

PLASTIC CONNECTORS



SERIES





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Precision modular connectors to suit your application

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

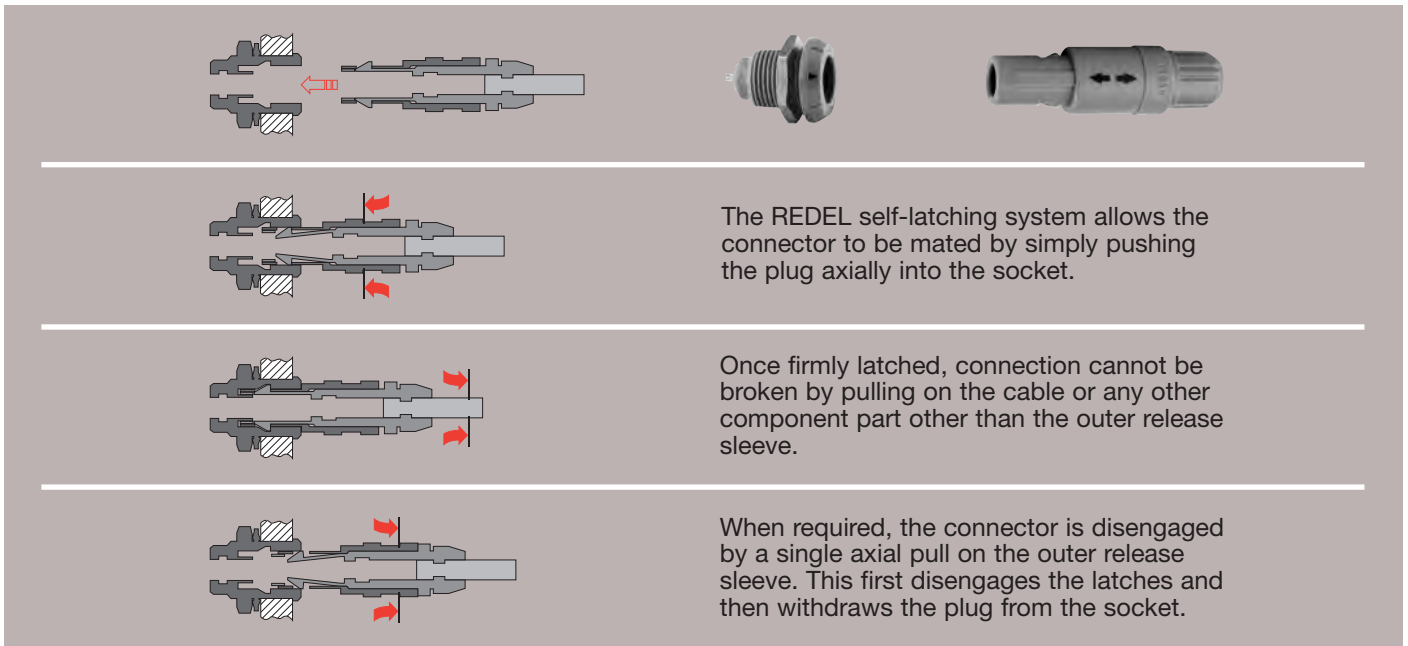
Over 5'000 REDEL connectors

The modular design of the REDEL range provides over 5'000 connectors from \varnothing 14 mm to \varnothing 21 mm, capable of handling cable diameters up to 9.5 mm and up to 32 contacts.

This vast portfolio enables you to select the ideal connector configuration to suit almost any specific requirement in most markets, including medical devices, test and measurement instruments, machinery, audio video broadcast, telecommunications and military.

REDEL's Push-Pull Self-Latching Connection System


This self-latching system is renowned worldwide for its easy and quick mating and unmating features. It provides absolute security against vibration, shock or pull on the cable, and facilitates operation in a very limited space.




UL Recognition

REDEL connectors are recognized by the Underwriters Laboratories (UL). The approval of the complete system (REDEL connector, cable and your equipment) will be easier because REDEL connectors are approved.

CE Marking

CE marking  means that the appliance or equipment bearing it complies with the protection requirements of one or several European safety directives.

CE marking  applies to complete products or equipment, **but not to electromechanical components, such as connectors.**

RoHS

REDEL connector specifications exceed the requirements of the RoHS directives (2002/95/EC) of the European Parliament and the latest amendments. This directive specifies the restrictions of the use of hazardous substances in electrical and electronic equipment marketed in Europe. LEMO guarantees that its connectors are free of mercury, cadmium, lead, hexavalent chromium and polybromide biphenyl (PBB), polybromide diphenyl ether (PBDE), or DecaBDE.

REDEL connector range

The REDEL connectors are plastic Push-Pull connectors. These circular plastic connectors are especially adapted for applications such as medical electronics and test & measurement. REDEL offers a wide choice of connectors with various contact configurations: multipole contacts, coaxial, fibre optics and fluidic connectors. In addition, a range of one time use connectors and connectors for mains power is available. The REDEL connectors are available in 3 sizes, depending on the cable diameter.

Features & Benefits

- | | |
|--|--|
| <ul style="list-style-type: none"> ● Aesthetically pleasing design ● Lightweight ● Plastic shell made of PSU or PEI ● Extensive sterilisation (over 100 cycles) ● Excellent electrical safety (touch & scoop proof) | <ul style="list-style-type: none"> ● Wide choice of colours for easy identification (grey, blue, yellow, black, red, green and white) ● Large choice of keying to avoid cross mating ● Various contact types: solder, crimp, print and elbow print 90° ● Disposable models |
|--|--|

Applications

- | | |
|---|--|
| <ul style="list-style-type: none"> ● Medical electronics ● Test and measurement | <ul style="list-style-type: none"> ● Industrial electronics ● Automotive |
|---|--|

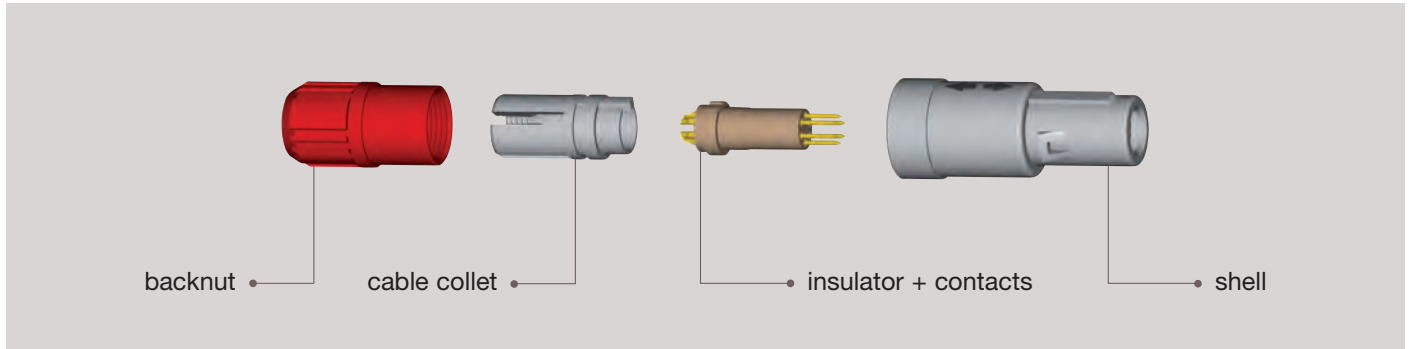


	1P	2P	3P
Series	1P	2P	3P
Environment	indoor / splash proof	indoor / outdoor	indoor / dripping water
Ingress¹⁾ protection	IP50 / IP64	IP50 / IP66	IP61
Temperature range	PSU: -50° / +150°C PEI: -50° / +170°C	PSU: -50° / +150°C PEI: -50° / +170°C	PSU: -50° / +150°C
Latching	Push-Pull self latching		
Insulator type	Multipole, Mains Power, Fluidic	Multipole, Hybrid: fluidic + LV, coaxial + LV	Multipole, Hybrid: high voltage + LV, coaxial + LV, fibre optic + LV, fluidic + LV
Contact type	Solder, crimp or print		
Other	Disposable models	-	-
Cable diameter	2.7 mm to 6.5 mm	3.2 mm to 9.2 mm	6.7 mm to 9.5 mm
Features	6 keyways	3 keyways	Insert Polarizations

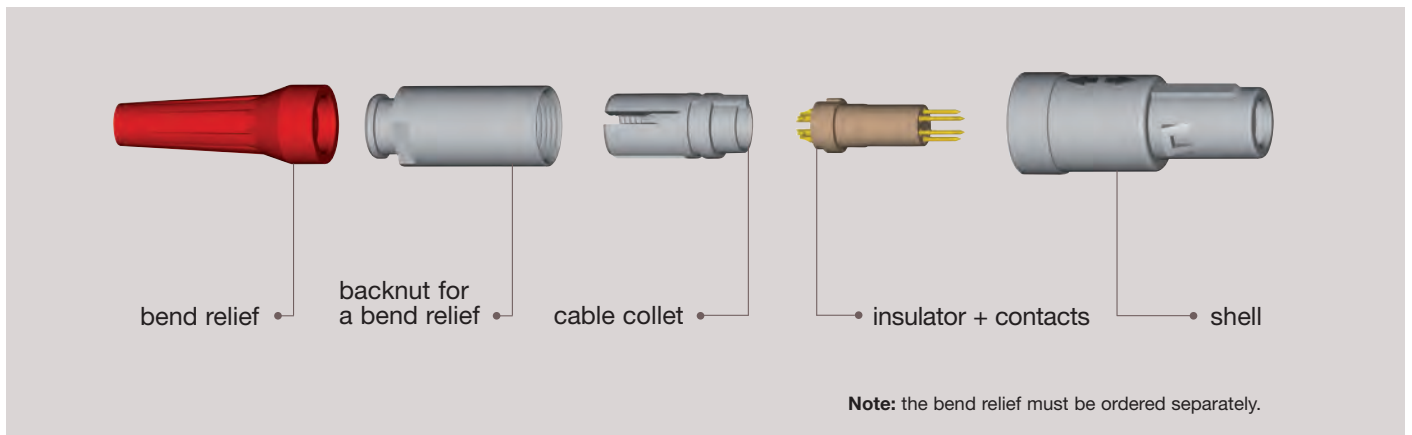
Note: ¹⁾ mated connector.

Exploded view of the REDEL 1P

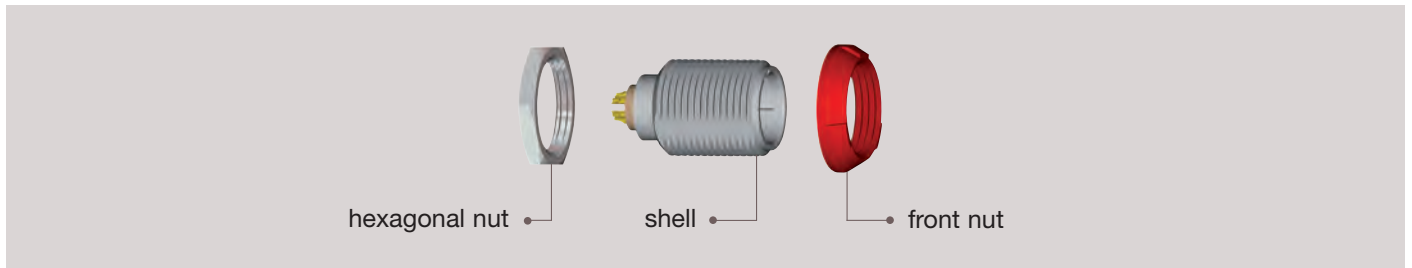
Straight plug



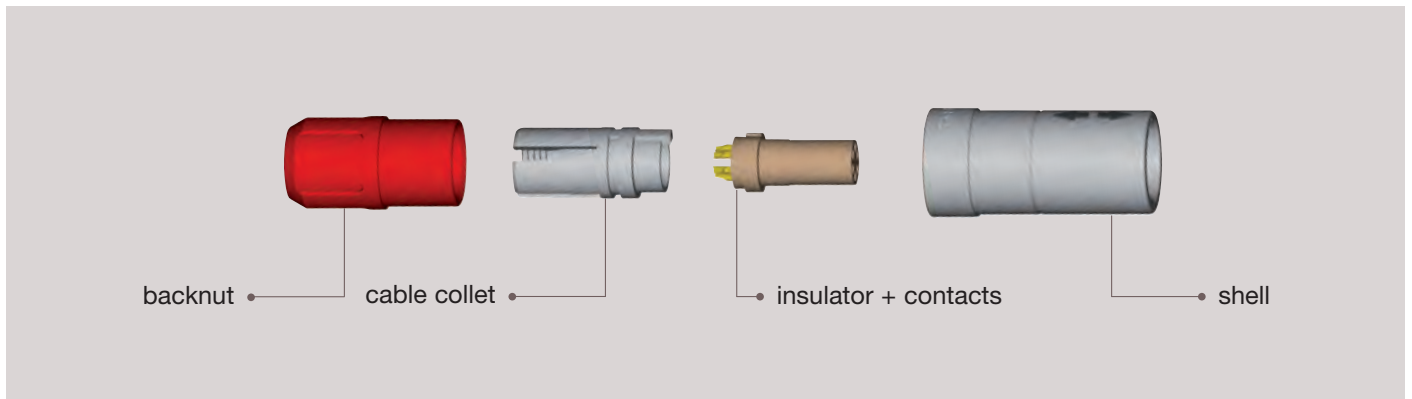
Straight plug with bend relief



Fixed socket



Free socket





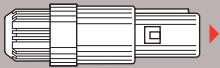
1P SERIES

1P Series

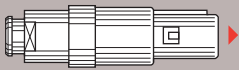
A well proven connector of a small size to accommodate cable diameter up to 6.5 mm and allow up to 14 solder contacts. Top quality lightweight and rugged materials have been chosen to optimize most applications. Polysulfone (PSU), UL certified as autoextinguishable, can be sterilized by gas or by steam. The contacts are gold-plated over copper and nickel to ensure at least 1000 mating/unmating cycles without significantly affecting the electrical characteristics. A keying system combined with colour coding can be incorporated on most connector models to assist in the prevention of mismatching. Colour coding of the plug collet nut and socket flange will give an instant visual indication of connector compatibility.

Standard models (page 8 to 11)

Straight plugs

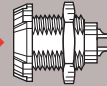


PA ●

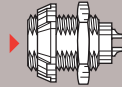


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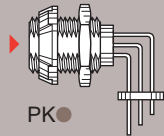
Fixed sockets



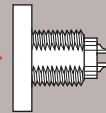
PL ●



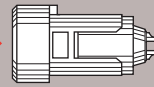
PK ●



PK ●



PM ●

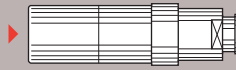


PY ●

Free sockets

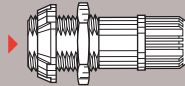


PR ●

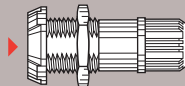


PR ●

Fixed sockets

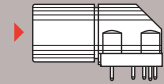


PT ●

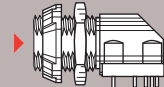


PD ●

Elbow socket models (page 12)

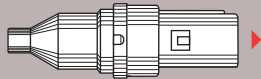


PP ●



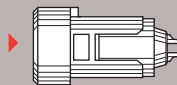
PX ●

Disposable plug (limited use) (page 13)



PJ ●

Disposable socket (limited use) (page 13)



PY ●

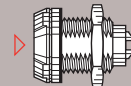
Watertight models (page 14 to 15)

Straight plug



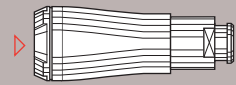
PF ●

Fixed socket



PN ●

Free socket



PS ●

Fluidic configuration (page 16 to 17)

Straight plugs

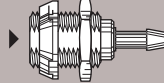


PA ●

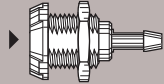


PA ●

Fixed sockets



PK ●



PL ●

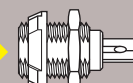
Mains power configuration (page 18)

Straight plug



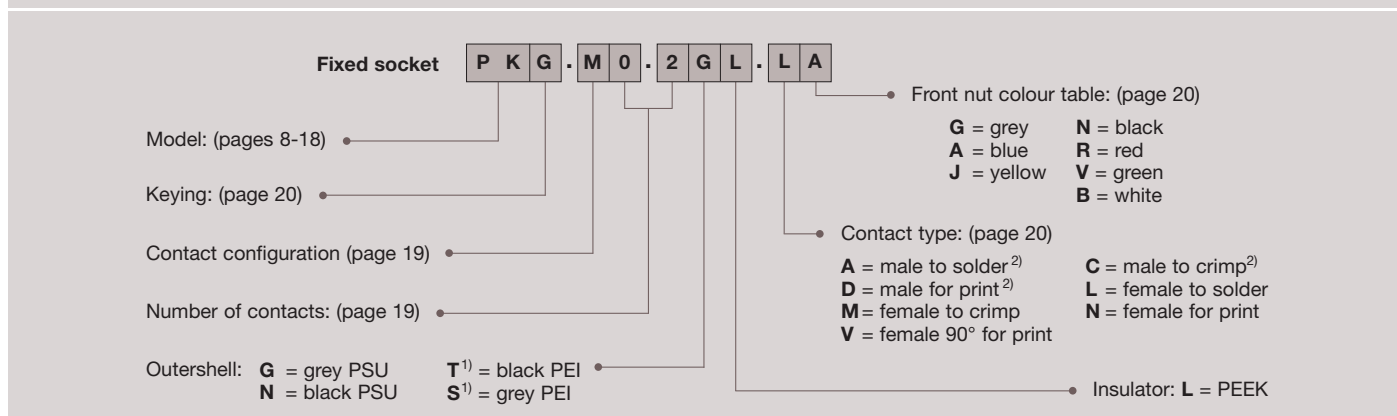
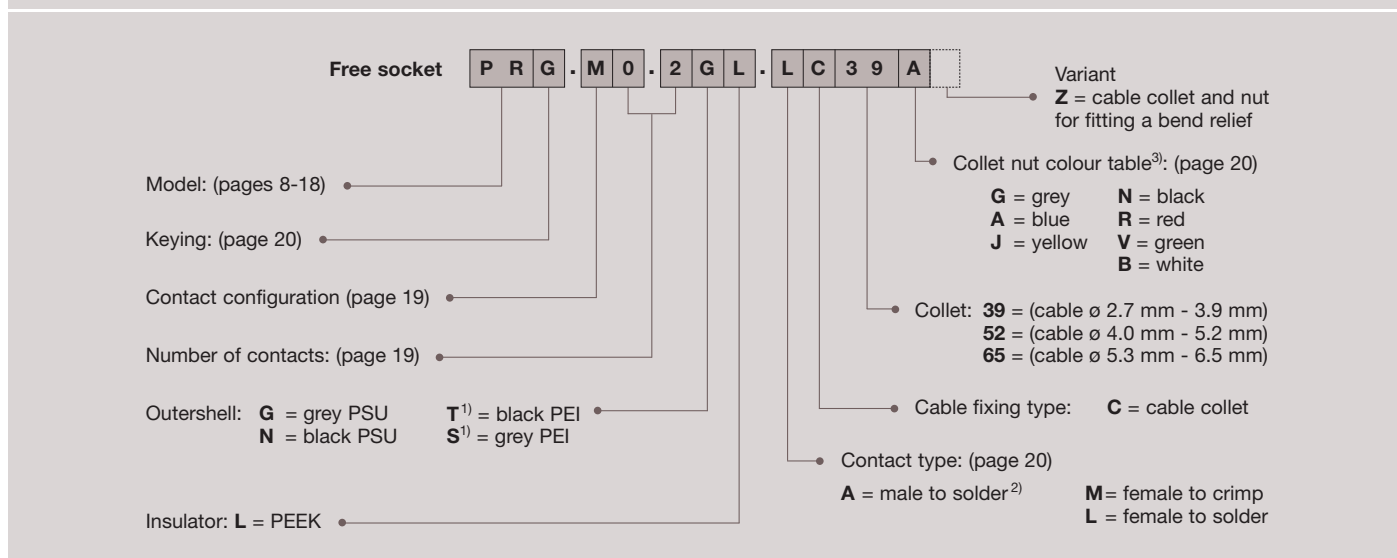
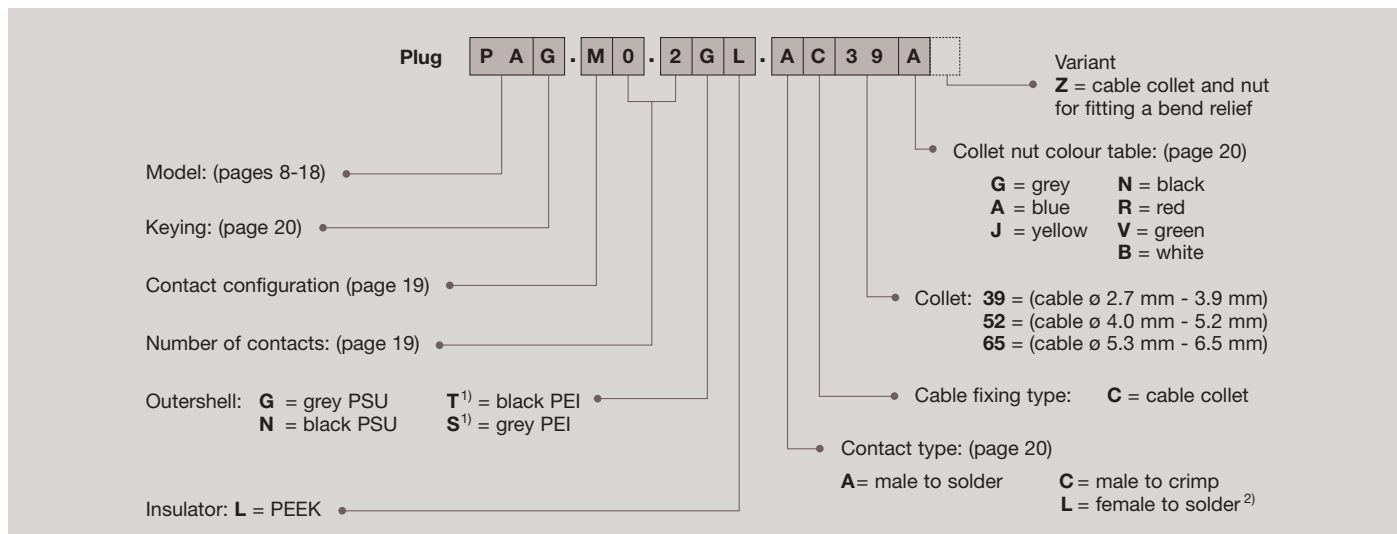
PAH

Fixed socket



PKH

Part numbering system



PAG.M0.2GL.AC39A Straight plug with cable collet and alignment key (G), multipole type with 2 male contacts to solder, grey PSU outershell, PEEK insulator, collet for a cable ø 2.7 to 3.9 mm and blue collet nut.

PRG.M0.2GL.LC39A Free socket with cable collet and alignment key (G), multipole with 2 female contacts to solder, grey PSU outershell, PEEK insulator, collet for a cable ø 2.7 to 3.9 mm and blue collet nut.

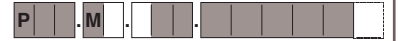
PKG.M0.2GL.LA Fixed socket with two nuts and alignment key (G), multipole type with 2 female contacts to solder, grey PSU outershell, PEEK insulator, and blue plastic front nut.

Note: 1) for extensive steam sterilization we recommend Polyetherimide ULTEM® (PEI).

2) contact available only with H and J keying and with 8, 10 or 14 contacts (inverted contacts).

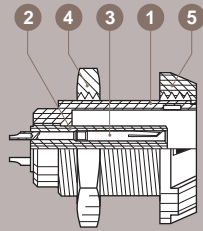
3) collet nut and front nut colour table for PT• and PD• models.

Standard models (IP50)



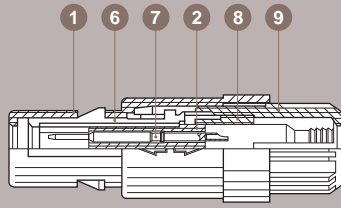
Fixed socket

- 1 Outershell
- 2 Insulator
- 3 Female contact
- 4 Hexagonal nut
- 5 Front nut



Straight plug

- 1 Outershell
- 2 Insulator
- 6 Latch sleeve
- 7 Male contact
- 8 Cable collet
- 9 Backnut



Characteristics	Value	Standards
Average retention force when pulling on the cable 1N = 0.102 kg	90 N	IEC 60512-8 test 15f
Cable retention force (depends on cable construction) 1N = 0.102 kg	50 - 150 N	IEC 60512-9 test 17c

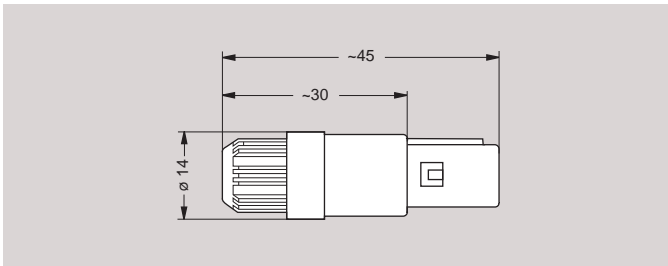
Characteristics	Value	Standards
Endurance (latching)	> 1000 cycles	IEC 60512-5 test 9a
Working temperature range (PSU)	-50/+150°C	-
Working temperature range (PEI)	-50/+170°C	-

PAG Straight plug, key (G) or keys (A, B, C, H and J), with cable collet



Part Number	Cable ϕ	
	min	max
PAG.M●●GL.AC39G	2.7	3.9
PAG.M●●GL.AC52G	4.0	5.2
PAG.M●●GL.AC65G	5.3	6.5

Note: replace ●● by contact configuration (see page 19).

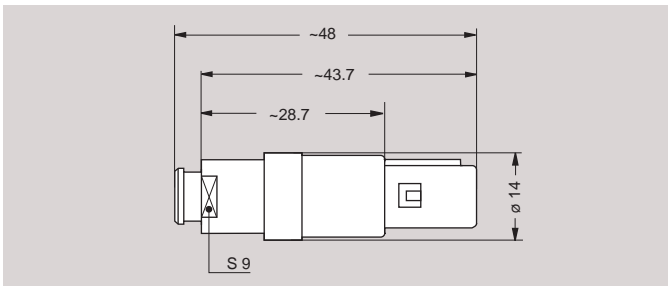


PAG Straight plug, key (G) or keys (A, B, C, H and J), with cable collet and nut for fitting a bend relief



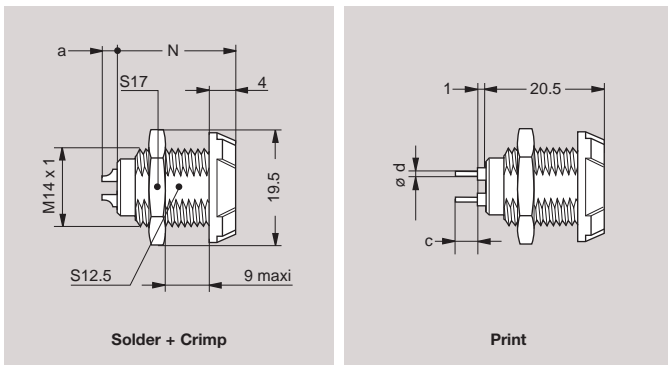
Part Number	Cable ϕ	
	min	max
PAG.M●●GL.AC39GZ	2.7	3.9
PAG.M●●GL.AC52GZ	4.0	5.2
PAG.M●●GL.AC65GZ	5.3	6.5

Note: replace ●● by contact configuration (see page 19). The bend relief must be ordered separately (see page 22).



Note: all dimensions are in millimeters

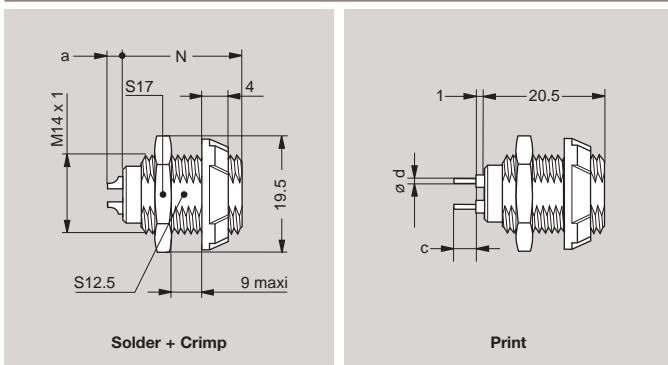
PLG Fixed socket, key (G) or keys (A, B, C, H and J), nut fixing



Part Number	number of contacts	Contact					
		Solder		Crimp		Print	
		N	a max	N	a	c	ø d
PLG.M0.2GL.LG	2	20.5	2.5	22.2	0	5	0.7
PLG.M0.4GL.LG	4	20.5	2.5	22.2	0	5	0.7
PLG.M0.5GL.LG	5	20.5	2.5	22.2	0	5	0.7
PLG.M0.6GL.LG	6	20.5	2.5	22.2	0	3	0.5
PLG.M0.7GL.LG	7	20.5	4.5	22.2	0	3	0.5
PLG.M0.8GL.LG	8	20.5	4.5	22.2	0	3	0.5
PLG.M0.9GL.LG	9	20.5	3.9	-	-	3	0.5
PLG.M1.0GL.LG	10	20.5	3.9	-	-	3	0.5
PLG.M1.4GL.LG	14	20.5	3.9	-	-	3	0.5

Note: for PCB drilling pattern and panel hole see page 24.

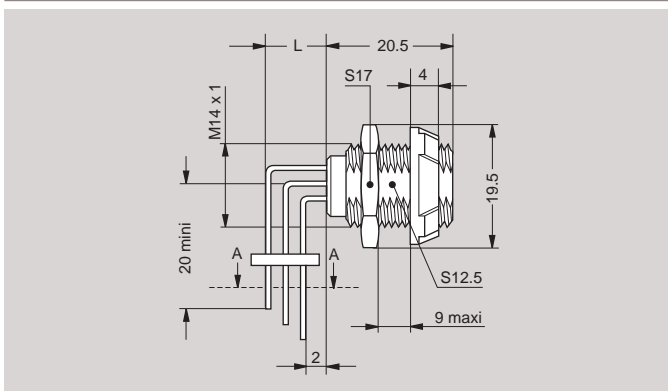
PKG Fixed socket, key (G) or keys (A, B, C, H and J), with two nuts (back panel mounting)



Part Number	number of contacts	Contact					
		Solder		Crimp		Print	
		N	a max	N	a	c	ø d
PKG.M0.2GL.LG	2	20.5	2.5	22.2	0	5	0.7
PKG.M0.4GL.LG	4	20.5	2.5	22.2	0	5	0.7
PKG.M0.5GL.LG	5	20.5	2.5	22.2	0	5	0.7
PKG.M0.6GL.LG	6	20.5	2.5	22.2	0	3	0.5
PKG.M0.7GL.LG	7	20.5	4.5	22.2	0	3	0.5
PKG.M0.8GL.LG	8	20.5	4.5	22.2	0	3	0.5
PKG.M0.9GL.LG	9	20.5	3.9	-	-	3	0.5
PKG.M1.0GL.LG	10	20.5	3.9	-	-	3	0.5
PKG.M1.4GL.LG	14	20.5	3.9	-	-	3	0.5

Note: for PCB drilling pattern and panel hole see page 24.

PKG Fixed socket, key (G) or keys (A, B, C, H and J), with two nuts, with 90° contacts (back panel mounting)

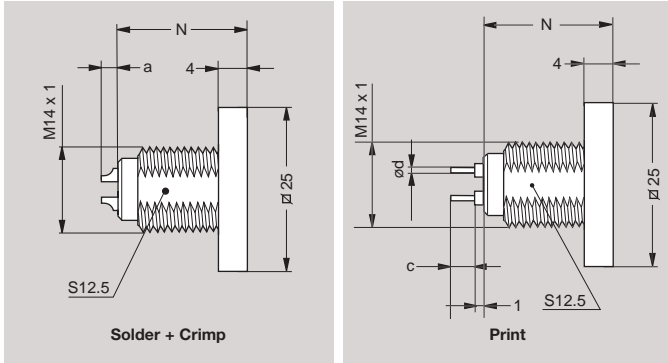


Part Number	number of contacts	L
PKG.M0.2GL.VG	2	5.4
PKG.M0.4GL.VG	4	5.2
PKG.M0.5GL.VG	5	7.7
PKG.M0.6GL.VG	6	7.7
PKG.M0.7GL.VG	7	7.7
PKG.M0.8GL.VG	8	7.7
PKG.M0.9GL.VG	9	10.3
PKG.M1.0GL.VG	10	10.3
PKG.M1.4GL.VG	14	12.9

Note: for PCB drilling pattern see page 25. Panel hole see page 24.

Note: all dimensions are in millimeters

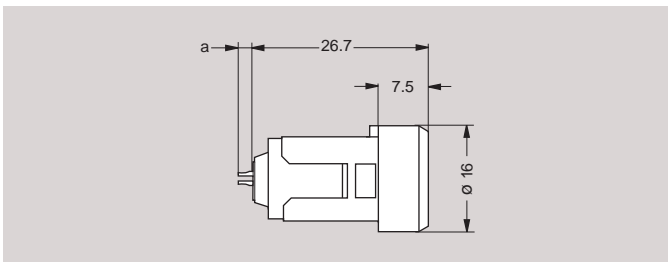
PMG Fixed socket, key (G) or keys (A, B, C, H and J), with square flange



Part Number	number of contacts	Contact					
		Solder		Crimp		Print	
		N	a max	N	a	c	ø d
PMG.M0.2GL.LG	2	20.5	2.5	22.2	0	5	0.7
PMG.M0.4GL.LG	4	20.5	2.5	22.2	0	5	0.7
PMG.M0.5GL.LG	5	20.5	2.5	22.2	0	5	0.7
PMG.M0.6GL.LG	6	20.5	2.5	22.2	0	3	0.5
PMG.M0.7GL.LG	7	20.5	4.5	22.2	0	3	0.5
PMG.M0.8GL.LG	8	20.5	4.5	22.2	0	3	0.5
PMG.M0.9GL.LG	9	20.5	3.9	-	-	3	0.5
PMG.M1.0GL.LG	10	20.5	3.9	-	-	3	0.5
PMG.M1.4GL.LG	14	20.5	3.9	-	-	3	0.5

Note: for PCB drilling pattern see page 24.
Panel hole see page 24.

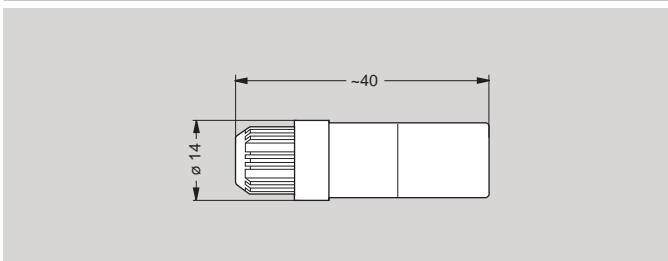
PYG Fixed socket, key (G) or keys (A, B or H), snap-on fixing



Part Number	number of contacts	Solder
		a max
PYG.M0.2GL.LG	2	2.5
PYG.M0.4GL.LG	4	2.5
PYG.M0.5GL.LG	5	2.5
PYG.M0.6GL.LG	6	2.5
PYG.M0.7GL.LG	7	2.5
PYG.M0.8GL.LG	8	2.5
PYG.M0.9GL.LG	9	4.0
PYG.M1.0GL.LG	10	4.0
PYG.M1.4GL.LG	14	4.0

Note: only with A, B or G keying (2 to 14 contacts) or H (8,10 or 14 contacts).
The insulator is made of PEEK.

PRG Free socket, key (G) or keys (A, B, C, H and J), with cable collet

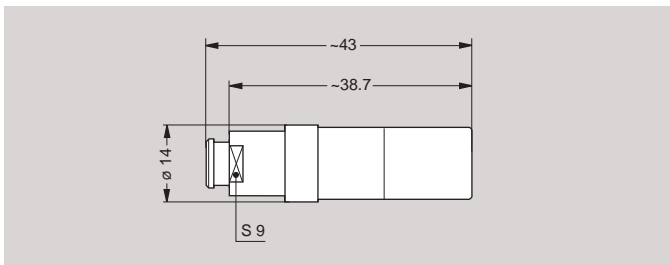


Part Number	Cable ø	
	min	max
PRG.M●.●GL.LC39G	2.7	3.9
PRG.M●.●GL.LC52G	4.0	5.2
PRG.M●.●GL.LC65G	5.3	6.5

Note: replace ●.● by contact configuration (see page 19).

Note: all dimensions are in millimeters

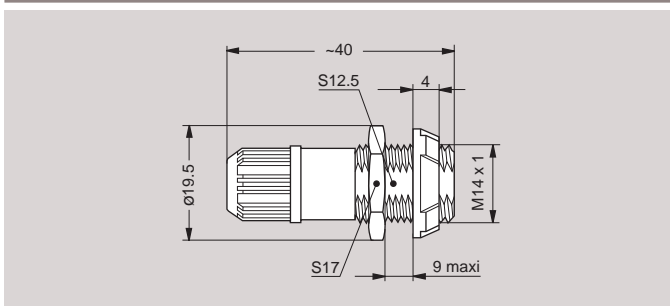
PRG Free socket, key (G) or keys (A, B, C, H and J), with cable collet and nut for fitting a bend relief



Part Number	Cable \varnothing	
	min	max
PRG.M●●GL.LC39GZ	2.7	3.9
PRG.M●●GL.LC52GZ	4.0	5.2
PRG.M●●GL.LC65GZ	5.3	6.5

Note: replace ●● by contact configuration (see page 19).
The bend relief must be ordered separately (see page 22).

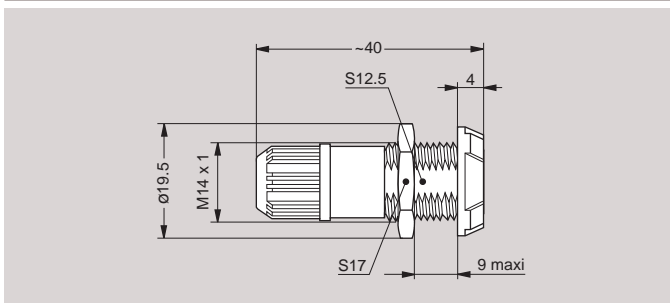
PTG Fixed socket, key (G) or keys (A, B, C, H and J), with two nuts and cable collet (back panel mounting)



Part Number	Cable \varnothing	
	min	max
PTG.M●●GL.LC39G	2.7	3.9
PTG.M●●GL.LC52G	4.0	5.2
PTG.M●●GL.LC65G	5.3	6.5

Note: replace ●● by contact configuration (see page 19).
Panel hole see page 24.

PDG Fixed socket, key (G) or keys (A, B, C, H and J), nut fixing and cable collet



Part Number	Cable \varnothing	
	min	max
PDG.M●●GL.LC39G	2.7	3.9
PDG.M●●GL.LC52G	4.0	5.2
PDG.M●●GL.LC65G	5.3	6.5

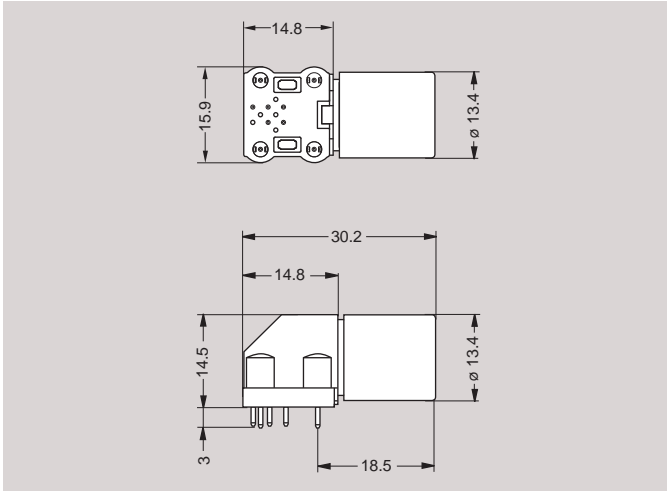
Note: replace ●● by contact configuration (see page 19).
Panel hole see page 24.

Note: all dimensions are in millimeters

Elbow socket models (IP50)



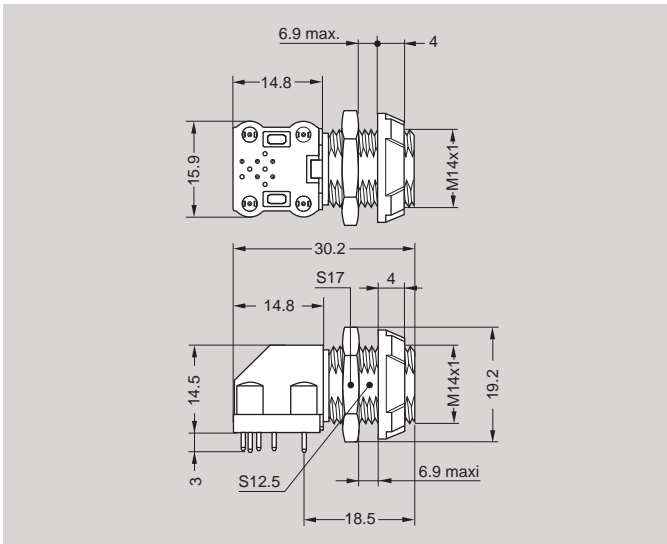
PPG Elbow socket, key (G) or keys (A, B, C), for printed circuit



Part Number	number of contacts
PPG.M0.2GG.N	2
PPG.M0.4GG.N	4
PPG.M0.5GG.N	5
PPG.M0.6GG.N	6
PPG.M0.7GG.N	7
PPG.M0.8GG.N	8
PPG.M0.9GG.N	9
PPG.M1.0GG.N	10

Note: only available with G or A, B, C keying. The insulator is made of PSU. Outershell material is grey or black PSU. For PCB drilling, see page 25.

PXG Elbow socket, key (G) or keys (A, B, C), with two nuts, for printed circuit

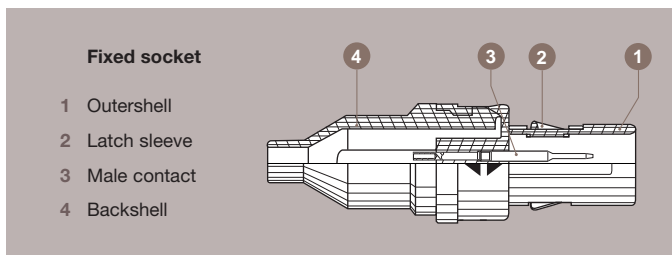


Part Number	number of contacts
PXG.M0.2GG.NG	2
PXG.M0.4GG.NG	4
PXG.M0.5GG.NG	5
PXG.M0.6GG.NG	6
PXG.M0.7GG.NG	7
PXG.M0.8GG.NG	8
PXG.M0.9GG.NG	9
PXG.M1.0GG.NG	10

Note: only available with G or A, B, C keying. The insulator is made of PSU. Outershell material is grey or black PSU. For PCB drilling, see page 25. Panel hole see page 24.

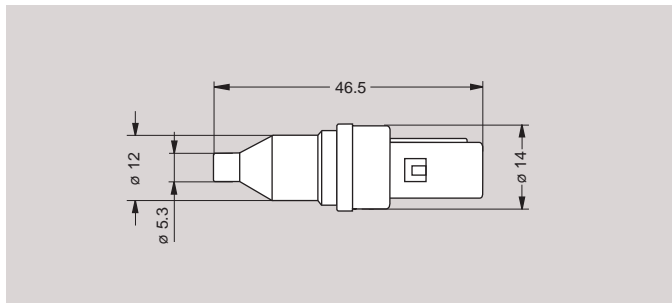
Note: all dimensions are in millimeters. For outershell in black PSU replace material code by «N».

Disposable plug (limited use) P J . M . A A . A T 3 8 B



Characteristics	Value	Standards
Endurance for PJ● (latching)	5 cycles	IEC 60512-5 test 9a
Working temperature range (ABS)	-30/+90°C	-
Shell material	ABS	-

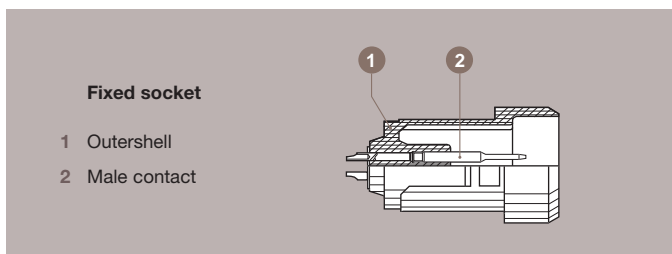
PJG Straight disposable plug



Part Number	nb. of cts.	Test Voltage (kV rms)	Recommended Mating fixed socket part number
PJG.M0.9AA.AT38B	9	0.85	PKG.M0.9GL.LG
PJG.M1.0AA.AT38B	10	0.85	PKG.M1.0GL.LG
PJG.M1.4AA.AT38B	14	0.60	PKG.M1.4GL.LG

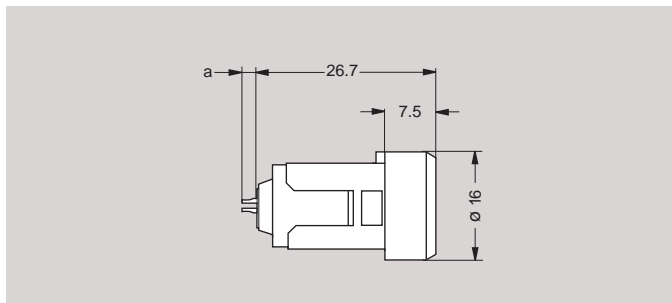
Note: only G, A, B, C keying available.
 Only ABS plastic shell. White standard (B) or grey optional (G)
 Cables up to 3.8mm diameter. Available only with male solder contacts.
 Delivered in blister packs.

Disposable socket (limited use) P Y . M



Characteristics	Value	Standards
Endurance for PY● (latching)	1000 cycles	IEC 60512-5 test 9a
Working temperature range (PSU)	-50/+150°C	-
Average latching force	6N	IEC 60512-7 test 13a
Average unmating force	7N	IEC 60512-7 test 13a
Average retention force	90N	IEC 60512-7 test 13a

PY● Fixed disposable socket, snap on fixing



Part Number	nb. of cts.	Contact Type	Solder a max	Shell color	Recommended Mating straight plug part number
PYG.M0.4GG.LG	4	female	2.5	grey	PAG.M0.4GL.AC●●●
PYG.M0.4GG.LN	4	female	2.5	black	PAG.M0.4GL.AC●●●
PYH.M0.8GG.AA	8	male	2.5	blue	PAH.M0.8GL.LC●●●
PYH.M0.8GG.AB	8	male	2.5	white	PAH.M0.8GL.LC●●●
PYA.M1.0GG.LG	10	female	4.0	grey	PAA.M1.0GL.AC●●●
PYH.M1.0GG.AA	10	male	4.0	blue	PAH.M1.0GL.LC●●●

Note: The outershell and the insulator are moulded out of the same material (PSU).
 Protective backshell available (see page 22).
 Part number last digit represents the colour.

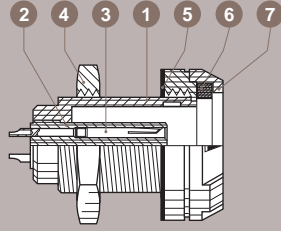
Note: all dimensions are in millimeters

Watertight models (IP64 when mated)



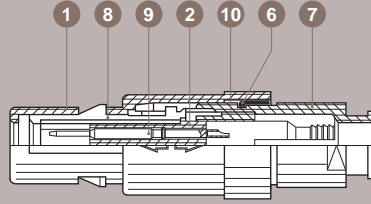
Fixed socket

- 1 Outershell
- 2 Insulator
- 3 Female contact
- 4 Hexagonal nut
- 5 Flat gasket
- 6 Gasket
- 7 Nut



Straight plug

- 1 Outershell
- 2 Insulator
- 6 Gasket
- 7 Nut
- 8 Latch sleeve
- 9 Male contact
- 10 Cable collet



Characteristics	Value	Standards
Average retention force when pulling on the cable 1N = 0.102 kg	90 N	IEC 60512-8 test 15f
Cable retention force (depends on cable construction) 1N = 0.102 kg	50 - 150 N	IEC 60512-9 test 17c

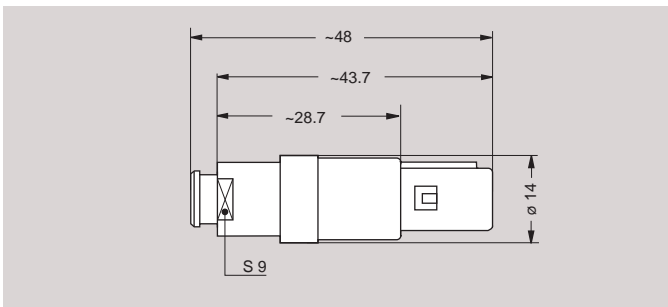
Characteristics	Value	Standards
Endurance (latching)	> 1000 cycles	IEC 60512-5 test 9a
Working temperature range (PSU)	-50/+90°C	-
Gasket material	Elastomer SEBS	-

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



Part Number	Cable ϕ	
	min	max
PFG.M●●GL.AC39GZ	2.7	3.9
PFG.M●●GL.AC52GZ	4.0	5.2
PFG.M●●GL.AC65GZ	5.3	6.5

Note: the bend relief must be ordered separately (see page 22). Replace ●● by contact configuration (see page 19).

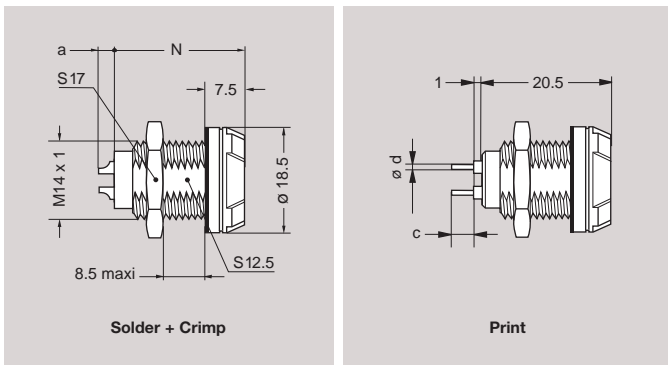


PNG Fixed socket, nut fixing



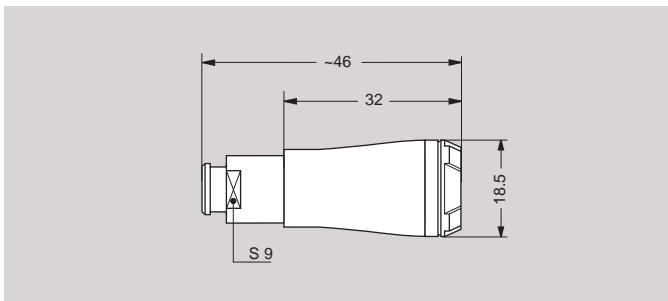
Part Number	number of contacts	Contact					
		Solder		Crimp		Print	
		N	a max	N	a	c	ϕ d
PNG.M0.2GL.LG	2	20.5	2.5	22.2	0	5	0.7
PNG.M0.4GL.LG	4	20.5	2.5	22.2	0	5	0.7
PNG.M0.5GL.LG	5	20.5	2.5	22.2	0	5	0.7
PNG.M0.6GL.LG	6	20.5	2.5	22.2	0	3	0.5
PNG.M0.7GL.LG	7	20.5	4.5	22.2	0	3	0.5
PNG.M0.8GL.LG	8	20.5	4.5	22.2	0	3	0.5
PNG.M0.9GL.LG	9	20.5	3.9	-	-	3	0.5
PNG.M1.0GL.LG	10	20.5	3.9	-	-	3	0.5
PNG.M1.4GL.LG	14	20.5	3.9	-	-	3	0.5

Note: for PCB drilling pattern see page 24.



Note: all dimensions are in millimeters

PSG Free socket, conical outershell with cable collet and nut for fitting a bend relief



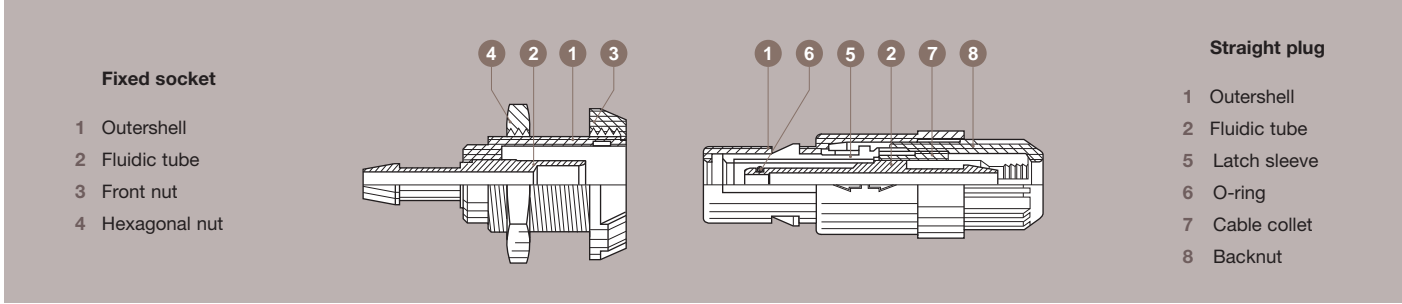
Note: all dimensions are in millimeters

Part Number	Cable ϕ	
	min	max
PSG.M*.*YL.LC52NZ	4.0	5.2
PSG.M*.*YL.MC65RZ	5.3	6.5
PSG.M*.*YL.MC65AZ	5.3	6.5
PSG.M*.*YL.LC52NZ	4.0	5.2

Note: replace *.* by contact configuration (see page 19).
 Outershell in black Delrin®
 The bend relief must be ordered separately (see page 22).

Fluidic configuration (2 bars) P | | | . A 0 . 1 G Z . | | | | | | | | | |

The REDEL fluidic connector has many applications for example in medical or dentistry equipment. The connector is a monotube type and primarily intended for use with air or inert gas.



Characteristics	Value	Standards
Max. working pressure	2 bars	-
Endurance (latching)	> 1000 cycles	IEC 60512-5 test 9a
Working temperature range (PSU)	-20/+150°C	-

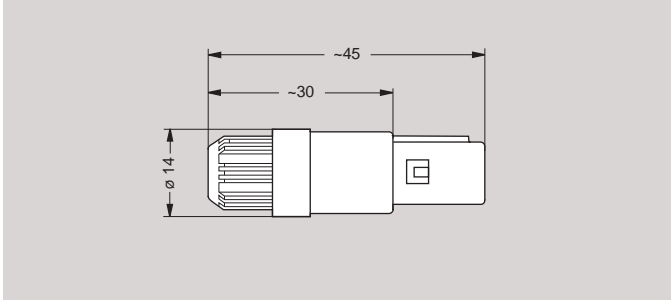
Characteristics	Value	Standards
Inner fluidic contact diameter	2.6 mm	-
Tube diameter inner/outer	4 mm / 6 mm	-
Fluidic tube material	Ni plated brass	-
O-ring material	FPM (Viton®)	-

PAG Straight plug, key (G) or keys (A, B, C, H and J), with cable collet



Part Number	ø max. tube (mm)	ø inner tube (mm)
PAG.A0.1GZ.ZC65G	6.5	4

Note: For collet nut colour replace last digit (see table page 20).

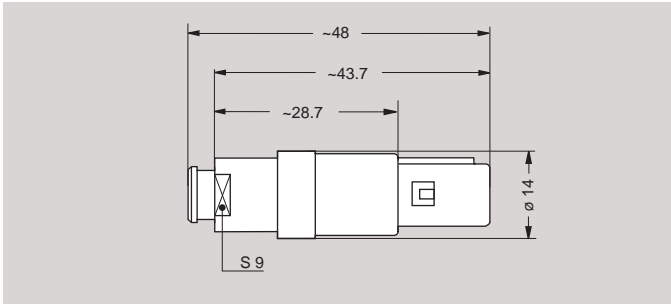


PAG Straight plug, key (G) or keys (A, B, C, H and J), with cable collet and nut for fitting a bend relief



Part Number	ø max. tube (mm)	ø inner tube (mm)
PAG.A0.1GZ.ZC65GZ	6.5	4

The bend relief must be ordered separately (see page 22).



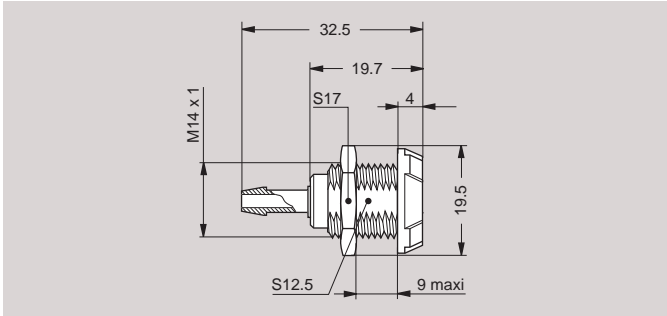
Note: all dimensions are in millimeters

PLG Fixed socket, key (G) or keys (A, B, C, H and J), with fluidic contact, nut fixing



Part Number	ø inner tube (mm)
PLG.A0.1GZ.ZG	4

Note: For front nut colour replace last digit (see table page 20).
Recommended tube Legris 102540601

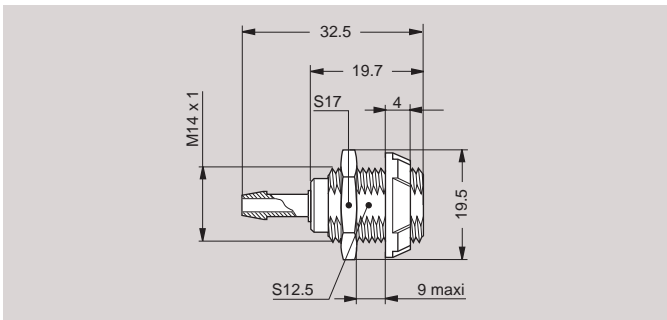


PKG Fixed socket, key (G) or keys (A, B, C, H and J), with fluidic contact, with two nuts (back panel mounting)



Part Number	ø inner tube (mm)
PKG.A0.1GZ.ZG	4

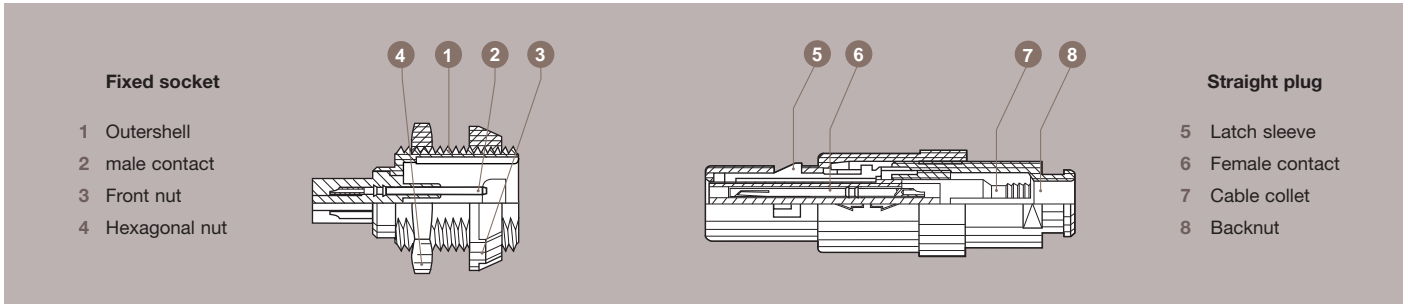
Note: For front nut colour replace last digit (see table page 20).
Recommended tube Legris 102540601



Note: all dimensions are in millimeters

Mains power configuration

The new PAH and PKH models are used for mains power in medical applications. The design of a special insulator offers the required creepage distance. The 3 contacts are only solder type with a maximum AWG 18 (wire size max 1.35 mm). The connectors are UL certified to be used at 250 Volt AC (9 Amps). See UL approval file number N°E242949.



Characteristics	Value	Standards
Test voltage (rms)	1.5 kV	IEC 60512-2 test 4a
Rated voltage (rms)	250 V	IEC 60601/UL 60601-1
Average retention force when pulling on the cable 1N = 0.102 kg	90 N	IEC 60512-8 test 15f

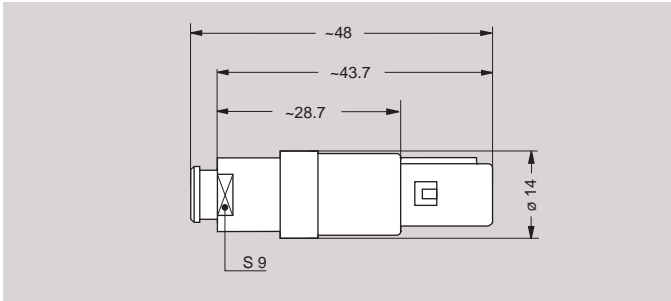
Characteristics	Value	Standards
Cable retention force (depends on cable construction) 1N = 0.102 kg	50 – 150 N	IEC 60512-9 test 17c
Endurance (latching)	>1000 cycles	IEC 60512-5 test 9a
Working temperature range (PSU)	-50/+150°C	-
UL file number	E242949	-

PAH Straight plug, key (H), with cable collet and nut for fitting a bend relief



Part Number	Cable ϕ	
	min	max
PAH.N0.3GL.LC52GZ	4.0	5.2
PAH.N0.3GL.LC65GZ	5.3	6.5
PAH.N0.4GL.LC52GZ	4.0	5.2
PAH.N0.4GL.LC65GZ	5.3	6.5

Note: The bend relief must be ordered separately (see page 22).

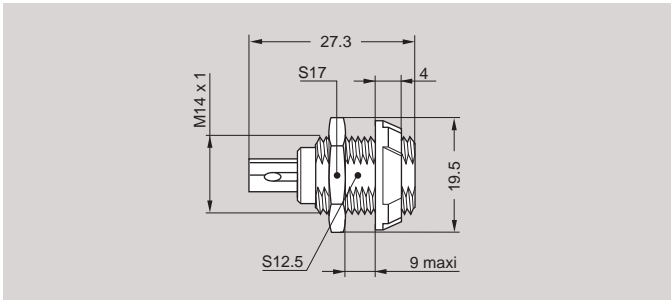


PKH Fixed socket, key (H), with two nuts (back panel mounting)



Part Number
PKH.N0.3GL.AG
PKH.N0.4GL.AG

Note: For front nut colour replace last digit (see table page 20). Not available with print contact.



Note: all dimensions are in millimeters

Insert configuration



	Male solder contact	Female solder contacts	Reference	Number of contacts	Contact ø (mm)	Solder bucket ø (mm) ⁵⁾	Crimp bucket ø (mm) ⁵⁾	Contact type				Test voltage (kV rms) ¹⁾ Contact-contact	Air clearance min ²⁾ (mm) Creepage distance min ³⁾ (mm)	Rated current (A)
								Solder	Crimp	Print (straight)	Print (elbow)			
Multipole			M0.2	2	1.3	1.10	1.4	•	•	•	•	1.20	1.30	10.0
			M0.4	4	0.9	0.80	1.1	•	•	•	•	1.20	1.20	8.0
			M0.5	5	0.9	0.80	1.1	•	•	•	•	1.05	0.80	7.0
			M0.6	6	0.7	0.60	0.8	•	•	•	•	1.05	0.85	6.0
			M0.7	7	0.7	0.60	0.8	•	•	•	•	1.05	0.85	5.0
			M0.8	8	0.7	0.60	0.8	•	•	•	•	1.05	0.60	5.0
			M0.9	9	0.5	0.45	-	•	-	•	•	0.85	0.60	3.0
			M1.0	10	0.5	0.45	-	•	-	•	•	0.85	0.45	3.0 ⁴⁾
			M1.4	14	0.5	0.45	-	•	-	•	•	0.60	0.50	2.0
Mains power			N0.3 ⁶⁾	3	0.9	1.40	-	•	-	-	-	1.50	2.00 6.00	9.0 ⁶⁾
			N0.4	4	0.9	1.40	-	•	-	-	-	2.50	1.30 3.50	8.0
Fluidic			A0.1	1 Fluidic (monotube) up to 2 bars										

Note: 1) depending on specific application and related standard, more restrictive operating voltage may apply.

We suggest operating voltage = 1/3 test voltage, see page 68.

2) shortest distance in air between two conductive parts.

3) shortest distance along the surface of the insulating material between two conductive parts.

4) for PPG and PXG (with 10 contacts) electrical characteristics, please contact factory.

5) for a given AWG, the diameter of some stranded conductor design is larger than the solder cup diameter (see page 69).

6) UL file number: E242949

Alignment key P

Verify the third digit of the part number in order to select the right keying.
The standard keying is «G» coded.

Keying (plug front view)						
	G	A	B	C	H	J
Reference	G	A	B	C	H	J
Contact type for plug	male	male	male	male	female	female
Contact type for socket	female	female	female	female	male	male
Number of contacts	2 to 14				8, 10 or 14	

Outer shell material P

Material	Ref.	Colour	Temperature
PEI	S	Grey	-50° / +170°C
PEI	T	Black	
PSU	G	Grey	-50° / +150°C
PSU	N	Black	

Note: for extensive sterilization use PEI. For complete connector in PEI (collet nut, front nut or flange also in PEI), available colours are grey or black only. Use colour coding grey or black according to colour coding table (see below)

Contact type P

Select the type of contact: solder or crimp?

Plug

Type	Male	Female
solder	A	L ¹⁾
crimp	C	-

Socket

Type	Male	Female
solder	A ¹⁾	L
crimp	-	M
print	D	N
print 90°	-	V

Note: 1) only for H and J keying with 8, 10 or 14 contacts
For complete connector in PEI (collet nut, front nut or flange also in PEI), available colours are grey or black only. Use colour coding grey or black according to colour coding table (see below)

When should I use crimp rather than solder contacts ?

Soldering

- recommended for small volumes
- requires little amount of tooling (soldering iron)
- requires more time

Crimping

- recommended for large volumes
- no heat is required to make the connection
- for contacts with high density
- for use in high temperature environment
- requires extra tooling (crimping tools)

Colour coding P

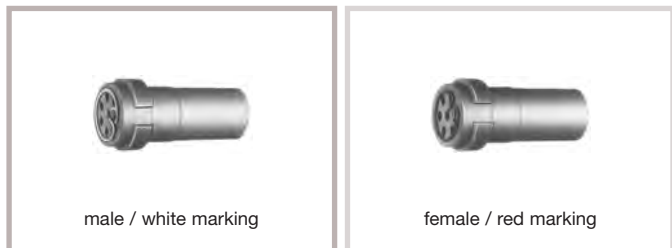
Reference	Colours						
	grey	blue	yellow	black	red	green	white
Reference	G	A	J	N	R	V	B
RAL code	7001	5002	1016	9005	3020	6024	9003

Note: the RAL colours are indicative and depend on raw material and production process. Colour may differ.

Easy identification with the assistance of colour coding.
Outershell is only available in grey or black.

Accessories

PAG-PLG Insulator for crimp contacts



Contact configuration	Insulator part number	
	For male contact	For female contact
M0.2	PAG.302.YL	PLG.402.YL
M0.4	PAG.304.YL	PLG.404.YL
M0.5	PAG.305.YL	PLG.405.YL
M0.6	PAG.306.YL	PLG.406.YL
M0.7	PAG.307.YL	PLG.407.YL
M0.8	PAG.308.YL	PLG.408.YL

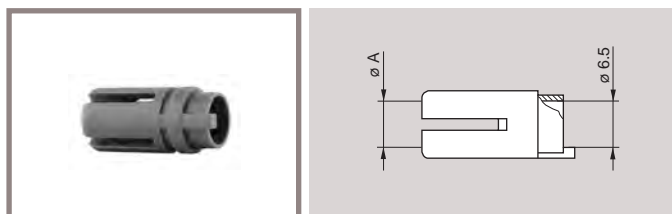
PAG-PKG Crimp contacts, kit with the number of contacts in a tube



Contact configuration	nb. of contacts	ø contact (mm)	Kit contact part number	
			Male	Female
M0.2	2	1.3	PAG.567.02C	PKG.667.02M
M0.4	4	0.9	PAG.562.04C	PKG.662.04M
M0.5	5	0.9	PAG.562.05C	PKG.662.05M
M0.6	6	0.7	PAG.557.06C	PKG.657.06M
M0.7	7	0.7	PAG.557.07C	PKG.657.07M
M0.8	8	0.7	PAG.557.08C	PKG.657.08M

Note: upon request, contacts with reduced crimp barrel are available.

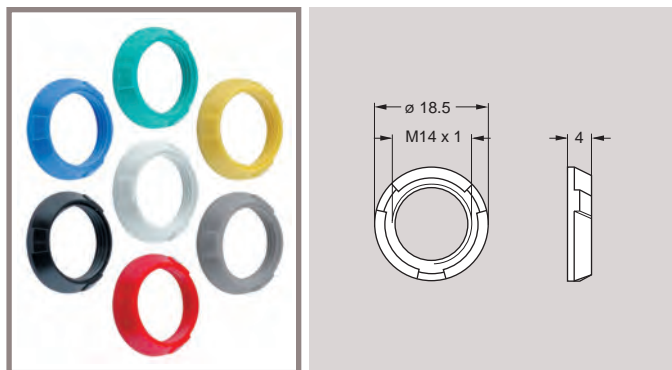
PLA Collet



Part Number	ø A (mm)	Cable ø (mm)	
		min.	max.
PLA.739.●●	3.9	2.7	3.9
PLA.752.●●	5.2	4.0	5.2
PLA.765.●●	6.5	5.3	6.5

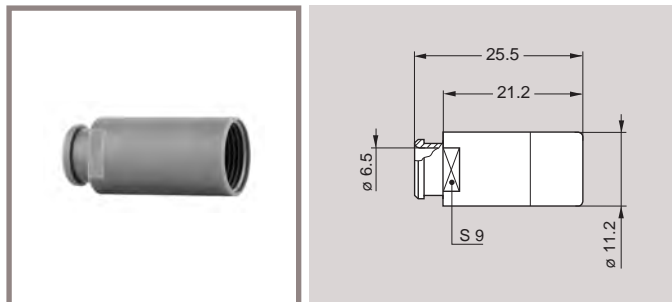
Note: ●● = UG (grey PSU), TN (black PEI) or UN (black PSU).

PKG Plastic front nut for PK● and PT● models



Part Number	Mat.	Colours
PKG.220.UA	PSU	blue
PKG.220.UB	PSU	white
PKG.220.UG	PSU	grey
PKG.220.UJ	PSU	yellow
PKG.220.UN	PSU	black
PKG.220.UR	PSU	red
PKG.220.UV	PSU	green
PKG.220.TG	PEI	grey
PKG.220.TN	PEI	black

PAM.130.●● Nut for fitting a GMA.1B bend relief

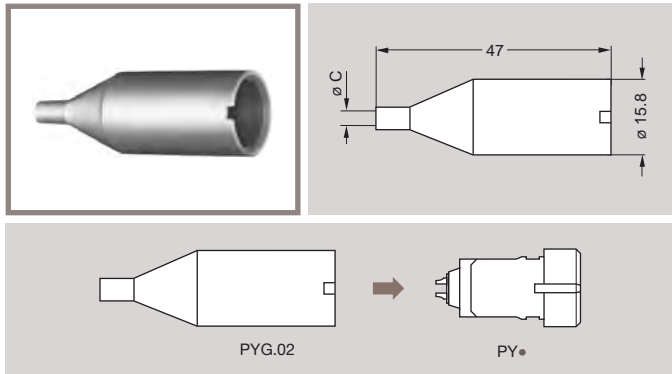


Part Number	Mat.	Colours
PAM.130.UA	PSU	blue
PAM.130.UB	PSU	white
PAM.130.UG	PSU	grey
PAM.130.UJ	PSU	yellow
PAM.130.UN	PSU	black
PAM.130.UR	PSU	red
PAM.130.UV	PSU	green
PAM.130.TN	PEI	black
PAM.130.TG	PEI	grey

Note: all dimensions are in millimeters

Note: only for PA●, PR● or PT● models.

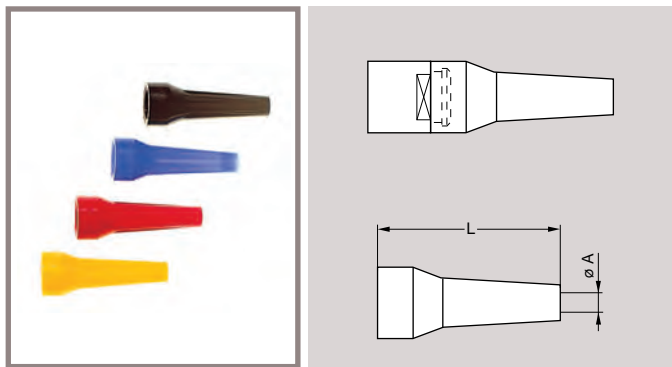
PYG.02 Protective backshell for PY●



Part Number	ø C (mm)	Mat.	Colours
PYG.02.5UG.0	2.5	PSU	grey
PYG.02.5YG.0ABS	2.5	ABS	grey
PYG.02.7YG.0ABS	2.7	ABS	grey
PYG.02.5YG.0PSU	2.5	PSU	grey

Note: ABS working temperature: -30°C +90°C. All dimensions are in millimeters.

GMA.1B Bend relief



A bend relief absorbs the force that may be exerted on cables. These are designed for plugs and free sockets with cable collet and nut.

Part Number	Dimensions (mm)				Material	Temperature range	
	Bend relief		Cable ø			in dry atmosphere	in water steam
	A	L	max.	min.			
GMA.1B.025.DG	2.5	30	2.9	2.5	Desmopan 786 Polyurethane elastomer	-40°C, +80°C	-
GMA.1B.030.DG	3.0	30	3.4	3.0			
GMA.1B.035.DG	3.5	30	3.9	3.5			
GMA.1B.040.DG	4.0	30	4.4	4.0			
GMA.1B.045.DG	4.5	30	4.9	4.5			
GMA.1B.054.DG	5.4	30	6.0	5.4			
GMA.1B.065.DG	6.5	30	7.0	6.5			
GMA.1B.025.RG	2.5	34	2.9	2.5	Silicone elastomer VMQ	-60°C, +200°C	+140°C
GMA.1B.030.RG	3.0	34	3.4	3.0			
GMA.1B.035.RG	3.5	34	3.9	3.5			
GMA.1B.040.RG	4.0	34	4.4	4.0			
GMA.1B.045.RG	4.5	34	5.0	4.5			
GMA.1B.051.RG	5.1	34	5.6	5.1			
GMA.1B.057.RG	5.7	34	6.2	5.7			
GMA.1B.063.RG	6.3	34	7.0	6.3			

Note: the last letter «G» of the part number indicates a grey colour, see the adjacent table and replace letter «G» by the letter of the colour required.

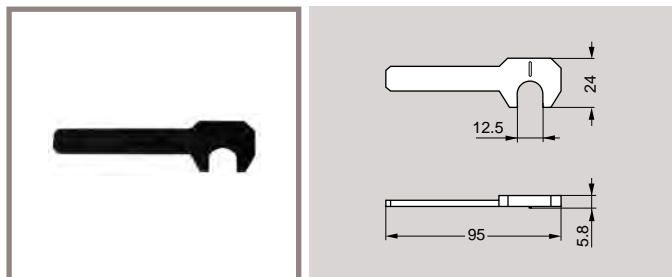
Note: all dimensions are in millimeters

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

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

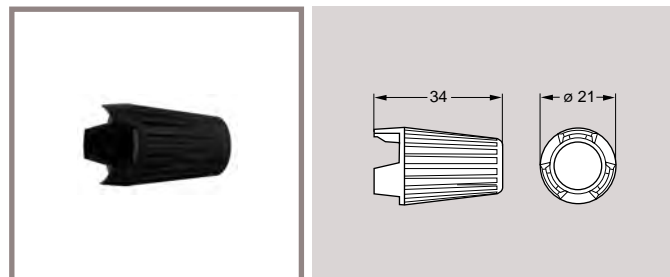
Tooling

POP.125.GN Spanner for outershell



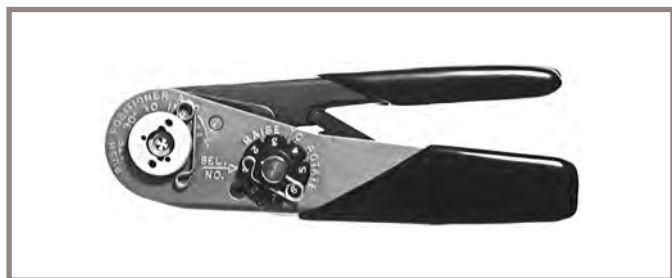
Note: both spanners available as a kit, ref. POZ.12.18G.N.
Material: PA 6.6

POB.186.GN Spanner for front nut



Material: PA 6.6

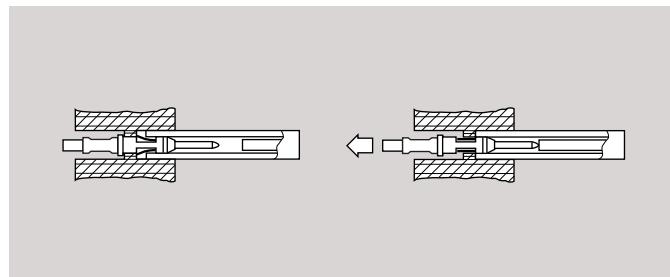
DPC.91.701.V Crimping tool



DCE Positioners for crimp contacts



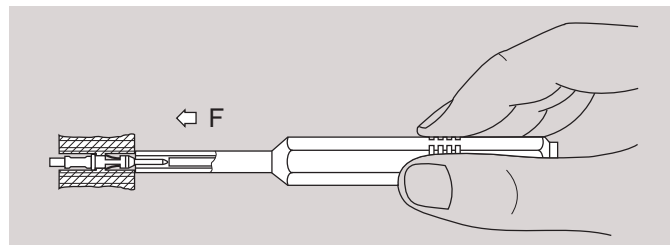
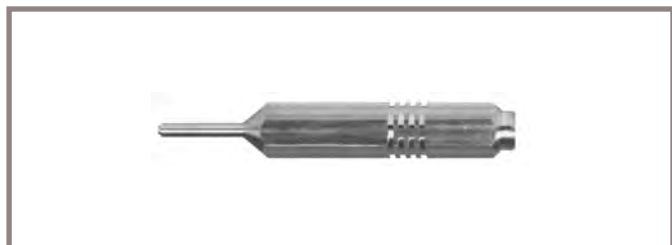
DCF Automatic extraction tools for crimp contacts



Configuration	Contact ø (mm)	Conductor AWG	Positioner part number		Selector No Setting	Part number extractor	
			Male contact	Female contact		Male contact	Female contact
M0.2	1.3	18-20	DCE.91.135.BVD	DCE.91.130.BVM	8-7	DCF.91.133.5LT	DCF.91.131.2LT
M0.4/M0.5	0.9	20-22-24	DCE.91.095.BVD	DCE.91.090.BVM	6-5-5	DCF.91.093.5LT	DCF.91.090.2LT
M0.6/M0.7/M0.8	0.7	22-24-26	DCE.91.075.BVD	DCE.91.070.BVM	6-5-5	DCF.91.073.5LT	DCF.91.070.2LT

Note: the variance in conductor stranding diameter for the minimum AWG is such that some can have a cross section which is not sufficient to guarantee crimping as per IEC 60352-2 standard. All dimensions are in millimeters.

DCK Retention testing tools for crimp contacts

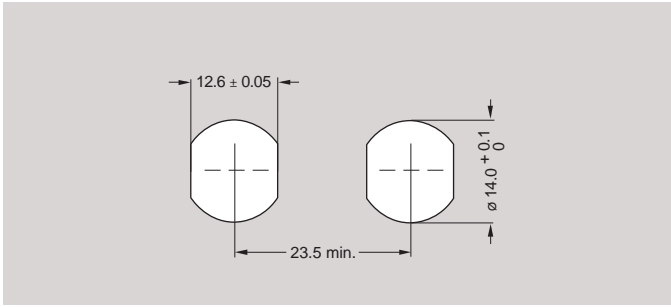


Contact ø (mm)	Test force (N)	Testing tool part number	
		Male contact	Female contact
0.7	10	DCK.91.071.0LRC	DCK.91.071.0LRM
0.9	14	DCK.91.091.4LRC	DCK.91.091.4LRM
1.3	25	DCK.91.132.5LRC	DCK.91.132.5LRM

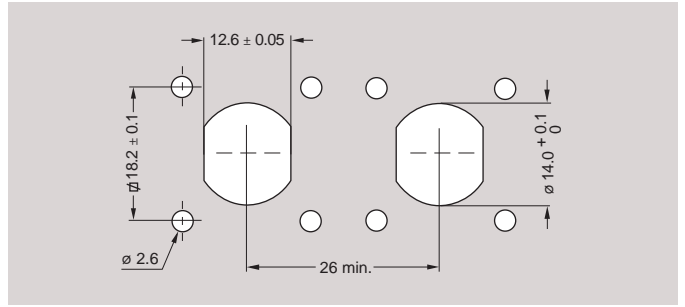
Note: all dimensions are in millimeters

Panel hole

For PL●, PK●, PN●, PX●, PT● and PD●



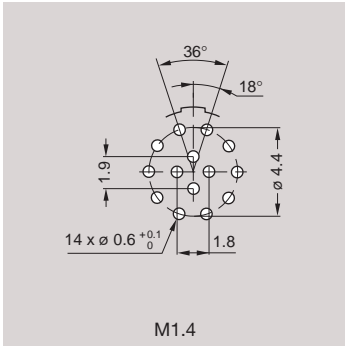
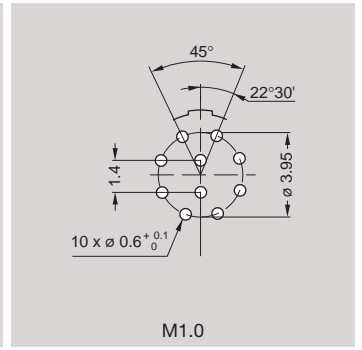
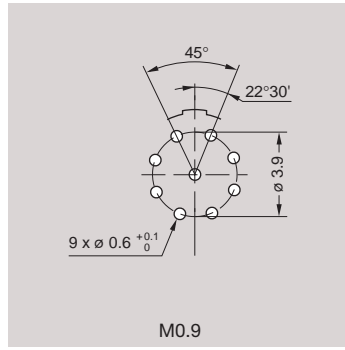
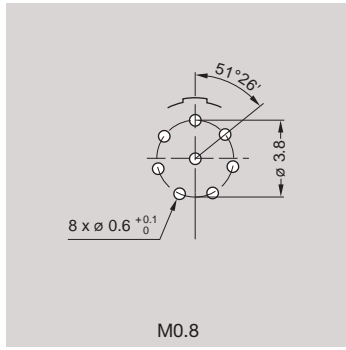
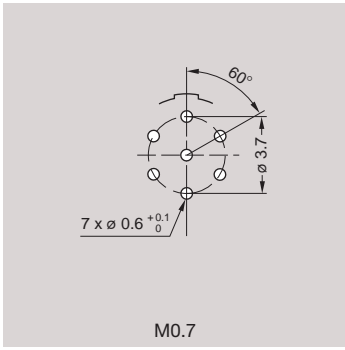
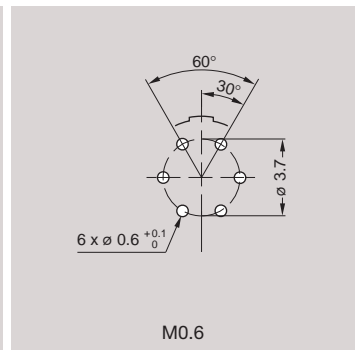
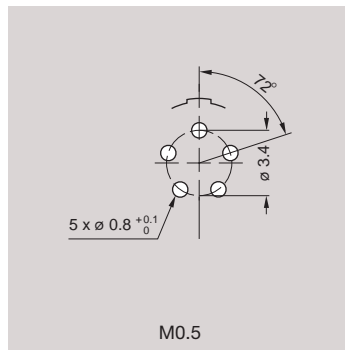
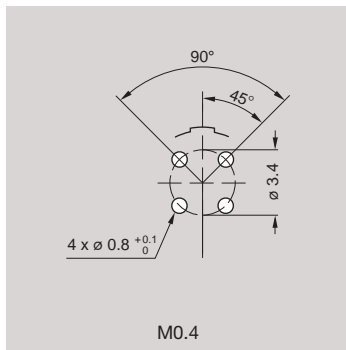
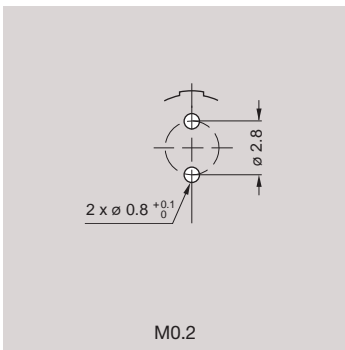
For PM●



Note: PY* is also designed for snap-on fixing into customer housing. Consult factory for information.
 – Socket mounting nut torque = 1.5 Nm.

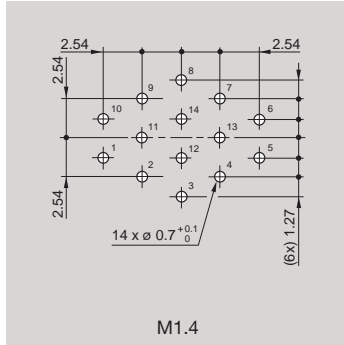
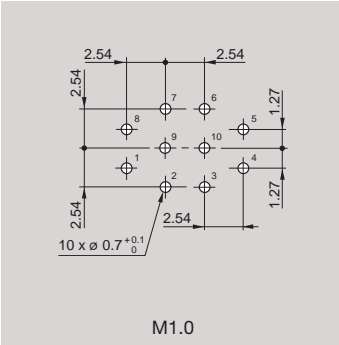
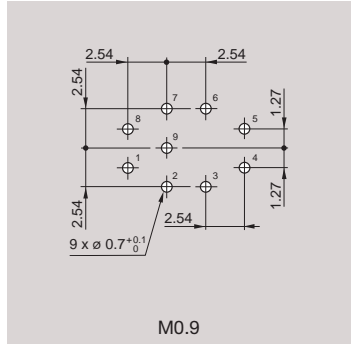
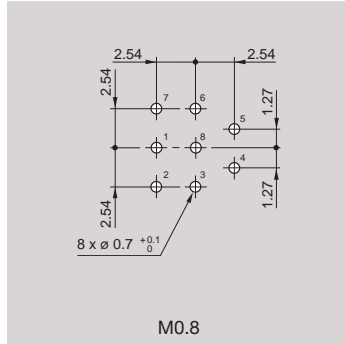
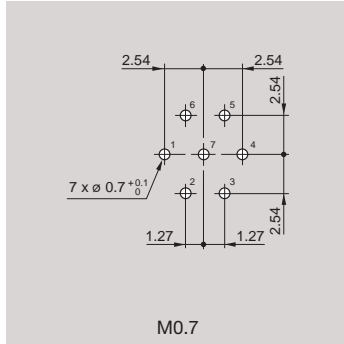
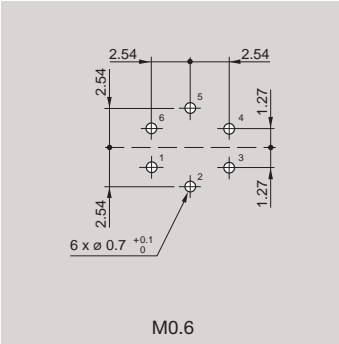
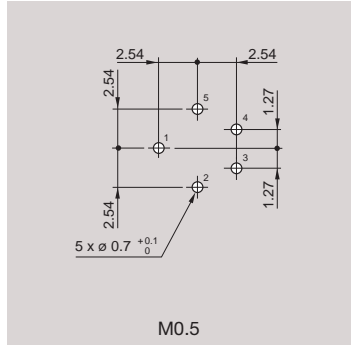
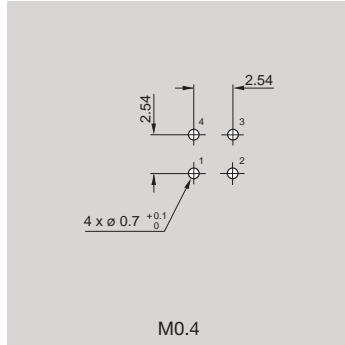
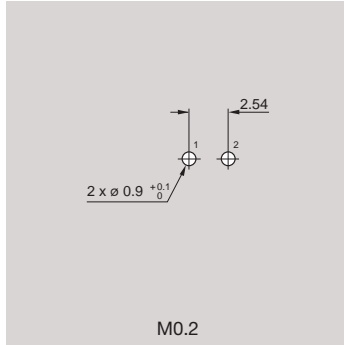
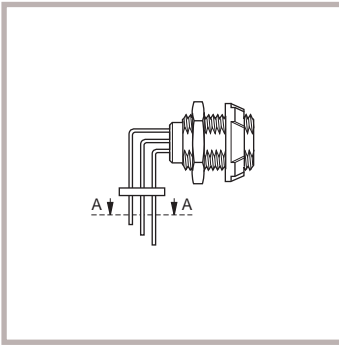
PCB drilling pattern

For straight contacts

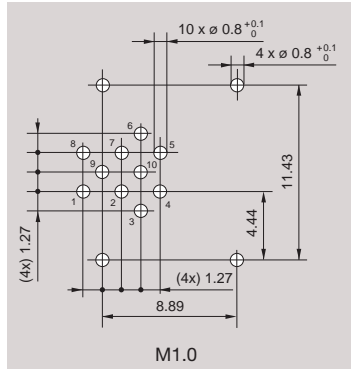
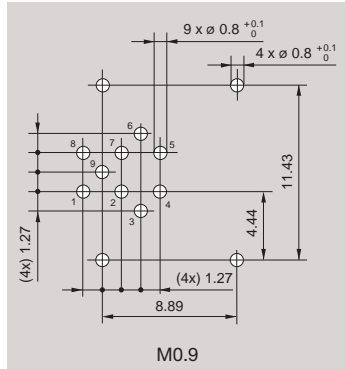
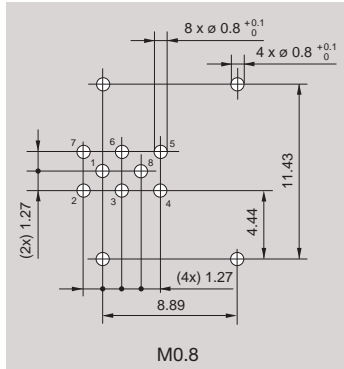
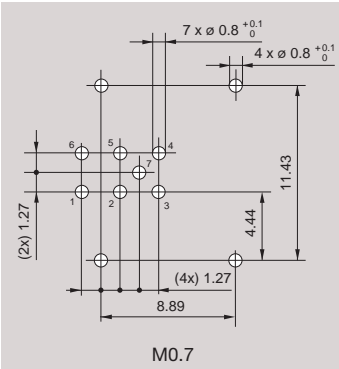
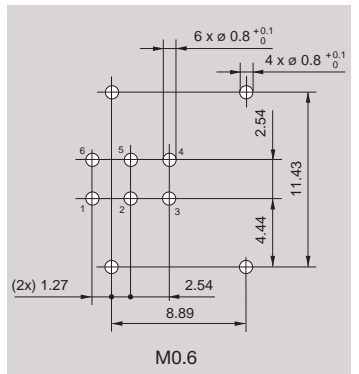
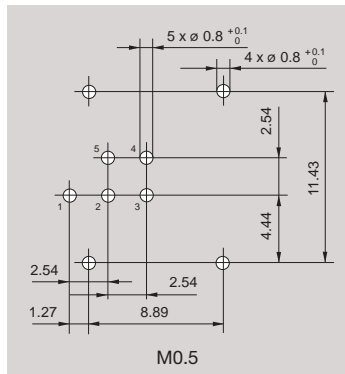
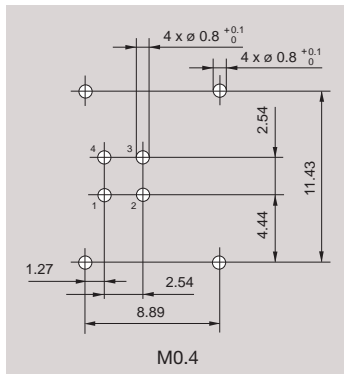
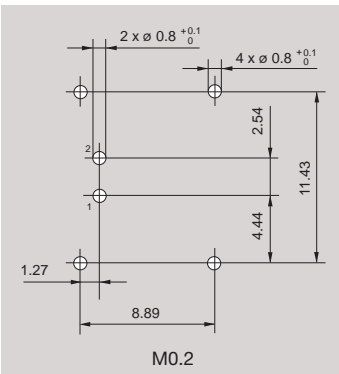


Note: all dimensions are in millimeters

For 90° elbow contacts (A-A view)

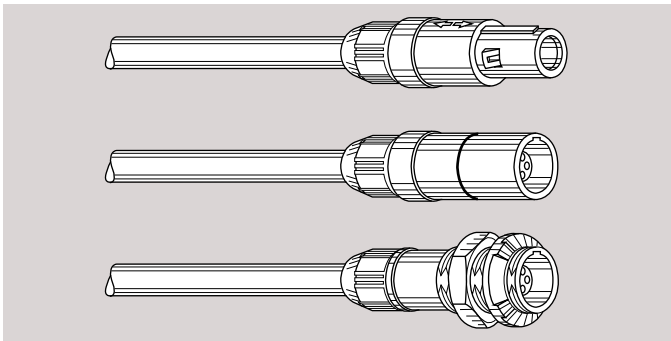
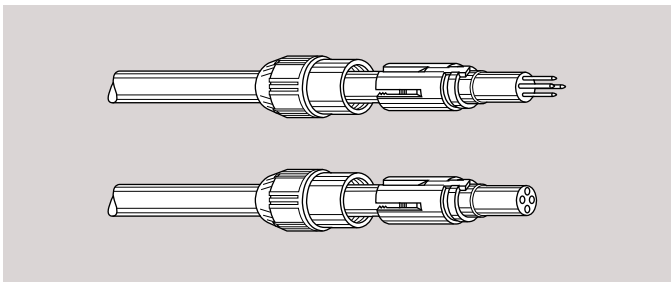
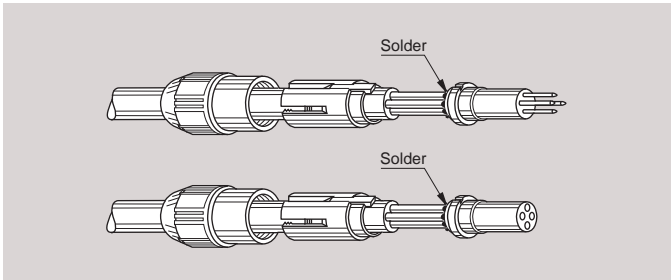
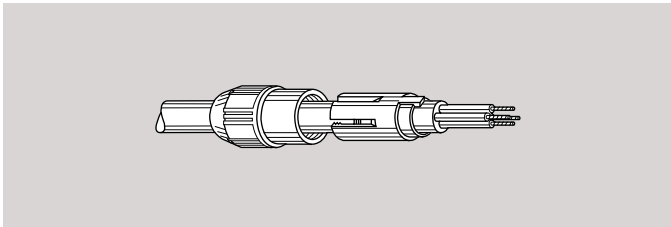
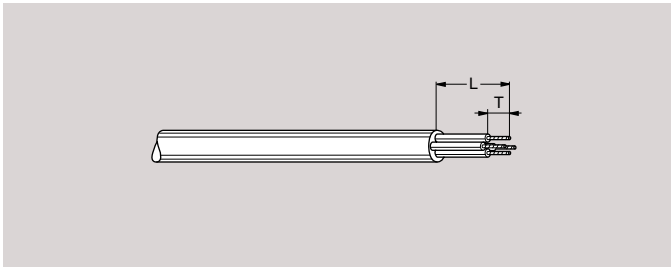
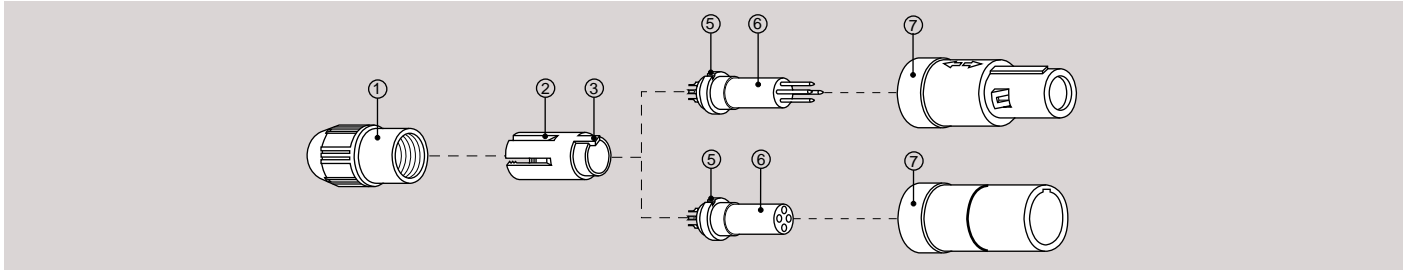


For PPG and PXG models



Assembly instructions

Solder contacts



1. Strip the cable according to the lengths given in the table. Tin the conductors.

Configuration	Dimensions (mm)	
	L	T
M0.2	14.0	4.0
M0.4, M0.5	13.0	3.0
M0.6 to M1.4	12.5	2.5
N0.3	11.5	3.5
N0.4	11.5	3.5

2. Slide the collet nut ① and then the collet ② onto the cable.

3. Solder conductors into contacts, making sure that neither solder nor flux gets onto the insulator or cable insulation.

4. Slide the collet ② forward and locate tag ③ in the slot ⑤ on the insulator ⑥.

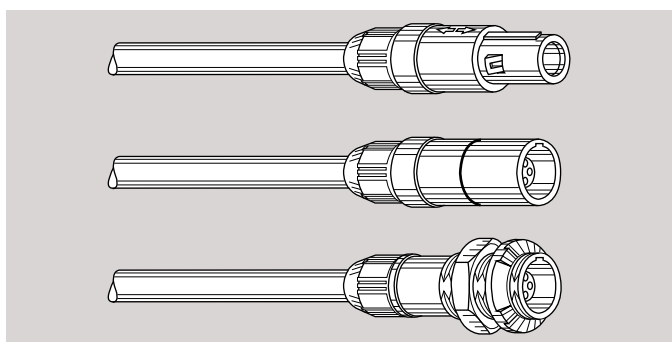
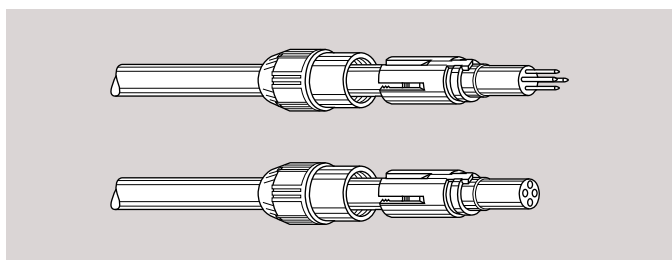
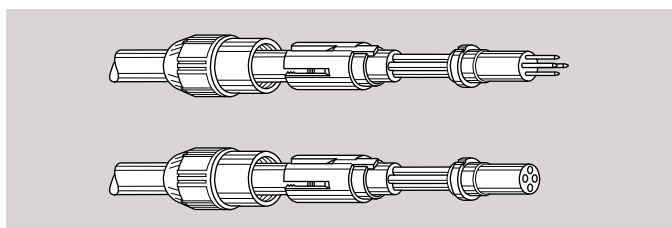
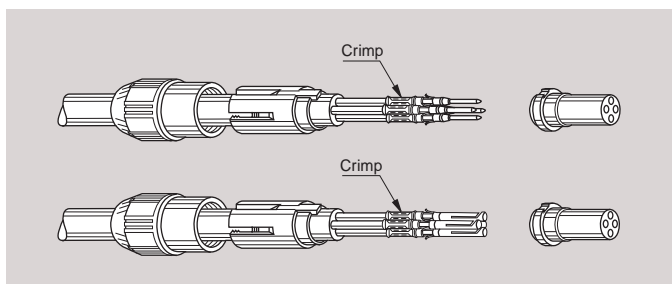
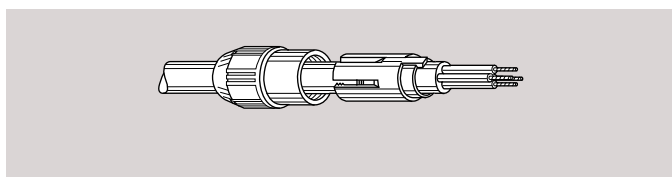
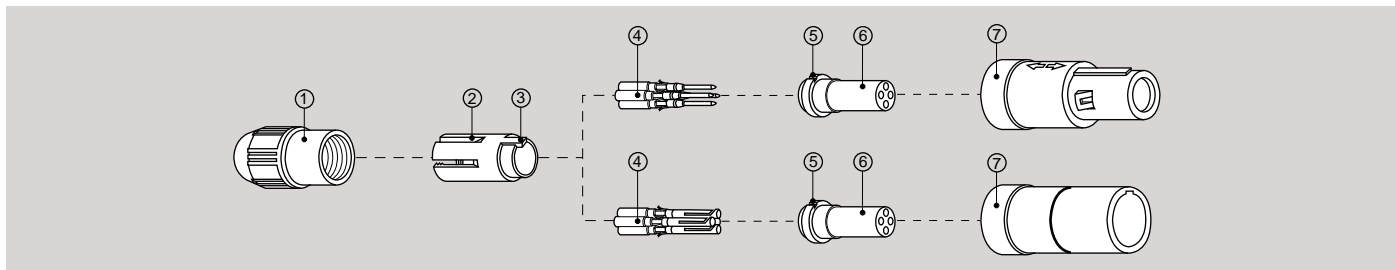
Slide collet nut ① over collet ② and then push the whole assembly into the shell ⑦ whilst turning it to ensure that the tag ③ locates in the inside slot of the shell. Tighten the collet nut ① to the maximum torque of 0.25 Nm.

– Socket mounting nut torque = 1.5 Nm.

For PSU only:

We recommend ONLY the use of VTCS-6 Clear Vibra-tite or ThreeBond 1401 to secure the connector backnut. The use of other materials could result in damage to the connector. The only recommended chemical cleaner is Isopropyl Alcohol.

Crimp contacts



1. Strip the cable according to the lengths given in the table.

Configuration	Dimensions (mm)	
	L	T
M0.2 to M0.8	15.0	3.9

2. Slide the collet nut ① and then the collet ② onto the cable.

3. Fix the appropriate positioner (table page 23) in the crimping tool. Set selector to the number corresponding to the conductor AWG as indicated on the positioner label. Fit conductor into contact ④ and make sure it is visible through the inspection hole in the crimp barrel. Slide conductor-contact combination into the open crimping tool; make sure that the contact is fully pushed into the positioner. Close the tool. Remove from crimping tool and check that conductor is secure in contact and shows in inspection hole.

4. Now arrange contact-conductor combinations according to the insert marking and locate them into the insert ⑥. Check that all contacts are correctly located and remain in position when given a gentle pull.

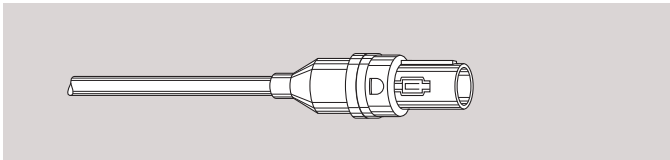
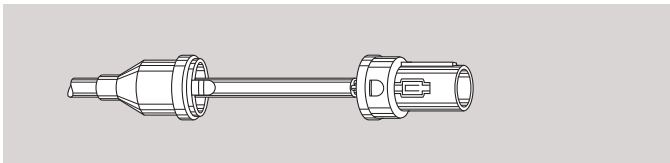
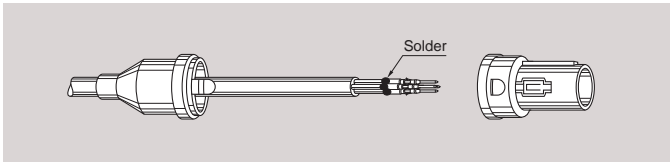
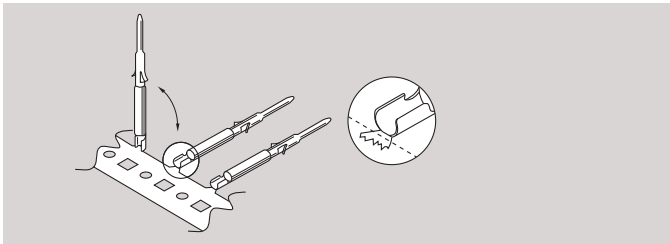
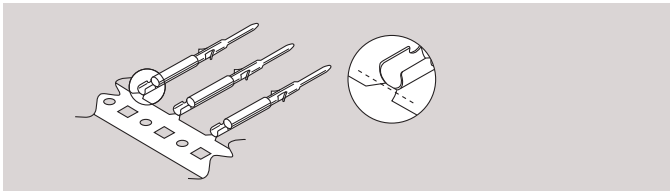
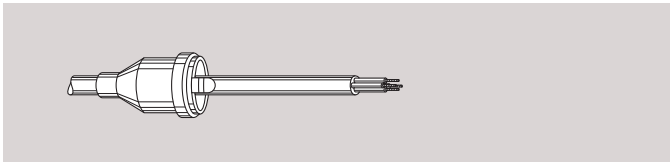
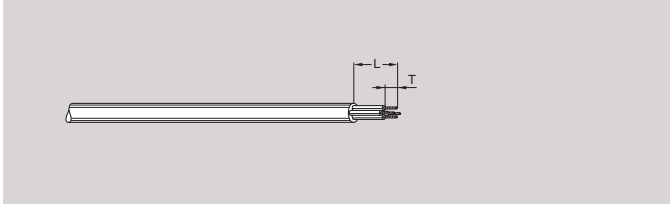
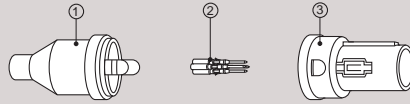
5. Slide the collet ② forward and locate tag ③ in the slot ⑤ on the insulator ⑥. Slide collet nut ① over collet ② and then push the whole assembly into the shell ⑦ whilst turning it to ensure that the tag ③ locates in the inside slot of the shell. Tighten the collet nut ① to the maximum torque of 0.25 Nm.

– Socket mounting nut torque = 1.5 Nm.

For PSU only:

We recommend ONLY the use of VTCS-6 Clear Vibra-tite or ThreeBond 1401 to secure the connector backnut. The use of other materials could result in damage to the connector. The only recommended chemical cleaner is Isopropyl Alcohol.

Stamped contacts (For PJ●)



1. Strip the cable according to the lengths given in the drawing. Tin the conductors.

Configuration	Dimensions (mm)	
	L	T
M0.9, M1.0, M1.4	15.0	3.0

2. Slide the backshell ① onto the cable

3. Contact removal

Automated removal: if using automated equipment to remove the contacts ②, cut as near to the curled portion of the contact to minimize the size of the remaining attachment tab.

Manual removal

Gently remove each of the individual contacts ② by breaking in both directions as shown. If any portion of the attachment tab remains on the contact ②, clip off to minimize risk of shorting.

4. Solder conductors into contacts ②, making sure that neither solder nor flux gets onto the cable insulation.

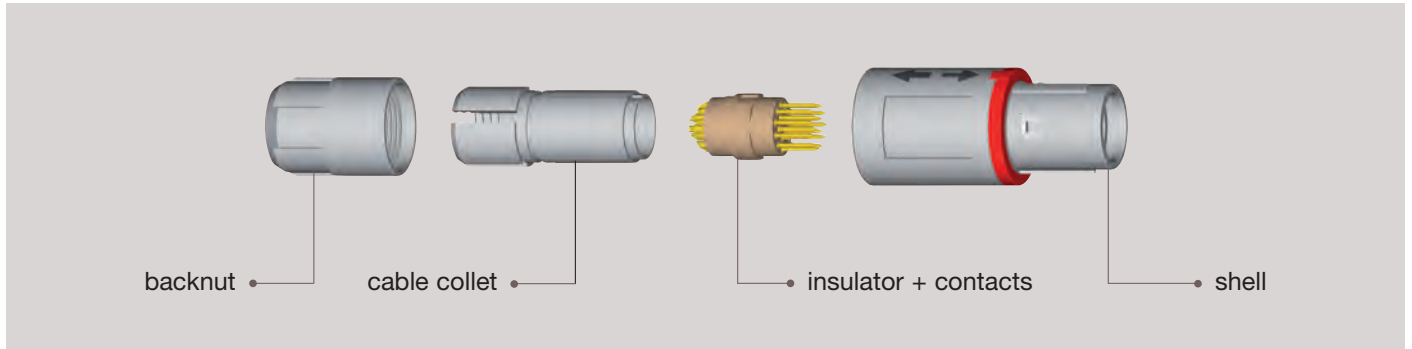
5. Arrange the contact-conductor combinations according to the marking on the plug ③ and locate them into the plug by gently pushing the contact-conductor into the proper hole until fully seated. Check that all contacts ② are correctly located and remain in position when given a gentle pull.

6. Slide backshell ① forward and align the tabs to the slots on the plug ③. Snap backshell onto the plug to complete the assembly. Various strain relief techniques can be incorporated, depending on application.

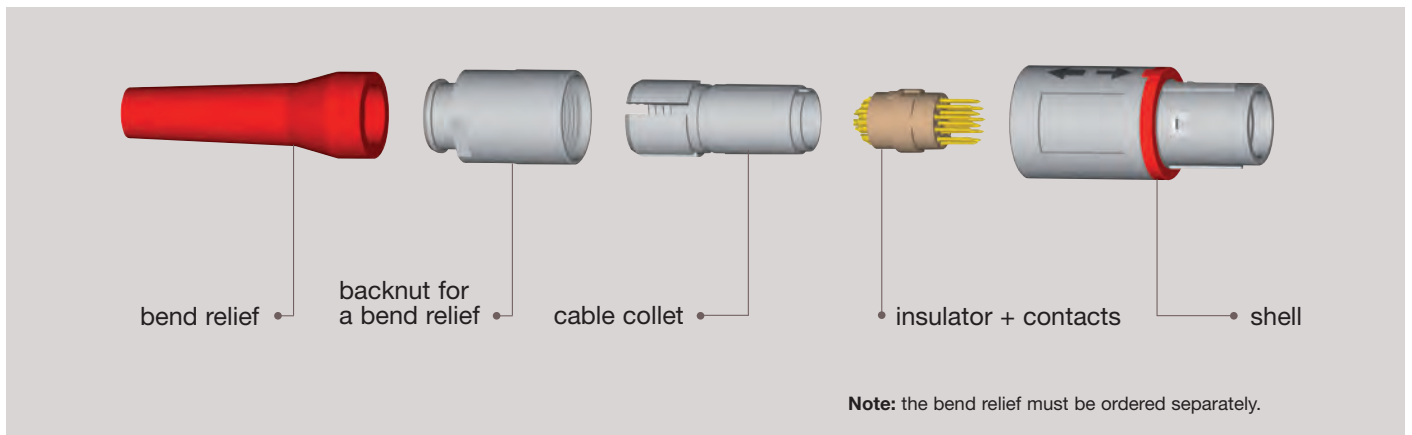
7. If the need arises to remove an installed contact, during the assembly process or subsequent repair, individual contacts can be removed using LEMO extraction tool (part number: DCF.91.050.2LT). DO NOT reuse extracted contacts. The only recommended chemical cleaner is Isopropyl Alcohol.

Exploded view of the REDEL 2P

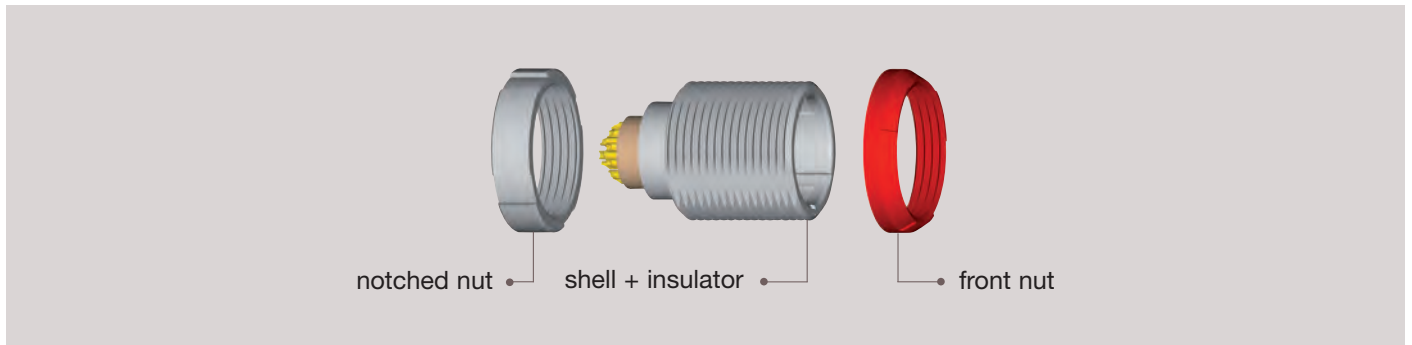
Straight plug



Straight plug with bend relief



Fixed socket



Free socket

