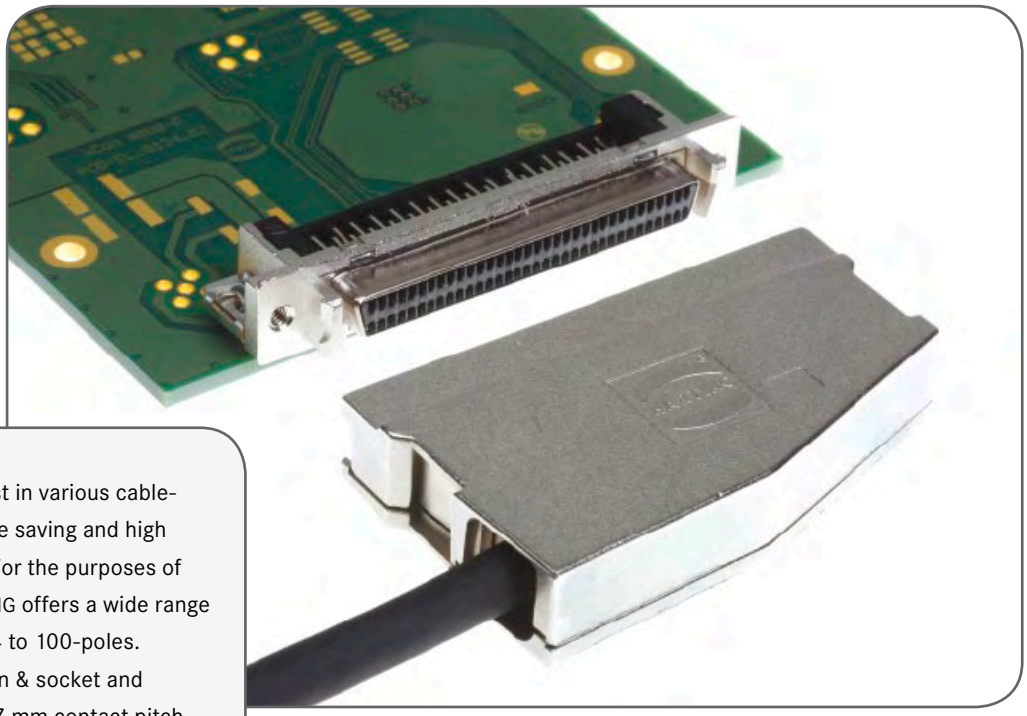


Miniature D connectors are a must in various cable-to-board applications where space saving and high data transfer rates are required. For the purposes of miniaturization and speed, HARTING offers a wide range of miniature D connectors with 14 to 100-poles. Available in two contact styles (pin & socket 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, IEEE 1284.

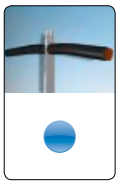
Application profile:

CONNECTION TYPE		ENVIRONMENT		APPLICATION						
							high performance			
Board to Board	Cable/ Wire to Board	IP 20	IP 65 / IP 67	Data	Signal	Power	Data transfer rate	Shielding	Number of contacts, contact density	Voltage, working current
	●	●		●				●	●	

Cable termination

Han-Quick Lock®

IDC



●

Crimp

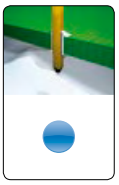
Screw

Cage clamp

Axial screw

PCB termination

THT



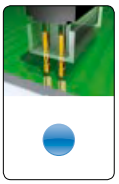
●

SMC

●

SMT

Press-in



●

Application standard

SCSI

Housing integration

Separate housing

Integrated housing

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Tooling see chapter 20

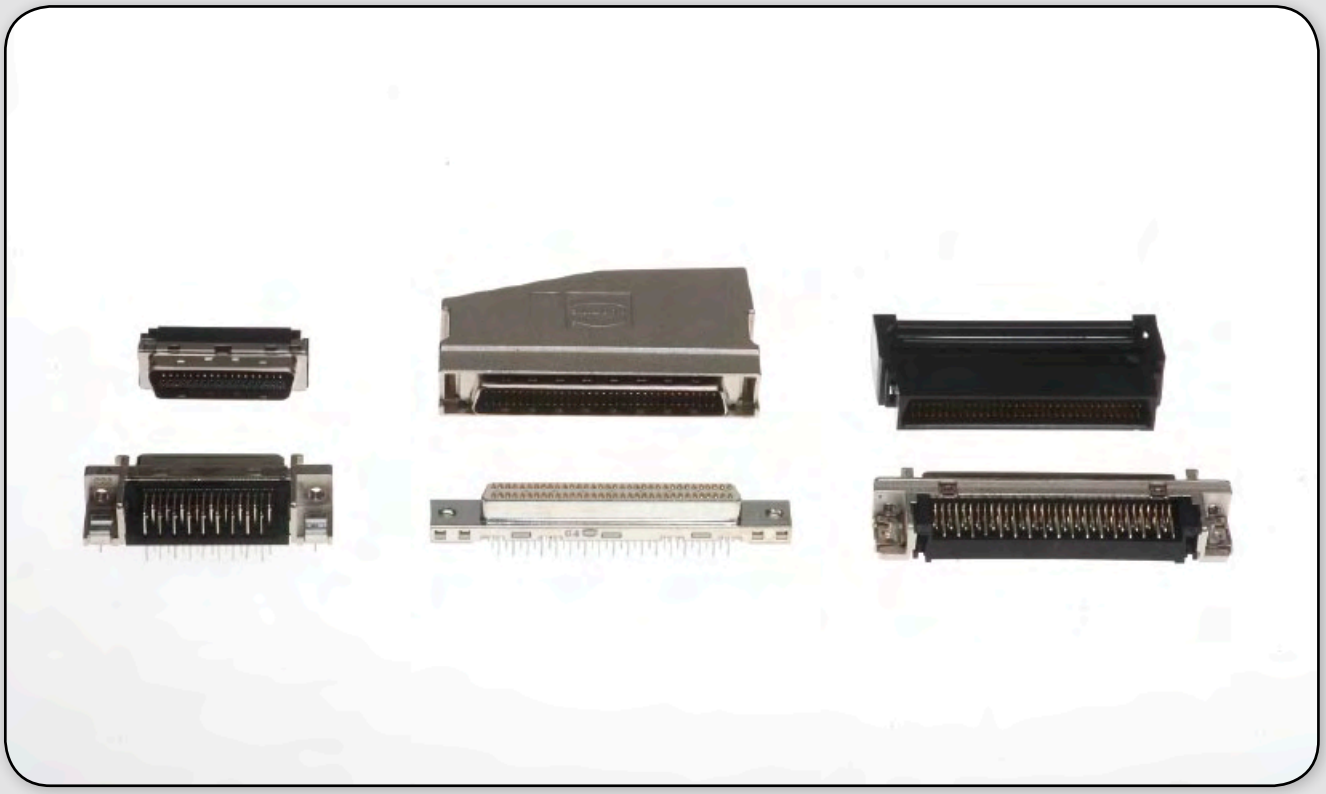
har-mik® interface connectors in 1.27 mm pitch

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, IEEE 1284.

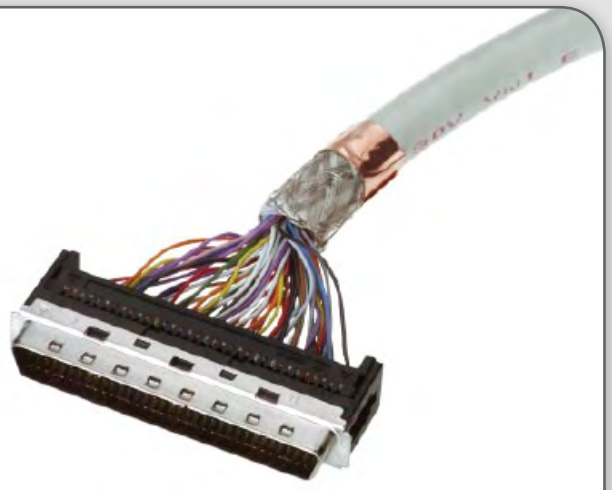
There are the following components available in this range:

- 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.



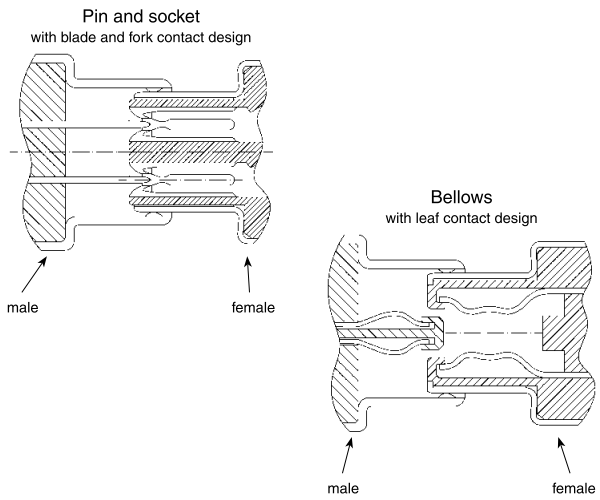
Space saving connectors in 1.27 mm pitch

IDC cable connectors for round discrete wire cables and flat cables



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

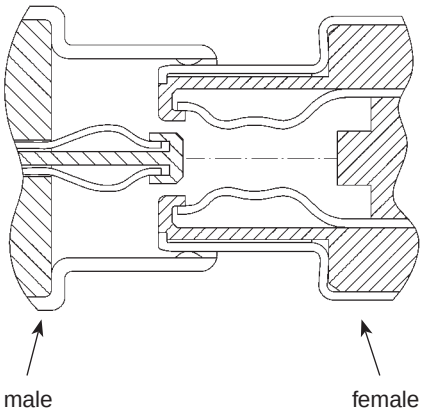
UL recognised

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

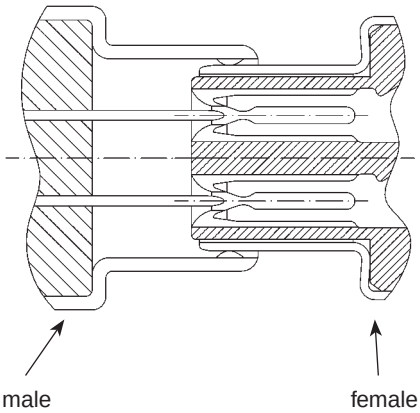
Sales department
HARTING components

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



I/O connectors

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	≤ 30 mΩ
Insulation resistance	≥ 10^3 MΩ
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. Ø 0.74 mm Angled 90° for pcb holes min. Ø 0.74 mm
Insulation displacement	Discrete wire AWG 28 to AWG 30 max. section: 0.089 mm² min. section: 0.050 mm² Insulation Ø min. 0.50 mm Ø max. 0.90 mm Flat cable AWG 30 pitch 0.635 mm

Materials

Moulding	Thermoplastic resin glass-fibre filled UL 94-V0
Contacts	Copper alloy

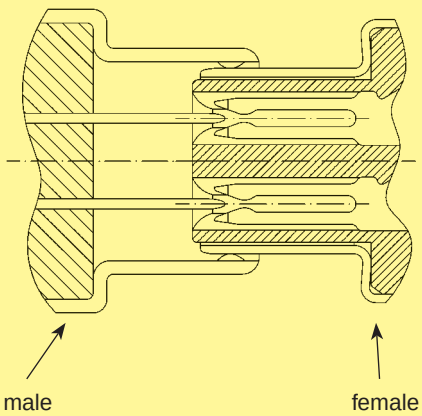
Contact surface

Contact zone	Selectively gold plated according to performance level
Metal shell	Die cast zamac or stamped steel, nickel-plated

Press-in versions

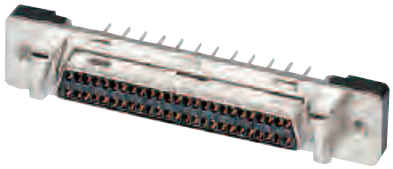
Insertion process	Flat rock
Maximum press-in force per contact	100 N
Minimum push out force per contact	15 N
Number of repairs	2
Diameter of pcb plated through holes	Ø $0.6^{+0.07}_{-0.05}$ mm
Recommended pcb holes for press-in process	Hole : Ø 0.71 – 0.74 mm Cu : 30 – 60 µm Sn : 5 – 20 µm
Pcb thickness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

Pin and socket
with blade and fork contact design



Number of contacts

20–68

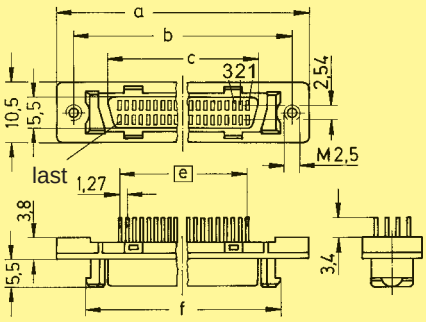


Female connectors, straight

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

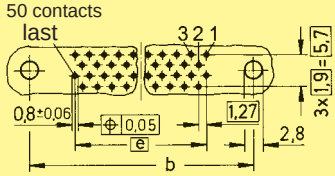
Dimensions

	a	$b_{\pm 0.1}$	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

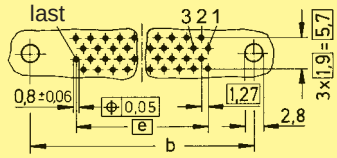


Board drillings

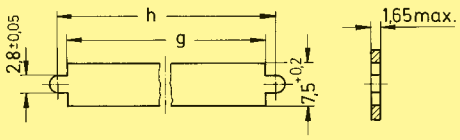
26, 50 contacts



20, 68 contacts



Panel cut out



Dimensions in mm

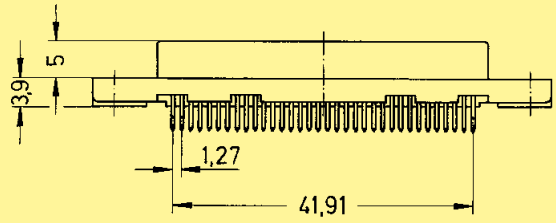
Number of contacts

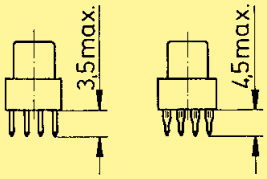
68

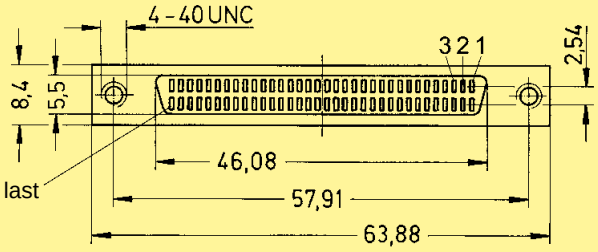
Female connectors, straight

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

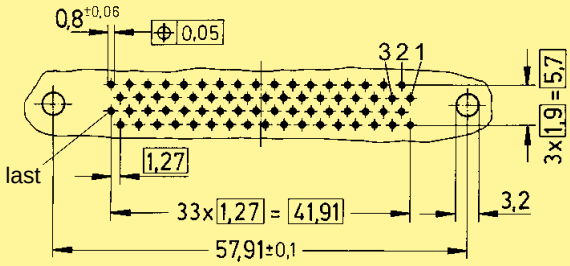
Dimensions



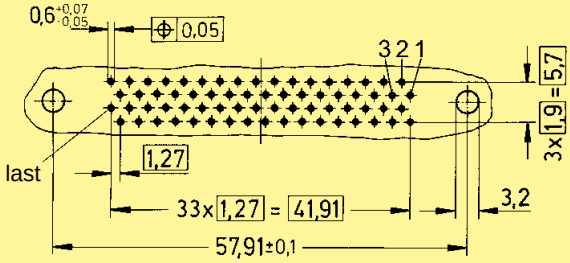




Board drillings
(Components side)



SMC
solder

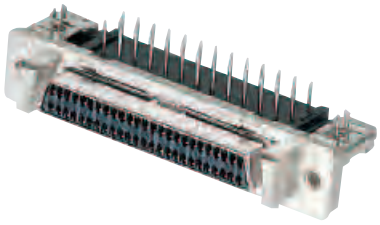


press-in

Dimensions in mm

Number of contacts

20–68



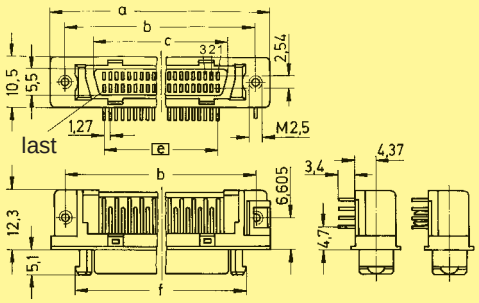
Female connectors, angled

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

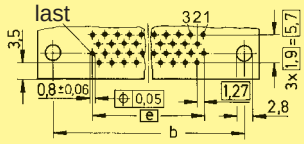
	a	$b_{\pm 0.1}$	c	e	f	g	h
20	33.40	27.40	15.60	9 x 1.27 = 11.43	23.24	23.70	27.45
26	37.21	31.24	19.41	12 x 1.27 = 15.24	27.05	27.50	31.25
50	52.45	46.45	34.65	24 x 1.27 = 30.48	42.29	42.80	46.50
68	63.88	57.88	46.08	33 x 1.27 = 41.91	53.72	54.20	57.90



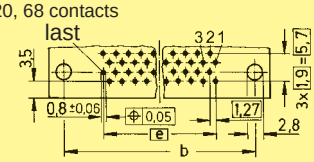
without board lock with board lock

Board drillings

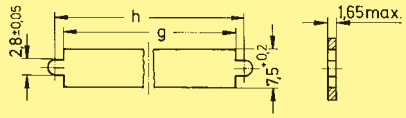
26, 50 contacts



20, 68 contacts



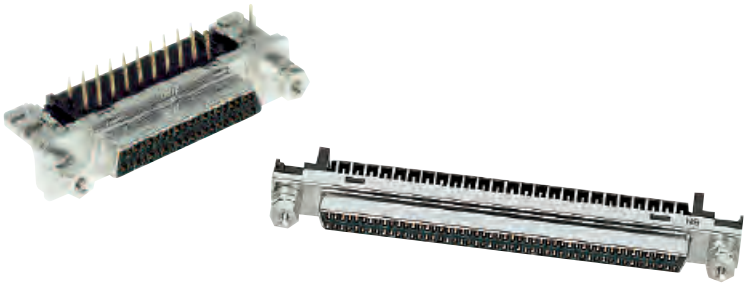
Panel cut out



Dimensions in mm

Number of contacts

68–100

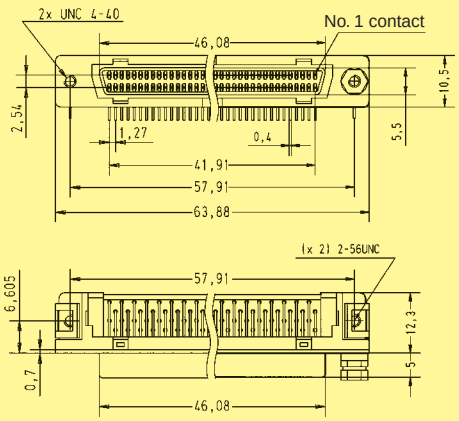


Female connectors, angled

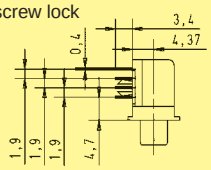
Identification		No. of contacts	Part No.
Female connectors with angled solder pins		68	60 02 068 51 . .
		100	60 02 100 51 . .
With female screw lock	41		
Without female screw lock	50		

Dimensions

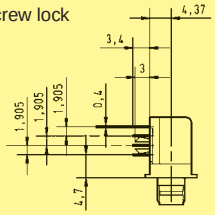
without screw lock with screw lock

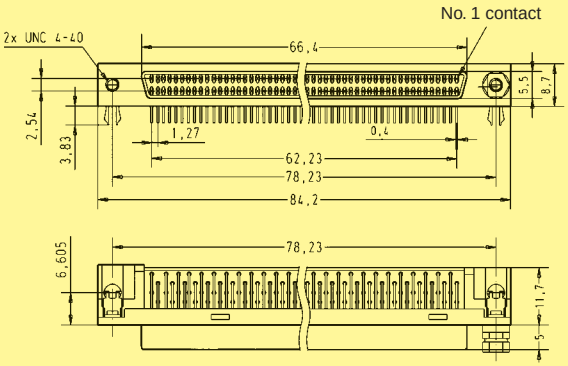


without screw lock

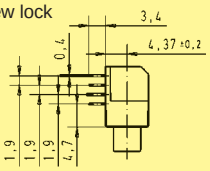


with screw lock

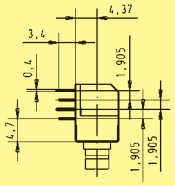




without screw lock



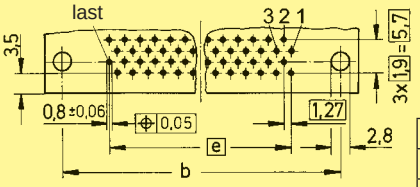
with screw lock



Board drillings

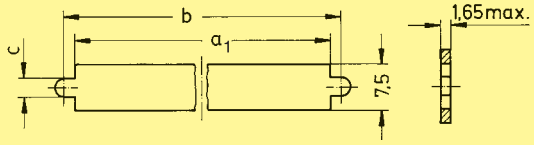
(Components side)

68 contacts, 100 contacts



	a_1	b	c	e
68	54.22	57.91	4.4	33 x 1.27 = 41.91
100	74.53	78.23	2.8	49 x 1.27 = 62.23

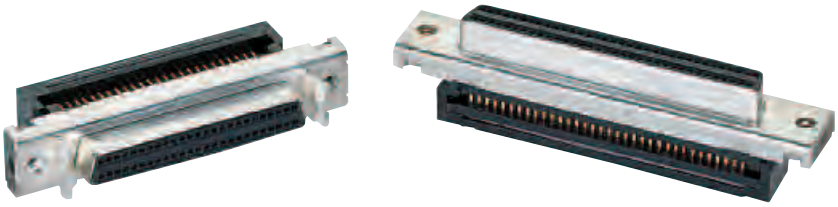
Panel cut out



Dimensions in mm

Number of contacts

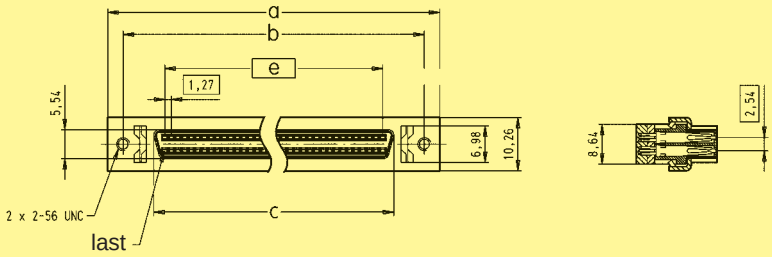
50–68



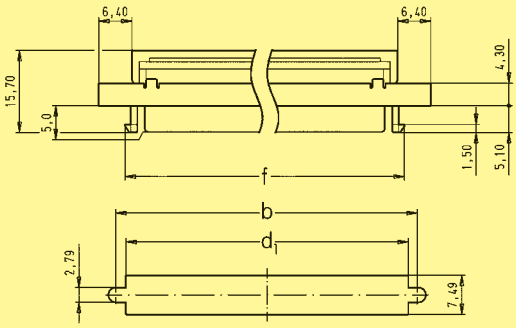
Female connectors for IDC flat cable, straight

Identification	No. of contacts	Part No. with latch system	Part No. 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

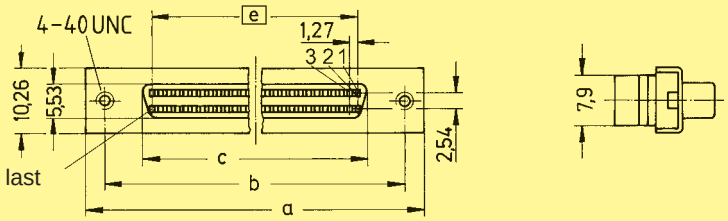


Panel cut out

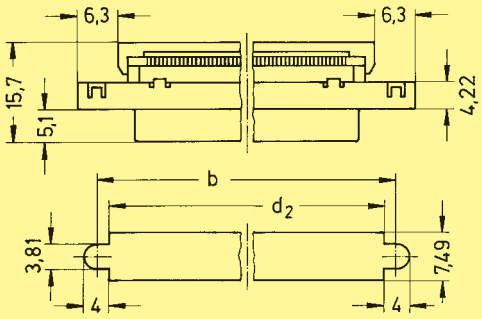


	a	b	c	d_1	d_2	e	f
50	52.45	46.48	34.70	42.80	42.30	30.48	42.30
68	63.88	57.91	46.13	54.23	53.72	41.91	53.72

Dimensions for connectors
with screw lock system



Panel cut out

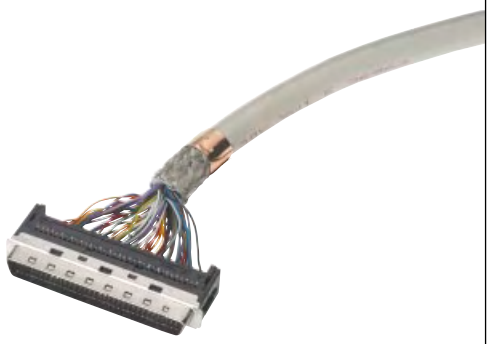


Dimensions in mm

Tooling see chapter 20
Cables see pages 06.29 ff

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)

Ø = 0.50–0.65	00
Ø = 0.50–0.75	05
Ø = 0.65–0.80	10
Ø = 0.75–0.90	15
Ø = 0.80–0.88	20

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.

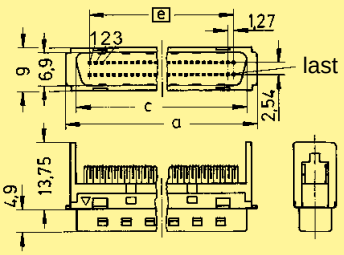
Available sizes

	Part No.	Ø	20	26	50	68	100
Male	60 03 . . . 5200	0.50–0.65	●	●	●		
	60 03 . . . 5205	0.50–0.75				●	
	60 03 . . . 5210	0.65–0.80	●		●		●
	60 03 . . . 5215	0.75–0.90				●	
	60 03 . . . 5220	0.80–0.88	●	●	●		

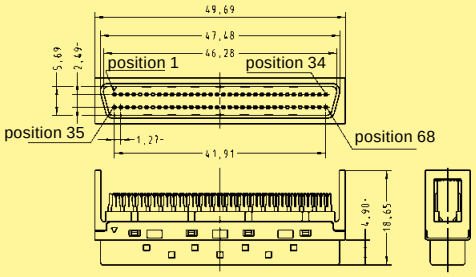
● = Available sizes

Dimensions

20 / 26 / 50 / 100 contacts



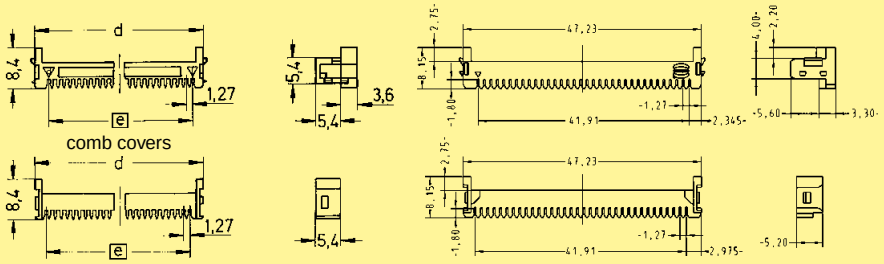
68 contacts



	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
100	72.05	67.80	67.55	62.23

Comb cover

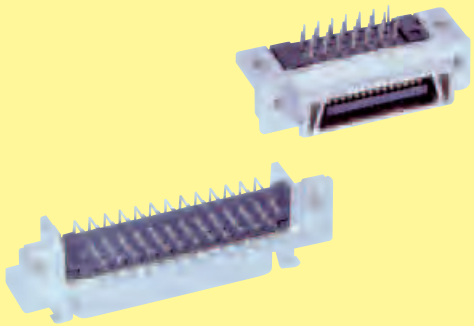
(delivered with connectors)

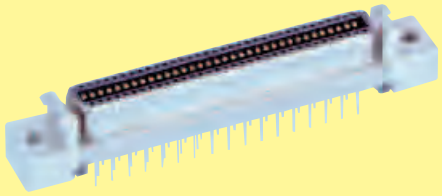


Dimensions in mm

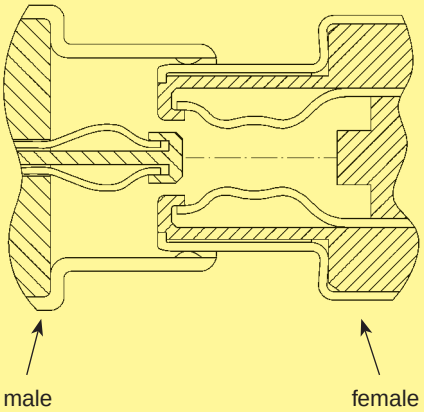
Hoods see pages 06.20, 06.21
Tooling see chapter 20
Cables see pages 06.29 ff

Number of contacts	14, 20, 26, 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	≤ 40 mΩ (standard) ≤ 45 mΩ (SMC)
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 Angled 90° for pcb holes min. Ø 0.74 mm (wave soldering) min. Ø 0.62 mm (SMC)
Insulation displacement	AWG 28 to AWG 30 max. section: 0.089 mm² min. section: 0.050 mm² Insulation Ø min. 0.50 mm Ø max. 0.90 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



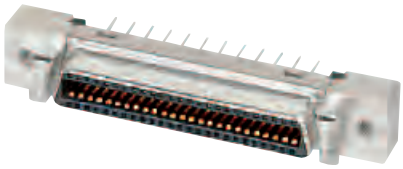


Bellows
with leaf contact design



Number of contacts

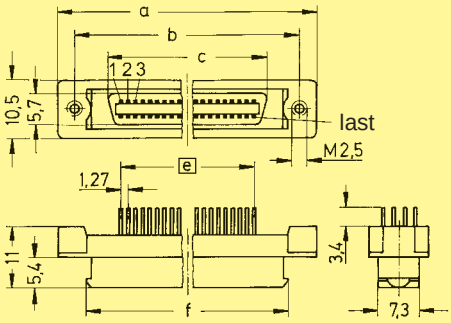
26–68



Male and female connectors, straight

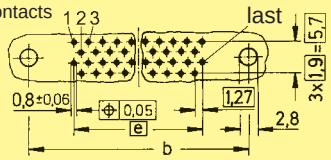
Identification	No. of contacts	Part No. Male connector	Part No. Female connector
Male and female connectors with straight solder pins	26		60 11 026 5102
	36	60 11 036 5202	60 11 036 5102
	50	60 11 050 5202	60 11 050 5102
	68		60 11 068 5102

Dimensions for male connectors

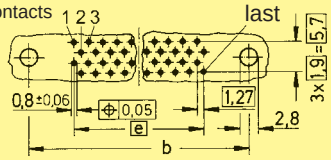


Board drillings

50 contacts

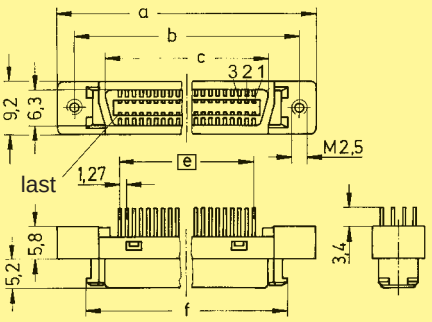


36 contacts

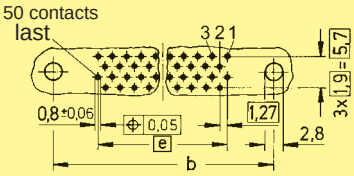


	a	$b_{\pm 0.1}$	c	e	f	g	h
26	37.16	31.26	20.26	12 x 1.27 = 15.24	27.11	27.50	31.25
36	43.51	37.61	26.61	17 x 1.27 = 21.59	33.46	33.90	37.60
50	52.40	46.50	35.50	24 x 1.27 = 30.48	42.35	42.80	46.50
68	63.83	57.93	46.93	33 x 1.27 = 41.91	53.78	54.20	57.90

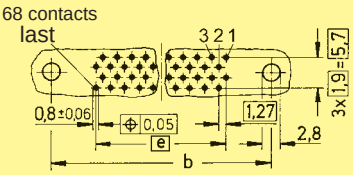
Dimensions for female connectors



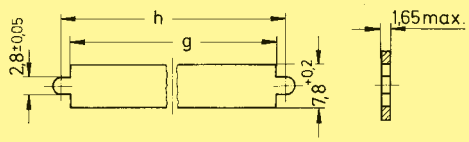
26, 50 contacts



36, 68 contacts



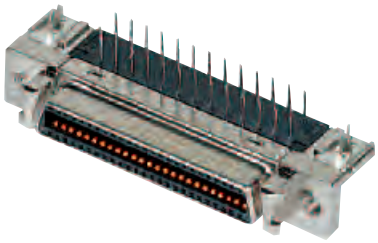
Panel cut out



Dimensions in mm

Number of contacts

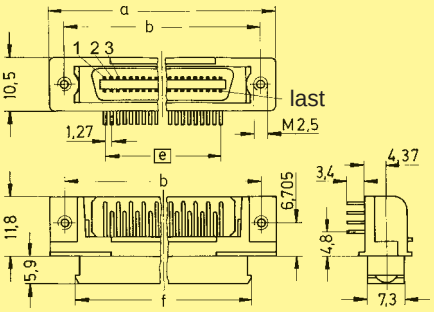
20–68



Male and female connectors, angled

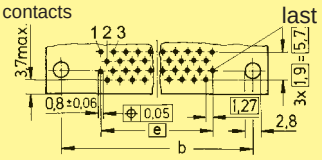
Identification	No. of contacts	Male connector	Female connector
Male and female connectors with angled solder pins			
	20		60 11 020 51 . .
	26		60 11 026 51 . .
	36	60 11 036 5232	60 11 036 51 . .
	50	60 11 050 5232	60 11 050 51 . .
	68	60 11 068 5232	60 11 068 51 . .
Without board lock	32		
With board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

Dimensions for male connectors

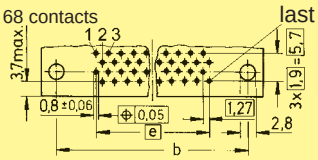


Board drillings

50 contacts

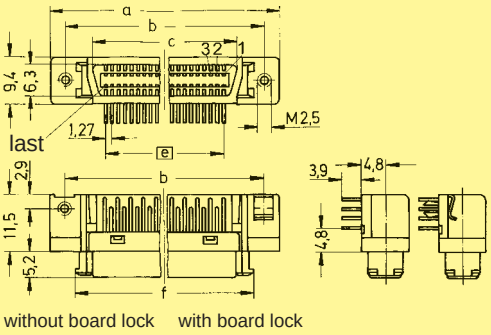


36, 68 contacts

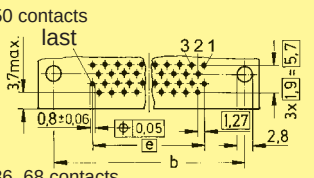


	a	$b_{\pm 0.1}$	c	e	f	g	h
20	33.40	27.40	16.45	9 x 1.27 = 11.43	23.30	23.70	27.45
26	37.16	31.26	20.26	12 x 1.27 = 15.24	27.11	27.50	31.25
36	43.56	37.56	26.61	17 x 1.27 = 21.59	33.46	33.90	37.60
50	52.45	46.45	35.50	24 x 1.27 = 30.48	42.35	42.80	46.50
68	63.88	57.88	46.93	33 x 1.27 = 41.91	53.78	54.20	57.90

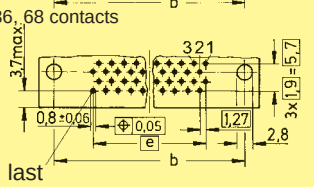
Dimensions for female connectors



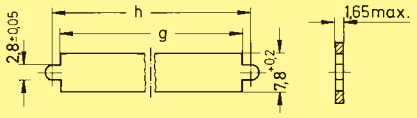
26, 50 contacts



20, 36, 68 contacts



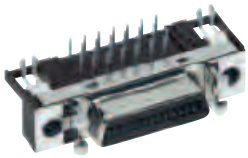
Panel cut out



Dimensions in mm

Number of contacts

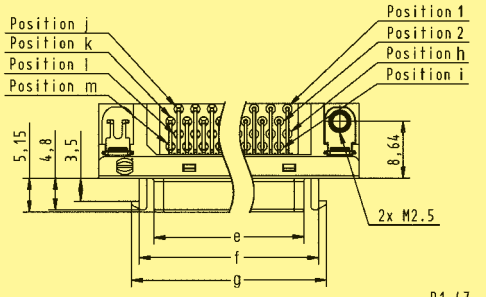
14–68

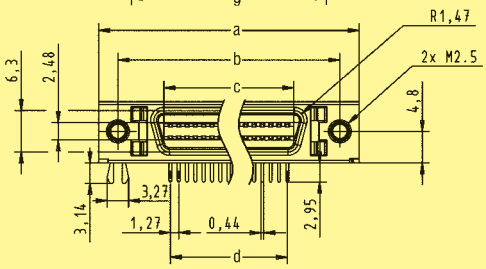


SMC female connectors, angled

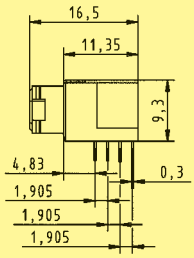
Identification	No. of contacts	Part No. for one reel (300 pieces)	Part No. standard tray packaging
SMC female connectors with angled solder pins	14	60 11 014 57 . . 710	60 11 014 57 . .
	20	60 11 020 57 . . 710	60 11 020 57 . .
	26	60 11 026 57 . . 710	60 11 026 57 . .
	36	60 11 036 57 . . 710	60 11 036 57 . .
	50	60 11 050 57 . . 710	60 11 050 57 . .
	68	60 11 068 57 . . 710	60 11 068 57 . .
Without board lock	32		
With board lock	40		

Dimensions





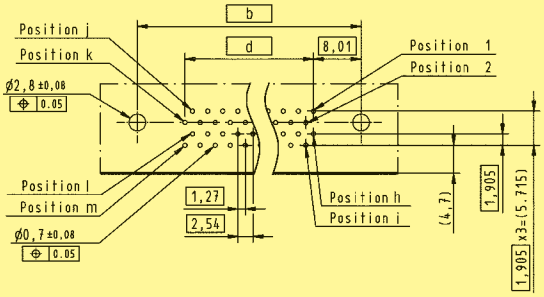
with board lock without board lock



	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	44.0
20	33.35	27.45	13.43	11.43	16.43	20.95	23.35	11	12	9	10	19	20	56.5
26	37.16	31.26	17.24	15.24	20.24	24.76	27.16	14	15	13	12	26	25	56.0
36	43.51	37.61	23.59	21.59	26.59	31.11	33.51	19	20	17	18	35	36	56.0
50	52.40	46.50	32.48	30.48	35.48	40.00	42.40	26	27	25	24	50	49	72.5
68	63.83	57.93	43.91	41.91	46.91	51.43	53.83	35	36	33	34	67	68	88.5

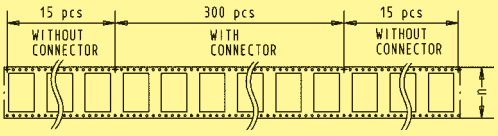
Board drillings

(Components side)



Packaging

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



Dimensions in mm

Number of contacts

14–68

Male connectors for IDC discrete wire, straight

Identification		No. of contacts	Part No.
			Male connector
Male connectors with insulation displacement termination for discrete wire AWG 28/30 Insulation diameter (mm)		14	60 13 014 52 . .
		20	60 13 020 52 . .
		26	60 13 026 52 . .
		36	60 13 036 52 . .
		50	60 13 050 52 . .
		68	60 13 068 52 . .
Ø = 0.50–0.65	00		
Ø = 0.50–0.75	05		
Ø = 0.75–0.90	15		

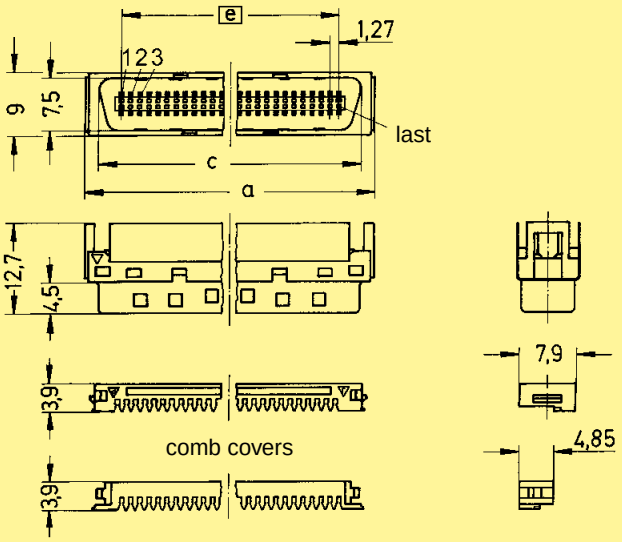
Available sizes

	Part No.	Ø	14	20	26	36	50	68
Male	60 13 . . . 5200	0.50–0.65		●			●	●
	60 13 . . . 5205	0.50–0.75	●		●	●		
	60 13 . . . 5215	0.75–0.90	●		●	●		

● = Available sizes

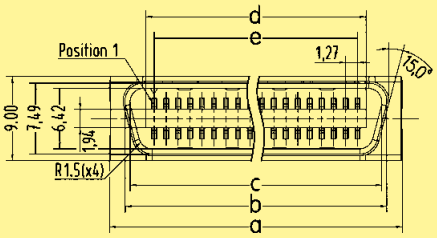
Dimensions for male connectors

20 / 50 / 68 poles

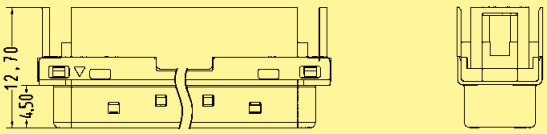


	a	c	e
20	21.24	17.55	11.43
50	40.29	36.60	30.48
68	51.72	48.03	41.91

14 / 26 / 36 poles



	a	b	c	d	e
14	17.10	13.84	12.78	9.42	7.62
26	24.95	21.46	20.40	17.00	15.24
36	31.35	27.81	26.75	23.39	21.59



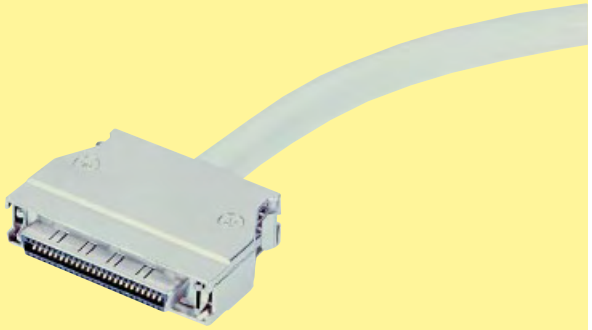
A manual for the *har-mik*® connector and cable assembly is available in our online catalogue *HARKIS*® or on demand at your local HARTING representative.

Dimensions in mm

Hoods see page 06.22, 06.23
Tooling see chapter 20
Cables see pages 06.29 ff

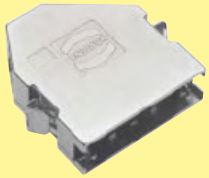
Hoods for pin and socket male connectors

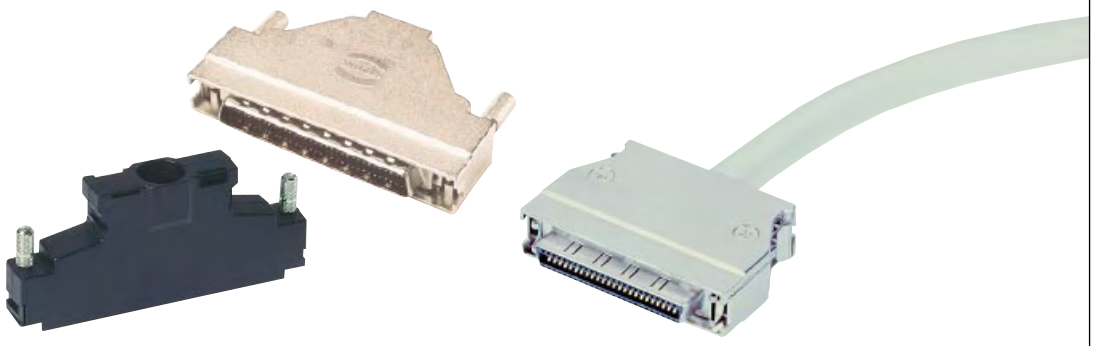
Number of contacts	20, 26, 36, 50, 68, 100
Surface	Die cast zamac, nickel-plated
	Thermoplastic resin, nickel-plated, steel insert



Hoods for bellows male connectors

Number of contacts	14, 20, 26, 36, 50, 68
Surface	Die cast zamac, nickel-plated
	Thermoplastic resin, nickel-plated, steel insert



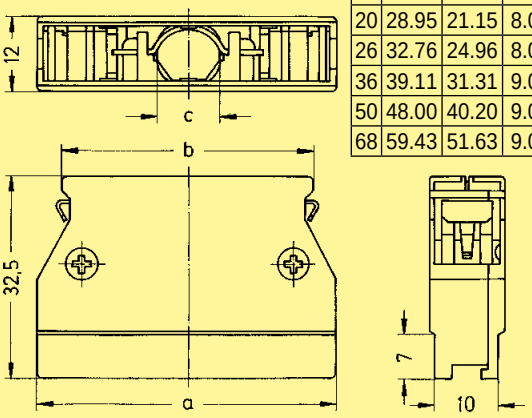


Top entry hoods

Identification	No. of contacts	Part No.
Metal hood Large cable entry	20	60 03 020 0255
	26	60 03 026 0255
	36	60 03 036 0255
	50	60 03 050 0255
	68	60 03 068 0255

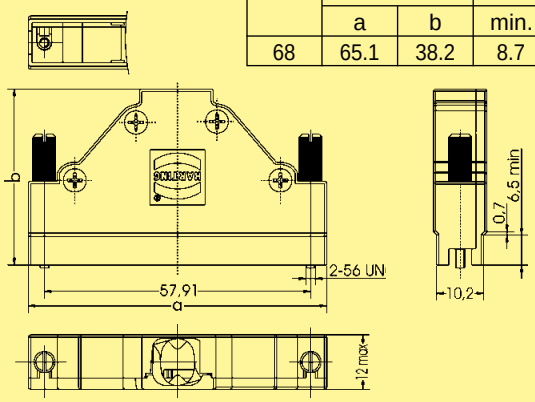
Drawing — Dimensions in mm

	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



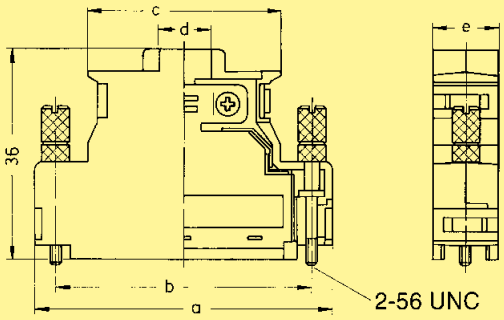
Identification	No. of contacts	Part No.
Metal hood Top cable entry	68	60 03 068 0145

	Shell dimensions		Cable dimensions	
	a	b	min.	max.
68	65.1	38.2	8.7	10.7

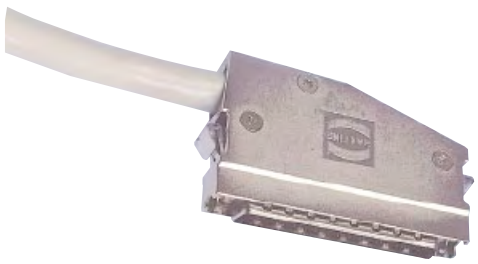


Identification	No. of contacts	Part No.
Plastic hood **with internal screen**[1]	50	60 03 050 0143
	68	60 03 068 0143
	100	60 03 100 0143

	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

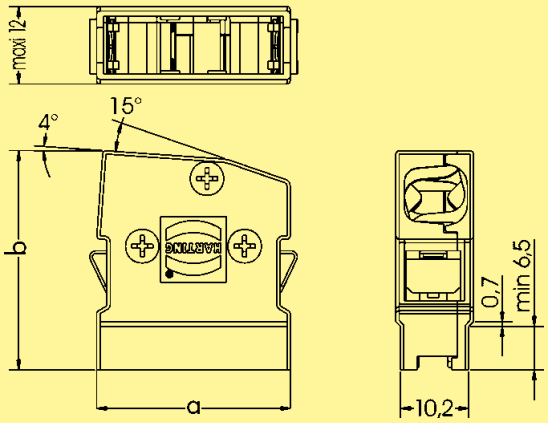


For other size, please consult us.
[1] Temperature range: -55 °C … +60 °C



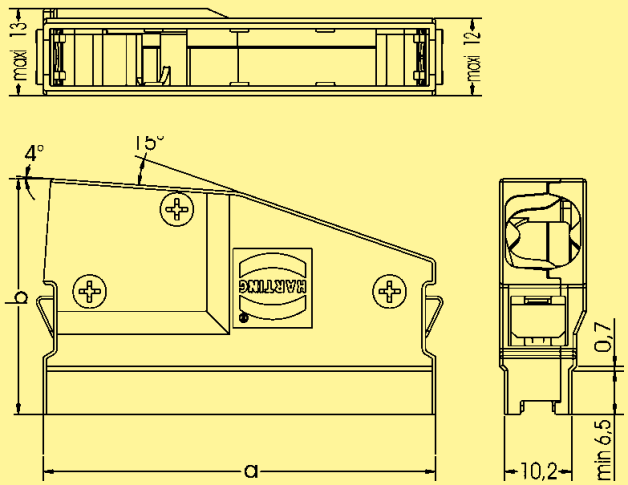
Side entry hoods

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Metal hood Cable side entry	20 26 50 68	60 03 020 0555 60 03 026 0555 60 03 050 0555 60 03 068 0555		

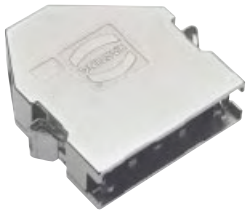


	Shell dimensions		Cable dimensions	
	a	b	min.	max.
20	29.0	32.9	6.2	8.0
26	32.8	32.9	6.5	8.5
50	48.0	35.6	8.3	10.3
68	59.4	35.6	8.7	10.7

Large cable side entry	68	60 03 068 0655		

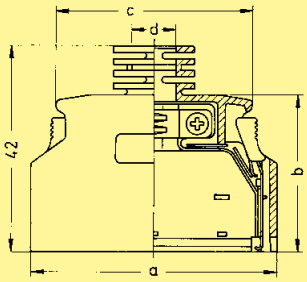


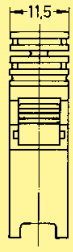
	Shell dimensions		Cable dimensions	
	a	b	min.	max.
68	59.4	35.6	10.0	12.0



Top or side entry hoods

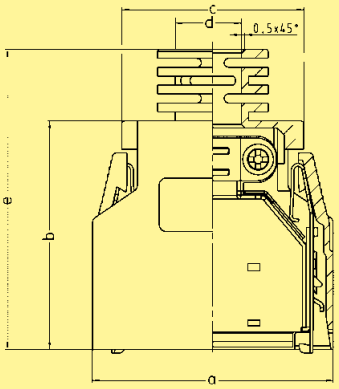
Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Plastic hood with internal screen	14	60 13 014 0153 351[1)]		
	20	60 13 020 0153[2)]		
	26	60 13 026 0153 351[1)]		
	36	60 13 036 0153 351[1)]		
	50	60 13 050 0153[2)]		
	68	60 13 068 0153[2)]		

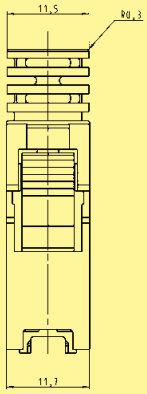




	a	b	c	d
20	29.65	34.50	19.95	6.80
50	48.70	32.00	39.00	8.70
68	60.13	32.00	50.43	9.10

20 / 50 / 68 poles

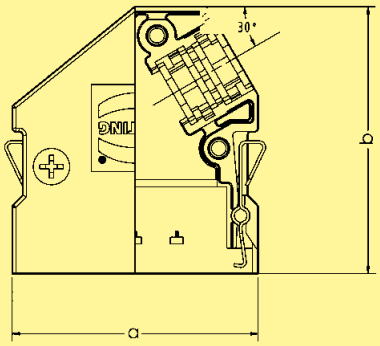


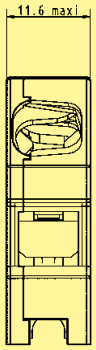


	a	b	c	d	e
14	26.00	36.00	21.00	7.20	42.50
26	33.70	32.00	25.50	8.00	42.00
36	40.05	32.00	31.80	9.20	42.00

14 / 26 / 36 poles

Metal hood Cable side entry Only compatible with IDC connector 60 13 026 5200	26	60 13 026 0555	





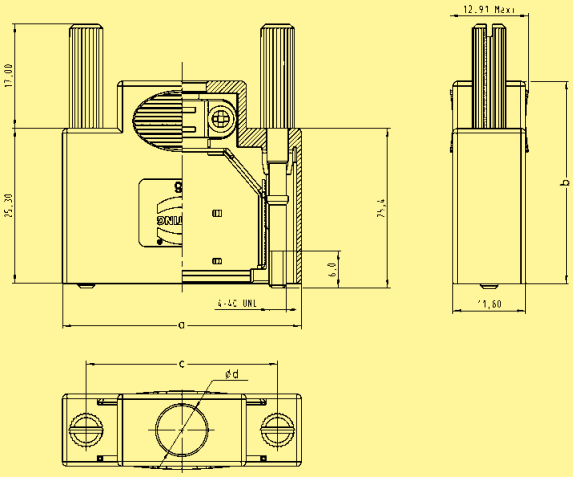
	Shell dimensions		Cable dimensions	
	a	b	min.	max.
26	33.8	36.8	6.5	8.5

[1)] Temperature range: - 55 °C ... + 85 °C
[2)] Temperature range: - 55 °C ... + 60 °C

Top or side entry hoods

Identification	No. of contacts	Part No.
Plastic hood with internal screen and knurled screws		
Colour: Beige	14	60 13 014 0146 351[1)]
	26	60 13 026 0146 351[1)]
	36	60 13 036 0146 351[1)]
Colour: Black	14	60 13 014 0146 110[1)]
	26	60 13 026 0146 110[1)]
	36	60 13 036 0146 110[1)]

Drawing

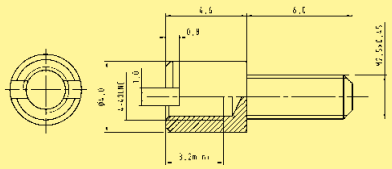
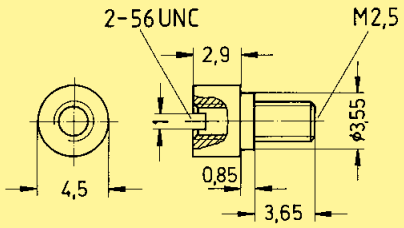
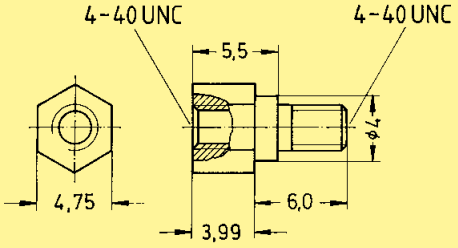
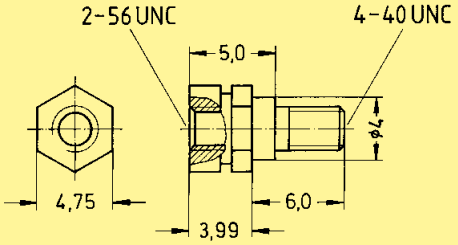
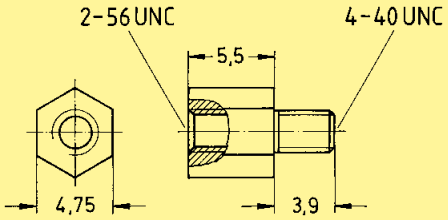
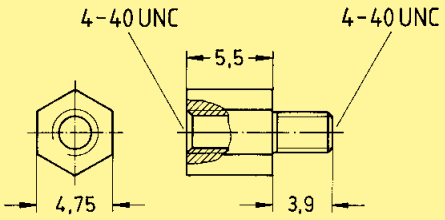


Dimensions in mm

	a	b	c	d
14	31.40	37.00	23.64	7.2
26	39.00	33.00	31.26	8.0
36	45.40	33.00	37.61	9.2

[1)] Temperature range: - 55 °C ... + 85 °C

Female screw lock

Identification	Part No.	Drawing	Dimensions in mm
Screw lock Thread: M 2.5 / 4-40 UNC Height: 4.6 mm	60 01 000 9030		
Screw lock Thread: M 2.5 / 2-56 UNC Height: 2.9 mm	60 01 000 9013		
Screw lock Thread: 4-40 UNC / 4-40 UNC Height: 3.99 mm	60 01 000 9018		
Screw lock Thread: 4-40 UNC / 2-56 UNC Height: 3.99 mm	60 01 000 9019		
Screw lock Thread: 4-40 UNC / 2-56 UNC Height: 5.5 mm	60 01 000 9020		
Screw lock Thread: 4-40 UNC / 4-40 UNC Height: 5.5 mm	60 01 000 9021		

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

Intra cabinet connectors

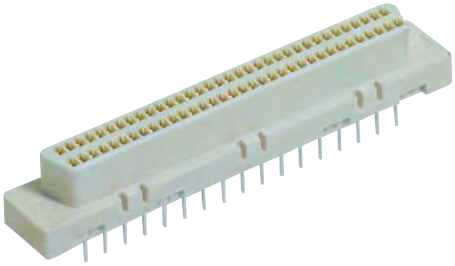
Pitch	1.27 mm
Working current	
pcb connector	1 A
Flat cable connector	0.5 A
Working voltage	
pcb connector	240 V ~
Flat cable connector	100 V ~
Test voltage $U_{r.m.s.}$	
pcb connector	750 V
Flat cable connector	500 V
Contact resistance	≤ 25 mΩ
Insulation resistance	≥ 10^3 MΩ
Temperature range	-55 °C … +105 °C
during SMC reflow soldering	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

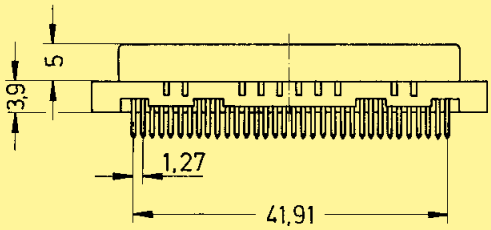
68



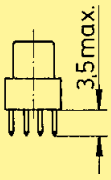
Connectors with straight pins

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

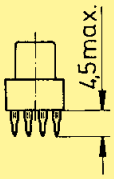
Dimensions

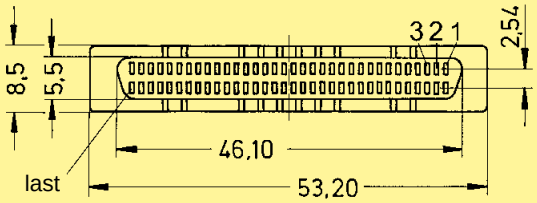


SMC solder

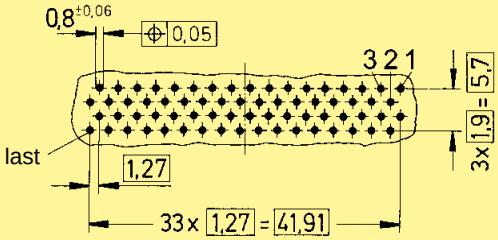


press-in

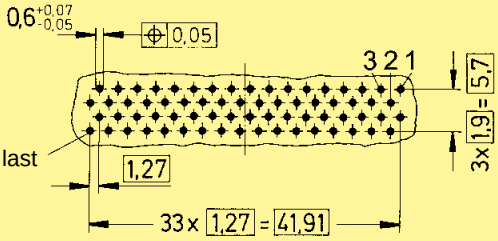




Board drillings
(Components side)



SMC solder

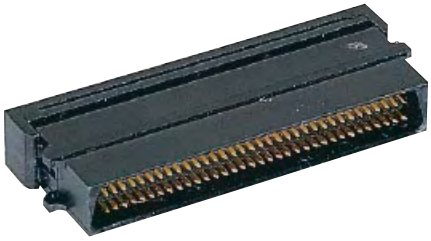


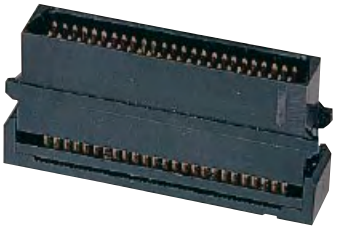
press-in

Dimensions in mm

Number of contacts

50–68

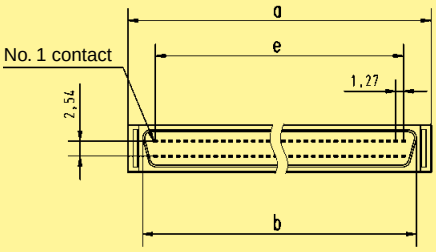


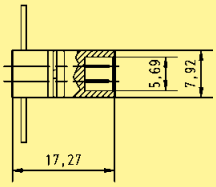


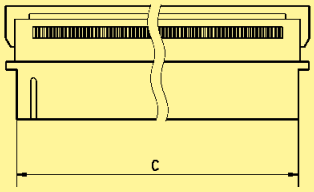
Connectors with IDC termination

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

Dimensions

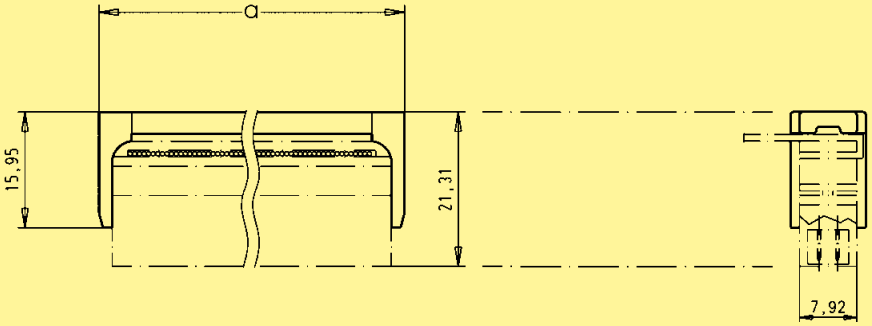


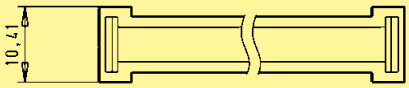




	a	b	c	e
50	39.75	34.85	36.19	30.48
68	51.26	46.28	47.62	41.91

Strain relief



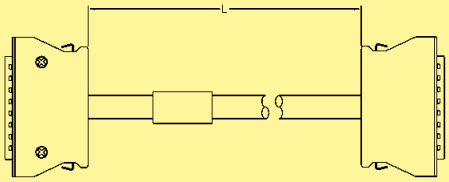
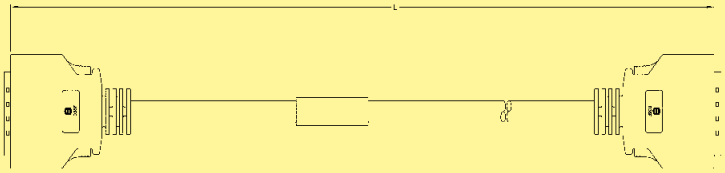


	a
50	42.16
68	53.44

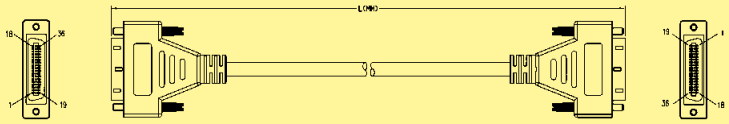
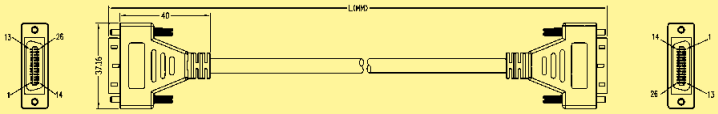
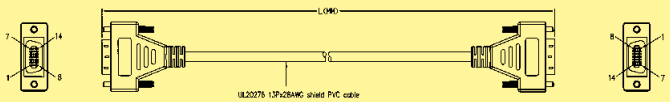
Dimensions in mm

Tooling see chapter 20
Cables see pages 06.29 ff

Cable assemblies

Identification	Part No.	Drawing	Dimensions in mm
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		

Cable assemblies

Identification	Part No.	Drawing	Dimensions in mm
Cable assembly *har-mik®* bellows, 36-pole, male Hood: overmoulded with top entry Cable: 18 twisted pairs, AWG 28, shielded, PVC Wiring: 1:1			
Length: L = 0.5 m	33 60 224 5000 191		
L = 1.0 m	33 60 223 1000 192		
L = 1.5 m	33 60 223 1500 193		
L = 2.0 m	33 60 223 2000 194		
L = 5.0 m	33 60 223 5000 195		
Cable assembly *har-mik®* bellows, 26-pole, male Hood: overmoulded with top entry Cable: 13 twisted pairs, AWG 28, shielded, PVC Wiring: 1:1			
Length: L = 0.5 m	33 60 224 5000 180		
L = 1.0 m	33 60 223 1000 181		
L = 1.5 m	33 60 223 1500 182		
L = 2.0 m	33 60 223 2000 183		
L = 5.0 m	33 60 223 5000 184		
Cable assembly *har-mik®* bellows, 14-pole, male Hood: overmoulded with top entry Cable: 7 twisted pairs, AWG 28, shielded, PVC Wiring: 1:1			
Length: L = 0.5 m	33 60 224 5000 186		
L = 1.0 m	33 60 223 1000 187		
L = 1.5 m	33 60 223 1500 188		
L = 2.0 m	33 60 223 2000 189		
L = 5.0 m	33 60 223 5000 190		

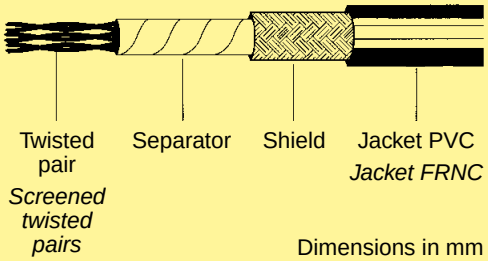
Cables for insulation displacement termination

Identification	No. of pairs	Part No. Standard version	Part No. *Halogen free version with screened pairs*
Twisted pair cable with braid shield AWG 28 *AWG 30* Length per reel: 100 m*	5	60 90 005 6003	*60 90 005 6009*
	10	60 90 010 6003	
	13	60 90 013 6003	
	18	60 90 018 6003	
	25	60 90 025 6003	
	34	60 90 034 6003	
	50	60 90 050 6003	

Drawing

No. of pairs	Outside diameter Nominal	Outside diameter Max
5	5.4	5.6
10	6.2	6.5
13	6.5	6.8
18	7.4	7.7
25	8.2	8.5
34	8.7	9.0
50	13.0	13.5

No. of pairs	*Outside diameter*
5	*5.5 ± 0.3*



Dimensions in mm

Technical characteristics

	Standard version	*Halogen free version with screened pairs*
Number of pairs	5, 10, 13, 18, 25, 34, 50	*5*
Voltage rating	30 V (style UL 2789)	*100 V*
Maximum conductor resistance (20 °C)	233 Ω/km	*350 Ω/km*
Minimum insulation resistance (20 °C)	1 MΩ/km	*10 GΩ/km*
Nominal differential impedance (TDR)	85 Ω	*95 Ω ± 5 Ω*
Nominal differential capacitance (1 kHz)	110 pF/m	*45 pF/m*
Propagation velocity	60 %	
Temperature range	– 20 °C … +105 °C	*– 25 °C … + 80 °C*
Cable materials		
Conductor	7 x 0.13 mm stranded tinned copper	*7 x 0.1 mm stranded tinned copper*
Insulation (except 50 pairs) (for 50 pairs)	PVC Ø 0.62 mm PVC Ø 0.65 – 0.80 mm	*Polypropylene Ø 0.74 mm*
Shield	Tinned copper braid, covering ≥ 80 %	*Tinned copper braid, covering ≥ 65 %*
Jacket	PVC	*FRNC*
Flammability rating	IEC 332-1	
Sheath marking	AWM 2789 60°C 30V VW1 36963	*AWM 21283 80°C 30V VW1*

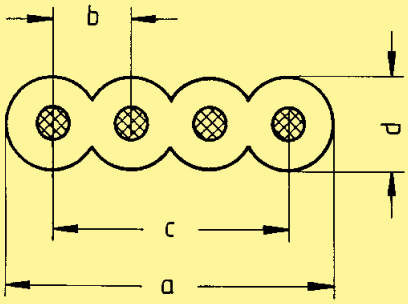
* Except 60 90 050 6003: 150 m reel
Thin print: Standard version
Italic print: Halogen free version

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

Technical characteristics

Number of wires	50, 68
Voltage rating	150 V
Current rating	1.5 A max. per conductor
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