



Pushing Performance



People | Power | Partnership

# HARTING

## Han<sup>®</sup> M23 Circular Connectors

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### Han® M23 Power

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Han® M23 Overview

## Features

- Size M23
- High contact density
- Robust hoods and housings for industrial applications
- Assembly requires no tools
- Good EMC properties
- 6 to 19 contacts
- Crimp, solder and solder-in connections

## 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.

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## 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

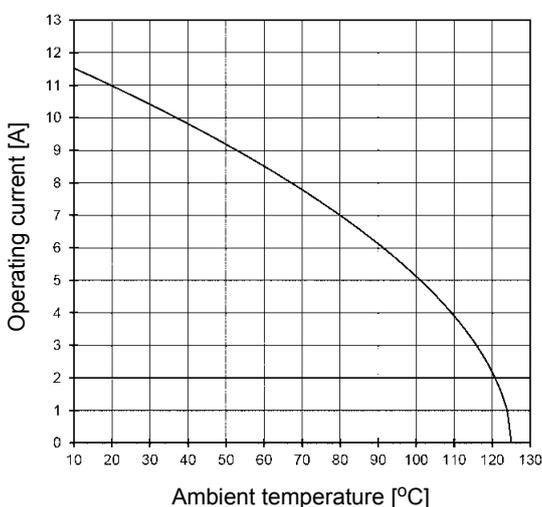
### Inserts

Material	Thermoplastic polyamid							
Termination techniques	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	1.5
Rated current	A	20	20	8	20	8	8	10
Rated voltage <sup>1)</sup>	V	300	300	200		200	160	100
Test voltage	V	2500	2500	2500		2500	1500	1500
Insulation resistance	MΩ	> 10 <sup>10</sup>	> 10 <sup>10</sup>	> 10 <sup>10</sup>		> 10 <sup>10</sup>	> 10 <sup>6</sup>	> 10 <sup>6</sup>
Max. contact resistance	mΩ	3	3	3		3	3	3

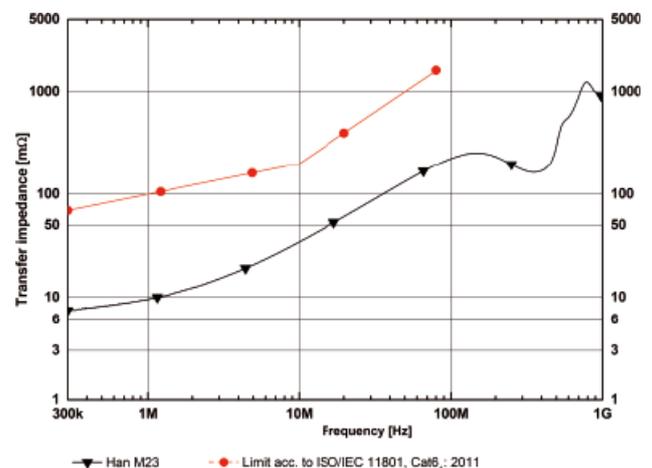
## Derating and EMC diagram

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.

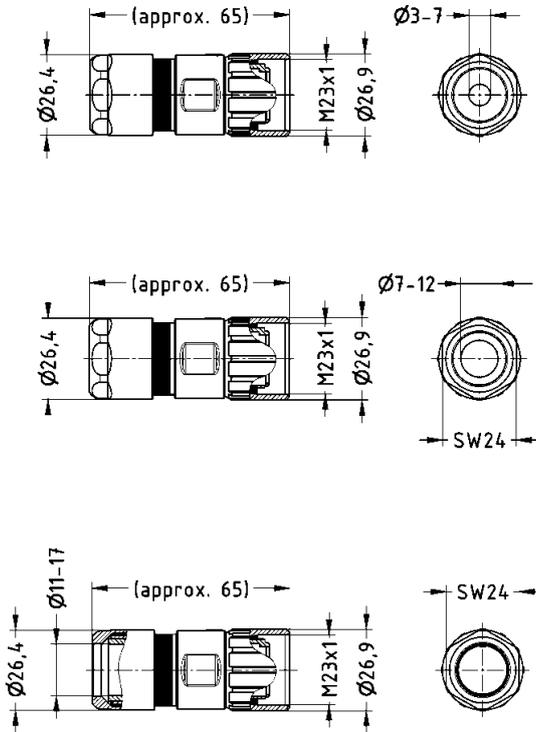
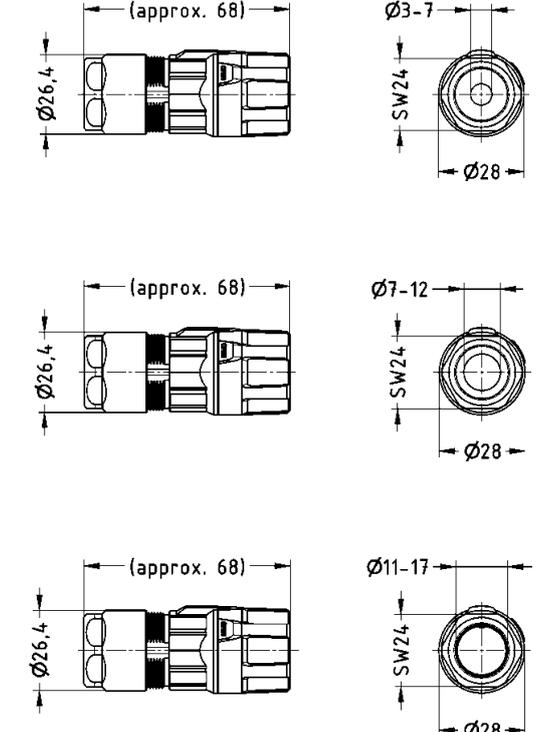
Control and testing procedures, according to DIN IEC 60512-5-2.



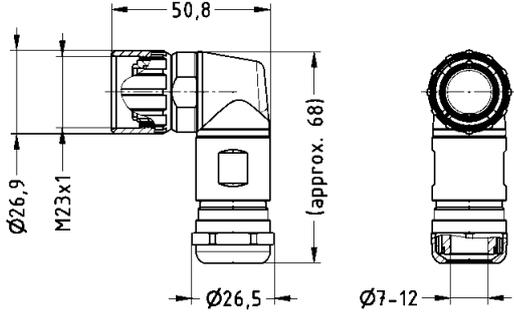
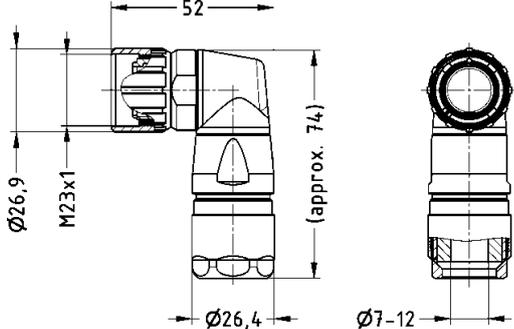
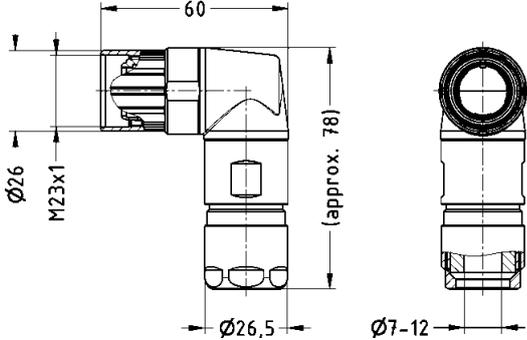
12 poles insert,  
conductor  
cross-section  
1.00 mm<sup>2</sup>

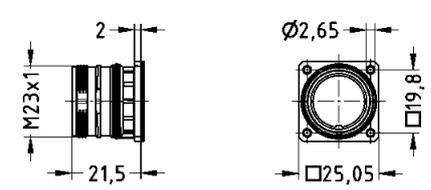
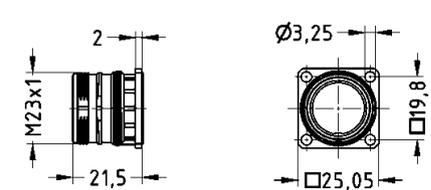
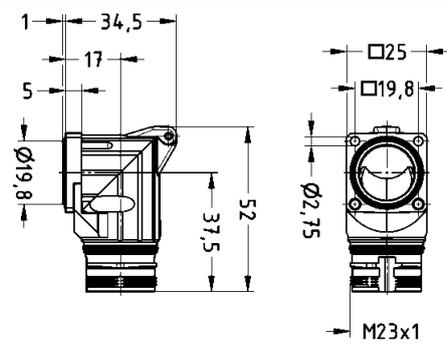
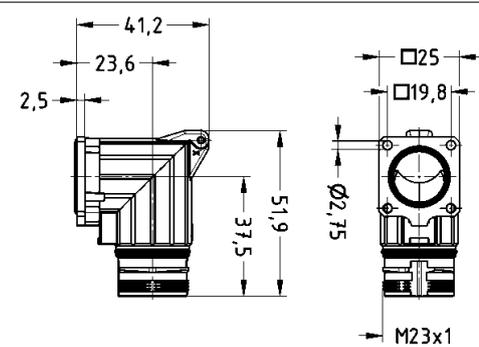


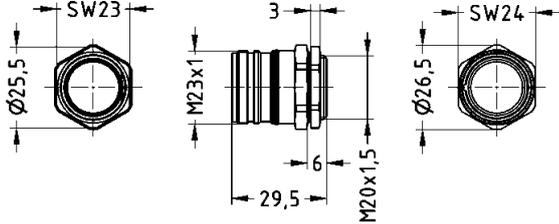
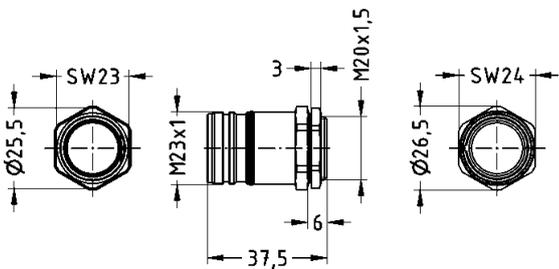
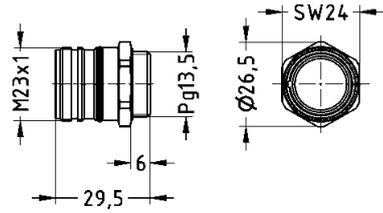
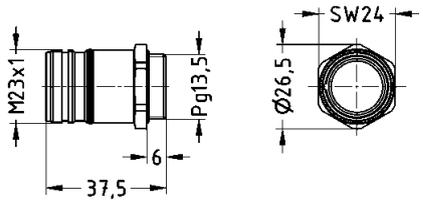
<sup>1)</sup> According to DIN VDE 0627, metallic parts which may be touched by a person and may have voltages present under fault conditions must have integral protection.

Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
<p>Hoods Incl. EMC cable gland</p> 	<p>3- 7</p> <p>7-12</p> <p>11-17</p>	<p>09 15 100 0401</p> <p>09 15 100 0402</p> <p>09 15 100 0403</p>	
<p>Hoods ComLock – rapid locking Incl. EMC cable gland</p> 	<p>3- 7</p> <p>7-12</p> <p>11-17</p>	<p>09 15 100 0491<sup>1)</sup> 09 15 100 0481<sup>2)</sup></p> <p>09 15 100 0492<sup>1)</sup> 09 15 100 0482<sup>2)</sup></p> <p>09 15 100 0493<sup>1)</sup> 09 15 100 0483<sup>2)</sup></p>	

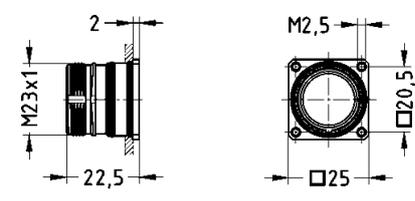
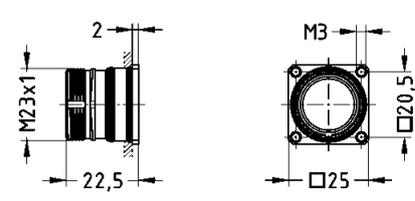
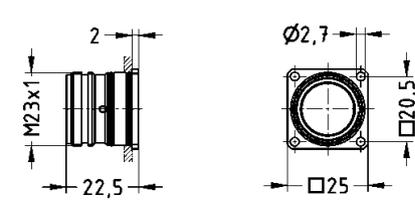
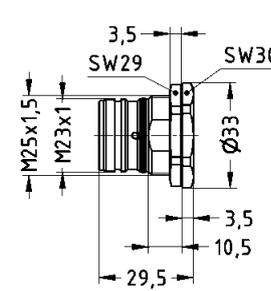
<sup>1)</sup> fast locking hood for Han® M23 Signal  
<sup>2)</sup> fast locking hood for Speedtec products

Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
<p>Angled hoods without EMC</p> 	7-12	09 15 100 0601	
<p>Angled hoods incl. EMC cable gland</p> 	7-12	09 15 100 0602	
<p>Angled hoods rotatable Incl. EMC cable gland</p> 	7-12	09 15 100 0603	

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

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

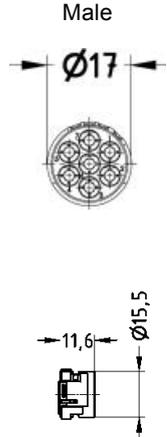
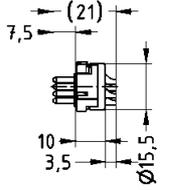
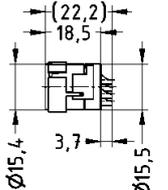
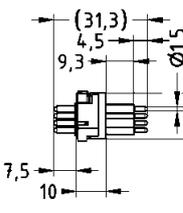
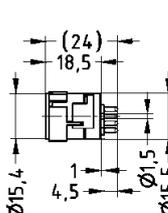
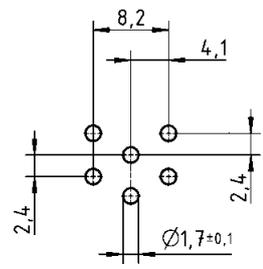
<sup>1)</sup> Not suitable for rapid locking

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

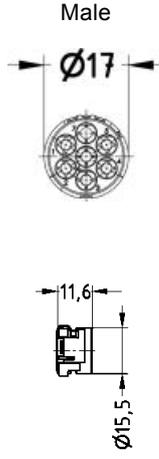
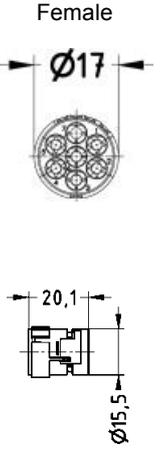
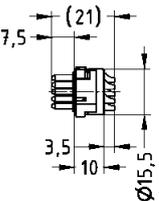
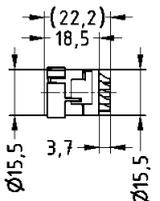
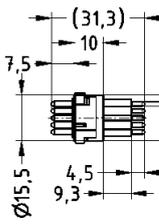
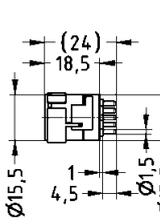
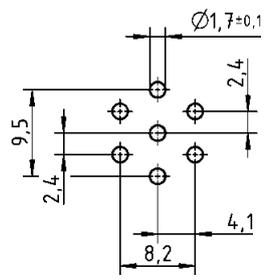
<sup>1)</sup> Not suitable for rapid locking

Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
Panel feed-through housings 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 housings incl. EMC cable gland	3- 7	09 15 100 0701	
	7-12	09 15 100 0702	
	11-17	09 15 100 0703	

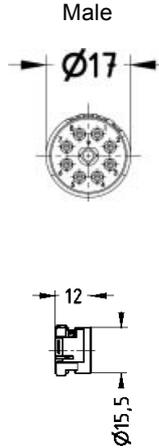
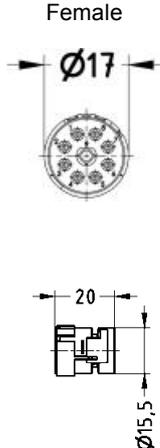
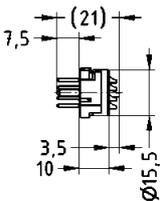
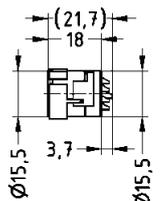
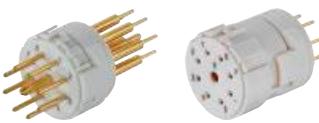
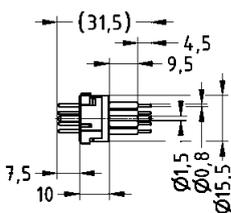
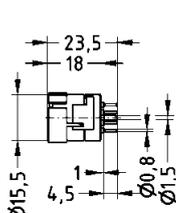
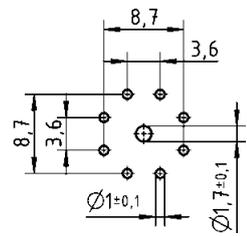


Identification	Contact number	Part number		Drawing	
		Male insert	Female insert	Dimensions, in mm	
<p>Crimp termination 6 x 2 mm contacts</p> 	6	09 15 106 3001	09 15 106 3101	<p>Male</p> 	<p>Female</p> 
<p>Solder termination</p> 	6	09 15 106 2602	09 15 106 2702		
<p>PCB solder-in termination<sup>1)</sup>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

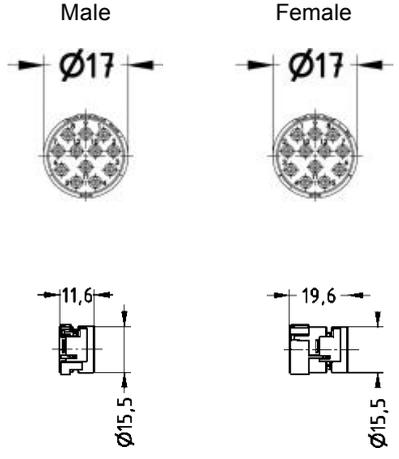
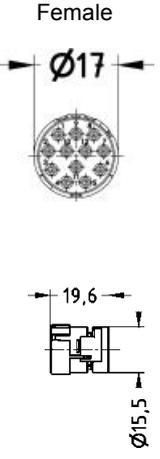
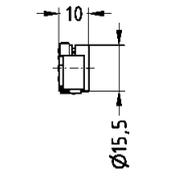
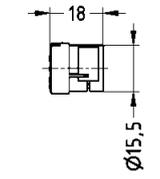
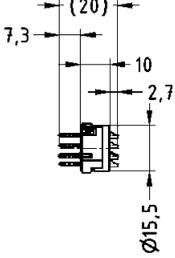
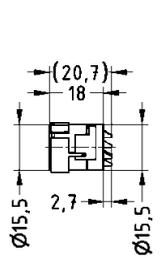
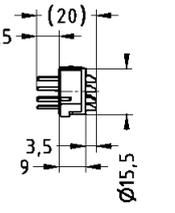
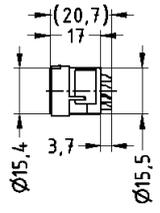
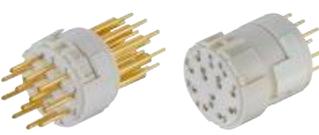
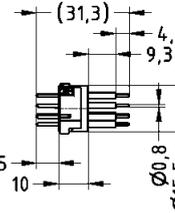
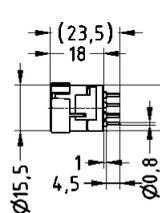
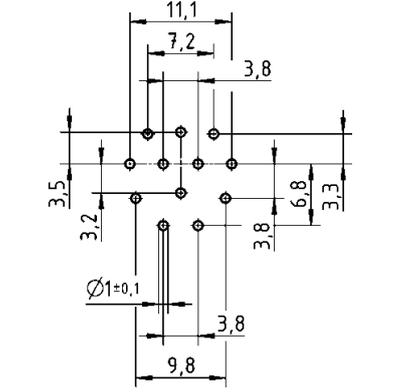
<sup>1)</sup> Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

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

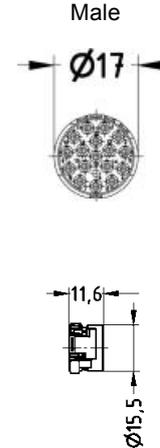
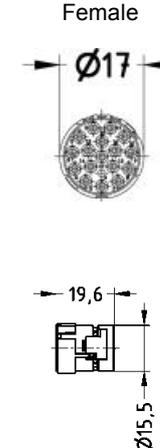
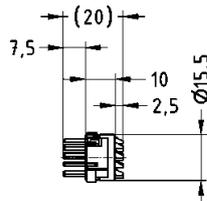
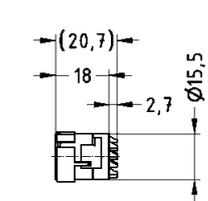
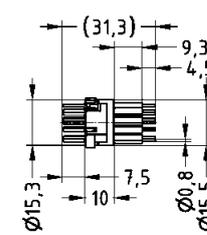
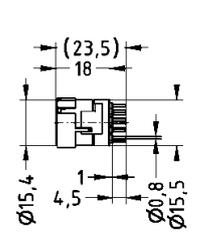
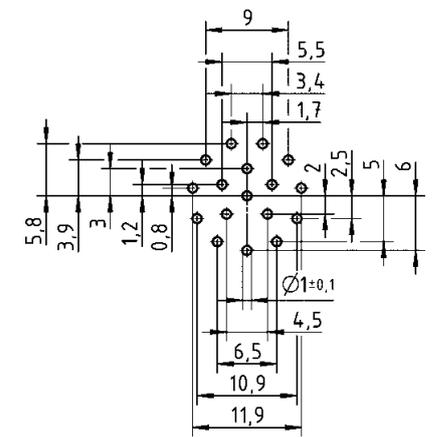
<sup>1)</sup> Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

Identification	Contact number	Part number		Drawing	
		Male insert	Female insert	Dimensions, in mm	
<p>Crimp termination 8 x 1 mm contacts 1 x 2 mm contact</p> 	9	09 15 109 3001	09 15 109 3101	<p>Male</p> 	<p>Female</p> 
<p>Solder termination</p> 	9	09 15 109 2602	09 15 109 2702		
<p>PCB solder-in termination<sup>1)</sup></p> 	9	09 15 109 2603	09 15 109 2703		
					

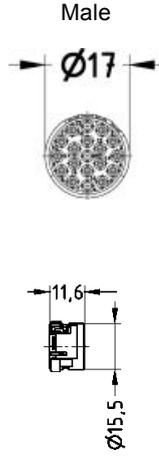
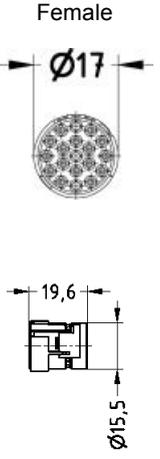
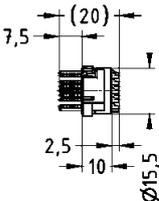
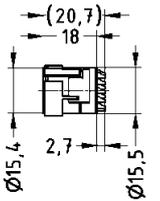
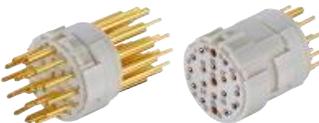
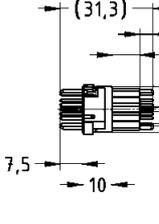
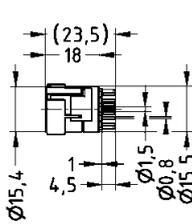
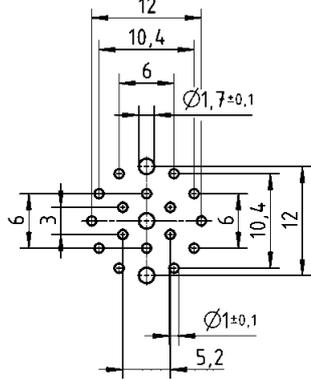
<sup>1)</sup> Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

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

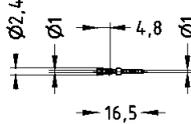
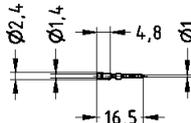
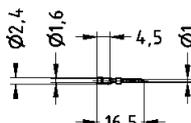
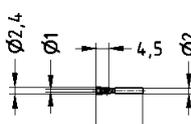
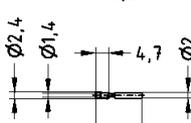
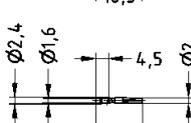
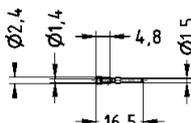
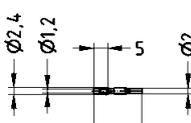
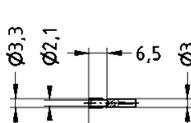
<sup>1)</sup> Only for use with bulkhead mounted housings: 09 15 100 0301, 09 15 100 0302, 09 15 100 0305, 09 15 100 0306 and 09 15 100 0307

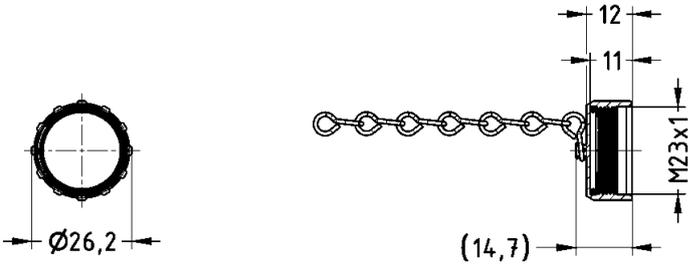
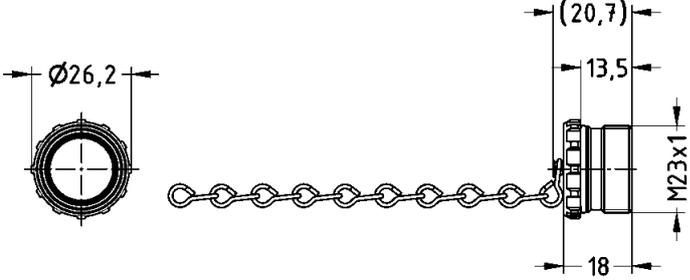
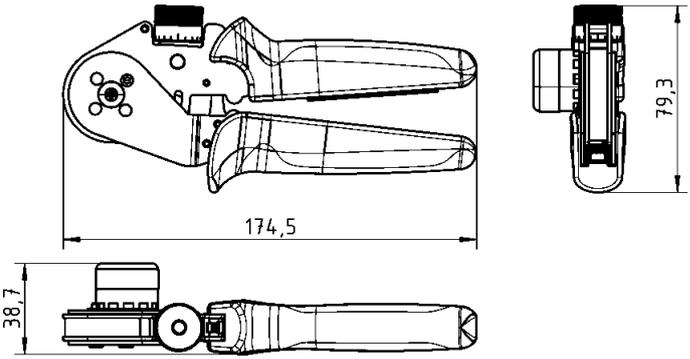
Identification	Contact number	Part number		Drawing	
		Male insert	Female insert	Dimensions, in mm	
<p>Crimp termination 17 x 1 mm contacts</p> 	17	09 15 117 3001	09 15 117 3101	<p>Male</p> 	<p>Female</p> 
<p>Solder termination</p> 	17	09 15 117 2602	09 15 117 2702		
<p>PCB solder-in termination<sup>1)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

<sup>1)</sup> 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		Drawing	
		Male insert	Female insert	Dimensions, in mm	
<p>Crimp termination</p> <p>16 x 1 mm contacts</p> <p>3 x 1.5 mm contacts</p> 	19	09 15 119 3001	09 15 119 3101	<p>Male</p> 	<p>Female</p> 
<p>Solder termination</p> 	19	09 15 119 2602	09 15 119 2702		
<p>PCB solder-in termination<sup>1)</sup></p> 	19	09 15 119 2603	09 15 119 2703		
					

<sup>1)</sup> 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

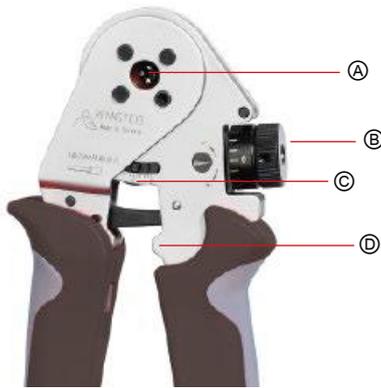
Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing Dimension, in mm		
		Male	Female			
Han® M23 crimp contacts 1 mm turned Contact surface: gold plated  	0.08 – 0.56	09 15 100 6101				
	0.14 – 1.00	09 15 100 6102				
	0.75 – 1.50	09 15 100 6103				
	0.08 – 0.56		09 15 100 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
<p>Screw cover for bulkhead mounted and cable to cable housings</p> 	<p>09 15 100 9101</p>	
<p>Screw cover for bulkhead mounted and cable to cable housings with chain (70 mm)</p> 	<p>09 15 100 9102</p>	
<p>Screw cover for hoods, with chain (100 mm)</p> 	<p>09 15 100 9103</p>	
<p>Four-indent crimping tool</p> 	<p>09 99 000 0890</p>	

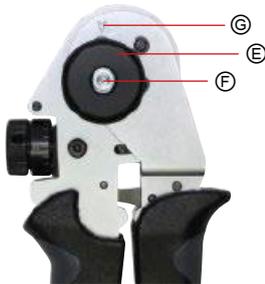
# Crimping tool for signal contacts 09 99 000 0890

Conductor cross-section 0.08 to 2.5 mm<sup>2</sup>

## 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 mm<sup>2</sup> to 2.5 mm<sup>2</sup>.

### 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 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.

### Operating principle of the four-indent crimping tool

#### NOTICE

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

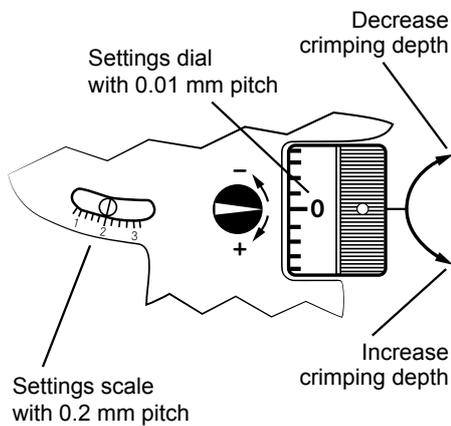
### Direction of rotation when adjusting the crimping depth

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 mm<sup>2</sup>

### Operating instructions



#### Adjustment accuracy

- 1 graduation mark on the settings dial  $\triangleq$  0.01 mm change in the crimping depth
- 1 rotation of settings dial  $\triangleq$  0.2 mm change in the crimping depth (This can be read on the settings scale)
- 5 rotations of settings dial  $\triangleq$  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  $\pm$  0.05 mm, please contact the HARTING Service so that the tool can be serviced and recalibrated!

#### Maintenance and repair

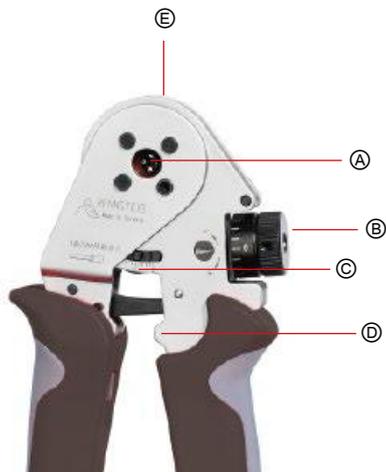
Make sure that the four-indent crimping tool is clean and in good condition after each use.

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 mm<sup>2</sup>

### Crimping depth settings for Han® M23 crimp contacts



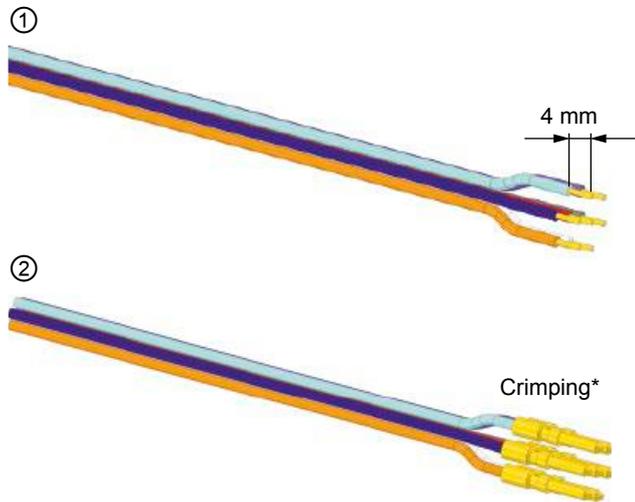
- Ⓐ Tool opening
- Ⓑ Settings dial (with 0.01 mm pitch)
- Ⓒ Settings scale (with 0.2 mm pitch)
- Ⓓ End stop
- Ⓔ Locator (on the back of the crimping tool)

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

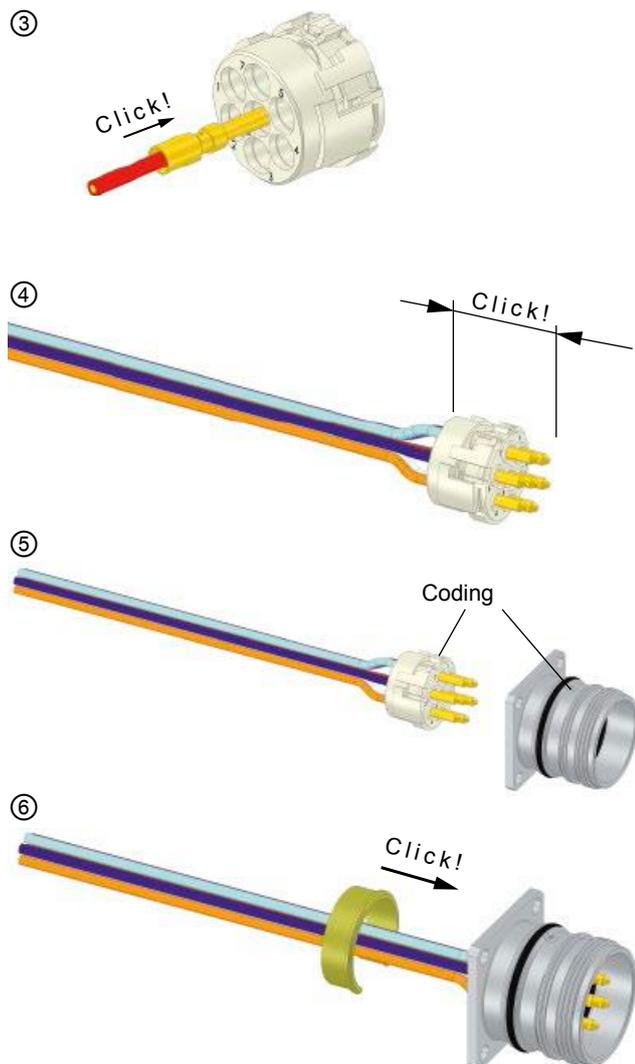
\* Stripping length for Han® M23 Signal crimp contacts = 4.0 mm.

## Han® M23 Signal, bulkhead mounted housings

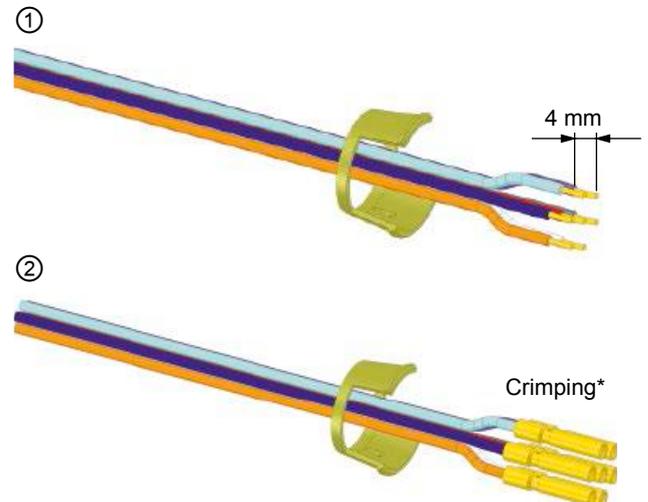
### Male



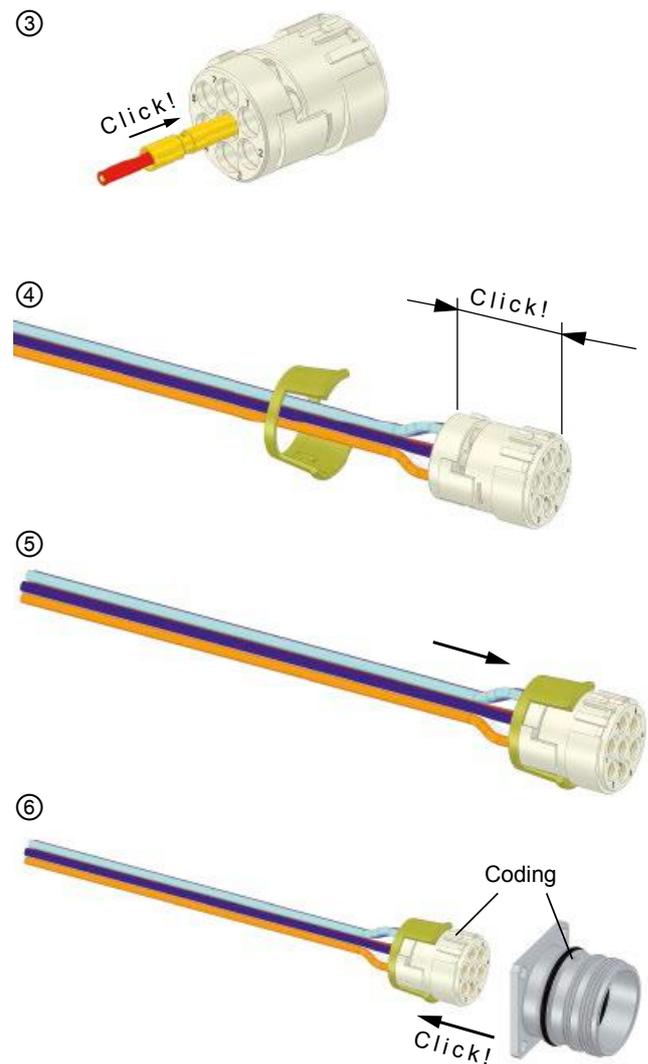
\* Refer to the operating instructions for the crimping tool 09 99 000 0890 or 09 99 000 0896.



### Female



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

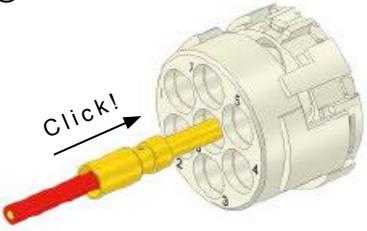


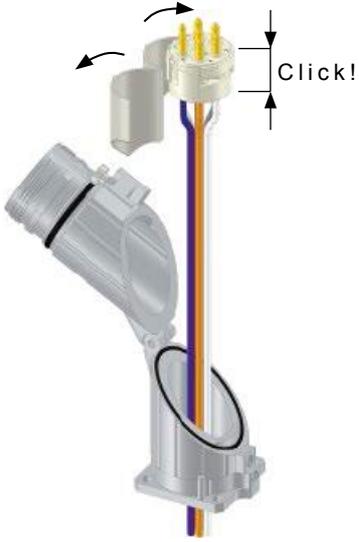
## Han® M23 Signal, bulkhead mounted housings, angled

① 

② 

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

③ 

④ 

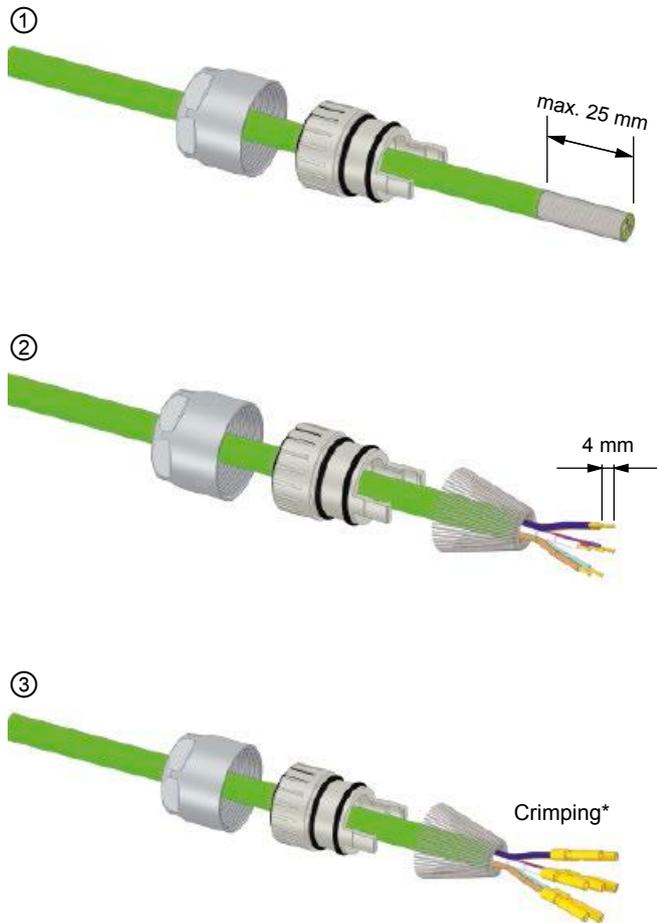
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⑥ 

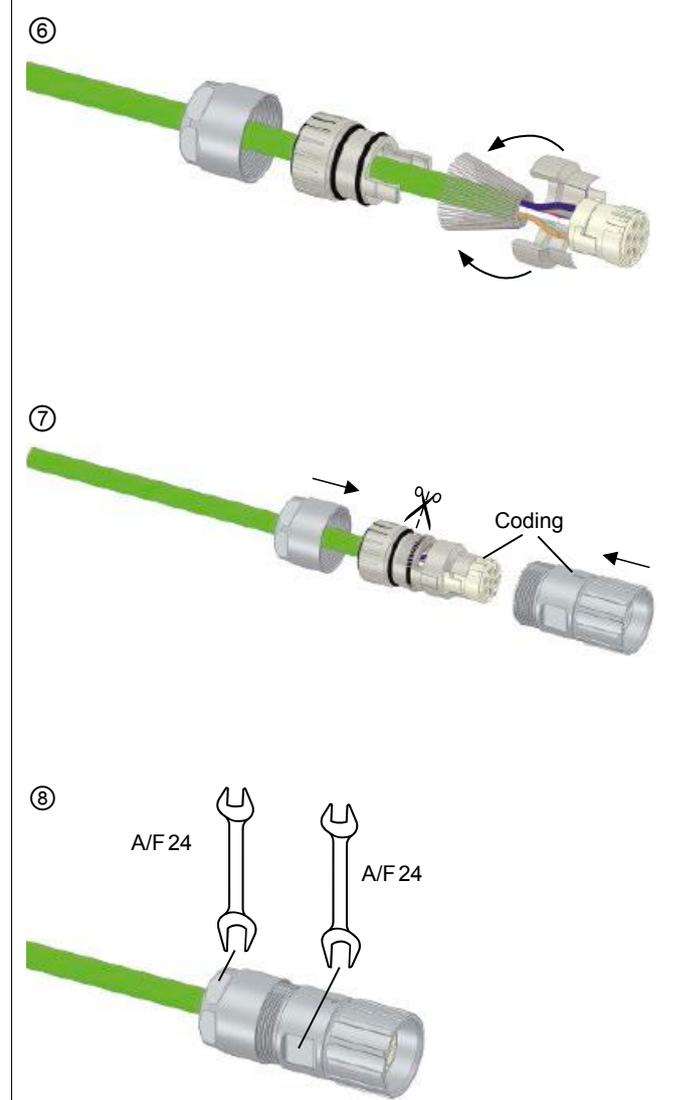
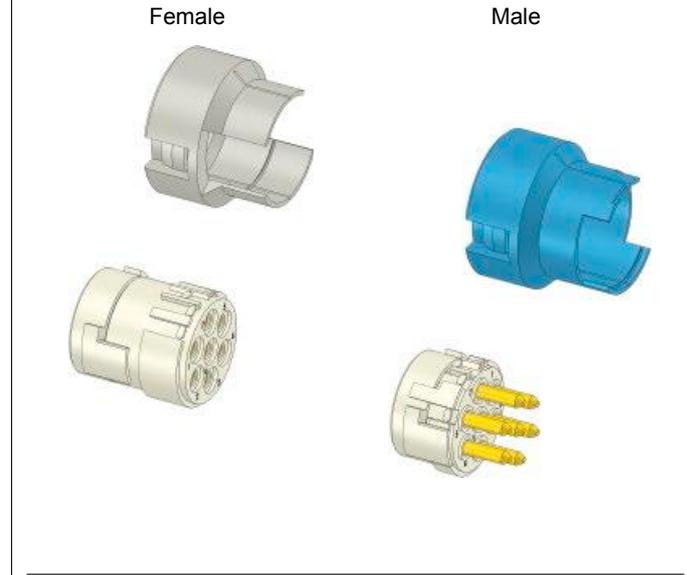
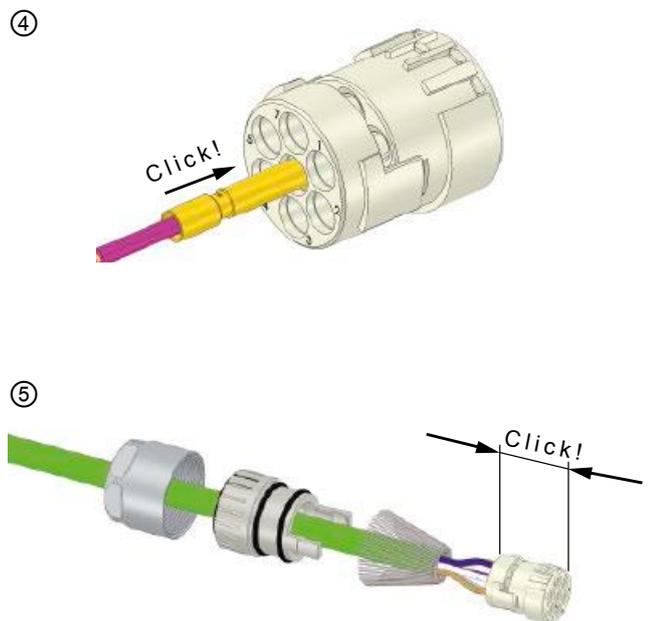
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⑧ 

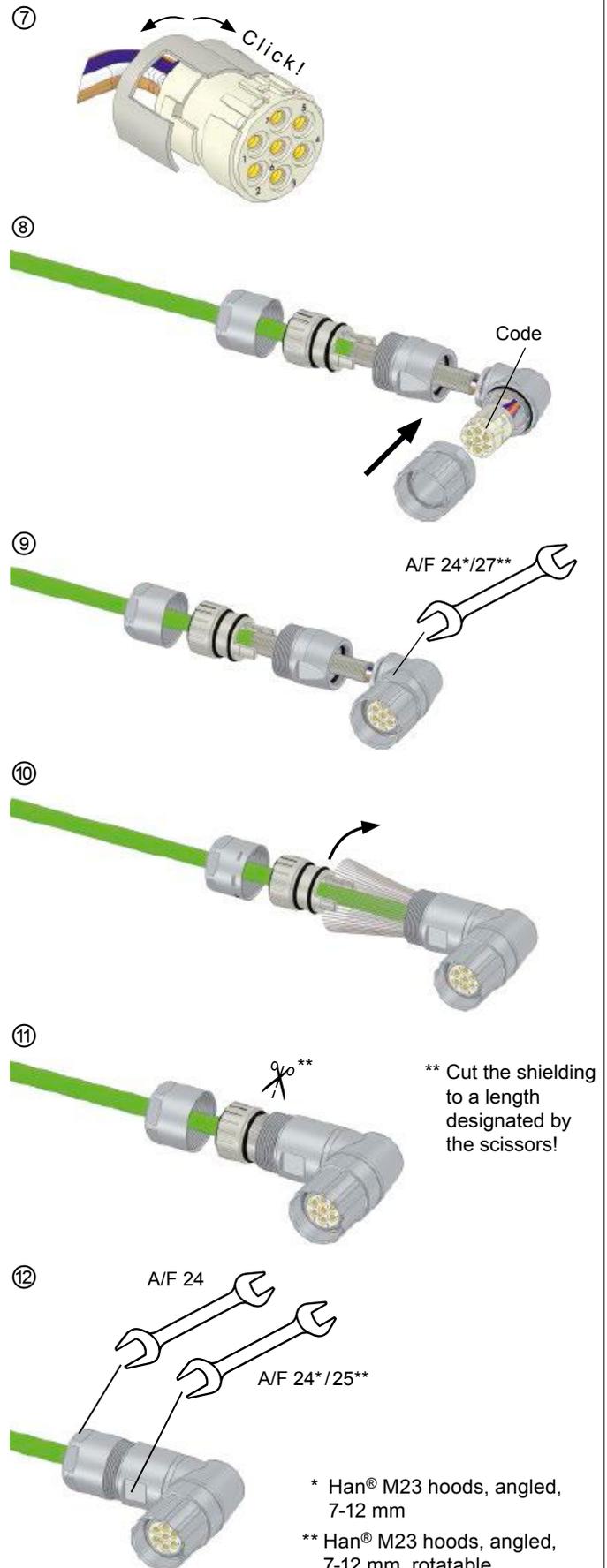
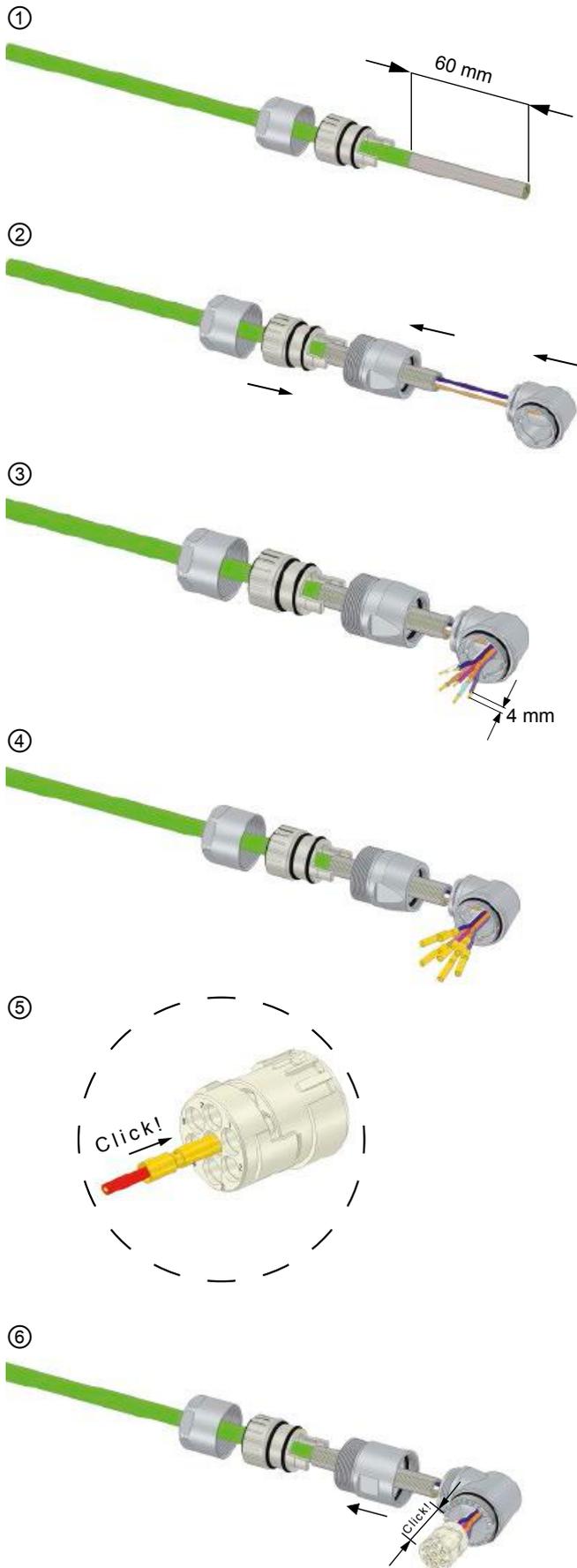
## Han® M23 Signal, hoods, cable to cable / panel feed-through housings



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



## Han® M23 Signal hoods, angled, EMC & EMC rotatable



\* Han® M23 hoods, angled, 7-12 mm  
 \*\* Han® M23 hoods, angled, 7-12 mm, rotatable



## Han® M23 Overview

### Features

- Size M23
- Robust hoods and housings for industrial applications
- Assembly and disassembly requires no tools
- Good EMC properties
- Signal, Power
- Crimp termination

### 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.

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## Technical characteristics

### Hoods and housings

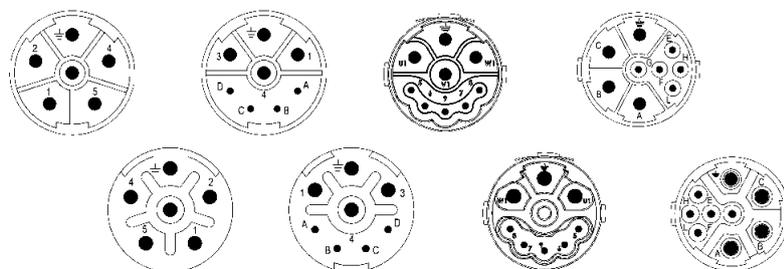
Material	Copper zinc alloy
Surface	Nickel plated
Seal	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection and seal in locked position	IP67 / IP69K
Clamping range	7 – 17 mm

### Electrical data

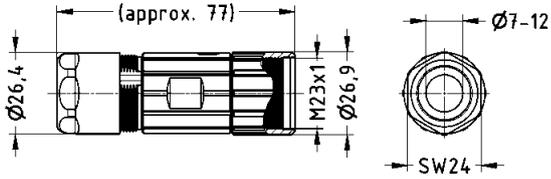
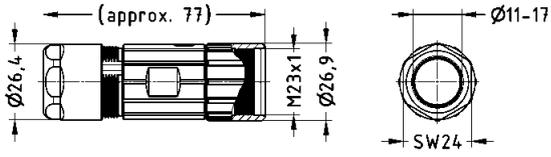
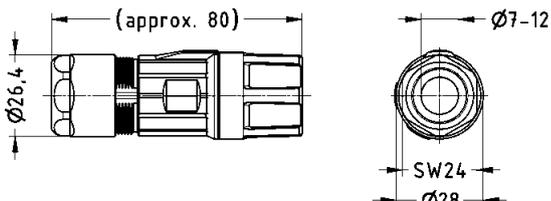
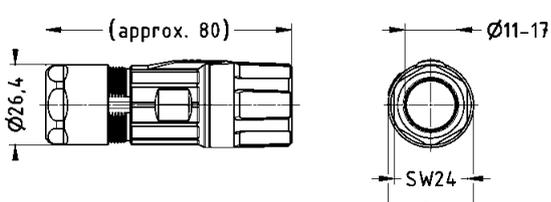
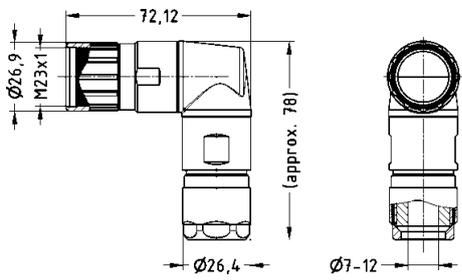
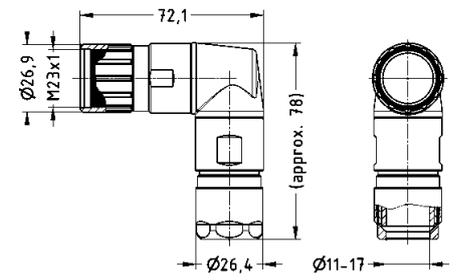
Number of poles	5 + PE			4 + 3 + PE		5 + 3 + PE	
	Number of contacts	6	4	4	5	4	
Contact-Ø	mm	2	1	2	1	2	
Rated current	A	28	8	28	10	28	
Rated voltage <sup>1)</sup>	V	600	300	600	250	630	
Test voltage	V	4000	2500	4000	2500	4000	
Insulation resistance	MΩ	> 10 <sup>13</sup>	> 10 <sup>13</sup>		> 10 <sup>13</sup>		
Max. contact resistance	mΩ	3	3		3		

## Inserts

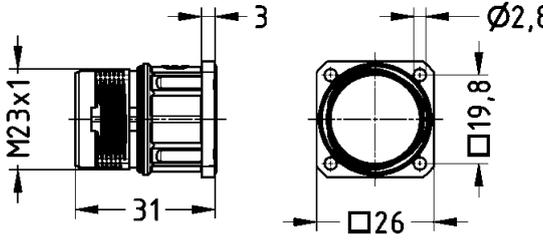
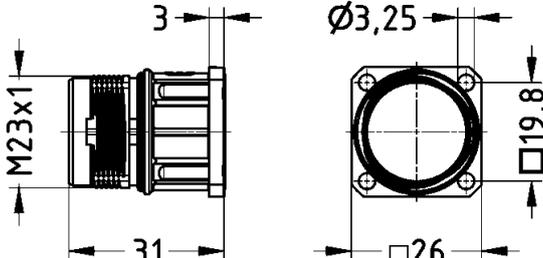
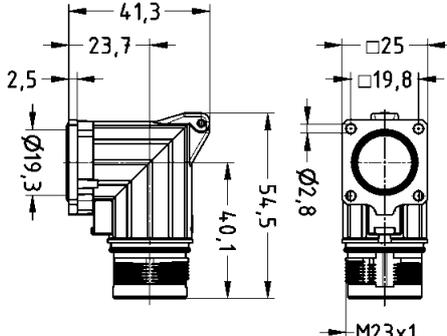
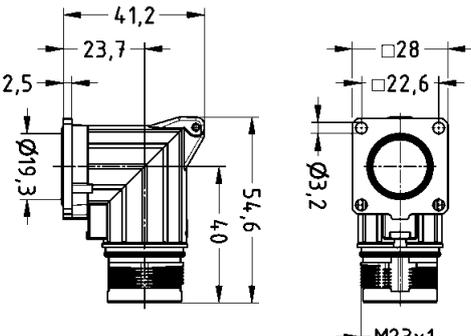
Power / Hybrid

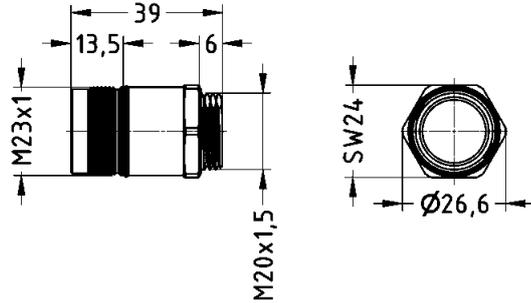
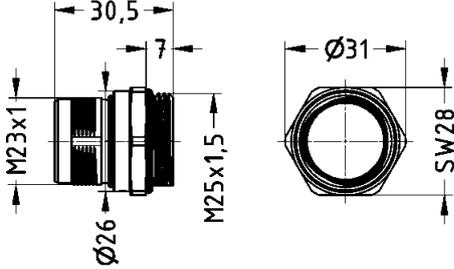
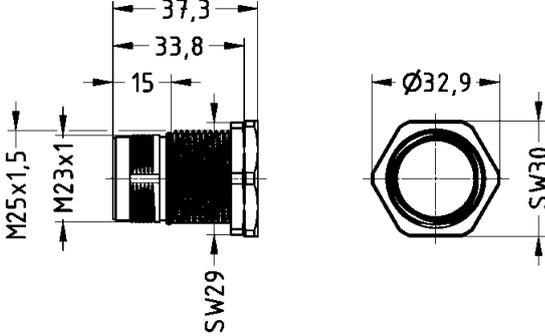


<sup>1)</sup> According to DIN VDE 0627, metallic parts which may be touched by a person and may have voltages present under fault conditions must have integral protection.

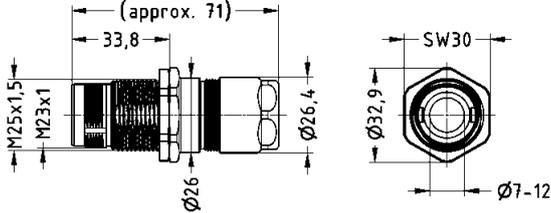
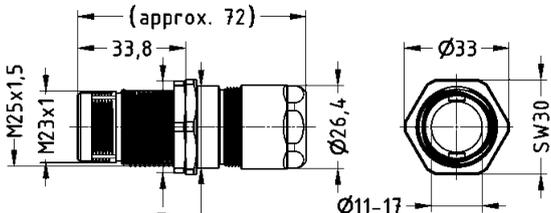
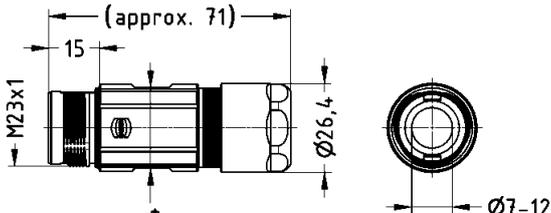
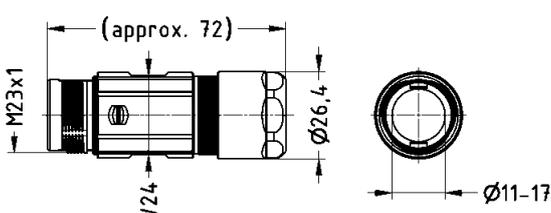
Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
Hoods Incl. EMC cable gland 	7-12           11-17	09 15 600 0402           09 15 600 0403	 
Hoods ComLock – rapid locking Incl. EMC cable gland 	7-12           11-17	09 15 600 0492 <sup>1)</sup> 09 15 600 0482 <sup>2)</sup>           09 15 600 0493 <sup>1)</sup> 09 15 600 0483 <sup>2)</sup>	 
Angled hoods rotatable Incl. EMC cable gland 	7-12           11-17	09 15 600 0603           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
<p>Bulkhead mounted housings front wall assembly O-ring seal (4 x 2.7 mm)</p> 	<p>09 15 600 0301</p>	 <p>Panel cut out <math>\varnothing</math> 20</p>
<p>Bulkhead mounted housings front wall assembly O-ring seal (4 x 3.2 mm)</p> 	<p>09 15 600 0302</p>	 <p>Panel cut out <math>\varnothing</math> 20</p>
<p>Bulkhead mounted housings angled 25 x 25 mm O-ring seal (4 x 2.7 mm)</p> 	<p>09 15 600 0902</p>	 <p>Panel cut out <math>\varnothing</math> 20</p>
<p>Bulkhead mounted housings angled 28 x 28 mm O-ring seal (4 x 3.2 mm)</p> 	<p>09 15 600 0912</p>	 <p>Panel cut out <math>\varnothing</math> 20</p>

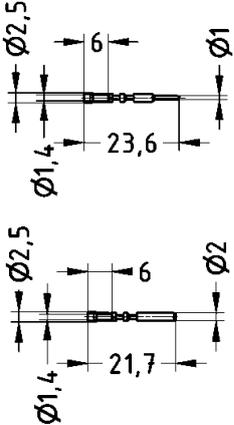
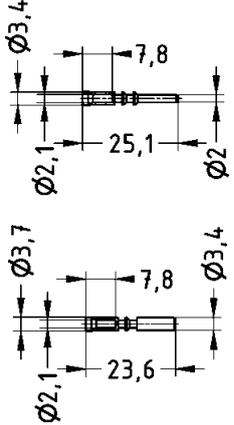
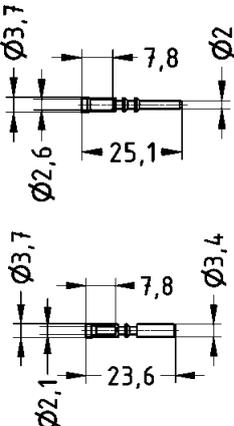
Identification	Part number	Drawing Dimensions, in mm
<p>Bulkhead mounted housing front wall assembly for male insert (M20 x 1.5)</p> 	<p>09 15 600 0303<sup>1)</sup></p>	 <p>Panel cut out Ø 20.2</p>
<p>Bulkhead mounted housing front wall assembly for male insert (M25 x 1.5)</p>	<p>09 15 600 0313</p>	 <p>Panel cut out Ø 25</p>
<p>Bulkhead mounted housing back wall assembly for male insert (M25 x 1.5)</p> 	<p>09 15 600 0308</p>	 <p>Panel cut out Ø 25</p>

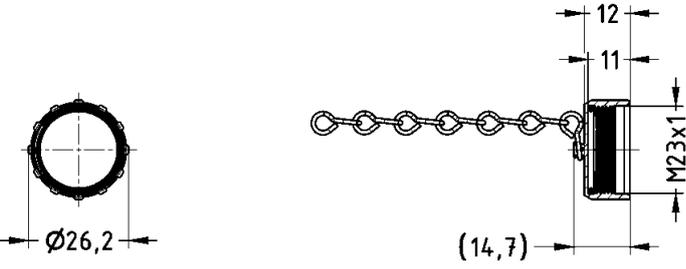
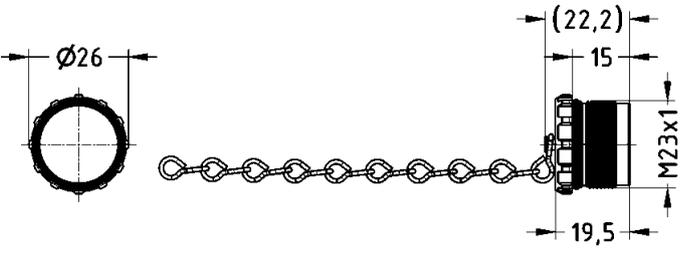
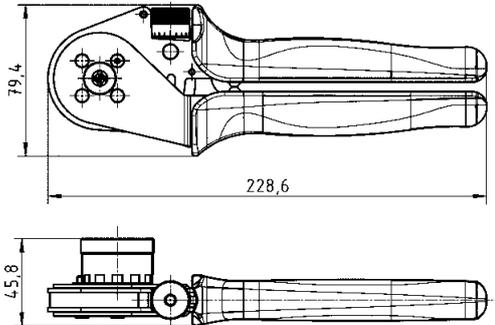
<sup>1)</sup> Not suitable for rapid locking

Identification	Clamping range (mm)	Part number	Drawing Dimensions, in mm
<p>Panel feed-through housings Back wall assembly with central locking (M25)</p> 	<p>7-12</p>	<p>09 15 600 0310</p>	 <p>Panel cut out Ø 25</p>  <p>Panel cut out Ø 25</p>
<p>Cable to cable housings incl. EMC cable gland</p> 	<p>7-12</p>	<p>09 15 600 0702</p>	 <p>SW24</p>  <p>SW24</p>

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

Identification	Contact number	Part number		Drawing Dimensions, in mm
		Male insert	Female insert	
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	

Identification	Conductor cross-section (mm <sup>2</sup> )	Part number		Drawing Dimension, in mm
		Male	Female	
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	09 15 600 6121		
			09 15 600 6221	
	2.50 – 4.00	09 15 600 6122		
		09 15 600 6222		

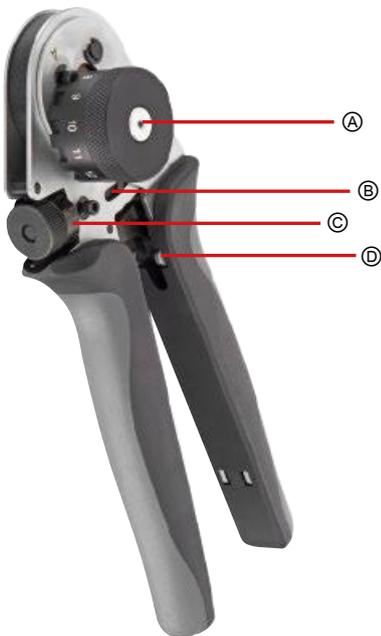
Identification	Part number	Drawing Dimensions, in mm
<p>Screw cover for bulkhead mounted and cable to cable housings with chain (100 mm)</p> 	<p>09 15 600 9102</p>	 <p>Technical drawing showing a circular screw cover with a diameter of <math>\varnothing 26,2</math> mm. It is attached to a chain. The drawing includes dimensions: 12 mm for the top width, 11 mm for the inner diameter, and a total height of <math>M23 \times 1</math>. A dimension of (14,7) mm is also indicated.</p>
<p>Screw cover for hoods, with chain (100 mm)</p> 	<p>09 15 600 9103</p>	 <p>Technical drawing showing a circular screw cover with a diameter of <math>\varnothing 26</math> mm. It is attached to a chain. The drawing includes dimensions: (22,2) mm for the top width, 15 mm for the inner diameter, and a total height of <math>M23 \times 1</math>. A dimension of 19,5 mm is also indicated.</p>
<p>Four-indent crimping tool for power and signal contacts<sup>1)</sup></p> 	<p>09 99 000 0896<sup>1)</sup></p>	 <p>Technical drawing of a four-indent crimping tool. The drawing shows two views: a side view with a length of 228,6 mm and a height of 79,4 mm, and a top view with a width of 45,8 mm.</p>

<sup>1)</sup> Not suitable for 0.6 mm contacts

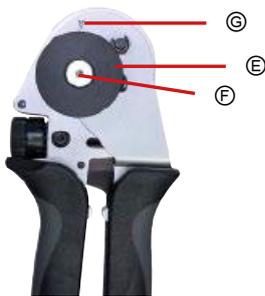
## Crimping tool for power & signal contacts 09 99 000 0896

Conductor cross-section 0.14 to 4 mm<sup>2</sup>

### 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 mm<sup>2</sup> and 4 mm<sup>2</sup>.

#### 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

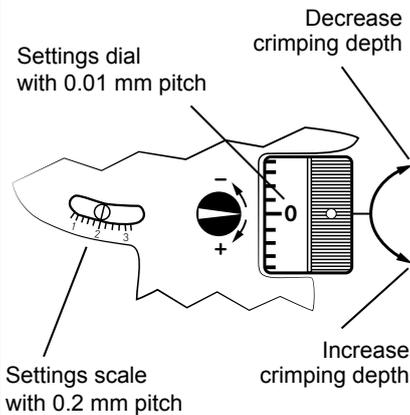
#### Direction of rotation when adjusting the crimping depth

- ↻ 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 mm<sup>2</sup>

### Operating instructions



#### Adjustment accuracy

- 1 graduation mark on the settings dial  $\pm 0.01$  mm change in the crimping depth
- 1 rotation of settings dial  $\pm 0.2$  mm change in the crimping depth (This can be read on the settings scale)
- 5 rotations of settings dial  $\pm 1$  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  $\pm 0.05$  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 mm<sup>2</sup>

### 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 $\phi$	Conductor cross-section (mm <sup>2</sup> )	AWG	Crimping depth	Locator position
09 15 100 6102	Male crimp contact 1 mm	0.14	26	0.75	11
		0.25	24	0.82	
		0.35	22	0.9	
		0.50	20	1.0	
		0.75	18	1.08	
		1.00	18	1.20	
09 15 100 6201	Female crimp contact 1 mm	0.14	26	0.75	12
		0.25	24	0.8	
		0.35	22	0.87	
		0.50	20	0.97	
09 15 100 6202	Female crimp contact 1 mm	0.50	20	0.95	12
		0.75	18	1.0	
		1.0	18	1.05	
09 15 100 6111	Male crimp contact 1.5 mm	0.14	26	0.75	3
		0.25	24	0.82	
		0.35	22	0.9	
		0.50	20	0.96	
		0.75	18	1.03	
09 15 100 6211	Female crimp contact 1.5 mm	0.14	26	0.75	4
		0.25	24	0.8	
		0.35	22	0.87	
		0.50	20	0.97	
09 15 100 6212	Female crimp contact 1.5 mm	0.35	22	0.95	4
		0.50	20	1.0	
		0.75	18	1.05	
09 15 100 6121	Male crimp contact 2 mm	0.75	18	1.3	5
		1.0	18	1.4	
		1.5	16	1.55	
		2.5	14	1.75	
09 15 100 6221	Female crimp contact 2 mm	0.75	18	1.3	6
		1.0	18	1.4	
		1.5	16	1.55	
		2.5	14	1.75	

\* 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 mm<sup>2</sup>

### Crimping depth settings for Han® M23 Power crimp contacts



- Ⓐ Werkzeugöffnung
- Ⓑ Einstellrad (mit 0,01-mm-Teilung)
- Ⓒ Einstellskala (mit 0,2-mm-Teilung)
- Ⓓ Endanschlag
- Ⓔ Positionierer (auf der Rückseite des Crimpwerkzeugs)

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

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

## Han® M23 Power, hood 5 + PE

①



②



### Stripping length X

1 mm contacts: x = 4 mm

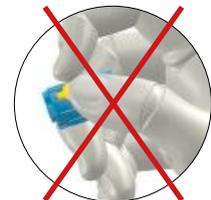
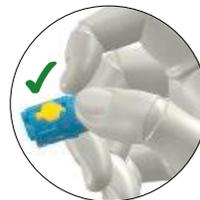
2 mm contacts: x = 7 mm

③



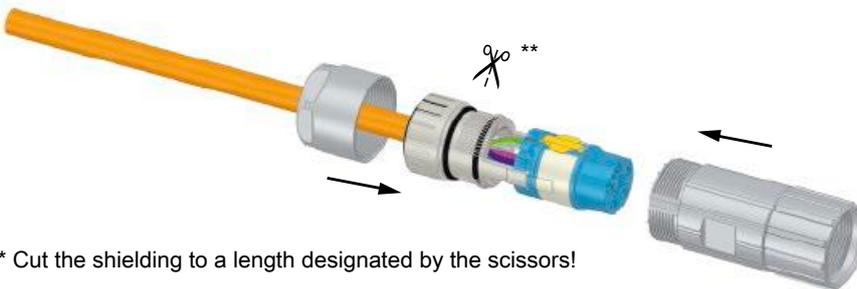
\* Refer to operating instructions of crimping tool 09 99 000 0896.

④



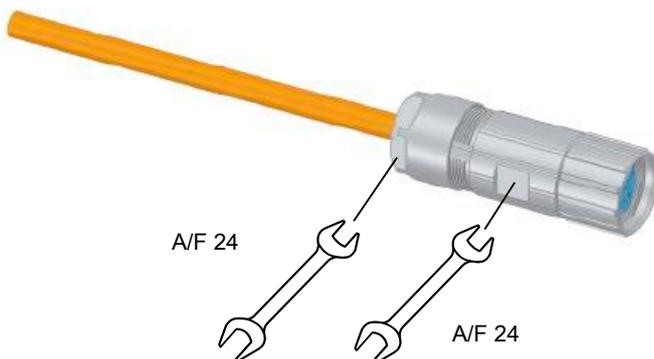
Do not touch the white clip!

⑤



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

⑥



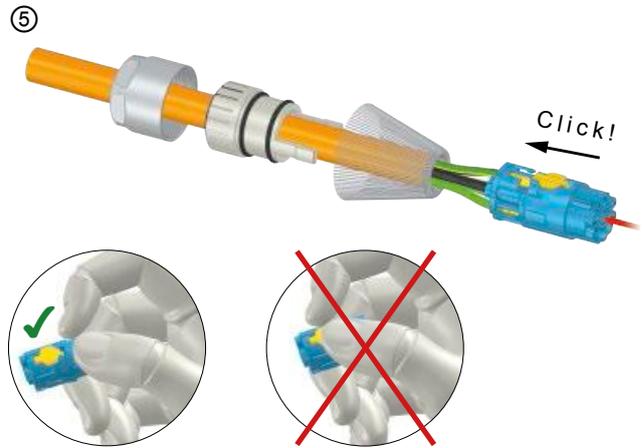
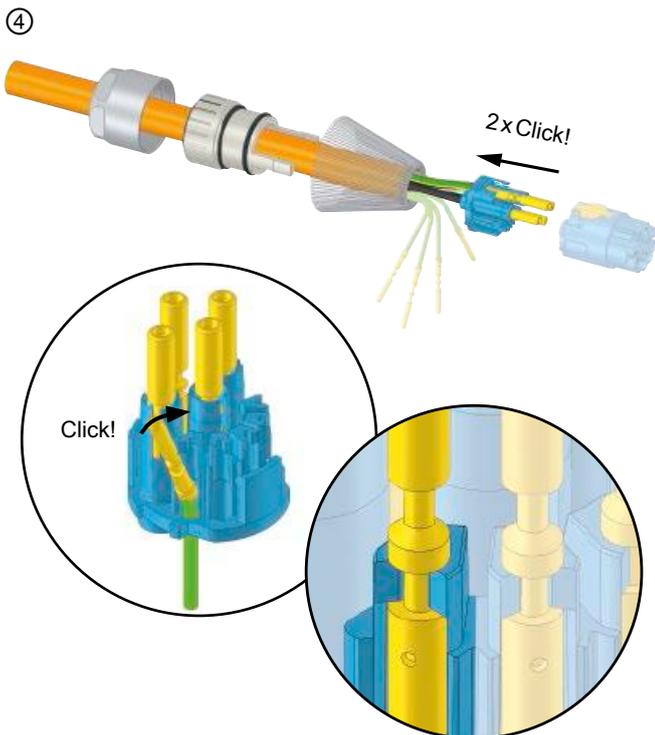
## Han® M23 Power, hood 4+3+PE / 5+3+PE



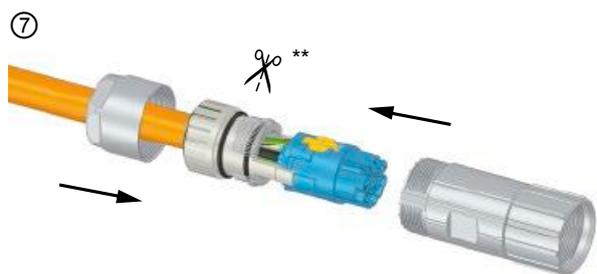
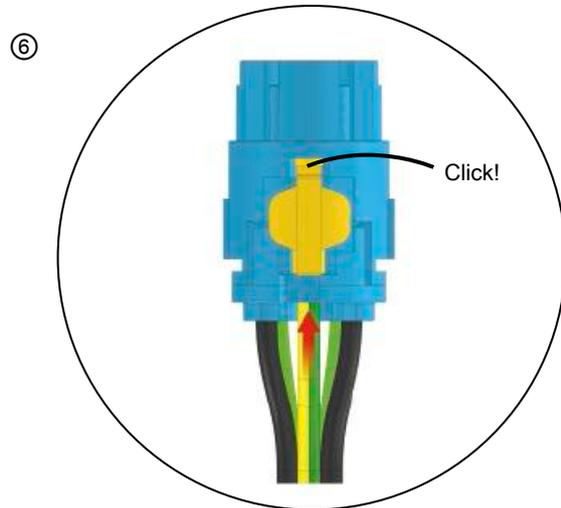
**Stripping length X**  
 1 mm contacts: x = 4 mm  
 2 mm contacts: x = 7 mm



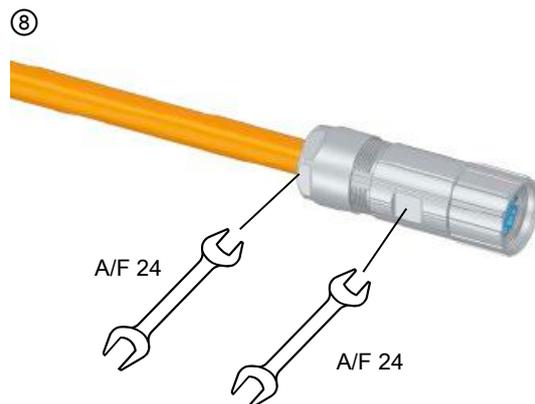
\* Refer to operating instructions of crimping tool 09 99 000 0896.



Do not touch the white clip!

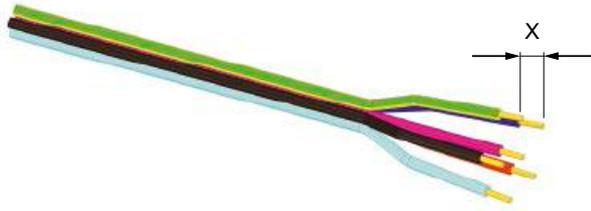


\*\* Cut the shielding to a length designated by the scissors.



## Han® M23 Power, bulkhead mounted housing

①



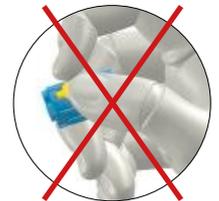
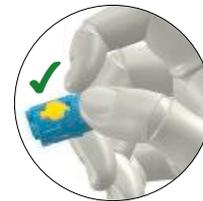
### Stripping length X

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!

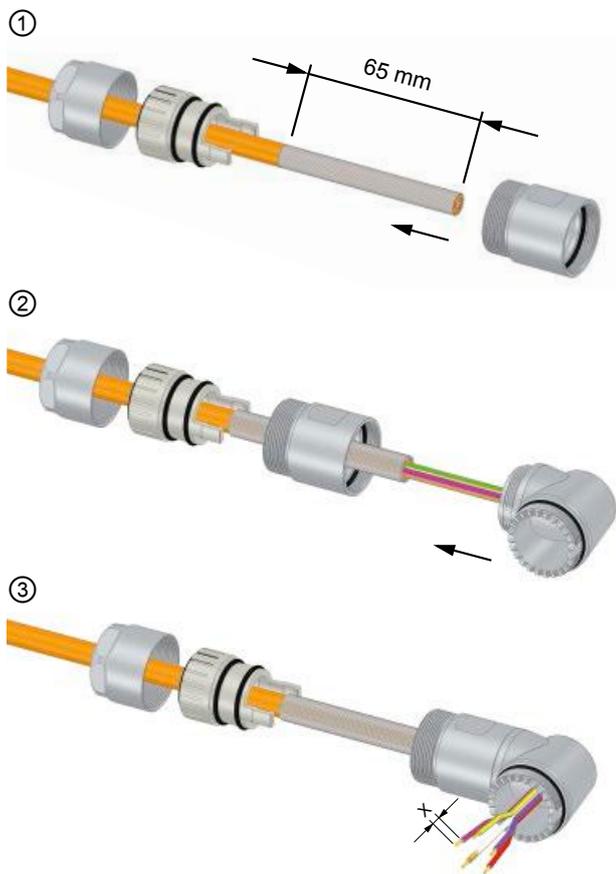
③



④

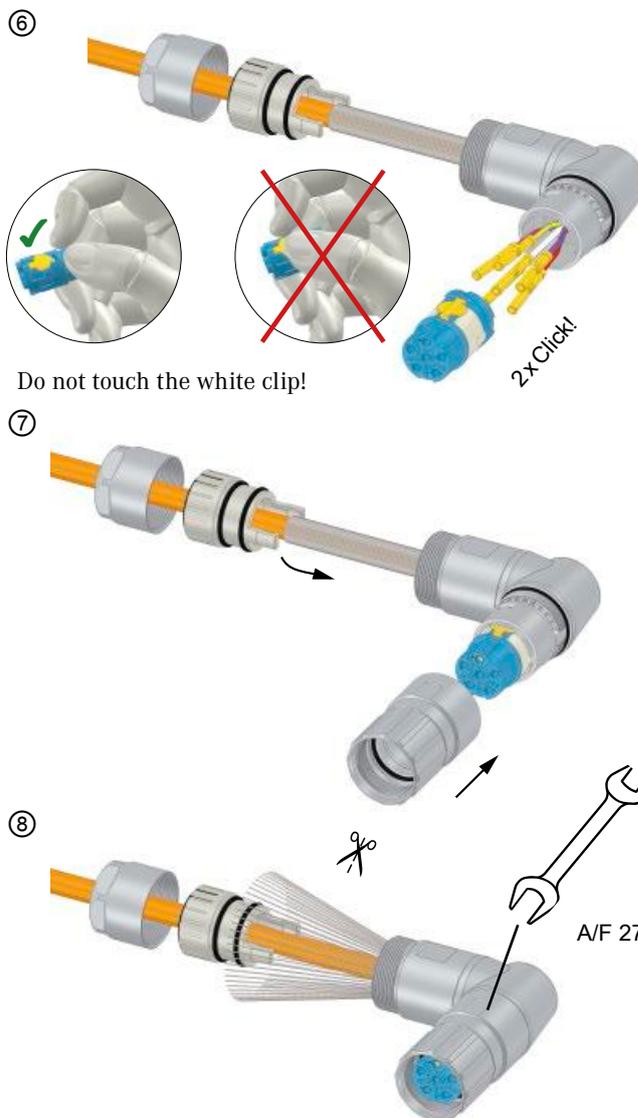
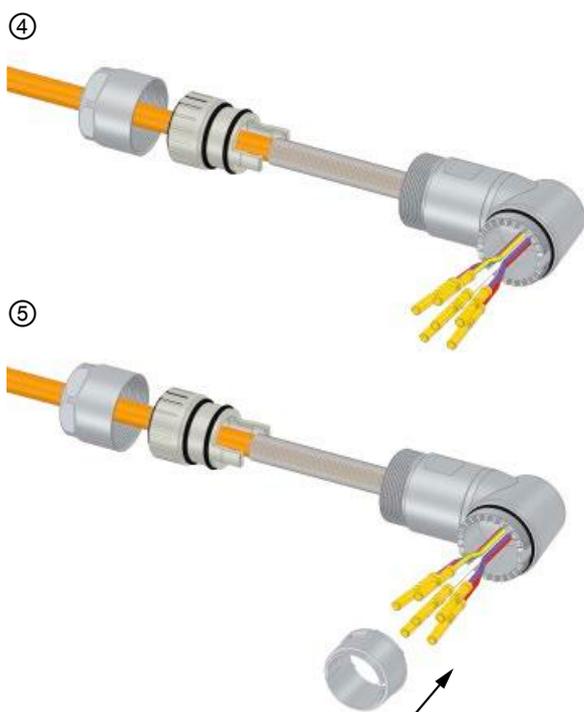


## Han® M23 Power, hood, angled

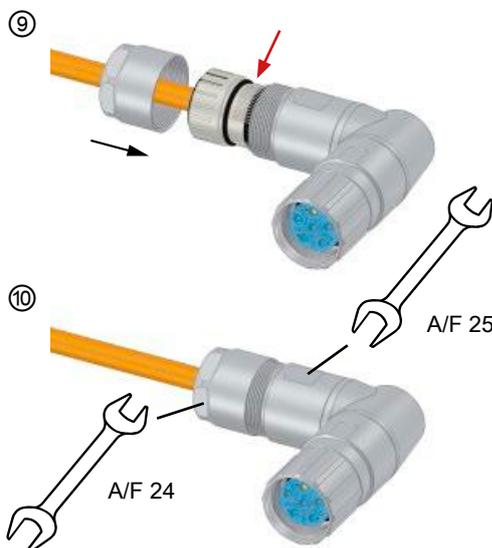


### Stripping length X

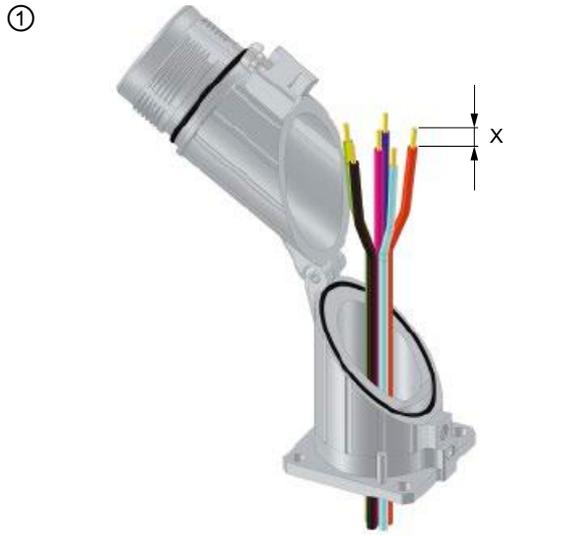
1 mm contacts: x = 4 mm  
2 mm contacts: x = 7 mm



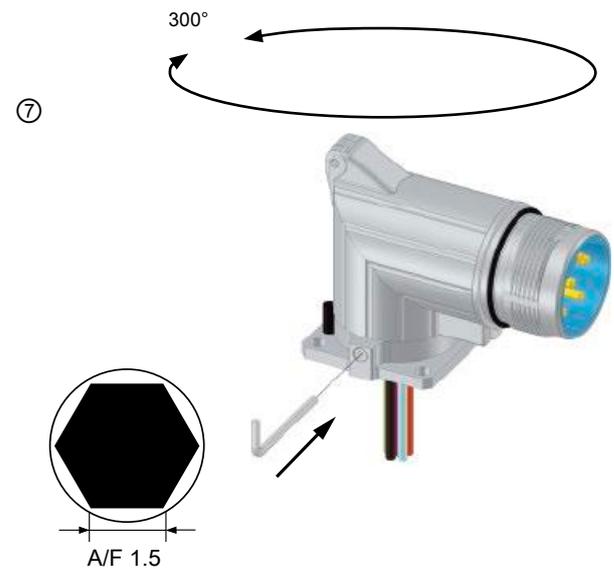
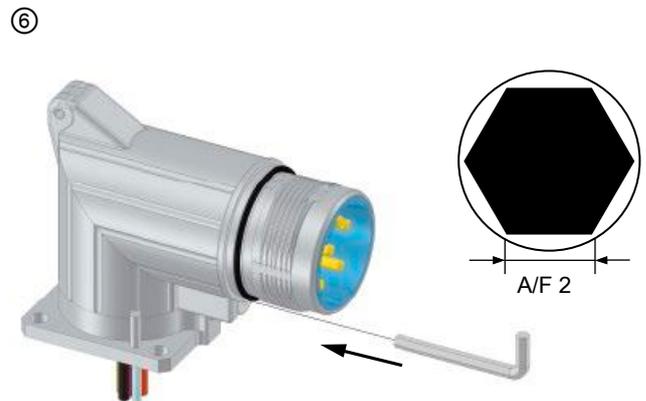
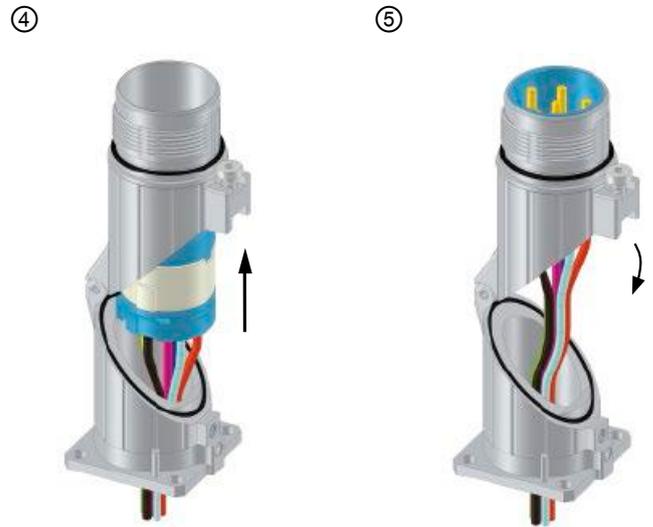
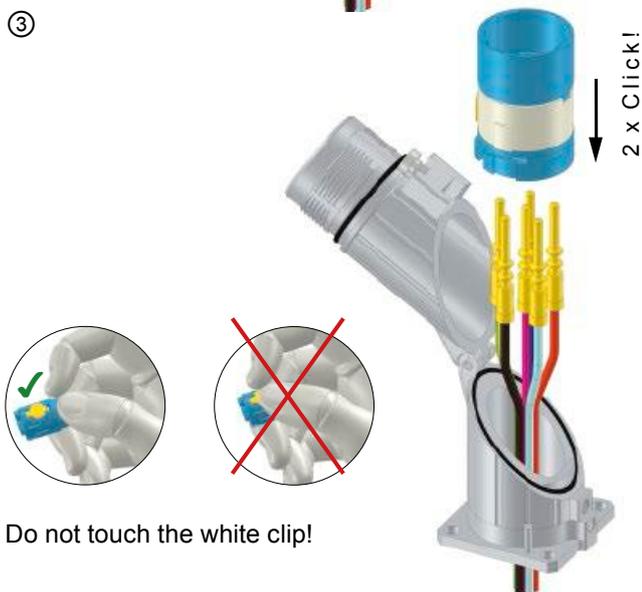
Cut the shielding to a length designated by the scissors and position the edge of the shielding between the two O-rings (refer to arrow in step ⑧).



## Han® M23 Power, bulkhead mounted housing



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



## Han® M23 Power – removal

①



### Remove insert

Remove the contact insert from the housing using a screwdriver:

1. Position a small screw 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

