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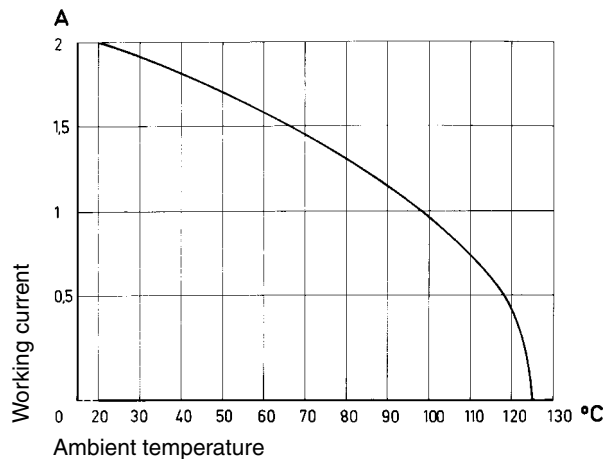


Number of contacts	20-96
Contact spacing (mm)	2.54
Working current	2 A max. see current carrying capacity chart
Clearance	≥ 1.2 mm
Creepage	≥ 1.2 mm
Working voltage	according to the safety regulations of the equipment The working voltage also depends on the clearance and creepage dimensions of the PCB itself, and the associated wiring
Test voltage $U_{r.m.s.}$	1 kV
Contact resistance	≤ 15 mΩ
Insulation resistance	≥ 10 ¹² Ω
Temperature range	- 55 °C ... + 125 °C The higher temperature limit includes the local ambient and heating effects of the contacts under load - 40 °C ... + 105 °C for press-in connectors
During reflow soldering	max. + 240 °C for 15 s for SMC connectors
Electrical termination	Male and female connectors Solder pins for PCB connections Ø 1.0 ± 0.1 mm according to IEC 60 326-3 Compliant press-in terminations Diameter of PCB plated through holes see table on the right PCB thickness ≥ 1.6 mm Recommended PCB holes for press-in process in acc. to EN 60352-5
Insertion and withdrawal force	20way ≤ 20 N 30way ≤ 30 N 32way ≤ 30 N 48way ≤ 45 N 64way ≤ 60 N 96way ≤ 90 N
Materials	Mouldings Poly Cyclohexylene Terephthalate (PCT), UL 94-V0 Contacts Copper alloy
Contact surface	Contact zone Selectively plated according to performance level

Current carrying capacity

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60 512



Recommended configuration of plated through holes

In addition to the hot-air-level (HAL) other PCB surfaces are getting more important. Due to their different properties, such as mechanical strength and coefficient of friction we recommend the following configuration of PCB through holes.

<i>Tin-lead plated PCB (HAL) acc. EN 60352-5</i>	Hole-Ø	1.15±0.025 mm
	Cu	min. 25 µm
	Sn	max. 15 µm
	Plated hole-Ø	0.94-1.09 mm
<i>Chemical tin-plated PCB</i>	Hole-Ø	1.15±0.025 mm
	Cu	min. 25 µm
	Sn	min. 0.8 µm
	Plated hole-Ø	1.00-1.10 mm
<i>Au / Ni plated PCB</i>	Hole-Ø	1.15±0.025 mm
	Cu	min. 25 µm
	Ni	3-7 µm
	Au	0.05-0.12 µm
	Plated hole-Ø	1.00-1.10 mm
<i>Silver plated PCB</i>	Hole-Ø	1.15±0.025 mm
	Cu	min. 25 µm
	Ag	0.1-0.3 µm
	Plated hole-Ø	1.00-1.10 mm
<i>OSP copper plated PCB</i>	Hole-Ø	1.15±0.025 mm
	Cu	min. 25 µm
	Plated hole-Ø	1.00-1.10 mm

PCB board thickness: ≥ 1.6 mm

DIN 41 612 · complementary type 3B



Number of contacts

20

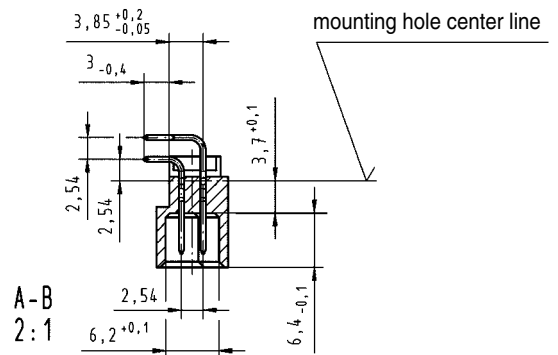
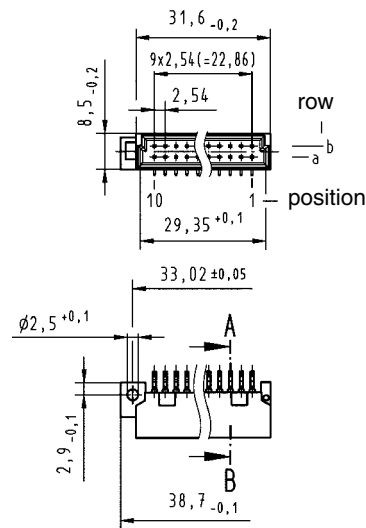


Male connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.		
				3	2	1
Male connector with angled solder pins	with fixing flange		Performance level 3 on request	09 24 120 6921	Performance level 1 on request	
	with fixing flange, SMC			09 24 120 6919		
	without fixing flange			09 24 120 6571		
	without fixing flange, SMC			09 24 120 6579		

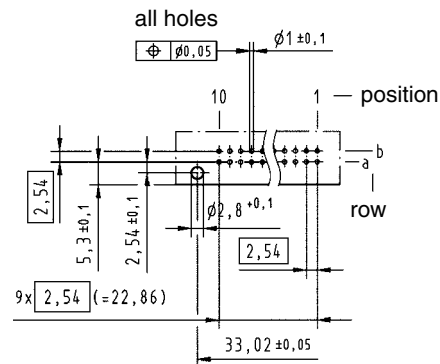
Dimensions

with fixing flange without fixing flange

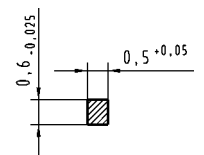


Board drillings

Mounting side



Cross section of solder terminations



Cross area (A) of contacts
row a, b: A = 0.29 - 0.33 mm²

Dimensions in mm

Number of contacts

20



Female connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.	
			3	2	1
Female connector with solder pins 2.9 mm with fixing flange	20		Performance level 3 on request	09 24 220 6824	Performance level 1 on request
with fixing flange, SMC	20			09 24 220 6841	
without fixing flange, SMC	20			09 24 220 6414	
Female connector with solder pins 4.5 mm with fixing flange	20			09 24 220 6825	
Female connector with press-in pins 4.5 mm with fixing flange	20			09 24 220 6850	
without fixing flange	20			09 24 220 6870	

Number of contacts

20



Female connectors

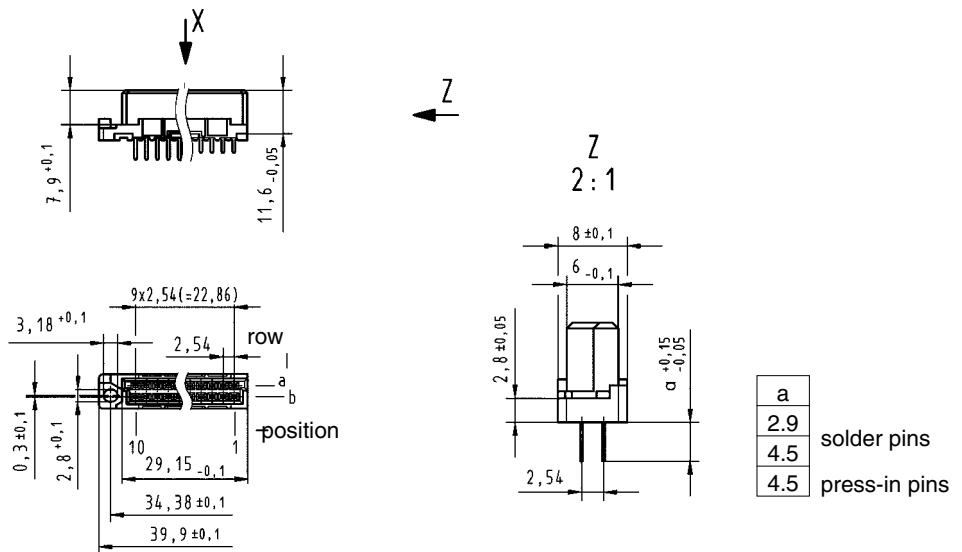
Identification

Drawing

Dimensions in mm

Dimensions

with fixing flange without fixing flange

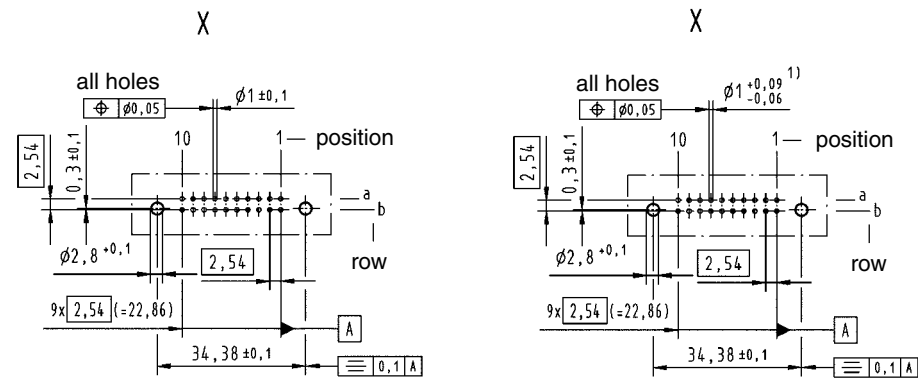


Board drillings

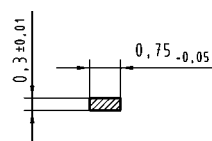
Mounting side

solder pins

press-in pins



Cross section of solder terminations

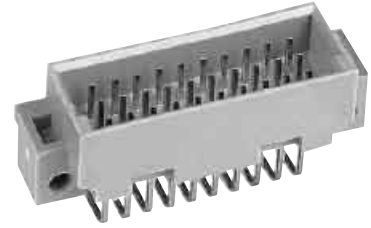


Cross area (A) of contacts row a, b: A = 0.20 - 0.23 mm²

¹⁾ for press-in connection acc. to IEC 60352-2

Number of contacts

30, 20



Male connectors

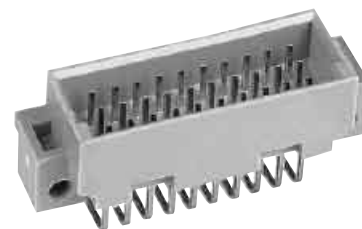
Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.		
			3	2	1	
Male connector with angled solder pins	with fixing flange		Performance level 3 on request	09 25 130 6921	Performance level 1 on request	
		20				09 25 120 6921
	with fixing flange, SMC	30				09 25 130 6919
	without fixing flange	30				09 25 130 6571
	without fixing flange, SMC	30				09 25 130 6579
Male connector with straight solder pins	with fixing flange			09 25 130 6922		
		20				09 25 120 6922
	without fixing flange	30				09 25 130 6572
	without fixing flange, SMC	30				09 25 130 6590

DIN 41 612 · complementary type 3C



Number of contacts

30, 20



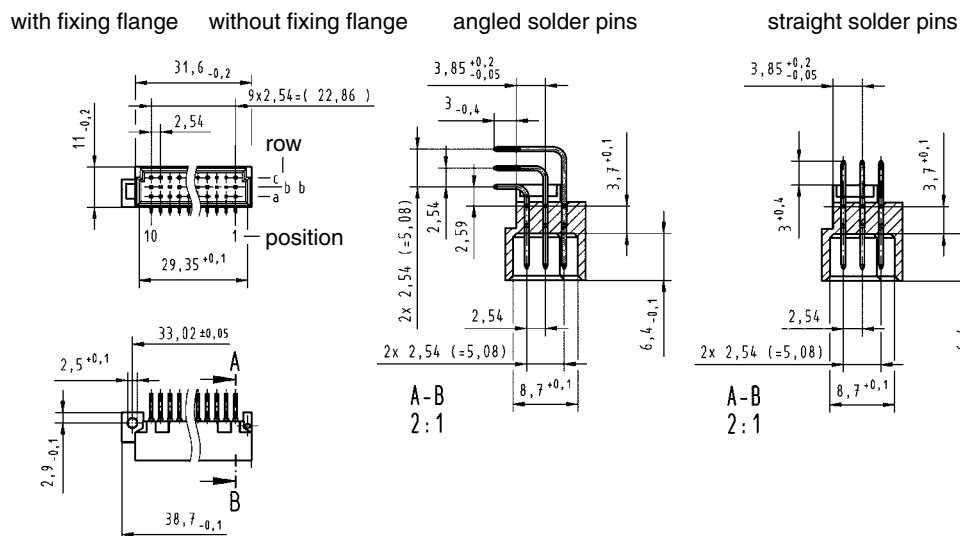
Male connectors

Identification

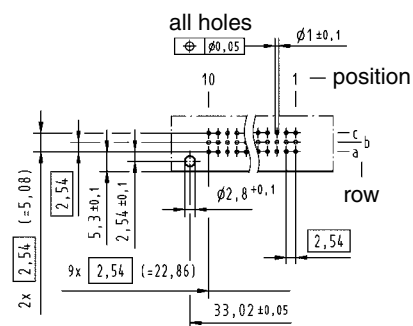
Drawing

Dimensions in mm

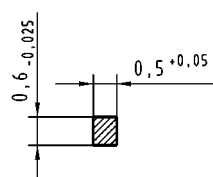
Dimensions



Board drillings
Mounting side



Cross section of
solder terminations



Cross area (A) of contacts row a, b, c: $A = 0.29 - 0.33 \text{ mm}^2$

DIN 41 612 · complementary type 3C



Number of contacts

30, 20

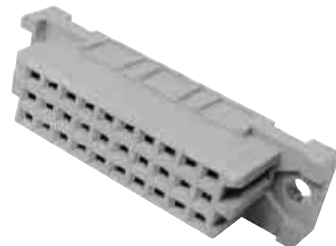


Female connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.					
			3	2	1				
Female connector with solder pins 2.9 mm with fixing flange	30		Performance level 3 on request	Performance level 1 on request					
	20								
	30								
	30								
Female connector with solder pins 4.5 mm with fixing flange	30						09 25 230 6824	09 25 230 6825	09 25 230 6850
	20						09 25 220 6824	09 25 220 6825	09 25 230 6870
Female connector with press-in pins 4.5 mm with fixing flange	30						09 25 230 6841		
	30						09 25 230 6414		

Number of contacts

30, 20



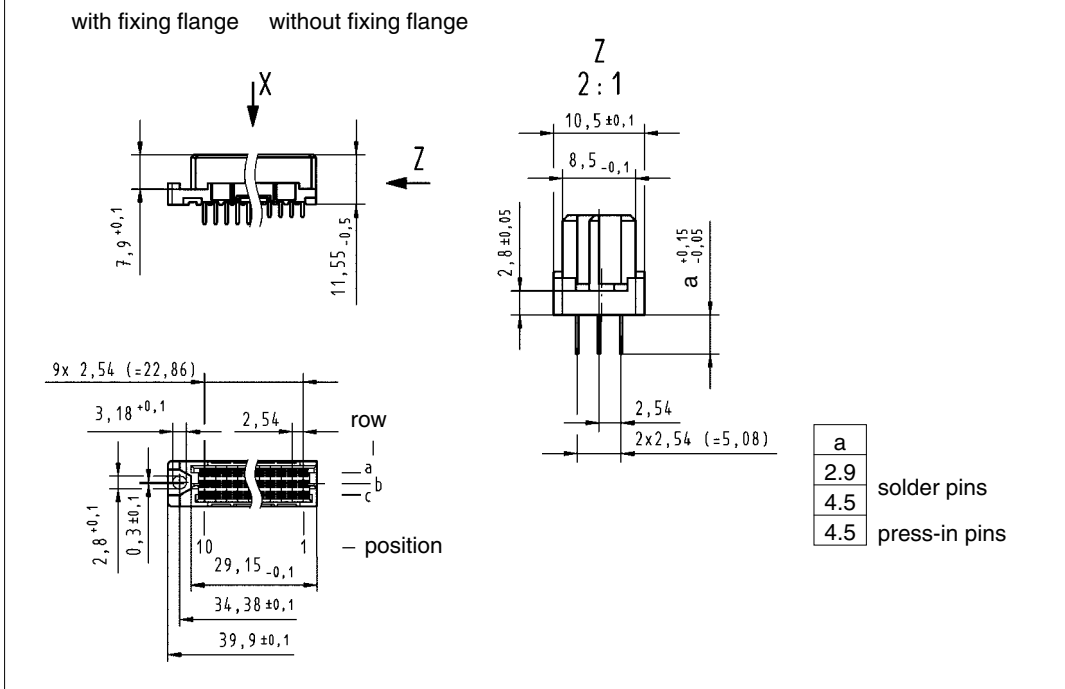
Female connectors

Identification

Drawing

Dimensions in mm

Dimensions

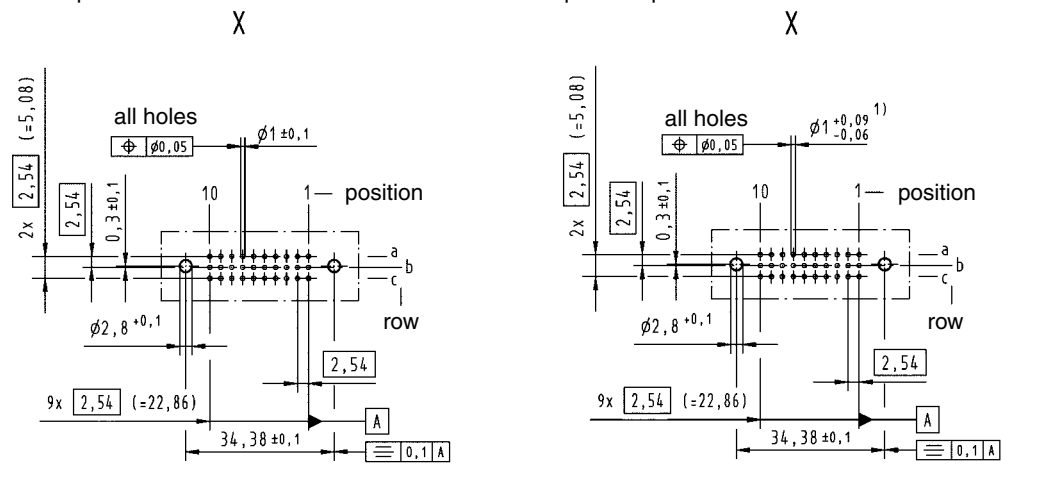


Board drillings

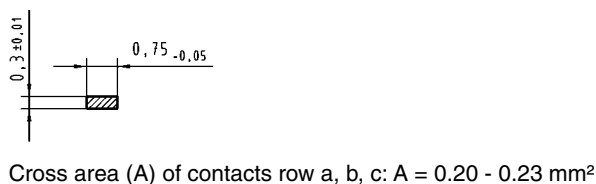
Mounting side

solder pins

press-in pins



Cross section of solder terminations



1) for press-in connection acc. to IEC 60352-2

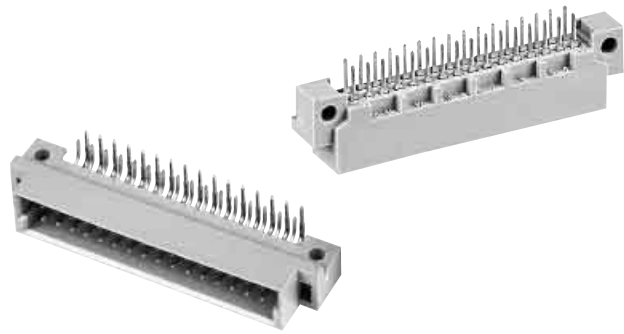
DIN 41 612 · complementary type 2B (SMC)



Number of contacts

32

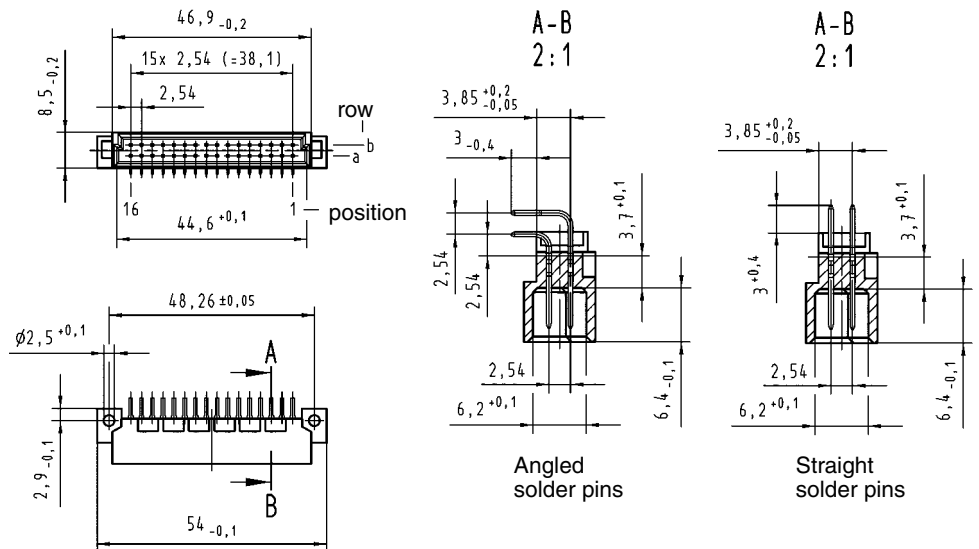
CTI > 400



Male connectors

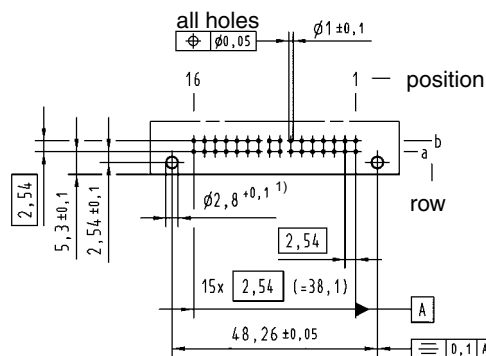
Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.	
				3	2 1
Male connector with angled solder pins	without clip		Performance level 3 on request	09 22 132 6919	
	with clip			09 22 332 6919	
Male connector with straight solder pins				09 22 132 6920	

Dimensions

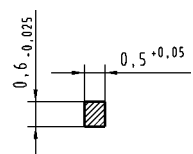


Board drillings

Mounting side



Cross section of solder terminations



Cross area (A) of contacts
row a, b: A = 0.29 - 0.33 mm²

Dimensions in mm

¹⁾ Recommendation for variants with clip: Drillings can be enlarged up to 3.1 mm ϕ to reduce standard mounting force

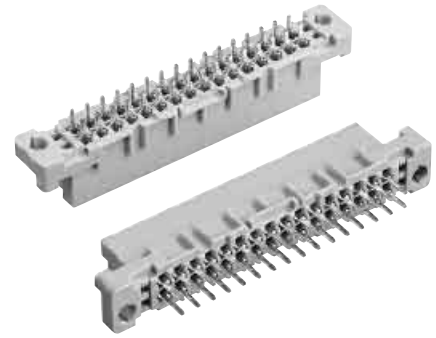
DIN 41 612 · complementary type 2B (SMC)



Number of contacts

32

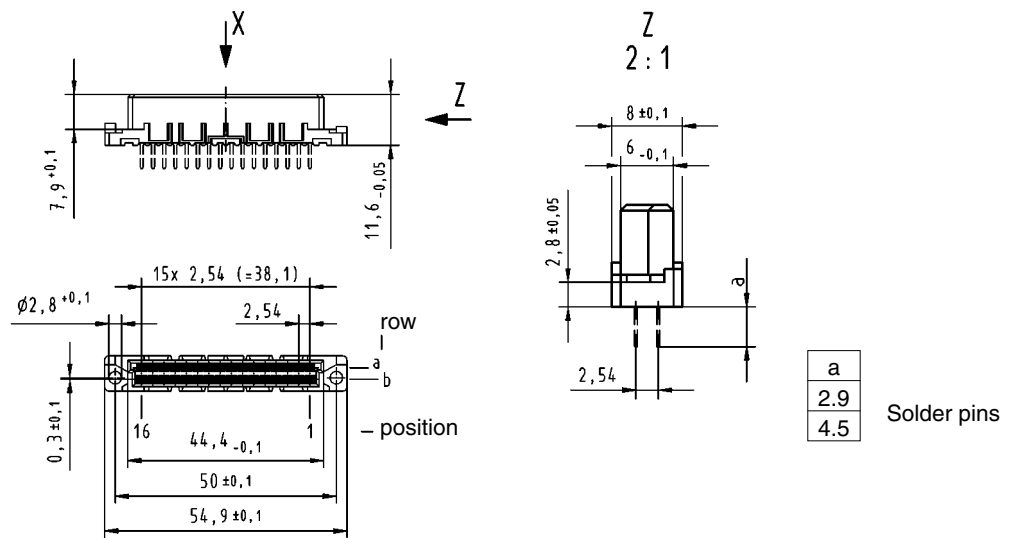
CTI > 400



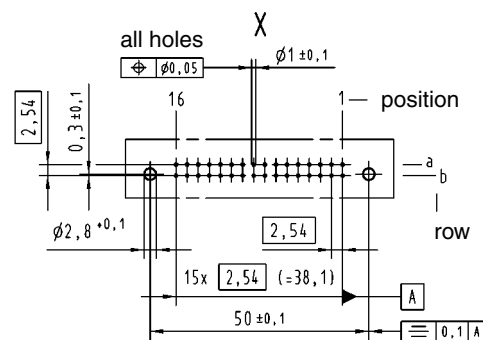
Female connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.		
				3	2	1
Female connector with solder pins 2.9 mm	32		Performance level 3 on request	09 22 232 6841	Performance level 1 on request	
Female connector with solder pins 4.5 mm	32			09 22 232 6829		

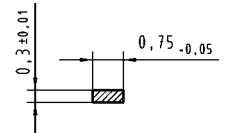
Dimensions



Board drillings
Mounting side



Cross section of solder terminations



Cross area (A) of contacts row a, b: A = 0.20 - 0.23 mm²

Dimensions in mm

Number of contacts

64

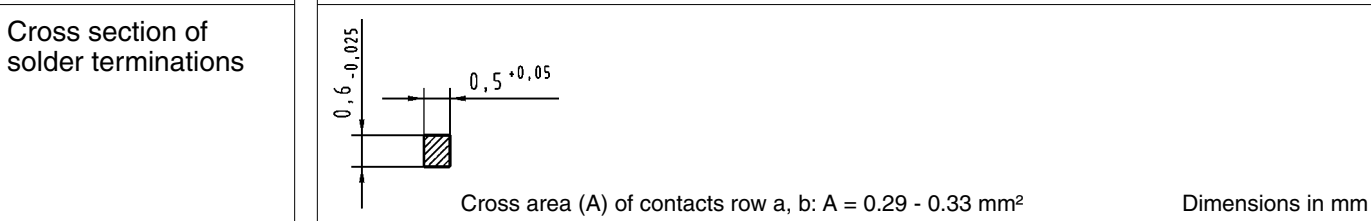
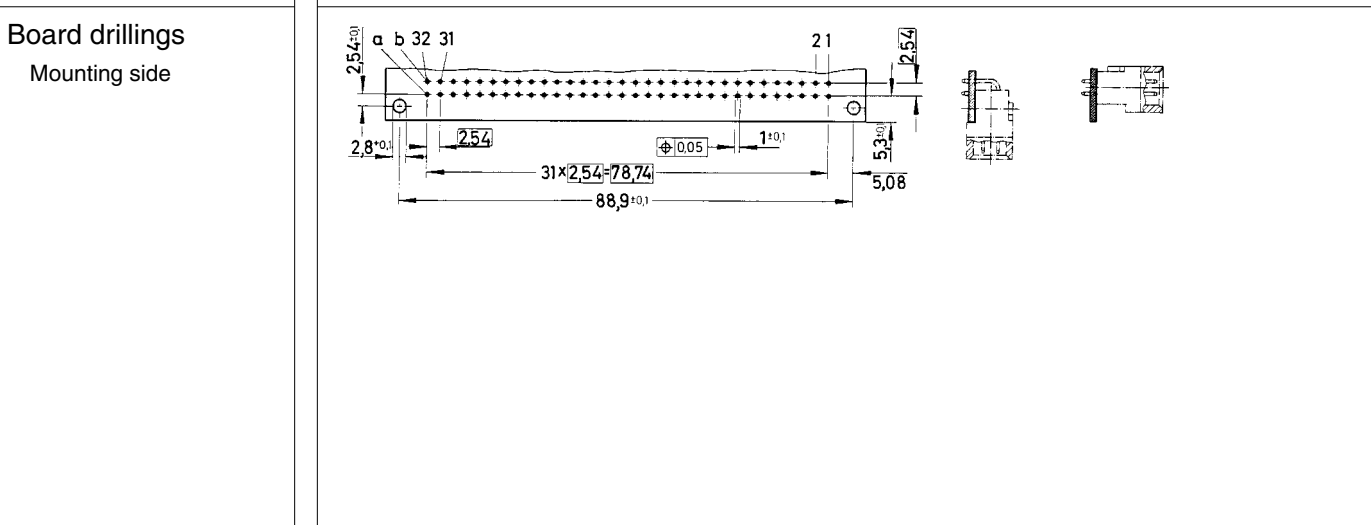
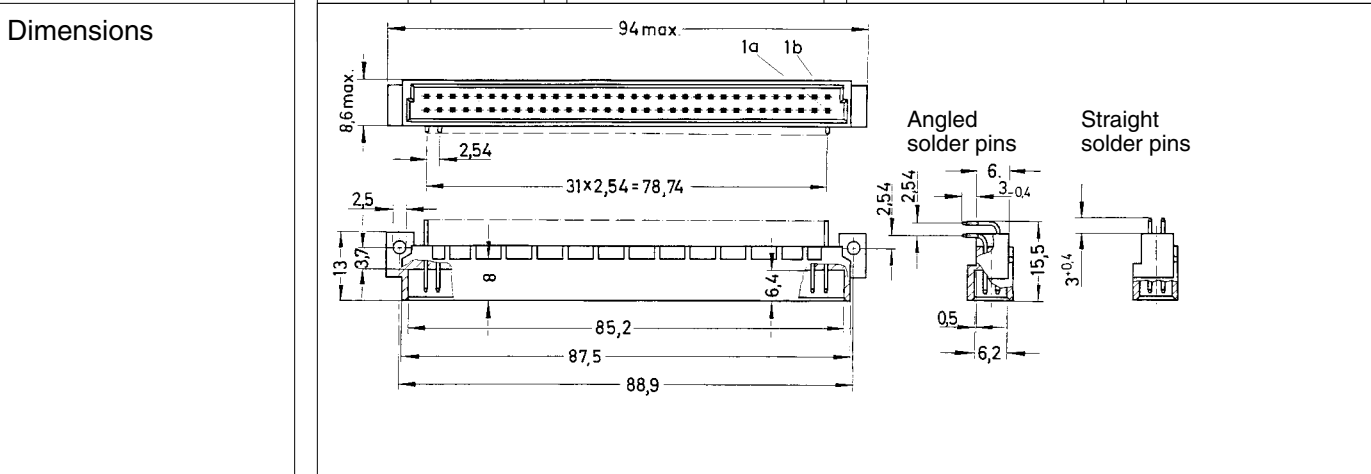
CTI > 400



Male connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.	
				3	2 1

Male connector with angled solder pins	64		09 02 164 7919	09 02 164 6919	Performance level 1 on request
Male connector with straight solder pins	64		Performance level 3 on request	09 02 164 6920	



Number of contacts

64

CTI > 400



Female connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.	
				3	2 1
Female connector with solder pins 2.9 mm	64		Performance level 3 on request	09 02 264 6841	Performance level 1 on request
Female connector with solder pins 4.5 mm	64			09 02 264 6829	
Dimensions					
Panel cut out					
Board drillings Mounting side					
Cross section of solder terminations	<p>Cross area (A) of contacts row a, b: A = 0.20 - 0.23 mm²</p>				

Dimensions in mm

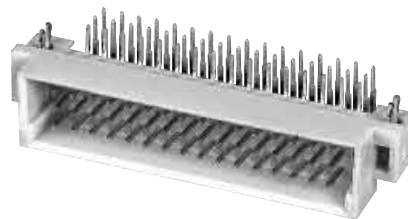
DIN 41 612 · complementary type 2C (SMC)



Number of contacts

48, 32

CTI > 400



Male connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.		
				3	2	1
Male connector with angled solder pins without clip with clip	48		09 23 148 7919	09 23 148 6919	09 23 148 2919	
	32					09 23 132 6919
	48		09 23 348 6919	09 23 348 6919	09 23 348 2919	
	32					09 23 332 6919
Male connector with straight solder pins	48		09 23 148 6920	09 23 148 6920	09 23 148 2920	
	32					09 23 132 6920
Dimensions	<p>Technical drawings showing dimensions for angled and straight solder pins. Includes views of the connector body and cross-sections A-B.</p> <p>Angled solder pins: Dimensions include 46,9^{-0,2}, 15x 2,54 (=38,1), 2,54, 11^{-0,2}, 16, 44,6^{+0,1}, 1, 48,26^{±0,05}, 3,85^{+0,2}/_{-0,05}, 3^{-0,4}, 3,7^{+0,1}, 2x 2,54 (=5,08), 2,54, 6,4^{-0,1}, 8,7^{+0,1}, 2:1, 5,08, 6,4^{-0,1}.</p> <p>Straight solder pins: Dimensions include 3,85^{+0,2}/_{-0,05}, 3^{-0,4}, 3,7^{+0,1}, 2x 2,54 (=5,08), 2,54, 6,4^{-0,1}, 8,7^{+0,1}, 2:1, 5,08, 6,4^{-0,1}.</p>					
Board drillings Mounting side	<p>Board drilling and cross-section diagrams. Shows hole patterns and cross-section of solder terminations.</p> <p>Board drillings: all holes $\phi 0,05$, $\phi 1 \pm 0,1$, 16, 1, position, 2,54, 5,3^{±0,1}, 2,54^{±0,1}, $\phi 2,8 \pm 0,1^{1)}$, 2,54, 15x 2,54 (=38,1), 48,26^{±0,05}, 0,1 A, 2x 2,54 (=5,08), 2,54.</p> <p>Cross section of solder terminations: 0,6^{-0,025}, 0,5^{+0,05}.</p> <p>Cross area (A) of contacts row a, b, c: A = 0.29 - 0.33 mm²</p> <p>Dimensions in mm</p>					

¹⁾ Recommendation for variants with clip: Drillings can be enlarged up to 3.1 mm ϕ to reduce standard mounting force

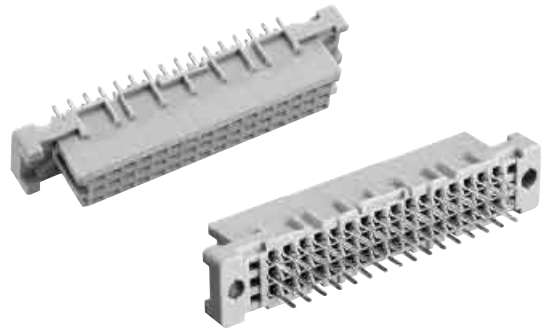
DIN 41 612 · complementary type 2C (SMC)



Number of contacts

48, 32

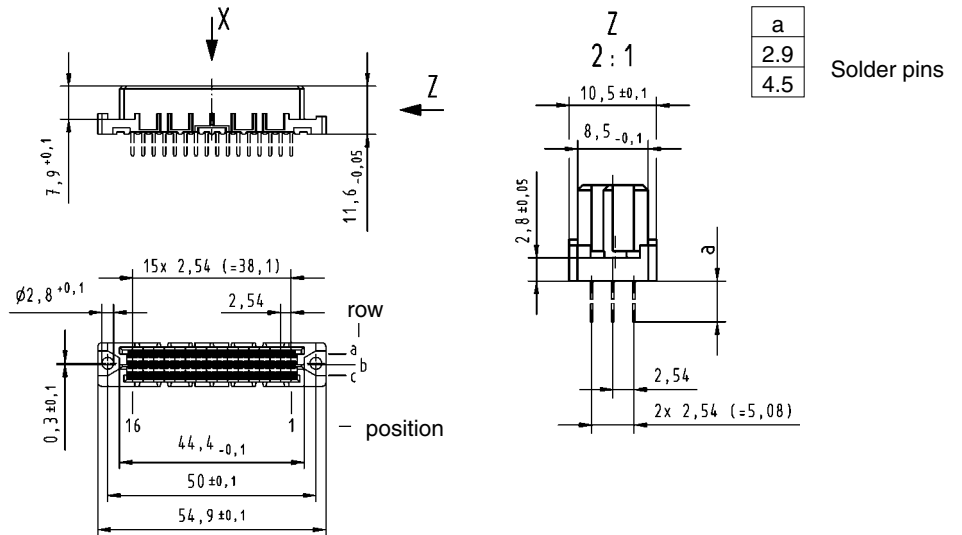
CTI > 400



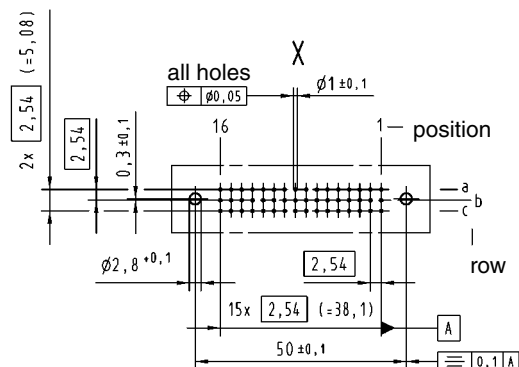
Female connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.		
				3	2	1
Female connector with solder pins 2.9 mm	48 32		Performance level 3 on request	09 23 248 6841	Performance level 1 on request	
Female connector with solder pins 4.5 mm	48 32			09 23 232 6841		
				09 23 248 6829		
				09 23 232 6829		

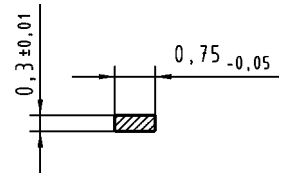
Dimensions



Board drillings Mounting side



Cross section of solder terminations



Cross area (A) of contacts row a, b, c: A = 0.20 - 0.23 mm²

Dimensions in mm

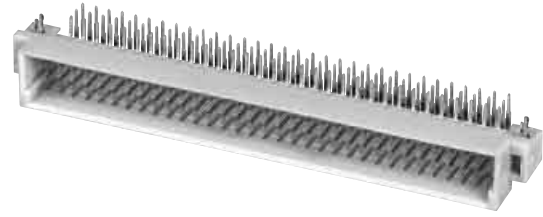
DIN 41 612 · Type C (SMC)



Number of contacts

96, 64

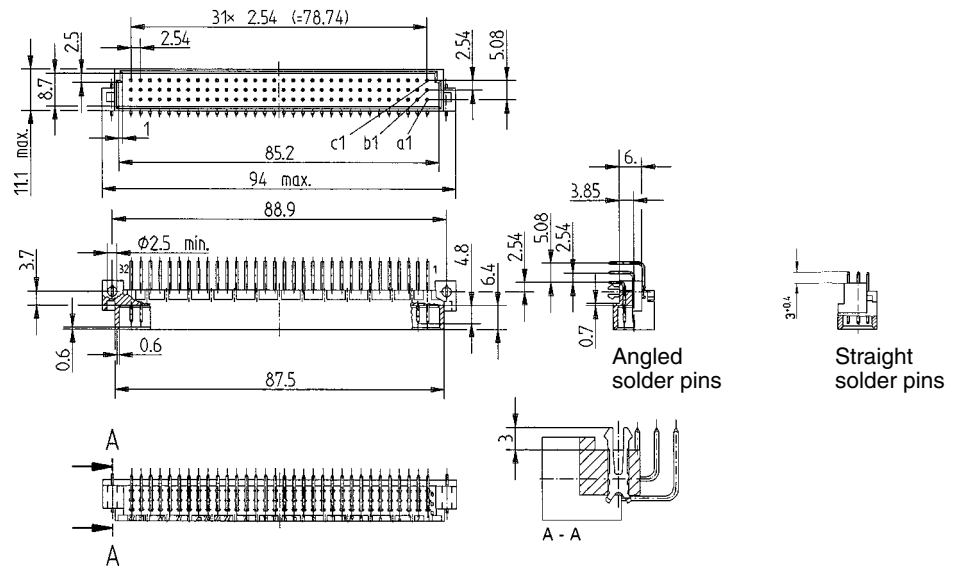
CTI > 400



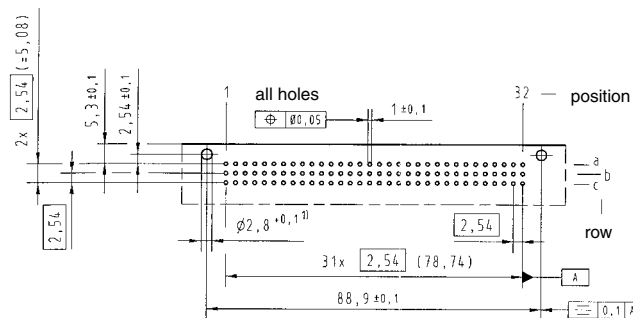
Male connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.	
				2	1
Male connector with angled solder pins without clip with clip	96		09 03 196 6919 09 03 696 6919 ^{c)}	09 03 196 2919	
	64		09 03 164 6919	09 03 164 2919	
	62 + 2▲			09 03 164 2918	
	96		09 03 396 6919	09 03 396 2919	
	94 + 2▲		09 03 396 6918		
	64		09 03 364 6919	09 03 364 2919	
Male connector with straight solder pins	96		09 03 196 6920		

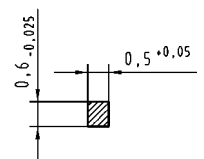
Dimensions



Board drillings Mounting side



Cross section of solder terminations



Cross area (A) of contacts row a, b, c: A = 0.29 - 0.33 mm²

Dimensions in mm

▲ Male connectors with 2 leading contacts [(0.8 mm) pos. a1 and a32]. Lagging pins row b on request.

¹⁾ Recommendation for variants with clip: Drillings can be enlarged up to 3.1 mm ϕ to reduce standard mounting force

^{c)} Connectors with coding

Number of contacts

96, 64

CTI > 400



Female connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60603-2.		
				3	2	1
Female connector with solder pins 2.9 mm	96 64		Performance level 3 on request	09 03 296 6841	Performance level 1 on request	
Female connector with solder pins 4.5 mm	96 64			09 03 296 6829 09 03 264 6829		
Dimensions	<p>Z 2:1</p> <p>a 2.9 4.5 Solder pins</p>					
Board drillings Mounting side	<p>Cross section of solder terminations</p> <p>Cross area (A) of contacts row a, b, c: A = 0.20 - 0.23 mm²</p> <p>Dimensions in mm</p>					

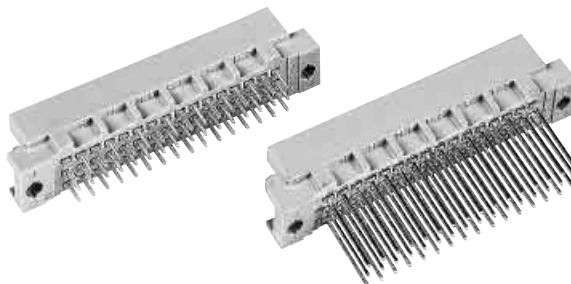
DIN 41 612 · complementary type 2R (SMC)



Number of contacts

48, 32

CTI > 400



Male connectors

Identification	Number of contacts	Contact arrangement	Part No.	Performance levels according to IEC 60 603-2.		
				3	2	1
Male connector with straight solder pins 2.5 mm	48		Performance level 3 on request	09 28 148 6519	Performance level 1 on request	
	32					09 28 132 6519
Male connector with straight solder pins 4.0 mm	48			09 28 148 6520		
	32			09 28 132 6520		
Male connector with straight solder pins 13 mm	48			09 28 148 6521		

Dimensions	Solder pins					
	<table border="1"> <tr><td>a</td></tr> <tr><td>2.5</td></tr> <tr><td>4</td></tr> <tr><td>13</td></tr> </table>	a	2.5	4	13	Solder pins
a						
2.5						
4						
13						

Board drillings	Mounting side

Cross section of solder terminations
<p>Cross area (A) of contacts row a, b, c: $A = 0.35 - 0.39 \text{ mm}^2$</p>

Dimensions in mm