Pushing Performance

People | Power | Partnership

HARTING

Han® M23 Circular Connectors

Economic and Reliable Connections

Specifications

IEC 60068-2-6
Environmental testing,
Vibration

DIN EN 61984
Connectors –
Safety requirements and tests

Note:

The connectors included in this catalogue should not be coupled or decoupled under electrical load unless otherwise stated.

The provision of protection against electric shock is the responsibility of the user. Protection can be achieved by the use of HARTING hoods and housings coupled with/or alternatively to appropriate installation methods provided by the user.

Approvals

UL File No. ECBT2.E235076 (www.ul.com)

General information

It is the customer's responsibility to check whether the components illustrated in this catalogue also comply with regulations different from those stated in the special fields of applications.

We reserve the right to modify designs or substance of content in order to improve quality, keep pace with technological advancement or meet particular requirements in production. This information describes the components, but should not be considered as a guarantee of certain properties.

No part of this catalogue may be reproduced in any form (print, photocopy, microfilm or any other process) or processed, duplicated or distributed by means of electronic systems without the prior written consent of HARTING Electric GmbH & Co. KG, Espelkamp. We are bound by the German version only.

HARTING eCatalogue

The **HARTING eCatalogue / eShop** can be found on our homepage at **www.HARTING.com** or at the direct link **www.eCatalogue.HARTING.com**.

The HARTING e-Catalogue is your platform for conveniently selecting individual products as well as configuring complete solutions. Our comprehensive product pages provide you with all necessary technical information and CAD files in various formats for downloading. You may also contact our technical sales department directly.

Find out about **product innovations and news** on the start page of the HARTING e-Catalogue or go directly to **www.product-news.HARTING.com**.

Registered users can take advantage of MyHARTING to check on availability or prices, and to place or track their orders. Here, your customized "HARTING history" provides you with a list of your inquiries, quotations and more.

Sign up now for your free e-Catalogue account at HARTING!

www.eShop.HARTING.com

Table of contents

Page

Han® M23 Signal

Features 51.05
Approvals 51.05
Technical characteristics 51.06
Hoods 51.07
Bulkhead mounted housing 51.09
Panel feed-through / Cable to cable housings 51.12
Inserts 51.13
Contacts 51.19
Accessories 51.20
Crimping tools 51.21
Assembly instructions 51.24

Han® M23 Power / Hybrid

Features 51.29
Approvals 51.29
Technical characteristics 51.30
Hoods 51.31
Bulkhead mounted housings 51.32
Cable to cable housings 51.34
Inserts 51.35
Contacts 51.37
Accessories 51.38
Crimping tools 51.39
Assembly instructions 51.44

Han® M23 Signal

Number of contacts

6-19

≤ 300 V
≤ 20 A

Features

- High contact density with up to 19 contacts
- Interchangeable combination of inserts and hoods/housings
- No special tools for assembly process required
- Crimp, solder and solder-in termination technique
- 360° EMC capability
- Shock and vibration proof
- Robust hoods and housings for industrial environment

Approvals

Note

For operating voltages over 50 volts, the connector must be used with conductive housing parts, in compliance with the safety directives in DIN VDE 410 / IEC 60364-4-41.

Connectors should not be connected or disconnected while under electrical load.

General information

It is the user's responsibility to check whether the components illustrated in this catalogue comply with different regulations from those stated in special fields of application which we are unable to foresee.

We reserve the right to modify designs in order to improve quality, keep pace with technological advancement or meet particular requirements in production. This information describes the components but should not be considered as a guarantee of certain properties.

HARTING Electric GmbH & Co. KG
Wilhelm-Harting-Strasse 1
D-32339 Espelkamp, Germany
Phone +49 5772 47-97100
HARTING Electric@HARTING.com

Technical characteristics

Hoods and housings

Material	Copper zinc alloy
Surface	Nickel plated
Seal	NBR
Limiting temperatures	-40 °C … +125 °C
Degree of protection and seal in locked position	IP67 / IP69K
Clamping range	3 – 17 mm

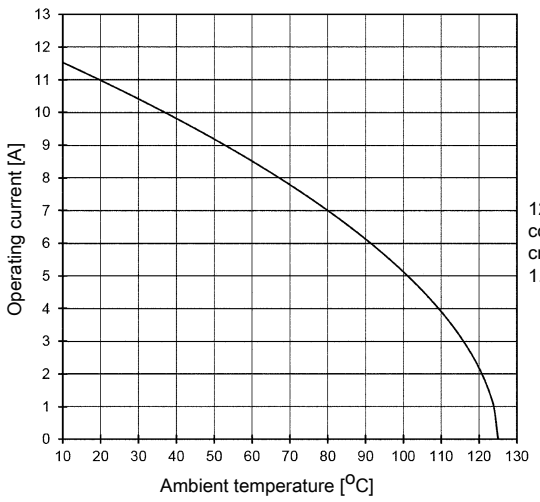
Inserts

Material		Thermoplastic polyamid							
Termination technique		Crimp, solder, solder-in							
Number of poles		6	7	9		12	17	19	
Number of contacts		6	7	8	1	12	17	16	3
Contact Ø	mm	2	2	1	2	1	1	1	1.5
Rated current	A	20	20	8	20	8	8	8	10
Rated voltage[1)]	V	300	300	200		200	160	100	
Test voltage	V	2500	2500	2500		2500	1500	1500	
Insulation resistance	MΩ	> 10^{10}	> 10^{10}	> 10^{10}		> 10^{10}	> 10^{6}	> 10^{6}	
Max. contact resistance	mΩ	3	3	3		3	3	3	

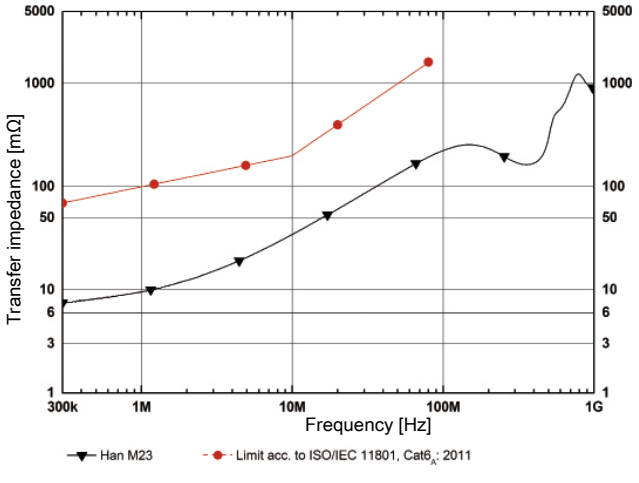
Derating and EMC diagram

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, non-interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

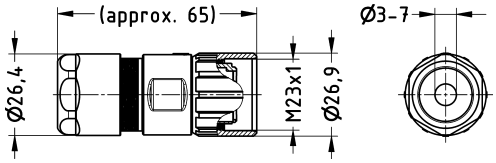
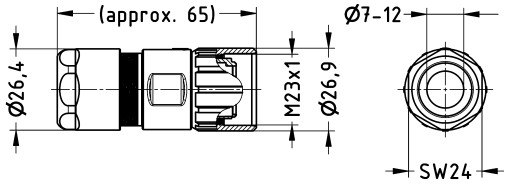
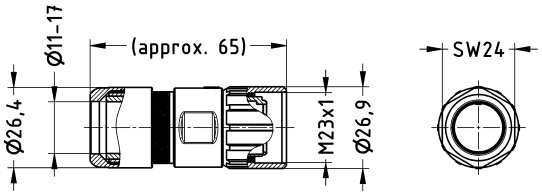
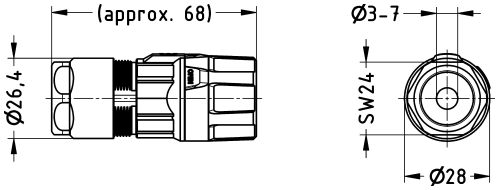
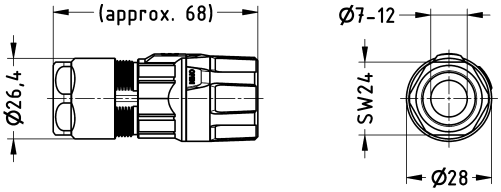
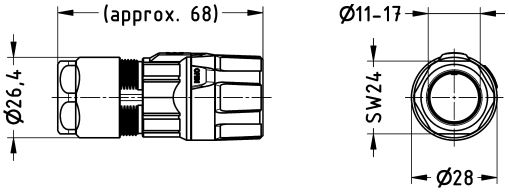
Control and testing procedures, according to DIN IEC 60512-5-2.



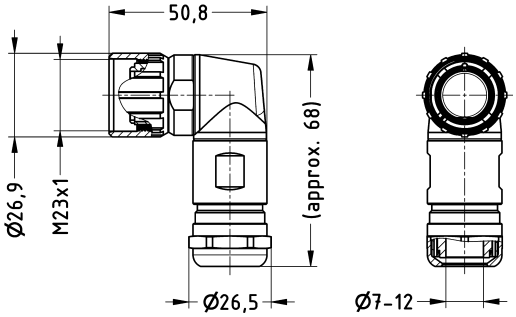
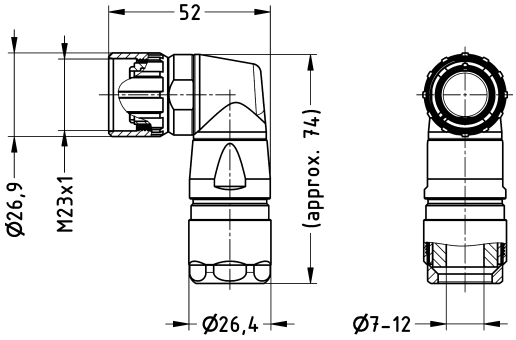
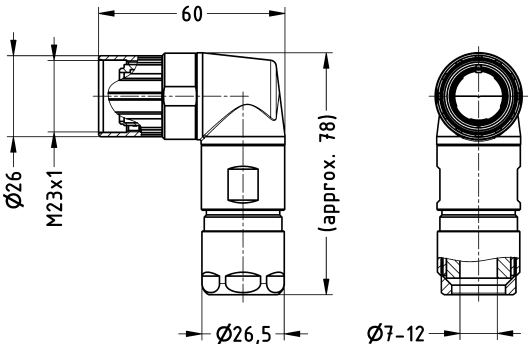
12 poles insert, conductor cross-section: 1.00 mm²

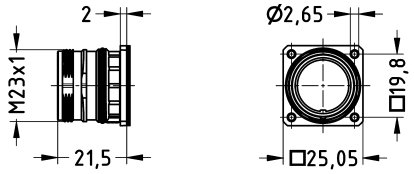
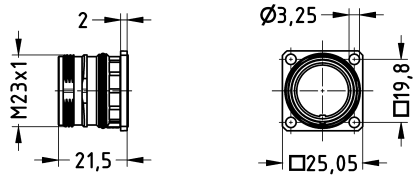
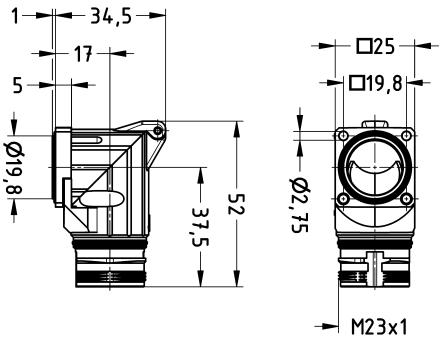
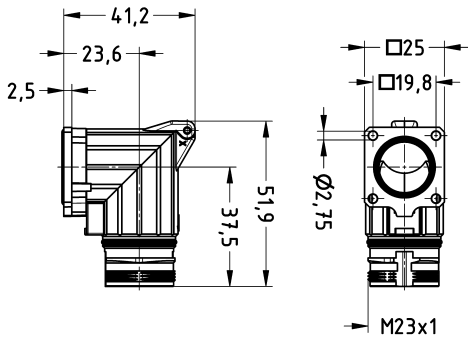


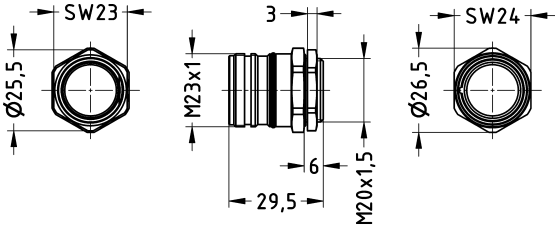
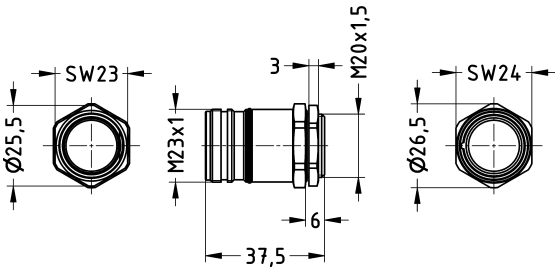
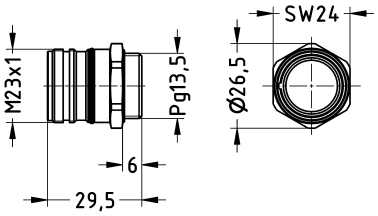
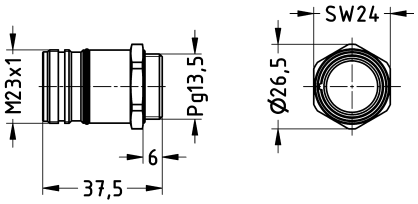
1) According to DIN VDE 0627, metallic parts which may be touched by a person and may have voltages present under fault conditions must have integral protection.

Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
Hood, including EMC cable gland 	3- 7	09 15 100 0401	
	7-12	09 15 100 0402	
	11-17	09 15 100 0403	
Hood, ComLock – rapid locking, including EMC cable gland 	3- 7	09 15 100 0491[1] 09 15 100 0481[2]	
	7-12	09 15 100 0492[1] 09 15 100 0482[2]	
	11-17	09 15 100 0493[1] 09 15 100 0483[2]	

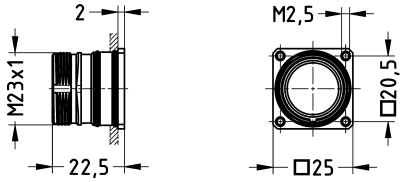
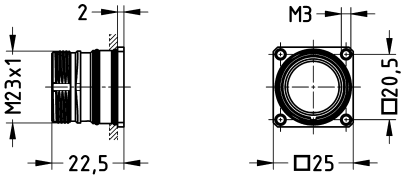
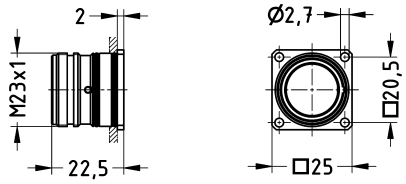
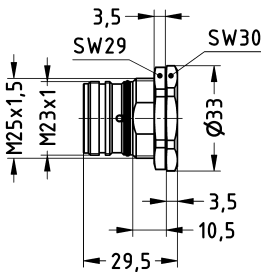
[1] fast locking hood for Han® M23 Signal
[2] fast locking hood for Speedtec products

Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
Angled hood, without EMC 	7 - 12	09 15 100 0601	
Angled hood, including EMC cable gland 	7 - 12	09 15 100 0602	
Angled hood, rotatable, including EMC cable gland 	7 - 12	09 15 100 0603	

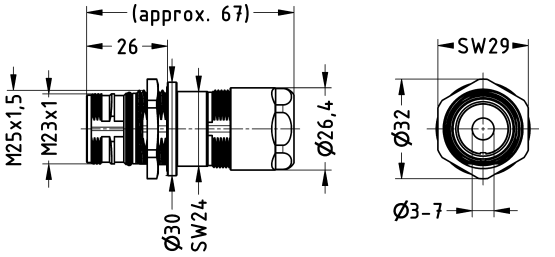
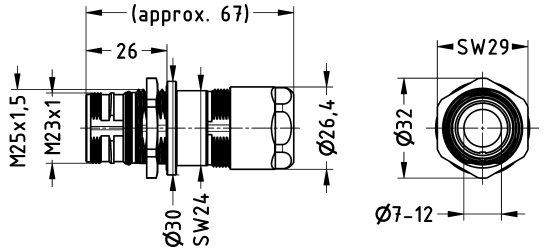
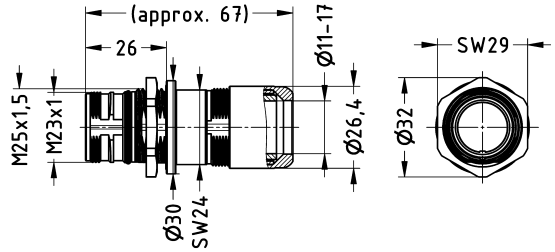
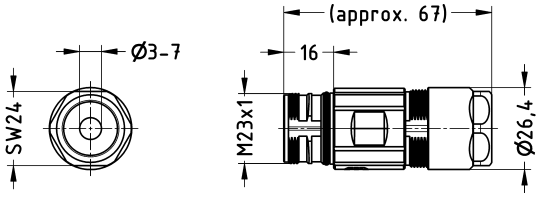
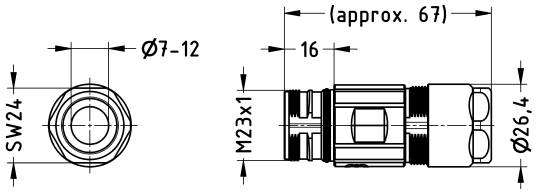
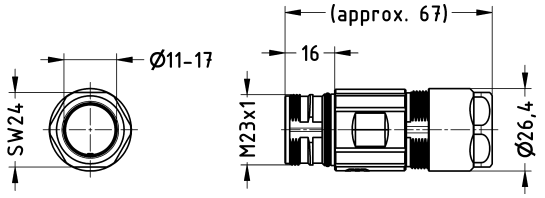
Identification	Part number	Drawing Dimensions, in mm
Bulkhead mounted housing, front wall assembly, flat seal (4 x 2.7 mm) 	09 15 100 0301	 Panel cut out Ø 20
Bulkhead mounted housing, front wall assembly, O-ring seal (4 x 3.2 mm) 	09 15 100 0302	 Panel cut out Ø 20
Bulkhead mounted housing, angled, front wall assembly, O-ring seal (4 x 2.7 mm) 	09 15 100 0901	 Panel cut out Ø 20
Bulkhead mounted housing, angled, rotatable front wall assembly, O-ring seal (4 x 2.7 mm) 	09 15 100 0902	 Panel cut out Ø 20

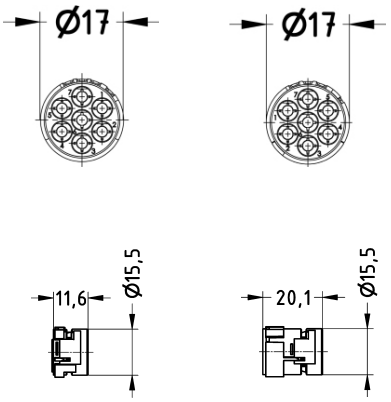
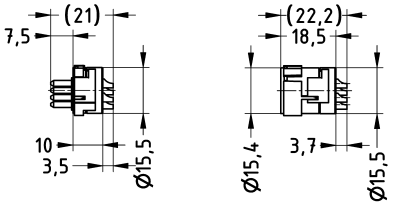
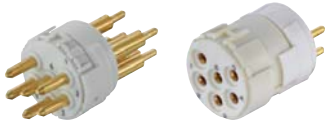
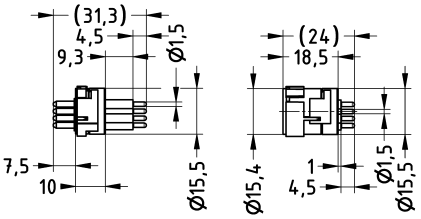
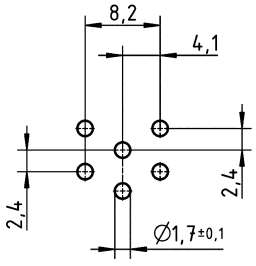
Identification	Part number	Drawing Dimensions, in mm
Bulkhead mounted housing, front wall assembly, for male insert (M20 x 1.5) 	09 15 100 0363[1)]	 Panel cut out Ø 20
Bulkhead mounted housing, front wall assembly, for female insert (M20 x 1.5) 	09 15 100 0373[1)]	 Panel cut out Ø 20
Bulkhead mounted housing, front wall assembly, for male insert (PG 13.5) 	09 15 100 0364[1)]	 Panel cut out Ø PG 13.5
Bulkhead mounted housing, front wall assembly, for female insert (PG 13.5) 	09 15 100 0374[1)]	 Panel cut out Ø PG 13.5

[1)] Not suitable for rapid locking

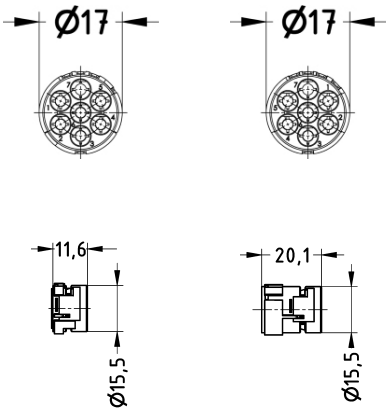
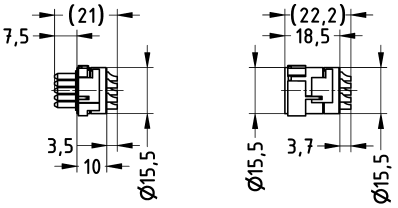
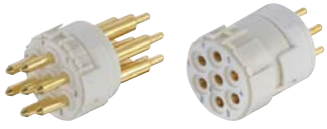
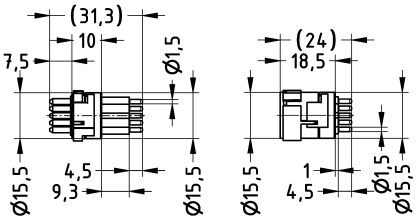
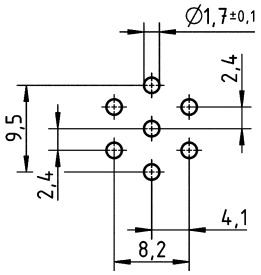
Identification	Part number	Drawing Dimensions, in mm
Bulkhead mounted housing, back wall assembly, O-ring seal (4 x M2.5) 	09 15 100 0305[1)]	 Panel cut out Ø 20
Bulkhead mounted housing, back wall assembly, O-ring seal (4 x M3) 	09 15 100 0306[1)]	 Panel cut out Ø 20
Bulkhead mounted housing, back wall assembly, O-ring seal (4 x 2.7 mm) 	09 15 100 0307[1)]	 Panel cut out Ø 20
Bulkhead mounted housing, back wall assembly, O-ring seal (M25) 	09 15 100 0308[1)]	 Panel cut out Ø PG 13.5

[1)] Not suitable for rapid locking

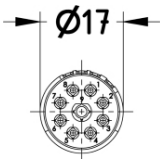
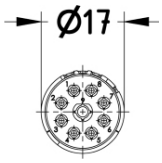
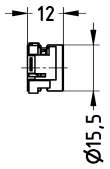
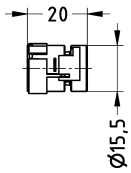
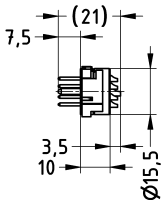
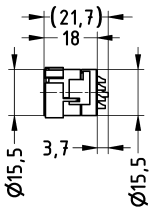
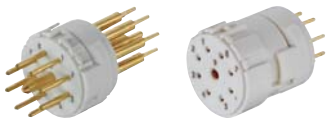
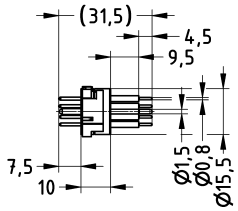
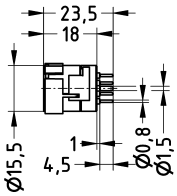
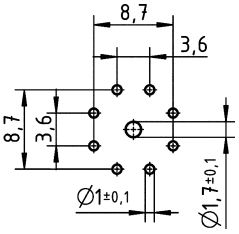
Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
Panel feed-through housing, back wall assembly, with central locking (M25) 	3 - 7	09 15 100 0309	
	7 - 12	09 15 100 0310	
	11 - 17	09 15 100 0311	
Cable to cable housing, including EMC cable gland 	3 - 7	09 15 100 0701	
	7 - 12	09 15 100 0702	
	11 - 17	09 15 100 0703	

Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
				Male / Female
Crimp termination; 6 x 2 mm contacts 	6	09 15 106 3001	09 15 106 3101	
Solder termination 	6	09 15 106 2602	09 15 106 2702	
PCB solder-in termination[1] 	6	09 15 106 2603	09 15 106 2703	
				

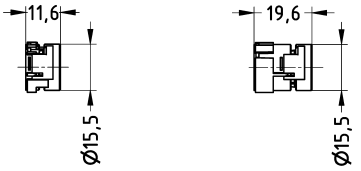
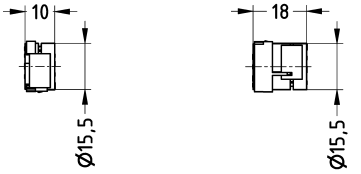
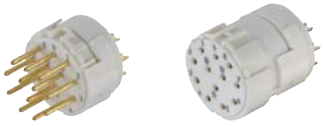
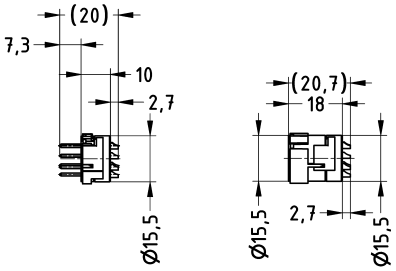
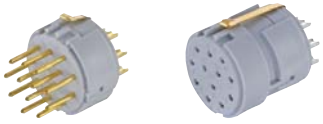
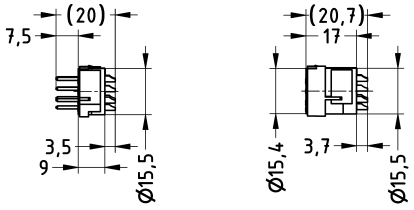
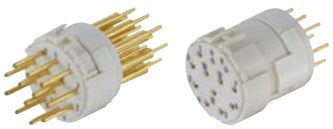
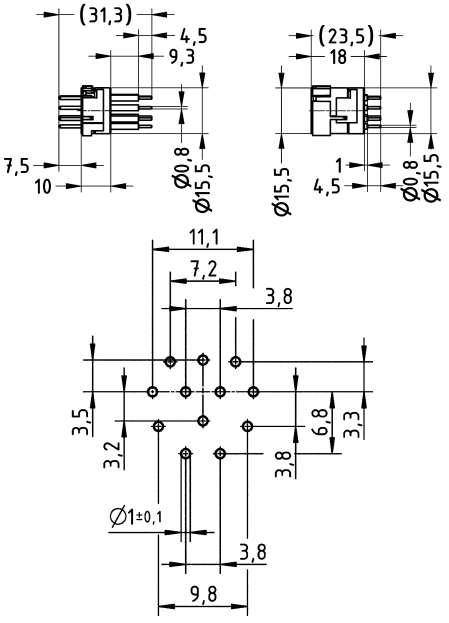
[1] Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
				Male / Female
Crimp termination; 7 x 2 mm contacts 	7	09 15 107 3001	09 15 107 3101	
Solder termination 	7	09 15 107 2602	09 15 107 2702	
PCB solder-in termination[1] 	7	09 15 107 2603	09 15 107 2703	
				

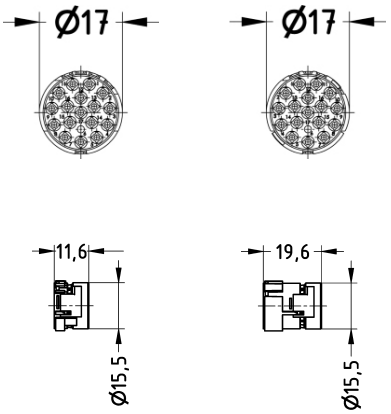
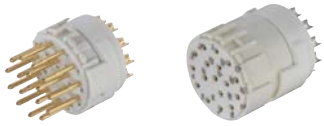
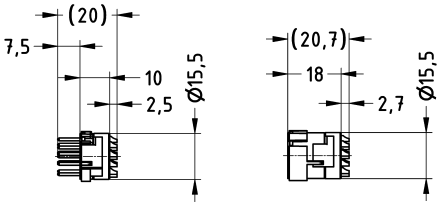
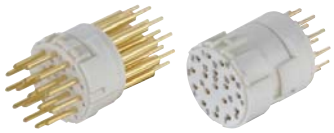
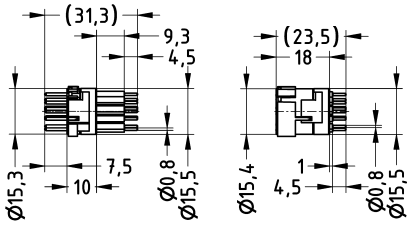
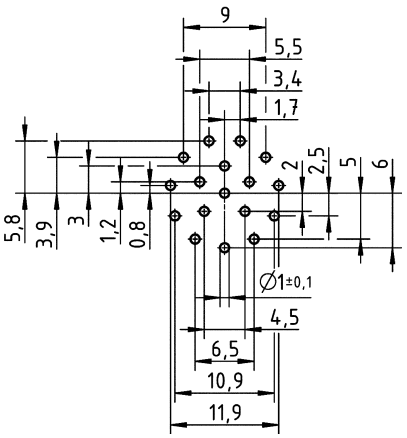
[1] Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
Crimp termination; 8 x 1 mm contacts 1 x 2 mm contact 	9	09 15 109 3001	09 15 109 3101	Male  Female   
Solder termination 	9	09 15 109 2602	09 15 109 2702	 
PCB solder-in termination[1] 	9	09 15 109 2603	09 15 109 2703	  

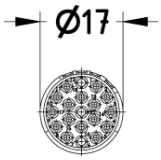
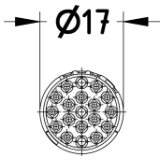
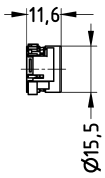
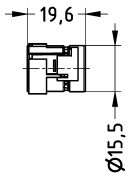
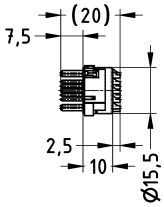
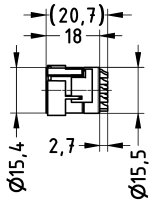
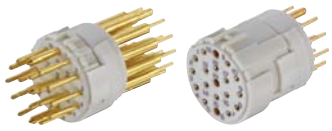
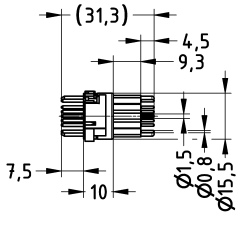
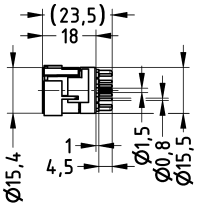
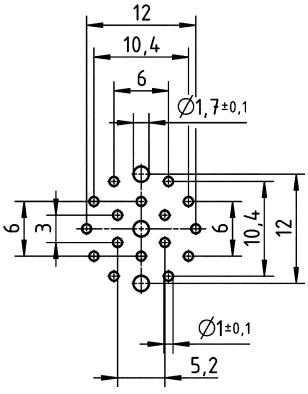
[1] Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
				Male / Female
Crimp termination; 12 x 1 mm contacts 	12	09 15 112 3001	09 15 112 3101	
Crimp termination (with PE): 12 x 1 mm contacts 	12	09 15 112 3021	09 15 112 3121	
Solder termination 	12	09 15 112 2602	09 15 112 2702	
Solder termination (with PE) 	12	09 15 112 2622	09 15 112 2722	
PCB solder-in termination[1] 	12	09 15 112 2603	09 15 112 2703	

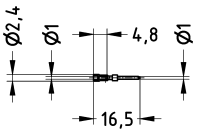
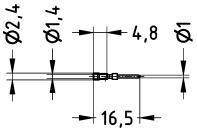
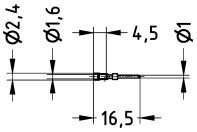
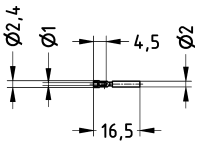
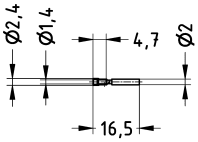
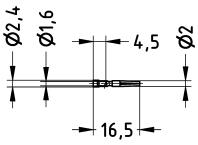
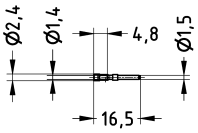
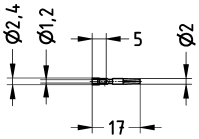
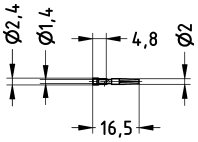
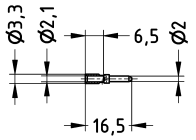
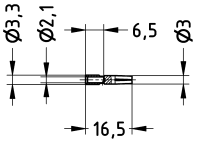
[1] Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

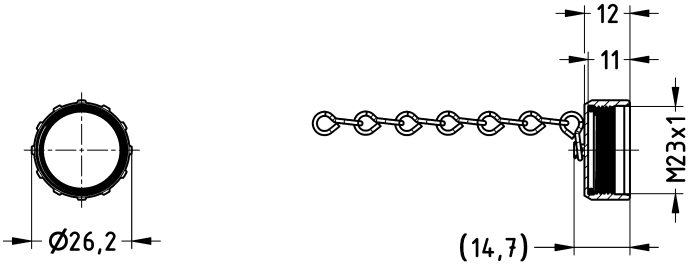
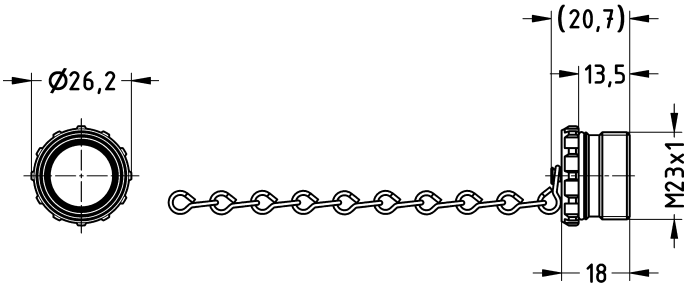
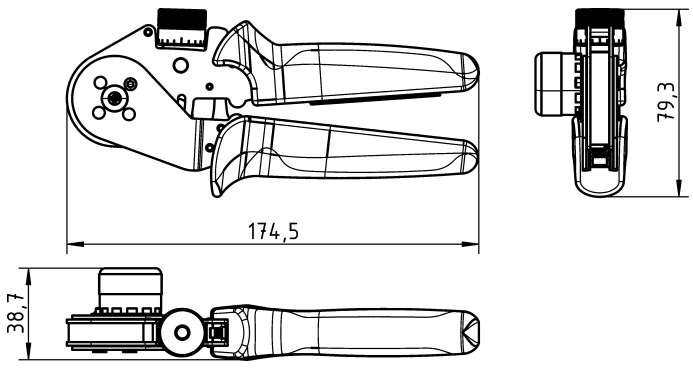
Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
Crimp termination; 17 x 1 mm contacts 	17	09 15 117 3001	09 15 117 3101	Male / Female 
Solder termination 	17	09 15 117 2602	09 15 117 2702	
PCB solder-in termination[1] 	17	09 15 117 2603	09 15 117 2703	 

[1] Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
Crimp termination; 16 x 1 mm contacts 3 x 1.5 mm contacts 	19	09 15 119 3001	09 15 119 3101	Male  Female   
Solder termination 	19	09 15 119 2602	09 15 119 2702	 
PCB solder-in termination[1] 	19	09 15 119 2603	09 15 119 2703	  

[1] Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

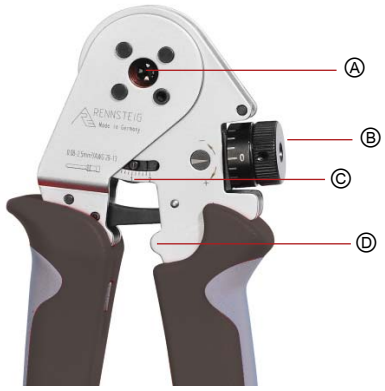
Identification	Conductor cross-section (mm²)	Part number Male	Part number Female	Drawing Dimension, in mm
Han® M23 crimp contacts, 1 mm turned; Contact surface: gold plated 	0.08 – 0.56	09 15 100 6101		
	0.14 – 1.00	09 15 100 6102		
	0.75 – 1.50	09 15 100 6103		
	0.08 – 0.56		09 15 100 6201	
	0.34 – 1.00		09 15 100 6202	
	0.75 – 1.50		09 15 100 6203	
Han® M23 crimp contacts, 1.5 mm turned; Contact surface: gold plated 	0.14 – 1.00	09 15 100 6111		
	0.14 – 0.56		09 15 100 6211	
	0.34 – 1.00		09 15 100 6212	
Han® M23 crimp contacts, 2 mm turned; Contact surface: gold plated 	0.75 – 2.50	09 15 100 6121		
	0.75 – 2.50		09 15 100 6221	

Identification	Part number	Drawing Dimensions, in mm
Screw cover for bulkhead mounted and cable to cable housings 	09 15 100 9101	
Screw cover for bulkhead mounted and cable to cable housings, including chain (70 mm) 	09 15 100 9102	
Screw cover for hoods, with chain (100 mm) 	09 15 100 9103	
Four-indent crimping tool 	09 99 000 0890	

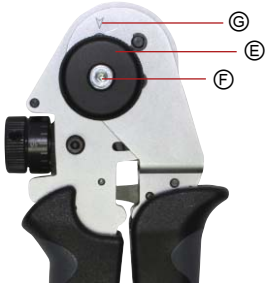
Crimping tool for signal contacts 09 99 000 0890

Conductor cross-section 0.08 to 2.5 mm²

Operating instructions



Ⓐ Tool opening
Ⓑ Settings dial (with 0.01 mm pitch)
Ⓒ Settings scale (with 0.2 mm pitch)
Ⓓ End stop



Ⓔ Locator
Ⓕ Hex. socket screw
Ⓖ Latch detent (indicated by arrow)

Proper and intended use

The four-indent crimping tool (09 99 000 0890) is used for crimping Han® M23 series crimp contacts with conductor cross-sections from 0.08 mm² to 2.5 mm².

Crimping sequence

1. Refer to the “Crimping depth settings for Han® M23 crimp contacts” table (on the second following page) for the locator setting and the exact crimping depth required for the contacts you are using.
   Adjust the four-indent crimping tool according to the values (refer to the section “Adjusting the locator” and “Adjusting the crimping depth”).
2. Insert the contact into the tool’s opening until is in the specified crimping position.
3. Secure the contact by carefully closing the four-indent crimping tool until it reaches its first catch-lock position.

   ► The inserted contact is now secured in this position so that it cannot fall out.
4. Insert a properly stripped (refer to specifications) conductor into the crimp contact.
5. Press the crimping tool’s handles together in order to crimp the contact. Press the tool’s handles together until they reopen automatically.
6. Remove the crimped contact.

NOTICE

Operating principle of the four-indent crimping tool

The four-indent crimping tool operates according to forced completion functionality: you must press the handles together as far as possible (until the end stop position) and then the tool will open automatically.

Adjusting the crimping depth

In order to ensure the best error-free crimp connection, the crimping depth (the gap between the crimping dies) must properly correspond to the type of contact and conductor diameter in use. You must use the proper setting for the contact! These settings are found in the table on the second following page.

Adjusting the locator

Raise the locator Ⓔ until it can be turned past the latch detent (indicated by arrow Ⓖ). Turn the locator to the position specified in the “Crimping depth settings for Han® M23 crimp contacts” table. Then let it snap into the latch detent.

NOTICE

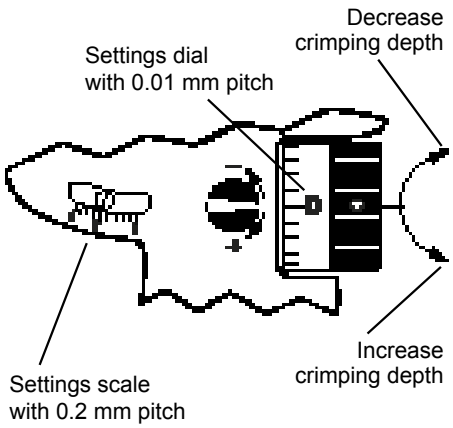
Direction of rotation when adjusting the crimping depth

When the locator or fine-settings dial are turned clockwise, the crimping depth is reduced. When they are turned counter-clockwise, the crimping depth is increased.

Crimping tool for signal contacts 09 99 000 0890

Conductor cross-section 0.08 to 2.5 mm²

Operating instructions



Adjustment accuracy

One graduation mark on the settings dial ≙ 0.01 mm change in the crimping depth

One rotation of settings dial ≙ 0.2 mm change in the crimping depth
(This can be read on the settings scale)

Five rotations of settings dial ≙ 1 mm change in the crimping depth

Testing with the go/no-go gauge

The four-indent crimping tool (09 99 000 0890) has been set at the factory. You should still make sure that you check the crimping depth regularly. For this reason, a go/no-go gauge with a 1.0 mm diameter is included with the crimping tool. Take the following steps to check that the crimping depth is correct:

1. Open the crimping tool and turn it onto the side with the settings scale.
2. Turn the settings dial until the value 1.0 mm (roughly) is shown on the settings scale
3. Now turn the settings dial so that the arrow next to the dial (at the right tool handle) is pointing to “0”.
4. Close the crimping tool handles.
5. Insert the go/no-go gauge into the crimping position.
   ► You must be able to insert and move the go/no-go gauge precisely between the crimping mandrels without any free room or slack.
6. If the gauge has too much room/slack or if it cannot be inserted into the crimping position, then you must make a fine adjustment using the settings dial.
   ► If the deviation is above the specified tolerance of +/- 0.05 mm, please contact the HARTING Service so that the tool can be serviced and recalibrated!

Maintenance and repair

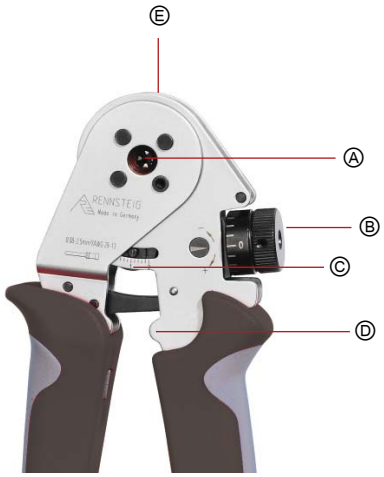
Make sure that the four-indent crimping tool is clean and in good condition after each use.

1. Clean the crimping jaws and the locator.
2. Lubricate all movable parts regularly with a light all-purpose oil; this will ensure that your tool has a long service life.
3. Use retaining rings to make sure that all bolts are secured.

Crimping tool for signal contacts 09 99 000 0890

Conductor cross-section 0.08 to 2.5 mm²

Crimping depth settings for Han® M23 crimp contacts



Ⓐ Tool opening
Ⓑ Settings dial (with 0.01 mm pitch)
Ⓒ Settings scale (with 0.2 mm pitch)
Ⓓ End stop
Ⓔ Locator (on the back of the crimping tool)

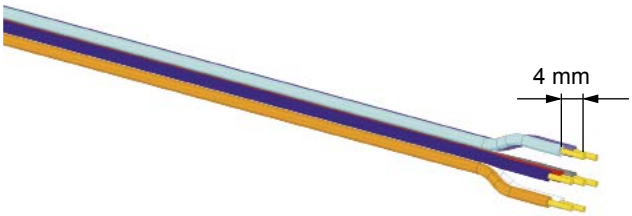
Part number	Crimp contact	Conductor cross-section (mm²)	AWG	Crimping depth	Locator position
09 15 100 6102	Male crimp contact 1 mm	0.14 0.25 0.34 0.50 0.75 1.00	26 24 22 20 18 17	0.70 0.76 0.82 0.90 1.00 1.10	1
09 15 100 6201	Female crimp contact 1 mm	0.08 0.14 0.25 0.34 0.56	28 26 24 22 20	0.75 0.78 0.82 0.86 0.90	2
09 15 100 6202	Female crimp contact 1 mm	0.34 0.56 0.75 1.00	22 20 18 17	0.77 0.82 0.88 0.95	2
09 15 100 6111	Male crimp contact 1.5 mm	0.14 0.25 0.34 0.56 0.75 1.00	26 24 22 20 18 17	0.65 0.68 0.72 0.81 0.95 1.07	3
09 15 100 6211	Female crimp contact 1.5 mm	0.14 0.25 0.34 0.56	26 24 22 20	0.70 0.73 0.77 0.85	2
09 15 100 6212	Female crimp contact 1.5 mm	0.34 0.56 0.75 1.00	22 20 18 17	0.70 0.73 0.77 0.85	2
09 15 100 6121	Male crimp contact 2 mm	0.75 1.00 1.50 2.50	18 17 16 14	1.25 1.35 1.45 1.60	4
09 15 100 6221	Female crimp contact 2 mm	0.75 1.00 1.50 2.50	18 17 16 14	1.25 1.35 1.45 1.60	5
09 15 100 6101	Male crimp contact 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
09 15 100 6103	Male crimp contact 1 mm	0.75 1.00 1.50	18 17 16	0.80 0.86 0.95	1
09 15 100 6203	Female crimp contact 1 mm	0.75 1.00 1.50	18 17 16	0.80 0.86 0.95	2

* Stripping length for Han® M23 Signal crimp contacts = 4.0 mm.

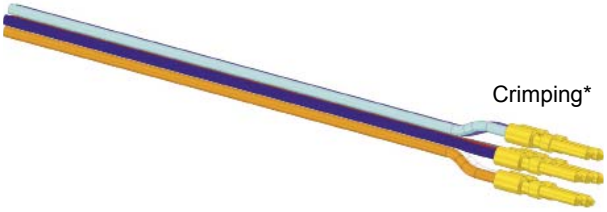
Han® M23 Signal, bulkhead mounted housing

Male

①

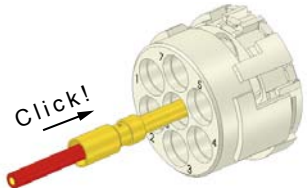


②

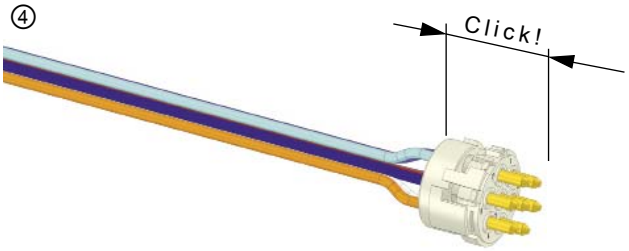


* Refer to the operating instructions for the crimping tool 09 99 000 0890 or 09 99 000 0896.

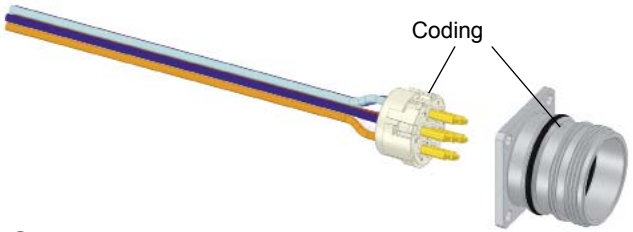
③



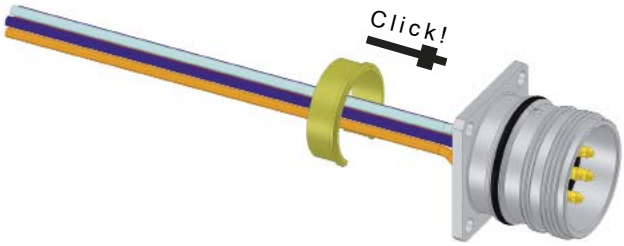
④



⑤

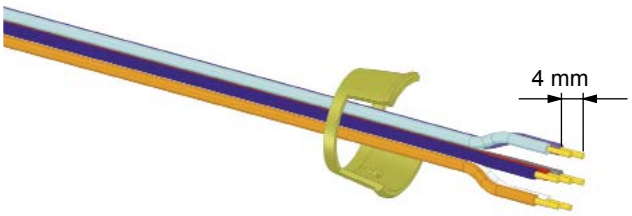


⑥

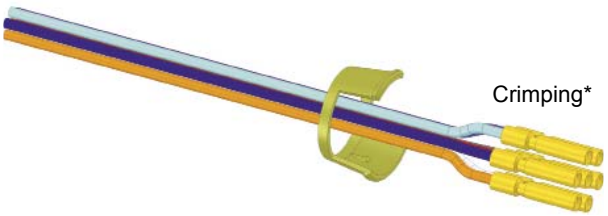


Female

①

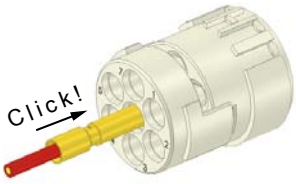


②

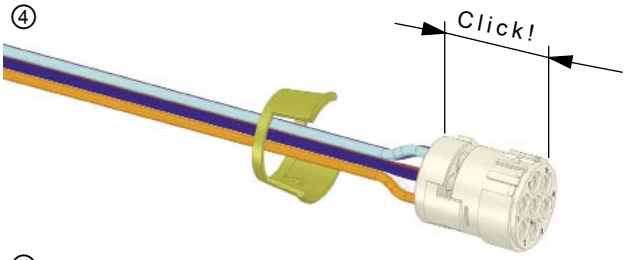


* Refer to the operating instructions for the crimping tool 09 99 000 0890 or 09 99 000 0896.

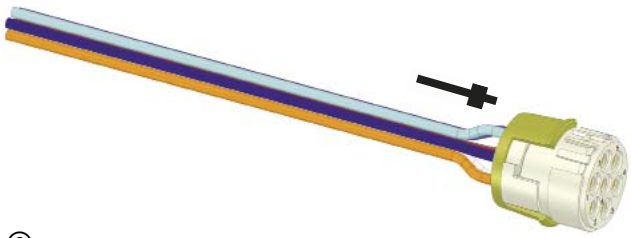
③



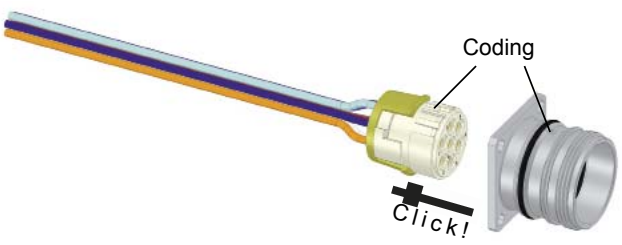
④



⑤



⑥



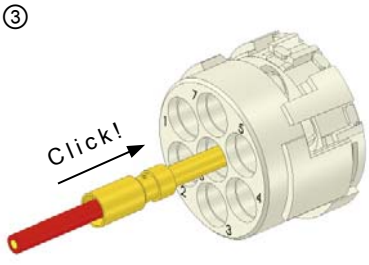
Han® M23 Signal, bulkhead mounted housing, angled

①

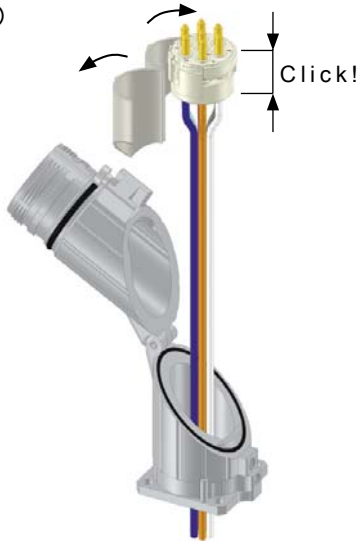
②

* Refer to the operating instructions for the crimping tool 09 99 000 0890 or 09 99 000 0896.

③



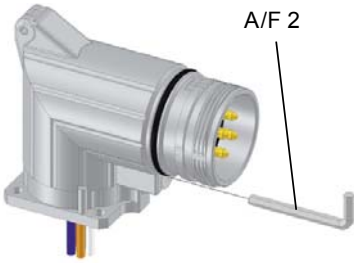
④



⑤

⑥

⑦



⑧

Han® M23 Signal, hood, cable to cable / panel feed-through housing

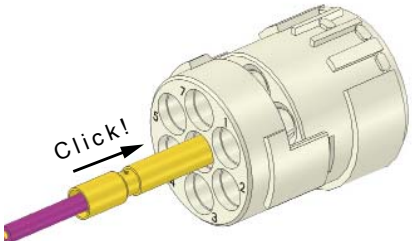
①

②

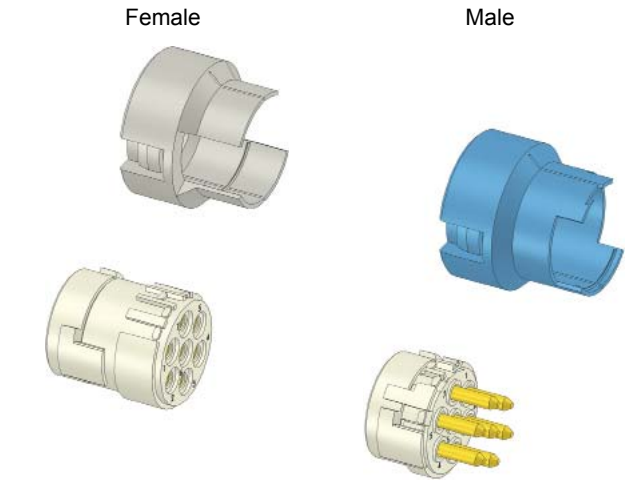
③

* Refer to the operating instructions for the crimping tool 09 99 000 0890 or 09 99 000 0896.

④

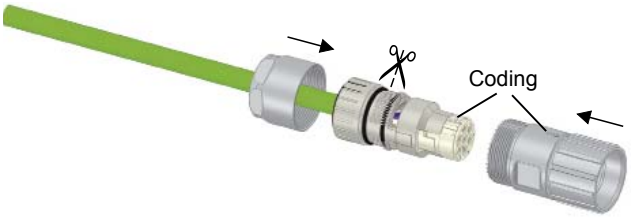


⑤

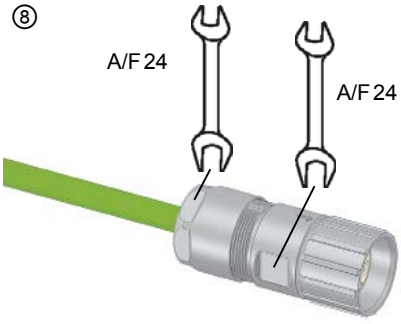


⑥

⑦



⑧



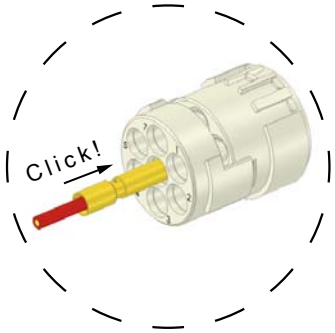
Han® M23 Signal hood, angled, EMC & EMC rotatable

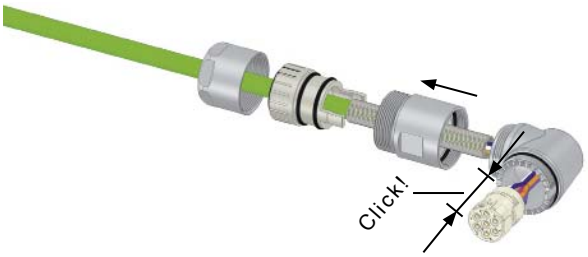
① 

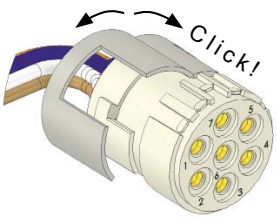
② 

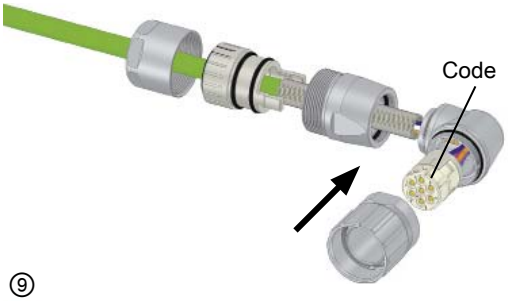
③ 

④ 

⑤ 

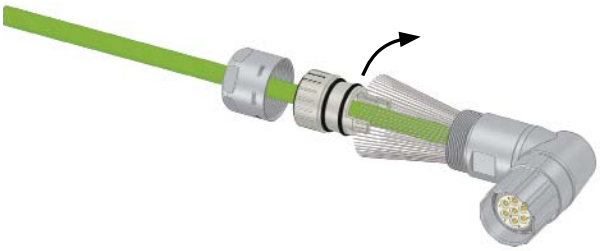
⑥ 

⑦ 

⑧ 

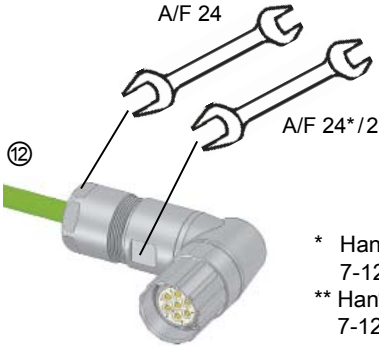
⑨ 

* Han® M23 hood, angled, 7-12 mm
** Han® M23 hood, angled, 7-12 mm, rotatable

⑩ 

⑪ 

*** Cut the shielding to a length designated by the scissors!

⑫ 

* Han® M23 hood, angled, 7-12 mm
** Han® M23 hood, angled, 7-12 mm, rotatable

Han® M23 Power / Hybrid

Number of contacts

6-12

≤ 630 V
≤ 28 A
≤ 100 M/bits

Features

- Interchangeable combination of inserts and hoods/housings
- Transmitting data, signals and power
- Less cables and components needed due to one-cable solution
- 360° EMC capability
- Shock and vibration proof
- Robust hoods and housings for industrial environment

Approvals

Note

For operating voltages over 50 volts, the connector must be used with conductive housing parts, in compliance with the safety directives in DIN VDE 410 / IEC 60364-4-41.

Connectors should not be connected or disconnected while under electrical load.

General information

It is the user's responsibility to check whether the components illustrated in this catalogue comply with different regulations from those stated in special fields of application which we are unable to foresee.

We reserve the right to modify designs in order to improve quality, keep pace with technological advancement or meet particular requirements in production. This information describes the components but should not be considered as a guarantee of certain properties.

HARTING Electric GmbH & Co. KG
Wilhelm-Harting-Strasse 1
D-32339 Espelkamp, Germany
Phone +49 5772 47-97100
HARTING Electric@HARTING.com

Technical characteristics

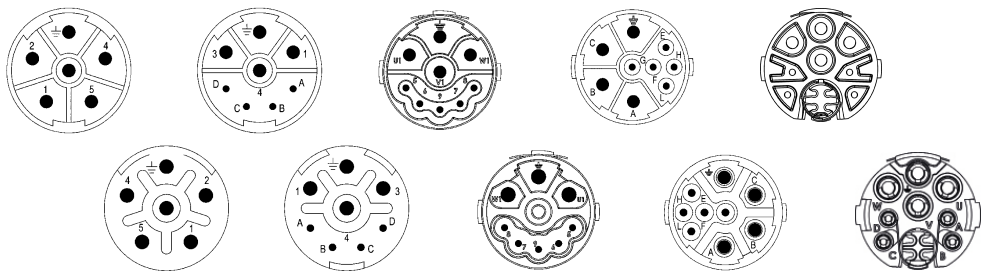
Hoods and housings

Material	Copper zinc alloy
Surface	Nickel plated
Seal	NBR
Limiting temperatures	-40 °C … +125 °C
Degree of protection and seal in locked position	IP67 / IP69K
Clamping range	7 – 17 mm

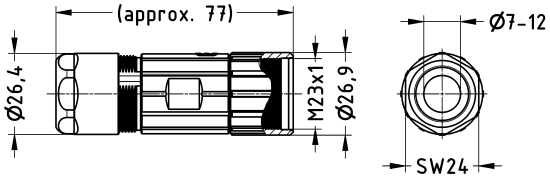
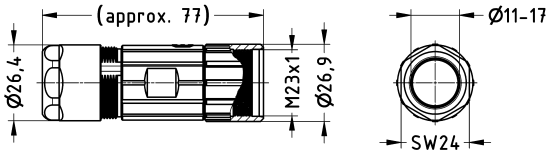
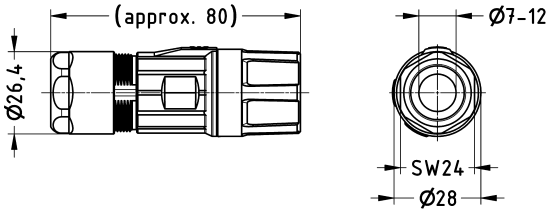
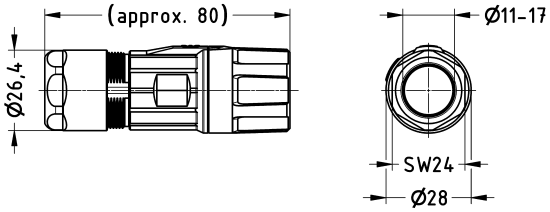
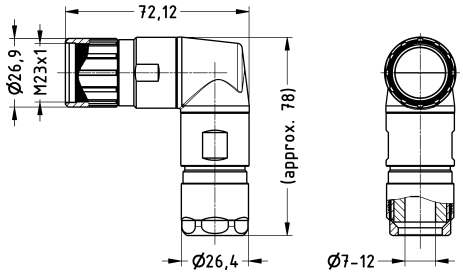
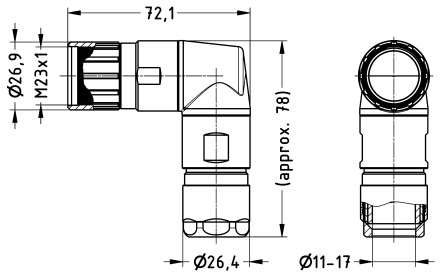
Material		Thermoplastic polyamid							
Termination technique		Crimp							
Number of poles		5 + PE	4 + 3 + PE		5 + 3 + PE		4 + 4 + 3 + PE		
Number of contacts		6	4	4	5	4	4	4	4
Contact-Ø	mm	2	1	2	1	2	0.60	1	2
Rated current	A	28	8	28	10	28	2	8	28
Rated voltage[1)]	V	600	300	600	250	630	60	300	630
Test voltage	V	4000	2500	4000	2500	4000	500	2500	4000
Insulation resistance	MΩ	> 10^{13}	> 10^{13}		> 10^{13}		> 10^{6}	> 10^{10}	> 10^{13}
Max. contact resistance	mΩ	3	3		3		< 3	< 3	< 3

Inserts – mating faces

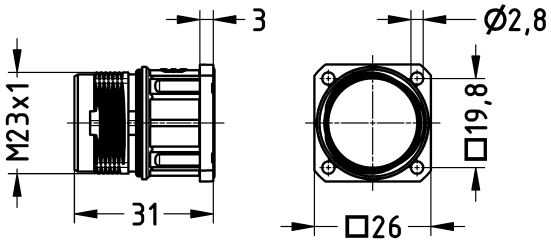
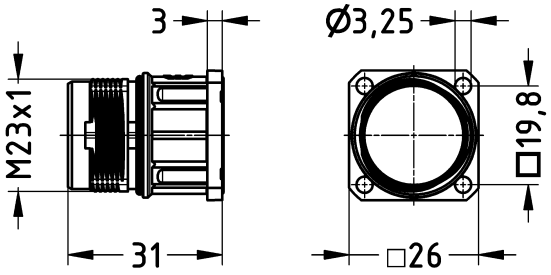
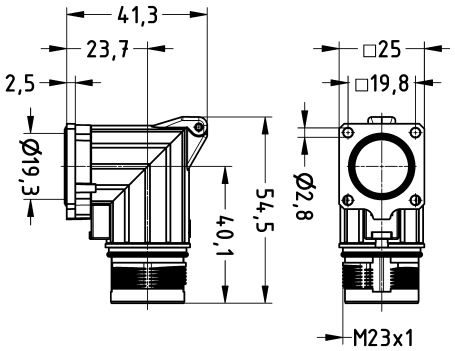
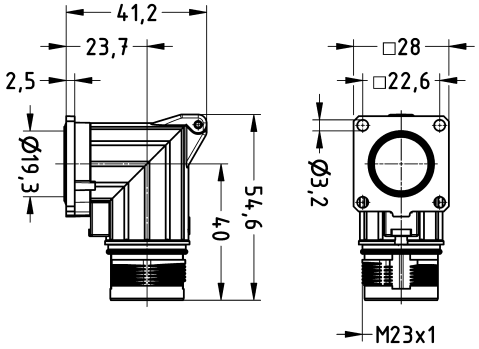
Power / Hybrid

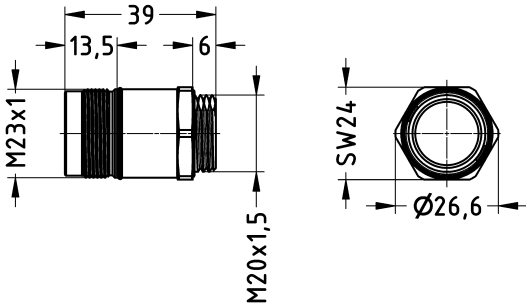
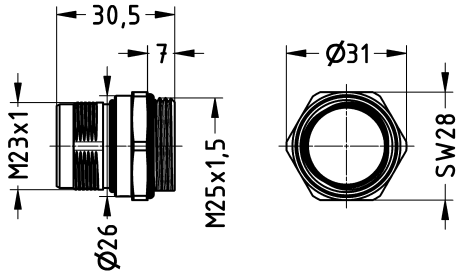
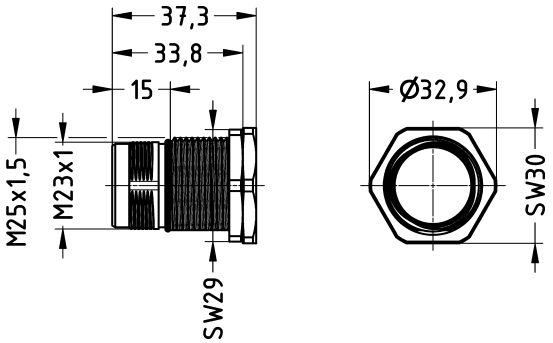


[1)] According to DIN VDE 0627, metallic parts which may be touched by a person and may have voltages present under fault conditions must have integral protection.

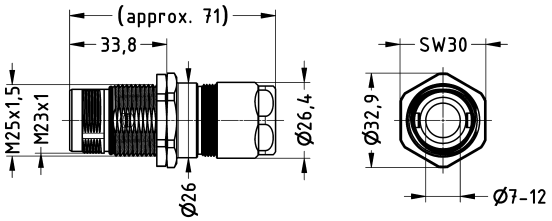
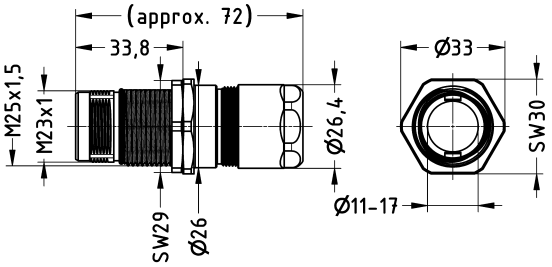
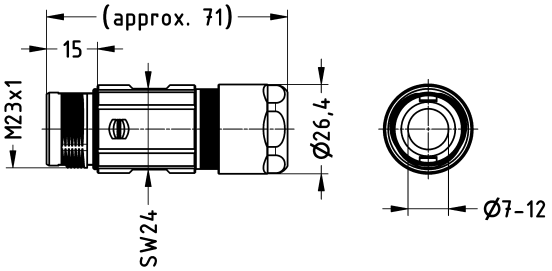
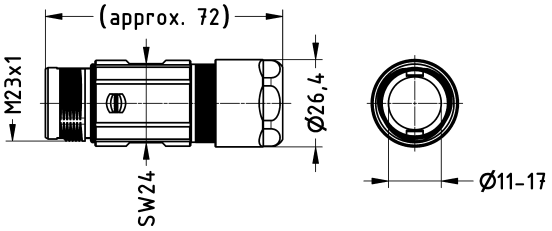
Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
Hood including EMC cable gland 	7 - 12	09 15 600 0402	
	11 - 17	09 15 600 0403	
Hood ComLock – rapid locking including EMC cable gland 	7 - 12	09 15 600 0492[1] 09 15 600 0482[2]	
	11 - 17	09 15 600 0493[1] 09 15 600 0483[2]	
Angled hood, rotatable including EMC cable gland 	7 - 12	09 15 600 0603	
	11 - 17	09 15 600 0604	

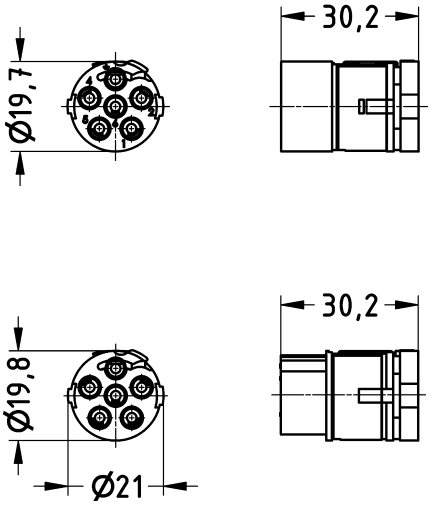
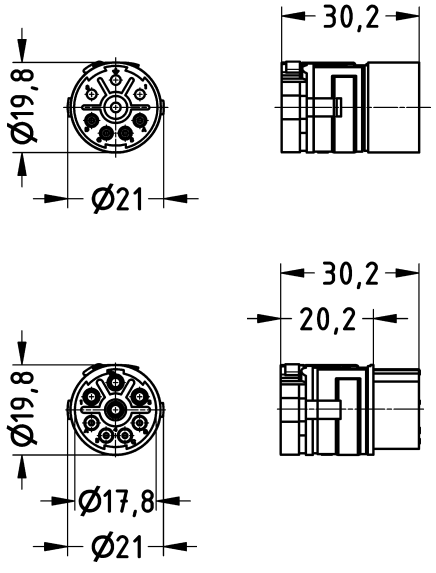
[1] fast locking hood for Han® M23 Power housing
[2] fast locking hood for Speedtec products

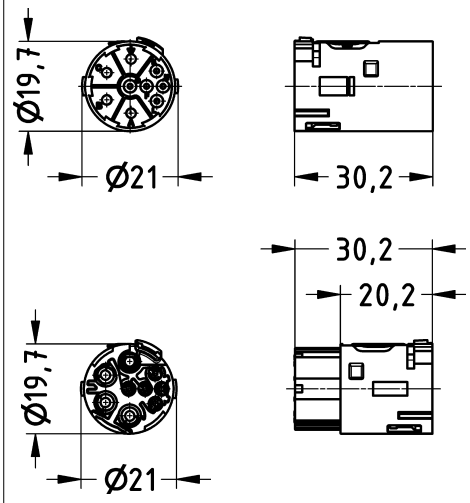
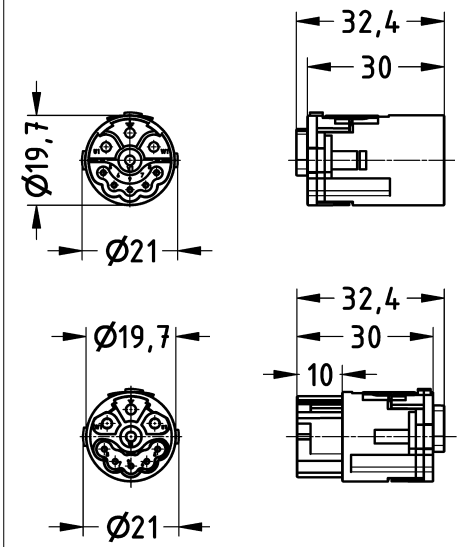
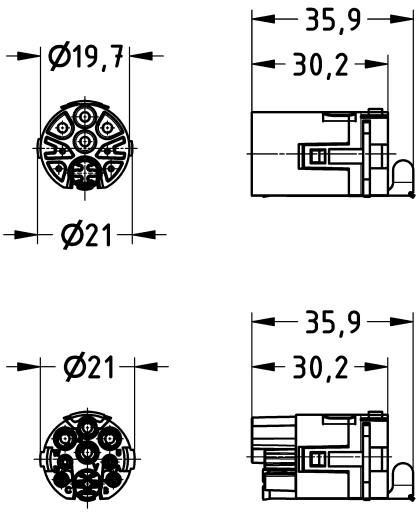
Identification	Part number	Drawing Dimensions, in mm
Bulkhead mounted housing, front wall assembly O-ring seal (4 x 2.7 mm) 	09 15 600 0301	 Panel cut out Ø 20
Bulkhead mounted housing, front wall assembly O-ring seal (4 x 3.2 mm) 	09 15 600 0302	 Panel cut out Ø 20
Bulkhead mounted housing, angled 25 x 25 mm O-ring seal (4 x 2.7 mm) 	09 15 600 0902	 Panel cut out Ø 20
Bulkhead mounted housing, angled 28 x 28 mm O-ring seal (4 x 3.2 mm) 	09 15 600 0912	 Panel cut out Ø 20

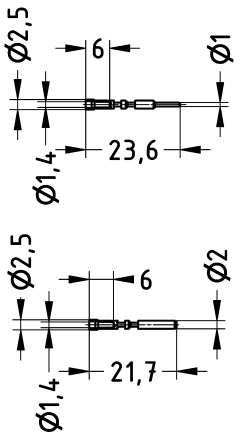
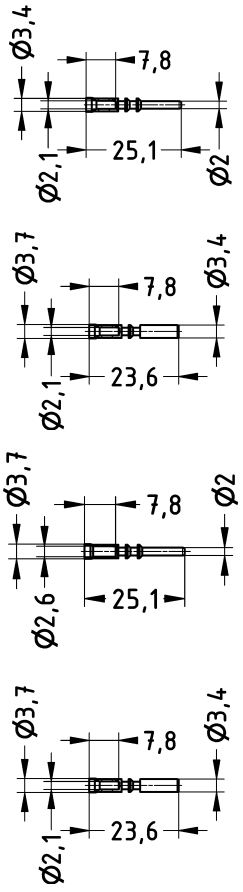
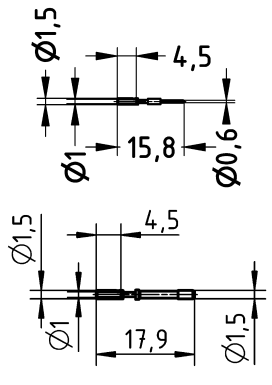
Identification	Part number	Drawing Dimensions, in mm
Bulkhead mounted housing, front wall assembly (M20 x 1.5) 	09 15 600 0303[1)]	 Panel cut out Ø 20.2
Bulkhead mounted housing, front wall assembly (M25 x 1.5) 	09 15 600 0313	 Panel cut out Ø 25
Bulkhead mounted housing, back wall assembly (M25 x 1.5) 	09 15 600 0308	 Panel cut out Ø 25

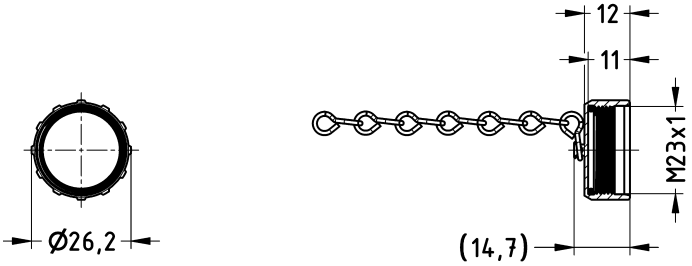
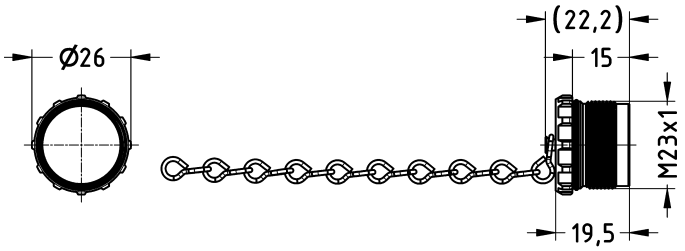
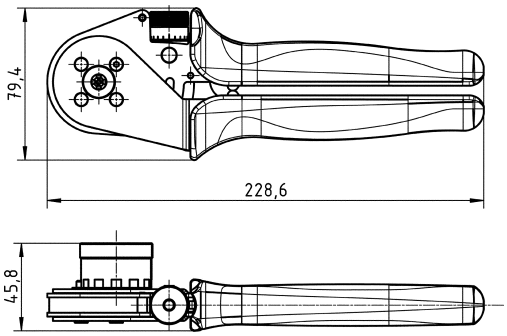
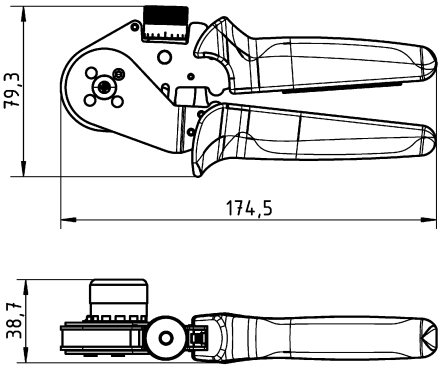
[1)] Not suitable for rapid locking

Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
Panel feed-through housing, back wall assembly including central locking (M25) 	7 - 12	09 15 600 0310	 Panel cut out Ø 25
	11 - 17	09 15 600 0311	 Panel cut out Ø 25
Cable to cable housing including EMC cable gland 	7 - 12	09 15 600 0702	
	11 - 17	09 15 600 0703	

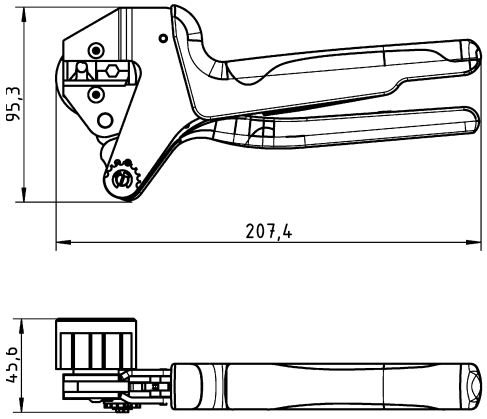
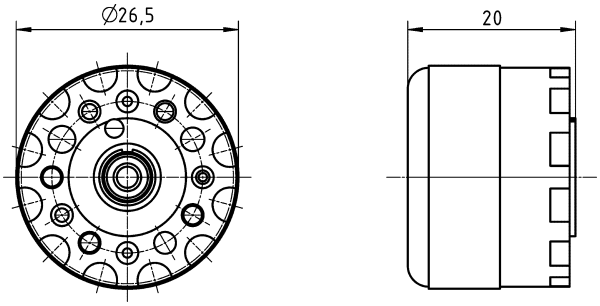
Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
Han® M23 P 5 + PE Crimp termination 6 x 2 mm contacts	6	09 15 606 3001	09 15 606 3101	
Han® M23 P 4 + 3 + PE Crimp termination 4 x 1 mm contacts 4 x 2 mm contacts	8	09 15 608 3001	09 15 608 3101	

Identification	Contact number	Part number Male insert	Part number Female insert	Drawing Dimensions, in mm
Han® M23 P 5 + 3 + PE (B) Crimp termination 5 x 1 mm contacts 4 x 2 mm contacts	9	09 15 609 3011	09 15 609 3111	
Han® M23 P 5 + 3 + PE (A) Crimp termination 5 x 1 mm contacts 4 x 2 mm contacts	9	09 15 609 3001	09 15 609 3101	
Han® M23 P Hybrid 4 + 4 + 3 PE Crimp termination 4 x 0.60 mm contacts 4 x 1.00 mm contacts 4 x 2.00 mm contacts	12	09 15 612 3001	09 15 612 3101	

Identification	Conductor cross-section (mm²)	Part number Male	Part number Female	Drawing Dimension, in mm
Han® M23 crimp contacts, 1 mm turned Contact surface: gold plated	0.14 – 1.00	09 15 600 6101	09 15 600 6201	
Han® M23 crimp contacts, 2 mm turned Contact surface: gold plated	0.75 – 2.50 2.50 – 4.00	09 15 600 6121 09 15 600 6122	09 15 600 6221 09 15 600 6222	
Han® M23 crimp contacts, 0.6 mm turned Contact surface: gold plated	0.08 – 0.34	09 15 600 6191	09 15 600 6291	

Identification	Part number	Drawing Dimensions, in mm
Screw cover for bulkhead mounted and cable to cable housings, with chain (100 mm) 	09 15 600 9102	
Screw cover for hoods, with chain (100 mm) 	09 15 600 9103	
Four-indent crimping tool for power and signal contacts[1)] 	09 99 000 0896[1)]	
Han® M23 Four-indent crimping tool – for signal contacts 	09 99 000 0890	

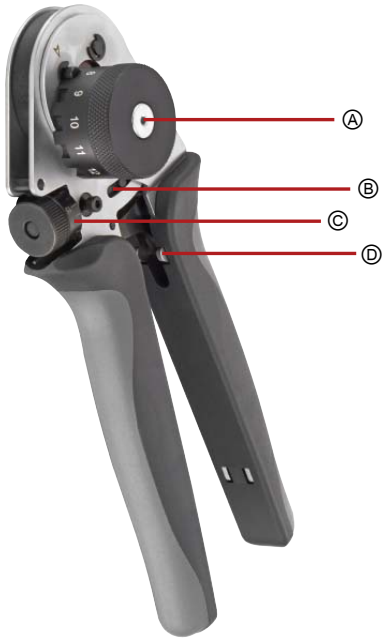
[1)] Not suitable for 0.6 mm data contacts

Identification	Part number	Drawing Dimensions, in mm
Han® M23 Crimping tool – for shielding sleeve 	09 99 000 0898	
Han® M23 Locator, Ethernet contact 0.6 mm 	09 99 000 0961	

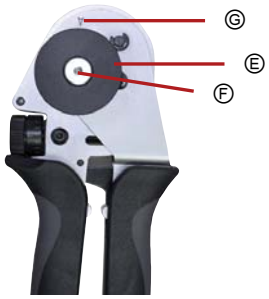
Crimping tool for power & signal contacts 09 99 000 0896

Conductor cross-section 0.14 to 4 mm²

Operating instructions



Ⓐ Tool opening
Ⓑ Settings dial (with 0.01 mm pitch)
Ⓒ Settings scale (with 0.2 mm pitch)
Ⓓ End stop



Ⓔ Locator
Ⓕ Hex. socket screw
Ⓖ Latch detent (indicated by arrow)

Proper and intended use

The crimping tool 09 99 000 0896 is a four-indent crimping tool for processing signal and power contacts of the series Han® M23. It is suitable for crimping contacts and stranded wires with cross-sections between 0.14 mm² and 4 mm².

Crimping sequence

1. Refer to the “Crimping depth settings for Han® M23 crimp contacts signal” table (on the following pages) for the locator setting and the exact crimping depth required for the contacts you are using.
   Adjust the crimping tool for power and signal contacts according to the values (refer to the section “Adjusting the locator” and “Adjusting the crimping depth”).
2. Insert the contact into the tool’s opening until it is in the specified crimping position.
3. Secure the contact by carefully closing the four-indent crimping tool until it reaches its first catch-lock position.
   ► The inserted contact is now secured in this position so that it cannot fall out.
4. Insert a properly stripped (refer to specifications) conductor into the crimp contact.
5. Press the crimping tool’s handles together in order to crimp the contact. Press the tool’s handles together until they reopen automatically.
6. Remove the crimped contact.

NOTICE

Operating principle of the crimping tool for power and signal contacts

The crimping tool 09 99 000 0896 operates according to forced completion functionality: you must press the handles together as far as possible (until the end stop position) and then the tool will open automatically.

Adjusting the crimping depth

In order to ensure the best error-free crimp connection, the crimping depth (the gap between the crimping dies) must properly correspond to the type of contact and conductor diameter in use. You must use the proper setting for the contact! These settings are found in the table on the second following page.

Adjusting the locator

Raise the locator Ⓔ until it can be turned past the latch detent (indicated by arrow Ⓖ). Turn the locator to the position specified in the “Crimping depth settings for Han® M23 crimp contacts signal” table. Then let it snap into the latch detent.

NOTICE

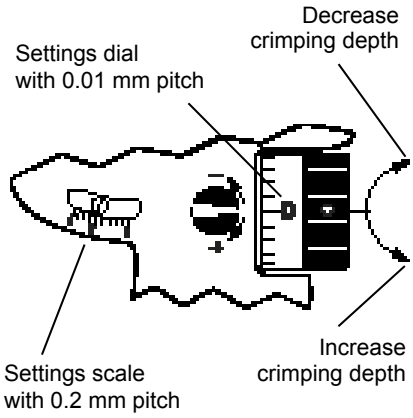
Direction of rotation when adjusting the crimping depth

↻ clockwise ⇒ reduce crimping depth
↺ counter-clockwise ⇒ increase crimping depth

Crimping tool for power & signal contacts 09 99 000 0896

Conductor cross-section 0.14 to 4 mm²

Operating instructions



Adjustment accuracy

1 graduation mark on the settings dial ≙ 0.01 mm change in the crimping depth

1 rotation of settings dial ≙ 0.2 mm change in the crimping depth
(This can be read on the settings scale)

5 rotations of settings dial ≙ 1 mm change in the crimping depth

Testing with the go/no-go gauge

The four-indent crimping tool 09 99 000 0896 has been set at the factory. You should still make sure that you check the crimping depth regularly. For this reason, a go/no-go gauge with a 2.0 mm diameter is included with the crimping tool. Take the following steps to check that the crimping depth is correct:

1. Open the crimping tool and turn it onto the side with the settings scale.
2. Turn the settings dial until the value 2.0 mm (roughly) is shown on the settings scale
3. Now turn the settings dial so that the arrow next to the dial (at the right tool handle) is pointing to “0”.
4. Close the crimping tool handles.
5. Insert the go/no-go gauge into the crimping position.
   ► You must be able to insert and move the go/no-go gauge precisely between the crimping indents without any free room or slack.
6. If the gauge has too much room/slack or if it cannot be inserted into the crimping position, then you must make a fine adjustment using the settings dial.
   ► If the deviation is above the specified tolerance of +/- 0.05 mm, please contact the HARTING Service so that the tool can be serviced and recalibrated!

Maintenance and repair

Make sure that the four-indent crimping tool is clean and in good condition after each use.

1. Clean the crimping jaws and the locator.
2. Lubricate all movable parts regularly with a light all-purpose oil; this will ensure that your tool has a long service life.
3. Use retaining rings to make sure that all bolts are secured.

Crimping tool for power & signal contacts 09 99 000 0896

Conductor cross-section 0.14 to 4 mm²

Crimping depth settings for Han® M23 Signal crimp contacts

Ⓐ Tool opening
Ⓑ Settings dial (with 0.01 mm pitch)
Ⓒ Settings scale (with 0.2 mm pitch)
Ⓓ End stop
Ⓔ Locator (on the back of the crimping tool)

Part number	Crimp contact ø	Conductor cross-section (mm²)	AWG	Crimping depth	Locator position
09 15 100 6102	Male crimp contact 1 mm	0.14 0.25 0.35 0.50 0.75 1.00	26 24 22 20 18 17	0.75 0.82 0.9 1.0 1.08 1.20	11
09 15 100 6201	Female crimp contact 1 mm	0.14 0.25 0.35 0.50	26 24 22 20	0.75 0.8 0.87 0.97	12
09 15 100 6202	Female crimp contact 1 mm	0.50 0.75 1.0	20 18 17	0.95 1.0 1.05	12
09 15 100 6101	Male crimp contact 1 mm	0.14 0.25 0.34 0.56	26 24 22 20	0.81 0.83 0.88 0.97	11
09 15 100 6103	Male crimp contact 1 mm	0.75 1.0 1.5	18 17 16	0.79 0.86 0.99	11
09 15 100 6203	Female crimp contact 1 mm	0.75 1.0 1.5	18 17 16	0.79 0.86 0.99	12
09 15 100 6111	Male crimp contact 1.5 mm	0.14 0.25 0.35 0.50 0.75 1.00	26 24 22 20 18 17	0.75 0.82 0.9 0.96 1.03 1.0	3
09 15 100 6211	Female crimp contact 1.5 mm	0.14 0.25 0.35 0.50	26 24 22 20	0.75 0.8 0.87 0.97	4
09 15 100 6212	Female crimp contact 1.5 mm	0.35 0.50 0.75	22 20 18	0.95 1.0 1.05	4
09 15 100 6121	Male crimp contact 2 mm	0.75 1.0 1.5 2.5	18 17 16 14	1.3 1.4 1.55 1.75	5
09 15 100 6221	Female crimp contact 2 mm	0.75 1.0 1.5 2.5	18 17 16 14	1.3 1.4 1.55 1.75	6

* Stripping length for Han® M23 Signal crimp contact = 4.0 mm.

Crimping tool for power and signal contacts 09 99 000 0896

Conductor cross-section 0.14 to 4 mm²

Crimping depth settings for Han® M23 Power crimp contacts

Ⓐ Tool opening
Ⓑ Settings dial (with 0.01 mm pitch)
Ⓒ Settings scale (with 0.2 mm pitch)
Ⓓ End stop
Ⓔ Locator (on the back of the crimping tool)

Part number	Crimp contact Ø	Conductor cross-section (mm²)	AWG	Crimping depth	Locator position
09 15 600 6101	Male crimp contact 1 mm	0.14 0.25 0.35 0.5 0.75 1.0	26 24 22 20 18 17	0.75 0.8 0.85 1.03 1.08 1.13	1
09 15 600 6201	Female crimp contact 1 mm	0.14 0.25 0.35 0.5 0.75 1.0	26 24 22 20 18 17	0.75 0.8 0.85 0.89 0.95 1.02	2
09 15 600 6121	Male crimp contact 2 mm	0.75 1.0 1.5 2.5	18 17 16 14	1.3 1.4 1.55 1.7	7
09 15 600 6122	Male crimp contact 2 mm	2.5 4.0	14 12	1.47 1.6	7
09 15 600 6221	Female crimp contact 2 mm	0.75 1.0 1.5 2.5	18 17 16 14	1.3 1.4 1.55 1.7	8
09 15 600 6222	Female crimp contact 2 mm	2.5 4.0	14 12	1.47 1.6	8

* Stripping length for Han® M23 Power crimp contact:
2.00 mm contact = 7.0 mm
1.00 mm contact = 4.0 mm

Crimping tool for data contacts 09 99 000 0890

For use in combination with Han® M23 Locator 09 99 000 0961, Ethernet contacts 0.6 mm²

Contacts and locator position

Han® M23 Locator, Ethernet contact 0.6 mm – use with crimping tool 09 99 000 0890

Part number	Crimp contact Ø	Conductor cross-section (mm²)	AWG	Crimping depth	Locator position
09 15 600 6191	Male crimp contact 0.6 mm (0.08 - 0.34 mm²)	0.08 0.14 0.25 0.34	28 26 24 22	0.57 0.60 0.64 0.73	B1
09 15 600 6291	Female crimp contact 0.6 mm (0.08 - 0.34 mm²)	0.08 0.14 0.25 0.34	28 26 24 22	0.57 0.60 0.64 0.73	B2

Han® M23 Power, hood 5 + PE

①

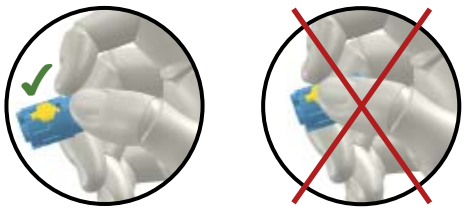
②

Stripping length X
1 mm contacts: x = 4 mm
2 mm contacts: x = 7 mm

③

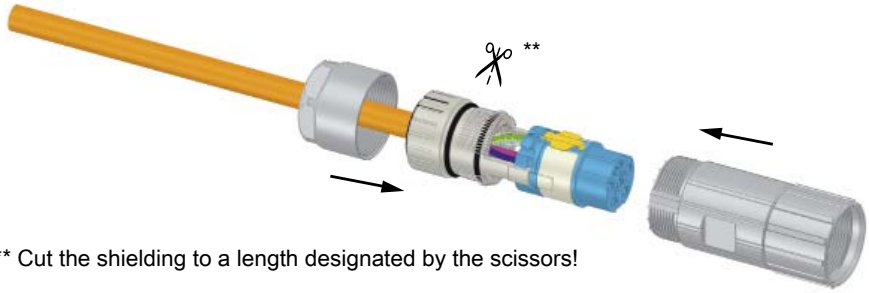
* Refer to operating instructions of crimping tool 09 99 000 0896.

④



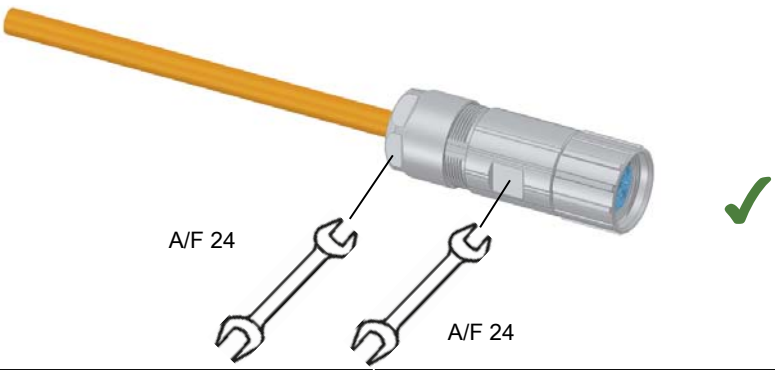
Do not touch the white clip!

⑤



** Cut the shielding to a length designated by the scissors!

⑥



Han® M23 Power, hood 4+3+PE / 5+3+PE

①

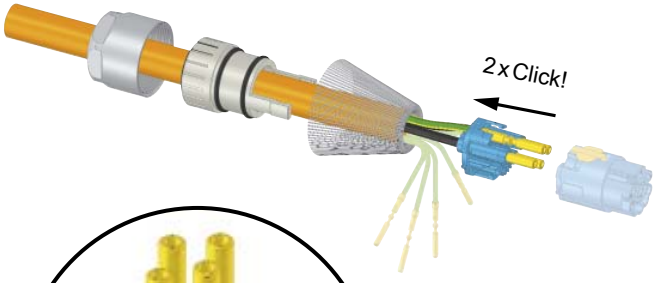
②

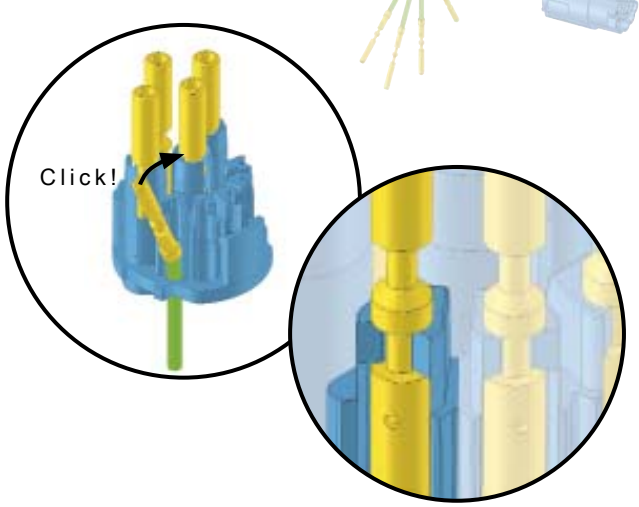
Stripping length X
1 mm contacts: x = 4 mm
2 mm contacts: x = 7 mm

③

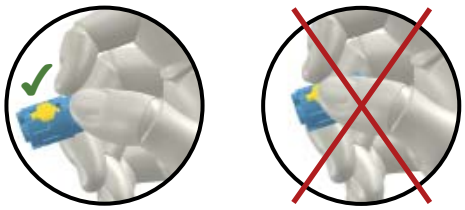
* Refer to operating instructions of crimping tool 09 99 000 0896.

④



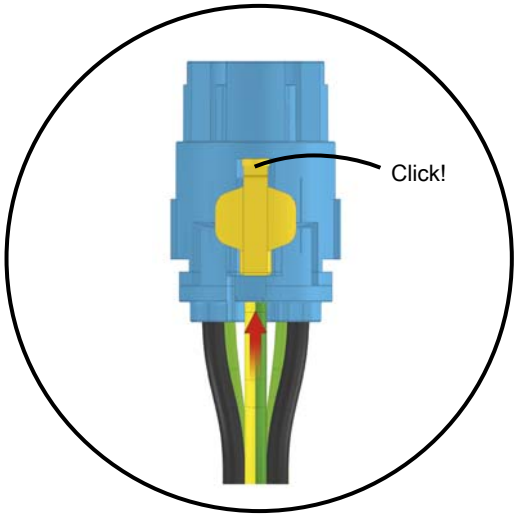


⑤

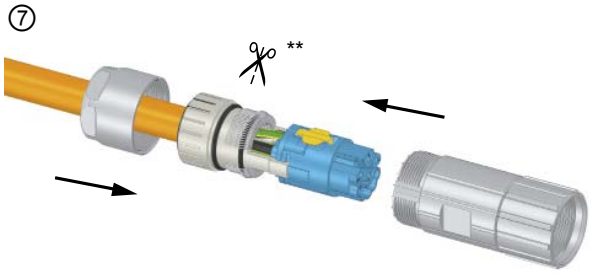


Do not touch the white clip!

⑥

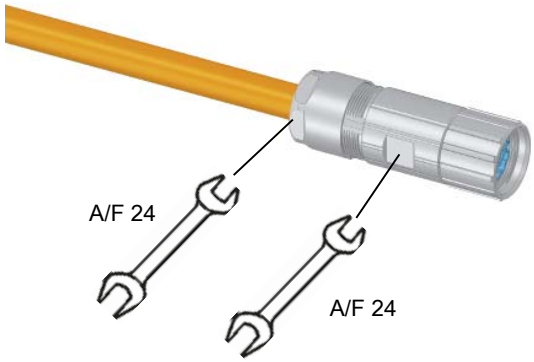


⑦



** Cut the shielding to a length designated by the scissors.

⑧



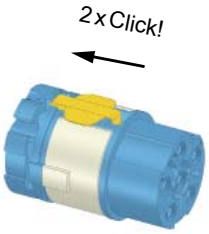
Han® M23 Power, bulkhead mounted housing

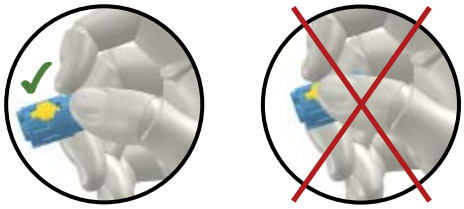
①

Stripping length X
1 mm contacts: x = 4 mm
2 mm contacts: x = 7 mm

②

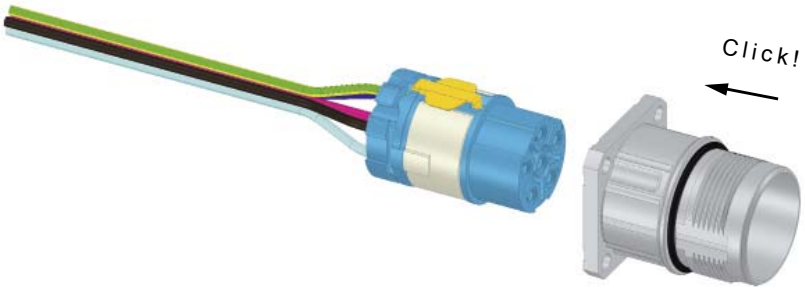
* Refer to operating instructions of crimping tool 09 99 000 0896.



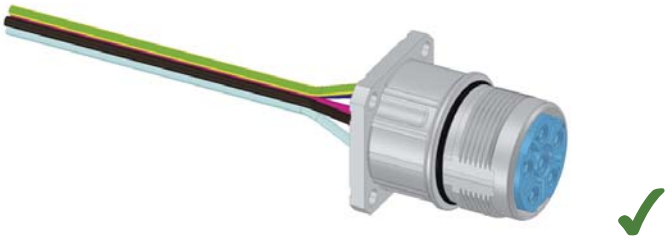


Do not touch the white clip!

③

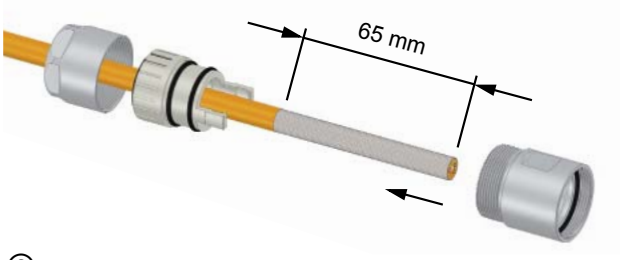


④

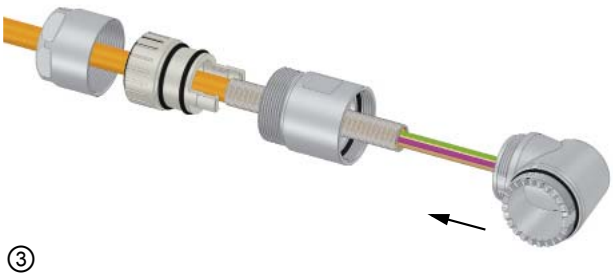


Han® M23 Power, hood, angled

①



②

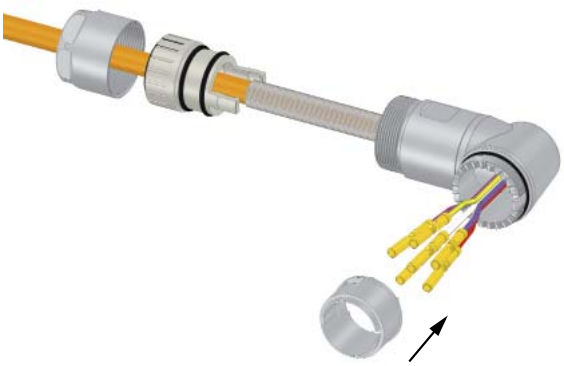


③

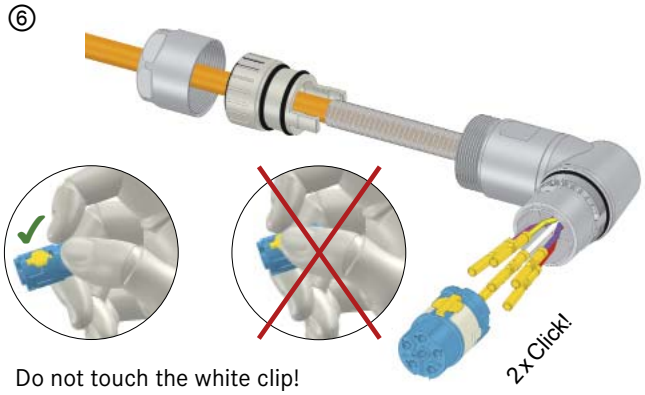
Stripping length X
1 mm contacts: x = 4 mm
2 mm contacts: x = 7 mm

④

⑤

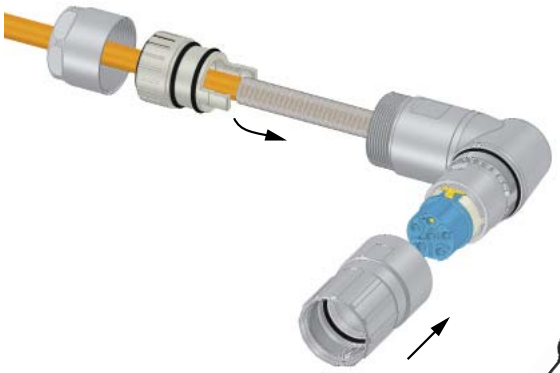


⑥



Do not touch the white clip!

⑦

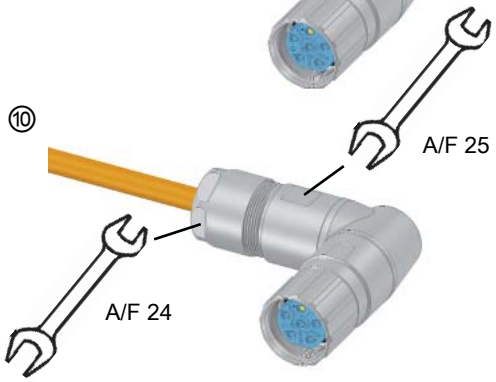


⑧

Cut the shielding to a length designated by the scissors and position the edge of the shielding between the two O-rings (refer to red arrow in step ⑨).

⑨

⑩



Han® M23 Power, bulkhead mounted housing

①

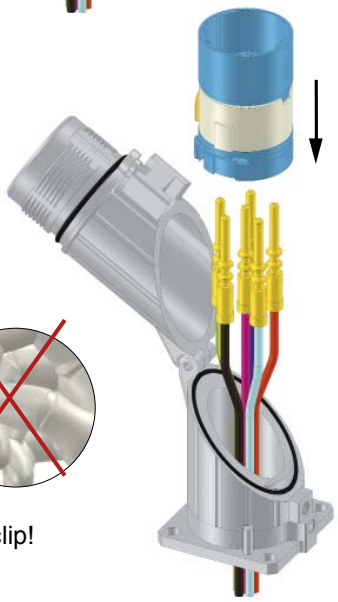
Stripping length X
1 mm contacts: x = 4 mm
2 mm contacts: x = 7 mm

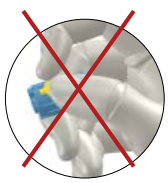
②

Crimping*

* Refer to operating instructions of crimping tool 09 99 000 0896 or 09 99 000 0890.

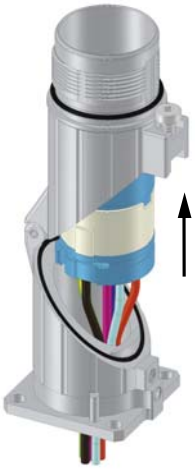
③



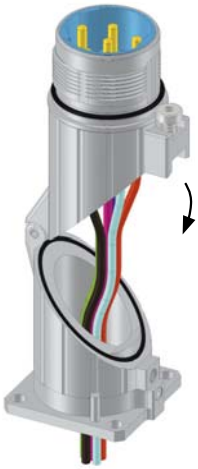


Do not touch the white clip!

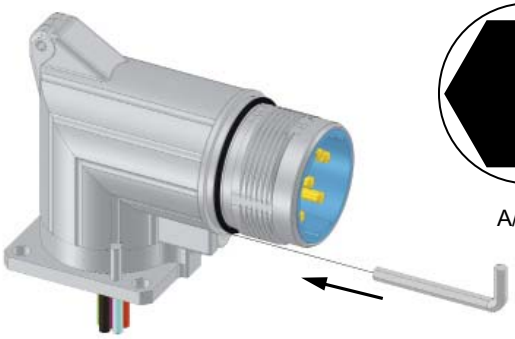
④



⑤



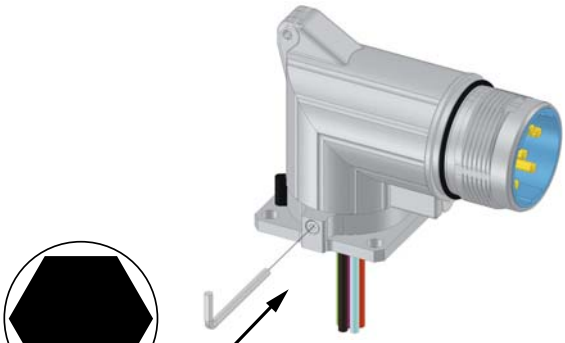
⑥



A/F 2

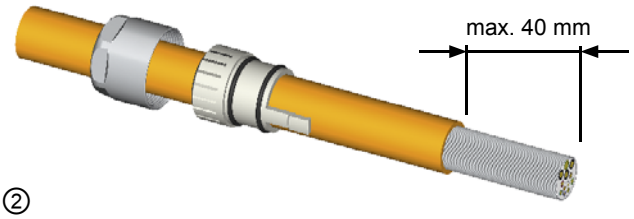
300°

⑦

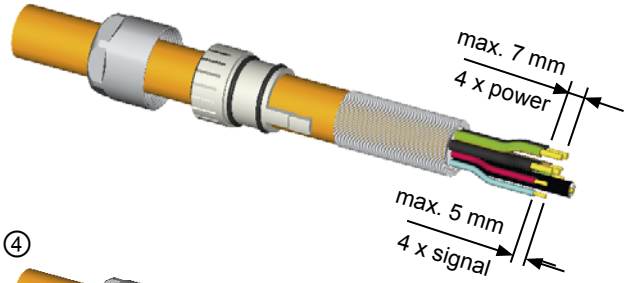


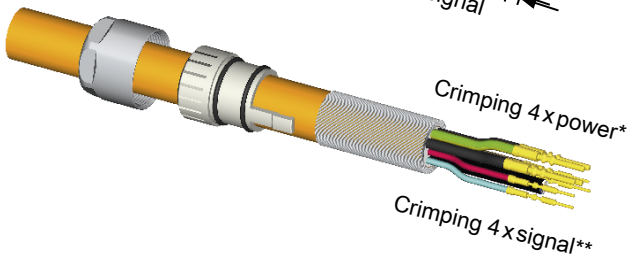
A/F 1.5

Han® M23 Hybrid

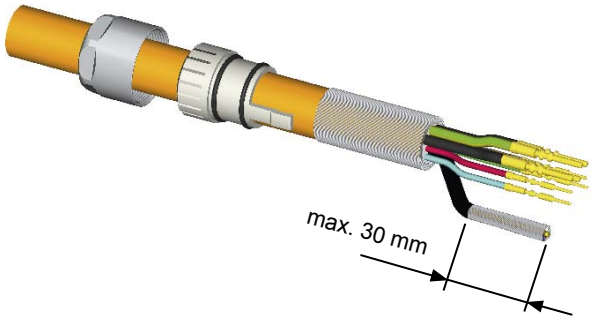
① 

② 

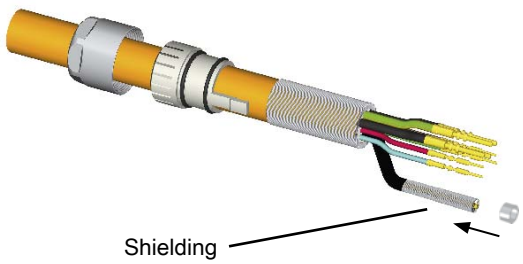
③ 

④ 

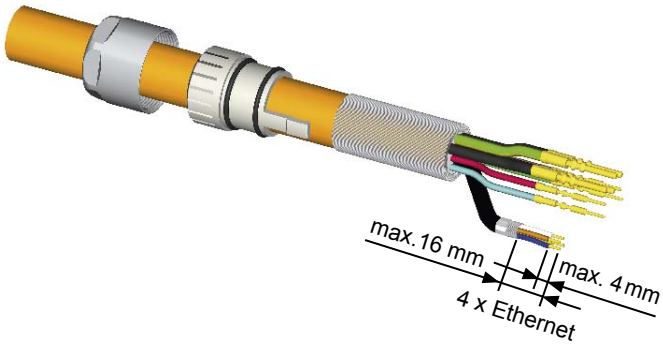
⑤ Strip the insulation wrapped around the Ethernet wires.



⑥ Slide the sleeve onto the shielding of the Ethernet wires.

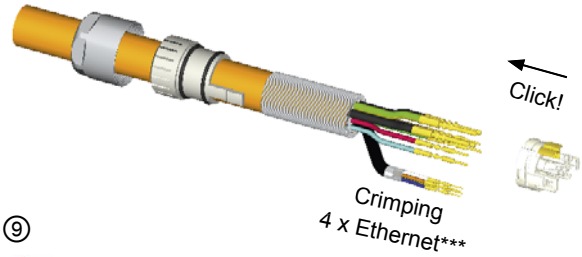


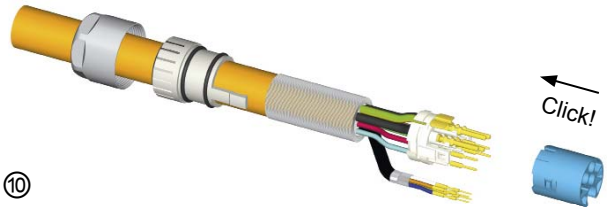
⑦ Strip the shielding of the Ethernet wires (male side).

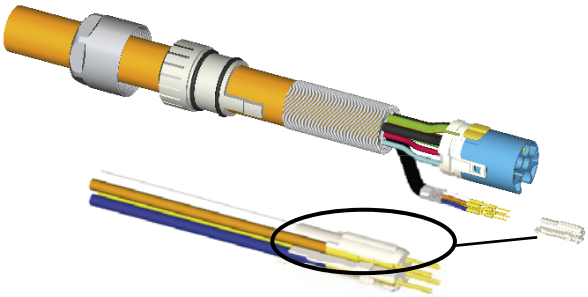


Different shielding length on female side

Strip the shielding of the Ethernet wires on the female mating side by maximum 12 mm!

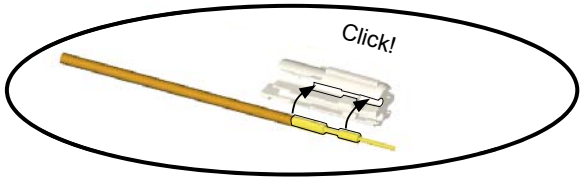
⑧ 

⑨ 

⑩ 

Coding of Ethernet insert

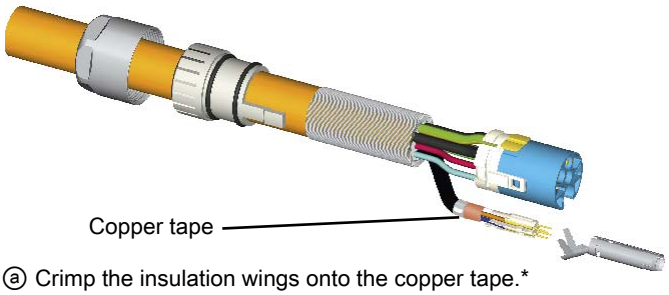
The coding of the insert must be in line with the direction of the blue insulaton body.



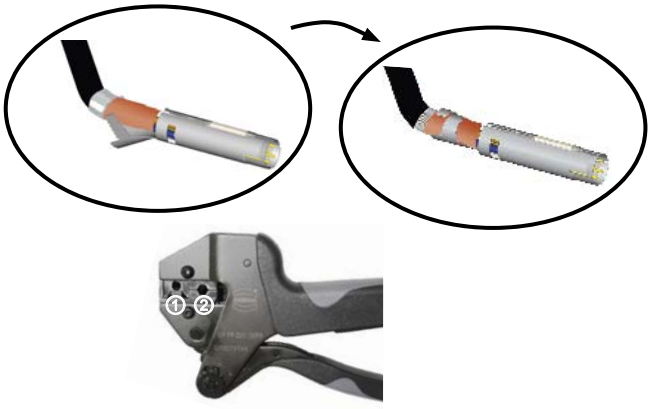
* Crimping tool 09 99 000 0896 ** Crimping tool 09 99 000 0890 *** Crimping tool 09 99 000 0890 with locator 09 99 000 0961

Han® M23 Hybrid

⑪ Wrap a copper tape around the shielding of the Ethernet wires, spanning an outer diameter of 5.0 mm.



ⓐ Crimp the insulation wings onto the copper tape.*

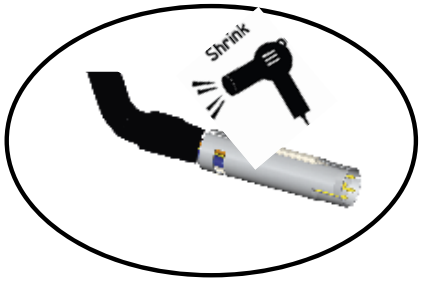


ⓑ Crimp the shielding sleeve, overlapping the insulation crimp.**

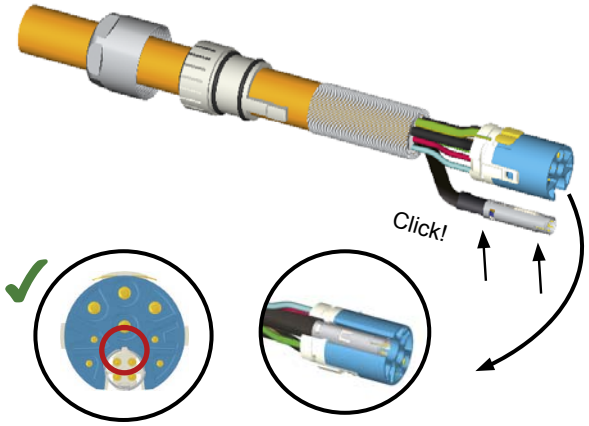
* Use crimp profile ① of crimp tool 09 99 000 0898 (refer to picture).
** Use crimp profile ② of crimp tool 09 99 000 0898 (refer to picture).

Overlapping area
Shielding and copper tape must overlap the crimping zone at least by 0.5 mm!

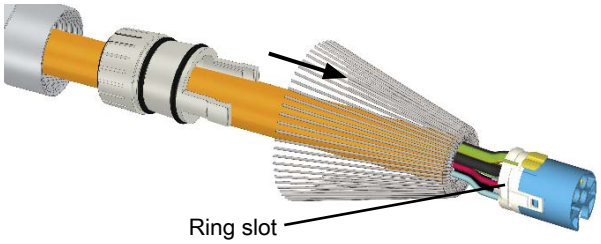
ⓒ Shrink the shrink tube onto the cable, so that it covers the entire copper tape!



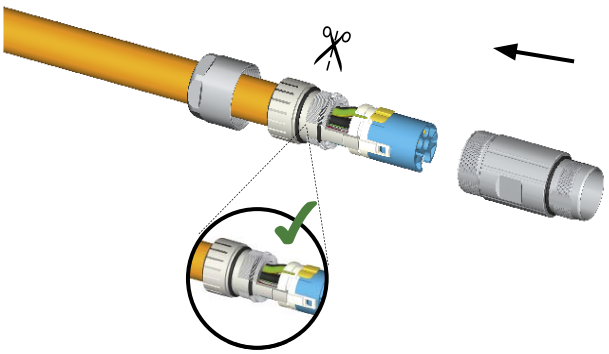
⑫ Assemble the Ethernet contacts into the blue insert.



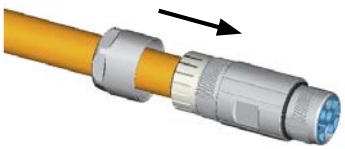
⑬ Push the latching hooks of the cable gland body through the shielding and let them snap into place on the insert (⇨ white ring slot).



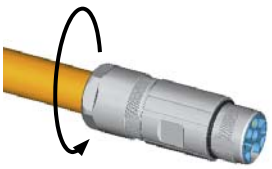
⑭ Strip the shielding between the first and the second O-ring!



⑮



⑯



Removal

①

Remove insert

Remove the contact insert from the Han® M23 Power housing using a screwdriver:

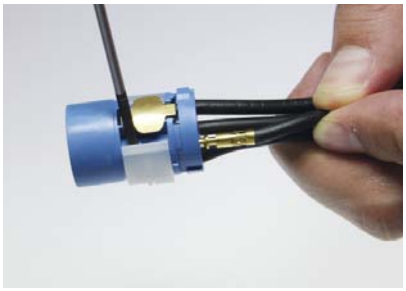
1. Position a smallscrew driver above the locking tongue, located next to the PE contact (refer to picture ①).
2. Push the locking tongue down, while pushing the insert out – by counterpressing the insert from the mating side.

②

Remove crimped contacts

1. Using a screwdriver, remove the white clip from the insulation body (refer to picture ②).
2. Now, remove the contacts out of the insert by withdrawing the conductors in the direction of the termination side (refer to picture ③).
3. Before re-terminating the crimped contacts, insert the white ring into the insulation body.

③



Pushing Performance

www.HARTING.ae
www.HARTING.at
www.HARTING.com.au
www.HARTING.be
www.HARTING.com.br
www.HARTING.ca
www.HARTING.ch
www.HARTING.com.cn
www.HARTING.cz
www.HARTING.de
www.HARTING.dk
www.HARTING.es
www.HARTING.fi
www.HARTING.fr
www.HARTING.co.uk
www.HARTING.com.hk
www.HARTING.hu
www.HARTING.co.in
www.HARTING.it
www.HARTING.co.jp
www.HARTING.co.kr
www.HARTINGbv.nl
www.HARTING.no
www.HARTING.pl
www.HARTING.pt
www.HARTING.ro
www.HARTING.ru
www.HARTING.se
www.HARTING.sg
www.HARTING.sk
www.HARTING.com.tr
www.HARTING.com.tw
www.HARTING-USA.com
www.HARTING.co.za

HARTING.com –
the gateway to your country website.

HARTING Technology Group
info@HARTING.com
www.HARTING.com
www.product-news.HARTING.com

2018-09-14 / 3.3 XX XX XXX XXXX