

00 NIM-CAMAC & 01 COAXIAL CONNECTORS

00
&
01
SERIES



LEMO coaxial 00 and 01 Series (50 Ω)

Fundamental research in particle physics as practised within CERN and other nuclear research establishments requires more and more complex equipment of high performance in order to achieve the objectives. The needs of such research contribute to the development of leading products for the whole of industry. For many years LEMO has participated in this evolution. This has resulted in a range of miniature coaxial connectors (50 Ω) with a push-pull self-latching system, the LEMO 00.250 series. These connectors now form the basis of the NIM-CAMAC CD/N 549 standard.

The plugs and sockets of the 01 series are amongst the smallest available 50 Ω coaxial connectors with a self-latching intermating capability. In spite of their small size and light weight, their technical characteristics remain excellent. Available in a wide range of housing configurations, they are especially useful when connecting onto printed circuit boards.

The LEMO 00 series and 01 are now used in many areas such as: telecommunications, sensors, medical equipment, space research, etc...

The program covered in this catalog now includes more than 50 models suitable for many cable types.

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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 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 106 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.

The LEMO self-latching system allows the connector to be mated by simply pushing the plug axially into the socket.

F_v : average latching force

| | | Series | |
|-------|--|--------|----|
| Force | | 00 | 01 |
| F_v | | 9N | 5N |

Once firmly latched, connection cannot be broken by pulling on the cable or any other component part other than the outer release sleeve.

F_a : average pull force with axial pull on the collet nut

| | | Series | |
|-------|--|--------|------|
| Force | | 00 | 01 |
| F_a | | 120N | 110N |

When required, the connector is disengaged by a single axial pull on the outer release sleeve. This first disengages the latches and then withdraws the plug from the socket.

F_d : average unmating force with axial pull on the outer release sleeve.

| | | Series | |
|-------|--|--------|----|
| Force | | 00 | 01 |
| F_d | | 7N | 6N |

7N = 0,102 kg.

Force measured according to the standard IEC 60512- test

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

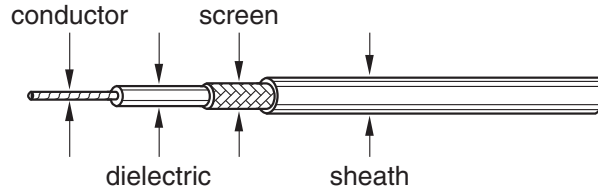
LEMO connector specifications conforms the requirements of the RoHS directive (2011/65/EU) of the European Parliament and the latest amendments. This directive specifies the restrictions of the use of hazardous substances in electrical and electronic equipment marketed in Europe.

Step 2: Complete the part number

Complete the part numbering by choosing the model depending on your cable and the application.

Part number coding . . **250** .

Verify the fitting to your cable and cable wire



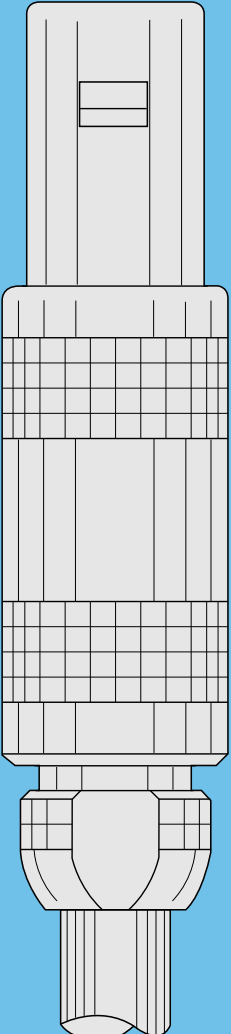
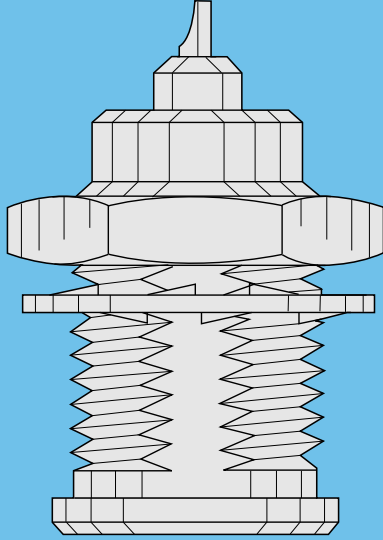
Recommended coaxial cables

Electrical and general properties

| | MIL-C-17 | IEC 60096-2 | CCTU 10-01A | LEMO Part-No | LEMO Cable group | Impedance Ohm | Capacitance pF/m | Attenuation dB/100 m at 100 MHz | Operating voltage U max. KV eff. | Temperature °C | | Series | |
|--------------|--------------|-------------|--------------------|--------------------|------------------|------------------|---------------------|---------------------------------------|-------------------------------------|----------------|------|--------|----|
| | | | | | | | | | | from | to | 00 | 01 |
| Standard | RG 58 C/U | 50.3.1 | KX 15 | CCX.50.RG5.8CU50N | 6 | 50 ± 2 | 101 | 23 | 1.90 | -25 | +70 | • | |
| | RG 142 B/U | | | CCX.50.RG1.42BU50M | 7 | 50 ± 2 | 95 | 12.8 | 1.50 | -70 | +200 | • | |
| | RG 174 /U | 50.2.1 | KX 38 | CCX.50.RG1.74U25N | 3 | 50 ± 2 | 101 | 35 | 2.50 | -40 | +75 | • | • |
| | RG 174 A/U | 50.2.1 | KX 3A | CCX.50.RG1.74AU27N | 8 | 50 ± 2 | 101 | 31.5 | 1.50 | -25 | +70 | • | • |
| | RG 178 B/U | 50.1.1 | KX 21A | CCX.50.RG1.78BU18M | 1 | 50 ± 2 | 96 | 48 | 0.70 | -90 | +205 | • | • |
| | RG 179 B/U | 75.2.1 | | CCX.75.RG1.79BU26M | 2 | 75 ± 3 | 64 | 33 | 1.20 | -90 | +205 | • | • |
| | RG 187 A/U | 75.2.2 | | CCX.75.RG1.87AU26B | 2 | 75 ± 3 | 64 | 33 | 1.20 | -50 | +205 | • | • |
| | RG 188 A/U | 50.2.3 | | CCX.50.RG1.88AU24B | 4 | 50 ± 2 | 96 | 33 | 1.20 | -50 | +205 | • | • |
| | RG 195 A/U | | | CCX.95.RG1.95AU37B | 5 | 95 ± 5 | 49 | 17 | 1.50 | -90 | +205 | • | |
| | RG 196 A/U | 50.1.2 | | CCX.50.RG1.96AU20B | 1 | 50 ± 2 | 96 | 48 | 0.70 | -50 | +205 | • | • |
| RG 316 /U | 50.2.2 | KX 22A | CCX.50.RG3.16BU26M | 4 | 50 ± 2 | 96 | 33 | 1.20 | -90 | +205 | • | • | |
| Non standard | Huber+Suhner | G02232D-60 | | | 8 | 50 ± 2 | 101 | 24 | 1.50 | -40 | +105 | • | |
| | Huber+Suhner | K01152-07 | | | 9 | 50 ± 5 | 96 | 72 | 0.45 | -45 | +165 | • | |
| | Storm | 421-099 | | | 8 | 50 ± 2 | 96 | 72 | 2.50 | -40 | +75 | • | |

Mechanical properties

| | Type | Conductor | | | Dielectric | | Screen | | Sheath | | | Weight |
|--------------|------------|-----------|-----------|------|------------|------|--------------|--|--------|--------|------|----------|
| | | Mat. | Stranding | ø mm | Mat. | ø mm | Mat. | ø mm | Mat. | Colour | ø mm | kg/100m. |
| Standard | RG 58 C/U | CuSn | 19 x 0.18 | 0.90 | PE | 2.92 | CuSn | 3.6 | PVC | black | 4.95 | 3.80 |
| | RG 142 B/U | CuStAg | solid | 0.95 | PTFE | 2.95 | CuAg CuAg | 1 st : 3.53 2 nd : 4.20 | FEP | | 4.95 | 6.60 |
| | RG 174 U | CuSt | 7 x 0.16 | 0.48 | PE | 1.50 | CuSn | 2.0 | PVC1 | black | 2.55 | |
| | RG 174 A/U | CuSt | 7 x 0.16 | 0.48 | PE | 1.50 | CuSn | 2.0 | PVC2 | black | 2.80 | 1.10 |
| | RG 178 B/U | CuStAg | 7 x 0.10 | 0.30 | PTFE | 0.87 | CuAg | 1.4 | FEP | brown | 1.80 | 0.85 |
| | RG 179 B/U | CuStAg | 7 x 0.10 | 0.30 | PTFE | 1.50 | CuAg | 2.0 | FEP | brown | 2.60 | 1.50 |
| | RG 187 A/U | CuStAg | 7 x 0.10 | 0.30 | PTFE | 1.50 | CuAg | 2.0 | PFA | white | 2.60 | 1.60 |
| | RG 188 A/U | CuStAg | 7 x 0.18 | 0.54 | PTFE | 1.50 | CuAg | 2.0 | PFA | white | 2.60 | 1.60 |
| | RG 195 A/U | CuStAg | 7 x 0.10 | 0.30 | PTFE | 2.52 | CuAg | 3.1 | PFA | white | 3.70 | 2.80 |
| | RG 196 A/U | CuStAg | 7 x 0.10 | 0.30 | PTFE | 0.87 | CuAg | 1.37 | PFA | white | 2.00 | 1.10 |
| RG 316 /U | CuStAg | 7 x 0.18 | 0.54 | PTFE | 1.50 | CuAg | 2.1 | FEP | brown | 2.60 | 1.60 | |
| Non standard | G02232D-60 | Cu | 7 x 0.16 | 0.50 | PE | 1.50 | CuAg CuSn | 1 st : 1.95 2 nd : 2.40 | PVC | grey | 3.10 | 2.10 |
| | K01152-07 | CuAg | 7 x 0.06 | 0.19 | PFA | 0.52 | CuAg | 0.9 | PFA | white | 1.25 | 0.90 |
| | 421-099 | CuStAg | 7 x 0.16 | 0.50 | PTFE | 1.52 | CuAg CuAg | 1 st : 2.00 2 nd : 2.50 | FEP | | 3.05 | 1.95 |



00 SERIES (NIM-CAMAC)

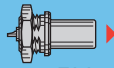
00 Series (NIM-CAMAC CD/N 549)

The 00 series is a range of 50 Ω coaxial connectors. They are suitable for a wide variety of applications particularly in measurement, control system and nuclear physics, having formed the basis for the NIM-CAMAC CD/N 549 standard. LEMO 00 connectors offer customers many benefits including:

- Self-latching push-pull system
- Aesthetically pleasing appearance
- Small size
- High packing density
- Rugged construction
- Ease of use
- Low weight
- Reliable performances
- Wide choice to suit application

Metal housing models (page 8)

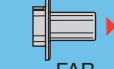
Fixed plugs



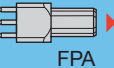
FAA



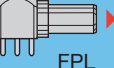
FAN



FAB

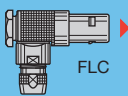


FPA

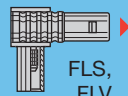


FPL

Elbow plugs

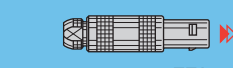


FLC

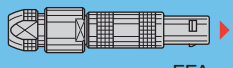


FLS, FLV

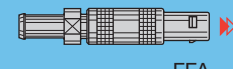
Straight plugs



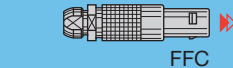
FFA



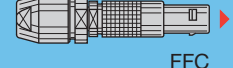
FFA



FFA



FFC



FFC



FFY



FFE

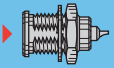


FFF



FFS

Fixed sockets



ERA, ERE



ERN



ERC



ERT



ERX



ECP



EHP



ELF

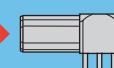


EPA, EPB, EPC

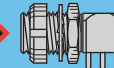


EPE

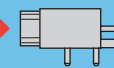
Elbow sockets



EPL, EPM, EPK, EPR



EPS

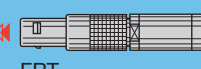


EPN

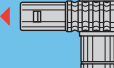


EPY

Plugs with resistor

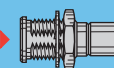


FRT



FLR

Socket with microswitch



ERM

Free sockets

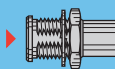


PCA

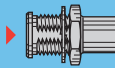


PCS

Fixed sockets



PSA



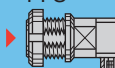
PSS



PES

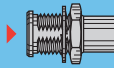


PFS



PLK

Fixed coupler

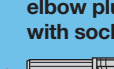


RAD



RMA

Straight and elbow plugs with socket



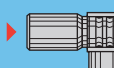
FTR



FTA



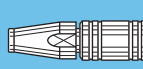
FTL



FTY

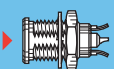
Plastic housing models* (page 21)

Straight plug



FFA

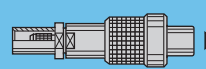
Fixed socket



ERN

Threaded latching Models* (page 26)

Straight plug



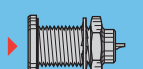
FVS

Adaptors

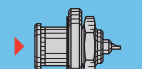
(See page 27)

Watertight or vacuumtight models (page 22)

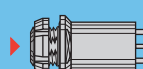
Straight sockets



HGP



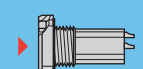
HGW



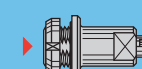
HEP



EWF

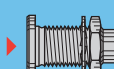


EWV



VPS

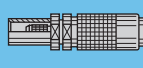
Straight coupler



SWH

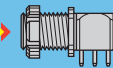
Metal housing models with mechanical keying* (page 24)

Straight plug

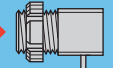


FGG

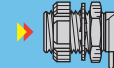
Elbow sockets



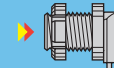
XBG



XRG

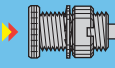


XSG

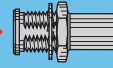


EXG

Fixed sockets



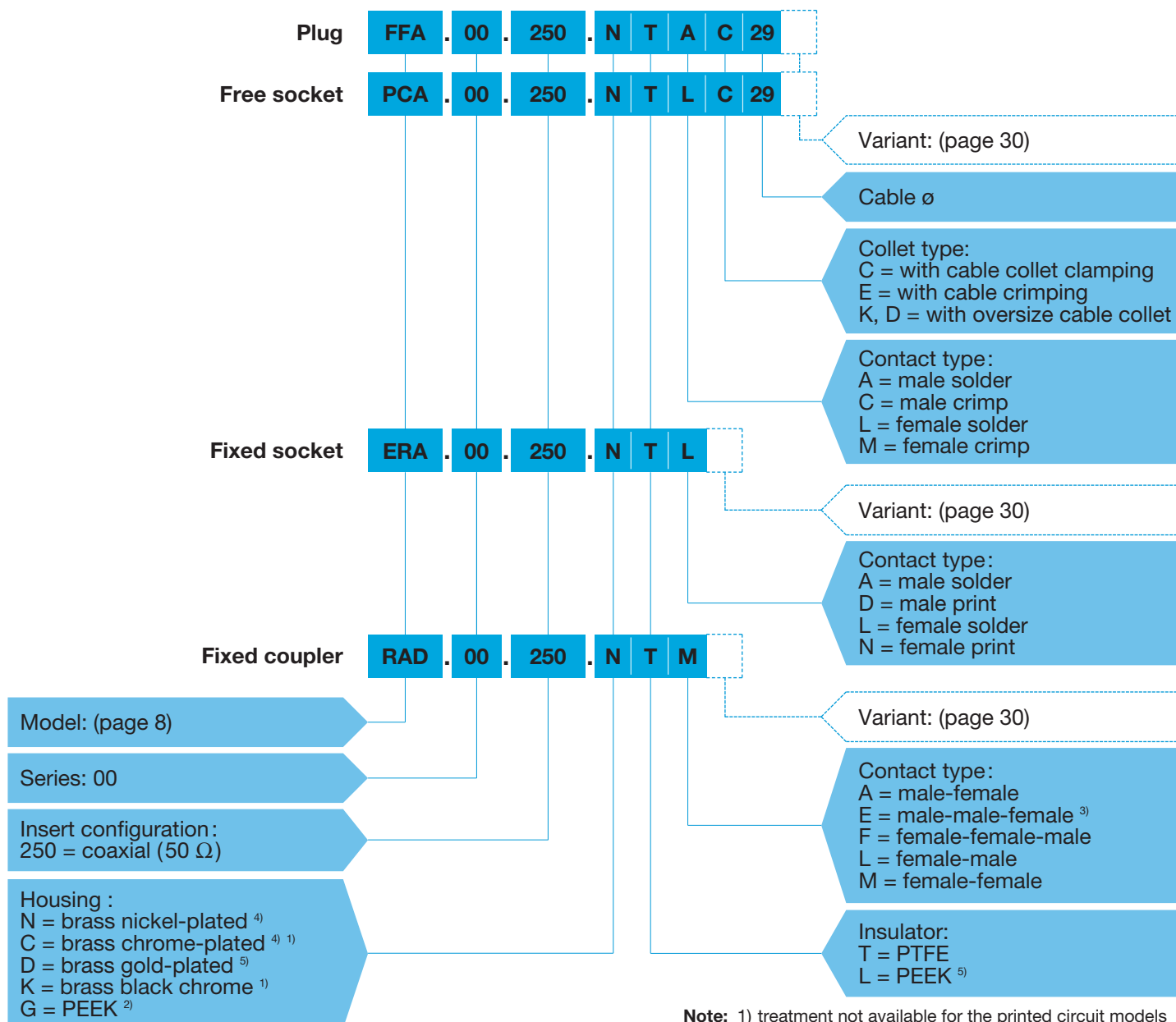
ESG



PSG

* not included in NIM-CAMAC standard

Part Numbering System

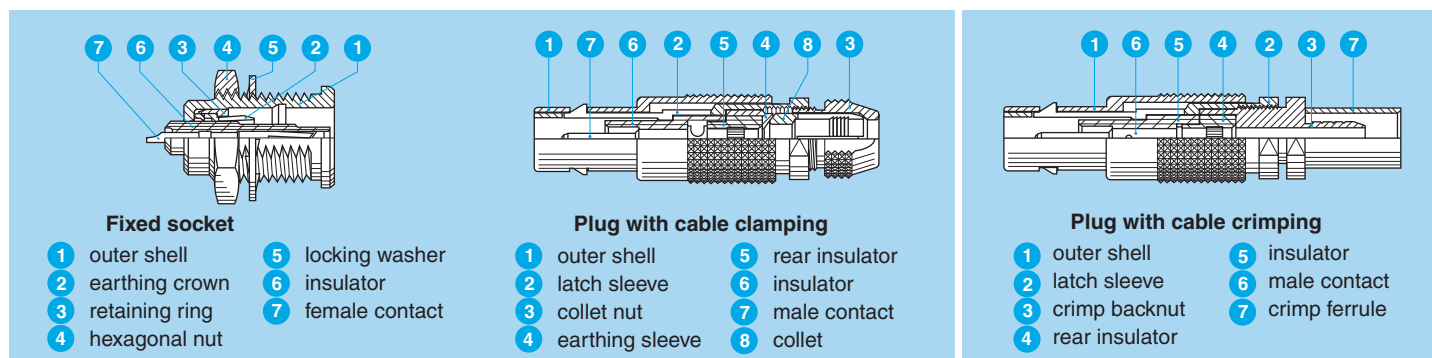


Note: 1) treatment not available for the printed circuit models
 2) available for the FFA and ERN model only
 3) used only for models: FTA, FTL and FTY.
 4) standard
 5) non-standard, on request only

Part Number Example

FFA.00.250.NTAC29 = straight plug with cable collet, series 00, coaxial type (50 Ω), outer shell in nickel-plated brass, PTFE insulator, male solder contact, C type collet of 2.9 mm diameter.

Part Section Showing Internal Components





Metal housing models

Technical Characteristics

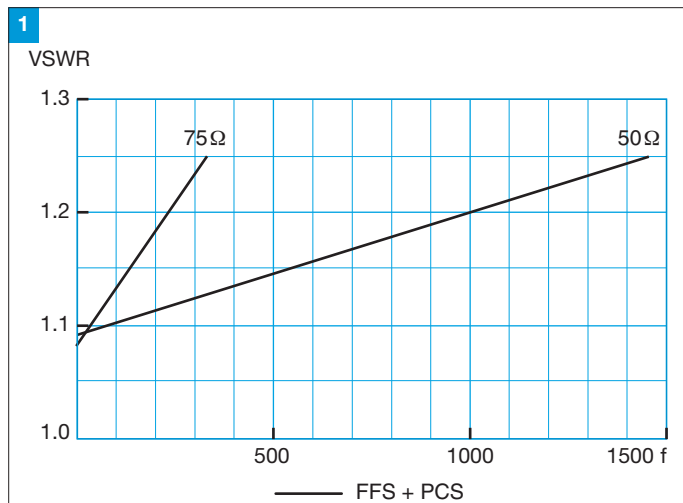
Mechanical and climatical

| Characteristics | Value | Standard | Test |
|------------------------------------|----------------|-------------|------|
| Contact retention force | > 18 N | IEC 60512-8 | 15a |
| Cable pull off force ¹⁾ | > 100 N | IEC 60512-9 | 17c |
| Connector pull off force | > 90 N | IEC 60512-8 | 15f |
| Endurance | > 5000 cycles | IEC 60512-5 | 9a |
| Operating temperature | - 55°C + 260°C | | |

Note: ¹⁾ depending on cable design

Voltage Standing Wave Ratio

The VSWR (Voltage Standing Wave Ratio) is the value representing the power reflected in a connection. The VSWR varies with frequency, in most cases, the working frequency range is where VSWR is ≤ 1.25 .



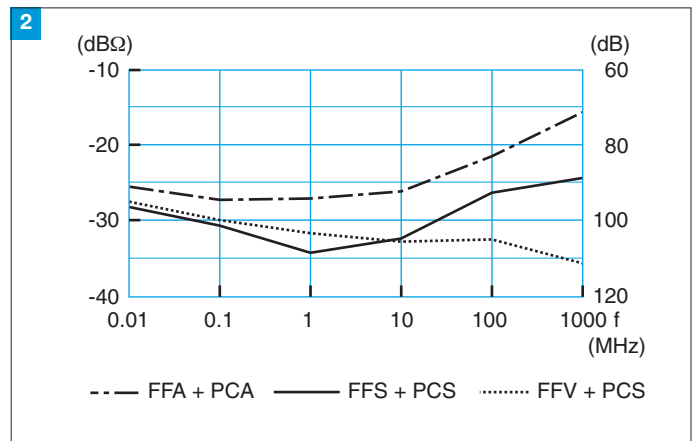
Note: value for connectors with PTFE insulator. VSWR measured 50 Ω with a RG-174 A/U cable and 75 Ω with a RG-179 B/U cable. Measured according to IEC-60169-1-1.

Electrical

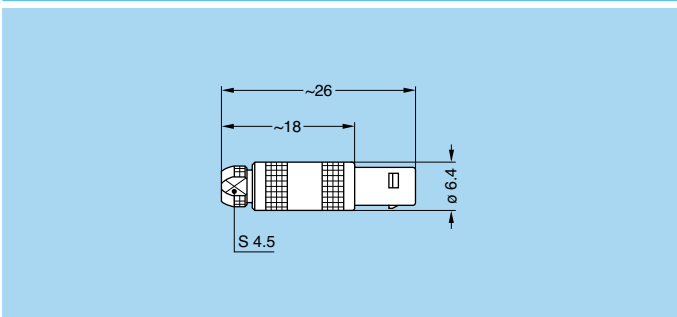
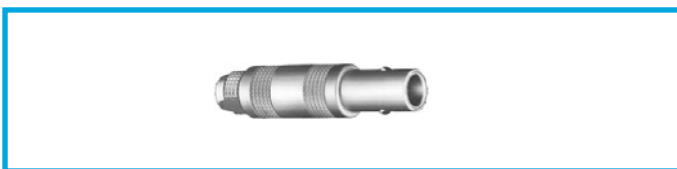
| Characteristics | Value | Standard | Test |
|-----------------------------|----------------------|-------------|------|
| Impedance | 50 Ω | - | |
| Operating voltage (50 Hz) | 0.7 kV rms | - | |
| Test voltage (50 Hz) | 2.1 kV rms | IEC 60512-2 | 4a |
| Rated current | 4 A | IEC 60512-3 | 5a |
| Contact resistance | < 6 mΩ | IEC 60512-2 | 2a |
| Shell electrical continuity | < 3.5 mΩ | IEC 60512-2 | 2f |
| Insulating resistance | > 10 ¹² Ω | IEC 60512-2 | 3a |
| VSWR | see chart N°1 below | | |
| Shielding efficiency | see chart N°2 below | | |

Shielding efficiency (EMC properties) in dB (transfer impedance in dBΩ)

The shielding efficiency is the ratio between the electromagnetic field inside the connector and a power source at the outside of the connector (or vice versa).



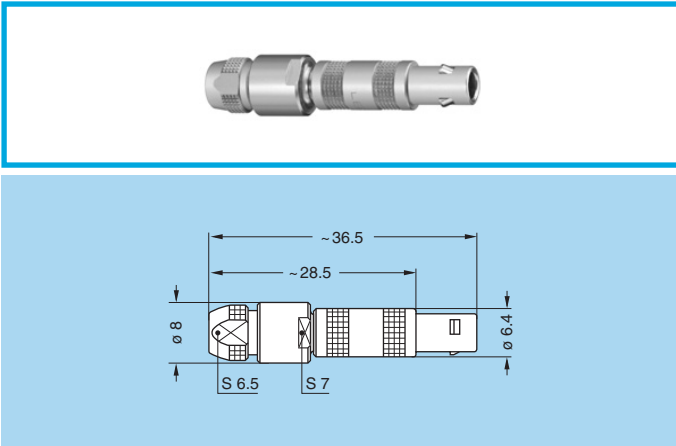
Note: measured according to IEC-60169-1-3 standard.



FFA Straight plug with cable collet

| Part number | Cable group | Cond. Ø max. | Dielectric Ø max. | Sheath Ø | |
|-------------------|-------------|--------------|-------------------|----------|------|
| | | | | min. | max. |
| FFA.00.250.NTAC15 | 9 | 0.55 | 1.45 | 1.1 | 1.4 |
| FFA.00.250.NTAC17 | - | 0.55 | 1.45 | 1.3 | 1.7 |
| FFA.00.250.NTAC22 | 1 | 0.55 | 1.95 | 1.8 | 2.2 |
| FFA.00.250.NTAC27 | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| FFA.00.250.NTAC31 | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

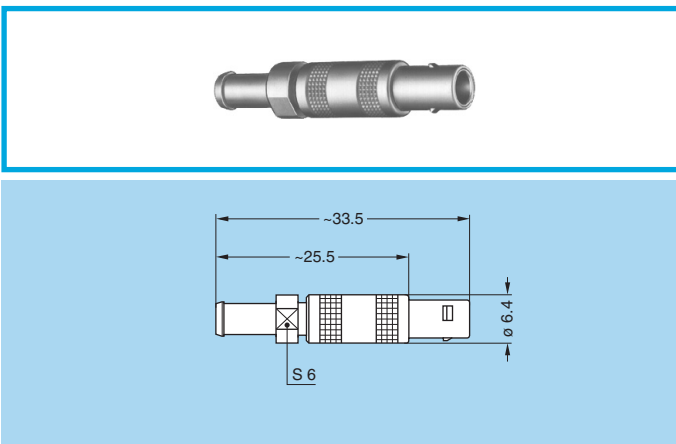
M1 Cable assembly, solder contact (page 39)



FFA Straight plug with oversize cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFA.00.250.NTAK37 | 8 | 0.55 | 1.95 | 3.0 | 3.6 |
| FFA.00.250.NTAK42 | – | 0.55 | 1.95 | 3.3 | 4.1 |

M1 Cable assembly, solder contact (page 39)

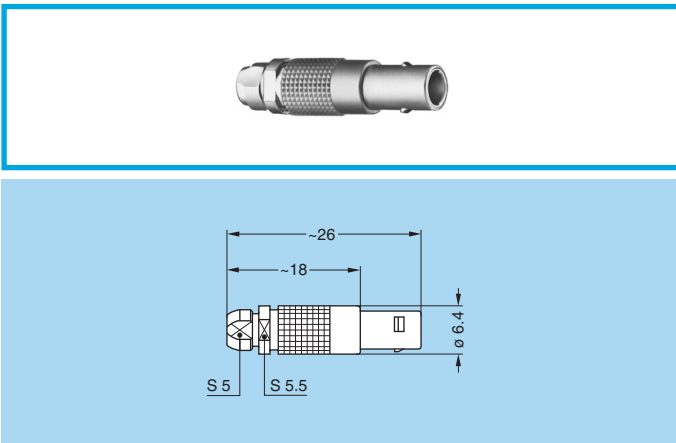


FFA Straight plug with cable collet and nut for fitting a bend relief

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|--------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFA.00.250.NTAC15Z | 9 | 0.55 | 1.45 | 1.1 | 1.4 |
| FFA.00.250.NTAC17Z | – | 0.55 | 1.45 | 1.3 | 1.7 |
| FFA.00.250.NTAC22Z | 1 | 0.55 | 1.95 | 1.7 | 2.1 |
| FFA.00.250.NTAC27Z | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| FFA.00.250.NTAC31Z | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

M1 Cable assembly, solder contact (page 39)

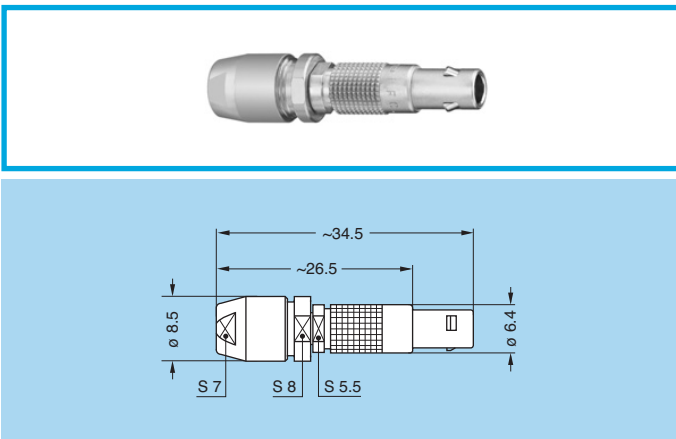
Note: the bend relief must be ordered separately (see page 30).



FFC Straight plug with flats on latch sleeve and cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFC.00.250.CTAC22 | 1 | 0.60 | 1.55 | 1.7 | 2.1 |
| FFC.00.250.CTAC27 | 2-3-4 | 0.60 | 1.95 | 2.3 | 2.7 |
| FFC.00.250.CTAC31 | 8 | 0.60 | 1.95 | 2.8 | 3.0 |

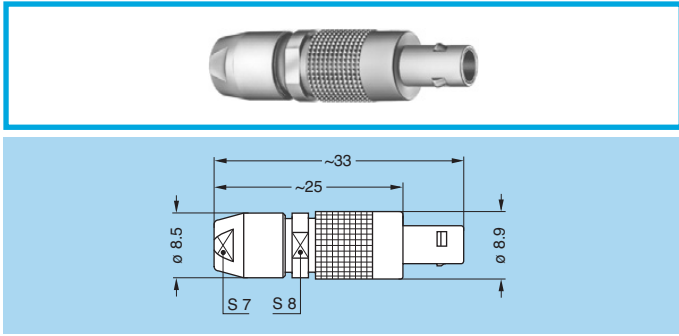
M3 Cable assembly, solder contact (page 39)



FFC Straight plug with flats on latch sleeve and oversize cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFC.00.250.CTAD42 | 5 | 1.05 | 3.05 | 3.1 | 4.0 |
| FFC.00.250.CTAD52 | 6-7 | 1.05 | 3.05 | 4.1 | 5.0 |
| FFC.00.250.CTAD56 | – | 1.05 | 3.05 | 5.1 | 5.5 |

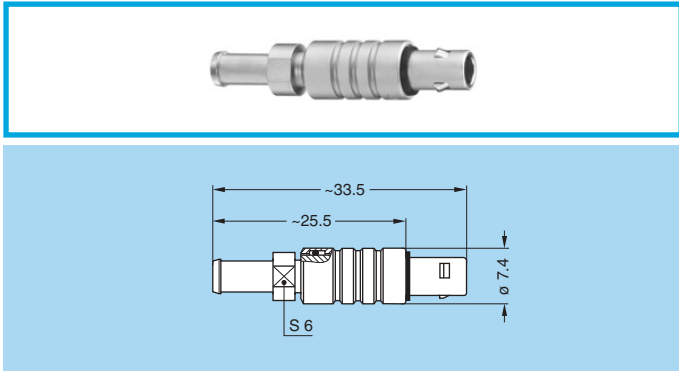
M3 Cable assembly, solder contact (page 39)



FFY Straight plug, large shell with cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFY.00.250.NTAC40 | 5 | 1.05 | 3.05 | 3.2 | 3.8 |
| FFY.00.250.NTAC47 | – | 1.05 | 3.05 | 3.9 | 4.5 |
| FFY.00.250.NTAC52 | 6-7 | 1.05 | 3.05 | 4.6 | 5.0 |

M2 Cable assembly, solder contact (page 39)

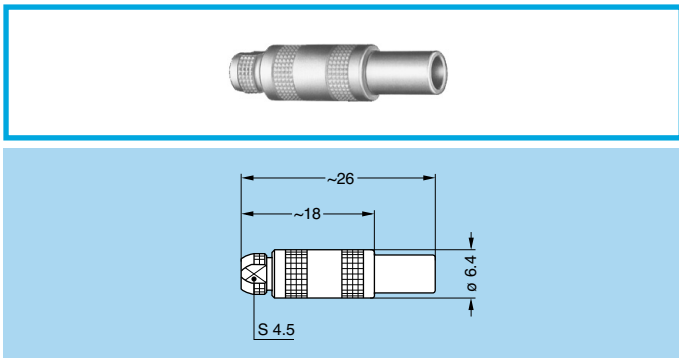


FFE Straight plug with front sealing ring, cable collet and nut for fitting a bend relief (IP 54 protection index when mated)

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|--------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFE.00.250.NTAC22Z | 1 | 0.55 | 1.95 | 1.7 | 2.1 |
| FFE.00.250.NTAC27Z | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| FFE.00.250.NTAC31Z | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

M1 Cable assembly, solder contact (page 39)

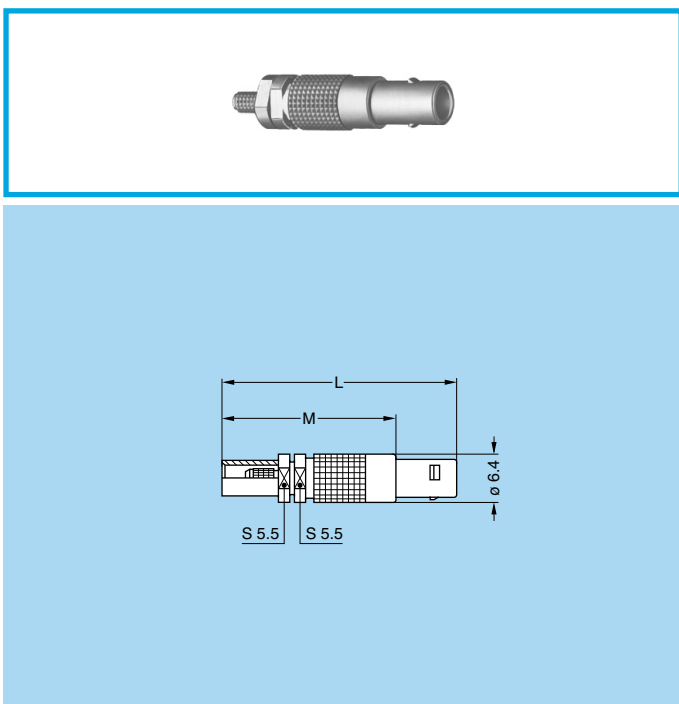
Note: the bend relief must be ordered separately (see page 30).



FFF Straight plug, non-latching, with cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFF.00.250.NTAC22 | 1 | 0.55 | 1.95 | 1.7 | 2.1 |
| FFF.00.250.NTAC27 | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| FFF.00.250.NTAC31 | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

M1 Cable assembly, solder contact (page 39)



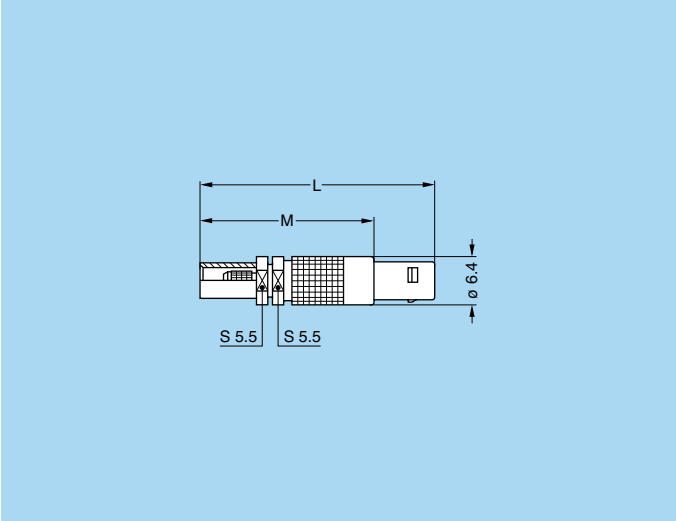
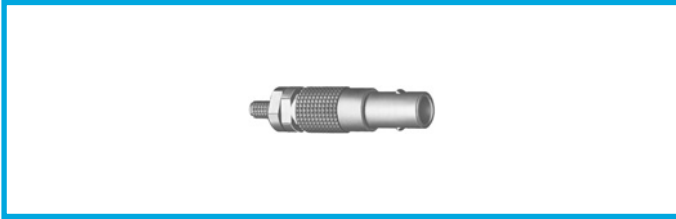
FFS Straight plug for cable crimping

| Part number | Dim | | Cable group | Cond. Ø maxi | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|--------------|----------------|---------------|
| | L | M | | | | |
| FFS.00.250.CTAE24 | 31 | 23 | 1 | 0.4 | 0.95 | 2.35 |
| FFS.00.250.CTAE31 | 31 | 23 | 3-4 | 0.55 | 1.65 | 3.0 |
| FFS.00.250.CTAE52 | 34 | 26 | 6 | 0.97 | 3.05 | 5.2 |

M5 Cable assembly, solder contact (page 41)

| Part number | Dim | | Cable group | Cond. Ø | | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|---------|------|----------------|---------------|
| | L | M | | mini | maxi | | |
| FFS.00.250.CTCE24 | 31 | 23 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| FFS.00.250.CTCE25 | 31 | 23 | 1 | 0.28 | 0.4 | 1.15 | 2.35 |
| FFS.00.250.CTCE30 | 31 | 23 | 2 | 0.28 | 0.4 | 1.65 | 3.0 |
| FFS.00.250.CTCE31 | 31 | 23 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| FFS.00.250.CTCE35 | 31 | 23 | 8 | 0.46 | 0.55 | 1.65 | 3.35 |
| FFS.00.250.CTCE44 | 31 | 23 | 5 | 0.28 | 0.4 | 2.65 | 4.35 |
| FFS.00.250.CTCE52 | 34 | 26 | 6 | 0.90 | 0.97 | 3.05 | 5.2 |
| FFS.00.250.CTCE56 | 34 | 26 | 7 | 0.90 | 0.97 | 3.05 | 5.45 |

M4 Cable assembly, crimp contact (page 40)



FFV Straight plug for cable crimping with improved screen efficiency ¹⁾

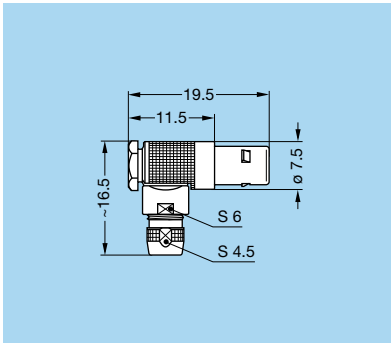
| Part number | Dim | | Cable group | Cond. Ø maxi | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|--------------|----------------|---------------|
| | L | M | | | | |
| FFV.00.250.NTAE24 | 31 | 23 | 1 | 0.4 | 0.95 | 2.35 |
| FFV.00.250.NTAE31 | 31 | 23 | 3-4 | 0.55 | 1.65 | 3.0 |
| FFV.00.250.NTAE52 | 34 | 26 | 6 | 0.97 | 3.05 | 5.2 |

M5 Cable assembly, solder contact (page 41)

| Part number | Dim | | Cable group | Cond. Ø | | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|---------|------|----------------|---------------|
| | L | M | | mini | maxi | | |
| FFV.00.250.NTCE24 | 31 | 23 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| FFV.00.250.NTCE30 | 31 | 23 | 2 | 0.28 | 0.4 | 1.65 | 3.0 |
| FFV.00.250.NTCE31 | 31 | 23 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| FFV.00.250.NTCE35 | 31 | 23 | 8 | 0.46 | 0.55 | 1.65 | 3.35 |
| FFV.00.250.NTCE44 | 31 | 23 | 5 | 0.28 | 0.4 | 2.65 | 4.35 |
| FFV.00.250.NTCE52 | 34 | 26 | 6 | 0.90 | 0.97 | 3.05 | 5.2 |
| FFV.00.250.NTCE56 | 34 | 26 | 7 | 0.90 | 0.97 | 3.05 | 5.45 |

M4 Cable assembly, crimp contact (page 40)

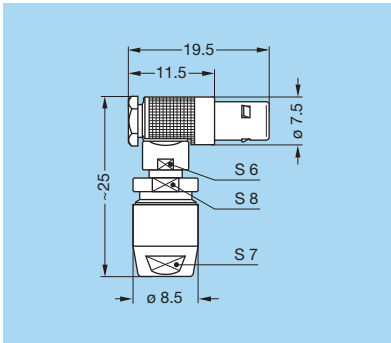
Note: ¹⁾ Screen efficiency >100dB at 1 GHz, see page 8.



FLC Elbow plug (90°) with cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FLC.00.250.CTAC22 | 1 | 0.55 | 1.55 | 1.7 | 2.1 |
| FLC.00.250.CTAC27 | - | 0.55 | 1.75 | 2.3 | 2.7 |
| FLC.00.250.CTAC31 | - | 0.55 | 1.75 | 2.8 | 3.0 |

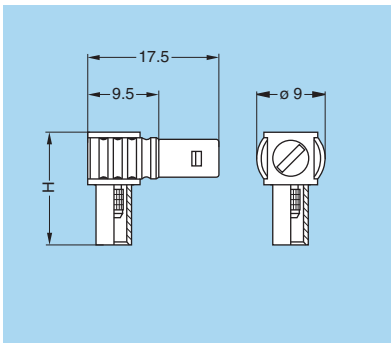
M6 Cable assembly, solder contact (page 42)



FLC Elbow plug (90°) with oversize cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FLC.00.250.CTAD42 | 8 | 0.97 | 1.75 | 3.1 | 4.0 |
| FLC.00.250.NTAD52 | 6 | 0.97 | 1.75 | 4.1 | 5.0 |
| FLC.00.250.NTAD56 | 7 | 0.97 | 1.75 | 5.1 | 5.5 |

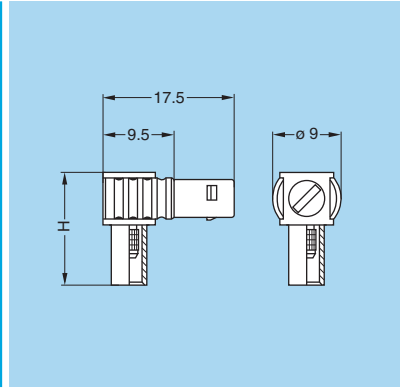
M6 Cable assembly, solder contact (page 42)



FLS Elbow plug (90°) for cable crimping

| Part number | H (mm) | Cable group | Cond. Ø maxi | Dielectric Ø maxi | Sheath Ø maxi |
|-------------------|--------|-------------|--------------|-------------------|---------------|
| FLS.00.250.NTAE31 | 15 | - | 0.55 | 1.65 | 3.0 |
| FLS.00.250.NTAE35 | 15 | - | 0.55 | 1.65 | 3.35 |
| FLS.00.250.NTAE52 | 18 | 6 | 0.97 | 3.05 | 5.2 |
| FLS.00.250.NTAE56 | 18 | 7 | 0.97 | 3.05 | 5.45 |

M7 Cable assembly, solder contact (page 42)

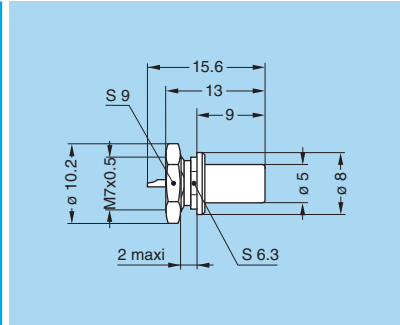
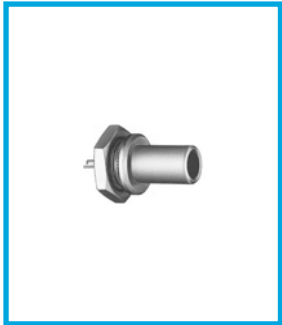


FLV Elbow plug (90°) for cable crimping with improved screen efficiency *

| Part number | H (mm) | Cable group | Cond. Ø maxi | Dielectric Ø maxi | Sheath Ø maxi |
|-------------------|--------|-------------|--------------|-------------------|---------------|
| FLV.00.250.NTAE31 | 15 | 3-4 | 0.55 | 1.65 | 3.0 |
| FLV.00.250.NTAE35 | 15 | 8 | 0.55 | 1.65 | 3.35 |
| FLV.00.250.NTAE52 | 18 | 6 | 0.97 | 3.05 | 5.2 |
| FLV.00.250.NTAE56 | 18 | 7 | 0.97 | 3.05 | 5.45 |

M7 Cable assembly, solder contact (page 42)

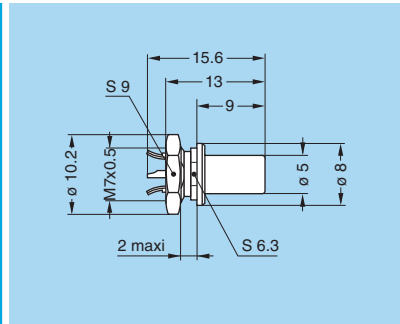
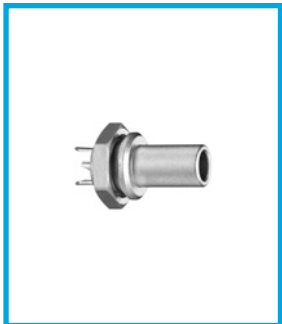
* Screen efficiency >100dB at 1 GHz, see page 8.



FAA Straight plug, non-latching, nut fixing

| Part number | Weight (g) |
|----------------|------------|
| FAA.00.250.NTA | 2.5 |

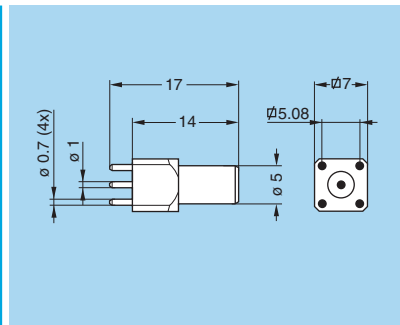
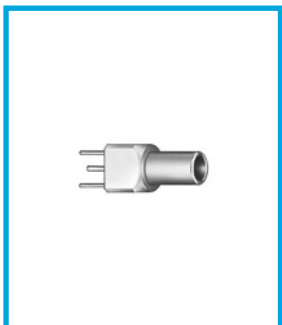
P5 Panel cut-out (page 38)



FAN Straight plug, non-latching, nut fixing with earthing tags

| Part number | Weight (g) |
|----------------|------------|
| FAN.00.250.CLA | 2.5 |

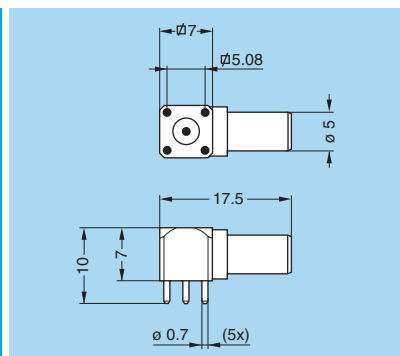
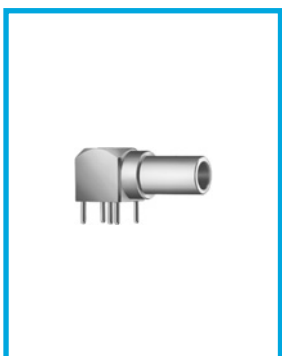
P5 Panel cut-out (page 38)



FPA Straight plug, non-latching, for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| FPA.00.250.NTD | 2.5 |

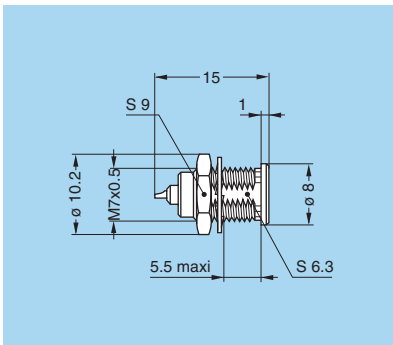
P11 PCB drilling pattern (page 38)



FPL Elbow plug (90°), non-latching for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| FPL.00.250.NTD | 2.5 |

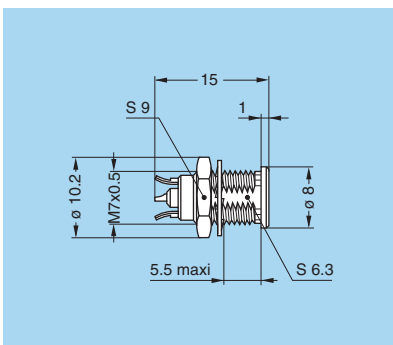
P10 PCB drilling pattern (page 38)



ERA Fixed socket, nut fixing

| Part number | Weight (g) |
|----------------|------------|
| ERA.00.250.NTL | 2.5 |

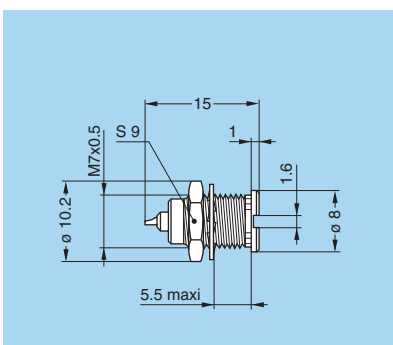
P5 Panel cut-out (page 38)



ERN Fixed socket, nut fixing, with earthing tags

| Part number | Weight (g) |
|----------------|------------|
| ERN.00.250.NTL | 2.5 |

P5 Panel cut-out (page 38)

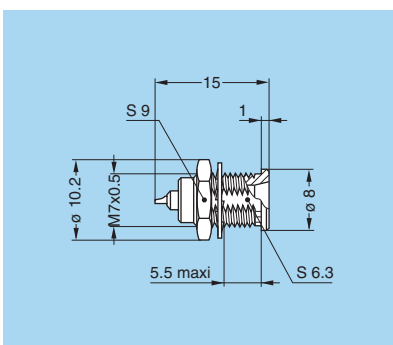


ERC Fixed socket, with thread, with slots in flange

| Part number | Weight (g) |
|----------------|------------|
| ERC.00.250.NTL | 2.6 |

P1 Panel cut-out (page 38)

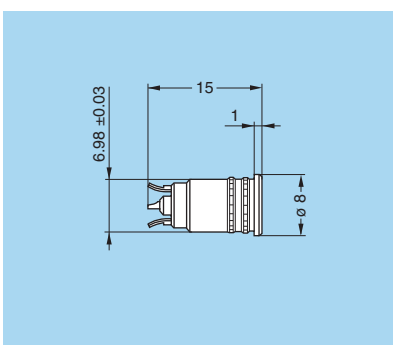
P3 Panel cut-out for use without hexagonal nut (page 38)



ERE Fixed socket, nut fixing, with conical lead-in

| Part number | Weight (g) |
|----------------|------------|
| ERE.00.250.NTL | 2.8 |

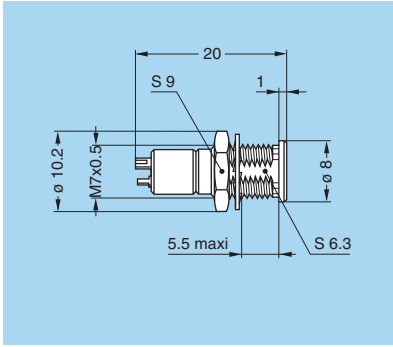
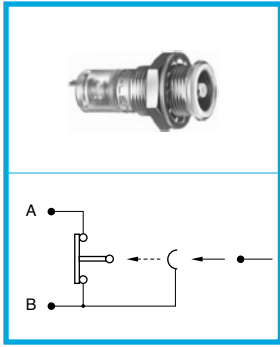
P5 Panel cut-out (page 38)



ERT Straight socket without thread, force or adhesive fit, with earthing tags

| Part number | Weight (g) |
|----------------|------------|
| ERT.00.250.NTL | 2.1 |

P4 Panel cut-out (page 38)

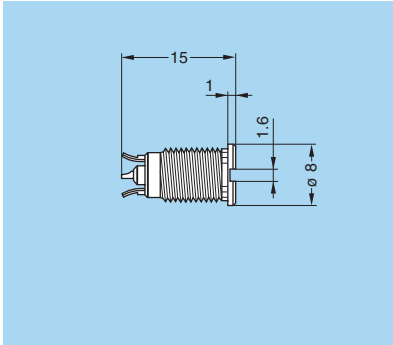


ERM Fixed socket, nut fixing, with microswitch

| Part number | Weight (g) |
|----------------|------------|
| ERM.00.250.NTL | 3.0 |

P5 Panel cut-out (page 38)

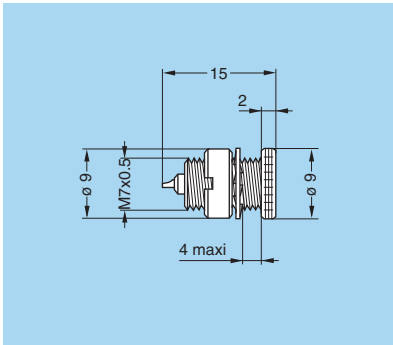
Technical characteristics on request



ERX Fixed socket, with thread, with slots in flange, with earthing tags

| Part number | Weight (g) |
|----------------|------------|
| ERX.00.250.NTL | 2.0 |

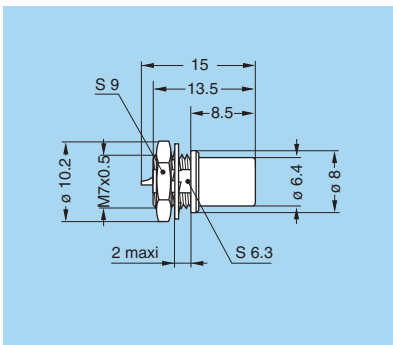
P3 Panel cut-out (page 38)



ECP Fixed socket with two nuts

| Part number | Weight (g) |
|----------------|------------|
| ECP.00.250.NTL | 3.3 |

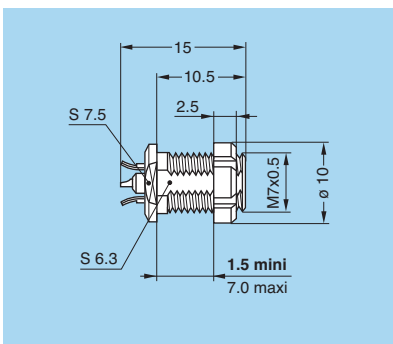
P1 Panel cut-out (page 38)



EHP Fixed socket, nut fixing, protruding shell

| Part number | Weight (g) |
|----------------|------------|
| EHP.00.250.NTL | 2.8 |

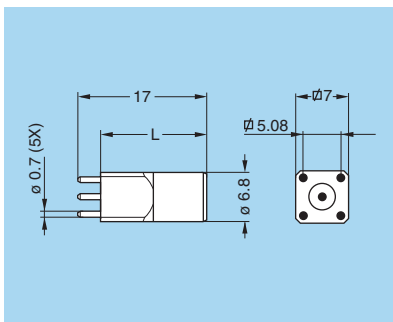
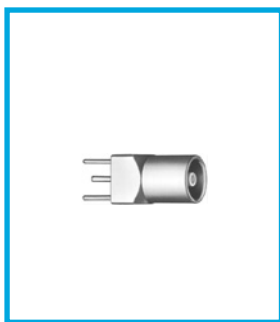
P5 Panel cut-out (page 38)



ELF Fixed socket, with slotted nut, long threaded shell, with earthing tags (back panel mounting)

| Part number | Weight (g) |
|----------------|------------|
| ELF.00.250.NTL | 3.1 |

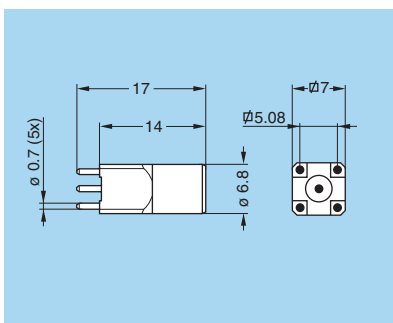
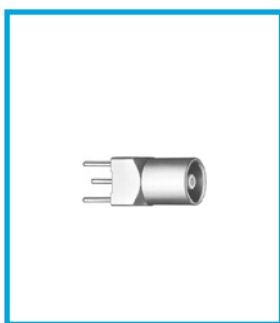
P5 Panel cut-out (page 38)



EPA-EPB Straight socket for printed circuit

| Part number | L (mm) | Weight (g) |
|----------------|--------|------------|
| EPA.00.250.NTN | 14 | 3.4 |
| EPB.00.250.NTN | 12 | 3.3 |

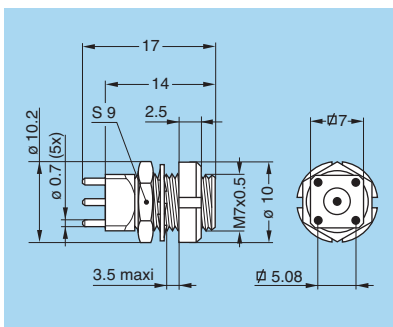
P10 PCB drilling pattern (page 38)



EPC Straight socket for printed circuit with clearance under the body

| Part number | Weight (g) |
|----------------|------------|
| EPC.00.250.NTN | 3.3 |

P10 PCB drilling pattern (page 38)

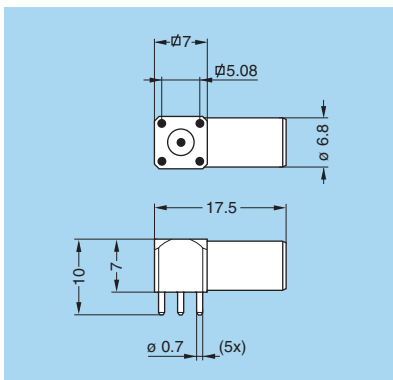
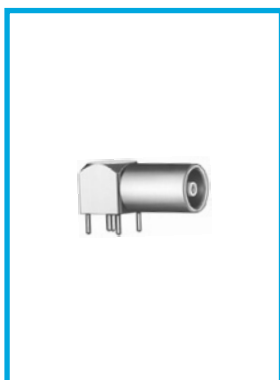


EPE Fixed socket with two nuts, for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| EPE.00.250.NTN | 4.3 |

P1 Panel cut-out (page 38)

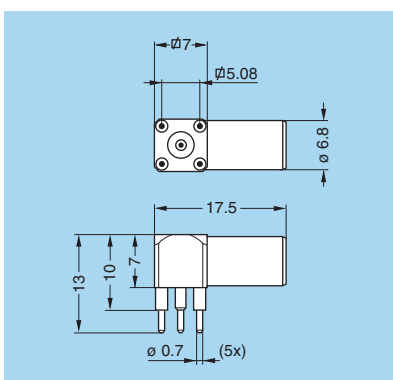
P12 PCB drilling pattern (page 38)



EPL Elbow socket (90°) for printed circuit

| Part number | H (mm) | Weight (g) |
|----------------|--------|------------|
| EPL.00.250.NTN | 10 | 4.3 |

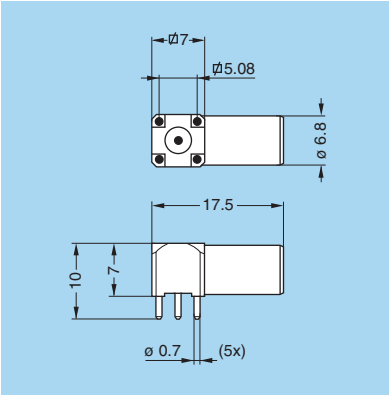
P10 PCB drilling pattern (page 38)



EPM Elbow socket (90°) for printed circuit, elevated solder tail

| Part number | H (mm) | Weight (g) |
|----------------|--------|------------|
| EPM.00.250.NTN | 13 | 4.6 |

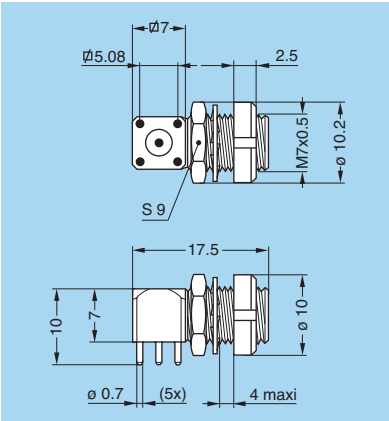
P10 PCB drilling pattern (page 38)



EPK Elbow socket (90°) for printed circuit with clearance under the body

| Part number | Weight (g) |
|----------------|------------|
| EPK.00.250.NTN | 4.2 |

P10 PCB drilling pattern (page 38)

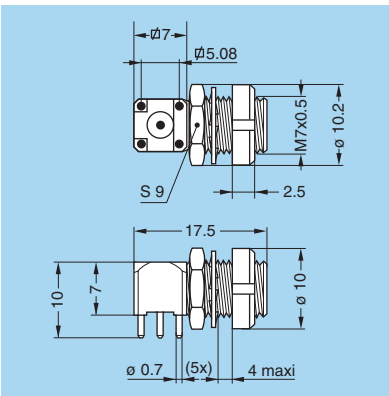
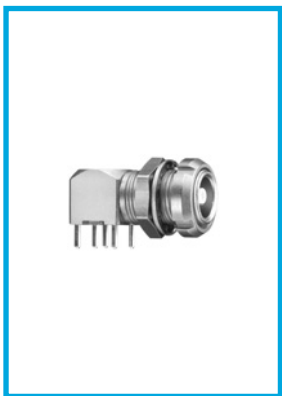


EPS Elbow socket (90°) with two nuts, for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| EPS.00.250.NTN | 5.4 |

P1 Panel cut-out (page 38)

P12 PCB drilling pattern (page 38)

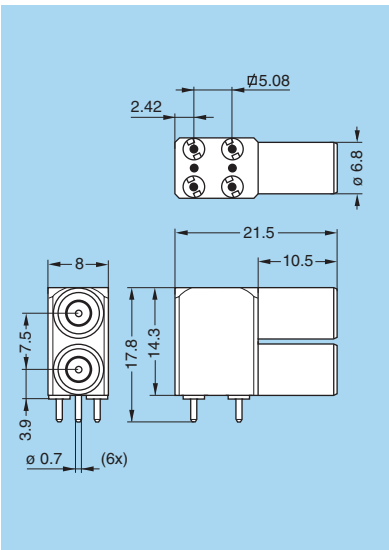
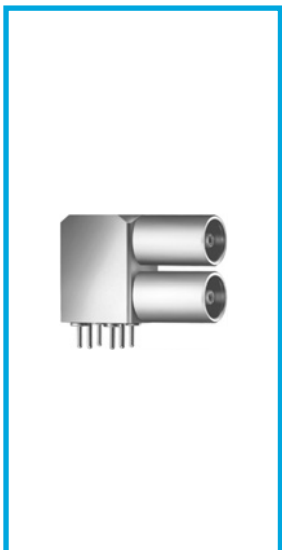


EPR Elbow socket (90°) with two nuts for printed circuit, with clearance under the body (back panel mounting)

| Part number | Weight (g) |
|----------------|------------|
| EPR.00.250.NTN | 5.4 |

P1 Panel cut-out (page 38)

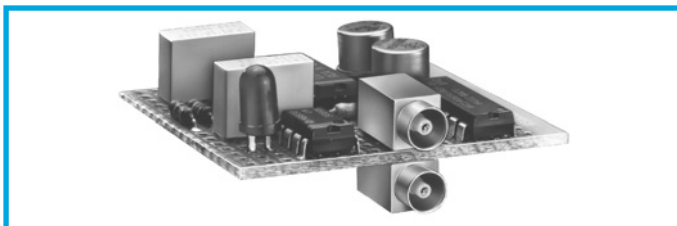
P12 PCB drilling pattern (page 38)



EPY Elbow socket (90°) for printed circuit, with two vertical sockets

| Part number | Weight (g) |
|----------------|------------|
| EPY.00.250.NTN | 12.8 |

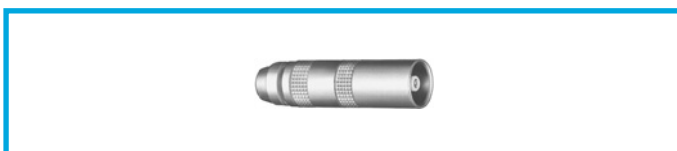
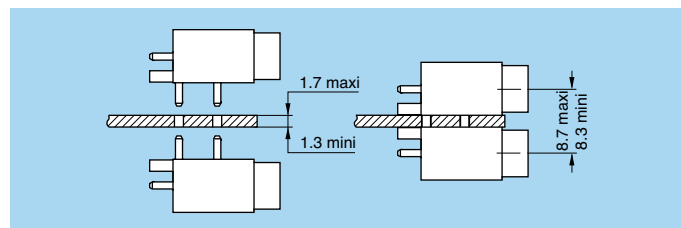
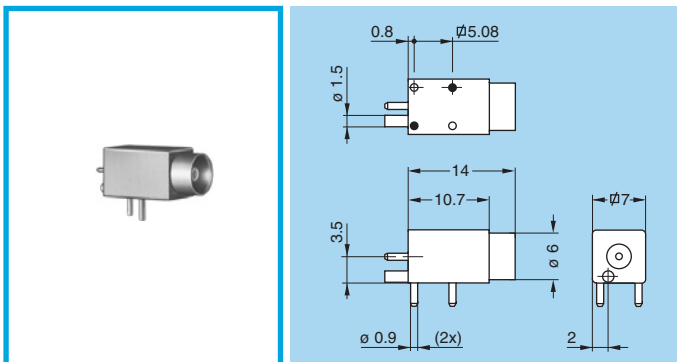
P13 PCB drilling pattern (page 38)



EPN Straight socket for press mounting in pair on printed circuit

| Part number | Weight (g) |
|----------------|------------|
| EPN.00.250.NTN | 3.6 |

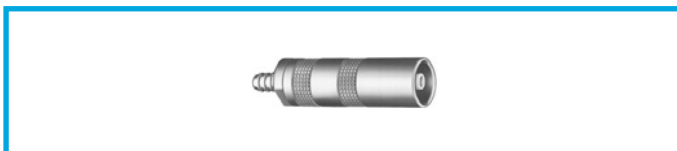
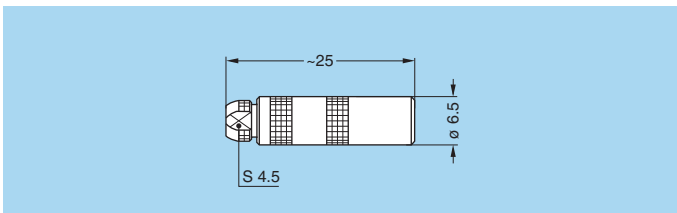
P9 PCB drilling pattern (page 38)



PCA Free socket with cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| PCA.00.250.NTLC15 | 9 | 0.55 | 1.45 | 1.1 | 1.4 |
| PCA.00.250.NTLC22 | 1 | 0.55 | 1.95 | 1.7 | 2.1 |
| PCA.00.250.NTLC27 | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| PCA.00.250.NTLC31 | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

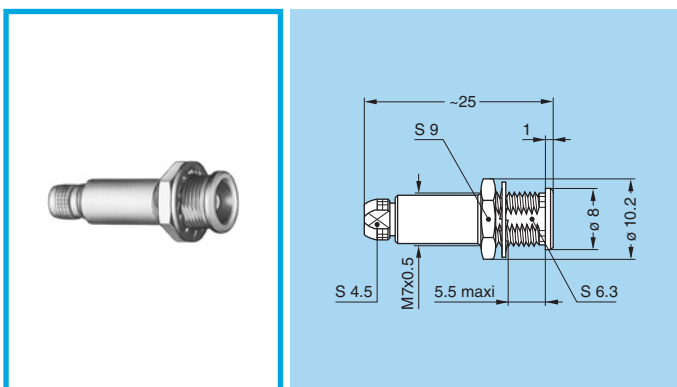
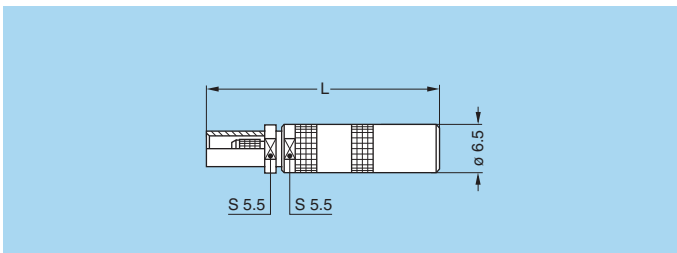
M1 Cable assembly (page 39)



PCS Free socket for cable crimping

| Part number | Dim L | Cable group | Cond. Ø | | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-------|-------------|---------|------|----------------|---------------|
| | | | mini | maxi | | |
| PCS.00.250.NTME24 | 30 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| PCS.00.250.NTME30 | 30 | 2 | 0.28 | 0.4 | 1.65 | 3.0 |
| PCS.00.250.NTME31 | 30 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| PCS.00.250.NTME44 | 30 | 5 | 0.28 | 0.4 | 2.65 | 4.35 |
| PCS.00.250.NTME52 | 33 | 6 | 0.90 | 0.97 | 3.05 | 5.2 |

M4 Cable assembly, crimp contact (page 40)

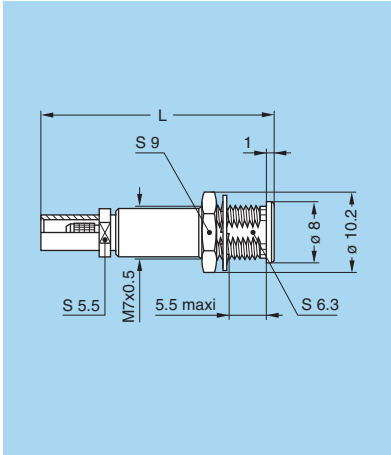


PSA Fixed socket, nut fixing, with cable collet

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| PSA.00.250.NTLC22 | 1 | 0.55 | 1.95 | 1.7 | 2.1 |
| PSA.00.250.NTLC27 | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| PSA.00.250.NTLC31 | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

M1 Cable assembly (page 39)

P5 Panel cut-out (page 38)

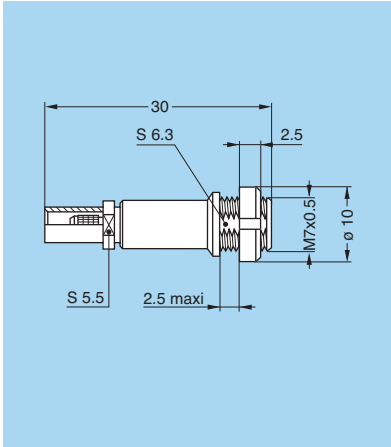


PSS Fixed socket, nut fixing, for cable crimping

| Part number | Dim L | Cable group | Cond. Ø | | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-------|-------------|---------|------|----------------|---------------|
| | | | mini | maxi | | |
| PSS.00.250.NTME24 | 30 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| PSS.00.250.NTME30 | 30 | 2 | 0.28 | 0.4 | 1.65 | 3.0 |
| PSS.00.250.NTME31 | 30 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| PSS.00.250.NTME35 | 30 | 8 | 0.46 | 0.55 | 1.65 | 3.35 |
| PSS.00.250.NTME52 | 33 | 6 | 0.90 | 0.97 | 3.05 | 5.2 |

M4 Cable assembly, crimp contact (page 40)

P5 Panel cut-out (page 38)

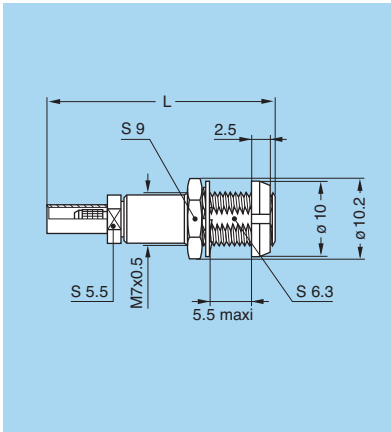


PES Fixed socket, nut fixing, for cable crimping (back panel mounting)

| Part number | Cable group | Cond. Ø | | Dielectric Ø maxi | Sheath Ø maxi |
|-------------------|-------------|---------|------|-------------------|---------------|
| | | mini | maxi | | |
| PES.00.250.NTME24 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| PES.00.250.NTME30 | 2 | 0.28 | 0.4 | 1.65 | 3.0 |
| PES.00.250.NTME31 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| PES.00.250.NTME35 | 8 | 0.46 | 0.55 | 1.65 | 3.35 |

M4 Cable assembly, crimp contact (page 40)

P5 Panel cut-out (page 38)

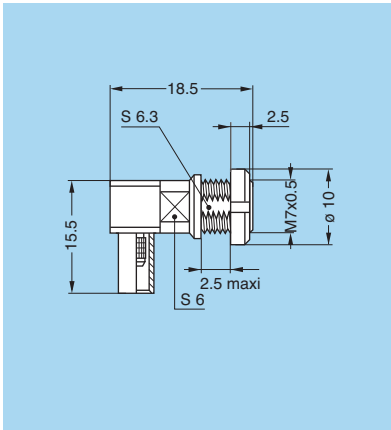


PFS Fixed socket, with two nuts, for cable crimping (back panel mounting)

| Part number | Dim L | Cable group | Cond. Ø | | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-------|-------------|---------|------|----------------|---------------|
| | | | mini | maxi | | |
| PFS.00.250.NTME24 | 30 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| PFS.00.250.NTME31 | 30 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| PFS.00.250.NTME52 | 33 | 6 | 0.90 | 0.95 | 3.05 | 5.2 |

P5 Panel cut-out (page 38)

Cable assembly, please contact customer services

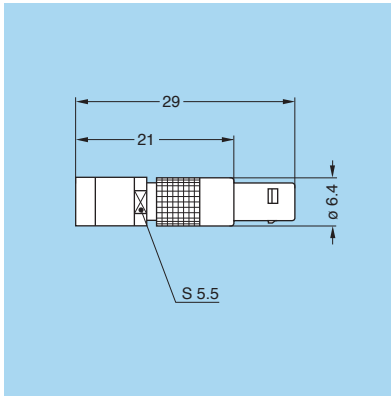
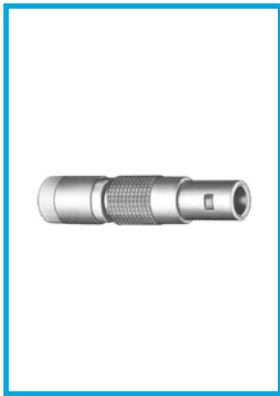


PLK Fixed elbow socket (90°), for cable crimping (back panel mounting)

| Part number | Cable group | Cond. Ø | | Dielectric Ø maxi | Sheath Ø maxi |
|-------------------|-------------|---------|------|-------------------|---------------|
| | | mini | maxi | | |
| PLK.00.250.NTLE31 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| PLK.00.250.NTLE35 | 8 | 0.46 | 0.55 | 1.65 | 3.35 |

P5 Panel cut-out (page 38)

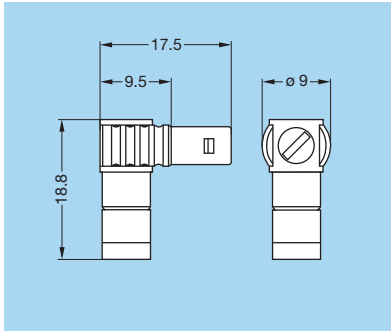
Cable assembly, please contact customer services



FRT Straight plug with resistor

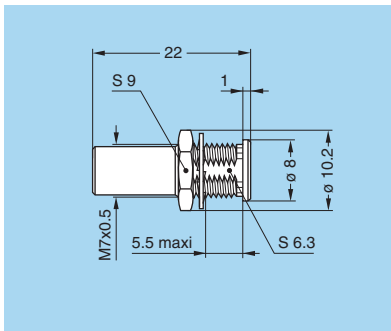
| Part number | Resistor | Weight (g) | Note |
|-------------------|------------|------------|------|
| FRT.00.250.NTA00 | shorted | 4.4 | ● |
| FRT.00.250.NTA50 | 50 Ω 0.6W | 4.4 | ● |
| FRT.00.250.NTA100 | 100 Ω 0.4W | 4.4 | ○ |

Note: ● Standard, first choice alternative
○ Non standard, on request only



FLR Elbow plug (90°) with resistor

| Part number | Resistor | Weight (g) |
|------------------|-----------|------------|
| FLR.00.250.NTA50 | 50 Ω 0.6W | 5.6 |

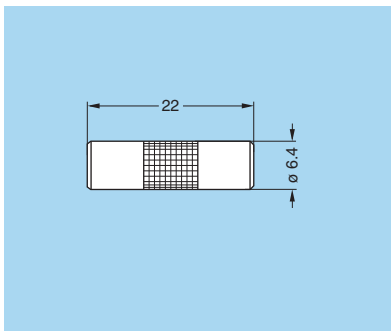


RAD Fixed coupler, nut fixing

| Part number | Weight (g) |
|----------------|------------|
| RAD.00.250.NTM | 3.8 |

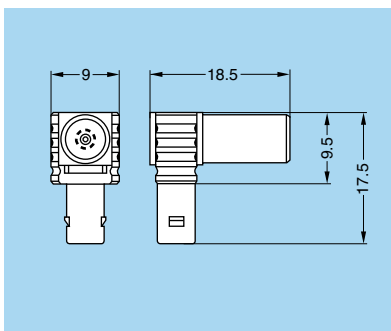
P5 Panel cut-out (page 38)

Note: the first contact type mentioned (page 7) is always the contact at the flange end.



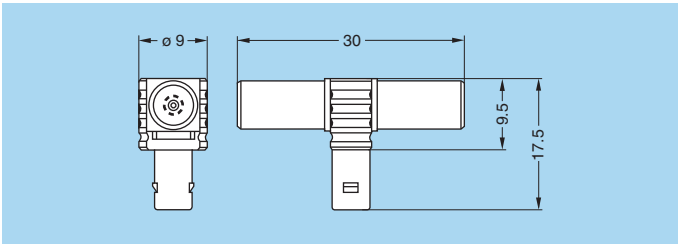
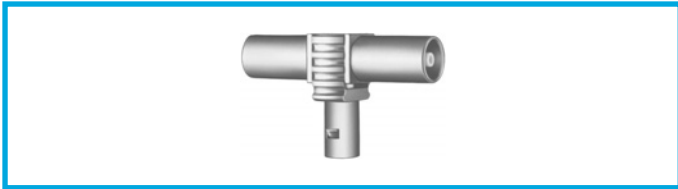
RMA Free coupler

| Part number | Weight (g) |
|----------------|------------|
| RMA.00.250.NTM | 2.7 |



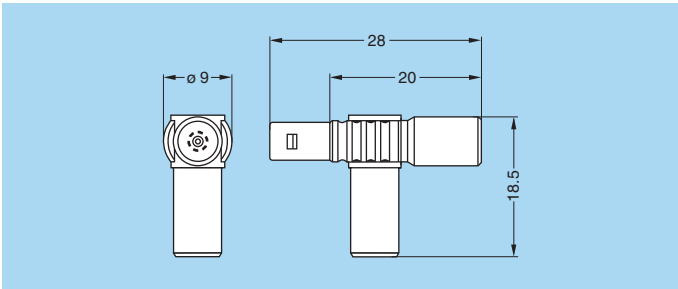
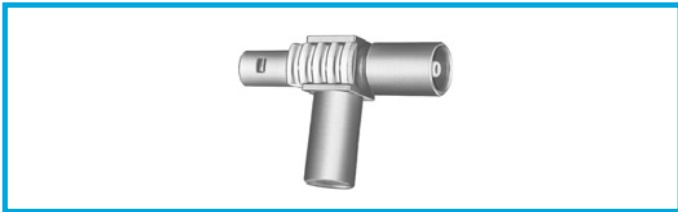
FTR Elbow plug (90°) with socket

| Part number | Weight (g) |
|----------------|------------|
| FTR.00.250.NTA | 5.4 |



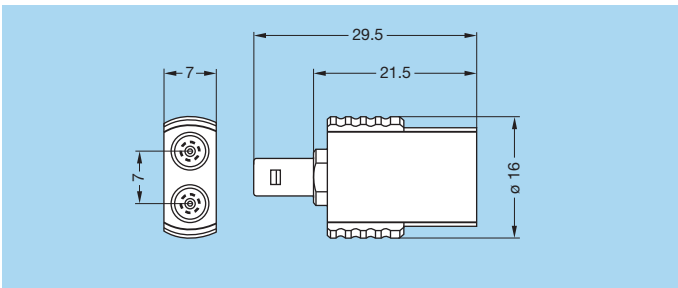
FTA T-plug with two sockets in line

| Part number | Weight (g) |
|----------------|------------|
| FTA.00.250.NTF | 7.8 |



FTL T-plug with two sockets (90°)

| Part number | Weight (g) |
|----------------|------------|
| FTL.00.250.NTF | 7.1 |



FTY Straight plug with two parallel sockets

| Part number | Weight (g) |
|----------------|------------|
| FTY.00.250.NTF | 12.5 |

Note: Test voltage: 1.1kV (rms) / IEC 60512-2 test 4a.

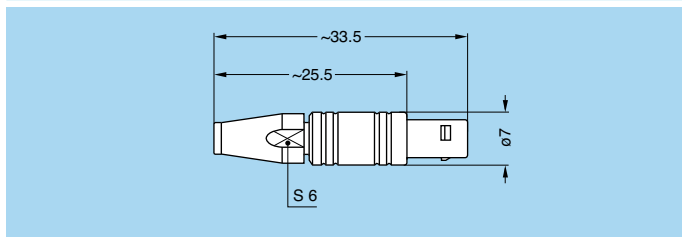
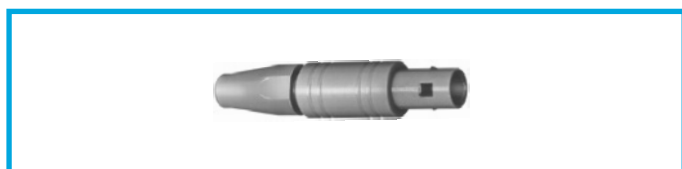
Plastic housing models

This plastic housing provides the ideal solution when the isolation of the connector is critical (non metallic). The FFA and ERN models in PEEK allow weight saving and can provide ease of use in applications such as medical electronic instrumentation.

Technical Characteristics

Mechanical and climatical

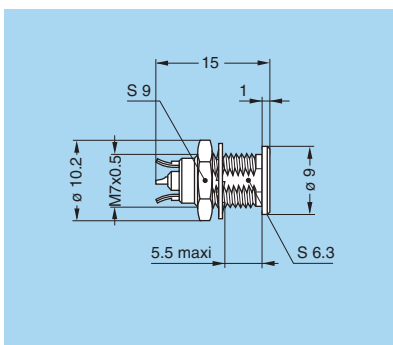
| Characteristics | Value | Standard | Test |
|--------------------------|----------------|-------------|------|
| Contact retention force | > 18 N | IEC 60512-8 | 15a |
| Cable pull off force | > 100 N | IEC 60512-9 | 17a |
| Connector pull off force | > 90 N | | |
| Endurance | > 5000 cycles | IEC 60512-5 | 9a |
| Operating temperature | - 50°C + 250°C | | |



FFA Straight plug with cable collet, PEEK outer shell

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| FFA.00.250.GTAC15 | 9 | 0.55 | 1.45 | 1.1 | 1.4 |
| FFA.00.250.GTAC17 | - | 0.55 | 1.45 | 1.3 | 1.7 |
| FFA.00.250.GTAC22 | 1 | 0.55 | 1.95 | 1.7 | 2.1 |
| FFA.00.250.GTAC27 | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| FFA.00.250.GTAC31 | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

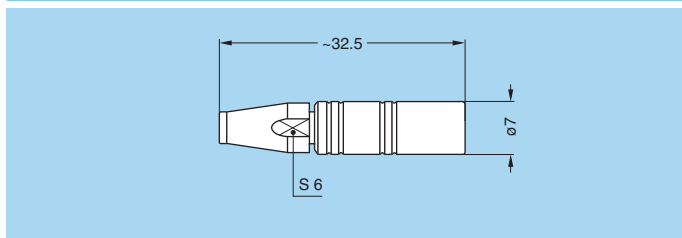
M1 Cable assembly (page 39)



ERN Fixed socket, nut fixing, with earthing tags, PEEK outer shell

| Part number | Weight (g) |
|----------------|------------|
| ERN.00.250.GTL | 1.4 |

P5 Panel cut-out (page 38)



PCA Free socket with cable collet, PEEK outer shell

| Part number | Cable group | Cond. Ø max | Dielectric Ø maxi | Sheath Ø | |
|-------------------|-------------|-------------|-------------------|----------|------|
| | | | | mini | maxi |
| PCA.00.250.GTLC15 | 9 | 0.55 | 1.45 | 1.1 | 1.4 |
| PCA.00.250.GTLC17 | - | 0.55 | 1.45 | 1.3 | 1.7 |
| PCA.00.250.GTLC22 | 1 | 0.55 | 1.95 | 1.7 | 2.1 |
| PCA.00.250.GTLC27 | 2-3-4 | 0.55 | 1.95 | 2.3 | 2.7 |
| PCA.00.250.GTLC31 | 8 | 0.55 | 1.95 | 2.8 | 3.0 |

M1 Cable assembly (page 39)

Watertight or vacuumtight models

A range of sealed sockets and couplers allows the device on which they are fitted to reach a protection index of IP68 as per IEC 60529 (unmated). They are fully compatible with plugs of the same series and are widely used for portable radios, military, laboratory equipment, aviation, etc.

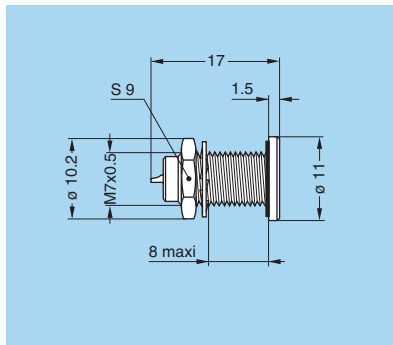
These models are identified by a letter «P» at the end of the reference for watertight model and by a «PV» for vacuumtight models. Epoxy resin or o-rings are used to seal these models.

Mechanical and climatical

| Characteristics | Value | Standard |
|--|---|----------------------|
| Endurance | > 5000 cycles | IEC 60512-5 test 9a |
| Humidity | up to 95% at 60° C | |
| Temperature range | - 20° C/+100° C | |
| Salt spray corrosion test | > 144h | IEC 60512-6 test 11f |
| Climatical category | 20/80/21 | IEC 60068-1 |
| Leakage rate (He) ¹⁾ | < 10 ⁻⁷ mbar.l.s ⁻¹ | IEC 60512-7 test 14b |
| Maximum operating pressure ²⁾ | 60 bars | IEC 60512-7 test 14d |

Note:

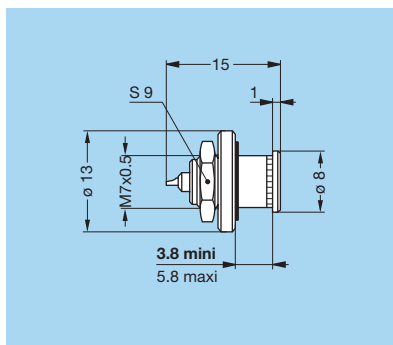
1) only for vacuumtight models.
2) this value corresponds to the maximum allowed pressure difference for the assembled socket.



HGP Fixed socket, nut fixing, watertight or vacuumtight

| Part number | Weight (g) |
|------------------|------------|
| HGP.00.250.NTLP | 4.2 |
| HGP.00.250.NTLPV | 4.2 |

P1 Panel cut-out (page 38)

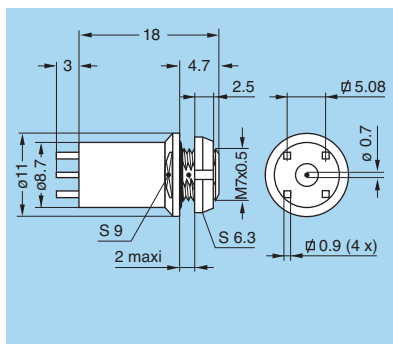


HGW Fixed socket, nut fixing, watertight with rear sealing ring

| Part number | Weight (g) |
|-----------------|------------|
| HGW.00.250.NTLP | 4.2 |

P1 Panel cut-out (page 38)

Note: Non standard, on request only

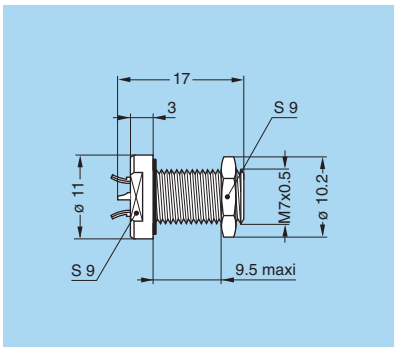
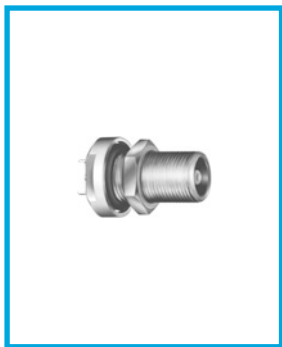


HEP Fixed socket, nut fixing, watertight for printed circuit (back panel mounting)

| Part number | Weight (g) |
|-----------------|------------|
| HEP.00.250.NTNP | 7.4 |

P5 Panel cut-out (page 38)

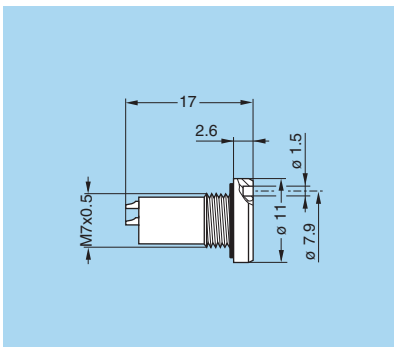
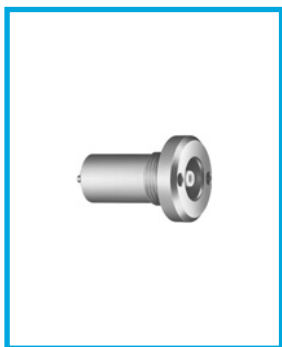
P15 PCB drilling pattern (page 38)



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

| Part number | Weight (g) |
|------------------|------------|
| EWF.00.250.NTLP | 4.2 |
| EWF.00.250.NTLPV | 4.2 |

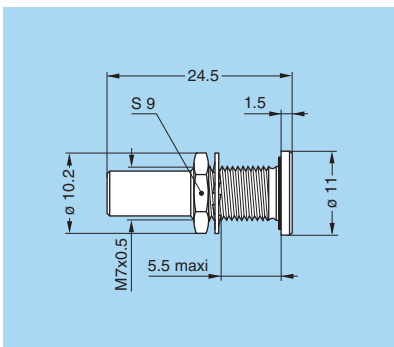
P1 Panel cut-out (page 38)



EWV Fixed socket, screw fixing, watertight or vacuumtight

| Part number | Weight (g) |
|------------------|------------|
| EWV.00.250.NTLP | 3.7 |
| EWV.00.250.NTLPV | 3.7 |

P2 Panel cut-out (page 38)

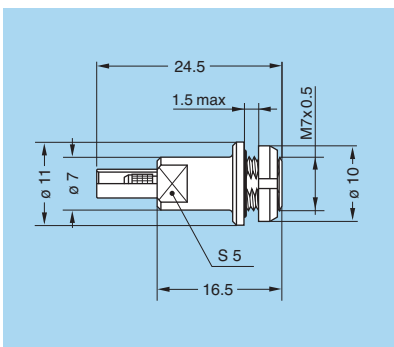


SWH Fixed coupler, nut fixing, vacuumtight

| Part number | Weight (g) |
|-----------------|------------|
| SWH.00.250.NTMV | 5.2 |

P1 Panel cut-out (page 38)

Note: this model is sealed with o-rings (no epoxy).



VPS Fixed socket, short shell, vacuumtight with cable crimping (back panel mounting)

| Part number | Cable group | Cond. Ø | | Dielectric Ø maxi | Sheath Ø maxi |
|-------------------|-------------|---------|------|-------------------|---------------|
| | | mini | maxi | | |
| VPS.00.250.CTLE31 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |

P1 Panel cut-out (page 38)

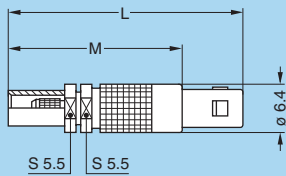
Cable assembly, please contact customer service

Metal housing models with mechanical keying

The straight plug and receptacle models FGG, XBG, XRG, XSG, ESG, EXG and PSG are available with a key to avoid cross mating of similar connectors. These models are not included in the NIM-CAMAC standard.

The standard "G" key consists of one mechanical alignment key.

Front view of the standard "G" key



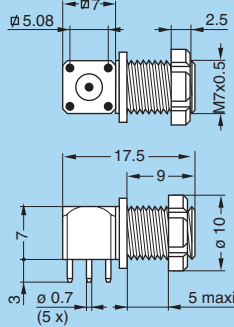
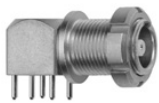
FGG Straight plug with key (G), with cable crimping

| Part number | Dim | | Cable group | Cond. Ø maxi | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|--------------|----------------|---------------|
| | L | M | | | | |
| FGG.00.250.NTAE24 | 31 | 23 | 1 | 0.4 | 0.95 | 2.35 |
| FGG.00.250.NTAE31 | 31 | 23 | 3-4 | 0.55 | 1.65 | 3.0 |
| FGG.00.250.NTAE52 | 34 | 26 | 6 | 0.97 | 3.05 | 5.2 |

M5 Cable assembly, solder contact (page 41)

| Part number | Dim | | Cable group | Cond. Ø | | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|---------|------|----------------|---------------|
| | L | M | | mini | maxi | | |
| FGG.00.250.NTCE24 | 31 | 23 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| FGG.00.250.NTCE31 | 31 | 23 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| FGG.00.250.NTCE52 | 34 | 26 | 6 | 0.90 | 0.97 | 3.05 | 5.2 |

M4 Cable assembly, crimp contact (page 40)

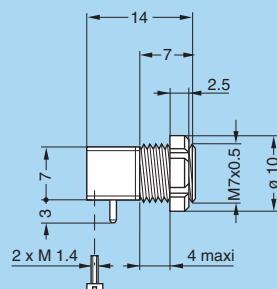


XBG Elbow socket (90°) with slotted nut, for printed circuit with key (G)

| Part number | Weight (g) |
|----------------|------------|
| XBG.00.250.NTN | 5.1 |

P1 Panel cut-out (page 38)

P12 PCB drilling pattern (page 38)

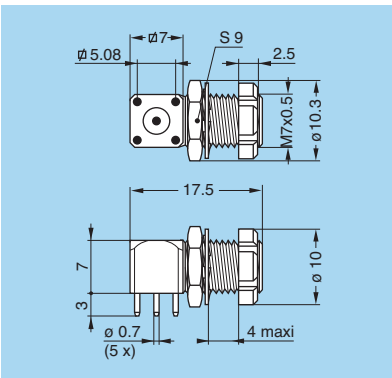
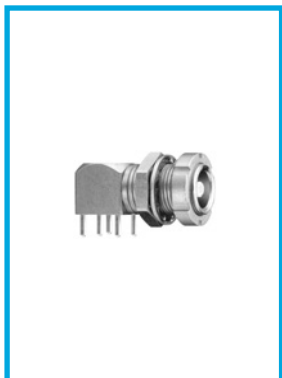


XRG Elbow socket (90°), with key (G), short shell and slotted nut, for printed circuit, screw fixing (back panel mounting)

| Part number | Weight (g) |
|----------------|------------|
| XRG.00.250.NTN | 3.8 |

P1 Panel cut-out (page 38)

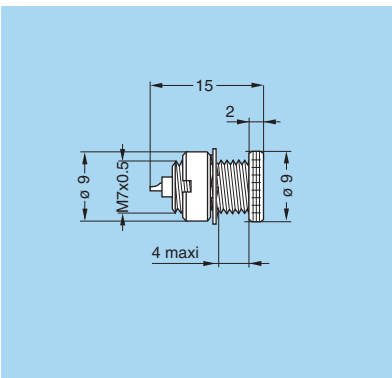
P14 PCB drilling pattern (page 38)



XSG Elbow socket (90°) with slotted with key (G), and hex nuts for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| XSG.00.250.NTN | 5.4 |

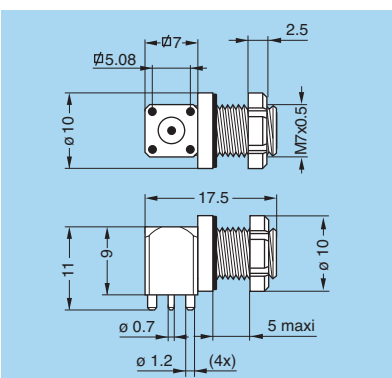
- P1** Panel cut-out (page 38)
- P12** PCB drilling pattern (page 38)



ESG Fixed socket with two round nuts, threaded shell, with key (G) (back panel mounting)

| Part number | Weight (g) |
|----------------|------------|
| ESG.00.250.NLL | 3.1 |

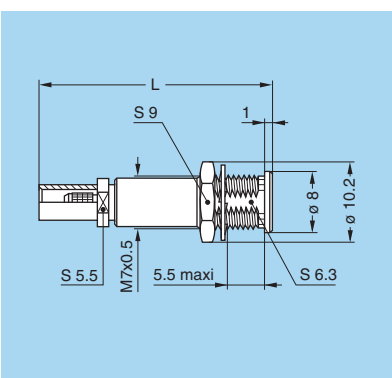
- P1** Panel cut-out (page 38)



EXG Elbow socket (90°) with slotted nut for printed circuit, with key (G), with o-ring on flange (back panel mounting). Special shell design.

| Part number | Weight (g) |
|-----------------|------------|
| EXG.00.250.NTNY | 6.3 |

- P1** Panel cut-out (page 38)
- P15** PCB drilling pattern (page 38)



PSG Fixed socket, nut fixing, with key (G) with cable crimping

| Part number | Dim L | Cable group | Cond. \varnothing | | Dielec. \varnothing maxi | Sheath \varnothing maxi |
|-------------------|-------|-------------|---------------------|------|----------------------------|---------------------------|
| | | | mini | maxi | | |
| PSG.00.250.NTME24 | 30 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| PSG.00.250.NTME31 | 30 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| PSG.00.250.NTME52 | 33 | 6 | 0.90 | 0.97 | 3.05 | 5.2 |

- M4** Cable assembly, crimp contact (page 40)
- P5** Panel cut-out (page 38)

Threaded-coupling models

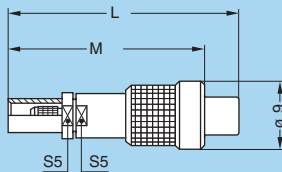
The straight plug and receptacle models FVS, EPE and EPS are available with threaded coupling. On sockets, 3.2 mm minimum length of free threading must be available to ensure screw mating. These models are not included in the NIM-CAMAC standard.



FVS Straight plug for cable crimping

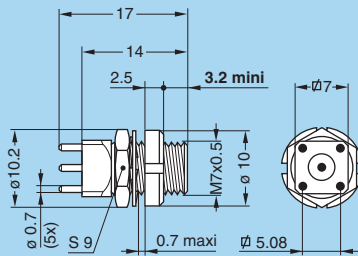
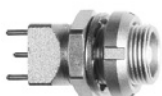
| Part number | Dim | | Cable group | Cond. Ø maxi | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|--------------|----------------|---------------|
| | L | M | | | | |
| FVS.00.250.NTAE24 | 31 | 23 | 1 | 0.4 | 0.95 | 2.35 |
| FVS.00.250.NTAE31 | 31 | 23 | 3-4 | 0.55 | 1.65 | 3.0 |
| FVS.00.250.NTAE52 | 34 | 26 | 6 | 0.97 | 3.05 | 5.2 |

M5 Cable assembly, solder contact (page 41)



| Part number | Dim | | Cable group | Cond. Ø | | Dielec. Ø maxi | Sheath Ø maxi |
|-------------------|-----|----|-------------|---------|------|----------------|---------------|
| | L | M | | mini | maxi | | |
| FVS.00.250.NTCE24 | 31 | 23 | 1 | 0.28 | 0.4 | 0.95 | 2.35 |
| FVS.00.250.NTCE25 | 31 | 23 | 1 | 0.28 | 0.4 | 1.15 | 2.35 |
| FVS.00.250.NTCE30 | 31 | 23 | 2 | 0.28 | 0.4 | 1.65 | 3.0 |
| FVS.00.250.NTCE31 | 31 | 23 | 3-4 | 0.46 | 0.55 | 1.65 | 3.0 |
| FVS.00.250.NTCE35 | 31 | 23 | 8 | 0.46 | 0.55 | 1.65 | 3.35 |
| FVS.00.250.NTCE44 | 31 | 23 | 5 | 0.28 | 0.4 | 2.65 | 4.35 |
| FVS.00.250.NTCE52 | 34 | 26 | 6 | 0.90 | 0.97 | 3.05 | 5.2 |
| FVS.00.250.NTCE56 | 34 | 26 | 7 | 0.90 | 0.97 | 3.05 | 5.45 |

M4 Cable assembly, crimp contact (page 40)

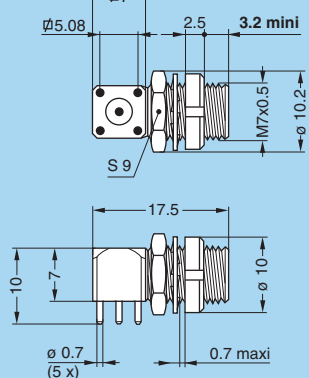


EPE Straight socket with two nuts, for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| EPE.00.250.NTN | 4.3 |

P1 Panel cut-out (page 38)

P12 PCB drilling pattern (page 38)



EPS Elbow socket (90°) with two nuts, for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| EPS.00.250.NTN | 5.4 |

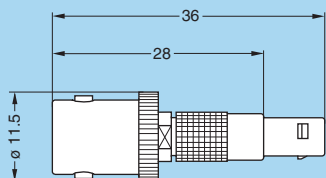
P1 Panel cut-out (page 38)

P12 PCB drilling pattern (page 38)



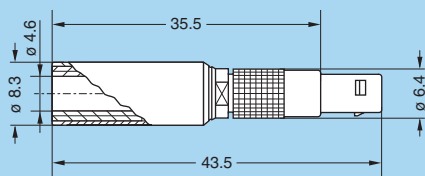
Adaptors

ABF Adaptor from LEMO plug to BNC socket



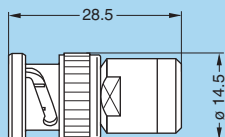
| Part number | Weight (g) |
|----------------|------------|
| ABF.00.250.NTA | 8.3 |

APF Adaptor from LEMO plug to CINCH socket



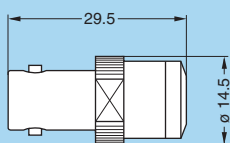
| Part number | Colour of the ring | Weight (g) |
|-----------------|--------------------|------------|
| APF.00.250.DTAB | white | 7 |
| APF.00.250.DTAR | red | 7 |

ABA Adaptor from LEMO socket to BNC plug



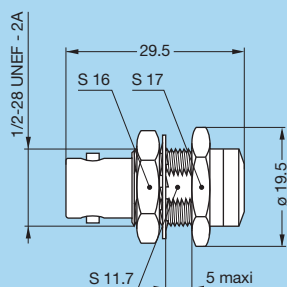
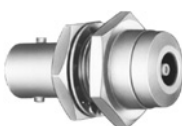
| Part number | Weight (g) |
|----------------|------------|
| ABA.00.250.NTL | 18.7 |

ABC Adaptor from LEMO socket to BNC socket



| Part number | Weight (g) |
|----------------|------------|
| ABC.00.250.NTM | 17 |

ABD Adaptor from LEMO socket to BNC fixed socket



| Part number | Weight (g) |
|----------------|------------|
| ABD.00.250.NTM | 21.4 |

P7 Panel cut-out (page 38)

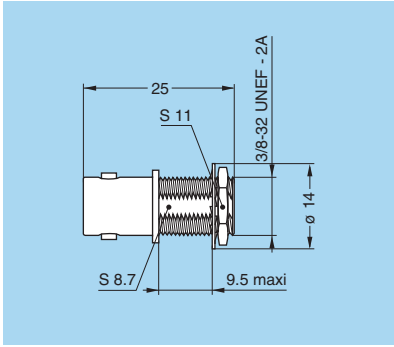
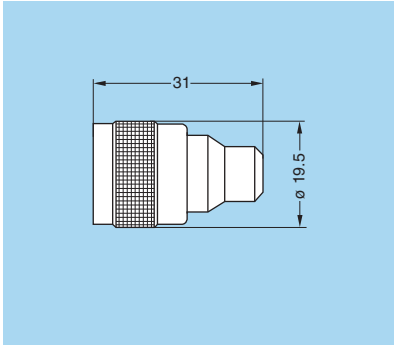


ABB Adaptor from LEMO fixed socket to BNC socket

| Part number | Weight (g) |
|----------------|------------|
| ABB.00.250.NTM | 9.4 |

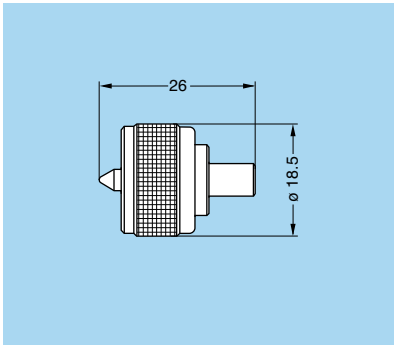
P6 Panel cut-out (page 38)



ACA Adaptor from LEMO socket to C plug

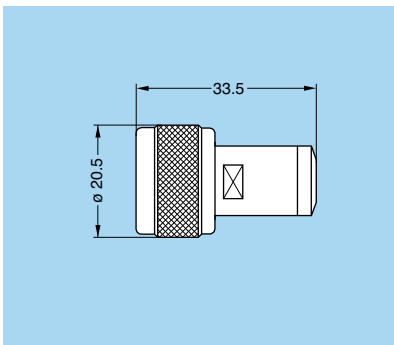
| Part number | Weight (g) |
|----------------|------------|
| ACA.00.250.NTL | 32 |

Note: Non standard, on request only



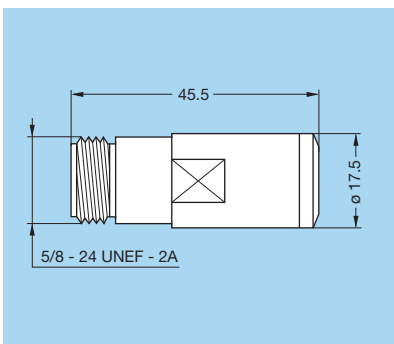
AGH Adaptor from LEMO socket to UHF plug

| Part number | Weight (g) |
|----------------|------------|
| AGH.00.250.NTL | 13.8 |



ANA Adaptor from LEMO socket to N plug

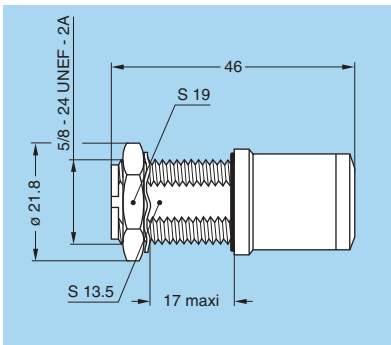
| Part number | Weight (g) |
|----------------|------------|
| ANA.00.250.NTL | 38 |



ANB Adaptor from LEMO socket to N socket

| Part number | Weight (g) |
|----------------|------------|
| ANB.00.250.NTM | 61.7 |

Note: Non standard, on request only

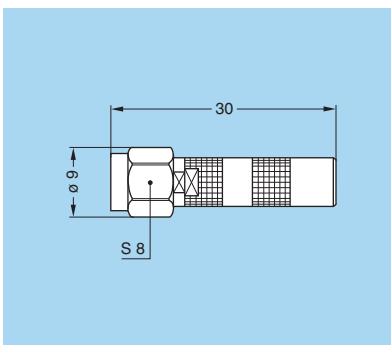
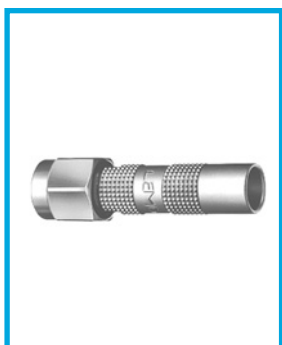


ANC Adaptor from LEMO socket to N fixed socket

| Part number | Weight (g) |
|----------------|------------|
| ANC.00.250.NTM | 63.5 |

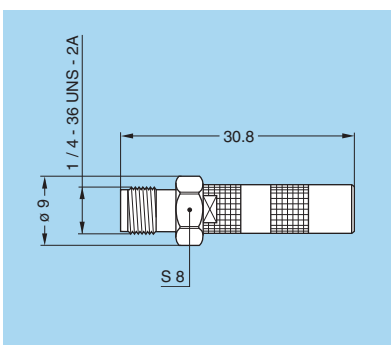
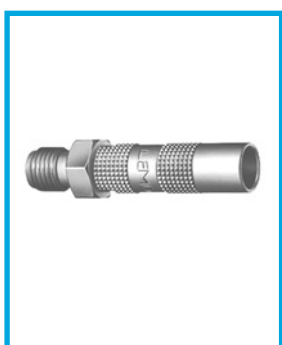
P8 Panel cut-out (page 38)

Note: Non standard, on request only



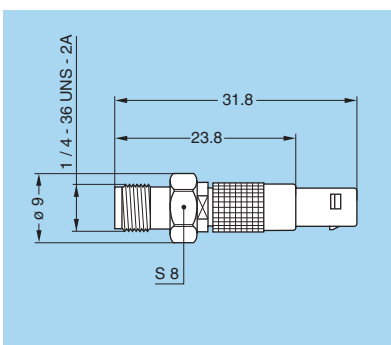
ASA Adaptor from LEMO socket to SMA plug

| Part number | Weight (g) |
|----------------|------------|
| ASA.00.250.NTL | 4.9 |



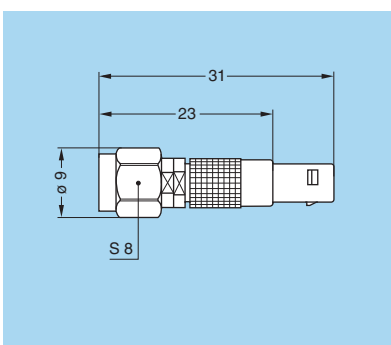
ASB Adaptor from LEMO socket to SMA socket

| Part number | Weight (g) |
|----------------|------------|
| ASB.00.250.NTM | 4.6 |



ASF Adaptor from LEMO plug to SMA socket

| Part number | Weight (g) |
|----------------|------------|
| ASF.00.250.NTA | 4.6 |

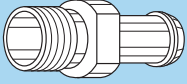
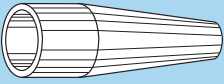


ASG Adaptor from LEMO plug to SMA plug

| Part number | Weight (g) |
|----------------|------------|
| ASG.00.250.NTC | 4.9 |

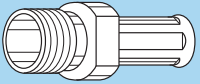
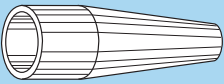
Variant

Bend relief for models with collet (letter Z in the variant position)

| | Need to be ordered |
|---|---|
|  |  |
| Reference | Need to be ordered separately (see page 33) |
| C15Z | GMA.00.0●●.D● |
| C17Z | GMA.00.0●●.D● |
| C22Z | - |
| C27Z | GMD or GMB.00.0●●.D● |
| C31Z | GMD or GMB.00.0●●.D● |
| C52Z | GMA.0B.0●●.D● |
| K37Z | GMA.0B.0●●.D● |
| K42Z | GMA.0B.0●●.D● |
| D42Z | GMA.0B.0●●.D● |
| D52Z | GMA.0B.0●●.D● |

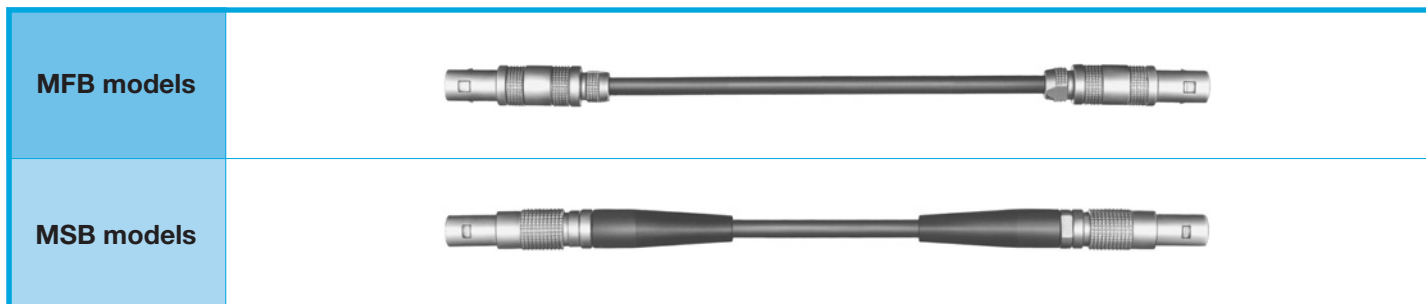
Note: The "GMD" are thin bend reliefs (for very flexible cables)

Bend relief for models for cable crimping (no letter in the variant position) The bend relief can be fitted directly over the crimp ferrule

| | Need to be ordered |
|--|---|
|  |  |
| Reference | Need to be ordered separately (see page 33) |
| E24 | GMD or GMB.00.0●●.D● |
| E25 | GMD or GMB.00.0●●.D● |
| E30 | GMD or GMB.00.0●●.D● |
| E31 | GMD or GMB.00.0●●.D● |
| E32 | GMD or GMB.00.0●●.D● |
| E35 | - |
| E44 | - |
| E52 | - |
| E56 | - |

Note: The "GMD" are thin bend reliefs (for very flexible cables)

Assembled cables



Delay lines

| Part number | Delay (ns) | Part number |
|-------------------|------------|-------------------|
| MFB.00.250.RTE005 | 0.5 | MSB.00.250.RTE005 |
| MFB.00.250.RTE010 | 1.0 | MSB.00.250.RTE010 |
| MFB.00.250.RTE020 | 2.0 | MSB.00.250.RTE020 |
| MFB.00.250.RTE030 | 3.0 | MSB.00.250.RTE030 |
| MFB.00.250.RTE040 | 4.0 | MSB.00.250.RTE040 |
| MFB.00.250.RTE050 | 5.0 | MSB.00.250.RTE050 |
| MFB.00.250.RTE060 | 6.0 | MSB.00.250.RTE060 |
| MFB.00.250.RTE080 | 8.0 | MSB.00.250.RTE080 |
| MFB.00.250.RTE100 | 10.0 | MSB.00.250.RTE100 |
| MFB.00.250.RTE160 | 16.0 | MSB.00.250.RTE160 |
| MFB.00.250.RTE200 | 20.0 | MSB.00.250.RTE200 |
| MFB.00.250.RTE320 | 32.0 | MSB.00.250.RTE320 |
| MFB.00.250.RTE640 | 64.0 | MSB.00.250.RTE640 |

Assembled Cables

| Part number | Length (cm) | Part number |
|-------------------|-------------|-------------------|
| MFB.00.250.LTE010 | 10 | MSB.00.250.LTE010 |
| MFB.00.250.LTE020 | 20 | MSB.00.250.LTE020 |
| MFB.00.250.LTE030 | 30 | MSB.00.250.LTE030 |
| MFB.00.250.LTE040 | 40 | MSB.00.250.LTE040 |
| MFB.00.250.LTE050 | 50 | MSB.00.250.LTE050 |
| MFB.00.250.LTE060 | 60 | MSB.00.250.LTE060 |
| MFB.00.250.LTE080 | 80 | MSB.00.250.LTE080 |
| MFB.00.250.LTE100 | 100 | MSB.00.250.LTE100 |
| MFB.00.250.LTE150 | 150 | MSB.00.250.LTE150 |
| MFB.00.250.LTE200 | 200 | MSB.00.250.LTE200 |
| MFB.00.250.LTE300 | 300 | MSB.00.250.LTE300 |
| MFB.00.250.LTE400 | 400 | MSB.00.250.LTE400 |
| MFB.00.250.LTE500 | 500 | MSB.00.250.LTE500 |

Note: the standard cable used to manufacture these cable assemblies is according to IEC.50.2.1 standard. On request this type of cable can be replaced by other coaxial cables. Other cable lengths are available on request.

Accessories



Fitting of the cord

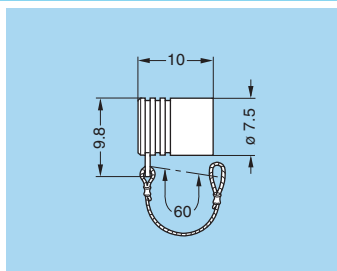
Slide the plug into the loop of the cord. Place the loop into the groove in front of the collet nut and tighten the loop.

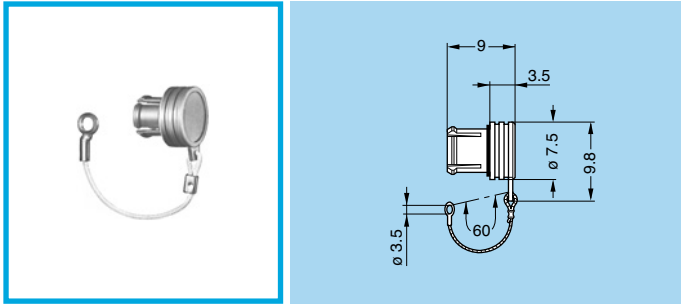
BFG Caps for plug with or without keying

| Part number | Weight (g) |
|-----------------|------------|
| BFG.00.100.PCSG | 0.7 |

Note: upon request this cap can be supplied in black and the last letter "G" of the part number should be replaced with "N".

- Body material: Polyoxymethylen (POM) grey
- Cord material: Polyamid 6, grey
- O-ring material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529





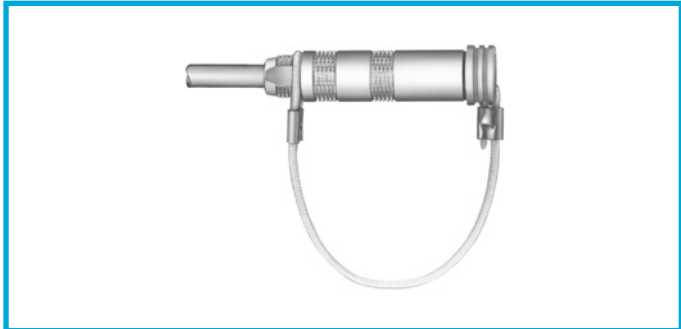
- Body material: Polyoxymethylen (POM) grey
- Cord material: Polyamid 6, grey

BRA Blanking cap for fixed socket and free straight socket

| Part number | Weight (g) |
|-----------------|------------|
| BRA.00.200.PCSG | 0.6 |

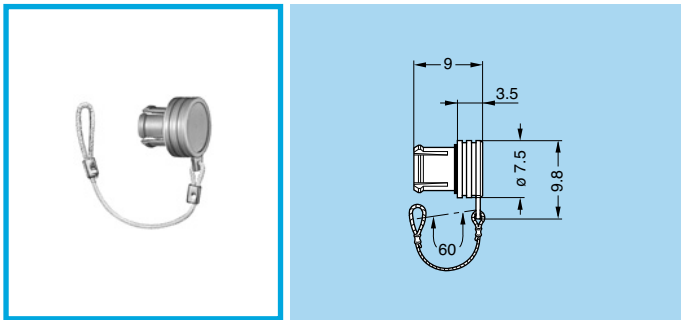
Note: upon request this cap can be supplied in black and the last letter "G" of the part number should be replaced with "N".

- O-ring material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529



Fitting of the cord

Slide the socket into the loop of the cord. Place the loop into the groove in front of the collet nut and tighten the loop.

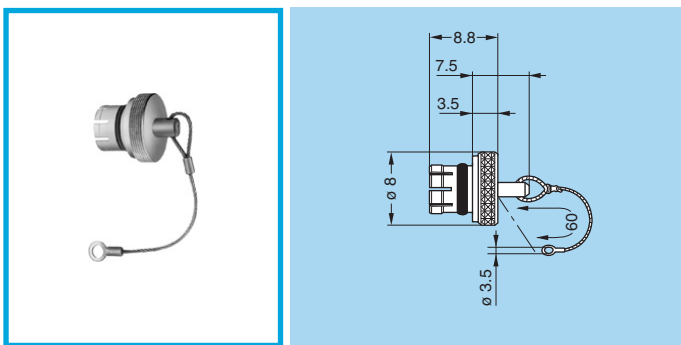


BRD Blanking cap for free socket

| Part number | Weight (g) |
|-----------------|------------|
| BRD.00.200.PCSG | 0.5 |

Note: upon request this cap can be supplied in black and the last letter "G" of the part number should be replaced with "N".

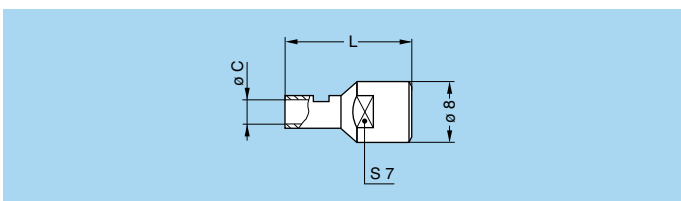
- Body material: Polyoxymethylen (POM) grey
- Cord material: Polyamid 6, grey
- O-ring material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529



BRE Blanking cap for fixed socket, free socket and coupler

| Part number | Weight (g) |
|----------------|------------|
| BRE.00.200.NAS | 6.5 |

- Body material: Brass (UNS C 38500), nickel-plated (3 µm)
- Cable material: Stainless steel
- O-ring material: Silicone rubber or FPM
- Maximum operating temperature: 250°C
- Watertightness: IP61 according to IEC 60529

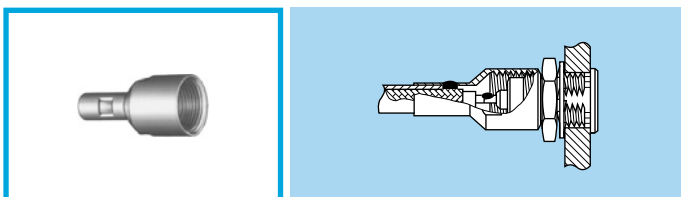


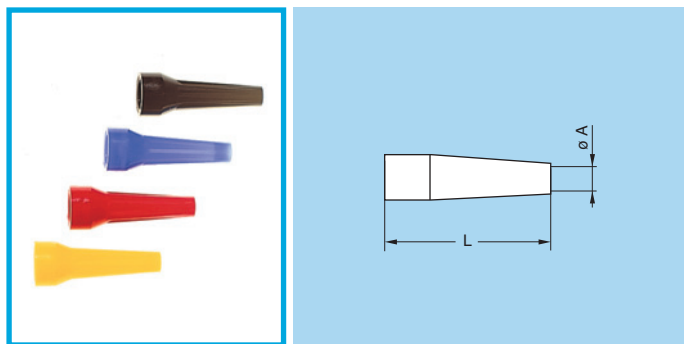
GCD Earthing cap

| Part number | Cable group | Dim. | |
|---------------|-------------|------|-----|
| | | L | C |
| GCD.00.020.LA | 1 | 12 | 2.0 |
| GCD.00.032.LA | 2-3-4 | 16 | 3.2 |
| GCD.00.050.LA | 6 | 19 | 5.0 |

Note: the shield braid of the cable should be soldered onto the back of the cap screwed on the socket outer shell.

- Material: Brass (UNS C 38500) gold-plated (0.5 µm)



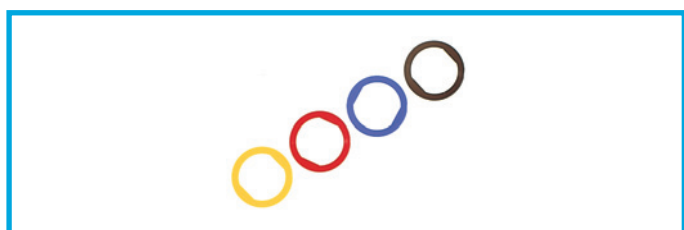


GM. Bend relief

| Part number | Dim. | | ø Cable | | Nut for fitting the bend relief part nb |
|---------------|------|----|---------|-----|---|
| | A | L | max | min | |
| GMA.00.012.D● | 1.2 | 22 | 1.4 | 1.1 | FFM.00.130.LN |
| GMA.00.018.D● | 1.8 | 22 | 2.1 | 1.8 | FFM.00.130.LN |
| GMB.00.025.D● | 2.5 | 22 | 2.8 | 2.5 | FFM.00.130.LN |
| GMB.00.028.D● | 2.8 | 22 | 3.1 | 2.8 | FFM.00.130.LN |
| GMB.00.032.D● | 3.2 | 22 | 3.5 | 3.2 | FFM.00.130.LN |
| GMD.00.025.D● | 2.5 | 22 | 2.8 | 2.5 | FFM.00.130.LN |
| GMD.00.028.D● | 2.8 | 22 | 3.1 | 2.8 | FFM.00.130.LN |
| GMD.00.032.D● | 3.2 | 22 | 3.5 | 3.2 | FFM.00.130.LN |
| GMA.0B.025.D● | 2.5 | 24 | 2.9 | 2.5 | FFM.0B.130.LC |
| GMA.0B.030.D● | 3.0 | 24 | 3.4 | 3.0 | FFM.0B.130.LC |
| GMA.0B.035.D● | 3.5 | 24 | 3.9 | 3.5 | FFM.0B.130.LC |
| GMA.0B.040.D● | 4.0 | 24 | 4.4 | 4.0 | FFM.0B.130.LC |
| GMA.0B.045.D● | 4.5 | 24 | 5.2 | 4.5 | FFM.0B.130.LC |

Note:

- a) for use with crimp models and nut for fitting a bend relief.
- b) the last letter of the part number "●" specifies the colour. Refer to the table below, for GRA washers, to define another colour and replace the letter "●" by the one corresponding to the colour required.
- c) material: TPU (Thermoplastic Polyurethane)
- d) operating temperature: -40°C + 80°C

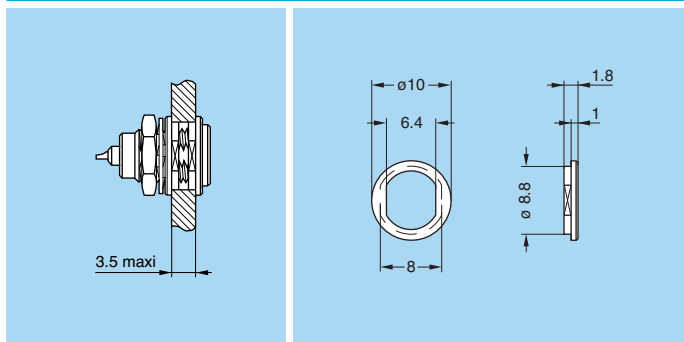


GRA Insulating washers

| Part number | Weight (g) |
|---------------|------------|
| GRA.00.269.G● | 0.1 |

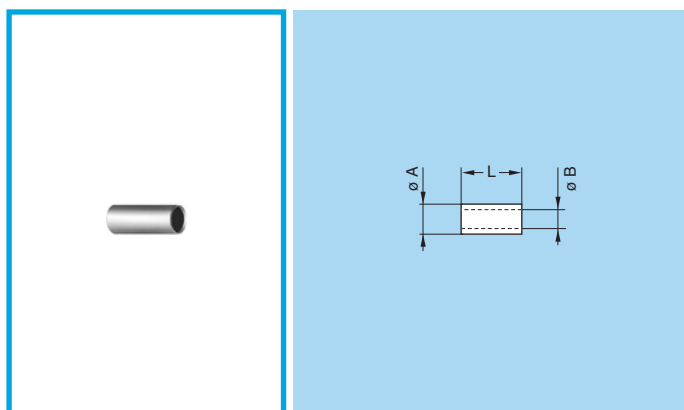
Note:

- a) sockets and 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.
- b) the last letter of the part number "●" specifies the colour. Refer to the table below to define another colour and replace the letter "●" by the one corresponding to the colour required.
- c) material: Polyamid
- d) operating temperature: -40°C + 80°C



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

Spare Parts

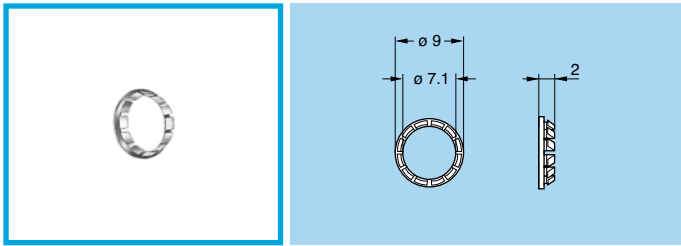


FFS Crimp ferrule

| Part number | Cable group | Dim. | | |
|---------------|-------------|------|------|----|
| | | øA | øB | L |
| FFS.00.160.DN | 1 | 3.1 | 2.4 | 8 |
| FFS.00.161.MN | 2-3-4 | 3.8 | 3.05 | 8 |
| FFS.00.162.DN | 8 | 4.4 | 3.4 | 8 |
| FFS.00.163.DN | 5 | 5.3 | 4.4 | 8 |
| FFS.00.164.DN | 6 | 6.2 | 5.25 | 11 |
| CRK.0A.160.DN | 7 | 6.2 | 5.5 | 11 |

Note: sockets and plugs to be crimped are always supplied with a crimp ferrule. To order this accessory separately, use the above part numbers.

- Material: Copper (UNS C 18700) nickel-plated (3µm)

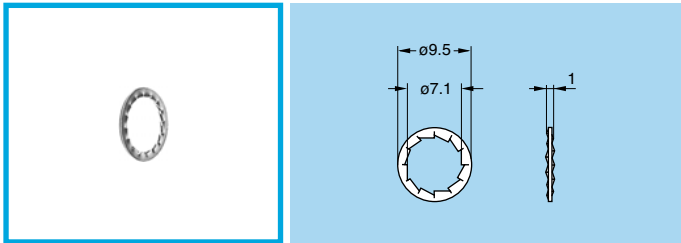


GBB Tapered washer

| Part number | Weight (g) |
|---------------|------------|
| GBB.00.250.LN | 0.2 |

Note: to order this accessory separately, use the above part number.

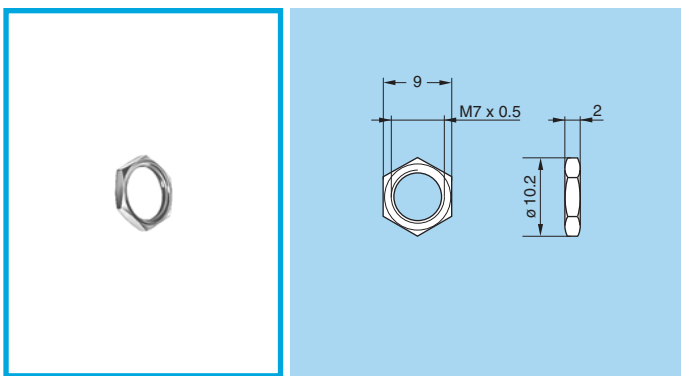
- Material: Brass (UNS C 38500) nickel-plated (3 µm)



GBA Locking washer

| Part number | Weight (g) |
|---------------|------------|
| GBA.00.250.FN | 0.2 |

Note: sockets and plugs are always supplied with a locking washer. To order this accessory separately, use the above part number.

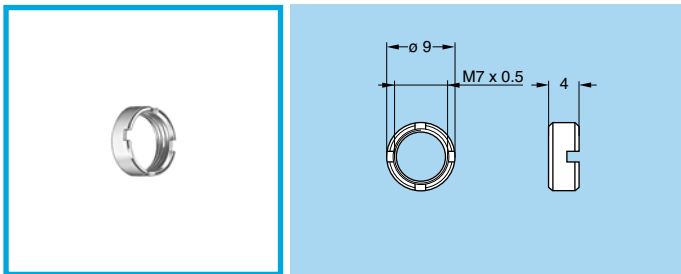


GEA Hexagonal nut

| Part number | Weight (g) |
|---------------|------------|
| GEA.00.240.LN | 0.6 |

Note: sockets and plugs are supplied with a hexagonal nut as standard. To order this accessory separately, use the above part number. The last letters "LN" of the part number refer to the nut material and treatment. If a nut in aluminium alloy is desired, replace the last letters of the part number by "PT".

- Material:
 - Brass (UNS C 38500) nickel-plated (3 µm)
 - Aluminium alloy natural anodized

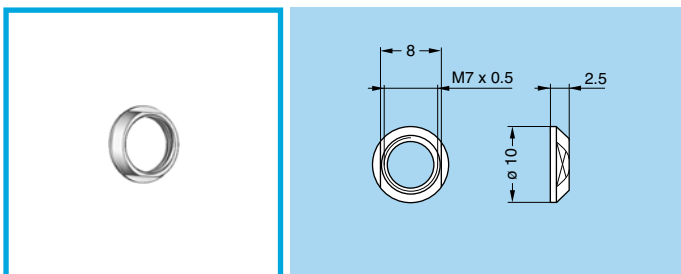


GEB Round nut

| Part number | Weight (g) | Standard for models |
|---------------|------------|---------------------|
| GEB.00.240.LN | 0.8 | ECP, ESG |

Note: to order this accessory separately, use the above part number.

- Material: Brass (UNS C 38500) nickel-plated (3 µm)

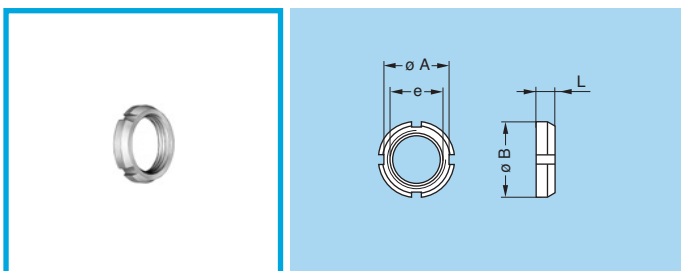


GEC Conical nut

| Part number | Weight (g) |
|---------------|------------|
| GEC.00.240.LN | 0.6 |

Note: to order this accessory separately, use the above part number.

- Material: Brass (UNS C 38500) nickel-plated (3 µm)

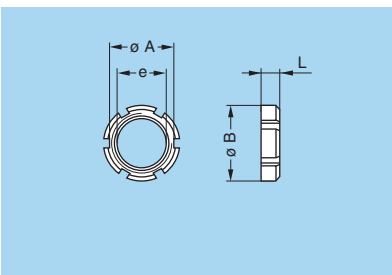


GEG Notched nut

| Part number | Dimensions (mm) | | | | Standard for models |
|---------------|-----------------|----|----------|-----|--|
| | A | B | e | L | |
| GEG.00.240.LN | 8.7 | 10 | M7 x 0.5 | 2.5 | EPE, EPS, EPR, PES, PFS, PLK, VPS, HEP |

Note: to order this accessory separately, use the above part numbers.

- Material: Brass (UNS C 38500) nickel-plated (3 µm)

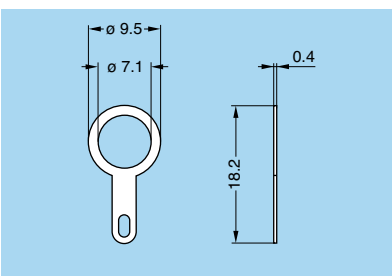


GEB Slotted nut

| Part number | Dimensions (mm) | | | | Standard for models |
|---------------|-----------------|----|----------|-----|-------------------------|
| | A | B | e | L | |
| GEB.00.242.LN | 8.5 | 10 | M7 x 0.5 | 2.5 | ELF, XBG, XRG, XSG, EXG |

Note: to order this accessory separately, use the above part numbers.

- Material: Brass (UNS C 38500) nicked-plated (3 μ m)

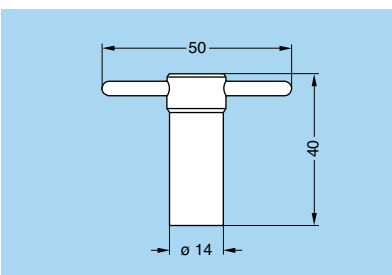
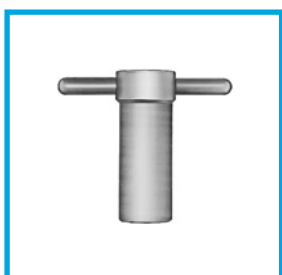


GCA Earthing Washer

| Part number | Weight (g) |
|---------------|------------|
| GCA.00.255.LT | 0.2 |

- Material: Brass (UNS C 27400) treated CuSnZn (2 μ m)

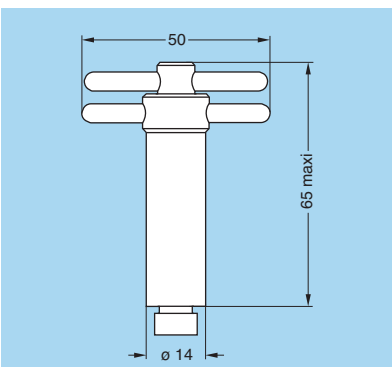
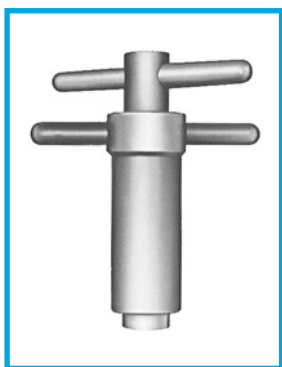
Tooling



DCG Spanner for hexagonal nut

| Part number | Part number of the nut |
|----------------|------------------------|
| DCG.91.149.0TN | GEA.00.240.LN |

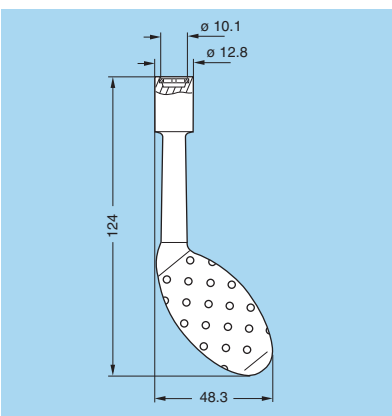
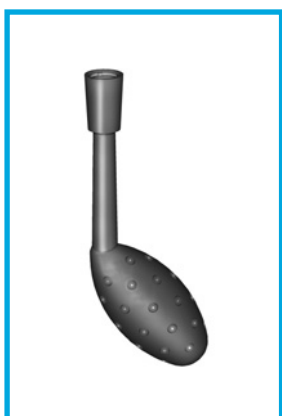
- Material: Blackened steel



DCA Spanner for hexagonal nut with locator for flats on socket thread

| Part number | Part number of the nut |
|----------------|------------------------|
| DCA.91.149.0TN | GEA.00.240.LN |

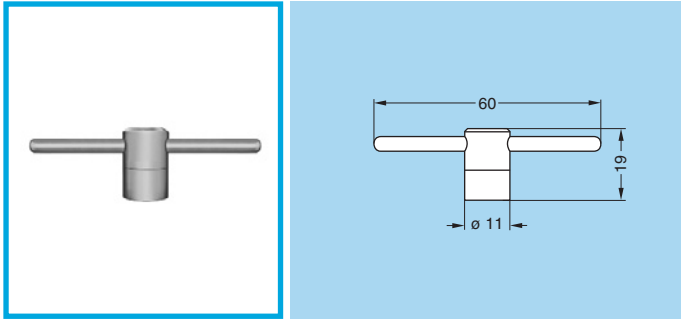
- Material: Blackened steel



DCH Spanner for notched nut

| Part number | Part number of the nut |
|---------------|------------------------|
| DCH.91.101.PA | GEG.00.240.LN |

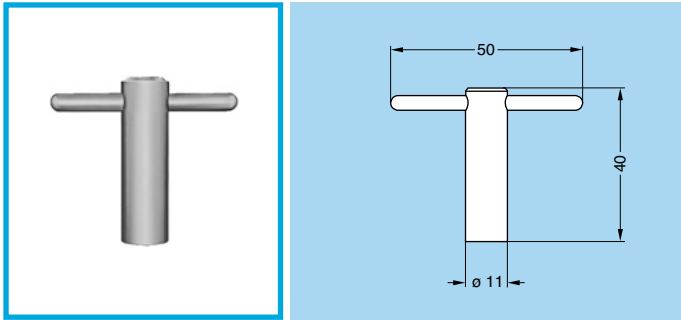
- Material: blue polyurethane



DCB Spanner for slotted nut

| | |
|----------------|------------------------|
| Part number | Part number of the nut |
| DCB.91.455.0LN | GEB.00.242.LN |

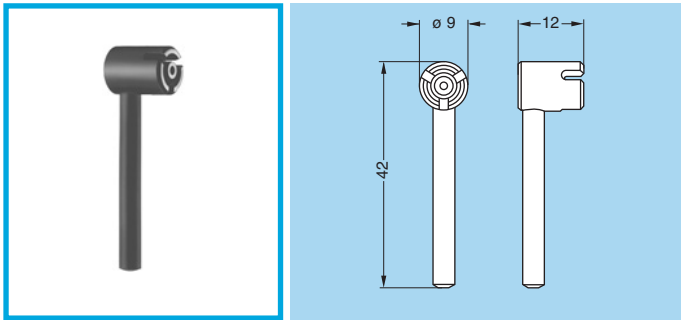
- Material: Steel, nicked plated



DCB Spanner for round nut

| | |
|----------------|------------------------|
| Part number | Part number of the nut |
| DCB.91.119.0TN | GEB.00.240.LN |

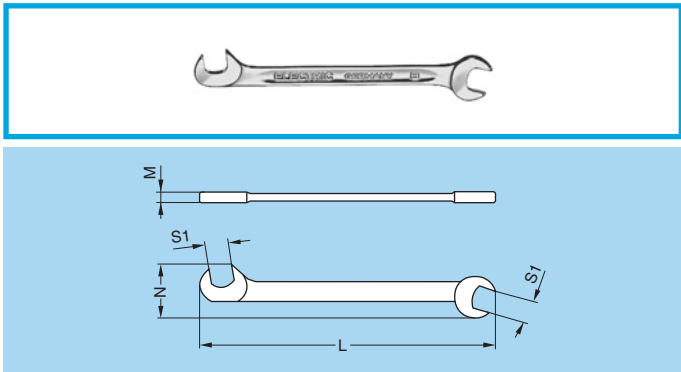
- Material: Blackened steel



DCN Spanner for assembling plug with 3 latches

| |
|----------------|
| Part number |
| DCN.91.905.0TK |

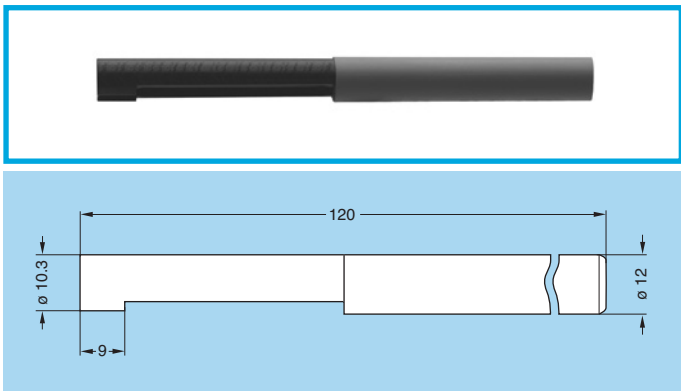
- Material: Blackened steel



DCP Flat spanner for collet nut

| Part number | Dimensions | | | |
|---------------|------------|---|------|-----|
| | L | M | N | S1 |
| DCP.99.045.TC | 70 | 2 | 10.5 | 4.5 |
| DCP.99.050.TC | 78 | 2 | 12.6 | 5.0 |
| DCP.99.055.TC | 78 | 2 | 12.6 | 5.5 |
| DCP.99.060.TC | 78 | 2 | 12.6 | 6.0 |

- Material: Chrome-plated steel



DCR Extraction tool for plugs

| |
|----------------|
| Part number |
| DCR.91.106.0PN |

- Material: Black Polypropylene

Note: this type of tool has been produced in order to facilitate the mating and unmating of plugs and is particularly useful in high density applications.



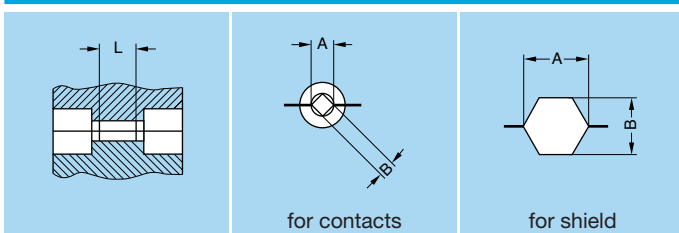
DPE Crimping tool with die

| Part number | Cable group | Crimp collet ref. |
|---------------|---------------------------|-------------------|
| DPE.99.000.00 | Crimping tool with no die | |
| DPE.99.123.1K | 1 | E24 |
| DPE.99.123.8K | 2-3-4 | E30, E31 |
| DPE.99.124.3K | 8 | E35 |
| DPE.99.125.2K | 5 | E44 |
| DPE.99.176.2K | 6-7 | E52, E56 |



DPN Dies

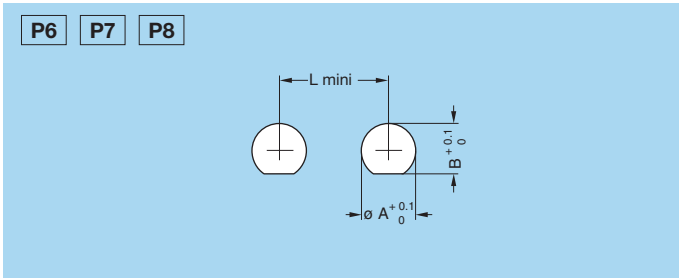
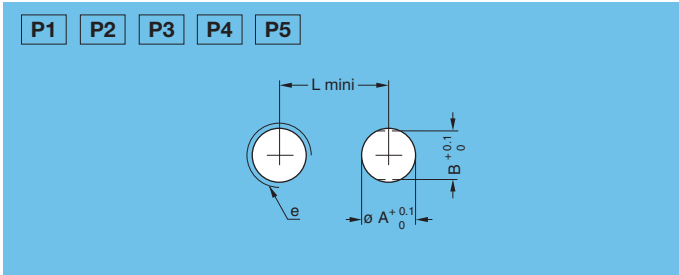
| Part number | Cable group | Die dimension | | | | |
|---------------|-------------|---------------|------|-----|------------|------|
| | | For contacts | | | For shield | |
| | | A | B | L | A | B |
| DPN.99.123.1K | 1 | 1.29 | 0.91 | 2.0 | 3.10 | 2.70 |
| DPN.99.123.8K | 2-3-4 | 1.29 | 0.91 | 2.0 | 3.80 | 3.30 |
| DPN.99.124.3K | 8 | 1.29 | 0.91 | 2.0 | 4.36 | 3.78 |
| DPN.99.125.2K | 5 | 1.29 | 0.91 | 2.0 | 5.20 | 4.50 |
| DPN.99.176.2K | 6-7 | 1.71 | 1.21 | 2.5 | 6.20 | 5.37 |



- Dies material: Blackened steel

Panel cut-outs

Panel cut-out

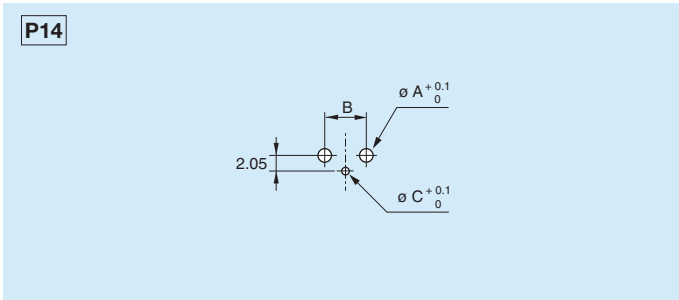
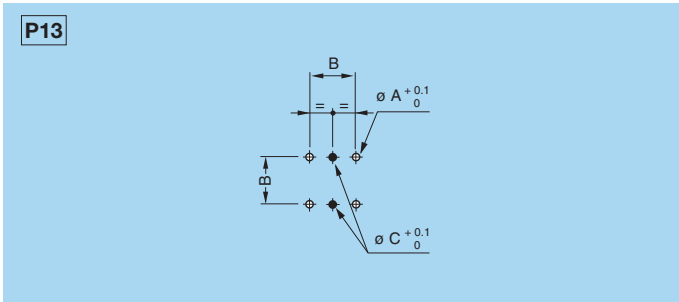
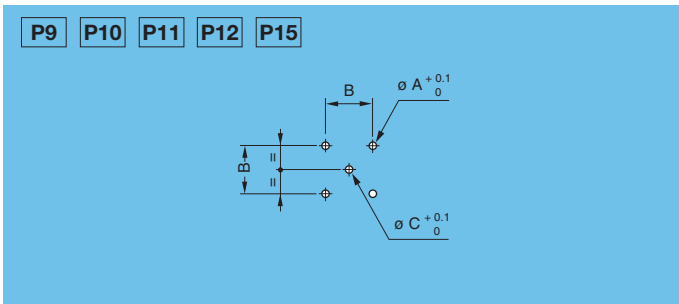


| Cut-out | Model | Dimensions | | | |
|---------|---|-----------------------|------|------|--------|
| | | A | B | L | e |
| P1 | ECP-EPE-EPR-EPS-ERC EWF-EXG-FAB-HGP HGW-SWH-VPS-XBG XSG-XRG | 7.1 | - | 14.5 | - |
| P2 | EWV | - | - | 12.0 | M7x0.5 |
| P3 | ERC-ERX | - | - | 9.0 | M7x0.5 |
| P4 | ERT | 6.92 ^{+0.02} | - | - | - |
| P5 | EHP-ELF-ERA-ERE-ERM ERN-FAA-FAN-PES-PFS PLK-PSA-PSG-PSS ¹⁾ | 7.1 | 6.4 | 14.5 | - |
| P6 | ABB | 9.7 | 9.0 | 15.0 | - |
| P7 | ABD | 12.9 | 11.7 | 20.5 | - |
| P8 | ANC | 16.1 | 13.7 | 24.0 | - |

Note: 1) If these models are used with a tapered washer GBB, the panel cut-out must be according P1.

Recommended mounting nut torque: 1 Nm.

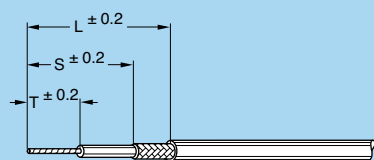
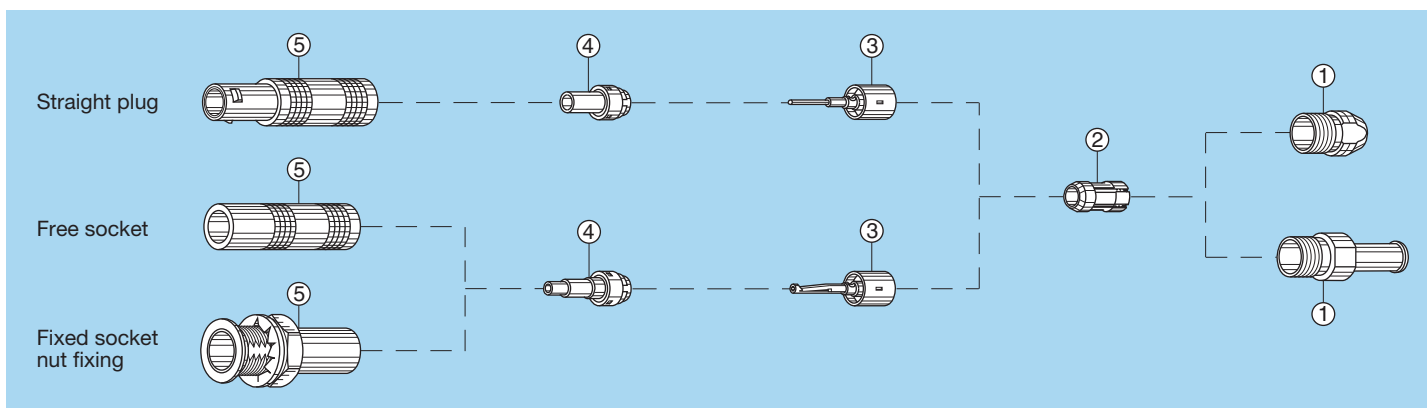
PCB drilling pattern



| Drill | Model | Dimensions | | |
|-------|--------------------------------|------------|------|-----|
| | | A | B | C |
| P9 | EPN | 1.0 | 5.08 | - |
| P10 | EPA-EPB-EPC-EPL-EPK EPM-FPL | 0.8 | 5.08 | 0.8 |
| P11 | FPA | 0.8 | 5.08 | 1.1 |
| P12 | EPE-EPS-EPR-XSG | 0.8 | 5.08 | 0.8 |
| P15 | HEP, EXG | 1.3 | 5.08 | 0.8 |
| P13 | EPY | 0.8 | 5.08 | 0.8 |
| P14 | XRG | 1.8 | 5.5 | 0.8 |

Cable assembly

Terminating of plugs and straight sockets with cable collet M1 M2 M3



1. Cable preparation

First place the bend relief (if to be used) on the cable. Strip the cable according to dimensions below.

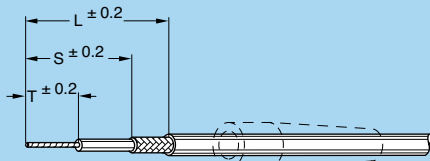
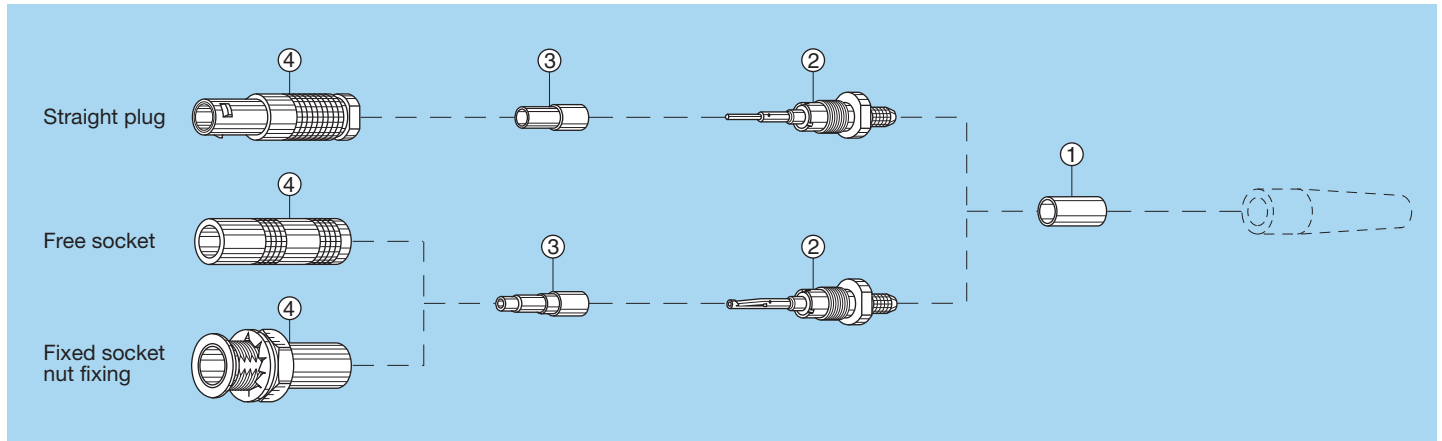
| Cable group | M1 | | | M2 | | | M3 | | |
|-------------|----|-----|---|-----|-----|----|----|---|---|
| | T | S | L | T | S | L | T | S | L |
| 1-2-3-4-8 | 4 | 4.5 | 9 | - | - | - | 5 | 5 | 8 |
| 6-7 | - | - | - | 7.5 | 8.5 | 13 | - | - | - |

2. Cable termination

- 2.1 Place the collet nut ① and the collet ② on the cable. Fold back the shield braid onto the conical part of the collet, and trim to the outer edge of the collet
- 2.2 Slide the subassembly ③ to trap the shield braiding and solder the central conductor into the contact.
- 2.3 Slide the insulator ④ onto the subassembly ③ until it rests against the earthing sleeve of the subassembly ③.
- 2.4 Slide the assembly into the connector outer shell ⑤. Screw the collet nut ① into the connector outer shell ⑤ using the appropriate tool and tighten to a torque of 0.25 Nm (see "Tooling" on page 35, 36 and 37). Push the bend relief (if used) onto the collet nut.

Note: these terminating instructions apply to the following models:
M1 = FFA, FFE, FFF, PCA, PSA
M2 = FFY
M3 = FFC

Terminating of plugs and straight sockets with cable crimping (crimp contact) M4



1. Cable preparation

First place the bend relief (if to be used) on the cable. Strip the cable according to dimensions below.

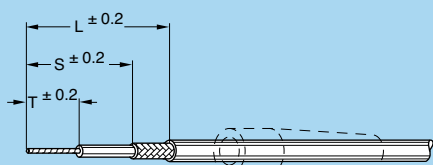
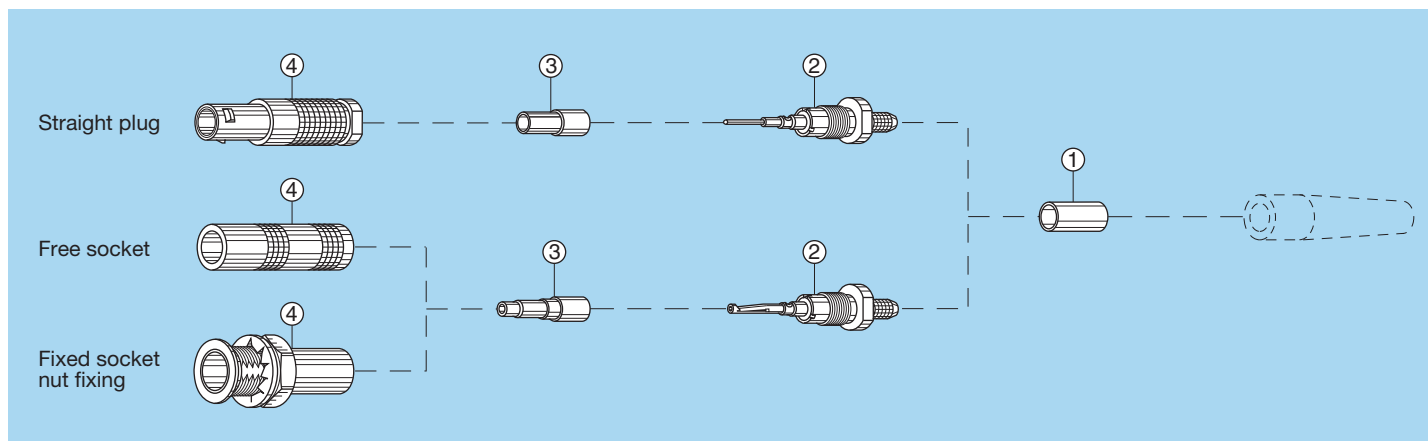
| Cable group | M4 | | |
|-------------|----|----|------|
| | T | S | L |
| 1-2-3-4-8 | 7 | 15 | 19.5 |
| 6-7 | 7 | 15 | 21.5 |

2. Cable termination

- 2.1 Place crimp ferrule ① on the cable. Widen the shield braid. Slide the subassembly ② into the cable until the insulator rests against the dielectric and the cable conductor is visible through the contact inspection hole.
- 2.2 Crimp the contact with the LEMO crimping tool using the square hole (see "Tooling" on page 37). Gently pull the cable in order to check the crimping.
- 2.3 Slide the crimp ferrule ① onto the shield until it rests against the crimp backnut of the subassembly ②. Crimp with the same LEMO crimping tool using the hexagonal opening. Slide the insulator ③ onto the subassembly ②.
- 2.4 Slide the assembly into the connector shell ④ and screw it onto the subassembly ②. Tighten using the appropriate tool to a torque of 0.25 Nm (see "Tooling" on page 35, 36 and 37). Push the bend relief (if used) onto the crimp ferrule ①.

Note: these terminating instructions apply to the following models:
M4 = FFS, FFV, PCS, PSS, PES

Terminating of plugs and straight sockets with cable crimping (solder contact) M5



1. Cable preparation

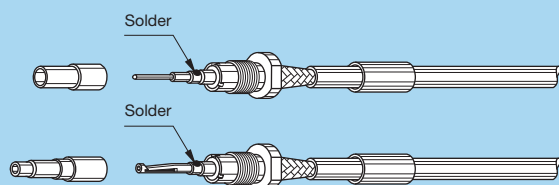
First place the bend relief (if to be used) on the cable. Strip the cable according to dimensions below.

| Cable group | M5 | | |
|-------------|----|----|----|
| | T | S | L |
| 1-2-3-4-8 | 5 | 12 | 17 |
| 6-7 | 5 | 12 | 19 |

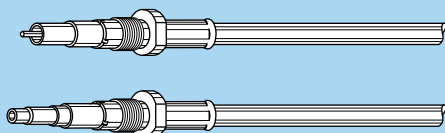
2. Cable terminating

2.1 Place the crimp ferrule ① on the cable. Widen the shield braid. Slide the subassembly ② over the cable until the insulator rests against the dielectric and the cable conductor is visible through the contact solder hole.

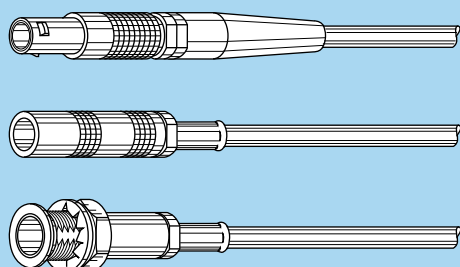
2.2 Solder the conductor through the hole.



2.3 Slide the crimp ferrule ① onto the shield until it rests against the crimp backnut of the subassembly ②. Crimp with the LEMO crimping tool using the hexagonal opening (see "Tooling" on page 37). Slide the insulator ③ onto the subassembly ②.

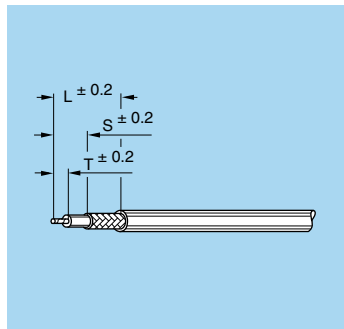
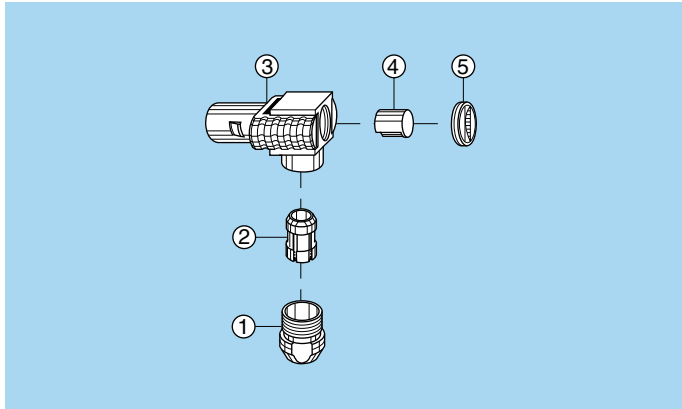


2.4 Slide the assembly into the connector shell ④ and screw it onto the subassembly ②. Tighten using the appropriate tool to a torque of 0.25 Nm (see tooling on pages 35, 36 and 37). Push the bend relief (if used) onto the crimp ferrule.



Note: these terminating instructions apply to the following models:
M5 = FFS, FFV

Terminating of elbow plugs (90°) with cable collet (solder contact) **M6** and cable crimp (solder contact) **M7**



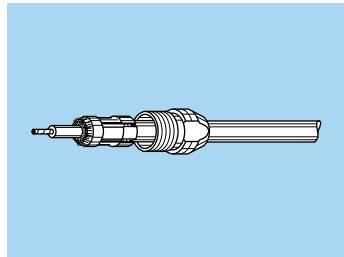
1. Cable preparation

First place the bend relief (if to be used) on the cable. Strip the cable according to dimensions below.

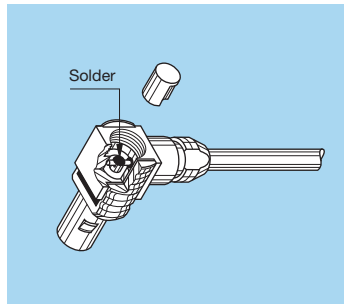
| Cable group | M6 | | |
|-------------|----|-----|-----|
| | T | S | L |
| 1-2-3-4-8 | 1 | 3.5 | 6.5 |

2. Cable terminating

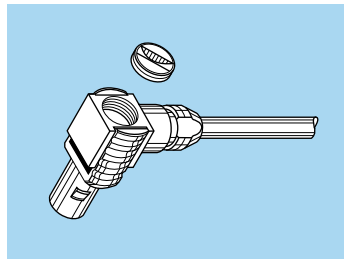
2.1 Place the collet nut ① and collet ② on the cable. Fold back the shield braid onto the conical part of the collet, and trim to outer edge of the collet.



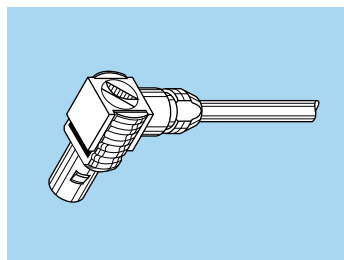
2.2 Slide the assembly into the connector shell ③ and tighten the collet nut ① using the appropriate tool to a torque of 0.25 Nm (see "Tooling" on page 35, 36 and 37). Check that the cable conductor rests in the contact slot, solder the conductor through the hole.



2.3 Place the insulating sleeve ④ over the soldered contact.

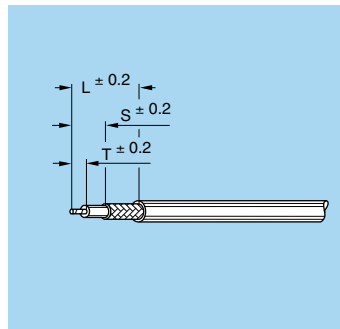
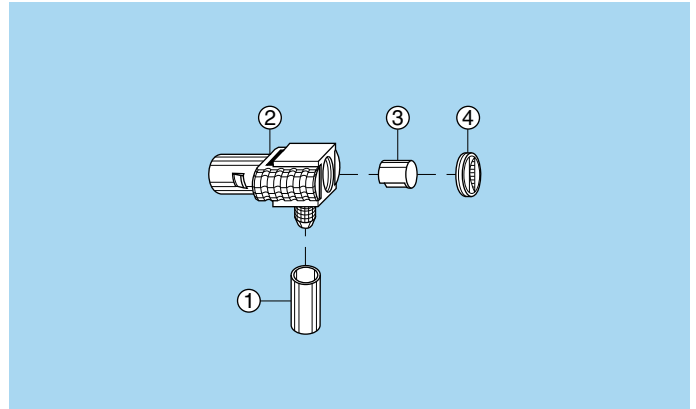


2.4 Close the access hole with the flat screw ⑤. Push the bend relief (if used) onto the collet nut ①.



Note: these terminating instructions apply to the following models:

M6 = FLA



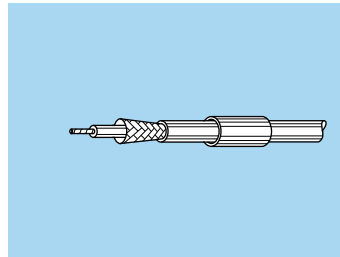
1. Cable preparation

First place the bend relief (if to be used) on the cable. Strip the cable according to dimensions below.

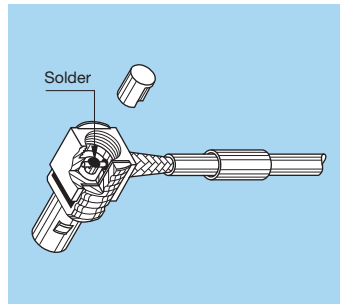
| Cable group | M7 | | |
|-------------|----|-----|----|
| | T | S | L |
| 1-2-3-4-8 | 1 | 4.5 | 9 |
| 6-7 | 3 | 4.5 | 11 |

2. Cable terminating

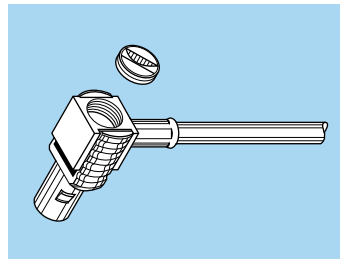
2.1 Place the cable crimp ferrule ① on the cable and widen the braiding.



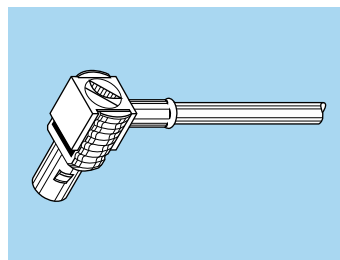
2.2 Slide the cable into the connector shell ②. Check that cable conductor rests in the contact slot, tin solder the conductor through the hole. Slide the crimp ferrule ① over the braiding until it reaches the connector shell ②. Crimp with the LEMO crimp tool using the hexagonal opening (see "Tooling" on page 37).



2.3 Place the insulating sleeve ③ over the soldered contact.

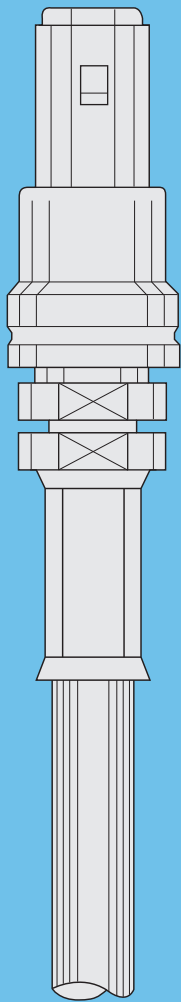
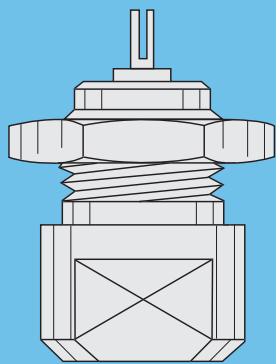


2.4 Close the connector hole with the flat screw ④. Push the bend relief (if used) onto the crimping tube ①.



Note: these terminating instructions apply to the following models:

M7 = FLS, FLV



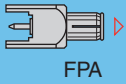
01 SERIES

01 Series

The plugs and sockets of the 01 series are amongst the smallest available 50 Ω coax connectors with a self-latching intermating capability. In spite of their small size and light weight, their technical characteristics remain excellent. Available in a wide range of housing configurations, they are especially useful when connecting onto printed circuit boards.

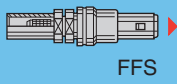
Metal housing models (page 46)

Fixed plug



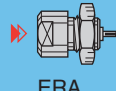
FPA

Straight plugs



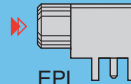
FFS

Fixed sockets



ERA

Elbow socket



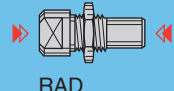
EPL

Fixed socket



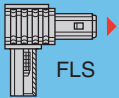
PSS

Fixed coupler



RAD

Elbow plugs



FLS

Straight plugs



FFH



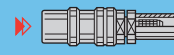
ECP

Plug with resistor



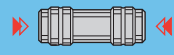
FRT

Free socket

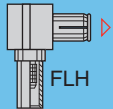


PCS

Free coupler



RMA

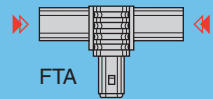


FLH



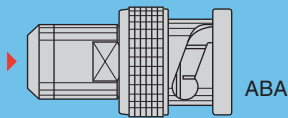
EPA

T-plug with two sockets



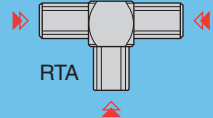
FTA

Adaptors (See page 50)



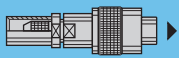
ABA

T-coupler



RTA

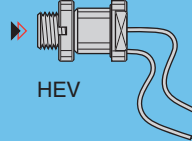
Threaded-latching models (See page 50)



FVS

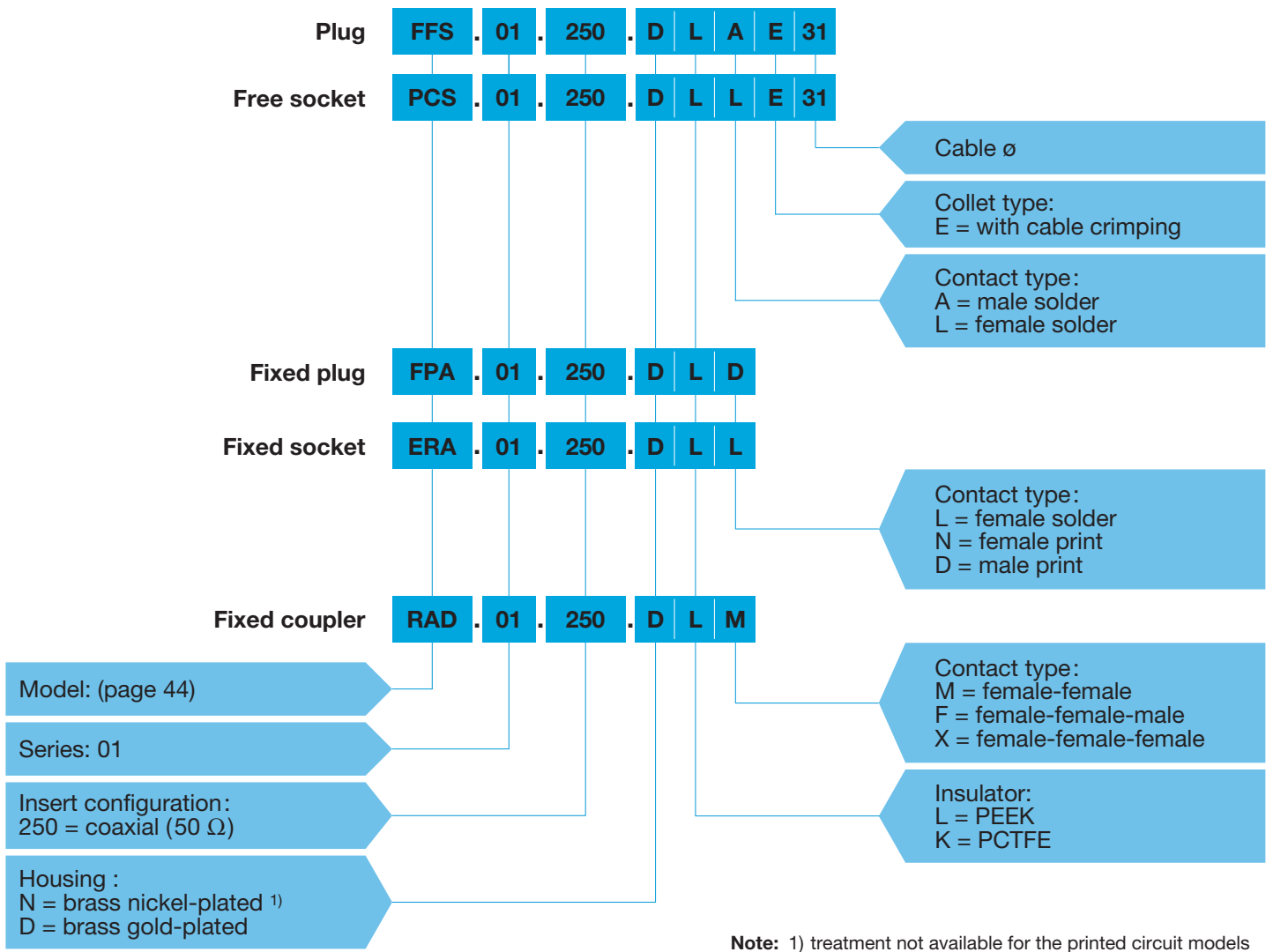


EVP



HEV

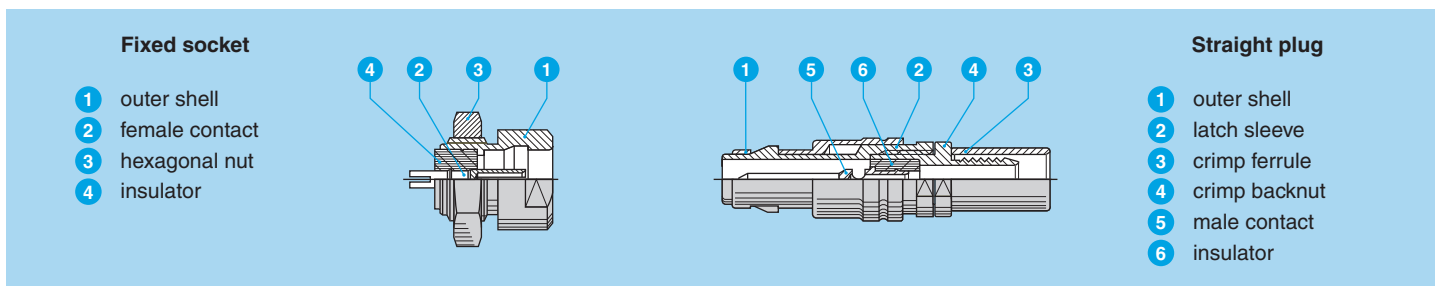
Part Numbering System



Part Number Example

FFS.01.250.DLAE31 = straight plug for cable crimping, 01 series, coaxial type 50 Ω, outer shell is gold-plated brass, PEEK insulator, male solder contact, type E crimp ferrule for cable group 2, 3 or 4.

Part Section Showing Internal Components





Metal housing models

Technical Characteristics

Mechanical and climatical

| Characteristics | Value | Standard | Test |
|------------------------------------|----------------|-------------|------|
| Contact retention force | > 60 N | IEC 69512-8 | 15a |
| Cable pull off force ¹⁾ | > 100 N | IEC 69512-9 | 17c |
| Connector pull off force | > 110 N | IEC 69512-8 | 15f |
| Endurance | > 1000 cycles | IEC 69512-5 | 9a |
| Operating temperature | - 55°C + 230°C | | |

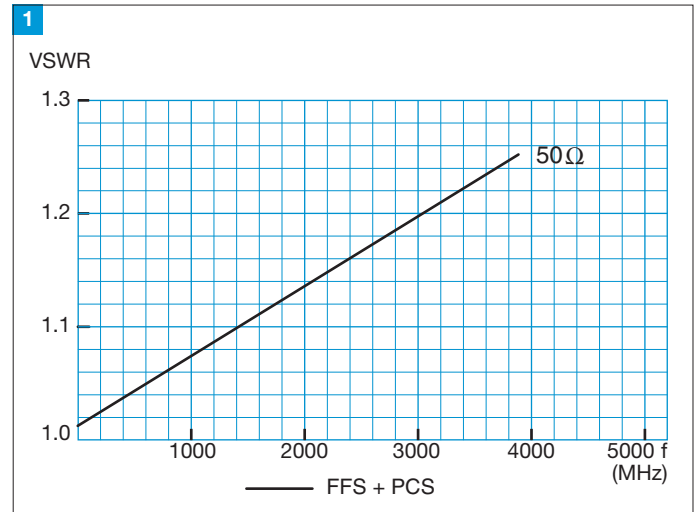
Note: ¹⁾ Depending on cable design
1N = 0.102 kg

Electrical

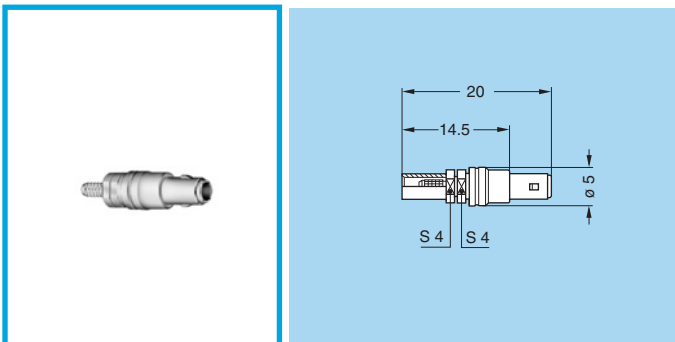
| Characteristics | Value | Standard | Method |
|---------------------------|----------------------|-------------|--------|
| Impedance | 50 Ω | - | |
| Operating voltage (50 Hz) | 0.3 kV rms | - | |
| Test voltage (50 Hz) | 1.0 kV rms | IEC 60512-2 | 4a |
| Rated current | 4 A | IEC 60512-3 | 5a |
| Contact resistance | < 6 m Ω | IEC 60512-2 | 2a |
| Screen resistance | < 3.5 m Ω | | |
| Insulating resistance | > 10 ¹² Ω | IEC 60512-2 | 3a |
| VSWR | see chart N°1 beside | | |

Voltage Standing Wave Ratio

The VSWR (Voltage Standing Wave Ratio) is the value representing the power reflected in a connection. In most cases, the working frequency range is where VSWR is ≤ 1.25.



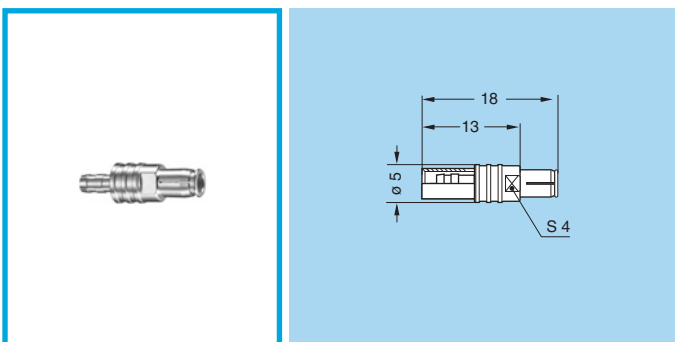
Note: VSWR measured with a RG-174 A/U cable. According to IEC 60169-1-1 standard



FFS Straight plug for cable crimping

| Part number | Cable group | Cond. Ø max | Dielectric Ø max | Sheath Ø max |
|-------------------|-------------|-------------|------------------|--------------|
| FFS.01.250.DLAE24 | 1 | 0.55 | 0.95 | 2.35 |
| FFS.01.250.DLAE31 | 2-3-4 | 0.55 | 1.65 | 3.0 |

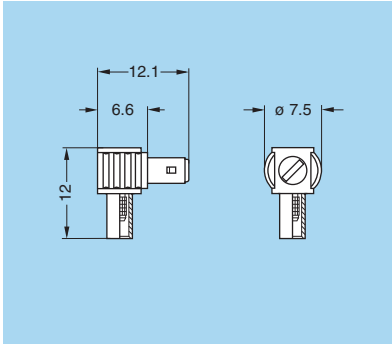
M1 Cable assembly (page 53)



FFH Straight plug, non-latching for cable crimping

| Part number | Cable group | Cond. Ø max | Dielectric Ø max | Sheath Ø max |
|-------------------|-------------|-------------|------------------|--------------|
| FFH.01.250.DLAE31 | 2-3-4 | 0.55 | 1.65 | 3.0 |

M1 Cable assembly (page 53)

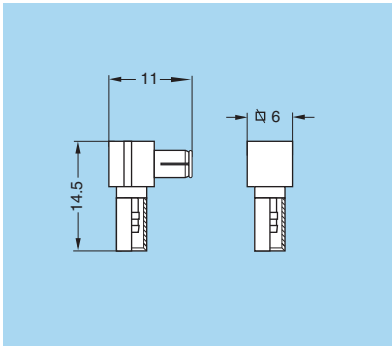


FLS Elbow plug (90°) for cable crimping

| Part number | Cable group | Cond. Ø max | Dielectric Ø max | Sheath Ø max |
|-------------------|-------------|-------------|------------------|--------------|
| FLS.01.250.●LAE24 | 1 | 0.5 | 0.95 | 2.35 |
| FLS.01.250.●LAE31 | 2-3-4 | 0.5 | 1.65 | 3.0 |

M2 Cable assembly (page 53)

● = material of shell D or N

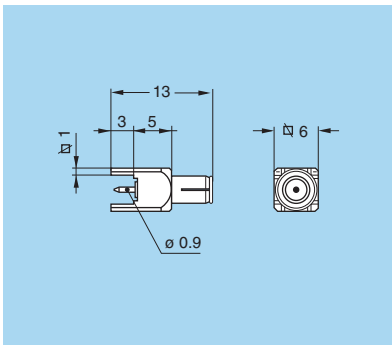


FLH Elbow plug (90°) non-latching, for cable crimping

| Part number | Cable group | Cond. Ø maxi | Dielectric Ø maxi | Sheath Ø maxi |
|-------------------|-------------|--------------|-------------------|---------------|
| FLH.01.250.●LAE31 | 2-3-4 | 0.4 | 1.65 | 3.0 |

M3 Cable assembly, crimp contact (page 53)

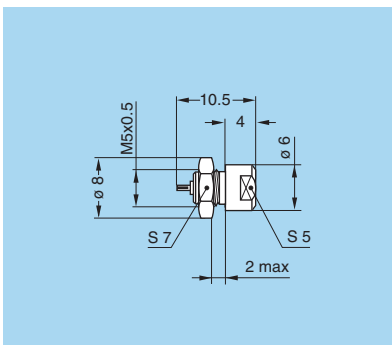
● = material of shell D or N



FPA Straight plug, non-latching, for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| FPA.01.250.DLD | 1.5 |

P4 PCB drilling pattern (page 53)

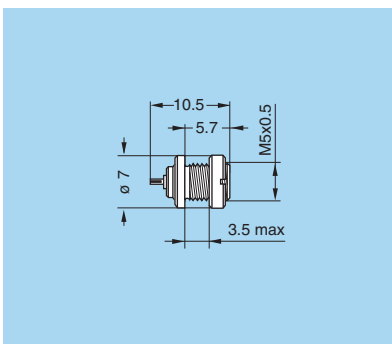


ERA Fixed socket, nut fixing

| Part number | Weight (g) |
|----------------|------------|
| ERA.01.250.●LL | 1.3 |

P1 Panel cut-out (page 53)

● = material of shell D or N

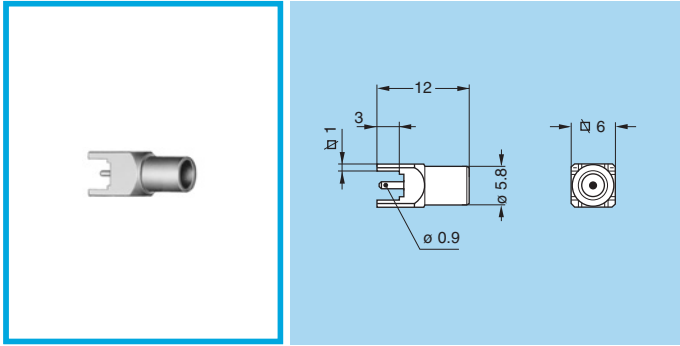


ECP Fixed socket, nut fixing (back panel mounting)

| Part number | Weight (g) |
|----------------|------------|
| ECP.01.250.●LL | 1.1 |

P1 Panel cut-out (page 53)

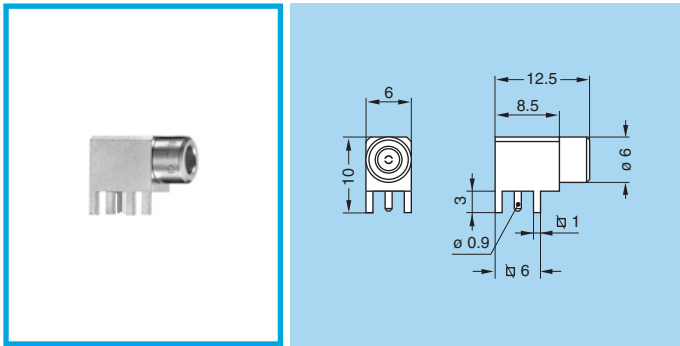
● = material of shell D or N



EPA Straight socket for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| EPA.01.250.DLN | 1.6 |

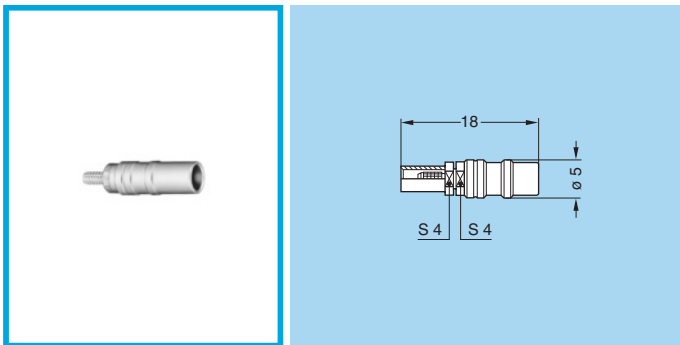
P4 PCB drilling pattern (page 53)



EPL Elbow socket (90°) for printed circuit

| Part number | Weight (g) |
|----------------|------------|
| EPL.01.250.DLN | 3.2 |

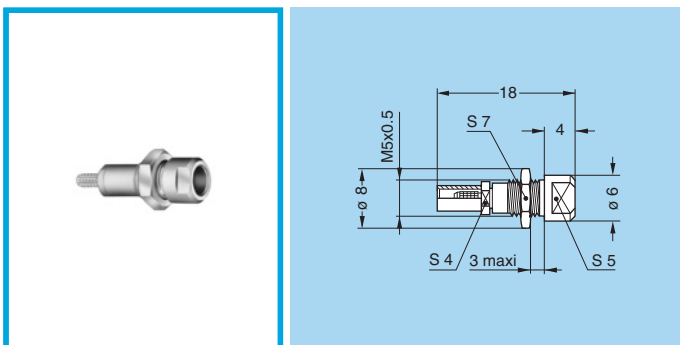
P4 PCB drilling pattern (page 53)



PCS Free socket for cable crimping

| Part number | Cable group | Cond. Ø max | Dielectric Ø max | Sheath Ø max |
|-------------------|-------------|-------------|------------------|--------------|
| PCS.01.250.DLLE24 | 1 | 0.55 | 0.95 | 2.35 |
| PCS.01.250.DLLE31 | 2-3-4 | 0.55 | 1.65 | 3.0 |

M1 Cable assembly (page 53)

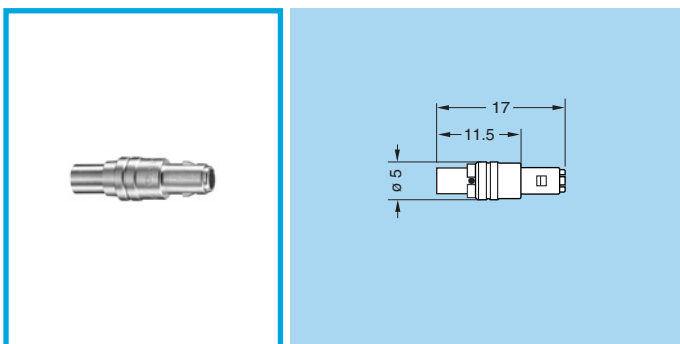


PSS Fixed socket, nut fixing, for cable crimping

| Part number | Cable group | Cond. Ø max | Dielectric Ø max | Sheath Ø max |
|-------------------|-------------|-------------|------------------|--------------|
| PSS.01.250.DLLE24 | 1 | 0.55 | 0.95 | 2.35 |
| PSS.01.250.DLLE31 | 2-3-4 | 0.55 | 1.65 | 3.0 |

M1 Cable assembly (page 53)

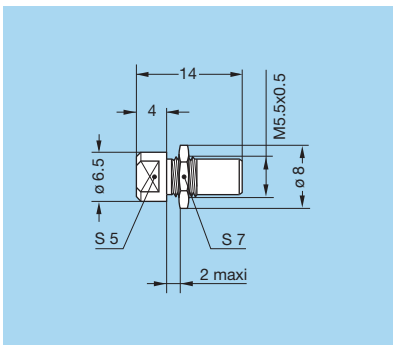
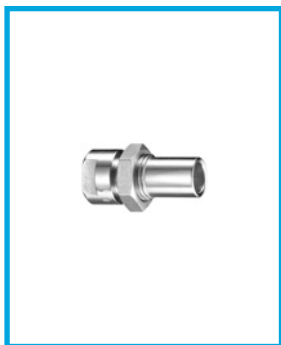
P1 Panel cut-out (page 53)



FRT Straight plug with resistor

| Part number | Resistor | Weight (g) |
|------------------|-----------|------------|
| FRT.01.250.DLA50 | 50 Ω 0.6W | 1.0 |

Note: Non standard, on request only

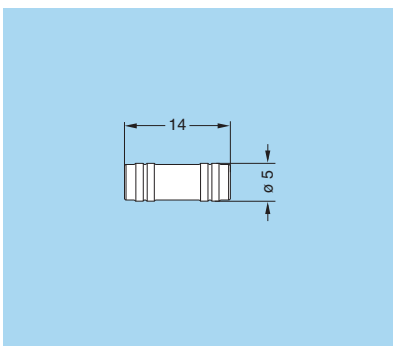
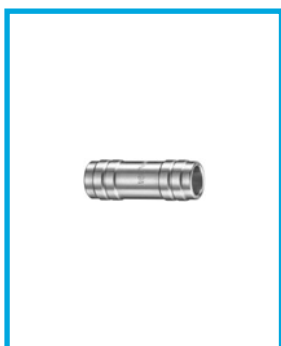


RAD Fixed coupler, nut fixing

| Part number | Weight (g) |
|----------------|------------|
| RAD.01.250.DLM | 1.8 |

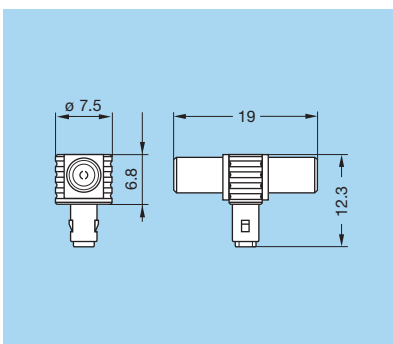
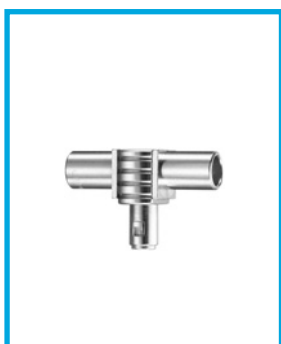
P2 Panel cut-out (page 53)

Note: Non standard, on request only



RMA Free coupler

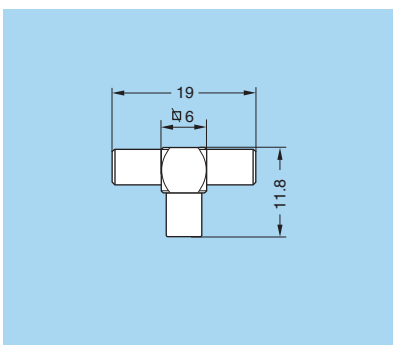
| Part number | Weight (g) |
|----------------|------------|
| RMA.01.250.DLM | 1.1 |



FTA T-plug with two sockets in line

| Part number | Weight (g) |
|----------------|------------|
| FTA.01.250.DLF | 2.6 |

Note: Non standard, on request only

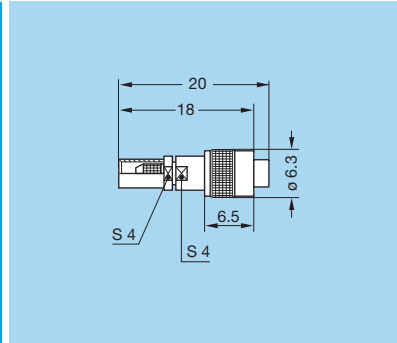
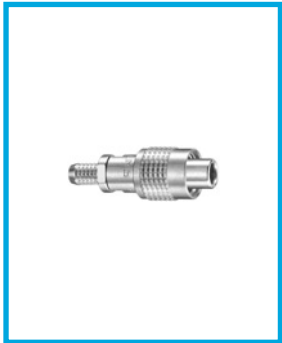


RTA T-coupler with three sockets

| Part number | Weight (g) |
|----------------|------------|
| RTA.01.250.DLX | 2.5 |



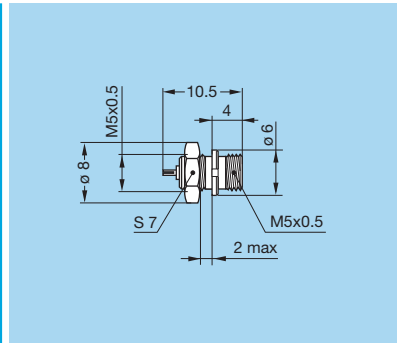
Threaded-latching models



FVS Straight plug, threaded latching for cable crimping

| Part number | Cable group | Cond. Ø max | Dielectric Ø max | Sheath Ø max |
|-------------------|-------------|-------------|------------------|--------------|
| FVS.01.250.NKAE31 | 2-3-4 | 0.55 | 1.65 | 3.0 |

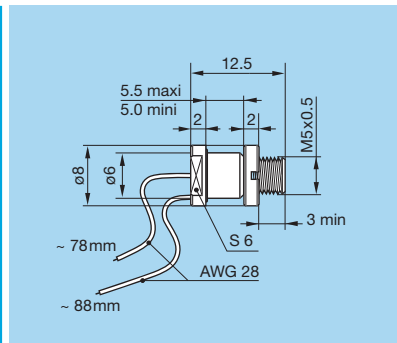
M1 Cable assembly (page 53)



EVP Fixed socket, nut fixing for threaded latching plug

| Part number | Weight (g) |
|----------------|------------|
| EVP.01.250.NKL | 1.2 |

P1 Panel cut-out (page 53)



HEV Fixed socket, round nut fixing for threaded latching plug, watertight (back panel mounting)

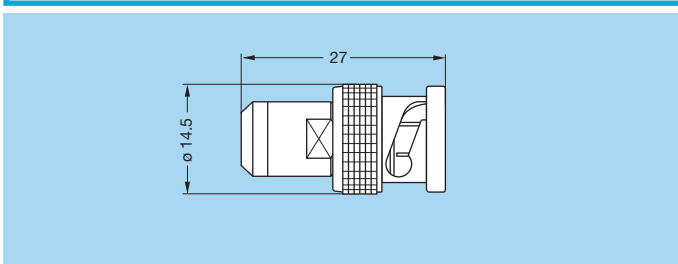
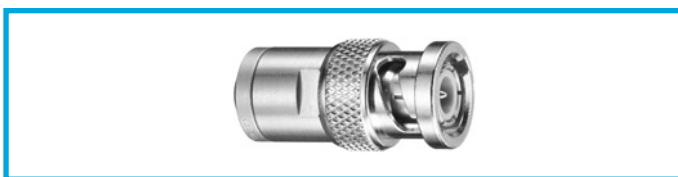
| Part number | Weight (g) |
|----------------|------------|
| HEV.01.250.NKL | 2.3 |

P3 Panel cut-out (page 53)

Note: this model is fitted with 2 wires AWG28 soldered before potting



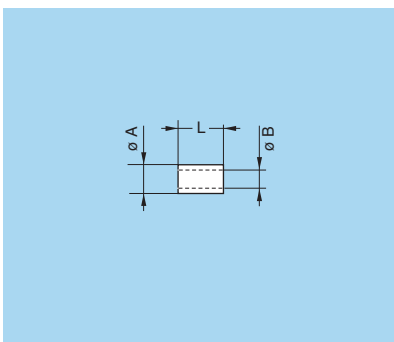
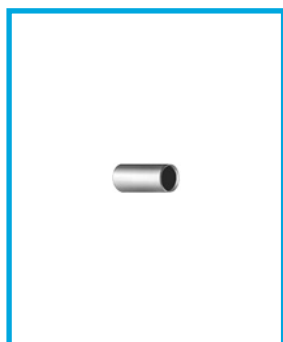
Adaptors



ABA Adaptor from LEMO socket to BNC plug

| Part number | Weight (g) |
|----------------|------------|
| ABA.01.250.NLL | 17.5 |

Spare parts

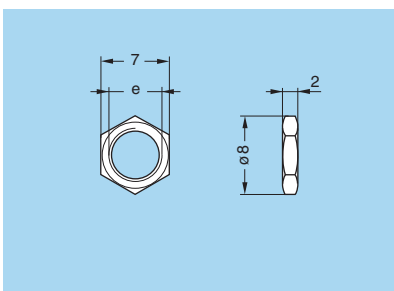


FFS Crimp ferrule

| Part number | Cable group | Dim. | | |
|-----------------------------|-------------|------|------|---|
| | | ØA | ØB | L |
| FFS.01.160.DA | 1 | 3.1 | 2.4 | 6 |
| FFS.01.161.DA | 2-3-4 | 3.8 | 3.05 | 6 |
| FFH.01.161.D• ¹⁾ | 2-3-4 | 3.8 | 3.1 | 7 |

Note: ¹⁾ for models FFH and FLH
Sockets and plugs to be crimped are always supplied with a crimp ferrule. To order this accessory separately, use the above part numbers.

- Material: Copper (UNS C 18700) nickel (3µm) + gold plated (0.5µm)

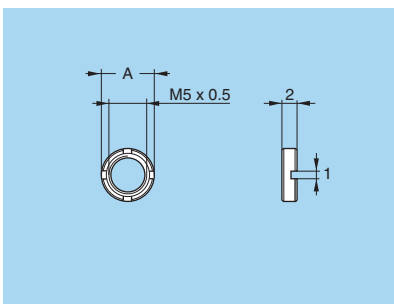


GEA Hexagonal nut

| Part number | e (mm) | Models | Weight (g) |
|---------------|----------|---------------|------------|
| GEA.01.240.LN | M5x0.5 | ERA, EVP, PSS | 0.39 |
| GEA.01.241.LN | M5.5x0.5 | RAD | 0.31 |

Note: to order this accessory separately, use the above part number.

- Material: Brass (UNS C 38500) nickel-plated (3 µm)



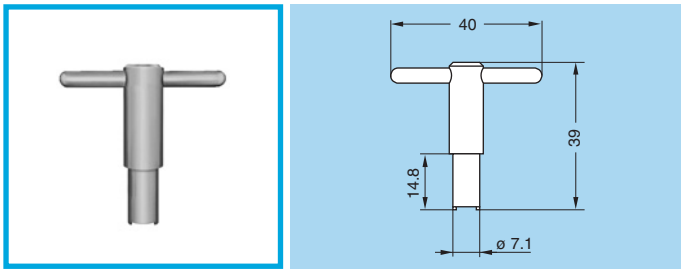
GEB Round nut

| Part number | A (mm) | Models | Slot nb. | Weight (g) |
|---------------|--------|--------|----------|------------|
| GEB.01.240.LN | Ø 7 | ECP | 2 | 0.30 |
| GEB.01.244.LN | Ø 8 | HEV | 4 | 0.50 |

Note: to order this accessory separately, use the above part number.

- Material: Brass (UNS C 38500) nickel-plated (3 µm)

Tooling



DCB Spanner for round nut (for ECP and HEV model)

| Part number | Part number of the nut |
|----------------|-------------------------------|
| DCB.91.097.0TN | GEB.01.240.LN / GEB.01.244.LN |

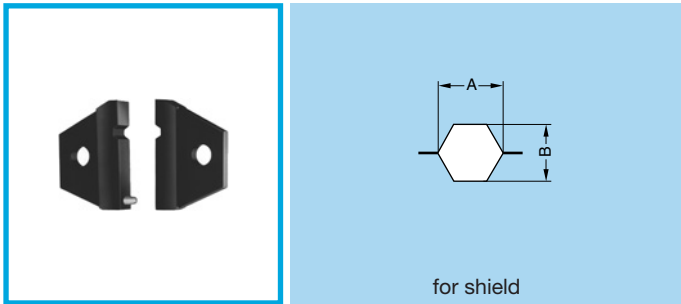
- Material: Blackened steel



DPE Crimping tool with die

| Part number | Cable group | Crimp collet ref. |
|-----------------------------|---------------------------|-------------------|
| DPE.99.000.00 | Crimping tool with no die | |
| DPE.99.003.1K ¹⁾ | 1 | E24 |
| DPE.99.003.8K ²⁾ | 2-3-4 | E31 |

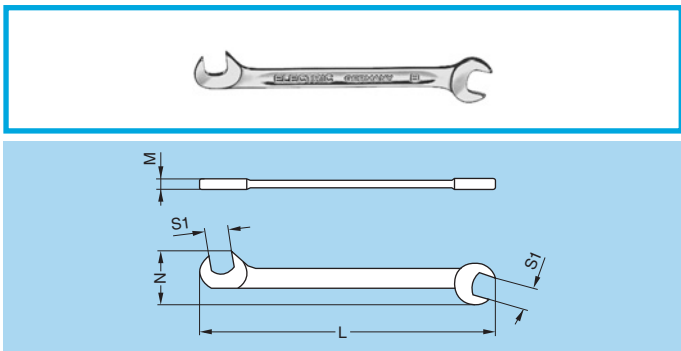
Note: 1) Hex cavity of DPE.99.123.1K can also be used
2) Hex cavity of DPE.99.123.8K can also be used



DPN Dies

| Part number | Cable group | Die dimension For shield | |
|---------------|-------------|--------------------------|------|
| | | A | B |
| DPN.91.003.1K | 1 | 3.10 | 2.70 |
| DPN.91.003.8K | 2-3-4 | 3.80 | 3.30 |

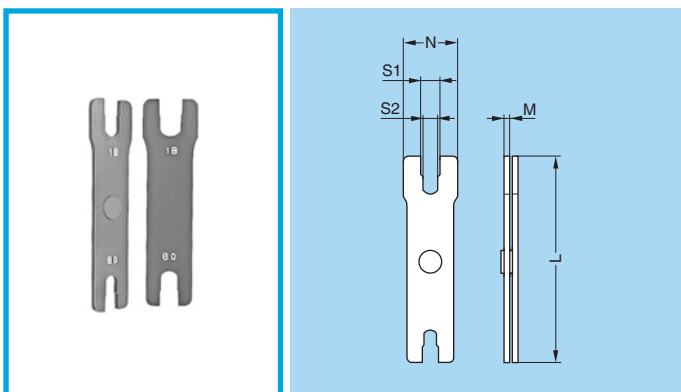
- Dies material: Blackened steel



DCP Flat spanner

| Part number | Dimensions (mm) | | | |
|---------------|-----------------|------|------|-----|
| | L | M | N | S1 |
| DCP.99.040.TC | 70 | 0.95 | 10.5 | 4.0 |
| DCP.99.045.TC | 70 | 2.00 | 10.5 | 4.5 |
| DCP.99.050.TC | 78 | 2.00 | 12.6 | 5.0 |
| DCP.99.055.TC | 78 | 2.00 | 12.6 | 5.5 |
| DCP.99.060.TC | 78 | 2.00 | 12.6 | 6.0 |

- Material: Chrome-plated steel



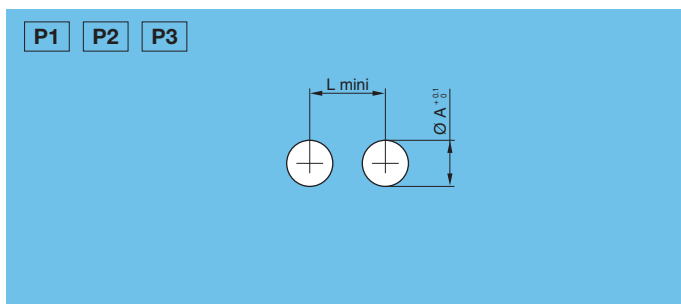
DCP Set of flat spanners

| Part number | Dimensions | | | | |
|---------------|------------|-----|----|-----|-----|
| | L | M | N | S1 | S2 |
| DCP.91.001.TN | 95 | 2.5 | 21 | 8.1 | 7.1 |

- Material: Blackened steel

Panel cut-outs

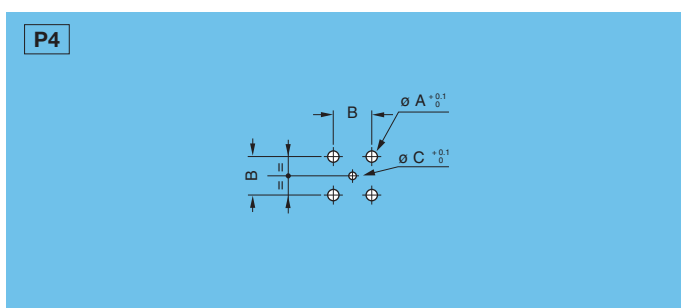
Panel cut-out



| Cut-out | Model | Dimensions | |
|---------|-----------------|------------|------|
| | | A | L |
| P1 | ERA-ECP-EVP-PSS | 5.1 | 9.5 |
| P2 | RAD | 5.6 | 10.0 |
| P3 | HEV | 6.1 | 10.0 |

Recommended mounting nut torque: 1.5 Nm.

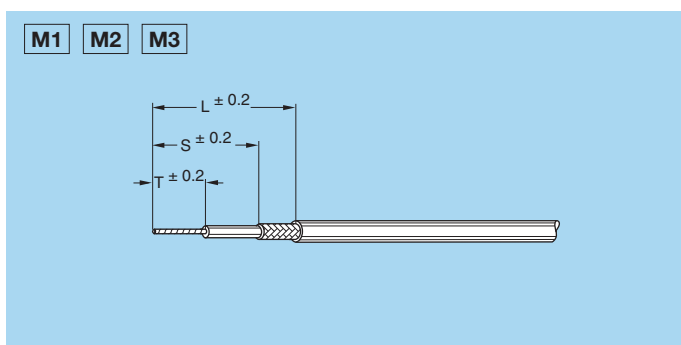
PCB drilling pattern



| Drill | Model | Dimensions | | |
|-------|---------------|------------|------|-----|
| | | A | B | C |
| P4 | EPA, FPA, EPL | 1.5 | 5.08 | 1.0 |

Cable assembly

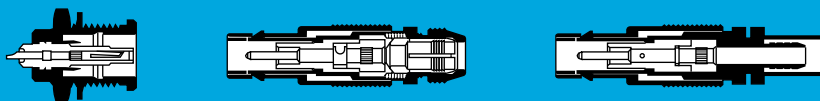
Terminating of plugs and straight sockets with cable crimping (solder contact) M•



The cable assembly of the 01.250 requires specific stripping dimensions. See below. However the procedure is similar to the 00.250 series. See pages 41 and 42.

| Cable assembly | Model | T | S | L | Instruction of the 00 series to use as a reference |
|----------------|------------------------|-----|---|-----|--|
| M1 | FFH-FFS-FVS PCS-PSS | 3.5 | 6 | 10 | M5 (page 41) |
| M2 | FLS | 1.2 | 4 | 8.5 | M7 (page 42) |
| M3 | FLM | 1.2 | 4 | 10 | M7 (page 42) |

Technical Characteristics



Outer Shell

Brass

LEMO series 00 & 01 connectors have a brass outer shell as standard, and this is suitable for most general purpose applications, including civilian and military.

The brass outer shells have a nickel-plated surface which ensures very good protection against most environments. Alternative protective coatings available are:

- Nickel-chrome offering higher protection against salt air and most corrosive agents
- Nickel-gold
- Nickel-black chrome. After the black chrome treatment, the part is coated with a protective film.

The shell surface is protected by anodizing which is available in six colors: blue, yellow, black, red, green, and natural.

Plastic Materials

A PEEK outer shell is available which offers excellent insulating properties and is mostly used in the medical industry. This material is suitable for gas or steam sterilization.

Other Metallic Components

In general, other components are manufactured from brass. However, bronze is used where good elasticity is required (for example: earthing crown).

These parts are nickel or nickel-gold plated depending on the utilization.

Materials and Treatment

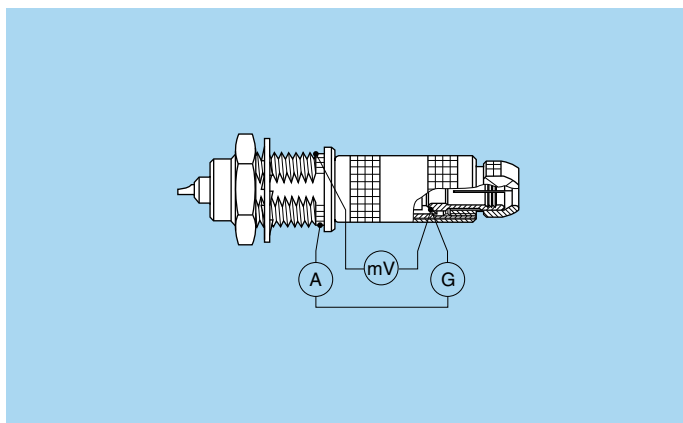
| Component | Material (Standard) | Surface Treatment (µm) | | | | | | | | | | |
|---|----------------------|------------------------|----|--------|----|-----|------|----|-----|--------------|----|----|
| | | Nickel | | Chrome | | | Gold | | | Black Chrome | | |
| | | Cu | Ni | Cu | Ni | Cr | Cu | Ni | Au | Cu | Ni | Cr |
| Outer shell, collet nut, conical nut or notched nut | Brass (UNS C 38500) | 0.5 | 3 | 0.5 | 3 | 0.3 | 0.5 | 3 | 0.5 | – | 1 | 2 |
| | Aluminium alloy | anodized | | | | | | | | | | |
| | PEEK | beige colored | | | | | | | | | | |
| Earthing crown | Cu-Be (UNS C 17300) | 0.5 | 3 | – | – | – | 0.5 | 3 | 1.5 | – | – | – |
| Latch sleeve | Special Brass | 0.5 | 3 | – | – | – | 0.5 | 3 | 1.5 | – | – | – |
| Crimp ferrule | Copper (UNS C 18700) | 0.5 | 3 | – | – | – | 0.5 | 3 | 1.5 | – | – | – |
| Locking washer | Bronze (UNS C 52100) | 0.5 | 3 | – | – | – | 0.5 | 3 | 0.5 | – | – | – |
| Hexagonal nut | Brass (UNS C 38500) | 0.5 | 3 | – | – | – | 0.5 | 3 | 0.5 | – | – | – |
| Other metallic components | Brass (UNS C 38500) | 0.5 | 3 | – | – | – | 0.5 | 3 | 0.5 | – | – | – |
| O-ring and gaskets | Silicone or FPM | without treatment | | | | | | | | | | |
| Sealing resin | Epoxy | – | | | | | | | | | | |

Notes: The surface treatment standards are as follows:

- nickel SAE AMS QQ N 290, or MIL DTL 32119
- chrome SAE AMS 2460
- gold ISO 27874
- black chrome MIL DTL 14538 with a minimum of 10 µm lacquer protection

Electrical Characteristics

Shell electrical continuity (measured according to IEC 60512-2 test 2f)



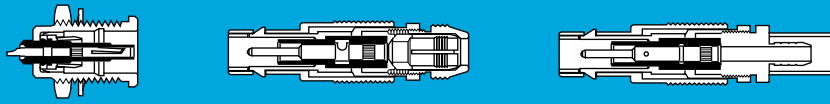
R₁ Values with earthing crown and latch sleeve or inner-sleeve nickel plated.

R₂ Values with gold-plated earthing crown and nickel plated latch sleeve or inner-sleeve.

R₃ Values with earthing crown and gold-plated latch sleeve or inner-sleeve.

| Serie 00 | | | Serie 01 | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| R ₁ (mΩ) | R ₂ (mΩ) | R ₃ (mΩ) | R ₁ (mΩ) | R ₂ (mΩ) | R ₃ (mΩ) |
| 3.5 | 2.8 | 2.0 | N.A | 2.3 | 1.5 |

Testing current: 1A
 A = Ammeter
 mV = Millivoltmeter
 G = Generator



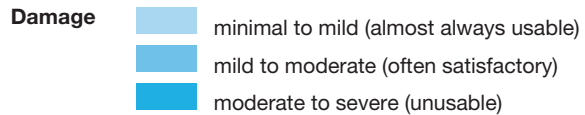
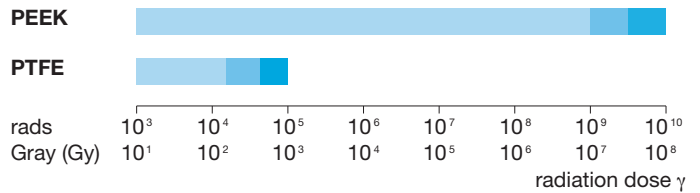
Insulator

Technical Description

LEMO uses virgin quality PTFE for the insulator material of coaxial connectors, which guarantees excellent insulating properties.

LEMO also proposes PEEK (Polyether Etherketone). Its higher mechanical strength and excellent radiation resistance make it ideal for most applications.

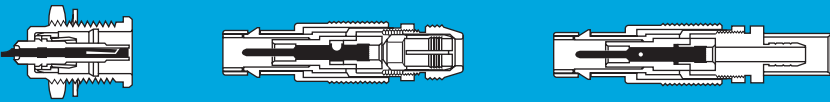
Radiation resistance



Technical Characteristics

| Property | Test method | Unit | PEEK | PTFE |
|--|------------------------|--------------------------|-----------|----------------|
| Dielectric strength | ASTM D 149 / IEC 60243 | kV/mm | 19 - 25 | 17.2 - 24 |
| Volume resistivity at 50% HR and 23°C | ASTM D 257 / IEC 60093 | $\Omega \cdot \text{cm}$ | 10^{16} | 10^{18} |
| Surface resistivity | ASTM D 257 / IEC 60093 | Ω | 10^{15} | 10^{17} |
| Thermal conductivity | ASTM C 177 | W/K · m | 0.25 | 0.23 |
| Comparative tracking index | IEC 60112 | V | CTI 150 | CTI 500 |
| Dielectric constant (10 ⁶ Hz) | ASTM D 150 / IEC 60250 | - | 3.2 - 3.5 | 2 - 2.1 |
| Dissipation factor (10 ⁶ Hz) | ASTM D 150 / IEC 60250 | - | < 0.005 | < 0.0003 |
| Maximum continuous service temperature | - | °C | 250 | 260 |
| Minimum continuous service temperature | - | °C | -53 | -200 |
| Water absorption in 24h at 23°C | ASTM D 570 / ISO R624 | % | < 0.3 | < 0.01 |
| Radiation resistance | - | Gy | 10^7 | $2 \cdot 10^2$ |
| Flammability rating | UL 94 / UL 94 | - | V 0 | V 0 |

Note: the technical data contained in this chapter gives a general information about plastic materials used by LEMO as electrical insulator materials. LEMO reserves the right to propose new material which would have higher technical characteristics and to withdraw any material contained in this publication or others from LEMO and its subsidiary companies. LEMO only uses granulated, powdered plastic materials or bars from specialized suppliers. LEMO is not responsible, in any case, for these materials.

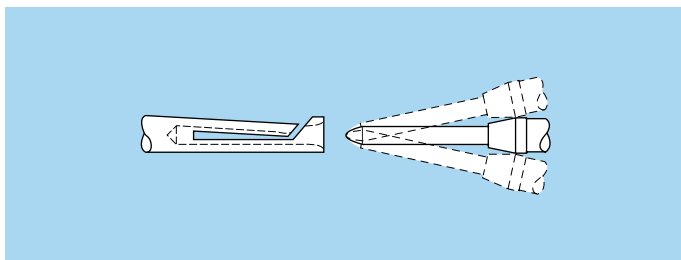


Electrical Contact

Technical Description

The secure, reliable electromechanical connection achieved with LEMO female contacts is mainly due to two important design features:

1. *Prod proof entry* which ensures perfect concentric mating even with well used and/or carelessly handled connectors.
2. *The pressure spring* that maintains a constant, even force on the male contact when mated. The leading edge of the spring is chamfered to slide smoothly on the male contact, preserving the gold-plated surface treatment and preventing undue wear.



Contact Material

LEMO female electrical contacts are made from bronze (UNS C 54400). Bronze is chosen because of its high modulus of elasticity, its excellent electrical conductivity and a high mechanical strength.

LEMO male solder and print contacts are made from brass (UNS C 38500). Male crimp contacts are made from brass (UNS C 34500) which is ideal for crimping onto the electrical conductor.

Conductor retention method

Both male and female contacts are available in crimp, solder or print versions.

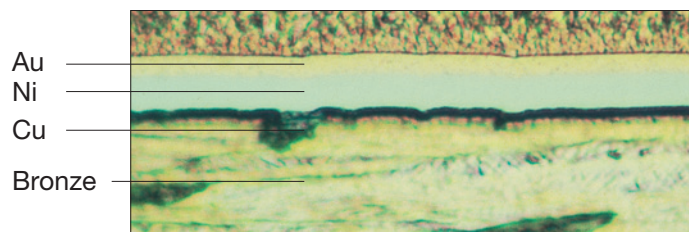
Insulation resistance between the contacts and contact/shell

(measured according to IEC 60512-2 test 3a)

| Insulating material | Multipole | Unipole |
|-----------------------------------|--------------------|--------------------|
| | PEEK | PTFE |
| new | $> 10^{12} \Omega$ | $> 10^{12} \Omega$ |
| after humidity test ¹⁾ | $> 10^{10} \Omega$ | $> 10^{10} \Omega$ |

Note: ¹⁾ 21 days at 95% RH according to IEC 60068-2-3.

Materials and Treatments



Notes: the standard surface treatments are as follows:

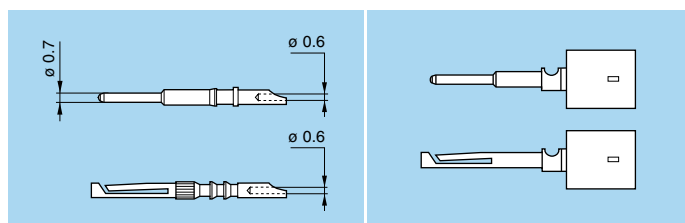
- Nickel SAE AMS QQ N 290 or MIL DTL 32119
- Gold ISO 27874

| Type | Material (Standard) | Surface treatment (μm) | | |
|---------------|----------------------|------------------------|----|------------------|
| | | Cu | Ni | Au ¹⁾ |
| Male solder | Brass (UNS C 38500) | 0.5 | 3 | 1.0 |
| Male crimp | Brass (UNS C 34500) | | | |
| Male print | Brass (UNS C 38500) | | | |
| Female solder | Bronze (UNS C 54400) | 0.5 | 3 | 1.5 |
| Female crimp | | | | |
| Female print | | | | |

¹⁾ minimum value

Solder Contacts

The conductor bucket of these contacts is machined at an angle to form a cup into which the solder can flow. Design is compatible with the use of lead-free solder.

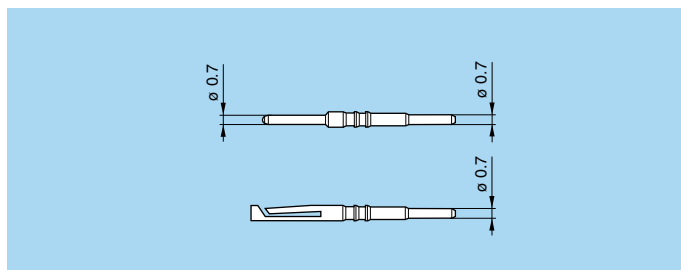


Features of the LEMO crimp contacts:

- Quick and simple assembly
- Insulator is not heated during contact to conductor assembly
- High temperature applications possible
- Increased conductor retention force

Print contacts

Print contacts are available in certain connectors versions, mostly for the straight or elbow sockets models. Connection is made on flexible or rigid printed circuits by soldering



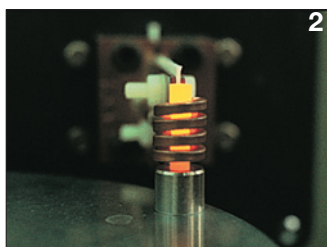
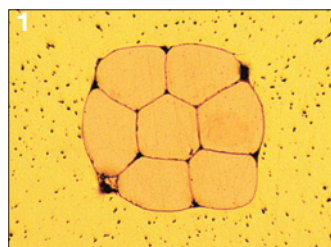
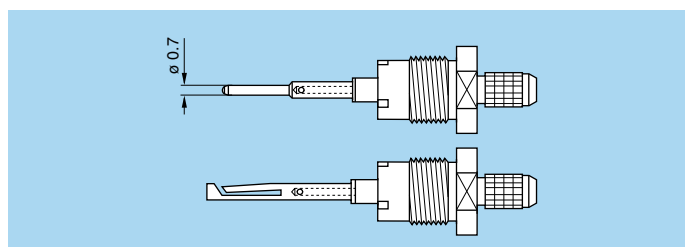
Crimp Contacts

The square form crimp method is used (MIL-C-22520F, type 2) (photo 1).

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 enables correct positioning of the conductor within the contact to be verified. A good crimping is characterized by a small conductor section reduction and by the quite closed free spaces.

The LEMO crimp contacts are factory annealed to relieve internal stresses, and reduce the risk of the material work hardening during the crimping process.

During this process, an induction heating machine designed by LEMO's Research and Development Department is used (photo 2).



Contact Resistance in Relation to Numbers of Mating Cycles (measured according to IEC 605/2-2 test 2a)

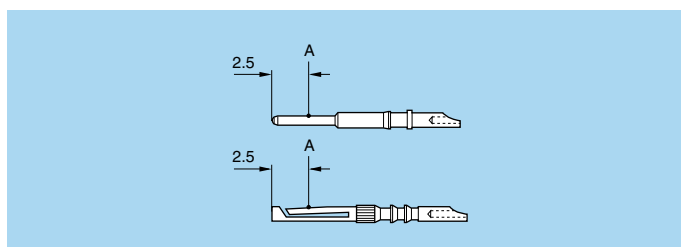
| Contact resistance (mΩ) | | |
|-------------------------|-------------|-------------|
| 1000 cycles | 3000 cycles | 5000 cycles |
| 5.6 | 5.7 | 6.1 |

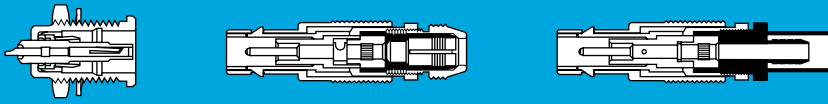
Maximum values measured after the mating cycles and the salt spray test according to IEC 60512-6 test 11f.

Thickness comparison between the outside and the inside of female contacts

| male (μm) | Gold thickness | |
|-----------|----------------|------------|
| | outside (μm) | inside (%) |
| 1.0 | 1.5 | 70 |

A = inspection point





Cable Fixing

Cable fixing onto LEMO connectors is determined by the connector model. This is achieved either with a cable collet system or with hexagonal crimping (MIL-C-22520F, type 2).

The collet system cable fixing is made without any special tooling. The crimping method guarantees a good electrical continuity of the shield which improves greatly the shielding efficiency of the cable/connector link.

Material and Treatment

| Component | Material (Standard) | Surface Treatment (µm) | |
|-----------------|----------------------|------------------------|----|
| | | Cu | Ni |
| Earthing sleeve | Brass (UNS C 38500) | 0.5 | 3 |
| Collet | Brass (UNS C 38500) | 0.5 | 3 |
| Crimp ferrule | Copper (UNS C 18700) | 0.5 | 3 |
| Collet nut | Brass (UNS C 38500) | 0.5 | 3 |

Note: collet nut tightening torque: maximum 0.25 Nm (1N = 0.102 kg)

Technical tables

VSWR effect on transmitted power

| VSWR | VSWR (dB) | Return loss (dB) | Transmiss. loss (dB) | Reflected voltage coefficient | Transmit. power (%) | Reflected power (%) |
|------|-----------|------------------|----------------------|-------------------------------|---------------------|---------------------|
| 1.00 | 0 | | 0.000 | 0.00 | 100.0 | 0.0 |
| 1.01 | 0.1 | 46.1 | 0.000 | 0.00 | 100.0 | 0.0 |
| 1.02 | 0.2 | 40.1 | 0.000 | 0.01 | 100.0 | 0.0 |
| 1.03 | 0.3 | 36.6 | 0.001 | 0.01 | 100.0 | 0.0 |
| 1.04 | 0.3 | 34.2 | 0.003 | 0.03 | 100.0 | 0.0 |
| 1.05 | 0.4 | 32.3 | 0.003 | 0.02 | 99.9 | 0.1 |
| 1.06 | 0.5 | 30.7 | 0.004 | 0.03 | 99.9 | 0.1 |
| 1.07 | 0.6 | 29.4 | 0.005 | 0.03 | 99.9 | 0.1 |
| 1.08 | 0.7 | 28.3 | 0.006 | 0.04 | 99.9 | 0.1 |
| 1.09 | 0.7 | 27.3 | 0.008 | 0.04 | 99.8 | 0.2 |
| 1.10 | 0.8 | 26.4 | 0.010 | 0.05 | 99.8 | 0.2 |
| 1.11 | 0.9 | 25.7 | 0.012 | 0.05 | 99.7 | 0.3 |
| 1.12 | 1.0 | 24.9 | 0.014 | 0.06 | 99.7 | 0.3 |

| VSWR | VSWR (dB) | Return loss (dB) | Transmiss. loss (dB) | Reflected voltage coefficient | Transmit. power (%) | Reflected power (%) |
|------|-----------|------------------|----------------------|-------------------------------|---------------------|---------------------|
| 1.13 | 1.1 | 24.3 | 0.016 | 0.06 | 99.6 | 0.4 |
| 1.14 | 1.1 | 23.7 | 0.019 | 0.07 | 99.6 | 0.4 |
| 1.15 | 1.2 | 23.1 | 0.021 | 0.07 | 99.5 | 0.5 |
| 1.16 | 1.3 | 22.6 | 0.024 | 0.07 | 99.5 | 0.5 |
| 1.17 | 1.4 | 22.1 | 0.027 | 0.08 | 99.4 | 0.6 |
| 1.18 | 1.4 | 21.7 | 0.030 | 0.08 | 99.3 | 0.7 |
| 1.19 | 1.5 | 21.2 | 0.033 | 0.09 | 99.2 | 0.8 |
| 1.20 | 1.6 | 20.8 | 0.036 | 0.09 | 99.2 | 0.8 |
| 1.21 | 1.7 | 20.4 | 0.039 | 0.10 | 99.1 | 0.9 |
| 1.22 | 1.7 | 20.1 | 0.043 | 0.10 | 99.0 | 1.0 |
| 1.23 | 1.8 | 19.7 | 0.046 | 0.10 | 98.9 | 1.1 |
| 1.24 | 1.9 | 19.4 | 0.050 | 0.11 | 98.9 | 1.1 |
| 1.25 | 1.9 | 19.1 | 0.054 | 0.11 | 98.8 | 1.2 |

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 is applied to a complete product or device, and implies that the device complies with one or several European safety directives.

CE Marking can not be applied 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.

LEMO complete product range

| | B | S | K | E | F | 00 | 01 | 0A | 3T | 4A | 4M | 3K.93C | 1D | Y | 05 | 5G | 2G | 2C | L | H | M | R | N | 03 | V | W | F | P | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Most frequently used in darker colour

• included in this catalogue

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|----------------|----------------------|-----------------|-----------------|---------------------|----------------|------------------|
| | | | | | | |
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| | | | | | | |
| 05 Series | 5G Series Keyed | 2G Series Keyed | 2C Series | L Series Keyed | H Series | M Series Keyed |
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LEMO HEADQUARTERS

SWITZERLAND

LEMO SA

Chemin des Champs-Courbes 28 - P.O. Box 194 - CH-1024 Ecublens
Tel. (+41 21) 695 16 00 - Fax (+41 21) 695 16 02 - e-mail: info@lemo.com

LEMO SUBSIDIARIES

AUSTRIA

LEMO Elektronik GesmbH

Lemböckgasse 49/E6-3
1230 Wien
Tel: (+43 1) 914 23 20 0
Fax: (+43 1) 914 23 20 11
sales@lemo.at

BRAZIL

LEMO Latin America Ltda

Av. José Rocha Bonfim,
214 Salas 224 / 225
Condomínio Praça Capital
Ed. Chicago
Campinas / SP - Brasil 13080-650
Tel: +55 (11) 98689 4736
info-la@lemo.com

CANADA

LEMO Canada Inc

44 East Beaver Creek Road, unit 20
Richmond Hill, Ontario L4B 1G8
Tel: (+1 905) 889 56 78
Fax: (+1 905) 889 49 70
info-canada@lemo.com

CHINA / HONG KONG

LEMO Electronics (Shanghai) Co., Ltd

First Floor, Block E,
18 Jindian Road, Pudong
Shanghai, China, 201206
Tel: (+86 21) 5899 7721
Fax: (+86 21) 5899 7727
cn.sales@lemo.com

DENMARK

LEMO Denmark A/S

Nybrovej # 97
2820 Gentofte
Tel: (+45) 45 20 44 00
Fax: (+45) 45 20 44 01
info-dk@lemo.com

FRANCE

LEMO France Sàrl

24/28 Avenue Graham Bell
Bâtiment Balthus 4
Bussy Saint Georges
77607 Marne la Vallée Cedex 3
Tel: (+33 1) 60 94 60 94
Fax: (+33 1) 60 94 60 90
info-fr@lemo.com

GERMANY

LEMO Elektronik GmbH

Hanns-Schwindt-Str. 6
81829 München
Tel: (+49 89) 42 77 03
Fax: (+49 89) 420 21 92
info@lemo.de

HUNGARY

REDEL Elektronika Kft

Nagysándor József u. 6-12
1201 Budapest
Tel: (+36 1) 421 47 10
Fax: (+36 1) 421 47 57
info-hu@lemo.com

ITALY

LEMO Italia srl

Viale Lunigiana 25
20125 Milano
Tel: (+39 02) 66 71 10 46
Fax: (+39 02) 66 71 10 66
sales.it@lemo.com

JAPAN

LEMO Japan Ltd

2-7-22, Mita,
Minato-ku, Tokyo, 108-0073
Tel: (+81 3) 54 46 55 10
Fax: (+81 3) 54 46 55 11
lemoinfo@lemo.co.jp

MIDDLE EAST

LEMO Middle East Gen. Trad. LLC

Concorde Tower 6th Floor,
Dubai Media City, P.O. Box 126732
Dubai, United Arab Emirates
Tel: +971 55 222 36 77
info-me@lemo.com

NETHERLANDS / BELGIUM

LEMO Connectors Benelux

De Trompet 1060
1967 DA Heemskerk
Tel: (+31) 251 25 78 20
Fax (+31) 251 25 78 21
info@lemo.nl

NORWAY / ICELAND

LEMO Norway A/S

Soerumsandvegen 69,
1920 Soerumsand
Tel: (+47) 22 91 70 40
Fax: (+47) 22 91 70 41
info-no@lemo.com

SINGAPORE

LEMO Asia Pte Ltd

4 Leng Kee Road,
#06-09 SiS Building
Singapore 159088
Tel: (+65) 6476 0672
Fax: (+65) 6474 0672
sg.sales@lemo.com

SPAIN / PORTUGAL

IBERLEMO SAU

Brasil, 45, 08402 Granollers
Barcelona
Tel: (+34 93) 860 44 20
Fax: (+34 93) 879 10 77
info-es@lemo.com

SWEDEN / FINLAND

LEMO Nordic AB

Mariehällsvägen 39A
168 65 Bromma
Tel: (+46 8) 635 60 60
Fax: (+46 8) 635 60 61
info-se@lemo.com

SWITZERLAND

LEMO Verkauf AG

Grundstrasse 22 B, 6343 Rotkreuz
Tel: (+41 41) 790 49 40
ch.sales@lemo.com

UNITED KINGDOM

LEMO UK Ltd

12-20 North Street, Worthing,
West Sussex, BN11 1DU
Tel: (+44 1903) 23 45 43
lemouk@lemo.com

USA

LEMO USA Inc

P.O. Box 2408
Rohnert Park, CA 94927-2408
Tel: (+1 707) 578 88 11
(+1 800) 444 53 66
Fax: (+1 707) 578 08 69
info-US@lemo.com

LEMO DISTRIBUTORS

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