

HARTING



Han® Industrial Connectors
for Light & Sound Applications

Economic and Reliable Connections

Specifications

DIN VDE 0110
Table 4, concerning clearance and creepage distances

DIN EN 61984 Connectors

Note:

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

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

The female connector in a HARTING hood or housing offers finger safe protection according to relevant standards for the mating face, even in the unmated condition, unless otherwise stated.

Connectors of the same or different series being mounted side by side may be protected against incorrect mating by the use of coding options.

Standard

DIN EN 175301-801

Approvals

UL File No. E 23 50 76 (www.ul.com)

CSA File No. LR 18 753, SEV for inserts



Certified according to EN ISO 9001 in design/development, production, installation and servicing

General information

It is the customer'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,

Terminations

- Screw terminal
- Crimp terminal

Inserts

- Leading protective ground
- Polarised for correct mating
- Interchangeability of male and female inserts in hoods and housings
- Captive fixing screws
- Can be used with hoods and housings, or for rack and panel applications

Hoods/Housings

- Standard Hoods/Housings
- Degree of protection IP 65
- Electrical connection with protective ground
- High mechanical strength and vibration-resistance ensured by locking levers
- Spring-loaded covers in shockproof thermoplastic or metal covers, both lockable

Accessories

- Extensive range of cable protection and sealing accessories
- Protective covers available
- Coding options for incorrect mating protection

For "non standard applications" we can manufacture designs to match your requirements. Please discuss requirements with us.

HARTING components help you to construct top quality products – economically and in line with market requirements.

in order to improve quality, keep pace with technological advancement or meet particular requirements in production.

No part of this catalogue may be reproduced in any form (print, photocopy, microfilm or any other process) or

processed, duplicated or distributed by means of electronic systems without the written permission of HARTING Electric GmbH & Co. KG, Espelkamp. We are bound by the German version only.

The HARTING Han® Heavy Duty connectors are used to power the spotlights on stage and in theatres. The Han® 16 E is used as a standard for controlling the special lighting effects. Instead of using one cable for each light, they use 6 or 8 lines per “multi-cable”. This reduces the installation time considerably.



HARTING use black cables and housings in our assemblies to limit reflection and to hide the equipment where the audience potentially could see it. The lighting control

unit can be placed for convenience next to the sound control unit at the front of the stage. We use either 18 x 1.5 mm² or 18 x 2.5 mm² black cables.



This rugged environment makes it necessary to use the proven Han® Heavy Duty Connectors, for their reliability and outstanding performance. Han® 16 E connectors are being used in many applications for connecting lights, Break-out boxes and Break-in cables are just a few. Instead of using a light bar it is possible to use a Break-out box to connect the separate spotlights to the system.

Technical characteristics

Specifications	DIN EN 61 984 DIN VDE 0110
Approvals	SEV
Inserts	
Number of contacts	72, 108 + PE
Electrical data acc. to DIN EN 61 984	10 A 250 V 4 kV 3
Rated current	10 A
Rated voltage	250 V
Rated impulse voltage	4 kV
Pollution degree	3
– Pollution degree 2 also	10 A 230/400 V 4 kV 2
Rated voltage acc. to UL/CSA	600 V
Insulation resistance	≥ 10 ¹⁰ Ω
Material	Polycarbonate
Grenztemperaturen	- 40 °C ... +125 °C
Flammability acc. to UL 94	V0
Mechanical working life - mating cycles	≥ 500

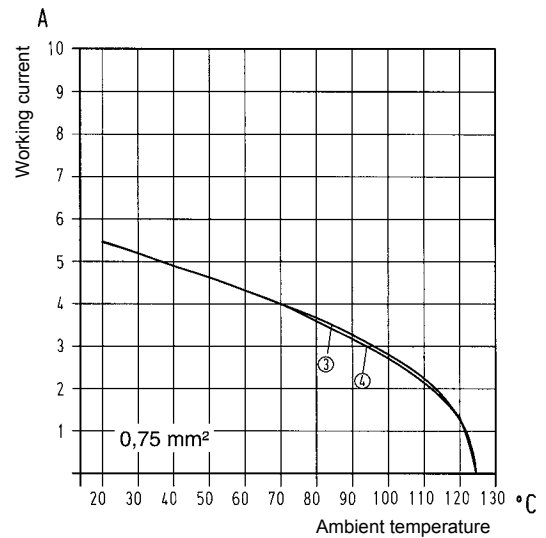
Contacts	
Material	Copper alloy
Surface	
- hard silver plated	3 µm Ag
- hard gold plated	2 µm Au over 3 µm Ni
Contact resistance	≤ 3 mΩ
Crimp terminal	
- mm ²	0.14 - 2.5 mm ²
- AWG	26 - 14

Guiding pins and bushes are recommended for the following connectors: 72, 108, 144 and 216 pins (see chapter 40)

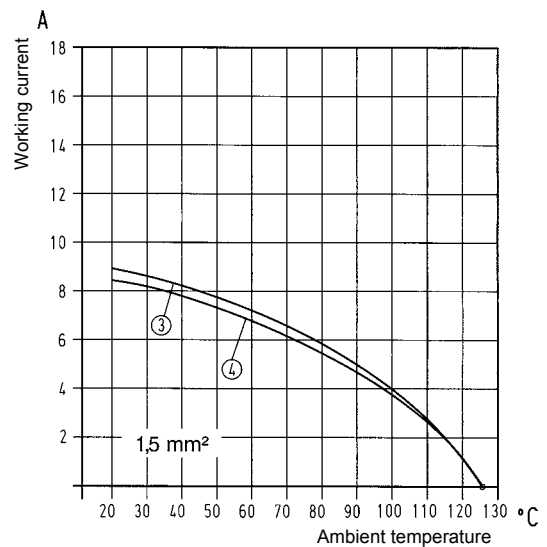
Current Carrying Capacity

The current carrying capacity of the connectors is limited by the thermal load capability of the contact element material including the connections and the insulating parts. The derating curve is therefore valid for currents which flow constantly (non-intermittent) through each contact element of the connector evenly, without exceeding the allowed maximum temperature.

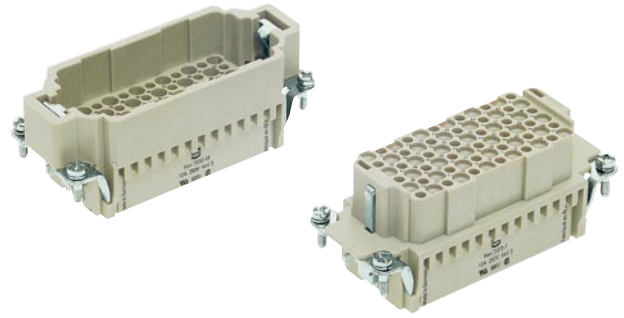
Measuring and testing techniques according to DIN EN 60 512-5.



- ③ = Han® 72 DD
- ④ = Han® 108 DD



- ③ = Han® 72 DD
- ④ = Han® 108 DD



Inserts

Identification	Size	Part-Number		Drawing	Dimensions in mm																				
		Male insert (M)	Female insert (F)																						
Crimp terminal Order crimp contacts separately Size Han® 16 B Size Han® 24 B	72	09 16 072 3001	09 16 072 3101	<table border="1"> <tr> <td></td> <td>a</td> <td>b</td> </tr> <tr> <td>Han® 72 DD</td> <td>77.5</td> <td>84.5</td> </tr> <tr> <td>Han® 108 DD</td> <td>104.0</td> <td>111.0</td> </tr> </table> <p>Panel cut out for inserts for use without hoods/housings</p> <table border="1"> <tr> <td></td> <td>c</td> <td>d</td> </tr> <tr> <td>Han® 72 DD</td> <td>77.5</td> <td>68.5</td> </tr> <tr> <td>Han® 108 DD</td> <td>104.0</td> <td>95.0</td> </tr> </table>		a	b	Han® 72 DD	77.5	84.5	Han® 108 DD	104.0	111.0		c	d	Han® 72 DD	77.5	68.5	Han® 108 DD	104.0	95.0	108	09 16 108 3001	09 16 108 3101
		a	b																						
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Han® 108 DD	104.0	111.0																							
	c	d																							
Han® 72 DD	77.5	68.5																							
Han® 108 DD	104.0	95.0																							

Crimp contacts Silver plated Gold plated	09 15 000 6104 09 15 000 6103 09 15 000 6105 09 15 000 6102 09 15 000 6101 09 15 000 6106	09 15 000 6204 09 15 000 6203 09 15 000 6205 09 15 000 6202 09 15 000 6201 09 15 000 6206	<table border="1"> <thead> <tr> <th>Wire gauge</th> <th>Ø</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>0.14-0.37 mm²</td> <td>AWG 26-22</td> <td>0.90 mm</td> </tr> <tr> <td>0.5 mm²</td> <td>AWG 20</td> <td>1.10 mm</td> </tr> <tr> <td>0.75 mm²</td> <td>AWG 18</td> <td>1.30 mm</td> </tr> <tr> <td>1.0 mm²</td> <td>AWG 18</td> <td>1.45 mm</td> </tr> <tr> <td>1.5 mm²</td> <td>AWG 16</td> <td>1.75 mm</td> </tr> <tr> <td>2.5 mm²</td> <td>AWG 14</td> <td>2.25 mm</td> </tr> </tbody> </table>	Wire gauge	Ø	Stripping length	0.14-0.37 mm ²	AWG 26-22	0.90 mm	0.5 mm ²	AWG 20	1.10 mm	0.75 mm ²	AWG 18	1.30 mm	1.0 mm ²	AWG 18	1.45 mm	1.5 mm ²	AWG 16	1.75 mm	2.5 mm ²	AWG 14	2.25 mm
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09 15 000 6124 09 15 000 6123 09 15 000 6125 09 15 000 6122 09 15 000 6111 09 15 000 6126	09 15 000 6224 09 15 000 6223 09 15 000 6225 09 15 000 6222 09 15 000 6221 09 15 000 6226																							

FO contacts For 1 mm plastic fibre	20 10 001 3211	20 10 001 3221	
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Technical characteristics

Specifications	DIN EN 61 984 DIN VDE 0110
Approvals	SEV
Inserts	
Number of contacts	16, 24 + PE
Electrical data acc. to DIN EN 61 984	16 A 500 V 6 kV 3
Rated current	16 A
Rated voltage	500 V
Rated impulse voltage	6 kV
Pollution degree	3
– Pollution degree 2 also	16 A 400/690 V 6 kV 2
Rated voltage acc. to UL/CSA	600 V
Insulation resistance	≥ 10 ¹⁰ Ω
Material	Polycarbonate
Grenztemperaturen	- 40 °C ... +125 °C
Flammability acc. to UL 94	V0
Mechanical working life – mating cycles	≥ 500

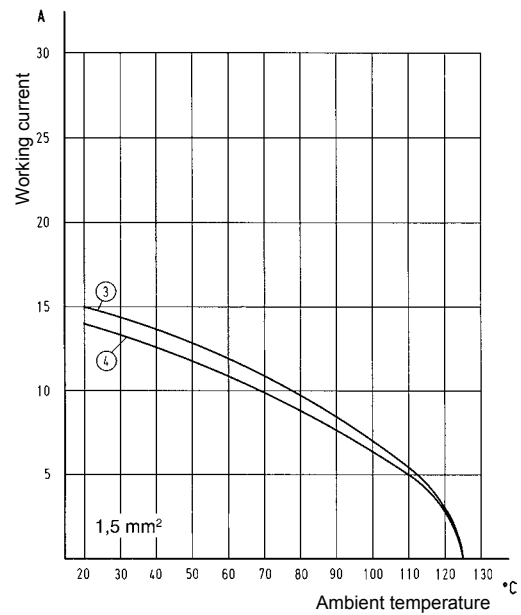
Contacts

Material	Copper alloy
Surface	
– hard silver plated	3 µm Ag
– hard gold plated	2 µm Au over 3 µm Ni
Contact resistance	≤ 3 mΩ
Crimp terminal	
– mm ²	0.14 - 2.5 mm ²
– AWG	26 - 14
– Stripping length	7.5 mm
Screw terminal	
– mm ²	1.0 - 2.5 mm ²
– AWG	18 - 14
– Tightening/test torque	0.5 Nm
– Stripping length	7.0 mm

Current Carrying Capacity

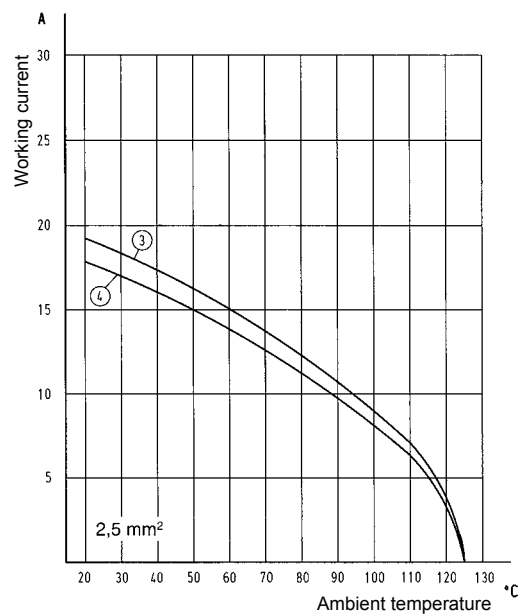
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Measuring and testing techniques according to DIN EN 60 512-5.



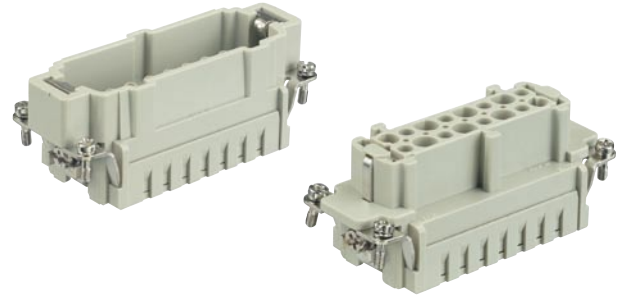
③ = Han® 16 E

④ = Han® 24 E

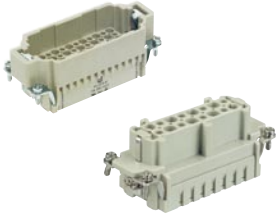
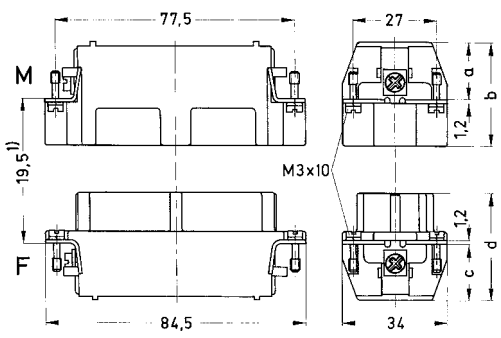

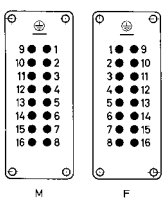
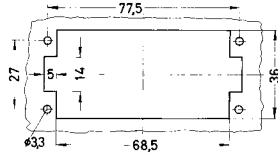



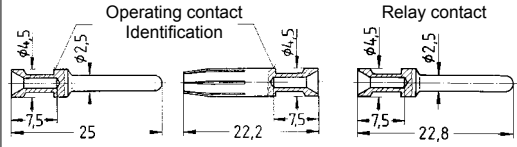
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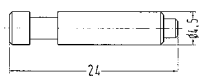
④ = Han® 24 E




Inserts

Identification	Number of contacts	Part-Number		Drawing	Dimensions in mm															
		Male insert (M)	Female insert (F)																	
Crimp terminal Order contacts separately 	16 24	09 33 016 2602 09 33 024 2602	09 33 016 2702 09 33 024 2702	 <p>¹⁾ Distance for contact max. 21 mm</p> <table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>Han E® screw</td> <td>18</td> <td>33</td> <td>18</td> <td>35</td> </tr> <tr> <td>Han E® crimp</td> <td>19</td> <td>24</td> <td>19</td> <td>36</td> </tr> </tbody> </table>		a	b	c	d	Han E® screw	18	33	18	35	Han E® crimp	19	24	19	36	
	a	b	c	d																
Han E® screw	18	33	18	35																
Han E® crimp	19	24	19	36																
Screw terminal With wire protection 	16 24	09 33 016 2601 09 33 024 2601	09 33 016 2701 09 33 024 2701	<p>Contact arrangement View from termination side</p>  <p>Panel cut out for inserts for use without hoods/housings</p> 																

Identification	Wire gauge (mm²)	Part-Number		Drawing	Dimensions in mm																																			
		Male contact (M)	Female contact (F)																																					
Crimp contacts Power contacts Silver plated Gold plated Relay contact Silver plated 	0.14-0.37 0.5 0.75 1.0 1.5 2.5 3.0 4.0 0.14-0.37 0.5 0.75 1.0 1.5 2.5 4.0 0.75-1.0 1.5 2.5	09 33 000 6127 09 33 000 6121 09 33 000 6114 09 33 000 6105 09 33 000 6104 09 33 000 6102 09 33 000 6106 09 33 000 6107 09 33 000 6117 09 33 000 6122 09 33 000 6115 09 33 000 6118 09 33 000 6116 09 33 000 6123 09 33 000 6119 09 33 000 6109 09 33 000 6110 09 33 000 6111	09 33 000 6204 09 33 000 6220 09 33 000 6214 09 33 000 6205 09 33 000 6204 09 33 000 6202 09 33 000 6206 09 33 000 6207 09 33 000 6217 09 33 000 6222 09 33 000 6215 09 33 000 6218 09 33 000 6216 09 33 000 6223 09 33 000 6221	 <p>Crimp contact identification</p> <table border="1"> <thead> <tr> <th>Identification</th> <th>Wire gauge</th> <th>Stripping length</th> </tr> </thead> <tbody> <tr> <td>no groove</td> <td>0.14-0.37 mm²</td> <td>AWG 26-22</td> <td>7.5 mm</td> </tr> <tr> <td>no groove</td> <td>0.5 mm²</td> <td>AWG 20</td> <td>7.5 mm</td> </tr> <tr> <td>1 groove*</td> <td>0.75 mm²</td> <td>AWG 18</td> <td>7.5 mm</td> </tr> <tr> <td>1 groove</td> <td>1.0 mm²</td> <td>AWG 18</td> <td>7.5 mm</td> </tr> <tr> <td>2 grooves</td> <td>1.5 mm²</td> <td>AWG 16</td> <td>7.5 mm</td> </tr> <tr> <td>3 grooves</td> <td>2.5 mm²</td> <td>AWG 14</td> <td>7.5 mm</td> </tr> <tr> <td>wide groove</td> <td>3.0 mm²</td> <td>AWG 12</td> <td>7.5 mm</td> </tr> <tr> <td>no groove</td> <td>4.0 mm²</td> <td>AWG 12</td> <td>7.5 mm</td> </tr> </tbody> </table> <p>* On the back crimp collar</p>	Identification	Wire gauge	Stripping length	no groove	0.14-0.37 mm²	AWG 26-22	7.5 mm	no groove	0.5 mm²	AWG 20	7.5 mm	1 groove*	0.75 mm²	AWG 18	7.5 mm	1 groove	1.0 mm²	AWG 18	7.5 mm	2 grooves	1.5 mm²	AWG 16	7.5 mm	3 grooves	2.5 mm²	AWG 14	7.5 mm	wide groove	3.0 mm²	AWG 12	7.5 mm	no groove	4.0 mm²	AWG 12	7.5 mm	
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no groove	4.0 mm²	AWG 12	7.5 mm																																					

Coding pin 			20 10 001 3221	Use of the coding pin prevents incorrect mating to other connectors of the same type. The male pin should be omitted 
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Technical characteristics

Specifications	DIN EN 61 984 DIN VDE 0110
Approvals	 SEV
Inserts	
Number of contacts	6, 12 (2 x 6) + PE
Electrical data acc. to DIN EN 61 984	35 A 490/600 V 6 kV 3
Rated current	35 A
Rated voltage conductor - ground	400 V
Rated voltage conductor - conductor	690 V
Rated impulse voltage	6 kV
Pollution degree	3
- Pollution degree 2 also	35 A 500 V 6 kV 2
Rated voltage acc. to UL/CSA	600 V
Insulation resistance	$\geq 10^{10} \Omega$
Material	Polycarbonate
Grenztemperaturen	- 40 °C ... +125 °C
Flammability acc. to UL 94	V0
Mechanical working life - mating cycles	≥ 500

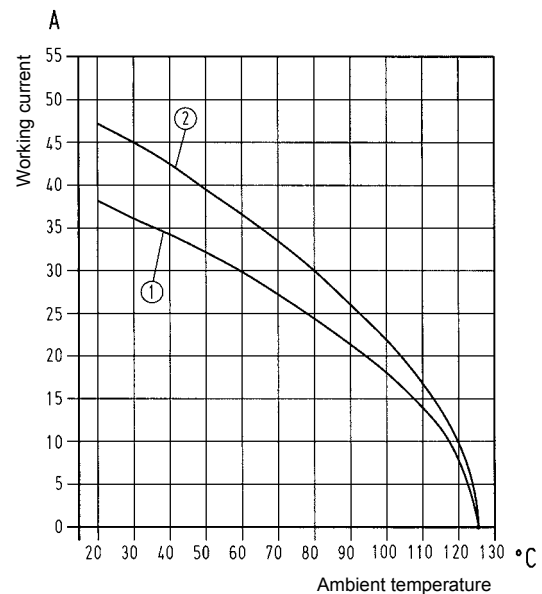
Contacts

Material	Copper alloy
Surface	
- hard silver plated	3 μm Ag
Contact resistance	$\leq 1 \text{ m}\Omega$
Screw terminal	
- mm ²	6 mm ²
- AWG	10
- Tightening torque	1.2 Nm

Current Carrying Capacity

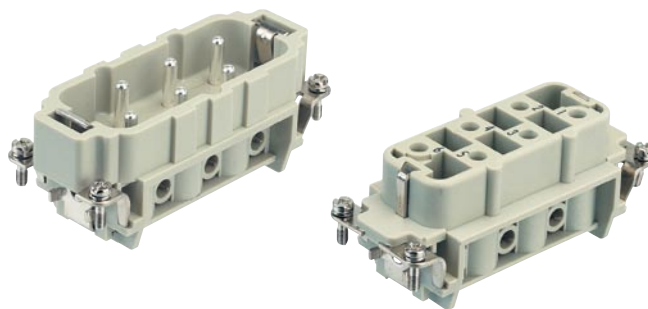
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Measuring and testing techniques according to DIN EN 60 512-5.



① = Wire gauge: 4 mm²

② = Wire gauge: 6 mm²



Inserts

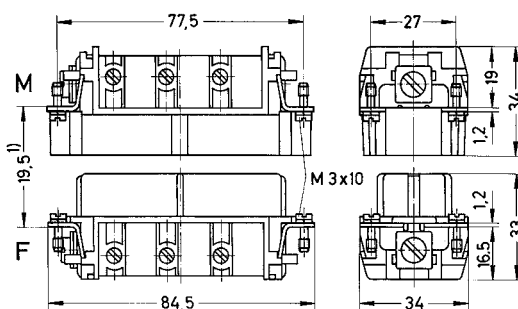
Identification	Size	Part-Number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		

Screw terminal

16

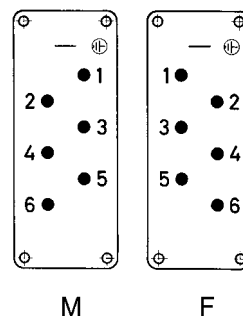
09 31 006 2601

09 31 006 2701

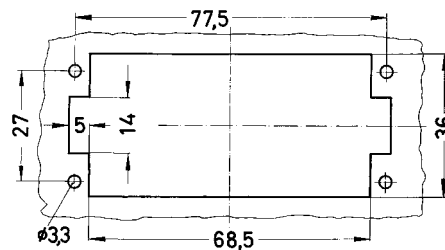


¹⁾ Distance for contact max. 21 mm

Contact arrangement
View termination side



Panel cut out for inserts
for use without hoods/housings





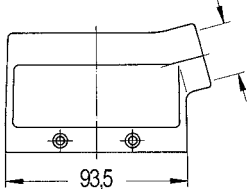
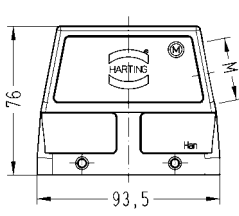
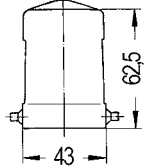
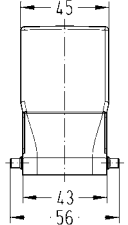

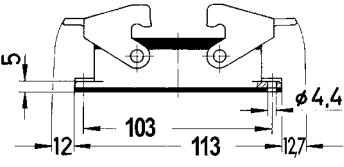
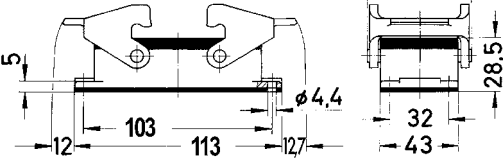



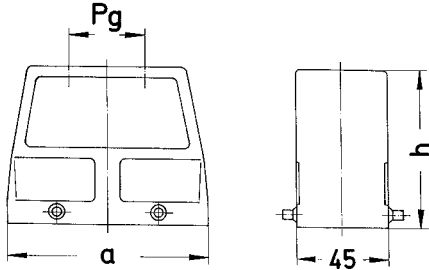

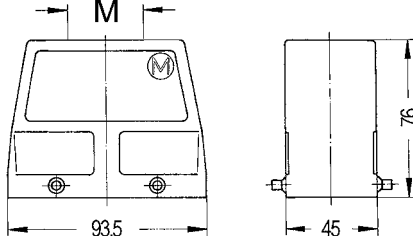

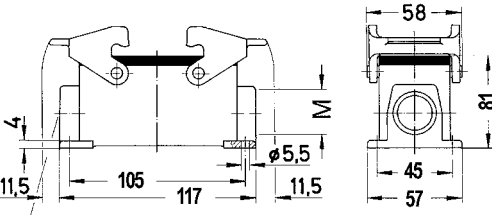
Features


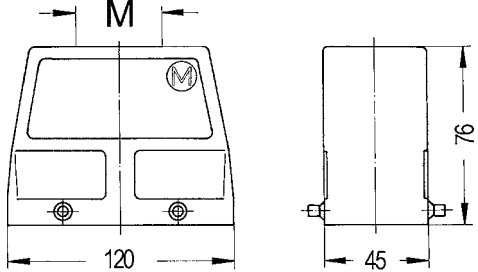

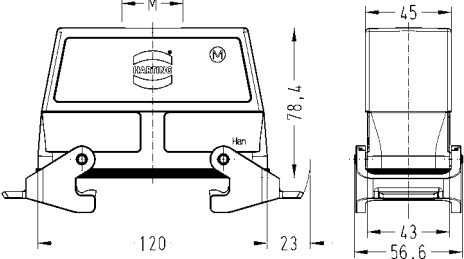

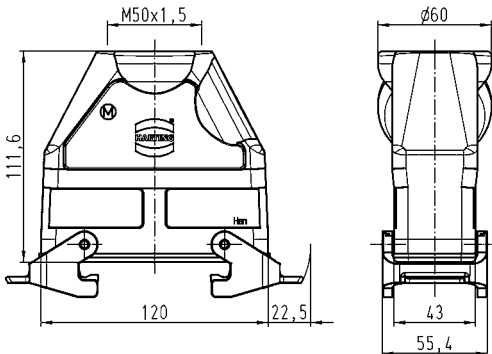
- For harsh environmental requirements
- Black Design
- Locking levers can be exchanged

Technical characteristics

Specifications	DIN EN 61 984 DIN VDE 0110
Material	Aluminium die cast alloy
Surface	Powder coated
Colour	Black, RAL 9005
Locking element	Stainless steel
Lever type	Han-Easy Lock®
Hoods/housings seal	NBR
Limiting temperatures	- 40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529 in locked position	IP 65

Identification	Part-Number		Cable entry	Drawing	Dimensions in mm
	Low construction	High construction			
Hoods Side entry Han® 16 B  Side entry Han® 16 B 	09 30 716 1520 19 30 716 1522	19 30 716 0527	Pg 21 M32 M32	 	 
Housing, bulkhead mounting With 2 locking levers 	09 30 716 0301				

Identification	Part-Number		Cable entry	Drawing	Dimensions in mm									
	Low construction	High construction												
Hoods Top entry Han® 16 B 	09 30 716 1420	09 30 716 0420	Pg 21	 <table border="1" data-bbox="1038 689 1369 797"> <thead> <tr> <th>Construction</th> <th>a</th> <th>b</th> </tr> </thead> <tbody> <tr> <td>low</td> <td>93.5</td> <td>62.5</td> </tr> <tr> <td>high</td> <td>93.5</td> <td>76</td> </tr> </tbody> </table>	Construction	a	b	low	93.5	62.5	high	93.5	76	
Construction	a	b												
low	93.5	62.5												
high	93.5	76												
Top entry Han® 16 B 		19 30 716 0426 19 30 716 0427 19 30 716 0428	M25 M32 M40											
Housings surface mounting Han® 16 B 		19 30 716 0232	1xM32											

Identification	Part-Number		Cable entry	Drawing	Dimensions in mm
	Low construction	High construction			
Hood Top entry Han® 24 B 		19 30 724 0427 19 30 724 0429	M32 M50		
Hoods, cable to cable Han® 24 B with 2 locking levers 	19 30 724 0737		M25		
Han® 24 B with 2 locking levers 		19 30 724 0729	M50		



Features

- Optimised handling for big wires or multiple cables
- Reduced wiring times
- Visible wiring
- Integrated cable gland
- Cord grip
- Captive screws
- Optimised cable entry

Technical characteristics

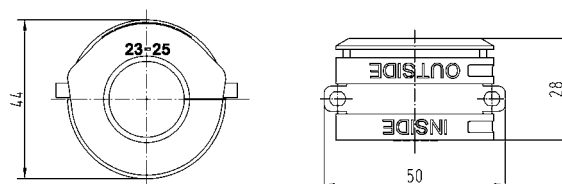
Material	Aluminium die-cast
Surface	Powder-coated RAL 7037 (grey)
Seal	NBR
Conduit adaptor	POM
Limiting temperatures	-40 °C ... +85 °C
Degree of protection acc. to DIN 60 529	IP 65

Identification	Part number	Size	Drawing	Dimensions in mm
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Han® Easy Hood

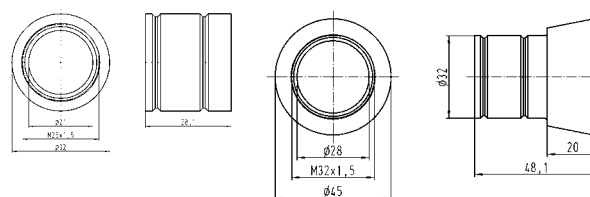
- Cable seal 20 - 22 mm
- Cable seal 23 - 25 mm
- Cable seal 26 - 28 mm
- Cable seal 29 - 31 mm
- Cable seal 32 - 34 mm

11 30 000 9955	—
11 30 000 9956	—
11 30 000 9957	—
11 30 000 9958	—
11 30 000 9959	—



Thread adaptor

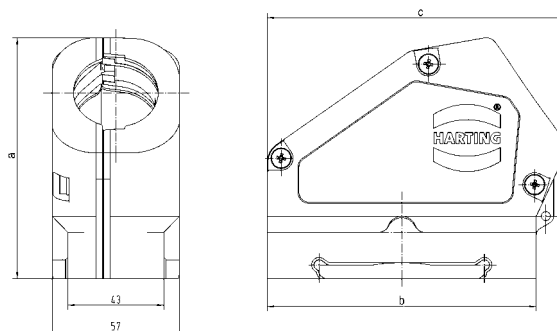
11 30 000 9961	M25
11 30 000 9962	M32



Han® Easy Hood

Side entry

11 30 716 0520	16 B
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Size	a	b	c
16 B	100 mm	94 mm	112 mm
24 B	108 mm	120.5 mm	139 mm

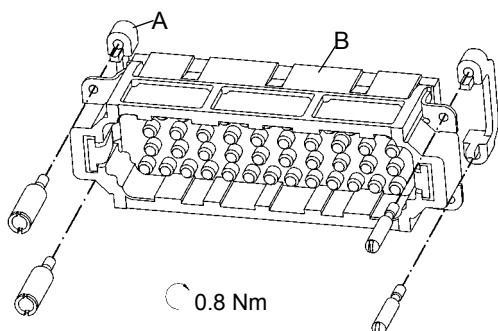
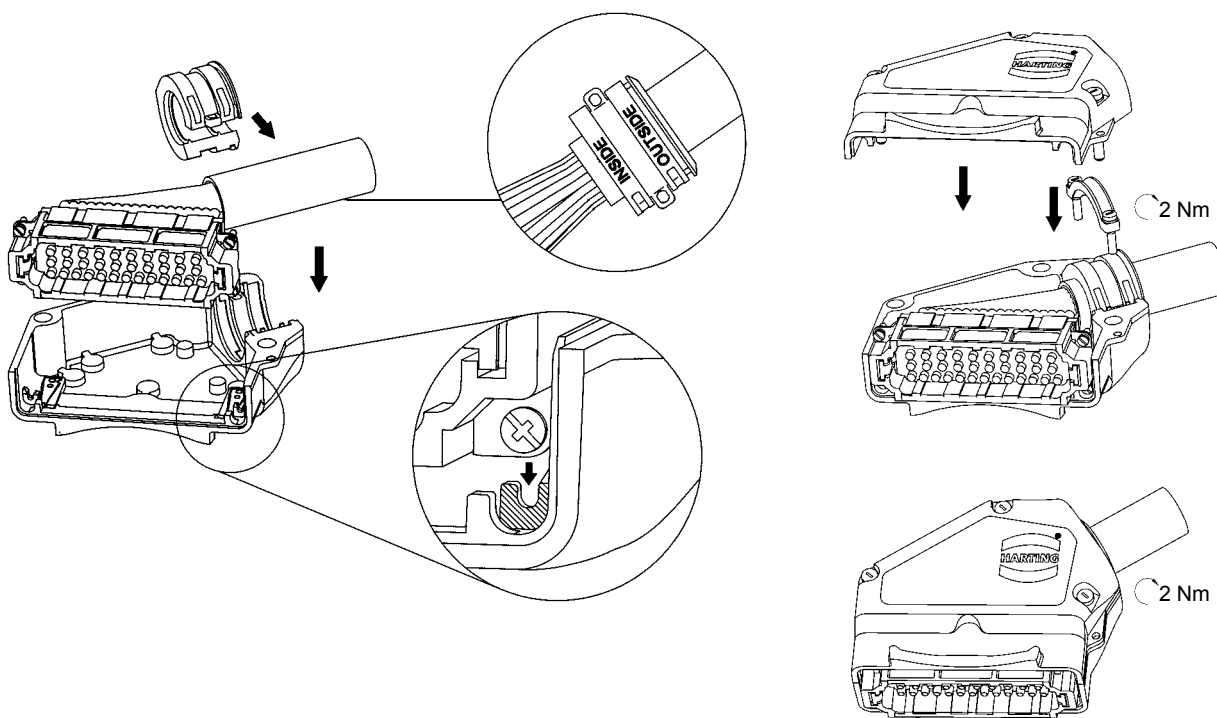
Packaging content

Upper hood, lower hood,
3 fixing screws, cord grip,
2 screws for clamp fixing,
2 adaptors for guide pins and bushes



Technical Description

The Han® Easy Hood offers a vertical split into two shells with new assembling possibilities. Assembly processes can be changed to much more modular production steps with new logistics. The wiring can be controlled. All manual movements changed from axial to vertical processes leading to automation possibilities.



Note when using guide pins / bushes:

When using guide pins / bushes the user needs to apply the adaptors „A“ on both sides of the insert „B“. The recommended tightening torque is 0.8 Nm. Afterwards the insert can be placed in the Han® Easy Hood.