <b>T</b> | Stainless steel            | –                          | stainless steel               | –                    | brass                     | nickel          |                                                | ○    |
| <b>U</b> | Stainless steel            | –                          | stainless steel               | –                    | stainless steel           | –               |                                                | ○    |
| <b>L</b> | Aluminium alloy            | anodized                   | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | <sup>1)</sup>                                  | ○    |
| <b>X</b> | Aluminium alloy            | nickel anthracite          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                                | ○    |
| <b>G</b> | PEEK (natural)             | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FGG and ENG (B series)                | ●    |
| <b>P</b> | PSU                        | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FGY and ENY (B series) <sup>1)</sup>  | ●    |
| <b>R</b> | PPSU                       | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FGY and ENY (B series) <sup>1)</sup>  | ●    |
| <b>H</b> | PPS/brass                  | –/nickel                   | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for elbow sockets (B series)              | ●    |
| <b>P</b> | PA.6                       | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for CRF and CRG bridge plug <sup>1)</sup> | ●    |

**Note:** detailed characteristics of these materials and treatments are presented on page 182.

<sup>1)</sup> see «variant» for the colour.

<sup>2)</sup> in the K series, the latch sleeve is chrome-plated.

<sup>3)</sup> surface not conductive use socket with earthing tag (EN● and HM● model) to carry shield.

● First choice alternative  
○ Special order alternative



## Insulators (B, K and T series)

| Ref.     | Material | Contact type    | Remarks                                                   | Note |
|----------|----------|-----------------|-----------------------------------------------------------|------|
| <b>Y</b> | PEEK     | Crimp           | extended design, with contacts that recess into insulator | ●    |
| <b>L</b> | PEEK     | Solder or print |                                                           | ●    |

**Note:** detailed characteristics of these materials are presented on page 187.



## Contacts (B, K and T series)

### Soldering characteristics

- no need to order specific tools, a simple soldering iron is sufficient
- ideal for very small and fragile conductors
- contacts with solder cups to allow the solder to flow

**Note:** see page 188 for more information.

### Crimping characteristics

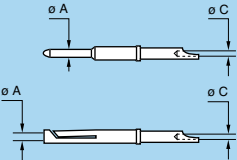
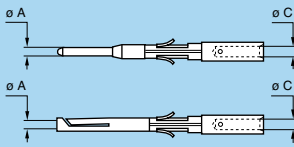
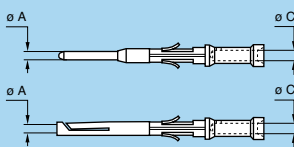
- practical, quick contact fixing outside the insulator
- possible use at high temperature
- need to order specific tools
- no risk of heating the insulator during the conductor-contact fixing
- high tensile strength
- totally lead-free solution



## Contacts reference for couplers R●●, S●● and TGL

| Ref.     | Contact type    | Remarks                                               |
|----------|-----------------|-------------------------------------------------------|
| <b>A</b> | Male - Female   | contact configuration is explained on page 24, 33, 48 |
| <b>L</b> | Female - Male   | contact configuration is explained on page 24, 33, 48 |
| <b>M</b> | Female - Female | contact configuration is explained on page 24         |

## Contacts reference for plugs, free or fixed sockets

| Contact type                                                                                                                                                                                                                                    | Reference |          | Contact           |                    |                  | Conductor        |                                       |          |                    |                            |                    | F <sub>r</sub> <sup>1)</sup><br>(N) | Notes |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|-------------------|--------------------|------------------|------------------|---------------------------------------|----------|--------------------|----------------------------|--------------------|-------------------------------------|-------|
|                                                                                                                                                                                                                                                 | Male      | Female   | ø A<br>(mm)       | ø C<br>(mm)        | Form<br>per fig. | Solid            |                                       | Stranded |                    |                            |                    |                                     |       |
|                                                                                                                                                                                                                                                 |           |          |                   |                    |                  | AWG<br>max.      | Section<br>max.<br>(mm <sup>2</sup> ) | AWG      |                    | Section (mm <sup>2</sup> ) |                    |                                     |       |
|                                                                                                                                                                                                                                                 |           |          |                   |                    |                  |                  |                                       | min.     | max.               | min.                       | max.               |                                     |       |
| <div>Solder</div> <div></div>                                                                                                                                  | <b>A</b>  | <b>L</b> | 0.35              | 0.40               | —                | 28               | 0.09                                  | —        | 30                 | —                          | 0.05               | —                                   | ●     |
|                                                                                                                                                                                                                                                 |           |          | 0.5 <sup>2)</sup> | 0.40 <sup>2)</sup> | —                | 28               | 0.09                                  | —        | 30                 | —                          | 0.05               | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 0.5               | 0.45 <sup>6)</sup> | —                | 28               | 0.09                                  | —        | 28                 | —                          | 0.09               | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 0.7               | 0.80               | —                | 22               | 0.34                                  | —        | 22 <sup>3)</sup>   | —                          | 0.34               | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 0.9               | 0.80 <sup>5)</sup> | —                | 22 <sup>5)</sup> | 0.34 <sup>5)</sup>                    | —        | 22 <sup>3)5)</sup> | —                          | 0.34 <sup>5)</sup> | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 1.3               | 1.00               | —                | 20               | 0.50                                  | —        | 20 <sup>3)</sup>   | —                          | 0.50               | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 1.6               | 1.40               | —                | 16               | 1.00                                  | —        | 18                 | —                          | 1.00               | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 2.0               | 1.80               | —                | 14               | 1.50                                  | —        | 16                 | —                          | 1.50               | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 3.0               | 2.70               | —                | 10               | 4.00                                  | —        | 12                 | —                          | 4.00               | —                                   |       |
|                                                                                                                                                                                                                                                 |           |          | 4.0               | 3.70               | —                | 10               | 6.00                                  | —        | 10                 | —                          | 6.00               | —                                   |       |
| 6.0                                                                                                                                                                                                                                             | 5.20      | —        | —                 | —                  | —                | 8                | —                                     | 10.00    | —                  | —                          |                    |                                     |       |
| <div>Crimp</div> <div><div>fig. 1</div><div><div>fig. 2</div></div></div> | <b>C</b>  | <b>M</b> | 0.5 <sup>4)</sup> | 0.45               | 1                | —                | —                                     | 32       | 28                 | 0.035                      | 0.09               | 12                                  | ●     |
|                                                                                                                                                                                                                                                 | <b>C</b>  | <b>M</b> | 0.7               | 0.80               | 1                | —                | —                                     | 26       | 22 <sup>3)</sup>   | 0.140                      | 0.34               | 22                                  | ●     |
|                                                                                                                                                                                                                                                 | <b>B</b>  | <b>P</b> | 0.7               | 0.45               | 2                | —                | —                                     | 32       | 28                 | 0.035                      | 0.09               | 22                                  | ○     |
|                                                                                                                                                                                                                                                 | <b>C</b>  | <b>M</b> | 0.9               | 1.10               | 1                | —                | —                                     | 24       | 20                 | 0.250                      | 0.50               | 30                                  | ●     |
|                                                                                                                                                                                                                                                 | <b>B</b>  | <b>P</b> | 0.9               | 0.80               | 2                | —                | —                                     | 26       | 22 <sup>3)</sup>   | 0.140                      | 0.34               | 30                                  | ○     |
|                                                                                                                                                                                                                                                 | <b>G</b>  | <b>U</b> | 0.9               | 0.45               | 2                | —                | —                                     | 32       | 28                 | 0.035                      | 0.09               | 30                                  | ○     |
|                                                                                                                                                                                                                                                 | <b>C</b>  | <b>M</b> | 1.3               | 1.40               | 1                | —                | —                                     | 20       | 18                 | 0.500                      | 1.00               | 40                                  | ●     |
|                                                                                                                                                                                                                                                 | <b>B</b>  | <b>P</b> | 1.3               | 1.10               | 2                | —                | —                                     | 24       | 20                 | 0.250                      | 0.50               | 40                                  | ○     |
|                                                                                                                                                                                                                                                 | <b>G</b>  | <b>U</b> | 1.3               | 0.80               | 2                | —                | —                                     | 26       | 22 <sup>3)</sup>   | 0.140                      | 0.34               | 40                                  | ○     |
|                                                                                                                                                                                                                                                 | <b>C</b>  | <b>M</b> | 1.6               | 1.90               | 1                | —                | —                                     | 18       | 14 <sup>3)</sup>   | 1.000                      | 1.50               | 50                                  | ●     |
|                                                                                                                                                                                                                                                 | <b>B</b>  | <b>P</b> | 1.6               | 1.40               | 2                | —                | —                                     | 22       | 18                 | 0.340                      | 1.00               | 50                                  | ○     |
|                                                                                                                                                                                                                                                 | <b>C</b>  | <b>M</b> | 2.0               | 2.40               | 1                | —                | —                                     | 16       | 12 <sup>3)</sup>   | 1.500                      | 2.50               | 65                                  | ●     |
|                                                                                                                                                                                                                                                 | <b>B</b>  | <b>P</b> | 2.0               | 1.90               | 2                | —                | —                                     | 18       | 14                 | 1.000                      | 1.50               | 65                                  | ○     |
|                                                                                                                                                                                                                                                 | <b>C</b>  | <b>M</b> | 3.0               | 3.20               | 1                | —                | —                                     | 14       | 10 <sup>3)</sup>   | 2.500                      | 4.00               | 75                                  | ●     |
|                                                                                                                                                                                                                                                 | <b>C</b>  | <b>M</b> | 4.0               | 4.00               | 1                | —                | —                                     | 12       | 10                 | 4.000                      | 6.00               | 90                                  | ●     |

### Note:

1) contact retention force in the insulator (according to IEC 60512-8 test 15 a).

2) for 00/TT multipole series.

3) for a given AWG, the diameter of some stranded conductor designs is larger than the solder cup diameter. Make sure that the maximum conductor diameter is smaller than ø C.

4) for 00 /TT multipole series or for 0B/0T and 1B/1T series with male contacts.

5) for 0B.302/0B.303, 0K.302/0K.303 and 0T.302/0T.303 ø C = 1.0 mm, AWG max 20, section max (mm<sup>2</sup>) 0.50.

6) for 00/TT and 1B/1K/1T series, according to manufacturing and plating tolerance ø C min = 0.43 mm.

● First choice alternative

○ Special order alternative

| Contact type  | Reference                                                                         |          | Contact     |                                                                                          |                  | Conductor   |                                       |          |  |                            |  | F <sub>r</sub> <sup>1)</sup><br>(N)                                                 | Notes |
|---------------|-----------------------------------------------------------------------------------|----------|-------------|------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------|----------|--|----------------------------|--|-------------------------------------------------------------------------------------|-------|
|               | Male                                                                              | Female   | ø A<br>(mm) | ø C<br>(mm)                                                                              | Form<br>per fig. | Solid       |                                       | Stranded |  |                            |  |                                                                                     |       |
|               |                                                                                   |          |             |                                                                                          |                  | AWG<br>max. | Section<br>max.<br>(mm <sup>2</sup> ) | AWG      |  | Section (mm <sup>2</sup> ) |  |                                                                                     |       |
|               |                                                                                   | min.     |             | max.                                                                                     |                  |             |                                       | min.     |  | max.                       |  |                                                                                     |       |
| Print         |  | <b>D</b> | <b>N</b>    | L dimensions and C are detailed in the section on PCB drilling pattern.<br>See page 163. |                  |             |                                       |          |  |                            |  |  |       |
| Print (elbow) |   | <b>V</b> | <b>V</b>    | L dimensions and C are detailed in the section on PCB drilling pattern.<br>See page 164. |                  |             |                                       |          |  |                            |  |  |       |

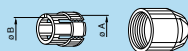
● First choice alternative      ○ Special order alternative



## Collets (B, K and T series)

### D and M type collets for B series

D type



M type



|           | Reference |      | Collet ø |     | Cable ø |       | Notes |
|-----------|-----------|------|----------|-----|---------|-------|-------|
|           | Type      | Code | ø A      | ø B | max.    | min.  |       |
| <b>00</b> | D         | 22   | 2.2      | –   | 2.2     | 1.4   |       |
|           | D         | 27   | 2.7      | –   | 2.7     | > 2.2 |       |
|           | D         | 35   | 3.5      | 2.8 | 3.5     | > 2.7 | 8)    |
| <b>0B</b> | D         | 22   | 2.1      | –   | 2.2     | 1.4   | 2)    |
|           | D         | 32   | 3.2      | –   | 3.2     | > 2.2 |       |
|           | D         | 42   | 4.2      | –   | 4.2     | > 3.2 |       |
|           | D         | 52   | 5.2      | 4.7 | 5.2     | > 4.2 | 8)    |
|           | D         | 56   | 5.6      | 4.7 | 5.6     | > 5.2 | 1) 8) |
| <b>1B</b> | M         | 27   | 2.7      | –   | 2.7     | > 2.2 |       |
|           | M         | 31   | 3.1      | –   | 3.1     | > 2.7 |       |
|           | D         | 42   | 4.2      | –   | 4.2     | 3.1   |       |
|           | D         | 52   | 5.2      | –   | 5.2     | > 4.2 |       |
|           | D         | 62   | 6.2      | –   | 6.2     | > 5.2 |       |
|           | D         | 72   | 7.2      | 6.2 | 7.2     | > 6.2 | 8)    |
|           | D         | 76   | 7.6      | 6.9 | 7.6     | > 7.2 | 1) 8) |
| <b>XB</b> | D         | 52   | 5.2      | 7.2 | 5.0     | 4.4   |       |
|           | D         | 62   | 6.2      | 7.2 | 6.0     | 5.4   |       |
|           | D         | 72   | 7.2      | 7.2 | 7.0     | 6.4   |       |
|           | D         | 82   | 8.2      | 7.2 | 8.0     | 7.4   | 1)    |
| <b>2B</b> | M         | 21   | 2.1      | –   | 2.2     | 1.4   | 3)    |
|           | M         | 32   | 3.1      | –   | 3.2     | > 2.2 | 3)    |
|           | D         | 42   | 4.2      | –   | 4.2     | > 3.2 |       |
|           | D         | 52   | 5.2      | –   | 5.2     | > 4.2 |       |
|           | D         | 62   | 6.2      | –   | 6.2     | > 5.2 |       |
|           | D         | 72   | 7.2      | –   | 7.2     | > 6.2 |       |
|           | D         | 82   | 8.2      | –   | 8.2     | > 7.2 |       |
|           | D         | 92   | 9.2      | 8.6 | 9.2     | > 8.2 | 8)    |
|           | D         | 99   | 9.9      | 8.6 | 9.9     | > 9.2 | 1) 8) |

|           | Reference |      | Collet ø |      | Cable ø |        | Notes |
|-----------|-----------|------|----------|------|---------|--------|-------|
|           | Type      | Code | ø A      | ø B  | max.    | min.   |       |
| <b>3B</b> | M         | 52   | 5.2      | –    | 5.2     | > 4.2  | 4)    |
|           | D         | 62   | 6.2      | –    | 6.2     | 4.9    |       |
|           | D         | 72   | 7.7      | –    | 7.7     | > 6.2  |       |
|           | D         | 92   | 9.2      | –    | 9.2     | > 7.7  |       |
|           | D         | 10   | 10.2     | –    | 10.0    | > 9.2  |       |
| <b>4B</b> | D         | 11   | 11.0     | –    | 11.0    | > 10.0 |       |
|           | D         | 12   | 12.0     | 10.2 | 12.0    | > 11.0 | 1) 8) |
|           | M         | 62   | 6.2      | –    | 6.2     | > 5.2  | 5)    |
|           | M         | 72   | 7.2      | –    | 7.2     | > 6.2  | 5)    |
|           | M         | 82   | 8.2      | –    | 8.2     | > 7.2  | 5)    |
|           | M         | 92   | 9.2      | 8.6  | 9.2     | > 8.2  | 6)    |
|           | D         | 10   | 10.8     | –    | 10.5    | 9.1    |       |
|           | D         | 12   | 12.3     | –    | 12.0    | 10.6   |       |
|           | D         | 13   | 13.8     | 12.5 | 13.5    | 12.1   |       |
|           | D         | 15   | 15.3     | 12.5 | 15.0    | 13.6   | 7)    |
| <b>5B</b> | D         | 16   | 16.3     | 12.5 | 16.0    | 15.1   | 1)    |
|           | D         | 11   | 11.8     | –    | 11.5    | 9.6    |       |
|           | D         | 13   | 13.8     | –    | 13.5    | 11.6   |       |
|           | D         | 15   | 15.8     | –    | 15.5    | 13.6   | 7)    |
|           | D         | 17   | 17.8     | –    | 17.5    | 15.6   | 1)    |
|           | D         | 19   | 19.8     | –    | 19.5    | 17.6   | 1)    |
|           | D         | 21   | 21.8     | –    | 21.5    | 19.6   | 1)    |
|           | D         | 23   | 23.8     | 21.8 | 23.5    | 21.6   | 1)    |
|           | D         | 25   | 25.3     | 21.8 | 25.0    | 23.6   | 1)    |

**Note:** all dimensions are in millimetres.

1) these collets cannot be used for connector models with nut for fitting a bend relief. No bend relief available for this cable size.

2) the inner diameter of the smallest bend relief available is 2.5 mm (in TPU) / 1.7 mm (in silicone).

3) for 0B bend relief.

4) for 1B bend relief.

5) for 2B bend relief.

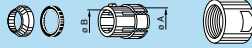
6) for 4B bend relief.

7) the inner diameter of the largest bend relief available is 14.5 mm.

8) for FSG model, standard cable diameter reduced as follow: 0B series (D52) = 4.7 mm, 2B series (D92) = 8.6 mm. For larger diameter use a "K" type collet, please check online Part Search for additional details.

## C and K type collets for K series

C type



K type  
oversize  
cable collet



|           | Reference |           | Collet ø |     | Cable ø |      | Notes |
|-----------|-----------|-----------|----------|-----|---------|------|-------|
|           | Type      | Code      | ø A      | ø B | max.    | min. |       |
| <b>0K</b> | <b>C</b>  | <b>10</b> | 1.6      | –   | 1.2     | 1.0  | 1)    |
|           | <b>C</b>  | <b>15</b> | 1.6      | –   | 1.5     | 1.3  | 1)    |
|           | <b>C</b>  | <b>20</b> | 2.1      | –   | 2.0     | 1.6  | 1)    |
|           | <b>C</b>  | <b>25</b> | 3.1      | –   | 2.5     | 2.1  |       |
|           | <b>C</b>  | <b>30</b> | 3.1      | –   | 3.0     | 2.6  |       |
|           | <b>C</b>  | <b>35</b> | 4.2      | 4.2 | 3.5     | 3.1  |       |
|           | <b>C</b>  | <b>40</b> | 4.2      | 4.2 | 4.0     | 3.6  |       |
|           | <b>C</b>  | <b>45</b> | 5.2      | 5.2 | 4.5     | 4.1  |       |
|           | <b>C</b>  | <b>50</b> | 5.2      | 5.2 | 5.0     | 4.6  |       |
| <b>1K</b> | <b>C</b>  | <b>15</b> | 1.6      | –   | 1.5     | 1.3  |       |
|           | <b>C</b>  | <b>20</b> | 2.2      | –   | 2.0     | 1.6  |       |
|           | <b>C</b>  | <b>25</b> | 3.2      | –   | 2.5     | 2.1  |       |
|           | <b>C</b>  | <b>30</b> | 3.2      | –   | 3.0     | 2.6  |       |
|           | <b>C</b>  | <b>35</b> | 4.2      | –   | 3.5     | 3.1  |       |
|           | <b>C</b>  | <b>40</b> | 4.2      | –   | 4.0     | 3.6  |       |
|           | <b>C</b>  | <b>45</b> | 5.2      | –   | 4.5     | 4.1  |       |
|           | <b>C</b>  | <b>50</b> | 5.2      | –   | 5.0     | 4.6  |       |
|           | <b>C</b>  | <b>55</b> | 6.2      | 6.2 | 5.5     | 5.1  |       |
|           | <b>C</b>  | <b>60</b> | 6.2      | 6.2 | 6.0     | 5.6  |       |
|           | <b>C</b>  | <b>65</b> | 7.2      | 6.7 | 6.5     | 6.1  |       |
|           | <b>K</b>  | <b>70</b> | 7.2      | –   | 7.0     | 6.6  | 3)    |
|           | <b>K</b>  | <b>75</b> | 8.2      | 8.2 | 7.5     | 7.1  | 3)    |
|           | <b>K</b>  | <b>80</b> | 8.2      | 8.2 | 8.0     | 7.6  | 3)    |
|           | <b>K</b>  | <b>85</b> | 9.2      | 8.6 | 8.5     | 8.1  | 3)    |
| <b>2K</b> | <b>C</b>  | <b>15</b> | 2.2      | –   | 1.5     | 1.3  |       |
|           | <b>C</b>  | <b>20</b> | 2.2      | –   | 2.0     | 1.6  |       |
|           | <b>C</b>  | <b>25</b> | 3.2      | –   | 2.5     | 2.1  |       |
|           | <b>C</b>  | <b>30</b> | 3.2      | –   | 3.0     | 2.6  |       |
|           | <b>C</b>  | <b>35</b> | 4.2      | –   | 3.5     | 3.1  |       |
|           | <b>C</b>  | <b>40</b> | 4.2      | –   | 4.0     | 3.6  |       |
|           | <b>C</b>  | <b>45</b> | 5.2      | –   | 4.5     | 4.1  |       |
|           | <b>C</b>  | <b>50</b> | 5.2      | –   | 5.0     | 4.6  |       |
|           | <b>C</b>  | <b>55</b> | 6.2      | –   | 5.5     | 5.1  |       |
|           | <b>C</b>  | <b>60</b> | 6.2      | –   | 6.0     | 5.6  |       |
|           | <b>C</b>  | <b>65</b> | 7.2      | –   | 6.5     | 6.1  |       |
|           | <b>C</b>  | <b>70</b> | 7.2      | –   | 7.0     | 6.6  |       |

|           | Reference |           | Collet ø |      | Cable ø |      | Notes |
|-----------|-----------|-----------|----------|------|---------|------|-------|
|           | Type      | Code      | ø A      | ø B  | max.    | min. |       |
| <b>2K</b> | <b>C</b>  | <b>70</b> | 7.2      | –    | 7.0     | 6.6  |       |
|           | <b>C</b>  | <b>75</b> | 8.2      | 8.2  | 7.5     | 7.1  |       |
|           | <b>C</b>  | <b>80</b> | 8.2      | 8.2  | 8.0     | 7.6  |       |
|           | <b>C</b>  | <b>85</b> | 9.2      | 8.6  | 8.5     | 8.1  |       |
|           | <b>K</b>  | <b>90</b> | 9.2      | –    | 9.0     | 8.6  | 4)    |
|           | <b>K</b>  | <b>95</b> | 10.2     | 10.2 | 9.5     | 9.1  | 4)    |
|           | <b>K</b>  | <b>10</b> | 10.2     | 10.2 | 10.0    | 9.6  | 4)    |
|           | <b>K</b>  | <b>11</b> | 11.2     | 10.6 | 10.5    | 10.1 | 4)    |
| <b>3K</b> | <b>C</b>  | <b>30</b> | 3.2      | –    | 3.0     | 2.6  |       |
|           | <b>C</b>  | <b>35</b> | 4.2      | –    | 3.5     | 3.1  |       |
|           | <b>C</b>  | <b>40</b> | 4.2      | –    | 4.0     | 3.6  |       |
|           | <b>C</b>  | <b>45</b> | 5.2      | –    | 4.5     | 4.1  |       |
|           | <b>C</b>  | <b>50</b> | 5.2      | –    | 5.0     | 4.6  |       |
|           | <b>C</b>  | <b>55</b> | 6.2      | –    | 5.5     | 5.1  |       |
|           | <b>C</b>  | <b>60</b> | 6.2      | –    | 6.0     | 5.6  |       |
|           | <b>C</b>  | <b>65</b> | 7.2      | –    | 6.5     | 6.1  |       |
|           | <b>C</b>  | <b>70</b> | 7.2      | –    | 7.0     | 6.6  |       |
|           | <b>C</b>  | <b>75</b> | 8.2      | –    | 7.5     | 7.1  |       |
|           | <b>C</b>  | <b>80</b> | 8.2      | –    | 8.0     | 7.6  |       |
|           | <b>C</b>  | <b>85</b> | 9.2      | –    | 8.5     | 8.1  |       |
|           | <b>C</b>  | <b>90</b> | 9.2      | –    | 9.0     | 8.6  |       |
|           | <b>C</b>  | <b>95</b> | 10.2     | 10.2 | 9.5     | 9.1  |       |
|           | <b>C</b>  | <b>10</b> | 10.2     | 10.2 | 10.0    | 9.6  |       |
|           | <b>C</b>  | <b>11</b> | 11.2     | 10.6 | 10.5    | 10.1 |       |
|           | <b>K</b>  | <b>11</b> | 12.3     | –    | 12.0    | 10.6 | 5)    |
|           | <b>K</b>  | <b>12</b> | 13.8     | 13.8 | 12.8    | 12.1 | 5)    |
|           | <b>K</b>  | <b>13</b> | 13.8     | 13.8 | 13.5    | 12.9 | 5)    |
|           | <b>K</b>  | <b>14</b> | 15.3     | 15.3 | 14.0    | 13.6 | 5)    |
|           | <b>K</b>  | <b>15</b> | 15.3     | 15.3 | 15.0    | 14.1 | 2)    |

**Note:** all dimensions are in millimetres.

1) the inner diameter of the smallest bend relief available is 2.5 mm (in TPU) / 1.7 mm (in silicone).

2) the inner diameter of the largest bend relief available is 14.5 mm.

3) for 2B bend relief.

4) for 3B bend relief.

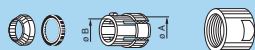
5) for 4B bend relief.





## C and K type collets for K series

C type



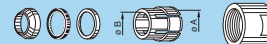
K type  
oversize  
cable collet



4K

| Reference |      | Collet ø |      | Cable ø |      | Notes |
|-----------|------|----------|------|---------|------|-------|
| Type      | Code | ø A      | ø B  | max.    | min. |       |
| C         | 50   | 6.3      | –    | 5.0     | 4.8  |       |
| C         | 55   | 6.3      | –    | 5.5     | 5.1  |       |
| C         | 60   | 6.3      | –    | 6.0     | 5.6  |       |
| C         | 65   | 7.3      | –    | 6.5     | 6.1  |       |
| C         | 70   | 7.3      | –    | 7.0     | 6.6  |       |
| C         | 75   | 8.3      | –    | 7.5     | 7.1  |       |
| C         | 80   | 8.3      | –    | 8.0     | 7.6  |       |
| C         | 85   | 9.3      | –    | 8.5     | 8.1  |       |
| C         | 90   | 9.3      | –    | 9.0     | 8.6  |       |
| C         | 95   | 10.8     | –    | 9.5     | 9.1  |       |
| C         | 10   | 10.8     | –    | 10.5    | 9.6  |       |
| C         | 11   | 12.3     | –    | 12.0    | 10.6 |       |
| C         | 12   | 13.8     | 13.8 | 12.8    | 12.1 |       |
| C         | 13   | 13.8     | 13.8 | 13.5    | 12.9 |       |
| C         | 14   | 15.3     | 15.3 | 14.0    | 13.6 |       |
| C         | 15   | 15.3     | 15.3 | 15.0    | 14.1 | 2)    |
| K         | 16   | 17.8     | –    | 16.5    | 15.6 | 1)    |
| K         | 17   | 17.8     | –    | 17.5    | 16.6 | 1)    |
| K         | 18   | 19.8     | –    | 18.5    | 17.6 | 1)    |
| K         | 19   | 19.8     | –    | 19.5    | 18.6 | 1)    |
| K         | 20   | 21.8     | –    | 20.5    | 19.6 | 1)    |
| K         | 21   | 21.8     | –    | 21.5    | 20.6 | 1)    |
| K         | 22   | 23.8     | 23.8 | 22.5    | 21.6 | 1)    |
| K         | 23   | 23.8     | 23.8 | 23.5    | 22.6 | 1)    |

C type



5K

| Reference |      | Collet ø |      | Cable ø |      | Notes |
|-----------|------|----------|------|---------|------|-------|
| Type      | Code | ø A      | ø B  | max.    | min. |       |
| C         | 10   | 11.8     | –    | 10.5    | 9.6  |       |
| C         | 11   | 11.8     | –    | 11.5    | 10.6 |       |
| C         | 12   | 13.8     | –    | 12.5    | 11.6 |       |
| C         | 13   | 13.8     | –    | 13.5    | 12.6 |       |
| C         | 14   | 15.8     | –    | 14.5    | 13.6 |       |
| C         | 15   | 15.8     | –    | 15.5    | 14.6 | 1)    |
| C         | 16   | 17.8     | –    | 16.5    | 15.6 | 1)    |
| C         | 17   | 17.8     | –    | 17.5    | 16.6 | 1)    |
| C         | 18   | 19.8     | –    | 18.5    | 17.6 | 1)    |
| C         | 19   | 19.8     | –    | 19.5    | 18.6 | 1)    |
| C         | 20   | 21.8     | –    | 20.5    | 19.6 | 1)    |
| C         | 21   | 21.8     | –    | 21.5    | 20.6 | 1)    |
| C         | 22   | 23.8     | 23.8 | 22.5    | 21.6 | 1)    |
| C         | 23   | 23.8     | 23.8 | 23.5    | 22.6 | 1)    |

**Note:** all dimensions are in millimetres.

<sup>1)</sup> these collets cannot be used for connector models with nut for fitting a bend relief. No bend relief available for this cable size.

<sup>2)</sup> the inner diameter of the largest bend relief available is 14.5 mm.

## C and K type collets for T series

C type



|           | Reference |      | Cable ø (mm) |      | Notes |
|-----------|-----------|------|--------------|------|-------|
|           | Type      | Code | max.         | min. |       |
| <b>TT</b> | C         | 27   | 2.6          | 2.4  |       |
|           | C         | 31   | 3.0          | 2.7  |       |
| <b>OT</b> | C         | 10   | 1.2          | 1.0  | 1)    |
|           | C         | 15   | 1.5          | 1.3  | 1)    |
|           | C         | 20   | 2.0          | 1.6  | 1)    |
|           | C         | 25   | 2.5          | 2.1  |       |
|           | C         | 30   | 3.0          | 2.6  |       |
|           | C         | 35   | 3.5          | 3.1  |       |
|           | C         | 40   | 4.0          | 3.6  |       |
|           | C         | 45   | 4.5          | 4.1  |       |
|           | K         | 50   | 5.0          | 4.6  | 2)    |
|           | K         | 55   | 5.5          | 5.1  | 2)    |
|           | K         | 60   | 6.0          | 5.6  | 2)    |
|           | K         | 65   | 6.5          | 6.1  | 2)    |
| <b>1T</b> | C         | 15   | 1.5          | 1.3  |       |
|           | C         | 20   | 2.0          | 1.6  |       |
|           | C         | 25   | 2.5          | 2.1  |       |
|           | C         | 30   | 3.0          | 2.6  |       |
|           | C         | 35   | 3.5          | 3.1  |       |
|           | C         | 40   | 4.0          | 3.6  |       |
|           | C         | 45   | 4.5          | 4.1  |       |
|           | C         | 50   | 5.0          | 4.6  |       |
|           | C         | 55   | 5.5          | 5.1  |       |
|           | C         | 60   | 6.0          | 5.6  |       |
|           | C         | 65   | 6.5          | 6.1  |       |
|           | K         | 70   | 7.0          | 6.6  | 3)    |
|           | K         | 75   | 7.5          | 7.1  | 3)    |
|           | K         | 80   | 8.0          | 7.6  | 3)    |
|           | K         | 85   | 8.5          | 8.1  | 3)    |
| <b>2T</b> | C         | 15   | 1.5          | 1.3  |       |
|           | C         | 20   | 2.0          | 1.6  |       |
|           | C         | 25   | 2.5          | 2.1  |       |
|           | C         | 30   | 3.0          | 2.6  |       |
|           | C         | 35   | 3.5          | 3.1  |       |
|           | C         | 40   | 4.0          | 3.6  |       |

|           | Reference |      | Cable ø (mm) |      | Notes |
|-----------|-----------|------|--------------|------|-------|
|           | Type      | Code | max.         | min. |       |
| <b>2T</b> | C         | 45   | 4.5          | 4.1  |       |
|           | C         | 50   | 5.0          | 4.6  |       |
|           | C         | 55   | 5.5          | 5.1  |       |
|           | C         | 60   | 6.0          | 5.6  |       |
|           | C         | 65   | 6.5          | 6.1  |       |
|           | C         | 70   | 7.0          | 6.6  |       |
|           | C         | 75   | 7.5          | 7.1  |       |
|           | C         | 80   | 8.0          | 7.6  |       |
|           | C         | 85   | 8.5          | 8.1  |       |
|           | K         | 90   | 9.0          | 8.6  | 4)    |
|           | K         | 95   | 9.5          | 9.1  | 4)    |
|           | K         | 10   | 10.0         | 9.6  | 4)    |
| <b>3T</b> | K         | 11   | 10.5         | 10.1 | 4)    |
|           | C         | 30   | 3.0          | 2.6  |       |
|           | C         | 35   | 3.5          | 3.1  |       |
|           | C         | 40   | 4.0          | 3.6  |       |
|           | C         | 45   | 4.5          | 4.1  |       |
|           | C         | 50   | 5.0          | 4.6  |       |
|           | C         | 55   | 5.5          | 5.1  |       |
|           | C         | 60   | 6.0          | 5.6  |       |
|           | C         | 65   | 6.5          | 6.1  |       |
|           | C         | 70   | 7.0          | 6.6  |       |
|           | C         | 75   | 7.5          | 7.1  |       |
|           | C         | 80   | 8.0          | 7.6  |       |
|           | C         | 85   | 8.5          | 8.1  |       |
|           | C         | 90   | 9.0          | 8.6  |       |
|           | C         | 95   | 9.5          | 9.1  |       |
|           | C         | 10   | 10.0         | 9.6  |       |
|           | C         | 11   | 10.5         | 10.1 |       |
|           | K         | 11   | 12.0         | 10.6 |       |
|           | K         | 12   | 12.8         | 12.1 |       |
|           | K         | 13   | 13.5         | 12.9 |       |
|           | K         | 14   | 14.0         | 13.6 |       |
|           | K         | 15   | 15.0         | 14.1 | 5)    |

**Note:** all dimensions are in millimetres.

1) the inner diameter of the smallest bend relief available is 2.5 mm (in TPU) / 1.7 mm (in silicone).

2) for 1B bend relief.

3) for 2B bend relief.

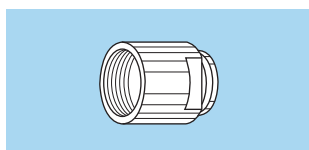
4) for 3B bend relief.

5) the inner diameter of the largest bend relief available is 14.5 mm.

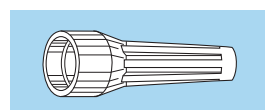


## Variant (B, K and T series)

### Bend relief for B series models with collet

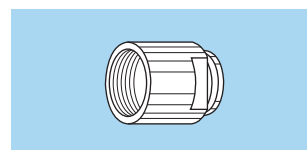


#### Need to be ordered

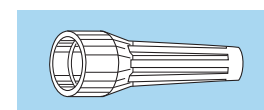


|           | Ref.     | Collet |                        | Need to be ordered separately<br>(see pages 145 and 146) |
|-----------|----------|--------|------------------------|----------------------------------------------------------|
|           |          | Type   | Code                   |                                                          |
| <b>00</b> | <b>z</b> | D      | 22 to 35               | GMA.00....<br>GMB.00....                                 |
| <b>0B</b> | <b>z</b> | D      | 22 to 52               | GMA.0B....                                               |
| <b>1B</b> | <b>z</b> | M      | 27 and 31              | GMA.1B....                                               |
|           |          | D      | 42 to 72               | GMA.1B....                                               |
| <b>XB</b> | <b>z</b> | D      | 52 to 72               | GMA.1B....                                               |
| <b>2B</b> | <b>z</b> | M      | 21 and 32              | GMA.0B....                                               |
|           |          | D      | 42 to 92               | GMA.2B....                                               |
| <b>3B</b> | <b>z</b> | M      | 52                     | GMA.1B....                                               |
|           |          | D      | 62 to 10               | GMA.3B....                                               |
| <b>4B</b> | <b>z</b> | M      | 62 to 82               | GMA.2B....                                               |
|           |          | M      | 92                     | GMA.4B....                                               |
|           |          | D      | 10 to 15 <sup>1)</sup> | GMA.4B....                                               |
| <b>5B</b> | <b>z</b> | D      | 11 to 15 <sup>1)</sup> | GMA.4B....                                               |

### Bend relief for K series models with collet



#### Need to be ordered



|           | Ref.     | Collet |                        | Need to be ordered separately<br>(see pages 145 and 146) |
|-----------|----------|--------|------------------------|----------------------------------------------------------|
|           |          | Type   | Code                   |                                                          |
| <b>0K</b> | <b>z</b> | C      | 10 to 50               | GMA.0B....                                               |
| <b>1K</b> | <b>z</b> | C      | 15 to 65               | GMA.1B....                                               |
|           |          | K      | 70 to 85               | GMA.2B....                                               |
| <b>2K</b> | <b>z</b> | C      | 15 to 85               | GMA.2B....                                               |
|           |          | K      | 90 to 10               | GMA.3B....                                               |
| <b>3K</b> | <b>z</b> | C      | 30 to 10               | GMA.3B....                                               |
|           |          | K      | 11 to 15 <sup>2)</sup> | GMA.4B....                                               |
| <b>4K</b> | <b>z</b> | C      | 50 to 15 <sup>3)</sup> | GMA.4B....                                               |
| <b>5K</b> | <b>z</b> | C      | 10 to 14               | GMA.4B....                                               |

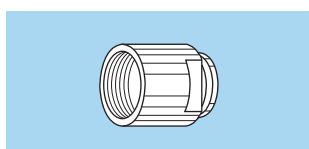
**Note:** all dimensions are in millimetres.

<sup>1)</sup> for D15 see page 67.

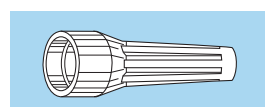
<sup>2)</sup> for K15 see page 68.

<sup>3)</sup> for C15 see page 69.

### Bend relief for T series models with collet



#### Need to be ordered



|           | Ref.     | Collet |           | Need to be ordered separately<br>(see pages 145 and 146) |
|-----------|----------|--------|-----------|----------------------------------------------------------|
|           |          | Type   | Code      |                                                          |
| <b>TT</b> | <b>z</b> | C      | 27 and 31 | GMB.00....                                               |
| <b>0T</b> | <b>z</b> | C      | 10 to 45  | GMA.0B....                                               |
|           |          | K      | 50 to 65  | GMA.1B....                                               |
| <b>1T</b> | <b>z</b> | C      | 15 to 65  | GMA.1B....                                               |
|           |          | K      | 70 to 85  | GMA.2B....                                               |

|           | Ref.     | Collet |                        | Need to be ordered separately<br>(see pages 145 and 146) |
|-----------|----------|--------|------------------------|----------------------------------------------------------|
|           |          | Type   | Code                   |                                                          |
| <b>2T</b> | <b>z</b> | C      | 15 to 85               | GMA.2B....                                               |
|           |          | K      | 90 to 10               | GMA.3B....                                               |
| <b>3T</b> | <b>z</b> | C      | 30 to 10               | GMA.3B....                                               |
|           |          | K      | 11 to 15 <sup>4)</sup> | GMA.4B....                                               |

**Note:** all dimensions are in millimetres.

<sup>4)</sup> for K15 see page 70.

## Colour of the bridge plug shells and connectors shell made of plastic material and aluminium alloys

| Ref.     | Colour  | Bridge plug and plastic shell |      |      | Aluminium alloys |                                            |
|----------|---------|-------------------------------|------|------|------------------|--------------------------------------------|
|          |         | PSU                           | PPSU | PA.6 | Anodized colour  | Anodized colour for bend relief collet nut |
| <b>A</b> | blue    |                               |      | ●    | ●                |                                            |
| <b>B</b> | white   | ●                             |      | ●    |                  |                                            |
| <b>G</b> | grey    | ●                             |      | ●    |                  |                                            |
| <b>J</b> | yellow  |                               |      | ●    | ●                |                                            |
| <b>M</b> | brown   |                               |      | ●    |                  |                                            |
| <b>N</b> | black   |                               |      | ●    | ●                |                                            |
| <b>R</b> | red     |                               |      | ●    | ●                |                                            |
| <b>S</b> | orange  |                               |      | ●    |                  |                                            |
| <b>T</b> | natural |                               |      |      | ●                |                                            |
| <b>V</b> | green   |                               |      | ●    | ●                |                                            |
| <b>L</b> | black   |                               |      |      |                  | ●                                          |
| <b>X</b> | natural |                               |      |      |                  | ●                                          |
| <b>F</b> | cream   |                               | ●    |      |                  |                                            |

**Note:** other anodizing colours are available for connectors with collet nut for bend relief. Please consult us.

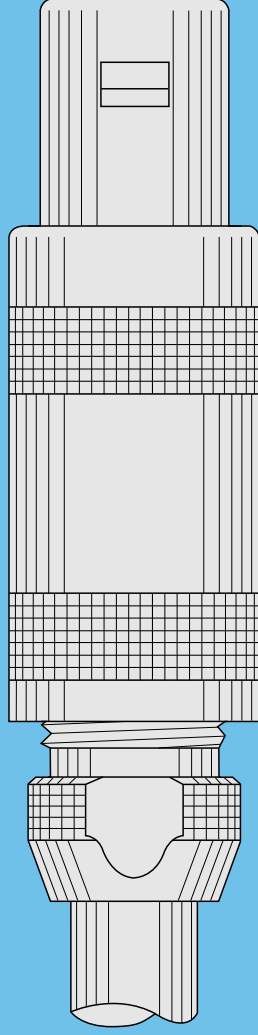
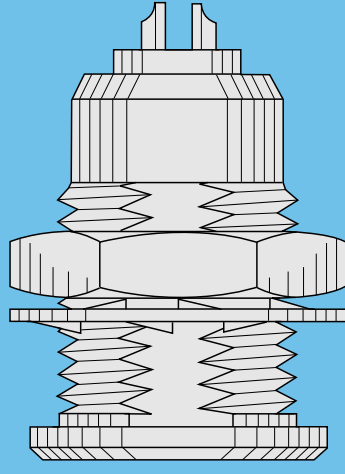
## Watertight and vacuumtight socket and coupler models (B, K and T series) (not connected)

|          | Reference  |             | Model                                  |
|----------|------------|-------------|----------------------------------------|
|          | Watertight | Vacuumtight |                                        |
| <b>B</b> | <b>P</b>   | <b>PV</b>   | YH●, HG●, HN●, HH●, HC●, HE●, HM●, S●● |
| <b>K</b> | <b>P</b>   | <b>PV</b>   | HG●, HE●, S●●                          |
| <b>T</b> | <b>P</b>   | <b>PV</b>   | HG●, HE●, HM●                          |

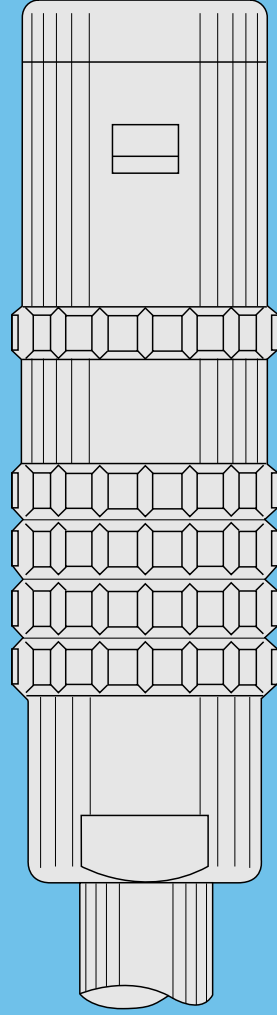
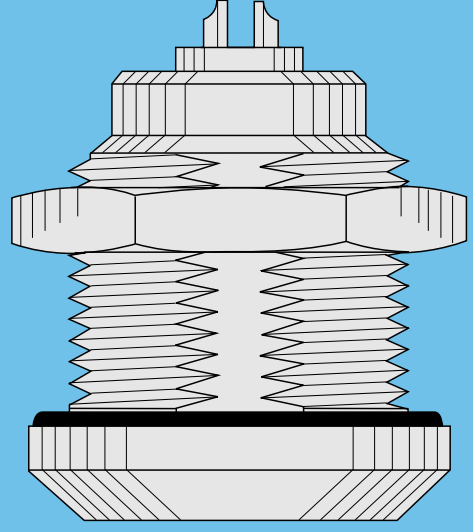
## O-ring and gasket material (K and T series)

Standard connectors are delivered with silicone o-ring and gaskets. The vacuumtight models, identified with the letter «PV», are delivered with Viton® gaskets. Other gaskets material can be delivered upon special request.

| Ref.     | O-ring material                             |
|----------|---------------------------------------------|
| <b>H</b> | FPM (Viton®)                                |
| <b>E</b> | EPDM                                        |
| <b>D</b> | FPM (Viton®) and collet nut for bend relief |



**S SERIES**



**E SERIES (watertight)**

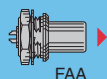
## S Series

S series connectors have main features as follows:

- security of the Push-Pull self-latching system
- unipole types transmitting current up to 230 A and multipole types with up to 106 contacts
- 360° screening for full EMC shielding.
- solder or print contacts (straight or elbow)
- polarisation by stepped insert (half-moon) fitted with male and female contacts

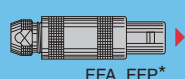
### Metal housing models (page 76)

#### Fixed plug



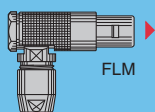
FAA

#### Straight plugs

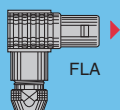


FFA, FFP\*

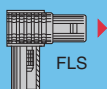
#### Elbow plugs



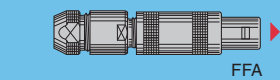
FLM



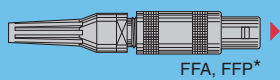
FLA



FLS



FFA



FFA, FFP\*



FFB



FFE



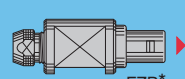
FFL\*



FFF

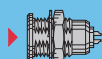


FFS

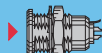


FZP\*

#### Fixed sockets



ERA



ERN



ERC



ERS\*



EHP



EBD\*



EBS\*



EBC\*



EEP



ERD



ECP



ECP

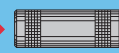


ECP



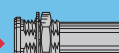
ECP

#### Free coupler



RMA

#### Fixed coupler

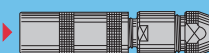


RAD

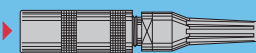
#### Free sockets



PCA, PCP\*



PCA

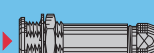


PCA, PCP\*

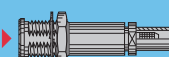


PZP\*

#### Fixed sockets



PSA, PSP



PSS

#### T-plug



FTA\*

Note: \* Contact LEMO for details.

### New design models (page 86)

#### Straight plugs



FGZ

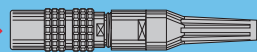
#### Free sockets



PGZ



FGZ



PGZ

### Elbow socket models (page 87)

#### Elbow sockets



EPL



EXP

### Plastic housing models (page 89)

#### Straight plugs



FFA, FFP



FFP



FFL

#### Fixed socket



ERN

### Watertight or vacuumtight models (page 91)

#### Fixed sockets



HGP



HCP



EWB



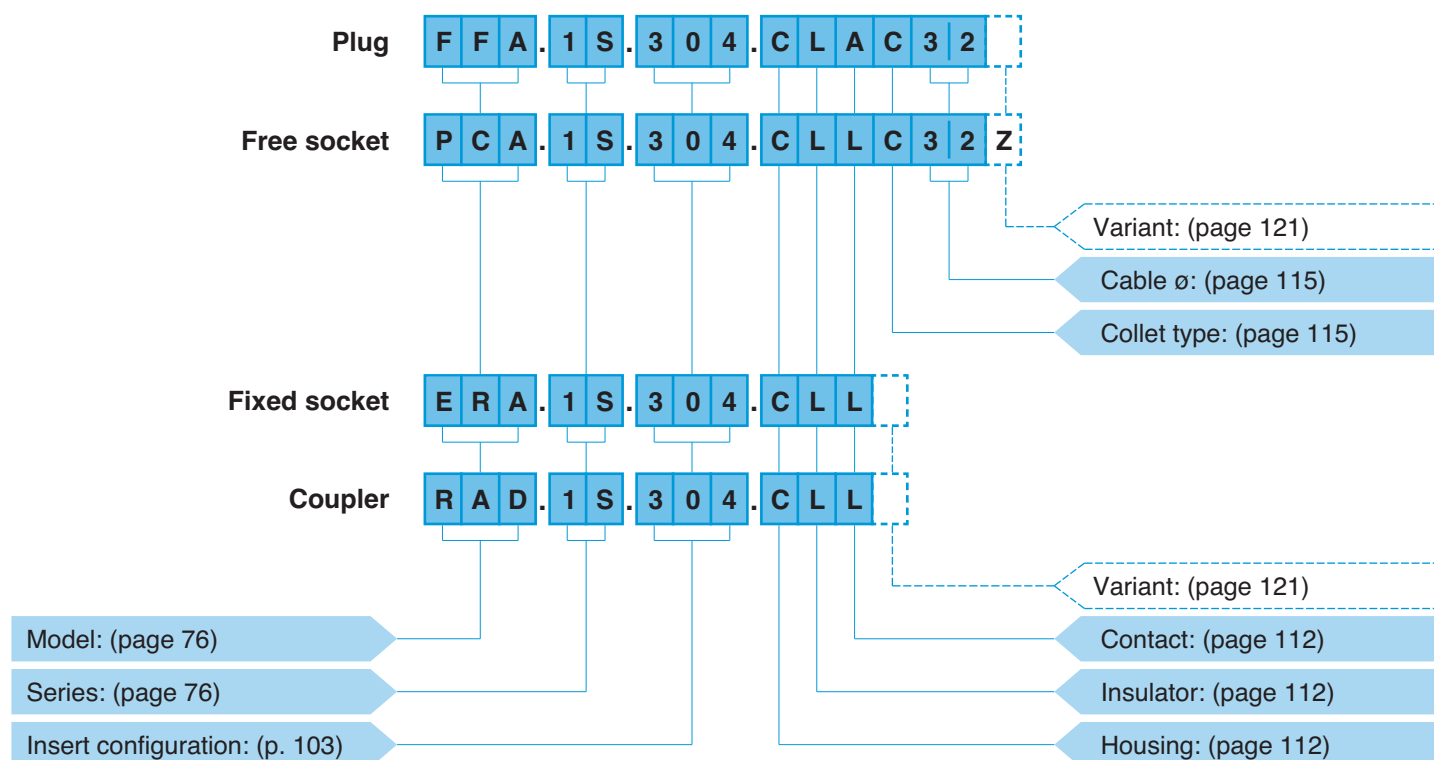
HGW

#### Fixed coupler



SWH

## Part Numbering System



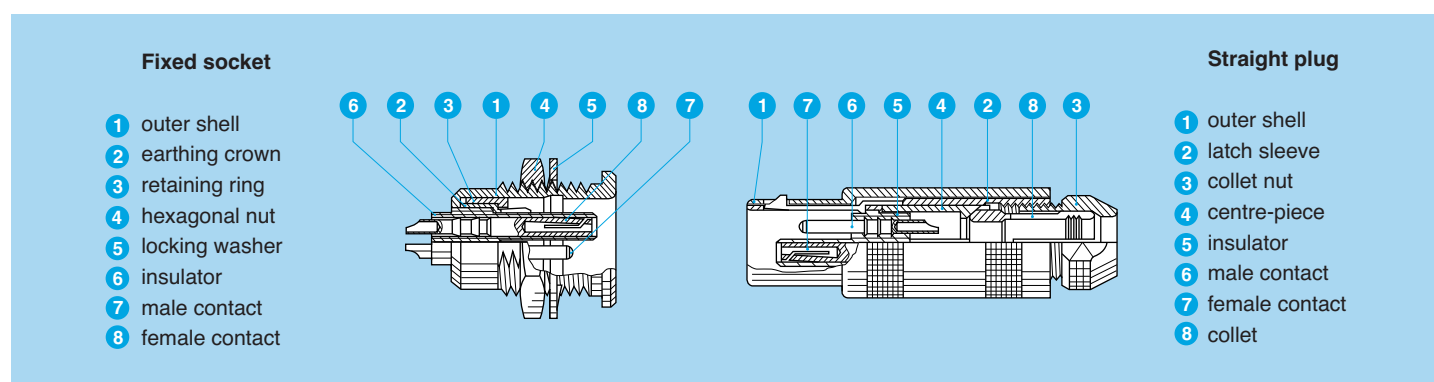
**FFA.1S.304.CLAC32** = straight plug with cable collet, 1S series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 male and 2 female solder contacts, C type collet for a 3.2 mm diameter cable.

**PCA.1S.304.CLLC32Z** = free socket, with cable collet, 1S series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 female and 2 male solder contacts, C type collet for a 3.2 mm diameter cable and nut for fitting a bend relief.

**ERA.1S.304.CLL** = fixed socket, nut fixing, 1S series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 female and 2 male solder contacts.

**RAD.1S.304.CLL** = straight coupler, nut fixing, 1S series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 female and 2 male contacts each end.

## Part Section Showing Internal Components



| Characteristics                         | Value              | Standard             |
|-----------------------------------------|--------------------|----------------------|
| Endurance <sup>1)</sup>                 | > 5000 cycles      | IEC 60512-5 test 9a  |
| Humidity                                | up to 95% at 60° C |                      |
| Temperature range                       | - 55° C, + 250° C  |                      |
| Resistance to vibrations                | 10-2000 Hz, 15g    | IEC 60512-4 test 6d  |
| Shock resistance                        | 100 g, 6 ms        | IEC 60512-4 test 6c  |
| Salt spray corrosion test <sup>2)</sup> | > 1000h            | IEC 60512-6 test 11f |
| Protection index (mated)                | IP 50              | IEC 60529            |
| Climatical category                     | 55/175/21          | IEC 60068-1          |

| Characteristics      |           | Value   | Standard      |
|----------------------|-----------|---------|---------------|
| Shielding efficiency | at 10 MHz | > 75 dB | IEC 60169-1-3 |
|                      | at 1 GHz  | > 40 dB | IEC 60169-1-3 |

2) for chrome plated product (« C » material code).

[illegible]

| Reference |        | Dimensions (mm) |       |      |      |
|-----------|--------|-----------------|-------|------|------|
| Model     | Series | A               | L     | M    | S2   |
| FFA       | 00     | 6.4             | 26.0  | 18.0 | 4.5  |
| FFA       | 0S     | 9.0             | 34.5  | 24.5 | 6.5  |
| FFA       | 1S     | 12.0            | 42.5  | 31.5 | 8.5  |
| FFA       | 2S     | 14.8            | 52.0  | 40.0 | 11.0 |
| FFA       | 3S     | 17.8            | 61.0  | 46.0 | 14.0 |
| FFA       | 4S     | 24.8            | 77.0  | 59.0 | 19.0 |
| FFA       | 5S     | 35.0            | 103.0 | 78.0 | 29.0 |
| FFA       | 6S     | 46.0            | 106.0 | 81.0 | 38.0 |

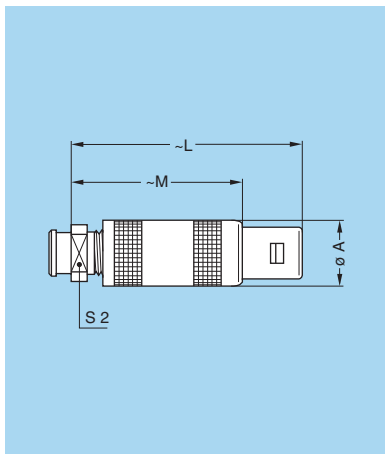
| Reference |        | Dimensions (mm) |      |       |       |      |      |
|-----------|--------|-----------------|------|-------|-------|------|------|
| Model     | Series | A               | B    | L     | M     | S1   | S2   |
| FFA       | 00     | 6.4             | 8.0  | 34.0  | 26.0  | 7.0  | 6.5  |
| FFA       | 0S     | 9.0             | 10.0 | 45.5  | 35.5  | 9.0  | 8.5  |
| FFA       | 1S     | 12.0            | 13.0 | 57.0  | 46.0  | 12.0 | 11.0 |
| FFA       | 2S     | 14.8            | 18.0 | 67.0  | 55.0  | 14.0 | 14.0 |
| FFA       | 3S     | 17.8            | 21.0 | 85.0  | 70.0  | 19.0 | 19.0 |
| FFA       | 4S     | 24.8            | 31.8 | 107.0 | 89.0  | 28.5 | 29.0 |
| FFA       | 5S     | 35.0            | 41.8 | 138.0 | 113.0 | 37.5 | 38.0 |

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## FFA Straight plug, cable collet and nut for fitting a bend relief <sup>1)</sup>

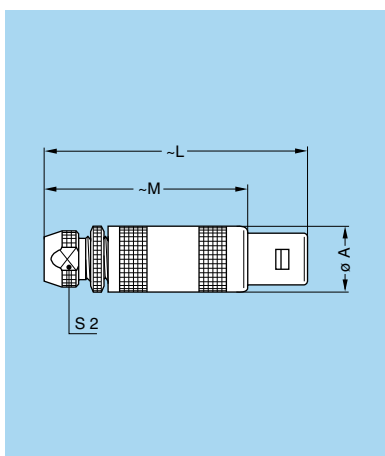
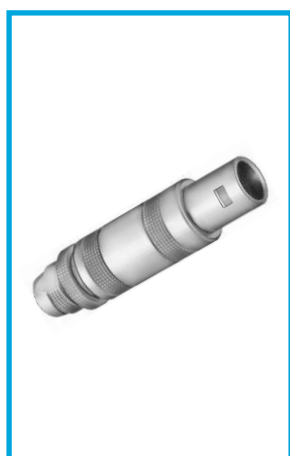


| Reference |        | Dimensions (mm) |      |      |    |
|-----------|--------|-----------------|------|------|----|
| Model     | Series | A               | L    | M    | S2 |
| FFA       | 00     | 6.4             | 26.0 | 18.0 | 6  |
| FFA       | 0S     | 9.0             | 34.5 | 24.5 | 7  |
| FFA       | 1S     | 12.0            | 42.5 | 31.5 | 9  |
| FFA       | 2S     | 14.8            | 52.0 | 40.0 | 12 |
| FFA       | 3S     | 17.8            | 61.0 | 46.0 | 14 |
| FFA       | 4S     | 24.8            | 77.0 | 59.0 | 20 |

**M1** Cable assembly (pages 175 and 176)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

## FFB Straight plug, cable collet and safety locking ring

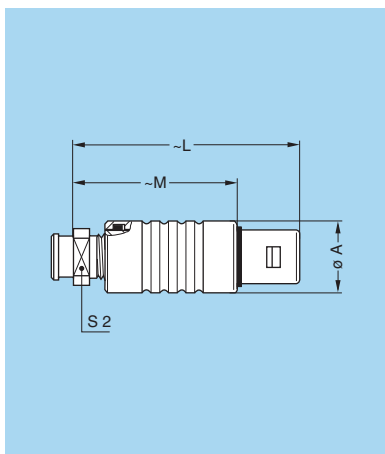


| Reference |        | Dimensions (mm) |      |      |      |
|-----------|--------|-----------------|------|------|------|
| Model     | Series | A               | L    | M    | S2   |
| FFB       | 0S     | 9.0             | 36.8 | 26.8 | 6.5  |
| FFB       | 1S     | 12.0            | 45.0 | 34.0 | 8.5  |
| FFB       | 2S     | 14.8            | 55.5 | 43.5 | 11.0 |
| FFB       | 3S     | 17.8            | 65.0 | 50.0 | 14.0 |

**M1** Cable assembly (pages 175 and 176)

**Note:** nut for fitting a bend relief (available only for size 1S).

## FFE Straight plug, cable collet, front seal and nut for fitting a bend relief <sup>1)</sup> (protected to IP54 when mated)

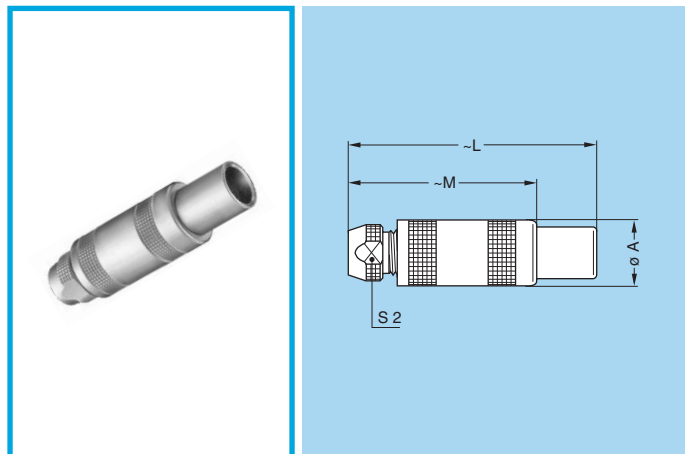


| Reference |        | Dimensions (mm) |      |      |    |
|-----------|--------|-----------------|------|------|----|
| Model     | Series | A               | L    | M    | S2 |
| FFE       | 00     | 7.4             | 26.0 | 18.0 | 6  |
| FFE       | 0S     | 10.0            | 34.5 | 24.5 | 7  |
| FFE       | 1S     | 13.0            | 42.5 | 31.5 | 9  |
| FFE       | 2S     | 16.0            | 52.0 | 40.0 | 12 |
| FFE       | 3S     | 19.0            | 61.0 | 46.0 | 14 |

**M1** Cable assembly (pages 175 and 176)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

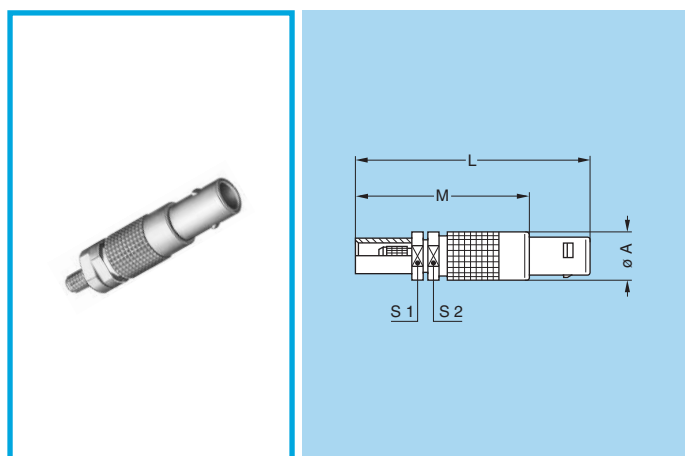
## FFF Straight plug, non-latching, cable collet



| Reference |        | Dimensions (mm) |      |      |      |
|-----------|--------|-----------------|------|------|------|
| Model     | Series | A               | L    | M    | S2   |
| FFF       | 00     | 6.4             | 26.0 | 18.0 | 4.5  |
| FFF       | 0S     | 9.0             | 34.5 | 24.5 | 6.5  |
| FFF       | 1S     | 12.0            | 42.5 | 31.5 | 8.5  |
| FFF       | 2S     | 14.8            | 52.0 | 40.0 | 11.0 |

**M1** Cable assembly (pages 175 and 176)

## FFS Straight plug for cable crimping

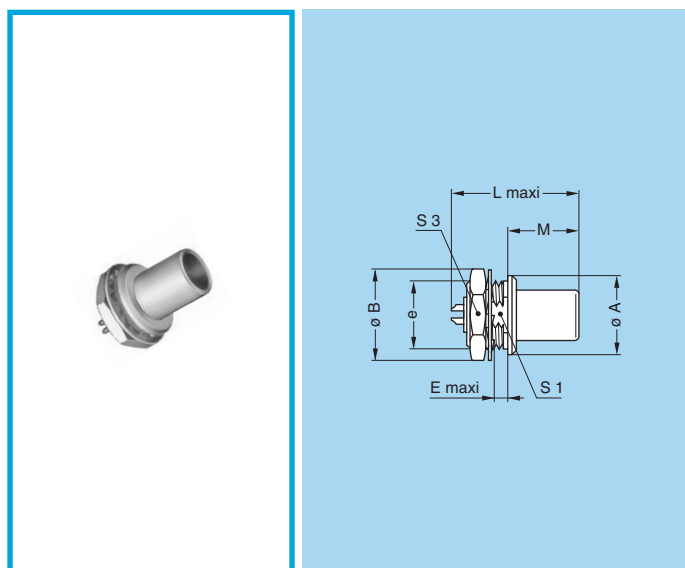


| Reference |        | Dimensions (mm) |    |    |     |     |
|-----------|--------|-----------------|----|----|-----|-----|
| Model     | Series | A               | L  | M  | S1  | S2  |
| FFS       | 00     | 6.4             | 31 | 23 | 5.5 | 5.5 |

**M5** Cable assembly (page 175)

**Note:** Model available only with crimp backnut E31 similar to 00.250 series.

## FAA Fixed plug non-latching, nut fixing



| Reference |        | Dimensions (mm) |      |         |     |      |                 |      |      |    |
|-----------|--------|-----------------|------|---------|-----|------|-----------------|------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | L <sup>1)</sup> | M    | S1   | S3 |
| FAA       | 00     | 8               | 10.2 | M7x0.5  | 2.0 | —    | 15.5            | 9.0  | 6.3  | 9  |
| FAA       | 0S     | 10              | 12.4 | M9x0.6  | 2.0 | 18.5 | 18.0            | 11.2 | 8.2  | 11 |
| FAA       | 1S     | 14              | 15.8 | M12x1.0 | 2.5 | 22.5 | 21.7            | 12.5 | 10.5 | 14 |
| FAA       | 2S     | 18              | 19.2 | M15x1.0 | 4.0 | 25.0 | 25.3            | 13.8 | 13.5 | 17 |
| FAA       | 3S     | 22              | 25.0 | M18x1.0 | 4.0 | 31.0 | 29.0            | 17.0 | 16.5 | 22 |
| FAA       | 4S     | 28              | 34.0 | M25x1.0 | 2.5 | 35.5 | 39.0            | 20.5 | 23.5 | 30 |
| FAA       | 5S     | 40              | 40.0 | M35x1.0 | 2.5 | 45.0 | —               | 28.0 | 33.5 | —  |
| FAA       | 6S     | 54              | 54.0 | M48x1.5 | 2.5 | 45.0 | —               | 28.0 | —    | —  |

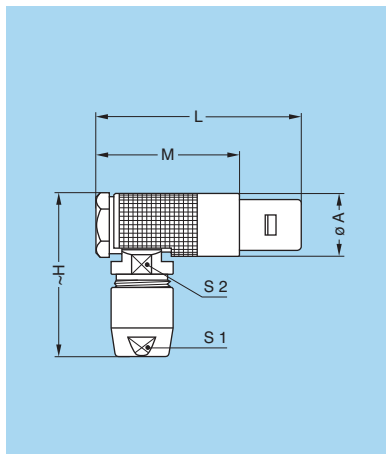
**P1** Panel cut-out (page 158)

**P2** Panel cut-out 6S series (page 158)

**Note:** <sup>1)</sup> unipole model



## FLC/FLM Elbow (90°) plug, cable collet

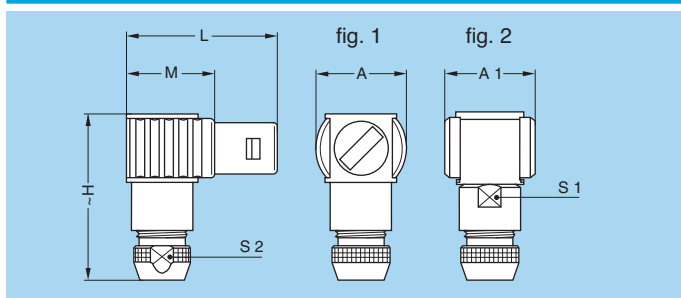


| Reference |        | Dimensions (mm) |      |      |      |      |    |
|-----------|--------|-----------------|------|------|------|------|----|
| Model     | Series | A               | H    | L    | M    | S1   | S2 |
| FLC       | 00     | 7.5             | 16.5 | 19.5 | 11.5 | 4.5  | 6  |
| FLM       | 0S     | 9.5             | 23.0 | 30.0 | 20.0 | 7.0  | 8  |
| FLM       | 1S     | 12.0            | 29.0 | 36.0 | 25.0 | 9.0  | 10 |
| FLM       | 2S     | 14.8            | 35.0 | 41.5 | 29.5 | 12.0 | 13 |

**M3** Cable assembly (pages 175 to 177)

**Note:** FLC.00 model is used for the unipole type.  
For 0S, 1S and 2S series use «D» type collet, see page 67.

## FLA Elbow (90°) plug, cable collet



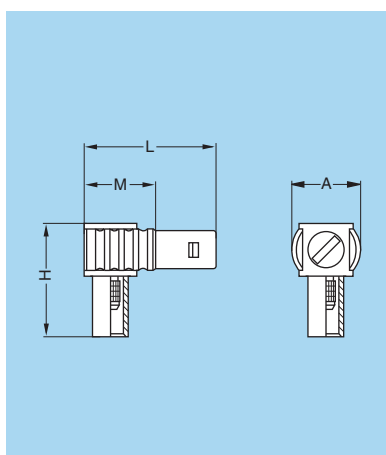
| Reference |        | Dimensions (mm) |    |      |      |      |    |    |
|-----------|--------|-----------------|----|------|------|------|----|----|
| Model     | Series | A               | A1 | H    | L    | M    | S1 | S2 |
| FLA       | 3S     | 21              | 21 | 44.0 | 38.5 | 23.5 | 15 | 14 |
| FLA       | 4S     | 28              | 28 | 56.0 | 49.0 | 31.0 | 20 | 19 |
| FLA       | 5S     | —               | 37 | 76.5 | 65.0 | 40.0 | 30 | 29 |
| FLA       | 6S     | —               | 48 | 94.0 | 81.0 | 56.0 | 40 | 38 |

**M3** Cable assembly (pages 175 to 177)

**Note:**  
fig. 1 is used for the unipole type, fig. 2 is used for the multipole type.

- Maximum operating temperature: 120°C

## FLS Elbow (90°) plug for cable crimping



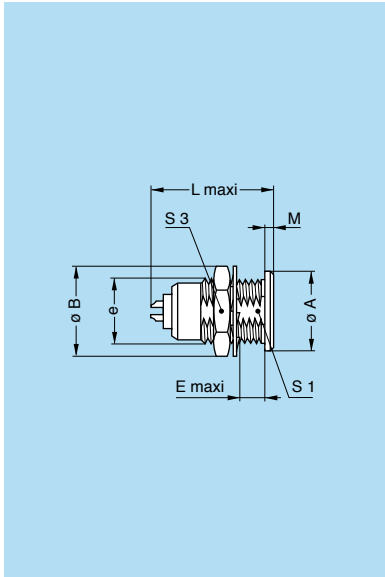
| Reference |        | Dimensions (mm) |    |      |     |
|-----------|--------|-----------------|----|------|-----|
| Model     | Series | A               | H  | L    | M   |
| FLS       | 00     | 9               | 16 | 17.5 | 9.5 |

**M6** Cable assembly (page 175)

**Note:** Model available only with crimp backnut E31 similar to 00.250 series.

- Maximum operating temperature: 120°C

## ERA Fixed socket, nut fixing



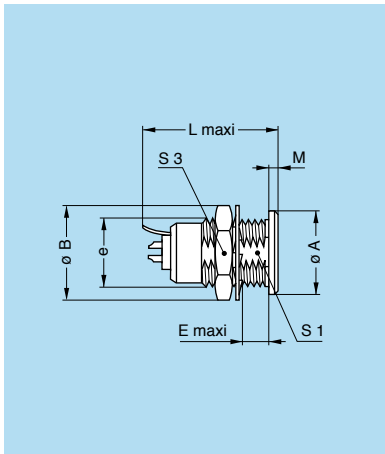
| Reference |        | Dimensions (mm) |      |         |      |      |                 |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----------------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M   | S1   | S3 |
| ERA       | 00     | 8               | 10.2 | M7x0.5  | 5.5  | –    | 14.5            | 1.0 | 6.3  | 9  |
| ERA       | 0S     | 10              | 12.4 | M9x0.6  | 7.0  | 18.5 | 18.0            | 1.2 | 8.2  | 11 |
| ERA       | 1S     | 14              | 15.8 | M12x1.0 | 7.5  | 21.0 | 20.5            | 1.5 | 10.5 | 14 |
| ERA       | 2S     | 18              | 19.2 | M15x1.0 | 8.5  | 24.5 | 23.5            | 1.8 | 13.5 | 17 |
| ERA       | 3S     | 22              | 25.0 | M18x1.0 | 11.5 | 29.0 | 27.5            | 2.0 | 16.5 | 22 |
| ERA       | 4S     | 28              | 34.0 | M25x1.0 | 12.0 | 34.0 | 33.5            | 2.5 | 23.5 | 30 |
| ERA       | 5S     | 40              | 40.0 | M35x1.0 | 15.5 | 45.0 | 78.5            | 3.0 | 33.5 | –  |
| ERA       | 6S     | 54              | 54.0 | M48x1.5 | 16.0 | 45.0 | –               | 3.5 | 45.5 | –  |

**P1** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model.

**Note:** The 5S series is delivered with a tapered washer and a round nut. The 6S series is delivered without a locking washer and with a round nut.

## ERN Fixed socket, nut fixing, with earthing tag

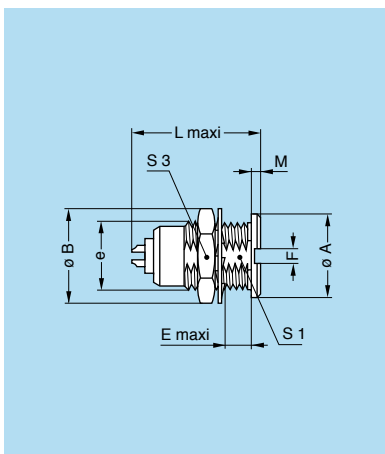


| Reference |        | Dimensions (mm) |      |         |      |      |                 |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----------------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M   | S1   | S3 |
| ERN       | 0S     | 10              | 12.4 | M9x0.6  | 7.0  | 19.3 | 19.3            | 1.2 | 8.2  | 11 |
| ERN       | 1S     | 14              | 15.8 | M12x1.0 | 7.5  | 22.4 | 22.4            | 1.5 | 10.5 | 14 |
| ERN       | 2S     | 18              | 19.2 | M15x1.0 | 8.5  | 26.3 | 26.3            | 1.8 | 13.5 | 17 |
| ERN       | 3S     | 22              | 25.0 | M18x1.0 | 11.5 | 29.8 | 29.8            | 2.0 | 16.5 | 22 |

**P1** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model

## ERC Fixed socket, nut fixing with slot in the flange



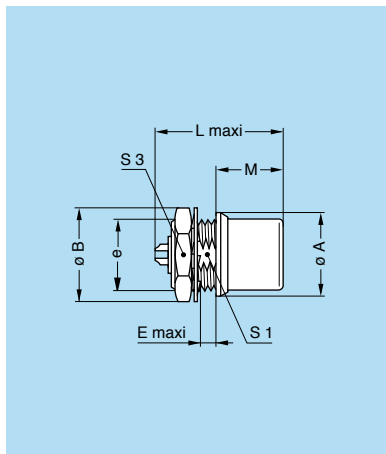
| Reference |        | Dimensions (mm) |      |         |     |     |      |                 |     |      |    |
|-----------|--------|-----------------|------|---------|-----|-----|------|-----------------|-----|------|----|
| Model     | Series | A               | B    | e       | E   | F   | L    | L <sup>1)</sup> | M   | S1   | S3 |
| ERC       | 00     | 8               | 10.2 | M7x0.5  | 5.5 | 1.6 | –    | 14.5            | 1.0 | 6.3  | 9  |
| ERC       | 0S     | 10              | 12.4 | M9x0.6  | 7.0 | 2.0 | 18.5 | 18.0            | 1.2 | 8.2  | 11 |
| ERC       | 1S     | 14              | 15.8 | M12x1.0 | 7.5 | 2.5 | 20.2 | 20.5            | 1.5 | 10.5 | 14 |

**P1** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model.



## EHP Fixed socket, nut fixing, protruding shell



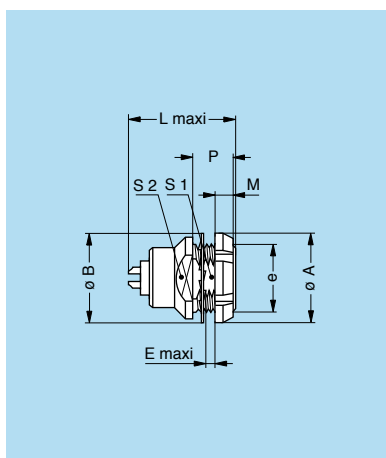
| Reference |        | Dimensions (mm) |      |         |     |      |                 |      |     |    |
|-----------|--------|-----------------|------|---------|-----|------|-----------------|------|-----|----|
| Model     | Series | A               | B    | e       | E   | L    | L <sup>1)</sup> | M    | S1  | S3 |
| EHP       | 0S     | 10              | 12.4 | M9x0.6  | 2.0 | 20.5 | 18.0            | 12.5 | 8.2 | 11 |
| EHP       | 1S     | 14              | 15.8 | M12x1.0 | 3.5 | 20.2 | 20.5            | 12.0 | –   | 14 |
| EHP       | 3S     | 22              | 25.0 | M18x1.0 | 4.0 | 29.0 | 29.0            | 18.7 | –   | 22 |

**P1** Panel cut-out 0S series (page 158)

**P2** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model

## EEP Fixed socket, nut fixing (back panel mounting)

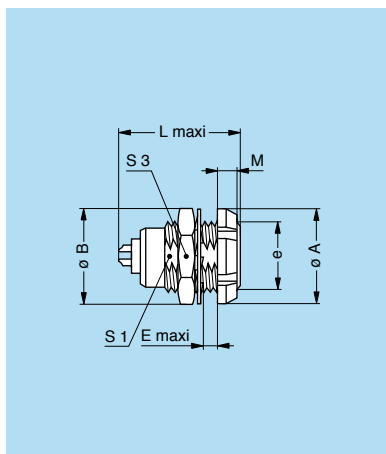


| Reference |        | Dimensions (mm) |      |         |     |      |                 |     |    |      |    |
|-----------|--------|-----------------|------|---------|-----|------|-----------------|-----|----|------|----|
| Model     | Series | A               | B    | e       | E   | L    | L <sup>1)</sup> | M   | P  | S1   | S2 |
| EEP       | 1S     | 16              | 16.0 | M12x1.0 | 6.5 | 20.2 | 20.5            | 3.5 | 11 | 10.5 | 13 |
| EEP       | 2S     | 20              | 19.5 | M15x1.0 | 4.3 | 24.5 | 23.5            | 3.5 | 9  | 13.5 | 15 |

**P1** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model.

## ERD Fixed socket with two nuts (back panel mounting)



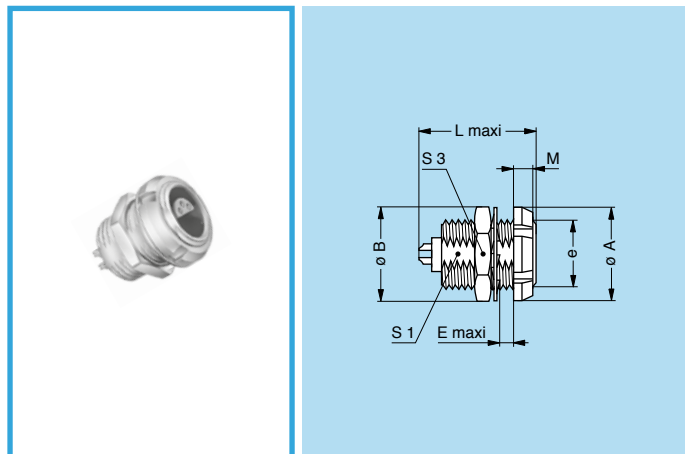
| Reference |        | Dimensions (mm) |      |         |      |      |                 |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----------------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M   | S1   | S3 |
| ERD       | 0S     | 12              | 12.4 | M9x0.6  | 5.5  | 18.5 | 18.0            | 2.5 | 8.2  | 11 |
| ERD       | 1S     | 16              | 15.8 | M12x1.0 | 6.0  | 20.2 | 20.5            | 3.5 | 10.5 | 14 |
| ERD       | 2S     | 20              | 19.2 | M15x1.0 | 6.5  | 24.5 | 23.5            | 3.5 | 13.5 | 17 |
| ERD       | 3S     | 24              | 25.0 | M18x1.0 | 9.0  | 29.0 | 27.5            | 4.5 | 16.5 | 22 |
| ERD       | 4S     | 30              | 34.0 | M25x1.0 | 10.0 | 34.0 | 33.5            | 4.5 | 23.5 | 30 |

**P1** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model.

**Note:** The 3S and 4S series are delivered with a conical nut.

## ECP Fixed socket with two nuts, long threaded shell (back panel mounting)



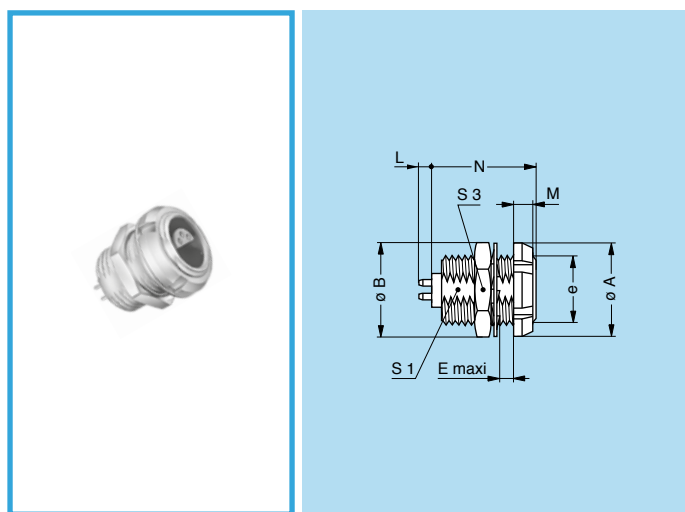
| Reference |        | Dimensions (mm) |      |         |      |      |                 |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----------------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M   | S1   | S3 |
| ECP       | 0S     | 12              | 12.4 | M9x0.6  | 8.5  | 18.5 | 18.5            | 2.5 | 8.2  | 11 |
| ECP       | 1S     | 16              | 15.8 | M12x1.0 | 10.0 | 20.2 | 20.5            | 3.5 | 10.5 | 14 |
| ECP       | 2S     | 20              | 19.2 | M15x1.0 | 11.0 | 24.5 | 26.0            | 3.5 | 13.5 | 17 |
| ECP       | 3S     | 24              | 25.0 | M18x1.0 | 14.0 | 29.0 | 30.0            | 4.5 | 16.5 | 22 |

**P1** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model.

**Note:** The 3S series is delivered with a conical nut.

## ECP Fixed socket with two nuts, long threaded shell, straight contact for printed circuit (back panel mounting)



| Reference |        | Dimensions (mm) |      |         |      |     |      |      |    |
|-----------|--------|-----------------|------|---------|------|-----|------|------|----|
| Model     | Series | A               | B    | e       | E    | M   | N    | S1   | S3 |
| ECP       | 0S     | 12              | 12.4 | M9x0.6  | 8.5  | 2.5 | 15.0 | 8.2  | 11 |
| ECP       | 1S     | 16              | 15.8 | M12x1.0 | 10.0 | 3.5 | 17.5 | 10.5 | 14 |
| ECP       | 2S     | 20              | 19.2 | M15x1.0 | 11.0 | 3.5 | 20.0 | 13.5 | 17 |
| ECP       | 3S     | 24              | 25.0 | M18x1.0 | 14.0 | 4.5 | 24.0 | 16.5 | 22 |

**P1** Panel cut-out (page 158)

**P21** PCB drilling pattern (page 166)

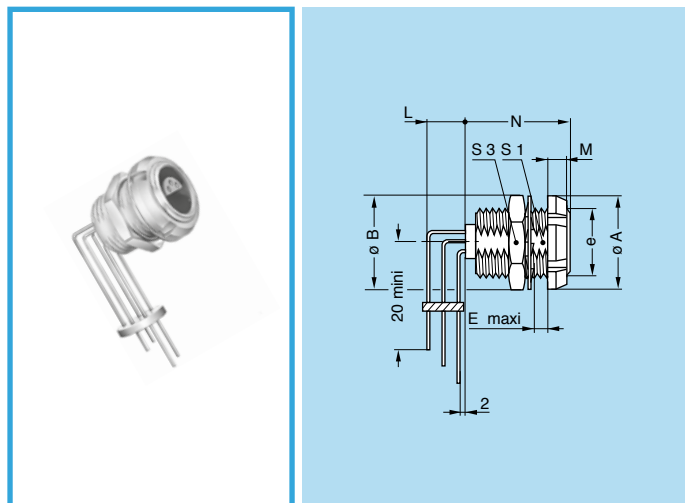
**Note:** The 3S series is delivered with a conical nut.

**Note:** this contact type is available for all E●● socket models.

See page 167 for table of available types.

Length «L» depends on the number of contacts, see table on page 167.

## ECP Fixed socket with two nuts, long threaded shell, elbow (90°) contacts for printed circuit (back panel mounting)



| Reference |        | Dimensions (mm) |      |         |      |     |      |      |    |
|-----------|--------|-----------------|------|---------|------|-----|------|------|----|
| Model     | Series | A               | B    | e       | E    | M   | N    | S1   | S3 |
| ECP       | 0S     | 12              | 12.4 | M9x0.6  | 8.5  | 2.5 | 15.0 | 8.2  | 11 |
| ECP       | 1S     | 16              | 15.8 | M12x1.0 | 10.0 | 3.5 | 17.5 | 10.5 | 14 |
| ECP       | 2S     | 20              | 19.2 | M15x1.0 | 11.0 | 3.5 | 20.0 | 13.5 | 17 |
| ECP       | 3S     | 24              | 25.0 | M18x1.0 | 14.0 | 4.5 | 24.0 | 16.5 | 22 |

**P1** Panel cut-out (page 158)

**P24** PCB drilling pattern (page 168)

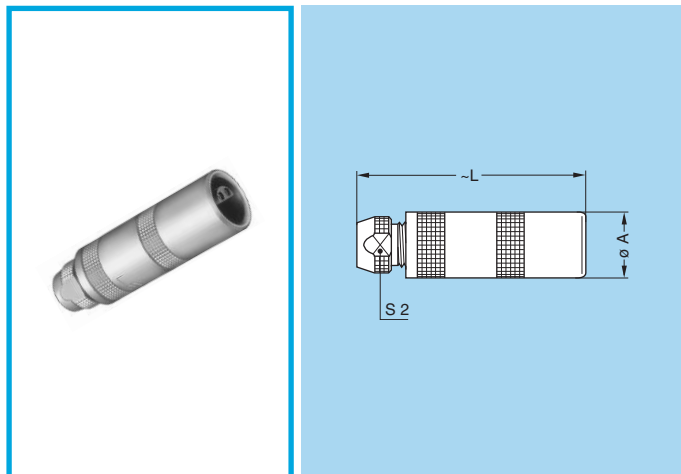
**Note:** The 3S series is delivered with a conical nut.

**Note:** this contact type is available for all back panel mounting socket types. See page 168 for available types.

Length «L» depends on the number of contacts, see PCB drilling pattern on page 168.



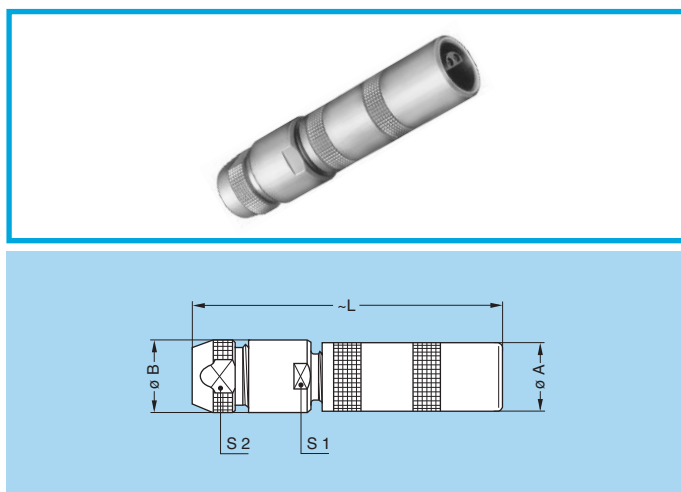
## PCA Free socket, cable collet



| Reference |        | Dimensions (mm) |       |      |
|-----------|--------|-----------------|-------|------|
| Model     | Series | A               | L     | S2   |
| PCA       | 00     | 6.5             | 25.0  | 4.5  |
| PCA       | 0S     | 8.9             | 33.5  | 6.5  |
| PCA       | 1S     | 11.9            | 40.5  | 8.5  |
| PCA       | 2S     | 14.8            | 50.0  | 11.0 |
| PCA       | 3S     | 17.8            | 59.0  | 14.0 |
| PCA       | 4S     | 24.8            | 75.0  | 19.0 |
| PCA       | 5S     | 34.7            | 99.0  | 29.0 |
| PCA       | 6S     | 46.0            | 102.0 | 38.0 |

**M1** Cable assembly (pages 175 to 177)

## PCA Free socket with oversize cable collet <sup>1)</sup>

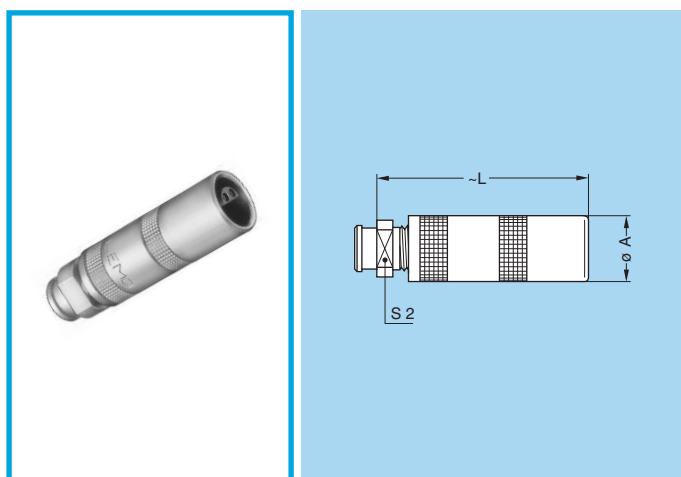


| Reference |        | Dimensions (mm) |      |       |      |      |
|-----------|--------|-----------------|------|-------|------|------|
| Model     | Series | A               | B    | L     | S1   | S2   |
| PCA       | 00     | 6.5             | 8.0  | 33.0  | 7.0  | 6.5  |
| PCA       | 0S     | 8.9             | 10.0 | 44.5  | 9.0  | 8.5  |
| PCA       | 1S     | 11.9            | 13.0 | 55.0  | 12.0 | 11.0 |
| PCA       | 2S     | 14.8            | 18.0 | 65.0  | 14.0 | 14.0 |
| PCA       | 3S     | 17.8            | 21.0 | 83.0  | 19.0 | 19.0 |
| PCA       | 4S     | 24.8            | 31.8 | 105.0 | 28.5 | 29.0 |

**M2** Cable assembly (pages 175 and 178)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 115).

## PCA Free socket, cable collet and nut for fitting a bend relief <sup>1)</sup>

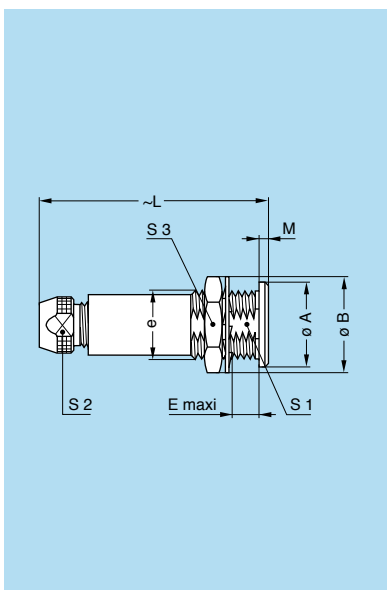


| Reference |        | Dimensions (mm) |      |    |
|-----------|--------|-----------------|------|----|
| Model     | Series | A               | L    | S2 |
| PCA       | 00     | 6.5             | 25.0 | 6  |
| PCA       | 0S     | 8.9             | 33.5 | 7  |
| PCA       | 1S     | 11.9            | 40.5 | 9  |
| PCA       | 2S     | 14.8            | 50.0 | 12 |
| PCA       | 3S     | 17.8            | 59.0 | 14 |
| PCA       | 4S     | 24.8            | 75.0 | 20 |

**M1** Cable assembly (pages 175 and 176)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).

## PSA Fixed socket, nut fixing, cable collet



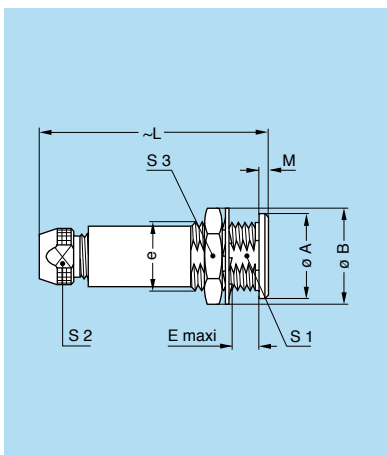
| Reference |        | Dimensions (mm) |      |         |      |       |     |      |      |    |
|-----------|--------|-----------------|------|---------|------|-------|-----|------|------|----|
| Model     | Series | A               | B    | e       | E    | L     | M   | S1   | S2   | S3 |
| PSA       | 00     | 8               | 10.2 | M7x0.5  | 5.5  | 25.0  | 1.0 | 6.3  | 4.5  | 9  |
| PSA       | 0S     | 10              | 12.4 | M9x0.6  | 7.0  | 33.5  | 1.2 | 8.2  | 6.5  | 11 |
| PSA       | 1S     | 14              | 15.8 | M12x1.0 | 7.5  | 40.5  | 1.5 | 10.5 | 8.5  | 14 |
| PSA       | 2S     | 18              | 19.2 | M15x1.0 | 8.5  | 50.0  | 1.8 | 13.5 | 11.0 | 17 |
| PSA       | 3S     | 22              | 25.0 | M18x1.0 | 11.5 | 59.0  | 2.0 | 16.5 | 14.0 | 22 |
| PSA       | 4S     | 28              | 34.0 | M25x1.0 | 12.0 | 75.0  | 2.5 | 23.5 | 19.0 | 30 |
| PSA       | 5S     | 40              | 40.0 | M35x1.0 | 15.5 | 99.0  | 3.0 | 33.5 | 29.0 | —  |
| PSA       | 6S     | 54              | 54.0 | M48x1.5 | 16.0 | 102.0 | 3.5 | 45.5 | 38.0 | —  |

**M1** Cable assembly (pages 175 to 177)

**P1** Panel cut-out (page 158)

**Note:** the 5S series is delivered with a tapered washer and a round nut.  
The 6S series is delivered without a locking washer and with a round nut.

## PSP Fixed socket, nut fixing, cable collet and inner anti-rotating device

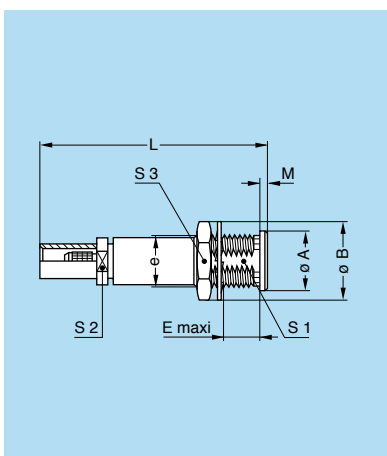


| Reference |        | Dimensions (mm) |      |         |      |      |     |      |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S2   | S3 |
| PSP       | 2S     | 18              | 19.2 | M15x1.0 | 8.5  | 50.0 | 1.8 | 13.5 | 11.0 | 17 |
| PSP       | 3S     | 22              | 25.0 | M18x1.0 | 11.5 | 59.0 | 2.0 | 16.5 | 14.0 | 22 |
| PSP       | 4S     | 28              | 34.0 | M25x1.0 | 12.0 | 75.0 | 2.5 | 23.5 | 19.0 | 30 |

**M1** Cable assembly (pages 175 and 176)

**P1** Panel cut-out (page 158)

## PSS Fixed socket, nut fixing for cable crimping



| Reference |        | Dimensions (mm) |      |        |     |    |   |     |     |    |
|-----------|--------|-----------------|------|--------|-----|----|---|-----|-----|----|
| Model     | Series | A               | B    | e      | E   | L  | M | S1  | S2  | S3 |
| PSS       | 00     | 8               | 10.2 | M7x0.5 | 5.5 | 30 | 1 | 6.3 | 5.5 | 9  |

**M5** Cable assembly (page 175)

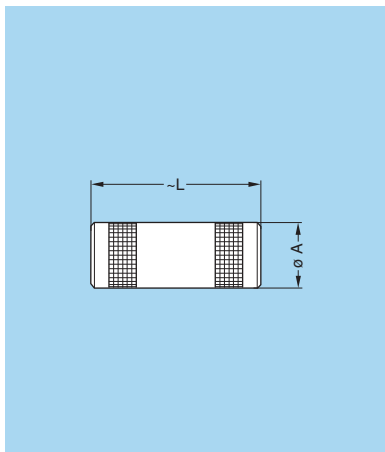
**P1** Panel cut-out (page 158)

**Note:** Model available only with crimp backnut E31 similar to 00.250 series.





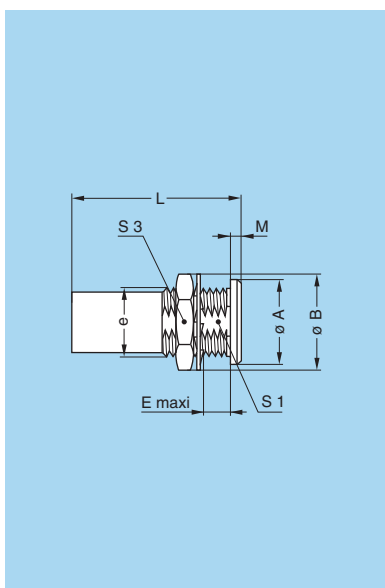
## RMA Free coupler



| Reference |        | Dim. (mm) |      |
|-----------|--------|-----------|------|
| Model     | Series | A         | L    |
| RMA       | 00     | 6.4       | 22.0 |
| RMA       | 0S     | 8.9       | 25.0 |
| RMA       | 1S     | 11.9      | 28.5 |
| RMA       | 2S     | 14.8      | 31.5 |
| RMA       | 3S     | 17.8      | 38.5 |
| RMA       | 4S     | 24.8      | 46.5 |
| RMA       | 5S     | 34.7      | 60.5 |

**Note:** see page 114 for the available plug and contact configurations and in order to ensure correct contact alignment.

## RAD Fixed coupler, nut fixing



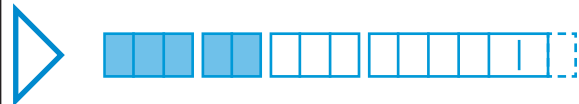
| Reference |        | Dimensions (mm) |      |         |      |      |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | M   | S1   | S2 |
| RAD       | 00     | 8               | 10.2 | M7x0.5  | 5.5  | 22.0 | 1.0 | 6.3  | 9  |
| RAD       | 0S     | 10              | 12.4 | M9x0.6  | 7.0  | 25.0 | 1.2 | 8.2  | 11 |
| RAD       | 1S     | 14              | 15.8 | M12x1.0 | 7.5  | 28.5 | 1.5 | 10.5 | 14 |
| RAD       | 2S     | 18              | 19.2 | M15x1.0 | 8.5  | 31.5 | 1.8 | 13.5 | 17 |
| RAD       | 3S     | 22              | 25.0 | M18x1.0 | 11.5 | 38.5 | 2.0 | 16.5 | 22 |
| RAD       | 4S     | 28              | 34.0 | M25x1.0 | 12.0 | 46.5 | 2.5 | –    | 30 |
| RAD       | 5S     | 40              | 40.0 | M35x1.0 | 15.5 | 60.5 | 3.0 | –    | –  |

**P1** Panel cut-out (page 158)

**P2** Panel cut-out 4S and 5S series (page 158)

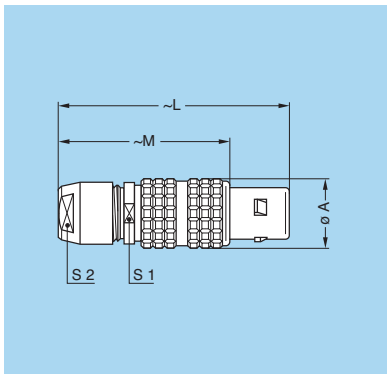
**Note:** the 5S series is delivered with a tapered washer and a round nut.

**Note:** See page 114 for the available plug and contact configurations and in order to ensure correct contact alignment.



## New design models

### FGZ Straight plug, cable collet

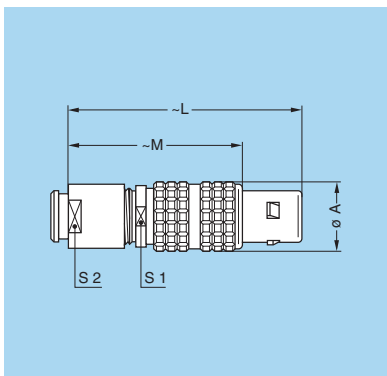


| Reference |        | Dimensions (mm) |    |    |    |    |
|-----------|--------|-----------------|----|----|----|----|
| Model     | Series | A               | L  | M  | S1 | S2 |
| FGZ       | 0S     | 9.5             | 36 | 26 | 8  | 7  |
| FGZ       | 1S     | 12.0            | 43 | 32 | 10 | 9  |
| FGZ       | 2S     | 15.0            | 50 | 38 | 13 | 12 |

**M1** Cable assembly (page 169)

**Note:** D type collets of the B series are used in this model (see page 67).

### FGZ Straight plug, cable collet and nut for fitting a bend relief <sup>1)</sup>



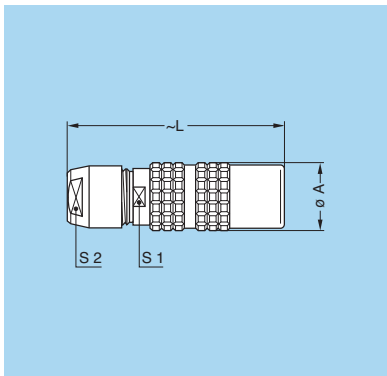
| Reference |        | Dimensions (mm) |    |    |    |    |
|-----------|--------|-----------------|----|----|----|----|
| Model     | Series | A               | L  | M  | S1 | S2 |
| FGZ       | 0S     | 9.5             | 35 | 25 | 8  | 7  |
| FGZ       | 1S     | 12.0            | 42 | 31 | 10 | 9  |
| FGZ       | 2S     | 15.0            | 49 | 37 | 13 | 12 |

**M1** Cable assembly (page 169)

**Note:** D type collets of the B series are used in this model (see page 67).

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).

### PGZ Free socket, cable collet

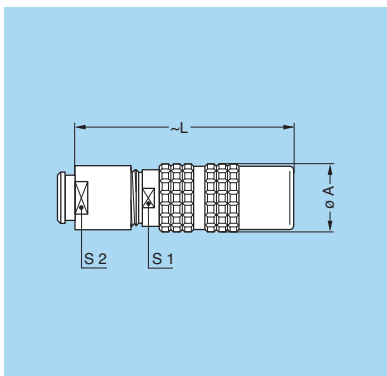


| Reference |        | Dim. (mm) |      |    |    |
|-----------|--------|-----------|------|----|----|
| Model     | Series | A         | L    | S1 | S2 |
| PGZ       | 0S     | 9.5       | 35.5 | 8  | 7  |
| PGZ       | 1S     | 12.5      | 40.5 | 10 | 9  |
| PGZ       | 2S     | 15.0      | 49.0 | 13 | 12 |

**M1** Cable assembly (page 169)

**Note:** D type collets of the B series are used in this model (see page 67).

### PGZ Free socket, cable collet and nut for fitting a bend relief <sup>1)</sup>



| Reference |        | Dim. (mm) |      |    |    |
|-----------|--------|-----------|------|----|----|
| Model     | Series | A         | L    | S1 | S2 |
| PGZ       | 0S     | 9.5       | 34.5 | 8  | 7  |
| PGZ       | 1S     | 12.5      | 39.5 | 10 | 9  |
| PGZ       | 2S     | 15.0      | 48.0 | 13 | 12 |

**M1** Cable assembly (page 169)

**Note:** D type collets of the B series are used in this model (see page 67).

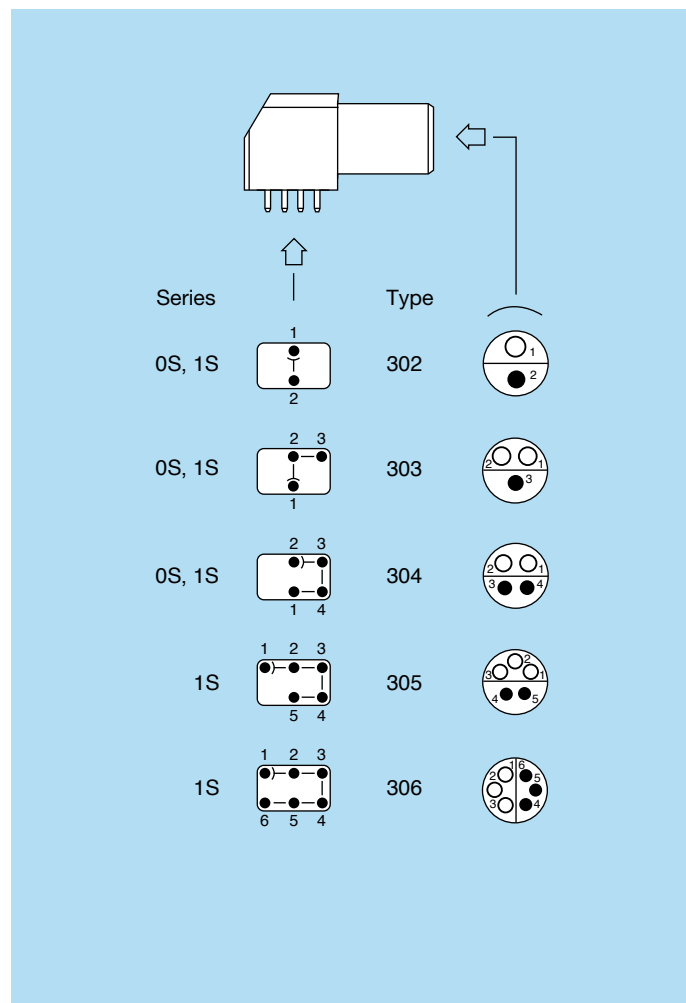
**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).



## Elbow socket models

### Technical Characteristics

#### Types



#### Materials and Treatment

| Component      | Material          | Surface Treat. (µm) |    |     |
|----------------|-------------------|---------------------|----|-----|
|                |                   | Cu                  | Ni | Au  |
| Housing        | PPS <sup>1)</sup> | –                   |    |     |
|                | Brass             | 0.5                 | 3  | –   |
| Metallic parts | Brass             | 0.5                 | 3  | –   |
| Earthing crown | Bronze            | 0.5                 | 3  | –   |
| Insulator      | PEEK              | –                   |    |     |
| Female contact | Bronze            | 0.5                 | 3  | 1.5 |

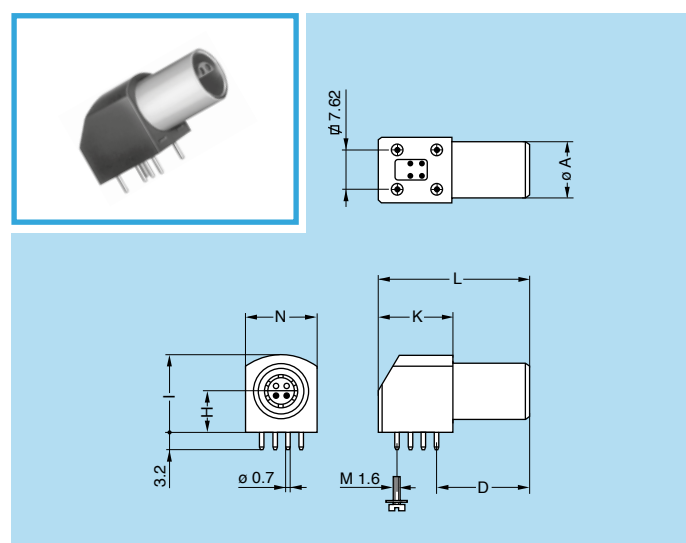
**Note:** <sup>1)</sup> not used for all sizes.  
The surface treatment standards are as follows:  
– Nickel SAE AMS QQ N 290  
– Gold: ISO 27874

#### Electrical

| Model | Series | Types       | Test voltage (kV rms) <sup>1)</sup> | Rated current (A) |
|-------|--------|-------------|-------------------------------------|-------------------|
| EPL   | 0S     | 302-303-304 | 1.20                                | 4.5               |
| EXP   | 0S     | 302-303-304 | 1.20                                | 4.5               |
| EPL   | 1S     | 302-303-304 | 1.20                                | 4.5               |
| EXP   | 1S     | 302-303-304 | 1.20                                | 4.5               |
| EPL   | 1S     | 305-306     | 0.70                                | 4.5               |
| EXP   | 1S     | 305-306     | 0.70                                | 4.5               |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190.

### EPL Elbow (90°) socket for printed circuit (solder or screw fixing)

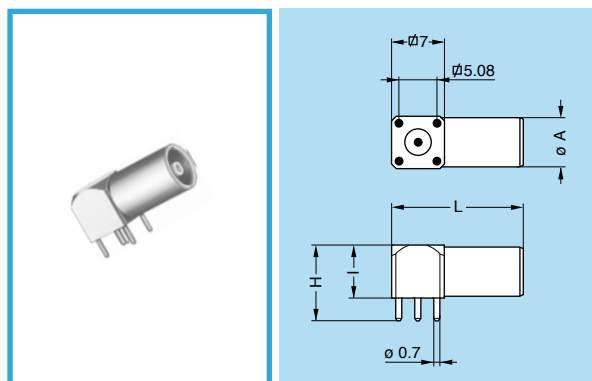


| Part number    | Dimensions (mm) |      |     |      |      |    |      |
|----------------|-----------------|------|-----|------|------|----|------|
|                | A               | D    | H   | I    | K    | L  | N    |
| EPL.0S.302.HLN | 9               | 14.6 | 6.7 | 12.6 | 13.3 | 25 | 11.7 |
| EPL.0S.303.HLN |                 |      |     |      |      |    |      |
| EPL.0S.304.HLN |                 |      |     |      |      |    |      |
| EPL.1S.302.HLN | 11              | 16.6 | 7.5 | 14.0 | 13.3 | 27 | 12.6 |
| EPL.1S.303.HLN |                 |      |     |      |      |    |      |
| EPL.1S.304.HLN |                 |      |     |      |      |    |      |
| EPL.1S.305.HLN |                 |      |     |      |      |    |      |
| EPL.1S.306.HLN |                 |      |     |      |      |    |      |

**Note:** to replace the 4 ground pins by 4 screws (M1.6) add an «S» to the end of the part number. (e.g.: EPL.1S.303.HLNS)

**P22** PCB drilling pattern (page 168)

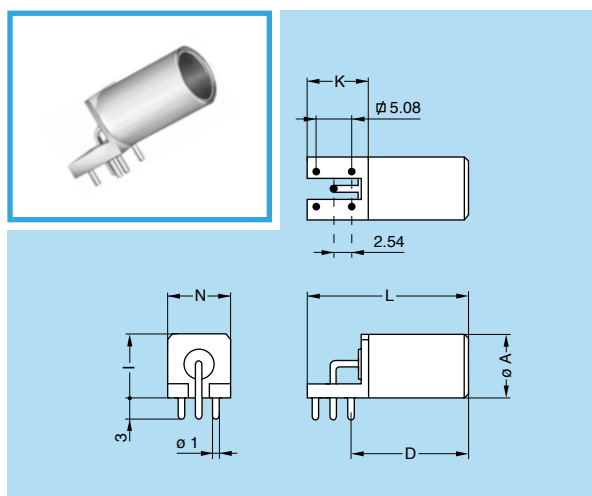
## EPL Elbow (90°) socket for printed circuit



| Part number           | Dimensions (mm) |    |   |
|-----------------------|-----------------|----|---|
|                       | A               | H  | I |
| <b>EPL.00.113.NLN</b> | 6.8             | 10 | 7 |

**P23** PCB drilling pattern (page 168)

## EPL Elbow (90°) socket for printed circuit

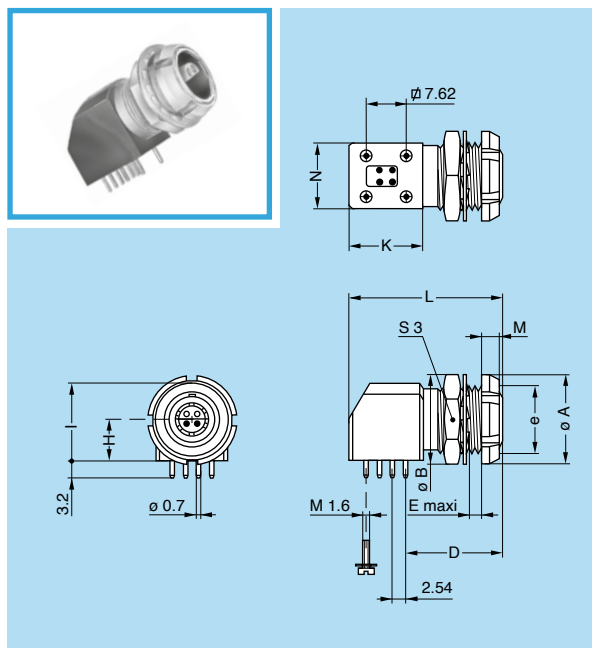


| Part number           | Dimensions (mm) |    |    |   |     |      |   |
|-----------------------|-----------------|----|----|---|-----|------|---|
|                       | A               | D  | H  | I | K   | L    | N |
| <b>EPL.0S.116.DTL</b> | 8.8             | 16 | 12 | 9 | 7.7 | 22.7 | 9 |

**Note:** available only in unipole version.

**P23** PCB drilling pattern (page 168)

## EXP Elbow (90°) socket for printed circuit with two nuts (solder or screw fixing)



| Part number    | Dimensions (mm) |      |      |         |     |     |      |      |    |     |      |    |
|----------------|-----------------|------|------|---------|-----|-----|------|------|----|-----|------|----|
|                | A               | B    | D    | e       | E   | H   | I    | K    | L  | M   | N    | S3 |
| EXP.0S.302.HLN | 12              | 12.4 | 14.6 | M9x0.6  | 6.0 | 6.7 | 12.6 | 13.3 | 25 | 2.5 | 11.7 | 11 |
| EXP.0S.303.HLN |                 |      |      |         |     |     |      |      |    |     |      |    |
| EXP.0S.304.HLN |                 |      |      |         |     |     |      |      |    |     |      |    |
| EXP.1S.302.HLN | 14              | 15.0 | 16.6 | M11x0.5 | 7.5 | 7.5 | 14.0 | 13.3 | 27 | 3.5 | 12.6 | 13 |
| EXP.1S.303.HLN |                 |      |      |         |     |     |      |      |    |     |      |    |
| EXP.1S.304.HLN |                 |      |      |         |     |     |      |      |    |     |      |    |
| EXP.1S.305.HLN |                 |      |      |         |     |     |      |      |    |     |      |    |
| EXP.1S.306.HLN |                 |      |      |         |     |     |      |      |    |     |      |    |

**Note:** to replace the 4 ground pins by 4 screws (M1.6) add an «S» to the end of the part number. (e.g.: EXP.1S.303.HLNS).

**P2** Panel cut-out 0S series (page 158)

**P10** Panel cut-out 1S series (page 158)

**P22** PCB drilling pattern (page 168)



## Plastic housing models

These connectors are particularly recommended for all applications requiring maximum electrical insulation when mated. The design, including a latch sleeve and a metal earthing crown, guarantees EMC screening efficiency to meet most requirements.

### Technical Characteristics

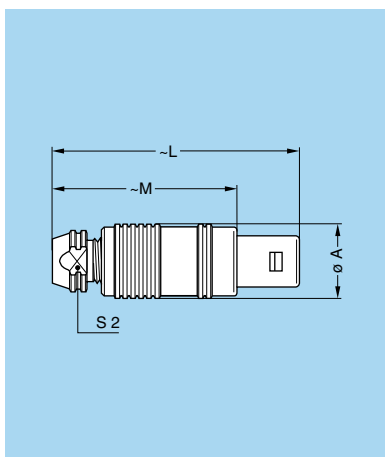
#### Mechanical and Climatical

| Characteristics                        | Value              |                  |                  |                  | Standard            |
|----------------------------------------|--------------------|------------------|------------------|------------------|---------------------|
|                                        | PEEK               | POM              | PSU              | PPSU             |                     |
| Colour                                 | natural (beige)    | black            | white or grey    | cream            | –                   |
| Endurance <sup>1)</sup>                | > 5000 cycles      | > 5000 cycles    | > 5000 cycles    | > 5000 cycles    | IEC 60512-5 test 9a |
| Humidity                               | up to 95% at 60° C |                  |                  |                  | –                   |
| Temperature range                      | - 50° C/+ 250° C   | - 50° C/+ 115° C | - 50° C/+ 150° C | - 50° C/+ 180° C | –                   |
| Sterilization resistance <sup>2)</sup> | > 200 cycles       | none             | ~20 cycles       | > 100 cycles     | IEC 60601-1 § 44.7  |
| Resistance to organic solvents         | very good          | very good        | limited          | good             | –                   |

**Note:** <sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force. <sup>2)</sup> Steam sterilization

**FFA** Straight plug, cable collet, PEEK or POM outer shell

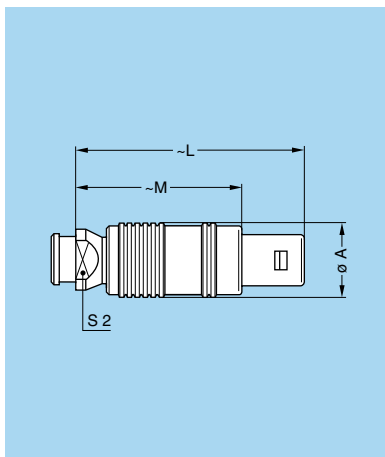
**FFP** Straight plug, cable collet, PEEK or POM outer shell and inner anti-rotating device



| Reference  |           | Dimensions (mm) |      |      |    |
|------------|-----------|-----------------|------|------|----|
| Model      | Series    | A               | L    | M    | S2 |
| <b>FFA</b> | <b>00</b> | 7               | 33.5 | 25.5 | 6  |
| <b>FFP</b> | <b>1S</b> | 12              | 42.5 | 31.5 | 10 |
| <b>FFP</b> | <b>2S</b> | 15              | 52.0 | 40.0 | 12 |
| <b>FFP</b> | <b>3S</b> | 18              | 61.0 | 46.0 | 14 |

**M1** Cable assembly (pages 175 and 176)

**FFP** Straight plug, cable collet, PEEK or POM outer shell, inner anti-rotating device and nut for fitting a bend relief <sup>1)</sup>

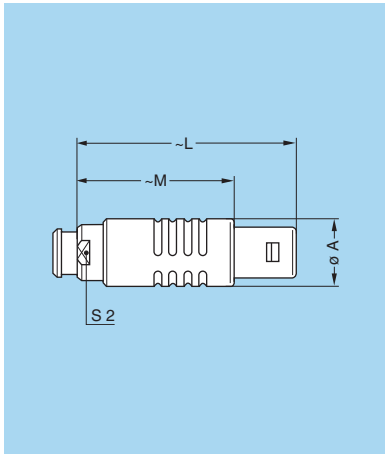


| Reference  |           | Dimensions (mm) |      |      |    |
|------------|-----------|-----------------|------|------|----|
| Model      | Series    | A               | L    | M    | S2 |
| <b>FFP</b> | <b>1S</b> | 12              | 41.5 | 30.5 | 10 |
| <b>FFP</b> | <b>2S</b> | 15              | 51.0 | 39.0 | 12 |
| <b>FFP</b> | <b>3S</b> | 18              | 61.0 | 46.0 | 14 |

**M1** Cable assembly (pages 175 and 176)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).

**FFL** Straight plug, cable collet, with PSU and PPSU outer shell, inner anti-rotating device and nut for fitting a bend relief <sup>1)</sup>



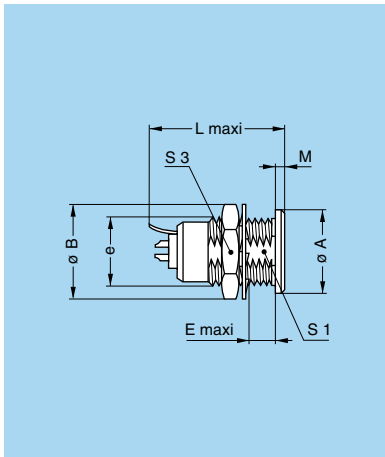
| Reference  |           | Dimensions (mm) |      |      |    |
|------------|-----------|-----------------|------|------|----|
| Model      | Series    | A               | L    | M    | S2 |
| <b>FFL</b> | <b>2S</b> | 16.5            | 51.5 | 39.5 | 13 |

**M4** Cable assembly (page 177)

**Note:** 1) to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

**Note:** This model is fitted with a «D or M» type collet system. It is also adapted for crimp contacts. Available only for multipole.

**ERN** Fixed socket, nut fixing, with earthing tag, PEEK or POM outer shell



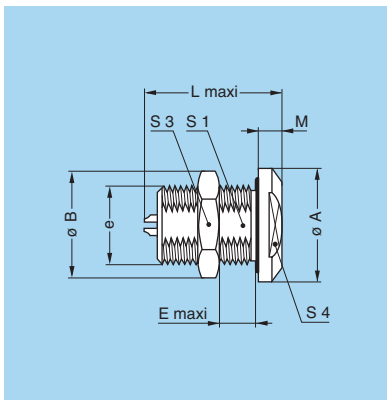
| Reference |        | Dimensions (mm) |      |         |      |      |                 |     |      |    |
|-----------|--------|-----------------|------|---------|------|------|-----------------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M   | S1   | S3 |
| ERN       | 00     | 9               | 10.2 | M7x0.5  | 5.5  | –    | 14.5            | 1.0 | 6.3  | 9  |
| ERN       | 0S     | 11              | 12.4 | M9x0.6  | 6.4  | 19.3 | 19.3            | 1.8 | 8.2  | 11 |
| ERN       | 1S     | 14              | 15.8 | M12x1.0 | 7.5  | 22.4 | 22.4            | 1.5 | 10.5 | 14 |
| ERN       | 2S     | 18              | 19.2 | M15x1.0 | 8.5  | 26.3 | 26.3            | 2.0 | 13.5 | 17 |
| ERN       | 3S     | 22              | 25.0 | M18x1.0 | 11.5 | 29.8 | 29.8            | 2.0 | 16.5 | 22 |

**P1** Panel cut-out (page 158)

**Note:** 1) unipole model



## EWB Fixed socket, nut fixing, with two flats on the flange, watertight or vacuumtight

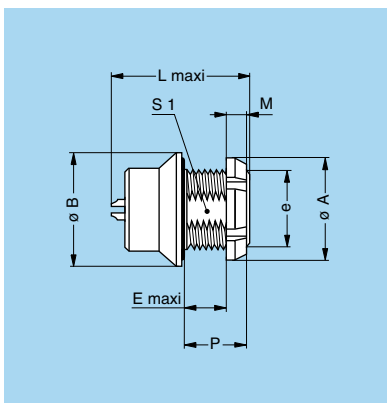


| Reference |        | Dimensions (mm) |      |         |      |      |                 |     |      |    |    |
|-----------|--------|-----------------|------|---------|------|------|-----------------|-----|------|----|----|
| Model     | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M   | S1   | S3 | S4 |
| EWB       | 0S     | 18              | 15.8 | M12x1.0 | 11.0 | 20.5 | –               | 4.0 | 10.5 | 14 | 14 |
| EWB       | 1S     | 20              | 19.2 | M14x1.0 | 15.5 | 25.5 | 25.5            | 4.0 | 12.5 | 17 | 16 |
| EWB       | 2S     | 20              | 21.5 | M16x1.0 | 17.0 | 28.0 | 26.5            | 4.0 | 14.5 | 19 | 16 |
| EWB       | 4S     | 34              | 34.0 | M25x1.0 | 22.5 | 43.0 | –               | 6.5 | 23.5 | 30 | 27 |

**P3** Panel cut-out (page 158)

**Note:** <sup>1)</sup> unipole model

## HCP Fixed socket, nut fixing, watertight or vacuumtight (back panel mounting)

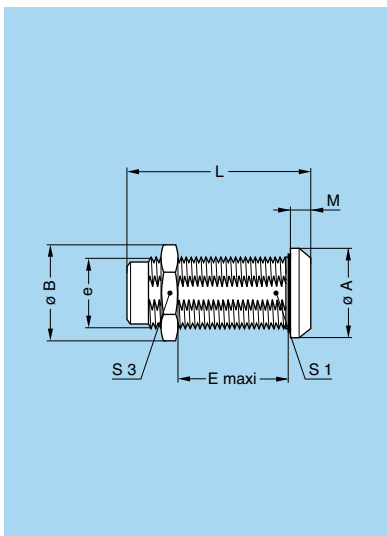


| Reference |        | Dimensions (mm) |    |         |      |      |     |      |      |
|-----------|--------|-----------------|----|---------|------|------|-----|------|------|
| Model     | Series | A               | B  | e       | E    | L    | M   | P    | S1   |
| HCP       | 1S     | 18              | 20 | M14x1.0 | 8.6  | 25.5 | 3.5 | 12.0 | –    |
| HCP       | 2S     | 20              | 20 | M16x1.0 | 12.5 | 29.0 | 3.5 | 16.5 | 14.5 |
| HCP       | 4S     | 27              | 34 | M25x1.0 | 15.5 | 41.0 | 4.5 | 20.0 | 23.5 |

**P3** Panel cut-out (page 158)

**Note:** the 2S and 4S series are delivered with a conical nut.

## SWH Fixed coupler, nut fixing, watertight or vacuumtight



| Reference |        | Dimensions (mm) |      |          |    |    |     |      |    |
|-----------|--------|-----------------|------|----------|----|----|-----|------|----|
| Model     | Series | A               | B    | e        | E  | L  | M   | S1   | S3 |
| SWH       | 0S     | 14              | 13.8 | M10x0.75 | 17 | 34 | 2.0 | 9.0  | 12 |
| SWH       | 1S     | 17              | 15.8 | M12x1.00 | 28 | 39 | 2.5 | 10.5 | 14 |
| SWH       | 2S     | 20              | 21.5 | M16x1.00 | 25 | 44 | 4.0 | 15.0 | 19 |
| SWH       | 3S     | 25              | 27.0 | M20x1.00 | 30 | 53 | 4.0 | 18.5 | 24 |
| SWH       | 4S     | 34              | 34.0 | M25x1.00 | 50 | 65 | 4.0 | 23.5 | 30 |
| SWH       | 5S     | 45              | 40.0 | M35x1.00 | 58 | 80 | 5.0 | 33.5 | –  |
| SWH       | 6S     | 58              | 54.0 | M48x1.50 | 55 | 81 | 6.0 | 45.5 | –  |

**P4** Panel cut-out (page 158)

**Note:** The 5S and 6S series are delivered with a round nut.

**Note:** see page 114 for the available plug and contact configurations and in order to ensure correct contact alignment.



## E Series

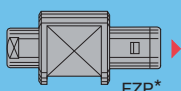
E series connectors have been specifically designed for outdoor applications.

They include an inner sleeve and two seals to prevent penetration of solids or liquids into the housing formed by the plug, free socket, fixed socket or coupler. All models of these series are watertight when mated and give a protection index of IP 68 as per IEC 60529 standard (in mated condition) when correctly assembled to an appropriate cable (IP 66 otherwise).

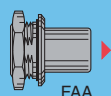
- security of the Push-Pull latching system
- unipole types transmitting current up to 230 A and multipole types with up to 106 contacts
- wide range of models satisfying most applications
- 360° screening for full EMC shielding
- watertight connection (IP 68/IP 66)
- polarization by stepped insert (half-moon) fitted with male and female contacts
- solder or print contacts (straight or elbow)
- rugged housing for extreme working condition.

### Metal housing models (page 95)

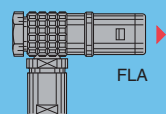
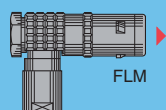
#### Straight plug



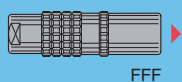
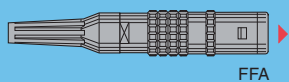
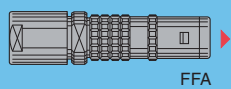
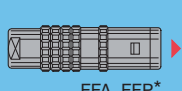
#### Fixed plug



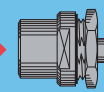
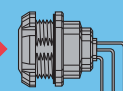
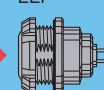
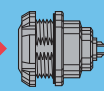
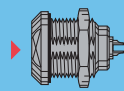
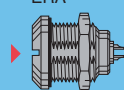
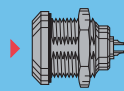
#### Elbow plug



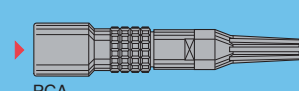
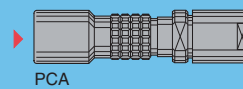
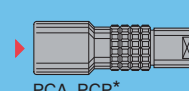
#### Straight plugs



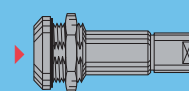
#### Fixed sockets



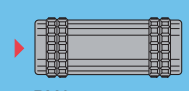
#### Free sockets



#### Fixed socket

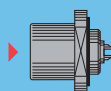
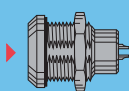


#### Free coupler

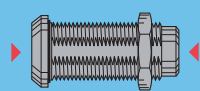


### Watertight or vacuumtight models (page 101)

#### Fixed sockets

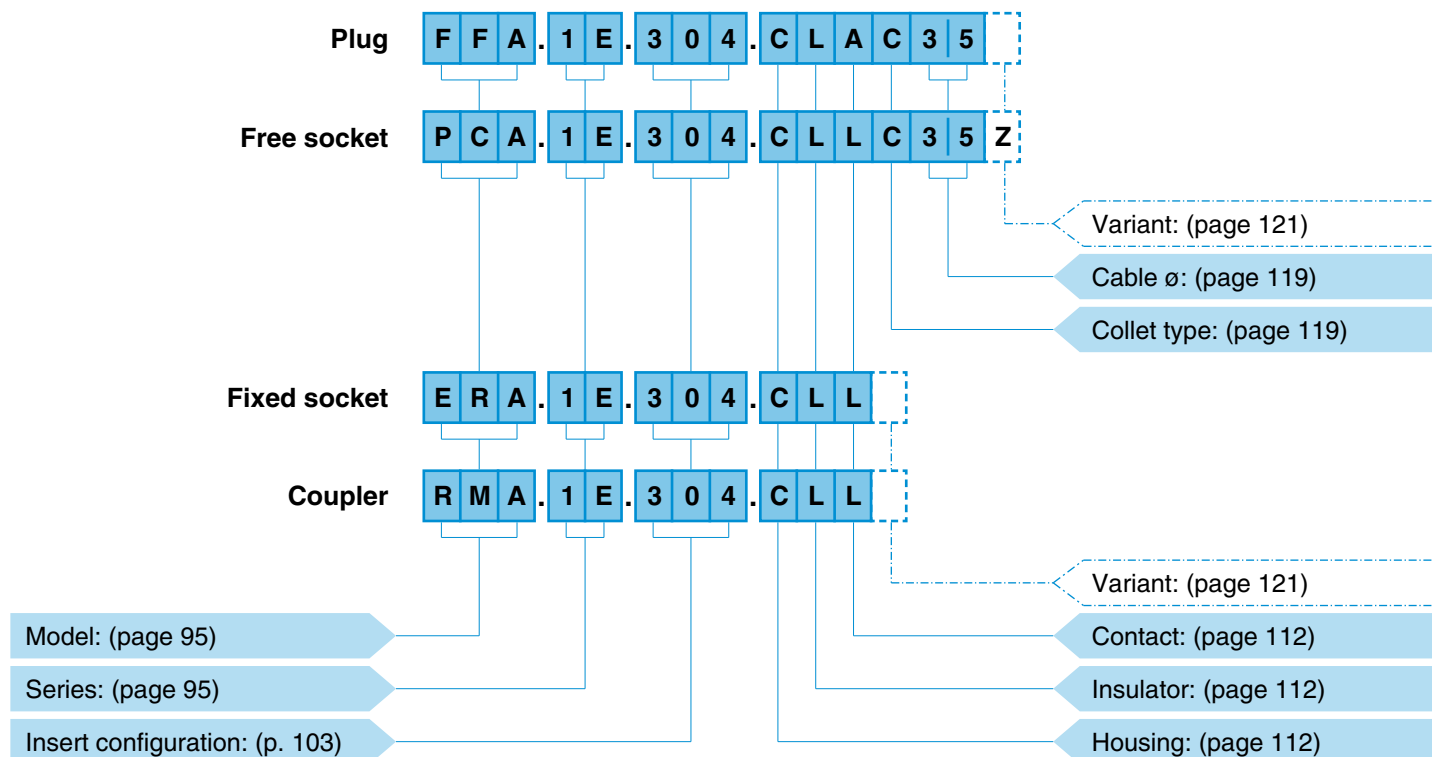


#### Fixed coupler



**Note:** \* Contact LEMO for details.

## Part Numbering System



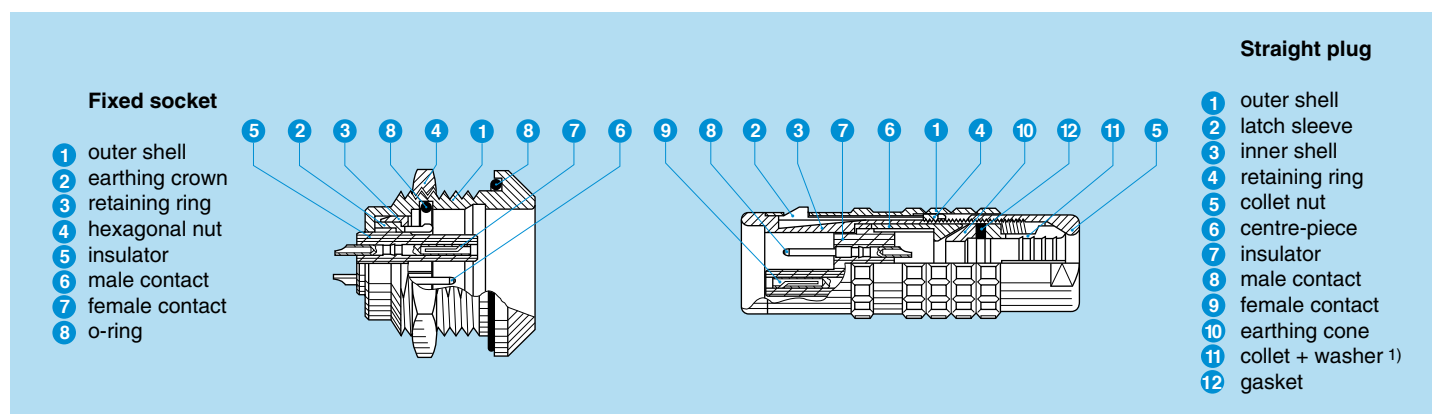
**FFA.1E.304.CLAC35** = straight plug with cable collet, 1E series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 male and 2 female solder contacts, C type collet for a 3.5 mm diameter cable.

**PCA.1E.304.CLLC35Z** = free socket with cable collet, 1E series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 female and 2 male solder contacts, C type collet for a 3.5 mm diameter cable and collet nut for fitting a bend relief.

**ERA.1E.304.CLL** = fixed socket, nut fixing, 1E series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 female and 2 male solder contacts.

**RMA.1E.304.CLL** = straight coupler, 1E series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 female and 2 male contacts each end.

## Part Section Showing Internal Components



**Note:** <sup>1)</sup> depending on models.



## Metal housing models

### Technical Characteristics

#### Mechanical and Climatical

| Characteristics                         | Value              | Standard             |
|-----------------------------------------|--------------------|----------------------|
| Endurance <sup>1)</sup>                 | > 5000 cycles      | IEC 60512-5 test 9a  |
| Humidity                                | up to 95% at 60° C |                      |
| Temperature range <sup>2)</sup>         | - 55° C, + 200° C  |                      |
| Resistance to vibrations                | 10-2000 Hz, 15g    | IEC 60512-4 test 6d  |
| Shock resistance                        | 100 g, 6 ms        | IEC 60512-4 test 6c  |
| Salt spray corrosion test <sup>4)</sup> | > 1000h            | IEC 60512-6 test 11f |
| Protection index (mated) <sup>3)</sup>  | IP 68/IP 66        | IEC 60529            |
| Climatical category                     | 50/175/21          | IEC 60068-1          |

#### Electrical

| Characteristics      |           | Value   | Standard      |
|----------------------|-----------|---------|---------------|
| Shielding efficiency | at 10 MHz | > 95 dB | IEC 60169-1-3 |
|                      | at 1 GHz  | > 80 dB | IEC 60169-1-3 |

**Note:** the various tests have been carried out with FFA and ERA connector pairs, with chrome-plated brass shell, PEEK insulator and silicone O-ring. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical Characteristics on page 182.

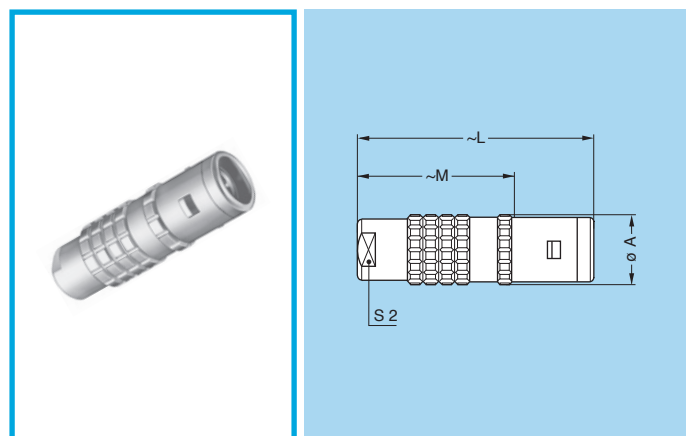
<sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.

<sup>2)</sup> minimum operating temperature is -20°C for sockets fitted with an FPM (Viton®) O-ring.

<sup>3)</sup> IP68 achieved providing that the cable is perfectly circular and that assembly process ensures a high integrity seal.

<sup>4)</sup> for chrome plated product (« C » material code).

#### FFA Straight plug, cable collet

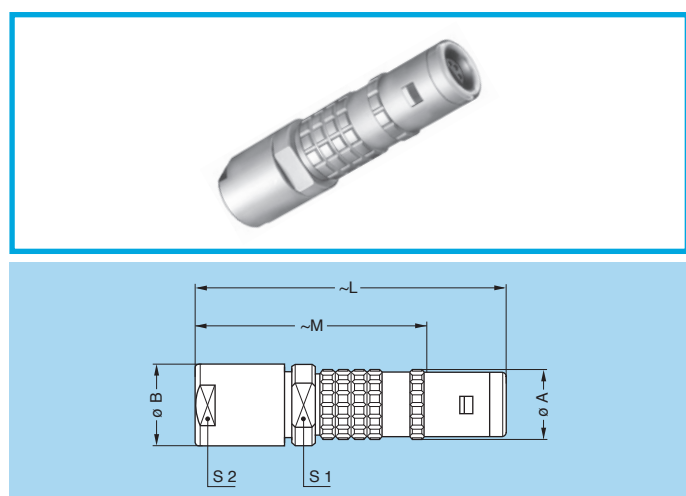


| Reference         |        | Dimensions (mm) |     |      |    |
|-------------------|--------|-----------------|-----|------|----|
| Model             | Series | A               | L   | M    | S2 |
| FFA               | 0E     | 11              | 34  | 23.0 | 8  |
| FFA               | 1E     | 13              | 42  | 28.0 | 9  |
| FFA               | 2E     | 16              | 52  | 36.0 | 12 |
| FFA               | 3E     | 19              | 61  | 41.0 | 15 |
| FFA               | 4E     | 25              | 71  | 50.5 | 19 |
| FFA               | 5E     | 38              | 92  | 67.0 | 32 |
| FGG <sup>1)</sup> | 6E     | 47              | 118 | 89.0 | 38 |

**Note:** <sup>1)</sup> with key (G)

**M1** Cable assembly (pages 179 to 181)

#### FFA Straight plug with oversize cable collet <sup>1)</sup>

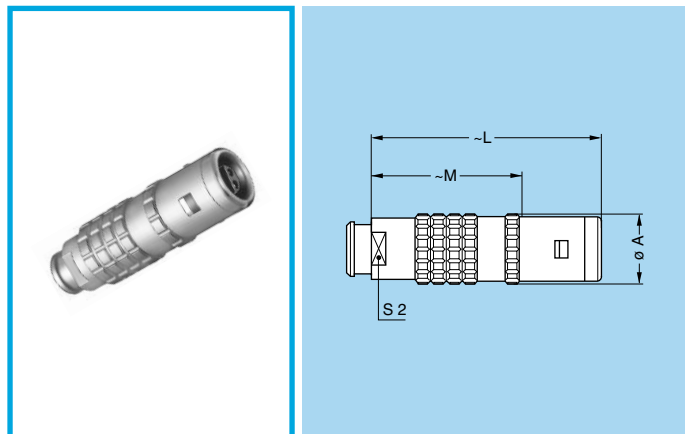


| Reference |        | Dimensions (mm) |      |     |    |    |    |
|-----------|--------|-----------------|------|-----|----|----|----|
| Model     | Series | A               | B    | L   | M  | S1 | S2 |
| FFA       | 1E     | 13              | 14.5 | 55  | 41 | 12 | 12 |
| FFA       | 2E     | 16              | 17.0 | 65  | 49 | 15 | 15 |
| FFA       | 3E     | 19              | 22.0 | 80  | 60 | 19 | 19 |
| FFA       | 4E     | 25              | 36.0 | 118 | 84 | 30 | 32 |

**M2** Cable assembly (pages 179 and 181)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 119).

## FFA Straight plug, cable collet and nut for fitting a bend relief <sup>1)</sup>

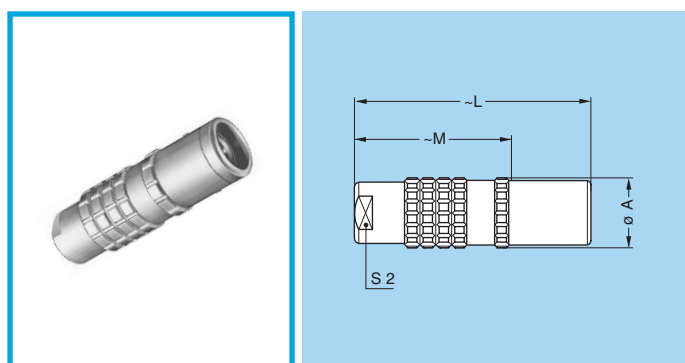


| Reference |        | Dimensions (mm) |    |      |    |
|-----------|--------|-----------------|----|------|----|
| Model     | Series | A               | L  | M    | S2 |
| FFA       | 0E     | 11              | 34 | 23.0 | 7  |
| FFA       | 1E     | 13              | 42 | 28.0 | 9  |
| FFA       | 2E     | 16              | 52 | 36.0 | 12 |
| FFA       | 3E     | 19              | 60 | 40.0 | 15 |
| FFA       | 4E     | 25              | 71 | 50.5 | 19 |

**M1** Cable assembly (pages 179 and 180)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 145).

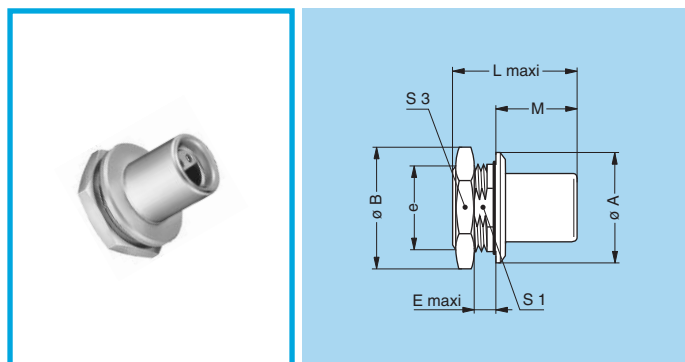
## FFF Straight plug non-latching cable collet



| Reference |        | Dimensions (mm) |    |    |    |
|-----------|--------|-----------------|----|----|----|
| Model     | Series | A               | L  | M  | S2 |
| FFF       | 0E     | 11              | 34 | 23 | 8  |
| FFF       | 1E     | 13              | 42 | 28 | 9  |

**M1** Cable assembly (pages 179 and 180)

## FAA Fixed plug non-latching, nut fixing

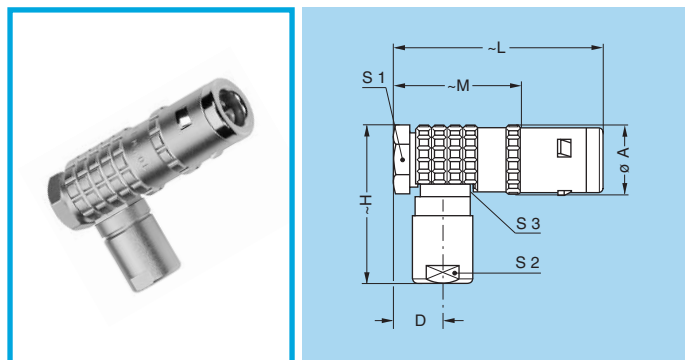


| Reference |        | Dimensions (mm) |      |         |     |      |                 |      |      |    |
|-----------|--------|-----------------|------|---------|-----|------|-----------------|------|------|----|
| Model     | Series | A               | B    | e       | E   | L    | L <sup>1)</sup> | M    | S1   | S3 |
| FAA       | 0E     | 18              | 19.2 | M14x1.0 | 3.5 | 19.5 | 19.5            | 13.0 | 12.5 | 17 |
| FAA       | 1E     | 20              | 21.5 | M16x1.0 | 3.5 | 23.0 | 23.0            | 16.0 | 14.5 | 19 |
| FAA       | 2E     | 25              | 27.0 | M20x1.0 | 4.0 | 27.0 | 27.0            | 18.0 | 18.5 | 24 |
| FAA       | 3E     | 31              | 34.0 | M24x1.0 | 4.5 | 32.5 | 32.5            | 22.5 | 22.5 | 30 |

**P1** Panel cut-out (page 159)

**Note:** <sup>1)</sup> unipole model

## FLM Elbow (90°) plug, cable collet

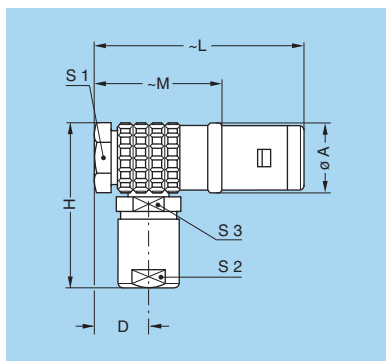


| Reference |        | Dimensions (mm) |      |    |    |    |    |    |    |
|-----------|--------|-----------------|------|----|----|----|----|----|----|
| Model     | Series | A               | D    | H  | L  | M  | S1 | S2 | S3 |
| FLM       | 0E     | 11              | 7.3  | 25 | 36 | 25 | 9  | 8  | 8  |
| FLM       | 1E     | 13              | 8.7  | 33 | 42 | 28 | 11 | 9  | 10 |
| FLM       | 2E     | 16              | 10.2 | 40 | 51 | 35 | 14 | 12 | 13 |

**M3** Cable assembly (pages 179 and 180)



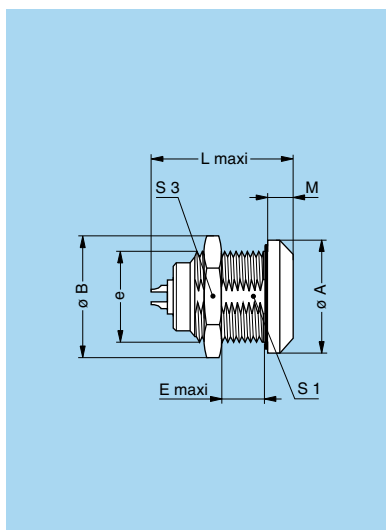
## FLA Elbow (90°) plug, cable collet



| Reference |        | Dimensions (mm) |      |    |    |      |    |    |    |
|-----------|--------|-----------------|------|----|----|------|----|----|----|
| Model     | Series | A               | D    | H  | L  | M    | S1 | S2 | S3 |
| FLA       | 3E     | 21.0            | 11.5 | 47 | 60 | 40.0 | 18 | 15 | 15 |
| FLA       | 4E     | 27.5            | 15.5 | 57 | 72 | 51.5 | 24 | 19 | 20 |

**M3** Cable assembly (pages 179 and 180)

## ERA Fixed socket, nut fixing



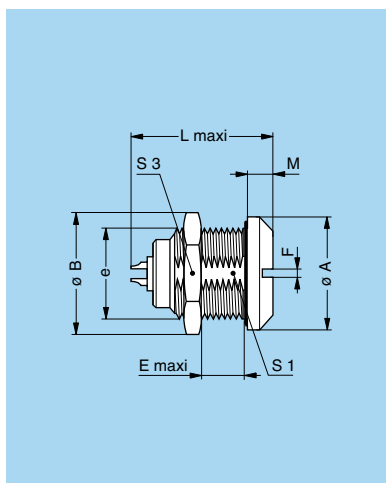
| Reference         |        | Dimensions (mm) |      |         |      |      |                 |      |      |    |
|-------------------|--------|-----------------|------|---------|------|------|-----------------|------|------|----|
| Model             | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M    | S1   | S3 |
| ERA               | 0E     | 18              | 19.2 | M14x1.0 | 5.5  | 19.5 | 20.5            | 4.0  | 12.5 | 17 |
| ERA               | 1E     | 20              | 21.5 | M16x1.0 | 9.0  | 24.0 | 25.3            | 4.5  | 14.5 | 19 |
| ERA               | 2E     | 25              | 27.0 | M20x1.0 | 9.0  | 28.5 | 30.0            | 5.0  | 18.5 | 24 |
| ERA               | 3E     | 31              | 34.0 | M24x1.0 | 11.0 | 34.0 | 35.0            | 6.0  | 22.5 | 30 |
| ERA               | 4E     | 37              | 40.5 | M30x1.0 | 9.0  | 36.0 | 38.0            | 6.5  | 28.5 | 36 |
| ERA               | 5E     | 55              | 54.0 | M45x1.5 | 10.0 | 44.5 | 78.0            | 9.0  | 42.5 | —  |
| EGG <sup>2)</sup> | 6E     | 65              | 65.0 | M55x2.0 | 10.5 | 48.5 | —               | 10.0 | 52.0 | —  |

**P1** Panel cut-out (page 159)

**Note:** <sup>1)</sup> unipole model.  
<sup>2)</sup> with key (G).

**Note:** The 5E and 6E series are delivered with a round nut.

## ERC Fixed socket, nut fixing with slot in the flange

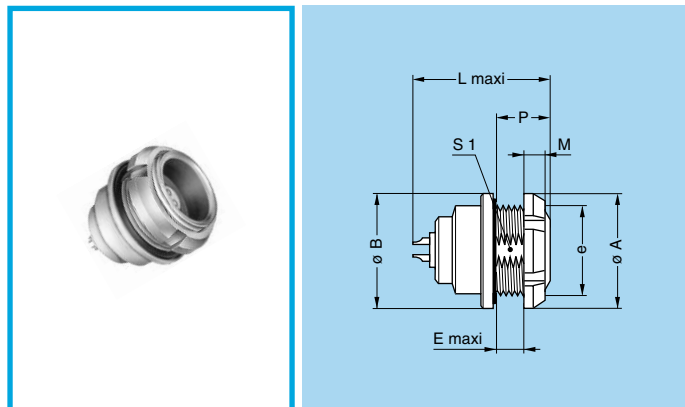


| Reference |        | Dimensions (mm) |      |         |      |     |      |                 |     |      |    |
|-----------|--------|-----------------|------|---------|------|-----|------|-----------------|-----|------|----|
| Model     | Series | A               | B    | e       | E    | F   | L    | L <sup>1)</sup> | M   | S1   | S3 |
| ERC       | 0E     | 18              | 19.2 | M14x1.0 | 5.5  | 1.5 | 19.5 | 20.5            | 4.0 | 12.5 | 17 |
| ERC       | 3E     | 31              | 34.0 | M24x1.0 | 11.0 | 3.0 | 34.0 | 35.0            | 6.0 | 22.5 | 30 |
| ERC       | 4E     | 37              | 40.5 | M30x1.0 | 9.0  | 3.0 | 36.0 | 38.0            | 6.5 | 28.5 | 36 |

**P1** Panel cut-out (page 159)

**Note:** <sup>1)</sup> unipole model.

## EEP Fixed socket, nut fixing (back panel mounting)



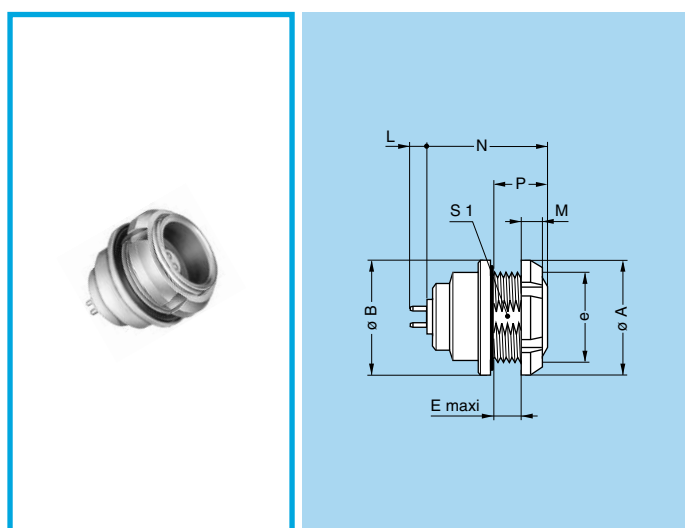
| Reference |        | Dimensions (mm) |    |         |     |      |                 |     |    |      |
|-----------|--------|-----------------|----|---------|-----|------|-----------------|-----|----|------|
| Model     | Series | A               | B  | e       | E   | L    | L <sup>1)</sup> | M   | P  | S1   |
| EEP       | 0E     | 18              | 18 | M14x1.0 | 3.5 | 19.5 | 20.5            | 3.5 | 7  | 12.5 |
| EEP       | 1E     | 20              | 20 | M16x1.0 | 6.5 | 24.0 | 25.3            | 3.5 | 10 | 14.5 |
| EEP       | 2E     | 25              | 25 | M20x1.0 | 6.5 | 28.5 | 30.0            | 3.5 | 10 | 18.5 |
| EEP       | 3E     | 30              | 31 | M24x1.0 | 7.5 | 34.0 | 35.0            | 4.5 | 12 | 22.5 |

**P1** Panel cut-out (page 159)

**Note:** <sup>1)</sup> unipole model

**Note:** the 3E series is delivered with a conical nut.

## EEP Fixed socket, nut fixing, with straight contact for printed circuit (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |     |      |    |      |
|-----------|--------|-----------------|----|---------|-----|-----|------|----|------|
| Model     | Series | A               | B  | e       | E   | M   | N    | P  | S1   |
| EEP       | 0E     | 18              | 18 | M14x1.0 | 3.5 | 3.5 | 16.0 | 7  | 12.5 |
| EEP       | 1E     | 20              | 20 | M16x1.0 | 6.5 | 3.5 | 21.5 | 10 | 14.5 |
| EEP       | 2E     | 25              | 25 | M20x1.0 | 6.5 | 3.5 | 24.0 | 10 | 18.5 |
| EEP       | 3E     | 30              | 31 | M24x1.0 | 7.5 | 4.5 | 29.5 | 12 | 22.5 |

**P1** Panel cut-out (page 159)

**P21** PCB drilling pattern (page 166)

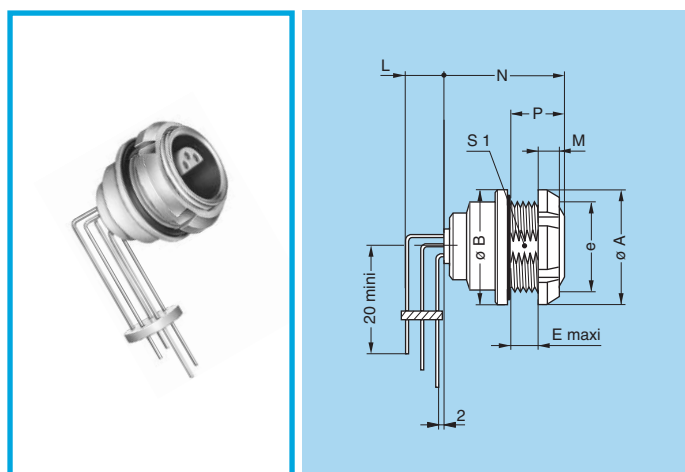
**Note:** The 3E series is delivered with a conical nut.

**Note:** this contact type is available for all E● socket models.

See page 167 for table of available types.

Length «L» depends on the number of contacts, see PCB drilling pattern on page 167.

## EEP Fixed socket, nut fixing, with elbow (90°) contacts for printed circuit (back panel mounting)



| Reference |        | Dimensions (mm) |    |         |     |     |      |    |      |
|-----------|--------|-----------------|----|---------|-----|-----|------|----|------|
| Model     | Series | A               | B  | e       | E   | M   | N    | P  | S1   |
| EEP       | 1E     | 20              | 20 | M16x1.0 | 6.5 | 3.5 | 21.5 | 10 | 14.5 |
| EEP       | 2E     | 25              | 25 | M20x1.0 | 6.5 | 3.5 | 24.0 | 10 | 18.5 |

**P1** Panel cut-out (page 159)

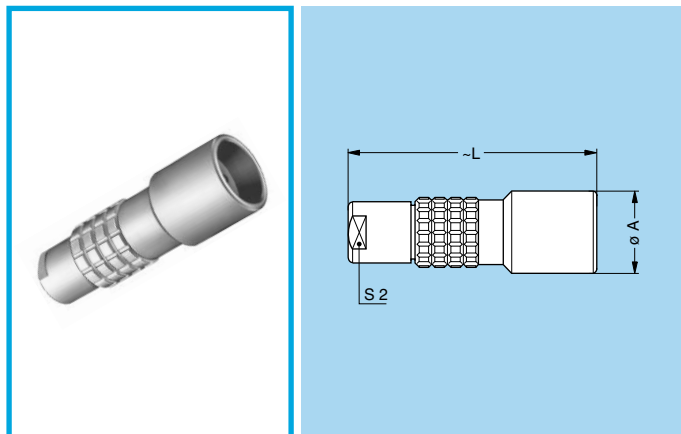
**P24** PCB drilling pattern (page 168)

**Note:** this contact type is available for all back panel mounting socket types. See page 168 for available types.

Length «L» depends on the number of contacts, see PCB drilling pattern on page 168.



## PCA Free socket, cable collet

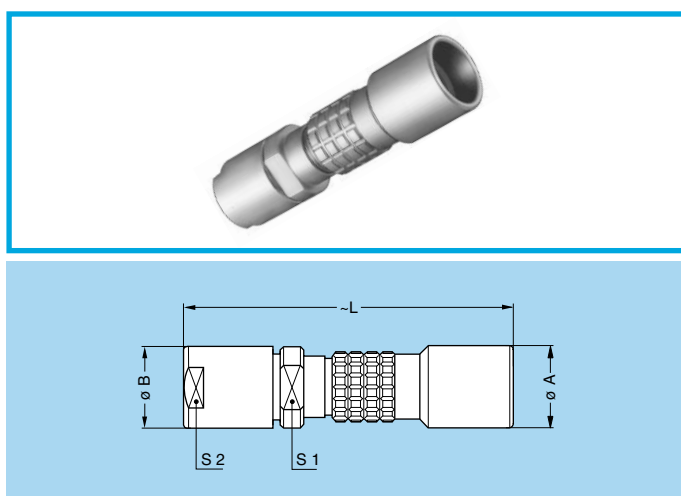


| Reference         |        | Dimensions (mm) |       |    |
|-------------------|--------|-----------------|-------|----|
| Model             | Series | A               | L     | S2 |
| PCA               | 0E     | 13              | 34.0  | 8  |
| PCA               | 1E     | 15              | 45.0  | 9  |
| PCA               | 2E     | 19              | 54.0  | 12 |
| PCA               | 3E     | 23              | 65.0  | 15 |
| PCA               | 4E     | 29              | 75.5  | 19 |
| PCA               | 5E     | 42              | 95.0  | 32 |
| PHG <sup>1)</sup> | 6E     | 52              | 125.0 | 38 |

**Note:** 1) with key (G)

**M1** Cable assembly (pages 179 to 181)

## PCA Free socket with oversize cable collet <sup>1)</sup>

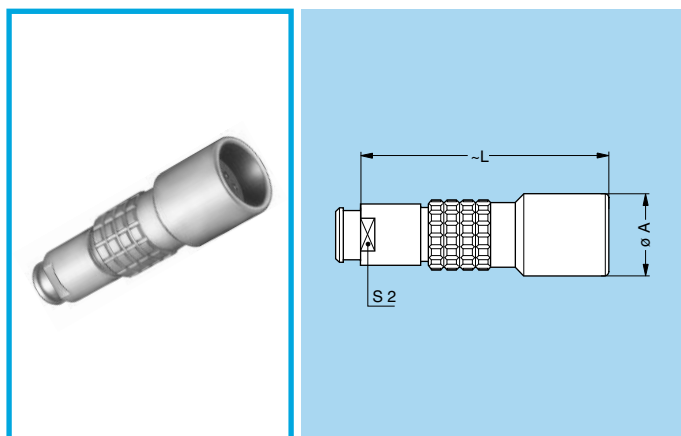


| Reference |        | Dimensions (mm) |      |       |    |    |
|-----------|--------|-----------------|------|-------|----|----|
| Model     | Series | A               | B    | L     | S1 | S2 |
| PCA       | 1E     | 15              | 14.5 | 58.0  | 12 | 12 |
| PCA       | 2E     | 19              | 17.0 | 67.0  | 15 | 15 |
| PCA       | 3E     | 23              | 22.0 | 84.0  | 19 | 19 |
| PCA       | 4E     | 29              | 36.0 | 109.0 | 30 | 32 |

**M2** Cable assembly (page 181)

**Note:** 1) correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 119).

## PCA Free socket, cable collet and nut for fitting a bend relief <sup>1)</sup>

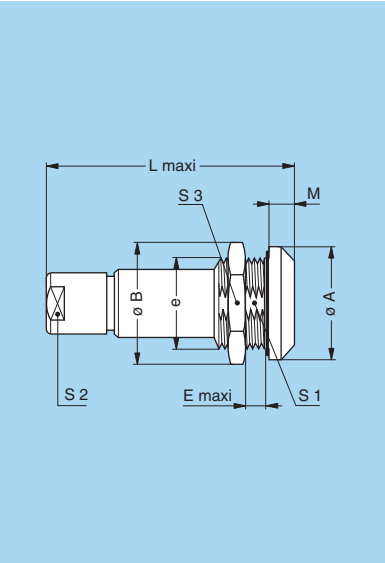


| Reference |        | Dimensions (mm) |      |    |
|-----------|--------|-----------------|------|----|
| Model     | Series | A               | L    | S2 |
| PCA       | 0E     | 13              | 34.0 | 7  |
| PCA       | 1E     | 15              | 45.0 | 9  |
| PCA       | 2E     | 19              | 54.0 | 12 |
| PCA       | 3E     | 23              | 64.0 | 15 |
| PCA       | 4E     | 29              | 75.5 | 19 |

**M1** Cable assembly (pages 179 and 180)

**Note:** 1) to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 145).

PSA Fixed socket, nut fixing, cable collet



| Reference         |        | Dimensions (mm) |      |         |      |       |      |      |    |    |  |
|-------------------|--------|-----------------|------|---------|------|-------|------|------|----|----|--|
| Model             | Series | A               | B    | e       | E    | L     | M    | S1   | S2 | S3 |  |
| PSA               | 0E     | 18              | 19.2 | M14x1.0 | 5.5  | 34.0  | 4.0  | 12.5 | 8  | 17 |  |
| PSA               | 1E     | 20              | 21.5 | M16x1.0 | 9.0  | 45.0  | 4.5  | 14.5 | 9  | 19 |  |
| PSA               | 2E     | 25              | 27.0 | M20x1.0 | 9.0  | 54.0  | 5.0  | 18.5 | 12 | 24 |  |
| PSA               | 3E     | 31              | 34.0 | M24x1.0 | 11.0 | 65.0  | 6.0  | 22.5 | 15 | 30 |  |
| PSA               | 4E     | 37              | 40.5 | M30x1.0 | 9.0  | 75.5  | 6.5  | 28.5 | 19 | 36 |  |
| PSA               | 5E     | 51              | 54.0 | M45x1.5 | 10.0 | 95.0  | 9.0  | —    | 32 | 54 |  |
| PKG <sup>1)</sup> | 6E     | 65              | 65.0 | M55x2.0 | 10.5 | 125.0 | 10.0 | —    | 38 | —  |  |

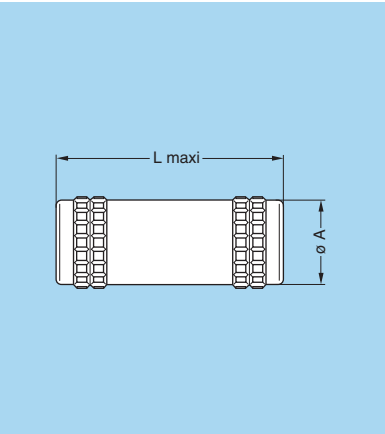
P1 Panel cut-out (page 159)

M1 Cable assembly (pages 179 to 181)

Note: The 5E and 6E series are delivered with a round nut.

Note: <sup>1)</sup> with key (G).

RMA Free coupler



| Reference |        | Dim. (mm) |    |
|-----------|--------|-----------|----|
| Model     | Series | A         | L  |
| RMA       | 0E     | 14        | 30 |
| RMA       | 1E     | 16        | 40 |
| RMA       | 2E     | 20        | 44 |
| RMA       | 3E     | 25        | 54 |
| RMA       | 4E     | 30        | 57 |
| RMA       | 5E     | 44        | 67 |

Note: see page 114 for the available plug and contact configurations and in order to ensure correct contact alignment.





## Watertight or vacuumtight models

These socket or coupler models allow the device on which they are fitted to reach a protection index of IP 68 as per IEC 60529. They are fully compatible with plugs of the same series and are widely used for portable radios, military, laboratory equipment, aviation, etc.

These models are identified by a letter «P» at the end of the reference.

Most of these models are also available in a vacuumtight version. Such models are identified by an additional letter «V» at the end of the part number (certificate on request).

Epoxy resin is used to seal these models.

## Technical Characteristics

### Mechanical and Climatical

| Characteristics                         | Value                                     | Standard                              |
|-----------------------------------------|-------------------------------------------|---------------------------------------|
| Endurance <sup>1)</sup>                 | > 5000 cycles                             | IEC 60512-5 test 9a                   |
| Humidity                                | up to 95% at 60° C                        |                                       |
| Temperature range                       | 0E-1E<br>2E-6E                            | - 20° C, + 100° C<br>- 20° C, + 80° C |
| Salt spray corrosion test <sup>4)</sup> | > 1000h                                   | IEC 60512-6 test 11f                  |
| Climatical category                     | 20/80/21                                  | IEC 60068-1                           |
| Leakage rate (He) <sup>2)</sup>         | < 10 <sup>-7</sup> mbar.l.s <sup>-1</sup> | IEC 60512-7 test 14b                  |

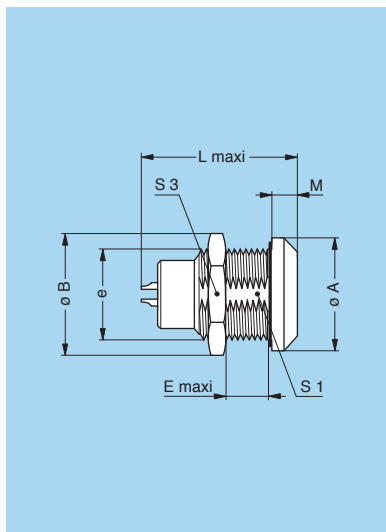
| Characteristics                          | Value | Standard |
|------------------------------------------|-------|----------|
| Maximum operating pressure <sup>3)</sup> | 0E    | 60 bar   |
|                                          | 1E    | 60 bar   |
|                                          | 2E    | 40 bar   |
|                                          | 3E    | 30 bar   |
|                                          | 4E    | 15 bar   |
|                                          | 5E    | 5 bar    |
|                                          | 6E    | 5 bar    |

**Note:** <sup>1)</sup> see page 189, contact resistance after mating cycles. See page 185, mechanical endurance latching force.

<sup>2)</sup> only for vacuumtight models. Residual traces of grease used during (He) leak testing are on the o-ring. Please contact us for further details.

<sup>3)</sup> this value corresponds to the maximum allowed pressure difference for the assembled socket. <sup>4)</sup> for chrome plated product (« C » material code).

### HGP Fixed socket, nut fixing, watertight or vacuumtight



| Reference         |        | Dimensions (mm) |      |         |      |      |                 |      |      |    |
|-------------------|--------|-----------------|------|---------|------|------|-----------------|------|------|----|
| Model             | Series | A               | B    | e       | E    | L    | L <sup>1)</sup> | M    | S1   | S3 |
| HGP               | 0E     | 18              | 19.2 | M14x1.0 | 5.5  | 23.5 | 22.0            | 4.0  | 12.5 | 17 |
| HGP               | 1E     | 20              | 21.5 | M16x1.0 | 9.0  | 29.5 | 28.0            | 4.5  | 14.5 | 19 |
| HGP               | 2E     | 25              | 27.0 | M20x1.0 | 10.5 | 32.5 | 28.0            | 5.0  | 18.5 | 24 |
| HGP               | 3E     | 31              | 34.0 | M24x1.0 | 15.5 | 39.5 | 38.5            | 6.0  | 22.5 | 30 |
| HGP               | 4E     | 37              | 40.5 | M30x1.0 | 17.5 | 43.0 | 44.0            | 6.5  | 28.5 | 36 |
| HGP               | 5E     | 55              | 54.0 | M45x1.5 | 20.0 | 52.0 | 76.0            | 9.0  | 42.5 | —  |
| HGP <sup>2)</sup> | 6E     | 65              | 65.0 | M55x2.0 | 20.5 | 52.0 | —               | 10.0 | 52.0 | —  |

**P1** Panel cut-out (page 159)

**Note:** <sup>1)</sup> unipole model.

<sup>2)</sup> with key (G).

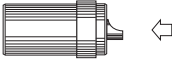
**Note:** The 5E and 6E series are delivered with a round nut.





## Insert configuration (S and E series)

### Unipole

| Number of LV contacts | Solder contacts                                                                     |                                                                                     | Reference | Series   |            | Contact ø (mm) | Contact type    |       |                  |               | AWG           |       |      | Test voltage (kV rms) <sup>1)</sup> | Test voltage (kV dc) <sup>1)</sup> | Rated current (A) <sup>1)</sup> |
|-----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|----------|------------|----------------|-----------------|-------|------------------|---------------|---------------|-------|------|-------------------------------------|------------------------------------|---------------------------------|
|                       |    |    |           | Standard | Watertight |                | Solder          | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |      |                                     |                                    |                                 |
|                       |                                                                                     |                                                                                     |           |          |            |                |                 |       |                  |               |               | min.  | max. |                                     |                                    |                                 |
| 1                     |    |    | 113       | 00       | –          | 1.3            | ● <sup>2)</sup> | ●     | –                | –             | 20            | 26    | 18   | 0.8                                 | 1.2                                | 8                               |
|                       |                                                                                     |                                                                                     |           |          |            |                |                 |       |                  |               |               |       |      |                                     |                                    |                                 |
|                       |    |    | 116       | 0S       | 0E         | 1.6            | ● <sup>2)</sup> | –     | –                | –             | 18            | –     | –    | 1.5                                 | 2.1                                | 12                              |
|                       |                                                                                     |                                                                                     |           |          |            |                |                 |       |                  |               |               |       |      |                                     |                                    |                                 |
|                       |  |  | 120       | 1S       | 1E         | 2.0            | ● <sup>2)</sup> | –     | –                | –             | 16            | –     | –    | 1.9                                 | 2.7                                | 18                              |
|                       |                                                                                     |                                                                                     |           |          |            |                |                 |       |                  |               |               |       |      |                                     |                                    |                                 |
|                       |  |  | 130       | 1S       | 1E         | 3.0            | ●               | –     | –                | –             | 12            | –     | –    | 1.5                                 | 2.1                                | 25                              |
|                       |                                                                                     |                                                                                     |           | 2S       | 2E         | 3.0            | ●               | –     | –                | –             | 12            | –     | –    | 2.1                                 | 3.0                                | 30                              |
|                       |                                                                                     |                                                                                     |           |          |            |                |                 |       |                  |               |               |       |      |                                     |                                    |                                 |
|                       |  |  | 140       | 2S       | 2E         | 4.0            | ●               | –     | –                | –             | 10            | –     | –    | 1.7                                 | 2.4                                | 40                              |
|                       |                                                                                     |                                                                                     |           | 3S       | 3E         | 4.0            | ●               | –     | –                | –             | 10            | –     | –    | 2.3                                 | 3.3                                | 43                              |
|                       |                                                                                     |                                                                                     |           | 4S       | –          | 4.0            | ●               | –     | –                | –             | 10            | –     | –    | 3.0                                 | 4.2                                | 46                              |
|                       |  |  | 160       | 3S       | 3E         | 6.0            | ●               | –     | –                | –             | 8             | –     | –    | 1.7                                 | 2.4                                | 65                              |
|                       |                                                                                     |                                                                                     |           | 4S       | 4E         | 6.0            | ●               | –     | –                | –             | 8             | –     | –    | 2.7                                 | 3.9                                | 70                              |
|                       |                                                                                     |                                                                                     |           |          |            |                |                 |       |                  |               |               |       |      |                                     |                                    |                                 |
|                       |  |  | 112       | 5S       | 5E         | 12.0           | ●               | –     | –                | –             | 0             | –     | –    | 1.5                                 | 2.1                                | 230                             |
|                       |                                                                                     |                                                                                     |           |          |            |                |                 |       |                  |               |               |       |      |                                     |                                    |                                 |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190. <sup>2)</sup> also available with inversed contacts: plug = female, socket = male.

● First choice alternative    ○ Special order alternative

## Multipole

| Number of LV contacts | Solder contacts |      | Reference | Series   |            | Contact ø (mm) | Contact type |       |                  |               | AWG           |       |    | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup> |
|-----------------------|-----------------|------|-----------|----------|------------|----------------|--------------|-------|------------------|---------------|---------------|-------|----|----------------------------------------|---------------------------------------|---------------------------------|
|                       | Crimp contacts  |      |           | Standard | Watertight |                | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |    |                                        |                                       |                                 |
|                       | min.            | max. |           |          |            |                |              |       |                  |               |               |       |    |                                        |                                       |                                 |
| 2                     |                 |      | 302       | 0S       | 0E         | 0.9            | ●            | ●     | ●                | ●             | 22            | 32    | 20 | 1.1                                    | 1.6                                   | 10 <sup>3)</sup>                |
|                       |                 |      |           | 1S       | 1E         | 1.3            | ●            | ●     | ●                | ●             | 20            | 26    | 18 | 1.2                                    | 1.8                                   | 15 <sup>3)</sup>                |
|                       |                 |      |           | 2S       | 2E         | 1.6            | ●            | ○     | ●                | ○             | 18            | 22    | 14 | 1.7                                    | 2.4                                   | 20 <sup>4)</sup>                |
|                       |                 |      |           | 3S       | 3E         | 2.0            | ●            | —     | ○                | —             | 16            | —     | —  | 3.0                                    | 4.2                                   | 23                              |
|                       |                 |      |           | 4S       | 4E         | 4.0            | ●            | —     | ○                | —             | 10            | —     | —  | 2.1                                    | 3.0                                   | 35                              |
|                       |                 |      |           | 5S       | 5E         | 6.0            | ●            | —     | —                | —             | 8             | —     | —  | 3.7                                    | 5.2                                   | 50                              |
| 3                     |                 |      | 303       | 0S       | 0E         | 0.7            | ●            | ●     | ●                | ●             | 26            | 32    | 22 | 1.0                                    | 1.5                                   | 7 <sup>3)</sup>                 |
|                       |                 |      |           | 1S       | 1E         | 0.9            | ●            | ●     | ●                | ●             | 22            | 32    | 20 | 1.2                                    | 1.8                                   | 10 <sup>3)</sup>                |
|                       |                 |      |           | 2S       | 2E         | 1.3            | ●            | ○     | ●                | ○             | 20            | 26    | 18 | 1.5                                    | 2.1                                   | 15 <sup>4)</sup>                |
|                       |                 |      |           | 3S       | 3E         | 2.0            | ●            | —     | ○                | —             | 16            | —     | —  | 1.5                                    | 2.1                                   | 20                              |
|                       |                 |      |           | 4S       | 4E         | 3.0            | ●            | —     | ○                | —             | 12            | —     | —  | 2.1                                    | 3.0                                   | 25                              |
|                       |                 |      |           | 5S       | 5E         | 1x6.0<br>2x4.0 | ●            | —     | —                | —             | 8<br>10       | —     | —  | 3.7                                    | 5.2                                   | 50<br>35                        |
| 3                     |                 |      | 303       |          |            |                |              |       |                  |               |               |       |    |                                        |                                       |                                 |
|                       |                 |      |           | —        | 6E         | 6.0            | ●            | —     | —                | —             | 8             | —     | —  | 3.0                                    | 4.2                                   | 50                              |
| 4                     |                 |      | 304       | 0S       | 0E         | 0.7            | ●            | ●     | ●                | ●             | 26            | 32    | 22 | 1.0                                    | 1.5                                   | 7 <sup>3)</sup>                 |
|                       |                 |      |           | 1S       | 1E         | 0.9            | ●            | ●     | ●                | ●             | 22            | 32    | 20 | 1.2                                    | 1.8                                   | 10 <sup>3)</sup>                |
|                       |                 |      |           | 2S       | 2E         | 1.3            | ●            | ○     | ●                | ○             | 20            | 26    | 18 | 1.7                                    | 2.4                                   | 15 <sup>4)</sup>                |
|                       |                 |      |           | 3S       | 3E         | 2.0            | ●            | —     | ○                | —             | 16            | —     | —  | 1.5                                    | 2.1                                   | 18                              |
|                       |                 |      |           | 4S       | 4E         | 3.0            | ●            | —     | ○                | —             | 12            | —     | —  | 2.1                                    | 3.0                                   | 22                              |
|                       |                 |      |           | 5S       | 5E         | 4.0            | ●            | —     | —                | —             | 10            | —     | —  | 3.7                                    | 5.2                                   | 35                              |
|                       |                 |      |           | 6S       | —          | 8.0            | ●            | —     | —                | —             | 4             | —     | —  | 3.0                                    | 4.2                                   | 60                              |
| 4                     |                 |      | 304       |          |            |                |              |       |                  |               |               |       |    |                                        |                                       |                                 |
|                       |                 |      |           | —        | 6E         | 8.0            | ●            | —     | —                | —             | 4             | —     | —  | 3.0                                    | 4.2                                   | 60                              |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190. <sup>2)</sup> lowest measured value; contact to contact or contact to shell.  
<sup>3)</sup> rated current = 6A for socket with elbow (90°) contacts for printed circuit. <sup>4)</sup> rated current = 12A for socket with elbow (90°) contacts for printed circuit.

● First choice alternative    ○ Special order alternative



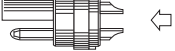
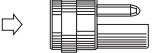
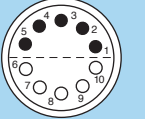
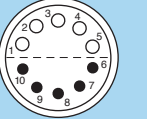
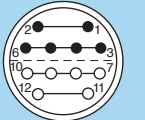
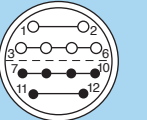
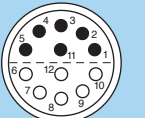
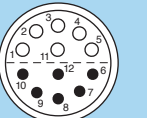
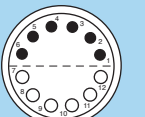
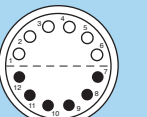
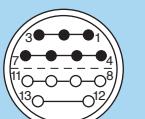
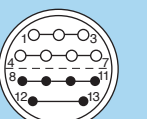
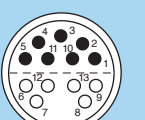
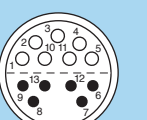
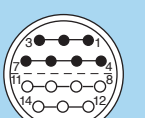
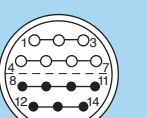
## Multipole

| Number of LV contacts | Solder contacts |      | Reference | Series   |            | Contact ø (mm) | Contact type |                 |                  |               | AWG           |          |          | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup>     |
|-----------------------|-----------------|------|-----------|----------|------------|----------------|--------------|-----------------|------------------|---------------|---------------|----------|----------|----------------------------------------|---------------------------------------|-------------------------------------|
|                       | Crimp contacts  |      |           | Standard | Watertight |                | Solder       | Crimp           | Print (straight) | Print (elbow) | Solder (max.) | Crimp    |          |                                        |                                       |                                     |
|                       | min.            | max. |           |          |            |                |              |                 |                  |               |               |          |          |                                        |                                       |                                     |
| 5                     |                 |      | 305       | 1S       | 1E         | 2x0.9<br>3x0.7 | ●            | ●               | ●                | ●             | 22<br>26      | 32       | 20<br>22 | 1.5                                    | 2.1                                   | 10 <sup>3)</sup><br>7 <sup>3)</sup> |
|                       |                 |      |           | 2S       | 2E         | 1.3            | ●            | ○               | ●                | ●             | 20            | 26       | 18       | 1.5                                    | 2.1                                   | 13 <sup>4)</sup>                    |
|                       |                 |      |           | 3S       | 3E         | 2x2.0<br>3x1.3 | ●            | —               | ○                | —             | 16<br>20      | —        | —        | 1.5                                    | 2.1                                   | 18<br>14                            |
|                       |                 |      |           | 4S       | 4E         | 2x3.0<br>3x2.0 | ●            | —               | ○                | —             | 12<br>16      | —        | —        | 2.1                                    | 3.0                                   | 22<br>16                            |
|                       |                 |      |           | 5S       | 5E         | 2x4.0<br>3x3.0 | ●            | —               | —                | —             | 10<br>12      | —        | —        | 3.0                                    | 4.2                                   | 35<br>25                            |
| 6                     |                 |      | 306       | 1S       | 1E         | 0.7            | ●            | ●               | ●                | ●             | 26            | 32       | 22       | 1.2                                    | 1.7                                   | 7 <sup>3)</sup>                     |
|                       |                 |      |           | 2S       | 2E         | 1.3            | ●            | ● <sup>4)</sup> | ●                | ●             | 20            | 26       | 18       | 1.5                                    | 2.1                                   | 12                                  |
|                       |                 |      |           | 3S       | 3E         | 1.3            | ●            | —               | ●                | —             | 20            | —        | —        | 2.1                                    | 3.0                                   | 14                                  |
|                       |                 |      |           | 4S       | 4E         | 2.0            | ●            | —               | ○                | —             | 16            | —        | —        | 2.1                                    | 3.0                                   | 16                                  |
|                       |                 |      |           | 5S       | 5E         | 3.0            | ●            | —               | —                | —             | 12            | —        | —        | 3.0                                    | 4.2                                   | 25                                  |
| 7                     |                 |      | 307       |          |            |                |              |                 |                  |               |               |          |          |                                        |                                       |                                     |
|                       |                 |      |           | 2S       | 2E         | 3x1.3<br>4x0.9 | ●            | ○               | ●                | ●             | 20<br>22      | 26<br>32 | 18<br>20 | 0.8                                    | 1.2                                   | 12 <sup>3)</sup><br>9 <sup>3)</sup> |
|                       |                 |      |           | 3S       | 3E         | 1.3            | ●            | —               | ●                | —             | 20            | —        | —        | 1.0                                    | 1.5                                   | 12                                  |
|                       |                 |      |           | 4S       | 4E         | 3x2.0<br>4x1.3 | ●            | —               | ○                | —             | 16<br>20      | —        | —        | 2.1                                    | 3.0                                   | 16<br>13                            |
| 8                     |                 |      | 308       |          |            |                |              |                 |                  |               |               |          |          |                                        |                                       |                                     |
|                       |                 |      |           | 2S       | 2E         | 0.9            | ●            | ○               | ●                | ●             | 22            | 32       | 20       | 0.8                                    | 1.2                                   | 9 <sup>3)</sup>                     |
|                       |                 |      |           | 3S       | 3E         | 1.3            | ●            | —               | ●                | ○             | 20            | —        | —        | 1.0                                    | 1.5                                   | 10                                  |
|                       |                 |      |           | 4S       | 4E         | 1.3            | ●            | —               | ○                | —             | 20            | —        | —        | 2.7                                    | 3.9                                   | 13                                  |
|                       |                 |      |           | 5S       | 5E         | 3.0            | ●            | —               | —                | —             | 12            | —        | —        | 2.1                                    | 3.0                                   | 22                                  |
| 9                     |                 |      | 309       |          |            |                |              |                 |                  |               |               |          |          |                                        |                                       |                                     |
|                       |                 |      |           | 4S       | 4E         | 1.3            | ●            | —               | ○                | —             | 20            | —        | —        | 2.1                                    | 3.0                                   | 12                                  |
| 10                    |                 |      | 310       |          |            |                |              |                 |                  |               |               |          |          |                                        |                                       |                                     |
|                       |                 |      |           | 2S       | 2E         | 0.9            | ●            | ○               | ●                | ●             | 22            | 32       | 20       | 0.8                                    | 1.2                                   | 7 <sup>3)</sup>                     |
|                       |                 |      |           | 3S       | 3E         | 1.3            | ●            | —               | ●                | ●             | 20            | —        | —        | 1.0                                    | 1.5                                   | 9                                   |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190. <sup>2)</sup> lowest measured value; contact to contact or contact to shell.  
<sup>3)</sup> rated current = 6 A for socket with elbow (90°) contacts for printed circuit. <sup>4)</sup> only for FFL model.

● First choice alternative    ○ Special order alternative

## Multipole

| Number of LV contacts | Solder contacts                                                                     |                                                                                     | Reference | Series   |            | Contact ø (mm) | Contact type |       |                  |               | AWG           |       | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup> |    |
|-----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|----------|------------|----------------|--------------|-------|------------------|---------------|---------------|-------|----------------------------------------|---------------------------------------|---------------------------------|----|
|                       |    |    |           | Standard | Watertight |                | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |                                        |                                       |                                 |    |
|                       | Crimp contacts                                                                      |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
|                       |    |    |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
|                       |                                                                                     |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
| 10                    |    |    | 310       | 4S       | 4E         | 1.3            | ●            | –     | ○                | –             | 20            | –     | –                                      | 2.1                                   | 3.0                             | 11 |
|                       |                                                                                     |                                                                                     |           | 5S       | 5E         | 2.0            | ●            | –     | –                | –             | 16            | –     | –                                      | 2.1                                   | 3.0                             | 18 |
|                       |                                                                                     |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
| 12                    |    |    | 312       | 3S       | 3E         | 0.9            | ●            | –     | ●                | ●             | 22            | –     | –                                      | 1.5                                   | 2.1                             | 8  |
|                       |                                                                                     |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
| 12                    |   |   | 312       | 4S       | 4E         | 1.3            | ●            | –     | ○                | –             | 20            | –     | –                                      | 2.1                                   | 3.0                             | 9  |
|                       |                                                                                     |                                                                                     |           | 6S       | –          | 4.0            | ●            | –     | –                | –             | 10            | –     | –                                      | 2.1                                   | 3.0                             | 22 |
|                       |                                                                                     |                                                                                     |           | –        | 6E         | 5.0            | ●            | –     | –                | –             | 8             | –     | –                                      | 2.1                                   | 3.0                             | 22 |
| 12                    |  |  | 312       | 5S       | 5E         | 2.0            | ●            | –     | –                | –             | 16            | –     | –                                      | 2.1                                   | 3.0                             | 18 |
|                       |                                                                                     |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
| 13                    |  |  | 313       | 3S       | 3E         | 0.9            | ●            | –     | ●                | ○             | 22            | –     | –                                      | 1.5                                   | 2.1                             | 8  |
|                       |                                                                                     |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
| 13                    |  |  | 313       | 4S       | –          | 1.3            | ●            | –     | ○                | –             | 20            | –     | –                                      | 2.1                                   | 3.0                             | 9  |
|                       |                                                                                     |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |
| 14                    |  |  | 314       | 3S       | 3E         | 0.9            | ●            | –     | ●                | ●             | 22            | –     | –                                      | 1.5                                   | 2.1                             | 7  |
|                       |                                                                                     |                                                                                     |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |    |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190. <sup>2)</sup> lowest measured value; contact to contact or contact to shell.

● First choice alternative    ○ Special order alternative



## Multipole

| Number of LV contacts | Solder contacts |  | Reference | Series   |            | Contact ø (mm)  | Contact type |       |                  |               | AWG           |                    | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup> |
|-----------------------|-----------------|--|-----------|----------|------------|-----------------|--------------|-------|------------------|---------------|---------------|--------------------|----------------------------------------|---------------------------------------|---------------------------------|
|                       |                 |  |           | Standard | Watertight |                 | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp<br>min. max. |                                        |                                       |                                 |
| 14                    |                 |  | 314       | 4S       | 4E         | 1.3             | ●            | —     | ○                | —             | 20            | — —                | 2.1                                    | 3.0                                   | 9                               |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 14                    |                 |  | 314       | 5S       | 5E         | 2x3.0<br>12x2.0 | ●            | —     | —                | —             | 12<br>16      | — —                | 1.8                                    | 2.4                                   | 20<br>15                        |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 16                    |                 |  | 316       | 3S       | 3E         | 0.9             | ●            | —     | ●                | ●             | 22            | — —                | 1.0                                    | 1.5                                   | 7                               |
|                       |                 |  |           | 4S       | 4E         | 0.9             | ●            | —     | ○                | —             | 22            | — —                | 2.1                                    | 3.0                                   | 7                               |
| 16                    |                 |  | 316       | 5S       | 5E         | 2.0             | ●            | —     | —                | —             | 16            | — —                | 1.8                                    | 2.4                                   | 15                              |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 16                    |                 |  | 316       | —        | 6E         | 3.0             | ●            | —     | —                | —             | 12            | — —                | 1.5                                    | 2.1                                   | 14                              |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 18                    |                 |  | 318       | 3S       | 3E         | 0.9             | ●            | —     | ●                | ○             | 22            | — —                | 1.0                                    | 1.5                                   | 6                               |
|                       |                 |  |           | 4S       | 4E         | 0.9             | ●            | —     | ○                | —             | 22            | — —                | 2.1                                    | 3.0                                   | 7                               |
| 18                    |                 |  | 318       | 5S       | 5E         | 2x3.0<br>16x1.6 | ●            | —     | —                | —             | 12<br>18      | — —                | 1.8                                    | 2.4                                   | 18<br>11                        |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |                    |                                        |                                       |                                 |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190. <sup>2)</sup> lowest measured value; contact to contact or contact to shell.

● First choice alternative    ○ Special order alternative

## Multipole

| Number of LV contacts | Solder contacts |  | Reference | Series   |            | Contact ø (mm)  | Contact type |       |                  |               | AWG           |       | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup> |         |
|-----------------------|-----------------|--|-----------|----------|------------|-----------------|--------------|-------|------------------|---------------|---------------|-------|----------------------------------------|---------------------------------------|---------------------------------|---------|
|                       | Crimp contacts  |  |           | Standard | Watertight |                 | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |                                        |                                       |                                 |         |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |
| 18                    |                 |  | 318       | 6S       | –          | 4.0             | ●            | –     | –                | –             | 10            | –     | –                                      | 1.2                                   | 1.8                             | 16      |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |
| 20                    |                 |  | 320       | 4S       | 4E         | 0.9             | ●            | –     | ●                | –             | 22            | –     | –                                      | 2.1                                   | 3.0                             | 7       |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |
| 20                    |                 |  | 320       | 5S       | 5E         | 1.6             | ●            | –     | –                | –             | 18            | –     | –                                      | 1.8                                   | 2.4                             | 11      |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |
| 20                    |                 |  | 320       | 6S       | –          | 3.0             | ●            | –     | –                | –             | 12            | –     | –                                      | 1.5                                   | 2.1                             | 14      |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |
| 20                    |                 |  | 320       | –        | 6E         | 3.0             | ●            | –     | –                | –             | 12            | –     | –                                      | 1.5                                   | 2.1                             | 14      |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |
| 22                    |                 |  | 322       | 4S       | 4E         | 0.9             | ●            | –     | ●                | –             | 22            | –     | –                                      | 2.1                                   | 3.0                             | 7       |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |
| 22                    |                 |  | 322       | 5S       | 5E         | 2x3.0<br>20x1.6 | ●            | –     | –                | –             | 12<br>18      | –     | –                                      | 1.8                                   | 2.4                             | 16<br>9 |
|                       |                 |  |           |          |            |                 |              |       |                  |               |               |       |                                        |                                       |                                 |         |

**Note:** 1) see calculation method, caution and suggested standard on page 190. 2) lowest measured value; contact to contact or contact to shell.

● First choice alternative    ○ Special order alternative





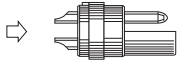
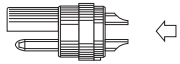
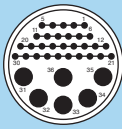
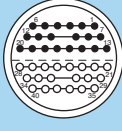
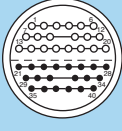
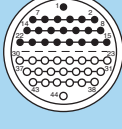
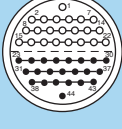
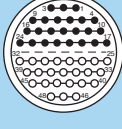
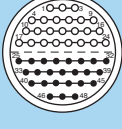
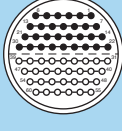
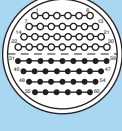
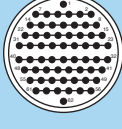
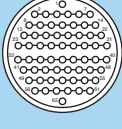
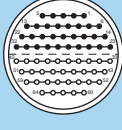
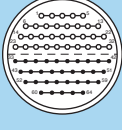
## Multipole

| Number of LV contacts | Solder contacts |  | Reference | Series   |            | Contact ø (mm) | Contact type |       |                  |               | AWG           |                    | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup> |
|-----------------------|-----------------|--|-----------|----------|------------|----------------|--------------|-------|------------------|---------------|---------------|--------------------|----------------------------------------|---------------------------------------|---------------------------------|
|                       |                 |  |           | Standard | Watertight |                | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp<br>min. max. |                                        |                                       |                                 |
| 24                    |                 |  | 324       | 4S       | 4E         | 0.9            | ●            | -     | ○                | -             | 22            | - -                | 2.1                                    | 3.0                                   | 7                               |
|                       |                 |  |           | 5S       | 5E         | 1.6            | ●            | -     | -                | -             | 18            | - -                | 2.7                                    | 3.9                                   | 9                               |
|                       |                 |  |           | 6S       | -          | 3.0            | ●            | -     | -                | -             | 12            | - -                | 1.2                                    | 1.8                                   | 12                              |
| 24                    |                 |  | 324       | -        | 6E         | 3.0            | ●            | -     | -                | -             | 12            | - -                | 1.2                                    | 1.8                                   | 12                              |
|                       |                 |  |           |          |            |                |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 30                    |                 |  | 330       | 5S       | 5E         | 1.3            | ●            | -     | -                | -             | 20            | - -                | 1.8                                    | 2.4                                   | 8                               |
|                       |                 |  |           |          |            |                |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 30                    |                 |  | 330       | 6S       | 6E         | 2.0            | ●            | -     | -                | -             | 16            | - -                | 2.1                                    | 3.0                                   | 10                              |
|                       |                 |  |           |          |            |                |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 32                    |                 |  | 332       | -        | 6E         | 2.0            | ●            | -     | -                | -             | 16            | - -                | 1.5                                    | 2.1                                   | 10                              |
|                       |                 |  |           |          |            |                |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 36                    |                 |  | 336       | 5S       | 5E         | 1.3            | ●            | -     | -                | -             | 20            | - -                | 1.8                                    | 2.4                                   | 7                               |
|                       |                 |  |           |          |            |                |              |       |                  |               |               |                    |                                        |                                       |                                 |
| 36                    |                 |  | 336       | 6S       | -          | 2.0            | ●            | -     | -                | -             | 16            | - -                | 1.5                                    | 2.1                                   | 8                               |
|                       |                 |  |           |          |            |                |              |       |                  |               |               |                    |                                        |                                       |                                 |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190. <sup>2)</sup> lowest measured value; contact to contact or contact to shell.

● First choice alternative    ○ Special order alternative

## Multipole

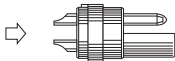
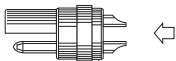
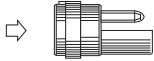
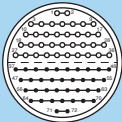
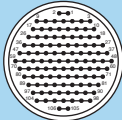
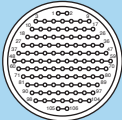
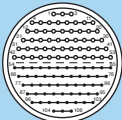
| Number of LV contacts | Solder contacts                                                                     |                                                                                     | Reference | Series   |            | Contact ø (mm)  | Contact type |       |                  |               | AWG           |       | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup> |         |
|-----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|----------|------------|-----------------|--------------|-------|------------------|---------------|---------------|-------|----------------------------------------|---------------------------------------|---------------------------------|---------|
|                       |    |    |           | Standard | Watertight |                 | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |                                        |                                       |                                 |         |
|                       |                                                                                     |                                                                                     |           |          |            |                 |              |       |                  |               |               | min.  |                                        |                                       |                                 | max.    |
| 36                    |    |    | 336       | –        | 6E         | 30x1.3<br>6x5.0 | ●            | –     | –                | –             | 20<br>8       | –     | –                                      | 1.5                                   | 2.1                             | 4<br>22 |
| 40                    |    |    |           | 340      | 5S         | 5E              | 1.3          | ●     | –                | –             | –             | 20    | –                                      | –                                     | 1.2                             | 1.8     |
| 44                    |   |   | –         |          | 6E         | 2.0             | ●            | –     | –                | –             | 16            | –     | –                                      | 1.5                                   | 2.1                             | 8       |
|                       |                                                                                     |                                                                                     | 5S        |          | 5E         | 1.3             | ●            | –     | –                | –             | 20            | –     | –                                      | 1.2                                   | 1.8                             | 6       |
| 48                    |  |  | 348       | 5S       | 5E         | 1.3             | ●            | –     | –                | –             | 20            | –     | –                                      | 1.2                                   | 1.8                             | 6       |
| 60                    |  |  |           | 6S       | 6E         | 2.0             | ●            | –     | –                | –             | 16            | –     | –                                      | 1.5                                   | 2.1                             | 7       |
|                       |                                                                                     |                                                                                     |           | 6S       | 6E         | 1.6             | ●            | –     | –                | –             | 18            | –     | –                                      | 1.5                                   | 2.1                             | 5       |
| 62                    |  |  | 362       |          | 6E         | 1.6             | ●            | –     | –                | –             | 18            | –     | –                                      | 1.5                                   | 2.1                             | 5       |
| 64                    |  |  |           | 364      | 6S         | 6E              | 1.3          | ●     | –                | –             | –             | 20    | –                                      | –                                     | 1.2                             | 1.8     |

**Note:** 1) see calculation method, caution and suggested standard on page 190. 2) lowest measured value; contact to contact or contact to shell.

● First choice alternative    ○ Special order alternative



## Multipole

| Number of LV contacts | Solder contacts                                                                    |                                                                                    | Reference | Series   |            | Contact ø (mm) | Contact type |       |                  |               | AWG           |       | Test voltage (kV rms) <sup>1) 2)</sup> | Test voltage (kV dc) <sup>1) 2)</sup> | Rated current (A) <sup>1)</sup> |   |
|-----------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------|----------|------------|----------------|--------------|-------|------------------|---------------|---------------|-------|----------------------------------------|---------------------------------------|---------------------------------|---|
|                       |   |   |           | Standard | Watertight |                | Solder       | Crimp | Print (straight) | Print (elbow) | Solder (max.) | Crimp |                                        |                                       |                                 |   |
|                       | Crimp contacts                                                                     |                                                                                    |           |          |            |                |              |       |                  |               | min.          | max.  |                                        |                                       |                                 |   |
|                       |   |   |           |          |            |                |              |       |                  |               |               |       |                                        |                                       |                                 |   |
| 72                    |   |   | 372       | 6S       | 6E         | 1.3            | ●            | –     | –                | –             | 20            | –     | –                                      | 1.2                                   | 1.8                             | 4 |
| 106                   |   |   | 106       | –        | 6E         | 0.9            | ●            | –     | –                | –             | 22            | –     | –                                      | 0.8                                   | 1.2                             | 2 |
| 106                   |  |  | 106       | 6S       | –          | 0.9            | ●            | –     | –                | –             | 22            | –     | –                                      | 0.8                                   | 1.2                             | 2 |

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 190. <sup>2)</sup> lowest measured value; contact to contact or contact to shell.

● First choice alternative    ○ Special order alternative



## Housings (S and E series)

| Ref.     | Outer shell and collet nut |                            | Latch sleeve + earthing crown |                      | Other metallic components |                 | Remarks                               | Note |
|----------|----------------------------|----------------------------|-------------------------------|----------------------|---------------------------|-----------------|---------------------------------------|------|
|          | Material                   | Surf. treatment            | Material                      | Surf. treatment      | Material                  | Surf. treatment |                                       |      |
| <b>C</b> | Brass                      | chrome                     | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                       | ●    |
| <b>D</b> | Brass                      | gold-plated                | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                       | ○    |
| <b>N</b> | Brass                      | nickel                     | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                       | ○    |
| <b>K</b> | Brass                      | black chrome <sup>3)</sup> | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                       | ●    |
| <b>S</b> | Stainless steel            | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |                                       | ○    |
| <b>T</b> | Stainless steel            | –                          | stainless steel               | –                    | brass                     | nickel          |                                       | ○    |
| <b>U</b> | Stainless steel            | –                          | stainless steel               | –                    | stainless steel           | –               |                                       | ○    |
| <b>L</b> | Aluminium alloy            | anodized                   | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | <sup>1)</sup>                         | ○    |
| <b>B</b> | POM (black)                | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FFP, ERN and PCP (S series)  | ●    |
| <b>G</b> | PEEK (natural)             | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FFP, ERN and PCP (S series)  | ●    |
| <b>P</b> | PSU                        | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FFL (S series) <sup>1)</sup> | ●    |
| <b>R</b> | PPSU                       | –                          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FFL (S series) <sup>1)</sup> | ●    |
| <b>H</b> | PPS/brass                  | –/nickel                   | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for EPL and EXP (S series)       | ●    |

**Note:** detailed characteristics of these materials and treatments are presented on page 182.

<sup>1)</sup> see «variant» for the colour.

<sup>2)</sup> in the E series, the latch sleeve is chrome-plated.

<sup>3)</sup> surface not conductive use socket with earthing tag (ERN model) to carry shield.

● First choice alternative  
○ Special order alternative



## Insulators (S and E series)

| Ref.     | Material | Contact type    | Remarks                                               | Note |
|----------|----------|-----------------|-------------------------------------------------------|------|
| <b>L</b> | PEEK     | Solder or print |                                                       | ●    |
| <b>Y</b> | PEEK     | Crimp           |                                                       | ●    |
| <b>T</b> | PTFE     | Solder          | only for unipole types                                | ●    |
| <b>T</b> | FEP      | Solder          | only for multipole types of the S or E series         | ○    |
| <b>V</b> | PI       | Solder          | only for multipole types of the S or E series         | ○    |
| <b>N</b> | PA6.6    | Solder          | material for 5S/5E and 6S/6E series multipole inserts | ●    |

**Note:** detailed characteristics of these materials are presented on page 187.

● First choice alternative    ○ Special order alternative



## Contacts (S and E series)

### Soldering characteristics

- no need to order specific tools, a simple soldering iron is sufficient
- ideal for very small and fragile conductors
- contacts with solder cups to allow the solder to flow

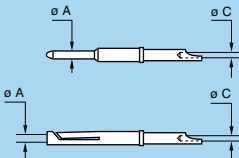
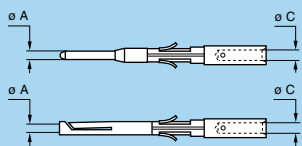
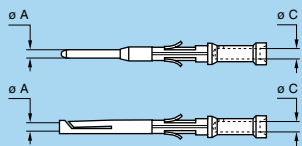
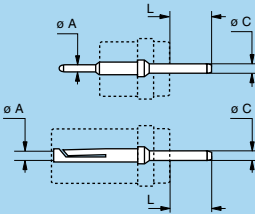
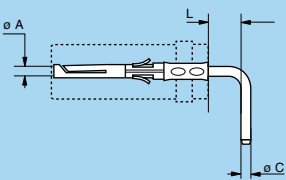
**Note:** see page 188 for more information.

### Crimping characteristics

- practical, quick contact fixing outside the insulator
- possible use at high temperature
- need to order specific tools
- no risk of heating the insulator during the conductor-contact fixing
- high tensile strength
- totally lead-free solution



## Contacts reference for plugs, free or fixed sockets

| Contact type                                                                                                                                                                                                                                              | Reference |        | Contact                                                                                  |             |                  | Conductor   |                                       |          |                  |                            |       | F <sub>r</sub> <sup>1)</sup><br>(N) | Notes |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------|------------------------------------------------------------------------------------------|-------------|------------------|-------------|---------------------------------------|----------|------------------|----------------------------|-------|-------------------------------------|-------|
|                                                                                                                                                                                                                                                           | Male      | Female | ø A<br>(mm)                                                                              | ø C<br>(mm) | Form<br>per fig. | Solid       |                                       | Stranded |                  |                            |       |                                     |       |
|                                                                                                                                                                                                                                                           |           |        |                                                                                          |             |                  | AWG<br>max. | Section<br>max.<br>(mm <sup>2</sup> ) | AWG      |                  | Section (mm <sup>2</sup> ) |       |                                     |       |
|                                                                                                                                                                                                                                                           |           |        |                                                                                          |             |                  |             |                                       | min.     | max.             | min.                       | max.  |                                     |       |
| <div>Solder</div> <div></div>                                                                                                                                            | A         | L      | 0.5                                                                                      | 0.45        | —                | 28          | 0.09                                  | —        | 28               | —                          | 0.09  | —                                   | ●     |
|                                                                                                                                                                                                                                                           |           |        | 0.7                                                                                      | 0.60        | —                | 24          | 0.25                                  | —        | 26               | —                          | 0.14  | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 0.9                                                                                      | 0.80        | —                | 22          | 0.34                                  | —        | 22 <sup>2)</sup> | —                          | 0.34  | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 1.3                                                                                      | 1.00        | —                | 20          | 0.50                                  | —        | 20 <sup>2)</sup> | —                          | 0.50  | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 1.6                                                                                      | 1.40        | —                | 16          | 1.00                                  | —        | 18               | —                          | 1.00  | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 2.0                                                                                      | 1.80        | —                | 14          | 1.50                                  | —        | 16               | —                          | 1.50  | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 3.0                                                                                      | 2.70        | —                | 10          | 4.00                                  | —        | 12               | —                          | 4.00  | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 4.0                                                                                      | 3.70        | —                | 10          | 6.00                                  | —        | 10               | —                          | 6.00  | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 5.0                                                                                      | 5.20        | —                | —           | —                                     | —        | 8                | —                          | 10.00 | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 6.0                                                                                      | 5.20        | —                | —           | —                                     | —        | 8                | —                          | 10.00 | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 8.0                                                                                      | 7.00        | —                | —           | —                                     | —        | 4                | —                          | 21.00 | —                                   |       |
|                                                                                                                                                                                                                                                           |           |        | 12.0                                                                                     | 11.50       | —                | —           | —                                     | —        | 0                | —                          | 50.00 | —                                   |       |
| <div>Crimp</div> <div><div>fig. 1</div><div></div><div>fig. 2</div><div></div></div> | C         | M      | 0.7                                                                                      | 0.80        | 1                | —           | —                                     | 26       | 22 <sup>2)</sup> | 0.140                      | 0.34  | 22                                  | ●     |
|                                                                                                                                                                                                                                                           | B         | P      | 0.7                                                                                      | 0.45        | 2                | —           | —                                     | 32       | 28               | 0.035                      | 0.09  | 22                                  | ○     |
|                                                                                                                                                                                                                                                           | C         | M      | 0.9                                                                                      | 1.10        | 1                | —           | —                                     | 24       | 20               | 0.250                      | 0.50  | 30                                  | ●     |
|                                                                                                                                                                                                                                                           | B         | P      | 0.9                                                                                      | 0.80        | 2                | —           | —                                     | 26       | 22 <sup>2)</sup> | 0.140                      | 0.34  | 30                                  | ○     |
|                                                                                                                                                                                                                                                           | G         | U      | 0.9                                                                                      | 0.45        | 2                | —           | —                                     | 32       | 28               | 0.035                      | 0.09  | 30                                  | ○     |
|                                                                                                                                                                                                                                                           | C         | M      | 1.3                                                                                      | 1.40        | 1                | —           | —                                     | 20       | 18               | 0.500                      | 1.00  | 40                                  | ●     |
|                                                                                                                                                                                                                                                           | B         | P      | 1.3                                                                                      | 1.10        | 2                | —           | —                                     | 24       | 20               | 0.250                      | 0.50  | 40                                  | ○     |
|                                                                                                                                                                                                                                                           | G         | U      | 1.3                                                                                      | 0.80        | 2                | —           | —                                     | 26       | 22 <sup>2)</sup> | 0.140                      | 0.34  | 40                                  | ○     |
|                                                                                                                                                                                                                                                           | C         | M      | 1.6                                                                                      | 1.90        | 1                | —           | —                                     | 18       | 14 <sup>2)</sup> | 1.000                      | 1.50  | 50                                  | ●     |
|                                                                                                                                                                                                                                                           | B         | P      | 1.6                                                                                      | 1.40        | 2                | —           | —                                     | 22       | 18               | 0.340                      | 1.00  | 50                                  | ○     |
|                                                                                                                                                                                                                                                           | C         | M      | 2.0                                                                                      | 2.40        | 1                | —           | —                                     | 16       | 12 <sup>2)</sup> | 1.500                      | 2.50  | 65                                  | ●     |
|                                                                                                                                                                                                                                                           | B         | P      | 2.0                                                                                      | 1.90        | 2                | —           | —                                     | 18       | 14               | 1.500                      | 1.50  | 65                                  | ○     |
| <div>Print</div> <div></div>                                                                                                                                           | D         | N      | L dimensions and C are detailed in the section on PCB drilling pattern.<br>See page 167. |             |                  |             |                                       |          |                  |                            |       |                                     | ●     |
| <div>Print (elbow)</div> <div></div>                                                                                                                                   | V         | V      | L dimensions and C are detailed in the section on PCB drilling pattern.<br>See page 168. |             |                  |             |                                       |          |                  |                            |       |                                     | ●     |

**Note:** 1) contact retention force in the insulator (according to IEC 60512-8 test 15 a).

2) for a given AWG, the diameter of some stranded conductor designs is larger than the solder cup diameter. Make sure that the maximum conductor diameter is smaller than ø C.

● First choice alternative    ○ Special order alternative

| Ref.     | Contact type    | Remarks                                  |
|----------|-----------------|------------------------------------------|
| <b>A</b> | Male - Female   | contact configuration is explained below |
| <b>L</b> | Female - Male   | contact configuration is explained below |
| <b>M</b> | Female - Female | contact configuration is explained below |

**A Male - Female**

Reference for plug →

← Reference for plug

Unipole

**L Female - Male**

Reference for plug →

← Reference for plug

Unipole

**M Female - Female**

Reference for plug →

← Reference for plug

Unipole

Multipole (odd)

Multipole (even)

|             |                                                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference M | for coupling two identical plugs fitted with male contact (contact reference A).                                                                                                               |
| Reference L | for coupling a plug fitted with male contacts (contact reference A) at the flange end for RAD and SWH and an inverted plug fitted with female contacts (contact reference L) at the other end. |
| Reference A | for the inverted version of code L.                                                                                                                                                            |

|             |                                                                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference L | for coupling a standard plug (contact reference A) at the flange end for RAD and SWH and an inverted plug (contact reference as indicated in the above table) at the other end. |
| Reference M | for coupling two standard plugs (contact type A).<br>Only available for RAD and RMA models.                                                                                     |

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## Collets (S and E series)

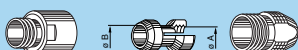
### C, K and L type collets for S series

C type



K type

oversize  
cable collet



L type

(non EMC)



|           | Reference |      | Collet ø |     | Cable ø |       | Notes            |
|-----------|-----------|------|----------|-----|---------|-------|------------------|
|           | Type      | Code | ø A      | ø B | max.    | min.  |                  |
| <b>00</b> | C         | 17   | 1.7      | 1.5 | 1.7     | 1.3   |                  |
|           | C         | 22   | 2.2      | –   | 2.2     | > 1.7 |                  |
|           | C         | 27   | 2.7      | –   | 2.7     | > 2.2 |                  |
|           | C         | 31   | 3.1      | 2.7 | 3.1     | > 2.7 |                  |
|           | K         | 37   | 3.7      | –   | 3.7     | > 3.2 |                  |
|           | K         | 42   | 4.2      | 3.7 | 4.4     | > 3.7 |                  |
|           | L         | 27   | 2.7      | –   | 2.6     | 2.2   | <sup>2)</sup>    |
|           | L         | 31   | 3.1      | –   | 3.0     | 2.6   | <sup>2)</sup>    |
| <b>0S</b> | C         | 22   | 2.2      | –   | 2.2     | 1.3   | <sup>3)</sup>    |
|           | C         | 32   | 3.2      | –   | 3.2     | > 2.2 |                  |
|           | C         | 37   | 3.7      | –   | 3.7     | > 3.2 |                  |
|           | C         | 44   | 4.4      | 3.7 | 4.4     | > 3.7 |                  |
|           | K         | 52   | 5.2      | –   | 5.2     | > 4.2 |                  |
|           | K         | 57   | 5.7      | 5.2 | 5.7     | > 5.2 |                  |
|           | K         | 62   | 6.2      | 5.2 | 6.2     | > 5.7 |                  |
|           | L         | 22   | 2.2      | –   | 2.2     | 1.3   | <sup>2)</sup>    |
|           | L         | 32   | 3.2      | –   | 3.2     | > 2.2 | <sup>2)</sup>    |
|           | L         | 37   | 3.7      | –   | 3.7     | > 3.2 | <sup>2)</sup>    |
|           | L         | 44   | 4.4      | –   | 4.3     | 3.5   | <sup>1) 2)</sup> |
|           | L         | 48   | 4.8      | –   | 4.8     | 4.4   | <sup>1) 2)</sup> |
| <b>1S</b> | C         | 22   | 2.2      | –   | 2.2     | 1.4   |                  |
|           | C         | 32   | 3.2      | –   | 3.2     | > 2.2 |                  |
|           | C         | 42   | 4.2      | –   | 4.2     | > 3.2 |                  |
|           | C         | 52   | 5.2      | –   | 5.2     | > 4.2 |                  |
|           | C         | 57   | 5.7      | 5.2 | 5.7     | > 5.2 |                  |
|           | C         | 62   | 6.2      | 5.2 | 6.2     | > 5.7 |                  |
|           | K         | 72   | 7.2      | –   | 7.2     | > 6.2 |                  |
|           | K         | 82   | 8.2      | 6.7 | 8.2     | > 7.2 |                  |
|           | K         | 87   | 8.7      | 6.7 | 8.7     | > 8.2 |                  |

|           | Reference |      | Collet ø |     | Cable ø |       | Notes            |
|-----------|-----------|------|----------|-----|---------|-------|------------------|
|           | Type      | Code | ø A      | ø B | max.    | min.  |                  |
| <b>1S</b> | L         | 22   | 2.2      | –   | 2.2     | 1.2   | <sup>2)</sup>    |
|           | L         | 32   | 3.2      | –   | 3.2     | > 2.2 | <sup>2)</sup>    |
|           | L         | 42   | 4.2      | –   | 4.2     | > 3.2 | <sup>2)</sup>    |
|           | L         | 52   | 5.2      | –   | 5.2     | > 4.2 | <sup>2)</sup>    |
|           | L         | 62   | 6.2      | –   | 6.2     | > 5.2 | <sup>2)</sup>    |
|           | L         | 66   | 6.6      | –   | 6.5     | 5.9   | <sup>1) 2)</sup> |
| <b>2S</b> | C         | 27   | 2.7      | –   | 2.7     | 1.3   |                  |
|           | C         | 32   | 3.2      | –   | 3.2     | > 2.5 |                  |
|           | C         | 42   | 4.2      | –   | 4.2     | > 3.2 |                  |
|           | C         | 52   | 5.2      | –   | 5.2     | > 4.2 |                  |
|           | C         | 62   | 6.2      | –   | 6.2     | > 5.2 |                  |
|           | C         | 72   | 7.2      | 6.7 | 7.2     | > 6.2 |                  |
|           | C         | 82   | 8.2      | 6.7 | 8.2     | > 7.2 |                  |
|           | C         | 87   | 8.7      | 6.7 | 8.7     | > 8.2 |                  |
|           | K         | 97   | 9.7      | 9.0 | 9.7     | > 8.7 |                  |
|           | K         | 11   | 10.5     | 9.0 | 10.5    | > 9.5 |                  |
|           | L         | 32   | 3.2      | –   | 3.2     | 2.5   | <sup>2)</sup>    |
|           | L         | 42   | 4.2      | –   | 4.2     | > 3.2 | <sup>2)</sup>    |
|           | L         | 52   | 5.2      | –   | 5.2     | > 4.2 | <sup>2)</sup>    |
|           | L         | 62   | 6.2      | –   | 6.2     | > 5.2 | <sup>2)</sup>    |
|           | L         | 72   | 7.2      | –   | 7.2     | > 6.2 | <sup>2)</sup>    |
|           | L         | 82   | 8.2      | –   | 8.2     | > 7.2 | <sup>2)</sup>    |
|           | L         | 87   | 8.7      | –   | 8.7     | > 8.2 | <sup>1) 2)</sup> |

**Note:** All dimensions are in millimetres.

<sup>1)</sup> these collets cannot be used for connectors models with nut for fitting a bend relief. <sup>2)</sup> these collets cannot be used for elbow connectors. <sup>3)</sup> the inner diameter of the smallest bend relief available is 2.5 mm.

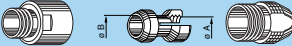
## C, K and L type collets for S series

C type



K type

oversize  
cable collet



L type

(non EMC)



|           | Reference |      | Collet ø |      | Cable ø |       | Notes |
|-----------|-----------|------|----------|------|---------|-------|-------|
|           | Type      | Code | ø A      | ø B  | max.    | min.  |       |
| <b>3S</b> | C         | 42   | 4.2      | 7.7  | 4.2     | 2.6   |       |
|           | C         | 57   | 5.7      | 7.7  | 5.7     | 4.3   |       |
|           | C         | 72   | 7.2      | 7.7  | 7.2     | 5.8   |       |
|           | C         | 87   | 8.7      | 8.7  | 8.7     | 7.3   |       |
|           | C         | 97   | 9.7      | 9.0  | 9.7     | 8.8   |       |
|           | C         | 11   | 10.5     | 9.0  | 10.5    | 9.8   |       |
|           | K         | 12   | 12.2     | —    | 12.0    | 11.1  |       |
|           | K         | 13   | 13.2     | 12.2 | 13.0    | 12.1  |       |
|           | L         | 42   | 4.2      | —    | 4.2     | 2.6   | 2)    |
|           | L         | 57   | 5.7      | —    | 5.7     | > 4.2 | 2)    |
|           | L         | 72   | 7.2      | —    | 7.2     | > 5.7 | 2)    |
|           | L         | 87   | 8.7      | —    | 8.7     | > 7.2 | 2)    |
|           | L         | 97   | 9.7      | —    | 9.7     | > 8.7 | 2)    |
|           | L         | 11   | 10.7     | —    | 10.7    | > 9.7 | 1) 2) |
| <b>4S</b> | C         | 52   | 5.2      | —    | 5.0     | 4.1   |       |
|           | C         | 62   | 6.2      | —    | 6.0     | 5.1   |       |
|           | C         | 72   | 7.2      | —    | 7.0     | 6.1   |       |
|           | C         | 82   | 8.2      | —    | 8.0     | 7.1   |       |
|           | C         | 92   | 9.2      | —    | 9.0     | 8.1   |       |
|           | C         | 10   | 10.2     | —    | 10.0    | 9.1   |       |
|           | C         | 11   | 11.2     | —    | 11.0    | 10.1  |       |

|           | Reference |      | Collet ø |      | Cable ø |      | Notes |
|-----------|-----------|------|----------|------|---------|------|-------|
|           | Type      | Code | ø A      | ø B  | max.    | min. |       |
| <b>4S</b> | C         | 12   | 12.2     | —    | 12.0    | 11.1 |       |
|           | C         | 13   | 13.2     | 12.2 | 13.0    | 12.6 |       |
|           | K         | 14   | 14.2     | —    | 14.0    | 13.1 | 1)    |
|           | K         | 15   | 15.2     | —    | 15.0    | 14.1 | 1)    |
|           | K         | 16   | 16.2     | —    | 16.0    | 15.1 | 1)    |
|           | K         | 17   | 17.2     | —    | 17.0    | 16.1 | 1)    |
|           | K         | 18   | 18.2     | —    | 18.0    | 17.1 | 1)    |
|           | K         | 19   | 19.2     | —    | 19.0    | 18.1 | 1)    |
|           | K         | 20   | 20.2     | 19.7 | 20.0    | 19.1 | 1)    |
|           | K         | 21   | 21.2     | 19.7 | 21.0    | 20.1 | 1)    |
|           | K         | 22   | 22.2     | 19.7 | 22.0    | 21.1 | 1)    |
|           | L         | 52   | 5.2      | —    | 5.0     | 4.1  | 2)    |
|           | L         | 62   | 6.2      | —    | 6.0     | 5.1  | 2)    |
|           | L         | 72   | 7.2      | —    | 7.0     | 6.1  | 2)    |
|           | L         | 82   | 8.2      | —    | 8.0     | 7.1  | 2)    |
|           | L         | 92   | 9.2      | —    | 9.0     | 8.1  | 2)    |
|           | L         | 10   | 10.2     | —    | 10.0    | 9.1  | 2)    |
|           | L         | 11   | 11.2     | —    | 11.0    | 10.1 | 2)    |
|           | L         | 12   | 12.2     | —    | 12.0    | 11.1 | 2)    |
|           | L         | 13   | 13.2     | —    | 13.0    | 12.6 | 2)    |

**Note:** All dimensions are in millimetres.

<sup>1)</sup> these collets cannot be used for connectors models with nut for fitting a bend relief.

<sup>2)</sup> these collets cannot be used for elbow connectors.





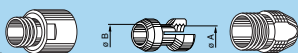
## C, K and L type collets for S series

C type



K type

oversize  
cable collet



L type

(non EMC)



|           | Reference |      | Collet ø |      | Cable ø |      | Notes |
|-----------|-----------|------|----------|------|---------|------|-------|
|           | Type      | Code | ø A      | ø B  | max.    | min. |       |
| <b>5S</b> | C         | 72   | 7.2      | –    | 7.0     | 6.1  | 1)    |
|           | C         | 82   | 8.2      | –    | 8.0     | 7.1  | 1)    |
|           | C         | 92   | 9.2      | –    | 9.0     | 8.1  | 1)    |
|           | C         | 10   | 10.2     | –    | 10.0    | 9.1  | 1)    |
|           | C         | 11   | 11.2     | –    | 11.0    | 10.1 | 1)    |
|           | C         | 12   | 12.2     | –    | 12.0    | 11.1 | 1)    |
|           | C         | 13   | 13.2     | –    | 13.0    | 12.1 | 1)    |
|           | C         | 14   | 14.2     | –    | 14.0    | 13.1 | 1)    |
|           | C         | 15   | 15.2     | –    | 15.0    | 14.1 | 1)    |
|           | C         | 16   | 16.2     | –    | 16.0    | 15.1 | 1)    |
|           | C         | 17   | 17.2     | –    | 17.0    | 16.1 | 1)    |
|           | C         | 18   | 18.2     | –    | 18.0    | 17.1 | 1)    |
|           | C         | 19   | 19.2     | –    | 19.0    | 18.1 | 1)    |
|           | C         | 20   | 20.2     | 19.7 | 20.0    | 19.1 | 1)    |
|           | C         | 21   | 21.2     | 19.7 | 21.0    | 20.1 | 1)    |
|           | C         | 22   | 22.2     | 19.7 | 22.0    | 21.1 | 1)    |
|           | K         | 23   | 23.2     | –    | 23.0    | 22.1 | 1)    |
|           | K         | 24   | 24.2     | –    | 24.0    | 23.1 | 1)    |
|           | K         | 25   | 25.2     | –    | 25.0    | 24.1 | 1)    |

|           | Reference |      | Collet ø |      | Cable ø |      | Notes |
|-----------|-----------|------|----------|------|---------|------|-------|
|           | Type      | Code | ø A      | ø B  | max.    | min. |       |
| <b>5S</b> | K         | 26   | 26.2     | –    | 26.0    | 25.1 | 1)    |
|           | K         | 27   | 27.2     | –    | 27.0    | 26.1 | 1)    |
|           | K         | 28   | 28.2     | 27.2 | 28.0    | 27.1 | 1)    |
|           | K         | 29   | 29.2     | 27.2 | 29.0    | 28.1 | 1)    |
|           | K         | 30   | 30.2     | 27.2 | 30.0    | 29.1 | 1)    |
|           | L         | 92   | 9.2      | –    | 9.0     | 8.1  | 1) 2) |
|           | L         | 10   | 10.2     | –    | 10.0    | 9.1  | 1) 2) |
|           | L         | 11   | 11.2     | –    | 11.0    | 10.1 | 1) 2) |
|           | L         | 12   | 12.2     | –    | 12.0    | 11.1 | 1) 2) |
|           | L         | 13   | 13.2     | –    | 13.0    | 12.1 | 1) 2) |
|           | L         | 14   | 14.2     | –    | 14.0    | 13.1 | 1) 2) |
|           | L         | 15   | 15.2     | –    | 15.0    | 14.1 | 1) 2) |
|           | L         | 16   | 16.2     | –    | 16.0    | 15.1 | 1) 2) |
|           | L         | 17   | 17.2     | –    | 17.0    | 16.1 | 1) 2) |
|           | L         | 18   | 18.2     | –    | 18.0    | 17.1 | 1) 2) |
|           | L         | 19   | 19.2     | –    | 19.0    | 18.1 | 1) 2) |
|           | L         | 20   | 20.2     | –    | 20.0    | 19.1 | 1) 2) |
|           | L         | 21   | 21.2     | –    | 21.0    | 20.1 | 1) 2) |

**Note:** All dimensions are in millimetres.

The 5S.112 is only available with L type of collet.

<sup>1)</sup> these collets cannot be used for connectors models with nut for fitting a bend relief.

<sup>2)</sup> these collets cannot be used for elbow connectors.

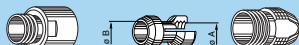
## C, K and L type collets for S series

C type



K type

oversize  
cable collet



L type

(non EMC)



| 6S | Reference |      | Collet ø |      | Cable ø |      | Notes |
|----|-----------|------|----------|------|---------|------|-------|
|    | Type      | Code | ø A      | ø B  | max.    | min. |       |
|    | C         | 12   | 12.2     | —    | 12.0    | 11.1 | 1)    |
|    | C         | 13   | 13.2     | —    | 13.0    | 12.1 | 1)    |
|    | C         | 14   | 14.2     | —    | 14.0    | 13.1 | 1)    |
|    | C         | 15   | 15.2     | —    | 15.0    | 14.1 | 1)    |
|    | C         | 16   | 16.2     | —    | 16.0    | 15.1 | 1)    |
|    | C         | 17   | 17.2     | —    | 17.0    | 16.1 | 1)    |
|    | C         | 18   | 18.2     | —    | 18.0    | 17.1 | 1)    |
|    | C         | 19   | 19.2     | —    | 19.0    | 18.1 | 1)    |
|    | C         | 20   | 20.2     | —    | 20.0    | 19.1 | 1)    |
|    | C         | 21   | 21.2     | —    | 21.0    | 20.1 | 1)    |
|    | C         | 22   | 22.2     | —    | 22.0    | 21.1 | 1)    |
|    | C         | 23   | 23.2     | —    | 23.0    | 22.1 | 1)    |
|    | C         | 24   | 24.2     | —    | 24.0    | 23.1 | 1)    |
|    | C         | 25   | 25.2     | —    | 25.0    | 24.1 | 1)    |
|    | C         | 26   | 26.2     | —    | 26.0    | 25.1 | 1)    |
|    | C         | 27   | 27.2     | —    | 27.0    | 26.1 | 1)    |
|    | C         | 28   | 28.2     | 27.2 | 28.0    | 27.1 | 1)    |
|    | C         | 29   | 29.2     | 27.2 | 29.0    | 28.1 | 1)    |
|    | C         | 30   | 30.2     | 27.2 | 30.0    | 29.1 | 1)    |

| 6S | Reference |      | Collet ø |     | Cable ø |      | Notes |
|----|-----------|------|----------|-----|---------|------|-------|
|    | Type      | Code | ø A      | ø B | max.    | min. |       |
|    | L         | 12   | 12.2     | —   | 12.0    | 11.1 | 1) 2) |
|    | L         | 13   | 13.2     | —   | 13.0    | 12.1 | 1) 2) |
|    | L         | 14   | 14.2     | —   | 14.0    | 13.1 | 1) 2) |
|    | L         | 15   | 15.2     | —   | 15.0    | 14.1 | 1) 2) |
|    | L         | 16   | 16.2     | —   | 16.0    | 15.1 | 1) 2) |
|    | L         | 17   | 17.2     | —   | 17.0    | 16.1 | 1) 2) |
|    | L         | 18   | 18.2     | —   | 18.0    | 17.1 | 1) 2) |
|    | L         | 19   | 19.2     | —   | 19.0    | 18.1 | 1) 2) |
|    | L         | 20   | 20.2     | —   | 20.0    | 19.1 | 1) 2) |
|    | L         | 21   | 21.2     | —   | 21.0    | 20.1 | 1) 2) |
|    | L         | 22   | 22.2     | —   | 22.0    | 21.1 | 1) 2) |
|    | L         | 23   | 23.2     | —   | 23.0    | 22.1 | 1) 2) |
|    | L         | 24   | 24.2     | —   | 24.0    | 23.1 | 1) 2) |
|    | L         | 25   | 25.2     | —   | 25.0    | 24.1 | 1) 2) |
|    | L         | 26   | 26.2     | —   | 26.0    | 25.1 | 1) 2) |
|    | L         | 27   | 27.2     | —   | 27.0    | 26.1 | 1) 2) |
|    | L         | 28   | 28.2     | —   | 28.0    | 27.1 | 1) 2) |
|    | L         | 29   | 29.2     | —   | 29.0    | 28.1 | 1) 2) |
|    | L         | 30   | 30.2     | —   | 30.0    | 29.1 | 1) 2) |

**Note:** All dimensions are in millimetres.

<sup>1)</sup> these collets cannot be used for connectors models with nut for fitting a bend relief.

<sup>2)</sup> these collets cannot be used for elbow connectors..



**C type**



**K type**  
oversize cable collet



Technical drawings of two types of cable collets. The C type shows an exploded view of a nut and a collet, and an assembled view with dimensions  $\phi A$  and  $\phi B$ . The K type shows an exploded view of a nut, a collet, and a U-bolt, and an assembled view with dimensions  $\phi A$  and  $\phi B$ .

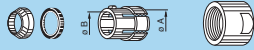
|    | Reference |      | Collet ø |      | Cable ø |      | Notes |
|----|-----------|------|----------|------|---------|------|-------|
|    | Type      | Code | ø A      | ø B  | max.    | min. |       |
| 2E | C         | 70   | 7.2      | –    | 7.0     | 6.6  |       |
|    | C         | 75   | 8.2      | 8.2  | 7.5     | 7.1  |       |
|    | C         | 80   | 8.2      | 8.2  | 8.0     | 7.6  |       |
|    | C         | 85   | 9.2      | 8.6  | 8.5     | 8.1  |       |
|    | K         | 90   | 9.2      | –    | 9.0     | 8.6  | 4)    |
|    | K         | 95   | 10.2     | 10.2 | 9.5     | 9.1  | 4)    |
|    | K         | 10   | 10.2     | 10.2 | 10.0    | 9.6  | 4)    |
|    | K         | 11   | 11.2     | 10.6 | 10.5    | 10.1 | 4)    |
| 3E | C         | 30   | 3.2      | –    | 3.0     | 2.6  |       |
|    | C         | 35   | 4.2      | –    | 3.5     | 3.1  |       |
|    | C         | 40   | 4.2      | –    | 4.0     | 3.6  |       |
|    | C         | 45   | 5.2      | –    | 4.5     | 4.1  |       |
|    | C         | 50   | 5.2      | –    | 5.0     | 4.6  |       |
|    | C         | 55   | 6.2      | –    | 5.5     | 5.1  |       |
|    | C         | 60   | 6.2      | –    | 6.0     | 5.6  |       |
|    | C         | 65   | 7.2      | –    | 6.5     | 6.1  |       |
|    | C         | 70   | 7.2      | –    | 7.0     | 6.6  |       |
|    | C         | 75   | 8.2      | –    | 7.5     | 7.1  |       |
|    | C         | 80   | 8.2      | –    | 8.0     | 7.6  |       |
|    | C         | 85   | 9.2      | –    | 8.5     | 8.1  |       |
|    | C         | 90   | 9.2      | –    | 9.0     | 8.6  |       |
|    | C         | 95   | 10.2     | 10.2 | 9.5     | 9.1  |       |
|    | C         | 10   | 10.2     | 10.2 | 10.0    | 9.6  |       |
|    | C         | 11   | 11.2     | 10.6 | 10.5    | 10.1 |       |
|    | K         | 11   | 12.3     | –    | 12.0    | 10.6 | 5)    |
|    | K         | 12   | 13.8     | 13.8 | 12.8    | 12.1 | 5)    |
|    | K         | 13   | 13.8     | 13.8 | 13.5    | 12.9 | 5)    |
|    | K         | 14   | 15.3     | 15.3 | 14.0    | 13.6 | 5)    |
|    | K         | 15   | 15.3     | 15.3 | 15.0    | 14.1 | 2)    |

**Note:** all dimensions are in millimetres.

- 1) the inner diameter of the smallest bend relief available is 2.5 mm.
- 2) the inner diameter of the largest bend relief available is 14.5 mm.
- 3) for 2B bend relief.
- 4) for 3B bend relief.
- 5) for 4B bend relief.

## C and K type collets for E series

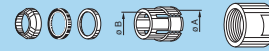
C type



K type  
oversize  
cable collet



C type



4E

| Reference |      | Collet ø |      | Cable ø |      | Notes |
|-----------|------|----------|------|---------|------|-------|
| Type      | Code | ø A      | ø B  | max.    | min. |       |
| C         | 50   | 6.3      | —    | 5.0     | 4.8  |       |
| C         | 55   | 6.3      | —    | 5.5     | 5.1  |       |
| C         | 60   | 6.3      | —    | 6.0     | 5.6  |       |
| C         | 65   | 7.3      | —    | 6.5     | 6.1  |       |
| C         | 70   | 7.3      | —    | 7.0     | 6.6  |       |
| C         | 75   | 8.3      | —    | 7.5     | 7.1  |       |
| C         | 80   | 8.3      | —    | 8.0     | 7.6  |       |
| C         | 85   | 9.3      | —    | 8.5     | 8.1  |       |
| C         | 90   | 9.3      | —    | 9.0     | 8.6  |       |
| C         | 95   | 10.8     | —    | 9.5     | 9.1  |       |
| C         | 10   | 10.8     | —    | 10.5    | 9.6  |       |
| C         | 11   | 12.3     | —    | 12.0    | 10.6 |       |
| C         | 12   | 13.8     | 13.8 | 12.8    | 12.1 |       |
| C         | 13   | 13.8     | 13.8 | 13.5    | 12.9 |       |
| C         | 14   | 15.3     | 15.3 | 14.0    | 13.6 |       |
| C         | 15   | 15.3     | 15.3 | 15.0    | 14.1 | 2)    |
| K         | 16   | 17.8     | —    | 16.5    | 15.6 | 1)    |
| K         | 17   | 17.8     | —    | 17.5    | 16.6 | 1)    |
| K         | 18   | 19.8     | —    | 18.5    | 17.6 | 1)    |
| K         | 19   | 19.8     | —    | 19.5    | 18.6 | 1)    |
| K         | 20   | 21.8     | —    | 20.5    | 19.6 | 1)    |
| K         | 21   | 21.8     | —    | 21.5    | 20.6 | 1)    |
| K         | 22   | 23.8     | 23.8 | 22.5    | 21.6 | 1)    |
| K         | 23   | 23.8     | 23.8 | 23.5    | 22.6 | 1)    |

5E

| Reference |      | Collet ø |      | Cable ø |      | Notes |
|-----------|------|----------|------|---------|------|-------|
| Type      | Code | ø A      | ø B  | max.    | min. |       |
| C         | 10   | 11.8     | —    | 10.5    | 9.6  |       |
| C         | 11   | 11.8     | —    | 11.5    | 10.6 |       |
| C         | 12   | 13.8     | —    | 12.5    | 11.6 |       |
| C         | 13   | 13.8     | —    | 13.5    | 12.6 |       |
| C         | 14   | 15.8     | —    | 14.5    | 13.6 |       |
| C         | 15   | 15.8     | —    | 15.5    | 14.6 | 1)    |
| C         | 16   | 17.8     | —    | 16.5    | 15.6 | 1)    |
| C         | 17   | 17.8     | —    | 17.5    | 16.6 | 1)    |
| C         | 18   | 19.8     | —    | 18.5    | 17.6 | 1)    |
| C         | 19   | 19.8     | —    | 19.5    | 18.6 | 1)    |
| C         | 20   | 21.8     | —    | 20.5    | 19.6 | 1)    |
| C         | 21   | 21.8     | —    | 21.5    | 20.6 | 1)    |
| C         | 22   | 23.8     | 23.8 | 22.5    | 21.6 | 1)    |
| C         | 23   | 23.8     | 23.8 | 23.5    | 22.6 | 1)    |
| C         | 14   | 14.2     | —    | 14.0    | 13.0 | 1)    |
| C         | 15   | 15.2     | —    | 15.0    | 14.1 | 1)    |
| C         | 16   | 15.7     | —    | 15.5    | 14.6 | 1)    |
| C         | 17   | 16.7     | —    | 16.5    | 15.6 | 1)    |
| C         | 18   | 18.2     | —    | 18.0    | 17.1 | 1)    |
| C         | 21   | 23.2     | —    | 21.5    | 20.6 | 1)    |
| C         | 22   | 23.2     | —    | 22.0    | 21.1 | 1)    |
| C         | 23   | 23.2     | —    | 23.0    | 22.1 | 1)    |
| C         | 27   | 27.2     | —    | 27.0    | 26.1 | 1)    |
| L         | 30   | 30.2     | —    | 30.0    | 29.5 | 1)    |

6E

**Note:** all dimensions are in millimetres.

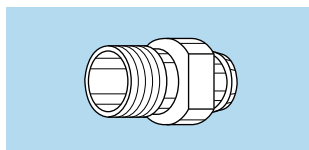
<sup>1)</sup> these collets cannot be used for connector models with nut for fitting a bend relief. No bend relief available for this cable size.

<sup>2)</sup> the inner diameter of the largest bend relief available is 14.5 mm.

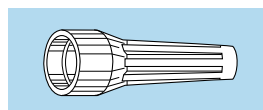


## Variant (S and E series)

### Bend relief for S series models with collet

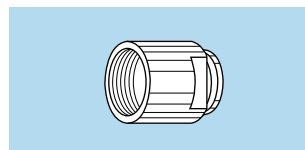


#### Need to be ordered

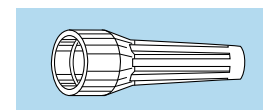


|           | Ref.     | Collet |          | Need to be ordered separately<br>(see pages 145 and 146) |
|-----------|----------|--------|----------|----------------------------------------------------------|
|           |          | Type   | Code     |                                                          |
| <b>00</b> | <b>z</b> | C      | 17 to 31 | GMA.00.0...D●                                            |
|           |          | K      | 37 to 42 | GMA.0B.0...D●                                            |
|           |          | L      | 27 to 31 | GMA.00.0...D●                                            |
| <b>0S</b> | <b>z</b> | C      | 32 to 44 | GMA.0B.0...D●                                            |
|           |          | K      | 52 to 62 | GMA.1B.0...D●                                            |
|           |          | L      | 32 to 48 | GMA.0B.0...D●                                            |
| <b>1S</b> | <b>z</b> | C      | 32 to 62 | GMA.1B.0...D●                                            |
|           |          | K      | 72 to 87 | GMA.2B.0...D●                                            |
|           |          | L      | 32 to 66 | GMA.1B.0...D●                                            |
| <b>2S</b> | <b>z</b> | C      | 42 to 87 | GMA.2B.0...D●                                            |
|           |          | K      | 97 to 11 | GMA.3B.0...D●                                            |
|           |          | L      | 42 to 87 | GMA.2B.0...D●                                            |
| <b>3S</b> | <b>z</b> | C      | 57 to 97 | GMA.3B.0...D●                                            |
|           |          | K      | 12 to 13 | GMA.4B.0...D●                                            |
|           |          | L      | 57 to 97 | GMA.3B.0...D●                                            |
| <b>4S</b> | <b>z</b> | C      | 82 to 13 | GMA.4B.0...D●                                            |
|           |          | L      | 82 to 13 | GMA.4B.0...D●                                            |

### Bend relief for E series models with collet



#### Need to be ordered



|           | Ref.     | Collet |                        | Need to be ordered separately<br>(see pages 145 and 146) |
|-----------|----------|--------|------------------------|----------------------------------------------------------|
|           |          | Type   | Code                   |                                                          |
| <b>0E</b> | <b>z</b> | C      | 10 to 50               | GMA.0B.●●●●●●                                            |
| <b>1E</b> | <b>z</b> | C      | 15 to 65               | GMA.1B.●●●●●●                                            |
|           |          | K      | 70 to 85               | GMA.2B.●●●●●●                                            |
| <b>2E</b> | <b>z</b> | C      | 15 to 85               | GMA.2B.●●●●●●                                            |
|           |          | K      | 90 to 10               | GMA.3B.●●●●●●                                            |
| <b>3E</b> | <b>z</b> | C      | 30 to 10               | GMA.3B.●●●●●●                                            |
|           |          | K      | 11 to 15 <sup>1)</sup> | GMA.4B.●●●●●●                                            |
| <b>4E</b> | <b>z</b> | C      | 50 to 15 <sup>2)</sup> | GMA.4B.●●●●●●                                            |
| <b>5E</b> | <b>z</b> | C      | 10 to 14               | GMA.4B.●●●●●●                                            |

**Note:** all dimensions are in millimetres.

<sup>1)</sup> for K15 see page 119.

<sup>2)</sup> for C15 see page 120.

## Colour of connectors shell made of plastic material and aluminium alloys

| Ref.     | Colour  | Plastic shell |      |      | Aluminium alloys |                                            |
|----------|---------|---------------|------|------|------------------|--------------------------------------------|
|          |         | PSU           | PPSU | PA.6 | Anodized colour  | Anodized colour for bend relief collet nut |
| <b>A</b> | blue    |               |      | ●    | ●                |                                            |
| <b>B</b> | white   | ●             |      | ●    |                  |                                            |
| <b>G</b> | grey    | ●             |      | ●    |                  |                                            |
| <b>J</b> | yellow  |               |      | ●    | ●                |                                            |
| <b>M</b> | brown   |               |      | ●    |                  |                                            |
| <b>N</b> | black   |               |      | ●    | ●                |                                            |
| <b>R</b> | red     |               |      | ●    | ●                |                                            |
| <b>S</b> | orange  |               |      | ●    |                  |                                            |
| <b>T</b> | natural |               |      |      | ●                |                                            |
| <b>V</b> | green   |               |      | ●    | ●                |                                            |
| <b>L</b> | black   |               |      |      |                  | ●                                          |
| <b>X</b> | natural |               |      |      |                  | ●                                          |
| <b>F</b> | cream   |               | ●    |      |                  |                                            |

**Note:** other anodizing colours are available for connectors with collet nut for bend relief. Please consult us.

## Watertight and vacuumtight socket and coupler models (S and E series) (not connected)

|          | Reference  |             | Model                   |
|----------|------------|-------------|-------------------------|
|          | Watertight | Vacuumtight |                         |
| <b>S</b> | <b>P</b>   | <b>PV</b>   | EWB, HCP, HGP, HGW, SWH |
| <b>E</b> | <b>P</b>   | <b>PV</b>   | EBR, HGP, SWH           |

## O-ring and gasket material (E series)

Standard connectors are delivered with silicone o-ring and gaskets. The vacuumtight models, identified with the letter «PV», are delivered with Viton® gaskets. Other gaskets material can be delivered upon special request.

| Ref.     | O-ring material                             |
|----------|---------------------------------------------|
| <b>H</b> | FPM (Viton®)                                |
| <b>E</b> | EPDM                                        |
| <b>D</b> | FPM (Viton®) and collet nut for bend relief |

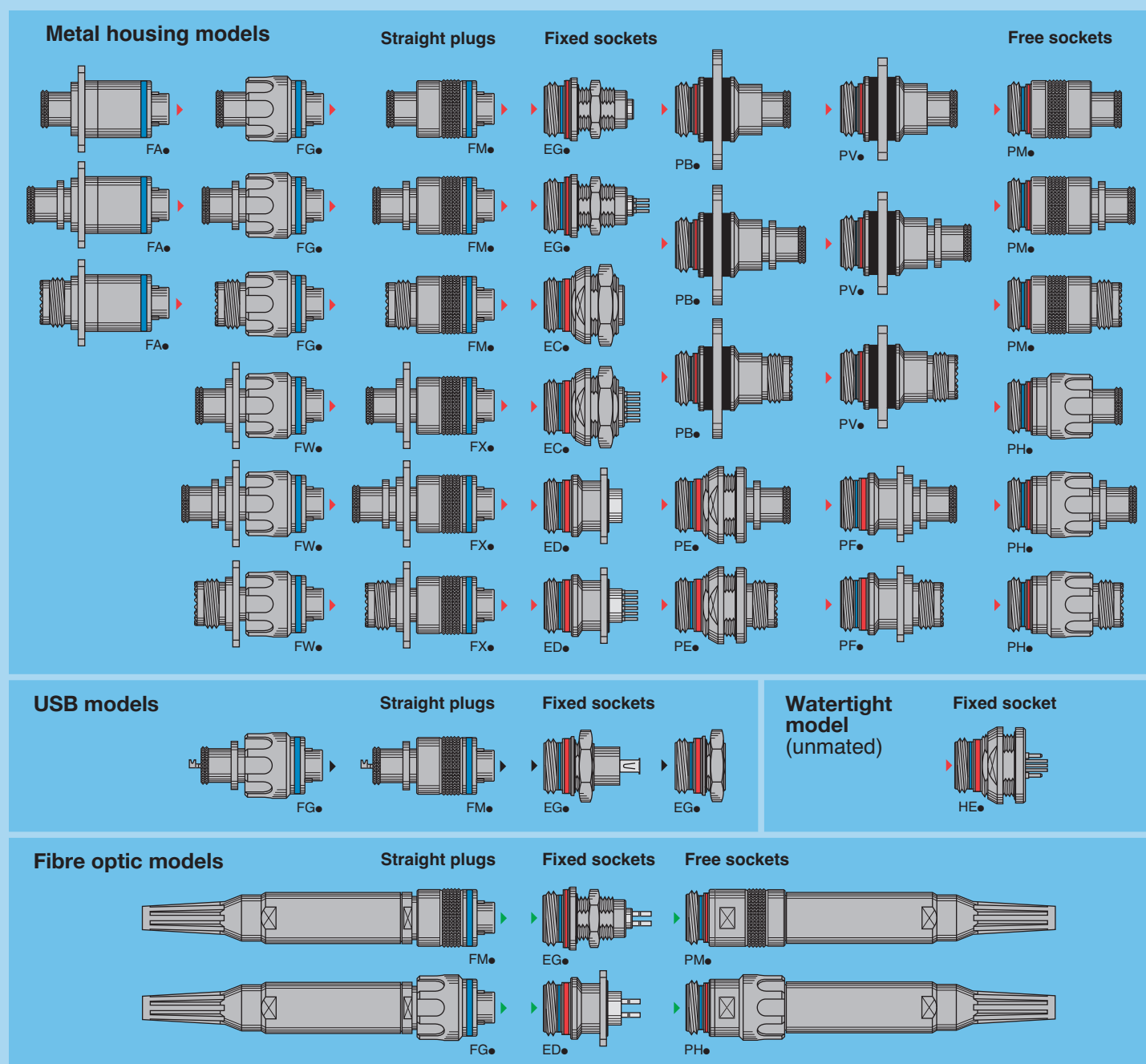
## M Series

The M Series connector offers a new innovative design for avionics, aerospace, military, security, motorsport and heavy duty applications.

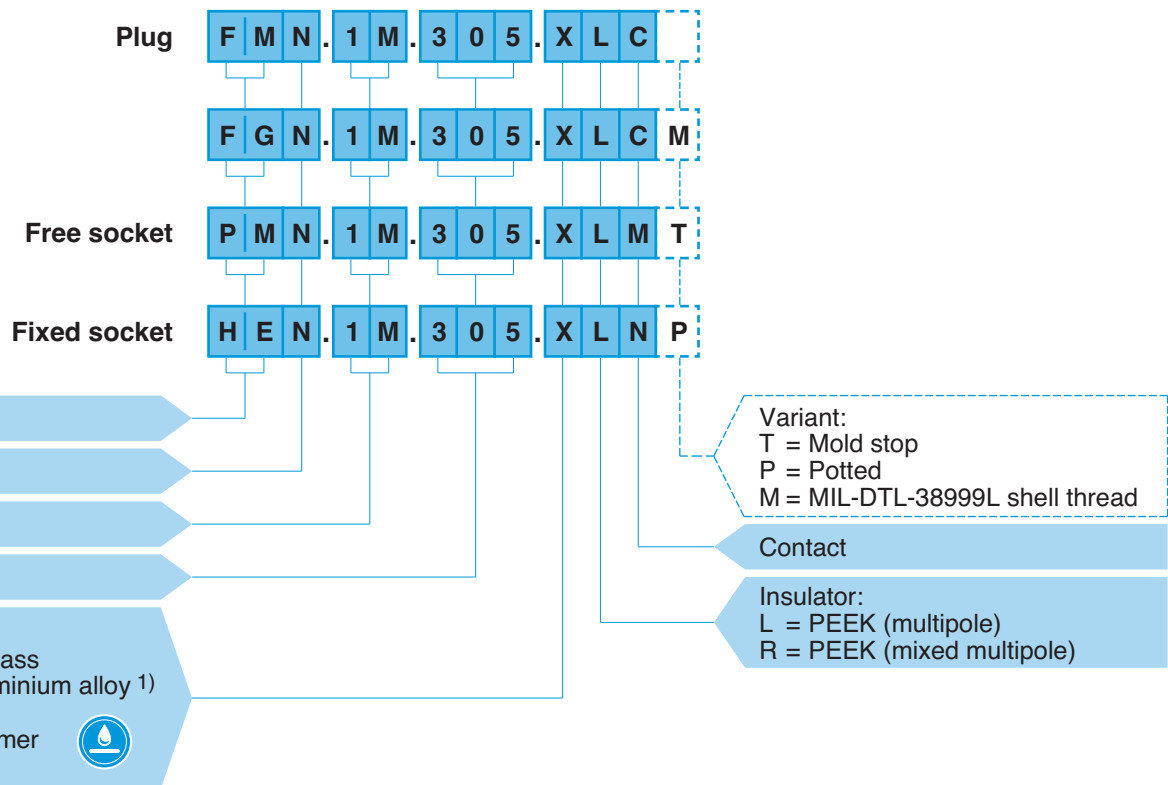
Made of high-strength aluminium, this connector is one of the lightest and most compact of the LEMO product line. A one-grip ratchet screw system enables quick and secure coupling of the connectors. The arctic grip makes it easy to manipulate the connector while wearing gloves or when the connector is located in a difficult to access area.

### Features

- Ratchet-coupling mechanism
- Compact design for space savings
- Oil and fuel resistant
- 360° screening for full EMC shielding
- Colour coding / keying
- Scoop proof
- Threaded for MIL-DTL-38999L backshell
- Quick mating: less than 3/4 turn to seat
- Lightweight
- High vibration and shock resistance
- Sealed to IP68 when mated
- Reverse gender configuration
- Pin configuration from 2 to 114 contacts



## Part Numbering System



**FMN.1M.305.XLC** = straight plug with key (N), 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, male crimp contacts

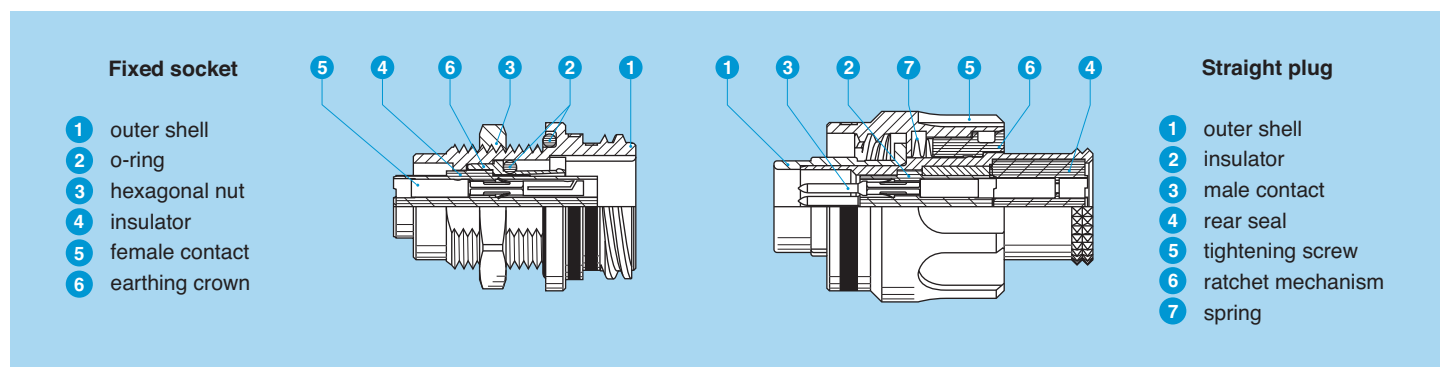
**FGN.1M.305.XLCM** = straight plug with key (N), arctic grip, 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, male crimp contacts and with MIL-DTL-38999L thread for additional backshell (not supplied).

**PMN.1M.305.XLMT** = free socket with key (N), 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, female crimp contacts and mold stop.

**HEN.1M.305.XLNP** = fixed socket, nut fixing, with key (N), 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, female print contacts, watertight.

**Note:** 1) anthracite colour / 48 hours salt fog resistance. 2) anthracite colour / 500 hours salt fog resistance RoHS 2/REACH.

## Part Section Showing Internal Components



**More informations on:** [https://www.lemo.com/catalog/ROW/UK\\_English/M\\_series.pdf](https://www.lemo.com/catalog/ROW/UK_English/M_series.pdf)





## F Series

The F series connectors have been specially developed to meet the most demanding requirements in terms of dimensions, weight and watertightness. Our manufacturing programme includes now 8 series. This series provides customers with many features and benefits including:

- push-pull self-latching system for safe connection
- sealed to IP67 for environmental protection when mated according to IEC 60529
- compact scoop-proof design and use of aluminium alloy
- high shock and vibration resistance
- multipole types with 2 to 68 contacts or multifibre optic or mixed FO + LV in 2F series
- crimp or print contacts (straight or elbow)
- keys ensuring ease of blind mating
- colour coded key options for system security.

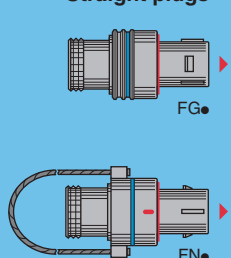
The F series connectors are available in 3 different materials:

- for high shock and vibration resistance, LEMO recommends using Y code material (with beryllium copper latch sleeve).
- for environmental resistance and latching cycle endurance, LEMO recommends using the C code material (brass outershell).
- for lightweight and latching cycle endurance, LEMO recommends using X code material (aluminium shell).
- for lightweight and salt spray corrosion resistance, LEMO recommends using I code material (aluminium shell).

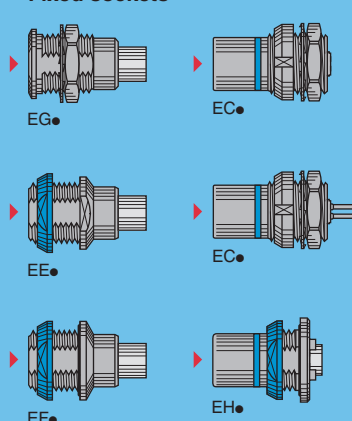
Each series includes several models of plugs and sockets available in contact configurations adapted to all round cables, including up to 68 conductors, and a maximum diameter of 34 mm. Since LEMO connectors are perfectly screened and designed to guarantee very low resistance to shell electrical continuity, they are particularly adapted to applications where electromagnetic compatibility (EMC) is important. A large number of accessories as well as tooling for cable assembly are available.

### Metal housing models

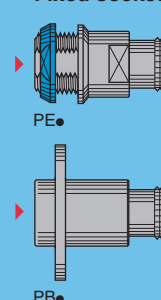
#### Straight plugs



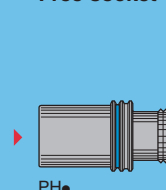
#### Fixed sockets



#### Fixed sockets

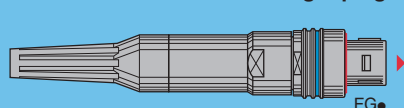


#### Free socket

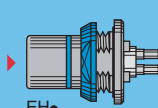


### Models for fibre optic

#### Straight plug

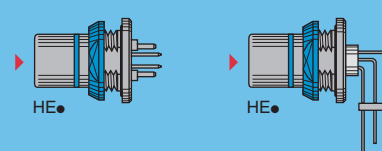


#### Fixed socket

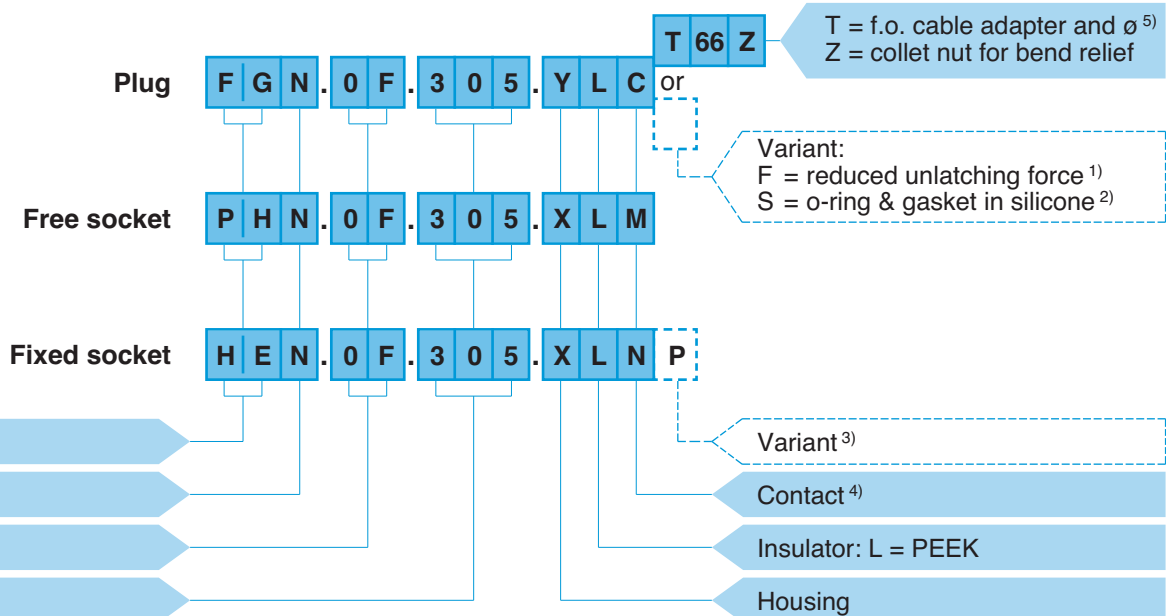


### Watertight models

#### Fixed sockets



## Part Numbering System



**FGN.0F.305.YLC** = straight plug with key (N), 0F series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, beryllium copper latch sleeve, PEEK insulator, male crimp contacts.

**PHN.0F.305.XLM** = free socket with key (N), 0F series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, female crimp contacts.

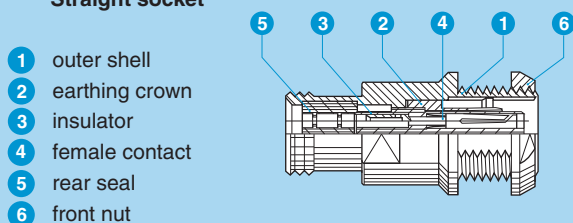
**HEN.0F.305.XLNP** = fixed socket, nut fixing, with key (N), 0F series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, female print contacts, watertight.

**Note:** <sup>1)</sup> for straight plug only. <sup>2)</sup> with shell material code X or Y. <sup>3)</sup> potting for HE● only. <sup>4)</sup> HE● available only with print contacts (straight or elbow).

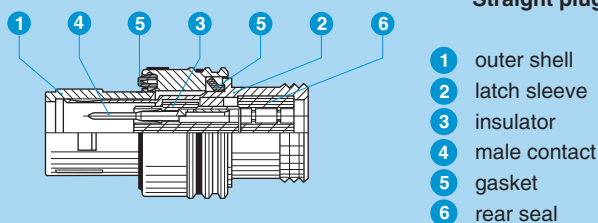
<sup>5)</sup> connectors for fibre-optic are delivered without the fibre optic contacts, they must be ordered separately.

## Part Section Showing Internal Components

**Straight socket**

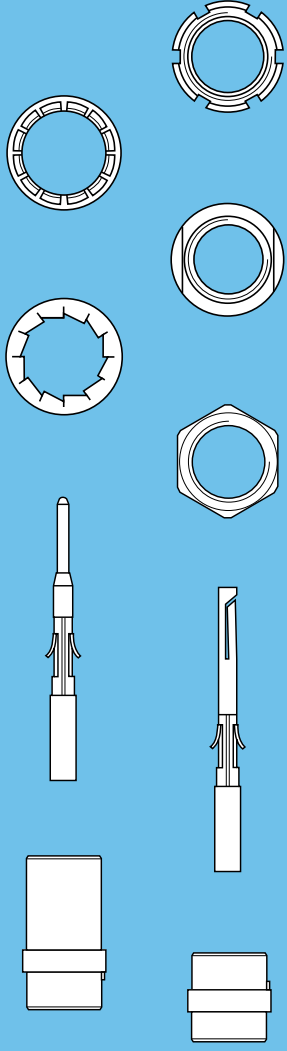


**Straight plug**



**More informations on:** [https://www.lemo.com/catalog/ROW/UK\\_English/f\\_series.pdf](https://www.lemo.com/catalog/ROW/UK_English/f_series.pdf)





## SPARE PARTS

## Spare parts for crimp contacts

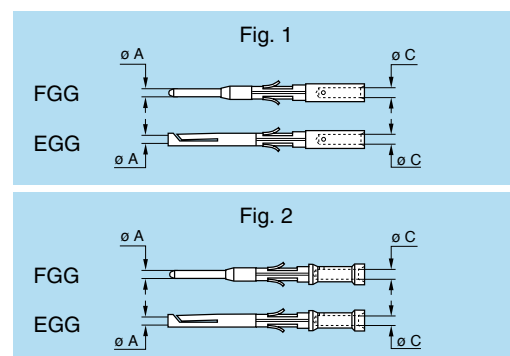
|                 | Types                      | Insulator part number |                | ø (mm) |      | Fg. | Cond. AWG |      | Contact part number |                |
|-----------------|----------------------------|-----------------------|----------------|--------|------|-----|-----------|------|---------------------|----------------|
|                 |                            | Male contact          | Female contact | A      | C    |     | min.      | max. | Male                | Female         |
| <b>00 TT</b>    | <b>302/303/304</b>         | FGG.00.30●.YL         | EGG.00.40●.YL  | 0.5    | 0.45 | 1   | 32        | 28   | FGG.00.554.ZZC      | EGG.00.654.ZZM |
| <b>0B OK OT</b> | <b>302/303</b>             | FGG.0B.30●.YL         | EGG.0B.40●.YL  | 0.9    | 1.10 | 1   | 24        | 20   | FGG.0B.560.ZZC      | EGG.0B.660.ZZM |
|                 |                            |                       |                |        | 0.80 | 2   | 26        | 22   | FGG.0B.561.ZZC      | EGG.0B.661.ZZM |
|                 |                            |                       |                |        | 0.45 | 2   | 32        | 28   | FGG.0B.562.ZZC      | EGG.0B.662.ZZM |
|                 | <b>304/305</b>             | FGG.0B.30●.YL         | EGG.0B.40●.YL  | 0.7    | 0.80 | 1   | 26        | 22   | FGG.0B.555.ZZC      | EGG.0B.655.ZZM |
|                 |                            |                       |                |        | 0.45 | 2   | 32        | 28   | FGG.0B.556.ZZC      | EGG.0B.656.ZZM |
|                 | <b>306/307/309</b>         | FGG.0B.30●.YL         | –              | 0.5    | 0.45 | 1   | 32        | 28   | FGG.0B.554.ZZC      | –              |
| <b>0S</b>       | <b>302</b>                 | –                     | –              | 0.9    | 1.10 | 1   | 24        | 20   | FGG.0B.560.ZZC      | EGG.0B.660.ZZM |
|                 |                            |                       |                |        | 0.80 | 2   | 26        | 22   | FGG.0B.561.ZZC      | EGG.0B.661.ZZM |
|                 |                            |                       |                |        | 0.45 | 2   | 32        | 28   | FGG.0B.562.ZZC      | EGG.0B.662.ZZM |
|                 | <b>303/304</b>             | –                     | –              | 0.7    | 0.80 | 1   | 26        | 22   | FGG.0B.555.ZZC      | EGG.0B.655.ZZM |
|                 |                            |                       |                |        | 0.45 | 2   | 32        | 28   | FGG.0B.556.ZZC      | EGG.0B.656.ZZM |
| <b>1B 1K 1T</b> | <b>302/303</b>             | FGG.1B.30●.YL         | EGG.1B.40●.YL  | 1.3    | 1.40 | 1   | 20        | 18   | FGG.1B.565.ZZC      | EGG.1B.665.ZZM |
|                 |                            |                       |                |        | 1.10 | 2   | 24        | 20   | FGG.1B.566.ZZC      | EGG.1B.666.ZZM |
|                 | <b>304/305</b>             | FGG.1B.30●.YL         | EGG.1B.40●.YL  | 0.9    | 1.10 | 1   | 24        | 20   | FGG.1B.560.ZZC      | EGG.1B.660.ZZM |
|                 |                            |                       |                |        | 0.80 | 2   | 26        | 22   | FGG.1B.561.ZZC      | EGG.1B.661.ZZM |
|                 | <b>306/307/308</b>         | FGG.1B.30●.YL         | EGG.1B.40●.YL  | 0.7    | 0.80 | 1   | 26        | 22   | FGG.1B.555.ZZC      | EGG.1B.655.ZZM |
|                 |                            |                       |                |        | 0.45 | 2   | 32        | 28   | FGG.1B.556.ZZC      | EGG.1B.656.ZZM |
|                 | <b>310/314/316</b>         | FGG.1B.3●●.YL         | –              | 0.5    | 0.45 | 1   | 32        | 28   | FGG.1B.554.ZZC      | –              |
| <b>1S</b>       | <b>302</b>                 | –                     | –              | 1.3    | 1.40 | 1   | 20        | 18   | FGG.1B.565.ZZC      | EGG.1B.665.ZZM |
|                 |                            |                       |                |        | 1.10 | 2   | 24        | 20   | FGG.1B.566.ZZC      | EGG.1B.666.ZZM |
|                 | <b>304</b>                 | –                     | –              | 0.9    | 1.10 | 1   | 24        | 20   | FGG.1B.560.ZZC      | EGG.1B.660.ZZM |
|                 |                            |                       |                |        | 0.80 | 2   | 26        | 22   | FGG.1B.561.ZZC      | EGG.1B.661.ZZM |
| <b>2B 2K 2T</b> | <b>302</b>                 | FGG.2B.302.YL         | EGG.2B.402.YL  | 2.0    | 2.40 | 1   | 16        | 12   | FGG.2B.575.ZZC      | EGG.2B.675.ZZM |
|                 |                            |                       |                |        | 1.90 | 2   | 18        | 14   | FGG.2B.576.ZZC      | EGG.2B.676.ZZM |
|                 | <b>303</b>                 | FGG.2B.303.YL         | EGG.2B.403.YL  | 1.6    | 1.90 | 1   | 18        | 14   | FGG.2B.570.ZZC      | EGG.2B.670.ZZM |
|                 |                            |                       |                |        | 1.40 | 2   | 22        | 18   | FGG.2B.571.ZZC      | EGG.2B.671.ZZM |
|                 | <b>304/305 306/307</b>     | FGG.2B.30●.YL         | EGG.2B.40●.YL  | 1.3    | 1.40 | 1   | 20        | 18   | FGG.2B.565.ZZC      | EGG.2B.665.ZZM |
|                 |                            |                       |                |        | 1.10 | 2   | 24        | 20   | FGG.2B.566.ZZC      | EGG.2B.666.ZZM |
|                 |                            |                       |                |        | 0.80 | 2   | 26        | 22   | FGG.2B.567.ZZC      | EGG.2B.667.ZZM |
|                 | <b>308/310</b>             | FGG.2B.3●●.YL         | EGG.2B.4●●.YL  | 0.9    | 1.10 | 1   | 24        | 20   | FGG.2B.560.ZZC      | EGG.2B.660.ZZM |
|                 |                            |                       |                |        | 0.80 | 2   | 26        | 22   | FGG.2B.561.ZZC      | EGG.2B.661.ZZM |
|                 |                            |                       |                |        | 0.45 | 2   | 32        | 28   | FGG.2B.562.ZZC      | EGG.2B.662.ZZM |
|                 | <b>312/314/316 318/319</b> | FGG.2B.3●●.YL         | EGG.2B.4●●.YL  | 0.7    | 0.80 | 1   | 26        | 22   | FGG.2B.555.ZZC      | EGG.2B.655.ZZM |
|                 |                            |                       |                |        | 0.45 | 2   | 32        | 28   | FGG.2B.556.ZZC      | EGG.2B.656.ZZM |

## Tools for crimp contacts

|                 | Types                      | Positioners part number <sup>1)</sup> |                | Extractors part number for male/female contacts |
|-----------------|----------------------------|---------------------------------------|----------------|-------------------------------------------------|
|                 |                            | Male contact                          | Female contact |                                                 |
| <b>00 TT</b>    | <b>302/303/304</b>         | DCE.91.050.0VC                        | DCE.91.050.0VM | DCC.05.02B.LAG                                  |
|                 |                            |                                       |                |                                                 |
| <b>0B OK OT</b> | <b>302/303</b>             | DCE.91.090.BVC                        | DCE.91.090.BVM | DCC.09.05B.LAG                                  |
|                 |                            | DCE.91.090.AVC                        | DCE.91.090.AVM |                                                 |
|                 | <b>304/305</b>             | DCE.91.070.BVC                        | DCE.91.070.BVM | DCC.07.04B.LAG                                  |
|                 | <b>306/307/309</b>         | DCE.91.050.BVC                        | DCE.91.050.BVM | DCC.05.02B.LAG                                  |
| <b>0S</b>       | <b>302</b>                 | DCE.91.090.BVC                        | DCE.91.090.BVM | DCC.09.05B.LAG                                  |
|                 |                            | DCE.91.090.AVC                        | DCE.91.090.AVM |                                                 |
|                 | <b>303/304</b>             | DCE.91.070.BVC                        | DCE.91.070.BVM | DCC.07.04B.LAG                                  |
|                 |                            |                                       |                |                                                 |
| <b>1B 1K 1T</b> | <b>302/303</b>             | DCE.91.131.BVC                        | DCE.91.131.BVM | DCC.13.15B.LAG                                  |
|                 | <b>304/305</b>             | DCE.91.091.BVC                        | DCE.91.091.BVM | DCC.09.05B.LAG                                  |
|                 | <b>306/307/308</b>         | DCE.91.071.BVC                        | DCE.91.071.BVM | DCC.07.04B.LAG                                  |
|                 | <b>310/314/316</b>         | DCE.91.051.BVC                        | DCE.91.051.BVM | DCC.05.02B.LAG                                  |
| <b>1S</b>       | <b>302</b>                 | DCE.91.131.BVC                        | DCE.91.131.BVM | DCC.13.15B.LAG                                  |
|                 | <b>304</b>                 | DCE.91.091.BVC                        | DCE.91.091.BVM | DCC.09.05B.LAG                                  |
| <b>2B 2K 2T</b> | <b>302</b>                 | DCE.91.202.BVCM                       |                | DCC.20.25B.LAG                                  |
|                 | <b>303</b>                 | DCE.91.162.BVCM                       |                | DCC.16.25B.LAG                                  |
|                 | <b>304/305 306/307</b>     | DCE.91.132.BVC                        | DCE.91.132.BVM | DCC.13.15B.LAG                                  |
|                 |                            | DCE.91.132.CVC                        | DCE.91.132.CVM |                                                 |
|                 | <b>308/310</b>             | DCE.91.092.BVC                        | DCE.91.092.BVM | DCC.09.05B.LAG                                  |
|                 |                            | DCE.91.092.AVC                        | DCE.91.092.AVM |                                                 |
|                 | <b>312/314/316 318/319</b> | DCE.91.072.BVC                        | DCE.91.072.BVM | DCC.07.04B.LAG                                  |

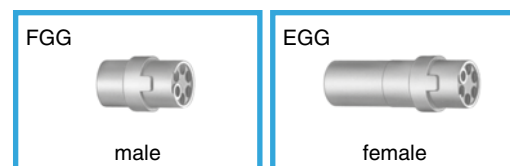
**Note:** <sup>1)</sup> please consult page 132 for the corresponding crimping tools.

### FGG-EGG Crimp contacts



**Note:** a wide variation of strand number and diameter combinations are quoted as being AWG, some of which do not have a large enough cross section to guarantee a crimp as per either MIL-C-22520/1-01 or /7-01.

### FGG-EGG Insulators



**Note:** each insulator can be used both for crimp contacts of normal shape (fig. 1) or with reduced crimp barrel (fig. 2).

### DCE Positioners ø 0.5-0.7-0.9-1.3 mm <sup>1)</sup>



These positioners are suitable for use with both manual and pneumatic crimping tools according to the MIL-C-22520/7-01 standard.

### DCE Turret for ø 1.6-2.0-3.0-4.0 mm <sup>1)</sup>



**Note:** these turrets can be used with manual crimping tool according to MIL-C-22520/1-01 standard.

### DCC Manual extractors



## Spare parts for crimp contacts

|                         | Types                          | Insulator part number       |                             | ø (mm) |      | F <sub>0</sub> | Cond. AWG |      | Contact part number |                |
|-------------------------|--------------------------------|-----------------------------|-----------------------------|--------|------|----------------|-----------|------|---------------------|----------------|
|                         |                                | Male contact                | Female contact              | A      | C    |                | min.      | max. | Male                | Female         |
| <b>2S</b>               | <b>306</b>                     | —                           | —                           | 1.3    | 1.40 | 1              | 20        | 18   | FGG.2B.565.ZZC      | EGG.2B.665.ZZM |
|                         |                                |                             |                             |        | 1.10 | 2              | 24        | 20   | FGG.2B.566.ZZC      | EGG.2B.666.ZZM |
|                         |                                |                             |                             |        | 0.80 | 2              | 26        | 22   | FGG.2B.567.ZZC      | EGG.2B.667.ZZM |
| <b>3B<br/>3K<br/>3T</b> | <b>302</b>                     | FGG.3B.302.YL               | EGG.3B.402.YL               | 3.0    | 3.20 | 1              | 14        | 10   | FGG.3B.580.ZZC      | EGG.3B.680.ZZM |
|                         | <b>303/304/309</b>             | FGG.3B.30●.YL <sup>1)</sup> | EGG.3B.40●.YL <sup>1)</sup> | 2.0    | 2.40 | 1              | 16        | 12   | FGG.3B.575.ZZC      | EGG.3B.675.ZZM |
|                         |                                |                             |                             |        | 1.90 | 2              | 18        | 14   | FGG.3B.576.ZZC      | EGG.3B.676.ZZM |
|                         | <b>305/306/307</b>             | FGG.3B.30●.YL               | EGG.3B.40●.YL               | 1.6    | 1.90 | 1              | 18        | 14   | FGG.3B.570.ZZC      | EGG.3B.670.ZZM |
|                         |                                |                             |                             |        | 1.40 | 2              | 22        | 18   | FGG.3B.571.ZZC      | EGG.3B.671.ZZM |
|                         | <b>308/309/310</b>             | FGG.3B.3●●.YL <sup>1)</sup> | EGG.3B.4●●.YL <sup>1)</sup> | 1.3    | 1.40 | 1              | 20        | 18   | FGG.3B.565.ZZC      | EGG.3B.665.ZZM |
|                         |                                |                             |                             |        | 1.10 | 2              | 24        | 20   | FGG.3B.566.ZZC      | EGG.3B.666.ZZM |
|                         |                                |                             |                             |        | 0.80 | 2              | 26        | 22   | FGG.3B.567.ZZC      | EGG.3B.667.ZZM |
|                         | <b>312/314<br/>316/318</b>     | FGG.3B.3●●.YL               | EGG.3B.4●●.YL               | 0.9    | 1.10 | 1              | 24        | 20   | FGG.3B.560.ZZC      | EGG.3B.660.ZZM |
|                         |                                |                             |                             |        | 0.80 | 2              | 26        | 22   | FGG.3B.561.ZZC      | EGG.3B.661.ZZM |
|                         |                                |                             |                             |        | 0.45 | 2              | 32        | 28   | FGG.3B.562.ZZC      | EGG.3B.662.ZZM |
|                         | <b>320/322/324<br/>326/330</b> | FGG.3B.3●●.YL               | EGG.3B.4●●.YL               | 0.7    | 0.80 | 1              | 26        | 22   | FGG.3B.555.ZZC      | EGG.3B.655.ZZM |
|                         |                                |                             |                             |        | 0.45 | 2              | 32        | 28   | FGG.3B.556.ZZC      | EGG.3B.656.ZZM |
| <b>4B<br/>4K</b>        | <b>304</b>                     | FGG.4B.304.YL               | EGG.4B.404.YL               | 3.0    | 3.20 | 1              | 14        | 10   | FGG.4B.580.ZZC      | EGG.4B.680.ZZM |
|                         | <b>306/307</b>                 | FGG.4B.30●.YL               | EGG.4B.40●.YL               | 2.0    | 2.40 | 1              | 16        | 12   | FGG.4B.575.ZZC      | EGG.4B.675.ZZM |
|                         |                                |                             |                             |        | 1.90 | 2              | 18        | 14   | FGG.4B.576.ZZC      | EGG.4B.676.ZZM |
|                         | <b>310</b>                     | FGG.4B.310.YL               | EGG.4B.410.YL               | 1.6    | 1.90 | 1              | 18        | 14   | FGG.4B.570.ZZC      | EGG.4B.670.ZZM |
|                         |                                |                             |                             |        | 1.40 | 2              | 22        | 18   | FGG.4B.571.ZZC      | EGG.4B.671.ZZM |
|                         | <b>312</b>                     | FGG.4B.312.YL               | EGG.4B.412.YL               | 1.3    | 1.40 | 1              | 20        | 18   | FGG.4B.565.ZZC      | EGG.4B.665.ZZM |
|                         |                                |                             |                             |        | 1.10 | 2              | 24        | 20   | FGG.4B.566.ZZC      | EGG.4B.666.ZZM |
|                         | <b>316/320<br/>324/330</b>     | FGG.4B.3●●.YL               | EGG.4B.4●●.YL               | 0.9    | 1.10 | 1              | 24        | 20   | FGG.4B.560.ZZC      | EGG.4B.660.ZZM |
|                         |                                |                             |                             |        | 0.80 | 2              | 26        | 22   | FGG.4B.561.ZZC      | EGG.4B.661.ZZM |
|                         | <b>340/348</b>                 | FGG.4B.3●●.YL               | EGG.4B.4●●.YL               | 0.7    | 0.80 | 1              | 26        | 22   | FGG.4B.555.ZZC      | EGG.4B.655.ZZM |
|                         |                                |                             |                             |        | 0.45 | 2              | 32        | 28   | FGG.4B.556.ZZC      | EGG.4B.656.ZZM |
| <b>5B<br/>5K</b>        | <b>304</b>                     | FGG.5B.304.ML               | EGG.5B.404.ML               | 4.0    | 4.00 | 1              | 12        | 10   | FGG.5B.582.ZZC      | EGG.5B.682.ZZM |
|                         | <b>310</b>                     | FGG.5B.310.YL               | EGG.5B.410.YL               | 3.0    | 3.20 | 1              | 14        | 10   | FGG.5B.580.ZZC      | EGG.5B.680.ZZM |
|                         | <b>314/316</b>                 | FGG.5B.3●●.YL               | EGG.5B.4●●.YL               | 2.0    | 2.40 | 1              | 16        | 12   | FGG.5B.575.ZZC      | EGG.5B.675.ZZM |
|                         |                                |                             |                             |        | 1.90 | 2              | 18        | 14   | FGG.5B.576.ZZC      | EGG.5B.676.ZZM |
|                         | <b>320</b>                     | FGG.5B.320.YL               | EGG.5B.420.YL               | 1.6    | 1.90 | 1              | 18        | 14   | FGG.5B.570.ZZC      | EGG.5B.670.ZZM |
|                         |                                |                             |                             |        | 1.40 | 2              | 22        | 18   | FGG.5B.571.ZZC      | EGG.5B.671.ZZM |
|                         | <b>330/340/348</b>             | FGG.5B.3●●.YL               | EGG.5B.4●●.YL               | 1.3    | 1.40 | 1              | 20        | 18   | FGG.5B.565.ZZC      | EGG.5B.665.ZZM |
|                         |                                |                             |                             |        | 1.10 | 2              | 24        | 20   | FGG.5B.566.ZZC      | EGG.5B.666.ZZM |
|                         |                                |                             |                             |        | 0.80 | 2              | 26        | 22   | FGG.5B.567.ZZC      | EGG.5B.667.ZZM |
|                         | <b>350/354/364</b>             | FGG.5B.3●●.YL               | EGG.5B.4●●.YL               | 0.9    | 1.10 | 1              | 24        | 20   | FGG.5B.560.ZZC      | EGG.5B.660.ZZM |
|                         |                                |                             |                             |        | 0.80 | 2              | 26        | 22   | FGG.5B.561.ZZC      | EGG.5B.661.ZZM |

**Note:** <sup>1)</sup> for 309 type the insulator part number is FGG.3B.309.ML (male contact) and EGG.3B.409.ML (female contact).

## Tools for crimp contacts

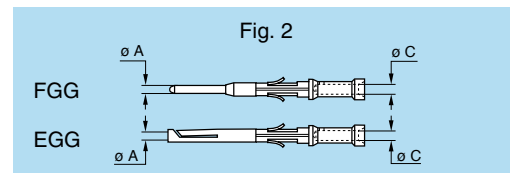
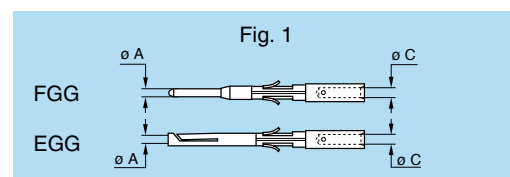
|                         | Types                          | Positioners part number <sup>1)</sup> |                              | Extractors part number for male/female contacts |
|-------------------------|--------------------------------|---------------------------------------|------------------------------|-------------------------------------------------|
|                         |                                | Male contact                          | Female contact               |                                                 |
| <b>2S</b>               | <b>306</b>                     | DCE.91.132.BVC                        | DCE.91.132.BVM               | DCC.13.15B.LAG                                  |
|                         |                                | DCE.91.132.CVC                        | DCE.91.132.CVM               |                                                 |
| <b>3B<br/>3K<br/>3T</b> | <b>302</b>                     | DCE.91.303.BVCM                       |                              | DCC.30.35B.LAG                                  |
|                         | <b>303/304/309</b>             | DCE.91.203.BVCM                       |                              | DCC.20.25B.LAG                                  |
|                         | <b>305/306/307</b>             | DCE.91.163.BVCM                       |                              | DCC.16.25B.LAG                                  |
|                         | <b>308/309/310</b>             | DCE.91.133.BVC                        | DCE.91.133.BVM               | DCC.13.15B.LAG                                  |
|                         | <b>312/314<br/>316/318</b>     | DCE.91.093.BVC                        | DCE.91.093.BVM               | DCC.09.05B.LAG                                  |
|                         |                                | DCE.91.093.BVG <sup>2)</sup>          | DCE.91.093.BVU <sup>2)</sup> |                                                 |
|                         | <b>320/322/324<br/>326/330</b> | DCE.91.073.BVC                        | DCE.91.073.BVM               | DCC.07.04B.LAG                                  |
| <b>4B<br/>4K</b>        | <b>304</b>                     | DCE.91.304.BVCM                       |                              | DCC.30.35B.LAG                                  |
|                         | <b>306/307</b>                 | DCE.91.204.BVCM                       |                              | DCC.20.25B.LAG                                  |
|                         | <b>310</b>                     | DCE.91.164.BVCM                       |                              | DCC.16.25B.LAG                                  |
|                         | <b>312</b>                     | DCE.91.134.BVC                        | DCE.91.134.BVM               | DCC.13.15B.LAG                                  |
|                         | <b>316/320<br/>324/330</b>     | DCE.91.094.BVC                        | DCE.91.094.BVM               | DCC.09.05B.LAG                                  |
|                         | <b>340/348</b>                 | DCE.91.074.BVC                        | DCE.91.074.BVM               | DCC.07.04B.LAG                                  |
| <b>5B<br/>5K</b>        | <b>304</b>                     | DCE.91.405.BVCM                       |                              | DCC.40.45B.LAG                                  |
|                         | <b>310</b>                     | DCE.91.305.BVCM                       |                              | DCC.30.35B.LAG                                  |
|                         | <b>314/316</b>                 | DCE.91.205.BVCM                       |                              | DCC.20.25B.LAG                                  |
|                         | <b>320</b>                     | DCE.91.165.BVCM                       |                              | DCC.16.25B.LAG                                  |
|                         | <b>330/340/348</b>             | DCE.91.135.BVC                        | DCE.91.135.BVM               | DCC.13.15B.LAG                                  |
|                         |                                | DCE.91.135.BVG                        | DCE.91.135.BVU               |                                                 |
|                         | <b>350/354/364</b>             | DCE.91.095.BVC                        | DCE.91.095.BVM               | DCC.09.05B.LAG                                  |

### Note:

<sup>1)</sup> please consult page 132 for the corresponding crimping tools.

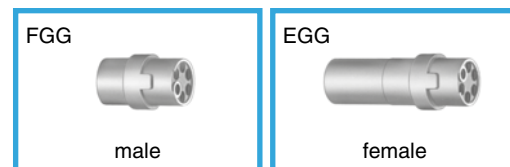
<sup>2)</sup> «G» and «U» positioners for reduced crimp barrel (see p. 65 - fig. 2 for contact type details).

## FGG-EGG Crimp contacts



**Note:** a wide variation of strand number and diameter combinations are quoted as being AWG, some of which do not have a large enough cross section to guarantee a crimp as per either MIL-C-22520/1-01 or /7-01.

## FGG-EGG Insulators



**Note:** each insulator can be used both for crimp contacts of normal shape (fig. 1) or with reduced crimp barrel (fig. 2).

## DCE Positioners ø 0.5-0.7-0.9-1.3 mm <sup>1)</sup>



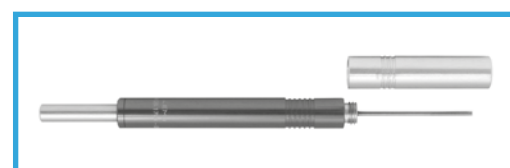
These positioners are suitable for use with both manual and pneumatic crimping tools according to the MIL-C-22520/7-01 standard.

## DCE Turret for ø 1.6-2.0-3.0-4.0 mm <sup>1)</sup>



**Note:** these turrets can be used with manual crimping tool according to MIL-C-22520/1-01 standard.

## DCC Manual extractors



## Crimping tools for electrical contacts

### Manual crimping tools

Fig. A

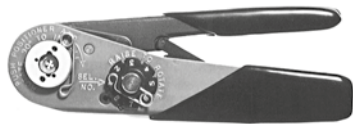
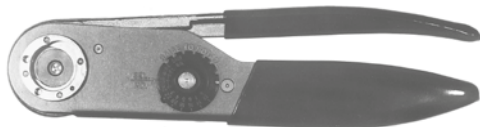


Fig. B



| Part number                           |                                  |                               | Supplier |
|---------------------------------------|----------------------------------|-------------------------------|----------|
| contact ø 0.5-0.7<br>0.9-1.3 (Fig. A) | contact ø 1.6-2.0<br>(Fig. B)    | contact ø 3.0-4.0<br>(Fig. B) |          |
| <b>DPC.91.701.V<sup>1)</sup></b>      | <b>DPC.91.101.A<sup>2)</sup></b> | <b>DPC.91.102.V</b>           | LEMO     |
| <b>MH860<sup>1)</sup></b>             | <b>AF8<sup>2)</sup></b>          | <b>M300BT</b>                 | DANIELS  |
| <b>616336<sup>1)</sup></b>            | <b>615708<sup>2)</sup></b>       | –                             | ASTRO    |

1) According to specification MIL-C-22520/7-01.

2) According to specification MIL-C-22520/1-01.

### Pneumatic crimping tools



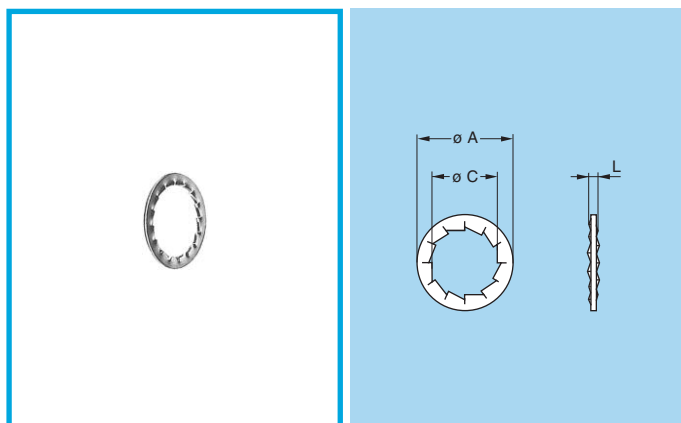
| Part number         | Supplier |
|---------------------|----------|
| <b>DPC.91.701.C</b> | LEMO     |
| <b>85230</b>        | BALMAR   |
| <b>621101</b>       | BUCHANAN |

According to specification MIL-C-22520/7-01.  
For LEMO contacts ø 0.5-0.7-0.9-1.3 mm



## Spare parts

### GBA Locking washers

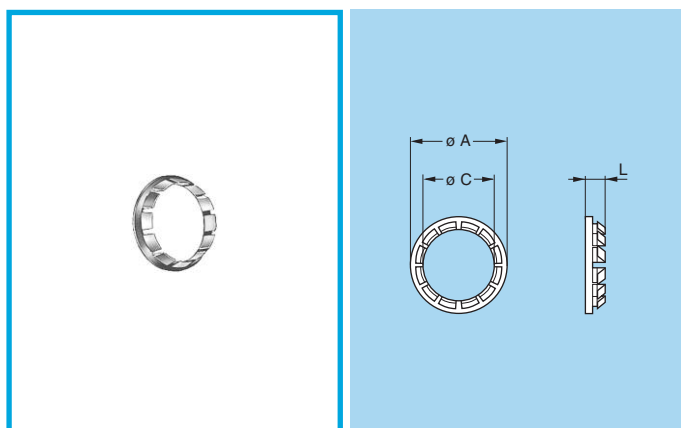


- Material: Nickel-plated bronze ( $3\ \mu\text{m}$ )

| Part number   | Series   | Dimensions (mm) |      |     |
|---------------|----------|-----------------|------|-----|
|               |          | A               | C    | L   |
| GBA.00.250.FN | 00-TT    | 9.5             | 7.1  | 1.0 |
| GBA.0S.250.FN | 0S-0B-0T | 12.5            | 9.1  | 1.0 |
| GBA.1S.250.FN | 1S-1B-1T | 16.0            | 12.1 | 1.0 |
| GBA.0E.250.FN | XB       | 19.6            | 14.1 | 1.2 |
| GBA.1E.250.FN | 1E-1K    | 21.8            | 16.1 | 1.2 |
| GBA.2S.250.FN | 2S-2B-2T | 19.5            | 15.1 | 1.2 |
| GBA.3S.250.FN | 3S-3B-3T | 25.0            | 18.1 | 1.4 |
| GBA.4S.250.FN | 4S-4B    | 32.0            | 25.1 | 1.4 |

**Note:** to order this accessory separately, use the above part numbers.

### GBB Tapered washers

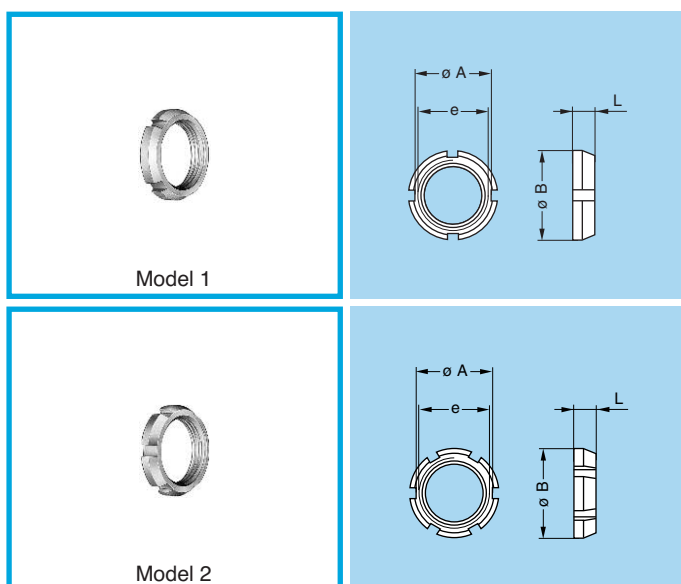


- Material: Nickel-plated brass ( $3\ \mu\text{m}$ )

| Part number   | Series | Dimensions (mm) |      |     |
|---------------|--------|-----------------|------|-----|
|               |        | A               | C    | L   |
| GBB.00.250.LN | 00     | 9               | 7.1  | 2.0 |
| GBB.0S.250.LN | 0S-0B  | 11              | 9.1  | 2.5 |
| GBB.1S.250.LN | 1S-1B  | 15              | 12.1 | 3.5 |
| GBB.2S.250.LN | 2S-2B  | 18              | 15.1 | 4.0 |
| GBB.3S.250.LN | 3S-3B  | 22              | 18.1 | 4.5 |
| GBB.4S.250.LN | 4S-4B  | 28              | 25.2 | 5.0 |
| GBB.5S.250.LN | 5S-5B  | 40              | 35.2 | 7.5 |

**Note:** sockets of series 5B and 5S are always supplied with a tapered washer. To order this accessory separately, use the above part numbers. The panel cut out diameters are larger when using tapered washer.

### GEG Notched nut

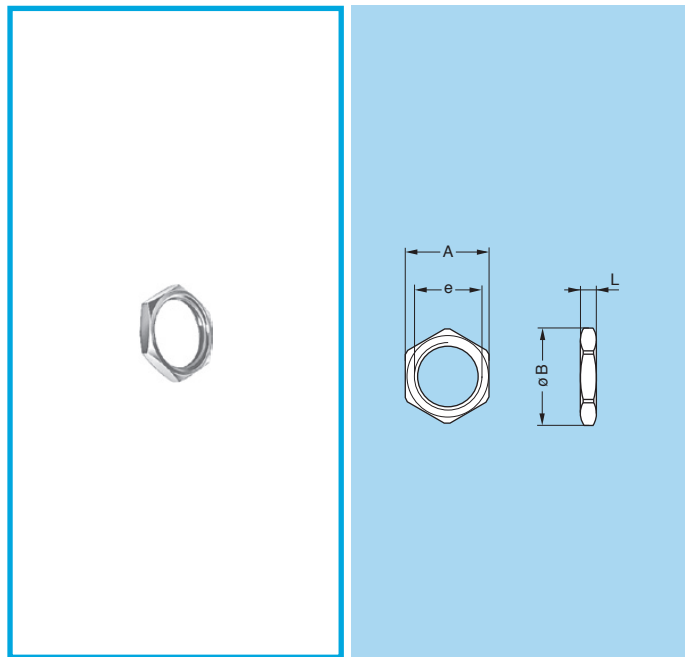


| Part number   | Model | Dimensions (mm) |    |           |     |
|---------------|-------|-----------------|----|-----------|-----|
|               |       | A               | B  | e         | L   |
| GEG.00.240.LC | 1     | 8.6             | 10 | M7 x 0.5  | 2.5 |
| GEG.0S.240.LC | 1     | 10.5            | 12 | M9 x 0.6  | 2.5 |
| GEG.0E.240.LC | 1     | 15.8            | 18 | M14 x 1.0 | 3.5 |
| GEG.1S.240.LC | 1     | 14.0            | 16 | M12 x 1.0 | 3.5 |
| GEG.1E.240.LC | 2     | 17.5            | 20 | M16 x 1.0 | 3.5 |
| GEG.1S.242.LC | 1     | 12.1            | 14 | M11 x 0.5 | 3.5 |
| GEG.2S.240.LC | 2     | 17.5            | 20 | M15 x 1.0 | 3.5 |
| GEG.2S.241.LC | 2     | 20.5            | 24 | M19 x 1.0 | 3.5 |
| GEG.2E.240.LC | 2     | 22.5            | 25 | M20 x 1.0 | 3.5 |

- Material: Chrome-plated brass (Ni  $3\ \mu\text{m}$  + Cr  $0.3\ \mu\text{m}$ )

**Note:** 00, TT, 0B, 0T, 0S, 1B, 1T, 1S, 2B, 2T and 2S series fixed and free sockets for back panel mounting are always delivered with this notched nut. To order this accessory separately, use the above part numbers.

## GEA Hexagonal nuts

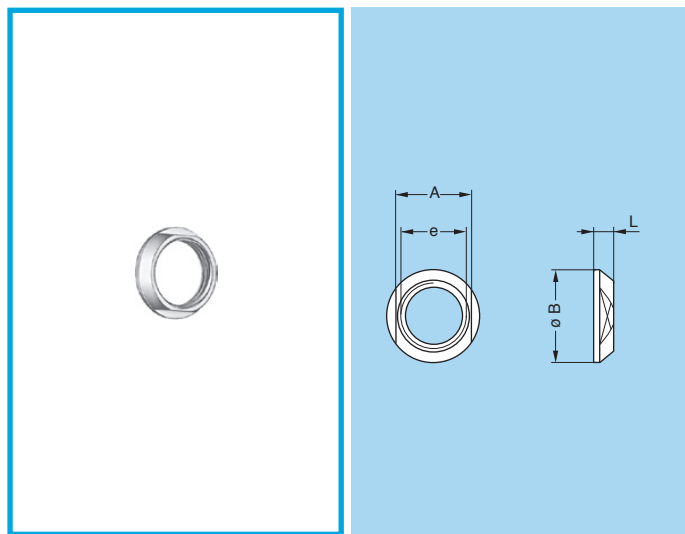


- Material: Nickel-plated brass (3  $\mu\text{m}$ ), natural anodized aluminium alloy, stainless steel

**Note:** to order this part separately, use the above part numbers. The last letters «LN» of the part number refer to the nut material and treatment. If a nut in aluminium alloy or stainless steel is desired, replace the last letters of the part number by «PT» or «AZ» respectively.

| Part number   | Series   | Dimensions (mm) |      |            |     |
|---------------|----------|-----------------|------|------------|-----|
|               |          | A               | B    | e          | L   |
| GEA.00.240.LN | 00-TT    | 9               | 10.2 | M7 x 0.50  | 2.0 |
| GEA.0S.240.LN | 0S-0B-0T | 11              | 12.4 | M9 x 0.60  | 2.0 |
| GEA.0S.241.LN | 0S-0B    | 12              | 13.8 | M10 x 0.75 | 2.5 |
| GEA.0E.240.LN | 0E-0K    | 17              | 19.2 | M14 x 1.00 | 2.5 |
|               | 1S-1B-XB |                 |      |            |     |
| GEA.1S.240.LN | 1S-1B-1T | 14              | 15.8 | M12 x 1.00 | 2.5 |
| GEA.1S.241.LN | 1B       | 13              | 14.8 | M11 x 0.50 | 2.5 |
| GEA.1E.240.LN | 1E-1K    | 19              | 21.5 | M16 x 1.00 | 3.0 |
|               | 2S-2B    |                 |      |            |     |
| GEA.2S.240.LN | 2S-2B-2T | 17              | 19.2 | M15 x 1.00 | 2.7 |
| GEA.2E.240.LN | 2E-2K    | 24              | 27.0 | M20 x 1.00 | 4.0 |
| GEA.3S.240.LN | 3S-3B-3T | 22              | 25.0 | M18 x 1.00 | 3.0 |
| GEA.3E.240.LN | 3E-3K    | 30              | 34.0 | M24 x 1.00 | 5.0 |
| GEA.4S.240.LN | 4S-4B    | 30              | 34.0 | M25 x 1.00 | 5.0 |
| GEA.4E.240.LN | 4E-4K    | 36              | 40.5 | M30 x 1.00 | 7.0 |

## GEC Conical nuts

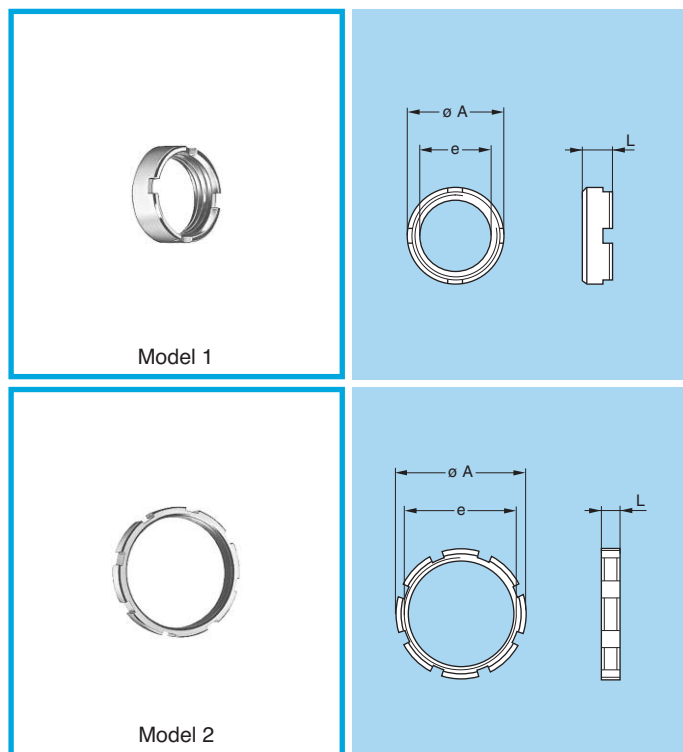


- Material: Chrome-plated brass (Ni 3  $\mu\text{m}$  + Cr 0.3  $\mu\text{m}$ )

**Note:** 3B, 3K, 3T, 3S, 3E, 4B, 4K, 4S, 4E, 5B, 5K, 5S, 5E, 6S and 6E series fixed and free sockets for back panel mounting are always delivered with a conical nut. To order this accessory separately, use the part numbers in the adjacent table.

| Part number   | Dimensions (mm) |      |           |     |
|---------------|-----------------|------|-----------|-----|
|               | A               | B    | e         | L   |
| GEC.00.240.LC | 8               | 10.0 | M7 x 0.5  | 2.5 |
| GEC.0S.240.LC | 10              | 12.0 | M9 x 0.6  | 2.5 |
| GEC.0E.240.LC | 16              | 18.0 | M14 x 1.0 | 3.0 |
| GEC.1S.240.LC | 13              | 16.0 | M12 x 1.0 | 3.2 |
| GEC.1S.241.LC | 17              | 20.0 | M16 x 1.0 | 4.0 |
| GEC.1S.242.LC | 12              | 14.0 | M11 x 0.5 | 3.2 |
| GEC.2S.240.LC | 17              | 20.0 | M15 x 1.0 | 3.8 |
| GEC.2S.241.LC | 20              | 24.0 | M19 x 1.0 | 5.8 |
| GEC.2E.240.LC | 22              | 25.0 | M20 x 1.0 | 5.0 |
| GEC.3S.240.LC | 20              | 24.0 | M18 x 1.0 | 4.5 |
| GEC.3E.240.LC | 27              | 30.0 | M24 x 1.0 | 4.5 |
| GEC.4S.240.LC | 27              | 30.0 | M25 x 1.0 | 4.5 |
| GEC.4K.241.LC | 32              | 35.5 | M30 x 1.0 | 5.0 |
| GEC.5S.240.LC | 37              | 41.0 | M35 x 1.0 | 5.0 |

## GEB Round nuts

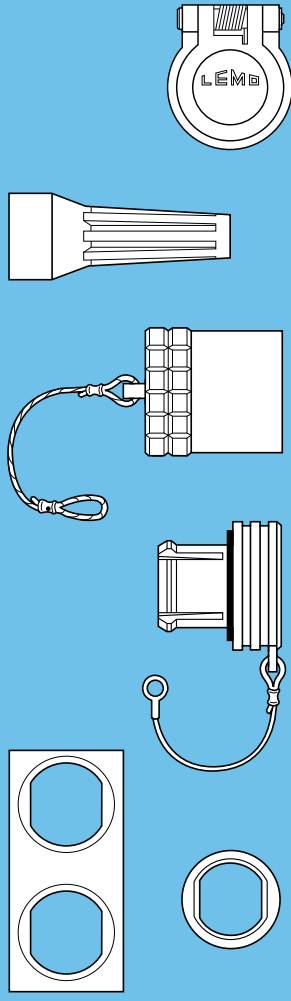


| Part number   | Model | Dimensions (mm) |            |     |
|---------------|-------|-----------------|------------|-----|
|               |       | A               | e          | L   |
| GEB.00.240.LN | 1     | 9.0             | M7 x 0.50  | 4.0 |
| GEB.0S.240.LN | 1     | 11.0            | M9 x 0.60  | 4.0 |
| GEB.0E.240.LN | 1     | 18.0            | M14 x 1.00 | 5.0 |
| GEB.1S.240.LN | 1     | 14.0            | M12 x 1.00 | 5.0 |
| GEB.1E.240.LN | 1     | 20.0            | M16 x 1.00 | 5.0 |
| GEB.2S.240.LN | 1     | 18.0            | M15 x 1.00 | 5.5 |
| GEB.2B.240.LN | 1     | 17.5            | M15 x 0.75 | 2.5 |
| GEB.3S.240.LN | 1     | 22.0            | M18 x 1.00 | 5.5 |
| GEB.4S.240.LN | 1     | 28.0            | M25 x 1.00 | 6.0 |
| GEB.5S.240.LN | 2     | 40.0            | M35 x 1.00 | 8.0 |
| GEB.5E.240.LN | 2     | 54.0            | M45 x 1.50 | 8.0 |
| GEB.6S.241.LN | 2     | 54.0            | M48 x 1.50 | 8.0 |
| GEB.6E.240.LN | 2     | 65.0            | M55 x 2.00 | 9.0 |

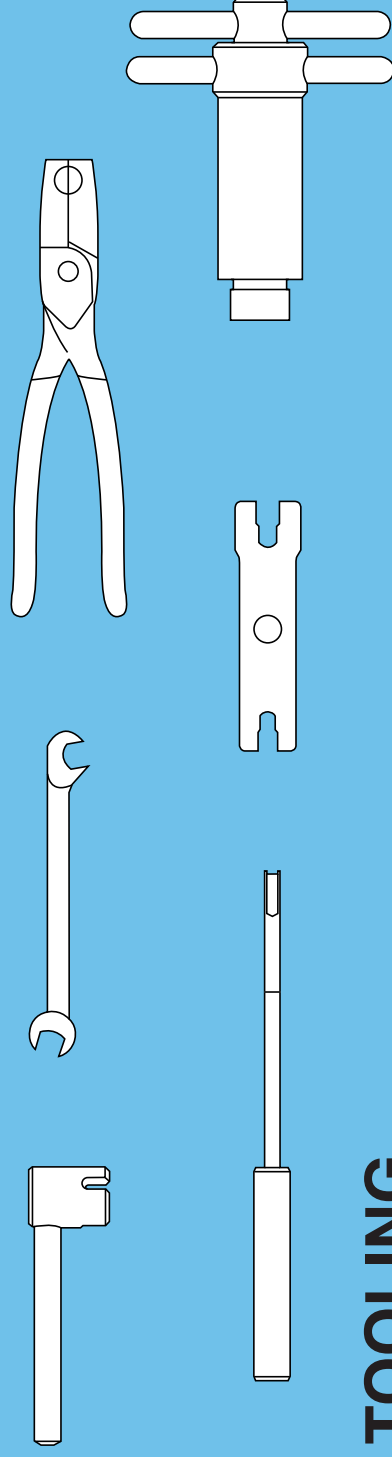
● Material: Nickel-plated brass (3  $\mu$ m)

**Note:** 5B, 5K, 5S, 5E, 6S and 6E series sockets are always supplied with model 2 round nuts. To order this accessory separately, use the part numbers in the adjacent table.





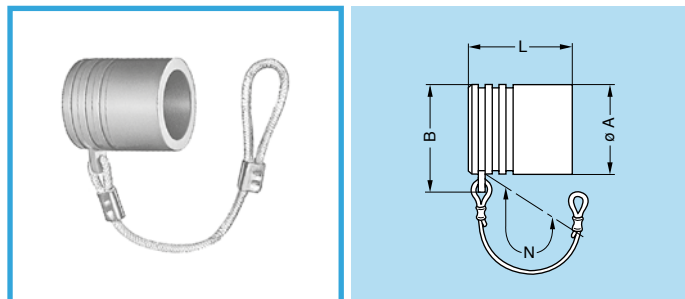
## ACCESSORIES



## TOOLING

## Accessories

### BFG Plug caps



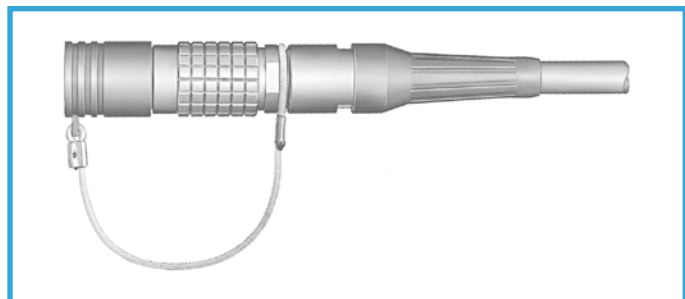
- Body material: Polyoxymethylene (POM) grey (or black)
- Cord material: Polyamide 6, grey (or black)
- Gasket material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP51 according to IEC 60529

| Part number            | Series | Dimensions (mm) |      |      |                 |
|------------------------|--------|-----------------|------|------|-----------------|
|                        |        | A               | B    | L    | N <sup>1)</sup> |
| <b>BFG.00.100.PCSG</b> | 00     | 7.5             | 9.8  | 10.0 | 60              |
| <b>BFG.0B.100.PCZG</b> | 0S-0B  | 9.5             | 12.5 | 11.2 | 85              |
| <b>BFG.1B.100.PCZG</b> | 1S-1B  | 12.0            | 15.5 | 12.3 | 85              |
| <b>BFG.2B.100.PCSG</b> | 2S-2B  | 15.0            | 18.0 | 15.0 | 85              |
| <b>BFG.3B.100.PCSG</b> | 3S-3B  | 18.5            | 22.0 | 18.5 | 95              |

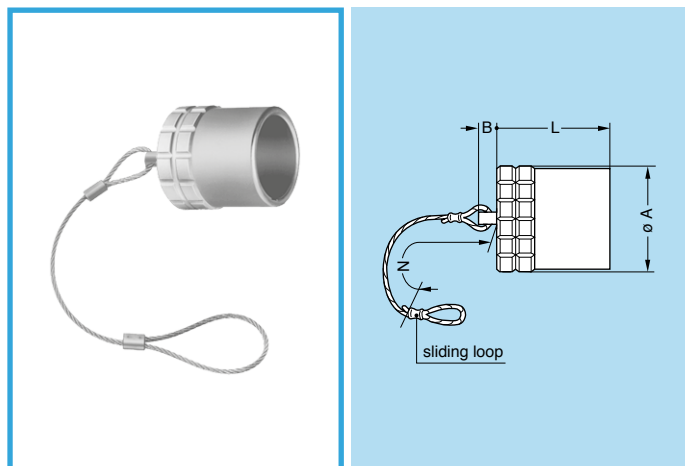
**Note:** <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.  
This cap is available only with an alignment key (G). Upon request this cap can be supplied in black and the last letter «G» of the part number should be replaced with «N».

### Fitting the cord

Slide the plug into the loop of the cord.  
Place the loop into the groove in front of the collet nut and tighten the loop.



### BFA Plug caps

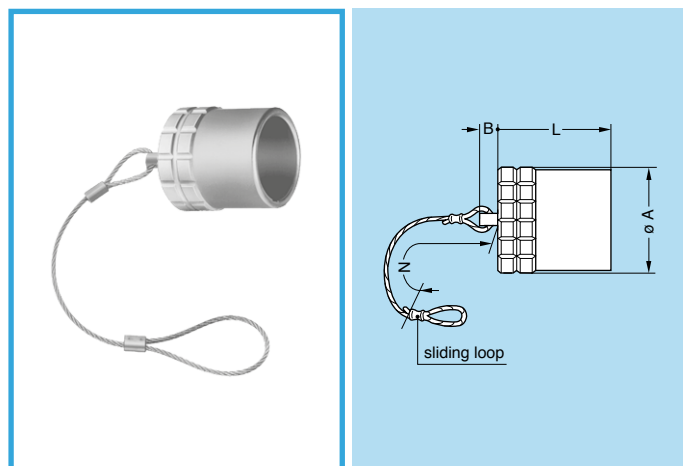


- Body material: Nickel-plated brass (Ni 3µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529 for E series

| Part number           | Series | Dimensions (mm) |    |      |                 |
|-----------------------|--------|-----------------|----|------|-----------------|
|                       |        | A               | B  | L    | N <sup>1)</sup> |
| <b>BFA.0E.100.NAS</b> | 0E     | 14.0            | 6  | 12.5 | 85              |
| <b>BFA.1E.100.NAS</b> | 1E     | 16.0            | 6  | 15.5 | 85              |
| <b>BFA.2E.100.NAS</b> | 2E     | 19.5            | 6  | 17.5 | 85              |
| <b>BFA.3E.100.NAS</b> | 3E     | 23.0            | 6  | 22.0 | 120             |
| <b>BFA.4E.100.NAS</b> | 4E     | 29.0            | 10 | 22.5 | 120             |
| <b>BFA.4S.100.NAS</b> | 4S     | 25.0            | 10 | 22.2 | 120             |
| <b>BFA.5E.100.NAS</b> | 5E     | 44.0            | 10 | 27.0 | 150             |
| <b>BFA.5S.100.NAS</b> | 5S     | 36.0            | 10 | 30.2 | 150             |
| <b>BFA.6S.100.NAS</b> | 6S     | 46.0            | 10 | 33.0 | 150             |

**Note:** <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.  
The last letter «S» of the part number stands for the material of the O-ring (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

## BFG Plug caps with key (G)

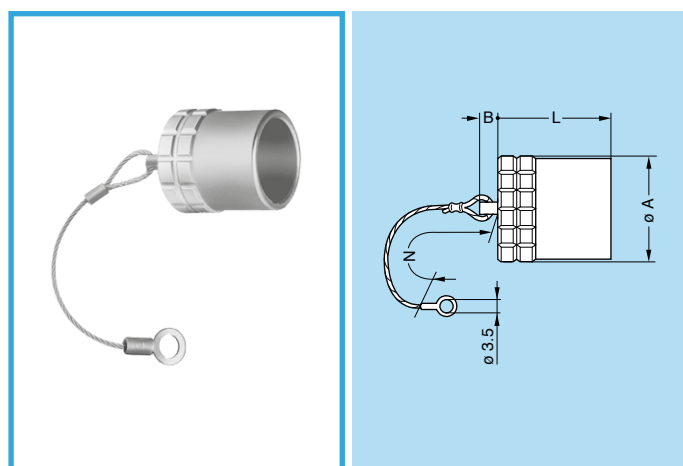


- Body material: Nickel-plated brass (Ni 3µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529 for E and K series

| Part number           | Series | Dimensions (mm) |    |      |                 |
|-----------------------|--------|-----------------|----|------|-----------------|
|                       |        | A               | B  | L    | N <sup>1)</sup> |
| <b>BFG.0K.100.NAS</b> | 0K     | 14.0            | 6  | 12.5 | 85              |
| <b>BFG.1K.100.NAS</b> | 1K     | 16.0            | 6  | 15.5 | 85              |
| <b>BFG.2K.100.NAS</b> | 2K     | 19.5            | 6  | 17.5 | 85              |
| <b>BFG.3K.100.NAS</b> | 3K     | 23.0            | 6  | 22.0 | 120             |
| <b>BFG.4B.100.NAS</b> | 4B     | 25.0            | 10 | 20.2 | 120             |
| <b>BFG.4K.100.NAS</b> | 4K     | 29.0            | 10 | 22.5 | 120             |
| <b>BFG.5B.100.NAS</b> | 5B     | 36.0            | 10 | 27.2 | 150             |
| <b>BFG.5K.100.NAS</b> | 5K     | 44.0            | 10 | 27.0 | 150             |
| <b>BFG.6E.100.NAS</b> | 6E     | 54.0            | 10 | 31.0 | 150             |

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
This cap is available only with an alignment key (G). The last letter «S» of the part number stands for the material of the O-ring (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

## BHG Plug caps, nut fixing or flange

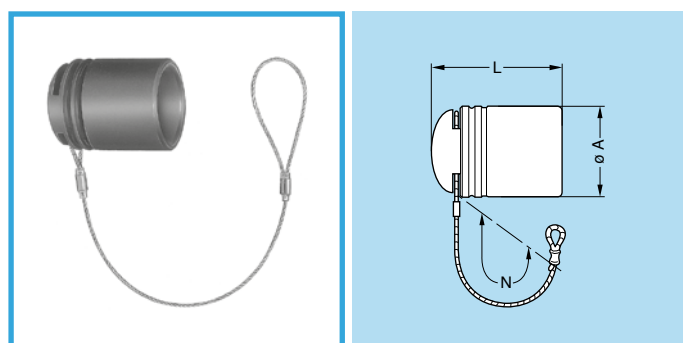


- Body material: Nickel-plated brass (Ni 3µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529 for E and K series

| Part number           | Series | Dimensions (mm) |    |      |                 |
|-----------------------|--------|-----------------|----|------|-----------------|
|                       |        | A               | B  | L    | N <sup>1)</sup> |
| <b>BHG.0K.100.NAS</b> | 0K     | 14.0            | 6  | 12.5 | 85              |
| <b>BHG.1K.100.NAS</b> | 1K     | 16.0            | 6  | 15.5 | 85              |
| <b>BHG.2K.100.NAS</b> | 2K     | 19.5            | 6  | 17.5 | 85              |
| <b>BHG.3K.100.NAS</b> | 3K     | 23.0            | 6  | 22.0 | 120             |
| <b>BHG.4B.100.NAS</b> | 4B     | 25.0            | 10 | 20.2 | 120             |
| <b>BHG.4K.100.NAS</b> | 4K     | 29.0            | 10 | 22.5 | 120             |
| <b>BHG.5B.100.NAS</b> | 5B     | 36.0            | 10 | 27.2 | 150             |
| <b>BHG.5K.100.NAS</b> | 5K     | 44.0            | 10 | 27.0 | 150             |
| <b>BHG.6E.100.NAS</b> | 6E     | 54.0            | 10 | 31.0 | 150             |

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
This cap is available only with an alignment key (G). The last letter «S» of the part number stands for the material of the O-ring (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

## BFG Plug cap

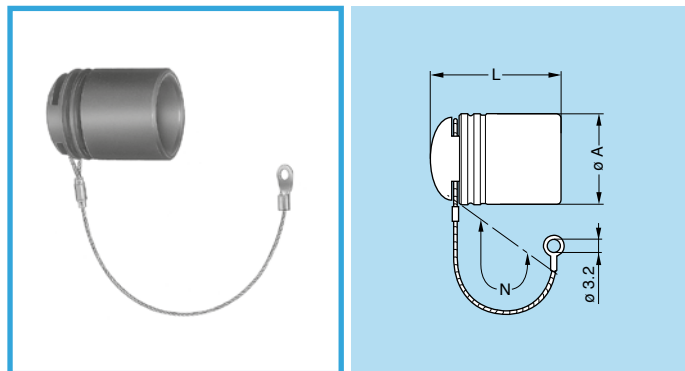


| Part number           | Series | Dimensions (mm) |    |                 |
|-----------------------|--------|-----------------|----|-----------------|
|                       |        | A               | L  | N <sup>1)</sup> |
| <b>BFG.3K.100.EAN</b> | 3K     | 26              | 31 | 155             |

- Material: black ALCRYN®
- Lanyard material: Stainless steel
- Crimp ferrule material: Stainless steel AISI 304 + polyolefin

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration.

## BHA Plug cap

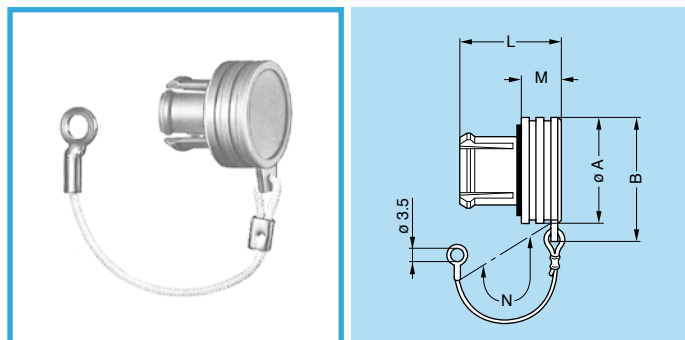


| Part number           | Series | Dimensions (mm) |    |                 |
|-----------------------|--------|-----------------|----|-----------------|
|                       |        | A               | L  | N <sup>1)</sup> |
| <b>BHA.3K.100.EAN</b> | 3K     | 26              | 31 | 120             |

- Material: black ALCRYN®
- Lanyard material: Stainless steel
- Crimp ferrule material: Stainless steel AISI 304 + polyolefin

**Note:** <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration.

## BRA Blanking caps for fixed sockets and free straight sockets

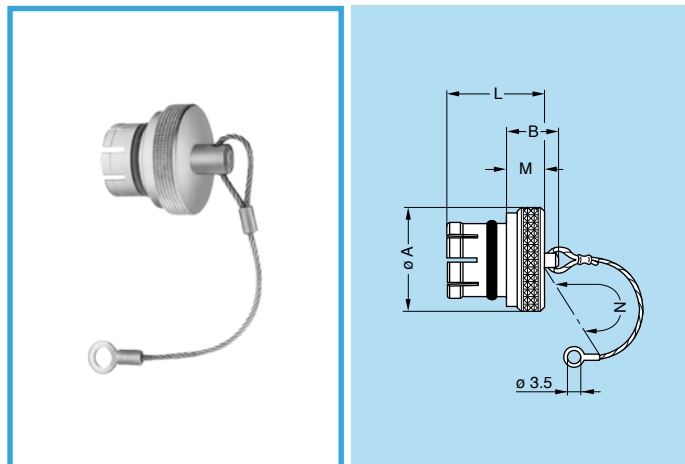


| Part number            | Series | Dimensions (mm) |      |      |     |                 |
|------------------------|--------|-----------------|------|------|-----|-----------------|
|                        |        | A               | B    | L    | M   | N <sup>1)</sup> |
| <b>BRA.00.200.PCSG</b> | 00     | 7.5             | 9.8  | 9.0  | 3.5 | 60              |
| <b>BRA.0B.200.PCSG</b> | 0S-0B  | 10.0            | 12.5 | 11.0 | 4.8 | 60              |
| <b>BRA.1B.200.PCSG</b> | 1S-1B  | 14.0            | 17.0 | 13.5 | 5.6 | 60              |
| <b>BRA.2B.200.PCSG</b> | 2S-2B  | 18.0            | 21.0 | 14.5 | 6.0 | 60              |
| <b>BRA.3B.200.PCSG</b> | 3S-3B  | 22.0            | 25.5 | 17.0 | 7.0 | 60              |

- Body material: Polyoxymethylene (POM) grey (or black)
- Cord material: Polyamide 6, grey (or black)
- Gasket material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529

**Note:** <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration. On request this cap can be supplied in black. If so, replace the last letter «G» of the part number by «N».

## BRE Blanking caps for fixed sockets



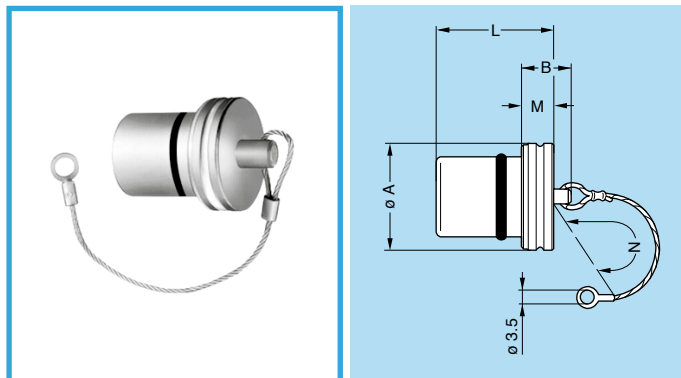
| Part number           | Series | Dimensions (mm) |      |      |      |                 |
|-----------------------|--------|-----------------|------|------|------|-----------------|
|                       |        | A               | B    | L    | M    | N <sup>1)</sup> |
| <b>BRE.00.200.NAS</b> | 00     | 8               | 7.5  | 8.8  | 3.5  | 60              |
| <b>BRE.0S.200.NAS</b> | 0S-0B  | 10              | 9.5  | 10.5 | 4.5  | 85              |
| <b>BRE.1S.200.NAS</b> | 1S-1B  | 14              | 11.0 | 12.5 | 5.0  | 85              |
| <b>BRE.2S.200.NAS</b> | 2S-2B  | 18              | 12.0 | 14.0 | 6.0  | 85              |
| <b>BRE.3S.200.NAS</b> | 3S-3B  | 22              | 14.0 | 18.0 | 8.0  | 120             |
| <b>BRE.4S.200.NAS</b> | 4S-4B  | 28              | 20.0 | 23.0 | 10.0 | 120             |
| <b>BRE.5S.200.NAS</b> | 5S-5B  | 40              | 22.0 | 30.0 | 12.0 | 150             |
| <b>BRE.6S.200.NAS</b> | 6S     | 54              | 22.0 | 30.0 | 12.0 | 150             |
| <b>BRE.6E.200.NAS</b> | 6E     | 57              | 24.0 | 31.5 | 14.0 | 150             |

- Body material: Nickel-plated brass (Ni 3 µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP61 according to IEC 60529 for S series

**Note:** <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».



## BRE Blanking caps for fixed sockets

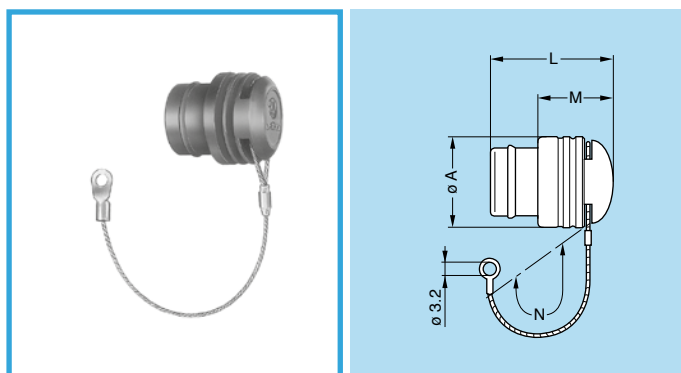


- Body material: Nickel-plated brass (Ni 3 µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529

| Part number           | Series | Dimensions (mm) |    |      |    |                 |
|-----------------------|--------|-----------------|----|------|----|-----------------|
|                       |        | A               | B  | L    | M  | N <sup>1)</sup> |
| <b>BRE.0K.200.NAS</b> | 0K-0E  | 15.0            | 10 | 15.0 | 4  | 85              |
| <b>BRE.1K.200.NAS</b> | 1K-1E  | 17.0            | 12 | 20.0 | 6  | 85              |
| <b>BRE.2K.200.NAS</b> | 2K-2E  | 20.5            | 14 | 24.0 | 8  | 85              |
| <b>BRE.3K.200.NAS</b> | 3K-3E  | 24.0            | 14 | 28.0 | 8  | 120             |
| <b>BRE.4K.200.NAS</b> | 4K-4E  | 30.0            | 20 | 30.5 | 10 | 120             |
| <b>BRE.5K.200.NAS</b> | 5K-5E  | 44.0            | 22 | 37.0 | 12 | 150             |

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

## BRA Blanking caps for fixed sockets

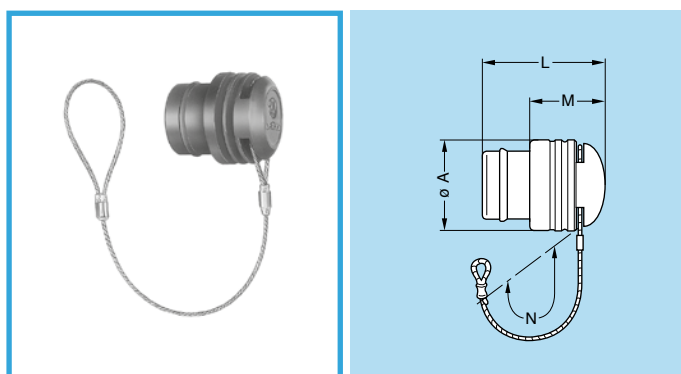


| Part number           | Series | Dimensions (mm) |    |      |                 |
|-----------------------|--------|-----------------|----|------|-----------------|
|                       |        | A               | L  | M    | N <sup>1)</sup> |
| <b>BRA.3K.200.EAN</b> | 3K     | 26              | 27 | 14.5 | 120             |
| <b>BRA.4K.200.EAN</b> | 4K     | 31              | 31 | 17.0 | 120             |

- Material: black ALCRYN®
- Lanyard material: Stainless steel
- Crimp ferrule material: Stainless steel AISI 304 + polyolefin

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration.

## BRF Blanking caps for free sockets

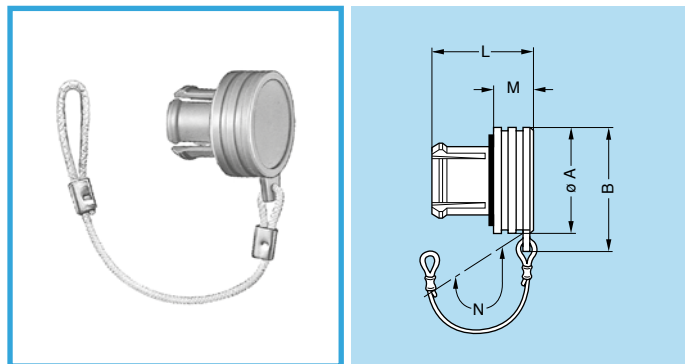


| Part number           | Series | Dimensions (mm) |    |      |                 |
|-----------------------|--------|-----------------|----|------|-----------------|
|                       |        | A               | L  | M    | N <sup>1)</sup> |
| <b>BRF.3K.200.EAN</b> | 3K     | 26              | 27 | 14.5 | 155             |

- Material: black ALCRYN®
- Lanyard material: Stainless steel
- Crimp ferrule material: Stainless steel AISI 304 + polyolefin

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration.

## BRD Blanking caps for free sockets



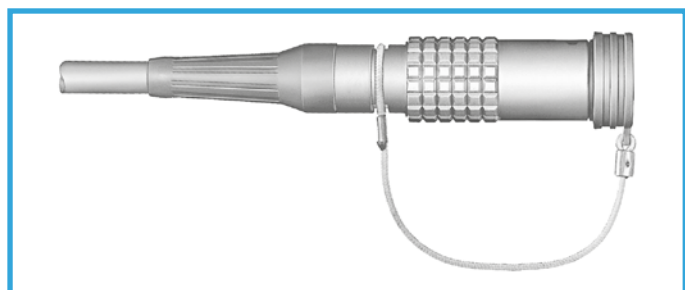
- Body material: Polyoxymethylene (POM) grey (or black)
- Cord material: Polyamide 6, grey (or black)
- Gasket material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529

| Part number            | Series | Dimensions (mm) |      |      |     |                 |
|------------------------|--------|-----------------|------|------|-----|-----------------|
|                        |        | A               | B    | L    | M   | N <sup>1)</sup> |
| <b>BRD.00.200.PCSG</b> | 00     | 7.5             | 9.8  | 9.0  | 3.5 | 85              |
| <b>BRD.0B.200.PCSG</b> | 0S-0B  | 10.0            | 12.5 | 11.0 | 4.8 | 85              |
| <b>BRD.1B.200.PCSG</b> | 1S-1B  | 14.0            | 17.0 | 13.5 | 5.6 | 85              |
| <b>BRD.2B.200.PCSG</b> | 2S-2B  | 18.0            | 21.0 | 14.5 | 6.0 | 85              |
| <b>BRD.3B.200.PCSG</b> | 3S-3B  | 22.0            | 25.5 | 17.0 | 7.0 | 95              |

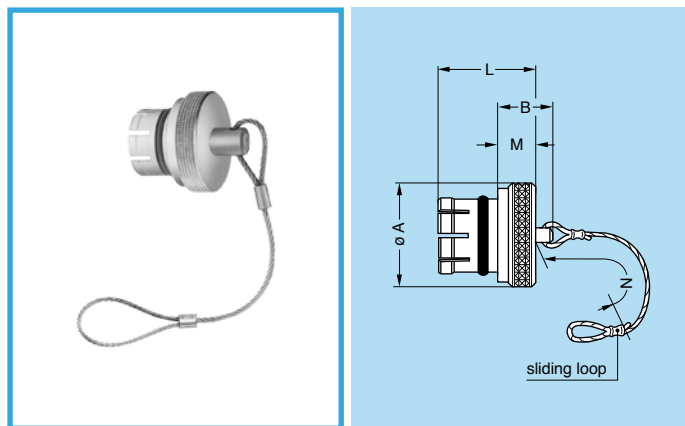
**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
On request this cap is available in black. If required, replace the last letter «G» of the part number by «N».

### Fitting the cord

Slide the socket into the loop of the cord.  
Place the loop into the groove in front of the collet nut.  
Tighten the loop.



## BRF Blanking caps for free sockets

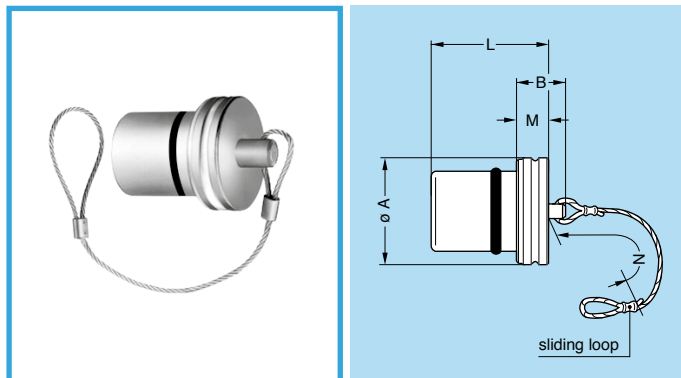


- Body material: Nickel-plated brass (Ni 3  $\mu$ m)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP61 according to IEC 60529 for S series

| Part number           | Series | Dimensions (mm) |      |      |      |                 |
|-----------------------|--------|-----------------|------|------|------|-----------------|
|                       |        | A               | B    | L    | M    | N <sup>1)</sup> |
| <b>BRF.00.200.NAS</b> | 00     | 8               | 7.5  | 8.8  | 3.5  | 85              |
| <b>BRF.0S.200.NAS</b> | 0S-0B  | 10              | 9.5  | 10.5 | 4.5  | 85              |
| <b>BRF.1S.200.NAS</b> | 1S-1B  | 14              | 11.0 | 12.5 | 5.0  | 85              |
| <b>BRF.2S.200.NAS</b> | 2S-2B  | 18              | 12.0 | 14.0 | 6.0  | 85              |
| <b>BRF.3S.200.NAS</b> | 3S-3B  | 22              | 14.0 | 18.0 | 8.0  | 120             |
| <b>BRF.4S.200.NAS</b> | 4S-4B  | 28              | 20.0 | 23.0 | 10.0 | 120             |
| <b>BRF.5S.200.NAS</b> | 5S-5B  | 40              | 22.0 | 30.0 | 12.0 | 150             |
| <b>BRF.6S.200.NAS</b> | 6S     | 54              | 22.0 | 30.0 | 12.0 | 150             |

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

## BRF Blanking caps for free sockets

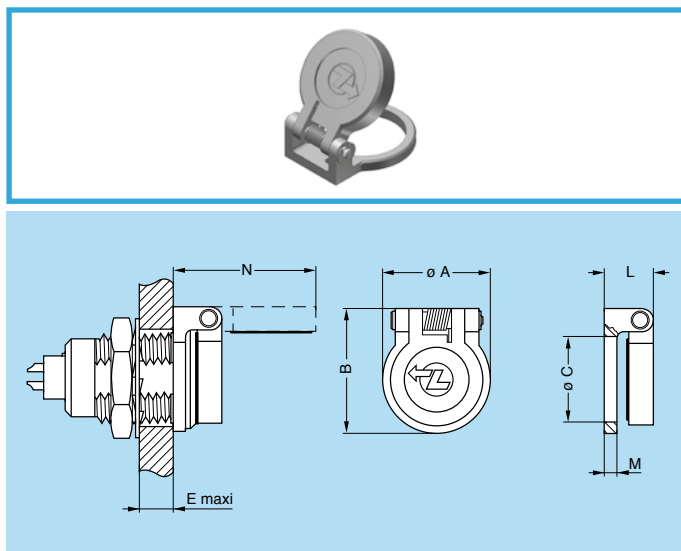


- Body material: Nickel-plated brass (Ni 3 µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529

| Part number           | Series | Dimensions (mm) |    |      |    |                 |
|-----------------------|--------|-----------------|----|------|----|-----------------|
|                       |        | A               | B  | L    | M  | N <sup>1)</sup> |
| <b>BRF.0K.200.NAS</b> | 0K-0E  | 15.0            | 10 | 15.0 | 4  | 85              |
| <b>BRF.1K.200.NAS</b> | 1K-1E  | 17.0            | 12 | 20.0 | 6  | 85              |
| <b>BRF.2K.200.NAS</b> | 2K-2E  | 20.5            | 14 | 24.0 | 8  | 85              |
| <b>BRF.3K.200.NAS</b> | 3K-3E  | 24.0            | 14 | 28.0 | 8  | 120             |
| <b>BRF.4K.200.NAS</b> | 4K-4E  | 30.0            | 20 | 30.5 | 10 | 120             |
| <b>BRF.5K.200.NAS</b> | 5K-5E  | 44.0            | 22 | 37.0 | 12 | 150             |

**Note:** 1) the tolerance on this dimension is  $\pm 5$  mm.  
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

## BRR Spring loaded dust caps for ERA, ERN and EG● sockets or PSA and PK● fixed sockets

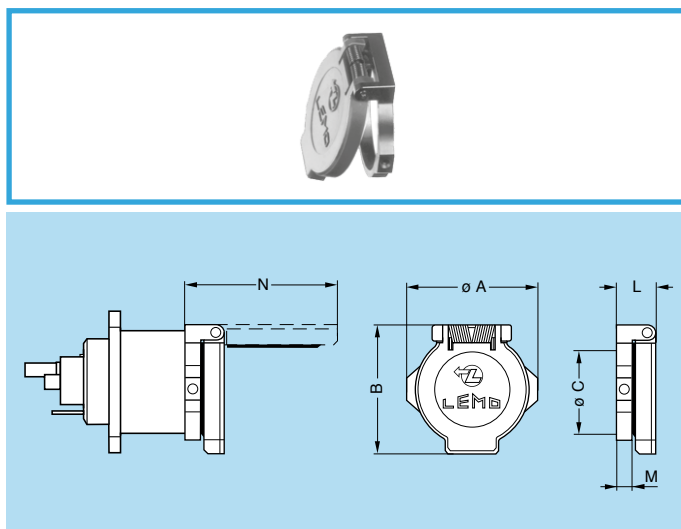


| Part number            | Series | Dimensions (mm) |      |      |     |     |     |      |
|------------------------|--------|-----------------|------|------|-----|-----|-----|------|
|                        |        | A               | B    | C    | E   | L   | M   | N    |
| <b>BRR.0S.200.PZVG</b> | 0S-0B  | 11.0            | 13.3 | 9.0  | 5.8 | 5.0 | 1.2 | 15.3 |
| <b>BRR.1S.200.PZVG</b> | 1S-1B  | 14.2            | 17.1 | 12.0 | 6.0 | 6.3 | 1.5 | 20.3 |
| <b>BRR.2S.200.PZVG</b> | 2S-2B  | 18.6            | 22.4 | 15.2 | 6.5 | 8.2 | 2.0 | 26.2 |
| <b>BRR.3S.200.PZVG</b> | 3S-3B  | 22.5            | 26.5 | 18.2 | 9.0 | 8.8 | 2.5 | 30.8 |

**Note:** On request, this cap is available in black, blue or white. If so replace the last letter «G» of the part number by «N», «A» or «B».

- Body material: PSU
- Gasket material: FKM
- Spring material: Stainless steel
- Axes material: Nickel-plated brass
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529

## BRR Spring loaded dust cap for ED● and EB● fixed sockets

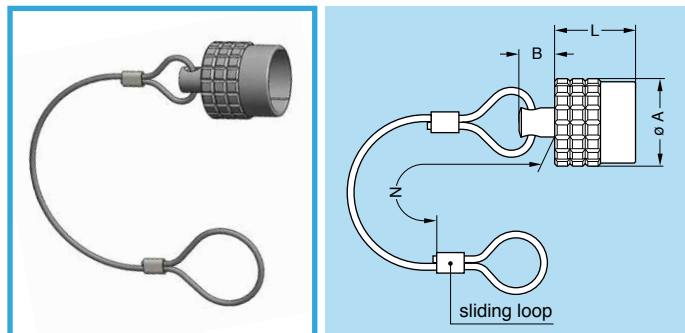


| Part number            | Series | Dimensions (mm) |    |    |     |   |      |
|------------------------|--------|-----------------|----|----|-----|---|------|
|                        |        | A               | B  | C  | L   | M | N    |
| <b>BRR.3K.200.PZSG</b> | 3K     | 29              | 29 | 23 | 8.1 | 3 | 33.2 |

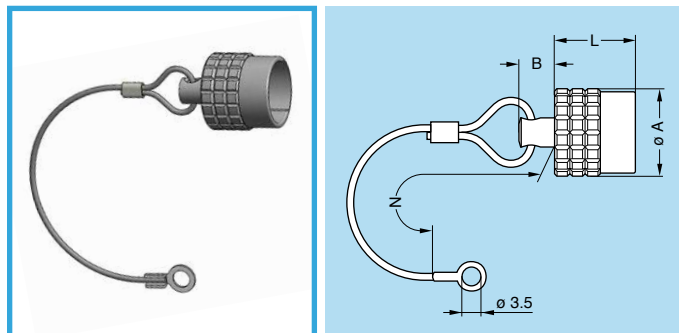
**Note:** Use Allen key (0.9 mm flat) to secure cap on connector.

- Cap material: Polyoxymethylene (POM) grey
- Body material: Nickel-plated brass
- Gasket material: Silicone rubber
- Spring material: Stainless steel
- Axes material: Nickel-plated brass
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529

## BFG Blanking caps for plugs (T series)



## BHG Blanking caps for fixed plugs (T series)

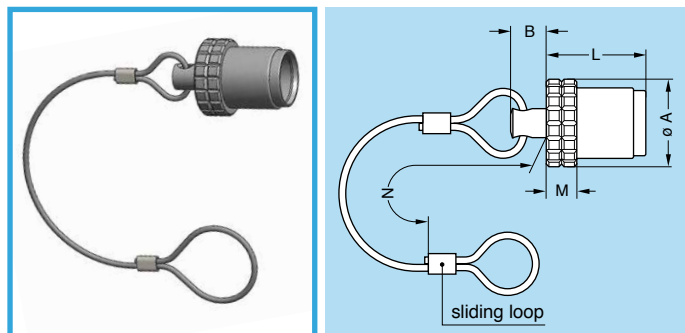


| Part number           | Dimensions (mm) |     |      |                 | Part number           |
|-----------------------|-----------------|-----|------|-----------------|-----------------------|
|                       | A               | B   | L    | N <sup>1)</sup> |                       |
| <b>BFG.TT.100.CAS</b> | 7.0             | 4.3 | 9.0  | 60              | <b>BHG.TT.100.CAS</b> |
| <b>BFG.0T.100.CAS</b> | 9.5             | 5.0 | 11.0 | 85              | <b>BHG.0T.100.CAS</b> |
| <b>BFG.1T.100.CAS</b> | 12.0            | 6.3 | 12.4 | 85              | <b>BHG.1T.100.CAS</b> |
| <b>BFG.2T.100.CAS</b> | 15.0            | 6.4 | 13.8 | 85              | <b>BHG.2T.100.CAS</b> |
| <b>BFG.3T.100.CAS</b> | 18.8            | 6.4 | 17.6 | 120             | <b>BHG.3T.100.CAS</b> |

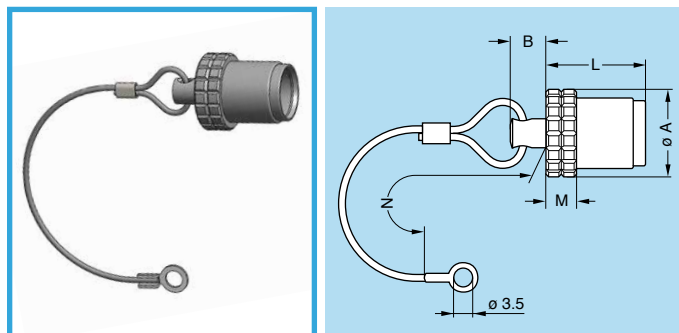
- Body material: Chrome-plated brass (Ni 3 µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529

**Note:** 1) the tolerance on this dimension is ± 5 mm.

## BRF Blanking caps for free sockets (T series)



## BRE Blanking caps for sockets (T series)

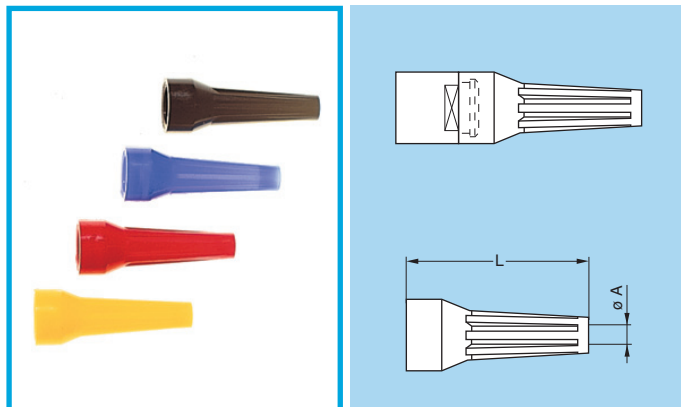


| Part number           | Dimensions (mm) |     |      |     |                 | Part number           |
|-----------------------|-----------------|-----|------|-----|-----------------|-----------------------|
|                       | A               | B   | L    | M   | N <sup>1)</sup> |                       |
| <b>BRF.TT.200.CAZ</b> | 7.0             | 4.3 | 10.4 | 2.4 | 60              | <b>BRE.TT.200.CAZ</b> |
| <b>BRF.0T.200.CAZ</b> | 9.5             | 5.0 | 13.2 | 3.2 | 85              | <b>BRE.0T.200.CAZ</b> |
| <b>BRF.1T.200.CAZ</b> | 12.0            | 6.3 | 15.1 | 4.2 | 85              | <b>BRE.1T.200.CAZ</b> |
| <b>BRF.2T.200.CAZ</b> | 15.0            | 6.4 | 17.1 | 5.2 | 85              | <b>BRE.2T.200.CAZ</b> |
| <b>BRF.3T.200.CAZ</b> | 18.8            | 6.4 | 21.2 | 6.4 | 120             | <b>BRE.3T.200.CAZ</b> |

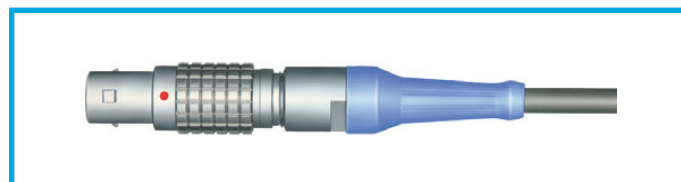
- Body material: Chrome-plated brass (Ni 3 µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529

**Note:** 1) the tolerance on this dimension is ± 5 mm.

## GM● Bend relief (TPU)



A bend relief made from thermoplastic polyurethane elastomer can be fitted over LEMO plugs and sockets that are supplied with nut for fitting such bend relief. They are available in nine different colours match with the GRA insulating washers (see page 149). Use the part numbers shown below to order this accessory separately.



### Main characteristics

- Material: TPU (Thermoplastic Polyurethane)
- Temperature range in dry atmosphere: -40°C +80°C

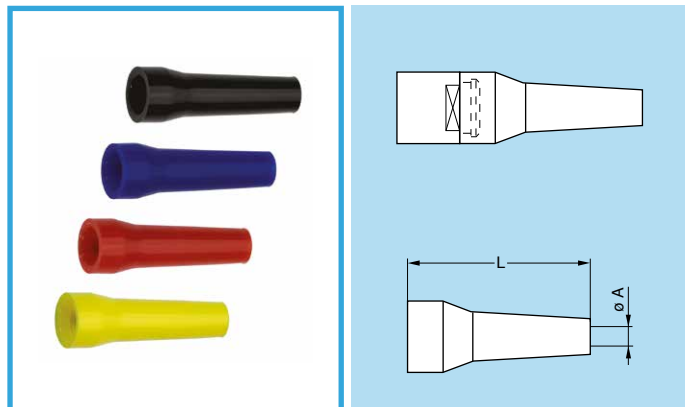
| Part number                        | Series                  | Bend relief |    | Cable ø |      |
|------------------------------------|-------------------------|-------------|----|---------|------|
|                                    |                         | A           | L  | min.    | max. |
| <b>GMA.00.012.DG</b> <sup>1)</sup> | 00-TT                   | 1.2         | 22 | 1.1     | 1.4  |
| <b>GMA.00.018.DG</b> <sup>1)</sup> |                         | 1.8         | 22 | 1.8     | 2.1  |
| <b>GMB.00.025.DG</b> <sup>1)</sup> |                         | 2.5         | 22 | 2.5     | 2.8  |
| <b>GMB.00.028.DG</b> <sup>1)</sup> |                         | 2.8         | 22 | 2.8     | 3.1  |
| <b>GMB.00.032.DG</b> <sup>1)</sup> |                         | 3.2         | 22 | 3.2     | 3.5  |
| <b>GMD.00.025.DG</b> <sup>1)</sup> |                         | 2.5         | 22 | 2.5     | 2.8  |
| <b>GMD.00.028.DG</b> <sup>1)</sup> |                         | 2.8         | 22 | 2.8     | 3.1  |
| <b>GMD.00.032.DG</b> <sup>1)</sup> |                         | 3.2         | 22 | 3.2     | 3.5  |
| <b>GMA.0B.025.DG</b>               | 0B<br>0S<br>0E-0K-0T    | 2.5         | 24 | 2.5     | 2.9  |
| <b>GMA.0B.030.DG</b>               |                         | 3.0         | 24 | 3.0     | 3.4  |
| <b>GMA.0B.035.DG</b>               |                         | 3.5         | 24 | 3.5     | 3.9  |
| <b>GMA.0B.040.DG</b> <sup>1)</sup> |                         | 4.0         | 24 | 4.0     | 4.4  |
| <b>GMA.0B.045.DG</b> <sup>1)</sup> |                         | 4.5         | 24 | 4.5     | 5.2  |
| <b>GMA.1B.025.DG</b>               | 1B-XB<br>1S<br>1E-1K-1T | 2.5         | 30 | 2.5     | 2.9  |
| <b>GMA.1B.030.DG</b>               |                         | 3.0         | 30 | 3.0     | 3.4  |
| <b>GMA.1B.035.DG</b>               |                         | 3.5         | 30 | 3.5     | 3.9  |
| <b>GMA.1B.040.DG</b>               |                         | 4.0         | 30 | 4.0     | 4.4  |
| <b>GMA.1B.045.DG</b>               |                         | 4.5         | 30 | 4.5     | 4.9  |
| <b>GMA.1B.054.DG</b>               |                         | 5.4         | 30 | 5.4     | 6.0  |
| <b>GMA.1B.065.DG</b> <sup>1)</sup> |                         | 6.5         | 30 | 6.5     | 7.0  |

| Part number                        | Series                     | Bend relief |    | Cable ø |      |
|------------------------------------|----------------------------|-------------|----|---------|------|
|                                    |                            | A           | L  | min.    | max. |
| <b>GMA.2B.040.DG</b>               | 2B<br>2S<br>2E-2K-2T       | 4.0         | 36 | 4.0     | 4.5  |
| <b>GMA.2B.045.DG</b>               |                            | 4.5         | 36 | 4.5     | 5.0  |
| <b>GMA.2B.050.DG</b>               |                            | 5.0         | 36 | 5.0     | 5.5  |
| <b>GMA.2B.060.DG</b>               |                            | 6.0         | 36 | 6.0     | 6.5  |
| <b>GMA.2B.070.DG</b>               |                            | 7.0         | 36 | 7.0     | 7.7  |
| <b>GMA.2B.080.DG</b> <sup>1)</sup> |                            | 7.8         | 36 | 7.8     | 8.8  |
| <b>GMA.3B.050.DG</b> <sup>1)</sup> | 3S<br>3B<br>3E-3K-3T<br>4S | 4.5         | 42 | 4.5     | 5.2  |
| <b>GMA.3B.060.DG</b>               |                            | 6.0         | 42 | 6.0     | 6.9  |
| <b>GMA.3B.070.DG</b>               |                            | 7.0         | 42 | 7.0     | 7.9  |
| <b>GMA.3B.080.DG</b>               |                            | 8.0         | 42 | 8.0     | 8.9  |
| <b>GMA.3B.090.DG</b>               | 4S<br>4B<br>4E-4K<br>5E-5K | 9.0         | 42 | 9.0     | 10.0 |
| <b>GMA.4B.080.DG</b> <sup>1)</sup> |                            | 8.0         | 60 | 8.0     | 9.0  |
| <b>GMA.4B.010.DG</b> <sup>1)</sup> |                            | 10.0        | 60 | 10.0    | 10.9 |
| <b>GMA.4B.011.DG</b> <sup>1)</sup> |                            | 11.0        | 60 | 11.0    | 11.9 |
| <b>GMA.4B.012.DG</b> <sup>1)</sup> |                            | 12.0        | 60 | 12.0    | 13.0 |
| <b>GMA.4B.013.DG</b> <sup>1)</sup> |                            | 13.5        | 60 | 13.5    | 14.5 |

**Note:** all dimensions are in millimetres.

**Note:** <sup>1)</sup> Design may differ from other bend relief, model without stripes. The «GMD» are thin bend reliefs (for very flexible cables). The last letter «G» of the part number indicates the grey colour of the bend relief. For ordering a bend relief with another colour, see table on page 146 and replace the letter «G» by the letter of the required colour. See also detailed information for each series: B series on page 71; K series on page 71; T series on page 71; S series on page 121; E series on page 121.

## GMA Bend relief (Silicone)



A bend relief has been designed for connectors used in applications at high temperature or requiring vapour sterilization.

These bend reliefs are different from previous ones as for their material, a silicone elastomer which is noted for its retention of flexibility over a wide temperature range. They are available in nine colours.

Use the part numbers shown below to order this accessory separately.

### Main characteristics

- Material: Silicone elastomer VMQ
- Temperature range in dry atmosphere: -60°C +200°C
- Temperature range in water steam: +140°C

| Part number          | Series               | Bend relief |    | Cable ø |      |
|----------------------|----------------------|-------------|----|---------|------|
|                      |                      | A           | L  | min.    | max. |
| <b>GMA.0B.018.RG</b> | 0B<br>0S<br>0E-0K-0T | 1.7         | 27 | 1.7     | 2.4  |
| <b>GMA.0B.025.RG</b> |                      | 2.5         | 27 | 2.5     | 2.9  |
| <b>GMA.0B.030.RG</b> |                      | 3.0         | 27 | 3.0     | 3.4  |
| <b>GMA.0B.035.RG</b> |                      | 3.5         | 27 | 3.5     | 3.9  |
| <b>GMA.0B.040.RG</b> |                      | 4.0         | 27 | 4.0     | 4.4  |
| <b>GMA.0B.045.RG</b> |                      | 4.5         | 27 | 4.5     | 5.2  |
| <b>GMA.1B.025.RG</b> | 1B<br>1S<br>1E-1K-1T | 2.5         | 34 | 2.5     | 2.9  |
| <b>GMA.1B.030.RG</b> |                      | 3.0         | 34 | 3.0     | 3.4  |
| <b>GMA.1B.035.RG</b> |                      | 3.5         | 34 | 3.5     | 3.9  |
| <b>GMA.1B.040.RG</b> |                      | 4.0         | 34 | 4.0     | 4.4  |
| <b>GMA.1B.045.RG</b> |                      | 4.5         | 34 | 4.5     | 5.0  |
| <b>GMA.1B.051.RG</b> |                      | 5.1         | 34 | 5.1     | 5.6  |
| <b>GMA.1B.057.RG</b> |                      | 5.7         | 34 | 5.7     | 6.2  |
| <b>GMA.1B.063.RG</b> |                      | 6.3         | 34 | 6.3     | 7.0  |

| Part number          | Series               | Bend relief |    | Cable ø |      |
|----------------------|----------------------|-------------|----|---------|------|
|                      |                      | A           | L  | min.    | max. |
| <b>GMA.2B.040.RG</b> | 2B<br>2S<br>2E-2K-2T | 4.0         | 41 | 4.0     | 4.4  |
| <b>GMA.2B.045.RG</b> |                      | 4.5         | 41 | 4.5     | 5.0  |
| <b>GMA.2B.051.RG</b> |                      | 5.1         | 41 | 5.1     | 5.6  |
| <b>GMA.2B.057.RG</b> |                      | 5.7         | 41 | 5.7     | 6.2  |
| <b>GMA.2B.063.RG</b> |                      | 6.3         | 41 | 6.3     | 7.0  |
| <b>GMA.2B.071.RG</b> |                      | 7.1         | 41 | 7.1     | 7.9  |
| <b>GMA.2B.080.RG</b> |                      | 8.0         | 41 | 8.0     | 9.0  |

**Note:** The last letter «G» of the part number indicates the grey colour of the bend relief. For ordering a bend relief with another colour, see table on page 146 and replace the letter «G» by the letter of the required colour. See also detailed information for each series: B series on page 71; K series on page 71; T series on page 71; S series on page 121; E series on page 121.

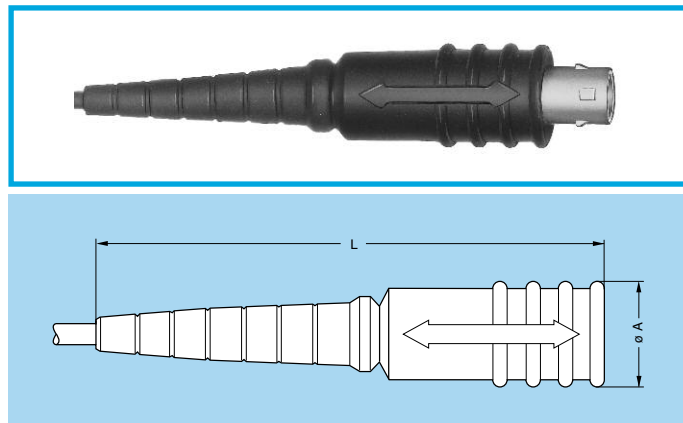
**Note:** the selection of pigments, which should remain stable at high temperature, is limited by the new regulations. For this reason, some colours will be a shade different from those used for Thermoplastic Polyurethane (TPU) bend reliefs. The selected solutions represent the best possible compromise.

| Ref.     | Colour | Ref.     | Colour | Ref.     | Colour |
|----------|--------|----------|--------|----------|--------|
| <b>A</b> | blue   | <b>J</b> | yellow | <b>R</b> | red    |
| <b>B</b> | white  | <b>M</b> | brown  | <b>S</b> | orange |
| <b>G</b> | grey   | <b>N</b> | black  | <b>V</b> | green  |

## GM● Overall bend relief for plugs and sockets

Overall bend reliefs, type GMF for plugs and GMP for sockets offer optimum protection against mechanical damage and give a protection index of IP65 according to IEC 60529 (mated position). These bend reliefs slide easily over the connector shell and are positioned by slightly pressing the bend relief backnut. The special design of the bend relief for plug provides for easy use of the push-pull self-latching system.

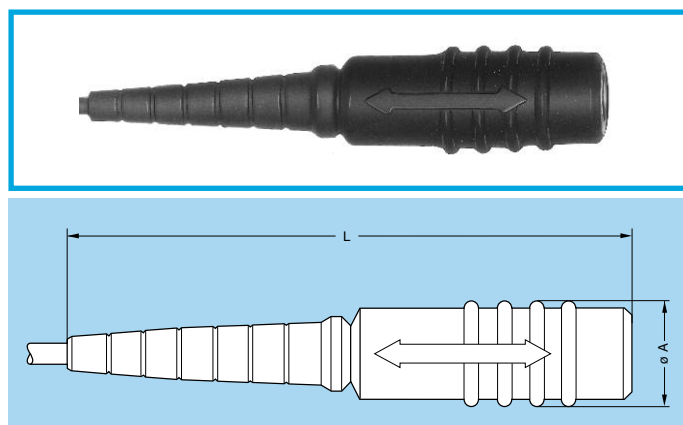
### GMF Bend relief for straight plug



| Part number             | Series | Bend relief |      | Cable ø |      |
|-------------------------|--------|-------------|------|---------|------|
|                         |        | A           | L    | min.    | max. |
| <b>GMF.0B.035.060EN</b> | 0S-0B  | 11.0        | 60.5 | 1.0     | 3.5  |
| <b>GMF.1B.062.072EN</b> | 1S-1B  | 16.0        | 72.0 | 2.5     | 6.2  |
| <b>GMF.2B.082.095EN</b> | 2S-2B  | 22.0        | 95.0 | 5.0     | 8.2  |

- Material: Elastomer rubber black colour
- Operating temperature: -30°C to +120°C

### GMP Bend relief for free socket

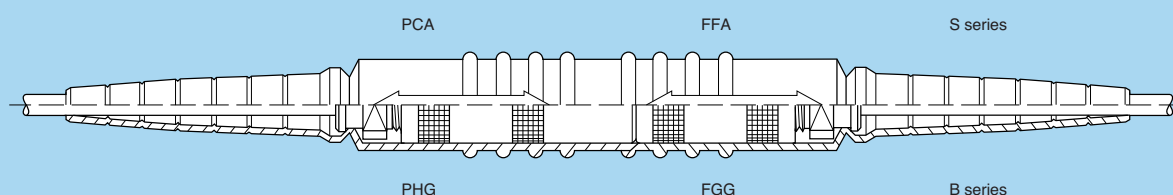


| Part number             | Series | Bend relief |       | Cable ø |      |
|-------------------------|--------|-------------|-------|---------|------|
|                         |        | A           | L     | min.    | max. |
| <b>GMP.0B.035.069EN</b> | 0S-0B  | 11.0        | 69.0  | 1.0     | 3.5  |
| <b>GMP.1B.062.079EN</b> | 1S-1B  | 16.0        | 80.0  | 2.5     | 6.2  |
| <b>GMP.2B.082.102EN</b> | 2S-2B  | 21.0        | 102.5 | 5.0     | 8.2  |

- Material: Elastomer rubber black colour
- Operating temperature: -30°C to +120°C

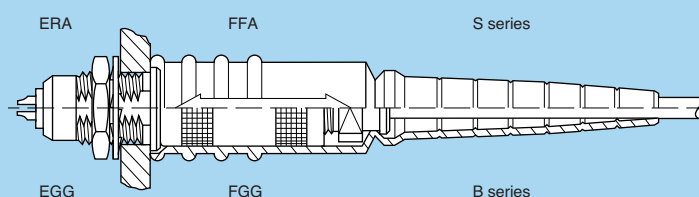
- The overall bend relief shall be installed over plug or free socket fitted with a nut for bend relief.
- The typical applications are shown below.
- The overall bend relief can be cut at different length depending on cable diameter.

#### Plug-free socket



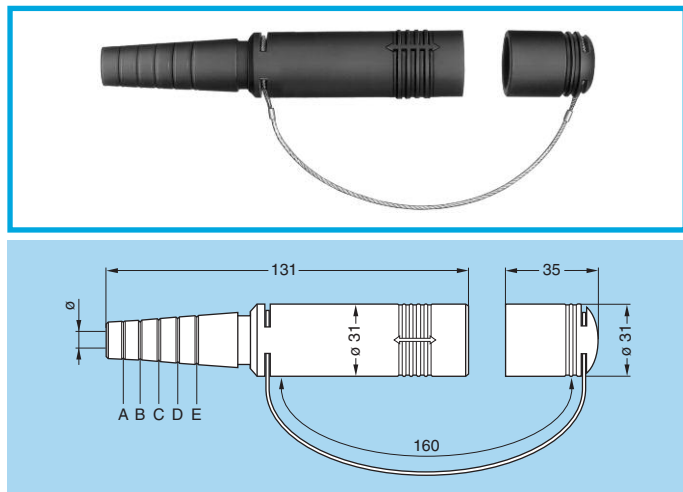
#### Plug-fixed socket

Optimum protection is offered only when using front panel mounting fixed sockets





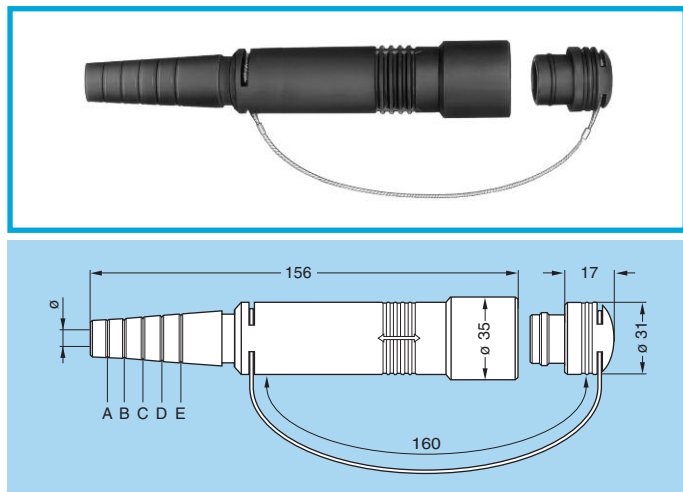
## GMF Bend relief with cap for plug



| Part number     | Series | For models | Cut | admissible $\phi$ (mm) |      |
|-----------------|--------|------------|-----|------------------------|------|
|                 |        |            |     | min.                   | max. |
| GMF.4K.080.EANZ | 4E     | FFA        | –   | 8.0                    | 8.9  |
|                 |        |            | A   | 9.0                    | 9.9  |
|                 |        |            | B   | 10.0                   | 11.4 |
|                 | 4K     | FGG        | C   | 11.5                   | 12.9 |
|                 |        |            | D   | 13.0                   | 14.9 |
|                 |        |            | E   | 15.0                   | 16.5 |

● Material: Black EPDM

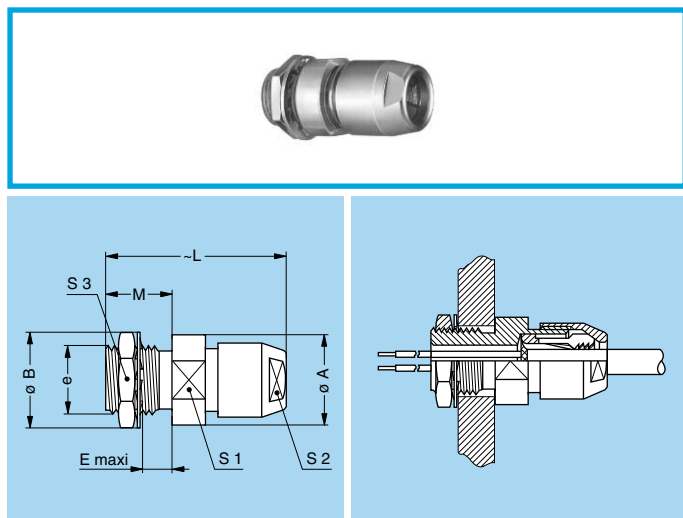
## GMP Bend relief with cap for free socket



| Part number     | Series | For models | Cut | admissible $\phi$ (mm) |      |
|-----------------|--------|------------|-----|------------------------|------|
|                 |        |            |     | min.                   | max. |
| GMP.4K.080.EANZ | 4E     | PCA        | –   | 8.0                    | 8.9  |
|                 |        |            | A   | 9.0                    | 9.9  |
|                 |        |            | B   | 10.0                   | 11.4 |
|                 | 4K     | PHG        | C   | 11.5                   | 12.9 |
|                 |        |            | D   | 13.0                   | 14.9 |
|                 |        |            | E   | 15.0                   | 16.5 |

● Material: Black EPDM

## GSC Lead-through with cable collet

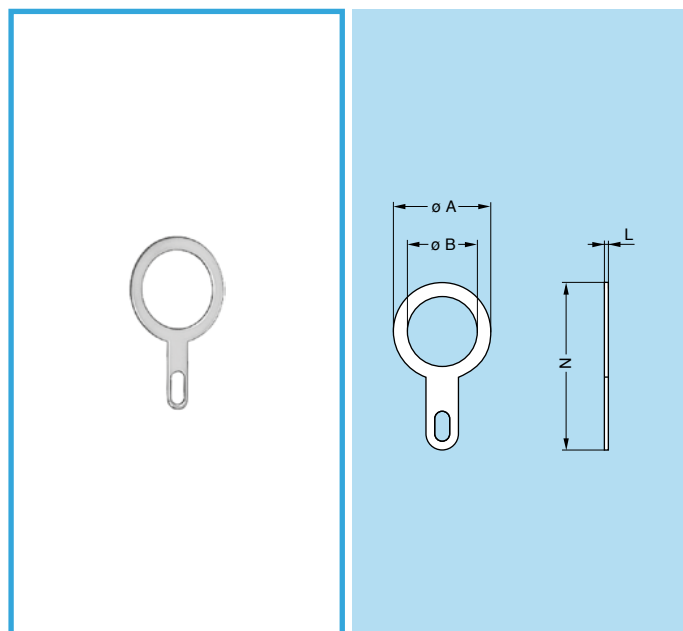


| Part number     | Dimensions (mm) |      |         |     |    |      |    |    |    |
|-----------------|-----------------|------|---------|-----|----|------|----|----|----|
|                 | A               | B    | e       | E   | L  | M    | S1 | S2 | S3 |
| GSC.00.290.CD●● | 6.5             | 8.1  | M5x0.5  | 1.5 | 16 | 4.0  | 5  | 6  | 7  |
| GSC.1S.290.ND●● | 12.0            | 12.5 | M9x0.6  | 5.0 | 26 | 7.5  | 11 | 9  | 11 |
| GSC.3S.290.ND●● | 17.0            | 19.5 | M15x1.0 | 8.1 | 30 | 12.0 | –  | 14 | 17 |

**Note:** ●● = collet cable diameter of the B series. For cable diameter refer to page 67. Other surface treatment available.  
The cable collet system stands for both screened and unscreened cables. It can be delivered with a nut for fitting a bend relief if you add a «Z» at the end of the part number.



## GCA Earthing washer

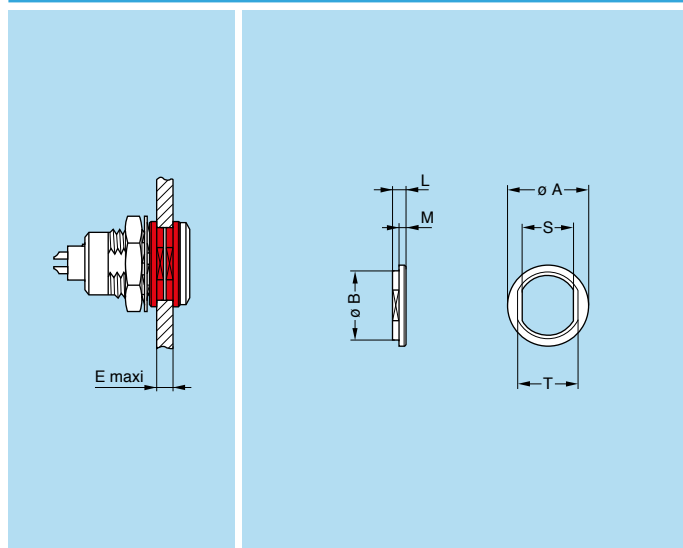
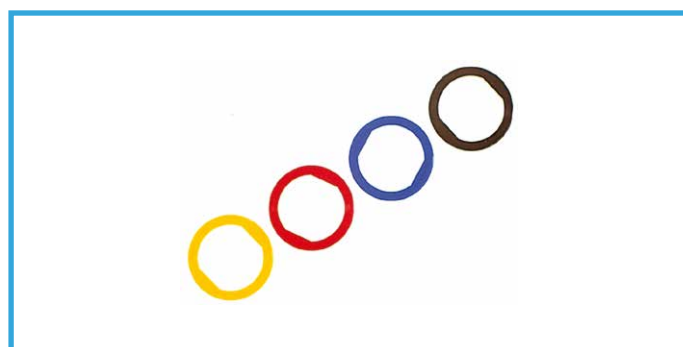


| Part number          | Series   | Dimensions (mm) |      |     |      |
|----------------------|----------|-----------------|------|-----|------|
|                      |          | A               | B    | L   | N    |
| <b>GCA.00.255.LT</b> | 00-TT    | 9.5             | 7.1  | 0.4 | 18.2 |
| <b>GCA.0S.255.LT</b> | 0S-0B-0T | 13.0            | 9.1  | 0.4 | 22.0 |
| <b>GCA.0E.255.LT</b> | 0E-0K    | 17.0            | 14.1 | 0.5 | 27.5 |
| <b>GCA.1S.255.LT</b> | 1S-1B-1T | 17.0            | 12.2 | 0.5 | 27.5 |
| <b>GCA.1E.255.LT</b> | 1E-1K    | 20.0            | 16.2 | 0.5 | 32.0 |
| <b>GCA.2S.255.LT</b> | 2S-2B-2T | 20.0            | 15.2 | 0.5 | 32.0 |
| <b>GCA.2E.255.LT</b> | 2E-2K    | 25.0            | 20.2 | 0.5 | 39.0 |
| <b>GCA.3S.255.LT</b> | 3S-3B-3T | 25.0            | 18.2 | 0.5 | 39.0 |
| <b>GCA.3E.255.LT</b> | 3E-3K    | 31.0            | 24.0 | 0.5 | 43.0 |
| <b>GCA.4S.255.LT</b> | 4S-4B    | 35.0            | 25.6 | 0.6 | 50.0 |
| <b>GCA.4E.255.LT</b> | 4E-4K    | 35.0            | 30.6 | 0.6 | 50.0 |
| <b>GCA.5S.255.LT</b> | 5S-5B    | 42.0            | 35.1 | 0.3 | 57.5 |

● Material: CuSnZn plated brass (2 µm)

## GRA Insulating washers

Sockets or plugs mounted on panels can be fitted with insulating washers. The nine colours available combined with those for the bend reliefs makes colour coding possible.



| Part number          | Series | Dimensions (mm) |      |      |     |     |      |      |
|----------------------|--------|-----------------|------|------|-----|-----|------|------|
|                      |        | A               | B    | E    | L   | M   | S    | T    |
| <b>GRA.00.269.GG</b> | 00     | 10.0            | 8.8  | 4.5  | 1.8 | 1.0 | 6.4  | 8.0  |
| <b>GRA.0S.269.GG</b> | 0S-0B  | 12.0            | 10.8 | 6.0  | 1.8 | 1.0 | 8.3  | 9.9  |
| <b>GRA.1S.269.GG</b> | 1S-1B  | 16.0            | 13.8 | 6.5  | 1.8 | 1.0 | 10.6 | 12.2 |
| <b>GRA.2S.269.GG</b> | 2S-2B  | 21.1            | 17.9 | 7.3  | 2.3 | 1.3 | 13.6 | 16.2 |
| <b>GRA.3S.269.GG</b> | 3S-3B  | 25.0            | 21.8 | 10.3 | 2.2 | 1.2 | 16.7 | 20.2 |
| <b>GRA.4S.269.GG</b> | 4S-4B  | 31.9            | 28.7 | 10.5 | 2.5 | 1.5 | 23.6 | 27.1 |

**Note:** insulating washers for series 5B are available on request.

**Caution:** these insulating washers can be used with fixed and free sockets with across flat dimension S1 equivalent to the S dimension of the washer.

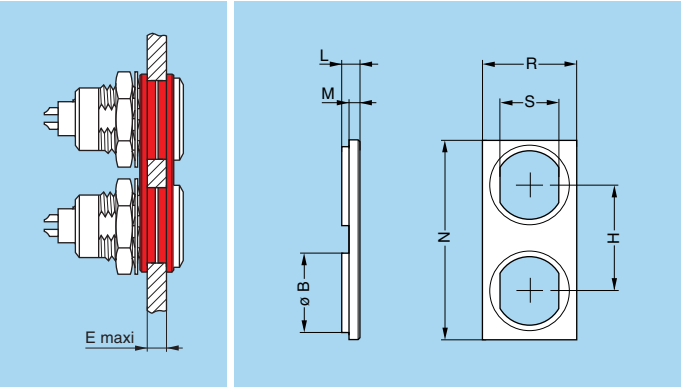
- Material: Polyamide
- Maximum operating temperature: 90° C

| Ref.     | Colour | Ref.     | Colour | Ref.     | Colour |
|----------|--------|----------|--------|----------|--------|
| <b>A</b> | blue   | <b>J</b> | yellow | <b>R</b> | red    |
| <b>B</b> | white  | <b>M</b> | brown  | <b>S</b> | orange |
| <b>G</b> | grey   | <b>N</b> | black  | <b>V</b> | green  |

**Note:** the last letter «G» of the part number indicates the colour grey for the insulating washer. To obtain an insulating washer of another colour, refer to the table above and change the letter «G» of the part number to the corresponding letter of the colour required. For the panel cut-out, please consult chapter «Panel cut-out» on page 158.

**GRC Double panel washers**

Double panel washers have been designed to make the drilling of panel holes easier for mounting fixed and free sockets. The combination of the nine different colours of the double panel washers and of the bend reliefs makes colour coding possible.



| Part number          | Series | Dimensions (mm) |   |    |     |     |      |      |      |
|----------------------|--------|-----------------|---|----|-----|-----|------|------|------|
|                      |        | B               | E | H  | L   | M   | N    | R    | S    |
| <b>GRC.0S.260.HG</b> | 0S-0B  | 10.9            | 5 | 14 | 2.5 | 1.5 | 26.5 | 12.5 | 8.3  |
| <b>GRC.1B.260.HG</b> | 1S-1B  | 13.9            | 5 | 20 | 3.3 | 1.8 | 34.5 | 14.5 | 10.6 |

**Caution:** these double panel washers can be used with fixed or free sockets with across flat dimension S1 equivalent to the S dimension of the washer.

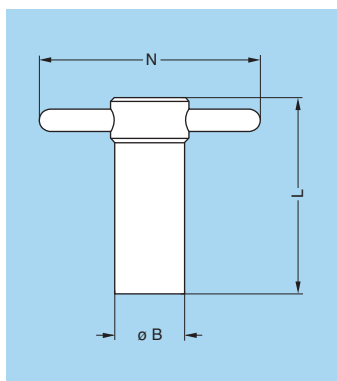
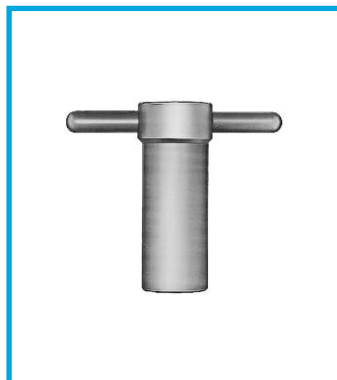
- Material: Polyamide
- Maximum operating temperature: 90° C

| Ref.     | Colour | Ref.     | Colour | Ref.     | Colour |
|----------|--------|----------|--------|----------|--------|
| <b>A</b> | blue   | <b>J</b> | yellow | <b>R</b> | red    |
| <b>B</b> | white  | <b>M</b> | brown  | <b>S</b> | orange |
| <b>G</b> | grey   | <b>N</b> | black  | <b>V</b> | green  |

**Note:** the last letter «G» of the washer's part number indicates the colour grey. For other colours, refer to the above table and replace letter «G» by the one corresponding to the colour required. For the panel cut-out, please consult chapter «Panel cut-out» on page 158.

# Tooling

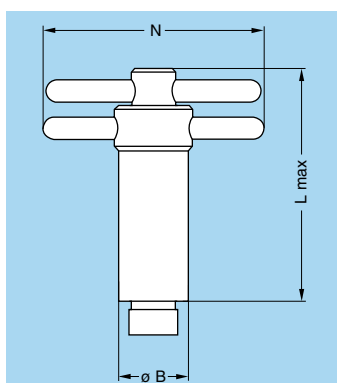
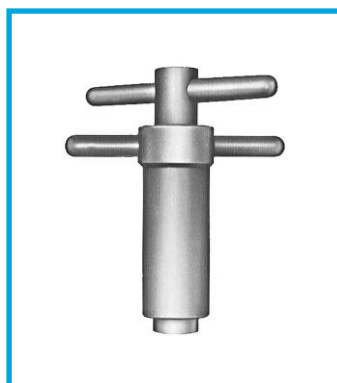
## DCG Spanners for hexagonal nuts



| Part number           | Dimensions (mm) |    |    | Part number of the nut |
|-----------------------|-----------------|----|----|------------------------|
|                       | B               | L  | N  |                        |
| <b>DCG.91.149.0TN</b> | 14              | 40 | 50 | GEA.00.240.LN          |
| <b>DCG.91.161.1TN</b> | 16              | 45 | 52 | GEA.0S.240.LN          |
| <b>DCG.91.201.4TN</b> | 20              | 52 | 65 | GEA.1S.240.LN          |
| <b>DCG.91.231.7TN</b> | 23              | 62 | 68 | GEA.2S.240.LN          |
| <b>DCG.91.282.2TN</b> | 28              | 76 | 73 | GEA.3S.240.LN          |

● Material: blackened steel

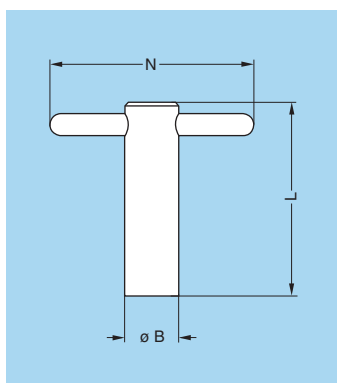
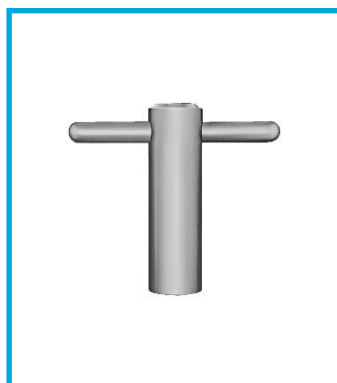
## DCA Spanners for hexagonal nuts with locator for flats on socket thread



| Part number           | Dimensions (mm) |     |    | Part number of the nut |
|-----------------------|-----------------|-----|----|------------------------|
|                       | B               | L   | N  |                        |
| <b>DCA.91.149.0TN</b> | 14              | 65  | 50 | GEA.00.240.LN          |
| <b>DCA.91.161.1TN</b> | 16              | 73  | 52 | GEA.0S.240.LN          |
| <b>DCA.91.201.4TN</b> | 20              | 85  | 65 | GEA.1S.240.LN          |
| <b>DCA.91.231.7TN</b> | 23              | 100 | 68 | GEA.2S.240.LN          |
| <b>DCA.91.282.2TN</b> | 28              | 120 | 73 | GEA.3S.240.LN          |

● Material: blackened steel

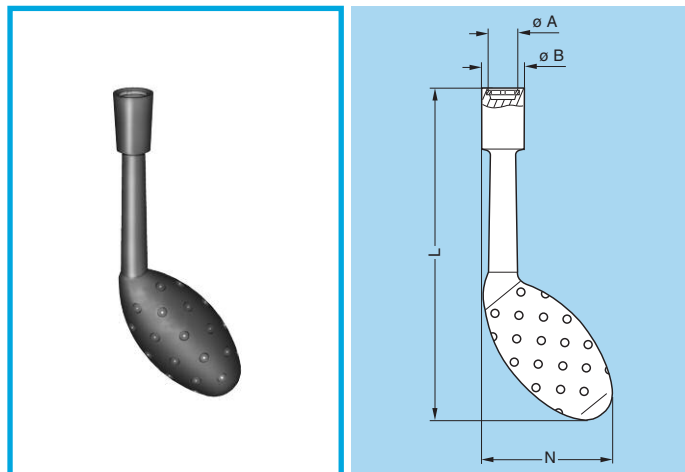
## DCB Spanners for round nuts



| Part number           | Dimensions (mm) |    |    | Part number of the nut |
|-----------------------|-----------------|----|----|------------------------|
|                       | B               | L  | N  |                        |
| <b>DCB.91.119.0TN</b> | 11              | 40 | 50 | GEB.00.240.LN          |
| <b>DCB.91.131.1TN</b> | 13              | 45 | 50 | GEB.0S.240.LN          |
| <b>DCB.91.161.4TN</b> | 16              | 52 | 65 | GEB.1S.240.LN          |
| <b>DCB.91.201.8TN</b> | 20              | 62 | 65 | GEB.2S.240.LN          |
| <b>DCB.91.242.2TN</b> | 24              | 76 | 70 | GEB.3S.240.LN          |

● Material: blackened steel

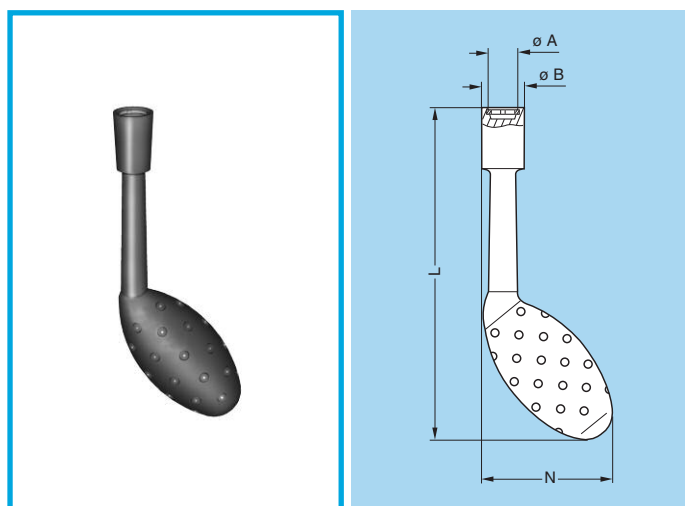
## DCH Spanners for conical nuts



| Part number          | Dimensions (mm) |      |     |      | Part number of the nut |
|----------------------|-----------------|------|-----|------|------------------------|
|                      | A               | B    | L   | N    |                        |
| <b>DCH.91.101.PN</b> | 10.1            | 12.8 | 124 | 48.3 | GEC.00.240.LC          |
| <b>DCH.91.121.PN</b> | 12.1            | 14.8 | 124 | 49.3 | GEC.0S.240.LC          |
| <b>DCH.91.161.PN</b> | 16.1            | 21.0 | 124 | 51.9 | GEC.1S.240.LC          |
| <b>DCH.91.201.PN</b> | 20.1            | 22.8 | 129 | 53.5 | GEC.2S.240.LC          |

● Material: dark grey polyurethane

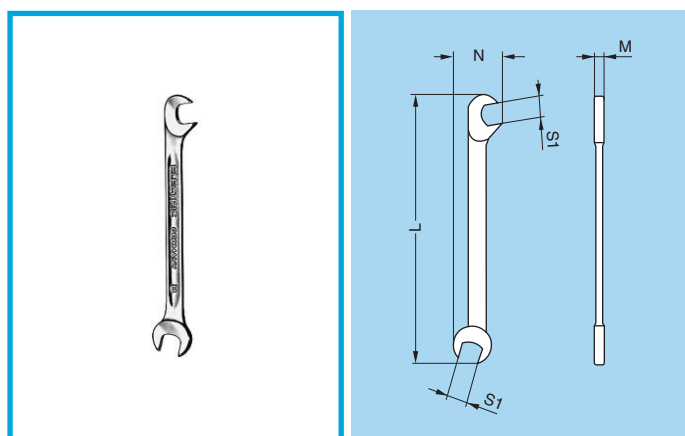
## DCH Spanners for notched nuts



| Part number          | Dimensions (mm) |      |     |      | Part number of the nut |
|----------------------|-----------------|------|-----|------|------------------------|
|                      | A               | B    | L   | N    |                        |
| <b>DCH.91.101.PA</b> | 10.1            | 12.8 | 124 | 48.3 | GEG.00.240.LC          |
| <b>DCH.91.121.PA</b> | 12.1            | 14.8 | 124 | 49.3 | GEG.0S.240.LC          |
| <b>DCH.91.181.PA</b> | 18.1            | 22.8 | 129 | 53.1 | GEG.0E.240.LC          |
| <b>DCH.91.161.PA</b> | 16.1            | 21.0 | 124 | 51.2 | GEG.1S.240.LC          |
| <b>DCH.91.201.PA</b> | 20.1            | 22.8 | 129 | 53.5 | GEG.1E.240.LC          |
| <b>DCH.91.141.PA</b> | 14.1            | 18.6 | 124 | 51.2 | GEG.1S.242.LC          |
| <b>DCH.91.201.PA</b> | 20.1            | 22.8 | 129 | 53.5 | GEG.2S.240.LC          |
| <b>DCH.91.241.PA</b> | 24.1            | 30.8 | 134 | 52.6 | GEG.2S.241.LC          |
| <b>DCH.91.251.PA</b> | 25.1            | 32.8 | 134 | 55.5 | GEG.2E.240.LC          |

● Material: blue polyurethane

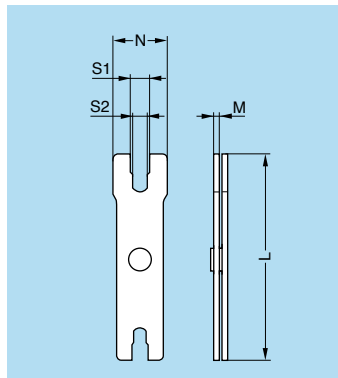
## DCP Flat spanners for collet nut



| Part number          | Dimensions (mm) |      |      |     |
|----------------------|-----------------|------|------|-----|
|                      | L               | M    | N    | S1  |
| <b>DCP.99.040.TC</b> | 70              | 0.95 | 10.5 | 4.0 |
| <b>DCP.99.045.TC</b> | 70              | 2.00 | 10.5 | 4.5 |
| <b>DCP.99.050.TC</b> | 78              | 2.00 | 12.6 | 5.0 |
| <b>DCP.99.055.TC</b> | 78              | 2.00 | 12.6 | 5.5 |
| <b>DCP.99.060.TC</b> | 78              | 2.00 | 12.6 | 6.0 |

● Material: chrome-plated steel

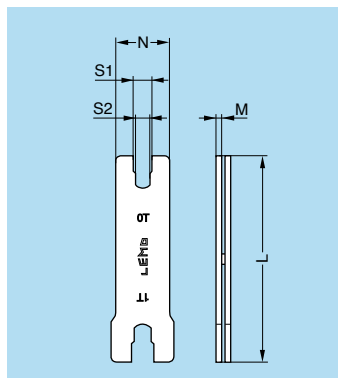
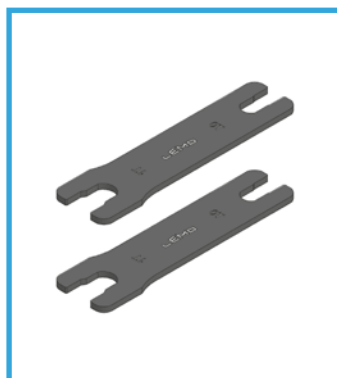
## DCP Set of flat spanners for collet nuts



| Part number          | Series | Dimensions (mm) |     |    |      |      |
|----------------------|--------|-----------------|-----|----|------|------|
|                      |        | L               | M   | N  | S1   | S2   |
| <b>DCP.91.001.TN</b> | 0B-0K  | 95              | 2.5 | 21 | 8.1  | 7.1  |
|                      | 1B-1K  | 95              | 2.5 | 25 | 10.1 | 9.1  |
| <b>DCP.91.023.TN</b> | 2B-2K  | 115             | 3.0 | 30 | 13.1 | 12.1 |
|                      | 3B-3K  | 115             | 3.0 | 35 | 15.1 | 14.1 |
| <b>DCP.91.045.TN</b> | 4B     | 130             | 3.0 | 44 | 21.1 | 20.1 |
|                      | 5B     | 130             | 3.0 | 54 | 31.1 | 30.1 |

● Material: blackened steel

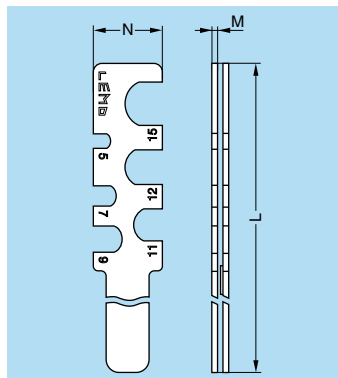
## DCP Set of flat spanners for collet nuts



| Part number          | Series | Dimensions (mm) |     |    |       |       |
|----------------------|--------|-----------------|-----|----|-------|-------|
|                      |        | L               | M   | N  | S1    | S2    |
| <b>DCP.0T.110.TN</b> | 0T     | 95              | 2.5 | 21 | 7.55  | 7.05  |
|                      | 1T     | 95              | 2.5 | 25 | 11.05 | 9.05  |
| <b>DCP.2T.110.TN</b> | 2T     | 115             | 3.0 | 30 | 14.05 | 12.05 |
|                      | 3T     | 115             | 3.0 | 35 | 16.05 | 14.05 |

● Material: blackened steel

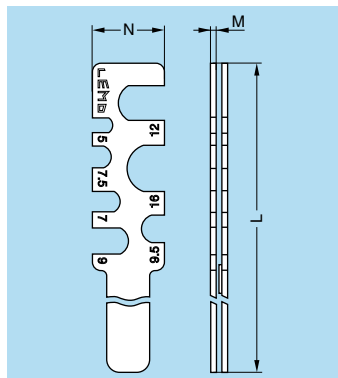
## DCP Set of flat spanners for FS● retaining ring & collet nuts



| Part number            | Series      | Dimensions (mm) |   |    |
|------------------------|-------------|-----------------|---|----|
|                        |             | L               | M | N  |
| <b>DCP.91.FSG.TN</b>   | 00-0B-1B-2B | 152             | 2 | 24 |
| <b>DCP.91.FSG.TN3B</b> | 3B          | 153             | 2 | 32 |

● Material: blackened steel

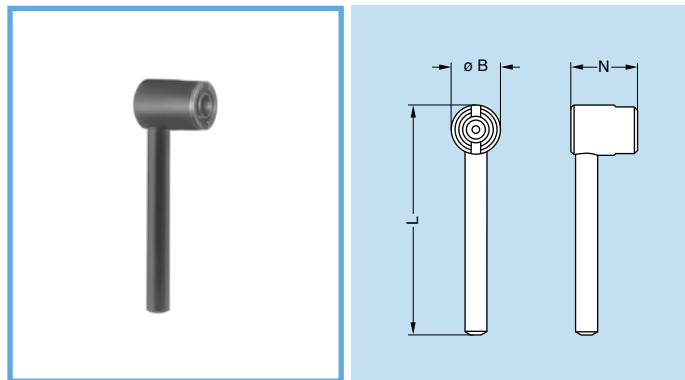
## DCP Set of flat spanners for FS● retaining ring & collet nuts



| Part number          | Series      | Dimensions (mm) |   |    |
|----------------------|-------------|-----------------|---|----|
|                      |             | L               | M | N  |
| <b>DCP.TT.FSG.TN</b> | TT-0T-1T-2T | 152             | 2 | 25 |

● Material: blackened steel

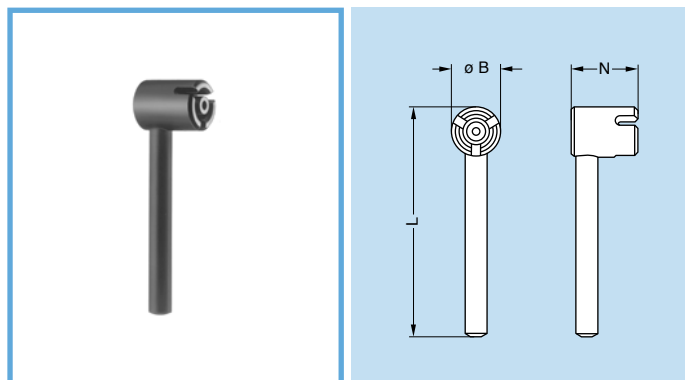
## DCL Spanners for assembling plugs with 2 latches



| Part number           | Series | Dimensions (mm) |    |      |
|-----------------------|--------|-----------------|----|------|
|                       |        | B               | L  | N    |
| <b>DCL.91.105.0TK</b> | 00     | 10              | 45 | 13.5 |
| <b>DCL.91.127.0TK</b> | 0S     | 12              | 47 | 17.0 |
| <b>DCL.91.149.0TK</b> | 1S     | 14              | 52 | 19.0 |

● Material: blackened steel

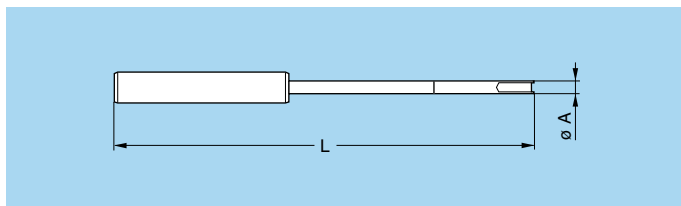
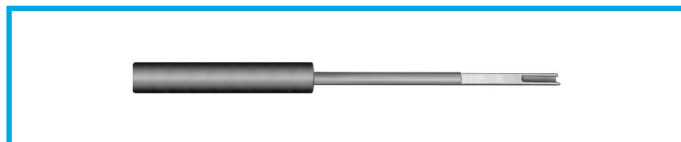
## DCN Spanners for assembling plugs with 3 latches



| Part number           | Series | Dimensions (mm) |    |    |
|-----------------------|--------|-----------------|----|----|
|                       |        | B               | L  | N  |
| <b>DCN.91.905.0TK</b> | 00     | 9               | 42 | 12 |
| <b>DCN.91.125.0TK</b> | 0S     | 12              | 47 | 17 |
| <b>DCN.91.149.0TK</b> | 1S     | 14              | 53 | 19 |
| <b>DCN.91.201.5TK</b> | 3S     | 20              | 74 | 22 |

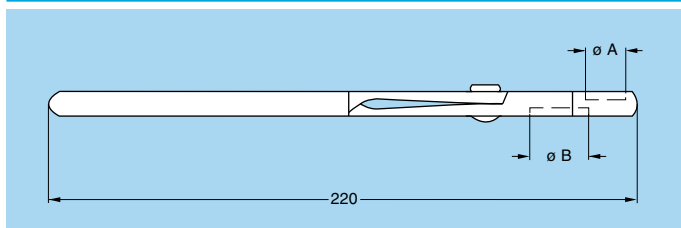
● Material: blackened steel

## DCL Assembly tool for FVB.00.303.NLA plugs



| Part number           | Series | Dim. (mm) |     |
|-----------------------|--------|-----------|-----|
|                       |        | A         | L   |
| <b>DCL.91.516.5TK</b> | 00     | 5         | 165 |

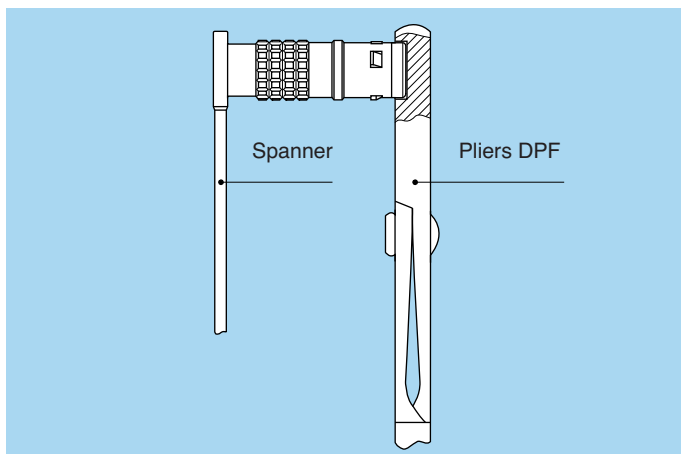
## DPF Pliers for assembling plugs (series K and E)



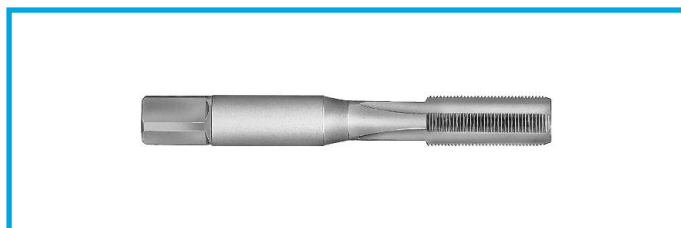
| Part number          | Series | Dim. (mm) |    |
|----------------------|--------|-----------|----|
|                      |        | A         | B  |
| <b>DPF.91.001.TA</b> | 0E-0K  | 10        | –  |
|                      | 1E-1K  | –         | 12 |
| <b>DPF.91.023.TA</b> | 2E-2K  | 15        | –  |
|                      | 3E-3K  | –         | 18 |

### Example for use

The plug end must be held in the pliers whilst the nut is tightened with the flat spanner.



## DTA Taps



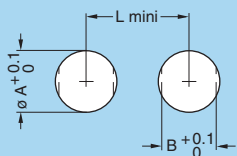
| Part number          | Series | Thread   |
|----------------------|--------|----------|
| <b>DTA.99.700.5Z</b> | 00     | M7 x 0.5 |
| <b>DTA.99.900.6Z</b> | 0S-0B  | M9 x 0.6 |



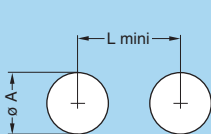


# Panel cut-outs

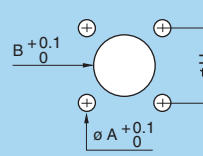
P1-P3-P4-P9



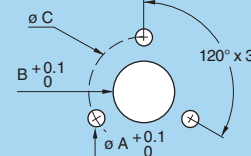
P2-P5-P10-P11



P6-P7



P8



## B and T series

| Series | P1                |      |      | P2  |      | P3   |      |      | P4   |      |      | P5                |      | P6  |      |    | P8  |      |    | P9   |      |    | P10  |    |
|--------|-------------------|------|------|-----|------|------|------|------|------|------|------|-------------------|------|-----|------|----|-----|------|----|------|------|----|------|----|
|        | ø A <sup>1)</sup> | B    | L    | ø A | L    | ø A  | B    | L    | ø A  | B    | L    | ø A <sup>2)</sup> | L    | ø A | B    | H  | ø A | B    | C  | ø A  | B    | L  | ø A  | L  |
| 00-TT  | 7.1               | 6.4  | 12.5 | 7.1 | 11.5 | —    | —    | —    | —    | —    | —    | —                 | —    | —   | —    | —  | —   | —    | —  | 7.1  | —    | 12 | —    | —  |
| 0B-0T  | 9.1               | 8.3  | 14.5 | 9.1 | 13.5 | 14.1 | 12.6 | 20.1 | 10.1 | 9.1  | 15.0 | 8.30              | 10.5 | —   | —    | —  | —   | —    | —  | 9.1  | 8.3  | 15 | —    | —  |
| 1B-1T  | 12.1              | 10.6 | 18.5 | —   | —    | 16.1 | 14.6 | 22.0 | 14.1 | 12.6 | 21.0 | 11.17             | 14.0 | —   | —    | —  | —   | —    | —  | 12.1 | 10.6 | 19 | 11.1 | 17 |
| XB     | 14.1              | 12.6 | 21.5 | —   | —    | —    | —    | —    | —    | —    | —    | —                 | —    | —   | —    | —  | —   | —    | —  | —    | —    | —  | —    | —  |
| 2B-2T  | 15.1              | 13.6 | 22.5 | —   | —    | 19.2 | 17.1 | 28.0 | 16.1 | 15.1 | 23.0 | 13.95             | 18.0 | —   | —    | —  | —   | —    | —  | 15.1 | 13.6 | 23 | —    | —  |
| 3B-3T  | 18.2              | 16.6 | 27.0 | —   | —    | —    | —    | —    | 20.2 | 18.6 | 29.5 | —                 | —    | —   | —    | —  | —   | —    | —  | 18.2 | 16.6 | 27 | —    | —  |
| 4B     | 25.2              | 23.6 | 36.0 | —   | —    | —    | —    | —    | 25.2 | 23.6 | 36.1 | —                 | —    | —   | —    | —  | —   | —    | —  | 25.2 | 23.6 | 36 | —    | —  |
| 5B     | 35.2              | 33.6 | 44.0 | —   | —    | —    | —    | —    | 35.2 | 33.6 | 47.1 | —                 | —    | 3.3 | 35.2 | 34 | 2.8 | 35.2 | 47 | 35.2 | 33.6 | 47 | —    | —  |

**Note:** <sup>1)</sup> when using the tapered washer (GBB) a round hole apply 00-TT: ø 7.6 mm / 0B-0T: ø 9.6 mm / 1B-1T: ø 12.6 mm / 2B-2T: ø 15.7 mm / 3B-3T: ø 18.8 mm / 4B: ø 26 mm / 5B: ø 36 mm (tolerance: 0/+0.02). <sup>2)</sup> tolerance: 0/+0.02

## Cut-out types

| Model | Type | Model | Type   | Model | Type | Model | Type | Model | Type                |
|-------|------|-------|--------|-------|------|-------|------|-------|---------------------|
| ECG   | P1   | EKG   | P1     | FAG   | P1   | HMG   | P9   | S●●   | P4/P9 <sup>3)</sup> |
| EEG   | P1   | ENG   | P1     | FWG   | P9   | HNG   | P9   | XBG   | P2                  |
| EGG   | P1   | ENY   | P1     | HCG   | P3   | PEG   | P1   | XPF   | P2                  |
| EFG   | P2   | ESG   | P1/P2  | HEG   | P9   | PFG   | P1   | XRB   | P2                  |
| EHG   | P1   | EXG   | P2/P10 | HGG   | P9   | PKG   | P1   | YHG   | P9                  |
| EJG   | P5   | EYG   | P1/P10 | HHG   | P9   | R●●   | P4   |       |                     |

**Note:** <sup>3)</sup> in series 1B use P9.

## Mounting nut torque

| Series | Torque (Nm) |                             |
|--------|-------------|-----------------------------|
|        | Metal shell | Plastic shell <sup>4)</sup> |
| 00-TT  | 1.0         | 0.4                         |
| 0B-0T  | 2.5         | 0.4                         |
| 1B-1T  | 4.5         | 0.7                         |
| XB     | 5.0         | —                           |
| 2B-2T  | 6.0         | 0.8                         |
| 3B-3T  | 9.0         | 1.0                         |
| 4B     | 12.0        | 5.0                         |
| 5B     | 17.0        | —                           |

**Note:** <sup>4)</sup> these values apply when metal shell are mounted with insulating washer.

## S series

| Series | P1                |      |      | P2   |      | P3   |      |      | P4   |      |    | P5                |      | P6  |      |      | P7  |      |      | P10  |    | P11  |    |
|--------|-------------------|------|------|------|------|------|------|------|------|------|----|-------------------|------|-----|------|------|-----|------|------|------|----|------|----|
|        | ø A <sup>1)</sup> | B    | L    | ø A  | L    | ø A  | B    | L    | ø A  | B    | L  | ø A <sup>2)</sup> | L    | ø A | B    | H    | ø A | B    | H    | ø A  | L  | ø A  | L  |
| 00     | 7.1               | 6.4  | 12.5 | 7.1  | 11.5 | —    | —    | —    | —    | —    | —  | —                 | —    | —   | —    | —    | —   | —    | —    | —    | —  | —    | —  |
| 0S     | 9.1               | 8.3  | 14.5 | 9.1  | 13.5 | 12.1 | 10.6 | 20.0 | 10.1 | 9.1  | 15 | —                 | —    | —   | —    | —    | —   | —    | —    | —    | —  | 9.1  | 16 |
| 1S     | 12.1              | 10.6 | 18.5 | 12.1 | 19.0 | 14.1 | 12.6 | 21.0 | 12.1 | 10.6 | 18 | 11.92             | 15.5 | 3.3 | 12.1 | 12.7 | 2.7 | 11.1 | 12.4 | 11.1 | 17 | 12.1 | 19 |
| 2S     | 15.1              | 13.6 | 22.5 | 15.1 | 21.5 | 16.1 | 14.6 | 22.0 | 16.1 | 15.1 | 23 | —                 | —    | 3.3 | 15.1 | 15.5 | —   | —    | —    | —    | —  | —    | —  |
| 3S     | 18.2              | 16.6 | 27.0 | 18.2 | 27.0 | 20.2 | 18.6 | 30.0 | 20.2 | 18.6 | 29 | —                 | —    | 3.3 | 18.2 | 18.0 | —   | —    | —    | —    | —  | —    | —  |
| 4S     | 25.2              | 23.6 | 36.0 | 25.2 | 34.0 | 25.2 | 23.6 | 36.0 | 25.2 | 23.6 | 36 | —                 | —    | —   | —    | —    | —   | —    | —    | —    | —  | —    | —  |
| 5S     | 35.2              | 33.6 | 44.0 | 35.2 | 44.0 | 35.2 | 33.6 | 47.0 | 35.2 | 33.6 | 47 | —                 | —    | 4.4 | 35.2 | 36.8 | —   | —    | —    | —    | —  | —    | —  |
| 6S     | 48.3              | 45.6 | 58.0 | 48.3 | 58.0 | 48.3 | 45.6 | 60.0 | 48.3 | 45.6 | 60 | —                 | —    | —   | —    | —    | —   | —    | —    | —    | —  | —    | —  |

**Note:** <sup>1)</sup> when using the tapered washer (GBB) a round hole apply 00: ø 7.6 mm / 0S: ø 9.6 mm / 1S: ø 12.6 mm / 2S: ø 15.7 mm / 3S: ø 18.8 mm / 4S: ø 26 mm / 5S: ø 36 mm (tolerance: 0/+0.02). <sup>2)</sup> tolerance: 0/+0.02

## Cut-out types

| Model | Type  | Model | Type   | Model | Type                | Model | Type                |
|-------|-------|-------|--------|-------|---------------------|-------|---------------------|
| EBC   | P6    | ERA   | P1     | EWB   | P3                  | PSP   | P1                  |
| EBD   | P6    | ERC   | P1     | FAA   | P1/P2 <sup>3)</sup> | PSS   | P1                  |
| EBS   | P7    | ERD   | P1     | HCP   | P3 <sup>4)</sup>    | RAD   | P1/P2 <sup>5)</sup> |
| ECP   | P1    | ERN   | P1     | HGP   | P3                  | SWH   | P4                  |
| EEP   | P1    | ERS   | P2     | HGW   | P11                 |       |                     |
| EHP   | P2/P1 | EXP   | P2/P10 | PSA   | P1                  |       |                     |

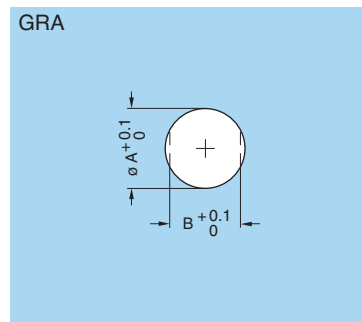
**Note:** <sup>3)</sup> in series 6S use P2. <sup>4)</sup> use only ø A in 1S series. <sup>5)</sup> in series 4S and 5S use P2.

## Mounting nut torque

| Series | Torque (Nm) |                             |
|--------|-------------|-----------------------------|
|        | Metal shell | Plastic shell <sup>6)</sup> |
| 0S     | 2.5         | 0.4                         |
| 1S     | 4.5         | 0.7                         |
| 2S     | 6.0         | 0.8                         |
| 3S     | 9.0         | 1.0                         |
| 4S     | 12.0        | 5.0                         |
| 5S     | 17.0        | —                           |
| 6S     | 22.0        | —                           |

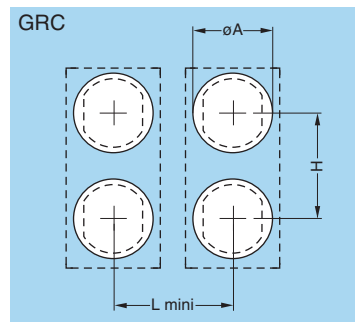
**Note:** <sup>6)</sup> these values apply when metal shell are mounted with insulating washer. 1 N = 0.102 kg

## Panel cut-out for mounting with insulating washer (S-B series)



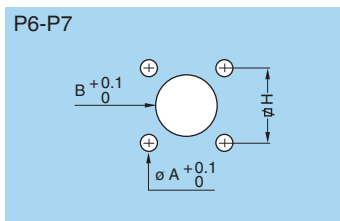
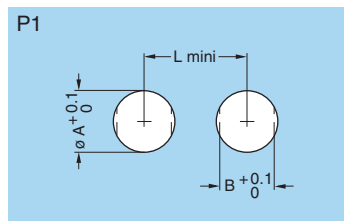
| Series | Dim. (mm) |      |
|--------|-----------|------|
|        | ø A       | B    |
| 00     | 8.9       | 8.1  |
| 0S-0B  | 10.9      | 10.0 |
| 1S-1B  | 13.9      | 12.3 |
| 2S-2B  | 18.0      | 16.3 |
| 3S-3B  | 21.9      | 20.3 |
| 4S-4B  | 29.1      | 27.4 |

## Panel cut-out for mounting with double panel washer (S-B series)



| Series | Dimensions (mm) |    |      |
|--------|-----------------|----|------|
|        | ø A             | H  | L    |
| 0S-0B  | 11              | 14 | 13.5 |
| 1S-1B  | 14              | 20 | 17.0 |

**Note:** for nut tightening torques please refer to the corresponding series in the table on page 157.



## K series

| Series | P1   |      |      | P6  |      |      | P7  |      |      |
|--------|------|------|------|-----|------|------|-----|------|------|
|        | ø A  | B    | L    | ø A | B    | H    | ø A | B    | H    |
| 0K     | 14.1 | 12.6 | 20.5 | —   | —    | —    | —   | —    | —    |
| 1K     | 16.1 | 14.6 | 22.5 | —   | —    | —    | —   | —    | —    |
| 2K     | 20.2 | 18.6 | 29.0 | —   | —    | —    | —   | —    | —    |
| 3K     | 24.2 | 22.6 | 35.5 | 3.5 | 22.6 | 20.6 | 3.5 | 23.1 | 23.0 |
| 4K     | 30.2 | 28.6 | 43.0 | 3.5 | 28.6 | 27.0 | 3.5 | 30.1 | 29.0 |
| 5K     | 45.2 | 42.6 | 57.0 | 4.5 | 42.6 | 38.0 | 4.5 | 45.1 | 44.0 |

## Mounting nut torque

| Series | Torque (Nm) |
|--------|-------------|
| 0K     | 5           |
| 1K     | 7           |
| 2K     | 9           |
| 3K     | 12          |
| 4K     | 17          |
| 5K     | 22          |

1 N = 0.102 kg

## Cut-out types

| Model | Type             | Model | Type | Model | Type             |
|-------|------------------|-------|------|-------|------------------|
| EBG   | P7               | ENG   | P1   | HGG   | P1               |
| EDG   | P7 <sup>2)</sup> | EVG   | P1   | PBG   | P7 <sup>3)</sup> |
| EEG   | P1               | FAG   | P1   | PEG   | P1               |
| EGG   | P1               | FXG   | P6   | PKG   | P1               |
| EHG   | P1               | HEG   | P1   | S●●   | P1               |

**Note:** <sup>2)</sup> for this model dimension B = 18.1. <sup>3)</sup> for this model dimension B = 19.1.

## E series

| Series | P1   |      |      | P6  |      |           |
|--------|------|------|------|-----|------|-----------|
|        | ø A  | B    | L    | ø A | B    | H         |
| 0E     | 14.1 | 12.6 | 20.5 | —   | —    | —         |
| 1E     | 16.1 | 14.6 | 22.5 | —   | —    | —         |
| 2E     | 20.2 | 18.6 | 29.0 | 2.9 | 15.1 | 11.8x20.4 |
| 3E     | 24.2 | 22.6 | 35.5 | —   | —    | —         |
| 4E     | 30.2 | 28.6 | 43.0 | —   | —    | —         |
| 5E     | 45.2 | 42.6 | 57.0 | —   | —    | —         |
| 6E     | 55.3 | 52.1 | 68.0 | —   | —    | —         |

## Mounting nut torque

| Series | Torque (Nm) |
|--------|-------------|
| 0E     | 5           |
| 1E     | 7           |
| 2E     | 9           |
| 3E     | 12          |
| 4E     | 17          |
| 5E     | 22          |
| 6E     | 27          |

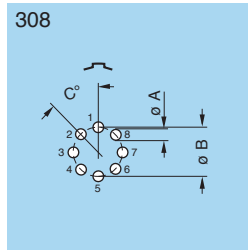
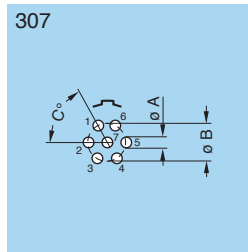
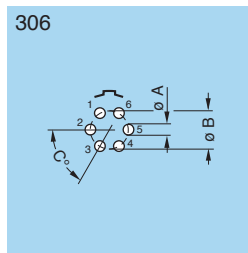
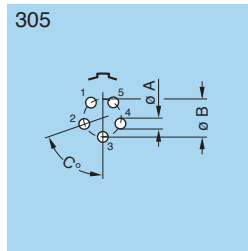
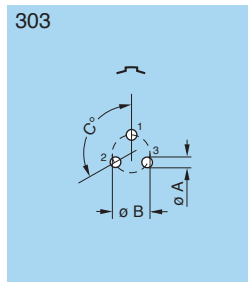
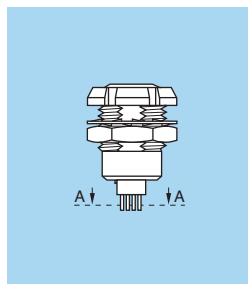
1 N = 0.102 kg

## Cut-out types E series

| Model | Type | Model | Type |
|-------|------|-------|------|
| EBR   | P6   | FAA   | P1   |
| EEP   | P1   | HGP   | P1   |
| EHP   | P1   | PSA   | P1   |
| ERA   | P1   | PSP   | P1   |
| ERB   | P1   | SWH   | P1   |
| ERC   | P1   |       |      |

## PCB drilling pattern

### Fixed socket with straight print contact (B-K-T series) P15



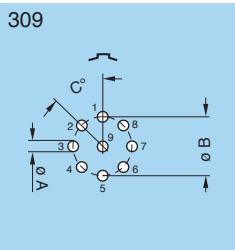
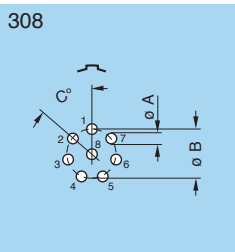
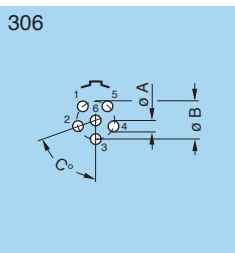
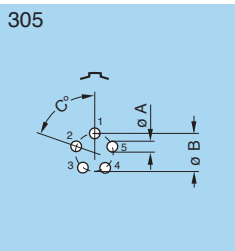
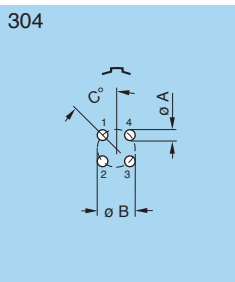
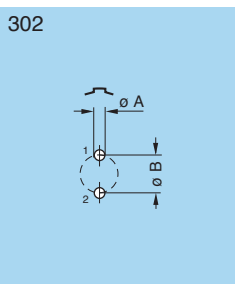
| Series          | Dimensions |      |      |
|-----------------|------------|------|------|
|                 | A          | B    | C    |
| <b>00-TT</b>    | 0.6        | 1.35 | 120° |
| <b>0B-0K-0T</b> | 0.8        | 2.30 | 120° |
| <b>1B-1K-1T</b> | 0.8        | 3.00 | 120° |
| <b>2B-2K-2T</b> | 0.8        | 4.60 | 120° |
| <b>3B-3K-3T</b> | 0.8        | 5.60 | 120° |

| Series       | Dimensions |     |     |
|--------------|------------|-----|-----|
|              | A          | B   | C   |
| <b>00-TT</b> | 0.5        | 1.7 | 72° |

| Series          | Dimensions |     |     |
|-----------------|------------|-----|-----|
|                 | A          | B   | C   |
| <b>0B-0K-0T</b> | 0.6        | 3.0 | 60° |
| <b>1B-1K-1T</b> | 0.8        | 3.7 | 60° |

| Series          | Dimensions |      |     |
|-----------------|------------|------|-----|
|                 | A          | B    | C   |
| <b>0B-0K-0T</b> | 0.6        | 3.00 | 60° |
| <b>1B-1K-1T</b> | 0.8        | 3.70 | 60° |
| <b>2B-2K-2T</b> | 0.8        | 5.80 | 60° |
| <b>3B-3K-3T</b> | 0.8        | 7.08 | 60° |

| Series          | Dimensions |     |     |
|-----------------|------------|-----|-----|
|                 | A          | B   | C   |
| <b>2B-2K-2T</b> | 0.8        | 6.4 | 45° |
| <b>3B-3K-3T</b> | 0.8        | 7.5 | 45° |



| Series          | Dimensions |     |
|-----------------|------------|-----|
|                 | A          | B   |
| <b>00-TT</b>    | 0.6        | 1.2 |
| <b>0B-0K-0T</b> | 0.8        | 2.2 |
| <b>1B-1K-1T</b> | 0.8        | 2.8 |
| <b>2B-2K-2T</b> | 0.8        | 4.4 |

| Series          | Dimensions |     |     |
|-----------------|------------|-----|-----|
|                 | A          | B   | C   |
| <b>00-TT</b>    | 0.6        | 1.6 | 45° |
| <b>0B-0K-0T</b> | 0.6        | 2.5 | 45° |
| <b>1B-1K-1T</b> | 0.8        | 3.1 | 45° |
| <b>2B-2K-2T</b> | 0.8        | 5.0 | 45° |
| <b>3B-3K-3T</b> | 0.8        | 6.2 | 45° |

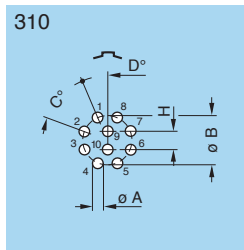
| Series          | Dimensions |     |     |
|-----------------|------------|-----|-----|
|                 | A          | B   | C   |
| <b>0B-0K-0T</b> | 0.6        | 2.8 | 72° |
| <b>1B-1K-1T</b> | 0.8        | 3.4 | 72° |
| <b>2B-2K-2T</b> | 0.8        | 5.2 | 72° |
| <b>3B-3K-3T</b> | 0.8        | 6.7 | 72° |

| Series          | Dimensions |     |     |
|-----------------|------------|-----|-----|
|                 | A          | B   | C   |
| <b>2B-2K-2T</b> | 0.8        | 5.6 | 72° |
| <b>3B-3K-3T</b> | 0.8        | 7.1 | 72° |

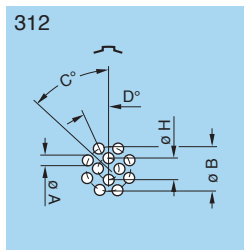
| Series          | Dimensions |     |        |
|-----------------|------------|-----|--------|
|                 | A          | B   | C      |
| <b>1B-1K-1T</b> | 0.8        | 3.8 | 51°26' |

| Series          | Dimensions |     |     |
|-----------------|------------|-----|-----|
|                 | A          | B   | C   |
| <b>0B-0K-0T</b> | 0.6        | 3.2 | 45° |
| <b>3B-3K-3T</b> | 0.8        | 7.5 | 45° |

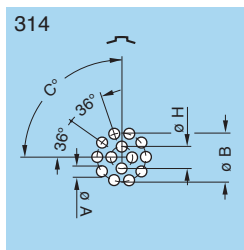
**Note:** contact numbering is for female contact version only.



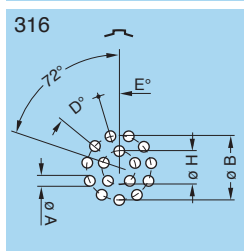
| Series          | Dimensions |      |     |        |      |
|-----------------|------------|------|-----|--------|------|
|                 | A          | B    | C   | D      | H    |
| <b>1B-1K-1T</b> | 0.6        | 3.95 | 45° | 22°30' | 1.40 |
| <b>2B-2K-2T</b> | 0.8        | 6.30 | 45° | 22°30' | 2.15 |
| <b>3B-3K-3T</b> | 0.8        | 7.90 | 45° | 22°30' | 2.80 |



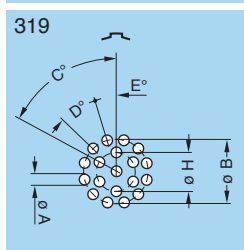
| Series    | Dimensions |      |     |        |      |
|-----------|------------|------|-----|--------|------|
|           | A          | B    | C   | D      | H    |
| <b>XB</b> | 0.8        | 5.40 | 45° | 22°30' | 2.40 |



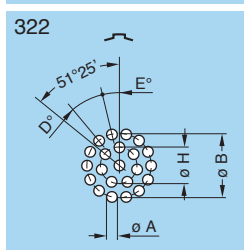
| Series          | Dimensions |     |     |      |
|-----------------|------------|-----|-----|------|
|                 | A          | B   | C   | H    |
| <b>1B-1K-1T</b> | 0.6        | 4.4 | 90° | 1.90 |
| <b>2B-2K-2T</b> | 0.8        | 6.5 | 90° | 2.65 |
| <b>3B-3K-3T</b> | 0.8        | 8.2 | 90° | 3.40 |



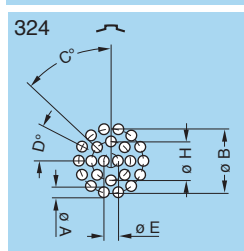
| Series          | Dimensions |      |        |        |      |
|-----------------|------------|------|--------|--------|------|
|                 | A          | B    | D      | E      | H    |
| <b>2B-2K-2T</b> | 0.8        | 6.6  | 32°44' | 16°22' | 3.10 |
| <b>3B-3K-3T</b> | 0.8        | 8.4  | 32°44' | 16°22' | 3.86 |
| <b>4B-4K</b>    | 0.6        | 10.5 | 32°44' | 16°22' | 5.00 |



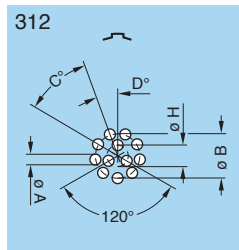
| Series          | Dimensions |     |     |     |     |     |
|-----------------|------------|-----|-----|-----|-----|-----|
|                 | A          | B   | C   | D   | E   | H   |
| <b>2B-2K-2T</b> | 0.8        | 6.7 | 60° | 30° | 15° | 3.5 |



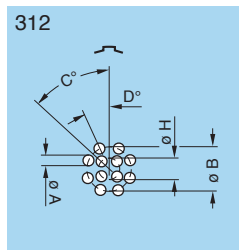
| Series    | Dimensions |     |        |        |     |
|-----------|------------|-----|--------|--------|-----|
|           | A          | B   | D      | E      | H   |
| <b>XB</b> | 0.6        | 5.7 | 25°42' | 12°51' | 3.1 |



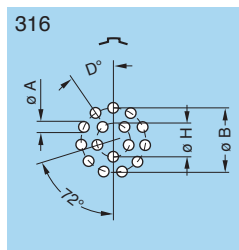
| Series          | Dimensions |      |     |        |     |      |
|-----------------|------------|------|-----|--------|-----|------|
|                 | A          | B    | C   | D      | E   | H    |
| <b>3B-3K-3T</b> | 0.6        | 8.8  | 45° | 25°43' | 1.8 | 5.30 |
| <b>4B-4K</b>    | 0.6        | 11.1 | 45° | 25°43' | 2.2 | 6.65 |



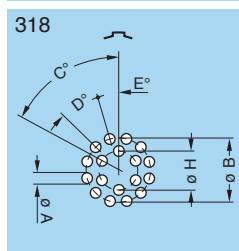
| Series       | Dimensions |     |     |     |      |
|--------------|------------|-----|-----|-----|------|
|              | A          | B   | C   | D   | H    |
| <b>0B-0T</b> | 0.5        | 3.3 | 40° | 20° | 1.25 |



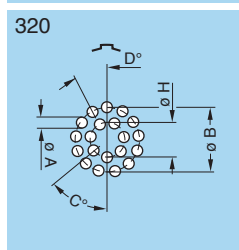
| Series          | Dimensions |      |     |        |      |
|-----------------|------------|------|-----|--------|------|
|                 | A          | B    | C   | D      | H    |
| <b>2B-2K-2T</b> | 0.8        | 6.50 | 45° | 22°30' | 2.80 |
| <b>3B-3K-3T</b> | 0.8        | 8.20 | 45° | 22°30' | 3.40 |



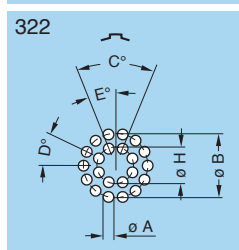
| Series          | Dimensions |     |        |      |
|-----------------|------------|-----|--------|------|
|                 | A          | B   | D      | H    |
| <b>1B-1K-1T</b> | 0.6        | 4.4 | 32°44' | 2.00 |



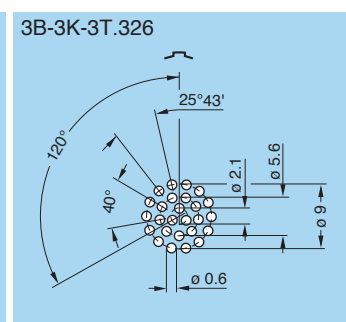
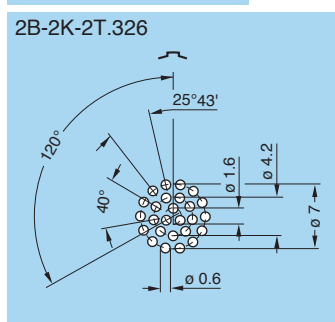
| Series          | Dimensions |     |     |     |     |      |
|-----------------|------------|-----|-----|-----|-----|------|
|                 | A          | B   | C   | D   | E   | H    |
| <b>2B-2K-2T</b> | 0.8        | 6.7 | 60° | 30° | 15° | 3.50 |
| <b>3B-3K-3T</b> | 0.8        | 8.4 | 60° | 30° | 15° | 4.34 |



| Series          | Dimensions |       |        |        |      |
|-----------------|------------|-------|--------|--------|------|
|                 | A          | B     | C      | D      | H    |
| <b>3B-3K-3T</b> | 0.6        | 8.62  | 51°26' | 27°42' | 4.78 |
| <b>4B-4K</b>    | 0.6        | 11.00 | 51°26' | 27°42' | 6.00 |

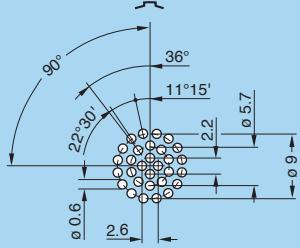


| Series          | Dimensions |     |     |        |        |   |
|-----------------|------------|-----|-----|--------|--------|---|
|                 | A          | B   | C   | D      | E      | H |
| <b>3B-3K-3T</b> | 0.6        | 8.8 | 45° | 25°43' | 22°30' | 5 |

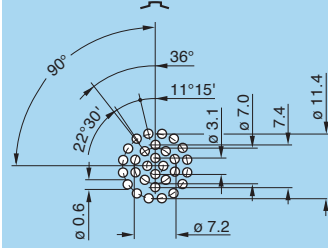


**Note:** contact numbering is for female contact version only.

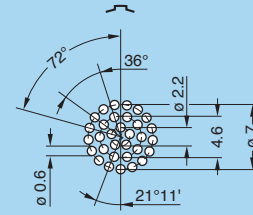
3B-3K-3T.330



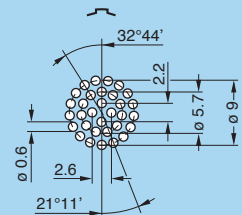
4B-4K.330



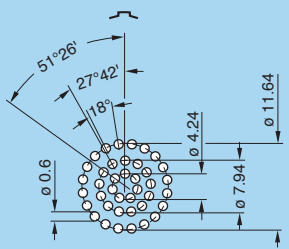
2B-2K-2T.332



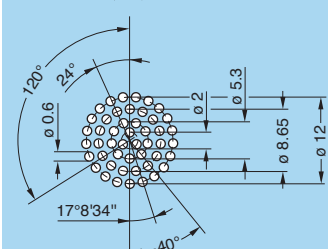
3B-3K.332



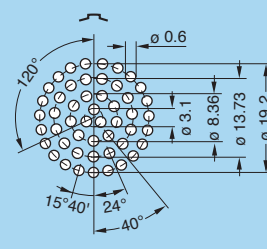
4B-4K.340



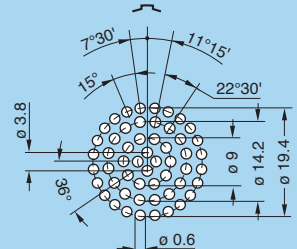
4B-4K.348



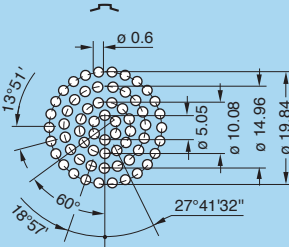
5B-5K.350



5B-5K.354



5B-5K.364



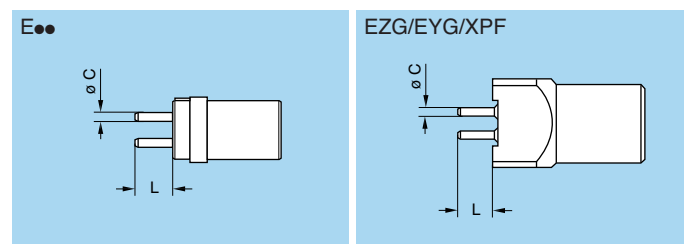
**Note:** all views are from the side of the socket.

## Length of straight print contacts (for socket E●●)

|                                     | Type                                                   | Dimensions |     |
|-------------------------------------|--------------------------------------------------------|------------|-----|
|                                     |                                                        | ø C        | L   |
| <b>00</b><br><b>TT</b>              | 302/303/304                                            | 0.5        | 3.0 |
| <b>0B</b><br><b>0K</b><br><b>0T</b> | 302/303                                                | 0.7        | 3.2 |
|                                     | 304/305/306/307/309                                    | 0.5        | 3.2 |
|                                     | 312                                                    | 0.4        | 3.0 |
| <b>1B</b><br><b>1K</b><br><b>1T</b> | 302/303/304/305/306/307/308                            | 0.7        | 3.0 |
|                                     | 310/314/316                                            | 0.5        | 4.0 |
| <b>XB</b>                           | 312                                                    | 0.7        | 3.0 |
|                                     | 322                                                    | 0.5        | 3.0 |
| <b>2B</b><br><b>2K</b><br><b>2T</b> | 302/303/304/305/306/307<br>308/310/312/314/316/318/319 | 0.7        | 3.0 |
|                                     | 326/332                                                | 0.5        | 3.0 |
| <b>3B</b><br><b>3K</b><br><b>3T</b> | 303/304/305/306/307/308/309<br>310/312/314/316/318     | 0.7        | 3.0 |
|                                     | 320/322/324/326/330/332                                | 0.5        | 5.0 |
| <b>4B</b><br><b>4K</b>              | 316/320/324/330/340/348                                | 0.5        | 5.0 |
| <b>5B</b><br><b>5K</b>              | 348                                                    | 0.7        | 5.0 |
|                                     | 350/354/364                                            | 0.5        | 5.0 |

## Length of straight print contacts (for socket EZG/EYG/XPF)

|           | Type                                                   | Models  |     |     |     |
|-----------|--------------------------------------------------------|---------|-----|-----|-----|
|           |                                                        | EZG/EYG |     | XPF |     |
|           |                                                        | ø C     | L   | ø C | L   |
| <b>0B</b> | 302/303                                                | 0.7     | 4.5 | –   | –   |
|           | 304/305                                                | 0.5     | 4.5 | 0.7 | 3.0 |
|           | 306/307/309                                            | 0.5     | 3.0 | –   | –   |
| <b>1B</b> | 302/303/304/305/306/307/308                            | 0.7     | 3.8 | –   | –   |
|           | 310/314/316                                            | 0.5     | 3.8 | –   | –   |
| <b>2B</b> | 302/303/304/305/306/307/308<br>310/312/314/316/318/319 | 0.7     | 5.5 | –   | –   |



**Note:** This table does not apply for socket H●●; socket EH● and plugs FA●/FW●.

## Fixed socket for printed circuit (B series) P16

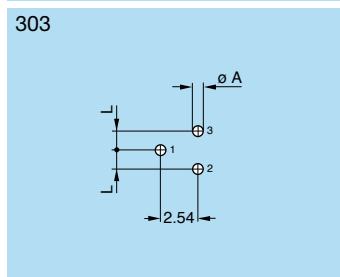
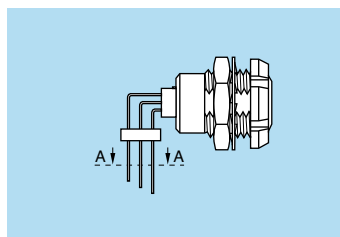
Holes for fixing the housing

| EYG-EZG | Series    | Dimensions        |       |
|---------|-----------|-------------------|-------|
|         |           | A                 | B     |
|         | <b>00</b> | 0.8 <sup>1)</sup> | 5.08  |
|         | <b>0B</b> | 1.7 <sup>2)</sup> | 7.62  |
|         | <b>1B</b> | 1.7 <sup>2)</sup> | 7.62  |
|         | <b>2B</b> | 1.7 <sup>2)</sup> | 10.16 |

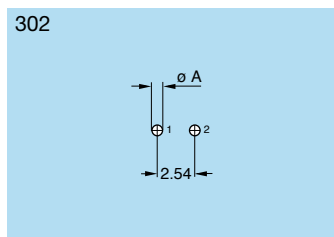
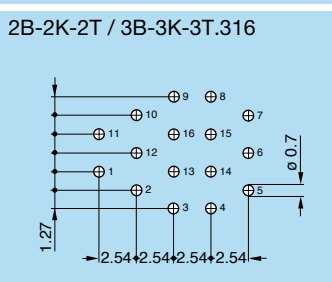
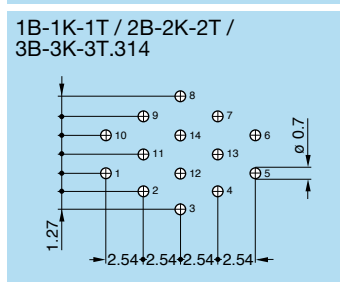
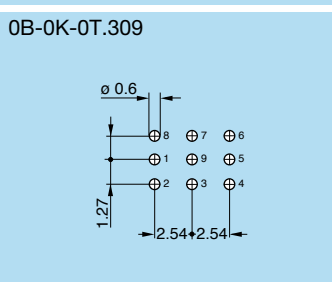
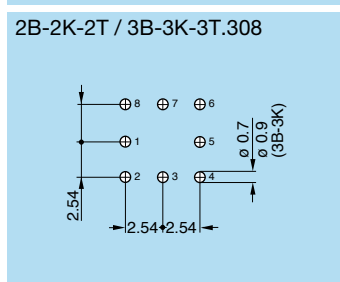
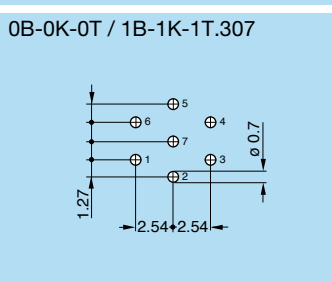
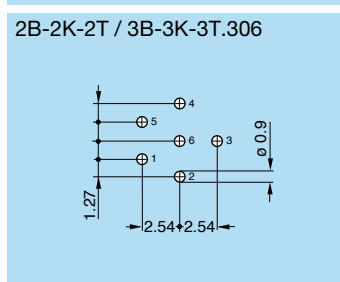
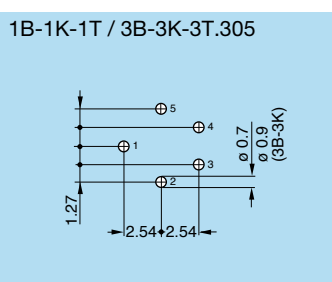
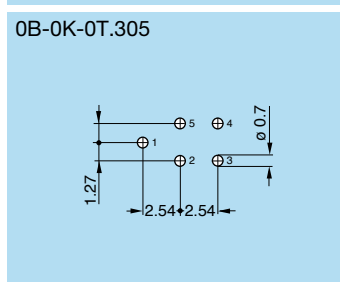
| XPF.0B | Series    | Dimensions |      |
|--------|-----------|------------|------|
|        |           | A          | B    |
|        | <b>0B</b> | 1.7        | 5.08 |

**Note:** Mounting torque for screws: 0.1 Nm. <sup>1)</sup> to solder. <sup>2)</sup> to screw.

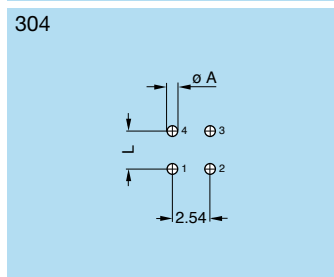
# Fixed socket with elbow print contact (B-K-T series) P17



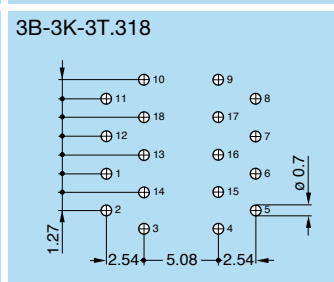
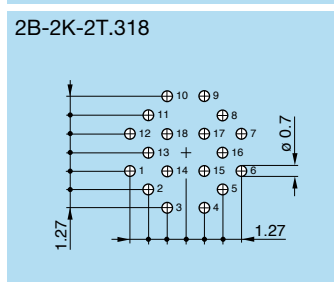
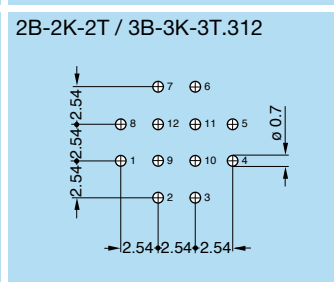
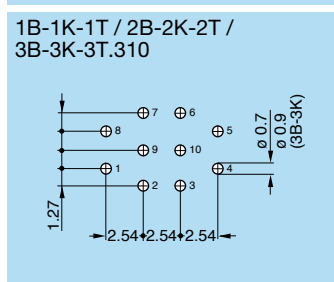
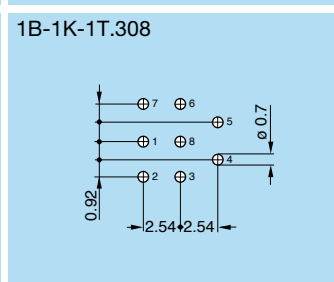
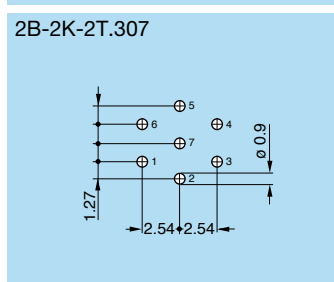
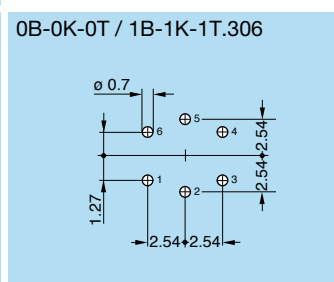
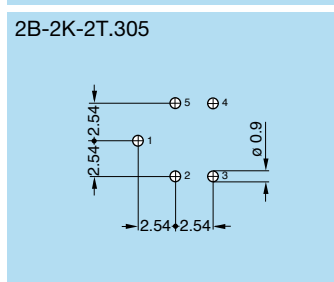
| Series   | Dimensions |      |
|----------|------------|------|
|          | A          | L    |
| 00-TT    | 0.6        | 1.27 |
| 0B-0K-0T | 0.7        | 1.27 |
| 1B-1K-1T | 0.9        | 1.27 |
| 2B-2K-2T | 0.9        | 2.54 |



| Series   | Dim. |
|----------|------|
|          | A    |
| 00-TT    | 0.6  |
| 0B-0K-0T | 0.7  |
| 1B-1K-1T | 0.9  |
| 2B-2K-2T | 0.9  |



| Series   | Dimensions |      |
|----------|------------|------|
|          | A          | L    |
| 00-TT    | 0.6        | 2.54 |
| 0B-0K-0T | 0.7        | 2.54 |
| 1B-1K-1T | 0.7        | 2.54 |
| 2B-2K-2T | 0.9        | 3.50 |
| 3B-3K-3T | 0.9        | 2.54 |

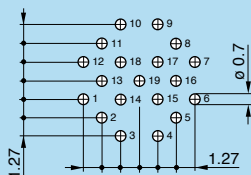


**Note:** contact numbering is for female contact version only.

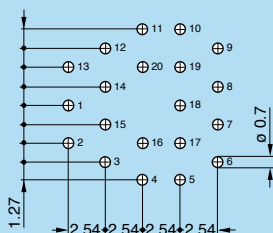


## Fixed socket with elbow print contact (B-K-T series) P17

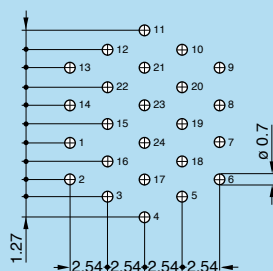
2B-2K-2T.319



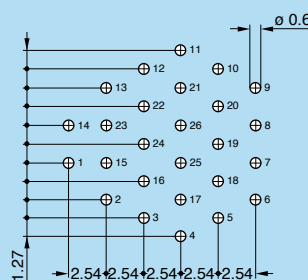
3B-3K-3T.320



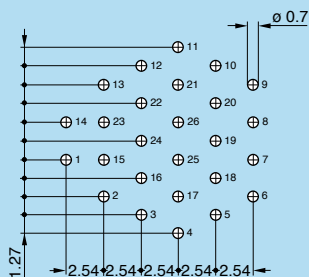
3B-3K-3T.324



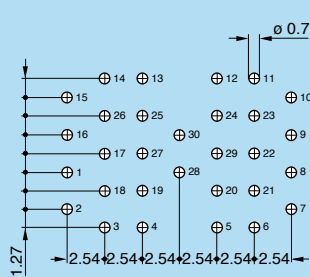
2B-2K-2T.326



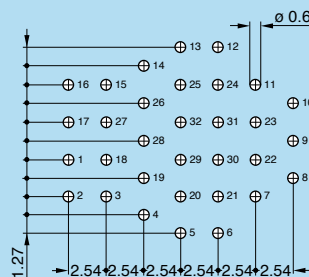
3B-3K-3T.326



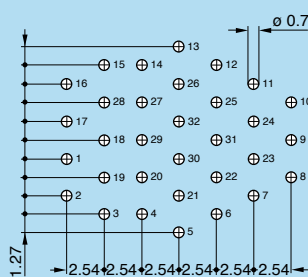
3B-3K-3T.330



2B-2K-2T.332

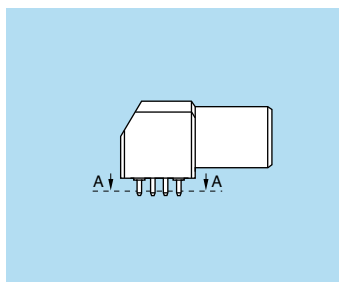


3B-3K.332

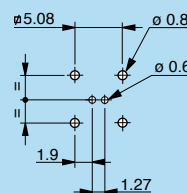


**Note:** contact numbering is for female contact version only.

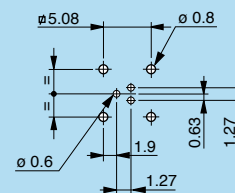
## Elbow socket (90°) for printed circuit (B series) P18 P19 P20



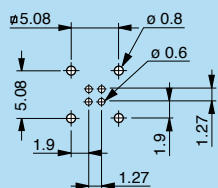
**P18** - EPG.00.302 - XBG.00.302  
XRB.00.302<sup>1)</sup>



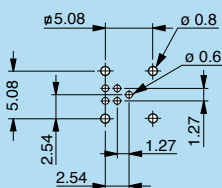
**P18** - EPG.00.303<sup>2)</sup> - XBG.00.303<sup>2)</sup>  
XRB.00.303<sup>1)</sup>



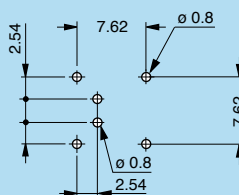
**P18** - EPG.00.304 - XBG.00.304  
XRB.00.304<sup>1)</sup>



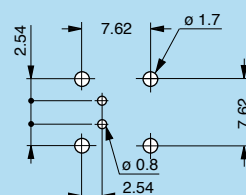
**P18** - EPG.00.305



**P19** - EPG-EXG (0B/1B.302)  
Solder mount



**P19** - EPG-EXG (0B/1B.302)  
Screw mount

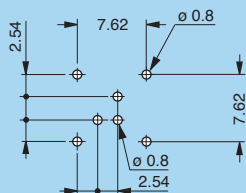


**Note:** <sup>1)</sup> for the XRB.00 series the holes for shell fixing are different (see p. 35).

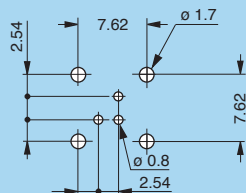
<sup>2)</sup> the dimensions for the EPG.00.303.HLN and XBG.00.303.HLN models are given on page 26. For other models please contact factory.

## Elbow socket (90°) for printed circuit (B series) P18 P19 P20

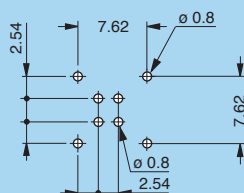
**P19 - EPG-EXG (0B/1B.303)**  
Solder mount



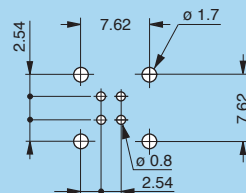
**P19 - EPG-EXG (0B/1B.303)**  
Screw mount



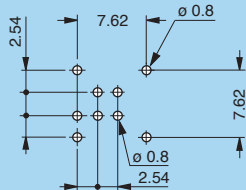
**P19 - EPG-EXG (0B/1B.304)**  
Solder mount



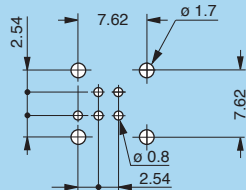
**P19 - EPG-EXG (0B/1B.304)**  
Screw mount



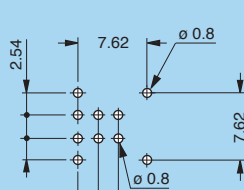
**P19 - EPG-EXG (0B/1B.305)**  
Solder mount



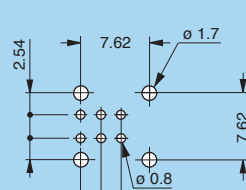
**P19 - EPG-EXG (0B/1B.305)**  
Screw mount



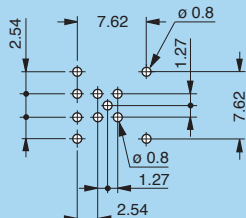
**P19 - EPG-EXG (0B/1B.306)**  
Solder mount



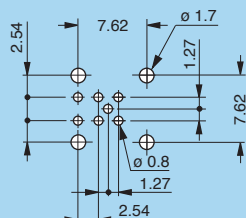
**P19 - EPG-EXG (0B/1B.306)**  
Screw mount



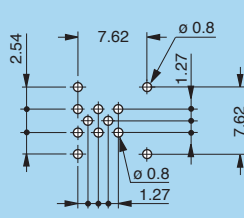
**P19 - EPG-EXG (0B/1B.307)**  
Solder mount



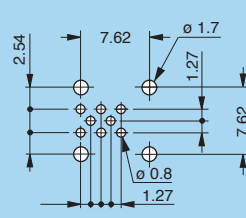
**P19 - EPG-EXG (0B/1B.307)**  
Screw mount



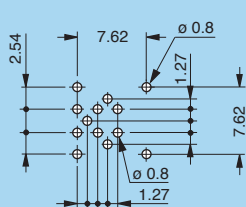
**P19 - EPG-EXG (1B.308)**  
Solder mount



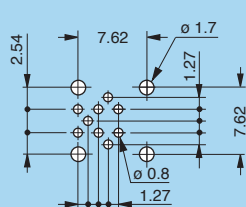
**P19 - EPG-EXG (1B.308)**  
Screw mount



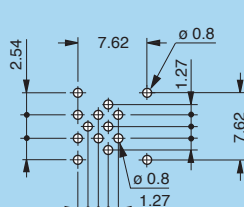
**P19 - EPG-EXG (0B.309)**  
Solder mount



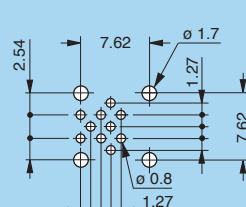
**P19 - EPG-EXG (0B.309)**  
Screw mount



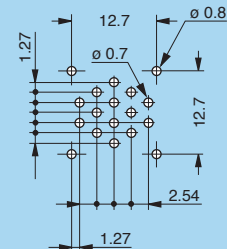
**P19 - EPG-EXG (1B.310)**  
Solder mount



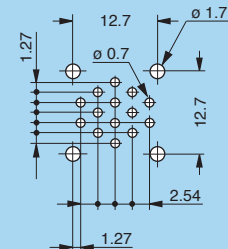
**P19 - EPG-EXG (1B.310)**  
Screw mount



**P20 - EPG.1B.314**  
Solder mount

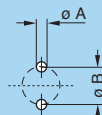


**P20 - EPG.1B.314**  
Screw mount



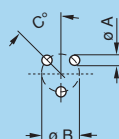
## Fixed socket with straight print contact (S-E series) P21

302



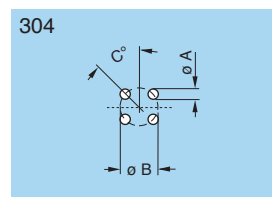
| Series | Dimensions |     |
|--------|------------|-----|
|        | A          | B   |
| 0S-0E  | 0.8        | 2.2 |
| 1S-1E  | 0.8        | 3.0 |
| 2S-2E  | 0.8        | 4.5 |

303

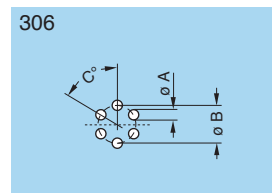


| Series | Dimensions |     |     |
|--------|------------|-----|-----|
|        | A          | B   | C   |
| 0S-0E  | 0.6        | 2.8 | 45° |
| 1S-1E  | 0.8        | 3.5 | 45° |
| 2S-2E  | 0.8        | 5.5 | 60° |

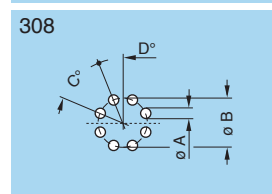
## Fixed socket with straight print contact (S-E series) P21



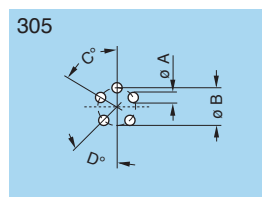
| Series       | Dimensions |     |     |
|--------------|------------|-----|-----|
|              | A          | B   | C   |
| <b>0S-0E</b> | 0.6        | 2.8 | 45° |
| <b>1S-1E</b> | 0.8        | 3.5 | 45° |
| <b>2S-2E</b> | 0.8        | 5.0 | 45° |



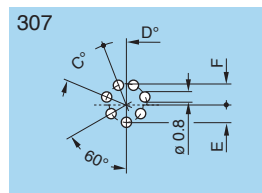
| Series       | Dimensions |     |     |
|--------------|------------|-----|-----|
|              | A          | B   | C   |
| <b>1S-1E</b> | 0.8        | 3.5 | 60° |
| <b>2S-2E</b> | 0.8        | 5.5 | 60° |
| <b>3S-3E</b> | 0.8        | 6.5 | 60° |



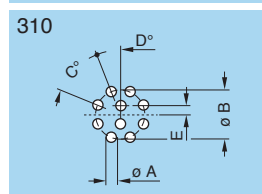
| Series       | Dimensions |     |     |        |
|--------------|------------|-----|-----|--------|
|              | A          | B   | C   | D      |
| <b>2S-2E</b> | 0.8        | 6.5 | 45° | 22°30' |
| <b>3S-3E</b> | 0.8        | 7.8 | 45° | 22°30' |



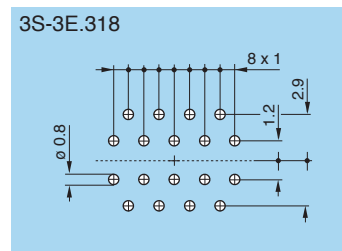
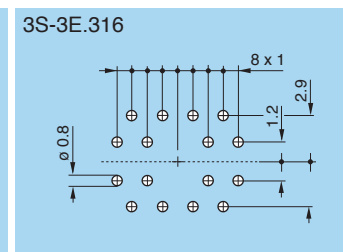
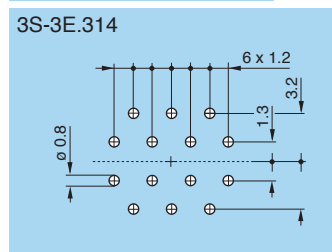
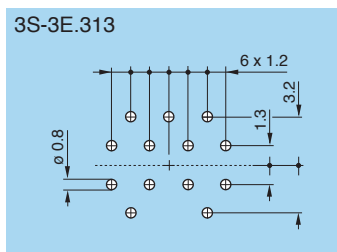
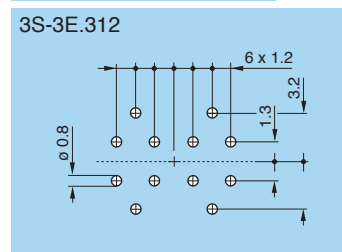
| Series       | Dimensions |     |     |     |
|--------------|------------|-----|-----|-----|
|              | A          | B   | C   | D   |
| <b>1S-1E</b> | 0.8        | 3.5 | 60° | 45° |
| <b>2S-2E</b> | 0.8        | 5.5 | 60° | 60° |



| Series       | Dimensions |        |      |      |
|--------------|------------|--------|------|------|
|              | C          | D      | E    | F    |
| <b>2S-2E</b> | 45°        | 22°30' | 2.75 | 3.25 |
| <b>3S-3E</b> | 45°        | 22°30' | 3.25 | 3.90 |

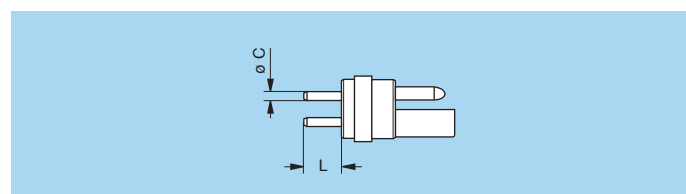


| Series       | Dimensions |     |     |        |      |
|--------------|------------|-----|-----|--------|------|
|              | A          | B   | C   | D      | E    |
| <b>2S-2E</b> | 0.8        | 6.5 | 45° | 22°30' | 1.25 |
| <b>3S-3E</b> | 0.8        | 7.8 | 45° | 22°30' | 1.50 |



**Note:** all views are from the side of the socket.

## Length of straight print contacts (for socket E●●)



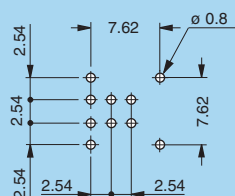
|              | Type               | Dimensions |         |
|--------------|--------------------|------------|---------|
|              |                    | ø C        | L       |
| <b>0S-0E</b> | <b>302</b>         | 0.7        | 3.0     |
|              | <b>303/304</b>     | 0.5        | 3.0     |
| <b>1S-1E</b> | <b>302</b>         | 0.7/1.5    | 3.0/5.0 |
|              | <b>303/304/305</b> | 0.7        | 3.0     |
|              | <b>305/306</b>     | 0.5        | 3.0     |

|              | Type                                               | Dimensions |     |
|--------------|----------------------------------------------------|------------|-----|
|              |                                                    | ø C        | L   |
| <b>2S-2E</b> | <b>303/304/305/306/307/308/310</b>                 | 0.7        | 3.0 |
| <b>3S-3E</b> | <b>305/306/307/308/310<br/>312/313/314/316/318</b> | 0.7        | 3.0 |

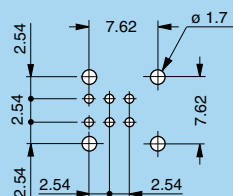
**Note:** This table does not apply for HGP and EHP sockets and for FAA plugs.

## Elbow socket (90°) for printed circuit (S series) P22 P23

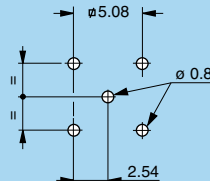
**P22 - EPL - EXP**  
Solder mount



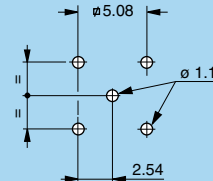
**P22 - EPL - EXP**  
Screw mount



**P23 - EPL.00.113**

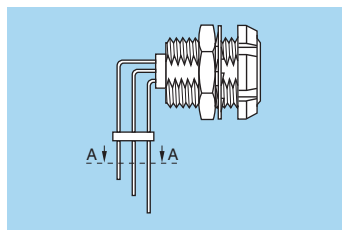


**P23 - EPL.0S.116**

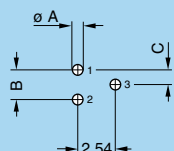


**Note:** all dimensions are in millimetres.

## Fixed socket with elbow print contact (S-E series) P24

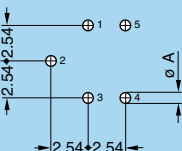


**303**



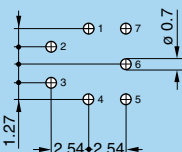
| Series       | Dimensions |      |      |
|--------------|------------|------|------|
|              | A          | B    | C    |
| <b>0S-0E</b> | 0.7        | 2.00 | 1.00 |
| <b>1S-1E</b> | 0.7        | 2.48 | 1.24 |

**305**

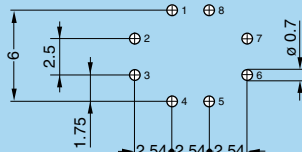


| Series       | Dim. |
|--------------|------|
|              | A    |
| <b>1S-1E</b> | 0.7  |
| <b>2S-2E</b> | 0.9  |

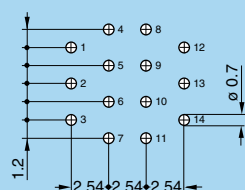
**2S-2E.307**



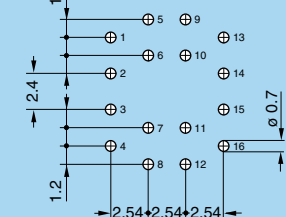
**2S-2E.308**



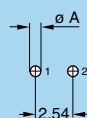
**3S-3E.314**



**3S-3E.316**

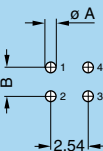


**302**



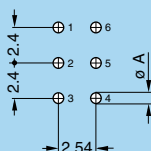
| Series       | Dim. |
|--------------|------|
|              | A    |
| <b>0S-0E</b> | 0.7  |
| <b>1S-1E</b> | 0.9  |

**304**



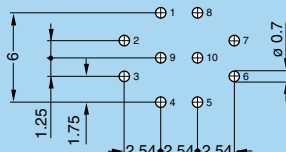
| Series       | Dimensions |     |
|--------------|------------|-----|
|              | A          | B   |
| <b>0S-0E</b> | 0.7        | 2.0 |
| <b>1S-1E</b> | 0.7        | 3.5 |
| <b>2S-2E</b> | 0.9        | 3.5 |

**306**

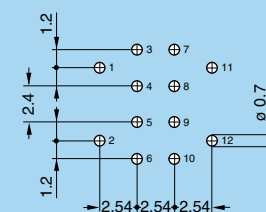


| Series       | Dim. |
|--------------|------|
|              | A    |
| <b>1S-1E</b> | 0.7  |
| <b>2S-2E</b> | 0.9  |

**2S-2E / 3S-3E.310**



**3S-3E.312**



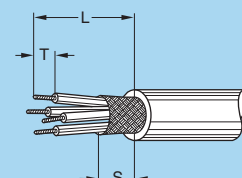
## Cable assembly (B, K, T, S and E series)

### Cable stripping lengths (B series)

**M1** straight plugs and sockets with cable collet, clamping type D or M (solder or crimp contacts)

**M3** elbow plugs (90°) with cable collet, clamping type D or M (solder or crimp contacts)

|                        | Type                      | ø contact A<br>(mm) | Cable stripping lengths (mm) |     |            |       |    |            |        |    |            |       |    |            |
|------------------------|---------------------------|---------------------|------------------------------|-----|------------|-------|----|------------|--------|----|------------|-------|----|------------|
|                        |                           |                     | M1                           |     |            |       |    |            | M3     |    |            |       |    |            |
|                        |                           |                     | Solder                       |     |            | Crimp |    |            | Solder |    |            | Crimp |    |            |
|                        |                           |                     | L                            | S   | T          | L     | S  | T          | L      | S  | T          | L     | S  | T          |
| <b>00</b>              | 302/303/304               | 0.5                 | 7.0                          | 4   | 2.5        | 10.0  | 4  | 3.0        | 9.5    | 4  | 2.5        | 12.5  | 4  | 3.0        |
|                        | 305/306                   | 0.35                | 7.0                          | 4   | 2.5        | –     | –  | –          | 9.5    | 4  | 2.5        | –     | –  | –          |
| <b>0B<sup>1)</sup></b> | 302/303                   | 0.9                 | 14.5                         | 7   | 3.5        | 17.0  | 7  | 4.0        | 19.5   | 7  | 3.5        | 22.0  | 7  | 4.0        |
|                        | 304/305                   | 0.7                 | 14.5                         | 7   | 3.5        | 17.0  | 7  | 4.0        | 19.5   | 7  | 3.5        | 22.0  | 7  | 4.0        |
|                        | 306/307/309 <sup>2)</sup> | 0.5                 | 14.0                         | 7   | 2.5        | 18.0  | 7  | 3.0        | 19.0   | 7  | 2.5        | 23.0  | 7  | 3.0        |
|                        | 312                       | 0.35                | 14.0                         | 7   | 2.5        | –     | –  | –          | 19.0   | 7  | 2.5        | –     | –  | –          |
| <b>1B<sup>1)</sup></b> | 302/303                   | 1.3                 | 14.5                         | 8   | 3.5        | 18.0  | 8  | 4.0        | 25.5   | 8  | 3.5        | 28.0  | 8  | 4.0        |
|                        | 304/305                   | 0.9                 | 14.5                         | 8   | 3.0        | 18.0  | 8  | 4.0        | 25.5   | 8  | 3.0        | 28.0  | 8  | 4.0        |
|                        | 306/307/308               | 0.7                 | 14.5                         | 8   | 3.0        | 18.0  | 8  | 4.0        | 25.5   | 8  | 3.0        | 28.0  | 8  | 4.0        |
|                        | 310/314/316               | 0.5                 | 16.5                         | 8   | 2.5        | –     | –  | –          | 27.5   | 8  | 2.5        | –     | –  | –          |
| <b>XB</b>              | 312                       | 0.7                 | 16.5                         | 7.5 | 3.5        | –     | –  | –          | –      | –  | –          | –     | –  | –          |
|                        | 322                       | 0.5                 | 17.5                         | 8   | 4.0        | –     | –  | –          | –      | –  | –          | –     | –  | –          |
| <b>2B</b>              | 302                       | 2.0                 | 19.0                         | 9   | 4.0        | 22.0  | 9  | 5.5        | 30.0   | 9  | 4.0        | 33.0  | 9  | 5.5        |
|                        | 303                       | 1.6                 | 19.0                         | 9   | 3.5        | 22.0  | 9  | 5.5        | 30.0   | 9  | 3.5        | 33.0  | 9  | 5.5        |
|                        | 304/305/306/307           | 1.3                 | 18.0                         | 9   | 3.5        | 20.0  | 9  | 4.0        | 29.0   | 9  | 3.5        | 31.0  | 9  | 4.0        |
|                        | 308/310                   | 0.9                 | 17.0                         | 9   | 3.0        | 20.0  | 9  | 4.0        | 28.0   | 9  | 3.0        | 31.0  | 9  | 4.0        |
|                        | 312/314/316/318/319       | 0.7                 | 17.0                         | 9   | 3.0        | 20.0  | 9  | 4.0        | 28.0   | 9  | 3.0        | 31.0  | 9  | 4.0        |
|                        | 326/332                   | 0.5                 | 17.0                         | 9   | 2.5        | –     | –  | –          | 28.0   | 9  | 2.5        | –     | –  | –          |
| <b>3B</b>              | 302                       | 3.0                 | 24.0                         | 10  | 4.5        | 28.0  | 10 | 5.5        | 35.0   | 10 | 4.5        | 39.0  | 10 | 5.5        |
|                        | 303/304                   | 2.0                 | 23.0                         | 10  | 4.0        | 27.0  | 10 | 5.5        | 34.0   | 10 | 4.0        | 38.0  | 10 | 5.5        |
|                        | 305/306/307               | 1.6                 | 23.0                         | 10  | 3.5        | 27.0  | 10 | 5.5        | 34.0   | 10 | 3.5        | 38.0  | 10 | 5.5        |
|                        | 308/310                   | 1.3                 | 22.0                         | 10  | 3.5        | 25.0  | 10 | 4.0        | 33.0   | 10 | 3.5        | 36.0  | 10 | 4.0        |
|                        | 309                       | 1.3<br>2.0          | 22.0                         | 10  | 3.5<br>4.0 | 25.0  | 10 | 4.0<br>5.5 | 33.0   | 10 | 3.5<br>4.0 | 36.0  | 10 | 4.0<br>5.5 |
|                        | 312/314/316/318           | 0.9                 | 21.0                         | 10  | 3.0        | 25.0  | 10 | 4.0        | 32.0   | 10 | 3.0        | 36.0  | 10 | 4.0        |
|                        | 320/322/324/326/330/332   | 0.7                 | 21.0                         | 10  | 3.0        | 25.0  | 10 | 4.0        | 32.0   | 10 | 3.0        | 36.0  | 10 | 4.0        |



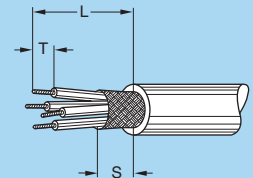
**Note:** <sup>1)</sup> In 0B and 1B series, «L» and «S» dimensions shall be increased by 2 mm for the largest collet (D56 in 0B series; D76 in 1B series). The tolerances on these dimensions are: L: ± 0.5 mm; S: ± 0.5 mm; T: ± 0.2 mm.

## Cable stripping lengths (B series)

**M1** straight plugs and sockets with cable collet, clamping type D or M (solder or crimp contacts)

**M3** elbow plugs (90°) with cable collet, clamping type D or M (solder or crimp contacts)

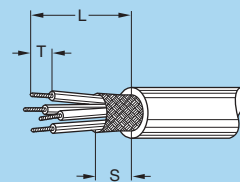
|                        | Type                   | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |     |       |    |     |        |    |     |       |    |     |
|------------------------|------------------------|---------------------|------------------------------|----|-----|-------|----|-----|--------|----|-----|-------|----|-----|
|                        |                        |                     | M1                           |    |     |       |    |     | M3     |    |     |       |    |     |
|                        |                        |                     | Solder                       |    |     | Crimp |    |     | Solder |    |     | Crimp |    |     |
|                        |                        |                     | L                            | S  | T   | L     | S  | T   | L      | S  | T   | L     | S  | T   |
| <b>4B</b>              | <b>304</b>             | 3.0                 | 33.0                         | 12 | 4.5 | 36.0  | 12 | 5.5 | 41.0   | 12 | 4.5 | 45.0  | 12 | 5.5 |
|                        | <b>306/307</b>         | 2.0                 | 32.0                         | 12 | 4.0 | 36.0  | 12 | 5.5 | 41.0   | 12 | 4.0 | 45.0  | 12 | 5.5 |
|                        | <b>310</b>             | 1.6                 | 32.0                         | 12 | 3.5 | 36.0  | 12 | 5.5 | 39.0   | 12 | 3.5 | 43.0  | 12 | 5.5 |
|                        | <b>312</b>             | 1.3                 | 32.0                         | 12 | 3.5 | 36.0  | 12 | 4.0 | 39.0   | 12 | 3.5 | 43.0  | 12 | 4.0 |
|                        | <b>316/320/324/330</b> | 0.9                 | 32.0                         | 12 | 3.0 | 34.0  | 12 | 4.0 | 39.0   | 12 | 3.0 | 43.0  | 12 | 4.0 |
|                        | <b>340/348</b>         | 0.7                 | 32.0                         | 12 | 3.0 | 34.0  | 12 | 4.0 | 39.0   | 12 | 3.0 | 43.0  | 12 | 4.0 |
| <b>5B<sup>1)</sup></b> | <b>302</b>             | 6.0                 | 42.0                         | 18 | 7.5 | —     | —  | —   | 70.0   | 18 | 7.5 | —     | —  | —   |
|                        | <b>304</b>             | 4.0                 | 47.0                         | 18 | 5.5 | 50.0  | 18 | 7.0 | 75.0   | 18 | 5.5 | 78.0  | 18 | 7.0 |
|                        | <b>310</b>             | 3.0                 | 47.0                         | 18 | 4.5 | 50.0  | 18 | 7.0 | 75.0   | 18 | 4.5 | 78.0  | 18 | 7.0 |
|                        | <b>314/316</b>         | 2.0                 | 46.0                         | 18 | 4.0 | 49.0  | 18 | 5.5 | 74.0   | 18 | 4.0 | 77.0  | 18 | 5.5 |
|                        | <b>320</b>             | 1.6                 | 46.0                         | 18 | 3.5 | 49.0  | 18 | 5.5 | 74.0   | 18 | 3.5 | 77.0  | 18 | 5.5 |
|                        | <b>330/340/348</b>     | 1.3                 | 45.0                         | 18 | 3.5 | 48.0  | 18 | 4.0 | 74.0   | 18 | 3.5 | 77.0  | 18 | 4.0 |
|                        | <b>350/354/364</b>     | 0.9                 | 45.0                         | 18 | 3.0 | 48.0  | 18 | 4.0 | 74.0   | 18 | 3.0 | 77.0  | 18 | 4.0 |



**Note:** 1) In 5B series, «L» and «S» dimensions shall be increased by 13 mm for the largest collet (D25).

**M5** elbow plugs (90°) with cable collet, clamping type D or M (solder or crimp contacts) (FSG model)

|           | Type                            | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |     |       |   |     |
|-----------|---------------------------------|---------------------|------------------------------|---|-----|-------|---|-----|
|           |                                 |                     | M5                           |   |     |       |   |     |
|           |                                 |                     | Solder                       |   |     | Crimp |   |     |
|           |                                 |                     | L                            | S | T   | L     | S | T   |
| <b>00</b> | <b>302/303/304</b>              | 0.5                 | 12.0                         | 4 | 2.5 | 15.0  | 5 | 3.0 |
|           | <b>305/306</b>                  | 0.35                | 12.0                         | 4 | 2.5 | —     | — | —   |
| <b>0B</b> | <b>302/303</b>                  | 0.9                 | 21.5                         | 7 | 3.5 | 24.0  | 7 | 4.0 |
|           | <b>304/305</b>                  | 0.7                 | 21.5                         | 7 | 3.5 | 24.0  | 7 | 4.0 |
|           | <b>306/307/309<sup>1)</sup></b> | 0.5                 | 21.0                         | 7 | 3.5 | 24.0  | 7 | 3.0 |
|           | <b>312</b>                      | 0.35                | 21.0                         | 7 | 3.5 | —     | — | —   |
| <b>1B</b> | <b>302/303</b>                  | 1.3                 | 27.0                         | 8 | 3.5 | 32.0  | 8 | 4.0 |
|           | <b>304/305</b>                  | 0.9                 | 27.0                         | 8 | 3.5 | 32.0  | 8 | 4.0 |
|           | <b>306/307<sup>2)</sup>/308</b> | 0.7                 | 27.0                         | 8 | 3.5 | 32.0  | 8 | 4.0 |
|           | <b>310/314/316<sup>3)</sup></b> | 0.5                 | 29.0                         | 8 | 3.5 | —     | — | —   |
| <b>2B</b> | <b>302</b>                      | 2.0                 | 35.0                         | 9 | 4.0 | 38.0  | 9 | 5.5 |
|           | <b>303</b>                      | 1.6                 | 35.0                         | 9 | 4.0 | 38.0  | 9 | 5.5 |
|           | <b>304/305/306/307</b>          | 1.3                 | 34.0                         | 9 | 4.0 | 36.0  | 9 | 4.0 |
|           | <b>308/310</b>                  | 0.9                 | 33.0                         | 9 | 4.0 | 36.0  | 9 | 4.0 |
|           | <b>312/314/316/318/319</b>      | 0.7                 | 33.0                         | 9 | 3.5 | 36.0  | 9 | 4.0 |
|           | <b>326/332</b>                  | 0.5                 | 33.0                         | 9 | 3.5 | —     | — | —   |

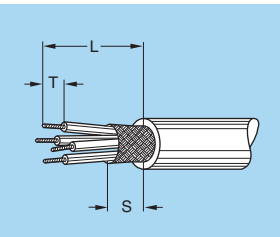


**Note:** 1) center wire L = 16.5. 2) center wire L = 20.5. 3) 5 center wires L = 20.5.  
The tolerances on these dimensions are: L: ± 0.5 mm; S: ± 0.5 mm; T: ± 0.2 mm.

## Cable stripping lengths (B series)

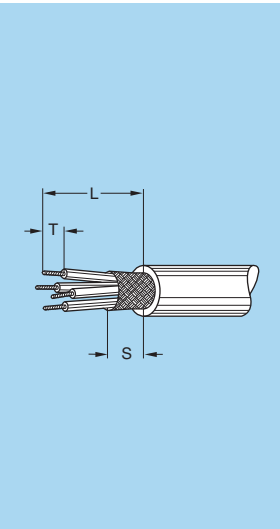
**M4** straight plug, short version, clamping type D or M (solder or crimp contacts)

|           | Type                            | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |     |       |   |     |
|-----------|---------------------------------|---------------------|------------------------------|---|-----|-------|---|-----|
|           |                                 |                     | <b>M4</b>                    |   |     |       |   |     |
|           |                                 |                     | Solder                       |   |     | Crimp |   |     |
|           |                                 |                     | L                            | S | T   | L     | S | T   |
| <b>0B</b> | <b>302/303</b>                  | 0.9                 | 9.5                          | 8 | 3.0 | 13.0  | 8 | 4.0 |
|           | <b>304/305</b>                  | 0.7                 | 9.5                          | 8 | 3.0 | 13.0  | 8 | 4.0 |
|           | <b>306/307/309<sup>2)</sup></b> | 0.5                 | 10.0                         | 8 | 2.5 | 13.5  | 8 | 3.0 |



**M2** straight plug, long version, clamping type D or M (solder or crimp contacts)

|                        | Type                       | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |     |       |   |     |
|------------------------|----------------------------|---------------------|------------------------------|---|-----|-------|---|-----|
|                        |                            |                     | <b>M2</b>                    |   |     |       |   |     |
|                        |                            |                     | Solder                       |   |     | Crimp |   |     |
|                        |                            |                     | L                            | S | T   | L     | S | T   |
| <b>1B<sup>1)</sup></b> | <b>302/303</b>             | 1.3                 | 39.5                         | 8 | 3.5 | 43.0  | 8 | 4.0 |
|                        | <b>304/305</b>             | 0.9                 | 39.5                         | 8 | 3.0 | 43.0  | 8 | 4.0 |
|                        | <b>306/307/308</b>         | 0.7                 | 39.5                         | 8 | 3.0 | 43.0  | 8 | 4.0 |
|                        | <b>310/314/316</b>         | 0.5                 | 42.0                         | 8 | 2.5 | —     | — | —   |
| <b>2B</b>              | <b>302</b>                 | 2.0                 | 49.0                         | 9 | 4.0 | 53.0  | 9 | 5.5 |
|                        | <b>303</b>                 | 1.6                 | 49.0                         | 9 | 3.5 | 53.0  | 9 | 5.5 |
|                        | <b>304/305/306/307</b>     | 1.3                 | 48.0                         | 9 | 3.5 | 50.0  | 9 | 4.0 |
|                        | <b>308/310</b>             | 0.9                 | 47.0                         | 9 | 3.0 | 49.0  | 9 | 4.0 |
|                        | <b>312/314/316/318/319</b> | 0.7                 | 47.0                         | 9 | 3.0 | 49.0  | 9 | 4.0 |
|                        | <b>326/332</b>             | 0.5                 | 47.0                         | 9 | 2.5 | —     | — | —   |



**Note:** <sup>1)</sup> In 1B series, «L» and «S» dimensions shall be increased by 2 mm for the largest collet (D76 in 1B series).

<sup>2)</sup> Crimp contacts are available only for connectors fitted with male contacts.

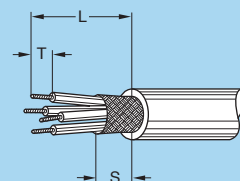
The tolerances on these dimensions are: L: ± 0.5 mm; S: ± 0.5 mm; T: ± 0.2 mm.

## Cable stripping lengths (K series)

**M1** straight plugs and sockets with cable collet, clamping type C (solder or crimp contacts)

**M3** elbow plug (90°) with cable collet, clamping type C (solder or crimp contacts)

|           | Type                      | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |            |       |    |            |        |    |            |       |    |            |
|-----------|---------------------------|---------------------|------------------------------|----|------------|-------|----|------------|--------|----|------------|-------|----|------------|
|           |                           |                     | M1                           |    |            |       |    |            | M3     |    |            |       |    |            |
|           |                           |                     | Solder                       |    |            | Crimp |    |            | Solder |    |            | Crimp |    |            |
|           |                           |                     | L                            | S  | T          | L     | S  | T          | L      | S  | T          | L     | S  | T          |
| <b>0K</b> | 302/303                   | 0.9                 | 9.5                          | 6  | 3.5        | 12.0  | 6  | 4.0        | 22.5   | 6  | 3.5        | 25.0  | 6  | 4.0        |
|           | 304/305                   | 0.7                 | 9.5                          | 6  | 3.5        | 12.0  | 6  | 4.0        | 22.5   | 6  | 3.5        | 25.0  | 6  | 4.0        |
|           | 306/307/309 <sup>1)</sup> | 0.5                 | 9.0                          | 6  | 2.5        | 13.0  | 6  | 4.0        | 22.0   | 6  | 2.5        | 26.0  | 6  | 4.0        |
|           | 312                       | 0.35                | 9.0                          | 6  | 2.5        | –     | –  | –          | 22.0   | 6  | 2.5        | –     | –  | –          |
| <b>1K</b> | 302/303                   | 1.3                 | 11.0                         | 7  | 3.5        | 14.5  | 7  | 4.0        | 27.5   | 7  | 3.5        | 31.0  | 7  | 4.0        |
|           | 304/305                   | 0.9                 | 11.0                         | 7  | 3.0        | 14.5  | 7  | 4.0        | 27.5   | 7  | 3.0        | 31.0  | 7  | 4.0        |
|           | 306/307/308               | 0.7                 | 11.0                         | 7  | 3.0        | 14.5  | 7  | 4.0        | 27.5   | 7  | 3.0        | 31.0  | 7  | 4.0        |
|           | 310/314/316               | 0.5                 | 13.0                         | 7  | 2.5        | 14.0  | 7  | 3.0        | 29.5   | 7  | 2.5        | –     | –  | –          |
| <b>2K</b> | 302                       | 2.0                 | 16.5                         | 8  | 4.0        | 19.5  | 8  | 5.5        | 36.0   | 8  | 4.0        | 39.0  | 8  | 5.5        |
|           | 303                       | 1.6                 | 16.5                         | 8  | 3.5        | 19.5  | 8  | 5.5        | 36.0   | 8  | 3.5        | 39.0  | 8  | 5.5        |
|           | 304/305/306/307           | 1.3                 | 15.5                         | 8  | 3.5        | 17.5  | 8  | 4.0        | 35.0   | 8  | 3.5        | 37.0  | 8  | 4.0        |
|           | 308/310                   | 0.9                 | 14.5                         | 8  | 3.0        | 17.5  | 8  | 4.0        | 34.0   | 8  | 3.0        | 37.0  | 8  | 4.0        |
|           | 312/314/316/318/319       | 0.7                 | 14.5                         | 8  | 3.0        | 17.5  | 8  | 4.0        | 34.0   | 8  | 3.0        | 37.0  | 8  | 4.0        |
|           | 326/332                   | 0.5                 | 14.5                         | 8  | 2.5        | –     | –  | –          | 34.0   | 8  | 2.5        | –     | –  | –          |
| <b>3K</b> | 302                       | 3.0                 | 19.0                         | 10 | 4.5        | 23.0  | 10 | 5.5        | 48.0   | 10 | 4.5        | 53.0  | 10 | 5.5        |
|           | 303/304                   | 2.0                 | 18.0                         | 10 | 4.0        | 22.0  | 10 | 5.5        | 48.0   | 10 | 4.0        | 52.0  | 10 | 5.5        |
|           | 305/306/307               | 1.6                 | 18.0                         | 10 | 3.5        | 22.0  | 10 | 5.5        | 48.0   | 10 | 3.5        | 52.0  | 10 | 5.5        |
|           | 308/310                   | 1.3                 | 17.0                         | 10 | 3.5        | 20.0  | 10 | 4.0        | 47.0   | 10 | 3.5        | 50.0  | 10 | 4.0        |
|           | 309                       | 1.3<br>2.0          | 17.0                         | 10 | 3.5<br>4.0 | 20.0  | 10 | 4.0<br>5.5 | 47.0   | 10 | 3.5<br>4.0 | 50.0  | 10 | 4.0<br>5.5 |
|           | 312/314/316/318           | 0.9                 | 16.0                         | 10 | 3.0        | 20.0  | 10 | 4.0        | 46.0   | 10 | 3.0        | 50.0  | 10 | 4.0        |
|           | 320/322/324/326/330       | 0.7                 | 16.0                         | 10 | 3.0        | 20.0  | 10 | 4.0        | 46.0   | 10 | 3.0        | 50.0  | 10 | 4.0        |
| <b>4K</b> | 304                       | 3.0                 | 22.0                         | 11 | 4.5        | 25.0  | 11 | 5.5        | 52.0   | 11 | 4.5        | 55.0  | 11 | 5.5        |
|           | 306/307                   | 2.0                 | 21.0                         | 11 | 4.0        | 25.0  | 11 | 5.5        | 51.0   | 11 | 4.0        | 55.0  | 11 | 5.5        |
|           | 310                       | 1.6                 | 21.0                         | 11 | 3.5        | 25.0  | 11 | 5.5        | 51.0   | 11 | 3.5        | 55.0  | 11 | 5.5        |
|           | 312                       | 1.3                 | 21.0                         | 11 | 3.5        | 25.0  | 11 | 4.0        | 51.0   | 11 | 3.5        | 55.0  | 11 | 4.0        |
|           | 316/320/324/330           | 0.9                 | 21.0                         | 11 | 3.0        | 23.0  | 11 | 4.0        | 51.0   | 11 | 3.0        | 53.0  | 11 | 4.0        |
|           | 340/348                   | 0.7                 | 21.0                         | 11 | 3.0        | 23.0  | 11 | 4.0        | 51.0   | 11 | 3.0        | 53.0  | 11 | 4.0        |
| <b>5K</b> | 302                       | 6.0                 | 24.0                         | 14 | 7.5        | –     | –  | –          | –      | –  | –          | –     | –  | –          |
|           | 304                       | 4.0                 | 29.0                         | 14 | 5.5        | 32.0  | 14 | 7.0        | –      | –  | –          | –     | –  | –          |
|           | 310                       | 3.0                 | 29.0                         | 14 | 4.5        | 32.0  | 14 | 7.0        | –      | –  | –          | –     | –  | –          |
|           | 314/316                   | 2.0                 | 28.0                         | 14 | 4.0        | 31.0  | 14 | 5.5        | –      | –  | –          | –     | –  | –          |
|           | 320                       | 1.6                 | 28.0                         | 14 | 3.5        | 31.0  | 14 | 5.5        | –      | –  | –          | –     | –  | –          |
|           | 330/340/348               | 1.3                 | 27.0                         | 14 | 3.5        | 30.0  | 14 | 4.0        | –      | –  | –          | –     | –  | –          |
|           | 350/354/364               | 0.9                 | 27.0                         | 14 | 3.0        | 30.0  | 14 | 4.0        | –      | –  | –          | –     | –  | –          |



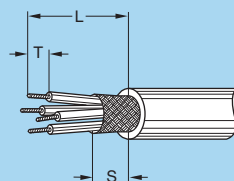
**Note:** <sup>1)</sup> crimp contacts are available only for connectors fitted with male contacts. The tolerances on these dim. are: L: ± 0.5 mm; S: ± 0.5 mm; T: ± 0.2 mm.



## Cable stripping lengths (K series)

**M2** straight plug and socket with oversize cable collet, clamping type K (solder or crimp contacts)

|           | Type                       | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |            |       |    |            |
|-----------|----------------------------|---------------------|------------------------------|----|------------|-------|----|------------|
|           |                            |                     | <b>M2</b>                    |    |            |       |    |            |
|           |                            |                     | Solder                       |    |            | Crimp |    |            |
|           |                            |                     | L                            | S  | T          | L     | S  | T          |
| <b>1K</b> | <b>302/303</b>             | 1.3                 | 23.5                         | 8  | 3.5        | 27.5  | 8  | 4.0        |
|           | <b>304/305</b>             | 0.9                 | 23.5                         | 8  | 3.0        | 27.5  | 8  | 4.0        |
|           | <b>306/307/308</b>         | 0.7                 | 23.5                         | 8  | 3.0        | 27.5  | 8  | 4.0        |
|           | <b>310/314/316</b>         | 0.5                 | 24.5                         | 8  | 2.5        | —     | —  | —          |
| <b>2K</b> | <b>302</b>                 | 2.0                 | 29.5                         | 10 | 4.0        | 32.5  | 10 | 5.5        |
|           | <b>303</b>                 | 1.6                 | 29.5                         | 10 | 3.5        | 32.5  | 10 | 5.5        |
|           | <b>304/305/306/307</b>     | 1.3                 | 28.5                         | 10 | 3.5        | 30.5  | 10 | 4.0        |
|           | <b>308/310</b>             | 0.9                 | 27.5                         | 10 | 3.0        | 30.5  | 10 | 4.0        |
|           | <b>312/314/316/318/319</b> | 0.7                 | 27.5                         | 10 | 3.0        | 30.5  | 10 | 4.0        |
|           | <b>326/332</b>             | 0.5                 | 27.5                         | 10 | 2.5        | —     | —  | —          |
| <b>3K</b> | <b>302</b>                 | 3.0                 | 37.0                         | 11 | 4.5        | 41.0  | 11 | 5.5        |
|           | <b>303/304</b>             | 2.0                 | 36.0                         | 11 | 4.0        | 40.0  | 11 | 5.5        |
|           | <b>305/306/307</b>         | 1.6                 | 36.0                         | 11 | 3.5        | 40.0  | 11 | 5.5        |
|           | <b>308/310</b>             | 1.3                 | 35.0                         | 11 | 3.5        | 38.0  | 11 | 4.0        |
|           | <b>309</b>                 | 1.3<br>2.0          | 35.0                         | 11 | 3.5<br>4.0 | 38.0  | 11 | 4.0<br>5.5 |
|           | <b>312/314/316/318</b>     | 0.9                 | 34.0                         | 11 | 3.0        | 38.0  | 11 | 4.0        |
|           | <b>320/322/324/326/330</b> | 0.7                 | 34.0                         | 11 | 3.0        | 38.0  | 11 | 4.0        |
|           |                            |                     |                              |    |            |       |    |            |
| <b>4K</b> | <b>304</b>                 | 3.0                 | 45.0                         | 14 | 4.5        | 48.0  | 14 | 5.5        |
|           | <b>306/307</b>             | 2.0                 | 44.0                         | 14 | 4.0        | 48.0  | 14 | 5.5        |
|           | <b>310</b>                 | 1.6                 | 44.0                         | 14 | 3.5        | 48.0  | 14 | 5.5        |
|           | <b>312</b>                 | 1.3                 | 44.0                         | 14 | 3.5        | 48.0  | 14 | 4.0        |
|           | <b>316/320/324/330</b>     | 0.9                 | 44.0                         | 14 | 3.0        | 46.0  | 14 | 4.0        |
|           | <b>340/348</b>             | 0.7                 | 44.0                         | 14 | 3.0        | 46.0  | 14 | 4.0        |
|           |                            |                     |                              |    |            |       |    |            |

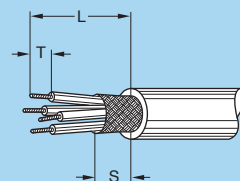


**Note:** the tolerances on these dim. are: L:  $\pm 0.5$  mm; S:  $\pm 0.5$  mm; T:  $\pm 0.2$  mm.

## Cable stripping lengths (T series)

**M1** straight plugs and sockets with cable collet, clamping type C (solder or crimp contacts)

|           | Type                      | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |            |       |    |            |
|-----------|---------------------------|---------------------|------------------------------|----|------------|-------|----|------------|
|           |                           |                     | <b>M1</b>                    |    |            |       |    |            |
|           |                           |                     | Solder                       |    |            | Crimp |    |            |
|           |                           |                     | L                            | S  | T          | L     | S  | T          |
| <b>TT</b> | 302/303/304               | 0.5                 | 7.0                          | 4  | 2.5        | 10.0  | 4  | 3.0        |
|           | 305/306                   | 0.35                | 7.0                          | 4  | 2.5        | —     | —  | —          |
| <b>OT</b> | 302/303                   | 0.9                 | 9.5                          | 6  | 3.5        | 12.0  | 6  | 4.0        |
|           | 304/305                   | 0.7                 | 9.5                          | 6  | 3.5        | 12.0  | 6  | 4.0        |
|           | 306/307/309 <sup>1)</sup> | 0.5                 | 9.0                          | 6  | 2.5        | 13.0  | 6  | 3.0        |
|           | 312                       | 0.35                | 9.0                          | 6  | 2.5        | —     | —  | —          |
| <b>1T</b> | 302/303                   | 1.3                 | 11.0                         | 7  | 3.5        | 14.5  | 7  | 4.0        |
|           | 304/305                   | 0.9                 | 11.0                         | 7  | 3.0        | 14.5  | 7  | 4.0        |
|           | 306/307/308               | 0.7                 | 11.0                         | 7  | 3.0        | 14.5  | 7  | 4.0        |
|           | 310/314/316               | 0.5                 | 13.0                         | 7  | 2.5        | 14.0  | 7  | 3.0        |
| <b>2T</b> | 302                       | 2.0                 | 16.5                         | 8  | 4.0        | 19.5  | 8  | 5.5        |
|           | 303                       | 1.6                 | 16.5                         | 8  | 3.5        | 19.5  | 8  | 5.5        |
|           | 304/305/306/307           | 1.3                 | 15.5                         | 8  | 3.5        | 17.5  | 8  | 4.0        |
|           | 308/310                   | 0.9                 | 14.5                         | 8  | 3.0        | 17.5  | 8  | 4.0        |
|           | 312/314/316/318/319       | 0.7                 | 14.5                         | 8  | 3.0        | 17.5  | 8  | 4.0        |
|           | 326/332                   | 0.5                 | 14.5                         | 8  | 2.5        | —     | —  | —          |
| <b>3T</b> | 302                       | 3.0                 | 19.0                         | 10 | 4.5        | 23.0  | 10 | 5.5        |
|           | 303/304                   | 2.0                 | 18.0                         | 10 | 4.0        | 22.0  | 10 | 5.5        |
|           | 305/306/307               | 1.6                 | 18.0                         | 10 | 3.5        | 22.0  | 10 | 5.5        |
|           | 308/310                   | 1.3                 | 17.0                         | 10 | 3.5        | 20.0  | 10 | 4.0        |
|           | 309                       | 1.3<br>2.0          | 17.0                         | 10 | 3.5<br>4.0 | 20.0  | 10 | 4.0<br>5.5 |
|           | 312/314/316/318           | 0.9                 | 16.0                         | 10 | 3.0        | 20.0  | 10 | 4.0        |
|           | 320/322/324/326/330       | 0.7                 | 16.0                         | 10 | 3.0        | 20.0  | 10 | 4.0        |
|           |                           |                     |                              |    |            |       |    |            |



**Note:** <sup>1)</sup> crimp contacts are available only for connectors fitted with male contacts. The tolerances on these dim. are: L: ± 0.5 mm; S: ± 0.5 mm; T: ± 0.2 mm.

## Cable stripping lengths for unipole connectors (S series)

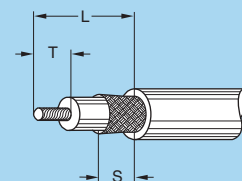
**M1** straight plugs and sockets with cable collet, clamping type C (solder contacts)

**M3** elbow plugs (90°) with cable collet, clamping type C (solder contacts)

**M5** straight plugs and sockets with cable crimping type E (crimp contacts)

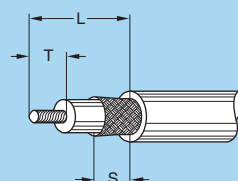
**M6** elbow plugs (90°) with cable crimping type E (crimp contacts)

|           | Type       | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |    |           |   |   |           |   |   |           |   |   |
|-----------|------------|---------------------|------------------------------|----|----|-----------|---|---|-----------|---|---|-----------|---|---|
|           |            |                     | <b>M1</b>                    |    |    | <b>M5</b> |   |   | <b>M3</b> |   |   | <b>M6</b> |   |   |
|           |            |                     | Solder                       |    |    | Crimp     |   |   | Solder    |   |   | Crimp     |   |   |
|           |            |                     | L                            | S  | T  | L         | S | T | L         | S | T | L         | S | T |
| <b>00</b> | <b>113</b> | 1.3                 | 9                            | 4  | 4  | 19        | 5 | 7 | 7         | 4 | 2 | 17        | 5 | 7 |
| <b>0S</b> | <b>116</b> | 1.6                 | 11                           | 5  | 4  | —         | — | — | 8         | 5 | 2 | —         | — | — |
| <b>1S</b> | <b>120</b> | 2.0                 | 13                           | 8  | 5  | —         | — | — | 13        | 8 | 2 | —         | — | — |
|           | <b>130</b> | 3.0                 | 13                           | 8  | 5  | —         | — | — | 13        | 8 | 2 | —         | — | — |
| <b>2S</b> | <b>130</b> | 3.0                 | 18                           | 9  | 6  | —         | — | — | 15        | 9 | 2 | —         | — | — |
|           | <b>140</b> | 4.0                 | 18                           | 9  | 6  | —         | — | — | 15        | 9 | 2 | —         | — | — |
| <b>3S</b> | <b>140</b> | 4.0                 | 21                           | 9  | 7  | —         | — | — | 19        | 9 | 2 | —         | — | — |
|           | <b>160</b> | 6.0                 | 21                           | 9  | 9  | —         | — | — | 19        | 9 | 2 | —         | — | — |
| <b>4S</b> | <b>140</b> | 4.0                 | 25                           | 9  | 7  | —         | — | — | 23        | 9 | 2 | —         | — | — |
|           | <b>160</b> | 6.0                 | 25                           | 9  | 9  | —         | — | — | 23        | 9 | 2 | —         | — | — |
| <b>5S</b> | <b>112</b> | 12.0                | 12                           | 15 | 12 | —         | — | — | —         | — | — | —         | — | — |



**M2** straight plugs and sockets with oversize cable collet, clamping type K (solder contacts)

|           | Type       | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |   |
|-----------|------------|---------------------|------------------------------|---|---|
|           |            |                     | <b>M2</b>                    |   |   |
|           |            |                     | Solder                       |   |   |
|           |            |                     | L                            | S | T |
| <b>00</b> | <b>113</b> | 1.3                 | 16                           | 4 | 4 |
| <b>0S</b> | <b>116</b> | 1.6                 | 19                           | 5 | 4 |
| <b>1S</b> | <b>120</b> | 2.0                 | 25                           | 8 | 5 |
|           | <b>130</b> | 3.0                 | 25                           | 8 | 5 |
| <b>2S</b> | <b>130</b> | 3.0                 | 34                           | 9 | 6 |
|           | <b>140</b> | 4.0                 | 34                           | 9 | 6 |
| <b>3S</b> | <b>140</b> | 4.0                 | 39                           | 9 | 7 |
|           | <b>160</b> | 6.0                 | 39                           | 9 | 9 |
| <b>4S</b> | <b>140</b> | 4.0                 | 50                           | 9 | 7 |
|           | <b>160</b> | 6.0                 | 50                           | 9 | 9 |

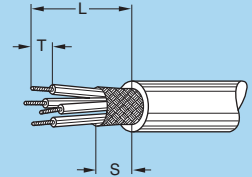


## Cable stripping lengths for multipole connectors (S series)

**M1** straight plugs and sockets with cable collet, clamping type C (solder or crimp contacts)

**M3** elbow plugs (90°) with cable collet, clamping type C (solder or crimp contacts)

|           | Type                           | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |            |       |   |     |        |   |            |       |   |     |
|-----------|--------------------------------|---------------------|------------------------------|---|------------|-------|---|-----|--------|---|------------|-------|---|-----|
|           |                                |                     | M1                           |   |            |       |   |     | M3     |   |            |       |   |     |
|           |                                |                     | Solder                       |   |            | Crimp |   |     | Solder |   |            | Crimp |   |     |
|           |                                |                     | L                            | S | T          | L     | S | T   | L      | S | T          | L     | S | T   |
| <b>0S</b> | <b>302</b>                     | 0.9                 | 10.0                         | 5 | 3.5        | 15    | 5 | 4.0 | 10.0   | 5 | 3.5        | 15    | 5 | 4.0 |
|           | <b>303/304</b>                 | 0.7                 | 10.0                         | 5 | 3.5        | 15    | 5 | 4.0 | 10.0   | 5 | 3.5        | 15    | 5 | 4.0 |
| <b>1S</b> | <b>302</b>                     | 1.3                 | 12.5                         | 8 | 3.5        | 17    | 8 | 4.0 | 14.5   | 8 | 3.5        | 17    | 8 | 4.0 |
|           | <b>303/304</b>                 | 0.9                 | 12.0                         | 8 | 3.0        | 17    | 8 | 4.0 | 14.0   | 8 | 3.0        | 17    | 8 | 4.0 |
|           | <b>305</b>                     | 0.9<br>0.7          | 12.0                         | 8 | 3.0        | 17    | 8 | 4.0 | 14.0   | 8 | 3.0        | 17    | 8 | 4.0 |
|           | <b>306</b>                     | 0.7                 | 12.5                         | 8 | 3.0        | 17    | 8 | 4.0 | 14.5   | 8 | 3.0        | 17    | 8 | 4.0 |
| <b>2S</b> | <b>302</b>                     | 1.6                 | 17.0                         | 9 | 3.5        | 22    | 9 | 5.5 | 17.0   | 9 | 3.5        | 22    | 9 | 5.5 |
|           | <b>303/304/305/306</b>         | 1.3                 | 17.5                         | 9 | 3.5        | 22    | 9 | 4.0 | 17.5   | 9 | 3.5        | 22    | 9 | 4.0 |
|           | <b>307</b>                     | 1.3<br>0.9          | 17.5                         | 9 | 3.5<br>3.0 | 22    | 9 | 4.0 | 17.5   | 9 | 3.5<br>3.0 | 22    | 9 | 4.0 |
|           | <b>308/310</b>                 | 0.9                 | 17.0                         | 9 | 3.0        | 22    | 9 | 4.0 | 17.0   | 9 | 3.0        | 22    | 9 | 4.0 |
| <b>3S</b> | <b>302/303/304</b>             | 2.0                 | 20.0                         | 9 | 4.0        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>305</b>                     | 2.0<br>1.3          | 20.0                         | 9 | 4.0<br>3.5 | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>306/307/308/310</b>         | 1.3                 | 20.5                         | 9 | 3.5        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>312/313/314/316/318</b>     | 0.9                 | 20.0                         | 9 | 3.0        | —     | — | —   | —      | — | —          | —     | — | —   |
| <b>4S</b> | <b>302</b>                     | 4.0                 | 25.0                         | 9 | 7.0        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>303/304</b>                 | 3.0                 | 23.5                         | 9 | 4.5        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>305</b>                     | 3.0<br>2.0          | 23.5                         | 9 | 4.5<br>4.0 | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>306</b>                     | 2.0                 | 21.0                         | 9 | 4.0        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>307</b>                     | 2.0<br>1.3          | 21.0                         | 9 | 4.0<br>3.5 | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>308/309/310/312/313/314</b> | 1.3                 | 24.5                         | 9 | 3.5        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>316/318/320/322/324</b>     | 0.9                 | 24.5                         | 9 | 3.5        | —     | — | —   | —      | — | —          | —     | — | —   |

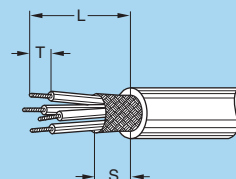


## Cable stripping lengths for multipole connectors (S series)

**M1** straight plugs and sockets with cable collet, clamping type C (solder contacts)

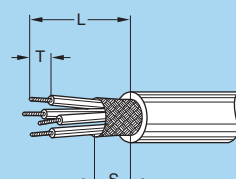
**M3** elbow plugs (90°) with cable collet, clamping type C (solder contacts)

|           | Type                       | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |            |           |    |            |
|-----------|----------------------------|---------------------|------------------------------|----|------------|-----------|----|------------|
|           |                            |                     | <b>M1</b>                    |    |            | <b>M3</b> |    |            |
|           |                            |                     | Solder                       |    |            | Solder    |    |            |
|           |                            |                     | L                            | S  | T          | L         | S  | T          |
| <b>5S</b> | <b>302</b>                 | 6.0                 | 33.5                         | 22 | 7.5        | 33.5      | 22 | 7.5        |
|           | <b>303</b>                 | 6.0<br>4.0          | 33.5                         | 22 | 7.5<br>5.5 | 33.5      | 22 | 7.5<br>5.5 |
|           | <b>304</b>                 | 4.0                 | 33.5                         | 22 | 5.5        | 33.5      | 22 | 5.5        |
|           | <b>305</b>                 | 4.0<br>3.0          | 33.5                         | 22 | 5.5<br>4.5 | 33.5      | 22 | 5.5<br>4.5 |
|           | <b>306/308</b>             | 3.0                 | 33.5                         | 22 | 4.5        | 33.5      | 22 | 4.5        |
|           | <b>310/312/316</b>         | 2.0                 | 32.0                         | 22 | 4.0        | 32.0      | 22 | 4.0        |
|           | <b>314</b>                 | 3.0<br>2.0          | 33.5                         | 22 | 4.5<br>4.0 | 33.5      | 22 | 4.5<br>4.0 |
|           | <b>318/322</b>             | 3.0<br>1.6          | 33.5                         | 22 | 4.5<br>3.5 | 33.5      | 22 | 4.5<br>3.5 |
|           | <b>320/324</b>             | 1.6                 | 34.0                         | 22 | 3.5        | 34.0      | 22 | 3.5        |
|           | <b>330/336/340/344/348</b> | 1.3                 | 34.5                         | 22 | 3.5        | 34.5      | 22 | 3.5        |
| <b>6S</b> | <b>304</b>                 | 8.0                 | 37.0                         | 15 | 10.0       | 37.0      | 15 | 10.0       |
|           | <b>312/318</b>             | 4.0                 | 37.0                         | 15 | 7.0        | 37.0      | 15 | 7.0        |
|           | <b>320/324</b>             | 3.0                 | 37.0                         | 15 | 6.0        | 37.0      | 15 | 6.0        |
|           | <b>330/336/348</b>         | 2.0                 | 37.0                         | 15 | 7.0        | 37.0      | 15 | 7.0        |
|           | <b>360</b>                 | 1.6                 | 37.0                         | 15 | 4.5        | 37.0      | 15 | 4.5        |
|           | <b>364/372</b>             | 1.3                 | 37.0                         | 15 | 4.0        | 37.0      | 15 | 4.0        |
|           | <b>106</b>                 | 0.9                 | 37.0                         | 15 | 4.0        | 37.0      | 15 | 4.0        |



**M4** straight plug with cable collet, clamping type D or M (solder or crimp contacts)

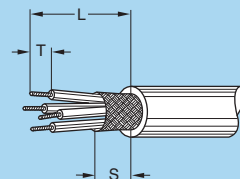
|           | Type                   | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |            |       |   |     |
|-----------|------------------------|---------------------|------------------------------|---|------------|-------|---|-----|
|           |                        |                     | <b>M4</b>                    |   |            |       |   |     |
|           |                        |                     | Solder                       |   |            | Crimp |   |     |
|           |                        |                     | L                            | S | T          | L     | S | T   |
| <b>2S</b> | <b>302</b>             | 1.6                 | 47.0                         | 9 | 3.5        | 52    | 9 | 5.5 |
|           | <b>303/304/305/306</b> | 1.3                 | 47.5                         | 9 | 3.5        | 52    | 9 | 4.0 |
|           | <b>307</b>             | 1.3<br>0.9          | 47.5                         | 9 | 3.5<br>3.0 | 52    | 9 | 4.0 |
|           | <b>308/310</b>         | 0.7                 | 47.0                         | 9 | 3.0        | 52    | 9 | 4.0 |



## Cable stripping lengths for multipole connectors (S series)

**M2** straight plugs and sockets with oversize cable collet, clamping type K (solder or crimp contacts)

|           | Type                           | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |            |       |   |     |
|-----------|--------------------------------|---------------------|------------------------------|----|------------|-------|---|-----|
|           |                                |                     | M2                           |    |            |       |   |     |
|           |                                |                     | Solder                       |    |            | Crimp |   |     |
|           |                                |                     | L                            | S  | T          | L     | S | T   |
| <b>0S</b> | <b>302</b>                     | 0.9                 | 19.5                         | 5  | 3.5        | 23    | 5 | 4.0 |
|           | <b>303/304</b>                 | 0.7                 | 20.0                         | 5  | 3.5        | 23    | 5 | 4.0 |
| <b>1S</b> | <b>302</b>                     | 1.3                 | 24.5                         | 8  | 3.5        | 28    | 8 | 4.0 |
|           | <b>303/304</b>                 | 0.9                 | 24.0                         | 8  | 3.0        | 28    | 8 | 4.0 |
|           | <b>305</b>                     | 0.9<br>0.7          | 24.0                         | 8  | 3.0        | 28    | 8 | 4.0 |
|           | <b>306</b>                     | 0.7                 | 24.5                         | 8  | 3.0        | 28    | 8 | 4.0 |
| <b>2S</b> | <b>302</b>                     | 1.6                 | 33.0                         | 9  | 3.5        | 38    | 9 | 5.5 |
|           | <b>303/304/305/306</b>         | 1.3                 | 33.5                         | 9  | 3.5        | 38    | 9 | 4.0 |
|           | <b>307</b>                     | 1.3<br>0.9          | 33.5                         | 9  | 3.5<br>3.0 | 38    | 9 | 4.0 |
|           | <b>308/310</b>                 | 0.9                 | 33.0                         | 9  | 3.0        | 38    | 9 | 4.0 |
| <b>3S</b> | <b>302/303/304</b>             | 2.0                 | 38.0                         | 9  | 4.0        | –     | – | –   |
|           | <b>305</b>                     | 2.0<br>1.3          | 38.0                         | 9  | 4.0<br>3.5 | –     | – | –   |
|           | <b>306/307/308/310</b>         | 1.3                 | 38.5                         | 9  | 3.5        | –     | – | –   |
|           | <b>312/313/314/316/318</b>     | 0.9                 | 38.0                         | 9  | 3.0        | –     | – | –   |
| <b>4S</b> | <b>302</b>                     | 4.0                 | 50.0                         | 9  | 7.0        | –     | – | –   |
|           | <b>303/304</b>                 | 3.0                 | 48.5                         | 9  | 4.5        | –     | – | –   |
|           | <b>305</b>                     | 3.0<br>2.0          | 48.5                         | 9  | 4.5<br>4.0 | –     | – | –   |
|           | <b>306</b>                     | 2.0                 | 49.0                         | 9  | 4.0        | –     | – | –   |
|           | <b>307</b>                     | 2.0<br>1.3          | 49.0                         | 9  | 4.0<br>3.5 | –     | – | –   |
|           | <b>308/309/310/312/313/314</b> | 1.3                 | 49.5                         | 9  | 3.5        | –     | – | –   |
|           | <b>316/318/320/322/324</b>     | 0.9                 | 49.0                         | 9  | 3.0        | –     | – | –   |
| <b>5S</b> | <b>302</b>                     | 6.0                 | 68.5                         | 22 | 7.5        | –     | – | –   |
|           | <b>303</b>                     | 6.0<br>4.0          | 68.5                         | 22 | 7.5<br>5.5 | –     | – | –   |
|           | <b>304</b>                     | 4.0                 | 68.5                         | 22 | 5.5        | –     | – | –   |
|           | <b>305</b>                     | 4.0<br>3.0          | 68.5                         | 22 | 5.5<br>4.5 | –     | – | –   |
|           | <b>306/308</b>                 | 3.0                 | 68.5                         | 22 | 4.5        | –     | – | –   |
|           | <b>310/312/316</b>             | 2.0                 | 67.0                         | 22 | 4.0        | –     | – | –   |
|           | <b>314</b>                     | 3.0<br>2.0          | 68.5                         | 22 | 4.5<br>4.0 | –     | – | –   |
|           | <b>318/322</b>                 | 3.0<br>1.6          | 68.5                         | 22 | 4.5<br>3.5 | –     | – | –   |
|           | <b>320/324</b>                 | 1.6                 | 69.0                         | 22 | 3.5        | –     | – | –   |
|           | <b>330/336/340/344/348</b>     | 1.3                 | 69.5                         | 22 | 3.5        | –     | – | –   |

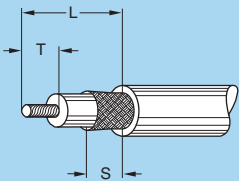


## Cable stripping lengths for unipole connectors (E series)

**M1** straight plugs and sockets with cable collet, clamping type C (solder contacts)

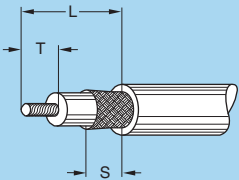
**M3** elbow plugs (90°) with cable collet, clamping type C (solder contacts)

|           | Type       | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |    |        |   |   |
|-----------|------------|---------------------|------------------------------|----|----|--------|---|---|
|           |            |                     | M1                           |    |    | M3     |   |   |
|           |            |                     | Solder                       |    |    | Solder |   |   |
|           |            |                     | L                            | S  | T  | L      | S | T |
| <b>0E</b> | <b>116</b> | 1.6                 | 9                            | 5  | 4  | 20     | 5 | 4 |
| <b>1E</b> | <b>120</b> | 2.0                 | 12                           | 8  | 5  | 25     | 8 | 5 |
|           | <b>130</b> | 3.0                 | 13                           | 8  | 5  | 25     | 8 | 5 |
| <b>2E</b> | <b>130</b> | 3.0                 | 16                           | 9  | 6  | 33     | 9 | 6 |
|           | <b>140</b> | 4.0                 | 15                           | 9  | 6  | 33     | 9 | 6 |
| <b>3E</b> | <b>140</b> | 4.0                 | 19                           | 9  | 7  | 40     | 9 | 7 |
|           | <b>160</b> | 6.0                 | 20                           | 9  | 9  | 40     | 9 | 9 |
| <b>4E</b> | <b>160</b> | 6.0                 | 23                           | 9  | 9  | 50     | 9 | 9 |
| <b>5E</b> | <b>112</b> | 12.0                | 12                           | 15 | 12 | –      | – | – |



**M2** straight plugs and sockets with oversize cable collet, clamping type K (solder contacts)

|           | Type       | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |   |
|-----------|------------|---------------------|------------------------------|---|---|
|           |            |                     | M2                           |   |   |
|           |            |                     | Solder                       |   |   |
|           |            |                     | L                            | S | T |
| <b>1E</b> | <b>120</b> | 2.0                 | 25                           | 8 | 5 |
|           | <b>130</b> | 3.0                 | 26                           | 8 | 5 |
| <b>2E</b> | <b>130</b> | 3.0                 | 28                           | 9 | 6 |
|           | <b>140</b> | 4.0                 | 27                           | 9 | 6 |
| <b>3E</b> | <b>140</b> | 4.0                 | 36                           | 9 | 7 |
|           | <b>160</b> | 6.0                 | 37                           | 9 | 9 |
| <b>4E</b> | <b>160</b> | 6.0                 | 50                           | 9 | 9 |

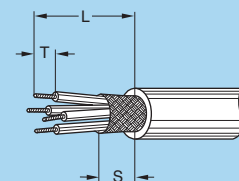


## Cable stripping lengths for multipole connectors (E series)

**M1** straight plugs and sockets with cable collet, clamping type C (solder or crimp contacts)

**M3** elbow plugs (90°) with cable collet, clamping type C (solder or crimp contacts)

|           | Type                           | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |            |       |   |     |        |   |            |       |   |     |
|-----------|--------------------------------|---------------------|------------------------------|----|------------|-------|---|-----|--------|---|------------|-------|---|-----|
|           |                                |                     | M1                           |    |            |       |   |     | M3     |   |            |       |   |     |
|           |                                |                     | Solder                       |    |            | Crimp |   |     | Solder |   |            | Crimp |   |     |
|           |                                |                     | L                            | S  | T          | L     | S | T   | L      | S | T          | L     | S | T   |
| <b>0E</b> | <b>302</b>                     | 0.9                 | 9.0                          | 4  | 3.5        | 12    | 5 | 4.0 | 19.5   | 5 | 3.5        | 23    | 5 | 4.0 |
|           | <b>303/304</b>                 | 0.7                 | 9.0                          | 4  | 3.5        | 12    | 5 | 4.0 | 19.0   | 5 | 2.5        | 23    | 5 | 4.0 |
| <b>1E</b> | <b>302</b>                     | 1.3                 | 10.5                         | 6  | 3.5        | 15    | 8 | 4.0 | 23.5   | 8 | 3.5        | 28    | 8 | 4.0 |
|           | <b>303/304</b>                 | 0.9                 | 10.5                         | 6  | 3.0        | 15    | 8 | 4.0 | 23.0   | 8 | 3.0        | 28    | 8 | 4.0 |
|           | <b>305</b>                     | 0.9<br>0.7          | 10.5                         | 6  | 3.0        | 15    | 8 | 4.0 | 23.0   | 8 | 3.0        | 28    | 8 | 4.0 |
|           | <b>306</b>                     | 0.7                 | 10.5                         | 6  | 3.0        | 15    | 8 | 4.0 | 23.5   | 8 | 3.0        | 28    | 8 | 4.0 |
| <b>2E</b> | <b>302</b>                     | 1.6                 | 14.0                         | 9  | 3.5        | 19    | 9 | 5.5 | 32.0   | 9 | 3.5        | 37    | 9 | 5.5 |
|           | <b>303/304/305/306</b>         | 1.3                 | 14.5                         | 9  | 3.5        | 19    | 9 | 4.0 | 32.5   | 9 | 3.5        | 37    | 9 | 4.0 |
|           | <b>307</b>                     | 1.3<br>0.9          | 14.5                         | 9  | 3.5<br>3.0 | 19    | 9 | 4.0 | 32.5   | 9 | 3.5<br>3.0 | 37    | 9 | 4.0 |
|           | <b>308/310</b>                 | 0.9                 | 14.0                         | 9  | 3.0        | 19    | 9 | 4.0 | 32.0   | 9 | 3.0        | 37    | 9 | 4.0 |
| <b>3E</b> | <b>302/303/304</b>             | 2.0                 | 17.0                         | 9  | 4.0        | —     | — | —   | 38.0   | 9 | 4.0        | —     | — | —   |
|           | <b>305</b>                     | 2.0<br>1.3          | 17.0                         | 9  | 4.0<br>3.5 | —     | — | —   | 38.0   | 9 | 4.0<br>3.5 | —     | — | —   |
|           | <b>306/307/308/310</b>         | 1.3                 | 17.5                         | 9  | 3.5        | —     | — | —   | 38.5   | 9 | 3.5        | —     | — | —   |
|           | <b>312/313/314/316/318</b>     | 0.9                 | 17.0                         | 9  | 4.0        | —     | — | —   | 38.0   | 9 | 3.0        | —     | — | —   |
| <b>4E</b> | <b>302</b>                     | 4.0                 | 23.0                         | 9  | 7.0        | —     | — | —   | 50.0   | 9 | 7.0        | —     | — | —   |
|           | <b>303/304</b>                 | 3.0                 | 21.5                         | 9  | 4.5        | —     | — | —   | 48.5   | 9 | 4.5        | —     | — | —   |
|           | <b>305</b>                     | 3.0<br>2.0          | 21.5                         | 9  | 4.5<br>4.0 | —     | — | —   | 48.5   | 9 | 4.5<br>4.0 | —     | — | —   |
|           | <b>306</b>                     | 2.0                 | 22.0                         | 9  | 4.0        | —     | — | —   | 49.0   | 9 | 4.0        | —     | — | —   |
|           | <b>307</b>                     | 2.0<br>1.3          | 22.0                         | 9  | 4.0<br>3.5 | —     | — | —   | 49.0   | 9 | 4.0<br>3.5 | —     | — | —   |
|           | <b>308/309/310/312/313/314</b> | 1.3                 | 22.5                         | 9  | 3.5        | —     | — | —   | 49.5   | 9 | 3.5        | —     | — | —   |
|           | <b>316/318/320/322/324</b>     | 0.9                 | 22.0                         | 9  | 4.0        | —     | — | —   | 49.0   | 9 | 3.0        | —     | — | —   |
| <b>5E</b> | <b>302</b>                     | 6.0                 | 46.5                         | 15 | 7.5        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>303</b>                     | 6.0<br>4.0          | 46.5                         | 15 | 7.5<br>5.5 | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>304</b>                     | 4.0                 | 46.5                         | 15 | 5.5        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>305</b>                     | 4.0<br>3.0          | 46.5                         | 15 | 5.5<br>4.5 | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>306/308</b>                 | 3.0                 | 46.5                         | 15 | 4.5        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>310/312/316</b>             | 2.0                 | 45.0                         | 15 | 4.0        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>314</b>                     | 3.0<br>2.0          | 45.5                         | 15 | 4.5<br>4.0 | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>318/322</b>                 | 3.0<br>1.6          | 45.5                         | 15 | 4.5<br>3.5 | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>320/324</b>                 | 1.6                 | 47.0                         | 15 | 3.5        | —     | — | —   | —      | — | —          | —     | — | —   |
|           | <b>330/336/340/344/348</b>     | 1.3                 | 47.5                         | 15 | 3.5        | —     | — | —   | —      | — | —          | —     | — | —   |



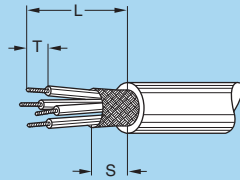


## Cable stripping lengths for multipole connectors (E series)

**M1** straight plugs and sockets with cable collet, clamping type C (solder contacts)

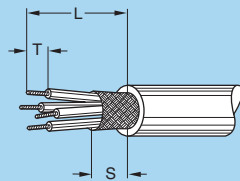
**M3** elbow plugs (90°) with cable collet, clamping type C (solder contacts)

|           | Type                   | ø contact A<br>(mm) | Cable stripping lengths (mm) |    |            |           |   |   |
|-----------|------------------------|---------------------|------------------------------|----|------------|-----------|---|---|
|           |                        |                     | <b>M1</b>                    |    |            | <b>M3</b> |   |   |
|           |                        |                     | Solder                       |    |            | Solder    |   |   |
|           |                        |                     | L                            | S  | T          | L         | S | T |
| <b>6E</b> | <b>303</b>             | 6.0                 | 70                           | 30 | 9.0        | —         | — | — |
|           | <b>304</b>             | 8.0                 | 70                           | 30 | 10.0       | —         | — | — |
|           | <b>312</b>             | 5.0                 | 70                           | 30 | 8.0        | —         | — | — |
|           | <b>316/320/324</b>     | 3.0                 | 70                           | 30 | 6.0        | —         | — | — |
|           | <b>330/332/340/348</b> | 2.0                 | 70                           | 30 | 7.0        | —         | — | — |
|           | <b>336</b>             | 1.3<br>5.0          | 70                           | 30 | 4.0<br>8.0 | —         | — | — |
|           | <b>360/362</b>         | 1.6                 | 70                           | 30 | 4.5        | —         | — | — |
|           | <b>364/372</b>         | 1.3                 | 70                           | 30 | 4.0        | —         | — | — |
|           | <b>106</b>             | 0.9                 | 70                           | 30 | 4.0        | —         | — | — |
|           |                        |                     |                              |    |            |           |   |   |

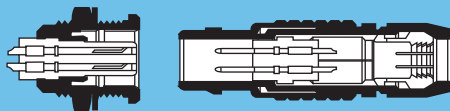


**M2** straight plugs and sockets with oversize cable collet, clamping type K (solder or crimp contacts)

|           | Type                           | ø contact A<br>(mm) | Cable stripping lengths (mm) |   |            |       |   |     |
|-----------|--------------------------------|---------------------|------------------------------|---|------------|-------|---|-----|
|           |                                |                     | <b>M2</b>                    |   |            |       |   |     |
|           |                                |                     | Solder                       |   |            | Crimp |   |     |
|           |                                |                     | L                            | S | T          | L     | S | T   |
| <b>1E</b> | <b>302</b>                     | 1.3                 | 23.5                         | 8 | 3.5        | 28    | 8 | 4.0 |
|           | <b>303/304</b>                 | 0.9                 | 23.0                         | 8 | 3.0        | 28    | 8 | 4.0 |
|           | <b>305</b>                     | 0.9<br>0.7          | 23.0                         | 8 | 3.0        | 28    | 8 | 4.0 |
|           | <b>306</b>                     | 0.7                 | 23.5                         | 8 | 3.0        | 28    | 8 | 4.0 |
|           |                                |                     |                              |   |            |       |   |     |
| <b>2E</b> | <b>302</b>                     | 1.6                 | 26.0                         | 9 | 3.5        | 31    | 9 | 5.5 |
|           | <b>303/304/305/306</b>         | 1.3                 | 26.5                         | 9 | 3.5        | 31    | 9 | 4.0 |
|           | <b>307</b>                     | 1.3<br>0.9          | 26.5                         | 9 | 3.5<br>3.0 | 31    | 9 | 4.0 |
|           | <b>308/310</b>                 | 0.9                 | 26.0                         | 9 | 3.0        | 31    | 9 | 4.0 |
| <b>3E</b> | <b>302/303/304</b>             | 2.0                 | 34.0                         | 9 | 4.0        | —     | — | —   |
|           | <b>305</b>                     | 2.0<br>1.3          | 34.0                         | 9 | 4.0<br>3.5 | —     | — | —   |
|           | <b>306/307/308/310</b>         | 1.3                 | 34.5                         | 9 | 3.5        | —     | — | —   |
|           | <b>312/313/314/316/318</b>     | 0.9                 | 34.0                         | 9 | 3.0        | —     | — | —   |
| <b>4E</b> | <b>302</b>                     | 4.0                 | 50.0                         | 9 | 7.0        | —     | — | —   |
|           | <b>303/304</b>                 | 3.0                 | 48.5                         | 9 | 4.5        | —     | — | —   |
|           | <b>305</b>                     | 3.0<br>2.0          | 48.5                         | 9 | 4.5<br>4.0 | —     | — | —   |
|           | <b>306</b>                     | 2.0                 | 49.0                         | 9 | 4.0        | —     | — | —   |
|           | <b>307</b>                     | 2.0<br>1.3          | 49.0                         | 9 | 4.0<br>3.5 | —     | — | —   |
|           | <b>308/309/310/312/313/314</b> | 1.3                 | 49.5                         | 9 | 3.5        | —     | — | —   |
|           | <b>316/318/320/322/324</b>     | 0.9                 | 49.0                         | 9 | 3.0        | —     | — | —   |
|           |                                |                     |                              |   |            |       |   |     |



## Technical characteristics



### Outer shell

#### Brass

In most cases, LEMO connectors have a brass outer shell which is suitable for most general purpose applications, including civilian and military. The brass outer shells have a chrome nickel-plated surface which ensures very good protection against industrial atmosphere, salt air and most corrosive agents.

Alternative protective coatings are available to satisfy other specific environmental conditions:

- electrolytic nickel
- nickel-gold
- nickel-black chrome. After the black chrome treatment, the part is coated with non conductive protective organic film.

#### Stainless steel

For applications where there are severe environmental conditions that may rapidly damage the surface finish, we recommend using stainless steel. The AISI 303 stainless steel is a material for general use adapted to most applications requiring a product made entirely of stainless metal.

For the nuclear industry where elements are subject to radiation and to vaporous nitric acid, we offer AISI 304 stainless steel.

Grade AISI 316L is recommended for medical applications, highly demanding with regard to non-corrosiveness. This material is also used for connector shells soldered by electronic beam onto a device made of the same stainless steel. These parts have no surface treatment.

#### Aluminium alloy

The aluminium alloy outer shells find numerous applications where light weight is a predominant factor; such as in the aeronautics and space industries, and for portable and mobile equipment.

These materials have high mechanical strength and excellent resistance to corrosion. The shell surface is protected by anodizing which is available in six colours: blue, yellow, black, red, green, and natural.

#### Plastic materials

Some connector model shells can be made of plastic. This solution offers optimum electrical insulating properties particularly suitable for medical applications. Black Polyoxymethylene (POM) is particularly adapted to products of the 00 or S series.

Grey or white polysulfone (PSU) and beige PEEK offers excellent mechanical properties and is suitable for gas or vapour sterilization.

Some models of the 2B and 3B series are available with an outer shell of cream-coloured polyphenylsulfone (PPSU). We recommend this material particularly for applications where products are to withstand hundreds of vapour sterilization cycles.

Bridge plug or plugs with parallel sockets are made of polyamide (PA.6) available in 9 colours: blue, white, grey, yellow, brown, black, red, orange and green.

Some elbow socket shells for printed circuits are overmoulded in polyphenylene sulfide (PPS).

#### Other metallic components

In general, most metallic components are manufactured in brass. However, bronze or beryllium copper are used where good elasticity is required (for example: earthing crown). Depending on the application, these parts have electrolytic nickel or nickel-gold plating.

These parts can also be manufactured in stainless steel.

#### Sealing gasket

In general, sealing gaskets are made of silicone rubber MQ/MVQ. However, for vacuumtight sockets and couplers, gaskets are made of fluorosilicone rubber (FPM).

#### Sealing resin

An epoxy resin is used to seal both watertight and vacuumtight socket and coupler models.

## Materials and Treatments

| Component                                                                      | Material (Standard)                                  | Surface treatment (μm) |    |     |        |    |      |    |     |            |    | Notes |
|--------------------------------------------------------------------------------|------------------------------------------------------|------------------------|----|-----|--------|----|------|----|-----|------------|----|-------|
|                                                                                |                                                      | chrome                 |    |     | nickel |    | gold |    |     | black chr. |    |       |
|                                                                                |                                                      | Cu                     | Ni | Cr  | Cu     | Ni | Cu   | Ni | Au  | Ni         | Cr |       |
| Outer shell,<br>collet nut, conical nut<br>or notched nut and oversized collet | Brass (UNS C 38500)                                  | 0.5                    | 3  | 0.3 | 0.5    | 3  | 0.5  | 3  | 0.5 | 1          | 2  |       |
|                                                                                | Stainless steel (AISI 303, 304 or 316L)              | without treatment      |    |     |        |    |      |    |     |            |    |       |
|                                                                                | Aluminium alloy (AA 6262A or AA 6023)                | –                      | –  | –   | –      | 5  | –    | –  | –   | –          | –  | 1)    |
|                                                                                | Aluminium alloy (AA 6262A or AA 6023)                | anodized               |    |     |        |    |      |    |     |            |    |       |
|                                                                                | POM (Delrin® or Ertacetal®), Polyoxymethylene, black | –                      |    |     |        |    |      |    |     |            |    | 2)    |
|                                                                                | PEEK, Polyether ethercetone, beige                   | –                      |    |     |        |    |      |    |     |            |    | 3)    |
|                                                                                | PSU (Udel®), Polysulfone, grey or white              | –                      |    |     |        |    |      |    |     |            |    | 4)    |
|                                                                                | PPSU (Radel®), Polyphenylsulfone, cream              | –                      |    |     |        |    |      |    |     |            |    | 4)    |
|                                                                                | PA.6 (Grilon®), Polyamid                             | –                      |    |     |        |    |      |    |     |            |    | 5)    |
|                                                                                | PPS (Ryton®), Polyphenilene sulfide, brown           | –                      |    |     |        |    |      |    |     |            |    | 6)    |
| Earthing crown                                                                 | Bronze (UNS C 54400) or special brass                | –                      | –  | –   | 0.5    | 3  | 0.5  | 3  | 1.0 | –          | –  | 7)    |
|                                                                                | Beryllium Copper (UNS C 17300)                       | –                      | –  | –   | 0.5    | 3  | 0.5  | 3  | 1.0 | –          | –  | 8)    |
|                                                                                | Stainless steel (AISI 416 or 316L)                   | without treatment      |    |     |        |    |      |    |     |            |    | 9)    |
| Latch sleeve                                                                   | Special brass                                        | 0.5                    | 3  | 0.3 | 0.5    | 3  | 0.5  | 3  | 0.5 | –          | –  |       |
|                                                                                | Stainless steel (AISI 416 or 316L)                   | without treatment      |    |     |        |    |      |    |     |            |    | 9)    |
| Locking washer                                                                 | Bronze (UNS C 52100)                                 | –                      | –  | –   | 0.5    | 3  | 0.5  | 3  | 0.5 | –          | –  |       |
| Hexagonal or round nut                                                         | Brass (UNS C 38500)                                  | –                      | –  | –   | 0.5    | 3  | 0.5  | 3  | 0.5 | –          | –  |       |
|                                                                                | Stainless steel (AISI 303, 304 or 316L)              | without treatment      |    |     |        |    |      |    |     |            |    | 10)   |
|                                                                                | Aluminium alloy (AA 6262A or AA 6023)                | anodized natural       |    |     |        |    |      |    |     |            |    | 10)   |
| Other metallic components                                                      | Brass (UNS C 38500)                                  | –                      | –  | –   | 0.5    | 3  | 0.5  | 3  | 0.5 | –          | –  |       |
|                                                                                | Stainless steel (AISI 303, 304 or 316L)              | without treatment      |    |     |        |    |      |    |     |            |    |       |
| O-ring and gaskets                                                             | Silicone MQ/MVQ or FPM/FKM (Viton®)                  | –                      |    |     |        |    |      |    |     |            |    | 11)   |
| Sealing resin                                                                  | Epoxy (Araldite® or Stycast®)                        | –                      |    |     |        |    |      |    |     |            |    |       |

**Notes:** standards for surface treatment are as follows:

– chrome-plated: SAE AMS 2460

– nickel-plated: SAE AMS QQ N 290, or MIL DTL 32119

– gold-plated: ISO 27874

– black chrome: MIL DTL 14538 with a minimum of 10 μm of lacquer protection

1) anthracite colour (other colours upon request)

2) for FFP, PCP and ERN models of the 0S to 3S series

3) for FFP, PCP and ERN models of the 0S to 3S series and FGG and ENG models of the 1B, 3B and 4B series

4) for the FGY and ENY models of the 2B and 3B series

5) for bridge plugs of the B series

6) for S and B series elbow sockets for printed circuits

7) gold-plating for unipole types

8) used in 00 series free and fixed sockets and couplers

9) AISI 416 steel is used with shells made of AISI 303 or 304

10) delivered with free and fixed sockets with aluminium alloy or stainless steel shell

11) FPM/FKM (Viton®) o-ring and gaskets are installed upon special request. However standard for vacuumtight models.

## Technical characteristics of plastic materials

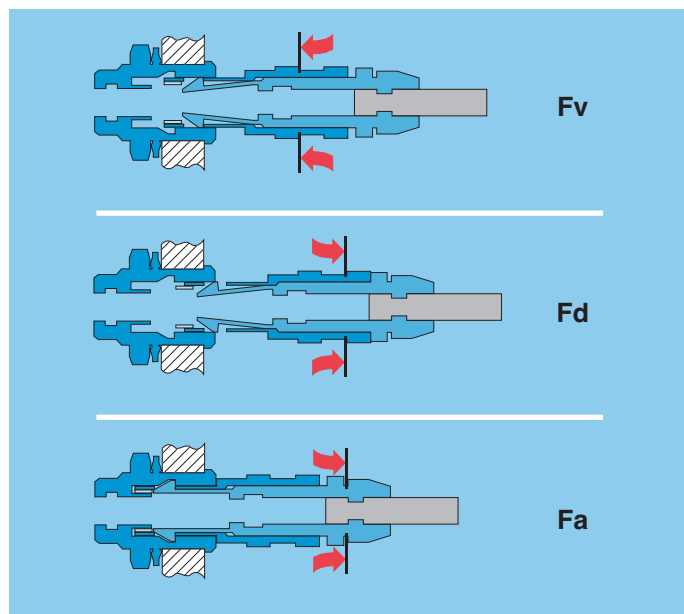
| Type                                 | Standard             | Units                      | POM             | PEEK      | PSU                | PPSU    | PPS       | PA.6            | Silicone  | FPM             | Epoxy           |
|--------------------------------------|----------------------|----------------------------|-----------------|-----------|--------------------|---------|-----------|-----------------|-----------|-----------------|-----------------|
| Density                              | ASTM D 792           | –                          | 1.4             | 1.3-1.4   | 1.24               | 1.3     | 1.67      | 1.14            | ~1.2      | ~1.9            | 1.58            |
| Tensile strength (at 23°C)           | ASTM D 638/ ISO R527 | MPa                        | 70-80           | 92-142    | 70                 | 70      | 121       | 55              | > 9       | > 12            | 16              |
| Flexural strength (at 23°C)          | ASTM D 790/ ISO R178 | MPa                        | –               | 170       | 106                | 91      | 179       | 75              | –         | –               | 24              |
| Dielectric strength                  | ASTM D 149/IEC 60243 | kV/mm                      | 60              | 19-25     | 17-20              | 15      | 17        | 35              | 18-30     | –               | 15              |
| Volume resis. at 50% HR and 23°C     | ASTM D 257/IEC 60093 | $\Omega \bullet \text{cm}$ | $10^{15}$       | $10^{16}$ | $5 \times 10^{16}$ | –       | $10^{16}$ | $10^{15}$       | $10^{14}$ | –               | $10^{14}$       |
| Surface resistivity                  | ASTM D 257           | $\Omega$                   | $10^{13}$       | $10^{15}$ | –                  | –       | –         | –               | –         | –               | –               |
| Thermal conductivity                 | ASTM C 177           | W/K $\bullet$ m            | 0.31            | 0.25      | 0.26               | –       | 0.3       | –               | –         | –               | 0.8             |
| Comparative tracking index           | IEC 60112            | V                          | CTI 600         | CTI 150   | CTI 150            | –       | CTI 200   | CTI 600         | –         | –               | CTI>600         |
| Maxi. continuous service temperature | UL 746               | °C                         | 90              | 250       | 140                | 180     | 220       | 80              | 200       | 200             | 80              |
| Min. continuous service temperature  | UL 746               | °C                         | -50             | -55       | -60                | -50     | -60       | -40             | -50       | -20             | -20             |
| Max. short-time service temperature  | –                    | °C                         | 140             | 300       | 160                | 200     | 250       | 150             | > 250     | 300             | 120             |
| Water absorption in 24h at 23°C      | ASTM D 570/ISO R62A  | %                          | 0.85            | 0.12      | 0.3                | 0.37    | < 0.05    | > 3             | –         | –               | 0.25            |
| Radiation resistance                 | –                    | Gy <sup>1)</sup>           | $8 \times 10^3$ | $10^7$    | $10^5$             | –       | > $10^7$  | $5 \times 10^3$ | $10^5$    | $8 \times 10^4$ | $2 \times 10^6$ |
| Flammability rating                  | ASTM D 635/UL 94     | –                          | HB              | V-0/1.5   | V-0/4.4            | V-0/1.6 | V-0/5V    | V-2             | –         | –               | V-0/4           |
| Resistance to steam sterilization    | –                    | –                          | bad             | excel.    | good               | excel.  | excel.    | bad             | good      | good            | bad             |

**Notes:** 1) 1 Gy (Gray) = 100 rad.

ASTM = American Society for Testing Material  
ISO = International Standards Organisation

UL = Underwriters Laboratories  
IEC = International Electrotechnical Commission

## Mechanical latching characteristics



$F_v$ : average latching force.

$F_d$ : average unmating force with axial pull on the outer shell.

$F_a$ : average pull force with axial pull on the collet nut

**Notes:** forces were measured on outer shells **not fitted with contacts**.  
**Mechanical endurance:** 5000 cycles (3000 cycles for T series).  
 The values were measured according to the standard IEC 60512-7 test 13a.

1N = 0.102 kg.

## Standard series

| Force (N) | Series |     |     |     |     |     |     |     |
|-----------|--------|-----|-----|-----|-----|-----|-----|-----|
|           | 00     | 0S  | 1S  | 2S  | 3S  | 4S  | 5S  | 6S  |
| <b>Fv</b> | 9      | 14  | 15  | 17  | 20  | 40  | 60  | 70  |
| <b>Fd</b> | 7      | 9   | 10  | 11  | 14  | 25  | 40  | 55  |
| <b>Fa</b> | 120    | 140 | 250 | 350 | 500 | 650 | 750 | 900 |

## Watertight series

| Force (N) | Series |     |     |     |     |     |     |
|-----------|--------|-----|-----|-----|-----|-----|-----|
|           | 0E     | 1E  | 2E  | 3E  | 4E  | 5E  | 6E  |
| <b>Fv</b> | 14     | 16  | 20  | 32  | 65  | 85  | 100 |
| <b>Fd</b> | 9      | 10  | 13  | 25  | 40  | 60  | 75  |
| <b>Fa</b> | 250    | 300 | 400 | 550 | 700 | 800 | 900 |

## Keyed series

| Force (N) | Series |     |     |     |     |     |     |
|-----------|--------|-----|-----|-----|-----|-----|-----|
|           | 00     | 0B  | 1B  | 2B  | 3B  | 4B  | 5B  |
| <b>Fv</b> | 9      | 10  | 14  | 15  | 17  | 39  | 48  |
| <b>Fd</b> | 7      | 8   | 11  | 12  | 14  | 38  | 38  |
| <b>Fa</b> | 100    | 180 | 300 | 300 | 400 | 600 | 800 |

## Keyed watertight series

| Force (N) | Series |     |     |     |     |     |     |     |     |     |     |
|-----------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|           | TT     | 0K  | 0T  | 1K  | 1T  | 2K  | 2T  | 3K  | 3T  | 4K  | 5K  |
| <b>Fv</b> | 14     | 14  | 15  | 16  | 16  | 20  | 20  | 32  | 28  | 65  | 85  |
| <b>Fd</b> | 12     | 9   | 13  | 10  | 14  | 13  | 15  | 25  | 24  | 40  | 60  |
| <b>Fa</b> | 80     | 250 | 130 | 300 | 250 | 400 | 250 | 550 | 400 | 700 | 800 |

## Electromagnetic compatibility (EMC) and shielding efficiency

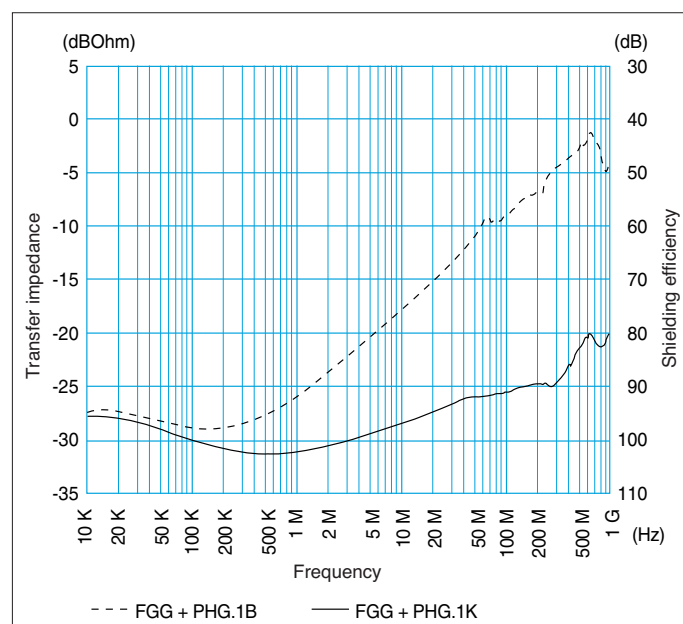
The electromagnetic compatibility of a device can only be ensured by meeting a number of basic rules with the design of the device and by carefully selecting components, cables and connectors.

Electrical and electronic devices are to be designed to ensure the following:

- reduce the emission of generated electromagnetic disturbance to a level where radios and telecommunication and other devices can properly function;
- electromagnetic immunity against electromagnetic disturbance so that they can properly function.

When selecting a connector, screen or shielding efficiency and low resistance to electric continuity between the cable and the connector should be considered.

The design of LEMO connectors with metal shell and earthing crown guarantee optimum shielding efficiency in all applications where electromagnetic compatibility (EMC) is critical. The performance of a connector is measured through shielding efficiency, a value that represents the ratio between the electromagnetic field on the outside and the inside of the shell. Our measurements are carried out according to the IEC 60169-1-3 standard.



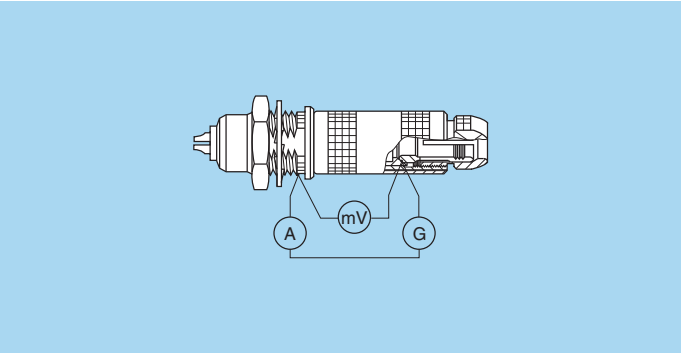
The performance of S and B series connectors is comparable to the results of measurements carried out on a pair of FGG + PHG.1B connectors.

The performance of E and K series connectors is comparable to the results of measurements carried out on a pair of FGG + PHG.1K connectors.

**Shell electrical continuity:**  
(measured according to IEC 60512-2 test 2f)

Test current: 1A  
A = Ammeter  
mV = Millivoltmeter  
G = Generator

**Standard series**

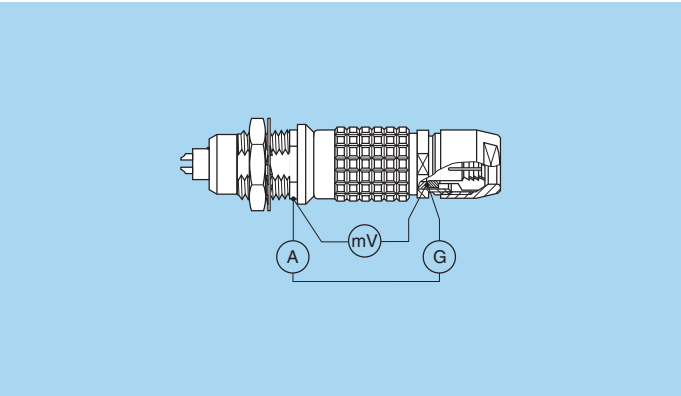


**R<sub>1</sub>** Values with earthing crown and latch sleeve or inner-sleeve nickel-plated.  
**R<sub>2</sub>** Values with gold-plated earthing crown and nickel-plated latch sleeve or inner sleeve.

| Series | R <sub>1</sub><br>(mΩ) | R <sub>2</sub><br>(mΩ) |
|--------|------------------------|------------------------|
| 00     | 3.5                    | 2.8                    |
| 0S     | 2.8                    | 1.6                    |
| 1S     | 2.2                    | 1.5                    |
| 2S     | 1.8                    | 1.2                    |

| Series | R <sub>1</sub><br>(mΩ) | R <sub>2</sub><br>(mΩ) |
|--------|------------------------|------------------------|
| 3S     | 1.6                    | 1.2                    |
| 4S     | 1.4                    | 1.0                    |
| 5S     | 1.4                    | 1.0                    |
| 6S     | 1.0                    | 0.5                    |

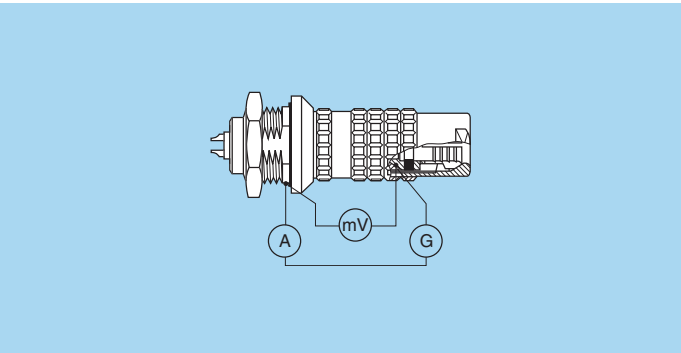
**Keyed series**



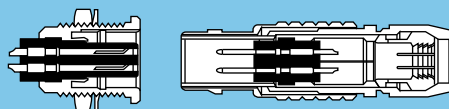
| Series | R <sub>1</sub><br>(mΩ) | R <sub>2</sub><br>(mΩ) |
|--------|------------------------|------------------------|
| 00     | 3.5                    | 2.8                    |
| 0B     | 3.5                    | 1.3                    |
| 1B     | 2.5                    | 1.1                    |
| XB     | 2.5                    | 1.1                    |
| 2B     | 2.2                    | 0.9                    |
| 3B     | 2.2                    | 0.7                    |
| 4B     | 1.5                    | 0.5                    |
| 5B     | 1.5                    | 0.3                    |

| Series | R <sub>1</sub><br>(mΩ) |
|--------|------------------------|
| TT     | 3.5                    |
| 0T     | 3.5                    |
| 1T     | 2.5                    |
| 2T     | 2.2                    |
| 3T     | 2.2                    |
| 4T     | 1.5                    |
| 5T     | 1.5                    |

**Watertight series**  
**Keyed watertight series**



| Series | R <sub>1</sub><br>(mΩ) | R <sub>2</sub><br>(mΩ) |
|--------|------------------------|------------------------|
| 0E-0K  | 2.8                    | 1.6                    |
| 1E-1K  | 2.2                    | 1.5                    |
| 2E-2K  | 1.8                    | 1.2                    |
| 3E-3K  | 1.6                    | 1.2                    |
| 4E-4K  | 1.4                    | 1.0                    |
| 5E-5K  | 1.4                    | 1.0                    |
| 6E     | 1.0                    | 0.5                    |



## Insulator

Plastic material used by LEMO for manufacturing insulators is selected according to the electric and thermal properties required for the various connector types.

Characteristics examined for the two connector types are: Dielectric strength, Comparative tracking index, Surface and volume resistivity, Radiation resistance, Continuous service temperature, Water absorption, Flammability rating, Resistance to hydrocarbon.

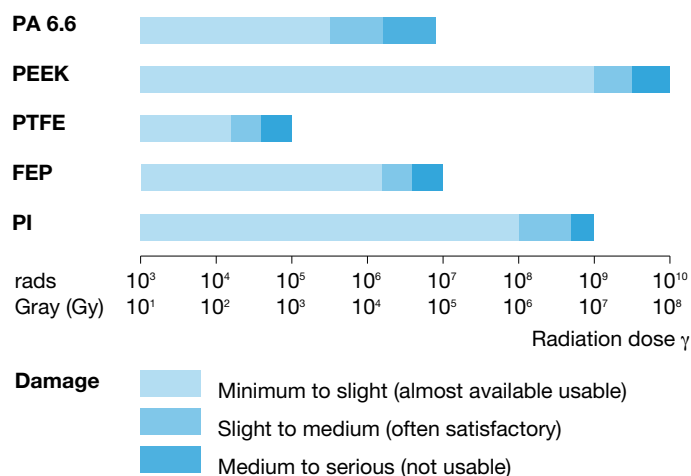
### Mechanical and Electrical Properties

Mechanical characteristics of thermoplastics, such as PA 6.6, and PEEK, are improved by the addition of glass fibres. By adding glass fibres in the resin the performance of this material (mechanical strength and radiation resistance) is enhanced and water absorption rate is reduced. From an electric point of view, the addition of glass fibres improves dielectric strength.

### Selection of the insulator

A number of thermoplastics have common characteristics, some of them are identical with other insulating materials. In this case, the insulator material is selected according to the specific difference in features to provide all the required parameters for the given type.

### Radiation resistance



**Note:** technical data in this chapter provide general information on plastics used by LEMO as electrical insulators. LEMO reserves the right to propose new materials with better technical characteristics, and to withdraw, without notice, any material mentioned in the present catalogue or any other publications edited by LEMO S.A. and/or its subsidiaries. LEMO SA and its subsidiaries use only plastic granules, powder or bars supplied by specialized companies, and thus cannot in any case take responsibility with regard to this material.

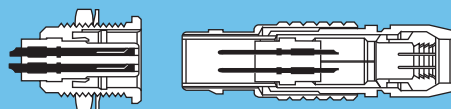
## Technical characteristics

| Type                                   | Standard               | Units                      | PA6.6                | PEEK      | PTFE            | FEP             | PI          |
|----------------------------------------|------------------------|----------------------------|----------------------|-----------|-----------------|-----------------|-------------|
| Dielectric strength                    | ASTM D 149 / IEC 60243 | kV/mm                      | 15-17                | 19-25     | 17.2-24         | 20              | 22          |
| Volume resistivity at 50% RH and 23°C  | ASTM D 257 / IEC 60093 | $\Omega \bullet \text{cm}$ | $5.8 \times 10^{15}$ | $10^{16}$ | $10^{18}$       | $> 10^{16}$     | $> 10^{16}$ |
| Surface resistivity                    | ASTM D 257 / IEC 60093 | $\Omega$                   | $10^{12}$            | $10^{15}$ | $10^{17}$       | $> 10^{16}$     | $> 10^{15}$ |
| Thermal conductivity                   | ASTM C 177             | W/K $\bullet$ m            | 0.21                 | 0.25      | 0.23            | 0.24            | 0.35        |
| Comparative tracking index             | IEC 60112              | V                          | CTI 600              | CTI 150   | CTI 500         | –               | –           |
| Dielectric constant ( $10^6$ Hz)       | ASTM D 150 / IEC 60250 | –                          | 4                    | 3.2-3.5   | 2-2.1           | 2.1             | 3.6         |
| Dissipation factor ( $10^6$ Hz)        | ASTM D 150 / IEC 60250 | –                          | –                    | $< 0.005$ | $< 0.0003$      | $< 0.001$       | $< 0.0034$  |
| Maximum continuous service temperature | UL 746                 | °C                         | 120                  | 250       | 260             | 200             | 350         |
| Maximum short-time service temperature | –                      | °C                         | 150                  | 300       | 300             | 260             | 480         |
| Minimum continuous service temperature | –                      | °C                         | –                    | -55       | -200            | -200            | –           |
| Water absorption in 24h at 23°C        | ASTM D 570 / ISO R624  | %                          | $< 0.7$              | $< 0.3$   | $< 0.01$        | $< 0.01$        | 0.24        |
| Radiation resistance                   | –                      | Gy                         | $5 \times 10^3$      | $10^7$    | $2 \times 10^2$ | $2 \times 10^4$ | $10^6$      |
| Flammability rating                    | ASTM D 635 / UL 94     | –                          | –                    | V-0/1.5   | V-0             | V-0             | –           |

| Designation              |            | Symbol | Standard       | Unipole |   |   | Multipole |   |   |   |   |   |
|--------------------------|------------|--------|----------------|---------|---|---|-----------|---|---|---|---|---|
| chemical                 | commercial |        |                | 00      | S | E | 00        | S | E | B | K | T |
| Polyamide (glass fitted) | Nylatron®  | PA 6.6 | –              |         |   |   |           | ● | ● |   |   |   |
| Polyether Ethercetone    | Peek®      | PEEK   | –              | ○       | ○ | ○ | ●         | ● | ● | ● | ● | ● |
| Polytetrafluorethylene   | –          | PTFE   | ASTM D 1457-83 | ●       | ● | ● |           |   |   |   |   |   |
| Tetrafluorethylene       | –          | FEP    | ASTM D 2116-81 |         |   |   |           | ○ | ○ |   |   |   |
| Polyimide                | Vespel®    | PI     | –              |         |   |   |           | ○ | ○ |   |   |   |

**Note:** values of insulation resistance between contacts are given on page 189.

● First choice alternative ○ Special order alternative

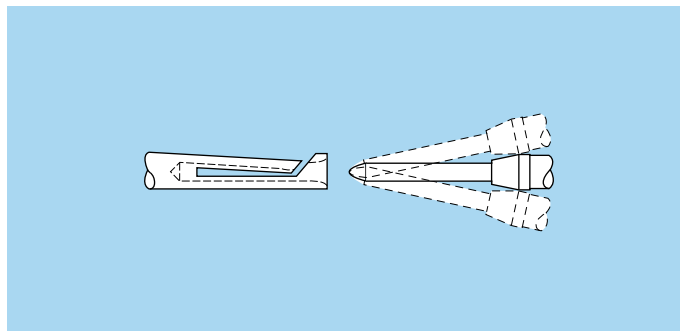


## Electrical contact

### Technical description

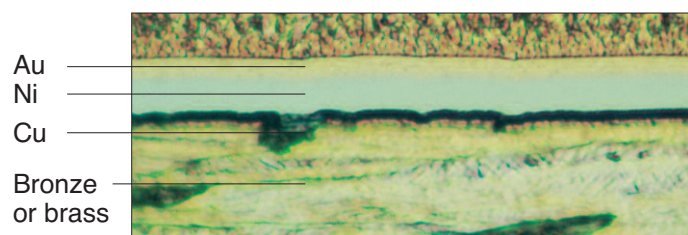
The secure reliable electromechanical connection achieved with LEMO female cylindrical contacts is mainly due to two important design features :

1. *Prod proof entry* on the mating side which ensures perfect concentric mating even with carelessly handled connectors.
2. *The pressure spring*, with good elasticity, maintains a constant even force on the male contact when mated. The leading edge of the pressure spring preserves the surface treatment (gold-plated) and prevents undue wear.



### Contact material and treatment

LEMO female contacts are made of bronze beryllium (QQ-C-530) or bronze (UNS C 54400). These materials are chosen because of their high modulus of elasticity, their excellent electrical conductivity and a high mechanical strength.



**Notes:** the standard surface treatment are as follows:

– nickel: SAE AMS QQ N 290 or MIL DTL 32119

– gold: ISO 27874.

<sup>1)</sup> minimum value

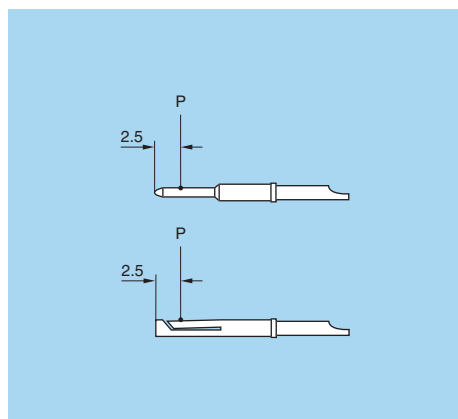
<sup>2)</sup> for elbow print contacts

<sup>3)</sup> treatment completed by 6  $\mu\text{m}$  Sn (lead free) tin-plating

LEMO male solder and print contacts are made of brass (UNS C 38500). Male crimp contacts are made of brass (UNS C 34500) or annealed brass (UNS C 38500) with optimum hardness (HV) for crimping onto the wire.

| Type                          | Material (standard)                         | Surf. treatment ( $\mu\text{m}$ ) |                 |                  |
|-------------------------------|---------------------------------------------|-----------------------------------|-----------------|------------------|
|                               |                                             | Cu                                | Ni              | Au <sup>1)</sup> |
| Male crimp                    | Brass (UNS C 34500)                         | 0.5                               | 3               | 1.0              |
|                               | Brass (UNS C 38500)                         | 0.5                               | 3               | 1.0              |
| Male print                    | Brass (UNS C 38500)                         | 0.5                               | 3               | 1.0              |
| Female crimp / print          | Bronze (UNS C 54400)<br>Cu-Be (FS QQ-C-530) | 0.5                               | 3               | 1.5              |
| Clips                         | Cu-Be (FS QQ-C-530)                         | –                                 | –               | –                |
|                               | Stainless steel                             | –                                 | –               | –                |
| Connection wire <sup>2)</sup> | Brass                                       | –                                 | 3 <sup>3)</sup> | –                |

### Thickness comparison between the outside and the inside of female contacts



**Note:** P = inspection point

| Contact<br>$\varnothing A$<br>(mm) | Gold thickness            |                              |               |
|------------------------------------|---------------------------|------------------------------|---------------|
|                                    | male<br>( $\mu\text{m}$ ) | female                       |               |
|                                    |                           | outside<br>( $\mu\text{m}$ ) | inside<br>(%) |
| 0.35                               | 1.0                       | 1.5                          | 65            |
| 0.50                               | 1.0                       | 1.5                          | 65            |
| 0.70                               | 1.0                       | 1.5                          | 70            |
| 0.90                               | 1.0                       | 1.5                          | 75            |
| 1.30                               | 1.0                       | 1.5                          | 75            |
| 1.60                               | 1.0                       | 1.5                          | 75            |
| 2.00                               | 1.0                       | 1.5                          | 75            |

**Notes:** <sup>1)</sup> contacts are silver plated

| Contact<br>$\varnothing A$<br>(mm) | Gold thickness            |                              |               |
|------------------------------------|---------------------------|------------------------------|---------------|
|                                    | male<br>( $\mu\text{m}$ ) | female                       |               |
|                                    |                           | outside<br>( $\mu\text{m}$ ) | inside<br>(%) |
| 3.00                               | 1.0                       | 1.5                          | 75            |
| 4.00                               | 1.0                       | 1.5                          | 75            |
| 5.00                               | 1.0                       | 1.5                          | 75            |
| 6.00                               | 1.0                       | 1.5                          | 75            |
| 8.00                               | 1.0                       | 1.5                          | 75            |
| 12.00 <sup>1)</sup>                | –                         | –                            | –             |



## Contact resistance with relation to the number of mating cycles

(measured according to IEC 60512-2 test 2a)

Average values measured after the mating cycles and the salt spray test according to IEC 60512-6 test 11f.

| A Ø<br>(mm) | Contact resistance (mΩ) |                |                | A Ø<br>(mm) | Contact resistance (mΩ) |                |                |
|-------------|-------------------------|----------------|----------------|-------------|-------------------------|----------------|----------------|
|             | 1000<br>cycles          | 3000<br>cycles | 5000<br>cycles |             | 1000<br>cycles          | 3000<br>cycles | 5000<br>cycles |
| 0.35        | 8.0                     | —              | —              | 3.0         | 2.0                     | 2.2            | 3.1            |
| 0.5         | 7.5                     | 8.3            | 8.7            | 4.0         | 1.6                     | 2.0            | 2.8            |
| 0.7         | 5.6                     | 5.7            | 6.1            | 5.0         | 1.4                     | —              | —              |
| 0.9         | 4.1                     | 4.2            | 4.8            | 6.0         | 1.2                     | —              | —              |
| 1.3         | 2.8                     | 2.9            | 3.6            | 8.0         | 0.8                     | —              | —              |
| 1.6         | 2.9                     | 3.1            | 3.5            | 12.0        | 0.7                     | —              | —              |
| 2.0         | 2.6                     | 2.7            | 3.3            |             |                         |                |                |

## Insulation resistance between the contacts and contact/shell

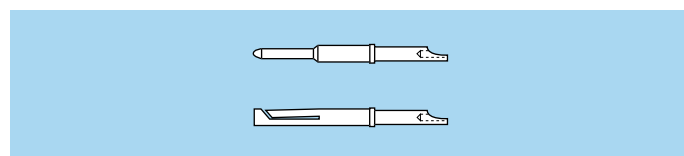
(measured according to IEC 60512-2 test 3a)

| Insulating material               | Multipole          | Unipole            |
|-----------------------------------|--------------------|--------------------|
|                                   | PEEK               | PTFE               |
| new                               | $> 10^{12} \Omega$ | $> 10^{12} \Omega$ |
| after humidity test <sup>1)</sup> | $> 10^{10} \Omega$ | $> 10^{10} \Omega$ |

**Note:** <sup>1)</sup> 21 days at 95% RH according to IEC 60068-2-3.

## Solder contacts

The conductor bucket of these contacts is machined at an angle to form a cup into which the solder can flow. See page 8 for the range of cable dimensions that can be soldered.



## Crimp contacts

The square form crimp method is used (MIL-C-22520F, class I, type 2) photo 1 for unipole contacts.

For multipole contacts the standard four identer crimp method is used, MIL-C-22520F, class I, type 1), photo 2. The crimp method requires a controlled compression to obtain a symmetrical deformation of the conductor strand and of the contact material. The radial hole in the side of the contact makes it possible to check whether the conductor is correctly positioned within the contact. A good crimping is characterized by only slightly reduced conductor section and practically no gap.

For optimum crimping of bronze or brass contacts they are annealed to relieve internal stress and reduce material hardening during the crimping process.

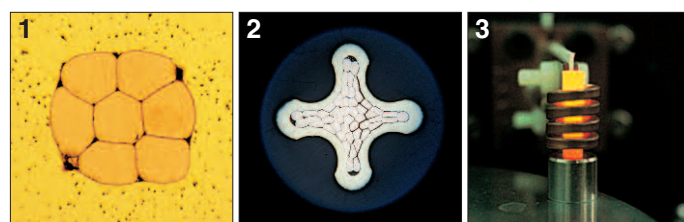
Only the crimping zone is annealed with the help of an induction heating machine designed by the LEMO Research and Development Department (see photo 3).

## Advantages of crimping

- practical, quick contact fixing outside the insulator
- possible use at high temperature
- no risk of heating the insulator during the conductor-contact fixing
- high tensile strength

Crimp contacts are available in standard version (form 1) for mounting maximum size conductors.

For some dimensions, these crimp contacts can be produced with reduced crimp barrels (form 2) for mounting reduced size conductors.



## Crimp contacts

The crimp contacts can be with two forms: a standard crimp barrel for large conductors (see fig. 1) or with a reduced crimp barrel for smaller conductors (see fig. 2).

Fig. 1

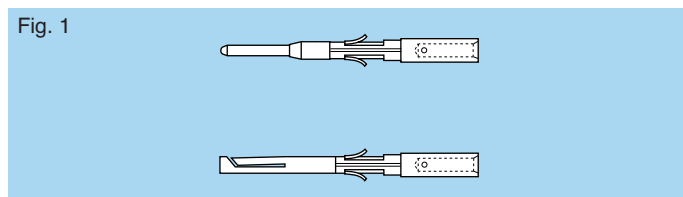
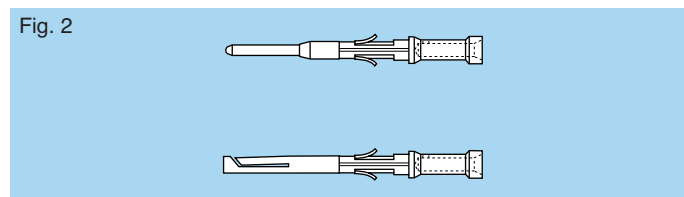


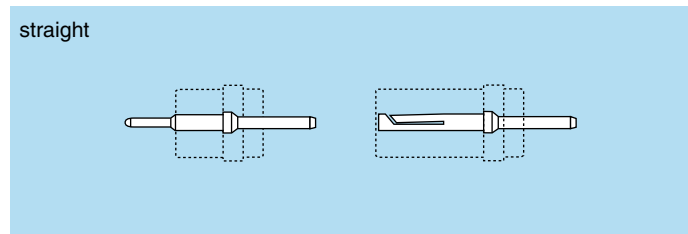
Fig. 2



## Print contacts

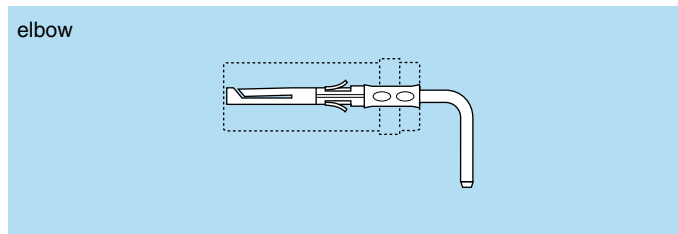
Print contacts are available in straight or elbow versions for certain connector types, mostly for straight and elbow socket models. Connection is made on flexible or rigid printed circuits by soldering.

Straight print contacts are gold-plated which guarantees optimum soldering, even after long-term storage. However



for wave soldering, we recommend removal the gold-plating from the contact end on the printed circuit side before soldering according to the assembly procedures.

Print elbow contacts include a tinned lead free brass wire crimped into a crimp contact.



## Test voltage

Test voltage ( $U_e$ ) :

(measured according to the IEC 60512-2 test 4a standard)

It corresponds to 75% of the mean breakdown voltage.

Test voltage is applied at 500 V/s and the test duration is 1 minute.

This test has been carried out with a mated plug and socket, with power supply only on the plug end.

**The operating voltage value definition is at the entire responsibility of the customer who defines this value according to the safety factors that they apply to their equipment and system.**

### Caution:

**For a number of applications, safety requirements for electrical appliances are more severe with regard to operating voltage.**

**In such cases operating voltage is defined according to creepage distance and air clearance) between live parts. Please consult us for the choice of a connector by indicating the safety standard to be met by the product.**

Voltage values are given in the table on insulator types for each series.

They correspond with values measured at sea level. They are adapted to all applications up to an altitude of 2000 m.

In case a device is used at a higher altitude, air clearance between live parts has to be multiplied by the following coefficients.

It means also that test voltage has to be divided by this coefficient.

| altitude (m) | coefficient |
|--------------|-------------|
| 2000         | 1.00        |
| 3000         | 1.14        |
| 4000         | 1.29        |
| 5000         | 1.48        |

## Rated current

(measured according to IEC 60512-3 test 5a)

The specified rated current can be applied simultaneously to all the contacts.

It corresponds with an average temperature rise of 40°C of the connector.

The current values are indicated in the table of insulator types in each series.

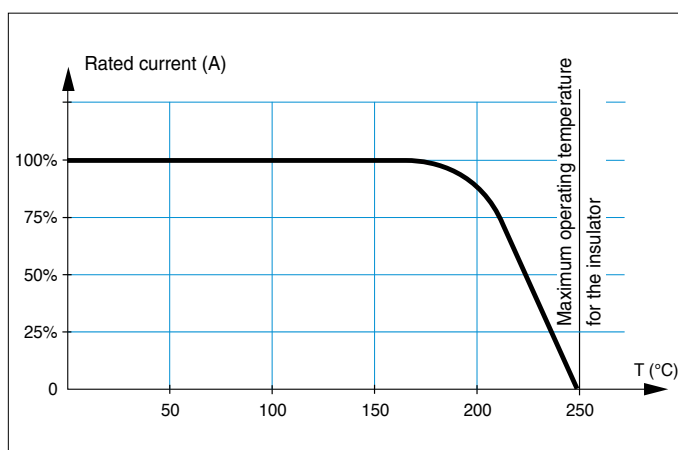
For use at higher temperatures acceptable rated current will be lower. It tends towards zero as the material is used at the maximum operating temperature accepted for the insulator.

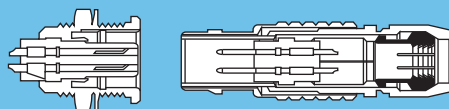
In most case the current depend on the conductor dimension (see table on page 196) or on the printed circuit dimension.

### Caution:

**In general, connectors should not be unmated while live.**

For connectors with PEEK insulator, maximum admissible current will follow the curve below depending on the operating temperature T.





## Cable fixing

Cables are fixed into LEMO connectors with cable collet systems. These collets with latches have a design which is very similar to those used for tool machines. This solution guarantees excellent cable retention and ensures perfectly symmetrical deformation of the cable.

The 00 multipole series is also available with hexagonal crimping (MIL-C-22520F).

## Material and treatment

| Component     | Material (standard)        | Surface treatment ( $\mu\text{m}$ ) |    |      |    |     |
|---------------|----------------------------|-------------------------------------|----|------|----|-----|
|               |                            | Nickel <sup>1)</sup>                |    | Gold |    |     |
|               |                            | Cu                                  | Ni | Cu   | Ni | Au  |
| Center piece  | Brass (UNS C 38500)        | 0.5                                 | 3  | –    | –  | –   |
| Collet        | Brass (UNS C 38500)        | 0.5                                 | 3  | –    | –  | –   |
| Crimp ferrule | Copper (UNS C 18700)       | 0.5                                 | 3  | 0.5  | 3  | 0.5 |
| Reducer       | Brass (UNS C 38500)        | 0.5                                 | 3  | –    | –  | –   |
| Reducing cone | Brass (UNS C 38500)        | 0.5                                 | 3  | –    | –  | –   |
| Earthing cone | Brass (UNS C 38500)        | 0.5                                 | 3  | –    | –  | –   |
| Metal washer  | Brass (UNS C 38500)        | 0.5                                 | 3  | –    | –  | –   |
| Gasket        | Silicone MQ/MVQ            | –                                   |    |      |    |     |
|               | FPM (Viton®) <sup>2)</sup> | –                                   |    |      |    |     |

### Notes:

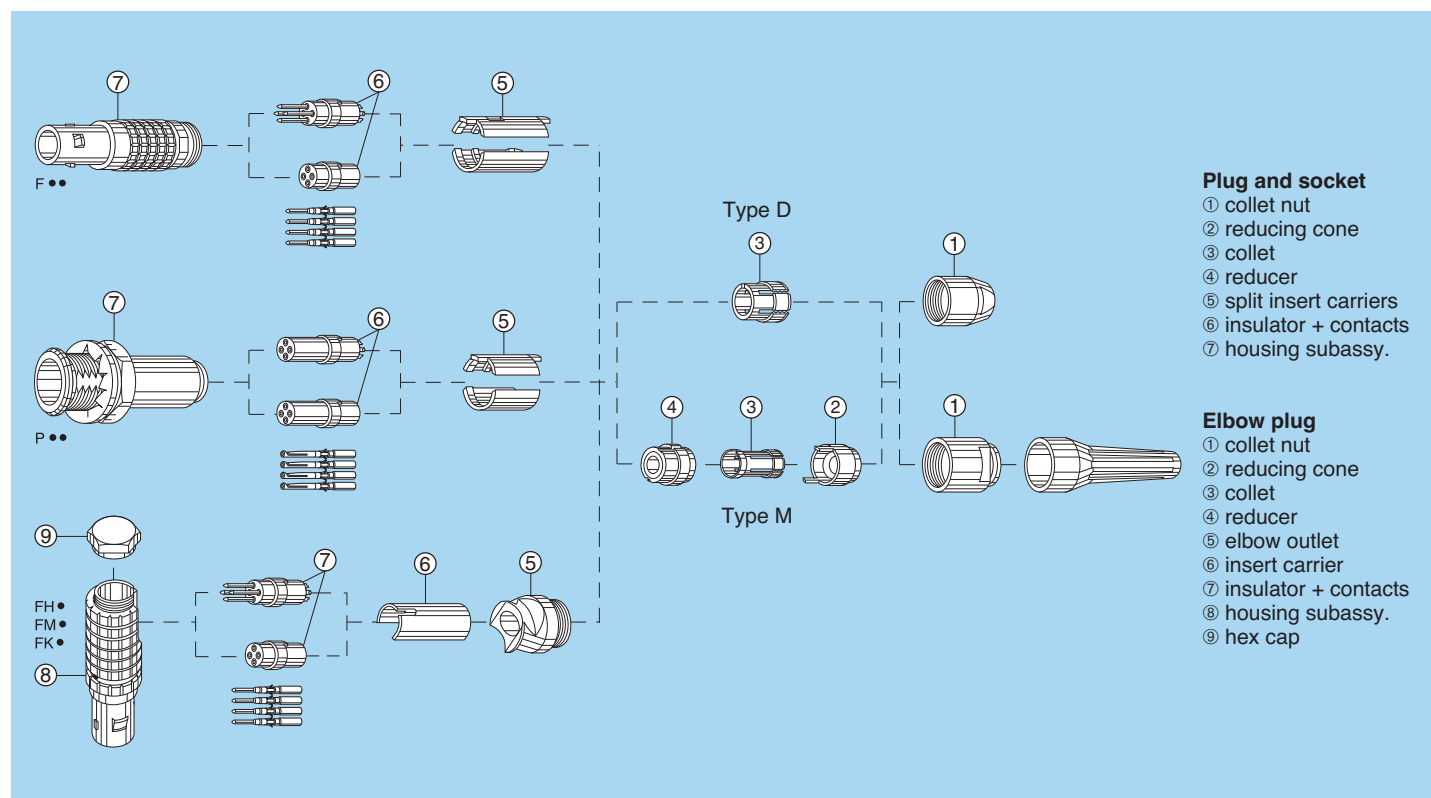
<sup>1)</sup> standards for surface treatment are as follows:  
– nickel-plated: SAE AMS QQ N 290.

<sup>2)</sup> available upon special request.

## Cable clamping system

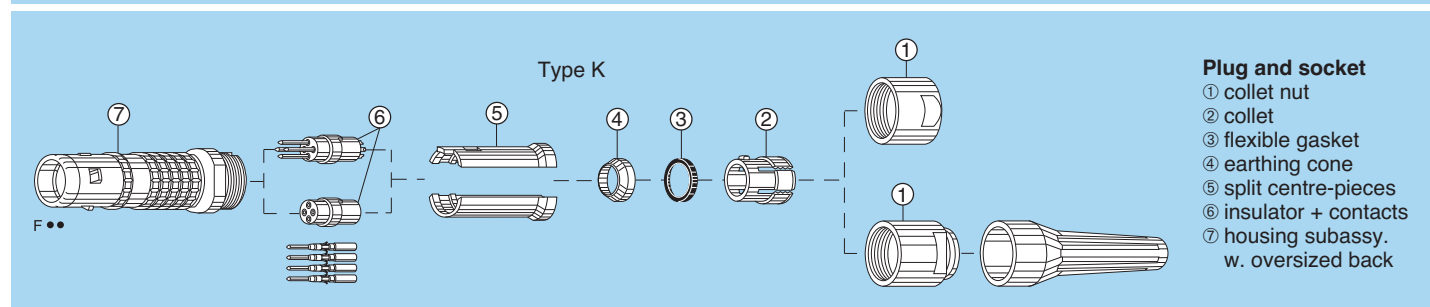
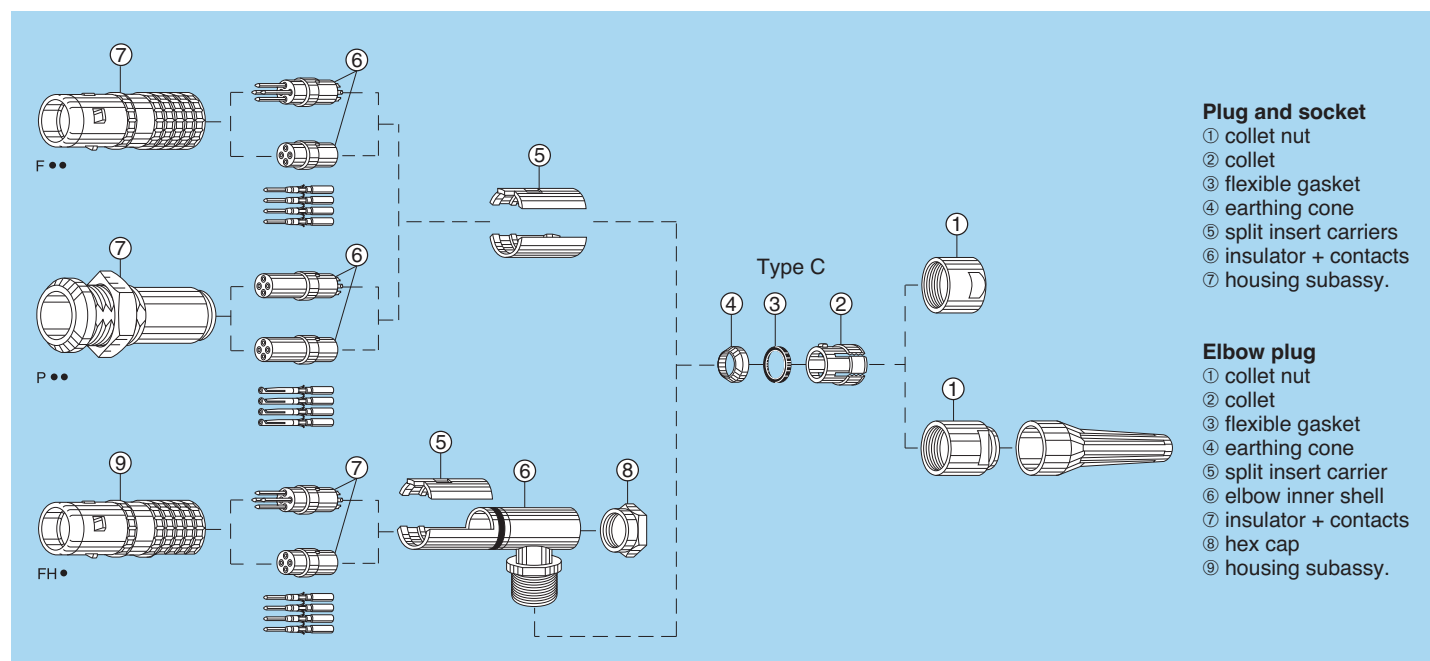
### B series (D and M cable clamping)

See assembly instructions under [www.lemo.com](http://www.lemo.com).



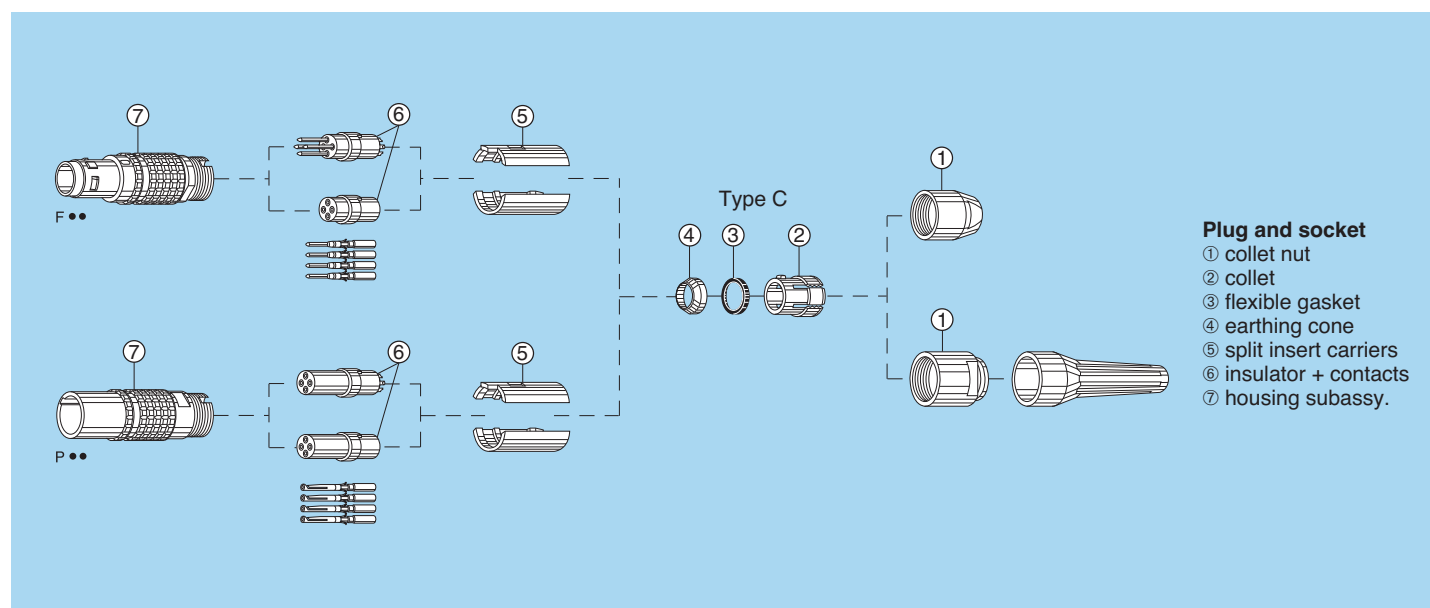
## K series (C and K cable clamping)

See assembly instructions under [www.lemo.com](http://www.lemo.com).



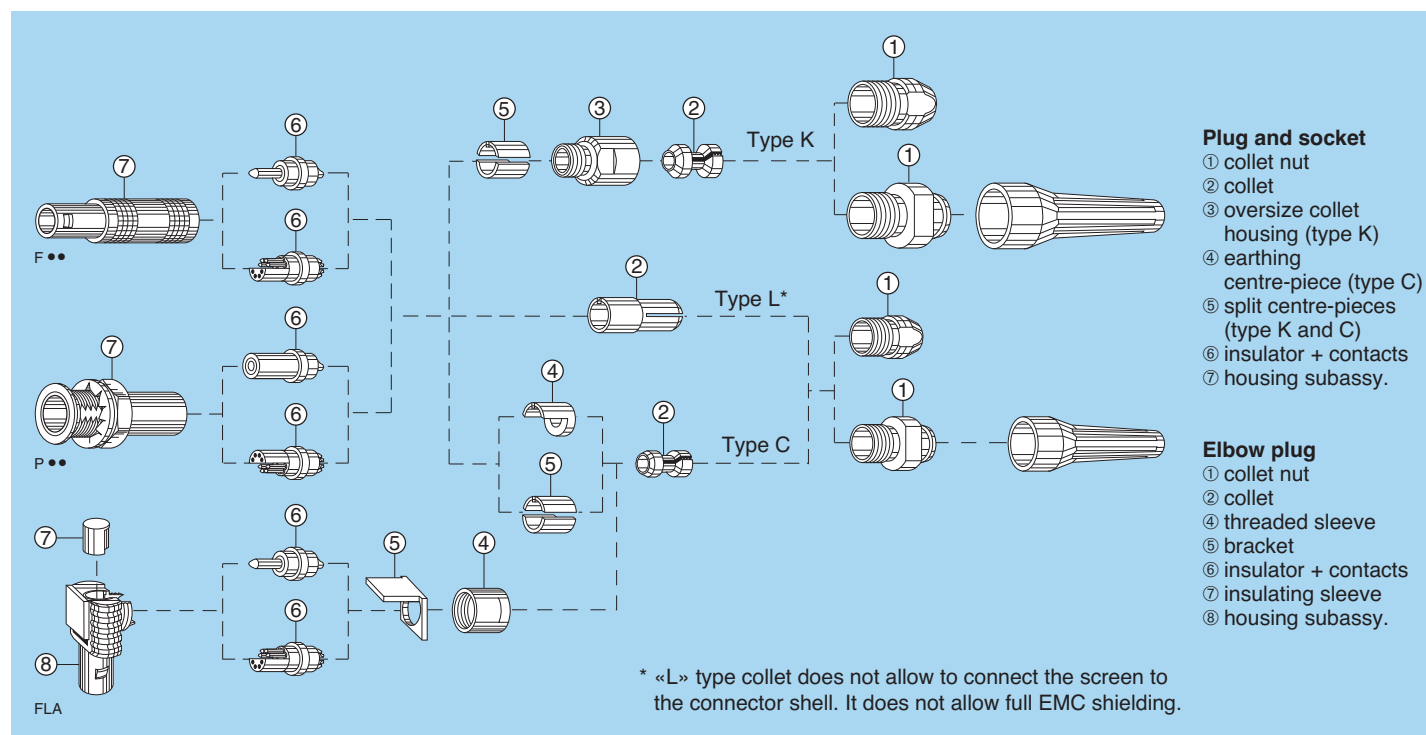
## T series (C cable clamping)

See assembly instructions under [www.lemo.com](http://www.lemo.com).



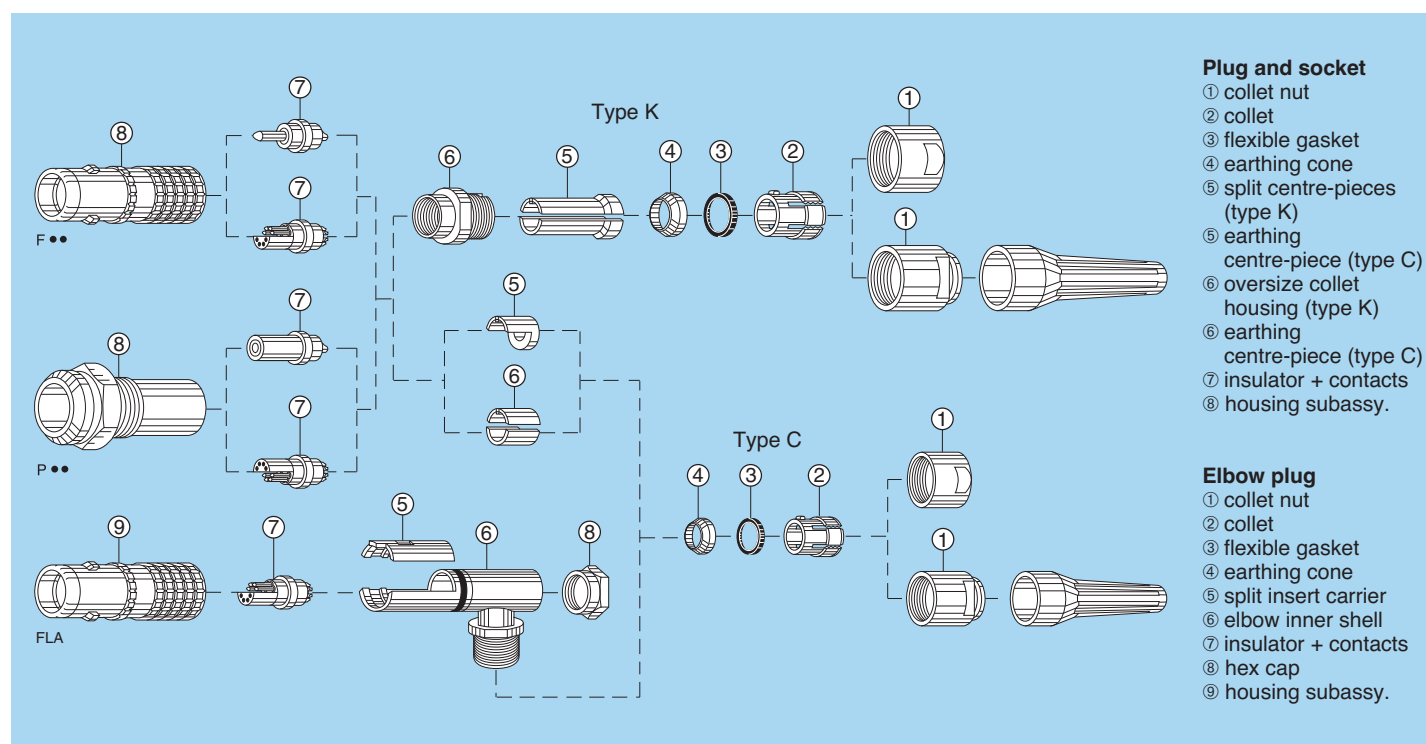
## S series (C, L and K cable clamping)

See assembly instructions under [www.lemo.com](http://www.lemo.com).



## E series (C and K cable clamping)

See assembly instructions under [www.lemo.com](http://www.lemo.com).



## Maximum metal collet nut tightening torque

### Standard series

|             | Series |     |     |     |    |    |    |    |
|-------------|--------|-----|-----|-----|----|----|----|----|
|             | 00     | 0S  | 1S  | 2S  | 3S | 4S | 5S | 6S |
| Torque (Nm) | 0.25   | 0.5 | 1.5 | 2.5 | 3  | 8  | 10 | 12 |

### Keyed series

|             | Series |     |     |     |     |    |    |    |
|-------------|--------|-----|-----|-----|-----|----|----|----|
|             | 00     | 0B  | 1B  | XB  | 2B  | 3B | 4B | 5B |
| Torque (Nm) | 0.25   | 0.5 | 1.5 | 2.0 | 2.5 | 4  | 7  | 10 |

## Maximum elbow plug hex cap tightening torque

### Keyed series

|             | Series |      |     |     |     |    |    |
|-------------|--------|------|-----|-----|-----|----|----|
|             | 00     | 0B   | 1B  | 2B  | 3B  | 4B | 5B |
| Torque (Nm) | 0.2    | 0.25 | 0.5 | 0.5 | 1.5 | 3  | 5  |

### Watertight series

|             | Series |     |    |    |    |    |    |
|-------------|--------|-----|----|----|----|----|----|
|             | 0E     | 1E  | 2E | 3E | 4E | 5E | 6E |
| Torque (Nm) | 0.7    | 0.8 | 2  | 3  | 5  | 8  | 12 |

### Watertight keyed series

|             | Series |     |     |     |     |    |    |    |    |    |    |
|-------------|--------|-----|-----|-----|-----|----|----|----|----|----|----|
|             | TT     | 0K  | 0T  | 1K  | 1T  | 2K | 2T | 3K | 3T | 4K | 5K |
| Torque (Nm) | 0.25   | 0.7 | 0.7 | 0.8 | 0.8 | 2  | 2  | 3  | 3  | 5  | 8  |

### Watertight series

|             | Series |    |     |     |    |    |
|-------------|--------|----|-----|-----|----|----|
|             | 0E     | 1E | 2E  | 3E  | 4E | 5E |
| Torque (Nm) | 0.8    | 1  | 1.2 | 1.5 | 3  | 5  |

### Watertight keyed series

|             | Series |    |     |     |    |    |
|-------------|--------|----|-----|-----|----|----|
|             | 0K     | 1K | 2K  | 3K  | 4K | 5K |
| Torque (Nm) | 0.8    | 1  | 1.2 | 1.5 | 3  | 5  |

1N = 0.102 kg

## Maximum plastic collet nut tightening torque <sup>1)</sup>

|             | Series |      |      |      |      |      |      |      |      |
|-------------|--------|------|------|------|------|------|------|------|------|
|             | 00     | 0S   | 1S   | 2S   | 3S   | 1B   | 2B   | 3B   | 4B   |
| Torque (Nm) | 0.15   | 0.45 | 0.50 | 0.50 | 1.00 | 0.50 | 0.50 | 1.00 | 1.50 |

### Note:

<sup>1)</sup> For applications subject to strong vibration, we recommend fixing the collet nut with epoxy resin. We recommend to tight to the maximum value. Optimal torque may depend on cable jacket design.

## Technical tables

**Table of American Wire Gauge**

| AWG              | Construction |            | ø wire max |       | Wire section       |         |
|------------------|--------------|------------|------------|-------|--------------------|---------|
|                  | Strand nb    | AWG/strand | (mm)       | (in)  | (mm <sup>2</sup> ) | (sq in) |
| 0                | 259          | 24         | 11.277     | 0.444 | 52.90              | 0.0820  |
| 1                | 817          | 30         | 9.702      | 0.382 | 41.40              | 0.0641  |
| 2                | 259          | 26         | 8.89       | 0.35  | 33.20              | 0.0514  |
| 4                | 133          | 25         | 6.9596     | 0.274 | 21.5925            | 0.0335  |
| 6                | 133          | 27         | 5.5118     | 0.217 | 13.5885            | 0.0211  |
| 8                | 168          | 30         | 4.4450     | 0.175 | 8.5127             | 0.0132  |
| 8                | 133          | 29         | 4.3942     | 0.173 | 8.6053             | 0.0133  |
| 10               | 105          | 30         | 3.3020     | 0.13  | 5.3204             | 0.0082  |
| 10               | 37           | 26         | 2.9210     | 0.115 | 4.7397             | 0.0073  |
| 10               | 1            | 10         | 2.6162     | 0.103 | 5.2614             | 0.0082  |
| 12               | 37           | 28         | 2.3114     | 0.091 | 2.9765             | 0.0046  |
| 12               | 19           | 25         | 2.3622     | 0.093 | 3.0847             | 0.0048  |
| 12 <sup>1)</sup> | 7            | 20         | 2.5400     | 0.10  | 3.6321             | 0.0056  |
| 12               | 1            | 12         | 2.0828     | 0.082 | 3.3081             | 0.0051  |
| 14               | 41           | 30         | 2.0574     | 0.081 | 2.0775             | 0.0032  |
| 14               | 19           | 27         | 1.8542     | 0.073 | 1.9413             | 0.0030  |
| 14 <sup>1)</sup> | 7            | 22         | 2.0828     | 0.082 | 2.2704             | 0.0035  |
| 14               | 1            | 14         | 1.6510     | 0.065 | 2.0820             | 0.0032  |
| 16 <sup>1)</sup> | 65           | 34         | 1.5748     | 0.062 | 1.3072             | 0.0020  |
| 16               | 26           | 30         | 1.5748     | 0.062 | 1.3174             | 0.0020  |
| 16               | 19           | 29         | 1.4986     | 0.059 | 1.2293             | 0.0019  |
| 16 <sup>1)</sup> | 7            | 24         | 1.5494     | 0.061 | 1.4330             | 0.0022  |
| 16               | 1            | 16         | 1.3208     | 0.052 | 1.3076             | 0.0020  |
| 18 <sup>1)</sup> | 65           | 36         | 1.2700     | 0.05  | 0.8234             | 0.0013  |
| 18 <sup>1)</sup> | 42           | 34         | 1.2700     | 0.05  | 0.8447             | 0.0013  |
| 18               | 19           | 30         | 1.3208     | 0.052 | 0.9627             | 0.0015  |
| 18               | 16           | 30         | 1.2954     | 0.051 | 0.8107             | 0.0013  |
| 18               | 7            | 26         | 1.2700     | 0.05  | 0.8967             | 0.0014  |
| 18               | 1            | 18         | 1.0414     | 0.041 | 0.8229             | 0.0013  |

| AWG              | Construction |            | ø wire max |       | Wire section       |                      |
|------------------|--------------|------------|------------|-------|--------------------|----------------------|
|                  | Strand nb    | AWG/strand | (mm)       | (in)  | (mm <sup>2</sup> ) | (sq in)              |
| 20 <sup>1)</sup> | 42           | 36         | 1.0160     | 0.04  | 0.5320             | 8.2x10 <sup>-4</sup> |
| 20               | 19           | 32         | 1.0414     | 0.041 | 0.6162             | 0.0010               |
| 20               | 10           | 30         | 1.0160     | 0.04  | 0.5067             | 7.9x10 <sup>-4</sup> |
| 20               | 7            | 28         | 0.9906     | 0.039 | 0.5631             | 8.7x10 <sup>-4</sup> |
| 20               | 1            | 20         | 0.8382     | 0.033 | 0.5189             | 8.0x10 <sup>-4</sup> |
| 22               | 19           | 34         | 0.8382     | 0.033 | 0.3821             | 5.9x10 <sup>-4</sup> |
| 22               | 7            | 30         | 0.7874     | 0.031 | 0.3547             | 5.5x10 <sup>-4</sup> |
| 22               | 1            | 22         | 0.6604     | 0.026 | 0.3243             | 5.0x10 <sup>-4</sup> |
| 24 <sup>1)</sup> | 42           | 40         | 0.6604     | 0.026 | 0.2045             | 3.2x10 <sup>-4</sup> |
| 24               | 19           | 36         | 0.6858     | 0.027 | 0.2407             | 3.7x10 <sup>-4</sup> |
| 24               | 7            | 32         | 0.6350     | 0.025 | 0.2270             | 3.5x10 <sup>-4</sup> |
| 24               | 1            | 24         | 0.5588     | 0.022 | 0.2047             | 3.2x10 <sup>-4</sup> |
| 26               | 19           | 38         | 0.5588     | 0.022 | 0.1540             | 2.4x10 <sup>-4</sup> |
| 26               | 7            | 34         | 0.5080     | 0.02  | 0.1408             | 2.2x10 <sup>-4</sup> |
| 26               | 1            | 26         | 0.4318     | 0.017 | 0.1281             | 2.0x10 <sup>-4</sup> |
| 28 <sup>1)</sup> | 19           | 40         | 0.4318     | 0.017 | 0.0925             | 1.4x10 <sup>-4</sup> |
| 28               | 7            | 36         | 0.4064     | 0.016 | 0.0887             | 1.4x10 <sup>-4</sup> |
| 28               | 1            | 28         | 0.3302     | 0.013 | 0.0804             | 1.2x10 <sup>-4</sup> |
| 30               | 7            | 38         | 0.3302     | 0.013 | 0.0568             | 8.8x10 <sup>-5</sup> |
| 30               | 1            | 30         | 0.2794     | 0.011 | 0.0507             | 7.9x10 <sup>-5</sup> |
| 32               | 7            | 40         | 0.2794     | 0.011 | 0.0341             | 5.3x10 <sup>-5</sup> |
| 32               | 1            | 32         | 0.2286     | 0.009 | 0.0324             | 5.0x10 <sup>-5</sup> |
| 34               | 1            | 34         | 0.1693     | 0.007 | 0.0201             | 3.1x10 <sup>-5</sup> |
| 36               | 1            | 36         | 0.127      | 0.005 | 0.0127             | 2.0x10 <sup>-5</sup> |
| 38               | 1            | 38         | 0.1016     | 0.004 | 0.0081             | 1.3x10 <sup>-5</sup> |
| 40               | 1            | 40         | 0.078      | 0.003 | 0.0049             | 7.5x10 <sup>-6</sup> |

**Note:** <sup>1)</sup> not included in the standard

## Table of wire gauges according to IEC-60228 standard

| Conductor no<br>x Ø (mm) | Max Ø<br>(mm) | Max Ø<br>(in) | Section<br>(mm <sup>2</sup> ) | Section<br>(sq in) |
|--------------------------|---------------|---------------|-------------------------------|--------------------|
| 196x0.40                 | 7.50          | 0.295         | 25.00                         | 0.0387             |
| 7x2.14                   | 6.10          | 0.240         | 25.00                         | 0.0387             |
| 125x0.40                 | 6.00          | 0.236         | 16.00                         | 0.0248             |
| 7x1.72                   | 4.90          | 0.192         | 16.00                         | 0.0248             |
| 1x4.50                   | 4.50          | 0.177         | 16.00                         | 0.0248             |
| 80x0.40                  | 4.70          | 0.155         | 10.00                         | 0.0155             |
| 7x1.38                   | 3.95          | 0.155         | 10.00                         | 0.0155             |
| 1x3.60                   | 3.60          | 0.141         | 10.00                         | 0.0155             |
| 84x0.30                  | 3.70          | 0.145         | 6.00                          | 0.0093             |
| 7x1.50                   | 3.15          | 0.124         | 6.00                          | 0.0093             |
| 1x2.76                   | 2.76          | 0.108         | 6.00                          | 0.0093             |
| 56x0.30                  | 2.80          | 0.110         | 4.00                          | 0.0062             |
| 7x0.86                   | 2.58          | 0.098         | 4.00                          | 0.0062             |
| 1x2.25                   | 2.25          | 0.082         | 4.00                          | 0.0062             |
| 50x0.25                  | 2.15          | 0.084         | 2.50                          | 0.0038             |
| 7x0.68                   | 2.04          | 0.080         | 2.50                          | 0.0038             |
| 1x1.78                   | 1.78          | 0.070         | 2.50                          | 0.0038             |
| 30x0.25                  | 1.60          | 0.062         | 1.50                          | 0.0023             |
| 7x0.52                   | 1.56          | 0.061         | 1.50                          | 0.0023             |

| Conductor no<br>x Ø (mm) | Max Ø<br>(mm) | Max Ø<br>(in) | Section<br>(mm <sup>2</sup> ) | Section<br>(sq in)   |
|--------------------------|---------------|---------------|-------------------------------|----------------------|
| 1x1.40                   | 1.40          | 0.055         | 1.50                          | 0.0023               |
| 32x0.20                  | 1.35          | 0.053         | 1.00                          | 0.0015               |
| 7x0.43                   | 1.29          | 0.050         | 1.00                          | 0.0015               |
| 1x1.15                   | 1.15          | 0.045         | 1.00                          | 0.0015               |
| 42x0.15                  | 1.20          | 0.047         | 0.75                          | 0.0011               |
| 28x0.20                  | 1.15          | 0.045         | 0.75                          | 0.0011               |
| 1x1.00                   | 1.00          | 0.039         | 0.75                          | 0.0011               |
| 28x0.15                  | 0.95          | 0.037         | 0.50                          | 7.7x10 <sup>-4</sup> |
| 16x0.20                  | 0.90          | 0.035         | 0.50                          | 7.7x10 <sup>-4</sup> |
| 1x0.80                   | 0.80          | 0.031         | 0.50                          | 7.7x10 <sup>-4</sup> |
| 7x0.25                   | 0.75          | 0.029         | 0.34                          | 5.2x10 <sup>-4</sup> |
| 1x0.60                   | 0.60          | 0.023         | 0.28                          | 4.3x10 <sup>-4</sup> |
| 14x0.15                  | 0.75          | 0.029         | 0.25                          | 3.8x10 <sup>-4</sup> |
| 7x0.20                   | 0.65          | 0.023         | 0.22                          | 3.4x10 <sup>-4</sup> |
| 18x0.10                  | 0.50          | 0.019         | 0.14                          | 2.1x10 <sup>-4</sup> |
| 14x0.10                  | 0.40          | 0.015         | 0.11                          | 1.7x10 <sup>-4</sup> |
| 21x0.07                  | 0.40          | 0.015         | 0.09                          | 1.3x10 <sup>-4</sup> |
| 14x0.10                  | 0.40          | 0.015         | 0.09                          | 1.3x10 <sup>-4</sup> |

## Maximum current rating for conductor

Maximum current on insulated conductors up to an ambient temperature of 30° C (from VDE 0100, parts 430 and 532 as well as other VDE regulations).

| Nominal<br>section<br>mm <sup>2</sup> | Group 2<br>Intens.<br>max. A | Group 3<br>Intens.<br>max. A |
|---------------------------------------|------------------------------|------------------------------|
| 0.08                                  | 1.0                          | 1.5                          |
| 0.14                                  | 2.0                          | 3.0                          |
| 0.25                                  | 4.0                          | 5.0                          |
| 0.34                                  | 6.0                          | 8.0                          |
| 0.50                                  | 9.0                          | 12.0                         |
| 0.75                                  | 12.0                         | 15.0                         |
| 1.00                                  | 15.0                         | 19.0                         |
| 1.50                                  | 18.0                         | 24.0                         |
| 2.50                                  | 26.0                         | 32.0                         |

Group 2 Multi-conductor, e. g. solid cable under sheath, shielded cable, lead-sheath cables, ...  
Group 3 Single conductor and single conductor cable laid on open air in a way to leave at least a space between them equal to their diameter



## Some formulae

Resistance R of a conductor:  $R = \rho \cdot \frac{l}{A} [\Omega]$

Where:  $\rho$  = conductor resistivity  
 $l$  = conductor length  
 $A$  = conductor cross-section

Impedance of coaxial line:  $Z = \frac{138}{\sqrt{\epsilon_r}} \cdot \log \frac{D}{d} [\Omega]$

$\epsilon_r$  = dielectric constant  
 $D$  = dielectric outer diameter  
 $d$  = center conductor outer diameter

Signal attenuation: Attenuation =  $20 \cdot \log \frac{U_1}{U_2} [\text{dB}]$

$U_1$  = input signal voltage  
 $U_2$  = output signal voltage

## Conversion of some units:

|                                                    |                                                        |
|----------------------------------------------------|--------------------------------------------------------|
| millimeters into inches:                           | 1 mm = 0.0394 in                                       |
| inches into millimeters:                           | 1 in = 25.4 mm                                         |
| centimeters into feet:                             | 1 cm = 0.0328 ft                                       |
| feet (12 in) into centimeters:                     | 1 ft = 30.48 cm                                        |
| square centimeters into square inches:             | 1 cm <sup>2</sup> = 0.155 sq in                        |
| square inches into square centimeters:             | 1 sq in = 6.4516 cm <sup>2</sup>                       |
| bar into pounds per square inch:                   | 1 bar = 14.51 psi                                      |
| bar into Pascal:                                   | 1 bar = 10 <sup>5</sup> Pa                             |
| °C into °F:                                        | °F = °C • 1.8 + 32                                     |
| newtonmeter (Nm) into inch pound (in•lb)           | 1 Nm = 8.85 in•lb                                      |
| mbar•l•s <sup>-1</sup> into Torr•l•s <sup>-1</sup> | 1 mbar•l•s <sup>-1</sup> = 1.33 Torr•l•s <sup>-1</sup> |

## Product safety notice

**PLEASE READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY AND CONSULT ALL RELEVANT NATIONAL AND INTERNATIONAL SAFETY REGULATIONS FOR YOUR APPLICATION. IMPROPER HANDLING, CABLE ASSEMBLY, OR WRONG USE OF CONNECTORS CAN RESULT IN HAZARDOUS SITUATIONS.**

### 1. SHOCK AND FIRE HAZARD

Incorrect wiring, the use of damaged components, presence of foreign objects (such as metal debris), and / or residue (such as cleaning fluids), can result in short circuits, overheating, and / or risk of electric shock.

Mated components should never be disconnected while live as this may result in an exposed electric arc and local overheating, resulting in possible damage to components.

### 2. HANDLING

Connectors and their components should be visually inspected for damage prior to installation and assembly. Suspect components should be rejected or returned to the factory for verification.

Connector assembly and installation should only be carried out by properly trained personnel. Proper tools must be used during installation and / or assembly in order to obtain safe and reliable performance.

### 3. USE

Connectors with exposed contacts should never be live (or on the current supply side of a circuit). Under general conditions voltages above 30 VAC and 42 VDC are considered hazardous and proper measures should be taken to eliminate all risk of transmission of such voltages to any exposed metal part of the connector.

### 4. TEST AND OPERATING VOLTAGES

The maximum admissible operating voltage depends upon the national or international standards in force for the application in question. Air and creepage distances impact the operating voltage; reference values are indicated in the catalog however these may be influenced by PC board design and / or wiring harnesses.

The test voltage indicated in the catalog is 75% of the mean breakdown voltage; the test is applied at 500 V/s and the test duration is 1 minute.

### 5. CE MARKING

CE marking  means that the appliance or equipment bearing it complies with the protection requirements of one or several European safety directives.

CE marking  applies to complete products or equipment, **but not to electromechanical components, such as connectors.**

### 6. PRODUCT IMPROVEMENTS

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## Notes

LEMO complete product range

|                    | B | S | K | T | E | F | 00 | 01 | 0A | 3T | 4A | 4M | 3K.93C | 1D | Y | 05 | 5G | 2G.2C | L | H | M | R | N | 03 | V | W | T7 | P | SP | D | K/S | 01 | DIN |
|--------------------|---|---|---|---|---|---|----|----|----|----|----|----|--------|----|---|----|----|-------|---|---|---|---|---|----|---|---|----|---|----|---|-----|----|-----|
| Unipole            |   | • |   |   | • |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Multipole          | • | • | • | • | • |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Coaxial 50 Ω       |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Coaxial 75 Ω       |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Multi Coaxial      |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Mixed Coax + LV    |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Triaxial 50 Ω      |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Triaxial 75 Ω      |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Mixed Triax + LV   |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Quadrax            |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| High Voltage       |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Multi High Voltage |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Mixed HV + LV      |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Fibre Optic        |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Multi Fibre Optic  |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Mixed FO + LV      |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Thermocouple       |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Fluidic            |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Multi Fluidic      |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |
| Mixed Fluidic + LV |   |   |   |   |   |   |    |    |    |    |    |    |        |    |   |    |    |       |   |   |   |   |   |    |   |   |    |   |    |   |     |    |     |

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