

to cool to protect to connect



**f.con.e** 14/15

Sockets

Connectors



ISO 9001  
ISO 14001  
ISO 27001

Brackets

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SL 18 082	G 10	SLR 2 050	G 42	SLV W 2 SMD 073	G 40	VFL 20	H 5
SL 18 108	G 10	SLR 3 025	G 42	SLV W 3 SMD 048	G 41	VFL 26	H 5
SL 18 132	G 10	SLR 3 050	G 42	SLV W 3 SMD 073	G 41	VFL 34	H 5
SL 19 082	G 10	SLR 4 050	G 42	SLV W 11 055	G 38	VFL 40	H 5
SL 19 108	G 10	SLR 4 100	G 42	SLV W 11 080	G 38	VFL 50	H 5
SL 19 132	G 10	SLR 5 SMD 50 G	G 43	SLV W 11 105	G 38	VG 2	I 23
SL 20 THR 097	G 8	SLU 10 165	G 16	SLV W 22 055	G 38	WWPS 1 G	F 17
SL 20 THR 112	G 8	SLU 10 191	G 16	SLV W 22 080	G 38	ZEPV 06	H 6
SL 20 THR 124	G 8	SLU 10 241	G 16	SLV W 22 105	G 38	ZEPV 10	H 6
SL 20 THR 139	G 8	SLU 10 266	G 16	Sly 1 081	G 30	ZEPV 14	H 6
SL 20 THR 164	G 8	SLU 16 165	G 16	Sly 1 085	G 30	ZEPV 16	H 6
SL 21 THR 097	G 8	SLU 16 191	G 16	Sly 1 098	G 30	ZEPV 20	H 6
SL 21 THR 112	G 8	SLU 16 241	G 16	Sly 1 104	G 30	ZEPV 26	H 6
SL 21 THR 124	G 8	SLU 16 266	G 16	Sly 1 139	G 30	ZEPV 34	H 6
SL 21 THR 139	G 8	SLU 20 165	G 16	Sly 2 081	G 30	ZEPV 40	H 6
SL 21 THR 164	G 8	SLU 20 191	G 16	Sly 2 085	G 30	ZEPV 50	H 6
SL 22 097	G 7	SLU 20 241	G 16	Sly 2 098	G 30		
SL 22 112	G 7	SLU 20 266	G 16	Sly 2 104	G 30		
SL 22 124	G 7	SLU 26 165	G 16	Sly 2 139	G 30		
SL 22 139	G 7	SLU 26 191	G 16	Sly 2 035	G 30		
SL 22 164	G 7	SLU 26 241	G 16	Sly 3 041	G 30		
SL 22 190	G 7	SLU 26 266	G 16	Sly 3 082 ... G	G 30		
SL 22 214	G 7	SLU 40 165	G 16	Sly 3 082 ... Z	G 30		
SL 22 240	G 7	SLU 40 191	G 16	Sly 4 035	G 30		
SL 22 265	G 7	SLU 40 241	G 16	Sly 4 082 ... G	G 30		
SL 22 316	G 7	SLU 40 266	G 16	Sly 4 082 ... Z	G 30		
SLK 3 025	G 9	SLU 50 165	G 16	Sly 4 041... G	G 30		
SLK 4 025	G 9	SLU 50 191	G 16	Sly 4 041... Z	G 30		
SL KA 3 072	G 17	SLU 50 241	G 16	Sly 5 040	G 31		
SL KA 3 085	G 17	SLU 50 266	G 16	Sly 5 075	G 31		
SL KA 3 108	G 17	SLUP 31 10	G 29	Sly 5 081 ... G	G 31		
SL KG 3 113	G 17	SLUP 31 16	G 29	Sly 5 081 ... Z	G 31		
SL KG 3 126	G 17	SLUP 31 20	G 29	Sly 5 122 ... G	G 31		
SL KG 3 147	G 17	SLV N 1 055	G 37	Sly 5 122 ... Z	G 31		
SL LP 1 082	G 11	SLV N 1 080	G 37	Sly 6 040	G 31		
SL LP 1 097	G 11	SLV N 1 105	G 37	Sly 6 075	G 31		
SL LP 1 112	G 11	SLV N 1 130	G 37	Sly 6 081 ... G	G 31		
SL LP 1 139	G 11	SLV N 11 055	G 37	Sly 6 081 ... Z	G 31		
SL LP 1 164	G 11	SLV N 11 080	G 37	Sly 6 122 ... G	G 31		
SL LP 1 190	G 11	SLV N 11 105	G 37	Sly 6 122 ... Z	G 31		
SL LP 2 082	G 11	SLV W 1 055	G 38	SLY 7 SMD 036	G 33		
SL LP 2 097	G 11	SLV W 1 080	G 38	SLY 7 SMD 045	G 33		
SL LP 2 112	G 11	SLV W 1 105	G 38	SLY 7 SMD 062	G 33		
SL LP 2 139	G 11	SLV W 1 130	G 38	SLY 8 SMD 036	G 34		
SL LP 2 164	G 11	SLV W 1 KA 030	G 39	SLY 8 SMD 045	G 34		
SL LP 2 190	G 11	SLV W 1 KA 055	G 39	SLY 8 SMD 062	G 34		
SL LP 3 041	G 12	SLV W 1 KA 080	G 39	SLY 9 SMD 040	G 35		
SL LP 3 069	G 12	SLV W 1 KA 105	G 39	SLY 9 SMD 055	G 35		
SL LP 4 041 ...	G 12	SLV W 1 SMD 048	G 40	SLY 10 SMD 040	G 36		
SL LP 4 069	G 12	SLV W 1 SMD 073	G 40	SSK B 09	I 25		
SL LP 5 SMD 038	G 25	SLV W 2 055	G 38	SSK B 15	I 25		
SL LP 5 SMD 051	G 25	SLV W 2 080	G 38	SSK B 25	I 25		
SL LP 5 SMD 066	G 25	SLV W 2 105	G 38	SSK B 37	I 25		
SL LP 6 SMD 038	G 26	SLV W 2 130	G 38	SSK S 09	I 25		
SL LP 6 SMD 051	G 26	SLV W 2 KA 030 10	G 39	SSK S 15	I 25		
SL LP 6 SMD 066	G 26	SLV W 2 KA 030 14	G 39	SSK S 25	I 25		

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## Technical introduction for the connector catalogue

### General points

Product specified characteristics for the particular article can be found in the category "technical data"! Additional customer specified advice and solution proposals will be supported from the R&D department of company Fischer Elektronik GmbH & Co. KG.

### Surface – electroplating processes

In general all contacts are coated with a nickel barrier layer (1,3-3 µm) before they get tinned or gold-plated. This will also apply for selective gold-plated contacts.

For the selective coated contacts the complete contact will be nickel-plated including the carrier strip first. After this the contact side will be gold-plated and the solder side tinned, usually in the "dipping method" or "brush method". Depending on the overall contact length the middle area is exclusively nickel-plated.

The layer thickness of the gold-plating is at least 0,2 µm Au, the layer thickness of the tinning is 4-6 µm! Other layer thicknesses are possible upon request.

The tinning is done with pure tin. The solderability is guaranteed for at least 1 year after shipment. At appropriate storage in closed packing this period can be increased significantly.

### Dimensional tolerance

Generally the DIN ISO 2768m is applied to all products! Moreover following additions have to be noticed:

- the length tolerance of contact pins is +/-0,2mm
- the space allowance is +/-0,03mm, the overall space allowance over 36 pins +/-0,2mm
- the shape tolerance of the insulating body is defined by +/-0,15mm
- the separation of number of pins by means of cutting: +0,6mm/-0,3mm
- the separation of number of pins by means of sawing: +0,1mm/-0,4mm (no standard)

### Quality grading in conformity with DIN 41652

Depending on the layer thickness of the gold-plating the contacts can be classified in quality classes.

A distinction is made in three quality classes:

Quality class 1: at least 500 cycles of operation, layer thickness accordingly at least 1,2µm Au

Quality class 2: at least 200 cycles of operation, layer thickness accordingly at least 0,75µm Au

Quality class 3: at least 50 cycles of operation, layer thickness accordingly at least 0,2µm Au

By tinning contacts max. 10 cycles of operation can be guaranteed by using "tin on tin".

### Precision socket contacts

These contacts are two-piece parts and consist on a sleeve (turned part) and a spring element (stamped part). The spring element (Clip) is always gold-plated (depending on the article at least 0,2 µm Au or at least 0,75 µm Au). The sleeve is usually tinned, for some versions also optionally gold-plated (at least 0,2 µm Au).

### Contact carrier material made of high-temperature resistant plastic

The plastics used for the male and female headers are mainly high-temperature resistant which means that they are suitable for the use in the reflow soldering technique.

This applies primarily for SMD components as well as for plug connectors which are constructed for wave soldering. In the catalogue those products are marked with a 260°C logo in the header of the particular page.



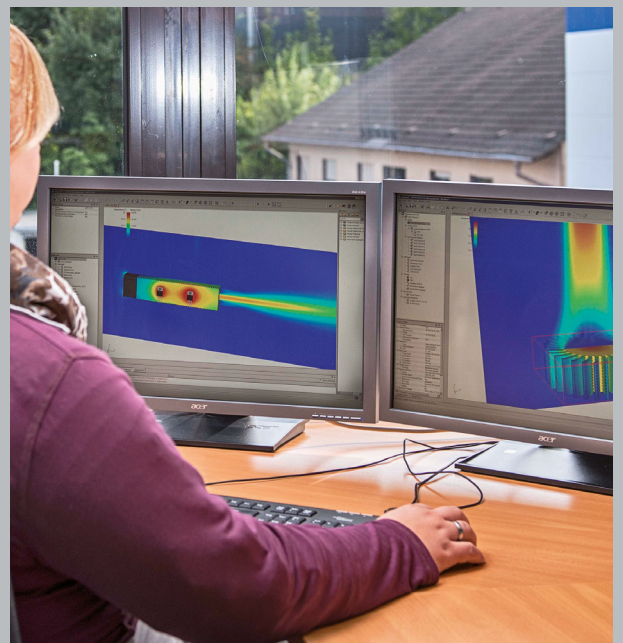
**foyer of the company**



**motivated employees**



**committed field service**



**innovative product development**



## Explanations – references – printings



... plastic of the insulator is suitable for reflow-soldering up to 260 °C



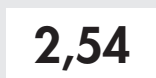
... components are suitable for soldering technique (THT)



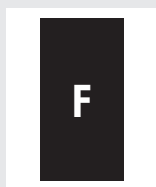
... components are suitable for SMD technique



... components are suitable for press-fit mounting



... components are suitable for the corresponding grid



... index area:  
shows topics/categories

“current”



“following”



... page number

Male headers 2.00 THT	→ G 50 - 52
Male headers 2.54 THT	→ G 8 - 18
Technical data	→ G 72 - 76
Flat cable	→ H 11

... footnotes, give references to pages with combinable or similar products

G = gold-plated
Z = tin-plated
S = selective gold-plated

... option for surface finishing

## Imprinting of cardholders - Your and our time is expensive

An order for imprinting must state the font, the font size and the exact position of the imprint with dimensions, taking in account of countersunk holes etc.. When placing the first order, the company logo must be supplied as a vector file. If these conditions are not complied with, the order for imprinting may have to be rejected, or additional costs will have to be charged.

### Compliance with the following criteria ensures smooth handling:

Adobe Illustrator (.ai)	
CorelDraw (.cdr)	without half-tone images, fonts transformed into paths or supplied
Macromedia Free Hand (.fh)	
QuarkXPress (.qxd)	all fonts enclosed; half-tone images colour-separated (full-tone or scale colours) and with correct resolution (300 dpi colour, black / white 600 dpi), no RGB

All this takes additional time and consequently incurs extra costs.

### The usability must be checked by our printing shop:

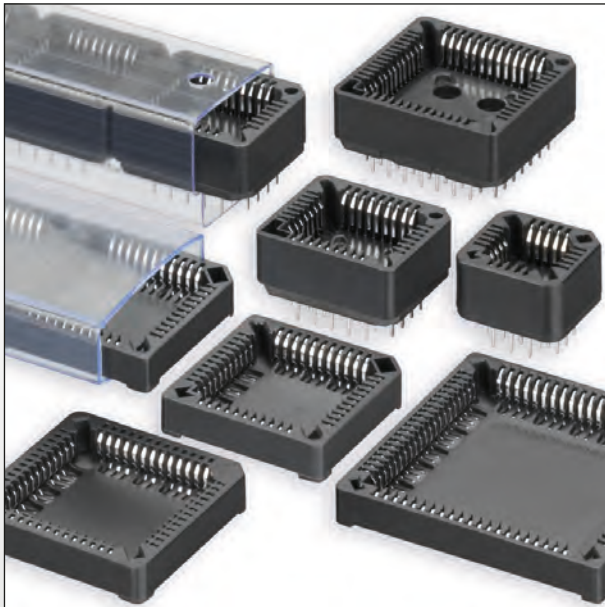
In most cases, Adobe Acrobat (.pdf); screen formats (.jpg, .gif, .png) and paper copies, stickers and similar are not suitable for preparing printer's copies!

### Copies that definitely cannot be used:

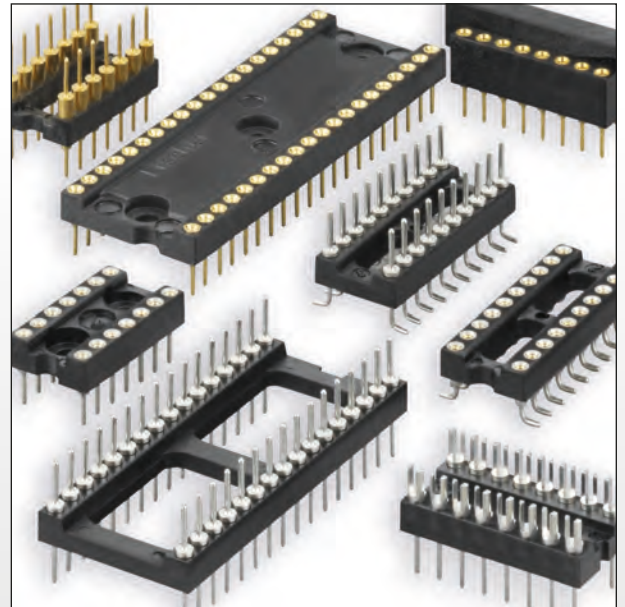
Imperfect copies such as fax copies / Microsoft Office files (.doc, .xls, .ppt) can only be used for information or for transmitting texts.

### Please always add dimensional drawings (.dxf) to the parts to be imprinted!

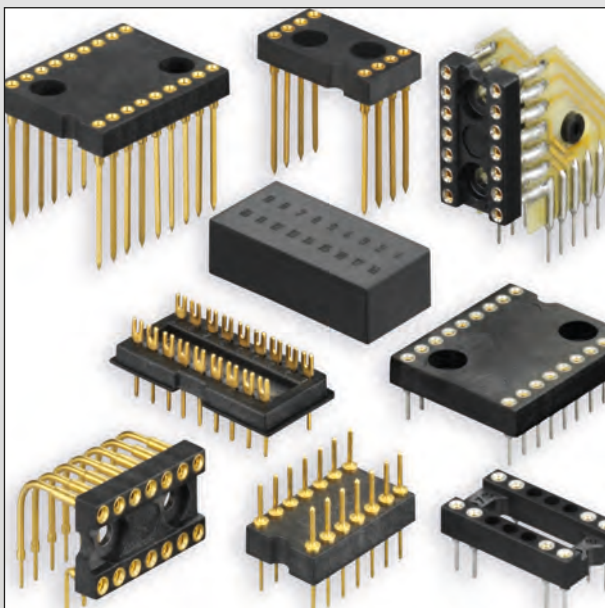
Please note as a general rule: Retouching work extending beyond the standard time will be invoiced additionally at cost price.



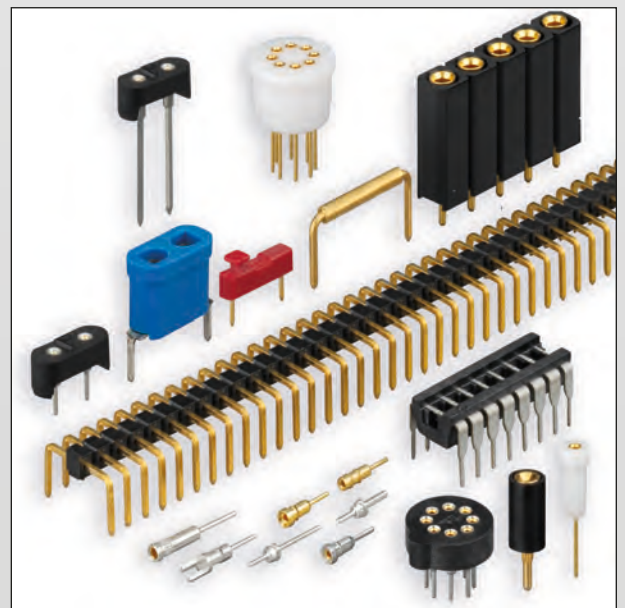
**Precision sockets and plugs for ICs with high packing density**  
 – PLCC-socket for soldering technology (THT)  
 – PLCC-socket for SMD technology – low profile  
 – type of packaging: bar magazine



**Precision sockets and plugs for DIL-ICs**  
 – precision sockets and plugs in soldering (THT) and SMD technology  
 – DIL-IC sockets with extractor  
 – open and closed design



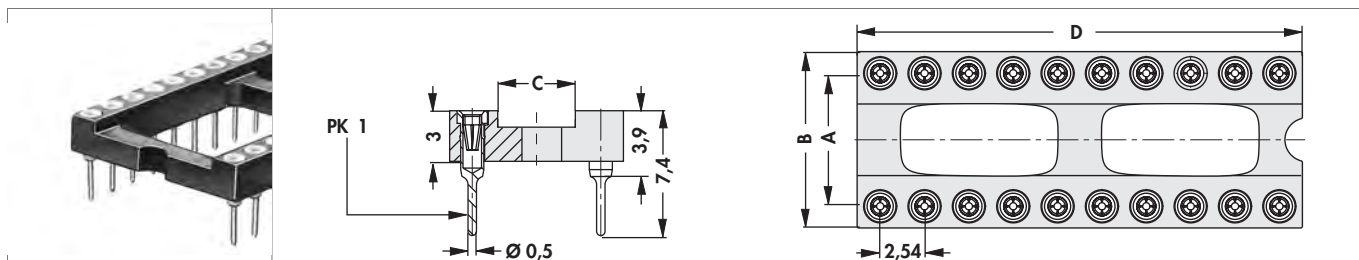
**Customer specified DIL-IC sockets**  
 – sockets for LED displays  
 – Dual-in-line plug in adapter  
 – IC-sockets partially loaded with oscillators and relays



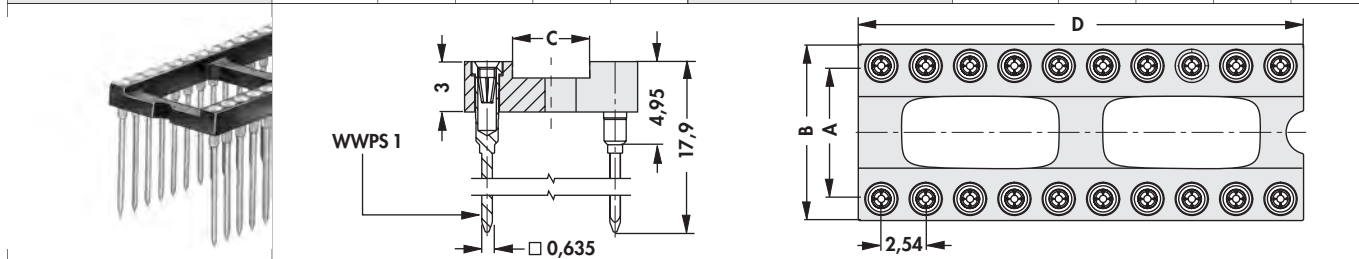
**Mounting sockets for discrete components, jumper links and connectors**  
 – sockets for TO 5 cases  
 – plug-in sockets for chrystal oscillators  
 – jumper links with and without insulators  
 – precision pins and bushings, bulk  
 – connectors, with and without insulator

# High-precision sockets and plugs for DIL-IC

– other number of contacts upon request!



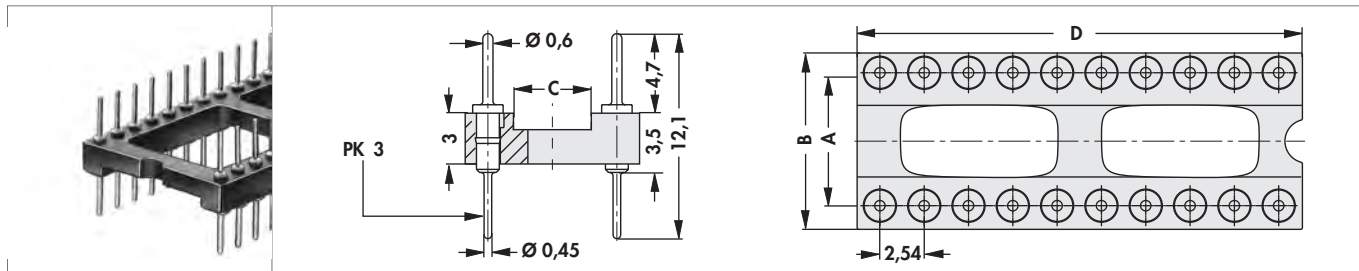
art. no.	no. of contacts	dim. [mm]				art. no.	no. of contacts	dim. [mm]			
		A	B	C	D			A	B	C	D
<b>DIL 6 M ...</b>	6	7.62	10.1	3.8	7.6	<b>DIL 22 03 M Z</b>	22	7.62	10.1	4.8	27.9
<b>DIL 8 M ...</b>	8	7.62	10.1	3.8	10.1	<b>DIL 24 M ...</b>	24	15.24	17.7	11.6	30.6
<b>DIL 10 M ...</b>	10	7.62	10.1	4.7	12.7	<b>DIL 24 03 M ...</b>	24	7.62	10.1	4.0	30.6
<b>DIL 14 M ...</b>	14	7.62	10.1	4.9	17.7	<b>DIL 24 04 M G</b>	24	10.16	12.7	7.1	30.6
<b>DIL 16 M ...</b>	16	7.62	10.1	3.5	20.4	<b>DIL 28 M ...</b>	28	15.24	17.7	11.3	35.7
<b>DIL 18 M ...</b>	18	7.62	10.1	4.1	23.0	<b>DIL 28 03 M ...</b>	28	7.62	10.1	4.0	35.7
<b>DIL 20 M ...</b>	20	7.62	10.1	3.4	25.5	<b>DIL 32 M ...</b>	32	15.24	17.7	11.2	40.6
<b>DIL 22 M ...</b>	22	10.16	12.7	6.6	27.9	<b>DIL 36 M G</b>	36	15.24	17.7	10.6	45.6



art. no.	no. of contacts	dim. [mm]				art. no.	no. of contacts	dim. [mm]			
		A	B	C	D			A	B	C	D
<b>DIL 14 N ...</b>	14	7.62	10.1	4.9	17.7	<b>DIL 16 N ...</b>	16	7.62	10.1	3.5	20.4

**please indicate:** ... surface of contact  
**G = gold-plated**  
**Z = tin-plated**

**contact spring:** gold-plated



art. no.	no. of contacts	dim. [mm]				art. no.	no. of contacts	dim. [mm]			
		A	B	C	D			A	B	C	D
<b>DIL 8 O ...</b>	8	7.62	10.1	3.8	10.1	<b>DIL 20 O G</b>	20	7.62	10.1	3.4	25.5
<b>DIL 14 O ...</b>	14	7.62	10.1	4.9	17.7	<b>DIL 22 O ...</b>	22	10.16	12.7	6.6	27.9
<b>DIL 16 O ...</b>	16	7.62	10.1	3.5	20.4						

**please indicate:** ... surface of contact  
**G = gold-plated**  
**Z = tin-plated**

# High-precision sockets and plugs for DIL-IC

– other number of contacts on request!

<b>art. no.</b>	no. of contacts	dim. [mm]	<b>art. no.</b>	no. of contacts	dim. [mm]
<b>DIL 6 P Z</b>	6	A 7.62 B 10.1 C 3.8 D 7.6	<b>DIL 16 P Z</b>	16	A 7.62 B 10.1 C 3.5 D 20.4
<b>DIL 14 P Z</b>	14	A 7.62 B 10.1 C 4.9 D 17.7			
<b>art. no.</b>	no. of contacts	dim. [mm]	<b>art. no.</b>	no. of contacts	dim. [mm]
<b>DIL 8 Q G</b>	8	A 7.62 B 10.1 C 3.8 D 10.1	<b>DIL 20 Q Z</b>	20	A 7.62 B 10.1 C 3.4 D 25.5
<b>DIL 16 Q Z</b>	16	A 7.62 B 10.1 C 3.5 D 20.4			
<b>art. no.</b>	no. of contacts	dim. [mm]	<b>art. no.</b>	no. of contacts	dim. [mm]
<b>DIL 10 U Z</b>	10	A 7.62 B 10.1 C 4.7 D 12.7	<b>DIL 22 U ...</b>	22	A 10.16 B 12.7 C 6.6 D 27.9
<b>DIL 14 U G</b>	14	A 7.62 B 10.1 C 4.9 D 17.7	<b>DIL 24 U ...</b>	24	A 15.24 B 17.7 C 11.6 D 30.6
<p><b>please indicate:</b> ... surface of contact  <b>G</b> = gold-plated  <b>Z</b> = tin-plated</p>					

## Socket layout for various numbers of contacts for DIL-IC, open frame

6-16 pol.	18-32 pol.	36 pol.

**F 3**

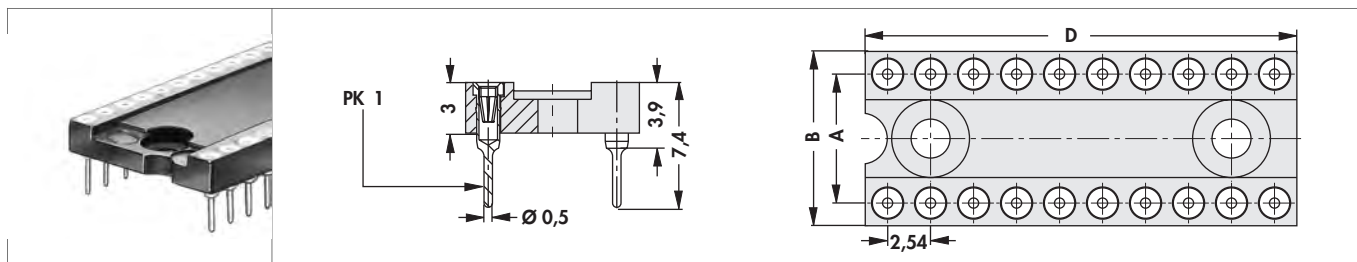
SMD sockets for PLCC  
 Sockets for TO 5 and TO 3  
 Jumper links  
 Sockets for crystal oscillators

→ F 9  
 → F 10 – 11  
 → F 14 – 15  
 → F 13

Single precision contacts  
 Teflon sockets/TO 5 & TO 18  
 Connector-sleeves  
 Technical data

→ F 17 – 18  
 → F 12  
 → F 19 – 20  
 → F 21 – 27

# High-precision sockets and plugs for DIL-IC

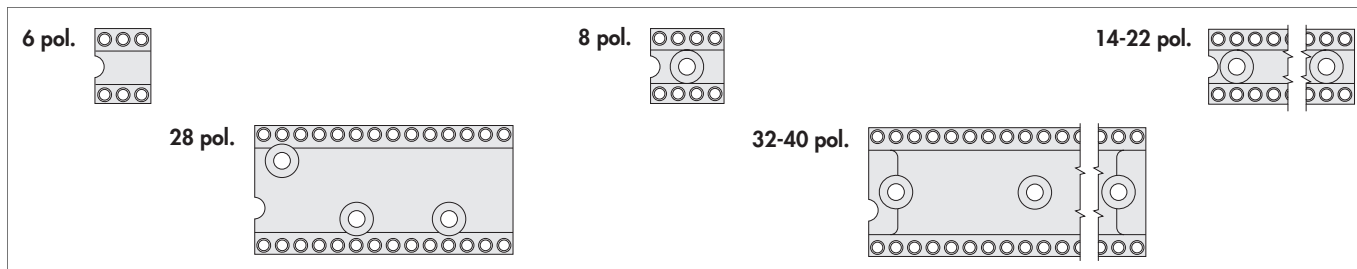


art. no.	no. of contacts	dim. [mm]			art. no.	no. of contacts	dim. [mm]		
		A	B	D			A	B	D
<b>DIL 6 E ...</b>	6	7.62	10.3	7.6	<b>DIL 20 E ...</b>	20	7.62	10.3	25.5
<b>DIL 8 E ...</b>	8	7.62	10.3	10.1	<b>DIL 28 E ...</b>	28	15.24	17.7	35.5
<b>DIL 14 E ...</b>	14	7.62	10.3	17.7	<b>DIL 32 E ...</b>	32	15.24	17.7	40.6
<b>DIL 16 E ...</b>	16	7.62	10.3	20.4	<b>DIL 40 E ...</b>	40	15.24	17.7	50.8
<b>DIL 18 E ...</b>	18	7.62	10.3	23.0					

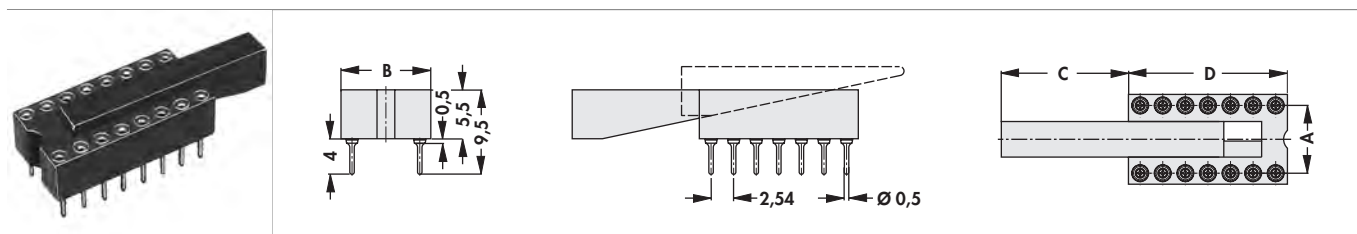
please indicate: ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

contact spring: gold-plated

## Socket layout for various numbers of contacts for DIL-IC, closed frame



## DIL-IC-sockets with extractor



art. no.	no. of contacts	dim. [mm]				art. no.	no. of contacts	dim. [mm]			
		A	B	C	D			A	B	C	D
<b>DIL 14 PEK</b>	14	7.62	10.1	12	17.0	<b>DIL 16 PEK</b>	16	7.62	10.1	12	20.3

contact spring: gold-plated

contact sleeve: gold-plated

# High-precision sockets and plugs for DIL-IC

## IC-sockets partially equipped, e.g. for oscillators and relays

	DIL 4 OR ...	DIL 8 1 OR ...	DIL 8 2 OR ...	
<b>art. no.</b>	no. of contacts			
<b>DIL 4 OR ...</b>	4			
<b>DIL 8 1 OR Z</b>	8			
<b>DIL 8 2 OR ...</b>	8			
<b>please indicate:</b>	... surface of contact <b>G</b> = gold-plated <b>Z</b> = tin-plated			
<b>contact spring:</b>	gold-plated			

## LED display sockets of 0.6" pitch

<b>art. no.</b>	no. of contacts	dim. [mm] A	<b>art. no.</b>	no. of contacts	dim. [mm] A
<b>DIL 16 06 E Z</b>	16	20.3	<b>DIL 18 06 E Z</b>	18	22.8
<b>art. no.</b>	no. of contacts	dim. [mm] A	<b>art. no.</b>	no. of contacts	dim. [mm] A
<b>DIL 16 06 H Z</b>	16	20.3	<b>DIL 18 06 H Z</b>	18	22.8
<b>contact spring:</b>	gold-plated				
<b>contact sleeve:</b>	tin-plated				

**F 5**

Sockets für PLCC  
 Connector-sleeves  
 Sockets for crystal oscillators  
 Mounting tool for DIL/PLCC

→ F 9  
 → F 19 – 20  
 → F 13  
 → F 8

Single precision contacts  
 Jumper links  
 Teflon sockets/TO 5 & TO 18  
 Technical data

→ F 17 – 18  
 → F 14 – 15  
 → F 12  
 → F 21 – 27

# High-precision sockets and plugs for DIL-IC

## LED display sockets in vertical construction

<b>art. no.</b>	no. of contacts	dim. [mm]
<b>DIL 14 W 90</b>	14	A: 27.7 B: 22.7
<b>contact spring:</b>	gold-plated	
<b>contact sleeve:</b>	tin-plated	

<b>art. no.</b>	no. of contacts	dim. [mm]	<b>art. no.</b>	no. of contacts	dim. [mm]
<b>DIL 8 G Z</b>	8	A: 10.1	<b>DIL 16 G ...</b>	16	A: 20.3
<b>DIL 10 G ...</b>	10	A: 12.7	<b>DIL 20 G ...</b>	20	A: 25.4
<b>DIL 14 G ...</b>	14	A: 17.7			
<b>please indicate:</b>	... surface of contact G = gold-plated Z = tin-plated				
<b>contact spring:</b>	gold-plated				

## DIL adaptor plugs

	<b>PK 3</b> 	<b>SK 02 (≅ PK 5)</b> 	<b>PK 3</b> 	<b>SK 02 (≅ PK 5)</b> 			
<b>art. no.</b>	no. of contacts	dim. [mm]		<b>art. no.</b>	no. of contacts	dim. [mm]	
<b>DILS 04 PK 5</b>	4	A: 5.0	B: 2.54	<b>DILS 16 PK 3</b>	16	A: 20.3	B: 17.78
<b>DILS 06 PK 3</b>	6	A: 7.6	B: 5.08	<b>DILS 16 PK 5</b>	16	A: 20.3	B: 17.78
<b>DILS 14 PK 3</b>	14	A: 17.7	B: 15.24	<b>DILS 18 PK 5</b>	18	A: 23.0	B: 20.32
<b>surface of contact:</b>	gold-plated						

# High-precision sockets and plugs for DIL-IC

	<b>art. no.</b> <b>DILS 16 6 PK 3</b> <b>DILS 28 6 PK 3</b>	no. of contacts 16 28	dim. [mm] A      B 20.3    17.78 35.5    33.02		<b>art. no.</b> <b>DILS 40 6 PK 3</b>	no. of contacts 40	dim. [mm] A      B 50.8    48.26
<b>surface of contact:</b> gold-plated							

## DIL platforms

– suitable for **DIL-cases** DILS ... GA LO

	<b>art. no.</b> <b>DILS 08 GO</b> <b>DILS 14 GO</b> <b>DILS 16 GO</b> <b>DILS 18 GO</b>	no. of contacts 8 14 16 18	dim. [mm] A      B      C 12.4    12.5    7.62 20.0    12.5    7.62 22.6    12.5    7.62 25.2    12.5    7.62			<b>art. no.</b> <b>DILS 24 GO</b> <b>DILS 28 GO</b> <b>DILS 40 GO</b>	no. of contacts 24 28 40	dim. [mm] A      B      C 32.8    20.1    15.24 37.8    20.1    15.24 53.1    20.1    15.24	
<b>surface of contact:</b> gold-plated									

## DIL cases - grid spacing 2.54 mm

– suitable for **DIL plugs** DILS ... GO

	<b>art. no.</b> <b>DILS 08 GA LO</b> <b>DILS 14 GA LO</b> <b>DILS 16 GA LO</b> <b>DILS 18 GA LO</b> <b>DILS 24 GA LO</b> <b>DILS 40 GA LO</b> <b>DILS 08 GB LO</b>	dim. [mm] B      H      L 12.5    6.7    12.4 12.5    6.7    20.0 12.5    6.7    22.6 12.5    6.7    25.2 20.1    6.7    32.8 20.1    6.7    53.1 12.5    11.7    12.4			<b>art. no.</b> <b>DILS 14 GB LO</b> <b>DILS 16 GB LO</b> <b>DILS 18 GB LO</b> <b>DILS 24 GB LO</b> <b>DILS 28 GB LO</b> <b>DILS 40 GB LO</b>	dim. [mm] B      H      L 12.5    11.7    20.0 12.5    11.7    22.6 12.5    11.7    25.2 20.1    11.7    32.8 20.1    11.7    37.8 20.1    11.7    53.1	

**F 7**

Sockets für PLCC  
 Connector-sleeves  
 Sockets for crystal oscillators  
 Mounting tool for DIL/PLCC

→ F 9  
 → F 19 – 20  
 → F 13  
 → F 8

Single precision contacts  
 Jumper links  
 Teflon sockets/TO 5 & TO 18  
 Technical data

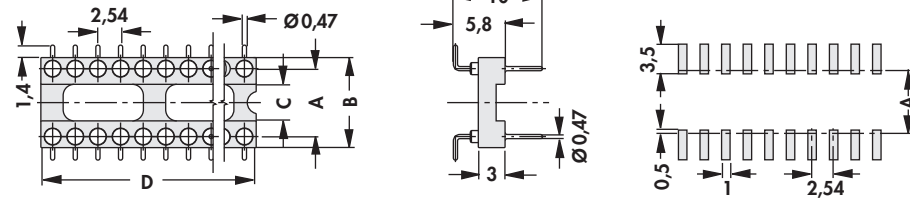
→ F 17  
 → F 14 – 15  
 → F 12  
 → F 21 – 27



# High-precision sockets and plugs for DIL-IC

## SMD-plug for DIL

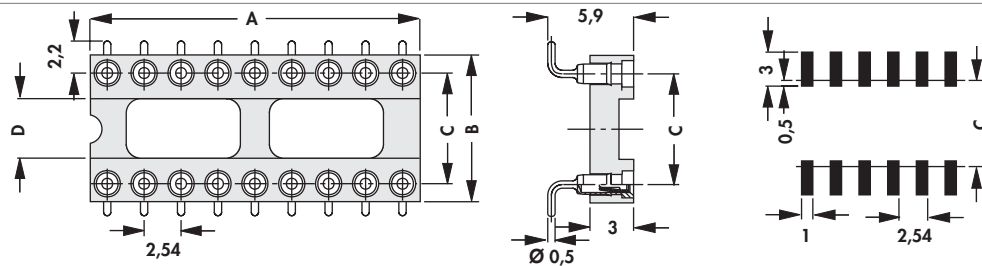
- with **SK 5**-contacts
- other number of contacts on request!



art. no.	no. of contacts	dim. [mm]				art. no.	no. of contacts	dim. [mm]			
		A	B	C	D			A	B	C	D
<b>DIL 08 SMD SK5 Z</b>	8	7.62	10.1	3.5	10.0	<b>DIL 20 SMD SK5 Z</b>	20	7.62	10.1	3.5	25.2
<b>DIL 16 SMD SK5 Z</b>	16	7.62	10.1	3.5	20.1						
<b>surface of contact:</b>		tin-plated									

## SMD-socket for DIL-IC

- other number of contacts upon request!



art. no.	no. of contacts	dim. [mm]				art. no.	no. of contacts	dim. [mm]			
		A	B	C	D			A	B	C	D
<b>DIL 16 SMD M</b>	16	20.1	10.1	7.62	3.5	<b>DIL 24 03 SMD M</b>	24	30.3	10.1	7.62	3.5
<b>DIL 20 SMD M</b>	20	25.2	10.1	7.62	3.5	<b>DIL 28 SMD M</b>	28	35.4	17.6	15.24	11.2
<b>contact spring:</b>		gold-plated									
<b>contact sleeve:</b>		tin-plated									

## IC-mounting tools - Design DIL



art. no.	spacing of contact rows [mm]
<b>MIC 03</b>	7.62
<b>MIC 06</b>	15.24
<b>material:</b>	polyacetole, non-conductive

Sockets für PLCC  
 Connector-sleeves  
 Sockets for crystal oscillators  
 Mounting tool for DIL/PLCC

→ F 9  
 → F 19 - 20  
 → F 13  
 → F 8


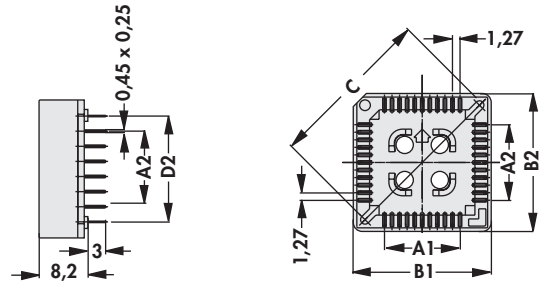
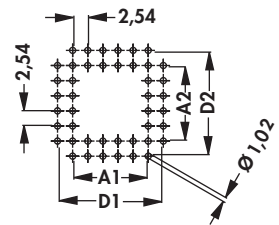
Single precision contacts  
 Jumper links  
 Teflon sockets/TO 5 & TO 18  
 Technical data

→ F 17  
 → F 14 - 15  
 → F 12  
 → F 21 - 27

**F 8**

## Sockets for IC-PLCC

- PLCC sockets for case design EIA/JEDEC TYPE "A"
- **VPE** = packing unit (pieces/tube)
- data sheet for pin configuration of individual PLCC sockets available upon request
- dual polarity indicators guarantee the correct alignment of the chip
- drainage holes for easier inside cleaning
- test holes are moulded next to each contact


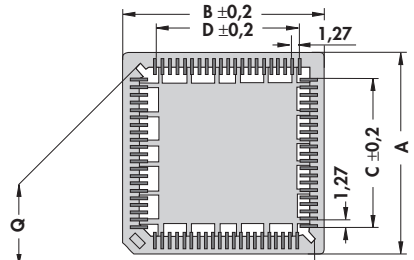
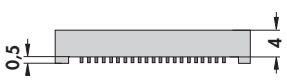




art. no.	no. of contacts	packing unit	dim. [mm]						
			A 1	A 2	B 1	B 2	C	Ø D1	Ø D2
<b>PLCC 20</b>	20	39	5.08	5.08	15.55	15.55	16.7	10.16	10.16
<b>PLCC 28</b>	28	33	7.62	7.62	18.10	18.10	20.3	12.70	12.70
<b>PLCC 32</b>	32	29	7.62	10.16	18.10	20.70	22.2	12.70	15.24
<b>PLCC 44</b>	44	25	12.70	12.70	23.20	23.20	27.5	17.78	17.78
<b>PLCC 52</b>	52	23	15.24	15.24	25.70	25.70	31.0	20.32	20.32
<b>PLCC 68</b>	68	19	20.32	20.32	30.80	30.80	37.3	25.40	25.40
<b>PLCC 84</b>	84	16	25.40	25.40	36.00	36.00	44.5	30.48	30.48

**surface of contact:** tin-plated

## SMD sockets for PLCC - low profile housing

- these PLCC sockets conform to case designs EIA/JEDEC TYPE "A"
- **VPE** = packing unit (pieces/tube)\*dimensions  $\pm 0.2$  mm; tin-plated phosphorbronze socket contacts
- dual polarity indicators guarantee the correct alignment of the chip
- drainage holes for easier inside cleaning
- test holes are moulded next to each contact
- efficient heat dissipation
- **packing:** bar magazine


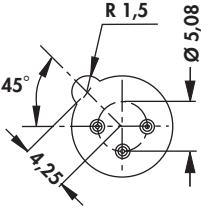
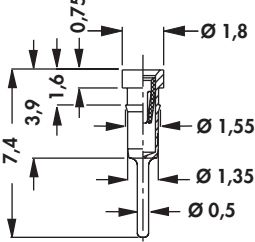
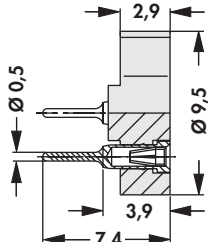

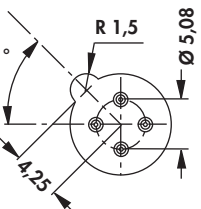
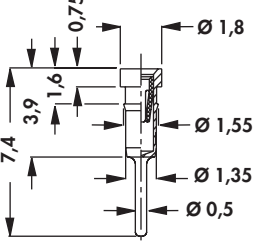
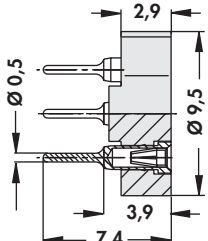

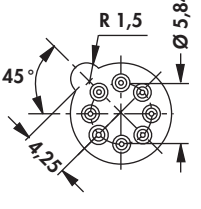
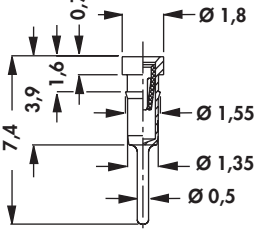
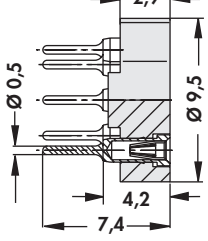

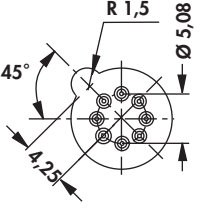
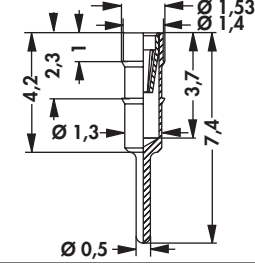
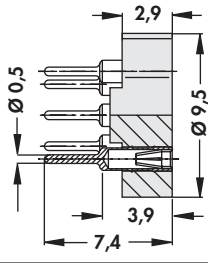




art. no.	no. of contacts	packing unit	dim. [mm]				
			A	B	C	D	Q
<b>PLCC 20 SMD</b>	20	39	15.58	15.58	5.08	5.08	16.0
<b>PLCC 28 SMD</b>	28	33	18.12	18.12	7.62	7.62	20.6
<b>PLCC 32 SMD</b>	32	29	18.12	20.66	7.62	10.16	22.5
<b>PLCC 44 SMD</b>	44	26	23.40	23.40	12.70	12.70	27.5
<b>PLCC 52 SMD</b>	52	23	25.74	25.74	15.24	15.24	31.1
<b>PLCC 68 SMD</b>	68	20	30.82	30.82	20.32	20.32	38.8
<b>PLCC 84 SMD</b>	84	17	35.90	35.90	25.40	25.40	44.8

**surface of contact:** tin-plated

Sockets for TO ... cases

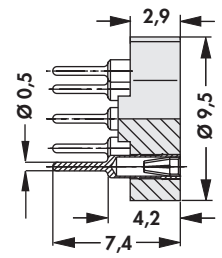
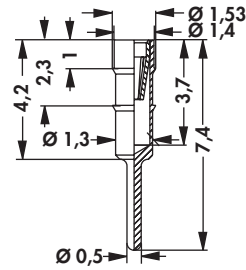
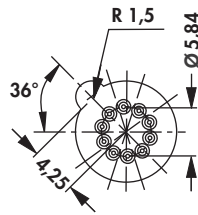
Transistor sockets for TO 5

			
<p>art. no. PF 53 ...</p>	<p>no. of contacts 3</p>		
			
<p>art. no. PF 54 ...</p>	<p>no. of contacts 4</p>		
			
<p>art. no. PF 58 23 ...</p>	<p>no. of contacts 8</p>		
<p>please indicate: ... surface of contact G = gold-plated Z = tin-plated</p>			
<p>contact spring:</p>	<p>gold-plated</p>		
<p>contact sleeve:</p>	<p>gold-plated</p>		
			
<p>art. no. PF 58 2 G</p>	<p>no. of contacts 8</p>		
<p>contact spring:</p>	<p>gold-plated</p>		
<p>contact sleeve:</p>	<p>gold-plated</p>		

A

**Sockets for TO ... cases**

B

**Sockets for TO 5**

**art. no.**

no. of contacts

**PF 510 G**

10

**contact spring:**

gold-plated

**contact sleeve:**

gold-plated

D

E

F

G

H

I

K

L

M

N

**F 11**
**Teflon sockets/TO 5 & TO 18**  
**Connector-sleeves**  
**Sockets for DIL-IC**  
**Single precision contacts**

 → F 12  
 → F 19 – 20  
 → F 2 – 4  
 → F 17 – 18

**Jumper links**  
**Sockets for LED**  
**SMD socket for DIL-IC**  
**Technical data**

 → F 14 – 15  
 → F 5 – 6  
 → F 8  
 → F 21 – 27

Sockets for TO ... cases


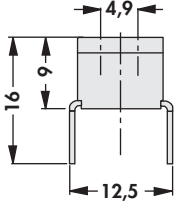
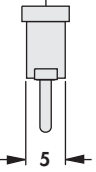
Transistor sockets - teflon sockets for TO 5

<b>art. no.</b>	no. of contacts	<b>art. no.</b>	no. of contacts
<b>TF 53</b>	3	<b>TF 54</b>	4
<b>art. no.</b>	no. of contacts	<b>art. no.</b>	no. of contacts
<b>TF 56</b>	6	<b>TF 58</b>	8
<b>art. no.</b>	no. of contacts	<b>art. no.</b>	no. of contacts
<b>TF 510</b>	10	<b>TF 512</b>	12
<b>contact spring:</b>		gold-plated	
<b>contact sleeve:</b>		gold-plated	


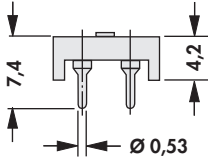
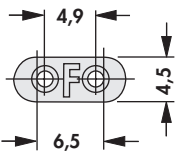
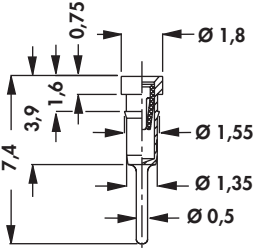

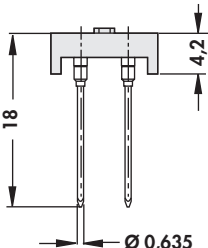
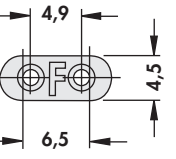
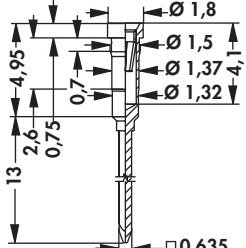
Transistor sockets - teflon sockets for TO 18

<b>art. no.</b>	no. of contacts	<b>art. no.</b>	no. of contacts
<b>TF 183</b>	3	<b>TF 184</b>	4
<b>contact spring:</b>		gold-plated	
<b>contact sleeve:</b>		gold-plated	

Sockets for crystal oscillators



<b>art. no.</b>			
<b>QS 25 GS</b>			
<b>surface of contact:</b>		silver-plated	

Precision sockets for crystal oscillators in case HC 18

<b>art. no.</b>				
<b>PQ 18 ...</b>				
<b>art. no.</b>				
<b>PQ 18 W ...</b>				
<b>please indicate:</b>		... surface of contact G = gold-plated Z = tin-plated		
<b>contact spring:</b>		gold-plated		

Insulators for crystal oscillators

\* = equates self retaining

		
<b>art. no.</b>	case design	dim. [mm]
<b>ISQ 04</b>	HC-18/U/ HC-49/U/ HC-43/U	C - D 0.71
<b>ISQ 05</b>	HC-18/U/ HC-49/U/ HC-43/U	C - D *
<b>ISQ 06</b>	HC-18/U/ HC-49/U/ HC-43/U	C 2.4 D 0.71
<b>ISQ 07</b>	HC-18/U/ HC-49/U/ HC-43/U	C 2.4 D *
<b>ISQ 08</b>	HC-50/U/ HC-42/U/ HC-25/U	C - D 1.30
<b>dielectric strength:</b>		9 kV
<b>name of foil:</b>		MYLAR
<b>heat resistance:</b>		250°C
<b>material thickness:</b>		0.127 mm

F 13

Teflon sockets/TO 5 & TO 18  
Connector-sleeves  
Sockets für PLCC  
Sockets for LED

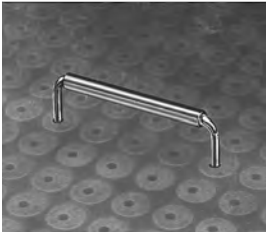
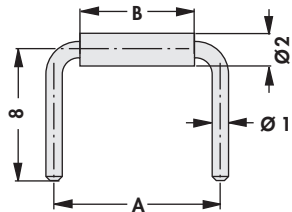

→ F 12  
→ F 19 – 20  
→ F 9  
→ F 5 – 6

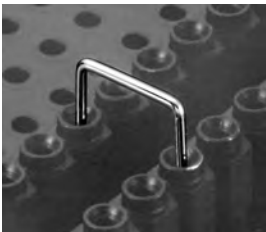
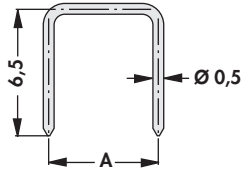

High-prec. male headers 2.54 THT  
Single precision contacts  
Sockets for DIL-IC  
Technical data

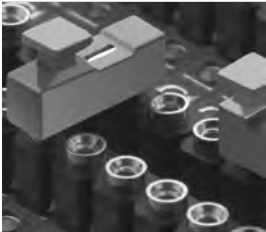
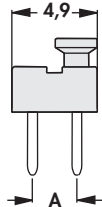
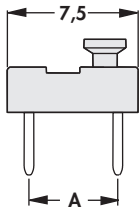
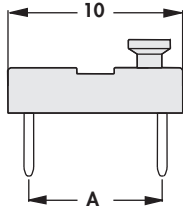
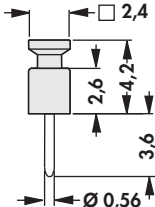
→ G 45 – 46  
→ F 17 – 18  
→ F 2 – 4  
→ F 21 – 27

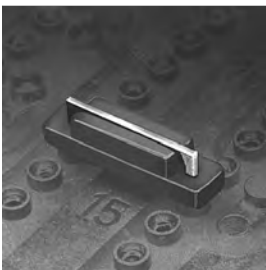
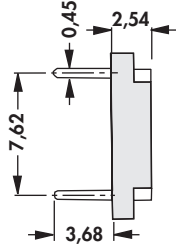
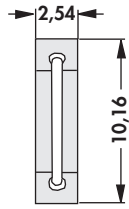
## Jumper links / Separable jumpers

### Jumper links

					
<b>art. no.</b>	dim. [mm]		<b>art. no.</b>	dim. [mm]	
	A	B		A	B
<b>LB 02 G</b>	5.08	2.0	<b>LB 04 G</b>	10.16	7.0
<b>LB 03 G</b>	7.62	4.5	<b>LB 06 G</b>	15.24	12.0
<b>surface of contact:</b>		gold-plated			

					
<b>art. no.</b>	dim. [mm]		<b>art. no.</b>	dim. [mm]	
	A			A	
<b>CB 1 ...</b>	2.54		<b>CB 6 ...</b>	7.62	
<b>CB 3 ...</b>	5.08				
<b>please indicate:</b>		<b>... surface of contact</b>			
		<b>G = gold-plated</b>			
		<b>Z = tin-plated</b>			

					
<b>art. no.</b>	dim. [mm]		<b>art. no.</b>	dim. [mm]	
	A			A	
<b>LEB 01 G</b>	2.54		<b>LEB 03 G</b>	7.62	
<b>LEB 02 G</b>	5.08				
<b>surface of contact:</b>		gold-plated			

		
<b>art. no.</b>		
<b>PSB 03 G</b>		
<b>surface of contact:</b>		gold-plated

Sockets for DIL-IC  
Connector-sleeves  
Jumper links  
SMD socket for DIL-IC

→ F 2 - 4  
→ F 19 - 20  
→ F 14 - 15  
→ F 8

Teflon sockets/TO 5 & TO 18  
Single precision contacts  
Sockets for LED  
Technical data

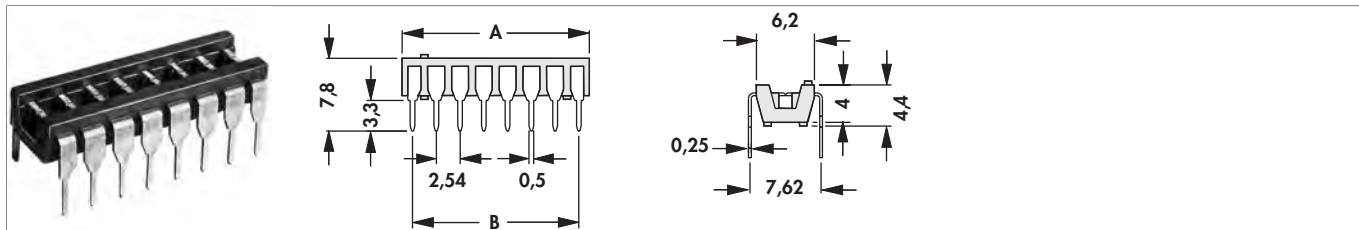
→ F 12  
→ F 17 - 18  
→ F 5 - 6  
→ F 21 - 27

**F 14**

# Jumper links / Separable jumpers

## separable jumpers for soldering technology

– the contacts have a preformed dividing groove and can easily be separated with a screwdriver

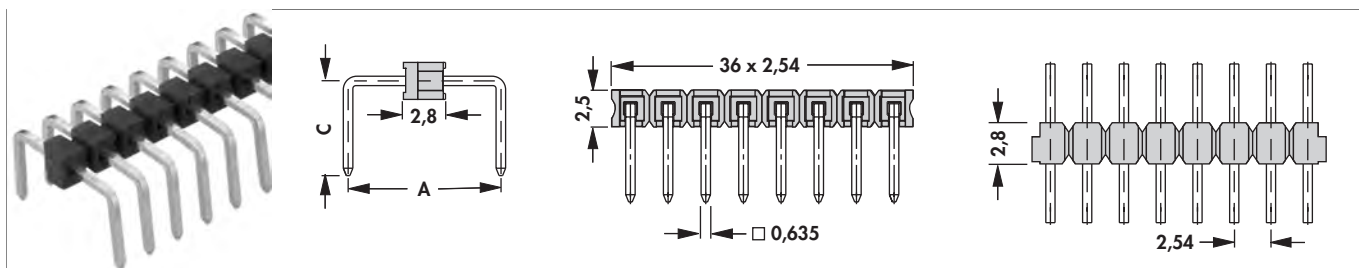


art. no.	no. of contacts	dim. [mm]		art. no.	no. of contacts	dim. [mm]	
		A	B			A	B
<b>CAB 3 06 03 Z</b>	6	7.30	5.08	<b>CAB 3 14 03 Z</b>	14	17.46	15.24
<b>CAB 3 08 03 Z</b>	8	9.84	7.62	<b>CAB 3 16 03 Z</b>	16	20.00	17.78
<b>CAB 3 12 03 Z</b>	12	14.92	12.70				

surface of contact: tin-plated

## Jumper links, grid spacing 2.54 mm, □ 0.635 mm

– separable! any requested number of contact can be delivered

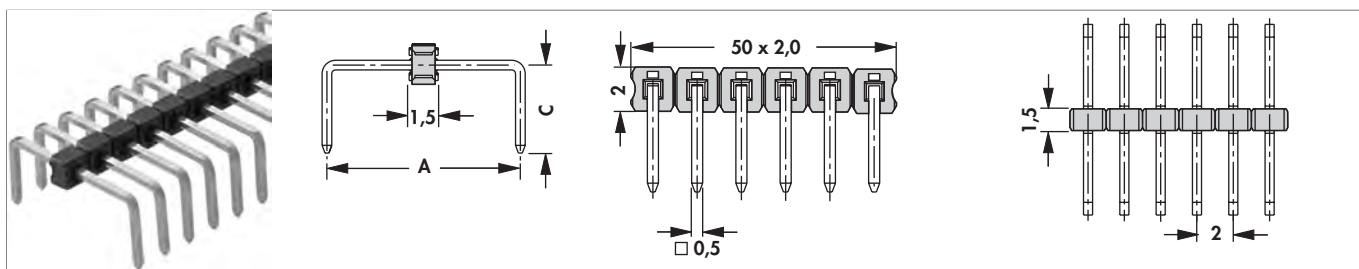


art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	C		A	C
<b>LB SL 0508 ...</b>	5.08	6.1	<b>LB SL 1016 ...</b>	10.16	6.1
<b>LB SL 0762 ...</b>	7.62	6.1	<b>LB SL 1524 ...</b>	15.24	6.1

please indicate: ... no. of contacts 1 - 36      ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

## Jumper links, grid spacing 2.00 mm, □ 0.5 mm

– separable! any requested number of contact can be delivered



art. no.	dim. [mm]	
	A	C
<b>LB SLY 06 ...</b>	6	4.5

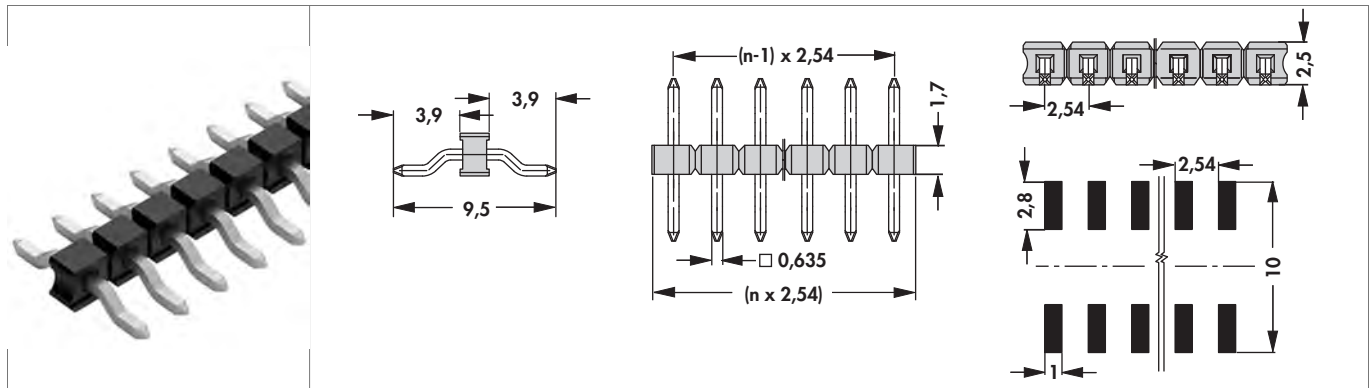
please indicate: ... no. of contacts 1 - 50      ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated



## Jumper links / Separable jumpers

### Jumper link for LED- and standard-PCBs

- in SMD-technology
- □ 0,635 mm
- **separable!** any requested number of contact can be delivered



art. no.

LB SL LP 039 SMD ...

please indicate:

... no. of contacts  
2 - 20

... surface of contact  
G = gold-plated  
Z = tin-plated

High-precision contacts, loose

Female contacts for Ø 0.5 mm

<p>art. no.</p> <p><b>1706 G</b></p>		<p>art. no.</p> <p><b>PEK G</b></p>		<p>art. no.</p> <p><b>PK 1 ...</b></p>	
<p>art. no.</p> <p><b>1831 Z</b></p>		<p>art. no.</p> <p><b>WWPS 1 G</b></p>		<p>art. no.</p> <p><b>SK 06 ...</b></p>	
<p>art. no.</p> <p><b>SK 13 X 2 G</b></p>		<p>art. no.</p> <p><b>TF G</b></p>		<p>art. no.</p> <p><b>SK 19 ...</b></p>	
<p>art. no.</p> <p><b>SIL 1 ...</b></p>					
<p>please indicate: ... surface of contact  <b>G = gold-plated</b>  <b>Z = tin-plated</b></p>					

contact spring: gold-plated

Female contact for 0.64 mm □ and Ø 0.80 mm

<p>art. no.</p> <p><b>SKB 5 Z</b></p>		<p>art. no.</p> <p><b>SKB 9 Z</b></p>			
<p>contact spring:</p>		<p>gold-plated</p>			
<p>contact sleeve:</p>		<p>tin-plated</p>			

# High-precision contacts, loose

## Contacts with solder head

<p><b>art. no.</b></p> <p><b>PK 4 Z</b></p>		<p><b>art. no.</b></p> <p><b>SK 02 ...</b></p>		<p><b>art. no.</b></p> <p><b>SK 03 ...</b></p>	
<p><b>art. no.</b></p> <p><b>SK 04 Z</b></p>		<p><b>art. no.</b></p> <p><b>SK 08 G</b></p>			
<p><b>please indicate:</b> ... surface of contact  <b>G</b> = gold-plated  <b>Z</b> = tin-plated</p>					

## Male contacts

<p><b>art. no.</b></p> <p><b>SK 05 ...</b></p>		<p><b>art. no.</b></p> <p><b>SK 14 X 2 ...</b></p>		<p><b>art. no.</b></p> <p><b>SK 40 G</b></p>	
<p><b>art. no.</b></p> <p><b>SK 41 ...</b></p>		<p><b>art. no.</b></p> <p><b>SK 42 ...</b></p>			
<p><b>please indicate:</b> ... surface of contact  <b>G</b> = gold-plated  <b>Z</b> = tin-plated</p>					


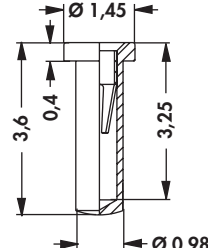


A

Connector-sleeves

B


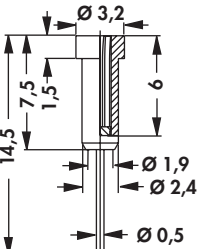
For 0.4 mm with BeCu spring 3 μm Ni, 1 μm Au

art. no.		
		
SB 1		

C

D


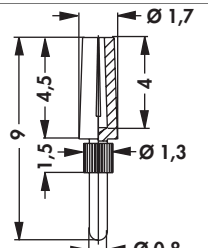
For 0.4 mm with bronze spring, teflon insulated

art. no.		
		
SB 2		

E

F


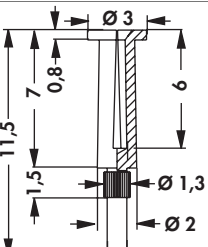
For 0.8 mm, slotted

art. no.		
		
SB 3		


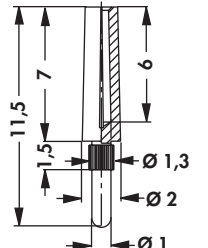
G

H


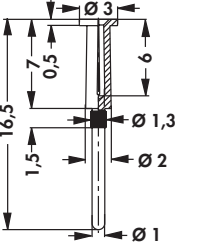
For 1 mm, slotted

art. no.		
		
SB 4		

I

art. no.		
		
SB 5		

K

art. no.		
		
SB 6		

L

M

surface of contact: gold-plated

N


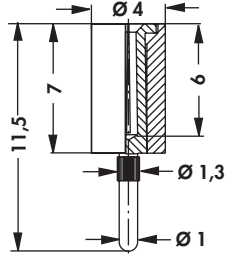
F 19

High-prec. male headers 2.54 THT → G 45 – 46  
 Teflon sockets/TO 5 & TO 18 → F 12  
 High-precision female headers THT → G 2 – 6  
 Jumper links → F 14 – 15


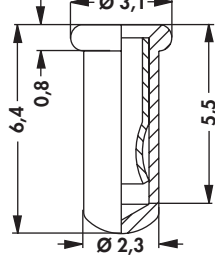
Sockets für PLCC → F 9  
 Sockets for LED → F 5 – 6  
 Sockets for crystal oscillators → F 13  
 Technical data → F 21 – 27

## Connector-sleeves


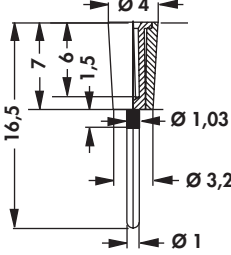
### For 1 mm, slotted, plastic insulated

art. no.		
<b>SB 9</b>		


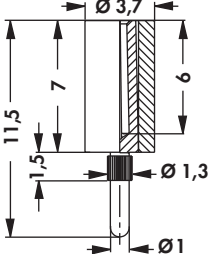
### For 1 mm, with BeCu spring 3 μm Ni, 1 μm Au

art. no.		
<b>SB 12</b>		

### For 1 mm, slotted, plastic insulated


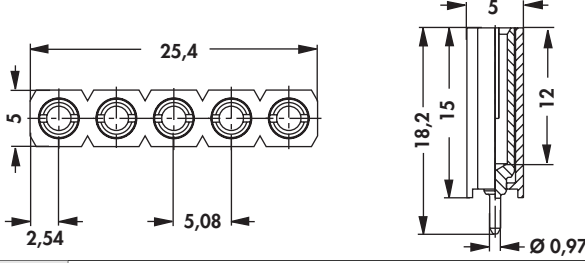
art. no.		
<b>SB 16</b>		

### For 2 mm, slotted, plastic insulated

art. no.		
<b>SB 13 ...</b>		

please indicate: ... case colour  
**S** = black  
**R** = red  
**B** = blue

### For 2 mm, slotted, plastic insulated, separable

art. no.		
<b>SB 15</b>		
surface of contact:	gold-plated	

**Technical data Sockets**

	<b>DIL ... E ..., DIL ... M ..., DIL ... N ..., DIL ... OR ...</b>	<b>DIL ... O ..., DIL ... P ..., DIL ... Q ..., DIL ... U ...</b>	<b>DIL ... PEK</b>	<b>DIL ... 06 E Z, DIL ... 06 H Z</b>
<b>contact material</b>	CuZn-alloy			
<b>surface contact / contact sleeve</b>	Ni+ $\geq 0.2\mu\text{m Au}$ / Ni+4... $6\mu\text{m Sn}$		Ni+ $\geq 0.2\mu\text{m Au}$	Ni+4... $6\mu\text{m Sn}$
<b>inner contact spring material</b>	CuBe-alloy		CuBe-alloy	
<b>inner contact spring surface</b>	Ni+0,25 $\mu\text{m Au}$		Ni+0,75 $\mu\text{m Au}$	Ni+0,25 $\mu\text{m Au}$
<b>plugability for circuit points</b>	0,22x0,25mm... 0,4x0,55mm/ $\varnothing 0,4...0,56\text{mm}$		0,22x0,25mm... 0,4x0,55mm/ $\varnothing 0,4...0,56\text{mm}$	
<b>insert depth</b>	2.5...3.6mm		2.5...3.6mm	
<b>insertion / drawing force</b>	4 lamellas con- tact/ 1.8 N/1.4 N		4 lamellas contact/ 1.8 N/1.4 N	
<b>shock resistance</b>	50 g			
<b>vibration resistance max.</b>	15 g			
<b>volume resistance</b>	10 m $\Omega$			
<b>contact resistance</b>	4 m $\Omega$			
<b>contact resistance after 1000 cycles</b>	7 m $\Omega$			
<b>capacity between two adjacent contacts</b>	0,4 pF			
<b>nominal current</b>	1.5 A			
<b>nominal voltage</b>	150 V DC			
<b>test voltage</b>	1000 V			
<b>insulating body material</b>	PPS, GF			
<b>temperature range</b>	-40°C... +200°C/ (260°C/10 s)			
<b>class of flammibility</b>	UL 94 V-0			
<b>specific insulation resistance</b>	$> 10^{12} \Omega\cdot\text{m}$			

**Technical data Sockets**

	<b>DIL ... G ..., DIL 14 W 90</b>	<b>DILS ... PK ...</b>	<b>DILS ... GO</b>	<b>DILS ... LO</b>
<b>contact material</b>	CuZn-alloy		CuSn alloy	
<b>surface contact / contact sleeve</b>	Ni+4...6µm Sn	Ni+≥0.2µm Au		
<b>inner contact spring material</b>	CuBe-alloy			
<b>inner contact spring surface</b>	Ni+0,75µm Au			
<b>plugability for circuit points</b>	0,22x0,25mm... 0,4x0,55mm/ Ø0,4...0,56mm			
<b>insert depth</b>	2.5...3.6mm			
<b>insertion / drawing force</b>	4 lamellas con- tact/ 1.8 N/1.4 N			
<b>shock resistance</b>	50 g			
<b>vibration resistance max.</b>	15 g			
<b>volume resistance</b>	10 mΩ			
<b>contact resistance</b>	4 mΩ			
<b>contact resistance after 1000 cycles</b>	7 mΩ			
<b>capacity between two adjacent contacts</b>	0,4 pF			
<b>nominal current</b>	1.5 A			
<b>nominal voltage</b>	150 V DC			
<b>test voltage</b>	1000 V			
<b>insulating body material</b>	PPS, GF			PA 4.6. GF
<b>temperature range</b>	-40°C... +200°C/ (260°C/10 s)			-40°C... +163°C/ (260°C/10 s)
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>	> 10 <sup>12</sup> Ω·m			

**Technical data Sockets**

	<b>DIL ... SMD M, DIL...SMD SK5</b>	<b>MIC ...</b>	<b>PLCC ..., PLCC ... SMD</b>	<b>TF ...</b>
<b>contact material</b>	CuZn-alloy		CuSn alloy	CuZn-alloy
<b>surface contact / contact sleeve</b>	Ni+ $\geq 0.2\mu\text{m}$ Au/ Ni+4... $6\mu\text{m}$ Sn		Ni+2... $4\mu\text{m}$ Sn	Ni+ $\geq 0.2\mu\text{m}$ Au
<b>inner contact spring material</b>	CuBe-alloy			CuBe-alloy
<b>inner contact spring surface</b>	Ni+0,25 $\mu\text{m}$ Au			Ni+0,75 $\mu\text{m}$ Au
<b>plugability for circuit points</b>	0,22x0,25mm... 0,4x0,55mm/ $\varnothing 0,4...0,56\text{mm}$			0,22x0,25mm... 0,4x0,55mm/ $\varnothing 0,4...0,56\text{mm}$
<b>insert depth</b>	2.5...3.6mm			2.5...3.6mm
<b>insertion / drawing force</b>	4 lamellas con- tact/ 1.8 N/1.4 N			4 lamellas con- tact/ 1.8 N/1.4 N
<b>shock resistance</b>	50 g			50 g
<b>vibration resistance max.</b>	15 g			15 g
<b>volume resistance</b>	10 m $\Omega$		>30 m $\Omega$	10 m $\Omega$
<b>contact resistance</b>				4 m $\Omega$
<b>contact resistance after 1000 cycles</b>				7 m $\Omega$
<b>capacity between two adjacent contacts</b>	0,4 pF			
<b>nominal current</b>	1.5 A		1 A	1.5 A
<b>nominal voltage</b>	150 V DC			100 V DC
<b>test voltage</b>	1000 V		500 V	1000 V
<b>insulating body material</b>	PPS, GF	polyacetal/ non- conductive	PPS, GF	PTFE
<b>temperature range</b>	-40°C... +200°C/ (260°C/10 s)		-40°C... +105°C/ (260°C/10 s)	-200°C ... +260°C
<b>class of flammibility</b>	UL 94 V-0	UL 94 V-0 (at thickness $\geq 3\text{mm}$ ), UL 94 V-1		UL 94 V-0
<b>specific insulation resistance</b>	>10 <sup>12</sup> $\Omega\cdot\text{m}$		>10 <sup>8</sup> $\Omega\cdot\text{m}$	>10 <sup>14</sup> $\Omega\cdot\text{m}$



**Technical data Sockets**

	<b>QS 25 GS</b>	<b>PF ..., PQ 18 ...</b>	<b>LB ... G</b>	<b>CB ...</b>
<b>contact material</b>	CuSn alloy	CuZn-alloy		
<b>surface contact / contact sleeve</b>	Ni+3 $\mu$ m Ag	Ni+ $\geq$ 0.2 $\mu$ m Au/ Ni+4...6 $\mu$ m Sn	Ni+ $\geq$ 0.2 $\mu$ m Au	Ni+ $\geq$ 0.2 $\mu$ m Au/ Ni+4...6 $\mu$ m Sn
<b>inner contact spring material</b>	CuBe-alloy			
<b>inner contact spring surface</b>	Ni+0,75 $\mu$ m Au			
<b>plugability for circuit points</b>	0,22x0,25mm... 0,4x0,55mm/ Ø0,4...0,56mm			
<b>insert depth</b>	2.5...3.6mm			
<b>insertion / drawing force</b>	4 lamellas contact/ 1.8 N/1.4 N			
<b>shock resistance</b>	50 g			
<b>vibration resistance max.</b>	15 g			
<b>volume resistance</b>	10 m $\Omega$			
<b>contact resistance</b>	4 m $\Omega$			
<b>contact resistance after 1000 cycles</b>	7 m $\Omega$			
<b>capacity between two adjacent contacts</b>	0,4 pF			
<b>nominal current</b>	2.5 A	1.5 A		
<b>nominal voltage</b>	125 V DC	60 V DC		
<b>test voltage</b>	500 V			
<b>insulating body material</b>	PA, GF	PA 4.6. GF		
<b>temperature range</b>	-40°C ... +180°C	-40°C... +163°C/ (260°C/10 s)		
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>	> 10 <sup>7</sup> $\Omega$ ·m			

**Technical data Sockets**

	<b>LEB ... G</b>	<b>PSB 03 G</b>	<b>CAB 3 ... 03 Z</b>	<b>LB SLY 06 ...</b>
<b>contact material</b>	CuZn-alloy	phosphor bronze	brass	CuSn alloy
<b>surface contact / contact sleeve</b>	Ni+0.15µm Au	Ni+≥0.2µm Au	Ni+4...6µm Sn	Ni+4...6µm Sn/ Ni+≥0.2µm Au
<b>volume resistance</b>				5 mΩ
<b>nominal current</b>	3 A		1.5 A	3 A
<b>nominal voltage</b>	150 V DC	125 V AC	100 V DC	
<b>test voltage</b>	1000 V		1000 V	500 V
<b>insulating body material</b>	thermoplastic polyester	PA 6. GF	PPS, GF	PA 4.6. GF
<b>temperature range</b>	-55°C... +125°C		-40°C... +200°C/ (260°C/10 s)	-40°C... +163°C/ (260°C/10 s)
<b>class of flammability</b>	UL 94 V-0		UL 94 V-0	
<b>specific insulation resistance</b>			> 10 <sup>12</sup> Ω·m	> 10 <sup>7</sup> Ω·m

	<b>LB SL ..., LB SL LP ...</b>	<b>1706 G, PEK G, TF G, WWPS 1 G</b>	<b>PK 1 ..., SK 19 ...</b>	<b>1831 Z, SIL 1 ..., SK 06 ..., SK 13 X 2 G</b>
<b>contact material</b>	CuSn alloy	CuZn-alloy		
<b>surface contact / contact sleeve</b>	Ni+4...6µm Sn/ Ni+≥0.2µm Au	Ni+≥0.2µm Au	Ni+≥0.2µm Au/ Ni+4...6µm Sn	
<b>inner contact spring material</b>	CuBe-alloy			
<b>inner contact spring surface</b>		Ni+0,75µm Au	Ni+0,25µm Au	Ni+0,75µm Au
<b>insert depth</b>	2.5...3.6mm			
<b>insertion / drawing force</b>	4 lamellas contact/ 1.8 N/1.4 N			
<b>volume resistance</b>	5 mΩ			
<b>nominal current</b>	3 A	1.5 A		
<b>nominal voltage</b>	250 V DC	60 V DC		
<b>test voltage</b>	2000 V	1000 V		
<b>insulating body material</b>	PA 4.6. GF			
<b>temperature range</b>	-40°C... +163°C/ (260°C/10 s)			
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>	> 10 <sup>7</sup> Ω·m			

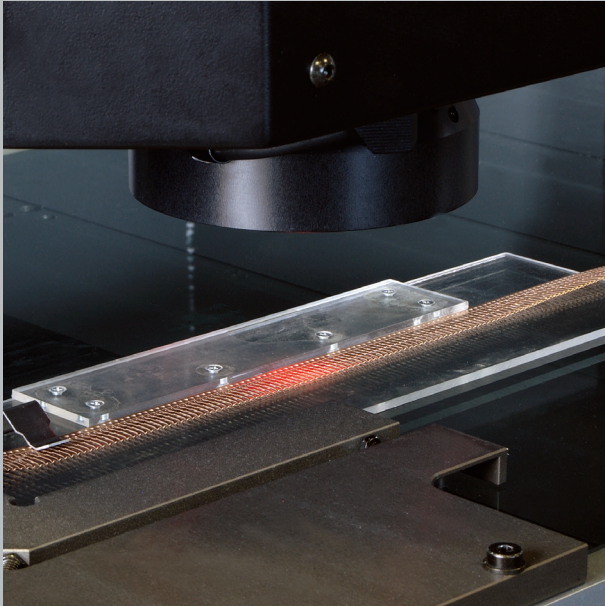
**Technical data Sockets**

	<b>SKB 5 Z, SKB 9 Z</b>	<b>PK 4 Z, SK 02 ..., SK 03 ..., SK 04 Z, SK 05 ..., SK 08 G, SK 14 X 2 ..., SK 40 G, SK 41 ..., SK 42 ...</b>	<b>SB 1</b>	<b>SB 2</b>
<b>contact material</b>	CuZn-alloy			
<b>surface contact / contact sleeve</b>	Ni+4...6µm Sn	Ni+≥0.2µm Au/ Ni+4...6µm Sn	Ni+0.25µm Au	Ni+≥0.2µm Au
<b>inner contact spring material</b>	CuBe-alloy		CuBe-alloy	
<b>inner contact spring surface</b>	Ni+0,75µm Au		Ni+0,5µm Au	Ni+0,75µm Au
<b>plugability for circuit points</b>			Ø0,35...0,5 mm	
<b>insert depth</b>	2.5...6mm		1.5...3mm	2.8...3.8mm
<b>insertion / drawing force</b>	6 lamella con- tacts/ 1.3N/0.3N			
<b>nominal current</b>	3 A	1.5 A		2 A
<b>nominal current 70°C</b>				1 A
<b>nominal voltage</b>	150 V DC	60 V DC		
<b>test voltage</b>	1000 V			
<b>insulating body material</b>				PTFE (teflon)
<b>dielectric strength</b>				≤500 V

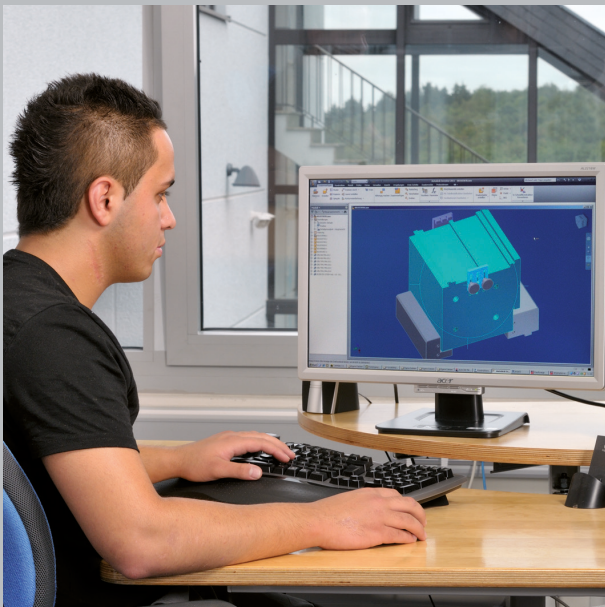
**Technical data Sockets**

	<b>SB 3</b>	<b>SB 4, SB 5, SB 6</b>	<b>SB 9</b>	<b>SB 12</b>
<b>contact material</b>	CuZn-alloy			
<b>surface contact / contact sleeve</b>	Ni+0.25 $\mu$ m Au			
<b>inner contact spring material</b>				CuBe-alloy
<b>inner contact spring surface</b>				Ni+1 $\mu$ m Au
<b>plugability for circuit points</b>	Ø0,8mm	Ø1mm		
<b>insert depth</b>	4mm	6mm	3.8...5.5mm	
<b>volume resistance</b>				>30 $\Omega$
<b>nominal current</b>		3 A	4 A	
<b>nominal current 70°C</b>		2 A		
<b>insulating body material</b>			PA 6.6	
<b>dielectric strength</b>		≤500 V		

	<b>SB 16</b>	<b>SB 13</b>	<b>SB 15</b>
<b>contact material</b>	CuZn-alloy		
<b>surface contact / contact sleeve</b>	Ni+0.25 $\mu$ m Au		
<b>plugability for circuit points</b>	Ø1mm	Ø2mm	
<b>insert depth</b>	2...6mm	6mm	12mm
<b>nominal current</b>		3 A	
<b>nominal current 70°C</b>		2 A	
<b>insulating body material</b>	PBT, GF	polyolefin	PA 4.6. GF
<b>class of flammibility</b>	UL 94 V-0		UL 94 V-0
<b>dielectric strength</b>		≤500 V	



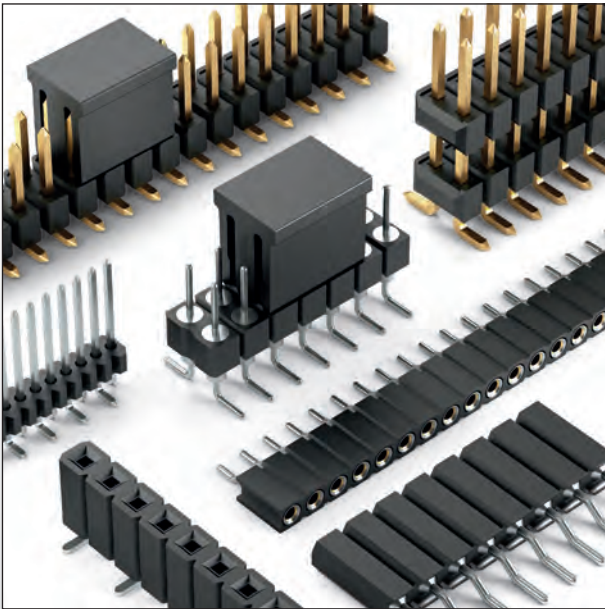
**certified quality management**



**own tool-making department**

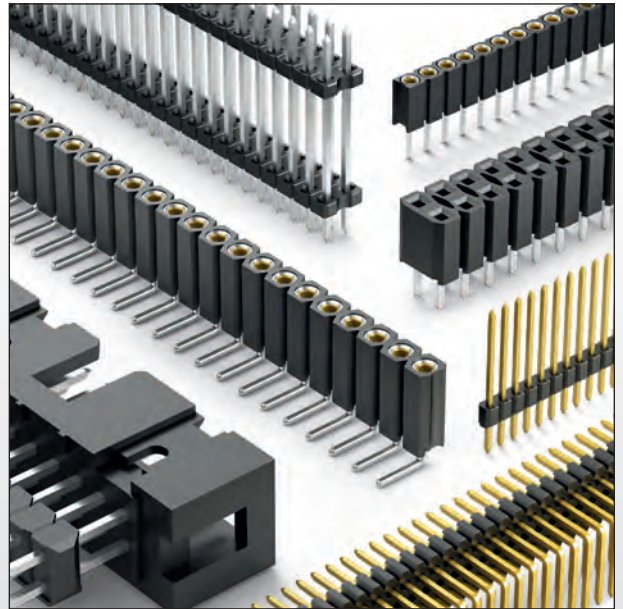


**foresighted storekeeping**



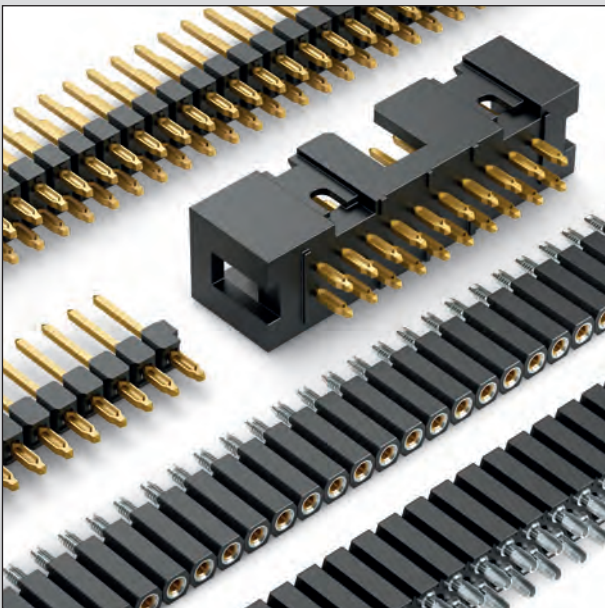
### Male and female headers in SMD version

- male header, one and two rows with pick and place pad, horizontal and vertical version
- female header, one and two rows with pick and place pad, horizontal and vertical version
- grid spacing: 2,54 mm, 2,00 mm and 1,27 mm
- optional selectable type of packaging: bar magazine and tape and reel



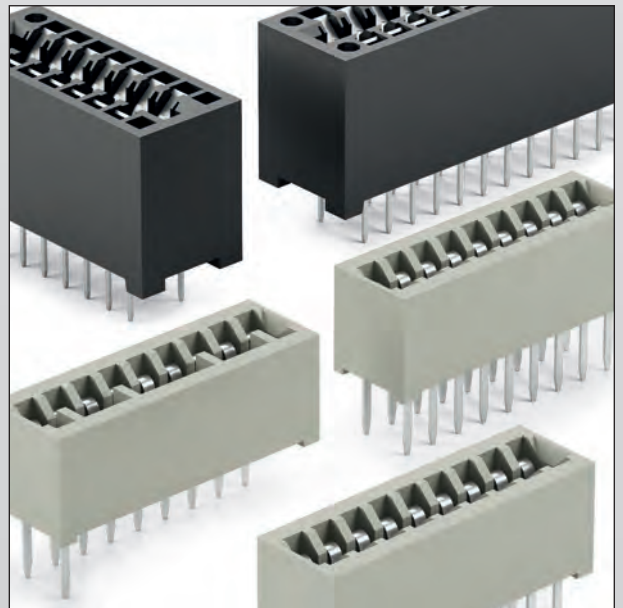
### Male and female headers for solder technology (THT)

- male header, one and two rows, straight and angled version with square and precision contacts
- shrouded-header with second insulating body
- female header, one and two rows, straight and angled version with stamped contacts or precision contacts
- through-hole female headers, one and two rows
- grid spacing 2,54 mm, 2,0 mm and 1,27 mm



### Male and female header in press-in mounting

- male header, one and two rows, straight version
- female header, one and two rows, straight version
- shrouded male header, two rows, straight version



### Multipoint connector

- direct multipoint connector for additional circuit board with a thickness of 0,7 to 0,9 mm
- direct multipoint connector for a circuit board thickness of 1,6 mm

Male headers

Präzisionskontakte, solder and plug pins Ø 0.5 mm

– also available as single contact, **SK ...**

– **version:**

**MK 05 / MK 205:** contact pin on both sides

**MK 04 / MK 204:** with diagonal solder cup

**MK 03 / MK 203:** with solder head

**MK 02 / MK 202:** with solder fork

<p>art. no.</p> <p><b>MK 05 ...</b></p>			<p>art. no.</p> <p><b>MK 205 ...</b></p>		
<p>art. no.</p> <p><b>MK 04 ...</b></p>			<p>art. no.</p> <p><b>MK 204 ...</b></p>		
<p>art. no.</p> <p><b>MK 03 ...</b></p>			<p>art. no.</p> <p><b>MK 203 ...</b></p>		
<p>art. no.</p> <p><b>MK 02 ...</b></p>			<p>art. no.</p> <p><b>MK 202 ...</b></p>		
<p>please indicate:      ... no. of contacts      ... surface of contact</p> <p>one row 1 - 50      G = gold-plated</p> <p>two rows 2 - 100      Z = tin-plated</p>					

Female headers 2.54 THT

Female headers 2.54 SMD

Female headers for PC 104

High-prec. male headers 2.54 THT

→ G 52

→ G 58 - 63

→ G 55

→ G 45

Jumpers

Direct female connectors

Female headers 2.54 press-fit

Technical data

→ G 76 - 77

→ G 75

→ G 50 - 66

→ G 78 - 84


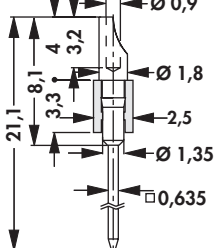

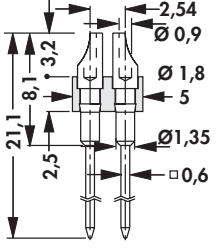

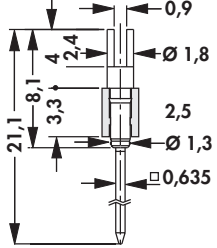

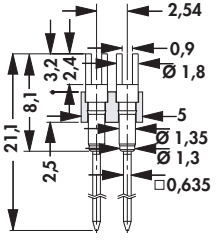
G 2

## Male headers

## Precision contacts, Wire Wrap pin □ 0.635 mm

- version:

**MK 10 / MK 210:** with diagonal solder bucket**MK 08 / MK 208:** with solder fork

<b>art. no.</b>          <b>MK 10 ...</b>			<b>art. no.</b>          <b>MK 210 ...</b>				
<b>art. no.</b>          <b>MK 08 ...</b>			<b>art. no.</b>          <b>MK 208 ...</b>				
<p><b>please indicate:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <b>... no. of contacts</b>            one row 1 - 50            two rows 2 - 100         </td> <td style="width: 50%; border: none;"> <b>... surface of contact</b>            G = gold-plated            Z = tin-plated         </td> </tr> </table>						<b>... no. of contacts</b> one row 1 - 50 two rows 2 - 100	<b>... surface of contact</b> G = gold-plated Z = tin-plated
<b>... no. of contacts</b> one row 1 - 50 two rows 2 - 100	<b>... surface of contact</b> G = gold-plated Z = tin-plated						

**G 3**

Female headers 2.54 press-fit  
 High-prec. male headers 2.54 THT  
 Jumpers  
 Female headers 2.54 SMD

→ G 50 - 66  
 → G 45 - 55  
 → G 76 - 77  
 → G 58 - 63

Female headers 2.54 THT  
 Direct female connectors  
 Female headers for PC 104  
 Technical data


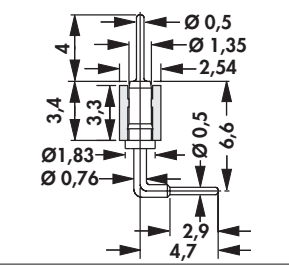

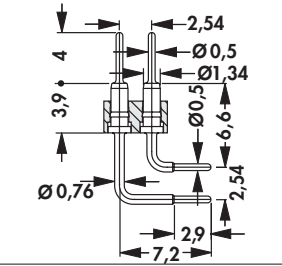

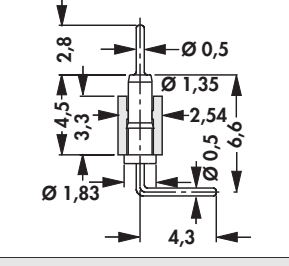
→ G 52  
 → G 75  
 → G 55 - 56  
 → G 78 - 84




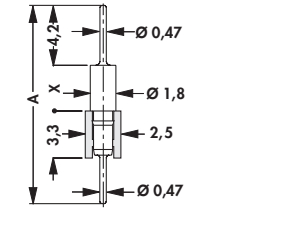

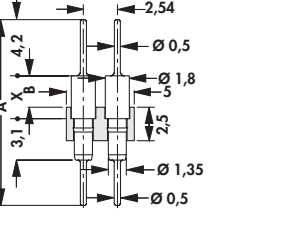
# Male headers

## Precision contacts, solder and plug pins, Ø 0,5 mm

– rectangular PCB connection

<p><b>art. no.</b></p>  <p><b>MK 51 ...</b></p>		<p><b>art. no.</b></p>  <p><b>MK 251 ...</b></p>			
<p><b>art. no.</b></p>  <p><b>MK 15 ...</b></p>					
<p><b>please indicate:</b></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>... no. of contacts one row 1 - 50 two rows 2 - 100</p> </td> <td style="width: 50%; vertical-align: top;"> <p>... surface of contact G = gold-plated Z = tin-plated</p> </td> </tr> </table>				<p>... no. of contacts one row 1 - 50 two rows 2 - 100</p>	<p>... surface of contact G = gold-plated Z = tin-plated</p>
<p>... no. of contacts one row 1 - 50 two rows 2 - 100</p>	<p>... surface of contact G = gold-plated Z = tin-plated</p>				

– parallel PCB connection

										
<p><b>art. no.</b></p>	<p>dim. [mm]</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">A</td> <td style="width: 50%; text-align: center;">X</td> </tr> </table>		A	X	<p><b>art. no.</b></p>	<p>dim. [mm]</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">A</td> <td style="width: 33%; text-align: center;">B</td> <td style="width: 33%; text-align: center;">X</td> </tr> </table>		A	B	X
A	X									
A	B	X								
<p><b>MK 14 X 1 ... G</b></p> <p><b>MK 14 X 2 ... G</b></p> <p><b>MK 14 X 3 ...</b></p>	<p>13.4</p> <p>15.4</p> <p>22.2</p>		<p><b>MK 214 X 1 ... G</b></p> <p><b>MK 214 X 2 ... G</b></p> <p><b>MK 214 X 3 ...</b></p>	<p>13.4</p> <p>15.4</p> <p>22.2</p> <p>1.9</p> <p>3.9</p> <p>10.9</p>						
<p><b>please indicate:</b></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>... no. of contacts one row 1 - 50 two rows 2 - 100</p> </td> <td style="width: 50%; vertical-align: top;"> <p>... surface of contact G = gold-plated Z = tin-plated</p> </td> </tr> </table>						<p>... no. of contacts one row 1 - 50 two rows 2 - 100</p>	<p>... surface of contact G = gold-plated Z = tin-plated</p>			
<p>... no. of contacts one row 1 - 50 two rows 2 - 100</p>	<p>... surface of contact G = gold-plated Z = tin-plated</p>									

Direct female connectors  
Female headers for PC 104  
Jumpers  
High-prec. male headers 2.54 THT

→ G 75  
→ G 55 - 56  
→ G 76 - 77  
→ G 45 - 55

Female headers 2.54 THT  
Female headers 2.54 press-fit  
Female headers 2.54 SMD  
Technical data

→ G 52  
→ G 50 - 66  
→ G 58 - 63  
→ G 78 - 84

A

Male headers

B

Precision contacts, low profile

– also available as single contact, SK ...

C

D

E

F

G

H

I

K

L

M

N

<p>art. no.</p> <p><b>MK LP 40 ...</b></p>			<p>art. no.</p> <p><b>MK LP 240 ...</b></p>		
<p>art. no.</p> <p><b>MK LP 41 ...</b></p>			<p>art. no.</p> <p><b>MK LP 241 ...</b></p>		
<p>art. no.</p> <p><b>MK LP 42 ...</b></p>			<p>art. no.</p> <p><b>MK LP 242 ...</b></p>		
<p>art. no.</p> <p><b>MK LP 43 ...</b></p>					
<p>please indicate:      ... no. of contacts      ... surface of contact</p> <p>                                 one row 1 - 50                    G = gold-plated</p> <p>                                 two rows 4 - 100                    Z = tin-plated</p>					

G 5

Female headers 2.54 press-fit  
 Female headers 2.54 THT  
 Female headers for PC 104  
 Jumpers

→ G 50 – 66  
 → G 52  
 → G 55 – 56  
 → G 76 – 77

High-prec. male headers 2.54 THT  
 Direct female connectors  
 Female headers 2.54 SMD  
 Technical data

→ G 45 – 55  
 → G 75  
 → G 58 – 63  
 → G 78 – 84

## Male headers

### Precision contacts, low profile


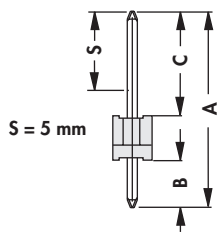
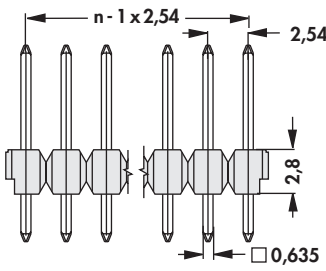
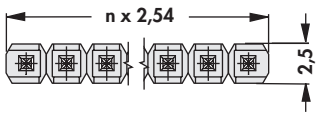
– one row

art. no.		
SL 7 ...		
art. no.		
SL 8 ...		
art. no.		
SL 9 ...		
please indicate:	... no. of contacts one row 1 - 20	... surface of contact G = gold-plated Z = tin-plated

## Male headers

– every pin length is available on request

– one row, □ 0.635 mm


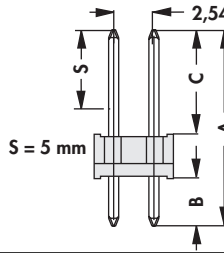
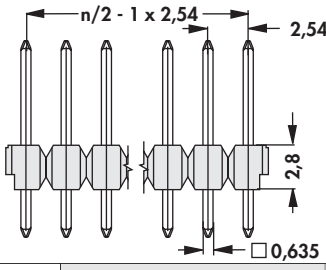
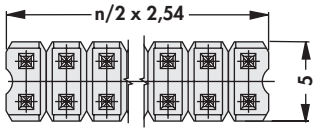





art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
SL 11 097...	9.7	3.0	3.9	SL 1 025 ...	11.2	2.6	5.8
SL 11 112 ...	11.2	3.0	5.4	SL 1 053 ...	13.9	5.8	5.3
SL 11 124 ...	12.4	3.0	6.6	SL 1 078 ...	16.4	5.8	7.8
SL 11 139 ...	13.9	3.0	8.1	SL 1 104 ...	19.0	5.8	10.4
SL 11 164 ...	16.4	3.0	10.6	SL 1 128 ...	21.4	5.8	12.8
SL 11 190 ...	19.0	3.0	13.2	SL 1 154 ...	24.0	5.8	15.4
SL 11 214 ...	21.4	3.0	15.6	SL 1 179 ...	26.5	5.8	17.9
SL 11 240 ...	24.0	3.0	18.2	SL 1 230 ...	31.6	5.8	23.0
SL 11 265 ...	26.5	3.0	20.7				
SL 11 316 ...	31.6	3.0	25.8				

**please indicate:** ... no. of contacts one row 1 - 36

... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

– two rows, □ 0.635 mm

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
SL 22 097 ...	9.7	3.0	3.9	SL 2 025 ...	11.2	2.6	5.8
SL 22 112 ...	11.2	3.0	5.4	SL 2 053 ...	13.9	5.8	5.3
SL 22 124 ...	12.4	3.0	6.6	SL 2 078 ...	16.4	5.8	7.8
SL 22 139 ...	13.9	3.0	8.1	SL 2 104 ...	19.0	5.8	10.4
SL 22 164 ...	16.4	3.0	10.6	SL 2 128 ...	21.4	5.8	12.8
SL 22 190 ...	19.0	3.0	13.2	SL 2 154 ...	24.0	5.8	15.4
SL 22 214 ...	21.4	3.0	15.6	SL 2 179 ...	26.5	5.8	17.9
SL 22 240 ...	24.0	3.0	18.2	SL 2 230 ...	31.6	5.8	23.0
SL 22 265 ...	26.5	3.0	20.7				
SL 22 316 ...	31.6	3.0	25.8				

**please indicate:** ... no. of contacts two rows 2 - 72

... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

## Male headers

### Through-Hole-Reflow (THR) soldering technology

– every pin length is available upon request

– one row, □ 0.635 mm

	$S = 4 \text{ mm} / 5 \text{ mm}$								
	art. no.	dim. [mm]			art. no.	dim. [mm]			
	A	B	C		A	B	C		
<b>SL 20 THR 097 ...</b>	9.7	2	4.9	<b>SL 20 THR 139 ...</b>	13.9	2	9.1		
<b>SL 20 THR 112 ...</b>	11.2	2	6.4	<b>SL 20 THR 164 ...</b>	16.4	2	11.6		
<b>SL 20 THR 124 ...</b>	12.4	2	7.6						
<b>please indicate:</b>	<b>... no. of contacts one row 1 - 36</b>			<b>... surface of contact</b> S = selective gold-plated G = gold-plated Z = tin-plated					

– two rows, □ 0.635 mm

	$S = 4 \text{ mm} / 5 \text{ mm}$								
	art. no.	dim. [mm]			art. no.	dim. [mm]			
	A	B	C		A	B	C		
<b>SL 21 THR 097 ...</b>	9.7	2	4.9	<b>SL 21 THR 139 ...</b>	13.9	2	9.1		
<b>SL 21 THR 112 ...</b>	11.2	2	6.4	<b>SL 21 THR 164 ...</b>	16.4	2	11.6		
<b>SL 21 THR 124 ...</b>	12.4	2	7.6						
<b>please indicate:</b>	<b>... no. of contacts two rows 2 - 72</b>			<b>... surface of contact</b> S = selective gold-plated G = gold-plated Z = tin-plated					

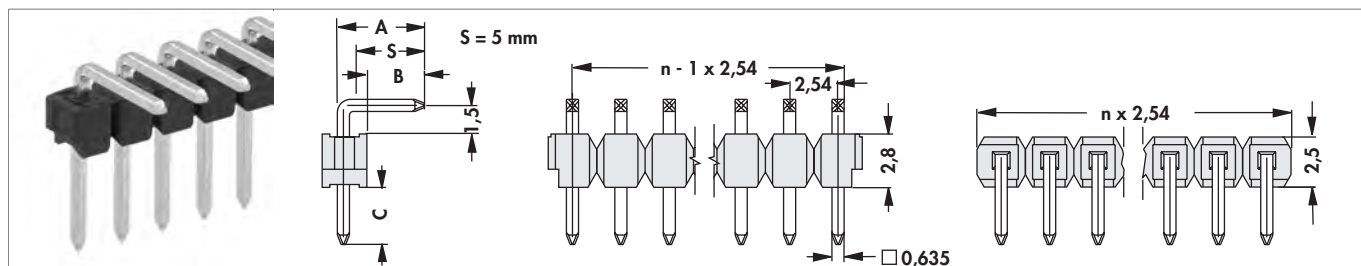
## Male headers

**"Dimensions A + B" changeable**

- **separable!** any requested number of contact can be delivered
- any pin length is available upon request

- one row,  $\square$  0,635 mm

- **the surface of dimension "C"** of following articles is selective gold-plated: **SLK 3 025 ... S, SL 3 025 ... S**



art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLK 3 025 ...</b>	4.5	3.0	3.0	<b>SL 3 131 ...</b>	14.6	13.1	5.8
<b>SL 3 025 ...</b>	4.5	3.0	5.8	<b>SL 3 152 ...</b>	16.7	15.2	5.8
<b>SL 3 053 ...</b>	6.9	5.4	5.8	<b>SL 3 182 ...</b>	19.7	18.2	5.8
<b>SL 3 080 ...</b>	9.5	8.0	5.8	<b>SL 3 207 ...</b>	22.2	20.7	5.8
<b>SL 3 101 ...</b>	11.6	10.1	5.8				

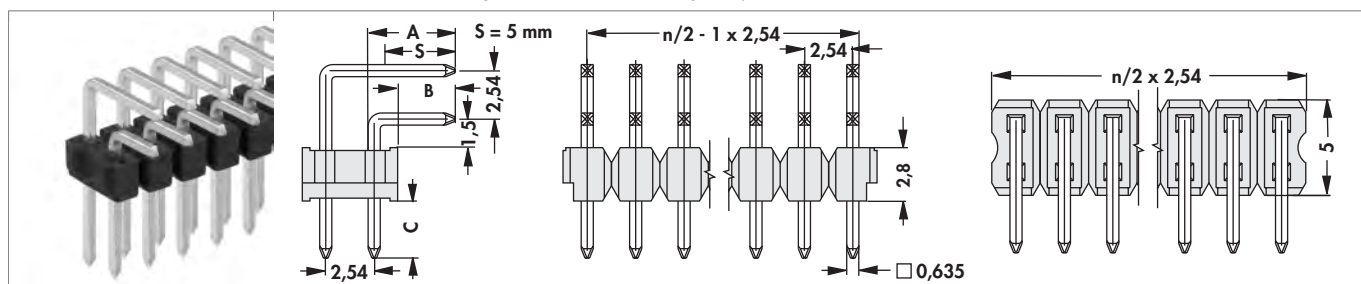
please indicate:

... no. of contacts  
one row 1 - 36

... surface of contact  
S = selective gold-plated  
G = gold-plated  
Z = tin-plated

- two rows,  $\square$  0,635 mm

- **the surface of dimension "C"** of following articles is selective gold-plated: **SLK 4 025 ... S, SL 4 025 ... S**



art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLK 4 025 ...</b>	4.5	3.0	3.0	<b>SL 4 101 ...</b>	11.6	10.1	5.8
<b>SL 4 025 ...</b>	4.5	3.0	5.8	<b>SL 4 152 ...</b>	16.7	15.2	5.8

please indicate:

... no. of contacts  
two rows 2 - 72

... surface of contact  
S = selective gold-plated  
G = gold-plated  
Z = tin-plated

Female headers 2.54 press-fit  
Female headers 2.54 THT  
Female headers 2.54 SMD  
Female headers for PC 104

→ G 50 - 66  
→ G 52  
→ G 58 - 63  
→ G 55 - 56

Direct female connectors  
Jumpers  
High-prec. male headers 2.54 THT  
Technical data


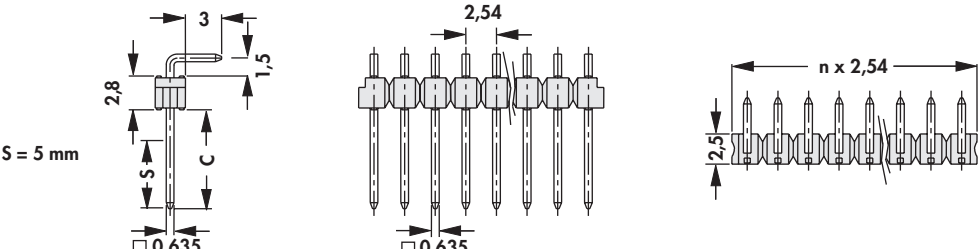
→ G 75  
→ G 76 - 77  
→ G 45 - 55  
→ G 78 - 84

## Male headers

### Insertion side "dimension C" changeable

- **separable!** any requested number of contact can be delivered
- any pin length is available on request


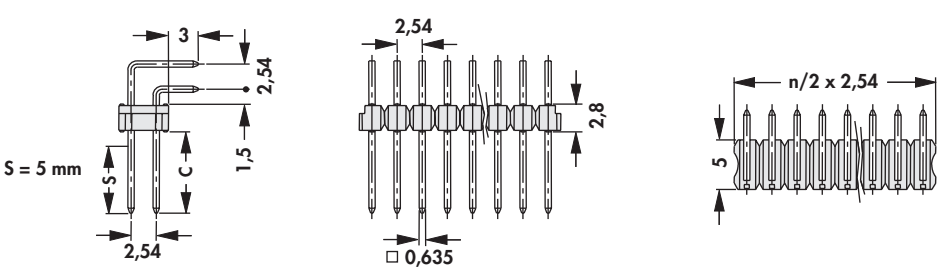
- one row, □ 0.635 mm

art. no.	dim. [mm]	art. no.	dim. [mm]
	C		C
<b>SL 18 042 ...</b>	4.2	<b>SL 18 108 ...</b>	10.8
<b>SL 18 082 ...</b>	8.2	<b>SL 18 132 ...</b>	13.2

**please indicate:** ... no. of contacts one row 1 - 36      ... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

- two rows, □ 0.635 mm

art. no.	dim. [mm]	art. no.	dim. [mm]
	C		C
<b>SL 19 082 ...</b>	8.2	<b>SL 19 132 ...</b>	13.2
<b>SL 19 108 ...</b>	10.8		


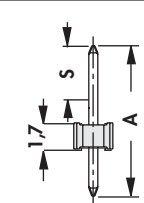
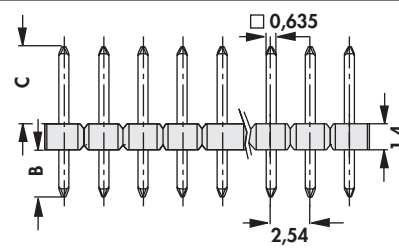
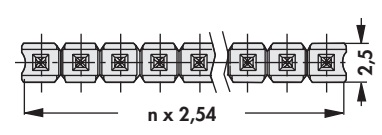
**please indicate:** ... no. of contacts two rows 2 - 72      ... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

## Male headers

## Low profile, straight

– any pin length is available on request

– one row, □ 0.635 mm


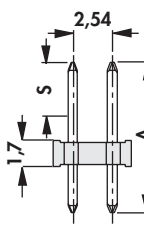
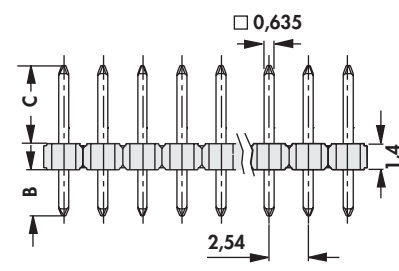
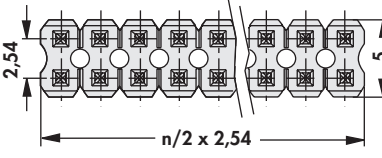
S = 3 mm/5 mm

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
SL LP 1 082 ...	8.2	3	3.5	SL LP 1 139 ...	13.9	3	9.2
SL LP 1 097 ...	9.7	3	5.0	SL LP 1 164 ...	16.4	3	11.7
SL LP 1 112 ...	11.2	3	6.5	SL LP 1 190 ...	19.0	3	14.3

please indicate: ... no. of contacts one row 1 - 36

... surface of contact  
 S = selective gold-plated  
 G = gold-plated  
 Z = tin-plated

– two rows, □ 0.635 mm

S = 3 mm/5 mm

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
SL LP 2 082 ...	8.2	3	3.5	SL LP 2 139 ...	13.9	3	9.2
SL LP 2 097 ...	9.7	3	5.0	SL LP 2 164 ...	16.4	3	11.7
SL LP 2 112 ...	11.2	3	6.5	SL LP 2 190 ...	19.0	3	14.3

please indicate: ... no. of contacts two rows 2 - 72

... surface of contact  
 S = selective gold-plated  
 G = gold-plated  
 Z = tin-plated



# Male headers

## Low profile, angled

– any pin length is available on request

– one row, □ 0.635 mm

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SL LP 3 041 ...</b>	4.5	3	4.1	<b>SL LP 3 069 ...</b>	4.5	3	6.9
<b>please indicate:</b>	<b>... no. of contacts one row 1 - 36</b>			<b>... surface of contact</b> S = selective gold-plated G = gold-plated Z = tin-plated			

– two rows, □ 0.635 mm

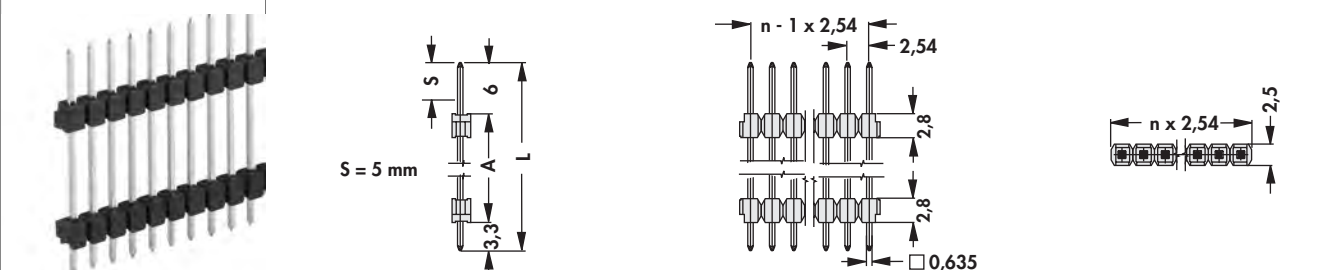
art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SL LP 4 041 ... G</b>	4.5	3	4.1	<b>SL LP 4 069 ...</b>	4.5	3	6.9
<b>SL LP 4 041 ... Z</b>	4.5	3	4.1				
<b>please indicate:</b>	<b>... no. of contacts two rows 2 - 72</b>			<b>... surface of contact</b> S = selective gold-plated G = gold-plated Z = tin-plated			

## Male headers

## Sandwich-design

- "S" selective gold-plated up to 33 mm pin length
- for interconnections of stacked PCBs
- within the total length of the pin the insulator position can be changed as required ... **Design specification-sheet**
- **separable!** any requested number of contact can be delivered

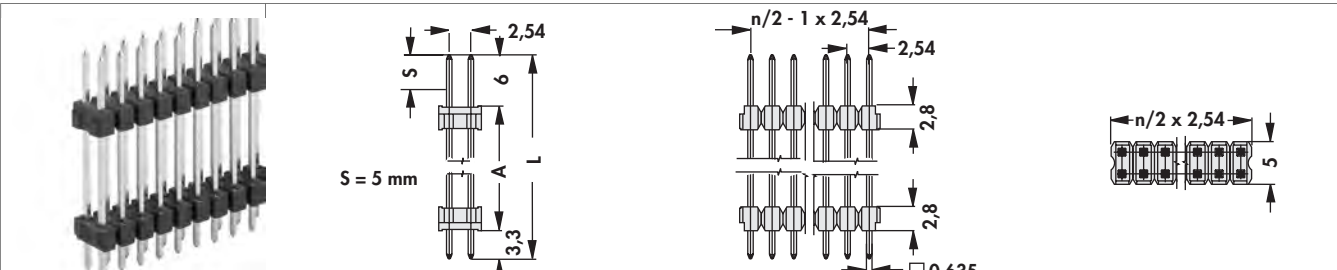
- one row, □ 0,635 mm



art. no.	dim. [mm]		art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	L		A	L		A	L
SL 5 071 ...	7.1	16.4	SL 5 172 ...	17.2	26.5	SL 5 315 ...	31.5	40.8
SL 5 097 ...	9.7	19.0	SL 5 197 ...	19.7	29.0	SL 5 360 ...	36.0	45.3
SL 5 121 ...	12.1	21.4	SL 5 223 ...	22.3	31.6	SL 5 415 ...	41.5	50.8
SL 5 147 ...	14.7	24.0	SL 5 237 ...	23.7	33.0	SL 5 525 ...	52.2	61.5
SL 5 156 ...	15.6	24.9	SL 5 285 ...	28.5	37.8			

**please indicate:** ... no. of contacts one row 1-36      ... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

- two rows, □ 0,635 mm




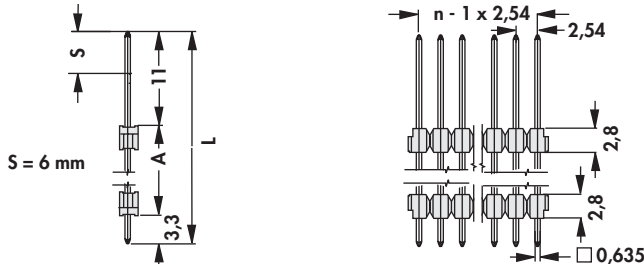
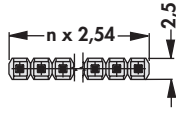
art. no.	dim. [mm]		art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	L		A	L		A	L
SL 6 071 ...	7.1	16.4	SL 6 172 ...	17.2	26.5	SL 6 315 ...	31.5	40.8
SL 6 097 ...	9.7	19.0	SL 6 197 ...	19.7	29.0	SL 6 360 ...	36.0	45.3
SL 6 121 ...	12.1	21.4	SL 6 223 ...	22.3	31.6	SL 6 415 ...	41.5	50.8
SL 6 147 ...	14.7	24.0	SL 6 237 ...	23.7	33.0	SL 6 525 ...	52.2	61.5
SL 6 156 ...	15.6	24.9	SL 6 285 ...	28.5	37.8			

**please indicate:** ... no. of contacts two rows 2-72      ... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

# Male headers

## Sandwich-design

- "S" selective gold-plated up to 33 mm pin length
- for interconnections of stacked PCBs
- for plugging the the female headers **BL 11 (SL 13 ...)** and **BL 12 (SL 14 ...)**.
- suitable for PCB thicknesses between 1,5 mm and 33 mm
- **separable!** any requested number of contact can be delivered
- one row  0.635 mm


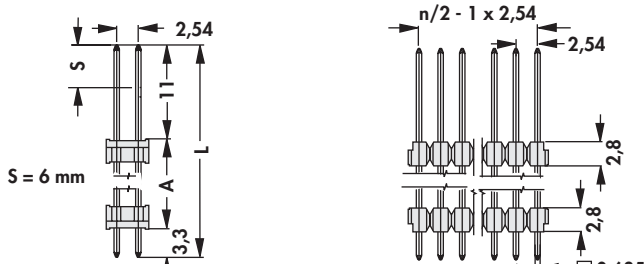
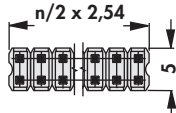




art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	L		A	L
<b>SL 13 071 ...</b>	7.1	21.4	<b>SL 13 235 ...</b>	23.5	37.8
<b>SL 13 097 ...</b>	9.7	24.0	<b>SL 13 265 ...</b>	26.5	40.8
<b>SL 13 122 ...</b>	12.2	26.5	<b>SL 13 310 ...</b>	31.0	45.3
<b>SL 13 147 ...</b>	14.7	29.0	<b>SL 13 365 ...</b>	36.5	50.8
<b>SL 13 187 ...</b>	18.7	33.0			

**please indicate:** ... no. of contacts one row 1 - 36

... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

- two rows,  0.635 mm

art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	L		A	L
<b>SL 14 071 ...</b>	7.1	21.4	<b>SL 14 235 ...</b>	23.5	37.8
<b>SL 14 097 ...</b>	9.7	24.0	<b>SL 14 265 ...</b>	26.5	40.8
<b>SL 14 122 ...</b>	12.2	26.5	<b>SL 14 310 ...</b>	31.0	45.3
<b>SL 14 147 ...</b>	14.7	29.0	<b>SL 14 365 ...</b>	36.5	50.8
<b>SL 14 187 ...</b>	18.7	33.0			

**please indicate:** ... no. of contacts two rows 2 - 72

... surface of contact  
**S** = selective gold-plated  
**G** = gold-plated  
**Z** = tin-plated

Female headers 2.54 THT  
 Direct female connectors  
 Female headers 2.54 SMD  
 Female headers 2.54 press-fit

→ G 52  
 → G 75  
 → G 58 - 63  
 → G 50 - 66

Jumpers  
 High-prec. male headers 2.54 THT  
 Female headers for PC 104  
 Technical data

→ G 76 - 77  
 → G 45 - 55  
 → G 55 - 56  
 → G 78 - 84

A

**Design specification for connectors, grid spacing 2.54 mm**

B

date: \_\_\_\_\_  
 pieces per order: \_\_\_\_\_  
 company: \_\_\_\_\_  
 name, dept.: \_\_\_\_\_  
 town: \_\_\_\_\_  
 street: \_\_\_\_\_  
 fax: \_\_\_\_\_  
 signature: \_\_\_\_\_

D

- inquiry  
 order

E

**surface finish**

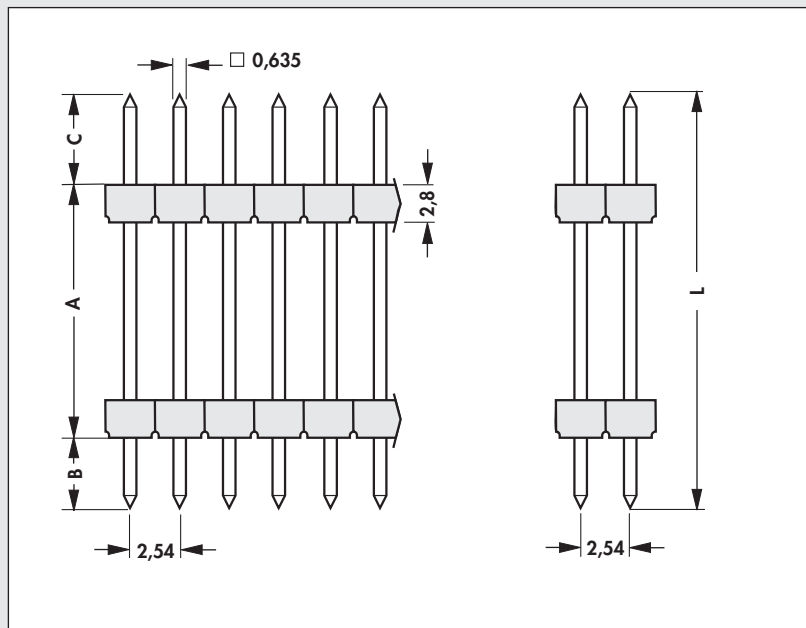
- selective gold-plated  
 gold-plated  
 tin-plated

- one row 1 - 36 contacts possible  
 two rows 2 - 72 contacts possible

number of contacts

F

G


**dimensions:**

L

A

B

C

L = total contact length  
 A = distance between PCBs  
 B = solder side  
 C = insertion side

M

N

**G 15**

Female headers 2.54 THT  
 Direct female connectors  
 Female headers 2.54 SMD  
 Female headers 2.54 press-fit

→ G 52  
 → G 75  
 → G 58 - 63  
 → G 50 - 66

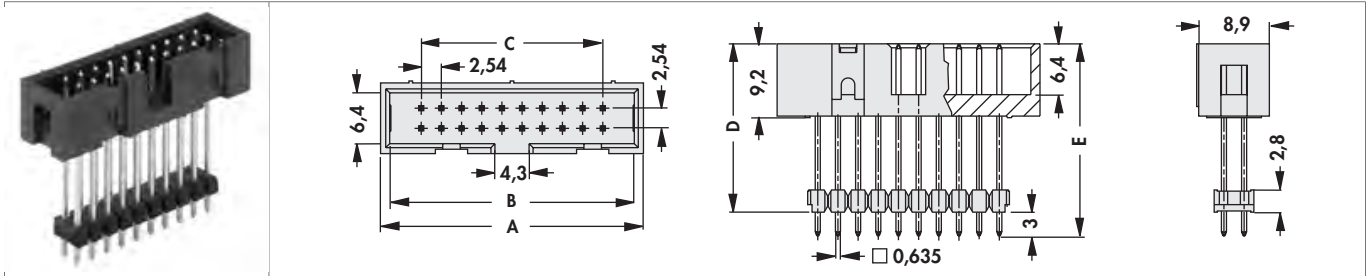
Jumpers  
 High-prec. male headers 2.54 THT  
 Female headers for PC 104  
 Technical data

→ G 76 - 77  
 → G 45 - 55  
 → G 55 - 56  
 → G 78 - 84

Male headers

Shrouded male header, with coding and bolting device

– suitable for many flat cable connectors in 2.54 mm pitch



art. no.	no. of contacts	dim. [mm]				
		A	B	C	D	E
SLU 10 165 ...	10	20.4	17.8	10.16	13.5	16.5
SLU 10 191 ...	10	20.4	17.8	10.16	16.1	19.1
SLU 10 241 ...	10	20.4	17.8	10.16	21.1	24.1
SLU 10 266 ...	10	20.4	17.8	10.16	23.6	26.6
SLU 16 165 ...	16	28.0	25.4	17.78	13.5	16.5
SLU 16 191 ...	16	28.0	25.4	17.78	16.1	19.1
SLU 16 241 ...	16	28.0	25.4	17.78	21.1	24.1
SLU 16 266 ...	16	28.0	25.4	17.78	23.6	26.6
SLU 20 165 ...	20	33.1	30.5	22.86	13.5	16.5
SLU 20 191 ...	20	33.1	30.5	22.86	16.1	19.1
SLU 20 241 ...	20	33.1	30.5	22.86	21.1	24.1
SLU 20 266 ...	20	33.1	30.5	22.86	23.6	26.6
SLU 26 165 ...	26	40.7	38.1	30.48	13.5	16.5
SLU 26 191 ...	26	40.7	38.1	30.48	16.1	19.1
SLU 26 241 ...	26	40.7	38.1	30.48	21.1	24.1
SLU 26 266 ...	26	40.7	38.1	30.48	23.6	26.6
SLU 40 165 ...	40	58.5	55.9	48.26	13.5	16.5
SLU 40 191 ...	40	58.5	55.9	48.26	16.1	19.1
SLU 40 241 ...	40	58.5	55.9	48.26	21.1	24.1
SLU 40 266 ...	40	58.5	55.9	48.26	23.6	26.6
SLU 50 165 ...	50	71.2	68.6	60.96	13.5	16.5
SLU 50 191 ...	50	71.2	68.6	60.96	16.1	19.1
SLU 50 241 ...	50	71.2	68.6	60.96	21.1	24.1
SLU 50 266 ...	50	71.2	68.6	60.96	23.6	26.6

please indicate: ... surface of contact  
**S** = selective gold-plated  
**Z** = tin-plated

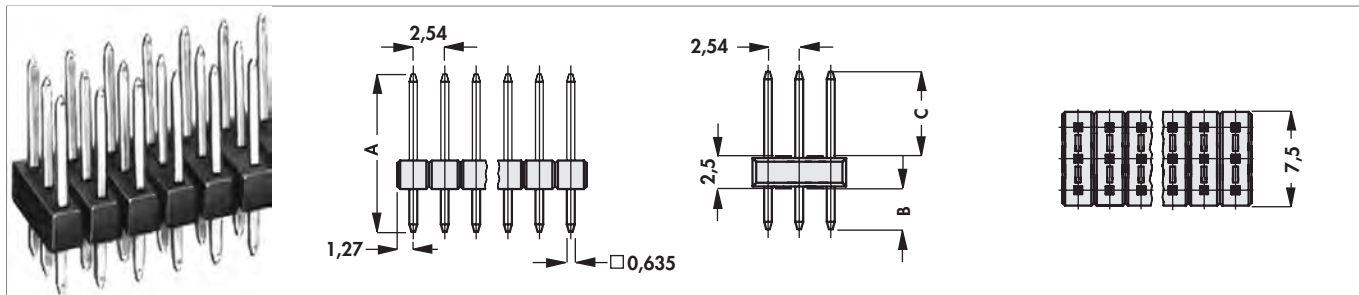
A

Male headers

B

C

Three rows, □ 0.635 mm

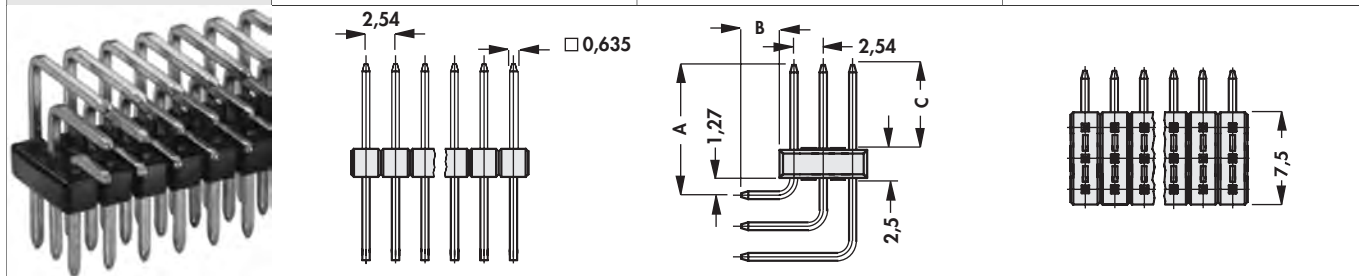


D

art. no.	dim. [mm]		
	A	B	C
SL KG 3 113 ...	11.3	3.3	5.5
SL KG 3 126 ...	12.6	3.3	6.8
SL KG 3 147 ...	14.7	3.3	8.9

E

F



G

art. no.	dim. [mm]		
	A	B	C
SL KA 3 072 ...	7.2	3.3	3.4
SL KA 3 085 ...	8.5	3.3	4.7
SL KA 3 108 ...	10.8	3.3	7.0

please indicate: ... no. of contacts three rows 3 - 150 ... surface of contact G = gold-plated Z = tin-plated

H

I

K

L

M

N

G 17

Female headers 2.54 THT  
 Direct female connectors  
 Female headers 2.54 SMD  
 Female headers 2.54 press-fit

→ G 52  
 → G 75  
 → G 58 - 63  
 → G 50 - 66

Jumpers  
 High-prec. male headers 2.54 THT  
 Female headers for PC 104  
 Technical data

→ G 76 - 77  
 → G 45 - 55  
 → G 55 - 56  
 → G 78 - 84

Male headers

Precision contacts, plug pins Ø 0.5 mm

<p>art. no.</p> <p><b>MK 26 SMD ...</b></p>					
<p>please indicate:</p>	<p>... no. of contacts one row 4 - 20</p>	<p>... surface of contact <b>G</b> = gold-plated <b>Z</b> = tin-plated</p>	<p>... packing (optional)</p> <p><b>SM</b> = bar magazine <b>B SM</b> = pick and place pad and bar magazine <b>B TR</b> = pick and place pad and tape and reel (250pcs/reel)</p>		

... packing (option) - additions:  
MK 26 SMD ... B TR: 4-12 contacts

Option, for automatic assembly

– reel diameter Ø 330 mm

			<p>MK 26 SMD ... SM</p>	<p>MK 26 SMD ... B SM</p>
<p>... SM</p> <p>... B SM</p>	<p>MK 26 SMD ... B TR</p>			
<p>... B TR</p>				

## Male headers

## Precision contacts, plug pins Ø 0.5 mm

art. no.  <b>MK 226 SMD ...</b>					
please indicate:	... no. of contacts two rows 4 - 40	... surface of contact <b>G</b> = gold-plated <b>Z</b> = tin-plated	... packing (optional) <b>SM</b> = bar magazine <b>B SM</b> = pick and place pad and bar magazine <b>B TR</b> = pick and place pad and tape and reel (250pcs/reel)		

... packing (option) - additions:

MK 226 SMD ... SM; ... B SM: 6-40 contacts

MK 226 SMD ... B TR: 6-24 contacts

## Option, for automatic assembly

– reel diameter Ø 330 mm

... SM ... B SM				
... B TR	MK 226 SMD ... B TR			



Male headers

Precision contacts, plug pins Ø 0.5 mm

<p>art. no.</p> <p><b>MK 27 SMD ...</b></p>			
<p>please indicate: ... no. of contacts one row 2 - 20</p>		<p>... surface of contact  <b>G = gold-plated</b>  <b>Z = tin-plated</b></p>	<p>... packing (optional)  <b>SM = bar magazine</b></p>

... packing (option) - additions:  
 MK 27 SMD ... SM: 3-20 contacts

Option, for automatic assembly

<p>... SM</p>	

- Female headers 2.54 THT → G 52
- Female headers 2.54 SMD → G 58 - 63
- Female headers 2.54 press-fit → G 66
- Female headers 1.27 SMD → G 73

- G 52
- G 58 - 63
- G 66
- G 73

- Female headers 2.00 SMD → G 68
- High-precision female headers THT → G 2 - 6
- High-prec. male headers 2.54 THT → G 45 - 55
- Technical data → G 78 - 84

- G 68
- G 2 - 6
- G 45 - 55
- G 78 - 84

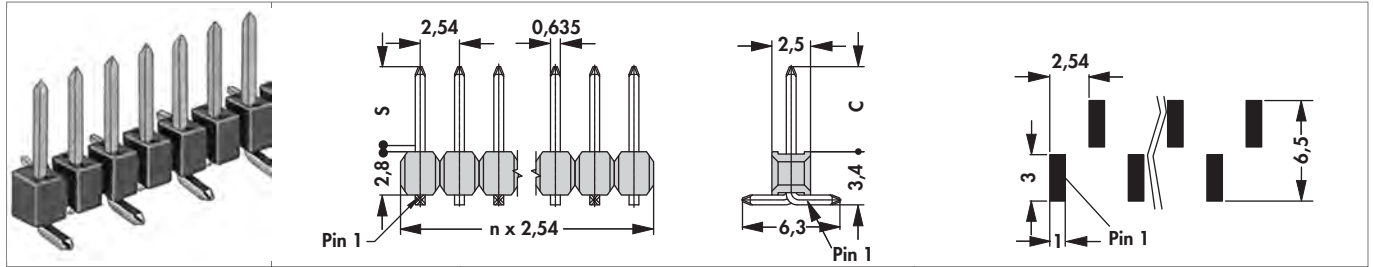
A

Male headers

B

□ 0.635 mm

C



D

art. no.	dim. [mm] C	art. no.	dim. [mm] C	art. no.	dim. [mm] C
SL 10 SMD 040 ...	4.0	SL 10 SMD 062 ...	6.7	SL 10 SMD 104 ...	10.8
SL 10 SMD 052 ...	5.5	SL 10 SMD 078 ...	8.2	SL 10 SMD 130 ...	13.4

E

please indicate:

... no. of contacts one row 4 - 20	... surface of contact S = selective gold-plated G = gold-plated Z = tin-plated	... packing SM = bar magazine B SM = pick and place pad and bar magazine B TR = pick and place pad and tape and reel (250pcs/reel)
---------------------------------------	--	---

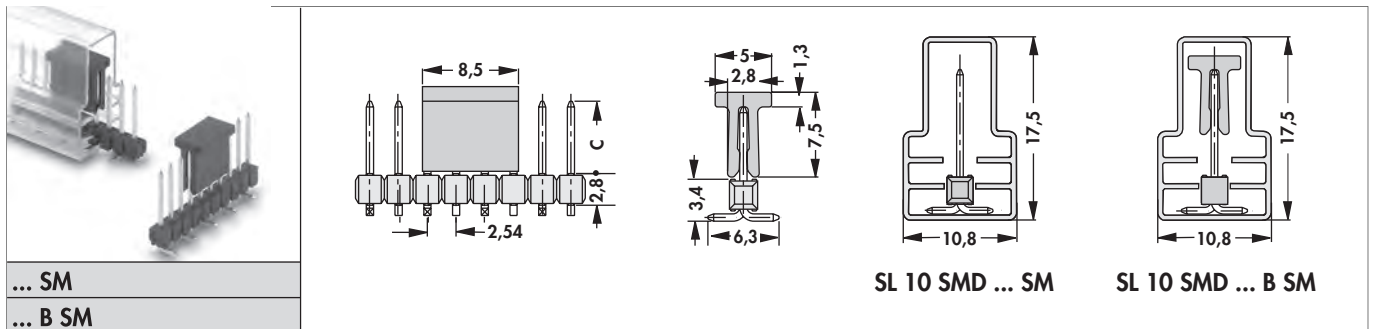
F

... packing (option) - additions:  
SL 10 SMD 040-104 ... SM; ... B SM: 4-20 contacts  
SL 10 SMD 040-078 ... B TR: 4-12 contacts

Option, for automatic assembly

- reel diameter Ø 330 mm

G



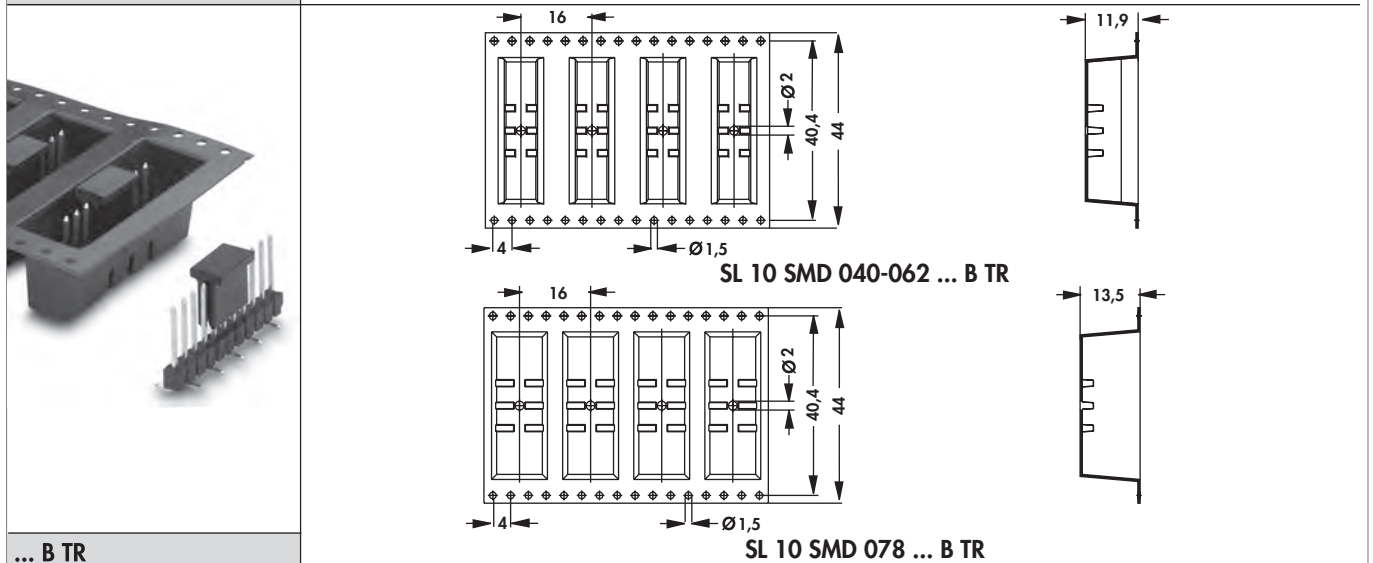
H

I

K

L

M



N

G 21

Male headers 2.54 THT  
Male headers 2.00 SMD  
Jumpers  
Female headers for PC 104

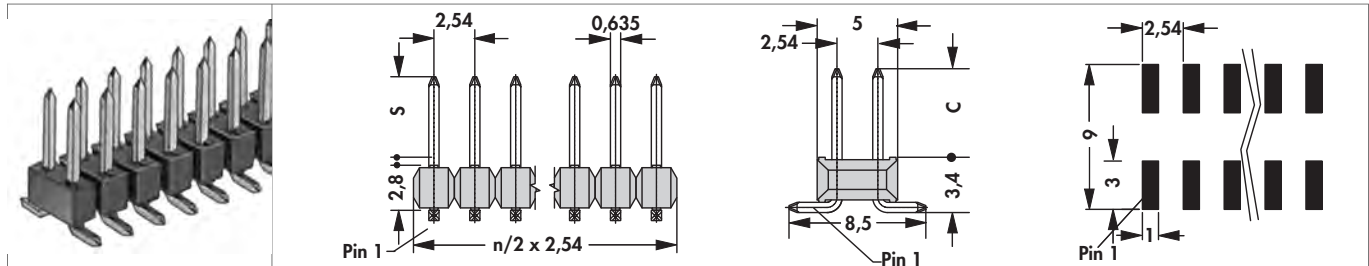
→ G 7  
→ G 33 - 35  
→ G 76 - 77  
→ G 55 - 56

High-prec. fem. headers 2.54 THT  
Female headers 2.00 SMD  
Female headers 2.54 press-fit  
Technical data

→ G 53 - 56  
→ G 68  
→ G 66  
→ G 78 - 84

Male headers

□ 0.635 mm



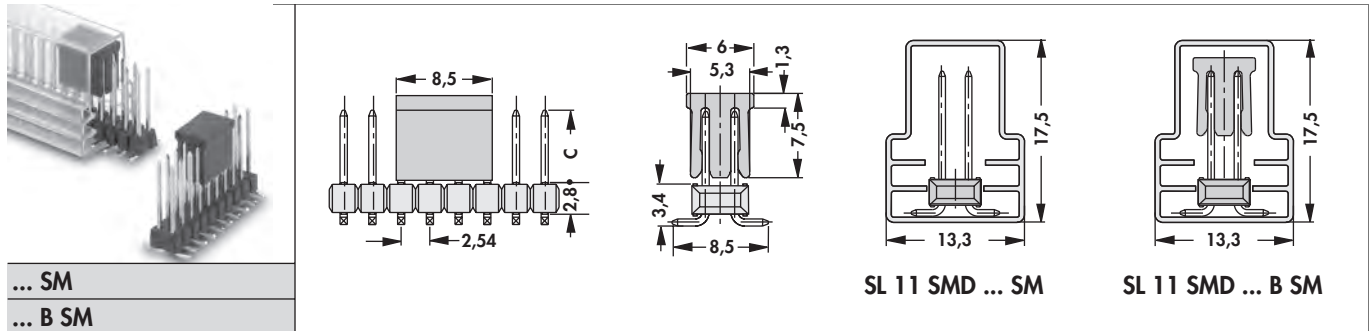
art. no.	dim. [mm]	art. no.	dim. [mm]	art. no.	dim. [mm]
	C		C		C
SL 11 SMD 040 ...	4.0	SL 11 SMD 062 ...	6.7	SL 11 SMD 104 ...	10.8
SL 11 SMD 052 ...	5.5	SL 11 SMD 078 ...	8.2	SL 11 SMD 130 ...	13.4

please indicate: ... no. of contacts two rows 4 - 40      ... surface of contact S = selective gold-plated G = gold-plated Z = tin-plated      ... packing (optional) SM = bar magazine B SM = pick and place pad and bar magazine B TR = pick and place pad and tape and reel (250pcs/reel)

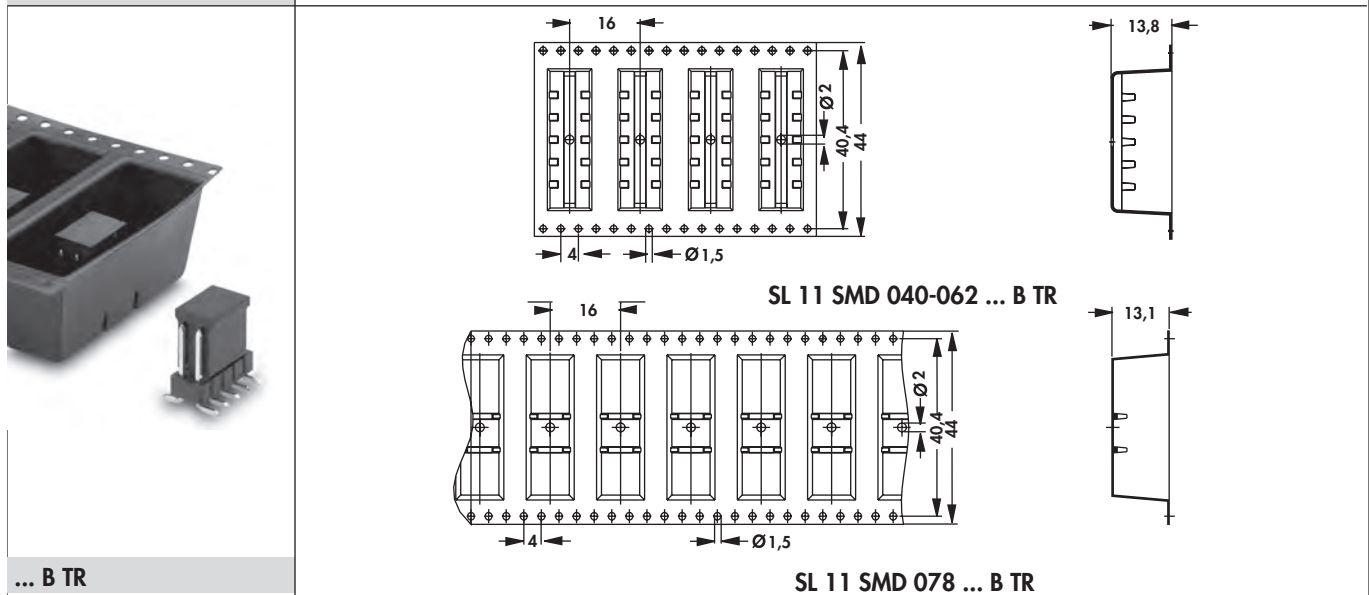
... packing (option) - additions:  
 SL 11 SMD 040-104 ... SM; ... B SM: 6-40 contacts  
 SL 11 SMD 040-078 ... B TR: 6-24 contacts

Option, for automatic assembly

– reel diameter Ø 330 mm



... SM  
 ... B SM



... B TR

Female headers for PC 104 Jumpers  
 Female headers for PC 104 Direct female connectors

→ G 55 - 56  
 → G 76 - 77  
 → G 55 - 56  
 → G 75

High-prec. male headers 2.54 THT  
 Female headers 2.54 THT  
 Female headers 2.54 SMD  
 Technical data

→ G 45 - 55  
 → G 52  
 → G 58 - 63  
 → G 78 - 84

A

B

C

D

E

F

G

H

I

K

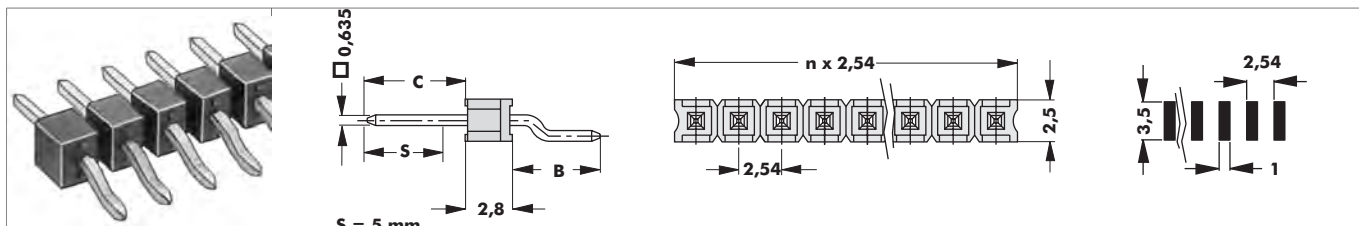
L

M

N

# Male headers

□ 0.635 mm



art. no.	dim. [mm]		art. no.	dim. [mm]		art. no.	dim. [mm]	
	B	C		B	C		B	C
SL 12 SMD 031 ...	5.2	3.1	SL 12 SMD 035 ...	3.2	3.5	SL 12 SMD 083 ...	5.2	8.3
SL 12 SMD 032 ...	3.2	5.8	SL 12 SMD 058 ...	5.2	5.8	SL 12 SMD 109 ...	5.2	10.9

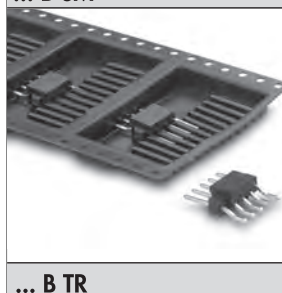
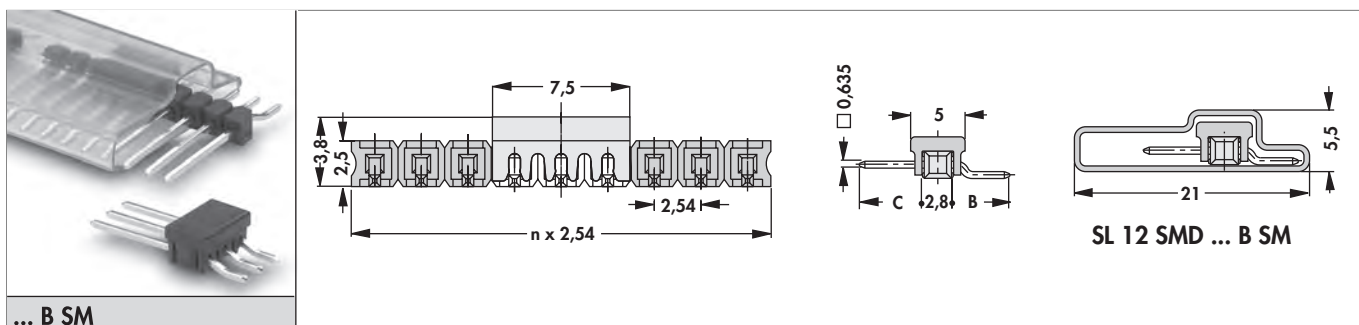
**please indicate:**

- ... no. of contacts one row 2 - 20
- ... surface of contact
  - S = selective gold-plated
  - G = gold-plated
  - Z = tin-plated
- ... packing (optional)
  - B SM = pick and place pad and bar magazine
  - B TR = pick and place pad and tape and reel (500pcs/reel)

... packing (option) - additions:  
SL 12 SMD ... B TR: 2-13 contacts

## Option, for automatic assembly

– reel diameter Ø 330 mm



SL 12 SMD 031-109 ... B TR

**G 23**

Female headers 2.54 press-fit  
Female headers 2.00 SMD  
Jumpers  
Female headers 2.54 THT

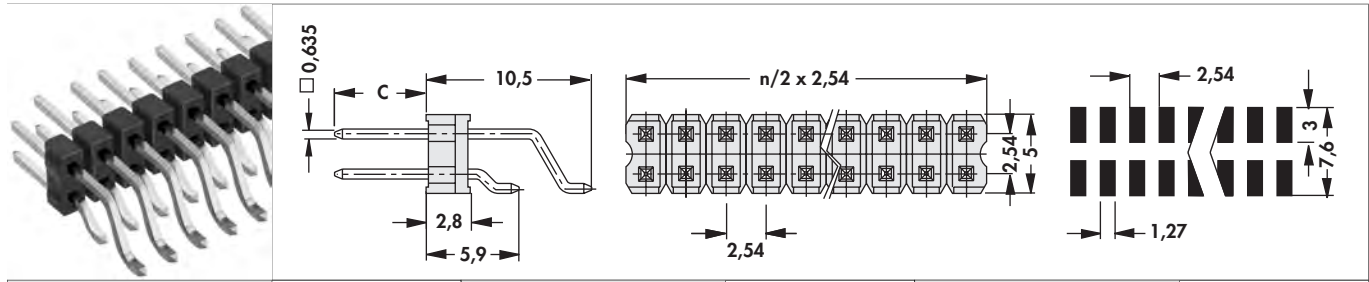
→ G 66  
→ G 68 – 69  
→ G 76 – 77  
→ G 52

High-prec. fem. headers 2.54 THT  
Direct female connectors  
Male headers 2.00 SMD  
Technical data

→ G 53 – 56  
→ G 75  
→ G 33 – 35  
→ G 78 – 84

Male headers

□ 0.635 mm

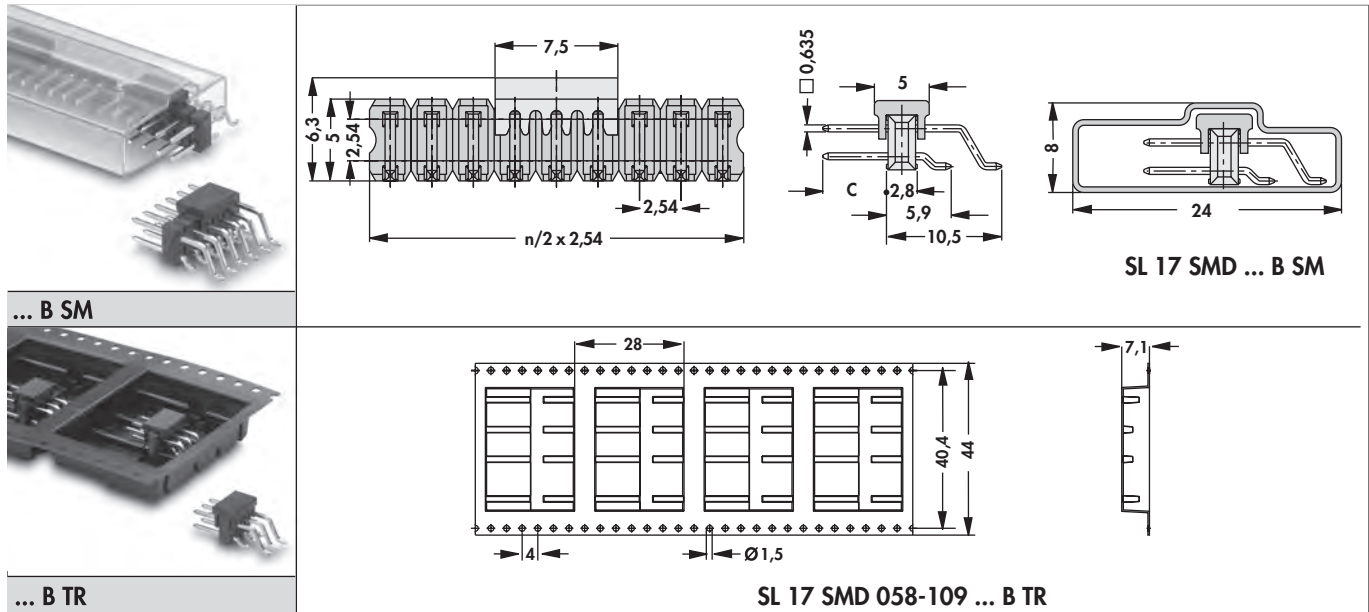


art. no.	dim. [mm] C	art. no.	dim. [mm] C	art. no.	dim. [mm] C
SL 17 SMD 058 ...	5.8	SL 17 SMD 083 ...	8.3	SL 17 SMD 109 ...	10.9
<p>please indicate: ... no. of contacts two rows 4 - 40</p> <p>... surface of contact G = gold-plated Z = tin-plated</p> <p>... packing (optional) B SM = pick and place pad and bar magazine B TR = pick and place pad and tape and reel (300pcs/reel)</p>					

... packing (option) - additions:  
SL 17 SMD ... B TR: 6-24 contacts

Option, for automatic assembly

- reel diameter Ø 330 mm



Female headers 2.54 press-fit  
Female headers 2.00 SMD  
Jumpers  
Female headers 2.54 THT

→ G 66  
→ G 68 - 69  
→ G 76 - 77  
→ G 52

High-prec. fem. headers 2.54 THT  
Direct female connectors  
Male headers 2.00 SMD  
Technical data

→ G 53 - 56  
→ G 75  
→ G 33 - 35  
→ G 78 - 84

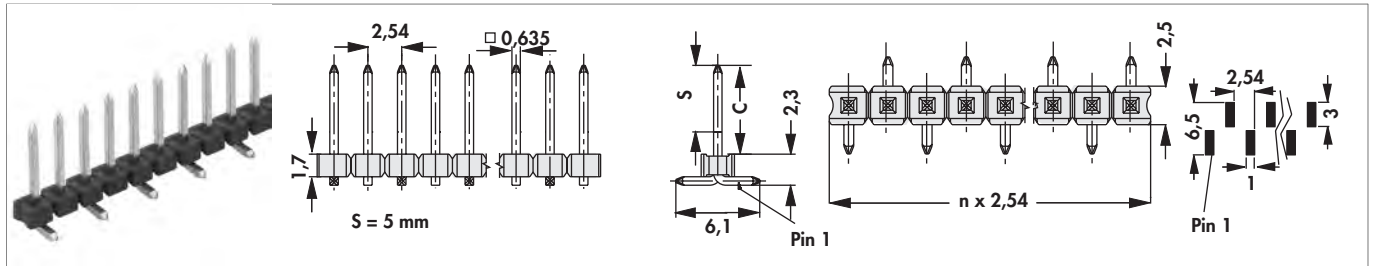
A

Male headers

B

Low profile in SMD □ 0.635 mm

C



D

art. no.	dim. [mm]	art. no.	dim. [mm]	art. no.	dim. [mm]
	C		C		C
SL LP 5 SMD 038 ...	3.8	SL LP 5 SMD 051 ...	5.1	SL LP 5 SMD 066 ...	6.6
<p>please indicate: ... no. of contacts one row 4-20</p> <p>... surface of contact                      S = selective gold-plated                      G = gold-plated                      Z = tin-plated</p> <p>... packing (optional)                      SM = bar magazine                      B SM = pick and place pad and bar magazine                      B TR = pick and place pad and tape and reel (250pcs/reel)</p>					

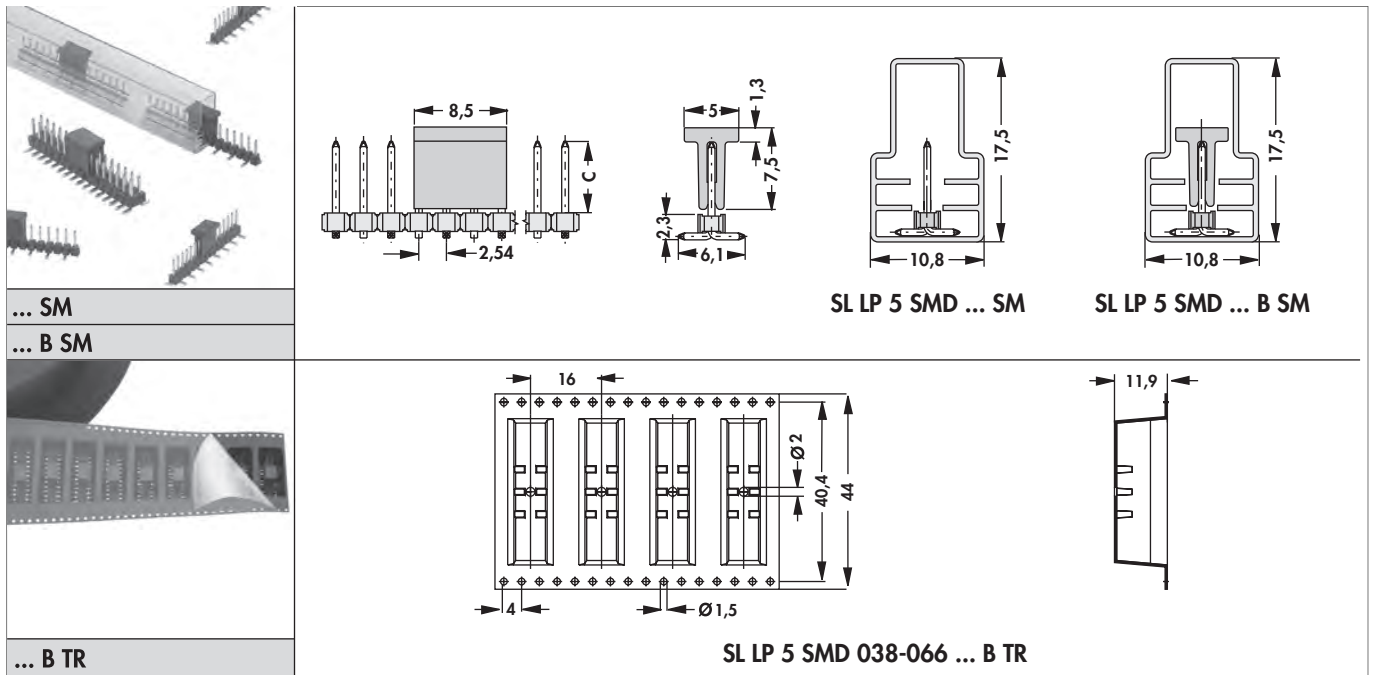
E

... packing (option) - additions:  
 SL LP 5 SMD ... SM; ... B SM: 4-20 contacts  
 SL LP 5 SMD ... B TR: 4-12 contacts

F

Option, for automatic assembly  
 – reel diameter Ø 330 mm

G



H

I

K

L

M

N

G 25

Female headers 1.27 THT  
 Female headers 2.00 SMD  
 Jumpers  
 Direct female connectors

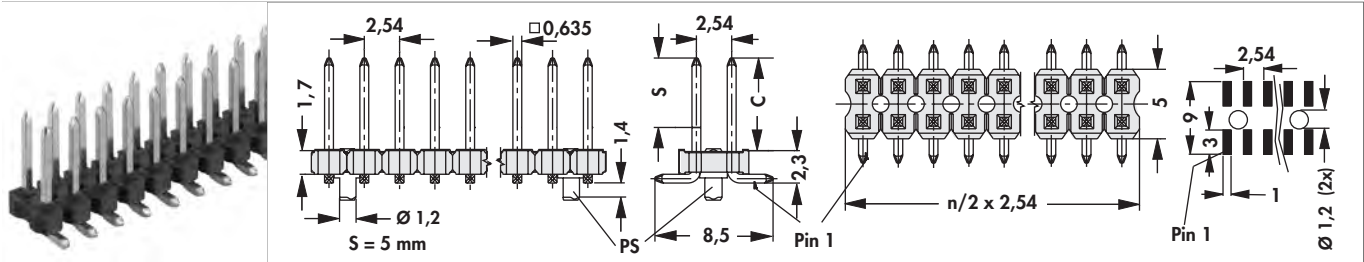
→ G 71  
 → G 68  
 → G 76 – 77  
 → G 75

High-prec. fem. headers 1.27 THT  
 High-prec. male head. 1.27 THT  
 Male headers 2.00 THT  
 Technical data

→ G 72  
 → G 42  
 → G 30 – 31  
 → G 78 – 84

Male headers

Low profile in SMD □ 0.635 mm

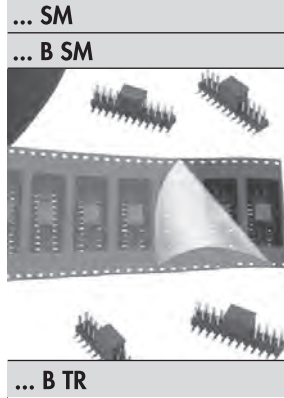
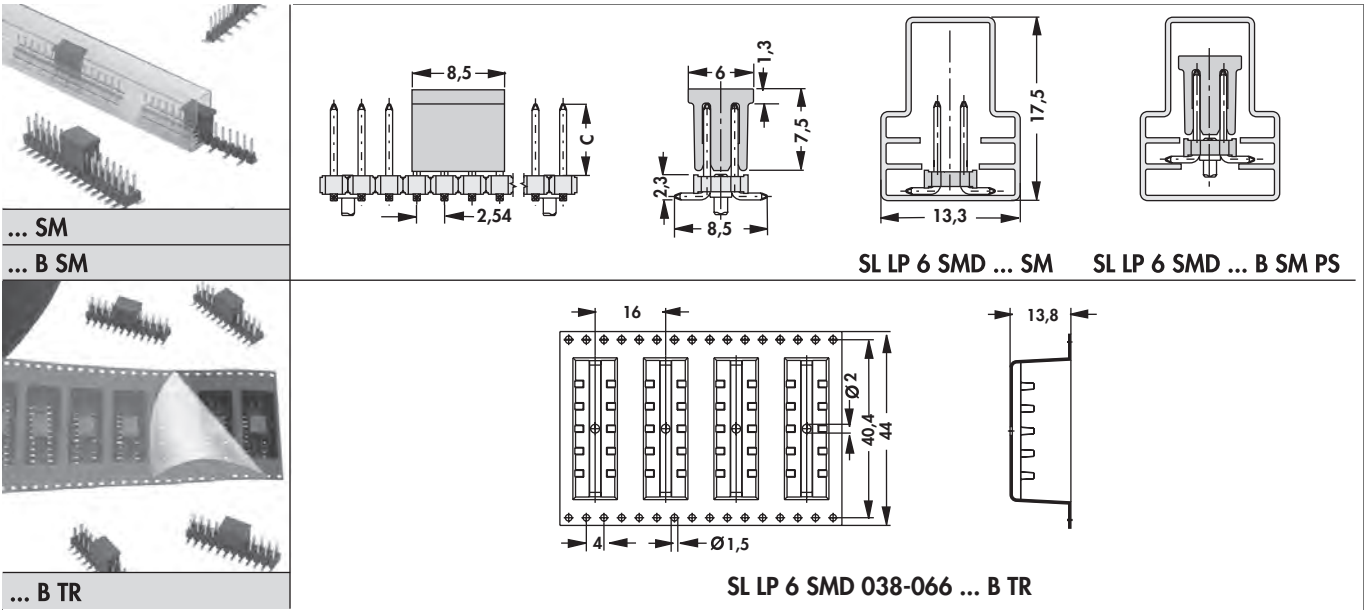


art. no.	dim. [mm]	art. no.	dim. [mm]	art. no.	dim. [mm]
	C		C		C
<b>SL LP 6 SMD 038 ...</b>	3.8	<b>SL LP 6 SMD 051 ...</b>	5.1	<b>SL LP 6 SMD 066 ...</b>	6.6
<b>please indicate:</b>	<b>... no. of contacts</b> two rows 4 - 40	<b>... surface of contact</b> S = selective gold-plated G = gold-plated Z = tin-plated		<b>... packing (optional)</b> SM = bar magazine B SM = pick and place pad and bar magazine B TR = pick and place pad and tape and reel (250pcs/reel)	

... packing (option) - additions:  
 SL LP 6 SMD ... SM; ... B SM: 6-40 contacts  
 SL LP 6 SMD ... B TR: 6-24 contacts

Option, for automatic assembly

– reel diameter Ø 330 mm



Female headers 1.27 THT  
 Female headers 2.00 SMD  
 Jumpers  
 Direct female connectors

→ G 71  
 → G 68  
 → G 76 – 77  
 → G 75

High-prec. fem. headers 1.27 THT  
 High-prec. male head. 1.27 THT  
 Male headers 2.00 THT  
 Technical data

→ G 72  
 → G 42  
 → G 30 – 31  
 → G 78 – 84

A

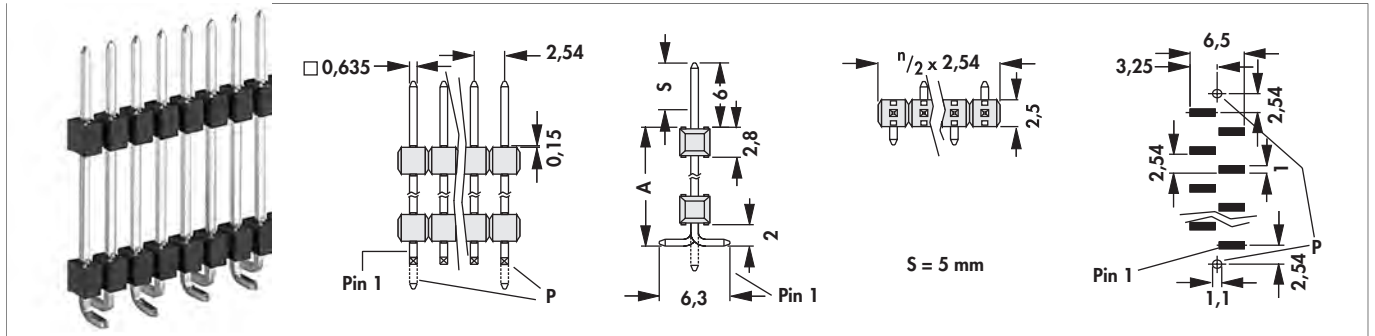
Male headers

B

□ 0.635 mm – for interconnections of stacked PCBs

- one row, 4-20 contacts
- within the total length of the pin the insulator can be changed according to customer's request

C



D

art. no.	dim. [mm]	art. no.	dim. [mm]	art. no.	dim. [mm]
	A		A		A
<b>SL 15 SMD 107 ...</b>	10.7	<b>SL 15 SMD 182 ...</b>	18.2	<b>SL 15 SMD 207 ...</b>	20.7

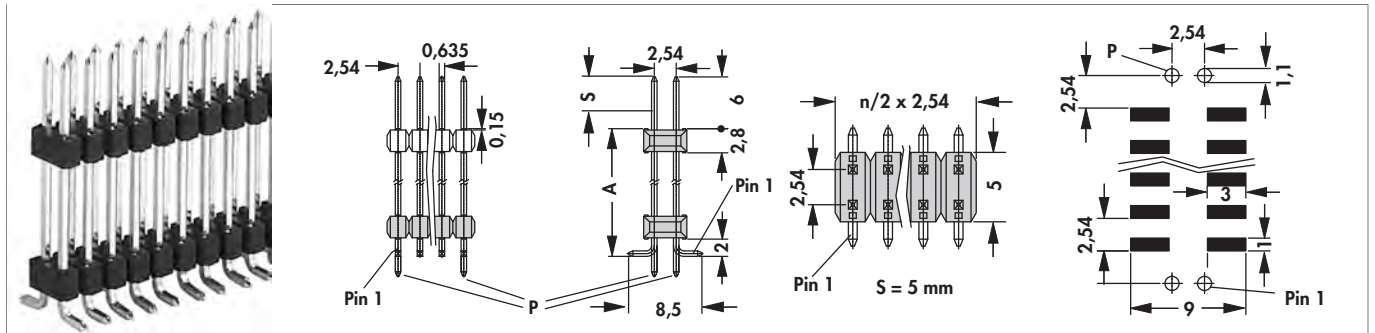
E

please indicate: ... no. of contacts one row 4 - 20 ... surface of contact  
**S = selective gold-plated**  
**G = gold-plated**  
**Z = tin-plated**

F

- two rows, 4-40 contacts
- within the total length of the insulator can be changed according to customer's request

G



H

art. no.	dim. [mm]	art. no.	dim. [mm]	art. no.	dim. [mm]
	A		A		A
<b>SL 16 SMD 107 ...</b>	10.7	<b>SL 16 SMD 182 ...</b>	18.2	<b>SL 16 SMD 247 ...</b>	24.7
<b>SL 16 SMD 157 ...</b>	15.7	<b>SL 16 SMD 207 ...</b>	20.7		

I

please indicate: ... no. of contacts two rows 4 - 40 ... surface of contact  
**S = selective gold-plated**  
**G = gold-plated**  
**Z = tin-plated**

K

L

M

N

G 27

- |                                  |             |                                  |             |
|----------------------------------|-------------|----------------------------------|-------------|
| Male headers 2.00 SMD            | → G 33 – 35 | Jumpers                          | → G 76 – 77 |
| High-prec. male headers 1.27 SMD | → G 43      | High-prec. fem. headers 2.54 THT | → G 53 – 56 |
| Male headers 2.54 THT            | → G 7       | Female headers 2.00 SMD          | → G 68      |
| Female headers 1.27 THT          | → G 71      | Technical data                   | → G 78 – 84 |



## Male headers

### Male connectors

- press-fit mounting without soldering, resilient press-fit area, easy insertion into the PCB
- **separable!** any requested number of contact can be delivered
- **contact material:** Cu Sn 6

- one row, 1-36 contacts
- for PCB thickness  $\geq 1.6$  mm dimension B = 3.5 mm and  $\geq 3.0$  mm dimension B = 4.5 mm

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
SLP 1 16 117 ...	11.7	3.5	5.4	SLP 1 16 195 ...	19.5	3.5	13.2
SLP 1 16 129 ...	12.9	3.5	6.6	SLP 1 32 139 ...	13.9	4.5	6.6
SLP 1 16 144 ...	14.4	3.5	8.1	SLP 1 32 164 ...	16.4	4.5	9.1

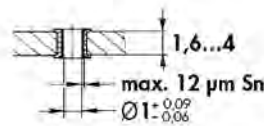
please indicate: ... no. of contacts one row 1-36 ... surface of contact G = gold-plated Z = tin-plated

- two rows, 2-72 contacts
- for PCB thickness  $\geq 1.6$  mm dimension B = 3.5 mm and  $\geq 3.0$  mm dimension B = 4.5 mm

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
SLP 2 16 117 ...	11.7	3.5	5.4	SLP 2 16 195 ...	19.5	3.5	13.2
SLP 2 16 129 ...	12.9	3.5	6.6	SLP 2 32 139 ...	13.9	4.5	6.6
SLP 2 16 144 ...	14.4	3.5	8.1	SLP 2 32 164 ...	16.4	4.5	9.1

please indicate: ... no. of contacts two rows 2-72 ... surface of contact G = gold-plated Z = tin-plated

### Hole diameter in PCB - hole structure acc. to DIN EN 60352-5



Male headers 2.00 SMD

High-prec. male headers 1.27 SMD

Male headers 2.54 THT

Female headers 1.27 THT

→ G 33 - 35

→ G 43

→ G 7

→ G 71

Jumpers

High-prec. fem. headers 2.54 THT

Female headers 2.00 SMD

Technical data

→ G 76 - 77

→ G 53 - 56

→ G 68

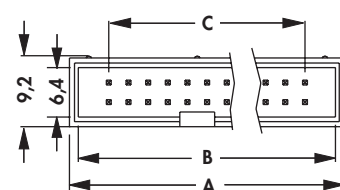
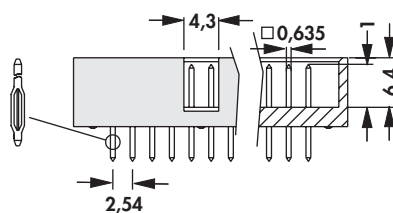
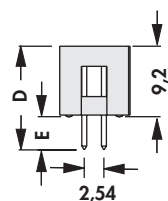
→ G 78 - 84

G 28

## Male headers

### Male header with shroud

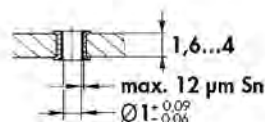
- suitable for lockable female multipoint connector **VFL** and can be combined with many other female multipoint connectors with grid spacing 2.54 mm (e. g.: **PV, BL**)
- press-fit mounting without soldering, resilient press-fit area, easy insertion into PCB
- **contact material:** Cu Sn 6



art. no.	no. of contacts	dim. [mm]				
		A	B	C	D	E
<b>SLUP 31 10 ...</b>	10	20.4	17.8	10.16	12.6	3.5
<b>SLUP 31 16 ...</b>	16	28.0	25.4	17.78	12.6	3.5
<b>SLUP 31 20 ...</b>	20	33.1	30.5	22.86	12.6	3.5

**please indicate:** ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

### Hole diameter in PCB - hole structure acc. to DIN EN 60352-5


**G 29**

Male headers 2.00 SMD  
 High-prec. male headers 1.27 SMD  
 Male headers 2.54 THT  
 Female headers 1.27 THT

→ G 33 – 35  
 → G 43  
 → G 7  
 → G 71

Jumpers  
 High-prec. fem. headers 2.54 THT  
 Female headers 2.00 SMD  
 Technical data

→ G 76 – 77  
 → G 53 – 56  
 → G 68  
 → G 78 – 84

Male headers

Standard, □ 0.5 mm

– any requested number of contact is available

<b>art. no.</b>	dim. [mm]			<b>art. no.</b>	dim. [mm]		
	A	B	C		A	B	C
<b>SLY 1 081 ...</b>	8.1	3	3.6	<b>SLY 1 104 ...</b>	10.4	3	5.9
<b>SLY 1 085 ...</b>	8.5	3	4.0	<b>SLY 1 139 ...</b>	13.9	3	9.4
<b>SLY 1 098 ...</b>	9.8	3	5.3				
<b>art. no.</b>	dim. [mm]			<b>art. no.</b>	dim. [mm]		
	A	B	C		A	B	C
<b>SLY 2 081 ...</b>	8.1	3	3.6	<b>SLY 2 104 ...</b>	10.4	3	5.9
<b>SLY 2 085 ...</b>	8.5	3	4.0	<b>SLY 2 139 ...</b>	13.9	3	9.4
<b>SLY 2 098 ...</b>	9.8	3	5.3				
<b>art. no.</b>	dim. [mm]			<b>art. no.</b>	dim. [mm]		
	A	B	C		A	B	C
<b>SLY 3 035 ...</b>	1.5	2.8	3.5	<b>SLY 3 082 ... G</b>	1.5	2.8	8.2
<b>SLY 3 041 ...</b>	1.5	2.8	4.1	<b>SLY 3 082 ... Z</b>	1.5	2.8	8.2
<b>art. no.</b>	dim. [mm]			<b>art. no.</b>	dim. [mm]		
	A	B	C		A	B	C
<b>SLY 4 035 ...</b>	1.5	2.8	3.5	<b>SLY 4 082 ... G</b>	1.5	2.8	8.2
<b>SLY 4 041... G</b>	1.5	2.8	4.1	<b>SLY 4 082 ... Z</b>	1.5	2.8	8.2
<b>SLY 4 041... Z</b>	1.5	2.8	4.1				
<b>please indicate:</b>	... no. of contacts one row 1 - 50 two rows 4 - 100			... surface of contact S = selective gold-plated G = gold-plated Z = tin-plated			

Female headers 2.00 THT  
Female headers 2.00 SMD  
Jumpers  
Connector-sleeves

→ G 67  
→ G 68 - 70  
→ G 76 - 77  
→ F 19 - 20

Female headers 2.54 THT  
Male headers 2.00 THT  
Direct female connectors  
Technical data

→ G 52  
→ G 30 - 31  
→ G 75  
→ G 78 - 84


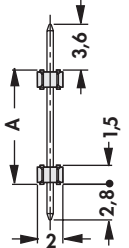
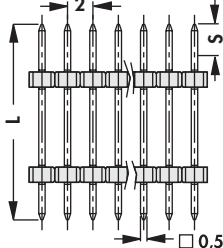
G 30

## Male headers

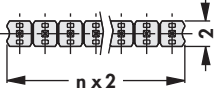
## Design, matching for BLY ...

- are used for interconnections of stacked PCBs
- within the total length of the pin the insulator position can be changed as required ... **Design specification-sheet**
- **separable!** any requested number of contact can be delivered

– one row, □ 0.5 mm

S = 3,5 mm


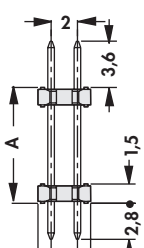
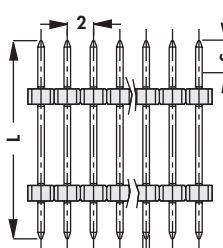


art. no.	dim. [mm]	
	A	L
<b>SLY 5 040 ...</b>	4.0	10.4
<b>SLY 5 075 ...</b>	7.5	13.9
<b>SLY 5 081 ... G</b>	8.1	14.5
<b>SLY 5 081 ... Z</b>	8.1	14.5
<b>SLY 5 122 ... G</b>	12.2	18.6
<b>SLY 5 122 ... Z</b>	12.2	18.6

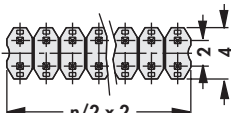
**please indicate:** ... no. of contacts one row 1 - 50

**... surface of contact**  
**S = selective gold-plated**  
**G = gold-plated**  
**Z = tin-plated**

– two rows, □ 0.5 mm

S = 3,5 mm



art. no.	dim. [mm]	
	A	L
<b>SLY 6 040 ...</b>	4.0	10.4
<b>SLY 6 075 ...</b>	7.5	13.9
<b>SLY 6 081 ... G</b>	8.1	14.5
<b>SLY 6 081 ... Z</b>	8.1	14.5
<b>SLY 6 122 ... G</b>	12.2	18.6
<b>SLY 6 122 ... Z</b>	12.2	18.6

**please indicate:** ... no. of contacts two rows 2 - 100

**... surface of contact**  
**S = selective gold-plated**  
**G = gold-plated**  
**Z = tin-plated**

**Design specification for connectors, grid spacing 2 mm**

date: \_\_\_\_\_  
 pieces per order: \_\_\_\_\_  
 company: \_\_\_\_\_  
 name, dept.: \_\_\_\_\_  
 town: \_\_\_\_\_  
 street: \_\_\_\_\_  
 fax: \_\_\_\_\_  
 signature: \_\_\_\_\_

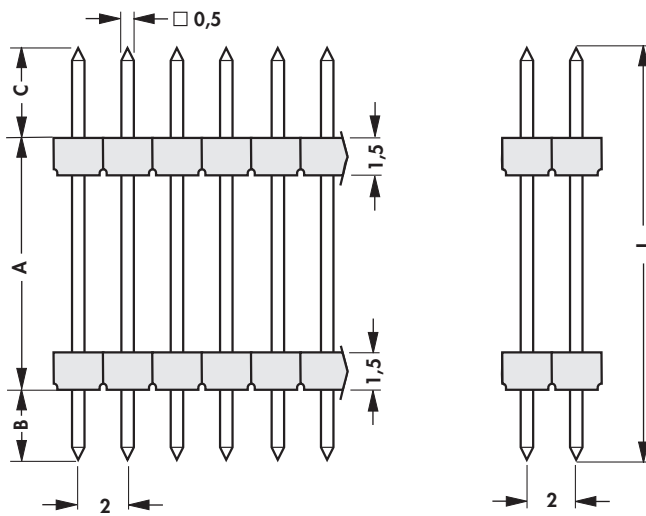
- inquiry
- order

**surface finish**

- selective gold-plated
- gold-plated
- tin-plated

- one row 1 - 50 contacts possible
- two rows 2 - 100 contacts possible

number of contacts



**dimensions:**

L

A

B

C

- L = total contact length
- A = distance between PCBs
- B = solder side
- C = insertion side

Female headers 2.00 SMD  
 Female headers 2.00 THT  
 Direct female connectors  
 Jumpers

→ G 68 - 70  
 → G 67  
 → G 75  
 → G 76 - 77

Male headers 2.54 THT  
 Single contacts metal strip  
 Male headers 2.00 THT  
 Technical data

→ G 7  
 → G 49  
 → G 30 - 31  
 → G 78 - 84

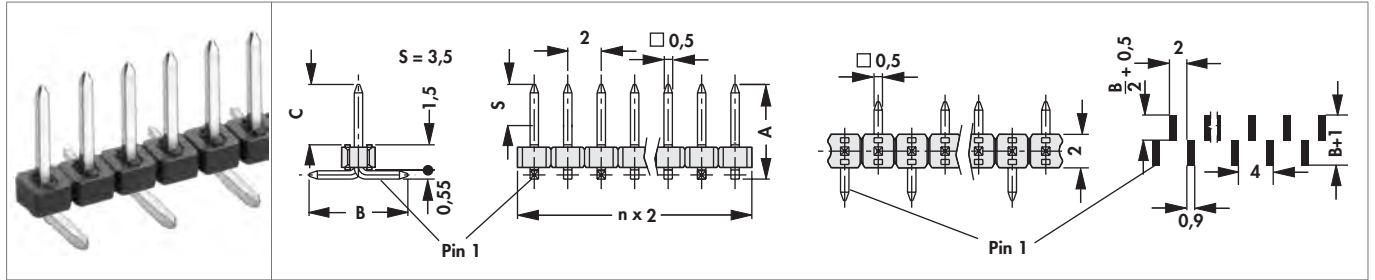
A

Male headers

□ 0.5 mm

B

C



D

art. no.	dim. [mm]			
	A	B	C	S
<b>SLY 7 SMD 036 ...</b>	5.6	6.3	3.6	3.0
<b>SLY 7 SMD 045 ...</b>	6.5	4.6	4.5	3.5
<b>SLY 7 SMD 062 ...</b>	8.2	4.6	6.2	3.5

E

please indicate: ... no. of contacts one row 4 - 20      ... surface of contact S = selective gold-plated G = gold-plated Z = tin-plated      ... packing (optional) SM = bar magazine B SM = pick and place pad and bar magazine B TR = pick and place pad and tape and reel (650pcs/reel)

F

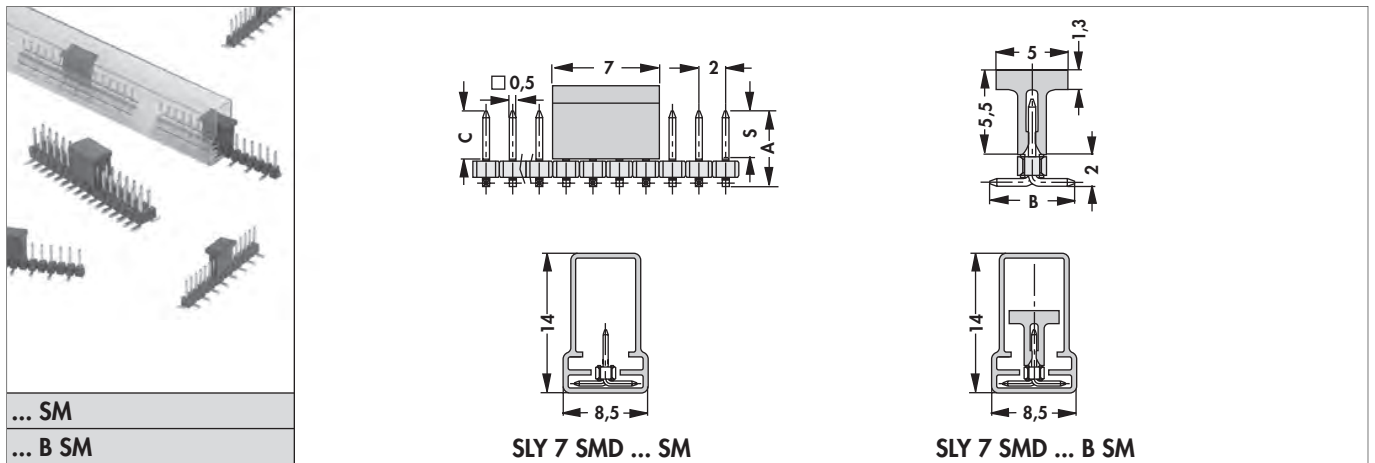
... packing (option) - additions:  
**SLY 7 SMD 036-045 ... B TR: 4-15 contacts**

G

Option, for automatic assembly

- reel diameter Ø 330 mm

H

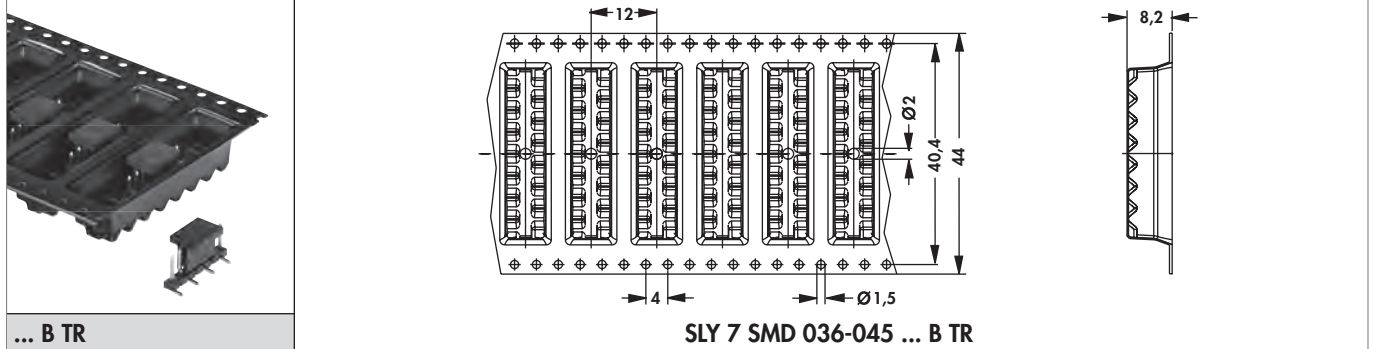


... SM  
 ... B SM

SLY 7 SMD ... SM

SLY 7 SMD ... B SM

K



... B TR

SLY 7 SMD 036-045 ... B TR

M

N

G 33

Female headers 2.00 SMD  
 Female headers 2.00 THT  
 Direct female connectors  
 Jumpers

→ G 68 - 70  
 → G 67  
 → G 75  
 → G 76 - 77

Male headers 2.54 THT  
 Single contacts metal strip  
 Male headers 2.00 THT  
 Technical data

→ G 7  
 → G 49  
 → G 30 - 31  
 → G 78 - 84

Male headers

□ 0.5 mm

art. no.	dim. [mm]			
	A	B	C	S
<b>SLY 8 SMD 036 ...</b>	5.6	8.5	3.6	3.0
<b>SLY 8 SMD 045 ...</b>	6.5	6.5	4.5	3.5
<b>SLY 8 SMD 062 ...</b>	8.2	6.5	6.2	3.5

**please indicate:**

- ... no. of contacts two rows 4 - 40
- ... surface of contact
  - S = selective gold-plated
  - G = gold-plated
  - Z = tin-plated
- ... packing (optional)
  - SM = bar magazine
  - B SM = pick and place pad and bar magazine
  - B TR = pick and place pad and tape and reel (650pcs/reel)

... packing (option) - additions:  
**SLY 8 SMD ... SM; ... B SM: 6-40 contacts**  
**SLY 8 SMD 036-045 ... B TR: 6-30 contacts**

Option, for automatic assembly

– reel diameter Ø 330 mm

**... SM**  
**... B SM**

**SLY 8 SMD ... SM**      **SLY 8 SMD ... B SM**

**... B TR**

**SLY 8 SMD 036-045 ... B TR**

Male headers 2.00 THT

High-precis.male head.in SMD mount.

Female headers 2.54 press-fit

Female header grid 2.00

→ G 30 – 31

→ G 18

→ G 50 – 66

→ H 7

Female headers 2.00 THT

Female headers 2.00 SMD

Jumpers

Technical data

→ G 67

→ G 68 – 70

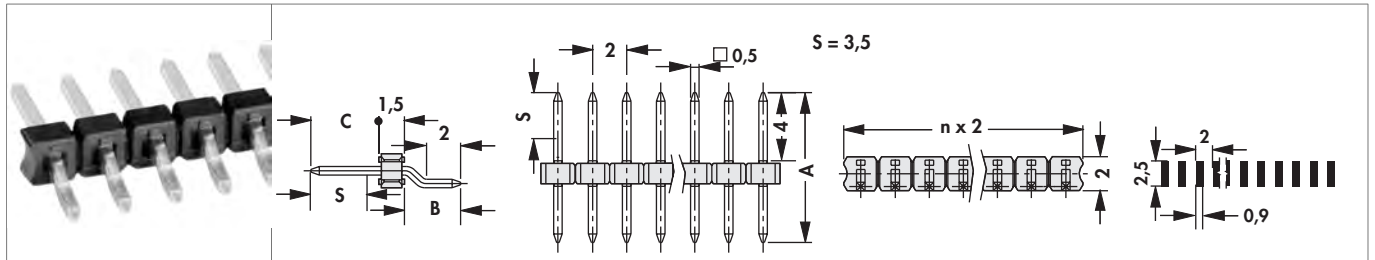
→ G 76 – 77

→ G 78 – 84

A

Male headers

□ 0.5 mm

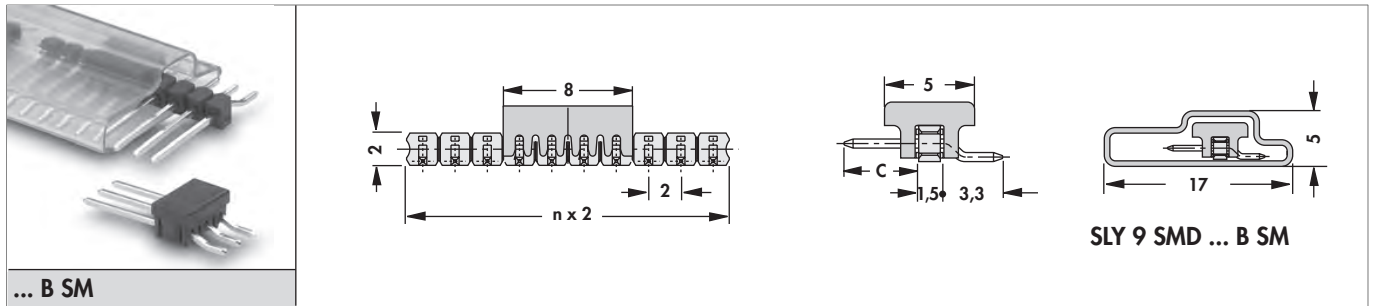


art. no.	dim. [mm]			
	A	B	C	S
SLY 9 SMD 040 ...	8.8	3.3	4.0	3.5
SLY 9 SMD 055 ...	10.3	3.3	5.5	3.5

please indicate: ... no. of contacts one row 2-20      ... surface of contact S = selective gold-plated G = gold-plated Z = tin-plated      ... packing (optional) B SM = pick and place pad and bar magazine

Option, for automatic assembly

- reel diameter Ø 330 mm



B

C

D

E

F

G

H

I

K

L

M

N

G 35

Jumpers  
Female header grid 2.00  
Female headers 2.00 THT  
Direct female connectors

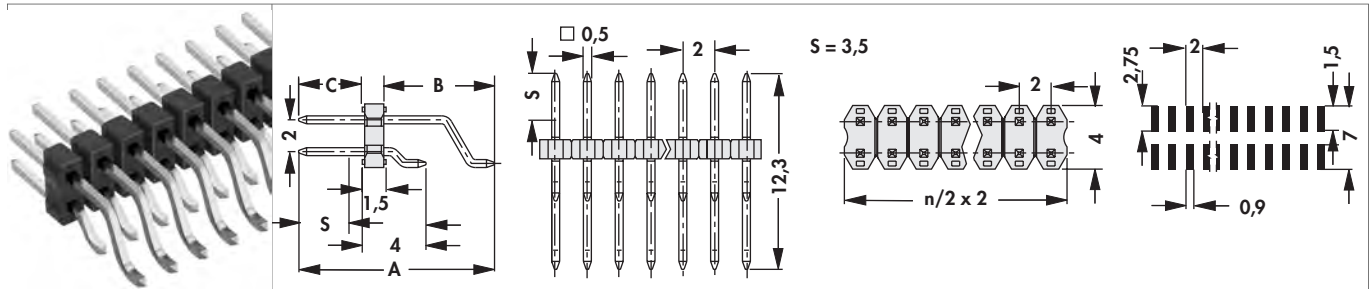
→ G 76 - 77  
→ H 7  
→ G 67  
→ G 75

High-precis. male head.in SMD mount. → G 18  
Male headers 2.00 THT → G 30 - 31  
Female headers 2.54 press-fit → G 50 - 66  
Technical data → G 78 - 84



Male headers

□ 0.5 mm

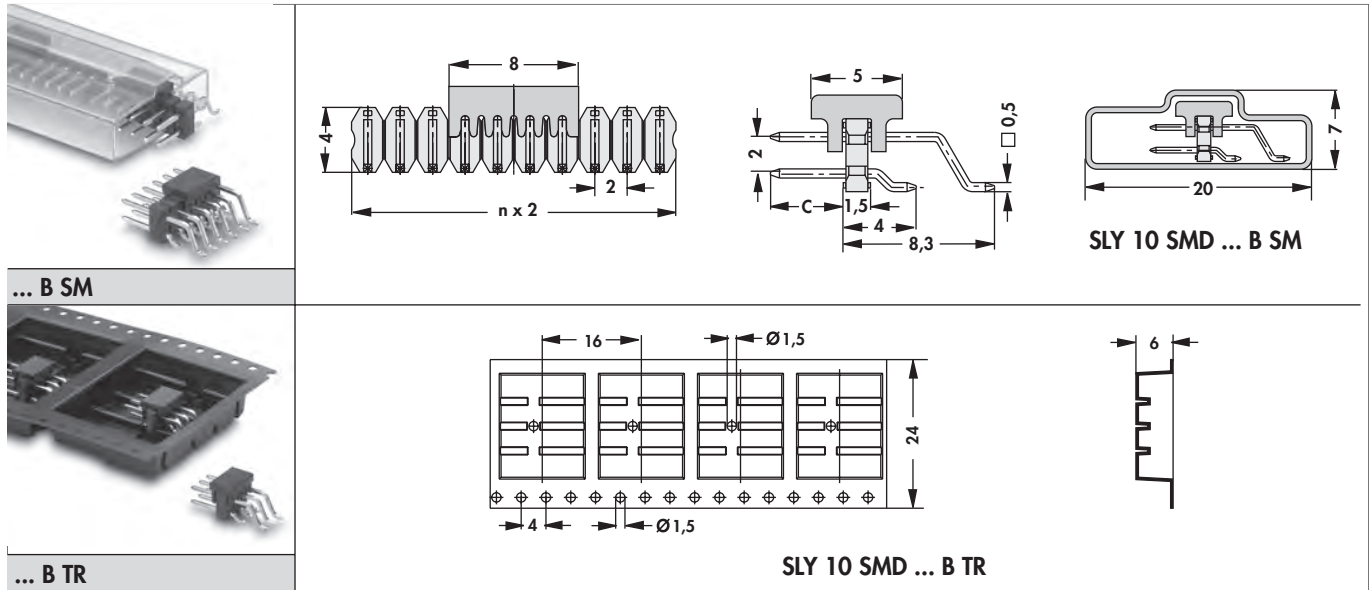


art. no.	dim. [mm]			
	A	B	C	S
<b>SLY 10 SMD 040 ...</b>	12.3	6.8	4	3.5
<b>please indicate:</b>	<b>... no. of contacts</b> two rows 4 - 40	<b>... surface of contact</b> S = selective gold-plated G = gold-plated Z = tin-plated	<b>... packing (optional)</b> B SM = pick and place pad and bar magazine B TR = pick and place pad and tape and reel (700pcs/reel)	

... packing (option) - additions:  
SLY 10 SMD 40 ... B TR: 4-16 contacts

Option, for automatic assembly

- reel diameter Ø 330 mm



... B SM

... B TR

Jumpers  
Female header grid 2.00  
Female headers 2.00 THT  
Direct female connectors

→ G 76 - 77  
→ H 7  
→ G 67  
→ G 75

High-precis. male head.in SMD mount. → G 18  
Male headers 2.00 THT → G 30 - 31  
Female headers 2.54 press-fit → G 50 - 66  
Technical data → G 78 - 84

**G 36**

A

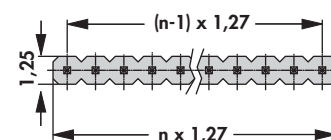
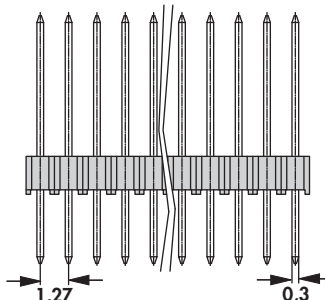
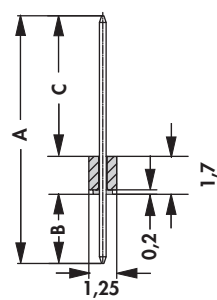
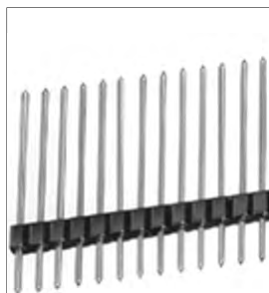
## Male headers

B

### Contact cross section □ 0.3 mm, straight, slim insulating body

- suitable for female header **BLM**
- one row 1-20 contacts

C



D

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLM N 1 063 ...</b>	11.1	3.1	6.3	<b>SLM N 11 063 ...</b>	12.8	4.8	6.3
<b>SLM N 1 092 ...</b>	14.0	3.1	9.2	<b>SLM N 11 117 ...</b>	18.2	4.8	11.7
<b>SLM N 1 117 ...</b>	16.5	3.1	11.7				

please indicate: ... no. of contacts one row 1 - 20      ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

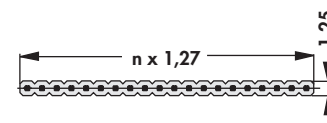
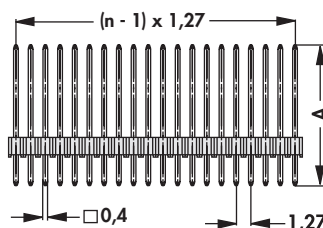
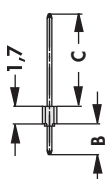
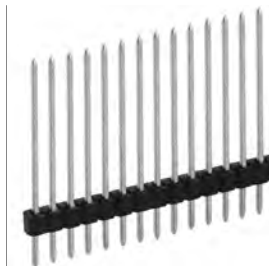
E

F

### Contact cross section □ 0.4 mm, straight, slim insulating body

- matching for female header **BLM**
- one row 1-20 contacts

G



H

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLV N 1 055 ...</b>	9.7	2.5	5.5	<b>SLV N 11 055 ...</b>	12.2	5.0	5.5
<b>SLV N 1 080 ...</b>	12.2	2.5	8.0	<b>SLV N 11 080 ...</b>	14.7	5.0	8.0
<b>SLV N 1 105 ...</b>	14.7	2.5	10.5	<b>SLV N 11 105 ...</b>	17.2	5.0	10.5
<b>SLV N 1 130 ...</b>	17.2	2.5	13.0				

please indicate: ... no. of contacts one row 1 - 20      ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

I

K

L

M

N

**G 37**

Female headers 1.27 SMD Jumpers  
 Female headers 1.27 THT  
 High-prec. fem. headers 1.27 THT

→ G 73 - 74  
 → G 76 - 77  
 → G 71 - 72  
 → G 72

Female headers 2.00 SMD  
 Direct female connectors  
 High-prec. female headers 1.27 SMD  
 Technical data

→ G 68 - 70  
 → G 75  
 → G 74  
 → G 78 - 84

## Male headers

### Contact cross section $\square 0.4$ mm, straight, slim insulating body

- suitable for female header **BLM**
- one row 1-36 contacts

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLV W 1 055 ...</b>	9.7	2.5	5.5	<b>SLV W 11 055 ...</b>	12.2	5.0	5.5
<b>SLV W 1 080 ...</b>	12.2	2.5	8.0	<b>SLV W 11 080 ...</b>	14.7	5.0	8.0
<b>SLV W 1 105 ...</b>	14.7	2.5	10.5	<b>SLV W 11 105 ...</b>	17.2	5.0	10.5
<b>SLV W 1 130 ...</b>	17.2	2.5	13.0				
<b>please indicate:</b>	<b>... no. of contacts</b> one row 1 - 36			<b>... surface of contact</b> <b>G</b> = gold-plated <b>Z</b> = tin-plated			

- matching for female header **BLM**
- two rows 4-72 contacts
- grid spacing 1.27 x 2.54 mm

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLV W 2 055 ...</b>	9.7	2.5	5.5	<b>SLV W 22 055 ...</b>	12.2	5.0	5.5
<b>SLV W 2 080 ...</b>	12.2	2.5	8.0	<b>SLV W 22 080 ...</b>	14.7	5.0	8.0
<b>SLV W 2 105 ...</b>	14.7	2.5	10.5	<b>SLV W 22 105 ...</b>	17.2	5.0	10.5
<b>SLV W 2 130 ...</b>	17.2	2.5	13.0				
<b>please indicate:</b>	<b>... no. of contacts</b> two rows 4 - 72			<b>... surface of contact</b> <b>G</b> = gold-plated <b>Z</b> = tin-plated			

Female headers 1.27 SMD  
 Female headers 1.27 THT  
 Female headers 2.00 SMD  
 High-prec. fem. headers 1.27 THT

→ G 73 - 74  
 → G 71 - 72  
 → G 68 - 70  
 → G 72

Jumpers  
 Direct female connectors  
 High-prec. female headers 1.27 SMD  
 Technical data

→ G 76 - 77  
 → G 75  
 → G 74  
 → G 78 - 84

Male headers

Contact cross section matching for BLM ..., □ 0.4 mm, 90° angled, expanded insulating body

– one row 1-36 contacts

art. no.	dim. [mm] C	art. no.	dim. [mm] C
SLV W 1 KA 030 ...	3.0	SLV W 1 KA 080 ...	8.0
SLV W 1 KA 055 ...	5.5	SLV W 1 KA 105 ...	10.5

please indicate: ... no. of contacts one row 1-36 ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

- two rows 6-72 contacts
- grid spacing 1.27 x 2.54 mm
- **packing in a bar magazine**
- **VPE** = packing unit (pieces/tube)
- preferred number of contacts, further ones can be made upon request

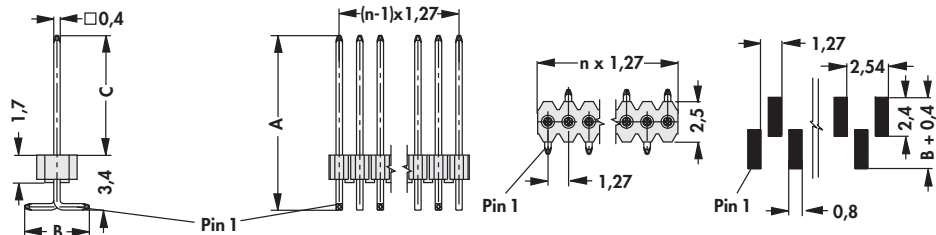
art. no.	no. of contacts	packing unit	dim. [mm] C	art. no.	no. of contacts	packing unit	dim. [mm] C
SLV W 2 KA 030 10 ...	10	78	3.0	SLV W 2 KA 054 10 ...	10	78	5.4
SLV W 2 KA 030 14 ...	14	55	3.0	SLV W 2 KA 054 14 ...	14	55	5.4
SLV W 2 KA 030 16 ...	16	50	3.0	SLV W 2 KA 054 16 ...	16	50	5.4
SLV W 2 KA 030 20 ...	20	40	3.0	SLV W 2 KA 054 20 ...	20	40	5.4
SLV W 2 KA 030 26 ...	26	31	3.0	SLV W 2 KA 054 26 ...	26	31	5.4
SLV W 2 KA 030 30 ...	30	27	3.0	SLV W 2 KA 054 30 ...	30	27	5.4
SLV W 2 KA 030 34 ...	34	24	3.0	SLV W 2 KA 054 34 ...	34	24	5.4
SLV W 2 KA 030 40 ...	40	20	3.0	SLV W 2 KA 054 40 ...	40	20	5.4
SLV W 2 KA 030 50 ...	50	16	3.0	SLV W 2 KA 054 50 ...	50	16	5.4
SLV W 2 KA 030 72 ...	72	11	3.0	SLV W 2 KA 054 72 ...	72	11	5.4

please indicate: ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

## Male headers

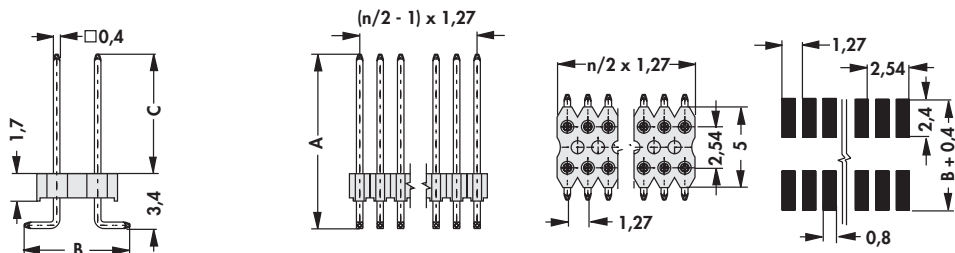
### Contact cross section $\square 0.4$ mm, expanded insulating body

- suitable for female header **BLM**
- one row 4-20 contacts



art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLV W 1 SMD 048 ...</b>	8.2	4	4.8	<b>SLV W 1 SMD 073 ...</b>	10.7	4	7.3
<b>please indicate:</b>		<b>... no. of contacts</b>		<b>... surface of contact</b>			
		<b>one row 4 - 20</b>		<b>G = gold-plated</b>			
				<b>Z = tin-plated</b>			

- suitable for female header **BLM**
- two rows 4-40 contacts
- grid spacing 1.27 x 2.54 mm



art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
<b>SLV W 2 SMD 048 ...</b>	8.2	6.6	4.8	<b>SLV W 2 SMD 073 ...</b>	10.7	6.6	7.3
<b>please indicate:</b>		<b>... no. of contacts</b>		<b>... surface of contact</b>			
		<b>two rows 4 - 40</b>		<b>G = gold-plated</b>			
				<b>Z = tin-plated</b>			

Female headers 1.27 THT  
Jumpers

→ G 71 - 72  
→ G 76 - 77

High-prec. fem. headers 1.27 THT

→ G 72

High-prec. female headers 1.27 SMD

→ G 74

Female headers 1.27 SMD  
Direct female connectors

→ G 73 - 74  
→ G 75

Female headers 2.00 SMD

→ G 68 - 70

Technical data

→ G 78 - 84

**G 40**

A

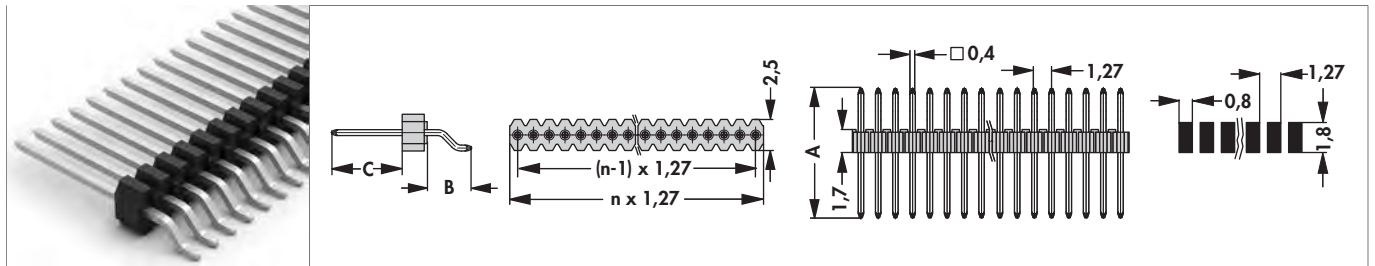
Male headers

B

Pin cross section □ 0.4 mm, expanded insulating body

- matching for female header **BLM**
- one row 2-20 contacts

C



D

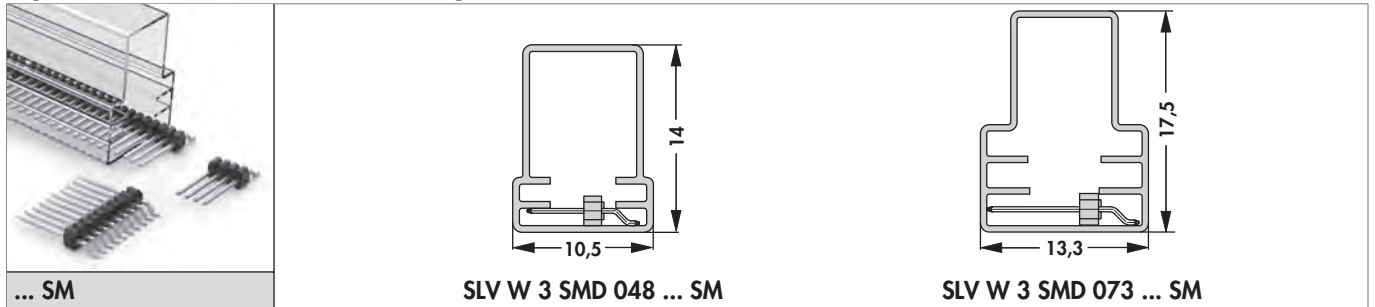
art. no.	dim. [mm]			art. no.	dim. [mm]		
	A	B	C		A	B	C
SLV W 3 SMD 048 ...	9.5	3	4.8	SLV W 3 SMD 073 ...	12.0	3	7.3
please indicate:		... no. of contacts one row 2-20		... surface of contact G = gold-plated Z = tin-plated		... packing (optional) SM = bar magazine	

E

... packing (option) - additions:  
SLV W 3 SMD ... SM: 4-20 contacts

F

Option, for automatic assembly



G

H

I

K

L

M

N

G 41

- |                                    |             |                          |             |
|------------------------------------|-------------|--------------------------|-------------|
| Female headers 1.27 THT            | → G 71 - 72 | Female headers 1.27 SMD  | → G 73 - 74 |
| Jumpers                            | → G 76 - 77 | Direct female connectors | → G 75      |
| High-prec. fem. headers 1.27 THT   | → G 72      | Female headers 2.00 SMD  | → G 68 - 70 |
| High-prec. female headers 1.27 SMD | → G 74      | Technical data           | → G 78 - 84 |

Male headers

Precision contacts, solder and plug pins, Ø 0.43 mm


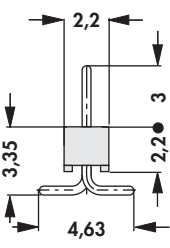
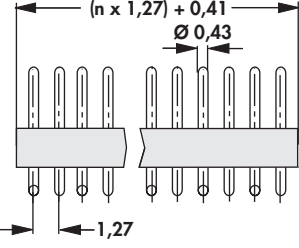
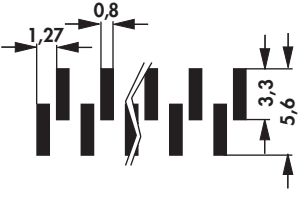
- turned precision contacts, less space required on PCB
- other number of contacts on request

<b>art. no.</b> SLR 1 025 ...	no. of contacts 25	<b>art. no.</b> SLR 1 050 ...	no. of contacts 50
<p>please indicate: ... surface of contact  <b>G</b> = gold-plated  <b>Z</b> = tin-plated</p>			
<b>art. no.</b> SLR 2 050 G	no. of contacts 50		
<b>art. no.</b> SLR 3 025 G	no. of contacts 25	<b>art. no.</b> SLR 3 050 G	no. of contacts 50
<b>art. no.</b> SLR 4 050 G	no. of contacts 50	<b>art. no.</b> SLR 4 100 G	no. of contacts 100
<p>surface of contact: gold-plated</p>			

## Male headers

## Precision contacts, solder and plug pins Ø 0.43 mm

- less space required on PCB
- other number of contacts on request

			
<b>art. no.</b>	no. of contacts		
<b>SLR 5 SMD 50 G</b>	50		
<b>surface of contact:</b>	gold-plated		

G 43

Jumpers  
 Female headers 1.27 SMD  
 Female headers 1.27 THT  
 Female headers 2.00 SMD

→ G 76 – 77  
 → G 73 – 74  
 → G 71 – 72  
 → G 68 – 70

High-prec. fem. headers 1.27 THT  
 High-prec. female headers 1.27 SMD  
 Direct female connectors  
 Technical data

→ G 72  
 → G 74  
 → G 75  
 → G 78 – 84



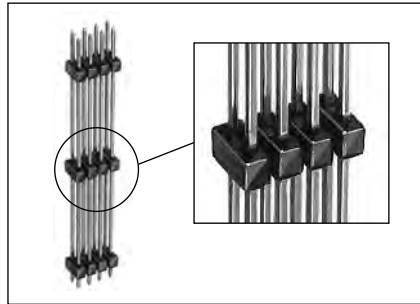
## Customer specified male and female headers

We manufacture male and female headers for your specific application.

All pin lengths from 7.5 to 45.3 mm for grid 2.54 mm and 7.5 to 30 mm for grid 2.00 mm available on request.

The insulator can be mounted at any requested position on the full length of the pin.

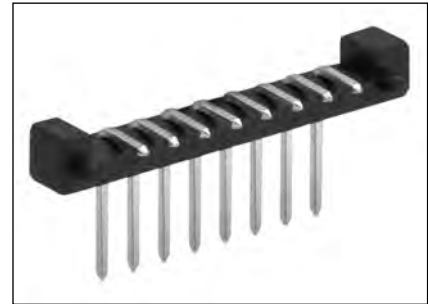
Grid spacing insertion with selective gold-plated contacts on request.



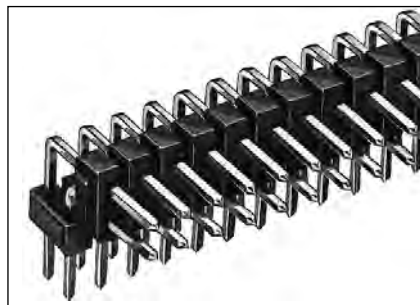
PCB connector,  
extra long and additionally stabilized



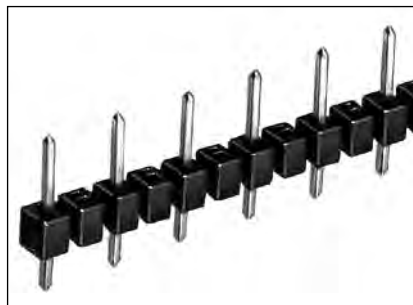
4-contact male header for THR-soldering;  
grid 5.75 mm



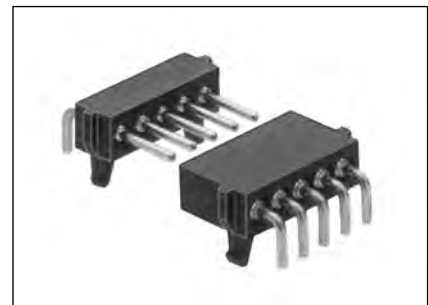
8-contact male header with special  
insulating body including locating pin



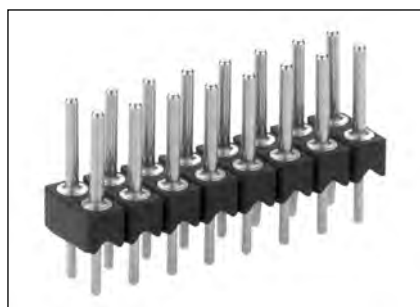
angled male header with two insulators



male header in 5.08 mm grid and  
customised



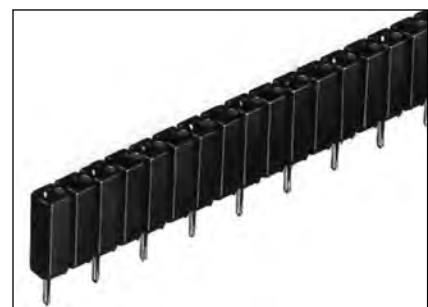
angled male and female header  
1.27 mm grid, with customised  
insulators



insulator body and precision contacts  
according to customer's request



male header with various pin lengths



female header in 5.08 mm grid

### Jumpers

Female headers 1.27 SMD

Female headers 1.27 THT

Female headers 2.00 SMD

→ G 76 – 77

→ G 73 – 74

→ G 71 – 72

→ G 68 – 70

High-prec. fem. headers 1.27 THT

High-prec. female headers 1.27 SMD

Direct female connectors

Technical data

→ G 72

→ G 74

→ G 75

→ G 78 – 84

Female headers

Precision contacts, plug pins Ø 0.5 mm

<b>art. no.</b>			<b>art. no.</b>		
<b>MK 01 ...</b>			<b>MK 201 ...</b>		
<b>art. no.</b>			<b>art. no.</b>		
<b>MK 17 ...</b>			<b>MK 217 ...</b>		
<b>art. no.</b>			<b>art. no.</b>		
<b>MK 12 X 2 ...</b>			<b>MK 212 X 2 ...</b>		
<b>please indicate:</b>		<b>... no. of contacts</b> one row 1 - 50 two rows 2 - 100	<b>... surface of contact</b> G = gold-plated Z = tin-plated		

<b>art. no.</b>	dim. [mm] X	<b>art. no.</b>	dim. [mm] X
<b>MK 13 X 1 ...</b>	5.9	<b>MK 213 X 1 ...</b>	5.9
<b>MK 13 X 2 ...</b>	8.9	<b>MK 213 X 2 ...</b>	8.9
<b>please indicate:</b>		<b>... no. of contacts</b> one row 1 - 50 two rows 2 - 100	<b>... surface of contact</b> G = gold-plated Z = tin-plated
<b>contact spring:</b>		gold-plated	

Female headers

Precision contacts for pin cross section Ø 0.5 mm

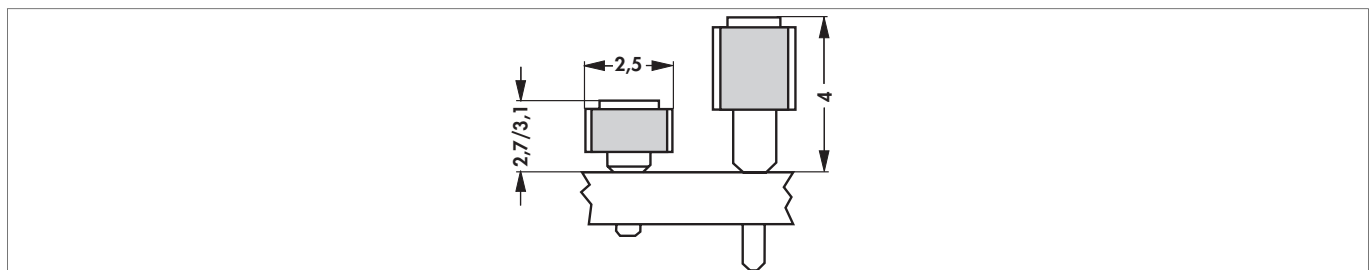
<p>art. no.</p> <p><b>MK 06 ...</b></p>			
<p>art. no.</p> <p><b>MK 07 ...</b></p>			<p>art. no.</p> <p><b>MK 207 ...</b></p>
<p>please indicate:      ... no. of contacts      ... surface of contact</p> <p>one row 1 - 50      G = gold-plated</p> <p>two rows 2 - 100      Z = tin-plated</p>			

Low profile, less than 2.7/3.1 mm - with contact spring for Ø 0.5 mm pins

- solder and plug pin Ø 0.76 mm

<p>art. no.</p> <p><b>MK LP 18 ...</b></p>			<p>art. no.</p> <p><b>MK LP 218 ...</b></p>
<p>art. no.</p> <p><b>MK LP 19 ...</b></p>			<p>art. no.</p> <p><b>MK LP 219 ...</b></p>
<p>please indicate:      ... no. of contacts      ... surface of contact</p> <p>one row 1 - 50      G = gold-plated</p> <p>two rows 4 - 100      Z = tin-plated</p>			
<p>contact spring:      gold-plated</p>			

Low profile: 2.7/3.1 mm; standard profile: 4 mm



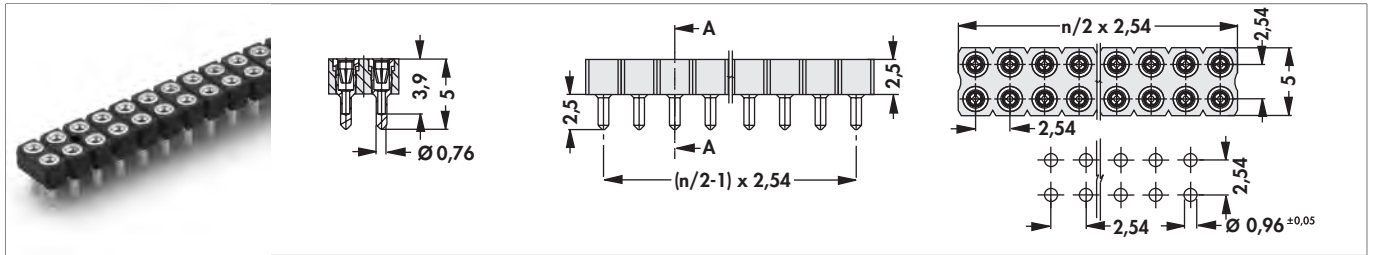
High-precision female headers THT → G 2 - 6  
 Male headers 2.54 SMD → G 21 - 27  
 High-prec. fem. headers 2.54 THT → G 53 - 56  
 Male headers 2.54 THT → G 7 - 17

Jumper links 2 & 2.54 THT → F 15  
 High-prec. male headers 2.54 THT → G 45 - 55  
 Single precision contacts → F 17 - 18  
 Technical data → G 78 - 84

## Female headers

### Precision contacts in THR-soldering technology for pin cross section $\varnothing 0.5$ mm

– THR: Through-Hole-Reflow-soldering technology (connector to be soldered with modified insert technique in Reflow-soldering method)



art. no.

**MK 228 THR ...**

please indicate:

... no. of contacts  
two rows 2 - 40

... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

contact spring:

gold-plated

**G 47**

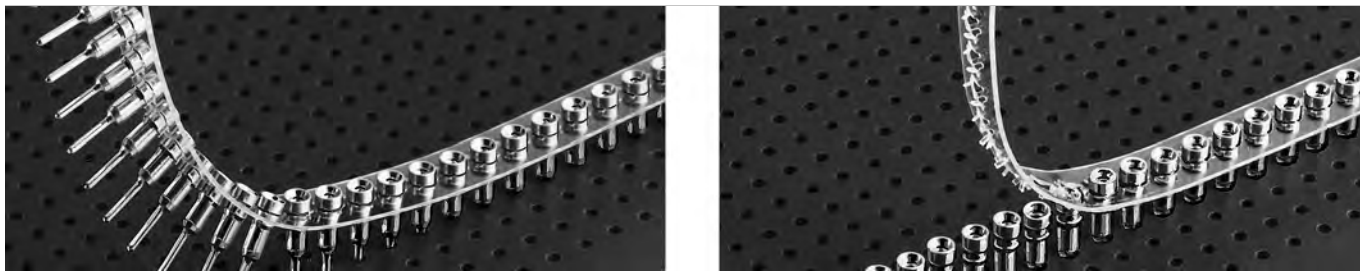
Direct female connectors  
Single precision contacts  
Jumpers  
Single contacts metal strip

→ G 75  
→ F 17 – 18  
→ G 76 – 77  
→ G 49


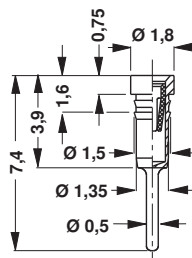
High-prec.male head.soldering techn.→ G 3 – 17  
High-precis.male head.in SMD mount.→ G 18  
Jumper links 2 & 2.54 THT → F 15  
Technical data → G 78 – 84

## Female headers

### Peel-Off


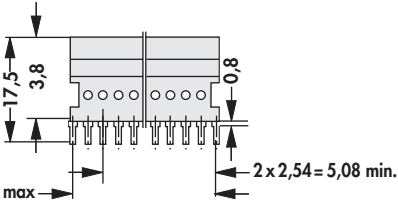
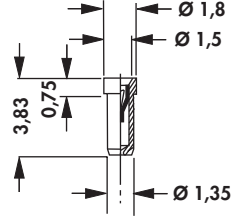

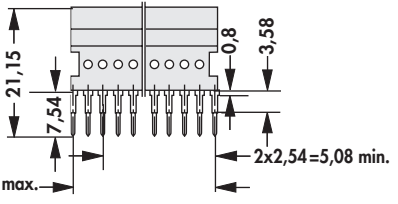
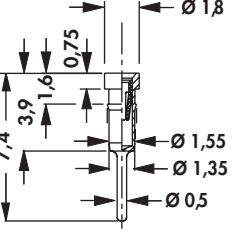

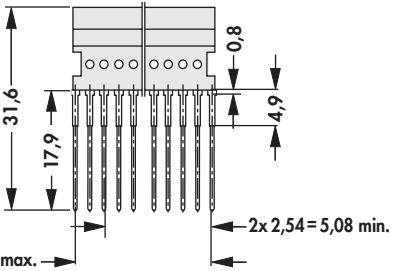
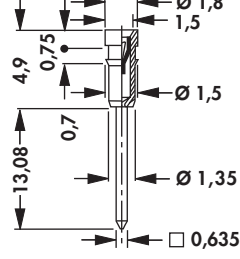


- precision contacts are mounted in a temperature-resistant carrier strip which is removed after soldering
- special loadings upon request

<b>art. no.</b>			
<b>PO A ... G</b>			
<b>please indicate:</b>	<b>... no. of contacts from 2 pins to endless</b>		
<b>contact sleeve:</b>	gold-plated		
<b>contact spring:</b>	gold-plated		
<b>annotation:</b>	<b>Technical data of carrier foil:</b> max. tensile strength: 193 N/mm <sup>2</sup> max. thermal expansion - longitudinal direction: 1.7x10 <sup>-5</sup> mm/°C melting point: 250°C		

## Female headers

Precision contacts on metal strip for pin cross section  $\varnothing 0.5$  mm

<b>art. no.</b>       <b>SIL 1 ...</b>			
<b>art. no.</b>       <b>SIL 2 ...</b>			
<b>art. no.</b>       <b>SIL 3 ...</b>			
<b>please indicate:</b>		<b>... no. of contacts</b> one row 2 - 100	<b>... surface of contact</b> <b>G = gold-plated</b> <b>Z = tin-plated</b>
<b>contact spring:</b>		gold-plated	
<b>annotation:</b>		carrier strip: brass	

G 49

Female headers 2.54 press-fit → G 66  
 High-precision female headers THT → G 2 - 6  
 Jumper links 2 & 2.54 THT → F 15  
 High-prec. male headers 2.54 THT → G 45 - 55

Male headers 2.54 SMD → G 21 - 27  
 Single precision contacts → F 17 - 18  
 Single contacts metal strip → G 49  
 Technical data → G 78 - 84

## Female headers

### Stamped contact spring (fork contact)

– **separable!** any requested number of contact can be delivered

– for □ 0.635 mm pin cross section, straight

<p>art. no.</p> <p><b>BL 1 ...</b></p>							
<p>art. no.</p> <p><b>BL 2 ...</b></p>							
<p><b>please indicate:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>... no. of contacts</p> <p>one row 1 - 36</p> <p>two rows 2 - 72</p> </td> <td style="width: 50%; border: none;"> <p>... surface of contact</p> <p>G = gold-plated</p> <p>Z = tin-plated</p> </td> </tr> </table>						<p>... no. of contacts</p> <p>one row 1 - 36</p> <p>two rows 2 - 72</p>	<p>... surface of contact</p> <p>G = gold-plated</p> <p>Z = tin-plated</p>
<p>... no. of contacts</p> <p>one row 1 - 36</p> <p>two rows 2 - 72</p>	<p>... surface of contact</p> <p>G = gold-plated</p> <p>Z = tin-plated</p>						

– for □ 0.635 mm pin cross section, angled

– **BL 4 ...:** packing (option) bar magazine ( $\geq 6$  contacts)

<p>art. no.</p> <p><b>BL 3 ...</b></p>							
<p>art. no.</p> <p><b>BL 4 ...</b></p>							
<p><b>please indicate:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>... no. of contacts</p> <p>one row 1 - 36</p> <p>two rows 2 - 72</p> </td> <td style="width: 50%; border: none;"> <p>... surface of contact</p> <p>G = gold-plated</p> <p>Z = tin-plated</p> </td> </tr> </table>						<p>... no. of contacts</p> <p>one row 1 - 36</p> <p>two rows 2 - 72</p>	<p>... surface of contact</p> <p>G = gold-plated</p> <p>Z = tin-plated</p>
<p>... no. of contacts</p> <p>one row 1 - 36</p> <p>two rows 2 - 72</p>	<p>... surface of contact</p> <p>G = gold-plated</p> <p>Z = tin-plated</p>						

High-prec. fem. headers 2.54 THT  
 Female headers 2.54 press-fit  
 Single contacts metal strip  
 Single precision contacts

→ G 53 – 56  
 → G 66  
 → G 49  
 → F 17 – 18

Female headers 2.54 SMD  
 Jumper links 2 & 2.54 THT  
 Direct female connectors  
 Technical data

→ G 58 – 64  
 → F 15  
 → G 75  
 → G 78 – 84

**G 50**

## Female headers

### Low profile, fork contact spring

– separable! any requested number of contact can be delivered

– for  $\square$  0.635 mm pin cross section, straight

art. no.				
BL LP 1 ...				
art. no.				
BL LP 2 ...				
please indicate:	... no. of contacts one row 1 - 36 two rows 2 - 72		... surface of contact S = selective gold-plated Z = tin-plated	

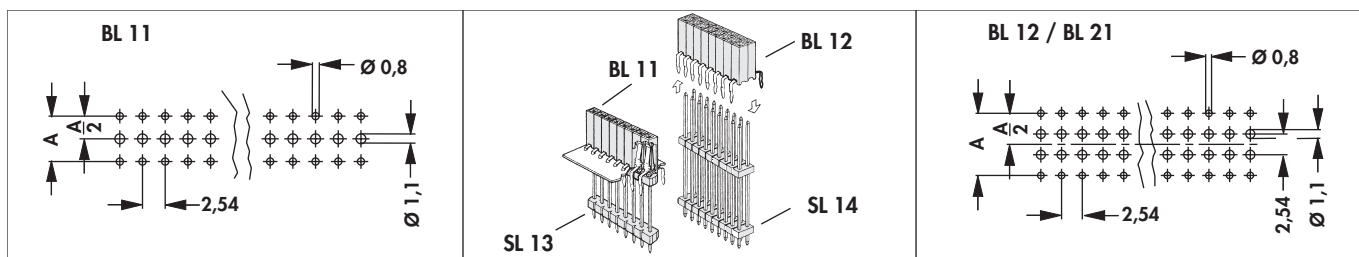
– for  $\square$  0.635 mm pin cross section, angled

– BL LP 4 ...: packing in a bar magazine (min. 6 contacts)

art. no.				
BL LP 3 ...				
art. no.				
BL LP 4 ...				
please indicate:	... no. of contacts one row 1 - 36 two rows 2 - 72		... surface of contact S = selective gold-plated Z = tin-plated	



## Female headers



For  $\square$  0.635 mm pin cross section, can be put through / 260 °C Reflow

- for each contact both contact springs have to be interconnected via the PCB
- **packing:** bar magazine
- stamped contact spring; - **separable!** any requested number of contact can be delivered

<b>art. no.</b>	dim. [mm] A	<b>art. no.</b>	dim. [mm] A
<b>BL 11 254 ...</b>	2.54	<b>BL 11 508 ...</b>	5.08
<b>please indicate:</b> ... no. of contacts one row 1 - 45		<b>... surface of contact</b> S = selective gold-plated Z = tin-plated	

For  $\square$  0.635 mm pin cross section, can be put through

- **packing:** bar magazine
- stamped contact spring; - **separable!** any requested number of contact can be delivered

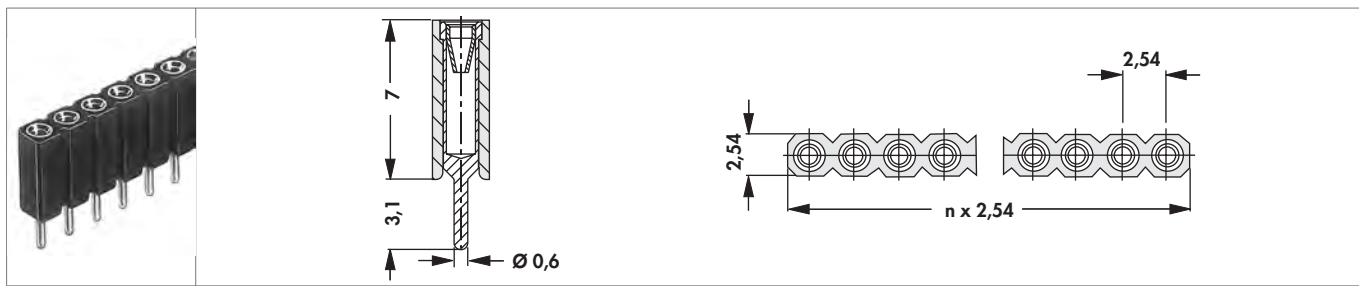
<b>art. no.</b>	dim. [mm] A	<b>art. no.</b>	dim. [mm] A
<b>BL 12 650 ...</b>	6.50	<b>BL 12 762 ...</b>	7.62
<b>art. no.</b>	dim. [mm] A	<b>art. no.</b>	dim. [mm] A
<b>BL 21 650 ...</b>	6.50	<b>BL 21 762 ...</b>	7.62
<b>please indicate:</b> ... no. of contacts two rows 2 - 90		<b>... surface of contact</b> S = selective gold-plated Z = tin-plated	

Single precision contacts → F 17 - 18  
 Single contacts metal strip → G 49  
 High-precision female headers THT → G 2 - 6  
 High-prec. male headers 2.54 THT → G 45 - 55

Jumpers → G 76 - 77  
 Direct female connectors → G 75  
 Male headers 2.54 SMD → G 21 - 27  
 Technical data → G 78 - 84

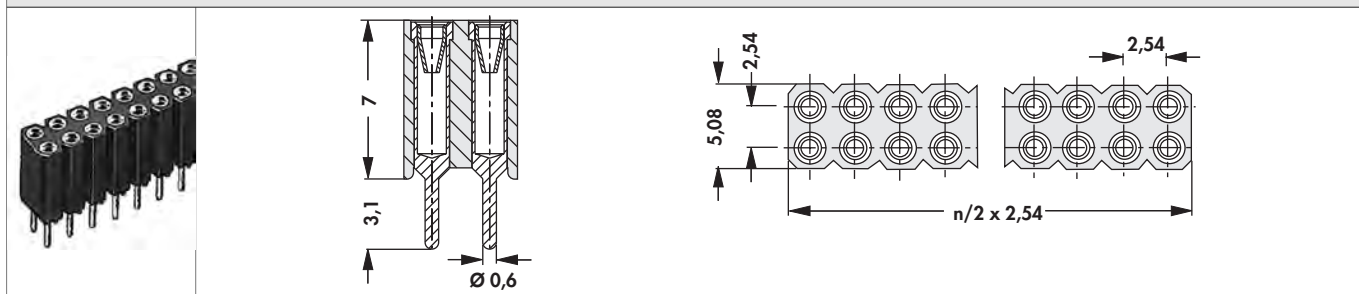
Female headers

Precision contacts for □ 0.635 mm and Ø up to 0.85 mm, pin cross section



art. no.	inner contact spring surface
BL 5 ...	≥ 0,75 μm Au
BL 5 025 ...	≥ 0,25 μm Au

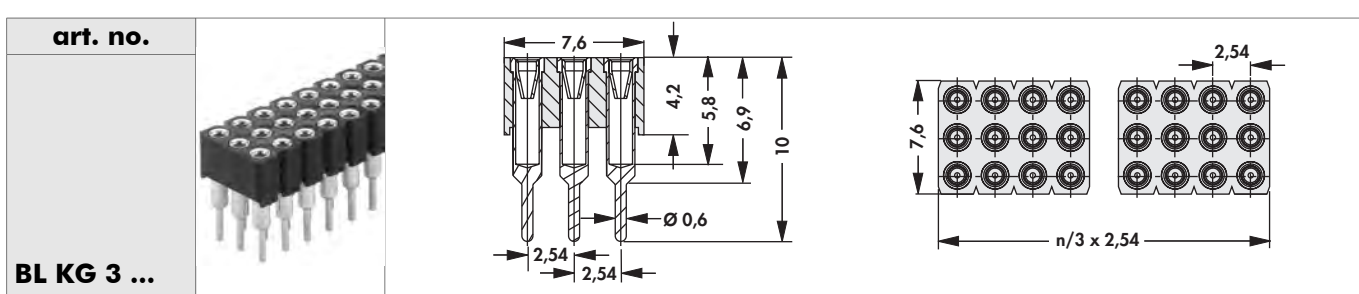
please indicate: ... no. of contacts one row 1 - 36



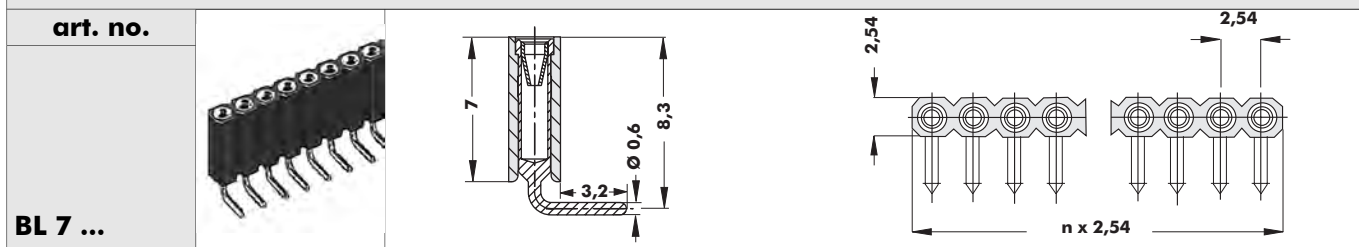
art. no.	inner contact spring surface
BL 6 ...	≥ 0,75 μm Au
BL 6 025 ...	≥ 0,25 μm Au

please indicate: ... no. of contacts two rows 2 - 72

contact sleeve:	tin-plated
contact spring:	gold-plated



please indicate: ... no. of contacts three rows 9 - 96



please indicate: ... no. of contacts one row 1 - 36

contact sleeve:	tin-plated
contact spring:	gold-plated

G 53

- Female headers 2.00 THT → G 67
- Female headers 2.00 SMD → G 68
- Single contacts metal strip → G 49
- High-precision female headers THT → G 2 - 6

- Male headers 2.00 THT → G 30 - 31
- Male headers 2.54 THT → G 7 - 17
- Male headers 2.54 SMD → G 21 - 27
- Technical data → G 78 - 84

## Female headers

### Precision contacts for $\square$ 0.635 mm and $\varnothing$ up to 0.85 mm, pin cross section

- packing in a bar magazine ( $\geq 6$  contacts)
- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>			
<b>BL 8 ...</b>			
<b>please indicate: ... no. of contacts two rows 4 - 72</b>			
<b>contact sleeve:</b>	tin-plated		
<b>contact spring:</b>	gold-plated		


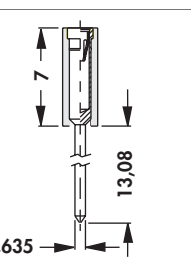
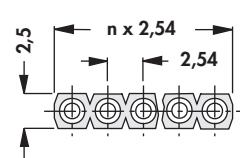

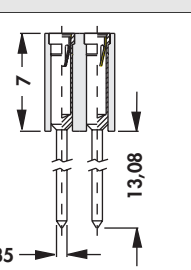
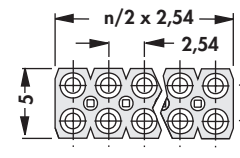
- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>			
<b>MK 21 ...</b>			
<b>please indicate: ... no. of contacts one row 1 - 50</b>			
<b>art. no.</b>			
<b>MK 221 ...</b>			
<b>please indicate: ... no. of contacts two rows 2 - 100</b>			
<b>contact sleeve:</b>	tin-plated		
<b>contact spring:</b>	gold-plated		

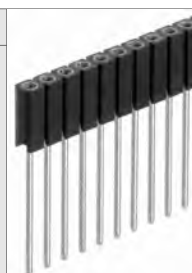
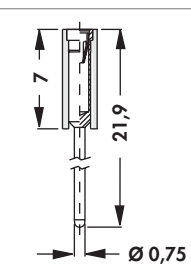
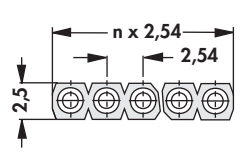
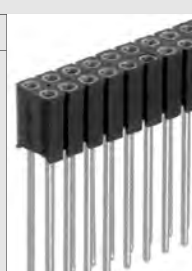
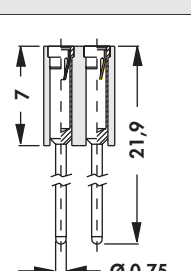
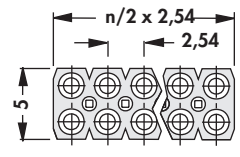
## Female headers

### Precision contacts for $\square 0.635$ mm and $\varnothing$ up to 0.85 mm, pin cross section

- with aligned Wire-Wrap pins
- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>          <b>BL 9 ...</b>			
<b>please indicate: ... no. of contacts one row 1 - 36</b>			
<b>art. no.</b>          <b>BL 10 ...</b>			
<b>please indicate: ... no. of contacts two rows 2 - 72</b>			
<b>contact sleeve:</b>	tin-plated		
<b>contact spring:</b>	gold-plated		

- for PC 104 modules
- no capillary action when soldering due to protected contact insert
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>          <b>BL 13 ...</b>			
<b>please indicate: ... no. of contacts one row 1 - 36</b>			
<b>art. no.</b>          <b>BL 14 ...</b>			
<b>please indicate: ... no. of contacts two rows 2 - 72</b>			
<b>contact sleeve:</b>	tin-plated		
<b>contact spring:</b>	gold-plated		

**G 55**
**Male headers 2.00 THT**
**High-precision female headers THT**
**Male headers 2.54 THT**
**Male headers 2.54 SMD**
**→ G 30 - 31**
**→ G 2 - 6**
**→ G 7 - 17**
**→ G 21 - 27**
**Female headers 2.00 THT**
**Female headers 2.00 SMD**
**Single contacts metal strip**
**Technical data**
**→ G 67**
**→ G 68**
**→ G 49**
**→ G 78 - 84**

## Female headers

### Precision contacts for $\square$ 0.635 mm and $\varnothing$ up to 0.85 mm, pin cross section

- for PC 104 modules
- no capillary action when soldering due to protected contact insert
- **separable!** any requested number of contact can be delivered
- one row, 1-36 contacts

<b>art. no.</b>	dim. [mm]	
	A	
<b>BL 18 141 ...</b>	14.1	
<b>BL 18 219 ...</b>	21.9	
<b>please indicate:</b>	<b>... no. of contacts one row 1 - 36</b>	
<b>contact sleeve:</b>	gold-plated	
<b>contact spring:</b>	gold-plated	

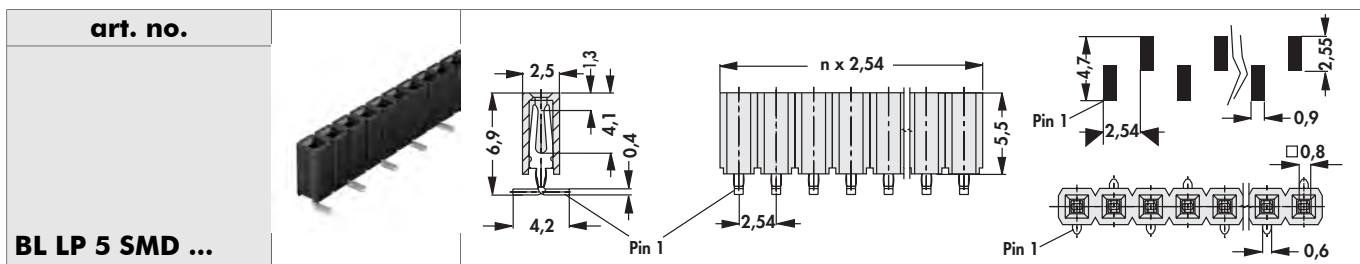
- two rows, 2-72 contacts

<b>art. no.</b>	dim. [mm]	
	A	
<b>BL 19 141 ...</b>	14.1	
<b>BL 19 219 ...</b>	21.9	
<b>please indicate:</b>	<b>... no. of contacts two rows 2 - 72</b>	
<b>contact sleeve:</b>	gold-plated	
<b>contact spring:</b>	gold-plated	

**Female headers**

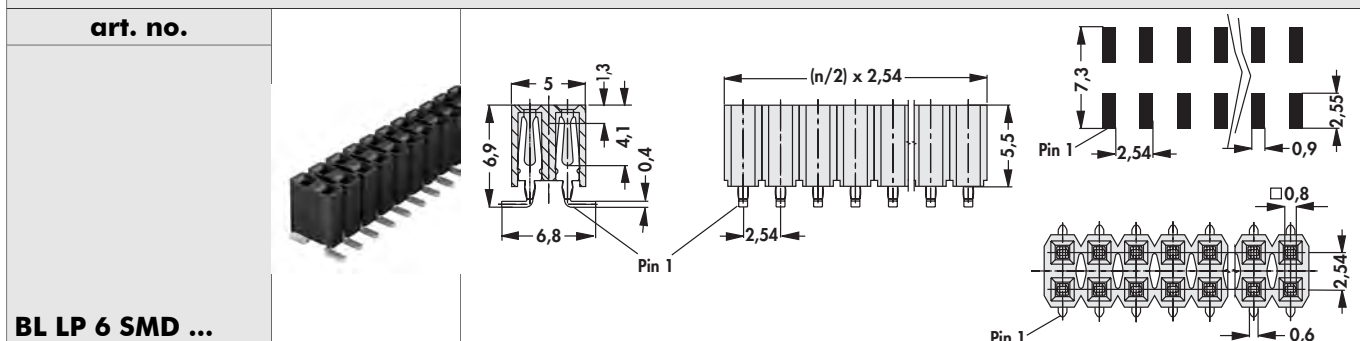
**Low profile, fork contact spring**

- for □ 0.635 mm plug pins
- other number of contacts on request



**BL LP 5 SMD ...**

<b>please indicate:</b>	... no. of contacts one row 4 - 20	... surface of contact S = selective gold-plated Z = tin-plated	... packing (optional) SM = bar magazine B SM = pick and place pad and bar magazine
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**BL LP 6 SMD ...**

<b>please indicate:</b>	... no. of contacts two rows 4 - 40	... surface of contact S = selective gold-plated Z = tin-plated	... packing (optional) SM = bar magazine B SM = pick and place pad and bar magazine
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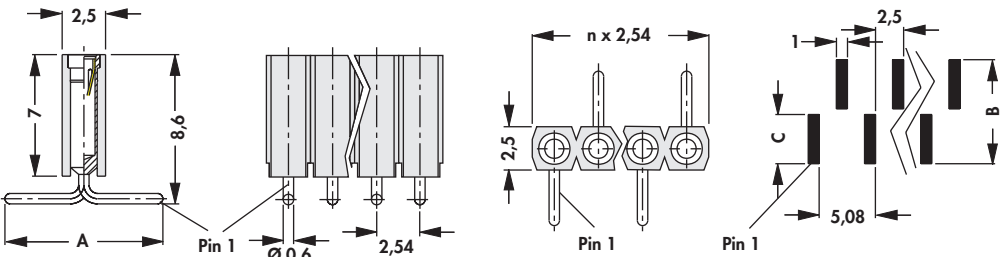
**G 57**

- |                                   |             |                             |             |
|-----------------------------------|-------------|-----------------------------|-------------|
| Male headers 2.00 THT             | → G 30 - 31 | Female headers 2.00 THT     | → G 67      |
| High-precision female headers THT | → G 2 - 6   | Female headers 2.00 SMD     | → G 68      |
| Male headers 2.54 THT             | → G 7 - 17  | Single contacts metal strip | → G 49      |
| Male headers 2.54 SMD             | → G 21 - 27 | Technical data              | → G 78 - 84 |

## Female headers

### Precision contacts for $\square$ 0.635 mm and $\varnothing$ up to 0.85 mm, pin cross section

- no capillary action when soldering due to protected contact insert
- **separable!** any requested number of contact can be delivered

art. no.	dim. [mm]		
	A	B	C
<b>BL 15 SMD 043...</b>	4.3	5.0	2.5
<b>BL 15 SMD 089...</b>	8.9	9.5	4.8

please indicate: ... no. of contacts one row 4 - 20


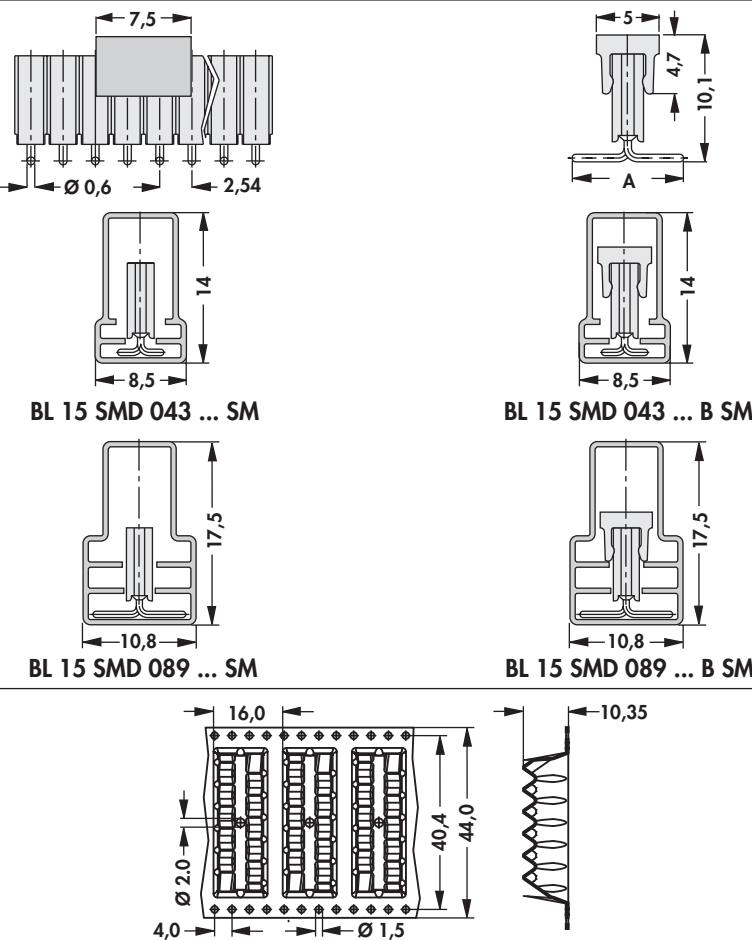
... packing (optional)  
**SM** = bar magazine  
**B SM** = pick and place pad and bar magazine  
**B TR** = pick and place pad and tape and reel (400pcs/reel)

... packing (option) - additions:  
**BL 15 SMD ... B TR: 4-12 contacts**

<b>contact sleeve:</b>	tin-plated
<b>contact spring:</b>	gold-plated

### Option, for automatic assembly

- reel diameter  $\varnothing$  330 mm

**BL 15 SMD 043 ... SM**

**BL 15 SMD 043 ... B SM**

**BL 15 SMD 089 ... SM**

**BL 15 SMD 089 ... B SM**

... SM

... B SM

... B TR

Female headers 1.27 SMD → G 73  
 Female headers 2.00 SMD → G 68  
 Female headers 2.54 press-fit → G 66  
 Single contacts metal strip → G 49

Single precision contacts → F 17 - 18  
 Male headers 2.54 THT → G 7 - 17  
 Male headers 2.54 SMD → G 21 - 27  
 Technical data → G 78 - 84

A

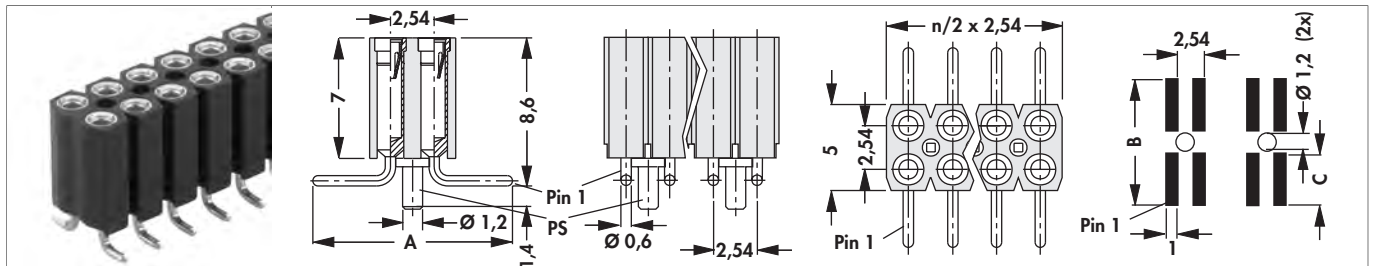
## Female headers

B

### Precision contacts for $\square$ 0.635 mm and $\varnothing$ up to 0.85 mm, pin cross section

- no capillary action when soldering due to protected contact insert
- **separable!** any requested number of contact can be delivered

C



D

art. no.	dim. [mm]		
	A	B	C
BL 16 SMD 067 ...	6.7	7.5	2.5
BL 16 SMD 113 ...	11.3	12.0	4.8

E

please indicate:	... no. of contacts	... packing (optional)
	two rows 4 - 40	SM = bar magazine
		B SM = pick and place pad and bar magazine
		B TR = pick and place pad and tape and reel (250pcs/reel)

F

... packing (option) - additions:  
BL 16 SMD ... B TR: 6-40 contacts

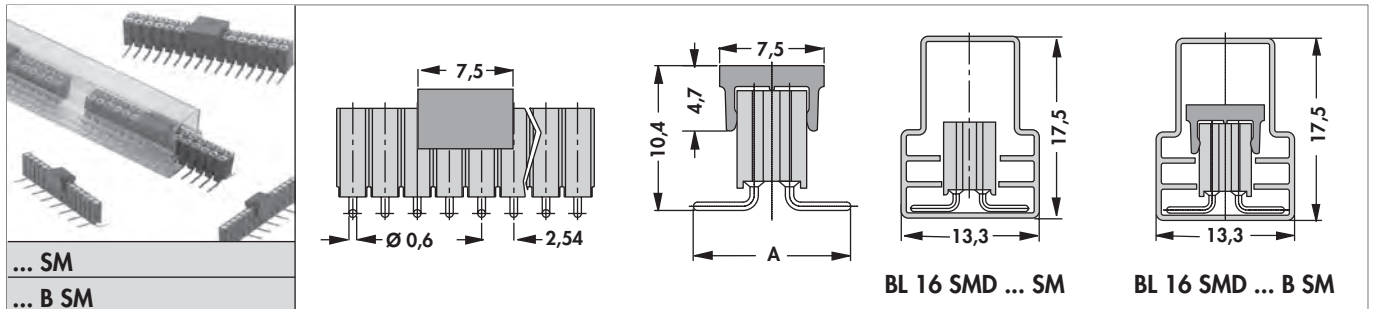
contact sleeve:	tin-plated
contact spring:	gold-plated

G

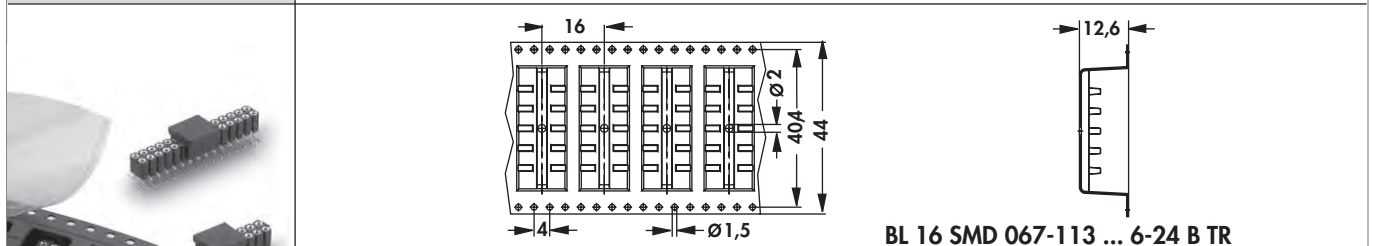
### Option, for automatic assembly

- reel diameter  $\varnothing$  330 mm

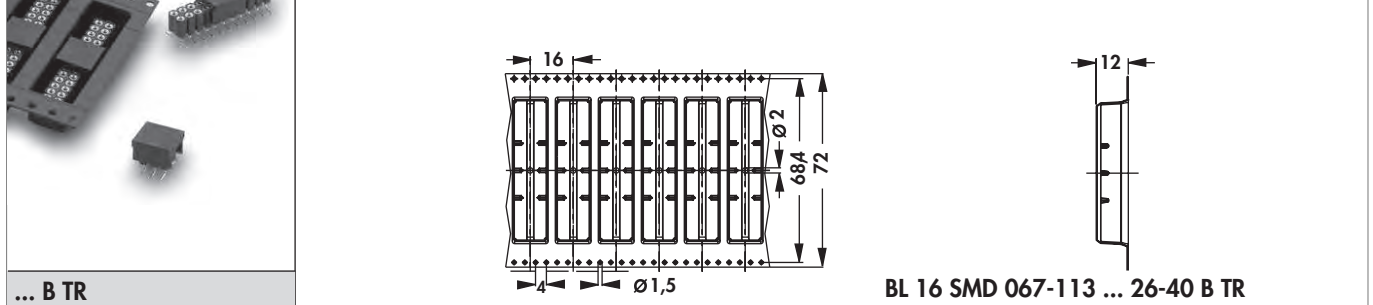
H



I



K



L

M

N

G 59

Female headers 1.27 SMD  
Female headers 2.00 SMD  
Female headers 2.54 press-fit  
Single contacts metal strip

→ G 73  
→ G 68  
→ G 66  
→ G 49

Single precision contacts  
Male headers 2.54 THT  
Male headers 2.54 SMD  
Technical data

→ F 17 - 18  
→ G 7 - 17  
→ G 21 - 27  
→ G 78 - 84



## Female headers

### Precision contacts for $\square$ 0.635 mm and $\varnothing$ up to 0.85 mm, pin cross section

- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>				
<b>BL 17 SMD ...</b>				
<b>please indicate:</b>	<b>... no. of contacts one row 2 - 20</b>	<b>... packing (optional)</b> SM = bar magazine TR = tape and reel (1.300pcs./reel)		

packing (option) - additions:  
**BL 17 SMD ... SM: 3-20 contacts**  
**BL 17 SMD ...TR: 2-13 contacts**

<b>contact sleeve:</b>	tin-plated
<b>contact spring:</b>	gold-plated

### Option, for automatic assembly


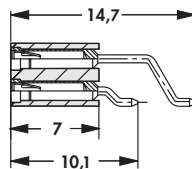
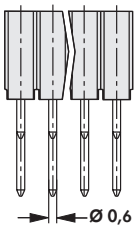
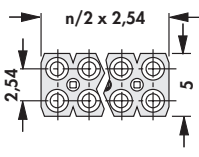
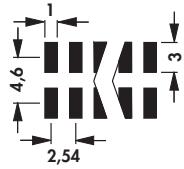
- reel diameter  $\varnothing$  330 mm

	<p style="text-align: center;"><b>BL 17 SMD ... SM</b></p>
<b>... SM</b>	
	<p style="text-align: center;"><b>BL 17 SMD ... TR</b></p>
<b>... TR</b>	

- |                                   |             |                               |             |
|-----------------------------------|-------------|-------------------------------|-------------|
| Single contacts metal strip       | → G 49      | Female headers 1.27 SMD       | → G 73      |
| Male headers 2.54 THT             | → G 7 - 17  | Female headers 2.00 SMD       | → G 68      |
| Male headers 2.54 SMD             | → G 21 - 27 | Female headers 2.54 press-fit | → G 66      |
| High-precision female headers THT | → G 2 - 6   | Technical data                | → G 78 - 84 |

## Female headers


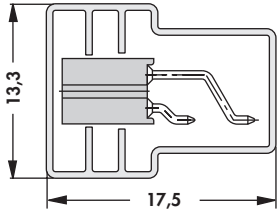
- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>          <b>BL 20 SMD ...</b>					
<b>please indicate:</b>		<b>... no. of contacts</b> two rows 4 - 40	<b>... packing (optional)</b> SM = bar magazine		

**packing (option) - additions:**  
BL 20 SMD ... SM: 10-40 contacts

<b>contact sleeve:</b>	tin-plated
<b>contact spring:</b>	gold-plated

### Option, for automatic assembly

	 <p style="text-align: center;"><b>BL 20 SMD ... SM</b></p>
... SM	

**G 61**

Single contacts metal strip → G 49  
 Male headers 2.54 THT → G 7 - 17  
 Male headers 2.54 SMD → G 21 - 27  
 High-precision female headers THT → G 2 - 6

Female headers 1.27 SMD → G 73  
 Female headers 2.00 SMD → G 68  
 Female headers 2.54 press-fit → G 66  
 Technical data → G 78 - 84

Female headers 1.27 SMD → G 73  
 Female headers 2.00 SMD → G 68  
 Female headers 2.54 press-fit → G 66  
 Technical data → G 78 - 84

Female headers 1.27 SMD → G 73  
 Female headers 2.00 SMD → G 68  
 Female headers 2.54 press-fit → G 66  
 Technical data → G 78 - 84

## Female headers

### Precision contacts for $\square$ 0.635 mm and $\varnothing$ up to 0.85 mm, pin cross section

- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>			
<b>MK 22 SMD ...</b>			
<b>please indicate:</b>	<b>... no. of contacts one row 4 - 20</b>	<b>... packing (optional) B SM = pick and place pad and bar magazine</b>	
<b>contact sleeve:</b>	tin-plated		
<b>contact spring:</b>	gold-plated		

### Option, for automatic assembly

<b>... B SM</b>			<b>MK 22 SMD ... B SM</b>

<b>art. no.</b>			
<b>MK 222 SMD ...</b>			
<b>please indicate:</b>	<b>... no. of contacts two rows 4 - 40</b>	<b>... packing (optional) B SM = pick and place pad and bar magazine</b>	
<b>contact sleeve:</b>	tin-plated		
<b>contact spring:</b>	gold-plated		


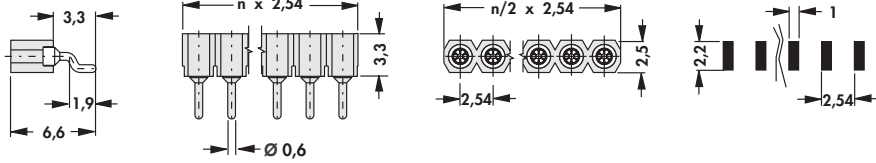
### Option, for automatic assembly

<b>... B SM</b>			<b>MK 222 SMD ... B SM</b>

## Female headers


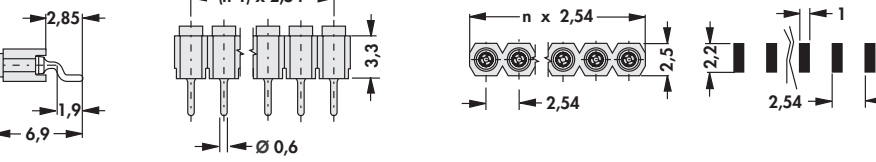
### Precision contacts for $\square$ 0.635 mm and up to $\varnothing$ 0.85 mm, pin cross section

- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>		
<b>MK 24 SMD ...</b>		
<b>please indicate:</b>	<b>... no. of contacts one row 2 - 20</b>	
<b>contact sleeve:</b>	tin-plated	
<b>contact spring:</b>	gold-plated	

### Precision contacts for pin cross section $\varnothing$ 0,5 mm

- one row
- no capillary action when soldering due to protected contact insert
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>		
<b>MK 25 SMD ...</b>		
<b>please indicate:</b>	<b>... no. of contacts one row 2 - 20</b>	
<b>contact sleeve:</b>	tin-plated	
<b>contact spring:</b>	gold-plated	

## Female headers

### Precision contacts for pin cross section Ø 0,5 mm

- one row
- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>		
<b>MK 23 SMD ...</b>		
<b>please indicate:</b>	<b>... no. of contacts one row 4 - 20</b>	<b>... packing (optional) B SM = pick and place pad and bar magazine</b>
<b>contact sleeve:</b>	tin-plated	
<b>contact spring:</b>	gold-plated	

### Option, for automatic assembly

		<b>MK 23 SMD ... B SM</b>
<b>... B SM</b>		

- two rows
- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>		
<b>MK 223 SMD ...</b>		
<b>please indicate:</b>	<b>... no. of contacts two rows 4 - 40</b>	<b>... packing (optional) B SM = pick and place pad and bar magazine</b>
<b>contact sleeve:</b>	tin-plated	
<b>contact spring:</b>	gold-plated	

### Option, for automatic assembly

		<b>MK 223 SMD ... B SM</b>
<b>... B SM</b>		

Single contacts metal strip Jumpers  
 Female headers 1.27 SMD  
 Female headers 2.00 SMD

→ G 49  
 → G 76 - 77  
 → G 73  
 → G 68

Female headers 2.54 press-fit  
 High-precision female headers THT  
 Female headers 2.54 press-fit  
 Technical data

→ G 66  
 → G 2 - 6  
 → G 50  
 → G 78 - 84

**G 64**

A

## Female headers

B

### Precision contacts for pin cross section $\varnothing 0,5$ mm

- no capillary action when soldering due to protected contact insert
- **separable!** any requested number of contact can be delivered

C

<b>art. no.</b>			
<b>MK 220 SMD ...</b>			
<b>please indicate:</b>	<b>... no. of contacts</b> two rows 4 - 40	<b>... packing (optional)</b> B SM = pick and place pad and bar magazine B TR = pick and place pad and tape and reel	

D

#### ... packing (option) - additions:

MK 220 SMD ... BTR 6-12 contacts; 800 pcs/reel

MK 220 SMD ... BTR 14-40 contacts; 500 pcs/reel

E

<b>contact sleeve:</b>	tin-plated
<b>contact spring:</b>	gold-plated

### Option, for automatic assembly

- reel diameter  $\varnothing 330$  mm

F

<b>... B SM</b>		<b>MK 220 SMD ... B SM</b>

H

<b>... B TR</b>	<b>MK 220 SMD ... 6-12 B TR</b>	<b>MK 220 SMD ... 14-40 B TR</b>

I

K

L

M

N

## G 65

Single contacts metal strip  
Jumpers  
Female headers 1.27 SMD  
Female headers 2.00 SMD

→ G 49  
→ G 76 - 77  
→ G 73  
→ G 68

Female headers 2.54 press-fit  
High-precision female headers THT  
Female headers 2.54 press-fit  
Technical data

→ G 66  
→ G 2 - 6  
→ G 50  
→ G 78 - 84

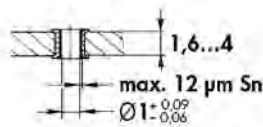
## Female headers

### Precision contacts for $\square$ 0.635 mm and up to $\varnothing$ 0.85 mm, pin cross section

- press-fit mounting without soldering, resilient press-fit area
- no capillary action when soldering due to protected inner contact contact
- **separable!** any requested number of contact can be delivered

art. no.				
BLP 1 ...				
art. no.				
BLP 2 ...				
<p>please indicate:      ... no. of contacts                                           one row    1 - 36                                           two rows 2 - 72</p>				
contact sleeve:	tin-plated			
contact spring:	gold-plated			

### Hole diameter in PCB - hole structure acc. to DIN EN 60352-5



Single contacts metal strip  
 Male headers 2.54 press-fit  
 Jumpers  
 Female headers 2.00 THT

→ G 49  
 → G 28  
 → G 76 - 77  
 → G 67

Female headers 2.54 press-fit  
 Shroud male head./press-fit mount.  
 Jumper links 2 & 2.54 THT  
 Technical data

→ G 50  
 → G 29  
 → F 15  
 → G 78 - 84

**G 66**

## Female headers

Precision contacts for  $\square$  0.5 mm and  $\varnothing$  up to 0.56 mm, pin cross section

- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

art. no.  <b>BLY 1 ...</b>				
art. no.  <b>BLY 2 ...</b>				
art. no.  <b>BLY 3 ...</b>				
art. no.  <b>BLY 4 ...</b>				
please indicate:		... no. of contacts one row 1 - 50 two rows 2 - 100		
contact sleeve:	tin-plated			
contact spring:	gold-plated			

G 67

Single contacts metal strip  
Male headers 2.00 THT  
Female header grid 2.00  
Female headers 2.00 SMD

→ G 49  
→ G 30 - 31  
→ H 7  
→ G 68

Jumpers  
High-precision female headers THT  
Jumper links 2 & 2.54 THT  
Technical data

→ G 76 - 77  
→ G 2 - 6  
→ F 15  
→ G 78 - 84



## Female headers

Precision contacts for  $\square$  0.5mm and  $\varnothing$  up to 0.56mm, pin cross section

<b>art. no.</b>			
<b>BLY 5 SMD ...</b>			
<b>please indicate:</b>	<b>... no. of contacts</b> one row 4 - 20	<b>... packing (optional)</b> B SM = pick and place pad and bar magazine	
<b>contact sleeve:</b>	fin-plated		
<b>contact spring:</b>	gold-plated		

### Option, for automatic assembly

<b>... B SM</b>	<b>BLY 5 SMD ... B SM</b>

- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>			
<b>BLY 6 SMD ...</b>			
<b>please indicate:</b>	<b>... no. of contacts</b> one row 2 - 20	<b>... packing (optional)</b> TR = tape and reel (2.400pcs/reel)	

**... packing (option) - additions:**  
**BLY 6 SMD ... TR: 2-10 contacts**

<b>contact sleeve:</b>	fin-plated
<b>contact spring:</b>	gold-plated

### Option, for automatic assembly

- reel diameter  $\varnothing$  330 mm

<b>... TR</b>	<b>BLY 6 SMD ... TR</b>

**Jumpers**  
**Single contacts metal strip**  
**Female headers 2.00 THT**  
**Female headers 2.54 SMD**

→ G 76 - 77  
 → G 49  
 → G 67  
 → G 58 - 64


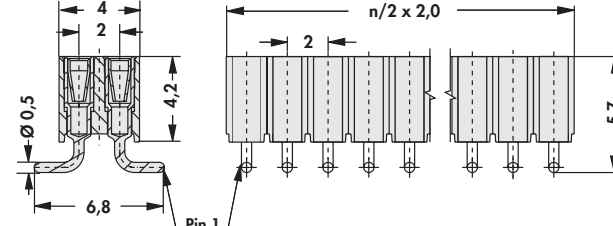
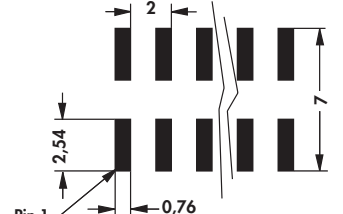
**Male headers 2.00 SMD**  
**Female headers 2.00 THT**  
**Male headers 2.00 THT**  
**Technical data**

→ G 33 - 35  
 → G 67 - 70  
 → G 30 - 31  
 → G 78 - 84

## Female headers

### Precision contacts for $\square$ 0.5 mm and $\varnothing$ up to 0.56 mm, pin cross section

- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

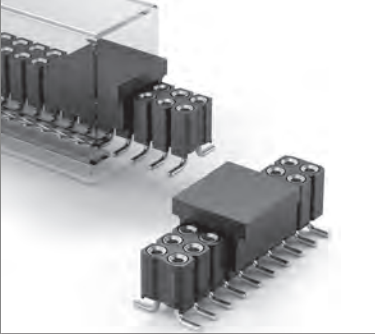
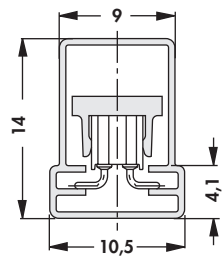
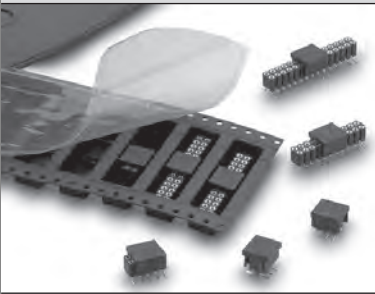
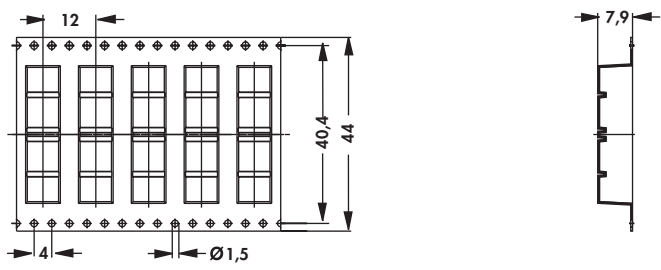
<b>art. no.</b>  <b>BLY 8 SMD ...</b>			
<b>please indicate:</b> ... no. of contacts two rows 4 - 40		<b>... packing (optional)</b> <b>B SM</b> = pick and place pad and bar magazine <b>B TR</b> = pick and place pad and tape and reel (650pcs/reel)	

**... packing (option) - additions:**  
**BLY 8 SMD ... B TR: 6-30 contacts**

<b>contact sleeve:</b>	tin-plated
<b>contact spring:</b>	gold-plated

### Option, for automatic assembly

– reel diameter  $\varnothing$  330 mm

	 <p style="text-align: center;"><b>BLY 8 SMD ... B SM</b></p>
<p>... B SM</p>  <p>... B TR</p>	 <p style="text-align: center;"><b>BLY 8 SMD ... B TR</b></p>

## Female headers

### Precision contacts for $\square$ 0.5 mm and $\varnothing$ up to 0.56 mm, pin cross section

- no capillary action when soldering due to protected inner contact
- **separable!** any requested number of contact can be delivered

<b>art. no.</b>			
<b>BLY 9 SMD ...</b>			
<b>please indicate:</b>	<b>... no. of contacts</b> two rows 4 - 40	<b>... packing (optional)</b> SM = bar magazine TR = tape and reel (800pcs./reel)	

**... packing (option) - additions:**  
**BLY 9 SMD ... SM: 8-40 contacts**  
**BLY 9 SMD ... TR: 4-20 contacts**

<b>contact sleeve:</b>	tin-plated
<b>contact spring:</b>	gold-plated

### Option, for automatic assembly

- reel diameter  $\varnothing$  330 mm

<p><b>... SM</b></p>	<p><b>BLY 9 SMD ... SM</b></p>
<p><b>... TR</b></p>	<p><b>BLY 9 SMD ... TR</b></p>

**Jumpers**  
**Single contacts metal strip**  
**Female headers 2.00 THT**  
**Female headers 2.54 SMD**

→ **G 76 - 77**  
 → **G 49**  
 → **G 67**  
 → **G 58 - 64**

**Male headers 2.00 SMD**  
**Female headers 2.00 THT**  
**Male headers 2.00 THT**  
**Technical data**

→ **G 33 - 35**  
 → **G 67 - 70**  
 → **G 30 - 31**  
 → **G 78 - 84**

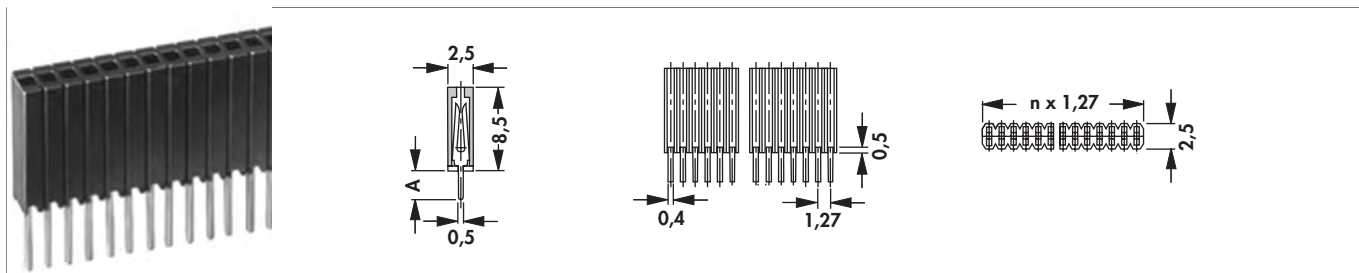
**G 70**

A  
B  
C  
D  
E  
F  
G  
H  
I  
K  
L  
M  
N

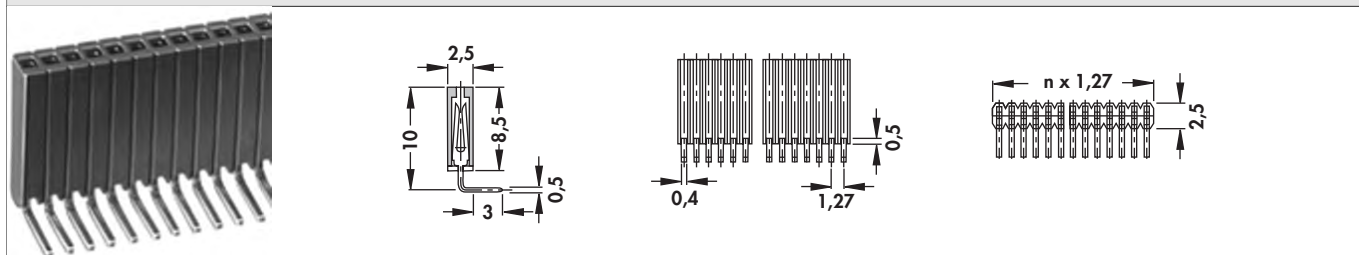
## Female headers

### Stamped contact spring (fork contact)

- matching male header **SLM** and **SLV**
- one row 1-36 contacts

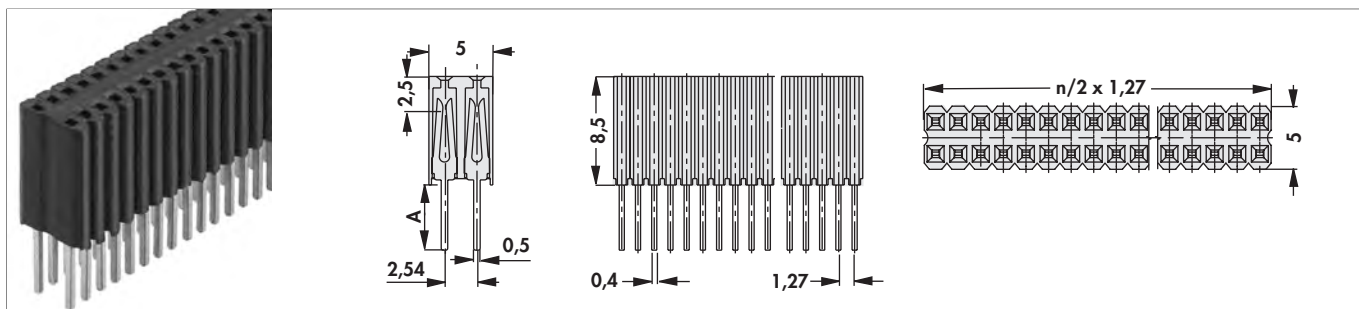


art. no.	dim. [mm]	art. no.	dim. [mm]
	A		A
<b>BLM KG 1 ...</b>	3.0	<b>BLM LG 1 ...</b>	5.1
<b>please indicate:</b>	<b>... no. of contacts one row 1-36</b>	<b>... surface of contact G = gold-plated Z = tin-plated</b>	



art. no.			
<b>BLM LA 1 ...</b>			
<b>please indicate:</b>	<b>... no. of contacts one row 1-36</b>	<b>... surface of contact G = gold-plated Z = tin-plated</b>	

- suitable for male header **SLV**
- two rows 4-72 contacts - grid spacing 1.27 x 2.54 mm



art. no.	dim. [mm]	art. no.	dim. [mm]
	A		A
<b>BLM KG 2 ...</b>	3.0	<b>BLM LG 2 ...</b>	5.1
<b>please indicate:</b>	<b>... no. of contacts two rows 4-72</b>	<b>... surface of contact G = gold-plated Z = tin-plated</b>	

**G 71**

Direct female connectors → G 75  
 Shroud male head./press-fit mount. → G 29  
 Male headers 1.27 THT → G 37 - 39  
 High-prec. male headers 1.27 SMD → G 43

High-prec. male head. 1.27 THT → G 42  
 Male headers 2.54 press-fit → G 28  
 Jumpers → G 76 - 77  
 Technical data → G 78 - 84

## Female headers

### Precision contacts for Ø 0.35...0.46 mm, pin cross section

- no capillary action when soldering due to protected inner contact
- other number of contacts on request!

<p><b>art. no.</b> <b>BLR 1 025 Z</b></p>	<p>no. of contacts 25</p>	<p><b>art. no.</b> <b>BLR 1 050 Z</b></p>	<p>no. of contacts 50</p>
<p><b>art. no.</b> <b>BLR 2 050 Z</b></p>	<p>no. of contacts 50</p>	<p><b>art. no.</b> <b>BLR 2 100 Z</b></p>	<p>no. of contacts 100</p>
<p><b>art. no.</b> <b>BLR 3 025 Z</b></p>	<p>no. of contacts 25</p>	<p><b>art. no.</b> <b>BLR 3 050 Z</b></p>	<p>no. of contacts 50</p>
<p><b>art. no.</b> <b>BLR 4 100 Z</b></p>	<p>no. of contacts 100</p>		
<p><b>contact sleeve:</b></p>	<p>tin-plated</p>		
<p><b>contact spring:</b></p>	<p>gold-plated</p>		

Shroud male head./press-fit mount. → G 29  
 Female headers 1.27 THT → G 71 - 72  
 High-prec. male headers 1.27 SMD → G 43  
 Male headers 1.27 SMD → G 40

Male headers 2.54 press-fit → G 28  
 Direct female connectors → G 75  
 High-prec. male head. 1.27 THT → G 42  
 Technical data → G 78 - 84

## Female headers

### Fork contact for $\square$ 0.3 mm and $\square$ 0.4 mm pin cross section, wide insulating body

- suitable for male header **SLM** and **SLV**
- one row 4-20 contacts

<b>art. no.</b>				
<b>BLM 1 SMD ...</b>				
<b>please indicate:</b>	<b>... no. of contacts</b> two rows 100 - 100 one row 4 - 20	<b>... surface of contact</b> <b>G</b> = gold-plated <b>Z</b> = tin-plated		

### Grid spacing 1.27 x 2.54 mm

- suitable for male header **SLV**
- two rows 4-40 contacts

<b>art. no.</b>				
<b>BLM 2 SMD ...</b>				
<b>please indicate:</b>	<b>... no. of contacts</b> two rows 4 - 40	<b>... surface of contact</b> <b>G</b> = gold-plated <b>Z</b> = tin-plated		

### Fork contact for $\square$ 0.3 mm and $\square$ 0.4 mm pin cross section, wide insulating body

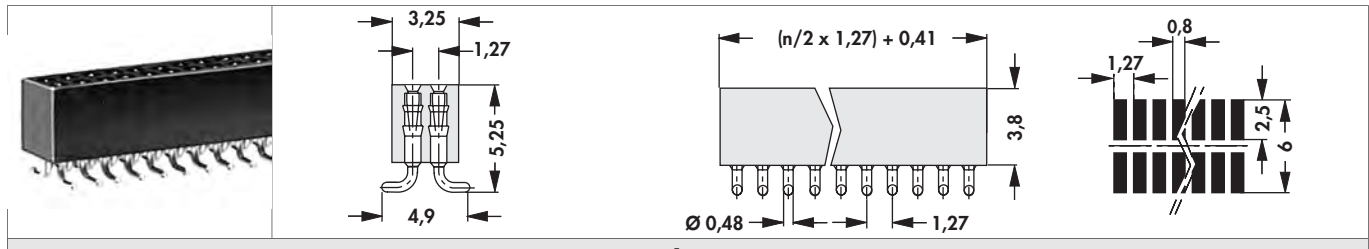
- matching for male header **SLV**
- one row 2-20 contacts

<b>art. no.</b>				
<b>BLM 3 SMD ...</b>				
<b>please indicate:</b>	<b>... no. of contacts</b> one row 2 - 20	<b>... surface of contact</b> <b>G</b> = gold-plated <b>Z</b> = tin-plated		

## Female headers

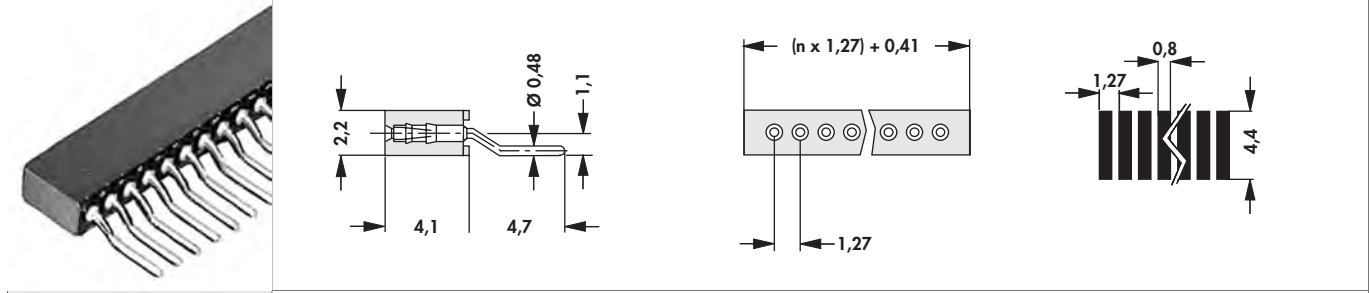
### Turned precision contacts for $\varnothing 0.35...0.46$ mm

- closed precision turned part with 3-finger contact prevents rising of flux agents
- other number of contacts on request!



art. no.

**BLR 6 SMD 100 Z**



art. no.

no. of contacts

**BLR 7 SMD 50 Z**

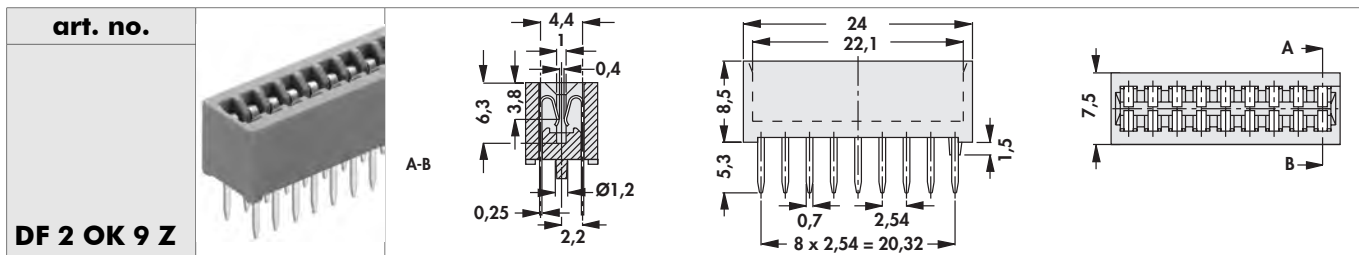
50

<b>contact sleeve:</b>	tin-plated
<b>contact spring:</b>	gold-plated

## Direct female connectors

### Without short circuit contact for PCB thickness: 0.7...0.9 mm

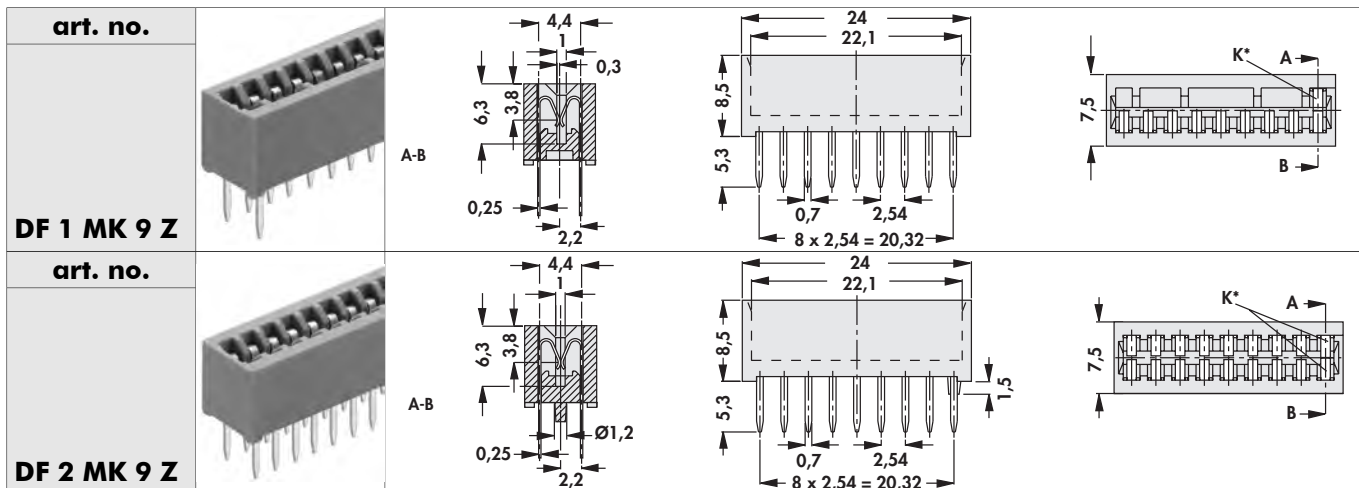
– for removable connection of digital displays, coding switches, impulse counters



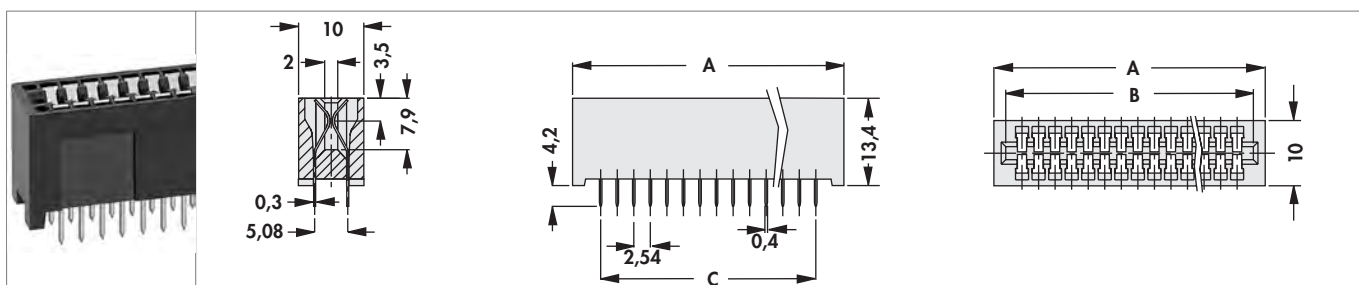
### With short circuit contact for PCB thickness: 0.7...0.9 mm

– for removable connection of digital displays, coding switches, impulse counters

– **K\*** = arcing contact



### For PCB thickness: 1.4...1.8 mm




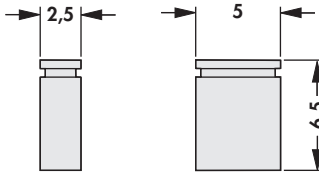

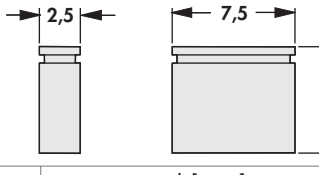
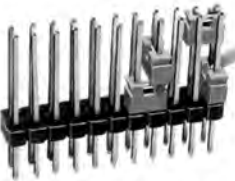
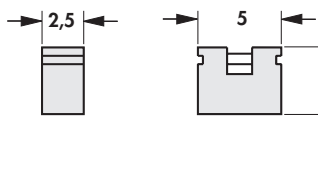
art. no.	no. of contacts	dim. [mm]		
		A	B	C
<b>DF OB 06</b>	12	21.33	17.70	12.70
<b>DF OB 07</b>	14	23.87	20.24	15.24
<b>DF OB 10</b>	20	31.49	27.86	22.86
<b>DF OB 17</b>	34	49.27	45.64	40.64

surface of contact: tin-plated



## Jumpers

For 0.6...0.64 mm wire wrap pins and for Ø 0.6...0.7 mm

				
art. no.	no. of contacts	surface of contact	grid [mm]	version
<b>CAB 4 G ...</b>	2	0.1 µm gold	2.54	closed
<b>CAB 4 Z ...</b>	2	5.0 µm tin	2.54	closed
				
art. no.	no. of contacts	surface of contact	grid [mm]	version
<b>CAB 5 05 G ...</b>	2	0.5 µm gold	5.08	closed, hole for test probe
<b>CAB 5 10 G ...</b>	2	1.0 µm gold	5.08	closed, hole for test probe
<b>CAB 5 Z ...</b>	2	5.0 µm tin	5.08	closed, hole for test probe
				
art. no.	no. of contacts	surface of contact	grid [mm]	version
<b>CAB 6 05 G ...</b>	2	0.5 µm gold	2.54	open, for miniature alligator clip
<b>CAB 6 10 G ...</b>	2	1.0 µm gold	2.54	open, for miniature alligator clip
<b>CAB 6 Z ...</b>	2	5.0 µm tin	2.54	open, for miniature alligator clip
<b>please indicate:</b>	<b>... colour</b> <b>S = black</b> <b>R = red</b> <b>B = blue</b> <b>G = grey</b>			

Male headers 2.54 SMD  
 Male headers 2.54 THT  
 Male headers 2.54 press-fit  
 Male headers 2.00 SMD

→ G 21 – 27  
 → G 7  
 → G 28  
 → G 33 – 35

Male headers 2.00 THT  
 High-precision female headers THT  
 High-prec. male headers 1.27 SMD  
 Technical data

→ G 30 – 31  
 → G 2 – 6  
 → G 43  
 → G 78 – 84

**G 76**

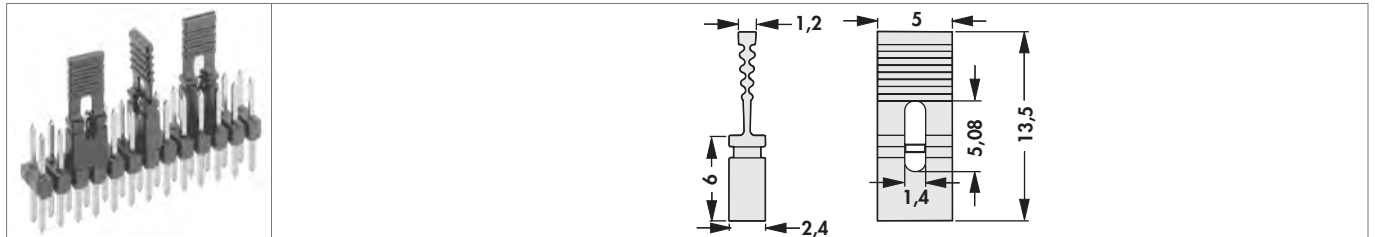
A

Jumpers

- the flexible contacts are short-circuiting two pins
- the jumpers can be mounted behind and next to each other

B

C



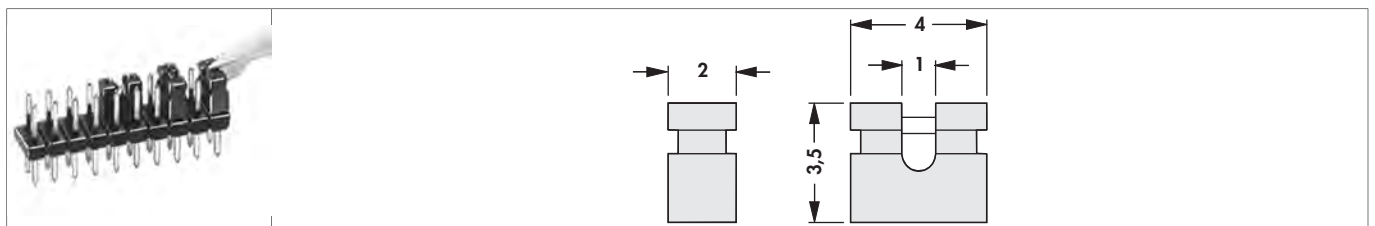
art. no.	no. of contacts	surface of contact	grid [mm]	version
<b>CAB 9 G ...</b>	2	<0.1 µm gold	2.54	tag, open

please indicate: ... colour  
**S = black**  
**R = red**

D

For □ 0.5 mm and for Ø 0.4...0.5 mm

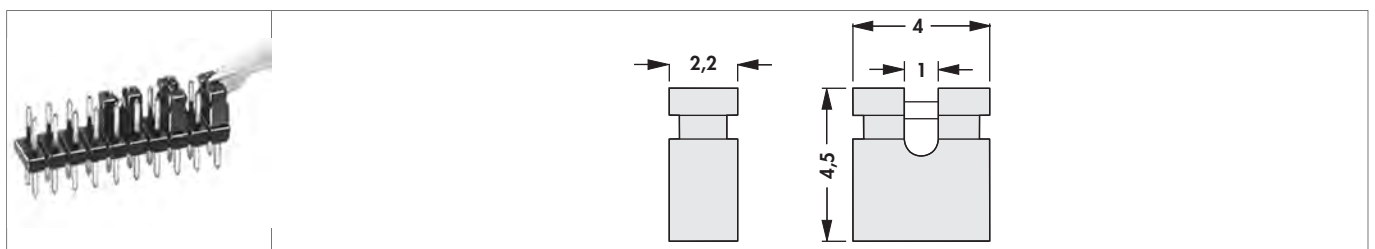
E



art. no.	no. of contacts	grid [mm]	version	colour
<b>CAB 10 G S</b>	2	2	open, for miniature alligator clip	black

F

G



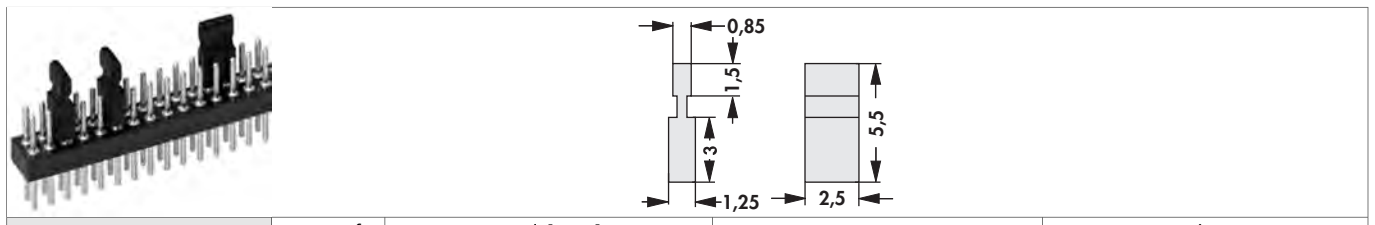
art. no.	no. of contacts	grid [mm]	version	colour
<b>CAB 11 G S</b>	2	2	open, for miniature alligator clip	black

H

I

For □ 0.3...0.4 mm and Ø 0.4...0.5 mm

K



art. no.	no. of contacts	grid [mm]	version	colour
<b>CAB 15 G S</b>	2	1.27	closed, tag	black

L

M

N

**G 77**

Male headers 2.54 SMD  
 Male headers 2.54 THT  
 Male headers 2.54 press-fit  
 Male headers 2.00 SMD

→ G 21 - 27  
 → G 7  
 → G 28  
 → G 33 - 35

Male headers 2.00 THT  
 High-precision female headers THT  
 High-prec. male headers 1.27 SMD  
 Technical data

→ G 30 - 31  
 → G 2 - 6  
 → G 43  
 → G 78 - 84

**Technical data PCB connectors**

	<b>MK ..., MK LP ...</b>	<b>SL ..., SL ... THR, SLK ..., SL LP ...</b>	<b>SLU ...</b>	<b>SL KA 3 ..., SL KG 3 ...</b>
<b>contact material</b>	CuZn-alloy	CuSn alloy		CuZn-alloy
<b>surface contact / contact sleeve</b>	Ni+ $\geq 0.2\mu\text{m}$ Au/ Ni+4... $6\mu\text{m}$ Sn		Ni+ $0.2\mu\text{m}$ Au (selective)/ Ni+4... $6\mu\text{m}$ Sn	Ni+ $\geq 0.2\mu\text{m}$ Au/ Ni+4... $6\mu\text{m}$ Sn
<b>shock resistance</b>	50 g			
<b>volume resistance</b>	$\leq 10\text{ m}\Omega$	$\leq 5\text{ m}\Omega$	$\leq 10\text{ m}\Omega$	$\leq 20\text{ m}\Omega$
<b>vibration resistance max.</b>	15 g			
<b>capacity between two adjacent contacts</b>	$\leq 0,4\text{ pF}$			
<b>nominal current</b>	1.5 A	3 A		
<b>nominal voltage</b>	60 V DC	250 V AC	100 V DC	250 V AC
<b>test voltage</b>	1000 V	2000 V	1000 V	
<b>insulating body material</b>	PA 4.6. GF			
<b>temperature range</b>	-40°C... +163°C/ (260°C/10 s)			-40°C... +163°C/ (260°C/5 s)
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>	$> 10^7\ \Omega\cdot\text{m}$			

	<b>SLP 1 ..., SLP 2 ..., SLUP 31 ...</b>	<b>SLY ...</b>	<b>SLM N ..., SLV N ..., SLV W ...</b>	<b>SLR ...</b>
<b>contact material</b>	CuSn alloy		CuZn-alloy	
<b>surface contact / contact sleeve</b>	Ni+ $\geq 0.2\mu\text{m}$ Au/ Ni+4... $6\mu\text{m}$ Sn			
<b>volume resistance</b>	$\leq 10\text{ m}\Omega$	$\leq 5\text{ m}\Omega$		$\leq 20\text{ m}\Omega$
<b>nominal current</b>	3 A		1.5 A	1 A
<b>nominal voltage</b>	250 V AC	100 V DC	125 V AC	100 V AC/ 150 V DC
<b>test voltage</b>	1000 V	500 V	300 V	500 V
<b>insulating body material</b>	PA 4.6. GF			PCT, GF
<b>temperature range</b>	-40°C... +163°C/ (260°C/10 s)			-40°C... +105°C/ (260°C/10 s)
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>	$> 10^7\ \Omega\cdot\text{m}$			

**Technical data PCB connectors**

	<b>MK 06 ..., MK 07/207 ..., MK 12/212 ..., MK 13/213 ..., MK 17/217 ...</b>	<b>MK 01/201 ..., MK 220 SMD ..., MK 228 THR ..., MK 23/223 ..., MK 25 SMD ..., MK LP 18 ..., MK LP 19 ..., MK LP 218 ..., MK LP 219 ...</b>	<b>PO A ...</b>	<b>SIL 1 ..., SIL 3 ...</b>
<b>contact material</b>	CuZn-alloy			
<b>surface contact / contact sleeve</b>	Ni+4...6µm Sn	Ni+≥0.2µm Au/ Ni+4...6µm Sn	Ni+4...6µm Sn	
<b>inner contact spring material</b>	CuBe-alloy			
<b>inner contact spring surface</b>	Ni+0,75µm Au	Ni+0,25µm Au	Ni+0,75µm Au	
<b>type internal spring</b>	4-fingers			
<b>plugability for circuit points</b>	□0,22x0,25mm... □0,4x0,55mm/ Ø0,4...0,56mm			
<b>insert depth</b>	2.5...3.6mm	2.5...3.4mm	2.5...3.6mm	
<b>insertion / drawing force</b>	1.8 N/1.4 N			
<b>shock resistance</b>	50 g		50 g	
<b>volume resistance</b>	≤10 mΩ		≤10 mΩ	
<b>vibration resistance max.</b>	15 g		15 g	
<b>capacity between two adjacent contacts</b>	≤0,4 pF		≤0,4 pF	
<b>nominal current</b>	1.5 A	3 A	1.5 A	
<b>nominal voltage</b>	60 V DC	150 V DC	60 V DC	
<b>test voltage</b>	1000 V	1000 V / 1 min.	1000 V	
<b>insulating body material</b>	PA 4.6. GF			
<b>temperature range</b>	-40°C... +163°C/ (260°C/10 s)	-55°C... +125°C/ (260°C/10 s)		
<b>class of flammibility</b>	UL 94 V-0			
<b>specific insulation resistance</b>	>10 <sup>7</sup> Ω·m			

	<b>SIL 2 ...</b>	<b>BL 1 ..., BL 2 ..., BL 3 ..., BL 4 ...</b>	<b>BL 11 ...</b>	<b>BL 12 ..., BL 21 ...</b>
<b>contact material</b>	CuZn-alloy	CuSn alloy		
<b>surface contact / contact sleeve</b>	Ni+4...6µm Sn	Ni+≥0.2µm Au/ Ni+4...6µm Sn	Ni+4...6µm Sn	
<b>inner contact spring material</b>	CuBe-alloy			
<b>inner contact spring surface</b>	Ni+0,25µm Au			
<b>type internal spring</b>	4-fingers	fork contact	spring contact	
<b>plugability for circuit points</b>	□0,22x0,25mm... □0,4x0,55mm/ ∅0,4...0,56mm	□0,5...0,7mm	□0,6...0,65mm	
<b>insert depth</b>	2.5...3.6mm	1.5...5mm	≤5mm from above/ ≤8mm from below	≤6mm from above or from be- low
<b>insertion / drawing force</b>	1.8 N/1.4 N	1.5 N/1.3 N	1.5 N/0.5 N	1.5 N/0.2 N
<b>shock resistance</b>	50 g			
<b>volume resistance</b>	≤10 mΩ		≤20 mΩ	
<b>vibration resistance max.</b>	15 g			
<b>capacity between two adjacent contacts</b>	≤0,4 pF	≤ 0,9 pF		
<b>nominal current</b>	1.5 A	3 A		
<b>nominal voltage</b>	60 V DC	125 V AC	250 V AC	
<b>test voltage</b>	1000 V	1500 V	500 V	
<b>insulating body material</b>		PPS	PA 4.6. GF	LCP
<b>temperature range</b>		-40°C... +200°C/ (260°C/10 s)	-40°C... +163°C/ (260°C/10 s)	-55°C... +125°C
<b>class of flammability</b>		UL 94 V-0		
<b>specific insulation resistance</b>		>10 <sup>12</sup> Ω·m	>10 <sup>7</sup> Ω·m	>10 <sup>12</sup> Ω·m

**Technical data PCB connectors**

	<b>BL KG 3 ...</b>	<b>BL 13 ..., BL 14 ..., BL 18 ..., BL 19 ...</b>	<b>BL LP ...</b>	<b>BL 15 - 17SMD ..., BL 20 SMD ..., BL 5 - 10 ...</b>
<b>contact material</b>	CuZn-alloy		CuSn alloy	CuZn-alloy
<b>surface contact / contact sleeve</b>	Ni+4...6 $\mu$ m Sn	Ni+ $\geq$ 0.2 $\mu$ m Au	Ni+0.2 $\mu$ m Au (selective)/ Ni+2...4 $\mu$ m Sn (matt finished tin)	Ni+4...6 $\mu$ m Sn
<b>inner contact spring material</b>	CuBe-alloy			CuBe-alloy
<b>inner contact spring surface</b>	Ni+0,75 $\mu$ m Au			Ni+0,75 $\mu$ m Au
<b>type internal spring</b>	6-fingers		fork contact	6-fingers
<b>plugability for circuit points</b>	$\square$ 0,55...0,65mm/ $\varnothing$ 0,65...0,85mm		$\square$ 0,5...0,7mm	$\square$ 0,55...0,65mm/ $\varnothing$ 0,65...0,85mm
<b>insert depth</b>	2.5...6mm		2...4mm	2.5...6mm
<b>insertion / drawing force</b>	1.3N/0.3N			1.3N/0.3N
<b>shock resistance</b>		50 g		50 g
<b>volume resistance</b>			$\leq$ 10 m $\Omega$	
<b>vibration resistance max.</b>		15 g		15 g
<b>capacity between two adjacent contacts</b>		$\leq$ 0,3 pF	$\leq$ 0,9 pF	$\leq$ 0,3 pF
<b>nominal current</b>	3 A			
<b>nominal voltage</b>	150 V DC		125 V AC	150 V DC
<b>test voltage</b>	500 V	1500 V		
<b>insulating body material</b>	PCT, GF	PA 4.6. GF	PPS	PA 4.6. GF
<b>temperature range</b>	-55°C... +125°C/ (260°C/10 s)	-40°C... +163°C/ (260°C/10 s)	-40°C... +200°C/ (260°C/10 s)	-40°C... +163°C/ (260°C/10 s)
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>		$>10^7 \Omega \cdot m$	$>10^{12} \Omega$	$>10^7 \Omega \cdot m$

**Technical data PCB connectors**

	<b>MK 21/221 ..., MK 22/222 ..., MK 24 SMD ...</b>	<b>BLP 1 ..., BLP 2 ...</b>	<b>BLY ...</b>	<b>BLR ...</b>
<b>contact material</b>	CuZn-alloy			
<b>surface contact / contact sleeve</b>	Ni+4...6µm Sn			
<b>inner contact spring material</b>	CuBe-alloy			
<b>inner contact spring surface</b>	Ni+0,75µm Au		Ni+0,25µm Au	Ni+0,75µm Au
<b>type internal spring</b>	6-fingers			3-fingers
<b>plugability for circuit points</b>	□0,55...0,65mm/ Ø0,65...0,85mm		□0,45...0,5mm/ Ø0,4...0,56mm	Ø0,35...0,46mm
<b>insert depth</b>	2.5...3.6mm	2.5...6mm	2.5...3.8mm	2.5...3mm
<b>insertion / drawing force</b>	1.3N/0.3N			1.2N/0.6N
<b>shock resistance</b>	50 g			
<b>volume resistance</b>	≤10 mΩ			≤20 mΩ
<b>vibration resistance max.</b>	15 g			
<b>capacity between two adjacent contacts</b>	≤0,3 pF	≤ 0,3 pF	≤0,7 pF	≤1,0 pF
<b>nominal current</b>	3 A	2 A	2.5 A	1 A
<b>nominal voltage</b>	150 V DC		100 V DC	
<b>test voltage</b>	1500 V	1000 V	500 V	
<b>insulating body material</b>	PA 4.6. GF			PCT, GF
<b>temperature range</b>	-40°C... +163°C/ (260°C/10 s)			-40°C... +105°C/ (260°C/10 s)
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>	>10 <sup>7</sup> Ω·m			

**Technical data PCB connectors**

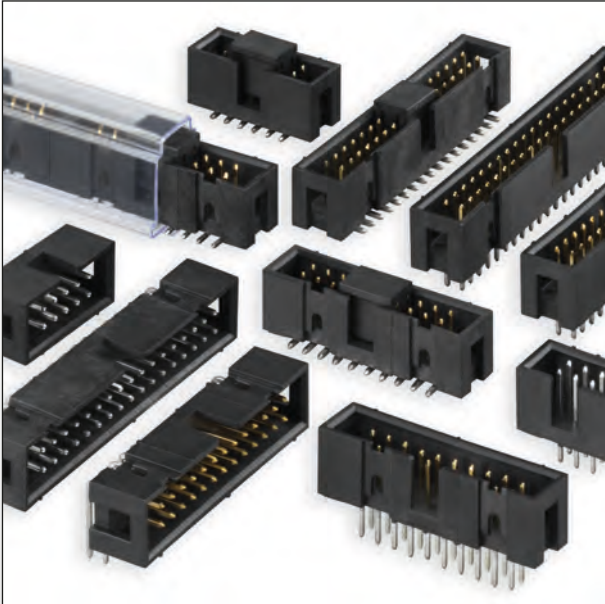
	<b>BLM ...</b>	<b>DF 1 ..., DF 2 ...</b>	<b>DF OB ...</b>	<b>CAB 4 ...</b>
<b>contact material</b>	CuSn alloy			
<b>surface contact / contact sleeve</b>	Ni+ $\geq 0.2\mu\text{m}$ Au/ Ni+4...6 $\mu\text{m}$ Sn	Ni+4...6 $\mu\text{m}$ Sn	Ni+7 $\mu\text{m}$ Sn	0.1 $\mu\text{m}$ Au/ 5 $\mu\text{m}$ Sn
<b>type internal spring</b>	fork contact		spring contact	
<b>plugability for circuit points</b>	□0,3...0,4mm			
<b>insert depth</b>	2.5...6mm			4...6.1 mm
<b>insertion / drawing force</b>	1.3 N/1.1 N			
<b>volume resistance</b>	$\leq 10 \text{ m}\Omega$			
<b>capacity between two adjacent contacts</b>	$\leq 0,4 \text{ pF}$			
<b>nominal current</b>	1.5 A	2 A	3 A	1.5 A
<b>nominal voltage</b>	125 V AC			250 V AC
<b>test voltage</b>	500 V		800 V	
<b>insulating body material</b>	PA 4.6. GF	polycarbonate	PA 4.6. GF	PBT
<b>temperature range</b>	-40°C... +163°C/ (260°C/10 s)	-40°C... +125°C	-40°C... +125°C/ (260°C/10 s)	-40°C... +105°C
<b>class of flammability</b>	UL 94 V-0			
<b>specific insulation resistance</b>	$> 10^7 \Omega \cdot \text{m}$			
<b>PCB thickness</b>		0,7...0,9 mm	1,4...1,8 mm	
<b>mounting</b>				without mounting eyelets



**Technical data PCB connectors**

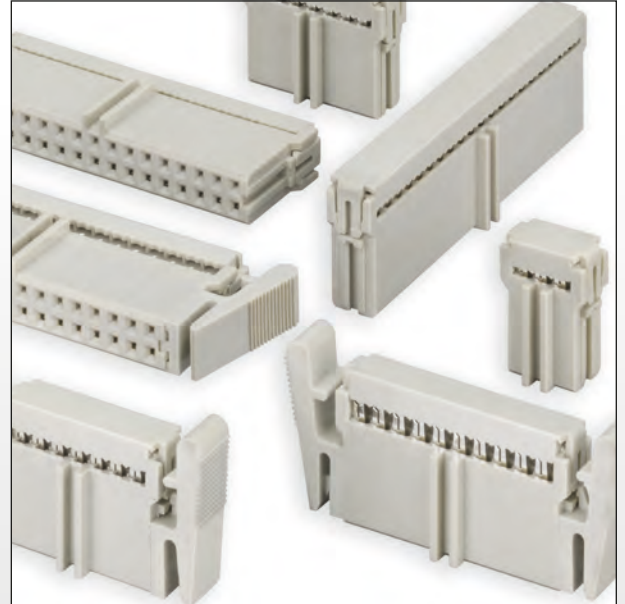
	<b>CAB 5 ...</b>	<b>CAB 6 ...</b>	<b>CAB 9 ...</b>	<b>CAB 10 G S</b>
<b>surface contact / contact sleeve</b>	0.5 $\mu\text{m}$ Au/ 1 $\mu\text{m}$ Au/ 5 $\mu\text{m}$ Sn		0.1 $\mu\text{m}$ Au	
<b>insert depth</b>	4...5.5mm	5mm...plug through	4...5.6mm	4mm...plug through
<b>nominal current</b>	3 A	1.5 A	3 A	1.5 A
<b>nominal voltage</b>	250 V AC		500 V AC	150 V DC
<b>insulating body material</b>	PA 6		PBT	
<b>temperature range</b>	-40°C... +105°C		-40°C... +105°C/ (resistance to soldering heat 235°C/30-60s)	-40°C... +105°C

	<b>CAB 11 G S</b>	<b>CAB 15 G S</b>
<b>surface contact / contact sleeve</b>	0.1 $\mu\text{m}$ Au	<0.1 $\mu\text{m}$ Au
<b>insert depth</b>	5mm...plug through	2.2...2.4mm
<b>nominal current</b>	1.5 A	1 A
<b>nominal voltage</b>	150 V DC	100 V AC
<b>insulating body material</b>	PBT	PA 66
<b>temperature range</b>	-40°C... +105°C	-40°C... +150°C



**Shroud male headers**

- shroud male headers for lockable multipoint connector
- version: 2 rows, 6 contacts up to 50 contacts, grid 2,54 mm
- straight, angled and for SMD technology
- reflow solderable insulator
- class of flammability acc. to UL 94 V0



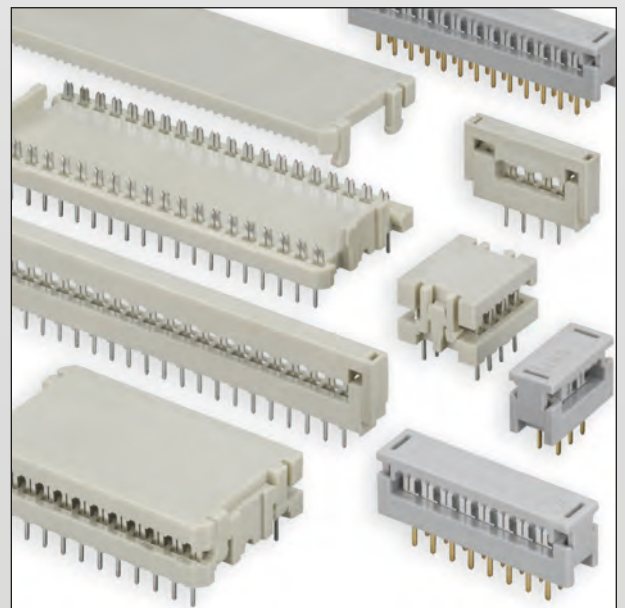
**Multipoint connector with and without lock**

- multipoint connector for ribbon cable
- version: two rows, 6 contacts up to 50 contacts, grid 2,54mm
- version without lock
- with polarisation



**Multipoint connector, one and two rows**

- multipoint connector for ribbon cable
- two rows with and without pull relief, grid 2,54, 6 contacts up to 50 contacts
- two rows in grid 2,0 mm, 20 contacts up to 50 contacts
- polarisation at the two row version
- one row in grid 2,54 mm, 3 contacts up to 25 contacts



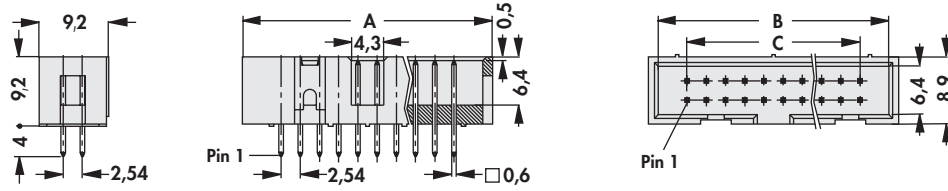
**PCB connector**

- PCB connector for ribbon cable
- one row in grid 2,54 mm, 4 contacts up to 20 contacts
- two rows in grid 2,54 mm, 6 contacts up to 34 contacts
- two rows in DIL design, grid 2,54 mm, 4 contacts up to 40 contacts

## Shroud-male header

### Straight, two rows, shrouded

- suitable for female multipoint connector **VFL, FLMP, PV**
- in addition they can be combined with many other ribbon cable connectors in 2.54 mm pitch
- plug-in area available in gold-plated or completely tin-plated!

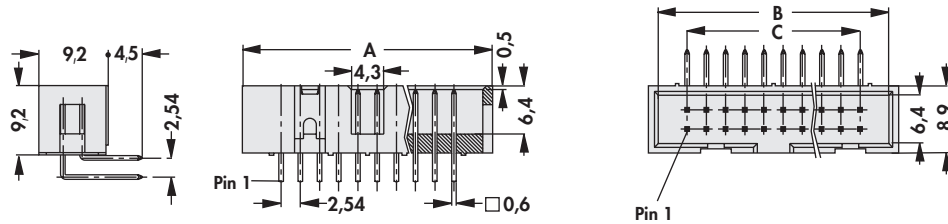


art. no.	no. of contacts	dim. [mm]			art. no.	no. of contacts	dim. [mm]		
		A	B	C			A	B	C
<b>ASLG 06 ...</b>	6	15.3	12.7	5.08	<b>ASLG 20 ...</b>	20	33.1	30.5	22.86
<b>ASLG 08 ...</b>	8	17.8	15.2	7.62	<b>ASLG 26 ...</b>	26	40.7	38.1	30.48
<b>ASLG 10 ...</b>	10	20.4	17.8	10.16	<b>ASLG 34 ...</b>	34	50.9	48.3	40.64
<b>ASLG 12 ...</b>	12	22.9	20.3	12.70	<b>ASLG 40 ...</b>	40	58.5	55.9	48.26
<b>ASLG 14 ...</b>	14	25.4	22.9	15.24	<b>ASLG 50 ...</b>	50	71.2	68.6	60.96
<b>ASLG 16 ...</b>	16	28.0	25.4	17.78					

**please indicate:** ... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

### Angled, two rows, shrouded

- suitable for female multipoint connector **VFL, FLMP, PV**
- in addition they can be combined with many other ribbon cable connectors in 2.54 mm pitch
- plug-in area available in gold-plated or completely tin-plated!


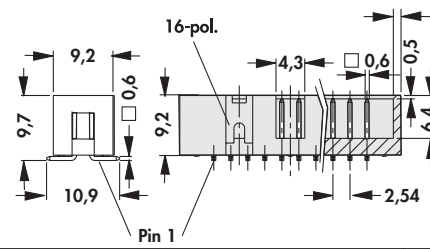
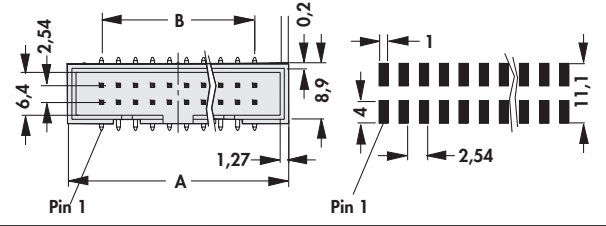


art. no.	no. of contacts	dim. [mm]			art. no.	no. of contacts	dim. [mm]		
		A	B	C			A	B	C
<b>ASLA 06 G</b>	6	15.3	12.7	5.08	<b>ASLA 20 G</b>	20	33.1	30.5	22.86
<b>ASLA 08 G</b>	8	17.8	15.2	7.62	<b>ASLA 26 G</b>	26	40.7	38.1	30.48
<b>ASLA 10 G</b>	10	20.4	17.8	10.16	<b>ASLA 34 G</b>	34	50.9	48.3	40.64
<b>ASLA 12 G</b>	12	22.9	20.3	12.70	<b>ASLA 40 G</b>	40	58.5	55.9	48.26
<b>ASLA 14 G</b>	14	25.4	22.9	15.24	<b>ASLA 50 G</b>	50	71.2	68.6	60.96
<b>ASLA 16 G</b>	16	28.0	25.4	17.78					

## Shroud-male header

### SMD, two rows, shrouded

- suitable for female multipoint connector **VFL, FLMP, PV**
- **VPE** = packing unit (pieces/tube)
- plug-in area available in gold-plated or completely tin-plated!
- in addition they can be combined with many other ribbon cable connectors in 2.54 mm pitch

art. no.	no. of contacts	packing unit	dim. [mm]		art. no.	no. of contacts	packing unit	dim. [mm]	
			A	B				A	B
<b>ASL 06 SMD ...</b>	6	32	15.3	5.08	<b>ASL 20 SMD ...</b>	20	15	33.1	22.86
<b>ASL 08 SMD ...</b>	8	27	17.8	7.62	<b>ASL 26 SMD ...</b>	26	12	40.7	30.48
<b>ASL 10 SMD ...</b>	10	24	20.4	10.16	<b>ASL 34 SMD ...</b>	34	9	50.9	40.64
<b>ASL 12 SMD ...</b>	12	21	22.9	12.70	<b>ASL 40 SMD ...</b>	40	8	58.5	48.26
<b>ASL 14 SMD ...</b>	14	19	25.4	15.24	<b>ASL 50 SMD ...</b>	50	7	71.2	60.96
<b>ASL 16 SMD ...</b>	16	17	28.0	17.78					

**please indicate:**


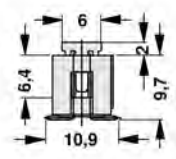
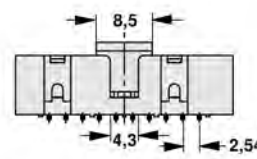
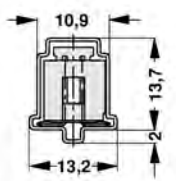
... surface of contact  
**G** = gold-plated  
**Z** = tin-plated

... packing  
**SM** = bar magazine  
**B SM** = pick and place pad and bar magazine

### Option, for automatic assembly

#### Pick and place pad "B" and bar magazin "SM"

- position of the pick and place pad in the middle

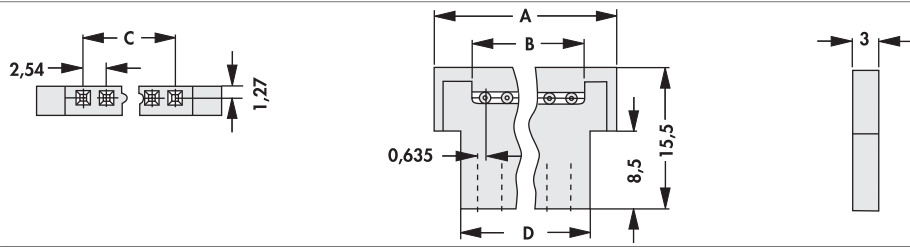
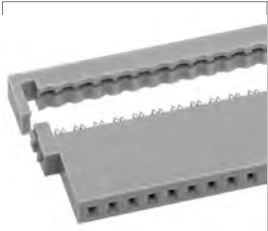





... B SM	ASL ... SMD ...	ASL ... SMD ... B SM
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Female connector

One row

– excess length of the ribbon cable to the case at  $\geq 1$  mm!



art. no.	no. of contacts	dim. [mm]			
		A	B	C	D
FV 03 ...	3	15.24	7.62	5.08	8.89
FV 04 ...	4	17.78	10.16	7.62	11.43
FV 05 ...	5	20.32	12.70	10.16	7.62
FV 06 ...	6	22.86	15.24	5.08	16.51
FV 07 ...	7	25.40	17.78	15.24	19.05
FV 08 ...	8	27.94	20.32	17.78	21.59
FV 10 ...	10	33.02	25.40	22.86	26.67
FV 12 ...	12	38.10	30.48	27.94	31.75
FV 13 ...	13	40.64	33.02	30.48	34.29
FV 14 ...	14	43.18	35.66	33.02	36.83
FV 16 ...	16	48.26	40.64	38.10	41.91
FV 17 ...	17	50.80	43.18	40.64	44.45
FV 18 ...	18	53.34	45.72	43.18	46.99
FV 20 ...	20	58.42	50.80	48.26	52.07
FV 24 ...	24	68.58	60.96	58.42	62.23
FV 25 ...	25	71.12	63.50	60.96	64.77

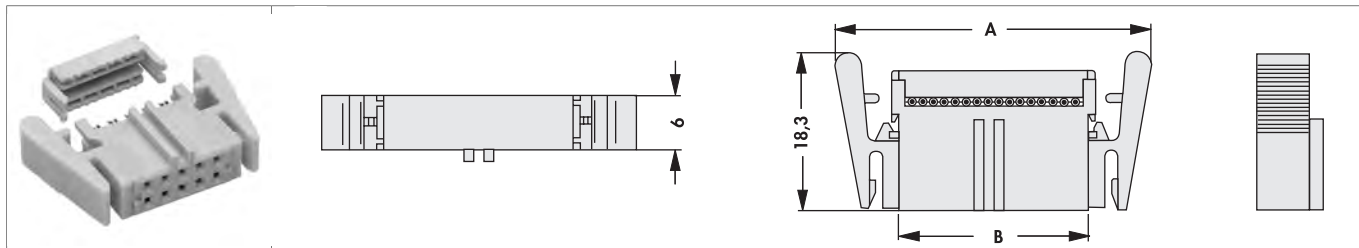
please indicate: ... surface of contact  
**G = gold-plated**  
**Z = tin-plated**

annotation:	IDC-pattern 2.54mm
conductor cross-section:	AWG 28...30 = 0,09...0,05 mm <sup>2</sup>
insulation diameter:	≤ 1,1 mm
suitable ribbon cable round conductor flat cable:	AWG 28 = massive or strand
recommended connector pins:	□ 0,635 mm

**Female connector**

**Two rows, with polarisation**

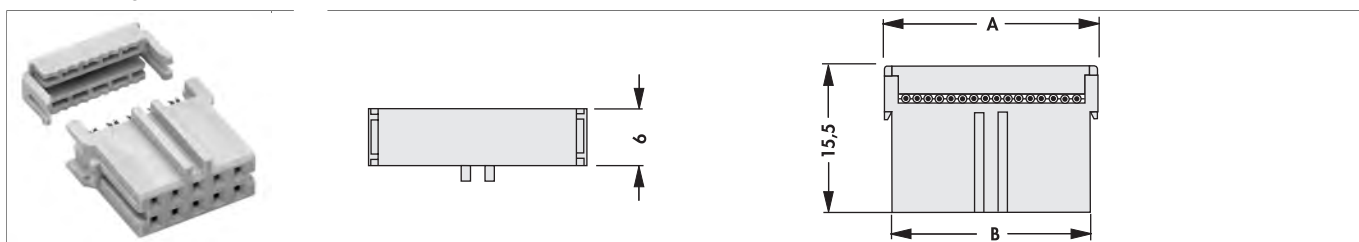
– lockable female multipoint connector, suitable for shrouded male header **ASL ...**



art. no.	no. of contacts	dim. [mm]		art. no.	no. of contacts	dim. [mm]	
		A	B			A	B
<b>VFL 06 ...</b>	6	23.58	9.56	<b>VFL 20 ...</b>	20	41.36	27.34
<b>VFL 08 ...</b>	8	26.12	12.10	<b>VFL 26 ...</b>	26	48.98	34.96
<b>VFL 10 ...</b>	10	28.66	14.64	<b>VFL 34 ...</b>	34	59.14	45.12
<b>VFL 12 ...</b>	12	31.20	17.18	<b>VFL 40 ...</b>	40	66.76	52.74
<b>VFL 14 ...</b>	14	33.74	19.72	<b>VFL 50 ...</b>	50	79.46	65.44
<b>VFL 16 ...</b>	16	36.28	22.26				

**please indicate:** ... surface of contact  
**G = gold-plated**  
**Z = tin-plated**

– suitable for shrouded male header **ASL ...**  
 – excess length of the ribbon cable to the case at  $\geq 1$  mm!



art. no.	no. of contacts	dim. [mm]		art. no.	no. of contacts	dim. [mm]	
		A	B			A	B
<b>FLMP 06 ...</b>	6	10.97	9.56	<b>FLMP 20 ...</b>	20	28.75	27.34
<b>FLMP 08 ...</b>	8	13.51	12.10	<b>FLMP 26 ...</b>	26	36.37	34.96
<b>FLMP 10 ...</b>	10	16.05	14.64	<b>FLMP 34 ...</b>	34	46.53	45.12
<b>FLMP 12 ...</b>	12	18.59	17.18	<b>FLMP 40 ...</b>	40	54.15	52.74
<b>FLMP 14 ...</b>	14	21.13	19.72	<b>FLMP 50 ...</b>	50	66.85	65.44
<b>FLMP 16 ...</b>	16	23.67	22.26				

**please indicate:** ... surface of contact  
**G = gold-plated**  
**Z = tin-plated**

<b>annotation:</b>	IDC-pattern 1.27mm
<b>conductor cross-section:</b>	AWG 28...30 = 0,09...0,05 mm <sup>2</sup>
<b>insulation diameter:</b>	$\leq 1,1$ mm
<b>suitable ribbon cable round conductor flat cable:</b>	AWG 28 = massive or strand

**H 5**

Female header grid 2.00  
 Application tools  
 PC connectors  
 PC connector design DIL

→ H 7  
 → H 10  
 → H 8  
 → H 9

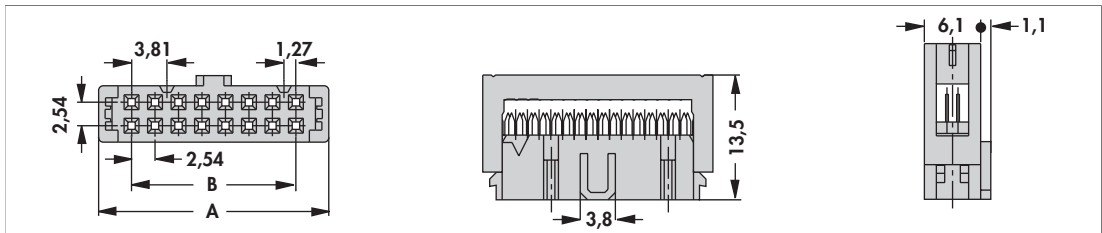
Female header two rows  
 Boltable female header  
 Shrouded male header  
 Technical data

→ H 6  
 → H 5  
 → H 2  
 → H 11 – 12

Female connector

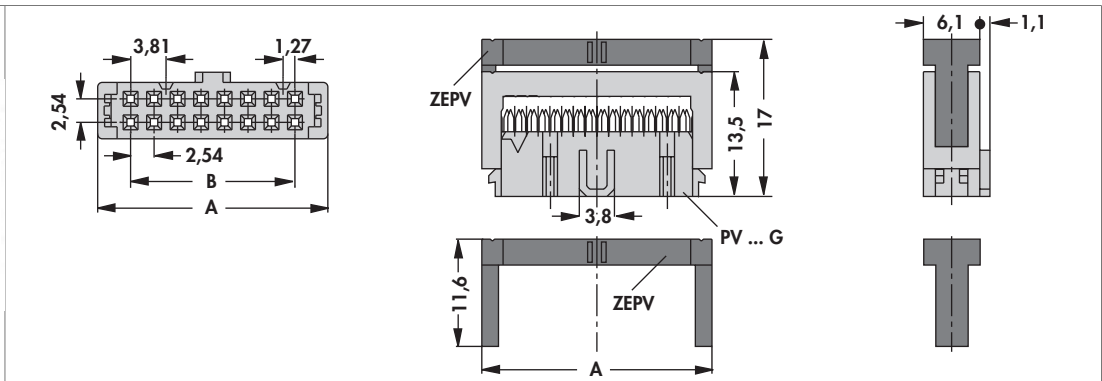
Two rows, with polarisation

- suitable for shrouded male header **ASL ...**
- excess length of the ribbon cable to the case at  $\geq 1$  mm!



art. no.	no. of contacts	passende Zugentlastung	dim. [mm]		art. no.	no. of contacts	passende Zugentlastung	dim. [mm]	
			A	B				A	B
<b>PV 06 G</b>	6	<b>ZEPV 06</b>	12.2	5.08	<b>PV 26 G</b>	26	<b>ZEPV 26</b>	37.6	30.48
<b>PV 10 G</b>	10	<b>ZEPV 10</b>	17.3	10.16	<b>PV 34 G</b>	34	<b>ZEPV 34</b>	47.8	40.64
<b>PV 14 G</b>	14	<b>ZEPV 14</b>	22.4	15.24	<b>PV 40 G</b>	40	<b>ZEPV 40</b>	55.4	48.26
<b>PV 16 G</b>	16	<b>ZEPV 16</b>	24.9	17.78	<b>PV 50 G</b>	50	<b>ZEPV 50</b>	68.1	60.96
<b>PV 20 G</b>	20	<b>ZEPV 20</b>	30.0	22.86					

<b>surface of contact:</b>	gold-plated
<b>annotation:</b>	IDC-pattern 1.27mm
<b>conductor cross-section:</b>	AWG 28...30 = 0,09...0,05 mm <sup>2</sup>
<b>insulation diameter:</b>	$\leq 1,1$ mm
<b>suitable ribbon cable round conductor flat cable:</b>	AWG 28 = massive or strand



art. no.	no. of contacts	dim. [mm]		art. no.	no. of contacts	dim. [mm]	
		A	B			A	B
<b>ZEPV 06</b>	6	12.2	5.08	<b>ZEPV 26</b>	26	37.6	30.48
<b>ZEPV 10</b>	10	17.3	10.16	<b>ZEPV 34</b>	34	47.8	40.64
<b>ZEPV 14</b>	14	22.4	15.24	<b>ZEPV 40</b>	40	55.4	48.26
<b>ZEPV 16</b>	16	24.9	17.78	<b>ZEPV 50</b>	50	68.1	60.96
<b>ZEPV 20</b>	20	30.0	22.86				

A

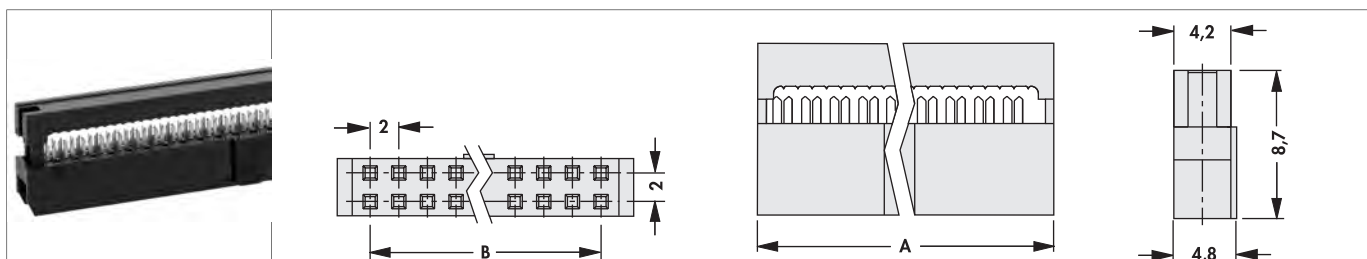
**Female connector**

B

**Two rows**

– excess length of the ribbon cable to the case  $\geq 1$  mm!

C



D

art. no.	no. of contacts	dim. [mm]	
		A	B
<b>PVY 20 S</b>	20	25.1	18
<b>PVY 40 S</b>	40	45.3	38
<b>PVY 44 S</b>	44	49.3	42
<b>PVY 50 S</b>	50	55.1	48

E

<b>surface of contact:</b>	selective gold-plated
<b>annotation:</b>	IDC-pattern, 1 mm
<b>recommended connector pins:</b>	<input type="checkbox"/> 0,5 mm

F

G

H

I

K

L

M

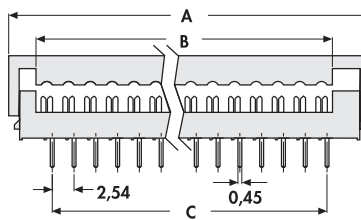
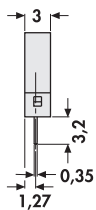
N

<b>H 7</b>	<b>Female header grid 2.00</b>	→ H 7	<b>Female header two rows</b>	→ H 6
	<b>Application tools</b>	→ H 10	<b>Boltable female header</b>	→ H 5
	<b>PC connectors</b>	→ H 8	<b>Shrouded male header</b>	→ H 2
	<b>PC connector design DIL</b>	→ H 9	<b>Technical data</b>	→ H 11 – 12



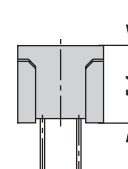
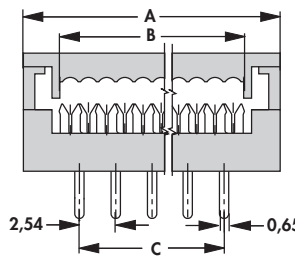
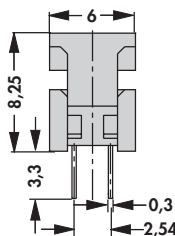
Printed circuit connector

– excess length of the ribbon cable to the case at  $\geq 1$  mm!



art. no.	no. of contacts	dim. [mm]		
		A	B	C
<b>SBAU 1 04 Z</b>	4	17.78	10.16	7.62
<b>SBAU 1 06 Z</b>	6	22.86	15.24	12.70
<b>SBAU 1 08 Z</b>	8	27.94	20.32	17.78
<b>SBAU 1 10 Z</b>	10	33.02	25.40	22.86
<b>SBAU 1 12 Z</b>	12	38.10	30.48	27.94
<b>SBAU 1 14 Z</b>	14	43.18	35.56	33.02
<b>SBAU 1 16 Z</b>	16	48.26	40.64	38.10
<b>SBAU 1 17 Z</b>	17	50.80	43.18	40.64
<b>SBAU 1 18 Z</b>	18	53.34	45.72	43.18
<b>SBAU 1 20 Z</b>	20	58.42	50.80	48.26
<b>surface of contact:</b>		tin-plated		
<b>annotation:</b>		IDC-pattern 2.54mm		
<b>insulation diameter:</b>		$\leq 1,1$ mm		
<b>suitable ribbon cable round conductor flat cable:</b>		AWG 28 = massive or strand		

– excess length of the ribbon cable to the case at  $\geq 1$  mm!



art. no.	no. of contacts	dim. [mm]		
		A	B	C
<b>SBAU 06 S</b>	6	12.9	7.8	5.08
<b>SBAU 10 S</b>	10	18.0	12.9	10.16
<b>SBAU 14 S</b>	14	23.0	18.0	15.24
<b>SBAU 16 S</b>	16	25.6	20.5	17.78
<b>SBAU 20 S</b>	20	30.7	25.6	22.86
<b>SBAU 26 S</b>	26	38.3	33.2	30.48
<b>SBAU 34 S</b>	34	48.5	43.4	40.64
<b>surface of contact:</b>		selective gold-plated: solder area gold-plated, IDC area nickel-plated		
<b>annotation:</b>		IDC-pattern 1.27mm		
<b>insulation diameter:</b>		$\leq 1,1$ mm		
<b>suitable ribbon cable round conductor flat cable:</b>		AWG 28 = massive or strand		

Female header one row → H 4  
 D-Sub connectors /flat cable → I 11  
 PC connector design DIL → H 9  
 Female header two rows → H 6

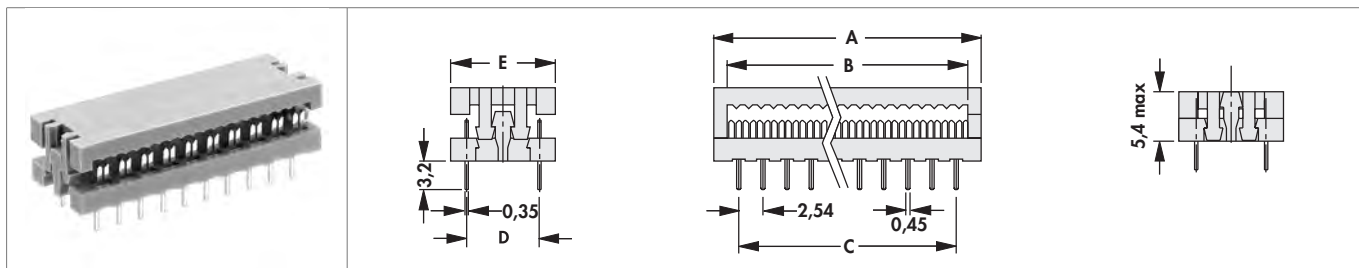
Application tools → H 10  
 Flat cable → H 10  
 Female header grid 2.00 → H 7  
 Technical data → H 11 - 12

**H 8**

**Printed circuit connector**

**Design DIL**

– excess length of the ribbon cable to the case at  $\geq 1$  mm!



art. no.	no. of contacts	dim. [mm]				
		A	B	C	D	E
<b>KK 04 Z</b>	4	8.0	5.1	2.54	7.62	11.0
<b>KK 06 Z</b>	6	10.3	7.6	5.08	7.62	11.0
<b>KK 08 Z</b>	8	13.0	10.2	7.62	7.62	11.0
<b>KK 10 Z</b>	10	15.4	12.7	10.16	7.62	11.0
<b>KK 12 Z</b>	12	18.0	15.3	5.08	7.62	11.0
<b>KK 14 Z</b>	14	20.5	17.8	15.24	7.62	11.0
<b>KK 16 Z</b>	16	23.0	20.3	17.78	7.62	11.0
<b>KK 18 Z</b>	18	25.6	22.9	20.32	7.62	11.0
<b>KK 20 Z</b>	20	28.1	25.4	22.86	7.62	11.0
<b>KK 24 Z</b>	24	33.0	30.5	27.94	15.24	18.7
<b>KK 28 Z</b>	28	38.1	35.6	33.02	15.24	18.7
<b>KK 40 Z</b>	40	53.3	50.8	48.26	15.24	18.7
<b>surface of contact:</b>	tin-plated					
<b>annotation:</b>	IDC-pattern 1.27mm					
<b>insulation diameter:</b>	$\leq 1,1$ mm					
<b>suitable ribbon cable round conductor flat cable:</b>	AWG 28 = massive or strand					

**H 9**

Female header one row  
 D-Sub connectors /flat cable  
 PC connector design DIL  
 Female header two rows

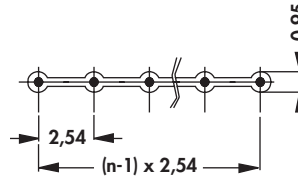
→ H 4  
 → I 11  
 → H 9  
 → H 6

Application tools  
 Flat cable  
 Female header grid 2.00  
 Technical data

→ H 10  
 → H 10  
 → H 7  
 → H 11 – 12

Accessories for flat ribbon cable and application tools

Flat ribbon cable - Spacing 2.54 mm - suitable for connectors FV, SBAU 1



<b>art. no.</b>	no. of contacts
<b>BK 01 32</b>	32

**Bench press**

- height without handle: 28 cm, weight: 9.02 kg
- the bench press **VBK 1** connects all contacts of IDC connector types **KK, SB, SV, PV, VFL, FV, PVZ** in one simple operation
- the contacts separate the insulation of the flat ribbon cable, whereas a gas-tight and corrosion-proof connection is effected by the construction of the contacts form



<b>art. no.</b>
<b>VBK 1</b>

**Accessories, suitable for ribbon cable connector**

- exchangeable crimping dies for any indicated types available

<b>art. no.</b>	suitable for male connectors and female headers
<b>KK W</b>	KK
<b>SB W</b>	SB
<b>PV W</b>	PV/ VFL/ FLMP
<b>D W 9 37</b>	D-Sub (9-37 contacts)
<b>PVY W</b>	PVY

**Boltable female header**  
**Female header one row**  
**PC connector design DIL**  
**Female header two rows**

→ H 5  
 → H 4  
 → H 9  
 → H 6

**Shroud. male header SMD**  
**PC connectors**  
**Application tools**  
**Technical data**

→ H 3  
 → H 8  
 → H 10  
 → H 11 - 12

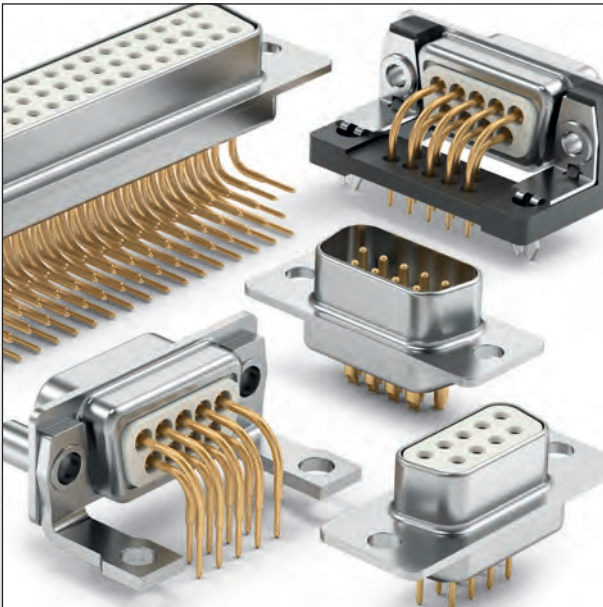
**H 10**

**Technical data IDC-connectors**

	<b>ASL ...</b>	<b>FV ...</b>	<b>FLMP ..., VFL ...</b>	<b>PV ...</b>
<b>surface contact / contact sleeve</b>	Ni+ $\geq 0.2\mu\text{m Au/}$ Ni+4...8 $\mu\text{m Sn}$	Ni+ $\geq 0.2\mu\text{m Au/}$ Ni+5...10 $\mu\text{m Sn}$		Ni+ $\geq 5\mu\text{m Sn/}$ Ni+ $\geq 0.2\mu\text{m Au}$
<b>contact material</b>	CuSn alloy			
<b>creeping current resistance</b>		KC 175 nach DIN 53480		KC 250
<b>creepage</b>	$\geq 1,1\text{mm}$ VDE0110	1,4mm VDE0110		
<b>air gap</b>	$\geq 0,8\text{ mm}$ VDE0110	1mm VDE0110		
<b>nominal current</b>	1 A	2 A	1 A	2 A
<b>nominal voltage</b>	250V AC insulation group A, according to VDE0110			
<b>test voltage</b>	500 V AC			
<b>insertion / drawing force</b>		$\geq 0.3\text{N ... } \leq 0.7\text{N}$ per contact		
<b>cycles of operation</b>		$\geq 50$ according to DIN 41640	200 to DIN41651	
<b>insulating body material</b>	PA 4.6. GF	PC/ colour: RAL 7032		
<b>temperature range</b>	-40°C... +163°C/ (260°C/10 s)	-55°C... +125°C		
<b>class of flammibility</b>	UL 94 V-0			
<b>specific insulation resistance</b>	$> 10^7 \Omega \cdot \text{m}$			
<b>conductor cross-section</b>		AWG 28...30 = 0,09...0,05 mm <sup>2</sup>		

**Technical data IDC-connectors**

	<b>PVY ... S</b>	<b>KK ... Z, SBAU 1 ... Z</b>	<b>SBAU ... S</b>	<b>BK 01 32</b>
<b>surface contact / contact sleeve</b>	contact area: Ni+<0.1µm Au (flashgold)/ con- nection area: Ni+0.5...2.5µm Sn	Ni+5...10µm Sn	soldering area: Ni+>0.1µm Au (flashgold)/ IDC area nickel-plated	
<b>contact material</b>	CuSn alloy			
<b>creeping current resistance</b>		KC 175 nach DIN 53480		
<b>creepage</b>		≥0,7mm VDE 0110		
<b>air gap</b>		≥0,5 mm VDE 0110		
<b>nominal current</b>		1 A		2 A
<b>nominal voltage</b>		250V AC insulation group A, according to VDE0110		300 V <sub>eff</sub> max.
<b>test voltage</b>		500 V AC		
<b>insertion / drawing force</b>	≥0.5 ... ≤1.8N per contact			
<b>insulating body material</b>	PBT/ colour: black	PC/ colour: RAL 7032		
<b>temperature range</b>	-55°C... +105°C	-40°C... +125°C		-30°C... +105°C
<b>class of flammability</b>	UL 94 V-0		UL 94 V-1	
<b>specific insulation resistance</b>	>10 <sup>10</sup> Ω·m	>10 <sup>12</sup> Ω·m		
<b>conductor</b>				7 x Ø 0,127 mm
<b>conductor cross-section</b>		AWG 28...30 = 0,09...0,05 mm <sup>2</sup>		AWG 28/~0,089 mm <sup>2</sup>
<b>capacity</b>				≤ 65 pF/m sym- metrical
<b>conductor resistance</b>				≤230mΩ/m
<b>characteristic impedance</b>				170 Ω symmet- risch



**D-Sub connectors**

- with Wire Wrap, solder cup and dip soldering connection
- with plastic angle and rivet, earthing plate, snap-in clip
- with metal angle and rivet



**D-Sub special design**

- high density connector
- filter connectors
- ribbon cable connector
- mixed layout connectors
- SMD technology
- press-in connector



**D-Sub hoods**

- design with large cable space
- hoods with self-cutting threaded bolts
- hoods with quick fastener
- compact hoods with cable outlet on the side


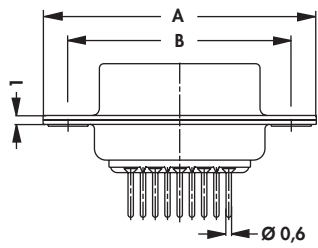
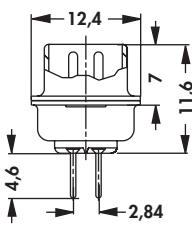
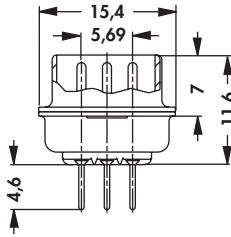

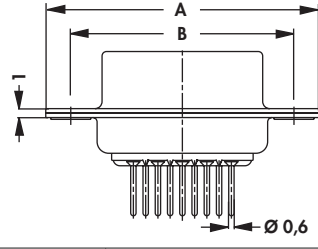
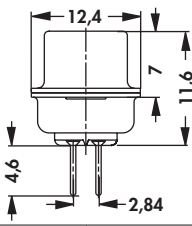
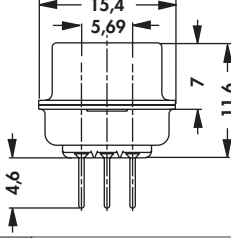


**D-Sub accessories**

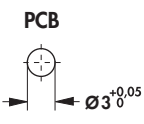
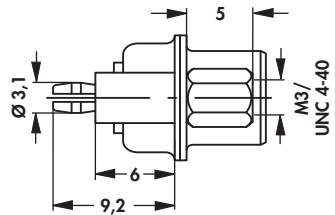
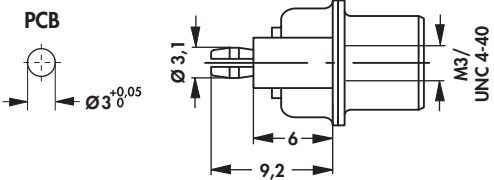
- cable reels
- cut-out covers
- HF-dense seal caps
- HF seals
- Dust covers
- Threaded couplings

## D-Sub standard connectors

### Male and female headers

	9 - 37 pol.		50 pol.						
									
	<b>art. no.</b>	design	dim. [mm]			<b>art. no.</b>	design	dim. [mm]	
			A	B				A	B
<b>DS 09 T ...</b>	male	30.8	25.0	<b>DS 37 T ...</b>	male	69.5	63.5		
<b>DS 15 T ...</b>	male	39.2	33.3	<b>DS 50 T ...</b>	male	67.0	61.1		
<b>DS 25 T ...</b>	male	53.1	47.0						
	9 - 37 pol.		50 pol.						
									
	<b>art. no.</b>	design	dim. [mm]			<b>art. no.</b>	design	dim. [mm]	
			A	B				A	B
<b>DB 09 T ...</b>	female	30.8	25.0	<b>DB 37 T ...</b>	female	69.5	63.5		
<b>DB 15 T ...</b>	female	39.2	33.3	<b>DB 50 T ...</b>	female	67.0	61.1		
<b>DB 25 T ...</b>	female	53.1	47.0						
<p><b>please indicate:</b></p> <p><b>... type of mounting (optional)</b></p> <p><b>RC UN</b> = snap-in-clip with UNC 4-40</p> <p><b>RC M3</b> = snap-in-clip with M3</p> <p><b>RCS UN</b> = snap-in-clip and screwing bolt with UNC 4-40</p> <p><b>RCS M3</b> = snap-in-clip and screwing bolt with M3</p>									

### type of mounting


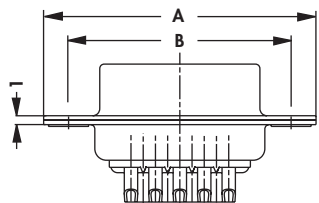
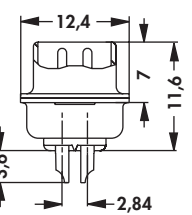
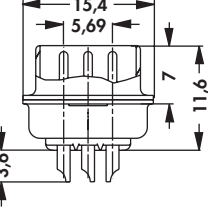

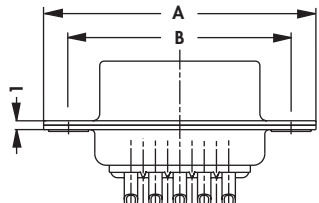
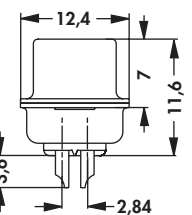
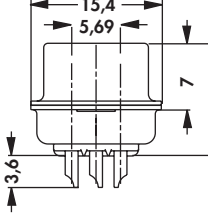

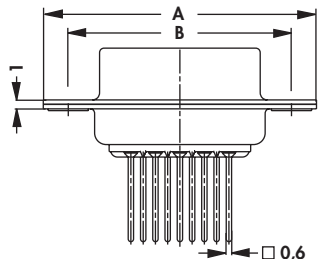
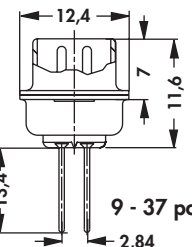
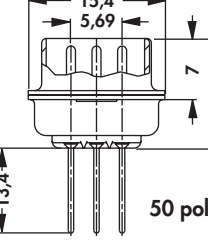

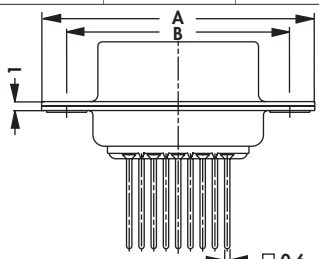
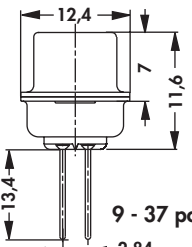
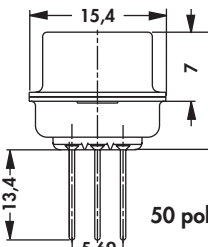
	<p>DB/DS ... T RCSM3 DB/DS ... T RCSUN</p> 	<p>DB/DS ... T RCM3 DB/DS ... T RCUN</p> 
	<p>M3/ UNC 4-40</p>	<p>M3/ UNC 4-40</p>

D-Sub high density → I 7 - 8  
 D-Sub in SMD technique → I 15  
 D-Sub cut-out cover → I 22  
 D-Sub connector in pressfit techn. → I 16

Screw fastening → I 23  
 D-Sub mixed layout → I 13  
 HF-seals → I 24  
 Technical data → I 26 - 28

D-Sub standard connectors

Male and female headers


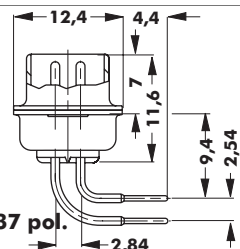
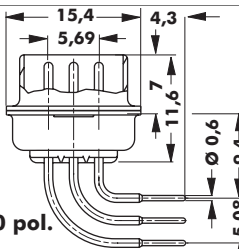
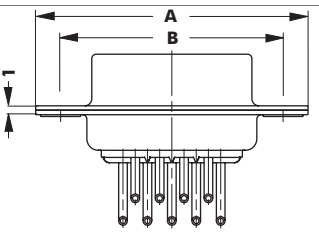

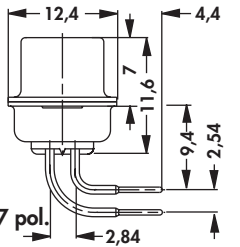
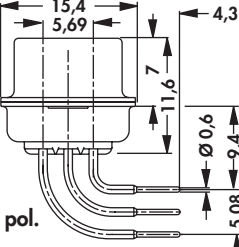
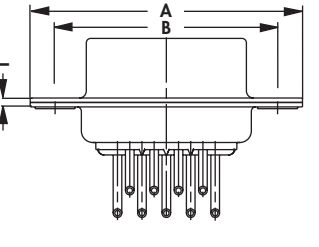
	9 - 37 pol.		50 pol.						
									
	<b>art. no.</b>	design	dim. [mm]			<b>art. no.</b>	design	dim. [mm]	
			A	B				A	B
<b>DS 09 L</b>	male	30.8	25.0	<b>DS 37 L</b>	male	69.5	63.5		
<b>DS 15 L</b>	male	39.2	33.3	<b>DS 50 L</b>	male	67.0	61.1		
<b>DS 25 L</b>	male	53.1	47.0						
	9 - 37 pol.		50 pol.						
									
	<b>art. no.</b>	design	dim. [mm]			<b>art. no.</b>	design	dim. [mm]	
			A	B				A	B
<b>DB 09 L</b>	female	30.8	25.0	<b>DB 37 L</b>	female	69.5	63.5		
<b>DB 15 L</b>	female	39.2	33.3	<b>DB 50 L</b>	female	67.0	61.1		
<b>DB 25 L</b>	female	53.1	47.0						
	9 - 37 pol.		50 pol.						
									
	<b>art. no.</b>	design	dim. [mm]			<b>art. no.</b>	design	dim. [mm]	
			A	B				A	B
<b>DS 09 WW 3</b>	male	30.8	25.0	<b>DS 37 WW 3</b>	male	69.5	63.5		
<b>DS 15 WW 3</b>	male	39.2	33.3	<b>DS 50 WW 3</b>	male	67.0	61.1		
<b>DS 25 WW 3</b>	male	53.1	47.0						
	9 - 37 pol.		50 pol.						
									
	<b>art. no.</b>	design	dim. [mm]			<b>art. no.</b>	design	dim. [mm]	
			A	B				A	B
<b>DB 09 WW 3</b>	female	30.8	25.0	<b>DB 37 WW 3</b>	female	69.5	63.5		
<b>DB 15 WW 3</b>	female	39.2	33.3	<b>DB 50 WW 3</b>	female	67.0	61.1		
<b>DB 25 WW 3</b>	female	53.1	47.0						



## D-Sub standard connectors

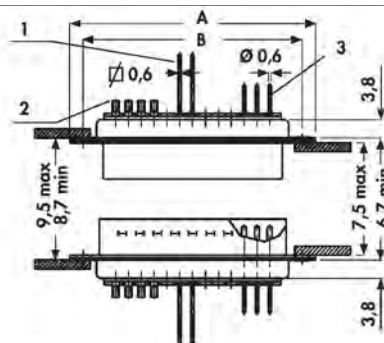
### Male and female headers

- with turned precision contacts
- with shielding springs

						
	<b>art. no.</b>	design	dim. [mm]		A	B
<b>DS 09 LA</b>	male			30.8	25.0	
<b>DS 15 LA</b>	male			39.2	33.3	
<b>DS 25 LA</b>	male			53.1	47.0	
<b>DS 37 LA</b>	male			69.5	63.5	
<b>DS 50 LA</b>	male			67.0	61.1	
						
	<b>art. no.</b>	design	dim. [mm]		A	B
<b>DB 09 LA</b>	female			30.8	25.0	
<b>DB 15 LA</b>	female			39.2	33.3	
<b>DB 25 LA</b>	female			53.1	47.0	
<b>DB 37 LA</b>	female			69.5	63.5	
<b>DB 50 LA</b>	female			67.0	61.1	
<b>caseing frame:</b>		steel, tin plated				

### Installation diagram

1 = wire wrap pin; 2 = solder terminal; 3 = solder pin for PCB



- D-Sub high density → I 7 - 8
- D-Sub in SMD technique → I 15
- D-Sub cut-out cover → I 22
- D-Sub connector in pressfit techn. → I 16


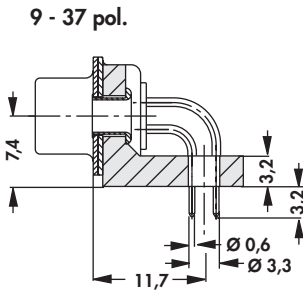
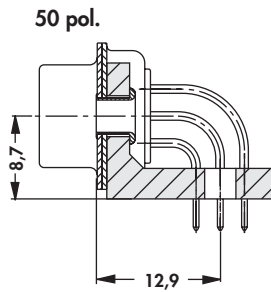
- Screw fastening → I 23
- D-Sub mixed layout → I 13
- HF-seals → I 24
- Technical data → I 26 - 28

A

D-Sub standard connectors with mounting bracket

B


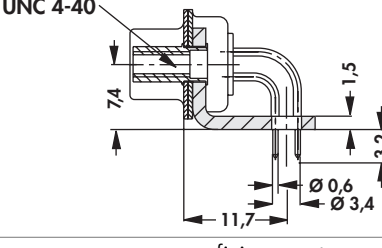
C

	 <p>9 - 37 pol.</p>		 <p>50 pol.</p>	
	<b>art. no.</b>	design	fixing part	
	<b>DS WK ...</b>	male	plastic angle, riveted	
	<b>DB WK ...</b>	female	plastic angle, riveted	
<p><b>please indicate:</b>      ... no. of contacts                  9 15 25 37 50</p>				

D


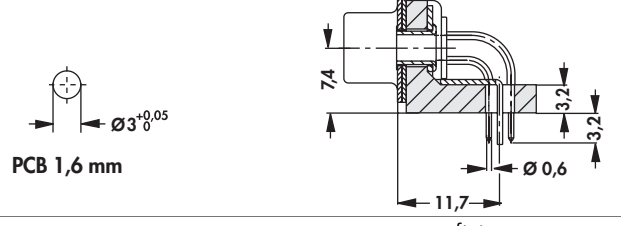
E

F

	 <p>UNC 4-40</p>			
	<b>art. no.</b>	design	fixing part	
	<b>DS WMV 4 ...</b>	male	metal angle with screw fastening, thread UNC4-40	
	<b>DB WMV 4 ...</b>	female	metal angle with screw fastening, thread UNC4-40	


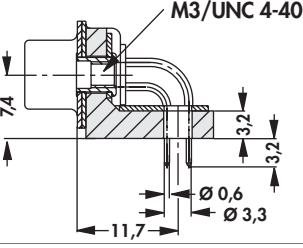
G

H

	 <p>PCB 1,6 mm</p>			
	<b>art. no.</b>	design	fixing part	
	<b>DS WR ...</b>	male	plastic angle with earthing plate, snap-on clip	
	<b>DB WR ...</b>	female	plastic angle with earthing plate, snap-on clip	

I

K

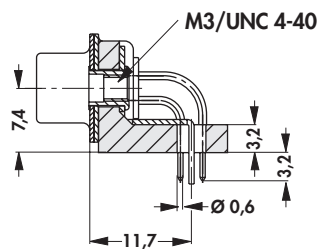
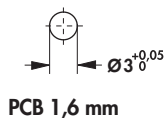
	 <p>M3/UNC 4-40</p>			
	<b>art. no.</b>	design	fixing part	
	<b>DS WE 3 ...</b>	male	plastic angle with earthing plate and threaded rivet M3	
	<b>DS WE 4 ...</b>	male	plastic angle with earthing plate, threaded rivet UNC 4-40	
<b>DB WE 3 ...</b>	female	plastic angle with earthing plate and threaded rivet M3		
<b>DB WE 4 ...</b>	female	plastic angle with earthing plate, threaded rivet UNC 4-40		
<p><b>please indicate:</b>      ... no. of contacts                  9 15 25 37</p>				

L

M

N

D-Sub standard connectors



art. no.	design	fixing part
<b>DS WR 3 ...</b>	male	plastic angle with earthing plate, threaded rivet M3, snap-on clip
<b>DS WR 4 ...</b>	male	plastic angle with earthing plate, threaded rivet UNC 4-40, snap-on clip
<b>DB WR 3 ...</b>	female	plastic angle with earthing plate, threaded rivet M3, snap-on clip
<b>DB WR 4 ...</b>	female	plastic angle with earthing plate, threaded rivet UNC 4-40, snap-on clip
<b>please indicate:</b>	<b>... no. of contacts</b>	
	<b>9 15 25 37</b>	

A

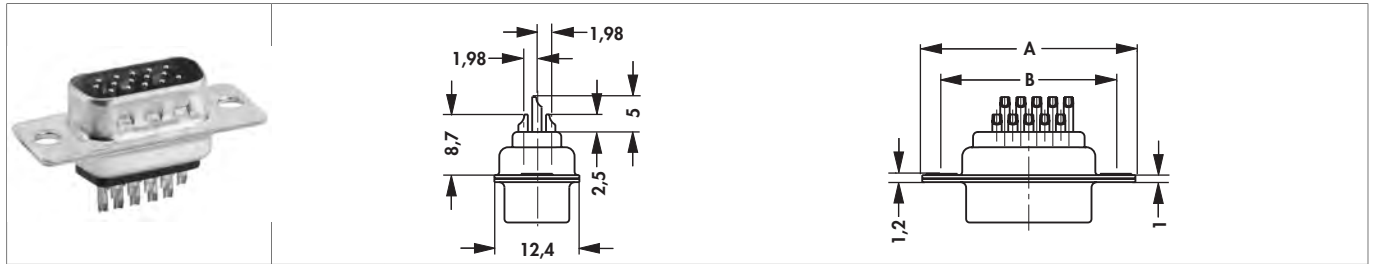
**D-Sub connectors High Density**

B

**Male and female headers**

- our D-Sub connectors **HD** are loaded with turned precision contacts
- with shielding springs

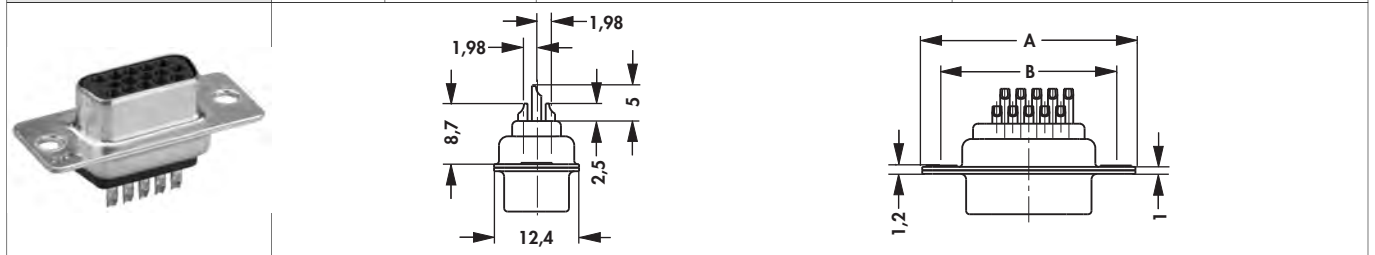
C



D

art. no.	no. of contacts	design	dim. [mm]	
			A	B
<b>HD S 15 L</b>	15	male	30.8	25.0
<b>HD S 26 L</b>	26	male	39.2	33.3
<b>HD S 44 L</b>	44	male	53.1	47.0

E



F

art. no.	no. of contacts	design	dim. [mm]	
			A	B
<b>HD B 15 L</b>	15	female	30.8	25.0
<b>HD B 26 L</b>	26	female	39.2	33.3
<b>HD B 44 L</b>	44	female	53.1	47.0

G

**caseing frame:** steel, tin plated

H

I

K

L



M

N

## D-Sub connectors High Density

### Male and female headers

- our D-Sub connectors **HD** are loaded with turned precision contacts
- with shielding springs

								
art. no.	no. of contacts	design	dim. [mm]					
<b>HD S 15 T</b>	15	male	A	B	C	D	E	F
<b>HD S 26 T</b>	26	male	30.8	25.0	12.4	7.04	7.67	2.29
<b>HD S 44 T</b>	44	male	39.2	33.3	12.4	6.87	7.00	2.29
<b>HD S 44 T</b>	44	male	53.1	47.0	12.4	6.88	7.01	2.29
								
art. no.	no. of contacts	design	dim. [mm]					
<b>HD B 15 T</b>	15	female	A	B	C	D	E	F
<b>HD B 26 T</b>	26	female	30.8	25.0	12.4	7.67	7.04	2.29
<b>HD B 26 T</b>	26	female	39.2	33.3	12.4	7.00	6.87	2.29
<b>HD B 44 T</b>	44	female	53.1	47.0	12.4	7.01	6.88	2.29
<b>casing frame:</b>		steel, tin plated						

**1** = male, 15 contacts; **2** = female, 15 contacts; **3** = male, 26/44 contacts; **4** = female, 26/44 contacts

1	2	3	4

Application tools  
Screw fastening  
D-Sub filter adapter  
D-Sub connectors /flat cable


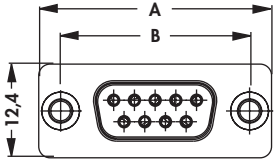
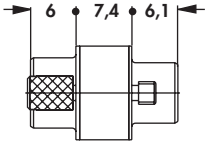
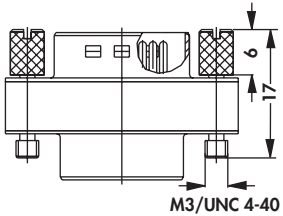
→ H 10  
→ I 23  
→ I 9 – 10  
→ I 11 – 12  
HF-seals  
HF-tight caps  
D-Sub cut-out cover  
Technical data

→ I 24  
→ I 24  
→ I 22  
→ I 26 – 28

## D-Sub filter connector


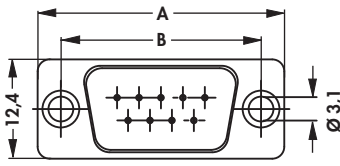
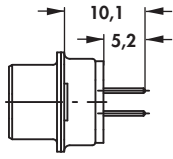
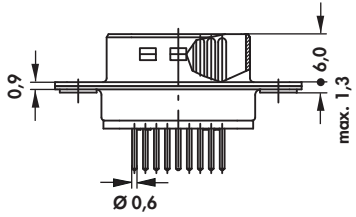

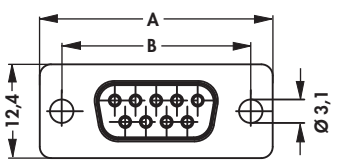
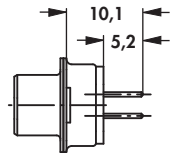
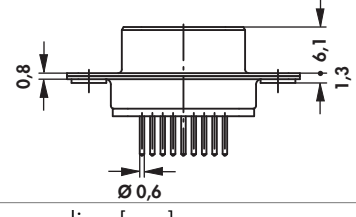
### Adapter, 9-37 contacts

- capacity per contact: 1000 pF
- standard installation dimensions
- stud bolt mountable on both sides
- compatible with standard accessories

			
<b>art. no.</b>	no. of contacts	dim. [mm]	
		A	B
<b>FD A ... 09 1000</b>	9	30.8	25.0
<b>FD A ... 15 1000</b>	15	39.2	33.3
<b>FD A ... 25 1000</b>	25	53.1	47.0
<b>FD A ... 37 1000</b>	37	69.5	63.5
<b>please indicate:</b>			
	<b>... type of thread</b>		
	<b>3 = M3</b>		
	<b>UNC = UNC 4-40</b>		

### Male headers and female headers, straight

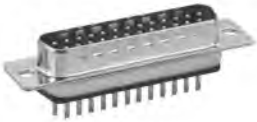
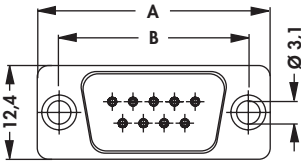
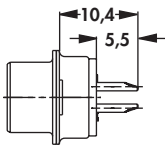
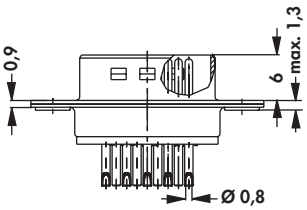
- capacity per contact: 1000 pF
- other capacity on request


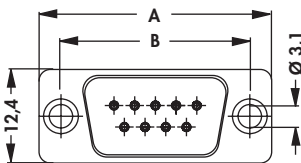
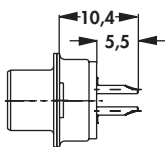
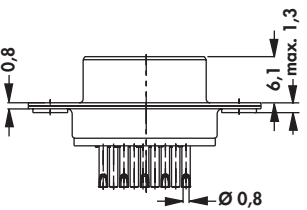
			
<b>art. no.</b>	no. of contacts	design	dim. [mm]
			A B
<b>FD S 09 T 1000</b>	9	male	30.8 25.0
<b>FD S 15 T 1000</b>	15	male	39.2 33.3
<b>FD S 25 T 1000</b>	25	male	53.1 47.0
<b>FD S 37 T 1000</b>	37	male	69.5 63.5
			
<b>art. no.</b>	no. of contacts	design	dim. [mm]
			A B
<b>FD B 09 T 1000</b>	9	female	30.8 25.0
<b>FD B 15 T 1000</b>	15	female	39.2 33.3
<b>FD B 25 T 1000</b>	25	female	53.1 47.0
<b>FD B 37 T 1000</b>	37	female	69.5 63.5

## D-Sub filter connector

### Male and female headers, with solder cup

- capacity per contact: 1000 pF
- other capacity on request
- suitable for AWG 22
- standard installation dimensions
- HF-tight, closed metal rear panel
- compatible with standard accessories

				
art. no.	no. of contacts	design	dim. [mm]	
			A	B
<b>FD S 09 L 1000</b>	9	male	30.8	25.0
<b>FD S 15 L 1000</b>	15	male	39.2	33.3
<b>FD S 25 L 1000</b>	25	male	53.1	47.0
<b>FD S 37 L 1000</b>	37	male	69.5	63.5

				
art. no.	no. of contacts	design	dim. [mm]	
			A	B
<b>FD B 09 L 1000</b>	9	female	30.8	25.0
<b>FD B 15 L 1000</b>	15	female	39.2	33.3
<b>FD B 25 L 1000</b>	25	female	53.1	47.0
<b>FD B 37 L 1000</b>	37	female	69.5	63.5

**Application tools**
**D-Sub hoods**
**D-Sub cut-out cover**
**D-Sub connector in pressfit techn.**

→ H 10

→ I 18 - 21

→ I 22

→ I 16 - 17

**D-Sub mixed layout**
**HF-tight caps**
**Screw fastening**
**Technical data**

→ I 13 - 14


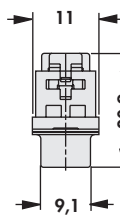
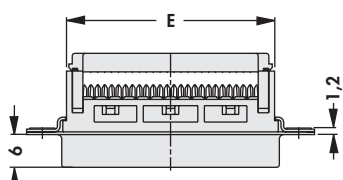
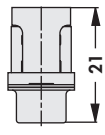
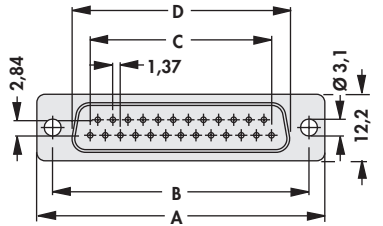

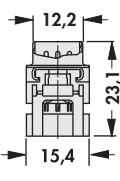
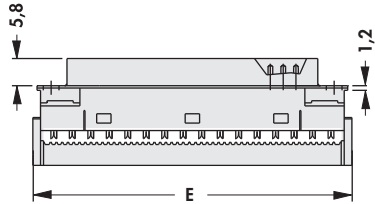
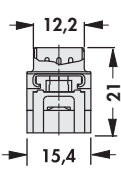
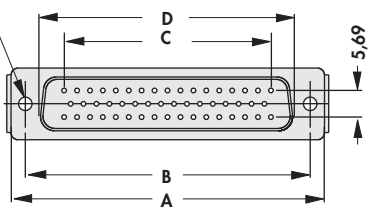

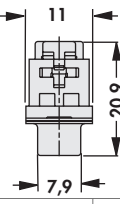
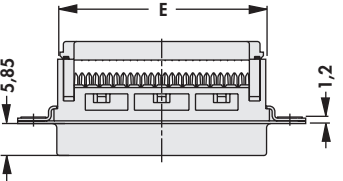
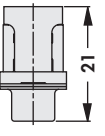
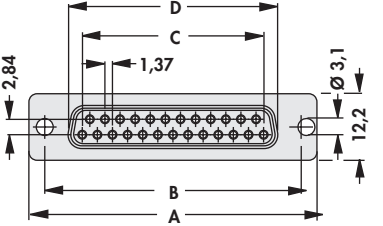

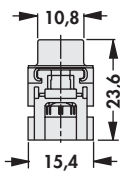
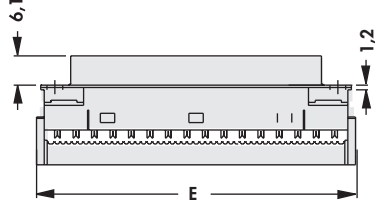
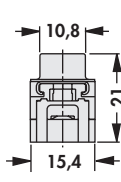
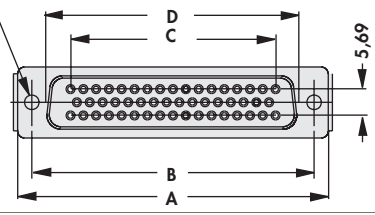
→ I 24

→ I 23

→ I 26 - 28

# D-Sub connector for flat ribbon cable

## Male and female headers


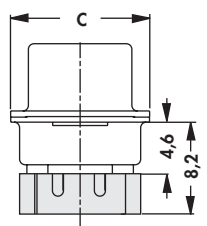
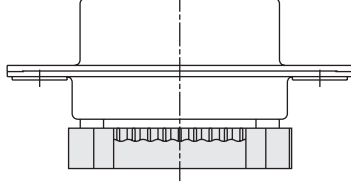
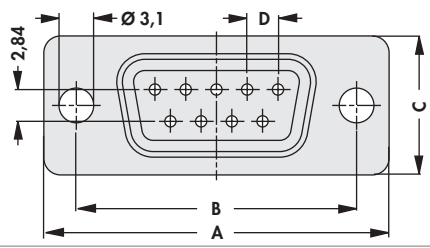

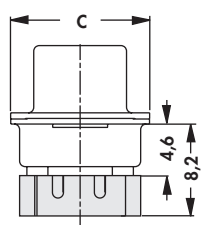
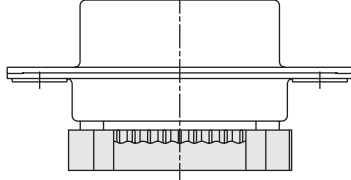
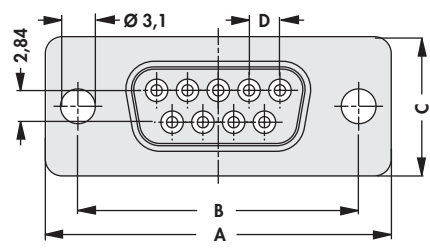
							
<b>art. no.</b>	no. of contacts	design	dim. [mm]				
			A	B	C	D	E
<b>DS BK 09</b>	9	male	30.6	25.0	10.96	17.9	16.1
<b>DS BK 15</b>	15	male	39.0	33.3	19.33	26.2	23.9
<b>DS BK 25</b>	25	male	52.8	47.0	33.13	39.9	38.1
<b>DS BK 37</b>	37	male	69.2	63.5	49.70	56.3	54.7
							
<b>art. no.</b>	no. of contacts	design	dim. [mm]				
			A	B	C	D	E
<b>DS BK 50</b>	50	male	66.8	61.1	44.2	54	68.6
							
<b>art. no.</b>	no. of contacts	design	dim. [mm]				
			A	B	C	D	E
<b>DB BK 09</b>	9	female	30.6	25.0	10.96	16.3	16.1
<b>DB BK 15</b>	15	female	39.0	33.3	19.33	24.5	23.9
<b>DB BK 25</b>	25	female	52.8	47.0	33.13	38.5	38.1
<b>DB BK 37</b>	37	female	69.2	63.5	49.70	54.8	54.7
							
<b>art. no.</b>	no. of contacts	design	dim. [mm]				
			A	B	C	D	E
<b>DB BK 50</b>	50	female	66.8	61.1	44.2	52.4	68.6



## D-Sub connector for flat ribbon cable

### Male and female headers, low profile

– useable ribbon cable: AWG 26 ... 28

						
art. no.	no. of contacts	design	dim. [mm]			
			A	B	C	D
<b>DS BK 09 LP</b>	9	male	30.8	25.0	12.4	2.74
<b>DS BK 15 LP</b>	15	male	39.2	33.3	12.4	2.74
<b>DS BK 25 LP</b>	25	male	53.1	47.0	12.4	2.77
<b>DS BK 37 LP</b>	37	male	69.5	63.5	12.4	2.77
						
art. no.	no. of contacts	design	dim. [mm]			
			A	B	C	D
<b>DB BK 09 LP</b>	9	female	30.8	25.0	12.4	2.74
<b>DB BK 15 LP</b>	15	female	39.2	33.3	12.4	2.74
<b>DB BK 25 LP</b>	25	female	53.1	47.0	12.4	2.77
<b>DB BK 37 LP</b>	37	female	69.5	63.5	12.4	2.77
<b>caseing frame:</b>		steel, tin plated				
<b>annotation:</b>		IDC-cable pitch/ 1.27mm				

D-Sub hoods → I 18 – 21  
 D-Sub filter adapter → I 9  
 Application tools → H 10  
 D-Sub standard connectors → I 3 – 6

D-Sub high density → I 7 – 8  
 D-Sub filter connector → I 10  
 D-Sub mixed layout → I 13 – 14  
 Technical data → I 26 – 28

A

## D-Sub mixed layout connectors

B

### Male headers - suitable for standard D-Sub accessories

- gold-plated contacts
- with high current contacts up to 20 A
- for cables up to AWG 16

C

- 3 high current contacts

<p><b>art. no.</b> <b>DSM 3K3 L20</b></p>	<p>design male</p>

D

E

- 2 high current contacts, 5 signal contacts

<p><b>art. no.</b> <b>DSM 7K2 L20</b></p>	<p>design male</p>

F

G

- 3 high current contacts, 10 signal contacts

<p><b>art. no.</b> <b>DSM 13K3 L20</b></p>	<p>design male</p>

H

I

K

L

M


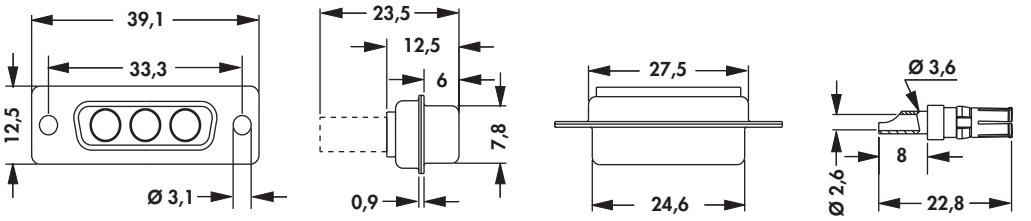
N

## D-Sub mixed layout connectors


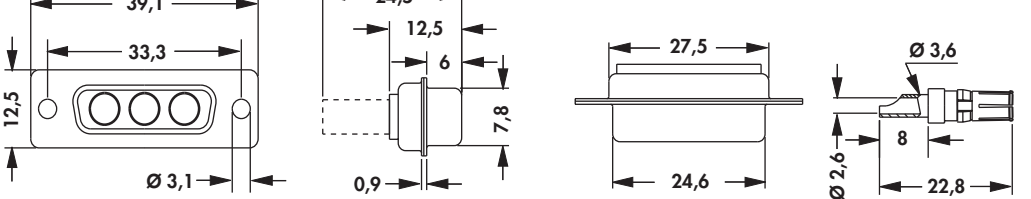
### Female headers - suitable for standard D-Sub accessories

- gold-plated contacts
- with high current contacts up to 20 A
- for cables up to AWG 16


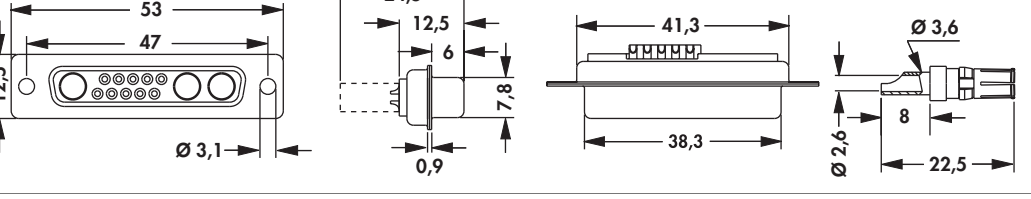
- 3 high current contacts

	
<b>art. no.</b> <b>DBM 3K3 L20</b>	design female

- 2 high current contacts, 5 signal contacts

	
<b>art. no.</b> <b>DBM 7K2 L20</b>	design female

- 3 high current contacts, 10 signal contacts

	
<b>art. no.</b> <b>DBM 13K3 L20</b>	design female

# D-Sub in SMD-mounting

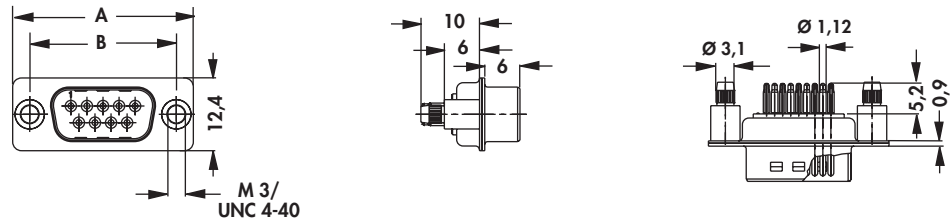
## Male and female headers

– **packing:** tape and reel (150 pcs/reel); reel outer diameter 330 mm

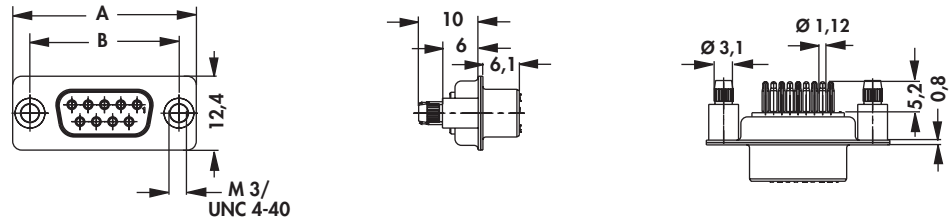
art. no.	no. of contacts	dim. [mm]					
		A	B	Y	Z		
<b>DS 09 SMD TR</b>	9	30.8	25.0	10.98	1.37		
<b>DS 15 SMD TR</b>	15	39.2	33.3	19.20	1.37		
<b>DS 25 SMD TR</b>	25	53.1	47.0	33.12	1.38		
<b>DS 37 SMD TR</b>	37	69.5	63.5	49.68	1.38		
art. no.	no. of contacts	dim. [mm]					
		A	B	Y	Z		
<b>DB 09 SMD TR</b>	9	30.8	25.0	10.98	1.37		
<b>DB 15 SMD TR</b>	15	39.2	33.3	19.20	1.37		
<b>DB 25 SMD TR</b>	25	53.1	47.0	33.12	1.38		
<b>DB 37 SMD TR</b>	37	69.5	63.5	49.68	1.38		

## D-Sub connector in pressfit technology

### Male and female headers



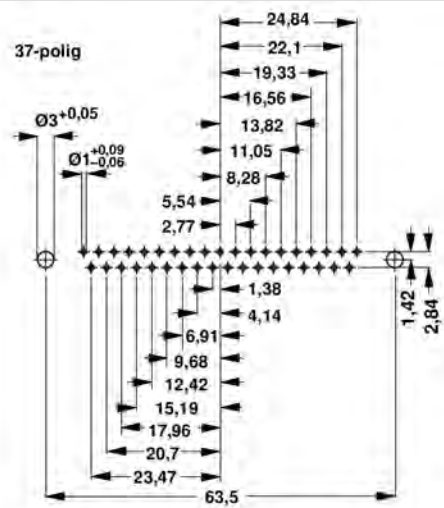
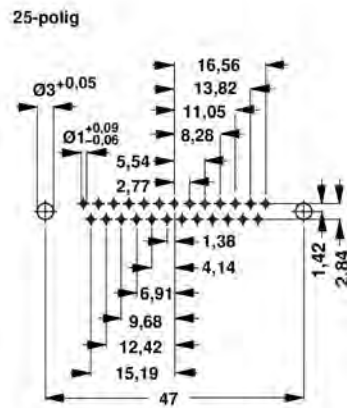
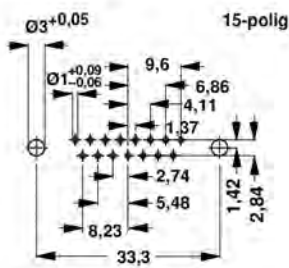
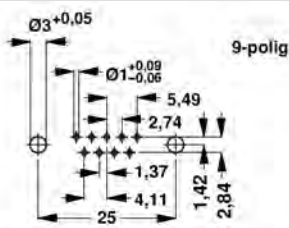
art. no.	no. of contacts	dim. [mm]	
		A	B
<b>DS ... 9 P</b>	9	30.8	25.0
<b>DS ... 15 P</b>	15	39.2	33.3
<b>DS ... 25 P</b>	25	53.1	47.0
<b>DS ... 37 P</b>	37	69.5	63.5



art. no.	no. of contacts	dim. [mm]	
		A	B
<b>DB ... 9 P</b>	9	30.8	25.0
<b>DB ... 15 P</b>	15	39.2	33.3
<b>DB ... 25 P</b>	25	53.1	47.0
<b>DB ... 37 P</b>	37	69.5	63.5

**please indicate:** ... type of thread  
**3** = M3  
**UNC** = UNC 4-40

**casing frame:** steel, tin plated



**D-Sub mixed layout**  
**Application tools**  
**D-Sub filter adapter**  
**Screw fastening**

→ I 13 - 14  
 → H 10  
 → I 9  
 → I 23

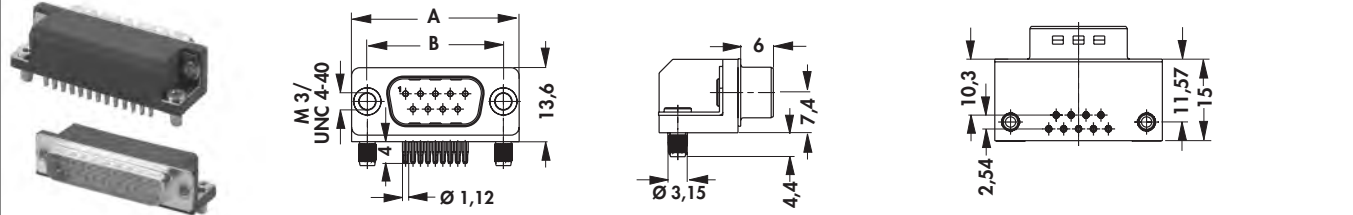
**HF-seals**  
**D-Sub connectors /flat cable**  
**D-Sub hoods**  
**Technical data**

→ I 24  
 → I 11 - 12  
 → I 18 - 21  
 → I 26 - 28

A  
B  
C  
D  
E  
F  
G  
H  
I  
K  
L  
M  
N

# D-Sub connector in pressfit technology

## Male and female headers



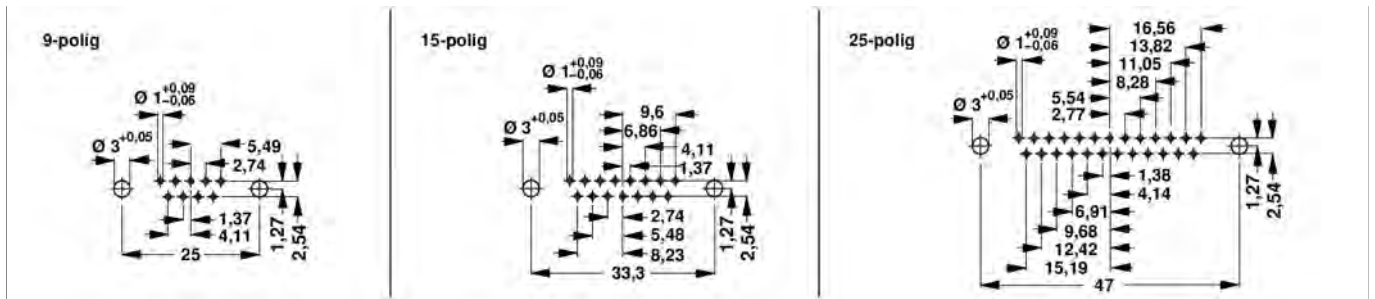
art. no.	no. of contacts	dim. [mm]	
		A	B
<b>DS WP ... 9</b>	9	30.8	25.0
<b>DS WP ... 15</b>	15	39.2	33.3
<b>DS WP ... 25</b>	25	53.1	47.0

art. no.	no. of contacts	dim. [mm]	
		A	B
<b>DB WP ... 9</b>	9	30.8	25.0
<b>DB WP ... 15</b>	15	39.2	33.3
<b>DB WP ... 25</b>	25	53.1	47.0

**please indicate: ... type of thread**  
**3 = M3**  
**UNC = UNC 4-40**

**caseing frame:** steel, tin plated


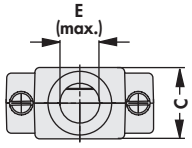
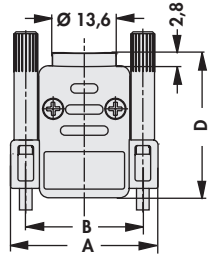
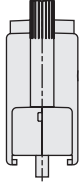

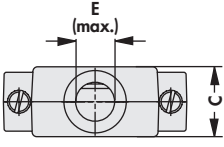
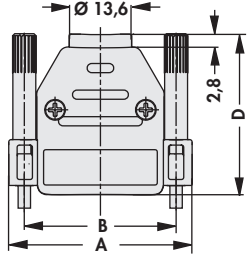
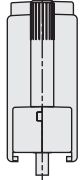


**I 17**

- D-Sub mixed layout → I 13 - 14
- Application tools → H 10
- D-Sub filter adapter → I 9
- Screw fastening → I 23
- HF-seals → I 24
- D-Sub connectors /flat cable → I 11 - 12
- D-Sub hoods → I 18 - 21
- Technical data → I 26 - 28


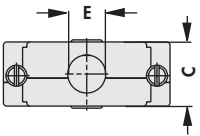
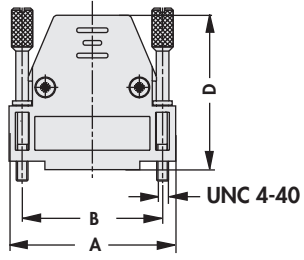

## D-Sub hoods

- E = max. diameter of the cable entry in mm
- threaded bolt UNC 4-40
- large cable space with few components
- **9-37 contacts can be mounted in series in (C = 3 HP) grid, thus especially suitable for 19" technology**

						
<b>art. no.</b>	no. of contacts	dim. [mm]				
		A	B	C	D	E
<b>DH 09 ...</b>	9	31.5	25	15.2	31	8.5
						
<b>art. no.</b>	no. of contacts	dim. [mm]				
		A	B	C	D	E
<b>DH 15 ...</b>	15	40.0	33.3	15.2	33.5	8.5
<b>DH 25 ...</b>	25	53.5	47.0	15.2	38.0	11.0
<b>DH 37 ...</b>	37	70.0	63.5	15.2	40.0	11.0
<b>DH 50 ...</b>	50	67.5	61.1	18.2	40.0	12.0
<b>please indicate:</b>	<b>... surface of case</b> <b>S = plastic, black</b> <b>M = plastic, metallized</b>					

## With self-cutting threaded bolt

- straight cable outlet with pre-assembled strain relief

						
<b>art. no.</b>	no. of contacts	dim. [mm]				
		A	B	C	D	E
<b>DH SG 09 ...</b>	9	31.0	25.0	16.0	35.6	8
<b>DH SG 15 ...</b>	15	39.5	33.3	16.0	36.6	9
<b>DH SG 25 ...</b>	25	53.0	47.0	16.0	41.0	10
<b>DH SG 37 ...</b>	37	69.5	63.5	16.0	45.3	11
<b>DH SG 50 ...</b>	50	67.0	61.1	19.8	51.4	14
<b>please indicate:</b>	<b>... surface of case</b> <b>S = plastic, black</b> <b>M = plastic, metallized</b>					


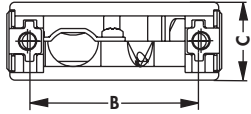
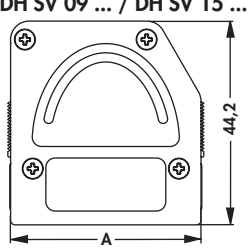
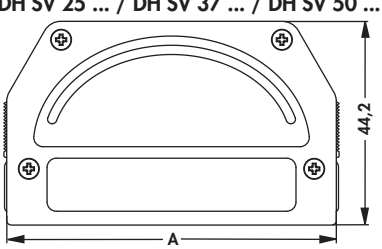
D-Sub filter connector → I 10  
 D-Sub filter adapter → I 9  
 D-Sub high density → I 7 - 8  
 D-Sub standard connectors → I 3 - 6

D-Sub connectors /flat cable → I 11 - 12  
 D-Sub mixed layout → I 13 - 14  
 D-Sub connector in pressfit techn. → I 16 - 17  
 Technical data → I 26 - 28

## D-Sub hoods


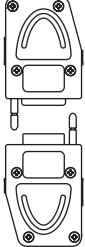
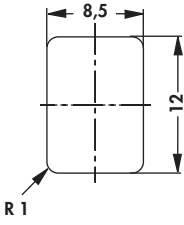
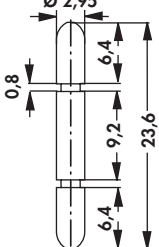
### D-Sub hoods with quick-action locking system

– straight and side-gated cable outlet

		DH SV 09 ... / DH SV 15 ...		DH SV 25 ... / DH SV 37 ... / DH SV 50 ...	
					
art. no.	no. of contacts	dim. [mm]			
		A	B	C	
DH SV 09 ...	9	33.0	25.0	15.4	
DH SV 15 ...	15	41.3	33.3	15.4	
DH SV 25 ...	25	55.0	47.0	15.4	
DH SV 37 ...	37	71.5	63.5	15.4	
DH SV 50 ...	50	69.1	61.1	18.4	
<p>please indicate: ... surface of case  <b>S</b> = plastic, black  <b>M</b> = plastic, metallized</p>					


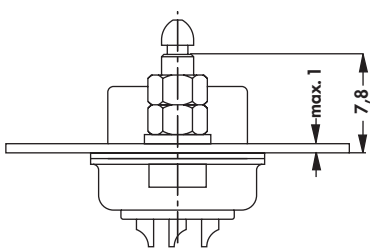

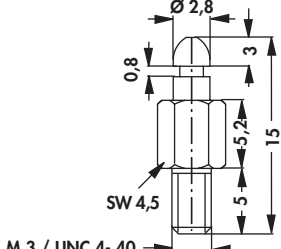
### Accessories – locking pin for hood – hood connection

– 2 locking pins including locking plates

			
<b>art. no.</b>			
<b>RS HH</b>			

### Accessories – locking pin for plug connector – hood connection

– 2 latch Pins including locking ring for connectors with thread M3/UNC 4-40

			
art. no.	type of thread	art. no.	type of thread
<b>RS SH 3</b>	M3	<b>RS SH 4</b>	UNC 4-40



**D-Sub hoods**

**Accessories – locking pin for plug connector – hood connection**

– 2 locking pins including spring washer, washer and nut for existing connector with through hole

<b>art. no.</b>		
<b>RS SH D</b>		

**Cable sleeve - quick-release hood DH SV ...**

– cable sleeves are supplied with chamfers, which are adequate to a diameter-grading of 0.5 mm; they can be cut off depending on the existing diameter of the cable.  
 – for cable diameters 3...9 mm

<b>art. no.</b>	no. of contacts	
<b>KT SV</b>	9	

**D-Sub hoods**

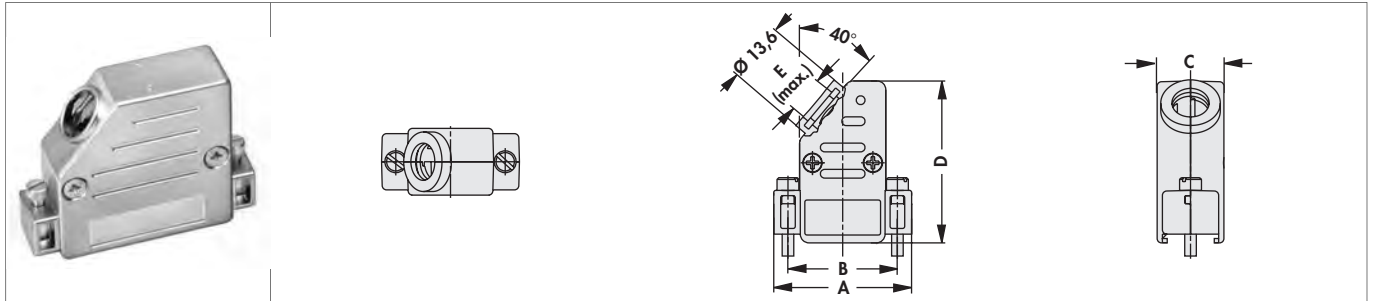
**D-Sub-hoods-compact**

9-50 contacts



- width C - 3 HP
- version 9-37 pins can be mounted in series in 3 HP grid, thus especially suitable for 19" technology
- metallized version with excellent shielding against electrical and magnetic alternating fields
- integrated dust protective shroud
- captive latching screws with UNC 4-40 treads
- 2 side cable outputs:
  - 40° exit (9-50 contacts)
  - 90° exit (25-50 contacts)

- **E = max. diameter of the cable bushing in mm**



art. no.	no. of contacts	dim. [mm]				
		A	B	C	D	E
<b>DH 09 ...</b>	9	31.5	25.0	15.2	37	8.5
<b>DH 15 ...</b>	15	40.0	33.3	15.2	37	8.5
<b>DH 25 ...</b>	25	53.5	47.0	15.2	41	11.0
<b>DH 37 ...</b>	37	70.0	63.5	15.2	41	11.0
<b>DH 50 ...</b>	50	67.8	61.1	18.2	41	12.0

**please indicate:** ... surface of case  
**K = plastic, black**  
**KM = plastic, metallized**

D-Sub accessoires

Suitable cable bushing

– protects the cable against damage by buckling

	<p><b>KT 0915</b></p>	<p><b>KT 2550</b></p>
<b>art. no.</b>	<b>art. no.</b>	<b>art. no.</b>
<b>KT 0915</b>	<b>KT 2550</b>	

Cover for D-Sub cut outs in front and back panel

– suitable for EMC application, closed on one side  
 – blank covers for exact sealing of unused D-Sub cut outs in front- and backpanels, size and form are like D-Sub housings

<b>art. no.</b>	dim. [mm]				<b>art. no.</b>	dim. [mm]			
	A	B	C	D		A	B	C	D
<b>BADM 09</b>	30.8	25.0	19.2	16.3	<b>BADM 25</b>	53.0	47.0	41.2	38.3
<b>BADM 15</b>	39.3	33.3	27.5	24.5	<b>BADM 37</b>	69.4	63.5	57.7	54.8
<b>casing frame:</b>	fin-plated								
<b>surface of case:</b>	metal								

– plastic cover, blank, for blind D-Sub and other connector cutouts in front and rear panels  
 – easy to mount with enclosed clamping springs

<b>art. no.</b>	dim. [mm]			<b>art. no.</b>	dim. [mm]		
	A	B	C		A	B	C
<b>BADP 09</b>	25.0	31.2	14.7	<b>BADP 37</b>	63.5	69.9	14.7
<b>BADP 15</b>	33.3	39.6	14.7	<b>BADP 50</b>	61.1	67.6	14.7
<b>BADP 25</b>	47.0	53.3	14.7				
<b>surface of case:</b>	plastic, black						
<b>fixing clamp:</b>	steel						

D-Sub filter adapter  
 Application tools  
 D-Sub mixed layout  
 Screw fastening

→ I 9  
 → H 10  
 → I 13 – 14  
 → I 23

D-Sub filter connector  
 D-Sub standard connectors  
 HF-seals  
 Technical data

→ I 10  
 → I 3 – 6  
 → I 24  
 → I 26 – 28

A

**D-Sub accessoires**

B

**Screw fastening, mounted**


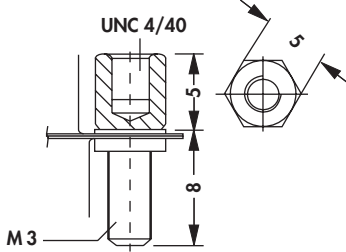
- 2 screw fastenings incl. spacer, washer, nut
- please add a **V** to the corresponding art. no. ...

<b>art. no.</b>	
... <b>V</b>	

D

**Screw fastening, loose**

- 2 separate screw fasteners, with washer and nut


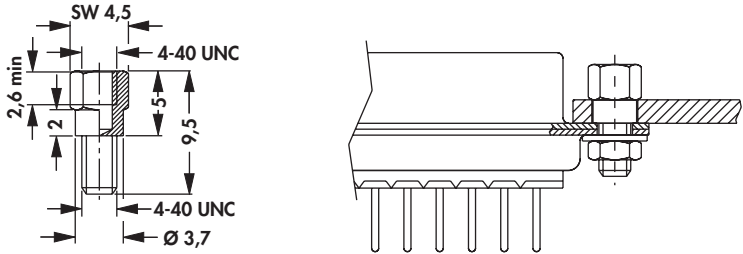
<b>art. no.</b>		
<b>V 2</b>		
<b>material:</b>	screw - brass nickel-plated/ steel-washer tin-plated/ screw-nut - steel nickel-plated	

E

F

**Screw fastening for assembly of cases, separate**

- 2 screw fastenings incl. spacer, washer, nut

<b>art. no.</b>		
<b>VG 2</b>		
<b>material:</b>	steel-washer tin-plated/ screw and steel-screw-nut nickel-plated	

G

H

I

K

L

M

N

**I 23**

**D-Sub filter adapter**  
**Application tools**  
**D-Sub mixed layout**  
**Screw fastening**

→ I 9  
 → H 10  
 → I 13 - 14  
 → I 23


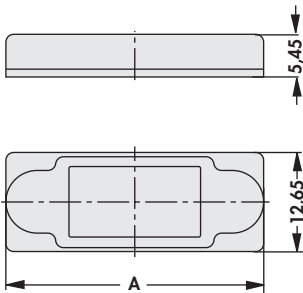
**D-Sub filter connector**  
**D-Sub standard connectors**  
**HF-seals**  
**Technical data**

→ I 10  
 → I 3 - 6  
 → I 24  
 → I 26 - 28

## D-Sub accessoires


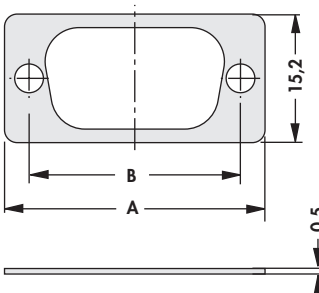
### HF-tight caps, male and female headers

– prevent HF-radiation at open interfaces

					
	art. no.	colour	dim. [mm] A	art. no.	colour
<b>HFK S 09</b>	blue	32.9	<b>HFK B 09</b>	red	32.9
<b>HFK S 15</b>	blue	41.3	<b>HFK B 15</b>	red	41.3
<b>HFK S 25</b>	blue	55.7	<b>HFK B 25</b>	red	55.7
<b>annotation:</b>		inside nickel-plated			

### HF-seals

– as seal between plug and housing

			
	art. no.	dim. [mm]	
	A	B	
<b>HFD 09</b>	30.8	25.0	
<b>HFD 15</b>	39.4	33.3	
<b>HFD 25</b>	53.4	47.0	
<b>HFD 37</b>	70.7	63.5	
<b>annotation:</b>		extremely low transition resistance	

A

Dust protection caps

B

For male headers

art. no.	dim. [mm]	
	A	B
<b>SSK S 09</b>	22.5	18.2
<b>SSK S 15</b>	30.6	26.5
<b>SSK S 25</b>	43.7	39.8
<b>SSK S 37</b>	60.3	56.2

C

D

E

For female headers

art. no.	dim. [mm]	
	A	B
<b>SSK B 09</b>	22.3	17.00
<b>SSK B 15</b>	30.6	25.00
<b>SSK B 25</b>	44.1	38.65
<b>SSK B 37</b>	60.7	55.30

**annotation:** extremely low transition resistance

F

G

H

I

K

L

M

N

**Technical data D-Sub connectors**

	<b>DS ..., DB ...</b>	<b>HD B ..., HD S ...</b>	<b>FD A ..., FD B ..., FD S ...</b>	<b>DS BK ..., DB BK ...</b>
<b>contact material</b>	Cu-alloy			
<b>surface contact / contact sleeve</b>	hard gold plated over nickel			
<b>quality class / cyces of operation</b>	quality class 2 = 200 cycles of operation			quality class 3 = 50 cycles of operation
<b>volume resistance</b>	≤10 mΩ before strain, ΔR 10 mΩ after strain according to DIN 41652. part 2 (MIL-C-24308)			≤10 mΩ
<b>air gap and creep distance</b>	cont.-contact <1mm/ contact- earth <1mm	cont.-contact <0.6mm/ con- tact-earth <0.6mm	cont.-contact <1mm/ contact- earth <1mm	<0.9mm accord- ing to VDE0110
<b>nominal current</b>	5A (20°C)	3A (20°C)	5A (20°C)	1A at AWG 28/ 1.5A at AWG 26
<b>nominal voltage</b>	125 V AC	60 V AC	100 V DC	
<b>test voltage</b>	1000 V		250 V DC	1000 V DC
<b>insulating body material</b>	PBT, GF		PCT, GF	PBTP, GF
<b>temperature range</b>	-55°C... +125°C			
<b>class of flammibility</b>	UL 94 V-0			
<b>insulation resistance</b>	≥5 GΩ		≥1 GΩ (100V DC)	1 GΩ

**Technical data D-Sub connectors**

	<b>DS BK LP ..., DB BK LP ...</b>	<b>DBM ..., DSM ...</b>	<b>DH ... S, DH ... M, DH SG ..., DH SV ...</b>	<b>KT SV</b>
<b>contact material</b>	Cu-alloy			
<b>surface contact / contact sleeve</b>	hard gold plated over nickel	nickel-phosphor- us-gold-surface/ ( $\geq 0.1\mu\text{m}$ Au over 2...4 $\mu\text{m}$ chem. NiP)		
<b>quality class / cyces of operation</b>	quality class 2 = 200 cycles of op- eration	$\geq 500$ cycles of operation		
<b>volume resistance</b>	$\leq 10$ m $\Omega$ before strain, $\Delta R$ 10 m $\Omega$ after strain accord- ing to DIN 41652. part 2 (MIL-C-24308)			
<b>air gap and creep distance</b>	cont.-contact < 1 mm/ contact- earth < 1 mm	$\geq 1$ mm		
<b>nominal current</b>	1 A (20°C)	signal contact: $\leq 5$ A/ power contact: $\leq 20$ A		
<b>nominal voltage</b>	125 V AC	400 V/ degree of pollution 1		
<b>test voltage</b>	1000 V			
<b>insulating body material</b>	PBT, GF	Polyester, GF	ABS	EPTR
<b>temperature range</b>	-55°C... +125°C	-55°C... +150°C		
<b>class of flammibility</b>	UL 94 V-0		UL 94 V-0 (at thickness $\geq 3$ mm), UL 94 V-1	
<b>insulation resistance</b>	$\geq 5$ G $\Omega$	$\geq 10^9$ $\Omega$		
<b>surface of case</b>			plastic, black/ plastic, metallized	



**Technical data D-Sub connectors**

	<b>DH ... K DH ... KM</b>	<b>BADM ...</b>	<b>BADP ...</b>	<b>HFK S ... HFK B ...</b>
<b>insulating body material</b>	ABS			ABS
<b>temperature range</b>				-25°C... +70°C
<b>class of flammability</b>	UL 94 V-0			UL 94 V-0
<b>surface of case</b>	plastic, black/ plastic, metallized	metal	plastic, black	

	<b>HFD ...</b>	<b>SSK S ... SSK B ...</b>
<b>insulating body material</b>	Silicone, filled with silver-plated copper particles	Polyethylene



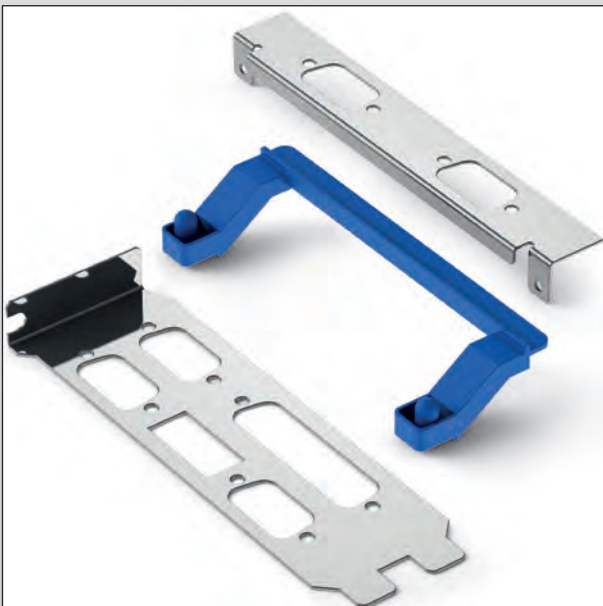
**Brackets for PCI**

- with or without fixing tab
- standard cut-outs
- custom-specific cut-outs
- custom-specific printings



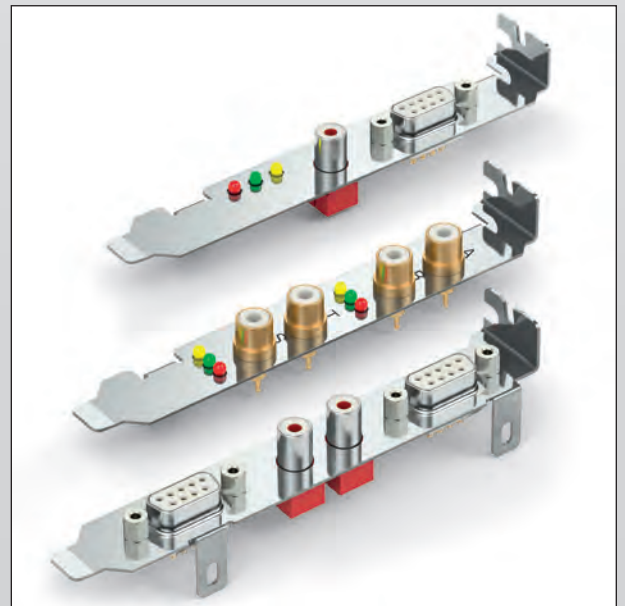
**Brackets for AT and similar**

- with or without fixing tab
- standard cut-outs
- custom-specific cut-outs
- custom-specific printings



**Custom-specific brackets**

- double width
- special width
- with printing



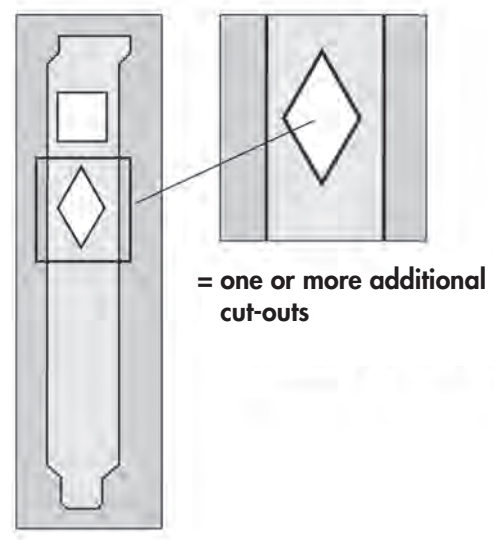
**Equipped brackets**

- equipped with D-Sub
- equipped with LED
- equipped with custom-specific components

Index Bracket-Groups

page	PCI	7		9			12	13	14		15		17	18
	KHPC	9	9	10	11	11	12	13	14	15	15	16	17	18

page	PCI	18			21	21			22	23		
	KHPC	19	20	20			21	22	22		23	24



A

Brackets for PC

B

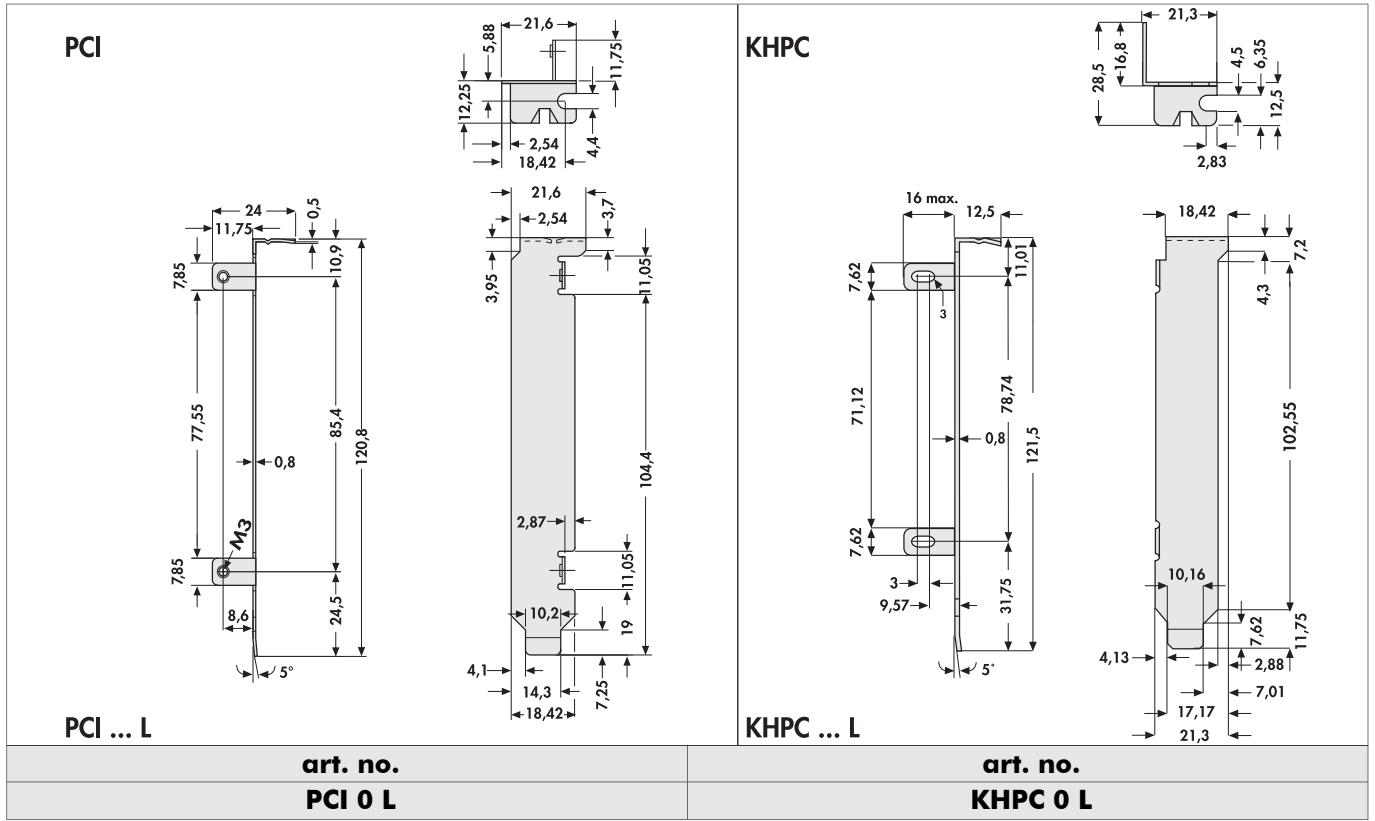
Brackets with fixing tap and without cutout

C

D

E

F



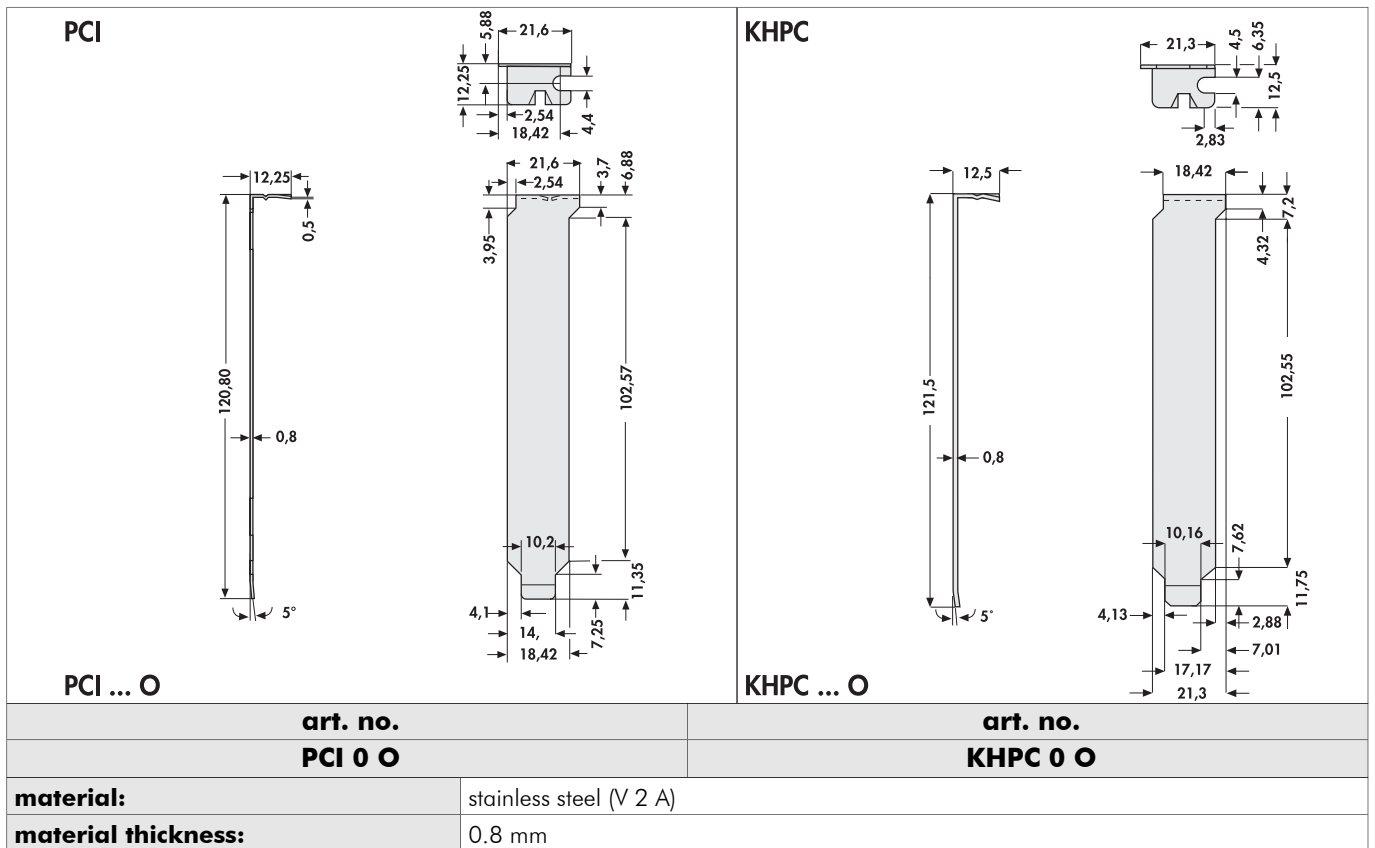
G

Bracket without fixing tab and without cutout

H

I

K



L

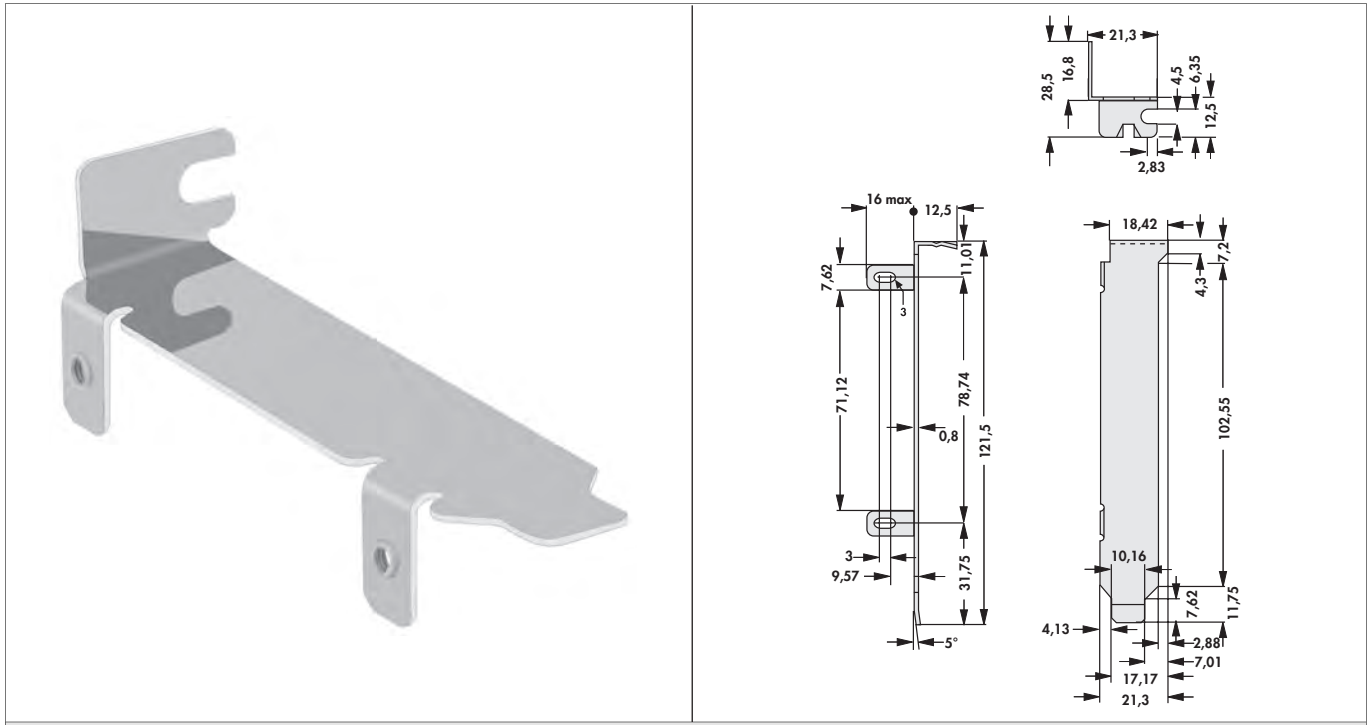
M

N

## Low Profile bracket for PC

### Low Profile bracket with fixing tap and without cutout

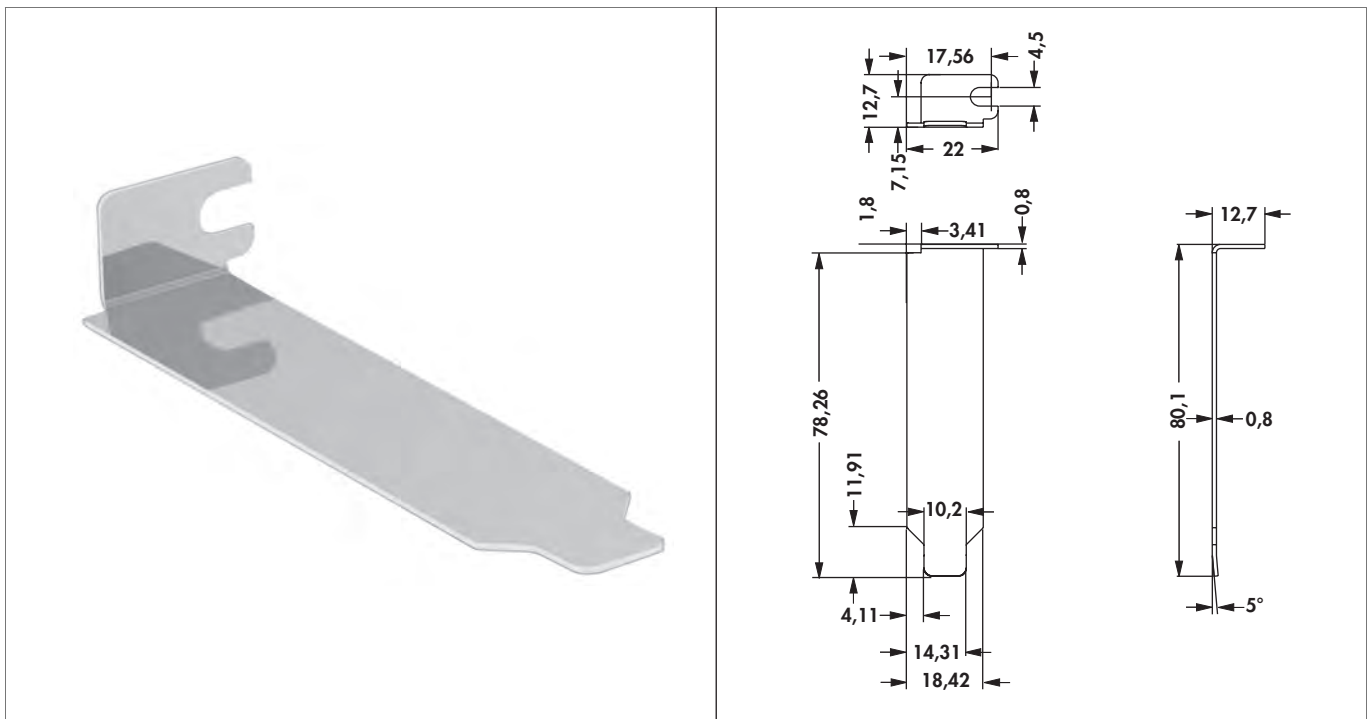
- with or without fixing tap; standard cutouts
- customer-specific cutouts and printing; double width (special widths) on request



art. no.

PCI LP ... L

### Low Profile bracket without fixing tap and without cutout



art. no.

PCI LP ... O

**material:** steel sheet, hot-dip aluminised

**material thickness:** 0.8 mm

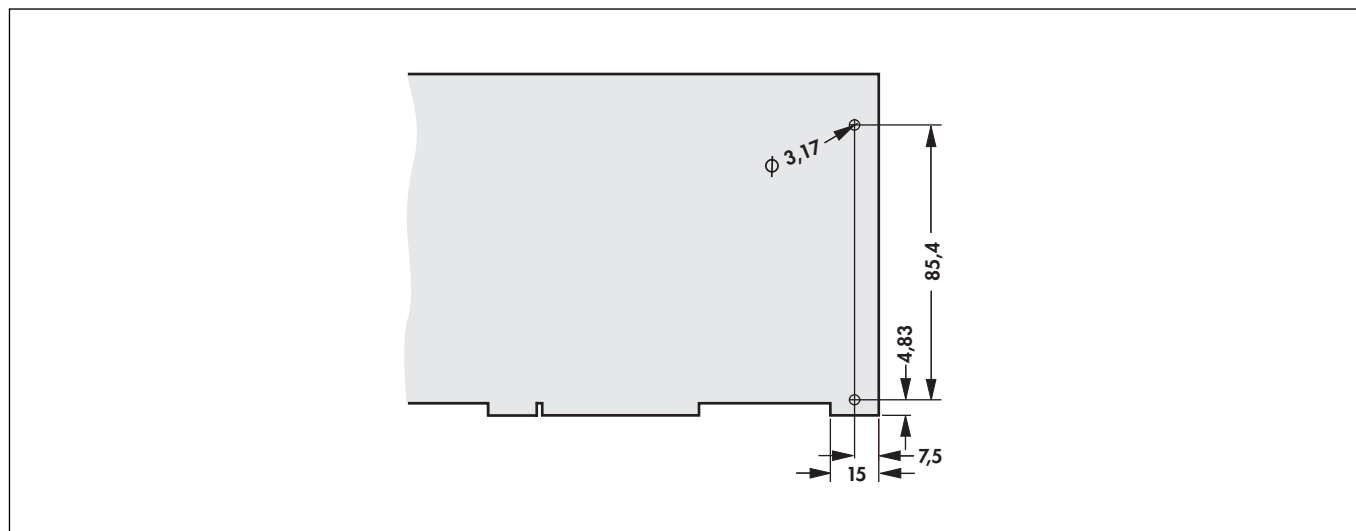
A

**Dimensional drawing for PCBs**

B

C

D



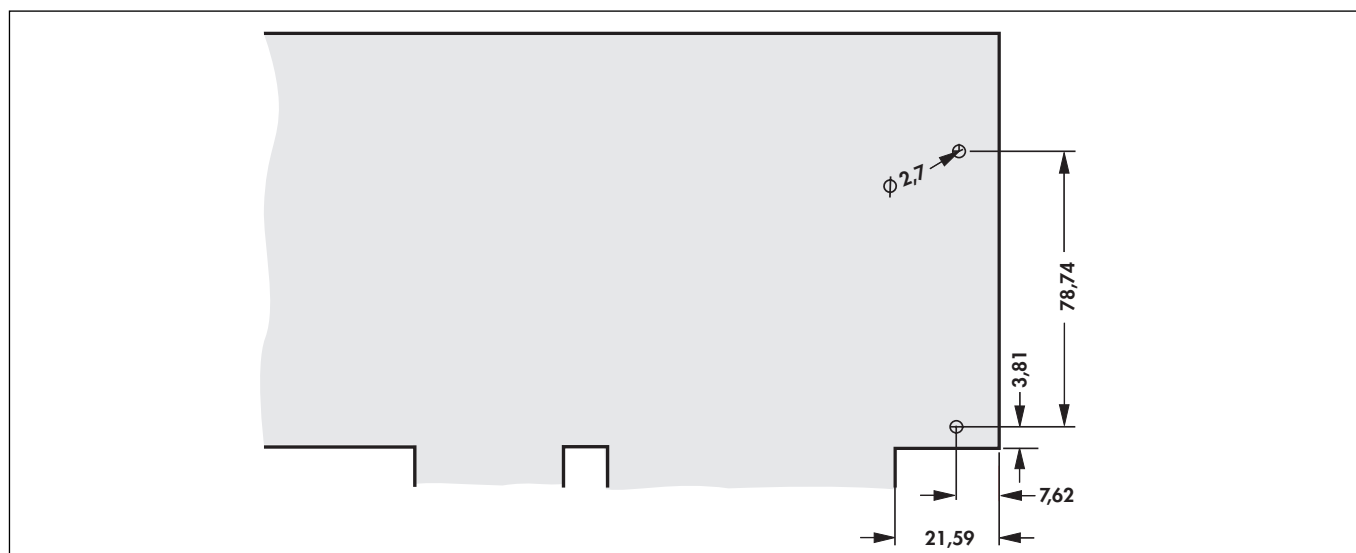
E

**Dimensions to fix the PCI L... - bracket to the PCB**

F

G

H



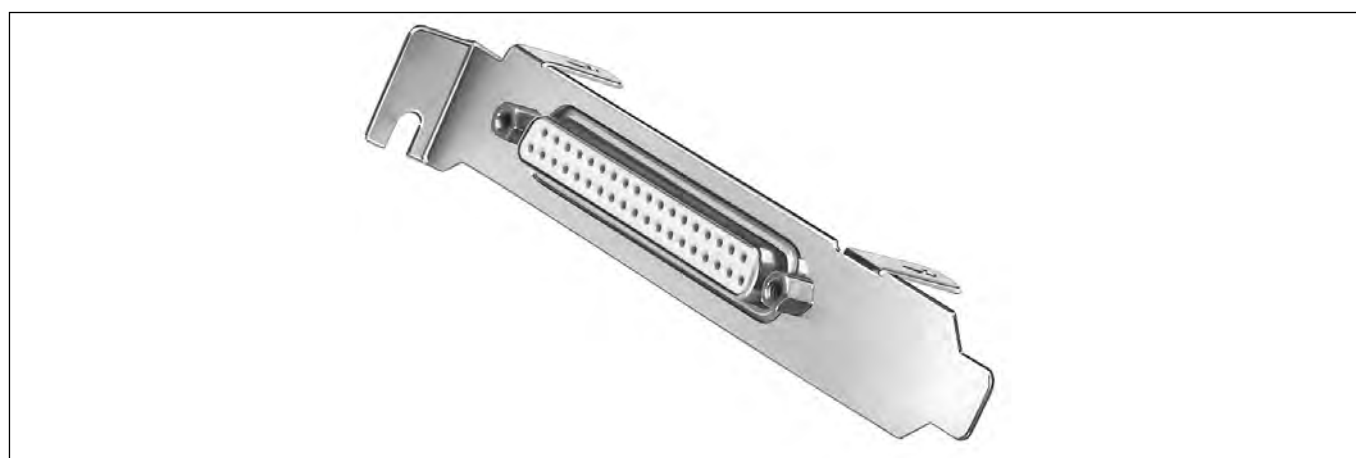
I

**Dimensions to fix the KHPC L... - bracket to the PCB**

K

L

M

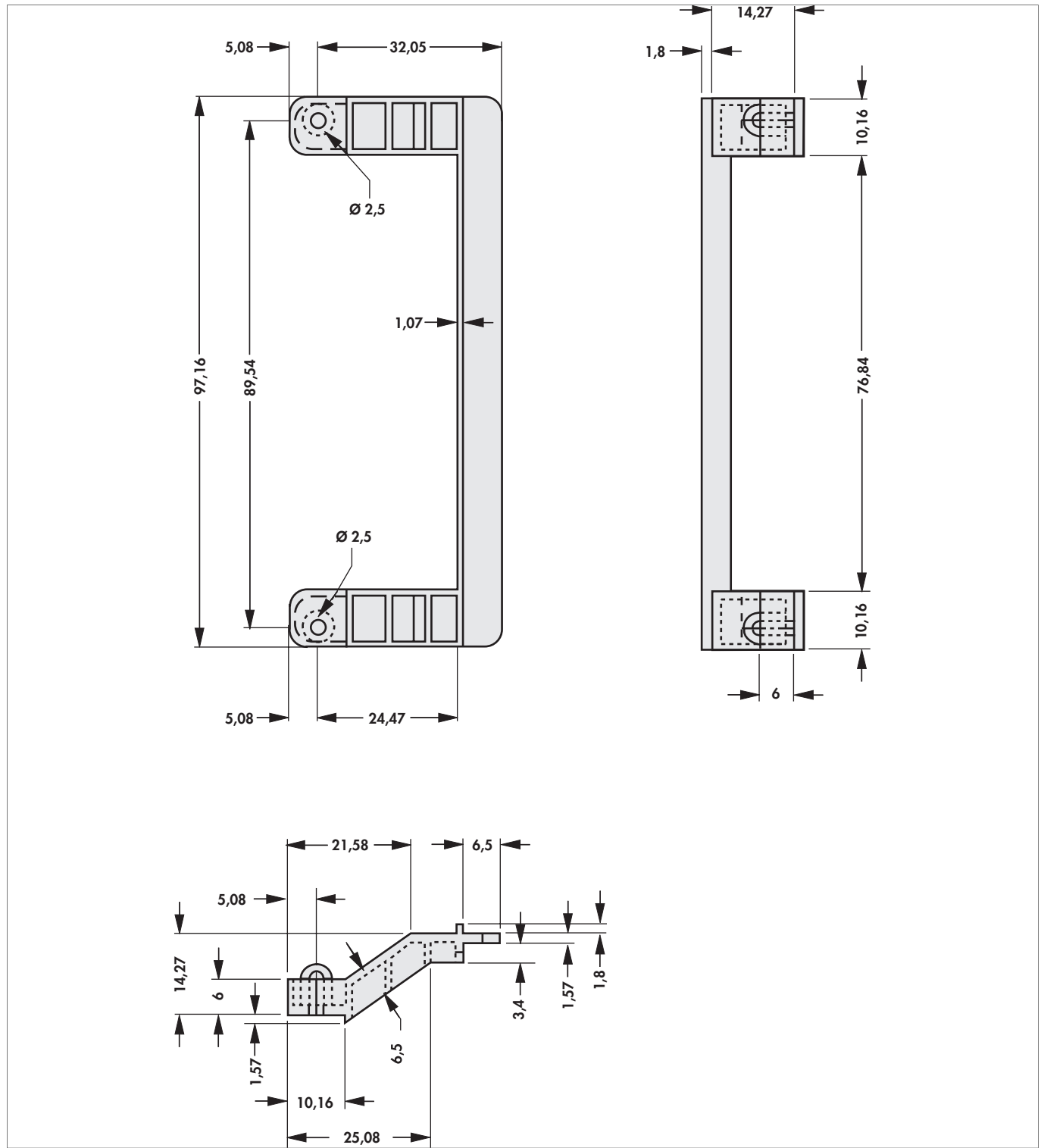

**On request also available with D-Sub connector!**

N

**K 5**

Retainers for PCI-cards

– suitable for all ISA-versions



art. no.

PCI R1

class of flammibility:

UL 94 V-0

material:

polycarbonate

A

Brackets for PC

B

C

D

E

F

G

H


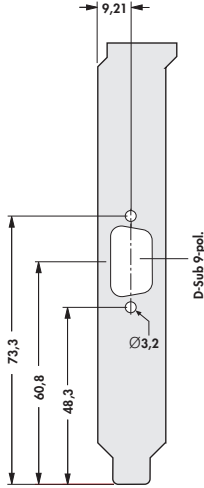
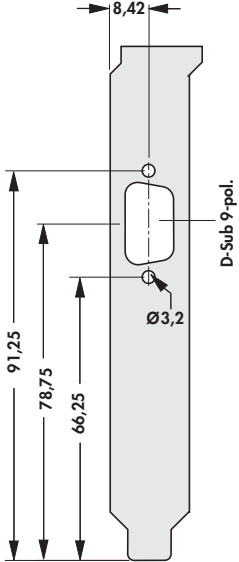
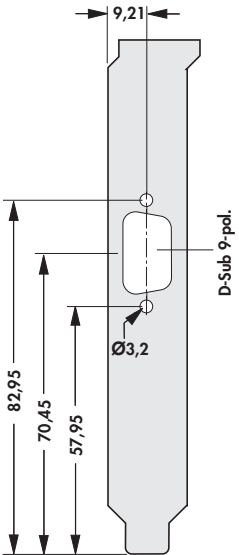
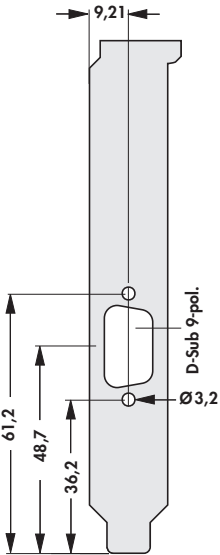
I

K


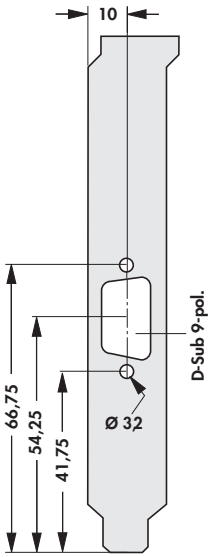
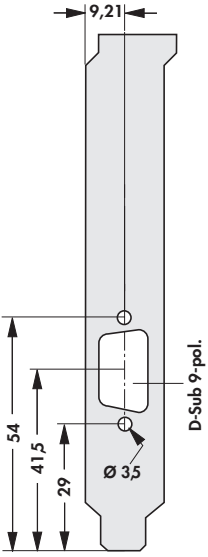
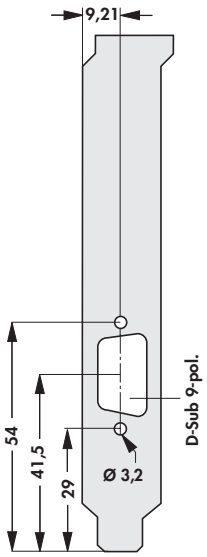
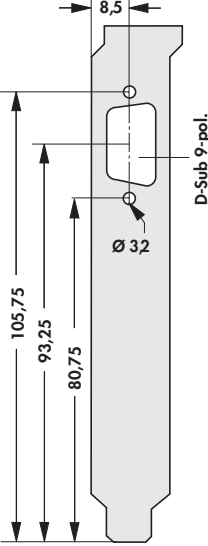
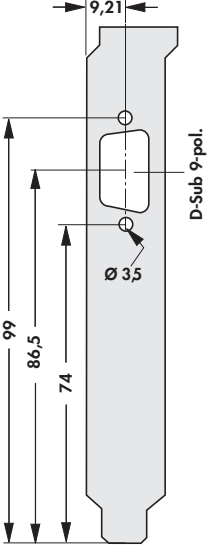
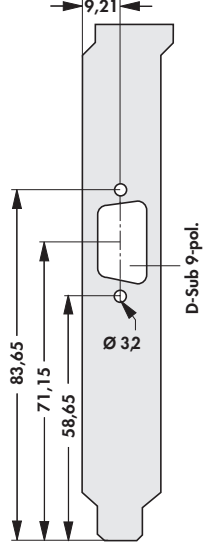
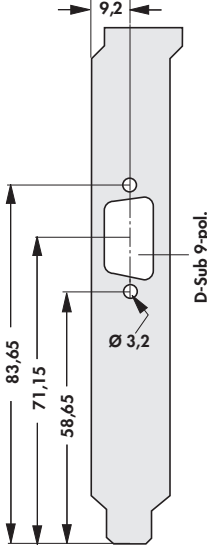
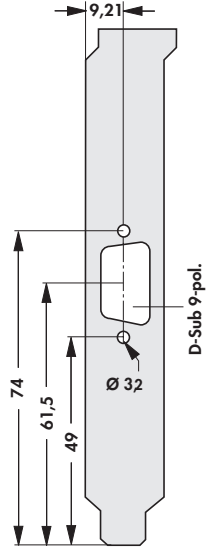
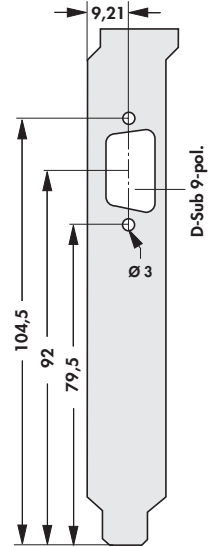
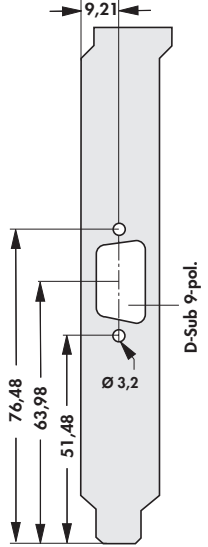
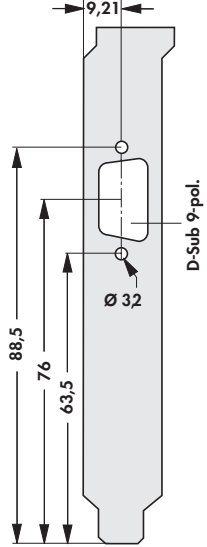
L

M

N

 <p>9</p>	<p><b>PCI 004</b></p> 	<p><b>PCI 006</b></p> 	<p><b>PCI 005</b></p> 
<p><b>PCI 055</b></p> 			



	<p><b>KHPC 016</b></p> 	<p><b>KHPC 007</b></p> 	<p><b>KHPC 011</b></p> 
<p><b>KHPC 002</b></p>	<p><b>KHPC 008</b></p>	<p><b>KHPC 094 O</b></p>	<p><b>KHPC 003</b></p>
			
<p><b>KHPC 010</b></p>	<p><b>KHPC 014</b></p>	<p><b>KHPC 093</b></p>	<p><b>KHPC 096</b></p>
			
<p><b>KHPC 002</b></p>	<p><b>KHPC 008</b></p>	<p><b>KHPC 094 O</b></p>	<p><b>KHPC 003</b></p>

please indicate:

... fixing tab

O = bracket without fixing tab

L = bracket with fixing tab

A

Brackets for PC

B

C

D

E

F

G

H

I

K

L

M

N

	<p><b>KHPC 013</b></p>	<p><b>KHPC 017</b></p>	<p><b>KHPC 095</b></p>
	<p><b>KHPC 131</b></p>		
	<p><b>PCI 012</b></p>	<p><b>PCI 011</b></p>	<p><b>PCI 039 L</b></p>

K 9

If you do not find a suitable bracket, please use the PCI / KHPC design sheet at the end of section "K".

<p><b>PCI 013</b></p>	<p><b>PCI 041</b></p>		
	<p><b>KHPC 142</b></p>	<p><b>KHPC 072</b></p>	<p><b>KHPC 012</b></p>
<p><b>KHPC 015</b></p>	<p><b>KHPC 006</b></p>	<p><b>KHPC 009</b></p>	<p><b>KHPC 053 O</b></p>

please indicate:

... fixing tab

O = bracket without fixing tab

L = bracket with fixing tab

A

Brackets for PC

B

C

D

E

F

G

H

I

K

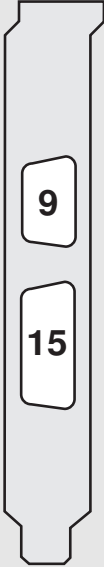
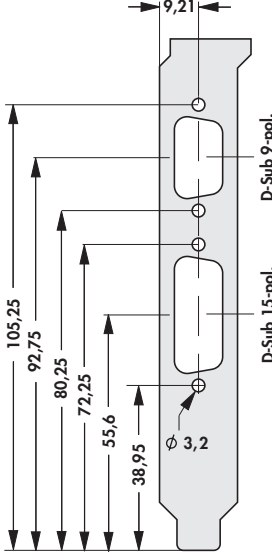
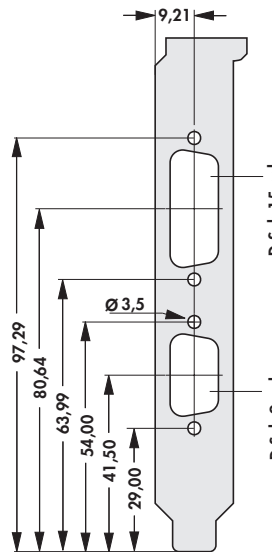
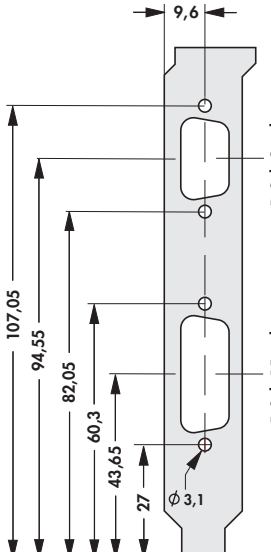
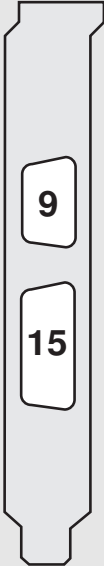
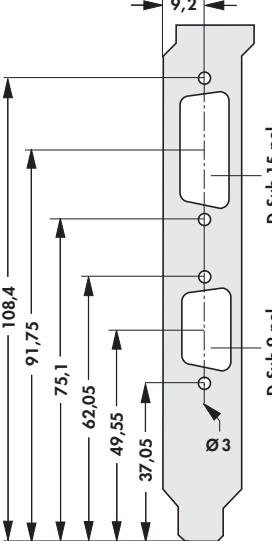
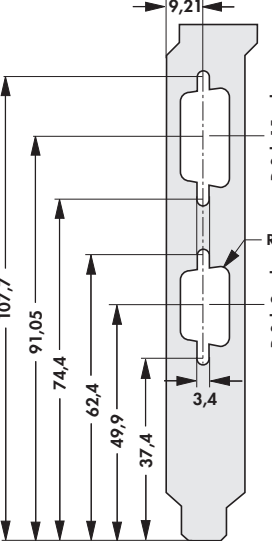
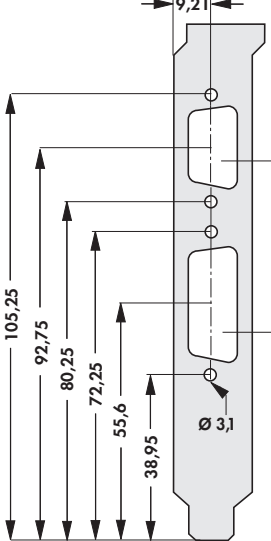
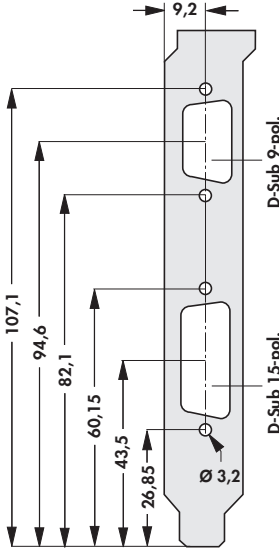
L

M

N

<p><b>KHPC 141</b></p>	<p><b>KHPC 144</b></p>	<p><b>KHPC 138</b></p>	<p><b>KHPC 143</b></p>
	<p><b>KHPC 160</b></p>		
	<p><b>KHPC 005 O</b></p>	<p><b>KHPC 065 O</b></p>	<p><b>KHPC 454 O</b></p>

## Brackets for PC

	<p><b>PCI 031</b></p> 	<p><b>PCI 065 O</b></p> 	<p><b>PCI 032 O</b></p> 
	<p><b>KHPC 177 O</b></p> 	<p><b>KHPC 178</b></p> 	<p><b>KHPC 076</b></p> 
<p><b>KHPC 179</b></p> 			

please indicate:

... fixing tab

O = bracket without fixing tab

L = bracket with fixing tab

A

B

C

D

E

F

G

H

I


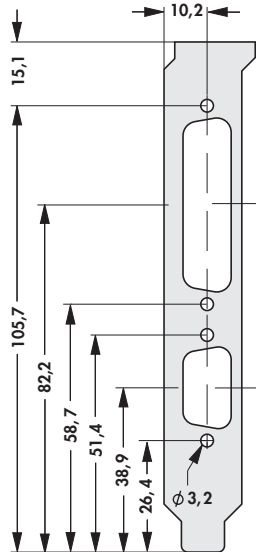

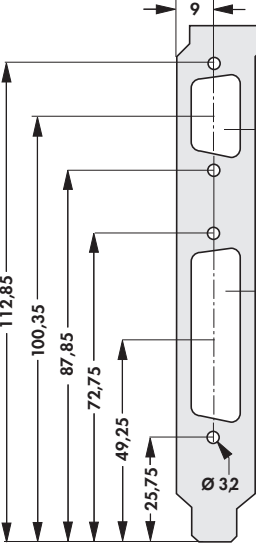
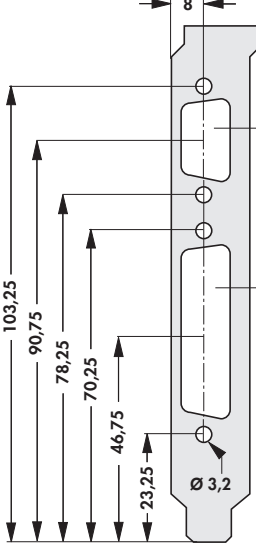
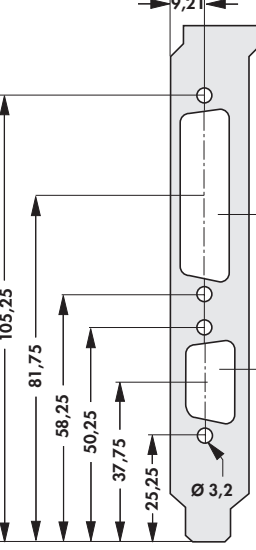
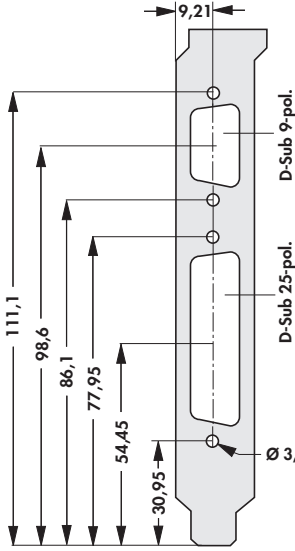
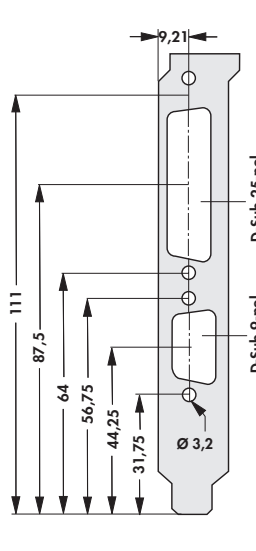
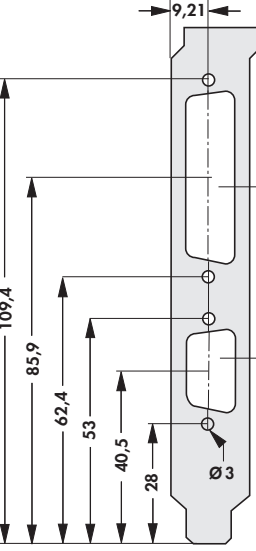
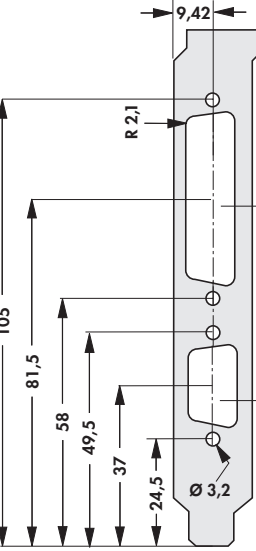
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Brackets for PC

	<p><b>PCI 033 ...</b></p>  <p>Dimensions: 10,2, 15,1, 105,7, 82,2, 58,7, 51,4, 38,9, 26,4, Ø 3,2</p> <p>Labels: D-Sub 25-pol., D-Sub 9-pol.</p>		
	<p><b>KHPC 041</b></p>  <p>Dimensions: 9, 112,85, 100,35, 87,85, 72,75, 49,25, 25,75, Ø 3,2</p> <p>Labels: D-Sub 9-pol., D-Sub 25-pol.</p>	<p><b>KHPC 189</b></p>  <p>Dimensions: 8, 103,25, 90,75, 78,25, 70,25, 46,75, 23,25, Ø 3,2</p> <p>Labels: D-Sub 9-pol., D-Sub 25-pol.</p>	<p><b>KHPC 185</b></p>  <p>Dimensions: 9,21, 105,25, 81,75, 58,25, 50,25, 37,75, 25,25, Ø 3,2</p> <p>Labels: D-Sub 9-pol., D-Sub 25-pol.</p>
<p><b>KHPC 038</b></p>  <p>Dimensions: 9,21, 111,1, 98,6, 86,1, 77,95, 54,45, 30,95, Ø 3,2</p> <p>Labels: D-Sub 9-pol., D-Sub 25-pol.</p>	<p><b>KHPC 187</b></p>  <p>Dimensions: 9,21, 111, 87,5, 64, 56,75, 44,25, 31,75, Ø 3,2</p> <p>Labels: D-Sub 9-pol., D-Sub 25-pol.</p>	<p><b>KHPC 061</b></p>  <p>Dimensions: 9,21, 109,4, 85,9, 62,4, 53, 40,5, 28, Ø 3,2</p> <p>Labels: D-Sub 9-pol., D-Sub 25-pol.</p>	<p><b>KHPC 078 O</b></p>  <p>Dimensions: 9,42, 105, 81,5, 58, 49,5, 37, 24,5, Ø 3,2, R 2,1</p> <p>Labels: D-Sub 9-pol., D-Sub 25-pol.</p>

<p><b>KHPC 188</b></p>	<p><b>KHPC 040</b></p>		
	<p><b>PCI 045</b></p>	<p><b>PCI 014 L</b></p>	<p><b>PCI 015</b></p>
	<p><b>KHPC 024</b></p>	<p><b>KHPC 019</b></p>	<p><b>KHPC 073</b></p>

please indicate:

... fixing tab

O = bracket without fixing tab

L = bracket with fixing tab

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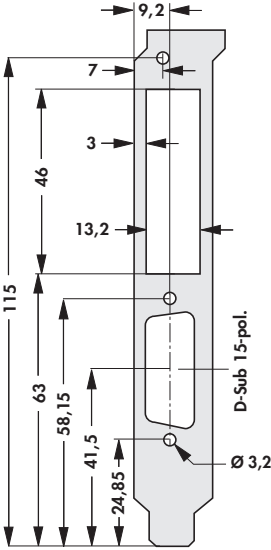
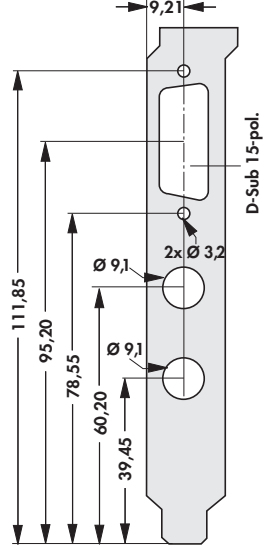
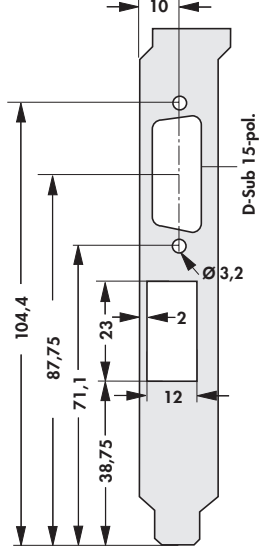
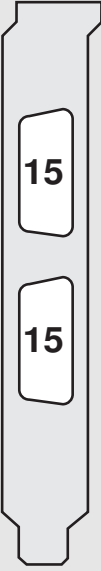
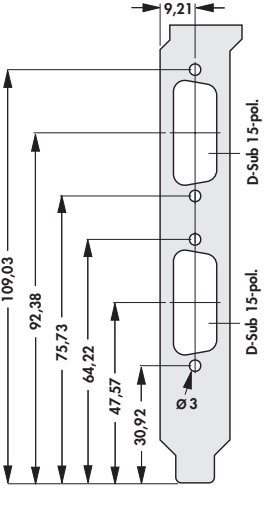
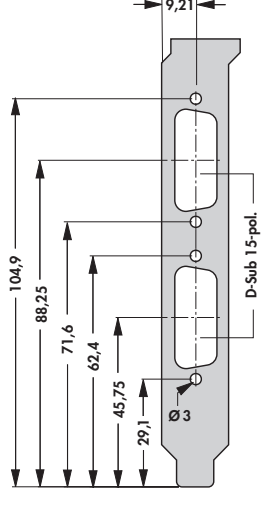
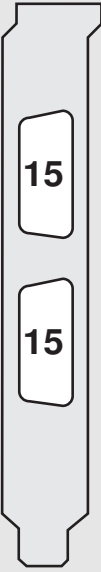
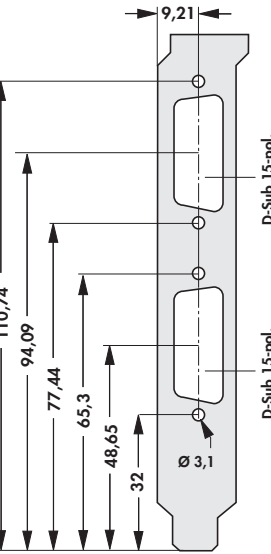
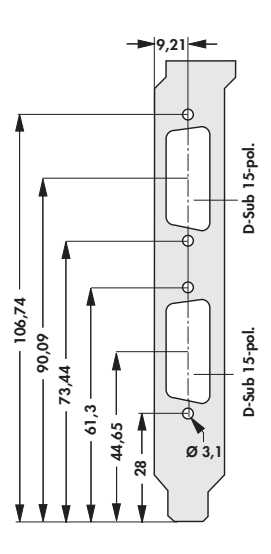
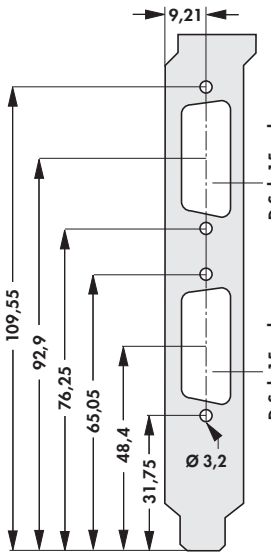
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	<p><b>KHPC 200</b></p> 	<p><b>KHPC 455 ...</b></p> 	<p><b>KHPC 218</b></p> 
	<p><b>PCI 071</b></p> 	<p><b>PCI 047</b></p> 	
	<p><b>KHPC 018</b></p> 	<p><b>KHPC 225</b></p> 	<p><b>KHPC 069</b></p> 

K 15

If you do not find a suitable bracket, please use the PCI / KHPC design sheet at the end of section "K".



## Brackets for PC

<p><b>KHPC 230</b></p>	<p><b>KHPC 022</b></p>	<p><b>KHPC 229</b></p>	
	<p><b>KHPC 075</b></p>	<p><b>KHPC 241</b></p>	<p><b>KHPC 042</b></p>
<p><b>KHPC 242</b></p>			

please indicate:

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- O = bracket without fixing tab
- L = bracket with fixing tab

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Brackets for PC

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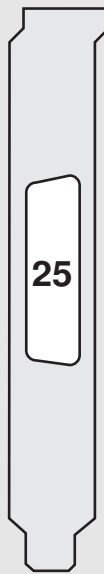
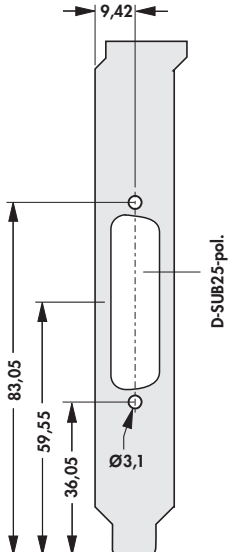
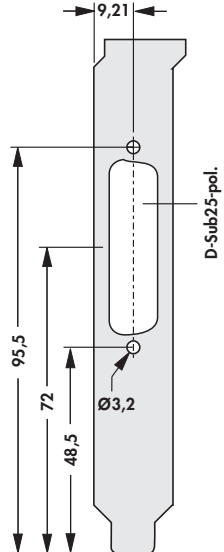
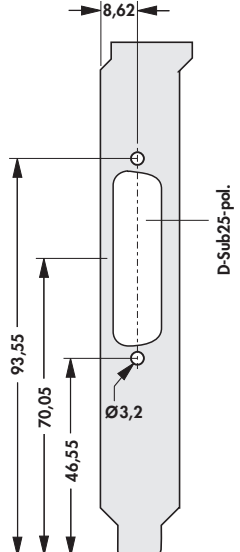

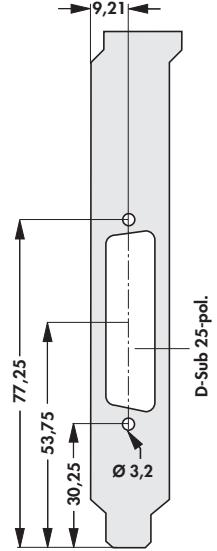
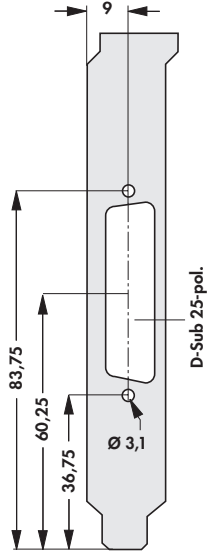
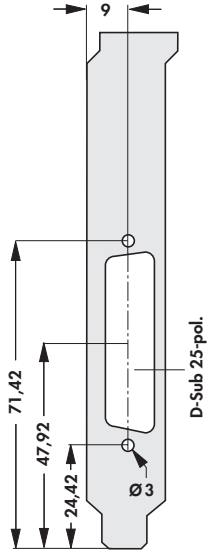
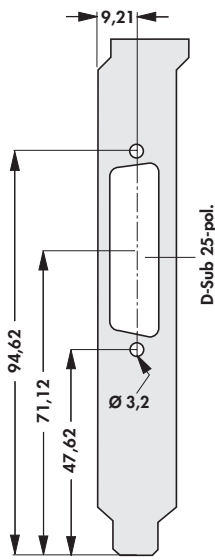
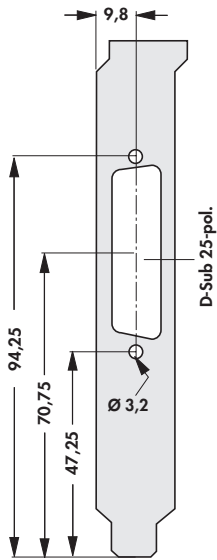
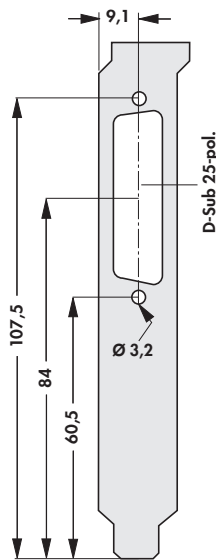
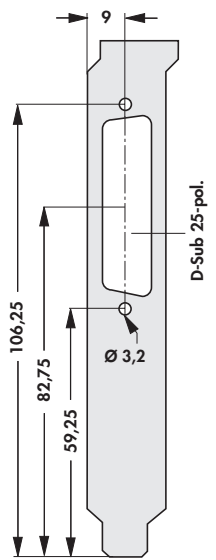
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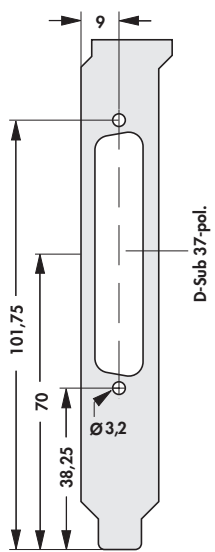
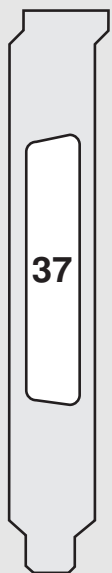
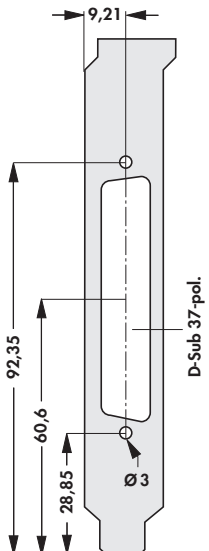
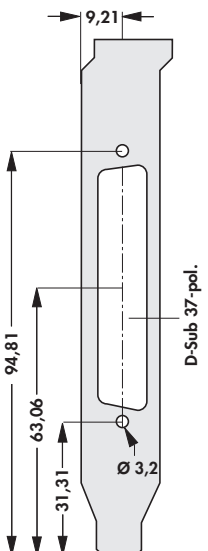
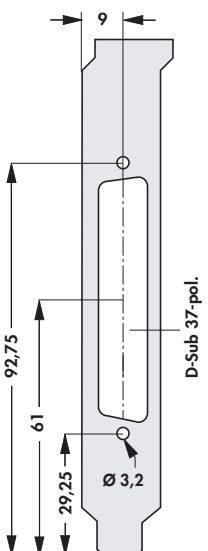
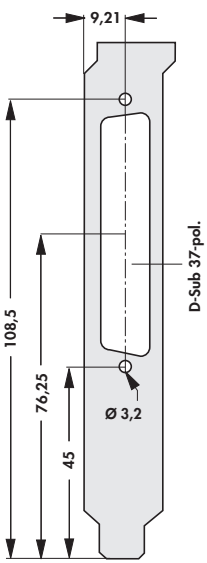
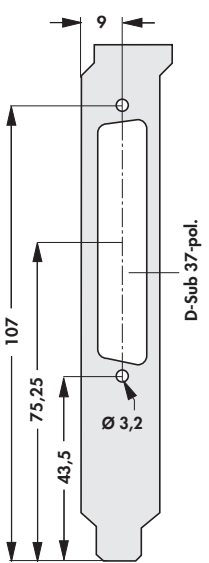
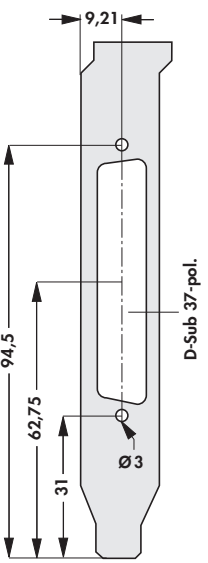
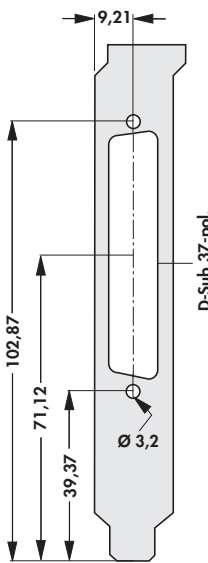
 <p>25</p>	<p><b>PCI 016</b></p>  <p>D-Sub25-pol.</p>	<p><b>PCI 018</b></p>  <p>D-Sub25-pol.</p>	<p><b>PCI 017</b></p>  <p>D-Sub25-pol.</p>
 <p>25</p>	<p><b>KHPC 028</b></p>  <p>D-Sub 25-pol.</p>	<p><b>KHPC 070</b></p>  <p>D-Sub 25-pol.</p>	<p><b>KHPC 243</b></p>  <p>D-Sub 25-pol.</p>
<p><b>KHPC 026</b></p>  <p>D-Sub 25-pol.</p>	<p><b>KHPC 052</b></p>  <p>D-Sub 25-pol.</p>	<p><b>KHPC 054</b></p>  <p>D-Sub 25-pol.</p>	<p><b>KHPC 027</b></p>  <p>D-Sub 25-pol.</p>

<p>25</p>	<p><b>PCI 072</b></p>		
<p>25</p>	<p><b>KHPC 262</b></p>	<p><b>KHPC 043</b></p>	
<p>37</p>	<p><b>PCI 020</b></p>	<p><b>PCI 077</b></p>	<p><b>PCI 076 O</b></p>

please indicate:

- ... fixing tab
- O = bracket without fixing tab
- L = bracket with fixing tab

Brackets for PC

<p><b>PCI 035 L</b></p> 			
	<p><b>KHPC 033</b></p> 	<p><b>KHPC 271</b></p> 	<p><b>KHPC 058</b></p> 
<p><b>KHPC 032</b></p> 	<p><b>KHPC 035</b></p> 	<p><b>KHPC 270</b></p> 	<p><b>KHPC 031</b></p> 

<p><b>KHPC 034</b></p>	<p><b>KHPC 267 O</b></p>	<p><b>KHPC 277</b></p>	
<p><b>37</b></p>	<p><b>KHPC 029</b></p>	<p><b>KHPC 295 O</b></p>	
<p><b>50</b></p>	<p><b>KHPC 036</b></p>	<p><b>KHPC 051</b></p>	<p><b>KHPC 308</b></p>

please indicate:

- ... fixing tab
- O = bracket without fixing tab
- L = bracket with fixing tab

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Brackets for PC

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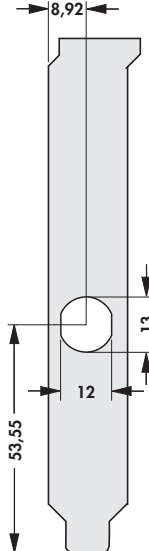

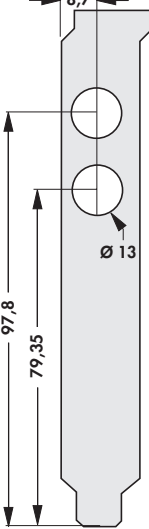
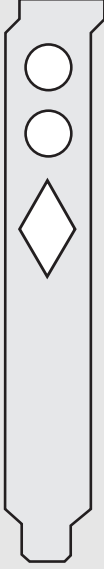
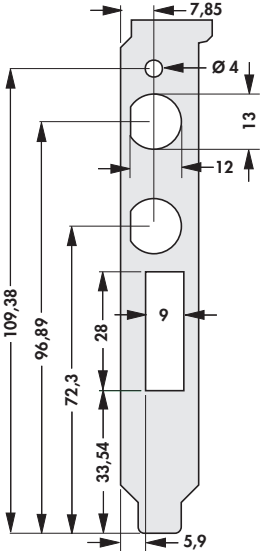
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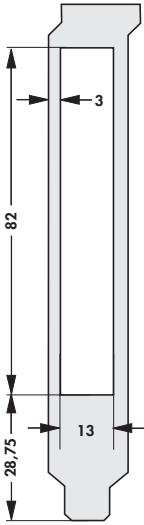
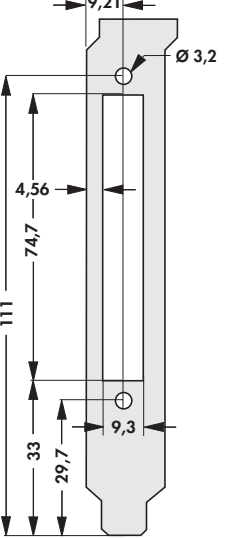
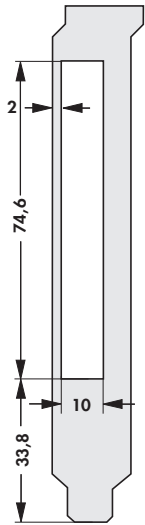
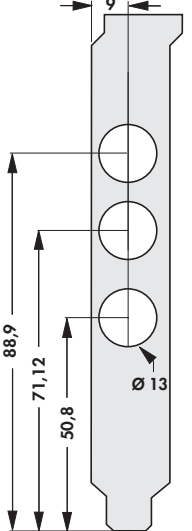
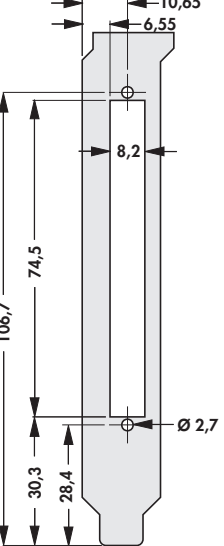
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	<p><b>PCI 021 O</b></p>  <p>8,92 53,55 12 13</p>		
	<p><b>KHPC 325</b></p>  <p>8,7 97,8 79,35 Ø 13</p>		
	<p><b>PCI 083 L</b></p>  <p>109,38 96,89 72,3 33,54 5,9 7,85 Ø 4 13 12 9</p>		

K 21

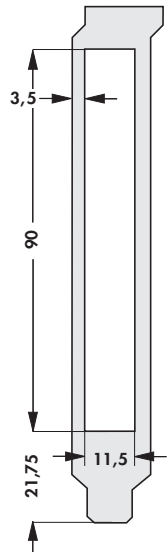
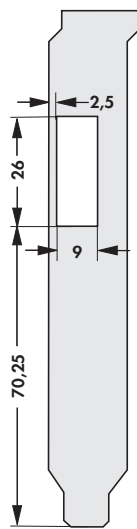
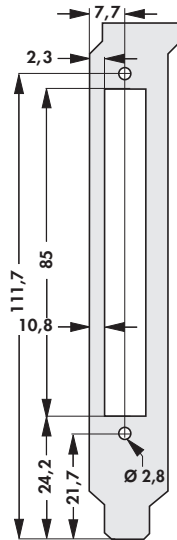
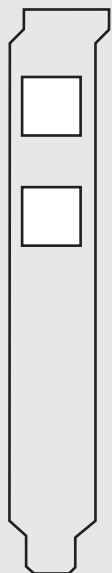
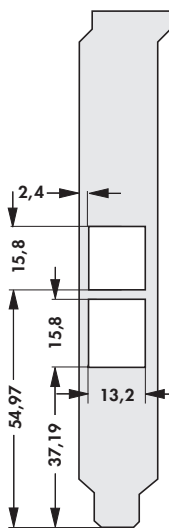
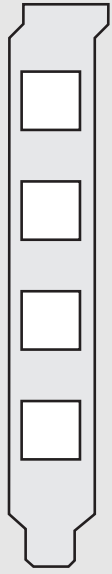
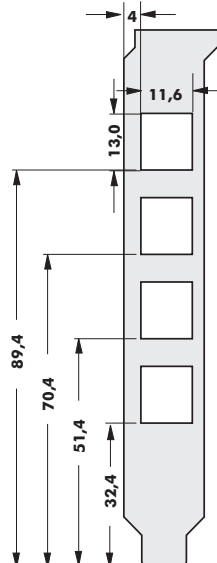
If you do not find a suitable bracket, please use the PCI / KHPC design sheet at the end of section "K".

	<p><b>KHPC 335 L</b></p>		
	<p><b>PCI 104 O</b></p>		
	<p><b>KHPC 085</b></p> 	<p><b>KHPC 391</b></p> 	<p><b>KHPC 390</b></p> 
			
			


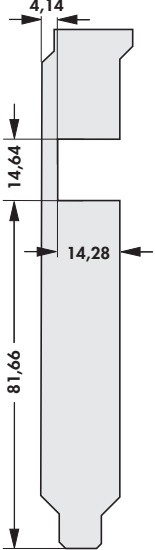
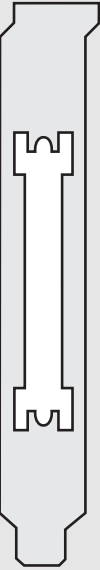
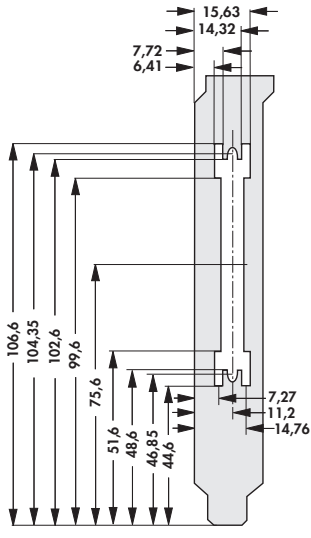
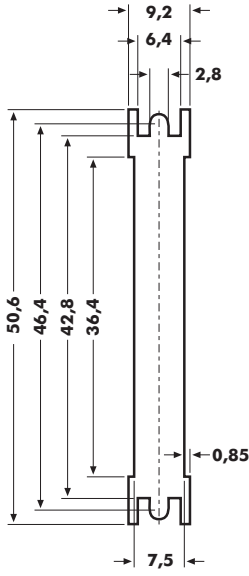
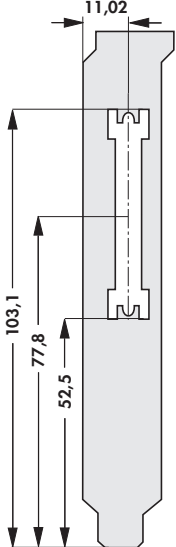
please indicate:

- ... fixing tab
- O = bracket without fixing tab
- L = bracket with fixing tab

Brackets for PC

KHPC 398	KHPC 365 L	KHPC 394	
			
			
			



	<p><b>KHPC 439 O</b></p> 		
	<p><b>KHPC 469 O</b></p> 	<p><b>KHPC 447</b></p> 	<p><b>KHPC 449 O</b></p> 

please indicate:

- ... fixing tab
- O = bracket without fixing tab
- L = bracket with fixing tab

PCI and KHPC-DESIGN

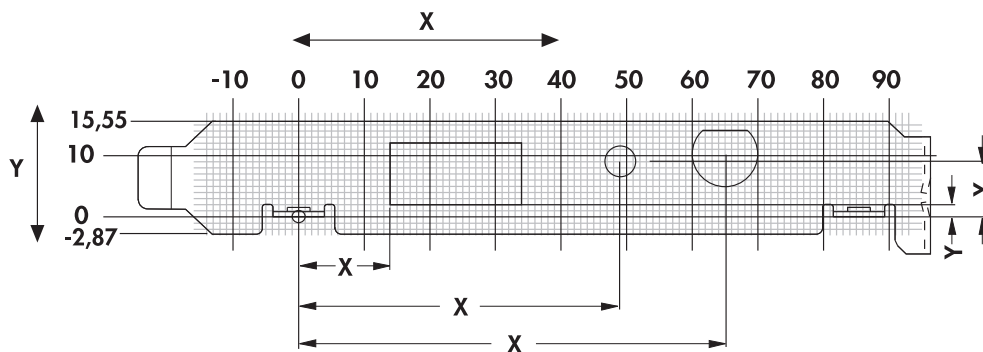
The cutouts shown on the Design sheet should be positioned on the pictured grid.

The zero point of the respective cutout is to be placed on the grid point of the PC card bracket, whereby the X/Y coordinates should be entered in the table as absolute dimensions. Positioning of the cutouts can be specified with an accuracy of max. 0,01 mm. The grid specifies the max. area of the cutout including the component. Please mark whether the version is with or without bent fixing tabs. Other contours, dimensions and cutouts are possible, to the extent that they are technically possible to produce.

Please contact us with regard to this.

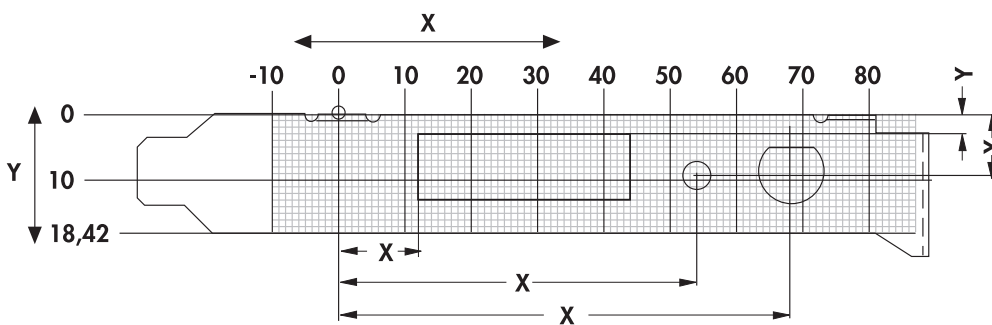
Example

PCI



Shape		X-dimension	Y-dimension
A	A = 20 B = 10	14	2
E	D = 5	49	9
D1	D = 12 D1 = 11	65	9

KHPC



Shape		X-dimension	Y-dimension
A	A = 33 B = 10	12	3
E	D = 2	50	9
D	D = 9,5 D1 = 8,7	69	9

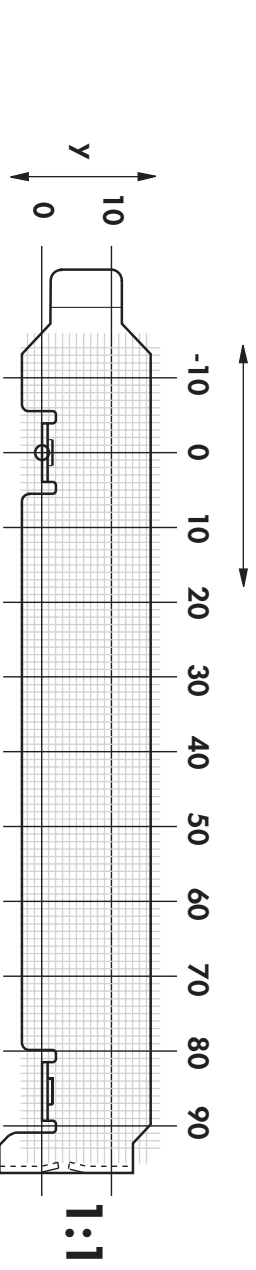
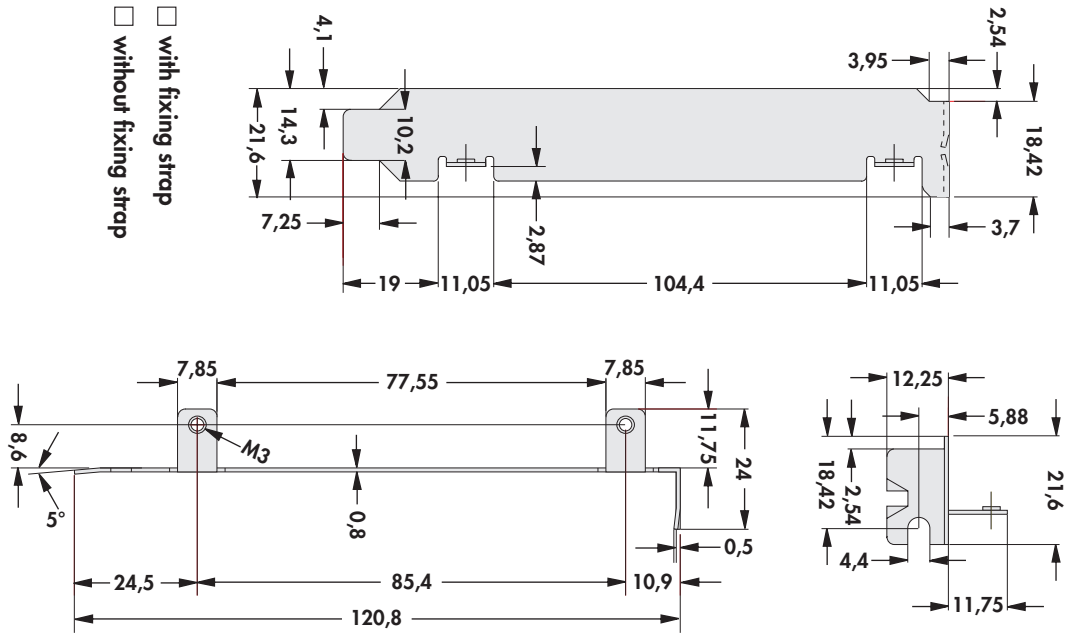
company name:

part name:

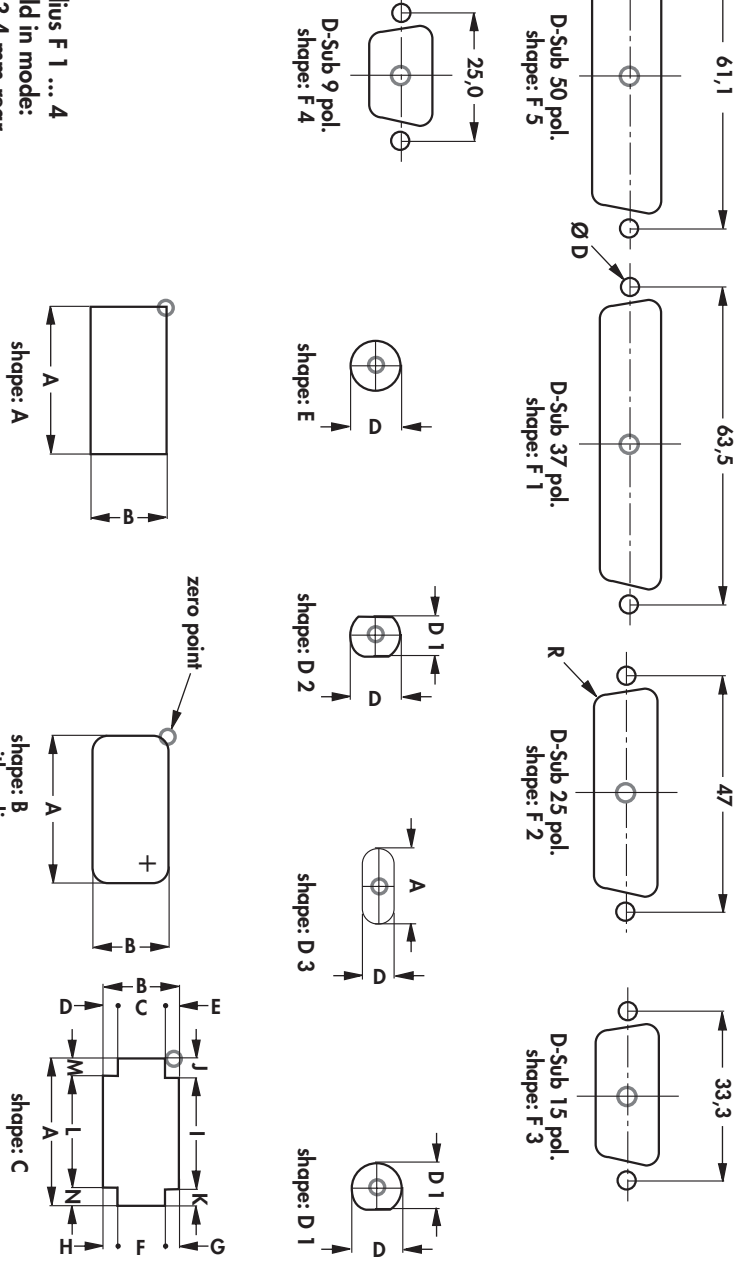
drawing number:

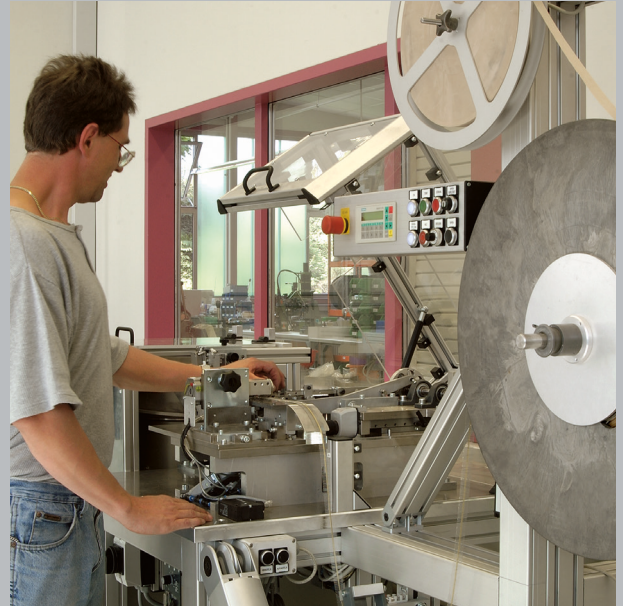
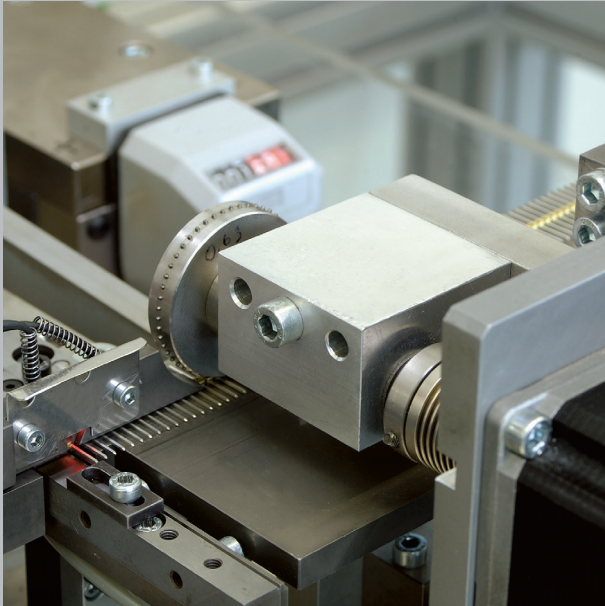
shape	X-dim.	Y-dim.	A	B	C	D	D 1	E	F	G	H	I	J	K	L	M	N

**PCI  
DESIGN**



radius F 1 ... 4  
build in mode:  
 3,4 mm rear  
 2,1 mm front





efficient special machines



up-to-date injection technology



modern surface refinement





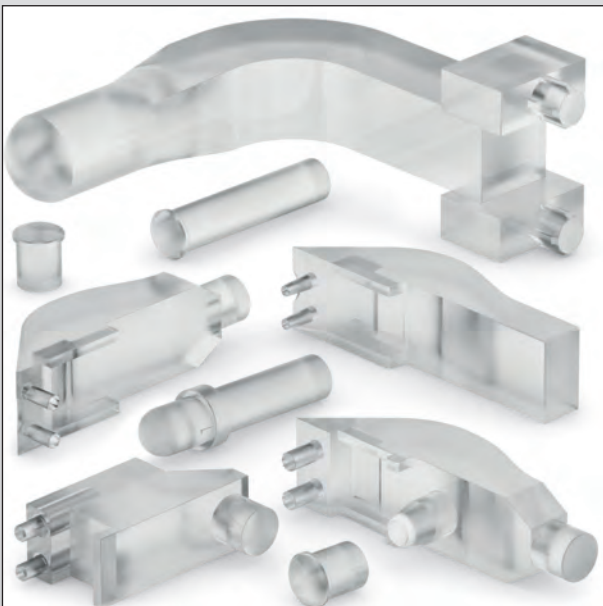
**Mounting material**

- spacers for standard LEDs
- class of flammability acc. to UL 94 VO



**LED fastener for horizontal PCB mounting**

- single and double fasteners for a standard diameter of 3 and 5 mm
- equipped multi-fastener
- single fasteners and fasteners connectable in series



**Fibre-optics for SMD-LED components**

- horizontal, fixed fibre-optics with round or rectangular lens made of transparent plastics - also for gauge displays
- vertical, fixed fibre-optics with round or rectangular lens made of transparent plastics


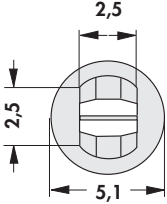
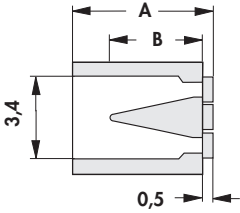



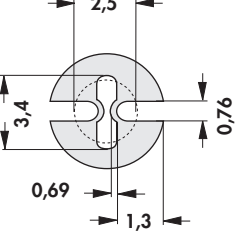
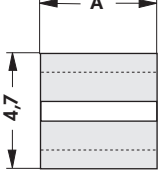
**LED fastener for front panel mounting**

- clipable fastener for 5 mm LEDs
- fastener for 3 and 5 mm LED with clamping ring

## Spacers for LED

– universal mount for LED Ø 3 mm and 5 mm, self retaining

					
art. no.	B [mm]	dim. [mm] A	art. no.	B [mm]	dim. [mm] A
<b>MAH 31</b>	1.5	3.1	<b>MAH 71</b>	4.7	7.1
<b>MAH 41</b>	1.5	4.1	<b>MAH 81</b>	4.7	8.1
<b>MAH 51</b>	1.5	5.1	<b>MAH 89</b>	4.7	8.9
<b>MAH 61</b>	1.5	6.1	<b>MAH 99</b>	7.9	9.9
<b>insulating body material:</b>		MPPS, black			
<b>temperature range:</b>		-40°C...+240°C/ (260°C/5 s)			
<b>class of flammibility:</b>		UL 94 V-0			

					
art. no.	dim. [mm] A		art. no.	dim. [mm] A	
<b>MAH 401</b>	1		<b>MAH 406</b>	6	
<b>MAH 402</b>	2		<b>MAH 407</b>	7	
<b>MAH 403</b>	3		<b>MAH 408</b>	8	
<b>MAH 404</b>	4		<b>MAH 409</b>	9	
<b>MAH 405</b>	5		<b>MAH 410</b>	10	
<b>insulating body material:</b>		PVC Blend, black			
<b>temperature range:</b>		-40°C... +85°C			
<b>class of flammibility:</b>		UL 94 V-0			

Connector-sleeves → F 19 – 20  
 LED-holders for front panel assembly → L 4  
 Fourfold-LED-holders → L 7  
 Horizontale Lichtleiter → L 9

LED-holders for PCB assembly → L 5 – 7  
 Sockets for LED → F 5 – 6  
 Light pipes for SMDs, vertical → L 8 – 9


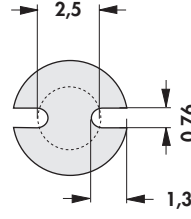
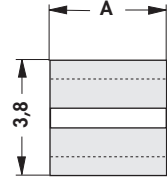
A

Spacers for LED

– for LED Ø 3 mm, thin mount

B

C

art. no.	dim. [mm]	art. no.	dim. [mm]	art. no.	dim. [mm]
	A		A		A
<b>MAH 301</b>	1	<b>MAH 305</b>	5	<b>MAH 308</b>	8
<b>MAH 302</b>	2	<b>MAH 306</b>	6	<b>MAH 309</b>	9
<b>MAH 303</b>	3	<b>MAH 307</b>	7	<b>MAH 310</b>	10
<b>MAH 304</b>	4				
<b>insulating body material:</b>		PVC Blend, black			
<b>temperature range:</b>		-40°C... +85°C			
<b>class of flammibility:</b>		UL 94 V-0			


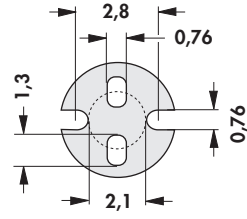
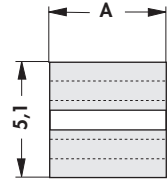
D

E

– for LED Ø 5 mm, self-retaining

F

G

art. no.	dim. [mm]	art. no.	dim. [mm]	art. no.	dim. [mm]
	A		A		A
<b>MAH 501</b>	1	<b>MAH 504</b>	4	<b>MAH 508</b>	8
<b>MAH 502</b>	2	<b>MAH 505</b>	5	<b>MAH 509</b>	9
<b>MAH 503</b>	3	<b>MAH 506</b>	6	<b>MAH 510</b>	10
<b>insulating body material:</b>		PVC Blend, black			
<b>temperature range:</b>		-40°C... +85°C			
<b>class of flammibility:</b>		UL 94 V-0			

H

I

K

L


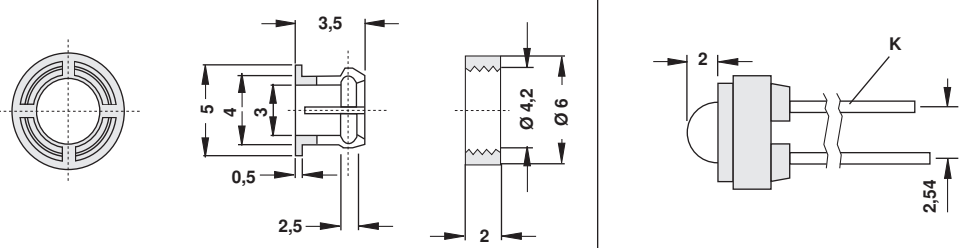
M

N


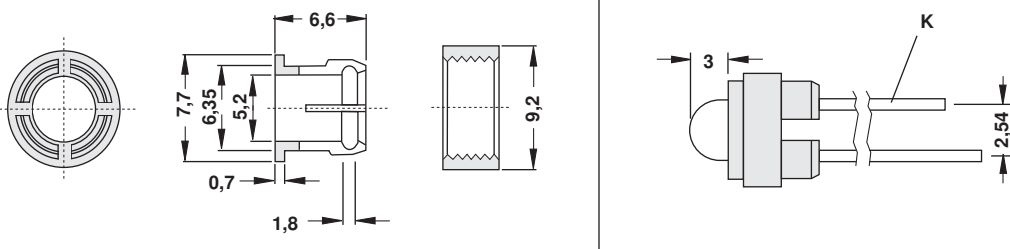


## LED-holders


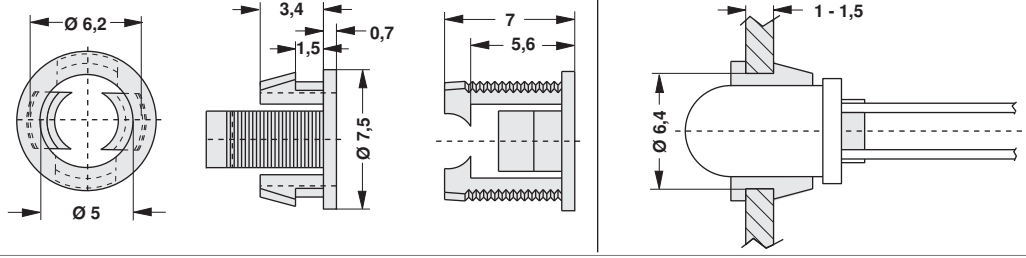
- suitable for 3 mm diodes with a collar height of 0.6 mm
- **K** = cathode

	
<b>art. no.</b> <b>DH 3 V</b>	type for LED Ø3mm
<b>insulating body material:</b>	PA, GF

- suitable for 5 mm diodes with a collar height of 0.6 mm/1 mm
- **K** = cathode

	
<b>art. no.</b> <b>DH 5 VC</b>	type for LED Ø5mm
<b>insulating body material:</b>	PA, GF

- suitable for 5 mm diodes with a collar height of 0.6 mm/1 mm
- **K** = cathode

	
<b>art. no.</b> <b>DH 5 SRC</b>	type for LED Ø5mm
<b>insulating body material:</b>	PA, GF

**Spacers & mounting strips** → L 2 - 3  
**Sockets for LED** → F 5 - 6  
**LED-holders for PCB assembly** → L 5 - 7  
**Light pipes for SMDs, vertical** → L 8 - 9

**Fourfold-LED-holders** → L 7  
**D-Sub cut-out cover** → I 22  
**Screw fastening** → I 23

A

LED-holders

B

LED-holder for LED Ø 3 mm and 5 mm

- K = cathode / \* = presentation with diode

C

D

E

F

G

H


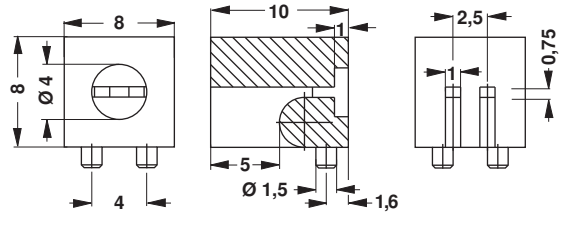
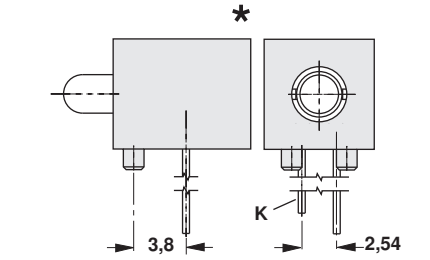

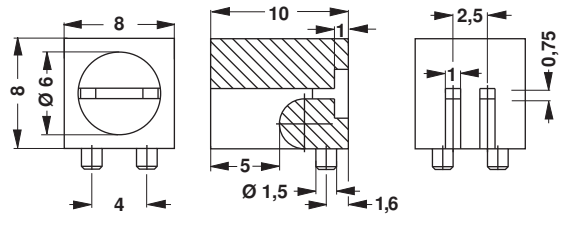
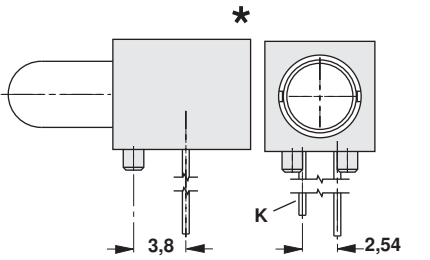

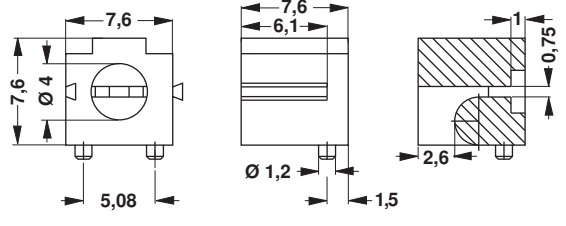
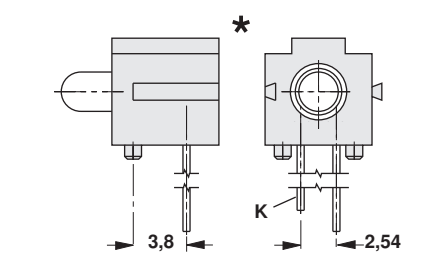

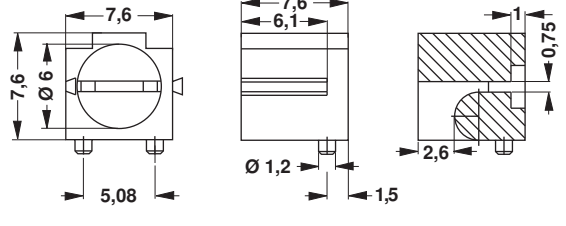
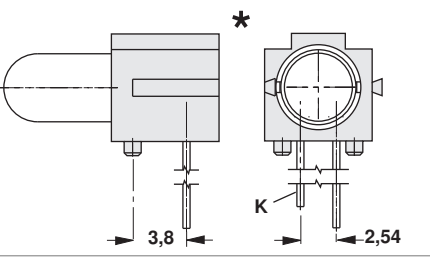
I

K

L

M

N

		
<p>art. no. <b>DH 3 W</b></p>	<p>type for LED Ø3mm</p>	
		
<p>art. no. <b>DH 5 W</b></p>	<p>type for LED Ø5mm</p>	
		
<p>art. no. <b>DH 3 R</b></p>	<p>type for LED Ø3mm</p>	
		
<p>art. no. <b>DH 5 R</b></p>	<p>type for LED Ø5mm</p>	

<p>insulating body material:</p>	<p>PA 4.6. GF</p>
<p>temperature range:</p>	<p>-40°C... +163°C/ (260°C/10 s)</p>
<p>class of flammability:</p>	<p>UL 94 V-0</p>

L 5


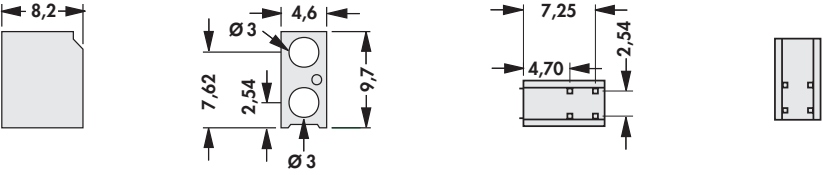
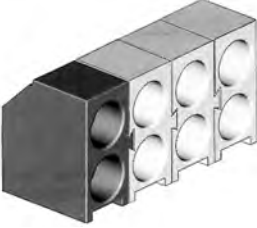
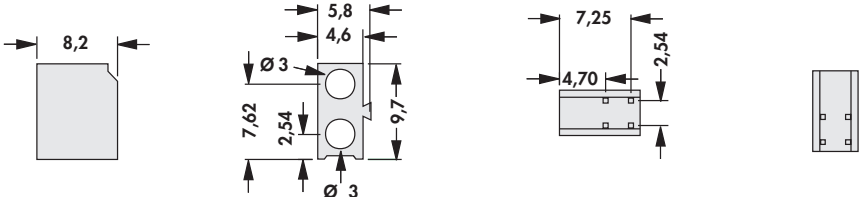
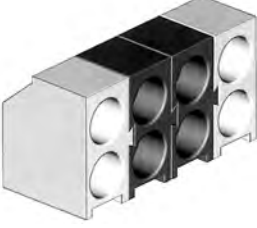
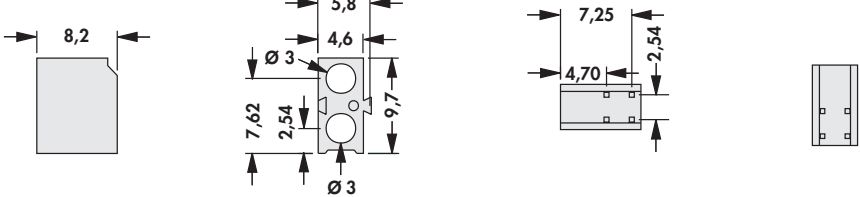
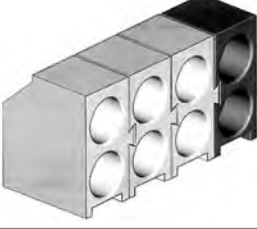
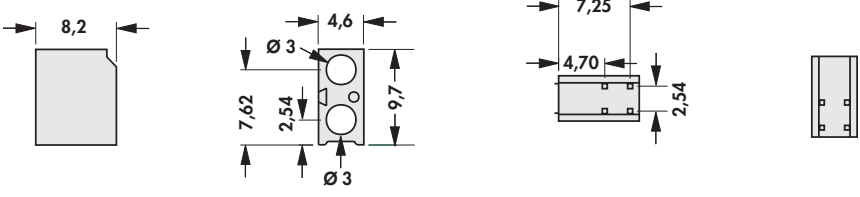
LED-holders for front panel assembly → L 4  
 Spacers & mounting strips → L 2 - 3  
 Connector-sleeves → F 19 - 20  
 Sockets for LED → F 5 - 6

Light pipes for SMDs, vertical → L 8 - 9  
 Fourfold-LED-holders → L 7  
 Horizontale Lichtleiter → L 9

LED-holders

LED-holder for LED Ø 3 mm

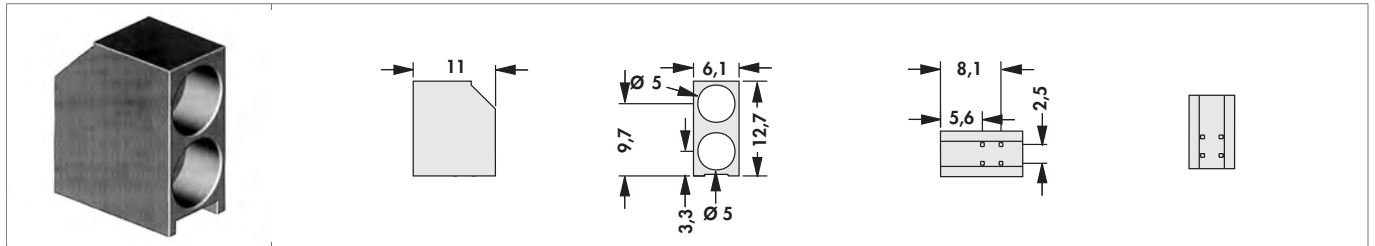
– stackable LED-holders: single holder/can be strung, left/can be strung, middle/can be strung, right

			
<p><b>art. no.</b> <b>DDH 3 E</b></p>	<p>type for LED Ø3mm</p>		
			
<p><b>art. no.</b> <b>DDH 3 L</b></p>	<p>type for LED Ø3mm, can be strung left</p>		
			
<p><b>art. no.</b> <b>DDH 3 M</b></p>	<p>type for LED Ø3mm, can be strung middle</p>		
			
<p><b>art. no.</b> <b>DDH 3 R</b></p>	<p>type for LED Ø3mm, can be strung right</p>		
<p><b>insulating body material:</b></p>	<p>PA 6/6, GF</p>		
<p><b>temperature range:</b></p>	<p>-20°C... +85°C</p>		
<p><b>class of flammibility:</b></p>	<p>UL 94 V-0</p>		

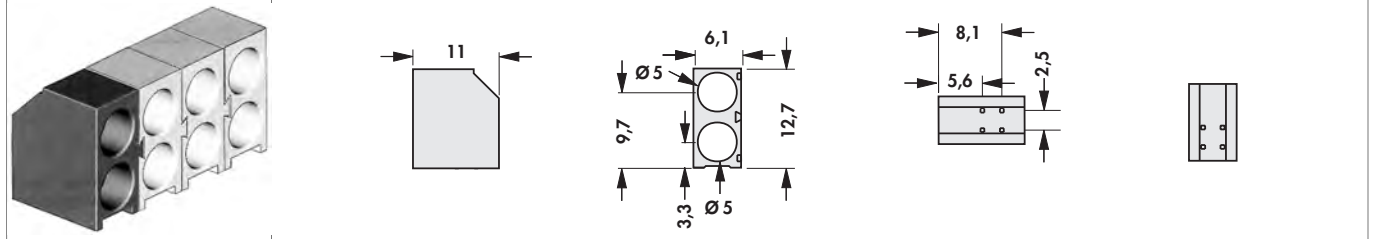
LED-holders

LED-holder for LED Ø 5 mm

– stackable LED-holders: single holder/can be strung, left/can be strung, middle/can be strung, right



<b>art. no.</b>	type
<b>DDH 5 E</b>	for LED Ø5mm, single holder



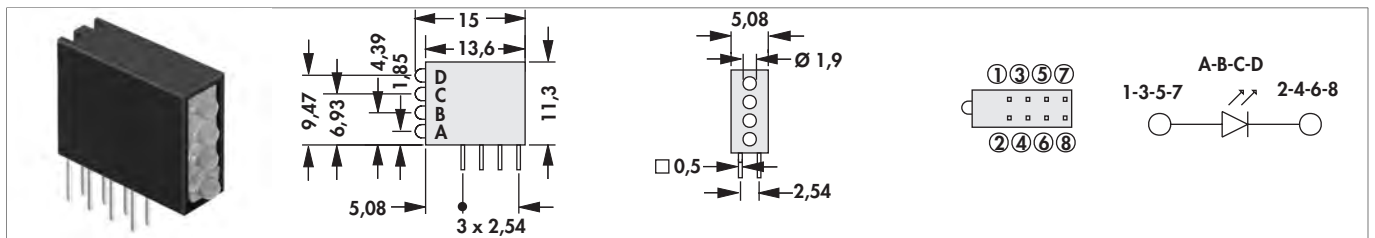
<b>art. no.</b>	type
<b>DDH 5 L</b>	for LED Ø5mm, can be strung left

<b>insulating body material:</b>	PA 6/6, GF
<b>temperature range:</b>	-20°C... +85°C
<b>class of flammability:</b>	UL 94 V-0

Fourfold-LED-holders

– standard case, standard colours, diffuse lens, space-saving design, round lens, rectangular lens

– typical data at  $T_{amb}=25^{\circ}C$  und  $I_F=I_{Ftype}$  100% DC



<b>art. no.</b>	type	emission colour	Spannungen $U_{fTyp}$ / $U_{rmax}$ [V]	wavelength $\lambda_{max}$ [nm]
<b>DLH 21 ASEH</b>	with LED Ø2mm, fourfold	super red	2.0 / 2.6	635
<b>DLH 21 AYEH</b>	with LED Ø2mm, fourfold	yellow	2.1 / 2.6	585
<b>DLH 21 AGEH</b>	with LED Ø2mm, fourfold	green	2.2 / 2.6	565

<b>insulating body material:</b>	Nylon, black
<b>temperature range:</b>	-20°C... +85°C
<b>class of flammability:</b>	UL 94 V-0
<b>beam angle 2 φ:</b>	80 °
<b>design:</b>	2mm round
<b>for cases:</b>	in terms of colour diffuse
<b>derating:</b>	from $T_{amb} < 20^{\circ}C$ , operating current reduced by 0.4 mA/K .
<b>light intensity I:</b>	12 mcd
<b>flows <math>I_{Ftyp}</math> / <math>I_{Fmax}</math>:</b>	20/30 mA

L 7

Screw fastening  
D-Sub cut-out cover  
Spacers & mounting strips  
Light pipes for SMDs, vertical


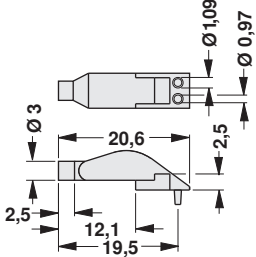
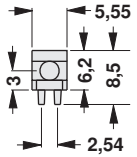
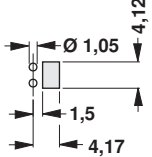

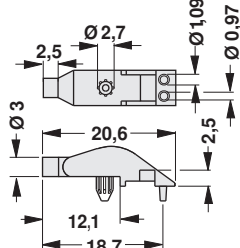
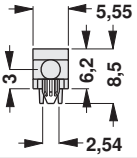
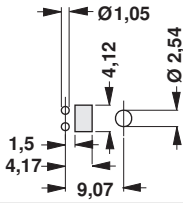

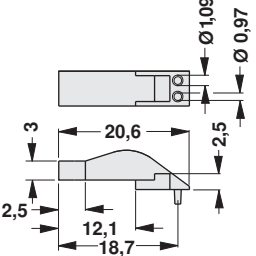
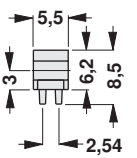
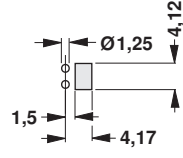

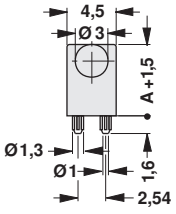
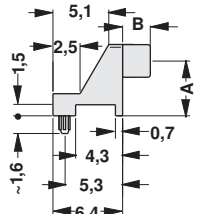
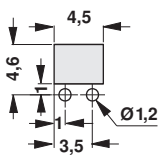
→ I 23  
→ I 22  
→ L 2 – 3  
→ L 8 – 9

Sockets for LED  
Connector-sleeves  
LED-holders for front panel assembly

→ F 5 – 6  
→ F 19  
→ L 4

## Light pipes for SMDs

- suitable for current SMD types
- 3 mm light pipes
- horizontal
- ESD-protection from panel to PCB

			
<b>art. no.</b> <b>LL 30 HRS</b>	diameter of lens Ø3mm	way of fixation by alignment pins	
			
<b>art. no.</b> <b>LL 30 HRP</b>	diameter of lens Ø3mm	way of fixation by press-in pins	
			
<b>art. no.</b> <b>LL 35 HVS</b>	diameter of lens rectangle 5.5x3mm	way of fixation by alignment pins	
			
<b>art. no.</b>	diameter of lens	way of fixation	dim. [mm]
<b>LL 30 WRFP 038</b>	Ø3mm	by press-in pins	A: 3.8, B: 2.5
<b>LL 30 WRFP 050</b>	Ø3mm	by press-in pins	A: 5.0, B: 2.5
<b>LL 30 WRFP 076</b>	Ø3mm	by press-in pins	A: 7.6, B: 2.5
<b>LL 30 WRFP 102</b>	Ø3mm	by press-in pins	A: 10.2, B: 2.5
<b>insulating body material:</b>	Polycarbonate, clear		
<b>temperature range:</b>	-30°C... +100°C		
<b>class of flammability:</b>	UL 94 V-0		

Spacers & mounting strips → L 2 - 3

Sockets for LED → F 5 - 6

LED-holders for PCB assembly → L 5 - 7

Fourfold-LED-holders → L 7

Screw fastening → I 23

D-Sub cut-out cover → I 22

LED-holders for front panel assembly → L 4

A

## Light pipes for SMDs

B

– panel light pipe, 6 mm lens, suitable for common SMD LEDs, white lens, large angle of radiation

C

art. no.	diameter of lens	way of fixation	dim. [mm]
<b>LL 60 WRB 254</b>	Ø6mm	by press-in pins	A 25.4

D

– panel light pipe 3 mm, ESD protection from panel to PCB

E

art. no.	diameter of lens	dim. [mm]	art. no.	diameter of lens	dim. [mm]
<b>LL 30 PRB 032</b>	Ø3mm	A 3.2	<b>LL 30 PRB 089</b>	Ø3mm	A 8.9
<b>LL 30 PRB 064</b>	Ø3mm	6.4			

F

G

art. no.	diameter of lens	dim. [mm]	art. no.	diameter of lens	dim. [mm]
<b>LL 30 PRL 032</b>	Ø3mm	A 3.2	<b>LL 30 PRL 127</b>	Ø3mm	A 12.7
<b>LL 30 PRL 064</b>	Ø3mm	6.4	<b>LL 30 PRL 159</b>	Ø3mm	15.9
<b>LL 30 PRL 089</b>	Ø3mm	8.9			

H

I

– suitable for current SMD LEDs, vertical, rigid light pipe Ø 3 mm, ESD protection from panel to PCB

K

art. no.	diameter of lens	way of fixation	dim. [mm]
<b>LL 30 VRFS 024</b>	Ø3mm	by alignment pins	A 2.4
<b>LL 30 VRFS 050</b>	Ø3mm	by alignment pins	5.0
<b>LL 30 VRFS 075</b>	Ø3mm	by alignment pins	7.5

**insulating body material:** Polycarbonate, clear  
**temperature range:** -30°C... +100°C  
**class of flammability:** UL 94 V-0

L

M

N

L 9

Spacers & mounting strips  
Sockets for LED  
LED-holders for PCB assembly  
Fourfold-LED-holders

→ L 2 – 3  
→ F 5 – 6  
→ L 5 – 7  
→ L 7

Screw fastening → I 23  
D-Sub cut-out cover → I 22  
LED-holders for front panel assembly → L 4

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