M 23 FAST ETHERNET PoE

This connector is able to transfer data up to Gigabit range. The M 23 Fast Ethernet PoE is robust, safe and compact. It is designed for use in rough industrial environments.

// Hybrid connectors for single cable solution
// Four Twinax-Inserts for data transfer
// Five seperate shieldings prevent cross talk
// Highest density within M 23 housing

M 23 FAST ETHERNET PoE

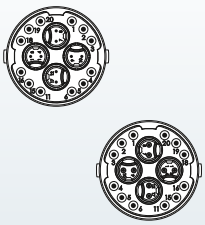
Product overview

Housings

▶ 66

Inserts

▶ 68



Accessories

▶ 69

M 23 FAST ETHERNET PoE

Technical Data

Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated
Inserts (for contacts)	PBT UL-94 V0, PA6
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25 µm)
Minimum mating cycles	> 1000
Seals / O-Rings	Perbunan NBR (Standard)
Temperature range	-40 °C – 125 °C (-40 °F – 257 °F)
Type of contacts	Crimp, dip-solder (PCB)
Protection	IP 67 per EN 60 529 (connected), NEMA 4x
Cable diameter range	11 – 17 mm (.43" – .67")

Electrical Data		
Number of positions	20 (4 x 2 + 12)	
Number of contacts	4 x 2	12
Contact-Ø [mm]	0,6	1
AWG [mm^2]	0,08 – 0,34	0,14 – 1 / 1,5
Nominal current [1)] [A]	2	8*
Nominal voltage [2)] [V~] degree of protection 3 [4)]	60	160
Test voltage (Breakdown voltage) [3)] [V~]	500	1500
Insulation resistance [Ω]	$> 10^6$	$> 10^6$
Max. contact resistance [mΩ]	3	3
Impedance [Ω] (at 100MHz)	100	–

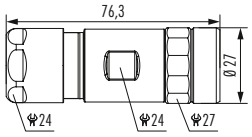
[1), 2), 3), 4)] See Technical Information page 18 // * for single contacts even 10 A possible

M 23 FAST ETHERNET PoE

Housings

Straight Female Connector

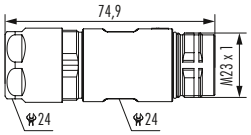
Cable-Ø	Part Number
11-17 mm	7.108.600.000



▶ 68 ▶ 69 ▶ 72

Straight Connector, Male Thread

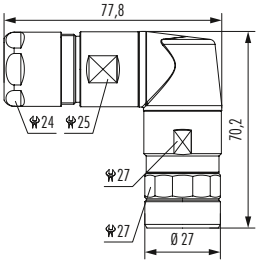
Cable-Ø	Part Number
11-17 mm	7.208.600.000



▶ 68 ▶ 69 ▶ 72

Right Angle Connector, Female Thread, rotatable

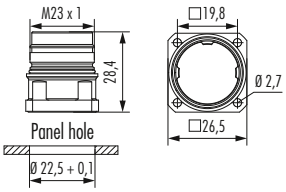
Cable-Ø	Part Number
11-17 mm	7.308.600.000



▶ 68 ▶ 69 ▶ 74

Panel Connector, Male Thread, Front Mounting

Type	Part Number
4 x holes Ø 2,7 mm (.11")	7.408.000.000
Flange 26 x 26 mm	

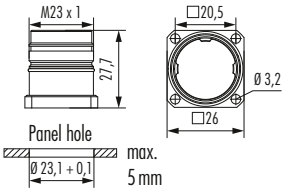


▶ 68 ▶ 69 ▶ 73

Housing without inserts and contacts

Housings

Panel Connector, Rear Mounting



Type	Part Number
4 x holes Ø 3,2 mm (.13") Flange 26 x 26 mm	7.468.000.000

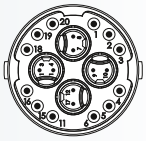
▶ 68 ▶ 69 ▶ 73

Housing without inserts and contacts

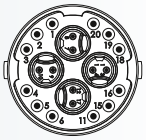
M 23 FAST ETHERNET PoE

Inserts / Pinouts / Contacts

Inserts (4 x 2) + 12



Insert pin mating view



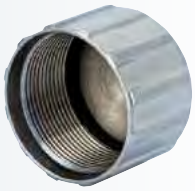
Insert socket mating view

Type	Part Number Pins	Part Number Sockets
Insert without contacts	7.003.920.101	7.003.920.102
Insert with dip solder contacts	7.001.920.107	7.001.920.108
Required Contacts		
8 x 0,6	7.010.980.641	7.010.980.602
12 x 1	7.010.901.045	7.010.901.002
	7.010.901.049	7.010.901.012
		7.010.901.022
		7.010.901.046

Contacts

	Type	Crimp Range	Part Number
	Crimp pin 0,6 mm, machined	0,08 – 0,34 mm²	7.010.980.641
	Crimp socket 0,6 mm, machined	0,08 – 0,34 mm²	7.010.980.602
	Crimp pin 1 mm, machined	0,14 – 1 mm²	7.010.901.049
		0,75 – 1,5 mm²	7.010.901.045
	Crimp socket 1 mm, machined	0,08 – 0,56 mm²	7.010.901.012
		0,34 – 1 mm²	7.010.901.002
		0,75 – 1,5 mm²	7.010.901.022
		1 – 1,75 mm²	7.010.901.046

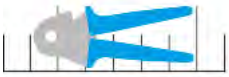
Accessories

Accessories	Type	Part Number
	**Plastic protective cap** for connectors with **male thread** with **female thread**	 7.000.900.101 7.000.900.102
	**Brass protective cap** for connectors with **female thread** **Brass protective cap with chain** for connectors with **female thread** Length 70 mm Length 100 mm	7.010.900.183 7.010.9S0.783 7.010.9S1.083
	**Brass protective cap** for connectors with **male thread**	 7.010.908.102
	**Conduit adaptor** Poleon DN 12 Poleon DN 14 Poleon DN 17	 7.010.900.205 7.010.900.207 7.010.900.209
	**Adaptor flange** for Straight Connectors	 7.010.900.128
	**Adaptor flange** for moulded connectors	 7.010.900.139
	**Multi-Bus adapter** wired through 1:1 (excentric) Multi-Bus I, Female Thread, Sockets 17pole Multi-Bus II, Male Thread, Pins Multi-Bus I, Female Thread, Pins, 17pole Multi-Bus II, Male Thread, Sockets	 7.010.900.143 7.010.900.144

M 23 FAST ETHERNET PoE

Accessories

Accessories	Type	Part Number
	**Control Cabinet adapter** for Multibus II – AIDA Rear Mounting, central locking	7.010.900.145
	**I / O adapter module to scan or feed signals** Rear Mounting, central locking	7.010.900.146
	Manual **Crimp tool** for EMC sleeves M 23 Fast Ethernet	7.000.900.906
	**Manual Crimp tool** for turned contacts M 23 Fast Ethernet  ▶108	7.000.900.907



Crimp Tool Settings for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.907)

Part Number	Crimp Contact	Cross Section (mm²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.980.641	Crimp pin 0,6 mm (0,08 – 0,34 mm²)	0,08 0,14 0,25 0,34	AWG 28 AWG 26 AWG 24 AWG 22	0,57 0,60 0,64 0,73	B 1
7.010.980.602	Crimp socket 0,6 mm (0,08 – 0,34 mm²)	0,08 0,14 0,25 0,34	AWG 28 AWG 26 AWG 24 AWG 22	0,57 0,60 0,64 0,73	B 2
7.010.901.049	Crimp pin 1 mm (0,14 – 1,0 mm²)	0,14 0,25 0,34 0,56 0,75 1,00	AWG 26 AWG 24 AWG 22 AWG 20 AWG 18 AWG 17	0,70 0,76 0,82 0,90 1,00 1,10	B 3
7.010.901.045	Crimp pin 1 mm (0,75 – 1,5 mm²)	0,75 1,00 1,50	AWG 18 AWG 17 AWG 16	0,80 0,85 0,95	B 5
7.010.901.012	Crimp socket 1 mm (0,08 – 0,56 mm²)	0,08 0,14 0,25 0,34 0,56	AWG 28 AWG 26 AWG 24 AWG 22 AWG 20	0,75 0,78 0,82 0,88 0,90	B 4
7.010.901.002	Crimp socket 1 mm (0,34– 1,0 mm²)	0,34 0,56 0,75 1,00	AWG 22 AWG 20 AWG 18 AWG 17	0,77 0,82 0,88 0,95	B 4
7.010.901.022	Crimp socket 1 mm (0,75 – 1,5 mm²)	0,75 1,00 1,50	AWG 18 AWG 17 AWG 16	0,80 0,86 0,95	B 4
7.010.901.046	Crimp socket 1 mm (1 – 1,75 mm²)	1,00 1,50 1,75	AWG 17 AWG 16 AWG 15	0,85 0,95 1,00	B 6

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

M 23 FAST ETHERNET PoE

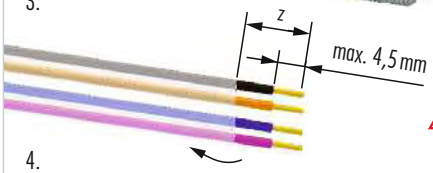
Assembly Instructions

Straight Connector Male / Female Thread

1.

2.

3.

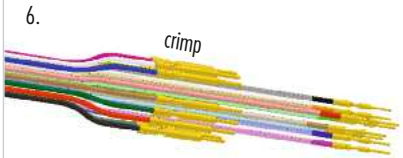


4.

5.

x	Pins = 41 mm Sockets = 37 mm
y	Pins = 7 mm Sockets = 0 mm
z	Pins = 10 mm Sockets = 7 mm

6.



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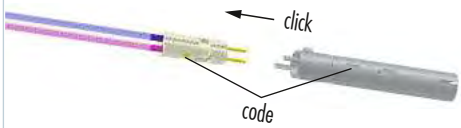

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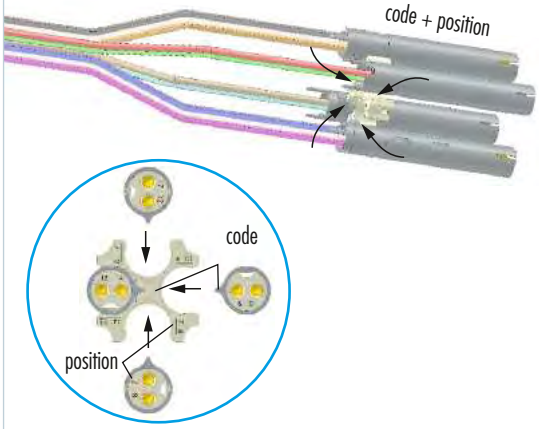
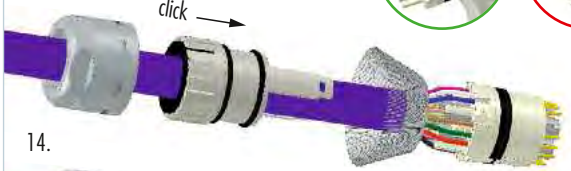


11.

12.

13.



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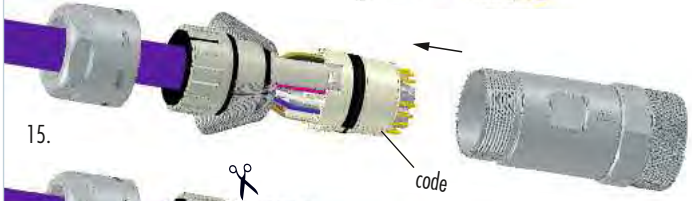

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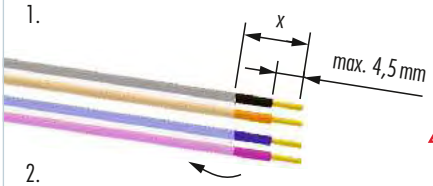
16.

M 23 FAST ETHERNET PoE

Assembly Instructions

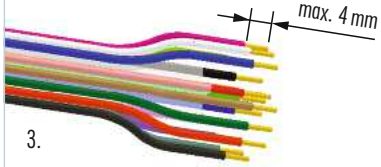
Panel Connector

1.



x | Pins = 10 mm
Sockets = 7 mm

2.

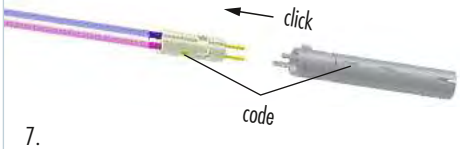


3.

4.

5.

6.



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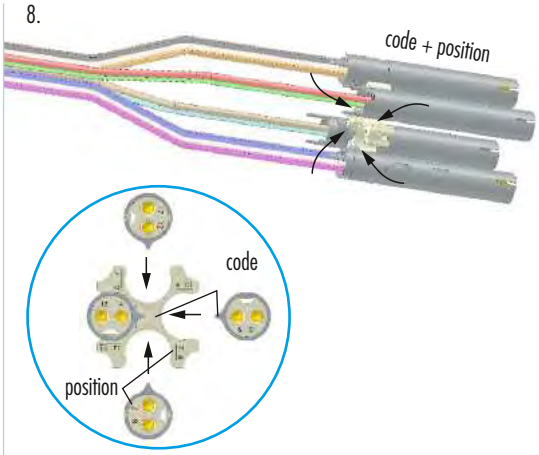

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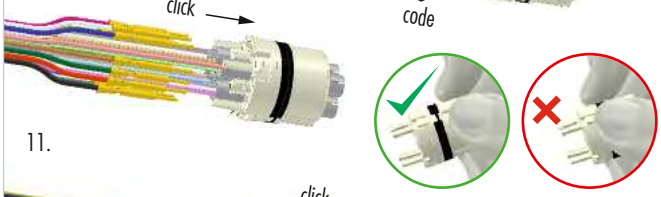

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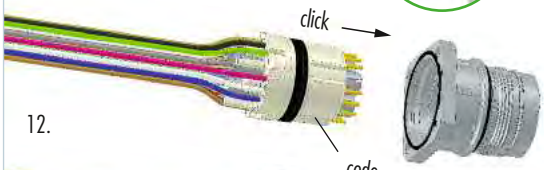

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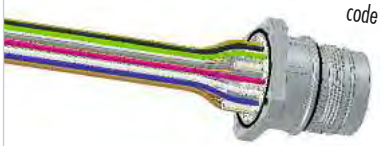
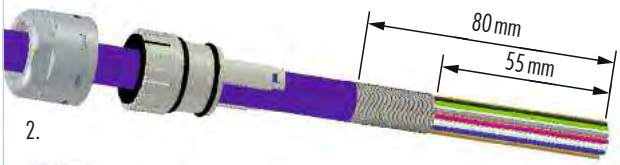


M 23 FAST ETHERNET PoE

Assembly Instructions

Right Angle Connector

1.



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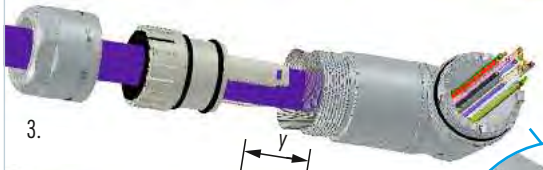

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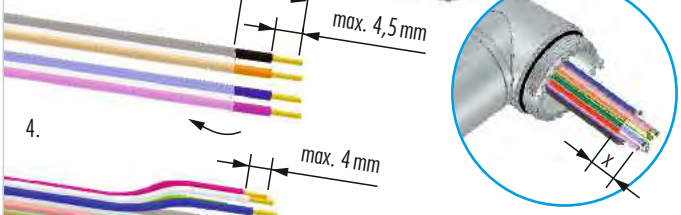
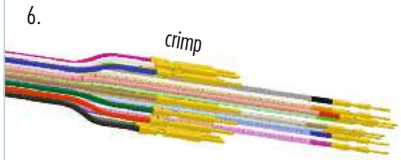


4.

5.

x	Pins = 7 mm Sockets = 0 mm
y	Pins = 10 mm Sockets = 7 mm

6.



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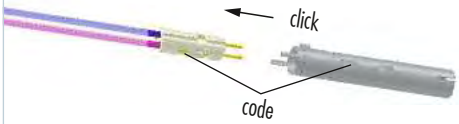

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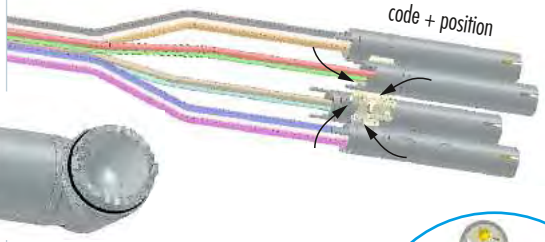

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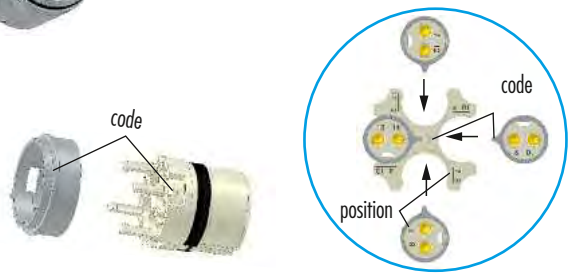

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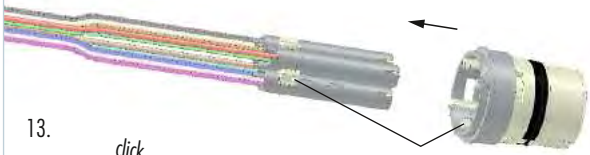

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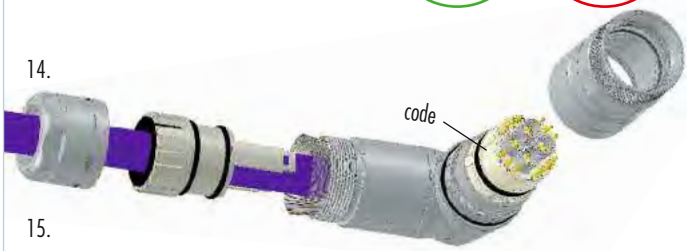
14.



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17.

M 23 RJ 45 CONNECTORS

The connector series M 23 RJ 45 stands for safe data transfers with smallest space requirement in rough industrial environments. Here industrial patch cable can be used that the M 23 RJ 45 integrates in the body of an adaptor. The system achieves an excellent strain relief and complies with the protection class IP 67.

// Industry suited system for safe data transfer
// Integration of industrial patch cable
// Screw lock
// Suitable as maintenance interface

M 23 RJ 45

Product overview

Housings

▶ 78

Accessories

▶ 81

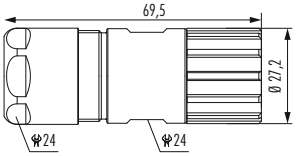
Technical Data

Mechanical Data	Materials and Technical Data
Housing	Brass Alloy, Die Cast
Housing Surface	Nickel Plated
Inserts (for contacts)	PBT UL-94 V0, PA 6
Contacts	Brass Alloy
Contact Surface at point of contact	Depends on RJ 45 type used
Seals / O-Rings	NBR Viton® (FKM / FPM)
Temperature Range	Depends on RJ 45 type used
Degree of Protection	IP 67 per EN 60529 (mated)
Cable diameter range	3 – 7 / 7 – 12 / 11 – 17mm
Number of Positions	4 / 6 / 8 poles, optional 4 + 2 / 6 + 2 / 8 + 2
Nominal Current [1)] [A]	Depends on RJ 45 type used
Nominal Voltage [2)] [V~]	Depends on RJ 45 type used
Test Voltage [V~]	Depends on RJ 45 type used
Insulation Resistance [Ω]	Depends on RJ 45 type used
Max. Crossover Resistance [mΩ]	Depends on RJ 45 type used
Max. Data Rate	Depends on RJ 45 type used, IAW Cat 5/5e/6a

[1), 2)] see Technical Information page 18

Housings

Straight Connector Female Thread



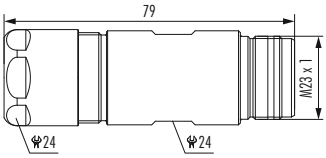
Cable-Ø	Part Number
3 – 7 mm (.12 - .28")	7.R10.400.000

Connector with insert for patch cable

Suitable patch cable and plugs can be recommended.

▶ 83 ▶ 81

Straight Connector Male Thread

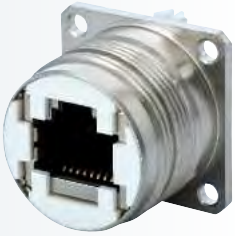


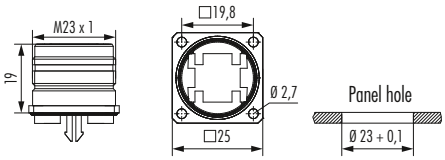
Cable-Ø	Part Number
3 – 7 mm (.12 - .28")	7.R20.408.000

Incl. 8 poles coupler, fully occupied

▶ 84 ▶ 81

Panel Connector Front Mount, dip solder insert





Type	Part Number
4 holes 2.7 mm, Flange	7.R40.008.000

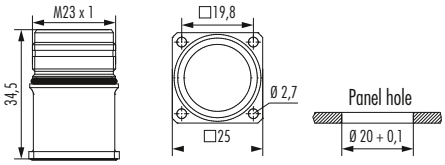
Incl. 8 poles dip solder insert

4 holes 2.7 mm, Flange	7.R40.082.000

Incl. 8 + 2 poles dip solder insert

▶ 81

Panel Connector, Front Mount



Type	Part Number
with vibration protection	
4 holes 2.7 mm, Flange	7.R41.008.000

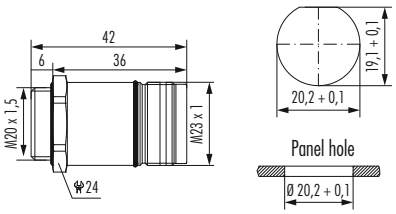
Incl. 8 poles coupler, fully occupied

▶ 81

Housings

Single Hole Panel Connector

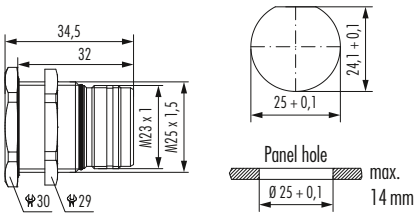
Type	Part Number
Front Mount	
M 20 x1,5 thread	7.R42.008.000
Incl. 8 poles coupler, fully occupied	
Optional: Gasket M 20 x 1,5, Locking Nut	



▶ 81

Single Hole Panel Connector

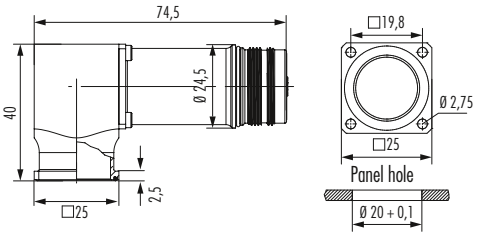
Type	Part Number
Rear Mount	
M 25 x 1,5 thread	7.R50.008.000
Incl. 8 poles coupler, fully occupied	
M 25 x 1,5 Locking Nut included.	



▶ 81

Right Angle Panel Connector, Male Thread

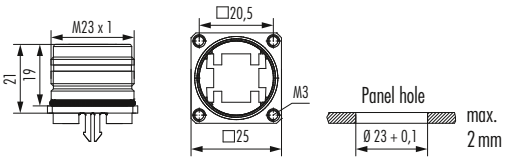
Type	Part Number
300 ° rotatable, locking screw at flange	
4 holes 2.7 mm, Flange	7.R43.108.000
Incl. 8 poles coupler, fully occupied	
Optional: Gasket	
Simple installation with M 2.5 screws	



▶ 81

Panel Connector Rear Mount, dip solder insert

Type	Part Number
4x M 3 thread, Flange	7.R45.008.000
Incl. 8 poles dip solder insert	
4x M 3 thread, Flange	7.R45.082.000
Incl. 8 + 2 poles dip solder insert	

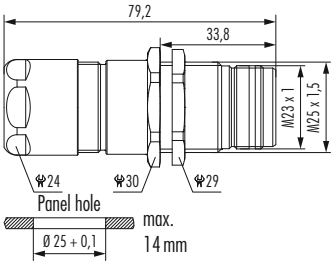


▶ 81

[1] upon request

Housings

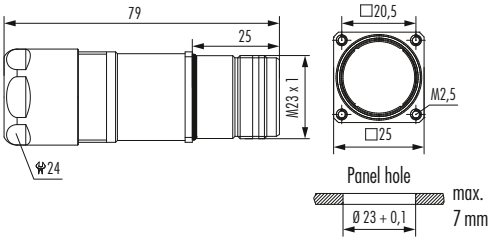
Single Hole Panel Connector with strain relief



Cable-Ø	Part Number
Single Hole, Rear Mount, M 25 x 1,5 thread	
3 – 7 mm (.12 - .28")	7.R52.408.000
Incl. 8 poles coupler, fully occupied	
M 25 x 1,5 Locking Nut included	

▶ 81

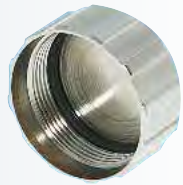
Panel Connector with strain relief



Cable-Ø	Part Number
4x M 2,5 thread, Flange, Rear Mount	
3 – 7 mm (.12 - .28")	7.R47.408.000
Incl. 8 poles coupler, fully occupied	

▶ 81

Accessories

Accessories	Type	Part Number
	**Plastic protective cap** for connectors with **male thread** with **female thread**	 7.000.900.101 7.000.900.102
	**Brass protective cap** for connectors with **female thread**	7.010.900.183
	**Brass protective cap** for connectors with **male thread**	7.010.900.102
	**Brass protective cap with chain** for connectors with **female thread** Length 70 mm Length 100 mm	 7.010.9S0.783 7.010.9S1.083
	**Brass protective cap with chain** for connectors with **male thread** Length 70 mm Length 100 mm	 7.010.9S0.702 7.010.9S1.002
	**Adaptor flange** for Straight Connectors	7.010.900.128
	**Conduit adaptor** Poleon DN 12 Poleon DN 14 Poleon DN 17	 7.010.900.205 7.010.900.207 7.010.900.209

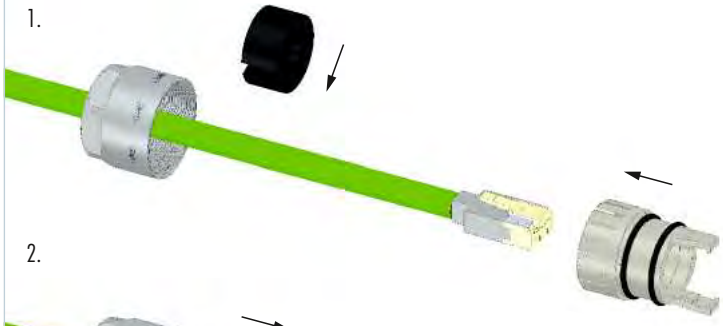
Accessories

Accessories	Type	Part Number
	Suitable **patch cable**	on request
	**Field attachable RJ45 connector** 8-pole 8+2-pole	 A7RJ-081M41 A7RJ-821M51
	**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

Assembly Instructions

Straight Connector, Female Thread

1.



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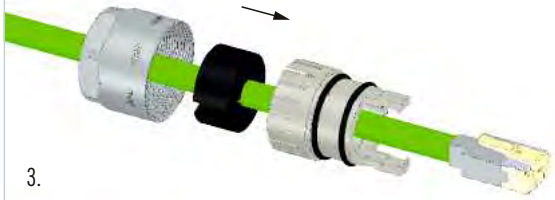

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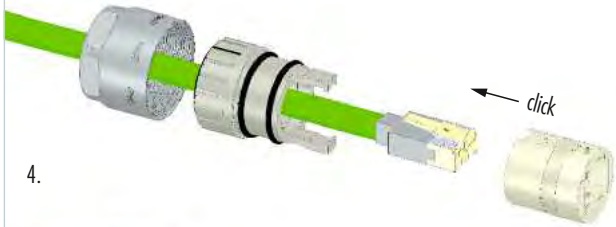

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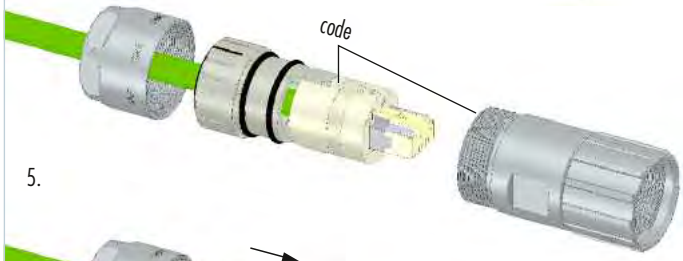
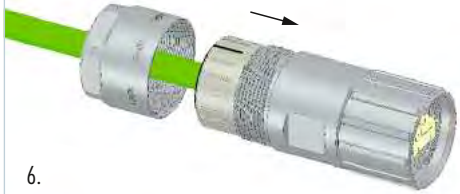


5.

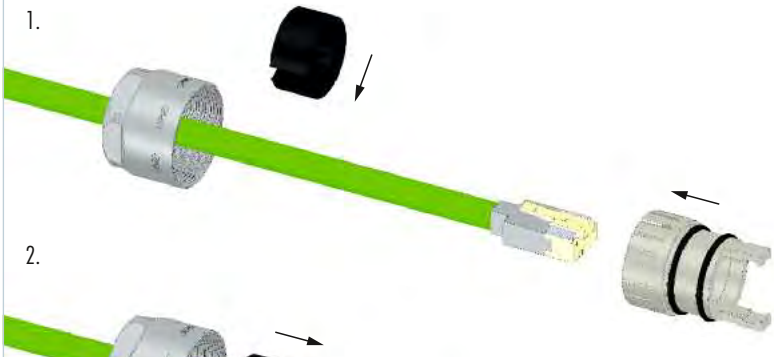


6.

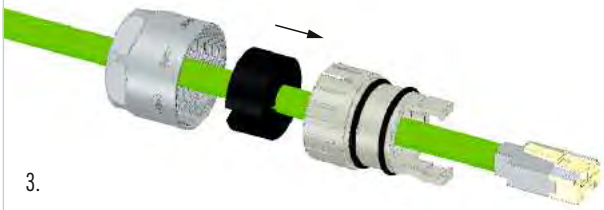
Assembly Instructions

Male Threaded Connector

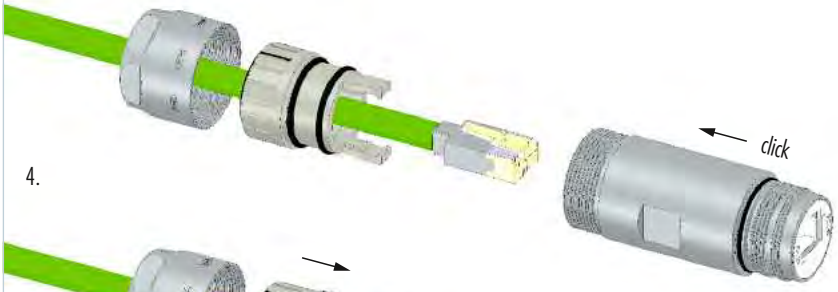
1.



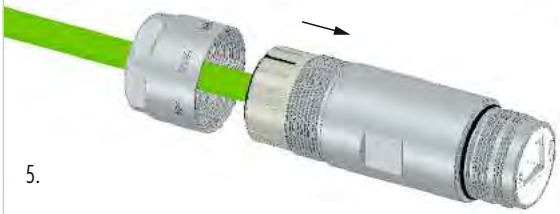
2.



3.



4.



5.

M 23 SIGNAL CONNECTORS

This reliable and universally applicable connector is widespread within industry. The connectors of HUMMEL AG can be customized freely. Moreover, they convice through their robustness and reliability. The range is modularly constructed and offers almost unlimited opportunities to the user.

// Numerous housing types
// Large variety
// TWILOCK / TWILOCK-S quick release fastener

M 23 SIGNAL

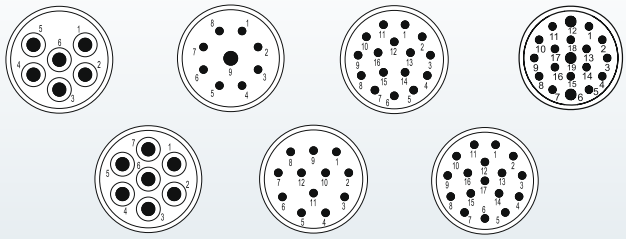
Product overview

Housings

▶ 88

Inserts

▶ 96



Accessories

▶ 104

Technical Data

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, solder, dip-solder (PCB)
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x
Cable diameter range	3 – 17 mm (.12 – .67")

* HUMMEL to HUMMEL connector

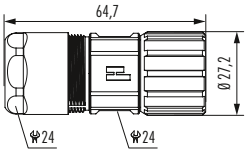
Electrical Data

Number of positions	6	7	9 (8 + 1)	12	16	17	19 (16 + 3)
Number of contacts	6	7	8 1	12	16	17	16 3
Contact-Ø [mm]	2	2	1 2	1	1	1	1 1,5
Nominal current [1] [A]	20	20	8 20	8	8	8	8 10
Nominal voltage [2] [V~] Degree of Protection 3 [3]	300	300	200	200	160	160	100
Test voltage (Breakdown voltage) [4] [V~]	2500	2500	2500	2500	1500	1500	1500
Insulation resistance [Ω]	$> 10^{10}$	$> 10^{10}$	$> 10^{10}$	$> 10^{10}$	$> 10^{6}$	$> 10^{6}$	$> 10^{6}$
Max. contact resistance [mΩ]	3	3	3	3	3	3	3

[1], [2], [3], [4] See Technical Information page 18

Housings

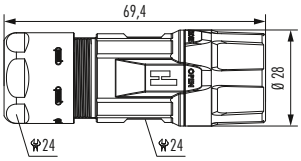
Straight Connector, Female Thread



Cable-Ø	Part Number
3 – 7 mm (.12 – .28")	7.106.400.000
7 – 12 mm (.28 – .47")	7.106.500.000
11 – 17 mm (.44 – .67")	7.106.600.000

▶ 96 ▶ 110

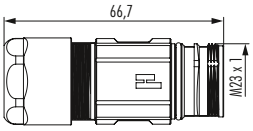
Straight Connector, Female Thread TWILOCK / TWILOCK-S *



Cable-Ø	Part Number
3 – 7 mm (.12 – .28")	7.166.400.000
7 – 12 mm (.24 – .47")	7.166.500.000
11 – 17 mm (.43 – .67")	7.166.600.000
* intermateable with Speedtec	
3 – 7 mm (.12 – .28")	7.166.400.00S
7 – 12 mm (.24 – .47")	7.166.500.00S
11 – 17 mm (.43 – .67")	7.166.600.00S

▶ 96 ▶ 110

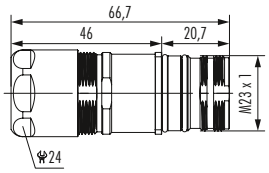
Straight Connector, Male Thread TWILOCK / TWILOCK-S *

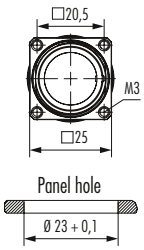


Cable-Ø	Part Number
3 – 7 mm (.12 – .28")	7.206.400.000
7 – 12 mm (.28 – .47")	7.206.500.000
11 – 17 mm (.44 – .67")	7.206.600.000
* intermateable with Speedtec	
3 – 7 mm (.12 – .28")	7.266.400.00S
7 – 12 mm (.24 – .47")	7.266.500.00S
11 – 17 mm (.43 – .67")	7.266.600.00S

▶ 96 ▶ 110

Panel Connector, Male Thread, with Strain Relief





Cable-Ø	Part Number
4 threads M 3, rear mounting	
3 – 7 mm (.12 – .28")	7.476.400.000
7 – 12 mm (.28 – .47")	7.476.500.000
11 – 17 mm (.44 – .67")	7.476.600.000

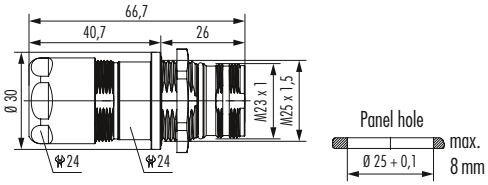
Optional: Flat gasket

▶ 96 ▶ 110

Housing without inserts and contacts

Housings

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

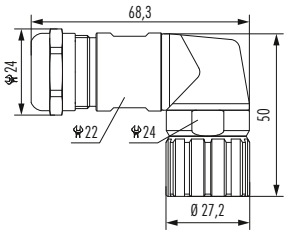


Cable-Ø	Part Number
Rear mounting, M 25 x 1,5 single hole mounted	
3 – 7 mm (.12 – .28")	7.486.400.000
7 – 12 mm (.28 – .47")	7.486.500.000
11 – 17 mm (.44 – .67")	7.486.600.000
*** intermateable with Speedtec**	
3 – 7 mm (.12 – .28")	7.486.400.00S
7 – 12 mm (.28 – .47")	7.486.500.00S
11 – 17 mm (.44 – .67")	7.486.600.00S

▶ 96 ▶ 110

Including jam nut M 25 x 1,5

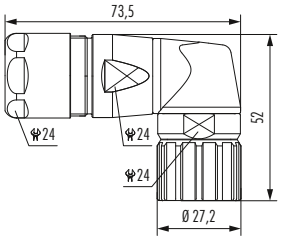
Right Angle Connector, Female Thread with positioning



Cable-Ø	Part Number
3 – 7 mm (.12 – .28")	7.300.300.000
5 – 10 mm (.20 – .39")	7.300.400.000
7 – 12 mm (.28 – .47")	7.300.500.000
10 – 14 mm (.39 – .55")	7.300.600.000

▶ 96 ▶ 111

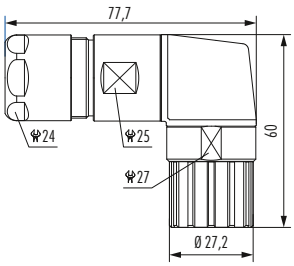
Right Angle Connector, Female Thread, EMC with positioning



Cable-Ø	Part Number
7 – 12 mm (.28 – .47")	7.301.500.000
10 – 14 mm (.39 – .55")	7.301.600.000

▶ 96 ▶ 111

Right Angle Connector, EMC, rotatable



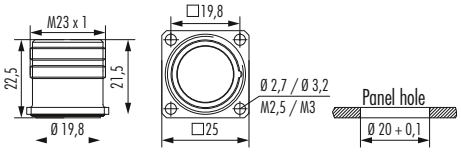
Cable-Ø	Part Number
7 – 12 mm (.28 – .47")	7.306.500.000
11 – 17 mm (.43 – .67")	7.306.600.000

▶ 96 ▶ 112

Housing without inserts and contacts

Housings

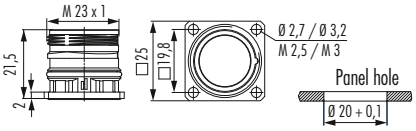
Panel Connector, Male Thread, Front Mounting



Type	Part Number
4 holes Ø 3,2 mm (.13")	7.400.000.000 [1]
4 threads M 3	7.402.000.000 [1]
4 holes Ø 2,7 mm (.11")	7.404.000.000 [1]
4 threads M 2,5	7.406.000.000 [1]

▶ 96 ▶ 104 ▶ 113/114

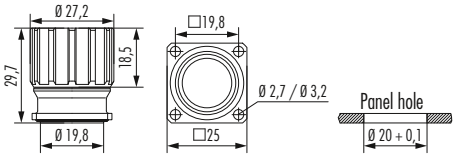
Panel Connector, Male Thread, Front Mounting TWILOCK / TWILOCK-S *



Type	Part Number
With anti-vibration O-Ring	
4 holes Ø 3,2 mm (.13")	7.410.000.000
4 threads M 3	7.412.000.000 [1]
4 holes Ø 2,7 mm (.11")	7.414.000.000
4 threads M 2,5	7.416.000.000 [1]
* **intermateable with Speedtec**	
4 x Bholes 3,2 mm, Flange 25 x 25	7.410.000.00S
4 x Bohr. 3,2 mm, Flange 28 x 28	7.410.100.00S

▶ 96 ▶ 104 ▶ 113/114

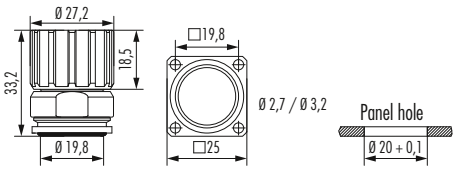
Panel Connector, Female Thread, with knurled Nut



Type	Part Number
Without coding option	
4 holes Ø 3,2 mm (.13")	7.440.000.000
4 holes Ø 2,7 mm (.11")	7.444.000.000

▶ 96 ▶ 104 ▶ 113/114

Panel Connector, Female Thread, with knurled Nut, positionable



Type	Part Number
With coding option (8 x 45°)	
4 holes Ø 3,2 mm (.13")	7.448.000.000
4 holes Ø 2,7 mm (.11")	7.449.000.000

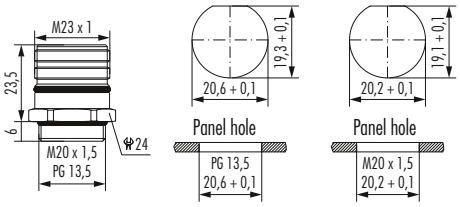
▶ 96 ▶ 104 ▶ 113/114

Housing without inserts and contacts

[1] no compatibility with TWILOCK

Housings

Panel Connector, Male Thread, Single Hole Mounted



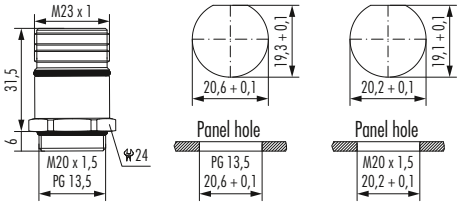
Type	Part Number
Front mounting for male inserts	
Thread M 20 x1,5	7.420.000.000 [1]
Thread PG 13,5	7.422.000.000 [1]

Optional: jam nut M 20 x 1,5 / PG 13,5

* FOR MALE * INSERTS ONLY

▶ 96 ▶ 104 ▶ 113

Panel Connector, Male Thread, Single Hole Mounted



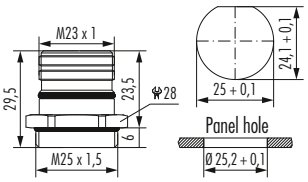
Type	Part Number
Front mounting for female inserts	
Thread M 20 x1,5	7.421.000.000 [1]
Thread PG 13,5	7.423.000.000 [1]

Optional: jam nut M 20 x 1,5 / PG 13,5

* FOR FEMALE * INSERTS ONLY

▶ 96 ▶ 104 ▶ 114

Panel Connector, Male Thread, Single Hole Mounted



Type	Part Number
For insert with pins / sockets	
Thread M 25 x 1,5	7.425.000.000 [1]

Optional: jam nut M 25 x 1,5

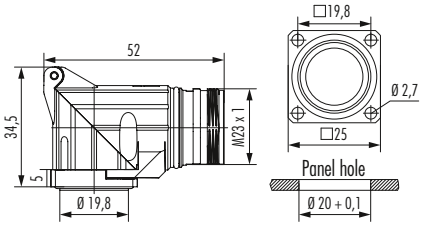
▶ 96 ▶ 104 ▶ 113/114

Housing without inserts and contacts

[1] no compatibility with TWILOCK

Housings

Right Angle Panel Connector, Male Thread

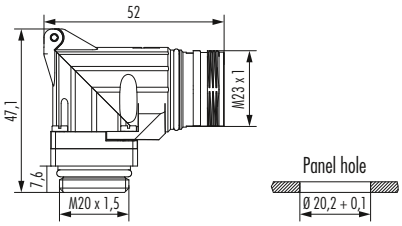


Type	Part Number
4 holes 2,7 mm (.11")	7.435.000.000

Easy fixation with M 2,5 screws

▶ 96 ▶ 104 ▶ 115

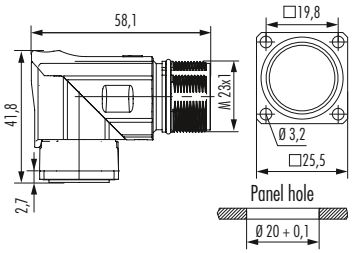
Right Angle Panel Connector, Male Thread, rotatable



Type	Part Number
335° rotatable, hole mounted	
Thread M 20 x 1,5	7.431.000.000

▶ 96 ▶ 104 ▶ 115

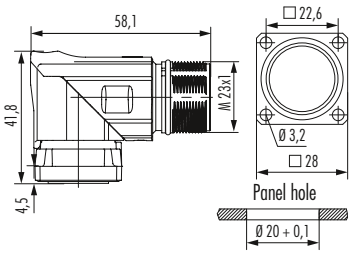
Right Angle Panel Connector, Male Thread, rotatable TWILOCK / TWILOCK-S *



Type	Part Number
330° rotatable, hole mounted	
4 x holes 3,2 mm (.13")	7.439.000.000
Flange 25 x 25 mm	
* **intermateable with Speedtec**	
4 x holes 3,2 mm (.13")	7.439.000.00S
Flange 25 x 25 mm	

▶ 96 ▶ 104 ▶ 115

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



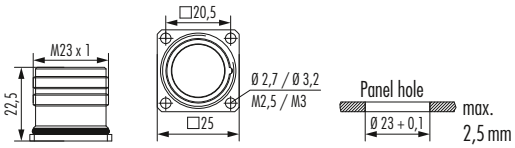
Type	Part Number
330° rotatable, hole mounted	
4 x holes 3,2 mm (.13")	7.439.100.000
Flange 28 x 28 mm	
* **intermateable with Speedtec**	
4 x holes 3,2 mm (.13")	7.439.100.00S
Flange 28 x 28 mm	

▶ 96 ▶ 104 ▶ 115

Housing without inserts and contacts

Housings

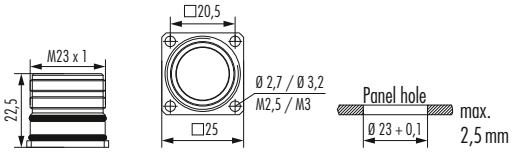
Panel Connector, Male Thread, Rear Mounting



Type	Part Number
4 holes Ø 3,2 mm (.13")	7.450.000.000 [1]
4 threads M 3	7.452.000.000 [1]
4 holes Ø 2,7 mm (.11")	7.454.000.000 [1]
4 threads M 2,5	7.456.000.000 [1]

▶ 96 ▶ 104 ▶ 113/114

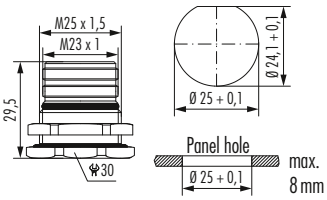
Panel Connector, Male Thread, Rear Mounting TWILOCK / TWILOCK-S *



Type	Part Number
With anti-vibration O-Ring	
4 holes Ø 3,2 mm (.13")	7.460.000.000
4 threads M 3	7.462.000.000
4 holes Ø 2,7 mm (.11")	7.464.000.000
4 threads M 2,5	7.466.000.000
* **intermateable with Speedtec**	
4 x threads M 3	7.462.000.00S

▶ 96 ▶ 104 ▶ 113/114

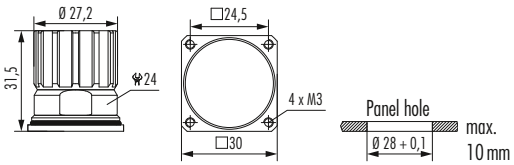
Panel Connector, Male Thread, Single Hole Mounted TWILOCK / TWILOCK-S *



Type	Part Number
Rear mounting	
Thread M 25 x 1,5	7.458.000.000 [1]
* **intermateable with Speedtec**	
Thread M 25 x 1,5	7.458.000.00S
Including jam nut M 25 x 1,5	

▶ 96 ▶ 104 ▶ 113/114

Panel Connector, Female Thread, Rear Mounting



Type	Part Number
With knurled nut, rear mounting	
4 threads M 3	7.459.000.000

▶ 96 ▶ 104 ▶ 113/114

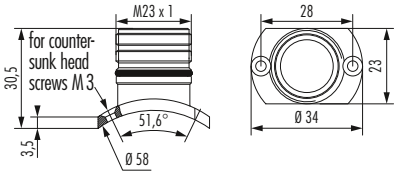
Housing without inserts and contacts

[1] no compatibility with TWILOCK

Housings

Panel Connector with Radius Flange

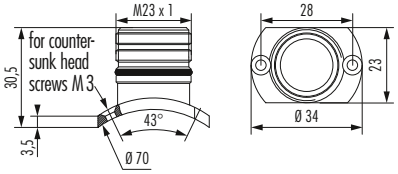
Type	Part Number
With anti-vibration O-Ring and flat body gasket Ø 58 mm (2.28″)	7.490.000.000 [1]



▶ 96 ▶ 104 ▶ 113/114

Panel Connector with Radius Flange

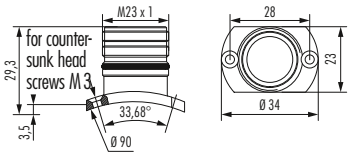
Type	Part Number
With anti-vibration O-Ring and flat body gasket Ø 70 mm (2.76″)	7.491.000.000 [1]



▶ 96 ▶ 104 ▶ 113/114

Panel Connector with Radius Flange

Type	Part Number
With anti-vibration O-Ring and flat body gasket Ø 90 mm (3.54″)	7.492.000.000 [1]



▶ 96 ▶ 104 ▶ 113/114

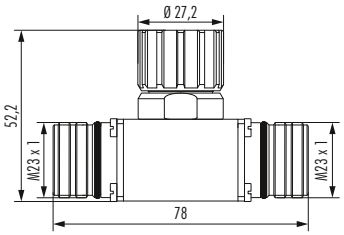
Housing without inserts and contacts

[1] no compatibility with TWILOCK

Housings

Signal Distribution

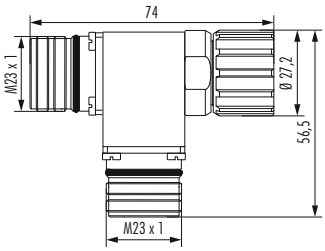
Type | Part Number



▶ 96 ▶ 104

Signal Distribution

Type | Part Number



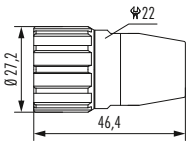
▶ 96 ▶ 104

Signal Distribution

In case of so called Flying Connections it is often required to distribute, cross or combine signals. Depending on the requirements of the application, the connections can be supplied either as male or female connector, or they can be configured with strain relief fittings. There are many possible combinations, including the internal wiring, independent of their style, as T-, Y-, H-, or other special configurations.

Bus End Connector

Type | Part Number



Closed type.....7.105.000.000

Used to cap an open male connector in bus-systems

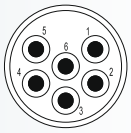
▶ 96 ▶ 104

Housing without inserts and contacts

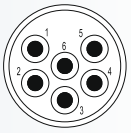
[1] no compatibility with TWILOCK

Inserts / Pinouts

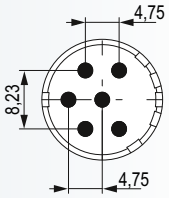
Inserts 6-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



Type	Part Number	Part Number
Pinout clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.001.906.103	7.001.906.104
Insert without contacts	7.003.906.101	7.003.906.102
Insert with dip solder contacts Length 3,5 mm	7.001.906.107	
Insert with dip solder contacts Length 10 mm	7.001.906.127	7.001.906.108
Insert with dip solder contacts Length 17 mm	7.001.906.137	7.001.906.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

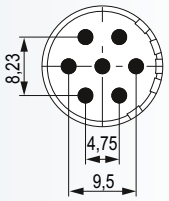
Coding possibilities N, S, H, X, Y and Z (see page 101)

▶ 102/103

Inserts 7-pole

Insert pin mating view (Part E)

Insert socket mating view (Part P)



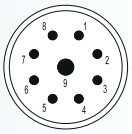
Type	Part Number	Part Number
Pinout clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.001.907.103	7.001.907.104
Insert without contacts	7.003.907.101	7.003.907.102
Insert with dip solder contacts Length 3,5 mm	7.001.907.107	
Insert with dip solder contacts Length 10 mm	7.001.907.127	7.001.907.108
Insert with dip solder contacts Length 17 mm	7.001.907.137	7.001.907.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

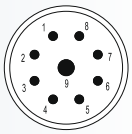
Coding possibilities N, S, H, X and Y (see page 101)

▶ 102/103

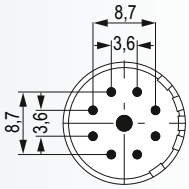
Inserts 9-pole (8 + 1)



Insert pin mating view (Part E)



Insert socket mating view (Part P)



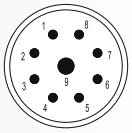
Type	Part Number	Part Number
Pinout clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.001.981.103	7.001.981.104
Insert without contacts	7.003.981.101	7.003.981.102
Insert with dip solder contacts Length 3,5 mm	7.001.981.107	
Insert with dip solder contacts Length 10 mm	7.001.981.127	7.001.981.108
Insert with dip solder contacts Length 17 mm	7.001.981.137	7.001.981.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

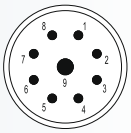
Coding possibilities N, S, H, X and Y (see page 101)

▶ 102/103

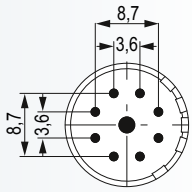
Inserts 9-pole (8 + 1)



Insert pin mating view (Part P)



Insert socket mating view (Part E)



Type	Part Number	Part Number
Pinout counter-clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.002.981.103	7.002.981.104
Insert without contacts	7.004.981.101	7.004.981.102
Insert with dip solder contacts Length 3,5 mm	7.002.981.107	
Insert with dip solder contacts Length 10 mm	7.002.981.127	7.002.981.108
Insert with dip solder contacts Length 17 mm	7.002.981.137	7.002.981.118

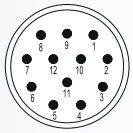
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

Coding possibilities N, S, H, X and Y (see page 101)

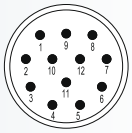
▶ 102/103

Inserts / Pinouts

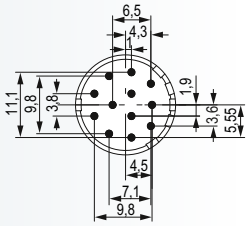
Inserts 12-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



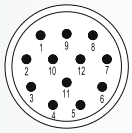
Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
Insert with solder contacts	7.001.912.103	7.001.912.104
Insert with solder contacts +PE (Pos.9)	7.001.912.113	7.001.912.114
Insert without contacts	7.003.912.101	7.003.912.102
Insert without contacts +PE (Pos.9)	7.003.912.111	7.003.912.112
Insert with dip solder contacts Length 3,5 mm	7.001.912.107	
Insert with dip solder contacts Length 10 mm	7.001.912.127	7.001.912.108
Insert with dip solder contacts Length 17 mm	7.001.912.137	7.001.912.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

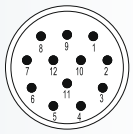
Coding possibilities N, S, H, X, Y and Z (see page 101)

▶ 102/103

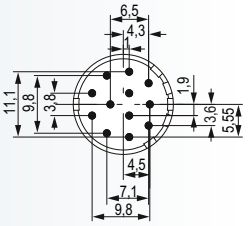
Inserts 12-pole



Insert pin mating view (Part P)



Insert socket mating view (Part E)



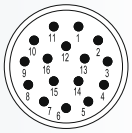
Type	Part Number Pins	Part Number Sockets
Pinout counter-clockwise		
Insert with solder contacts	7.002.912.103	7.002.912.104
Insert with solder contacts +PE (Pos.9)	7.002.912.113	7.002.912.114
Insert without contacts	7.004.912.101	7.004.912.102
Insert without contacts +PE (Pos.9)	7.004.912.111	7.004.912.112
Insert with dip solder contacts Length 3,5 mm	7.002.912.107	
Insert with dip solder contacts Length 10 mm	7.002.912.127	7.002.912.108
Insert with dip solder contacts Length 17 mm	7.002.912.137	7.002.912.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

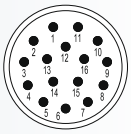
Coding possibilities N, S, H, X, Y and Z (see page 101)

▶ 102/103

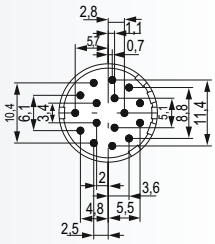
Inserts 16-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



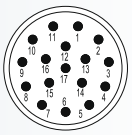
Type	Part Number	Part Number
Pinout clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.001.916.103	7.001.916.104
Insert without contacts	7.003.916.101	7.003.916.102
Insert with dip solder contacts Length 3,5 mm	7.001.916.107	
Insert with dip solder contacts Length 10 mm	7.001.916.127	7.001.916.108
Insert with dip solder contacts Length 17 mm	7.001.916.137	7.001.916.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

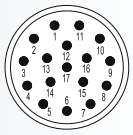
Coding possibilities N, S, H, X, Y and Z (see page 101)

▶ 102/103

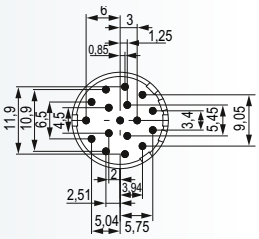
Inserts 17-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



Type	Part Number	Part Number
Pinout clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.001.917.103	7.001.917.104
Insert without contacts	7.003.917.101	7.003.917.102
Insert with dip solder contacts Length 3,5 mm	7.001.917.107	
Insert with dip solder contacts Length 10 mm	7.001.917.127	7.001.917.108
Insert with dip solder contacts Length 17 mm	7.001.917.137	7.001.917.118

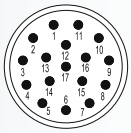
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

Coding possibilities N, S, H, X, Y and Z (see page 101)

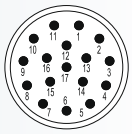
▶ 102/103

Inserts / Pinouts

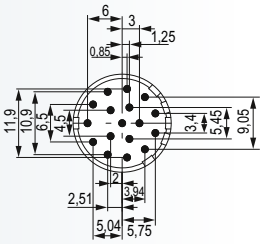
Inserts 17-pole



Insert pin mating view (Part P)



Insert socket mating view (Part E)



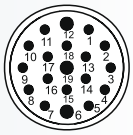
Type	Part Number Pins	Part Number Sockets
Pinout counter-clockwise		
Insert with solder contacts	7.002.917.103	7.002.917.104
Insert without contacts	7.004.917.101	7.004.917.102
Insert with dip solder contacts Length 3,5 mm	7.002.917.107	
Insert with dip solder contacts Length 10 mm	7.002.917.127	7.002.917.108
Insert with dip solder contacts Length 17 mm	7.002.917.137	7.002.917.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

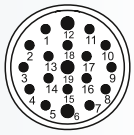
Coding possibilities N, S, H, X, Y and Z (see page 101)

▶ 102/103

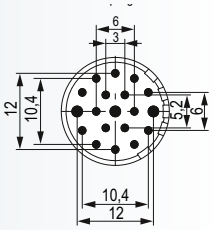
Inserts 19-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



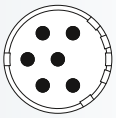
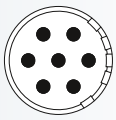
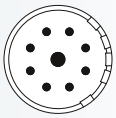
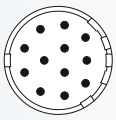
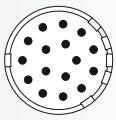
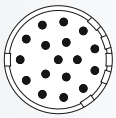
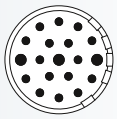
Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
Insert with solder contacts	7.001.919.103	7.001.919.104
Insert with solder contacts +PE (Pos.12)	7.001.919.113	7.001.919.114
Insert with solder contacts + PE (Pos.12) 1,5 mm elongated	7.001.919.123	
Insert without contacts	7.003.919.101	7.003.919.102
Insert without contacts +PE (Pos.12)	7.003.919.111	7.003.919.112
Insert with dip solder contacts Length 3,5 mm	7.001.919.107	
Insert with dip solder contacts Length 10 mm	7.001.919.127	7.001.919.108
Insert with dip solder contacts Length 17 mm	7.001.919.137	7.001.919.118

The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

Coding possibilities N, S, H, X and Y (see page 101)

▶ 102/103

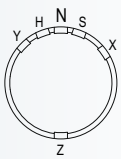
Required Contacts

Contact Arrangement	Number of Poles	Required Contacts
	6	6 x 2 mm
	7	7 x 2 mm
	9 (8 + 1)	8 x 1 mm 1 x 2 mm
	12	12 x 1 mm
	16	16 x 1 mm
	17	17 x 1 mm
	19	16 x 1 mm 3 x 1,5 mm
	10 Housings and contacts 10-pole, see chapter „M 23 Power, M 23 Hybrid“, page 130 – 136	

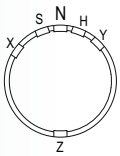
For the M23 crimp insert with 1 mm contacts can be used stamped crimp contact.

▶ 102/103

Coding



Female Inserts mating view



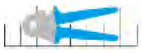
Male Inserts mating view

Number of Poles	Coding Possibilities
6-pole	N, S, H, X, Y and Z
7-pole	N, S, H, X and Y
9-pole	N, S, H, X and Y
12-pole	N, S, H, X, Y and Z
16-pole	N, S, H, X, Y and Z
17-pole	N, S, H, X, Y and Z
19-pole	N, S, H, X and Y

As standard, coding groove N is opened. To use other codings, please remove the coding barrier.

Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 1 mm, machined	0,08 – 0,56 mm² (AWG 28 – 20)	7.010.901.031
	Crimp pin 1 mm, machined	0,14 – 1 mm² (AWG 26 – 17)	7.010.901.001
	Crimp pin 1 mm, machined	0,75 – 1,5 mm² (AWG 17 – 16)	7.010.901.021
	Crimp socket 1 mm, machined	0,08 – 0,56 mm² (AWG 28 – 20)	7.010.901.012
	Crimp socket 1 mm, machined	0,34 – 1 mm² (AWG 22 – 17)	7.010.901.002
	Crimp socket 1 mm, machined	0,75 – 1,5 mm² (AWG 17 – 16)	7.010.901.022
	Crimp pin 1 mm, stamped	0,14 – 0,56 mm² (AWG 26 – 20)	upon request
	Crimp socket 1 mm, stamped	0,14 – 0,56 mm² (AWG 26 – 20)	upon request
	Crimp pin 1,5 mm, machined	0,14 – 1 mm² (AWG 26 – 17)	7.010.901.501
	Crimp socket 1,5 mm, machined	0,14 – 0,56 mm² (AWG 26 – 20)	7.010.901.512
	Crimp socket 1,5 mm, machined	0,56 – 1 mm² (AWG 20 – 17)	7.010.901.502



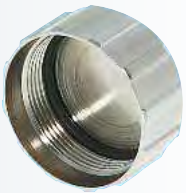
▶ 106

Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 2 mm, machined	0,75 – 2,5 mm² (AWG 18 – 14)	7.010.902.001
	Crimp socket 2 mm, machined	0,75 – 2,5 mm² (AWG 18 – 14)	7.010.902.002

▶ 106

Accessories

Accessories	Type	Part Number
	**Plastic protective cap** for connectors with **male thread** with **female thread**	 7.000.900.101 7.000.900.102
	**Brass protective cap** for connectors with **female thread**	7.010.900.103 [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 mm Length 100 mm	 7.010.9S0.703 [1] 7.010.9S1.003 [1]
	**Brass protective cap with chain** for connectors with **male thread** Length 70 mm Length 100 mm	 7.010.9S0.702 7.010.9S1.002
	**Assembly tool**	7.010.900.101
	**Crimp tool** for manual crimping of machined crimp contacts for signal connectors	 7.000.900.904

▶ 106/107 ▶ 108

[1] no compatibility with TWILOCK

Accessories	Type	Part Number
	**Adaptor flange** for Straight Connectors	7.010.900.128 [1]
	**Conduit adaptor** Poleon DN 12 Poleon DN 14 Poleon DN 17	 7.010.900.205 7.010.900.207 7.010.900.209
	**Positioner for Crimp Tool** DMC M22520	7.000.900.DMC
	**Locator for Crimp Tool** DMC M22520 with positioner **For HUMMEL Contact:** 7.010.901.001, 7.010.901.501, 7.010.902.001, 7.010.901.031 **Locator for Crimp Tool** DMC M22520 with positioner **For HUMMEL Contact:** 7.010.901.012, 7.010.901.002, 7.010.901.512, 7.010.901.502, 7.010.902.002	7.000.9DM.C03 7.000.9DM.C04
	**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 **Crimping machine** crimping machine to process turned contacts	 on request on request

[1] no compatibility with TWILOCK

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
7.010.901.001	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	
		1,00	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	
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	
		1,00	AWG 17	0,95	
7.010.901.501	Crimp pin 1,5 mm	0,14	AWG 26	0,65	3
		0,25	AWG 24	0,68	
		0,34	AWG 22	0,72	
		0,56	AWG 20	0,81	
		0,75	AWG 18	0,95	
		1,00	AWG 17	1,07	
7.010.901.512	Crimp socket 1,5 mm (0,14 – 0,56 mm^2)	0,14	AWG 26	0,70	2
		0,25	AWG 24	0,73	
		0,34	AWG 22	0,77	
		0,56	AWG 20	0,85	
7.010.901.502	Crimp socket 1,5 mm (0,34 – 1 mm^2)	0,34	AWG 22	0,88	2
		0,56	AWG 20	0,95	
		0,75	AWG 18	1,05	
		1,0	AWG 17	1,13	
7.010.902.001	Crimp pin 2 mm	0,75	AWG 18	1,25	4
		1,0	AWG 17	1,35	
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	
7.010.902.002	Crimp socket 2 mm	0,75	AWG 18	1,25	5
		1,0	AWG 17	1,35	
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	

▶ 116

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 (mm²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.031	Crimp pin 1 mm	0,08	28	0,72	1
		0,14	26	0,78	
		0,25	24	0,82	
		0,34	22	0,86	
		0,56	20	0,90	
7.010.901.021	Crimp pin 1 mm	0,75	18	0,80	1
		1,00	17	0,86	
		1,50	16	0,95	
7.010.901.022	Crimp socket 1 mm	0,75	18	0,80	2
		1,00	17	0,86	
		1,50	16	0,95	

▶ 116

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

Crimp Tool for Signal Connectors M 23 / M 16

Crimp Tool

Type	Part Number
Crimp Tool	7.000.900.904 / 7.000.900.907

Application
The four indent crimp tool 7.000.900.904 / 7.000.900.907 has been developed for optimal crimping of machined contacts with diameters from 0.08 to 2.5 mm² (28 through 14 AWG).

How to Crimp
The reference table (S. 71 / 106) 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.

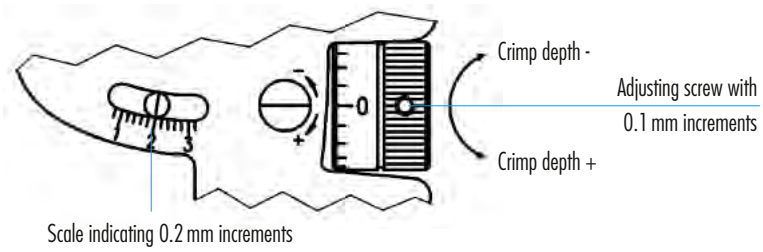
Exchange of the Locator
The locator can be exchanged by removing the socket head cap screw with a socket wrench. It can then be disassembled from the hex head screw by turning it counter-clockwise.

Crimp Tool for Signal Connectors M 23 / M 16

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 ≙ adjustment 1/100 mm
// 1 full rotation of adjusting screw ≙ adjustment by 0.2 mm (indication on the screw as well as on the rough scale)
// 5 rotations of the adjusting screw ≙ 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 1.0 mm Ø wire gauge as follows. A crimp depth of 1.0 mm is set by means of the adjusting screw (scale mark at „1", 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.

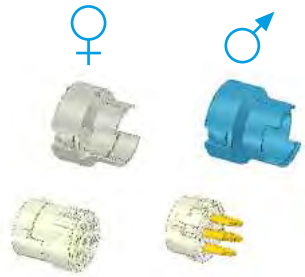
Maintenance and Repair
Keep the tool clean and properly stored when not in service. All pivot points need to be oiled regularly and the spring clips securing the bolts have to always be in place. For repair please send the tool back to the factory.

M 23 SIGNAL

Assembly Instructions

Straight Connector, Male / Female Thread

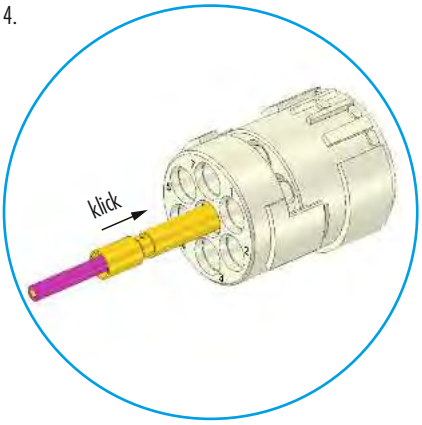
1.



2.

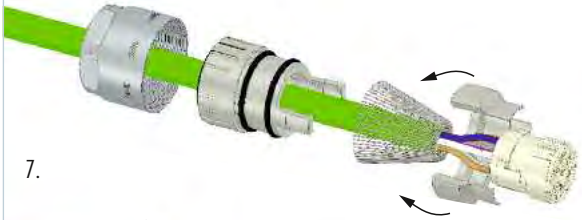
3.

4.



5.

6.



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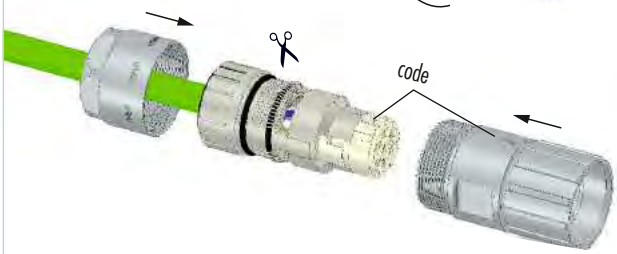
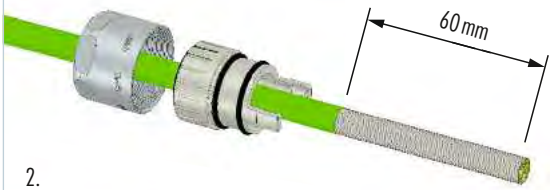


8.

Assembly Instructions

Right Angle Connectors, EMC

1.



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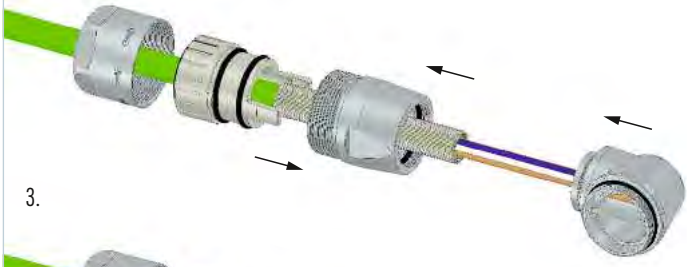
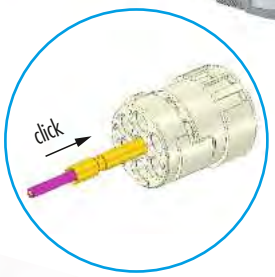


3.

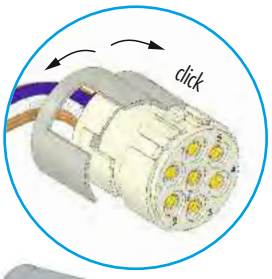
4.

5.



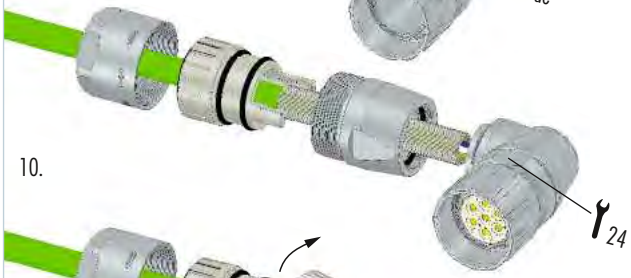
6.

7.



8.

9.



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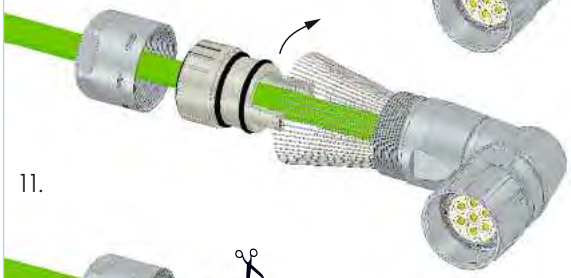
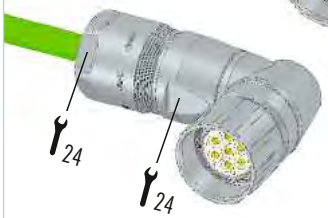


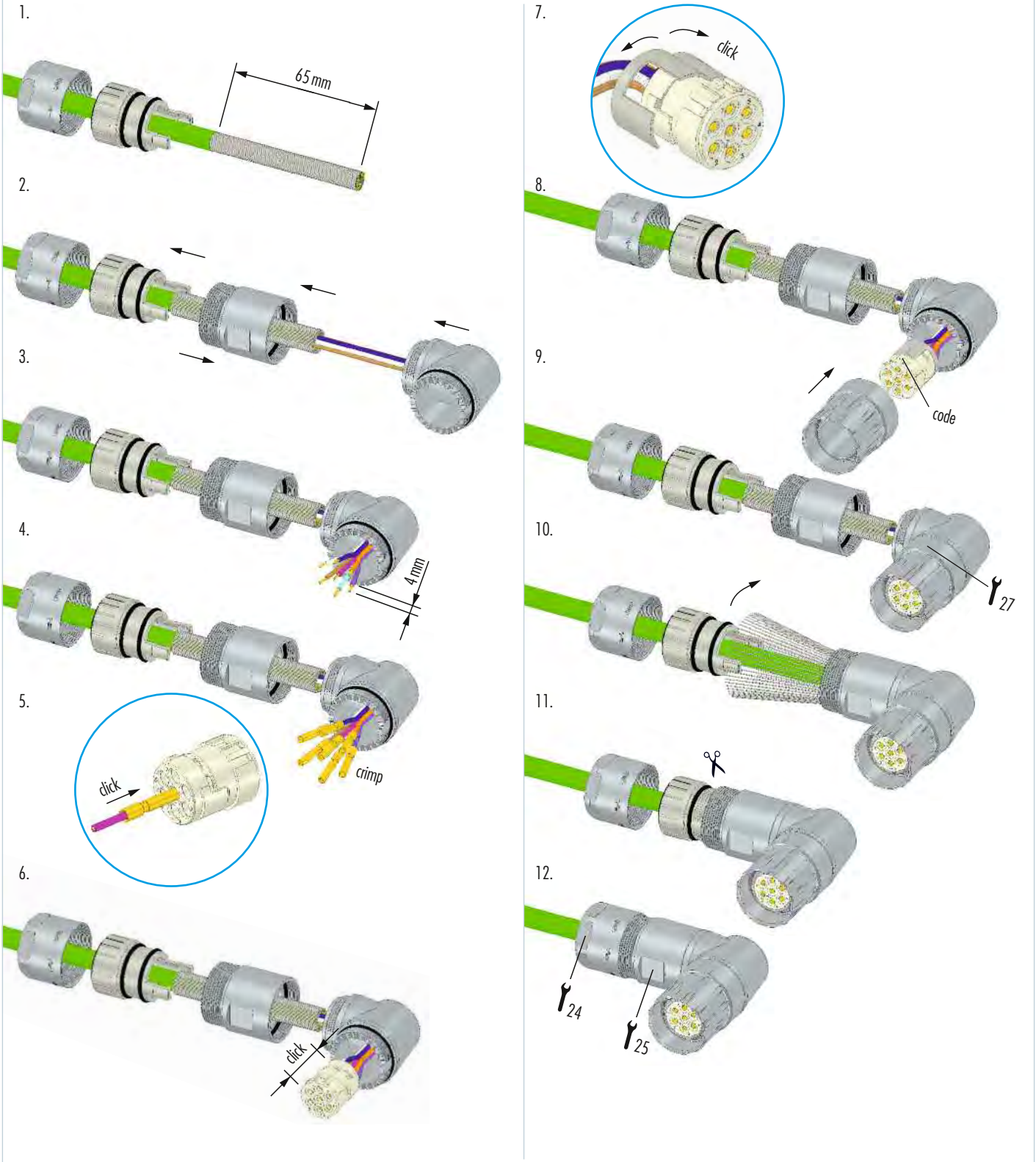
11.

12.



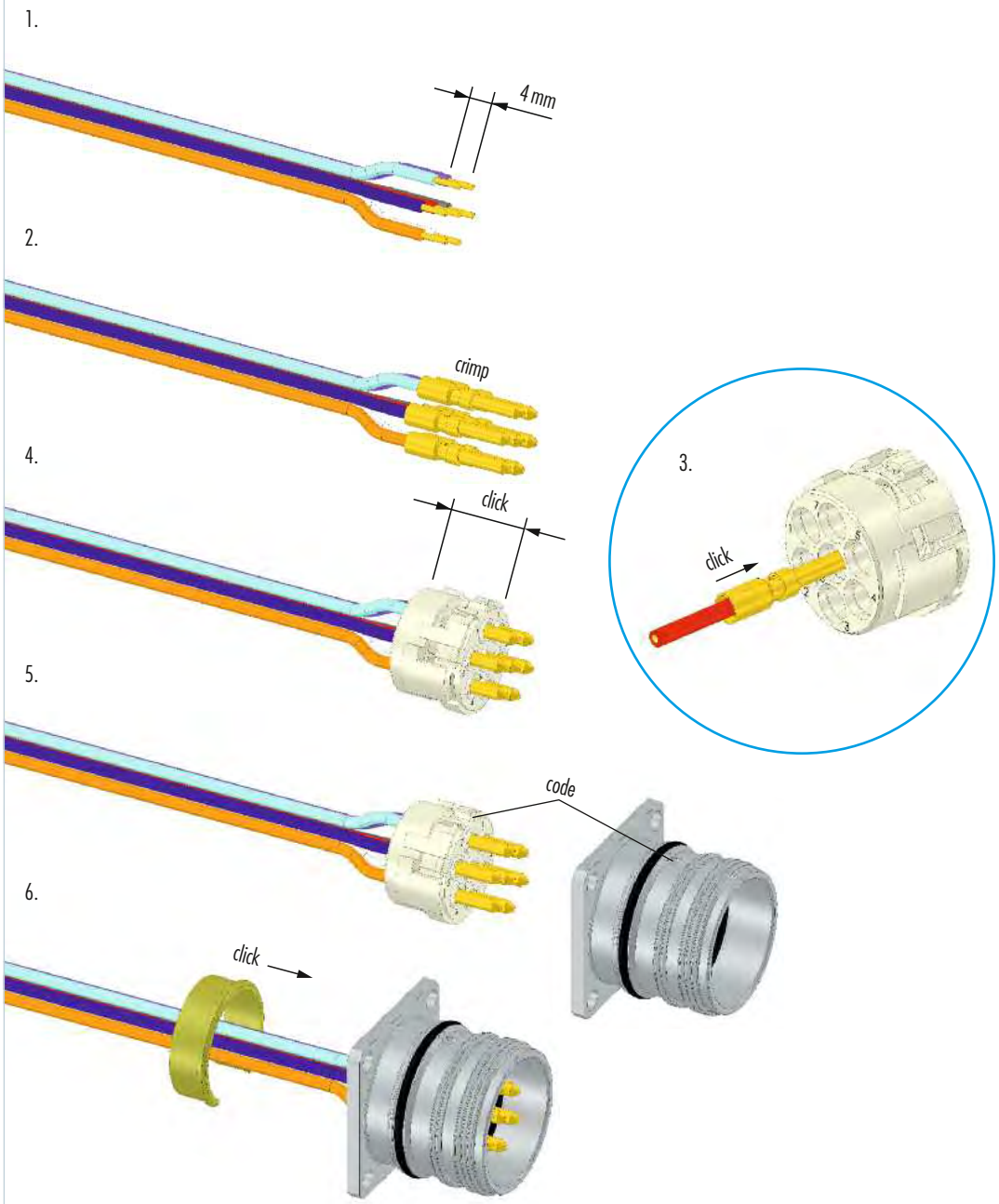
Assembly Instructions

Right Angle Connector, rotatable, EMC



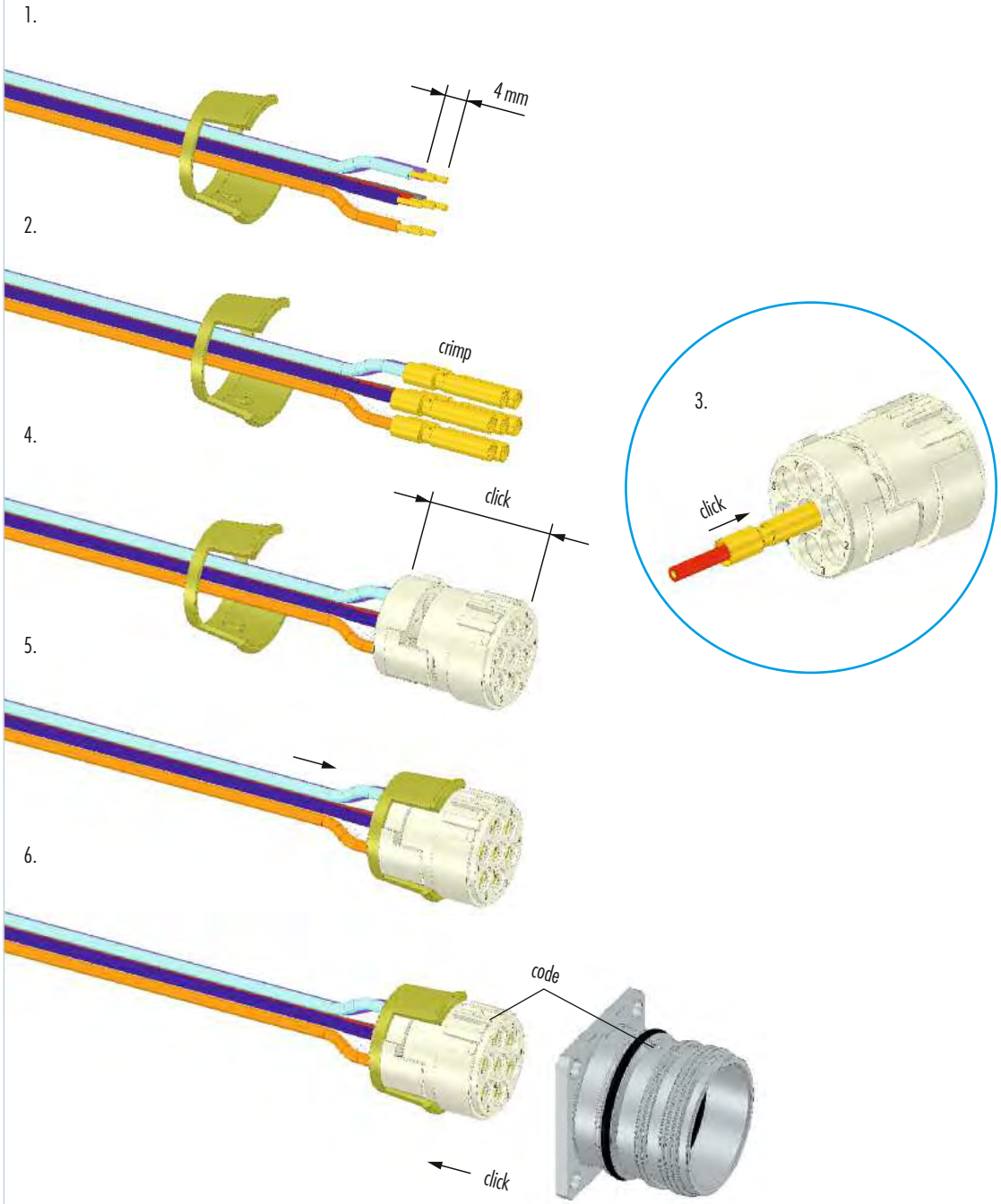
Assembly Instructions

Panel Connectors, Male Inserts



Assembly Instructions

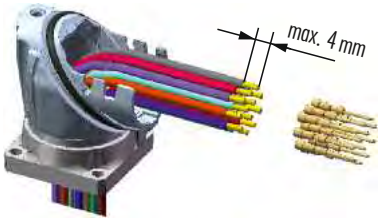
Panel Connectors, Female Inserts



Assembly Instructions

Right Angle Panel Connector

1.



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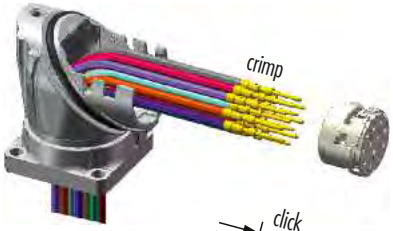

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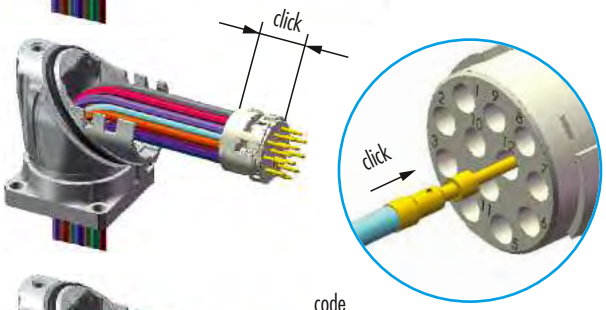

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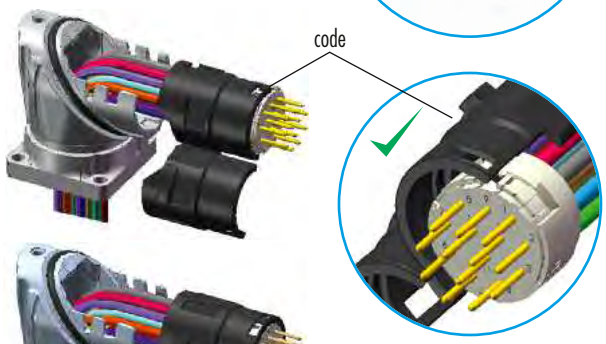


5.

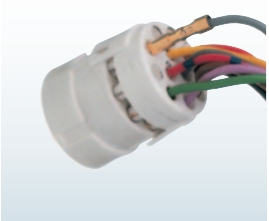
6.

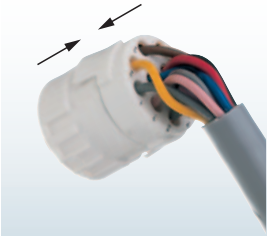
7.

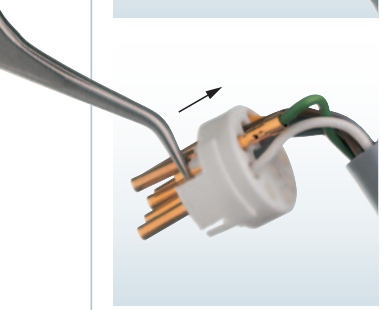
8.

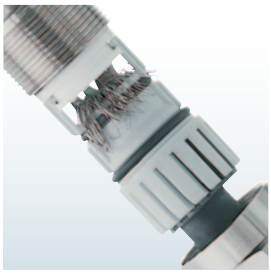
⚠ Bei Verwendung von TWILOCK-S oder Speedtec Stecker bitte O-Ring demontieren.

Crimping, Assembly and Disassembly of Contacts









Crimping

// Remove conductor insulation 4 mm (.16") max.
// Select appropriate Crimp tool setting
// Insert Crimp contact into the positioner of the tool
// Insert stripped end of conductor into the crimp opening of the contact
// Squeeze handles of crimp tool together

Assembly

// Open crimping jaws and remove contact
// Pry open upper and lower insert approx. 3 mm (1/8") apart as shown
// Insert the contact and conductor assembly into the desired location
// Press upper and lower insert parts together

Interlock Contacts

// press the upper and lower part of the insulator together

Disassembly

No special tools are needed to remove the crimp contacts from the insert.

// Remove upper part of insert
// With a pair of needle nose pliers, wiggle the contact and push it back through the lower part of insert
// Insert contacts into new location and push until it snaps in position
// Align the nose and groove of the upper and lower part of insert and press together

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.

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

M 23 POWER, M 23 HYBRID

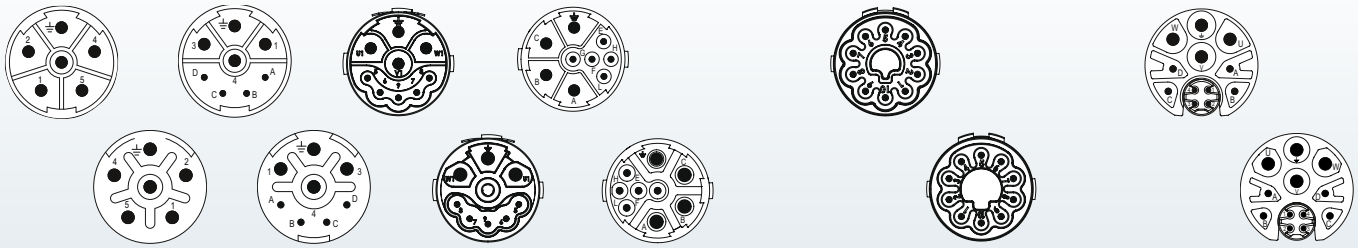
Product overview

Housings

▶ 130

Inserts

▶ 135



Accessories

▶ 137

M 23 POWER, M 23 HYBRID

Technical Data

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

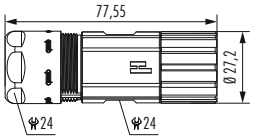
Number of positions	5 + PE	4 + 3 + PE		5 + 3 + PE		10
Number of contacts	6	4	4	5	4	10
Contact-Ø [mm]	2	1	2	1	2	1
Nominal current [1] [A]	28	8	28	10	28	10
Nominal voltage [2] [V~] Degree of Protection 3 [3]	600	300	600	250	600	160
Test voltage (Breakdown voltage) [4] [V~]	4000	2500	4000	2500	4000	2500
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 [mm²]	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

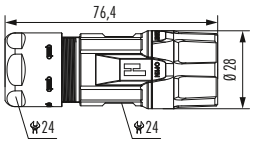
Straight Connector, Female Thread



Cable-Ø	Part Number
7 – 12 mm (.27 – .47")	7.550.500.000
11 – 17 mm (.43 – .67")	7.550.600.000

▶ 135 ▶ 137 ▶ 142/143

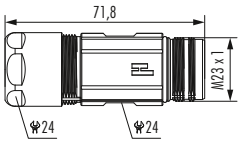
Straight Connector, Female Thread TWILOCK / TWILOCK-S *



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

▶ 135 ▶ 137 ▶ 142/143

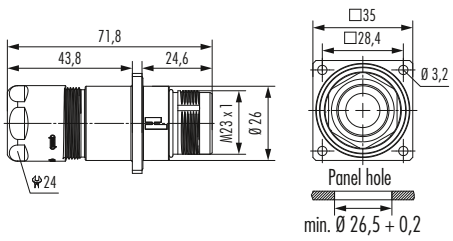
Straight Connector, Male Thread TWILOCK / TWILOCK-S *



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

▶ 135 ▶ 137 ▶ 142/143

Panel Connector, Male Thread, with Strain Relief

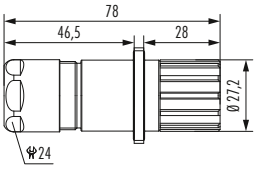


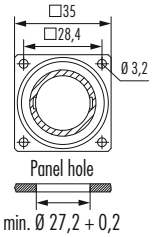
Cable-Ø	Part Number
4 holes Ø 3,2 mm (.13"), front or rear mounting	
7 – 12 mm (.27 – .47")	7.683.500.000
11 – 17 mm (.43 – .67")	7.683.600.000

▶ 135 ▶ 137 ▶ 142/143

Housing without inserts and contacts

Panel Connector, Female Thread, with Strain Relief

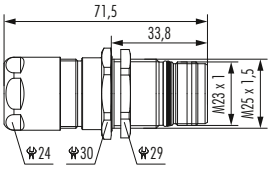


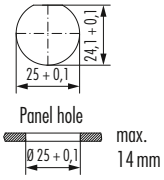


Cable-Ø	Part Number
4 holes Ø 3,2 mm (.13"), front or rear mounting	
7 – 12 mm (.27 – .47")	7.681.500.000
11 – 17 mm (.43 – .67")	7.681.600.000

▶ 135 ▶ 137 ▶ 142/143[1]

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



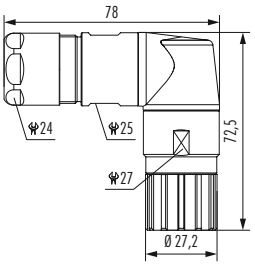


Cable-Ø	Part Number
Single hole mounted, rear mounting, thread M 25 x 1,5	
7 – 12 mm (.27 – .47")	7.653.500.000
11 – 17 mm (.43 – .67")	7.653.600.000
*** intermateable with Speedtec**	
7 – 12 mm (.27 – .47")	7.653.500.00S
11 – 17 mm (.43 – .67")	7.653.600.00S

Including jam nut M 25 x 1,5

▶ 135 ▶ 137 ▶ 142/143[1]

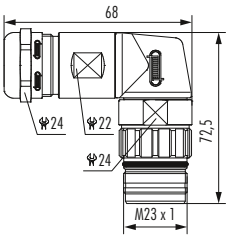
Right Angle Connector, Female Thread, rotatable



Cable-Ø	Part Number
7 – 12 mm (.27 – .47")	7.576.500.000
11 – 17 mm (.43 – .67")	7.576.600.000

▶ 135 ▶ 137 ▶ 146

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]

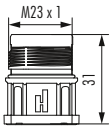
▶ 135 ▶ 137 ▶ 146

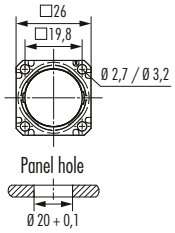
Housing without inserts and contacts

[1] no compatibility with TWILOCK

Housings

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

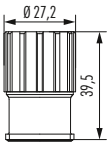


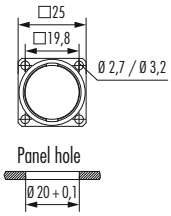


Type	Part Number
4 holes Ø 3,2 mm (.13")	7.601.000.000
4 holes Ø 2,7 mm (.11")	7.605.000.000
* intermateable with Speedtec	
4 x holes 3,2 mm, Flange 25x25	7.601.000.00S
4 x holes 3,2 mm, Flange 28x28	7.601.100.00S

▶ 135 ▶ 137 ▶ 147

Panel Connector with knurled Nut, Front Mounting

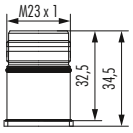


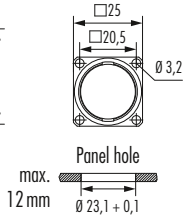


Type	Part Number
4 holes Ø 3,2 mm (.13")	7.641.000.000
4 holes Ø 2,7 mm (.11")	7.645.000.000

▶ 135 ▶ 137 ▶ 147

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]

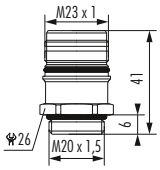
▶ 135 ▶ 137 ▶ 147

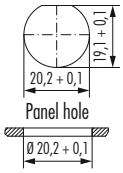
Housing without inserts and contacts

[1] No compatibility with TWILOCK

Housings

Panel Connector, Male Thread, Single Hole Mounted

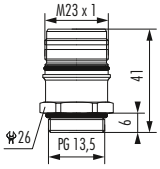


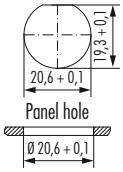


Type	Part Number
Front mounting Thread M 20 x1,5	7.621.000.000 [1]
Option: jam nut M 20 x 1,5	

▶ 135 ▶ 137 ▶ 148

Panel Connector, Male Thread, Single Hole Mounted

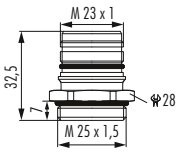


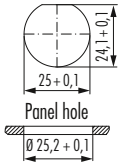


Type	Part Number
Front mounting Thread PG 13,5	7.623.000.000 [1]
Option: jam nut PG 13,5	

▶ 135 ▶ 137 ▶ 148

Panel Connector, Male Thread, Single Hole Mounted

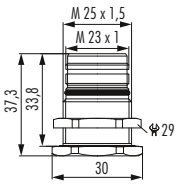


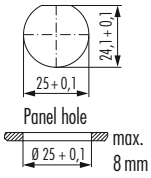


Type	Part Number
Front mounting Thread M 25x1,5	7.626.000.000
Option: jam nut M 25 x 1,5	

▶ 135 ▶ 137 ▶ 148

Panel Connector, Male Thread, Single Hole Mounted





Type	Part Number
Rear mounting Thread M 25 x 1,5	7.651.000.000
Including jam nut M 25 x 1,5	

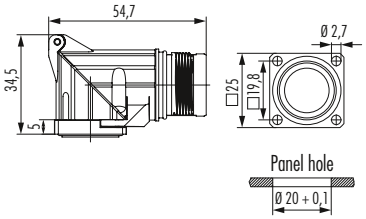
▶ 135 ▶ 137 ▶ 148

Housing without inserts and contacts

[1] No compatibility with TWILOCK

Housings

Right Angle Panel Connector, Male Thread



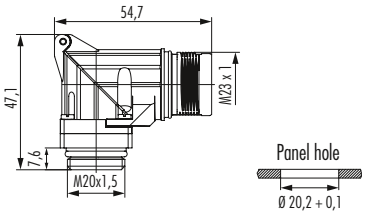
Type	Part Number
4 holes Ø 2,7 mm (.11")	7.635.000.000

Optional: Flat gasket

Easy fastening with M 2,5 x 10 mm or 4 x .39" long screws

▶ 135 ▶ 137 ▶ 149

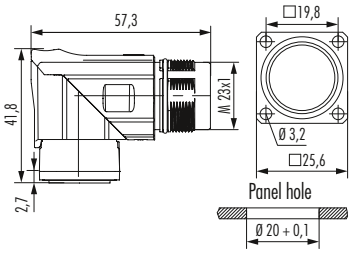
Right Angle Panel Connector, Male Thread, rotatable



Type	Part Number
335° rotatable, single hole mounted	
Thread M 20 x 1,5	7.636.000.000

▶ 135 ▶ 137 ▶ 149

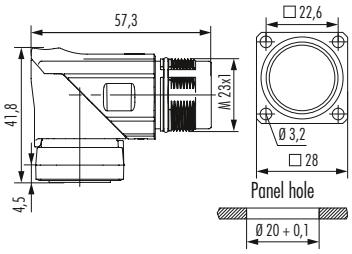
Right Angle Panel Connector, Male Thread, rotatable TWILOCK / TWILOCK-S *



Type	Part Number
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")	7.639.000.00S
Flange 25 x 25 mm	

▶ 135 ▶ 137 ▶ 150/151

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

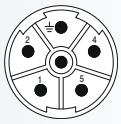
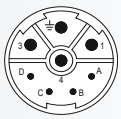
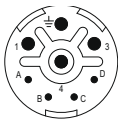
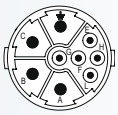
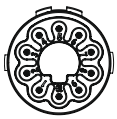


Type	Part Number
330° rotatable, single hole mounted	
4 x holes 3,2 mm (.13")	7.639.100.000
Flange 28 x 28 mm	
* **intermateable with Speedtec**	
4 x holes 3,2 mm (.13")	7.639.100.00S
Flange 28 x 28 mm	

▶ 135 ▶ 137 ▶ 150/151

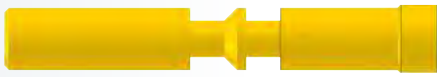
Housing without inserts and contacts

Required 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 mm² (AWG28 – AWG 22)	7.010.980.641
	Crimp socket 0,6 mm, machined [1]	0,08 – 0,34 mm² (AWG28 – AWG 22)	7.010.980.602
	Crimp pin 1 mm, machined [2]	0,14 – 1 mm² (AWG 26 – 17)	7.010.941.001
	Crimp pin 1 mm, machined [2]	0,75 – 1,5 mm² (AWG 18 – 16)	7.010.941.021
	Crimp socket 1 mm, machined [2]	0,14 – 1 mm² (AWG 26 – 17)	7.010.941.002
	Crimp socket 1 mm, machined [2]	0,75 – 1,5 mm² (AWG 18 – 16)	7.010.941.022
	Crimp pin 2 mm, machined [2]	0,75 – 2,5 mm² (AWG 18 – 14)	7.010.942.001
	Crimp pin 2 mm, machined [2]	2,5 – 4 mm² (AWG 14 – 12)	7.010.942.011
	Crimp socket 2 mm, machined [2]	0,75 – 2,5 mm² (AWG 18 – 14)	7.010.942.002
	Crimp socket 2 mm, machined [2]	2,5 – 4 mm² (AWG 14 – 12)	7.010.942.012

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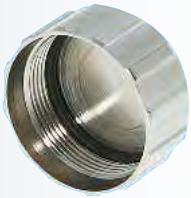
[1] passende Crimpzange 7.000.900.907, Crimpzangeneinstellung siehe Seite 71

[2] passende Crimpzange 7.000.900.901, Crimpzangeneinstellung siehe Seite 139

Accessories	Type	Part Number
	**Plastic protective cap** for connectors with **male thread** with **female thread**	 7.000.900.101 7.000.900.102
	**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 mm Length 100 mm	 7.010.9S0.783 [1] 7.010.9S1.083 [1]
	**Brass protective cap with chain** for connectors with **male thread** Length 70 mm Length 100 mm	 7.010.9S0.702 7.010.9S1.002
	**Crimp tool** for manual crimping of machined crimp contacts Works with contacts for power or signal	 7.000.900.901
	**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 Poleon DN 14 Poleon DN 17	 7.010.900.205 7.010.900.207 7.010.900.209
	**Positioner for Crimp Tool** DMC M22520	 7.000.900.DMC
	**Locator for Crimp Tool** DMC M22520 with positioner **For HUMMEL Contact:** 7.010.941.001, 7.010.942.001, 7.010.942.011 **Locator for Crimp Tool** DMC M22520 with positioner **For HUMMEL Contact:** 7.010.941.002, 7.010.942.002, 7.010.942.012	7.000.9DM.C06 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 **Crimping machine** crimping machine to process turned contacts	 on request on request

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

Part Number	Crimp Contact	Cross Section (mm²)	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

▶ 152

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

Crimp Tool for Power Connectors M 23

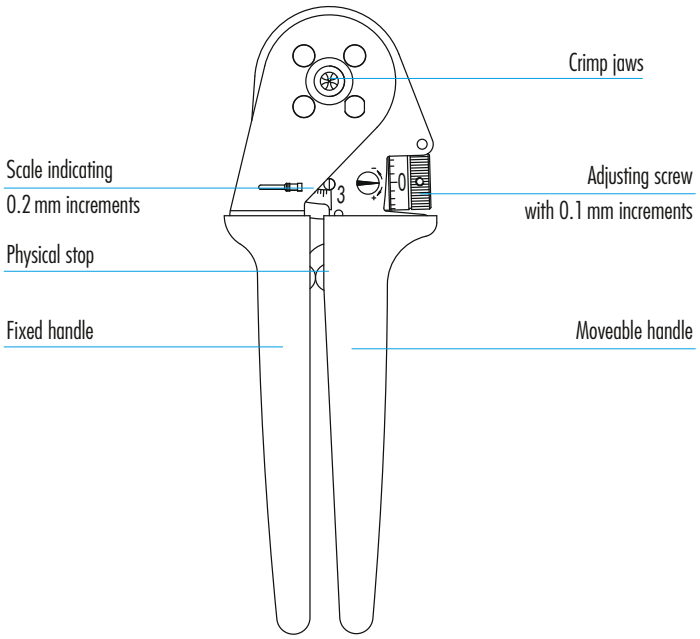
Crimp Tool

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.



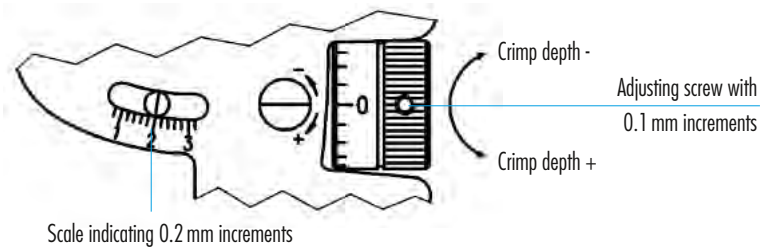
These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Crimp Tool for Power Connectors M 23

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 ≙ adjustment by 0.01 mm
// 1 full rotation of adjusting screw ≙ adjustment by 0.2 mm (indication on the screw as well as on the rough scale)
// 5 rotations of the adjusting screw ≙ 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 Ø 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

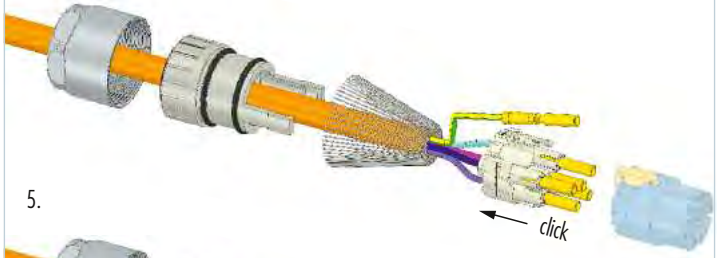
Straight Connector, Female Thread

1.

2.

3.

4.



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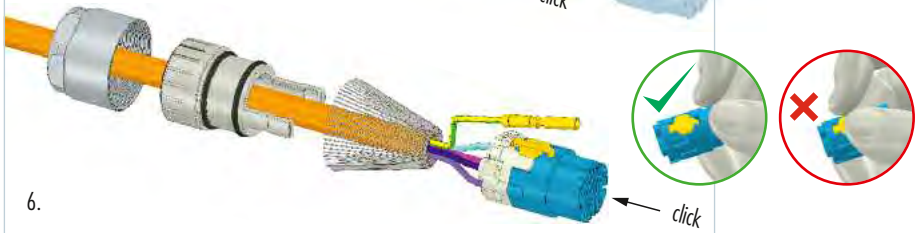

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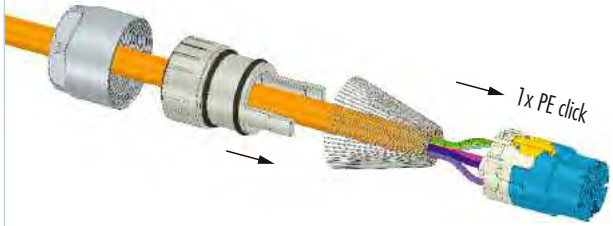

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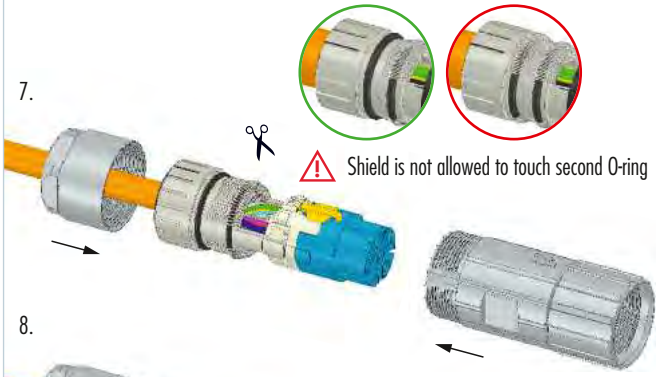

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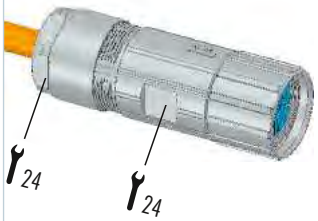


Straight Connector, Female Thread 4+3+PE / 5+3+PE

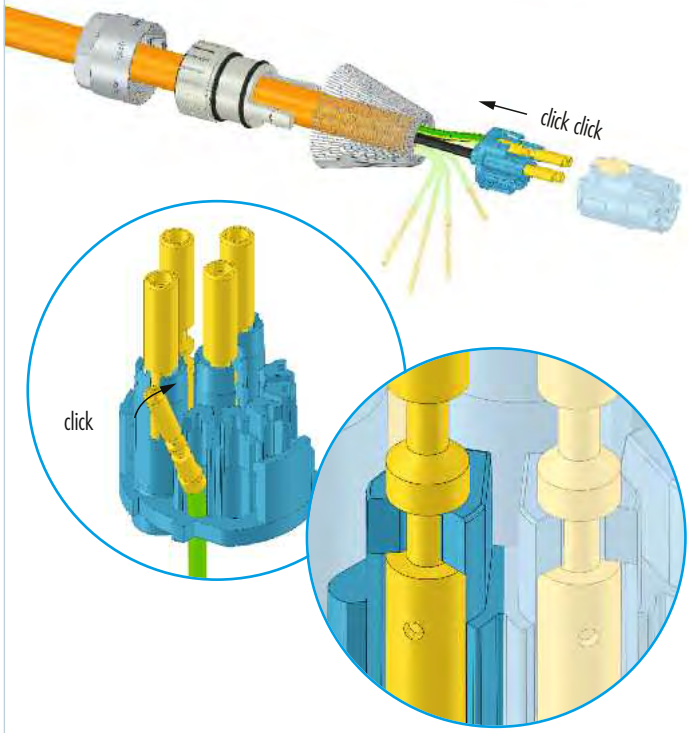
1.

2.

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

3.

4.



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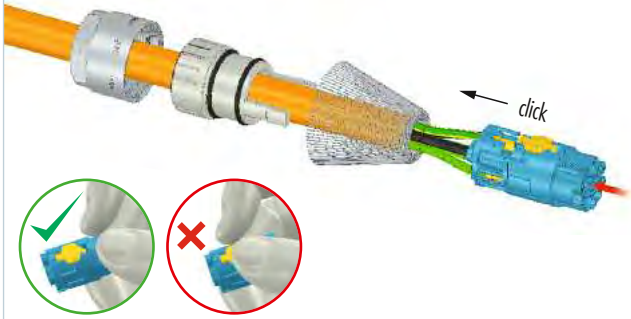
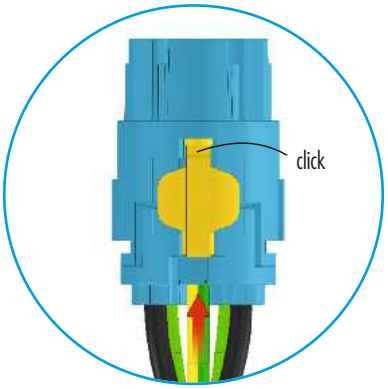


6.



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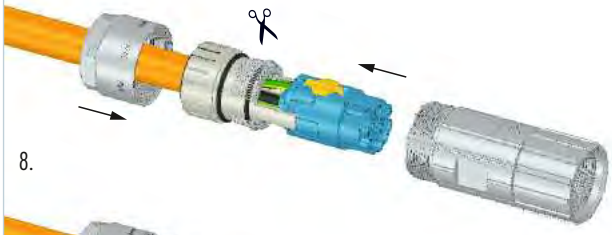

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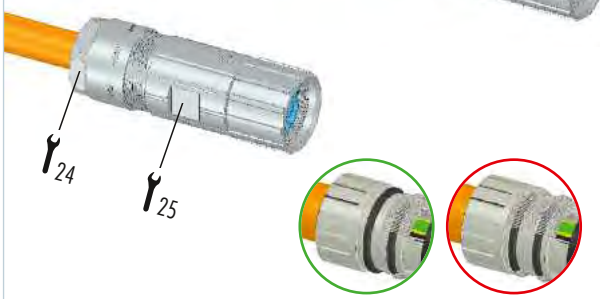


Shield is not allowed to touch second O-ring

M 23 POWER, M 23 HYBRID

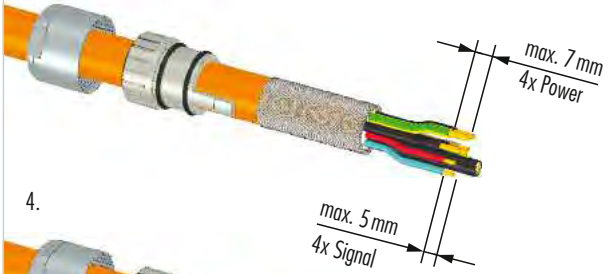
Assembly Instructions

Hybrid Connector

1.

2.

3.



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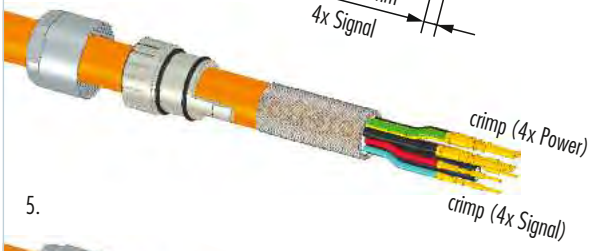

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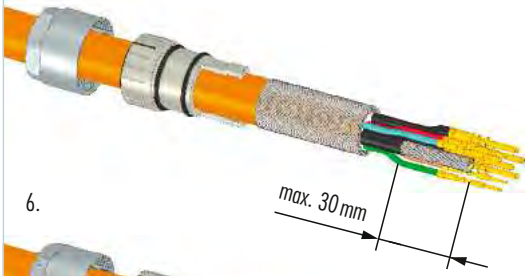

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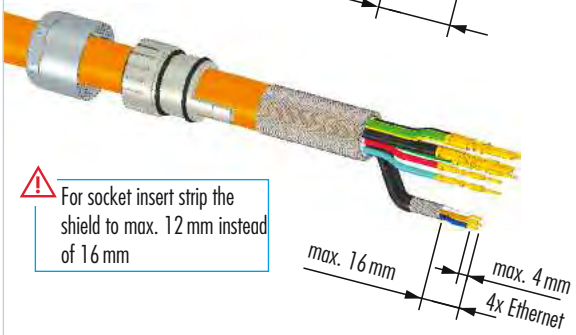
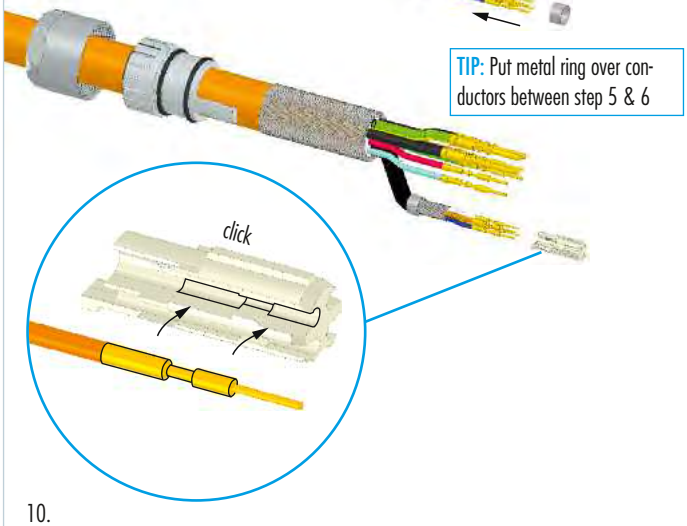


For socket insert strip the shield to max. 12 mm instead of 16 mm

7.

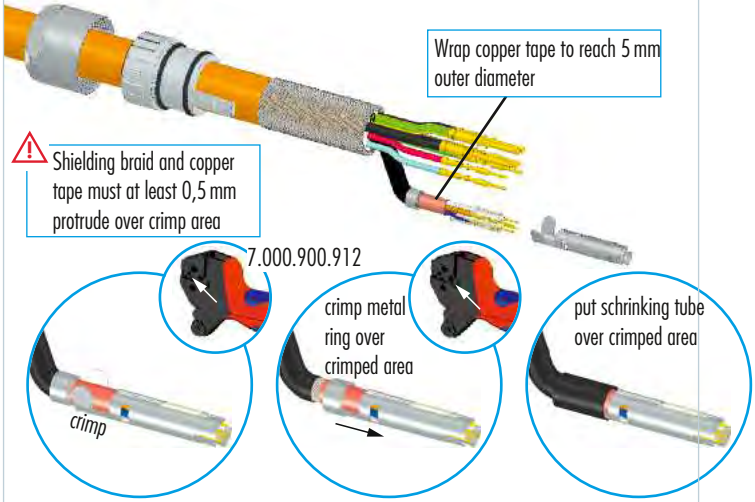
8.

9.



TIP: Put metal ring over conductors between step 5 & 6

10.

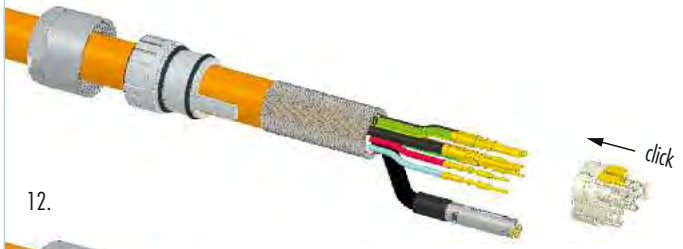


Wrap copper tape to reach 5 mm outer diameter

Shielding braid and copper tape must at least 0,5 mm protrude over crimp area

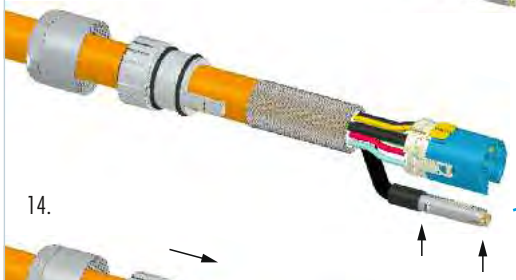
Hybrid Connector

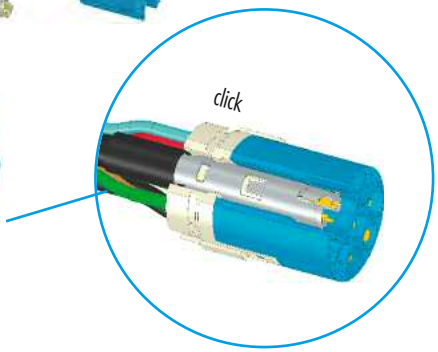
11.



12.

13.





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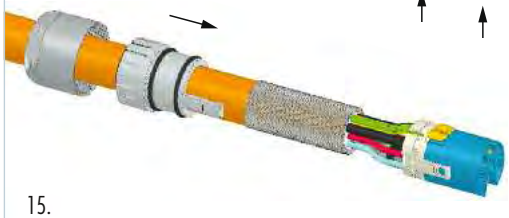

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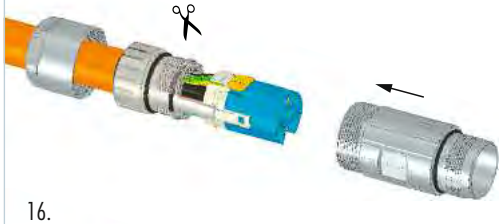
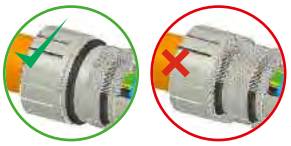
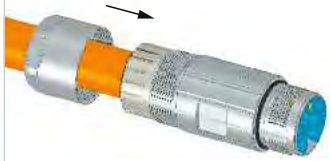




⚠ Make sure, that the braided shield doesn't contact the rear O-ring

16.

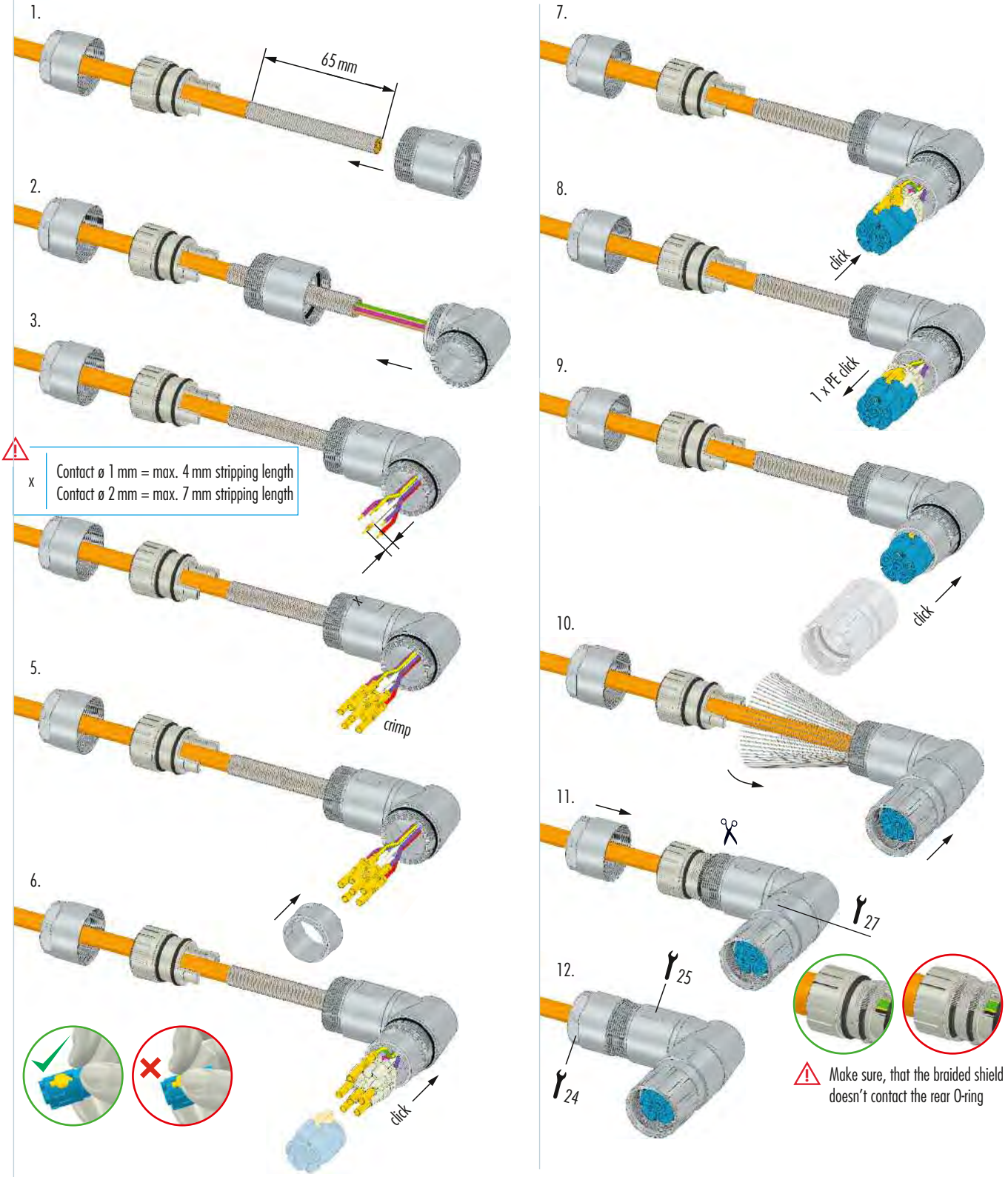


17.

M 23 POWER, M 23 HYBRID

Assembly Instructions

Right Angle Connector, rotatable

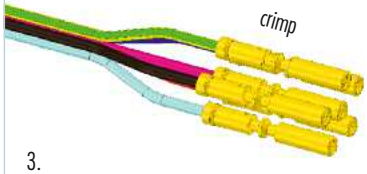


Panel Connector

1.

2.

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



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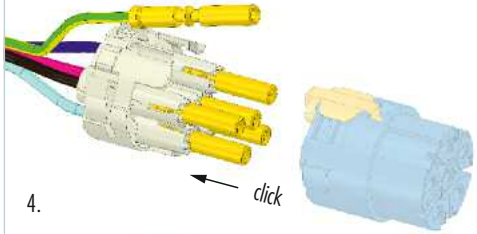

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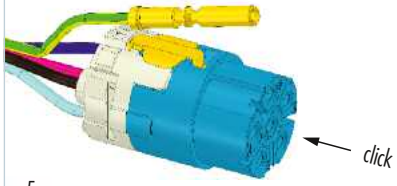

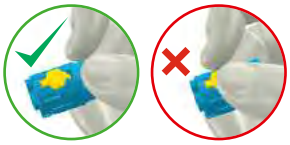

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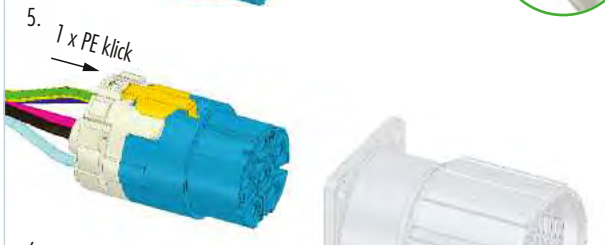

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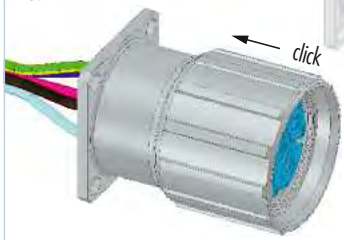


Assembly Instructions

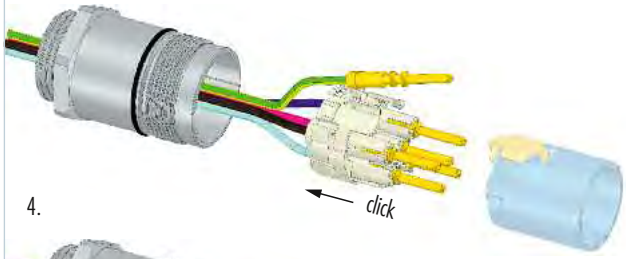
Panel Connector, Male Thread, Single Hole Mounted

1.

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

2.

3.



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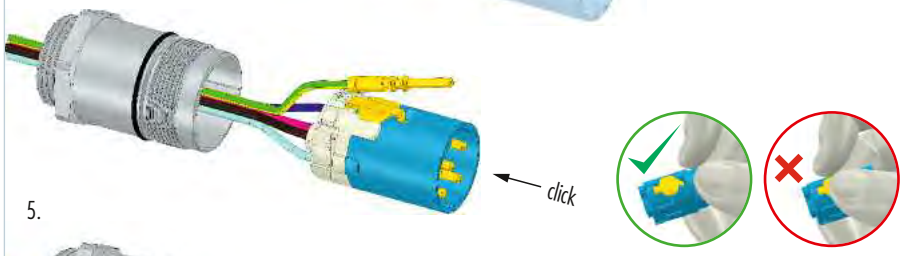

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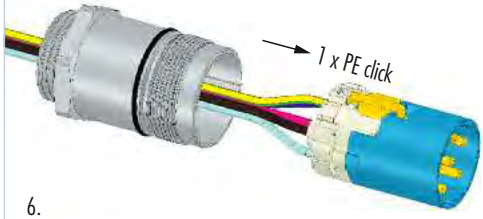


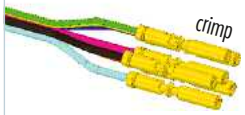
6.

Panel Connector, Male Thread

1.

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

2.



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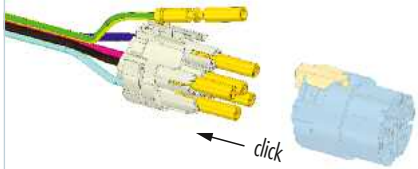

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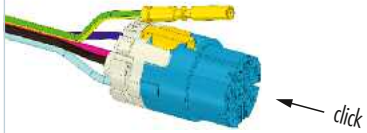

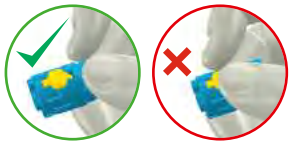

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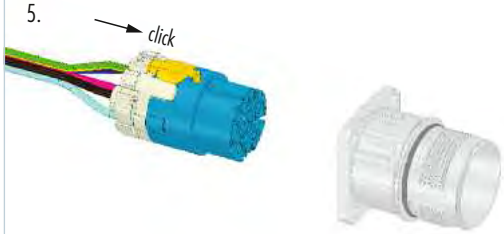


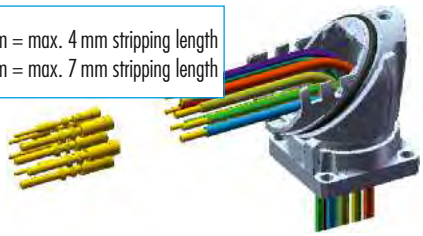
6.

Assembly Instructions

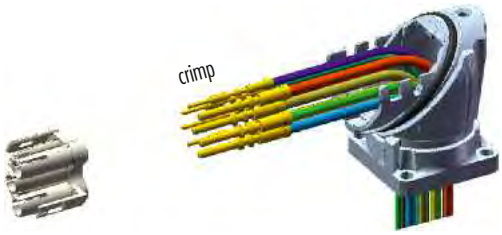
Right Angle Panel Connector TWILOCK-S

1.

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

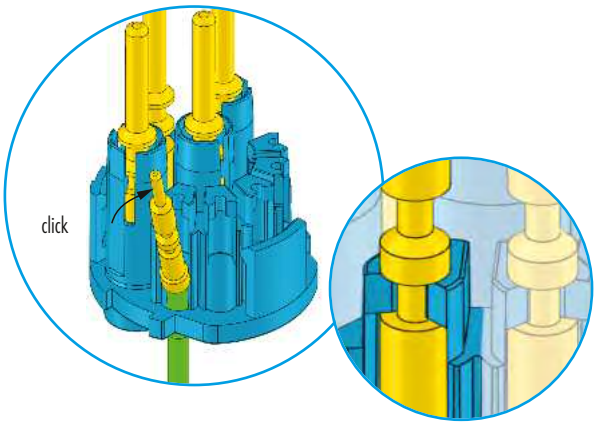


2.

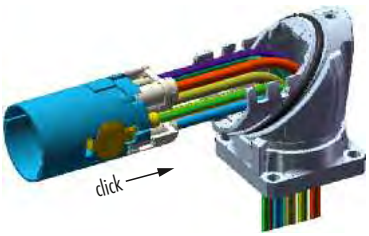


3.

4.



5.



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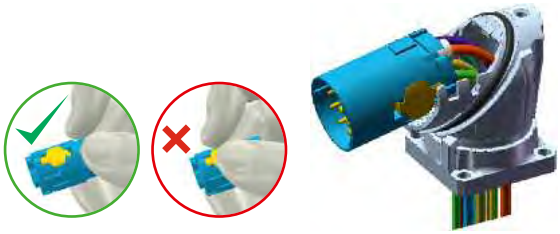

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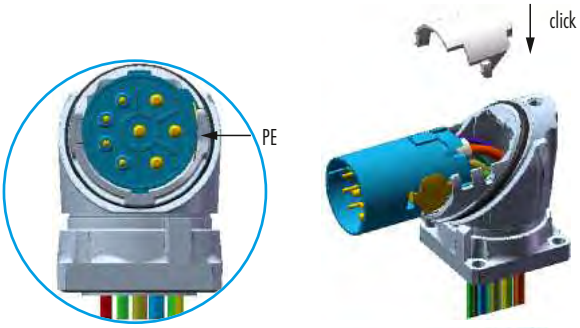


8.

9.

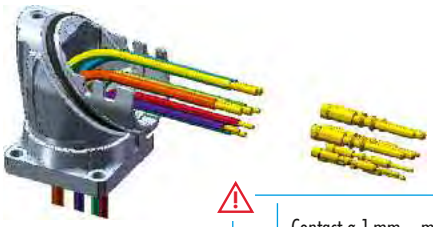
If using TWILOCK-S or Speedtec plug you have to remove O-Ring.

M 23 POWER, M 23 HYBRID

Assembly Instructions

Right Angle Panel Connector TWILOCK

1.



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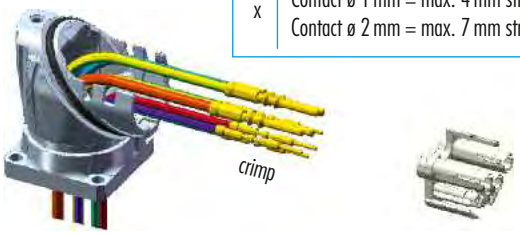
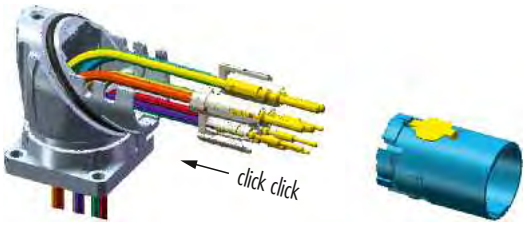
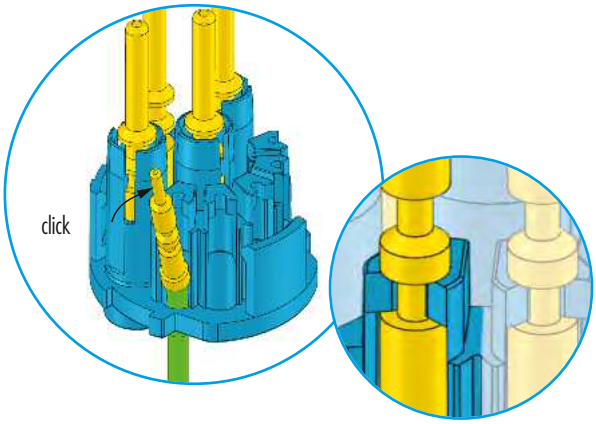


x Contact ø 1 mm = max. 4 mm stripping length
Contact ø 2 mm = max. 7 mm stripping length

3.





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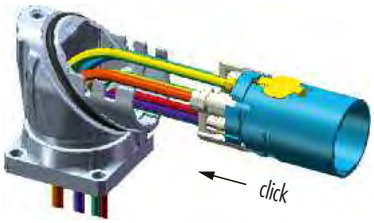

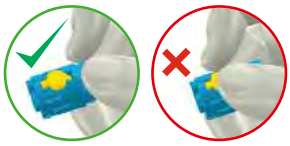

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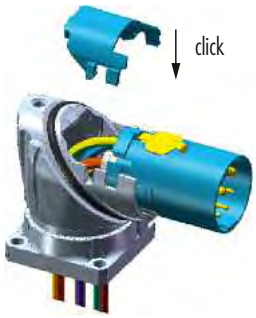

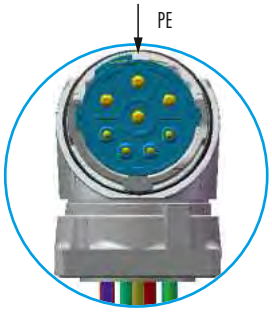

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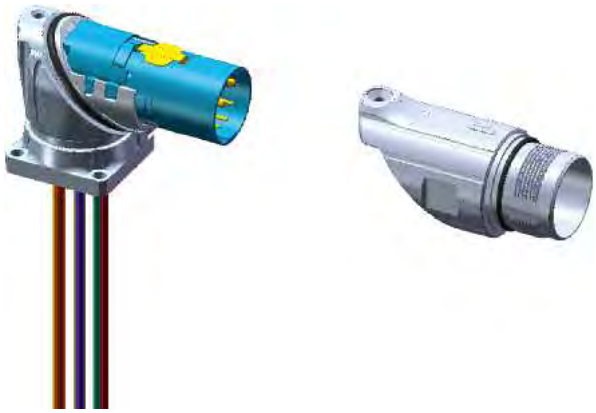
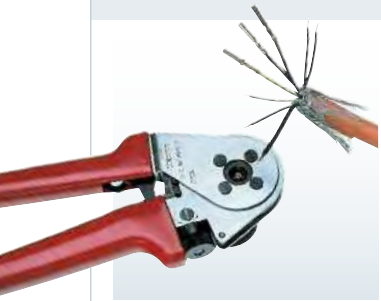


7.

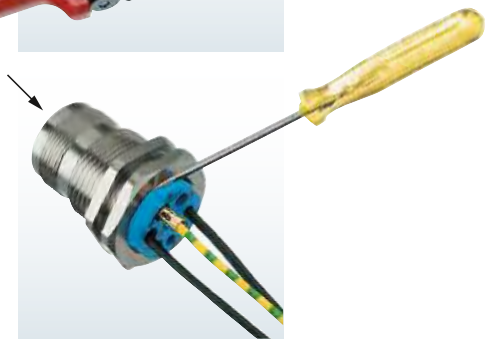
Crimping, Assembly and Disassembly of Contacts



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

By simultaneously pushing in the Push Insert tool on 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

Otherwise the assembly is not dust proof.

The twisting of the shield may not exceed to touch the second O-Ring.