

Miniature D connectors are a must in various cable-to-board applications where space saving and high data transfer rates are required. For the purposes of miniaturization and speed, HARTING offers a wide range of miniature D connectors with 14 to 100 poles. Available in two contact styles (pin & socket and bellows), these connectors in 1.27 mm contact pitch allow data transfer rates up to 600 MHz. The *har-mik*® connectors comply with various standards such as SCSI, IPI, HIPPI, EIA/TIA, IEC, IEEE 1284.

Application profile:

CONNECTION TYPE		ENVIRONMENT		APPLICATION						
Board to Board	Cable/Wire to Board	IP 20	IP 65 / IP 67	Data	Signal	Power	high performance			
							Data transfer rate	Shielding	Number of contacts, contact density	Voltage, working current
Cable termination		PCB termination			Application standard					
<i>Han-Quick Lock</i> ®	IDC	Crimp	THT	SMC	SMT					
Screw	Cage clamp	Axial screw	Press-in	Housing integration						
				Separate housing	Integrated housing					

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Tooling see chapter 20

har-mik[®] interface connectors in 1.27 mm pitch

Miniature D connectors are a must in various cable-to-board applications where space saving and high data transfer rates are required. For the purposes of miniaturization and speed, HARTING offers a wide range of miniature D connectors with 14 to 100 poles.

Available in two contact styles (pin & socket and bellows), these connectors in 1.27 mm contact pitch allow data transfer rates up to 600 MHz. The *har-mik*[®] connectors comply with various standards such as SCSI, IPI, HIPPI, EIA/TIA, IEC, IEEE 1284.

There are the following components available in this range:

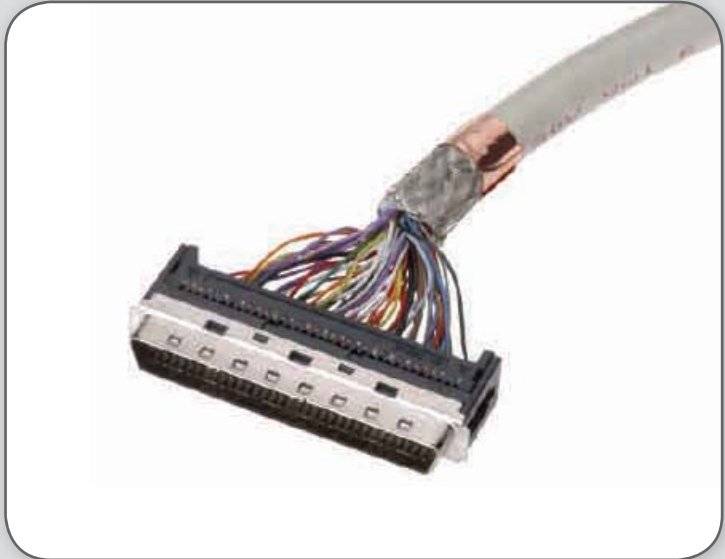
- Straight or right angled shielded and unshielded board connectors with latch or screw fixing for standard wave soldering. The *har-mik*[®] connectors are suitable for press-in and SMC and are designed for pick and place assembly.
- IDC cable connectors for round discrete wire cables and flat cables.
- Metal and plastic hoods with top and side cable entry (also for cables with large diameter) for all *har-mik*[®] sizes.
- Flat and round cables for harnesses and screw locks for panel mounting.
- All necessary tooling for insulation displacement termination.



Space saving connectors in 1.27 mm pitch



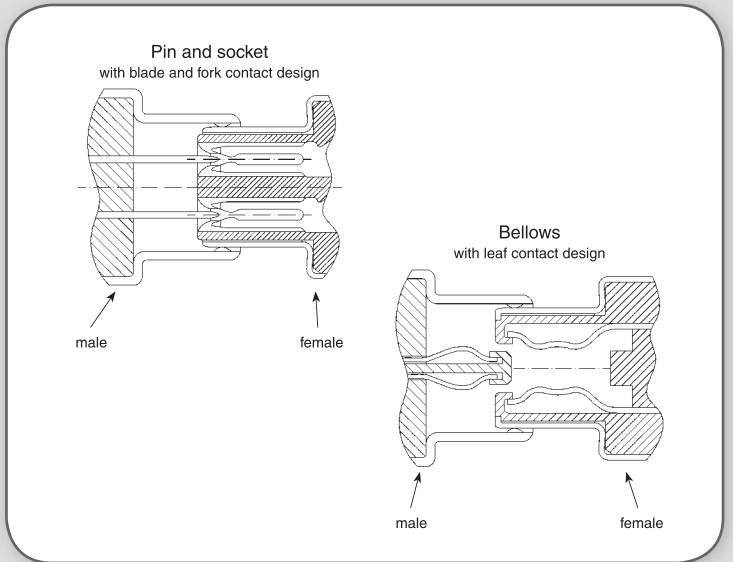
IDC cable connectors for round discrete wire cables and flat cables



har-mik

Two contact styles

- Pin and socket
- Bellows



for economical and reliable connections

A comprehensive range of high density interface connectors based on two mating design concepts:

- Blade and fork contact in the Pin/Socket range.
- Leaf contact in the Bellows range.

Available in a various number of contacts with options for secure locking of mated connectors in accordance with the following international standards:

- Small Computer System Interface
SCSI-2
SCSI-2 wide
SCSI-3
- Intelligent Peripheral Interface
IPI
- High Performance Peripheral Interface
HIPPI
- High Speed Serial Interface
HSSI
- Media Independent Interface
MII
- Bi-directional Parallel Interface
IEEE – 1284-C
- EIA – TIA
232-E
- IEC
61 076-3-100
for bellows connectors
- IEC
61 076-3-101
for pin and socket connectors

UL recognised

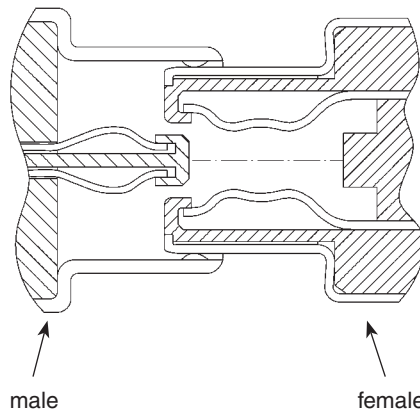
For customer specific applications we can design and manufacture solutions to match your requirement.

Sales department
HARTING components

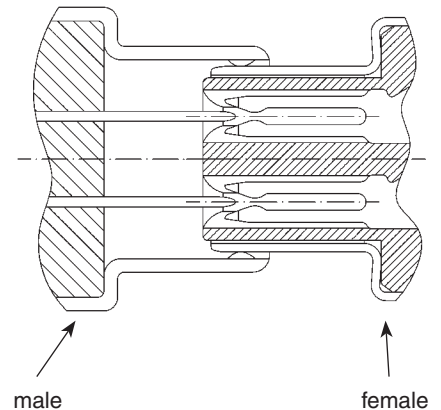


Certified according to EN ISO 9001
in design/development, production,
installation and servicing

Bellows
with leaf contact design



Pin and socket
with blade and fork contact design



Number of contacts 20, 26, 50, 68, 100

Pitch 1.27 mm

Working current 1 A

Working voltage 240 V ~

Test voltage $U_{r.m.s.}$ 750 V

Contact resistance $\leq 30 \text{ m}\Omega$

Insulation resistance $\geq 10^9 \text{ M}\Omega$

Temperature range -55 °C ... + 105 °C

during SMC reflow soldering max. 240 °C for 60 s
(only for SMC compatible connectors)

Terminations

Solder pins Straight for pcb holes min. $\varnothing 0.74 \text{ mm}$
Angled 90° for pcb holes min. $\varnothing 0.74 \text{ mm}$

Insulation displacement Discrete wire
AWG 28 to AWG 30
max. section: 0.089 mm²
min. section: 0.050 mm²
Insulation \varnothing min. 0.50 mm
 \varnothing max. 0.88 mm
Flat cable
AWG 30 pitch 0.635 mm

Materials

Moulding Thermoplastic resin
glass-fibre filled UL 94-V0

Contacts Copper alloy

Contact surface

Contact zone Selectively gold plated
according to performance level

Metal shell Die cast zamac or stamped
steel, nickel-plated

Press-in versions

Insertion process Flat rock

Maximum press-in force per contact 100 N

Minimum push out force per contact 15 N

Number of repairs 2

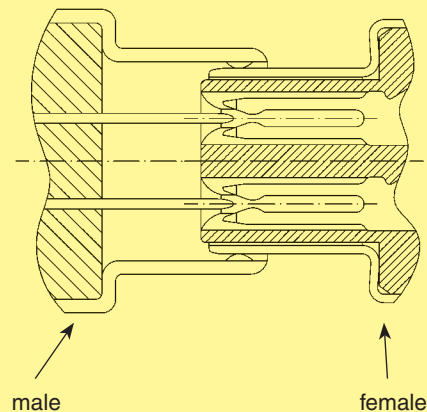
Diameter of pcb plated through holes $\varnothing 0.6^{+0.07}_{-0.05} \text{ mm}$

Recommended pcb holes for press-in process
Hole : $\varnothing 0.71 - 0.74 \text{ mm}$
Cu : 30 – 60 μm
Sn : 5 – 20 μm

Pcb thickness 1.6 – 3.2 mm

harmik

Pin and socket
with blade and fork contact design



Number of contacts

20-68

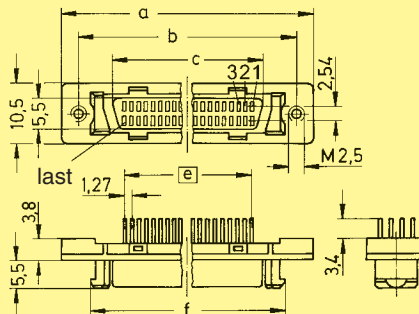


Female connectors, straight

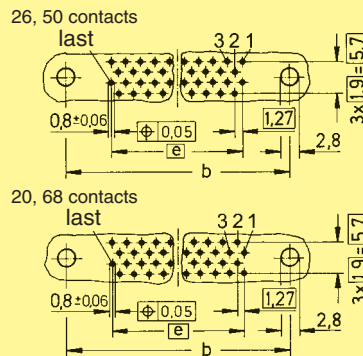
Identification	No. of contacts	Part No.
Female connectors with straight solder pins	20	60 01 020 5102
	26	60 01 026 5102
	50	60 01 050 5102
	68	60 01 068 5102

Dimensions

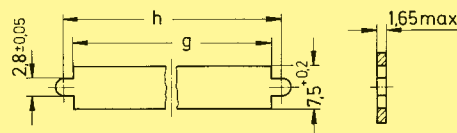
	a	b _{±0.1}	c	e	f	g	h
20	33.40	27.43	15.60	9 x 1.27 = 11.43	23.24	23.70	27.45
26	37.21	31.24	19.41	12 x 1.27 = 15.24	27.05	27.50	31.25
50	52.45	46.48	34.65	24 x 1.27 = 30.48	42.29	42.80	46.50
68	63.88	57.91	46.08	33 x 1.27 = 41.91	53.72	54.20	57.90



Board drillings



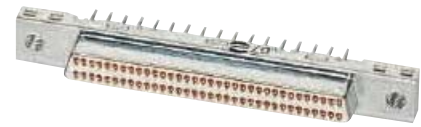
Panel cut out



Dimensions in mm

Number of contacts

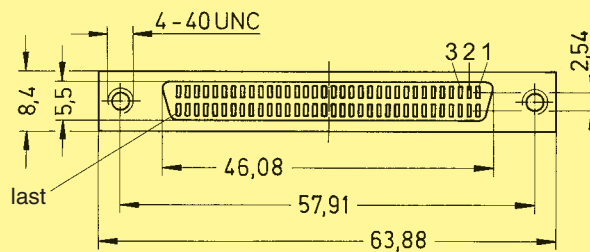
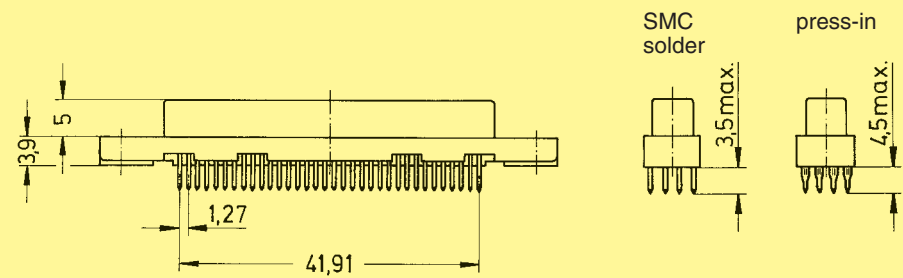
68



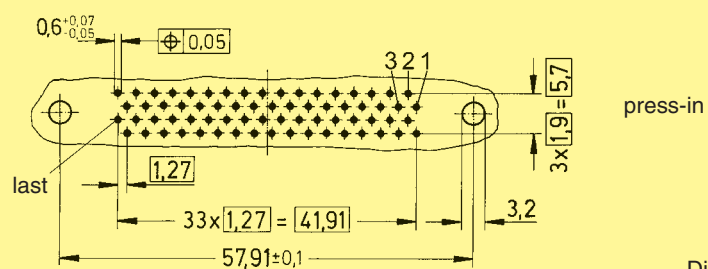
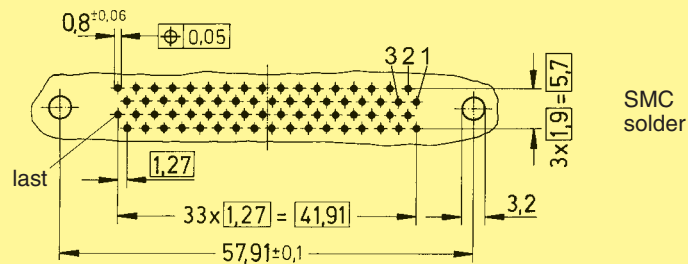
Female connectors, straight

Identification	No. of contacts	Part No.
SMC female connector with straight solder pins	68	60 02 068 5120
Female connector with straight press-in pins	68	60 02 068 5322

Dimensions



Board drillings
(Components side)



Dimensions in mm

Number of contacts

20–68

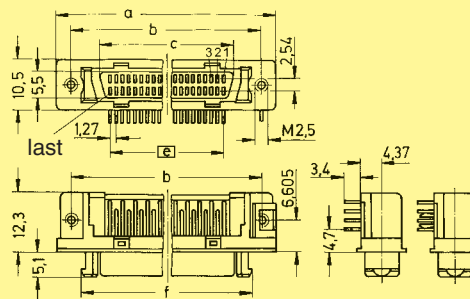


Female connectors, angled

Identification	No. of contacts	Part No.
Female connectors with angled solder pins	20	60 01 020 51 ...
	26	60 01 026 51 ...
	50	60 01 050 51 ...
	68	60 01 068 51 ...
Panel fixing	Board fixing	
M 2.5	M 2.5	32
M 2.5	Board lock	40

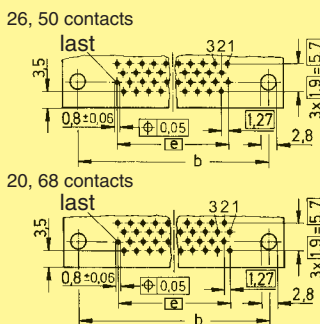
Dimensions

	a	b _{±0.1}	c	e	f	g	h
20	33.40	27.40	15.60	9 x 1.27 = 11.43	23.24	23.70	27.45
26	37.21	31.24	19.41	12 x 1.27 = 15.24	27.05	27.50	31.25
50	52.45	46.45	34.65	24 x 1.27 = 30.48	42.29	42.80	46.50
68	63.88	57.88	46.08	33 x 1.27 = 41.91	53.72	54.20	57.90

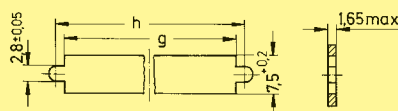


without board lock with board lock

Board drillings



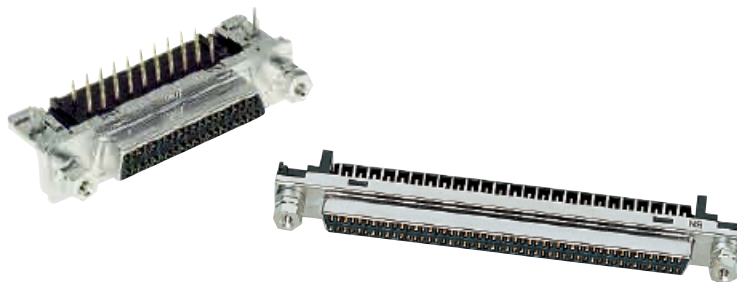
Panel cut out



Dimensions in mm

Number of contacts

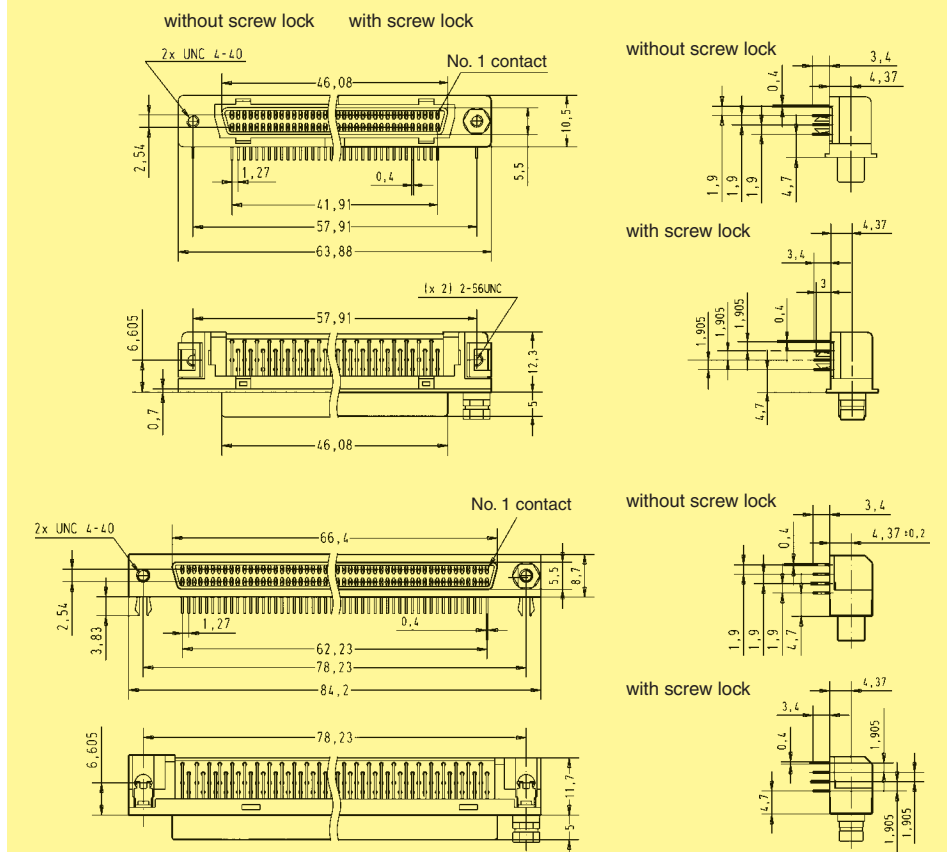
68-100



Female connectors, angled

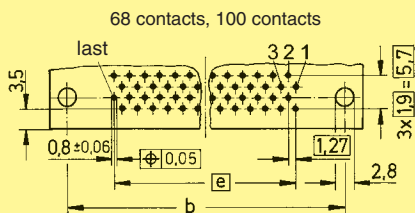
Identification	No. of contacts	Part No.
Female connectors with angled solder pins	68	60 02 068 51 ...
	100	60 02 100 51 ...
With female screw lock	41	
Without female screw lock	50	

Dimensions



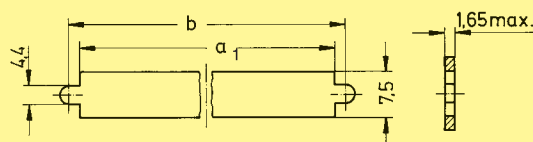
Board drillings

(Components side)



	a ₁	b	e
68	54.22	57.91	33 x 1.27 = 41.91
100	74.53	78.23	49 x 1.27 = 62.23

Panel cut out



Dimensions in mm

Number of contacts

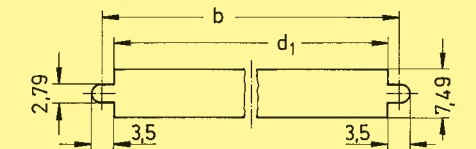
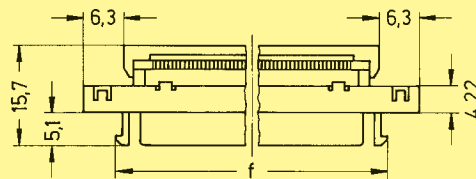
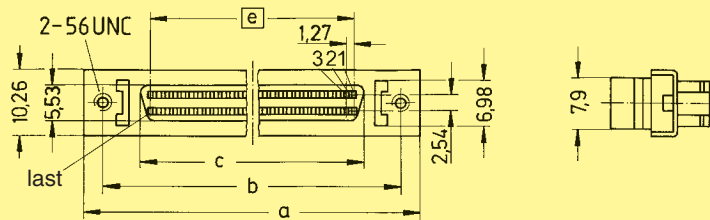
50–68



Female connectors for IDC flat cable, straight

Identification	No. of contacts	Part No.	
		with latch system	with screw lock system
Female panel connectors with insulation displacement termination for IDC flat cable pitch 0.635 mm AWG 30	50	60 04 050 5343	60 04 050 5344
	68	60 04 068 5343	60 04 068 5344

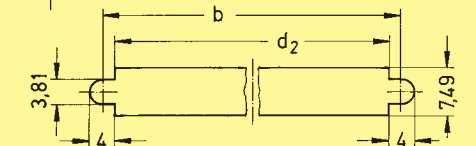
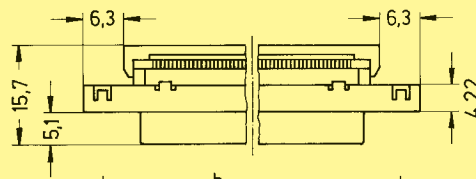
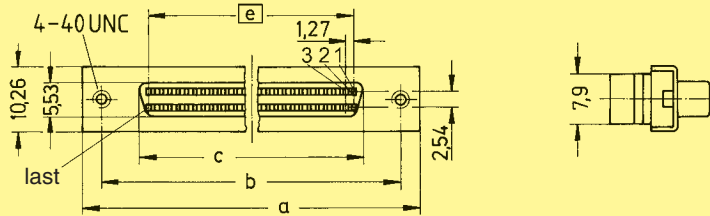
Dimensions for connectors with latch system



	a	b	c	d ₁	d ₂	e	f
50	52.45	46.48	34.70	42.80	42.30	30.48	42.30
68	63.88	57.91	46.13	54.23	53.72	41.91	53.72

Panel cut out

Dimensions for connectors with screw lock system

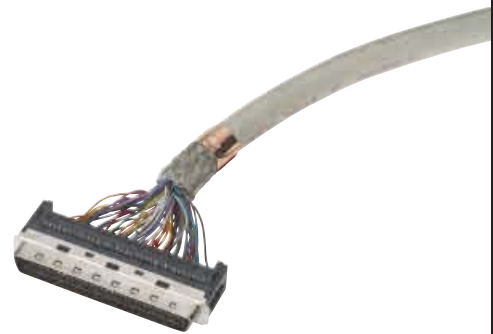


Panel cut out

Dimensions in mm

Number of contacts

20–100



Male connectors for IDC discrete wire, straight

Identification	No. of contacts	Part No.
Male connectors with insulation displacement termination for discrete wire AWG 28/30	20	60 03 020 52 ..
	26	60 03 026 52 ..
	50	60 03 050 52 ..
	68	60 03 068 52 ..
	100	60 03 100 52 ..
Insulation diameter (mm)	∅ = 0.50–0.65	00
	∅ = 0.65–0.80	10
	∅ = 0.80–0.88	20

har-mik

Available sizes

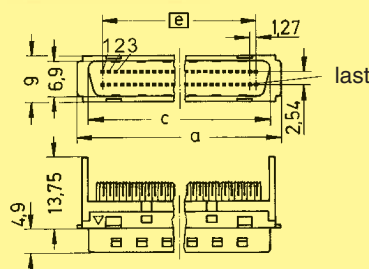
	Part No.	∅	20	26	50	68	100
Male	60 03 ... 5200	0.50–0.65	●	●	●	●	
	60 03 ... 5210	0.65–0.80	●		●	●	●
	60 03 ... 5220	0.80–0.88	●	●	●		

● = Available sizes



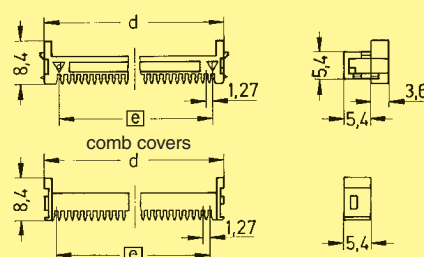
A manual for the har-mik® connector and cable assembly is available in our online catalogue HARKIS® or on demand at your local HARTING representative.

Dimensions



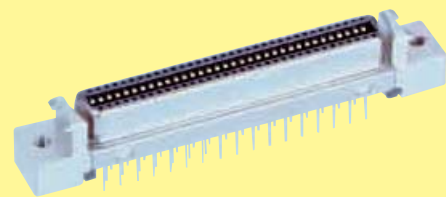
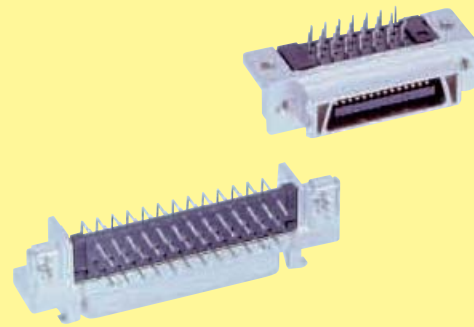
	a	c	d	e
20	21.25	17.00	16.75	11.43
26	25.06	20.81	20.56	15.24
50	40.30	36.05	35.80	30.48
68	51.73	47.48	47.23	41.91
100	72.05	67.80	67.55	62.23

Comb cover (delivered with connectors)

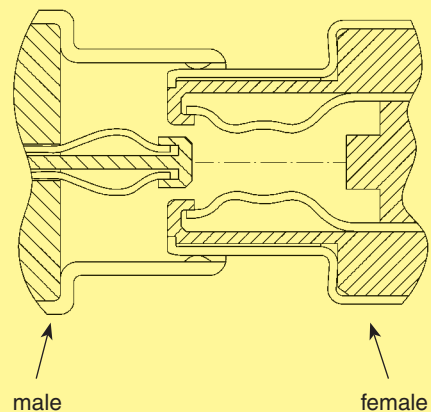


Dimensions in mm

Number of contacts	14, 20, 26, 28, 36, 50, 68
Pitch	1.27 mm
Working current	1 A
Working voltage	240 V ~
Test voltage $U_{r.m.s.}$	750 V (standard) 500 V (SMC)
Contact resistance	$\leq 40 \text{ m}\Omega$ (standard) $\leq 45 \text{ m}\Omega$ (SMC)
Insulation resistance	$\geq 10^3 \text{ M}\Omega$
Temperature range during SMC reflow soldering	-55 °C ... + 105 °C max. 240 °C for 60 s
Terminations	
Solder pins	Straight for pcb holes min. $\varnothing 0.74 \text{ mm}$ Angled 90° for pcb holes min. $\varnothing 0.74 \text{ mm}$ (wave soldering) min. $\varnothing 0.62 \text{ mm}$ (SMC)
Insulation displacement	AWG 28 to AWG 30 max. section: 0.089 mm^2 min. section: 0.050 mm^2 Insulation \varnothing min. 0.50 mm \varnothing max. 0.65 mm
Materials	
Moulding	Thermoplastic resin glass-fibre filled UL 94-V0
Contacts	Copper alloy
Contact surface	
Contact zone	Selectively gold plated according to performance level
Metal shell	Die cast zamac or stamped steel, nickel-plated



Bellows
with leaf contact design



Number of contacts

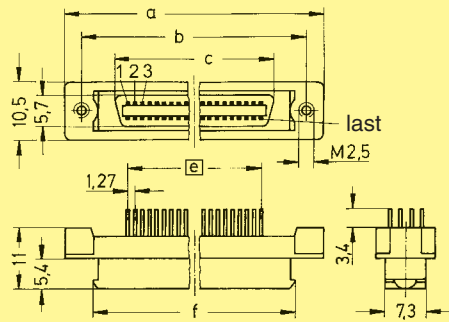
26-68



Male and female connectors, straight

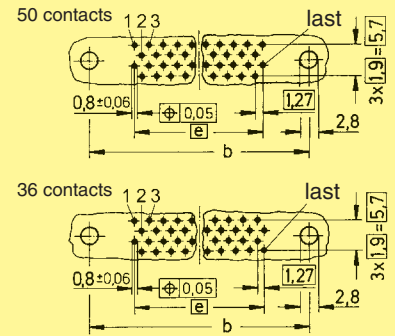
Identification	No. of contacts	Part No.
Male and female connectors with straight solder pins		Male connector
		Female connector
	26	60 11 026 5102
	36	60 11 036 5102
	50	60 11 050 5102
	68	60 11 068 5102

Dimensions for male connectors

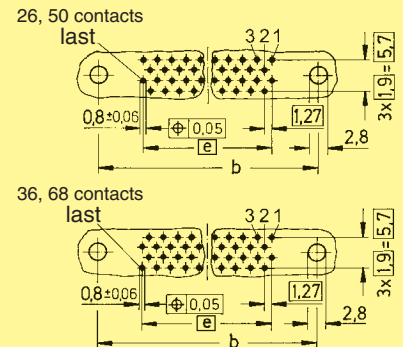
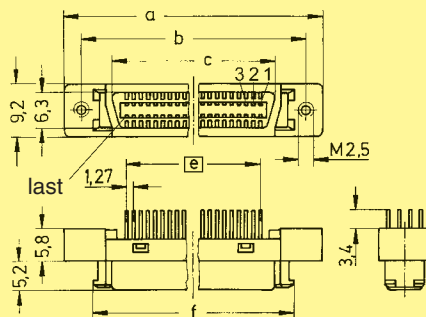


	a	b _{±0.1}	c	e	f	g	h
26	37.16	31.26	20.26	12 x 1.27 = 15.24	27.11	27.50	31.25
36	43.51	37.61	26.61	17 x 1.27 = 21.59	33.46	33.90	37.60
50	52.40	46.50	35.50	24 x 1.27 = 30.48	42.35	42.80	46.50
68	63.83	57.93	46.93	33 x 1.27 = 41.91	53.78	54.20	57.90

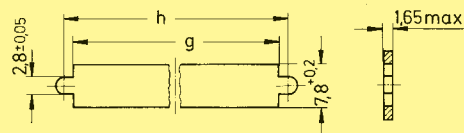
Board drillings



Dimensions for female connectors



Panel cut out



Dimensions in mm

Number of contacts

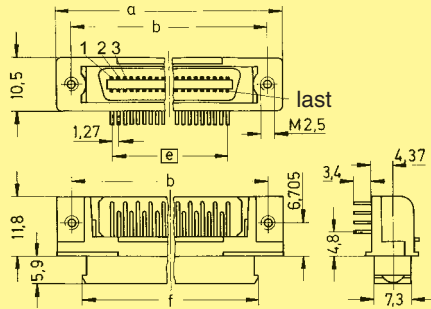
20-68



Male and female connectors, angled

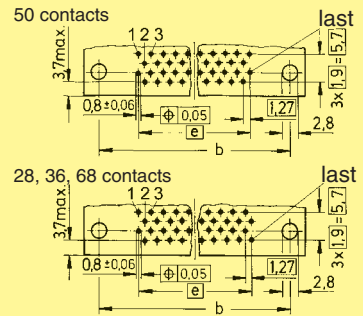
Identification	No. of contacts	Part No.
Male and female connectors with angled solder pins		Male connector
		Female connector
	20	60 11 020 51 ...
	26	60 11 026 51 ...
	28	60 11 028 5232
	36	60 11 036 5232
	50	60 11 050 5232
68	60 11 068 5232	
Without board lock	32	
With board lock	40	

Dimensions for male connectors

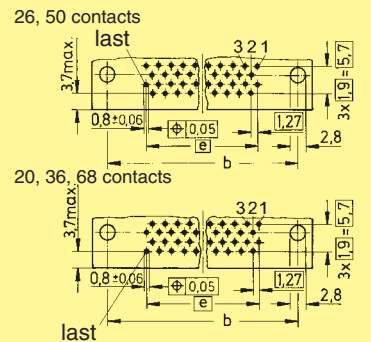
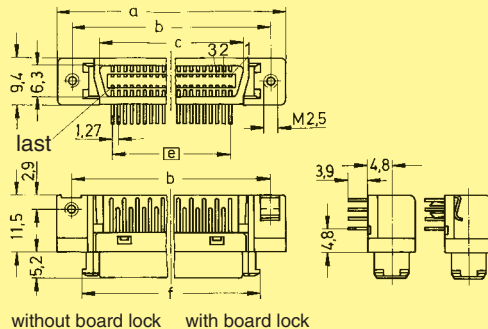


	a	b _{±0.1}	c	e	f	g	h
20	33.40	27.40	16.45	9 x 1.27 = 11.43	23.30	23.70	27.45
26	37.16	31.26	20.26	12 x 1.27 = 15.24	27.11	27.50	31.25
28	38.48	32.48	—	13 x 1.27 = 16.51	28.38	28.80	32.50
36	43.56	37.56	26.61	17 x 1.27 = 21.59	33.46	33.90	37.60
50	52.45	46.45	35.50	24 x 1.27 = 30.48	42.35	42.80	46.50
68	63.88	57.88	46.93	33 x 1.27 = 41.91	53.78	54.20	57.90

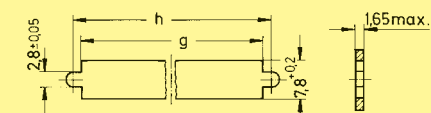
Board drillings



Dimensions for female connectors



Panel cut out



Dimensions in mm

Number of contacts

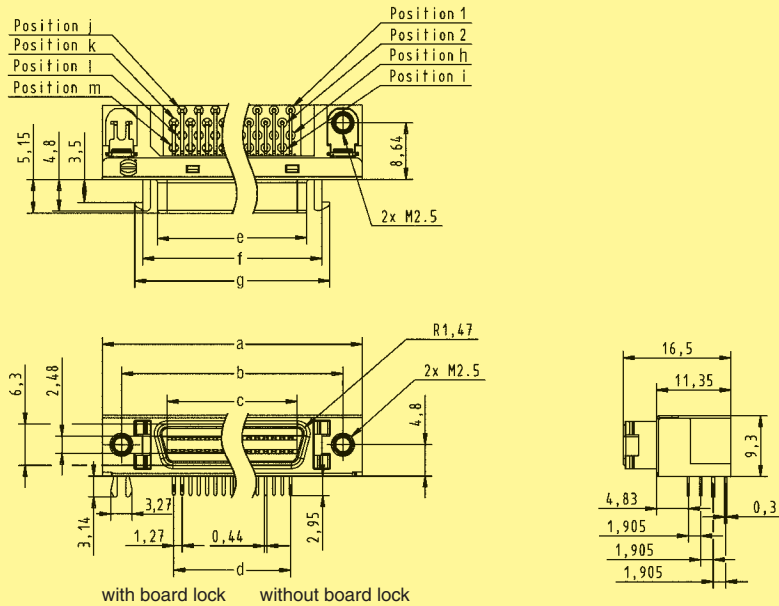
14-36



SMC female connectors, angled

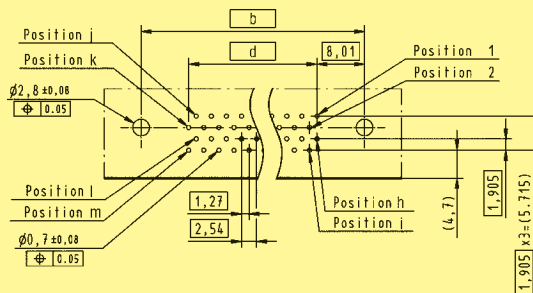
Identification	No. of contacts	Part No. for one reel
SMC female connectors with angled solder pins	14	60 11 014 57.. 710
	26	60 11 026 57.. 710
	36	60 11 036 57.. 710
Without board lock	32	
With board lock	40	

Dimensions



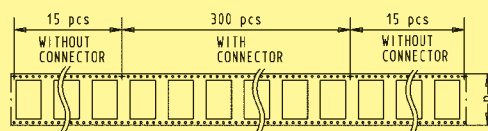
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
14	29.54	23.64	9.62	7.62	12.62	17.14	19.54	8	9	7	6	14	13	44
26	37.16	31.26	17.24	15.24	20.24	24.76	27.16	14	15	13	12	26	25	56
36	43.51	37.61	23.59	21.59	26.59	31.11	33.51	19	20	17	18	35	36	56

Board drillings (Components side)



Packaging

(1 reel = 300 pieces)
Reel diameter = 380 mm



Dimensions in mm

Number of contacts

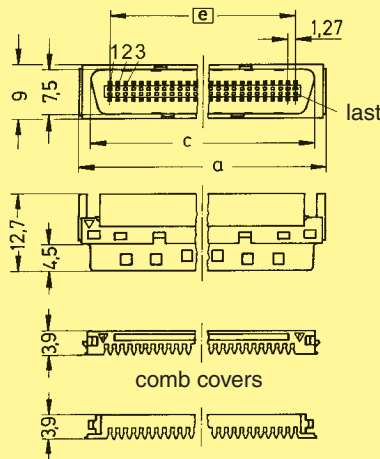
20–68



Male connectors for IDC discrete wire, straight

Identification	No. of contacts	Part No.
Male connectors with insulation displacement termination for discrete wire AWG 28/30 Insulation diameter (mm) Ø = 0.50–0.65		Male connector
	20	60 13 020 5200
	26	60 13 026 5200
	36	60 13 036 5200
	50	60 13 050 5200
	68	60 13 068 5200

Dimensions for male connectors



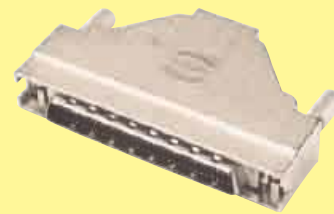
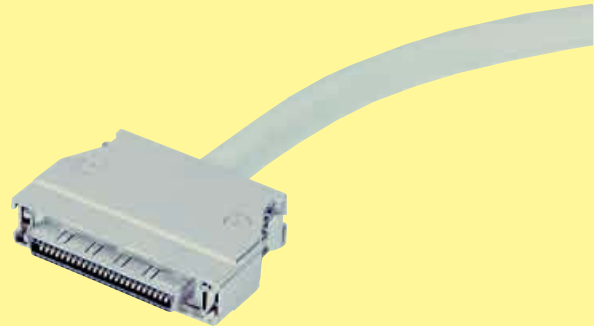
	a	c	e
20	21.24	17.55	11.43
26	25.05	21.36	15.24
36	31.40	27.71	21.59
50	40.29	36.60	30.48
68	51.72	48.03	41.91



A manual for the har-mik[®] connector and cable assembly is available in our online catalogue *HARKIS*[®] or on demand at your local HARTING representative.

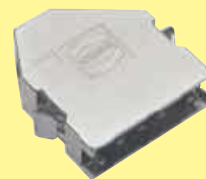
Hoods for pin and socket male connectors

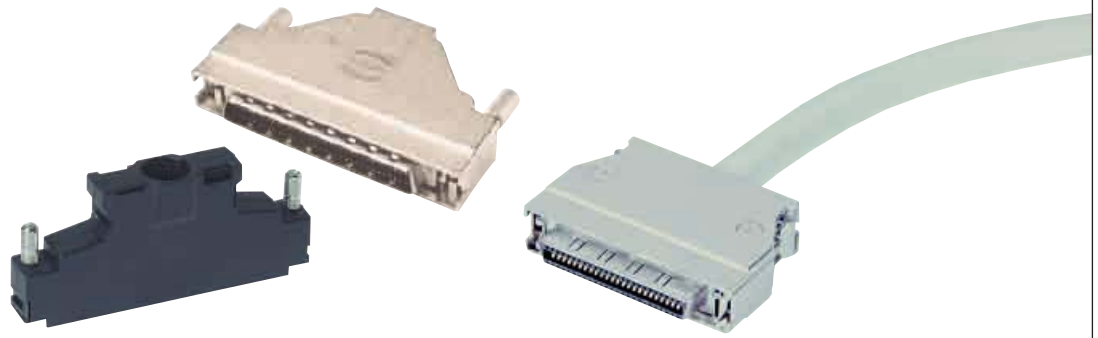
Number of contacts	20, 26, 36, 50, 68, 100
Surface	Die cast zamac, nickel-plated
	Thermoplastic resin, nickel-plated, steel insert



Hoods for bellows male connectors

Number of contacts	20, 26, 36, 50, 68
Surface	Die cast zamac, nickel-plated
	Thermoplastic resin, nickel-plated, steel insert





Top entry hoods

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																								
Metal hood Large cable entry	20	60 03 020 0255		<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>28.95</td> <td>21.15</td> <td>8.00 x 8.50</td> </tr> <tr> <td>26</td> <td>32.76</td> <td>24.96</td> <td>8.00 x 6.75</td> </tr> <tr> <td>36</td> <td>39.11</td> <td>31.31</td> <td>9.00 x 10.00</td> </tr> <tr> <td>50</td> <td>48.00</td> <td>40.20</td> <td>9.00 x 10.00</td> </tr> <tr> <td>68</td> <td>59.43</td> <td>51.63</td> <td>9.00 x 10.00</td> </tr> </tbody> </table>		a	b	c	20	28.95	21.15	8.00 x 8.50	26	32.76	24.96	8.00 x 6.75	36	39.11	31.31	9.00 x 10.00	50	48.00	40.20	9.00 x 10.00	68	59.43	51.63	9.00 x 10.00
		a		b	c																							
	20	28.95		21.15	8.00 x 8.50																							
	26	32.76		24.96	8.00 x 6.75																							
	36	39.11		31.31	9.00 x 10.00																							
	50	48.00		40.20	9.00 x 10.00																							
68	59.43	51.63	9.00 x 10.00																									
26	60 03 026 0255																											
36	60 03 036 0255																											
50	60 03 050 0255																											
68	60 03 068 0255																											
Metal hood Top cable entry	68	60 03 068 0145		<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Shell dimensions</th> <th colspan="2">Cable dimensions</th> </tr> <tr> <th>a</th> <th>b</th> <th>min.</th> <th>max.</th> </tr> </thead> <tbody> <tr> <td>68</td> <td>65.1</td> <td>38.2</td> <td>8.7</td> <td>10.7</td> </tr> </tbody> </table>		Shell dimensions		Cable dimensions		a	b	min.	max.	68	65.1	38.2	8.7	10.7										
						Shell dimensions		Cable dimensions																				
a	b	min.	max.																									
68	65.1	38.2	8.7	10.7																								
Plastic hood with internal screen ¹⁾	50	60 03 050 0143		<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>54.00</td> <td>46.48</td> <td>35.00</td> <td>10.50</td> <td>12.00</td> </tr> <tr> <td>68</td> <td>65.41</td> <td>57.91</td> <td>38.40</td> <td>14.00</td> <td>12.00</td> </tr> <tr> <td>100</td> <td>85.73</td> <td>78.23</td> <td>42.00</td> <td>13.00</td> <td>12.00</td> </tr> </tbody> </table>		a	b	c	d	e	50	54.00	46.48	35.00	10.50	12.00	68	65.41	57.91	38.40	14.00	12.00	100	85.73	78.23	42.00	13.00	12.00
		a		b	c	d	e																					
	50	54.00		46.48	35.00	10.50	12.00																					
68	65.41	57.91	38.40	14.00	12.00																							
100	85.73	78.23	42.00	13.00	12.00																							
68	60 03 068 0143																											
100	60 03 100 0143																											

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For other size, please consult us.
¹⁾ Temperature range: - 55 °C ... + 60 °C

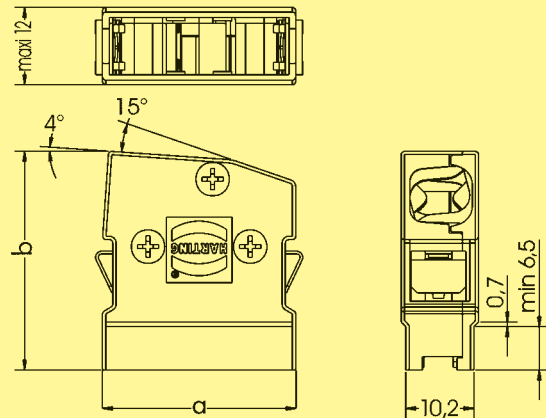


Side entry hoods

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
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Metal hood
Cable side entry

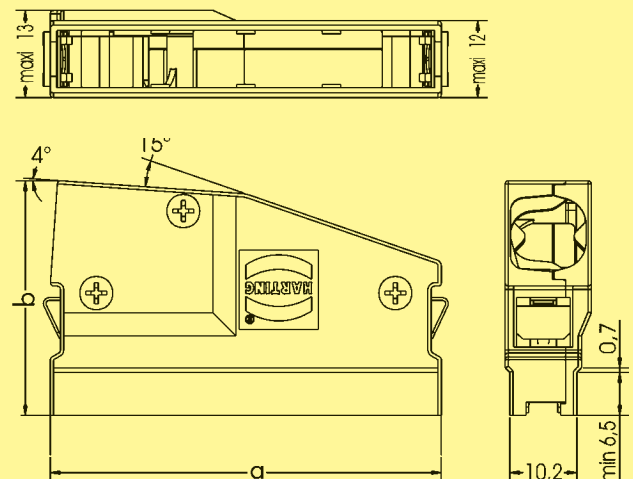
- 20 60 03 020 0555
- 26 60 03 026 0555
- 50 60 03 050 0555
- 68 60 03 068 0555



	Shell dimensions		Cable dimensions	
	a	b	min.	max.
20	29.0	32.9	6.2	8.0
26	32.8	32.9	6.5	8.5
50	48.0	35.6	8.3	10.3
68	59.4	35.6	8.7	10.7

Large cable side entry

- 68 60 03 068 0655



	Shell dimensions		Cable dimensions	
	a	b	min.	max.
68	59.4	35.6	10.0	12.0

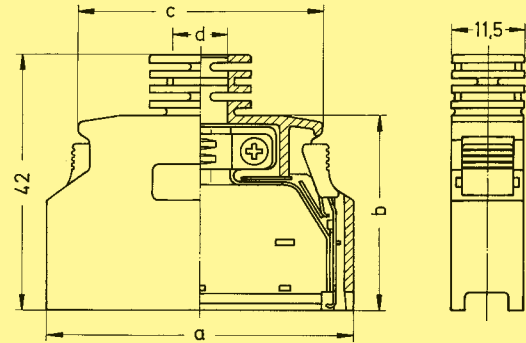


Top or side entry hoods

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
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Plastic hood with internal screen¹⁾

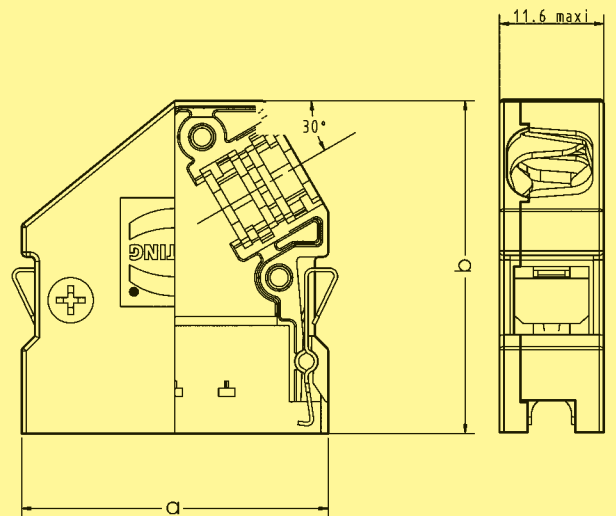
20	60 13 020 0153
26	60 13 026 0153
36	60 13 036 0153
50	60 13 050 0153
68	60 13 068 0153



	a	b	c	d
20	29.65	34.50	19.95	6.80
26	33.46	38.31	23.76	7.10
36	39.81	32.00	30.11	8.20
50	48.70	32.00	39.00	8.70
68	60.13	32.00	50.43	9.10

Metal hood
Cable side entry

26	60 13 026 0555
----	----------------



	Shell dimensions		Cable dimensions	
	a	b	min.	max.
26	33.8	36.8	6.5	8.5

¹⁾ Temperature range: - 55 °C ... + 60 °C



Female screw lock

Identification Part No. Drawing Dimensions in mm

<p>Screw lock Thread: M 2.5 / 2-56 UNC Height: 2.9 mm</p>	<p>60 01 000 9013</p>	
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<p>Screw lock Thread: 4-40 UNC / 4-40 UNC Height: 3.99 mm</p>	<p>60 01 000 9018</p>	
--	-----------------------	--

<p>Screw lock Thread: 4-40 UNC / 2-56 UNC Height: 3.99 mm</p>	<p>60 01 000 9019</p>	
--	-----------------------	--

<p>Screw lock Thread: 4-40 UNC / 2-56 UNC Height: 5.5 mm</p>	<p>60 01 000 9020</p>	
---	-----------------------	--

<p>Screw lock Thread: 4-40 UNC / 4-40 UNC Height: 5.5 mm</p>	<p>60 01 000 9021</p>	
---	-----------------------	--

harmik

for economical and reliable connections

A comprehensive range of high density intra cabinet connectors based on blade and fork contacts.

Available in a various number of contacts according to the following international standards and applications:

- Small Computer System Interface
SCSI-2
SCSI-2 wide
SCSI-3

- Internal Bus extension through "Daisy chain" inter-linking via 0.635 mm pitch flat cable. The 4-point design of the IDC contact provides accurate and reliable termination even with teflon cable.

UL recognised

For customer specific applications we can design and manufacture solutions to match your requirement.

Sales department
HARTING components



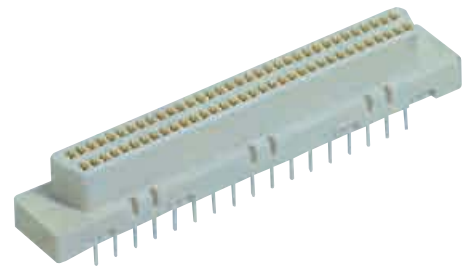
Certified according to EN ISO 9001
in design/development, production,
installation and servicing

Pitch	1.27 mm
Working current	
pcb connector	1 A
Flat cable connector	0.5 A
Working voltage	
pcb connector	240 V ~
Flat cable connector	100 V ~
Test voltage U_{r.m.s.}	
pcb connector	750 V
Flat cable connector	500 V
Contact resistance	≤ 25 mΩ
Insulation resistance	≥ 10 ³ MΩ
Temperature range	
during SMC reflow soldering	-55 °C ... + 105 °C max. 240 °C for 60 s
Terminations	
Solder pins	Straight for pcb holes min. Ø 0.74 mm
Insulation displacement	Flat cable AWG 30 pitch 0.635 mm
Materials	
Moulding	Thermoplastic resin glass-fibre filled UL 94-V0
Contacts	
pcb connector	Copper alloy
Flat cable connector	Nickel
Contact surface	
Contact zone	Selectively gold plated according to performance level

Press-in versions	
Insertion process	Flat rock
Maximum press-in force per contact	100 N
Minimum push out force per contact	15 N
Number of repairs	2
Diameter of pcb plated through holes	Ø 0.6 ^{+0.07} _{-0.05} mm
Recommended pcb holes for press-in process	Hole : Ø 0.71 – 0.74 mm Cu : 30 – 60 µm Sn : 5 – 20 µm
Pcb thickness	1.6 – 3.2 mm

Number of contacts

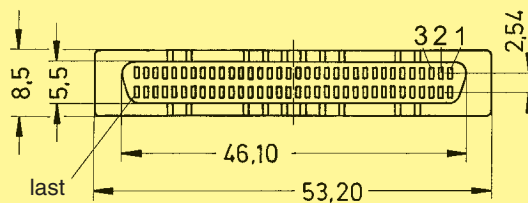
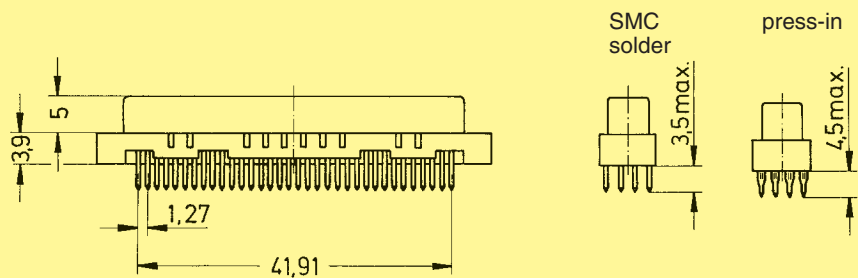
68



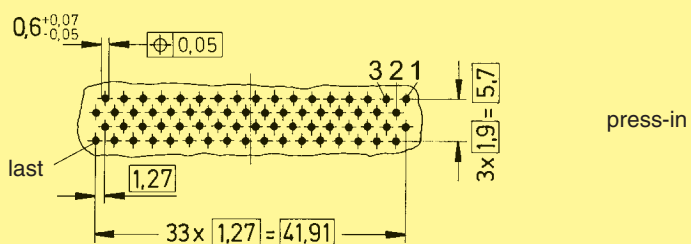
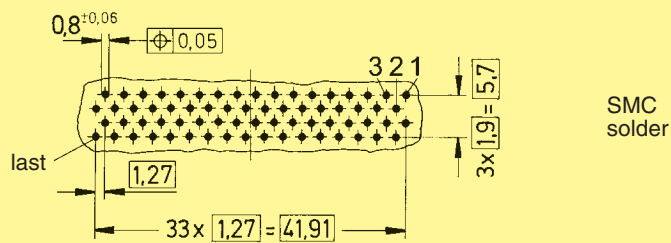
Connectors with straight pins

Identification	No. of contacts	Part No.
SMC female connector with straight solder pins	68	60 05 068 5100
Female connector with straight press-in pins	68	60 05 068 5322

Dimensions



Board drillings (Components side)



Dimensions in mm

Number of contacts

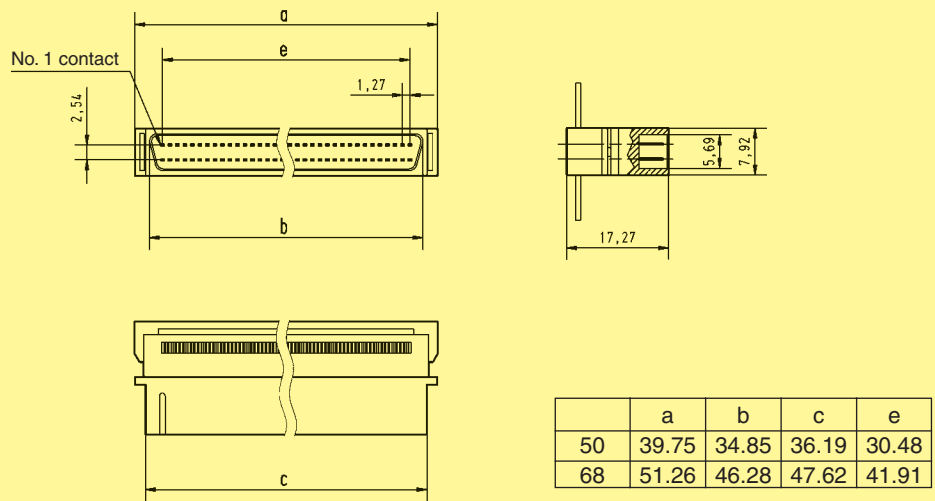
50–68



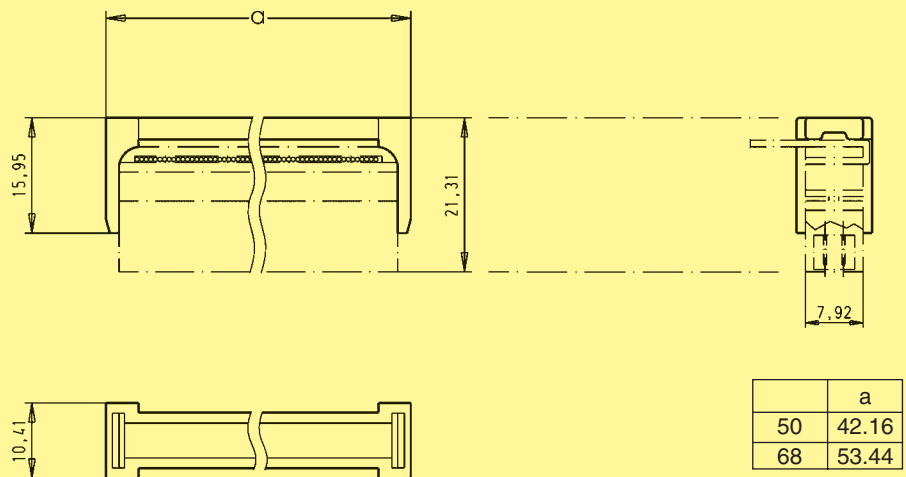
Connectors with IDC termination

Identification	No. of contacts	Part No.
Male connectors with insulation displacement termination for IDC flat cable pitch 0.635 mm AWG 30 Strain relief order separately		Male connector
		Strain relief
	50	60 06 050 5440
	68	60 06 068 5440
		60 06 050 9001
		60 06 068 9001

Dimensions



Strain relief



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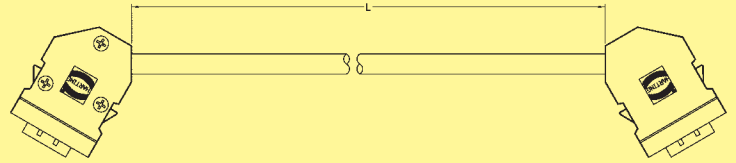
Cable assemblies

Identification	Part No.	Drawing	Dimensions [mm]
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Cable assembly har-mik® bellows, 26 pole

Hood: metal hood with side entry
 Cable: 13 twisted pairs, AWG 28, shielded, PVC
 Wiring: 1:1

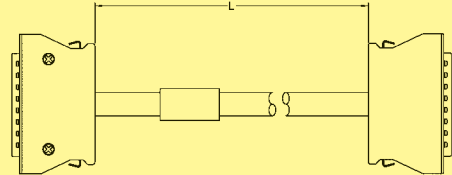
Length: L = 0.5 m	33 60 214 5000 095
L = 1.0 m	33 60 213 1000 096
L = 2.0 m	33 60 213 2000 097
L = 5.0 m	33 60 213 5000 098
L = 10.0 m	33 60 212 1000 099
L = 15.0 m	33 60 212 1500 100
L = 20.0 m	33 60 212 2000 101



Cable assembly har-mik® pin and socket, 68 pole

Hood: metal hood with top entry
 Cable: 34 twisted pairs, AWG 28, shielded, PVC
 Wiring: 1:1

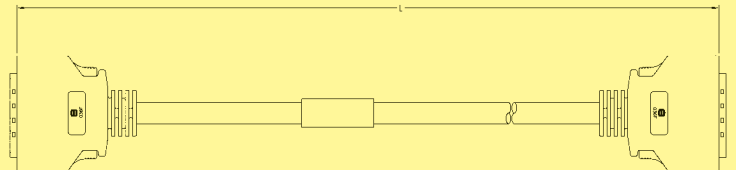
Length: L = 0.5 m	33 60 214 5000 102
L = 1.0 m	33 60 213 1000 103
L = 2.0 m	33 60 213 2000 104
L = 5.0 m	33 60 213 5000 105
L = 10.0 m	33 60 212 1000 106
L = 15.0 m	33 60 212 1500 107
L = 20.0 m	33 60 212 2000 108



Cable assembly har-mik® bellows, 36 pole

Hood: shielded plastic hood with top entry
 Cable: 18 twisted pairs, AWG 28, shielded, PVC
 Wiring: 1:1

Length: L = 0.5 m	33 60 214 5000 088
L = 1.0 m	33 60 211 0010 089
L = 2.0 m	33 60 211 0020 090
L = 5.0 m	33 60 211 0050 091
L = 10.0 m	33 60 211 0100 092
L = 15.0 m	33 60 211 0150 093
L = 20.0 m	33 60 211 0200 094



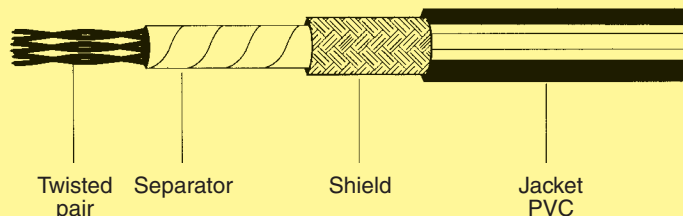
Cables for insulation displacement termination

Identification	No. of pairs	Part No.
Twisted pair cable with braid shield AWG 28 Length per reel: 100 m*	5	60 90 005 6003
	10	60 90 010 6003
	13	60 90 013 6003
	14	60 90 014 6003
	18	60 90 018 6003
	20	60 90 020 6003
	25	60 90 025 6003
	34	60 90 034 6003
	40	60 90 040 6003
	48	60 90 048 6003
	50	60 90 050 6003

Drawing

No. of pairs	Outside diameter	
	Nominal	Max
5	5.4	5.6
10	6.2	6.5
13	6.5	6.8
14	6.5	6.8
18	7.4	7.7
20	7.7	8.2
25	8.2	8.5
34	8.7	9.0
40	9.9	10.4
48	10.1	10.6
50	13.0	13.5

Dimensions in mm



Technical characteristics

Number of pairs	5, 10, 13, 14, 18, 20, 25, 34, 40, 48, 50	Propagation velocity	60 %
Voltage rating	30 V (style UL 2789)	Temperature range	- 20 °C ... + 105 °C
Maximum conductor resistance (20 °C)	233 Ω/km	Cable materials	
Minimum insulation resistance (20 °C)	1 MΩ/km	Conductor	7 x 0.13 mm stranded tinned copper
Nominal differential impedance (TDR)	85 Ω	Insulation (except 50 pairs) (for 50 pairs)	PVC Ø 0.62 mm PVC Ø 0.65 – 0.80 mm
Nominal differential capacitance (1 kHz)	110 pF/m	Shield	Tinned copper braid, covering ≥ 80 %
		Jacket	PVC
		Flammability rating	IEC 332-1
		Sheath marking	AWM 2789 60°C 30V VW1 36963

* Except 60 90 050 6003: 150 m reel

Cables for insulation displacement termination

Identification	No. of wires	Part No.
Flat cable for IDC connector Pitch 0.635 mm AWG 30		
Length per reel: 100 ft 30.48 m	50 68	60 90 050 6008 60 90 068 6008

Drawing

Dimensions in mm

	a ± 0.25	b ± 0.05	c ± 0.2	d ± 0.05
50	31.75	0.635	31.12	0.68
68	43.20	0.635	42.55	0.68

The tolerance b is not cumulative

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Technical characteristics	
Number of wires	50, 68
Voltage rating	150 V
Impedance	75 Ω
Nominal differential capacitance (1 kHz)	90 pF/m
Pitch	0.635 mm
UL style	2678
Temperature range	- 30 °C ... + 105 °C
Materials	
Conductor	7 x 0.102 mm regular tinning or Z-bonding AWG 30
Insulation	PVC