HUMMEL

smart & reliable connections

CIRCULAR CONNECTORS

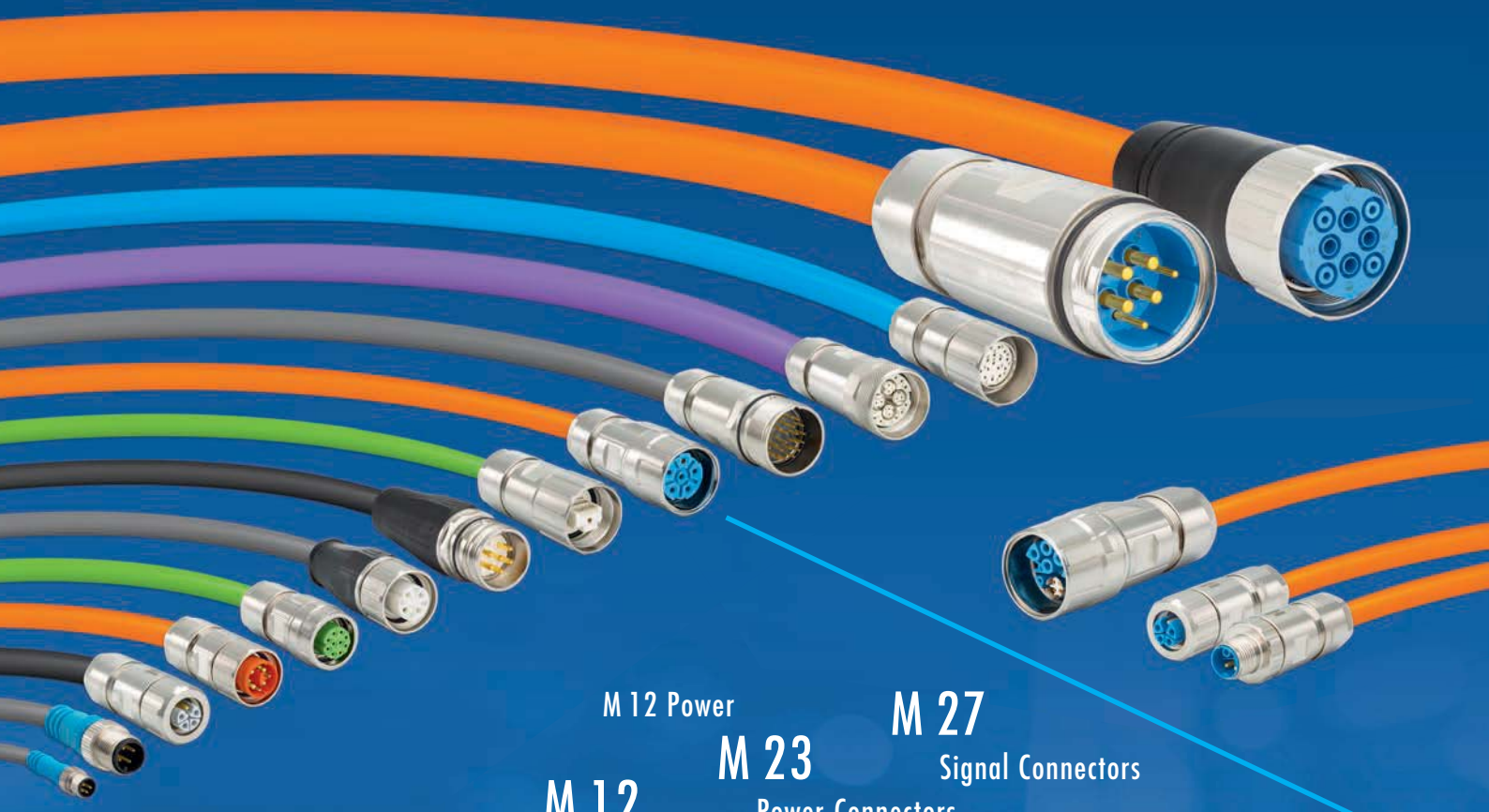
SIGNAL // POWER // INDUSTRIAL ETHERNET

HUMMEL – smart & reliable

HUMMEL AG is a renowned manufacturer of connection technology and components for electric, electronic and heating areas. The medium sized family business stands for quality, precision, reliability and pronounced service consciousness. A wide vertical range of manufacture with in-house development, construction, toolmaking, manufacturing, electroplating and assembling from a single source, offers best conditions for implementing individual solutions.

connections

HUGE RANGE: M 8 – M 40



M 12 Power

M 27
Signal Connectors

M 23
Power Connectors

M 12

CIRCULAR CONNECTORS

M 8
Industrial Ethernet

M 16
TWILOCK

PROFINET

M 23 RJ 45

Customized Solutions

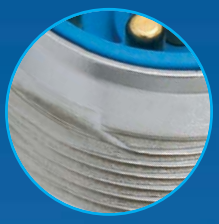
M 40
Moulded Cordsets

M 23 Hybrid

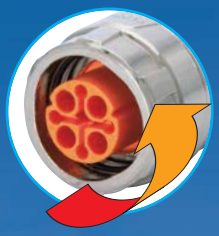
TWILOCK / TWILOCK-S

- // Quick Connect with patented Polygon Lock
- // Multi functional: Ideal with TWILOCK and screw connection
- // Easy handling, exceptional functionality
- // Resistant to vibration

Clearly defined:
OPEN – CLOSE



Multi functional: Special thread allows use of TWILOCK and screw connection



Locking with a slight rotation or release of the connection

TWILOCK-S-Version
Compatible to Speedtec

The new Low-Cost-Standard for Drives

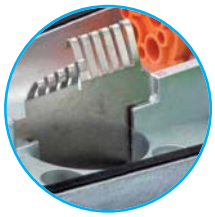
// Minimized Size
// Free choice of Signal and Power Inserts
// Flange 20 x 20 and 25 x 25

Connector 4 small drives

TWINTUS

Colour coded inserts
(DESINA colour code)

IP 67 (NEMA 4x) self sealing,
even for threaded holes

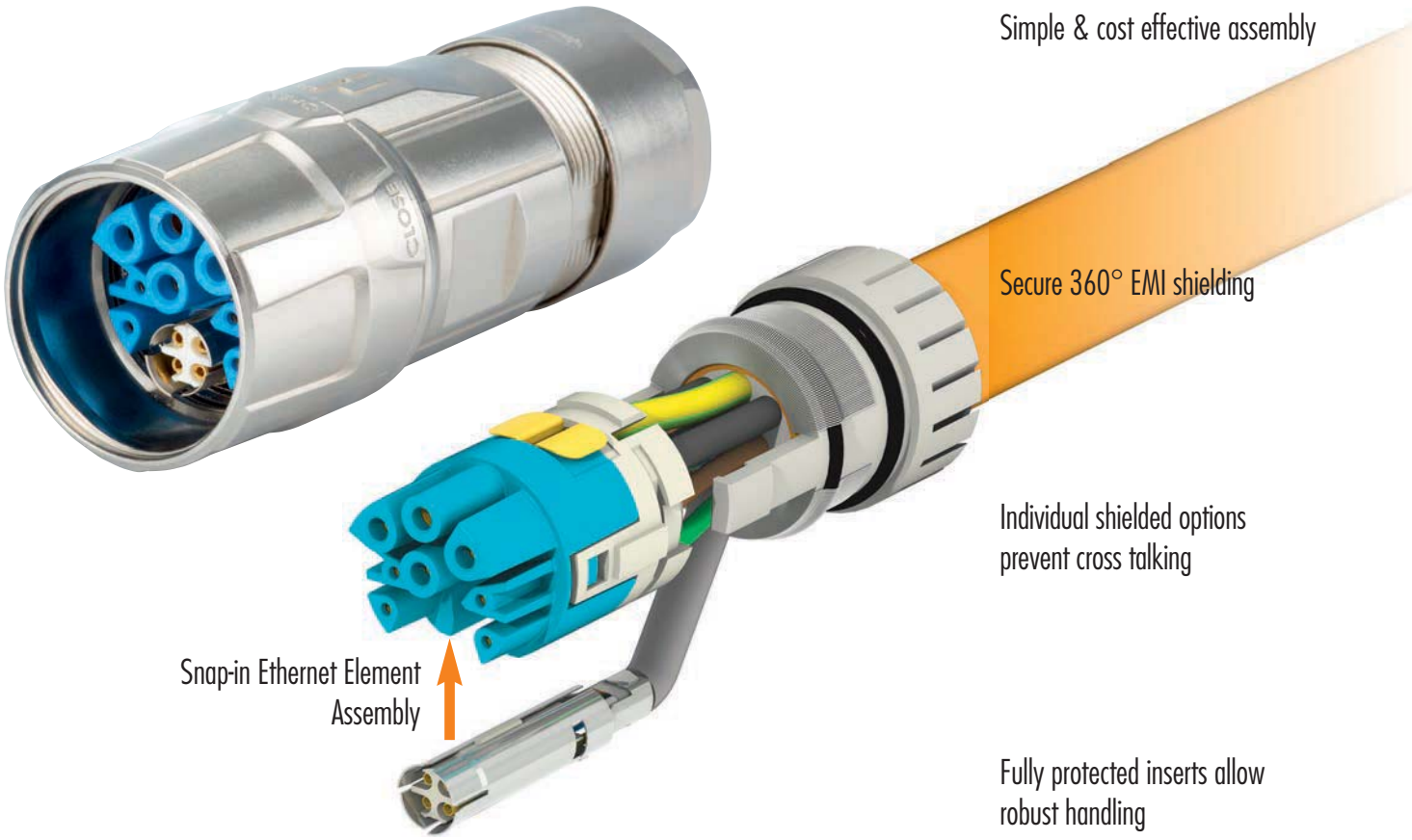


Optional EMC-sheet for separating
signal and power areas

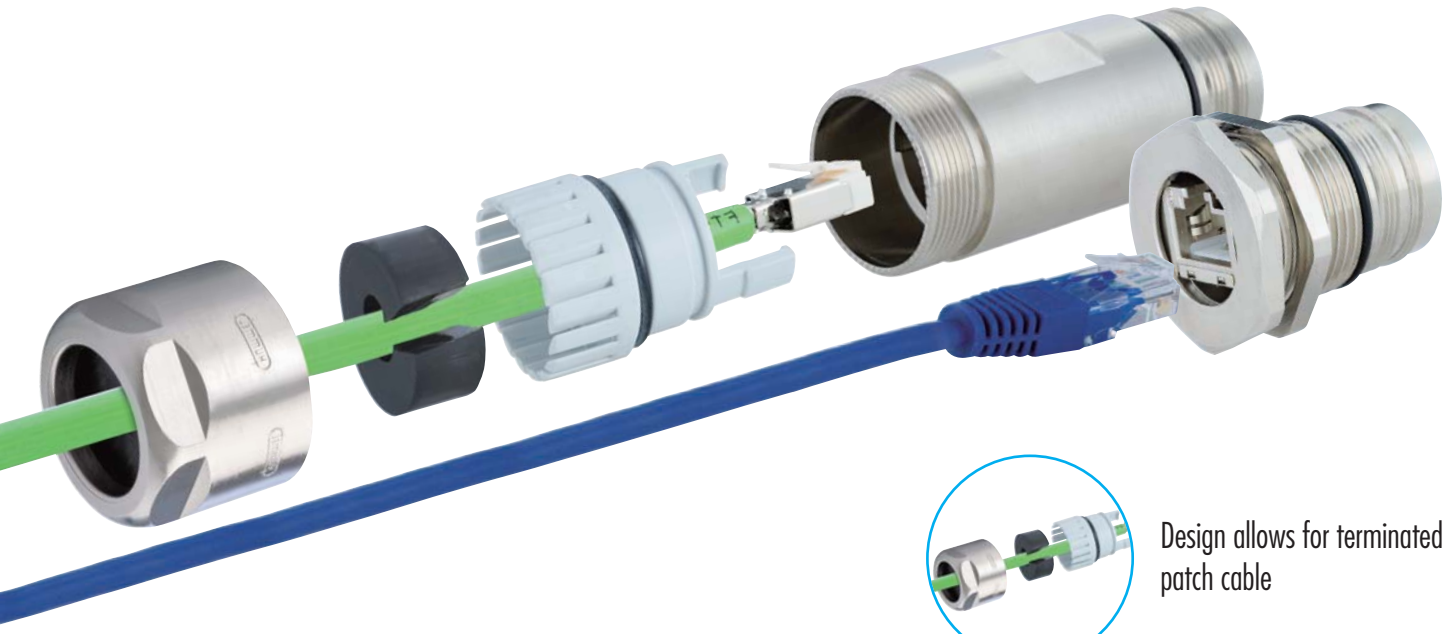
Version M 16 / M 12 available

Fully integrated solution for Industrial Ethernet applications

// Fits perfect for HIPERFACE® DSL and EnDat 2.2 use
// High Performance
// Full modularity with Nickel Plated Brass and Stainless Steel Shells
// TWILOCK quick connect system



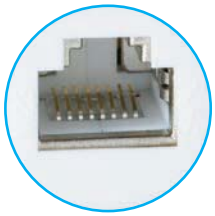
M 23 RJ 45: ROBUST, SIMPLE & SMALL!



Design allows for terminated patch cable

Integrated coupler accomodates off-the-shelf RJ 45 patch cables

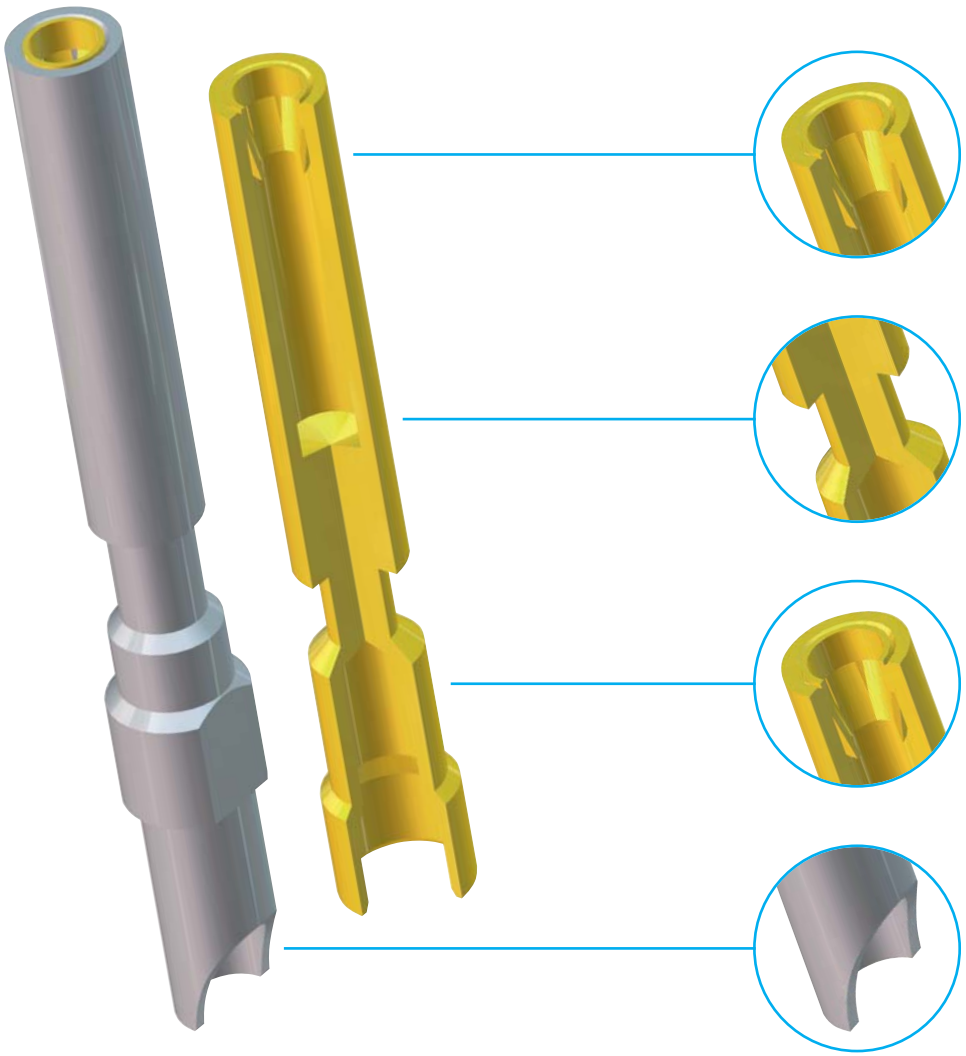
Integrated cable strain relief warrant an IP 67 / IP 69K rating making the M 23 based RJ 45 Connector an ideal solution for robust applications



A standard RJ 45 connection is suitable as service and programmable interface

The new, high performance type of contacts – HUMMEL SLS-Technology (Spring Loaded Socket)

// Integrated spring mates with the pin contact and encompasses it radially
// Exceptional electrical performance with ultimate contact reliability
// Tinned solder contacts assure easy and quick assembly



Radially encompassing copper beryllium spring contacts assure low plug-in resistance and high cycle life (mating cycles)

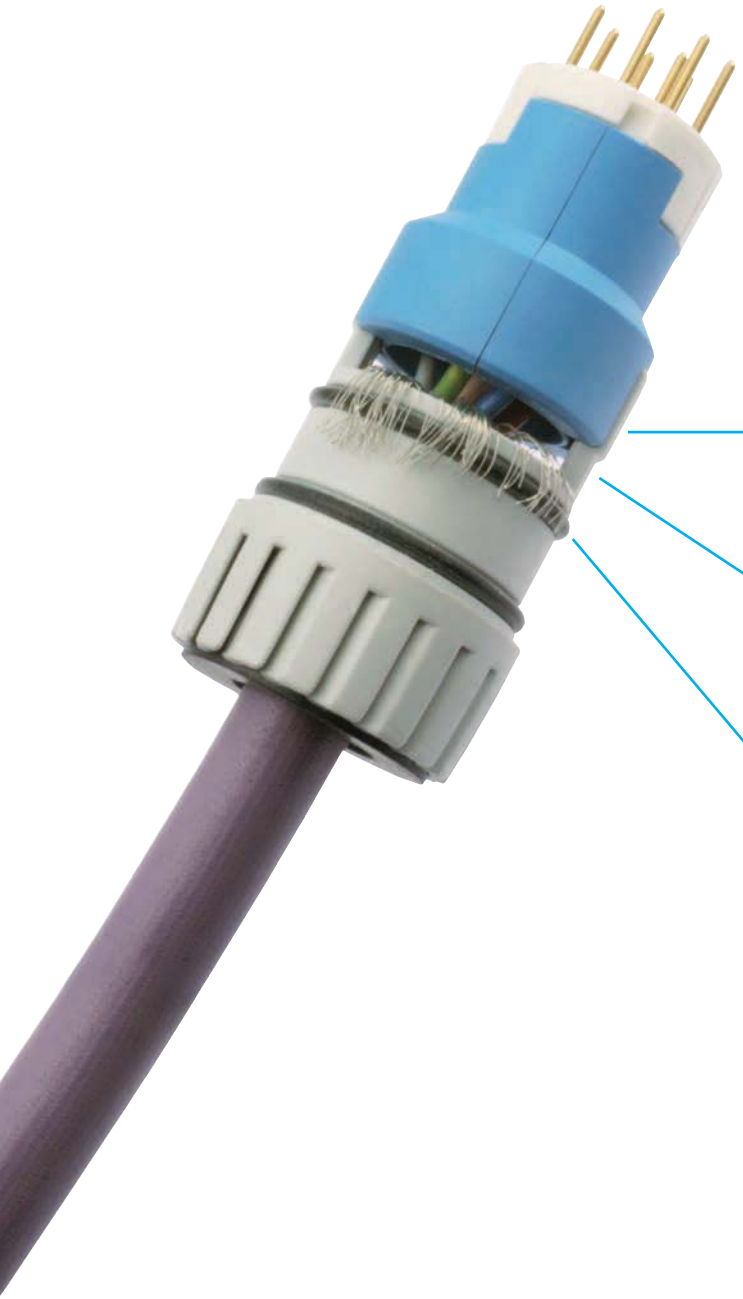
The circular shaped outside configuration of the socket ensures a perfect concentric position during connection

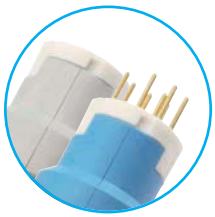
Lowest contact resistance as a result of a gold plated contact area

Reduced assembly time in soldering by a tinned surface

USER FRIENDLY ASSEMBLY

// Clear and modular structure of all connector series
// Patented modular strain relief insert and contact insert
// One step cable assembly and shielding
// Simple, quick and reliable assembly into the connector housing





Colour coding of spacers for male and female inserts

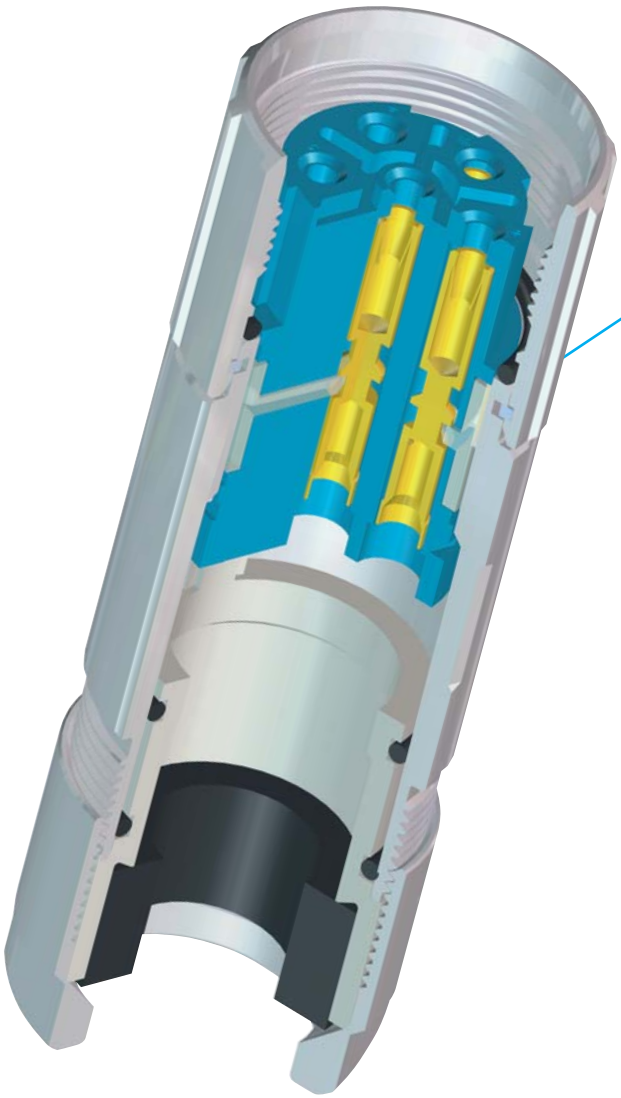
Cable assembly and shielding is possible in a single operation

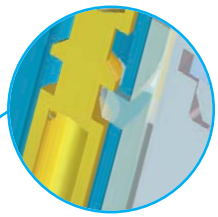
Strain relief insert with four fingers, secured in a recess, prevents cable rotation

Flexible EMC-O-ring guarantees reliable EMC-protection for light and heavy braided shields.

Euro-Lock-System – the patented locking system

// The integrated locking clip secures the contacts in the insert
// Easy assembly and disassembly of the contacts
// No special tools required





Secure contact lock

Quick assembly

Simple contact unlocking and disassembly

Complete assembly and disassembly without special tools

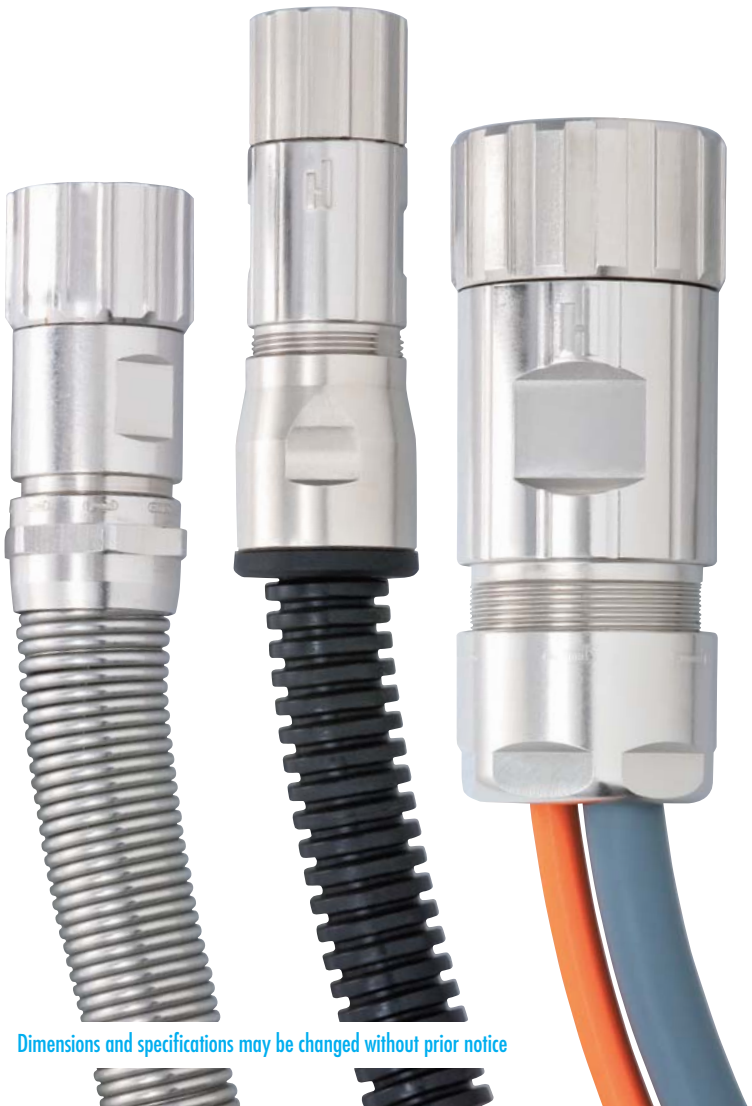
UNIQUE BENEFITS

// Interchangeability of pin or socket inserts in every style connector housing
// Integrated Liquid Tight Strain Relief Fitting
// Internationally certified exceptional quality

Germanischer Lloyd

RoHS

File-No. E 213337



Strain Relief Fitting with flex protection for cable

Fexible conduit connector

MULTI Seal Connector

// Insert can be used for all types of contacts
// Crimp contacts machined or on tape
// Solder contacts for manual soldering or dip soldered for PC boards

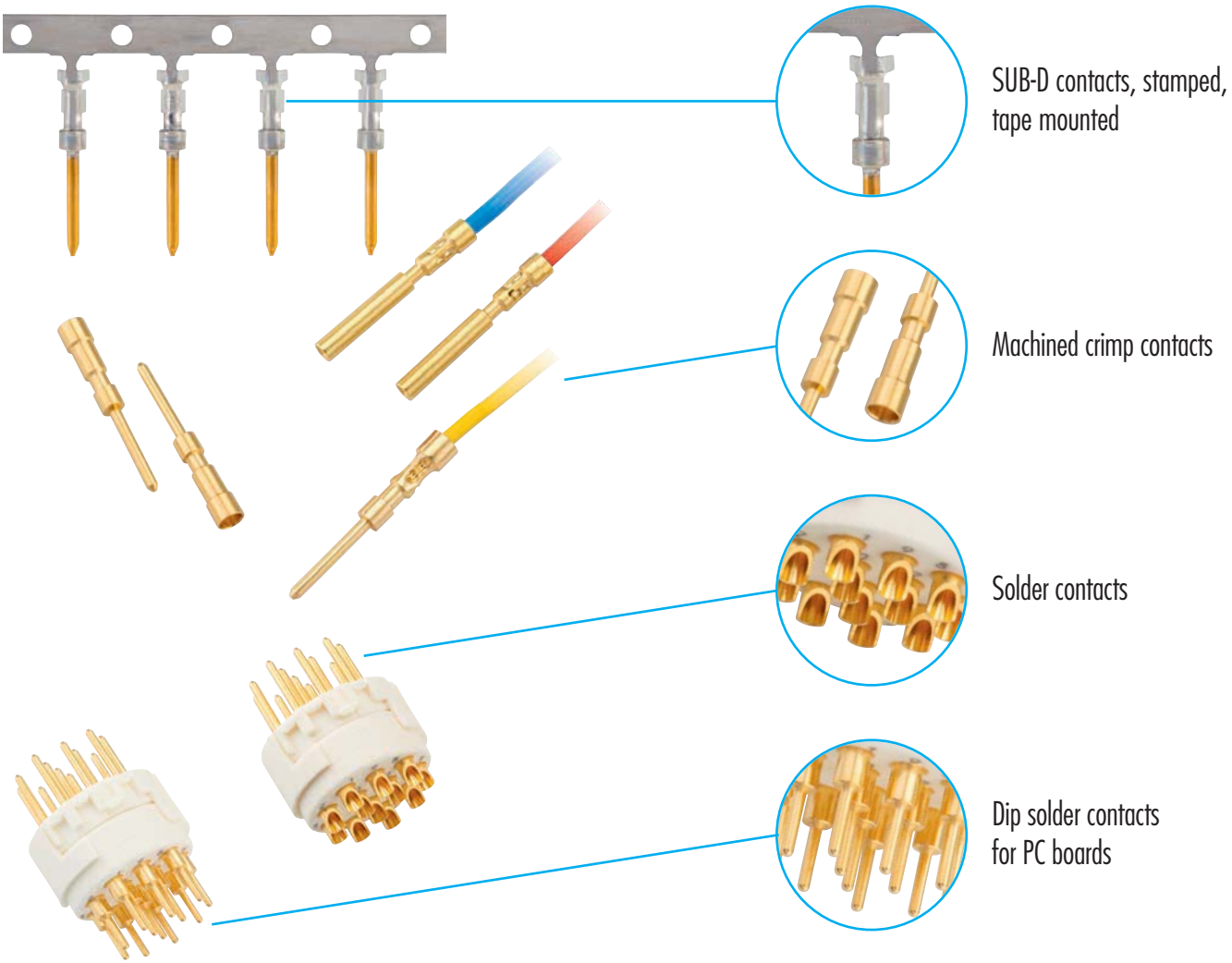
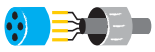


TABLE OF CONTENT

TABLE OF CONTENT

LEGEND

Contacts



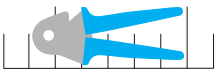
Assembly Instructions

Housing

Inserts / Pinouts

Accessories

Crimping, Assembly and Disassembly of Contacts



Crimp Tool Settings

Crimp Tool Assembly Instruction

TECHNICAL INFORMATION

Nominal Currrent
Allowable current (Amp), that can be transmitted by each contact continuously and simultaneously.

Nominal Voltage
Allowable voltage (Volt), that can be applied to each contact continuously and simultaneously.

Test Voltage
Voltage which, under certain conditions, a connector can be exposed to without breakdown.

Degree of Protection
Potential dirt accumulation of a disconnected connector in a certain environment.

Degree of Protection 2
No permanent conductive dirt accumulation will occur. Temporary conductive dirt accumulation, such as condensation, is possible. Typical for households, offices, laboratories and test labs.

Degree of Protection 3
Conductive, as well as dry non-conductive dirt accumulation can occur. It can be temporarily conductive due to condensation. Typical for industrial and factory environments.

Additional remarks (pollution level)
If connectors being defined for pollution degree 1 and overvoltage category 1 are applied for other conditions (higher pollution degree and higher overvoltage category) voltages level reduce correspondingly. But the connectors can be used without any problems at reduced maximum voltages.

Mating cycles
Mating cycles are the number of insertion and extraction cycles a connector can withstand before the electrical or mechanical failure in relationship to the connector's design specification.

Air gap
The minimum gap of air between two conducting surfaces permissible at given voltage.

Creep distance
The minimum dimension along the surface of an insulating material between two conducting surfaces.

PE
The PE-Contact is a ground contact for security reasons.

Safety Guidelines
When HUMMEL connectors are used for voltages greater than 50 Volts with conductive shell components they must be used in accordance with the safety regulations DIN VDE Part 410; IEC 60364-4-41. This regulation basically dictates that the power source should be turned off before mating and unmating connector. This regulation does not provide protection against electrical shock when mating and unmating connectors in the field.

Don't connect or disconnect HUMMEL Connectors under load.

M 16 CONNECTORS

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

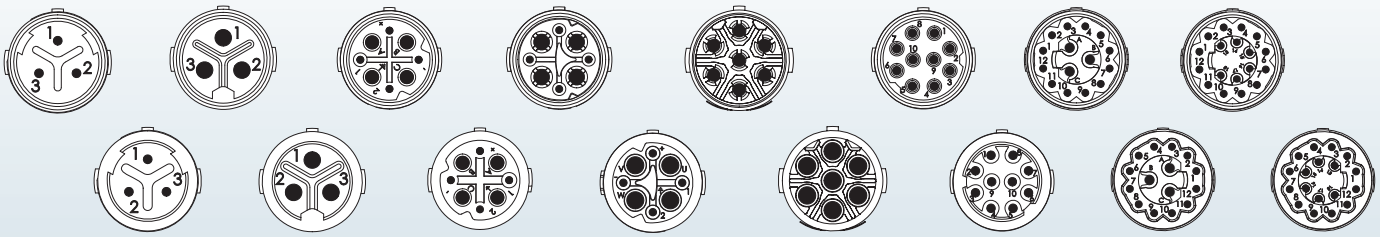
// M 16 power connector
// M 16 signal connector
// TWILOCK, with patented quick release fastener
// TWINTUS – Connector 4 small drives

M 16

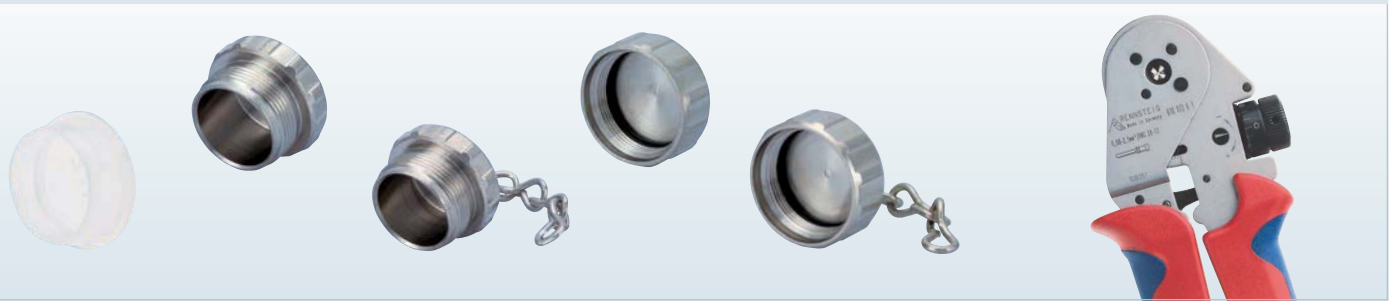
Product overview

Housings ▶ 20

Inserts ▶ 24



Accessories ▶ 31



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

*) HUMMEL to HUMMEL connector

Electrical Data

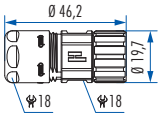
Number of positions	3 (3 x 1 mm)	3 (3 x 2 mm)	4 + 3 + PE / 320 V		4 + 3 + PE / 630 V	
Number of contacts	3	3	4	4	4	4
Contact-Ø [mm]	1	2	0,8	1,6	0,8	1,25
AWG [mm²]	0,14 – 1	0,5 – 2,5	0,08 – 0,34	0,34 – 1,5	0,08 – 0,34	0,5 – 1,5
Nominal current 1) [A]	8	20	5	16	5	16
Nominal voltage 2) [V~] degree of protection 3 4)	400	400	160	320	300	630
Test voltage (Breakdown voltage) 3) [V~]	2500	2500	1500	2500	1500	2500
Insulation resistance [MΩ]	> 10^{10}	> 10^{10}	> 10^{10}		> 10^{10}	
Max. contact resistance [MΩ]	3	3	3		3	3

Number of positions	6+PE	10	12 + 3		18
Number of contacts	7	10	12	3	18
Contact-Ø [mm]	1,25	1	0,8	1,25	0,8
AWG [mm²]	0,5 – 1,5	0,14 – 0,75	0,08 – 0,34	0,5 – 1,5	0,08 – 0,34
Nominal current 1) [A]	16	8	3	10	3
Nominal voltage 2) [V~] degree of protection 3 4)	630	160	24	60	24
Test voltage (Breakdown voltage) 3) [V~]	2500	1500	1500	2500	1500
Insulation resistance [MΩ]	> 10^{10}	> 10^{6}	> 10^{10}		> 10^{10}
Max. contact resistance [MΩ]	3	3	3	3	3

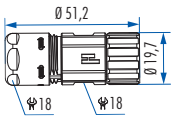
1), 2), 3), 4) See Technical Information page 16

Housings

Straight Connector, Female Thread / elongated *



elongated



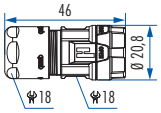
Cable-Ø	Part Number
3 – 6 mm	7.810.300.000
5 – 9 mm	7.810.400.000
8 – 11 mm	7.810.500.000

*** elongated**

3 – 6 mm	7.811.300.000
5 – 9 mm	7.811.400.000
8 – 11 mm	7.811.500.000

▶ 24 ▶ 31 ▶ 37 / 38

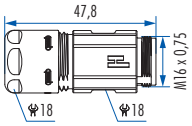
Straight Connector, Female Thread TWILOCK



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

▶ 24 ▶ 31 ▶ 37 / 38

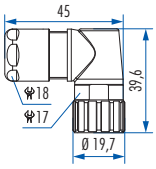
Straight Connector, Male Thread



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

▶ 24 ▶ 31 ▶ 37 / 38

Right Angle Connector with positioning



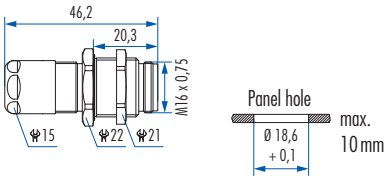
Cable-Ø	Part Number
3 – 6 mm	7.831.300.000
5 – 9 mm	7.831.400.000
8 – 11 mm	7.831.500.000

▶ 24 ▶ 31 ▶ 39

Housing without inserts and contacts

Housings

Panel Connector with built in Cable Strain Relief

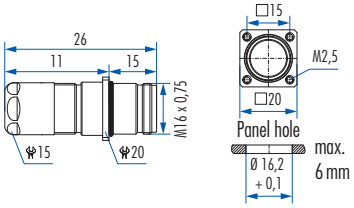


Cable-Ø	Part Number
Rear mounting, single hole mounted	
2 – 7 mm	7.852.300.000
5 – 9 mm	7.852.400.000

Including jam nut PG 11

▶ 24 ▶ 31 ▶ 37 / 38

Panel Connector with built in Cable Strain Relief



Cable-Ø	Part Number
Rear mounting, M 2,5 x 4 single hole mounted	
2 – 7 mm	7.847.300.000
5 – 9 mm	7.847.400.000

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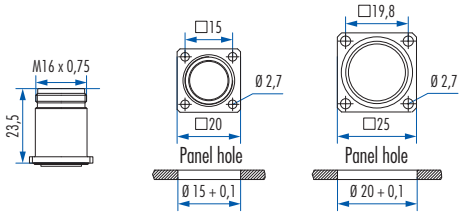
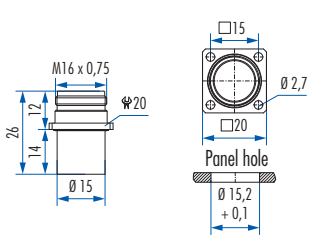
Panel Connector, Male Thread, Front Mounting



Type	Part Number
4 x holes Ø 2,7 mm (.11“) Flange 20 x 20 mm	7.840.000.000
4 x holes Ø 2,7 mm (.11“) Flange 25 x 25 mm	7.840.100.000

▶ 24 ▶ 31 ▶ 40

Panel Connector, Male Thread, Front Mounting



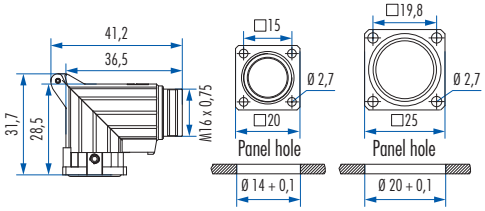
Type	Part Number
Short version	
4 x holes Ø 2,7 mm (.11“) Flange 20 x 20 mm	7.840.200.000

▶ 24 ▶ 31 ▶ 40

Housing without inserts and contacts

Housings

Right Angle Panel Connector, Male Thread, rotatable



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

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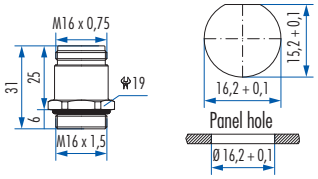
Panel Connector, Male Thread



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

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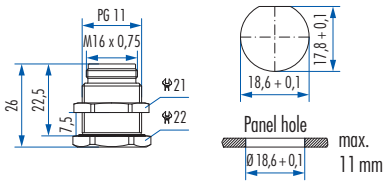
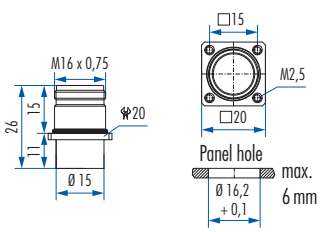
Panel Connector, Male Thread



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

▶ 24 ▶ 31 ▶ 40

Panel Connector, Male Thread



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

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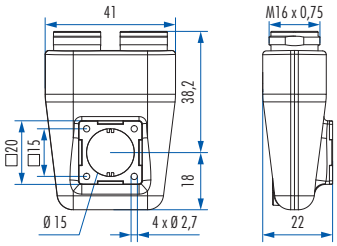
Housing without inserts and contacts

Housings

TWINTUS



Type	Part Number
Flange 20 x 20 mm	
Uncoated	7.848.000.000
Surface nickel plated	7.848.000.001
Surface black conductive	7.848.000.00B

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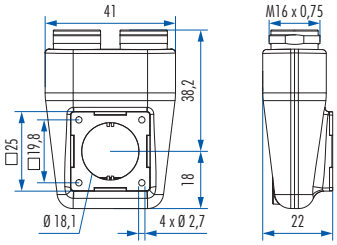
TWINTUS



Type	Part Number
Flange 25 x 25 mm	
Uncoated	7.848.100.000
Surface nickel plated	7.848.100.001
Surface black conductive	7.848.100.00B

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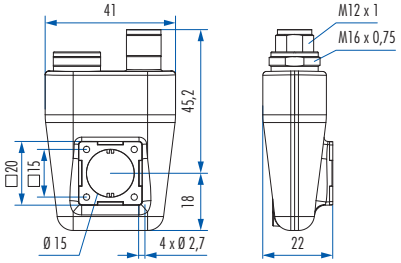
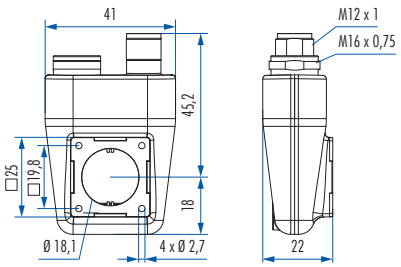
TWINTUS M 16 / M 12



Type	Part Number
Flange 20 x 20 mm	
Uncoated	7.848.200.000
Surface nickel plated	7.848.200.001
Surface black conductive	7.848.200.00B

▶ 24 ▶ 31 ▶ 36

TWINTUS M 16 / M 12



Type	Part Number
Flange 25 x 25 mm	
Uncoated	7.848.300.000
Surface nickel plated	7.848.300.001
Surface black conductive	7.848.300.00B

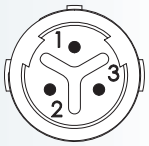
▶ 24 ▶ 31 ▶ 36

Housing without inserts and contacts

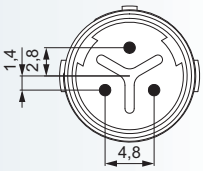
Inserts / Pinouts

Inserts 3-pole (3 x 1 mm)

Insert pin mating view



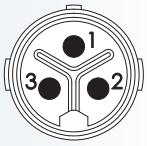
Insert socket mating view



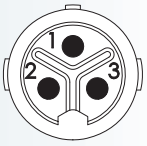
Type	Part Number Pins	Part Number Sockets
Insert without contacts	7.003.903.101	7.003.903.102
Insert with dip solder contacts Length 10 mm	7.001.903.127	7.001.903.108
Insert with dip solder contacts Length 17 mm	7.001.903.137	7.001.903.118
Required Contacts 3 x 1 mm	7.010.901.001	7.010.901.002 / 7.010.901.012

▶ 29 / 30

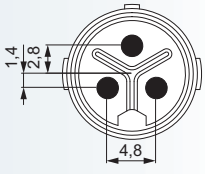
Inserts 3-pole (3 x 2 mm)



Insert pin mating view



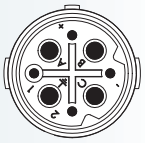
Insert socket mating view



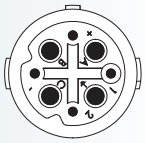
Type	Part Number Pins	Part Number Sockets
Insert without contacts	7.003.983.101	7.003.983.102
Insert with dip solder contacts Length 10 mm	7.001.983.127	7.001.983.108
Insert with dip solder contacts Length 17 mm	7.001.983.137	7.001.983.118
Required Contacts 3 x 2 mm	7.010.982.001	7.010.982.002

▶ 29 / 30

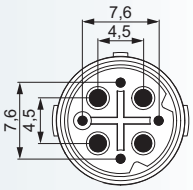
Inserts 4+3+PE



Insert pin mating view



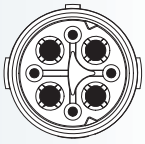
Insert socket mating view



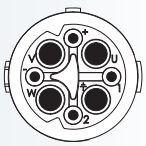
Type	Part Number Pins	Part Number Sockets
Insert without contacts	7.003.943.101	7.003.943.102
Insert RAL 2003 (DESINA orange) without contacts	7.053.943.101	7.053.943.102
Insert with dip solder contacts Length 10 mm	7.001.943.127	7.001.943.108
Insert with dip solder contacts Length 17 mm	7.001.943.137	7.001.943.118
Required Contacts		
4 x 0,8 mm	7.010.980.801	7.010.980.802
4 x 1,6 mm	7.010.981.601	7.010.981.602

▶ 29 / 30

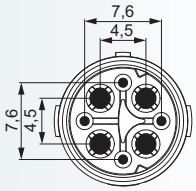
Inserts 4+3+PE 630 V



Insert pin mating view



Insert socket mating view



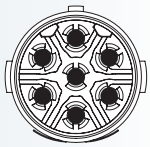
Type	Part Number Pins	Part Number Sockets
Insert without contacts	7.003.908.101	7.003.908.102
Insert RAL 2003 (DESINA orange) without contacts	7.053.908.101	7.053.908.102
Insert with dip solder contacts Length 10 mm [1]	7.001.908.127	7.001.908.108
Insert with dip solder contacts Length 17 mm [1]	7.001.908.137	7.001.908.118
Required Contacts		
4 x 0,8 mm	7.010.980.811	7.010.980.812
4 x 1,25 mm	7.010.981.211	7.010.981.212

▶ 29 / 30

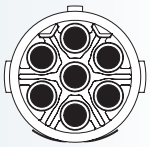
[1] under development

Inserts / Pinouts

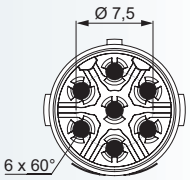
Inserts 6+PE



Insert pin mating view



Insert socket mating view

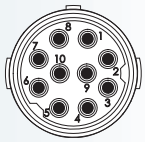


Type	Part Number Pins	Part Number Sockets
Insert without contacts	7.003.961.101	7.003.961.102
Insert RAL 2003 (DESINA orange) without contacts	7.053.961.101	7.053.961.102
Insert with dip solder contacts Length 10 mm [1]	7.001.961.127	7.001.961.108
Insert with dip solder contacts Length 17 mm [1]	7.001.961.137	7.001.961.118
Required Contacts		
7 x 1,25 mm	7.010.981.211	7.010.981.212

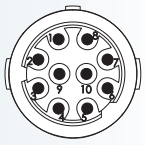
▶ 29 / 30

[1] under development

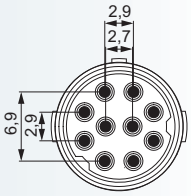
Inserts 10-pole



Insert pin mating view



Insert socket mating view



Type	Part Number Pins	Part Number Sockets
Insert without contacts	7.003.910.101	7.003.910.102
Insert RAL 2003 (DESINA green) without contacts	7.053.910.101	7.053.910.102
Insert with dip solder contacts Length 10 mm	7.001.910.127	7.001.910.108
Insert with dip solder contacts Length 17 mm	7.001.910.137	7.001.910.118
Required Contacts		
10 x 1 mm	7.010.981.001	7.010.981.002

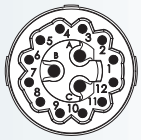
▶ 29 / 30

[1] under development

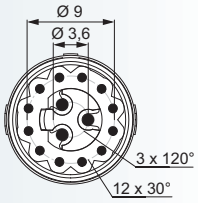
Inserts 12+3-pole

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

Insert pin mating view



Insert socket mating view

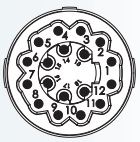


▶ 29 / 30

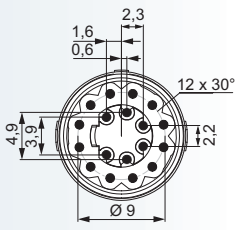
Inserts 18-pole

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

Insert pin mating view



Insert socket mating view



▶ 29 / 30

Inserts / Pinouts

Inserts M 12 for TWINTUS M 16 / M 12 (8-pole)

Type	Part Number
Pins	
Insert with solder contacts	A712-7001908103

Insert pin mating view

Inserts M 12 for TWINTUS M 16 / M 12 (12-pole)

Type	Part Number
Pins	
Insert with solder contacts	A712-7001912103

Insert pin mating view

Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 0,8 mm, machined	0,08 – 0,34 mm² (AWG 28 – 22)	7.010.980.801
	Crimp socket 0,8 mm, machined	0,08 – 0,34 mm² (AWG 28 – 22)	7.010.980.802
	Crimp pin 0,8 mm, machined	0,08 – 0,34 mm² (AWG 28 – 22)	7.010.980.811
	Crimp socket 0,8 mm, machined	0,08 – 0,34 mm² (AWG 28 – 22)	7.010.980.812
	Crimp pin 1 mm, machined	0,08 – 0,75 mm² (AWG 28 – 18)	7.010.981.001
	Crimp socket 1 mm, machined	0,08 – 0,75 mm² (AWG 28 – 18)	7.010.981.002
	Crimp pin 1 mm, machined	0,14 – 1 mm² (AWG 26 – 17)	7.010.901.001
	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 pin 1,25 mm, machined	0,5 – 1,5 mm² (AWG 20 – 16)	7.010.981.201
	Crimp socket 1,25 mm, machined	0,5 – 1,5 mm² (AWG 20 – 16)	7.010.981.202

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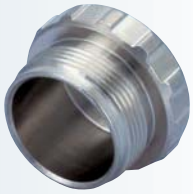
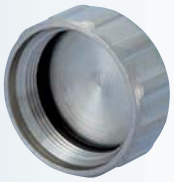
Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 1,25 mm, machined	0,34 – 1,5 mm² (AWG 20 – 16)	7.010.981.211
	Crimp socket 1,25 mm, machined	0,34 – 1,5 mm² (AWG 20 – 16)	7.010.981.212
	Crimp pin 1,6 mm, machined	0,34 – 1,5 mm² (AWG 22 – 16)	7.010.981.601
	Crimp socket 1,6 mm, machined	0,34 – 1,5 mm² (AWG 22 – 16)	7.010.981.602
	Crimp pin 2 mm, machined	1,0 – 2,5 mm² (AWG 17 – 14)	7.010.982.001
	Crimp socket 2 mm, machined	1,0 – 2,5 mm² (AWG 17 – 14)	7.010.982.002

▶ 33 / 34 ▶ 42

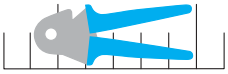
Accessories

Accessories	Type	Part Number
	Plastic protective cap for connectors with **male thread** with **female thread**	 7.000.980.161 7.000.980.162
	**Brass protective cap** for connectors with **female thread**	7.010.900.163*)
	**Brass protective cap** for connectors with **male thread**	7.010.900.162
	**Brass protective cap with chain** for connectors with **female thread** Length 70 mm	7.010.9S0.705*)
	**Brass protective cap with chain** for connectors with **male thread** Length 70 mm	7.010.9S0.704
	**Crimp tool** for manual crimping of machined crimp contacts for signal connectors M 16 and M 23 ▶ 33 / 34 ▶ 86	7.000.900.904
	**Adaptor flange** for Straight Connectors	7.010.900.135

*) No compatibility with TWILOCK

Accessories

Accessories	Type	Part Number
	**Conduit adaptor**	
	Poleon DN 10	7.010.900.200
	Poleon DN 12	7.010.900.202
	**EMC-sheet**	
	for TWINTUS Flange 20 x 20	7.040.848.101
	for TWINTUS Flange 25 x 25	7.040.848.102
	**Plastic protective cap for TWINTUS**	
	TWINTUS M 16	7.000.848.101
	TWINTUS M 16 / M 12	7.000.848.102
	**Disassembly Tool**	
	for crimp contacts 1,25 mm	7.010.900.151

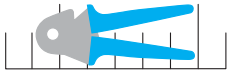


Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)

Part Number	Crimp Contact	Cross Section (mm²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.980.801	Crimp pin 0,8 mm	0,08 0,14 0,25 0,34	AWG 28 AWG 26 AWG 24 AWG 22	0,57 0,60 0,64 0,73	10
7.010.980.802	Crimp socket 0,8 mm	0,08 0,14 0,25 0,34	AWG 28 AWG 26 AWG 24 AWG 22	0,57 0,60 0,64 0,73	10
7.010.980.811	Crimp pin 0,8 mm	0,08 0,14 0,25 0,34	AWG 28 AWG 26 AWG 24 AWG 22	0,57 0,60 0,64 0,73	B7
7.010.980.812	Crimp socket 0,8 mm	0,08 0,14 0,25 0,34	AWG 28 AWG 26 AWG 24 AWG 22	0,57 0,60 0,64 0,73	B8
7.010.981.001	Crimp pin1 mm	0,08 0,14 0,25 0,34 0,56 0,75	AWG 28 AWG 26 AWG 24 AWG 22 AWG 20 AWG 18	0,60 0,65 0,67 0,71 0,75 0,82	7
7.010.981.002	Crimp socket 1 mm	0,08 0,14 0,25 0,34 0,56 0,75	AWG 28 AWG 26 AWG 24 AWG 22 AWG 20 AWG 18	0,60 0,63 0,66 0,69 0,75 0,83	8
7.010.901.001	Crimp pin 1 mm	0,14 0,25 0,34 0,50 0,75 1,0	AWG 26 AWG 24 AWG 22 AWG 20 AWG 18 AWG 17	0,70 0,76 0,82 0,90 1,00 1,10	1
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 0,86 0,90	2

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

▶ 42



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
7.010.901.002	Crimp socket 1 mm (0,34 – 1 mm²)	0,34 0,56 0,75 1,0	AWG 22 AWG 20 AWG 18 AWG 17	0,77 0,82 0,88 0,95	2
7.010.981.201	Crimp pin 1,25 mm	0,5 0,75 1,0 1,5	AWG 20 AWG 18 AWG 17 AWG 16	0,70 0,73 0,79 0,88	2
7.010.981.202	Crimp socket 1,25 mm	0,5 0,75 1,0 1,5	AWG 20 AWG 18 AWG 17 AWG 16	0,70 0,73 0,79 0,88	2
7.010.981.211	Crimp pin 1,25 mm	0,34 0,5 0,75 1,0 1,5	AWG 22 AWG 20 AWG 18 AWG 17 AWG 16	0,80 0,84 0,90 1,00 1,10	B9
7.010.981.212	Crimp socket 1,25 mm	0,34 0,5 0,75 1,0 1,5	AWG 22 AWG 20 AWG 18 AWG 17 AWG 16	1,00 1,04 1,10 1,20 1,30	B10
7.010.981.601	Crimp pin 1,6 mm	0,34 0,56 0,75 1,0 1,5	AWG 22 AWG 20 AWG 18 AWG 17 AWG 16	0,80 0,84 0,90 1,00 1,10	6
7.010.981.602	Crimp socket 1,6 mm	0,34 0,56 0,75 1,0 1,5	AWG 22 AWG 20 AWG 18 AWG 17 AWG 16	0,83 0,90 0,97 1,02 1,10	9
7.010.982.001	Crimp pin 2 mm	1,0 1,5 2,5	AWG 17 AWG 16 AWG 14	1,35 1,45 1,60	4
7.010.982.002	Crimp socket 2 mm	1,0 1,5 2,5	AWG 17 AWG 16 AWG 14	1,35 1,45 1,60	5

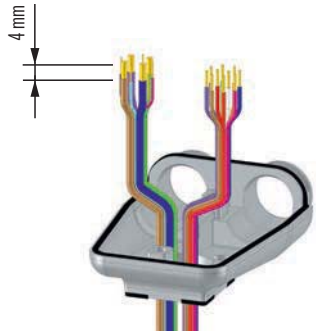
▶ 42

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

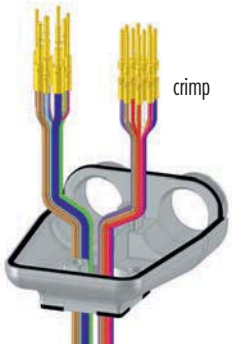
Assembly Instructions

TWINTUS

1.



2.



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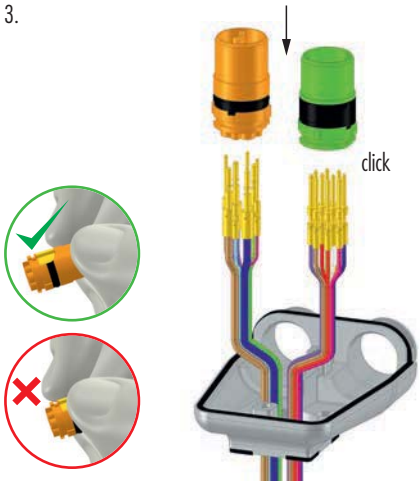

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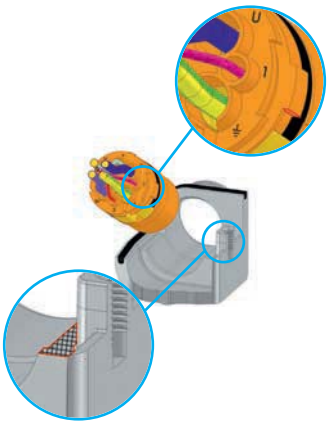

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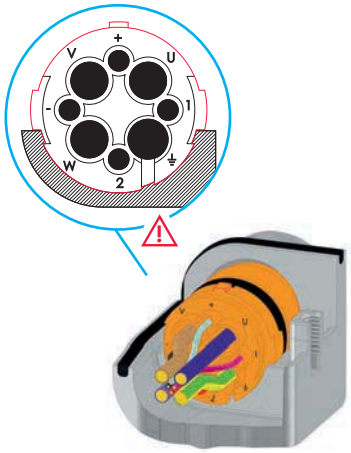
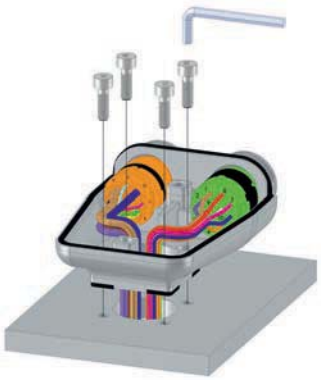


6.

7.



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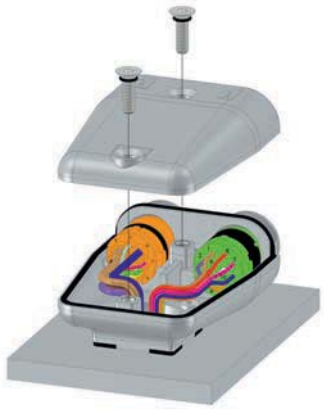

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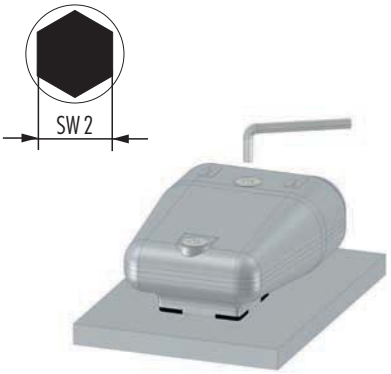
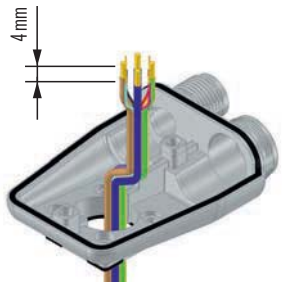


Assembly Instructions

TWINTUS M 16 / M 12

1.



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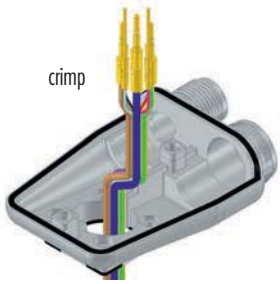

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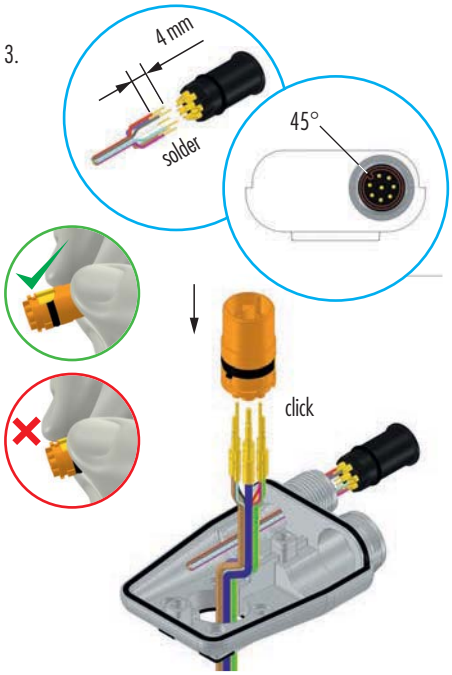

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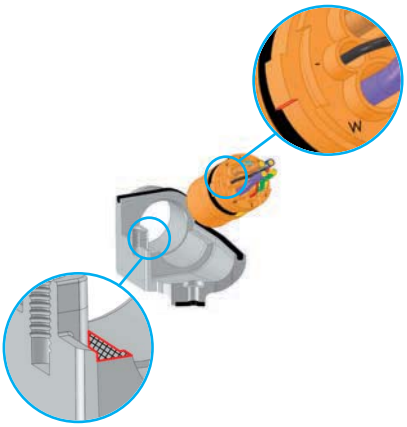

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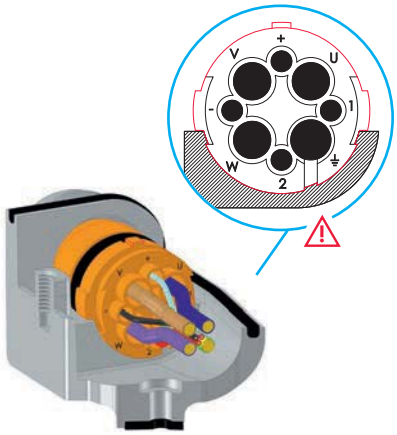

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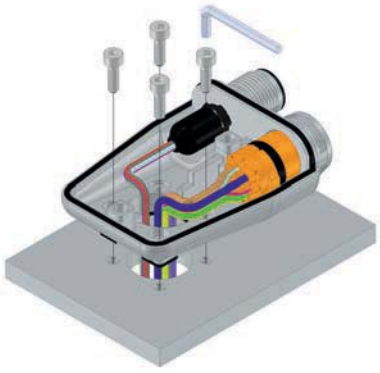

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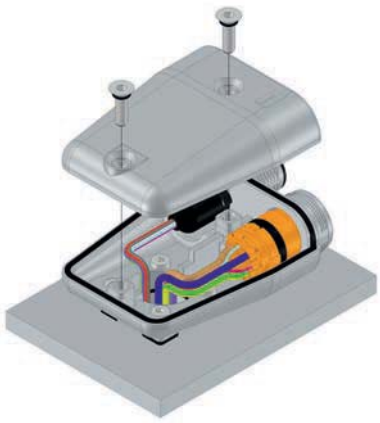


9.

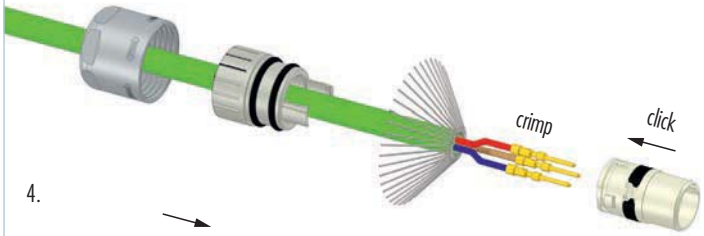
Assembly Instructions

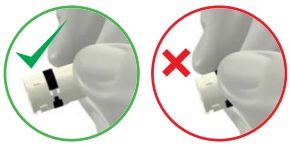
Female Threaded Connector / Male Threaded Connector

1.

2.

3.





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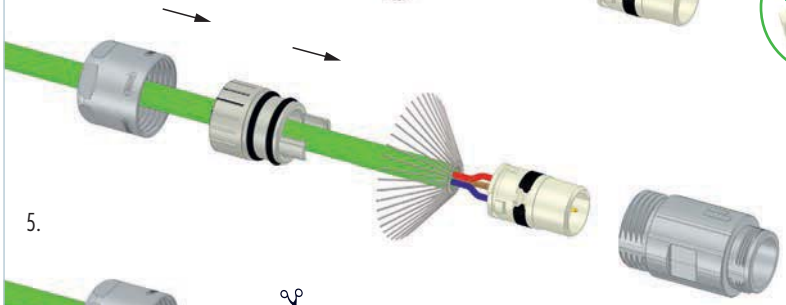

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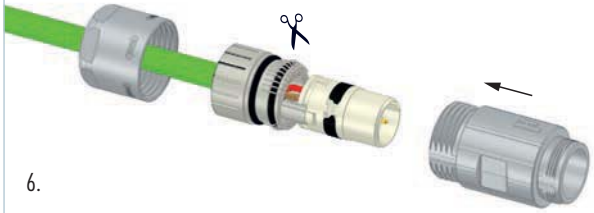

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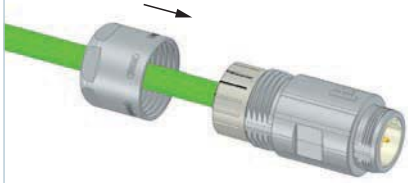

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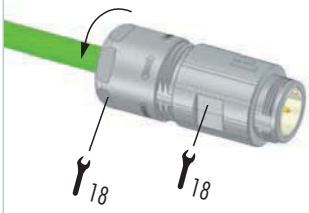
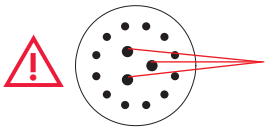


Assembly Instructions

Female Threaded Connector / Male Threaded Connector 12 + 3

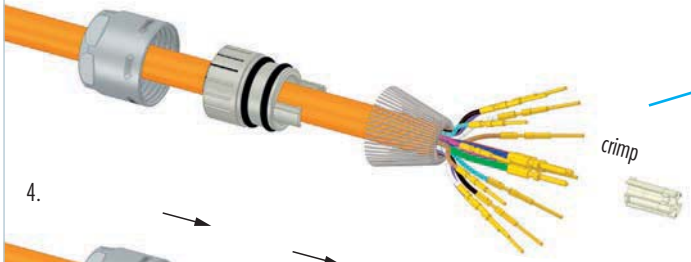
1.

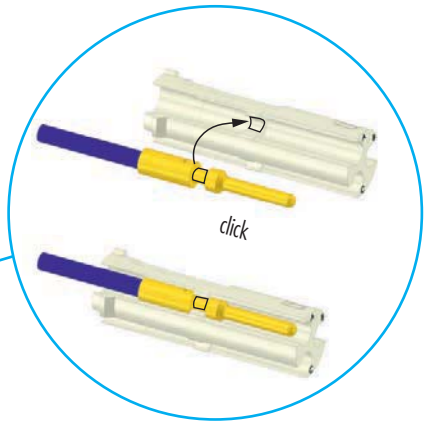


The inner conductors (bigger cross section for middle insert) shorten appr. 2 – 3 mm

2.

3.





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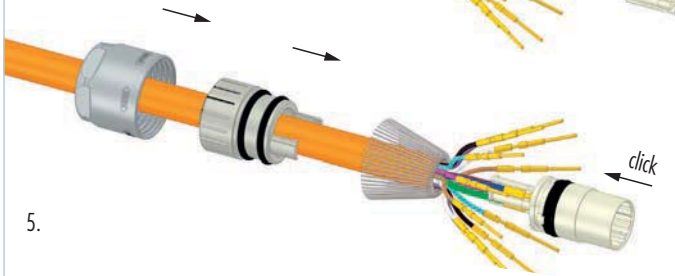

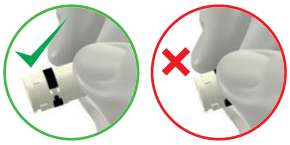

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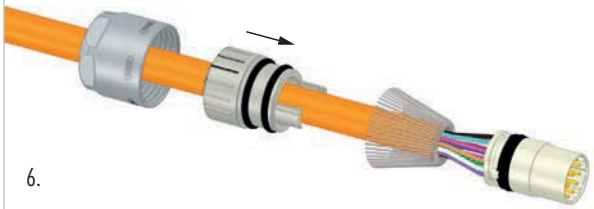


6.

7.

8.

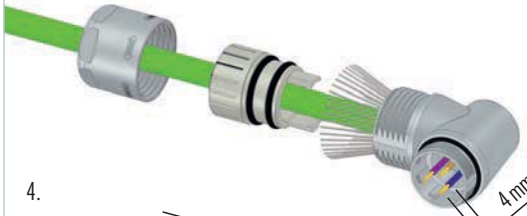
Assembly Instructions

Right angle connector with positioning

1.

2.

3.



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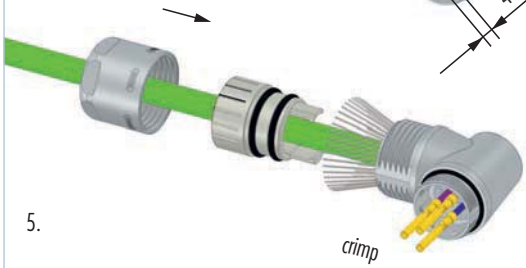

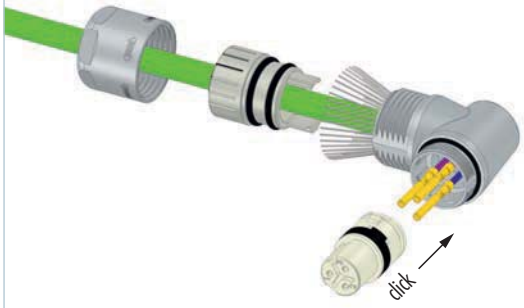

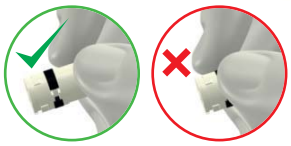

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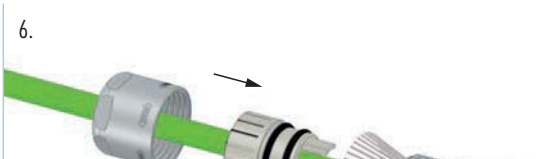
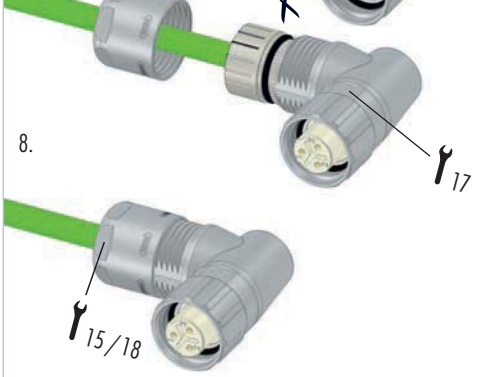


7.

8.



Assembly Instructions

Panel Connector

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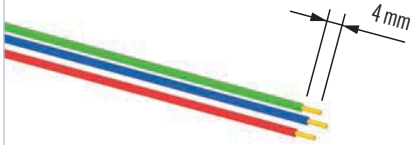

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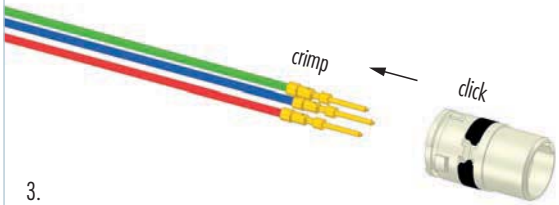

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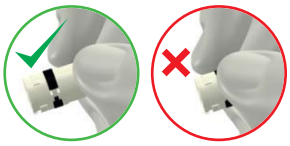

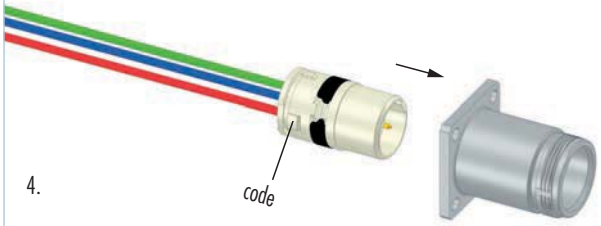

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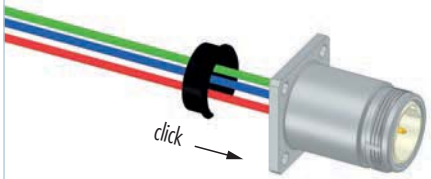
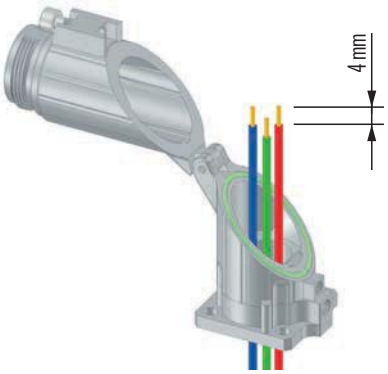


Assembly Instructions

Right Angle Panel Connector

1.



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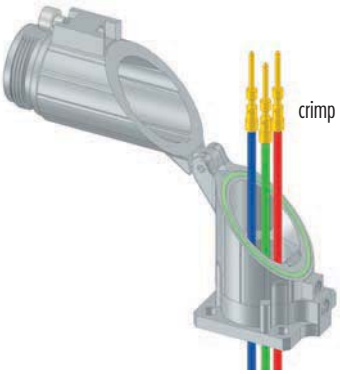

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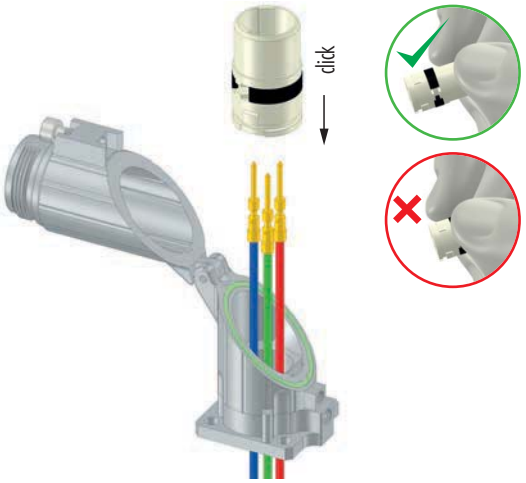

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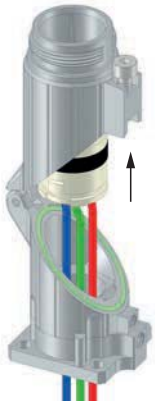

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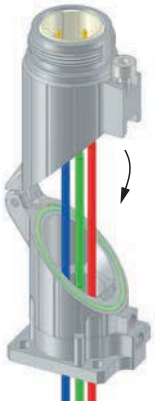

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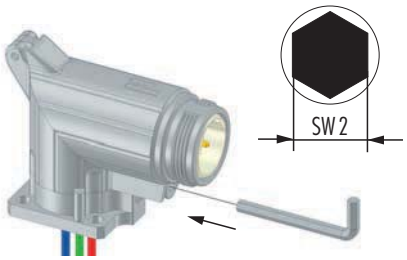

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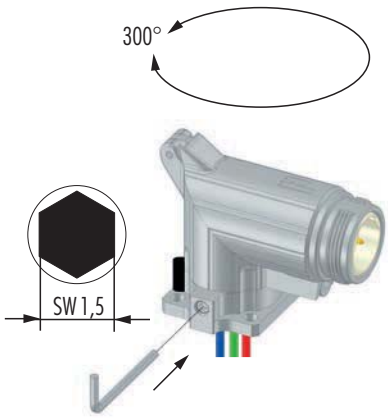


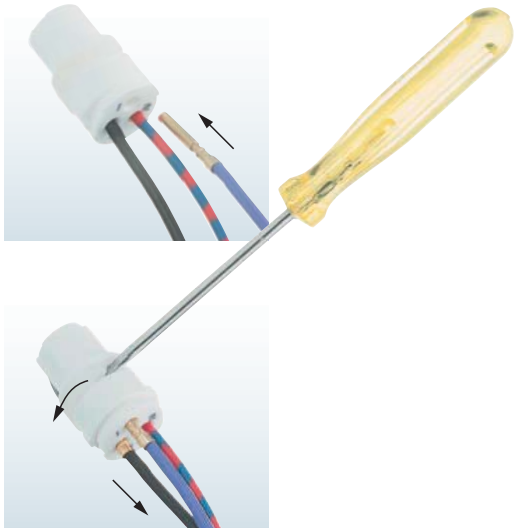
Crimping, Assembly and Disassembly of Contacts

Crimping

// Remove conductor insulation 4 mm (.16") max.
// Select appropriate Crimp tool setting (see page 33 – 34)
// Push crimp contact into opening of crimping tool
// Insert stripped wire into the funnel shaped end of the crimp contact
// Squeeze handles of crimping tool together connect contact to wire

Assembly

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



Disassembly of Contacts from Insert

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

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

Shielding

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

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

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.

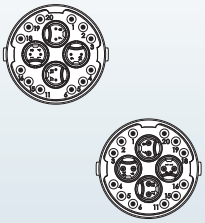
// Hybrid connectors for single cable solution
// Four Twinax-Inserts for data transfer
// Five seperate shieldings prevent cross talk
// Highest density within M 23 housing

M 23 FAST ETHERNET PoE

Product overview

Housings ▶ 46

Inserts ▶ 48



Accessories ▶ 49

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

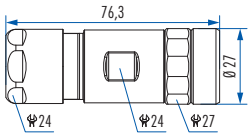
Number of positions	20 (4 x 2 + 12)	
Number of contacts	4 x 2	12
Contact-Ø [mm]	0,6	1
AWG [mm²]	0,08 – 0,34	0,14 – 1 / 1,5
Nominal current [1)] [A]	2	8[*)]
Nominal voltage [2)] [V~] degree of protection 3 [4)]	60	160
Test voltage (Breakdown voltage) [3)] [V~]	500	1500
Insulation resistance [MΩ]	> 10^6	> 10^6
Max. contact resistance [mΩ]	3	3
Impedance [Ω] (at 100MHz)	100	–

[1), 2), 3), 4)] See Technical Information page 16 // [*)] for single contacts even 10 A possible

Housings

Straight Female Connector

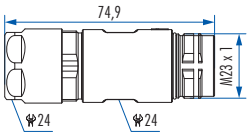
Cable-Ø	Part Number
11-17 mm	7.108.600.000



▶ 48 ▶ 49 ▶ 52

Straight Connector, Male Thread

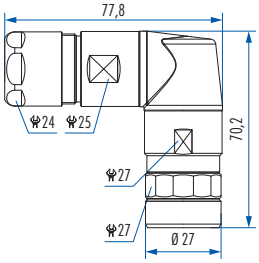
Cable-Ø	Part Number
11-17 mm	7.208.600.000



▶ 48 ▶ 49 ▶ 52

Right Angle Connector, Female Thread , rotatable

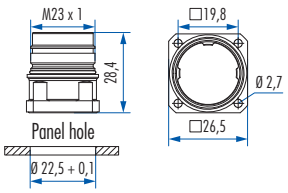
Cable-Ø	Part Number
11-17 mm	7.308.600.000



▶ 48 ▶ 49 ▶ 54

Panel Connector, Male Thread, Front Mounting

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



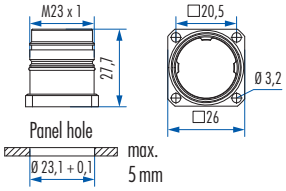
▶ 48 ▶ 49 ▶ 53

Housing without inserts and contacts

Housings

Panel Connector, Rear Mounting

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



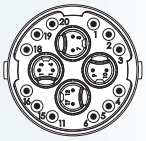
▶ 48 ▶ 49 ▶ 53

Housing without inserts and contacts

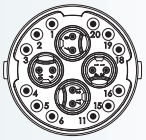
M 23 FAST ETHERNET PoE

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

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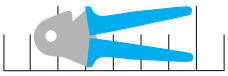
Accessories

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 I:I (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	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

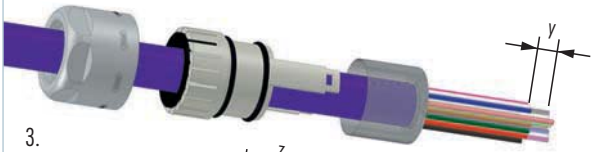
These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Assembly Instructions

Straight Connector Male / Female Thread

1.

2.



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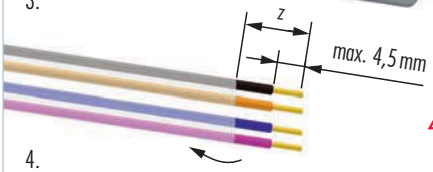

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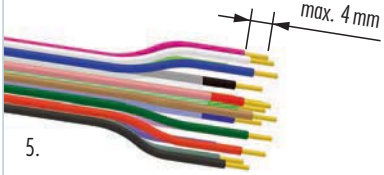
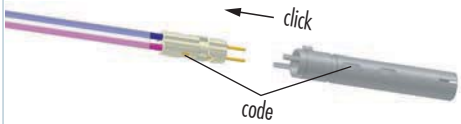


5.

6.

7.

8.



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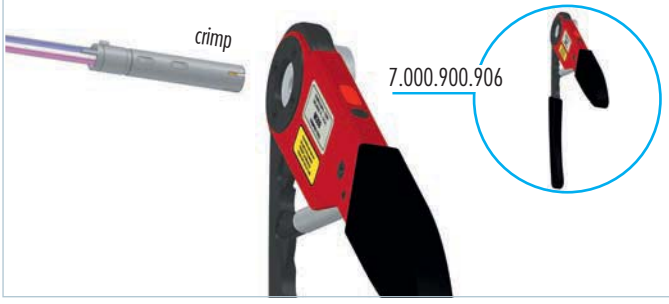
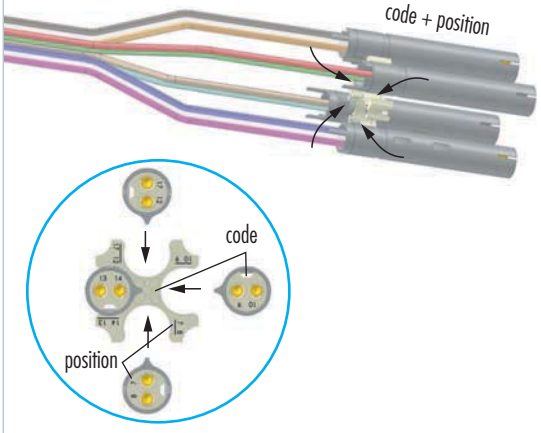


x	Pins = 41 mm Sockets = 37 mm
y	Pins = 7 mm Sockets = 0 mm
z	Pins = 10 mm Sockets = 7 mm

10.



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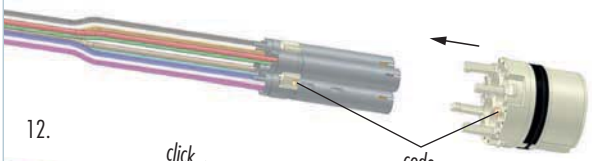

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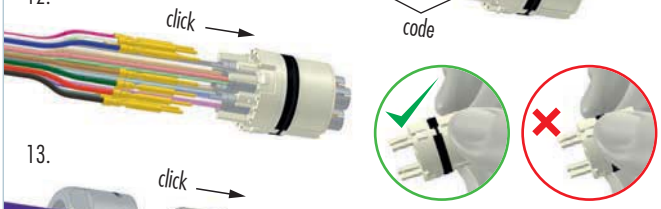

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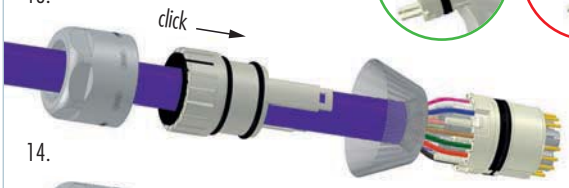

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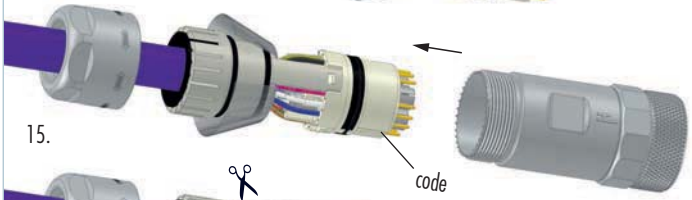


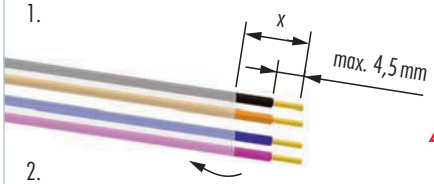
15.

16.

Assembly Instructions

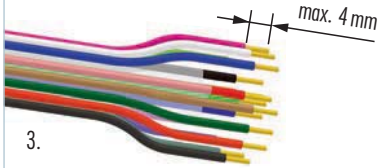
Panel Connector

1.



x | Pins = 10 mm
Sockets = 7 mm

2.

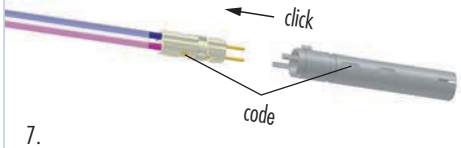


3.

4.

5.

6.



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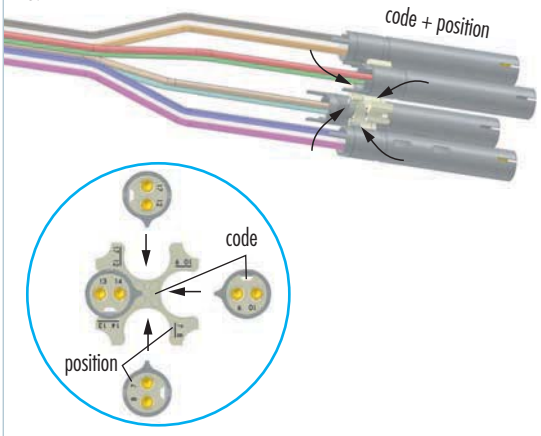
8.



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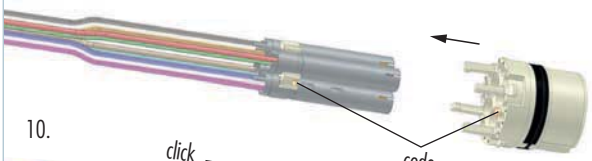

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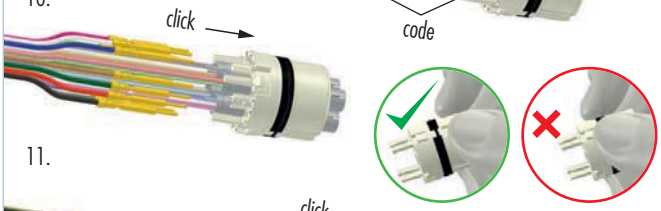

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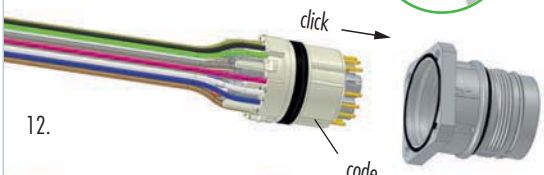

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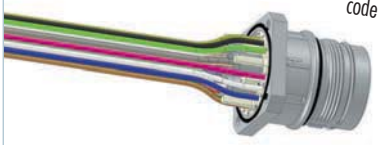
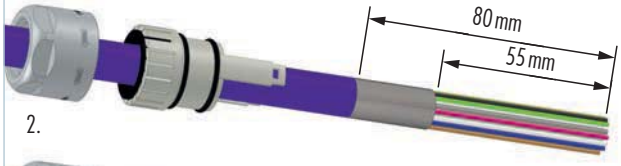


M 23 FAST ETHERNET PoE

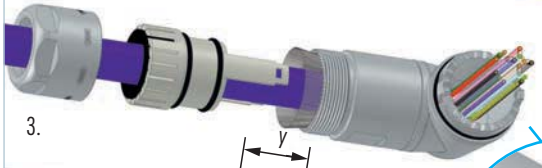
Assembly Instructions

Right Angle Connector

1.



2.



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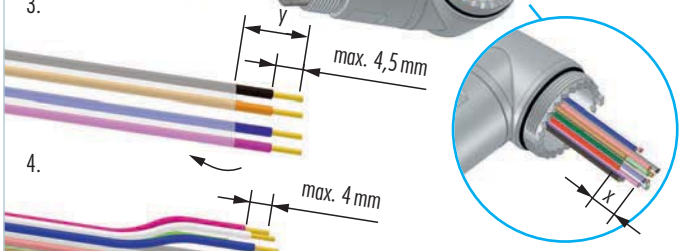

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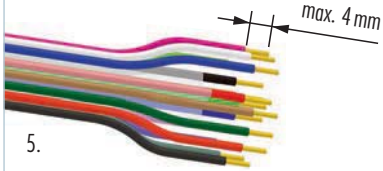


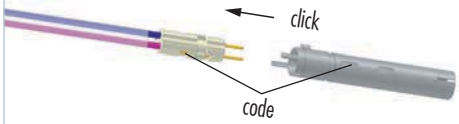
5.

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

6.

7.

8.



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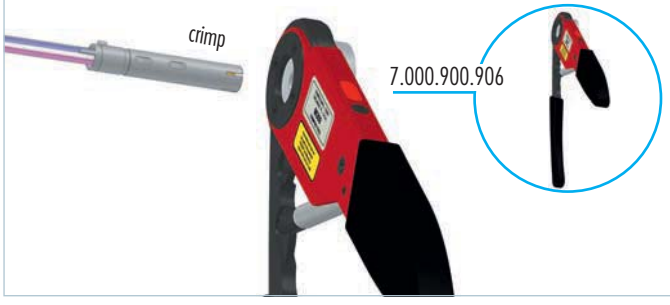

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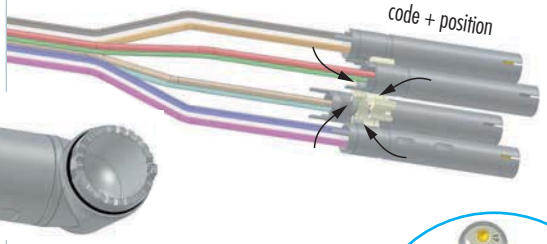

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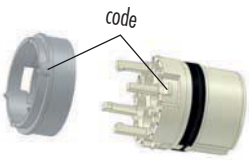

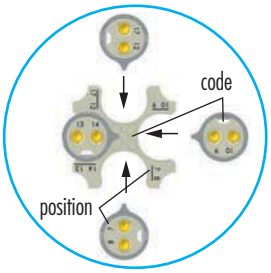

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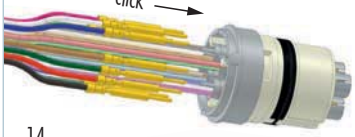
13.



see page 52, step 12

14.

15.

16.

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 / IP 69K.

// 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

▶ 58

Accessories

▶ 61

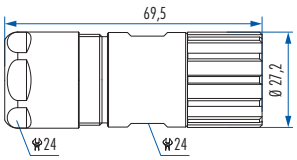
Technical Data

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 / FKM (Viton)
Temperature Range	Depends on RJ 45 type used
Degree of Protection	IP 67 / IP 69K 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 [MΩ]	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

[1), 2)] See Technical Information page 16

Housings

Straight Connector Female Thread



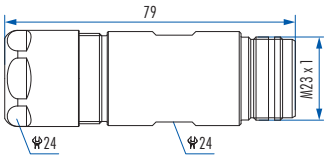
Cable-Ø	Part Number
3 – 7 mm (.12 - .28")	7.R10.400.000

Connector with insert for patch cable

Suitable patch cable and plugs can be recommended.

▶ 63 ▶ 61

Straight Connector Male Thread

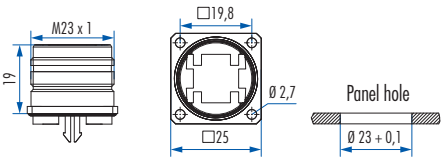


Cable-Ø	Part Number
3 – 7 mm (.12 - .28")	7.R20.408.000

Incl. 8 poles coupler, fully occupied

▶ 63 ▶ 61

Panel Connector Front Mount, dip solder insert



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

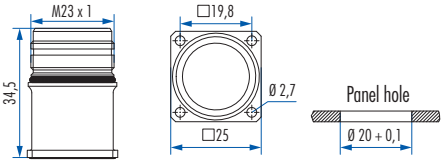
Incl. 8 poles dip solder insert

4 holes 2.7 mm, Flange	7.R40.082.000

Incl. 8 + 2 poles dip solder insert

▶ 61

Panel Connector, Front Mount



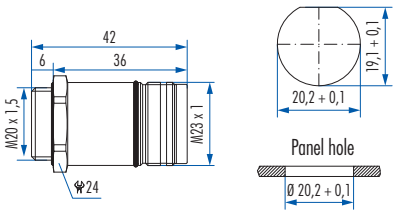
Type	Part Number
with vibration protection	
4 holes 2.7 mm, Flange	7.R41.008.000

Incl. 8 poles coupler, fully occupied

▶ 61

Housings

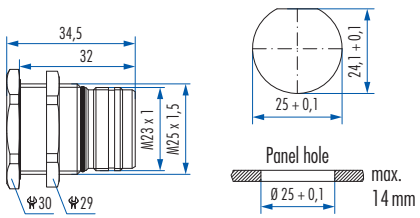
Single Hole Panel Connector



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	

▶ 61

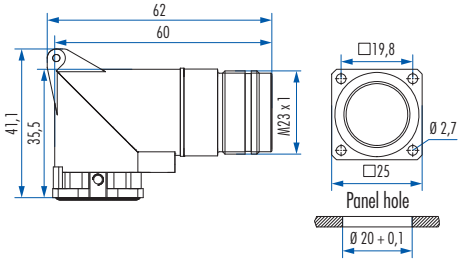
Single Hole Panel Connector



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.	

▶ 61

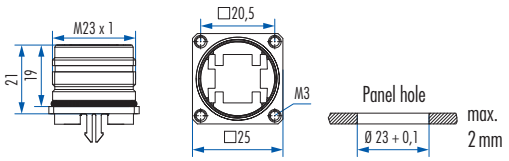
Right Angle Panel Connector, Male Thread



Type	Part Number
300 ° rotatable, locking screw at flange	
4 holes 2.7 mm, Flange	7.R43.008.000*)
Incl. 8 poles coupler, fully occupied	
Optional: Gasket	
Simple installation with M 2.5 screws	

▶ 61

Panel Connector Rear Mount, dip solder insert



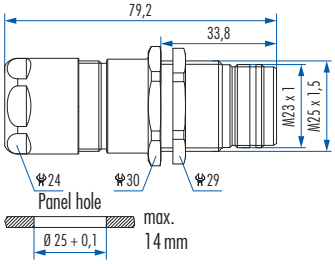
Type	Part Number
with vibration protection	
4x M 3 thread, Flange	7.R45.008.000
Incl. 8 poles dip solder insert	
4x M 3 thread, Flange	7.R45.082.000
Incl. 8 + 2 poles dip solder insert	

▶ 61

*) Upon request

Housings

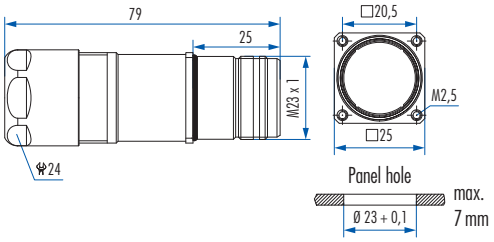
Single Hole Panel Connector with strain relief



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	

▶ 61

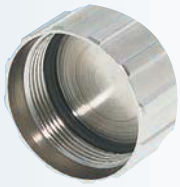
Panel Connector with strain relief



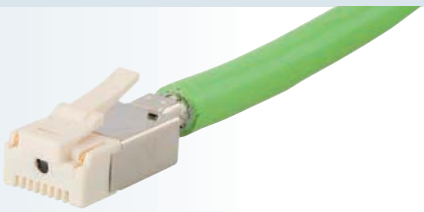
Cable-Ø	Part Number
4x M 2,5 thread, Flange, Rear Mount	
3 – 7 mm (.12 - .28")	7.R47.408.000
Incl. 8 poles coupler, fully occupied	

▶ 61

Accessories

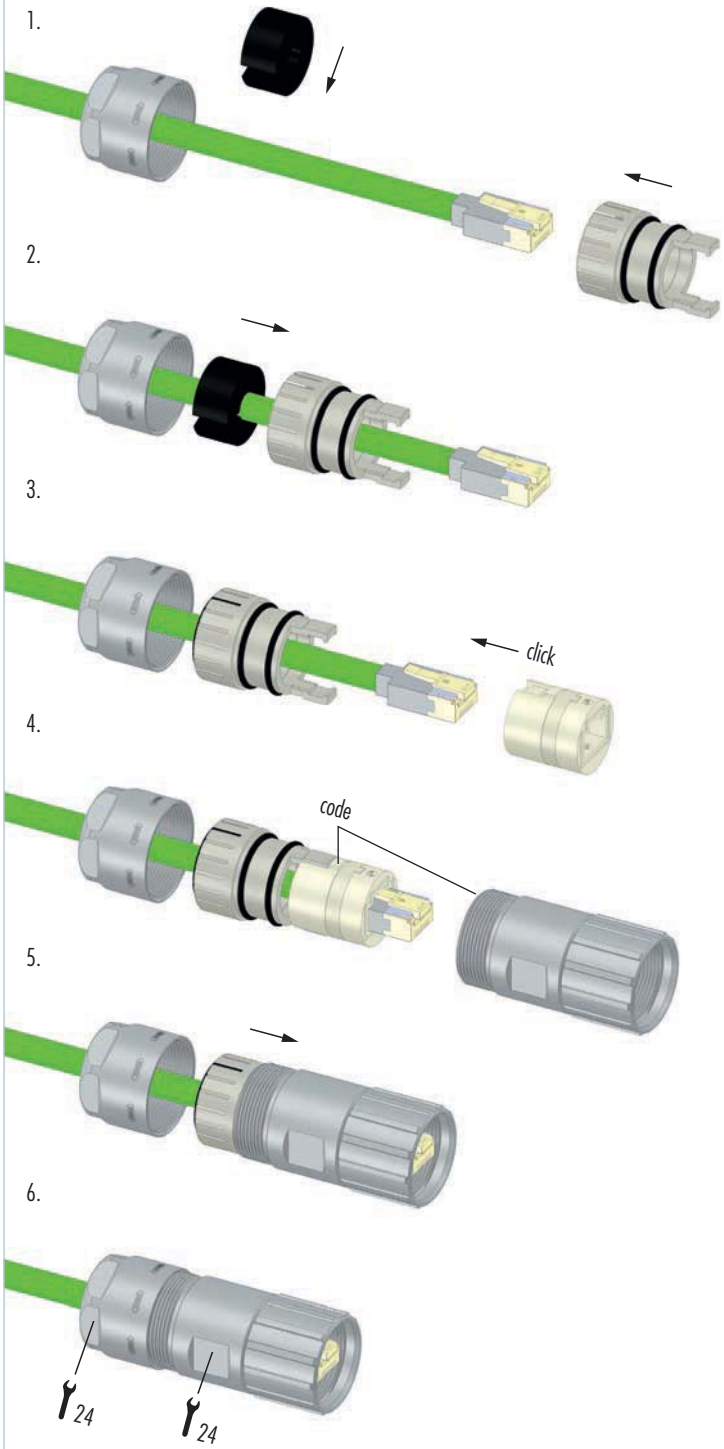
Accessories	Type	Part Number
	Plastic protective cap for connectors with **male thread** with **female thread**	 7.000.900.101 7.000.900.102
	**Brass protective cap** for connectors with **female thread**	 7.010.900.183
	**Brass protective cap** for connectors with **male thread**	 7.010.900.102
	**Brass 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	A7RJ-081M41
	8+2-pole	A7RJ-821M51

Assembly Instructions

Straight Connector, Female Thread



Assembly Instructions

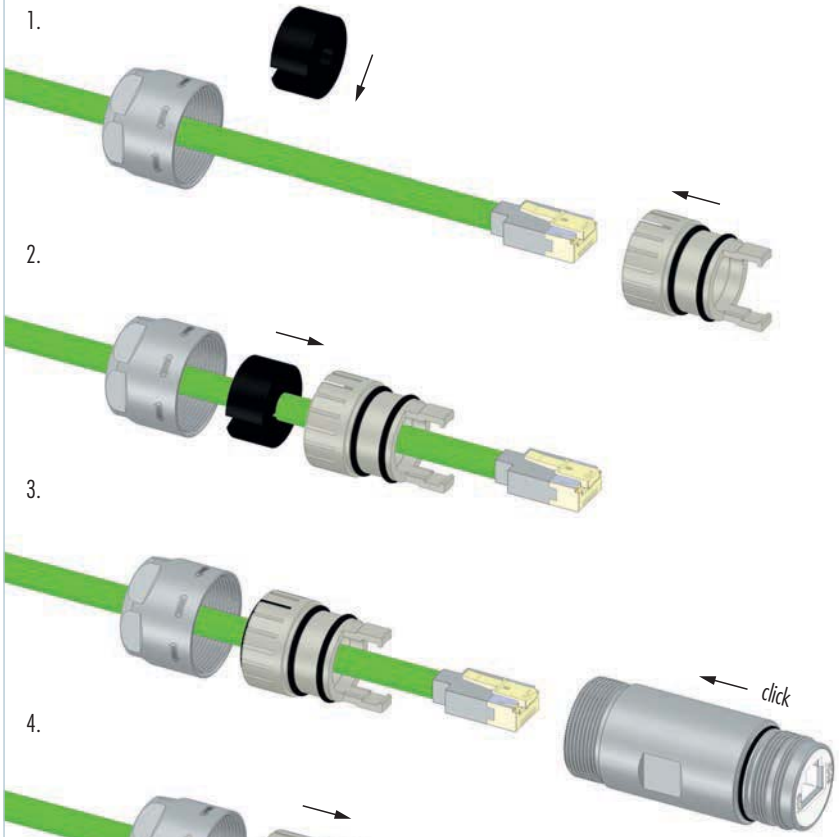
Male Threaded Connector

1.

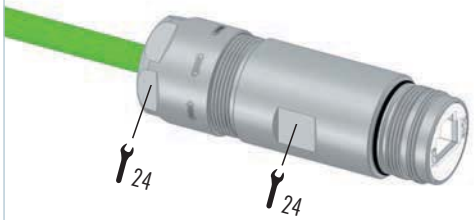
2.

3.

4.



5.



M 23 SIGNAL CONNECTORS

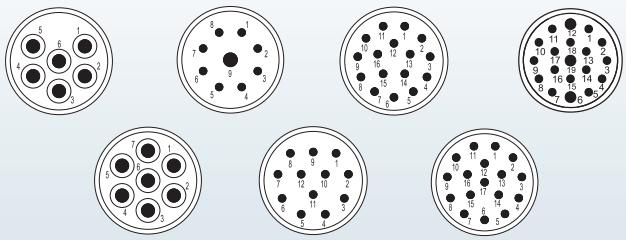
This reliable and universally applicable connector is widespread within industry. The connectors of HUMMEL AG can be customized freely. Moreover, they convice through their robustness and reliability. The range is modularly constructed and offers almost unlimited opportunities to the user.

// Numerous housing types
// Large variety
// Screw lock or TWILOCK quick release fastener

Product overview

Housings ▶ 68

Inserts ▶ 76



Accessories ▶ 84

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® (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

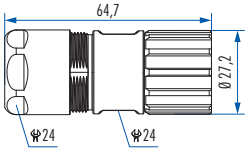
Number of positions	6	7	9 (8+1)	12	16	17	19 (16+3)
Number of contacts	6	7	8 1	12	16	17	16 3
Contact-Ø [mm]	2	2	1 2	1	1	1	1 1,5
Nominal current 1) [A]	20	20	8 20	8	8	8	8 10
Nominal voltage 2) [V~] Degree of Protection 3 3)	300	300	200	200	160	160	100
Test voltage (Breakdown voltage) 4) [V~]	2500	2500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

1), 2), 3), 4) See Technical Information page 16

Housings

Straight Connector, Female Thread

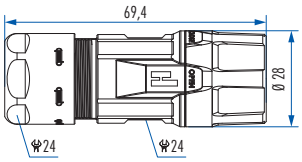
Cable-Ø	Part Number
3 – 7 mm (.12 – .28“)	7.106.400.000
7 – 12 mm (.28 – .47“)	7.106.500.000
11 – 17 mm (.44 – .67“)	7.106.600.000



▶ 76 ▶ 90

Straight Connector, Female Thread TWILOCK / TWILOCK-S *

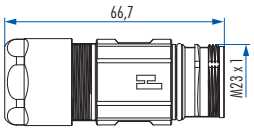
Cable-Ø	Part Number
3 – 7 mm (.12 – .28“)	7.166.400.000
7 – 12 mm (.24 – .47“)	7.166.500.000
11 – 17 mm (.43 – .67“)	7.166.600.000
* Compatible to Speedtec	
3 – 7 mm (.12 – .28“)	7.166.400.00S
7 – 12 mm (.24 – .47“)	7.166.500.00S
11 – 17 mm (.43 – .67“)	7.166.600.00S



▶ 76 ▶ 90

Straight Connector, Male Thread

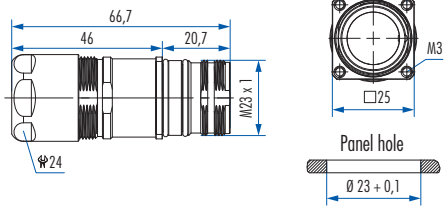
Cable-Ø	Part Number
3 – 7 mm (.12 – .28“)	7.206.400.000
7 – 12 mm (.28 – .47“)	7.206.500.000
11 – 17 mm (.44 – .67“)	7.206.600.000



▶ 76 ▶ 90

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	

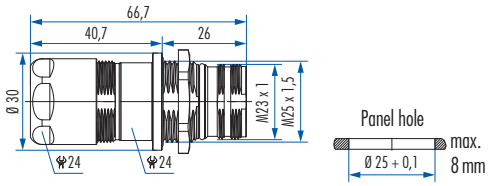


▶ 76 ▶ 90

Housing without inserts and contacts

Housings

Panel Connector, Male Thread, with Strain Relief

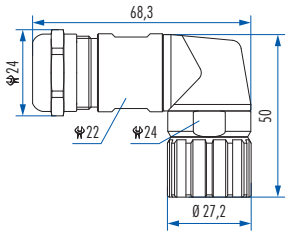


Cable-Ø	Part Number
Rear mounting, M 25 x 1,5 single hole mounted	
3 – 7 mm (.12 – .28")	7.486.400.000
7 – 12 mm (.28 – .47")	7.486.500.000
11 – 17 mm (.44 – .67")	7.486.600.000

Including jam nut M 25 x 1,5

▶ 76 ▶ 90

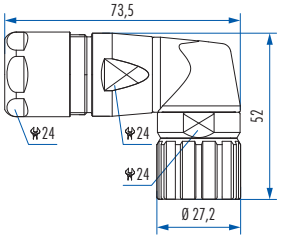
Right Angle Connector, Female Thread with positioning



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

▶ 76 ▶ 91

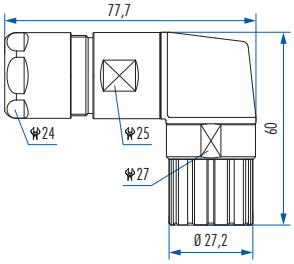
Right Angle Connector, Female Thread, EMC with positioning



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

▶ 76 ▶ 91

Right Angle Connector, EMC, rotatable



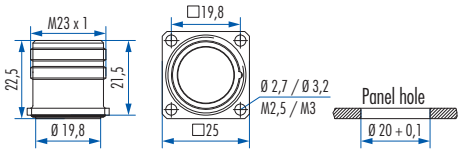
Cable-Ø	Part Number
7 – 12 mm (.28 – .47")	7.306.500.000
11 – 17 mm (.43 – .67")	7.306.600.000

▶ 76 ▶ 92

Housing without inserts and contacts

Housings

Panel Connector, Male Thread, Front Mounting

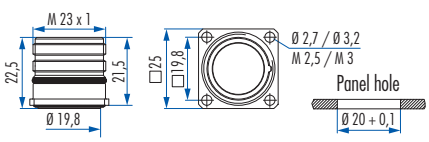


Type	Part Number
4 holes Ø 3,2 mm (.13")	7.400.000.000*)
4 threads M 3	7.402.000.000*)
4 holes Ø 2,7 mm (.11")	7.404.000.000*)
4 threads M 2,5	7.406.000.000*)

Optional: Flat gasket

▶ 76 ▶ 84 ▶ 93 / 94

Panel Connector, Male Thread, Front Mounting

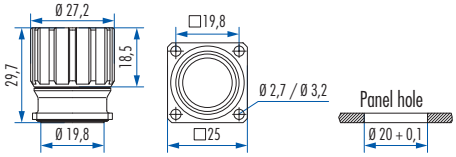


Type	Part Number
With anti-vibration O-Ring	
4 holes Ø 3,2 mm (.13")	7.410.000.000
4 threads M 3	7.412.000.000*)
4 holes Ø 2,7 mm (.11")	7.414.000.000
4 threads M 2,5	7.416.000.000*)

Optional: Flat gasket

▶ 76 ▶ 84 ▶ 93 / 94

Panel Connector, Female Thread, with knurled Nut

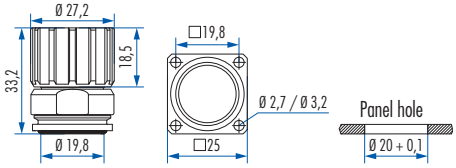


Type	Part Number
Without coding option	
4 holes Ø 3,2 mm (.13")	7.440.000.000
4 holes Ø 2,7 mm (.11")	7.444.000.000

Optional: Flat gasket

▶ 76 ▶ 84 ▶ 93 / 94

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

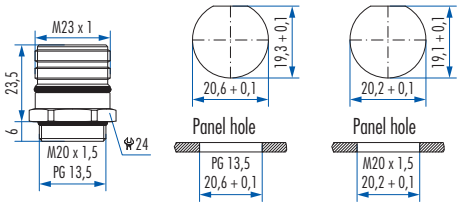
Optional: Flat gasket

▶ 76 ▶ 84 ▶ 93 / 94

Housing without inserts and contacts

*) No compatibility with TWILOCK

Panel Connector, Male Thread, Single Hole Mounted



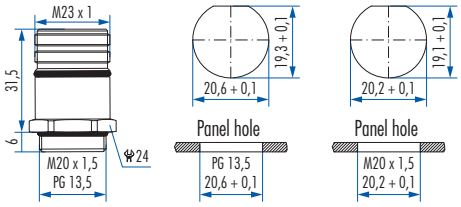
Type	Part Number
Front mounting for male inserts	
Thread M 20 x1,5	7.420.000.000*)
Thread PG 13,5	7.422.000.000*)

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

* FOR MALE * INSERTS ONLY

▶ 76 ▶ 84 ▶ 93

Panel Connector, Male Thread, Single Hole Mounted



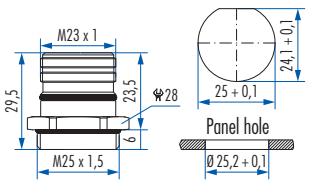
Type	Part Number
Front mounting for female inserts	
Thread M 20 x1,5	7.421.000.000*)
Thread PG 13,5	7.423.000.000*)

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

* FOR FEMALE * INSERTS ONLY

▶ 76 ▶ 84 ▶ 94

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*)

Optional: Flat gasket, jam nut M 25 x 1,5

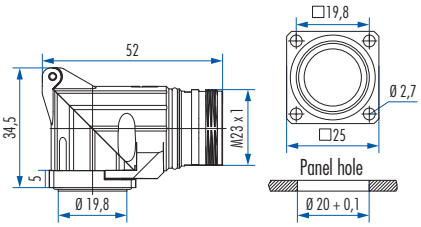
▶ 76 ▶ 84 ▶ 93 / 94

Housing without inserts and contacts

*) No compatibility with TWILOCK

Housings

Right Angle Panel Connector, Male Thread



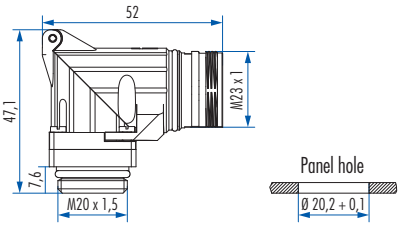
Type	Part Number
4 holes 2,7 mm (.11“)	7.435.000.000

Optional: Flat gasket

Easy fixation with M 2,5 screws

▶ 76 ▶ 84 ▶ 95

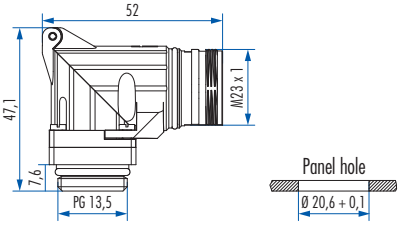
Right Angle Panel Connector, Male Thread, rotatable



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

▶ 76 ▶ 84 ▶ 95

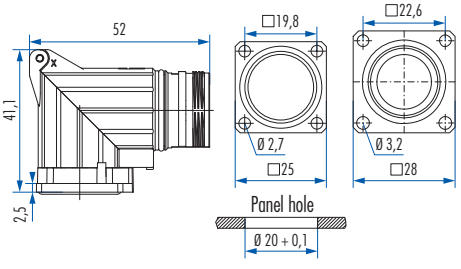
Right Angle Panel Connector, Male Thread, rotatable



Type	Part Number
335° rotatable, hole mounted	
Thread PG 13,5	7.432.000.000

▶ 76 ▶ 84 ▶ 95

Right Angle Panel Connector, Male Thread, rotatable



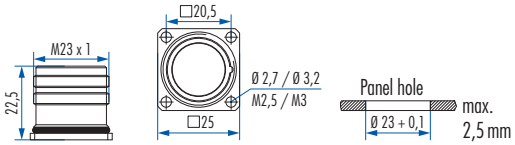
Type	Part Number
300° rotatable, 1,5 mm locking screw at flange	
4 x holes Ø 2,7 mm (.11“)	7.433.000.000
Flange 25 x 25 mm	
4 x holes Ø 3,2 mm	7.433.100.000
Flange 28 x 28 mm	

▶ 76 ▶ 84 ▶ 95

Housing without inserts and contacts

Housings

Panel Connector, Male Thread, Rear Mounting

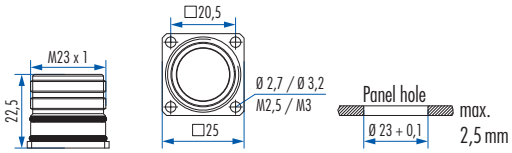


Type	Part Number
4 holes Ø 3,2 mm (.13")	7.450.000.000*)
4 threads M 3	7.452.000.000*)
4 holes Ø 2,7 mm (.11")	7.454.000.000*)
4 threads M 2,5	7.456.000.000*)

Optional: Flat gasket

▶ 76 ▶ 84 ▶ 93 / 94

Panel Connector, Male Thread, Rear Mounting

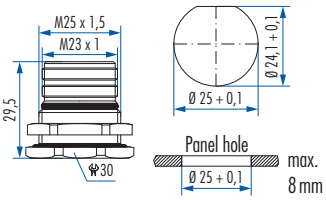


Type	Part Number
With anti-vibration O-Ring	
4 holes Ø 3,2 mm (.13")	7.460.000.000
4 threads M 3	7.462.000.000
4 holes Ø 2,7 mm (.11")	7.464.000.000
4 threads M 2,5	7.466.000.000

Optional: Flat gasket

▶ 76 ▶ 84 ▶ 93 / 94

Panel Connector, Male Thread, Single Hole Mounted

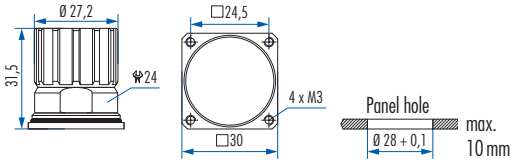


Type	Part Number
Rear mounting	
Thread M 25 x 1,5	7.458.000.000*)

Including jam nut M 25 x 1,5

▶ 76 ▶ 84 ▶ 93 / 94

Panel Connector, Female Thread, Rear Mounting



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

▶ 76 ▶ 84 ▶ 90

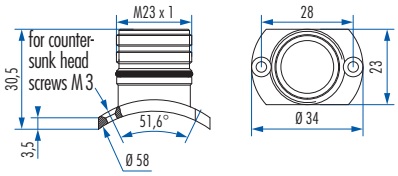
*) No compatibility with TWILOCK

Housing without inserts and contacts

Housings

Panel Connector with Radius Flange

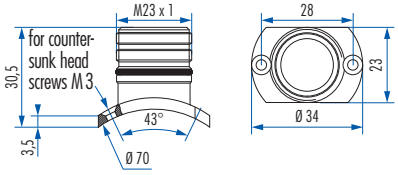
Type	Part Number
With anti-vibration O-Ring and flat body gasket Ø 58 mm (2.28")	7.490.000.000 *)



▶ 76 ▶ 84 ▶ 93/94

Panel Connector with Radius Flange

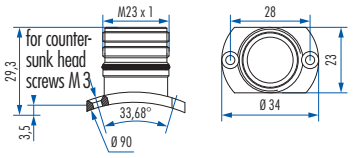
Type	Part Number
With anti-vibration O-Ring and flat body gasket Ø 70 mm (2.76")	7.491.000.000 *)



▶ 76 ▶ 84 ▶ 93/94

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 *)



▶ 76 ▶ 84 ▶ 93/94

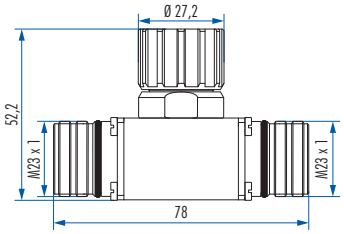
Housing without inserts and contacts

*) No compatibility with TWILOCK

Housings

Signal Distribution

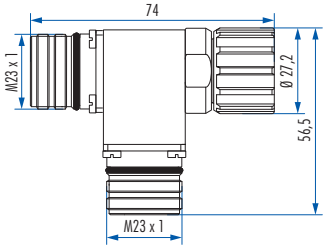
Type	Part Number
T 01	7.T01



▶ 76 ▶ 84

Signal Distribution

Type	Part Number
T 02	7.T02



▶ 76 ▶ 84

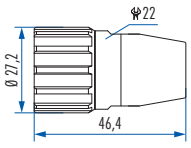
Signal Distribution

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



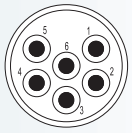
▶ 76 ▶ 84

Housing without inserts and contacts

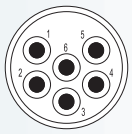
*) No compatibility with TWILOCK

Inserts / Pinouts

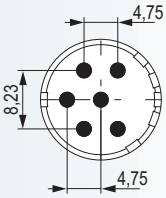
Inserts 6-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



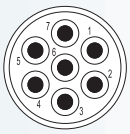
Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
Insert with solder contacts	7.001.906.103	7.001.906.104
Insert without contacts	7.003.906.101	7.003.906.102
Insert with dip solder contacts Length 3,5 mm	7.001.906.107	
Insert with dip solder contacts Length 10 mm	7.001.906.127	7.001.906.108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

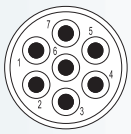
Coding possibilities N, S, H, X and Y (see page 81)

▶ 82 / 83

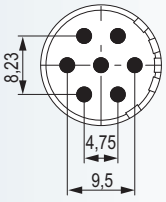
Inserts 7-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



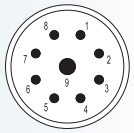
Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
Insert with solder contacts	7.001.907.103	7.001.907.104
Insert without contacts	7.003.907.101	7.003.907.102
Insert with dip solder contacts Length 3,5 mm	7.001.907.107	
Insert with dip solder contacts Length 10 mm	7.001.907.127	7.001.907.108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

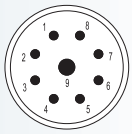
Coding possibilities N, S, H, X and Y (see page 81)

▶ 82 / 83

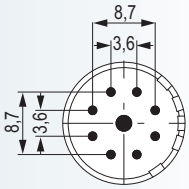
Inserts 9-pole (8 + 1)



Insert pin mating view (Part E)



Insert socket mating view (Part P)



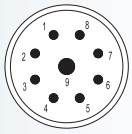
Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
Insert with solder contacts	7.001.981.103	7.001.981.104
Insert without contacts	7.003.981.101	7.003.981.102
Insert with dip solder contacts Length 3,5 mm	7.001.981.107	
Insert with dip solder contacts Length 10 mm	7.001.981.127	7.001.981.108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

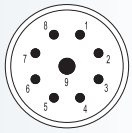
Coding possibilities N, S, H, X and Y (see page 81)

▶ 82 / 83

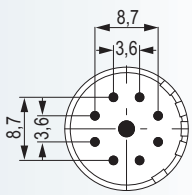
Inserts 9-pole (8 + 1)



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	7.002.981.103	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

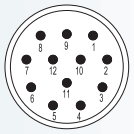
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

Coding possibilities N, S, H, X and Y (see page 81)

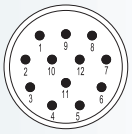
▶ 82 / 83

Inserts / Pinouts

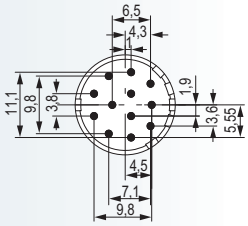
Inserts 12-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



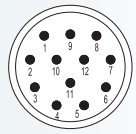
Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
Insert with solder contacts	7.001.912.103	7.001.912.104
Insert with solder contacts +PE (Pos.9)	7.001.912.113	7.001.912.114
Insert without contacts	7.003.912.101	7.003.912.102
Insert without contacts +PE (Pos.9)	7.003.912.111	7.003.912.112
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.

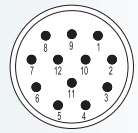
Coding possibilities N, S, H, X and Y (see page 81)

▶ 82 / 83

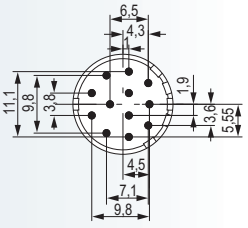
Inserts 12-pole



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

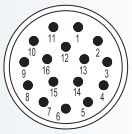
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.

Coding possibilities N, S, H, X and Y (see page 81)

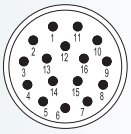
▶ 82 / 83

Inserts 16-pole

Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
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



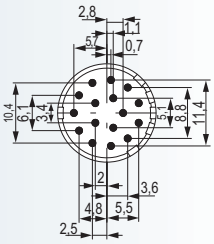
Insert pin mating view (Part E)



Insert socket mating view (Part P)

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

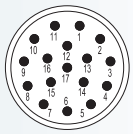
Coding possibilities N, S, H, X and Y (see page 81)



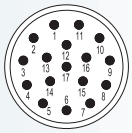
▶ 82 / 83

Inserts 17-pole

Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
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



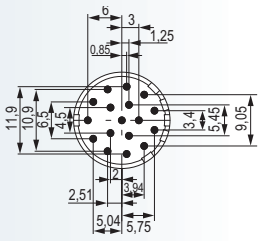
Insert pin mating view (Part E)



Insert socket mating view (Part P)

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

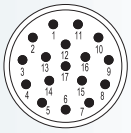
Coding possibilities N, S, H, X and Y (see page 81)



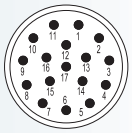
▶ 82 / 83

Inserts / Pinouts

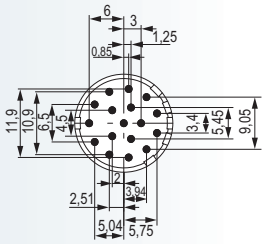
Inserts 17-pole



Insert pin mating view (Part P)



Insert socket mating view (Part E)



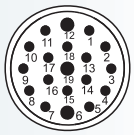
Type	Part Number Pins	Part Number Sockets
Pinout counter-clockwise		
Insert with solder contacts	7.002.917.103	7.002.917.104
Insert without contacts	7.004.917.101	7.004.917.102
Insert with dip solder contacts Length 3,5 mm	7.002.917.107	
Insert with dip solder contacts Length 10 mm	7.002.917.127	7.002.917.108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

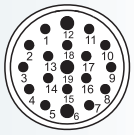
Coding possibilities N, S, H, X and Y (see page 81)

▶ 82 / 83

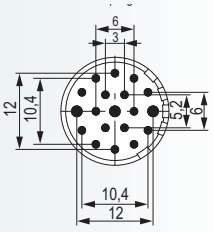
Inserts 19-pole



Insert pin mating view (Part E)



Insert socket mating view (Part P)



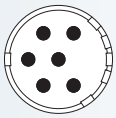
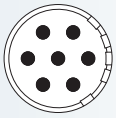
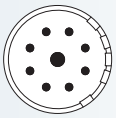
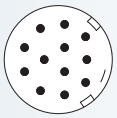
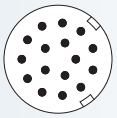
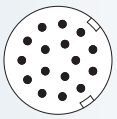
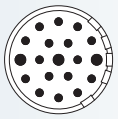
Type	Part Number Pins	Part Number Sockets
Pinout clockwise		
Insert with solder contacts	7.001.919.103	7.001.919.104
Insert with solder contacts +PE (Pos.12)	7.001.919.113	7.001.919.114
Insert with solder contacts + PE (Pos.12) 1,5 mm elongated	7.001.919.123	
Insert without contacts	7.003.919.101	7.003.919.102
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 81)

▶ 82 / 83

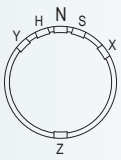
Required Contacts

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 110 – 116	

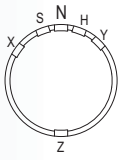
For the M23 crimp insert with 1 mm contacts can be used stamped crimp contact.

▶ 82

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

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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

▶ 86

Accessories

Accessories	Type	Part Number
	Plastic protective cap for connectors with **male thread**	7.000.900.101
	with **female thread**	7.000.900.102
	**Brass protective cap** for connectors with **female thread**	7.010.900.103*)
	**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	7.010.9S0.703*)
	Length 100 mm	7.010.9S1.003*)
	**Brass protective cap with chain** for connectors with **male thread**	
	Length 70 mm	7.010.9S0.702
	Length 100 mm	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

▶ 86–89 ▶ 84

*) No compatibility with TWILOCK

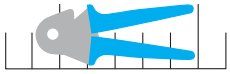
Accessories

Accessories

Type	Part Number
 **Adaptor flange** for Straight Connectors	7.010.900.128
 **Conduit adaptor** Poleon DN 12	7.010.900.205
Conduit adaptor Poleon DN 14	7.010.900.207
Conduit adaptor Poleon DN 17	7.010.900.209
 **Positioner for Crimp Tool** DMC M22520	7.000.900.DMC

Locator

Type	Part Number
 **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	7.000.9DM.C03
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.C04

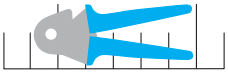


Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)

Part Number	Crimp Contact	Cross Section (mm²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.001	Crimp pin 1 mm	0,14 0,25 0,34 0,50 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	1
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 0,86 0,90	2
7.010.901.002	Crimp socket 1 mm (0,34 – 1 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	2
7.010.901.501	Crimp pin 1,5 mm	0,14 0,25 0,34 0,56 0,75 1,00	AWG 26 AWG 24 AWG 22 AWG 20 AWG 18 AWG 17	0,65 0,68 0,72 0,81 0,95 1,07	3
7.010.901.512	Crimp socket 1,5 mm (0,14 – 0,56 mm²)	0,14 0,25 0,34 0,56	AWG 26 AWG 24 AWG 22 AWG 20	0,70 0,73 0,77 0,85	2
7.010.901.502	Crimp socket 1,5 mm (0,34 – 1 mm²)	0,34 0,56 0,75 1,0	AWG 22 AWG 20 AWG 18 AWG 17	0,88 0,95 1,05 1,13	2
7.010.902.001	Crimp pin 2 mm	0,75 1,0 1,5 2,5	AWG 18 AWG 17 AWG 16 AWG 14	1,25 1,35 1,45 1,60	4
7.010.902.002	Crimp socket 2 mm	0,75 1,0 1,5 2,5	AWG 18 AWG 17 AWG 16 AWG 14	1,25 1,35 1,45 1,60	5

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

▶ 96



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 0,14 0,25 0,34 0,56	28 26 24 22 20	0,72 0,78 0,82 0,86 0,90	1
7.010.901.021	Crimp pin 1 mm	0,75 1,00 1,50	18 17 16	0,80 0,86 0,95	1
7.010.901.022	Crimp socket 1 mm	0,75 1,00 1,50	18 17 16	0,80 0,86 0,95	2

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

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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

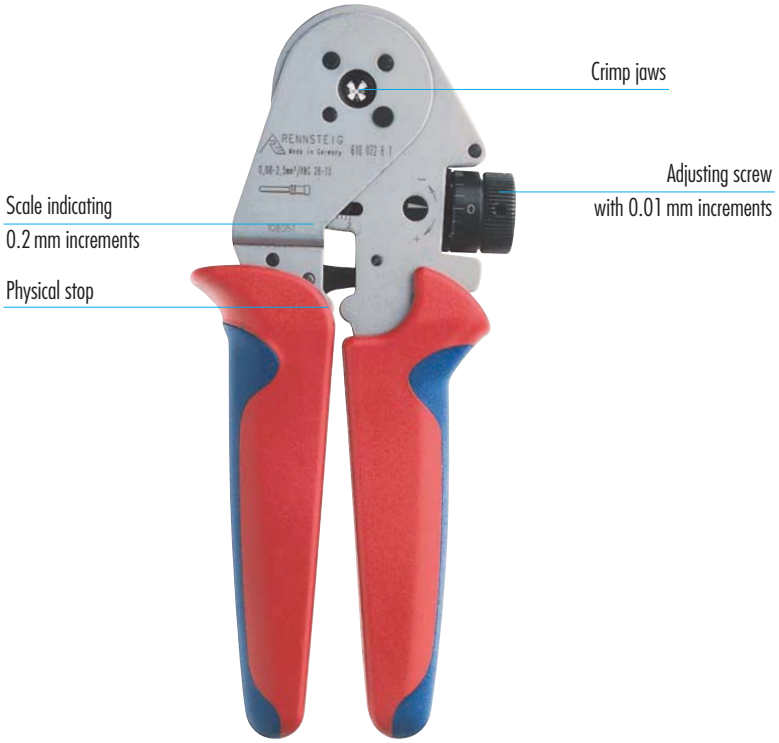
The four indent crimp tool 7.000.900.904 / 7.000.900.907 has been developed for optimal crimping of machined contacts with diameters from 0.08 to 2.5 mm² (28 through 14 AWG).

How to Crimp

The reference table 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.

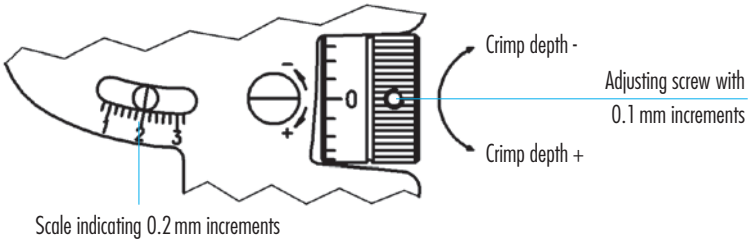


Crimp Tool for Signal Connectors M 23 / M 16

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.

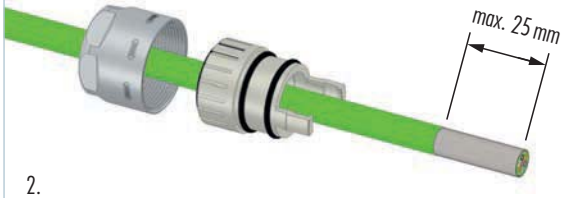
After insertion of the gauge, there must be just enough space for moving the gauge inside the entry hole. If the opening is too small or too large to exactly match the gauge, the deviation (+/-) can be checked by the precision setting of the screw. Please contact the factory in case the deviation exceeds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

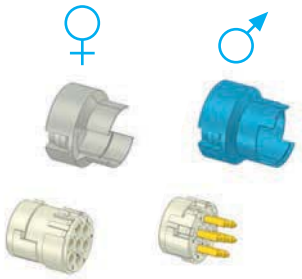
Maintenance and Repair
Keep the tool clean and properly stored when not in service. All pivot points need to be oiled regularly and the spring clips securing the bolts have to always be in place. For repair please send the tool back to the factory.

Assembly Instructions

Straight Connector, Male / Female Thread

1.





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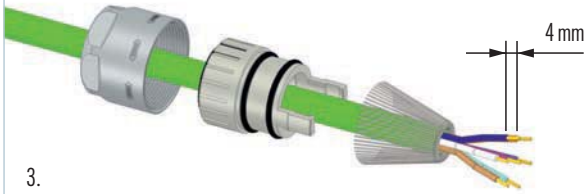

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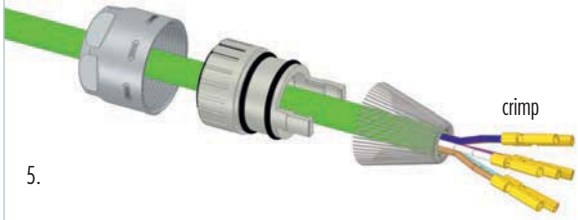

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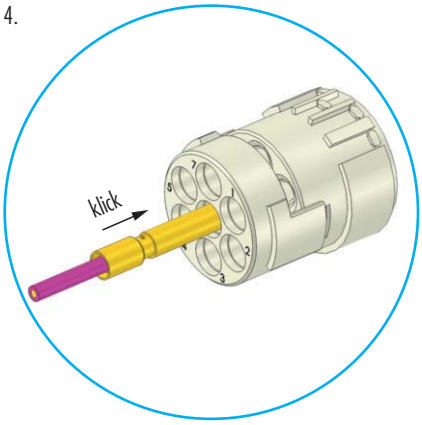

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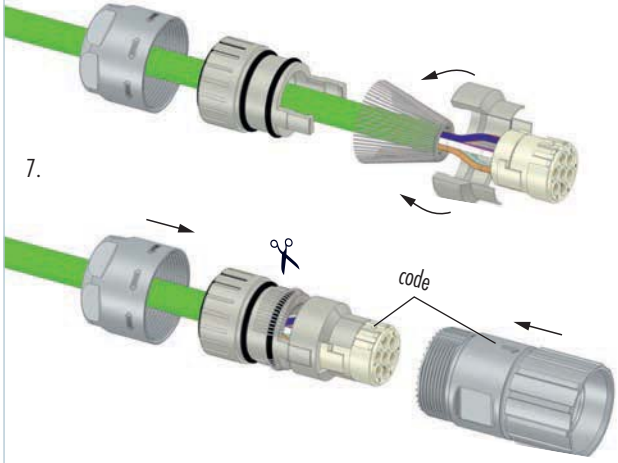

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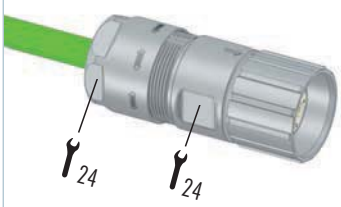

Assembly Instructions

Right Angle Connectors, EMC

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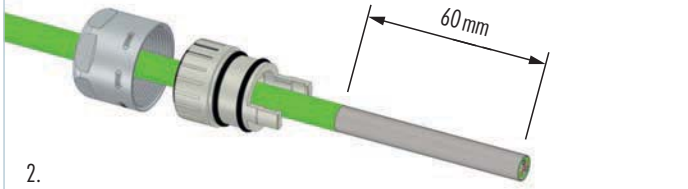

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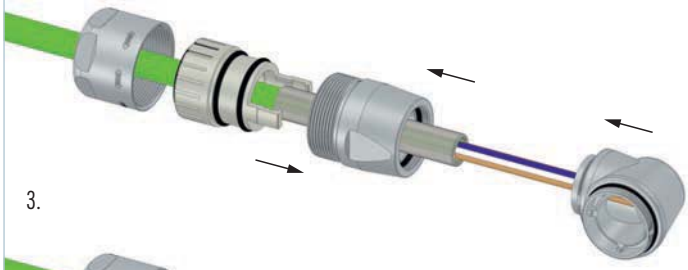

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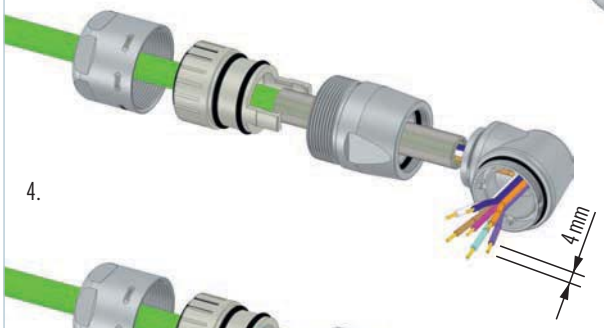

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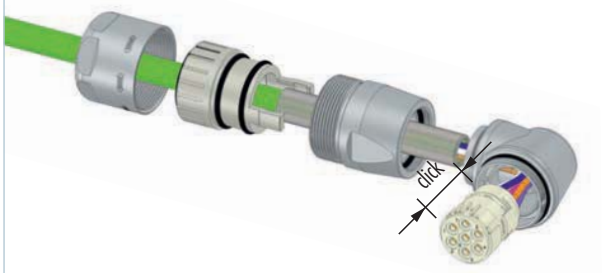

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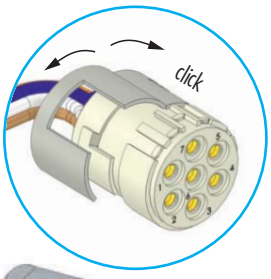

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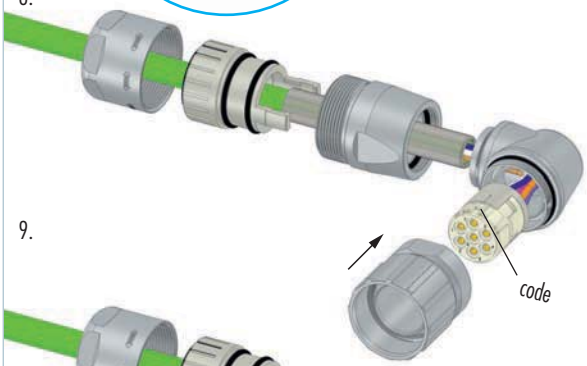

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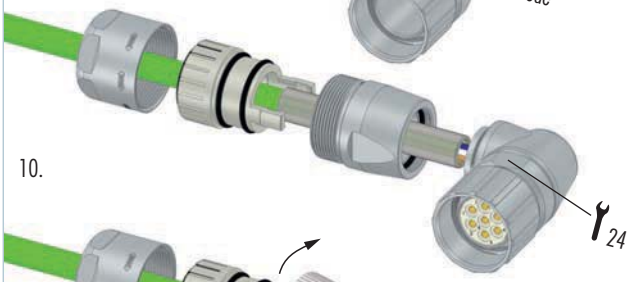

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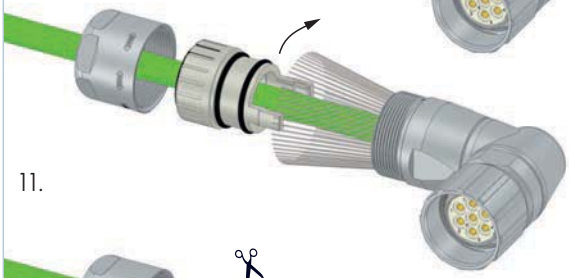

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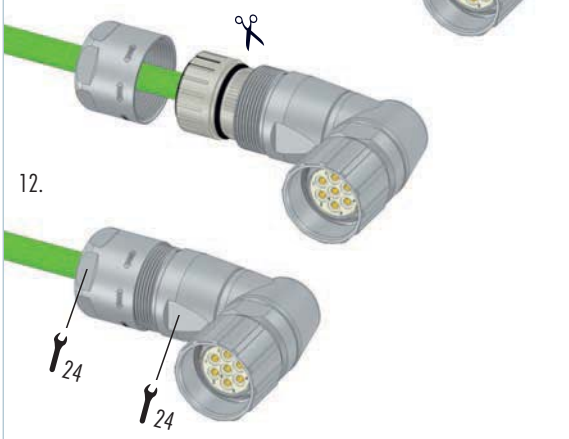

Assembly Instructions

Right Angle Connector, rotatable, EMC

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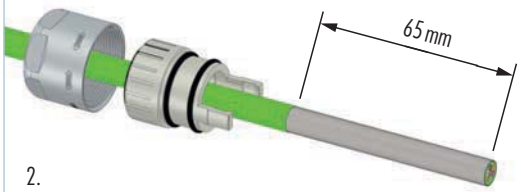

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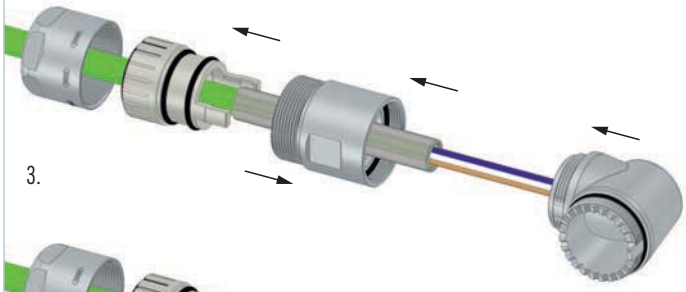

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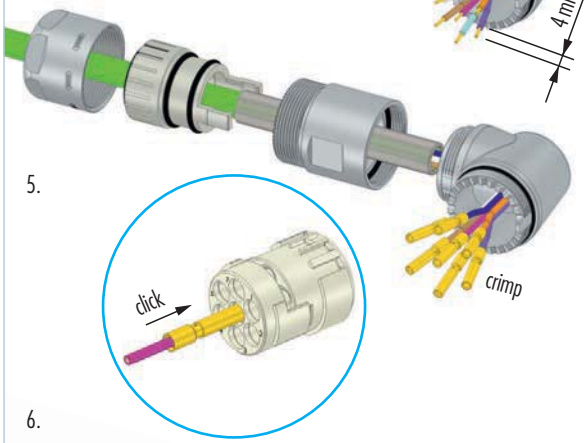

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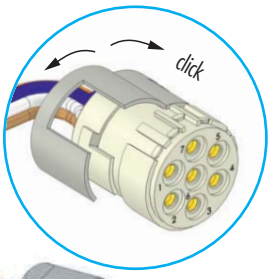

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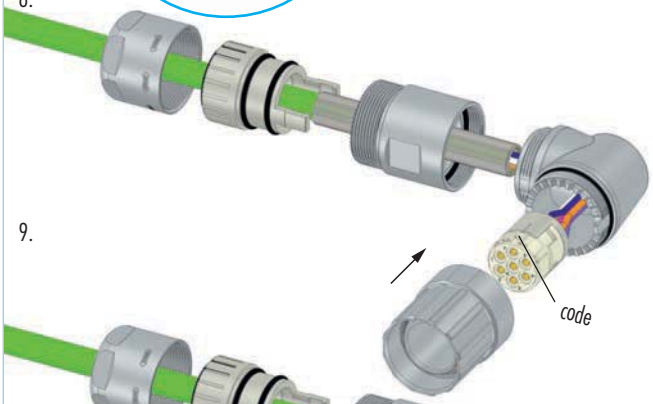

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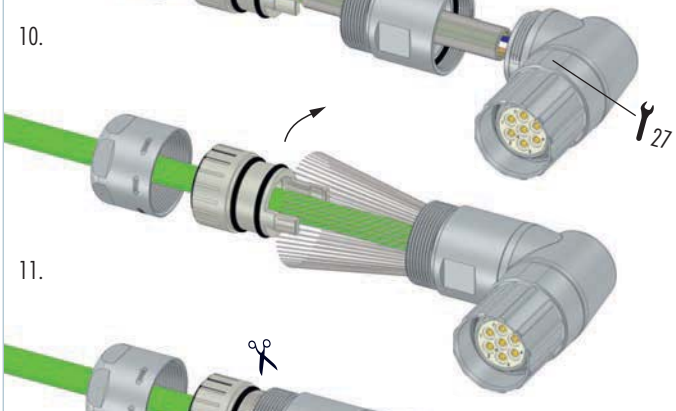

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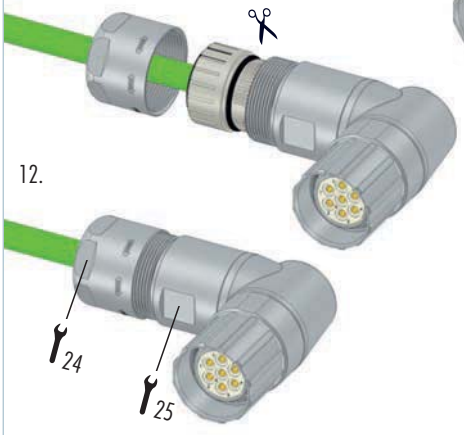
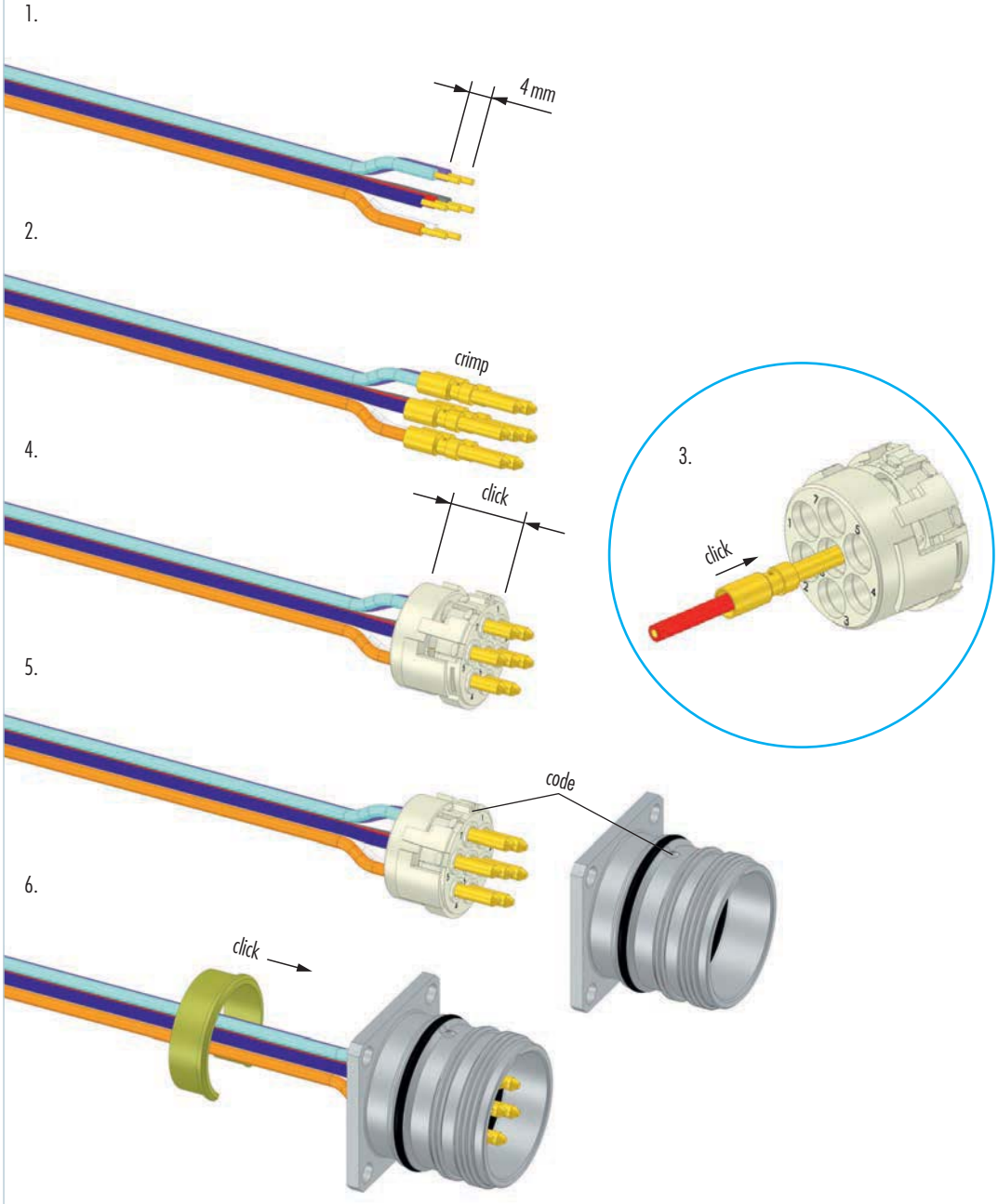


Assembly Instructions

Panel Connectors, Male Inserts



Assembly Instructions

Panel Connectors, Female Inserts

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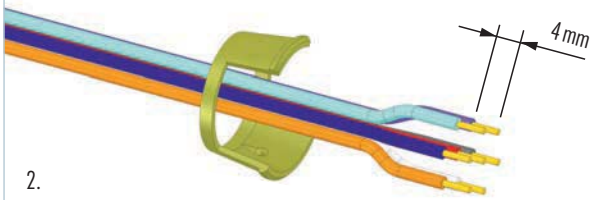

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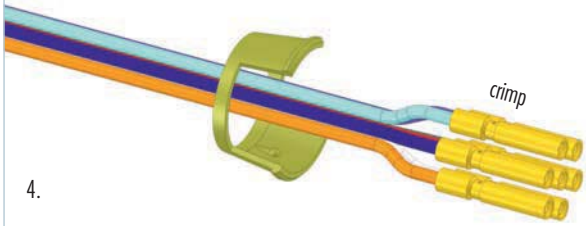

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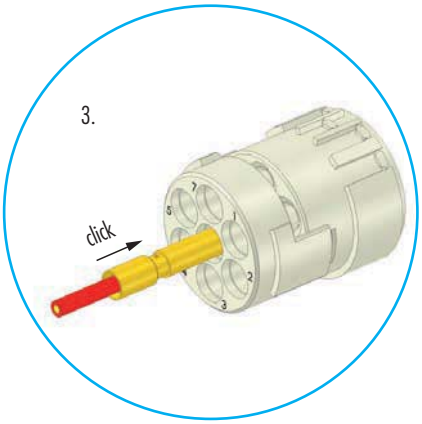

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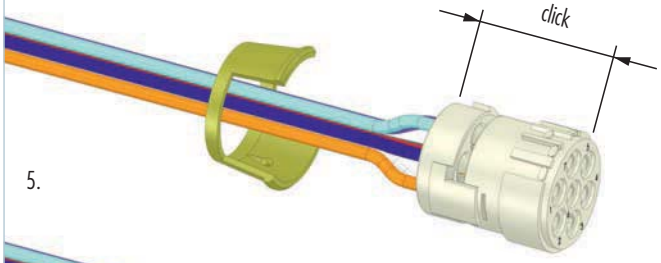

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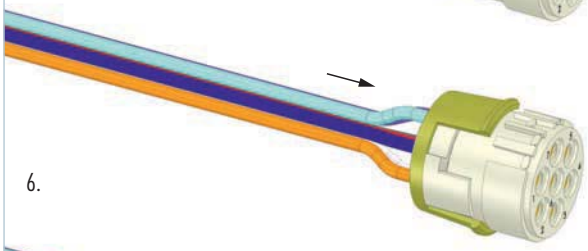
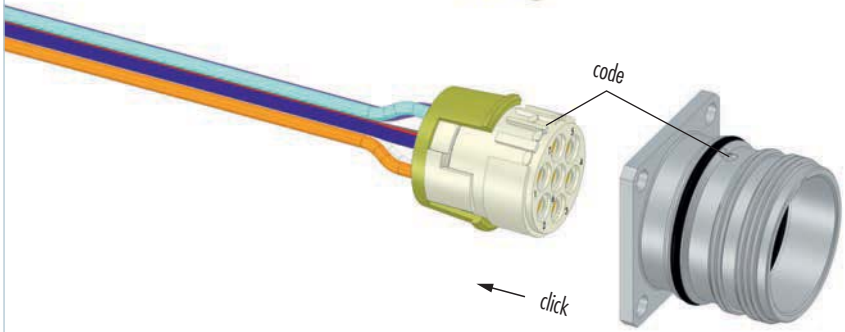
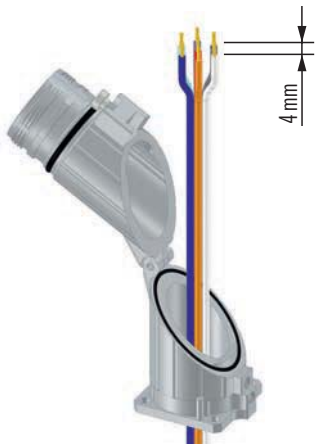




Assembly Instructions

Right Angle Panel Connector

1.



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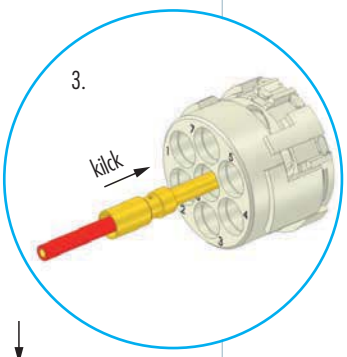

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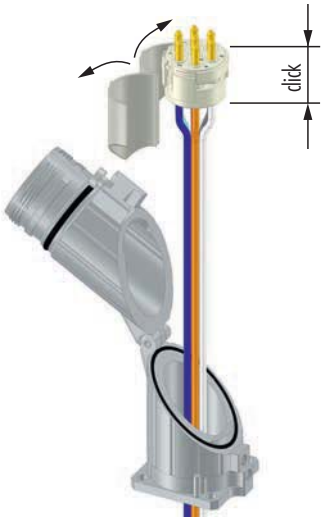

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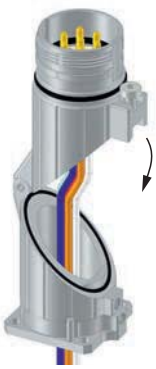

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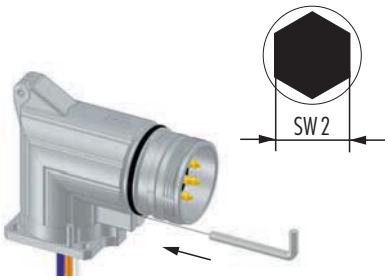

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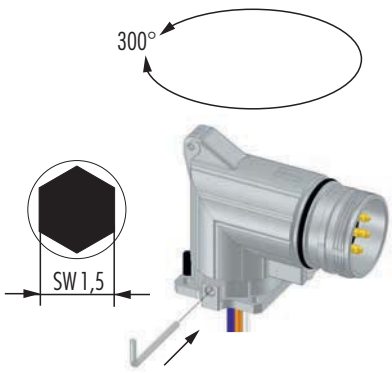
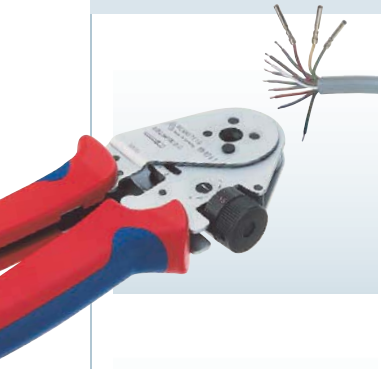
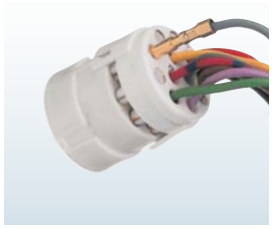
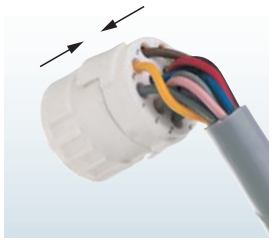
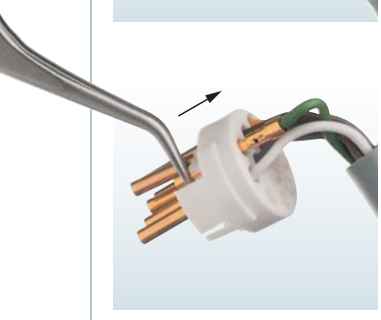


Crimping, Assembly and Disassembly of Contacts









Crimping

// Remove conductor insulation 4 mm (.16“) max.
// Select appropriate Crimp tool setting (see page 86 / 87)
// 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 27 SIGNAL CONNECTORS

M 27 signal connectors of HUMMEL AG are available in 26- or 28 pole type. It can be seen at the high protection class (IP 67 / IP 69K) and the large temperature range (up to + 125 °C) of these connectors.

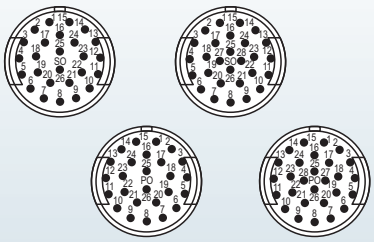
// M 27 connectors, male and female thread
// Panel connectors
// Large selection of accessories

M 27 SIGNAL

Product overview

Housings ▶ 100

Inserts ▶ 101



Accessories ▶ 103

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	50
Seals / O-Rings	Buna-N standard optional Viton® (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	7 – 17 mm (.28 – .67")

Electrical Data

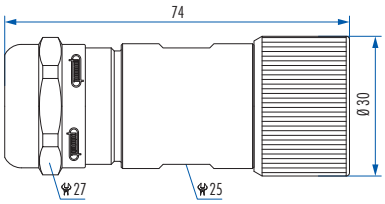
Number of positions	26	28
Number of contacts	26	28
Contact-Ø [mm]	1	1
Nominal current [1)] [A]	8	8
Nominal voltage [2)] [V~]	150	150
Test voltage (Breakdown voltage) [3)] [V~]	1500	1500
Insulation resistance [MΩ]	$>10^{12}$	$>10^{12}$
Max. contact resistance [mΩ]	3	3
Degree of Protection [4)]	3	3

[1), 2), 3), 4)] See Technical Information page 16

Housings

Straight Connector, Female Thread

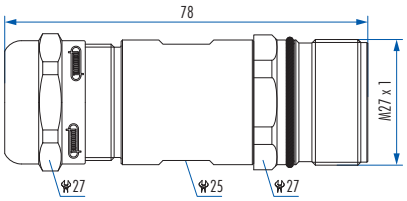
Cable-Ø	Part Number
7 – 12 mm (.28 – .47")	7.110.500.000
11 – 17 mm (.43 – .67")	7.110.600.000



▶ 101 ▶ 104

Straight Connector, Male Thread

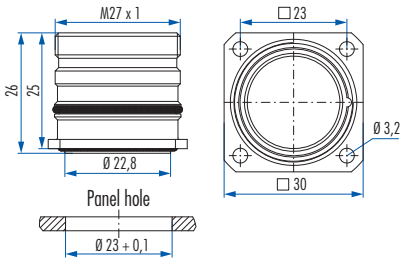
Cable-Ø	Part Number
7 – 12 mm (.28 – .47")	7.210.500.000
11 – 17 mm (.43 – .67")	7.210.600.000



▶ 101 ▶ 104

Panel Connector, Male Thread, front mounting

Type	Part Number
4 x holes 3,2 mm	7.410.700.000



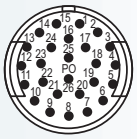
▶ 101 ▶ 106

Housing without inserts and contacts

Inserts 26-pole

Type	Part Number	Part Number
Pinout clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.001.926.103	7.001.926.104
Insert without contacts	7.003.926.101	7.003.926.102
Insert with dip solder contacts Length 10 mm	7.001.926.127	

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



Insert pin mating view

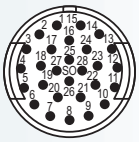
Insert socket mating view

▶ 102

Inserts 28-pole

Type	Part Number	Part Number
Pinout clockwise	**Pins**	**Sockets**
Insert with solder contacts	7.001.928.103	7.001.928.104

Insert pin mating view



Insert socket mating view

▶ 102

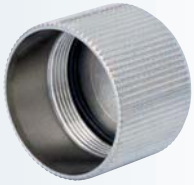
Required Contacts / Contacts

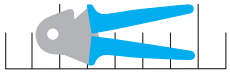
Contact Arrangement	Number of Poles	Required Contacts
	26	26 x 1 mm
	28	28 x 1 mm

Contacts	Type	Crimp Range	Part Number
	Crimp pin 1 mm, machined	0,14 – 0,56 mm² (AWG 26 – 17)	7.010.971.001
	Crimp socket 1 mm, machined	0,14 – 0,56 mm² (AWG 26 – 17)	7.010.971.002

▶ 104

Accessories

Accessories	Type	Part Number
	Plastic protective cap for connectors with **male thread** with **female thread**	 7.000.980.167 7.000.980.168
	**Brass protective cap** for connectors with **female thread** **Brass protective cap with chain** for connectors with **female thread** Length 70 mm	 7.010.900.169 7.010.9S0.707
	**Brass protective cap** for connectors with **male thread** **Brass protective cap with chain** for connectors with **male thread** Length 70 mm	 7.010.900.170 7.010.9S0.708
	**Crimp tool** for manual crimping of machined crimp contacts Works with contacts for power or signal ▶ 121 ▶ 104	 7.000.900.901 / 904
	**Assembly tool**	7.010.900.110



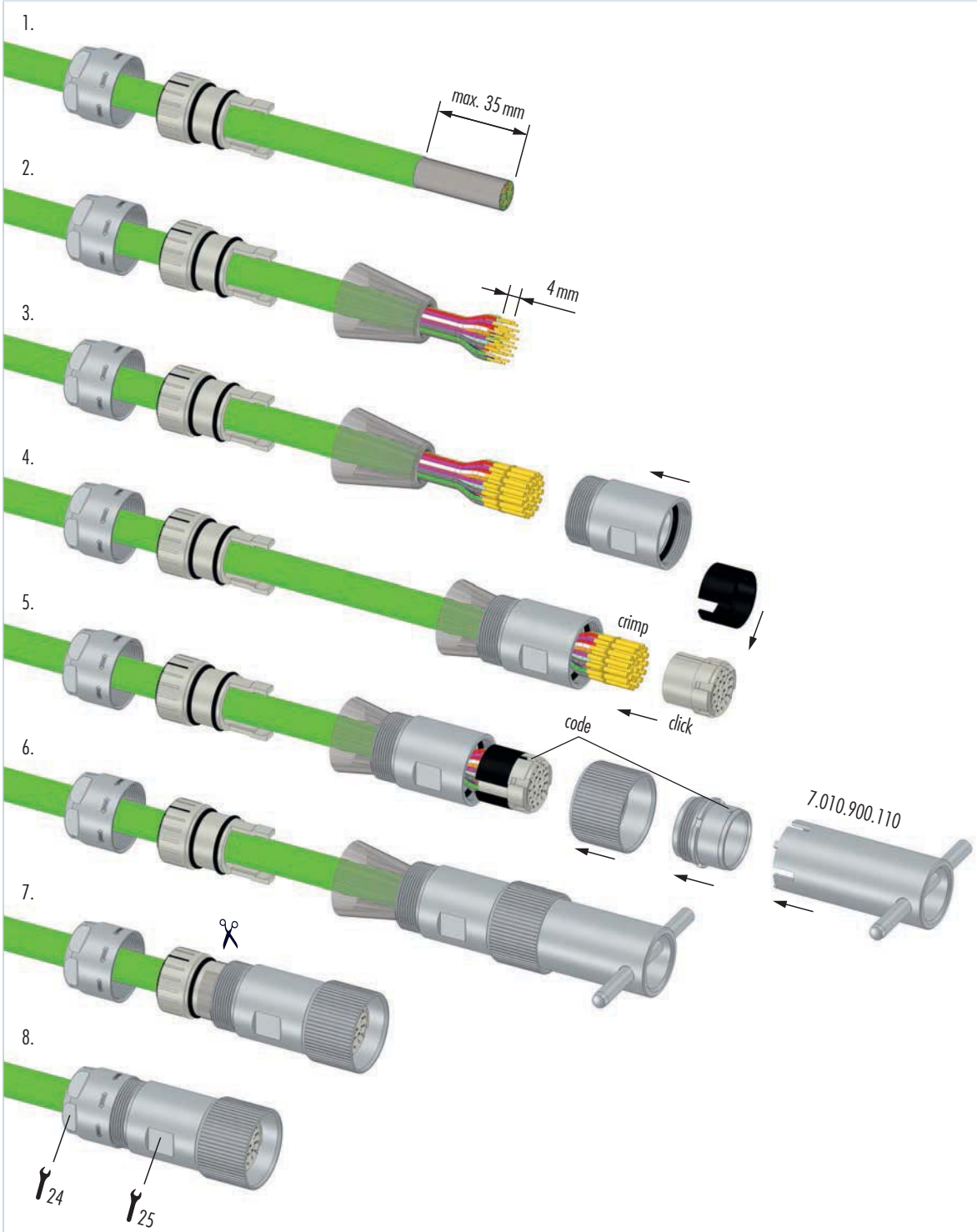
Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.901)

Part Number	Crimp Contact	Cross Section (mm²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.971.001	Crimp pin 1 mm, M 27	0,14	26	0,68	11
		0,22	24	0,70	11
		0,38	22	0,72	11
		0,56	20	0,74	11
7.010.971.002	Crimp socket 1 mm, M 27	0,14	26	0,68	12
		0,22	24	0,70	12
		0,38	22	0,72	12
		0,56	20	0,74	12

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

Assembly Instructions

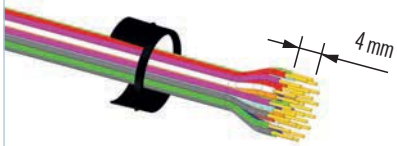
Straight Connector, Female Thread



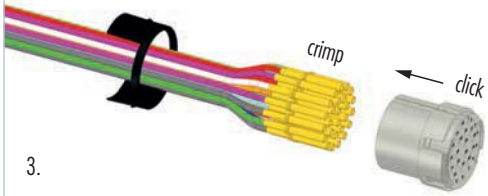
Assembly Instructions

Panel Connector

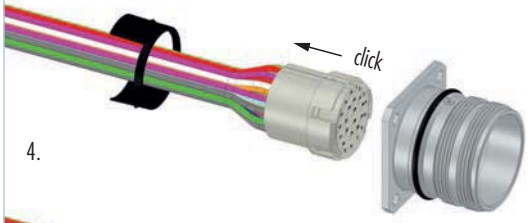
1.



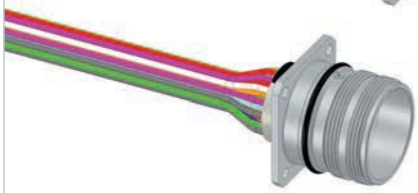
2.



3.



4.



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 / 630 V.

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

M 23 POWER, M 23 HYBRID

Product overview

Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25 µm)
Minimum mating cycles	> 1000 *)
Seals / O-Rings	Buna-N standard optional Viton® (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

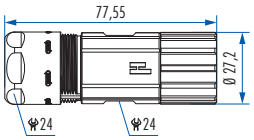
Number of positions	5 + PE	4 + 3 + PE		5 + 3 + PE		10
Number of contacts	6	4	4	5	4	10
Contact-Ø [mm]	2	1	2	1	2	1
Nominal current 1) [A]	28	8	28	10	28	10
Nominal voltage 2) [V~] Degree of Protection 3 3)	600	300	600	250	630	160
Test voltage (Breakdown voltage) 4) [V~]	4000	2500	4000	2500	4000	2500
Insulation resistance [MΩ]	$>10^{13}$	$>10^{13}$		$>10^{13}$		$>10^{13}$
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)	630	300	60
Test voltage (Breakdown voltage) 4) [V~]	4000	2500	500
Insulation resistance [MΩ]	$>10^{13}$	$>10^{10}$	$>10^{6}$
Max. contact resistance [mΩ]	< 3	< 3	< 3

1), 2), 3), 4) See Technical Information page 16

Housings

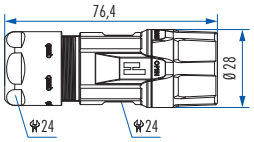
Straight Connector, Female Thread



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

▶ 115 ▶ 117 ▶ 123

Straight Connector, Female Thread TWILOCK / TWILOCK-S *



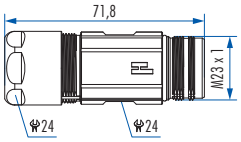
Cable-Ø	Part Number
7 – 12 mm (.24 – .47")	7.556.500.000
11 – 17 mm (.43 – .67")	7.556.600.000

*** Compatible to Speedtec**

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

▶ 115 ▶ 117 ▶ 123

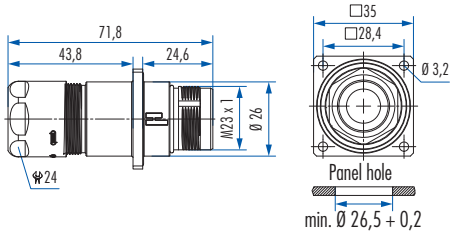
Straight Connector, Male Thread



Cable-Ø	Part Number
7 – 12 mm (.27 – .47")	7.560.500.000
11 – 17 mm (.43 – .67")	7.560.600.000

▶ 115 ▶ 117 ▶ 123

Panel Connector, Male Thread, with Strain Relief



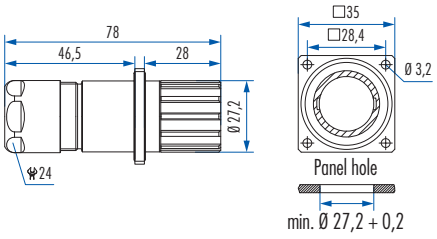
Cable-Ø	Part Number
4 holes Ø 3,2 mm (.13"), front or rear mounting	
7 – 12 mm (.27 – .47")	7.683.500.000
11 – 17 mm (.43 – .67")	7.683.600.000

▶ 115 ▶ 117 ▶ 123

Housing without inserts and contacts

Housings

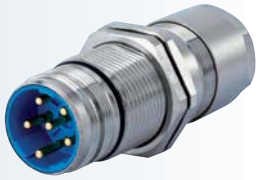
Panel Connector, Female Thread, with Strain Relief

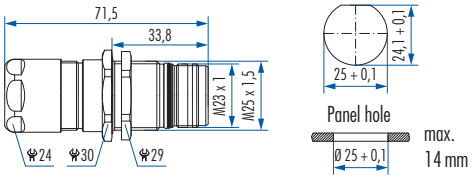


Cable-Ø	Part Number
4 holes Ø 3,2 mm (.13"), front or rear mounting	
7 – 12 mm (.27 – .47")	7.681.500.000
11 – 17 mm (.43 – .67")	7.681.600.000

▶ 115 ▶ 117 ▶ 123

Panel Connector, Male Thread, with Strain Relief

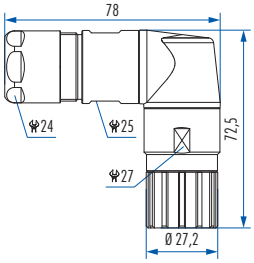




Cable-Ø	Part Number
Single hole mounted, rear mounting, thread M 25 x 1,5	
7 – 12 mm (.27 – .47")	7.653.500.000
11 – 17 mm (.43 – .67")	7.653.600.000
Including jam nut M 25 x 1,5	

▶ 115 ▶ 117 ▶ 123

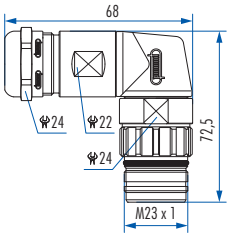
Right Angle Connector, Female Thread, rotatable



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

▶ 115 ▶ 117 ▶ 130

Right Angle Connector, Male Thread, rotatable



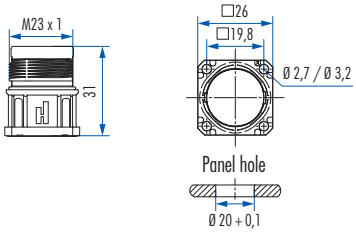
Cable-Ø	Part Number
7 – 12 mm (.27 – .47")	7.580.500.000
10 – 14 mm (.39 – .55")	7.580.600.000

▶ 115 ▶ 117 ▶ 130

Housing without inserts and contacts

Housings

Panel Connectors, Male Thread, Front Mounting

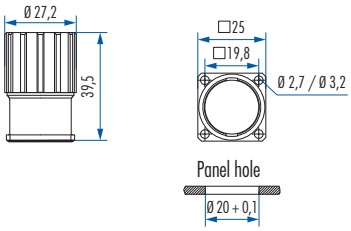


Type	Part Number
4 holes Ø 3,2 mm (.13")	7.601.000.000
4 holes Ø 2,7 mm (.11")	7.605.000.000

Optional: Flat gasket

▶ 115 ▶ 117 ▶ 125

Panel Connector with knurled Nut, Front Mounting



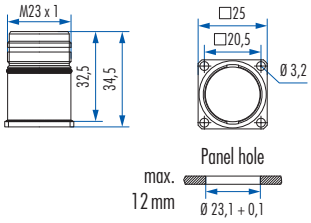
Type	Part Number
4 holes Ø 3,2 mm (.13")	7.641.000.000
4 holes Ø 2,7 mm (.11")	7.645.000.000

Optional: Flat gasket

▶ 115 ▶ 117 ▶ 131

▶ 115 ▶ 131

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 *)

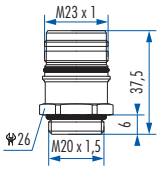
▶ 115 ▶ 117 ▶ 125

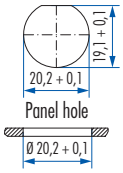
Housing without inserts and contacts

*) No compatibility with TWILOCK

Housings

Panel Connector, Male Thread, Single Hole Mounted



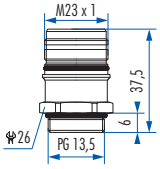


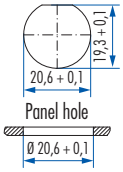
Type	Part Number
Front mounting Thread M 20 x1,5	7.621.000.000 *)

Options: Flat gasket, jam nut M 20 x 1,5

▶ 115 ▶ 117 ▶ 132

Panel Connector, Male Thread, Single Hole Mounted



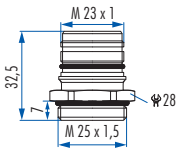


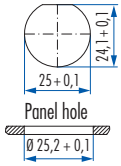
Type	Part Number
Front mounting Thread PG 13,5	7.623.000.000 *)

Options: Flat gasket, jam nut PG 13,5

▶ 115 ▶ 117 ▶ 132

Panel Connector, Male Thread, Single Hole Mounted



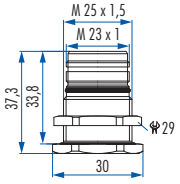


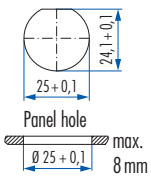
Type	Part Number
Front mounting Thread M 25x1,5	7.626.000.000

Options: Flat gasket, jam nut M 25 x 1,5

▶ 115 ▶ 117 ▶ 132

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

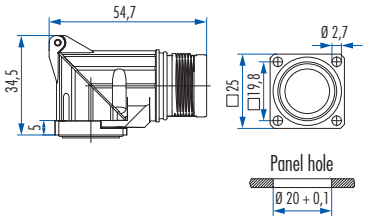
▶ 115 ▶ 117 ▶ 132

Housing without inserts and contacts

*) No compatibility with TWILOCK

Housings

Right Angle Panel Connector, Male Thread



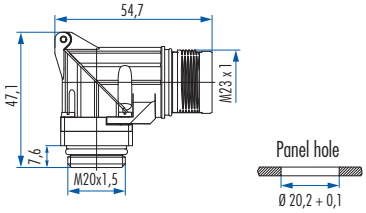
Type	Part Number
4 holes Ø 2,7 mm (.11")	7.635.000.000

Optional: Flat gasket

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

▶ 115 ▶ 117 ▶ 133

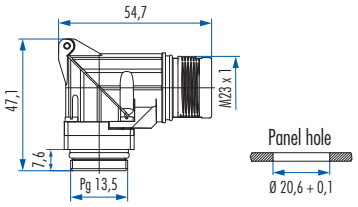
Right Angle Panel Connector, Male Thread, rotatable



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

▶ 115 ▶ 117 ▶ 133

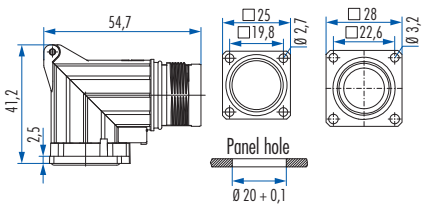
Right Angle Panel Connector, Male Thread, rotatable



Type	Part Number
335° rotatable, single hole mounted	
Thread PG 13,5	7.637.000.000

▶ 115 ▶ 117 ▶ 133

Right Angle Panel Connector, Male Thread, rotatable

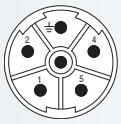
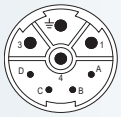
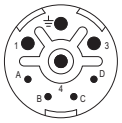
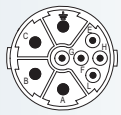
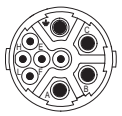
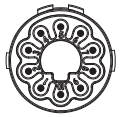


Type	Part Number
300° rotatable, locking screw at flange	
4 x holes Ø 2,7 mm (.11")	7.638.000.000
Flange 25 x 25 mm	
4 x holes Ø 3,2 mm (.13")	7.638.100.000
Flange 28 x 28 mm	

▶ 115 ▶ 117 ▶ 133

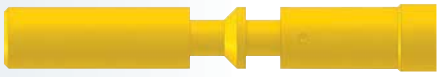
Housing without inserts and contacts

Required Contacts

Contact Arrangement, Mating View		Number of Poles	Required Contacts
 crimp pin	 crimp socket	6 x crimp pins 2 mm 6 x crimp sockets 2 mm	7.084.951.101 7.084.951.102
 crimp pin	 crimp socket	4 x crimp pins 1 mm, 4 x crimp pins 2 mm 4 x crimp sockets 1 mm, 4 x crimp sockets 2 mm	7.084.943.121 7.084.943.122
 crimp pin	 crimp socket	5 x crimp pins 1 mm, 4 x crimp pins 2 mm 5 x crimp sockets 1 mm, 4 x crimp sockets 2 mm	7.084.953.101 *) 7.084.953.102 *)
 crimp pin	 crimp socket	5 x crimp pins 1 mm, 4 x crimp pins 2 mm 5 x crimp sockets 1 mm, 4 x crimp sockets 2 mm	7.084.909.101 *) 7.084.909.102 *)
 crimp pin	 crimp socket	10 x crimp pins 1 mm 10 x crimp sockets 1 mm	7.084.910.101 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 4 x crimp sockets 1 mm, 4 x crimp sockets 2 mm, 4 x crimp sockets 0,6 mm	7.084.944.101 7.084.944.102

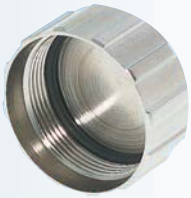
*) Assembly instructions see page 124

Contacts

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

▶ 134

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
	**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

*) No compatibility with TWILOCK

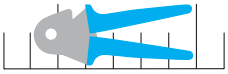
Accessories

Accessories

Type	Part Number
	
Adapter for Conduit Fittings	
Poleon DN 12	7.010.900.205
Poleon DN 14	7.010.900.207
Poleon DN 17	7.010.900.209
	
Positioner for Crimp Tool	
DMC M22520	7.000.900.DMC

Locator

Type	Part Number
	
Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C06
For HUMMEL Contact:	
7.010.941.001, 7.010.942.001, 7.010.942.011	
Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C07
For HUMMEL Contact:	
7.010.941.002, 7.010.942.002, 7.010.942.012	

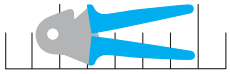


Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.901)

Part Number	Crimp Contact	Cross Section (mm²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.001	Crimp pin (signal) 1 mm	0,14	26	0,75	11
		0,25	24	0,82	11
		0,35	22	0,9	11
		0,50	20	1	11
		0,75	18	1,08	11
		1,0	17	1,2	11
7.010.901.012	Crimp socket (signal) 1 mm	0,14	26	0,75	12
		0,25	24	0,8	12
		0,35	22	0,87	12
		0,50	20	0,97	12
7.010.901.002	Crimp socket (signal) 1 mm	0,50	20	0,95	12
		0,75	18	1	12
		1,0	17	1,05	12
7.010.901.501	Crimp pin (signal) 1,5 mm	0,14	26	0,75	3
		0,25	24	0,82	3
		0,35	22	0,9	3
		0,50	20	0,96	3
		0,75	18	1,03	3
		1,0	17	1	3
7.010.901.512	Crimp socket (signal) 1,5 mm	0,14	26	0,75	4
		0,25	24	0,8	4
		0,35	22	0,87	4
		0,50	20	0,97	4
7.010.901.502	Crimp socket (signal) 1,5 mm	0,50	20	0,95	4
		0,75	18	1	4
		1,0	17	1,05	4
7.010.902.001	Crimp pin (signal) 2 mm	0,75	18	1,3	5
		1,0	17	1,4	5
		1,5	16	1,55	5
		2,5	14	1,75	5
7.010.902.002	Crimp socket (signal) 2 mm	0,75	18	1,3	6
		1,0	17	1,4	6
		1,5	16	1,55	6
		2,5	14	1,75	6

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

▶ 134



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

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

▶ 134

Crimp Tool for Power Connectors M 23

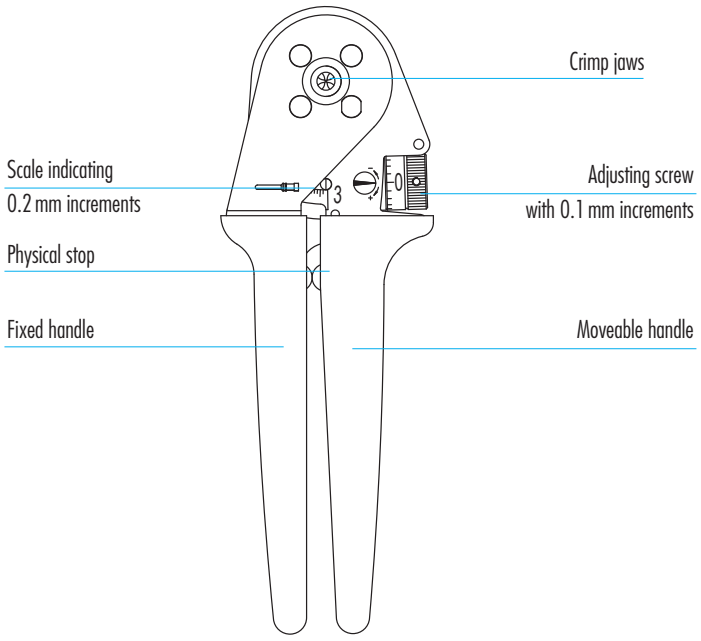
Crimp Tool

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 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.

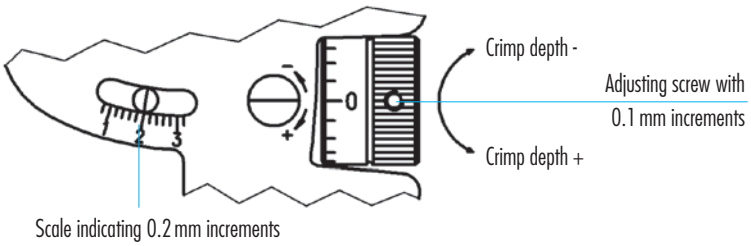


Crimp Tool for Power Connectors M 23

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.

Straight Connector, Female Thread

1.

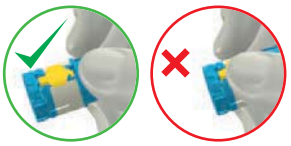
2.

x	Contact 1 = 4 mm Contact 2 = 7 mm

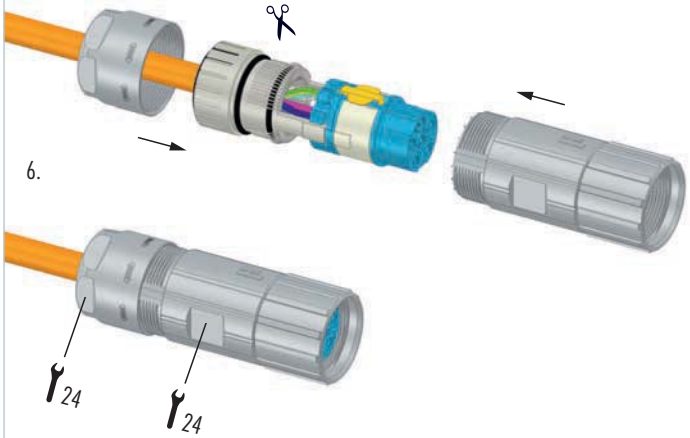
3.

4.

5.



6.



Assembly Instructions

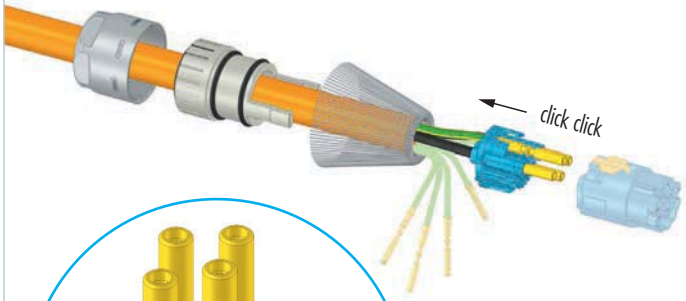
Straight Connector, Female Thread 4+3+PE / 5+3+PE

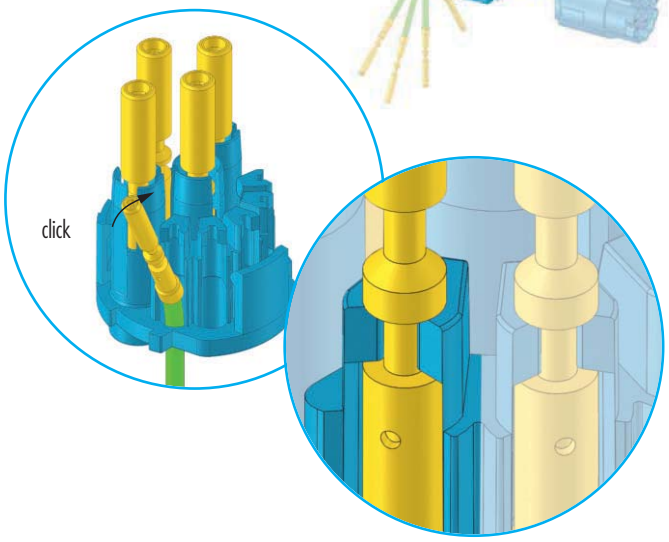
1.

2.

3.

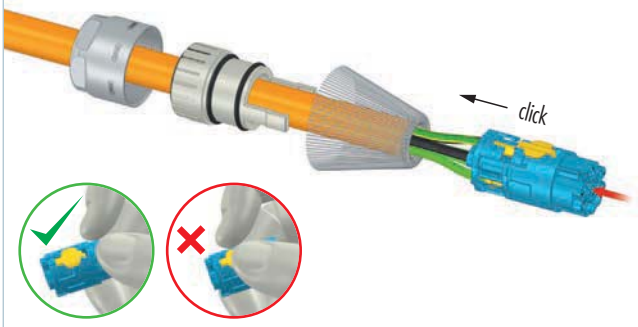
4.



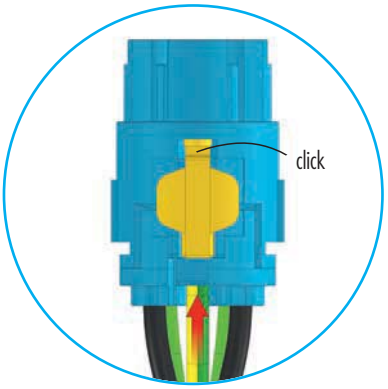


x	Contact 1 = 4 mm Contact 2 = 7 mm

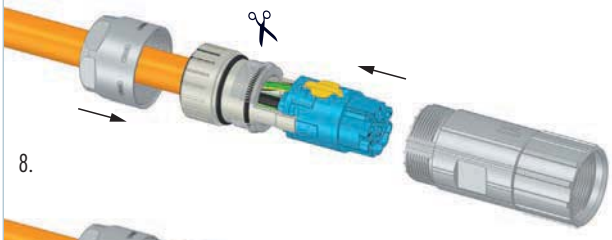
5.



6.



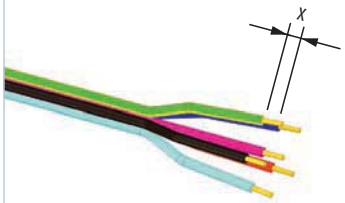
7.



8.

Panel Connector, Male Thread

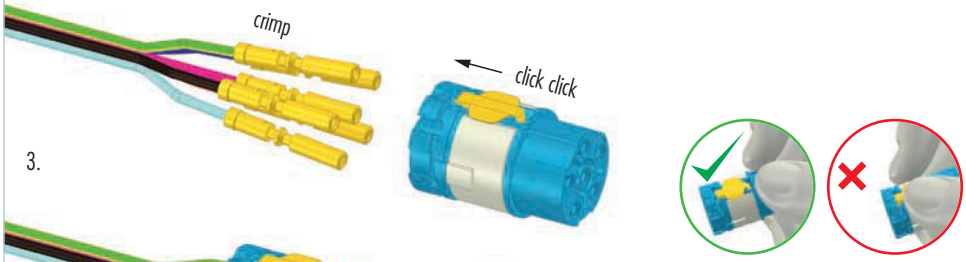
1.



2.

x	Contact 1 = 4 mm Contact 2 = 7 mm

3.

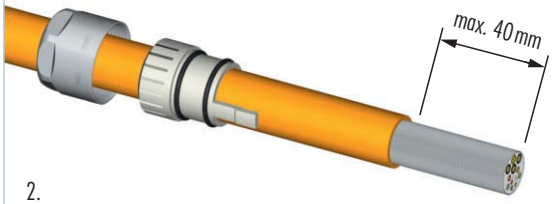


4.

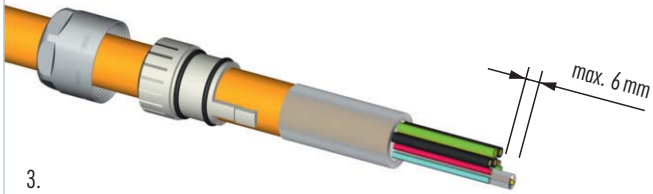
Assembly Instructions

Hybrid Connector Pins

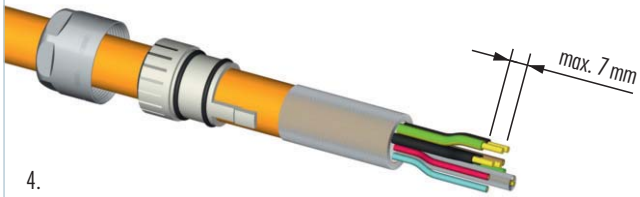
1.



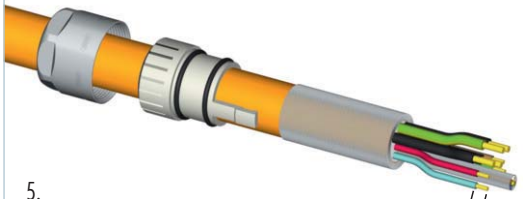
2.



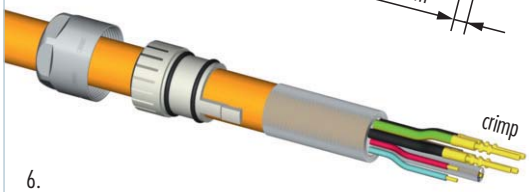
3.



4.



5.



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7.

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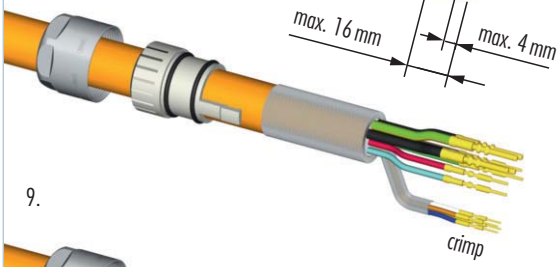

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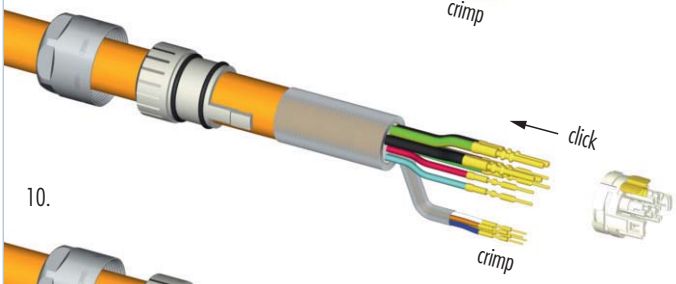

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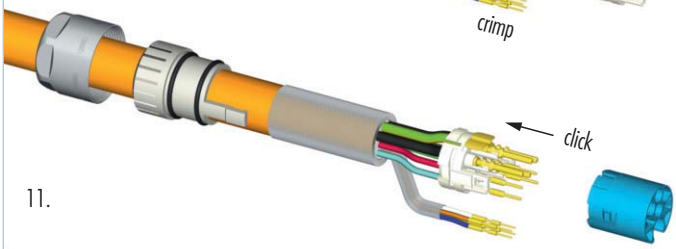

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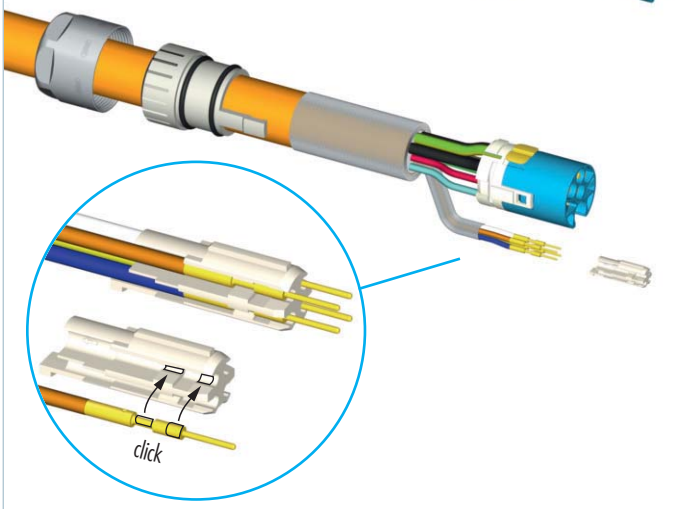
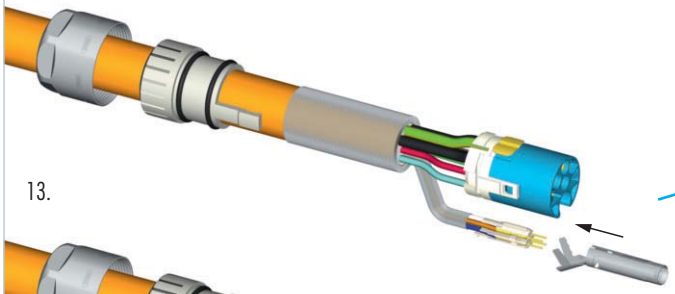


Hybrid Connector Pins

12.



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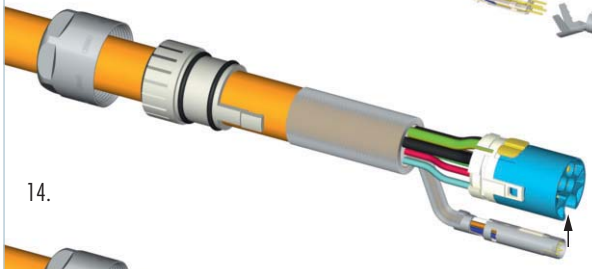

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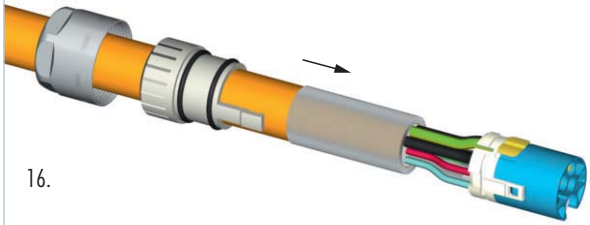

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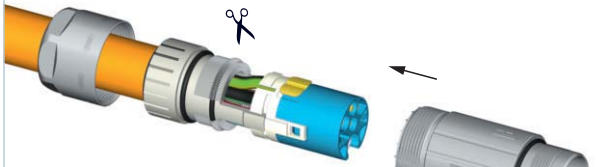

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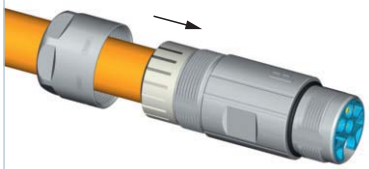

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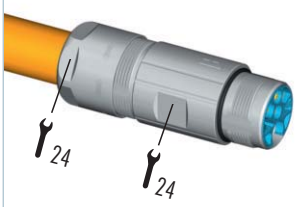

Assembly Instructions

Hybrid Connector Socket

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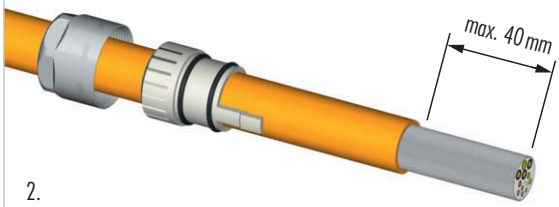

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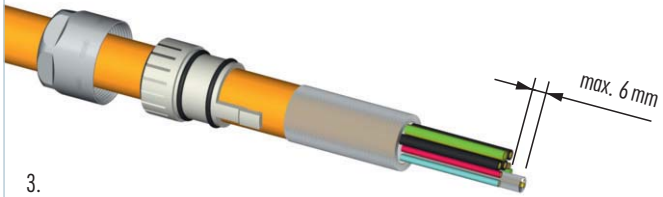

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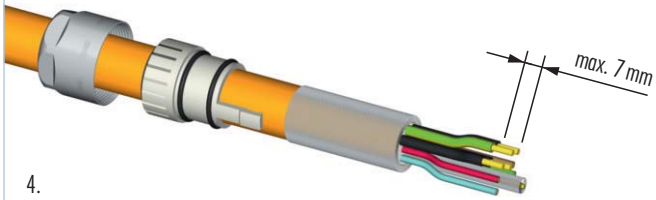

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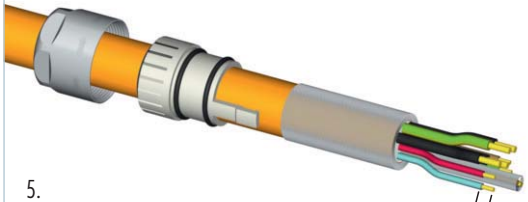

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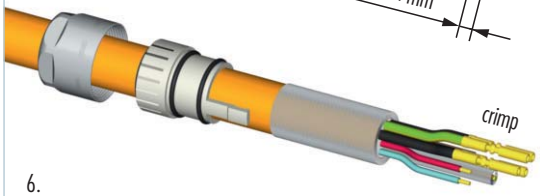

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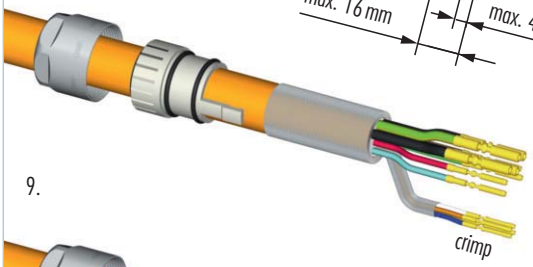
7.

8.

9.



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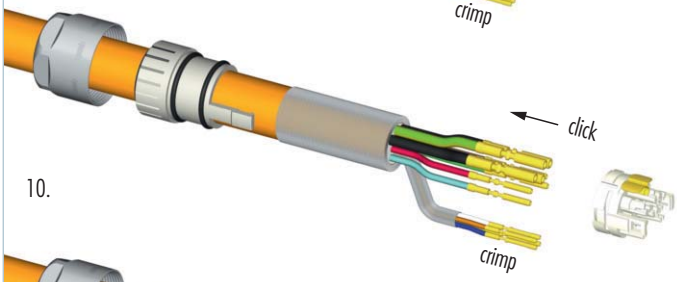

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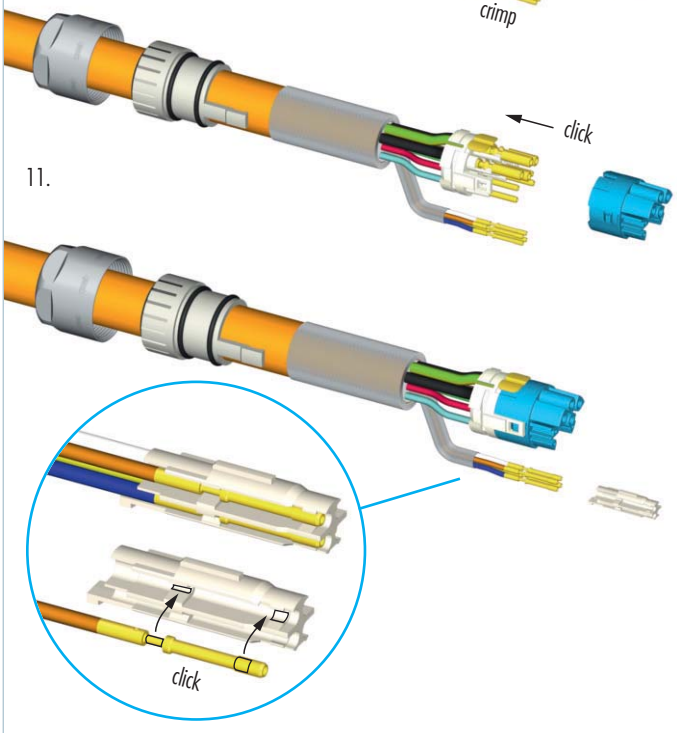
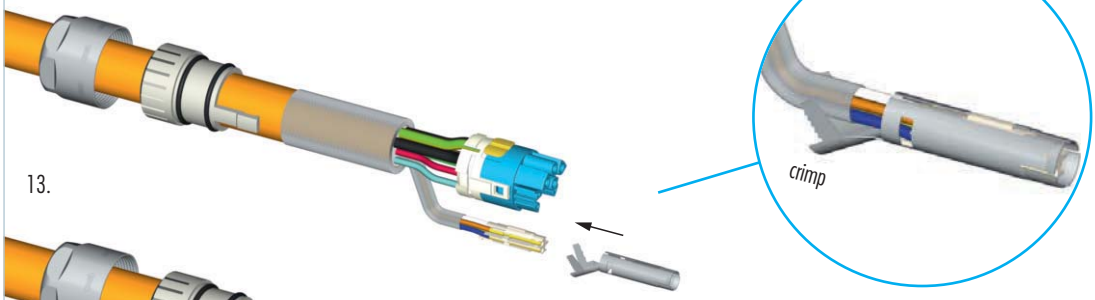


Hybrid Connector Socket

12.



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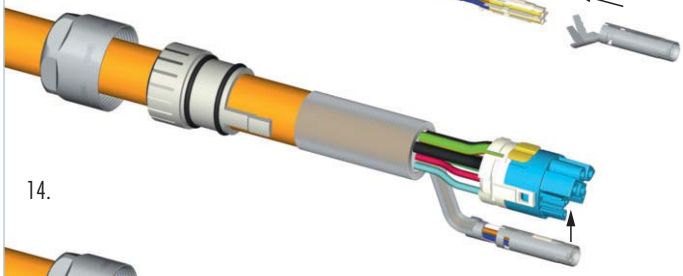

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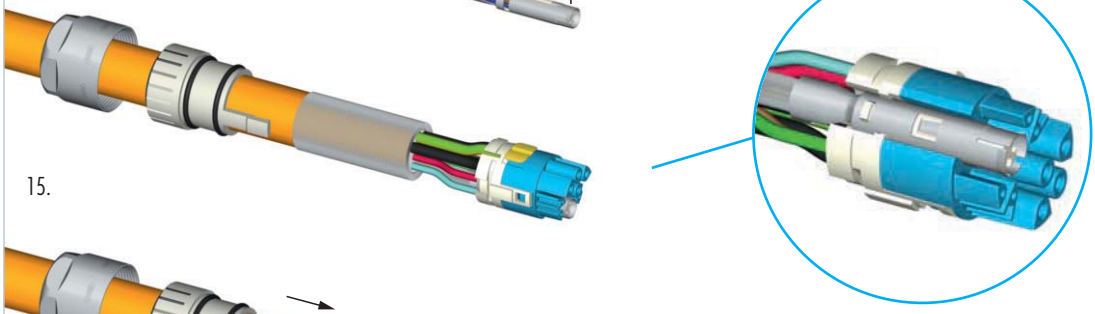

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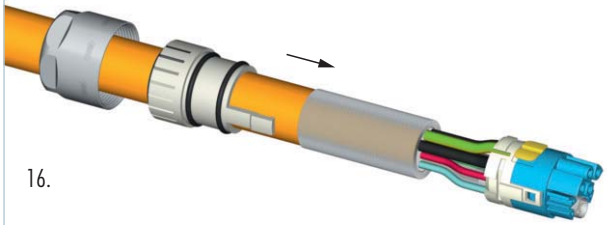

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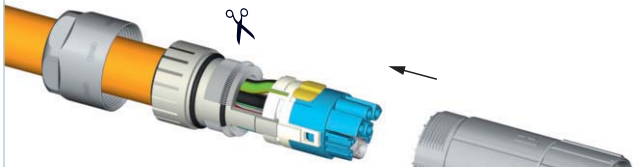

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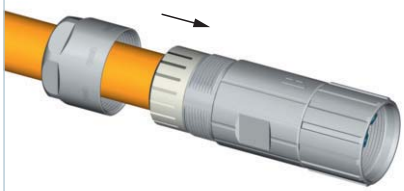

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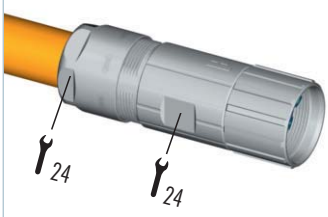
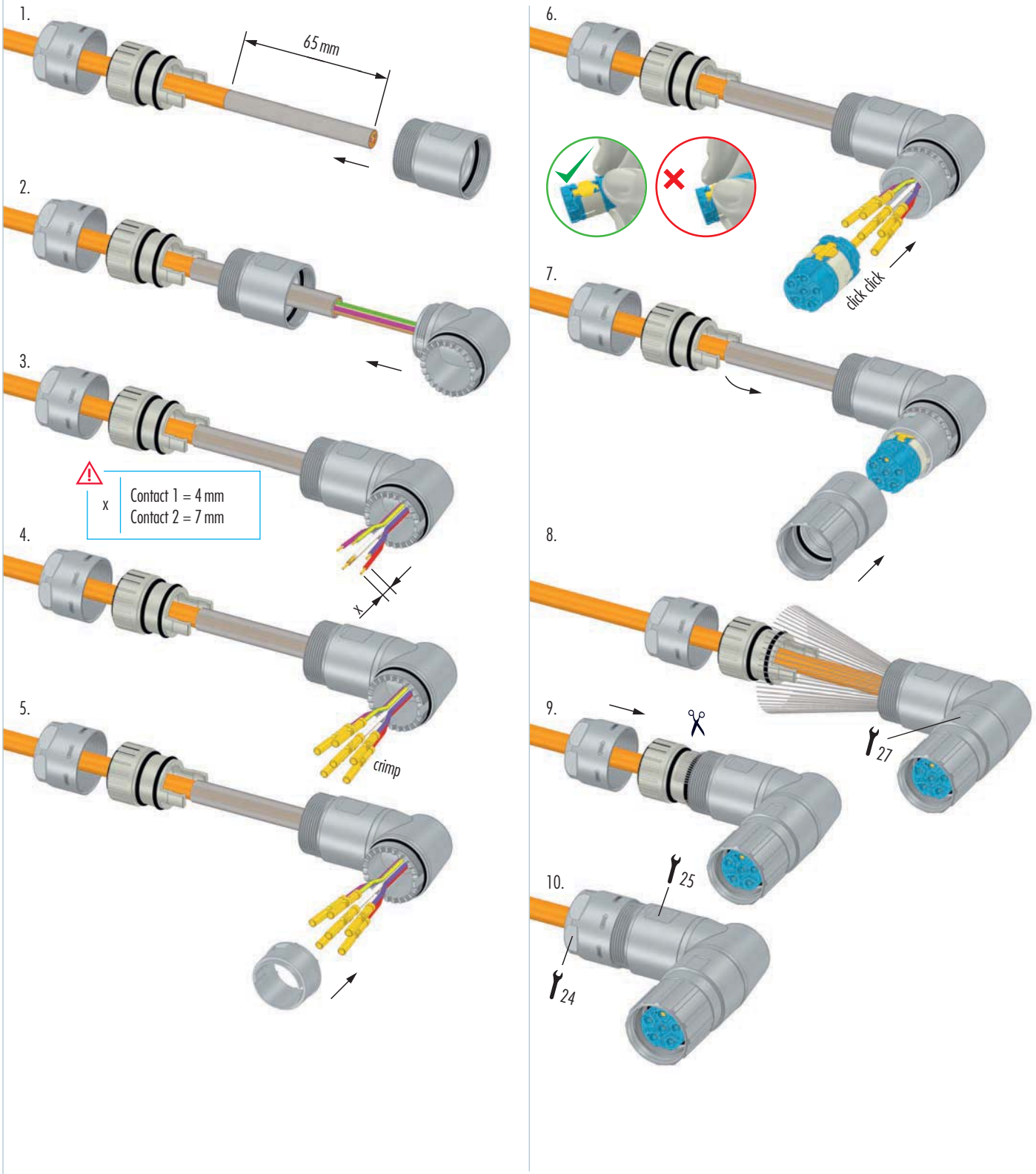


Assembly Instructions

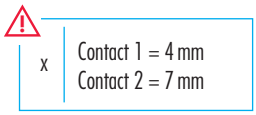
Right Angle Connector, rotatable



Panel Connector, Female Thread

1.

2.



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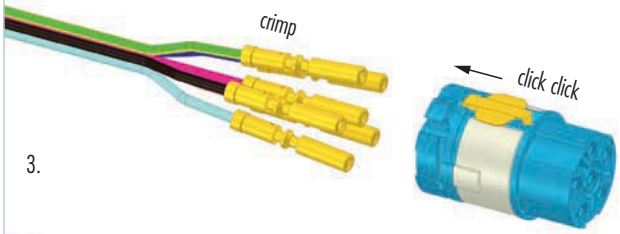

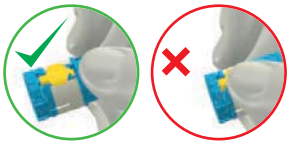

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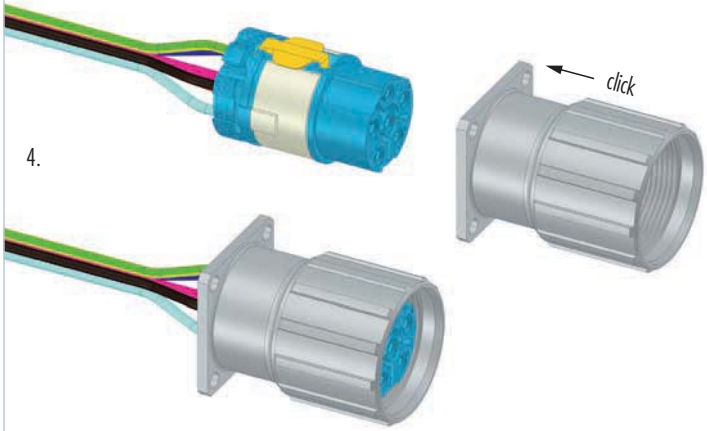


Assembly Instructions

Panel Connector, Male Thread, Single Hole Mounted

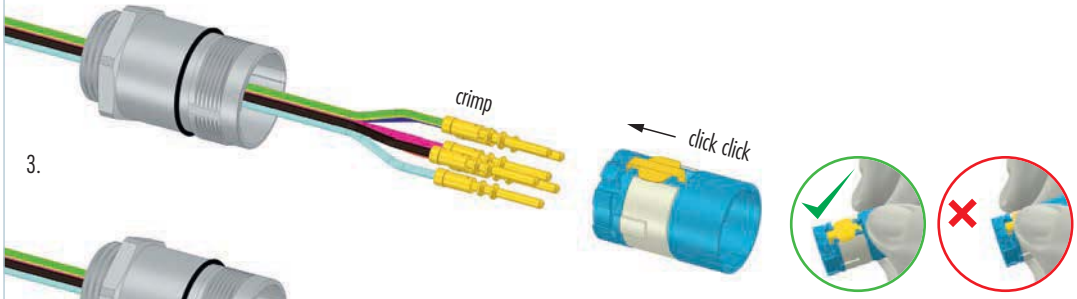
1.

2.

x

Contact 1 = 4 mm
Contact 2 = 7 mm

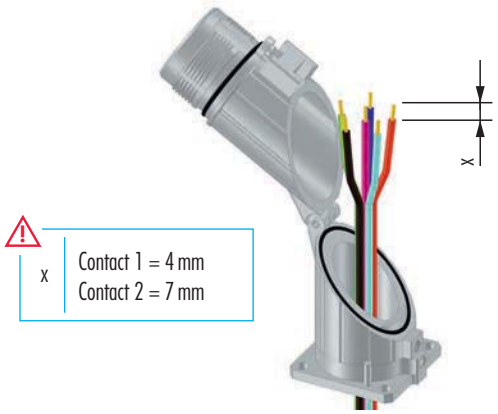
3.



4.

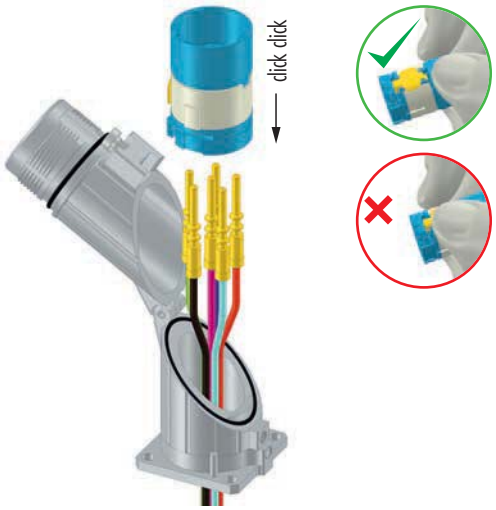
Right Angle Panel Connector

1.



2.

3.



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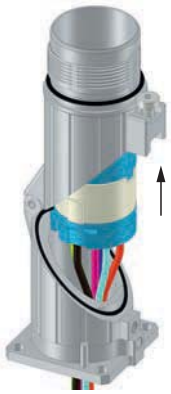

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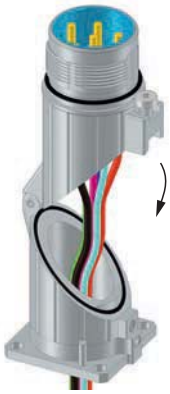

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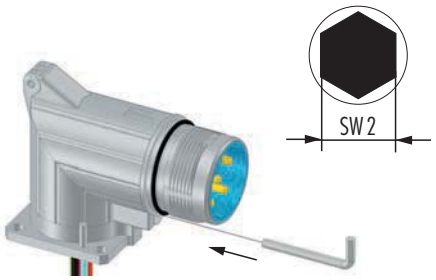

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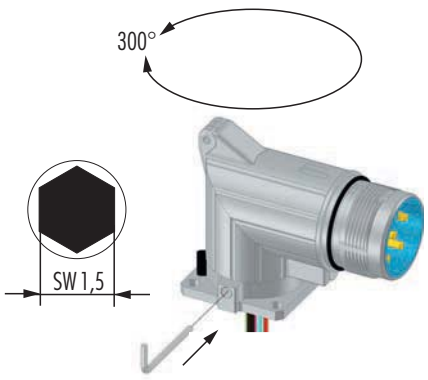
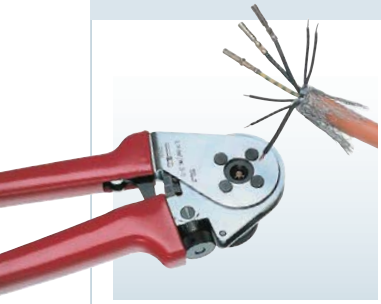
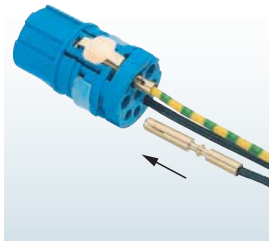


Crimping, Assembly and Disassembly of Contacts



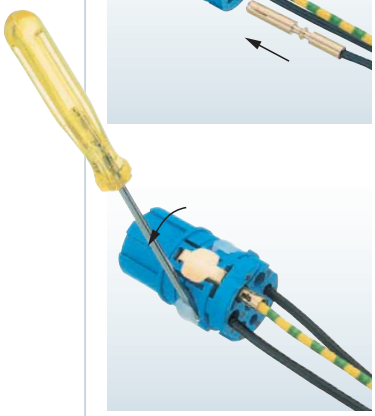
Crimping

// 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 (page 119 / 120)
// 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



Assembly

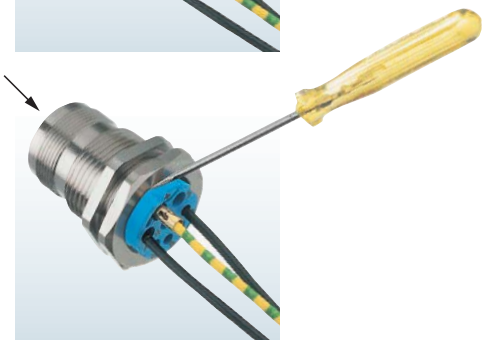
Remove crimped assembly and pull on wire to test connection. Push into desired position of insert.
Note: For 8-pole inserts (4 + 3 + PE) it is recommended to assemble the large contacts first.



Disassembly of Contacts from Insert

A small screw driver is required.

// Using the screw driver, push the white clip ring out of the insert
// Pull the contacts out of the insert
// Replace the white clip ring
// Reinsert the contacts



Disassembly of Insert from Housing

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

Shielding

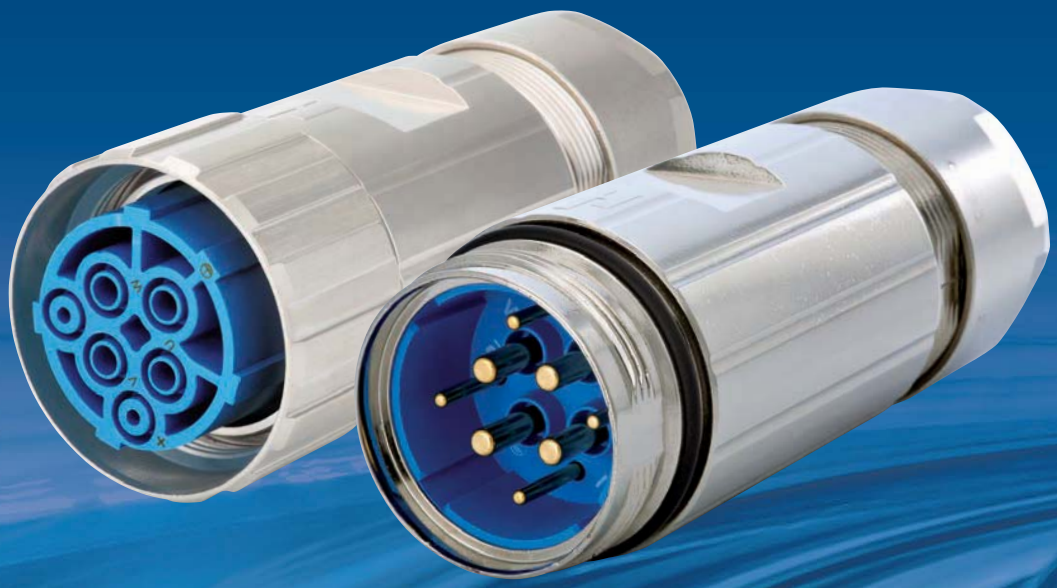
// Assemble strain relief insert with insert
// Fold stranding of the shield back over the first O-Ring of the strain relief insert
// Cut back the overextending braid

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

M 40 POWER CONNECTORS (SIZE 1,5)

Connector series M 40 is suitable for high current and is preferably used for heavy drive application. The high-quality housing out of metal fulfills all requirements, that are present in a rough industrial environment. Furthermore, it convinces through a long operational lifetime.

// suitable for requirements with high current
// safe EMC protection



M 40 POWER (SIZE 1,5)

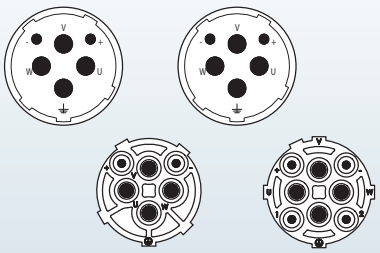
Product overview

Housings

▶ 138

Inserts

▶ 141



Accessories

▶ 143

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	> 500
Seals / O-Rings	Buna-N standard optional Viton® (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	13 – 28 mm (.51" – 1.10")

Electrical Data

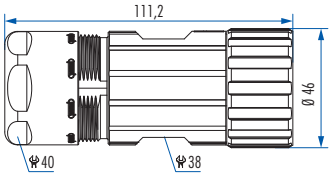
Number of positions	3 + 2 + PE		4 + 3 + PE	
Number of contacts	2	4	4	4
Contact-Ø [mm]	2	3,6	2	3,6
Nominal current [1] [A]	28	55	28	55
Nominal voltage [2] [V~] Degree of Protection 3 [3]	300	600	300	600
Test voltage (Breakdown voltage) [4] [V~]	2500	4000	2500	4000
Insulation resistance [MΩ]	$> 10^{13}$		$> 10^{13}$	
Max. contact resistance [mΩ]	3	1	3	1

Standard delivery of M 40 (size 1,5) Power Connector include Contact Insert.

[1], [2], [3], [4] See Technical Information page 16

Housings

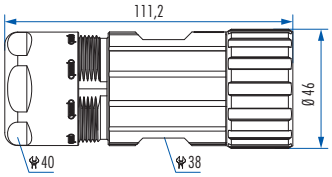
Straight Connector, Female Thread

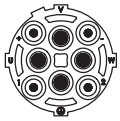


Cable-Ø	Part Number
2 + 3 + PE, insert for sockets	
13 – 18 mm (.51 – .71")	7.710.623.000
17 – 24 mm (.67 – .97")	7.710.723.000
21 – 28 mm (.83 – 1.10")	7.710.823.000

▶ 142 ▶ 143 ▶ 151

Straight Connector, Female Thread

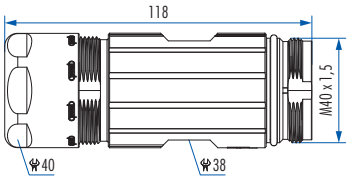


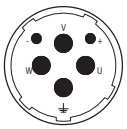


Cable-Ø	Part Number
4 + 3 + PE, insert for sockets	
13 – 18 mm (.51 – .71")	7.710.643.000
17 – 24 mm (.67 – .97")	7.710.743.000
21 – 28 mm (.83 – 1.10")	7.710.843.000

▶ 142 ▶ 143 ▶ 151

Straight Connector, Male Thread

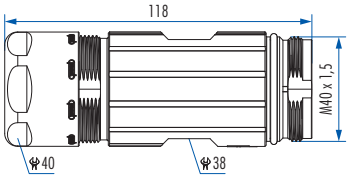


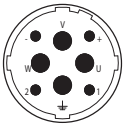


Cable-Ø	Part Number
2 + 3 + PE, insert for pins	
13 – 18 mm (.51 – .71")	7.720.623.000
17 – 24 mm (.67 – .97")	7.720.723.000
21 – 28 mm (.83 – 1.10")	7.720.823.000

▶ 142 ▶ 143 ▶ 151

Straight Connector, Male Thread



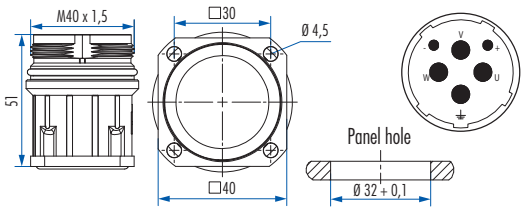


Cable-Ø	Part Number
4 + 3 + PE, insert for pins	
13 – 18 mm (.51 – .71")	7.720.643.000
17 – 24 mm (.67 – .97")	7.720.743.000
21 – 28 mm (.83 – 1.10")	7.720.843.000

▶ 142 ▶ 143 ▶ 151

Housings

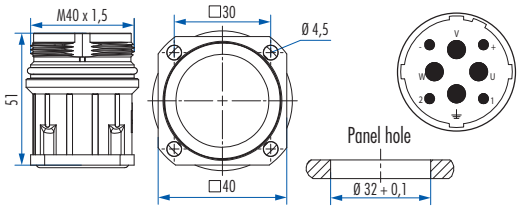
Panel Connector, Male Thread, Front Mounting



Type	Part Number
2 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18“)	7.740.023.000

▶ 142 ▶ 143 ▶ 152

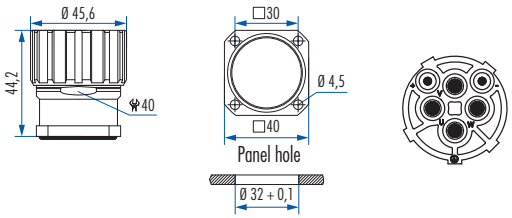
Panel Connector, Male Thread, Front Mounting



Type	Part Number
4 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18“)	7.740.043.000

▶ 142 ▶ 143 ▶ 152

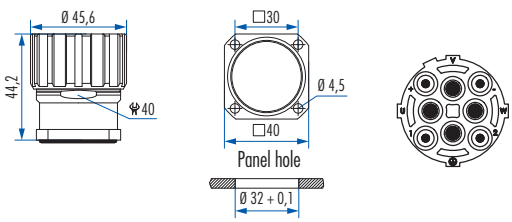
Panel Connector with knurled Nut, Front Mounting



Type	Part Number
2 + 3 + PE, insert for sockets 4 holes Ø 4,5 mm (.18“)	7.744.023.000

▶ 142 ▶ 143 ▶ 152

Panel Connector with knurled Nut, Front Mounting



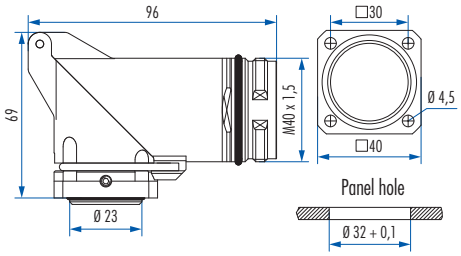
Type	Part Number
4 + 3 + PE, insert for sockets 4 holes Ø 4,5 mm (.18“)	7.744.043.000

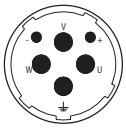
▶ 142 ▶ 143 ▶ 152

Housings

Right Angle Panel Connector, Male Thread, rotatable

Type — Part Number



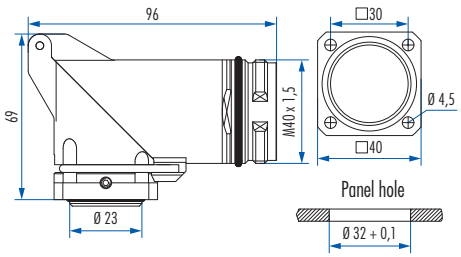


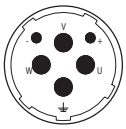
2 + 3 + PE, insert for pins
4 holes Ø 4,5 mm (.18“) 7.743.023.000

▶ 142 ▶ 143 ▶ 153

Right Angle Panel Connector, Male Thread, rotatable

Type — Part Number



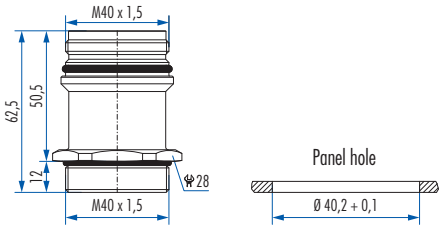


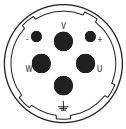
4 + 3 + PE, insert for pins
4 holes Ø 4,5 mm (.18“) 7.743.043.000

▶ 142 ▶ 143 ▶ 153

Panel Connector, Male Thread, Single Hole Mounting

Type — Part Number



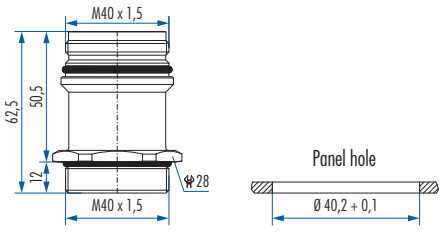


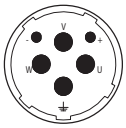
Front mounting, 2 + 3 + PE, insert for pins
Thread M 40 x 1,5 ..... 7.742.023.000

▶ 142 ▶ 143 ▶ 152

Panel Connector, Male Thread, Single Hole Mounting

Type — Part Number

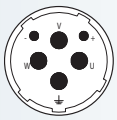
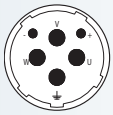
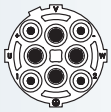




Front mounting, 4 + 3 + PE, insert for pins
Thread M 40 x 1,5 ..... 7.742.043.000

▶ 142 ▶ 143 ▶ 152

Required Contacts

Contact Arrangement, Mating View	Number of Poles	Required Contacts
	Insert for pins 2 + 3 + PE	2 x crimp pins 2 mm 4 x crimp pins 3,6 mm
	Insert for sockets 2 + 3 + PE	2 x crimp sockets 2 mm 4 x crimp sockets 3,6 mm
	Insert for pins 4 + 3 + PE	4 x crimp pins 2 mm 4 x crimp pins 3,6 mm
	Insert for sockets 4 + 3 + PE	4 x crimp sockets 2 mm 4 x crimp sockets 3,6 mm

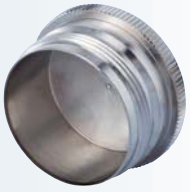
M 40 POWER (SIZE 1,5)

Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 2 mm, machined	1 – 4 mm² (AWG 17 – 12)	7.015.952.001
	Crimp socket 2 mm, machined	1 – 4 mm² (AWG 17 – 12)	7.015.952.002
	Crimp pin 3,6 mm, machined	1,5 – 4 mm² (AWG 16 – 12)	7.015.953.601
	Crimp socket 3,6 mm, machined	1,5 – 4 mm² (AWG 16 – 12)	7.015.953.602
	Crimp pin 3,6 mm, machined	6 mm² (AWG 10)	7.015.953.611
	Crimp socket 3,6 mm, machined	6 mm² (AWG 10)	7.015.953.612
	Crimp pin 3,6 mm, machined	10 mm² (AWG 8)	7.015.953.621
	Crimp socket 3,6 mm, machined	10 mm² (AWG 8)	7.015.953.622
	Crimp pin 3,6 mm, machined	16 mm² (AWG 6)	7.015.953.631
	Crimp socket 3,6 mm, machined	16 mm² (AWG 6)	7.015.953.632

▶ 145 ▶ 154

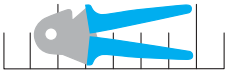
Accessories

Accessories	Type	Part Number
	Plastic protective cap for connectors with **female thread**	7.000.900.152
	**Plastic protective cap** for connectors with **male thread**	7.000.900.151
	**Brass protective cap** for connectors with **female thread**	7.015.900.103
	**Brass protective cap** for connectors with **male thread**	7.015.900.102
	**Brass protective cap with rope** for connectors with **female thread**	7.015.9S1.003
	**Brass protective cap with rope** for connectors with **male thread**	7.015.9S1.002
	**Adaptor flange** for Straight Connectors	7.010.900.129

M 40 POWER (SIZE 1,5)

Accessories

Accessories	Type	Part Number
	**Adapter for Conduit Fittings** Poleon DN 23	7.010.900.215
	Poleon DN 29	7.010.900.217
	**Crimp tool** or manual crimping of machined crimp contacts up to 10 mm² (AWG 8) for power connectors	7.000.900.902
	**Crimp tool** for manual crimping of machined crimp contacts 16 mm² (AWG 6)	7.000.900.903



Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.902)

Part Number	Crimp Contact	Cross Section (mm²)	AWG	Crimp Tool Setting mm	Locator Setting
7.015.952.001	Crimp pin 2 mm	1 1,5 2,5 4	17 16 14 12	2 3 4 4	3 3 3 3
7.015.952.002	Crimp socket 2 mm	1 1,5 2,5 4	17 16 14 12	2 3 4 4	1 1 1 1
7.015.953.601	Crimp pin 3,6 mm	1,5 2,5 4	16 14 12	3 4 5	2 2 2
7.015.953.602	Crimp socket 3,6 mm	1,5 2,5 4	16 14 12	3 4 5	4 4 4
7.015.953.611	Crimp pin 3,6 mm	6	10	5	2
7.015.953.612	Crimp socket 3,6 mm	6	10	5	4
7.015.953.621	Crimp pin 3,6 mm	10	8	8	2
7.015.953.622	Crimp socket 3,6 <mm	10	8	8	4

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

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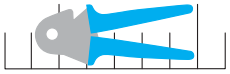
M 40 POWER (SIZE 1,5)



Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.903)

Part Number	Crimp Contact	Cross Section (mm²)	AWG	Crimp Tool Setting
7.015.953.631	Crimp pin 3,6 mm	16	6	die 16
7.015.953.632	Crimp socket 3,6 mm	16	6	die 16

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

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Crimp Tool for M 40 Power Connectors (Size 1,5)

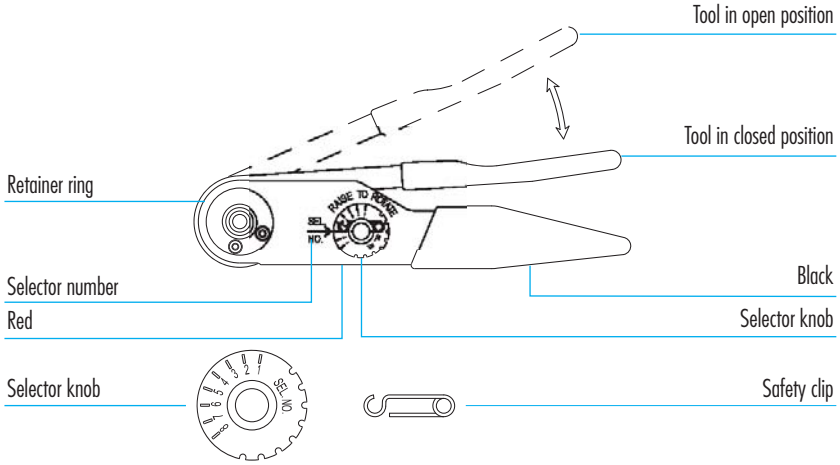
Crimp Tool

Type	Part Number
Crimp Tool	7.000.900.902

Application
The four indent crimp tool 7.000.900.902 has been developed for optimal crimping of machined contacts with diameters from 1 to 10 mm² (18 through 8 AWG).

How to Crimp
The reference table 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.
Then it can be disassembled from the hex head screw by turning it counter-clockwise.



M 40 POWER (SIZE 1,5)

Crimp Tool for M 40 Power Connectors (Size 1,5)

Crimp Tool

Setting Up Instructions

1. Tool must be in open position
2. Place selected single position head assembly onto retainer ring with alignment pin in alignment pin hole
3. After single position head is seated against retainer ring, tighten socket head screws with 9/64 inch socket head screw key
4. Refer to dataplate on single position head. From the proper wire size column, determine the selector number that corresponds with the contact being used
5. Remove spring clip lock wire from selector knob. Raise selector knob and rotate until selector number is in line with index mark. Replace spring clip lock wire (optional)

Crimping Instructions

1. Insert contact and prepared wire through the indenter opening into positioner
2. Squeeze handles together until ratchet releases. Handle will return to open position. Remove crimped contact and wire.

Removing Single Position Head

Loosen socket head screws until threads are disengaged from retainer ring and remove with a straightlifting motion.

Gaging Instructions

The correct function of the crimp tool has to be checked with a gage (item no. 7.010.900.117).

„GO"-Gaging (green)

Operate tool to fully closed position. Maintain firm hand pressure on the tool handles. Insert „GO" gage end. Gage must pass freely between indenter tips.

„NO-GO"-Gaging (red)

Operate tool to fully closed position. Maintain firm hand pressure on the tool handles. Insert „NO-GO" gage end. The „NO-GO" gage may partially enter the indenter opening, but must not pass completely through the opening.

Care of Tool

There is virtually no maintenance required. However, it is a good practice to keep intenter tips free of residual color band deposits and other debris. A small wire brush may be used for this purpose.

We strongly recommend that you:

1. Do not immerse tools in cleaning solution
2. Do not spray oil into tool to lubricate
3. Do not attempt to disassemble tool or make repairs

This is a precision crimp tool and should be handled as such.

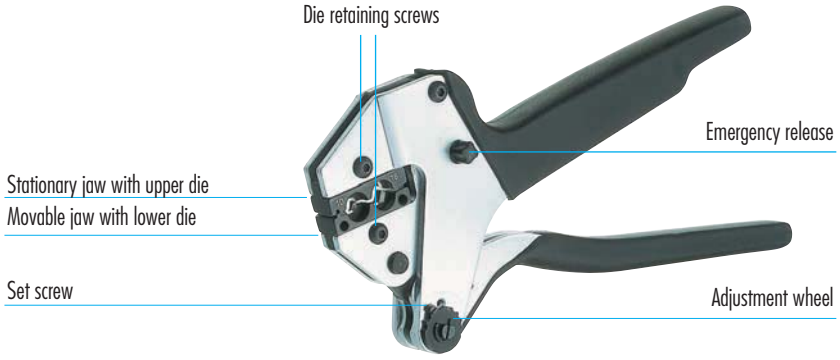
Crimp Tool for M 40 Power Connectors (Size 1,5)

Crimp Tool

Type	Part Number
Crimp Tool for contacts 16 mm² (AWG 6)	7.000.900.903

Application
The hand crimp tool 7.000.900.903 has been developed for optimal crimping of a large variety of connectors and terminals by using different interchangeable crimping dies.

Operation
// Select crimp insert and install in tool
// Insert and align crimp contact in tool
// Compress tool until contact is held in place
// Insert conductor into contact
// Fully compress tool (tool will reopen automatically)
// Remove crimped conductor from tool



M 40 POWER (SIZE 1,5)

Crimp Tool for M 40 Power Connectors (Size 1,5)

Crimp Tool

Adjustment of crimp force and height

Crimp force adjustment is done in the factory (120 – 180 N when unloaded). Tool frame and jaws are connected that way, an optimal crimping result will be obtained based on the hand force indicated above. In case the result (e.g. crimp height, pull-out force, etc.) does not meet the requirements of the plug manufacturer, the following reasons can be considered:

a) Normal wear of tool

Readjustment possible

b) Worn dies

Dies have to be replaced

The quality personnel is authorized to control and readjust these parameters as described below:

Unscrew the set screw by means of a screw driver

// Rotatable the adjustment wheel anticlockwise, the crimp force increases and the crimp height decreases (+)
// Rotatable the adjustment wheel lockwise, the crimp force decreases and the crimp height increases (-)
// When readjusting the hand force shall not exceed 180 N
// Before using the tool, the operator has to check the adjustment wheel being firmly secured by the set screw

Maintenance

Keep the tool clean and properly stored when not in service. The joints need to be regularly oiled and the circlips securing the bolts have to be always in place. Never use abrasives or hard material to clean the jaws. Please contact the manufacturer when the tool needs to be repaired or in case of readjustment problems.

Straight Connector, Female Thread / Male Threaded Connector

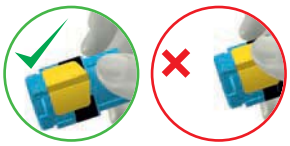
1.

2.

x	Contact 2 mm = 7 mm Contact 3,6 mm = 10 mm

3.

4.



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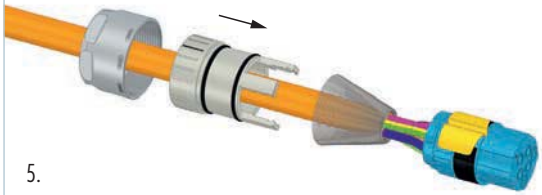

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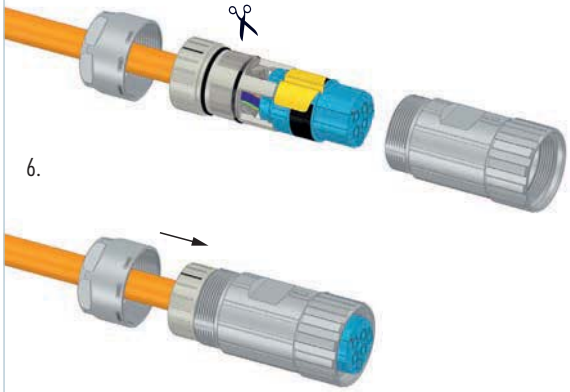
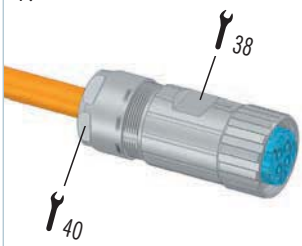


7.

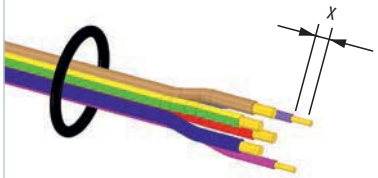


M 40 POWER (SIZE 1,5)

Assembly Instructions

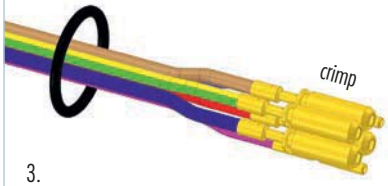
Panel Connector

1.

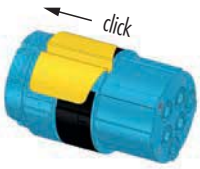


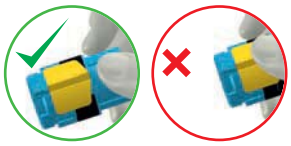
x
Contact 2 mm = 7 mm Contact 3,6 mm = 10 mm

2.

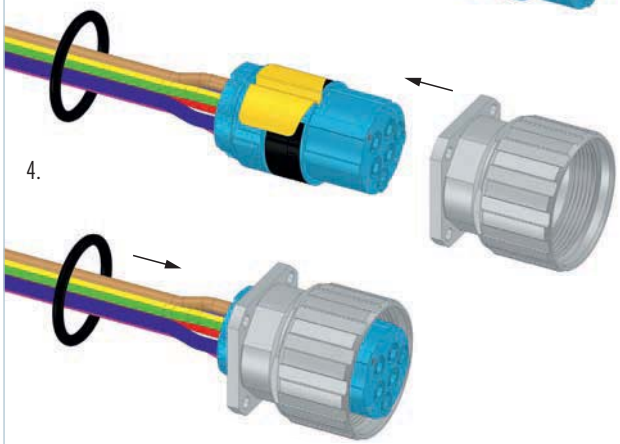


3.





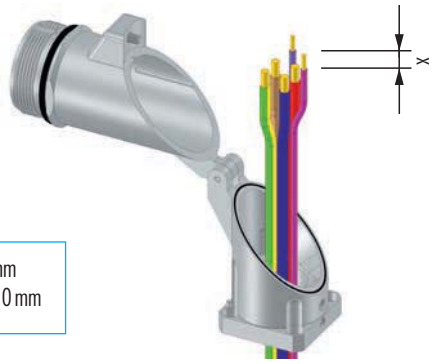
4.



Assembly Instructions

Right Angle Panel Connector

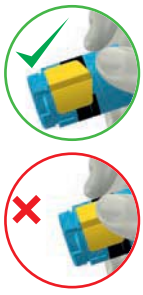
1.

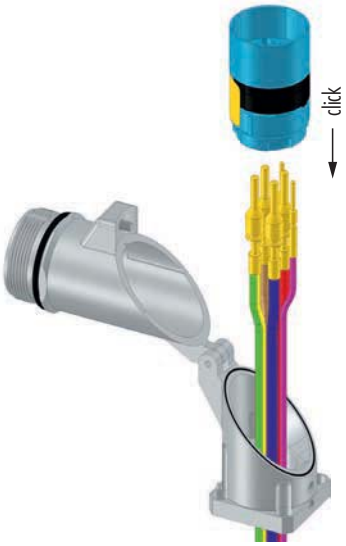


x	Contact 2 mm = 7 mm Contact 3,6 mm = 10 mm

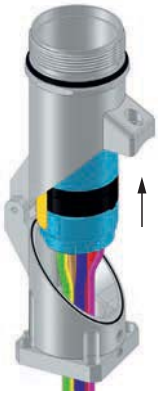
2.

3.

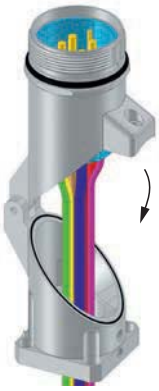




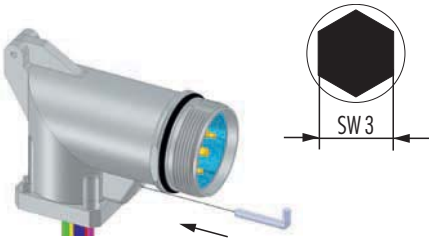
4.



5.



6.



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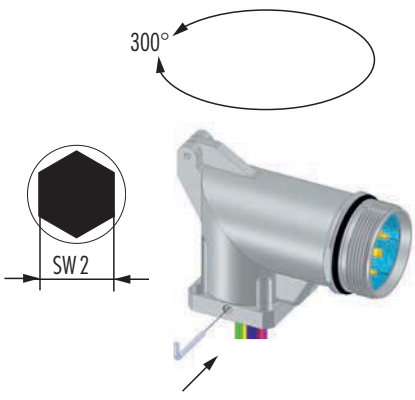
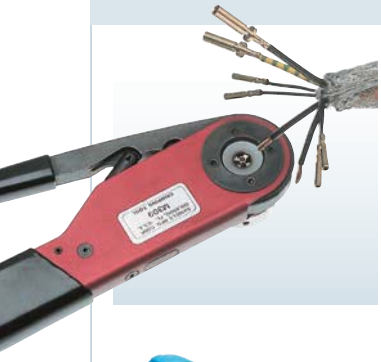
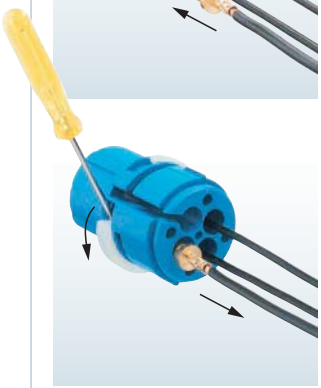
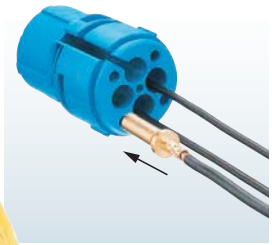


Crimping, Assembly and Disassembly of Contacts







Crimping

// For 2 mm contacts strip wire ends 7 mm (.28"), for 3,6 mm contacts strip wire ends 10 mm (.39")
// Dial appropriate setting of crimp tool (page 145)
// Push crimp contact into opening of crimping tool
// Insert stripped wire into the funnel shaped end of the crimp contact
// Squeeze handles of crimping tool together connect contact to wire

Assembly

Remove crimped assembly and pull on wire to test connection. Push into desired position of insert.
Note: It is recommended to assemble the large contacts first.

Disassembly of Contacts from Insert

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

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

Shielding

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

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

STAINLESS STEEL CONNECTORS (INOX)

Special applications require special solutions. This is important for connectors made of stainless steel, too. They are being used where the conditions of the environment are extremely rough or hygienic requirements particularly high.

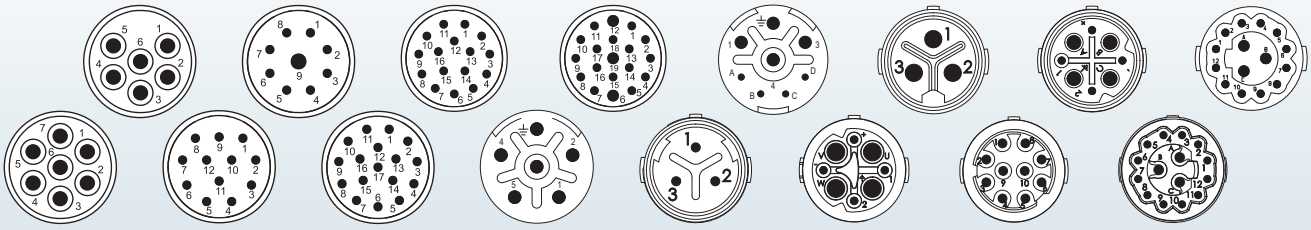
// Signal connectors M 16 INOX
// Signal connectors M 23 INOX
// Power connectors M 23 INOX

STAINLESS STEEL (INOX)

Product overview

Housings ▶ 158

Inserts ▶ 24, 76, 115



Accessories ▶ 31, 84, 162

Technical Data

Mechanical Data	Materials and Technical Data
Housing	Stainless Steel V4A 1.4404 (AISI 316 L)
Housing surface	Clear
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	Viton (FPM), alternativ EPDM
Temperature range	-40 °C – 125 °C
Type of contacts signal M 23	Crimp, solder, dip-solder (PCB)
Type of contacts power M 23	Crimp
Type of contacts M 16	Crimp, dip-solder (PCB)
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x

Additional Information

Electrical data see standard program

Connectors M 16	page 19
Signal Connectors M 23	page 67
Power Connectors M 23	page 109

Inserts and contacts see standard program

Connectors M 16	page 24
Signal Connectors M 23	page 76
Power Connectors M 23	page 115

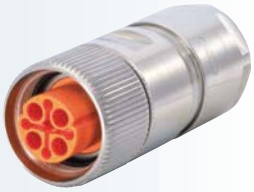
We do not recommend disconnecting or connecting HUMMEL Connectors under load.

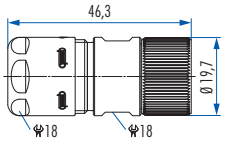
Typical Applications

Housings M 16

Straight Connector, Female Thread

Cable-Ø	Part Number
3 – 6 mm (.12" – .24")	7.814.300.000
5 – 9 mm (.20" – .35")	7.814.400.000
8 – 11 mm (.31" – .43")	7.814.500.000

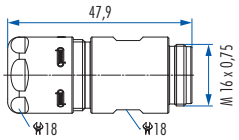




▶ 24 ▶ 162

Straight Connector, Male Thread

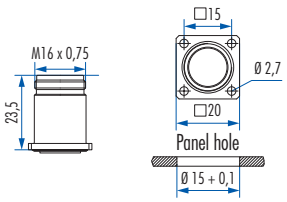
Cable-Ø	Part Number
3 – 6 mm (.12" – .24")	7.824.300.000
5 – 9 mm (.20" – .35")	7.824.400.000
8 – 11 mm (.31" – .43")	7.824.500.000



▶ 24 ▶ 162

Panel Connector, Male Thread

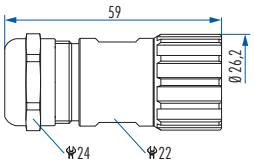
Type	Part Number
4 x holes Ø 2,7 mm (.11")	7.840.400.000
Flange 20 x 20 mm	



▶ 24 ▶ 162 ▶ 40

Housing without inserts and contacts

Straight Connector, Female Thread

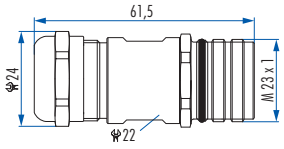


Cable-Ø	Part Number	Part Number EMC
3 – 7 mm (.12 – .28“)	7.140.300.000	7.141.300.000
5 – 10 mm (.20 – .39“)	7.140.400.000	7.141.400.000
7 – 12 mm (.27 – .47“)	7.140.500.000	7.141.500.000
10 – 14 mm (.39 – .55“)	7.140.600.000	7.141.600.000

Assembly tool 7.010.900.127 is required

▶ 76 ▶ 162 ▶ 163

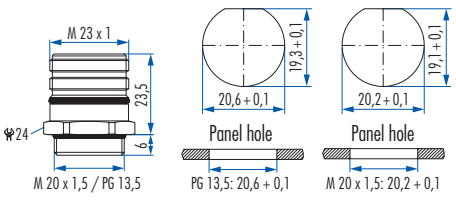
Straight Connector, Male Thread



Cable-Ø	Part Number	Part Number EMC
3 – 7 mm (.12 – .28“)	7.240.300.000	7.241.300.000
5 – 10 mm (.20 – .39“)	7.240.400.000	7.241.400.000
7 – 12 mm (.27 – .47“)	7.240.500.000	7.241.500.000
10 – 14 mm (.39 – .55“)	7.240.600.000	7.241.600.000

▶ 76 ▶ 162 ▶ 164

Panel Connector, Male Thread, Single Hole Mounted

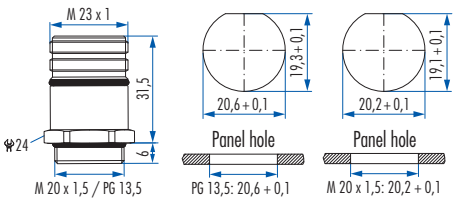


Type	Part Number
Front mounting for male inserts Thread M 20 x1,5	7.420.400.000

* FOR MALE * INSERTS ONLY

▶ 76 ▶ 162 ▶ 93

Panel Connector, Male Thread, Single Hole Mounted



Type	Part Number
Front mounting for female inserts Thread M 20 x1,5	7.421.400.000

* FOR FEMALE * INSERTS ONLY

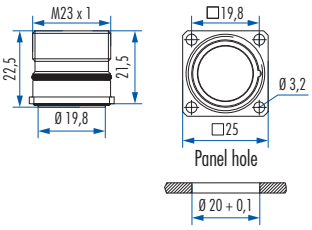
▶ 76 ▶ 162 ▶ 94

Housing without inserts and contacts

STAINLESS STEEL (INOX)

Housings M 23 Signal / Power

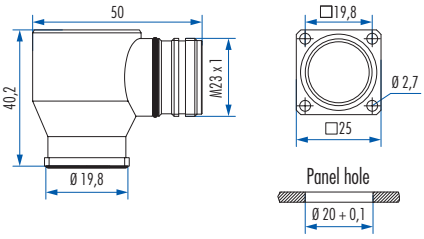
Panel Connector, Male Thread



Type	Part Number
With anti-vibration O-Ring	
4 holes Ø 3,2 mm (.13")	7.410.400.000

▶ 76 ▶ 162 ▶ 93

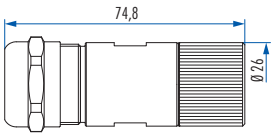
Right Angle Panel Connector, Male Thread



Type	Part Number
4 holes Ø 2,7 mm (.11")	7.430.400.000

▶ 76 ▶ 162

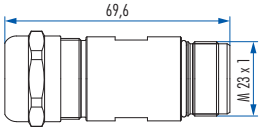
Straight Connector, Female Thread



Type	Part Number
7 – 12 mm (.27 – .47")	7.554.500.000
11 – 17 mm (.43 – .67")	7.554.600.000

▶ 115 ▶ 162 ▶ 123

Straight Connector, Male Thread



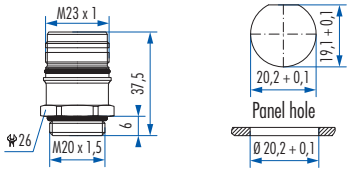
Type	Part Number
7 – 12 mm (.27 – .47")	7.564.500.000
11 – 17 mm (.43 – .67")	7.564.600.000

▶ 115 ▶ 162 ▶ 123

Housing without inserts and contacts

Housings M 23 Power

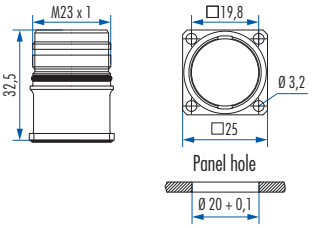
Panel Connector, Male Thread, Single Hole Mounted



Type	Part Number
Front mounting	
Thread M 20 x1,5	7.621.400.000

▶ 115 ▶ 162 ▶ 123

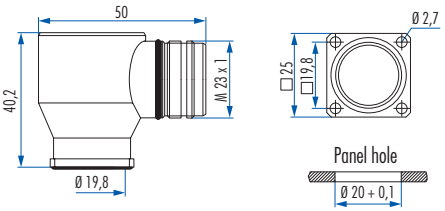
Panel Connector, Male Thread



Type	Part Number
For front mounting	
4 holes Ø 3,2 mm (.13")	7.601.400.000
Optional: Flat gasket	

▶ 115 ▶ 162

Right Angle Panel Connector, Male Thread



Type	Part Number
4 holes Ø 2,7 mm (.11")	7.630.400.000

▶ 115 ▶ 162

Housing without inserts and contacts

Accessories

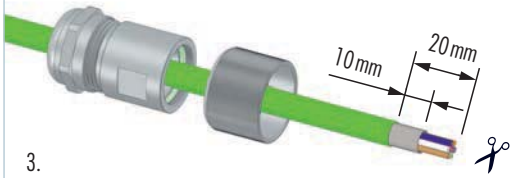
Accessories	Type	Part Number
	**Assembly tool**	7.010.900.127
	Plastic protective cap for connectors M 16 with male thread for connectors M 16 with female thread for connectors M 23 with male thread for connectors M 23 with female thread	 7.000.980.161 7.000.980.162 7.000.900.101 7.000.900.102
	**Stainless steel protective cap** for connectors with **female thread** **with rope** for connectors with **female thread** Length 100 mm	 7.010.904.103 7.010.9S4.103
	**Stainless steel protective cap** for connectors with **male thread** **with rope** for connectors with **male thread** Length 100 mm	 7.010.904.102 7.010.9S4.102
	**Crimp tool** for manual crimping of machined crimp contacts for signal and power connectors	 7.000.900.901
	**Crimp tool** for manual crimping of machined crimp contacts for signal connectors M 16 and M 23	 7.000.900.904

Assembly Instructions

Straight Signal Connector, Female Thread

1.

2.



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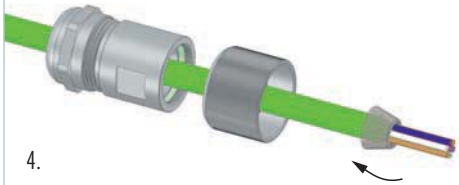

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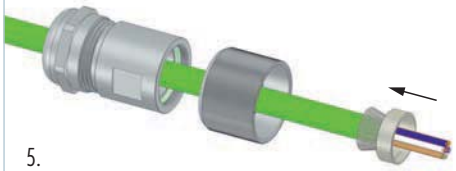

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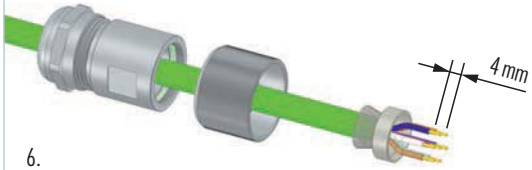

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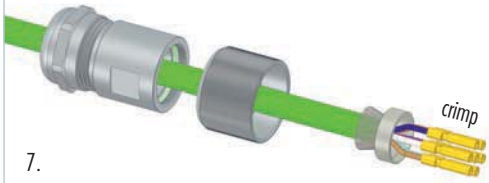

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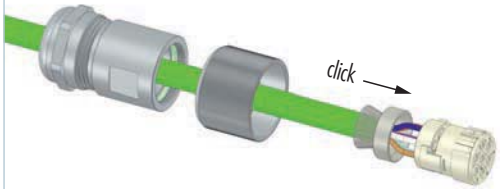

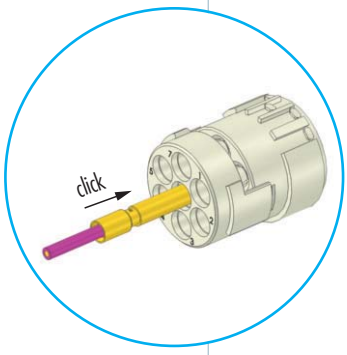

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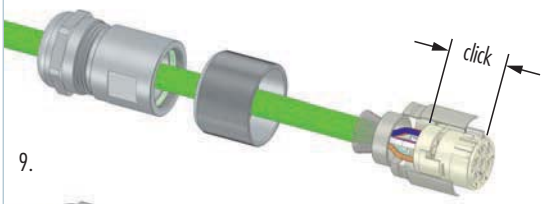

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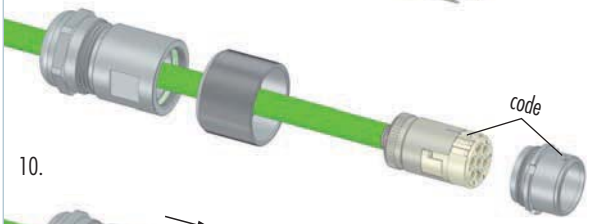

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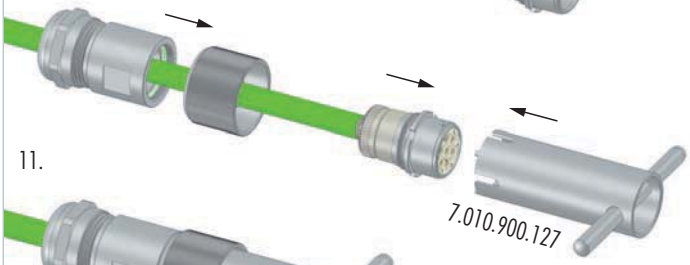
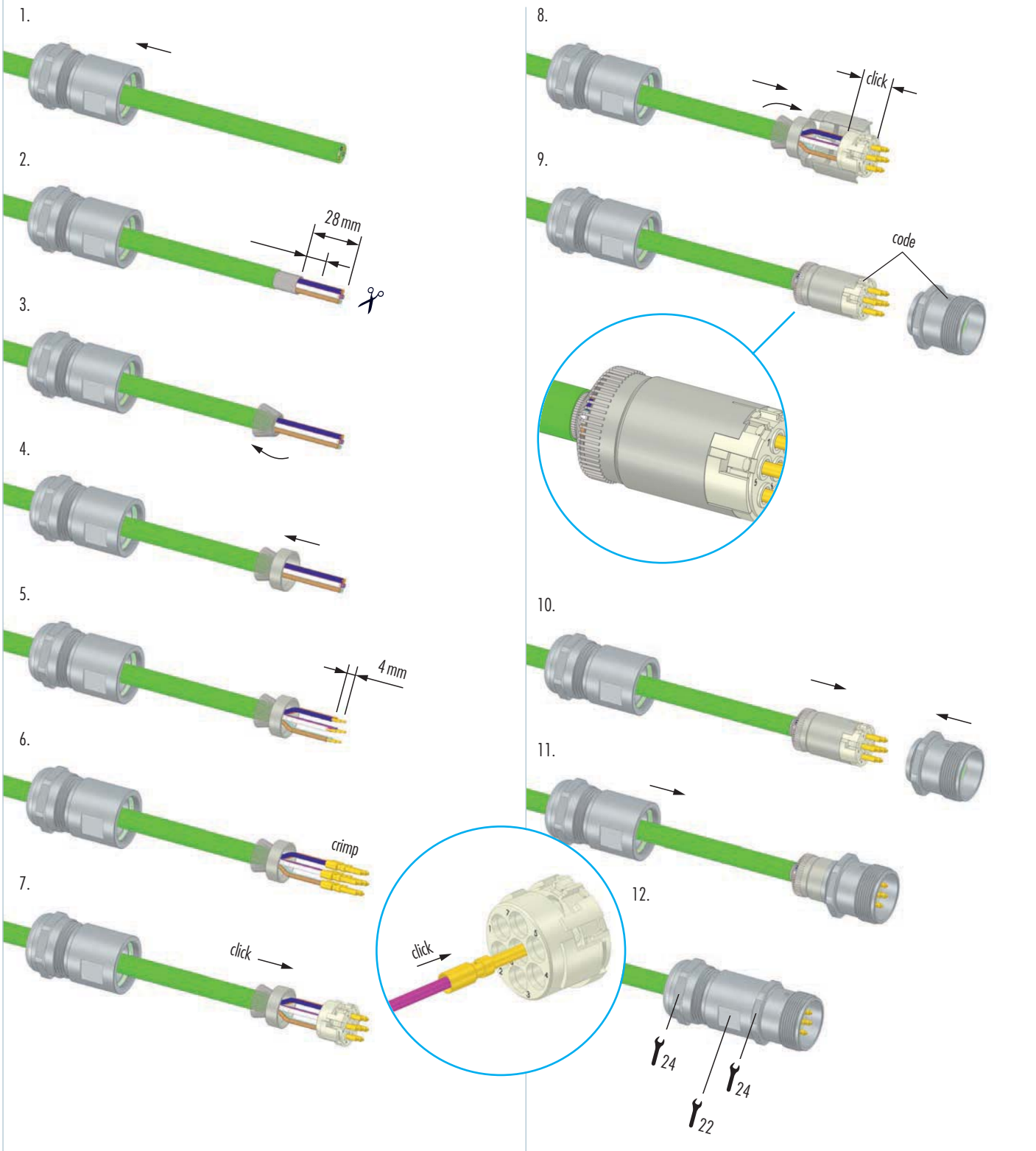


11.

12.

Assembly Instructions

Straight Connector, Male Thread



MOULDED CORDSETS

Every connector of the standard series can be sold in a moulded cordset as well. Hereby there is no difference, whether it is one with a male or female thread. Moreover, customized projects are being realised. Cable type and cable length are specified in common technical consultations.

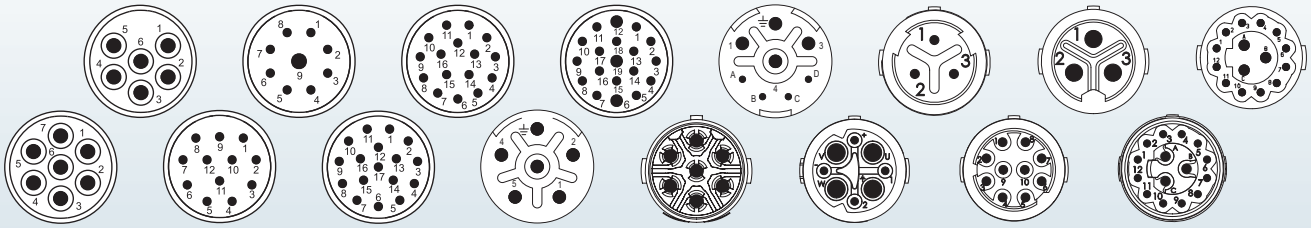
// Moulded cordset M 16
// Moulded signal cordset M 23
// Moulded power cordset M 23

MOULDED CORDSETS

Product overview

Moulded connector cordsets ▶ 168

Inserts ▶ 24, 74, 115



Accessories ▶ 31, 84, 117

Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Casting
Moulded strain relief	Polyurethan PUR
Housing surface	Nickel plated brass, black strain relief
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)
Seals / O-Rings	Buna-N standard optional Viton® (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 style	Cable specifications available upon request
Labelling	HUMMEL logo as standard, other options available upon request

Additional Information

Electrical data see standard program

Connectors M 16	page 19
Signal Connectors M 23	page 67
Power Connectors M 23	page 109

Inserts and contacts see standard program

Connectors M 16	page 24
Signal Connectors M 23	page 76
Power Connectors M 23	page 115

We do not recommend disconnecting or connecting HUMMEL Connectors under load.

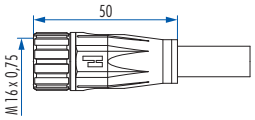
Other versions

Moulded connector cordsets are also available as Stainless-Steel (Inox)-Versions.

Moulded Connector Cordsets M 16

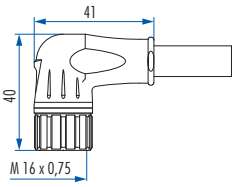
Straight Connector, Female Thread

Type	Inserts
Standard / EMC	Pins or sockets



Right Angle Connector, Female Thread

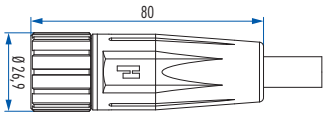
Type	Inserts
Standard / EMC	Pins or sockets



Moulded Connector Cordsets M 23

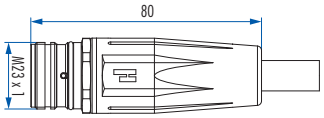
Straight Connector, Female Thread

Type	Inserts
Standard / EMC	Pins or sockets



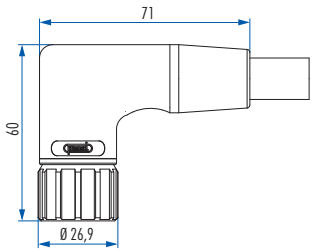
Straight Connector, Male Thread

Type	Inserts
Standard / EMC	Pins or sockets



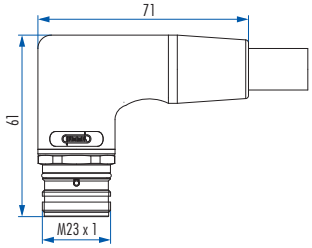
Right Angle Connector, Female Thread

Type	Inserts
Standard / EMC	Pins or sockets



Right Angle Connector, Male Thread

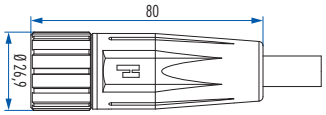
Type	Inserts
Standard / EMC	Pins or sockets



Moulded Connector Cordsets M 23

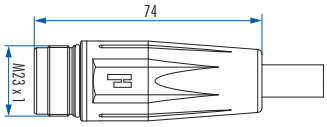
Straight Connector, Female Thread

Type	Inserts
Standard / EMC	Pins or sockets



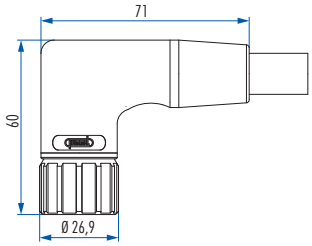
Straight Connector, Male Thread

Type	Inserts
Standard / EMC	Pins or sockets



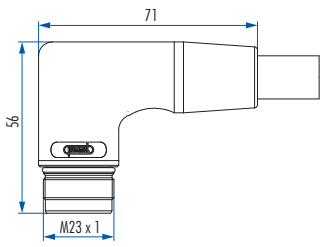
Right Angle Connector, Female Thread

Type	Inserts
Standard / EMC	Pins or sockets

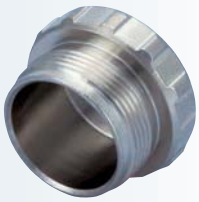
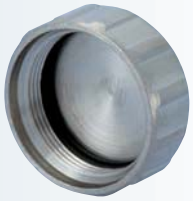


Right Angle Connector, Male Thread

Type	Inserts
Standard / EMC	Pins or sockets



Accessories

Accessories	Type	Part Number
	Plastic protective cap	
	for connectors **M 16 with male thread**	7.000.980.161
	for connectors **M 16 with female thread**	7.000.980.162
	for connectors **M 23 with male thread**	7.000.900.101
	for connectors **M 23 with female thread**	7.000.900.102
	**Brass protective cap**	
	for connectors **M 16 with female thread**	7.010.900.163
	for signal connectors **M 23 with female thread**	7.010.900.103
	for power connectors **M 23 with female thread**	7.010.900.183
	**Brass protective cap**	
	for connectors **M 16 with male thread**	7.010.900.162
	for connectors **M 23 with male thread**	7.010.900.102
	**Brass protective cap with chain**	
	for connectors **M 16 with female thread**	
	Length 70 mm	7.010.9S0.705
	for signal connectors **M 23 with female thread**	
	Length 70 mm	7.010.9S0.703
	Length 100 mm	7.010.9S1.003
	for power connectors **M 23 with female thread**	
	Length 70 mm	7.010.9S0.783
	Length 100 mm	7.010.9S1.083
	**Brass protective cap with chain**	
	for connectors **M 16 with male thread**	
	Length 70 mm	7.010.9S0.704
	for connectors **M 23 with male thread**	
	Length 70 mm	7.010.9S0.702
	Length 100 mm	7.010.9S1.002

Customized

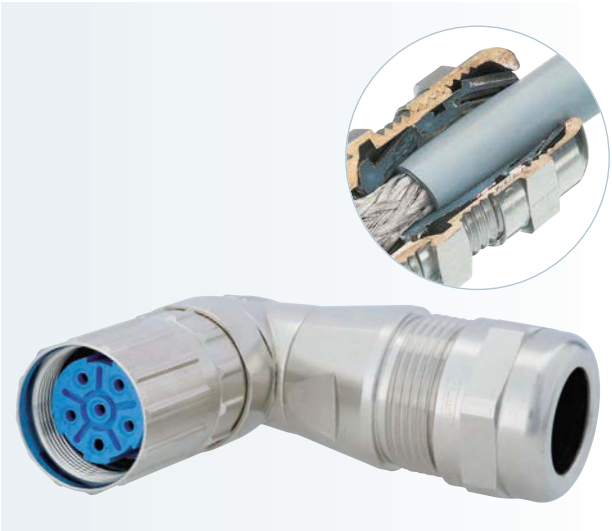
Hybrid Connector for Compressed Air

To place lines for compressed air and electrical signals in one single connection, a hybrid connector M 23 combines different types of contacts in one insert.

Bulkhead Connector

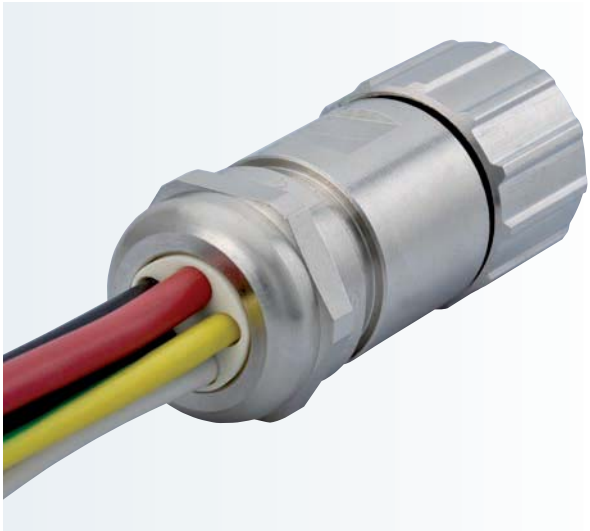
Bulkhead connectors accept plugs on both sides. They are rugged, liquid tight and available in all number of poles.

Simple EMI / RFI shielding



An integrated metalized EMI clamping insert grounds to the braid signifficantly simplifying the assembly of the elbow connector.

MULTI Seal Connector



A large selection of standard MULTI seal inserts allow strain relief of several individual conductors on one single connector.

Flexible Cable Protection

In addition to the integrated strain relief, the flex nut adds kink protection to a cable — available for all connector sizes.

Adaptor flange

To secure loose connections, an adaptor flange can be attached to a straight connector.

12-point hex and knurled nut

This special nut makes connection simple by eighter tightening the connector manually (knurled nut) or with a wrench (12-point hex).

Conduit Attachment

Flexible corrugated conduit can be attached to a connector with an adapter offering strain relief and cable protection as well.

Customized

Connector with specific pull-out resistance

After reaching a certain pull-out force the connection releases preventing damage to the device (apparatus).

Bulkhead Fitting

This fitting with oversized flange is commonly used in the ship building industry where Signal Connections have to be maintained under extreme conditions.

Captive Protective Cap

The metal protective cap is secured to a cable by a safety ring and stays attached in open connections.

ANACONDA Conduit Adapter

HUMMEL offers custom adapters for ANACONDA conduit systems in hazardous locations.

Distibution-box

Distribution-boxes are known as important components for applications in automation. Robust and fully wired they are done according to customers specification.

Coloured Overmould

Completing a design or showing technical functions, overmould could be made in different colours too (e.g. DESINA green RAL 6018).

High temperature applications

For high temperature applications HUMMEL offers connectors with special inserts able to stand temperatures up to 160 °C (320 °F).

Hybrid connector with multi insert

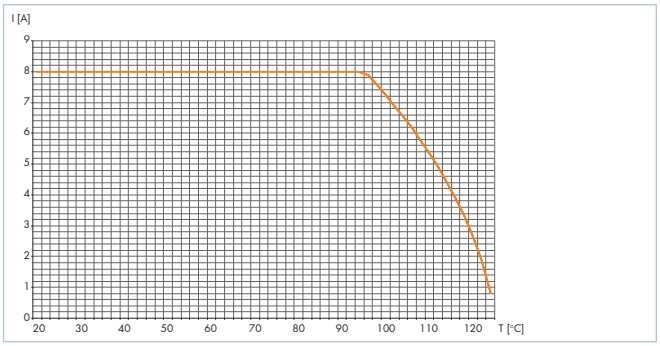
With the multi insert it is possible to set a ethernet and a power cable into one connector. The connection achieves the protection class IP 67.

DERATING

Derating M 16

Straight connectors male + female M 16

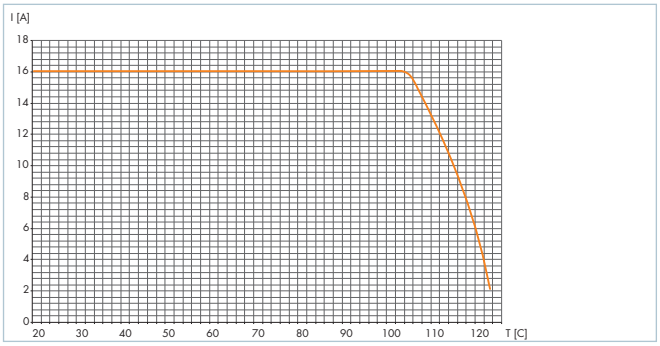
10 pole, wires 10 x AWG 18



Derating TWINTUS

TWINTUS and straight connector female M 16

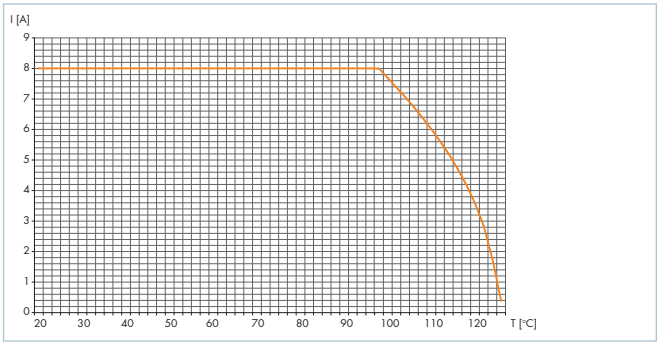
4+3+PE, wires AWG 14 (Power)
10 pole, wires AWG 26



Derating M 23 Signal

Straight Connectors male + female M 23

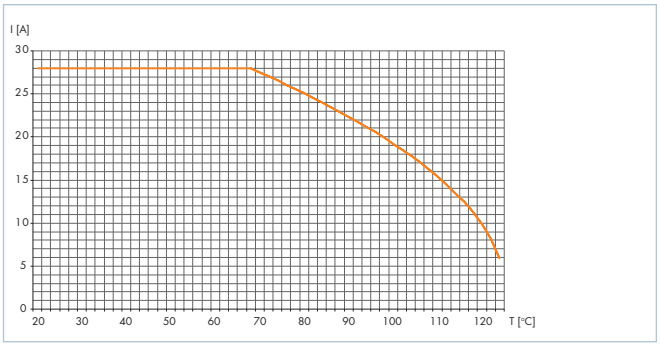
wires 12 x AWG 17



Derating M 23 Power

Straight connectors male + female M 23

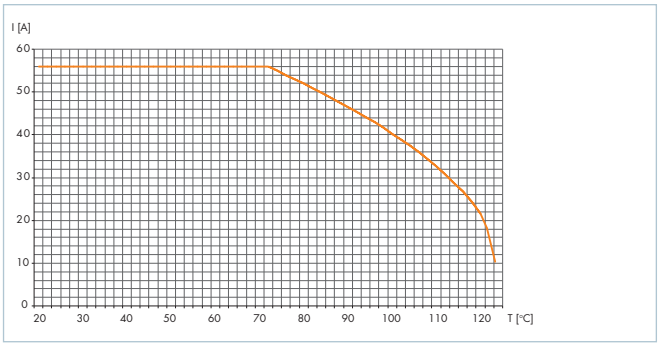
5 + PE, wires 5 x AWG 12



Derating M 40 (Size 1,5)

Straight connectors male + female M 40

wires 3 x AWG 6



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