

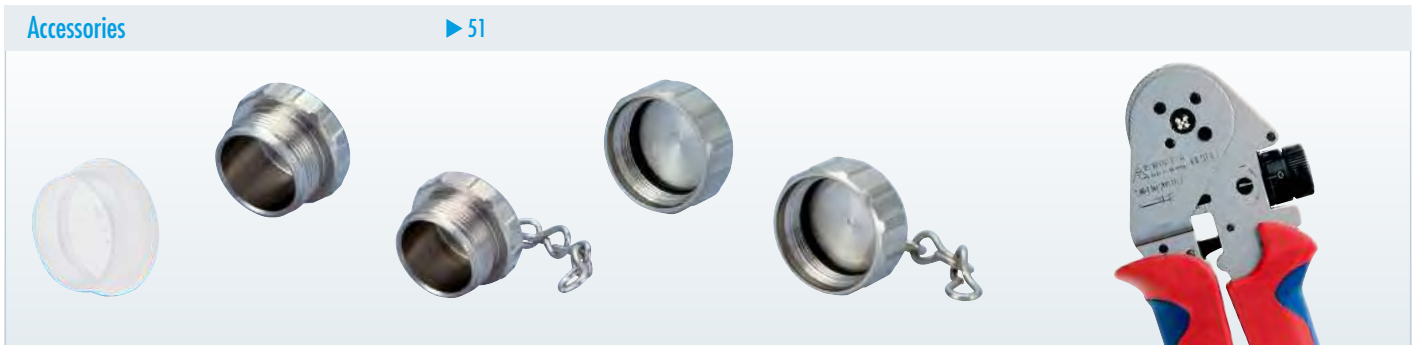
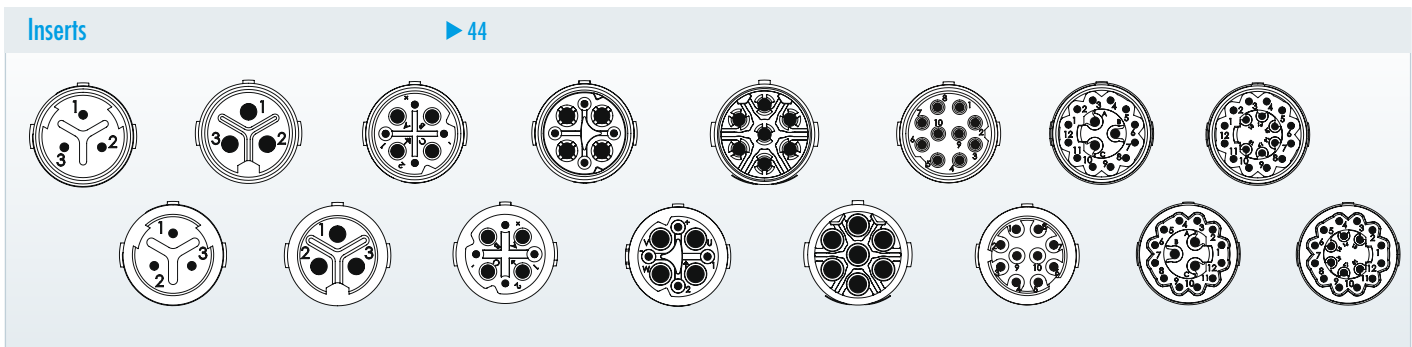
M 16 CONNECTORS

Traditionally M 16 Connectors are very popular with its users. The reason for that is high capability with a low space requirement. A special version is TWINTUS. This compact connector is able to combine signal and power for small drives within one housing.

- // M 16 power connector
- // M 16 signal connector
- // TWILOCK, quick release fastener
- // TWINTUS – Connector 4 small drives



Product overview



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® (FPM /FKM) (Viton is a registered trademark of DuPont)
Temperature range	-40 °C – 125 °C (-40 °F – 257 °F)
Type of contacts	Crimp, dip-solder (PCB) (for printed circuit boards)
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x
Cable diameter range	2 – 11 mm (.08 – .43")

* HUMMEL to HUMMEL connector

Electrical Data

	3 (3 x 1 mm)	3 (3 x 2 mm)	4 + 3 + PE / 320 V		4 + 3 + PE / 600 V	
Number of positions	3	3	4	4	4	4
Number of contacts	3	3	4	4	4	4
Contact-Ø [mm]	1	2	0,8	1,6	0,8	1,25
AWG [mm ²]	0,14 – 1	0,5 – 2,5	0,08 – 0,34	0,34 – 1,5	0,08 – 0,34	0,5 – 1,5
Nominal current ¹⁾ [A]	8	20	5	16	5	16
Nominal voltage ²⁾ [V~] degree of protection 3 ⁴⁾	400	400	160	320	300	600
Test voltage (Breakdown voltage) ³⁾ [V~]	2500	2500	1500	2500	1500	2500
Insulation resistance [Ω]	> 10 ¹⁰	> 10 ¹⁰	> 10 ¹⁰		> 10 ¹⁰	
Max. contact resistance [mΩ]	3	3	3		3	3

	6+PE	10	12+3		18
Number of positions	7	10	12	3	18
Number of contacts	7	10	12	3	18
Contact-Ø [mm]	1,25	1	0,8	1,25	0,8
AWG [mm ²]	0,5 – 1,5	0,14 – 0,75	0,08 – 0,34	0,5 – 1,5	0,08 – 0,34
Nominal current ¹⁾ [A]	16	8	3	10	3
Nominal voltage ²⁾ [V~] degree of protection 3 ⁴⁾	600	160	24	60	24
Test voltage (Breakdown voltage) ³⁾ [V~]	2500	1500	1500	2500	1500
Insulation resistance [Ω]	> 10 ¹⁰	> 10 ⁶	> 10 ¹⁰		> 10 ¹⁰
Max. contact resistance [mΩ]	3	3	3	3	3

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



Housings

Straight Connector, Female Thread / elongated *

Ø 46,2

Ø 18

elongated

Ø 51,2

Ø 18

Cable-Ø	Part Number
3 – 6 mm	7.810.300.000
5 – 9 mm	7.810.400.000
8 – 11 mm	7.810.500.000
* elongated	
3 – 6 mm	7.811.300.000
5 – 9 mm	7.811.400.000
8 – 11 mm	7.811.500.000

Straight Connector, Female Thread TWILOCK

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Ø 18

Cable-Ø	Part Number
3 – 6 mm	7.816.300.000
5 – 9 mm	7.816.400.000
8 – 11 mm	7.816.500.000

Straight Connector, Male Thread

47,8

Ø 18

M16 x 0,75

Cable-Ø	Part Number
3 – 6 mm	7.820.300.000
5 – 9 mm	7.820.400.000
8 – 11 mm	7.820.500.000

Right Angle Connector with positioning

45

Ø 18

Ø 17

39,6

Ø 19,7

Cable-Ø	Part Number
3 – 6 mm	7.831.300.000
5 – 9 mm	7.831.400.000
8 – 11 mm	7.831.500.000

Housing without inserts and contacts



Panel Connector with built in Cable Strain Relief

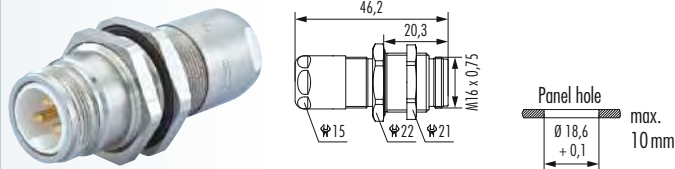
Cable-Ø

Part Number

Rear mounting, single hole mounted

2 – 7 mm	.....	7.852.300.000
5 – 9 mm	.....	7.852.400.000

Including jam nut PG 11



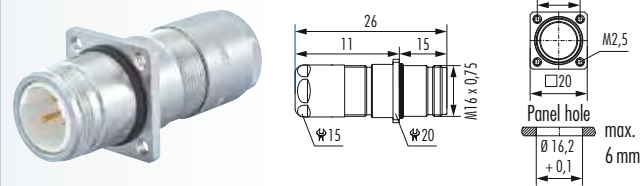
Panel Connector with built in Cable Strain Relief

Cable-Ø

Part Number

Rear mounting, M 2,5 x 4 single hole mounted

2 – 7 mm	.....	7.847.300.000
5 – 9 mm	.....	7.847.400.000



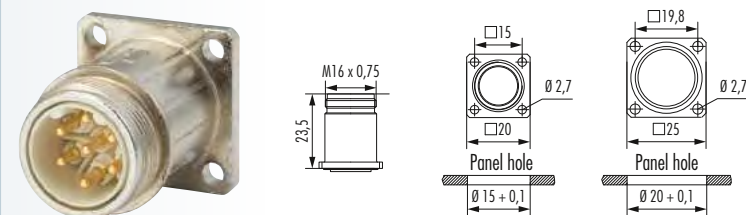
Panel Connector, Male Thread, Front Mounting

Type

Part Number

4 x holes Ø 2,7 mm (.11")	.....	7.840.000.000
Flange 20 x 20 mm		

4 x holes Ø 2,7 mm (.11")	.....	7.840.100.000
Flange 25 x 25 mm		



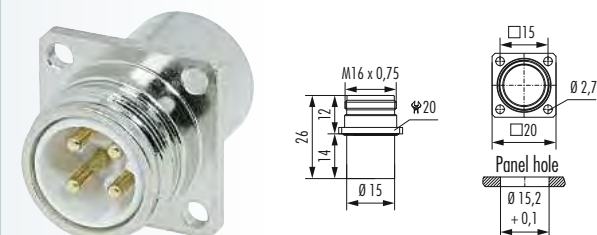
Panel Connector, Male Thread, Front Mounting

Type

Part Number

Short version

4 x holes Ø 2,7 mm (.11")	.....	7.840.200.000
Flange 20 x 20 mm		



Housing without inserts and contacts



Housings

Right Angle Panel Connector, Male Thread, rotatable

Type	Part Number
300° rotatable, locking screw at flange	
4 x holes Ø 2,7 mm (.11")	7.843.000.000
Flange 20 x 20 mm	
4 x holes Ø 2,7 mm (.11")	7.843.100.000
Flange 25 x 25 mm	

Technical drawings show dimensions: 31.7, 28.5, 41.2, 36.5, M16 x 0,75, Ø 2,7, 15, 19.8, 20, 25, Ø 14 + 0,1, Ø 20 + 0,1.

Panel Connector, Male Thread, Front Mounting

Type	Part Number
Front mounting, single hole mounted	
Thread M 16 x 1,5	7.842.000.000

Technical drawings show dimensions: 31, 25, 6, M16 x 0,75, Ø 19, M16 x 1,5, 15,2 + 0,1, 16,2 + 0,1, Ø 16,2 + 0,1.

Panel Connector, Male Thread, Rear Mounting

Type	Part Number
Rear mounting, single hole mounted	
Including jam nut	7.850.000.000
Including jam nut PG 11	

Technical drawings show dimensions: 26, 22,5, M16 x 0,75, Ø 21, Ø 22, Ø 24,3, 17,8 + 0,1, 18,6 + 0,1, max. 11 mm, Ø 18,6 + 0,1.

Panel Connector, Male Thread, Rear Mounting

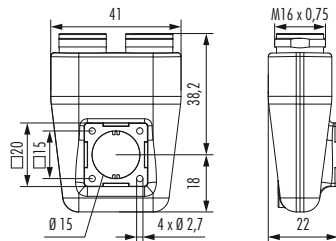
Type	Part Number
Rear mounting, 4 x thread M 2,5	
Flange 20 x 20 mm	7.845.000.000

Technical drawings show dimensions: 26, 15, 11, M16 x 0,75, Ø 20, 15, M2,5, 20, Panel hole max. 6 mm, Ø 16,2 + 0,1.

Housing without inserts and contacts



TWINTUS



Type

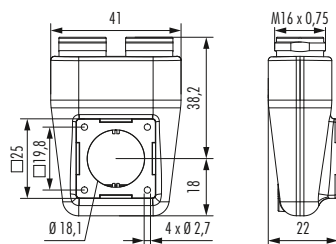
Part Number

Flange 20 x 20 mm

Uncoated.....	7.848.000.000
Surface nickel plated.....	7.848.000.001
Surface black conductive.....	7.848.000.00B



TWINTUS



Type

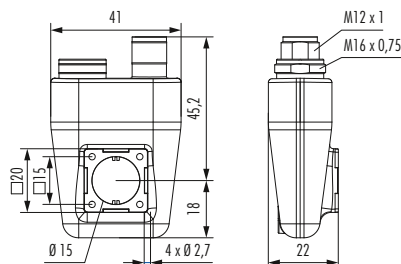
Part Number

Flange 25 x 25 mm

Uncoated.....	7.848.100.000
Surface nickel plated.....	7.848.100.001
Surface black conductive.....	7.848.100.00B



TWINTUS M 16 / M 12



Type

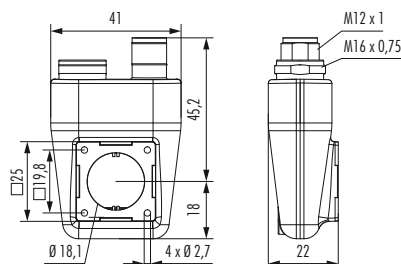
Part Number

Flange 20 x 20 mm

Uncoated.....	7.848.200.000
Surface nickel plated.....	7.848.200.001
Surface black conductive.....	7.848.200.00B



TWINTUS M 16 / M 12



Type

Part Number

Flange 25 x 25 mm



Uncoated.....	7.848.300.000
Surface nickel plated.....	7.848.300.001
Surface black conductive.....	7.848.300.00B



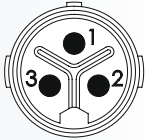
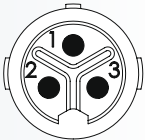
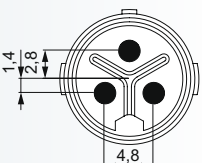
Housing without inserts and contacts



Inserts / Pinouts

Inserts 3-pole (3 x 1 mm)		Type	Part Number	Part Number
 <p>Insert pin mating view</p>			Pins	Sockets
	Insert without contacts	7.003.903.101	.....	7.003.903.102
	Insert with dip solder contacts Length 10 mm	7.001.903.127	.....	7.001.903.108
	Insert with dip solder contacts Length 17 mm	7.001.903.137	.....	7.001.903.118
 <p>Insert socket mating view</p>	Required Contacts			
	3 x 1 mm	7.010.901.001	.....	7.010.901.002 / 7.010.901.012
				

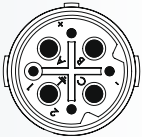
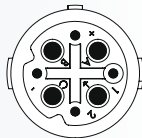
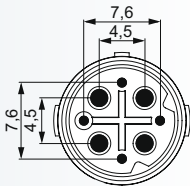


Inserts 3-pole (3 x 2 mm)		Type	Part Number	Part Number
 <p>Insert pin mating view</p>			Pins	Sockets
	Insert without contacts	7.003.983.101	.....	7.003.983.102
	Insert with dip solder contacts Length 10 mm	7.001.983.127	.....	7.001.983.108
	Insert with dip solder contacts Length 17 mm	7.001.983.137	.....	7.001.983.118
 <p>Insert socket mating view</p>	Required Contacts			
	3 x 2 mm	7.010.982.001	.....	7.010.982.002
				



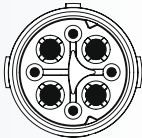
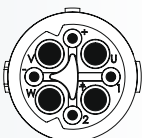
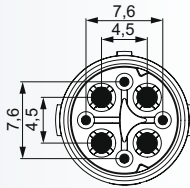


Inserts / Pinouts

Inserts 4+3+PE, 320 V		Type	Part Number	Part Number
			Pins	Sockets
 <p>Insert pin mating view</p>	Insert without contacts	7.003.943.101	7.003.943.102	
	Insert RAL 2003 (DESINA orange) without contacts	7.053.943.101	7.053.943.102	
 <p>Insert socket mating view</p>	Insert with dip solder contacts Length 10 mm	7.001.943.127	7.001.943.108	
	Insert with dip solder contacts Length 17 mm	7.001.943.137	7.001.943.118	
	Required Contacts			
	4 x 0,8 mm	7.010.980.801	7.010.980.802	
	4 x 1,6 mm	7.010.981.601	7.010.981.602	



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Inserts 4+3+PE, 600 V		Type	Part Number	Part Number
			Pins	Sockets
 <p>Insert pin mating view</p>	Insert without contacts	7.003.908.101	7.003.908.102	
	Insert RAL 2003 (DESINA orange) without contacts	7.053.908.101	7.053.908.102	
 <p>Insert socket mating view</p>	Insert with dip solder contacts Length 10 mm ¹⁾	7.001.908.127	7.001.908.108	
	Insert with dip solder contacts Length 17 mm ¹⁾	7.001.908.137	7.001.908.118	
	Required Contacts			
	4 x 0,8 mm	7.010.980.811	7.010.980.814	
	4 x 1,25 mm	7.010.981.211	7.010.981.212	

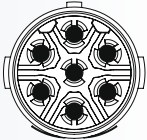
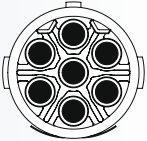
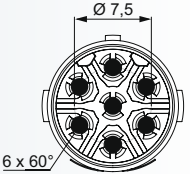


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¹⁾ under development

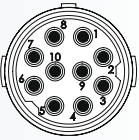
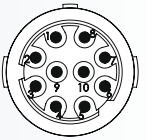
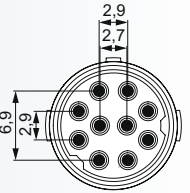


Inserts / Pinouts

Inserts 6+PE		Type	Part Number	Part Number
			Pins	Sockets
 <p>Insert pin mating view</p>	Insert without contacts	7.003.961.101	7.003.961.102	
	Insert RAL 2003 (DESINA orange) without contacts	7.053.961.101	7.053.961.102	
 <p>Insert socket mating view</p>	Insert with dip solder contacts Length 10 mm ¹⁾	7.001.961.127	7.001.961.108	
	Insert with dip solder contacts Length 17 mm ¹⁾	7.001.961.137	7.001.961.118	
	Required Contacts 7 x 1,25 mm	7.010.981.211	7.010.981.212	
				



¹⁾ under development

Inserts 10-pole		Type	Part Number	Part Number
			Pins	Sockets
 <p>Insert pin mating view</p>	Insert without contacts	7.003.910.101	7.003.910.102	
	Insert RAL 2003 (DESINA green) without contacts	7.053.910.101	7.053.910.102	
 <p>Insert socket mating view</p>	Insert with dip solder contacts Length 10 mm	7.001.910.127	7.001.910.108	
	Insert with dip solder contacts Length 17 mm	7.001.910.137	7.001.910.118	
	Required Contacts 10 x 1 mm	7.010.981.001	7.010.981.002	
				



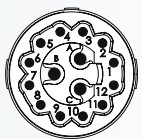
¹⁾ under development



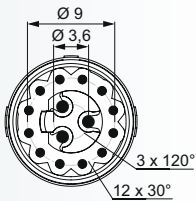
Inserts 12+3-pole



Insert pin mating view



Insert socket mating view



Type	Part Number	Part Number
	Pins	Sockets
Insert without contacts	7.003.985.101	7.003.985.102
Insert with dip solder contacts		
Length 10 mm	7.001.985.127	7.001.985.108
Insert with dip solder contacts		
Length 17 mm	7.001.985.137	7.001.985.118
Required Contacts		
12 x 0,8 mm	7.010.980.801	7.010.980.802
3 x 1,25 mm	7.010.981.201	7.010.981.202

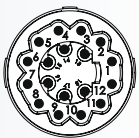


▶ 49 / 50

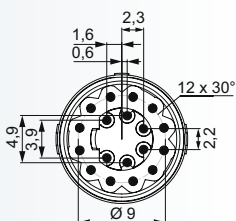
Inserts 18-pole



Insert pin mating view



Insert socket mating view




Type	Part Number	Part Number
	Pins	Sockets
Insert without contacts	7.003.988.101	7.003.988.102
Insert RAL 2003 (DESINA green) without contacts.....	7.053.988.101	7.053.988.102
Insert with dip solder contacts		
Length 10 mm	7.001.988.127	7.001.988.108
Insert with dip solder contacts		
Length 17 mm	7.001.988.137	7.001.988.118
Required Contacts		
18 x 0,8 mm	7.010.980.801	7.010.980.802



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Inserts / Pinouts

Inserts M 12 for TWINTUS M 16 / M 12 (8-poles)	Type	Part Number
 <p data-bbox="351 548 510 593">Insert pin mating view</p>	<p data-bbox="941 470 1484 537">Insert with solder contactsA712-7.001.908.103</p>	<p data-bbox="1436 470 1484 504">Pins</p>

Inserts M 12 for TWINTUS M 16 / M 12 (12-poles)	Type	Part Number
 <p data-bbox="351 985 510 1030">Insert pin mating view</p>	<p data-bbox="941 907 1484 974">Insert with solder contacts .....A712-7.001.912.103</p>	<p data-bbox="1436 907 1484 940">Pins</p>


Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 0,8 mm, machined	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.801
	Crimp socket 0,8 mm, machined	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.802
	Crimp pin 0,8 mm, machined.....	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.811
	Crimp socket 0,8 mm, machined	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.814
	Crimp pin 1 mm, machined.....	0,08 – 0,75 mm ² (AWG 28 – 18)	7.010.981.001
	Crimp socket 1 mm, machined.....	0,08 – 0,75 mm ² (AWG 28 – 18)	7.010.981.002
	Crimp pin 1 mm, machined	0,14 – 1 mm ² (AWG 26 – 17)	7.010.901.001
	Crimp socket 1 mm, machined.....	0,08 – 0,56 mm ² (AWG 28 – 20)	7.010.901.012
	Crimp socket 1 mm, machined	0,34 – 1 mm ² (AWG 22 – 17)	7.010.901.002
	Crimp pin 1,25 mm, machined.....	0,5 – 1,5 mm ² (AWG 20 – 16)	7.010.981.201
	Crimp socket 1,25 mm, machined	0,5 – 1,5 mm ² (AWG 20 – 16)	7.010.981.202



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Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 1,25 mm, machined.....	0,34 – 1,5 mm ² (AWG 20 – 16)	7.010.981.211
	Crimp socket 1,25 mm, machined	0,34 – 1,5 mm ² (AWG 20 – 16)	7.010.981.212
	Crimp pin 1,6 mm, machined	0,34 – 1,5 mm ² (AWG 22 – 16)	7.010.981.601
	Crimp socket 1,6 mm, machined	0,34 – 1,5 mm ² (AWG 22 – 16)	7.010.981.602
	Crimp pin 2 mm, machined.....	1,0 – 2,5 mm ² (AWG 17 – 14)	7.010.982.001
	Crimp socket 2 mm, machined.....	1,0 – 2,5 mm ² (AWG 17 – 14)	7.010.982.002



Accessories	Type	Part Number
	Plastic protective cap for connectors with male thread .....7.000.980.161 with female thread .....7.000.980.162	
	Brass protective cap for connectors with female thread .....7.010.900.163 ¹	
	Brass protective cap for connectors with male thread .....7.010.900.162	
	Brass protective cap with chain for connectors with female thread Length 70 mm .....7.010.950.705 ¹	
	Brass protective cap with chain for connectors with male thread Length 70 mm .....7.010.950.704	
	Crimp tool for manual crimping of machined crimp contacts for signal connectors M 16 and M 23 .....7.000.900.904	



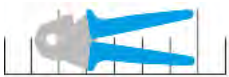
¹ no compatibility with TWILOCK



Accessories

Accessories	Type	Part Number
	Conduit adaptor	
	Poleon DN 10	7.010.900.200
	Poleon DN 12	7.010.900.202
	Plastic protective cap for TWINTUS	
	TWINTUS M 16	7.000.848.101
	TWINTUS M 16 / M 12	7.000.848.102
	Disassembly Tool	
	for crimp contacts 1,25 mm	7.010.900.151
	Tool Adapter for tightening or loosening	
	knurled nuts for M 12 Power/M 16	7.010.900.191
	Screw Tool, adjustable 0.5 – 1.7 Nm	7.010.900.190

¹ upon request


Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)

Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.980.801	Crimp pin 0,8 mm	0,08	AWG 28	0,57	10
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.980.802	Crimp socket 0,8 mm	0,08	AWG 28	0,57	10
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.980.811	Crimp pin 0,8 mm	0,08	AWG 28	0,57	B7
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.980.814	Crimp socket 0,8 mm	0,08	AWG 28	0,57	B8
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.981.001	Crimp pin 1 mm	0,08	AWG 28	0,60	7
		0,14	AWG 26	0,65	
		0,25	AWG 24	0,67	
		0,34	AWG 22	0,71	
		0,56	AWG 20	0,75	
		0,75	AWG 18	0,82	
7.010.981.002	Crimp socket 1 mm	0,08	AWG 28	0,60	8
		0,14	AWG 26	0,63	
		0,25	AWG 24	0,66	
		0,34	AWG 22	0,69	
		0,56	AWG 20	0,75	
		0,75	AWG 18	0,83	
7.010.901.001	Crimp pin 1 mm	0,14	AWG 26	0,70	1
		0,25	AWG 24	0,76	
		0,34	AWG 22	0,82	
		0,50	AWG 20	0,90	
		0,75	AWG 18	1,00	
		1,0	AWG 17	1,10	
7.010.901.012	Crimp socket 1 mm (0,08- - 0,56 mm ²)	0,08	AWG 28	0,75	2
		0,14	AWG 26	0,78	
		0,25	AWG 24	0,82	
		0,34	AWG 22	0,86	
		0,56	AWG 20	0,90	



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


Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)

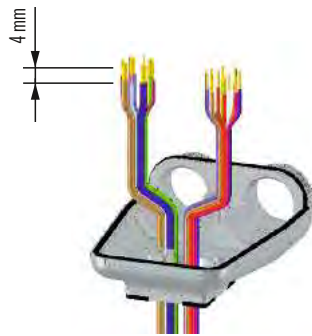
Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.002	Crimp socket 1 mm (0,34 – 1 mm ²)	0,34	AWG 22	0,77	2
		0,56	AWG 20	0,82	
		0,75	AWG 18	0,88	
		1,0	AWG 17	0,95	
7.010.981.201	Crimp pin 1,25 mm	0,5	AWG 20	0,70	2
		0,75	AWG 18	0,73	
		1,0	AWG 17	0,79	
		1,5	AWG 16	0,88	
7.010.981.202	Crimp socket 1,25 mm	0,5	AWG 20	0,70	2
		0,75	AWG 18	0,73	
		1,0	AWG 17	0,79	
		1,5	AWG 16	0,88	
7.010.981.211	Crimp pin 1,25 mm	0,34	AWG 22	0,80	B9
		0,5	AWG 20	0,84	
		0,75	AWG 18	0,90	
		1,0	AWG 17	1,00	
7.010.981.212	Crimp socket 1,25 mm	0,34	AWG 22	1,00	B10
		0,5	AWG 20	1,04	
		0,75	AWG 18	1,10	
		1,0	AWG 17	1,20	
7.010.981.601	Crimp pin 1,6 mm	0,34	AWG 22	0,80	6
		0,56	AWG 20	0,84	
		0,75	AWG 18	0,90	
		1,0	AWG 17	1,00	
7.010.981.602	Crimp socket 1,6 mm	0,34	AWG 22	0,83	9
		0,56	AWG 20	0,90	
		0,75	AWG 18	0,97	
		1,0	AWG 17	1,02	
7.010.982.001	Crimp pin 2 mm	1,0	AWG 17	1,35	4
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	
7.010.982.002	Crimp socket 2 mm	1,0	AWG 17	1,35	5
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	



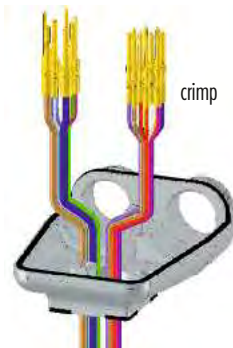
These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.



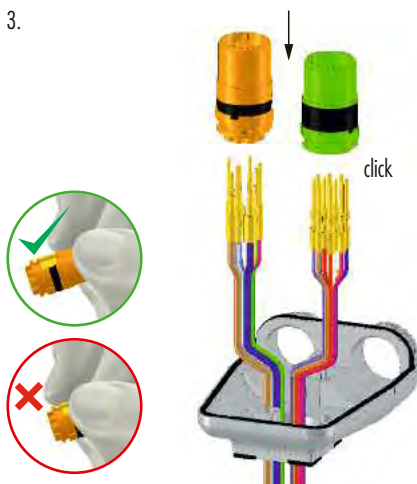
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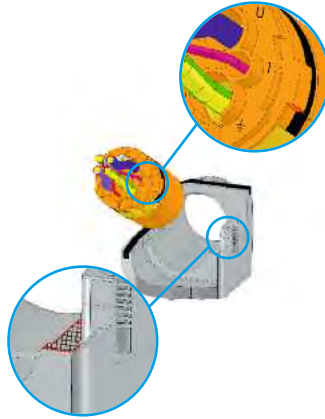
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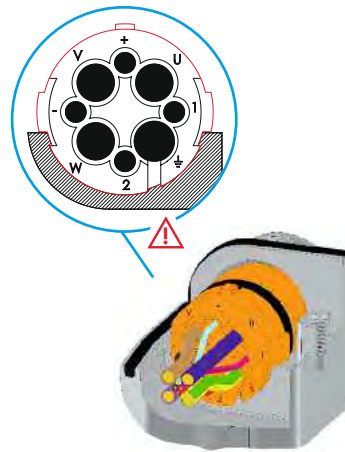
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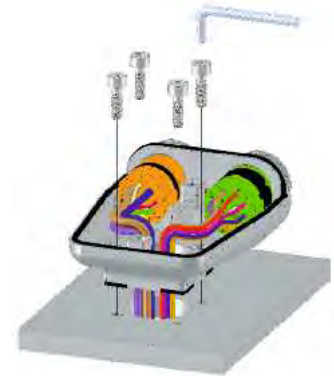
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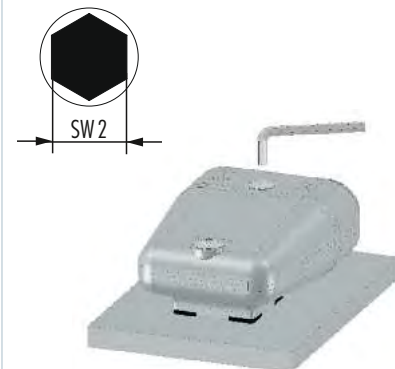
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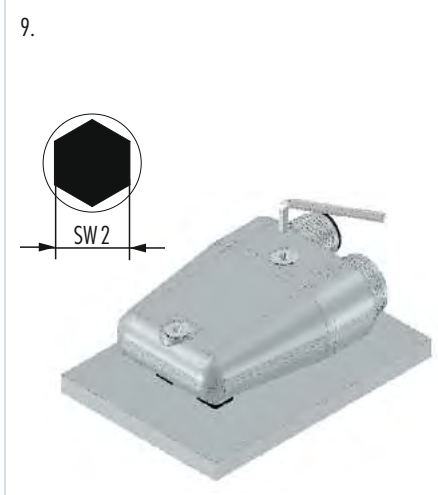
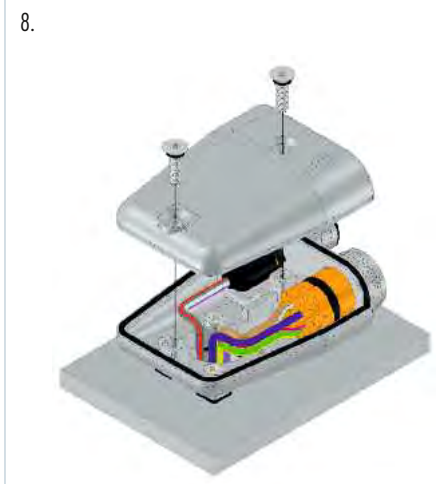
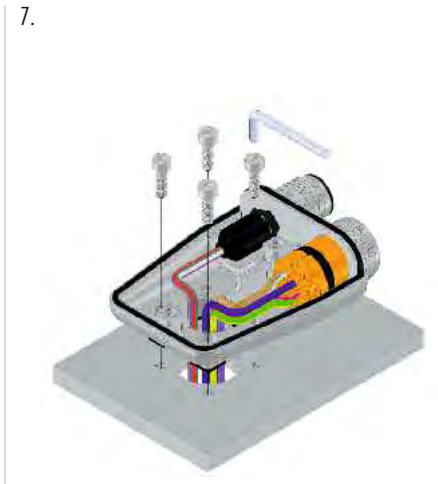
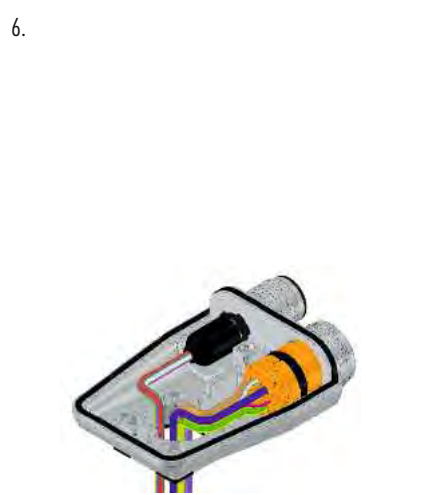
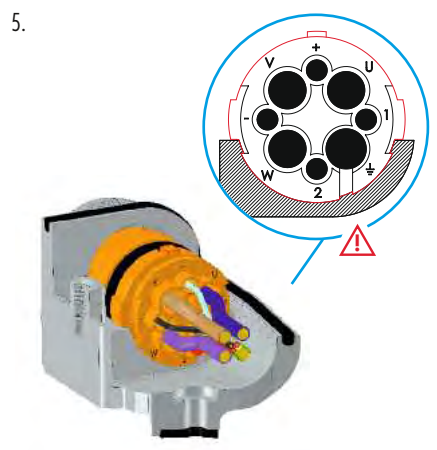
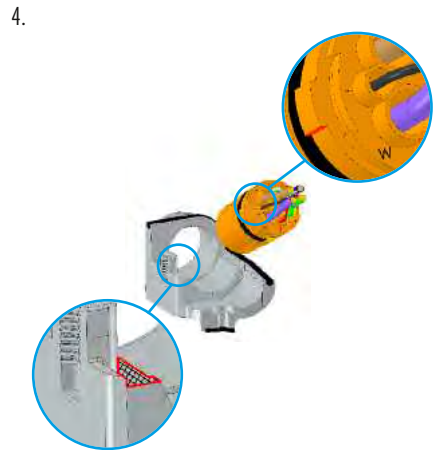
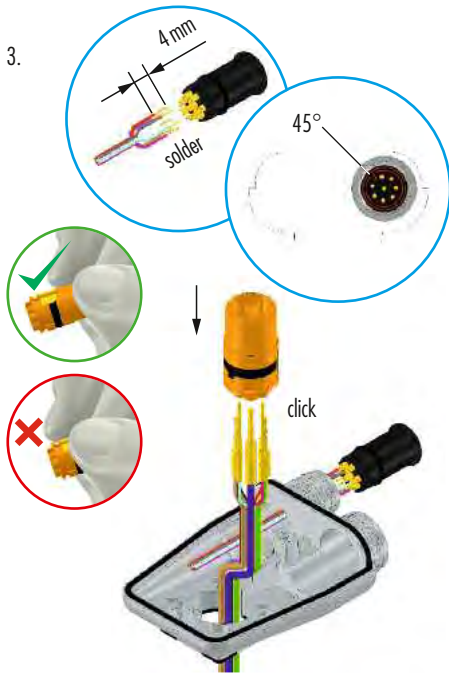
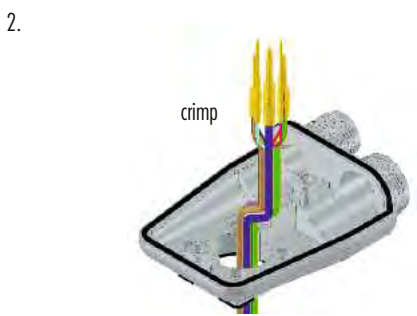
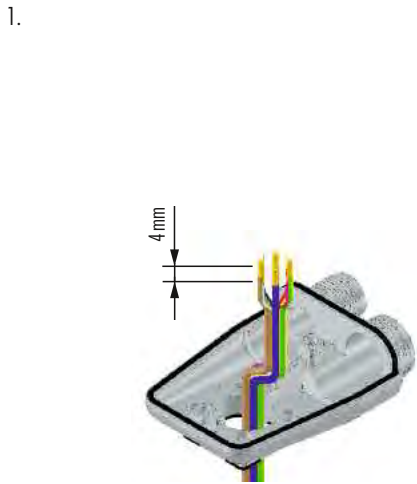
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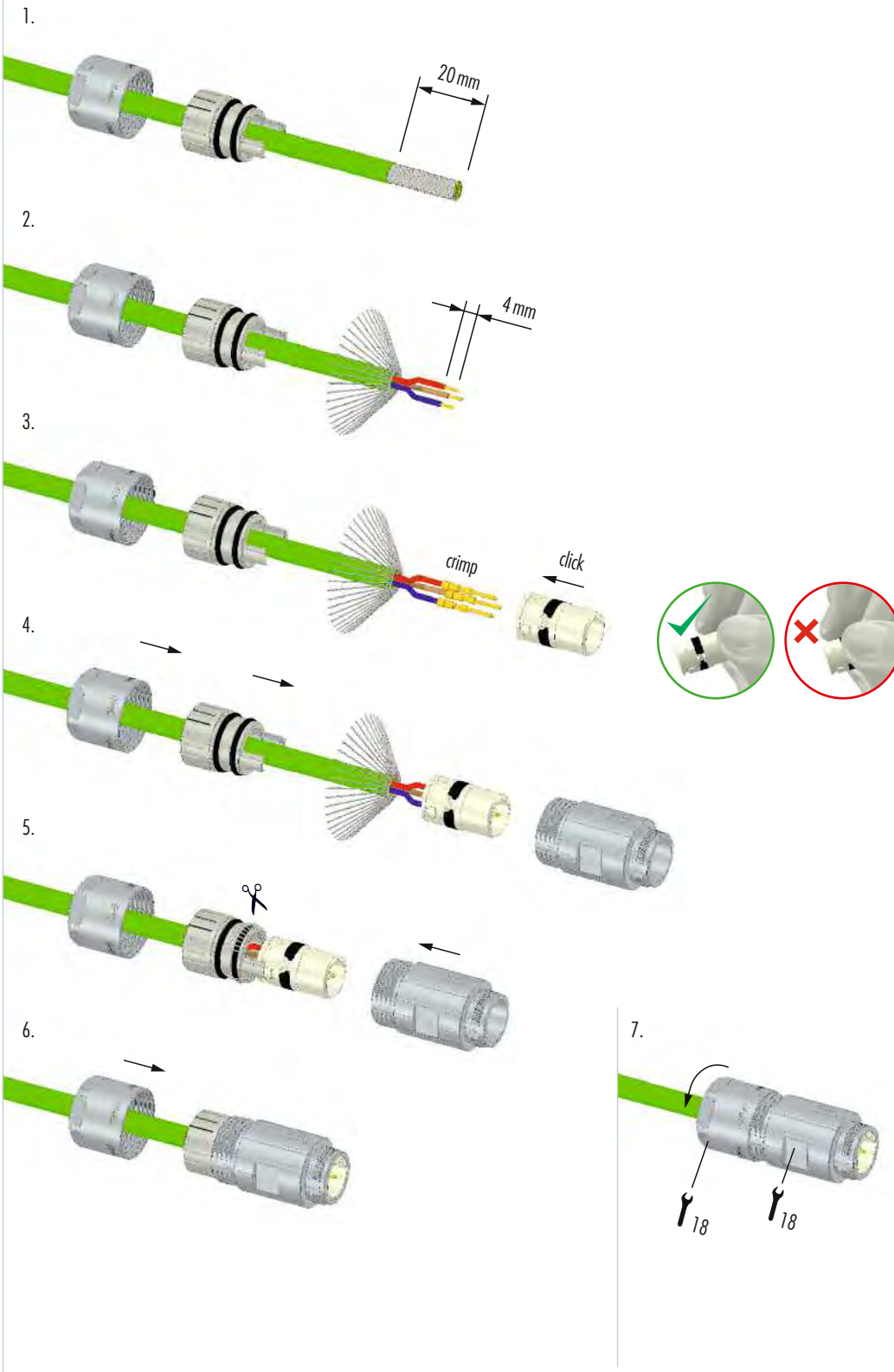
Assembly Instructions

TWINTUS M 16 / M 12





Female Threaded Connector / Male Threaded Connector



M 12

M 16

M 23 PoE

M 23 RJ45

M 23 Signal

M 27 Signal

M 23 Power

M 40 Power

INOX

Moulded Cordsets

Customized



Assembly Instructions

Female Threaded Connector / Male Threaded Connector 12 + 3

1. 25 mm
2. 4 mm
3. crimp
4. click
5. click
- 6.
- 7.
8. 15/18 15/18

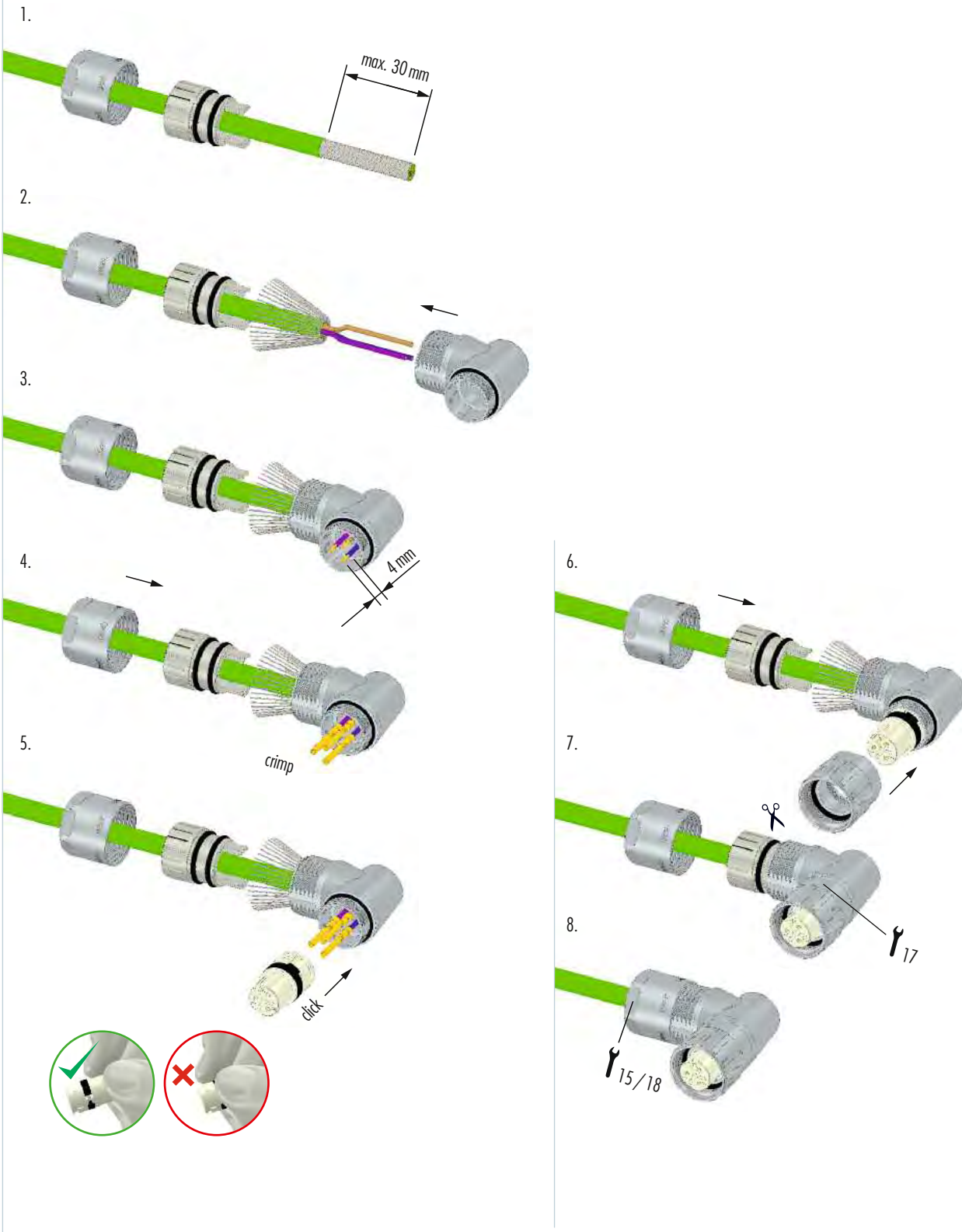
Warning: The inner conductors (bigger cross section for middle insert) shorten appr. 2–3 mm

Click: click

Correct/Incorrect:



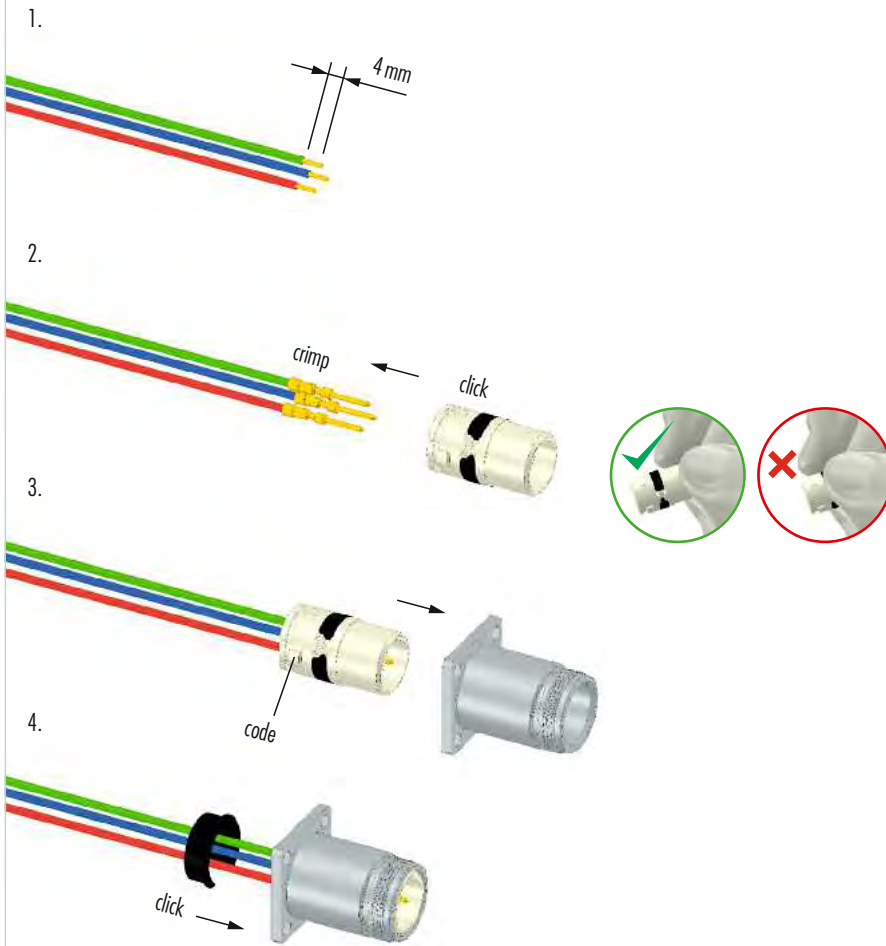
Right angle connector with positioning





Assembly Instructions

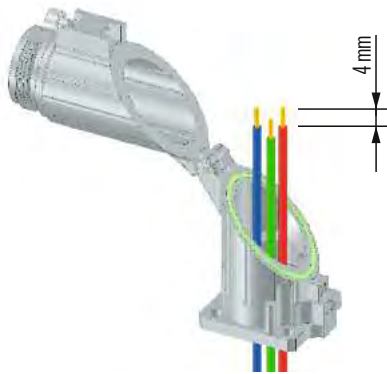
Panel Connector



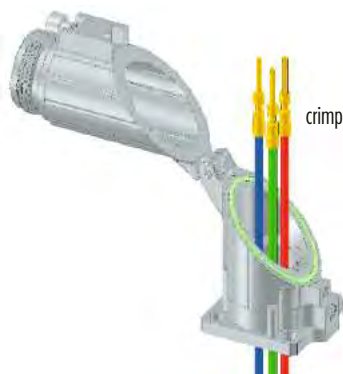


Right Angle Panel Connector

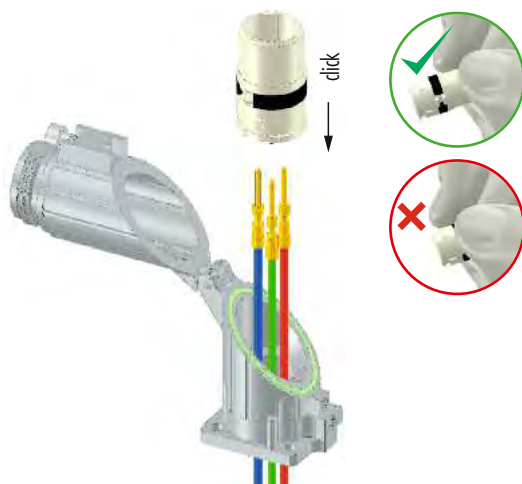
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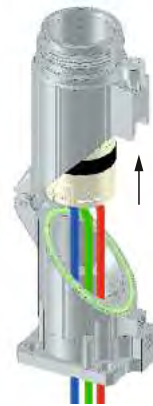
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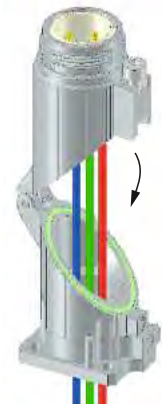
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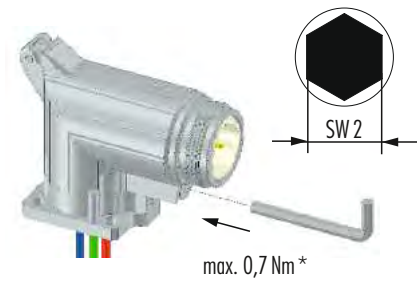
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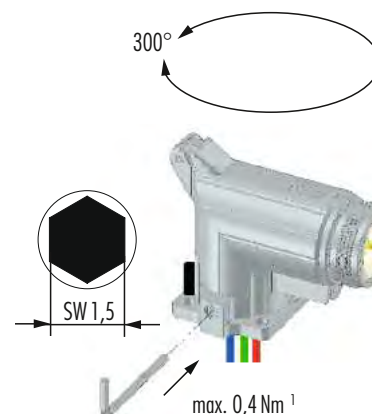
5.



6.



7.



¹ max. torque



Crimping, Assembly and Disassembly of Contacts

Crimping

- // Remove conductor insulation 4 mm (.16") max.
- // Select appropriate Crimp tool setting
- // 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 connect contact to wire

Assembly

- // Remove crimped assembly and pull on wire to test connection
- // Push into desired position of insert

Disassembly of Contacts from Insert

A small screwdriver is needed to remove the contacts from the insert.

- // Release the white ring by a screwdriver out of the insert
- // Move the misplaced contacts out of the insert
- // Enter the ring back into the insert
- // Push the contacts back into insert

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.