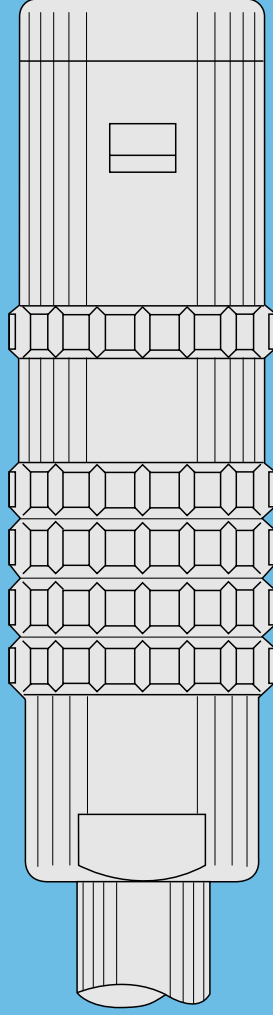
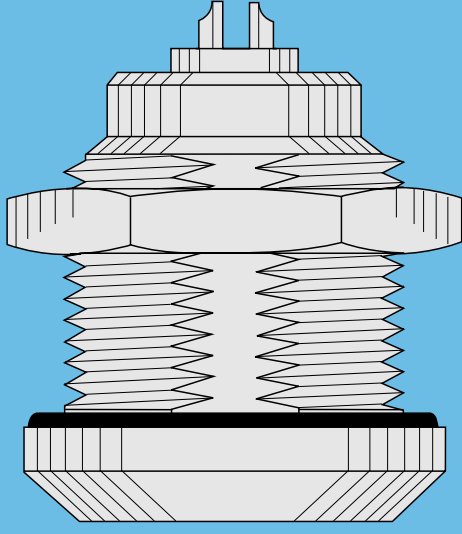
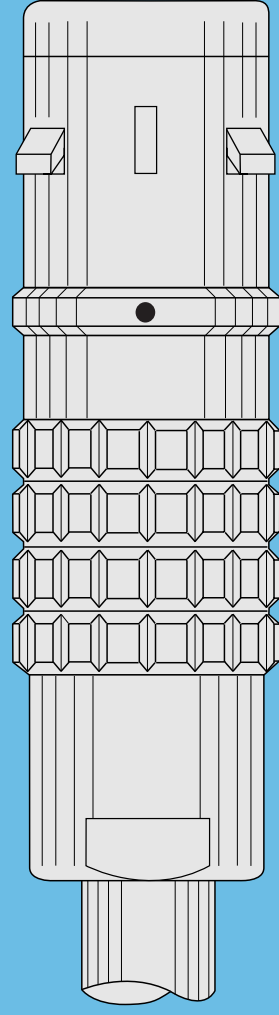
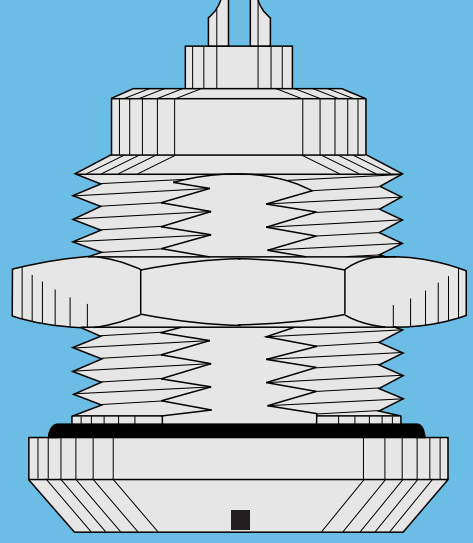


**S SERIES**



**E SERIES (watertight)**



**L SERIES (watertight keyed)**

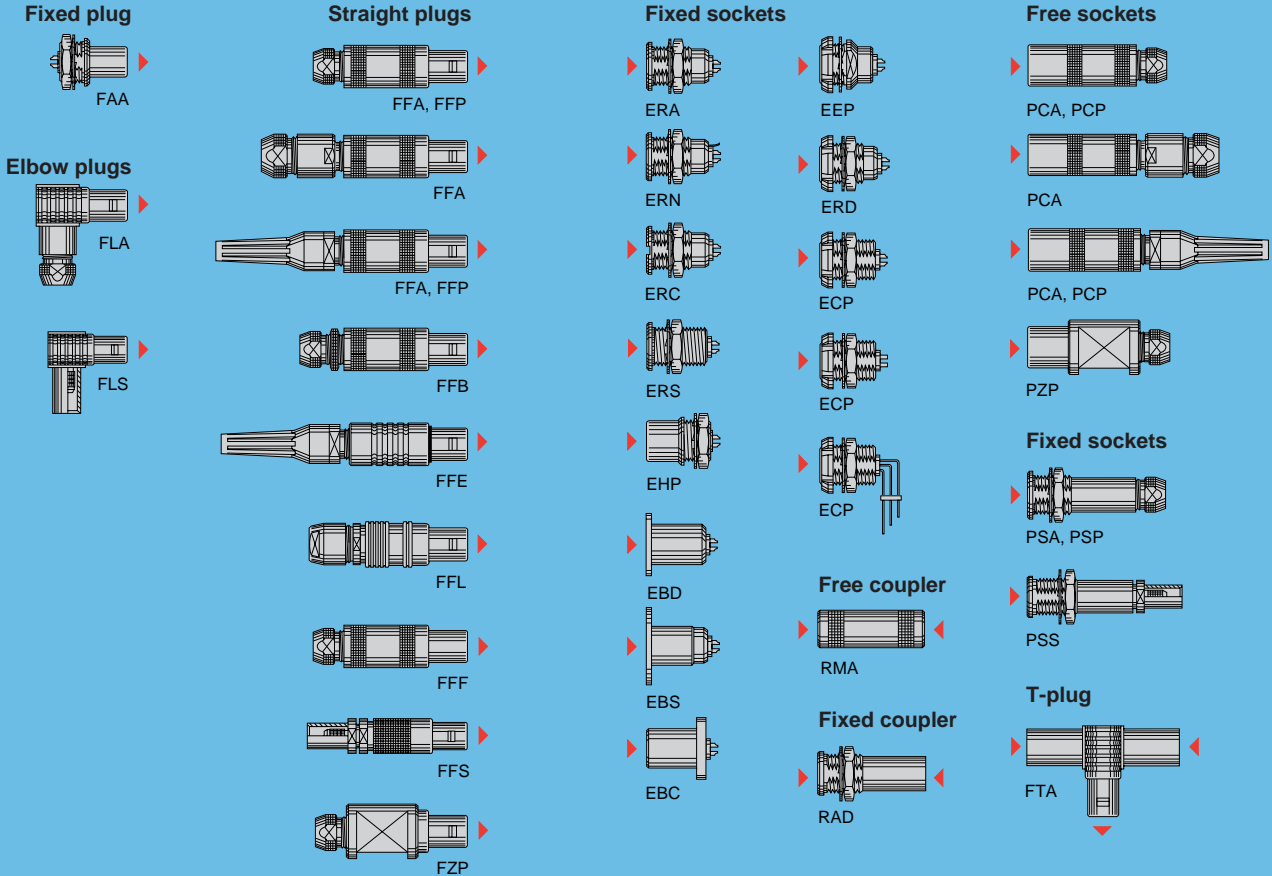
# S Series

S series connectors have main features as follows:

- security of the Push-Pull self-latching system
- unipole types transmitting current up to 230 A and multipole types with up to 106 contacts
- 360° screening for full EMC shielding.

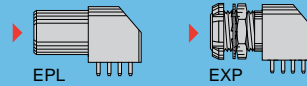
- solder or print contacts (straight or elbow)
- polarisation by stepped insert (half-moon) fitted with male and female contacts

## Metal housing models (page 58)

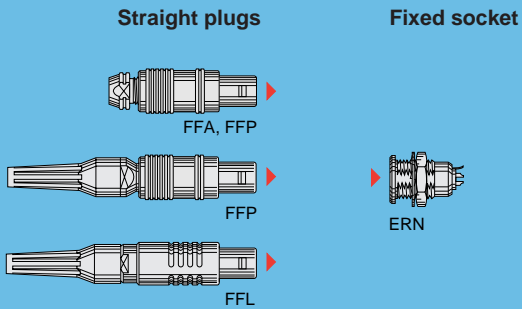


## Elbow socket models (page 68)

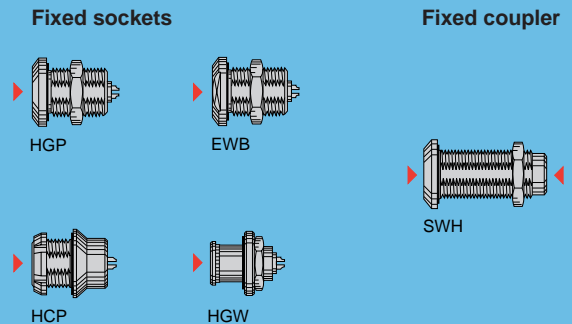
### Elbow sockets



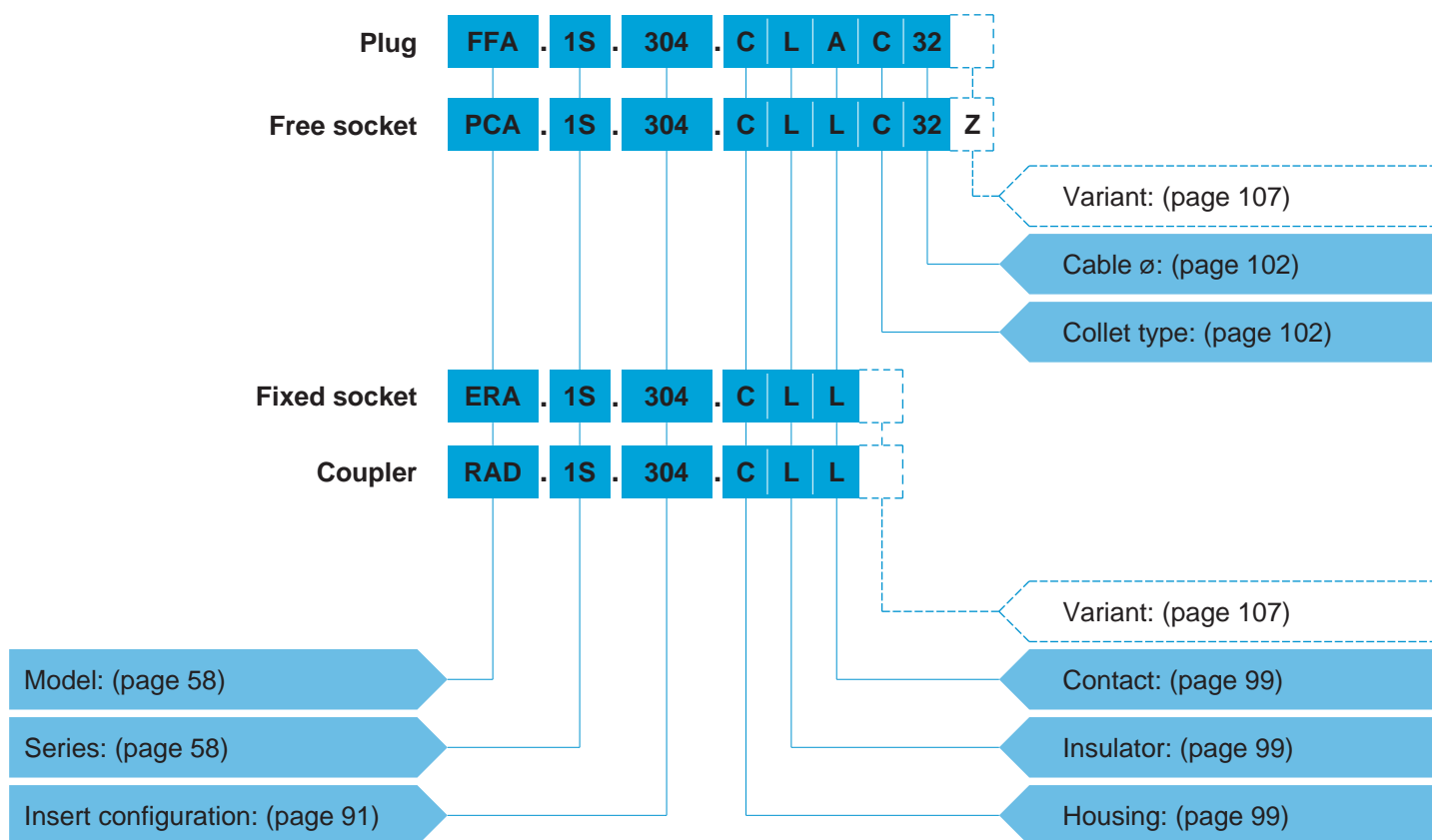
## Plastic housing models (page 70)



## Watertight or vacuumtight models (page 72)



## Part Numbering System



## Part Number Example

### Straight plug with cable collet:

**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.

### Free socket:

**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.

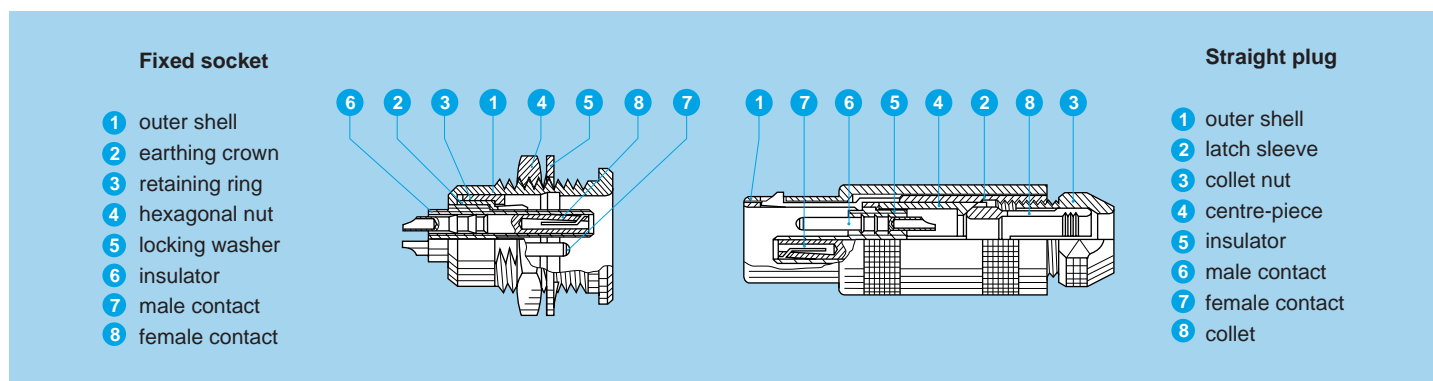
### Fixed socket:

**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.

### Fixed coupler:

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

## Part Section Showing Internal Components



## Metal housing models

### Technical Characteristics

#### Mechanical and Climatical

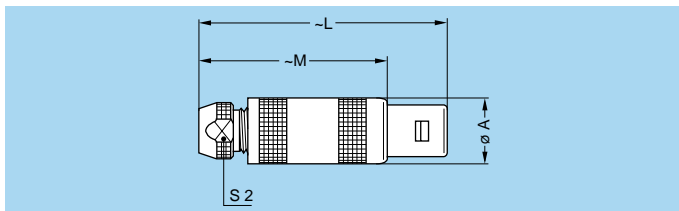
Characteristics	Value	Standard
Endurance	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range	-55° C, +250° C	
Resistance to vibrations	10-2000 Hz, 15 g	IEC 60512-4 test 6d
Shock resistance	100 g, 6 ms	IEC 60512-4 test 6c
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f
Protection index (mated)	IP 50	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
		IEC 60169-1-3

#### 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 171.

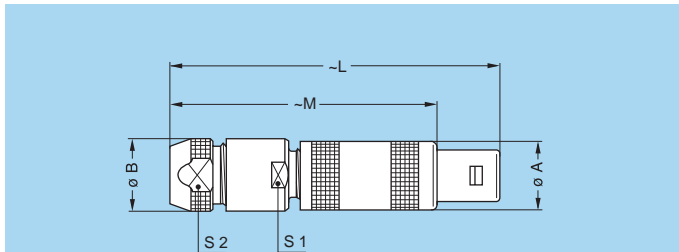


#### FFA Straight plug, cable collet

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

**M1**

Cable assembly (pages 163 to 165)



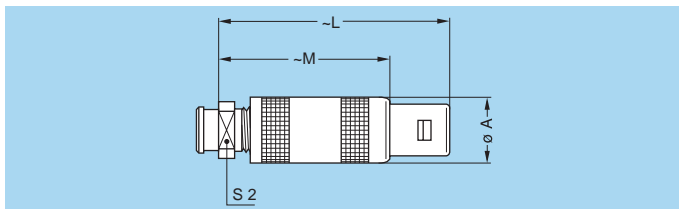
#### FFA Straight plug with oversize cable collet <sup>1)</sup>

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 164 and 166)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 102).



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

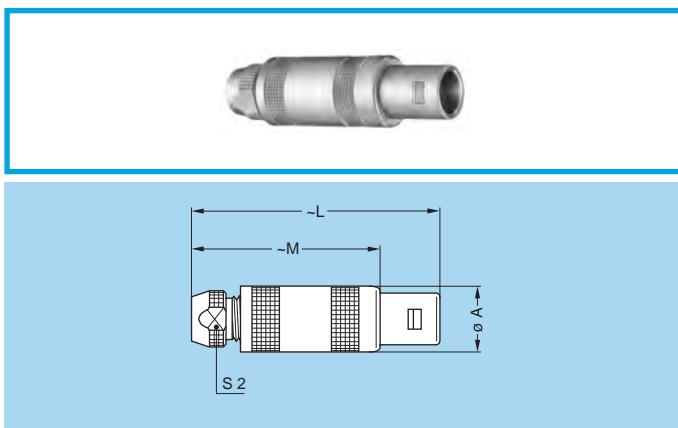
Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFA	00	6.4	26.0	18.0	6
FFA	0S	9.0	34.5	24.5	7
FFA	1S	12.0	42.5	31.5	9
FFA	2S	14.8	52.0	40.0	12
FFA	3S	17.8	61.0	46.0	14
FFA	4S	24.8	77.0	59.0	20

**M1**

Cable assembly (pages 163 and 164)

#### Note:

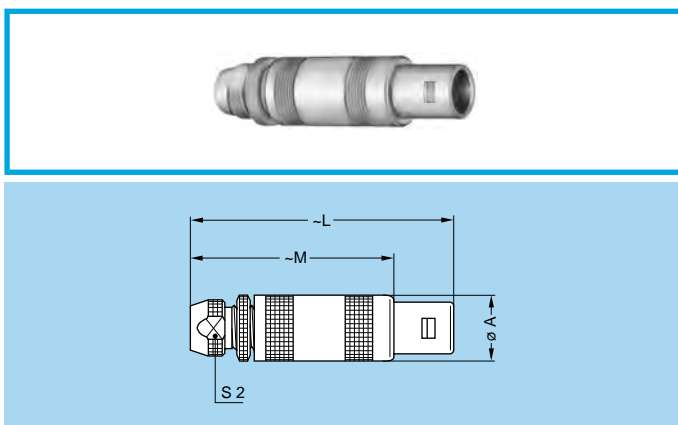
<sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).



### FFP Straight plug, cable collet and inner anti-rotating device

Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFP	0S	9.0	34.5	24.5	6.5
FFP	1S	12.0	42.5	31.5	8.5
FFP	2S	14.8	52.0	40.0	11.0
FFP	3S	17.8	61.0	46.0	14.0
FFP	4S	24.8	77.0	59.0	19.0

**M1** Cable assembly (pages 163 and 164)

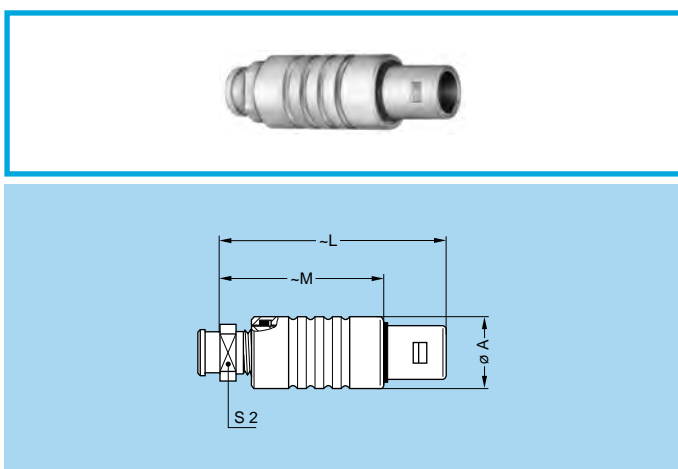


### FFB Straight plug, cable collet and safety locking ring

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 163 and 164)

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

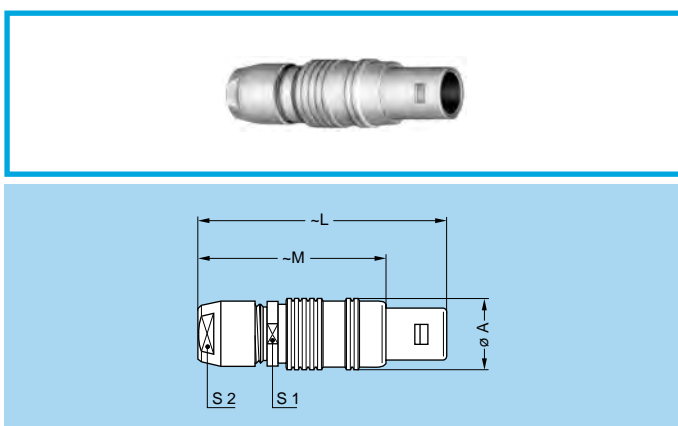


### FFE Straight plug, cable collet, front seal and nut for fitting a bend relief <sup>1)</sup> (protected to IP54 when mated)

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

**M1** Cable assembly (pages 163 and 164)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).

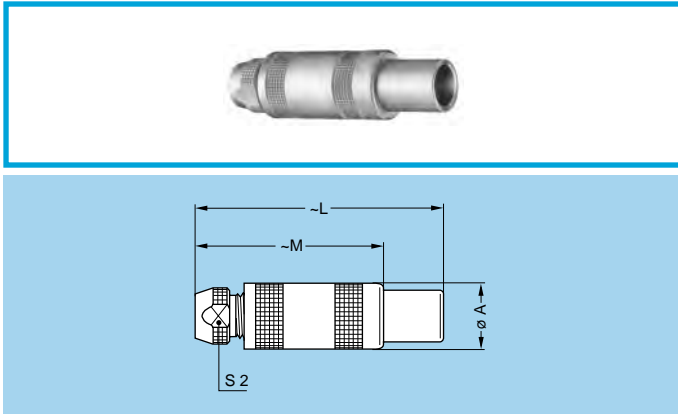


### FFL Straight plug, flats on latch sleeve, cable collet and inner anti-rotating device

Reference		Dimensions (mm)				
Model	Series	A	L	M	S1	S2
FFL	2S	15.0	49.0	37.0	13	12

**M4** Cable assembly (page 165)

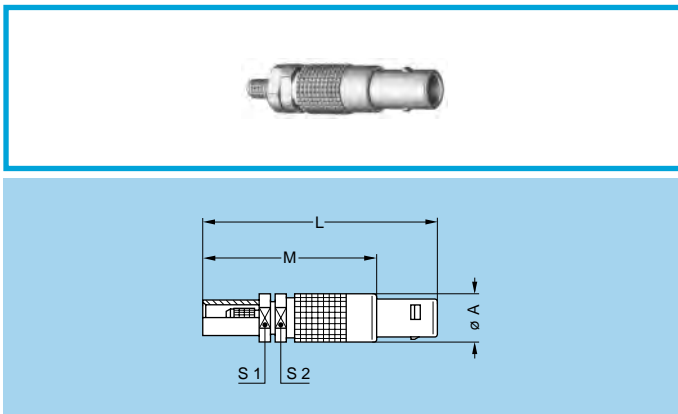
**Note:** this model is fitted with a «D or M» type collet system. It is also adapted for crimp contacts. Available only for multipole.



### 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 163 and 164)

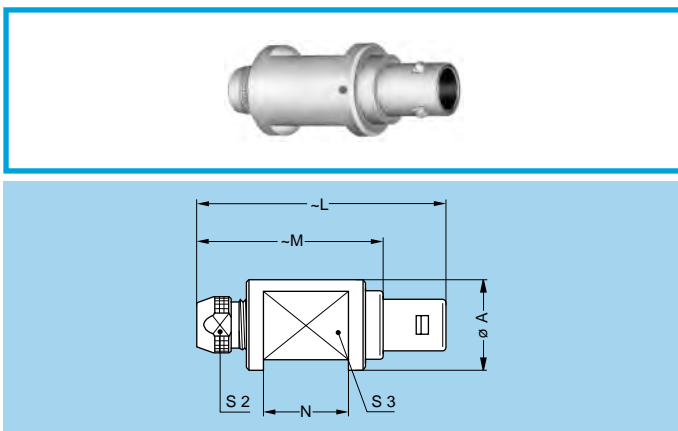


### FFS Straight plug for cable crimping

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

**M5** Cable assembly (page 163)

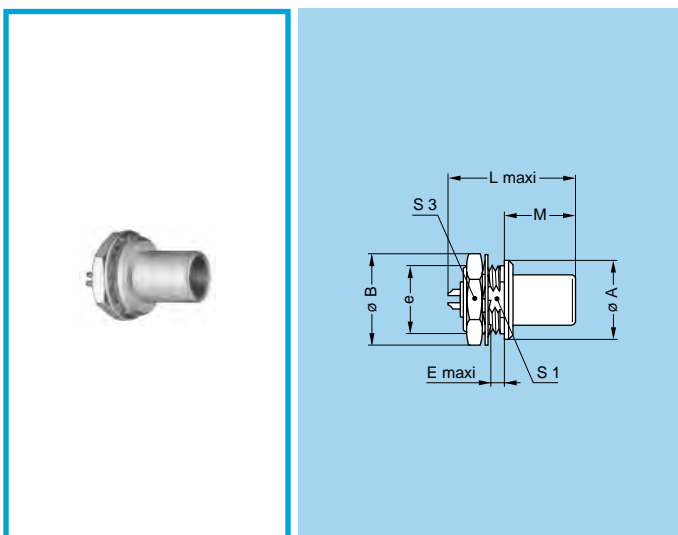
**Note:** Model available only with crimp backnut E31 similar to 00.250 series.



### FZP Straight plug for remote handling, cable collet and inner anti-rotating device

Reference		Dimensions (mm)					
Model	Series	A	L	M	N	S2	S3
FZP	1S	16	42.5	31.5	15	8.5	12
FZP	2S	24	52.0	40.0	21	11.0	18
FZP	3S	24	61.0	46.0	24	14.0	18
FZP	4S	35	77.0	59.0	30	19.0	28
FZP	5S	43	103.0	78.0	44	29.0	35
FZP	6S	60	106.0	81.0	44	38.0	50

**M1** Cable assembly (pages 163 to 165)



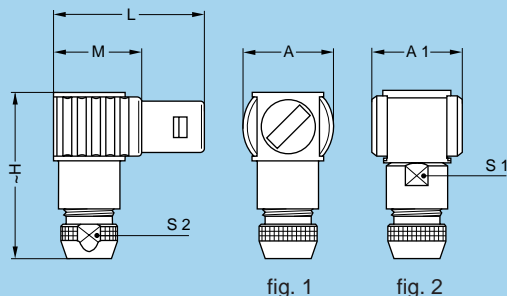
### FAA Fixed plug non-latching, nut fixing

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

**P1** Panel cut-out (page 152)

**P2** Panel cut-out 6S series (page 152)

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



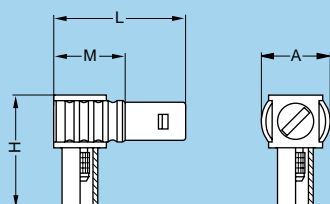
### FLA Elbow (90°) plug, cable collet

Reference		Dimensions (mm)						
Model	Series	A	A1	H	L	M	S1	S2
FLA	00	9	–	16.0	17.5	9.5	–	4.5
FLA	0S	13	13	24.5	23.0	13.0	8	6.5
FLA	1S	16	16	28.5	26.5	15.5	10	8.5
FLA	2S	20	20	37.0	31.0	19.0	13	11.0
FLA	3S	21	21	44.0	38.5	23.5	15	14.0
FLA	4S	28	28	56.0	49.0	31.0	20	19.0
FLA	5S	–	37	76.5	65.0	40.0	30	29.0
FLA	6S	–	48	94.0	81.0	56.0	40	38.0

**M3** Cable assembly (pages 163 to 165)

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

- Maximum operating temperature: 120°C



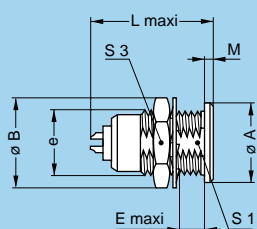
### FLS Elbow (90°) plug for cable crimping

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

**M6** Cable assembly (page 163)

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

- Maximum operating temperature: 120°C



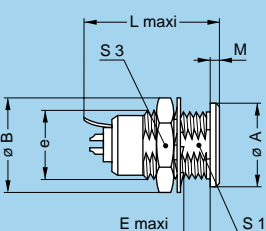
### ERA Fixed socket, nut fixing

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S1	S3
ERA	00	8	10.2	M7x0.5	5.5	–	14.5	1.0	6.3	9
ERA	0S	10	12.4	M9x0.6	7.0	17.5	18.0	1.2	8.2	11
ERA	1S	14	15.8	M12x1.0	7.5	20.2	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 152)

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

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

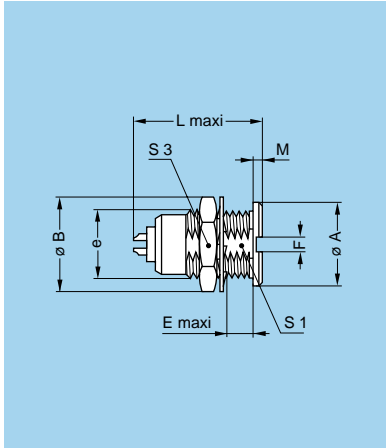


### ERN Fixed socket, nut fixing, with earthing tag

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

**P1** Panel cut-out (page 152)

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

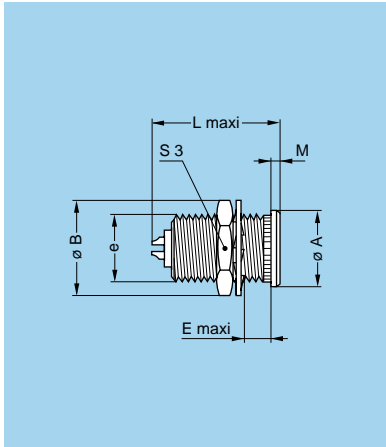


### ERC Fixed socket, nut fixing with slot in the flange

Reference		Dimensions (mm)									
Model	Series	A	B	e	E	F	L	L <sup>1)</sup>	M	S1	S3
ERC	00	8	10.2	M7x0.5	5.5	1.6	–	14.5	1.0	6.3	9
ERC	0S	10	12.4	M9x0.6	7.0	2.0	17.5	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 152)

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

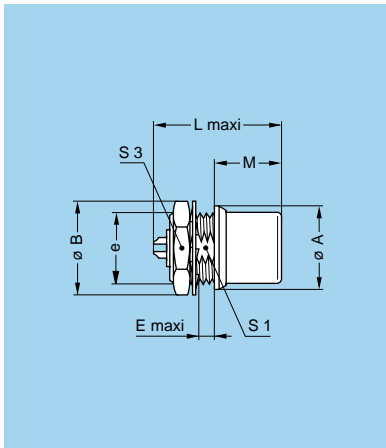


### ERS Fixed socket, nut fixing, long threaded shell, without flats

Reference		Dimensions (mm)							
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S3
ERS	0S	10	12.4	M9x0.6	10.5	17.5	18.0	1.2	11

**P2** Panel cut-out (page 152)

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



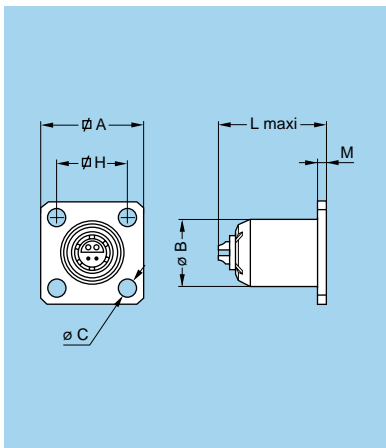
### EHP Fixed socket, nut fixing, protruding shell

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

**P1** Panel cut-out 0S series (page 152)

**P2** Panel cut-out (page 152)

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



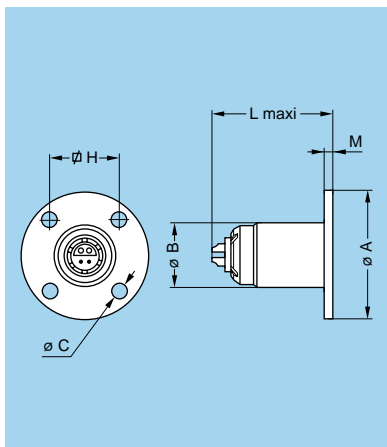
### EBD Fixed socket with square flange and screw fixing

Reference		Dimensions (mm)						
Model	Series	A	B	C	H	L	L <sup>1)</sup>	M
EBD	2S	22	15	3.2	15.5	24.5	26	2

**P6** Panel cut-out (page 152)

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



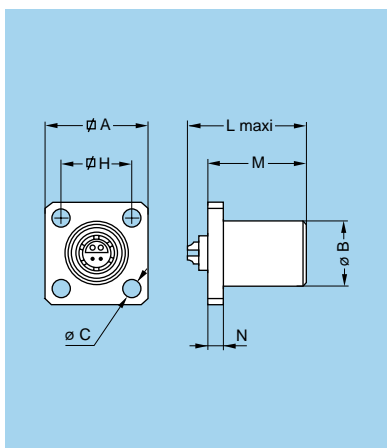


### EBS Fixed socket with round flange and screw fixing

Reference		Dimensions (mm)						
Model	Series	A	B	C	H	L	L <sup>1)</sup>	M
EBS	1S	22	11	2.5	12.4	20.2	20.5	1.5

**P7** Panel cut-out (page 152)

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

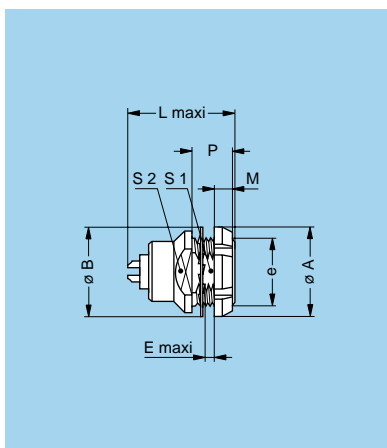


### EBC Fixed socket with square flange, protruding shell and screw fixing

Reference		Dimensions (mm)							
Model	Series	A	B	C	H	L	L <sup>1)</sup>	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

**P6** Panel cut-out (page 152)

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

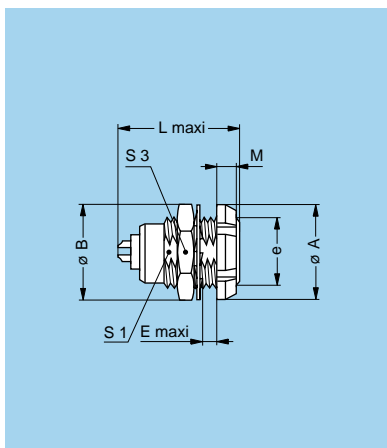


### EEP Fixed socket, nut fixing (back panel mounting)

Reference		Dimensions (mm)									
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	P	S1	S2
EEP	2S	20	19.5	M15x1	3.5	24.5	23.5	3.5	9	13.5	15

**P1** Panel cut-out (page 152)

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

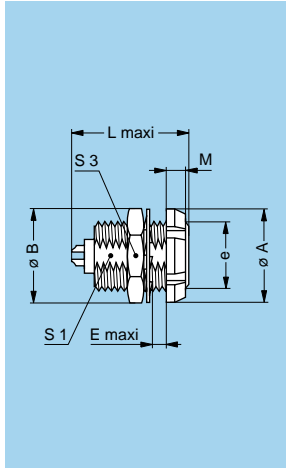


### ERD Fixed socket with two nuts (back panel mounting)

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S1	S3
ERD	0S	12	12.4	M9x0.6	5.5	17.5	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 152)

**Note:** <sup>1)</sup> unipole model.  
The 3S and 4S series are delivered with a conical nut.

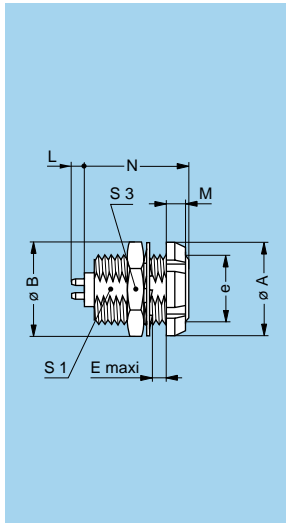


### ECP Fixed socket with two nuts, long threaded shell (back panel mounting)

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S1	S3
ECP	0S	12	12.4	M9x0.6	8.5	17.5	18.5	2.5	8.2	11
ECP	1S	16	15.8	M12x1.0	10.0	20.2	21.5	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 152)

**Note:** <sup>1)</sup> unipole model.  
The 3S series is delivered with a conical nut.



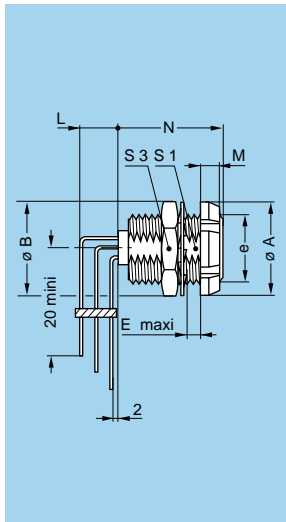
### ECP Fixed socket with two nuts, long threaded shell, with straight contact for printed circuit (back panel mounting)

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

**P1** Panel cut-out (page 152)

**P21** PCB drilling pattern (page 159)

**Note:** this contact type is available for all E● socket models.  
See page 159 for table of available types.  
Length «L» depends on the number of contacts, see table on page 159.  
The 3S series is delivered with a conical nut.



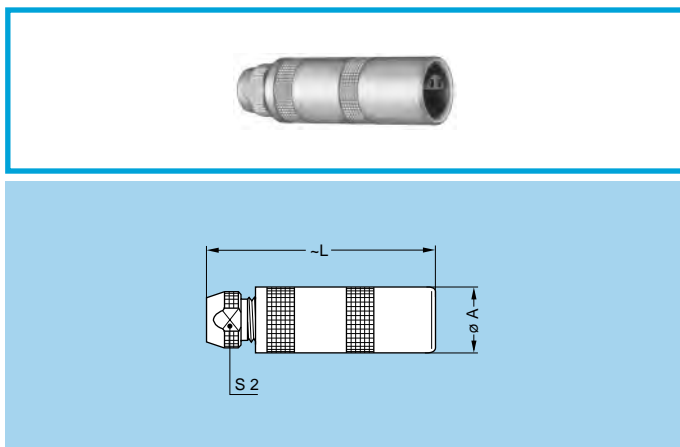
### ECP Fixed socket with two nuts, long threaded shell, with elbow (90°) contacts for printed circuit (back panel mounting)

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

**P1** Panel cut-out (page 152)

**P24** PCB drilling pattern (page 160)

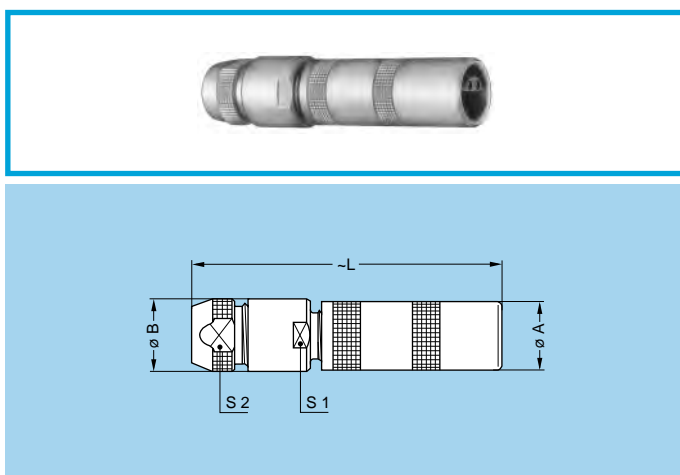
**Note:** this contact type is available for all back panel mounting socket types.  
See page 160 for available types.  
Length «L» depends on the number of contacts, see PCB drilling pattern on page 160.  
The 3S series is delivered with a conical nut.



### PCA Free socket, cable collet

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

**M1** Cable assembly (pages 163 to 165)

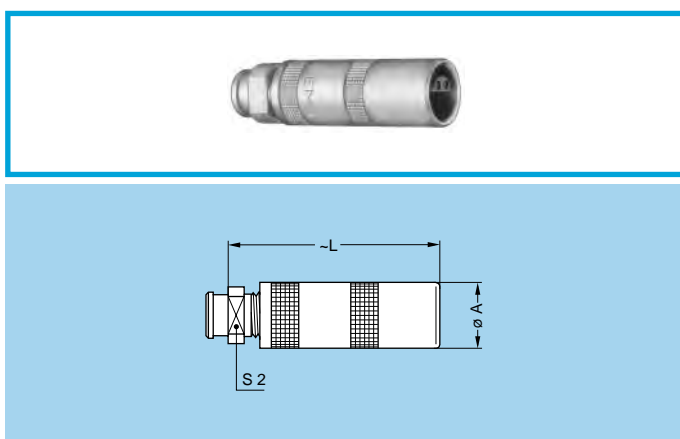


### PCA Free socket with oversize cable collet <sup>1)</sup>

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

**M2** Cable assembly (pages 164 and 166)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 102).

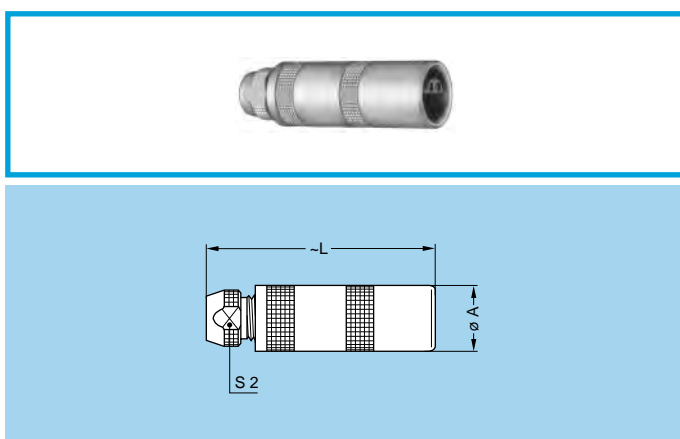


### PCA Free socket, cable collet and nut for fitting a bend relief <sup>1)</sup>

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

**M1**  
Cable assembly  
(pages 163 and 164)

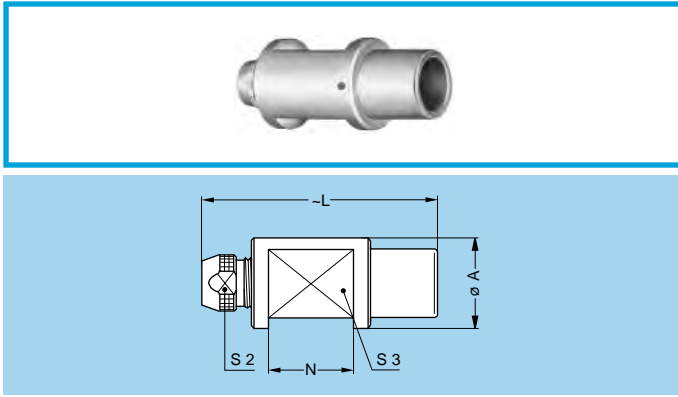
**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).



### PCP Free socket, cable collet and inner anti-rotating device

Reference		Dimensions (mm)		
Model	Series	A	L	S2
PCP	0S	8.9	33.5	6.5
PCP	1S	11.9	40.5	8.5
PCP	2S	14.8	50.0	11.0
PCP	3S	17.8	59.0	14.0
PCP	4S	24.8	75.0	19.0

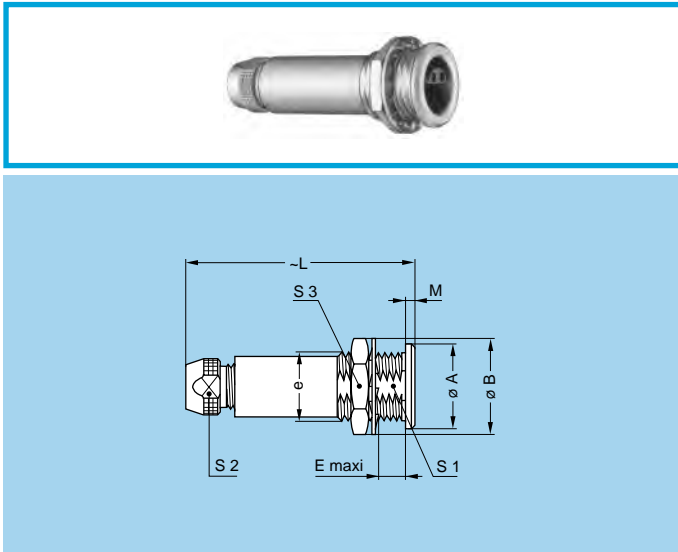
**M1** Cable assembly (pages 163 and 164)



### PZP Free socket for remote handling with cable collet and inner anti-rotating device

Reference		Dimensions (mm)				
Model	Series	A	L	N	S2	S3
PZP	1S	16	40.5	15	8.5	12
PZP	2S	24	50.0	21	11.0	18
PZP	3S	24	59.0	24	14.0	18

**M1** Cable assembly (pages 163 and 164)



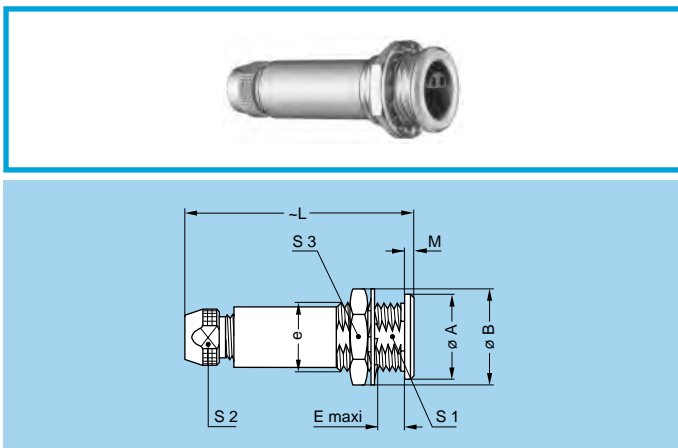
### PSA Fixed socket, nut fixing, cable collet

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

**M1** Cable assembly (pages 163 to 165)

**P1** Panel cut-out (page 152)

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

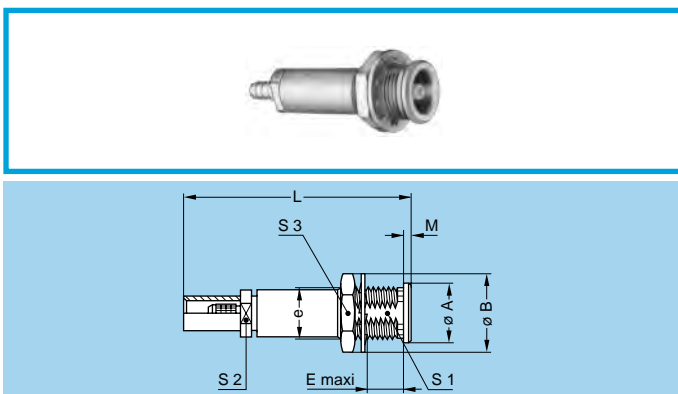


### PSP Fixed socket, nut fixing, cable collet and inner anti-rotating device

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	M	S1	S2	S3
PSP	0S	10	12.4	M9x0.6	7.0	33.5	1.2	8.2	6.5	11
PSP	1S	14	15.8	M12x1.0	7.5	40.5	1.5	10.5	8.5	14
PSP	2S	18	19.2	M15x1.0	8.5	50.0	1.8	13.5	11.0	17
PSP	3S	22	25.0	M18x1.0	11.5	59.0	2.0	16.5	14.0	22
PSP	4S	28	34.0	M25x1.0	12.0	75.0	2.5	23.5	19.0	30

**M1** Cable assembly (pages 163 and 164)

**P1** Panel cut-out (page 152)



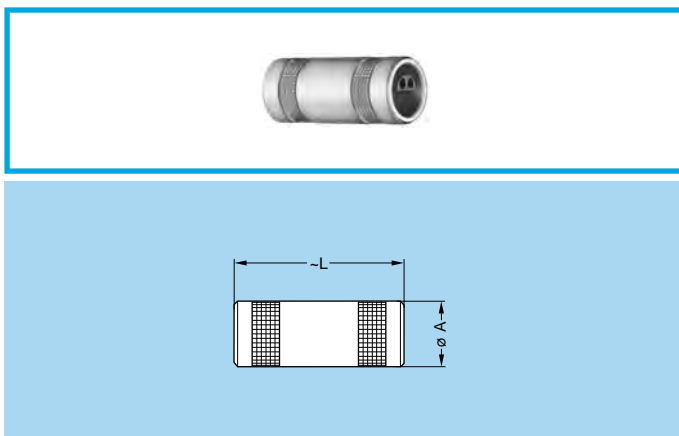
### PSS Free socket, nut fixing for cable crimping

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 163)

**P1** Panel cut-out (page 152)

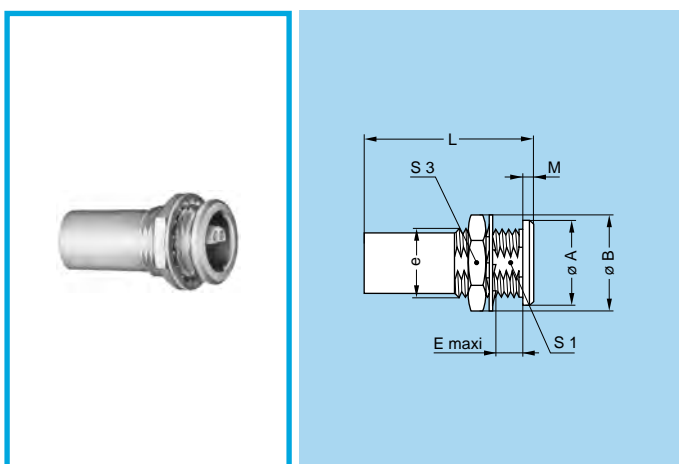
**Note:** Model available only with crimp backnut E31 similar to 00.250 series.



### 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 101 for the available plug and contact configurations and in order to ensure correct contact alignment.



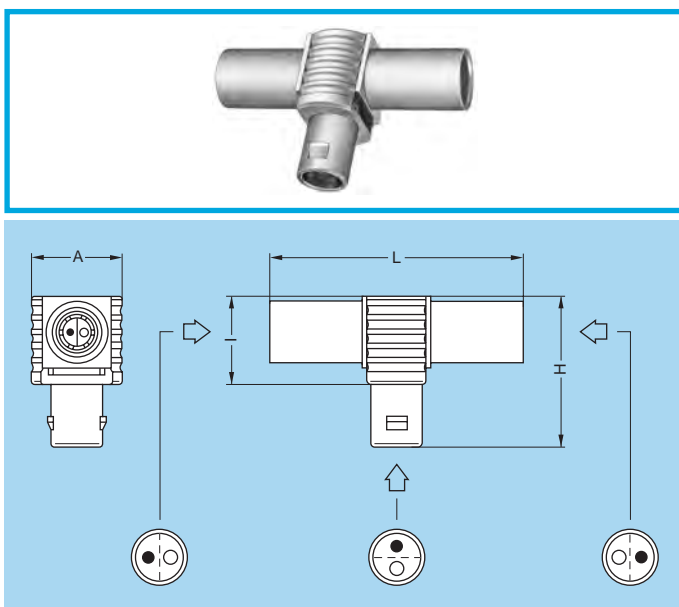
### RAD Fixed coupler, nut fixing

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 152)

**P2** Panel cut-out 4S and 5S series (page 152)

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



### FTA T-plug with two in line sockets

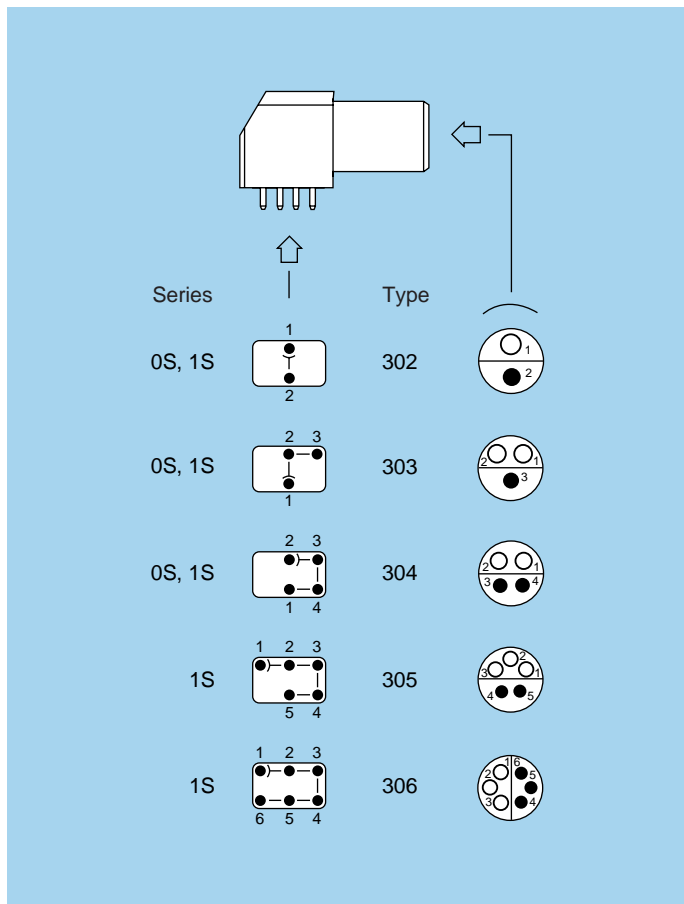
Reference		Dimensions (mm)			
Model	Series	A	H	I	L
FTA	00	9	17.5	9.5	30
FTA	0S	13	23.0	13.0	38
FTA	1S	16	26.5	16.5	45
FTA	3S	21	38.5	23.5	64

**Note:** multipole version available only with 2 contacts (type 302).

## Elbow socket models

### Technical Characteristics

#### Types



#### Materials and Treatment

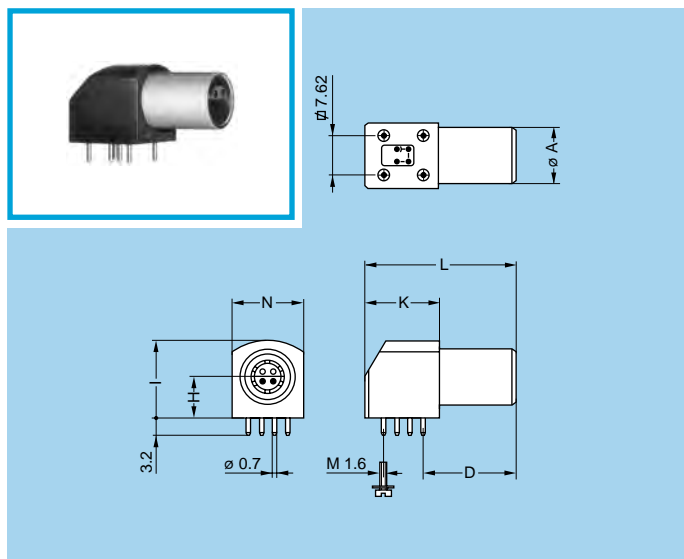
Component	Material	Surface Treat. (µm)		
		Cu	Ni	Au
Housing	PPS 1)	-		
	Brass	0.5	3	-
Metallic parts	Brass	0.5	3	-
Earthing crown	Bronze	0.5	3	-
Insulator	PEEK	-		
Female contact	Bronze	0.5	3	1.5

**Note:** 1) not used for all sizes.  
The surface treatment standards are as follows:  
- Nickel FS QQ-N-290A  
- Gold: ISO 4523

#### Electrical

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

**Note:**  
1) see calculation method, caution and suggested standard on page 178.

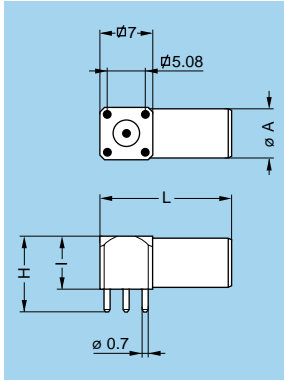


#### EPL Elbow (90°) socket for printed circuit (solder or screw fixing)

Part Number	Dimensions (mm)						
	A	D	H	I	K	L	N
EPL.0S.302.HLN	9	14.6	6.7	12.7	13.3	25	11.7
EPL.0S.303.HLN							
EPL.0S.304.HLN							
EPL.1S.302.HLN	11	16.6	7.5	14.0	13.3	27	12.6
EPL.1S.303.HLN							
EPL.1S.304.HLN							
EPL.1S.305.HLN							
EPL.1S.306.HLN							

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

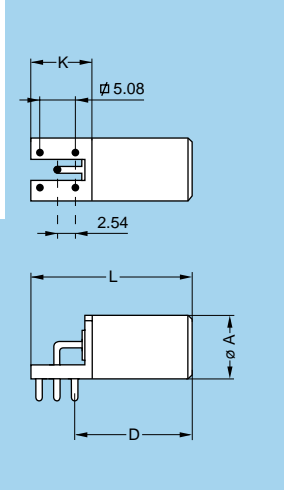
**P22** PCB drilling pattern (page 160)



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

Part Number	Dim. (mm)		
	A	H	I
EPL.00.113.NLN	6.8	10	7

**P23** PCB drilling pattern (page 160)

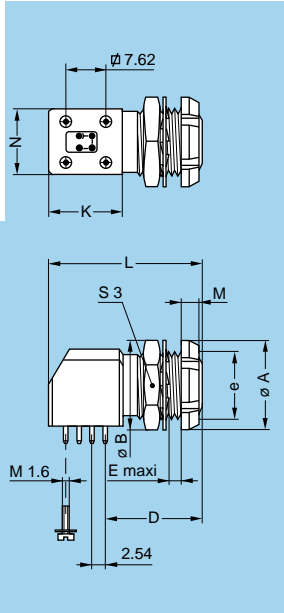


### EPL Elbow (90°) socket for printed circuit

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.

**P23** PCB drilling pattern (page 160)



### 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	12.7	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 an «S» to the end of the part number. (e.g.: EXP.1S.303.HLNS).

**P2** Panel cut-out 0S series (page 152)

**P10** Panel cut-out 1S series (page 152)

**P22** PCB drilling pattern (page 160)

# Plastic housing models

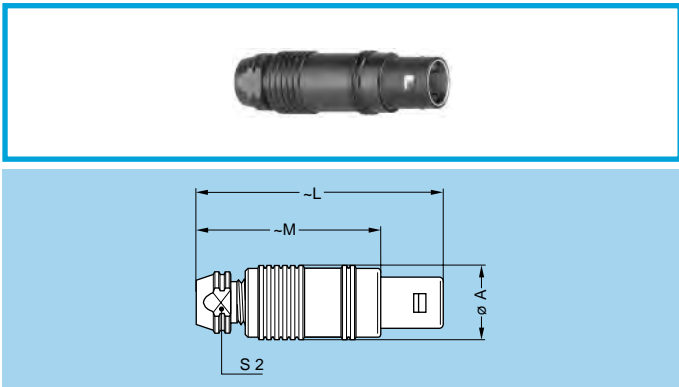
These connectors are particularly recommended for all applications requiring maximum electrical insulation when mated. The design, including a latch sleeve and a metal earthing crown, guarantees EMC screening efficiency to meet most requirements.

## Technical Characteristics

### Mechanical and Climatical

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

**Note:**  
<sup>1)</sup> Steam sterilization

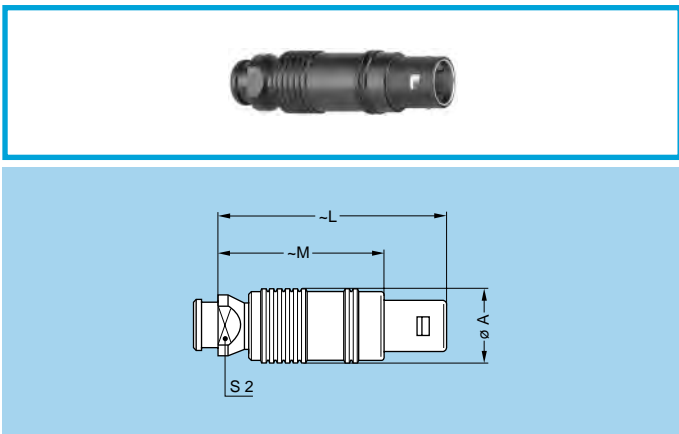


**FFA** Straight plug, cable collet, PEEK or POM outer shell

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

Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFA	00	7.0	33.5	25.5	6.0
FFP	0S	9.5	34.5	24.5	8.0
FFP	1S	12.0	42.5	31.5	10.0
FFP	2S	15.0	52.0	40.0	12.0
FFP	3S	18.0	61.0	46.0	14.0

**M1** Cable assembly (pages 163 and 164)

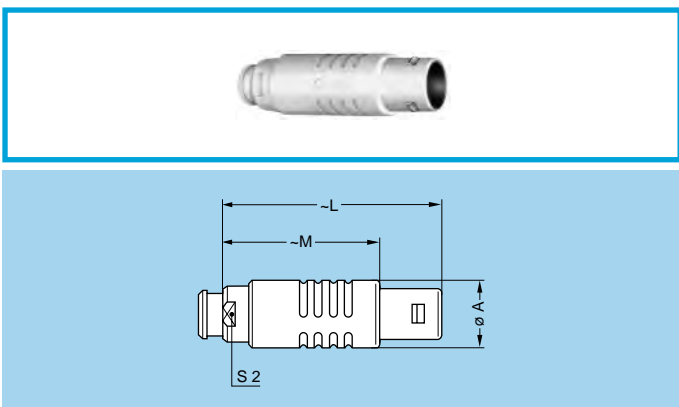


**FFP** Straight plug, cable collet, PEEK or POM outer shell, inner anti-rotating device and nut for fitting a bend relief <sup>1)</sup>

Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFP	0S	9.5	33.5	23.5	7.0
FFP	1S	12.0	41.5	30.5	10.0
FFP	2S	15.0	51.0	39.0	12.0
FFP	3S	18.0	61.0	46.0	14.0

**M1** Cable assembly (pages 163 and 164)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).



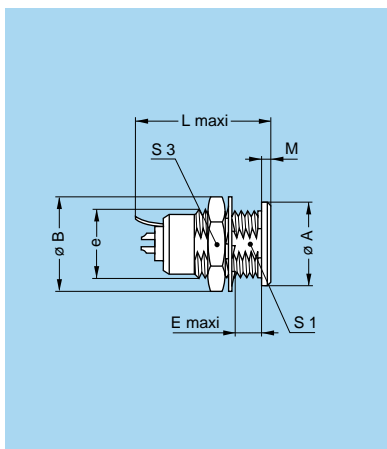
**FFL** Straight plug, cable collet, with PSU and PPSU outer shell, inner anti-rotating device and nut for fitting a bend relief <sup>1)</sup>

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

**M4** Cable assembly (page 165)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141). This model is fitted with a «D or M» type collet system. It is also adapted for crimp contacts. Available only for multipole.





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

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

**P1** Panel cut-out (page 152)

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

## 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 and are widely used for portable radios, military, laboratory equipment, aviation, etc.

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

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

Epoxy resin is used to seal these models.

### Technical Characteristics

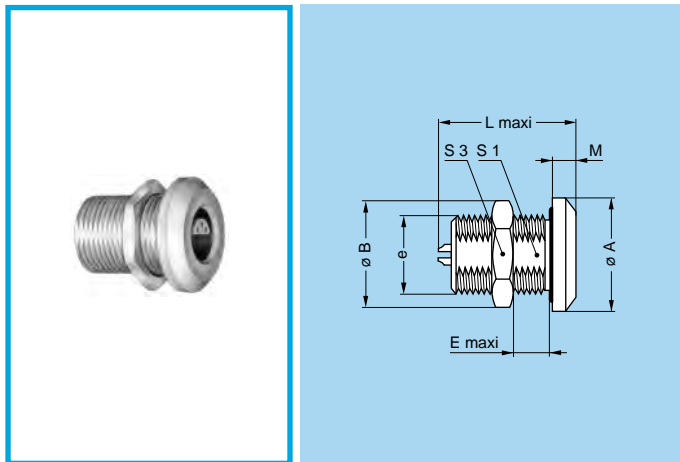
#### Mechanical and Climatical

Characteristics	Value	Standard
Endurance	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range (0S-1S)	- 20° C/+100° C	
Temperature range (2S-6S)	- 20° C/+80° C	
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f
Climatical category	20/80/21	IEC 60068-1
Leakage rate (He) <sup>1)</sup>	< 10 <sup>-7</sup> mbar.l.s <sup>-1</sup>	IEC 60512-7 test 14b

**Note:** <sup>1)</sup> only for vacuumtight models.

Characteristics	Value	Standard
Maximum operating pressure <sup>2)</sup>	0S	60 bars
	1S	60 bars
	2S	40 bars
	3S	30 bars
	4S	15 bars
	5S	5 bars
	6S	5 bars
		IEC 60512-7 test 14d

**Note:** <sup>2)</sup> this value corresponds to the maximum allowed pressure difference for the assembled socket.



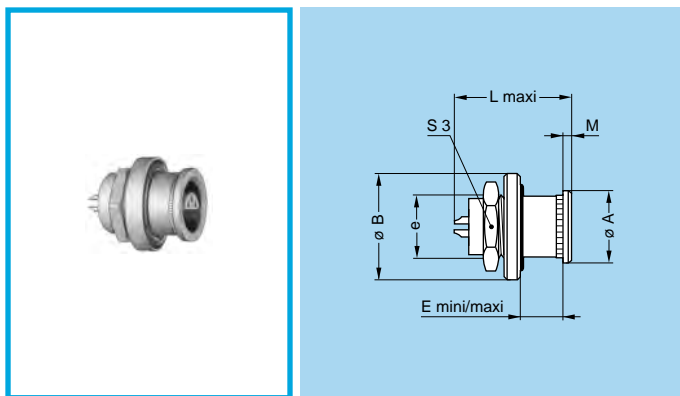
#### HGP Fixed socket, nut fixing, watertight or vacuumtight

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S1	S3
HGP	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 152)

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

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

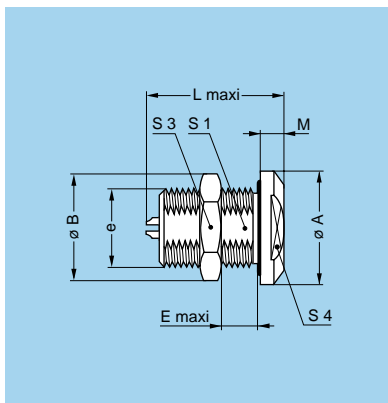


#### HGW Fixed socket, nut fixing, with back washer, watertight or vacuumtight

Reference		Dimensions (mm)								
Model	Series	A	B	e	E <sub>mini</sub>	E <sub>maxi</sub>	L	M	S3	
HGW	0S	10	15	M9x0.6	2.0	3.0	17.5	1.2	11	
HGW	1S	14	18	M12x1.0	2.0	4.0	25.0	1.5	14	

**P11** Panel cut-out (page 152)

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

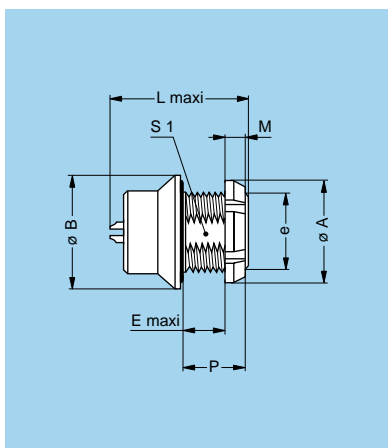


### EWB Fixed socket, nut fixing, with two flats on the flange, watertight or vacuumtight

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

**P3** Panel cut-out (page 152)

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

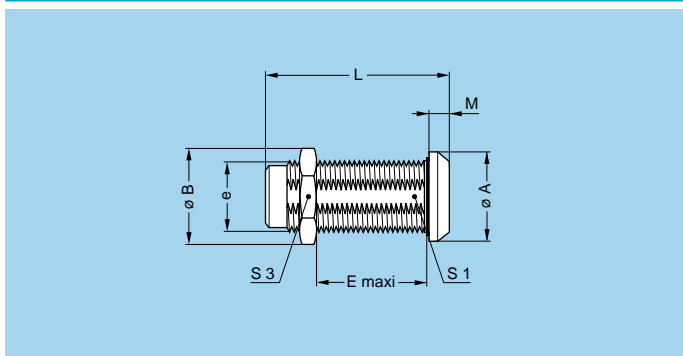


### HCP Fixed socket, nut fixing, watertight or vacuumtight (back panel mounting)

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

**P3** Panel cut-out (page 152)

**Note:** the 4S series is delivered with a conical nut.



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

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

**P4** Panel cut-out (page 152)

**Note:** see page 101 for the available plug and contact configurations and in order to ensure correct contact alignment. The 5S and 6S series are delivered with a round nut.

# E Series

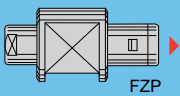
E series connectors have been specifically designed for outdoor applications.

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

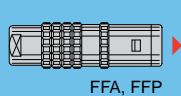
- security of the Push-Pull latching system
- unipole types transmitting current up to 230 A and multipole types with up to 106 contacts
- wide range of models satisfying most applications
- 360° screening for full EMC shielding
- watertight connection (IP 68/IP 66)
- polarization by stepped insert (half-moon)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

## Metal housing models (page 76)

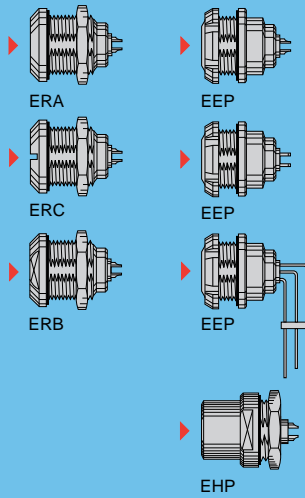
### Straight plug



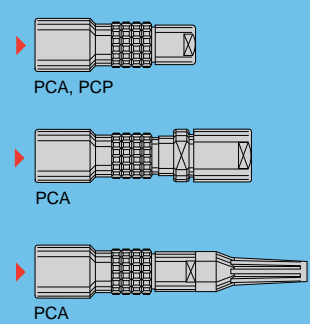
### Straight plugs



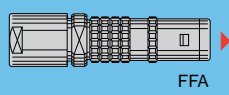
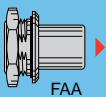
### Fixed sockets



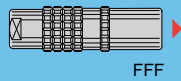
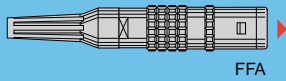
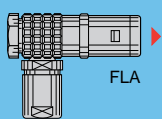
### Free sockets



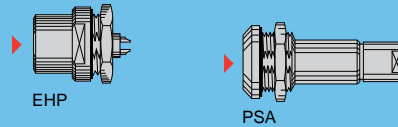
### Fixed plug



### Elbow plug

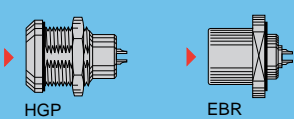


### Fixed socket

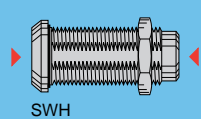


## Watertight or vacuumtight models (page 82)

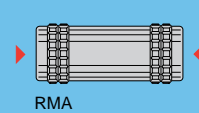
### Fixed sockets



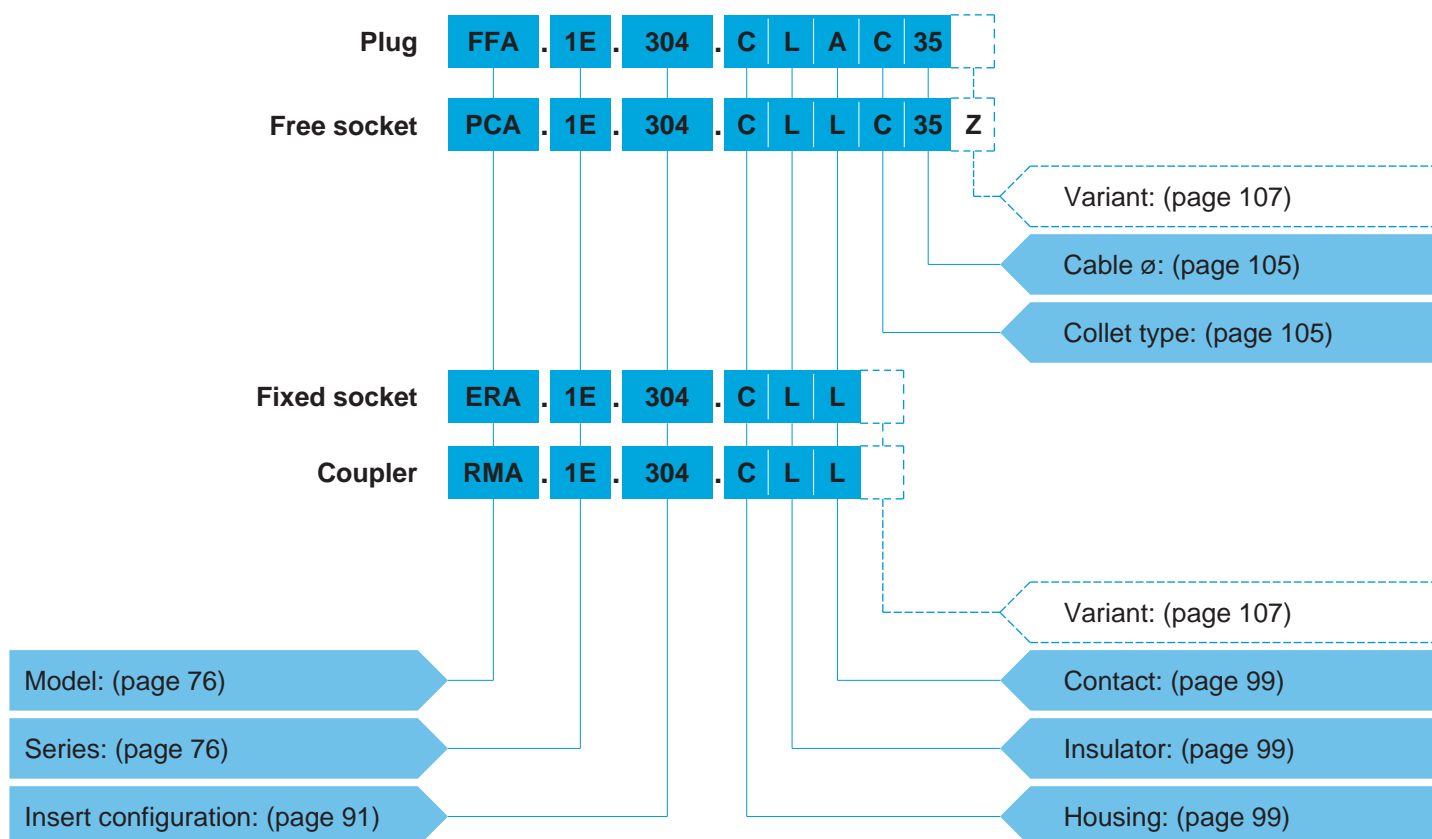
### Fixed coupler



### Free coupler



## Part Numbering System



## Part Number Example

### Straight plug with cable collet:

**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.

### Free socket:

**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.

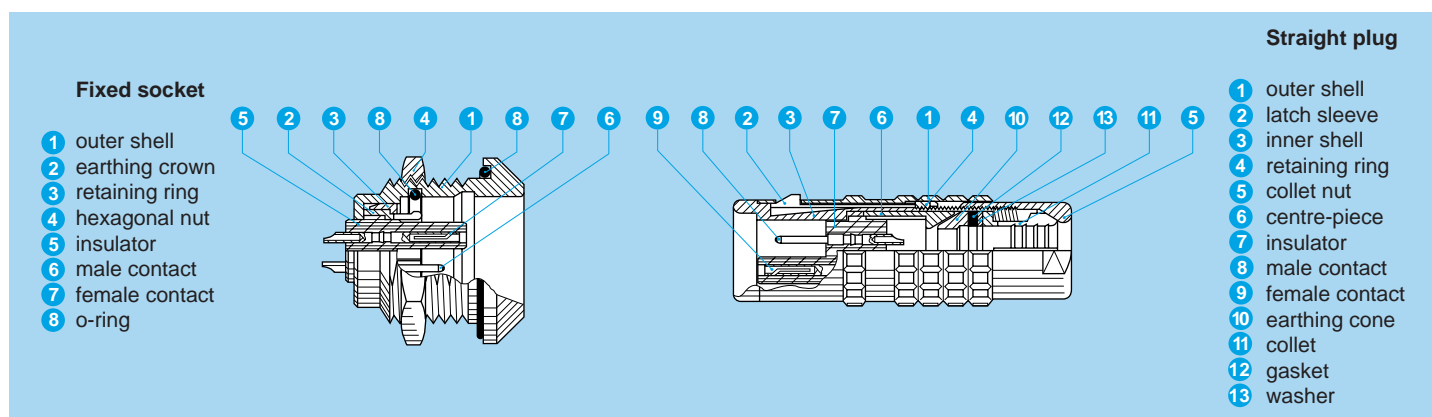
### Fixed socket:

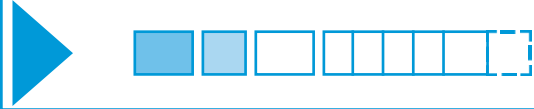
**ERA.1E.304.CLL** = fixed socket, nut fixing, 1E series, multipole type with 4 contacts, outer shell in chrome-plated brass, PEEK insulator, 2 female and 2 male solder contacts.

### Free coupler:

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

## Part Section Showing Internal Components





## Metal housing models

### Technical Characteristics

#### Mechanical and Climatical

Characteristics	Value	Standard
Endurance	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range <sup>1)</sup>	-55° C, +200° C	
Resistance to vibrations	10-2000 Hz, 15 g	IEC 60512-4 test 6d
Shock resistance	100 g, 6 ms	IEC 60512-4 test 6c
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f
Protection index (mated) <sup>2)</sup>	IP 68/IP 66	IEC 60529
Climatical category	50/175/21	IEC 60068-1

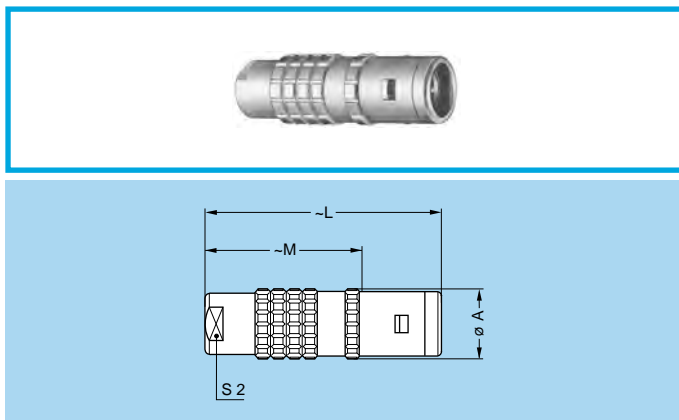
#### Electrical

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

**Note:** the various tests have been carried out with 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 171.

<sup>1)</sup> minimum operating temperature is -20°C for sockets fitted with an FPM (Viton®) O-ring.

<sup>2)</sup> IP68 achieved providing that the cable is perfectly circular and that assembly process ensures a high integrity seal.



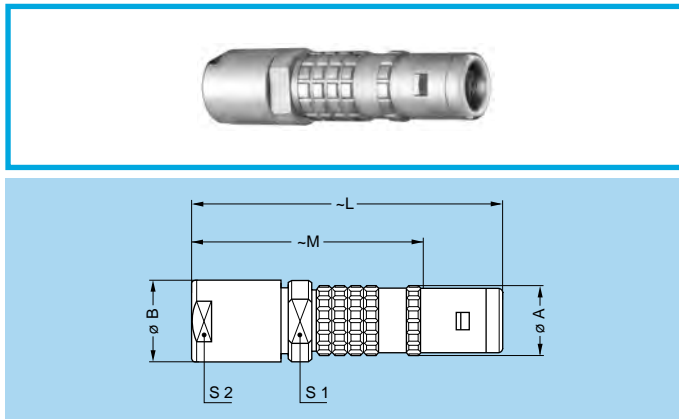
#### FFA Straight plug, cable collet

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

**M1**

Cable assembly (pages 167 and 168)

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

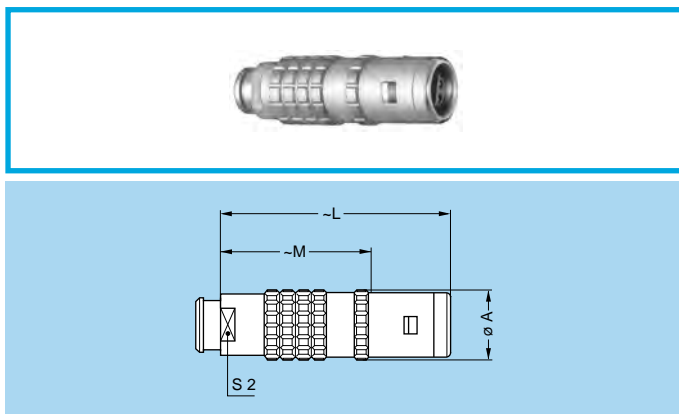


#### FFA Straight plug with oversize cable collet <sup>1)</sup>

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

**M2** Cable assembly (pages 167 and 169)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 105).



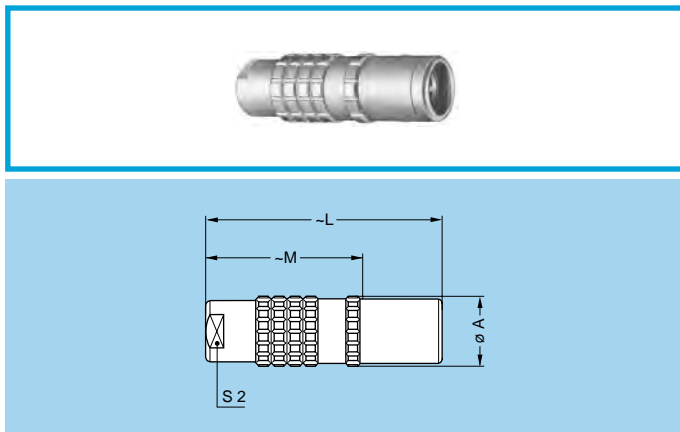
#### FFA Straight plug, cable collet and nut for fitting a bend relief <sup>1)</sup>

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

**M1**

Cable assembly (pages 167 and 168)

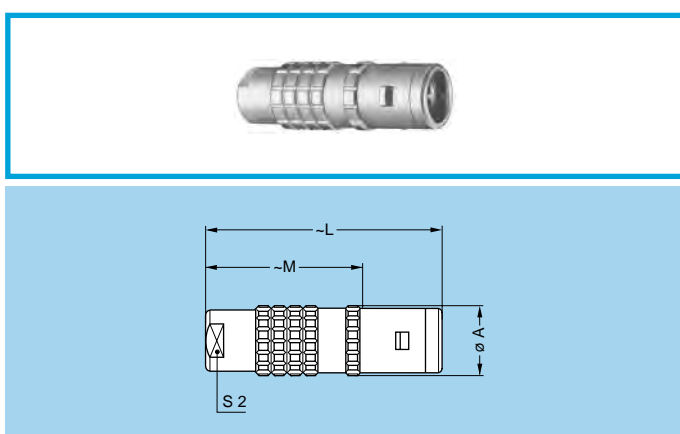
**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).



### 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

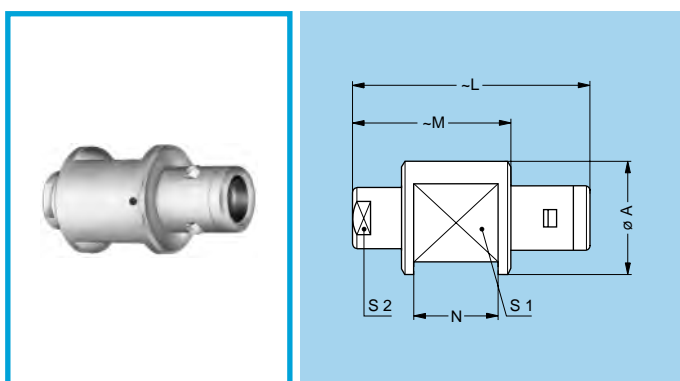
**M1** Cable assembly (page 167)



### FFP Straight plug, cable collet and inner anti-rotating device

Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FFP	3E	19	61	41.0	15
FFP	4E	25	71	50.5	19

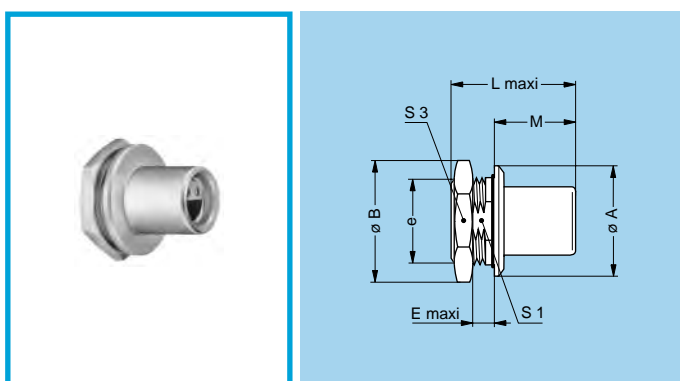
**M1** Cable assembly (pages 167 and 168)



### FZP Straight plug for remote handling, cable collet and inner anti-rotating device

Reference		Dimensions (mm)					
Model	Series	A	L	M	N	S1	S2
FZP	1E	20	42	28.0	15	15	9
FZP	2E	22	52	36.0	16	16	12
FZP	3E	23	61	41.0	20	19	15
FZP	4E	32	71	50.5	29	25	19
FZP	5E	44	92	67.0	40	36	32

**M1** Cable assembly (pages 167 and 168)

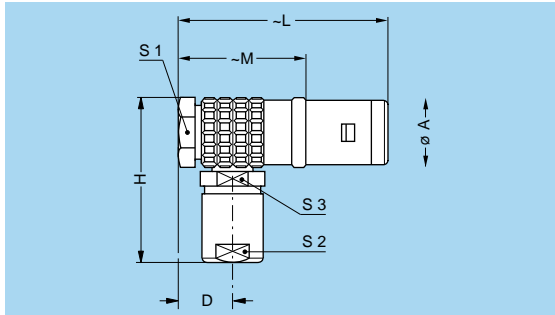


### FAA Fixed plug non-latching, nut fixing

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

**P1** Panel cut-out (page 153)

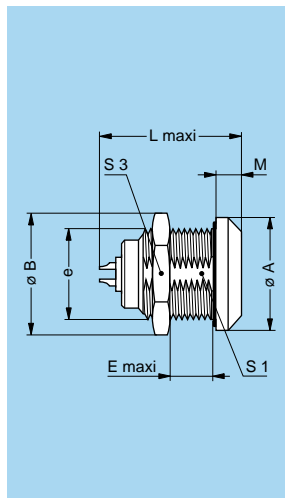
**Note:** <sup>1)</sup> unipole model



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

Reference		Dimensions (mm)							
Model	Series	A	D	H	L	M	S1	S2	S3
FLA	0E	11.5	7.6	27	36	25.0	10	8	8
FLA	1E	14.0	8.8	33	43	29.0	12	9	10
FLA	2E	17.5	10.5	40	51	35.0	15	12	13
FLA	3E	21.0	11.5	47	60	40.0	18	15	15
FLA	4E	27.5	15.5	57	72	51.5	24	19	20

**M3** Cable assembly (pages 167 and 168)



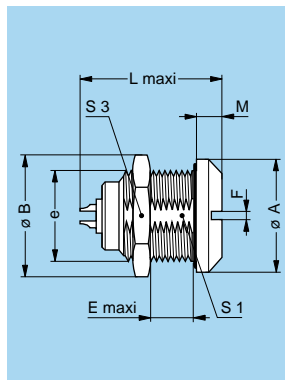
### ERA Fixed socket, nut fixing

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

**P1** Panel cut-out (page 153)

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

- <sup>1)</sup> unipole model.
- <sup>2)</sup> with key (G).

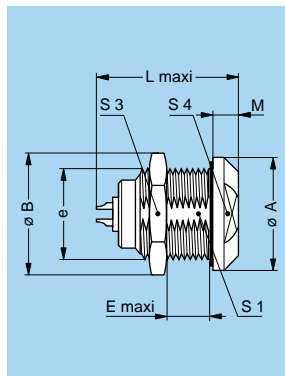


### ERC Fixed socket, nut fixing with slot in the flange

Reference		Dimensions (mm)									
Model	Series	A	B	e	E	F	L	L <sup>1)</sup>	M	S1	S3
ERC	0E	18	19.2	M14x1.0	5.5	1.5	19.5	20.5	4.0	12.5	17
ERC	3E	31	34.0	M24x1.0	11	3.0	34.0	35.0	6.0	22.5	30
ERC	4E	37	40.5	M30x1.0	9	3.0	36.0	38.0	6.5	28.5	36

**P1** Panel cut-out (page 153)

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



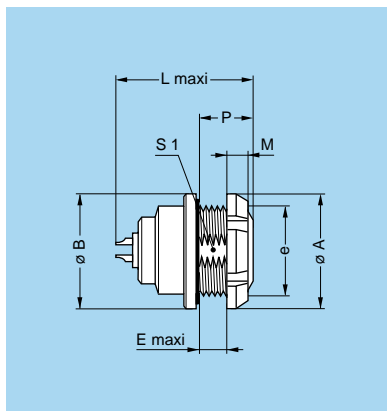
### ERB Fixed socket, nut fixing with two flats in the flange

Reference		Dimensions (mm)									
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S1	S3	S4
ERB	0E	18	19.2	M14x1.0	5.5	19.5	20.5	4.0	12.5	17	14
ERB	1E	20	21.5	M16x1.0	9	24.0	25.3	4.5	14.5	19	17
ERB	2E	25	27.0	M20x1.0	9	28.5	30.0	5.0	18.5	24	20
ERB	3E	31	34.0	M24x1.0	11	34.0	35.0	6.0	22.5	30	24

**P1** Panel cut-out (page 153)

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





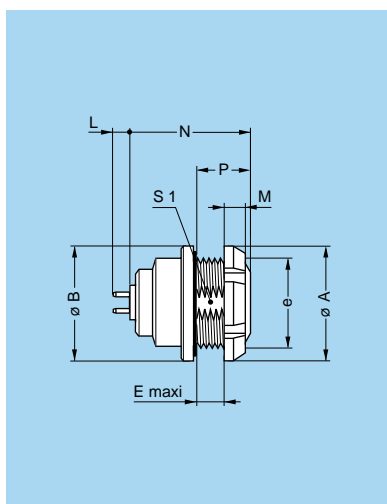
### EEP Fixed socket, nut fixing (back panel mounting)

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

**P1** Panel cut-out (page 153)

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

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



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

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

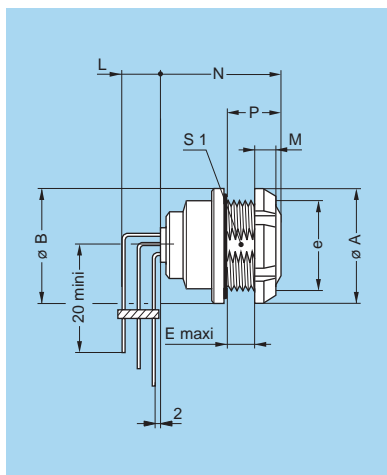
**P1** Panel cut-out (page 153)

**P21** PCB drilling pattern (page 159)

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

See page 159 for table of available types.

Length «L» depends on the number of contacts, see PCB drilling pattern on page 159. The 3E series is delivered with a conical nut.



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

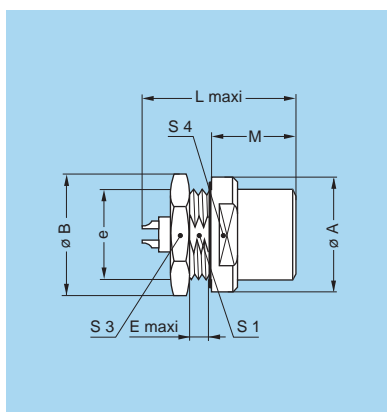
Reference		Dimensions (mm)								
Model	Series	A	B	e	E	M	N	P	S1	
EEP	1E	20	20	M16x1.0	6.5	3.5	16.0	10	14.5	
EEP	2E	25	25	M20x1.0	6.5	3.5	24.0	10	18.5	

**P1** Panel cut-out (page 153)

**P24** PCB drilling pattern (page 160)

**Note:** this contact type is available for all back panel mounting socket types. See page 160 for available types.

Length «L» depends on the number of contacts, see PCB drilling pattern on page 160.

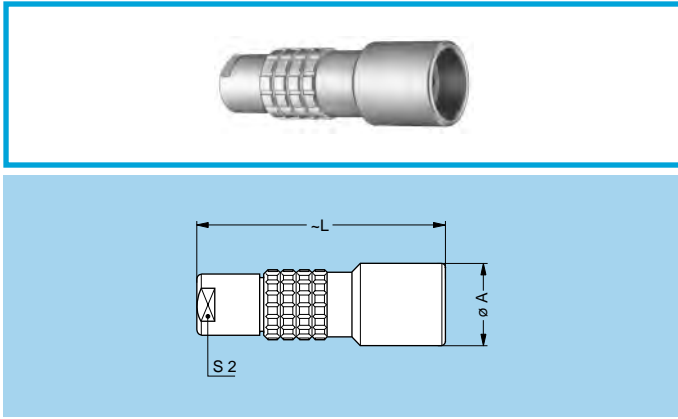


### EHP Fixed socket, nut fixing, protruding shell

Reference		Dimensions (mm)									
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S1	S3	S4
EHP	0E	18	19.2	M14x1.0	1.5	19.5	20.5	10.5	12.5	17	15
EHP	1E	20	21.5	M16x1.0	1.5	24.0	25.3	15.5	14.5	19	17
EHP	2E	25	27.0	M20x1.0	1.5	28.5	30.0	17.0	18.5	24	20

**P1** Panel cut-out (page 153)

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

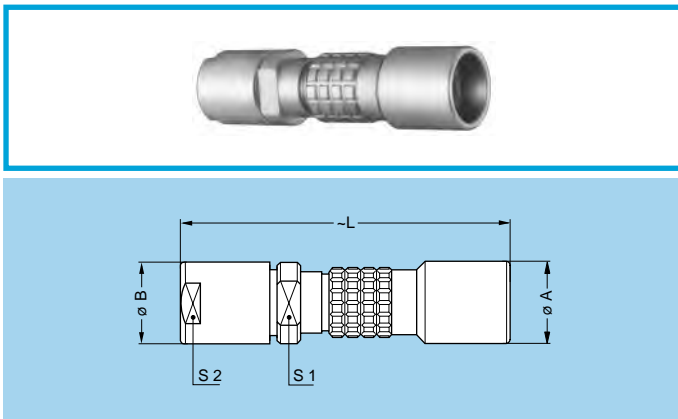


### PCA Free socket, cable collet

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

**M1**  
Cable assembly  
(pages 167 and 168)

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

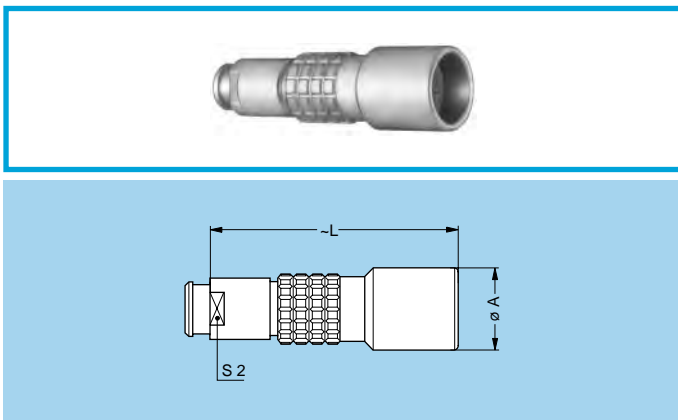


### PCA Free socket with oversize cable collet <sup>1)</sup>

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

**M2** Cable assembly (pages 167 and 169)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 105).

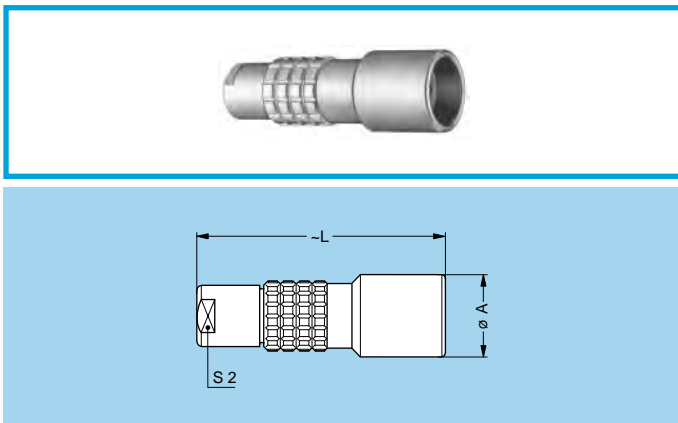


### PCA Free socket, cable collet and nut for fitting a bend relief <sup>1)</sup>

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

**M1**  
Cable assembly  
(pages 167 and 168)

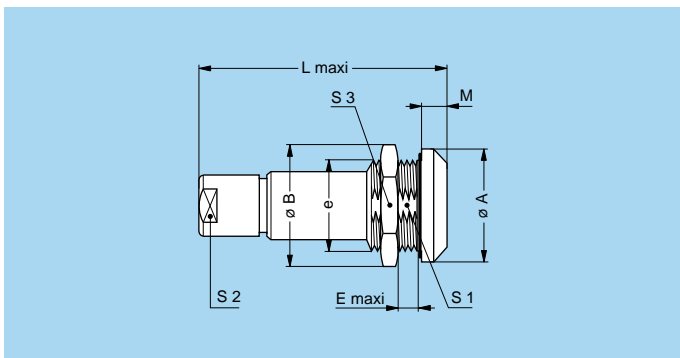
**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).



### PCP Free socket, cable collet and inner anti-rotating device

Reference		Dimensions (mm)		
Model	Series	A	L	S2
PCP	3E	23	65.0	15
PCP	4E	29	75.5	19

**M1** Cable assembly (pages 167 and 168)



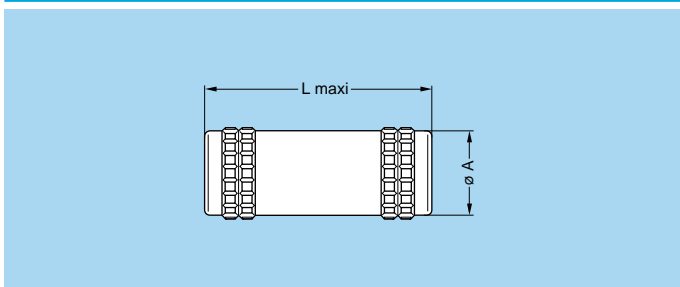
### PSA Fixed socket, nut fixing, cable collet

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

**P1** Panel cut-out (page 153)

**M1** Cable assembly (pages 167 and 168)

**Note:** <sup>1)</sup> with key (G).  
The 5E and 6E series are delivered with a round nut.



### 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 101 for the available plug and contact configurations and in order to ensure correct contact alignment.

## Watertight or vacuumtight models

These socket or coupler models allow the device on which they are fitted to reach a protection index of IP 68 as per IEC 60529. They are fully compatible with plugs of the same series and are widely used for portable radios, military, laboratory equipment, aviation, etc.

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

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

Epoxy resin is used to seal these models.

### Technical Characteristics

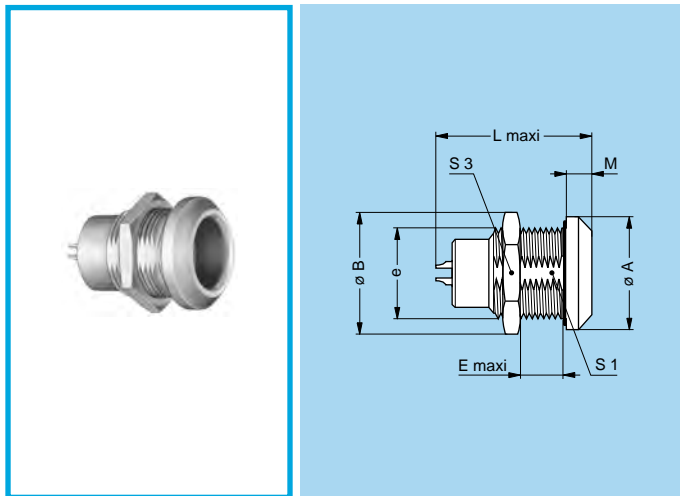
#### Mechanical and Climatical

Characteristics	Value	Standard
Endurance	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range (0E-1E)	- 20° C/+100° C	
Temperature range (2E-6E)	- 20° C/+80° C	
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f
Climatical category	20/80/21	IEC 60068-1
Leakage rate (He) <sup>1)</sup>	< 10 <sup>-7</sup> mbar.l.s <sup>-1</sup>	IEC 60512-7 test 14b

**Note:** <sup>1)</sup> only for vacuumtight models.

Characteristics	Value	Standard
Maximum operating pressure <sup>2)</sup>	0E	60 bars
	1E	60 bars
	2E	40 bars
	3E	30 bars
	4E	15 bars
	5E	5 bars
6E	5 bars	
		IEC 60512-7 test 14d

**Note:** <sup>2)</sup> this value corresponds to the maximum allowed pressure difference for the assembled socket.



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

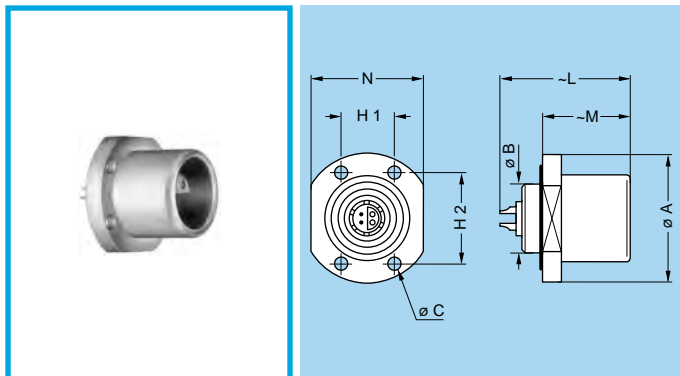
Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L <sup>1)</sup>	M	S1	S3
HGP	0E	18	19.2	M14x1.0	5.5	23.5	22.0	4.0	12.5	17
HGP	1E	20	21.5	M16x1.0	9.0	28.0	28.0	4.5	14.5	19
HGP	2E	25	27.0	M20x1.0	10.5	32.5	28.0	5.0	18.5	24
HGP	3E	31	34.0	M24x1.0	15.5	39.5	38.5	6.0	22.5	30
HGP	4E	37	40.5	M30x1.0	17.5	43.0	44.0	6.5	28.5	36
HGP	5E	55	54.0	M45x1.5	20.0	52.0	76.0	9.0	42.5	–
HGP <sup>2)</sup>	6E	65	65.0	M55x2.0	20.5	52.0	–	10.0	52.0	–

**P1** Panel cut-out (page 153)

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

<sup>1)</sup> unipole model.

<sup>2)</sup> with key (G).



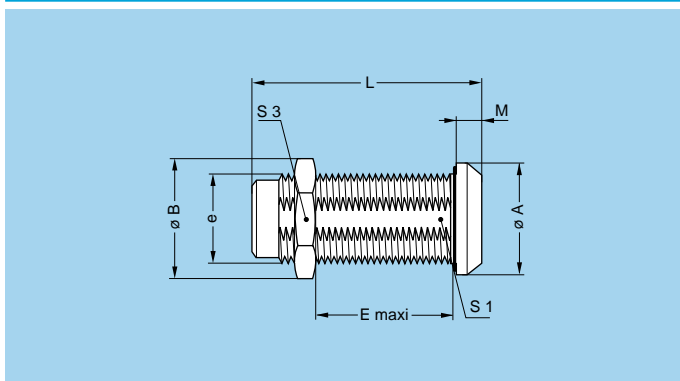
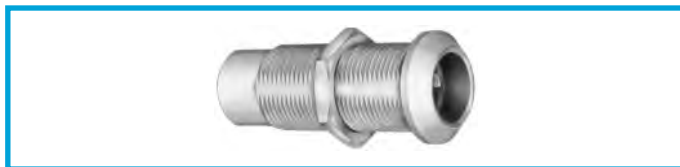
#### EBR Fixed socket with round flange, watertight, protruding shell and screw fixing

Reference		Dimensions (mm)								
Model	Series	A	B	C	H1	H2	L	L <sup>1)</sup>	M	N
EBR	2E	28	15	2.8	11.8	20.4	32.5	28.0	19	25

**P6** Panel cut-out (page 153)

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

This model is only available in a watertight version.



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

Reference		Dimensions (mm)								
Model	Series	A	B	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 <sup>1)</sup>	6E	65	65.0	M55x2.0	12.0	76.0	10.0	—	—	

**P1** Panel cut-out (page 153)

**Note:** <sup>1)</sup> with key (G). The 5E and 6E series are delivered with a round nut. See page 101 for the available plug and contact configurations and in order to ensure correct contact alignment.

# L Series

L series connectors have been specifically designed for outdoor applications. This series offer superior polarization combining the stepped insert (half-moon) of the S/E series with the keying system of the K series.

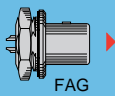
They include an inner sleeve and two seals to prevent penetration of solids or liquids into the housing formed by the plug, free socket, fixed socket or coupler. All models of this series are watertight when mated to give a protection index of IP68 as per IEC 60529 standard (in mated condition) when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

L series connectors have the same insulators as the S series and have the following main features:

- security of the Push-Pull latching system
- multipole types 2 to 10 contacts
- stepped insert (half-moon) fitted with male and female contacts
- high packing density for space savings
- keying system («G» key standard) for connector alignment
- watertight connection (IP 68/IP 66)
- solder, crimp or print (straight) contacts
- multiple key options to avoid cross mating of similar connectors
- 360° screening for full EMC shielding
- rugged housing for extreme working conditions.

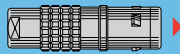
## Metal housing models (page 86)

**Fixed plug**



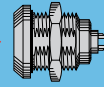
FAG

**Straight plugs**



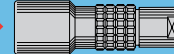
FGG

**Fixed sockets**



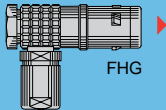
EGG

**Free sockets**

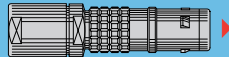


PHG

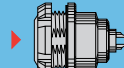
**Elbow plug**



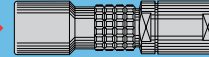
FHG



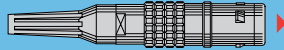
FGG



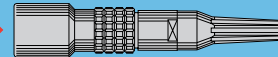
EEG



PHG



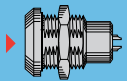
FGG



PHG

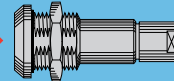
## Vacuumtight model (page 89)

**Fixed socket**



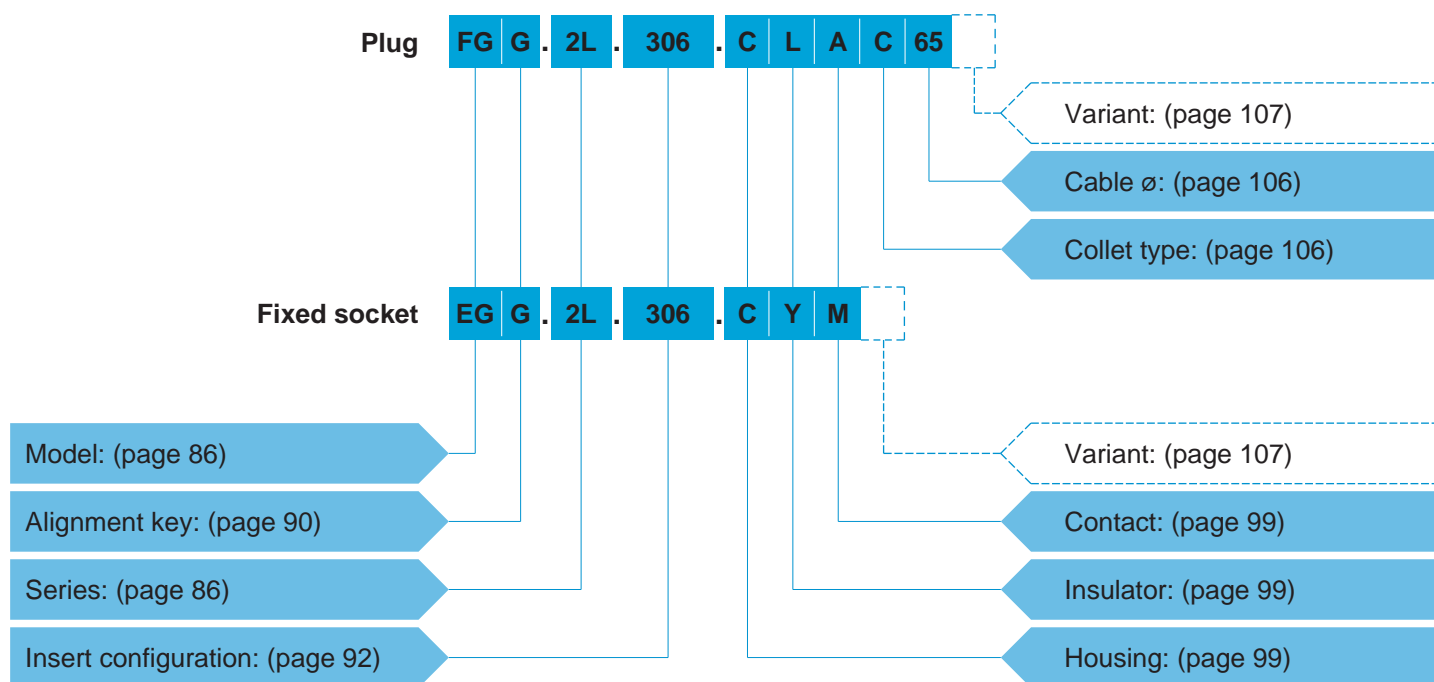
HGG

**Fixed socket**



PKG

## Part Numbering System



## Part Number Example

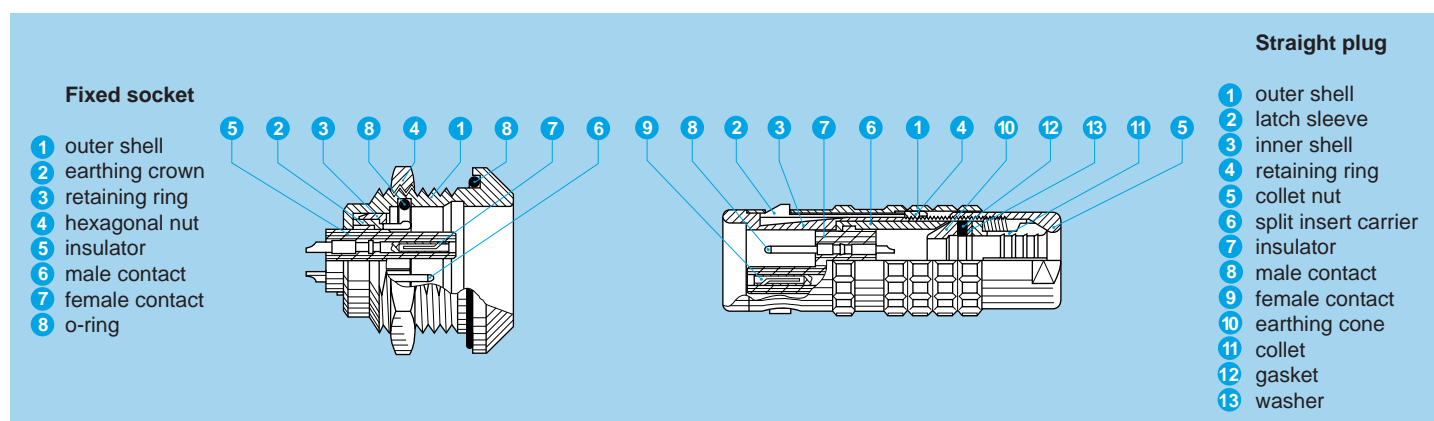
### Straight plug with cable collet:

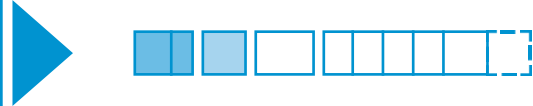
**FGG.2L.306.CLAC65** = straight plug with key (G) and cable collet, 2L series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, with 3 male and 3 female solder contacts, C type collet for 6.5 mm diameter cable.

### Fixed socket:

**EGG.2L.306.CYM** = fixed socket, nut fixing, with key (G), 2L series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK extended insulator, with 3 female and 3 male crimp contacts.

## Part Section Showing Internal Components





## Metal housing models

### Technical Characteristics

#### Mechanical and Climatical

Characteristics	Value	Standard
Endurance	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range <sup>1)</sup>	-55° C, +200° C	
Resistance to vibrations	10-2000 Hz, 15 g	IEC 60512-4 test 6d
Shock resistance	100 g, 6 ms	IEC 60512-4 test 6c
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f
Protection index (mated) <sup>2)</sup>	IP 68/IP 66	IEC 60529
Climatical category	50/175/21	IEC 60068-1

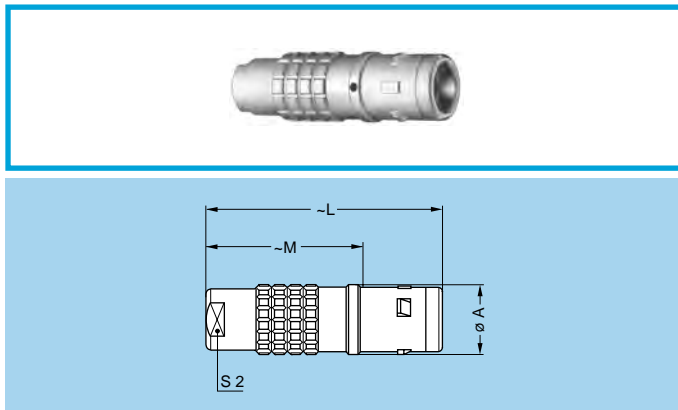
#### Electrical

Characteristics	Value	Standard
Shielding efficiency	at 10 MHz	> 95 dB
	at 1 GHz	> 80 dB

#### Note:

The various tests have been carried out with FGG and EGG connector pairs, with chrome-plated brass shell, PEEK insulator and silicone O-ring. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical Characteristics on page 171.

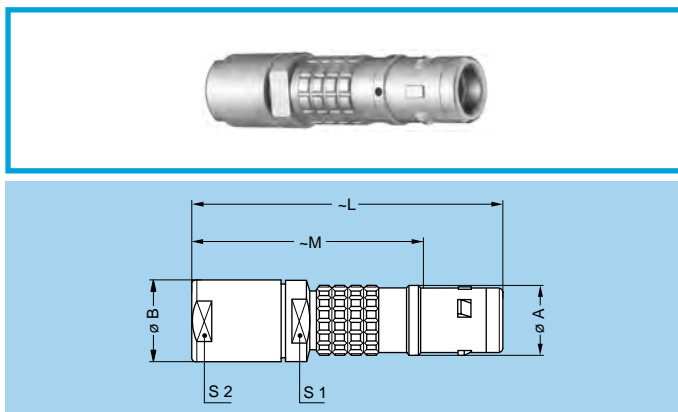
- <sup>1)</sup> minimum operating temperature is -20°C for sockets fitted with an FPM (Viton®) O-ring.  
<sup>2)</sup> IP68 achieved providing that the cable is perfectly circular and that assembly process ensures a high integrity seal.



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

Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FGG	0L	11	34	23.0	8
FGG	1L	13	42	28.0	9
FGG	2L	16	52	36.0	12

**M1** Cable assembly (page 170)

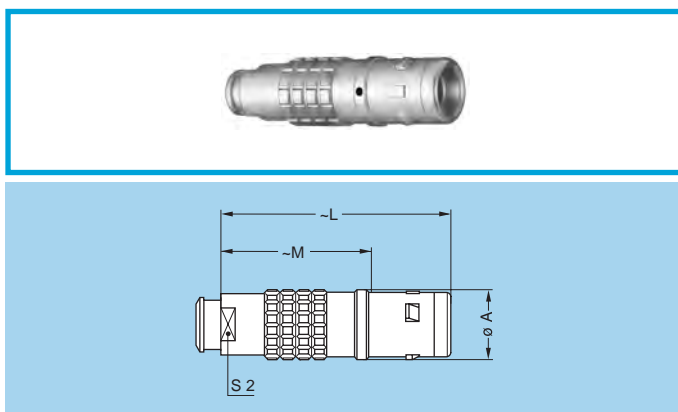


#### FGG Straight plug, key (G) or keys (A to C and L), cable collet and oversize cable collet <sup>1)</sup>

Reference		Dimensions (mm)					
Model	Series	A	B	L	M	S1	S2
FGG	1L	13	14.5	60	46	12	12
FGG	2L	16	17.0	68	52	15	15

**M2** Cable assembly (page 170)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 106).



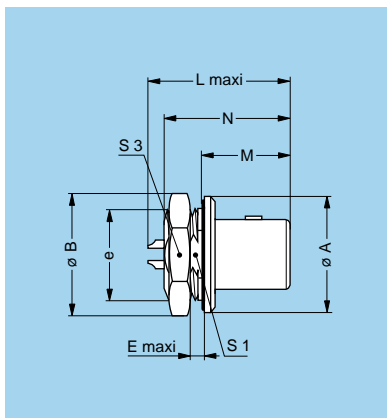
#### FGG Straight plug, key (G) or keys (A to C and L), cable collet and nut for fitting a bend relief <sup>1)</sup>

Reference		Dimensions (mm)			
Model	Series	A	L	M	S2
FGG	0L	11	34	23	7
FGG	1L	13	42	28	9
FGG	2L	16	52	36	12

**M1** Cable assembly (page 170)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).



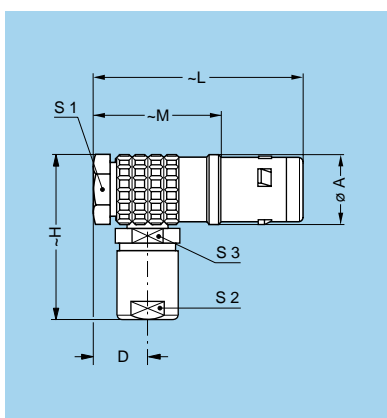


### FAG Fixed plug, nut fixing, non-latching, key (G) or keys (A to C and L)

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	M	N <sup>1)</sup>	S1	S3
FAG	2L	25	27.0	M20x1.0	4.5	28.2	18.0	28.3	18.5	24

**P1** Panel cut-out (page 153)

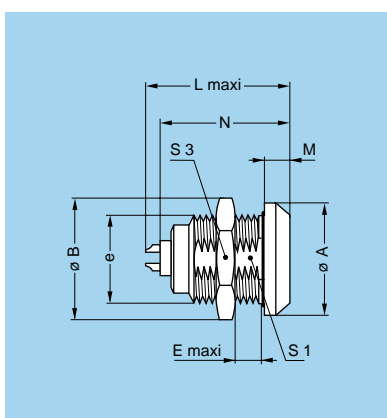
**Note:** <sup>1)</sup> maximum length with crimp contacts.



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

Reference		Dimensions (mm)								
Model	Series	A	D	H	L	M	S1	S2	S3	
FHG	0L	11.5	7.6	27	36	25.0	10	8	8	
FHG	1L	14.0	8.8	33	43	29.0	12	9	10	
FHG	2L	17.5	10.5	40	51	35.0	15	12	13	

**M3** Cable assembly (page 170)

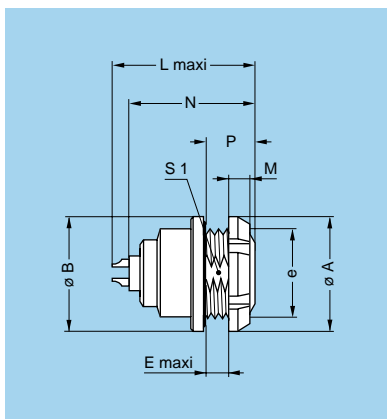


### EGG Fixed socket, nut fixing, key (G) or keys (A to C and L)

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	M	N <sup>1)</sup>	S1	S3
EGG	0L	18	19.2	M14x1.0	6	21.7	4.0	20.1	12.5	17
EGG	1L	20	21.5	M16x1.0	9	27.0	4.5	25.1	14.5	19
EGG	2L	25	27.0	M20x1.0	9	30.7	5.0	28.6	18.5	24

**P1** Panel cut-out (page 153)

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

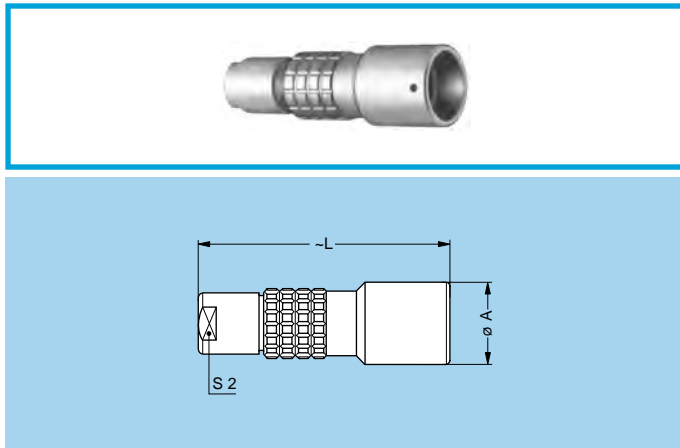


### EEG Fixed socket, nut fixing, key (G) or keys (A to C and L) (back panel mounting)

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	M	N <sup>1)</sup>	P	S1
EEG	0L	18.0	18	M14x1.0	3.4	21.7	3.5	20.1	7.0	12.5
EEG	1L	20.0	20	M16x1.0	6.2	27.0	3.5	25.1	10.0	14.5
EEG	2L	25.0	25	M20x1.0	5.0	30.7	3.5	28.6	10.0	18.5

**P1** Panel cut-out (page 153)

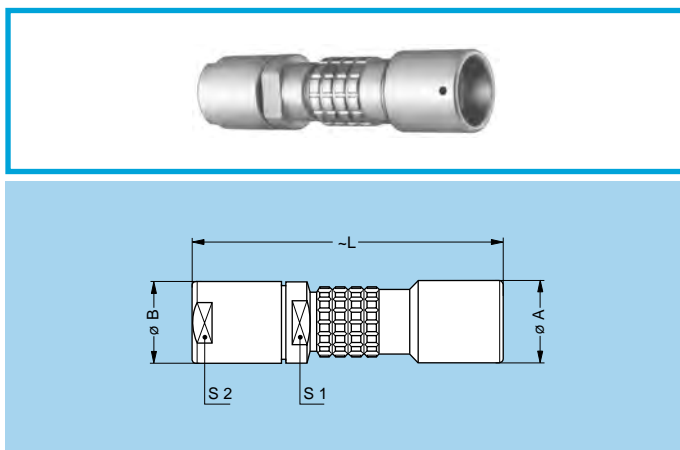
**Note:** <sup>1)</sup> maximum length with crimp contacts.



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

Reference		Dimensions (mm)		
Model	Series	A	L	S2
PHG	0L	13	34.0	8
PHG	1L	15	45.0	9
PHG	2L	19	54.0	12

**M1** Cable assembly (page 170)

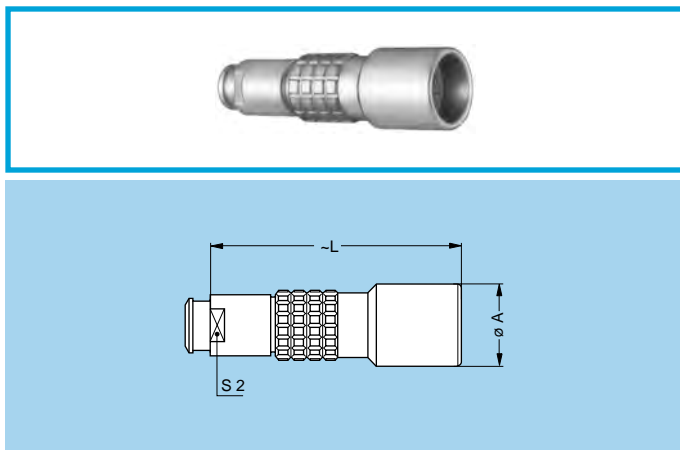


**PHG Free socket, key (G) or keys (A to C and L), cable collet and oversize cable collet <sup>1)</sup>**

Reference		Dimensions (mm)				
Model	Series	A	B	L	S1	S2
PHG	1L	15	14.5	63	12	12
PHG	2L	19	17.0	70	15	15

**M2** Cable assembly (page 170)

**Note:** <sup>1)</sup> correspond to K type of collet, the fitting of oversize collets onto this model allows them to be fitted to the cables that can be accommodated by the next housing size up (see page 106).

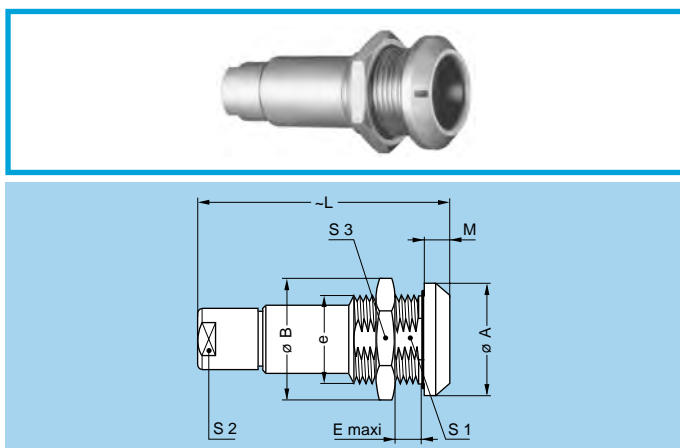


**PHG Free socket, key (G) or keys (A to C and L), cable collet and nut for fitting a bend relief <sup>1)</sup>**

Reference		Dimensions (mm)		
Model	Series	A	L	S2
PHG	0L	13	34.0	7
PHG	1L	15	45.0	9
PHG	2L	19	54.0	12

**M1** Cable assembly (page 170)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).



**PKG Fixed socket, nut fixing, key (G) or keys (A to C and L), cable collet**

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	M	S1	S2	S3
PKG	0L	18	19.2	M14x1.0	6	34.0	4.0	12.5	8	17
PKG	1L	20	21.5	M16x1.0	9	45.0	4.5	14.5	9	19
PKG	2L	25	27.0	M20x1.0	9	54.0	5.0	18.5	12	24

**M1** Cable assembly (page 170)

**P1** Panel cut-out (page 153)



## Watertight or vacuumtight models

This socket model allow the device on which they are fitted to reach a protection index of IP68 as per IEC 60529. This model is also available in a vacuumtight version. It is identified by the letter «PV» at the end of the part number (certificate on request). Epoxy resin is used to seal this model.

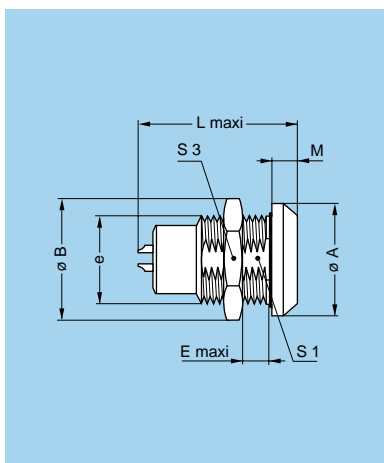
### Technical Characteristics

#### Mechanical and Climatrical

Characteristics	Value	Standard
Endurance	> 5000 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range (0L-1L)	- 20° C/+100° C	
Temperature range (2L)	- 20° C/+80° C	
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f

Characteristics	Value	Standard
Climatrical category	20/80/21	IEC 60068-1
Leakage rate (He)	< 10 <sup>-7</sup> mbar.l.s <sup>-1</sup>	IEC 60512-7 test 14b
Maximum operating pressure <sup>1)</sup>	0L	60 bars
	1L	60 bars
	2L	40 bars

**Note:** <sup>1)</sup> this value corresponds to the maximum allowed pressure difference for the assembled socket.



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

Reference		Dimensions (mm)							
Model	Series	A	B	e	E	L	M	S1	S3
HGG	0L	18	19.2	M14x1.0	5.5	21.7	4.0	12.5	17
HGG	1L	20	21.5	M16x1.0	9.0	30.0	4.5	14.5	19
HGG	2L	25	27.0	M20x1.0	13.0	33.7	5.0	18.5	24

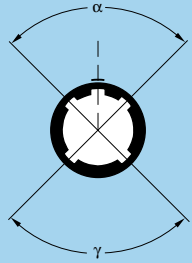
**P1** Panel cut-out (page 153)




## Alignment Key (L series)

### Alignment Key and Polarized Keying System

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

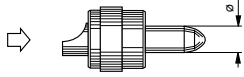
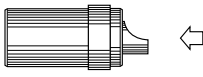






















Front view of a socket 	Reference	Nb of keys	Angles	Series			Contact type		Note
				0L	1L	2L	Plug	Socket	
G	1			0°	0°	0°	male	female	●
A	2	α		30°	30°	30°	male	female	●
B	2			45°	45°	45°	male	female	○
J	2	γ		105°	105°	105°	female	male	○
L	2			75°	75°	75°	male	female	● <sup>1)</sup>

**Note:** <sup>1)</sup> that contact type is not as for the K series.

- First choice alternative
- Special order alternative

**Insert configuration (S, E and L series)**

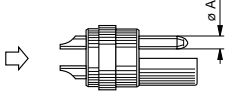
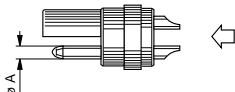

































































### Unipole

	 Male solder contacts	 Female solder contacts	Reference	Series		ø A (mm)	Contact type		Test voltage (kV rms) <sup>1)</sup>	Test voltage (kV dc) <sup>1)</sup>	Rated current (A) <sup>1)</sup>
				Standard	Watertight		Solder	Crimp			
<b>00</b>			113	00	-	1.3	● <sup>2)</sup>	●	0.8	1.2	8
<b>0S 0E</b>			116	0S	0E	1.6	● <sup>2)</sup>	-	1.5	2.1	12
<b>1S 1E</b>			120	1S	1E	2.0	● <sup>2)</sup>	-	1.7	2.4	18
			130	1S	1E	3.0	●	-	1.5	2.1	25
<b>2S 2E</b>			130	2S	2E	3.0	●	-	2.1	3.0	30
			140	2S	2E	4.0	●	-	1.7	2.4	40
<b>3S 3E</b>			140	3S	3E	4.0	●	-	2.3	3.3	43
			160	3S	3E	6.0	●	-	1.7	2.4	65
<b>4S 4E</b>			140	4S	-	4.0	●	-	3.0	4.2	46
			160	4S	4E	6.0	●	-	2.7	3.9	70
<b>5S 5E</b>			112	5S	5E	12.0	●	-	1.5	2.1	230

**Note:** <sup>1)</sup> see calculation method, caution and suggested standard on page 178.

<sup>2)</sup> also available with inversed contacts: plug = female, socket = male.

# Multipole

		 Male solder contacts  Female solder contacts		Reference	Series		Number of contacts	ø A (mm)	Contact type				Test voltage (kV rms) <sup>(1) 2)</sup>	Test voltage (kV dc) <sup>(1) 2)</sup>	Rated current (A) <sup>(1)</sup>
		Standard	Watertight		Solder	Crimp			Print (straight)	Print (elbow)					
0S 0E 0L				302	0S	0E	2	0.9	●	●	●	●	1.5	2.1	10 <sup>(3)</sup>
				303	0S	0E	3	0.7	●	○	●	●	1.0	1.5	7 <sup>(3)</sup>
				304	0S	0E	4	0.7	●	●	●	●	1.0	1.5	7 <sup>(3)</sup>
1S 1E 1L				302	1S	1E	2	1.3	●	●	●	●	1.2	1.8	15 <sup>(3)</sup>
				303	1S	1E	3	0.9	●	○	●	●	1.2	1.8	10 <sup>(3)</sup>
				304	1S	1E	4	0.9	●	●	●	●	1.2	1.8	10 <sup>(3)</sup>
				305	1S	1E	2 3	0.9 0.7	●	○	●	●	1.5 1.5	2.1 2.1	10 <sup>(3)</sup> 7 <sup>(3)</sup>
				306	1S	1E	6	0.7	●	○	●	●	1.5	2.1	7 <sup>(3)</sup>
2S 2E 2L				302	2S	2E	2	1.6	●	○	○	○	1.7	2.4	20 <sup>(4)</sup>
				303	2S	2E	3	1.3	●	○	●	○	1.5	2.1	15 <sup>(4)</sup>
				304	2S	2E	4	1.3	●	○	●	●	1.7	2.4	15 <sup>(4)</sup>
				305	2S	2E	5	1.3	●	○	●	●	1.5	2.1	13 <sup>(4)</sup>
				306	2S	2E	6	1.3	●	● <sup>(5)</sup>	●	●	1.5	2.1	12
				307	2S	2E	3 4	1.3 0.9	●	○	●	●	0.8 0.8	1.2 1.2	12 <sup>(3)</sup> 9 <sup>(3)</sup>
				308	2S	2E	8	0.9	●	○	●	●	0.8	1.2	9 <sup>(3)</sup>
				310	2S	2E	10	0.9	●	○	●	●	0.8	1.2	7 <sup>(3)</sup>
3S 3E				302	3S	3E	2	2.0	●	–	○	–	3.0	4.2	23
				303	3S	3E	3	2.0	●	–	○	–	1.5	2.1	20
				304	3S	3E	4	2.0	●	–	○	–	1.5	2.1	18
				305	3S	3E	2 3	2.0 1.3	●	–	○	–	1.5 1.5	2.1 2.1	18 14
				306	3S	3E	6	1.3	●	–	●	–	2.1	3.0	14
				307	3S	3E	7	1.3	●	–	●	–	1.0	1.5	12

**Note:**

- 1) see calculation method, caution and suggested standard on page 178.
- 2) lowest measured value; contact to contact or contact to shell.
- 3) rated current = 6A for socket with elbow (90°) contacts for printed circuit.
- 4) rated current = 12A for socket with elbow (90°) contacts for printed circuit.
- 5) only for FFL model.

- First choice alternative
- Special order alternative



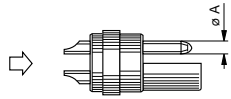
# Multipole

		Male solder contacts		Female solder contacts		Reference	Series		Number of contacts	ø A (mm)	Contact type				Test voltage (kV rms) <sup>1)2)</sup>	Test voltage (kV dc) <sup>1)2)</sup>	Rated current (A) <sup>1)</sup>
							Standard	Watertight			Solder	Crimp	Print (straight)	Print (elbow)			
<b>3S</b> <b>3E</b>						308	3S	3E	8	1.3	●	-	●	○	1.0	1.5	10
						310	3S	3E	10	1.3	●	-	●	●	1.0	1.5	9
						312	3S	3E	12	0.9	●	-	●	●	1.5	2.1	8
						313	3S	3E	13	0.9	●	-	●	○	1.5	2.1	8
						314	3S	3E	14	0.9	●	-	●	●	1.5	2.1	7
						316	3S	3E	16	0.9	●	-	●	●	1.0	1.5	7
						318	3S	3E	18	0.9	●	-	●	○	1.0	1.5	6
<b>4S</b> <b>4E</b>						302	4S	4E	2	4.0	●	-	○	-	2.1	3.0	35
						303	4S	4E	3	3.0	●	-	○	-	2.1	3.0	25
						304	4S	4E	4	3.0	●	-	○	-	2.1	3.0	22
						305	4S	4E	2 3	3.0 2.0	●	-	○	-	2.1 2.1	3.0 3.0	22 16
						306	4S	4E	6	2.0	●	-	○	-	2.1	3.0	16
						307	4S	4E	3 4	2.0 1.3	●	-	○	-	2.1 2.1	3.0 3.0	16 13
						308	4S	4E	8	1.3	●	-	○	-	2.7	3.9	13
						309	4S	4E	9	1.3	●	-	○	-	2.1	3.0	12
						310	4S	4E	10	1.3	●	-	○	-	2.1	3.0	11
						312	4S	4E	12	1.3	●	-	○	-	2.1	3.0	9
						313	4S	-	13	1.3	●	-	○	-	2.1	3.0	9

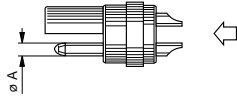
**Note:** 1) see calculation method, caution and suggested standard on page 178.  
 2) lowest measured value; contact to contact or contact to shell.

● First choice alternative  
 ○ Special order alternative

# Multipole

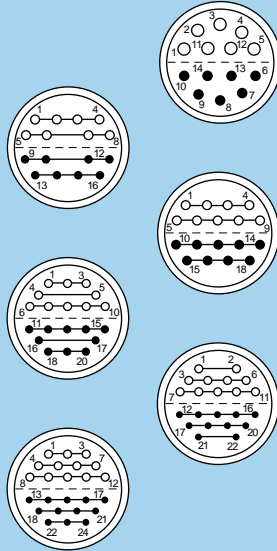
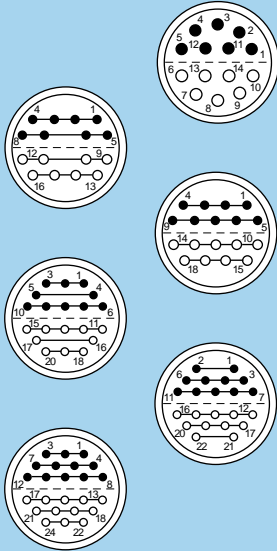


Male solder contacts

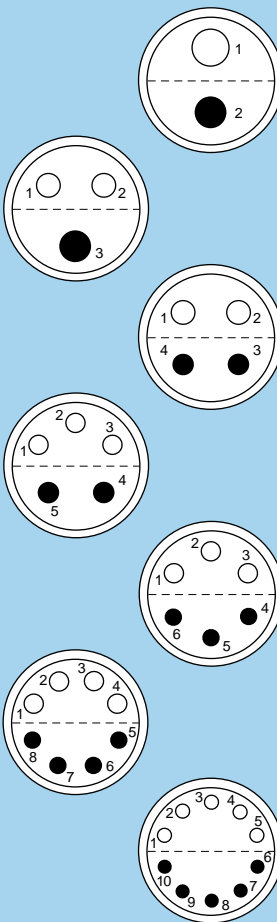
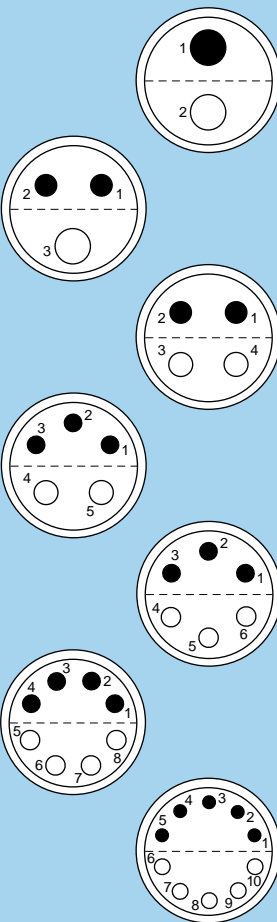


Female solder contacts

**4S  
4E**



**5S  
5E**



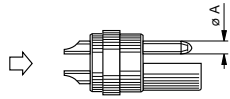
Reference	Series		Number of contacts	ø A (mm)	Contact type			Test voltage (kV rms) <sup>1) 2)</sup>	Test voltage (kV dc) <sup>1) 2)</sup>	Rated current (A) <sup>1)</sup>
	Standard	Watertight			Solder	Print (straight)	Print (elbow)			
314	4S	4E	14	1.3	●	○	–	2.1	3.0	9
316	4S	4E	16	0.9	●	○	–	2.1	3.0	7
318	4S	4E	18	0.9	●	○	–	2.1	3.0	7
320	4S	4E	20	0.9	●	○	–	2.1	3.0	7
322	4S	4E	22	0.9	●	○	–	2.1	3.0	7
324	4S	4E	24	0.9	●	○	–	2.1	3.0	7
302	5S	5E	2	6.0	●	–	–	3.7	5.2	50
303	5S	5E	2 2	6.0 4.0	●	–	–	3.7 3.7	5.2 5.2	50 35
304	5S	5E	4	4.0	●	–	–	3.7	5.2	35
305	5S	5E	2 3	4.0 3.0	●	–	–	3.0 3.0	4.2 4.2	35 25
306	5S	5E	6	3.0	●	–	–	3.0	4.2	25
308	5S	5E	8	3.0	●	–	–	2.1	3.0	22
310	5S	5E	10	2.0	●	–	–	2.1	3.0	18

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
2) lowest measured value; contact to contact or contact to shell.

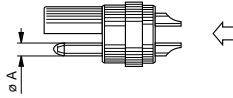




# Multipole



Male solder contacts



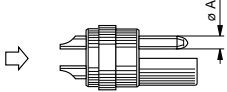
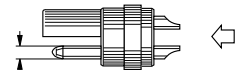
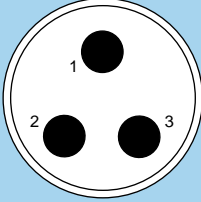
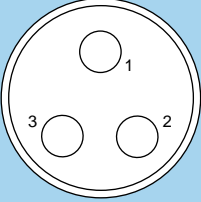
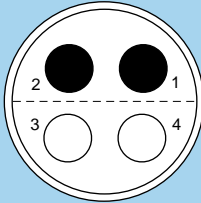
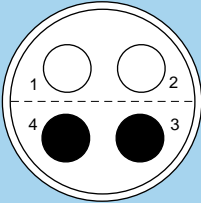
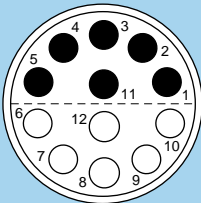
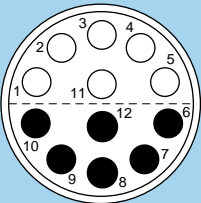
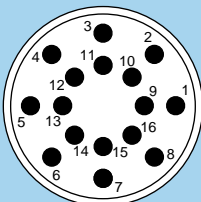
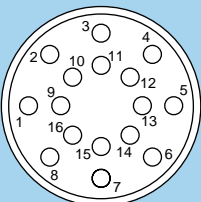
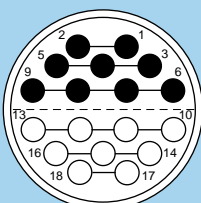
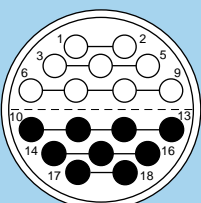
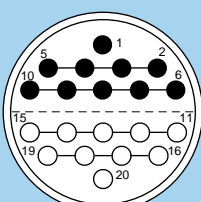
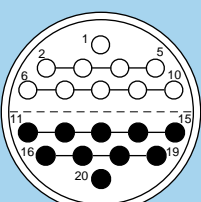
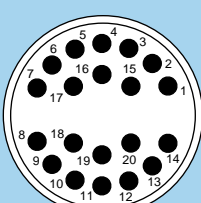
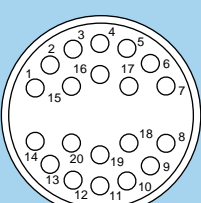
Female solder contacts

**5S  
5E**

	Reference	Series		Number of contacts	$\varnothing A$ (mm)	Contact type			Test voltage (kV rms) <sup>(1) 2)</sup>	Test voltage (kV dc) <sup>(1) 2)</sup>	Rated current (A) <sup>(1)</sup>
		Standard	Watertight			Solder	Print (straight)	Print (elbow)			
	312	5S	5E	12	2.0	●	-	-	2.1	3.0	18
	314	5S	5E	2 12	3.0 2.0	●	-	-	1.8 1.8	2.4 2.4	20 15
	316	5S	5E	16	2.0	●	-	-	1.8	2.4	15
	318	5S	5E	2 16	3.0 1.6	●	-	-	1.8 1.8	2.4 2.4	18 11
	320	5S	5E	20	1.6	●	-	-	1.8	2.4	11
	322	5S	5E	2 20	3.0 1.6	●	-	-	1.8 1.8	2.4 2.4	16 9
	324	5S	5E	24	1.6	●	-	-	2.7	3.9	9
	330	5S	5E	30	1.3	●	-	-	1.8	2.4	8
	336	5S	5E	36	1.3	●	-	-	1.8	2.4	7
	340	5S	5E	40	1.3	●	-	-	1.2	1.8	7
	344	5S	5E	44	1.3	●	-	-	1.2	1.8	6
	348	5S	5E	48	1.3	●	-	-	1.2	1.8	6

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
 2) lowest measured value; contact to contact or contact to shell.

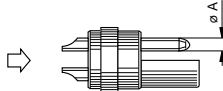
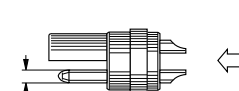
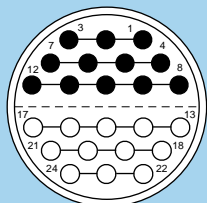
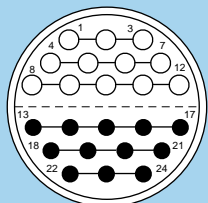
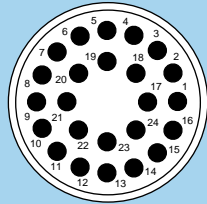
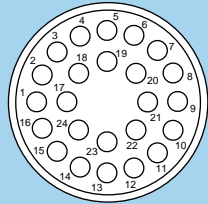
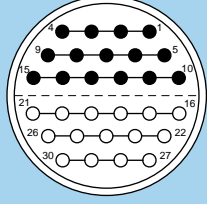
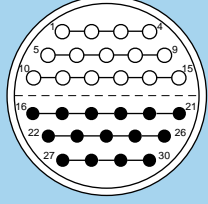
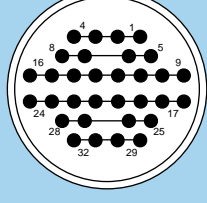
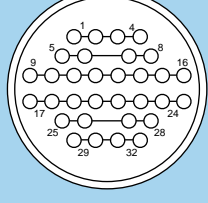
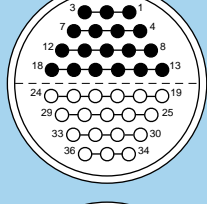
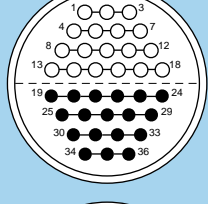
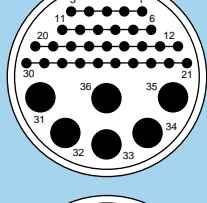
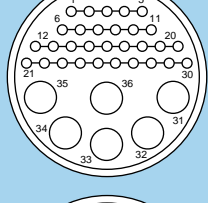
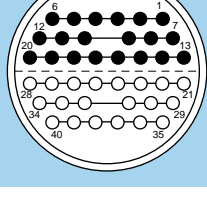
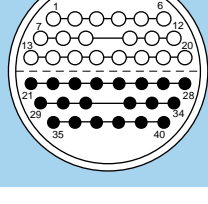
# Multipole

	 Male solder contacts	 Female solder contacts	Reference	Series		Number of contacts	ø A (mm)	Solder contacts	Test voltage (kV rms) <sup>1)2)</sup>	Test voltage (kV dc) <sup>1)2)</sup>	Rated current (A) <sup>1)</sup>
				Standard	Watertight						
<b>6S</b> <b>6E</b>			303	-	6E	3	6.0	●	3.0	4.2	50
			304	6S	6E	4	8.0	●	3.0	4.2	60
			312	6S -	- 6E	12 12	4.0 5.0	●	2.1	3.0	22
			316	-	6E	16	3.0	●	1.5	2.1	14
			318	6S	-	18	4.0	●	1.2	1.8	16
			320	6S	-	20	3.0	●	1.5	2.1	14
			320	-	6E	20	3.0	●	1.5	2.1	14

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
 2) lowest measured value; contact to contact or contact to shell.



# Multipole

	 Male solder contacts	 Female solder contacts	Reference	Series		Number of contacts	ø A (mm)	Solder contacts	Test voltage (kV rms) <sup>1) 2)</sup>	Test voltage (kV dc) <sup>1) 2)</sup>	Rated current (A) <sup>1)</sup>
				Standard	Watertight						
<b>6S</b> <b>6E</b>			324	6S	-	24	3.0	●	1.2	1.8	12
			324	-	6E	24	3.0	●	1.2	1.8	12
			330	6S	6E	30	2.0	●	2.1	3.0	10
			332	-	6E	32	2.0	●	1.5	2.1	10
			336	6S	-	36	2.0	●	1.5	2.1	8
			336	-	6E	30 6	1.3 5.0	●	1.5 1.5	2.1 2.1	4 22
			340	-	6E	40	2.0	●	1.5	2.1	8

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
 2) lowest measured value; contact to contact or contact to shell.

# Multipole

6S  
6E

	Male solder contacts	Female solder contacts	Reference	Series		Number of contacts	ø A (mm)	Solder contacts	Test voltage (kV rms) <sup>1) 2)</sup>	Test voltage (kV dc) <sup>1) 2)</sup>	Rated current (A) <sup>1)</sup>
				Standard	Watertight						
			348	6S	6E	48	2.0	●	1.5	2.1	7
			360	6S	6E	60	1.6	●	1.5	2.1	5
			362	-	6E	62	1.6	●	1.5	2.1	5
			364	6S	6E	64	1.3	●	1.2	1.8	4
			372	6S	6E	72	1.3	●	1.2	1.8	4
			106	-	6E	106	0.9	●	0.8	1.2	2
			106	6S	-	106	0.9	●	0.8	1.2	2

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
 2) lowest measured value; contact to contact or contact to shell.

## Housings (S, E and L series)

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

**Note:** detailed characteristics of these materials and treatments are presented on page 171.

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

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

- First choice alternative
- Special order alternative

## Insulators (S, E and L series)

Ref.	Material	Contact type	Remarks	Note
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	●

**Note:** detailed characteristics of these materials are presented on page 175.

- First choice alternative
- Special order alternative

## Contacts (S, E and L 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

**Note:** see page 176 for more information.

### Contacts reference for plugs, free or fixed sockets

Contact type	Reference		Contact			Conductor						F <sub>r</sub> <sup>1)</sup> (N)	Notes	
	Male	Female	ø A (mm)	ø C (mm)	Form per fig.	Solid		Stranded						
						AWG max.	Section max. (mm <sup>2</sup> )	AWG		Section (mm <sup>2</sup> )				
								min.	max.	min.	max.			
<b>Solder</b>  	A	L	0.7	0.60	–	24	0.25	–	26	–	0.14	–	●	
			0.9	0.80	–	22	0.34	–	22 <sup>2)</sup>	–	0.34	–		
			1.3	1.00	–	20	0.50	–	20 <sup>2)</sup>	–	0.50	–		
			1.6	1.40	–	16	1.00	–	18	–	1.00	–		
			2.0	1.80	–	14	1.50	–	16	–	1.50	–		
			3.0	2.70	–	10	4.00	–	12	–	4.00	–		
			4.0	3.70	–	10	6.00	–	10	–	6.00	–		
			5.0	5.20	–	–	–	–	8	–	10.00	–		
			6.0	5.20	–	–	–	–	8	–	10.00	–		
			8.0	7.00	–	–	–	–	4	–	21.00	–		
12.0	11.50	–	–	–	–	0	–	50.00	–					
<b>Crimp</b>  fig. 1   fig. 2 	C	M	0.7	0.80	1	–	–	26	22 <sup>2)</sup>	0.140	0.34	22	●	
	B	P		0.45	2	–	–	32	28	0.035	0.09		○	
	C	M	0.9	1.10	1	–	–	24	20	0.250	0.50	30	●	
	B	P		0.80	2	–	–	26	22 <sup>2)</sup>	0.140	0.34		○	
	G	U		0.45	2	–	–	32	28	0.035	0.09		○	
	C	M		1.40	1	–	–	20	18	0.500	1.00		●	
	B	P	1.3	1.10	2	–	–	24	20	0.250	0.50	40	○	
	G	U		0.80	2	–	–	26	22 <sup>2)</sup>	0.140	0.34		○	
	C	M	1.6	1.90	1	–	–	18	14 <sup>2)</sup>	1.000	1.50	50	●	
	B	P		1.40	2	–	–	22	18	0.340	1.00		○	
	C	M	2.0	2.40	1	–	–	16	12 <sup>2)</sup>	1.500	2.50	65	●	
	B	P		1.90	2	–	–	18	14	1.000	1.50		○	
	<b>Print</b>  	D	N	L dimensions and C are detailed in the section on PCB drilling pattern. See page 159.										●
	<b>Print (elbow)</b>  	V	V	L dimensions and C are detailed in the section on PCB drilling pattern. See page 160.										●

**Note:** 1) contact retention force in the insulator (according to IEC 60512-8 test 15 a).  
 2) for a given AWG, the diameter of some stranded conductor designs is larger than the solder cup diameter. Make sure that the maximum conductor diameter is smaller than ø C.

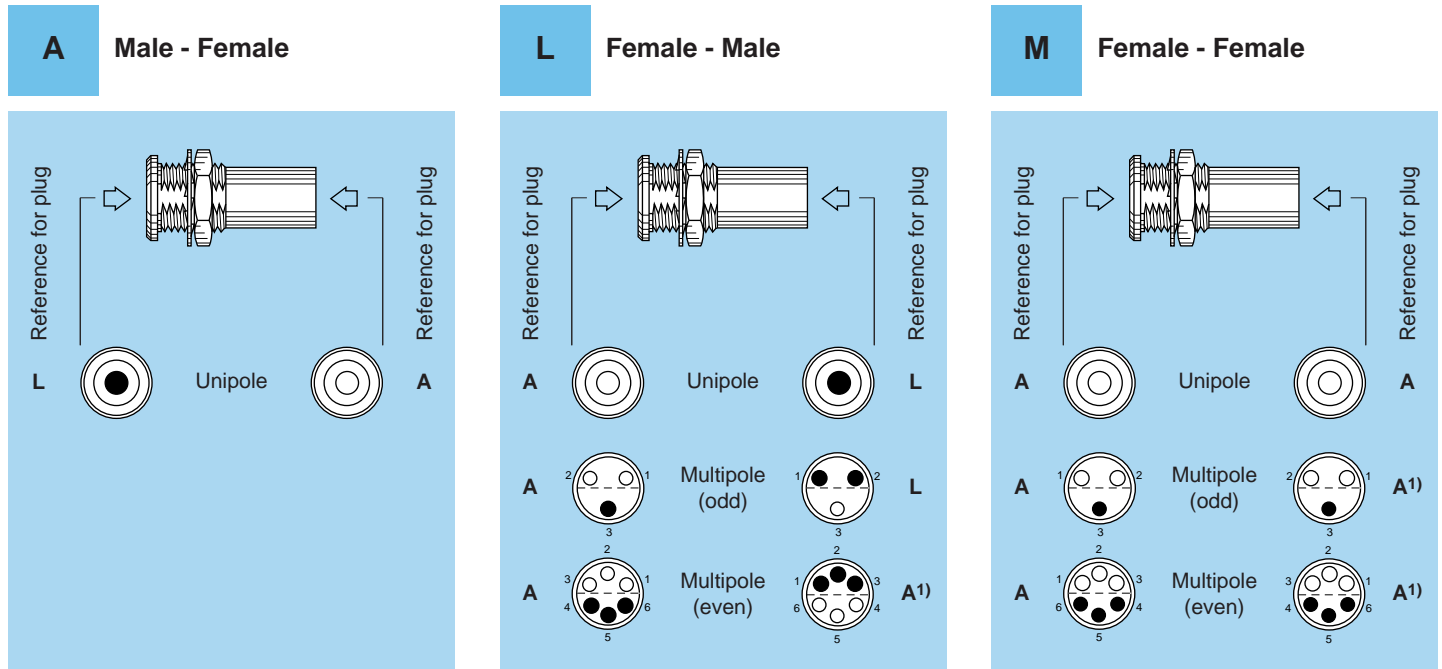
- First choice alternative
- Special order alternative

### Contacts reference for coupler and plug with socket

Ref.	Contact type	Remarks
A	Male - Female	contact configuration is explained on page 101
L	Female - Male	contact configuration is explained on page 101
M	Female - Female	contact configuration is explained on page 101
F	Female - Female - Male	for the FTA model of the S series



## Contacts reference for fixed and free couplers RMA, RAD and SWH



### Use of plugs for mating with RAD, RMA and SWH couplers

#### Unipole type:

Reference M for coupling two identical plugs fitted with male contact (contact reference A).

Reference L for coupling a plug fitted with male contacts (contact reference A) at the flange end for RAD and SWH and an inverted plug fitted with female contacts (contact reference L) at the other end.

Reference A for the inverted version of code L.

#### Multipole type:

Reference L for coupling a standard plug (contact reference A) at the flange end for RAD and SWH and an inverted plug (contact reference as indicated in the above table) at the other end.

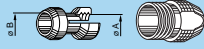
Reference M for coupling two standard plugs (contact type A).  
Only available for RAD and RMA models.

**Note:** <sup>1)</sup> 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 (S, E and L series)

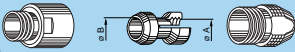
## C, K and L type collets for S series

C type



K type

oversize  
cable collet



L type



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
<b>00</b>	C	17	1.7	1.5	1.7	1.3	<b>NEW</b>
	C	22	2.2	–	2.2	> 1.7	<b>NEW</b>
	C	27	2.7	–	2.7	> 2.2	<b>NEW</b>
	C	31	3.1	2.7	3.1	> 2.7	<b>NEW</b>
	K	37	3.7	–	3.7	> 3.2	<b>NEW</b>
	K	42	4.2	3.7	4.4	> 3.7	<b>NEW</b>
	L	27	2.7	–	2.6	2.2	
	L	31	3.1	–	3.0	2.6	
<b>0S</b>	C	22	2.2	–	2.2	1.3	<b>NEW</b>
	C	32	3.2	–	3.2	> 2.2	<b>NEW</b>
	C	37	3.7	–	3.7	> 3.2	<b>NEW</b>
	C	44	4.4	3.7	4.4	> 3.7	<b>NEW</b>
	K	47	4.7	–	4.6	3.8	
	K	52	5.2	–	5.2	> 4.2	<b>NEW</b>
	K	62	6.2	5.2	6.2	> 5.2	<b>NEW</b>
	K	66	6.6	5.4	6.5	5.9	1)
	K	68	6.8	–	6.7	6.0	1)
	L	22	2.2	–	2.2	1.3	<b>NEW</b>
	L	32	3.2	–	3.2	> 2.2	<b>NEW</b>
	L	37	3.7	–	3.7	> 3.2	<b>NEW</b>
L	44	4.4	–	4.3	3.5	1)	
L	48	4.8	–	4.8	4.4	1)	

	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
<b>1S</b>	C	22	2.2	–	2.1	1.7	
	C	32	3.2	–	3.2	> 2.2	<b>NEW</b>
	C	42	4.2	–	4.2	> 3.2	<b>NEW</b>
	C	52	5.2	–	5.2	> 4.2	<b>NEW</b>
	C	62	6.2	5.2	6.1	5.3	
	C	68	6.8	–	6.7	6.0	1)
	K	72	7.2	–	7.2	> 6.2	<b>NEW</b>
	K	77	7.7	6.7	7.5	7.1	
	K	82	8.2	6.7	8.0	7.6	
	K	87	8.7	6.7	8.5	8.1	
	L	22	2.2	–	2.2	1.2	<b>NEW</b>
	L	32	3.2	–	3.1	2.6	
	L	42	4.2	–	4.2	> 3.2	<b>NEW</b>
	L	52	5.2	–	5.2	> 4.2	<b>NEW</b>
	L	62	6.2	–	6.2	> 5.2	<b>NEW</b>
	L	66	6.6	–	6.5	5.9	1)

**Note:**

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

<sup>2)</sup> these collets are used for the FLA model.

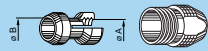
All dimensions are in millimetres.





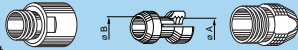
## C, K and L type collets for S series

C type



K type

oversize  
cable collet



L type



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
<b>2S</b>	C	27	2.7	–	2.7	1.3	NEW
	C	32	3.2	–	3.2	> 2.5	NEW
	C	42	4.2	–	4.2	> 3.2	NEW
	C	52	5.2	–	5.2	> 4.2	NEW
	C	62	6.2	–	6.2	> 5.2	NEW
	C	72	7.2	6.7	7.2	> 6.2	NEW
	C	82	8.2	6.7	8.0	7.6	
	C	87	8.7	6.7	8.5	8.1	
	K	97	9.7	8.7	9.7	> 8.7	NEW
	K	10	10.2	8.7	10.0	9.6	
	K	11	10.7	9.0	10.5	10.1	
	L	32	3.2	–	3.2	2.5	NEW
	L	42	4.2	–	4.2	> 3.2	NEW
	L	52	5.2	–	5.2	> 4.2	NEW
	L	62	6.2	–	6.2	> 5.2	NEW
	L	72	7.2	–	7.2	> 6.2	NEW
L	82	8.2	–	8.2	> 7.2	NEW	
L	87	8.7	–	8.7	> 8.2	NEW <sup>1)</sup>	
<b>3S</b>	C	42	4.2	–	4.2	2.7	NEW
	C	57	5.7	–	5.7	> 4.2	NEW
	C	72	7.2	–	7.2	> 5.7	NEW
	C	87	8.7	–	8.7	> 7.2	NEW
	C	97	9.7	8.7	9.7	> 8.7	NEW
	C	11	10.7	9.0	10.5	10.1	
	K	12	12.2	–	12.0	11.1	
	K	13	13.2	12.2	13.0	12.1	
	L	42	4.2	–	4.2	2.7	NEW
	L	57	5.7	–	5.7	> 4.2	NEW
	L	72	7.2	–	7.0	6.1	
	L	87	8.7	–	8.7	> 7.2	NEW
	L	97	9.7	–	9.5	9.1	
	L	11	10.7	–	10.7	> 9.7	NEW <sup>1)</sup>

	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
<b>4S</b>	C	52	5.2	–	5.0	4.1	
	C	62	6.2	–	6.0	5.1	
	C	72	7.2	–	7.0	6.1	
	C	82	8.2	–	8.0	7.1	
	C	92	9.2	–	9.0	8.1	
	C	10	10.2	–	10.0	9.1	
	C	11	11.2	–	11.0	10.1	
	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	
	L	62	6.2	–	6.0	5.1	
	L	72	7.2	–	7.0	6.1	
	L	82	8.2	–	8.0	7.1	
L	92	9.2	–	9.0	8.1		
L	10	10.2	–	10.0	9.1		
L	11	11.2	–	11.0	10.1		
L	12	12.2	–	12.0	11.1		
L	13	13.2	–	13.0	12.6		

**Note:**

<sup>1)</sup> these collets cannot be used for connectors models with nut for fitting a bend relief. All dimensions are in millimetres.

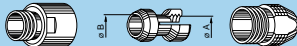
## C, K and L type collets for S series

C type



K type

oversize cable collet



L type



5S

Reference		Collet ø		Cable ø	
Type	Code	ø A	ø B	max.	min.
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
C	12	12.2	–	12.0	11.1
C	13	13.2	–	13.0	12.1
C	14	14.2	–	14.0	13.1
C	15	15.2	–	15.0	14.1
C	16	16.2	–	16.0	15.1
C	17	17.2	–	17.0	16.1
C	18	18.2	–	18.0	17.1
C	19	19.2	–	19.0	18.1
C	20	20.2	19.7	20.0	19.1
C	21	21.2	19.7	21.0	20.1
C	22	22.2	19.7	22.0	21.1
K	23	23.2	–	23.0	22.1
K	24	24.2	–	24.0	23.1
K	25	25.2	–	25.0	24.1
K	26	26.2	–	26.0	25.1
K	27	27.2	–	27.0	26.1
K	28	28.2	27.2	28.0	27.1
K	29	29.2	27.2	29.0	28.1
K	30	30.2	27.2	30.0	29.1
L	92	9.2	–	9.0	8.1
L	10	10.2	–	10.0	9.1
L	11	11.2	–	11.0	10.1
L	12	12.2	–	12.0	11.1
L	13	13.2	–	13.0	12.1
L	14	14.2	–	14.0	13.1
L	15	15.2	–	15.0	14.1
L	16	16.2	–	16.0	15.1
L	17	17.2	–	17.0	16.1
L	18	18.2	–	18.0	17.1
L	19	19.2	–	19.0	18.1
L	20	20.2	–	20.0	19.1
L	21	21.2	–	21.0	20.1

6S

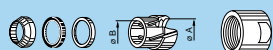
Reference		Collet ø		Cable ø	
Type	Code	ø A	ø B	max.	min.
C	12	12.2	–	12.0	11.1
C	13	13.2	–	13.0	12.1
C	14	14.2	–	14.0	13.1
C	15	15.2	–	15.0	14.1
C	16	16.2	–	16.0	15.1
C	17	17.2	–	17.0	16.1
C	18	18.2	–	18.0	17.1
C	19	19.2	–	19.0	18.1
C	20	20.2	–	20.0	19.1
C	21	21.2	–	21.0	20.1
C	22	22.2	–	22.0	21.1
C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

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



## C and K type collets for E series

C type



K type  
oversize  
cable collet



	Reference		Collet ø		Cable ø	
	Type	Code	ø A	ø B	max.	min.
<b>0E</b>	C	10	1.6	–	1.2	1.0
	C	15	1.6	–	1.5	1.3
	C	20	2.1	–	2.0	1.6
	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
<b>1E</b>	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
	K	75	8.2	8.2	7.5	7.1
	K	80	8.2	8.2	8.0	7.6
K	85	9.2	8.6	8.5	8.1	
<b>2E</b>	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
	C	70	7.2	–	7.0	6.6
	C	75	8.2	8.2	7.5	7.1
	C	80	8.2	8.2	8.0	7.6
	C	85	9.2	8.6	8.5	8.1
	K	90	9.2	–	9.0	8.6
	K	95	10.2	10.2	9.5	9.1
	K	10	10.2	10.2	10.0	9.6
	K	11	11.2	10.6	10.5	10.1

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

	Reference		Collet ø		Cable ø	
	Type	Code	ø A	ø B	max.	min.
<b>3E</b>	C	30	3.2	–	3.0	2.6
	C	35	4.2	–	3.5	3.1
	C	40	4.2	–	4.0	3.6
	C	45	5.2	–	4.5	4.1
	C	50	5.2	–	5.0	4.6
	C	55	6.2	–	5.5	5.1
	C	60	6.2	–	6.0	5.6
	C	65	7.2	–	6.5	6.1
	C	70	7.2	–	7.0	6.6
	C	75	8.2	–	7.5	7.1
	C	80	8.2	–	8.0	7.6
	C	85	9.2	–	8.5	8.1
	C	90	9.2	–	9.0	8.6
	C	95	10.2	10.2	9.5	9.1
	<b>4E</b>	C	10	10.2	10.2	10.0
C		11	11.2	10.6	10.5	10.1
K		11	12.3	–	12.0	10.6
K		12	13.8	13.8	12.8	12.1
K		13	13.8	13.8	13.5	12.9
K		14	15.3	15.3	14.0	13.6
K		15	15.3	15.3	15.0	14.1
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	
K	16	17.8	–	16.5	15.6	
K	17	17.8	–	17.5	16.6	
K	18	19.8	–	18.5	17.6	
K	19	19.8	–	19.5	18.6	
K	20	21.8	–	20.5	19.6	
K	21	21.8	–	21.5	20.6	
K	22	23.8	23.8	22.5	21.6	
K	23	23.8	23.8	23.5	22.6	

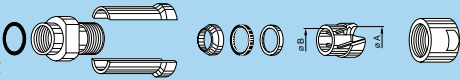
## C and K type collets for E series

C type



K type

oversize  
cable collet



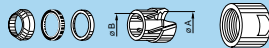
Reference		Collet ø		Cable ø	
Type	Code	ø A	ø B	max.	min.
5E	C 10	11.8	–	10.5	9.6
	C 11	11.8	–	11.5	10.6
	C 12	13.8	–	12.5	11.6
	C 13	13.8	–	13.5	12.6
	C 14	15.8	–	14.5	13.6
	C 15	15.8	–	15.5	14.6
	C 16	17.8	–	16.5	15.6
	C 17	17.8	–	17.5	16.6
	C 18	19.8	–	18.5	17.6
	C 19	19.8	–	19.5	18.6
	C 20	21.8	–	20.5	19.6
	C 21	21.8	–	21.5	20.6
	C 22	23.8	23.8	22.5	21.6
	C 23	23.8	23.8	23.5	22.6

Reference		Collet ø		Cable ø	
Type	Code	ø A	ø B	max.	min.
6E	C 14	14.2	–	14.0	13.0
	C 15	15.2	–	15.0	14.1
	C 16	15.7	–	15.5	14.6
	C 17	16.7	–	16.5	15.6
	C 18	18.2	–	18.0	17.1
	C 21	23.2	–	21.5	20.6
	C 22	23.2	–	22.0	21.1
	C 23	23.2	–	23.0	22.1
	C 27	27.2	–	27.0	26.1
	L 30	30.2	–	30.0	29.5

Note: all dimensions are in millimetres.

## C and K type collets for L series

C type



K type

oversize  
cable collet



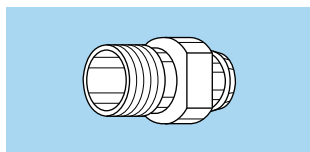
Reference		Collet ø		Cable ø	
Type	Code	ø A	ø B	max.	min.
0L	C 10	1.6	–	1.2	1.0
	C 15	1.6	–	1.5	1.3
	C 20	2.1	–	2.0	1.6
	C 25	3.1	–	2.5	2.1
	C 30	3.1	–	3.0	2.6
	C 35	4.2	4.2	3.5	3.1
	C 40	4.2	4.2	4.0	3.6
	C 45	5.2	5.2	4.5	4.1
	C 50	5.2	5.2	5.0	4.6
	1L	C 15	1.6	–	1.5
C 20		2.2	–	2.0	1.6
C 25		3.2	–	2.5	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
K 75		8.2	8.2	7.5	7.1
K 80		8.2	8.2	8.0	7.6
K 85		9.2	8.6	8.5	8.1

Reference		Collet ø		Cable ø	
Type	Code	ø A	ø B	max.	min.
2L	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
	C 70	7.2	–	7.0	6.6
	C 75	8.2	8.2	7.5	7.1
	C 80	8.2	8.2	8.0	7.6
C 85	9.2	8.6	8.5	8.1	
K 90	9.2	–	9.0	8.6	
K 95	10.2	10.2	9.5	9.1	
K 10	10.2	10.2	10.0	9.6	
K 11	11.2	10.6	10.5	10.1	

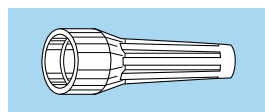
Note: all dimensions are in millimetres.

# Variant (S, E and L series)

## Bend relief for S series models with collet

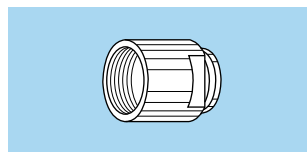


**Need to be ordered**

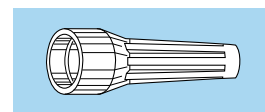


	Ref.	Collet		Need to be ordered separately (see pages 141 and 142)
		Type	Code	
00	Z	C	15 to 31	GMA.00.0●●.D●
		K	37 to 42	GMA.0B.0●●.D●
		L	17 to 31	GMA.00.0●●.D●
0S	Z	C	27 to 42	GMA.0B.0●●.D●
		K	47 to 62	GMA.1B.0●●.D●
		L	27 to 42	GMA.0B.0●●.D●
1S	Z	C	27 to 62	GMA.1B.0●●.D●
		K	72 to 82	GMA.2B.0●●.D●
		L	27 to 62	GMA.1B.0●●.D●
2S	Z	C	42 to 82	GMA.2B.0●●.D●
		K	92 to 10	GMA.3B.0●●.D●
		L	42 to 82	GMA.2B.0●●.D●
3S	Z	C	52 to 10	GMA.3B.0●●.D●
		K	12 to 13	GMA.4B.0●●.D●
		L	52 to 10	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 and L series models with collet



**Need to be ordered**



	Ref.	Collet		Need to be ordered separately (see pages 141 and 142)
		Type	Code	
0E 0L	Z	C	10 to 50	GMA.0B.●●●.●●
1E 1L	Z	C	15 to 65	GMA.1B.●●●.●●
		K	70 to 85	GMA.2B.●●●.●●
2E 2L	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	GMA.4B.●●●.●●
4E	Z	C	50 to 15	GMA.4B.●●●.●●

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

## Colour of connectors shell made of plastic material and aluminium alloys

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

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

## Watertight and vacuumtight socket and coupler models (S, E and L series)

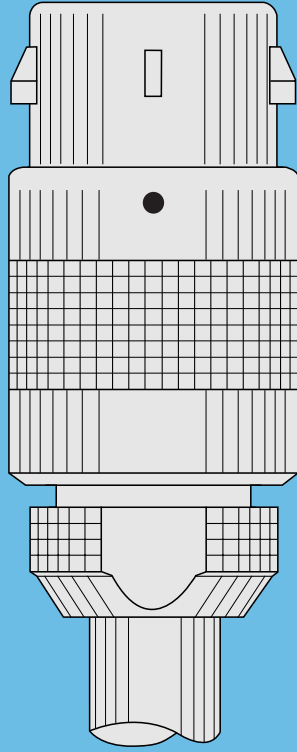
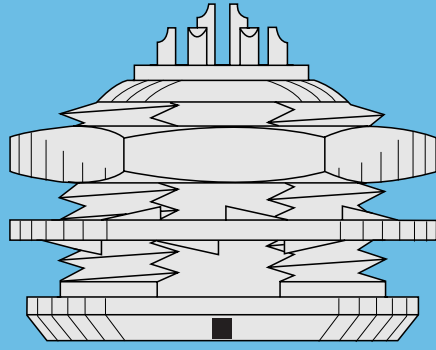
	Model	Reference	
		Watertight	Vacuumtight
S	EWB, HCP, HGP, HGW, SWH	P	PV
E	EBR, HGP, SWH	P	PV
L	HGG	P	PV

## O-ring and gasket material (E and L series)

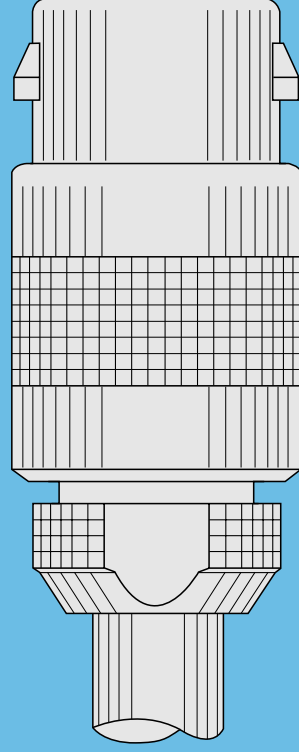
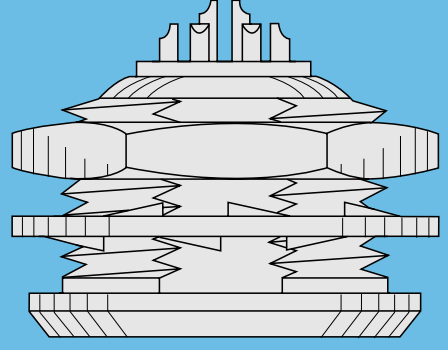
Standard connectors are delivered with silicone o-ring and gaskets. The vacuumtight models, identified with the letter «PV», are delivered with Viton® gaskets. Other gaskets material can be delivered upon special request.

O-ring material	Reference
FPM (Viton®)	H
EPDM	E
FPM (Viton®) and collet nut for bend relief	D





**2G SERIES**

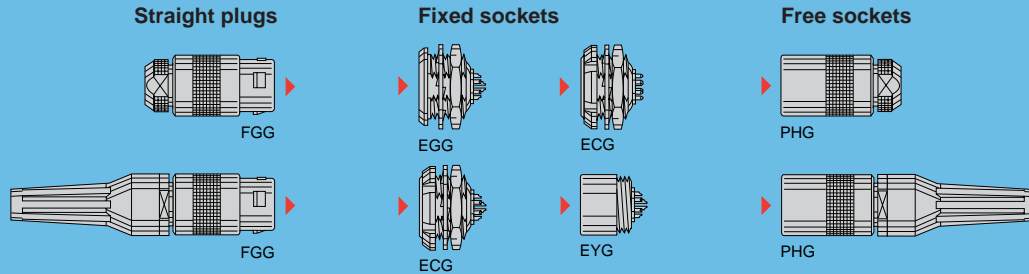


**2C SERIES**

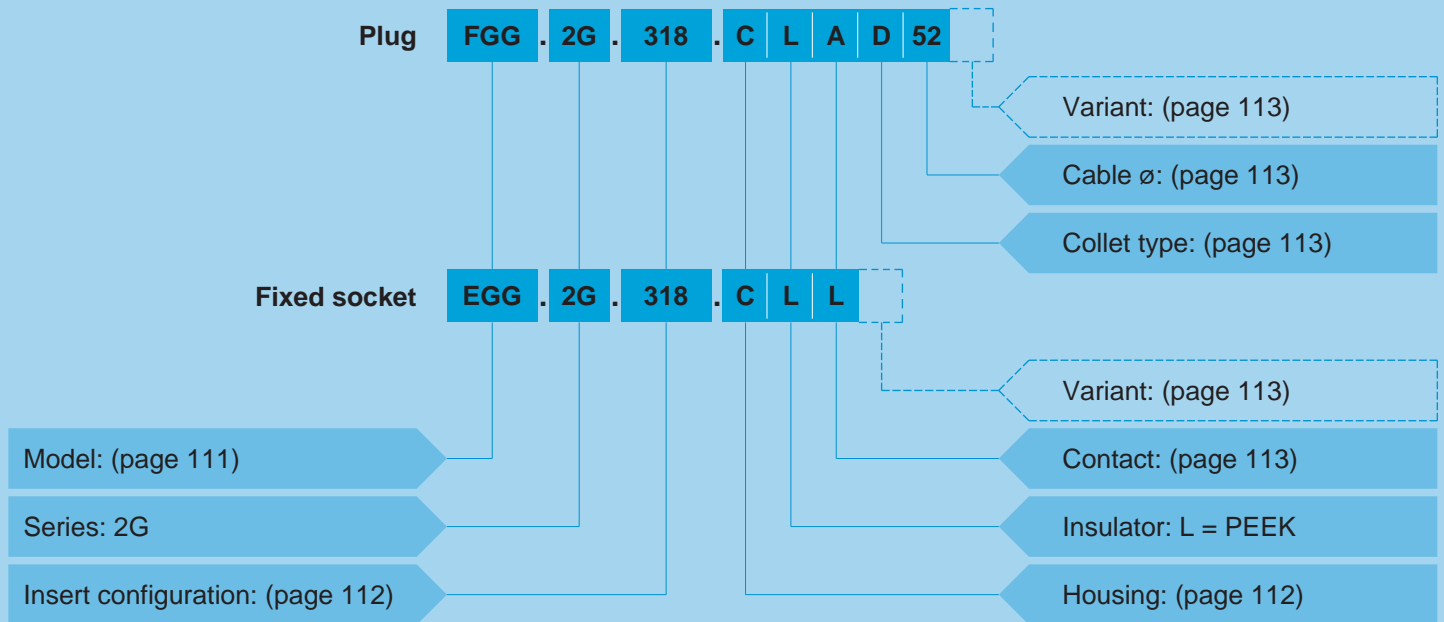
# 2G Series

The 2G series with key (G) provides the same advantages of space saving due to its small dimensions as the 2C series and is available in multipole type with 18 contacts.

## Metal housing models (page 111)



## Part Numbering System



## Part Number Example

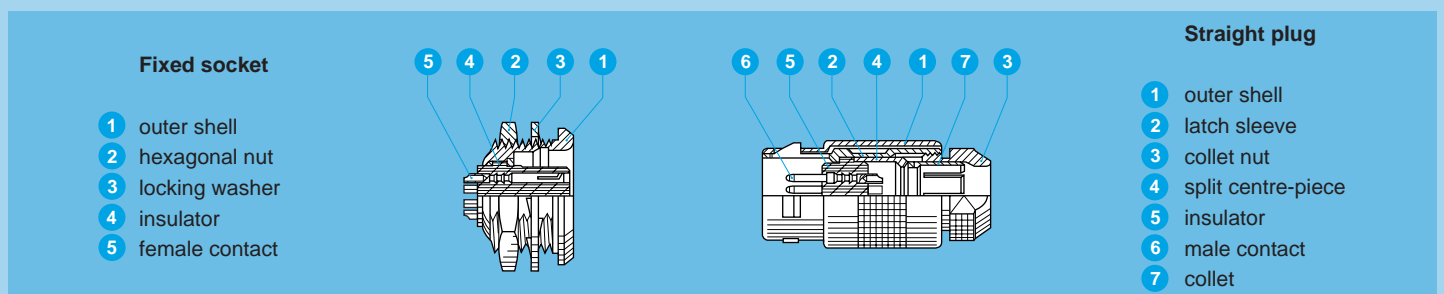
### Straight plug with cable collet:

**FGG.2G.318.CLAD52** = straight plug with cable collet, 2G series, multipole type with 18 contacts, outer shell in chrome-plated brass, PEEK insulator, male solder contacts, D type collet for 5.2 mm diameter cable.

### Fixed socket:

**EGG.2G.318.CLL** = fixed socket, 2G series, multipole type with 18 contacts, outer shell in chrome-plated brass, PEEK insulator, female solder contacts.

## Part Section Showing Internal Components







## Metal housing models

### Technical Characteristics

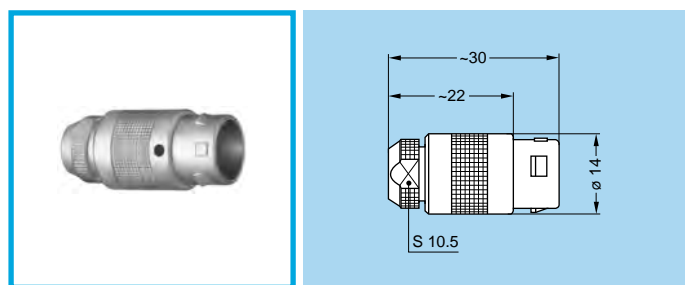
#### Mechanical and Climatical

Characteristics	Value	Standard
Endurance	> 500 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range	- 55° C + 250° C	
Salt spray corrosion test	> 144 h	IEC 60512-6 test 11f
Protection index	IP50	IEC 60529
Climatical category	55/175/21	IEC 60068-1

**Note:**

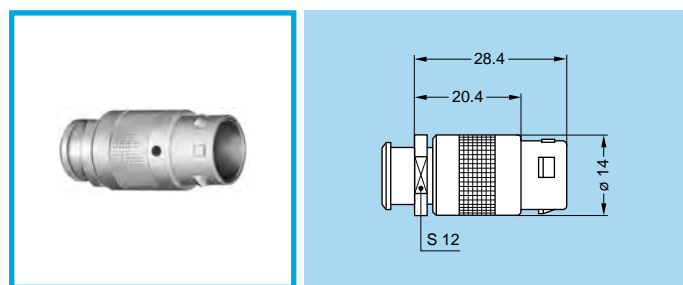
The various tests have been carried out with FGG and EGG connector pairs, with chrome-plated brass shell and PEEK insulator. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical Characteristics on page 171.

#### FGG.2G Straight plug, key (G), cable collet



Cable assembly (page 115)

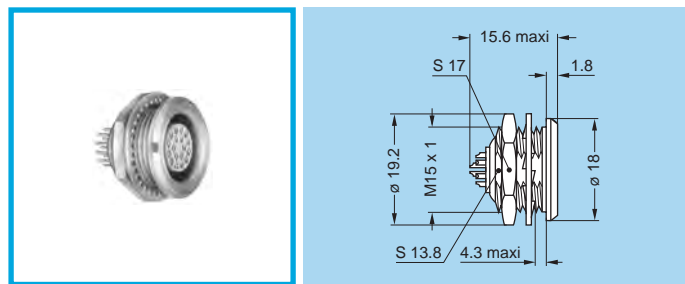
#### FGG.2G Straight plug, key (G), cable collet and nut for fitting a bend relief <sup>1)</sup>



Cable assembly (page 115)

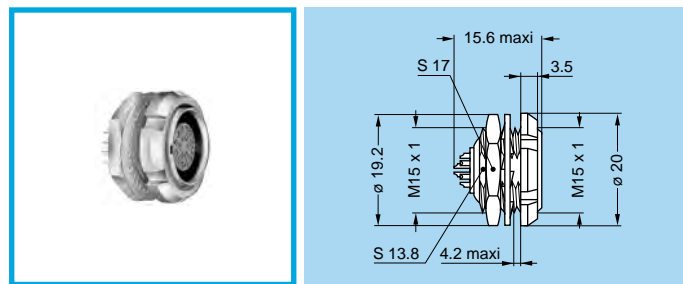
**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).

#### EGG.2G Fixed socket, nut fixing, key (G)



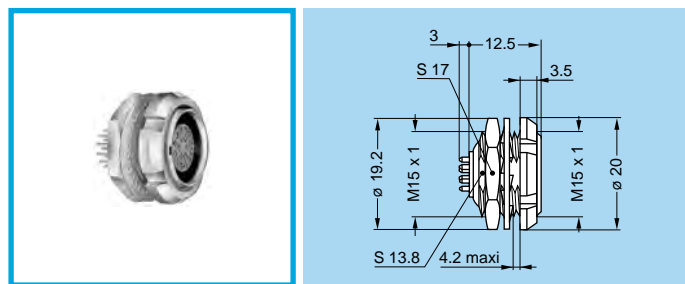
Panel cut-out (page 115)

#### ECG.2G Fixed socket with two nuts, key (G) (back panel mounting)



Panel cut-out (page 115)

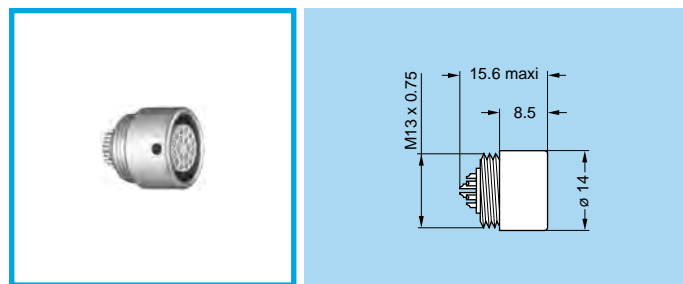
#### ECG.2G Fixed socket with two nuts, key (G), straight contact for printed circuit (back panel mounting)



Panel cut-out (page 115)

PCB drilling pattern (page 115)

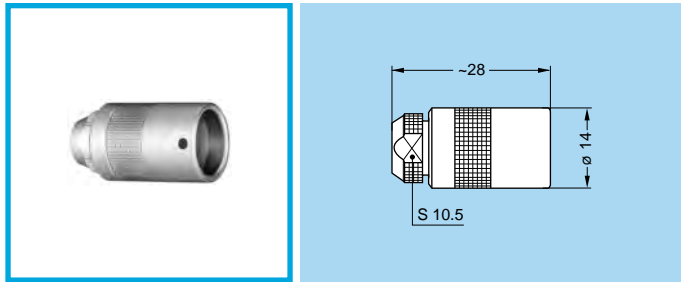
#### EYG.2G Fixed socket, key (G), protruding shell (screw fixing on the panel)



Panel cut-out (page 115)

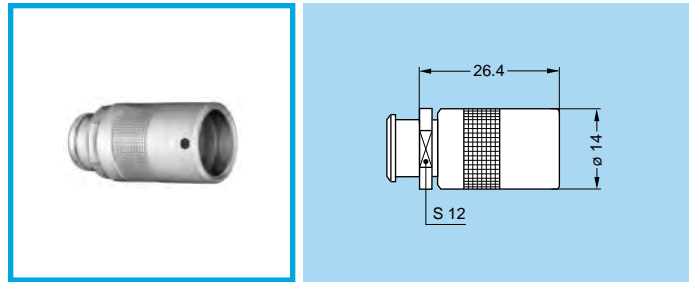
**Note:** all dimensions are in millimetres.

### PHG.2G Free socket, key (G), cable collet



Cable assembly (page 115)

### PHG.2G Free socket, key (G), cable collet and nut for fitting a bend relief <sup>1)</sup>



Cable assembly (page 115)

**Note:** 1) to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 141).

## Insert configuration (2G series)

	Male solder contacts	Female solder contacts	Reference	Number of contacts	ø A (mm)	Contact type		Test voltage (kV rms) <sup>2)</sup>	Test voltage (kV dc) <sup>2)</sup>	Rated current (A) <sup>1)</sup>
						Solder	Print			
<b>2G</b>			318	18	0.7	●	●	0.85	1.2	5.5

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
2) lowest measured value; contact to contact or contact to shell.

## Housings (2G series)

Ref.	Outer shell and collet nut		Latch sleeve		Other metallic components		Note
	Material	Surf. treatment	Material	Surf. treatment	Material	Surf. treatment	
C	Brass	chrome	brass/bronze	nickel	brass	nickel	●
N	Brass	nickel	brass/bronze	nickel	brass	nickel	○
K	Brass	black chrome	brass/bronze	nickel	brass	nickel	●

● First choice alternative  
○ Special order alternative

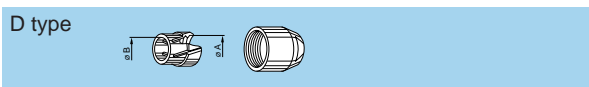
**Note:** detailed characteristics of these materials and treatments are presented on page 171.

**Contacts (2G series)**

Ref.	Contact type
A	Male solder
L	Female solder
N	Female print

**Collets (2G series)**

**D type collets for 2G series**

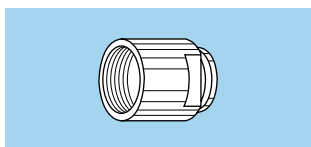


2G	Reference		Collet $\varnothing$		Cable $\varnothing$	
	Type	Code	$\varnothing$ A	$\varnothing$ B	max.	min.
	D	52	5.2	–	5.1	4.5
	D	62	6.2	–	6.1	5.5
	D	72	7.2	6.2	7.1	6.5
	D	80	8.0	6.2	7.9	7.5

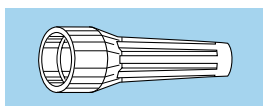
Note: all dimensions are in millimetres.

**Variant (2G series)**

**Bend relief for 2G series models with collet**

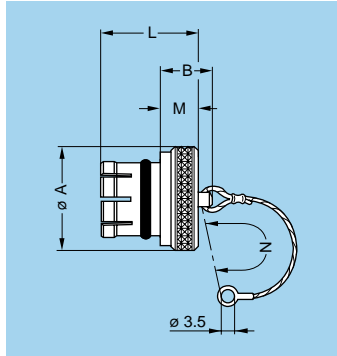


**Need to be ordered**



2G	Ref.	Collet		Need to be ordered separately (see pages 141 and 142)
		Type	Code	
	Z	D	52 to 80	GMA.2B.***..

## Accessories (2G series)



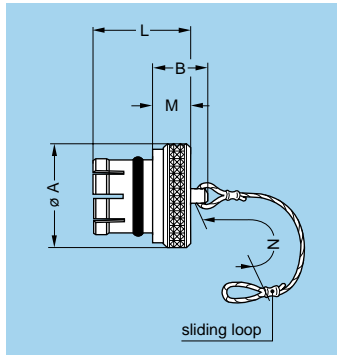
- Body material: Nickel-plated brass (Ni 3  $\mu$ m)
- Lanyard material: Stainless steel
- O-ring material: Silicone rubber or FPM

### BRE Blanking caps for fixed and free sockets

Part number	Dimensions (mm)				
	A	B	L	M	N
BRE.2G.200.NAS	18	12	10.6	6.0	85

**Note:** these caps are suitable for use with any alignment key configuration. 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».

- Maximum operating temperature: 200°C
- Watertightness: IP61 according to IEC 60529



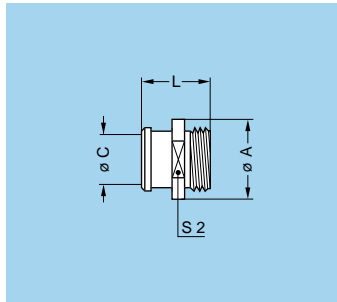
- Body material: Nickel-plated brass (Ni 3  $\mu$ m)
- Lanyard material: Stainless steel
- O-ring material: Silicone rubber or FPM

### BRF Blanking caps for fixed sockets

Part number	Dimensions (mm)				
	A	B	L	M	N
BRF.2G.200.NAS	18	12	14.0	6.0	85

**Note:** this caps are suitable for use with any alignment key configuration. 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».

- Maximum operating temperature: 200°C
- Watertightness: IP61 according to IEC 60529



### FFM Nut for bend relief

Part number	Dimensions (mm)			
	A	C	L	S2
FFM.2C.130.LC	14	8	12.2	12

**Note:** for bend reliefs to be used with this nut see section «Accessories» page 141.

- Material: Chrome-plated brass (0.3  $\mu$ m)

**Note:** other accessories are also available. See section «Accessories» on page 135.

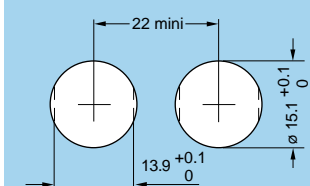
## Tooling (2G series)

Please consult the «Tooling» section (page 146).

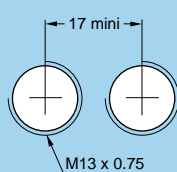
## Panel cut-outs (2G series)

### Panel cut-outs

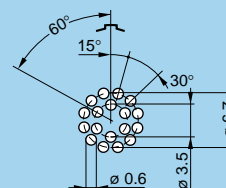
EGG - ECG



EYG



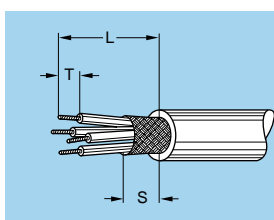
### PCB drilling pattern



**Note:** mounting nut torque: 6 Nm (1N = 0.102 kg)

## Cable assembly (2G series)

### Cable stripping lengths (2G series)

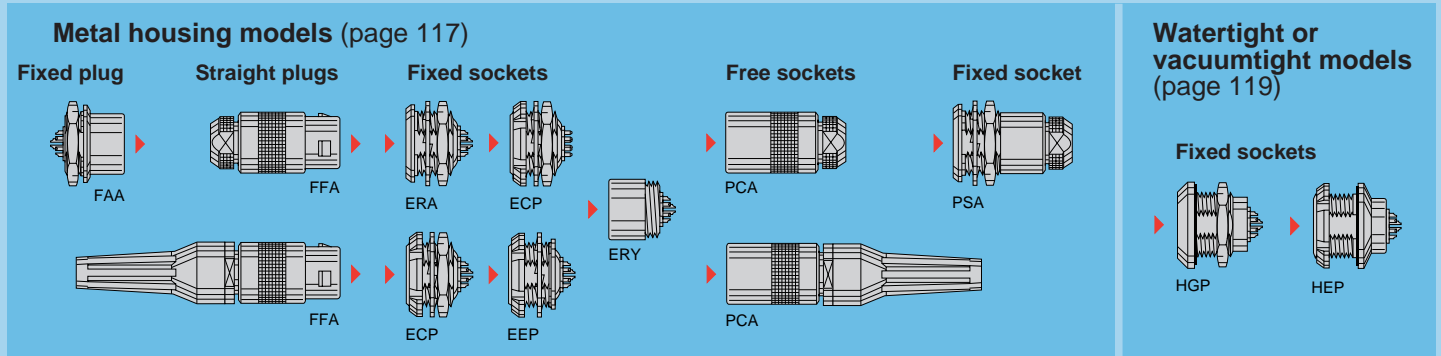


Connector		Ø contact A (mm)	Cable stripping lengths (mm)		
Series	Type		L	S	T
2G	318	0.7	9	7	3

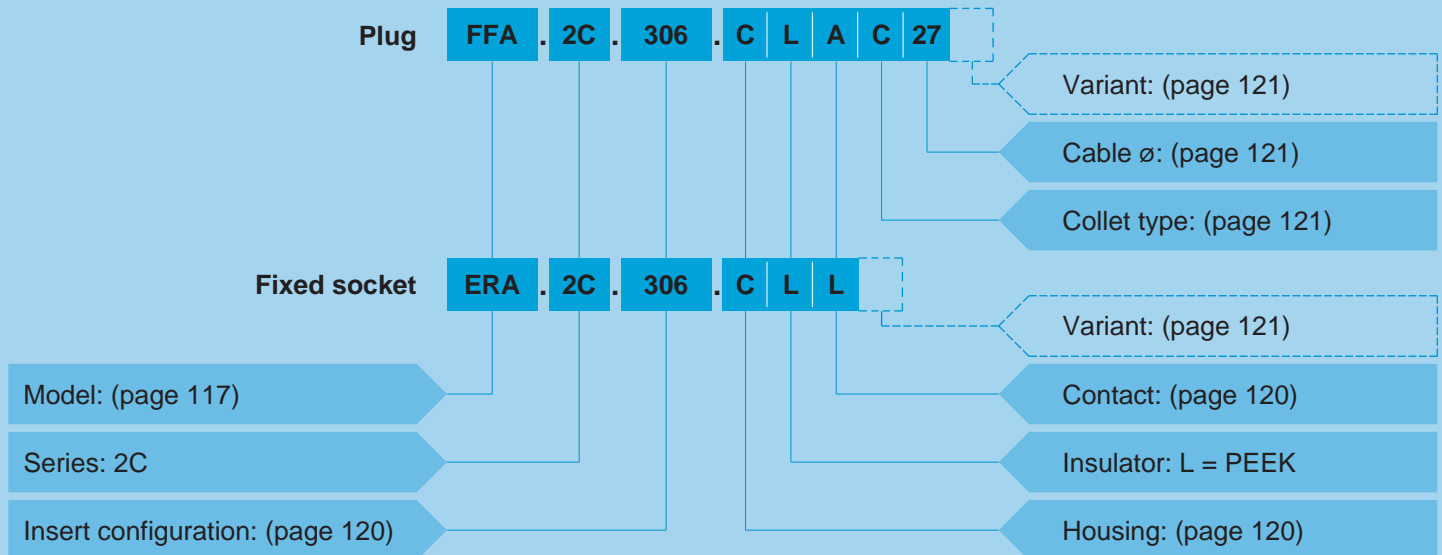
**Note:** the tolerances on these dimensions are: L:  $\pm 0.5$  mm; S:  $\pm 0.5$  mm; T:  $\pm 0.2$  mm.

# 2C Series

In many applications, it is necessary to use multipole connectors which have shortened dimensions but require high contact density. LEMO short series connectors, which are shorter than 30 mm, perfectly meet these needs. The 2C series, featuring a hermaphroditic insert, is available in multipole type up to 14 contacts.



## Part Numbering System



## Part Number Example

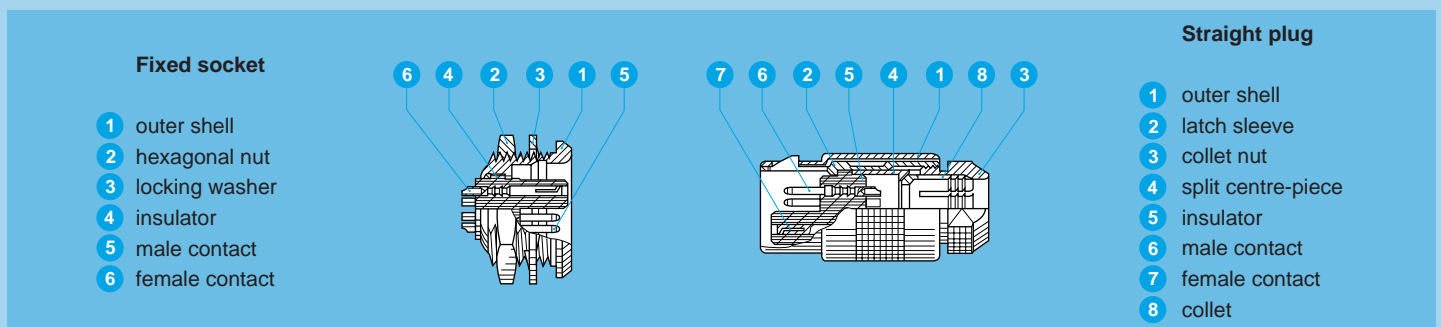
### Straight plug with cable collet:

**FFA.2C.306.CLAC27** = straight plug with cable collet, 2C series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, male solder contacts, C type collet for 2.7 mm diameter cable.

### Fixed socket:

**ERA.2C.306.CLL** = fixed socket, nut fixing, 2C series, multipole type with 6 contacts, outer shell in chrome-plated brass, PEEK insulator, female solder contacts.

## Part Section Showing Internal Components



# Metal housing models

## Technical Characteristics

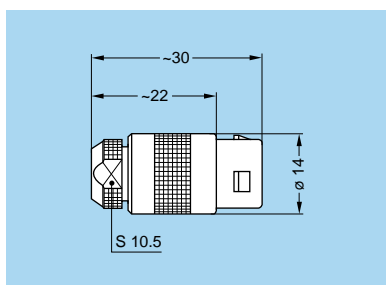
### Mechanical and Climatical

Characteristics	Value	Standard
Endurance	> 500 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range	- 55° C + 250° C	
Salt spray corrosion test	> 144 h	IEC 60512-6 test 11f
Protection index	IP50	IEC 60529
Climatical category	55/175/21	IEC 60068-1

**Note:**

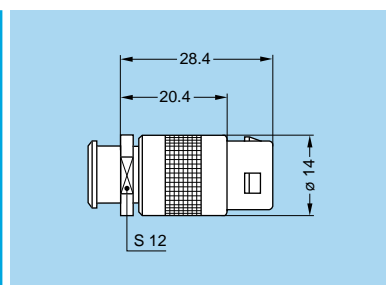
The various tests have been carried out with FFA and ERA connector pairs, with chrome-plated brass shell and PEEK insulator. Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical Characteristics on page 171.

### FFA.2C Straight plug, cable collet



Cable assembly (page 122)

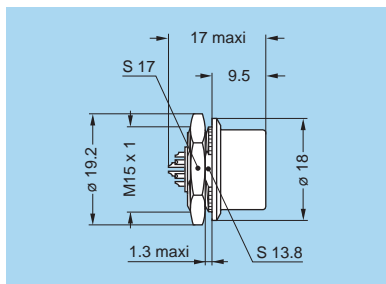
### FFA.2C Straight plug, cable collet and nut for fitting a bend relief<sup>1)</sup>



Cable assembly (page 122)

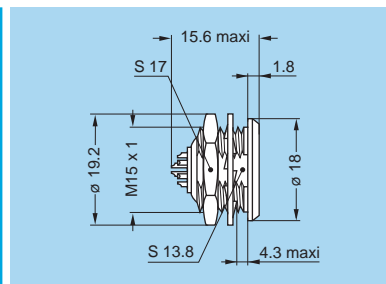
**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference. The bend relief must be ordered separately (see page 141).

### FAA.2C Fixed plug, nut fixing, non-latching



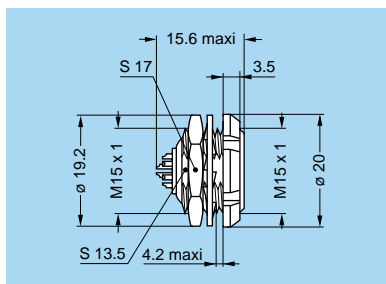
Panel cut-out (page 122)

### ERA.2C Fixed socket, nut fixing



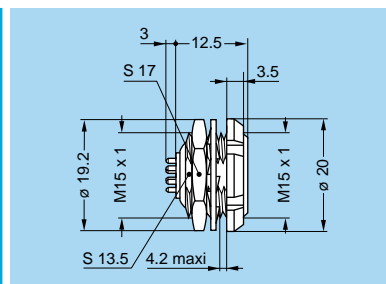
Panel cut-out (page 122)

### ECP.2C Fixed socket with two nuts (back panel mounting)



Panel cut-out (page 122)

### ECP.2C Fixed socket with two nuts, straight contact for printed circuit (back panel mounting)

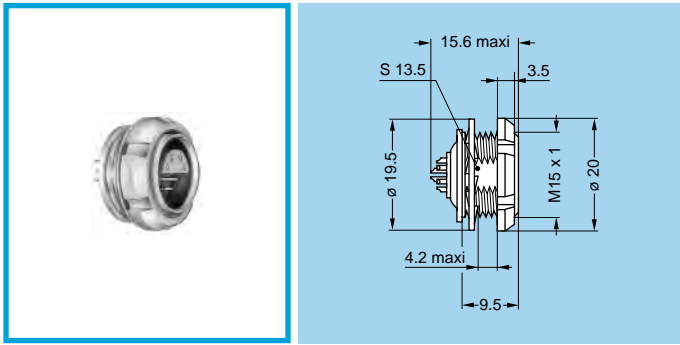


Panel cut-out (page 122)

PCB drilling pattern (page 122)

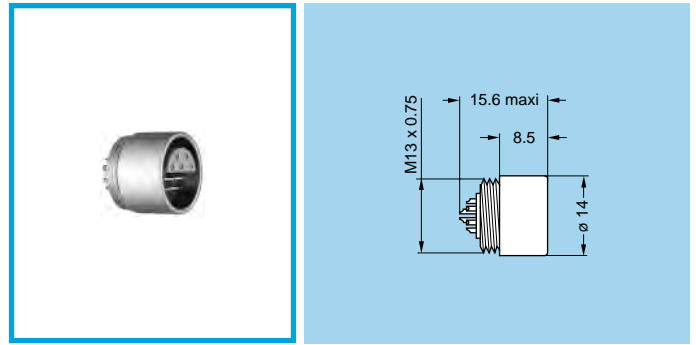
**Note:** all dimensions are in millimetres.

### EEP.2C Fixed socket, nut fixing (back panel mounting)



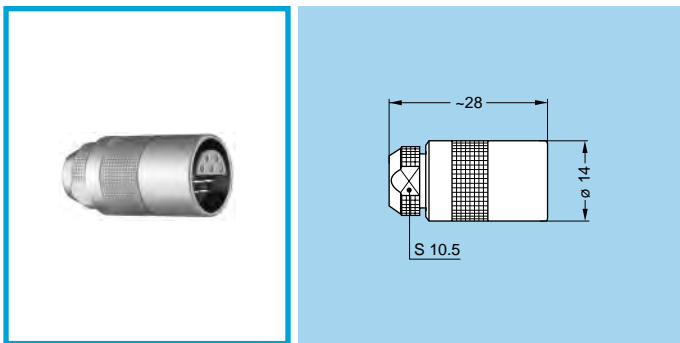
Panel cut-out (page 122)

### ERY.2C Fixed socket, protruding shell, (screw fixing on the panel)



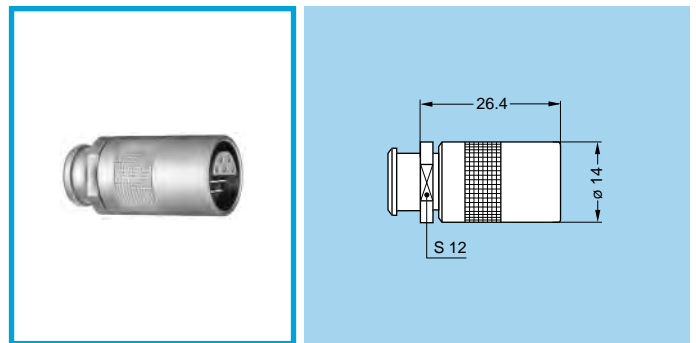
Panel cut-out (page 122)

### PCA.2C Free socket, cable collet



Cable assembly (page 122)

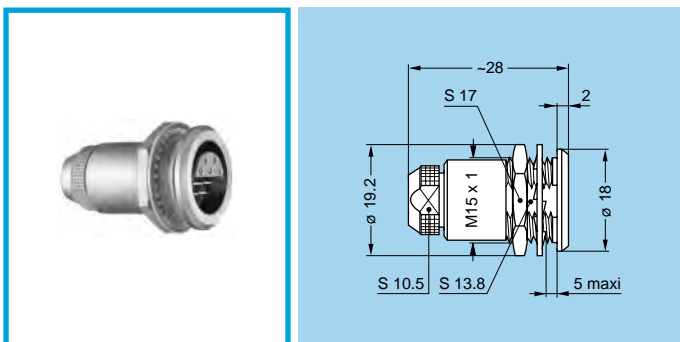
### PCA.2C Free socket, cable collet and nut for fitting a bend relief <sup>1)</sup>



Cable assembly (page 122)

**Note:** <sup>1)</sup> to order, add a «Z» at the end of the reference.  
The bend relief must be ordered separately (see page 141).

### PSA.2C Fixed socket nut fixing, cable collet



Panel cut-out (page 122)

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



## Watertight or vacuumtight models

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

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

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

Epoxy resin is used to seal these models.

### Technical Characteristics

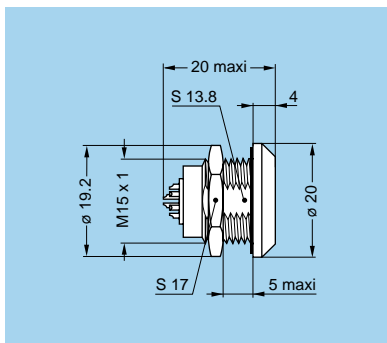
#### Mechanical and Climatcal

Characteristics	Value	Standard
Endurance	> 500 cycles	IEC 60512-5 test 9a
Humidity	up to 95% at 60° C	
Temperature range	-20° C, +80° C	
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f

Characteristics	Value	Standard
Climatical category	20/80/21	IEC 60068-1
Leakage rate (He) <sup>1)</sup>	< 10 <sup>-7</sup> mbar.l.s <sup>-1</sup>	IEC 60512-7 test 14b
Maximum operating pressure	5 bars	IEC 60512-7 test 14d

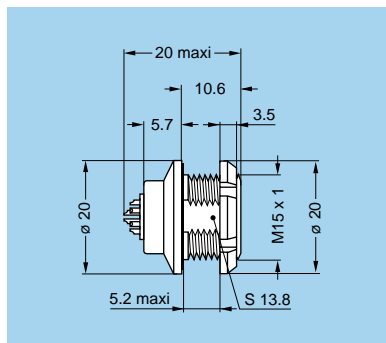
**Note:** <sup>1)</sup> only for vacuumtight models.

#### HGP.2C Fixed socket, nut fixing, watertight or vacuumtight



Panel cut-out (page 122)

#### HEP.2C Fixed socket, nut fixing, watertight or vacuumtight (back panel mounting)



Panel cut-out (page 122)

## Insert configuration (2C series)

	 Male solder contacts		 Female solder contacts		Reference	Number of contacts	ø A (mm)	Contact type		Test voltage (kV rms) <sup>(1) 2)</sup>	Test voltage (kV dc) <sup>(1) 2)</sup>	Rated current (A) <sup>(1)</sup>
	Solder	Print										
<b>2C</b>					302	2	1.6	●	–	1.80	2.40	20
					303	3	1.3	●	–	1.50	2.10	15
					304	4	1.3	●	–	1.80	2.40	15
					306	6	1.3	●	–	1.50	2.10	12
					308	8	0.7	●	●	0.95	1.35	7
					310	10	0.7	●	●	0.95	1.35	7
					312	12	0.7	●	●	0.60	0.90	5
					314	14	0.7	●	●	0.60	0.90	5

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
 2) lowest measured value; contact to contact or contact to shell.

## Housings (2C series)

Ref.	Outer shell and collet nut		Latch sleeve		Other metallic components		Note
	Material	Surf. treatment	Material	Surf. treatment	Material	Surf. treatment	
C	Brass	chrome	brass/bronze	nickel	brass	nickel	●
N	Brass	nickel	brass/bronze	nickel	brass	nickel	○
K	Brass	black chrome	brass/bronze	nickel	brass	nickel	●

● First choice alternative  
 ○ Special order alternative

**Note:** detailed characteristics of these materials and treatments are presented on page 171.

## Contacts (2C series)

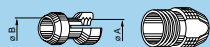
Ref.	Contact type
A	Male solder
L	Female solder
N	Female print

Multipole connectors are fitted with hermaphroditic inserts including male and female contacts. However, by convention, the letter indicating the contact type in the part number composition will be the male contact (reference A) for plugs and female contact (reference L) for sockets.

## Collets (2C series)

### C and L type collets for 2C series

C type



Reference	Collet ø		Cable ø			
	Type	Code	ø A	ø B	max.	min.
<b>2C</b>	C	27	2.7	–	2.6	2.2
	C	32	3.2	–	3.1	2.7
	C	37	3.7	–	3.6	3.2
	C	42	4.2	–	4.1	3.7
	C	47	4.7	–	4.6	4.2
	C	52	5.2	–	5.1	4.7
	C	57	5.7	–	5.6	5.2
	C	62	6.2	–	6.1	5.7
	C	67	6.7	6.2	6.6	6.2
	C	72	7.2	6.2	7.1	6.7
	C	75	7.5	6.2	7.4	7.2
	C	80	8.0	6.2	7.9	7.5

L type

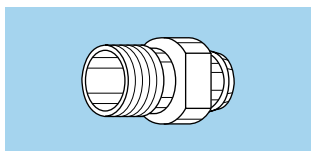


Reference	Collet ø		Cable ø			
	Type	Code	ø A	ø B	max.	min.
<b>2C</b>	L	14	1.4	–	1.3	0.8
	L	27	2.7	–	2.6	2.2
	L	32	3.2	–	3.1	2.7
	L	37	3.7	–	3.6	3.2
	L	42	4.2	–	4.1	3.7
	L	47	4.7	–	4.6	4.2
	L	52	5.2	–	5.1	4.7
	L	57	5.7	–	5.6	5.2
	L	62	6.2	–	6.1	5.7
	L	67	6.7	–	6.6	6.2
	L	72	7.2	–	7.1	6.7
	L	77	7.7	–	7.6	7.2
	L	82	8.2	–	8.1	7.7

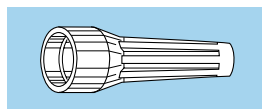
Note: all dimensions are in millimetres.

## Variant (2C series)

### Bend relief for 2C series models with collet



Need to be ordered



Ref.	Collet		Need to be ordered separately (see pages 141 and 142)	
	Type	Code		
<b>2C</b>	Z	C	42 to 80	GMA.2B.0●●.D●
		L	42 to 82	

### Watertight and vacuumtight socket models (2C series)

Model	Reference		
	Watertight	Vacuumtight	
<b>2C</b>	HEP	P	PV
	HGP		

## Accessories (2C series)

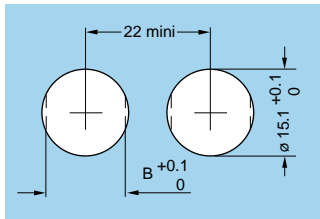
Accessories for the 2C series are identical with the 2G series. Please refer to corresponding pages (page 114).

## Tooling (2C series)

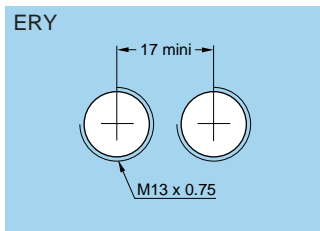
Please consult the «Tooling» section (page 146).

## Panel cut-outs (2C series)

### Panel cut-outs

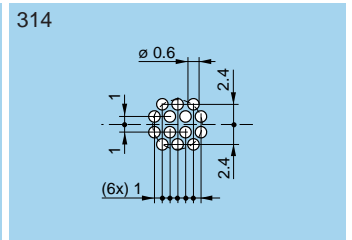
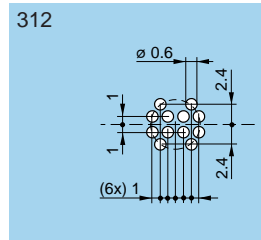
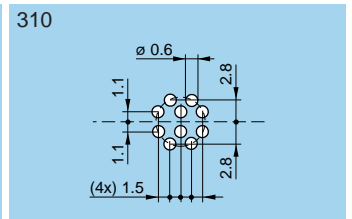
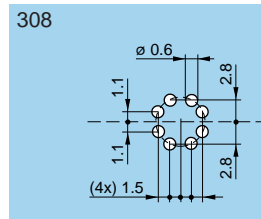


Model	B (mm)	Model	B (mm)
ECP	13.6	HGP	13.9
EEP	13.6	PSA	13.9
ERA	13.9		
FAA	13.9		
HEP	13.9		



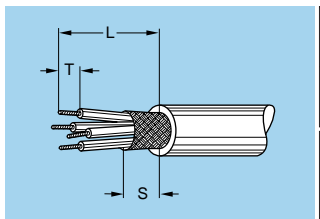
**Note:**  
mounting nut torque:  
6 Nm (1N = 0.102 kg)

### PCB drilling patterns



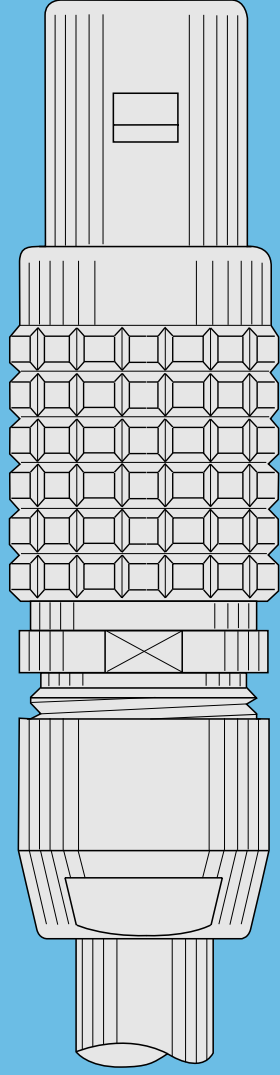
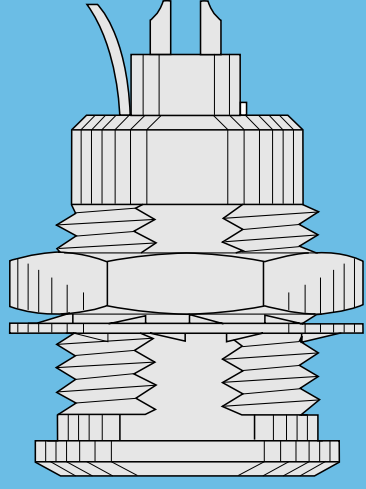
## Cable assembly (2C series)

### Cable stripping lengths (2C series)



Connector		ø contact A (mm)	Cable stripping lengths (mm)		
Series	Type		L	S	T
2C	302	1.6	11	8	3
	303/304/306	1.3	11	8	3
	308/310/312/314	0.7	11	8	3

**Note:** the tolerances on these dimensions are: L:  $\pm 0.5$  mm; S:  $\pm 0.5$  mm; T:  $\pm 0.2$  mm.



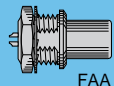
**1D SERIES (quadrax)**

# 1D Series

1D series QUADRAX connectors have four concentric contacts insulated from the connector shell. Specially developed for major radio and television channels, this new connector type provides the possibility of blind mating with the full security of the LEMO Push-Pull self-latching system.

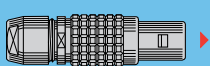
## Metal housing models (page 125)

### Fixed plug

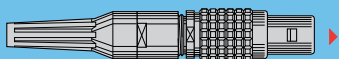


FAA

### Straight plugs

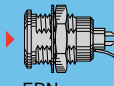


FFA



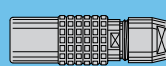
FFA

### Fixed socket

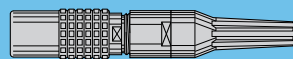


ERN

### Free sockets

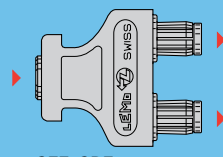


PCA



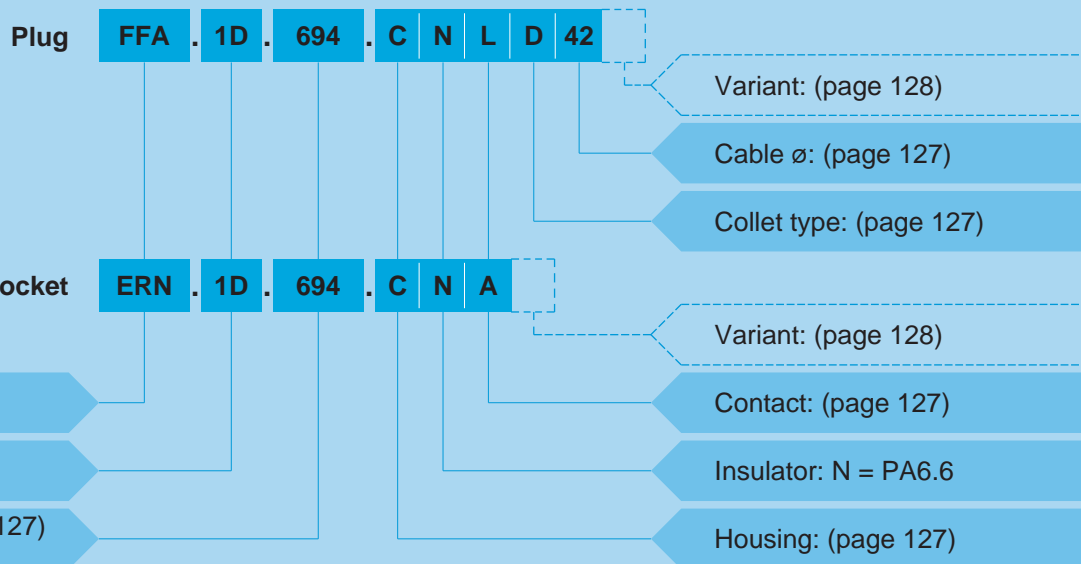
PCA

### Bridge plug



CFF, CRF

## Part Numbering System



## Part Number Example

### Straight plug with cable collet:

**FFA.1D.694.CNLD42** = straight plug with cable collet, 1D series, quadrax type, outer shell in chrome-plated brass, PA6.6 insulator, female solder contacts, D type collet for 4.2 mm diameter cable.

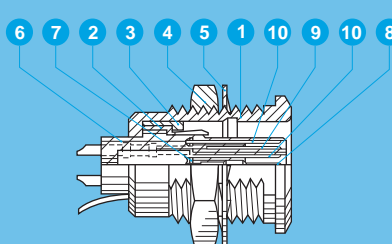
### Fixed socket:

**ERN.1D.694.CNA** = fixed socket, 1D series, quadrax type, outer shell in chrome-plated brass, PA6.6 insulator, male solder contacts.

## Part Section Showing Internal Components

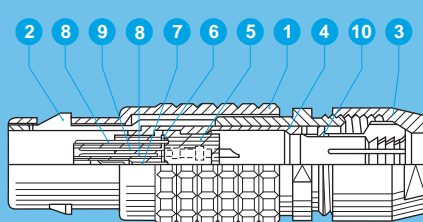
### Fixed socket

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



### Straight plug

- 1 outer shell
- 2 latch sleeve
- 3 collet nut
- 4 split centre-piece
- 5 insulator
- 6 printed circuit
- 7 female contact
- 8 male intermediate contact
- 9 female intermediate contact
- 10 collet



# Metal housing models

## Technical Characteristics

### Mechanical and Climatical

Characteristics	Value	Standard
Endurance	> 1000 cycles	IEC 60512-5 test 9a
Temperature range <sup>1)</sup>	-40° C, +120° C	
Salt spray corrosion test	> 144h	IEC 60512-6 test 11f
Protection index	IP50	IEC 60529

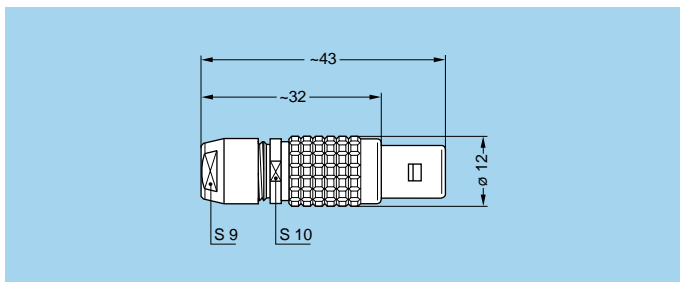
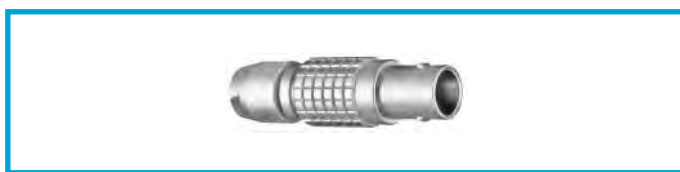
**Note:**

<sup>1)</sup> for bridge plug: -40° C, +80° C

Detailed electrical characteristics, as well as materials and treatment are presented in the chapter Technical Characteristics on page 171.

### Electrical

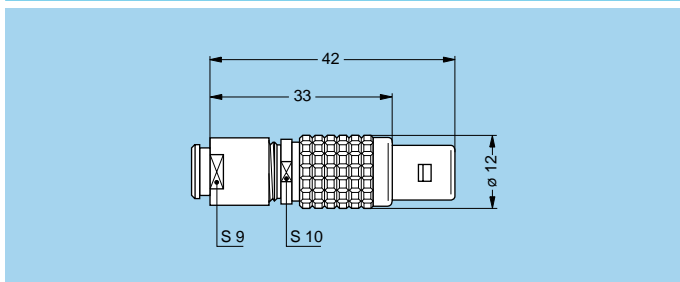
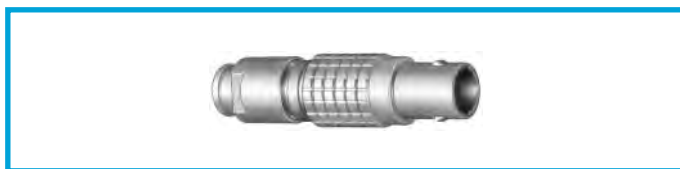
Characteristics	Value	Standard	
Insulation resistance	> 10 <sup>11</sup> Ω	IEC 60512-2 test 3a	
Insul. res. after 48h 95%RH	> 10 <sup>10</sup> Ω	IEC 60512-2 test 3a	
Screening efficiency	at 10 MHz	> 70 dB	IEC 60169-1-3
	at 1 GHz	> 35 dB	IEC 60169-1-3
Contact resistance	< 20mΩ	IEC 60512-2 test 2a	



### FFA Straight plug, cable collet

Part number
FFA.1D.694.CNLD42
FFA.1D.694.CNLD52
FFA.1D.694.CNLD62
FFA.1D.694.CNLD72
FFA.1D.694.CNLD76

Cable assembly (page 128)

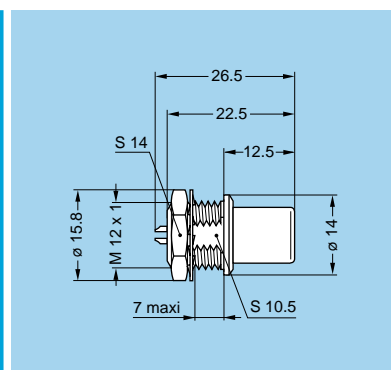


### FFA Straight plug, cable collet and nut for fitting a bend relief

Part number
FFA.1D.694.CNLD42Z
FFA.1D.694.CNLD52Z
FFA.1D.694.CNLD62Z
FFA.1D.694.CNLD72Z

Cable assembly (page 128)

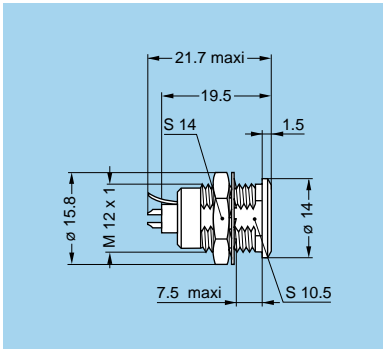
**Note:** The bend relief must be ordered separately (see page 141).



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

Part number
FAA.1D.694.CNL

Panel cut-out (page 128)

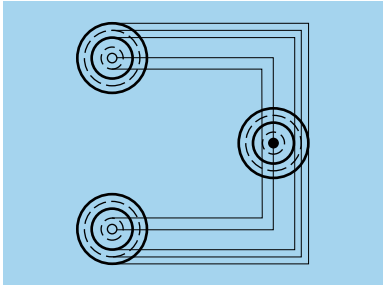


### ERN Fixed socket nut fixing, with earthing tag

Part number

ERN.1D.694.CNA

Panel cut-out (page 128)



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

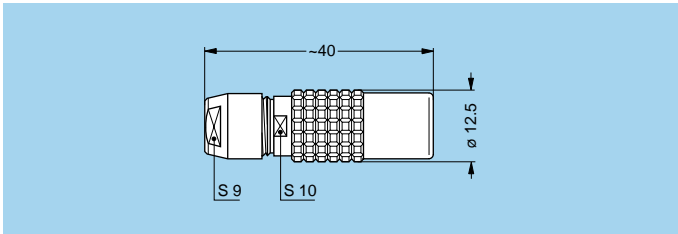
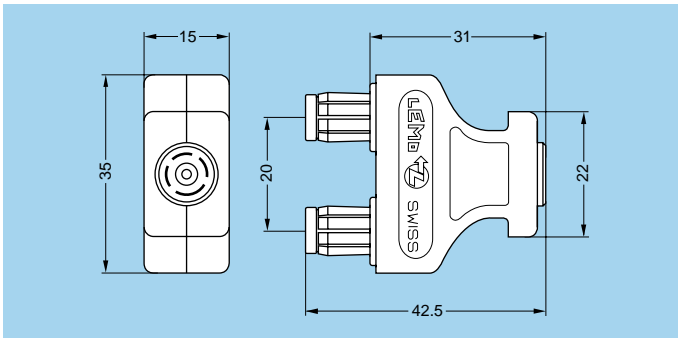
### CRF Bridge plug with two non-latching plugs with monitoring output

Part number

CFF.1D.694.PNMG

CRF.1D.694.PNFG

**Note:** the last letter (G) of the part number indicates the grey colour of the housing. For other colours, replace this letter (G) by the one corresponding to the required colour.



### PCA Free socket, cable collet

Part number

PCA.1D.694.CNAD42

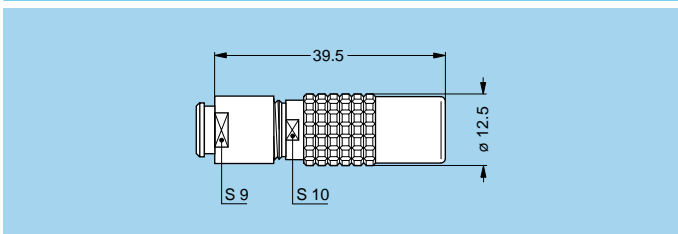
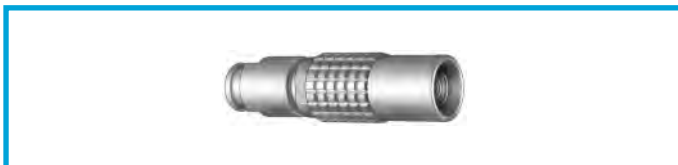
PCA.1D.694.CNAD52

PCA.1D.694.CNAD62

PCA.1D.694.CNAD72

PCA.1D.694.CNAD76

Cable assembly (page 128)



### PCA Free socket, cable collet and nut for fitting a bend relief

Part number

PCA.1D.694.CNAD42Z

PCA.1D.694.CNAD52Z

PCA.1D.694.CNAD62Z

PCA.1D.694.CNAD72Z

Cable assembly (page 128)

**Note:** The bend relief must be ordered separately (see page 141).



## Insert configuration (1D series)

<p>Male solder contacts</p>	<p>Female solder contacts</p>	Reference	Number of contacts	Contact type	Test voltage (kV rms) <sup>1) 2)</sup>	Test voltage (kV dc) <sup>1) 2)</sup>	Rated current (A) <sup>1)</sup>
		694	4	Solder	0.42	0.6	0.5

**Note:** 1) see calculation method, caution and suggested standard on page 178.  
2) lowest measured value; contact to contact or contact to shell.

## Housings (1D series)

Ref.	Outer shell and collet nut		Latch sleeve + earthing crown		Other metallic components		Remarks	Note
	Material	Surf. treatment	Material	Surf. treatment	Material	Surf. treatment		
C	Brass	chrome	brass/bronze	nickel	brass	nickel		●
P	PA.6	-	brass/bronze	nickel	brass	nickel	Only for CFF and CRF bridge plug <sup>1)</sup>	●

**Note:** detailed characteristics of these materials and treatments are presented on page 171. <sup>1)</sup> see «variant» for the colour.

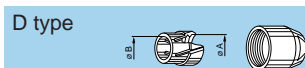
- First choice alternative
- Special order alternative

## Contacts (1D series)

Ref.	Contact type	Remarks
A	Male solder center contact	For sockets
L	Female solder center contact	For plugs

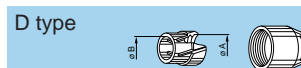
## Collets (1D series)

### D type collets for 1D series



	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
1D	D	42	4.2	-	4.0	3.1	
	D	52	5.2	-	5.0	4.1	
	D	62	6.2	-	6.0	5.1	

### D type collets for 1D series

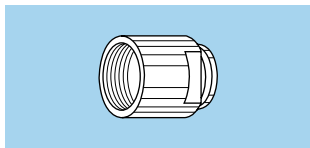


	Reference		Collet ø		Cable ø		Notes
	Type	Code	ø A	ø B	max.	min.	
1D	D	72	7.2	6.7	7.0	6.1	
	D	76	7.6	6.7	7.5	7.1	1)

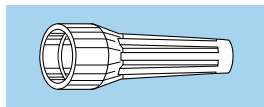
**Note:** <sup>1)</sup> these collets cannot be used for connector models with nut for fitting a bend relief. All dimensions are in millimetres.

## Variant (1D series)

### Bend relief for 1D series models with collet



#### Need to be ordered



1D	Ref.	Collet	
		Type	Code
	Z	D	42 to 72

Need to be ordered separately (see pages 141 and 142)
GMA.1B.●●●●●●

### Colour of the bridge plug shells

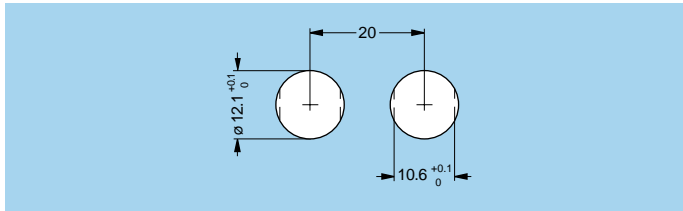
Reference	Colour
A	blue
B	white
G	grey
J	yellow
M	brown
N	black
R	red
V	green

## Accessories and Tooling (1D series)

Accessories and tooling for the 1D series are identical with the 1B series. Please refer to corresponding pages (page 135 and 146).

## Panel cut-outs (1D series)

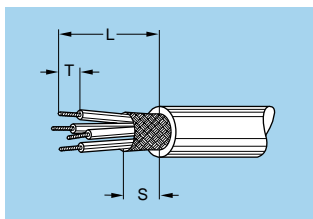
### Panel cut-out



**Note:** mounting nut torque: 4.5 Nm (1N = 0.102 kg)  
When connectors are assembled with double panel washers or insulating washers the mounting nut torque is 4 Nm.

## Cable assembly (1D series)

### Cable stripping lengths (1D series)



Connector		Ø contact A (mm)	Cable stripping lengths (mm)		
Series	Type		L	S	T
1D	694	-	14	8	3

**Note:** the tolerances on these dimensions are: L: ± 0.5 mm; S: ± 0.5 mm; T: ± 0.2 mm.