



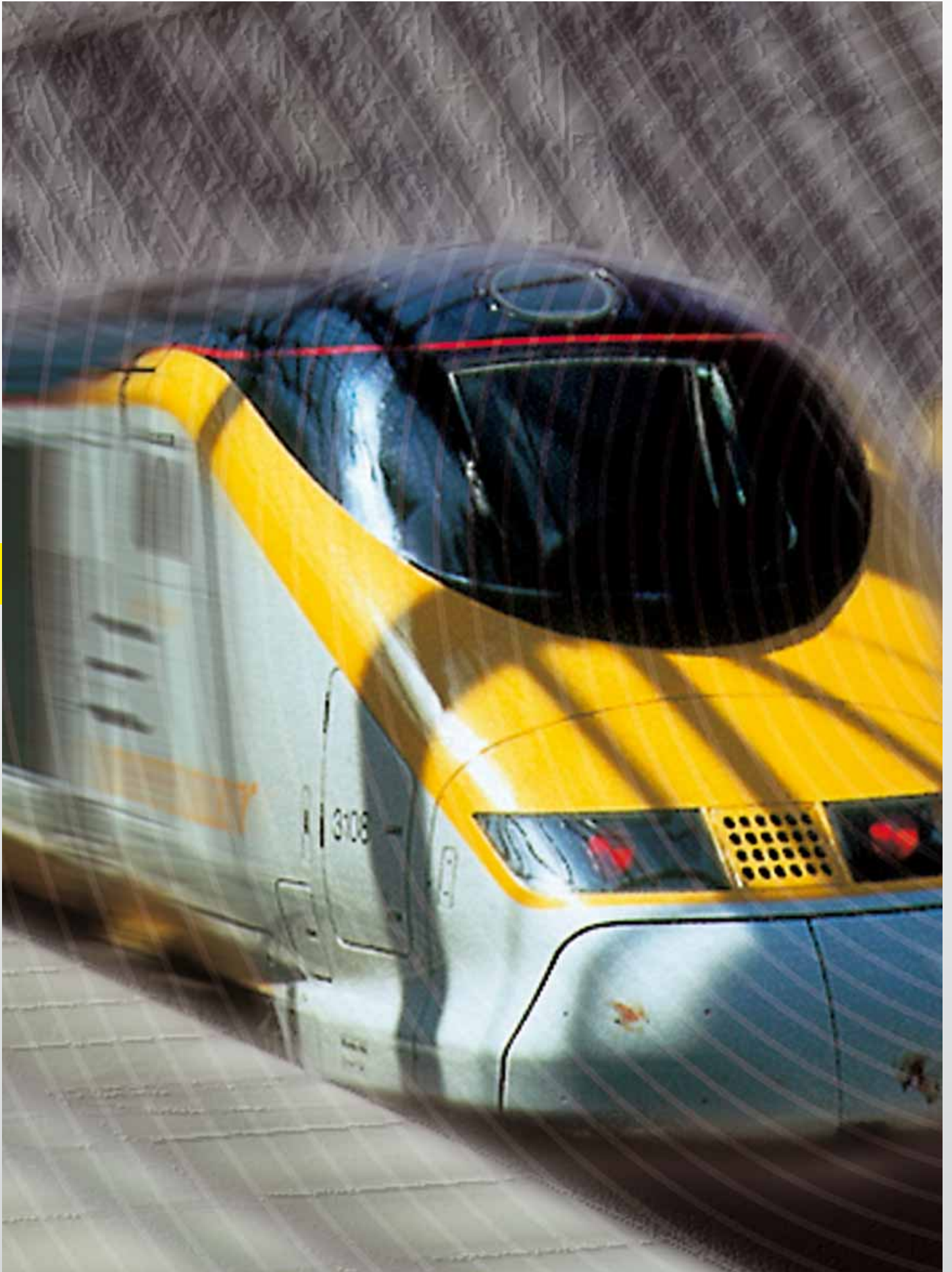




InduCom – Robust and EMI protected D-Sub interfaces

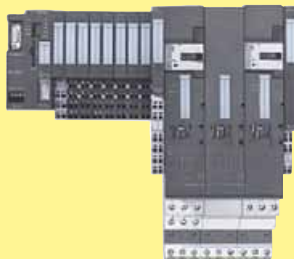
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Robust and EMI protected D-Sub interfaces made of zinc die-cast.

Specially designed for industrial applications in Transportation, Factory Automation and Machinery, where good EMC performance, mechanical strength and easy handling is required.



Factory Automation



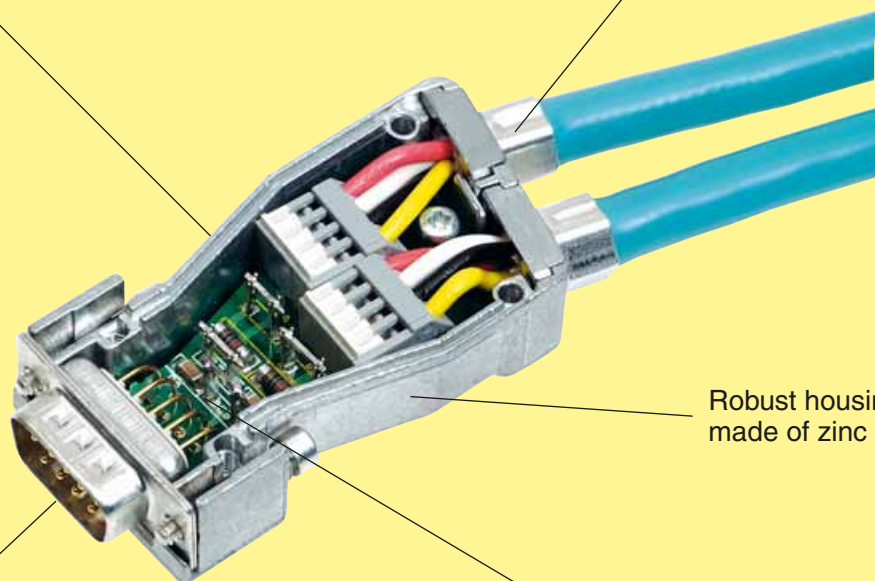
Transportation



Machinery

Special labyrinth design for good RF shielding

Cable assembly with reliable and vibration protected crimp technology



Robust housing in IP 40, made of zinc die-cast

Industrial proven D-Sub connectors with high performance level, available in 9 to 50 poles

InduCom 9 version with large space inside for bus interfaces and customised pcb's

D-Sub industrial bus interface systems

This family of D-Sub connectors and RF shielded die-cast hoods according to DIN 41 652, MIL-C-24-308, IEC 60 807 is specially designed for communication in industrial field bus applications and transportation solutions where good EMC performance, mechanical strength and easy handling is required. The hoods are available in 9 to 50 ways D-Sub, with 1, 2 or 3 cable entries. The large space inside the InduCom 9 version allows the integration of pcb's, e.g. for bus systems and customised solutions.

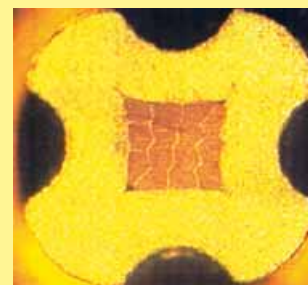
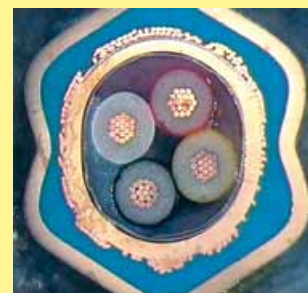
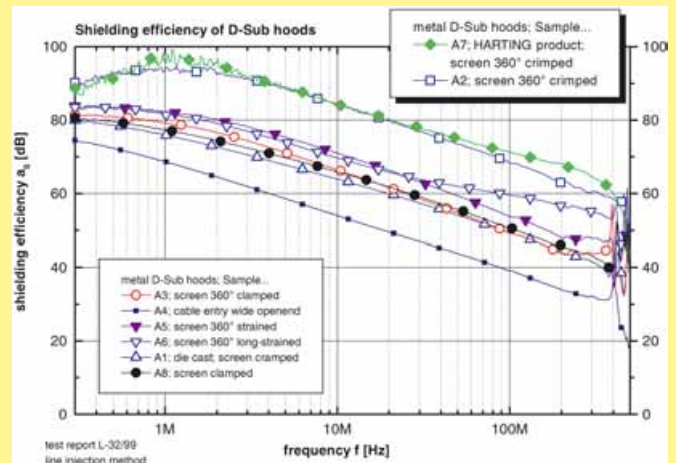
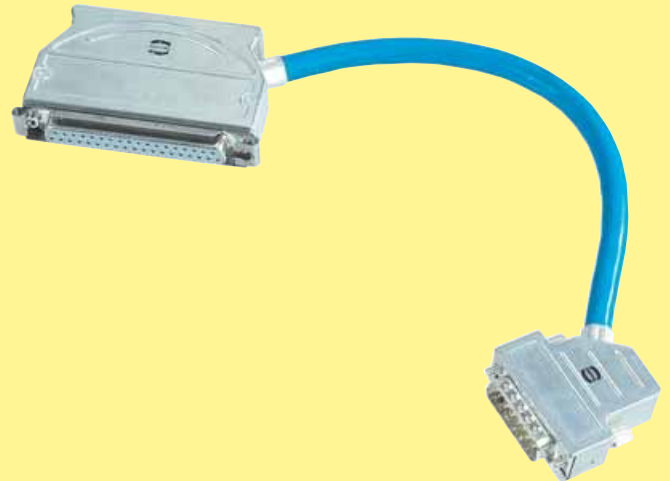
The labyrinth design of the InduCom 9 metal hood, made of zinc die-cast, guarantees together with its crimp flange technology a good EMC/RF performance with very high shielding attenuation greater than 60 dB up to 500MHz. Low resistance is achieved due to the co-action of the crimp flange and the crimp ferrule which are connected to the hood. Also there is an excellent 360° low resistance connection between the cable shield and the hood.

Furthermore this technique provides continuous pressure on the cable after the crimp process for good mechanical strength with good strain relief and pull out resistance as well as anti rotation security for harsh industrial environments. Another advantage is the possibility to connect thicker cables with the crimp flange, for instance, you can connect a 9-pole hood with a cable of approx. 13.5 mm diameter.

With this technique, it is possible to reproduce consistent production quality either in the field or in the plant, which is very important for a bus structure with many interfaces.

Turned and stamped male and female crimp contacts guarantee an optimised electrical and mechanical connection between the cable and the crimp contact. In order to fulfil the required 500 mating cycles for transportation applications most of the contacts are available in performance level 1.

For turned contacts HARTING offers an ultra precision hand crimp tool with an 8-impession crimp, which assures maximum tensile strength. This crimp tool is suitable for wire sizes from AWG 18 to AWG 28.



Crimp flange termination instruction

1. Strip the cable sheath to the correct length (approx. 35 to 40 mm, depending on interface type).
2. Place the crimp ferrule over the cable sheath. Bend the outer screen backwards over the cable sheath. Cut screen approx. 2 mm from the end of the cable sheath.
3. Place the crimp flange over the wires covered by the remaining foil shield. Push and twist the crimp flange under the outer screen and cable sheath until the end of the cable sheath touches the crimp flange. HARTING has developed a special tool for optimised installation of the shielding over the crimp flange, part number 61 03 600 0017.
4. Move the crimp ferrule back onto the crimp flange and crimp the two parts together with the special service crimp tool part number 61 03 600 0020. For an optimised crimp process the tool should be positioned as close as possible to the crimp flange shoulder.
5. Cut off the internal screen foil and push the crimp flange inside the metal hood.



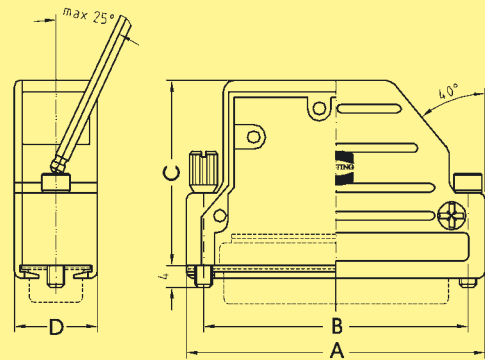


Full metal top and side entry hoods with screws

Identification No. of contacts Part No. Drawing Dimensions in mm

Side entry hood

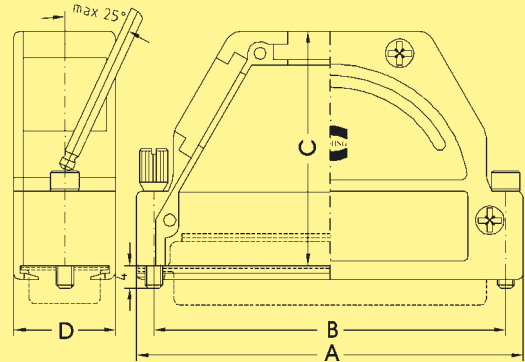
9	61 03 001 . 013
15	61 03 001 . 014
25	61 03 001 . 015



No. of contacts	A	B	C	D
9	31.0	25.0	35.0	15.0
15	39.3	33.3	35.0	15.0
25	53.0	47.0	35.0	15.0

Top/side entry hood

9	61 03 001 . 010 ¹⁾
15	61 03 001 . 016 ¹⁾
25	61 03 001 . 017 ²⁾
37	61 03 001 . 018 ²⁾
50	61 03 001 . 019 ²⁾



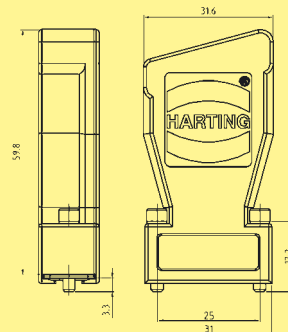
No. of contacts	No. of cable entries	A	B	C	D
9	1 (top)	31.0	25.0	38.0	15.0
15	1 (top)	39.5	33.3	35.0	15.0
25	3	53.0	47.0	43.0	15.0
37	3	69.5	63.5	43.0	15.0
50	3	67.2	61.6	43.0	17.8

Please insert digit for screw option

- Knurled screw, thread 4-40 UNC ▶ 0
- Hexagonal screw, thread M3 with captive washer ▶ 1
- Hexagonal screw, thread 4-40 UNC with captive washer ▶ 2
- Knurled screw, thread M3 ▶ 3

Top entry hood for InduCom 9

Hexagonal screw, thread 4-40 UNC	9	09 67 009 0346
Hexagonal screw, thread M3	9	09 67 009 0347



2 cable entries

¹⁾ Part no. contains one blanking piece
²⁾ Part no. contains two blanking pieces

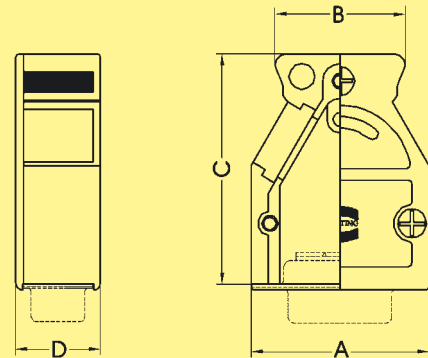


Full metal top and side entry hoods for spring or slide locking and accessories

Identification No. of contacts Part No. Drawing Dimensions in mm

Top/side entry hood

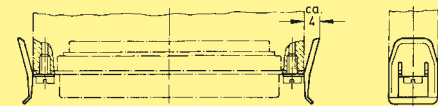
9	61 03 001 0022 ¹⁾
15	61 03 001 0011 ²⁾
25	61 03 001 0012 ²⁾
37	61 03 001 0021 ²⁾
50	61 03 001 0020 ²⁾



No. of contacts	No. of cable entries	A	B	C	D
9	2	31.0	22.6	40.0	14.8
15	3	39.0	30.6	40.0	14.8
25	3	53.0	42.6	40.0	14.8
37	3	69.5	59.2	40.0	14.8
50	3	67.0	55.0	40.0	17.6

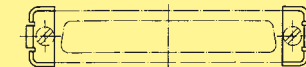
Spring latch
corrosion resistant steel

9-50	09 67 000 9907 ³⁾
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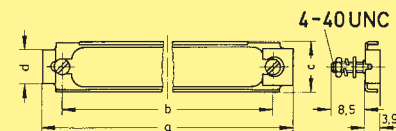
Fixed latch
corrosion resistant steel

9-37	09 67 001 9971 ³⁾
50	09 67 001 9972 ³⁾



Slide locking device
corrosion resistant steel

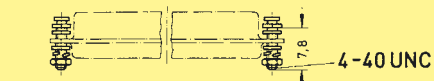
9	09 67 000 9914
15	09 67 000 9915
25	09 67 000 9916
37	09 67 000 9917
50	09 67 000 9918



	a	b	c	d
9	35.6	25.0	12.0	10.0
15	44.0	33.3	12.0	10.0
25	57.8	47.0	12.0	10.0
37	74.3	63.5	12.0	10.0
50	72.0	61.1	14.8	13.5

Locking bolt
tinned

9-50	09 67 001 9973 ³⁾
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¹⁾ Part no. contains one blanking piece
²⁾ Part no. contains two blanking pieces
³⁾ Order two for each connector

Accessories for hoods

Identification	Part No.		Drawing	Dimensions in mm																																						
Crimp flange	9-37 contacts	50 contacts	<table border="1"> <thead> <tr> <th>D1</th> <th>D2</th> </tr> </thead> <tbody> <tr><td>3.0</td><td>4.0</td></tr> <tr><td>3.5</td><td>4.5</td></tr> <tr><td>4.0</td><td>5.0</td></tr> <tr><td>4.5</td><td>5.5</td></tr> <tr><td>5.0</td><td>6.0</td></tr> <tr><td>5.5</td><td>6.5</td></tr> <tr><td>6.0</td><td>7.0</td></tr> <tr><td>6.5</td><td>7.5</td></tr> <tr><td>7.0</td><td>8.0</td></tr> <tr><td>7.5</td><td>8.5</td></tr> <tr><td>8.0</td><td>9.0</td></tr> <tr><td>9.0</td><td>10.0</td></tr> </tbody> </table>	D1	D2	3.0	4.0	3.5	4.5	4.0	5.0	4.5	5.5	5.0	6.0	5.5	6.5	6.0	7.0	6.5	7.5	7.0	8.0	7.5	8.5	8.0	9.0	9.0	10.0													
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61 03 000 0063	61 03 000 5063																																									
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61 03 000 0066	61 03 000 5066																																									
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61 03 000 0071	61 03 000 5071																																									
61 03 000 0072	61 03 000 5072																																									
Crimp ferrule	<p>61 03 000 0045</p> <p>61 03 000 0046</p> <p>61 03 000 0047</p> <p>61 03 000 0048</p> <p>61 03 000 0049</p> <p>61 03 000 0050</p> <p>61 03 000 0051</p> <p>61 03 000 0052</p> <p>61 03 000 0053</p> <p>61 03 000 0054</p> <p>61 03 000 0055</p> <p>61 03 000 0056</p> <p>61 03 000 0057</p> <p>61 03 000 0058</p> <p>61 03 000 0059</p> <p>61 03 000 0127</p> <p>61 03 000 0060</p> <p>61 03 000 0061</p>		<table border="1"> <thead> <tr> <th>D3</th> <th>D4</th> </tr> </thead> <tbody> <tr><td>5.0</td><td>6.0</td></tr> <tr><td>5.5</td><td>6.5</td></tr> <tr><td>6.0</td><td>7.0</td></tr> <tr><td>6.5</td><td>7.5</td></tr> <tr><td>7.0</td><td>8.0</td></tr> <tr><td>7.5</td><td>8.5</td></tr> <tr><td>8.0</td><td>9.0</td></tr> <tr><td>8.5</td><td>9.5</td></tr> <tr><td>9.0</td><td>10.0</td></tr> <tr><td>9.5</td><td>10.5</td></tr> <tr><td>10.0</td><td>11.0</td></tr> <tr><td>10.5</td><td>11.5</td></tr> <tr><td>11.0</td><td>12.0</td></tr> <tr><td>11.5</td><td>12.5</td></tr> <tr><td>12.5</td><td>13.5</td></tr> <tr><td>13.0</td><td>14.0</td></tr> <tr><td>13.5</td><td>15.0</td></tr> <tr><td>14.0</td><td>15.0</td></tr> </tbody> </table>	D3	D4	5.0	6.0	5.5	6.5	6.0	7.0	6.5	7.5	7.0	8.0	7.5	8.5	8.0	9.0	8.5	9.5	9.0	10.0	9.5	10.5	10.0	11.0	10.5	11.5	11.0	12.0	11.5	12.5	12.5	13.5	13.0	14.0	13.5	15.0	14.0	15.0	
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13.5	15.0																																									
14.0	15.0																																									
Cable clamp for hoods	61 03 000 0044	61 03 000 0043																																								
Blanking piece for hoods	61 03 000 0042	61 03 000 0041																																								

InduCom

Number of contacts 9, 15, 25, 37, 50
UL recognized

Working current
see current carrying capacity chart
Turned contacts 7.5 A max.
Stamped contacts 6.5 A max.

Test voltage $U_{r.m.s.}$ 1 kV

Clearance and creepage ≥ 1.0 mm

Contact resistance ≤ 10 m Ω
Insulation resistance $\geq 10^{10}$ Ω

Temperature range -55 °C ... + 125 °C

Terminations
a) Solder buckets max. 0.5 mm²
b) Crimp contacts

Materials
Mouldings and hoods Thermoplastic resin, glass-fibre filled (PBTP)
UL 94-V0

Contacts Copper alloy

Contact surface¹⁾
Contact zone: selectively gold-plated according to performance level¹⁾
Termination zone: SnPb

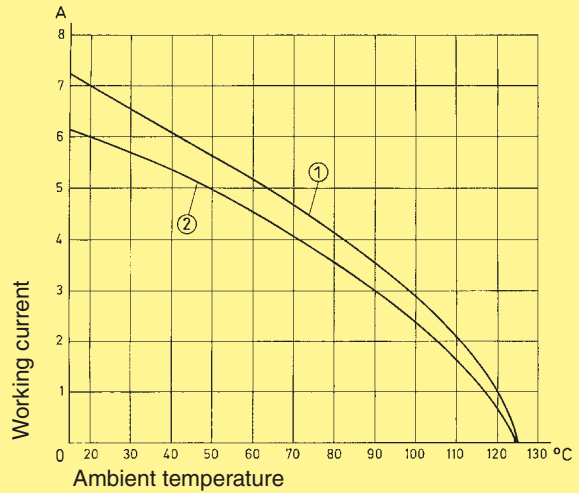
Metal shell Tinned steel

Mating force
9 way ≤ 30 N
15 way ≤ 50 N
25 way ≤ 83 N
37 way ≤ 123 N
50 way ≤ 167 N

Current carrying capacity

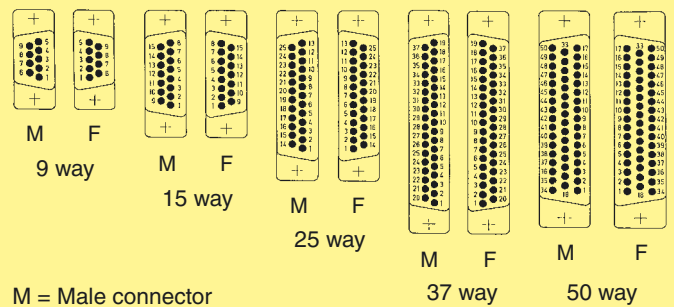
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60 512.

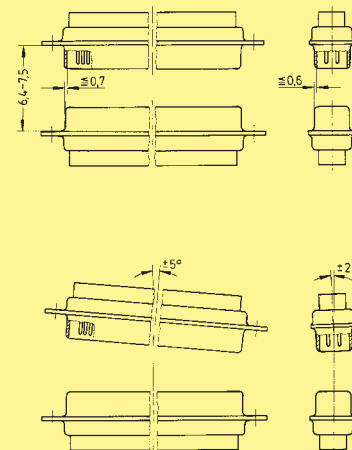


Example: 25 way connector
① Turned contacts
② Stamped contacts

Contact arrangement View from termination side



Mating conditions as per DIN 41 652



¹⁾ Performance level 3 as per DIN 41 652, part 2, ≥ 50 mating cycles, no gas test
Performance level 2 as per DIN 41 652, part 2, ≥ 200 mating cycles, 4 days gas test using 10 ppm SO₂
Other performance levels on request

Number of contacts

9-50



Solder buckets

Identification	No. of contacts	Part No.		
Performance levels Explanations see page 08.09 Other performance levels on request		Performance level 3	Performance level 2	
Male connector tinned metal shell with dimples	turned contacts	9	09 67 009 5604	09 67 009 5615
		15	09 67 015 5604	09 67 015 5615
		25	09 67 025 5604	09 67 025 5615
		37	09 67 037 5604	09 67 037 5615
		50	09 67 050 5604 ¹⁾	09 67 050 5615
	stamped contacts	9	09 67 209 5604	09 67 209 5615
		15	09 67 215 5604	09 67 215 5615
		25	09 67 225 5604	09 67 225 5615
		37	09 67 237 5604	09 67 237 5615
		50	09 67 250 5604 ¹⁾	09 67 250 5615 ¹⁾
Female connector tinned metal shell	turned contacts	9	09 67 009 4704	09 67 009 4715
		15	09 67 015 4704	09 67 015 4715
		25	09 67 025 4704	09 67 025 4715
		37	09 67 037 4704	09 67 037 4715
		50	09 67 050 4704 ¹⁾	09 67 050 4715
	stamped contacts	9	09 67 209 4704	09 67 209 4715
		15	09 67 215 4704	09 67 215 4715
		25	09 67 225 4704	09 67 225 4715
		37	09 67 237 4704	09 67 237 4715
		50	09 67 250 4704 ¹⁾	09 67 250 4715 ¹⁾

InduCom

¹⁾ Not normally kept in stock

Number of contacts

9-50



Solder buckets

Identification

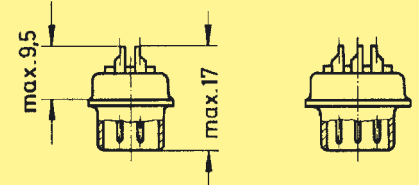
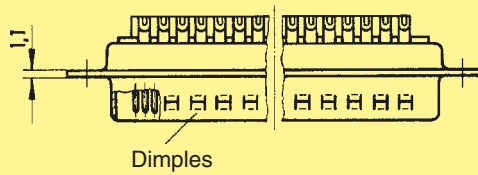
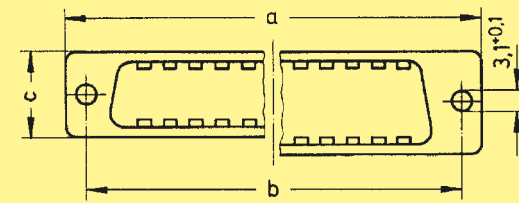
Drawing

Dimensions in mm

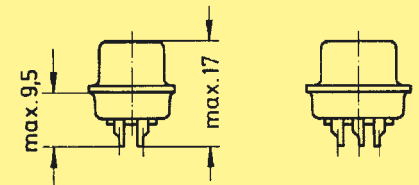
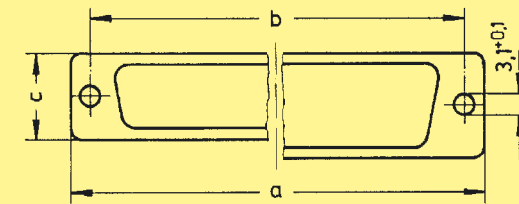
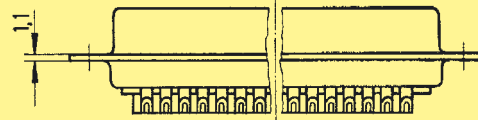
Male connector

9-37

50



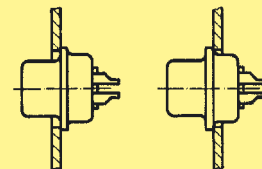
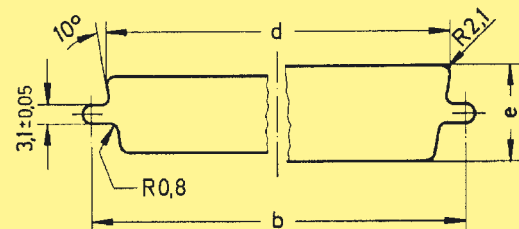
Female connector



9-37

50

Panel cut out



	a	b _{±0.15}	c	d	e
9	30.9	25.0	12.5	20.5	12.0
15	39.2	33.3	12.5	28.8	12.0
25	53.1	47.0	12.5	42.5	12.0
37	69.4	63.5	12.5	59.1	12.0
50	67.0	61.1	15.4	56.3	14.8

Number of contacts

9-50

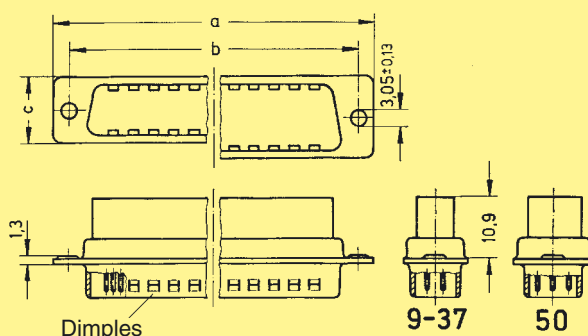


Crimp terminal

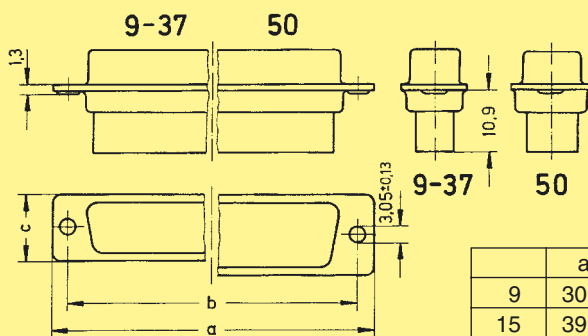
Identification	No. of contacts	Part No.
Male connector Order contacts separately tinned metal shell with dimples	9	09 67 009 5601
	15	09 67 015 5601
	25	09 67 025 5601
	37	09 67 037 5601
	50	09 67 050 5601
Female connector Order contacts separately tinned metal shell	9	09 67 009 4701
	15	09 67 015 4701
	25	09 67 025 4701
	37	09 67 037 4701
	50	09 67 050 4701

Male connector

9-37 50

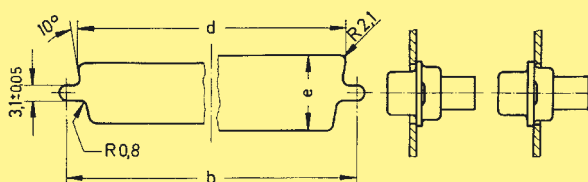


Female connector



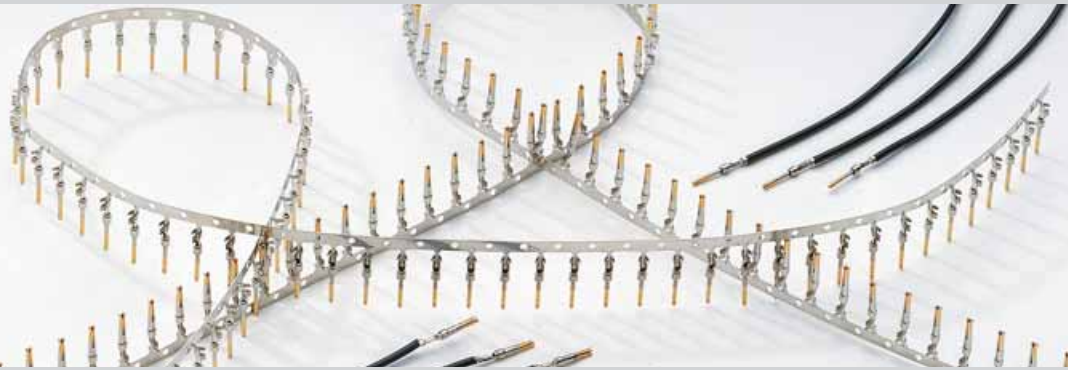
	a	b _{±0.15}	c	d	e
9	30.9	25.0	12.5	20.5	12.0
15	39.2	33.3	12.5	28.8	12.0
25	53.1	47.0	12.5	42.5	12.0
37	69.4	63.5	12.5	59.1	12.0
50	67.0	61.1	15.4	56.3	14.8

Panel cut out



Dimensions in mm

Crimp contacts see page 08.13
 Mating conditions see page 08.09



Crimp contacts

Identification	Wire gauge (mm ²)	Part No.	
		stamped male contacts	stamped female contacts
		Performance level 1	Performance level 1
Individual contacts 500 pieces/reel	AWG 20-24 0.50-0.20	61 03 000 0083	61 03 000 0085
		61 03 000 0082	61 03 000 0084
Individual contacts 500 pieces/reel	AWG 24-28 0.20-0.08	61 03 000 0087	61 03 000 0089
		61 03 000 0086	61 03 000 0088

InduCom

Identification	Wire gauge (mm ²)	Part No.	
		turned male contacts	turned female contacts
		Performance level 1	Performance level 1
Individual contacts	AWG 18-20 0.75-0.50	61 03 000 0112	61 03 000 0113
	AWG 20-22 0.50-0.37	61 03 000 0073	61 03 000 0074
	AWG 22-26 0.37-0.14	61 03 000 0094	61 03 000 0096
	AWG 24-28 0.20-0.08	61 03 000 0078	61 03 000 0080

Stamped contacts for size AWG 28-32 on request



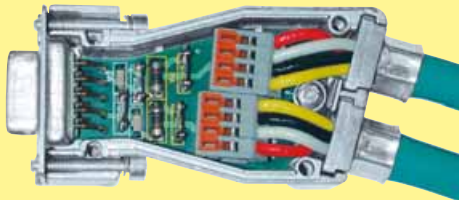
InduCom 9 – Industrial bus interface system

Identification

Part no.

General information

Set for MVB-cable



09 63 009 5013

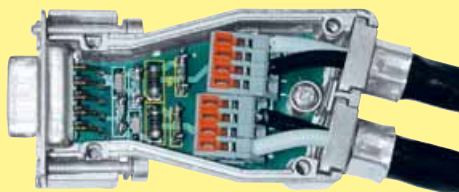
MVB backbone interface set

The Multifunctional Vehicle Bus (MVB) backbone interface set is specially designed for communication cables in Train Control Networks (TCN). With this interface set it is possible to realise a T-bus structure with MVB-cable with which you can disconnect the bus interface from the control unit without any interruption of the complete bus communication. On the pcb you will have load resistors and test capacitors which can be activated with solder bridges. The wires are terminated with the proven vibration resistant cage clamp technology. These MVB interface set is approved for use with 2 types of cables (**Nexan 459 530 50 and 459 110 19**).

Components of the MVB interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 pcb with 9 way D-Sub male connector and cage clamps
- 2 crimp flanges for the MVB cable
- 2 crimp ferrules for the MVB cable
- 1 blanking piece

Set for WTB-cable



09 63 009 5014





MVB backbone interface set

The Multifunctional Vehicle Bus (MVB) backbone interface set is specially designed for backbone cables in Train Control Networks (TCN). With this interface set it is possible to realise a T-bus structure with WTB-cable with which you can disconnect the bus interface from the control unit without any interruption of the complete bus communication. On the pcb you will have load resistors and test capacitors which can be activated with solder bridges. The wires are terminated with the proven vibration resistant cage clamp technology. These MVB interface set is approved for use with 1 type of cable (**HEW 15 366**).

Components of the MVB interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 pcb with 9 way D-Sub male connector and cage clamps
- 2 crimp flanges for the WTB cable
- 2 crimp ferrules for the WTB cable
- 1 blanking piece

Tools

Identification	Part No	Drawing																				
Hexagonal head screwdriver for hoods with hexagonal screws	61 03 600 0021																					
Crimp tool for flange and ferrule	61 03 600 0020	 <table border="1" data-bbox="775 792 903 1440"> <thead> <tr> <th>Width of hexagonal nut [mm]</th> </tr> </thead> <tbody> <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> </tbody> </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
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14.0																						
Inserts for crimp tool	61 03 000 0179 61 03 000 0180 61 03 000 0098 61 03 000 0099 61 03 000 0100 61 03 000 0101 61 03 000 0102 61 03 000 0103 61 03 000 0104 61 03 000 0105 61 03 000 0174 61 03 000 0172 61 03 000 0168 61 03 000 0169 61 03 000 0175 61 03 000 0176 61 03 000 0177 61 03 000 0178 61 03 000 0173																					
Mounting tool for flange	9-37 contacts 61 03 600 0017 50 contacts 61 03 600 0018																					
Insertion and removal tool for contacts	09 99 000 0171																					

Tools

Identification

Part No

Drawing

Crimp tool
for turned contacts
AWG 18-28

61 03 600 0022



Part No. contact	Part No. locator	Crimp tool selection no.
61 03 000 0112	61 03 600 0024	7
61 03 000 0113	61 03 600 0024	7
61 03 000 0073	61 03 600 0023	7
61 03 000 0074	61 03 600 0023	7
61 03 000 0094	61 03 600 0023	7
61 03 000 0096	61 03 600 0023	7
61 03 000 0078	61 03 600 0023	7
61 03 000 0080	61 03 600 0023	7

Locator for crimp tool
AWG 20-28
AWG 18-20

61 03 600 0023
61 03 600 0024



Crimp tool
for stamped contacts
AWG 20-28

09 99 000 0175

