

M 23 POWER, M 23 HYBRID

The classical M 23 Power connector is able to cover a large range of applications. This connector meets almost every challenge, because it can be used with 6-, 8- or 9-pole inserts and the power data goes up to 28 A / 600 V.

- // High power transmission
- // Screw lock or TWILOCK/TWILOCK-S quick release fastener
- // Numerous housing types



Product overview

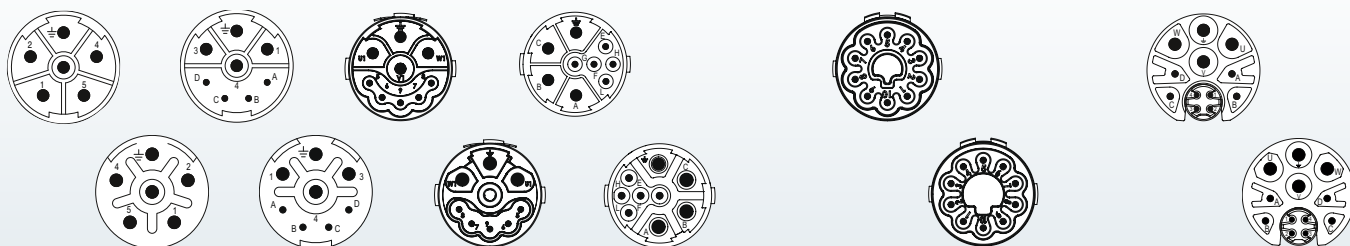
Housings

► 130



Inserts

► 135



Accessories

► 137



Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25 µm)
Minimum mating cycles	> 1000*
Seals / O-Rings	Buna-N standard optional Viton® (FKM / FPM) (Viton is a registered trademark of DuPont)
Temperature range	-40 °C – 125 °C (-40 °F – 257 °F)
Type of contacts	Crimp
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x
Cable diameter range	7 – 17 mm (.28 – .67")

* HUMMEL to HUMMEL connector

Electrical Data						
Number of positions	5 + PE	4 + 3 + PE		5 + 3 + PE		10
Number of contacts	6	4	4	5	4	10
Contact-Ø [mm]	2	1	2	1	2	1
Nominal current ¹⁾ [A]	28	8	28	10	28	10
Nominal voltage ²⁾ [V~] Degree of Protection 3 ³⁾	600	300	600	250	600	160
Test voltage (Breakdown voltage) ⁴⁾ [V~]	4000	2500	4000	2500	4000	2500
Insulation resistance [Ω]	> 10 ¹³	> 10 ¹³		> 10 ¹³		> 10 ¹³
Max. contact resistance [mΩ]	3	3		3		3

Number of positions	4 + 4 + 3 + PE		
	Power	Signal	Ethernet
Number of contacts	4	4	4
Contact-Ø [mm]	2	1	0,6
AWG [mm ²]	0,75 – 4	0,14 – 1	0,08 – 0,34
Nominal current ¹⁾ [A]	28	8	2
Nominal voltage ²⁾ [V~] Degree of Protection 3 ³⁾	600	300	60
Test voltage (Breakdown voltage) ⁴⁾ [V~]	4000	2500	500
Insulation resistance [Ω]	> 10 ¹³	> 10 ¹⁰	> 10 ⁶
Max. contact resistance [mΩ]	< 3	< 3	< 3

¹⁾, ²⁾, ³⁾, ⁴⁾ See Technical Information page 18

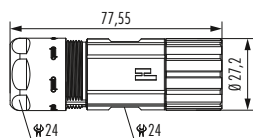
Housings

Straight Connector, Female Thread

Cable-Ø

Part Number

7 – 12 mm (.27 – .47")	7.550.500.000
11 – 17 mm (.43 – .67")	7.550.600.000



Straight Connector, Female Thread TWILOCK / TWILOCK-S*

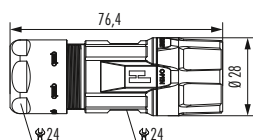
Cable-Ø

Part Number

7 – 12 mm (.24 – .47")	7.556.500.000
11 – 17 mm (.43 – .67")	7.556.600.000

* intermateable with Speedtec

7 – 12 mm (.24 – .47")	7.556.500.00S
11 – 17 mm (.43 – .67")	7.556.600.00S



Straight Connector, Male Thread TWILOCK / TWILOCK-S*

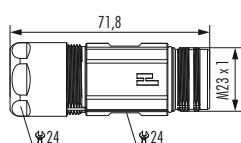
Cable-Ø

Part Number

7 – 12 mm (.27 – .47")	7.560.500.000
11 – 17 mm (.43 – .67")	7.560.600.000

* intermateable with Speedtec

7 – 12 mm (.27 – .47")	7.566.500.000S
11 – 17 mm (.43 – .67")	7.566.600.000S

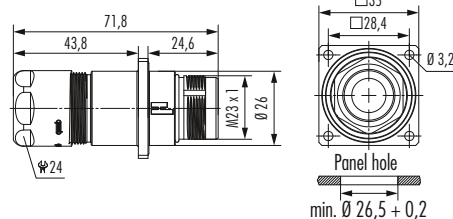


Panel Connector, Male Thread, with Strain Relief

Cable-Ø

Part Number

4 holes Ø 3,2 mm (.13"), front or rear mounting	
7 – 12 mm (.27 – .47")	7.683.500.000
11 – 17 mm (.43 – .67")	7.683.600.000



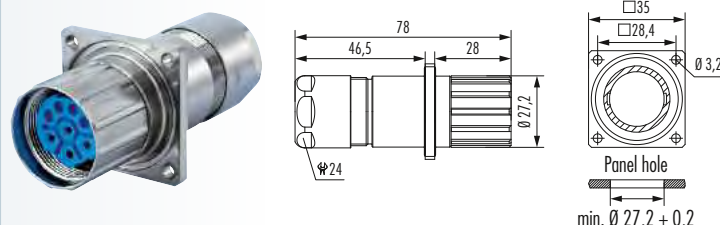
Housing without inserts and contacts

Panel Connector, Female Thread, with Strain Relief

Cable-Ø

Part Number

4 holes Ø 3,2 mm (.13"), front or rear mounting	
7 – 12 mm (.27 – .47")	7.681.500.000
11 – 17 mm (.43 – .67")	7.681.600.000



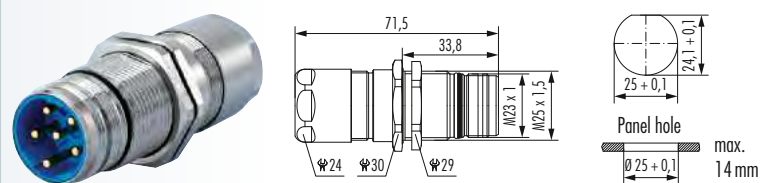
Panel Connector, Male Thread, with Strain Relief TWILOCK / TWILOCK-S*

Cable-Ø

Part Number

Single hole mounted, rear mounting, thread M 25 x 1,5	
7 – 12 mm (.27 – .47")	7.653.500.000
11 – 17 mm (.43 – .67")	7.653.600.000
* intermateable with Speedtec	
7 – 12 mm (.27 – .47")	7.653.500.00S
11 – 17 mm (.43 – .67")	7.653.600.00S

Including jam nut M 25 x 1,5

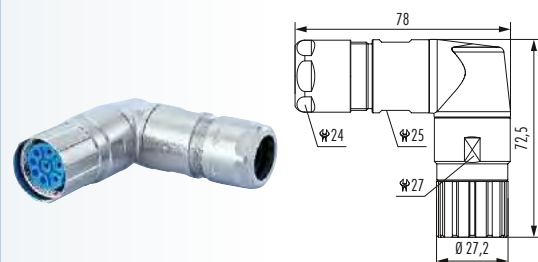


Right Angle Connector, Female Thread, rotatable

Cable-Ø

Part Number

7 – 12 mm (.27 – .47")	7.576.500.000
11 – 17 mm (.43 – .67")	7.576.600.000

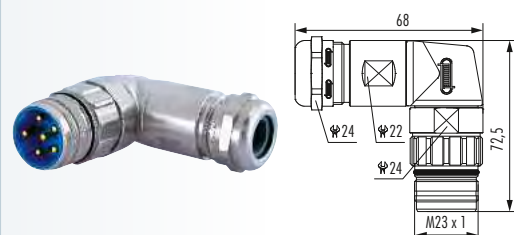


Right Angle Connector, Male Thread, rotatable

Cable-Ø

Part Number

7 – 12 mm (.27 – .47")	7.580.500.000 ¹
10 – 14 mm (.39 – .55")	7.580.600.000 ¹

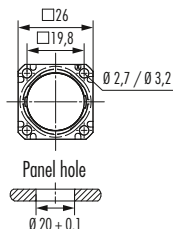
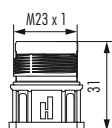


Housing without inserts and contacts

¹ no compatibility with TWILOCK

Housings

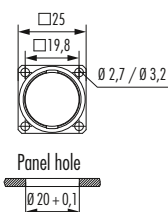
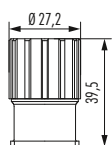
Panel Connectors, Male Thread, Front Mounting TWILOCK/TWILOCK-S*



Type	Part Number
4 holes Ø 3,2 mm (.13")	7.601.000.000
4 holes Ø 2,7 mm (.11")	7.605.000.000
* intermateable with Speedtec	
4 x holes 3,2 mm, Flange 25x25	7.601.000.005
4 x holes 3,2 mm, Flange 28x28	7.601.100.005



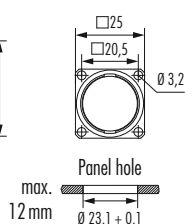
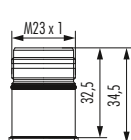
Panel Connector with knurled Nut, Front Mounting



Type	Part Number
4 holes Ø 3,2 mm (.13")	7.641.000.000
4 holes Ø 2,7 mm (.11")	7.645.000.000



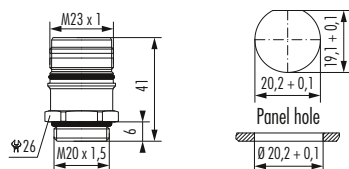
Panel Connector, Male Thread, Rear Mounting



Type	Part Number
With anti-vibration O-Ring	
4 holes Ø 3,2 mm (.13")	7.661.000.000 ¹



Panel Connector, Male Thread, Single Hole Mounted



Type

Part Number

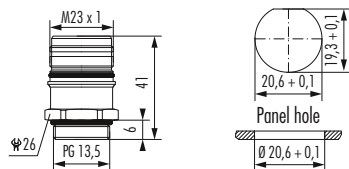
Front mounting

Thread M 20 x 1,57.621.000.000¹

Option: jam nut M 20 x 1,5



Panel Connector, Male Thread, Single Hole Mounted



Type

Part Number

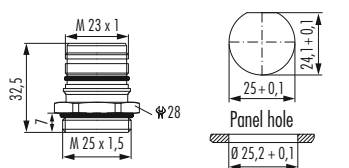
Front mounting

Thread PG 13,57.623.000.000¹

Option: jam nut PG 13,5



Panel Connector, Male Thread, Single Hole Mounted



Type

Part Number

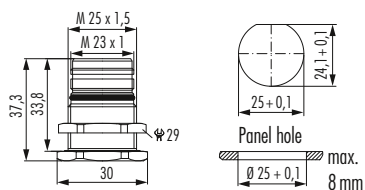
Front mounting

Thread M 25 x 1,57.626.000.000

Option: jam nut M 25 x 1,5



Panel Connector, Male Thread, Single Hole Mounted



Type

Part Number

Rear mounting

Thread M 25 x 1,57.651.000.000

Including jam nut M 25 x 1,5

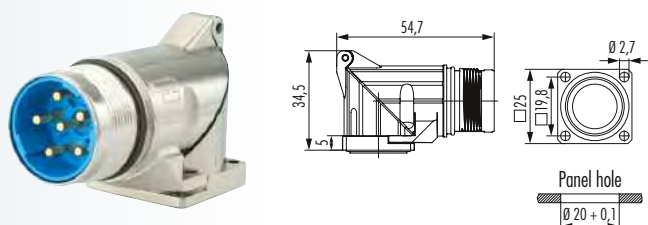


Housing without inserts and contacts

¹ No compatibility with TWILOCK

Housings

Right Angle Panel Connector, Male Thread



Type	Part Number
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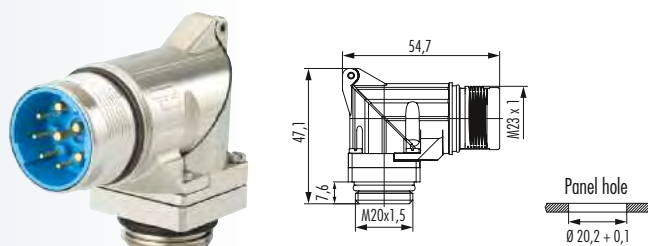
4 holes Ø 2,7 mm (.11")	7.635.000.000
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Optional: Flat gasket

Easy fastening with M2,5 x 10 mm or 4 x .39" long screws



Right Angle Panel Connector, Male Thread, rotatable

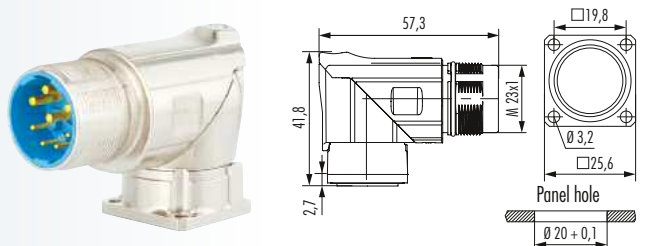


Type	Part Number
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335° rotatable, single hole mounted	
Thread M20 x 1,5	7.636.000.000



Right Angle Panel Connector, Male Thread, rotatable TWILOCK/TWILOCK-S*

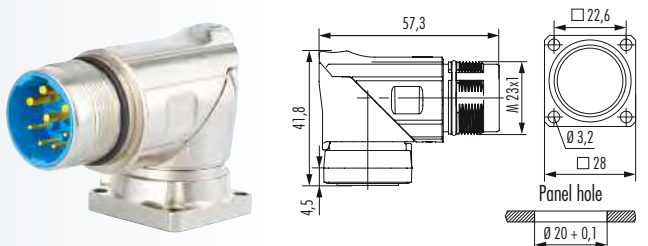


Type	Part Number
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330° rotatable, single hole mounted	
4 x holes 3,2 mm (.13")	7.639.000.000
Flange 25 x 25 mm	
* intermateable with Speedtec	
4 x holes 3,2 mm (.13")	7.639.000.005
Flange 25 x 25 mm	



Right Angle Panel Connector, Male Thread, rotatable TWILOCK/TWILOCK-S*



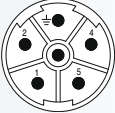
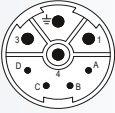
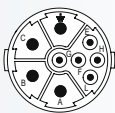
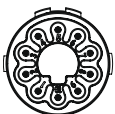
Type	Part Number
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330° rotatable, single hole mounted	
4 x holes 3,2 mm (.13")	7.639.100.000
Flange 28 x 28 mm	
* intermateable with Speedtec	
4 x holes 3,2 mm (.13")	7.639.100.005
Flange 28 x 28 mm	



Housing without inserts and contacts



Contact Arrangement, Mating View		Number of Poles	Required Contacts
	crimp pin		crimp socket
		6 x crimp pins 2 mm	7.084.951.121 ¹⁾
		6 x crimp sockets 2 mm	7.084.951.122 ¹⁾
	crimp pin		crimp socket
		4 x crimp pins 1 mm, 4 x crimp pins 2 mm	7.084.943.121
		4 x crimp sockets 1 mm, 4 x crimp sockets 2 mm	7.084.943.122
	crimp pin		crimp socket
		5 x crimp pins 1 mm, 4 x crimp pins 2 mm	7.084.953.101
		5 x crimp sockets 1 mm, 4 x crimp sockets 2 mm	7.084.953.102
	crimp pin		crimp socket
		5 x crimp pins 1 mm, 4 x crimp pins 2 mm	7.084.909.101
		5 x crimp sockets 1 mm, 4 x crimp sockets 2 mm	7.084.909.102
	crimp pin		crimp socket
		10 x crimp pins 1 mm	7.084.910.101
		10 x crimp sockets 1 mm	7.084.910.102
	crimp pin		crimp socket
		4 x crimp pins 1 mm, 4 x crimp pins 2 mm, 4 x crimp pins 0,6 mm	7.084.944.101
		4 x crimp sockets 1 mm, 4 x crimp sockets 2 mm, 4 x crimp sockets 0,6 mm	7.084.944.102

¹⁾ under development



Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 0,6 mm, machined ¹	0,08 – 0,34 mm ² (AWG28 – AWG 22)	7.010.980.641
	Crimp socket 0,6 mm, machined ¹	0,08 – 0,34 mm ² (AWG28 – AWG 22)	7.010.980.602
	Crimp pin 1 mm, machined ²	0,14 – 1 mm ² (AWG 26 – 17)	7.010.941.001
	Crimp pin 1 mm, machined ²	0,75 – 1,5 mm ² (AWG 18 – 16)	7.010.941.021
	Crimp socket 1 mm, machined ²	0,14 – 1 mm ² (AWG 26 – 17)	7.010.941.002
	Crimp socket 1 mm, machined ²	0,75 – 1,5 mm ² (AWG 18 – 16)	7.010.941.022
	Crimp pin 2 mm, machined ²	0,75 – 2,5 mm ² (AWG 18 – 14)	7.010.942.001
	Crimp pin 2 mm, machined ²	2,5 – 4 mm ² (AWG 14 – 12)	7.010.942.011
	Crimp socket 2 mm, machined ²	0,75 – 2,5 mm ² (AWG 18 – 14)	7.010.942.002
	Crimp socket 2 mm, machined ²	2,5 – 4 mm ² (AWG 14 – 12)	7.010.942.012

¹ passende Crimpzange 7.000.900.907, Crimpzangeneinstellung siehe Seite 71

² passende Crimpzange 7.000.900.901, Crimpzangeneinstellung siehe Seite 139



Accessories	Type	Part Number
	Plastic protective cap for connectors	
	with male thread7.000.900.101	
	with female thread7.000.900.102	
	Brass protective cap for connectors with female thread	7.010.900.183 ¹
	Brass protective cap for connectors with male thread	7.010.900.102
	Brass protective cap with chain for connectors with female thread	
	Length 70 mm7.010.950.783 ¹	
	Length 100 mm7.010.951.083 ¹	
	Brass protective cap with chain for connectors with male thread	
	Length 70 mm7.010.950.702	
	Length 100 mm7.010.951.002	
	Crimp tool for manual crimping of machined crimp contacts	
	Works with contacts for power or signal7.000.900.901	
	Adaptor flange for Straight Connectors	7.010.900.128 ¹

¹ No compatibility with TWILOCK



Accessories

Accessories	Type	Part Number
	Adapter for Conduit Fittings	
	Poleon DN 12	7.010.900.205
	Poleon DN 14	7.010.900.207
	Poleon DN 17	7.010.900.209
	Positioner for Crimp Tool	
	DMC M22520	7.000.900.DMC
	Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C06
	For HUMMEL Contact:	
	7.010.941.001, 7.010.942.001, 7.010.942.011	
	Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C07
	Disassembly Tool	
	for crimp contacts	7.010.900.531
	Screw Tool, adjustable 0.5 – 1.7 Nm	7.010.900.190
	Tool Adapter for tightening or loosening	
	knurled nuts for M 23	7.010.900.192
	Crimping tool	
	pneumatic crimping tool	on request
	Crimping machine	
	crimping machine to process turned contacts	on request



Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.901)

Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.941.001	Crimp pin (power) 1 mm	0,14	26	0,75	1
		0,25	24	0,8	1
		0,35	22	0,85	1
		0,50	20	1,03	1
		0,75	18	1,08	1
		1,0	17	1,13	1
7.010.941.021	Crimp pin (power) 1 mm	0,75	18	0,79	1
		1	17	0,86	1
		1,5	16	0,99	1
7.010.941.002	Crimp socket (power) 1 mm	0,14	26	0,75	2
		0,25	24	0,8	2
		0,35	22	0,85	2
		0,50	20	0,89	2
		0,75	18	0,95	2
		1	17	1,02	2
7.010.941.022	Crimp socket (power) 1 mm	0,75	18	0,79	2
		1	17	0,86	2
		1,5	16	0,99	2
7.010.942.001	Crimp pin (power) 2 mm	0,75	18	1,3	7
		1	17	1,4	7
		1,5	16	1,55	7
		2,5	14	1,7	7
7.010.942.011	Crimp pin (power) 2 mm	2,5	14	1,47	7
		4	12	1,6	7
7.010.942.002	Crimp socket (power) 2 mm	0,75	18	1,3	8
		1	17	1,4	8
		1,5	16	1,55	8
		2,5	14	1,7	8
7.010.942.012	Crimp socket (power) 2 mm	2,5	14	1,47	8
		4	12	1,6	8



These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Crimp Tool for Power Connectors M 23

Crimp Tool

Type

Part Number

Crimp Tool.....7.000.900.901

Application

The four indent crimp tool 7.000.900.901 has been developed for optimal crimping of machined contacts with diameters from 0.14 to 6.0 mm² (26 through 10 AWG).

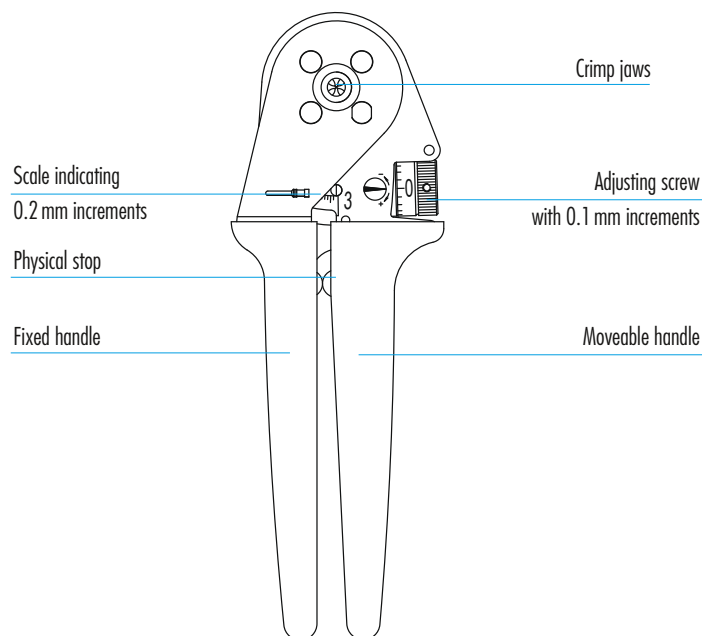
How to Crimp

The reference table (S. 139) indicates the correct locator position to be selected and the crimp depth to be adjusted for the contact to be crimped. The contact is then inserted through the access hole of the tool on the opposite side of the locator. The contact is held in place by closing the handles to the first lock-in position thus preventing the contact from falling out of the tool and

facilitating insertion of the wire into the contact. The precision ratchet assures consistently accurate crimping every time by forcing the tool to be closed all the way completing the crimping cycle before the tool can be opened again.

Exchange of the Locator

The locator can be exchanged by removing the socket head cap screw with a socket wrench. It can then be disassembled from the hex head screw by turning it counter-clockwise.



These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.



Crimp Tool



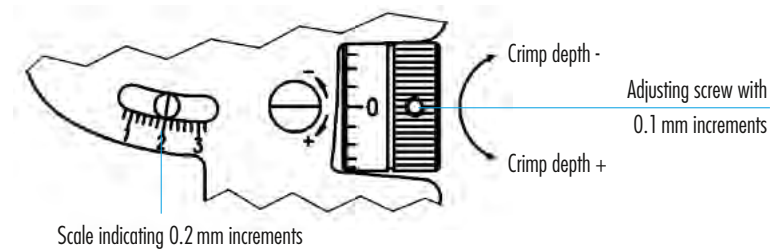
Adjustment of Crimp Depth

Crimp depth can be adjusted as follows:

Turn the adjusting screw clockwise for reducing the crimp depth and counter-clockwise for increasing the crimp depth.

Adjustment Increments

- // 1 space on the adjusting screw $\triangleq$ adjustment by 0.01 mm
- // 1 full rotation of adjusting screw $\triangleq$ adjustment by 0.2 mm (indication on the screw as well as on the rough scale)
- // 5 rotations of the adjusting screw $\triangleq$ adjustment by 1 mm (indication on the scale)



Control of Crimp Depth

Crimp tool adjustment is done at the factory, but with frequent use, periodic calibration is recommended to insure accuracy. This is easily accomplished with a 2.0 mm $\emptyset$ wire gauge as follows. A crimp depth of 2.0 mm is set by means of the adjusting screw (scale mark at „2“, screw mark at „0“ as shown in the fig. above) and the tool in the closed position.

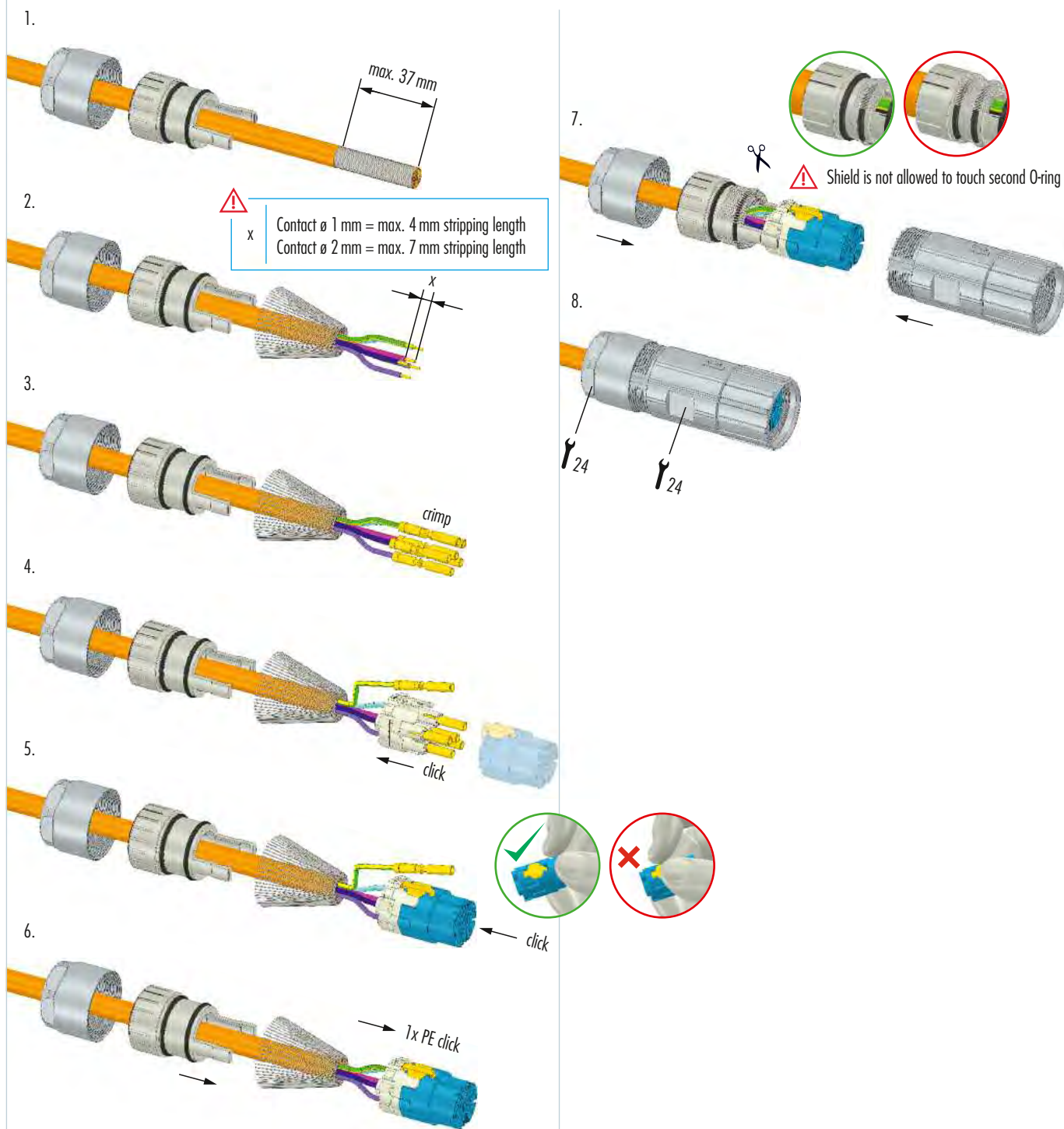
After insertion of the gauge, there must be just enough space for moving the gauge inside the entry hole. If the opening is too small or too large to exactly match the gauge, the deviation (+/-) can be checked by the precision setting of the screw. Please contact the factory in case the deviation exceeds the tolerances specified by the contract manufacturer.

Maintenance and Repair

Keep the tool clean and properly stored when not in service. All pivot points need to be oiled regularly and the spring clips securing the bolts have to always be in place. For repair please send the tool back to the factory.

Assembly Instructions

Straight Connector, Female Thread



Straight Connector, Female Thread 4+3+PE/5+3+PE

1.

2.

3.

4.

5.

6.

7.

8.

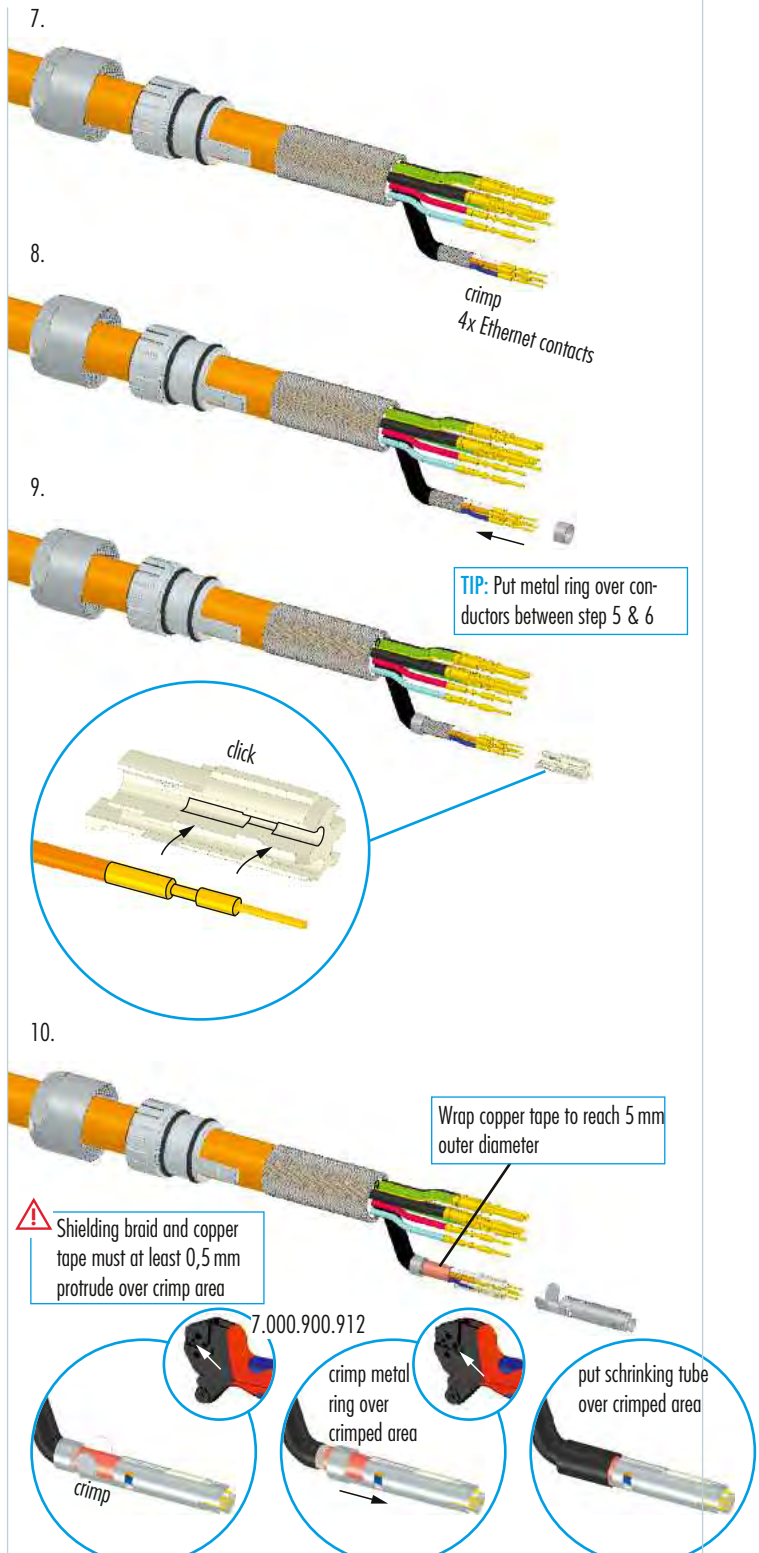
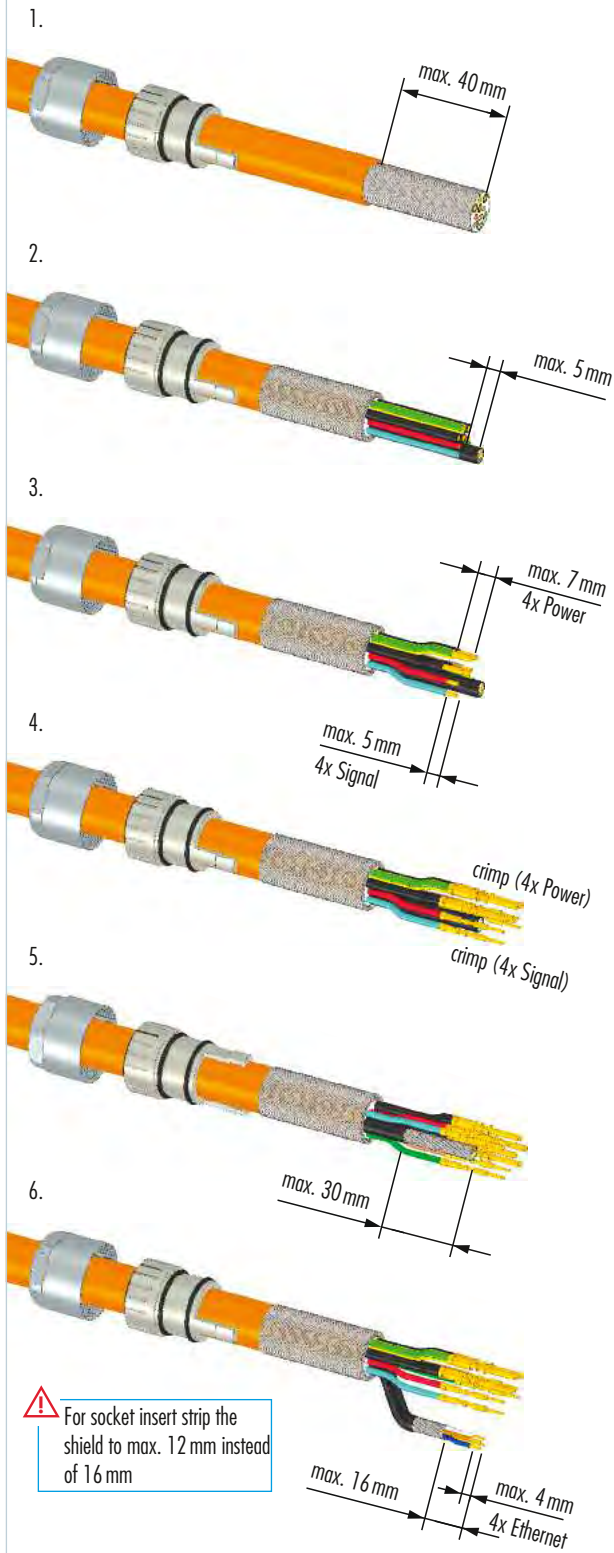
⚠ x

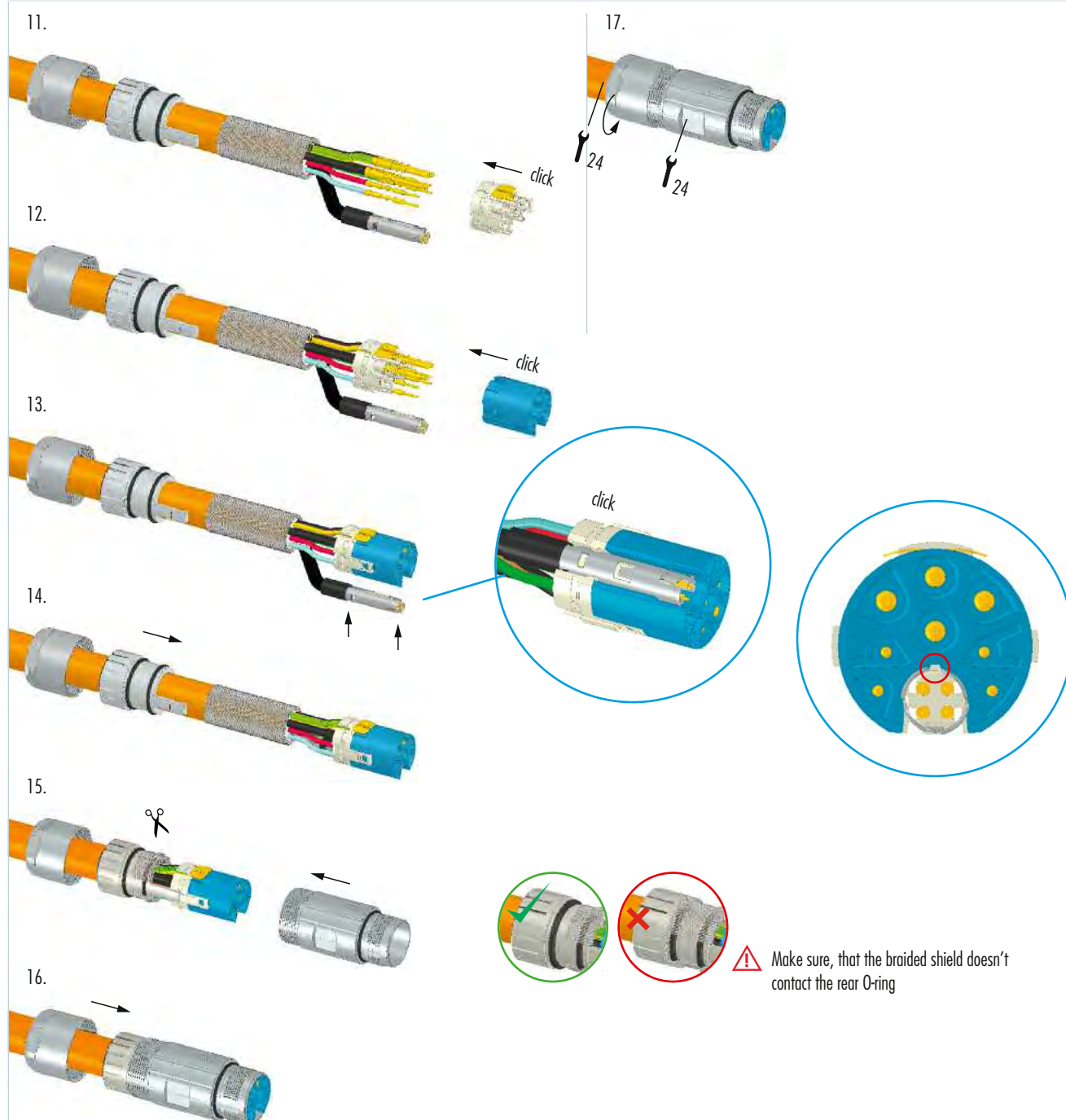
Contact ø 1 mm = max. 4 mm stripping length
 Contact ø 2 mm = max. 7 mm stripping length

⚠ Shield is not allowed to touch second O-ring

Assembly Instructions

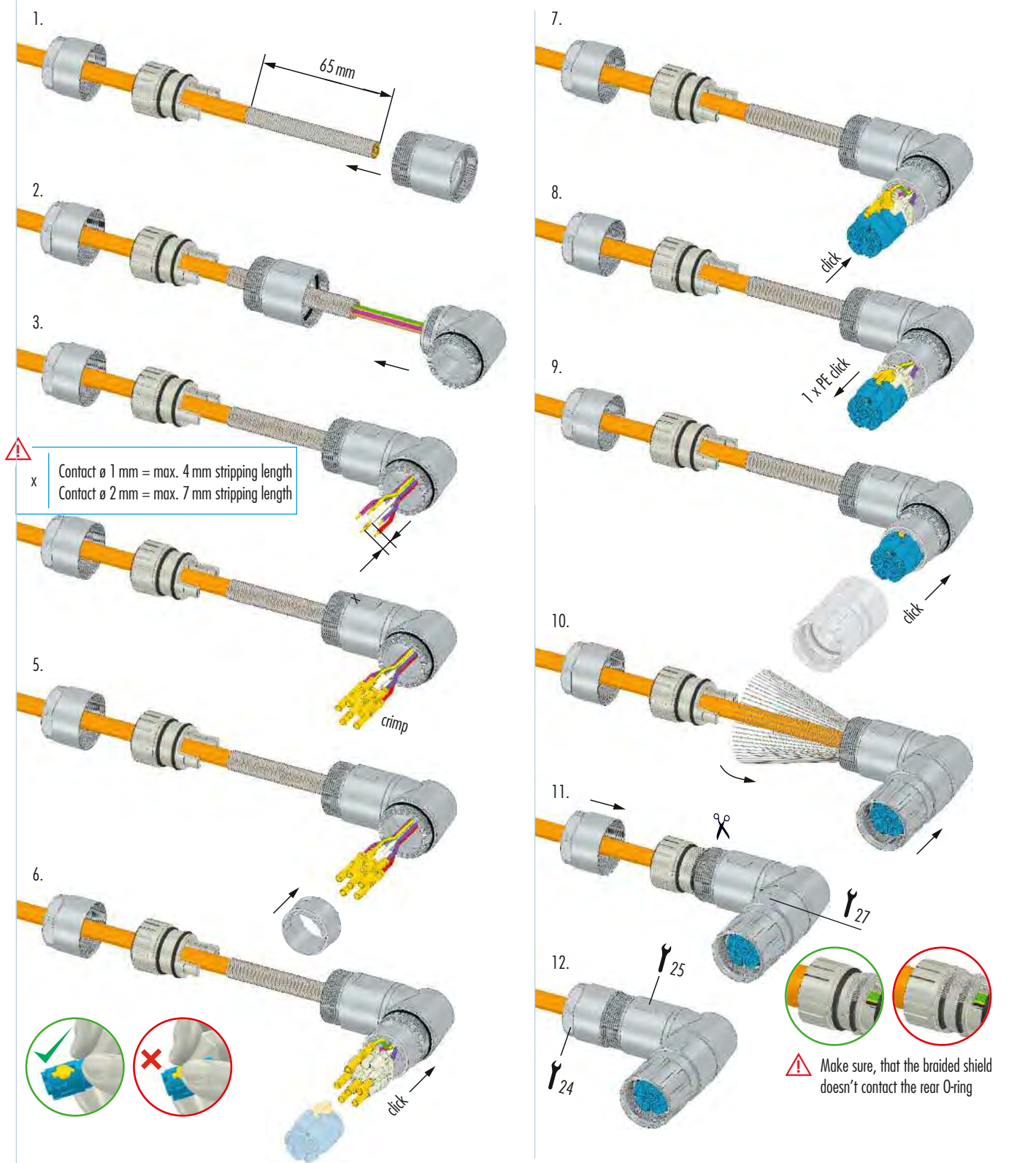
Hybrid Connector

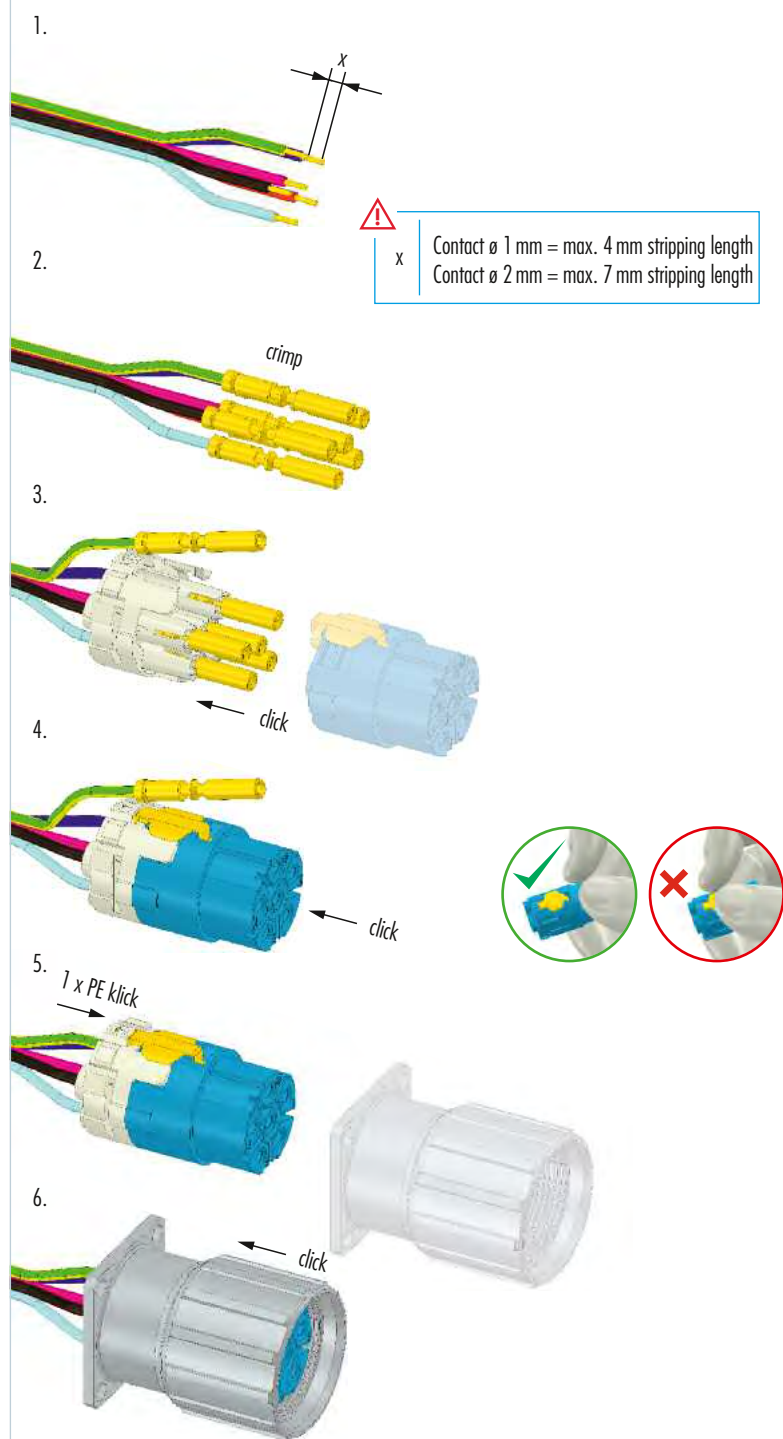




Assembly Instructions

Right Angle Connector, rotatable

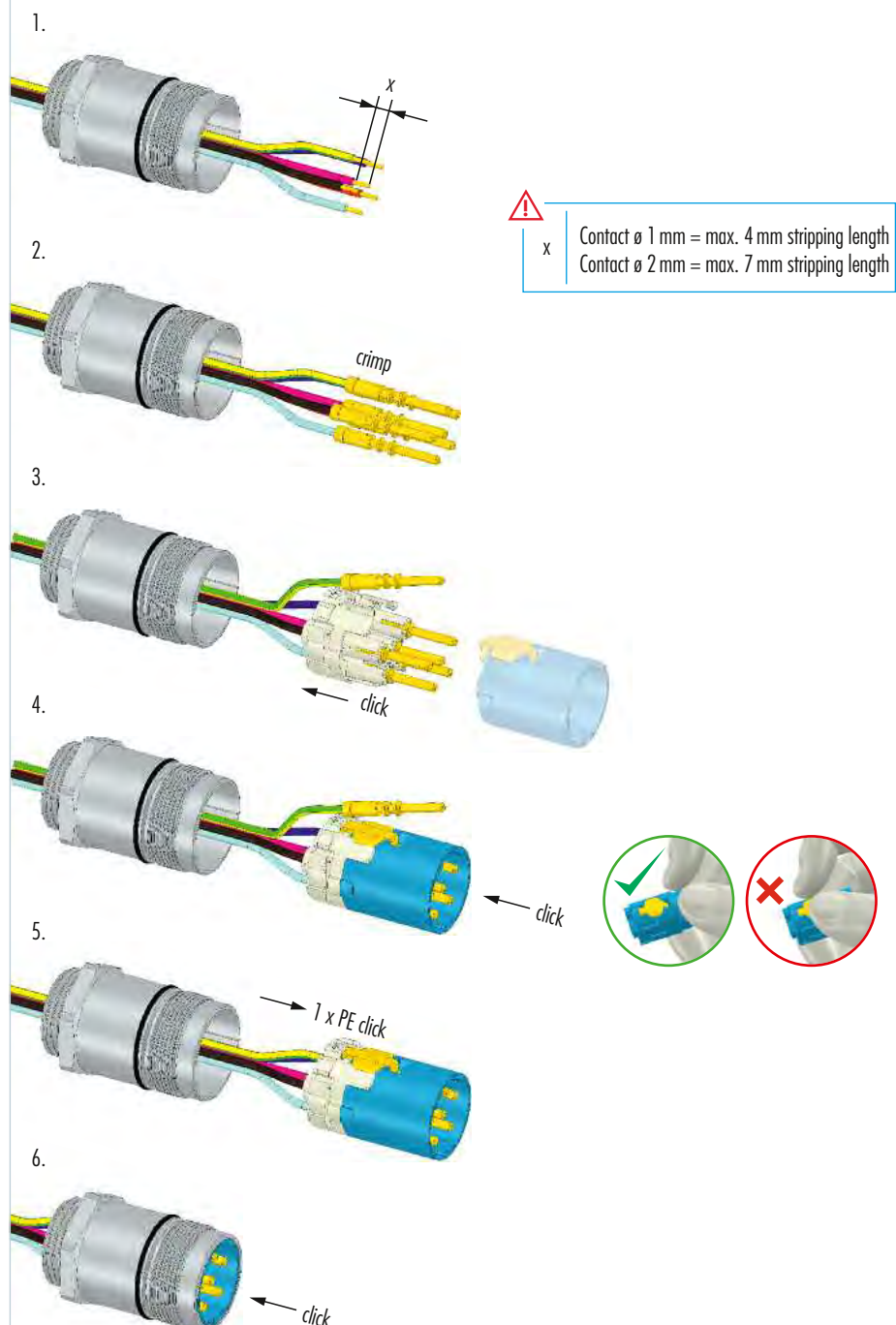


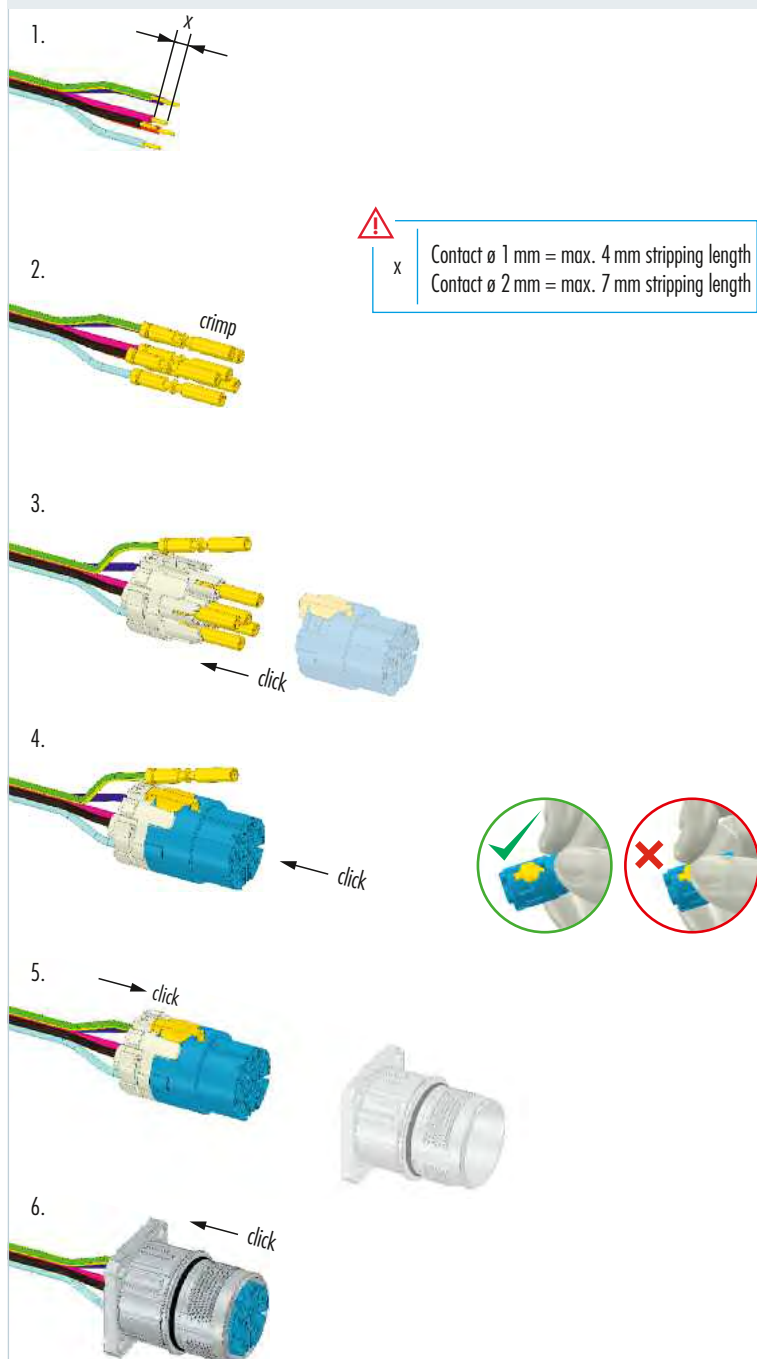




Assembly Instructions

Panel Connector, Male Thread, Single Hole Mounted

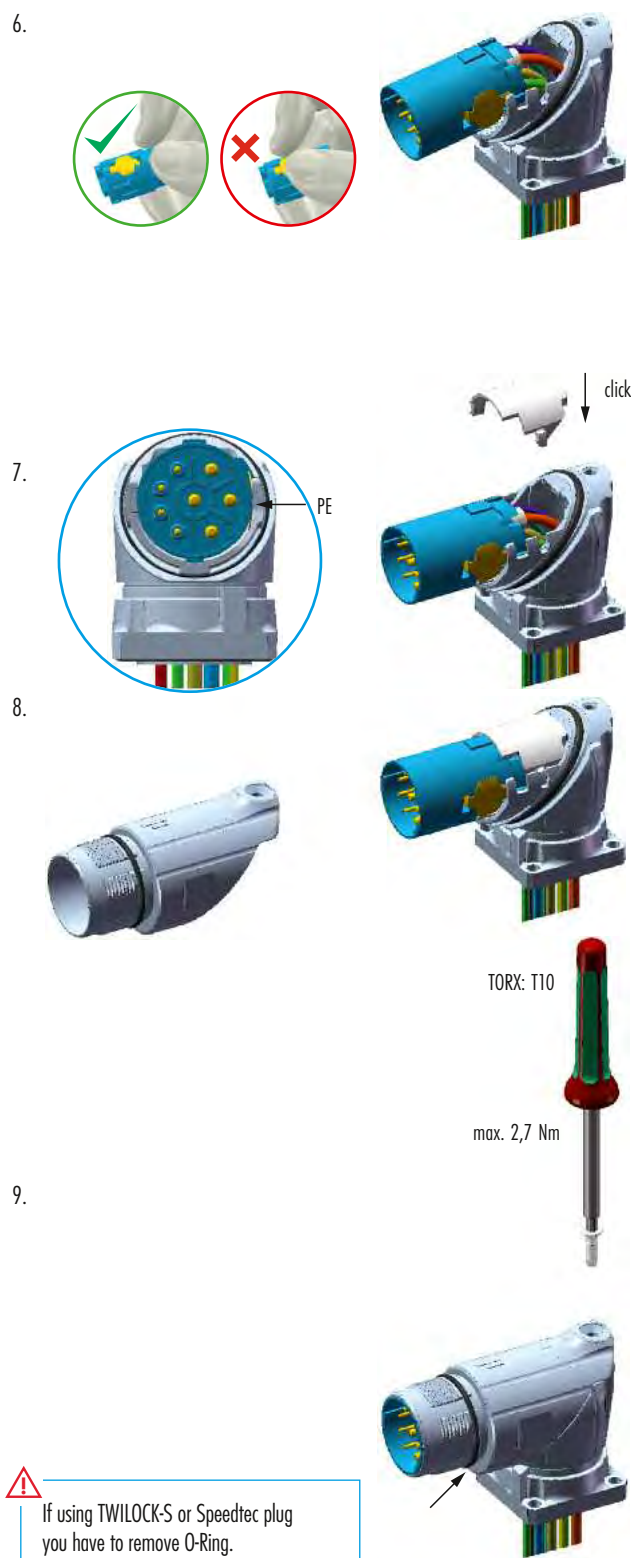
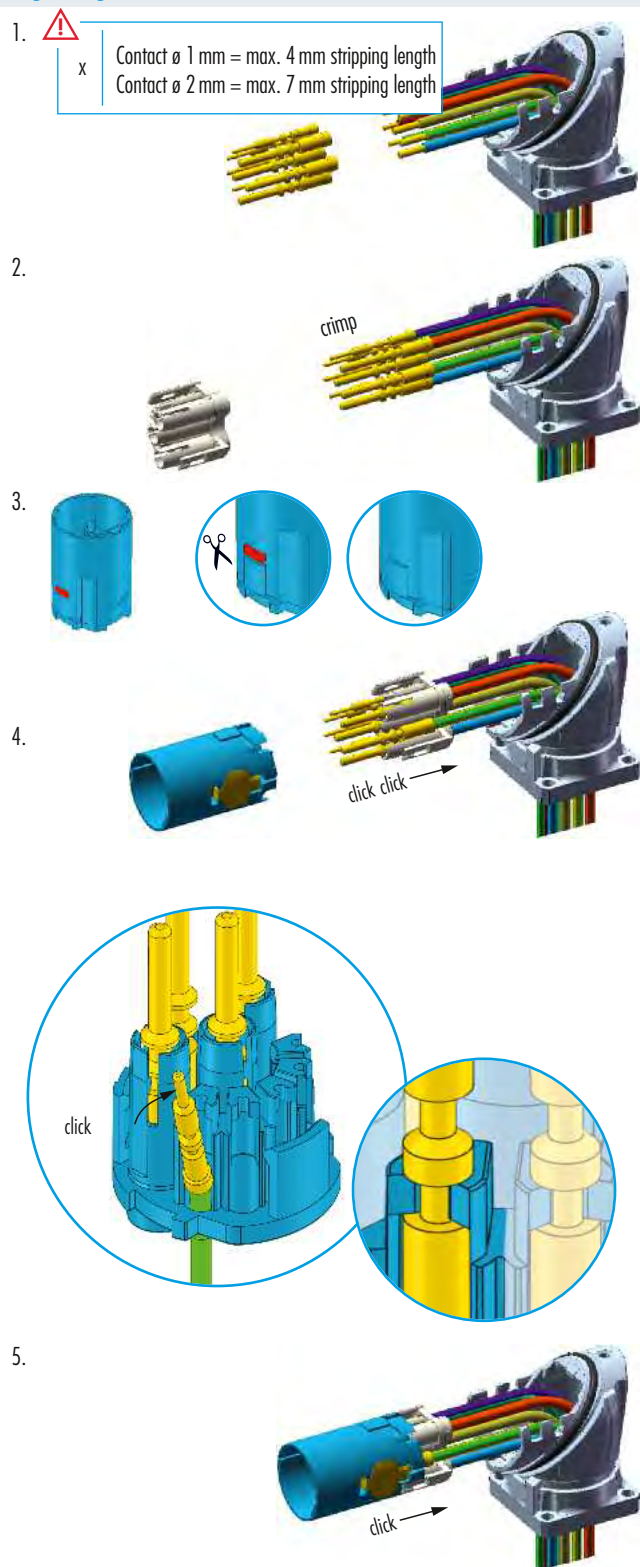






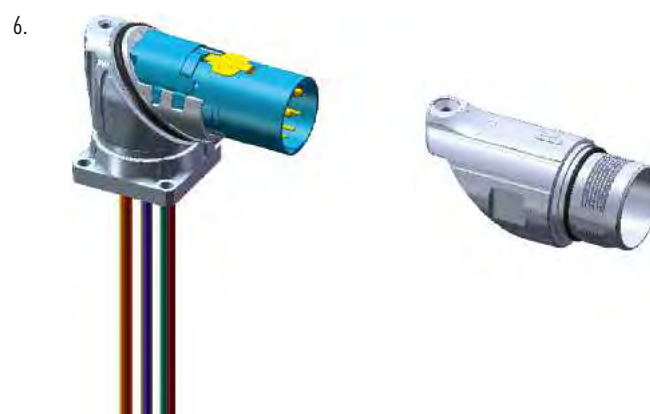
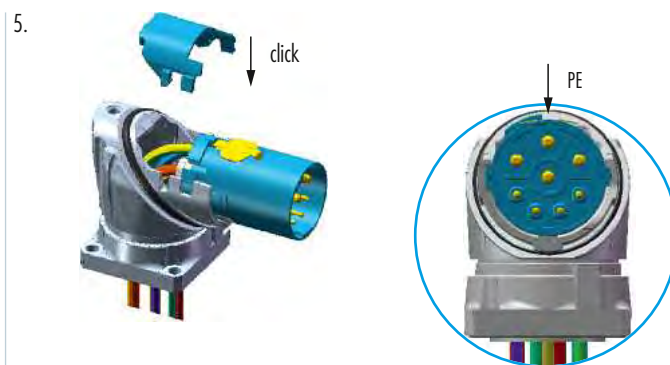
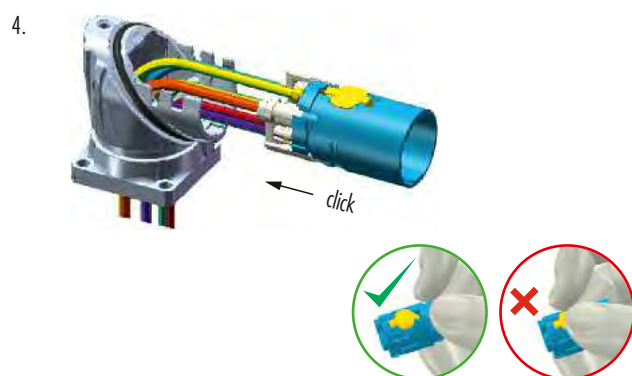
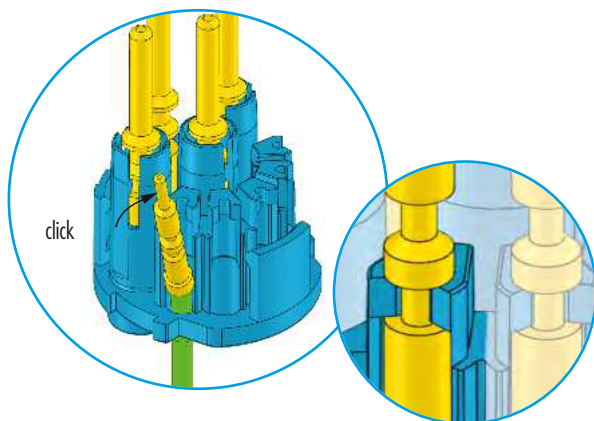
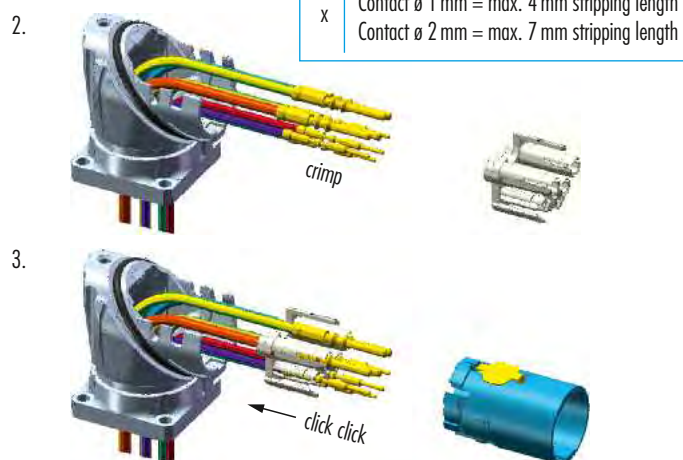
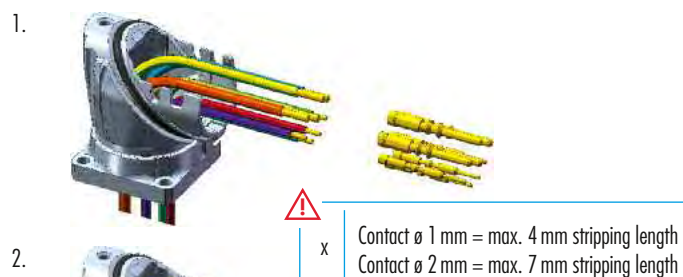
Assembly Instructions

Right Angle Panel Connector TWILOCK-S



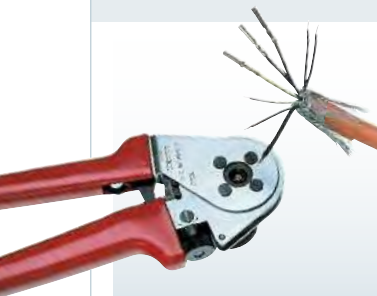


Right Angle Panel Connector TWILOCK



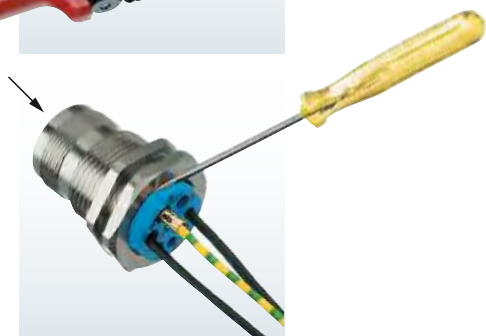


Crimping, Assembly and Disassembly of Contacts



Crimping

- // For 1 mm contacts strip wire ends 4 mm (.16") max., for 2 mm contacts strip wire ends 7 mm (.28") max.
- // Dial appropriate setting of crimping tool
- // Push crimp contact into opening of crimping tool
- // Insert stripped wire into the funnel shaped end of the crimp contact
- // Squeeze handles of crimping tool together, connecting contact to wire



Disassembly of Insert from Housing

A small screw driver is required. Push locking tongue, located above the PE-contact, down. By simultaneously pushing on the front side of the insert, it can be disassembled from the housing.

Shielding

- // Assemble strain relief insert with insert
- // Fold stranding of the shield back over the first O-Ring of the strain relief insert
- // Cut back the overextending braid



The stranding of the shield is not allowed to touch the second O-Ring. Otherwise the assembly may not be proof.

