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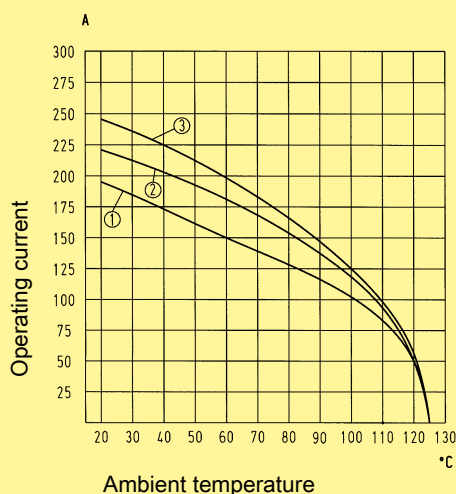
Features

- Only to be used with Han® 24 HPR special hoods and housings (see page 14.04)
- The ideal connector for transmission of high currents requiring little space
- The vertical and angled versions offer solutions for almost all applications
- The angled versions offer a space-saving 90° cable wiring

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



① Wire gauge 35 mm²

② Wire gauge 50 mm²

③ Wire gauge 70 mm²

Technical characteristics

Specifications	DIN EN 61 984 DIN EN 60 664-1
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Inserts

Number of contacts	3, 3/2 + PE
Electrical data acc. to EN 61 984	
Power area	200 A 1150/2000 V 8 kV 3
Rated current	200 A
Rated voltage conductor - ground	1150 V
Rated voltage conductor - conductor	2000 V
Rated impulse voltage	8 kV
Pollution degree	3
Pollution degree 2 also	200 A 2000 V 12 kV 2
Signal area	16 A 400 V 6 kV 3
Rated current	16 A
Rated voltage	400 V
Rated impulse voltage	6 kV
Pollution degree	3
Pollution degree 2 also	16 A 500 V 6 kV 2
Insulation resistance	≥ 10 ¹⁰ Ω
Material	polycarbonate
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life	
- mating cycles	≥ 500

Contacts

Material	copper alloy
Surface	silver
Contact resistance	≤ 0.2 mΩ

Axial screw termination

Power contacts	
- Wire gauge ¹⁾	35 ... 70 mm²
- AWG	2 ... 00
- Hexagonal driver	SW 5, 09 99 000 0371, Page 99.05
- Stripping length	22 mm

- Tightening torque

mm²	35	50	70
Nm	8	9	10

PE contact (only Han® K 3/2)

- Wire gauge ¹⁾	16 ... 35 mm²
- AWG	5 ... 2
- Hexagonal driver	SW 4, 09 99 000 0370, Page 99.05
- Stripping length	14 mm
- Tightening torque	6 Nm

Signal contact (only Han® K 3/2)

- Wire gauge ¹⁾	2.5 mm²
- AWG	14
- Stripping length	7 mm
- Tightening torque	0.5 Nm

Hoods/Housings

For technical details see chapter 31

Number of contacts

3/0 without

3/2 with



Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
Axial screw terminal straight angled 	Han® K	09 38 005 2621	09 38 005 2721	 	
Axial screw terminal straight angled 	Han® K	09 38 005 2601	09 38 005 2701	 	
Axial screw terminal straight angled 	Han® K	09 38 005 2602	09 38 005 2702	 	

Distance for contact max. 21 mm

Distance for contact max. 21 mm

Han HC
Modular

Stock items in bold type

Identification	Part number	M	Drawing	Dimensions in mm
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Stock items in bold type

Regional Express Railcars
of the series ET 424-426
Bombardier Transportation,
Siemens AG, ALSTOM



Motor connection of the traction bogie
with Han® K 3/0 and Han® HPR hood/
housing
Bombardier Transportation,
Siemens AG, ALSTOM

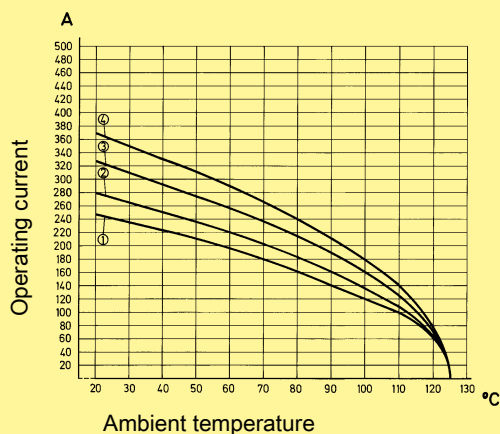
Han HC
Modular

Current carrying capacity

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



- ① Wire gauge 50 mm² ② Wire gauge 70 mm²
 ③ Wire gauge 95 mm² ④ Wire gauge 120 mm²
 three contacts in Han® 24 HPR

Technical characteristics

Specifications

DIN EN 60 664-1
DIN EN 61 984

Inserts

Number of contacts	1, 2, 3 or 3 + PE
Electrical data acc. to EN 61 984	
without adapter	350 A 2000 V 12 kV 3
Rated current	350 A
Rated voltage	2000 V
Rated impulse voltage	12 kV
Pollution degree	3
with adapter	350 A 4000 V 18 kV 3
Rated current	350 A
Rated voltage	4000 V
Rated impulse voltage	18 kV
Pollution degree	3
Insulation resistance	≥ 10 ¹⁰ Ω
Material	polyamide
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life	
- mating cycles	≥ 500

Contacts

Material	copper alloy
Surface	silver
Contact resistance	≤ 0.2 mΩ
Axial screw termination	
- Wire gauge ¹⁾	35 ... 120 mm ²
- AWG	1 ... 0000
- Stripping length	19 ... 20 mm
- Max. cable diameter	19.5 mm
- Tightening torque	
Screw terminal	
- Thread	M 10
- Wrench size	SW 17
- Tightening torque	14 Nm

mm ²	35	50	70	95	120
Nm	8	10	12	14	16

Hoods/Housings

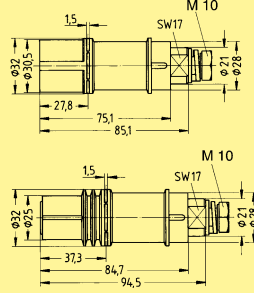
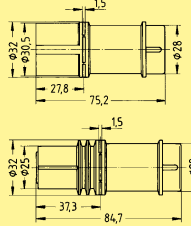
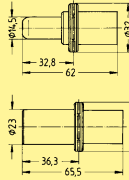
For technical details see chapter 31

Frame

Tightening torque of the fixing screws	0.5 Nm
Tightening torque of the cross-tying screws on the frame for 4 poles	1.5 Nm



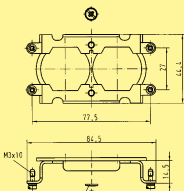
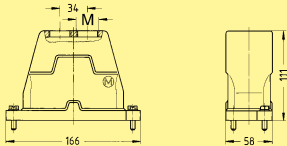
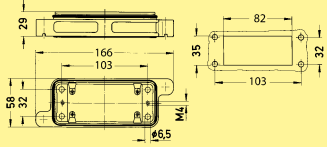
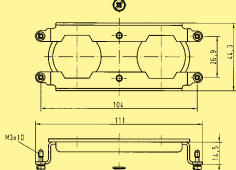
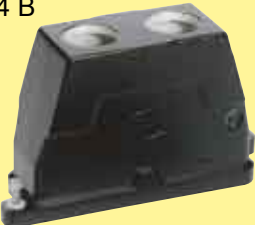
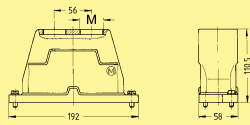
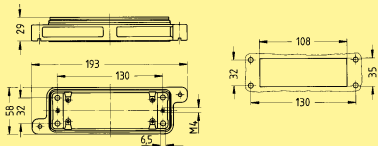
Modular High Current Connector System

Identification	Part number		Wire gauge	Drawing	Dimensions in mm
	Male contact	Female contact			
Contacts with Screw terminal for housing bulkhead mounting 	09 11 001 2655	09 11 001 2755	for cable lug up to max. 120 mm ²		
with Axial screw termination 	09 11 001 2651 09 11 001 2652	09 11 001 2751 09 11 001 2752	35 ... 70 mm ² 95 ... 120 mm ²		
PE contact with Axial screw termination 	09 11 000 6156	09 11 000 6256	35 ... 70 mm ²		Han HC Modular
Hexagonal driver Adapter (SW 5) 	09 99 000 0371				
Identification	Part number	M	SW	Drawing	Dimensions in mm
Hexagonal adapter metal version with O-Ring 	19 36 000 5134 19 36 000 5135	25 32	30 40		

Stock items in bold type

Frame	Part number	Hoods/Housings	M	Part number
1 pole 	09 11 000 9951	Hoods Han® HPR 6 B 	25 32	19 40 006 0411 19 40 006 0412
		Housings, bulk-head mounting Han® HPR 6 B 	—	09 40 006 0311
3 poles 	09 11 000 9954	Hoods Han® M 48 B 	4 x 25	19 37 048 0401
3 poles 	09 11 000 9955	Housings, bulk-head mounting Han® M 48 B 	—	09 37 048 0301

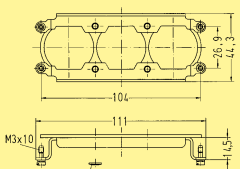
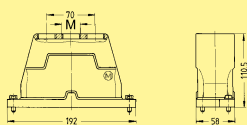
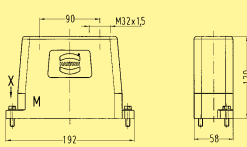
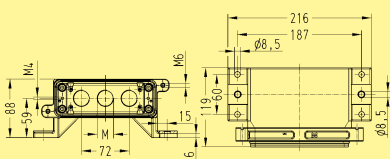
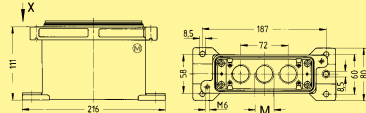
Stock items in bold type

Frame	Part number	Hoods/Housings	M	Part number
2 poles   enclosed separately	09 11 000 9952	Hoods Han® HPR 16 B   Housings, bulk-head mounting Han® HPR 16 B  	2 x 25	19 40 016 0431
2 poles   enclosed separately	09 11 000 9956	Hoods Han® HPR 24 B   Housings, bulk-head mounting Han® HPR 24 B  	2 x 32	19 40 024 0432

Han HC
Modular

* A working voltage of 4000 V is only possible to realize by using a hexagonal adapter and the HARTING cable gland, in order to realize the clearance and creepage distance according to DIN EN 60 664-1.

Stock items in bold type

Frame	Part number	Hoods/Housings	M	Part number
3 poles   enclosed separately	09 11 000 9963	Hoods Han® HPR 24 B  	3 x 25	19 40 024 0461
		Hoods Han® HPR 24 B  	3 x 32	19 40 024 0467
		Housings, bulk-head mounting Han® HPR 24 B  Drawing see page 14.09	—	09 40 024 0311
		Housings, surface mounting Han® HPR 24 B horizontal version  	3 x 25	19 40 024 0931
		Housings, surface mounting Han® HPR 24 B straight version  	3 x 25	19 40 024 1231

* A working voltage of 4000 V is only possible to realize by using a hexagonal adapter and the HARTING cable gland, in order to realize the clearance and creepage distance according to DIN EN 60 664-1.

Assembly instructions

Remarks on the axial screw termination see page 00.15

Step 1: The outer diameter of the cable must not exceed 19.5 mm.

Strip the cable by 19 mm.

Insert the cable through hood.

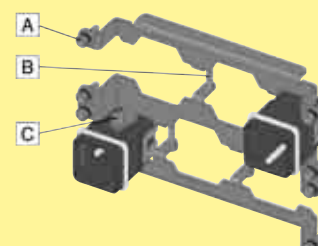
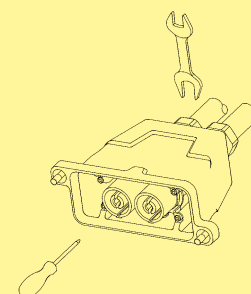
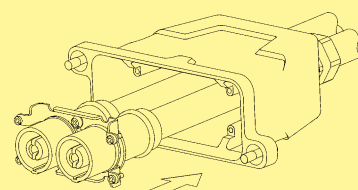
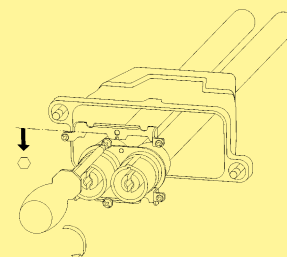
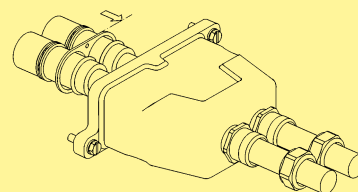
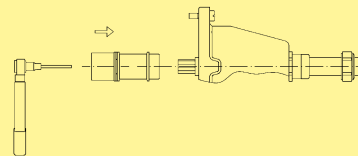
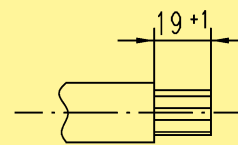
Step 2: Press the Han NC contact on the cable strand and apply tightening torque according table 1 by using a tightening torques tool. Take care that all cable strands fit completely inside the contact termination cavity. During assembling adhere the cable and the contact to minimise axial movement or twisting.

Step 3: Move the perforated plate D across the HC contacts.

Step 4: Fit frame E onto the hexagon shape of the HC contact. Coding can be arranged by turning the contact within 60° steps. Bolt the frame E together with perforated plate D.

Step 5: Push back the packet inside the hood.

Step 6: Tighten the four M3 (tightening torque 0.5 Nm) screws and the cable gland according manufacturer recommendation.



During the assembly of the frame for 4 poles the following tightening torques have to be taken into consideration:

A = 0.5 Nm

B = 1.5 Nm

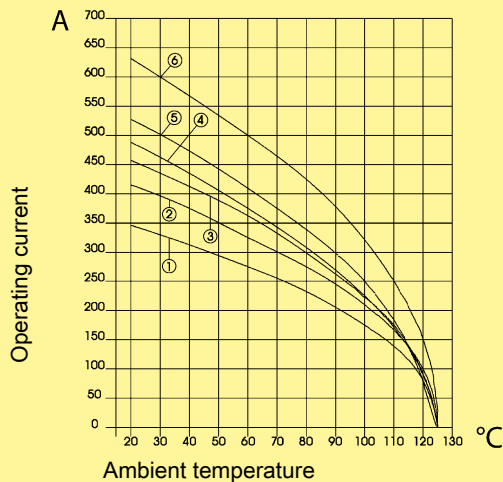
C = 0.25 Nm

Current carrying capacity

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



- ① Wire gauge 70 mm² ② Wire gauge 95 mm²
 ③ Wire gauge 120 mm² ④ Wire gauge 150 mm²
 ⑤ Wire gauge 180 mm² ⑥ Wire gauge 240 mm²
 with cable SHXAFO1x240, 4 kV

Technical characteristics

Specifications

DIN EN 60 664-1
DIN EN 61 984

Inserts

Number of contacts	1, 2
Electrical data acc. to EN 61 984	650 A 4000 V 18 kV 3
Rated current	650 A
Rated voltage	4000 V
Rated impulse voltage	18 kV
Pollution degree	3
Insulation resistance	≥ 10 ¹⁰ Ω
Material	polyamide
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 500

Contacts

Material	copper alloy
Surface	silver
Contact resistance	≤ 0.2 mΩ
Axial screw termination	
- Wire gauge ¹⁾	70 ... 185 mm ²
- MCM	138 ... 350
- Stripping length	23 ... 25 mm
- Max. cable diameter	26.5 mm
- Tightening torque	
Screw terminal	
- Thread	M 12
- Tightening torque	16 ... 18 Nm

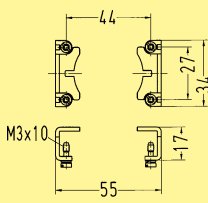
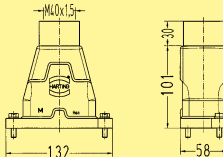
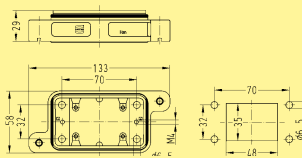
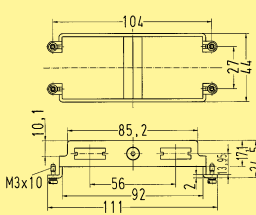
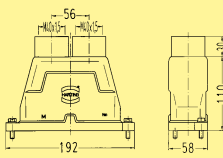
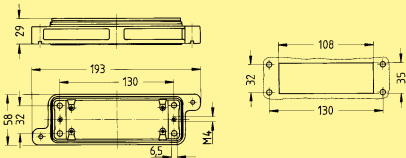
mm ²	70	95	120	150	185
Nm	12	14	16	17	18

Hoods/Housings

For technical details see chapter 31

Frame

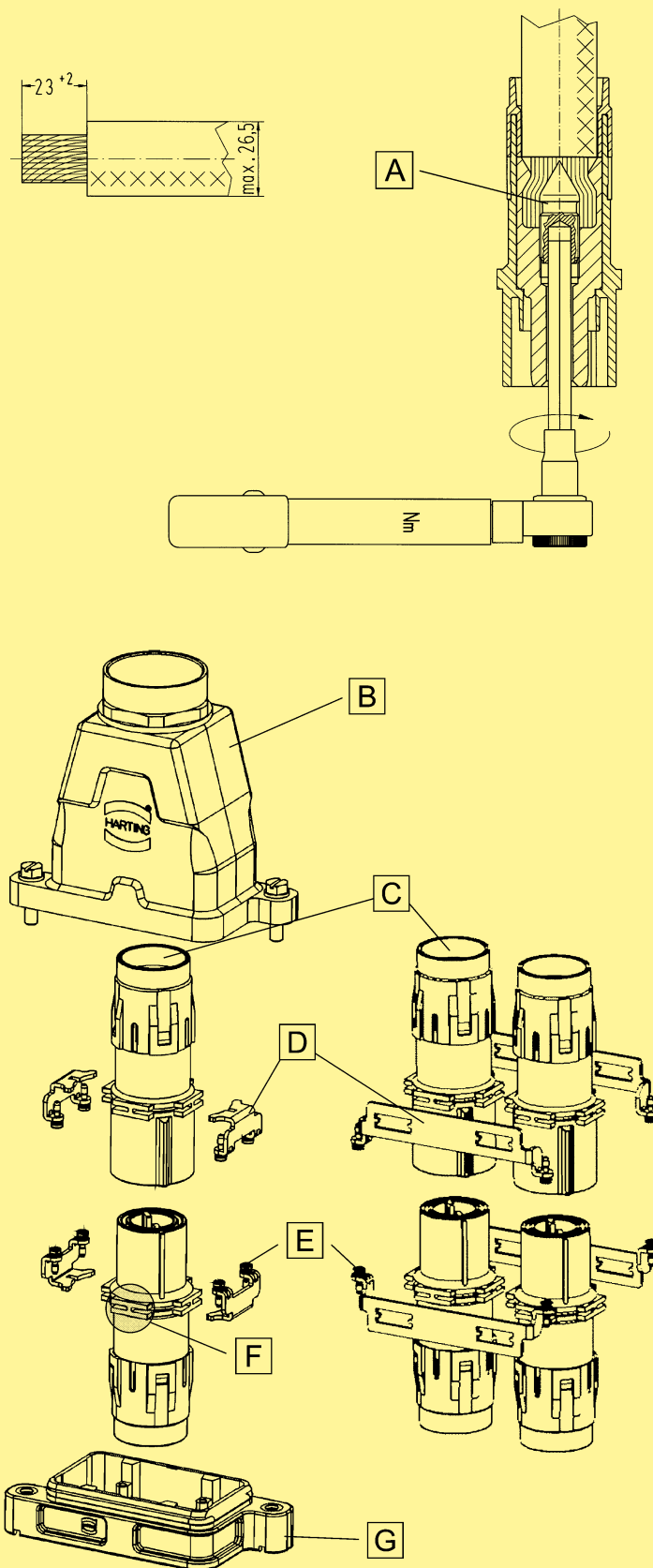
Tightening torque of the fixing screws	0.5 Nm
Material	stainless steel

Frame	Part number	Hoods/Housings	M	Part number
1 pole  	09 11 000 9971	Hood Han® HPR 6 B  	40	19 40 006 0418
		Housings bulk-head mounting* Han® HPR 6 B  	—	09 40 006 0314
2 poles  	09 11 000 9972	Hood Han® HPR 24 B  	2 x 40	19 40 024 0438
		Housings bulk-head mounting* Han® HPR 24 B  	—	09 40 024 0311

* HPR mounting frames of appropriate size from chapter 31 are not fitting for compatibility

Stock items in bold type

Assembly instructions



1. Strip cable to 23+2 mm.

2. Push conductor through the cable gland and the housing. Push the stripped end of the conductor into the termination entry of the module until the insulation touches the contact.

3. To tighten the axial screw, a hexagonal wrench size 8 is needed. Insert the hexagonal wrench on the mating side of the contact. At the same time, push the conductor over the axial screw. The locking screw has to be tightened with the recommended tightening torque that is determined by the conductor's cross section.

4. Once the modules are terminated, they are mounted into the housing by using two metal frames (tightening torque of the fixing screws = 0.5 Nm). The modules have 4 pegs formed by 2 parallel ribs (each peg shapes like a "H"). Each rib takes 1 pole frame, where the lateral link has to go into the relief of the frame. The 2 pole frames have 2 cutouts on the wall which get fitted to the "H"-shaped pegs (see figure). The heads of the screws have to face the mating direction of the module. Coding can be established by rotating the contact by 90 degrees. Therefore it is important that the corresponding modules are assembled in the correct position otherwise mating is not possible.

5. After assembling the modules in the housing, the tightening torque of the locking screw can be checked and corrected if necessary.

6. After final assembly of the contacts, the user should ensure that the cable is adequately strain relieved to protect the contact from radial stress.

A - Axialscrew, B - Hood, C - Termination entry,
D - Frame, E - Fixing screws, F - parallel ribs with
H-shape, G - Housings bulkhead mounting,



Features

- Easy assembly
- Good EMC features
- Secure termination, easy to control
- Vibration resistant acc. to DIN EN 61 373 Category 1B (Category 2 possible with usage of M6 distance bolts)
- Ideal motor / drive connector for transportation sector

Technical characteristics

Specifications

DIN EN 60 664-1
DIN EN 61 984

Inserts

Number of contacts	i. e. 4, 5, 6, 10 depending on the frame
Electrical data acc. to EN 61 984	350/650 A 4000 V 18 kV 3
Rated current	350/650 A
Rated voltage	4000 V
Rated impulse voltage	18 kV
Pollution degree	3
Insulation resistance	$\geq 10^{10} \Omega$
Material	polyamide
Limiting temperatures	-40 °C ... +125 °C
Flammability acc. to UL 94	V 0
Mechanical working life - mating cycles	≥ 500

Contacts Han® HC Modular 350

Material	copper alloy
Surface	silver
Contact resistance	$\leq 0.2 \text{ m}\Omega$
Axial screw termination	
- Wire gauge ¹⁾	35 ... 120 mm ²
- AWG	1 ... 0000
- Stripping length	19 ... 20 mm
- Max. cable diameter	19.5 mm

mm ²	35	50	70	95	120
Nm	8	10	12	14	16

- Tightening torque

Contacts Han® HC Modular 650

Material	copper alloy
Surface	silver
Contact resistance	$\leq 0.2 \text{ m}\Omega$
Axial screw termination	
- Wire gauge ¹⁾	70 ... 185 mm ²
- MCM	138 ... 350
- Stripping length	23 ... 25 mm
- Max. cable diameter	26.5 mm

mm ²	70	95	120	150	185
Nm	12	14	16	17	18

- Tightening torque

Frame

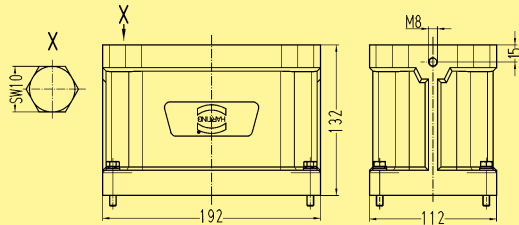
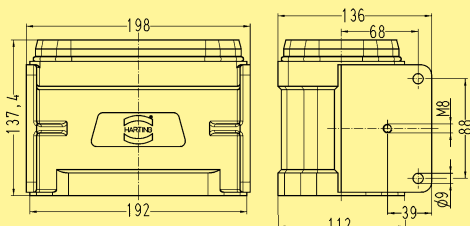
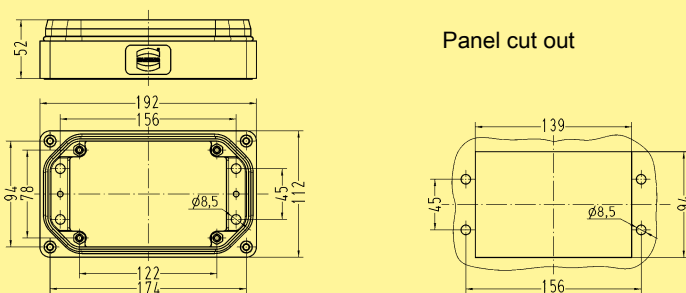
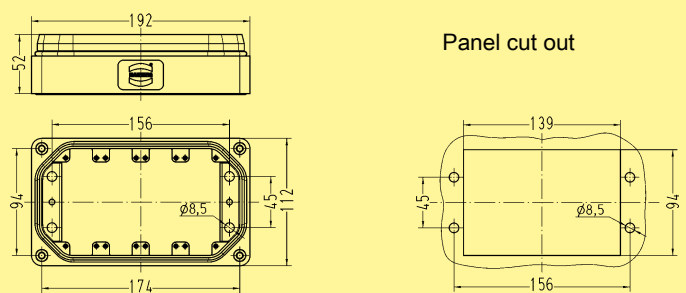
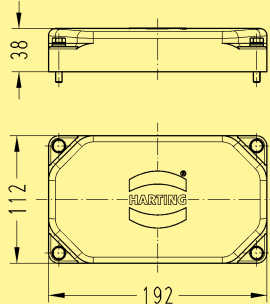
Tightening torque of the fixing screws	2 Nm
Material	stainless steel

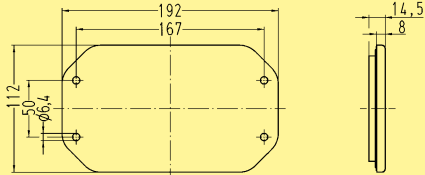
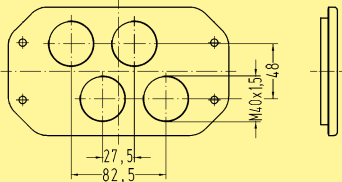
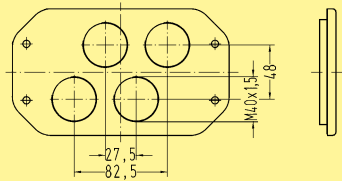
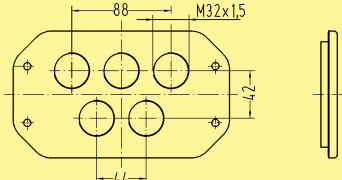
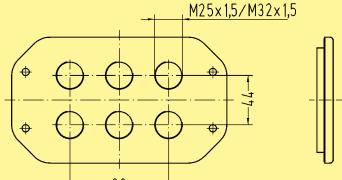
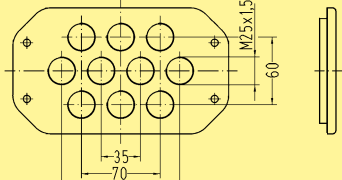
Technical characteristics

Han® HPR Hoods/Housings

Material	aluminium die-cast, corrosion resistant
Surface	
- Top coat	Epoxy powder paint RAL 9005
Locking element	Stainless steel
Tightening torque	4 Nm
Sealing	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529	
for coupled connector	IP 68

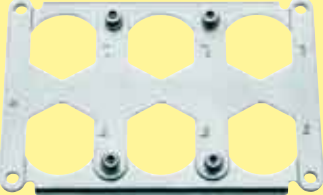
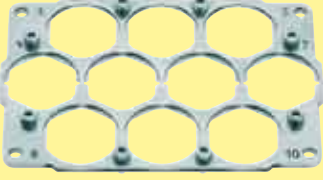
¹⁾ geometric wire gauge

Identification	Part number	Drawing	Dimensions in mm
Hoods 	09 40 048 0451		
Housings, surface mounting 	09 40 048 0951		
Housings, bulkhead mounting 	09 40 048 0311		
Housings, bulkhead mounting for 4 inserts size 16 B 	09 40 048 0331		
Protection covers 	09 40 048 5401		

Identification	Part number	M	Drawing	Dimensions in mm
Cover* without cable entry 	09 40 048 9801 (Distance bolt M 6) 09 40 048 9803 (Distance bolt M 5)	– –		
Cover* for male inserts 	19 40 048 9801 (Distance bolt M 5)	4 x 40		
Cover* for female inserts 	19 40 048 9901 (Distance bolt M 5)	4 x 40		
Han HC Modular Cover* 	19 40 048 9812 (Distance bolt M 6)	5 x 32		
Cover* 	19 40 048 9820 (Distance bolt M 6) 19 40 048 9822 (Distance bolt M 6)	6 x 25 6 x 32		
Cover* 	19 40 048 9860 (Distance bolt M 6)	10 x 25		

* Included in delivery range: 4 distance pieces, 4 screws M6, 4 washers

Stock items in bold type

Identification		Part number	
		male	female
Frame for 4 inserts size 16 B suitable for hoods and surface mounted housings (p. 14.16) in conjunction with cover 09 40 048 9803/ 19 40 048 9801/ 19 40 048 9901 only		09 40 048 9912	09 40 048 9912
Frame for 4 x HC 350 contacts + 2 x Han® Q 5/0		09 40 048 9810	09 40 048 9910
Frame for 4 x HC 650 contacts + 2 x Han® Q 5/0		09 40 048 9811	09 40 048 9911
Frame for 6 x HC 350 contacts		09 40 048 9806	09 40 048 9906
Frame for 4 x HC 350 contacts + PE		09 40 048 9809	09 40 048 9909
Frame for 10 x HC 350 contacts		09 40 048 9860	09 40 048 9960

Han HC
Modular

Stock items in bold type

