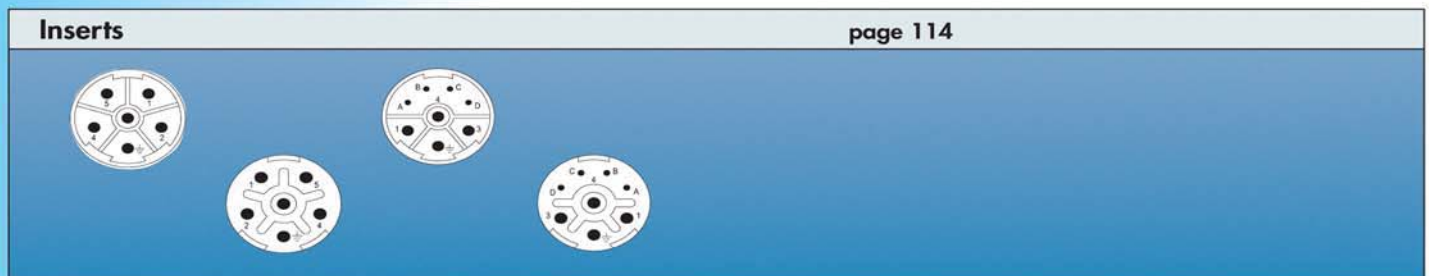


Power Connectors M 23



Product Overview



Technical Data


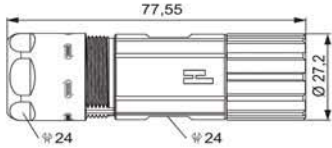
Power Connectors M 23


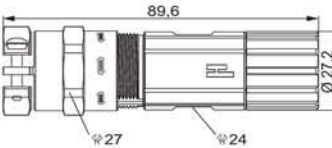
| Mechanical Data | Materials and Technical Data |
|-------------------------------------|--|
| Housing | Copper-Zinc alloy Die Cast |
| Housing surface | Nickel plated other surface upon request |
| Inserts (for contacts) | Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0 |
| Contacts | Brass Alloy |
| Contact surface at point of contact | Nickel and gold plated (0,25 µm Au) |
| 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") |


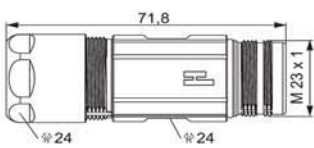
| Electrical Data | 5 + PE | 4 + 3 + PE | |
|---|--------------------|--------------------|------|
| Number of positions | | | |
| Number of contacts | 6 | 4 | 4 |
| Contact-Ø [mm] | 2 | 1 | 2 |
| Nominal current ¹⁾ [A] | 28 | 8 | 28 |
| Nominal voltage ²⁾ [V~] Degree of Protection 2 ³⁾ | 800 | 300 | 800 |
| Nominal voltage ²⁾ [V~] Degree of Protection 3 ³⁾ | 600 | 300 | 600 |
| Test voltage (Breakdown voltage) ⁴⁾ [V~] | 4000 | 2500 | 4000 |
| Insulation resistance [mΩ] | > 10 ¹³ | > 10 ¹³ | |
| Max. contact resistance [mΩ] | 3 | 3 | |


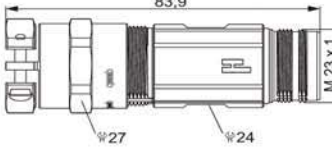
^{1), 2), 3), 4)} See Technical Informations page 14

Power Connectors M 23 / Housing

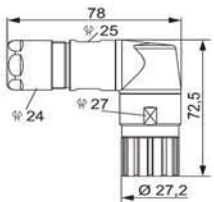

| Straight Connector, Female Thread | | Cable-Ø | Part number |
|---|---|--|-------------|
|  |  | 7 – 12 mm (.27 – .47").....7.550.500.000 | |
| | | 11 – 17 mm (.43 – .67").....7.550.600.000 | |
| | | Contacts and inserts page 114 • Assembly instructions page 122 | |

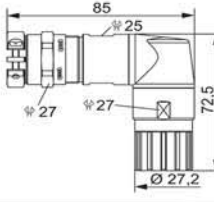

| Straight Connector, Female Thread, MZ | | Cable-Ø | Part Number |
|--|--|--|-------------|
|  |  | 7 – 12 mm (.27 – .47").....7.559.500.000 | |
| | | 11 – 17 mm (.43 – .67").....7.559.600.000 | |
| | | Contacts and inserts page 114 • Assembly instructions page 122 | |

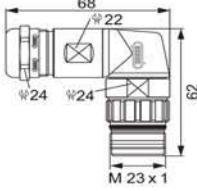

| Straight Connector, Male Thread | | Cable-Ø | Part Number |
|---|---|--|-------------|
|  |  | 7 – 12 mm (.27 – .47").....7.560.500.000 | |
| | | 11 – 17 mm (.43 – .67").....7.560.600.000 | |
| | | Contacts and inserts page 114 • Assembly instructions page 122 | |

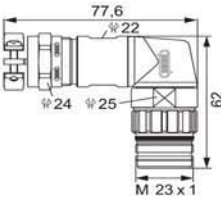

| Straight Connector, Male Thread, MZ | | Cable-Ø | Part Number |
|---|---|--|-------------|
|  |  | 7 – 12 mm (.27 – .47").....7.569.500.000 | |
| | | 11 – 17 mm (.43 – .67").....7.569.600.000 | |
| | | Contacts and inserts page 114 • Assembly instructions page 122 | |

Power Connectors M 23 / Housing


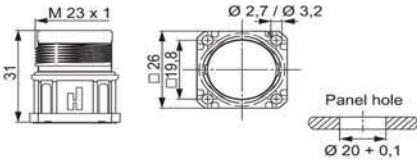
| Cable-Ø | Part Number | Right Angle Connector, Female Thread, rotating |
|--|--------------------|--|
| 7 – 12 mm (.27 – .47") |7.576.500.000 |   |
| 11 – 17 mm (.43 – .67") |7.576.600.000 | |
| Contacts and inserts page 114 • Assembly instructions page 124 | | |


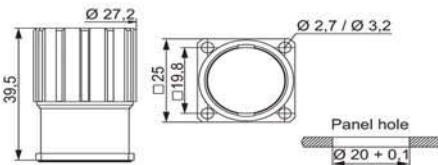
| Cable-Ø | Part Number | Right Angle Connector, Female Thread, MZ, rotating |
|--|--------------------|--|
| 7 – 12 mm (.27 – .47") |7.579.500.000 |   |
| 10 – 14 mm (.39 – .55") |7.579.600.000 | |
| Contacts and inserts page 114 • Assembly instructions page 124 | | |

| Cable-Ø | Part Number | Right Angle Connector, Male Thread, rotating |
|--|--------------------|--|
| 7 – 12 mm (.27 – .47") |7.580.500.000 |   |
| 10 – 14 mm (.39 – .55") |7.580.600.000 | |
| Contacts and inserts page 114 • Assembly instructions page 124 | | |

| Cable-Ø | Part Number | Right Angle Connector, Male Thread, MZ, rotating |
|--|--------------------|--|
| 7 – 12 mm (.27 – .47") |7.589.500.000 |   |
| 10 – 14 mm (.39 – .55") |7.589.600.000 | |
| Contacts and inserts page 114 • Assembly instructions page 124 | | |

Power Connectors M 23 / Housing

| Panel Connectors, Male Thread, Front Mounting | | Type | Part Number |
|---|---|--|-------------|
|  |  | 4 holes \varnothing 3,2 mm (.13")7.601.000.000 | |
| | | 4 holes \varnothing 2,7 mm (.11")7.605.000.000 | |
| | | Optional: Flat gasket | |
| | | Contacts and inserts page 114 • Assembly instructions page 124 | |

| Panel Connector with knurled Nut, Front Mounting | | Type | Part Number |
|--|--|--|-------------|
|  |  | 4 holes \varnothing 3,2 mm (.13")7.641.000.000 | |
| | | 4 holes \varnothing 2,7 mm (.11")7.645.000.000 | |
| | | Optional: Flat gasket | |
| | | Contacts and inserts page 114 • Assembly instructions page 125 | |

Power Connectors M 23 / Housing

| Type | Part Number | Panel Connector, Male Thread, Single Hole Mounted | |
|--|---------------|---|--|
| Front mounting Thread M 20 x 1,5 | 7.621.000.000 | | |
| Options: Flat gasket, jam nut M 20 x 1,5 | | | |
| Contacts and inserts page 114 • Assembly instructions page 126 | | | |



| Type | Part Number | Panel Connector, Male Thread, Single Hole Mounted | |
|--|---------------|---|--|
| Front mounting Thread PG 13,5 | 7.623.000.000 | | |
| Options: Flat gasket, jam nut PG 13,5 | | | |
| Contacts and inserts page 114 • Assembly instructions page 126 | | | |




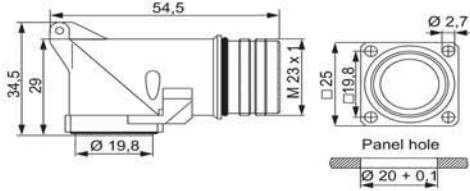

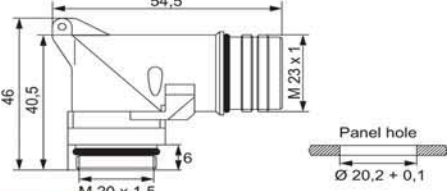

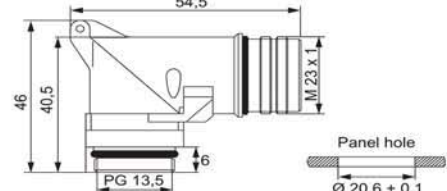

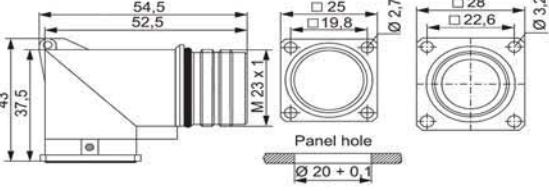
| Type | Part Number | Panel Connector, Male Thread, Single Hole Mounted | |
|--|---------------|---|--|
| Front mounting Thread M 25 x 1,5 | 7.626.000.000 | | |
| Options: Flat gasket, jam nut M 25 x 1,5 | | | |
| Contacts and inserts page 114 • Assembly instructions page 126 | | | |



| Type | Part Number | Panel Connector, Male Thread, Single Hole Mounted | |
|--|---------------|---|--|
| Rear mounting Thread M 25 x 1,5 | 7.651.000.000 | | |
| Including jam nut M 25 x 1,5 | | | |
| Contacts and inserts page 114 • Assembly instructions page 126 | | | |



Power Connectors M 23 / Housing

| Right Angle Panel Connector, Male Thread | | Type | Part Number |
|---|---|--|-------------|
|  |  | 4 holes \varnothing 2,7 mm (.11")7.635.000.000 | |
| | | Options: Flat gasket Easy fastening with M2,5 x 10 mm or #4 x .39" long screws Contacts and inserts page 114 • Assembly instructions page 127 | |
| Right Angle Panel Connector, Male Thread, rotating | | Type | Part Number |
|  |  | 335° rotating, single hole mounted Thread M20 x 1,57.636.000.000 | |
| | | Contacts and inserts page 114 • Assembly instructions page 127 | |
| Right Angle Panel Connector, Male Thread, rotating | | Type | Part Number |
|  |  | 335° rotating, single hole mounted Thread PG 13,57.637.000.000 | |
| | | Contacts and inserts page 114 • Assembly instructions page 127 | |
| Right Angle Panel Connector, Male Thread, rotating | | Type | Part Number |
|  |  | 300° rotating, locking screw at flange 4 x holes \varnothing 2,7 mm (.11") ..7.638.000.000 Flange 25 x 25 mm 4 x holes \varnothing 3,2 mm (.13") ..7.638.100.000 Flange 28 x 28 mm | |
| | | Contacts and inserts page 114 • Assembly instructions page 127 | |

Power Connectors M 23 / Housing

| Type | Part Number | Panel Connector, Male Thread, Rear Mounting | |
|---|-------------|---|--|
| With anti-vibration O-Ring 4 holes \varnothing 3,2 mm (.13")7.661.000.000 | | | |
| Contacts and inserts page 114 • Assembly instructions page 123 | | | |

| Cable- \varnothing | Part Number | Panel Connector, Male Thread, with Strain Relief | |
|---|-------------|--|--|
| 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 Contacts and inserts page 114 • Assembly instructions page 122 | | | |







| Cable- \varnothing | Part Number | Panel Connector, Female Thread, with Strain Relief | |
|--|-------------|--|--|
| 4 holes \varnothing 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 | | | |
| Contacts and inserts page 114 • Assembly instructions page 122 | | | |

| Cable- \varnothing | Part Number | Panel Connector, Male Thread, with Strain Relief | |
|--|-------------|--|--|
| 4 holes \varnothing 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 | | | |
| Contacts and inserts page 114 • Assembly instructions page 122 | | | |

Power Connectors M 23 / Inserts / Pinouts

| Contact Arrangement, Mating View | Type of Contact | Part Number |
|----------------------------------|--|---------------|
| | 6 x crimp pins 2 mm | 7.084.951.101 |
| | 6 x crimp sockets 2 mm | 7.084.951.102 |
| | 4 x crimp pins 1 mm 4 x crimp pins 2 mm | 7.084.943.101 |
| | 4 x crimp sockets 1 mm 4 x crimp sockets 2 mm | 7.084.943.102 |

Power Connectors M 23 / Contacts




| Type of Contact | Crimp Range | Part Number | Contacts |
|-----------------------------|---|---------------|---|
| Crimp pin 1 mm, machined | 0,14 – 1 mm ² (AWG 26 – 17) | 7.010.941.001 |  |
| Crimp socket 1 mm, machined | 0,14 – 1 mm ² (AWG 26 – 17) | 7.010.941.002 |  |
| Crimp pin 2 mm, machined | 0,75 – 2,5 mm ² (AWG 18 – 14) | 7.010.942.001 |  |
| Crimp pin 2 mm, machined | 2,5 – 4 mm ² (AWG 14 – 12) | 7.010.942.011 |  |
| Crimp socket 2 mm, machined | 0,75 – 2,5 mm ² (AWG 18 – 14) | 7.010.942.002 |  |
| Crimp socket 2 mm, machined | 2,5 – 4 mm ² (AWG 14 – 12) | 7.010.942.012 |  |

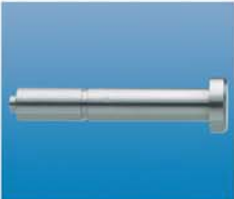
See page 128 for crimp tool instructions and proper setting

Power Connectors M23 / Accessories


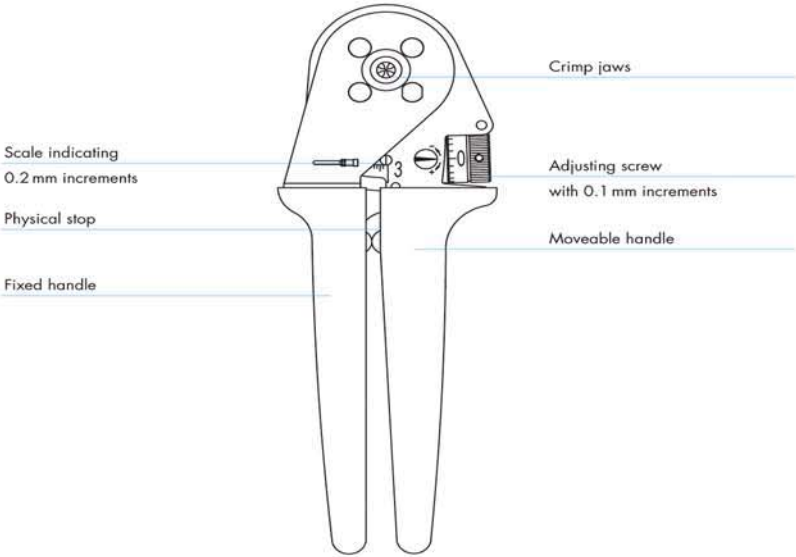
| Accessories | Type | Part Number |
|---|---|---|
|  | Plastic protective cap for connectors with male thread | 7.000.900.101 |
|  | Brass protective cap for connectors with female thread | 7.010.900.183 |
|  | Brass protective cap for connectors with male thread | 7.010.900.102 |
|  | Brass protective cap with chain for connectors with female thread | Length 70 mm 7.010.9S0.783 Length 100 mm 7.010.9S1.083 |
|  | Brass protective cap with chain for connectors with male thread | Length 70 mm 7.010.9S0.702 Length 100 mm 7.010.9S1.002 |

Power Connectors M 23 / Accessories

| Type | Part Number | Accessories |
|---|---|--|
| Crimp tool for manual crimping of machined crimp contacts. Works with contacts for power or signal..... | 7.000.900.901 |  |
| Operating instructions on page 118 | | |
| Adaptor flange for Straight Connectors | 7.010.900.128 |  |
| Adapter for Conduit Fittings | Snapflex 16.....7.010.900.204 DN 127.010.900.205 Snapflex 20.....7.010.900.206 DN 147.010.900.207 Snapflex 25.....7.010.900.208 DN 177.010.900.209 |  |

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

Crimp Tool for Power Connectors M 23

| Crimp Tool | Type | Part Number |
|--|---|--|
|  | <p>Crimp tool7.000.900.901</p> <p>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).</p> <p>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.</p> <p>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.</p> |  <p>Crimp jaws</p> <p>Scale indicating 0.2 mm increments</p> <p>Physical stop</p> <p>Fixed handle</p> <p>Adjusting screw with 0.1 mm increments</p> <p>Moveable handle</p> |

Crimp Tool for Power Connectors M 23

Crimp Tool

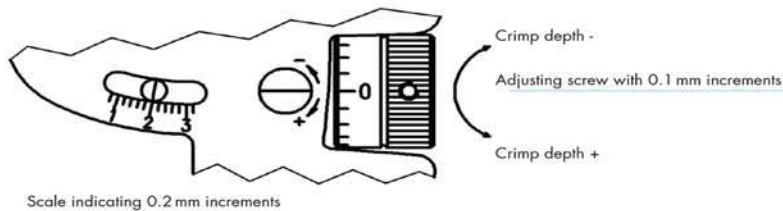
Adjustment of Crimp Depth

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 $\hat{=}$ adjustment by 0.01 mm
- 1 full rotation of adjusting screw $\hat{=}$ adjustment by 0.2 mm (indication on the screw as well as on the rough scale)
- 5 rotations of the adjusting screw $\hat{=}$ 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 \varnothing 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.

Crimp Tool for Power Connectors M 23

| Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.901) | | | | | |
|---|------------------------------|-------------------------------|-----|-----------------------|-----------------|
| Part Number | Crimp Contact | Cross Section mm ² | AWG | Crimp Tool Setting mm | Locator Setting |
| 7.010.901.001 | 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 |
| 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 |

Crimp Tool for Power Connectors M 23

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

| Part Number | Crimp Contact | Cross Section mm ² | AWG | Crimp Tool Setting mm | Locator Setting |
|---------------|---------------------------|-------------------------------|-----|-----------------------|-----------------|
| 7.010.941.002 | 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.
Please see assembly instructions on page 128

Power Connectors M23 / Assembly Instructions

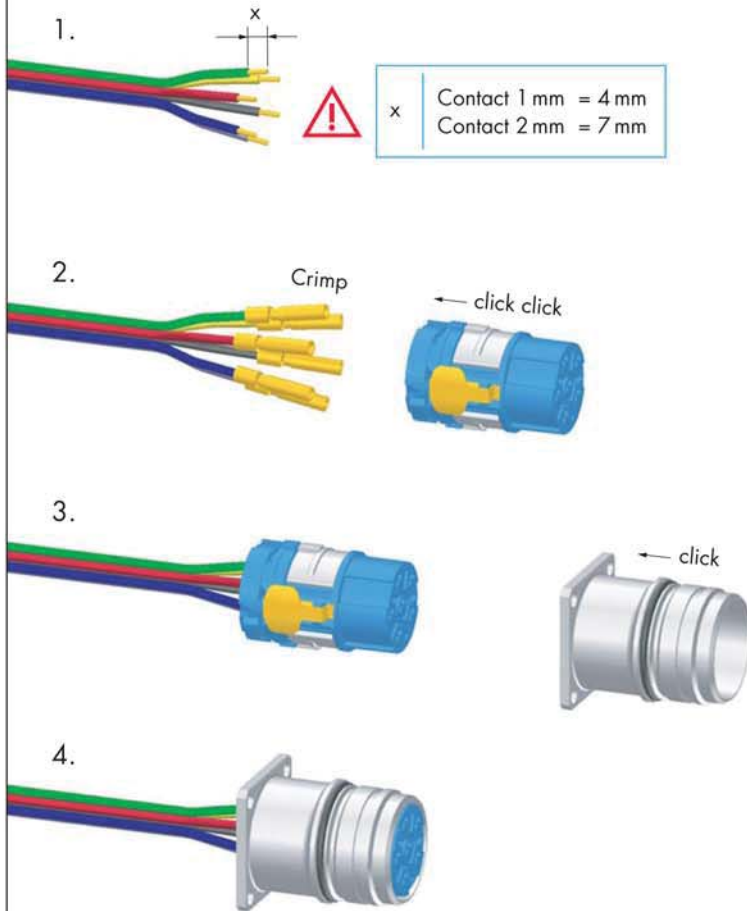
Straight Connector, Female Thread

-
-
-
-
-
-

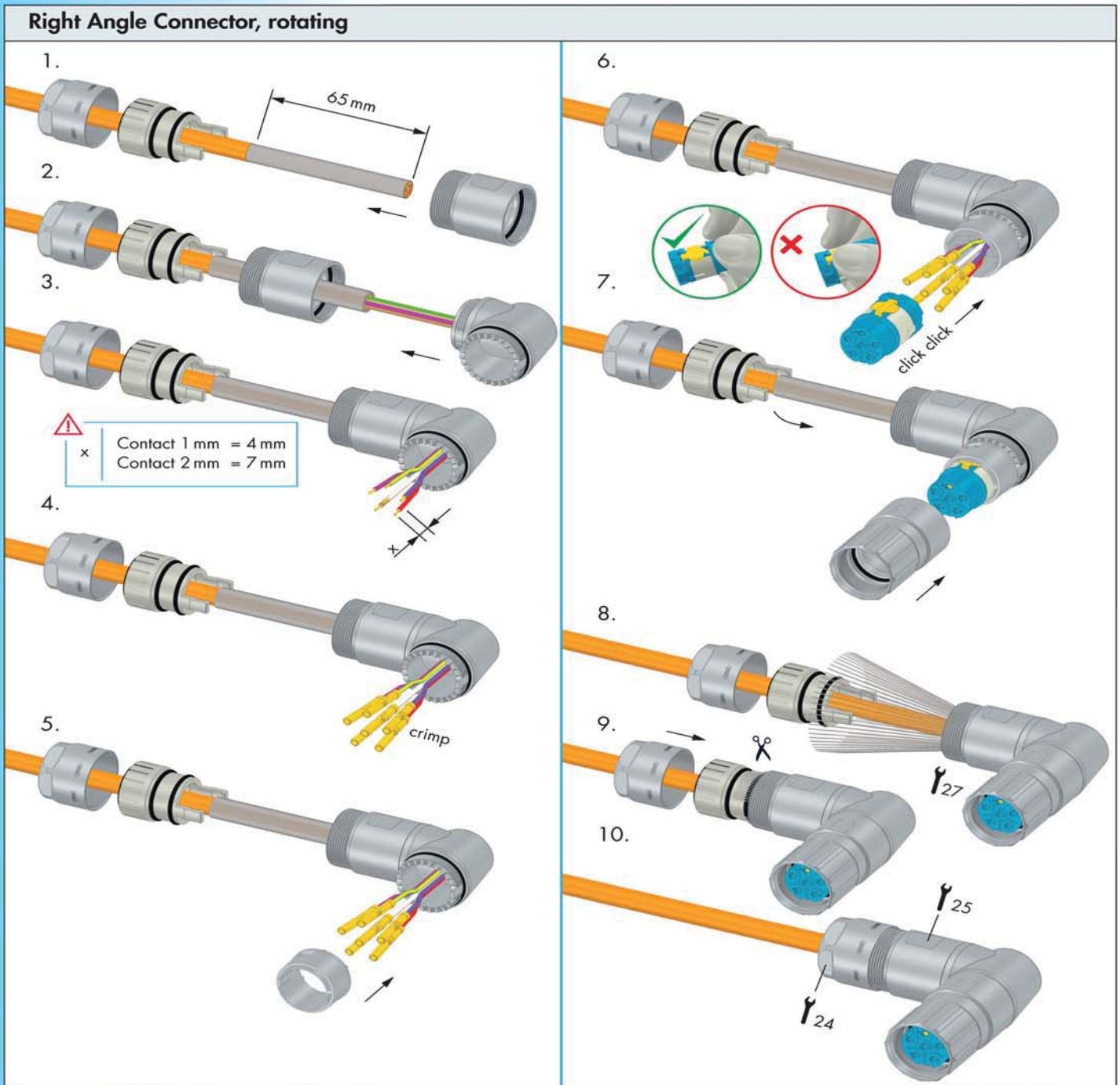
⚠ x Contact 1 mm = 4 mm
Contact 2 mm = 7 mm

Power Connectors M 23 / Assembly Instructions

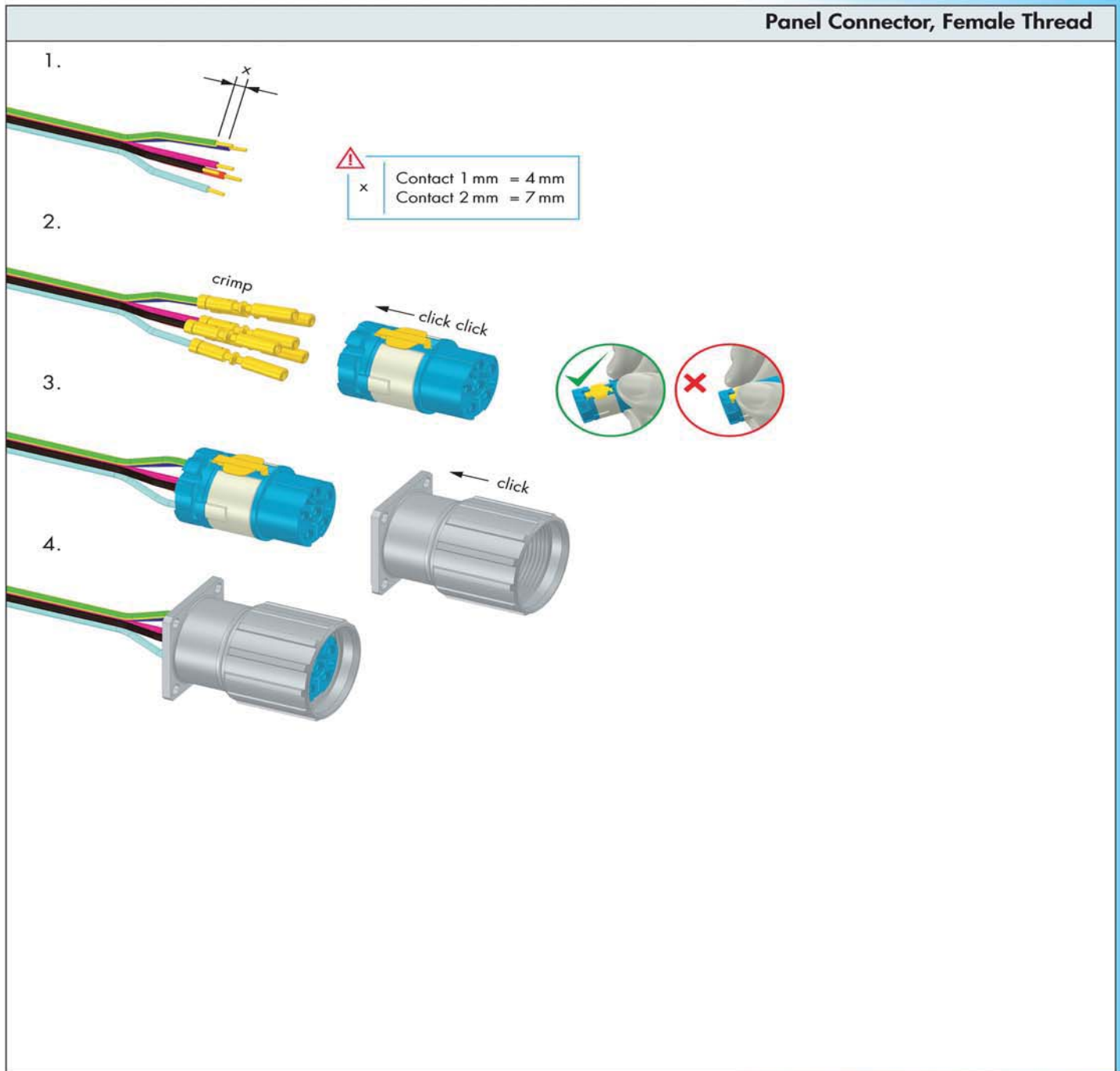
Panel Connector, Male Thread



Power Connectors M 23 / Assembly Instructions



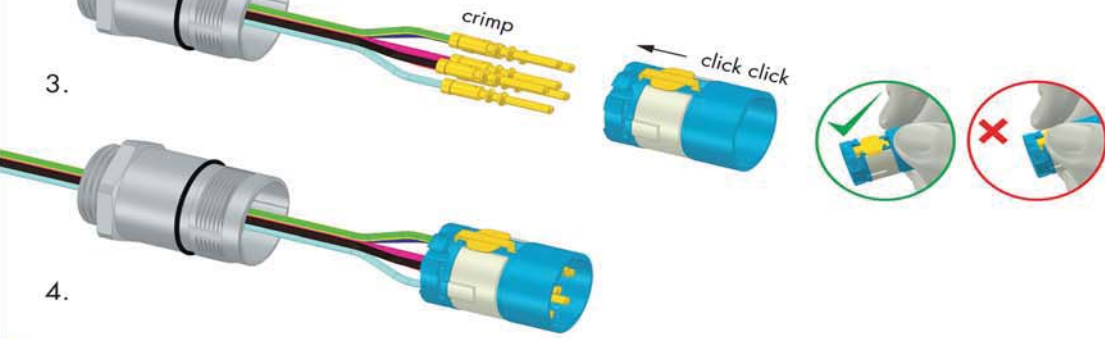



Power Connectors M 23 / Assembly Instructions



Power Connectors M23 / Assembly Instructions

Panel Connector, Male Thread, Single Hole Mounted

1. 
2. 
3. 
4. 

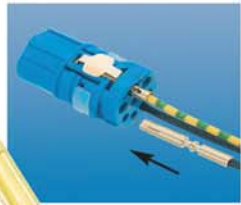
Power Connectors M 23 / Assembly Instructions

Right Angle Panel Connector

1.
 x
 Contact 1 mm = 4 mm
 Contact 2 mm = 7 mm
2.
 crimp
3.
 click click
4.
5.
6.
 SW 2
7.
 300°
 SW 1,5

Crimping, Assembly and Disassembly

Crimping, Assembly and Disassembly



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 120 / 121)
- 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.