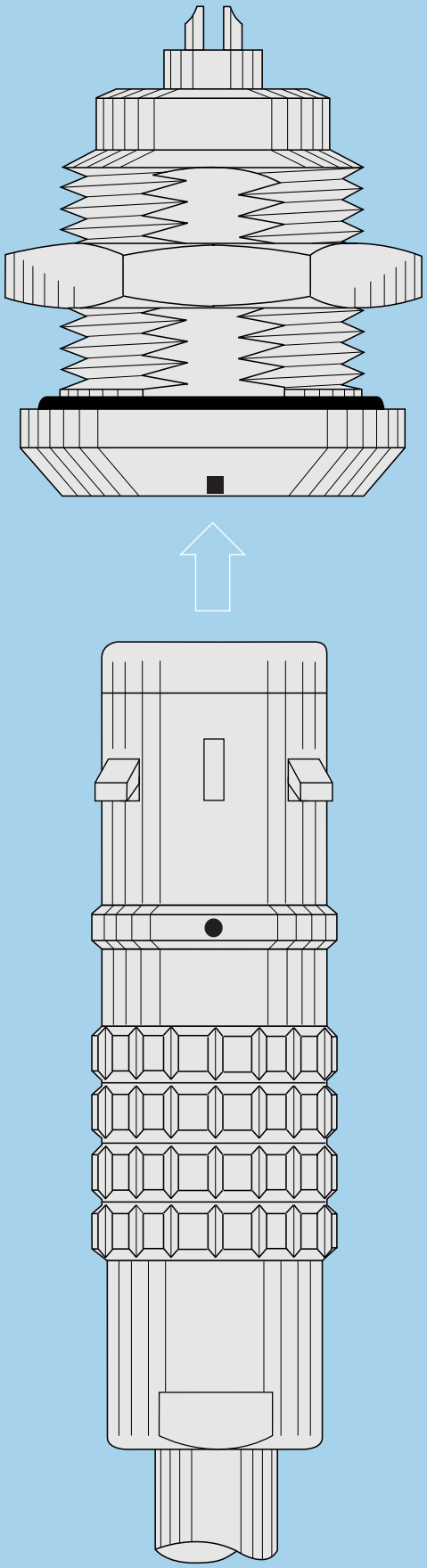
Cable Assembly Instructions

K series

Multipole

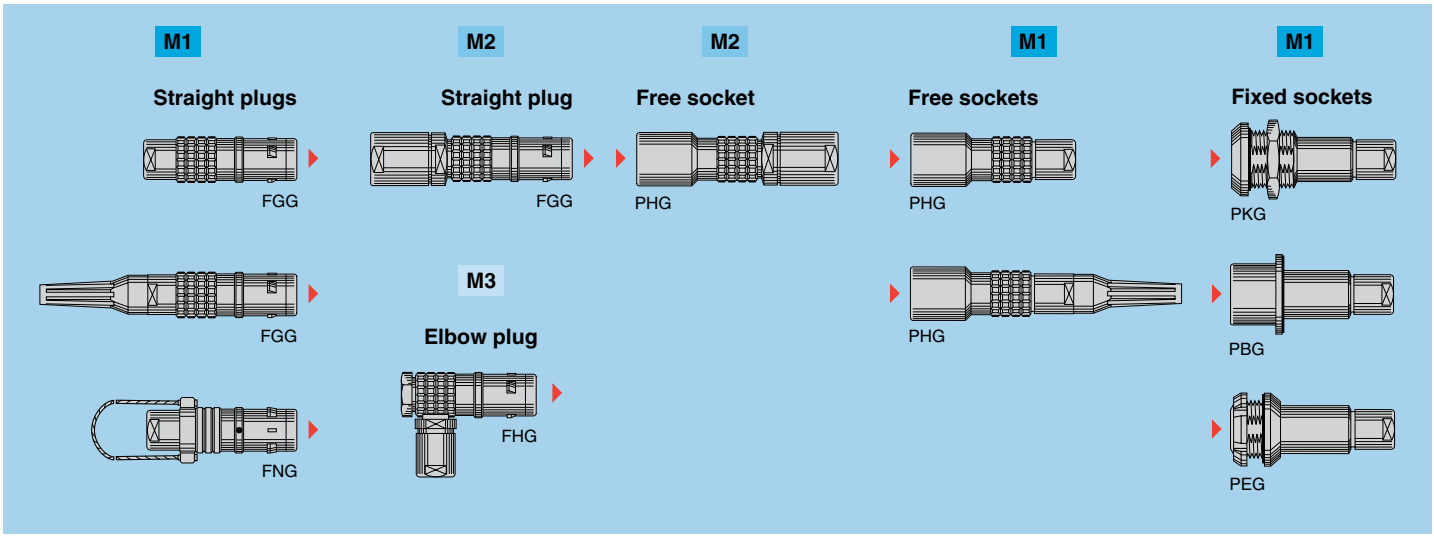


This document describes cable assembly instructions of K Series multipole connectors.
Specific instructions are to be followed for models with cable collet.

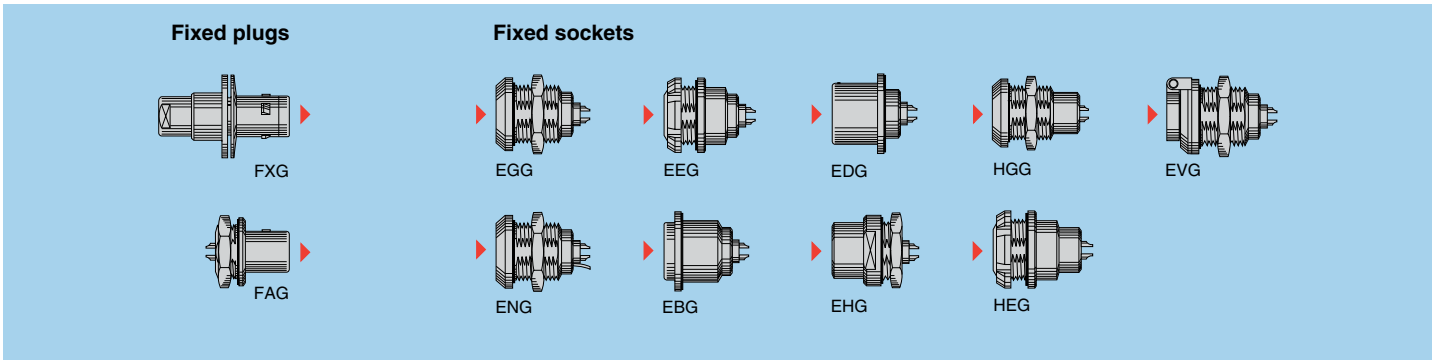
M1 **straight plugs and sockets with cable collet, clamping type C (solder or crimp contacts)**

M2 **straight plug and socket with oversize cable collet, clamping type K (solder or crimp contacts)**

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



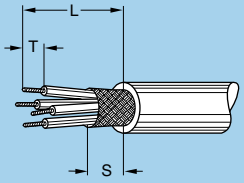
Fixed sockets or plugs with solder or crimp contacts are designed to fit individual conductors.
The stripping length for conductor «T» should be according to the indications on the following pages.



Cable stripping lengths

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

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



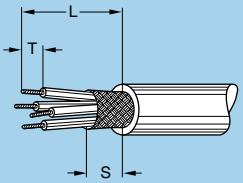
Connector		ø contact A (mm)	Cable stripping lengths (mm)											
			M1						M3					
			Solder			Crimp			Solder			Crimp		
Series	Type		L	S	T	L	S	T	L	S	T	L	S	T
0K	302/303	0.9	8.0	6	3.0	12.0	6	4.0	21.0	6	3.0	25.0	6	4.0
	304/305	0.7	8.0	6	3.0	12.0	6	4.0	21.0	6	3.0	25.0	6	4.0
	306/307/309[1)]	0.5	9.0	6	2.5	13.0	6	4.0	22.0	6	2.5	26.0	6	4.0
1K	302/303	1.3	10.5	7	3.5	14.5	7	4.0	27.0	7	3.5	31.0	7	4.0
	304/305	0.9	10.5	7	3.0	14.5	7	4.0	27.0	7	3.0	31.0	7	4.0
	306/307/308	0.7	10.5	7	3.0	14.5	7	4.0	27.0	7	3.0	31.0	7	4.0
	310/314/316	0.5	13.0	7	2.5	–	–	–	29.5	7	2.5	–	–	–
2K	302	2.0	16.5	8	4.0	19.5	8	5.5	36.0	8	4.0	39.0	8	5.5
	303	1.6	16.5	8	3.5	19.5	8	5.5	36.0	8	3.5	39.0	8	5.5
	304/305/306/307	1.3	15.5	8	3.5	17.5	8	4.0	35.0	8	3.5	37.0	8	4.0
	308/310	0.9	14.5	8	3.0	17.5	8	4.0	34.0	8	3.0	37.0	8	4.0
	312/314/316/318/319	0.7	14.5	8	3.0	17.5	8	4.0	34.0	8	3.0	37.0	8	4.0
	326/332	0.5	14.5	8	2.5	–	–	–	34.0	8	2.5	–	–	–
3K	302	3.0	19.0	10	4.5	23.0	10	5.5	48.0	10	4.5	53.0	10	5.5
	303/304	2.0	18.0	10	4.0	22.0	10	5.5	48.0	10	4.0	52.0	10	5.5
	305/306/307	1.6	18.0	10	3.5	22.0	10	5.5	48.0	10	3.5	52.0	10	5.5
	308/310	1.3	17.0	10	3.5	20.0	10	4.0	47.0	10	3.5	50.0	10	4.0
	309	1.3	17.0	10	3.5	20.0	10	4.0	47.0	10	3.5	50.0	10	4.0
		2.0			4.0			5.5			4.0			5.5
	312/314/316/318	0.9	16.0	10	3.0	20.0	10	4.0	46.0	10	3.0	50.0	10	4.0
	320/322/324/326/330	0.7	16.0	10	3.0	20.0	10	4.0	46.0	10	3.0	50.0	10	4.0
4K	304	3.0	22.0	11	4.5	25.0	11	5.5	52.0	11	4.5	55.0	11	5.5
	306/307	2.0	21.0	11	4.0	25.0	11	5.5	51.0	11	4.0	55.0	11	5.5
	310	1.6	21.0	11	3.5	25.0	11	5.5	51.0	11	3.5	55.0	11	5.5
	312	1.3	21.0	11	3.5	25.0	11	4.0	51.0	11	3.5	55.0	11	4.0
	316/320/324/330	0.9	21.0	11	3.0	23.0	11	4.0	51.0	11	3.0	53.0	11	4.0
	340/348	0.7	21.0	11	3.0	23.0	11	4.0	51.0	11	3.0	53.0	11	4.0
5K	302	6.0	24.0	14	7.5	–	–	–	–	–	–	–	–	–
	304	4.0	29.0	14	5.5	32.0	14	7.0	–	–	–	–	–	–
	310	3.0	29.0	14	4.5	32.0	14	7.0	–	–	–	–	–	–
	314/316	2.0	28.0	14	4.0	31.0	14	5.5	–	–	–	–	–	–
	320	1.6	28.0	14	3.5	31.0	14	5.5	–	–	–	–	–	–
	330/340/348	1.3	27.0	14	3.5	30.0	14	4.0	–	–	–	–	–	–
	350/354/364	0.9	27.0	14	3.0	30.0	14	4.0	–	–	–	–	–	–

Note: [1)] crimp contacts are available only for connectors fitted with male contacts.

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

Cable stripping lengths

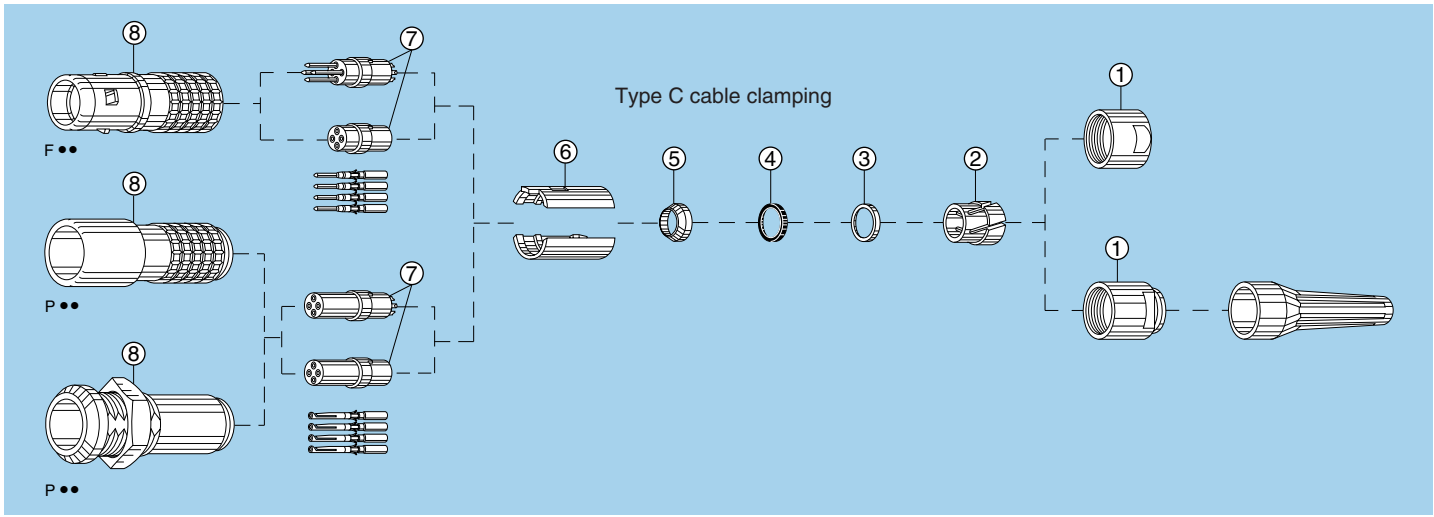
M2 **straight plug and socket with oversize cable collet, clamping type K (solder or crimp contacts)**

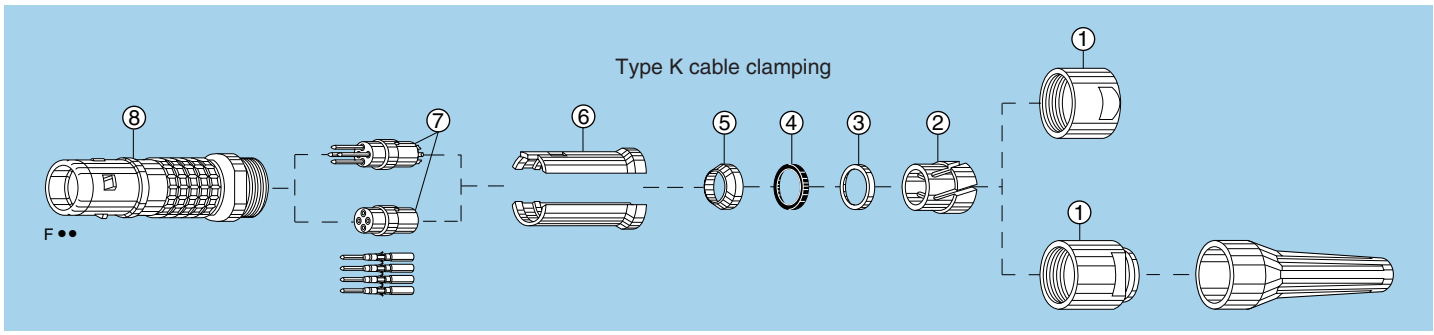


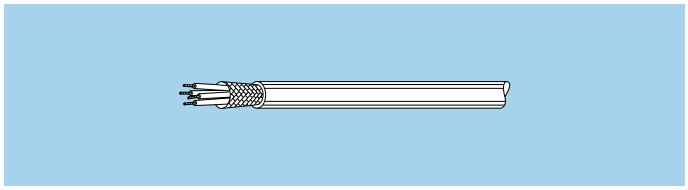
Connector		ø contact A (mm)	Cable stripping lengths (mm) M2					
			Solder			Crimp		
Series	Type		L	S	T	L	S	T
1K	302/303	1.3	24.5	8	3.5	28.5	8	4.0
	304/305	0.9	24.5	8	3.0	28.5	8	4.0
	306/307/308	0.7	24.5	8	3.0	28.5	8	4.0
	310/314/316	0.5	27.0	8	2.5	–	–	–
2K	302	2.0	29.5	10	4.0	32.5	10	5.5
	303	1.6	29.5	10	3.5	32.5	10	5.5
	304/305/306/307	1.3	28.5	10	3.5	30.5	10	4.0
	308/310	0.9	27.5	10	3.0	30.5	10	4.0
	312/314/316/318/319	0.7	27.5	10	3.0	30.5	10	4.0
	326/332	0.5	27.5	10	2.5	–	–	–
3K	302	3.0	37.0	11	4.5	41.0	11	5.5
	303/304	2.0	36.0	11	4.0	40.0	11	5.5
	305/306/307	1.6	36.0	11	3.5	40.0	11	5.5
	308/310	1.3	35.0	11	3.5	38.0	11	4.0
	309	1.3	35.0	11	3.5	38.0	11	4.0
		2.0			4.0			5.5
	312/314/316/318	0.9	34.0	11	3.0	38.0	11	4.0
	320/322/324/326/330	0.7	34.0	11	3.0	38.0	11	4.0
4K	304	3.0	45.0	14	4.5	48.0	14	5.5
	306/307	2.0	44.0	14	4.0	48.0	14	5.5
	310	1.6	44.0	14	3.5	48.0	14	5.5
	312	1.3	44.0	14	3.5	48.0	14	4.0
	316/320/324/330	0.9	44.0	14	3.0	46.0	14	4.0
	340/348	0.7	44.0	14	3.0	46.0	14	4.0

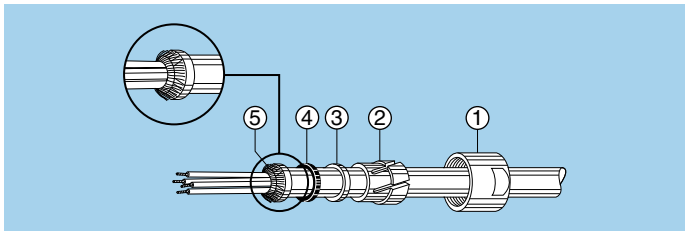
Note:
the tolerances on these dimensions are: L: ± 0.5 mm
S: ± 0.5 mm
T: ± 0.2 mm

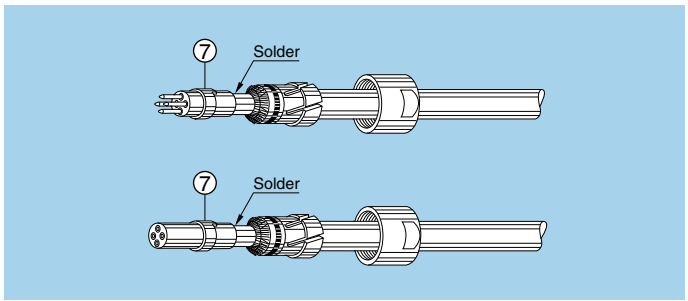
Cable assembly of straight plugs and sockets with cable collet M1 M2











1. Cable stripping

Strip the cable according to the dimensions indicated in the table on page 3 or 4.
For connector with solder contacts, the length L should be reduced by few millimeter for the conductors that are fitted to the contacts near the center.

2. Connector preparation

2.1 Connector with type C and K cable clamping

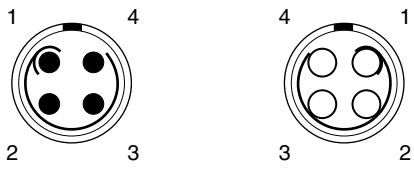
For all straight models with solder or crimp contacts, slide the following onto the cable: bend relief if provided, collet nut ①, collet ②, metal washer ③, gasket ④ and the earthing cone ⑤. In the case of a shielded cable, fold back the shield around the whole of the circumference of the earthing cone.

3. Soldering of contacts

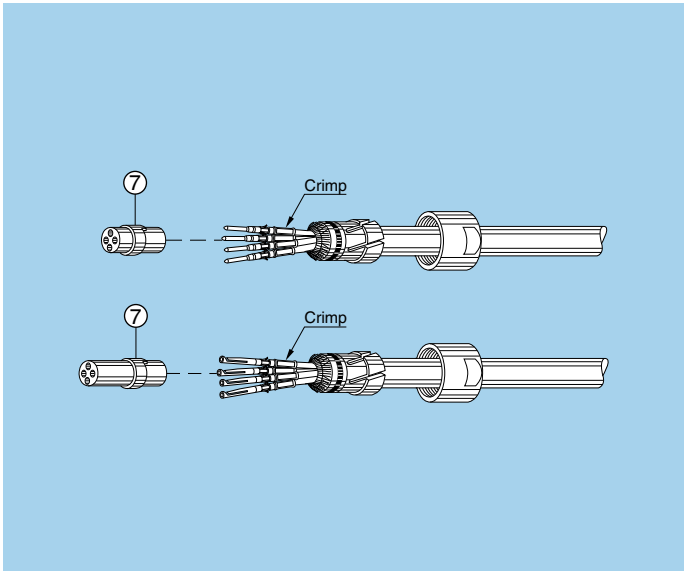
3.1 Connector with type C and K cable clamping

Solder the conductors to the contacts, making sure that the insulator ⑦ and the cable remain clean.

Contact Numbering Example



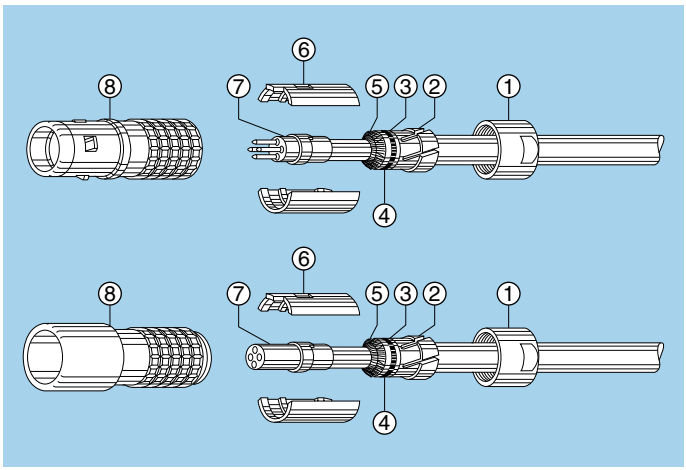
Contacts are numbered counterclockwise on the male insert and clockwise in the female insert, as viewed from the termination side. Contact number 1 is marked with a half circle.



4. Crimping of contacts

4.1 Connector with type C and K cable clamping

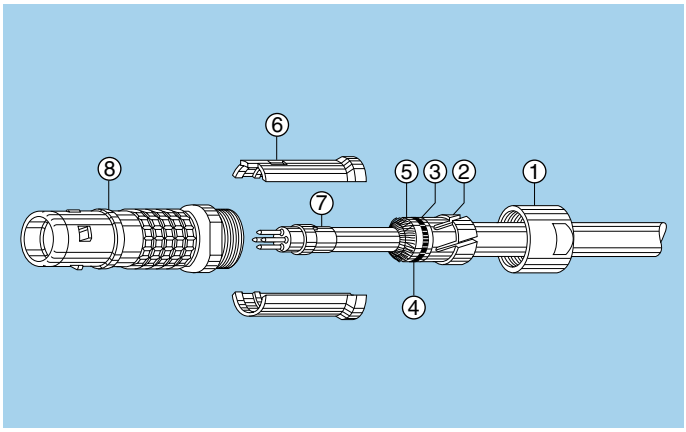
Fix the appropriate positioner onto the crimping tool (table on page 8 and 9) and set the selector to the number corresponding to the AWG of the conductor used as indicated on the positioner label.
Fit the conductor into the contact; make sure that the conductor is visible through the contact's inspection 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.
Arrange the conductor-contact assemblies according to the marking on the insulator (see numbering example on previous page), avoiding any twisting of the conductors.
Fit the contacts gently into the insulator ⑦, check that no conductor overlaps another and push the contacts into the insulator; 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 the insulator; the contact alignment must remain in correct position.



5. Assembling parts inside connector housing

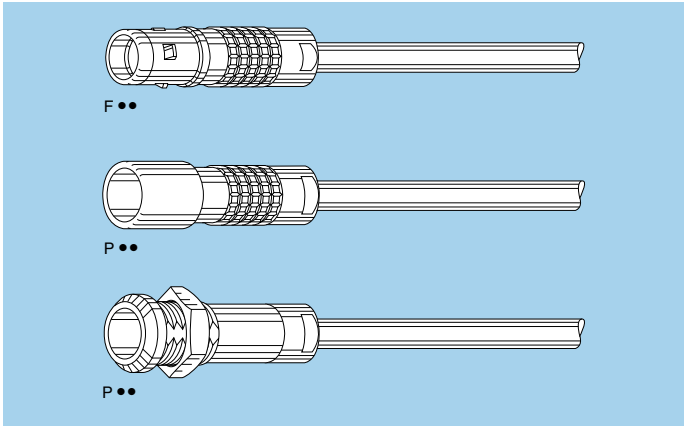
5.1 Connector with type C cable clamping

Position the split insert carrier with window ⑥ on the insulator ⑦; the window must be positioned exactly on the insulator's notch.
Position the second split insert carrier, making sure that the two parts form a cylinder.
Push the collet ②, washer ③, gasket ④ and earthing cone ⑤ in order to clamp the shield. Verify it remains clamped around earthing cone circumference, cut off any surplus. Verify also that the cable jacket remains correctly located under the gasket.



5.2 Connector with type K cable clamping

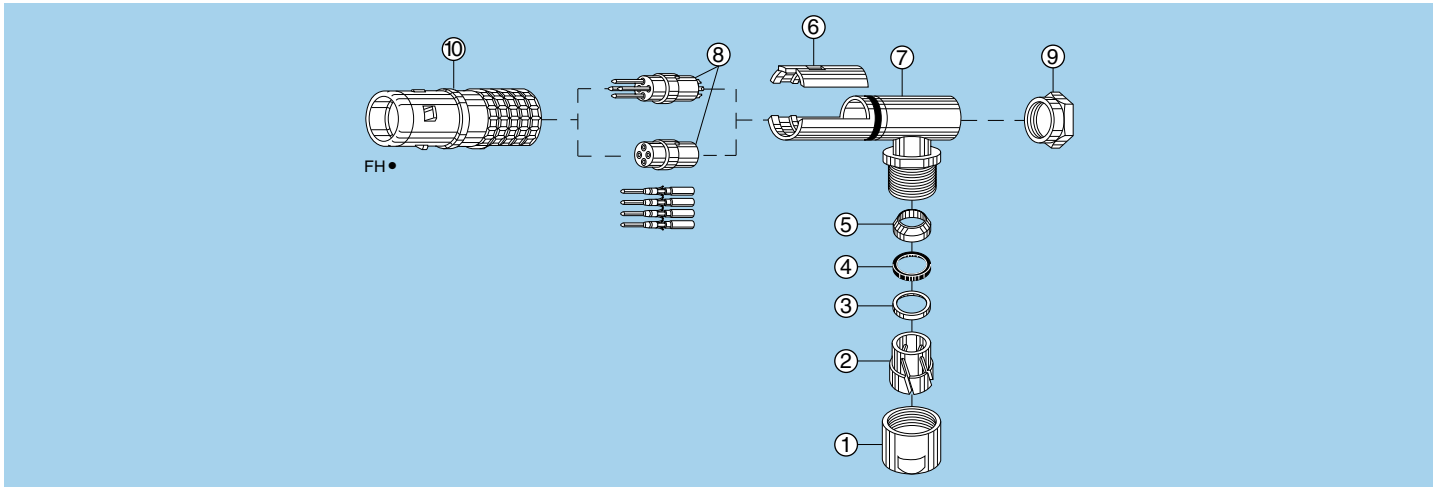
Position the extended split insert carrier with inner cone with window ⑥ on the insulator ⑦; the window must be positioned exactly on the insulator's notch.
Position the second extended split insert carrier, making sure that the two parts form a cylinder.
Push the collet ②, washer ③, gasket ④ and earthing cone ⑤ in order to clamp the shield. Verify it remains clamped around earthing cone circumference, cut off any surplus. Verify also that the cable jacket remains correctly located under the gasket.

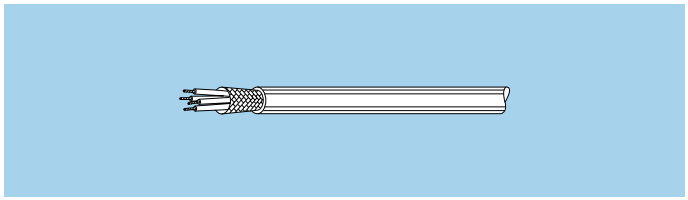


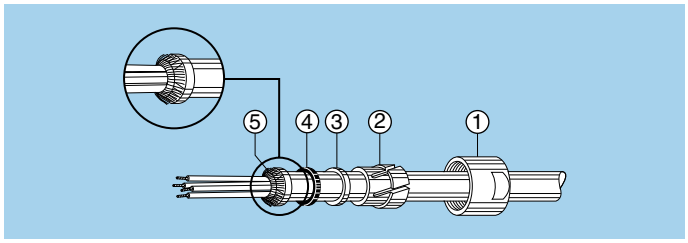
5.3 Connector with type C and K cable clamping

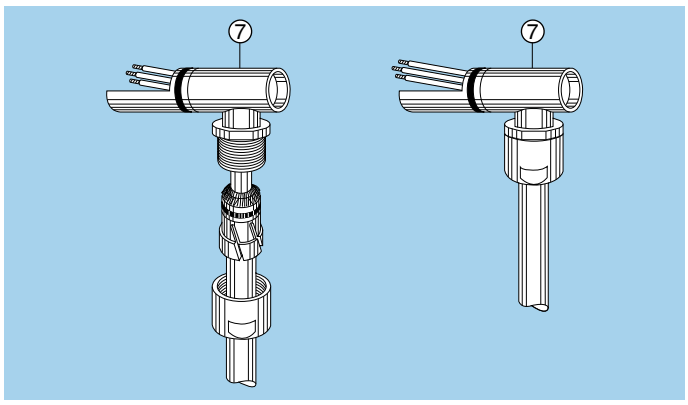
Fit the pre-assembly into the connector housing ⑧ by holding the collet, giving it a slight rotation and pressure until the split insert carrier's key is inserted into the housing's slot situated under the red keyway dot.
Make sure that the internal components do not turn in the housing and screw on the collet nut ① using the appropriate tooling. The front nose of a plug F•• shall be held in the plier DPF whilst the nut is tightened (see Tooling page 10). Screw on the collet nut ① respecting the tightening torque (table on page 10). Fix the bend relief - if provided - onto the collet nut.

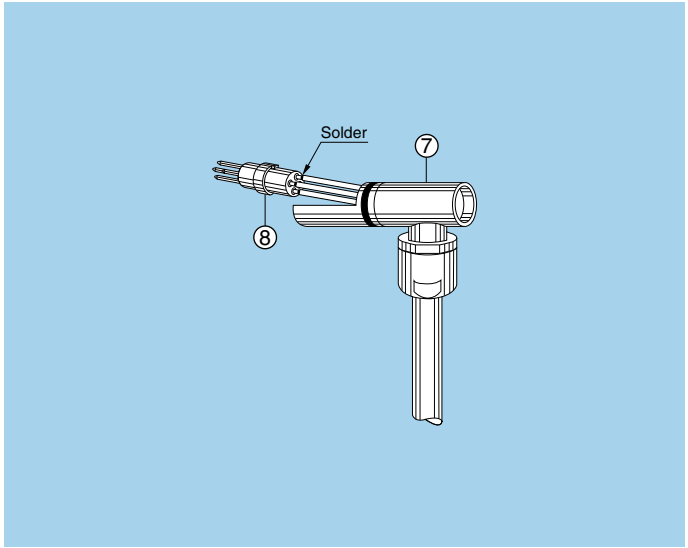
Cable assembly of elbow plugs (90°) with cable collet M3











1. Cable stripping

Strip the cable according to the dimensions indicated in the table on page 3 or 4.
For connector with solder contacts, the length L should be reduced by few millimeter for the conductors that are fitted to the contacts near the center.

2. Connector preparation

For the elbow plug model with solder or crimp contacts, slide the following onto the cable: bend relief if provided, collet nut ①, collet ②, metal washer ③, gasket ④ and the earthing cone ⑤. In the case of a shielded cable, fold back the shield around the whole of the circumference of the earthing cone.

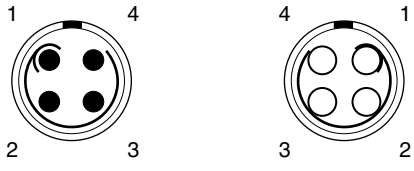
2.1 Assembly of collet into elbow inner shell

Slide the elbow inner shell ⑦ onto the cable as shown. Arrange together the collet ②, washer ③, gasket ④ and earthing cone ⑤ over the cable. Verify that the shield remains around earthing cone circumference, cut off any surplus. Verify also that the cable jacket remains correctly located under the gasket. Fit into the elbow inner shell ⑦. Screw on the collet nut ① respecting the tightening torque (table on page 10). Fix the bend relief - if provided - onto the collet nut.

3. Soldering of contacts

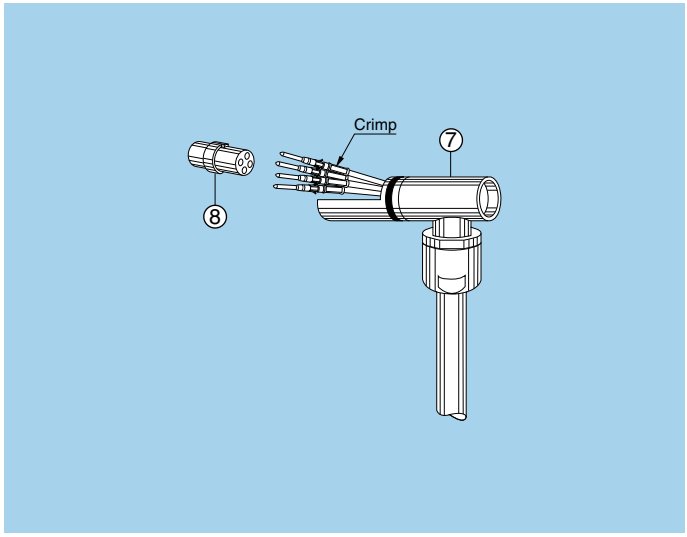
Solder the conductors to the contacts, making sure that the insulator ⑧ and the cable remain clean.

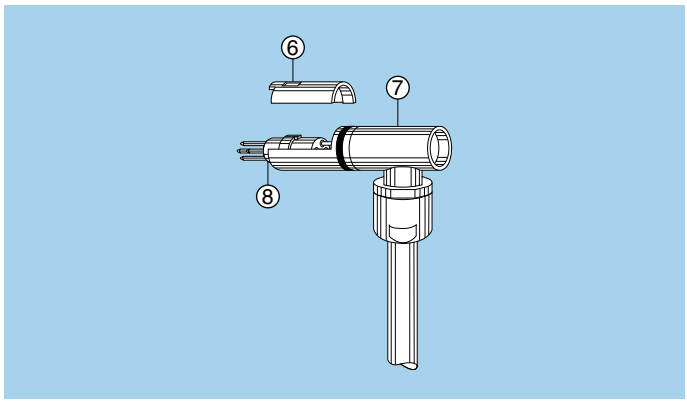
Contact Numbering Example

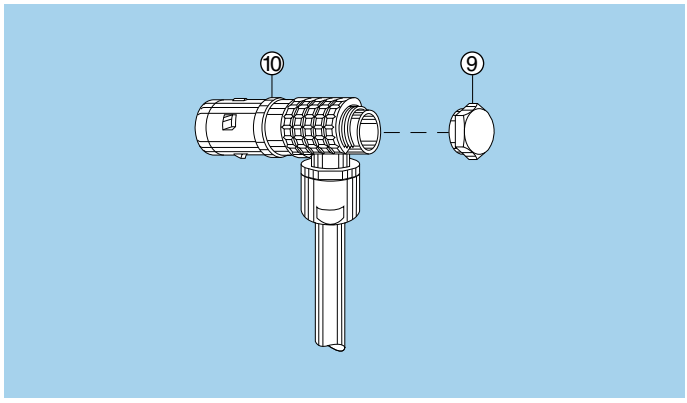


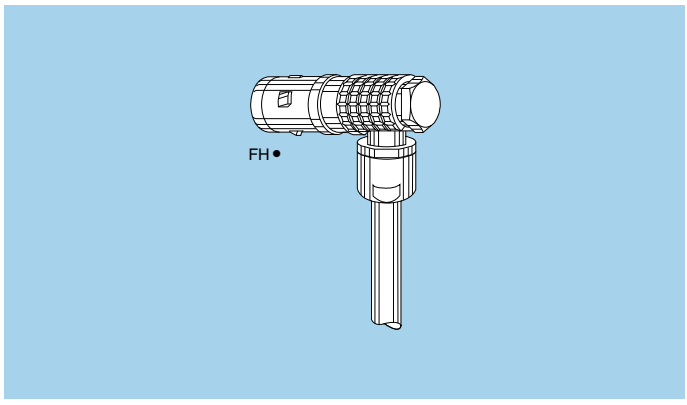
Male Insert | Female Insert

Contacts are numbered counterclockwise on the male insert and clockwise in the female insert, as viewed from the termination side. Contact number 1 is marked with a half circle.









4. Crimping of contacts

Fix the appropriate positioner onto the crimping tool (table on page 8 and 9) 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; make sure that the conductor 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.
Arrange the conductor-contact assemblies according to the marking on the insulator (see numbering example on previous page), avoiding any twisting of the conductors.
Fit the contacts gently into the insulator ⑧ check that no conductor overlaps another and push the contacts into the insulator; 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 the insulator; the contact alignment must remain in correct position.

5. Assembling parts inside connector housing

5.1 Fit the insulator assembly into the slot of the front half sleeve of the elbow inner shell ⑦. Position the insert carrier with window ⑥ on the insulator ⑧, the window must be positioned exactly on the insulator's notch, make sure that the insert carrier form a cylinder with the front half sleeve of the elbow inner shell.

5.2 Fit the pre-assembly into the connector housing ⑩ by holding the collet nut, giving it a slight rotation and pressure until the split insert carrier's key is inserted into the housing's slot situated under the red keyway dot.
Make sure that the internal components do not turn in the housing and screw on the hex cap ⑨ using the appropriate tooling. The front nose of the plug shall be held in the plier DPF whilst the nut is tightened (see Tooling page 10). Respect the tightening torque (table on page 10).

Crimping tools

Fig. 1

Fig. 2

DPC Manual crimping tools

Supplier	Part number		
	contact ø 0.5-0.7 0.9-1.3 (Fig. 1)	contact ø 1.6-2.0 (Fig. 2)	contact ø 3.0-4.0 (Fig. 2)
LEMO	DPC.91.701.V[1)]	DPC.91.101.A[2)]	DPC.91.102.V
DANIELS	MH860[1)]	AF8[2)]	M300BT
ASTRO	616336[1)]	615708[2)]	–

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

DCE Positioners for crimp contacts ø 0.5-0.7-0.9 and 1.3 mm

male

female

Fig. 1

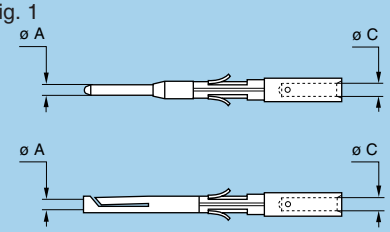
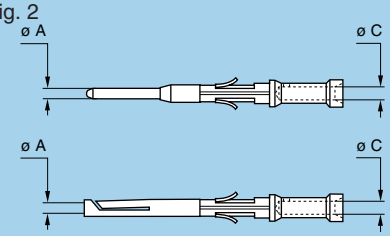


Fig. 2



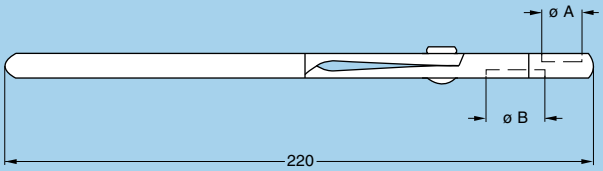
Note: a wide variation of strand number and diameter combinations are quoted as being AWG, some of which do not have a large enough cross section to guarantee a crimp as per either MIL-C-22520/1-01 or /7-01. Our technical department is at your disposal to study and propose a solution to all your applications.

	Connector + Contact + type reference						Conductor AWG	Crimping tool selector position	Positioners part number	
	Type	ø A	ø C	Fig.	Male	Female			For male contact	For female contact
0K	302/303	0.9	1.10	1	C	M	20-22-24	6-5-5	DCE.91.090.BVC	DCE.91.090.BVM
		0.9	0.80	2	B	P	22-24-26	6-5-5		
		0.9	0.45	2	G	U	28-30-32	4-3-3	DCE.91.090.AVC	DCE.91.090.AVM
	304/305	0.7	0.80	1	C	M	22-24-26	6-5-5	DCE.91.070.BVC	DCE.91.070.BVM
		0.7	0.45	2	B	P	28-30-32	4-3-3		
	306/307 309	0.5	0.45	1	C	M	28-30-32	4-3-3	DCE.91.050.BVC	–
1K	302/303	1.3	1.40	1	C	M	18-20	8-7	DCE.91.131.BVC	DCE.91.131.BVM
		1.3	1.10	2	B	P	20-22-24	6-5-5		
	304/305	0.9	1.10	1	C	M	20-22-24	6-5-5	DCE.91.091.BVC	DCE.91.091.BVM
		0.9	0.80	2	B	P	22-24-26	6-5-5		
	306/307 308	0.7	0.80	1	C	M	22-24-26	6-5-5	DCE.91.071.BVC	DCE.91.071.BVM
		0.7	0.45	2	B	P	28-30-32	4-3-3		
2K	304/305 306/307	1.3	1.40	1	C	M	18-20	8-7	DCE.91.132.BVC	DCE.91.132.BVM
		1.3	1.10	2	B	P	20-22-24	6-5-5		
		1.3	0.80	2	G	U	22-24-26	6-5-5	DCE.91.132.CVC	DCE.91.132.CVM
	308/310	0.9	1.10	1	C	M	20-22-24	6-5-5	DCE.91.092.BVC	DCE.91.092.BVM
		0.9	0.80	2	B	P	22-24-26	6-5-5		
		0.9	0.45	2	G	U	28-30-32	4-3-3	DCE.91.092.AVC	DCE.91.092.AVM
	312/314 316/318 319	0.7	0.80	1	C	M	22-24-26	6-5-5	DCE.91.072.BVC	DCE.91.072.BVM
		0.7	0.45	2	B	P	28-30-32	4-3-3		
3K	308/309 310	1.3	1.40	1	C	M	18-20	8-7	DCE.91.133.BVC	DCE.91.133.BVM
		1.3	1.10	2	B	P	20-22-24	6-5-5		
	312/314 316/318	0.9	1.10	1	C	M	20-22-24	6-5-5	DCE.91.093.BVC	DCE.91.093.BVM
		0.9	0.80	2	B	P	22-24-26	6-5-5		
	320/322 324/326 330	0.7	0.80	1	C	M	22-24-26	6-5-5	DCE.91.073.BVC	DCE.91.073.BVM
		0.7	0.45	2	B	P	28-30-32	4-3-3		
4K	312	1.3	1.40	1	C	M	18-20	8-7	DCE.91.134.BVC	DCE.91.134.BVM
		1.3	1.10	2	B	P	20-22-24	6-5-5		
	316/320 324/330	0.9	1.10	1	C	M	20-22-24	6-5-5	DCE.91.094.BVC	DCE.91.094.BVM
		0.9	0.80	2	B	P	22-24-26	6-5-5		
	340/348	0.7	0.80	1	C	M	22-24-26	6-5-5	DCE.91.074.BVC	DCE.91.074.BVM
		0.7	0.45	2	B	P	28-30-32	4-3-3		
5K	330/340 348	1.3	1.40	1	C	M	18-20	8-7	DCE.91.135.BVC	DCE.91.135.BVM
	350/354 364	0.9	1.10	1	C	M	20-22-24	6-5-5	DCE.91.095.BVC	DCE.91.095.BVM
		0.9	0.80	2	B	P	22-24-26	6-5-5		

DCE Turret for crimp contacts 1.6-2.0-3.0 and 4.0 mm diameter

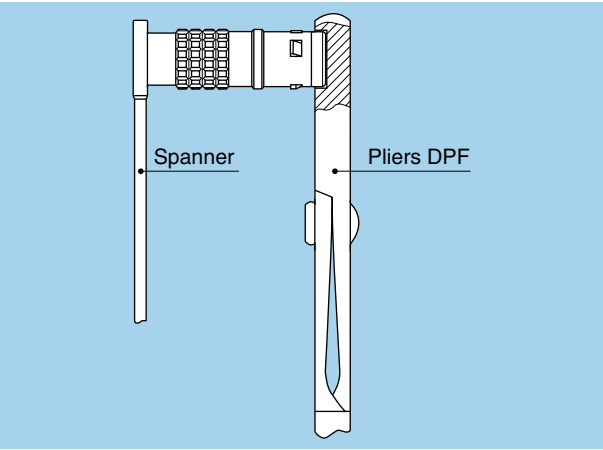
male and female

	Connector + Contact + type reference						Conductor AWG	Crimping tool selector position	Positioners
	Type	ø A	ø C	Fig.	Male	Female			Part number
2K	302	2.0	2.4	1	C	M	12-14-16	8-7-6	DCE.91.202.BVCM
		2.0	1.9	2	B	P	14-16-18	7-6-5	
	303	1.6	1.9	1	C	M	14-16-18	7-6-5	DCE.91.162.BVCM
		1.6	1.4	2	B	P	18-20-22	6-5-5	
3K	302	3.0	2.9	1	C	M	10-12-14	3-1-1	DCE.91.303.BVCM
	303/304 309	2.0	2.4	1	C	M	12-14-16	8-7-6	DCE.91.203.BVCM
		2.0	1.9	2	B	P	14-16-18	7-6-5	
	305/306 307	1.6	1.9	1	C	M	14-16-18	7-6-5	DCE.91.163.BVCM
		1.6	1.4	2	B	P	18-20-22	6-5-5	
4K	304	3.0	2.9	1	C	M	10-12-14	3-1-1	DCE.91.304.BVCM
	306/307	2.0	2.4	1	C	M	12-14-16	8-7-6	DCE.91.204.BVCM
		2.0	1.9	2	B	P	14-16-18	7-6-5	
	310	1.6	1.9	1	C	M	14-16-18	7-6-5	DCE.91.164.BVCM
		1.6	1.4	2	B	P	18-20-22	6-5-5	
5K	304	4.0	4.0	1	C	M	10-12	5-3	DCE.91.405.BVCM
	310	3.0	2.9	1	C	M	10-12-14	3-1-1	DCE.91.305.BVCM
	314/316	2.0	2.4	1	C	M	12-14-16	8-7-6	DCE.91.205.BVCM
		2.0	1.9	2	B	P	14-16-18	7-6-5	
	320	1.6	1.9	1	C	M	14-16-18	7-6-5	DCE.91.165.BVCM
		1.6	1.4	2	B	P	18-20-22	6-5-5	



DPF Pliers for assembling plugs

Part number	Series	Dimensions (mm)	
		A	B
DPF.91.001.TA	0K	10	–
	1K	–	12
DPF.91.023.TA	2K	15	–
	3K	–	18



Example for use

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

Maximum metal collet nut tightening torque

	Series					
	0K	1K	2K	3K	4K	5K
Torque (Nm)	0.7	0.8	2	3	5	8

Maximum elbow plug hex cap tightening torque

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

Notes: – We recommend torquing to the maximum value.
– Optimal torque may depend on cable jacket design.
– For applications subject to strong vibration, we recommend fixing the collet nut with epoxy resin.