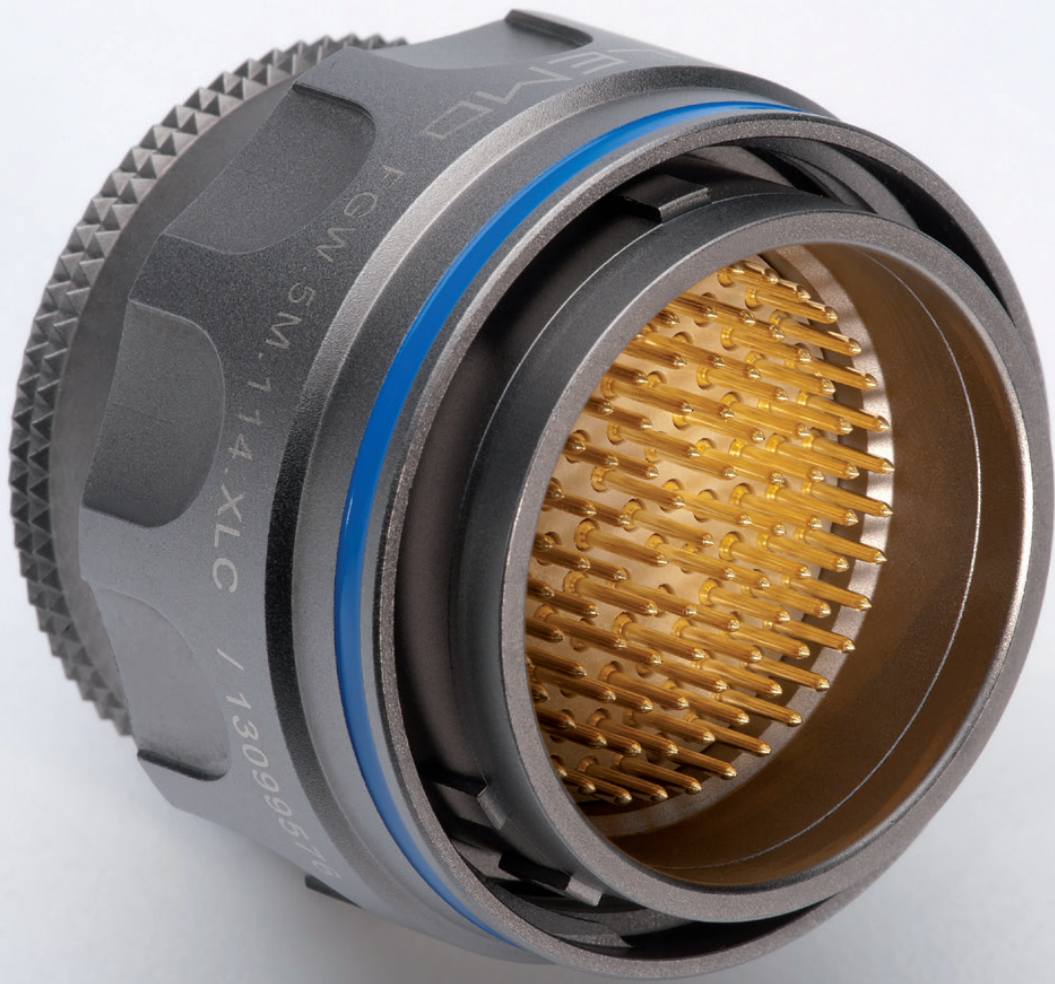


M SERIES CONNECTORS  
RATCHET COUPLING

 SERIES



 **LEMO**



## Introduction

This catalogue gives the complete description of LEMO M series connectors. M series connectors are lightweight triple-start ratchet coupling type connectors designed for avionics, aerospace, military, security, motorsport and heavy duty applications.

The LEMO manufacturing programme has been extended to almost 40 series divided into 7 product families with specific mating and environmental characteristics. Each series includes a wide variety of plug, socket and coupler models, available in contact configurations adapted to all round cables. Watertight models are also available. Since LEMO connectors are perfectly screened and designed to guarantee very low resistance to shell electrical continuity, they are particularly adapted to applications where electromagnetic compatibility (EMC) is important.

## Technical Characteristics

### Materials and Treatments

Component	Shell material code			Material (Standard)	Surface treatment ( $\mu\text{m}$ )				Notes
	I	X	C		chrome	nickel		gold	
						I	X		
Outer shell			●	Brass (UNS C 38500)	0.3	–	–	–	
	●	●		Aluminium alloy (AA 6262A or AA 6023)	–	14	5	–	1)
Conical nut			●	Brass (UNS C 38500)	0.3	–	–	–	
	●	●		Aluminium alloy (AA 6262A or AA 6023)	–	14	5	–	1)
Earthing crown	●	●	●	Bronze (UNS C 54400) or special brass	–	–	–	1.5	
Coupling nut			●	Brass (UNS C 38500)	–	–	3	–	–
	●	●		Aluminium alloy (AA 6262A or AA 6023)	–	14	3	–	1)
Ratchet	●	●	●	Special PEEK	–				
Hexagonal nut			●	Brass (UNS C 38500)	–	–	3	–	
	●	●		Aluminium alloy (AA 6262A or AA 6023)	–	–	5	–	
Male crimp contact	●	●	●	Brass (UNS C 34500)	–	–	–	1.0	–
Female crimp contact	●	●	●	Bronze (UNS C 54400)	–	–	–	1.5	–
Clips	●	●	●	Cu-Be or special steel	without treatment				
Insulator	●	●	●	PEEK	–				
O-ring			●	Silicone	–				
	●	●		FPM/FKM (Viton®)	–				
Sealing resin	●	●	●	Epoxy (Araldite® or Stycast®)	–				
Cable rear seal	●	●	●	Fluorosilicone	–				
Spring	●	●	●	Stainless steel	–				

**Notes:** standards for surface treatment are as follows: chrome-plated SAE AMS 2460; nickel-plated SAE AMS QQ N 290 or MIL DTL 32119; gold-plated ISO 27874. <sup>1)</sup> anthracite colour.

## Environmental performance

Characteristics	Value	IEC international	MIL-spec tests
Operating temperature (mated)	-55°C/+200°C <sup>1)</sup> (HE● model: -20°C/+80°C)		
	-20°C/+200°C <sup>2)</sup> (HE● model: -20°C/+80°C)		
Ingress protection index	IP 68 (at 2 m, 15Hr)	IEC 60529	
Fungus	Satisfied - by material analysis		MIL-STD 810F-508.5
Flammability	60 sec. front and back face		EIA-364-104A
Fluid contamination <sup>3)</sup>	Fuels, gasoline, hydraulic oils, solvents, de-icing		MIL-STD-810F method 504
Sand and dust <sup>4)</sup>	6 hr, 55°C, blowing < 150 μm dust		MIL-STD 810F-510.4
Lightning strike	10 K amps - 6 times		EIA-364-75
Altitude-low temp <sup>5)</sup>	-65°C; 40'000 feet and 400 VAC		EIA-364-105A
Salt fog <sup>6)</sup>	Alum. shell (up to 500Hr), Brass shell (1000Hr)	IEC 60512-6 test 11f	EIA-364-26
Thermal shock	5 cycles: -65°C to +150°C	IEC 60512-11-4	EIA-364-32 test condition IV
Altitude immersion	No moisture on contacts		EIA-364-03
Humidity	21 days at 95%	IEC 60068-2	EIA-364-31 method IV

### Note:

<sup>1)</sup> Shell material code C + Silicone O-ring (see page 1).

<sup>2)</sup> Shell material code I/X + FPM O-ring (see page 1).

<sup>3)</sup> Connectors immersed at both 70°C and 25°C according to specification. Connectors are then inspected, no visual signs of damage seen.

Fuels: Kerosene, JP4, (Nato F40) at 70°C +/- 2°C. Gasoline: ASTM 4814. Hydraulic oils: Mineral oil based MIL-H-5606.

Solvents: Isopropanol. De-icing fluids: 25% ethylene glycol.

<sup>4)</sup> No signs of damage, connectors opened and closed without difficulty. Dust or sand was not inside connector.

<sup>5)</sup> Wired mated connectors = no voltage breakdown, shell to all contacts (connected together) w/400 VAC after 1 hour at 65° C at 40'000 feet altitude.

<sup>6)</sup> Corrosion resistance. Inspection: salt deposits shall be removed by gentle wash in running water with light brushing using soft brush.

Aluminium Shell (material code: X) max: 48 hours, (material code: I) max: 500 hours. Brass shell (material code: C) over 1000 hours.

## Electrical performance

Characteristics	Value	IEC international	MIL-spec tests
Insulation resist. (at ambient temp.) <sup>6)</sup>	> 10 <sup>12</sup> Ω, > 10 <sup>10</sup> Ω (after humidity)	IEC 60512-2 test 3a	EIA-364-21
Dielectric withstanding volt. (sea level)	See table page 25, 26, 27	IEC 60512-2 test 4a	EIA-364-20
Contact resistance	See table below <sup>7)</sup>	IEC 60512-2 test 2a	EIA-364-06
Current rating	See insulator configuration page 25, 26, 27	IEC 60512-3 test 5a	
Shell to shell conductivity	< 1.5m Ω	IEC 60512-2-6	EIA-364-83
Shielding effectiveness, low frequency	≥ 80 dB up to 1GHz		EIA-364-66
Shielding effectiveness, high frequency	≥ 70 dB (3GHz), ≥ 58 dB (6GHz), ≥ 40 dB (10GHz)		EIA-364-66

**Note:** <sup>6)</sup> After humidity test: 21 days at 95% RH according to IEC 60068-2. Insulation resistance measured between the contacts and contact/shell.

Contact resistance <sup>7)</sup> IEC 60512-2 test 2a				Value
0.5	0.7	0.9	1.3	∅ A (mm)
≤ 8.7	≤ 6.1	≤ 4.8	≤ 3.6	mΩ

**Notes:** <sup>7)</sup> after 5000 mating cycles and the salt spray test according to IEC 60512-6 test 11 f.

## Mechanical performance

Characteristics	Value	IEC international	MIL-spec tests
Endurance	3000 cycles	IEC 60512-5 test 9a	EIA-364-09
Gunfire vibration	25 to 2000 Hz, 3 axis (Apache helicopter)		MIL-STD-810F method 519.5
Vibration-Sine <sup>8)</sup>	30 g, 3 axis, 12 hr		MIL-STD-202 method 204-G
Vibration-Random	50-2000 Hz, 37.8 g rms-3 axes; 4h amb	IEC 60512-6-4	EIA-364-28 test cond. V letter I
Shock	300 g - 3 msec	IEC 60512-6-3	EIA-364-27 condition D
Acceleration	50 g acceleration		MIL-STD-1344 - 2011-1, A
Contact retention	> 22 N ( $\sigma$ 0.7mm), > 30N ( $\sigma$ 0.9 mm)	IEC 60512-8 test 15a	
Torque	See table below		

**Note:** <sup>8)</sup> Amplitude: 30G. Frequency: 10 to 2000 Hz. Time per axis: 4 hours (X, Y, Z). No signal discontinuity above 1  $\mu$ s.

Series	Coupling torque tightning (N.cm)	Coupling torque untightning (N.cm)	Series	Coupling torque tightning (N.cm)	Coupling torque untightning (N.cm)
<b>MM</b>	8	4	<b>TM</b>	26	30
<b>0M</b>	4	5	<b>4M</b>	26	25
<b>1M</b>	10	11	<b>LM</b>	48 <sup>9)</sup>	43
<b>2M</b>	20	14	<b>5M</b>	91 <sup>9)</sup>	54
<b>3M</b>	34	29			

**Note:** <sup>9)</sup> Higher contact density = larger torque force.

# M Series

The M Series connector offers a new innovative design for avionics, aerospace, military, security, motorsport and heavy duty applications.

Made of high-strength aluminium, this connector is one of the lightest and most compact of the LEMO product line. A one-grip ratchet screw system enables quick and secure coupling of the connectors. The arctic grip makes it easy to manipulate the connector while wearing gloves or when the connector is located in a difficult to access area.

### Features

- Ratchet-coupling mechanism
- Compact design for space savings
- Oil and fuel resistant
- 360° screening for full EMC shielding
- Colour coding / keying
- Scoop proof
- Threaded for MIL-DTL-38999L backshell
- Quick mating: less than 3/4 turn to seat
- Lightweight
- High vibration and shock resistance
- Sealed to IP68 when mated
- Reverse gender configuration
- Pin configuration from 2 to 114 contacts

### Metal housing models (page 6)

#### Straight plugs

#### Fixed sockets

#### Free sockets



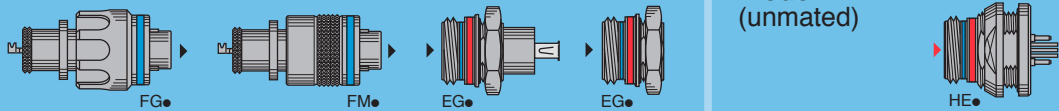
### USB models (page 24)

#### Straight plugs

#### Fixed sockets

### Watertight model (unmated)

#### Fixed socket

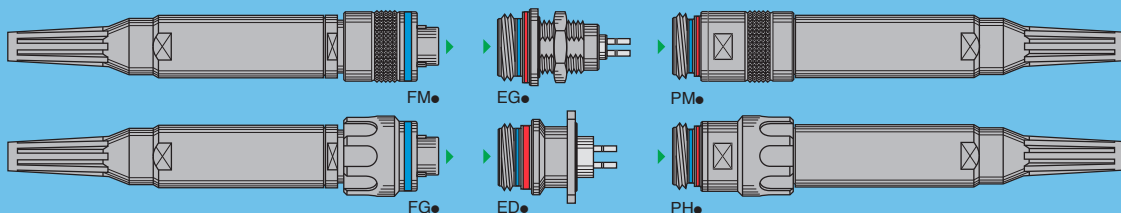


### Fibre optic models (page 21)

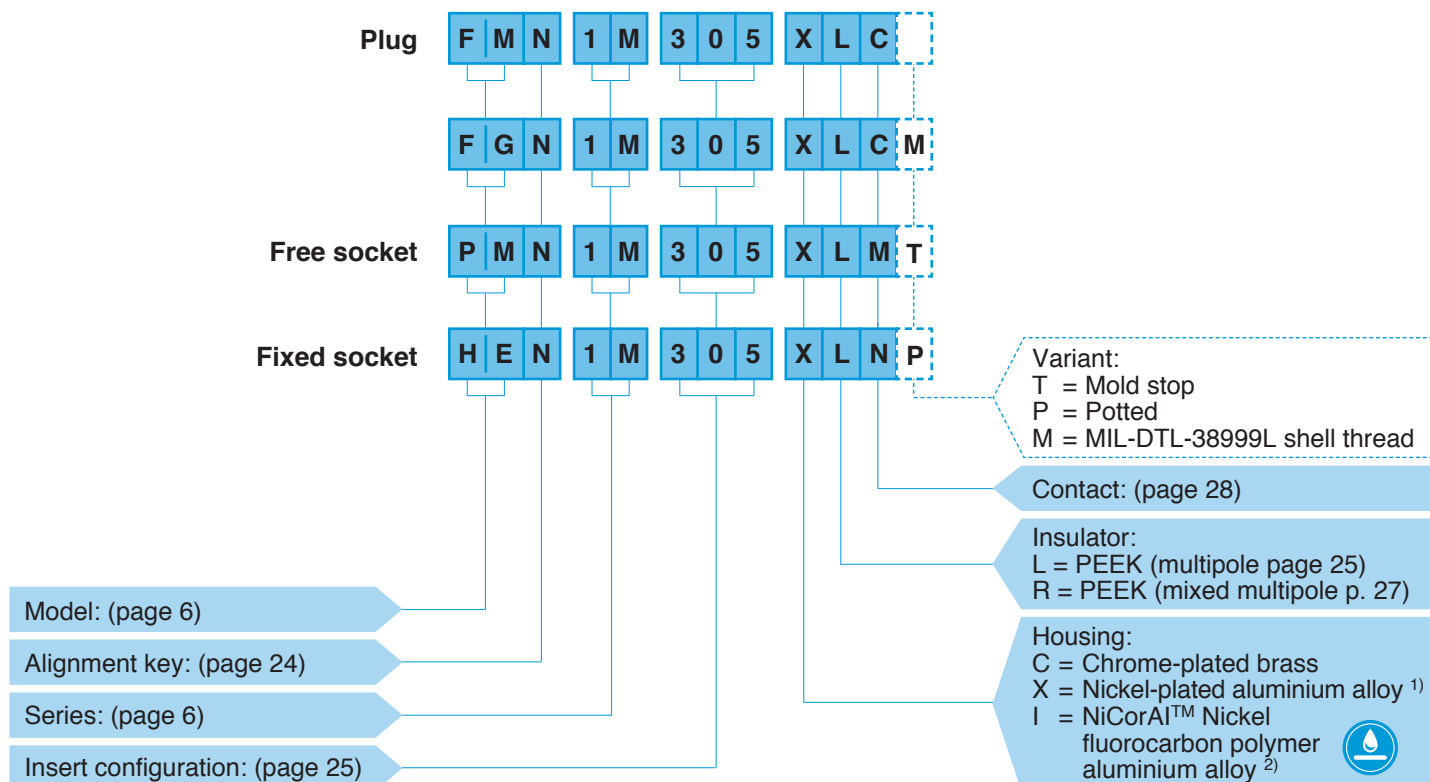
#### Straight plugs

#### Fixed sockets

#### Free sockets



## Part Numbering System



**FMN.1M.305.XLC** = straight plug with key (N), 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, male crimp contacts.

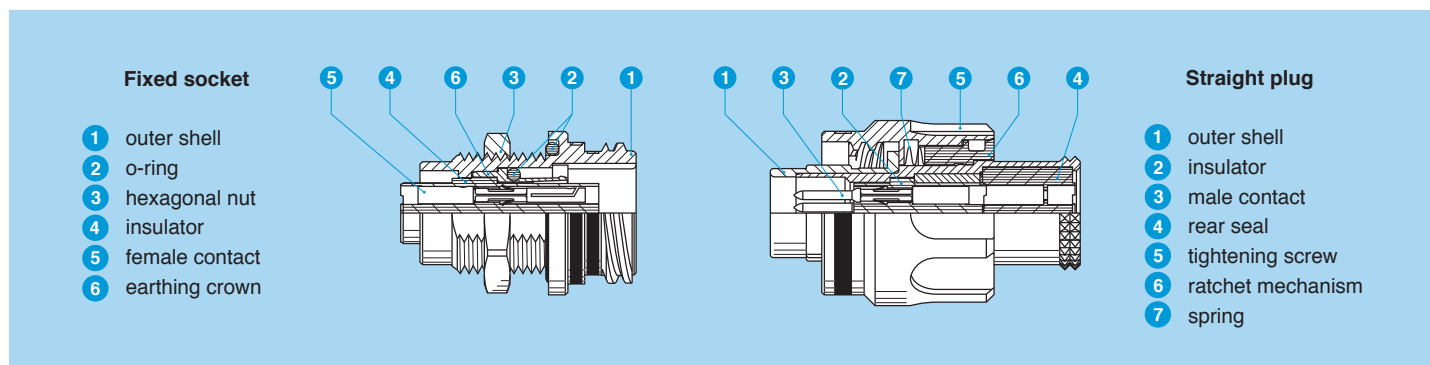
**FGN.1M.305.XLCM** = straight plug with key (N), arctic grip, 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, male crimp contacts and with MIL-DTL-38999L thread for additional backshell (not supplied).

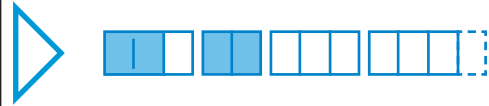
**PMN.1M.305.XLMT** = free socket with key (N), 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, female crimp contacts and mold stop.

**HEN.1M.305.XLNP** = fixed socket, nut fixing, with key (N), 1M series, multipole type with 5 contacts, outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, female print contacts, watertight.

**Note:** <sup>1)</sup> anthracite colour / 48 hours salt fog resistance. <sup>2)</sup> anthracite colour / 500 hours salt fog resistance RoHS 2/REACH.

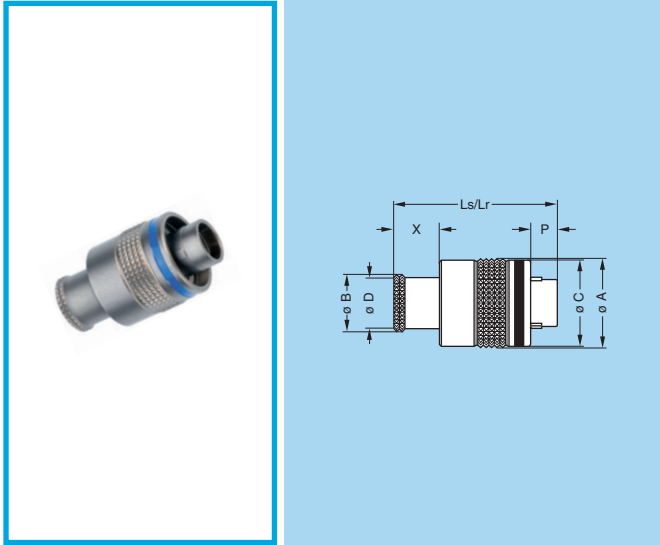
## Part Section Showing Internal Components





## Metal housing models

### FM● Straight plug, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip

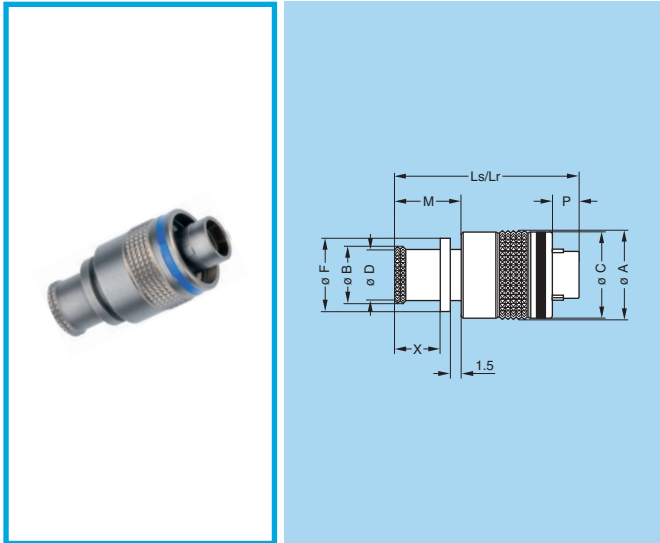


Reference		Dimensions (mm)							
Model	Series	A	B	C	D	Ls	Lr	P	X
FM●	MM	11.1	6.4	10.7	5.6	21.3	21.3	5.5	5.8
FM●	0M	13.1	8.8	12.7	8.0	24.1	24.1	3.9	6.7
FM●	1M	14.6	10.5	14.2	9.7	24.1	24.1	3.9	6.7
FM●	2M	17.6	14.0	17.2	13.0	24.5	24.5	3.9	7.1
FM●	3M	19.6	16.0	19.2	15.0	24.5	24.5	3.9	7.1
FM●	TM	22.5	17.9	22.0	16.7	28.6	28.6	3.4	7.6
FM●	4M	25.0	20.7	24.5	19.5	28.6	28.6	3.4	7.6
FM●	LM	28.5	23.9	28.0	22.7	28.6	28.6	3.4	7.6
FM●	5M	34.0	29.7	33.5	28.5	28.6	28.6	3.4	7.6

Part number example: FMN.1M.305.XLC

Note: Ls = standard gender, Lr = reverse gender

### FM● Straight plug, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip and mold stop

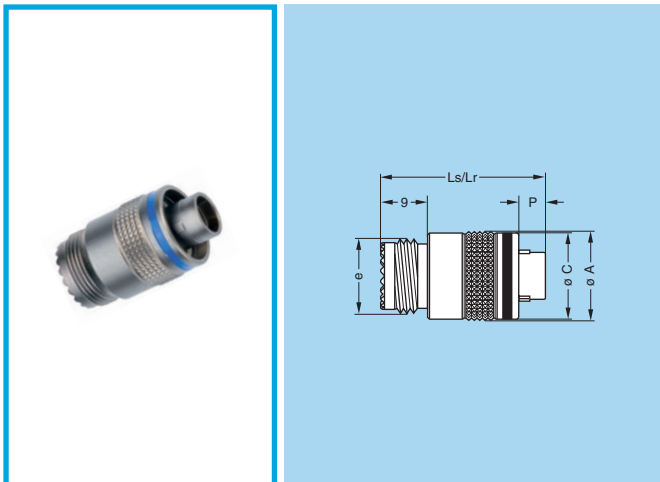


Reference		Dimensions (mm)									
Model	Series	A	B	C	D	F	Ls	Lr	M	P	X
FM●	MM	11.1	6.4	10.7	5.6	7.8	24.3	24.3	8.8	5.5	5.8
FM●	0M	13.1	8.8	12.7	8.0	10.7	27.1	27.1	9.7	3.9	6.7
FM●	1M	14.6	10.5	14.2	9.7	12.4	27.1	27.1	9.7	3.9	6.7
FM●	2M	17.6	14.0	17.2	13.0	15.5	27.5	27.5	10.1	3.9	7.1
FM●	3M	19.6	16.0	19.2	15.0	17.5	27.5	27.5	10.1	3.9	7.1
FM●	TM	22.5	17.9	22.0	16.7	19.8	31.6	31.6	10.6	3.4	7.6
FM●	4M	25.0	20.7	24.5	19.5	22.6	31.6	31.6	10.6	3.4	7.6
FM●	LM	28.5	23.9	28.0	22.7	25.8	31.6	31.6	10.6	3.4	7.6
FM●	5M	34.0	29.7	33.5	28.5	31.4	31.6	31.6	10.6	3.4	7.6

Part number example: FMN.1M.305.XLCT

Note: Ls = standard gender, Lr = reverse gender

### FM● Straight plug, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip and MIL-DTL-38999L shell thread

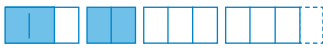


Reference		Dimensions (mm)						
Model	Series	A	C	e	Ls	Lr	P	Code <sup>1)</sup>
FM●	1M	14.6	14.2	M12x1.0	26.4	26.4	3.9	A
FM●	2M	17.6	17.2	M15x1.0	26.4	26.4	3.9	B
FM●	3M	19.6	19.2	M18x1.0	26.4	26.4	3.9	C
FM●	TM	22.5	22.0	M18x1.0	30.0	30.0	3.4	C
FM●	4M	25.0	24.5	M22x1.0	30.0	30.0	3.4	D
FM●	LM	28.5	28.0	M25x1.0	30.0	30.0	3.4	E
FM●	5M	34.0	33.5	M31x1.0	30.0	30.0	3.4	G

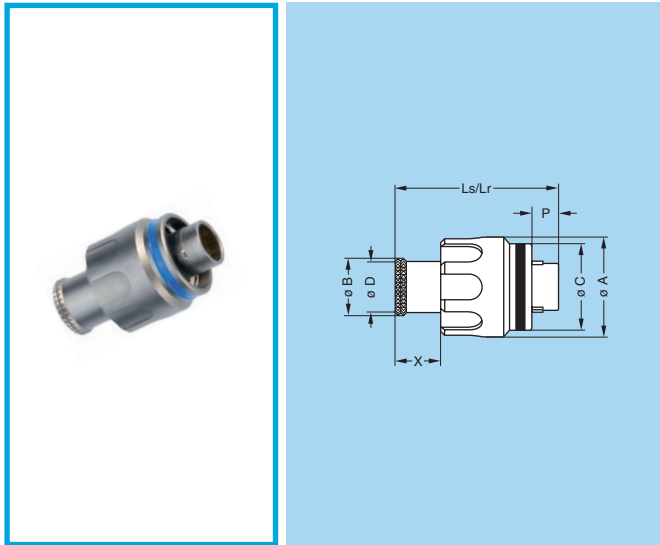
Part number example: FMN.1M.305.XLCM

Note: Ls = standard gender, Lr = reverse gender. <sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).





**FG● Straight plug, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip**

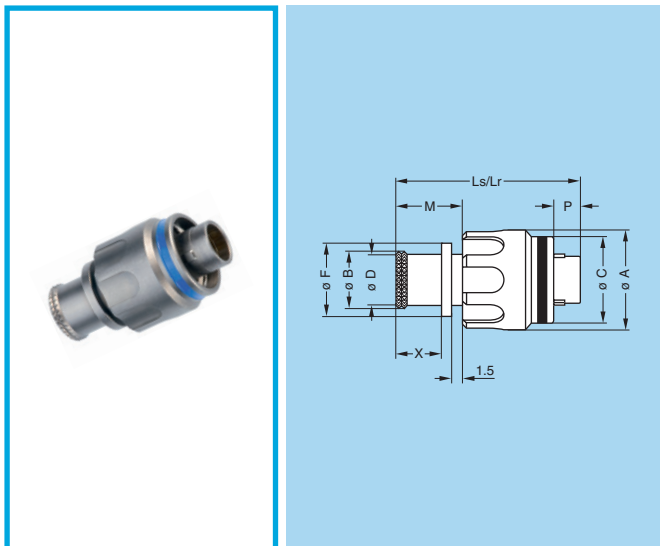


Reference		Dimensions (mm)							
Model	Series	A	B	C	D	Ls	Lr	P	X
FG●	MM	12.0	6.4	10.7	5.6	21.3	21.3	5.5	5.8
FG●	0M	14.4	8.8	12.7	8.0	24.1	24.1	3.9	6.7
FG●	1M	15.9	10.5	14.2	9.7	24.1	24.1	3.9	6.7
FG●	2M	18.9	14.0	17.2	13.0	24.5	24.5	3.9	7.1
FG●	3M	20.9	16.0	19.2	15.0	24.5	24.5	3.9	7.1
FG●	TM	23.4	17.9	22.0	16.7	28.6	28.6	3.4	7.6
FG●	4M	25.9	20.7	24.5	19.5	28.6	28.6	3.4	7.6
FG●	LM	29.4	23.9	28.0	22.7	28.6	28.6	3.4	7.6
FG●	5M	34.9	29.7	33.5	28.5	28.6	28.6	3.4	7.6

Part number example: FGN.1M.305.XLC

Note: Ls = standard gender, Lr = reverse gender

**FG● Straight plug, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip and mold stop**

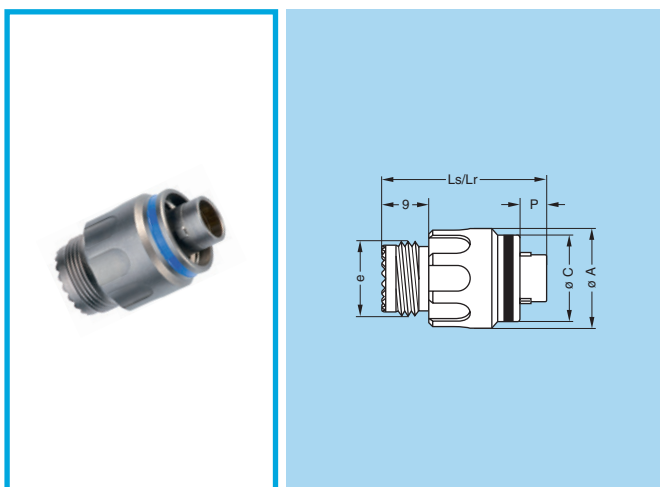


Reference		Dimensions (mm)									
Model	Series	A	B	C	D	F	Ls	Lr	M	P	X
FG●	MM	12.0	6.4	10.7	5.6	7.8	24.3	24.3	8.8	5.5	5.8
FG●	0M	14.4	8.8	12.7	8.0	10.7	27.1	27.1	9.7	3.9	6.7
FG●	1M	15.9	10.5	14.2	9.7	12.4	27.1	27.1	9.7	3.9	6.7
FG●	2M	18.9	14.0	17.2	13.0	15.5	27.5	27.5	10.1	3.9	7.1
FG●	3M	20.9	16.0	19.2	15.0	17.5	27.5	27.5	10.1	3.9	7.1
FG●	TM	23.4	17.9	22.0	16.7	19.8	31.6	31.6	10.6	3.4	7.6
FG●	4M	25.9	20.7	24.5	19.5	22.6	31.6	31.6	10.6	3.4	7.6
FG●	LM	29.4	23.9	28.0	22.7	25.8	31.6	31.6	10.6	3.4	7.6
FG●	5M	34.9	29.7	33.5	28.5	31.4	31.6	31.6	10.6	3.4	7.6

Part number example: FGN.1M.305.XLCT

Note: Ls = standard gender, Lr = reverse gender

**FG● Straight plug, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip and MIL-DTL-38999L shell thread**

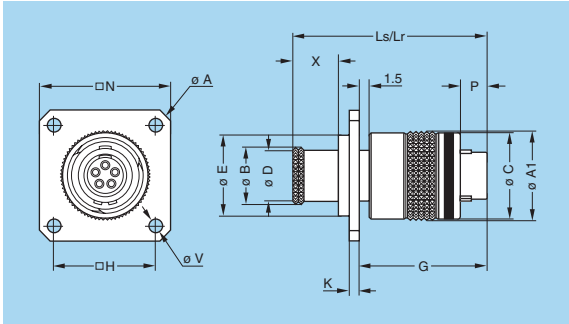


Reference		Dimensions (mm)						
Model	Series	A	C	e	Ls	Lr	P	Code <sup>1)</sup>
FG●	1M	15.9	14.2	M12x1.0	26.4	26.4	3.9	A
FG●	2M	18.9	17.2	M15x1.0	26.4	26.4	3.9	B
FG●	3M	20.9	19.2	M18x1.0	26.4	26.4	3.9	C
FG●	TM	23.4	22.0	M18x1.0	30.0	30.0	3.4	C
FG●	4M	25.9	24.5	M22x1.0	30.0	30.0	3.4	D
FG●	LM	29.4	28.0	M25x1.0	30.0	30.0	3.4	E
FG●	5M	34.9	33.5	M31x1.0	30.0	30.0	3.4	G

Part number example: FGN.1M.305.XLCM

Note: Ls = standard gender, Lr = reverse gender. <sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).

**FX● Straight plug with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip**

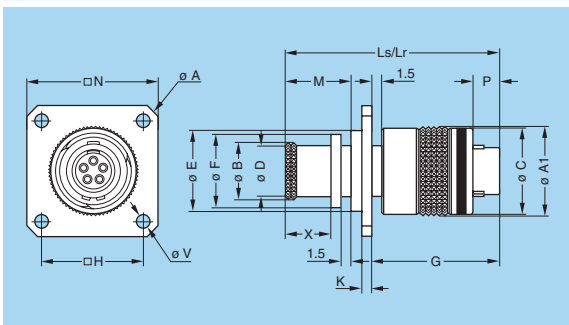


Reference		Dimensions (mm)												
Model	Series	A	A1	B	C	D	E	G	H	K	Ls	Lr	N	V
FX●	MM	21.5	11.1	6.4	10.7	5.6	9.5	17.0	12.0	1.5	26.1	26.1	17.0	2.7
FX●	0M	26.9	13.1	8.8	12.7	8.0	12.2	18.9	15.1	1.5	29.1	29.1	20.6	2.7
FX●	1M	31.4	14.6	10.5	14.2	9.7	13.7	18.9	18.3	1.5	29.1	29.1	23.8	3.3
FX●	2M	34.6	17.6	14.0	17.2	13.0	16.7	18.9	20.6	1.5	29.5	29.5	26.1	3.3
FX●	3M	34.6	19.6	16.0	19.2	15.0	18.7	18.9	20.6	1.5	29.5	29.5	26.1	3.3
FX●	TM	38.0	22.5	17.9	22.0	16.7	21.5	22.5	23.0	2.0	34.8	34.8	28.5	3.3
FX●	4M	40.3	25.0	20.7	24.5	19.5	24.0	22.5	24.6	2.0	34.8	34.8	30.1	3.3
FX●	LM	43.7	28.5	23.9	28.0	22.7	27.5	22.5	27.0	2.0	34.8	34.8	32.5	3.3
FX●	5M	47.0	34.0	29.7	33.5	28.5	33.0	22.5	29.4	2.0	34.8	34.8	37.0	3.3

Part number example: FXN.1M.305.XLC

Note: The dimensions «P» and «X» are the same as the FM● models. Ls = standard gender, Lr = reverse gender.

**FX● Straight plug with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip and mold stop**

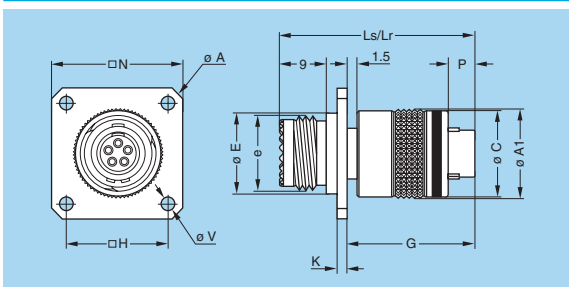


Reference		Dimensions (mm)												
Model	Series	A	A1	B	C	D	E	G	H	K	Ls	Lr	N	V
FX●	MM	21.5	11.1	6.4	10.7	5.6	9.5	17.0	12.0	1.5	29.1	29.1	17.0	2.7
FX●	0M	26.9	13.1	8.8	12.7	8.0	12.2	18.9	15.1	1.5	32.1	32.1	20.6	2.7
FX●	1M	31.4	14.6	10.5	14.2	9.7	13.7	18.9	18.3	1.5	32.1	32.1	23.8	3.3
FX●	2M	34.6	17.6	14.0	17.2	13.0	16.7	18.9	20.6	1.5	32.5	32.5	26.1	3.3
FX●	3M	34.6	19.6	16.0	19.2	15.0	18.7	18.9	20.6	1.5	32.5	32.5	26.1	3.3
FX●	TM	38.0	22.5	17.9	22.0	16.7	21.5	22.5	23.0	2.0	37.8	37.8	28.5	3.3
FX●	4M	40.3	25.0	20.7	24.5	19.5	24.0	22.5	24.6	2.0	37.8	37.8	30.1	3.3
FX●	LM	43.7	28.5	23.9	28.0	22.7	27.5	22.5	27.0	2.0	37.8	37.8	32.5	3.3
FX●	5M	47.0	34.0	29.7	33.5	28.5	33.0	22.5	29.4	2.0	37.8	37.8	37.0	3.3

Part number example: FXN.1M.305.XLCT

Note: The dimensions «F», «M», «P» and «X» are the same as the FM● models. Ls = standard gender, Lr = reverse gender.

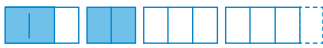
**FX● Straight plug with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip and MIL-DTL-38999L shell thread**



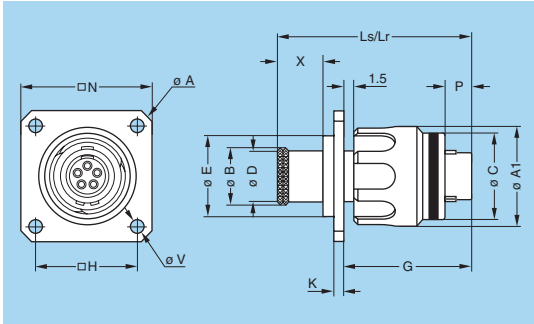
Reference		Dimensions (mm)										
Model	Series	A	A1	C	e	E	G	H	K	Ls	Lr	Code <sup>1)</sup>
FX●	1M	31.4	14.6	14.2	M12x1.0	13.7	18.9	18.3	1.5	31.4	31.4	A
FX●	2M	34.6	17.6	17.2	M15x1.0	16.7	18.9	20.6	1.5	31.4	31.4	B
FX●	3M	34.6	19.6	19.2	M18x1.0	18.7	18.9	20.6	1.5	31.4	31.4	C
FX●	TM	38.0	22.5	22.0	M18x1.0	21.5	22.5	23.0	2.0	36.2	36.2	C
FX●	4M	40.3	25.0	24.5	M22x1.0	24.0	22.5	24.6	2.0	36.2	36.2	D
FX●	LM	43.7	28.5	28.0	M25x1.0	27.5	22.5	27.0	2.0	36.2	36.2	E
FX●	5M	47.0	34.0	33.5	M31x1.0	33.0	22.5	29.4	2.0	36.2	36.2	F

Part number example: FXN.1M.305.XLCM

Note: The dimensions «N» and «V» are the same as the FX● models and the dimension «P» is the same as the FM● models. Ls = standard gender, Lr = reverse gender.  
<sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).



**FW● Straight plug with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip**

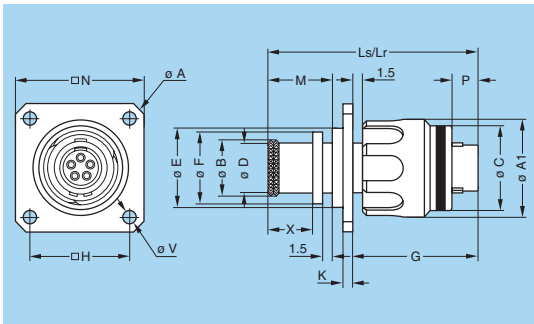


Reference		Dimensions (mm)												
Model	Series	A	A1	B	C	D	E	G	H	K	Ls	Lr	N	V
FW●	MM	21.5	12.0	6.4	10.7	5.6	9.5	17.0	12.0	1.5	26.1	26.1	17.0	2.7
FW●	0M	26.9	14.4	8.8	12.7	8.0	12.2	18.9	15.1	1.5	29.1	29.1	20.6	2.7
FW●	1M	31.4	15.9	10.5	14.2	9.7	13.7	18.9	18.3	1.5	29.1	29.1	23.8	3.3
FW●	2M	34.6	18.9	14.0	17.2	13.0	16.7	18.9	20.6	1.5	29.5	29.5	26.1	3.3
FW●	3M	34.6	20.9	16.0	19.2	15.0	18.7	18.9	20.6	1.5	29.5	29.5	26.1	3.3
FW●	TM	38.0	23.4	17.9	22.0	16.7	21.5	22.5	23.0	2.0	34.8	34.8	28.5	3.3
FW●	4M	40.3	25.9	20.7	24.5	19.5	24.0	22.5	24.6	2.0	34.8	34.8	30.1	3.3
FW●	LM	43.7	29.4	23.9	28.0	22.7	27.5	22.5	27.0	2.0	34.8	34.8	32.5	3.3
FW●	5M	47.0	34.9	29.7	33.5	28.5	33.0	22.5	29.4	2.0	34.8	34.8	37.0	3.3

Part number example: FWN.1M.305.XLC

Note: The dimensions «P» and «X» are the same as the FM● models. Ls = standard gender, Lr = reverse gender.

**FW● Straight plug with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip and mold stop**

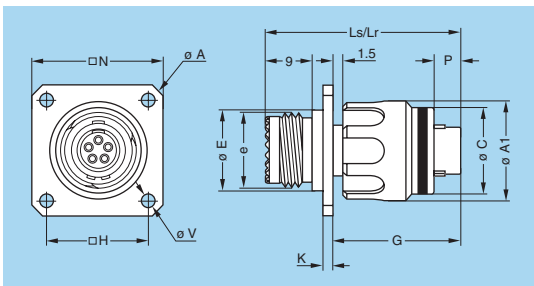


Reference		Dimensions (mm)												
Model	Series	A	A1	B	C	D	E	G	H	K	Ls	Lr	N	V
FW●	MM	21.5	12.0	6.4	10.7	5.6	9.5	17.0	12.0	1.5	29.1	29.1	17.0	2.7
FW●	0M	26.9	14.4	8.8	12.7	8.0	12.2	18.9	15.1	1.5	32.1	32.1	20.6	2.7
FW●	1M	31.4	15.9	10.5	14.2	9.7	13.7	18.9	18.3	1.5	32.1	32.1	23.8	3.3
FW●	2M	34.6	18.9	14.0	17.2	13.0	16.7	18.9	20.6	1.5	32.5	32.5	26.1	3.3
FW●	3M	34.6	20.9	16.0	19.2	15.0	18.7	18.9	20.6	1.5	32.5	32.5	26.1	3.3
FW●	TM	38.0	23.4	17.9	22.0	16.7	21.5	22.5	23.0	2.0	37.8	37.8	28.5	3.3
FW●	4M	40.3	25.9	20.7	24.5	19.5	24.0	22.5	24.6	2.0	37.8	37.8	30.1	3.3
FW●	LM	43.7	29.4	23.9	28.0	22.7	27.5	22.5	27.0	2.0	37.8	37.8	32.5	3.3
FW●	5M	47.0	34.9	29.7	33.5	28.5	33.0	22.5	29.4	2.0	37.8	37.8	37.0	3.3

Part number example: FWN.1M.305.XLCT

Note: The dimensions «F», «M», «P» and «X» are the same as the FM● models. Ls = standard gender, Lr = reverse gender.

**FW● Straight plug with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip and MIL-DTL-38999L shell thread**

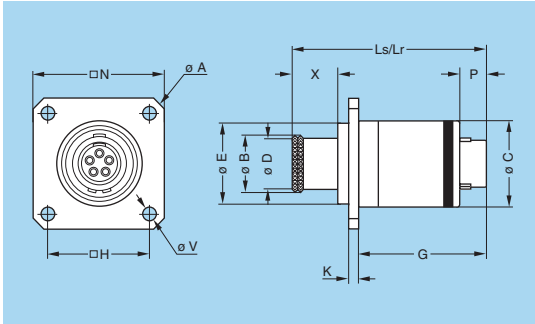


Reference		Dimensions (mm)										
Model	Series	A	A1	C	e	E	G	H	K	Ls	Lr	Code <sup>1)</sup>
FW●	1M	31.4	15.9	14.2	M12x1.0	13.7	18.9	18.3	1.5	31.4	31.4	A
FW●	2M	34.6	18.9	17.2	M15x1.0	16.7	18.9	20.6	1.5	31.4	31.4	B
FW●	3M	34.6	20.9	19.2	M18x1.0	18.7	18.9	20.6	1.5	31.4	31.4	C
FW●	TM	38.0	23.4	22.0	M18x1.0	21.5	22.5	23.0	2.0	36.2	36.2	C
FW●	4M	40.3	25.9	24.5	M22x1.0	24.0	22.5	24.6	2.0	36.2	36.2	D
FW●	LM	43.7	29.4	28.0	M25x1.0	27.5	22.5	27.0	2.0	36.2	36.2	E
FW●	5M	47.0	34.9	33.5	M31x1.0	33.0	22.5	29.4	2.0	36.2	36.2	F

Part number example: FWN.1M.305.XLCM

Note: The dimensions «N» and «V» are the same as the FW● models and the dimension «P» is the same as the FM● models. Ls = standard gender, Lr = reverse gender. <sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).

### FA● Straight plug with square flange, non-coupling, key (N) or keys (P, R, S, T, U, V, W and X)

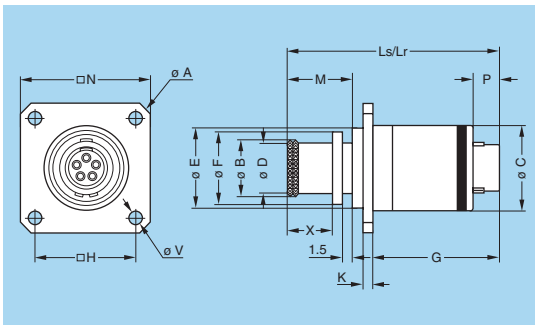


Reference		Dimensions (mm)												
Model	Series	A	B	C	D	E	G	H	K	Ls	Lr	N	P	V
FA●	MM	21.5	6.4	10.7	5.6	9.5	17.0	12.0	1.5	26.1	26.1	17.0	5.5	2.7
FA●	0M	26.9	8.8	12.7	8.0	12.2	18.9	15.1	1.5	29.1	29.1	20.6	3.9	2.7
FA●	1M	31.4	10.5	14.2	9.7	13.7	18.9	18.3	1.5	29.1	29.1	23.8	3.9	3.3
FA●	2M	34.6	14.0	17.2	13.0	16.7	18.9	20.6	1.5	29.5	29.5	26.1	3.9	3.3
FA●	3M	34.6	16.0	19.2	15.0	18.7	18.9	20.6	1.5	29.5	29.5	26.1	3.9	3.3
FA●	TM	38.0	17.9	22.0	16.7	21.5	22.5	23.0	2.0	34.8	34.8	28.5	3.4	3.3
FA●	4M	40.3	20.7	24.5	19.5	24.0	22.5	24.6	2.0	34.8	34.8	30.1	3.4	3.3
FA●	LM	43.7	23.9	28.0	22.7	27.5	22.5	27.0	2.0	34.8	34.8	32.5	3.4	3.3
FA●	5M	47.0	29.7	33.5	28.5	33.0	22.5	29.4	2.0	34.8	34.8	37.0	3.4	3.3

Part number example: FAN.1M.305.XLC

Note: The dimension «X» is the same as the FM● models.  
Ls = standard gender, Lr = reverse gender.

### FA● Straight plug with square flange, non-coupling, key (N) or keys (P, R, S, T, U, V, W and X) with mold stop

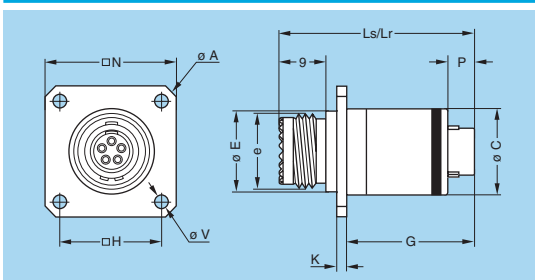


Reference		Dimensions (mm)												
Model	Series	A	B	C	D	E	G	H	K	Ls	Lr	N	P	V
FA●	MM	21.5	6.4	10.7	5.6	9.5	17.0	12.0	1.5	29.1	29.1	17.0	5.5	2.7
FA●	0M	26.9	8.8	12.7	8.0	12.2	18.9	15.1	1.5	32.1	32.1	20.6	3.9	2.7
FA●	1M	31.4	10.5	14.2	9.7	13.7	18.9	18.3	1.5	32.1	32.1	23.8	3.9	3.3
FA●	2M	34.6	14.0	17.2	13.0	16.7	18.9	20.6	1.5	32.5	32.5	26.1	3.9	3.3
FA●	3M	34.6	16.0	19.2	15.0	18.7	18.9	20.6	1.5	32.5	32.5	26.1	3.9	3.3
FA●	TM	38.0	17.9	22.0	16.7	21.5	22.5	23.0	2.0	37.8	37.8	28.5	3.4	3.3
FA●	4M	40.3	20.7	24.5	19.5	24.0	22.5	24.6	2.0	37.8	37.8	30.1	3.4	3.3
FA●	LM	43.7	23.9	28.0	22.7	27.5	22.5	27.0	2.0	37.8	37.8	32.5	3.4	3.3
FA●	5M	47.0	29.7	33.5	28.5	33.0	22.5	29.4	2.0	37.8	37.8	37.0	3.4	3.3

Part number example: FAN.1M.305.XLC

Note: The dimension «X» is the same as the FM● models.  
Ls = standard gender, Lr = reverse gender.

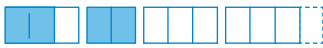
### FA● Straight plug with square flange, non-coupling, key (N) or keys (P, R, S, T, U, V, W and X) with MIL-DTL-38999L shell thread



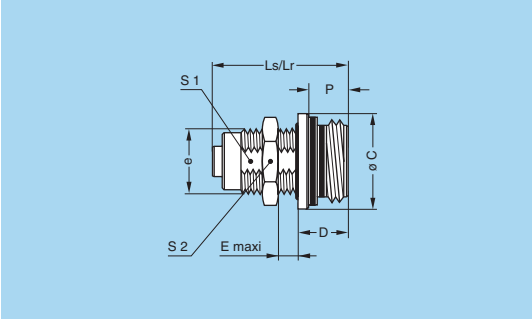
Reference		Dimensions (mm)											Code <sup>1)</sup>
Model	Series	A	C	e	E	G	H	K	Ls	Lr	N		
FA●	1M	31.4	14.2	M12x1.0	13.7	18.9	18.3	1.5	31.4	31.4	23.8	A	
FA●	2M	34.6	17.2	M15x1.0	16.7	18.9	20.6	1.5	31.4	31.4	26.1	B	
FA●	3M	34.6	19.2	M18x1.0	18.7	18.9	20.6	1.5	31.4	31.4	26.1	C	
FA●	TM	38.0	22.0	M18x1.0	21.5	22.5	23.0	2.0	36.2	36.2	28.5	C	
FA●	4M	40.3	24.5	M22x1.0	24.0	22.5	24.6	2.0	36.2	36.2	30.1	D	
FA●	LM	43.7	28.0	M25x1.0	27.5	22.5	27.0	2.0	36.2	36.2	32.5	E	
FA●	5M	47.0	33.5	M31x1.0	33.0	22.5	29.4	2.0	36.2	36.2	37.0	F	

Part number example: FAN.1M.305.XLCM

Note: The dimensions «P» and «V» are the same as the FA● models.  
Ls = standard gender, Lr = reverse gender. <sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).



**EG● Fixed socket, nut fixing, key (N) or keys (P, R, S, T, U, V, W and X)**



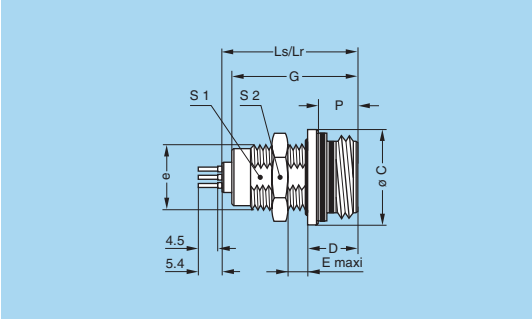
Reference		Dimensions (mm)								
Model	Series	C	D	e	E	Ls	Lr	P	S1	S2
EG●	MM	10.7	5.2	M7x0.5	4.5	15.0	15.0	3.7	6.3	9.0
EG●	0M	12.7	6.8	M9x0.6	5.0	18.3	18.3	5.3	8.2	11.0
EG●	1M	14.2	6.8	M11x1.0	4.5	18.3	18.3	5.3	9.5	13.0
EG●	2M	17.2	6.8	M14x1.0	4.5	18.3	18.3	5.3	12.5	17.0
EG●	3M	19.2	6.8	M16x1.0	4.0	18.3	18.3	5.3	14.5	19.0
EG●	TM	22.0	9.4	M18x1.0	4.0	20.0	21.9	7.9	16.5	22.0
EG●	4M	24.5	9.4	M21x1.0	4.0	20.0	21.9	7.9	19.5	25.0
EG●	LM	28.0	9.4	M24x1.0	4.0	20.0	21.9	7.9	22.5	30.0
EG●	5M	33.5	9.4	M30x1.0	4.0	20.0	21.9	7.9	28.5	36.0

Part number example: EGN.1M.305.XLM

Panel cut-out (page 36).

Note: Ls = standard gender, Lr = reverse gender

**EG● Fixed socket, nut fixing, key (N) or keys (P, R, S, T, U, V, W and X) for printed circuit**



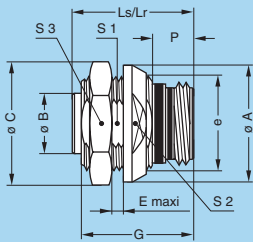
Reference		Dimensions (mm)									
Model	Series	C	D	e	E	G	Ls	Lr	P	S1	S2
EG●	MM	10.7	5.2	M7x0.5	4.5	13.8	15.0	15.0	3.7	6.3	9.0
EG●	0M	12.7	6.8	M9x0.6	5.0	16.8	18.3	18.3	5.3	8.2	11.0
EG●	1M	14.2	6.8	M11x1.0	4.5	16.8	18.3	18.3	5.3	9.5	13.0
EG●	2M	17.2	6.8	M14x1.0	4.5	16.8	18.3	18.3	5.3	12.5	17.0
EG●	3M	19.2	6.8	M16x1.0	4.0	16.8	18.3	18.3	5.3	14.5	19.0
EG●	TM	22.0	9.4	M18x1.0	4.0	18.9	20.0	21.9	7.9	16.5	22.0
EG●	4M	24.5	9.4	M21x1.0	4.0	18.9	20.0	21.9	7.9	19.5	25.0
EG●	LM	28.0	9.4	M24x1.0	4.0	18.9	20.0	21.9	7.9	22.5	30.0
EG●	5M	33.5	9.4	M30x1.0	4.0	18.9	20.0	21.9	7.9	28.5	36.0

Part number example: EGN.1M.305.XLN

Panel cut-out (page 36). PCB drilling pattern (page 37).

Note: Ls = standard gender, Lr = reverse gender

### EC● Fixed socket with two nuts, key (N) or keys (P, R, S, T, U, V, W and X)



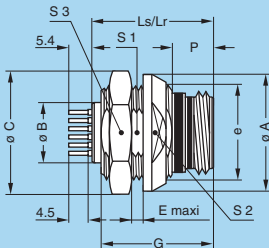
Reference		Dimensions (mm)											
Model	Series	A	B	C	E	e	G	Ls	Lr	P	S1	S2	S3
EC●	MM	14	2.85	13.5	5.0	M10x0.50	13.8	15.0	15.0	3.7	9.0	11.0	12.0
EC●	0M	17	4.72	18.2	5.0	M13x0.75	16.8	18.3	18.3	5.3	11.5	14.0	16.0
EC●	1M	18	5.95	19.2	5.0	M14x1.00	16.8	18.3	18.3	5.3	12.5	16.0	17.0
EC●	2M	21	8.95	21.5	4.0	M17x1.00	16.8	18.3	18.3	5.3	15.5	18.0	19.0
EC●	3M	23	10.95	25.0	4.0	M19x1.00	16.8	18.3	18.3	5.3	17.5	20.0	22.0
EC●	TM	27	12.30	28.0	2.5	M22x1.00	18.9	20.0	21.9	7.9	20.5	23.0	25.0
EC●	4M	29	13.95	34.0	2.5	M24x1.00	18.9	20.0	21.9	7.9	22.5	25.0	30.0
EC●	LM	33	17.95	36.0	2.5	M28x1.00	18.9	20.0	21.9	7.9	26.5	29.0	32.0
EC●	5M	38	22.90	41.0	2.5	M33x1.00	18.9	20.0	21.9	7.9	31.5	34.0	37.0

Part number example: ECN.1M.305.XLM

Panel cut-out (page 36).

Note: Ls = standard gender, Lr = reverse gender. This model is not IP68 (no panel sealing).

### EC● Fixed socket with two nuts, key (N) or keys (P, R, S, T, U, V, W and X) for printed circuit

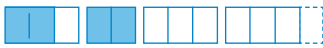


Reference		Dimensions (mm)											
Model	Series	A	B	C	E	e	G	Ls	Lr	P	S1	S2	S3
EC●	MM	14	2.85	13.5	5.0	M10x0.50	13.8	15.0	15.0	3.7	9.0	11.0	12.0
EC●	0M	17	4.72	18.2	5.0	M13x0.75	16.8	18.3	18.3	5.3	11.5	14.0	16.0
EC●	1M	18	5.95	19.2	5.0	M14x1.00	16.8	18.3	18.3	5.3	12.5	16.0	17.0
EC●	2M	21	8.95	21.5	4.0	M17x1.00	16.8	18.3	18.3	5.3	15.5	18.0	19.0
EC●	3M	23	10.95	25.0	4.0	M19x1.00	16.8	18.3	18.3	5.3	17.5	20.0	22.0
EC●	TM	27	12.30	28.0	2.5	M22x1.00	18.9	20.0	21.9	7.9	20.5	23.0	25.0
EC●	4M	29	13.95	34.0	2.5	M24x1.00	18.9	20.0	21.9	7.9	22.5	25.0	30.0
EC●	LM	33	17.95	36.0	2.5	M28x1.00	18.9	20.0	21.9	7.9	26.5	29.0	32.0
EC●	5M	38	22.90	41.0	2.5	M33x1.00	18.9	20.0	21.9	7.9	31.5	34.0	37.0

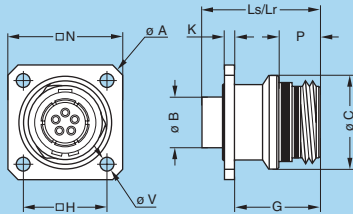
Part number example: ECN.1M.305.XLN

Panel cut-out (page 36). PCB drilling pattern (page 37).

Note: Ls = standard gender, Lr = reverse gender. This model is not IP68 (no panel sealing).



**ED● Fixed socket with square flange, key (N) or keys (P, R, S, T, U, V, W and X)**



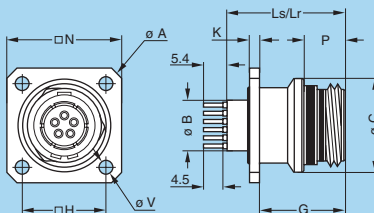
Reference		Dimensions (mm)										
Model	Series	A	B	C	G	H	K	Ls	Lr	N	P	V
ED●	MM	18.6	4.70	10.7	12.3	9.5	1.5	17.0	17.0	14.5	3.7	2.7
ED●	0M	20.6	4.72	12.7	12.8	11.0	1.5	18.3	18.3	16.0	5.3	2.7
ED●	1M	23.8	5.95	14.2	12.8	12.9	1.5	18.3	18.3	18.4	5.3	3.3
ED●	2M	26.9	8.95	17.2	12.8	15.1	1.5	18.3	18.3	20.6	5.3	3.3
ED●	3M	29.0	10.95	19.2	12.8	16.6	1.5	18.3	18.3	22.1	5.3	3.3
ED●	TM	31.4	12.30	22.0	14.5	18.3	2.0	20.0	21.9	23.8	7.9	3.3
ED●	4M	34.6	13.95	24.5	14.5	20.6	2.0	20.0	21.9	26.1	7.9	3.3
ED●	LM	38.0	17.95	28.0	14.5	23.0	2.0	20.0	21.9	28.5	7.9	3.3
ED●	5M	43.7	22.90	33.5	14.5	27.0	2.0	20.0	21.9	32.5	7.9	3.3

**Part number example:** EDN.1M.305.XLM

Panel cut-out (page 36).

**Note:** Ls = standard gender, Lr = reverse gender

**ED● Fixed socket with square flange, key (N) or keys (P, R, S, T, U, V, W and X) for printed circuit**



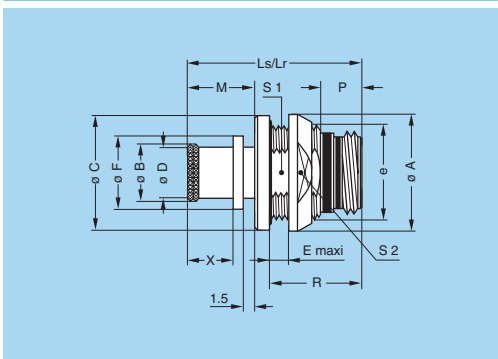
Reference		Dimensions (mm)										
Model	Series	A	B	C	G	H	K	Ls	Lr	N	P	V
ED●	MM	18.6	4.70	10.7	12.3	9.5	1.5	17.0	17.0	14.5	3.7	2.7
ED●	0M	20.6	4.72	12.7	12.8	11.0	1.5	18.3	18.3	16.0	5.3	2.7
ED●	1M	23.8	5.95	14.2	12.8	12.9	1.5	18.3	18.3	18.4	5.3	3.3
ED●	2M	26.9	8.95	17.2	12.8	15.1	1.5	18.3	18.3	20.6	5.3	3.3
ED●	3M	29.0	10.95	19.2	12.8	16.6	1.5	18.3	18.3	22.1	5.3	3.3
ED●	TM	31.4	12.30	22.0	14.5	18.3	2.0	20.0	21.9	23.8	7.9	3.3
ED●	4M	34.6	13.95	24.5	14.5	20.6	2.0	20.0	21.9	26.1	7.9	3.3
ED●	LM	38.0	17.95	28.0	14.5	23.0	2.0	20.0	21.9	28.5	7.9	3.3
ED●	5M	43.7	22.90	33.5	14.5	27.0	2.0	20.0	21.9	32.5	7.9	3.3

**Part number example:** EDN.1M.305.XLN

Panel cut-out (page 36). PCB drilling pattern (page 37).

**Note:** Ls = standard gender, Lr = reverse gender

**PE● Fixed socket, nut fixing, key (N) or keys (P, R, S, T, U, V, W and X) with mold stop (back panel mounting)**



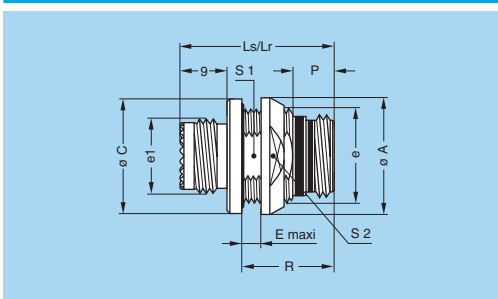
Reference		Dimensions (mm)												
Model	Series	A	B	C	D	E	e	Ls	Lr	M	P	R	S1	S2
PE●	MM	14	6.4	13.8	5.6	4.0	M10x0.50	21.4	21.4	8.8	3.7	10.5	9.0	11
PE●	0M	17	8.8	16.8	8.0	5.0	M13x0.75	25.6	25.6	9.7	5.3	13.8	11.5	14
PE●	1M	18	10.5	17.8	9.7	5.0	M14x1.00	25.6	25.6	9.7	5.3	13.8	12.5	16
PE●	2M	21	14.0	20.8	13.0	5.0	M17x1.00	26.0	26.0	10.1	5.3	13.8	15.5	18
PE●	3M	23	16.0	22.8	15.0	5.0	M19x1.00	26.0	26.0	10.1	5.3	13.8	17.5	20
PE●	TM	27	17.9	25.8	16.7	4.0	M22x1.00	29.5	30.1	10.6	7.9	16.9	20.5	23
PE●	4M	29	20.7	27.8	19.5	4.0	M24x1.00	29.5	30.1	10.6	7.9	16.9	22.5	25
PE●	LM	33	23.9	31.8	22.7	4.0	M28x1.00	29.5	30.1	10.6	7.9	16.9	26.5	29
PE●	5M	38	29.7	36.8	28.5	4.0	M33x1.00	29.5	30.1	10.6	7.9	16.9	31.5	34

Part number example: PEN.1M.305.XLMT

Panel cut-out (page 36).

**Note:** this model is only available with mold stop. The dimensions «F» and «X» are the same as the PB● models. Ls = standard gender, Lr = reverse gender.

**PE● Fixed socket, nut fixing, key (N) or keys (P, R, S, T, U, V, W and X) with MIL-DTL-38999L shell thread**



Reference		Dimensions (mm)										
Model	Series	A	C	E	e	e1	Ls	Lr	R	S1	S2	Code <sup>1)</sup>
PE●	1M	18	17.8	5.0	M14x1.0	M12x1.0	26.4	26.4	13.8	12.5	16	A
PE●	2M	21	20.8	5.0	M17x1.0	M15x1.0	26.4	26.4	13.8	15.5	18	B
PE●	3M	23	22.8	5.0	M19x1.0	M18x1.0	26.4	26.4	13.8	17.5	20	C
PE●	TM	27	25.8	4.0	M22x1.0	M18x1.0	28.2	30.1	16.9	20.5	23	C
PE●	4M	29	27.8	4.0	M24x1.0	M22x1.0	28.2	30.1	16.9	22.5	25	D
PE●	LM	33	31.8	4.0	M28x1.0	M25x1.0	28.2	30.1	16.9	26.5	29	E
PE●	5M	38	36.8	4.0	M33x1.0	M31x1.0	28.2	30.1	16.9	31.5	34	G

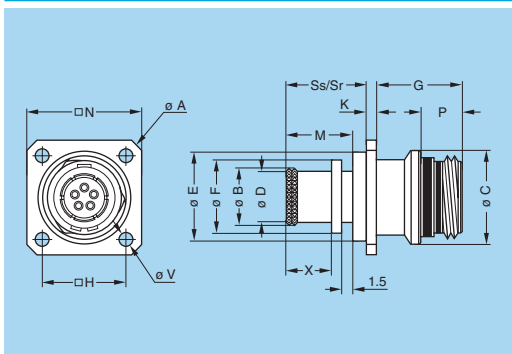
Part number example: PEN.1M.305.XLMM

Panel cut-out (page 36).

**Note:** Ls = standard gender, Lr = reverse gender. The dimension «P» is the same as the PB● models. <sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).



**PF● Fixed socket with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with mold stop**



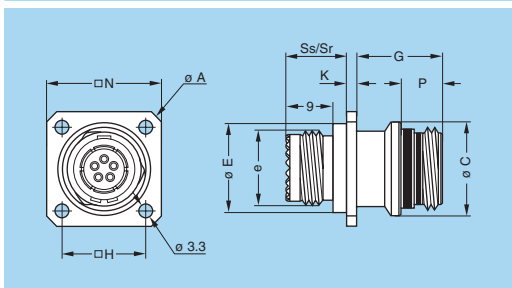
Reference		Dimensions (mm)													
Model	Series	A	B	C	D	E	F	G	H	K	N	Ss	Sr	V	
PF●	MM	18.6	6.4	10.7	5.6	7.8	7.8	12.3	9.5	1.5	14.5	10.6	10.6	2.7	
PF●	0M	20.6	8.8	12.7	8.0	10.7	10.7	12.8	11.0	1.5	16.0	11.3	11.3	2.7	
PF●	1M	23.8	10.5	14.2	9.7	12.4	12.4	12.8	12.9	1.5	18.4	11.3	11.3	3.3	
PF●	2M	26.9	14.0	17.2	13.0	15.5	15.5	12.8	15.1	1.5	20.6	11.7	11.7	3.3	
PF●	3M	29.0	16.0	19.2	15.0	17.5	17.5	12.8	16.6	1.5	22.1	11.7	11.7	3.3	
PF●	TM	31.4	17.9	22.0	16.7	19.8	19.8	14.5	18.3	2.0	23.8	13.0	13.6	3.3	
PF●	4M	34.6	20.7	24.5	19.5	22.6	22.6	14.5	20.6	2.0	26.1	13.0	13.6	3.3	
PF●	LM	38.0	23.9	28.0	22.7	25.8	25.8	14.5	23.0	2.0	28.5	13.0	13.6	3.3	
PF●	5M	47.0	29.7	33.5	28.5	33.0	31.4	14.5	29.4	2.0	37.0	13.0	13.6	3.3	

Part number example: PFN.1M.305.XLMT

Panel cut-out (page 36).

**Note:** this model is only available with mold stop. The dimensions «M», «P» and «X» are the same as the PB● models. Ss = standard gender, Sr = reverse gender.

**PF● Fixed socket with square flange, key (N) or keys (P, R, S, T, U, V, W and X) with MIL-DTL-38999L shell thread**



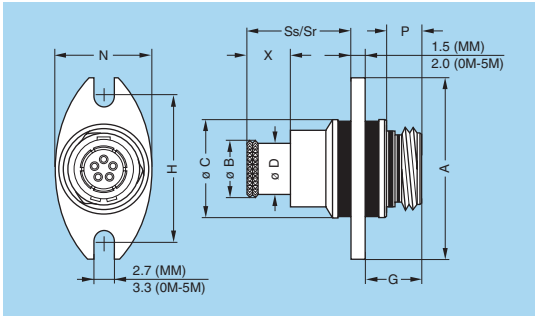
Reference		Dimensions (mm)										
Model	Series	A	C	e	E	G	H	K	N	Ss	Sr	Code <sup>1)</sup>
PF●	1M	23.8	14.2	M12x1.0	12.4	12.8	12.9	1.5	18.4	12.2	12.2	A
PF●	2M	26.9	17.2	M15x1.0	15.5	12.8	15.1	1.5	20.6	12.2	12.2	B
PF●	3M	29.0	19.2	M18x1.0	17.5	12.8	16.6	1.5	22.1	12.2	12.2	C
PF●	TM	31.4	22.0	M18x1.0	19.8	14.5	18.3	2.0	23.8	11.7	13.6	C
PF●	4M	34.6	24.5	M22x1.0	22.6	14.5	20.6	2.0	26.1	11.7	13.6	D
PF●	LM	38.0	28.0	M25x1.0	25.8	14.5	23.0	2.0	28.5	11.7	13.6	E
PF●	5M	47.0	33.5	M31x1.0	33.0	14.5	29.4	2.0	37.0	11.7	13.6	G

Part number example: PFN.1M.305.XLMM

Panel cut-out (page 36).

**Note:** The dimension «P» is the same as the PB● models. Ss = standard gender, Sr = reverse gender. <sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).

**PB● Fixed socket with antivibration flange, key (N) or keys (P, R, S, T, U, V, W and X), 2 holes fixing**



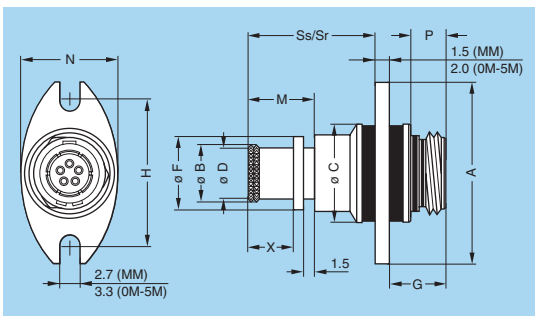
Reference		Dimensions (mm)										
Model	Series	A	B	C	D	G	H	N	P	Ss	Sr	X
PB●	MM	21.0	6.4	11.3	5.6	6.7	16.2	12.5	3.7	13.2	13.2	5.8
PB●	0M	27.0	8.8	14.5	8.0	8.3	21.4	16.0	5.3	15.3	15.3	6.7
PB●	1M	29.0	10.5	16.5	9.7	8.3	23.4	18.0	5.3	15.3	15.3	6.7
PB●	2M	32.0	14.0	19.5	13.0	8.3	26.4	21.0	5.3	15.7	15.7	7.1
PB●	3M	35.0	16.0	21.5	15.0	8.3	29.0	23.0	5.3	15.7	15.7	7.1
PB●	TM	38.5	17.9	24.5	16.7	11.0	32.5	26.0	7.9	15.2	17.1	7.6
PB●	4M	41.0	20.7	27.5	19.5	11.0	35.0	29.0	7.9	15.2	17.1	7.6
PB●	LM	44.0	23.9	30.5	22.7	11.0	38.0	32.0	7.9	15.2	17.1	7.6
PB●	5M	51.0	29.7	37.5	28.5	11.0	45.0	39.0	7.9	15.2	17.1	7.6

Part number example: PBN.1M.305.XLM

Panel cut-out (page 36).

Note: Ss = standard gender, Sr = reverse gender

**PB● Fixed socket with antivibration flange, key (N) or keys (P, R, S, T, U, V, W and X), 2 holes fixing with mold stop**



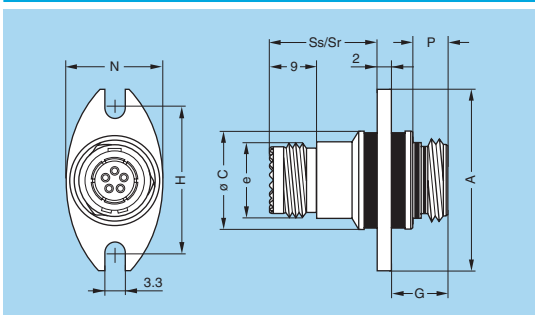
Reference		Dimensions (mm)												
Model	Series	A	B	C	D	F	G	H	M	N	P	Ss	Sr	X
PB●	MM	21.0	6.4	11.3	5.6	7.8	6.7	16.2	8.8	12.5	3.7	16.2	16.2	5.8
PB●	0M	27.0	8.8	14.5	8.0	10.7	8.3	21.4	9.7	16.0	5.3	18.3	18.3	6.7
PB●	1M	29.0	10.5	16.5	9.7	12.4	8.3	23.4	9.7	18.0	5.3	18.3	18.3	6.7
PB●	2M	32.0	14.0	19.5	13.0	15.5	8.3	26.4	10.1	21.0	5.3	18.7	18.7	7.1
PB●	3M	35.0	16.0	21.5	15.0	17.5	8.3	29.0	10.1	23.0	5.3	18.7	18.7	7.1
PB●	TM	38.5	17.9	24.5	16.7	19.8	11.0	32.5	10.6	26.0	7.9	18.2	18.2	7.6
PB●	4M	41.0	20.7	27.5	19.5	22.6	11.0	35.0	10.6	29.0	7.9	18.2	18.2	7.6
PB●	LM	44.0	23.9	30.5	22.7	25.8	11.0	38.0	10.6	32.0	7.9	18.2	18.2	7.6
PB●	5M	51.0	29.7	37.5	28.5	31.4	11.0	45.0	10.6	39.0	7.9	18.2	18.2	7.6

Part number example: PBN.1M.305.XLMT

Panel cut-out (page 36).

Note: Ss = standard gender, Sr = reverse gender

**PB● Fixed socket with antivibration flange, key (N) or keys (P, R, S, T, U, V, W and X), 2 holes fixing with MIL-DTL-38999L shell thread**



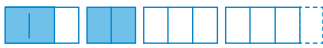
Reference		Dimensions (mm)									
Model	Series	A	C	e	G	H	N	P	Ss	Sr	Code <sup>1)</sup>
PB●	1M	29.0	16.5	M12x1.0	8.3	23.4	18.0	5.3	17.2	17.2	A
PB●	2M	32.0	19.5	M15x1.0	8.3	26.4	21.0	5.3	17.2	17.2	B
PB●	3M	35.0	21.5	M18x1.0	8.3	29.0	23.0	5.3	17.2	17.2	C
PB●	TM	38.5	24.5	M18x1.0	11.0	32.5	26.0	7.9	16.2	17.1	C
PB●	4M	41.0	27.5	M22x1.0	11.0	35.0	29.0	7.9	16.2	17.1	D
PB●	LM	44.0	30.5	M25x1.0	11.0	38.0	32.0	7.9	16.2	17.1	E
PB●	5M	51.0	37.5	M31x1.0	11.0	45.0	39.0	7.9	16.2	17.1	G

Part number example: PBN.1M.305.XLMM

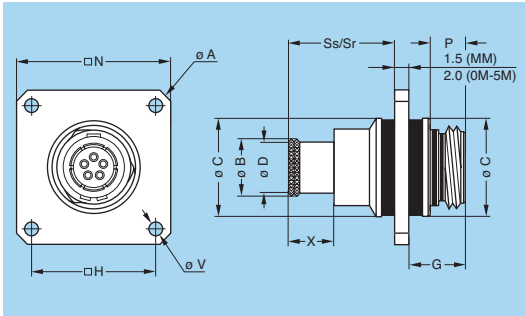
Panel cut-out (page 36).

Note: Ss = standard gender, Sr = reverse gender.

<sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).



**PV● Fixed socket with antivibration square flange, key (N) or keys (P, R, S, T, U, V, W and X)**

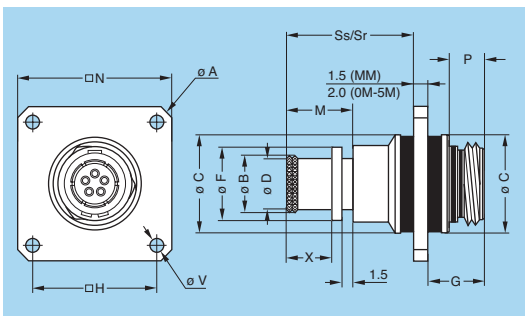


Reference		Dimensions (mm)											
Model	Series	A	B	C	D	G	H	N	P	Ss	Sr	V	X
PV●	MM	21.5	6.4	11.3	5.6	6.7	12.0	17.0	3.7	13.2	13.2	2.7	5.8
PV●	0M	26.9	8.8	14.5	8.0	8.3	15.1	20.6	5.3	15.3	15.3	2.7	6.7
PV●	1M	31.4	10.5	16.5	9.7	8.3	18.3	23.8	5.3	15.3	15.3	3.3	6.7
PV●	2M	34.6	14.0	19.5	13.0	8.3	20.6	26.1	5.3	15.7	15.7	3.3	7.1
PV●	3M	38.0	16.0	21.5	15.0	8.3	23.0	28.5	5.3	15.7	15.7	3.3	7.1
PV●	TM	40.3	17.9	24.5	16.7	11.0	24.6	30.1	7.9	15.2	17.1	3.3	7.6
PV●	4M	43.7	20.7	27.5	19.5	11.0	27.0	32.5	7.9	15.2	17.1	3.3	7.6
PV●	LM	47.1	23.9	30.5	22.7	11.0	29.4	34.9	7.9	15.2	17.1	3.3	7.6
PV●	5M	54.9	29.7	37.5	28.5	11.0	34.9	40.4	7.9	15.2	17.1	3.3	7.6

Part number example: PVN.1M.305.XLM Panel cut-out (page 36).

Note: Ss = standard gender, Sr = reverse gender

**PV● Fixed socket with antivibration square flange, key (N) or keys (P, R, S, T, U, V, W and X) with mold stop**

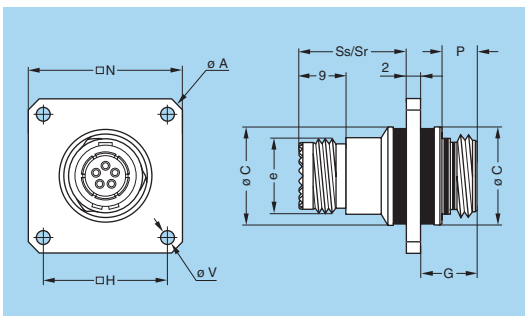


Reference		Dimensions (mm)												
Model	Series	A	B	C	D	F	G	H	M	N	P	Ss	Sr	X
PV●	MM	21.5	6.4	11.3	5.6	7.8	6.7	12.0	8.8	17.0	3.7	16.2	16.2	5.8
PV●	0M	26.9	8.8	14.5	8.0	10.7	8.3	15.1	9.7	20.6	5.3	18.3	18.3	6.7
PV●	1M	31.4	10.5	16.5	9.7	12.4	8.3	18.3	9.7	23.8	5.3	18.3	18.3	6.7
PV●	2M	34.6	14.0	19.5	13.0	15.5	8.3	20.6	10.1	26.1	5.3	18.7	18.7	7.1
PV●	3M	38.0	16.0	21.5	15.0	17.5	8.3	23.0	10.1	28.5	5.3	18.7	18.7	7.1
PV●	TM	40.3	17.9	24.5	16.7	19.8	11.0	24.6	10.6	30.1	7.9	18.2	18.2	7.6
PV●	4M	43.7	20.7	27.5	19.5	22.6	11.0	27.0	10.6	32.5	7.9	18.2	18.2	7.6
PV●	LM	47.1	23.9	30.5	22.7	25.8	11.0	29.4	10.6	34.9	7.9	18.2	18.2	7.6
PV●	5M	54.9	29.7	37.5	28.5	31.4	11.0	34.9	10.6	40.4	7.9	18.2	18.2	7.6

Part number example: PVN.1M.305.XLMT Panel cut-out (page 36).

Note: Ss = standard gender, Sr = reverse gender. The dimension «V» is the same as the PV● models without mold stop.

**PV● Fixed socket with antivibration square flange, key (N) or keys (P, R, S, T, U, V, W and X) with MIL-DTL-38999L shell thread**



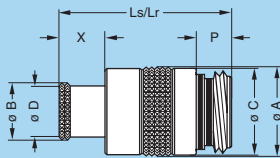
Reference		Dimensions (mm)										
Model	Series	A	C	e	G	H	N	P	Ss	Sr	V	Code¹)
PV●	1M	31.4	16.5	M12x1.0	8.3	18.3	23.8	5.3	17.2	17.2	3.3	A
PV●	2M	34.6	19.5	M15x1.0	8.3	20.6	26.1	5.3	17.2	17.2	3.3	B
PV●	3M	38.0	21.5	M18x1.0	8.3	23.0	28.5	5.3	17.2	17.2	3.3	C
PV●	TM	40.3	24.5	M18x1.0	11.0	24.6	30.1	7.9	16.2	17.1	3.3	C
PV●	4M	43.7	27.5	M22x1.0	11.0	27.0	32.5	7.9	16.2	17.1	3.3	D
PV●	LM	47.1	30.5	M25x1.0	11.0	29.4	34.9	7.9	16.2	17.1	3.3	E
PV●	5M	54.9	37.5	M31x1.0	11.0	34.9	40.4	7.9	16.2	17.1	3.3	G

Part number example: PVN.1M.305.XLMM

Panel cut-out (page 36).

Note: Ss = standard gender, Sr = reverse gender. ¹) MIL-DTL-38999L shell size code (backshell not supplied).

**PM** Free socket, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip

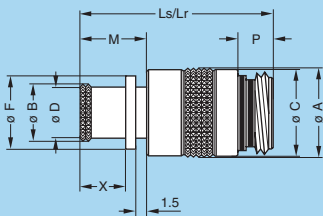


Reference		Dimensions (mm)							
Model	Series	A	B	C	D	Ls	Lr	P	X
PM	MM	11.1	6.4	10.7	5.6	21.4	21.4	3.7	5.8
PM	0M	13.1	8.8	12.7	8.0	25.6	25.6	5.3	6.7
PM	1M	14.6	10.5	14.2	9.7	25.6	25.6	5.3	6.7
PM	2M	17.6	14.0	17.2	13.0	26.0	26.0	5.3	7.1
PM	3M	19.6	16.0	19.2	15.0	26.0	26.0	5.3	7.1
PM	TM	22.5	17.9	22.0	16.7	28.2	30.1	7.9	7.6
PM	4M	25.0	20.7	24.5	19.5	28.2	30.1	7.9	7.6
PM	LM	28.5	23.9	28.0	22.7	28.2	30.1	7.9	7.6
PM	5M	34.0	29.7	33.5	28.5	28.2	30.1	7.9	7.6

Part number example: PMN.1M.305.XLM

Note: Ls = standard gender, Lr = reverse gender

**PM** Free socket, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip and mold stop

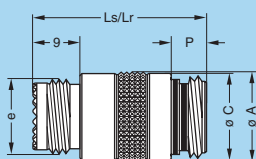


Reference		Dimensions (mm)									
Model	Series	A	B	C	D	F	Ls	Lr	M	P	X
PM	MM	11.1	6.4	10.7	5.6	7.8	24.4	24.4	8.8	3.7	5.8
PM	0M	13.1	8.8	12.7	8.0	10.7	28.6	28.6	9.7	5.3	6.7
PM	1M	14.6	10.5	14.2	9.7	12.4	28.6	28.6	9.7	5.3	6.7
PM	2M	17.6	14.0	17.2	13.0	15.5	29.0	29.0	10.1	5.3	7.1
PM	3M	19.6	16.0	19.2	15.0	17.5	29.0	29.0	10.1	5.3	7.1
PM	TM	22.5	17.9	22.0	16.7	19.8	31.2	31.2	10.6	7.9	7.6
PM	4M	25.0	20.7	24.5	19.5	22.6	31.2	31.2	10.6	7.9	7.6
PM	LM	28.5	23.9	28.0	22.7	25.8	31.2	31.2	10.6	7.9	7.6
PM	5M	34.0	29.7	33.5	28.5	31.4	31.2	31.2	10.6	7.9	7.6

Part number example: PMN.1M.305.XLMT

Note: Ls = standard gender, Lr = reverse gender

**PM** Free socket, key (N) or keys (P, R, S, T, U, V, W and X) with knurled grip and MIL-DTL-38999L shell thread

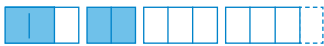


Reference		Dimensions (mm)						
Model	Series	A	C	e	Ls	Lr	P	Code <sup>1)</sup>
PM	1M	14.6	14.2	M12x1.0	27.9	27.9	5.3	A
PM	2M	17.6	17.2	M15x1.0	27.9	27.9	5.3	B
PM	3M	19.6	19.2	M18x1.0	27.9	27.9	5.3	C
PM	TM	22.5	22.0	M18x1.0	29.6	30.1	7.9	C
PM	4M	25.0	24.5	M22x1.0	29.6	30.1	7.9	D
PM	LM	28.5	28.0	M25x1.0	29.6	30.1	7.9	E
PM	5M	34.0	33.5	M31x1.0	29.6	30.1	7.9	G

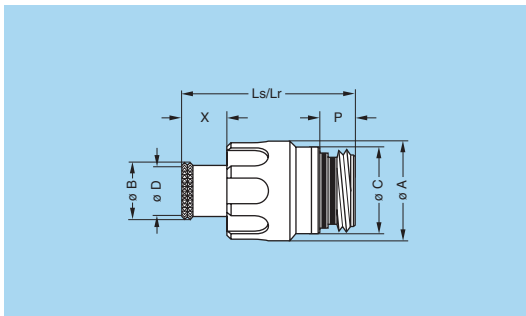
Part number example: PMN.1M.305.XLMM

Note: Ls = standard gender, Lr = reverse gender.

<sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).



**PH● Free socket, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip**

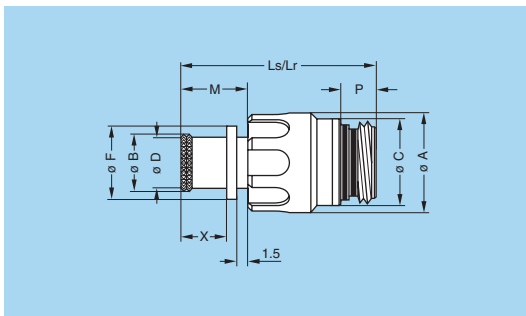


Reference		Dimensions (mm)							
Model	Series	A	B	C	D	Ls	Lr	P	X
PH●	MM	12.0	6.4	10.7	5.6	21.4	21.4	3.7	5.8
PH●	0M	14.4	8.8	12.7	8.0	25.6	25.6	5.3	6.7
PH●	1M	15.9	10.5	14.2	9.7	25.6	25.6	5.3	6.7
PH●	2M	18.9	14.0	17.2	13.0	26.0	26.0	5.3	7.1
PH●	3M	20.9	16.0	19.2	15.0	26.0	26.0	5.3	7.1
PH●	TM	23.4	17.9	22.0	16.7	28.2	30.1	7.9	7.6
PH●	4M	25.9	20.7	24.5	19.5	28.2	30.1	7.9	7.6
PH●	LM	29.4	23.9	28.0	22.7	28.2	30.1	7.9	7.6
PH●	5M	34.9	29.7	33.5	28.5	28.2	30.1	7.9	7.6

Part number example: PHN.1M.305.XLM

Note: Ls = standard gender, Lr = reverse gender

**PH● Free socket, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip and mold stop**

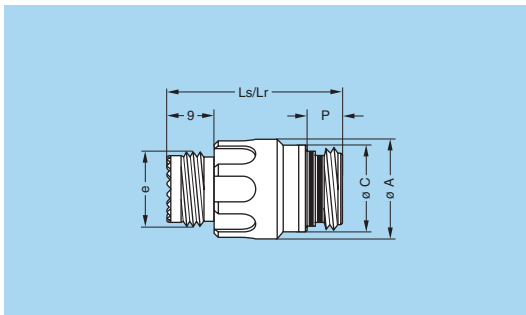


Reference		Dimensions (mm)									
Model	Series	A	B	C	D	F	Ls	Lr	M	P	X
PH●	MM	12.0	6.4	10.7	5.6	7.8	24.4	24.4	8.8	3.7	5.8
PH●	0M	14.4	8.8	12.7	8.0	10.7	28.6	28.6	9.7	5.3	6.7
PH●	1M	15.9	10.5	14.2	9.7	12.4	28.6	28.6	9.7	5.3	6.7
PH●	2M	18.9	14.0	17.2	13.0	15.5	29.0	29.0	10.1	5.3	7.1
PH●	3M	20.9	16.0	19.2	15.0	17.5	29.0	29.0	10.1	5.3	7.1
PH●	TM	23.4	17.9	22.0	16.7	19.8	31.2	31.2	10.6	7.9	7.6
PH●	4M	25.9	20.7	24.5	19.5	22.6	31.2	31.2	10.6	7.9	7.6
PH●	LM	29.4	23.9	28.0	22.7	25.8	31.2	31.2	10.6	7.9	7.6
PH●	5M	34.9	29.7	33.5	28.5	31.4	31.2	31.2	10.6	7.9	7.6

Part number example: PHN.1M.305.XLMT

Note: Ls = standard gender, Lr = reverse gender

**PH● Free socket, key (N) or keys (P, R, S, T, U, V, W and X) with arctic grip and MIL-DTL-38999L shell thread**

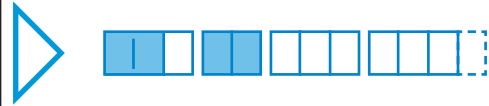


Reference		Dimensions (mm)							Code <sup>1)</sup>
Model	Series	A	C	e	Ls	Lr	P		
PH●	1M	15.9	14.2	M12x1.0	27.9	27.9	5.3	A	
PH●	2M	18.9	17.2	M15x1.0	27.9	27.9	5.3	B	
PH●	3M	20.9	19.2	M18x1.0	27.9	27.9	5.3	C	
PH●	TM	23.4	22.0	M18x1.0	29.6	30.1	7.9	C	
PH●	4M	25.9	24.5	M22x1.0	29.6	30.1	7.9	D	
PH●	LM	29.4	28.0	M25x1.0	29.6	30.1	7.9	E	
PH●	5M	34.9	33.5	M31x1.0	29.6	30.1	7.9	G	

Part number example: PHN.1M.305.XLMM

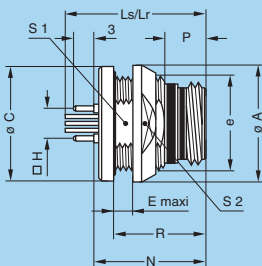
Note: Ls = standard gender, Lr = reverse gender

<sup>1)</sup> MIL-DTL-38999L shell size code (backshell not supplied).



## Watertight model (unmated)

### HE● Fixed socket, nut fixing, key (N) or keys (P, R, S, T, U, V, W and X), printed circuit, watertight (back panel mounting)



Reference		Dimensions (mm)											
Model	Series	A	C	e	E	H	Ls	Lr	N	P	R	S1	S2
HE●	MM	14	13.8	M10x0.50	4.0	5.08	20.4	20.4	15.3	3.7	10.5	9.0	11
HE●	0M	17	16.8	M13x0.75	5.0	5.08	20.8	21.0	16.8	5.3	13.8	11.5	14
HE●	1M	18	17.8	M14x1.00	5.0	7.62	20.8	21.0	16.8	5.3	13.8	12.5	16
HE●	2M	21	20.8	M17x1.00	5.0	8.89	20.8	21.0	16.8	5.3	13.8	15.5	18
HE●	3M	23	22.8	M19x1.00	5.0	10.16	20.8	21.0	16.8	5.3	13.8	17.5	20
HE●	TM	27	25.8	M22x1.00	4.0	12.70	24.6	24.6	19.9	7.9	16.9	20.5	23
HE●	4M	29	27.8	M24x1.00	4.0	13.97	24.6	24.6	19.9	7.9	16.9	22.5	25
HE●	LM	33	31.8	M28x1.00	4.0	16.51	24.6	24.6	19.9	7.9	16.9	26.5	29
HE●	5M	38	36.8	M33x1.00	4.0	20.32	24.6	24.6	19.9	7.9	16.9	31.5	34

**Part number example:** HEN.1M.305.XLNP

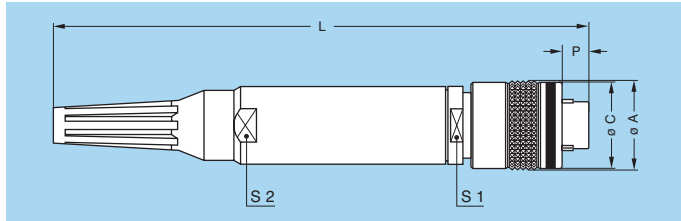
Panel cut-out (page 36). PCB drilling pattern (page 37).

**Note:** Ls = standard gender, Lr = reverse gender. Operating temperature: -20°C to +80°C.



## Fibre optic models

### FM● Straight plug, keys (N, S or W) with knurled grip

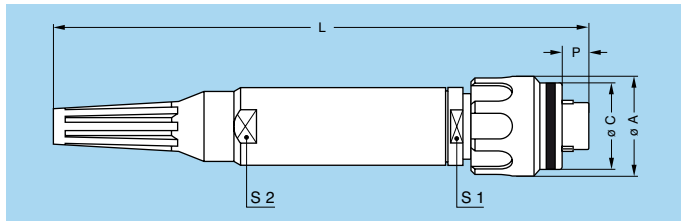


Part number	Dimensions (mm)					
	A	C	L	P	S1	S2
<b>FM-.2M.03A.XLZT-●Z</b>	17.6	17.2	100.6	3.9	14	14
<b>FM-.3M.95B.XLCT-●Z</b>	19.6	19.2	103.3	3.9	16	16
<b>FM-.5M.03W.XLZT-●Z</b>	34.0	33.5	148.4	3.4	29	29

**Contact part number** (to be ordered separately):  
PSS.F7.12\*.LCE23 (2M series).  
FFS.F7.12\*.LCE23 (3M and 5M series).

**Note:** ● Cable adaptor defined upon request.  
The bend relief must be ordered separately (see page 33).

### FG● Straight plug, keys (N, S or W) with arctic grip

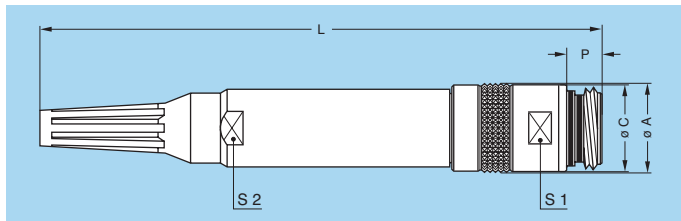


Part number	Dimensions (mm)					
	A	C	L	P	S1	S2
<b>FG-.2M.03A.XLZT-●Z</b>	18.9	17.2	100.6	3.9	14	14
<b>FG-.3M.95B.XLCT-●Z</b>	20.9	19.2	103.3	3.9	16	16
<b>FG-.5M.03W.XLZT-●Z</b>	34.9	33.5	148.4	3.4	29	29

**Contact part number** (to be ordered separately):  
PSS.F7.12\*.LCE23 (2M series).  
FFS.F7.12\*.LCE23 (3M and 5M series).

**Note:** ● Cable adaptor defined upon request.  
The bend relief must be ordered separately (see page 33).

### PM● Free socket, keys (N, S or W) with knurled grip



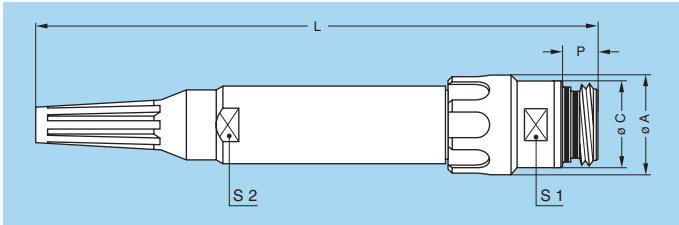
Part number	Dimensions (mm)					
	A	C	L	P	S1	S2
<b>PM-.2M.03A.XLZT-●Z</b>	17.6	17.2	105.8	5.3	16	14
<b>PM-.3M.95B.XLMT-●Z</b>	19.6	19.2	113.3	5.3	18	16
<b>PM-.5M.03W.XLZT-●Z</b>	34.0	33.5	155.2	7.9	32	29

**Contact part number** (to be ordered separately):  
FFS.F7.12\*.LCL23 (2M series).  
PSS.F7.12\*.LCL23 (3M and 5M series).

**Note:** ● Cable adaptor defined upon request.  
The bend relief must be ordered separately (see page 33).



### PH● Free socket, keys (S or W) with arctic grip

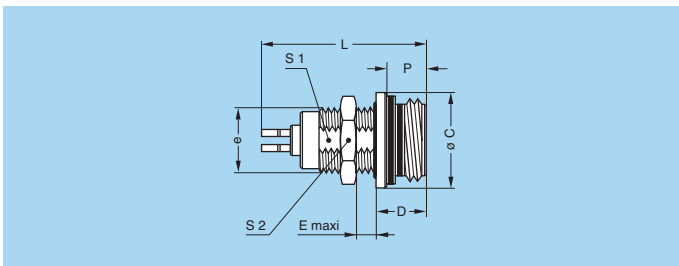
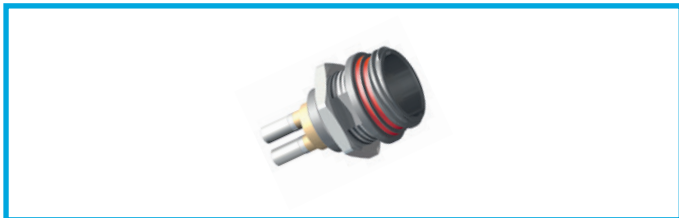


Part number	Dimensions (mm)					
	A	C	L	P	S1	S2
<b>PH·2M.03A.XLZT·Z</b>	18.9	17.2	105.8	5.3	16	14
<b>PH·5M.03W.XLZT·Z</b>	34.9	33.5	155.2	7.9	32	29

**Contact part number** (to be ordered separately):  
 FFS.F7.12·LCL23 (2M series).  
 PSS.F7.12·LCL23 (5M series).

**Note:** ● Cable adaptor defined upon request.  
 The bend relief must be ordered separately (see page 33).

### EG● Fixed socket, nut fixing, key (N) or keys (P, R, S, T, U, V, W and X)

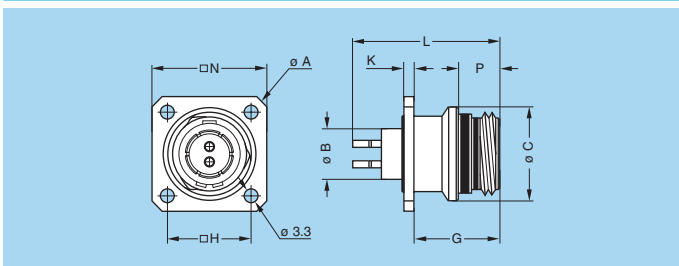


Part number	Dimensions (mm)							
	C	D	e	E	L	P	S1	S2
<b>EG·2M.03A.XLZ</b>	17.2	6.8	M14x1.0	4.5	28.9	5.3	12.5	17.0
<b>EG·5M.03W.XLZ</b>	33.5	9.4	M30x1.0	4.0	30.8	7.9	28.5	36.0

Panel cut-out (page 36).

**Contact part number** (to be ordered separately):  
 FFS.F7.12·LCE23 (2M series).  
 PSS.F7.12·LCE23 (5M series).

### ED● Fixed socket with square flange, keys (N, S or W)



Part number	Dimensions (mm)								
	A	B	C	G	H	K	L	N	P
<b>ED·2M.03A.XLZT</b>	26.9	8.95	17.2	12.8	15.1	1.5	28.9	20.6	5.3
<b>ED·3M.95B.XLM</b>	29.0	10.95	19.2	12.8	16.6	1.5	32.2	22.1	5.3
<b>ED·5M.03W.XLZT</b>	43.7	22.90	33.5	14.5	27.0	2.0	30.8	32.5	7.9

Panel cut-out (page 36).

**Contact part number** (to be ordered separately):  
 FFS.F7.12·LCE23 (2M series).  
 PSS.F7.12·LCE23 (3M and 5M series).

More information on F7 fibre optic contact in LEMO F7 catalog.



## Fibre Type

The choice of the ferrule hole diameter is dependent upon the fibre cladding size. LEMO offers a range of ferrule hole diameters to suit the users' specific requirements.

● First choice alternative ○ Special order alternative

Référence	∅ Core/Cladding (µm)	Ferrule hole diameter (µm)	Note
125	9/125 50/125 62.5/125	125	●
126		126	●
128		128	○

## Accessories

### PSS Alignment device for F7 fibre optic contact



Part number
<b>PSS.F7.290.NZZ</b>

**Note:** Alignment device should be ordered as replacement item.

## Tooling

### DCP Set of flat spanners for collet nuts



Part number
<b>DCP.2M.110.TN</b>
<b>DCP.3M.110.TN</b>
<b>DCP.5M.110.TN</b>

### DCS F7 contact alignment device tool



Simple tool with two threaded end for installation/extraction of the F7 contact alignment device.

Part number
<b>DCS.F7.035.PN</b>

### WST Cleaning kit



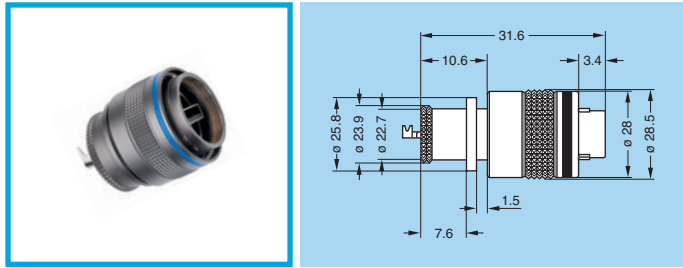
Fibre optic cleaning kit of 2 cotton buds, 1 dry and 1 being soaked in Isopropyl Alcohol used for cleaning the fibre optic contacts.

Part number
<b>WST.KI.125.34</b>

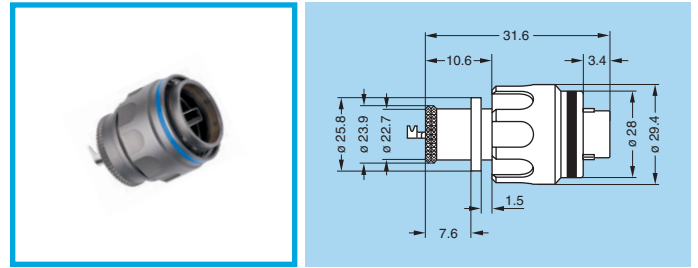
See also F7 tooling in the F7 fibre optic catalog.

**USB models**

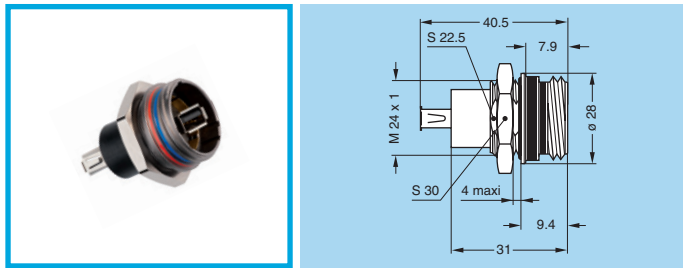
**FM.LM.U2A.XPAT** Straight plug, key (W) or key (R) with knurled grip and mold stop



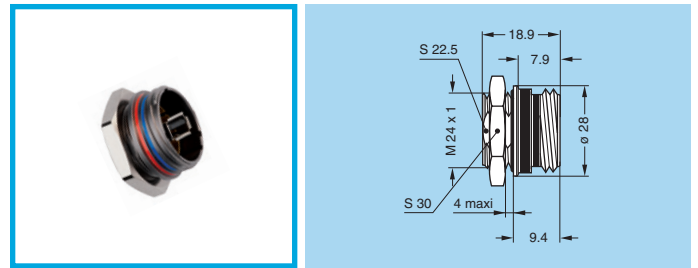
**FG.LM.U2A.XPAT** Straight plug, key (W) or key (R) with arctic grip and mold stop



**EG.LM.U2A.XPP** Fixed socket, female to female, nut fixing, key (W) or key (R)



**EG.LM.U2A.XPL** Fixed socket, nut fixing, key (W) or key (R)



**Alignment Key**

**Alignment Key and Polarized Keying System**

M series connector model part numbers are composed of three letters. The LAST LETTER indicates the keys corresponding to a particular contact type.

For example, straight plugs with N, P, R, U or W keys, are fitted with male contacts; whereas with S, T, V or X keys, plugs are fitted with female contacts. Sockets with N, P, R, U or W keys, are fitted with female contacts; whereas with S, T, V or X keys, sockets are fitted with male contacts.

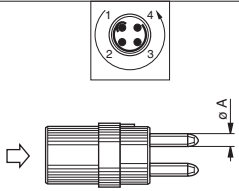
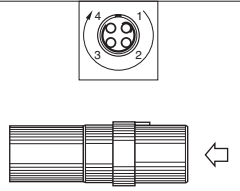






































MM to 3M	Front view of a socket	Model	Colour code	Contact type		Nb of keys	Angles	
				Plug	Socket		$\beta$	$\gamma$
				●●N	blue		male	female
●●P	yellow	male	female	3	150°	60°		
●●U	green	male	female	3	130°	100°		
●●S	red	female	male	3	155°	50°		
●●T	orange	female	male	3	135°	90°		

TM to 5M	Front view of a socket	Model	Colour code	Contact type		Nb of keys	Angles			
				Plug	Socket		$\alpha$	$\beta$	$\gamma$	$\delta$
				●●W	blue		male	female	5	95°
●●R	yellow	male	female	5	105°	115°	30°	20°		
●●X	red	female	male	5	100°	125°	40°	20°		
●●V	orange	female	male	5	110°	120°	35°	25°		

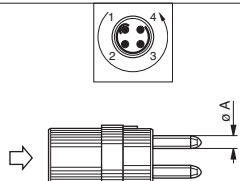
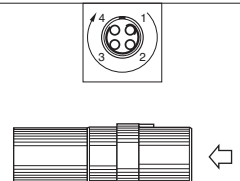









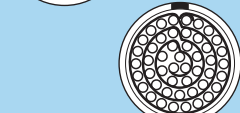










## Insert configuration

### Multipole

	 Male crimp contacts for plug		 Female crimp contacts for sockets		Reference	Number of contacts	ø A (mm)	Contact type		AWG	Test voltage (kV rms) <sup>1)</sup> Contact-contact	Test voltage (kV rms) <sup>1)</sup> Contact-shell	Rated current (A) <sup>1)</sup>
	Crimp	Print (straight) <sup>2)</sup>											
<b>MM</b>					<b>303</b>	3	0.5	●	●	28-30-32	1.15	0.95	3.0
					<b>304</b>	4	0.5	●	●	28-30-32	0.95	0.90	2.0
<b>OM</b>					<b>302</b>	2	0.9	●	●	20-22-24	1.45	1.00	10.0
					<b>303</b>	3	0.9	●	●	20-22-24	1.70	1.40	8.0
					<b>304</b>	4	0.7	●	●	22-24-26	1.35	0.90	7.0
					<b>305</b>	5	0.7	●	●	22-24-26	1.25	1.00	6.5
<b>1M</b>					<b>302</b>	2	1.3	●	●	16-18-20	1.55	1.10	19.0
					<b>303</b>	3	1.3	●	●	16-18-20	1.05	0.95	15.5
					<b>305</b>	5	0.9	●	●	20-22-24	1.30	1.30	9.0
					<b>307</b>	7	0.7	●	●	22-24-26	1.45	1.20	7.0
					<b>308</b>	8	0.7	●	●	22-24-26	1.30	1.10	5.0
<b>2M</b>					<b>304</b>	4	1.3	●	●	16-18-20	1.55	1.35	15.5
					<b>308</b>	8	0.9	●	●	20-22-24	1.95	1.10	10.0
					<b>310</b>	10	0.9	●	●	20-22-24	1.80	1.20	8.0
					<b>312</b>	12	0.7	●	●	22-24-26	1.65	1.15	7.0
					<b>319</b>	19	0.7	●	●	22-24-26	1.20	1.00	4.0
<b>3M</b>					<b>312</b>	12	0.9	●	●	20-22-24	1.40	1.25	6.0
					<b>322</b>	22	0.7	●	●	22-24-26	1.25	1.15	4.0
					<b>330</b>	30	0.7	●	●	22-24-26	1.10	1.00	3.5

## Multipole

	 Male crimp contacts for plug		 Female crimp contacts for sockets		Reference	Number of contacts	ø A (mm)	Contact type		AWG	Test voltage (kV rms) <sup>1)</sup> Contact-contact	Test voltage (kV rms) <sup>1)</sup> Contact-shell	Rated current (A) <sup>1)</sup>
	Crimp	Print (straight) <sup>2)</sup>											
<b>TM</b>					<b>325</b>	25	0.9	●	●	20-22-24	1.10	1.25	5.0
					<b>332</b>	32	0.7	●	●	22-24-26	1.25	1.20	3.5
					<b>340</b>	40	0.7	●	●	22-24-26	1.05	1.20	3.0
<b>4M</b>					<b>340</b>	40	0.7	●	●	22-24-26	1.20	1.35	3.5
					<b>348</b>	48	0.7	●	●	22-24-26	1.10	1.35	3.0
<b>LM</b>					<b>355</b>	55	0.9	●	●	20-22-24	1.65	1.95	3.5
					<b>368</b>	68	0.7	●	●	22-24-26	1.40	1.65	2.5
<b>5M</b>					<b>366</b>	66	0.9	●	●	20-22-24	1.60	1.70	3.0
					<b>114</b>	114	0.7	●	●	22-24-26	1.37	1.34	2.0

Note: <sup>1)</sup> Test voltage according to IEC 60512-2 test 4a. <sup>2)</sup> For EG•, EC•, ED•, HE• socket.



## Mixed multipole

	 Male crimp contacts for plug	 Female crimp contacts for sockets	Reference	Number of contacts	ø A (mm)	Contact type		AWG	Test voltage (kV rms) <sup>1)</sup> Contact-contact	Test voltage (kV rms) <sup>1)</sup> Contact-shell	Rated current (A) <sup>1)</sup>
						Crimp	Print (straight) <sup>2)</sup>				
<b>1M</b>			<b>304</b>	2 2	0.7 1.3	●	●	22-24-26 16-18-20	1.20 1.45	1.30 2.00	11.0 18.5
<b>2M</b>			<b>306</b>	3 3	0.7 1.3	●	●	22-24-26 16-18-20	1.55 2.05	1.40 1.35	10.5 18.0
			<b>308</b>	6 2	0.7 1.3	●	●	22-24-26 16-18-20	1.95 1.75	1.40 1.60	7.0 23.0
			<b>310</b>	8 2	0.7 1.3	●	●	22-24-26 16-18-20	1.35 1.90	1.35 1.15	6.0 23.0
<b>3M</b>			<b>316</b>	10 6	0.7 1.3	●	●	22-24-26 16-18-20	0.90 1.35	0.95 1.15	2.0 11.0
<b>5M</b>			<b>366</b>	44 22	0.7 1.3	●	●	22-24-26 16-18-20	1.65 1.95	2.70 1.80	3.0 6.0

**FGN.1M.304.XRCT2:** straight plug with key (N), 1M series, multipole type with 4 mixed contacts (2 x ø 0.7 mm and 2 x ø 1.3 mm), outer shell with mold stop in anthracite nickel- aluminium alloy, PEEK insulator, male crimp contacts.

**FGN.2M.308.XRC6:** straight plug with key (N), 2M series, multipole type with 8 mixed contacts (6 x ø 0.7 mm and 2 x ø 1.3 mm), outer shell in anthracite nickel-plated aluminium alloy, PEEK insulator, male crimp contacts.

## Multi fibre and Mixed fibre optic + LV

	 Male contacts for plug	 Female contacts for sockets	Reference	Fibre optic No	Low Voltage contact					
					Contact No	ø A (mm)	Contact type		Rated current (A)	
							Crimp	Test voltage (kV rms) <sup>1)</sup> Contact-contact		Test voltage (kV rms) <sup>1)</sup> Contact-shell
<b>2M</b>			<b>03A</b>	2	-	-	-	-	-	-
<b>3M</b>			<b>95B</b>	4	4	0.9	●	1.00	0.80	8.0
<b>5M</b>			<b>03W</b>	21	-	-	-	-	-	-

**Note:** <sup>1)</sup> Test voltage according to IEC 60512-2 test 4a. <sup>2)</sup> For EG•, EC•, ED•, HE• socket.

## USB

	Male front view	Female front view	Reference	Number of contacts	Solder contact	Test voltage (kV rms) <sup>1)</sup> Contact-contact	Test voltage (kV rms) <sup>1)</sup> Contact-shell	Rated current (A) <sup>1)</sup>
<b>LM</b>			<b>U2A</b>	4	●	1.20	0.95	n.a.

## Mixed High-Speed coax

	Male crimp contacts	Female crimp contacts	Reference	Coax				Number of contacts	ø A (mm)	Crimp contact	AWG	Test voltage (kV rms) Contact-contact	Test voltage (kV rms) Contact-shell	Rated current (A)
				Number of contacts	Impedance (Ω)	Type	Cable							
<b>2M</b>			<b>X04</b>	1	75	C	RG179	2 2	0.9 1.3	●	22-24-26 16-18-20	0.75	1.05	10 7

**Part number:** FMN.2M.X04.XRC and EGN.2M.X04.XRM.

**Note:** Coaxial contacts must be ordered separately:

- 75 Ohms male contact FFS.2B.275.ZTCE31 (3GHz) and female contact PSS.2B.275.ZTME31(3GHz) – recommended cable Belden 179DT to reach 6GHz. For more information, please consult: [https://www.lemo.com/catalog/ROW/UK\\_English/3GHz\\_75\\_ohms\\_connector\\_for\\_4k\\_8k\\_HDTV.pdf](https://www.lemo.com/catalog/ROW/UK_English/3GHz_75_ohms_connector_for_4k_8k_HDTV.pdf)
- 50 Ohms male contact FFS.2B.250.ZTCE30 and female contact PSS.2B.250.ZTME30 (cable group 1, or other... see more details in coax-triax-mixed catalogue).

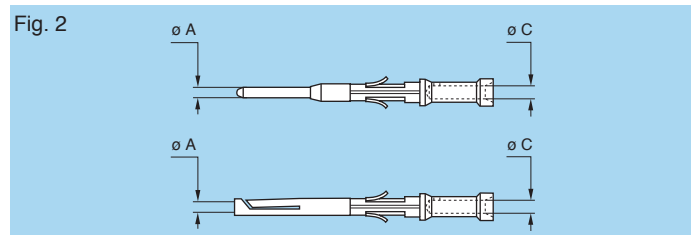
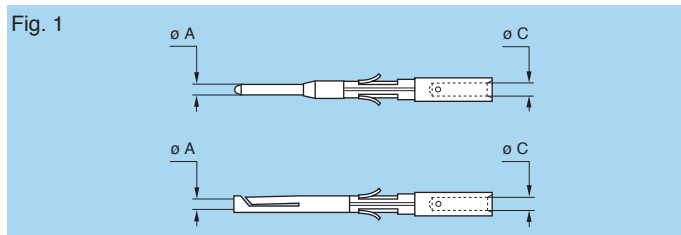


## Contacts

Reference	Contact type
<b>C</b>	Male crimp with standard crimp barrel (fig. 1)
<b>B</b>	Male crimp with reduced crimp barrel (fig. 2)
<b>D</b>	Male straight print

Reference	Contact type
<b>M</b>	Female crimp with standard crimp barrel (fig. 1)
<b>P</b>	Female crimp with reduced crimp barrel (fig. 2)
<b>N</b>	Female straight print

### Crimp contacts for plugs, free or fixed sockets



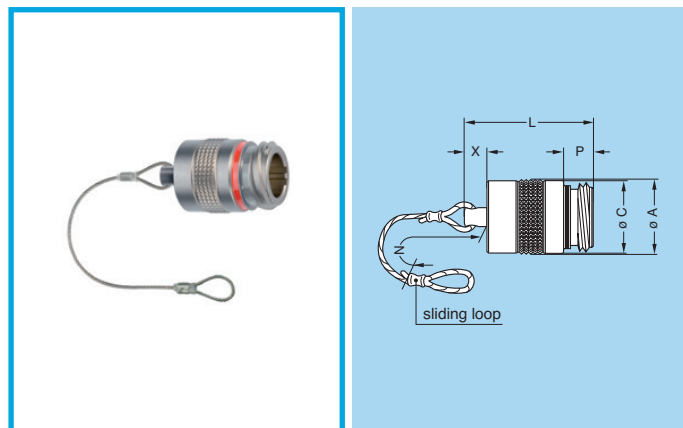
## Dimension of crimp barrels

	Contact			Ref. contact type		Conductor				Part number	
	ø A (mm)	ø C (mm)	Form per fig.	Male	Female	AWG		Section (mm <sup>2</sup> )		For male contacts	For female contacts
						min.	max.	min.	max.		
<b>MM</b>	0.5	0.45	1	<b>C</b>	<b>M</b>	32	28	0.035	0.090	<b>FGG.00.554.ZZC</b>	<b>EGG.00.654.ZZM</b>
<b>0M to 3M</b>	1.3	1.60	1	<b>C</b>	<b>M</b>	20	16	0.616	2.000	<b>FGN.0M.565.ZZC</b>	<b>EGN.0M.665.ZZM</b>
	0.9	1.10	1	<b>C</b>	<b>M</b>	24	20	0.204	0.616	<b>FGN.0M.560.ZZC</b>	<b>EGN.0M.660.ZZM</b>
	0.9	0.87	2	<b>B</b>	<b>P</b>	26	22	0.128	0.382	<b>FGN.0M.561.ZZC</b>	<b>EGN.0M.661.ZZM</b>
	0.7	0.87	1	<b>C</b>	<b>M</b>	26	22	0.128	0.382	<b>FGN.0M.555.ZZC</b>	<b>EGN.0M.655.ZZM</b>
	0.7	0.44	2	<b>B</b>	<b>P</b>	32	28	0.032	0.092	<b>FGN.0M.556.ZZC</b>	<b>EGN.0M.656.ZZM</b>
<b>TM to 5M</b>	1.3	1.60	1	<b>C</b>	<b>M</b>	20	16	0.616	2.000	<b>FGN.0M.565.ZZC</b>	<b>EGN.0M.665.ZZM</b>
	0.9	1.10	1	<b>C</b>	<b>M</b>	24	20	0.204	0.616	<b>FGN.0M.560.ZZC</b>	<b>EGW.TM.660.ZZM</b>
	0.9	0.87	2	<b>B</b>	<b>P</b>	26	22	0.128	0.382	<b>FGN.0M.561.ZZC</b>	<b>EGW.TM.661.ZZM</b>
	0.7	0.87	1	<b>C</b>	<b>M</b>	26	22	0.128	0.382	<b>FGN.0M.555.ZZC</b>	<b>EGW.TM.655.ZZM</b>
	0.7	0.44	2	<b>B</b>	<b>P</b>	32	28	0.032	0.092	<b>FGN.0M.556.ZZC</b>	<b>EGW.TM.656.ZZM</b>

**Note:** In order to satisfy crimp pull-test requirements to the IEC 60352-2 standard, the use of single strand cables should be avoided.

## Accessories

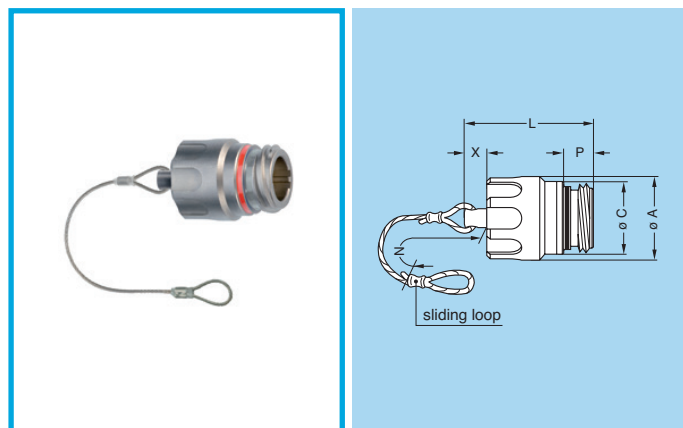
### BMF Blanking caps for plugs



**Note:** <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.

Part number	Dimensions (mm)					
	A	C	L	N <sup>1)</sup>	P	X
<b>BMF.MM.100.·AV</b>	11.1	10.7	17.8	60.0	3.7	4.0
<b>BMF.0M.100.·AV</b>	13.1	12.7	24.6	85.0	5.3	6.0
<b>BMF.1M.100.·AV</b>	14.6	14.2	24.6	85.0	5.3	6.0
<b>BMF.2M.100.·AV</b>	17.6	17.2	24.6	85.0	5.3	6.0
<b>BMF.3M.100.·AV</b>	19.6	19.2	24.6	120.0	5.3	6.0
<b>BMF.TM.100.·AV</b>	22.5	22.0	31.1	120.0	7.9	10.0
<b>BMF.4M.100.·AV</b>	25.0	24.5	31.1	120.0	7.9	10.0
<b>BMF.LM.100.·AV</b>	28.5	28.0	31.1	150.0	7.9	10.0
<b>BMF.5M.100.·AV</b>	34.0	33.5	31.1	150.0	7.9	10.0

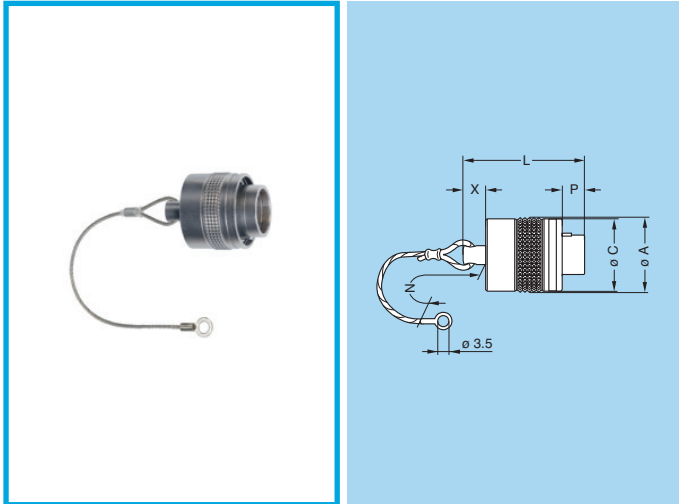
### BGF Blanking caps for plugs



**Note:** <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.

Part number	Dimensions (mm)					
	A	C	L	N <sup>1)</sup>	P	X
<b>BGF.MM.100.·AV</b>	12.0	10.7	17.8	60.0	3.7	4.0
<b>BGF.0M.100.·AV</b>	14.4	12.7	24.6	85.0	5.3	6.0
<b>BGF.1M.100.·AV</b>	15.9	14.2	24.6	85.0	5.3	6.0
<b>BGF.2M.100.·AV</b>	18.9	17.2	24.6	85.0	5.3	6.0
<b>BGF.3M.100.·AV</b>	20.9	19.2	24.6	120.0	5.3	6.0
<b>BGF.TM.100.·AV</b>	23.4	22.0	31.1	120.0	7.9	10.0
<b>BGF.4M.100.·AV</b>	25.9	24.5	31.1	120.0	7.9	10.0
<b>BGF.LM.100.·AV</b>	29.4	28.0	31.1	150.0	7.9	10.0
<b>BGF.5M.100.·AV</b>	34.9	33.5	31.1	150.0	7.9	10.0

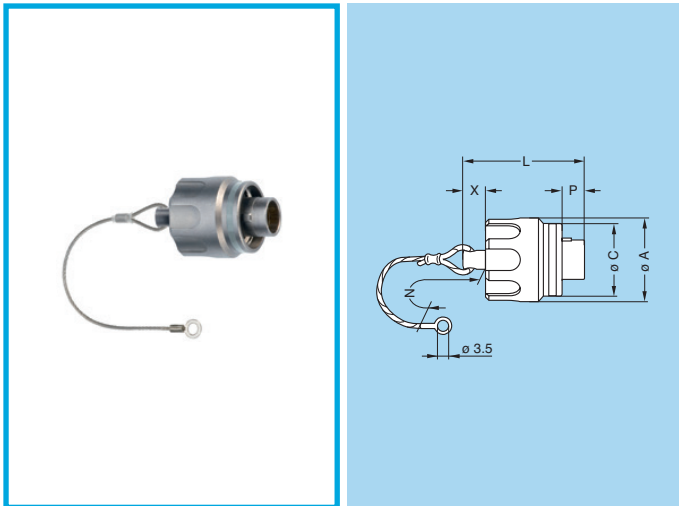
### BME Blanking caps for fixed sockets



Part number	Dimensions (mm)					
	A	C	L	N <sup>1)</sup>	P	X
<b>BME.MM.200.·AZ</b>	11.1	10.7	19.5	60.0	5.5	4.0
<b>BME.0M.200.·AZ</b>	13.1	12.7	23.4	85.0	3.9	6.0
<b>BME.1M.200.·AZ</b>	14.6	14.2	23.4	85.0	3.9	6.0
<b>BME.2M.200.·AZ</b>	17.6	17.2	23.4	85.0	3.9	6.0
<b>BME.3M.200.·AZ</b>	19.6	19.2	23.4	120.0	3.9	6.0
<b>BME.TM.200.·AZ</b>	22.5	22.0	31.0	120.0	3.4	10.0
<b>BME.4M.200.·AZ</b>	25.0	24.5	31.0	120.0	3.4	10.0
<b>BME.LM.200.·AZ</b>	28.5	28.0	31.0	150.0	3.4	10.0
<b>BME.5M.200.·AZ</b>	34.0	33.5	31.0	150.0	3.4	10.0

Note: 1) the tolerance on this dimension is  $\pm 5$  mm.

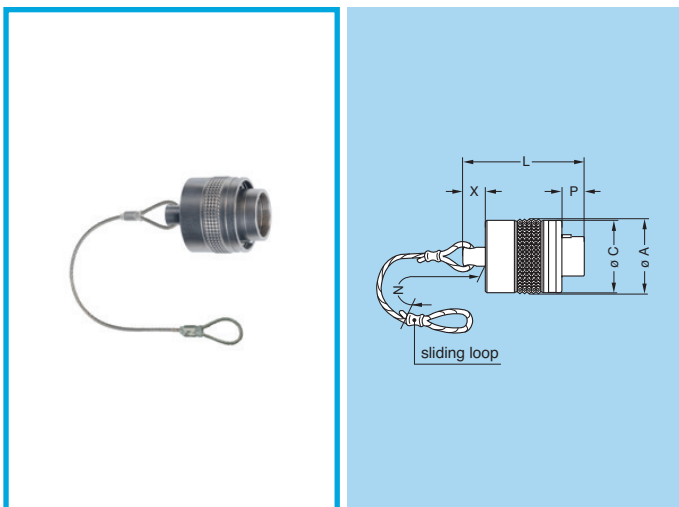
### BGE Blanking caps for fixed sockets



Part number	Dimensions (mm)					
	A	C	L	N <sup>1)</sup>	P	X
<b>BGE.MM.200.·AZ</b>	12.0	10.7	19.5	60.0	5.5	4.0
<b>BGE.0M.200.·AZ</b>	14.4	12.7	23.4	85.0	3.9	6.0
<b>BGE.1M.200.·AZ</b>	15.9	14.2	23.4	85.0	3.9	6.0
<b>BGE.2M.200.·AZ</b>	18.9	17.2	23.4	85.0	3.9	6.0
<b>BGE.3M.200.·AZ</b>	20.9	19.2	23.4	120.0	3.9	6.0
<b>BGE.TM.200.·AZ</b>	23.4	22.0	31.0	120.0	3.4	10.0
<b>BGE.4M.200.·AZ</b>	25.9	24.5	31.0	120.0	3.4	10.0
<b>BGE.LM.200.·AZ</b>	29.4	28.0	31.0	150.0	3.4	10.0
<b>BGE.5M.200.·AZ</b>	34.9	33.5	31.0	150.0	3.4	10.0

Note: 1) the tolerance on this dimension is  $\pm 5$  mm.

### BMF Blanking caps for free sockets

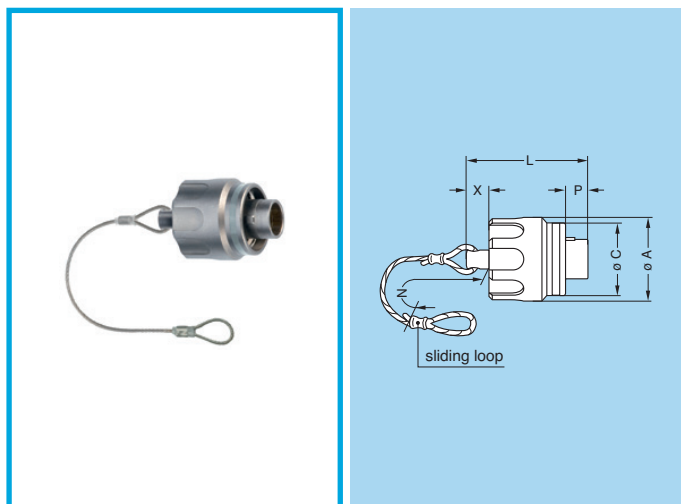


Part number	Dimensions (mm)					
	A	C	L	N <sup>1)</sup>	P	X
<b>BMF.MM.200.·AZ</b>	11.1	10.7	19.5	60.0	5.5	4.0
<b>BMF.0M.200.·AZ</b>	13.1	12.7	23.4	85.0	3.9	6.0
<b>BMF.1M.200.·AZ</b>	14.6	14.2	23.4	85.0	3.9	6.0
<b>BMF.2M.200.·AZ</b>	17.6	17.2	23.4	85.0	3.9	6.0
<b>BMF.3M.200.·AZ</b>	19.6	19.2	23.4	120.0	3.9	6.0
<b>BMF.TM.200.·AZ</b>	22.5	22.0	31.0	120.0	3.4	10.0
<b>BMF.4M.200.·AZ</b>	25.0	24.5	31.0	120.0	3.4	10.0
<b>BMF.LM.200.·AZ</b>	28.5	28.0	31.0	150.0	3.4	10.0
<b>BMF.5M.200.·AZ</b>	34.0	33.5	31.0	150.0	3.4	10.0

Note: 1) the tolerance on this dimension is  $\pm 5$  mm.



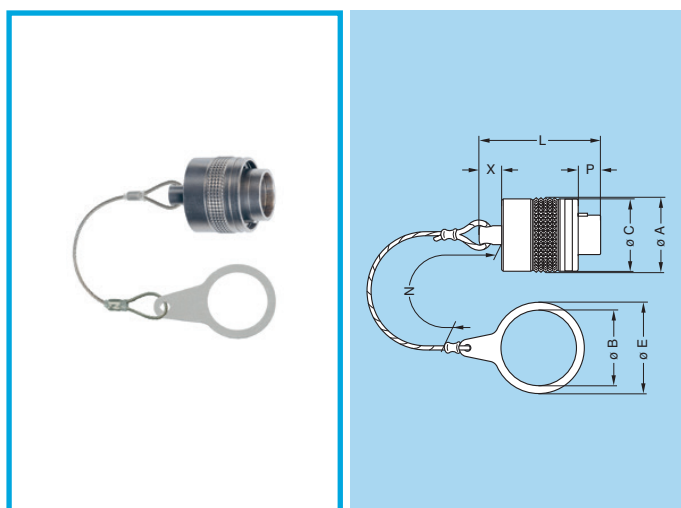
## BGF Blanking caps for free sockets



Part number	Dimensions (mm)					
	A	C	L	N <sup>1)</sup>	P	X
<b>BGF.MM.200.·AZ</b>	12.0	10.7	19.5	60.0	5.5	4.0
<b>BGF.0M.200.·AZ</b>	14.4	12.7	23.4	85.0	3.9	6.0
<b>BGF.1M.200.·AZ</b>	15.9	14.2	23.4	85.0	3.9	6.0
<b>BGF.2M.200.·AZ</b>	18.9	17.2	23.4	85.0	3.9	6.0
<b>BGF.3M.200.·AZ</b>	20.9	19.2	23.4	120.0	3.9	6.0
<b>BGF.TM.200.·AZ</b>	23.4	22.0	31.0	120.0	3.4	10.0
<b>BGF.4M.200.·AZ</b>	25.9	24.5	31.0	120.0	3.4	10.0
<b>BGF.LM.200.·AZ</b>	29.4	28.0	31.0	150.0	3.4	10.0
<b>BGF.5M.200.·AZ</b>	34.9	33.5	31.0	150.0	3.4	10.0

Note: <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.

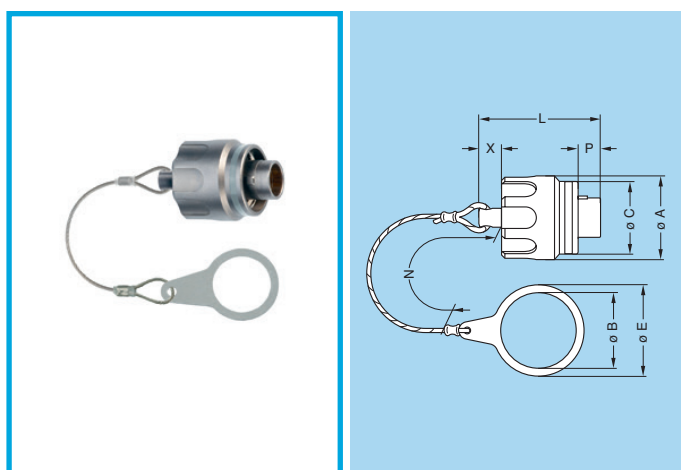
## BMK Blanking caps, large washer for EC●/PE●/HE● fixed sockets



Part number	Dimensions (mm)							
	A	B	C	E	L	N <sup>1)</sup>	P	X
<b>BMK.MM.200.·AZ</b>	11.1	10.1	10.7	14.0	19.5	60.0	5.5	4.0
<b>BMK.0M.200.·AZ</b>	13.1	13.1	12.7	17.0	23.4	85.0	3.9	6.0
<b>BMK.1M.200.·AZ</b>	14.6	14.1	14.2	18.0	23.4	85.0	3.9	6.0
<b>BMK.2M.200.·AZ</b>	17.6	17.2	17.2	21.0	23.4	85.0	3.9	6.0
<b>BMK.3M.200.·AZ</b>	19.6	19.2	19.2	23.0	23.4	120.0	3.9	6.0
<b>BMK.TM.200.·AZ</b>	22.5	22.2	22.0	27.0	31.0	120.0	3.4	10.0
<b>BMK.4M.200.·AZ</b>	25.0	24.2	24.5	29.0	31.0	120.0	3.4	10.0
<b>BMK.LM.200.·AZ</b>	28.5	28.2	28.0	33.0	31.0	150.0	3.4	10.0
<b>BMK.5M.200.·AZ</b>	34.0	33.2	33.5	38.0	31.0	150.0	3.4	10.0

Note: <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.

## BGK Blanking caps, large washer for EC●/PE●/HE● fixed sockets

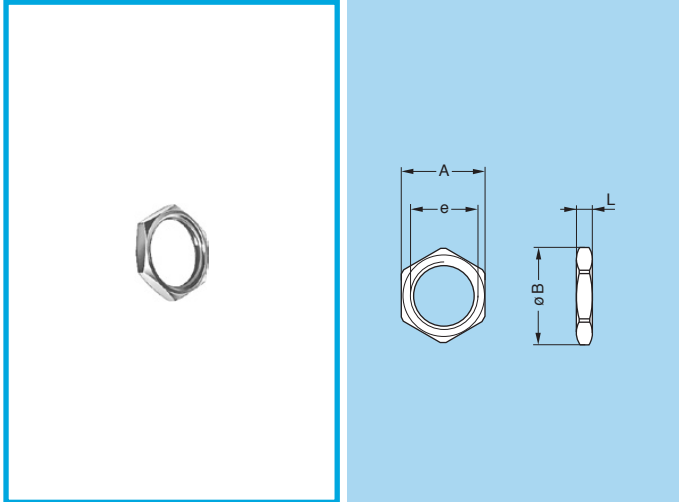


Part number	Dimensions (mm)							
	A	B	C	E	L	N <sup>1)</sup>	P	X
<b>BGK.MM.200.·AZ</b>	12.0	10.1	10.7	14.0	19.5	60.0	5.5	4.0
<b>BGK.0M.200.·AZ</b>	14.4	13.1	12.7	17.0	23.4	85.0	3.9	6.0
<b>BGK.1M.200.·AZ</b>	15.9	14.1	14.2	18.0	23.4	85.0	3.9	6.0
<b>BGK.2M.200.·AZ</b>	18.9	17.2	17.2	21.0	23.4	85.0	3.9	6.0
<b>BGK.3M.200.·AZ</b>	20.9	19.2	19.2	23.0	23.4	120.0	3.9	6.0
<b>BGK.TM.200.·AZ</b>	23.4	22.2	22.0	27.0	31.0	120.0	3.4	10.0
<b>BGK.4M.200.·AZ</b>	25.9	24.2	24.5	29.0	31.0	120.0	3.4	10.0
<b>BGK.LM.200.·AZ</b>	29.4	28.2	28.0	33.0	31.0	150.0	3.4	10.0
<b>BGK.5M.200.·AZ</b>	34.9	33.2	33.5	38.0	31.0	150.0	3.4	10.0

Note: <sup>1)</sup> the tolerance on this dimension is  $\pm 5$  mm.

These caps are suitable for use with any alignment key configuration. The position «·» of the part number indicates the housing material. See page 5.

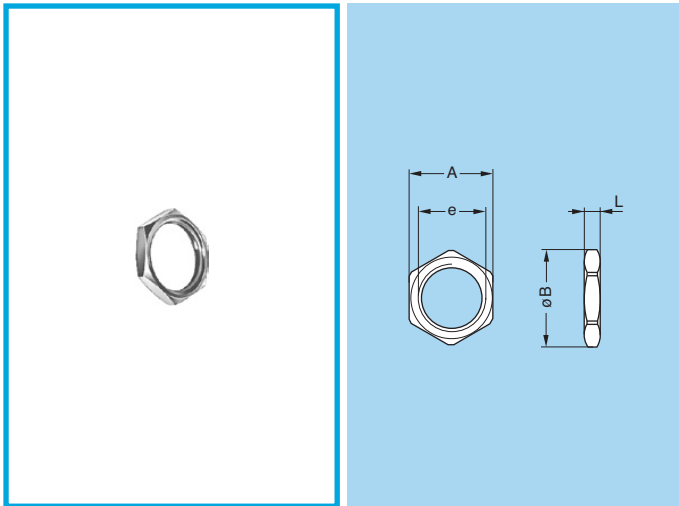
### GEA Hexagonal nuts for EC• model



Part number	Series	Dimensions (mm)			
		A	B	e	L
<b>GEA.MM.241.RL</b>	MM	12	13.5	M10x0.50	2.5
<b>GEA.0M.241.RL</b>	0M	16	18.2	M13x0.75	2.5
<b>GEA.0E.240.RL</b>	1M	17	19.2	M14x1.00	2.5
<b>GEA.2M.241.RL</b>	2M	19	21.5	M17x1.00	3.0
<b>GEA.3M.241.RL</b>	3M	25	22.0	M19x1.00	3.0
<b>GEA.TM.241.RL</b>	TM	25	28.0	M22x1.00	3.0
<b>GEA.4M.241.RL</b>	4M	30	34.0	M24x1.00	3.0
<b>GEA.LM.241.RL</b>	LM	32	36.0	M28x1.00	3.0
<b>GEA.5M.241.RL</b>	5M	37	41.0	M33x1.00	3.0

● Material: Nickel-plated aluminium alloy (anthracite colour)

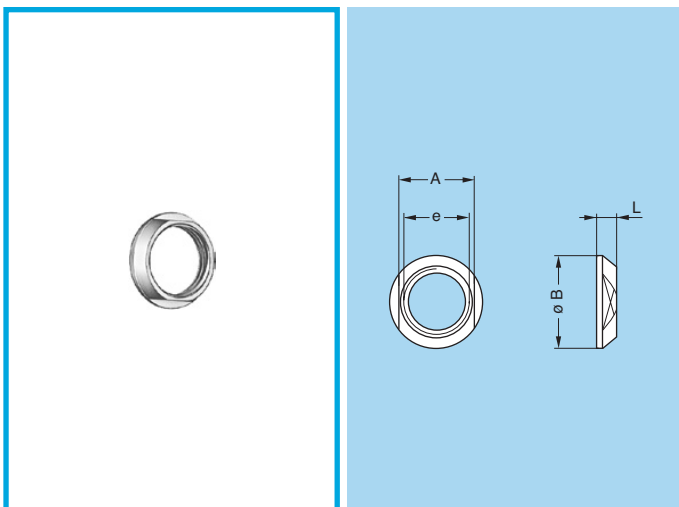
### GEA Hexagonal nuts for EG• model



Part number	Series	Dimensions (mm)			
		A	B	e	L
<b>GEA.00.240.RL</b>	MM	9	10.2	M7x0.50	2.0
<b>GEA.0S.240.RL</b>	0M	11	12.4	M9x0.60	2.0
<b>GEA.1M.240.RL</b>	1M	13	14.5	M11x1.00	2.5
<b>GEA.0E.240.RL</b>	2M	17	19.2	M14x1.00	2.5
<b>GEA.1E.240.RL</b>	3M	19	21.5	M16x1.00	3.0
<b>GEA.3S.240.RL</b>	TM	22	25.0	M18x1.00	3.0
<b>GEA.4M.240.RL</b>	4M	25	28.0	M21x1.00	4.0
<b>GEA.3E.240.RL</b>	LM	30	34.0	M24x1.00	5.0
<b>GEA.5M.240.RL</b>	5M	36	40.5	M30x1.00	5.0

● Material: Nickel-plated aluminium alloy (anthracite colour)

### GEC Conical nut for models HE•, EC•, PE•



Part number	Series	Dimensions (mm)			
		A	B	e	L
<b>GEC.MM.240.RN</b>	MM	11	14	M10x0.50	2.5
<b>GEC.0M.240.RN</b>	0M	14	17	M13x0.75	3.2
<b>GEC.0E.240.RN</b>	1M	16	18	M14x1.00	3.0
<b>GEC.2M.240.RN</b>	2M	18	21	M17x1.00	3.2
<b>GEC.3M.240.RN</b>	3M	20	23	M19x1.00	3.2
<b>GEC.TM.240.RN</b>	TM	23	27	M22x1.00	5.0
<b>GEC.4M.240.RN</b>	4M	25	29	M24x1.00	5.0
<b>GEC.LM.240.RN</b>	LM	29	33	M28x1.00	5.0
<b>GEC.5M.240.RN</b>	5M	34	38	M33x1.00	5.0

● Material: Nickel-plated aluminium alloy (anthracite colour)

## FGN M series constant force spring clips

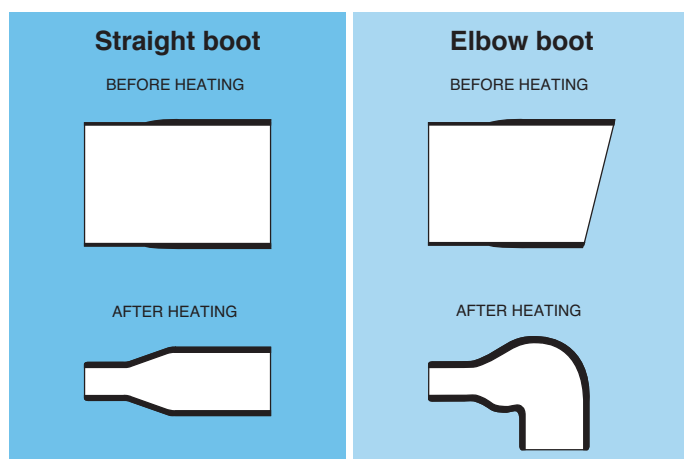


A range of constant force spring clips are available for use with M Series connectors, which permits repair of cable terminations without having to discard any of the existing braid shield system. When used in conjunction with LEMO heatshrink boots, a fully sealed termination is achieved. An additional benefit of the constant force spring is that it provides excellent resistance to shock or vibration due to its self-tensioning properties.

Part number	Series	Braid grounding location diameter (mm)
<b>FGN.0M.185.AZ</b>	0M / 1M / 2M	8.0 / 9.7 / 13.0
<b>FGN.3M.185.AZ</b>	3M / TM	15.0 / 16.7
<b>FGN.5M.185.AZ</b>	4M / LM / 5M	19.5 / 22.7 / 28.5

**Note:** Force spring clips can be assembled by hand. Do not require additional tools.

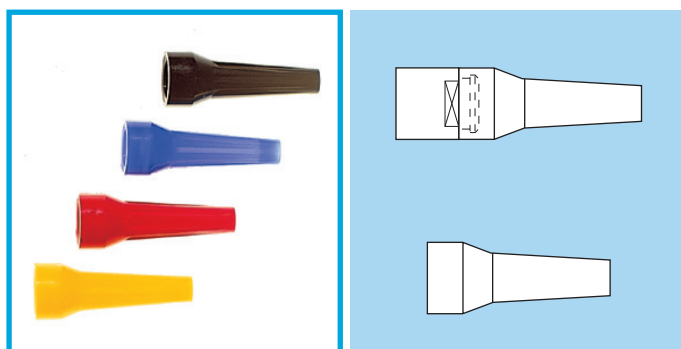
## Heatshrink boot



Supplier	Series	Part number		Note	cable Ø min. (mm)
		Straight	Elbow 90°		
LEMO	MM	<b>GMA.10.290.DN</b>	<b>GHA.10.210.DN</b>	2)	2.2
Raychem®	0M-2M	<b>202 A 111-25/86</b>	<b>222 A 111-25/86</b>	1)	3.8
	2M-4M	<b>202 A 121-25/86</b>	<b>222 A 121-25/86</b>	1)	5.3
	4M-5M	<b>202 A 142-25/86</b>	<b>222 A 142-25/86</b>	1)	7.4

**Note:**  
<sup>1)</sup> modified elastomer resistant to fluids with hot melt sealant.  
<sup>2)</sup> elastomer resistant to fluids. We recommend a thermosetting sealant with this type of boot.

## GMA Bend relief (for M series fibre optic model only)



Part number (Polyurethane)	Series	Part number (Silicone)
<b>GMA.2B.0..DG</b>	2M	<b>GMA.2B.0..RG</b>
<b>GMA.3B.0..DG</b>	3M	<b>GMA.3B.0..RG</b>
<b>GMA.4B.0..DG</b>	5M	<b>GMA.4B.0..RG</b>

**Note:**  
Please see unipole/multipole catalogue for bend relief dimensions. The last letter «G» of the part number indicates the grey colour of the bend relief. For ordering a bend relief with another colour, see table on the right and replace the letter «G» by the letter of the required colour.

A bend relief made from thermoplastic polyurethane elastomer can be fitted over LEMO plugs and sockets that are supplied with nut for fitting such bend relief.

An other bend relief has been designed for connectors used in applications at high temperature or requiring vapour sterilization. These bend reliefs are different from previous ones as for their material, a silicone elastomer which is noted for its retention of flexibility over a wide temperature range.

### Main characteristics

- Material: TPU (Thermoplastic Polyurethane)
- Temperature range in dry atmosphere: -40°C +80°C
- Material: Silicone elastomer VMQ
- Temperature range in dry atmosphere: -60°C +200°C
- Temperature range in water steam: +140°C

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

## Tooling

### DCE Positioners for crimp contacts

Male



Contact		Positioners part number
Contact ø	Size	For male contacts
1.3	0M-5M	<b>DCE.91.130.5MVC</b>
0.9	0M-5M	<b>DCE.91.090.5MVC</b>
0.7	0M-5M	<b>DCE.91.070.5MVC</b>
0.5	MM	<b>DCE.91.050.0VC</b>

Female



Contact		Positioners part number
Contact ø	Size	For female contacts
1.3	0M-5M	<b>DCE.91.130.5MVM</b>
0.9	0M-3M	<b>DCE.91.090.3MVM</b>
	TM-5M	<b>DCE.91.09T.5MVM</b>
0.7	0M-3M	<b>DCE.91.070.3MVM</b>
	TM-5M	<b>DCE.91.07T.5MVM</b>
0.5	MM	<b>DCE.91.050.0VM</b>

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

### DCF Extractors for crimp contacts



Contact ø	Part number
1.3	<b>DCF.93.131.4LT</b>
0.9	<b>DCF.93.090.4LT</b>
0.7	<b>DCF.93.070.4LT</b>
0.5	<b>DCF.91.050.2LT</b>

**Note:** this model is used for male and female contacts.

### DCV Female contact insertion tool



Contact ø	Part number
1.3	<b>DCV.13.05M.LA</b>
0.9	<b>DCV.09.05M.LA</b>
0.7	<b>DCV.07.05M.LA</b>
0.5	<b>DCV.05.05M.LA</b>

## DCM Insert conical nut tightening tools

Insert conical nut

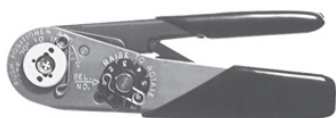


Torque wrench



Part number		Series	Torque (Nm)	For models
Insert conical nut	Torque wrench			
DCM.65.120.AZ	DCM.65.000.4PA	MM	1.0	EC●, HE●, PE●
DCM.65.140.AZ		0M	1.0	EC●, HE●, PE●
DCM.65.160.AZ		1M	1.5	EC●, HE●, PE●
DCM.65.180.AZ		2M	2.0	EC●, HE●, PE●
DCM.65.200.AZ		3M	2.5	EC●, HE●, PE●
DCM.65.230.AZ	DCM.65.040.8PA	TM	4.0	EC●, HE●, PE●
DCM.65.250.AZ		4M	5.0	EC●, HE●, PE●
DCM.65.290.AZ		LM	6.5	EC●, HE●, PE●
DCM.65.340.AZ		5M	8.0	EC●, HE●, PE●

## DPC Manual crimping tool



Part number

**DPC.91.701.V**

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

## Banding tool and Tie-wrap



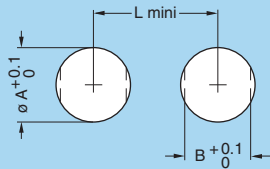
	Part number		
	GLEN-AIR®	TIE-DEX®	AXON®
Banding tool	<b>600-061</b>	<b>A30199</b>	<b>ACDBS100</b>
Tie wrap <sup>1)</sup>	<b>600-057</b>	<b>A31189</b>	<b>AXCL 02</b>

**Note:** <sup>1)</sup> need to be ordered in addition of tool.  
The banding tool is to be used with screened cables to ensure a good ground contact.

# Panel Cut-Out

## Cut-outs

EG●-EC●-HE●-PE●



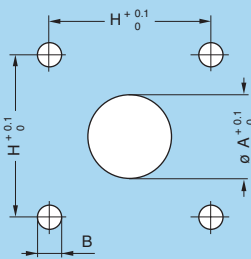
Series	EG●			EC●/HE●/PE●		
	$\phi A$	B	L	$\phi A$	B	L
MM	7.1	6.4	12.5	10.1	9.1	16.0
0M	9.1	8.3	14.5	13.1	11.6	20.0
1M	11.1	9.6	17.2	14.1	12.6	21.0
2M	14.1	12.6	20.5	17.1	15.6	24.0
3M	16.1	14.6	23.0	19.1	17.6	27.0
TM	18.1	16.6	27.0	22.1	20.6	31.5
4M	21.1	19.6	30.0	24.1	22.6	35.5
LM	24.1	22.6	32.0	28.1	26.6	36.5
5M	30.1	28.6	41.0	33.1	31.6	41.0

## Mounting nut torque (on panel)

Series	Torque (Nm)
MM	1.0
0M	1.0
1M	1.5
2M	2.0
3M	2.5
TM	4.0
4M	5.0
LM	6.5
5M	8.0

## Cut-outs

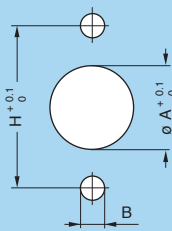
ED●-FA●-FW●-FX●-PV●-PF●



Series	ED●			FA●/FW●/FX●			PV●			PF●		
	$\phi A$	B	H	$\phi A$	B	H	$\phi A$	B	H	$\phi A$	B	H
MM	5.0	M2.5	9.5	9.6	M2.5	12.0	11.8	M2.5	12.0	7.9	M2.5	9.5
0M	5.1	M2.5	11.0	12.3	M2.5	15.1	15.0	M2.5	15.1	10.8	M2.5	11.0
1M	6.1	M3.0	12.9	13.8	M3.0	18.3	17.0	M3.0	18.3	12.5	M3.0	12.9
2M	9.1	M3.0	15.1	16.8	M3.0	20.6	20.0	M3.0	20.6	15.6	M3.0	15.1
3M	11.1	M3.0	16.6	18.8	M3.0	20.6	22.0	M3.0	23.0	18.1	M3.0	16.6
TM	12.5	M3.0	18.3	21.6	M3.0	23.0	25.0	M3.0	24.6	19.9	M3.0	18.3
4M	14.1	M3.0	20.6	24.1	M3.0	24.6	28.0	M3.0	27.0	22.7	M3.0	20.6
LM	18.1	M3.0	23.0	27.6	M3.0	27.0	31.0	M3.0	29.4	25.9	M3.0	23.0
5M	23.2	M3.0	27.0	33.1	M3.0	29.4	38.0	M3.0	34.9	33.1	M3.0	29.4

## Cut-outs

PB●

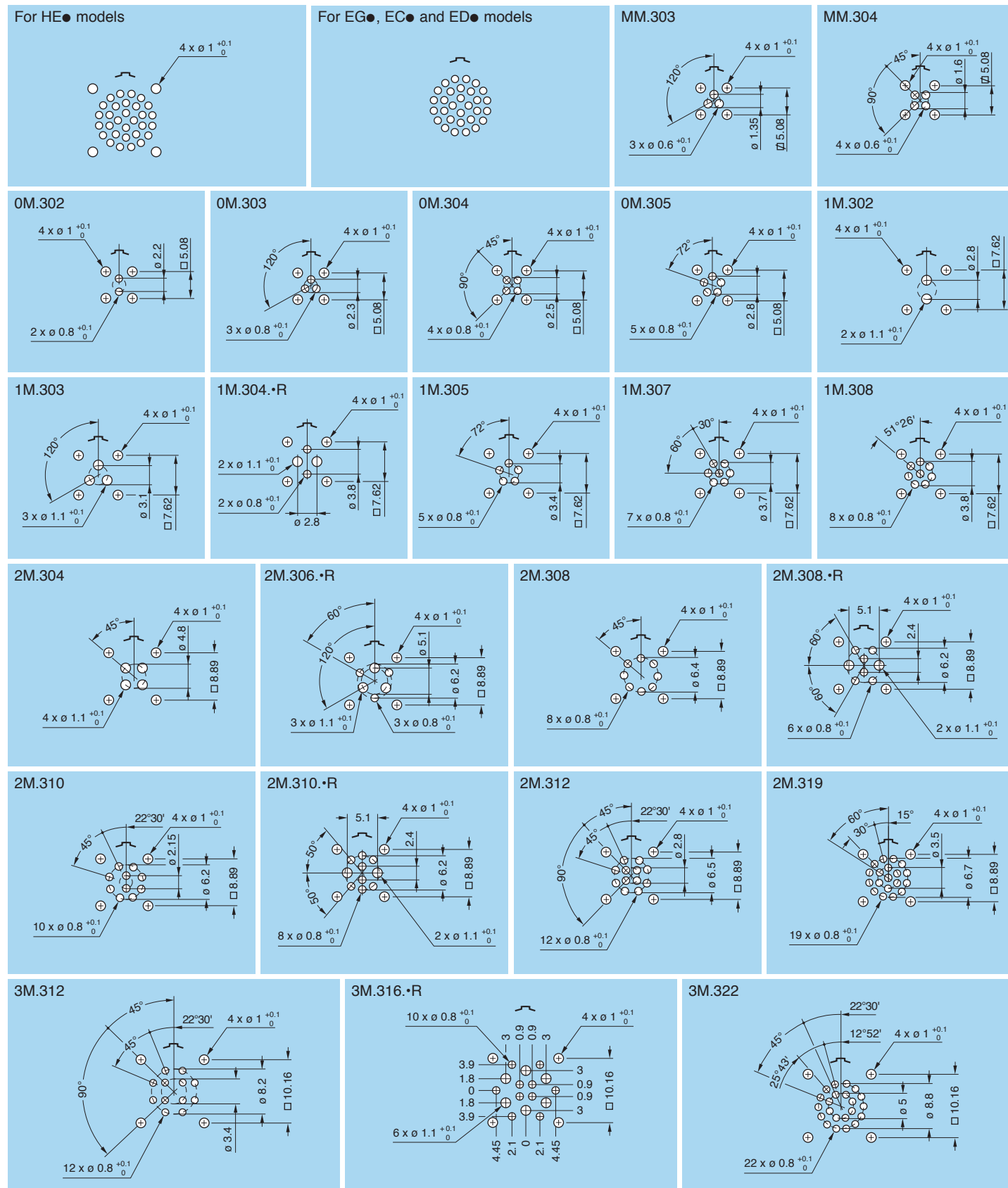


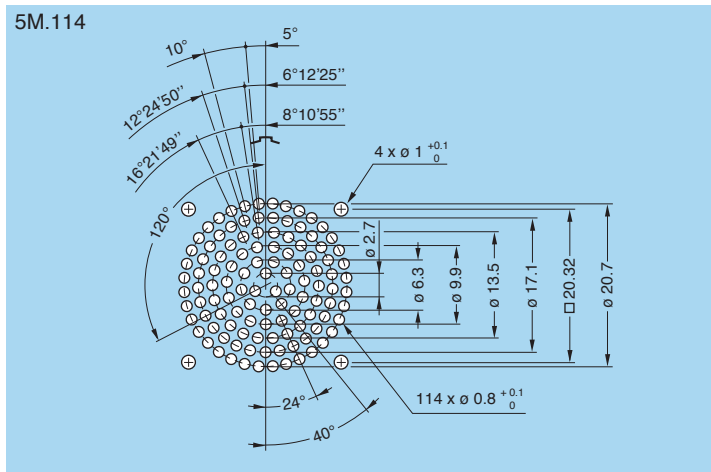
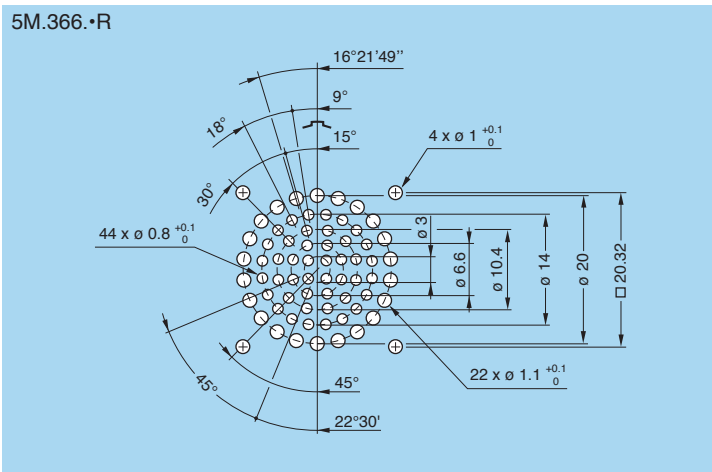
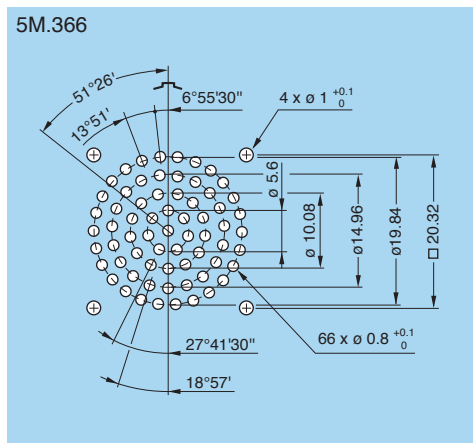
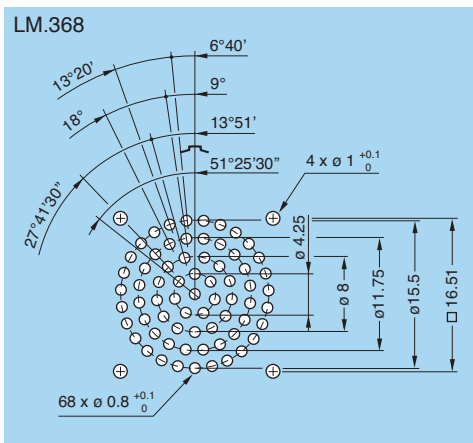
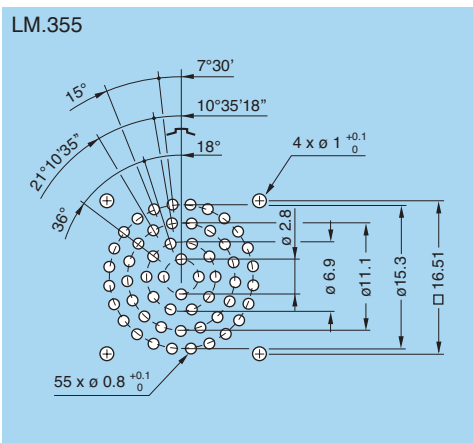
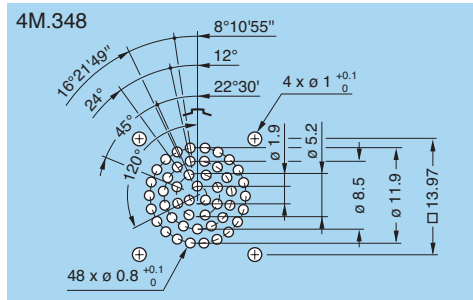
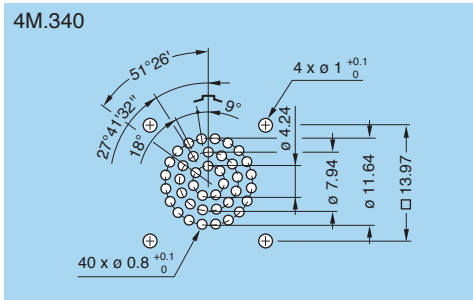
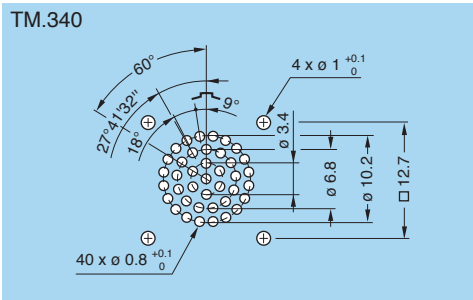
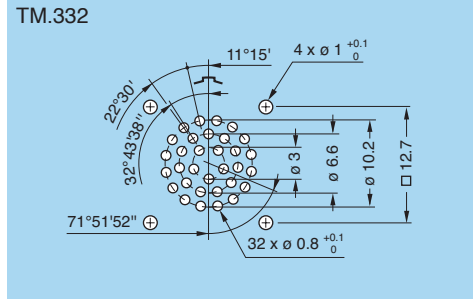
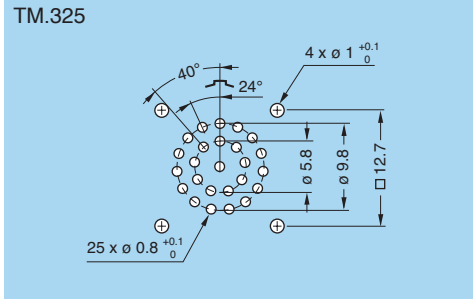
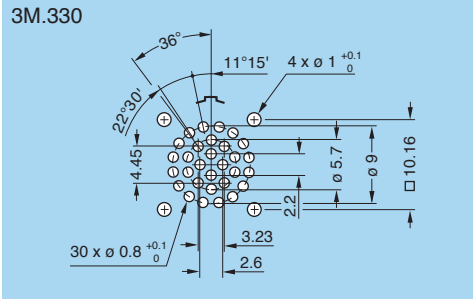
Series	PB●		
	$\phi A$	B	H
MM	11.8	M2.5	16.2
0M	15.0	M3.0	21.4
1M	17.0	M3.0	23.4
2M	20.0	M3.0	26.4
3M	22.0	M3.0	29.0

Series	PB●		
	$\phi A$	B	H
TM	25.0	M3.0	32.5
4M	28.0	M3.0	35.0
LM	31.0	M3.0	38.0
5M	38.0	M3.0	45.0

# PCB drilling pattern

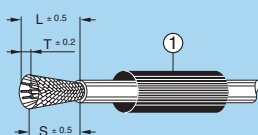
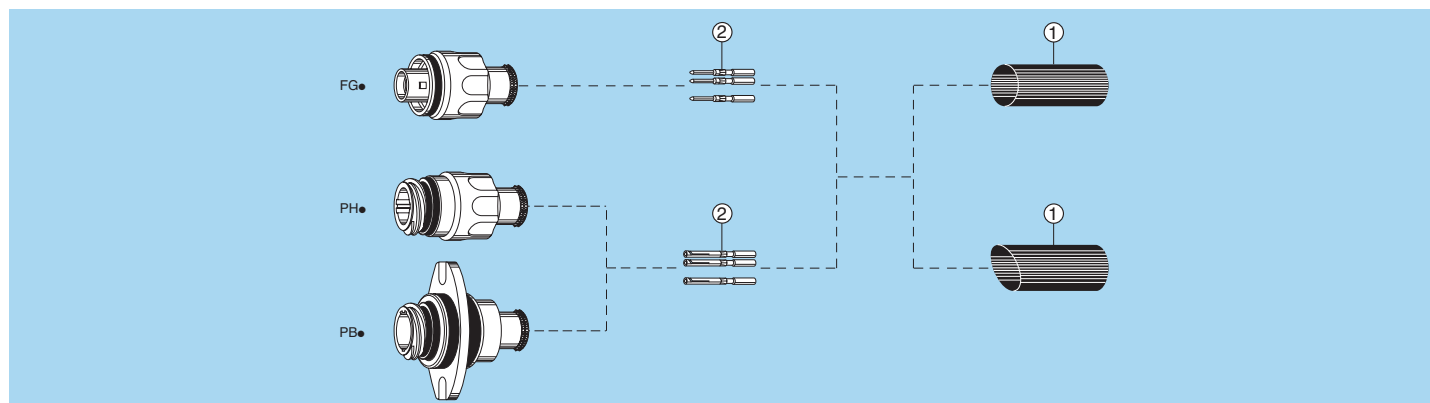
## Fixed socket with straight print contact







## Assembly instructions for plugs and sockets



### 1. Cable preparation

First place the heatshrink boot ① over the cable. Strip the cable according to dimensions of the table, then widen the shield.

Series	L	S	T
MM	14	9	3.0
0M to 5M	20	15	3.5

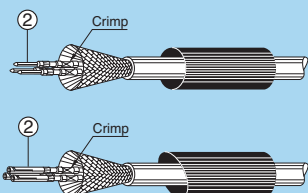
Note: dimensions are in mm.

### 2. Cable termination

**2.1** With shielded cables, widen and pull the shield all the way to the back. Fix the appropriate positioner onto the crimping tool and set the selector to the number corresponding to the AWG of the conductor used as indicated on the positioner label.

Fit the conductor into the contact ②; make sure it is visible through the contact's inspection hole.

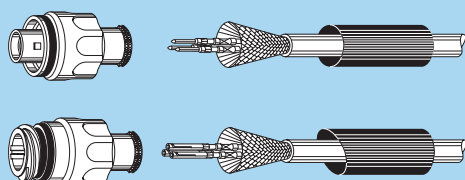
Slide the conductor-contact assembly into the open crimping tool; make sure that the contact is pushed fully into the positioner. Close the tool. Remove from crimping tool and check that conductor is secure in contact and shows in inspection hole.



**2.2** Arrange the conductor-contact assemblies according to the markings, into the rear cable seal.

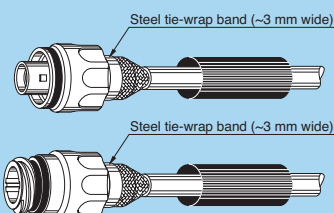
Push them deeply into the insulator, using tweezers if necessary; check that all the contacts are correctly located in the insulator: 1) by verifying the alignment of the contacts at the front of the insulator and 2) by gently pulling on each conductor.

Verification should also be made using the appropriate retention testing tool.

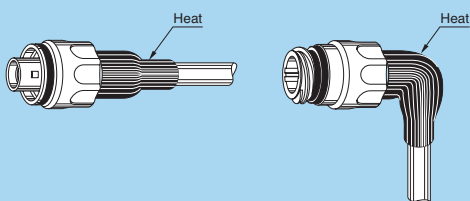


**2.3** Bring the shield around the rear of connector.

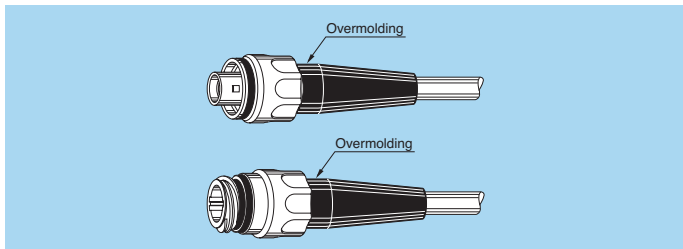
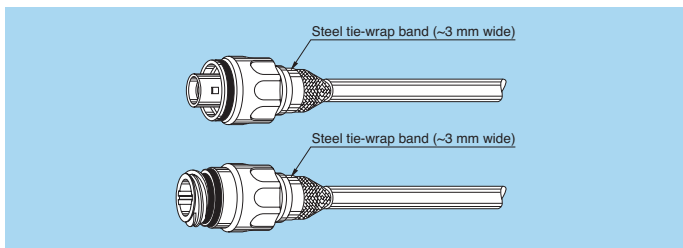
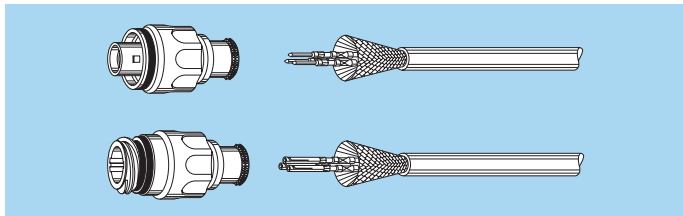
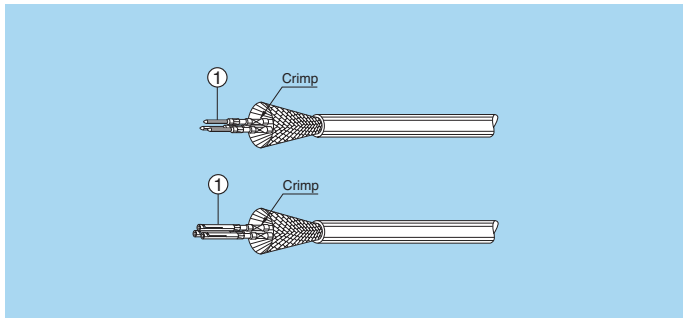
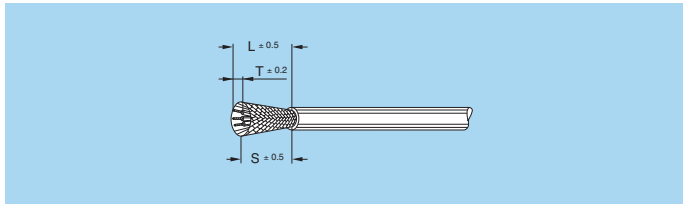
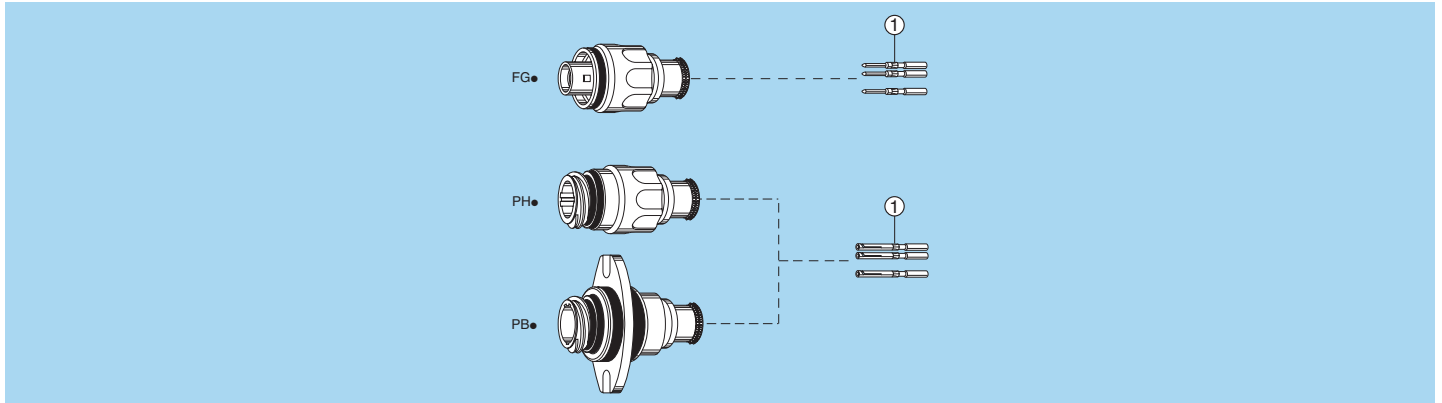
Secure it with a band-it tie-wrap (not furnished) to fix the shield in place. Cut off the possible shield surplus.



**2.4** Put the heatshrink boot in place and heat gently until it retracts.



## Assembly instructions for plugs and sockets (with optional mold stop)



### 1. Cable preparation

Strip the cable according to dimensions of the table, then widen the shield.

Series	L	S	T
MM	14	9	3.0
0M to 5M	20	15	3.5

Note: dimensions are in mm.

### 2. Cable termination

**2.1** With shielded cables, widen and pull the shield all the way to the back. Fix the appropriate positioner onto the crimping tool and set the selector to the number corresponding to the AWG of the conductor used as indicated on the positioner label.

Fit the conductor into the contact ①; make sure it is visible through the contact's inspection hole.

Slide the conductor-contact assembly into the open crimping tool; make sure that the contact is pushed fully into the positioner. Close the tool. Remove from crimping tool and check that conductor is secure in contact and shows in inspection hole.

**2.2** Arrange the conductor-contact assemblies according to the markings, into the rear cable seal.

Push them deeply into the insulator, using tweezers if necessary; check that all the contacts are correctly located in the insulator: 1) by verifying the alignment of the contacts at the front of the insulator and 2) by gently pulling on each conductor.

Verification should also be made using the appropriate retention testing tool.

**2.3** Bring the shield around the rear of connector until the mold stop.

Secure it with a band-it tie-wrap (not furnished) to fix the shield in place. Cut off the possible shield surplus.

**2.4** Custom overmold cable assembly.

## Product safety notice

**PLEASE READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY AND CONSULT ALL RELEVANT NATIONAL AND INTERNATIONAL SAFETY REGULATIONS FOR YOUR APPLICATION. IMPROPER HANDLING, CABLE ASSEMBLY, OR WRONG USE OF CONNECTORS CAN RESULT IN HAZARDOUS SITUATIONS.**

### 1. SHOCK AND FIRE HAZARD

Incorrect wiring, the use of damaged components, presence of foreign objects (such as metal debris), and / or residue (such as cleaning fluids), can result in short circuits, overheating, and / or risk of electric shock. Mated components should never be disconnected while live as this may result in an exposed electric arc and local overheating, resulting in possible damage to components.

### 2. HANDLING

Connectors and their components should be visually inspected for damage prior to installation and assembly. Suspect components should be rejected or returned to the factory for verification. Connector assembly and installation should only be carried out by properly trained personnel. Proper tools must be used during installation and / or assembly in order to obtain safe and reliable performance.



### 3. USE

Connectors with exposed contacts should never be live (or on the current supply side of a circuit). Under general conditions voltages above 30 VAC and 42 VDC are considered hazardous and proper measures should be taken to eliminate all risk of transmission of such voltages to any exposed metal part of the connector.

### 4. TEST AND OPERATING VOLTAGES

The maximum admissible operating voltage depends upon the national or international standards in force for the application in question. Air and creepage distances impact the operating voltage; reference values are indicated in the catalog however these may be influenced by PC board design and / or wiring harnesses. The test voltage indicated in the catalog is 75% of the mean breakdown voltage; the test is applied at 500 V/s and the test duration is 1 minute.

### 5. CE MARKING

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

### 6. PRODUCT IMPROVEMENTS

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### 7. **WARNING (Prop 65 State of California)**

Proposition 65 requires businesses to provide warnings to Californians about significant exposures to chemicals that cause cancer, birth defects or other reproductive harm. LEMO products are exempt from proposition 65 warnings because they are manufactured, marketed, and sold solely for commercial and industrial use. For further information, please visit <https://www.lemo.com/quality/LEMO-Prop-65-compliance-declaration.pdf>.

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