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Han® Hv ES / Han Hv E®



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Han
Hv E

Han Hv E®



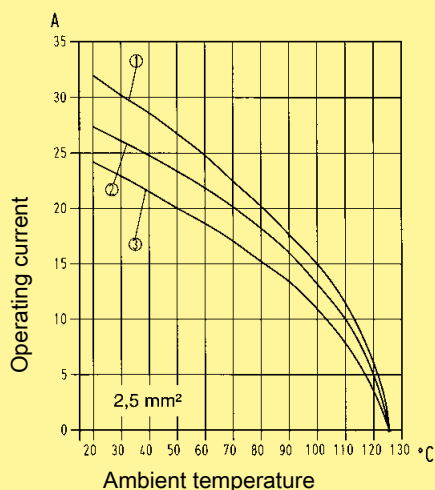
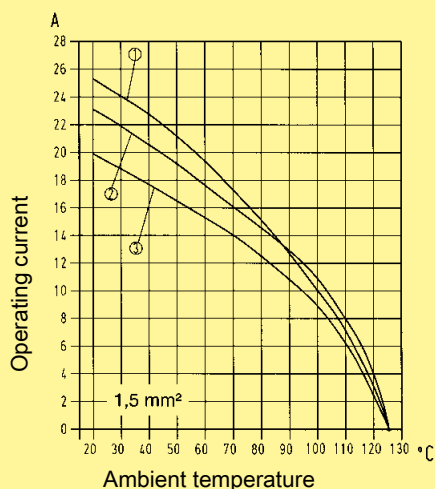
Features

- Designed for application up to 830 V
- Available in several termination techniques
- No special tools required
- Han Hv E® screw requires special Han Hv E® housings

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 Han® 3 Hv E
② Han® 6 Hv E
③ Han® 10 Hv E / Han® 16 Hv E

Technical characteristics

Specifications	DIN EN 61 984 DIN EN 60 664-1
Approvals	
Inserts	
Number of contacts	3, 6, 10, 12 (2x6), 16, 20 (2x10), 32 (2x16) + PE + 2 additional contacts for safe high voltage connections

Electrical data acc. to DIN EN 61 984

Han Hv E® 3, 6, 10, 12, 20 + PE	16 A 830 V 8 kV 3
Rated current	16 A
Rated voltage	830 V
Rated impulse voltage	8 kV
Pollution degree	3
Pollution degree 2 also	16 A 1000 V 8 kV 2
or	16 A 720/1250 V 8 kV 2
Relay contacts	16 A 500 V 6 kV 3

Han Hv E® 16, 32 + PE	16 A 400/690 V 6 kV 3
Rated current	16 A
Rated voltage conductor - ground	400 V
Rated voltage conductor - conductor	690 V
Rated impulse voltage	6 kV
Pollution degree	3
or	16 A 500 V 6 kV 3

Rated voltage acc. to UL/CSA	600 V
Relay contacts	250 V
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	- hard-silver plated
Contact resistance	≤ 1 mΩ
Crimp terminal	- Wire gauge ¹⁾ 0.5 ... 4 mm ² - AWG 20 ... 12
Screw terminal	- Wire gauge ¹⁾ 2.5 mm ² - AWG 14 - Tightening/test torque 0.5 Nm

Hoods/Housings

Technical characteristics	see page 04.03
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Accessories

Crimping tools	chapter 99
Cable clamps	chapter 40
Coding of hoods/housings	chapter 40
Label acc. to CSA-approval	chapter 40
Han-Snap®	chapter 11

¹⁾ geometric wire gauge

Han® Hv ES



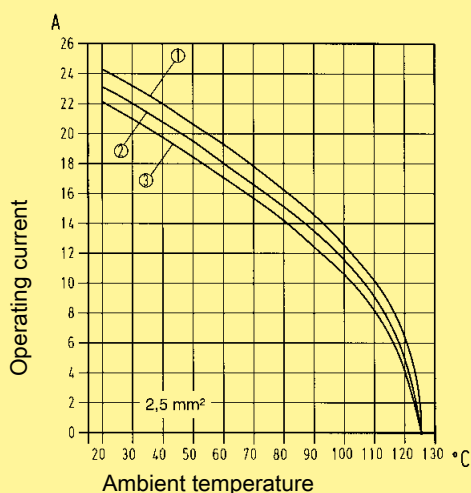
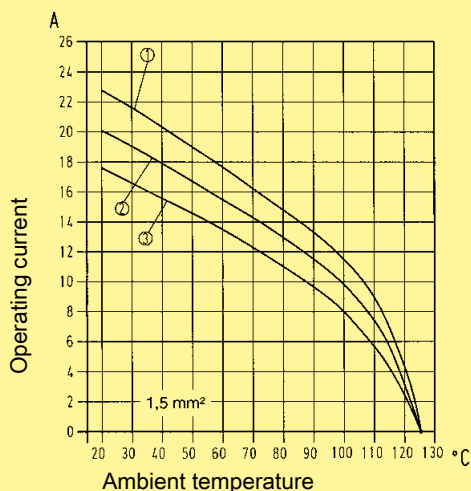
Features

- Designed for application up to 830 V
- Reliable cage clamp termination
- No special tools required
- Vibration proofed
- Not plug compatible to Han Hv E® screw/crimp terminal

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 Han® 3 Hv ES
- ② Han® 6 Hv ES
- ③ Han® 10 Hv ES

¹⁾ geometric wire gauge

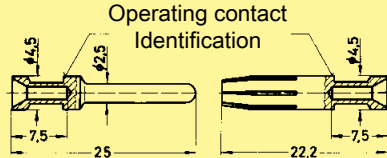
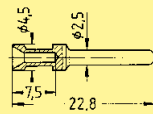
Technical characteristics

Specifications	DIN EN 61 984 DIN EN 60 664-1
Approvals	
Inserts	
Number of contacts	3, 6, 10, 12 (2x6), 20 (2x10) + PE + 2 additional contacts for safe high voltage connections
Electrical data acc. to DIN EN 61 984	16 A 830 V 8 kV 3
Rated current	16 A
Rated voltage	830 V
Rated impulse voltage	8 kV
Pollution degree	3
Pollution degree 2 also or	16 A 1000 V 8 kV 2 16 A 720/1250 V 8 kV 2
Relay contacts	16 A 500 V 6 kV 3
Rated voltage acc. to UL/CSA	600 V
Relay contacts	250 V
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	
- hard-silver plated	3 µm Ag
Contact resistance	≤ 3 mΩ
Cage clamp terminal	
- Wire gauge ¹⁾	0.14 ... 2.5 mm ²
- AWG	26 ... 14
Hoods/Housings	
Material	aluminium die-cast
Surface	powder-coated RAL 7037
Locking element	Han-Easy Lock®
Hoods/Housings sealing	NBR
Limiting temperatures	-40 °C ... +125 °C
Degree of protection acc. to DIN EN 60 529	
for coupled connector	IP 65
Further selection of hoods/housings see chapter 30 / chapter 31	
Accessories	
Cable clamps	chapter 40
Coding of hoods/housings	chapter 40
Label acc. to CSA-approval	chapter 40
Han-Snap®	chapter 11

Han Hv E[®] (Crimp terminal)

Contacts



Identification	Wire gauge (mm ²)	Male contacts	Female contacts	Drawing	Dimensions in mm																																
Crimp contacts																																					
Operating contacts silver plated																																					
																																					
	0.5	09 33 000 6121	09 33 000 6220	Crimp contact identification	<table><tr><th>Identification</th><th colspan="2">Wire gauge</th><th>Stripping length</th></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 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 mm²</td><td>AWG 12</td><td>7.5 mm</td></tr><tr><td>no groove</td><td>4 mm²</td><td>AWG 12</td><td>7.5 mm</td></tr></table>	Identification	Wire gauge		Stripping length	no groove	0.5 mm ²	AWG 20	7.5 mm	1 groove*	0.75 mm ²	AWG 18	7.5 mm	1 groove	1 mm ²	AWG 18	7.5 mm	2 grooves	1.5 mm ²	AWG 16	7.5 mm	3 grooves	2.5 mm ²	AWG 14	7.5 mm	wide groove	3 mm ²	AWG 12	7.5 mm	no groove	4 mm ²	AWG 12	7.5 mm
Identification	Wire gauge		Stripping length																																		
no groove	0.5 mm ²	AWG 20	7.5 mm																																		
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3 grooves	2.5 mm ²	AWG 14	7.5 mm																																		
wide groove	3 mm ²	AWG 12	7.5 mm																																		
no groove	4 mm ²	AWG 12	7.5 mm																																		
	0.75	09 33 000 6114	09 33 000 6214																																		
	1	09 33 000 6105	09 33 000 6205																																		
	1.5	09 33 000 6104	09 33 000 6204																																		
	2.5	09 33 000 6102	09 33 000 6202																																		
	3	09 33 000 6106	09 33 000 6206																																		
	4	09 33 000 6107	09 33 000 6207																																		
Relay contact	0.75-1	09 33 000 6109																																			
	1.5	09 33 000 6110																																			
	2.5	09 33 000 6111																																			
																																					

For a fully equipped crimp connector the following contacts are required:

Type	Contacts total	Operating contacts	Relay contacts
Han [®] 3 Hv E	5	3	2
Han [®] 6 Hv E	8	6	2
Han [®] 10 Hv E	12	10	2
Han [®] 12 Hv E	16	12	4
Han [®] 20 Hv E	24	20	4

Han[®] 3 Hv E/ES

Size 10 B

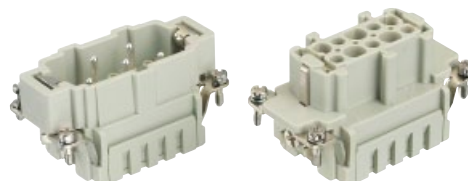
830 V 16 A

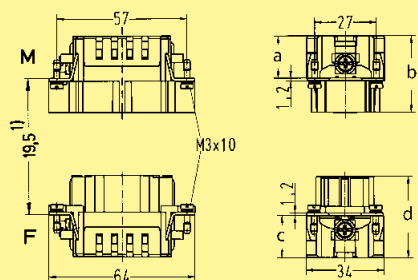
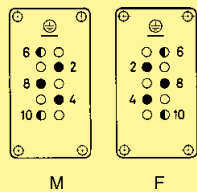
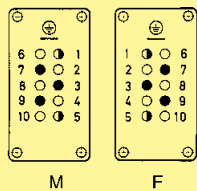
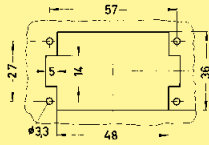


Number of contacts

$$3 + \textcircled{\text{⏏}}$$

+ 2 additional contacts for
safe high voltage connections



Part number																									
Identification	Series	Male insert (M)	Female insert (F)	Drawing	Dimensions in mm																				
Cage clamp terminal	Han® Hv ES				<table border="1"><thead><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr></thead><tbody><tr><td>Cage clamp terminal</td><td>18,4</td><td>33,4</td><td>18,4</td><td>35,6</td></tr><tr><td>Screw terminal</td><td>18,5</td><td>33,5</td><td>18</td><td>34,5</td></tr><tr><td>Crimp terminal</td><td></td><td></td><td></td><td></td></tr></tbody></table>		a	b	c	d	Cage clamp terminal	18,4	33,4	18,4	35,6	Screw terminal	18,5	33,5	18	34,5	Crimp terminal				
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Cage clamp terminal	18,4	33,4	18,4	35,6																					
Screw terminal	18,5	33,5	18	34,5																					
Crimp terminal																									
not plug compatible to screw/crimp terminal				1) Distance for contact max. 21 mm																					
Screw terminal	Han Hv E®			Contact arrangement (view from termination side) Han® 3 Hv ES 																					
Crimp terminal	Han Hv E®			Han® 3 Hv E 																					
Order crimp contacts separately (see page 04.04)				● Working contact ◐ Relay contact ○ Without contact Panel cut out for inserts for use without hoods/ housings 																					

Han
Hy E

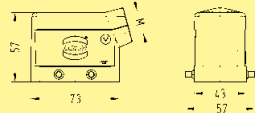
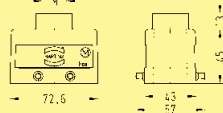
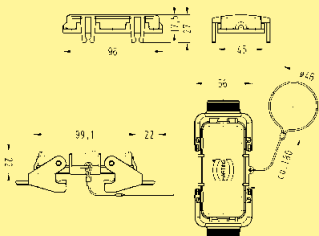
Hoods/Housings

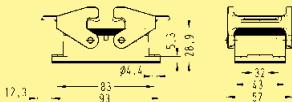
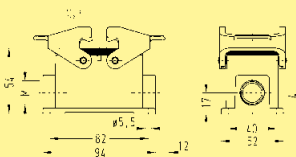
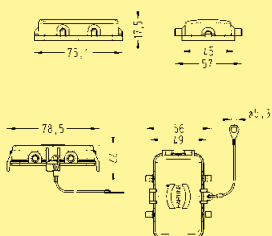
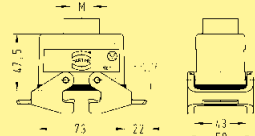
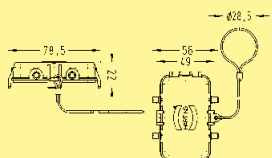
Han Hv E®

Size 10 B



Hoods/Housings, metal with 2 levers on the housing

Identification		Part number	M	Drawing	Dimensions in mm
Hoods side entry		19 34 003 0520	20		
Hoods top entry		19 34 003 0420 19 34 003 0421	20 25		
Protection covers plastic/metal		09 30 010 5401 09 30 010 5423			

Identification		Part number	M	Drawing	Dimensions in mm
Housings bulkhead mounting		09 34 003 0301		Panel cut out 60 x 35 mm 	
Housings surface mounting side entry		19 34 003 0270	20		
Protection covers for housings plastic/metal		09 30 010 5407 09 30 010 5425			
Hoods cable to cable top entry		19 34 003 0730 19 34 003 0731	20 25		
Protection covers for hoods cable to cable metal		09 30 010 5427			

Han® 6 Hv E/ES

Size 16 B

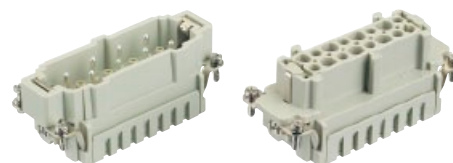
830 V 16 A

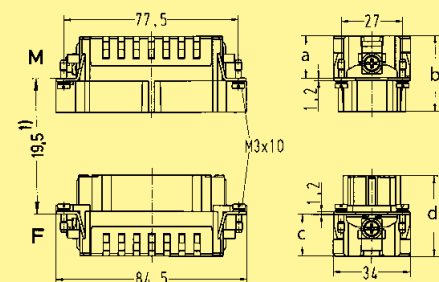
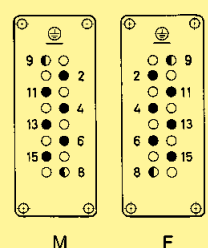
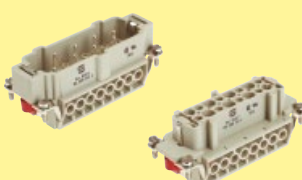
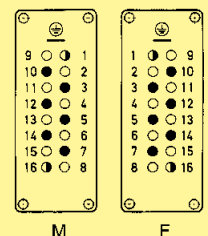
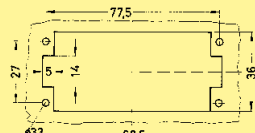
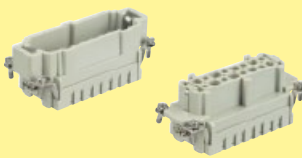


Number of contacts

6 +

+ 2 additional contacts for
safe high voltage connections

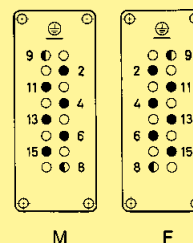


Part number																									
Identification	Series	Male insert (M)	Female insert (F)	Drawing	Dimensions in mm																				
Cage-clamp terminal  not plug compatible to screw/crimp terminal	Han® Hv ES 1-6	09 34 006 2616	09 34 006 2716	 <table><tr><td></td><td>a</td><td>b</td><td>c</td><td>d</td></tr><tr><td>Cage clamp terminal</td><td>18,4</td><td>33,4</td><td>18,4</td><td>35,6</td></tr><tr><td>Screw terminal</td><td>18,5</td><td>32,4</td><td>18</td><td>34,6</td></tr><tr><td>Crimp terminal</td><td>18,5</td><td>34,2</td><td>18</td><td>37</td></tr></table> 1) Distance for contact max. 21 mm Contact arrangement (view from termination side) Han® 6 Hv ES 		a	b	c	d	Cage clamp terminal	18,4	33,4	18,4	35,6	Screw terminal	18,5	32,4	18	34,6	Crimp terminal	18,5	34,2	18	37	
	a	b	c	d																					
Cage clamp terminal	18,4	33,4	18,4	35,6																					
Screw terminal	18,5	32,4	18	34,6																					
Crimp terminal	18,5	34,2	18	37																					
Screw terminal 	Han Hv E® 1-6	09 34 006 2601	09 34 006 2701	Han® 6 Hv E  ● Working contact ◐ Relay contact ○ Without contact Panel cut out for inserts for use without hoods/ housings 																					
Crimp terminal  Order crimp contacts separately (see page 04.04)	Han Hv E® 1-6	09 34 006 2602	09 34 006 2702																						

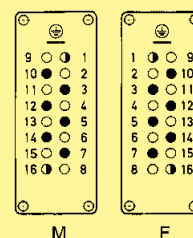
Han
Hv E

1) Distance for contact max. 21 mm

Contact arrangement (view from termination side)
Han® 6 Hv ES

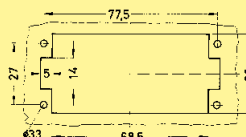


Han® 6 Hv E



- Working contact
- ◐ Relay contact
- Without contact

Panel cut out for inserts for use without hoods/
housings



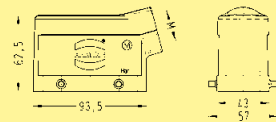
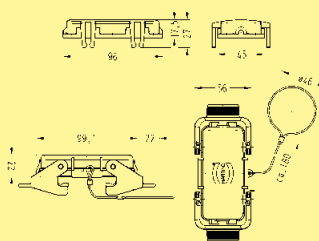
Hoods/Housings

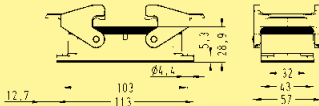
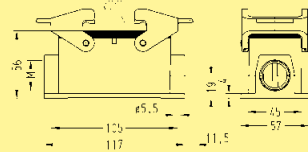
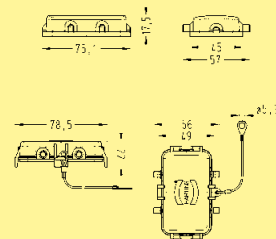
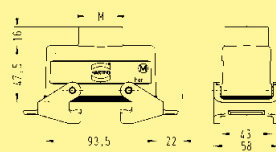
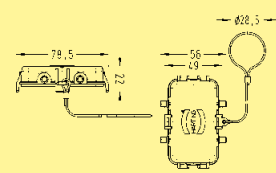
Han Hv E®

Size 16 B



Hoods/Housings, metal with 2 levers on the housing

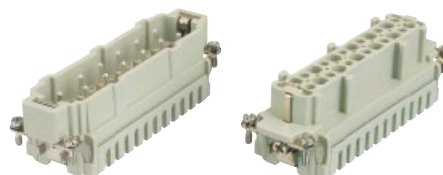
Identification	Part number	M	Drawing	Dimensions in mm
Hoods top entry 	19 34 006 0521	25		
Hoods side entry 	19 34 006 0421	25		
Protection covers plastic/metal 	09 30 016 5401 09 30 016 5422			

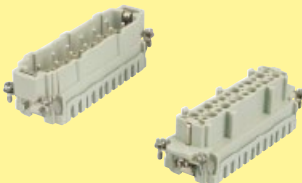
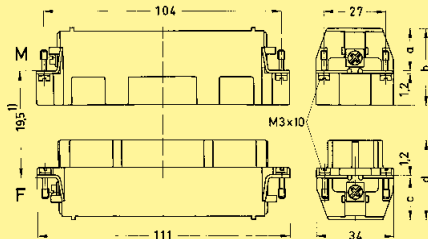
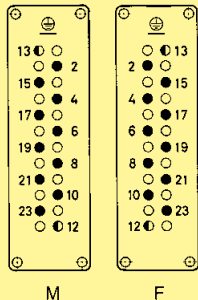
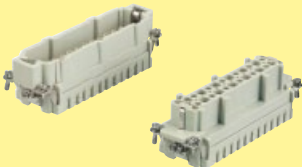
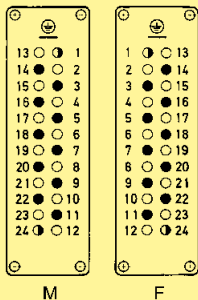
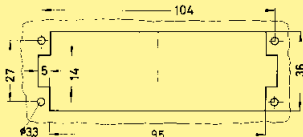
Identification	Part number	M	Drawing	Dimensions in mm
Housings bulkhead mounting 	09 34 006 0301		Panel cut out 82 x 35 mm 	
Housings surface mounting side entry 	19 34 006 0271	25		
Protection covers for housings plastic/metal 	09 30 016 5405 09 30 016 5425			
Hoods cable to cable top entry 	19 34 006 0731 19 34 006 0732	25 32		
Protection covers metal 	09 30 016 5426			

Number of contacts

10 + 

+ 2 additional contacts for
safe high voltage connections



Part number																									
Identification	Series	Male insert (M)	Female insert (F)	Drawing	Dimensions in mm																				
Cage-clamp terminal  not plug compatible to screw/crimp terminal	Han® Hv ES 1-10	09 34 010 2616	09 34 010 2716	 <table><tr><td></td><td>a</td><td>b</td><td>c</td><td>d</td></tr><tr><td>Cage clamp terminal</td><td>18,4</td><td>33,4</td><td>18,4</td><td>35,6</td></tr><tr><td>Screw terminal</td><td>18,5</td><td>35</td><td>18,5</td><td>35</td></tr><tr><td>Crimp terminal</td><td>18,5</td><td>35</td><td>18,5</td><td>35</td></tr></table> 1) Distance for contact max. 21 mm		a	b	c	d	Cage clamp terminal	18,4	33,4	18,4	35,6	Screw terminal	18,5	35	18,5	35	Crimp terminal	18,5	35	18,5	35	
	a	b	c	d																					
Cage clamp terminal	18,4	33,4	18,4	35,6																					
Screw terminal	18,5	35	18,5	35																					
Crimp terminal	18,5	35	18,5	35																					
Screw terminal 	Han Hv E® 1-10	09 34 010 2601	09 34 010 2701	Contact arrangement (view from termination side) Han® 10 Hv ES  M F																					
Crimp terminal  Order crimp contacts separately (see page 04.04)	Han Hv E® 1-10	09 34 010 2602	09 34 010 2702	Han® 10 Hv E  M F ● Working contact ◐ Relay contact ○ Without contact Panel cut out for inserts for use without hoods/housings 																					

Hoods/Housings

Han Hv E®

Size 24 B



Hoods/Housings, metal with 2 levers on the housing

Identification	Part number	M	Drawing	Dimensions in mm
Housings surface mounting side entry	19 34 010 0521	25		
Hoods top entry	19 34 010 0422	32		
Protection covers plastic/metal	09 30 024 5401 09 30 024 5422			

Identification	Part number	M	Drawing	Dimensions in mm
Housings bulkhead mounting	09 34 010 0301		Panel cut out 108 x 35 mm 	
Housings surface mounting top entry	19 34 010 0271	25		
Protection covers for housings plastic/metal	09 30 024 5405 09 30 024 5425			
Hoods cable to cable top entry	19 34 010 0732	32		
Protection covers metal	09 30 024 5426			

Han® 16 Hv E

Size 24 B

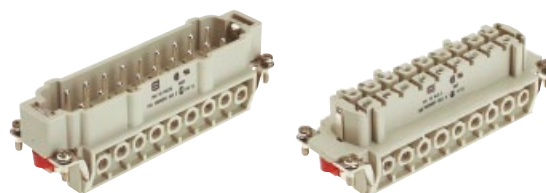
400/690 V 16 A



Number of contacts

16 +

+ 2 additional contacts for
safe high voltage connections



Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
Screw terminal	Han Hv E® 1-16	09 34 016 2601	09 34 016 2701	1) Distance for contact max. 21 mm Contact arrangement (view from termination side) Han® 16 Hv E ● Working contact ◐ Relay contact ○ Without contact Panel cut out for inserts for use without hoods/ housings	Dimensions in mm

Han
Hv E

Han® 12 Hv E/ES

Size 32 B

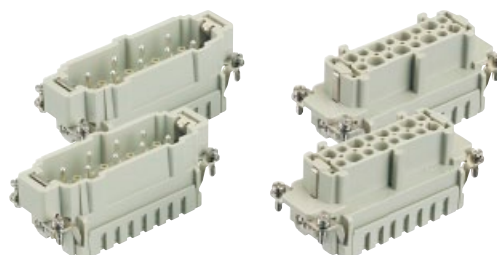
830 V 16 A



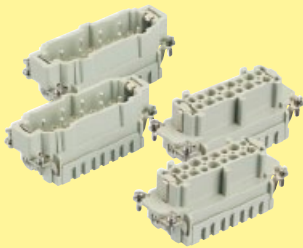
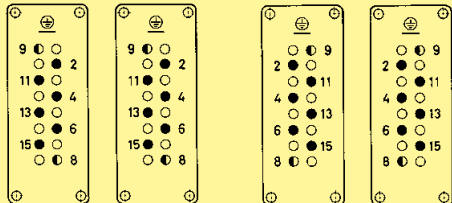
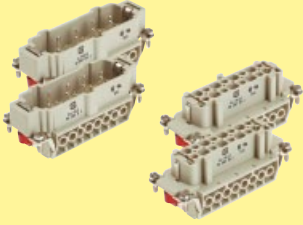
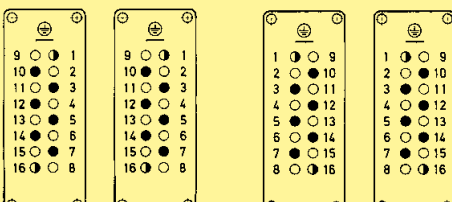
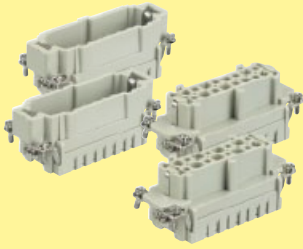
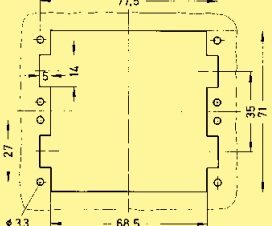
Number of contacts

12 +

+ 4 additional contacts for
safe high voltage connections



Han
Hv E

Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
Cage-clamp terminal  not plug compatible to screw/crimp terminal	Han® Hv ES 1-6 1-6	09 34 006 2616 09 34 006 2616	09 34 006 2716 09 34 006 2716	Dimensions for inserts see page 04.07 Contact arrangement (view from termination side) Han® 12 Hv ES  M F	
Screw terminal  	Han Hv E® 1-6 1-6	09 34 006 2601 09 34 006 2601	09 34 006 2701 09 34 006 2701	Han® 12 Hv E  M F ● Working contact ◐ Relay contact ○ Without contact	
Crimp terminal  Order crimp contacts separately (see page 04.04)	Han Hv E® 1-6 1-6	09 34 006 2602 09 34 006 2602	09 34 006 2702 09 34 006 2702	Panel cut out for inserts for use without hoods/ housings 	

Han® 20 Hv E/ES

Size 48 B

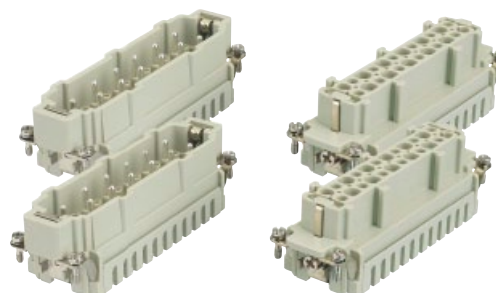
830 V 16 A

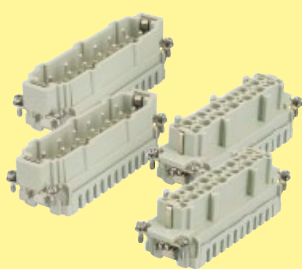
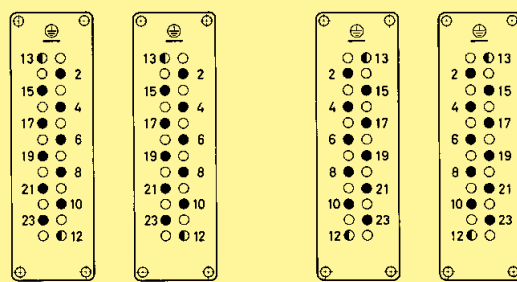
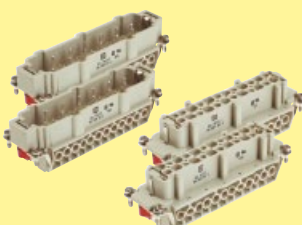
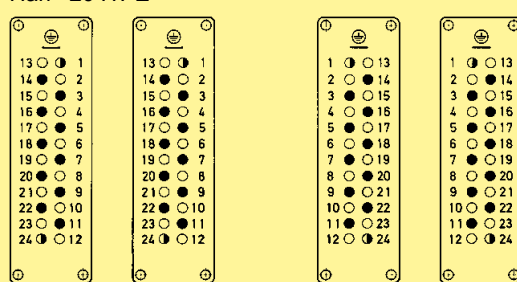
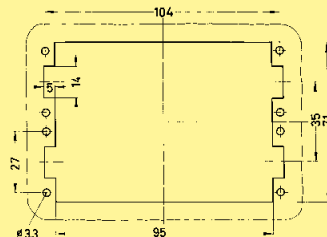


Number of contacts

20 +

+ 4 additional contacts for safe high voltage connections



Identification	Series	Part number		Drawing	Dimensions in mm
Cage clamp terminal  not plug compatible to screw/crimp terminal	Han® Hv ES 1-10 1-10	Male insert (M) 09 34 010 2616 09 34 010 2616	Female insert (F) 09 34 010 2716 09 34 010 2716	Dimensions for inserts see page 04.09 Contact arrangement (view from termination side) Han® 20 Hv ES 	
Screw terminal 	Han Hv E® 1-10 1-10	09 34 010 2601 09 34 010 2601	09 34 010 2701 09 34 010 2701	Han® 20 Hv E 	
Crimp terminal  Order crimp contacts separately (see page 04.04)	Han Hv E® 1-10 1-10	09 34 010 2602 09 34 010 2602	09 34 010 2702 09 34 010 2702	 ● Working contact ● Relay contact ○ Without contact Panel cut out for inserts for use without hoods/ housings 	

Han Hv E

Han® 32 Hv E

Size 48 B

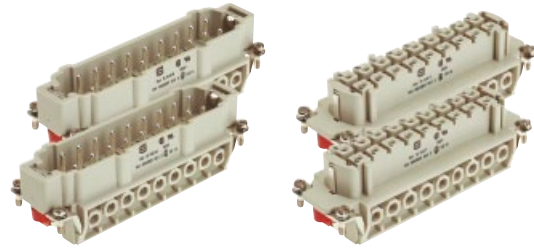
400/690 V 16 A

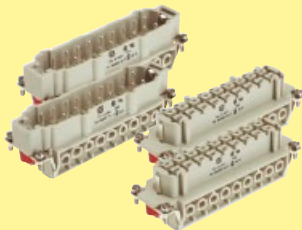
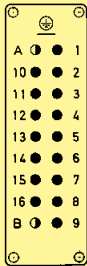
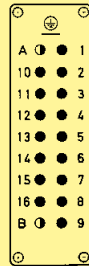
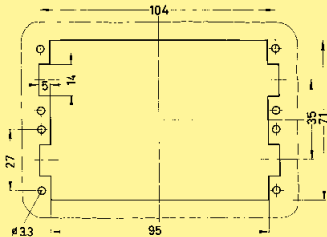


Number of contacts

32 +

+ 4 additional contacts for safe high voltage connections



Identification	Series	Part number		Drawing	Dimensions in mm
		Male insert (M)	Female insert (F)		
Screw terminal 	Han Hv E® 1-16 1-16	09 34 016 2601 09 34 016 2601	09 34 016 2701 09 34 016 2701	Dimensions for inserts see page 04.11 Contact arrangement (view from termination side) Han® 32 Hv E  M  F ● Working contact ◐ Relay contact ○ Without contact Panel cut out for inserts for use without hoods/ housings 	

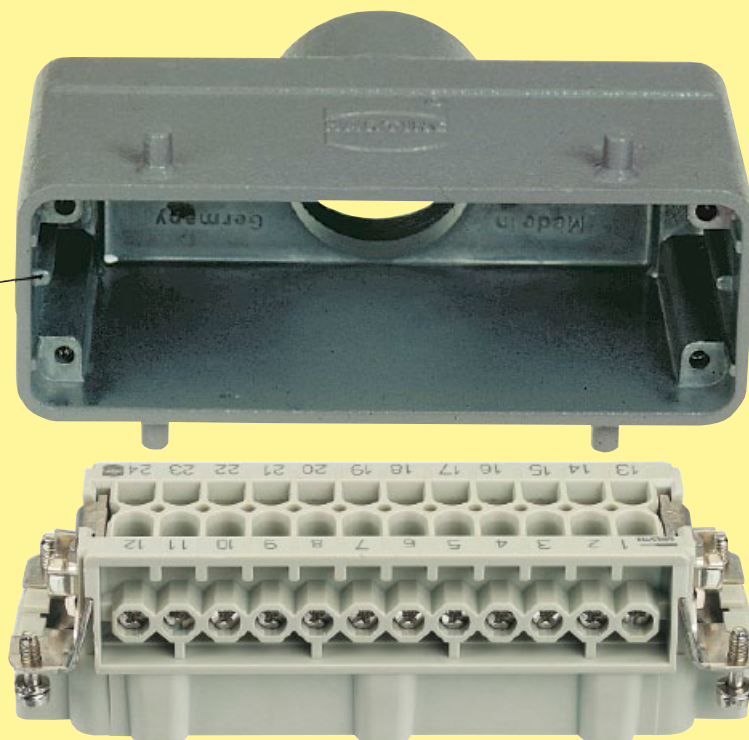
Difference: Han Hv E® to Standard Hoods/Housings



Standard Hoods/Housings Han® B

Suitable for inserts
Han® Hv ES cage-clamp terminal
and Han Hv E® crimp terminal

Coding bar



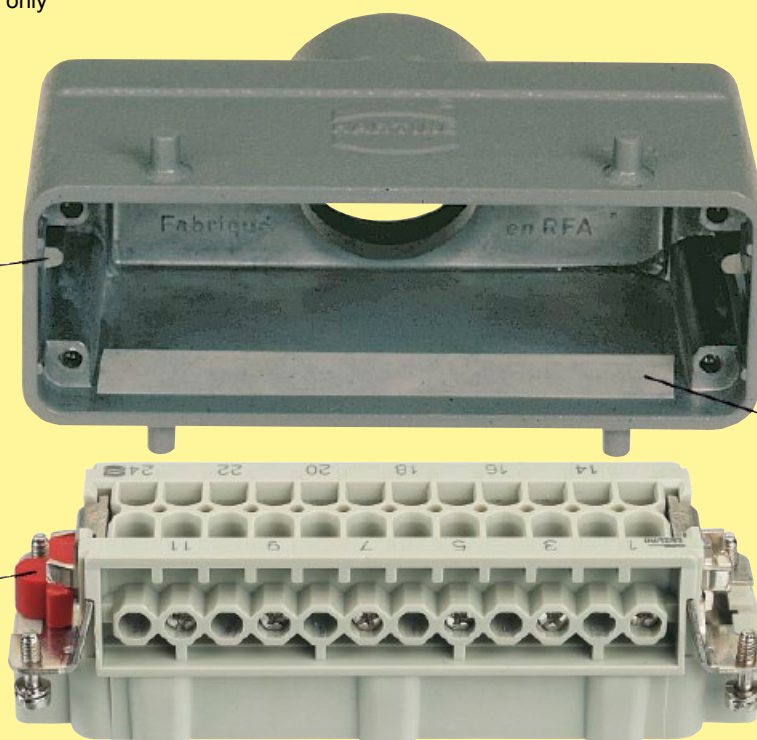
Han
Hv E

Special hood/housing Han Hv E®

Han Hv E® inserts may be used
together with the corresponding
Han Hv E® hoods/housings only

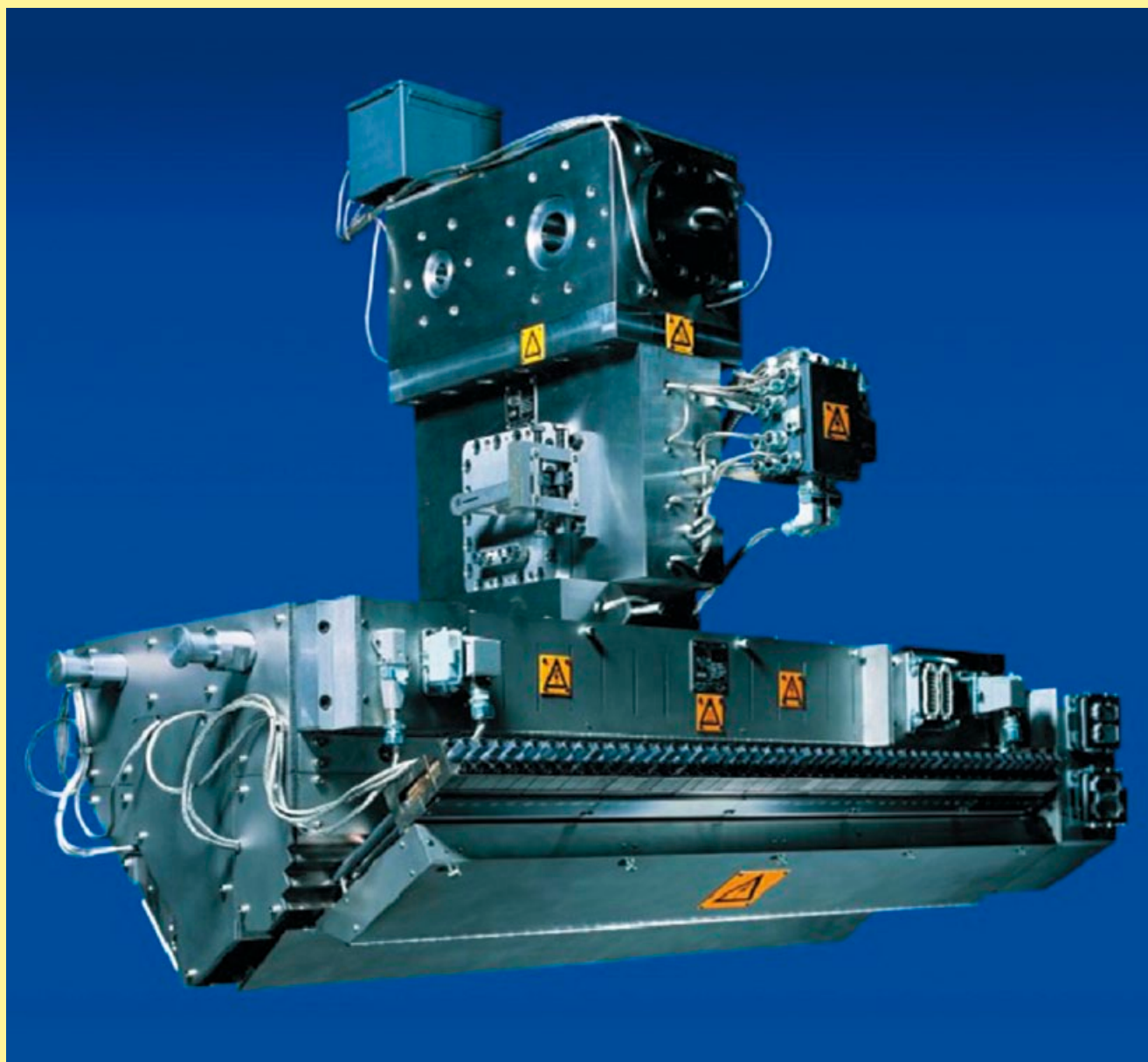
Milled
coding bar

Coding pin



Insulation tape

Application



Biaxially oriented film die. Cloeren Inc., Orange (TX), USA