

Basic element for a reliable connection is besides the quality of the connector the right choice of the assembly tool. HARTING offers the corresponding tools to all connectors. On the following catalogue pages you find information about tools for crimp, press-in and IDC termination. There are tools available for different levels of automation. The choice varies from pure hand tools for small series or service up to fully automatic assembly tools for high volume series production.



Contents

Page

Tools for crimp contacts	20.02
Crimp tools for screened hoods	20.25
Tools for press-in contacts	20.26
Tools for insulation displacement contacts	20.41
Tools for FOC contacts	20.43

Tools for contacts **Han D®** (09 15 ...)

Identification	Part number	Drawing	Dimensions in mm
HARTING Service crimping tool with locator set for Han D®, Han E®	09 99 000 0021	Wire gauge Han D® 0.14 ... 1.5 mm²	
BUCHANAN crimping tool	09 99 000 0888	Wire gauge 0.14 ... 2.5 mm²	
HARTING crimping tool with locator for Han D®, Han E®, Han® C	09 99 000 0110	Wire gauge Han D® 0.14 ... 1.5 mm²	
HARTING Pneumatic crimping tool CP 600	09 99 000 0810	Wire gauge Han D® 0.14 ... 1.5 mm²	
Crimp die Han D®, Han E®, Han® C	09 99 000 0813		
Footswitch	09 99 000 0811		
Table fixing	09 99 000 0812		

¹⁾ For wire gauge 0.14 and 0.25 mm² use only male contact 09 15 000 6107
or female contact 09 15 000 6207.

Tools for contacts **Han D®** (09 15 ...)

Identification	Part number	Drawing	Dimensions in mm
Insertion tool for crimp contacts	09 99 000 0059	 For crimp contacts with wires of less than 0.75 mm² it is recommended that an insertion tool is used. Contacts should be inserted from the wiring side and pushed down until a positive locking is achieved.	
Removal tool for crimp contacts			
Removal tool	09 99 000 0012		
Replacement-tip for removal tool	09 99 000 0004		
Removal tool	09 99 000 0052	 A removal tool is necessary if contacts are to be replaced in the insert. It is inserted from the mating face and pushed over the contact until a stop is noticeable. Additional pressure unlocks the contact and pushes it out of the wiring side. In case of the removal tool (. . 0052) the unlocking process is achieved by pressure on the central rod.	

Tools for crimp contacts



Tools for contacts **Han E®** (09 33 ...)

Identification	Part number	Drawing	Dimensions in mm
HARTING Service crimping tool with locator set for Han D®, Han E®	09 99 000 0021	Wire gauge Han E® 0.5 ... 2.5 mm²	
BUCHANAN crimping tool	09 99 000 0888	Wire gauge 0.14 ... 4 mm²	
HARTING crimping tool with locator for Han D®, Han E®, Han® C	09 99 000 0110	Wire gauge Han E® 0.5 ... 4 mm²	
HARTING Pneumatic crimping tool CP 600	09 99 000 0810	Wire gauge Han E® 0.5 ... 4 mm²	
Crimp die Han D®, Han E®, Han® C	09 99 000 0813		
Footswitch	09 99 000 0811		
Table fixing	09 99 000 0812		

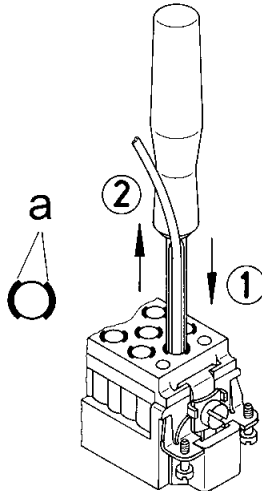
Tools for contacts **Han E®** (09 33 ...)

Identification	Part number	Drawing	Dimensions in mm
Insertion tool for crimp contacts	09 99 000 0059	 For crimp contacts with wires of less than 0.75 mm² it is recommended that an insertion tool is used. Contacts should be inserted from the wiring side and pushed down until a positive locking is achieved.	
Insertion tool for Han® ES inserts	09 99 000 0367		
Removal tool for crimp contacts for Han® EE, Han® Q 5/0, Han® Q 8/0, Han E®, Han-Yellock® and Han A®	09 99 000 0319	 A removal tool is necessary if contacts are to be replaced in the insert. The tool is inserted from the wiring side until a stop is noticeable. The wire with the crimp contact can then be pulled out from the same side of the insert.	

Tools for contacts **Han® C** (09 32 ...)

Identification	Part number	Drawing	Dimensions in mm
BUCHANAN crimping tool	09 99 000 0888	Wire gauge 0.14 ... 4 mm ²	
HARTING crimping tool with locator for Han D®, Han E®, Han® C	09 99 000 0110	Wire gauge Han® C 1.5 ... 4 mm ²	
HARTING crimping tool with locator for Han® C	09 99 000 0303	Wire gauge 4 ... 6 mm ²	
Locator as spare part	09 99 000 0304		
HARTING crimping tool for Han® C	09 99 000 0377	Wire gauge 6 ... 10 mm ²	
HARTING Pneumatic crimping tool CP 600	09 99 000 0810		  
Crimp die Han® C	09 99 000 0813	Wire gauge Han® C 1.5 ... 4 mm ²	
Crimp die Han® C	09 99 000 0814	Wire gauge Han® C 6 ... 10 mm ²	
Footswitch	09 99 000 0811		
Table fixing	09 99 000 0812		

Tools for contacts **Han® C** (09 32 ...)

Identification	Part number	Drawing	Dimensions in mm
Removal tool for crimp contacts Removal tool 1.5 ... 6 mm² 09 99 000 0305 10 mm² 09 99 000 0381		 A removal tool is necessary to remove the contacts. For each „C“ contact cavity, the location of the internal locking levers are marked on the wiring side with two black arcs. The sides of the tool must be first properly aligned so that the edges of the tool engage both levers simultaneously and then inserted until a stop is noticeable ①. Once it has been inserted, the tool must not be turned. The wire together with the tool can then be pulled out from the wiring side of the insert ②.  a ... lever marking	

Overview Han® crimping tools

Crimp contacts Series	Part number				mm²	AWG	Crimping tools						Tools	
	male contact silver plated	female contact silver plated	male contact silver plated	female contact gold plated			09 99 000 0888	09 99 000 0110	09 99 000 0021	09 99 000 0303	09 99 000 0377	20 99 000 1035	removal tools	
Han D® Signal contacts 09 15 000 	6107	6207	6127	6227	0.14 - 0.25	26 - 24	x						09 99 000 0012	09 99 000 0052
	6104	6204	6124	6224				x	x					
	6107	6207	6127	6227	0.37	22	x							
	6104	6204	6124	6224			x	x	x					
	6103	6203	6123	6223	0.5	20	x	x	x					
	6105	6205	6125	6225	0.75	18	x	x	x					
	6102	6202	6122	6222	1.0	18	x	x	x					
	6101	6201	6121	6221	1.5	16	x	x	x					
6106	6206	6126	6226	2.5	14	x								
Han D® F.O. contacts 20 10 001	Male contact 3211 3212 / 3213		Female contact 3221 3222		1 mm POF							x		
Han E® Power contacts 09 33 000 	6127	6227	6117	6217	0.14 - 0.37	26 - 22	x						09 99 000 0319	
	6121	6220	6122	6222	0.5	20	x	x	x					
	6114	6214	6115	6215	0.75	18	x	x	x					
	6105	6205	6118	6218	1.0	18	x	x	x					
	6104	6204	6116	6216	1.5	16	x	x	x					
	6102	6202	6123	6223	2.5	14	x	x	x					
	6106	6206			3.0	12	x	x						
	6107	6207	6119	6221	4.0	12	x	x						
Han E® F.O. contacts 20 10 001	Male contact 3311		Female contact 3321		1 mm POF							x		
Han-Yellock® Power contacts 11 05 000 	6101	6201	6121	6221	0.14 - 0.37	26 - 22	x						09 99 000 0319	
	6102	6202	6122	6222	0.5	20	x	x	x					
	6103	6203	6123	6223	0.75	18	x	x	x					
	6104	6204	6124	6224	1.0	18	x	x	x					
	6105	6205	6125	6225	1.5	16	x	x	x					
	6106	6206	6126	6226	2.5	14	x	x	x					
	6107	6207	6127	6227	3.0	12	x	x						
	6108	6208	6128	6228	4.0	12	x	x						
Han® C Power contacts 09 32 000 	6104	6204			1.5	16	x	x					09 99 000 0305	09 99 000 0381 ¹⁾
	6105	6205			2.5	14	x	x						
	6107	6207			4.0	12	x	x		x				
	6108	6208			6.0	10				x	x			
	6109	6209			10.0	8					x			
Description														
Locator Han D®	09 99 000 0022								x					
Locator Han E®	09 99 000 0022								x					
Locator Han-Yellock®	09 99 000 0341							x						
	09 99 000 0343								x					
Locator Han® C	09 99 000 0304									x				
Locator Han D®, Han E® and Han® C	09 99 000 0376							x						

1) for Han® C power contacts, 10 mm²

Overview Han® crimping tools

Crimp contacts Series	Part number				mm²	AWG	Crimping machines											
	male contact silver plated	female contact silver plated	male contact silver plated	female contact gold plated			09 99 000 0813 ³⁾	09 99 000 0814 ³⁾	09 98 000 6901 ¹⁾	09 98 000 6902 ¹⁾	09 98 000 8101	09 98 000 8102	09 98 000 8103	09 98 000 8107 ⁵⁾	09 98 000 9001	09 98 000 9002	09 98 000 9003	
Han D® Signal contacts 09 15 000  	6107	6207	6127	6227	0.14 - 0.25	26 - 24			x ⁶⁾	x ⁶⁾					x			
	6104	6204	6124	6224			x											
	6107	6207	6127	6227	0.37	22			x	x					x			
	6104	6204	6124	6224			x	x	x	x			x					
	6103	6203	6123	6223	0.5	20	x	x	x	x					x			
	6105	6205	6125	6225	0.75	18	x	x	x	x					x			
	6102	6202	6122	6222	1.0	18	x	x	x	x					x			
	6101	6201	6121	6221	1.5	16	x	x	x	x					x			
6106	6206	6126	6226	2.5	14			x	x					x				
Han E® Power contacts 09 33 000  	6127	6227	6117	6217	0.14 - 0.37	26 - 22				x ⁶⁾	x ⁶⁾					x		
	6121	6220	6122	6222	0.5	20	x			x	x					x		
	6114	6214	6115	6215	0.75	18	x			x	x					x		
	6105	6205	6118	6218	1.0	18	x			x	x					x		
	6104	6204	6116	6216	1.5	16	x			x	x					x		
	6102	6202	6123	6223	2.5	14	x			x	x					x		
	6106	6206			3.0	12	x			x	x					x		
	6107	6207	6119	6221	4.0	12	x			x	x					x		
Han-Yellock® Power contacts 11 05 000  	6101	6201	6121	6221	0.14 - 0.37	26 - 22								x ⁶⁾				
	6102	6202	6122	6222	0.5	20	x								x			
	6103	6203	6123	6223	0.75	18	x								x			
	6104	6204	6124	6224	1.0	18	x								x			
	6105	6205	6125	6225	1.5	16	x								x			
	6106	6206	6126	6226	2.5	14	x								x			
	6107	6207	6127	6227	3.0	12	x											
	6108	6208	6128	6228	4.0	12	x											
Han® C Power contacts 09 32 000  	6104	6204			1.5	16	x						x				x	
	6105	6205			2.5	14	x						x				x	
	6107	6207			4.0	12	x						x				x	
	6108	6208			6.0	10		x					x				x	
	6109	6209			10.0	8		x					x				x	
Description																		
Locator Han-Yellock®	09 99 000 0344						x											

1) For using changeable units 09 98 000 6901 / 6902 the TK-M basic machine 09 98 000 6900 is required.
 3) For using of tool head the basic unit CP 600 (09 99 000 0810) is required.

4) Only male contacts
 5) For using changeable units 09 98 000 8101 - 8107 the TC-SC basic machine 09 98 000 8000 is required.
 6) depending on the wire



Crimping machine TC-C01

Features

Technical characteristics

- ☐ Basic unit in compact construction for pre-stripped wire
- ☐ Simple handling due to ergonomic design
- ☐ For individual, turned male and female contacts
- ☐ Selective processing of male and female HARTING contacts (wire gauge from 0.14 mm² to 10.0 mm², AWG 26 to AWG 8)
- ☐ Automatic contact feed
- ☐ Reproducible, top quality gas-tight crimp connections
- ☐ Non-slip, anti-vibration adjustable feet for setting the height
- ☐ Low noise level
- ☐ Can be transported with carrying handle
- ☐ Removable electric and pneumatic supply connections
- ☐ Maintenance interval counter
- ☐ Minimal setup effort
- ☐ Crimping depth can be set without tools
- ☐ Low maintenance costs
- ☐ Low follow-up costs for maintenance and repair
- ☐ Easy replacement of wearing components

Dimensions:	
Height	345 mm
Width	230 mm
Depth	400 mm
Total weight:	app. 24 kg
Local noise level:	62 dB (A)
Electrical connection:	230 V, 50 Hz
Power rating:	0.20 kW
Compressed air connection:	6 bar
Control system:	PLC
Work cycle trigger:	Footswitch
Machine work cycle:	1 second
Crimp type:	Four-point crimping
Contact feed:	Vibratory bowl feed
Stroke counters:	Resettable daily counter and permanent counter



Crimping machine TC-C01

Identification

Part number

Crimping machine TC-C01

for Han D® contacts
Han E® contacts
Han® C contacts

09 98 000 9001
09 98 000 9002
09 98 000 9003



Included in the delivery

Options

- ☐ Crimping machine TC-C01
 - with 2.0 m connection cable and grounding plug
 - with 2.0 m pneumatic hose, quick-release coupling and N6 plug-in nipple
- ☐ Footswitch
- ☐ Carrying handle
- ☐ Operating instructions
- ☐ Declaration of conformity

Pneumatic maintenance unit





Crimping machine TK-M

Features

Technical characteristics

- ❑ Fast stripping and crimping in one operation
- ❑ Basic unit in compact construction
- ❑ Simple handling because of well-arranged construction with touchscreen controlling
- ❑ For individual, turned male and female contacts (for the HARTING series Han D®, Han E®)
- ❑ Selective processing of male and female contacts (Wire gauge from 0.14 mm² to 4.0 mm², AWG 26 to AWG 12)
- ❑ Contact magazine with filling control
- ❑ Reproducible, top quality gas-tight crimp connections
- ❑ Infinitely variable adjustment parameters
 - Stripping depth
 - Stripping length
 - Crimping depth
 - Crimp contact feed rate
- ❑ Rotatable vibration feeder and actuator in basic unit
- ❑ Low noise level
- ❑ For oil-free compressed air
- ❑ Very low setup effort
- ❑ Low maintenance costs of the modular construction

Dimensions:	
Height	580 mm
Width	470 mm
Depth	470 mm
Total weight:	Approx. 60 kg
Local noise level:	< 75 dB (A)
Drive:	Electro-pneumatic
Electrical connection:	230 V, 50 Hz
Power rating:	Approx. 0,75 kW
Pneumatic pressure:	6 bar
Compressed air connection:	3 dm ³ / work cycle
Control system:	PLC
Work cycle trigger:	Sensor
Machine work cycle:	1.5 seconds (stripping and crimping)
Crimp type:	Four-notch crimping
Contact feed:	Vibratory bowl feed
Stroke counters:	Resettable daily counter and quantity preselection



Crimping machine TK-M

Identification

Part number

Crimping machine TK-M

(Basic machine
without interchangeable unit)

09 98 000 6900

Interchangeable units for Han D®
Han E®

09 98 000 6901
09 98 000 6902

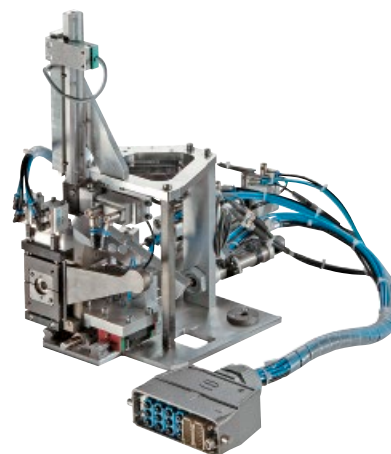


Pack contents

- ☐ Crimping machine TK-M
 - with one mounted interchangeable unit
 - with 2.0 m connection cable and grounding plug
 - with 2.0 m pneumatic hose with plug-in nipple N6
- ☐ Plug gauges for setting the crimping
- ☐ Centering bush for positioning the plug gauges
- ☐ Drawer for holding the contacts when the magazine is emptied
- ☐ Draw for insulation remains
- ☐ Tool set for setting
- ☐ 1 set of stripping blades
- ☐ Operating instructions
- ☐ Declaration of conformity

Options

Interchangeable unit





Crimping machine TC-SC

Features

Technical characteristics

- ❑ Fast stripping and crimping in one operation
- ❑ Basic unit in compact construction
- ❑ Simple handling because of well-arranged construction with touchscreen controlling
- ❑ For individual, turned male and female contacts (for the HARTING series Han D®, Han E®, Han® C, Han P®, Han-Yellock®, D- Sub)
- ❑ Selective processing of male and female contacts (Wire gauge from 0.14 mm² to 10.0 mm², AWG 28 to AWG 8)
- ❑ Contact magazine with filling control
- ❑ Reproducible, top quality gas-tight crimp connections
- ❑ Motor-driven variable adjustment parameters
 - Stripping depth
 - Stripping length
 - Crimping depth
 - Wire position
- ❑ Infinitely variable adjustment parameters
 - Wire retention force
 - Crimp contact feed rate
- ❑ Low noise level
- ❑ For oil-free compressed air
- ❑ Very low setup effort
- ❑ Low maintenance costs of the modular construction

Dimensions:	
Height	480 mm
Width	650 mm
Depth	560 mm
Total weight:	Approx. 75 kg
Local noise level:	< 75 dB (A)
Drive:	Electro-pneumatic
Electrical connection:	230 V, 50 Hz
Power rating:	1.0 kW
Pneumatic pressure:	6 bar
Compressed air connection:	3 dm ³ / work cycle
Control system:	PLC
Work cycle trigger:	Sensor
Machine work cycle:	2 seconds (stripping and crimping)
Crimp type:	Four-notch crimping
Contact feed:	Vibratory bowl feed
Stroke counters:	Resettable daily counter and quantity preselection



Crimping machine TC-SC

Identification

Part number

Crimping machine TC-SC

(Basic machine
without interchangeable unit)

09 98 000 8000



Interchangeable units for Han D®

Han E®

Han® C

D-Sub

D-Sub

Han P®

Han-Yellock®

09 98 000 8101

09 98 000 8102

09 98 000 8103

09 98 000 8104

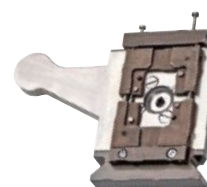
09 98 000 8105

09 98 000 8106

09 98 000 8107

Crimp tool for Han® C

09 98 300 8103

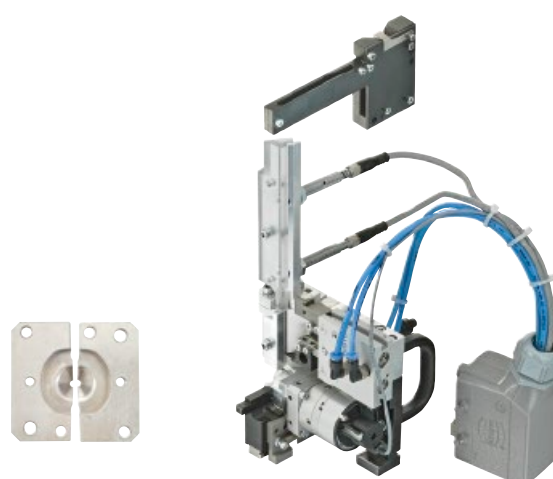


Pack contents

- ☐ Crimping machine TC-SC
 - with one mounted interchangeable unit
 - with 2.0 m connection cable and grounding plug
 - with 2.0 m pneumatic hose with plug-in nipple N6
- ☐ Tool set for adjustments
- ☐ 1 set of stripping blades
- ☐ Operating instructions
- ☐ Declaration of conformity

Options

Interchangeable unit





Crimping machine BK

Features

Technical characteristics

- ☐ Fast stripping and crimping in one operating
- ☐ Simple handling by quick change tool and stripper
- ☐ For HARTING crimp contacts D-Sub
- ☐ Selectives processing of male and female contacts
- ☐ Wire gauges from 0.09 mm² up to 0.5 mm², AWG 28 up to AWG 20
- ☐ Hand wheel for manual adjustments
- ☐ Maintenance-friendly through needle bearing rail
- ☐ Automatic exhaust of the isolation remainders
- ☐ Produces consistent high quality gas tight crimp connections
- ☐ With crimp force monitor
- ☐ Setting parameters with raster rotary button
 - Depth of insulation stripping
 - Length of insulation stripping
 - Crimping height on wire
 - Crimping height on insulation
 - Wire retainer position
 - Band thrust
 - Wire position in the crimp contact
- ☐ Non slip and anti-vibration feet
- ☐ Low noise level
- ☐ For unlubricated compressed air
- ☐ Low maintenance costs

Dimensions	
Height	690 mm / 1400 mm with a contact reel
Width	420 mm
Depth	430 mm
Total weight	approx. 72 kg
Localized noise level	85 dB (A)
Drive	electro pneumatic
Power supply	230 V, 50/60 Hz, 2.5 A
Consumption	0.75 kW
Pneumatic pressure	6 bar
Control system	PLC
Stripping device	Typ 514
Suction apparatus	2000.0900.20
Work cycle trigger	Sensor
Work cycle	0.35 s.
Illumination	integrated tool light 20001326
Motor speed	440 –2000 rpm
Stroke counter	Daywise and fixed

Crimping machine BK

Identification

Part number

Crimping machine BK
(without quick change tool)

09 98 000 5000

Quick change tool for
D-Sub (AWG 28-24)
D-Sub (AWG 24-20)
D-Sub high density (AWG 26-24)

09 98 000 3008
09 98 000 3009
09 98 000 3012



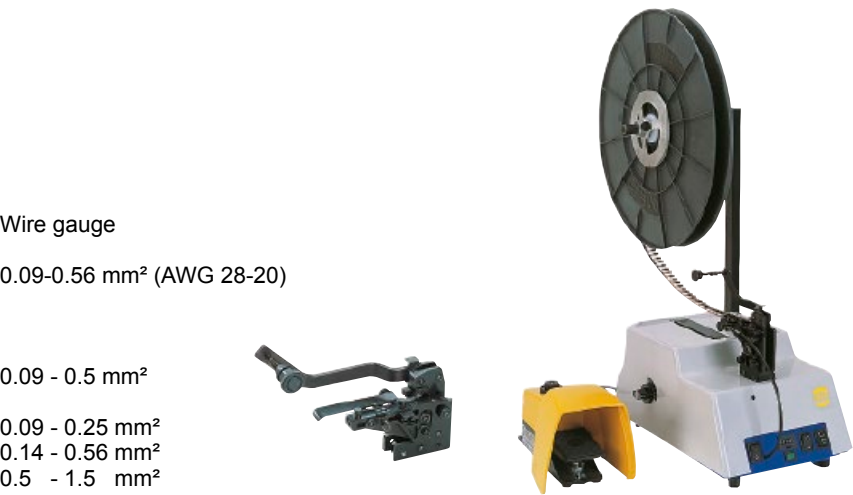
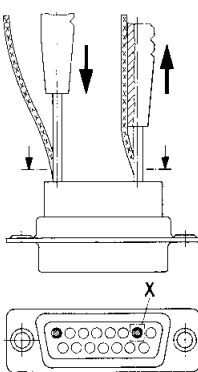
Pack contents

- ☐ Crimping machine BK
 - with role owner and guide plate
 - with 2.0 m connection cable and shockproof plug
 - with 2.0 m pneumatic hose with plug-in nipple N9
- ☐ Oiler bottle for the lubricating of the crimping contacts
- ☐ Tool set for setting
- ☐ 1 set of stamps for wire and isolation-crimp
- ☐ 1 anvil one-piece for wire and isolation-crimp
- ☐ 1 set of stripping blades
- ☐ 1 litre of contact oil
- ☐ Operating instructions
- ☐ Declaration of conformity

Options

V-Blades for special wires
on request

Tools for crimp termination – D-Sub-S, D-Sub-HD, DIN 41 612

Identification	Part number	
Service crimp tool for single D-Sub standard contacts for single D-Sub high density contacts	09 99 000 0175 09 99 000 0535	 for standard contacts  for high density contacts
HARTING-Crimp tool for 500 bandoliered D-Sub standard contacts for 500 bandoliered D-Sub high density contacts	09 99 000 0169 09 99 000 0597	
HARTING-Semi-automatic crimping device Main drive foot-operated 220 V / 50 Hz Crimping head for bandoliered D-Sub standard contacts for DIN 41 612 contacts, types BC / har-bus® 64 FC 1 FC 2 FC 3 BC / har-bus® 64 Reel holder for 10 000 contacts	09 99 000 0246 09 99 000 0253 09 99 000 0252 09 99 000 0249 09 99 000 0250 09 99 000 0251 09 99 000 0628 09 99 000 0158	Wire gauge 0.09-0.56 mm ² (AWG 28-20) 0.09 - 0.5 mm ² 0.09 - 0.25 mm ² 0.14 - 0.56 mm ² 0.5 - 1.5 mm ² 0.13 mm ² (solid wire) 
Insertion and removal tool for single D-Sub standard contacts for single D-Sub high density contacts	09 99 000 0171 09 99 000 0513	   Assembly of crimp contacts After crimping the stranded wire to the contact using a hand tool or automatic crimping device, insert the contact into the chamber with the tool, working from the wiring side. You will hear the contacts snap home and to check that they are securely in place, give the wire a gentle pull. Removing crimp contacts Position the tool from the wiring side as shown in the diagram below and insert into the contact chamber. The contact can then easily be removed from the wiring side together with the wire itself and reinserted in a different chamber. The tool is designed for a maximum insulation diameter of Ø 1.7 mm.  Stripping length: 2.5 + 0.5 mm

Tools for crimp termination – D-Sub-S, D-Sub-HD

Identification

Part number

Crimp tool
for turned male
and female contacts
AWG 28-18
4 indent crimp
in acc. to
MIL 22 520/2-01

09 99 000 0501



Contact Part No.	Gauge	Crimp tool selection No.
09 67 000 3x76	AWG 18, 20, 22	6 for AWG 18 and AWG 20, 5 for AWG 22
09 67 000 8x76	AWG 20, 22, 24	6
09 67 000 5x76	AWG 22, 24, 26	6
09 67 000 7x76	AWG 24, 26, 28	6

Locator for crimp tool
Details see table

09 99 000 0531



printing

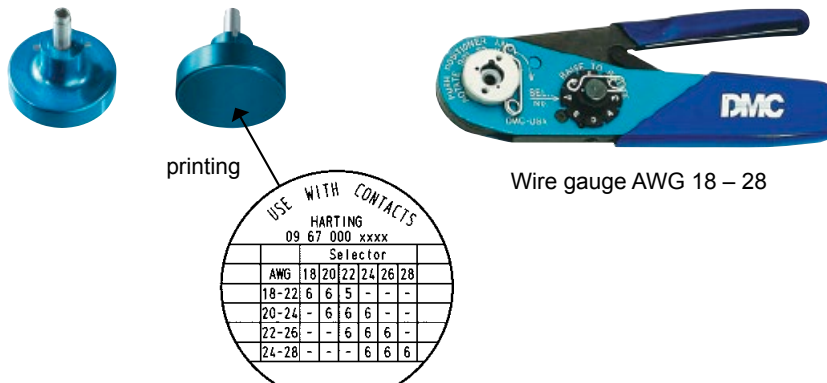
USE WITH CONTACTS

HARTING

09 67 000 xxxx

	Selector						
AWG	18	20	22	24	26	28	
18-22	6	6	5	-	-	-	
20-24	-	6	6	6	-	-	
22-26	-	-	6	6	6	-	
24-28	-	-	-	6	6	6	

Tools for crimp termination – D-Sub-M

Identification	Part number	Drawing																																										
Hand crimp tool for signal contacts Die (To be ordered separately)	09 99 000 0501 09 99 000 0531	 printing USE WITH CONTACTS HARTING 09 67 000 xxxx <table><tr><th></th><th colspan="6">Selector</th></tr><tr><th>AWG</th><th>18</th><th>20</th><th>22</th><th>24</th><th>26</th><th>28</th></tr><tr><td>18-22</td><td>6</td><td>6</td><td>5</td><td>-</td><td>-</td><td>-</td></tr><tr><td>20-24</td><td>-</td><td>6</td><td>6</td><td>6</td><td>-</td><td>-</td></tr><tr><td>22-26</td><td>-</td><td>-</td><td>6</td><td>6</td><td>6</td><td>-</td></tr><tr><td>24-28</td><td>-</td><td>-</td><td>-</td><td>6</td><td>6</td><td>6</td></tr></table> Wire gauge AWG 18 – 28		Selector						AWG	18	20	22	24	26	28	18-22	6	6	5	-	-	-	20-24	-	6	6	6	-	-	22-26	-	-	6	6	6	-	24-28	-	-	-	6	6	6
	Selector																																											
AWG	18	20	22	24	26	28																																						
18-22	6	6	5	-	-	-																																						
20-24	-	6	6	6	-	-																																						
22-26	-	-	6	6	6	-																																						
24-28	-	-	-	6	6	6																																						
Hand crimp tool for power contacts Positioner for male and female contacts (To be ordered separately)	09 99 000 0509 09 99 000 0504	 <table><tr><th>Contact Part No.</th><th>Gauge</th><th>Tool setting</th></tr><tr><td>09 69 182 x420</td><td>AWG 16, 18, 20</td><td>3 for AWG 16, 2 for AWG 18 and AWG 20</td></tr><tr><td>09 69 282 x420</td><td>AWG 16, 18, 20</td><td>3 for AWG 16, 2 for AWG 18 and AWG 20</td></tr><tr><td>09 69 182 x421</td><td>AWG 12, 14</td><td>5 for AWG 12 and 4 for AWG 14</td></tr><tr><td>09 69 282 x421</td><td>AWG 12, 14</td><td>5 for AWG 12 and 4 for AWG 14</td></tr><tr><td>09 69 182 x422</td><td>AWG 10, 12</td><td>7 for AWG 10 and 6 for AWG 12</td></tr><tr><td>09 69 282 x422</td><td>AWG 10, 12</td><td>7 for AWG 10 and 6 for AWG 12</td></tr><tr><td>09 69 182 x423</td><td>AWG 8, 10</td><td>7 for AWG 8 and 6 for AWG 10</td></tr><tr><td>09 69 282 x423</td><td>AWG 8, 10</td><td>7 for AWG 8 and 6 for AWG 10</td></tr></table>	Contact Part No.	Gauge	Tool setting	09 69 182 x420	AWG 16, 18, 20	3 for AWG 16, 2 for AWG 18 and AWG 20	09 69 282 x420	AWG 16, 18, 20	3 for AWG 16, 2 for AWG 18 and AWG 20	09 69 182 x421	AWG 12, 14	5 for AWG 12 and 4 for AWG 14	09 69 282 x421	AWG 12, 14	5 for AWG 12 and 4 for AWG 14	09 69 182 x422	AWG 10, 12	7 for AWG 10 and 6 for AWG 12	09 69 282 x422	AWG 10, 12	7 for AWG 10 and 6 for AWG 12	09 69 182 x423	AWG 8, 10	7 for AWG 8 and 6 for AWG 10	09 69 282 x423	AWG 8, 10	7 for AWG 8 and 6 for AWG 10															
Contact Part No.	Gauge	Tool setting																																										
09 69 182 x420	AWG 16, 18, 20	3 for AWG 16, 2 for AWG 18 and AWG 20																																										
09 69 282 x420	AWG 16, 18, 20	3 for AWG 16, 2 for AWG 18 and AWG 20																																										
09 69 182 x421	AWG 12, 14	5 for AWG 12 and 4 for AWG 14																																										
09 69 282 x421	AWG 12, 14	5 for AWG 12 and 4 for AWG 14																																										
09 69 182 x422	AWG 10, 12	7 for AWG 10 and 6 for AWG 12																																										
09 69 282 x422	AWG 10, 12	7 for AWG 10 and 6 for AWG 12																																										
09 69 182 x423	AWG 8, 10	7 for AWG 8 and 6 for AWG 10																																										
09 69 282 x423	AWG 8, 10	7 for AWG 8 and 6 for AWG 10																																										
Positioner for male contacts (To be ordered separately.)	09 99 000 0522	<table><tr><th>Contact Part No.</th><th>Gauge</th><th>Tool setting</th></tr><tr><td>09 69 282 x821</td><td>AWG 12, 14</td><td>5 for AWG 12 and 4 for AWG 14</td></tr><tr><td>09 69 282 x823</td><td>AWG 8, 10</td><td>7 for AWG 8 and 6 for AWG 10</td></tr></table>	Contact Part No.	Gauge	Tool setting	09 69 282 x821	AWG 12, 14	5 for AWG 12 and 4 for AWG 14	09 69 282 x823	AWG 8, 10	7 for AWG 8 and 6 for AWG 10																																	
Contact Part No.	Gauge	Tool setting																																										
09 69 282 x821	AWG 12, 14	5 for AWG 12 and 4 for AWG 14																																										
09 69 282 x823	AWG 8, 10	7 for AWG 8 and 6 for AWG 10																																										
Positioner for female contacts (To be ordered separately.)	09 99 000 0521	<table><tr><th>Contact Part No.</th><th>Gauge</th><th>Tool setting</th></tr><tr><td>09 69 182 x821</td><td>AWG 12, 14</td><td>5 for AWG 12 and 4 for AWG 14</td></tr><tr><td>09 69 182 x823</td><td>AWG 8, 10</td><td>7 for AWG 8 and 6 for AWG 10</td></tr></table>	Contact Part No.	Gauge	Tool setting	09 69 182 x821	AWG 12, 14	5 for AWG 12 and 4 for AWG 14	09 69 182 x823	AWG 8, 10	7 for AWG 8 and 6 for AWG 10																																	
Contact Part No.	Gauge	Tool setting																																										
09 69 182 x821	AWG 12, 14	5 for AWG 12 and 4 for AWG 14																																										
09 69 182 x823	AWG 8, 10	7 for AWG 8 and 6 for AWG 10																																										
Hand crimp tool for coaxial contacts, solder/crimp version ¹⁾ Die (To be ordered separately)	09 99 000 0503 09 99 000 0508	 <table><tr><th>Contact Part No.</th><th>Cavity</th></tr><tr><td>09 69 181 x230</td><td rowspan="2">B</td></tr><tr><td>09 69 281 x230</td></tr><tr><td>09 69 181 x141</td><td rowspan="2">C</td></tr><tr><td>09 69 281 x141</td></tr><tr><td>09 69 181 x140</td><td rowspan="2">B</td></tr><tr><td>09 69 281 x140</td></tr></table>	Contact Part No.	Cavity	09 69 181 x230	B	09 69 281 x230	09 69 181 x141	C	09 69 281 x141	09 69 181 x140	B	09 69 281 x140																															
Contact Part No.	Cavity																																											
09 69 181 x230	B																																											
09 69 281 x230																																												
09 69 181 x141	C																																											
09 69 281 x141																																												
09 69 181 x140	B																																											
09 69 281 x140																																												
Die (To be ordered separately)	09 99 000 0515	<table><tr><th>Contact Part No.</th><th>Cavity</th></tr><tr><td>09 69 181 x143</td><td rowspan="2">A</td></tr><tr><td>09 69 281 x143</td></tr></table>	Contact Part No.	Cavity	09 69 181 x143	A	09 69 281 x143																																					
Contact Part No.	Cavity																																											
09 69 181 x143	A																																											
09 69 281 x143																																												
Die (To be ordered separately)	09 99 000 0519	<table><tr><th>Contact Part No.</th><th>Cavity</th></tr><tr><td>09 69 181 x233</td><td rowspan="2">B</td></tr><tr><td>09 69 281 x233</td></tr></table>	Contact Part No.	Cavity	09 69 181 x233	B	09 69 281 x233																																					
Contact Part No.	Cavity																																											
09 69 181 x233	B																																											
09 69 281 x233																																												

¹⁾ Only the outer ferrule is crimped (inner conductor is soldered)

Tools for crimp termination – D-Sub-M

Identification

Part number

Hand crimp tool
for **coaxial** contacts,
crimp/crimp version¹⁾,
suitable for **inner**
contact

09 99 000 0501



Inner contact die
(To be ordered
separately)

09 99 000 0507



Contact Part No.

09 69 182 x140

09 69 282 x140

09 69 182 x230

09 69 282 x230

09 69 182 x232

09 69 282 x232

09 69 182 x233

09 69 282 x233

Hand crimp tool
for **coaxial** contacts,
crimp/crimp version¹⁾,
suitable for **outer**
ferrule

09 99 000 0503



Outer contact die
(To be ordered
separately)

09 99 000 0508



Contact Part No.

Cavity

09 69 182 x140

09 69 282 x140

B

09 69 182 x230

09 69 282 x230

B

Outer contact die
(To be ordered
separately)

09 99 000 0518

Contact Part No.

Cavity

09 69 182 x232

09 69 282 x232

A

Outer contact die
(To be ordered
separately)

09 99 000 0519

Contact Part No.

Cavity

09 69 182 x233

09 69 282 x233

B

¹⁾ Both inner and outer conductor are crimped

Tools for crimp termination – D-Sub-M

IdentificationPart number

Hand crimp tool
for **high voltage**
contacts

09 99 000 0501



Contact Part No.	Gauge	Tool setting
09 69 182 2550	AWG 24, 26, 28, 30	5 for AWG 24 and 26, 4 for AWG 28 and 3 for AWG 30
09 69 282 2550	AWG 24, 26, 28, 30	5 for AWG 24 and 26, 4 for AWG 28 and 3 for AWG 30

Die for male and
female contacts
(To be ordered
separately.)

09 99 000 0533



Extraction tool
for **coaxial**,
pneumatic,
power and **high**
voltage contacts

09 99 000 0512



Tools for crimp termination – InduCom

Identification		Part number																																																											
Hexagonal head screwdriver for hoods with hexagonal screws	61 03 600 0021																																																												
Crimp tool for flange and ferrule	61 03 600 0020																																																												
Inserts for crimp tool	<table><tr><td>61 03 000 0179</td><td>5.0</td></tr><tr><td>61 03 000 0180</td><td>5.5</td></tr><tr><td>61 03 000 0098</td><td>6.0</td></tr><tr><td>61 03 000 0099</td><td>6.5</td></tr><tr><td>61 03 000 0100</td><td>7.0</td></tr><tr><td>61 03 000 0101</td><td>7.5</td></tr><tr><td>61 03 000 0102</td><td>8.0</td></tr><tr><td>61 03 000 0103</td><td>8.5</td></tr><tr><td>61 03 000 0104</td><td>9.0</td></tr><tr><td>61 03 000 0105</td><td>9.5</td></tr><tr><td>61 03 000 0174</td><td>10.0</td></tr><tr><td>61 03 000 0172</td><td>10.5</td></tr><tr><td>61 03 000 0168</td><td>11.0</td></tr><tr><td>61 03 000 0169</td><td>11.5</td></tr><tr><td>61 03 000 0175</td><td>12.0</td></tr><tr><td>61 03 000 0176</td><td>12.5</td></tr><tr><td>61 03 000 0177</td><td>13.0</td></tr><tr><td>61 03 000 0178</td><td>13.5</td></tr><tr><td>61 03 000 0173</td><td>14.0</td></tr></table>	61 03 000 0179	5.0	61 03 000 0180	5.5	61 03 000 0098	6.0	61 03 000 0099	6.5	61 03 000 0100	7.0	61 03 000 0101	7.5	61 03 000 0102	8.0	61 03 000 0103	8.5	61 03 000 0104	9.0	61 03 000 0105	9.5	61 03 000 0174	10.0	61 03 000 0172	10.5	61 03 000 0168	11.0	61 03 000 0169	11.5	61 03 000 0175	12.0	61 03 000 0176	12.5	61 03 000 0177	13.0	61 03 000 0178	13.5	61 03 000 0173	14.0	<table><tr><th>Width of hexagonal nut [mm]</th></tr><tr><td>5.0</td></tr><tr><td>5.5</td></tr><tr><td>6.0</td></tr><tr><td>6.5</td></tr><tr><td>7.0</td></tr><tr><td>7.5</td></tr><tr><td>8.0</td></tr><tr><td>8.5</td></tr><tr><td>9.0</td></tr><tr><td>9.5</td></tr><tr><td>10.0</td></tr><tr><td>10.5</td></tr><tr><td>11.0</td></tr><tr><td>11.5</td></tr><tr><td>12.0</td></tr><tr><td>12.5</td></tr><tr><td>13.0</td></tr><tr><td>13.5</td></tr><tr><td>14.0</td></tr></table>		Width of hexagonal nut [mm]	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0
61 03 000 0179	5.0																																																												
61 03 000 0180	5.5																																																												
61 03 000 0098	6.0																																																												
61 03 000 0099	6.5																																																												
61 03 000 0100	7.0																																																												
61 03 000 0101	7.5																																																												
61 03 000 0102	8.0																																																												
61 03 000 0103	8.5																																																												
61 03 000 0104	9.0																																																												
61 03 000 0105	9.5																																																												
61 03 000 0174	10.0																																																												
61 03 000 0172	10.5																																																												
61 03 000 0168	11.0																																																												
61 03 000 0169	11.5																																																												
61 03 000 0175	12.0																																																												
61 03 000 0176	12.5																																																												
61 03 000 0177	13.0																																																												
61 03 000 0178	13.5																																																												
61 03 000 0173	14.0																																																												
Width of hexagonal nut [mm]																																																													
5.0																																																													
5.5																																																													
6.0																																																													
6.5																																																													
7.0																																																													
7.5																																																													
8.0																																																													
8.5																																																													
9.0																																																													
9.5																																																													
10.0																																																													
10.5																																																													
11.0																																																													
11.5																																																													
12.0																																																													
12.5																																																													
13.0																																																													
13.5																																																													
14.0																																																													
Mounting tool for flange for D-Sub hoods (9-37 contacts) for D-Sub hoods (50 contacts)	61 03 600 0017 61 03 600 0018																																																												
Insertion and removal tool for contacts	09 99 000 0171																																																												



Tool / Assembly instructions

Identification	No. of contacts	Part number	Drawing	Dimensions in mm
Crimp tool for screened hoods		09 99 000 0233		
Crimp tool dies	9	09 99 000 0235		
	15	09 99 000 0235		
	25	09 99 000 0236		
	37	09 99 000 0237		

Assembly instructions for screened hoods

Place the metal screen part (A) on the cable.

Prepare the cable for termination.

Place the inner ferrule (B) between conductors and the outer braid (C).

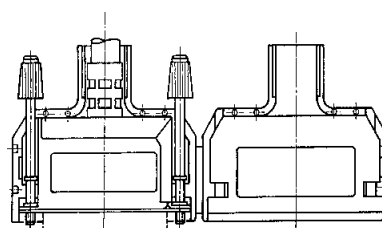
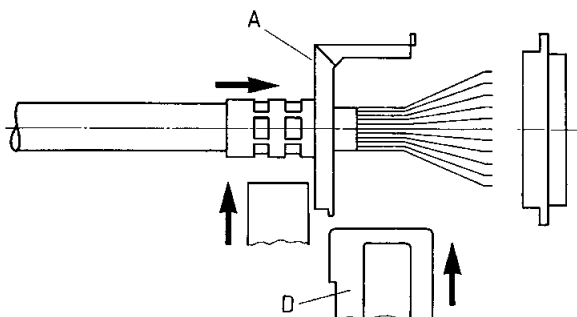
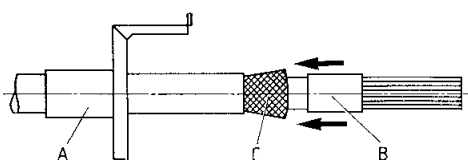
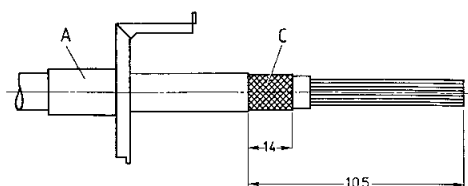
Terminate the D-Sub connector.

Put the metal screen part (A) over the braid and crimp directly over the inner ferrule, ensuring that the correct crimp tool die is used.

Slide in the other metal screen part (D).

Push back the terminated connector into the assembled screen.

Put the assembled connector, screen and knurled screws into the thermoplastic hood and snap closed.



Modular tooling system for starting connector press-in

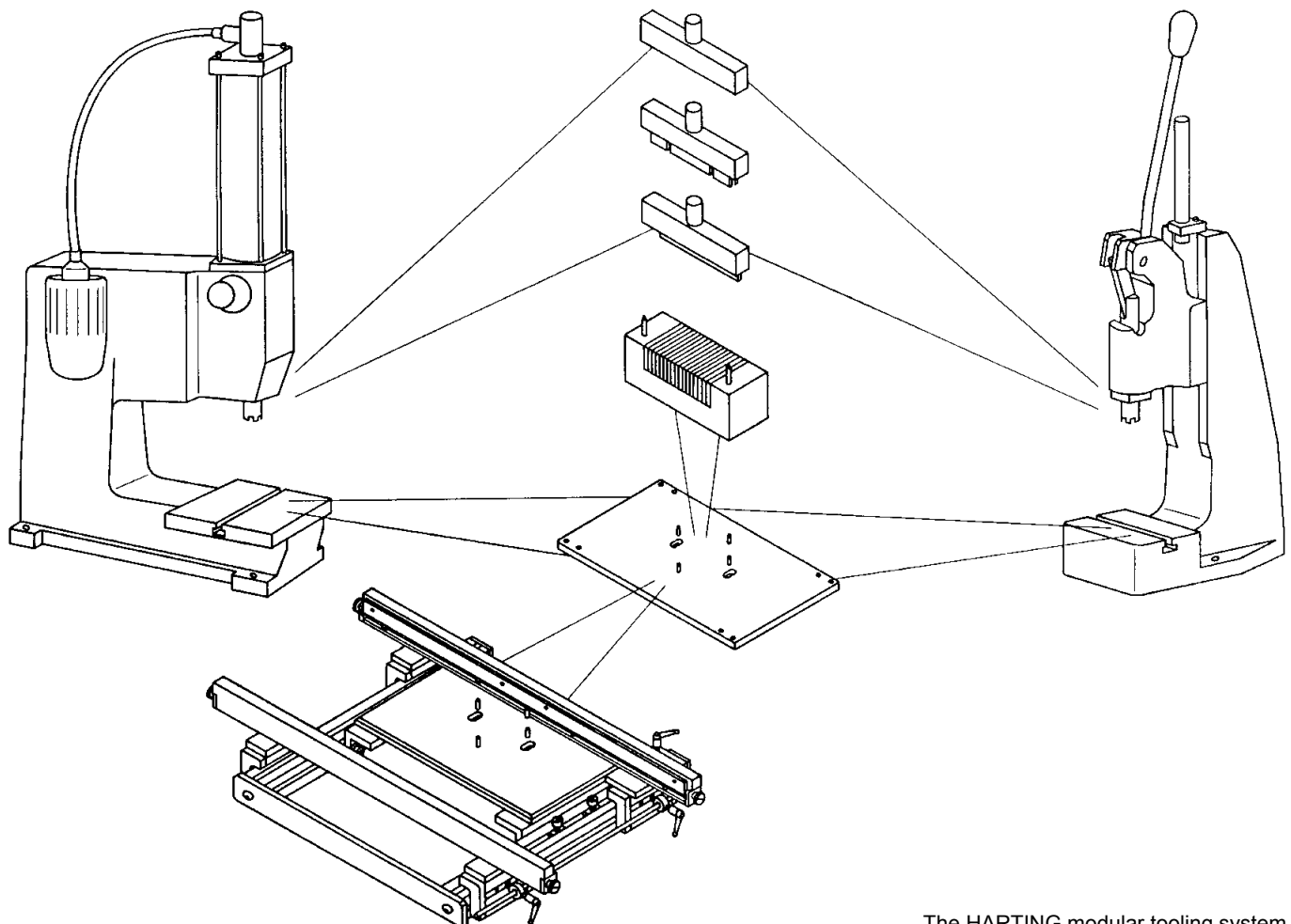
The diversity of connector types with press-in terminations and varying termination styles make it necessary to have a simple, flexible tooling system that can be continuously updated.

The HARTING modular tooling system has significant advantages in terms of economic assembly of the many connector types with press-in terminations. The basic modules of the tooling system which will always be required are:

- Press
- Top tool
- Bottom tool
- Base plate

To increase automation and productivity the following modules may be added to the basic assembly:

- Guide frame with base plate for accurate positioning of the pcb up to a length of 600 mm
- Guide frame "Standard" for hand bench press and pneumatic press and pcb height of 123.5 up to 309.5 mm
- Guide frame "Long" for pneumatic press and pcb height of 123.5 up to 668.5 mm



The HARTING modular tooling system

Handling indications

When setting up an assembly machine it is not necessary to set the working height of the press and adjust the base plate more than once. There is no need for further adjustments. All the other adaptations for various applications are performed efficiently and are reliant by various combinations of individual modules.

Positioning the bottom tool in relation to the top tool

The ram of the HARTING press is generally provided with a cross-shaped groove which accurately positions the top tool in steps of 90°.

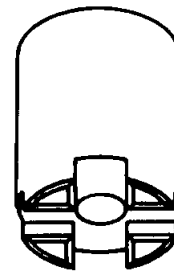
Two guide pins position the bottom tool in relation to the top tool simply and accurately.

These guide pins cannot be used for positioning the pcb or the connector!

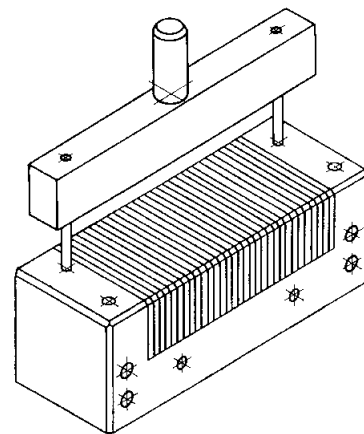
Two pairs of pins on the base plate locate the bottom tool in relation to the top tool in steps of 90°.

Height compensation

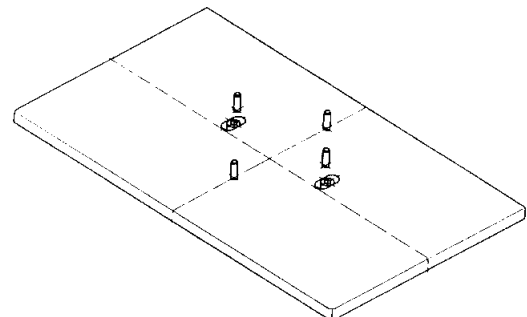
- Various overall heights of connectors are accommodated by type-specific top tools.
- Various pcb thicknesses are accommodated by the use of spacers between the bottom tool and base plate.



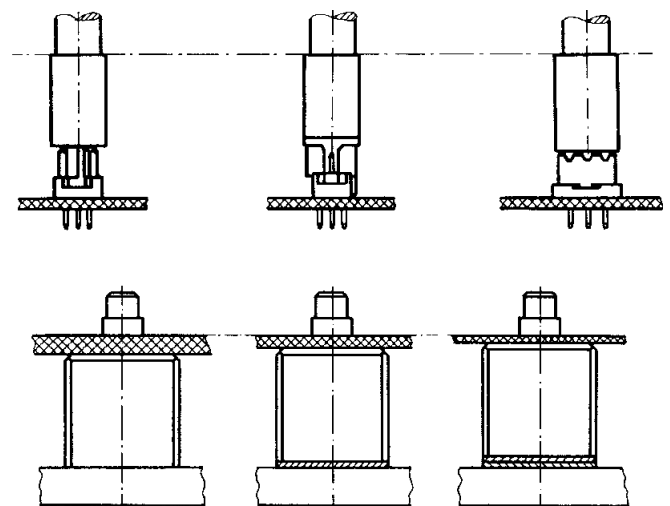
Ram with cross-shaped groove



Positioning the bottom tool in relation to top tool



Base plate with pairs of location pins at 90°



Handling indications

Range of applications for the bottom tool

One bottom tool can be used to assemble connectors with straight or angled press-in terminations.

When pressing in the connectors with angled press-in terminations the positioning pins remain in the bottom tool and serve as guide pins for the connector.

By rotating the bottom tool in steps of 90° and relocating the positioning pins it is possible to assemble half-length connectors with angled press-in terminations.

Bottom tool (narrow version)

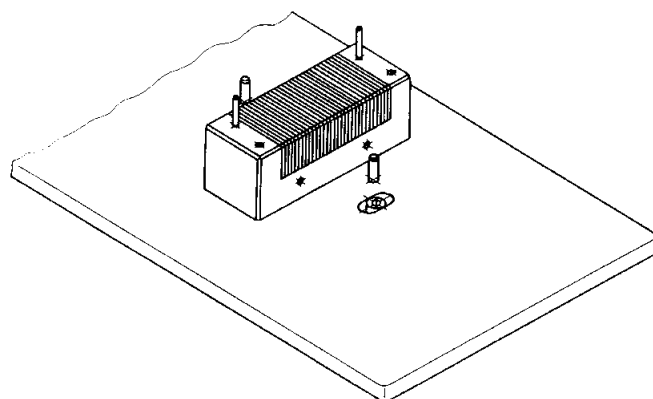
In addition to the square bottom tool with multi-functional properties, HARTING offers the alternative of a narrow bottom tool for assembling connectors with straight press-in terminations. This tool supports the pcb within the press-in connector zone and therefore makes it possible to assemble connectors where electronic components are to be placed in close proximity.

Guide frame

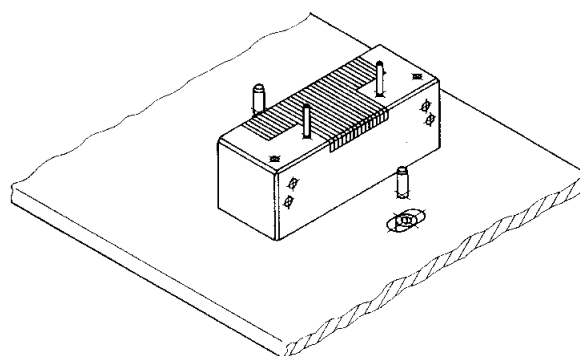
The guide frame screwed to the base plate ensures the correct positioning of the pcb in relation to the top and bottom tools and permits a much higher rate of assembly.

Both guide rails are adjustable to accommodate various pcb sizes.

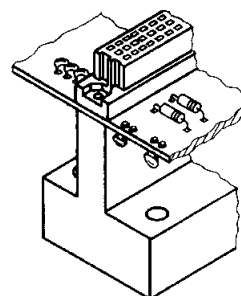
A spring-loaded supporting rail lifts the pcb away from the bottom tool after the press-in operation ensuring that no damage occurs to the conductors as it passes through the machine.



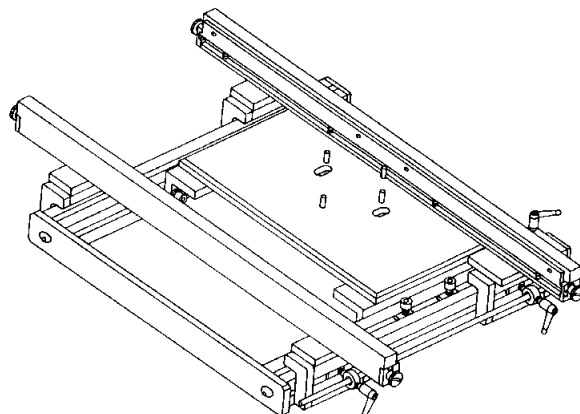
Bottom tool set for assembling connectors with angled pins



Bottom tool set for assembling half-length connectors with angled pins



Narrow version of the bottom tool for special applications



Guide frame for positioning the pcb in relation to the top and bottom tools

For a reliable and safe press-in process HARTING has developed a special tooling system. Each tooling is adapted to the special requirements of the individual connector range, thus a good handling and quick adjustment is guaranteed.

Identification	Part number	Drawing
Top tool for AdvancedTCA® B+ Bottom tool for AdvancedTCA® B+	16 99 000 0001 000 16 99 000 0002 000	 Top tool for AdvancedTCA® B+ Bottom tool for AdvancedTCA® B+
Top tool for MicroTCA™ Bottom tool for MicroTCA™	16 99 000 0003 000 16 99 000 0004 000	 Top tool for MicroTCA™ Bottom tool for MicroTCA™
Top tool for AdvancedTCA® Power Male and female connector Bottom tool for AdvancedTCA® Power Male and female connector	02 99 000 0002 16 99 000 0011 000	 Top tool for AdvancedTCA® Power and MicroTCA™ Power, module version Bottom tool for AdvancedTCA® Power
Top tool for MicroTCA™ Power Module version Backplane version Bottom tool for MicroTCA™ Power Module version Backplane version	02 99 000 0002 16 99 000 0008 000 16 99 000 0010 000 16 99 000 0009 000	 Top tool for MicroTCA™ Power, backplane version Bottom tool for MicroTCA™ Power, module version Bottom tool for MicroTCA™ Power, backplane version
Removal tool for AdvancedTCA® B+ Removal tool for MicroTCA™ Repair pliers for MicroTCA™	16 99 000 0005 000 16 99 000 0007 000 16 99 000 0006 000	 Removal tool for AdvancedTCA® B+ Removal tool for MicroTCA™ Repair pliers for MicroTCA™

Discrete tooling system – *harbus*® HM

For economical and safe press-in of *harbus*® HM connectors with 5+2 and 8+2 rows, HARTING has developed a discrete tooling system.

Due to its modular structure it can be adapted to any connector configuration that needs to be pressed-in extremely quickly and securely.

Therefore a top and a bottom tool for each connector style is available. These tools are inserted in a top or bottom carrier tool with a groove, thus guaranteeing exact position of the top and bottom tools and the connectors.

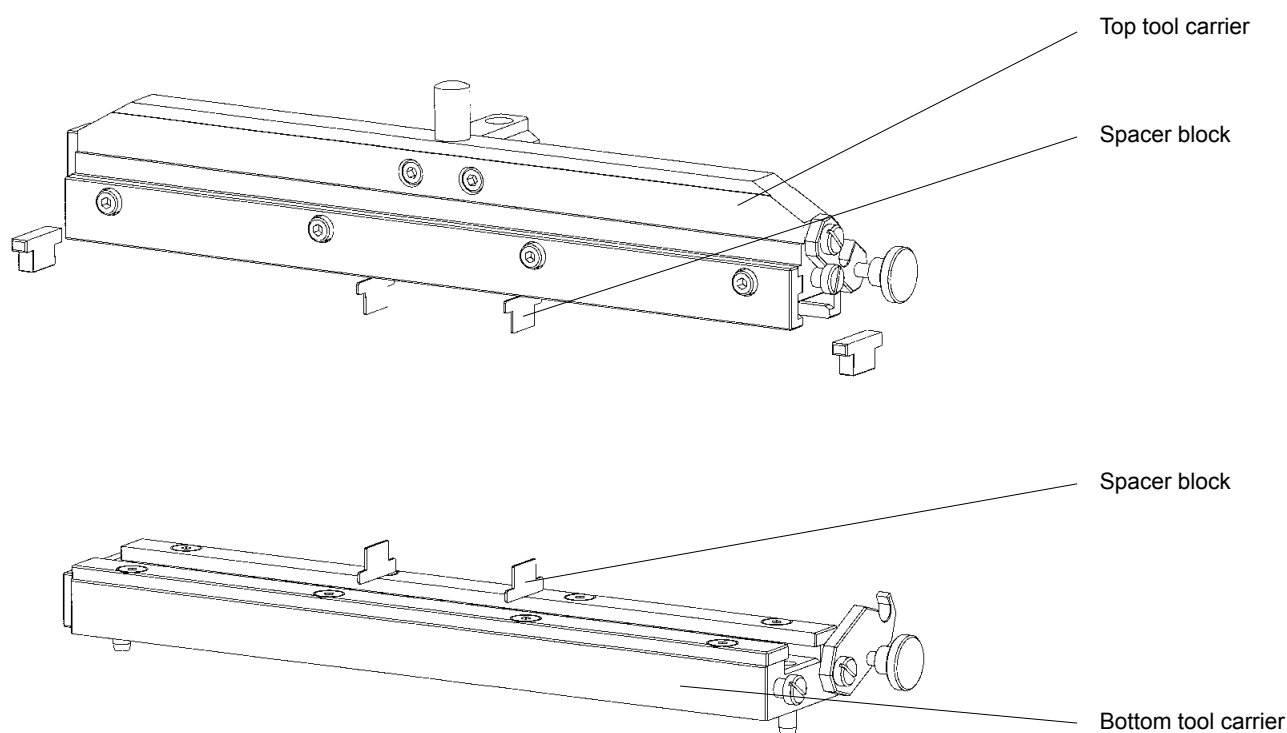
To use identical carrier tools for all connector configurations, HARTING offer spacer blocks to fill gaps between adjacent top or bottom tools.

The carrier tool is either completely filled with top or bottom tools or respective spacer blocks, making it possible to press-in single modules.

To press-in female connectors with pre-installed upper shields, separate top and bottom tools are available.

For lower shield press-in the tooling can be changed easily.

For further information please check our operating instructions or contact your HARTING representative.

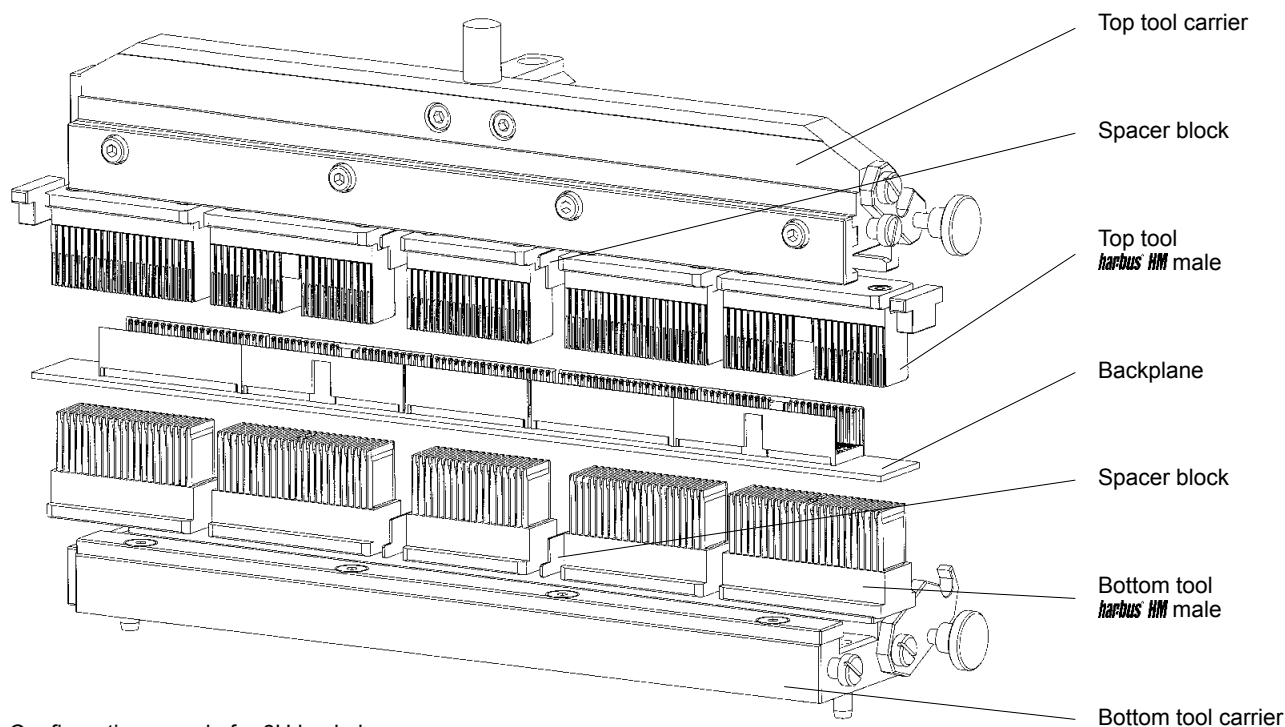


Basis tools of the discrete tooling system

Basis tools for all connector types

Part number connector	Tool identification	Part number tool	Part number connector	Tool identification	Part number tool
17 xx xxx xxxx	Top tool carrier	17 99 000 0012	17 xx xxx xxxx	Spacer block 25 mm	17 99 000 0055
17 xx xxx xxxx	Bottom tool carrier	17 99 000 0013	17 xx xxx xxxx	Spacer block 38 mm	17 99 000 0054
17 xx xxx xxxx	Top tool carrier 3U	17 99 000 0073	17 xx xxx xxxx	Spacer block 44 mm	17 99 000 0053
17 xx xxx xxxx	Bottom tool carrier 3U	17 99 000 0074	17 xx xxx xxxx	Spacer block 50 mm	17 99 000 0052
17 xx xxx xxxx	Spacer block 0.67 mm (CompactPCI)	17 99 000 0057	17 xx xxx xxxx	Centering plate female left	17 99 000 0060
17 xx xxx xxxx	Spacer block 5 mm	17 99 000 0056	17 xx xxx xxxx	Centering plate female right	17 99 000 0061

Discrete tooling system – *harbus*® HM

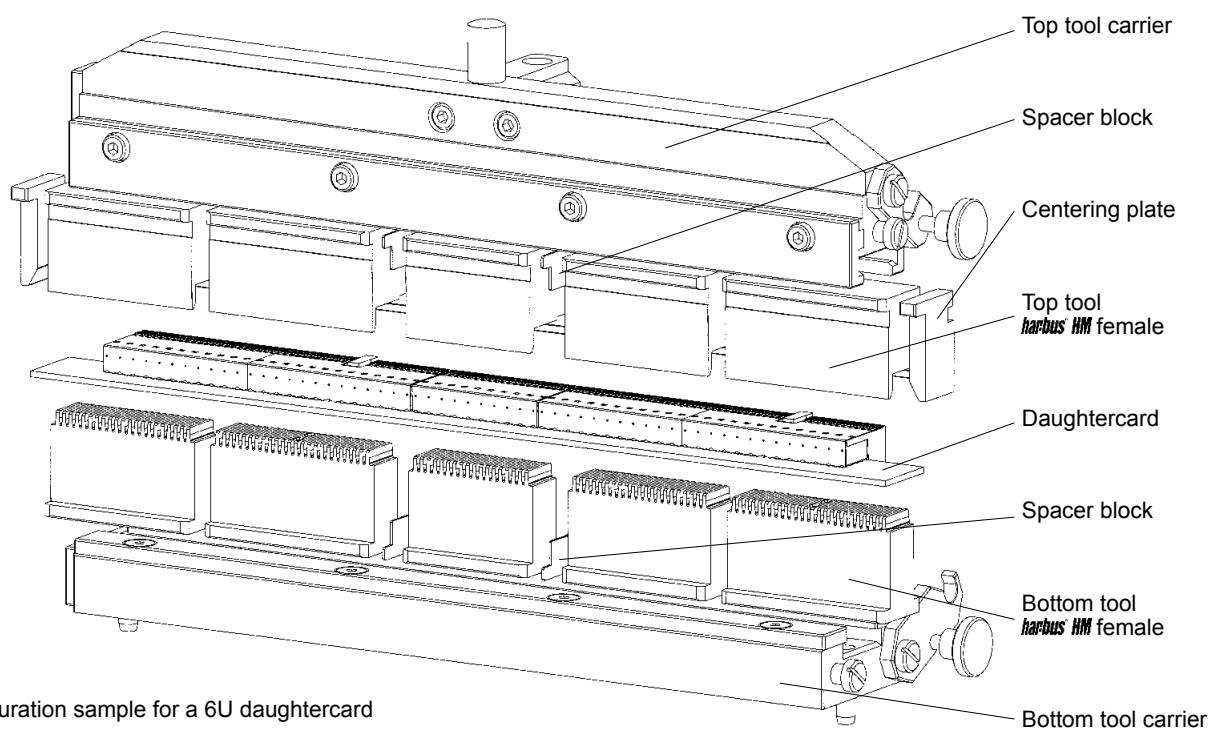


Configuration sample for 6U backplane

Tools for straight male connectors

Part number connector	Tool identification	Part number tool	Part number connector	Tool identification	Part number tool
17 01 xxx xxxx	Top tool, male, type A	17 99 000 0014	17 11 xxx xxxx	Top tool, male, type D	17 99 000 0022
17 01 xxx xxxx	Bottom tool, male, type A	17 99 000 0026	17 11 xxx xxxx	Bottom tool, male, type D	17 99 000 0028
17 02 xxx xxxx	Top tool, male, type B	17 99 000 0020	17 12 xxx xxxx	Top tool, male, type E	17 99 000 0023
17 02 xxx xxxx	Bottom tool, male, type B	17 99 000 0026	17 12 xxx xxxx	Bottom tool, male, type E	17 99 000 0028
17 04 xxx xxxx	Top tool, male, type B	17 99 000 0019	17 13 xxx xxxx	Top tool, male, type AB	17 99 000 0015
17 04 xxx xxxx	Bottom tool, male, type B	17 99 000 0025	17 13 xxx xxxx	Bottom tool, male, type AB	17 99 000 0024
17 05 xxx xxxx	Top tool, male, type B	17 99 000 0018	17 14 xxx xxxx	Top tool, male, type AB	17 99 000 0016
17 05 xxx xxxx	Bottom tool, male, type B	17 99 000 0024	17 14 xxx xxxx	Bottom tool, male, type AB	17 99 000 0025
17 03 xxx xxxx	Top tool, male, type C	17 99 000 0021	17 15 xxx xxxx	Top tool, male, type AB	17 99 000 0017
17 03 xxx xxxx	Bottom tool, male, type C	17 99 000 0027	17 15 xxx xxxx	Bottom tool, male, type AB	17 99 000 0026

Discrete tooling system – *harbus*® HM



Configuration sample for a 6U daughtercard

Tools for angled female connectors

Part number connector	Tool identification	Part number tool	Part number connector	Tool identification	Part number tool
17 21 xxx xxxx	Top tool, female, type A	17 99 000 0029	17 31 xxx xxxx	Top tool, female, type D	17 99 000 0042
17 21 xxx xxxx	Bottom tool, female, type A	17 99 000 0046	17 31 xxx xxxx	Bottom tool, female, type D	17 99 000 0048
17 22 xxx xxxx	Top tool, female, type B	17 99 000 0038	17 32 xxx xxxx	Top tool, female, type E	17 99 000 0042
17 22 xxx xxxx	Bottom tool, female, type B	17 99 000 0046	17 32 xxx xxxx	Bottom tool, female, type E	17 99 000 0048
17 24 xxx xxxx	Top tool, female, type B	17 99 000 0036	17 33 xxx xxxx	Top tool, female, type AB	17 99 000 0032
17 24 xxx xxxx	Bottom tool, female, type B	17 99 000 0045	17 33 xxx xxxx	Bottom tool, female, type AB	17 99 000 0044
17 25 xxx xxxx	Top tool, female, type B	17 99 000 0034	17 34 xxx xxxx	Top tool, female, type AB	17 99 000 0058
17 25 xxx xxxx	Bottom tool, female, type B	17 99 000 0044	17 34 xxx xxxx	Bottom tool, female, type AB	17 99 000 0045
17 23 xxx xxxx	Top tool, female, type C	17 99 000 0040	17 35 xxx xxxx	Top tool, female, type AB	17 99 000 0029
17 23 xxx xxxx	Bottom tool, female, type C	17 99 000 0047	17 35 xxx xxxx	Bottom tool, female, type AB	17 99 000 0046

Tools for angled shielded female connectors

Part number connector	Tool identification	Part number tool	Part number connector	Tool identification	Part number tool
17 21 xxx xxxx	Top tool, female, type A upper shield	17 99 000 0030	17 34 xxx xxxx	Top tool, female, type AB upper shield	17 99 000 0059
17 21 xxx xxxx	Top tool, female, type A divided shield computer telephony	17 99 000 0031	17 35 xxx xxxx	Top tool, female, type AB upper shield	17 99 000 0030
17 22 xxx xxxx	Top tool, female, type B upper shield	17 99 000 0039	17 21 xxx xxxx	Press-in die lower shield type A	17 99 000 0051
17 24 xxx xxxx	Top tool, female, type B upper shield	17 99 000 0037	17 22 xxx xxxx	Press-in die lower shield type B	17 99 000 0051
17 25 xxx xxxx	Top tool, female, type B upper shield	17 99 000 0035	17 24 xxx xxxx	Press-in die lower shield type B	17 99 000 0050
17 23 xxx xxxx	Top tool, female, type C upper shield	17 99 000 0041	17 25 xxx xxxx	Press-in die lower shield type B	17 99 000 0049
17 31 xxx xxxx	Top tool, female, type D upper shield	17 99 000 0043	17 31 xxx xxxx	Press-in die lower shield type D	17 99 000 0051
17 32 xxx xxxx	Top tool, female, type E upper shield	17 99 000 0043	17 32 xxx xxxx	Press-in die lower shield type E	17 99 000 0051
17 33 xxx xxxx	Top tool, female, type AB upper shield	17 99 000 0033	17 33 xxx xxxx	Press-in die lower shield type AB	17 99 000 0049
			17 34 xxx xxxx	Press-in die lower shield type AB	17 99 000 0050
			17 35 xxx xxxx	Press-in die lower shield type AB	17 99 000 0051

Tooling for backplanes – *harbus*® HM

For 6U backplanes with CompactPCI configuration, HARTING has developed this start-up tooling.

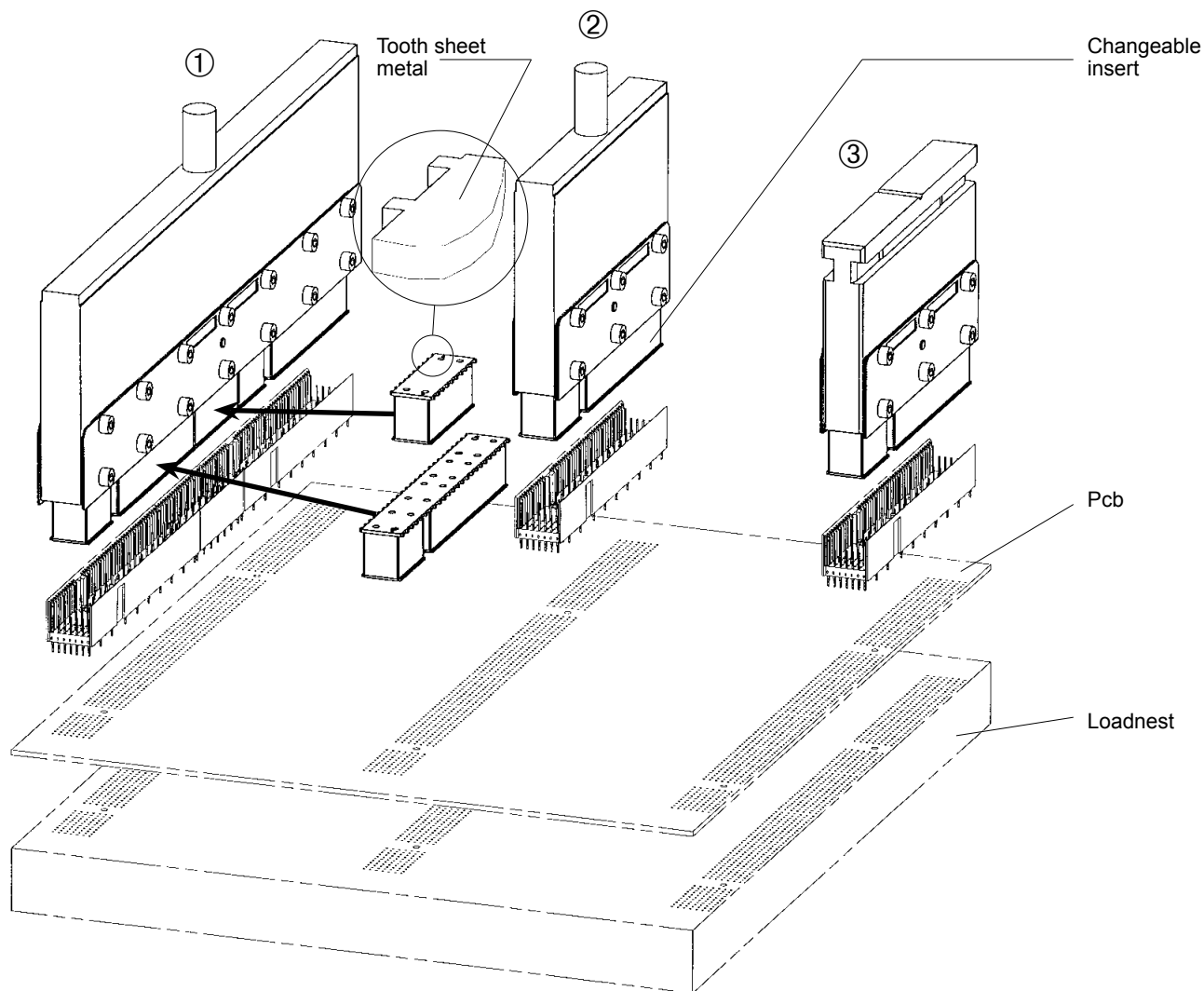
The basis is a top tool carrier with tooth inserts, that are engaged alternately.

Therefore this tooling assembly can be used without any additional set-up time.

The tooth inserts are interchangeable, so that the tooling can be used for other connector configurations as well as for CompactPCI.

The bottom tool should preferably be a loadnest, which carries and aligns the pcb.

For detailed information please contact your local HARTING representative.



Configuration samples for CompactPCI backplanes

Tools for straight male connectors

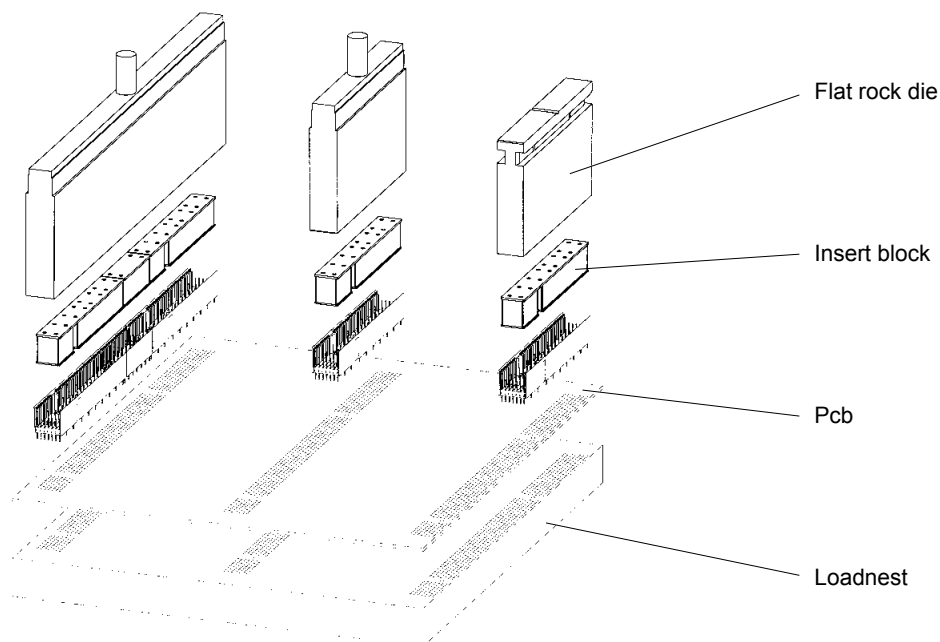
Tool identification	Part number tool	Tool identification	Part number tool
① Insert top tool for 6U CompactPCI	17 99 000 0063	Tooth insert for type Monoblock 47	17 99 000 0066
② Insert top tool for 3U CompactPCI	17 99 000 0065	Tooth insert for type B 19 positions	17 99 000 0068
③ Insert top tool for rotatable tool changer	on request		

Insert blocks for male connectors – *harbus® HM*

The insert blocks can be used to press-in *harbus® HM* male connectors without any special top tool. These blocks will be put into the connectors manually or automatically.

To press-in the connector no precise position is needed and can be done by a simple flat rock die. This will accelerate the cycle time of the press-in process dramatically.

Insert blocks are developed for use with a loadnest.



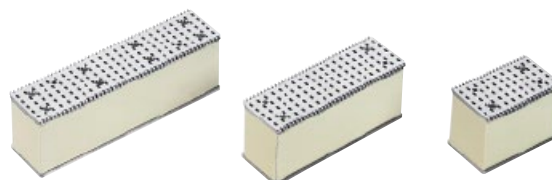
Application samples for insert blocks

Insert blocks for straight male connectors

Part number connector	Tool identification	Quantity and part number tool
17 01 xxx xxxx	Insert block for type A	1 x 17 99 000 0009 or (2 x 17 99 000 0001)
17 04 xxx xxxx	Insert block for type B	1 x 17 99 000 0004
17 05 xxx xxxx	Insert block for type B	1 x 17 99 000 0002
17 02 xxx xxxx	Insert block for type B	1 x 17 99 000 0003
17 03 xxx xxxx	Insert block for type C	1 x 17 99 000 0001
17 06 xxx xxxx	Insert block for type Monoblock 47	1 x 17 99 000 0008 or (1 x 17 99 000 0001 and 1 x 17 99 000 0005)
17 11 xxx xxxx	Insert block for type D	2 x 17 99 000 0006
17 12 xxx xxxx	Insert block for type E	1 x 17 99 000 0007
17 13 xxx xxxx	Insert block for type AB	1 x 17 99 000 0069
17 14 xxx xxxx	Insert block for type AB	1 x 17 99 000 0070
17 15 xxx xxxx	Insert block for type AB	1 x 17 99 000 0071
17 10 xxx xxxx	Insert block for type DE	1 x 17 99 000 0072

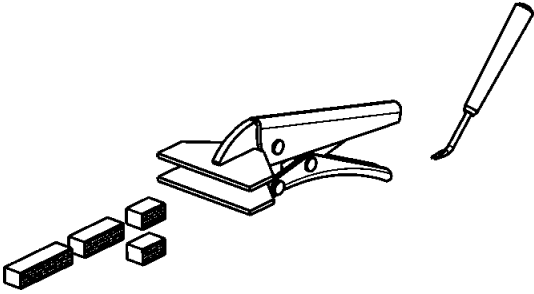
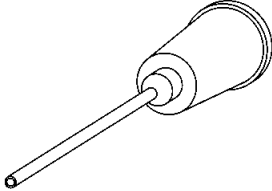
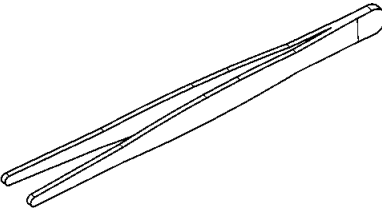
Flat rock dies

Part number connector	Tool identification	Part number tool
17 xx xxx xxxx	Flat rock die for 6U	07 79 000 0155
17 xx xxx xxxx	Flat rock die for 3U	07 79 000 0156

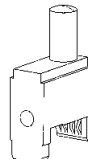
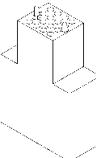


The insert block 17 99 000 0001 e.g. can be used for the types A, C and Monoblock 47.

Repair tooling – *harbus® HM*

Identification	for use with	Part number	Drawing	Dimensions in mm
Tool kit shroud removal	<i>harbus® HM</i>	17 99 000 0095		
Insertion and repair tool for single contact	<i>harbus® HM</i>	17 99 000 0094		
Removal tool for single male contacts	<i>harbus® HM</i>	09 99 000 0239		
Mounting tool for coding key	<i>harbus® HM</i>	17 99 000 0093		

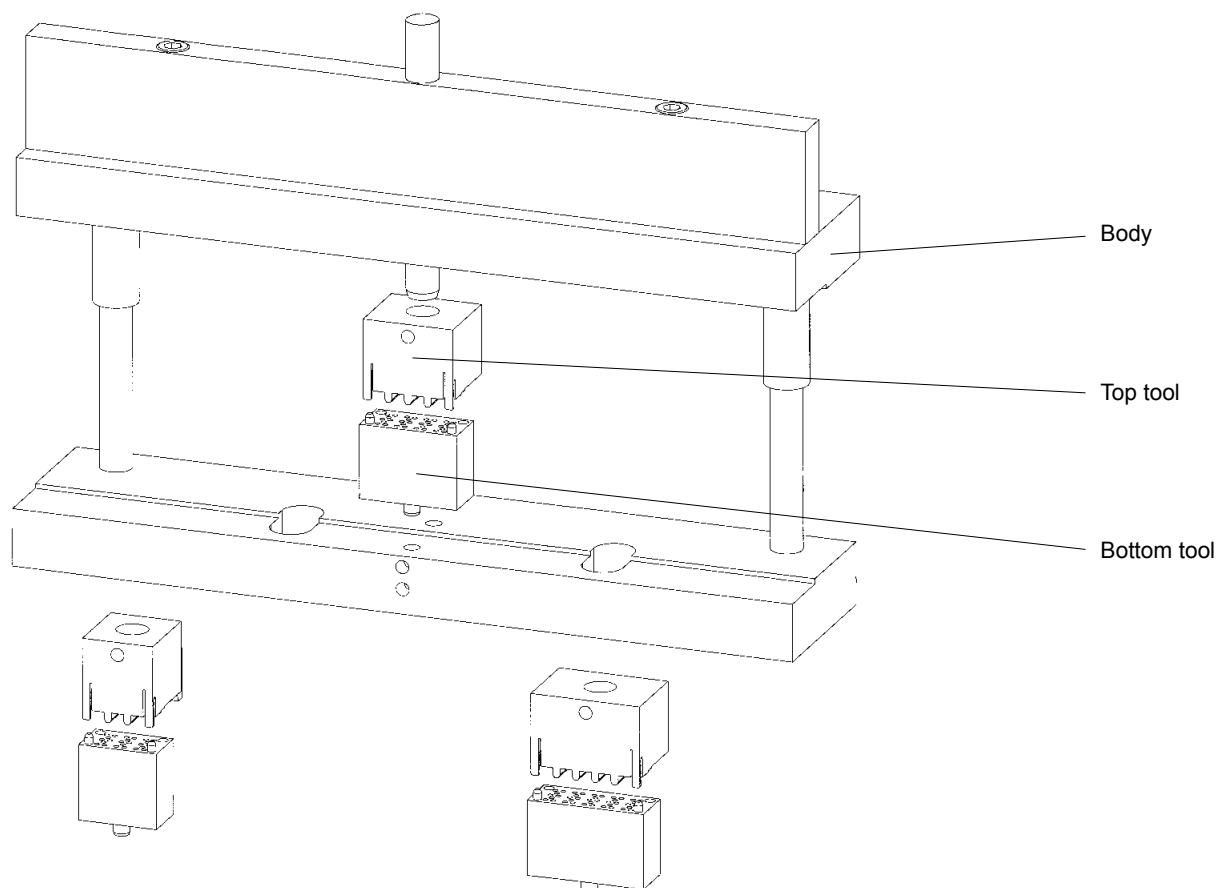
Tooling for angled male connectors – *harbus® HM* Power

Identification	for use with	Part number	Drawing	Dimensions in mm
Top tool for angled male connectors	<i>harbus® HM</i> Power	17 99 000 0102		
Bottom tool for angled male connectors	<i>harbus® HM</i> Power	17 99 000 0103		

Discrete tooling system – **Mini Coax**

Straight Mini Coax connectors can be pressed-in with a flat die and a top tool delivered with the connectors. This top tool can be used as contact protection and remains in the connector until the daughtercard is mated.

Angled Mini Coax connectors will be pressed-in with separate top and bottom tools, which will be mounted into a common body.



Configuration for angled modules

Tools for straight modules

Part number connector	Tool identification	Part number tool
07 11 xxx xxxx	1 SU Mini Coax Standard bottom tool	on request
07 11 xxx xxxx	1.25 SU Mini Coax Standard bottom tool	on request
07 11 xxx xxxx	1.50 SU Mini Coax Standard bottom tool	on request

Tools for angled modules

Part number connector	Tool identification	Part number tool
07 31 xxx xxxx	Body	07 79 000 0061
07 31 xxx xxxx	1 SU Mini Coax Standard bottom tool	07 79 000 0045
07 31 xxx xxxx	1 SU Mini Coax Standard top tool	07 79 000 0080
07 31 xxx xxxx	1.25 SU Mini Coax Standard bottom tool	07 79 000 0034
07 31 xxx xxxx	1.25 SU Mini Coax Standard top tool	07 79 000 0081
07 31 xxx xxxx	1.50 SU Mini Coax Standard bottom tool	07 79 000 0171
07 31 xxx xxxx	1.50 SU Mini Coax Standard top tool	07 79 000 0170
07 31 xxx xxxx	1 SU Mini Coax single-row bottom tool	07 79 000 0205
07 31 xxx xxxx	1 SU Mini Coax single-row top tool	07 79 000 0204

Hand bench presses / pneumatic presses

Identification	Part number	Drawing	Dimensions in mm
Hand bench press	09 99 000 0201	Technical characteristics - Working stroke 25 mm - Press force 15 kN max. - Hole $\varnothing$ in the ram $\varnothing$ 10 mm - Net weight approx. 23 kg	
Pneumatic press 40 kN	09 99 000 0282	Technical characteristics - Total stroke 48 mm - Working stroke 0-6 mm - Press force 40 kN max. - Air pressure 6 bar - Hole $\varnothing$ in the ram $\varnothing$ 10.01 mm - Net weight 136 kg - Power supply 110 V / 220 V AC	
Adaptor for height compensation ¹⁾	09 99 000 0279		
Guide frame with base plate Standard type for pcb size x = 123,5 - 309,5 mm Long type ²⁾ for pcb size x = 123,5 - 668,5 mm Base plate	09 99 000 0244 09 99 000 0261 09 99 000 0255		

¹⁾ suitable for 09 99 000 0282 and all CPM machines
²⁾ not suitable for hand bench press

CPM press-in machines

CPM prestige



Part number 09 89 040 0000

Technical characteristics

Drive	electro-mechanical, servo
Press-in force	100 kN
max. pcb dimensions	600 x 1000 mm
Floor space	1200 x 1150 mm
Weight	980 kg
Power supply	3x 208 / 380 / 400 / 415 V
Consumption	< 1 kW
Colour	on request

CPM prestige
(incl. PC, control software, barcode reader, keyboard, touch screen)

Built-in features:

- Guiding rails (carbon/spring-loaded) for the secure positioning of the pcb
- Touch-screen and Industrial PC with UPS (uninterruptable power supply)
- Barcode reader for management ease of press-in programs
- All dimensions allow an easy integration into production lines

Process monitoring and quality assurance:

- Touch screen interface with graphical and verbal menus for all machine functions
- Autosense: automated press-in interruption at incorrect press-in forces
- Storage and validation of all press-in parameters via quality assurance software (press-in force tolerances)
- Continuous high-precision measurement and recording of press-in forces and distances
- Remote determination of errors and maintenance
- High flexibility through a modular tool range

Options:

- Rotatable tool changer
- Insertion removal station

Insertion removal station

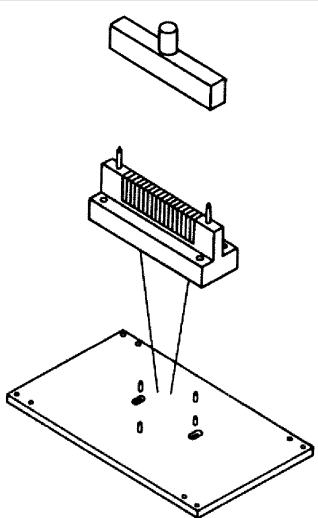
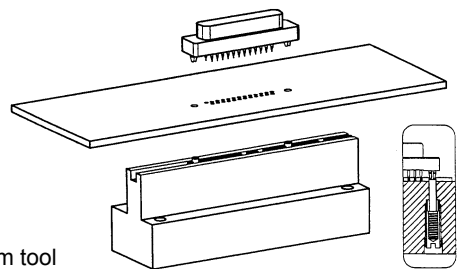
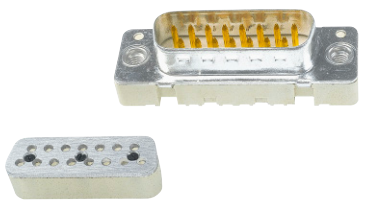


Power supply	220 V / 50 Hz
Air pressure	6 bar (15-16 l/min.)

Part number on request
for pcb dimensions of max. 710 mm x 540 mm

Bestseller **CPM prestige with insertion removal station**, adaptable to all HARTING press-in machines.

Tools – SEK, D-Sub

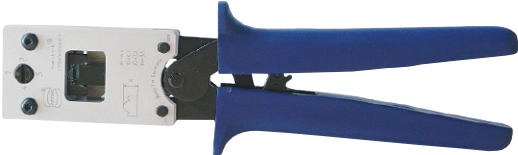
Identification	Part number	
Top tool for SEK	09 99 000 0197	 Top tool Bottom tool Base plate
Bottom tool universal, for SEK narrow, for SEK	09 99 000 0185 09 99 000 0256	
Base plate for SEK, D-Sub	09 99 000 0255	
Bottom tool narrow for D-Sub Only one tool for all polarities, with or without grounding pins 9-37 way 50 way	09 99 000 0600 09 99 000 0523	 Bottom tool
Plastic with metal plate insert tool for D-Sub male 9 way 15 way 25 way	09 99 600 0709 09 99 600 0715 09 99 600 0725	
Other toolings on request		

Tools – SEK, D-Sub

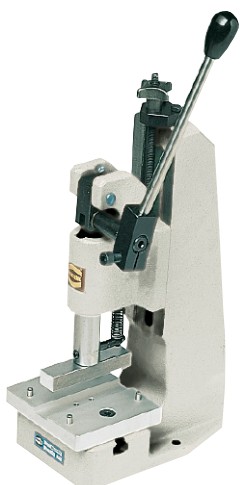
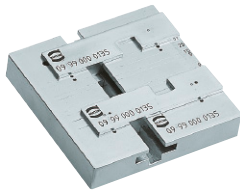
Identification	Part number	Drawing	Dimensions in mm
Top tool for SEK standard connectors			
10 way 14 way 16 way 20 way 26 way 34 way 40 way 50 way 60 way 64 way	09 99 000 0710 09 99 000 0714 09 99 000 0716 09 99 000 0720 09 99 000 0726 09 99 000 0734 09 99 000 0740 09 99 000 0750 09 99 000 0760 09 99 000 0764	X Length depends on number of contacts	
Top tool for SEK male low-profile connectors		Top tool including insert 	
6 way 10 way 14 way 16 way 20 way 26 way 34 way 40 way 50 way 60 way 64 way	09 99 000 0 06 09 99 000 0 10 09 99 000 0 14 09 99 000 0 16 09 99 000 0 20 09 99 000 0 26 09 99 000 0 34 09 99 000 0 40 09 99 000 0 50 09 99 000 0 60 09 99 000 0 64	X Length depends on number of contacts	
Top tool including insert ➤ 4 Modular insert ➤ 5		Modular insert 	
Press-out tool for complete SEK male connectors with 5.5 mm terminations	09 99 000 0220		
Support block	09 99 000 0218		

* Further versions on request

Tools for insulation displacement termination – har-link

Identification	Part number	
Crimping hand tool for shell cable entry	27 99 000 0001	

Tools for insulation displacement termination – D-Sub, SEK

Identification	Part number	Drawing	Dimensions in mm
Bench press for termination of insulation displacement connectors suitable for D-Sub SEK	09 99 000 0114		
Cabling tool for termination of flat cables suitable for D-Sub SEK female SEK DIP SEK LP, 2 rows SEK LP, 4 rows DIN 41612	09 99 000 0135 09 99 000 0115 09 99 000 0134 09 99 000 0131 09 99 000 0130 09 99 000 0150		
Insert for termination of 37-pole male D-Sub connectors	09 99 600 0201		
Hand tool with base plates (included in tool kit) for termination of insulation displacement connectors suitable for D-Sub SEK	09 99 000 0149	 	
Cable cutter for flat cables suitable for D-Sub SEK	09 99 000 0116		
Spare parts Blade Cutting plate	09 99 000 0179 09 99 000 0180		

Tools for FOC contacts

Identification	Part number	Drawing	Dimensions in mm
Polishing tool			
DIN 41 626	20 99 000 1092		
POF ¹⁾ cable Ø 2.2	20 99 000 1093		
Fibre stripper	20 99 000 1041 20 99 000 1045 20 99 000 1046	0.3 mm 1 mm 0.18/0.3 mm	
Crimping tool for 1 mm POF contacts – Han D®, Han E® – DIN 41 626 – Ferrule – F-SMA, -ST	20 99 000 1035		
HARTING Crimping tool for FO connector (glass fibre) SW 4.3 mm 3.8 mm 4.95 mm	20 99 000 1031		
HARTING Crimping tool for FO connector (plastic fibre) SW 6.95, 4.95 and 3.0 mm	20 99 000 1033		for crimping the strain relief to the connector ... 1031 FO cable for glass fibre ... 1033 POF ¹⁾ and SERCOS cable Ø 6.0 and 3.6
Epoxy adhesive glass fibre	20 80 001 9902		2 ml EPO-TEK 360 with hardener (10:1), 4 g foil pack
Polishing paper for POF ¹⁾ -grain size 1000 for GI 9 µ-grain size for GI 1 µ-grain size	20 80 001 9911 20 80 001 9912 20 80 001 9913		Delivery range: Each part number ordered comprises 2 pieces

¹⁾ POF = Polymer optical fibre