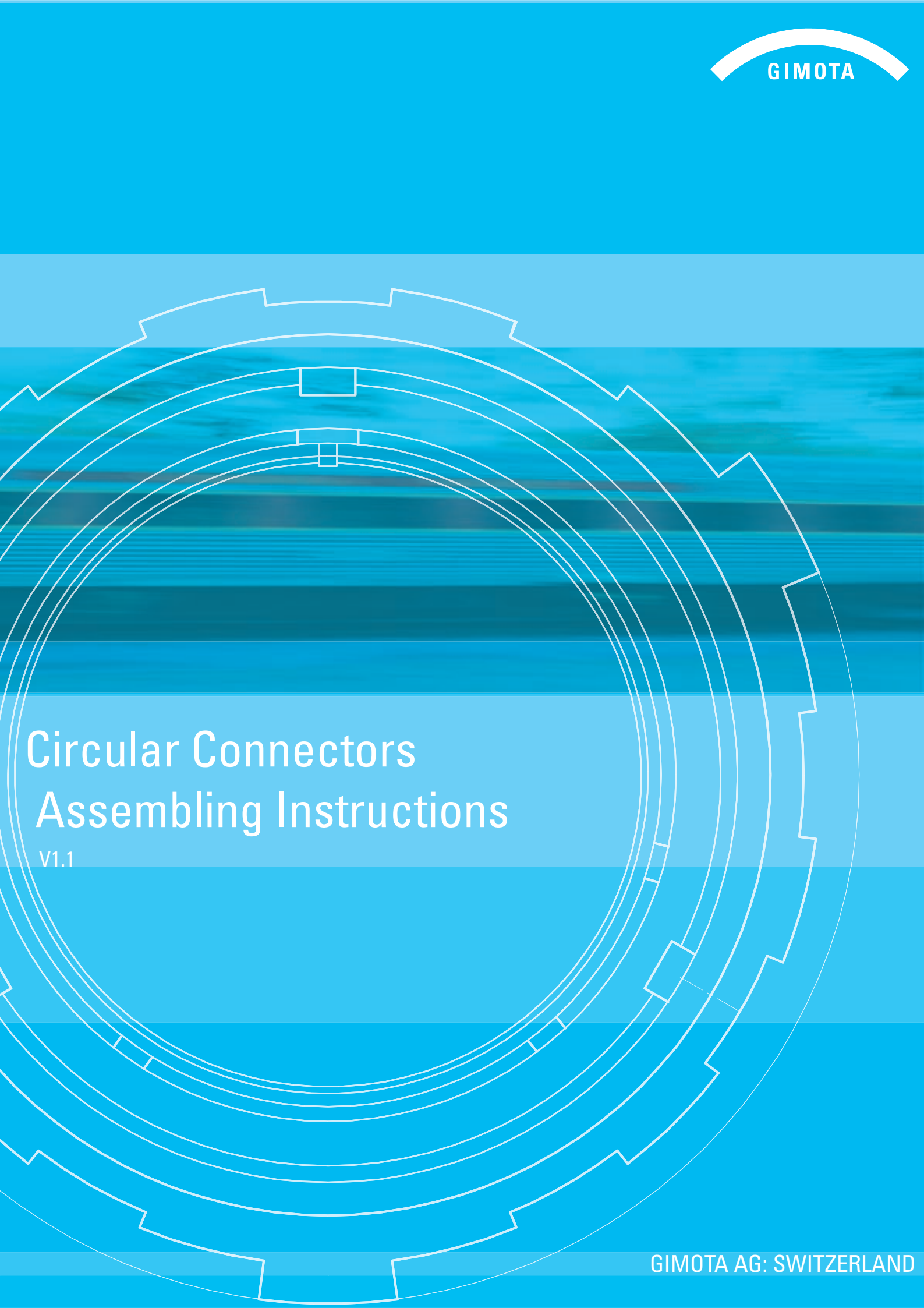
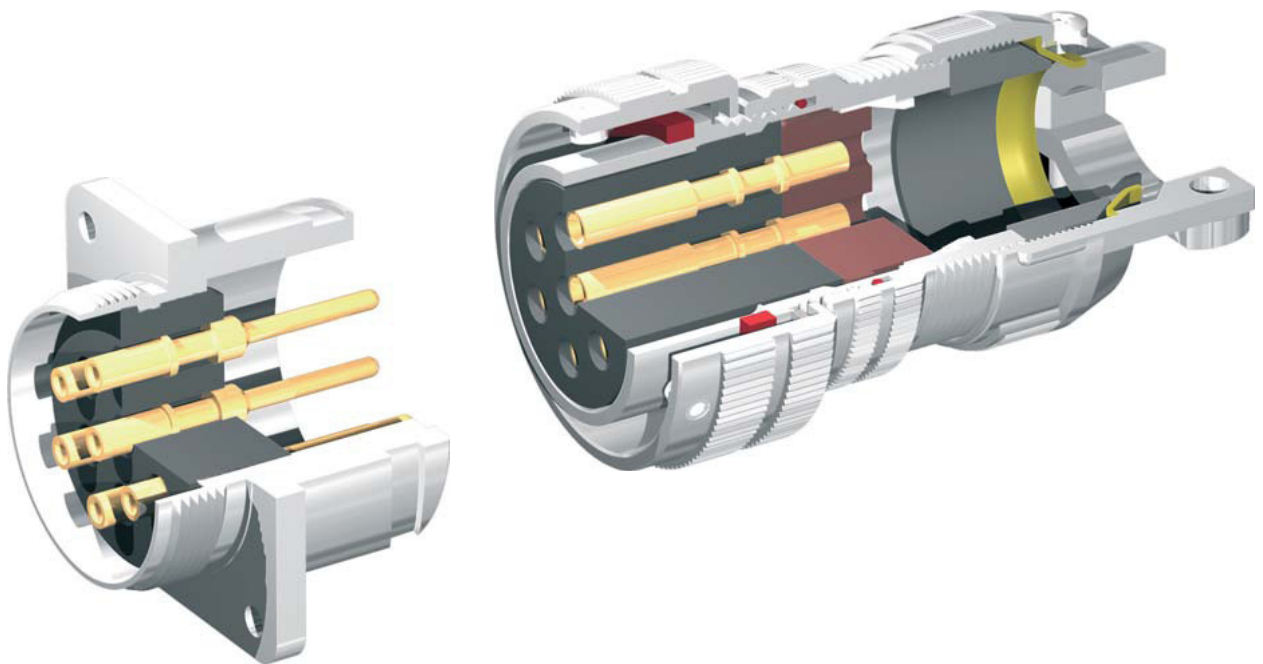


A large, stylized white line drawing of a circular connector assembly is centered on the page. It features multiple concentric rings with various notches and protrusions, representing the internal and external components of the connector. A vertical dashed line runs through the center of the diagram.

Circular Connectors Assembling Instructions

V1.1

Assembly instruction for GIMOTA Circular Connectors



1. Preparation of wires and contact crimp

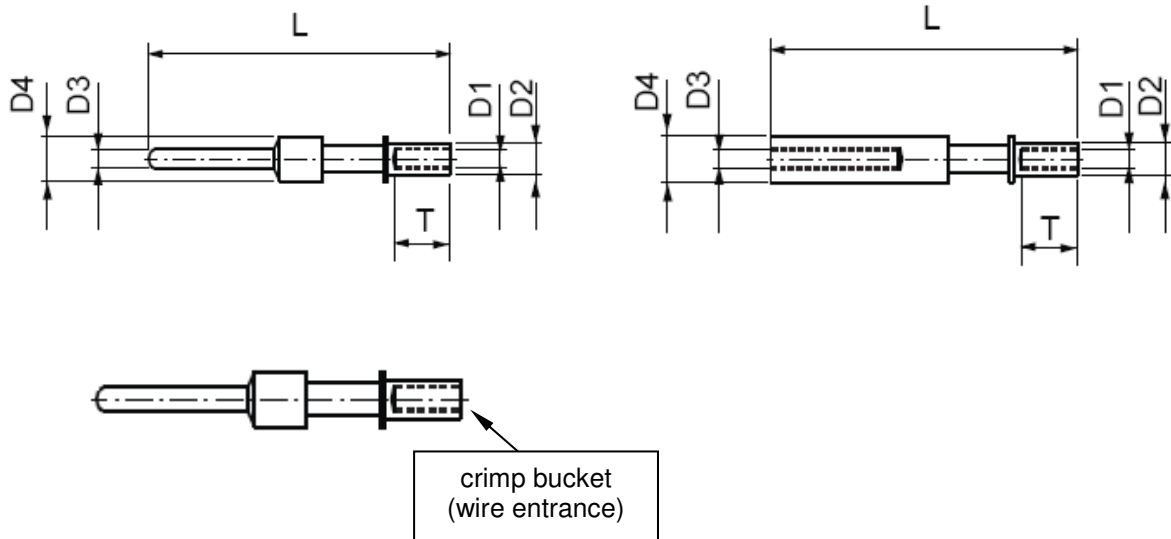
1.1 Evaluation of contacts

Railway connectors usually require crimp contacts due to international practice and requirements. To apply the right contact with a specific conductor the cross section of the conductor is decisive. It is important to evaluate the correct contact considering the corresponding conductor/wire to be applied.

Comprehensive evaluation data and dimensions of appropriate contacts are provided within the GIMOTA technical catalogues for reference.

Pin Contact

Socket contact



1.2 Stripping of conductors

Stripping of conductors must be done with adequate stripping tools/knives according to accepted technical rules by appropriately skilled personnel. It has to be ensured that wire strands are not cut off to avoid a reduction of the required cross section.

Strip single conductors according the following table for adequate crimp bucket compatibility.

multiple core cable
 e.g. data signal cables



single core cable
 e.g. power cables

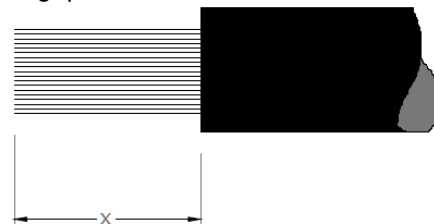


Table 1: stripping length “x” of wires

		Contactsize					
section	stripping	0	4	8	8H	12	16
0.5 - 1.5 mm ²	mm	-	-	-	-	-	7
0.5 - 6.0 mm ²	mm	-	-	-	-	9	-
1.5 - 10 mm ²	mm	-	-	-	11	-	-
6 mm ²	mm	-	-	11	-	-	-
10 mm ²	mm	-	11	11	-	-	-
16 mm ²	mm	17	-	-	-	-	-
25 mm ²	mm	18	-	-	-	-	-
35 mm ²	mm	19	-	-	-	-	-
50 mm ²	mm	21	-	-	-	-	-

1.3 Crimping of contacts

For proper crimp we recommend to consider appropriate crimping tools.

It is important to ensure that the crimp is well applied and the resulting retention force is in compliance with the relevant standards. GIMOTA contacts have been tested with the proposed tools and dies considering the wire cross sections and crimp buckets according IEC EN 60352-2.

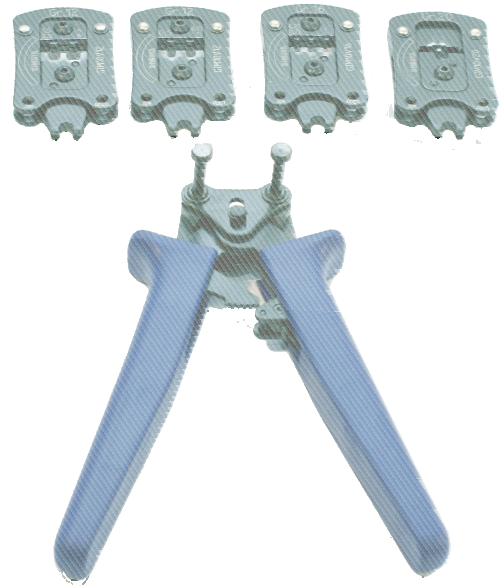
The concerning dies and press heads of Gimota tools can be selected within the GIMOTA technical catalogues and data sheets.

1.3.1 Use of the GIW10V for size 16 and 12 contacts

The GIW10V is a mechanical press tool with exchangeable press-head dies for various contacts and wire cross-sections. The one-way ratchet action ensures complete and precise pressing and releases automatically on completion of the pressing cycle.

The contacts can be set into the corresponding wire cross section cavity. By slightly closing the tool the contact can be pre-fixed and will not fall off the tool anymore.

To release without compressing the contact a small lever at the inner side of the handle can be pushed firmly to release the press head accordingly.



The stripped wire can be pushed into the crimp bucket of the pre-installed contact until the end and shall be held like this until the compression by pressing the handles together is completed. The handles will be release as soon as the compression is completed. Otherwise firmly compress further until the tool re-opens when releasing the handles.

Preparation of GIW10V tools with press head die

Use the GIW10 handle with the appropriate press head die.

Compress the handles until it releases automatically. The open position allows the exchange of the press head dies. Push the two locking pins out of the handle hinge.



Apply the selected press head die into the tool handle and push the locking pins fully through the holes for secure fastening.

Note: to exchange the press head die, push the two locking pins out of the handle hinge again and remove applied press head die. Alternative press head die can be applied.



Now the tool is ready to crimp the contact.

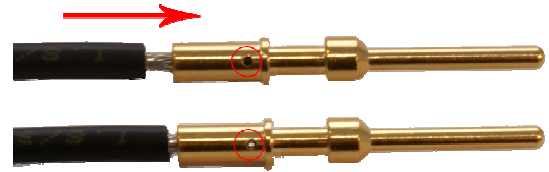


Crimping operation

Use the foreseen contact and position the crimp bucket into the correct tool cavity (size is indicated on tool).



Now the conductor/wire can properly pushed into the crimp bucket of the contact. The inspection hole at the side of the crimp bucket allow additional inspection if the wire is fully applied.



Compress the tool fully until the handle is released automatically after losing the hand force on the handles.

The tool can now be re-opened and the crimped contact can be removed.



The conductor/wire is ready for application into the contact insert of the connector.



1.3.2 Use of the GIW30L for size 8 contacts

The GIW30L has a similar function like the GIW10V but not including exchangeable press head dies. The design consider higher compression forces due to larger wires and crimp buckets on contacts.

The GIW30L tool is assembled with the appropriate die. Die dies are fixed to position with screws.

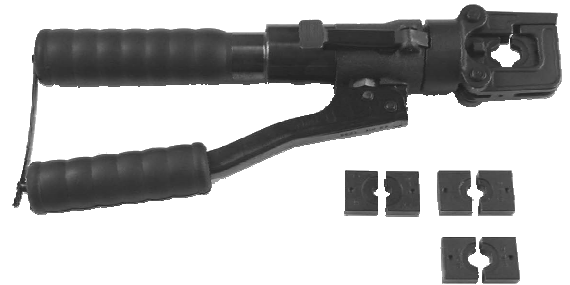
The crimping operation is similar to the GIW10V crimp tool version. Please refer to 1.3.1.



1.3.3 Use of the HT45 tool for size 4 to 0 contacts

The necessary forces for the crimping process for contact size 4 and 0 require a pneumatic or hydraulic tool.

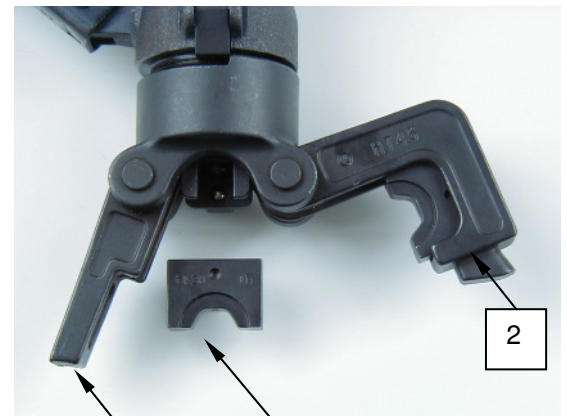
The HT45 tool from Gimota provides adequate handling and proper crimping of single core cables.



Preparation of HT 45 tool

Open the head of the crimping tool moving the hook (1) outside till the die-holder (2) is released. Insert one die in the die-cavity (2) till its internal ball-spring retention fits and hold the die in position. The second die part has to be applied into the bracket (3).

Close the head moving the die-holder (2) till the hook (1) will engage it.

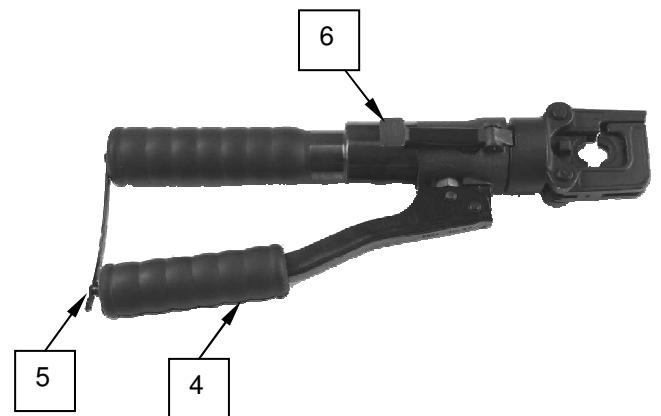


Release the movable handle (4) extracting the plastic strap from the fixed handle (5).

Before any further operation check if the tool head is fully closed.

NOTE: A partial closing can damage the head.

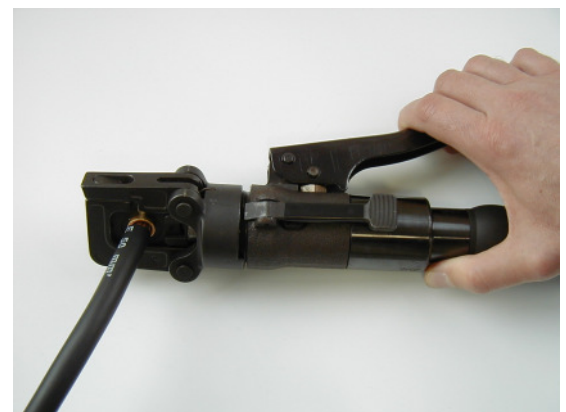
Now the tool is ready to crimp the contact.



Crimping operation

Push the stripped end of the conductor into the crimp bucket. Check if the conductor is visible through the inspection hole in the crimp bucket.

Place the contact between the two dies checking the crimping area is inside the limited length as shown in the table below:



Contact Size	A [mm]
4	2.5
0	3

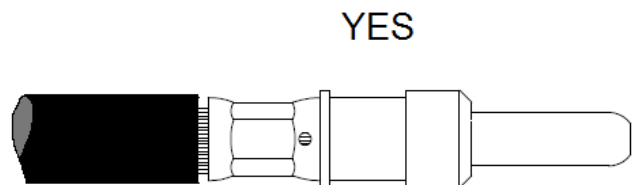
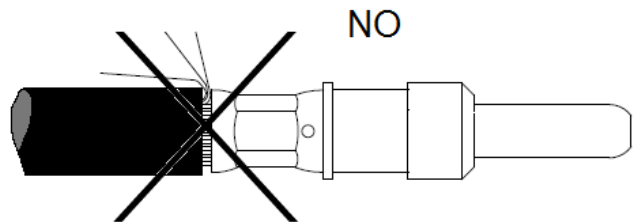
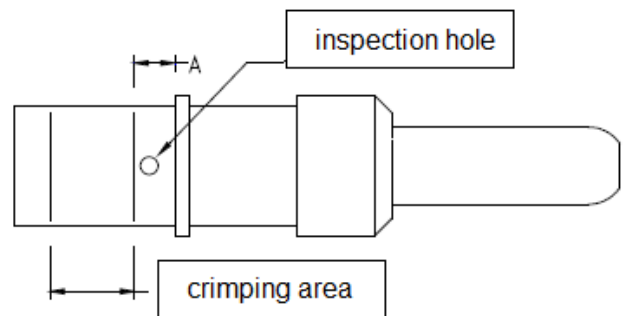
Pump (open/close cycle) the movable handle (4) to slowly move the dies together and applying the closing force for appropriate compression. Check correct crimping area before starting the crimping process.

After full compression (dies are face to face) the tool limit is reached with a click. The release leverage (6) can be pressed to re-open the tool.

Visual Inspection of the Crimp: make sure no strands of the conductor are visible. This may cause severe power overload on the connection.

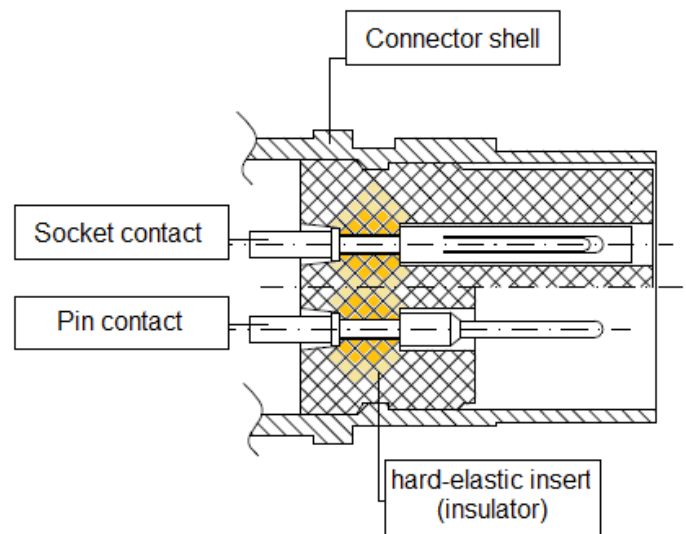
A pull-out test with the used conductor is recommended in order to check the secure crimp application. If once assessed as acceptable, the following crimp compressions will achieve the same performance results (reproducibility).

The conductor/wire is ready for application into the contact insert of the connector.



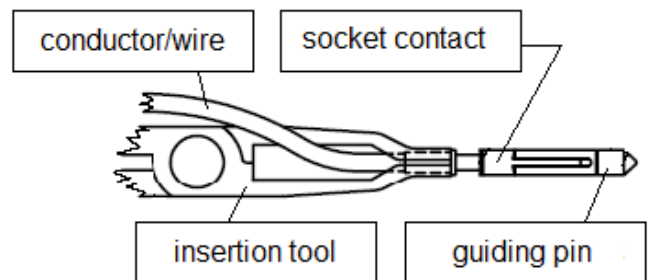
1.4 Contact insertion to hard-elastic insert (layout insert)

The hard-elastic inserts incorporate a collar to gear into the machined groove on the contact bodies (yellow marked area).



To insert the pre-assembled crimped contacts into the insulator use the appropriate insertion tool and push the contacts into the correct cavity with a straight push until seated. This can be well felt during handling.

The special plier has to be gripped at the crimp bucket of the contact where the wire is crimped to. The tool includes an outlet gap for the wire to avoid damage to the conductor.



Insertion tool selection table: for contacts size 16 to size 8.



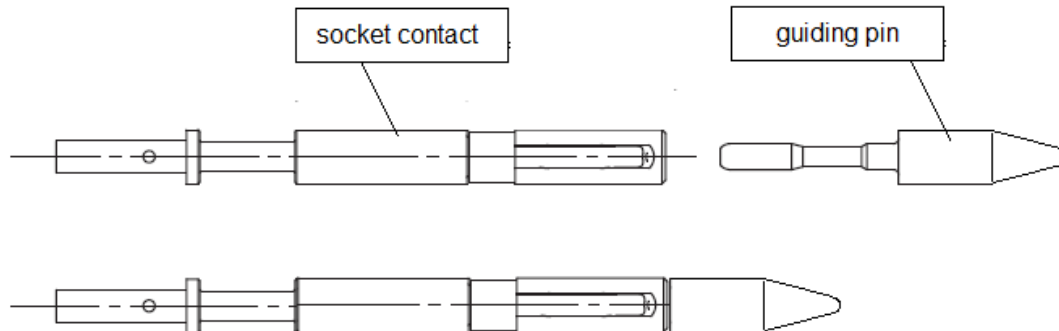
Contact Size	Cross-section mm ²	Insertion tool Item number
8	10	WMK0 GR8/10
12	0.5	WMK0 GR16/1.0 – 1.5 GR12/0.5
12	0.75 – 1.0	WMK0 GR12/0.75 – 1.0
12	1.5 – 2.5	WMK0 GR12/1.5 – 2.5
12	4 – 6	WMK0 GR12/4.0 – 6.0
16	0.5 – 0.75	WMK0 GR16/0.5 – 0.75
16	1.0 – 1.5	WMK0 GR16/1.0 – 1.5 GR12/0.5
16S	0.5	WMK0 GR16/0.5 – 0.75
16S	0.75 – 1.5	WMK0 GR16/1.0 – 1.5 GR12/0.5

Larger sizes (4 and 0) can be applied with e.g. adequate standard flat pliers.

For improved/ease of installation of the contacts use:

- Isopropyl alcohol only as a lubricant.
- Pilot pin for socket contacts to also avoid damage of the incorporated collars within the insert.

Application of the guiding pin:



After insertion of the contact with mated guiding pin into the insert until it seats properly, the guiding pin can be removed and reused for next contact.

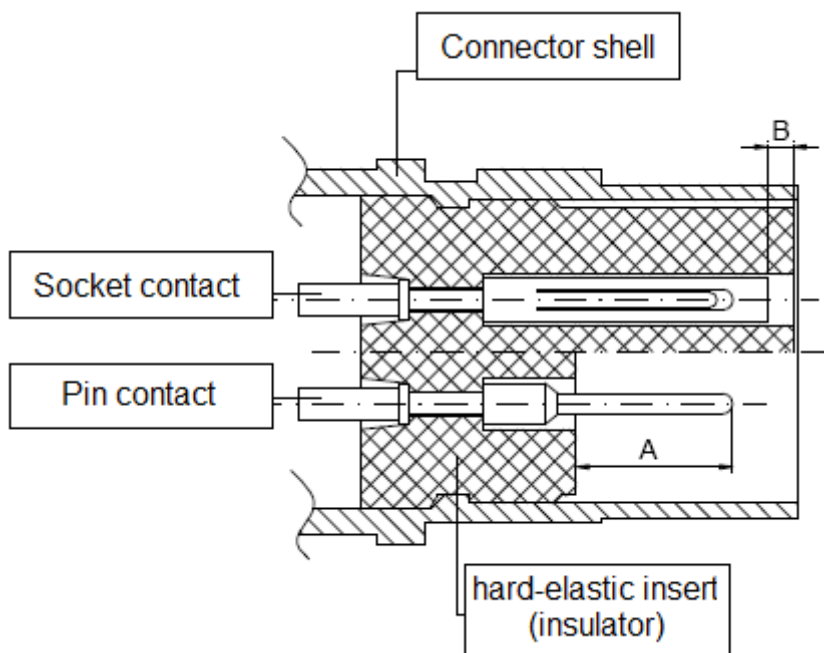
The pilot pins are recommended for small size contacts (12 and 16) only. For larger socket contacts or all size of pin contacts no additional mechanical device is required.

Pilot pins for socket contact application.

	Contact Size	Loction pin Item number
	12	WMP0K12
	16	WMP0K16

1.4.1 Inspection of proper application of contacts to hard-elastic inserts

The position of contacts inside the layouts can be measured accordingly. The type of contact has to be considered as some contacts do in cooperate a “touch proof” plastic cap at the top end. For verification please contact the closest GIMOTA distribution partner or GIMOTA Head Office in Switzerland.



Inspection dimensions for correct contact application (for reference only)

Contact size	Contact type	A [mm]	B [mm]
16S	pin	10,6 +/-1,0	
	socket		2,0 +/-1,0
16	pin	11,0 +/-1,0	
	socket		2.6 +/-1,0
12	pin	14,6 +/-1,0	
	socket		2.6 +/-1,0
8	pin	15,3 +/-1,0	
	socket		2.6 +/-1,0
4	pin	15,3 +/-1,0	
	socket		2.6 +/-1,0
0	pin	15,3 +/-1,0	
	socket		2.6 +/-1,0

If any further questions regarding the assembly of contacts appear please contact your closest GIMOTA distribution partner (refer to www.gimota.com) or the GIMOTA Head Office in Switzerland.