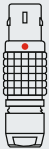


S & E Series

Unipole & multipole connectors



LEMO Solutions Portfolio

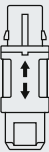


1 ORIGINALS

Your configurable solution

- Self-Latching Push-Pull locking
- Wide & modular range
- Broad application reach
- Indoor & outdoor

Series B, K, T
S, E



2 REDEL

Your trusted medical solution

- Medical and Industrial grade plastics
- Device ergonomics
- Electrical safety
- High density & modularity

Series P
SP
MP



3 OPTIMA

Your optimised solution

- Compact & miniature
- Lightweight & low-profile
- High vibration resistance
- IP68 & MIL-STD tested

Series M
F
D

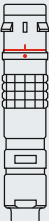


4 SUPREME

Your extreme solution

- High/Low pressure
- Radiation & corrosion
- High Voltage
- Regulated environments

Series N
W
Y



5 SPECIALTIES

Your specialised solution

- Industry standards
- Special configurations
- Historical products

Series 3K.93C.Y, 00 Nim-Camac
V, 2G/2C, R, ...



6 CABLES

Your unique cable solution

- Design expertise
- In house prototype to production
- Custom cables
- Conductive & hybrid

Series Technical cables
Biocompatibility
Automation & high-flex
Retractable coil cords
Ruggedised

SERVICES

Cable assembly services (single-end, double-end, custom harness, overmolding, ...)
Custom solution (connector, cable, device)
Signal integrity end-to-end services

Understanding LEMO's product selection benefits:

Standard versus Special.

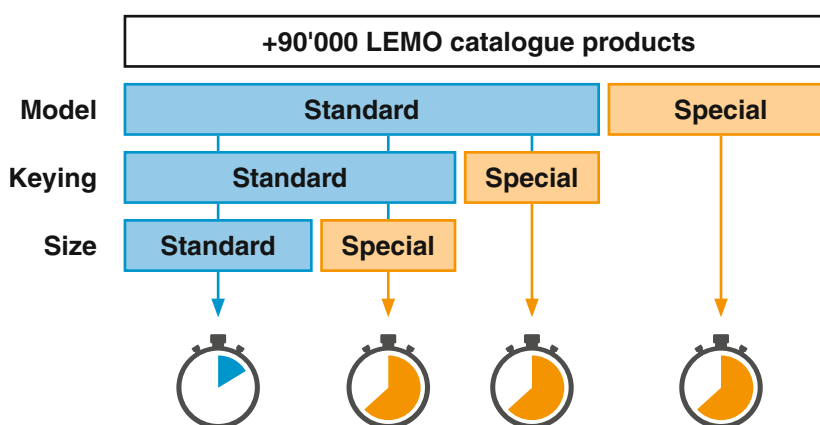
LEMO has a +80 years history of developing custom connectivity solutions. Our very broad offering of models combined with our modular insert design results in a range of over 90'000 connector solutions. This vast product portfolio enables you to select the ideal connector configuration to suit almost any specific requirement in the most demanding markets, including yours.

In this product catalogue we have structured our product offering into two categories:

- **STANDARD** products (in blue) – Most commonly used products for which we can ensure the best availability and shorter lead times. For these products a 10 pcs minimum order quantity (MOQ) applies.
- **SPECIAL** products (in orange) – More niche products designed for customers with specific requirements. For these products a higher minimum order quantity (MOQ) will apply, prices might be higher and lead times are typically longer.

And this differentiation between **STANDARD** and **SPECIAL** applies on three different levels:

1. **MODEL** – Outershell / Backshell shape
2. **KEYING** – Alignment key for differentiated mating
3. **SIZE** – Physical dimensions of the connector



Only if Model + Keying + Size are all within the STANDARD product offering, you will have the best availability and shorter lead time. We recommend you find as much as possible the right solution for your connectivity challenge within our standard product offer.

For all other, special products, we recommend you contact your local LEMO representative to discuss your overall project's life span and long-term needs, so we can align your forecast with applicable MOQ quantities.

By clearly distinguishing between Standard and Special products, LEMO ensures maximum flexibility while still offering the perfect solution to fully meet our customer needs.

Precision modular connectors to suit your application

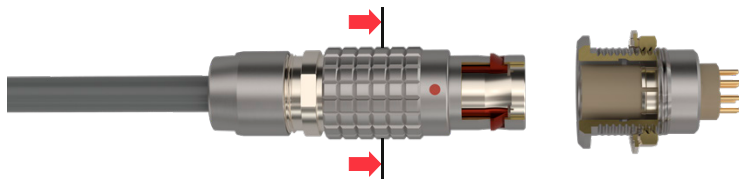
Since its creation in Switzerland in 1946 the LEMO Group has been recognized as a global leader of circular Push-Pull connectors and connectivity solutions. Today LEMO Group is active in more than 80 countries with the help of over 40 subsidiaries and distributors.

Over 90000 connectors

The modular design of the LEMO range provides over 90000 connectors from miniature $\varnothing$ 3 mm to large size $\varnothing$ 50 mm, handling cable diameters up to 30 mm and for up to 114 contacts in a single connector. 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, industrial and machinery, audio video broadcast, semi conductor, energy, telecommunications, motorsport, security and defence.

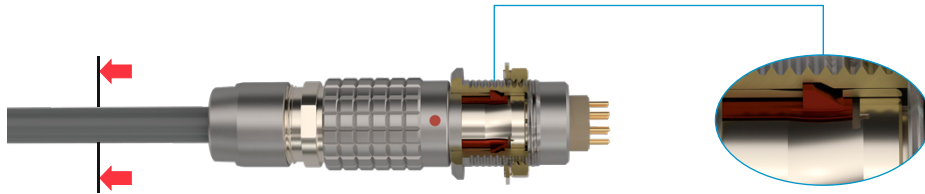
What is Push-Pull self-latching technology ?

LEMO's Push-Pull latching system ensures that your connectors lock securely in place with a simple push and are easily released with a gentle pull. This innovative design combines the convenience of quick connection with uncompromising security, making it perfect for applications where performance and reliability matter most.



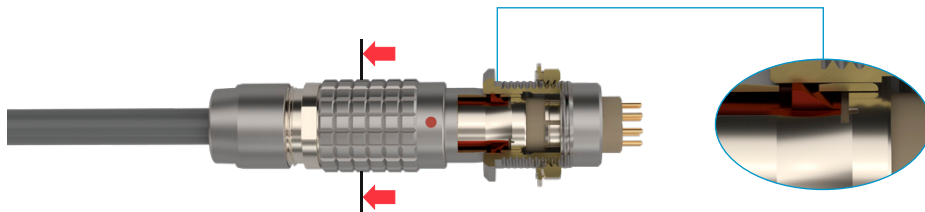
Fast and easy connections

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



Secure latching system

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



Easy release

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.

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.

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ORIGINALS S & E Series

Broad and modular stepped inserts solutions for indoor and outdoor

ORIGINALS S & E Series make up the historical modular highly configurable range of original Push-Pull connectors with stepped inserts, offering exceptional scalability spanning from ultra-miniature to very large sizes.

Providing an unmatched quick and easy to use mating system for demanding applications in a very wide variety of markets and extreme working conditions indoor and outdoor.

The cylindrical shape enables a wide range of body styles, materials and configurations from low to high voltage, multi-pin and mixed configurations, equally suitable for data, signal, power and other applications.

Large choice of sizes
(up to 8) from ultra-miniature
to very large, fitting cables
from 1.0 mm up to 30 mm

Push-Pull self-latching
system for quick
and easy mating
and un-mating

Large choice
of straight
and angled plug
models

Stepped inserts
enables easy mating

Large choice
of front or back mounted
sockets models

Extensively tested,
highest quality
and reliability

Modular inserts
with low to high voltage,
multi-pin (up to 106)
and mixed configurations



Select connector series

LEMO unipole and multipole connectors

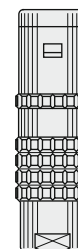
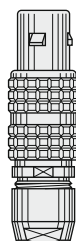
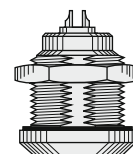
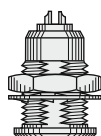
The characteristic feature of these connector series is the hermaphroditic insulator in the multipole version. Both series (S, E) use the same inserts insulator configuration.

The standard Series (S, 00)

These connectors series include the 0S to 6S series, as well as the 00 unipole series.

The watertight Series (E)

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



Series	00 unipole S	E
Environment	indoor	outdoor or harsh environment
Ingress protection ¹⁾	IP50	IP66 to IP68
Ingress protection ²⁾	IP50 to IP68 vacuumtight	IP66 to IP68 vacuumtight
Temperature range	- 55 to 250°C ³⁾	- 55 to 200°C
Latching	Push-Pull self-latching	
Shell sizes	8 metal and 5 plastic	7 metal
Insulator type	Unipole or multipole hermaphroditic (page 46)	
Contact type	Solder, crimp or print	
Features	Stepped insert	
Page	9 to 32	33 to 46

Note:

¹⁾ Mated connector. See ingress protection code page 8.

²⁾ Your device. For selection of connectors for watertight and vacuumtight devices, see page 8.

³⁾ Maximum temperature valid for short periods of use.

Definition of Ingress Protection (IP code)

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

Example: IP 50 = IP 5 0

IP letter code
1st digit
2nd digit

Degrees of protection - First digit

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

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

Degrees of protection - Second digit

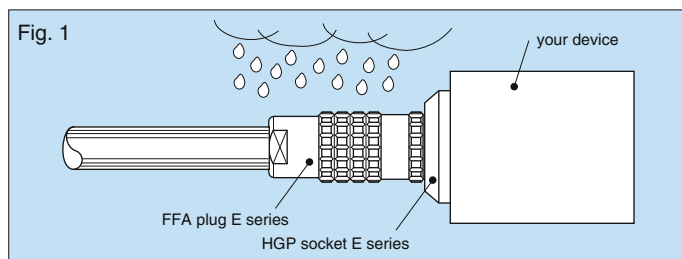
The second digit indicates the degree of protection of the equipment inside the enclosure against the harmful entry of various forms of moisture (e.g. dripping, spraying, submersion, etc.)

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

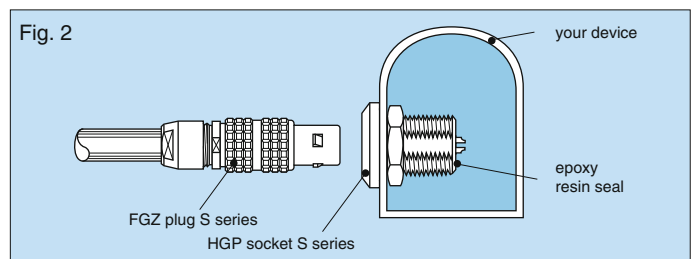
Selection of connectors for watertight or vacuumtight devices

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

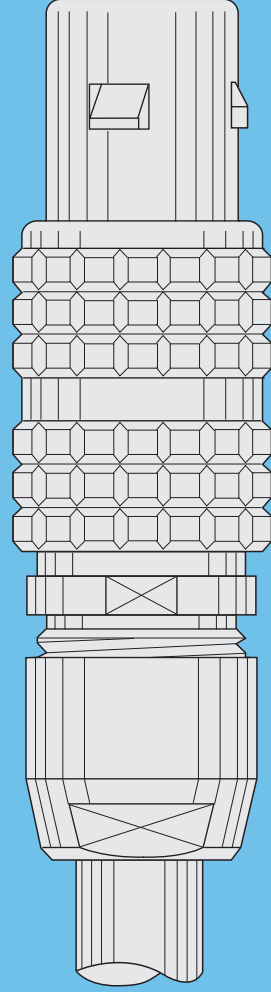
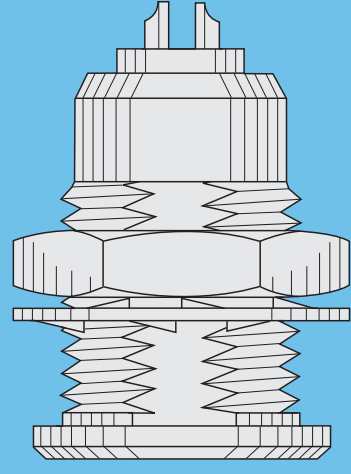
A) Figure 1 shows a typical outdoor device. To ensure this device retains IP66 or above when connectors are unmated, it is important to choose a watertight socket from S or E series.



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



Check temperature range (see section on pages 20 and 40).



S SERIES

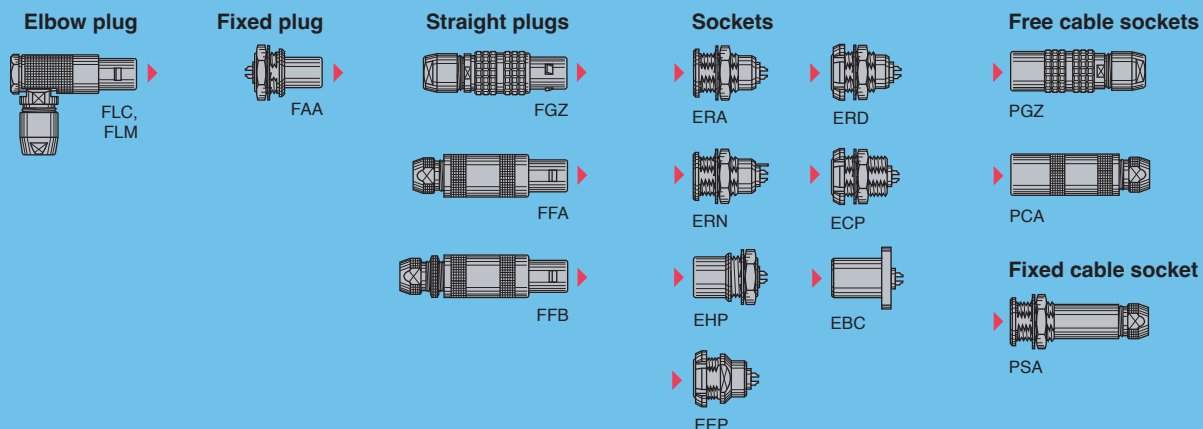
S Series

S series connectors have main features as follows:

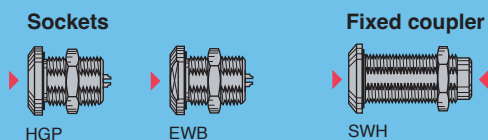
- security of the Push-Pull self-latching system
- unipole types transmitting current up to 230 A and multipole types with up to 106 contacts
- 360° screening for full EMC shielding.
- solder or print contacts (straight or elbow)
- polarisation by stepped insert (half-moon) fitted with male and female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

S series (standard models)

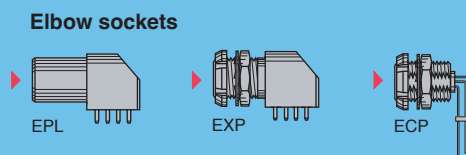
Standard models (page 13)



Watertight or vacuumtight models (page 20)



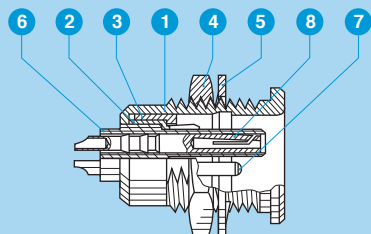
Elbow socket models (page 22)



Part section showing internal components

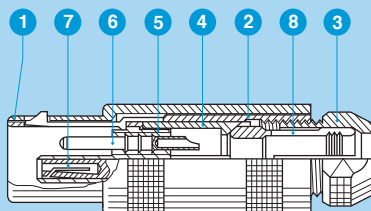
Fixed socket

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



Straight plug

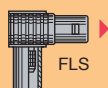
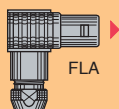
- 1 outer shell
- 2 latch sleeve
- 3 collet nut
- 4 centre-piece
- 5 insulator
- 6 male contact
- 7 female contact
- 8 collet



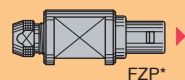
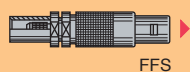
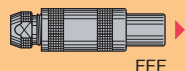
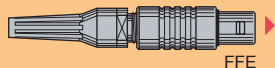
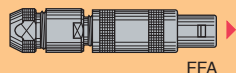
S series (special models)

Special models (page 25)

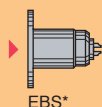
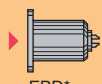
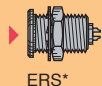
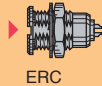
Elbow plugs



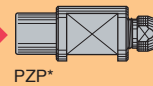
Straight plugs



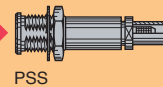
Sockets



Free cable sockets



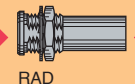
Fixed cable socket



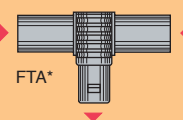
Free coupler



Fixed coupler

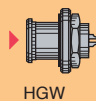
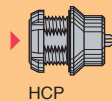


T-plug



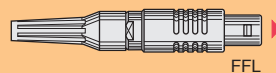
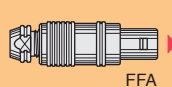
Watertight or vacuumtight models (page 30)

Sockets



Plastic housing models (page 31)

Straight plugs



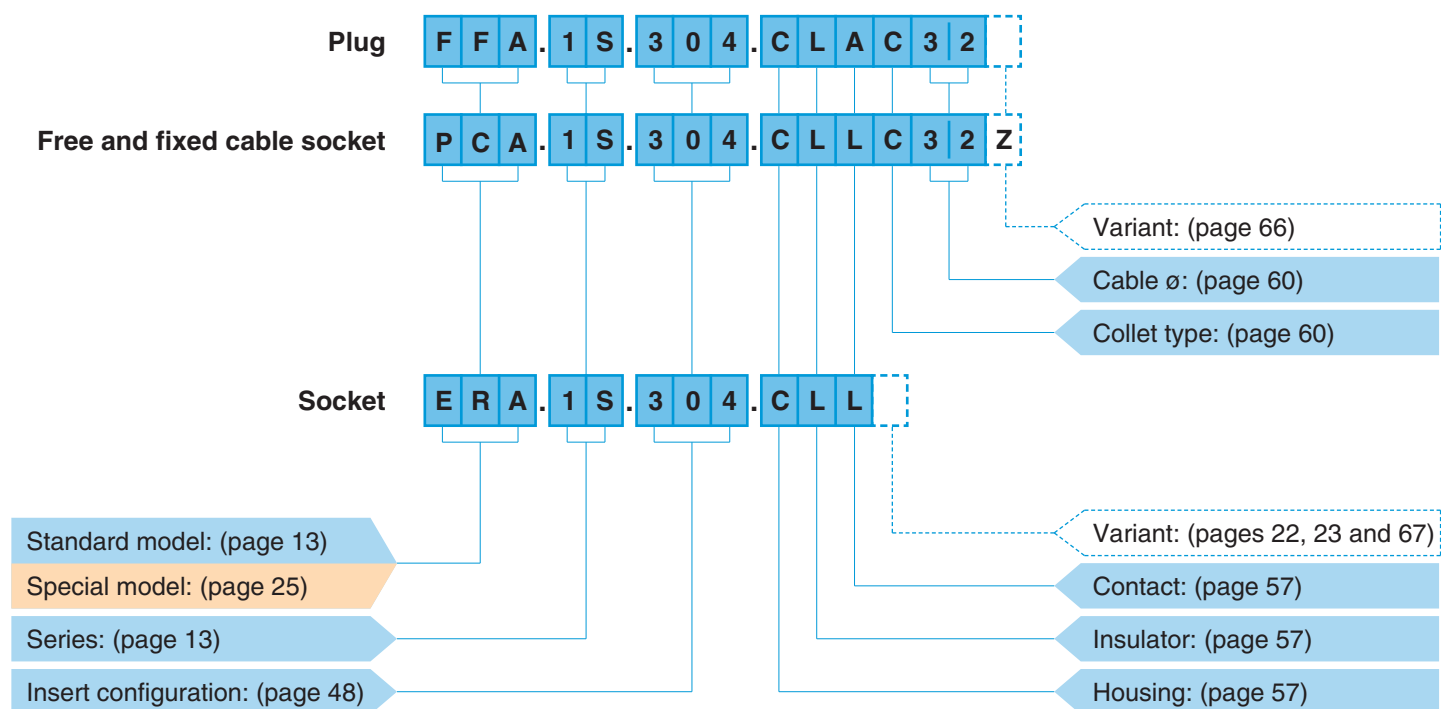
Socket



Note: * Check product finder LEMO.COM for details.

Part numbering system

Standard models part numbering system



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

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

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



Standard models

Technical characteristics

Mechanical and environmental

Characteristics	Value	Standard
Endurance ¹⁾	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60°C	
Temperature range ³⁾	- 55°C, + 250°C	
Resistance to vibrations	10-2000 Hz, 15g	IEC 60068-2-6 test Fc
Shock resistance	100 g, 6 ms	IEC 60068-2-27 test Ea
Salt spray corrosion test ²⁾	> 1000h	IEC 60068-2-11 test Ka
Protection index (mated)	IP50	IEC 60529
Climatical category	55/175/21	IEC 60068-1

Electrical

Characteristics	Value	Standard
Shielding efficiency	at 10 MHz	> 75 dB
	at 1 GHz	> 40 dB

Note:

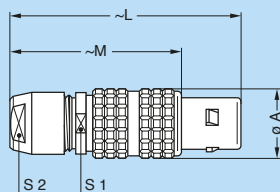
The various tests have been carried out with FFA and ERA connector pairs, with chrome-plated brass shell and PEEK insulator. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical characteristics on page 101.

¹⁾ see page 104, contact resistance after mating cycles. See page 102, mechanical endurance latching force.

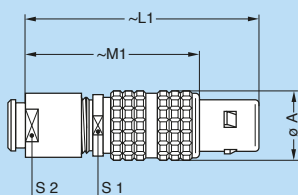
²⁾ for chrome plated product («C» material code).

³⁾ maximum temperature valid for short periods of use.

FGZ Straight plug, cable collet



Cable collet and nut for fitting a bend relief ¹⁾



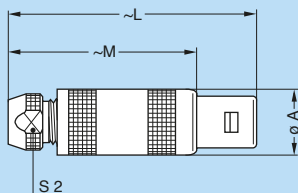
Reference		Dimensions (mm)						
Model	Series	A	L	L1	M	M1	S1	S2
FGZ	0S	9.5	36	35	26	25	8	7
FGZ	1S	12.0	43	42	32	31	10	9
FGZ	2S	15.0	50	49	38	37	13	12

M1 Cable assembly (see B/K/T catalogue)

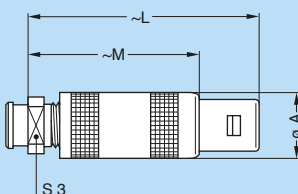
Note: D type collets of the B series are used in this model (see B/K/T catalogue).

Note: ¹⁾ to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 81).

FFA Straight plug, cable collet



Cable collet and nut for fitting a bend relief ¹⁾



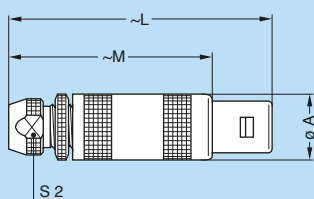
Reference		Dimensions (mm)				
Model	Series	A	L	M	S2	S3
FFA	00	6.4	26.0	18.0	4.5	6
FFA	0S	9.0	34.5	24.5	6.5	7
FFA	1S	12.0	42.5	31.5	8.5	9
FFA	2S	14.8	52.0	40.0	11.0	12
FFA	3S	17.8	61.0	46.0	14.0	14
FFA	4S	24.8	77.0	59.0	19.0	20
FFA	5S	35.0	103.0	78.0	29.0	—
FFA	6S	46.0	106.0	81.0	38.0	—

M1 Cable assembly (pages 94 to 96)

● Standard ● Special

Note: ¹⁾ to order, add a «Z» at the end of the reference.
The bend relief must be ordered separately (see page 81).

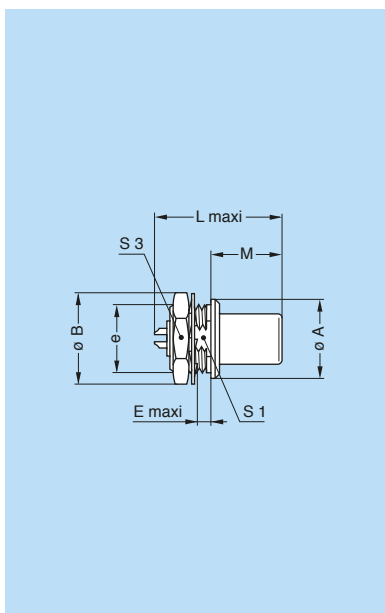
FFB Straight plug, cable collet and safety locking ring



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

M1 Cable assembly (pages 94 and 95)

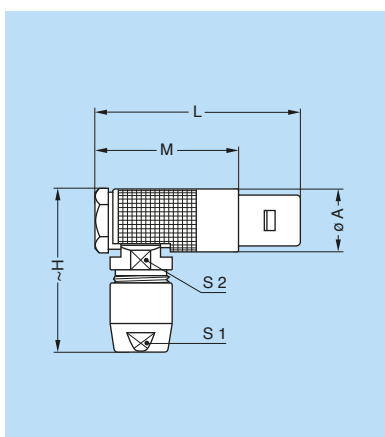
Note: nut for fitting a bend relief (available only for size 1S).

**FAA** Fixed plug non-latching, nut fixing

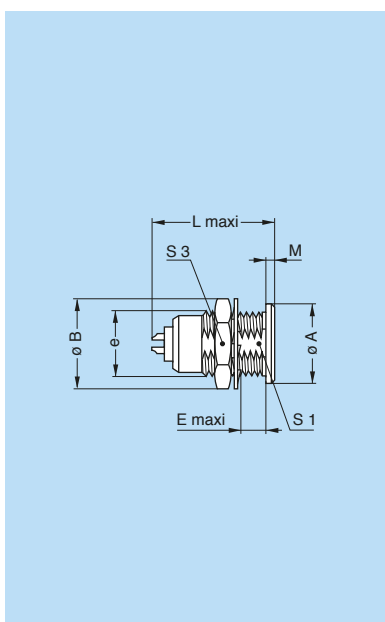
Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L ¹⁾	M	S1	S3
FAA	00	8	10.2	M7x0.5	2.0	–	15.5	9.0	6.3	9
FAA	0S	10	12.4	M9x0.6	2.0	18.5	18.0	11.2	8.2	11
FAA	1S	14	15.8	M12x1.0	2.5	22.5	21.7	12.5	10.5	14
FAA	2S	18	19.2	M15x1.0	4.0	25.0	25.3	13.8	13.5	17
FAA	3S	22	25.0	M18x1.0	4.0	31.0	29.0	17.0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

P1 Panel cut-out (page 91)**P2** Panel cut-out 6S series (page 91)**Note:** ¹⁾ unipole model

● Standard ● Special

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

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

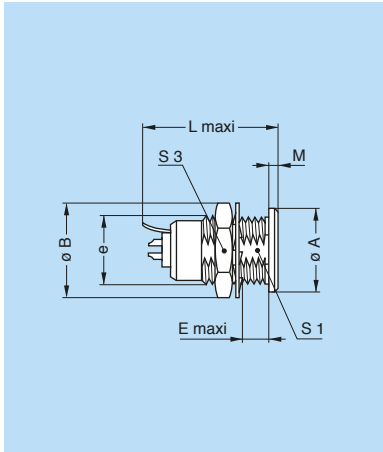
M3 Cable assembly (pages 94 to 96)**Note:** FLC.00 model is used for the unipole type.
For 0S, 1S and 2S series use «D» type collet, see B/K/T catalogue.**ERA** Fixed socket, nut fixing

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

P1 Panel cut-out (page 91)**Note:**¹⁾ the 5S series is delivered with a tapered washer and a round nut.
The 6S series is delivered without a locking washer and with a round nut.
²⁾ unipole model.

● Standard ● Special

ERN Fixed socket, nut fixing, with earthing tag

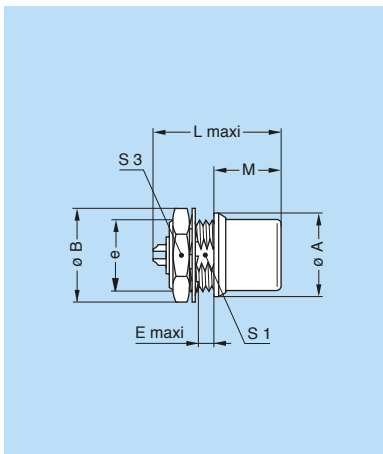


Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L ¹⁾	M	S1	S3
ERN	0S	10	12.4	M9x0.6	7.0	19.3	19.3	1.2	8.2	11
ERN	1S	14	15.8	M12x1.0	7.5	22.4	22.4	1.5	10.5	14
ERN	2S	18	19.2	M15x1.0	8.5	26.3	26.3	1.8	13.5	17
ERN	3S	22	25.0	M18x1.0	11.5	29.8	29.8	2.0	16.5	22

P1 Panel cut-out (page 91)

Note: ¹⁾ unipole model

EHP Fixed socket, nut fixing, protruding shell



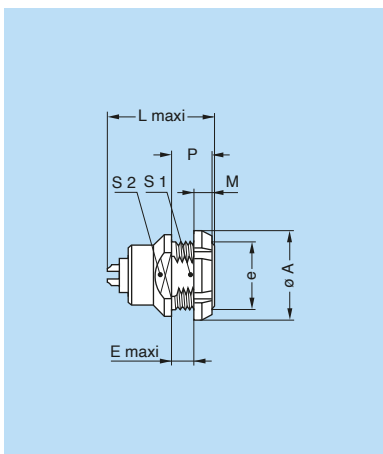
Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L ¹⁾	M	S1	S3
EHP	0S	10	12.4	M9x0.6	2.0	20.5	18.0	12.5	8.2	11
EHP	1S	14	15.8	M12x1.0	3.5	20.2	20.5	12.0	–	14
EHP	3S	22	25.0	M18x1.0	4.0	29.0	29.0	18.7	–	22

P1 Panel cut-out 0S series (page 91)

P2 Panel cut-out (page 91)

Note: ¹⁾ unipole model

EEP Fixed socket, nut fixing (back panel mounting)

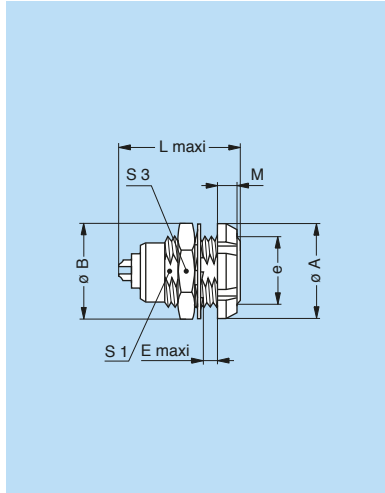


Reference		Dimensions (mm)								
Model	Series	A	e	E	L	L ¹⁾	M	P	S1	S2
EEP	1S	16	M12x1.0	6.5	20.2	20.5	3.5	11	10.5	13
EEP	2S	20	M15x1.0	4.3	24.5	23.5	3.5	9	13.5	15

P1 Panel cut-out (page 91)

Note: ¹⁾ unipole model.

ERD Fixed socket with two nuts



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

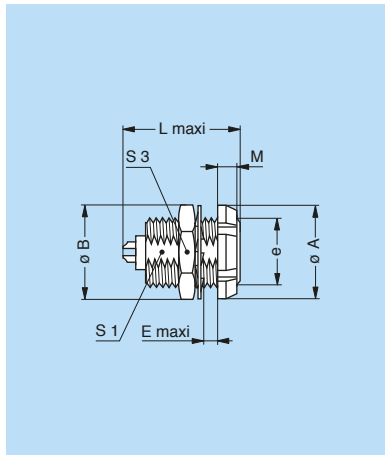
P1 Panel cut-out (page 91)

Note: ¹⁾ unipole model.

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

● Standard ● Special

ECP Fixed socket with two nuts, long threaded shell



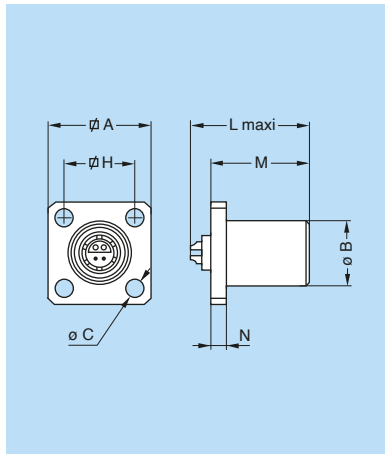
Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L ¹⁾	M	S1	S3
ECP	0S	12	12.4	M9x0.6	8.5	18.5	18.5	2.5	8.2	11
ECP	1S	16	15.8	M12x1.0	10.0	20.2	20.5	3.5	10.5	14
ECP	2S	20	19.2	M15x1.0	11.0	24.5	26.0	3.5	13.5	17
ECP	3S	24	25.0	M18x1.0	14.0	29.0	30.0	4.5	16.5	22

P1 Panel cut-out (page 91)

Note: ¹⁾ unipole model.

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

EBC Fixed socket with square flange, protruding shell and screw fixing



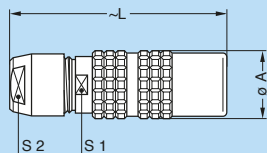
Reference		Dimensions (mm)							
Model	Series	A	B	C	H	L	L ¹⁾	M	N
EBC	1S	18	11.5	3.2	12.7	20.2	20.5	16.5	2.8
EBC	2S	22	15.0	3.2	15.5	24.5	23.5	18.5	4.4
EBC	3S	25	18.0	3.2	18.0	29.0	27.5	23.5	3.0
EBC	5S	45	40.0	4.3	36.8	45.0	78.5	15.0	4.0

P5 Panel cut-out (page 91)

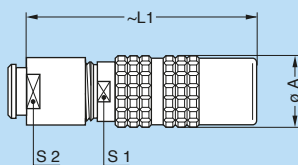
Note: ¹⁾ unipole model.

● Standard ● Special

PGZ Free cable socket, cable collet



Cable collet and nut for fitting a bend relief ¹⁾



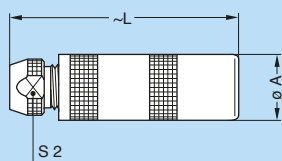
Reference		Dimensions (mm)				
Model	Series	A	L	L1	S1	S2
PGZ	0S	9.5	35.5	34.5	8	7
PGZ	1S	12.5	40.5	39.5	10	9
PGZ	2S	15.0	49.0	48.0	13	12

M1 Cable assembly (see B/K/T catalogue)

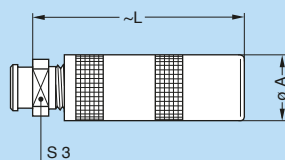
Note: D type collets of the B series are used in this model (see B/K/T catalogue).

Note: ¹⁾ to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 81).

PCA Free cable socket, cable collet



Cable collet and nut for fitting a bend relief ¹⁾



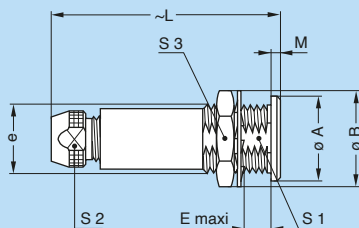
Reference		Dimensions (mm)			
Model	Series	A	L	S2	S3
PCA	00	6.5	25.0	4.5	6
PCA	0S	8.9	33.5	6.5	7
PCA	1S	11.9	40.5	8.5	9
PCA	2S	14.8	50.0	11.0	12
PCA	3S	17.8	59.0	14.0	14
PCA	4S	24.8	75.0	19.0	20
PCA	5S	34.7	99.0	29.0	—
PCA	6S	46.0	102.0	38.0	—

M1 Cable assembly (pages 94 to 96)

● Standard ● Special

Note: ¹⁾ to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 81).

PSA Fixed cable socket, nut fixing, cable collet



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

M1 Cable assembly (pages 94 to 96)

P1 Panel cut-out (page 91)

Note: ¹⁾ the 5S series is delivered with a tapered washer and a round nut. The 6S series is delivered without a locking washer and with a round nut.

● Standard ● Special



Watertight or vacuumtight models

These socket or coupler models allow the device on which they are fitted to reach a protection index of IP68 as per IEC 60529. They are fully compatible with plugs of the same series. Watertight models are identified by a letter «P» at the end of the reference. Most of these models are also available in a vacuumtight version. Such models are identified by the letters «PV» at the end of the part number (certificate on request).

Technical characteristics

Mechanical and environmental

Characteristics	Value	Standard
Endurance ¹⁾	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60°C	
Temperature range	0S-1S 2S-6S	- 20°C, + 100°C - 20°C, + 80°C
Salt spray corrosion test ⁴⁾	> 1000h	IEC 60068-2-11 test Ka
Climatical category	20/80/21	IEC 60068-1
Leakage rate (He) ²⁾	< 10 ⁻⁷ mbar.l.s ⁻¹	IEC 60512-2-17 test Qk

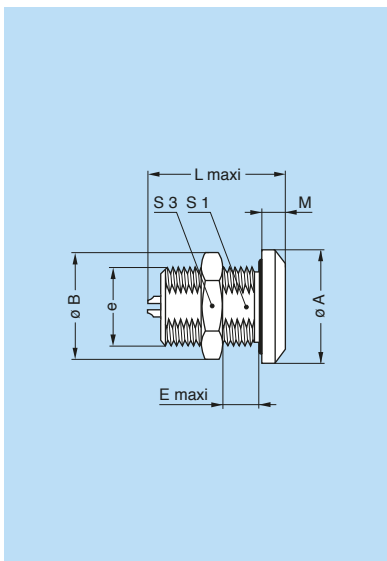
Characteristics	Value	Standard
Maximum operating pressure ³⁾	0S	60 bar
	1S	60 bar
	2S	40 bar
	3S	30 bar
	4S	15 bar
	5S	5 bar
	6S	5 bar

Note: ¹⁾ see page 104, contact resistance after mating cycles. See page 102, mechanical endurance latching force.

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

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

HGP Fixed socket, nut fixing, watertight or vacuumtight



Reference		Dimensions (mm)								
Model	Series	A	B ¹⁾	e	E	L	L ²⁾	M	S1	S3
HGP	0S	18	15.8	M12x1.0	11.5	20.5	21.5	4.0	10.5	14
HGP	1S	20	19.2	M14x1.0	15.5	25.0	22.0	4.0	12.5	17
HGP	2S	20	21.5	M16x1.0	17.0	29.5	28.0	4.0	14.5	19
HGP	3S	28	27.0	M20x1.0	18.0	33.0	34.0	6.0	18.5	24
HGP	4S	34	34.0	M25x1.0	22.5	39.0	43.0	6.5	23.5	30
HGP	5S	45	40.0	M35x1.0	28.0	50.5	78.5	7.5	33.5	—
HGP	6S	58	54.0	M48x1.5	22.0	51.0	—	6.0	45.5	—

P3 Panel cut-out (page 91)

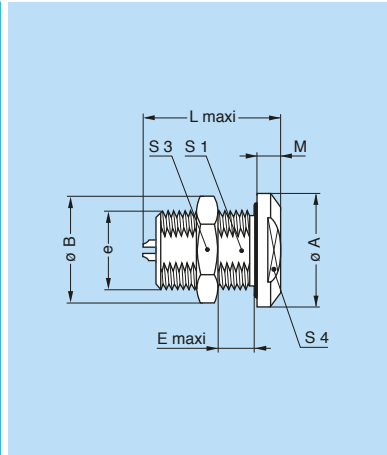
Note:

¹⁾ the 5S and 6S series are delivered with a round nut.

²⁾ unipole model.

● Standard ● Special

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



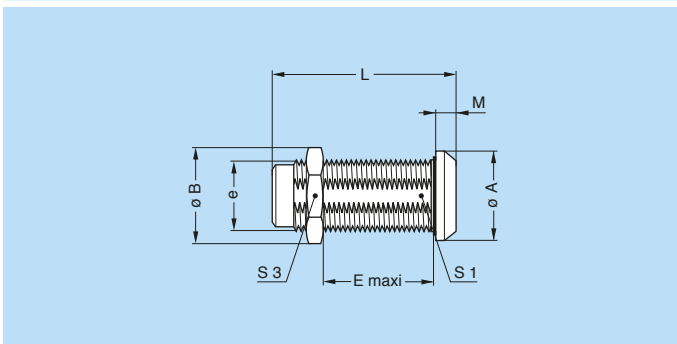
Reference		Dimensions (mm)									
Model	Series	A	B	e	E	L	L ¹⁾	M	S1	S3	S4
EWB	0S	18	15.8	M12x1.0	11.0	20.5	–	4.0	10.5	14	14
EWB	1S	20	19.2	M14x1.0	15.5	25.5	25.5	4.0	12.5	17	16
EWB	2S	20	21.5	M16x1.0	17.0	28.0	26.5	4.0	14.5	19	16
EWB	4S	34	34.0	M25x1.0	22.5	43.0	–	6.5	23.5	30	27

P3 Panel cut-out (page 91)

Note: ¹⁾ unipole model

● Standard ● Special

SWH Fixed coupler, nut fixing, watertight or vacuumtight



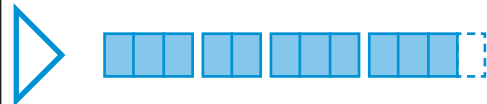
Reference		Dimensions (mm)							
Model	Series	A	B ¹⁾	e	E	L	M	S1	S3
SWH	0S	14	13.8	M10x0.75	17	34	2.0	9.0	12
SWH	1S	17	15.8	M12x1.00	28	39	2.5	10.5	14
SWH	2S	20	21.5	M16x1.00	25	44	4.0	15.0	19
SWH	3S	25	27.0	M20x1.00	30	53	4.0	18.5	24
SWH	4S	34	34.0	M25x1.00	50	65	4.0	23.5	30
SWH	5S	45	40.0	M35x1.00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

P4 Panel cut-out (page 91)

Note: ¹⁾ the 5S and 6S series are delivered with a round nut.

Note: see page 59 for the available plug and contact configurations and in order to ensure correct contact alignment.

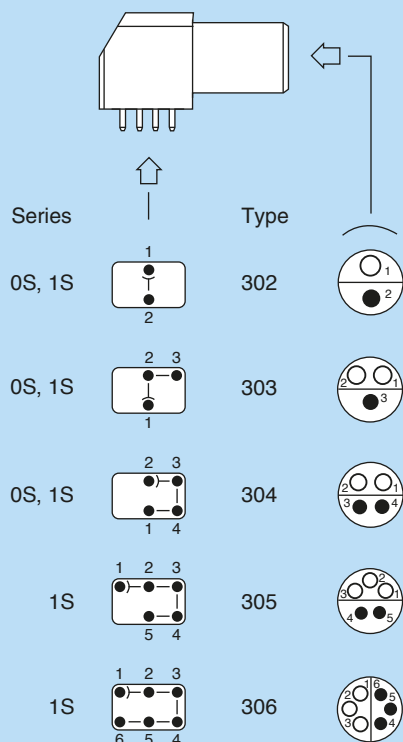
● Standard ● Special



Elbow socket models

Technical characteristics

Types



Materials and treatment

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

Note: ¹⁾ not used for all sizes.

The surface treatment standards are as follows:

– Nickel SAE AMS QQ N 290

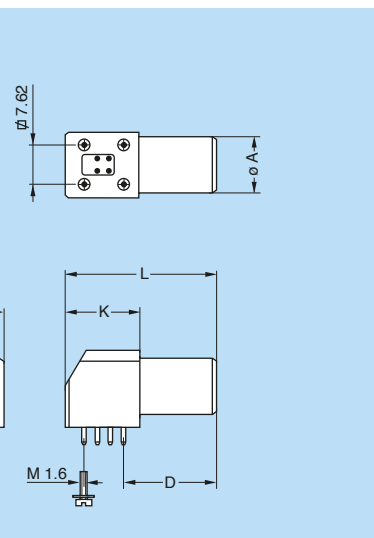
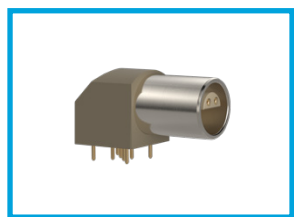
– Gold: ISO 27874

Electrical

Model	Series	Types	Test voltage (kV DC) ¹⁾	Rated current (A)
EPL	0S	302-303-304	1.7	4.5
EXP	0S	302-303-304	1.7	4.5
EPL	1S	302-303-304	1.7	4.5
EXP	1S	302-303-304	1.7	4.5
EPL	1S	305-306	1.0	4.5
EXP	1S	305-306	1.0	4.5

Note: ¹⁾ see calculation method, caution and suggested standard on page 105.

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

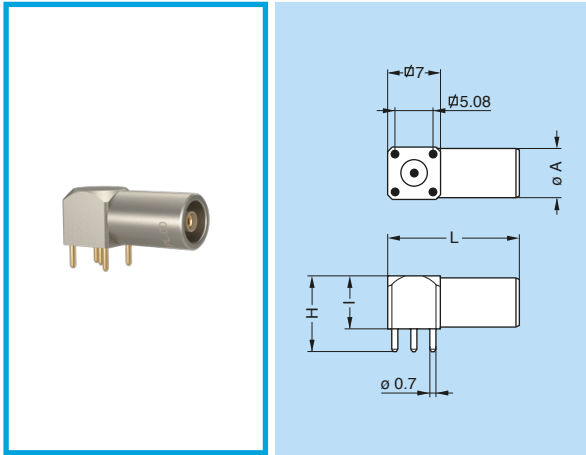


Part number	Dimensions (mm)						
	A	D	H	I	K	L	N
EPL.0S.302.HLN	9	14.6	6.7	12.6	13.3	25	11.7
EPL.0S.303.HLN							
EPL.0S.304.HLN							
EPL.1S.302.HLN	11	16.6	7.5	14.0	13.3	27	12.6
EPL.1S.303.HLN							
EPL.1S.304.HLN							
EPL.1S.305.HLN							
EPL.1S.306.HLN							

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

P8 PCB drilling pattern (page 93)

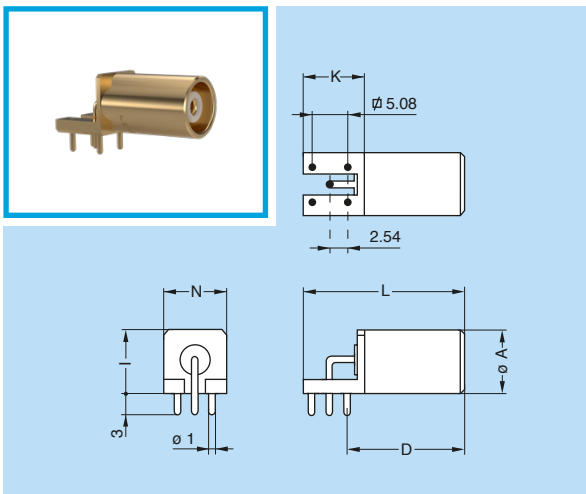
EPL Elbow (90°) socket for printed circuit



Part number	Dimensions (mm)		
	A	H	I
EPL.00.113.NLN	6.8	10	7

P9 PCB drilling pattern (page 93)

EPL Elbow (90°) socket for printed circuit

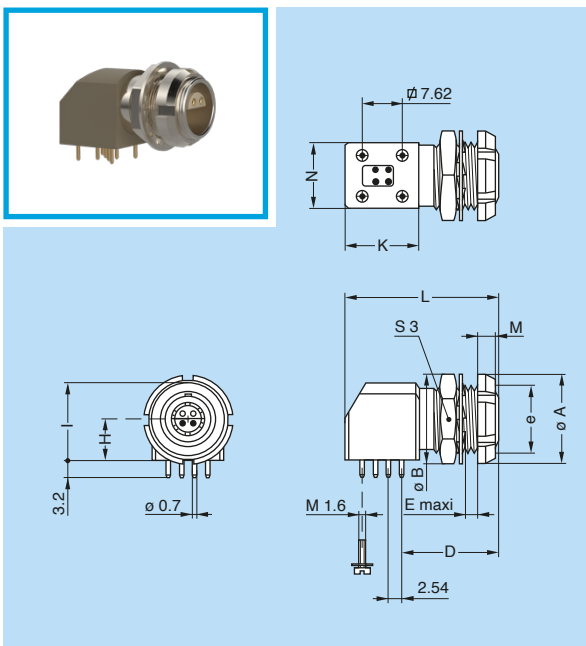


Part number	Dimensions (mm)						
	A	D	H	I	K	L	N
EPL.0S.116.DTL	8.8	16	12	9	7.7	22.7	9

Note: available only in unipole version.

P9 PCB drilling pattern (page 93)

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



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

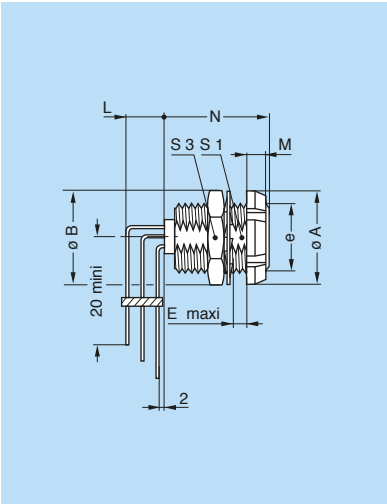
Note: to replace the 4 ground pins by 4 screws (M1.6) add a «S» to the end of the part number. (e.g.: EXP.1S.303.HLNS).

P2 Panel cut-out 0S series (page 91)

P6 Panel cut-out 1S series (page 91)

P8 PCB drilling pattern (page 93)

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



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

P1 Panel cut-out (page 91)

P10 PCB drilling pattern (page 93)

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

Note: this contact type is available for all back panel mounting socket types. See page 93 for available types.
Length «L» depends on the number of contacts, see PCB drilling pattern on page 93.



Special models

Technical characteristics

Mechanical and environmental

Characteristics	Value	Standard
Endurance ¹⁾	> 5000 cycles ²⁾	IEC 60512-5 test 9a
Humidity	up to 95% at 60°C	
Temperature range ⁴⁾	- 55°C, + 250°C	
Resistance to vibrations	10-2000 Hz, 15g	IEC 60068-2-6 test Fc
Shock resistance	100 g, 6 ms	IEC 60068-2-27 test Ea
Salt spray corrosion test ³⁾	> 1000h	IEC 60068-2-11 test Ka
Protection index (mated)	IP50	IEC 60529
Climatical category	55/175/21	IEC 60068-1

Electrical

Characteristics	Value	Standard
Shielding efficiency	at 10 MHz	> 75 dB
	at 1 GHz	> 40 dB
		IEC 60169-1-3 test 9a

Note:

The various tests have been carried out with FFA and ERA connector pairs, with chrome-plated brass shell and PEEK insulator. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical characteristics on page 101.

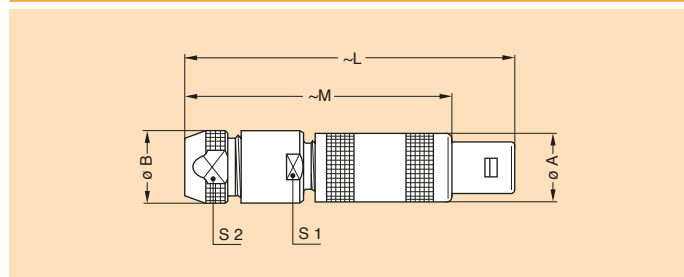
¹⁾ see page 104, contact resistance after mating cycles. See page 102, mechanical endurance latching force.

²⁾ 1000 cycles for FFE models.

³⁾ for chrome plated product («C» material code).

⁴⁾ maximum temperature valid for short periods of use.

FFA Straight plug with oversize cable collet ¹⁾

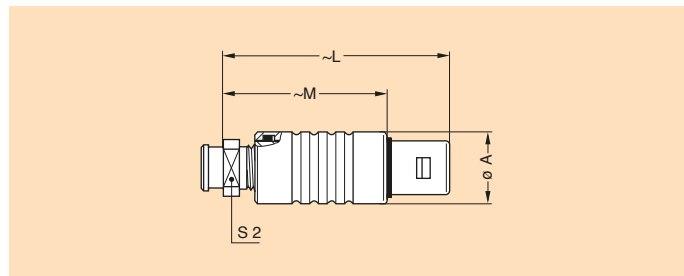


Reference		Dimensions (mm)					
Model	Series	A	B	L	M	S1	S2
FFA	00	6.4	8.0	34.0	26.0	7.0	6.5
FFA	0S	9.0	10.0	45.5	35.5	9.0	8.5
FFA	1S	12.0	13.0	57.0	46.0	12.0	11.0
FFA	2S	14.8	18.0	67.0	55.0	14.0	14.0
FFA	3S	17.8	21.0	85.0	70.0	19.0	19.0
FFA	4S	24.8	31.8	107.0	89.0	28.5	29.0
FFA	5S	35.0	41.8	138.0	113.0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

M2 Cable assembly (pages 94 and 97)

Note: ¹⁾ correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 60).

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

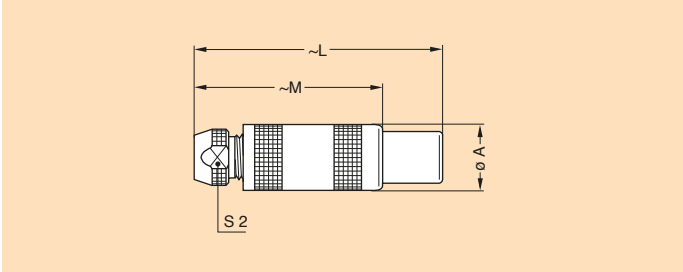


Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFE	00	7.4	26.0	18.0	6
FFE	0S	10.0	34.5	24.5	7
FFE	1S	13.0	42.5	31.5	9
FFE	2S	16.0	52.0	40.0	12
FFE	3S	19.0	61.0	46.0	14

M1 Cable assembly (pages 94 and 95)

Note: ¹⁾ to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 81).

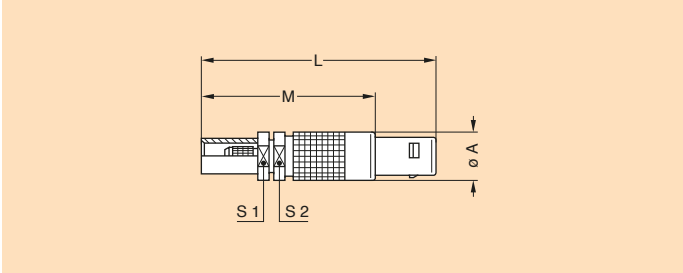
FFF Straight plug, non-latching, cable collet



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

M1 Cable assembly (pages 94 and 95)

FFS Straight plug for cable crimping

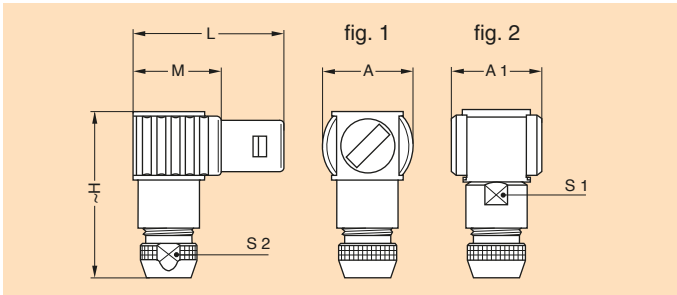


Reference		Dimensions (mm)				
Model	Series	A	L	M	S1	S2
FFS	00	6.4	31	23	5.5	5.5

M5 Cable assembly (page 94)

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

FLA Elbow (90°) plug, cable collet



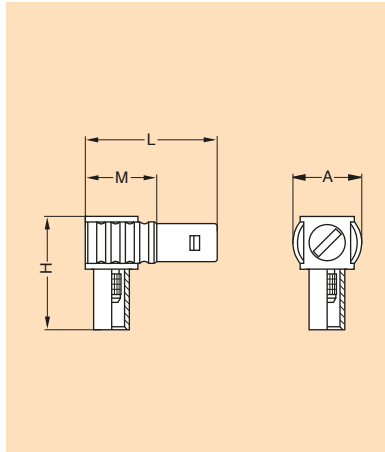
Reference		Dimensions (mm)						
Model	Series	A	A1	H	L	M	S1	S2
FLA	3S	21	21	44.0	38.5	23.5	15	14
FLA	4S	28	28	56.0	49.0	31.0	20	19
FLA	5S	–	37	76.5	65.0	40.0	30	29
FLA	6S	–	48	94.0	81.0	56.0	40	38

M3 Cable assembly (pages 94 to 96)

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

– Maximum operating temperature: 120°C

FLS Elbow (90°) plug for cable crimping



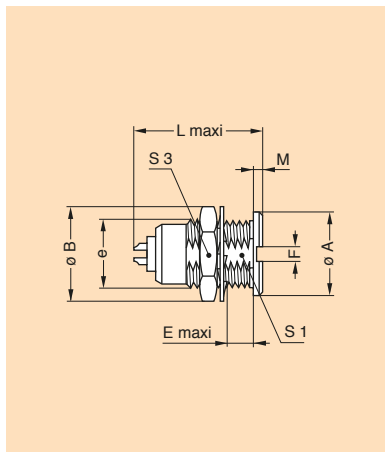
Reference		Dimensions (mm)			
Model	Series	A	H	L	M
FLS	00	9	16	17.5	9.5

M6 Cable assembly (page 94)

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

– Maximum operating temperature: 120°C

ERC Fixed socket, nut fixing with slot in the flange

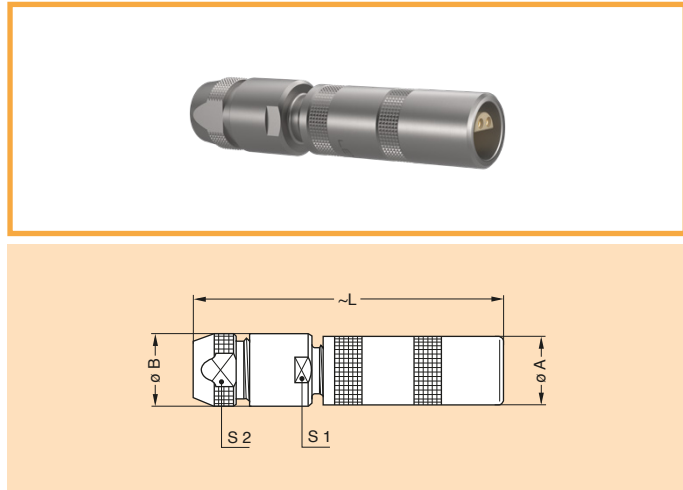


Reference		Dimensions (mm)									
Model	Series	A	B	e	E	F	L	L ¹⁾	M	S1	S3
ERC	00	8	10.2	M7x0.5	5.5	1.6	–	14.5	1.0	6.3	9
ERC	0S	10	12.4	M9x0.6	7.0	2.0	18.5	18.0	1.2	8.2	11
ERC	1S	14	15.8	M12x1.0	7.5	2.5	20.2	20.5	1.5	10.5	14

P1 Panel cut-out (page 91)

Note: ¹⁾ unipole model.

PCA Free cable socket with oversize cable collet ¹⁾

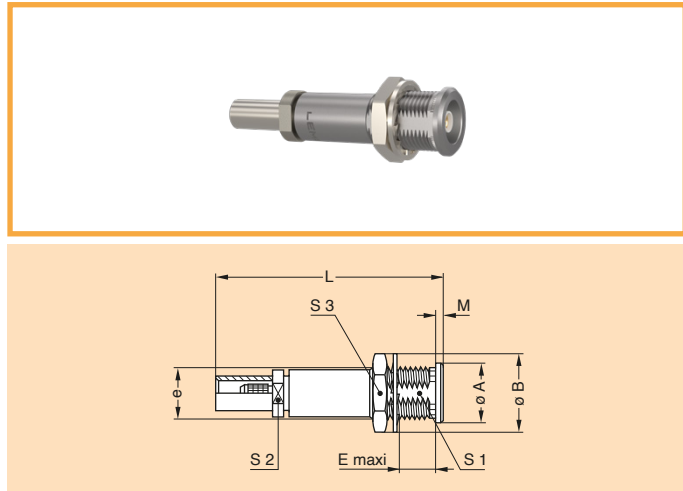


Reference		Dimensions (mm)				
Model	Series	A	B	L	S1	S2
PCA	00	6.5	8.0	33.0	7.0	6.5
PCA	0S	8.9	10.0	44.5	9.0	8.5
PCA	1S	11.9	13.0	55.0	12.0	11.0
PCA	2S	14.8	18.0	65.0	14.0	14.0
PCA	3S	17.8	21.0	83.0	19.0	19.0
PCA	4S	24.8	31.8	105.0	28.5	29.0

M2 Cable assembly (pages 94 and 97)

Note: ¹⁾ correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 60).

PSS Fixed cable socket, nut fixing for cable crimping



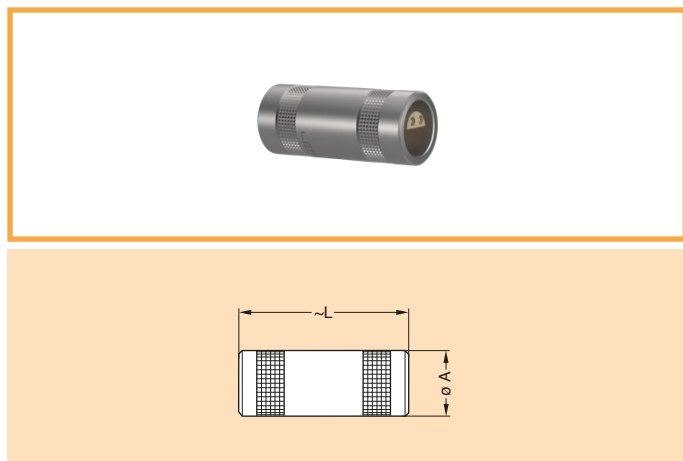
Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	M	S1	S2	S3
PSS	00	8	10.2	M7x0.5	5.5	30	1	6.3	5.5	9

M5 Cable assembly (page 94)

P1 Panel cut-out (page 91)

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

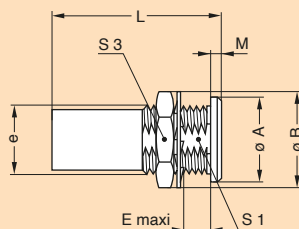
RMA Free coupler



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

Note: see page 59 for the available plug and contact configurations and in order to ensure correct contact alignment.

RAD Fixed coupler, nut fixing



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

P1 Panel cut-out (page 91)

P2 Panel cut-out 4S and 5S series (page 91)

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

Note: See page 59 for the available plug and contact configurations and in order to ensure correct contact alignment.



Watertight or vacuumtight models

These socket or coupler models allow the device on which they are fitted to reach a protection index of IP68 as per IEC 60529. They are fully compatible with plugs of the same series. Watertight models are identified by a letter «P» at the end of the reference. Most of these models are also available in a vacuumtight version. Such models are identified by the letters «PV» at the end of the part number (certificate on request).

Technical characteristics

Mechanical and environmental

Characteristics	Value	Standard
Endurance ¹⁾	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60°C	
Temperature range	0S-1S 2S-6S	- 20°C, + 100°C - 20°C, + 80°C
Salt spray corrosion test ⁴⁾	> 1000h	IEC 60068-2-11 test Ka
Climatical category	20/80/21	IEC 60068-1
Leakage rate (He) ²⁾	< 10 ⁻⁷ mbar.l.s ⁻¹	IEC 60512-2-17 test Qk

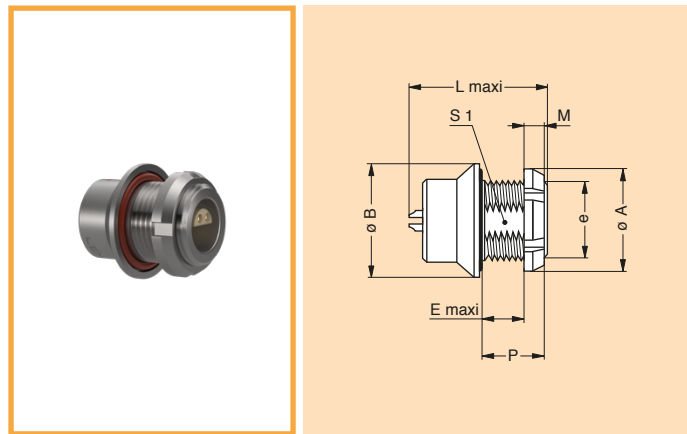
Characteristics	Value	Standard
Maximum operating pressure ³⁾	0S 1S 2S 4S	60 bar 60 bar 40 bar 15 bar
		IEC 60512-7 test 14d IEC 60512-7 test 14d IEC 60512-7 test 14d IEC 60512-7 test 14d

Note: ¹⁾ see page 104, contact resistance after mating cycles. See page 102, mechanical endurance latching force.

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

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

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

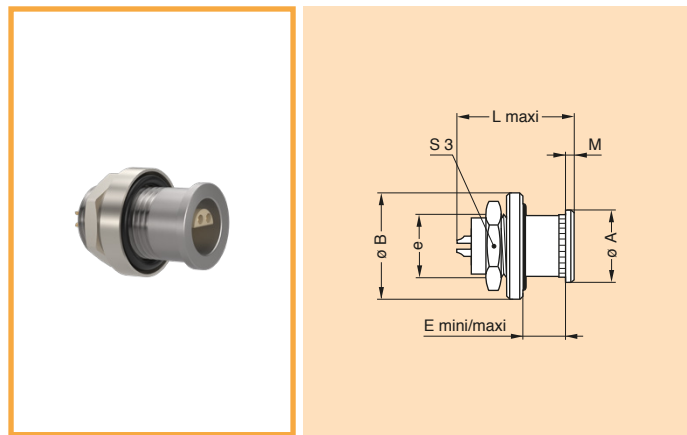


Reference		Dimensions (mm)							
Model	Series	A	B	e	E	L	M	P	S1
HCP	1S	18	20	M14x1.0	8.6	25.5	3.5	12.0	–
HCP	2S	20	20	M16x1.0	12.5	29.0	3.5	16.5	14.5
HCP	4S	27	34	M25x1.0	15.5	41.0	4.5	20.0	23.5

P3 Panel cut-out (page 91)

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

HGW Fixed socket, nut fixing, with back washer, watertight or vacuumtight



Reference		Dimensions (mm)							
Model	Series	A	B	e	E mini	E maxi	L	M	S3
HGW	0S	10	15	M9x0.6	2	3	20.5	1.2	11
HGW	1S	14	18	M12x1.0	2	4	25.0	1.5	14

P7 Panel cut-out (page 91)

Note: vacuumtight version is only available in the 0S series.



Plastic housing models

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

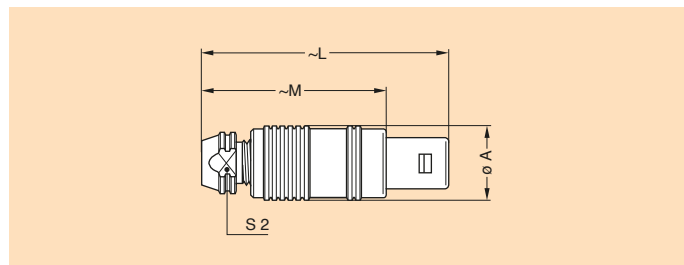
Technical characteristics

Mechanical and environmental

Characteristics	Value				Standard
	PEEK	POM	PSU	PPSU	
Colour	natural (beige)	black	white or grey	cream	–
Endurance ¹⁾	> 5000 cycles	> 5000 cycles	> 5000 cycles	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60°C				–
Temperature range	- 50°C, + 250°C ³⁾	- 50°C, + 115°C	- 50°C, + 150°C	- 50°C, + 180°C	–
Sterilization resistance ²⁾	> 200 cycles	none	~20 cycles	> 100 cycles	IEC 60601-1 § 44.7
Resistance to organic solvents	very good	very good	limited	good	–

Note: ¹⁾ see page 104, contact resistance after mating cycles. See page 102, mechanical endurance latching force. ²⁾ Steam sterilization. ³⁾ maximum temperature valid for short periods of use.

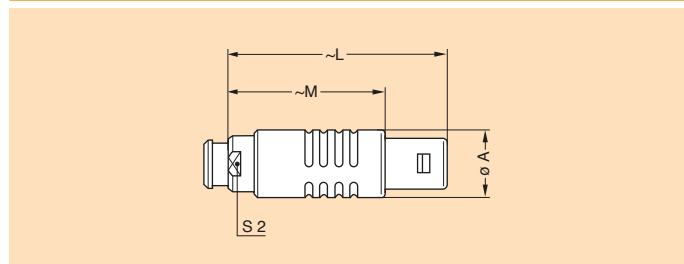
FFA Straight plug, cable collet, PEEK or POM outer shell



Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFA	00	7	33.5	25.5	6

M1 Cable assembly (page 94)

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



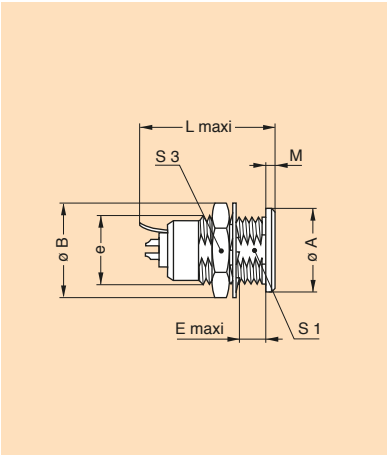
Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFL	2S	16.5	51.5	39.5	13

M4 Cable assembly (page 96)

Note: ¹⁾ to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 81).

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

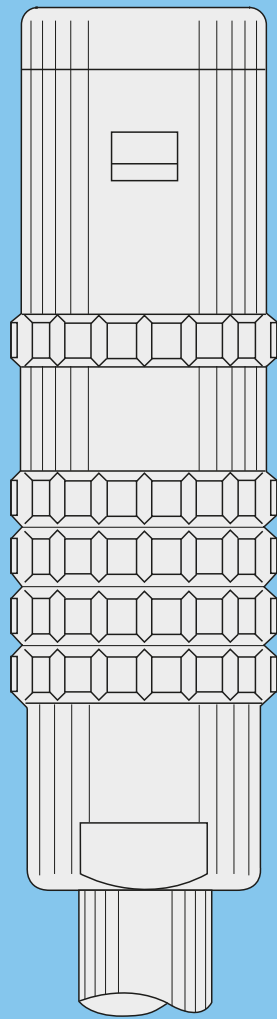
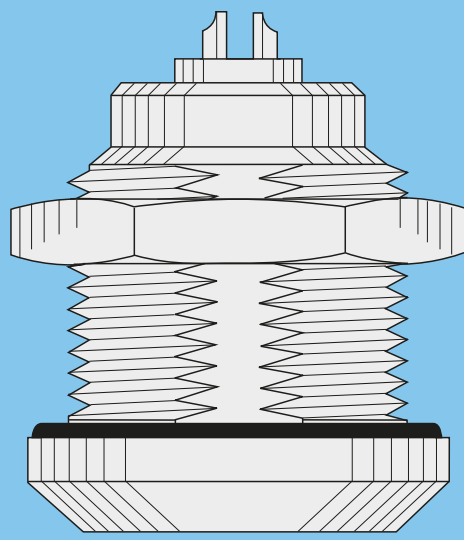
ERN Fixed socket, nut fixing, with earthing tag, PEEK or POM outer shell



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

P1 Panel cut-out (page 91)

Note: ¹⁾ unipole model



E SERIES (watertight)

E Series

E series connectors have been specifically designed for outdoor applications.

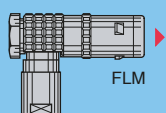
They include an inner sleeve and two seals to prevent penetration of solids or liquids into the housing formed by the plug, free socket, fixed socket or coupler. All models of these series are watertight when mated and give a protection index of IP68 as per IEC 60529 standard (in mated condition) when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

- security of the Push-Pull latching system
- unipole types transmitting current up to 230 A and multipole types with up to 106 contacts
- wide range of models satisfying most applications
- 360° screening for full EMC shielding
- watertight connection (IP68/IP66)
- polarization by stepped insert (half-moon) fitted with male and female contacts
- solder or print contacts (straight or elbow)
- rugged housing for extreme working condition.

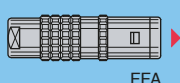
E series (standard models)

Standard models (page 37)

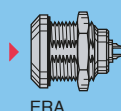
Elbow plug



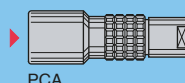
Straight plug



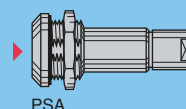
Sockets



Free cable socket

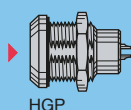


Fixed cable socket

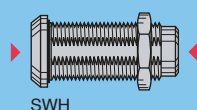


Watertight or vacuumtight models (page 40)

Socket



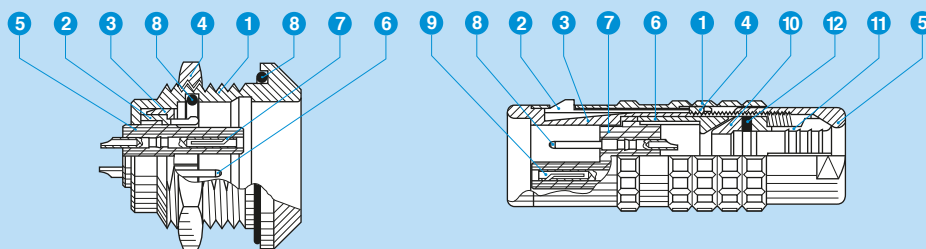
Fixed coupler



Part section showing internal components

Fixed socket

- 1 outer shell
- 2 earthing crown
- 3 retaining ring
- 4 hexagonal nut
- 5 insulator
- 6 male contact
- 7 female contact
- 8 o-ring



Straight plug

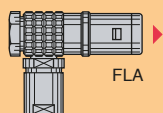
- 1 outer shell
- 2 latch sleeve
- 3 inner shell
- 4 retaining ring
- 5 collet nut
- 6 centre-piece
- 7 insulator
- 8 male contact
- 9 female contact
- 10 earthing cone
- 11 collet + washer ¹⁾
- 12 gasket

Note: ¹⁾ depending on models.

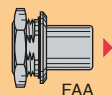
E series (special models)

Special models (page 42)

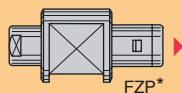
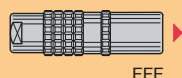
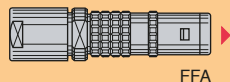
Elbow plug



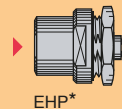
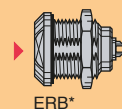
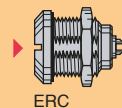
Fixed plug



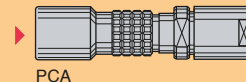
Straight plugs



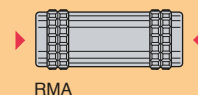
Sockets



Free cable socket

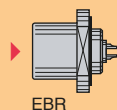


Free coupler



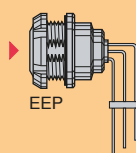
Watertight or vacuumtight model (page 45)

Socket



Elbow socket model (page 45)

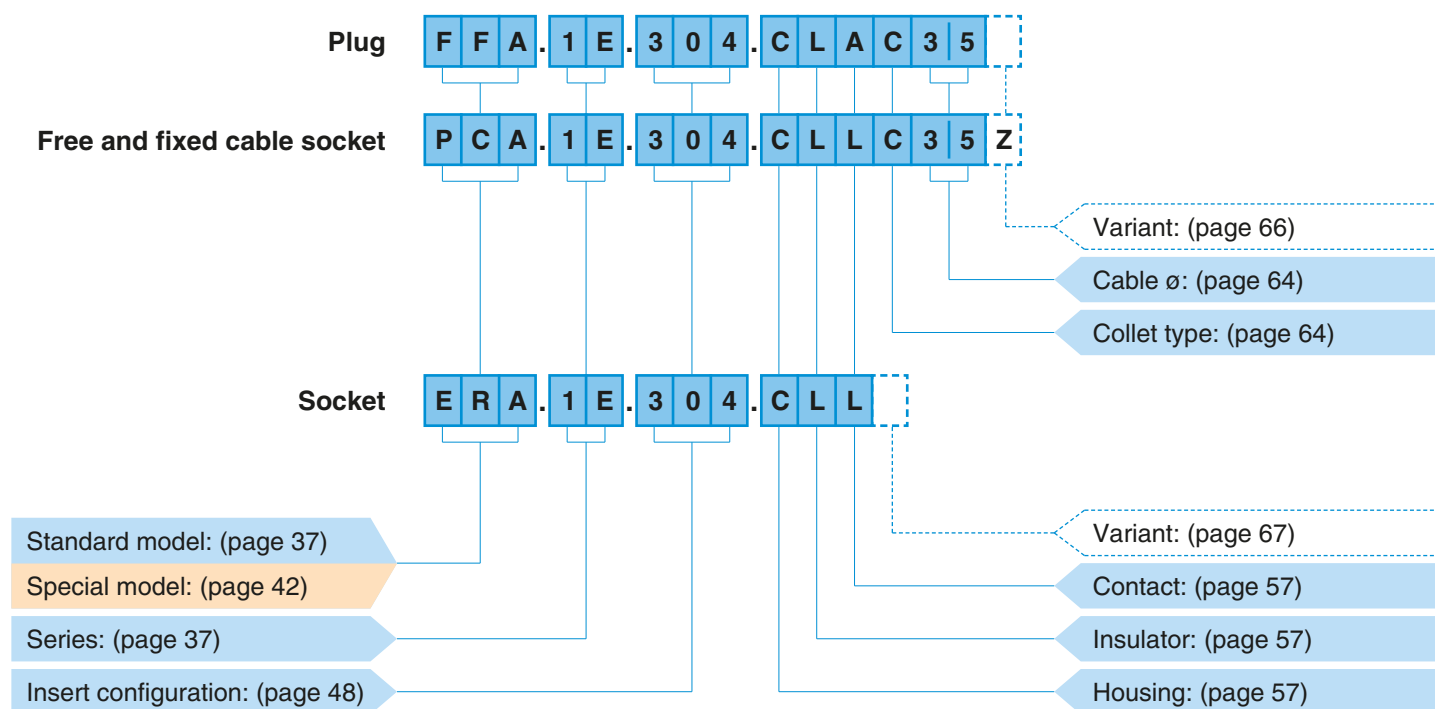
Elbow socket



Note: * Check product finder LEMO.COM for details.

Part numbering system

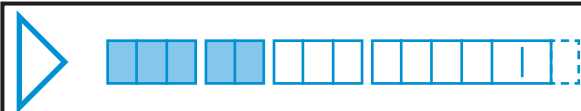
Standard models part numbering system



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

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

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



Standard models

Technical characteristics

Mechanical and environmental

Characteristics	Value	Standard
Endurance ¹⁾	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60°C	
Temperature range ^{2) 5)}	- 55°C, + 200°C	
Resistance to vibrations	10-2000 Hz, 15g	IEC 60068-2-6 test Fc
Shock resistance	100 g, 6 ms	IEC 60068-2-27 test Ea
Salt spray corrosion test ⁴⁾	> 1000h	IEC 60068-2-11 test Ka
Protection index (mated) ³⁾	IP68/IP66	IEC 60529
Climatical category	50/175/21	IEC 60068-1

Electrical

Characteristics		Value	Standard
Shielding efficiency	at 10 MHz	> 95 dB	IEC 60169-1-3 test 9a
	at 1 GHz	> 80 dB	IEC 60169-1-3 test 9a

Note: the various tests have been carried out with FFA and ERA connector pairs, with chrome-plated brass shell, PEEK insulator and silicone O-ring. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical characteristics on page 101.

¹⁾ see page 104, contact resistance after mating cycles. See page 102, mechanical endurance latching force.

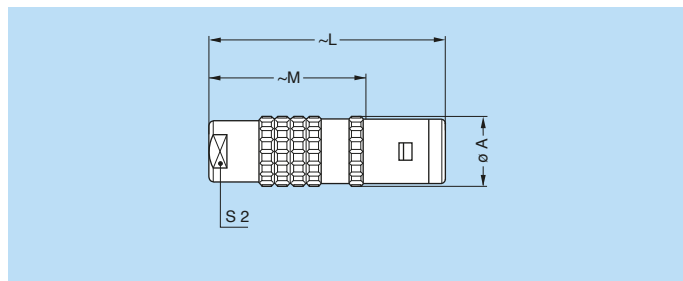
²⁾ minimum operating temperature is -20°C for sockets fitted with an FPM O-ring.

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

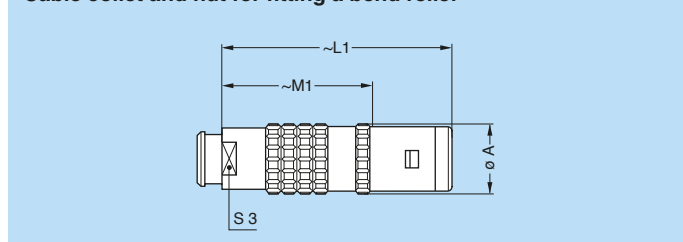
⁴⁾ for chrome plated product («C» material code).

⁵⁾ maximum temperature valid for short periods of use.

FFA Straight plug, cable collet



Cable collet and nut for fitting a bend relief ²⁾



Reference		Dimensions (mm)						
Model	Series	A	L	L1	M	M1	S2	S3
FFA	0E	11	34	34	23.0	23.0	8	7
FFA	1E	13	42	42	28.0	28.0	9	9
FFA	2E	16	52	52	36.0	36.0	12	12
FFA	3E	19	61	60	41.0	40.0	15	15
FFA	4E	25	71	71	50.5	50.5	19	19
FFA	5E	38	92	—	67.0	—	32	—
FGG ¹⁾	6E	47	118	—	89.0	—	38	—

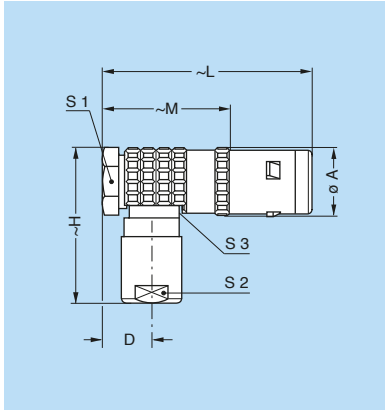
M1 Cable assembly (pages 98 to 100)

Note: ¹⁾ with key (G).

● Standard ● Special

Note: ²⁾ to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 81).

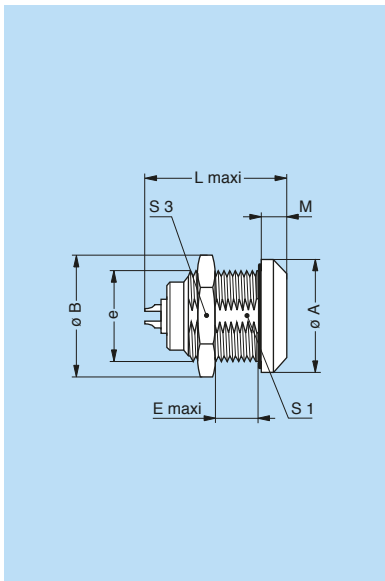
FLM Elbow (90°) plug, cable collet



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

M3 Cable assembly (pages 98 and 99)

ERA Fixed socket, nut fixing



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

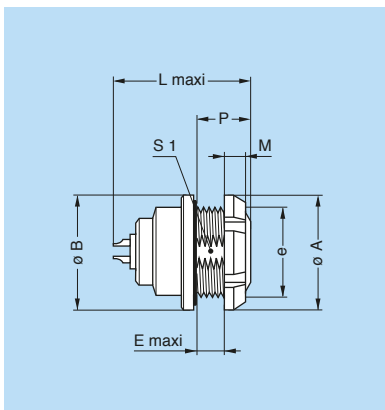
P1 Panel cut-out (page 92)

Note:

- ¹⁾ the 5E and 6E series are delivered with a round nut.
- ²⁾ unipole model.
- ³⁾ with key (G).

● Standard ● Special

EEP Fixed socket, nut fixing (back panel mounting)



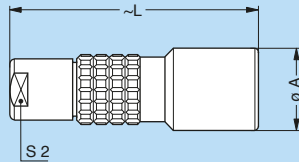
Reference		Dimensions (mm)								
Model	Series	A ¹⁾	B	e	E	L	L ²⁾	M	P	S1
EEP	0E	18	18	M14x1.0	3.5	19.5	20.5	3.5	7	12.5
EEP	1E	20	20	M16x1.0	6.5	24.0	25.3	3.5	10	14.5
EEP	2E	25	25	M20x1.0	6.5	28.5	30.0	3.5	10	18.5
EEP	3E	30	31	M24x1.0	7.5	34.0	35.0	4.5	12	22.5

P1 Panel cut-out (page 92)

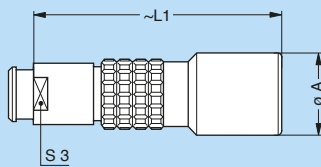
Note:

- ¹⁾ the 3E series is delivered with a conical nut.
- ²⁾ unipole model

PCA Free cable socket, cable collet



Cable collet and nut for fitting a bend relief ²⁾



Reference		Dimensions (mm)				
Model	Series	A	L	L1	S2	S3
PCA	0E	13	34.0	34.0	8	7
PCA	1E	15	45.0	45.0	9	9
PCA	2E	19	54.0	54.0	12	12
PCA	3E	23	65.0	64.0	15	15
PCA	4E	29	75.5	75.5	19	19
PCA	5E	42	95.0	—	32	—
PHG ¹⁾	6E	52	125.0	—	38	—

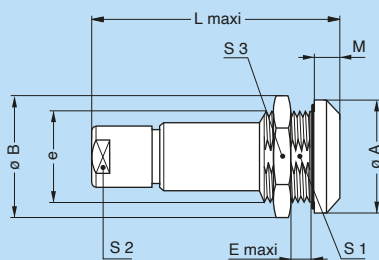
M1 Cable assembly (pages 98 to 100)

Note: ¹⁾ with key (G).

● Standard ● Special

Note: ²⁾ to order, add a «Z» at the end of the reference.
The bend relief must be ordered separately (see page 81).

PSA Fixed cable socket, nut fixing, cable collet



Reference		Dimensions (mm)								
Model	Series	A	B ¹⁾	e	E	L	M	S1	S2	S3
PSA	0E	18	19.2	M14x1.0	5.5	34.0	4.0	12.5	8	17
PSA	1E	20	21.5	M16x1.0	9.0	45.0	4.5	14.5	9	19
PSA	2E	25	27.0	M20x1.0	9.0	54.0	5.0	18.5	12	24
PSA	3E	31	34.0	M24x1.0	11.0	65.0	6.0	22.5	15	30
PSA	4E	37	40.5	M30x1.0	9.0	75.5	6.5	28.5	19	36
PSA	5E	51	54.0	M45x1.5	10.0	95.0	9.0	42.5	32	54
PKG ²⁾	6E	65	65.0	M55x2.0	10.5	125.0	10.0	—	38	—

P1 Panel cut-out (page 92)

M1 Cable assembly (pages 98 to 100)

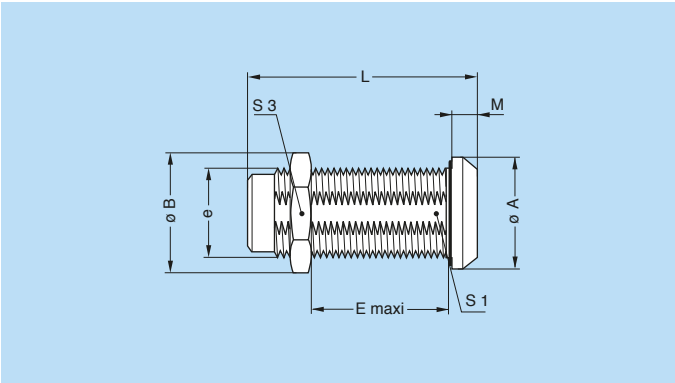
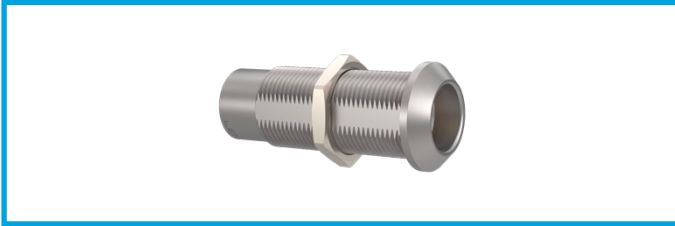
Note:

¹⁾ the 5E and 6E series are delivered with a round nut.

²⁾ with key (G).

● Standard ● Special

SWH Fixed coupler, nut fixing, watertight or vacuumtight



Reference		Dimensions (mm)							
Model	Series	A	B ¹⁾	e	E	L	M	S1	S3
SWH	0E	18	19.2	M14x1.0	22.5	36.0	4.0	12.5	17
SWH	1E	20	21.5	M16x1.0	30.5	47.0	4.5	14.5	19
SWH	2E	25	27.0	M20x1.0	28.0	52.4	5.0	18.5	24
SWH	3E	31	34.0	M24x1.0	33.0	64.2	6.0	22.5	30
SWH	4E	37	40.5	M30x1.0	44.5	70.0	6.5	28.5	36
SWH	5E	55	54.0	M45x1.5	47.0	81.0	9.0	42.5	–
SWH ²⁾	6E	65	65.0	M55x2.0	12.0	76.0	10.0	–	–

P1 Panel cut-out (page 92)

Note:

1) the 5E and 6E series are delivered with a round nut.

2) with key (G).

Note: See page 59 for the available plug and contact configurations and in order to ensure correct contact alignment.

● Standard ● Special



Special models

Technical characteristics

Mechanical and environmental

Characteristics	Value	Standard
Endurance ¹⁾	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60°C	
Temperature range ^{2) 5)}	- 55°C, + 200°C	
Resistance to vibrations	10-2000 Hz, 15g	IEC 60068-2-6 test Fc
Shock resistance	100 g, 6 ms	IEC 60068-2-27 test Ea
Salt spray corrosion test ⁴⁾	> 1000h	IEC 60068-2-11 test Ka
Protection index (mated) ³⁾	IP68/IP66	IEC 60529
Climatical category	50/175/21	IEC 60068-1

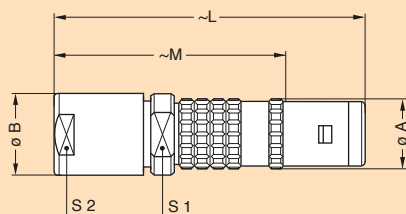
Electrical

Characteristics		Value	Standard
Shielding efficiency	at 10 MHz	> 95 dB	IEC 60169-1-3 test 9a
	at 1 GHz	> 80 dB	IEC 60169-1-3 test 9a

Note: the various tests have been carried out with FFA and ERA connector pairs, with chrome-plated brass shell, PEEK insulator and silicone O-ring. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical characteristics on page 101.

- ¹⁾ see page 104, contact resistance after mating cycles. See page 102, mechanical endurance latching force.
²⁾ minimum operating temperature is -20°C for sockets fitted with an FPM O-ring.
³⁾ IP68 achieved providing that the cable is perfectly circular and that assembly process ensures a high integrity seal.
⁴⁾ for chrome plated product (« C » material code).
⁵⁾ maximum temperature valid for short periods of use.

FFA Straight plug with oversize cable collet ¹⁾

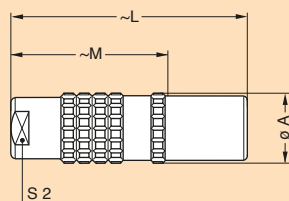


Reference		Dimensions (mm)					
Model	Series	A	B	L	M	S1	S2
FFA	1E	13	14.5	55	41	12	12
FFA	2E	16	17.0	65	49	15	15
FFA	3E	19	22.0	80	60	19	19
FFA	4E	25	36.0	118	84	30	32

M2 Cable assembly (pages 98 and 100)

Note: ¹⁾ correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 64).

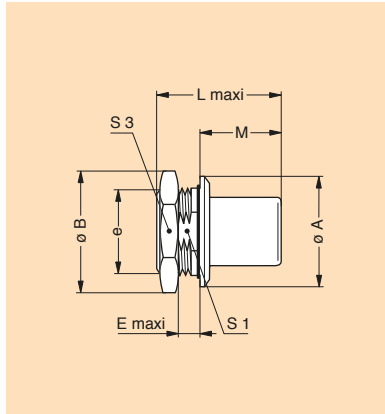
FFF Straight plug non-latching cable collet



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

M1 Cable assembly (pages 98 and 99)

FAA Fixed plug non-latching, nut fixing

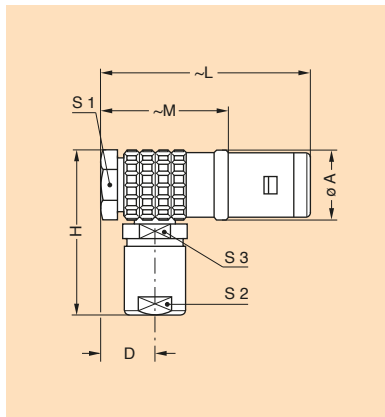


Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L ¹⁾	M	S1	S3
FAA	0E	18	19.2	M14x1.0	3.5	19.5	19.5	13.0	12.5	17
FAA	1E	20	21.5	M16x1.0	3.5	23.0	23.0	16.0	14.5	19
FAA	2E	25	27.0	M20x1.0	4.0	27.0	27.0	18.0	18.5	24
FAA	3E	31	34.0	M24x1.0	4.5	32.5	32.5	22.5	22.5	30

P1 Panel cut-out (page 92)

Note: ¹⁾ unipole model

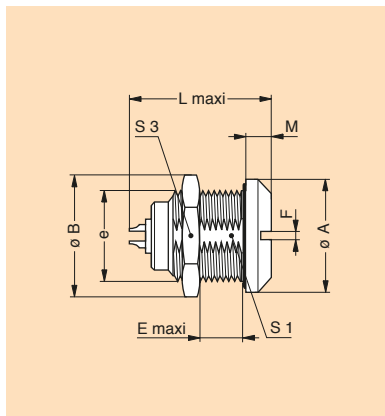
FLA Elbow (90°) plug, cable collet



Reference		Dimensions (mm)							
Model	Series	A	D	H	L	M	S1	S2	S3
FLA	3E	21.0	11.5	47	60	40.0	18	15	16
FLA	4E	27.5	15.5	57	72	51.5	24	19	22

M3 Cable assembly (pages 98 and 99)

ERC Fixed socket, nut fixing with slot in the flange

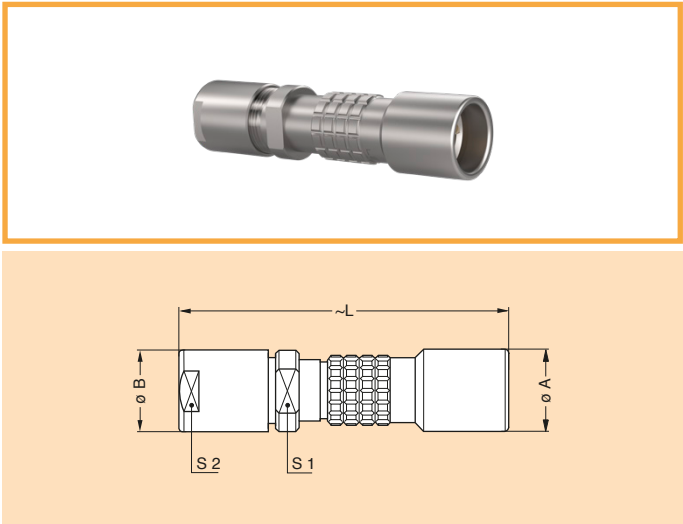


Reference		Dimensions (mm)									
Model	Series	A	B	e	E	F	L	L ¹⁾	M	S1	S3
ERC	0E	18	19.2	M14x1.0	5.5	1.5	19.5	20.5	4.0	12.5	17
ERC	3E	31	34.0	M24x1.0	11.0	3.0	34.0	35.0	6.0	22.5	30
ERC	4E	37	40.5	M30x1.0	9.0	3.0	36.0	38.0	6.5	28.5	36

P1 Panel cut-out (page 92)

Note: ¹⁾ unipole model.

PCA Free cable socket with oversize cable collet ¹⁾

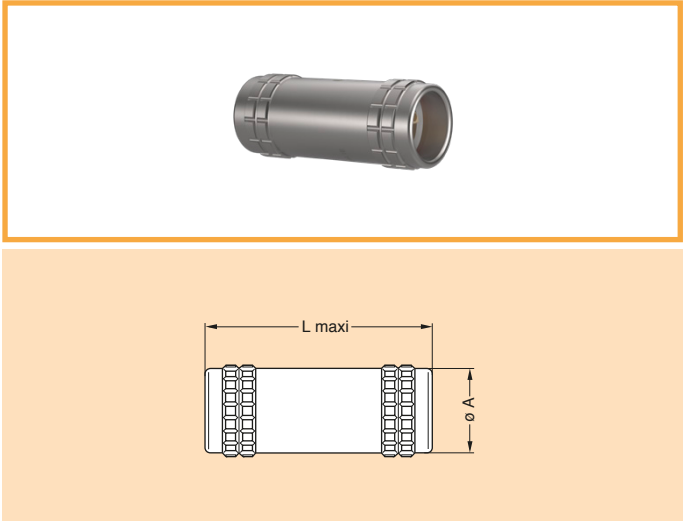


Reference		Dimensions (mm)				
Model	Series	A	B	L	S1	S2
PCA	1E	15	14.5	58.0	12	12
PCA	2E	19	17.0	67.0	15	15
PCA	3E	23	22.0	84.0	19	19
PCA	4E	29	36.0	109.0	30	32

M2 Cable assembly (page 100)

Note: ¹⁾ correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 64).

RMA Free coupler



Reference		Dim. (mm)	
Model	Series	A	L
RMA	0E	14	30
RMA	1E	16	40
RMA	2E	20	44
RMA	3E	25	54
RMA	4E	30	57
RMA	5E	44	67

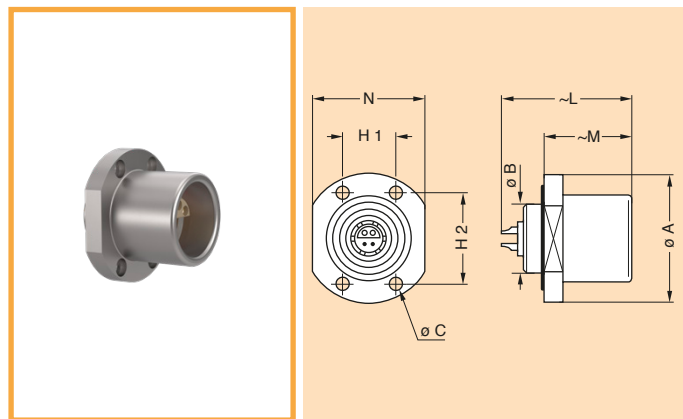
Note: see page 59 for the available plug and contact configurations and in order to ensure correct contact alignment.



Watertight or vacuumtight models

Watertight models are identified by a letter «P» at the end of the reference. Most of these models are also available in a vacuumtight version. Such models are identified by the letters «PV» at the end of the part number (certificate on request). See page 38 for technical characteristics.

EBR Fixed socket with round flange, watertight, protruding shell and screw fixing



Reference		Dimensions (mm)								
Model	Series	A	B	C	H1	H2	L	L ¹⁾	M	N
EBR	2E	28	15	2.8	11.8	20.4	32.5	28	19	25

P2 Panel cut-out (page 92)

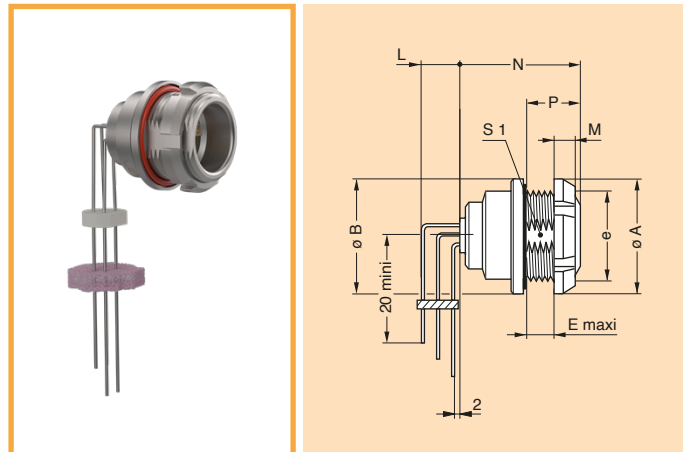
Note: ¹⁾ unipole model.

Note: This model is only available in a watertight version.



Elbow socket models

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

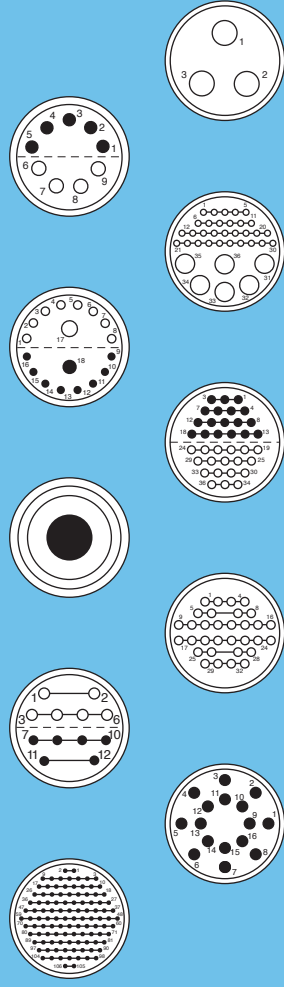


Reference		Dimensions (mm)							
Model	Series	A	B	e	E	M	N	P	S1
EEP	1E	20	20	M16x1.0	6.5	3.5	21.5	10	14.5
EEP	2E	25	25	M20x1.0	6.5	3.5	24.0	10	18.5

P1 Panel cut-out (page 92)

P10 PCB drilling pattern (page 93)

Note: this contact type is available for all back panel mounting socket types. See page 93 for available types. Length «L» depends on the number of contacts, see PCB drilling pattern on page 93.

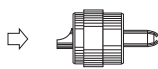
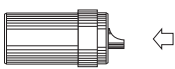


S, E SERIES INSERT CONFIGURATION



Unipole insert configuration

Unipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG			Test voltage (kV DC) ¹⁾	Rated current (A) ¹⁾
				Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp			
												min.	max.		
1			113	00	–	1.3	● ²⁾	●	–	–	20	30	26	1.2	8
															
			116	0S	0E	1.6	● ²⁾	–	–	–	18	–	–	2.1	12
															
			120	1S	1E	2.0	● ²⁾	–	–	–	16	–	–	2.7	18
															
			130	1S	1E	3.0	●	–	–	–	12	–	–	2.1	25
				2S	2E	3.0	●	–	–	–	12	–	–	3.0	30
															
			140	2S	2E	4.0	●	–	–	–	10	–	–	2.4	40
				3S	3E	4.0	●	–	–	–	10	–	–	3.3	43
				4S	–	4.0	●	–	–	–	10	–	–	4.2	46
			160	3S	3E	6.0	●	–	–	–	8	–	–	2.4	65
				4S	4E	6.0	●	–	–	–	8	–	–	3.9	70
															
			112	5S	5E	12.0	●	–	–	–	0	–	–	2.1	230

Note: 1) see calculation method, caution and suggested standard on page 105. 2) also available with inversed contacts: plug = female, socket = male.

● Standard



Multipole insert configuration

Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG			Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp			
	min.	max.													
2			302	0S	0E	0.9	●	●	●	●	22	32	20	1.6	10 ³⁾
		1S		1E	1.3	●	●	●	●	20	26	18	1.8	15 ³⁾	
		2S		2E	1.6	●	●	●	●	18	22	14	2.4	20 ⁴⁾	
		3S		3E	2.0	●	—	●	—	16	—	—	4.2	23	
		4S		4E	4.0	●	—	●	—	10	—	—	3.0	35	
		5S		5E	6.0	●	—	—	—	8	—	—	5.2	50	
3			303	0S	0E	0.7	●	●	●	●	26	32	22	1.5	7 ³⁾
		1S		1E	0.9	●	●	●	●	22	32	20	1.8	10 ³⁾	
		2S		2E	1.3	●	●	●	●	20	26	18	2.1	15 ⁴⁾	
		3S		3E	2.0	●	—	●	—	16	—	—	2.1	20	
		4S		4E	3.0	●	—	●	—	12	—	—	3.0	25	
		5S		5E	1x6.0 2x4.0	●	—	—	—	8 10	—	—	5.2	50 35	
3			303												
	—	6E		6.0	●	—	—	—	8	—	—	4.2	50		
4			304	0S	0E	0.7	●	●	●	●	26	32	22	1.5	7 ³⁾
		1S		1E	0.9	●	●	●	●	22	32	20	1.8	10 ³⁾	
		2S		2E	1.3	●	●	●	●	20	26	18	2.4	15 ⁴⁾	
		3S		3E	2.0	●	—	●	—	16	—	—	2.1	18	
		4S		4E	3.0	●	—	●	—	12	—	—	3.0	22	
		5S		5E	4.0	●	—	—	—	10	—	—	5.2	35	
4			304	6S	—	8.0	●	—	—	—	4	—	—	4.2	60
	—	6E		8.0	●	—	—	—	4	—	—	4.2	60		

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.
³⁾ rated current = 6 A for socket with elbow (90°) contacts for printed circuit. ⁴⁾ rated current = 12 A for socket with elbow (90°) contacts for printed circuit.

● Standard ● Special

Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG			Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp			
	min.	max.													
5			305	1S	1E	2x0.9 3x0.7	●	●	●	●	22 26	32 20 22	2.1	10 ³⁾ 7 ³⁾	
				2S	2E	1.3	●	●	●	●	20	26 18	2.1	13 ⁴⁾	
				3S	3E	2x2.0 3x1.3	●	—	●	—	16 20	— —	2.1	18 14	
				4S	4E	2x3.0 3x2.0	●	—	●	—	12 16	— —	3.0	22 16	
				5S	5E	2x4.0 3x3.0	●	—	—	—	10 12	— —	4.2	35 25	
6			306	1S	1E	0.7	●	●	●	●	26	32 22	1.7	7 ³⁾	
				2S	2E	1.3	●	● ⁵⁾	●	●	20	26 18	2.1	12	
				3S	3E	1.3	●	—	●	—	20	— —	3.0	14	
				4S	4E	2.0	●	—	●	—	16	— —	3.0	16	
				5S	5E	3.0	●	—	—	—	12	— —	4.2	25	
7			307	2S	2E	3x1.3 4x0.9	●	●	●	●	20 22	26 32 18 20	1.2	12 ³⁾ 9 ³⁾	
				3S	3E	1.3	●	—	●	—	20	— —	1.5	12	
				4S	4E	3x2.0 4x1.3	●	—	●	—	16 20	— —	3.0	16 13	
8			308	2S	2E	0.9	●	●	●	●	22	32 20	1.2	9 ³⁾	
				3S	3E	1.3	●	—	●	—	20	— —	1.5	10	
				4S	4E	1.3	●	—	●	—	20	— —	3.9	13	
				5S	5E	3.0	●	—	—	—	12	— —	3.0	22	
9			309	4S	4E	1.3	●	—	●	—	20	— —	3.0	12	
10			310	2S	2E	0.9	●	●	●	●	22	32 20	1.2	7 ³⁾	
				3S	3E	1.3	●	—	●	—	20	— —	1.5	9	

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.
³⁾ rated current = 6 A for socket with elbow (90°) contacts for printed circuit. ⁴⁾ rated current = 12 A for socket with elbow (90°) contacts for printed circuit.
⁵⁾ only for FFL model.

● Standard ● Special

Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG		Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾	
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp			
												min.	max.		
10			310	4S	4E	1.3	●	–	●	–	20	–	–	3.0	11
				5S	5E	2.0	●	–	–	–	16	–	–	3.0	18
12			312	3S	3E	0.9	●	–	●	●	22	–	–	2.1	8
12			312	4S	4E	1.3	●	–	●	–	20	–	–	3.0	9
				6S	–	4.0	●	–	–	–	10	–	–	3.0	22
				–	6E	5.0	●	–	–	–	8	–	–	3.0	22
12			312	5S	5E	2.0	●	–	–	–	16	–	–	3.0	18
13			313	3S	3E	0.9	●	–	●	●	22	–	–	2.1	8
13			313	4S	–	1.3	●	–	●	–	20	–	–	3.0	9
14			314	3S	3E	0.9	●	–	●	●	22	–	–	2.1	7

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.

● Standard ● Special

Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG		Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾		
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp				
	min.	max.														
14			314	4S	4E	1.3	●	—	●	—	20	—	—	3.0	9	
14			314	5S	5E	2x3.0 12x2.0	●	—	—	—	12 16	—	—	2.4	20 15	
16			316	3S	3E	0.9	●	—	●	●	22	—	—	1.5	7	
				4S	4E	0.9	●	—	●	—	22	—	—	3.0	7	
16			316	5S	5E	2.0	●	—	—	—	16	—	—	2.4	15	
16			316	—	6E	3.0	●	—	—	—	12	—	—	2.1	14	
18			318	3S	3E	0.9	●	—	●	●	22	—	—	1.5	6	
				4S	4E	0.9	●	—	●	—	22	—	—	3.0	7	
18			318	5S	5E	2x3.0 16x1.6	●	—	—	—	12 18	—	—	2.4	18 11	

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.

● Standard ● Special

Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG		Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾	
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp			
	min.	max.													
18			318	6S	–	4.0	●	–	–	–	10	–	–	1.8	16
20			320	4S	4E	0.9	●	–	●	–	22	–	–	3.0	7
20			320	5S	5E	1.6	●	–	–	–	18	–	–	2.4	11
20			320	6S	–	3.0	●	–	–	–	12	–	–	2.1	14
20			320	–	6E	3.0	●	–	–	–	12	–	–	2.1	14
22			322	4S	4E	0.9	●	–	●	–	22	–	–	3.0	7
22			322	5S	5E	2x3,0 20x1.6	●	–	–	–	12 18	–	–	2.4	16 9

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.

● Standard ● Special

Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG		Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾	
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp			
	min.	max.													
24			324	4S	4E	0.9	●	—	●	—	22	—	—	3.0	7
				5S	5E	1.6	●	—	—	—	18	—	—	3.9	9
				6S	—	3.0	●	—	—	—	12	—	—	1.8	12
				—	—	—	—	—	—	—	—	—	—	—	—
24			324	—	6E	3.0	●	—	—	—	12	—	—	1.8	12
				—	—	—	—	—	—	—	—	—	—	—	—
30			330	5S	5E	1.3	●	—	—	—	20	—	—	2.4	8
				—	—	—	—	—	—	—	—	—	—	—	—
30			330	6S	6E	2.0	●	—	—	—	16	—	—	3.0	10
				—	—	—	—	—	—	—	—	—	—	—	—
32			332	—	6E	2.0	●	—	—	—	16	—	—	2.1	10
				—	—	—	—	—	—	—	—	—	—	—	—
36			336	5S	5E	1.3	●	—	—	—	20	—	—	2.4	7
				—	—	—	—	—	—	—	—	—	—	—	—
36			336	6S	—	2.0	●	—	—	—	16	—	—	2.1	8
				—	—	—	—	—	—	—	—	—	—	—	—

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.

● Standard ● Special

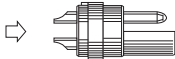
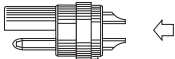
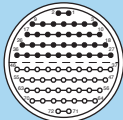
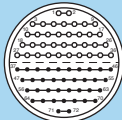
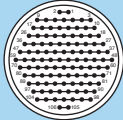
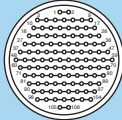
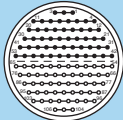
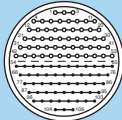
Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG		Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾	
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp			
	min.	max.													
36			336	–	6E	30x1.3 6x5.0	●	–	–	–	20 8	–	–	2.1	4 22
40			340	5S	5E	1.3	●	–	–	–	20	–	–	1.8	7
				–	6E	2.0	●	–	–	–	16	–	–	2.1	8
44			344	5S	5E	1.3	●	–	–	–	20	–	–	1.8	6
48			348	5S	5E	1.3	●	–	–	–	20	–	–	1.8	6
				6S	6E	2.0	●	–	–	–	16	–	–	2.1	7
60			360	6S	6E	1.6	●	–	–	–	18	–	–	2.1	5
62			362		6E	1.6	●	–	–	–	18	–	–	2.1	5
64			364	6S	6E	1.3	●	–	–	–	20	–	–	1.8	4

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.

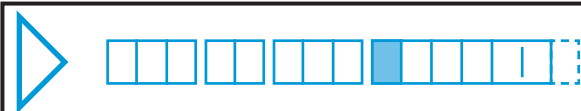
● Standard

Multipole

Number of LV contacts	Solder contacts		Reference	Series		Contact ø (mm)	Contact type				AWG		Test voltage (kV DC) ^{1) 2)}	Rated current (A) ¹⁾
	Crimp contacts			Standard	Watertight		Solder	Crimp	Print (straight)	Print (elbow)	Solder (max.)	Crimp		
														
														
														
														
														

Note: ¹⁾ see calculation method, caution and suggested standard on page 105. ²⁾ lowest measured value; contact to contact or contact to shell.

● Standard



Housings (S and E series)

Ref.	Outer shell and collet nut		Latch sleeve + earthing crown		Other metallic components		Remarks
	Material	Surf. treatment	Material	Surf. treatment	Material	Surf. treatment	
C	Brass	chrome	brass/bronze	nickel ²⁾	brass	nickel	
D	Brass	gold-plated	brass/bronze	nickel ²⁾	brass	nickel	
N	Brass	nickel	brass/bronze	nickel ²⁾	brass	nickel	
K	Brass	black chrome ³⁾	brass/bronze	nickel ²⁾	brass	nickel	
S	Stainless steel	–	brass/bronze	nickel ²⁾	brass	nickel	
T	Stainless steel	–	stainless steel	–	brass	nickel	
U	Stainless steel	–	stainless steel	–	stainless steel	–	
L	Aluminium alloy	anodized	brass/bronze	nickel ²⁾	brass	nickel	¹⁾
B	POM (black)	–	brass/bronze	nickel	brass	nickel	Only for ERN (S series)
G	PEEK (natural)	–	brass/bronze	nickel	brass	nickel	Only for ERN (S series)
P	PSU	–	brass/bronze	nickel	brass	nickel	Only for FFL (S series) ¹⁾
R	PPSU	–	brass/bronze	nickel	brass	nickel	Only for FFL (S series) ¹⁾
H	PPS/brass	–/nickel	brass/bronze	nickel	brass	nickel	Only for EPL and EXP (S series)

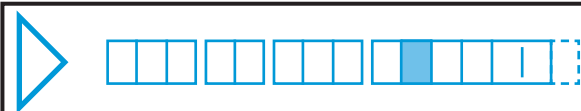
Note: detailed characteristics of these materials and treatments are presented on page 101.

¹⁾ see «variant» for the colour.

²⁾ in the E series, the latch sleeve is chrome-plated.

³⁾ surface not conductive use socket with earthing tag (ERN model) to carry shield.

● Standard
● Special



Insulators (S and E series)

Ref.	Material	Contact type	Remarks
L	PEEK	Solder or print	
Y	PEEK	Crimp	
T	PTFE	Solder	only for unipole types
T	FEP	Solder	only for multipole types of the S or E series
V	PI	Solder	only for multipole types of the S or E series
N	PA6.6	Solder	material for 5S/5E and 6S/6E series multipole inserts

● Standard ● Special



Contacts (S and E series)

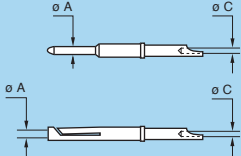
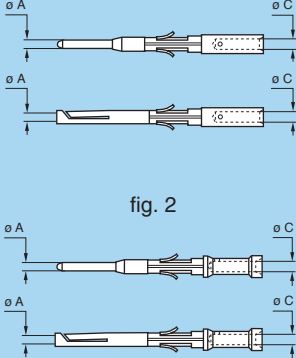
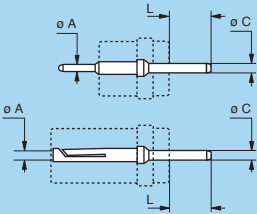
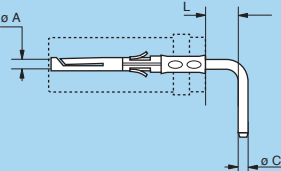
Soldering characteristics

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

Crimping characteristics

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

Contacts reference for plugs, sockets and free or fixed cable sockets

Contact type	Reference		Contact			Conductor						F _r ¹⁾ (N)
	Male	Female	ø A (mm)	ø C (mm)	Form per fig.	Solid		Stranded				
						AWG max.	Section max. (mm ²)	AWG		Section (mm ²)		
								min.	max.	min.	max.	
Solder 	A	L	0.5	0.45	–	28	0.09	–	28	–	0.09	–
			0.7	0.60	–	24	0.25	–	26	–	0.14	–
			0.9	0.80	–	22	0.34	–	22 ²⁾	–	0.34	–
			1.3	1.00	–	20	0.50	–	20 ²⁾	–	0.50	–
			1.6	1.40	–	16	1.00	–	18	–	1.00	–
			2.0	1.80	–	14	1.50	–	16	–	1.50	–
			3.0	2.70	–	10	4.00	–	12	–	4.00	–
			4.0	3.70	–	10	6.00	–	10	–	6.00	–
			5.0	5.20	–	–	–	–	8	–	10.00	–
			6.0	5.20	–	–	–	–	8	–	10.00	–
			8.0	7.00	–	–	–	–	4	–	21.00	–
			12.0	11.50	–	–	–	–	0	–	50.00	–
Crimp 	C	M	0.7	0.80	1	–	–	26	22 ²⁾	0.140	0.34	22
	B	P	0.7	0.45	2	–	–	32	28	0.035	0.09	22
	C	M	0.9	1.10	1	–	–	24	20	0.250	0.50	30
	B	P	0.9	0.80	2	–	–	26	22 ²⁾	0.140	0.34	30
	G	U	0.9	0.45	2	–	–	32	28	0.035	0.09	30
	C	M	1.3	1.40	1	–	–	20	18	0.500	1.00	40
	B	P	1.3	1.10	2	–	–	24	20	0.250	0.50	40
	G	U	1.3	0.80	2	–	–	26	22 ²⁾	0.140	0.34	40
	C	M	1.6	1.90	1	–	–	18	14 ²⁾	1.000	1.50	50
	B	P	1.6	1.40	2	–	–	22	18	0.340	1.00	50
	C	M	2.0	2.40	1	–	–	16	12 ²⁾	1.500	2.50	65
	B	P	2.0	1.90	2	–	–	18	14	1.500	1.50	65
Print 	D	N	Check product finder LEMO.COM for details.									
Print (elbow) 	V	V	L dimensions and C are detailed in the section on PCB drilling pattern. See page 93.									

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

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

● Standard ● Special

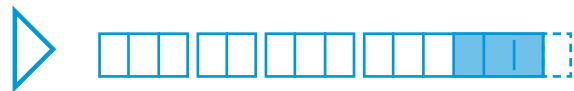
Ref.	Contact type	Remarks
A	Male - Female	contact configuration is explained below
L	Female - Male	contact configuration is explained below
M	Female - Female	contact configuration is explained below

A Male - Female

L Female - Male

M Female - Female

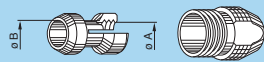
Note: 1) this connector combination does not allow for contact numbering. One of the plugs has to be cable mounted in a way to ensure correct signal continuity.



Collets

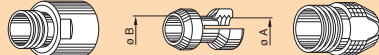
C, K and L type collets for S series

C type



K type

oversize
cable collet



L type (non EMC)



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
00	C	17	1.7	1.5	1.7	1.3	
	C	22	2.2	—	2.2	> 1.7	
	C	27	2.7	—	2.7	> 2.2	
	C	31	3.1	2.7	3.1	> 2.7	
	K	37	3.7	—	3.7	> 3.2	
	K	44	4.2	3.7	4.4	> 3.7	
	L	27	2.7	—	2.6	2.2	2)
	L	31	3.1	—	3.0	2.6	2)
0S	C	22	2.2	—	2.2	1.3	3)
	C	32	3.2	—	3.2	2.2	
	C	37	3.7	—	3.7	3.2	
	C	44	4.4	3.7	4.4	3.8	
	K	52	5.2	—	5.2	> 4.2	
	K	57	5.7	5.2	5.7	> 5.2	
	K	62	6.2	5.2	6.2	> 5.7	
	L	22	2.2	—	2.2	1.3	2)
	L	32	3.2	—	3.2	> 2.2	2)
	L	37	3.7	—	3.7	> 3.2	2)
	L	44	4.4	—	4.3	3.5	1) 2)
	L	48	4.8	—	4.8	4.4	1) 2)
1S	C	22	2.2	—	2.2	1.4	
	C	32	3.2	—	3.2	2.2	
	C	42	4.2	—	4.2	3.2	
	C	57	5.7	5.2	5.7	5.2	
	C	62	6.2	5.2	6.2	5.7	
	K	72	7.2	—	7.2	> 6.2	
	K	82	8.2	6.7	8.2	> 7.2	
	K	87	8.7	6.7	8.7	> 8.2	

	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
1S	L	22	2.2	—	2.2	1.2	2)
	L	32	3.2	—	3.2	> 2.2	2)
	L	42	4.2	—	4.2	> 3.2	2)
	L	52	5.2	—	5.2	> 4.2	2)
	L	62	6.2	—	6.2	> 5.2	2)
	L	66	6.6	—	6.5	5.9	1) 2)
2S	C	27	2.7	—	2.7	1.3	
	C	32	3.2	—	3.2	> 2.5	
	C	42	4.2	—	4.2	> 3.2	
	C	52	5.2	—	5.2	> 4.2	
	C	62	6.2	—	6.2	> 5.2	
	C	72	7.2	6.7	7.2	> 6.2	
	C	82	8.2	6.7	8.2	> 7.2	
	C	87	8.7	6.7	8.7	> 8.2	
	K	97	9.7	9.0	9.7	> 8.7	
	K	11	10.5	9.0	10.5	> 9.5	
	L	32	3.2	—	3.2	2.5	2)
	L	42	4.2	—	4.2	> 3.2	2)
	L	52	5.2	—	5.2	> 4.2	2)
	L	62	6.2	—	6.2	> 5.2	2)
	L	72	7.2	—	7.2	> 6.2	2)
	L	82	8.2	—	8.2	> 7.2	2)
	L	87	8.7	—	8.7	> 8.2	1) 2)

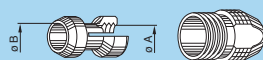
● Standard ● Special

Note: All dimensions are in millimetres.

¹⁾ these collets cannot be used for connectors models with nut for fitting a bend relief. ²⁾ these collets cannot be used for elbow connectors. ³⁾ the inner diameter of the smallest bend relief available is 2.5 mm.

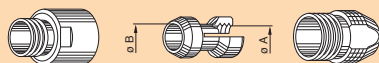
C, K and L type collets for S series

C type



K type

oversize
cable collet



L type (non EMC)



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
3S	C	42	4.2	7.7	4.2	2.6	
	C	57	5.7	7.7	5.7	4.2	
	C	72	7.2	7.7	7.2	5.7	
	C	87	8.7	8.7	8.7	7.2	
	C	97	9.7	9.0	9.7	8.5	
	C	11	10.5	9.0	10.5	9.8	
	K	12	12.2	–	12.0	11.1	
	K	13	13.2	12.2	13.0	12.1	
	L	42	4.2	–	4.2	2.6	2)
	L	57	5.7	–	5.7	> 4.2	2)
	L	72	7.2	–	7.2	> 5.7	2)
	L	87	8.7	–	8.7	> 7.2	2)
	L	97	9.7	–	9.7	> 8.7	2)
	L	11	10.7	–	10.7	> 9.7	1) 2)
4S	C	52	5.2	–	5.0	4.1	
	C	62	6.2	–	6.0	5.1	
	C	72	7.2	–	7.0	6.1	
	C	82	8.2	–	8.0	7.1	
	C	92	9.2	–	9.0	8.1	
	C	10	10.2	–	10.0	9.1	
	C	11	11.2	–	11.0	10.1	

	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
4S	C	12	12.2	–	12.0	11.1	
	C	13	13.2	12.2	13.0	12.6	
	K	14	14.2	–	14.0	13.1	1)
	K	15	15.2	–	15.0	14.1	1)
	K	16	16.2	–	16.0	15.1	1)
	K	17	17.2	–	17.0	16.1	1)
	K	18	18.2	–	18.0	17.1	1)
	K	19	19.2	–	19.0	18.1	1)
	K	20	20.2	19.7	20.0	19.1	1)
	K	21	21.2	19.7	21.0	20.1	1)
	K	22	22.2	19.7	22.0	21.1	1)
	L	52	5.2	–	5.0	4.1	2)
	L	62	6.2	–	6.0	5.1	2)
	L	72	7.2	–	7.0	6.1	2)
	L	82	8.2	–	8.0	7.1	2)
	L	92	9.2	–	9.0	8.1	2)
	L	10	10.2	–	10.0	9.1	2)
	L	11	11.2	–	11.0	10.1	2)
	L	12	12.2	–	12.0	11.1	2)
	L	13	13.2	–	13.0	12.6	2)

● Standard ● Special

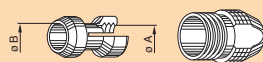
Note: All dimensions are in millimetres.

1) these collets cannot be used for connectors models with nut for fitting a bend relief.

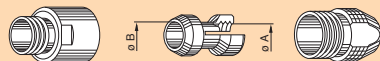
2) these collets cannot be used for elbow connectors.

C, K and L type collets for S series

C type



K type
oversize
cable collet



L type
(non EMC)



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
5S	C	72	7.2	—	7.0	6.1	1)
	C	82	8.2	—	8.0	7.1	1)
	C	92	9.2	—	9.0	8.1	1)
	C	10	10.2	—	10.0	9.1	1)
	C	11	11.2	—	11.0	10.1	1)
	C	12	12.2	—	12.0	11.1	1)
	C	13	13.2	—	13.0	12.1	1)
	C	14	14.2	—	14.0	13.1	1)
	C	15	15.2	—	15.0	14.1	1)
	C	16	16.2	—	16.0	15.1	1)
	C	17	17.2	—	17.0	16.1	1)
	C	18	18.2	—	18.0	17.1	1)
	C	19	19.2	—	19.0	18.1	1)
	C	20	20.2	19.7	20.0	19.1	1)
	C	21	21.2	19.7	21.0	20.1	1)
	C	22	22.2	19.7	22.0	21.1	1)
	K	23	23.2	—	23.0	22.1	1)
	K	24	24.2	—	24.0	23.1	1)
	K	25	25.2	—	25.0	24.1	1)

	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
5S	K	26	26.2	–	26.0	25.1	1)
	K	27	27.2	–	27.0	26.1	1)
	K	28	28.2	27.2	28.0	27.1	1)
	K	29	29.2	27.2	29.0	28.1	1)
	K	30	30.2	27.2	30.0	29.1	1)
	L	92	9.2	–	9.0	8.1	1) 2)
	L	10	10.2	–	10.0	9.1	1) 2)
	L	11	11.2	–	11.0	10.1	1) 2)
	L	12	12.2	–	12.0	11.1	1) 2)
	L	13	13.2	–	13.0	12.1	1) 2)
	L	14	14.2	–	14.0	13.1	1) 2)
	L	15	15.2	–	15.0	14.1	1) 2)
	L	16	16.2	–	16.0	15.1	1) 2)
	L	17	17.2	–	17.0	16.1	1) 2)
	L	18	18.2	–	18.0	17.1	1) 2)
	L	19	19.2	–	19.0	18.1	1) 2)
	L	20	20.2	–	20.0	19.1	1) 2)
	L	21	21.2	–	21.0	20.1	1) 2)

● Special

Note: All dimensions are in millimetres.

Note. All dimensions are in millimetres.
The 5S.112 is only available with L type of collet.

1) these collets cannot be used for connectors models with nut for fitting a bend relief.

2) these collets cannot be used for elbow connectors.

C and L type collets for S series

C type



L type (non EMC)



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
6S	C	12	12.2	–	12.0	11.1	1)
	C	13	13.2	–	13.0	12.1	1)
	C	14	14.2	–	14.0	13.1	1)
	C	15	15.2	–	15.0	14.1	1)
	C	16	16.2	–	16.0	15.1	1)
	C	17	17.2	–	17.0	16.1	1)
	C	18	18.2	–	18.0	17.1	1)
	C	19	19.2	–	19.0	18.1	1)
	C	20	20.2	–	20.0	19.1	1)
	C	21	21.2	–	21.0	20.1	1)
	C	22	22.2	–	22.0	21.1	1)
	C	23	23.2	–	23.0	22.1	1)
	C	24	24.2	–	24.0	23.1	1)
	C	25	25.2	–	25.0	24.1	1)
	C	26	26.2	–	26.0	25.1	1)
	C	27	27.2	–	27.0	26.1	1)
	C	28	28.2	27.2	28.0	27.1	1)
	C	29	29.2	27.2	29.0	28.1	1)
	C	30	30.2	27.2	30.0	29.1	1)

	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
6S	L	12	12.2	–	12.0	11.1	1) 2)
	L	13	13.2	–	13.0	12.1	1) 2)
	L	14	14.2	–	14.0	13.1	1) 2)
	L	15	15.2	–	15.0	14.1	1) 2)
	L	16	16.2	–	16.0	15.1	1) 2)
	L	17	17.2	–	17.0	16.1	1) 2)
	L	18	18.2	–	18.0	17.1	1) 2)
	L	19	19.2	–	19.0	18.1	1) 2)
	L	20	20.2	–	20.0	19.1	1) 2)
	L	21	21.2	–	21.0	20.1	1) 2)
	L	22	22.2	–	22.0	21.1	1) 2)
	L	23	23.2	–	23.0	22.1	1) 2)
	L	24	24.2	–	24.0	23.1	1) 2)
	L	25	25.2	–	25.0	24.1	1) 2)
	L	26	26.2	–	26.0	25.1	1) 2)
	L	27	27.2	–	27.0	26.1	1) 2)
	L	28	28.2	–	28.0	27.1	1) 2)
	L	29	29.2	–	29.0	28.1	1) 2)
	L	30	30.2	–	30.0	29.1	1) 2)

Note: All dimensions are in millimetres.

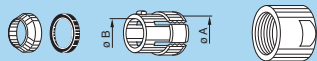
1) these collets cannot be used for connectors models with nut for fitting a bend relief.

2) these collets cannot be used for elbow connectors..

● Special

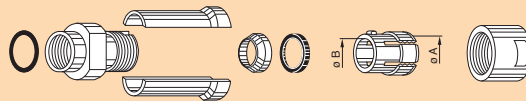
C and K type collets for E series

C type



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

K type
oversize
cable collet



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

● Standard ● Special

Note: all dimensions are in millimetres.

1) the inner diameter of the smallest bend relief available is 2.5 mm.

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

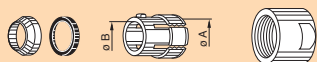
3) for 2B bend relief.

4) for 3B bend relief.

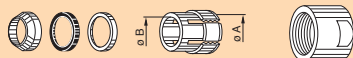
5) for 4B bend relief.

C and K type collets for E series

C type

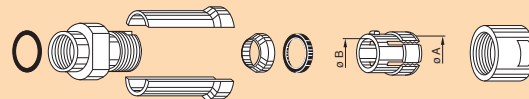


C type (5E, 6E series)



K type

oversize cable collet



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
4E	C	50	6.3	—	5.0	4.8	
	C	55	6.3	—	5.5	5.1	
	C	60	6.3	—	6.0	5.6	
	C	65	7.3	—	6.5	6.1	
	C	70	7.3	—	7.0	6.6	
	C	75	8.3	—	7.5	7.1	
	C	80	8.3	—	8.0	7.6	
	C	85	9.3	—	8.5	8.1	
	C	90	9.3	—	9.0	8.6	
	C	95	10.8	—	9.5	9.1	
	C	10	10.8	—	10.5	9.6	
	C	11	12.3	—	12.0	10.6	
	C	12	13.8	13.8	12.8	12.1	
	C	13	13.8	13.8	13.5	12.9	
	C	14	15.3	15.3	14.0	13.6	
	C	15	15.3	15.3	15.0	14.1	2)
	K	16	17.8	—	16.5	15.6	1)
	K	17	17.8	—	17.5	16.6	1)
	K	18	19.8	—	18.5	17.6	1)
	K	19	19.8	—	19.5	18.6	1)
	K	20	21.8	—	20.5	19.6	1)
	K	21	21.8	—	21.5	20.6	1)
	K	22	23.8	23.8	22.5	21.6	1)
	K	23	23.8	23.8	23.5	22.6	1)

	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
5E	C	10	11.8	—	10.5	9.6	
	C	11	11.8	—	11.5	10.6	
	C	12	13.8	—	12.5	11.6	
	C	13	13.8	—	13.5	12.6	
	C	14	15.8	—	14.5	13.6	
	C	15	15.8	—	15.5	14.6	1)
	C	16	17.8	—	16.5	15.6	1)
	C	17	17.8	—	17.5	16.6	1)
	C	18	19.8	—	18.5	17.6	1)
	C	19	19.8	—	19.5	18.6	1)
	C	20	21.8	—	20.5	19.6	1)
	C	21	21.8	—	21.5	20.6	1)
	C	22	23.8	23.8	22.5	21.6	1)
	C	23	23.8	23.8	23.5	22.6	1)
6E	C	14	14.2	—	14.0	13.0	1)
	C	15	15.2	—	15.0	14.1	1)
	C	16	15.7	—	15.5	14.6	1)
	C	17	16.7	—	16.5	15.6	1)
	C	18	18.2	—	18.0	17.1	1)
	C	21	23.2	—	21.5	20.6	1)
	C	22	23.2	—	22.0	21.1	1)
	C	23	23.2	—	23.0	22.1	1)
	C	27	27.2	—	27.0	26.1	1)
	L	30	30.2	—	30.0	29.5	1)

Note: all dimensions are in millimetres.

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

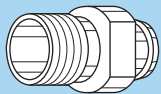
²⁾ the inner diameter of the largest bend relief available is 14.5 mm.

● Special

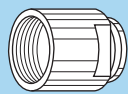


Variant

Bend relief for S series models with collet

				Need to be ordered
Ref.		Collet		Need to be ordered separately (see pages 81 and 82)
		Type	Code	
00	z	C	17 to 31	GMA.00.0...D●
		K	37 to 42	GMA.0B.0...D●
		L	27 to 31	GMA.00.0...D●
0S	z	C	32 to 44	GMA.0B.0...D●
		K	52 to 62	GMA.1B.0...D●
		L	32 to 48	GMA.0B.0...D●
1S	z	C	32 to 62	GMA.1B.0...D●
		K	72 to 87	GMA.2B.0...D●
		L	32 to 66	GMA.1B.0...D●
2S	z	C	42 to 87	GMA.2B.0...D●
		K	97 to 11	GMA.3B.0...D●
		L	42 to 87	GMA.2B.0...D●
3S	z	C	57 to 97	GMA.3B.0...D●
		K	12 to 13	GMA.4B.0...D●
		L	57 to 97	GMA.3B.0...D●
4S	z	C	82 to 13	GMA.4B.0...D●
		L	82 to 13	GMA.4B.0...D●

Bend relief for E series models with collet

				Need to be ordered
Ref.		Collet		Need to be ordered separately (see pages 81 and 82)
		Type	Code	
0E	z	C	10 to 50	GMA.0B....●●
1E	z	C	15 to 65	GMA.1B....●●
		K	70 to 85	GMA.2B....●●
2E	z	C	15 to 85	GMA.2B....●●
		K	90 to 10	GMA.3B....●●
3E	z	C	30 to 10	GMA.3B....●●
		K	11 to 15 ¹⁾	GMA.4B....●●
4E	z	C	50 to 15 ²⁾	GMA.4B....●●
5E	z	C	10 to 14	GMA.4B....●●

● Standard ● Special

Note: all dimensions are in millimetres.

¹⁾ for K15 see page 64.

²⁾ for C15 see page 65.

Colour of connectors shell made of plastic material and aluminium alloys

Ref.	Colour	Plastic shell			Aluminium alloys	
		PSU	PPSU	PA.6	Anodized colour	Anodized colour for bend relief collet nut
A	blue			●	●	
G	grey	●		●		
J	yellow			●	●	
M	brown			●		
N	black			●	●	
R	red			●	●	
S	orange			●		
T	natural				●	
V	green			●	●	
L	black					●
X	natural					●
F	cream		●			

● Special

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

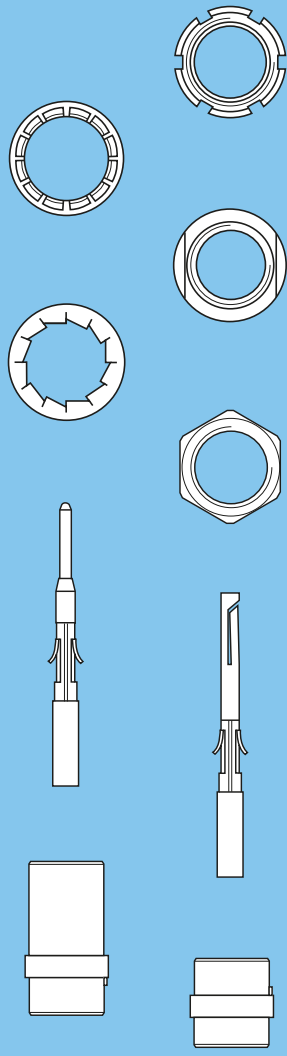
Watertight and vacuumtight socket and coupler models (S and E series) (not connected)

	Reference		Model
	Watertight	Vacuumtight	
S	P	PV	EWB, HCP, HGP, HGW, SWH
E	P	PV	EBR, HGP, SWH

O-ring and gasket material (E series)

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

Ref.	O-ring material
H	FPM
E	EPDM
D	FPM and collet nut for bend relief



SPARE PARTS

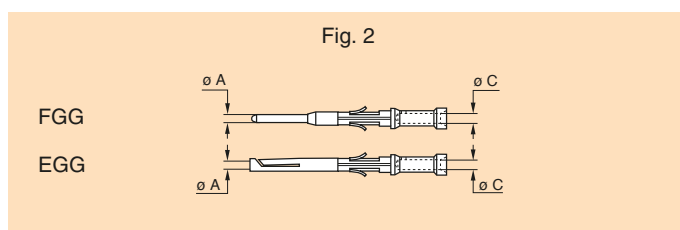
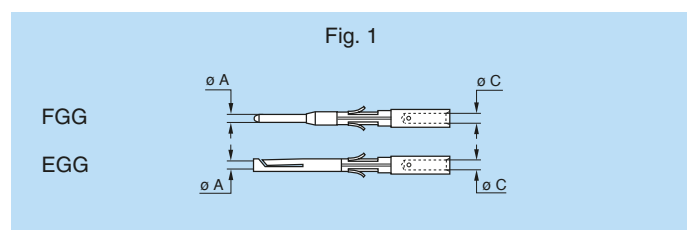
Spare parts and tools for crimp contacts

Series/ Types	ø (mm)		L D	Cond. AWG		Contact part number		Positioners part number ¹⁾		Extractors part number for male/ female contacts
	A	C		min.	max.	Male	Female	Male contact	Female contact	
0S.302	0.9	1.10	1	24	20	FGG.0B.560.ZZC	EGG.0B.660.ZZM	DCE.91.090.BVC	DCE.91.090.BVM	DCC.09.05B.LAG
		0.80	2	26	22	FGG.0B.561.ZZC	EGG.0B.661.ZZM	DCE.91.090.AVC	DCE.91.090.AVM	
		0.45	2	32	28	FGG.0B.562.ZZC	EGG.0B.662.ZZM	DCE.91.070.BVC	DCE.91.070.BVM	
0S.303 0S.304	0.7	0.80	1	26	22	FGG.0B.555.ZZC	EGG.0B.655.ZZM	DCE.91.132.BVC	DCE.91.132.BVM	DCC.07.04B.LAG
		0.45	2	32	28	FGG.0B.556.ZZC	EGG.0B.656.ZZM	DCE.91.132.CVC	DCE.91.132.CVM	
1S.302	1.3	1.40	1	20	18	FGG.1B.565.ZZC	EGG.1B.665.ZZM	DCE.91.131.BVC	DCE.91.131.BVM	DCC.13.15B.LAG
		1.10	2	24	20	FGG.1B.566.ZZC	EGG.1B.666.ZZM	DCE.91.091.BVC	DCE.91.091.BVM	
		0.80	2	26	22	FGG.1B.567.ZZC	EGG.1B.667.ZZM	DCE.91.132.BVC	DCE.91.132.BVM	
1S.304	0.9	1.10	1	24	20	FGG.1B.560.ZZC	EGG.1B.660.ZZM	DCE.91.132.CVC	DCE.91.132.CVM	DCC.13.15B.LAG
		0.80	2	26	22	FGG.1B.561.ZZC	EGG.1B.661.ZZM	DCE.91.132.CVC	DCE.91.132.CVM	
		0.45	2	32	28	FGG.1B.562.ZZC	EGG.1B.662.ZZM	DCE.91.132.CVC	DCE.91.132.CVM	
2S.306	1.3	1.40	1	20	18	FGG.2B.565.ZZC	EGG.2B.665.ZZM	DCE.91.132.BVC	DCE.91.132.BVM	DCC.13.15B.LAG
		1.10	2	24	20	FGG.2B.566.ZZC	EGG.2B.666.ZZM	DCE.91.132.CVC	DCE.91.132.CVM	
		0.80	2	26	22	FGG.2B.567.ZZC	EGG.2B.667.ZZM	DCE.91.132.CVC	DCE.91.132.CVM	

Note: ¹⁾ please see below for the corresponding crimping tools.

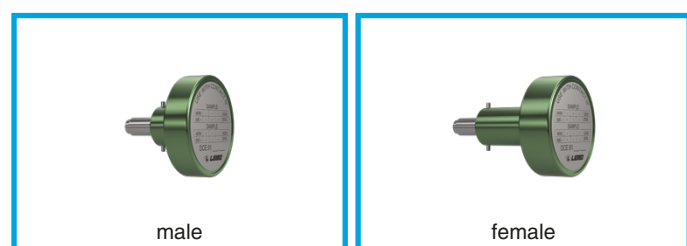
● Standard ● Special

FGG-EGG Crimp contacts



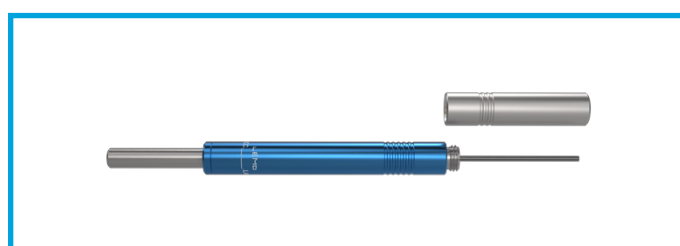
Note: a wide variation of strand number and diameter combinations are quoted as being AWG, some of which do not have a large enough cross section to guarantee a crimp as per either MIL-C-22520/1-01 or /7-01.

DCE Positioners ø 0.5-0.7-0.9-1.3 mm ¹⁾



These positioners are suitable for use with both manual and pneumatic crimping tools according to the MIL-C-22520/7-01 standard.

DCC Manual extractors



Crimping tools for electrical contacts

Manual crimping tools



Part number	Supplier
DPC.91.701.V¹⁾	LEMO
MH860¹⁾	DANIELS
616336¹⁾	ASTRO

¹⁾ According to specification MIL-C-22520/7-01.

Pneumatic crimping tools

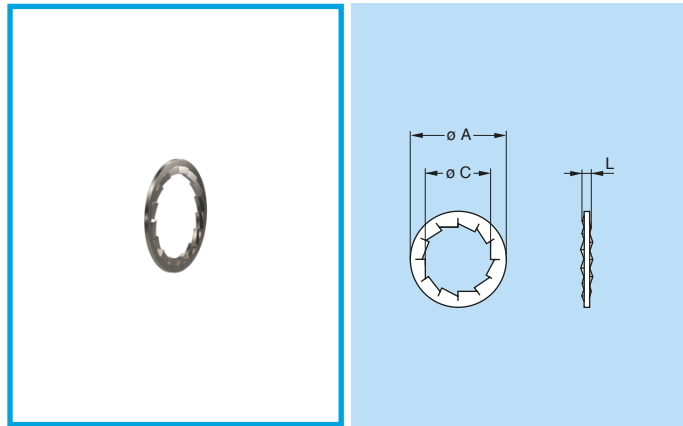


Part number	Supplier
DPC.91.701.C	LEMO

According to specification MIL-C-22520/7-01.
For LEMO contacts ø 0.5-0.7-0.9-1.3 mm

Spare parts

GBA Locking washers



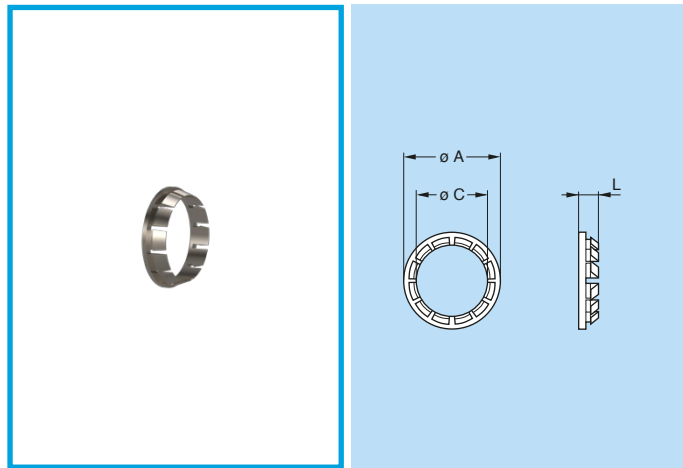
● Material: Nickel-plated bronze (3 μ m)

Part number	Series	Dimensions (mm)		
		A	C	L
GBA.00.250.FN	00	9.5	7.1	1.0
GBA.0S.250.FN	0S	12.5	9.1	1.0
GBA.1S.250.FN	1S	16.0	12.1	1.0
GBA.1E.250.FN	1E	21.8	16.1	1.2
GBA.2S.250.FN	2S	19.5	15.1	1.2
GBA.3S.250.FN	3S	25.0	18.1	1.4
GBA.4S.250.FN	4S	32.0	25.1	1.4

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

● Standard ● Special

GBB Tapered washers



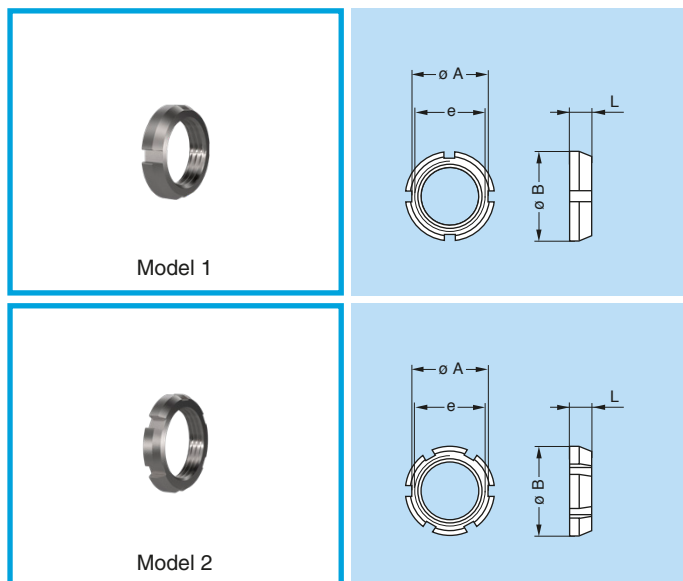
● Material: Nickel-plated brass (3 μ m)

Part number	Series	Dimensions (mm)		
		A	C	L
GBB.00.250.LN	00	9	7.1	2.0
GBB.0S.250.LN	0S	11	9.1	2.5
GBB.1S.250.LN	1S	15	12.1	3.5
GBB.2S.250.LN	2S	18	15.1	4.0
GBB.3S.250.LN	3S	22	18.1	4.5
GBB.4S.250.LN	4S	28	25.2	5.0
GBB.5S.250.LN	5S	40	35.2	7.5

Note: sockets of series 5S are always supplied with a tapered washer. To order this accessory separately, use the above part numbers. The panel cut out diameters are larger when using tapered washer.

● Standard ● Special

GEG Notched nut

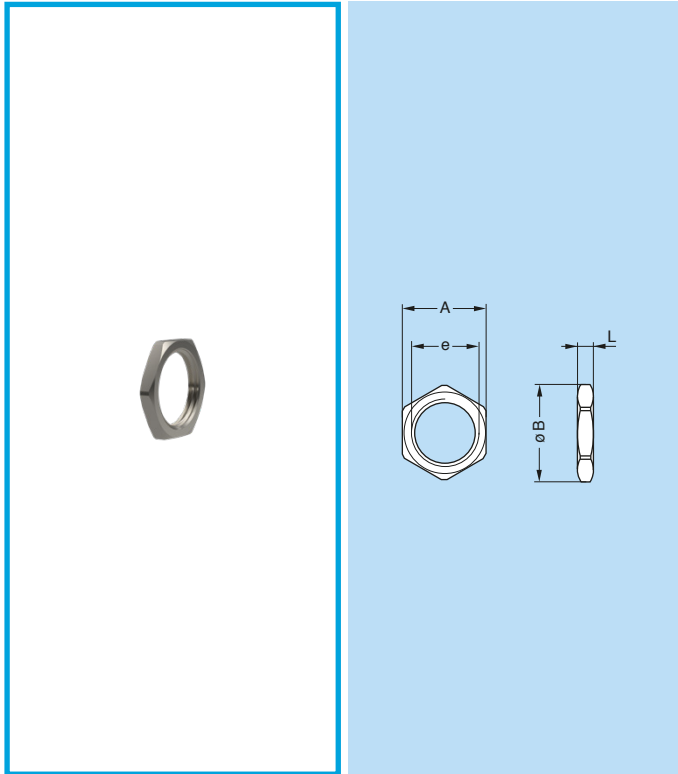


Part number	Model	Dimensions (mm)			
		A	B	e	L
GEG.00.240.LC	1	8.6	10	M7 x 0.5	2.5
GEG.0S.240.LC	1	10.5	12	M9 x 0.6	2.5
GEG.0E.240.LC	1	15.8	18	M14 x 1.0	3.5
GEG.1S.240.LC	1	14.0	16	M12 x 1.0	3.5
GEG.1E.240.LC	2	17.5	20	M16 x 1.0	3.5
GEG.2S.240.LC	2	17.5	20	M15 x 1.0	3.5
GEG.2E.240.LC	2	22.5	25	M20 x 1.0	3.5

● Material: Chrome-plated brass (Ni 3 μ m + Cr 0.3 μ m)

Note: 00, 0S, 1S and 2S series fixed and free cable sockets for back panel mounting are always delivered with this notched nut. To order this accessory separately, use the above part numbers.

GEA Hexagonal nuts



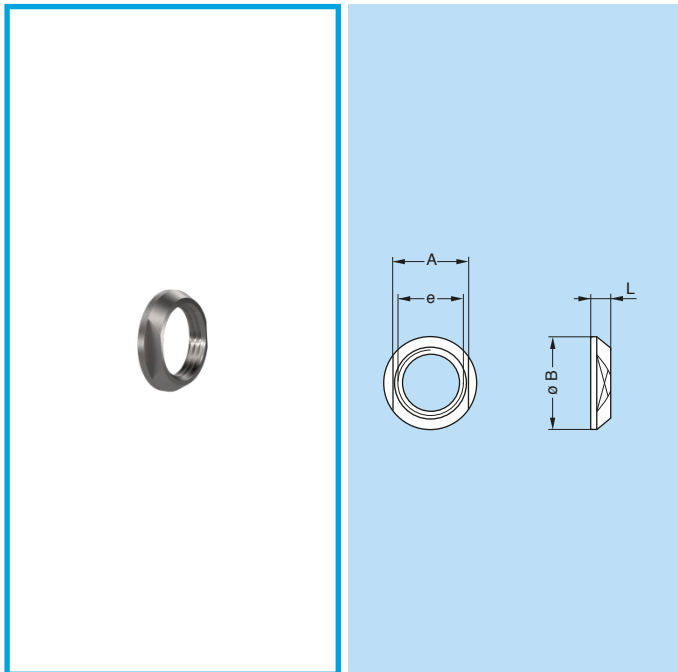
- Material: Nickel-plated brass (3 µm), natural anodized aluminium alloy, stainless steel

Part number	Series	Dimensions (mm)			
		A	B	e	L
GEA.00.240.LN	00	9	10.2	M7 x 0.50	2.0
GEA.0S.240.LN	0S	11	12.4	M9 x 0.60	2.0
GEA.0S.241.LN	0S	12	13.8	M10 x 0.75	2.5
GEA.0E.240.LN	0E	17	19.2	M14 x 1.00	2.5
	1S				
GEA.1S.240.LN	1S	14	15.8	M12 x 1.00	2.5
GEA.1E.240.LN	1E	19	21.5	M16 x 1.00	3.0
	2S				
GEA.2S.240.LN	2S	17	19.2	M15 x 1.00	2.7
GEA.2E.240.LN	2E	24	27.0	M20 x 1.00	4.0
GEA.3S.240.LN	3S	22	25.0	M18 x 1.00	3.0
GEA.3E.240.LN	3E	30	34.0	M24 x 1.00	5.0
GEA.4S.240.LN	4S	30	34.0	M25 x 1.00	5.0
GEA.4E.240.LN	4E	36	40.5	M30 x 1.00	7.0

Note: to order this part separately, use the above part numbers. The last letters «LN» of the part number refer to the nut material and treatment. If a nut in aluminium alloy or stainless steel is desired, replace the last letters of the part number by «PT» or «AZ» respectively.

- Standard
- Special

GEC Conical nuts



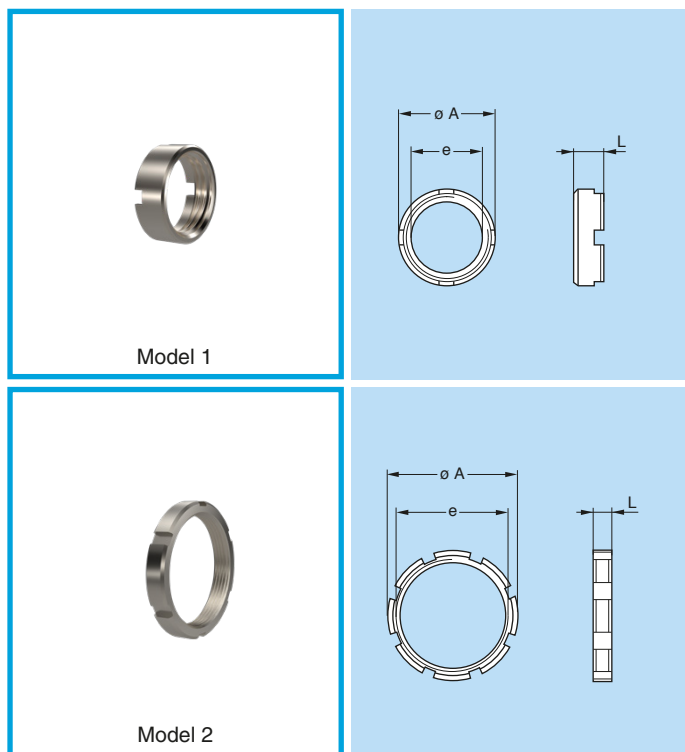
- Material: Chrome-plated brass (Ni 3 µm + Cr 0.3 µm)

Part number	Dimensions (mm)			
	A	B	e	L
GEC.00.240.LC	8	10.0	M7 x 0.5	2.5
GEC.0S.240.LC	10	12.0	M9 x 0.6	2.5
GEC.0E.240.LC	16	18.0	M14 x 1.0	3.0
GEC.1S.240.LC	13	16.0	M12 x 1.0	3.2
GEC.1S.241.LC	17	20.0	M16 x 1.0	4.0
GEC.2S.240.LC	17	20.0	M15 x 1.0	3.8
GEC.2E.240.LC	22	25.0	M20 x 1.0	5.0
GEC.3S.240.LC	20	24.0	M18 x 1.0	4.5
GEC.3E.240.LC	27	30.0	M24 x 1.0	4.5
GEC.4S.240.LC	27	30.0	M25 x 1.0	4.5
GEC.4K.241.LC	32	35.5	M30 x 1.0	5.0
GEC.5S.240.LC	37	41.0	M35 x 1.0	5.0

Note: 3S, 3E, 4S, 4E, 5S, 5E, 6S and 6E series fixed and free cable sockets for back panel mounting are always delivered with a conical nut. To order this accessory separately, use the part numbers in the adjacent table.

- Standard
- Special

GEB Round nuts

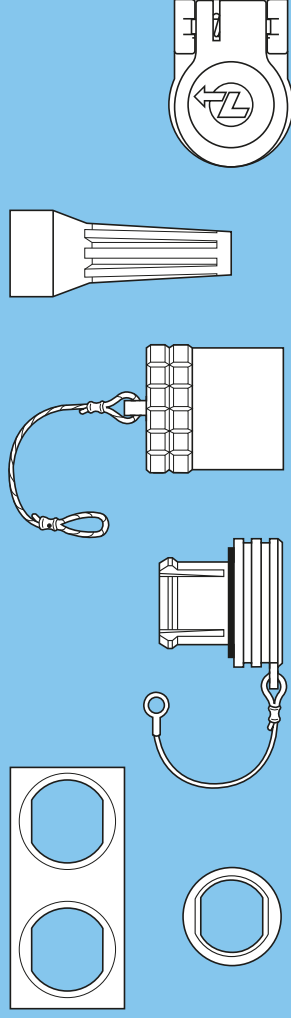


Part number	Model	Dimensions (mm)		
		A	e	L
GEB.00.240.LN	1	9.0	M7 x 0.50	4.0
GEB.0S.240.LN	1	11.0	M9 x 0.60	4.0
GEB.0E.240.LN	1	18.0	M14 x 1.00	5.0
GEB.1S.240.LN	1	14.0	M12 x 1.00	5.0
GEB.1E.240.LN	1	20.0	M16 x 1.00	5.0
GEB.2S.240.LN	1	18.0	M15 x 1.00	5.5
GEB.3S.240.LN	1	22.0	M18 x 1.00	5.5
GEB.4S.240.LN	1	28.0	M25 x 1.00	6.0
GEB.5S.240.LN	2	40.0	M35 x 1.00	8.0
GEB.5E.240.LN	2	54.0	M45 x 1.50	8.0
GEB.6S.241.LN	2	54.0	M48 x 1.50	8.0
GEB.6E.240.LN	2	65.0	M55 x 2.00	9.0

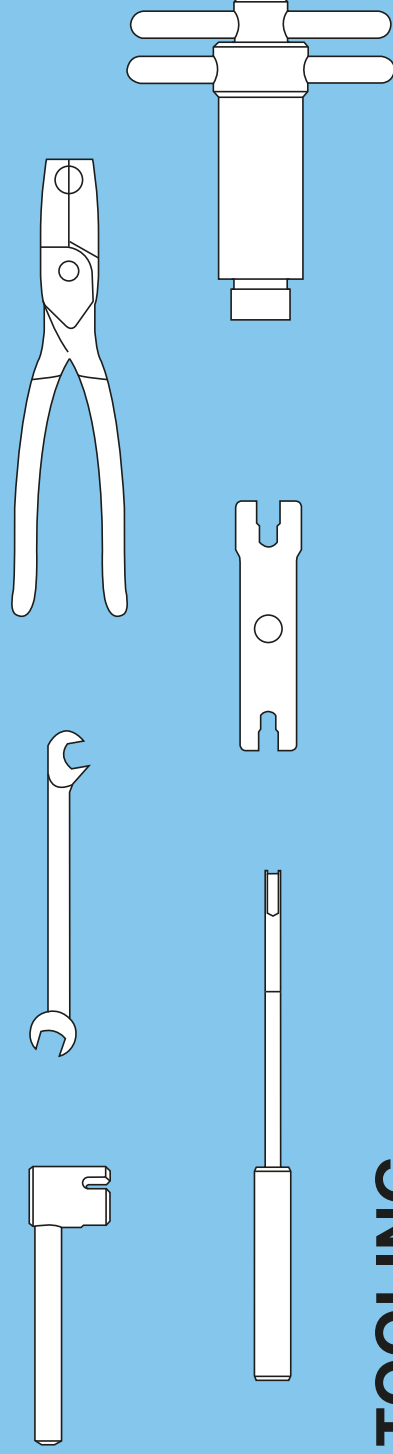
Note: 5S, 5E, 6S and 6E series sockets are always supplied with model 2 round nuts. To order this accessory separately, use the part numbers in the adjacent table.

● Material: Nickel-plated brass (3 µm)

● Standard ● Special



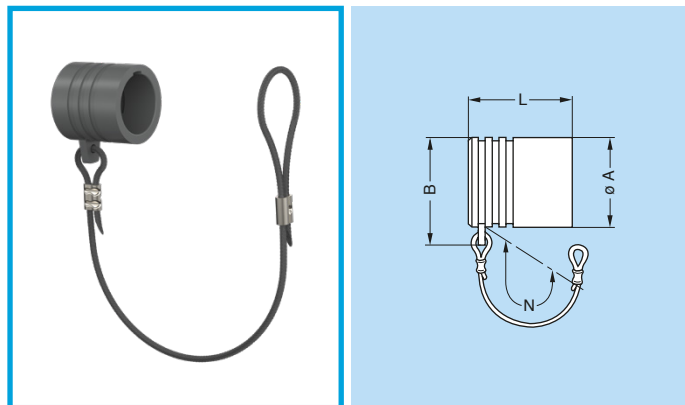
ACCESSORIES



TOOLING

Accessories

BFG Plug caps



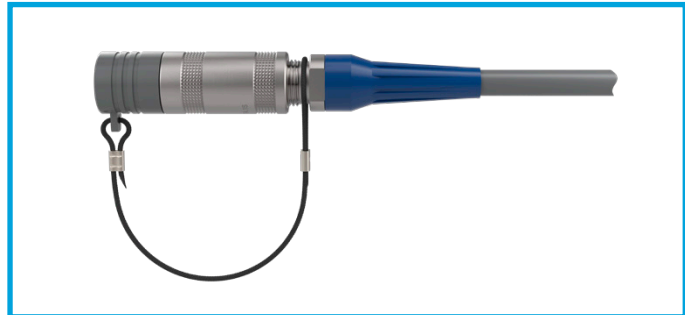
- Body material: Polyoxymethylene (POM) grey (or black)
- Cord material: Polypropylene core and PVC coat, grey (or black)
- Gasket material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP51 according to IEC 60529

Part number	Series	Dimensions (mm)			
		A	B	L	N ¹⁾
BFG.00.100.PCSG	00	7.5	9.8	10.0	60
BFG.0B.100.PCZG	0S	9.5	12.5	11.2	85
BFG.1B.100.PCZG	1S	12.0	15.5	12.3	85
BFG.2B.100.PCSG	2S	15.0	18.0	15.0	85
BFG.3B.100.PCSG	3S	18.5	22.0	18.5	95

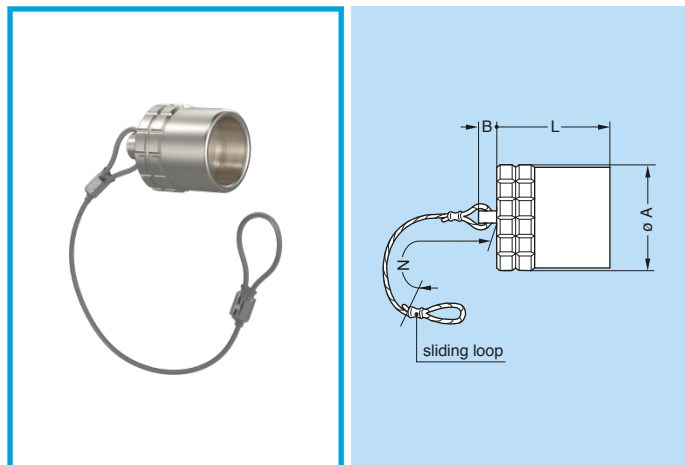
Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
This cap is available only with an alignment key (G). Upon request this cap can be supplied in black and the last letter «G» of the part number should be replaced with «N».

Fitting the cord

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



BFA Plug caps



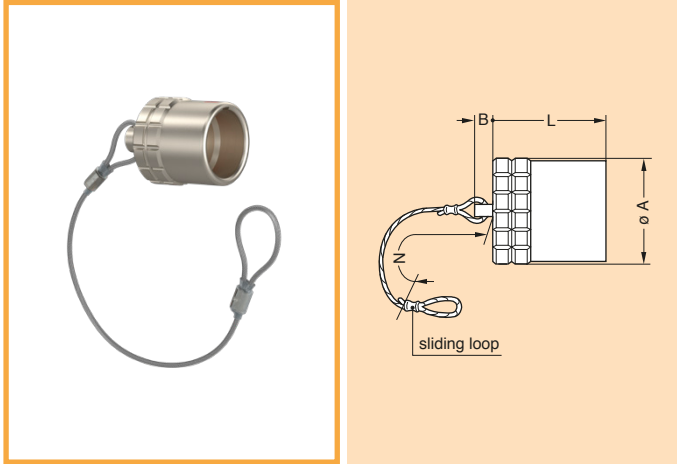
- Body material: Nickel-plated brass (Ni 3µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529 for E series

Part number	Series	Dimensions (mm)			
		A	B	L	N ¹⁾
BFA.0E.100.NAS	0E	14.0	6	12.5	85
BFA.1E.100.NAS	1E	16.0	6	15.5	85
BFA.2E.100.NAS	2E	19.5	6	17.5	85
BFA.3E.100.NAS	3E	23.0	6	22.0	120
BFA.4E.100.NAS	4E	29.0	10	22.5	120
BFA.4S.100.NAS	4S	25.0	10	22.2	120
BFA.5E.100.NAS	5E	44.0	10	27.0	150
BFA.5S.100.NAS	5S	36.0	10	30.2	150
BFA.6S.100.NAS	6S	46.0	10	33.0	150

Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
The last letter «S» of the part number stands for the material of the O-ring (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

- Standard
- Special

BFG Plug caps with key (G)

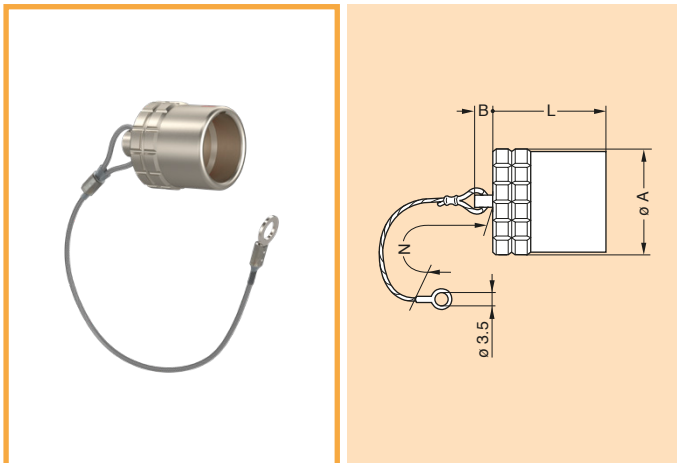


- Body material: Nickel-plated brass (Ni 3µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529 for E series

Part number	Series	Dimensions (mm)			
		A	B	L	N ¹⁾
BFG.6E.100.NAS	6E	54.0	10	31.0	150

Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
This cap is available only with an alignment key (G). The last letter «S» of the part number stands for the material of the O-ring (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

BHG Plug caps, nut fixing or flange

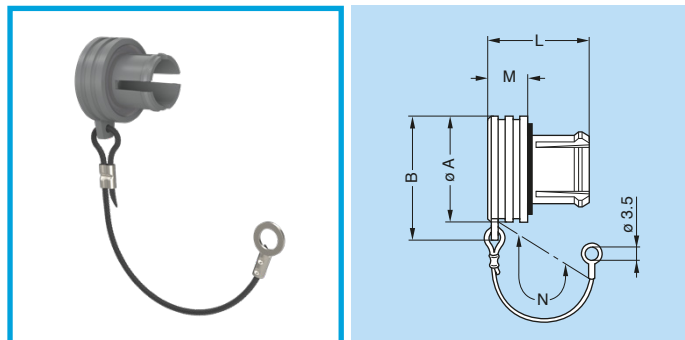


- Body material: Nickel-plated brass (Ni 3µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529 for E series

Part number	Series	Dimensions (mm)			
		A	B	L	N ¹⁾
BHG.6E.100.NAS	6E	54.0	10	31.0	150

Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
This cap is available only with an alignment key (G). The last letter «S» of the part number stands for the material of the O-ring (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

BRA Blanking caps for sockets and fixed cable sockets

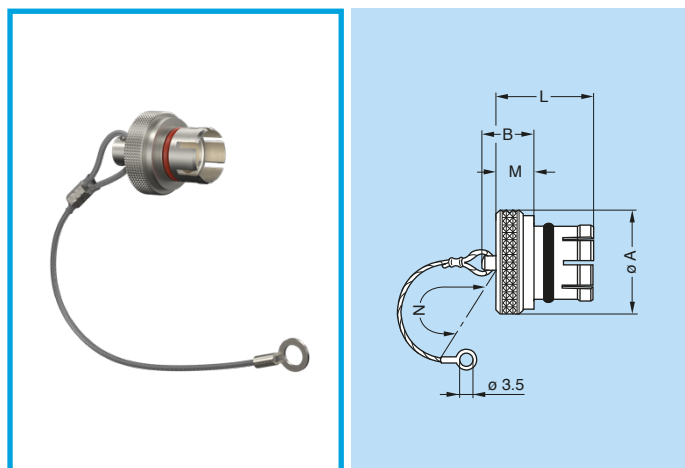


- Body material: Polyoxymethylene (POM) grey (or black)
- Cord material: Polypropylene core and PVC coat, grey (or black)
- Gasket material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529

Part number	Series	Dimensions (mm)				
		A	B	L	M	N ¹⁾
BRA.00.200.PCSG	00	7.5	9.8	9.0	3.5	60
BRA.0B.200.PCSG	0S	10.0	12.5	11.0	4.8	60
BRA.1B.200.PCSG	1S	14.0	17.0	13.5	5.6	60
BRA.2B.200.PCSG	2S	18.0	21.0	14.5	6.0	60
BRA.3B.200.PCSG	3S	22.0	25.5	17.0	7.0	60

Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
These caps are suitable for use with any alignment key configuration. On request this cap can be supplied in black. If so, replace the last letter «G» of the part number by «N».

BRE Blanking caps for sockets and fixed cable sockets



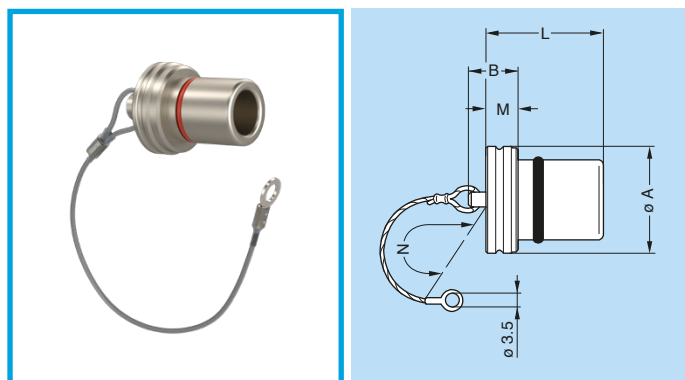
- Body material: Nickel-plated brass (Ni 3 μ m)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP61 according to IEC 60529 for S series

Part number	Series	Dimensions (mm)				
		A	B	L	M	N ¹⁾
BRE.00.200.NAS	00	8	7.5	8.8	3.5	60
BRE.0S.200.NAS	0S	10	9.5	10.5	4.5	85
BRE.1S.200.NAS	1S	14	11.0	12.5	5.0	85
BRE.2S.200.NAS	2S	18	12.0	14.0	6.0	85
BRE.3S.200.NAS	3S	22	14.0	18.0	8.0	120
BRE.4S.200.NAS	4S	28	20.0	23.0	10.0	120
BRE.5S.200.NAS	5S	40	22.0	30.0	12.0	150
BRE.6S.200.NAS	6S	54	22.0	30.0	12.0	150
BRE.6E.200.NAS	6E	57	24.0	31.5	14.0	150

Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

● Standard ● Special

BRE Blanking caps for sockets and fixed cable sockets



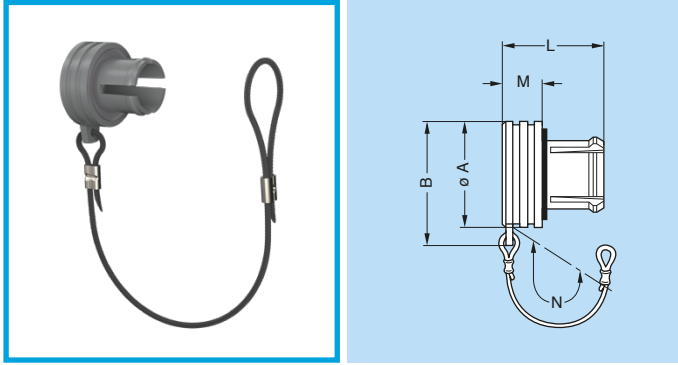
- Body material: Nickel-plated brass (Ni 3 μ m)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529

Part number	Series	Dimensions (mm)				
		A	B	L	M	N ¹⁾
BRE.0K.200.NAS	0E	15.0	10	15.0	4	85
BRE.1K.200.NAS	1E	17.0	12	20.0	6	85
BRE.2K.200.NAS	2E	20.5	14	24.0	8	85
BRE.3K.200.NAS	3E	24.0	14	28.0	8	120
BRE.4K.200.NAS	4E	30.0	20	30.5	10	120
BRE.5K.200.NAS	5E	44.0	22	37.0	12	150

Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

● Standard ● Special

BRD Blanking caps for free cable sockets



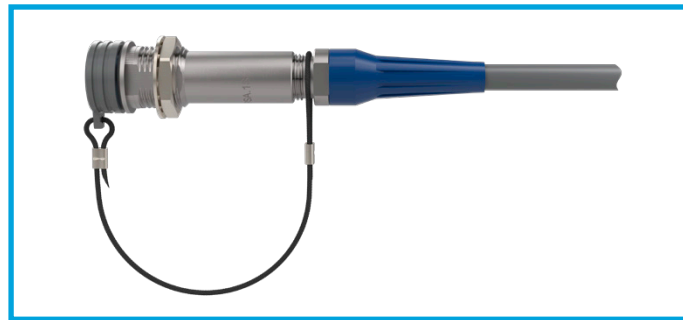
- Body material: Polyoxymethylene (POM) grey (or black)
- Cord material: Polypropylene core and PVC coat, grey (or black)
- Gasket material: Silicone rubber
- Maximum operating temperature: 100°C
- Watertightness: IP61 according to IEC 60529

Part number	Series	Dimensions (mm)				
		A	B	L	M	N ¹⁾
BRD.00.200.PCSG	00	7.5	9.8	9.0	3.5	85
BRD.0B.200.PCSG	0S	10.0	12.5	11.0	4.8	85
BRD.1B.200.PCSG	1S	14.0	17.0	13.5	5.6	85
BRD.2B.200.PCSG	2S	18.0	21.0	14.5	6.0	85
BRD.3B.200.PCSG	3S	22.0	25.5	17.0	7.0	95

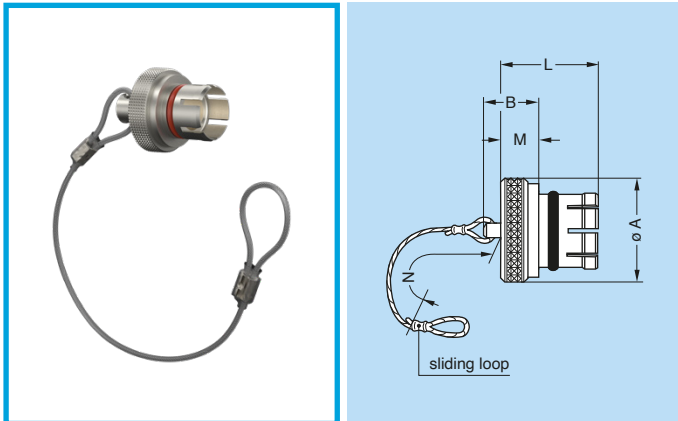
Note: 1) the tolerance on this dimension is ± 5 mm.
On request this cap is available in black. If required, replace the last letter «G» of the part number by «N».

Fitting the cord

Slide the free cable socket into the loop of the cord.
Place the loop into the groove in front of the collet nut.
Tighten the loop.



BRF Blanking caps for free cable sockets



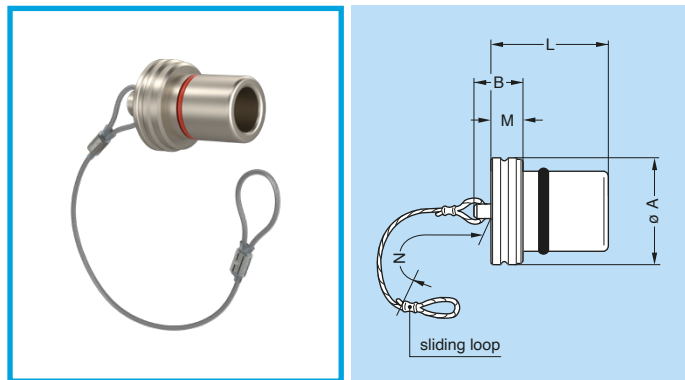
- Body material: Nickel-plated brass (Ni 3 μ m)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP61 according to IEC 60529 for S series

Part number	Series	Dimensions (mm)				
		A	B	L	M	N ¹⁾
BRF.00.200.NAS	00	8	7.5	8.8	3.5	85
BRF.0S.200.NAS	0S	10	9.5	10.5	4.5	85
BRF.1S.200.NAS	1S	14	11.0	12.5	5.0	85
BRF.2S.200.NAS	2S	18	12.0	14.0	6.0	85
BRF.3S.200.NAS	3S	22	14.0	18.0	8.0	120
BRF.4S.200.NAS	4S	28	20.0	23.0	10.0	120
BRF.5S.200.NAS	5S	40	22.0	30.0	12.0	150
BRF.6S.200.NAS	6S	54	22.0	30.0	12.0	150

Note: 1) the tolerance on this dimension is ± 5 mm.
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

● Standard ● Special

BRF Blanking caps for free sockets



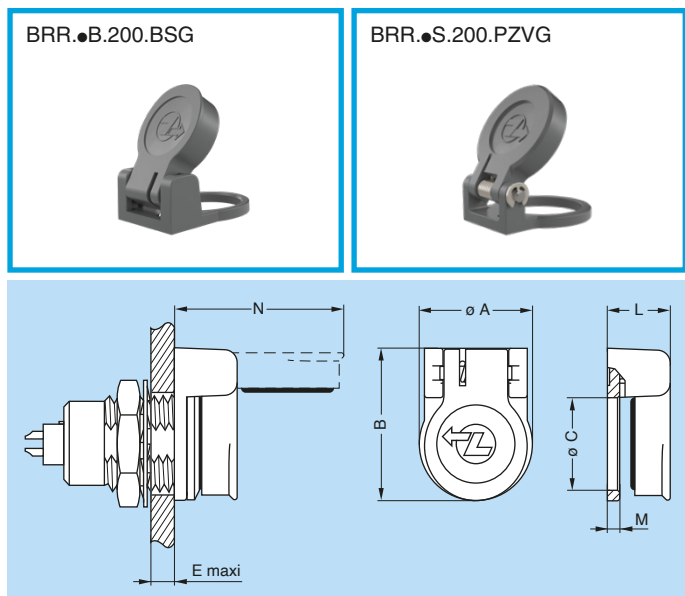
- Body material: Nickel-plated brass (Ni 3 µm)
- Lanyard material: Stainless steel
- Crimp ferrule material: Nickel-plated brass + polyolefin
- O-ring material: Silicone rubber or FPM
- Operating temperature: -50°/135°C (Silicone rubber & Polyolefine)
- Watertightness: IP68 according to IEC 60529

Part number	Series	Dimensions (mm)				
		A	B	L	M	N ¹⁾
BRF.0K.200.NAS	0E	15.0	10	15.0	4	85
BRF.1K.200.NAS	1E	17.0	12	20.0	6	85
BRF.2K.200.NAS	2E	20.5	14	24.0	8	85
BRF.3K.200.NAS	3E	24.0	14	28.0	8	120
BRF.4K.200.NAS	4E	30.0	20	30.5	10	120
BRF.5K.200.NAS	5E	44.0	22	37.0	12	150

Note: ¹⁾ the tolerance on this dimension is ± 5 mm.
These caps are suitable for use with any alignment key configuration. The last letter «S» of the part number stands for the O-ring material (silicone rubber). O-ring's made from FPM are also available; if required, replace the letter «S» by «V».

- Standard
- Special

BRR Spring loaded dust caps for ERA, ERN and EG● sockets or PSA and PK● fixed cable sockets

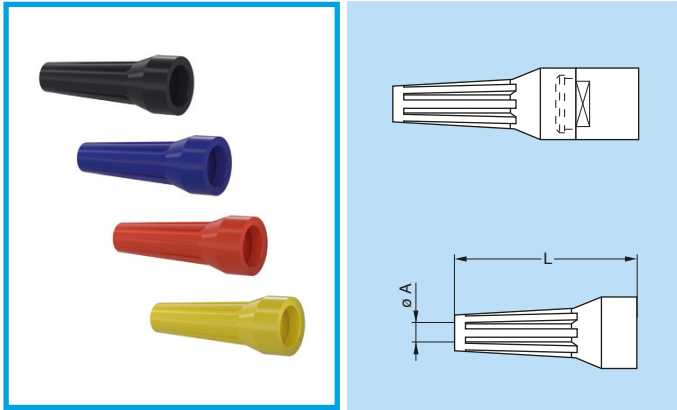


Part number	Series	Dimensions (mm)						
		A	B	C	E	L	M	N
BRR.0B.200.BSG	0S	11.0	14.8	9.0	5.8	6.1	1.2	16.5
BRR.1B.200.BSG	1S	14.6	19.2	12.0	6.0	7.7	1.6	21.2
BRR.2S.200.PZVG	2S	18.6	22.4	15.2	6.5	8.2	2.0	26.2
BRR.3S.200.PZVG	3S	22.5	26.5	18.2	9.0	8.8	2.5	30.8

Note: The cap comes standard in grey. A black version is also available, for this replace the last letter «G» of the part number by «N».

- Body material: POM (0B/1B)
- Body material: PSU (2S/3S)
- Gasket material: Silicone (0B/1B)
- Gasket material: FKM (2S/3S)
- Spring material: Stainless steel
- Axes material: Nickel-plated brass
- Maximum operating temperature: 100°C
- Watertightness: IP50 according to IEC 60529

GM• Bend relief (TPU)



A bend relief made from thermoplastic polyurethane elastomer can be fitted over LEMO plugs and cable sockets that are supplied with nut for fitting such bend relief. They are available in nine different colours match with the GRA insulating washers (see page 85). Use the part numbers shown below to order this accessory separately.



Main characteristics

- Material: TPU (Thermoplastic Polyurethane)
- Temperature range in dry atmosphere: -40°C +80°C

Part number	Series	Bend relief		Cable ø	
		A	L	min.	max.
GMA.00.012.DG ¹⁾	00	1.2	22	1.1	1.4
GMA.00.018.DG ¹⁾		1.8	22	1.8	2.1
GMB.00.025.DG ¹⁾		2.5	22	2.5	2.8
GMB.00.028.DG ¹⁾		2.8	22	2.8	3.1
GMB.00.032.DG ¹⁾		3.2	22	3.2	3.5
GMD.00.025.DG ¹⁾		2.5	22	2.5	2.8
GMD.00.028.DG ¹⁾		2.8	22	2.8	3.1
GMD.00.032.DG ¹⁾		3.2	22	3.2	3.5
GMA.0B.025.DG	0S-0E	2.5	24	2.5	2.9
GMA.0B.030.DG		3.0	24	3.0	3.4
GMA.0B.035.DG		3.5	24	3.5	3.9
GMA.0B.040.DG ¹⁾		4.0	24	4.0	4.4
GMA.0B.045.DG ¹⁾		4.5	24	4.5	5.2
GMA.1B.025.DG	1S-1E	2.5	30	2.5	2.9
GMA.1B.030.DG		3.0	30	3.0	3.4
GMA.1B.035.DG		3.5	30	3.5	3.9
GMA.1B.040.DG		4.0	30	4.0	4.4
GMA.1B.045.DG		4.5	30	4.5	4.9
GMA.1B.054.DG		5.4	30	5.4	6.0
GMA.1B.065.DG ¹⁾		6.5	30	6.5	7.0

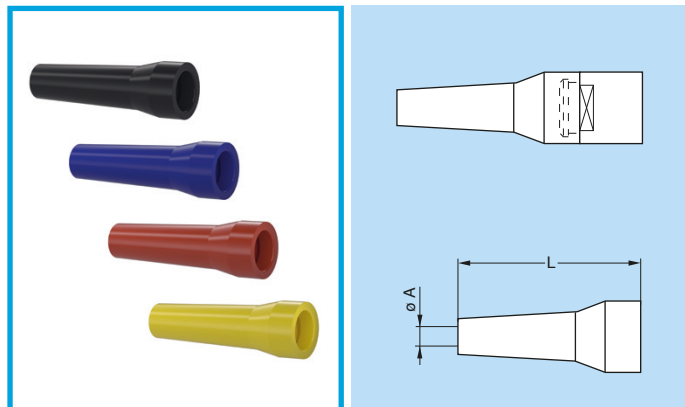
Part number	Series	Bend relief		Cable ø	
		A	L	min.	max.
GMA.2B.040.DG	2S-2E	4.0	36	4.0	4.5
GMA.2B.045.DG		4.5	36	4.5	5.0
GMA.2B.050.DG		5.0	36	5.0	5.5
GMA.2B.060.DG		6.0	36	6.0	6.5
GMA.2B.070.DG		7.0	36	7.0	7.7
GMA.2B.080.DG ¹⁾		7.8	36	7.8	8.8
GMA.3B.050.DG ¹⁾	3S-3E 4S	4.5	42	4.5	5.2
GMA.3B.060.DG		6.0	42	6.0	6.9
GMA.3B.070.DG		7.0	42	7.0	7.9
GMA.3B.080.DG		8.0	42	8.0	8.9
GMA.3B.090.DG	4S-4E 5E	9.0	42	9.0	10.0
GMA.4B.080.DG ¹⁾		8.0	60	8.0	9.0
GMA.4B.010.DG ¹⁾		10.0	60	10.0	10.9
GMA.4B.011.DG ¹⁾		11.0	60	11.0	11.9
GMA.4B.012.DG ¹⁾		12.0	60	12.0	13.0
GMA.4B.013.DG ¹⁾		13.5	60	13.5	14.5

Note: all dimensions are in millimetres.

● Standard ● Special

Note: ¹⁾ Design may differ from other bend relief, model without stripes. The «GMD» are thin bend reliefs (for very flexible cables). The last letter «G» of the part number indicates the grey colour of the bend relief. For ordering a bend relief with another colour, see table on page 82 and replace the letter «G» by the letter of the required colour. See also detailed information for each series on page 66.

GMA Bend relief (Silicone)



A bend relief has been designed for connectors used in applications at high temperature or requiring vapour sterilization.

These bend reliefs are different from previous ones as for their material, a silicone elastomer which is noted for its retention of flexibility over a wide temperature range. They are available in nine colours.

Use the part numbers shown below to order this accessory separately.

Main characteristics

- Material: Silicone elastomer VMQ
- Temperature range in dry atmosphere: -60°C +200°C
- Temperature range in water steam: +140°C

Part number	Series	Bend relief		Cable ø	
		A	L	min.	max.
GMA.0B.018.RG	0S-0E	1.7	27	1.7	2.4
GMA.0B.025.RG		2.5	27	2.5	2.9
GMA.0B.030.RG		3.0	27	3.0	3.4
GMA.0B.035.RG		3.5	27	3.5	3.9
GMA.0B.040.RG		4.0	27	4.0	4.4
GMA.0B.045.RG		4.5	27	4.5	5.2
GMA.1B.025.RG	1S-1E	2.5	34	2.5	2.9
GMA.1B.030.RG		3.0	34	3.0	3.4
GMA.1B.035.RG		3.5	34	3.5	3.9
GMA.1B.040.RG		4.0	34	4.0	4.4
GMA.1B.045.RG		4.5	34	4.5	5.0
GMA.1B.051.RG		5.1	34	5.1	5.6
GMA.1B.057.RG		5.7	34	5.7	6.2
GMA.1B.063.RG		6.3	34	6.3	7.0

Part number	Series	Bend relief		Cable ø	
		A	L	min.	max.
GMA.2B.040.RG	2S-2E	4.0	41	4.0	4.4
GMA.2B.045.RG		4.5	41	4.5	5.0
GMA.2B.051.RG		5.1	41	5.1	5.6
GMA.2B.057.RG		5.7	41	5.7	6.2
GMA.2B.063.RG		6.3	41	6.3	7.0
GMA.2B.071.RG		7.1	41	7.1	7.9
GMA.2B.080.RG		8.0	41	8.0	9.0

Note: The last letter «G» of the part number indicates the grey colour of the bend relief. For ordering a bend relief with another colour, see table below and replace the letter «G» by the letter of the required colour. See also detailed information for each series on page 66.

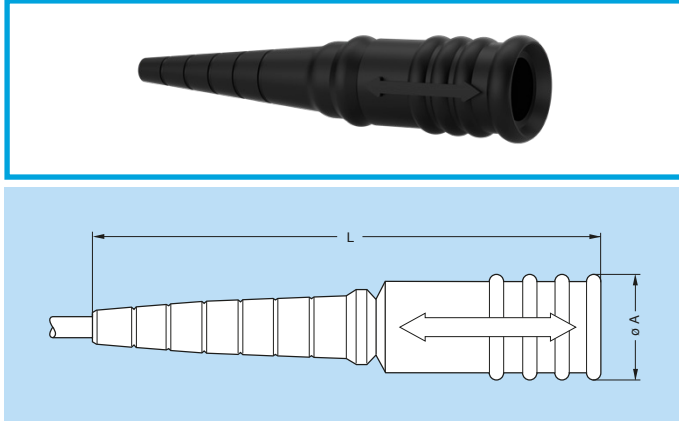
Note: the selection of pigments, which should remain stable at high temperature, is limited by the new regulations. For this reason, some colours will be a shade different from those used for Thermoplastic Polyurethane (TPU) bend reliefs. The selected solutions represent the best possible compromise.

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

GM• Overall bend relief for plugs and free cable sockets

Overall bend reliefs, type GMF for plugs and GMP for cable sockets offer optimum protection against mechanical damage and give a protection index of IP65 according to IEC 60529 (mated position). These bend reliefs slide easily over the connector shell and are positioned by slightly pressing the bend relief backnut. The special design of the bend relief for plug provides for easy use of the push-pull self-latching system.

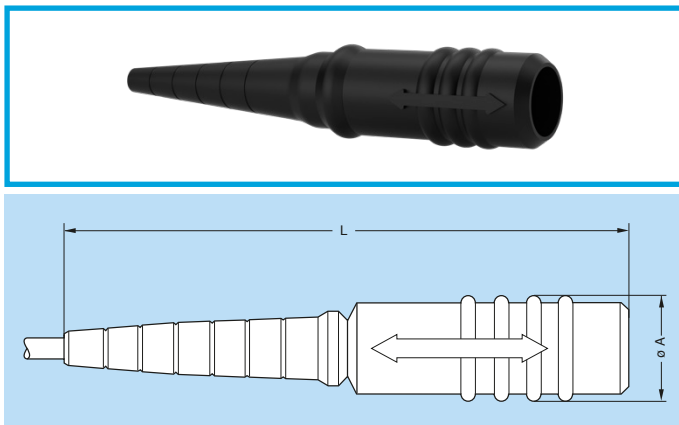
GMF Bend relief for straight plug



Part number	Series	Bend relief		Cable ø	
		A	L	min.	max.
GMF.0B.035.060EN	0S	11.0	60.5	1.0	3.5
GMF.1B.062.072EN	1S	16.0	72.0	2.5	6.2
GMF.2B.082.095EN	2S	22.0	95.0	5.0	8.2

- Material: Elastomer rubber black colour
- Operating temperature: -30°C to +120°C

GMP Bend relief for free cable socket

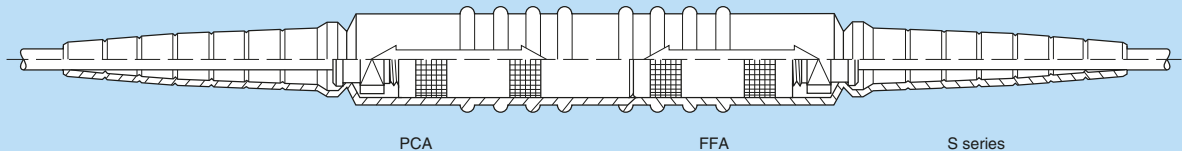


Part number	Series	Bend relief		Cable ø	
		A	L	min.	max.
GMP.0B.035.069EN	0S	11.0	69.0	1.0	3.5
GMP.1B.062.079EN	1S	16.0	80.0	2.5	6.2
GMP.2B.082.102EN	2S	21.0	102.5	5.0	8.2

- Material: Elastomer rubber black colour
- Operating temperature: -30°C to +120°C

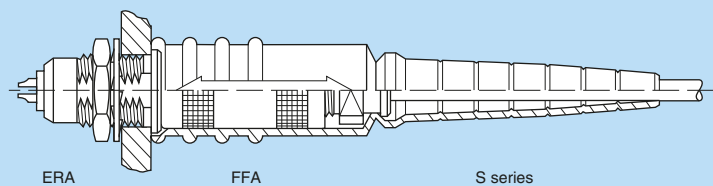
- The overall bend relief shall be installed over plug or free cable socket fitted with a nut for bend relief.
- The typical applications are shown below.
- The overall bend relief can be cut at different length depending on cable diameter.

Plug - free cable socket

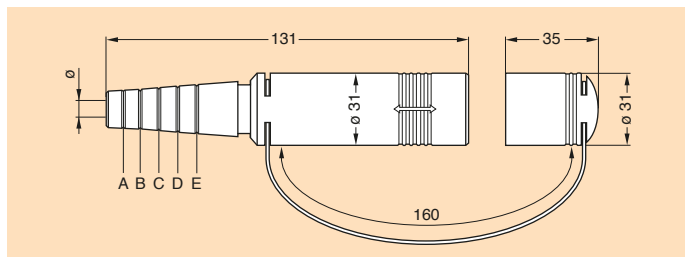


Plug - fixed cable socket

Optimum protection is offered only when using front panel mounting fixed cable sockets



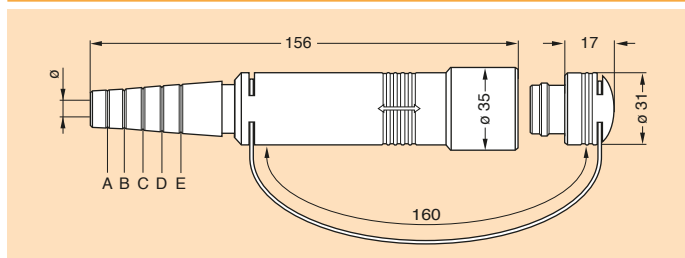
GMF Bend relief with cap for plug



Part number	Series	For models	Cut	admissible $\varnothing$ (mm)	
				min.	max.
GMF.4K.080.EANZ	4E	FFA	–	8.0	8.9
			A	9.0	9.9
			B	10.0	11.4

● Material: Black EPDM

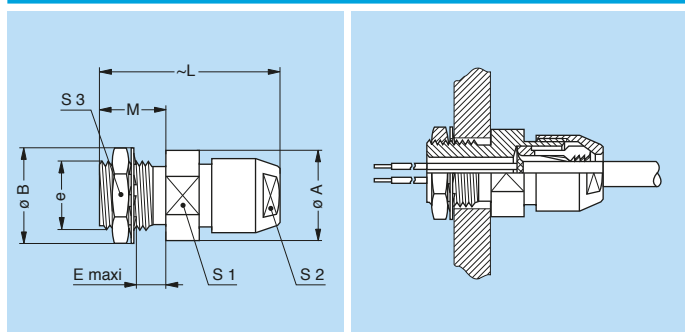
GMP Bend relief with cap for free cable socket



Part number	Series	For models	Cut	admissible $\varnothing$ (mm)	
				min.	max.
GMP.4K.080.EANZ	4E	PCA	–	8.0	8.9
			A	9.0	9.9
			B	10.0	11.4

● Material: Black EPDM

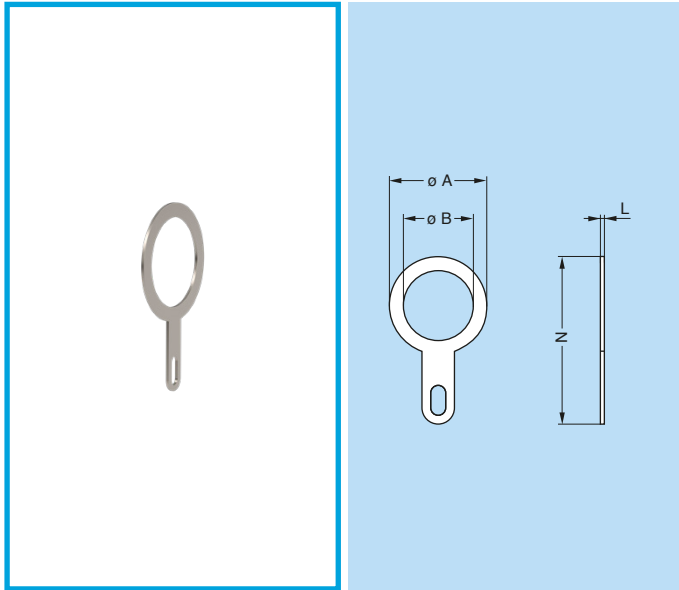
GSC Lead-through with cable collet



Part number	Dimensions (mm)								
	A	B	e	E	L	M	S1	S2	S3
GSC.00.290.CD●●	6.5	8.1	M5x0.5	1.5	16	4.0	5	6	7
GSC.1S.290.ND●●	12.0	12.5	M9x0.6	5.0	26	7.5	11	9	11
GSC.3S.290.ND●●	17.0	19.5	M15x1.0	8.1	30	12.0	–	14	17

Note: ●● = collet cable diameter of the B series. For cable diameter refer to the B/K/T series catalogues. Other surface treatment available. The cable collet system stands for both screened and unscreened cables. It can be delivered with a nut for fitting a bend relief if you add a «Z» at the end of the part number.

GCA Earthing washer



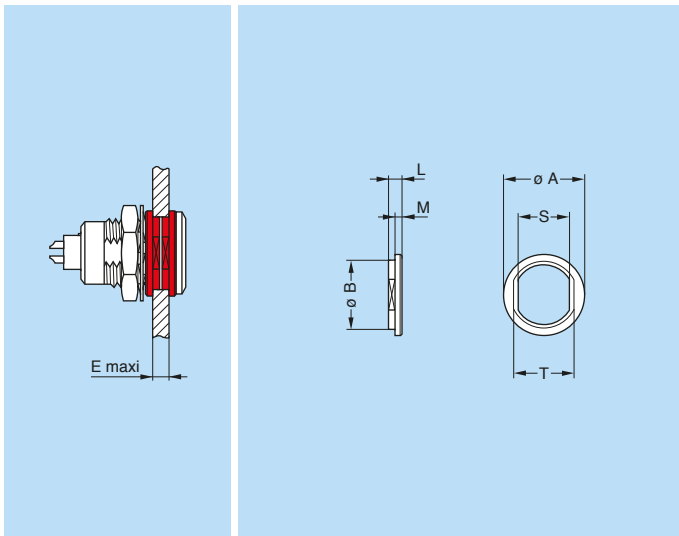
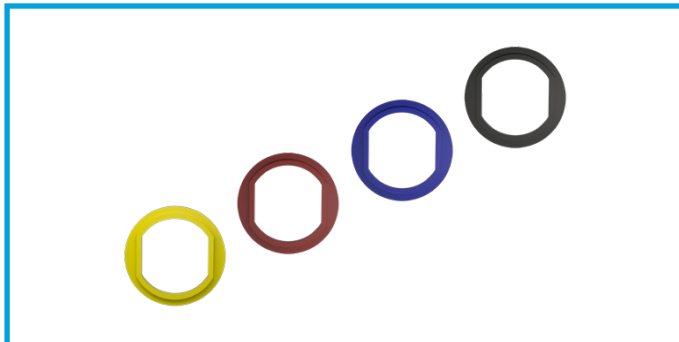
● Material: CuSnZn plated brass (2 μ m)

Part number	Series	Dimensions (mm)			
		A	B	L	N
GCA.00.255.LT	00	9.5	7.1	0.4	18.2
GCA.0S.255.LT	0S	13.0	9.1	0.4	22.0
GCA.0E.255.LT	0E	17.0	14.1	0.5	27.5
GCA.1S.255.LT	1S	17.0	12.2	0.5	27.5
GCA.1E.255.LT	1E	20.0	16.2	0.5	32.0
GCA.2S.255.LT	2S	20.0	15.2	0.5	32.0
GCA.2E.255.LT	2E	25.0	20.2	0.5	39.0
GCA.3S.255.LT	3S	25.0	18.2	0.5	39.0
GCA.3E.255.LT	3E	31.0	24.0	0.5	43.0
GCA.4S.255.LT	4S	35.0	25.6	0.6	50.0
GCA.4E.255.LT	4E	35.0	30.6	0.6	50.0
GCA.5S.255.LT	5S	42.0	35.1	0.3	57.5

● Standard ● Special

GRA Insulating washers

Sockets or plugs mounted on panels can be fitted with insulating washers. The nine colours available combined with those for the bend reliefs makes colour coding possible.



Part number	Series	Dimensions (mm)							
		A	B	E	L	M	S	T	
GRA.00.269.GG	00	10.0	8.8	4.5	1.8	1.0	6.4	8.0	
GRA.0S.269.GG	0S	12.0	10.8	6.0	1.8	1.0	8.3	9.9	
GRA.1S.269.GG	1S	16.0	13.8	6.5	1.8	1.0	10.6	12.2	
GRA.2S.269.GG	2S	21.1	17.9	7.3	2.3	1.3	13.6	16.2	
GRA.3S.269.GG	3S	25.0	21.8	10.3	2.2	1.2	16.7	20.2	
GRA.4S.269.GG	4S	31.9	28.7	10.5	2.5	1.5	23.6	27.1	

● Standard ● Special

Caution: these insulating washers can be used with fixed and free sockets with across flat dimension S1 equivalent to the S dimension of the washer.

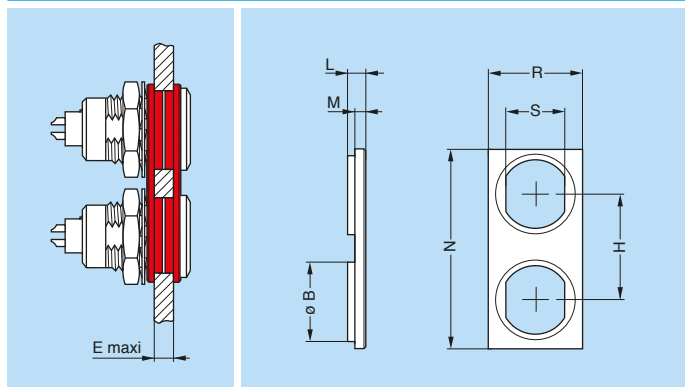
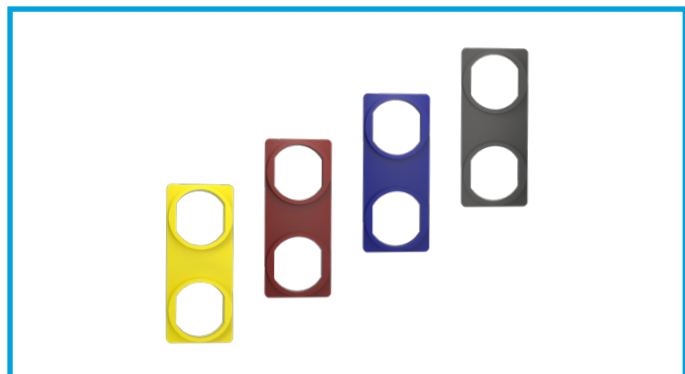
● Material: Polyamide
● Maximum operating temperature: 90°C

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

Note: the last letter «G» of the part number indicates the colour grey for the insulating washer. To obtain an insulating washer of another colour, refer to the table above and change the letter «G» of the part number to the corresponding letter of the colour required. For the panel cut-out, please consult chapter «Panel cut-out» on page 91.

GRC Double panel washers

Double panel washers have been designed to make the drilling of panel holes easier for mounting fixed and free cable sockets. The combination of the nine different colours of the double panel washers and of the bend reliefs makes colour coding possible.



Part number	Series	Dimensions (mm)							
		B	E	H	L	M	N	R	S
GRC.0S.260.HG	0S	10.9	5	14	2.5	1.5	26.5	12.5	8.3
GRC.1B.260.HG	1S	13.9	5	20	3.3	1.8	34.5	14.5	10.6

Caution: these double panel washers can be used with fixed or free cable sockets with across flat dimension S1 equivalent to the S dimension of the washer.

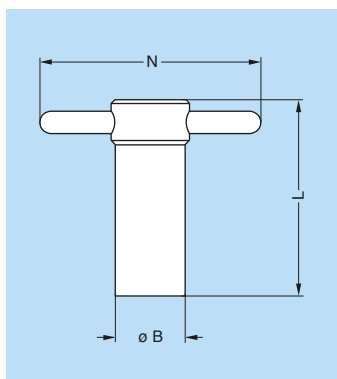
- Material: Polyamide
- Maximum operating temperature: 90°C

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

Note: the last letter «G» of the washer's part number indicates the colour grey. For other colours, refer to the above table and replace letter «G» by the one corresponding to the colour required. For the panel cut-out, please consult chapter «Panel cut-out» on page 91.

Tooling

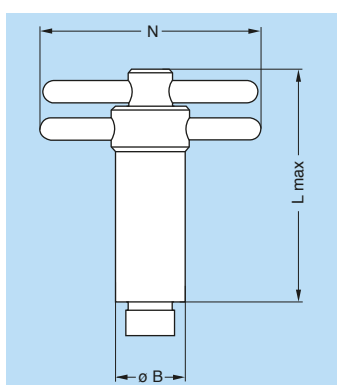
DCG Spanners for hexagonal nuts



Part number	Dimensions (mm)			Part number of the nut (page 73)
	B	L	N	
DCG.91.149.0TN	14	40	50	GEA.00.240.LN
DCG.91.161.1TN	16	45	52	GEA.0S.240.LN
DCG.91.201.4TN	20	52	65	GEA.1S.240.LN
DCG.91.231.7TN	23	62	68	GEA.2S.240.LN
DCG.91.282.2TN	28	76	73	GEA.3S.240.LN

● Material: blackened steel

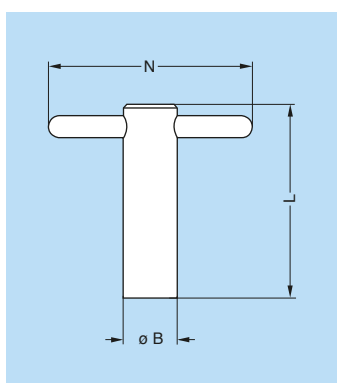
DCA Spanners for hexagonal nuts with locator for flats on socket thread



Part number	Dimensions (mm)			Part number of the nut (page 73)
	B	L	N	
DCA.91.149.0TN	14	65	50	GEA.00.240.LN
DCA.91.161.1TN	16	73	52	GEA.0S.240.LN
DCA.91.201.4TN	20	85	65	GEA.1S.240.LN
DCA.91.231.7TN	23	100	68	GEA.2S.240.LN
DCA.91.282.2TN	28	120	73	GEA.3S.240.LN

● Material: blackened steel

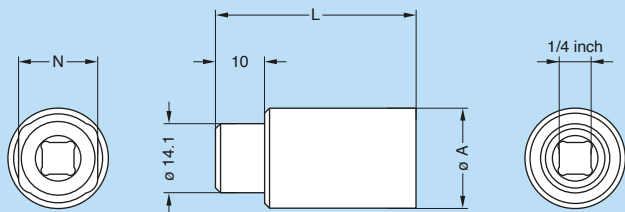
DCB Spanners for round nuts



Part number	Dimensions (mm)			Part number of the nut (page 74)
	B	L	N	
DCB.91.119.0TN	11	40	50	GEB.00.240.LN
DCB.91.131.1TN	13	45	50	GEB.0S.240.LN
DCB.91.161.4TN	16	52	65	GEB.1S.240.LN
DCB.91.201.8TN	20	62	65	GEB.2S.240.LN
DCB.91.242.2TN	24	76	70	GEB.3S.240.LN

● Material: blackened steel

DCM Insert conicals nut tightening tools

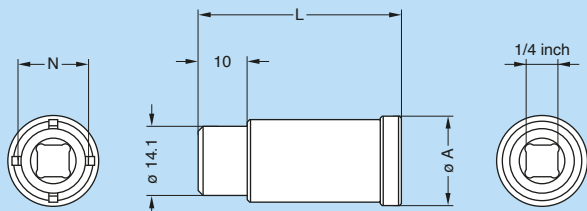


Part number	Dimensions (mm)			Part number of the nut (page 73)
	A	L	N	
DCM.65.080.AZ	12.4	33.0	8.1	GEC.00.240.LC
DCM.65.100.AZ	14.4	33.0	10.1	GEC.0S.240.LC
DCM.65.130.AZ	18.1	33.0	13.1	GEC.1S.240.LC
DCM.65.160.AZ	20.4	41.0	16.1	GEC.0E.240.LC
DCM.65.170.AZ	22.4	41.0	17.1	GEC.1S.241.LC
				GEC.2S.240.LC
DCM.65.200.AZ	26.4	41.0	20.1	GEC.3S.240.LC
DCM.65.220.AZ	27.4	41.0	22.1	GEC.2E.240.LC
DCM.65.270.AZ	32.6	46.0	27.1	GEC.3E.240.LC
				GEC.4S.240.LC
DCM.65.320.AZ	38.1	46.0	32.1	GEC.4K.241.LC
DCM.65.370.AZ	43.1	47.0	37.1	GEC.5S.240.LC

Note: for standard 1/4 inch tools adaptor.

● Standard ● Special

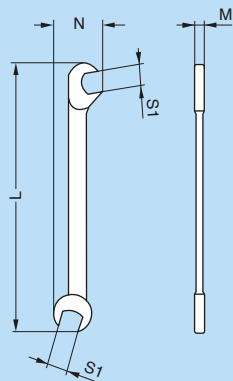
DCM Insert notched nuts tightening tools



Part number	Dimensions (mm)			Part number of the nut (page 72)
	A	L	N	
DCM.65.088.AZ4	13.0	33.5	8.9	GEG.00.240.LC
DCM.65.106.AZ4	15.0	34.3	10.8	GEG.0S.240.LC
DCM.65.141.AZ4	18.4	41.5	14.2	GEG.1S.240.LC
DCM.65.159.AZ4	20.4	41.5	16.1	GEG.0E.240.LC
DCM.65.176.AZ6	22.4	41.5	17.9	GEG.2S.240.LC
				GEG.1E.240.LC
DCM.65.225.AZ6	26.5	41.5	22.8	GEG.2E.240.LC

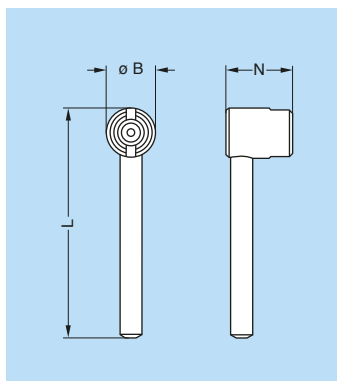
Note: for standard 1/4 inch tools adaptor.

DCP Flat spanners for collet nut



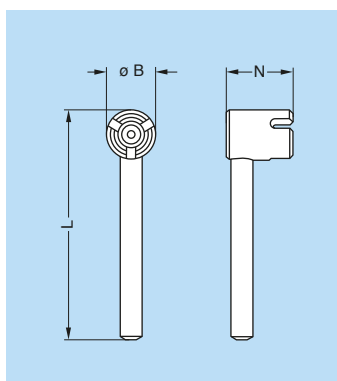
Part number	Dimensions (mm)			
	L	M	N	S1
DCP.99.040.TC	70	0.95	10.5	4.0
DCP.99.045.TC	70	2.00	10.5	4.5
DCP.99.050.TC	78	2.00	12.6	5.0
DCP.99.055.TC	78	2.00	12.6	5.5
DCP.99.060.TC	78	2.00	12.6	6.0

● Material: chrome-plated steel

DCL Spanners for assembling plugs with 2 latches


Part number	Series	Dimensions (mm)		
		B	L	N
DCL.91.105.0TK	00	10	45	13.5
DCL.91.127.0TK	0S	12	47	17.0
DCL.91.149.0TK	1S	14	52	19.0

● Material: blackened steel

DCN Spanners for assembling plugs with 3 latches


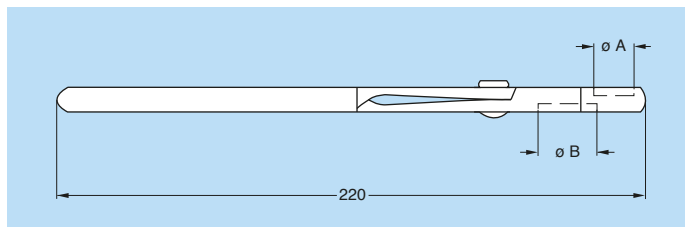
Part number	Series	Dimensions (mm)		
		B	L	N
DCN.91.905.0TK	00	9	42	12
DCN.91.125.0TK	0S	12	47	17
DCN.91.149.0TK	1S	14	53	19
DCN.91.201.5TK	3S	20	74	22

● Material: blackened steel

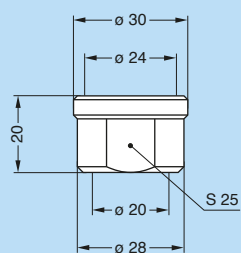
DTA Taps


Part number	Series	Thread
DTA.99.700.5Z	00	M7 x 0.5
DTA.99.900.6Z	0S-0B	M9 x 0.6

DPF Pliers for assembling plugs (series E)



DPF.91.004.TA

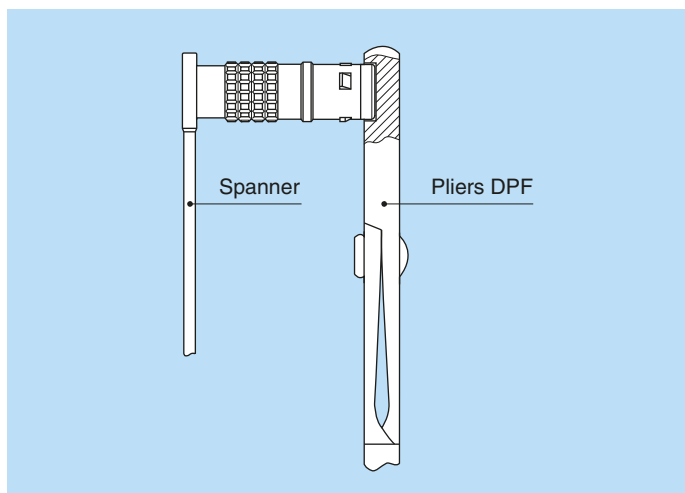


Part number	Series	Dim. (mm)	
		A	B
DPF.91.001.TA	0E	10	–
	1E	–	12
DPF.91.023.TA	2E	15	–
	3E	–	18
DPF.91.004.TA	4E	–	–

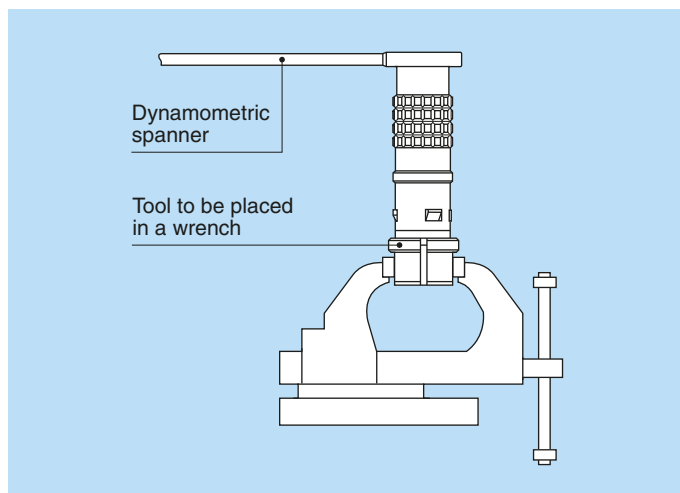
● Standard ● Special

Example for use

The plug end must be held in the pliers whilst the nut is tightened with the flat spanner.



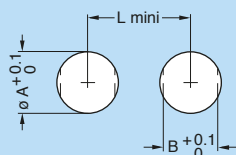
Using tool DPF.91.004.TA to retain the plug nose (4E) in the bench wrench.



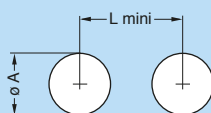
Panel cut-outs

S series

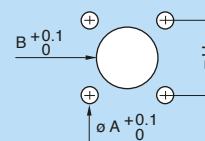
P1-P3-P4



P2-P6-P7



P5



Series	P1			P2		P3			P4			P5			P6		P7	
	ø A ¹⁾	B	L	ø A	L	ø A	B	L	ø A	B	L	ø A	B	H	ø A	L	ø A	L
00	7.1	6.4	12.5	7.1	11.5	—	—	—	—	—	—	—	—	—	—	—	—	—
0S	9.1	8.3	14.5	9.1	13.5	12.1	10.6	20.0	10.1	9.1	15	—	—	—	—	—	9.1	16
1S	12.1	10.6	18.5	12.1	19.0	14.1	12.6	21.0	12.1	10.6	18	3.3	12.1	12.7	11.1	17	12.1	19
2S	15.1	13.6	22.5	15.1	21.5	16.1	14.6	22.0	16.1	15.1	23	3.3	15.1	15.5	—	—	—	—
3S	18.2	16.6	27.0	18.2	27.0	20.2	18.6	30.0	20.2	18.6	29	3.3	18.2	18.0	—	—	—	—
4S	25.2	23.6	36.0	25.2	34.0	25.2	23.6	36.0	25.2	23.6	36	—	—	—	—	—	—	—
5S	35.2	33.6	44.0	35.2	44.0	35.2	33.6	47.0	35.2	33.6	47	4.4	35.2	36.8	—	—	—	—
6S	48.3	45.6	58.0	48.3	58.0	48.3	45.6	60.0	48.3	45.6	60	—	—	—	—	—	—	—

Note: ¹⁾ when using the tapered washer (GBB) a round hole apply 00: ø 7.6 mm / 0S: ø 9.6 mm / 1S: ø 12.6 mm / 2S: ø 15.7 mm / 3S: ø 18.8 mm / 4S: ø 26 mm / 5S: ø 36 mm (tolerance: 0/+0.02).

Cut-out types

Model	Type	Model	Type	Model	Type
EBC	P5	ERN	P1	PSA	P1
ECP	P1	EXP	P2/P6	PSS	P1
EEP	P1	EWB	P3	RAD	P1/P2 ⁵⁾
EHP	P1/P2 ²⁾	FAA	P1/P2 ³⁾	SWH	P4
ERA	P1	HCP	P3 ⁴⁾		
ERC	P1	HGP	P3		
ERD	P1	HGW	P7		

Note: ²⁾ in series 1S and 3S use P2. ³⁾ in series 6S use P2. ⁴⁾ use only ø A in 1S series. ⁵⁾ in series 4S and 5S use P2.

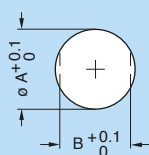
Mounting nut torque

Series	Torque (Nm)	
	Metal shell	Plastic shell ⁶⁾
0S	2.5	0.4
1S	4.5	0.7
2S	6.0	0.8
3S	9.0	1.0
4S	12.0	5.0
5S	17.0	—
6S	22.0	—

Note: ⁶⁾ these values apply when metal shell are mounted with insulating washer. 1 N = 0.102 kg

Panel cut-out for mounting with insulating washer (S series)

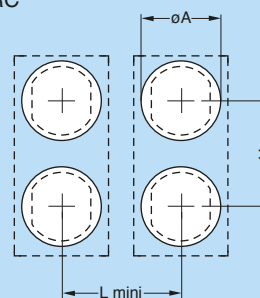
GRA



Series	Dim. (mm)	
	ø A	B
00	8.9	8.1
0S	10.9	10.0
1S	13.9	12.3
2S	18.0	16.3
3S	21.9	20.3
4S	29.1	27.4

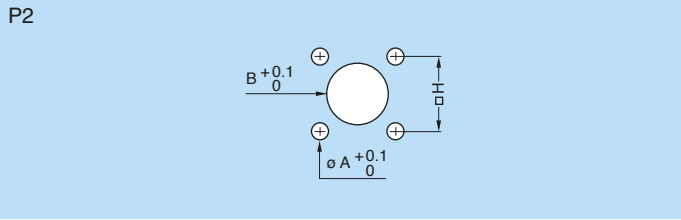
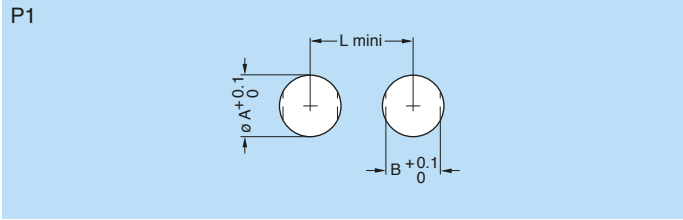
Panel cut-out for mounting with double panel washer (S series)

GRC



Series	Dimensions (mm)		
	ø A	H	L
0S	11	14	13.5
1S	14	20	17.0

E series



Series	P1			P2		
	ø A	B	L	ø A	B	H
0E	14.1	12.6	20.5	–	–	–
1E	16.1	14.6	22.5	–	–	–
2E	20.2	18.6	29.0	2.9	15.1	11.8x20.4
3E	24.2	22.6	35.5	–	–	–
4E	30.2	28.6	43.0	–	–	–
5E	45.2	42.6	57.0	–	–	–
6E	55.3	52.1	68.0	–	–	–

Cut-out types

Model	Type	Model	Type
EBR	P2	FAA	P1
EEP	P1	HGP	P1
ERA	P1	PSA	P1 ¹⁾
ERC	P1	SWH	P1 ¹⁾

Note: ¹⁾ use only ø A in 6E series.

Mounting nut torque

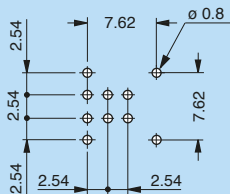
Series	Torque (Nm)	Series	Torque (Nm)
0E	5	4E	17
1E	7	5E	22
2E	9	6E	27
3E	12		

1 N = 0.102 kg

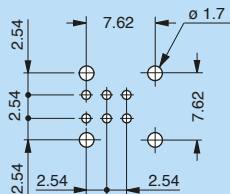
PCB drilling pattern

Elbow socket (90°) for printed circuit (S series) P8 P9

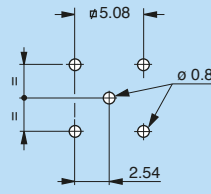
P9 - EPL - EXP
Solder mount



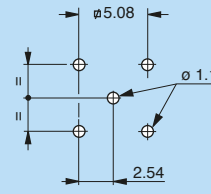
P9 - EPL - EXP
Screw mount



P10 - EPL.00.113

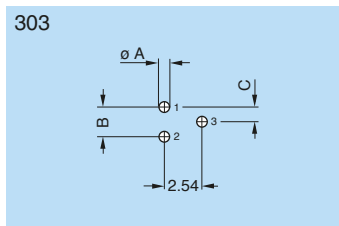
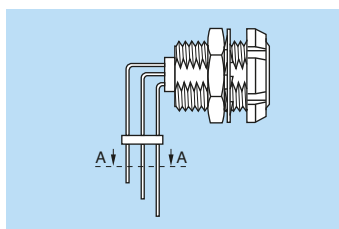


P10 - EPL.0S.116

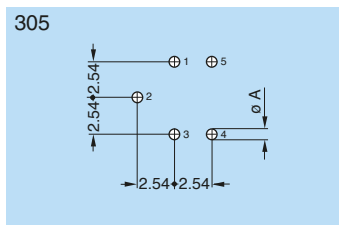


Note: all dimensions are in millimetres.

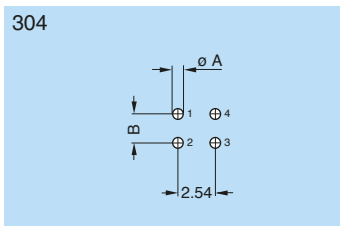
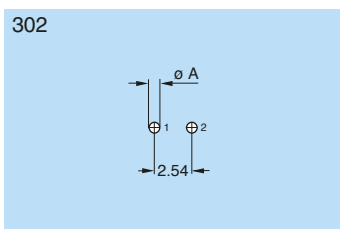
Fixed socket with elbow print contact (S-E series) P10



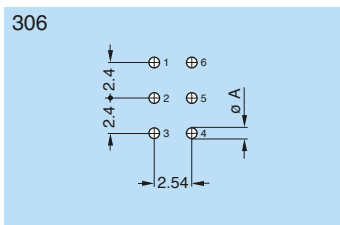
Series	Dimensions		
	A	B	C
0S-0E	0.7	2.00	1.00
1S-1E	0.7	2.54	1.27



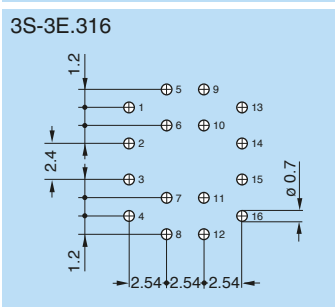
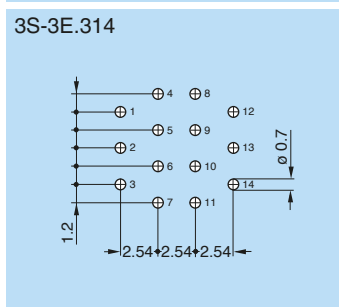
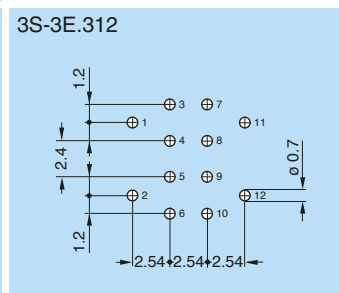
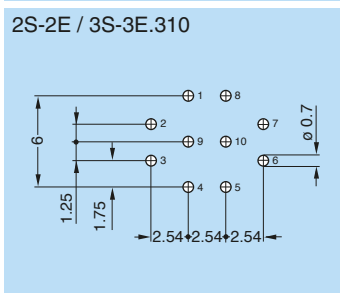
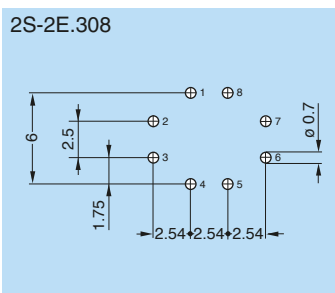
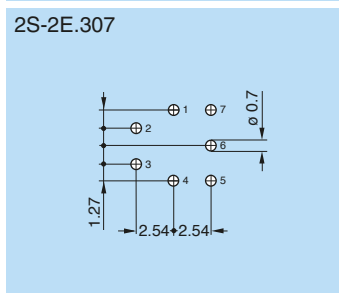
Series	Dim. A
1S-1E	0.7
2S-2E	0.9



Series	Dim. A
0S-0E	0.7
1S-1E	0.9



Series	Dim. A
1S-1E	0.7
2S-2E	0.9



Cable assembly

Cable stripping lengths for unipole connectors (S series)

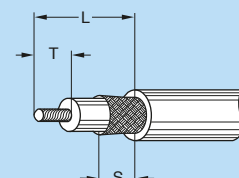
M1 straight plugs and sockets with cable collet, clamping type C (solder contacts)

M3 elbow plugs (90°) with cable collet, clamping type C (solder contacts)

M5 straight plugs and sockets with cable crimping type E (crimp contacts)

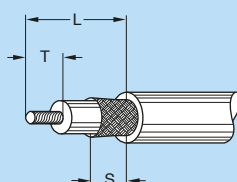
M6 elbow plugs (90°) with cable crimping type E (crimp contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)											
			M1			M5			M3			M6		
			Solder			Crimp			Solder			Crimp		
			L	S	T	L	S	T	L	S	T	L	S	T
00	113	1.3	9	4	4	19	5	7	7	4	2	17	5	7
0S	116	1.6	11	5	4	–	–	–	8	5	2	–	–	–
1S	120	2.0	13	8	5	–	–	–	13	8	2	–	–	–
	130	3.0	13	8	5	–	–	–	13	8	2	–	–	–
2S	130	3.0	18	9	6	–	–	–	15	9	2	–	–	–
	140	4.0	18	9	6	–	–	–	15	9	2	–	–	–
3S	140	4.0	21	9	7	–	–	–	19	9	2	–	–	–
	160	6.0	21	9	9	–	–	–	19	9	2	–	–	–
4S	140	4.0	25	9	7	–	–	–	23	9	2	–	–	–
	160	6.0	25	9	9	–	–	–	23	9	2	–	–	–
5S	112	12.0	12	15	12	–	–	–	–	–	–	–	–	–



M2 straight plugs and sockets with oversize cable collet, clamping type K (solder contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)		
			M2		
			L	S	T
00	113	1.3	16	4	4
0S	116	1.6	19	5	4
1S	120	2.0	25	8	5
	130	3.0	25	8	5
2S	130	3.0	34	9	6
	140	4.0	34	9	6
3S	140	4.0	39	9	7
	160	6.0	39	9	9
4S	140	4.0	50	9	7
	160	6.0	50	9	9

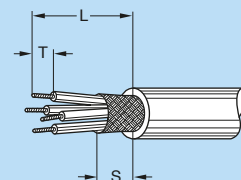


Cable stripping lengths for multipole connectors (S series)

M1 straight plugs and sockets with cable collet, clamping type C (solder or crimp contacts)

M3 elbow plugs (90°) with cable collet, clamping type C (solder or crimp contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)											
			M1						M3					
			Solder			Crimp			Solder			Crimp		
			L	S	T	L	S	T	L	S	T	L	S	T
0S	302	0.9	10.0	5	3.5	15	5	4.0	10.0	5	3.5	15	5	4.0
	303/304	0.7	10.0	5	3.5	15	5	4.0	10.0	5	3.5	15	5	4.0
1S	302	1.3	12.5	8	3.5	17	8	4.0	14.5	8	3.5	17	8	4.0
	303/304	0.9	12.0	8	3.0	17	8	4.0	14.0	8	3.0	17	8	4.0
	305	0.9 0.7	12.0	8	3.0	17	8	4.0	14.0	8	3.0	17	8	4.0
	306	0.7	12.5	8	3.0	17	8	4.0	14.5	8	3.0	17	8	4.0
2S	302	1.6	17.0	9	3.5	22	9	5.5	17.0	9	3.5	22	9	5.5
	303/304/305/306	1.3	17.5	9	3.5	22	9	4.0	17.5	9	3.5	22	9	4.0
	307	1.3 0.9	17.5	9	3.5 3.0	22	9	4.0	17.5	9	3.5 3.0	22	9	4.0
	308/310	0.9	17.0	9	3.0	22	9	4.0	17.0	9	3.0	22	9	4.0
3S	302/303/304	2.0	20.0	9	4.0	—	—	—	—	—	—	—	—	—
	305	2.0 1.3	20.0	9	4.0 3.5	—	—	—	—	—	—	—	—	—
	306/307/308/310	1.3	20.5	9	3.5	—	—	—	—	—	—	—	—	—
	312/313/314/316/318	0.9	20.0	9	3.0	—	—	—	—	—	—	—	—	—
4S	302	4.0	25.0	9	7.0	—	—	—	—	—	—	—	—	—
	303/304	3.0	23.5	9	4.5	—	—	—	—	—	—	—	—	—
	305	3.0 2.0	23.5	9	4.5 4.0	—	—	—	—	—	—	—	—	—
	306	2.0	21.0	9	4.0	—	—	—	—	—	—	—	—	—
	307	2.0 1.3	21.0	9	4.0 3.5	—	—	—	—	—	—	—	—	—
	308/309/310/312/313/314	1.3	24.5	9	3.5	—	—	—	—	—	—	—	—	—
	316/318/320/322/324	0.9	24.5	9	3.5	—	—	—	—	—	—	—	—	—

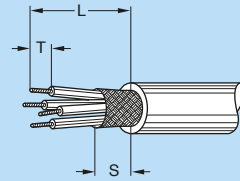


Cable stripping lengths for multipole connectors (S series)

M1 straight plugs and sockets with cable collet, clamping type C (solder contacts)

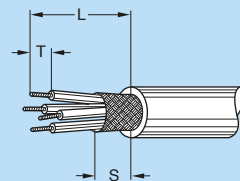
M3 elbow plugs (90°) with cable collet, clamping type C (solder contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)					
			M1			M3		
			Solder			Solder		
			L	S	T	L	S	T
5S	302	6.0	33.5	22	7.5	33.5	22	7.5
	303	6.0 4.0	33.5	22	7.5 5.5	33.5	22	7.5 5.5
	304	4.0	33.5	22	5.5	33.5	22	5.5
	305	4.0 3.0	33.5	22	5.5 4.5	33.5	22	5.5 4.5
	306/308	3.0	33.5	22	4.5	33.5	22	4.5
	310/312/316	2.0	32.0	22	4.0	32.0	22	4.0
	314	3.0 2.0	33.5	22	4.5 4.0	33.5	22	4.5 4.0
	318/322	3.0 1.6	33.5	22	4.5 3.5	33.5	22	4.5 3.5
	320/324	1.6	34.0	22	3.5	34.0	22	3.5
	330/336/340/344/348	1.3	34.5	22	3.5	34.5	22	3.5
6S	304	8.0	37.0	15	10.0	37.0	15	10.0
	312/318	4.0	37.0	15	7.0	37.0	15	7.0
	320/324	3.0	37.0	15	6.0	37.0	15	6.0
	330/336/348	2.0	37.0	15	7.0	37.0	15	7.0
	360	1.6	37.0	15	4.5	37.0	15	4.5
	364/372	1.3	37.0	15	4.0	37.0	15	4.0
	106	0.9	37.0	15	4.0	37.0	15	4.0



M4 straight plug with cable collet, clamping type D or M (solder or crimp contacts)

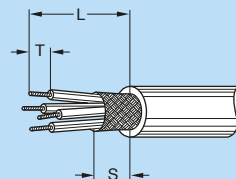
	Type	ø contact A (mm)	Cable stripping lengths (mm)					
			M4					
			Solder			Crimp		
			L	S	T	L	S	T
2S	302	1.6	47.0	9	3.5	52	9	5.5
	303/304/305/306	1.3	47.5	9	3.5	52	9	4.0
	307	1.3 0.9	47.5	9	3.5 3.0	52	9	4.0
	308/310	0.7	47.0	9	3.0	52	9	4.0



Cable stripping lengths for multipole connectors (S series)

M2 straight plugs and sockets with oversize cable collet, clamping type K (solder or crimp contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)					
			M2					
			Solder			Crimp		
			L	S	T	L	S	T
0S	302	0.9	19.5	5	3.5	23	5	4.0
	303/304	0.7	20.0	5	3.5	23	5	4.0
1S	302	1.3	24.5	8	3.5	28	8	4.0
	303/304	0.9	24.0	8	3.0	28	8	4.0
	305	0.9 0.7	24.0	8	3.0	28	8	4.0
	306	0.7	24.5	8	3.0	28	8	4.0
	307	0.9	24.5	8	3.0	28	8	4.0
2S	302	1.6	33.0	9	3.5	38	9	5.5
	303/304/305/306	1.3	33.5	9	3.5	38	9	4.0
	307	1.3 0.9	33.5	9	3.5 3.0	38	9	4.0
	308/310	0.9	33.0	9	3.0	38	9	4.0
3S	302/303/304	2.0	38.0	9	4.0	—	—	—
	305	2.0 1.3	38.0	9	4.0 3.5	—	—	—
	306/307/308/310	1.3	38.5	9	3.5	—	—	—
	312/313/314/316/318	0.9	38.0	9	3.0	—	—	—
4S	302	4.0	50.0	9	7.0	—	—	—
	303/304	3.0	48.5	9	4.5	—	—	—
	305	3.0 2.0	48.5	9	4.5 4.0	—	—	—
	306	2.0	49.0	9	4.0	—	—	—
	307	2.0 1.3	49.0	9	4.0 3.5	—	—	—
	308/309/310/312/313/314	1.3	49.5	9	3.5	—	—	—
	316/318/320/322/324	0.9	49.0	9	3.0	—	—	—
	319/321/323/325	0.9	49.0	9	3.0	—	—	—
5S	302	6.0	68.5	22	7.5	—	—	—
	303	6.0 4.0	68.5	22	7.5 5.5	—	—	—
	304	4.0	68.5	22	5.5	—	—	—
	305	4.0 3.0	68.5	22	5.5 4.5	—	—	—
	306/308	3.0	68.5	22	4.5	—	—	—
	310/312/316	2.0	67.0	22	4.0	—	—	—
	314	3.0 2.0	68.5	22	4.5 4.0	—	—	—
	318/322	3.0 1.6	68.5	22	4.5 3.5	—	—	—
	320/324	1.6	69.0	22	3.5	—	—	—
	330/336/340/344/348	1.3	69.5	22	3.5	—	—	—

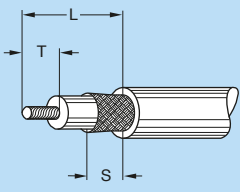


Cable stripping lengths for unipole connectors (E series)

M1 straight plugs and sockets with cable collet, clamping type C (solder contacts)

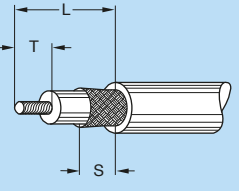
M3 elbow plugs (90°) with cable collet, clamping type C (solder contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)					
			M1			M3		
			Solder			Solder		
			L	S	T	L	S	T
0E	116	1.6	9	5	4	20	5	4
1E	120	2.0	12	8	5	25	8	5
	130	3.0	13	8	5	25	8	5
2E	130	3.0	16	9	6	33	9	6
	140	4.0	15	9	6	33	9	6
3E	140	4.0	19	9	7	40	9	7
	160	6.0	20	9	9	40	9	9
4E	160	6.0	23	9	9	50	9	9
5E	112	12.0	12	15	12	–	–	–



M2 straight plugs and sockets with oversize cable collet, clamping type K (solder contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)		
			M2		
			Solder		
			L	S	T
1E	120	2.0	25	8	5
	130	3.0	26	8	5
2E	130	3.0	28	9	6
	140	4.0	27	9	6
3E	140	4.0	36	9	7
	160	6.0	37	9	9
4E	160	6.0	50	9	9

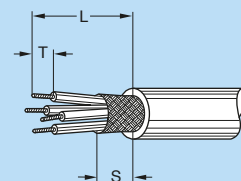


Cable stripping lengths for multipole connectors (E series)

M1 straight plugs and sockets with cable collet, clamping type C (solder or crimp contacts)

M3 elbow plugs (90°) with cable collet, clamping type C (solder or crimp contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)											
			M1						M3					
			Solder			Crimp			Solder			Crimp		
			L	S	T	L	S	T	L	S	T	L	S	T
0E	302	0.9	9.0	4	3.5	12	5	4.0	19.5	5	3.5	23	5	4.0
	303/304	0.7	9.0	4	3.5	12	5	4.0	19.0	5	2.5	23	5	4.0
1E	302	1.3	10.5	6	3.5	15	8	4.0	23.5	8	3.5	28	8	4.0
	303/304	0.9	10.5	6	3.0	15	8	4.0	23.0	8	3.0	28	8	4.0
	305	0.9 0.7	10.5	6	3.0	15	8	4.0	23.0	8	3.0	28	8	4.0
	306	0.7	10.5	6	3.0	15	8	4.0	23.5	8	3.0	28	8	4.0
2E	302	1.6	14.0	9	3.5	19	9	5.5	32.0	9	3.5	37	9	5.5
	303/304/305/306	1.3	14.5	9	3.5	19	9	4.0	32.5	9	3.5	37	9	4.0
	307	1.3 0.9	14.5	9	3.5 3.0	19	9	4.0	32.5	9	3.5 3.0	37	9	4.0
	308/310	0.9	14.0	9	3.0	19	9	4.0	32.0	9	3.0	37	9	4.0
3E	302/303/304	2.0	17.0	9	4.0	—	—	—	38.0	9	4.0	—	—	—
	305	2.0 1.3	17.0	9	4.0 3.5	—	—	—	38.0	9	4.0 3.5	—	—	—
	306/307/308/310	1.3	17.5	9	3.5	—	—	—	38.5	9	3.5	—	—	—
	312/313/314/316/318	0.9	17.0	9	4.0	—	—	—	38.0	9	3.0	—	—	—
4E	302	4.0	23.0	9	7.0	—	—	—	50.0	9	7.0	—	—	—
	303/304	3.0	21.5	9	4.5	—	—	—	48.5	9	4.5	—	—	—
	305	3.0 2.0	21.5	9	4.5 4.0	—	—	—	48.5	9	4.5 4.0	—	—	—
	306	2.0	22.0	9	4.0	—	—	—	49.0	9	4.0	—	—	—
	307	2.0 1.3	22.0	9	4.0 3.5	—	—	—	49.0	9	4.0 3.5	—	—	—
	308/309/310/312/313/314	1.3	22.5	9	3.5	—	—	—	49.5	9	3.5	—	—	—
	316/318/320/322/324	0.9	22.0	9	4.0	—	—	—	49.0	9	3.0	—	—	—
	302	6.0	46.5	15	7.5	—	—	—	—	—	—	—	—	—
5E	303	6.0 4.0	46.5	15	7.5 5.5	—	—	—	—	—	—	—	—	—
	304	4.0	46.5	15	5.5	—	—	—	—	—	—	—	—	—
	305	4.0 3.0	46.5	15	5.5 4.5	—	—	—	—	—	—	—	—	—
	306/308	3.0	46.5	15	4.5	—	—	—	—	—	—	—	—	—
	310/312/316	2.0	45.0	15	4.0	—	—	—	—	—	—	—	—	—
	314	3.0 2.0	45.5	15	4.5 4.0	—	—	—	—	—	—	—	—	—
	318/322	3.0 1.6	45.5	15	4.5 3.5	—	—	—	—	—	—	—	—	—
	320/324	1.6	47.0	15	3.5	—	—	—	—	—	—	—	—	—
	330/336/340/344/348	1.3	47.5	15	3.5	—	—	—	—	—	—	—	—	—

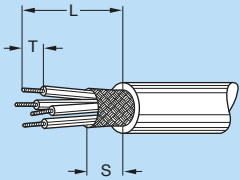


Cable stripping lengths for multipole connectors (E series)

M1 straight plugs and sockets with cable collet, clamping type C (solder contacts)

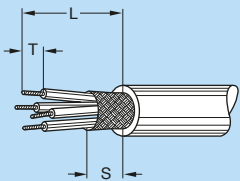
M3 elbow plugs (90°) with cable collet, clamping type C (solder contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)					
			M1			M3		
			Solder			Solder		
			L	S	T	L	S	T
6E	303	6.0	70	30	9.0	–	–	–
	304	8.0	70	30	10.0	–	–	–
	312	5.0	70	30	8.0	–	–	–
	316/320/324	3.0	70	30	6.0	–	–	–
	330/332/340/348	2.0	70	30	7.0	–	–	–
	336	1.3 5.0	70	30	4.0 8.0	–	–	–
	360/362	1.6	70	30	4.5	–	–	–
	364/372	1.3	70	30	4.0	–	–	–
	106	0.9	70	30	4.0	–	–	–

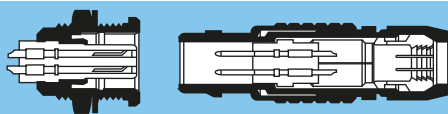


M2 straight plugs and sockets with oversize cable collet, clamping type K (solder or crimp contacts)

	Type	ø contact A (mm)	Cable stripping lengths (mm)					
			M2					
			Solder			Crimp		
			L	S	T	L	S	T
1E	302	1.3	23.5	8	3.5	28	8	4.0
	303/304	0.9	23.0	8	3.0	28	8	4.0
	305	0.9 0.7	23.0	8	3.0	28	8	4.0
	306	0.7	23.5	8	3.0	28	8	4.0
2E	302	1.6	26.0	9	3.5	31	9	5.5
	303/304/305/306	1.3	26.5	9	3.5	31	9	4.0
	307	1.3 0.9	26.5	9	3.5 3.0	31	9	4.0
	308/310	0.9	26.0	9	3.0	31	9	4.0
3E	302/303/304	2.0	34.0	9	4.0	–	–	–
	305	2.0 1.3	34.0	9	4.0 3.5	–	–	–
	306/307/308/310	1.3	34.5	9	3.5	–	–	–
	312/313/314/316/318	0.9	34.0	9	3.0	–	–	–
4E	302	4.0	50.0	9	7.0	–	–	–
	303/304	3.0	48.5	9	4.5	–	–	–
	305	3.0 2.0	48.5	9	4.5 4.0	–	–	–
	306	2.0	49.0	9	4.0	–	–	–
	307	2.0 1.3	49.0	9	4.0 3.5	–	–	–
	308/309/310/312/313/314	1.3	49.5	9	3.5	–	–	–
	316/318/320/322/324	0.9	49.0	9	3.0	–	–	–



Technical characteristics



Outer shell

Brass

In most cases, LEMO connectors have a brass outer shell which is suitable for most general purpose applications, including civilian and military. The brass outer shells have a chrome nickel-plated surface which ensures very good protection against industrial atmosphere, salt air and most corrosive agents.

Alternative protective coatings are available to satisfy other specific environmental conditions:

- electrolytic nickel
- nickel-gold
- nickel-black chrome. After the black chrome treatment, the part is coated with non conductive protective organic film.

Stainless steel

For applications where there are severe environmental conditions that may rapidly damage the surface finish, we recommend using stainless steel. The AISI 303 stainless steel is a material for general use adapted to most applications requiring a product made entirely of stainless metal.

For the nuclear industry where elements are subject to radiation and to vaporous nitric acid, we offer AISI 304 stainless steel.

Grade AISI 316L is recommended for medical applications, highly demanding with regard to non-corrosiveness. This material is also used for connector shells soldered by electronic beam onto a device made of the same stainless steel. These parts have no surface treatment.

Aluminium alloy

The aluminium alloy outer shells find numerous applications where light weight is a predominant factor; such as in the aeronautics and space industries, and for portable and mobile equipment.

These materials have high mechanical strength and excellent resistance to corrosion. The shell surface is protected by anodizing which is available in six colours: blue, yellow, black, red, green, and natural.

Plastic materials

Some connector model shells can be made of plastic. This solution offers optimum electrical insulating properties particularly suitable for medical applications. Black Polyoxymethylene (POM) is particularly adapted to products of the 00 or S series.

Grey or white polysulfone (PSU) and beige PEEK offers excellent mechanical properties and is suitable for gas or vapour sterilization.

Some elbow socket shells for printed circuits are over-moulded in polyphenylene sulfide (PPS).

Other metallic components

In general, most metallic components are manufactured in brass. However, bronze or beryllium copper are used where good elasticity is required (for example: earthing crown). Depending on the application, these parts have electrolytic nickel or nickel-gold plating.

These parts can also be manufactured in stainless steel.

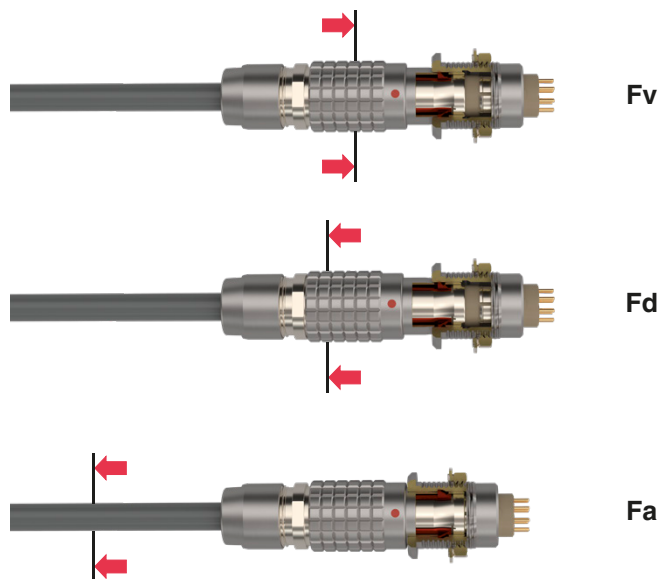
Sealing gasket

In general, sealing gaskets are made of silicone rubber MQ/MVQ. However, for vacuumtight sockets and couplers, gaskets are made of fluorocarbon elastomer (FPM/FKM).

Sealing resin

An epoxy resin is used to seal both watertight and vacuum-tight socket and coupler models.

Mechanical Push-Pull characteristics



F_v: average latching force.

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

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

Standard series

Force (N)	Series							
	00	0S	1S	2S	3S	4S	5S	6S
F_v	9	14	15	17	20	40	60	70
F_d	7	9	10	11	14	25	40	55
F_a	120	140	250	350	500	650	750	900

Watertight series

Force (N)	Series						
	0E	1E	2E	3E	4E	5E	6E
F_v	14	16	20	32	65	85	100
F_d	9	10	13	25	40	60	75
F_a	250	300	400	550	700	800	900

Notes: forces were measured on outer shells **not fitted with contacts**.
Mechanical endurance: 5000 cycles.

The values were measured according to the standard IEC 60512-13-1 test 13a.

1N = 0.102 kg.

Electromagnetic compatibility (EMC) and shielding efficiency

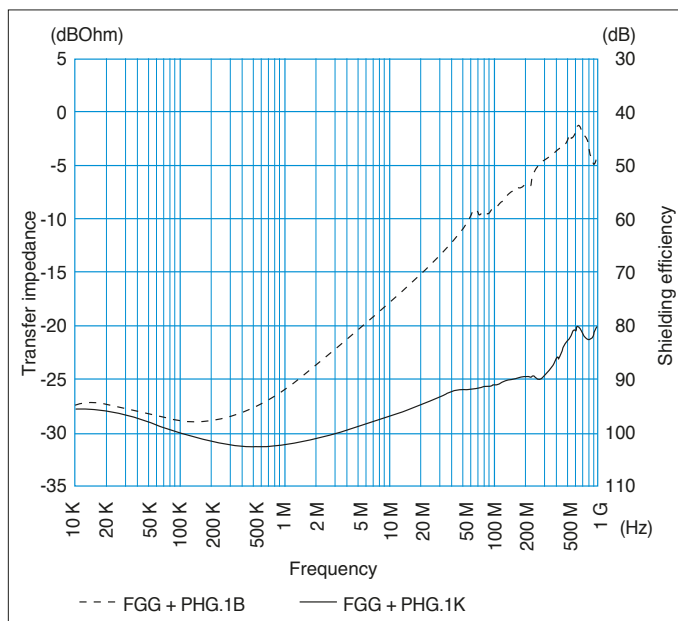
The electromagnetic compatibility of a device can only be ensured by meeting a number of basic rules with the design of the device and by carefully selecting components, cables and connectors.

Electrical and electronic devices are to be designed to ensure the following:

- reduce the emission of generated electromagnetic disturbance to a level where radios and telecommunication and other devices can properly function;
- electromagnetic immunity against electromagnetic disturbance so that they can properly function.

When selecting a connector, screen or shielding efficiency and low resistance to electric continuity between the cable and the connector should be considered.

The design of LEMO connectors with metal shell and earthing crown guarantee optimum shielding efficiency in all applications where electromagnetic compatibility (EMC) is critical. The performance of a connector is measured through shielding efficiency, a value that represents the ratio between the electromagnetic field on the outside and the inside of the shell. Our measurements are carried out according to the IEC 60169-1-3 standard.



The performance of S series connectors is comparable to the results of measurements carried out on a pair of FGG + PHG.1B connectors.

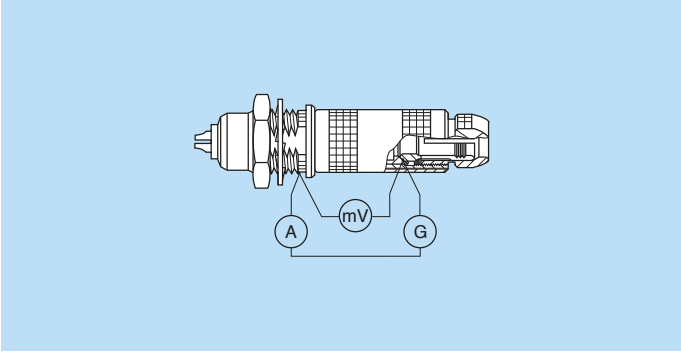
The performance of E series connectors is comparable to the results of measurements carried out on a pair of FGG + PHG.1K connectors.

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

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

- R_1 Values with earthing crown and latch sleeve or inner-sleeve nickel-plated.
- R_2 Values with gold-plated earthing crown and nickel-plated latch sleeve or inner sleeve.

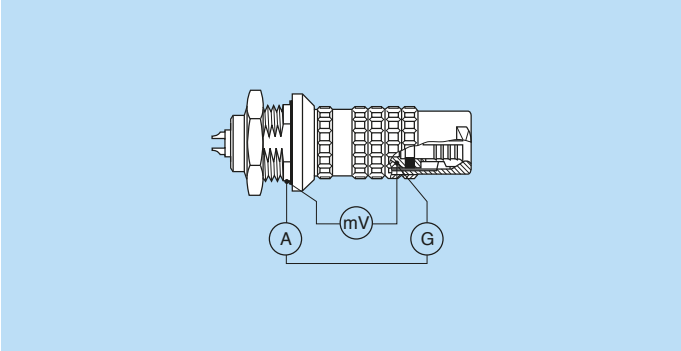
Standard series



Series	R_1 (mΩ)	R_2 (mΩ)
00	3.5	2.8
0S	2.8	1.6
1S	2.2	1.5
2S	1.8	1.2

Series	R_1 (mΩ)	R_2 (mΩ)
3S	1.6	1.2
4S	1.4	1.0
5S	1.4	1.0
6S	1.0	0.5

Watertight series



Series	R_1 (mΩ)	R_2 (mΩ)
0E	2.8	1.6
1E	2.2	1.5
2E	1.8	1.2
3E	1.6	1.2
4E	1.4	1.0
5E	1.4	1.0
6E	1.0	0.5

Contact resistance with relation to the number of mating cycles

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

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

A Ø (mm)	Contact resistance (mΩ)			A Ø (mm)	Contact resistance (mΩ)		
	1000 cycles	3000 cycles	5000 cycles		1000 cycles	3000 cycles	5000 cycles
0.35	8.0	—	—	3.0	2.0	2.2	3.1
0.5	7.5	8.3	8.7	4.0	1.6	2.0	2.8
0.7	5.6	5.7	6.1	5.0	1.4	—	—
0.9	4.1	4.2	4.8	6.0	1.2	—	—
1.3	2.8	2.9	3.6	8.0	0.8	—	—
1.6	2.9	3.1	3.5	12.0	0.7	—	—
2.0	2.6	2.7	3.3				

Insulation resistance between the contacts and contact/shell

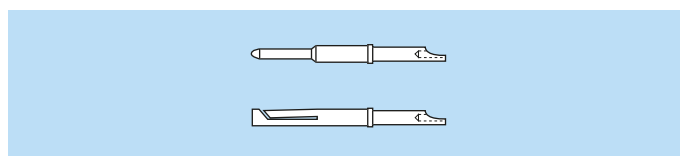
(measured according to IEC 60512-2 test 3a)

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

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

Solder contacts

The conductor bucket of these contacts is machined at an angle to form a cup into which the solder can flow. See page 58 for the range of cable dimensions that can be soldered.



Crimp contacts

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

For multipole contacts the standard four identer crimp method is used, MIL-C-22520F, class I, type 1), photo 2. The crimp method requires a controlled compression to obtain a symmetrical deformation of the conductor strand and of the contact material. The radial hole in the side of the contact makes it possible to check whether the conductor is correctly positioned within the contact. A good crimping is characterized by only slightly reduced conductor section and practically no gap.

For optimum crimping of bronze or brass contacts they are annealed to relieve internal stress and reduce material hardening during the crimping process.

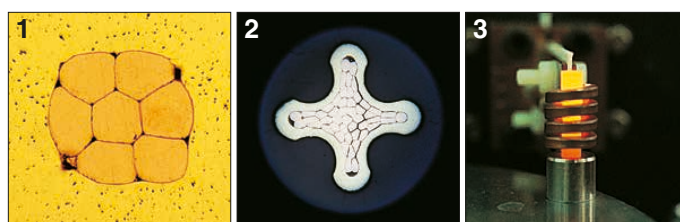
Only the crimping zone is annealed with the help of an induction heating machine designed by the LEMO Research and Development Department (see photo 3).

Advantages of crimping

- practical, quick contact fixing outside the insulator
- possible use at high temperature
- no risk of heating the insulator during the conductor-contact fixing
- high tensile strength

Crimp contacts are available in standard version (form 1) for mounting maximum size conductors.

For some dimensions, these crimp contacts can be produced with reduced crimp barrels (form 2) for mounting reduced size conductors.



Crimp contacts

The crimp contacts can be with two forms: a standard crimp barrel for large conductors (see fig. 1) or with a reduced crimp barrel for smaller conductors (see fig. 2).

Fig. 1

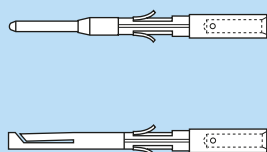
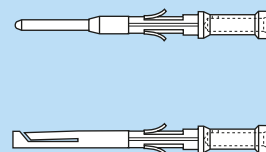


Fig. 2



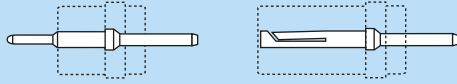
The range of cable dimensions that can be crimped into our contacts are indicated on the table on page 58.

Print contacts

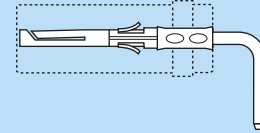
Print contacts are available in straight or elbow versions for certain connector types, mostly for straight and elbow socket models. Connection is made on flexible or rigid printed circuits by soldering. Straight print contacts are gold-plated which guarantees optimum soldering, even after long-term storage. However

for wave soldering, we recommend removal the gold-plating from the contact end on the printed circuit side before soldering according to the assembly procedures. Print elbow contacts include a tinned lead free brass wire crimped into a crimp contact.

straight



elbow



Test voltage

Test voltage (U_e) :
(measured according to the IEC 60512-2 test 4a standard)

It corresponds to 75% of the mean breakdown voltage. Test voltage is applied at 500 V/s and the test duration is 1 minute.

This test has been carried out with a mated plug and socket, with power supply only on the plug end.

The operating voltage value definition is at the entire responsibility of the customer who defines this value according to the safety factors that they apply to their equipment and system.

Caution:

For a number of applications, safety requirements for electrical appliances are more severe with regard to operating voltage. In such cases operating voltage is defined according to creepage distance and air clearance) between live parts. Please consult us for the choice of a connector by indicating the safety standard to be met by the product.

Voltage values are given in the table on insulator types for each series.

They correspond with values measured at sea level. They are adapted to all applications up to an altitude of 2000 m.

In case a device is used at a higher altitude, air clearance between live parts has to be multiplied by the following coefficients.

It means also that test voltage has to be divided by this coefficient.

altitude (m)	coefficient
2000	1.00
3000	1.14
4000	1.29
5000	1.48

Rated current

(measured according to IEC 60512-3 test 5a)

The specified rated current can be applied simultaneously to all the contacts. It corresponds with an average temperature rise of 40°C of the connector.

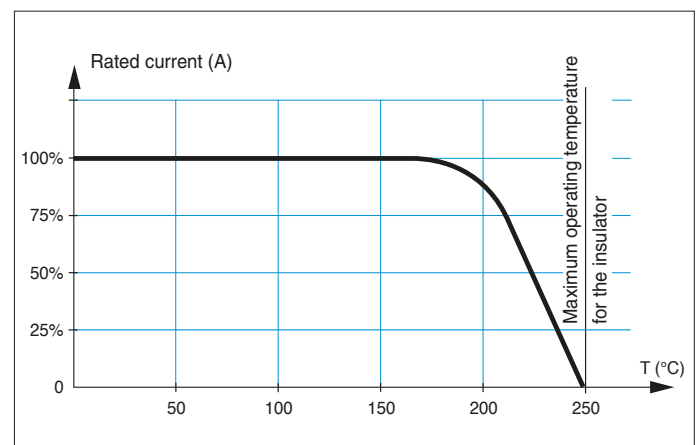
The current values are indicated in the table of insulator types in each series. For use at higher temperatures acceptable rated current will be lower. It tends towards zero as the material is used at the maximum operating temperature accepted for the insulator.

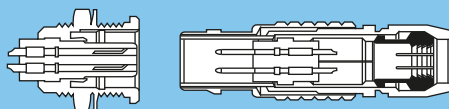
In most case the current depend on the conductor dimension (see table on page 109) or on the printed circuit dimension.

Caution:

In general, connectors should not be unmated while live.

For connectors with PEEK insulator, maximum admissible current will follow the curve below depending on the operating temperature T.

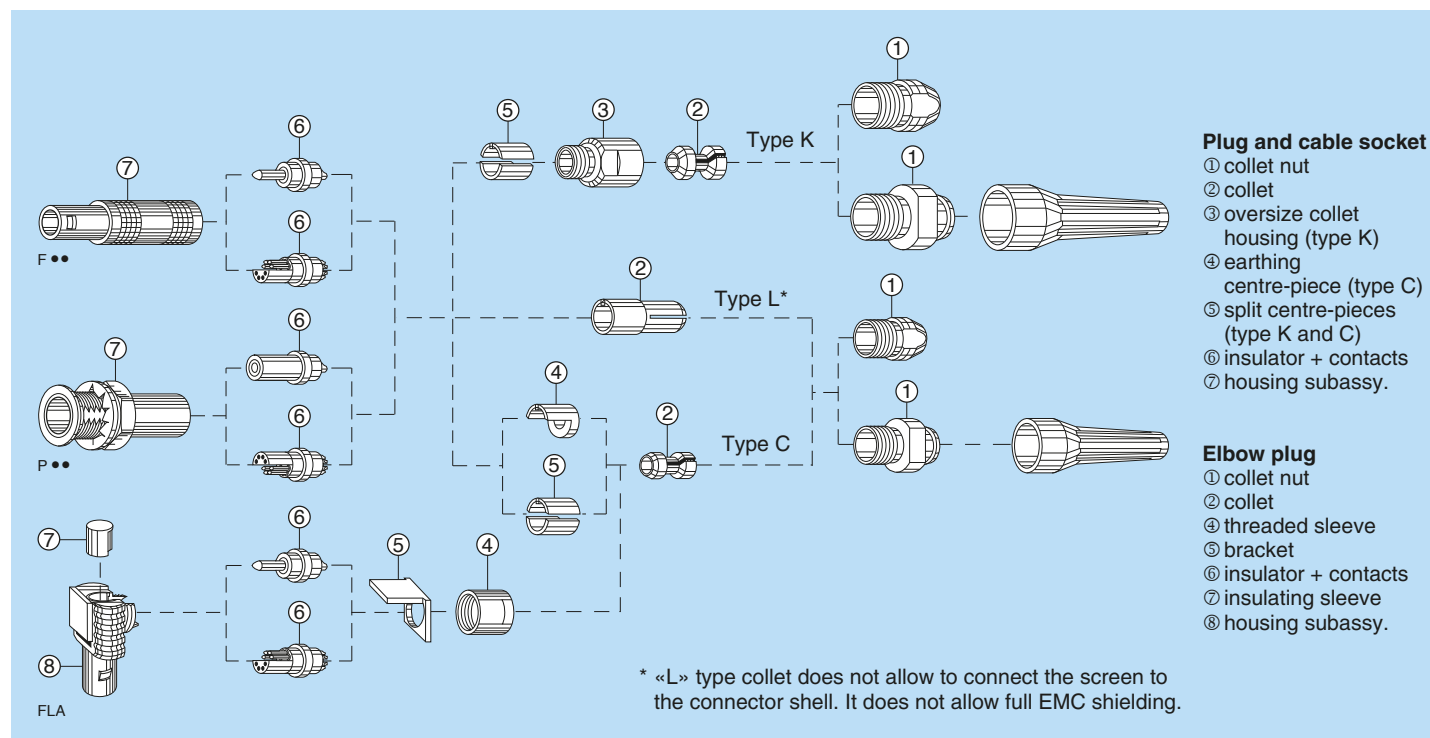




Cable clamping system

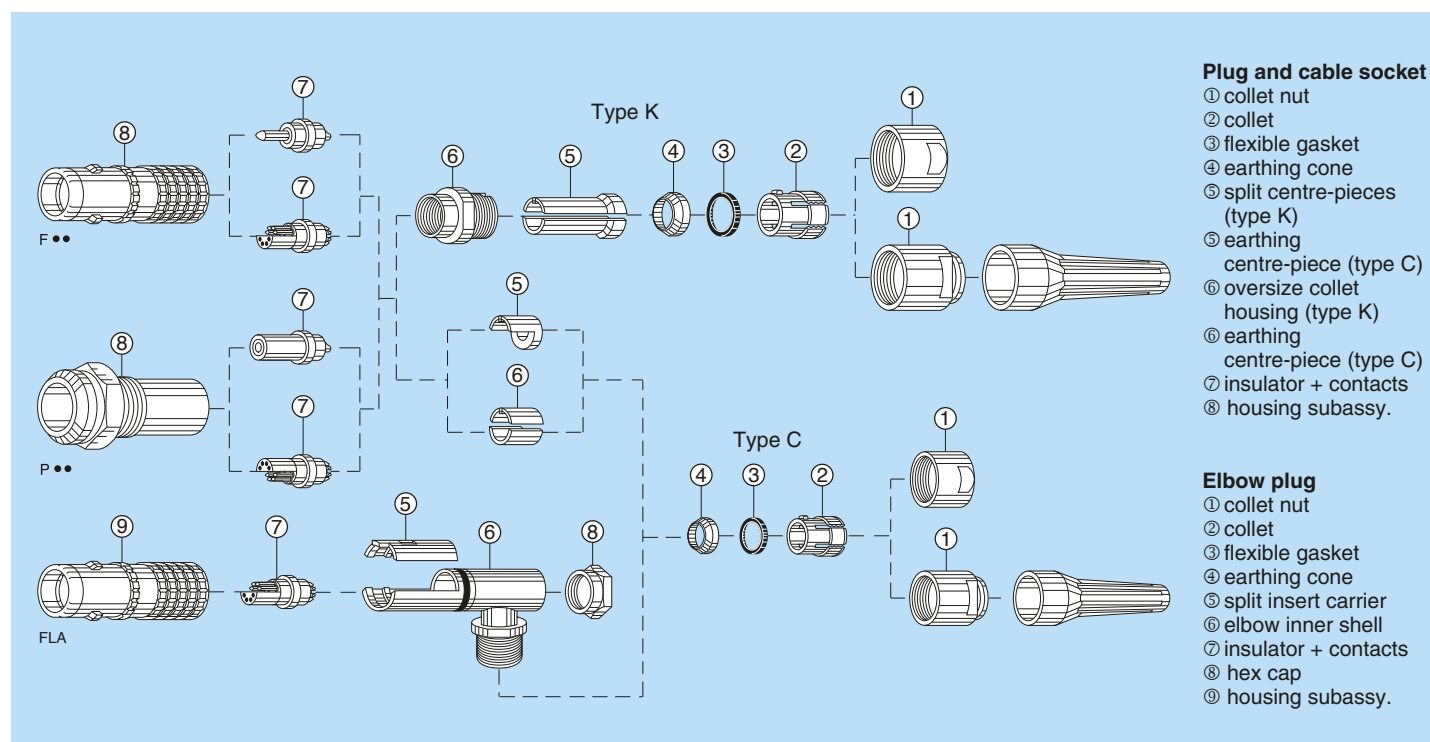
S series (C, L and K cable clamping)

See assembly instructions under www.lemo.com.



E series (C and K cable clamping)

See assembly instructions under www.lemo.com.



Maximum metal collet nut tightening torque

Standard series

	Series							
	00	0S	1S	2S	3S	4S	5S	6S
Torque (Nm)	0.25	0.5	1.5	2.5	3	8	10	12

Watertight series

	Series						
	0E	1E	2E	3E	4E	5E	6E
Torque (Nm)	0.7	0.8	2	3	5	8	12

Maximum elbow plug hex cap tightening torque

Watertight series

	Series					
	0E	1E	2E	3E	4E	5E
Torque (Nm)	0.8	1	1.2	1.5	3	5

1N = 0.102 kg

Maximum plastic collet nut tightening torque ¹⁾

	Series				
	00	0S	1S	2S	3S
Torque (Nm)	0.15	0.45	0.50	0.50	1.00

Note: ¹⁾ for applications subject to strong vibration, we recommend fixing the collet nut with epoxy resin. We recommend to tight to the maximum value. Optimal torque may depend on cable jacket design.

Technical tables

Table of American Wire Gauge

AWG	Construction		ø wire max		Wire section	
	Strand nb	AWG/strand	(mm)	(in)	(mm ²)	(sq in)
0	259	24	11.277	0.444	52.90	0.0820
1	817	30	9.702	0.382	41.40	0.0641
2	259	26	8.89	0.35	33.20	0.0514
4	133	25	6.9596	0.274	21.5925	0.0335
6	133	27	5.5118	0.217	13.5885	0.0211
8	168	30	4.4450	0.175	8.5127	0.0132
8	133	29	4.3942	0.173	8.6053	0.0133
10	105	30	3.3020	0.13	5.3204	0.0082
10	37	26	2.9210	0.115	4.7397	0.0073
10	1	10	2.6162	0.103	5.2614	0.0082
12	37	28	2.3114	0.091	2.9765	0.0046
12	19	25	2.3622	0.093	3.0847	0.0048
12 ¹⁾	7	20	2.5400	0.10	3.6321	0.0056
12	1	12	2.0828	0.082	3.3081	0.0051
14	41	30	2.0574	0.081	2.0775	0.0032
14	19	27	1.8542	0.073	1.9413	0.0030
14 ¹⁾	7	22	2.0828	0.082	2.2704	0.0035
14	1	14	1.6510	0.065	2.0820	0.0032
16 ¹⁾	65	34	1.5748	0.062	1.3072	0.0020
16	26	30	1.5748	0.062	1.3174	0.0020
16	19	29	1.4986	0.059	1.2293	0.0019
16 ¹⁾	7	24	1.5494	0.061	1.4330	0.0022
16	1	16	1.3208	0.052	1.3076	0.0020
18 ¹⁾	65	36	1.2700	0.05	0.8234	0.0013
18 ¹⁾	42	34	1.2700	0.05	0.8447	0.0013
18	19	30	1.3208	0.052	0.9627	0.0015
18	16	30	1.2954	0.051	0.8107	0.0013
18	7	26	1.2700	0.05	0.8967	0.0014
18	1	18	1.0414	0.041	0.8229	0.0013

AWG	Construction		ø wire max		Wire section	
	Strand nb	AWG/strand	(mm)	(in)	(mm ²)	(sq in)
20 ¹⁾	42	36	1.0160	0.04	0.5320	8.2x10 ⁻⁴
20	19	32	1.0414	0.041	0.6162	0.0010
20	10	30	1.0160	0.04	0.5067	7.9x10 ⁻⁴
20	7	28	0.9906	0.039	0.5631	8.7x10 ⁻⁴
20	1	20	0.8382	0.033	0.5189	8.0x10 ⁻⁴
22	19	34	0.8382	0.033	0.3821	5.9x10 ⁻⁴
22	7	30	0.7874	0.031	0.3547	5.5x10 ⁻⁴
22	1	22	0.6604	0.026	0.3243	5.0x10 ⁻⁴
24 ¹⁾	42	40	0.6604	0.026	0.2045	3.2x10 ⁻⁴
24	19	36	0.6858	0.027	0.2407	3.7x10 ⁻⁴
24	7	32	0.6350	0.025	0.2270	3.5x10 ⁻⁴
24	1	24	0.5588	0.022	0.2047	3.2x10 ⁻⁴
26	19	38	0.5588	0.022	0.1540	2.4x10 ⁻⁴
26	7	34	0.5080	0.02	0.1408	2.2x10 ⁻⁴
26	1	26	0.4318	0.017	0.1281	2.0x10 ⁻⁴
28 ¹⁾	19	40	0.4318	0.017	0.0925	1.4x10 ⁻⁴
28	7	36	0.4064	0.016	0.0887	1.4x10 ⁻⁴
28	1	28	0.3302	0.013	0.0804	1.2x10 ⁻⁴
30	7	38	0.3302	0.013	0.0568	8.8x10 ⁻⁵
30	1	30	0.2794	0.011	0.0507	7.9x10 ⁻⁵
32	7	40	0.2794	0.011	0.0341	5.3x10 ⁻⁵
32	1	32	0.2286	0.009	0.0324	5.0x10 ⁻⁵
34	1	34	0.1693	0.007	0.0201	3.1x10 ⁻⁵
36	1	36	0.127	0.005	0.0127	2.0x10 ⁻⁵
38	1	38	0.1016	0.004	0.0081	1.3x10 ⁻⁵
40	1	40	0.078	0.003	0.0049	7.5x10 ⁻⁶

Note: ¹⁾ not included in the standard

Table of wire gauges according to IEC-60228 standard

Conductor no x Ø (mm)	Max Ø (mm)	Max Ø (in)	Section (mm ²)	Section (sq in)	Conductor no x Ø (mm)	Max Ø (mm)	Max Ø (in)	Section (mm ²)	Section (sq in)
196x0.40	7.50	0.295	25.00	0.0387	1x1.40	1.40	0.055	1.50	0.0023
7x2.14	6.10	0.240	25.00	0.0387	32x0.20	1.35	0.053	1.00	0.0015
125x0.40	6.00	0.236	16.00	0.0248	7x0.43	1.29	0.050	1.00	0.0015
7x1.72	4.90	0.192	16.00	0.0248	1x1.15	1.15	0.045	1.00	0.0015
1x4.50	4.50	0.177	16.00	0.0248	42x0.15	1.20	0.047	0.75	0.0011
80x0.40	4.70	0.155	10.00	0.0155	28x0.20	1.15	0.045	0.75	0.0011
7x1.38	3.95	0.155	10.00	0.0155	1x1.00	1.00	0.039	0.75	0.0011
1x3.60	3.60	0.141	10.00	0.0155	28x0.15	0.95	0.037	0.50	7.7x10 ⁻⁴
84x0.30	3.70	0.145	6.00	0.0093	16x0.20	0.90	0.035	0.50	7.7x10 ⁻⁴
7x1.50	3.15	0.124	6.00	0.0093	1x0.80	0.80	0.031	0.50	7.7x10 ⁻⁴
1x2.76	2.76	0.108	6.00	0.0093	7x0.25	0.75	0.029	0.34	5.2x10 ⁻⁴
56x0.30	2.80	0.110	4.00	0.0062	1x0.60	0.60	0.023	0.28	4.3x10 ⁻⁴
7x0.86	2.58	0.098	4.00	0.0062	14x0.15	0.75	0.029	0.25	3.8x10 ⁻⁴
1x2.25	2.25	0.082	4.00	0.0062	7x0.20	0.65	0.023	0.22	3.4x10 ⁻⁴
50x0.25	2.15	0.084	2.50	0.0038	18x0.10	0.50	0.019	0.14	2.1x10 ⁻⁴
7x0.68	2.04	0.080	2.50	0.0038	14x0.10	0.40	0.015	0.11	1.7x10 ⁻⁴
1x1.78	1.78	0.070	2.50	0.0038	21x0.07	0.40	0.015	0.09	1.3x10 ⁻⁴
30x0.25	1.60	0.062	1.50	0.0023	14x0.10	0.40	0.015	0.09	1.3x10 ⁻⁴
7x0.52	1.56	0.061	1.50	0.0023					

Maximum current rating for conductor

Maximum current on insulated conductors up to an ambient temperature of 30° C (from VDE 0100, parts 430 and 532 as well as other VDE regulations).

Nominal section mm ²	Group 2 Intens. max. A	Group 3 Intens. max. A
0.08	1.0	1.5
0.14	2.0	3.0
0.25	4.0	5.0
0.34	6.0	8.0
0.50	9.0	12.0
0.75	12.0	15.0
1.00	15.0	19.0
1.50	18.0	24.0
2.50	26.0	32.0

Group 2 Multi-conductor, e. g. solid cable under sheath, shielded cable, lead-sheath cables, ...
Group 3 Single conductor and single conductor cable laid on open air in a way to leave at least a space between them equal to their diameter

Product safety notice & Disclaimers

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 catalogue however these may be influenced by PC board design and / or wiring harnesses.

The test voltage indicated in the catalogue is 75% of the mean breakdown voltage; the test is applied at 500 V/s and the test duration is 1 minute.

5. CE MARKING

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

6. PRODUCT IMPROVEMENTS

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

7. WARNING (Prop 65 State of California)

Proposition 65 requires businesses to provide warnings to Californians about significant exposures to chemicals that cause cancer, birth defects or other reproductive harm. LEMO products are exempt from proposition 65 warnings because they are manufactured, marketed, and sold solely for commercial and industrial use.

For further information, please visit: <https://web.lemo.com/img/resources/quality/LEMO-Prop-65-compliance-declaration.pdf>

8. UL RECOGNITION

LEMO connectors are components recognized by the Underwriters Laboratories (UL), facilitating the UL approval of the complete system (including LEMO connector, cable and your equipment).

9. REACH AND ROHS

LEMO connector specifications comply with the requirements of the RoHS directive (2011/65/EU) and REACH regulation (1907/2006/EU) of the European Parliament and latest amendments. These REACH and ROHS regulations specify the restrictions of the use of hazardous substances in LEMO products marketed in Europe.

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