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# P1/P3 FLUIDIC CONTACT WITH VALVE



## 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.

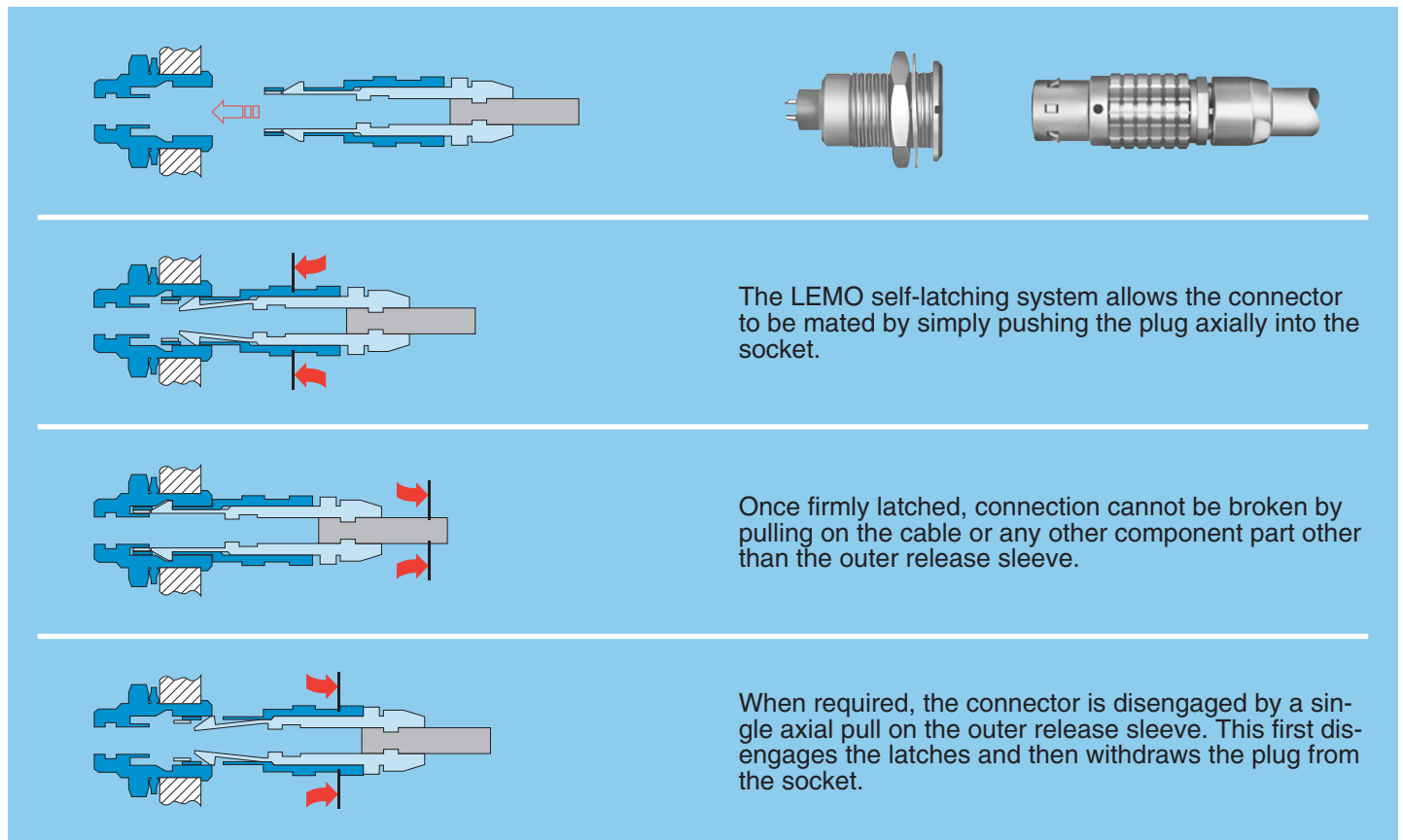
### Over 75'000 connectors

The modular design of the LEMO range provides over 75'000 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.

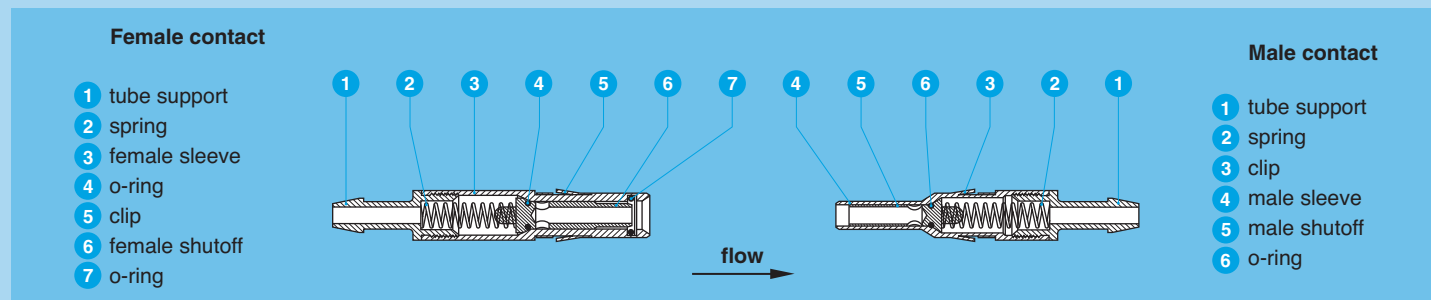
# P1/P3 Fluidic contact with valve

The P1 fluidic contact is designed to fit multi fluid connectors or mixed fluid/electrical connectors from 2B to 5B and 2K to 5K series. This new design includes a shut-off valve. It fits into all insert cavities that already accept the LEMO coaxial type «C» of contact. The P3 fluidic contact is designed to fit multi fluid connectors of the 5B and 5K series.

Its main features are:

- contacts with shut-off valve
  - maximum working pressure 6 bars
  - stainless alloy body
  - after mounting on tube, the contact is installed in the main insulator and retained with a metallic clip.
- The contact is fitted with FPM o-ring, it can be used with liquids or gas.

## Part Section Showing Internal Components



## Technical Characteristics

### Material and Treatment

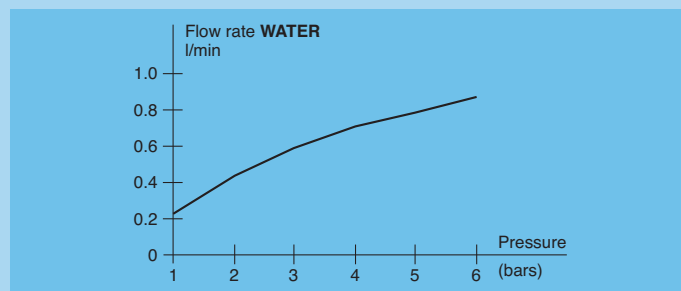
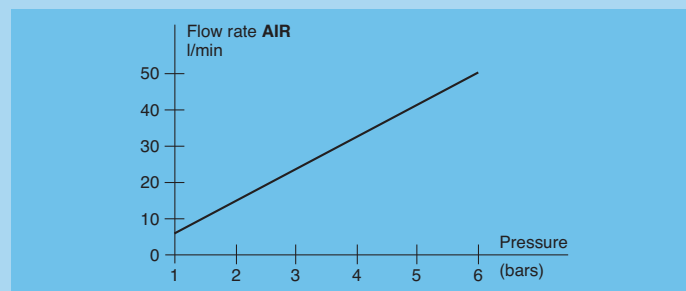
| Components | Value           |
|------------|-----------------|
| Body       | Stainless steel |
| Valve      | Alloy CuNiZn    |
| Spring     | Stainless steel |
| Clips      | CuBe            |
| O-ring     | FPM             |

### Mechanical and Environmental

| Characteristics           | Value         | Cont. type | Standard            |
|---------------------------|---------------|------------|---------------------|
| Mating durability         | 1000 cycles   | P1/P3      | IEC 60512-5 test 9a |
| Temperature range         | -20°C, +125°C | P1/P3      |                     |
| Max. working pressure     | 6 bars        | P1/P3      |                     |
| Air flow rate at 6 bars   | 50 l/min      | P1         |                     |
| Water flow rate at 6 bars | 0.80 l/min    | P1         |                     |
| Air flow rate at 6 bars   | 210 l/min     | P3         |                     |
| Water flow rate at 6 bars | 4.20 l/min    | P3         |                     |

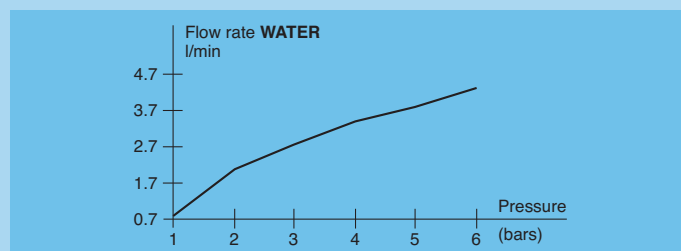
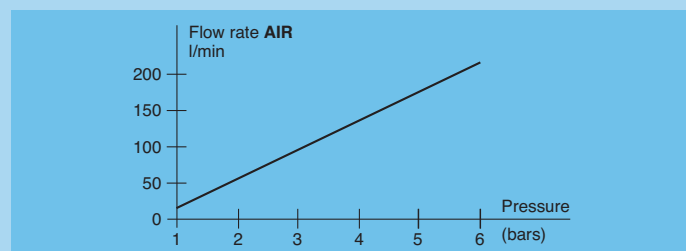
**Note:** flow direction is always from female contact to male contact.

### Flow/pressure diagram P1 contact type



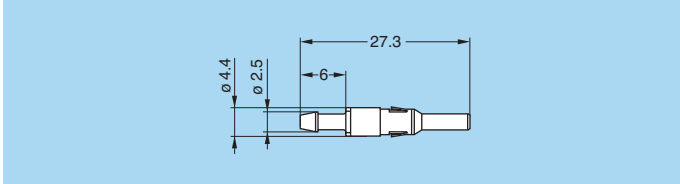
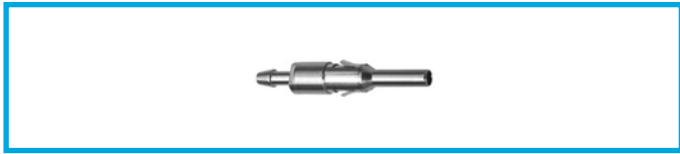
**Note:** test carried out with a 2 mm inner diameter tube.

### Flow/pressure diagram P3 contact type



## Model - Fluidic Contact Type

### P1 contacts

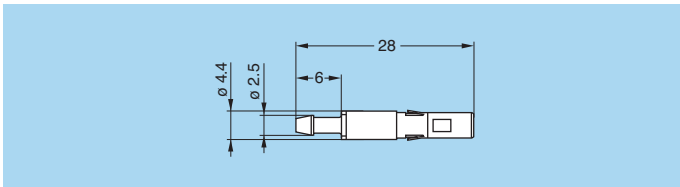
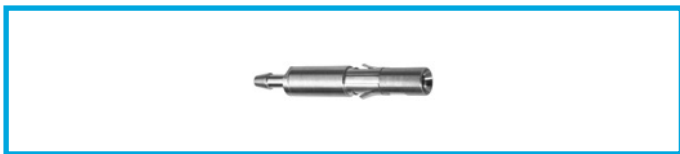


#### FGG.P1 Male fluidic contact with valve

Part number

FGG.P1.150.ACV

**Note:** Connectors are delivered without the P1 contacts.



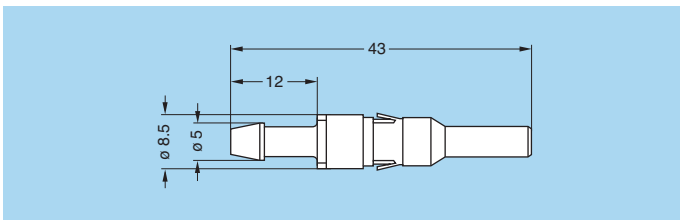
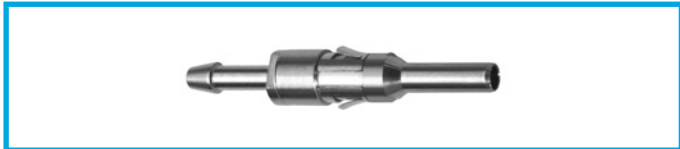
#### EGG.P1 Female fluidic contact with valve

Part number

EGG.P1.150.ACV

**Note:** Connectors are delivered without the P1 contacts.

### P3 contacts

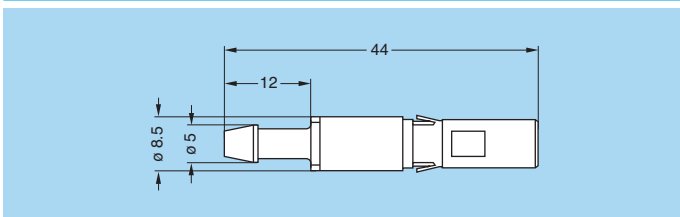
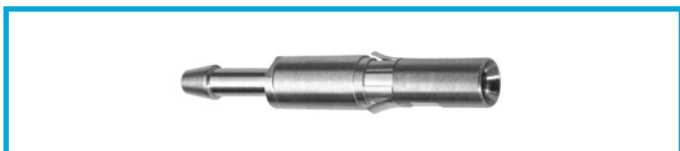


#### FGG.P3 Male fluidic contact with valve

Part number

FGG.P3.300.ACV

**Note:** Connectors are delivered without the P3 contacts.



#### EGG.P3 Female fluidic contact with valve

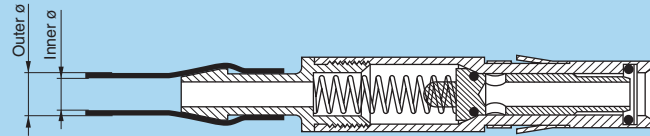
Part number

EGG.P3.300.ACV

**Note:** Connectors are delivered without the P3 contacts.

## Recommended tubing/hose

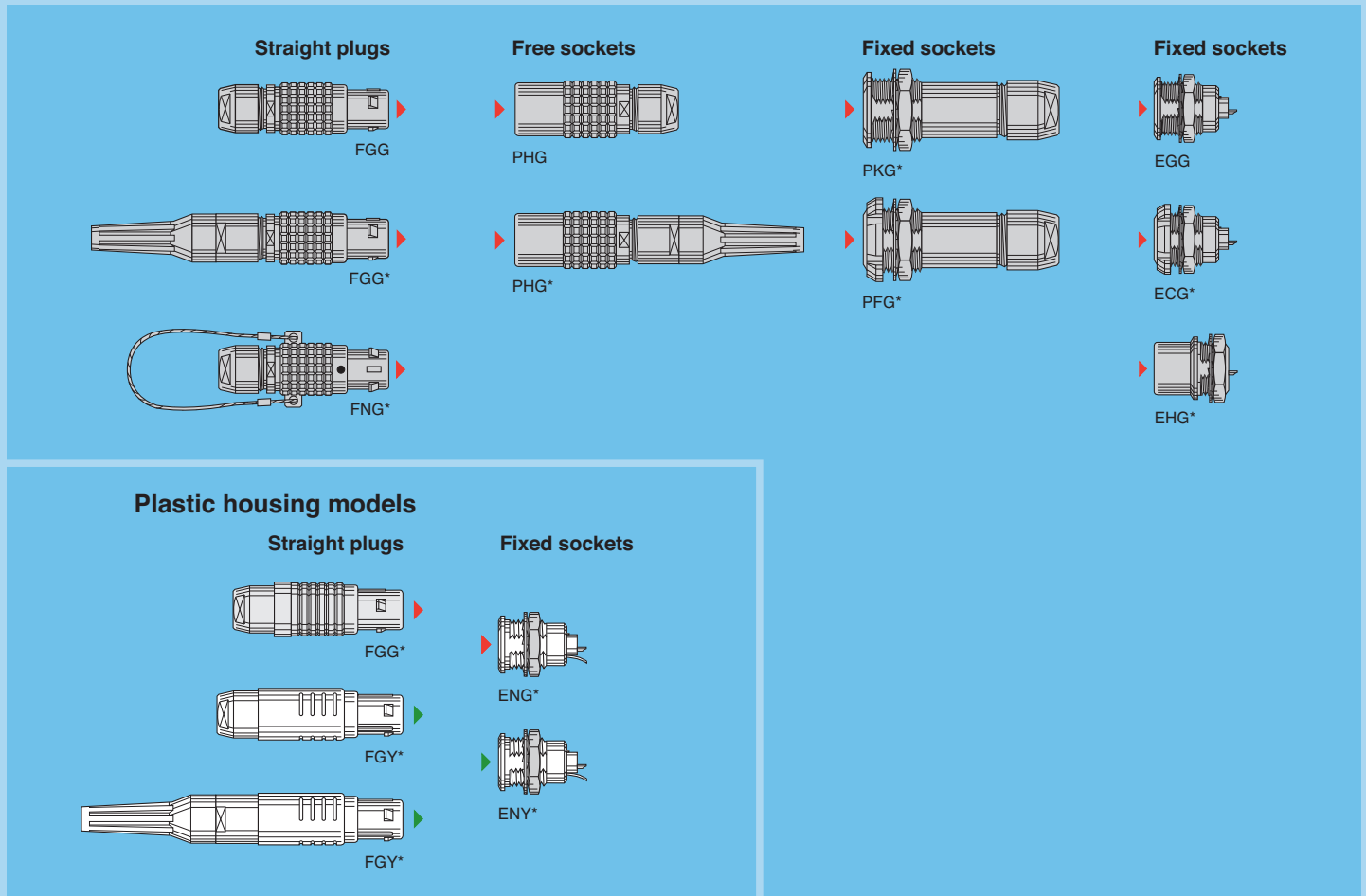
| Series         | Contact type | Diameter (mm)       |                     | Supplier           | Material          | Colour | Working temperature |
|----------------|--------------|---------------------|---------------------|--------------------|-------------------|--------|---------------------|
|                |              | Outer $\varnothing$ | Inner $\varnothing$ |                    |                   |        |                     |
| 2B, 3B, 2K, 3K | P1           | 4.0                 | 2.0                 | Legris 1100P0400   | Polyamide (nylon) | White  | -20° C to 80° C     |
| 2B, 3B, 2K, 3K |              | 4.0                 | 2.0                 | Legris 1100P0401   | Polyamide (nylon) | Black  | -20° C to 80° C     |
| 2B, 3B, 4B, 5B |              | 3.0                 | 1.8                 | Legris 1025U030118 | Polyurethane      | Black  | -20° C to 70° C     |
| 2K, 3K, 4K, 5K |              | 3.0                 | 1.8                 | Legris 1025U030118 | Polyurethane      | Black  | -20° C to 70° C     |
| 5B, 5K         | P3           | 6.0                 | 4.0                 | Legris 1100P0601   | Polyamide (nylon) | Black  | -20° C to 80° C     |



## 2B-5B Series

The P1 fluidic contact has been designed to work in the 2B to 5B series. The P3 contact has been designed to work in the 5B series. The main features of these series are as follows:

- security of the LEMO Push-Pull self-latching system
  - the alignment key (G, A...F, Y and R) ensures excellent repeatability of performance during frequent matings
  - the P1 fluidic contact allows hybrid configuration in the 2B series and multi fluid up to 10 channels in the 5B series.
- The possible outer cable diameters range from 4.0 to 25 mm.



### Model Description

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

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

**EHG** Fixed socket, nut fixing, key (G) or keys (A...F and R) with visible shell

**ENG** Fixed socket with grounding tab, nut fixing, key (G), PEEK outer shell

**ENY** Fixed socket with grounding tab, nut fixing, keys (Y), PSU or PPSU outer shell

**FGG** Straight plug, key (G) or keys (A...F and R) and cable collet

**FGG** Straight plug, key (G) or keys (A...F) cable collet and nut for fitting a bend relief

**FGG** Straight plug, key (G), cable collet, PEEK outer shell

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

**FGY** Straight plug, keys (Y), cable collet and PSU or PPSU outer shell and nut for fitting a bend relief

**FNG** Straight plug, key (G) or keys (A...F and R) and cable collet with lanyard release

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

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

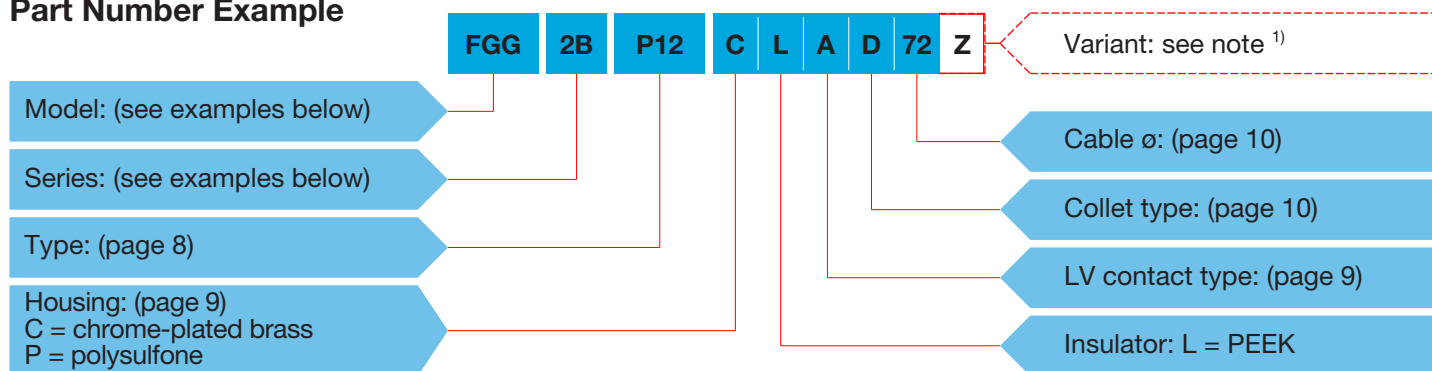
**PHG** Free socket, key (G) or keys (A...F) and cable collet and nut for fitting a bend relief

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

\* Not show in this catalogue. Refer to our catalogue unipole-multipole

Certain models and certain alignment key may not be available in all series. Please consult us.

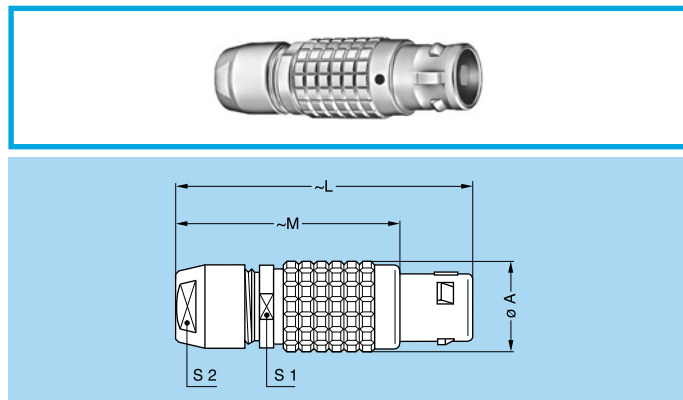
## Part Number Example



**FGG.2B.P12.CLAD72Z** = Straight plug with key (G), 2B series, mixed type to accept one P1 fluid contact and 4 low voltage electrical contacts, chrome-plated brass housing, PEEK insulator, 4 male solder electrical contacts, type D collet system to suit a 6.1 to 7.0 mm diameter cable, and a nut for fitting a bend relief.

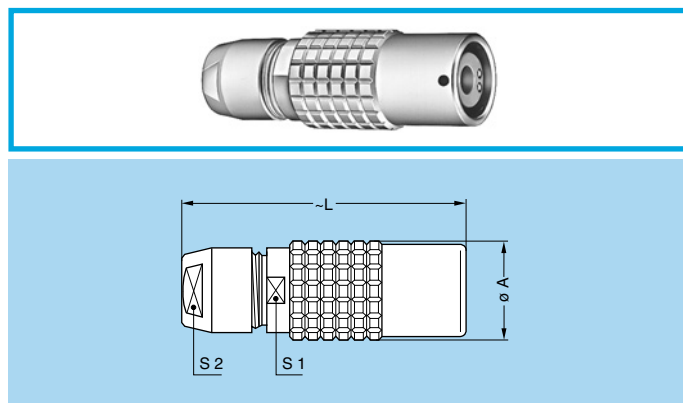
### Note:

<sup>1)</sup> The «Variant» position in the reference is used to indicate the presence of a collet nut for fitting the bend relief. The bend relief must be ordered separately (see page 12).



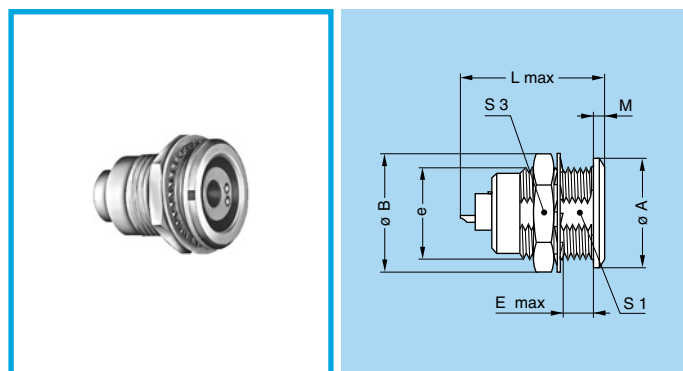
### FGG Straight plug, key (G) or keys (A...F and R) and cable collet

| Reference |        | Dimensions (mm) |     |    |    |    |
|-----------|--------|-----------------|-----|----|----|----|
| Model     | Series | A               | L   | M  | S1 | S2 |
| FGG       | 2B     | 15              | 50  | 38 | 13 | 12 |
| FGG       | 3B     | 18              | 58  | 43 | 15 | 14 |
| FGG       | 4B     | 25              | 75  | 57 | 21 | 20 |
| FGG       | 5B     | 35              | 103 | 78 | 31 | 30 |



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

| Reference |        | Dimensions (mm) |      |    |    |
|-----------|--------|-----------------|------|----|----|
| Model     | Series | A               | L    | S1 | S2 |
| PHG       | 2B     | 16.5            | 47.0 | 13 | 12 |
| PHG       | 3B     | 19.0            | 56.0 | 15 | 14 |
| PHG       | 4B     | 24.4            | 73.0 | 21 | 20 |
| PHG       | 5B     | 34.2            | 99.0 | 31 | 30 |



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

| Reference |                  | Dimensions (mm) |      |         |      |      |     |      |    |
|-----------|------------------|-----------------|------|---------|------|------|-----|------|----|
| Model     | Series           | A               | B    | e       | E    | L    | M   | S1   | S3 |
| EGG       | 2B               | 18              | 19.2 | M15x1.0 | 8.5  | 28.8 | 1.8 | 13.5 | 17 |
| EGG       | 3B               | 22              | 25.0 | M18x1.0 | 11.5 | 30.0 | 2.0 | 16.5 | 22 |
| EGG       | 4B               | 28              | 34.0 | M25x1.0 | 12.0 | 34.5 | 2.5 | 23.5 | 30 |
| EGG       | 5B               | 40              | 40.0 | M35x1.0 | 11.0 | 36.5 | 3.0 | 33.5 | -  |
| EGG       | 5B <sup>1)</sup> | 40              | 40.0 | M35x1.0 | 11.0 | 45.9 | 3.0 | 33.5 | -  |

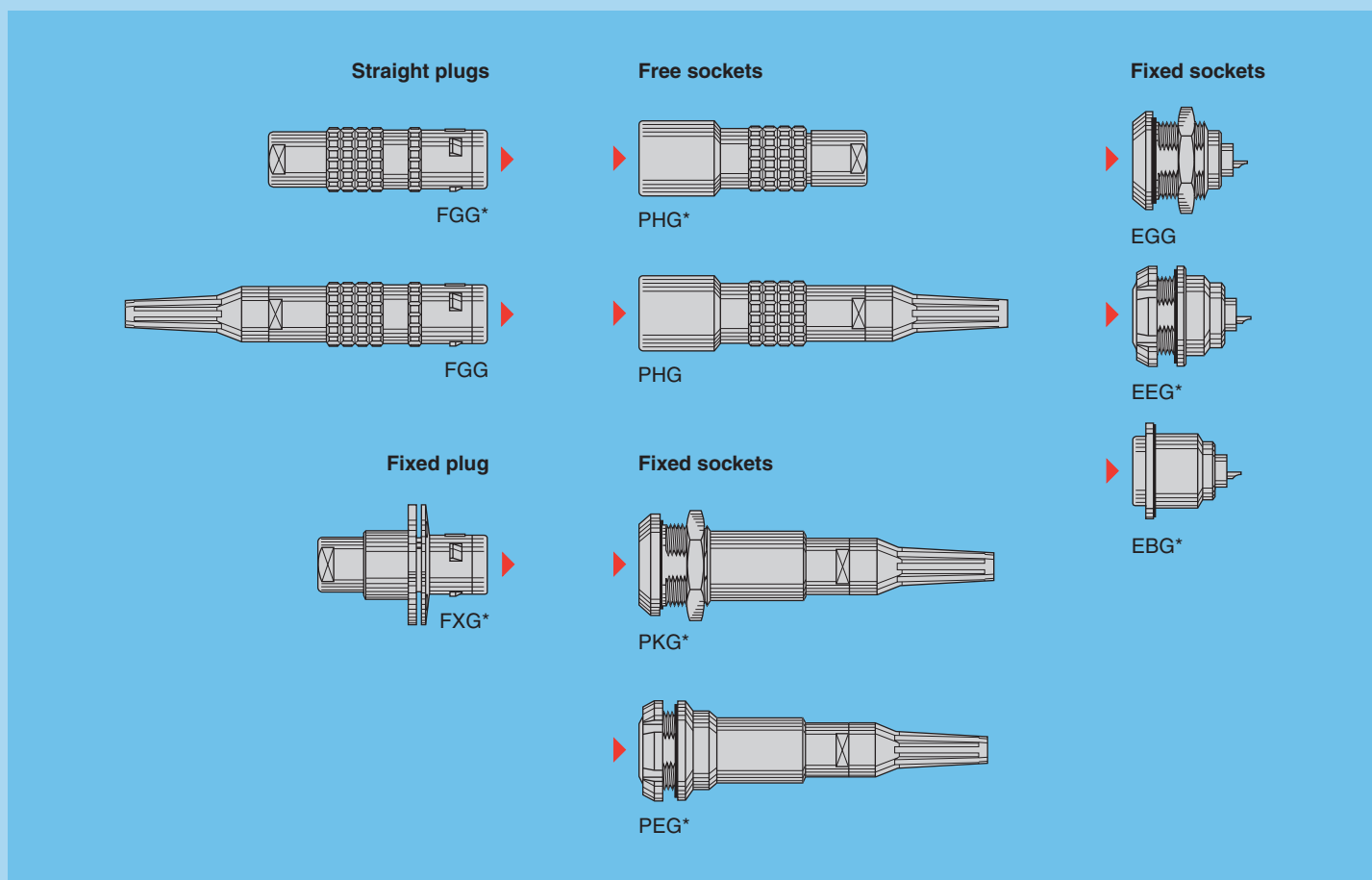
Note: <sup>1)</sup> with P3 contact.



## 2K-5K Series

The P1 fluidic contact has been designed to work in the 2K-5K series. The P3 contact has been designed to work in the 5K series. The main features of these series are as follows:

- security of the LEMO Push-Pull self-latching system
  - specially designed for outdoors applications. All these models are waterproof when mated and reach a protection index of IP 66-IP 68, according to the IEC 60529 standard
  - the alignment key (G, A...F and R) ensures excellent repeatability of performance during frequent matings
  - the P1 fluidic contact allows hybrid configuration in the 2K series and multi fluid up to 10 channels in the 5K series.
- The 2K-5K series consists of ten models which will accept outer cable diameters ranging from 2.6 mm to 23.5 mm.



### Model Description

**EBG** Fixed socket with square flange, key (G) or keys (A...F and R), four holes fixing

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

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

**FGG** Straight plug, key (G) or keys (A...F and R), cable collet

**FGG** Straight plug, key (G) or keys (A...F and R), cable collet

**FXG** Fixed plug with round flange, four holes fixing, key (G) or keys (A...F and R)

**PEG** Fixed socket, nut fixing, key (G) or keys (A...F and R), cable collet and nut for fitting a bend relief (back panel mounting)

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

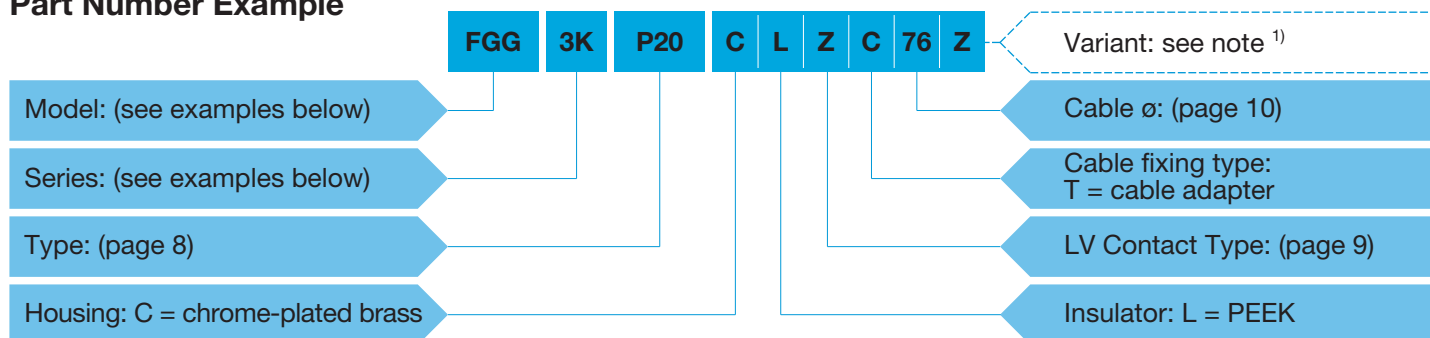
**PHG** Free socket, key (G) or keys (A...F and R), cable collet and nut for fitting a bend relief

**PKG** Fixed socket, nut fixing, key (G) or keys (A...F and R), cable collet and nut for fitting a bend relief

\* Not show in this catalogue. Refer to our catalogue unipole-multipole

Certain models and certain alignment key may not be available in all series. Please consult us.

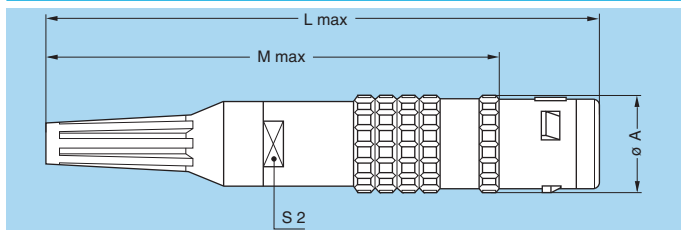
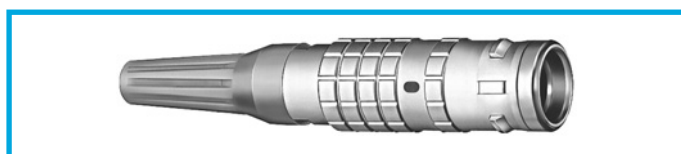
## Part Number Example



**FGG.3K.P20.CLZC76Z** = Straight plug with key (G), 3K series, multi fluid with 2 times P1 contacts, chrome-plated brass housing, PEEK insulator, C type collet for 7.5 mm diameter cable, and nut for fitting a bend relief.

**Note: Connectors are always delivered without fluidic contact.**

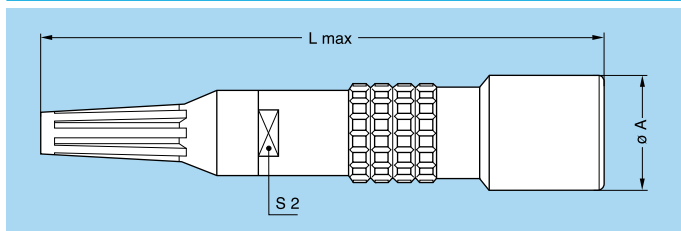
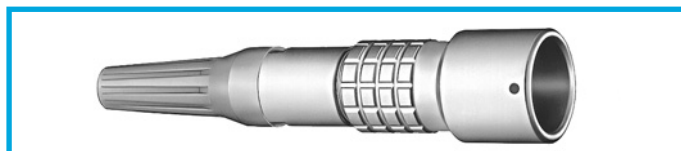
<sup>1)</sup> The «Variant» position in the reference is used to indicate the presence of a collet nut for fitting the bend relief. The bend relief must be ordered separately (see page 12).



### FGG Straight plug, key (G) or keys (A...F and R), cable collet and nut for fitting a bend relief

| Reference |        | Dimensions (mm) |     |       |    |
|-----------|--------|-----------------|-----|-------|----|
| Model     | Series | A               | L   | M     | S2 |
| FGG       | 2K     | 16              | 101 | 85.0  | 12 |
| FGG       | 3K     | 19              | 109 | 89.0  | 15 |
| FGG       | 4K     | 25              | 131 | 110.5 | 19 |
| FGG       | 5K     | 38              | 160 | 135.0 | 30 |

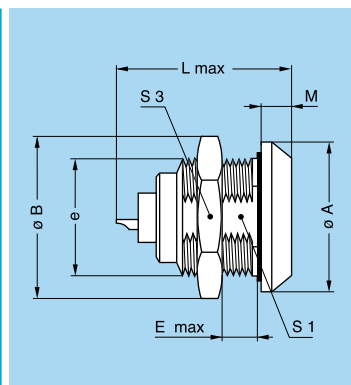
**Note:** The overall length dimension is with bend relief



### PHG Free socket, key (G) or keys (A...F and R), cable collet and nut for fitting a bend relief

| Reference |        | Dimensions (mm) |       |    |
|-----------|--------|-----------------|-------|----|
| Model     | Series | A               | L     | S2 |
| PHG       | 2K     | 19              | 103.0 | 12 |
| PHG       | 3K     | 23              | 113.0 | 15 |
| PHG       | 4K     | 29              | 135.5 | 19 |
| PHG       | 5K     | 42              | 164.0 | 30 |

**Note:** The overall length dimension is with bend relief



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

| Reference |        | Dimensions (mm) |      |         |    |      |     |      |    |
|-----------|--------|-----------------|------|---------|----|------|-----|------|----|
| Model     | Series | A               | B    | e       | E  | L    | M   | S1   | S3 |
| EGG       | 2K     | 25              | 27.0 | M20x1.0 | 9  | 32.8 | 5.0 | 18.5 | 24 |
| EGG       | 3K     | 31              | 34.0 | M24x1.0 | 11 | 35.5 | 6.0 | 22.5 | 30 |
| EGG       | 4K     | 37              | 40.5 | M30x1.0 | 9  | 37.0 | 6.5 | 28.5 | 36 |
| EGG       | 5K     | 55              | 54.0 | M45x1.5 | 10 | 40.5 | 9.0 | 42.5 | -  |

# Insert configuration

## Multi fluid and Mixed fluid + LV

|  |  | Fluidic contact    |      |                             |                             | Low Voltage contact          |            |          |              |       |                                       |                                     |                                       |                                     |                   |     |
|--|--|--------------------|------|-----------------------------|-----------------------------|------------------------------|------------|----------|--------------|-------|---------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|-------------------|-----|
|  |  | Nb of fluidic tube | Type | Ext. ø of tube (see page 3) | Int. ø of tube (see page 3) | Max. working pressure (bars) | Contact No | ø A (mm) | Contact type |       | Solder contact                        |                                     | Crimp contact                         |                                     | Rated current (A) |     |
|  |  |                    |      |                             |                             |                              |            |          | Solder       | Crimp | Test voltage (kV rms) Contact-contact | Test voltage (kV rms) Contact-shell | Test voltage (kV rms) Contact-contact | Test voltage (kV rms) Contact-shell |                   |     |
| Male solder contacts            Female solder contacts |  |                    |      |                             |                             |                              |            |          |              |       |                                       |                                     |                                       |                                     |                   |     |
| Male crimp contacts            Female crimp contacts   |  |                    |      |                             |                             |                              |            |          |              |       |                                       |                                     |                                       |                                     |                   |     |
| <b>2B<br/>2K</b>                                       |  | P11                | 1    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 2        | 0.9          | ●     | ●                                     | 1.75                                | 1.60                                  | 1.85                                | 1.60              | 9.0 |
|  |  | P12                | 1    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 4        | 0.7          | ●     | ●                                     | 0.85                                | 1.20                                  | 0.85                                | 1.25              | 6.0 |
|  |  | P13                | 1    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 6        | 0.7          | ●     | ●                                     | 0.85                                | 1.20                                  | 0.85                                | 1.25              | 6.0 |
|  |  | P15                | 1    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 10       | 0.7          | ●     | ●                                     | 1.15                                | 1.35                                  | 1.30                                | 1.05              | 6.0 |
| <b>3B<br/>3K</b>                                       |  | P20                | 2    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | -        | -            | -     | -                                     | -                                   | -                                     | -                                   | -                 |     |
|  |  | P22                | 2    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 4        | 0.9          | ●     | ●                                     | 1.20                                | 1.05                                  | 1.00                                | 0.80              | 8.0 |
|  |  | P23                | 2    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 6        | 0.9          | ●     | ●                                     | 1.20                                | 1.05                                  | 1.00                                | 0.80              | 8.0 |
|  |  | P25                | 2    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 10       | 0.7          | ●     | ●                                     | 0.95                                | 0.75                                  | 0.85                                | 0.65              | 6.0 |
|  |  | P28                | 2    | P1                          | 3.0<br>4.0                  | 1.8<br>2.0                   | 6          | 16       | 0.7          | ●     | ●                                     | 0.80                                | 0.70                                  | 0.80                                | 0.75              | 5.5 |
| <b>4B<br/>4K</b>                                       |  | P40                | 4    | P1                          | 3.0                         | 1.8                          | 6          | -        | -            | -     | -                                     | -                                   | -                                     | -                                   | -                 |     |
|  |  | P49                | 4    | P1                          | 3.0                         | 1.8                          | 6          | 9        | 0.7          | ●     | ●                                     | 1.00                                | 1.00                                  | 0.80                                | 0.80              | 8   |
|  |  | P33                | 3    | P1                          | 3.0                         | 1.8                          | 6          | 6        | 0.7          | ●     | ●                                     | 0.90                                | 0.95                                  | 0.80                                | 0.80              | 8   |
|  |  | P36                | 3    | P1                          | 3.0                         | 1.8                          | 6          | 12       | 0.7          | ●     | ●                                     | 0.90                                | 0.95                                  | 0.80                                | 0.80              | 6   |
|  |  | P26                | 2    | P1                          | 3.0                         | 1.8                          | 6          | 12       | 0.9          | ●     | ●                                     | 0.95                                | 0.85                                  | 0.90                                | 1.20              | 10  |
|  |  | P28                | 2    | P1                          | 3.0                         | 1.8                          | 6          | 16       | 0.9          | ●     | ●                                     | 0.95                                | 0.85                                  | 0.85                                | 0.85              | 10  |
|  |  | P29                | 2    | P1                          | 3.0                         | 1.8                          | 6          | 18       | 0.7          | ●     | ●                                     | 0.90                                | 0.95                                  | 0.85                                | 0.75              | 8   |

## Multi fluid and Mixed fluid + LV

|  | Fluidic contact   |      |                                  |                                  | Low Voltage contact          |            |               |        |       |              |                |               |                   |   |
|--|---|------|----------------------------------|----------------------------------|------------------------------|------------|---------------|--------|-------|--------------|----------------|---------------|-------------------|---|
|  | Nb of fluidic tube  | Type | Ext. $\phi$ of tube (see page 3) | Int. $\phi$ of tube (see page 3) | Max. working pressure (bars) | Contact No | $\phi$ A (mm) | Solder | Crimp | Contact type | Solder contact | Crimp contact | Rated current (A) |   |
| Male solder contacts<br>Female solder contacts<br>Male crimp contacts<br>Female crimp contacts | Reference   |      |                                  |                                  |                              |            |               |        |       |              |                |               |                   |   |
|  | <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid red; padding: 2px; color: red; font-weight: bold;">5B<br/>5K</div> <div style="display: flex; flex-direction: column;"> <div style="display: flex; justify-content: space-around;"> </div> <div style="display: flex; justify-content: space-around;"> </div> <div style="display: flex; justify-content: space-around;"> </div> </div> </div> |      |                                  |                                  |                              |            |               |        |       |              |                |               |                   |   |
| P01  | 10  | P1   | 3.0                              | 1.8                              | 6                            | -          | -             | -      | -     | -            | -              | -             | -                 | - |
| P30  | 3   | P3   | 6.0                              | 4.0                              | 6                            | -          | -             | -      | -     | -            | -              | -             | -                 | - |
| P40  | 4   | P3   | 6.0                              | 4.0                              | 6                            | -          | -             | -      | -     | -            | -              | -             | -                 | - |

### Housings (B and K series)

| Ref. | Outer shell and collet nut |                 | Latch sleeve + earthing crown |                      | Other metallic components |                 | Remarks                                       |
|------|----------------------------|-----------------|-------------------------------|----------------------|---------------------------|-----------------|---|
|      | Material                   | Surf. treatment | Material                      | Surf. treatment      | Material                  | Surf. treatment |   |
| C    | Brass                      | chrome          | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          |   |
| G    | PEEK (natural)             | -               | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FGG and ENG (B series)               |
| P    | PSU                        | -               | brass/bronze                  | nickel <sup>2)</sup> | brass                     | nickel          | Only for FGY and ENY (B series) <sup>1)</sup> |

Note: <sup>1)</sup> see «variant» for the colour. <sup>2)</sup> in the K series, the latch sleeve is chrome-plated.

### Electrical Contact

#### Contact for plug, socket, and fixed socket

| Ref. | Contact type  |
|------|---------------|
| A    | male solder   |
| C    | male crimp    |
| L    | female solder |
| M    | female crimp  |
| Z    | no contact    |





## Collets (B and K series)

### D and M type collets for B series

D type



M type



|           | Reference |      | Collet $\varnothing$ |                 | Cable $\varnothing$ |        | Notes |
|-----------|-----------|------|----------------------|-----------------|---------------------|--------|-------|
|           | Type      | Code | $\varnothing$ A      | $\varnothing$ B | max.                | min.   |       |
| <b>2B</b> | 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  |       |
|           | D         | 99   | 9.9                  | 8.6             | 9.9                 | > 9.2  | 1)    |
| <b>3B</b> | M         | 52   | 5.2                  | –               | 5.2                 | > 4.2  |       |
|           | 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  |       |
|           | D         | 11   | 11.0                 | –               | 11.0                | > 10.1 |       |
| D         | 12        | 12.0 | 10.2                 | 11.9            | 10.8                | 1)     |       |

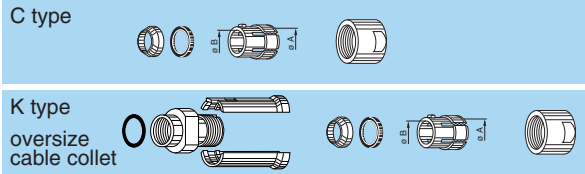
|           | Reference |      | Collet $\varnothing$ |                 | Cable $\varnothing$ |       | Notes |
|-----------|-----------|------|----------------------|-----------------|---------------------|-------|-------|
|           | Type      | Code | $\varnothing$ A      | $\varnothing$ B | max.                | min.  |       |
| <b>4B</b> | M         | 62   | 6.2                  | –               | 6.2                 | 4.9   |       |
|           | M         | 72   | 7.2                  | –               | 7.7                 | > 6.2 |       |
|           | M         | 92   | 9.2                  | 8.6             | 9.2                 | > 7.7 |       |
|           | 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  |       |
|           | D         | 16   | 16.3                 | 12.5            | 16.0                | 15.1  | 1)    |
| <b>5B</b> | D         | 11   | 11.8                 | –               | 11.5                | 9.6   |       |
|           | D         | 13   | 13.8                 | –               | 13.5                | 11.6  |       |
|           | D         | 15   | 15.8                 | –               | 15.5                | 13.6  |       |
|           | 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.

<sup>1)</sup> these collets cannot be used for connector models with nut for fitting a bend relief.



## C and K type collets for K series



|           | Reference |      | Collet $\varnothing$ |                 | Cable $\varnothing$ |      |
|-----------|-----------|------|----------------------|-----------------|---------------------|------|
|           | Type      | Code | $\varnothing$ A      | $\varnothing$ B | max.                | min. |
| <b>2K</b> | 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                  | 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  |
|           | K         | 95   | 10.2                 | 10.2            | 9.5                 | 9.1  |
|           | K         | 10   | 10.2                 | 10.2            | 10.0                | 9.6  |
| K         | 11        | 11.2 | 10.6                 | 10.5            | 10.1                |      |
| <b>3K</b> | 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 |
|           | K         | 12   | 13.8                 | 13.8            | 12.8                | 12.1 |
|           | K         | 13   | 13.8                 | 13.8            | 13.5                | 12.9 |
|           | K         | 14   | 15.3                 | 15.3            | 14.0                | 13.6 |
| K         | 15        | 15.3 | 15.3                 | 15.0            | 14.1                |      |

|           | Reference |      | Collet $\varnothing$ |                 | Cable $\varnothing$ |      |
|-----------|-----------|------|----------------------|-----------------|---------------------|------|
|           | Type      | Code | $\varnothing$ A      | $\varnothing$ B | max.                | min. |
| <b>4K</b> | C         | 50   | 6.3                  | –               | 5.0                 | 4.6  |
|           | 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 |
|           | K         | 16   | 17.8                 | –               | 16.5                | 15.6 |
|           | K         | 17   | 17.8                 | –               | 17.5                | 16.6 |
|           | K         | 18   | 19.8                 | –               | 18.5                | 17.6 |
|           | K         | 19   | 19.8                 | –               | 19.5                | 18.6 |
|           | K         | 20   | 21.8                 | –               | 20.5                | 19.6 |
|           | K         | 21   | 21.8                 | –               | 21.5                | 20.6 |
|           | K         | 22   | 23.8                 | 23.8            | 22.5                | 21.6 |
| K         | 23        | 23.8 | 23.8                 | 23.5            | 22.6                |      |
| <b>5K</b> | 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 |
|           | C         | 16   | 17.8                 | –               | 16.5                | 15.6 |
|           | C         | 17   | 17.8                 | –               | 17.5                | 16.6 |
|           | C         | 18   | 19.8                 | –               | 18.5                | 17.6 |
|           | C         | 19   | 19.8                 | –               | 19.5                | 18.6 |
|           | C         | 20   | 21.8                 | –               | 20.5                | 19.6 |
| C         | 21        | 21.8 | –                    | 21.5            | 20.6                |      |
| C         | 22        | 23.8 | 23.8                 | 22.5            | 21.6                |      |
| C         | 23        | 23.8 | 23.8                 | 23.5            | 22.6                |      |

Note: all dimensions are in millimetres.

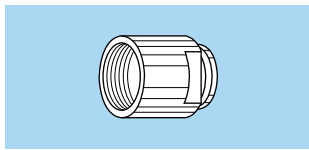
## Tools

### Extractor

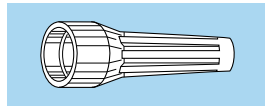
| Reference      | Contact type |
|----------------|--------------|
| DCC.91.10P.1LA | P1           |
| DCC.91.808.0LC | P3           |

**Variant (B and K series)**

**Bend relief for B series models with collet**

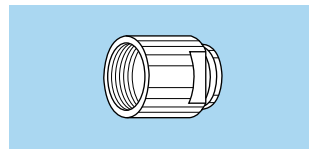


**Need to be ordered**

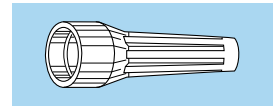


|           | Ref. | Collet |           | Need to be ordered separately |
|-----------|------|--------|-----------|-------------------------------|
|           |      | Type   | Code      |                               |
| <b>2B</b> | Z    | D      | 42 to 92  | GMA.2B.●●●●                   |
| <b>3B</b> | Z    | M      | 52        | GMA.1B.●●●●                   |
|           |      | D      | 62 to 10  | GMA.3B.●●●●                   |
| <b>4B</b> | Z    | M      | 62 and 72 | GMA.2B.●●●●                   |
|           |      | M      | 92        | GMA.4B.●●●●                   |
|           |      | D      | 10 to 15  | GMA.4B.●●●●                   |
| <b>5B</b> | Z    | D      | 11 to 15  | GMA.4B.●●●●                   |

**Bend relief for K series models with collet**

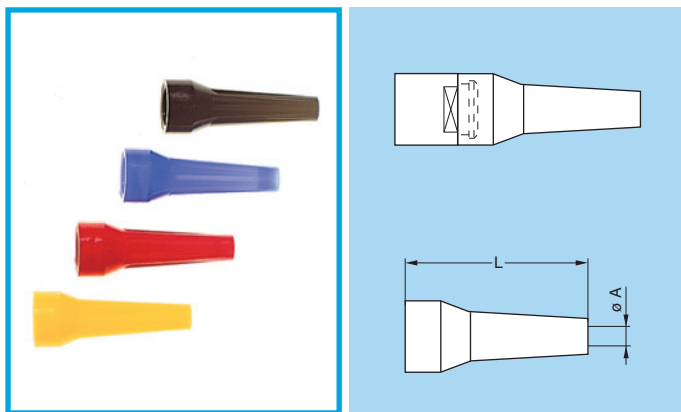


**Need to be ordered**



|           | Ref. | Collet |          | Need to be ordered separately |
|-----------|------|--------|----------|-------------------------------|
|           |      | Type   | Code     |                               |
| <b>2K</b> | Z    | C      | 40 to 85 | GMA.2B.●●●●                   |
|           |      | K      | 90 to 10 | GMA.3B.●●●●                   |
| <b>3K</b> | Z    | C      | 40 to 10 | GMA.3B.●●●●                   |
|           |      | K      | 11 to 15 | GMA.4B.●●●●                   |
| <b>4K</b> | Z    | C      | 50 to 15 | GMA.4B.●●●●                   |

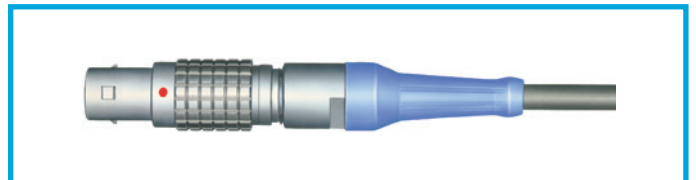
**Note:** All dimensions are in millimetres.



**GM Bend relief**

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 that match with the GRA insulating washers (see unipole-multipole catalog). 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   | Dimensions (mm) |    |         |      | Series   |
|---------------|-----------------|----|---------|------|----------|
|               | Bend relief     |    | Cable ø |      |          |
|               | A               | L  | max.    | min. |          |
| GMA.2B.040.DG | 4.0             | 36 | 4.5     | 4.0  | 2B-2K    |
| GMA.2B.045.DG | 4.5             | 36 | 5.0     | 4.5  |          |
| GMA.2B.060.DG | 6.0             | 36 | 6.5     | 6.0  |          |
| GMA.2B.070.DG | 7.0             | 36 | 7.7     | 7.0  |          |
| GMA.3B.060.DG | 6.0             | 42 | 6.9     | 6.0  | 3B-3K    |
| GMA.3B.070.DG | 7.0             | 42 | 7.9     | 7.0  |          |
| GMA.3B.080.DG | 8.0             | 42 | 8.9     | 8.0  |          |
| GMA.4B.011.DG | 11.0            | 60 | 11.9    | 11.0 | 4B-4K-5B |
| GMA.4B.012.DG | 12.0            | 60 | 13.0    | 12.0 |          |
| GMA.4B.013.DG | 13.5            | 60 | 14.5    | 13.5 |          |

| Ref. | Colour | Ref. | Colour |
|------|--------|------|--------|
| A    | blue   | N    | black  |
| B    | white  | R    | red    |
| G    | grey   | S    | orange |
| J    | yellow | V    | green  |
| M    | brown  |      |        |

**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 above and replace the letter «G» by the letter of the required colour.

## 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

The LEMO Group reserves the right to modify and improve to our products or specifications without providing prior notification.



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