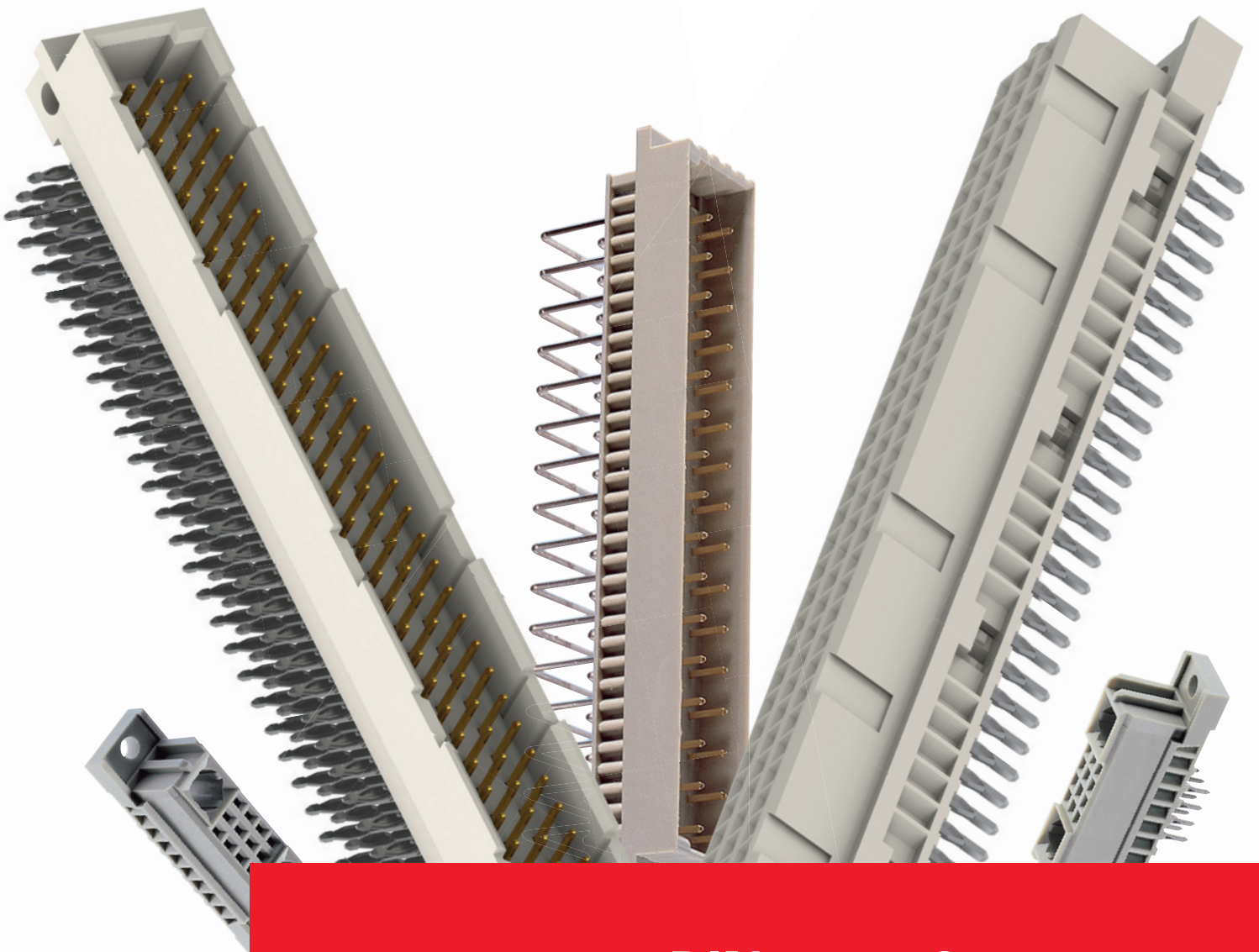


• • • ept  
connectors



## **DIN41612 Connectors**

High Variety - Reliable - Well-proven

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## Connectors according to DIN 41612 / IEC 60603-2

### High Variety and well proven

The DIN 41612/IEC 60603-2 product series consists of 12 basic types and other supplementary versions with a 2.54 mm or 5.08 mm pitch. The choices range from signal connectors with a current rating of up to 1.5 A to power connectors that can handle up to 5.6 A or even 15 A. The wealth of variants makes it possible to use this family of connectors for a very wide range of applications. Standardization ensures that the connectors are compatible with products from different manufacturers.

DIN 41612 connectors from ept are available in a range of termination technologies. Pre- and late mating contacts, pre-centering, board locks, and codes provide developers and users with additional safety and a wide range of possible applications.

### Key Features:

- a tried and proven connection system
- we also offer to perform special assembly for small batches
- supports pre-mating and late-mating contacts
- available in a variety of termination lengths
- a range of accessories, such as shrouds, board locks, coding keys
- switching connector for daisy chaining
- available in NFF 16-101/16-102 for railway technology

### Applications:

- Backplane - Daughtercard, 19-inch Technology (VME)
- Board-to-Board, horizontal or parallel
- high current



### Terminations



Press-fit



Through-Hole



THTR



IDC

### Mating Configuration



Perpendicular



Horizontal



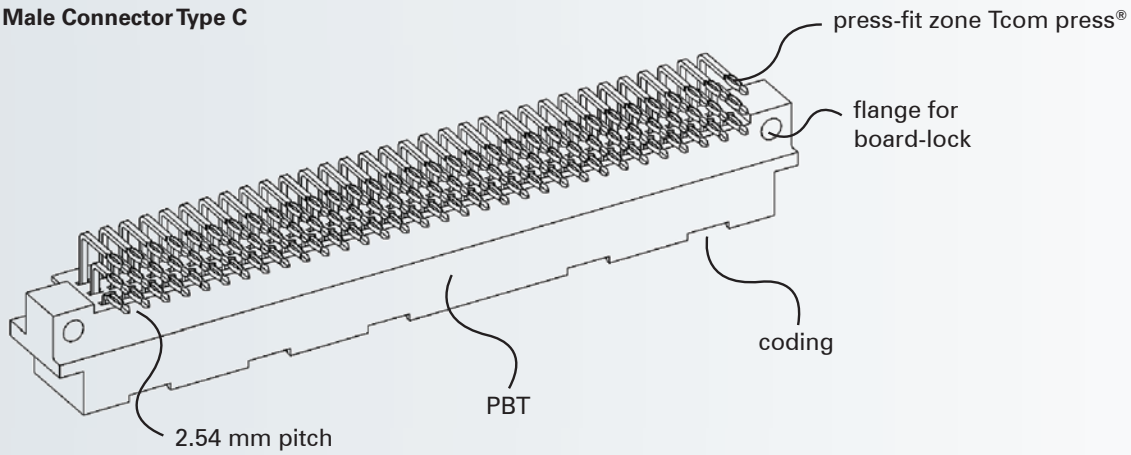
Parallel

### Application

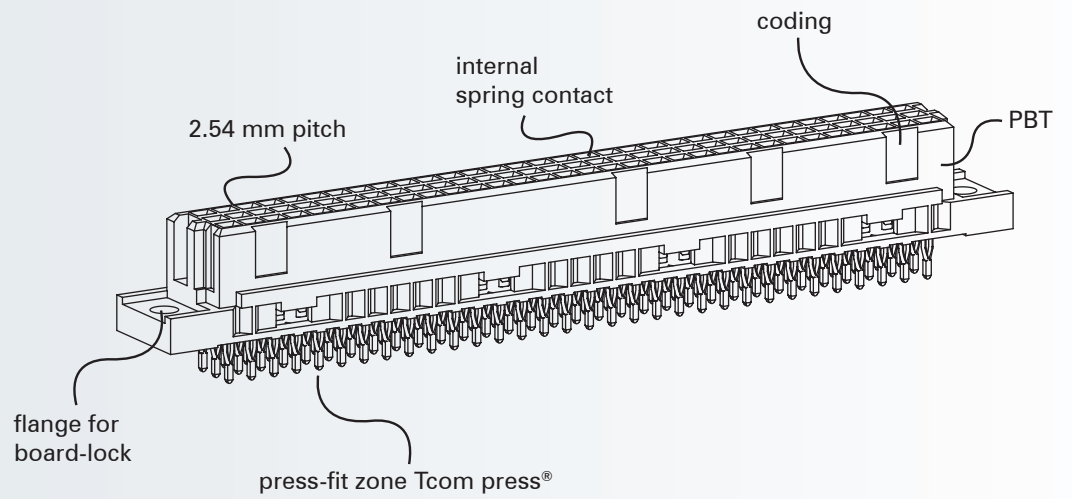



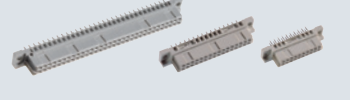








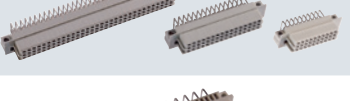


Power

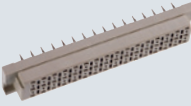
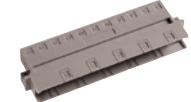



**Male Connector Type C**



**Female Connector Type C**



	Type		Pitch (mm)	max. no. of contacts	Signal or power	Termination	Mating connector	Page reference
<b>B</b>	 B, B/2, B/3 Male		2.54	64 / 32 / 20	Signal 1.5 A	Press-fit, solder, THTR	B, B/2, B/3 Q, Q/2 Female	start on p. 15
	 B, B/2, B/3 Female		2.54	64 / 32 / 20	Signal 1.5 A	Press-fit, solder, THTR	B, B/2, B/3 Q, Q/2 Male	
	 B IDC		2.54	64	Signal 1.0 A	IDC	B, Q Male	start on p. 103
<b>C</b>	 C, C/2, C/3 Male		2.54	96 / 48 / 30	Signal 1.5 A	Press-fit, solder, THTR	C, C/2, C/3 R, R/2, R/3 Female	start on p. 27
	 C, C/2, C/3 Female		2.54	96 / 48 / 30	Signal 1.5 A	Press-fit, solder, THTR	C, C/2, C/3 R, R/2, R/3 Male	
	 C IDC		2.54	96	Signal 1.0 A	IDC	C, R Male	start on p. 104
<b>M</b>	 M Male		2.54	78	Signal 1.5 A	solder	M Female	start on p. 39
	 M, M/2, M/3 Female		2.54	78 / 30 / 12	Signal 1.5 A	Press-fit, solder	M Male	
<b>Q</b>	 Q, Q/2 Male		2.54	64 / 32	Signal 1.5 A	solder	Q, Q/2 B, B/2 Female	start on p. 47
<b>R</b>	 R, R/2, R/3 Male		2.54	96 / 48 / 30	Signal 1.5 A	Press-fit, solder, THTR	R, R/2, R/3 C, C/2, C/3 Female	start on p. 49
	 R, R/2, R/3 Female		2.54	96 / 48 / 30	Signal 1.5 A	Press-fit, solder, THTR	R, R/2, R/3 C, C/2, C/3 Male	
<b>D</b>	 D Male		5.08	32	Power 5.6 A	solder	D Female	start on p. 61
	 D Female		5.08	32	Power 5.6 A	Press-fit, solder	D Male	

	Type		Pitch (mm)	max. no. of contacts	Signal or Power	Termination	Mating connector	Page reference
<b>E</b>		E Male	5.08	48	Power 5.6 A	solder	E Female	start on p. 65
		E Female	5.08	48	Power 5.6 A	Press-fit, solder	E Male	
<b>F</b>		F Male	5.08 x 3.81	48	Power 5.6 A	solder	F Female	start on p. 69
		F,F low profile Female	5.08 x 3.81	48	Power 5.6 A	Press-fit, solder	F Male	
<b>G</b>		G Male	5.08 x 3.81	64	Power 5.6 A	solder	G Female	start on p. 75
		G,G low profile Female	5.08 x 3.81	64	Power 5.6 A	Press-fit, solder	G Male	
<b>H</b>		H11 Male	7.62	11	Power 15 A	solder	H11 Female	start on p. 81
		H11, H11 low profile Female	7.62	11	Power 15 A	Faston, solder	H11 Male	
		H15 Male	5.08 x 6	15	Power 15 A	solder	H15 Female	start on p. 85
		H15, H15 low profile Female	5.08 x 6	15	Power 15 A	Faston, solder	H15 Male	
		H7/F24 Male	5.08 x 3.81	7+24	Power 15 A	solder	H7/F24 Female	start on p. 89
		H7/F24, H7/F24 low profile Female	5.08 x 3.81	7+24	Power 15 A	solder	H7/F24 Male	
<b>VMEx</b>		VME64x Female	2.54	160	Signal 1.5 A	Press-fit	-	start on p. 95
<b>Switch</b>		Switching connector	2.54	96	Signal 1.5 A	Press-fit	C Male	start on p. 99

## The Standard 41612 / IEC 60603-2

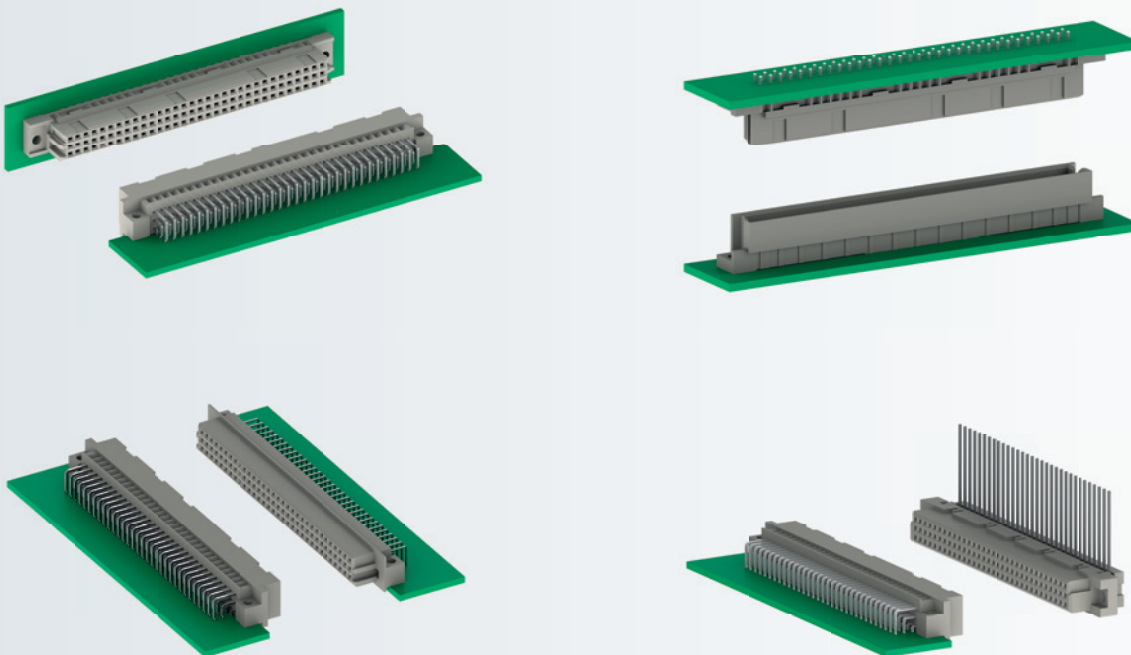
DIN 41612, which was replaced by the European IEC 60603-2 standard in 1999, defines 13 different types of connectors. DIN 41612/IEC 60603-2 connectors are used to establish a connection between the plug-in card and backplane (for 19-inch racks, etc.). DIN 41612 connectors are also commonly known as VG connectors.

The wide variety of different types combined with the high level of reliability enable flexible use of the DIN 41612 connectors, for example, for connections:

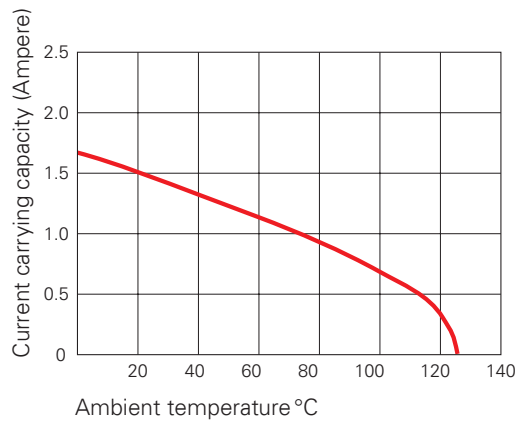
- between plug-in card and backplane
- between vertically-stacked circuit boards
- between horizontally-stacked circuit boards
- over long distances using ribbon cable
- for signal transmission up to 1.5 A
- for power transmission up to 5.6 A or 15 A

Different connector configurations, such as pre- and late-mating contacts, make it possible to support the special functions of an assembly. The connecting contacts can be implemented as press-fit connection, as a soldering connection for wave soldering or reflow technology (THTR or Pin-in-Paste).

You can prevent from mismatching types by coding special types. DIN 41612 connectors in soldering technology are also offered with mounting clips known as board locks. Board locks make it possible to efficiently mount the connectors on the circuit board in order to enable safe soldering and significantly improve strain relief of the connector during the mating/unmating process.

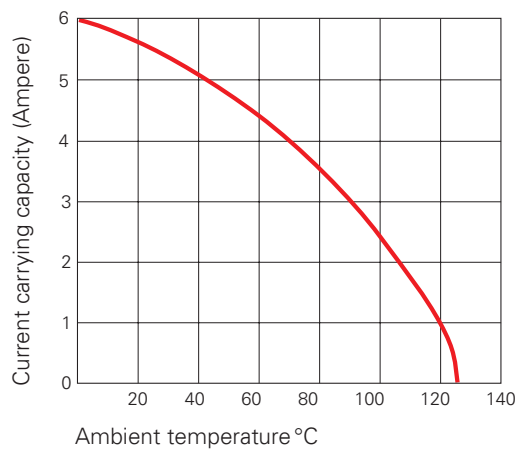


## Derating Diagrams



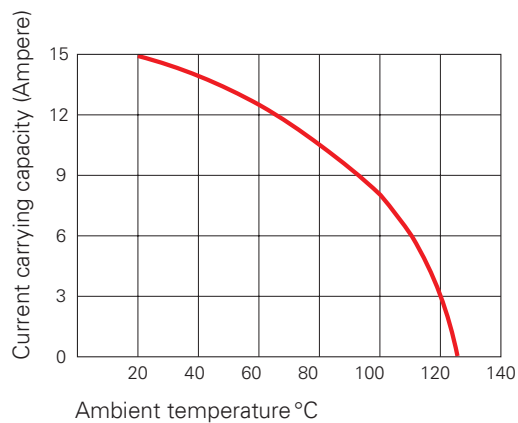
**Type B, Q, C, R**

20 °C	1.5 A
70 °C	1.1 A
100 °C	0.7 A



**Type D, E, F, G**

20 °C	5.6 A
70 °C	4.0 A
100 °C	2.5 A



**Type H**

20 °C	15 A
70 °C	11 A
100 °C	8 A



## THTR-Connectors from ept

As manufacturers move to one step solder process using reflow techniques, normal through hole components don't meet the temperature demands required.

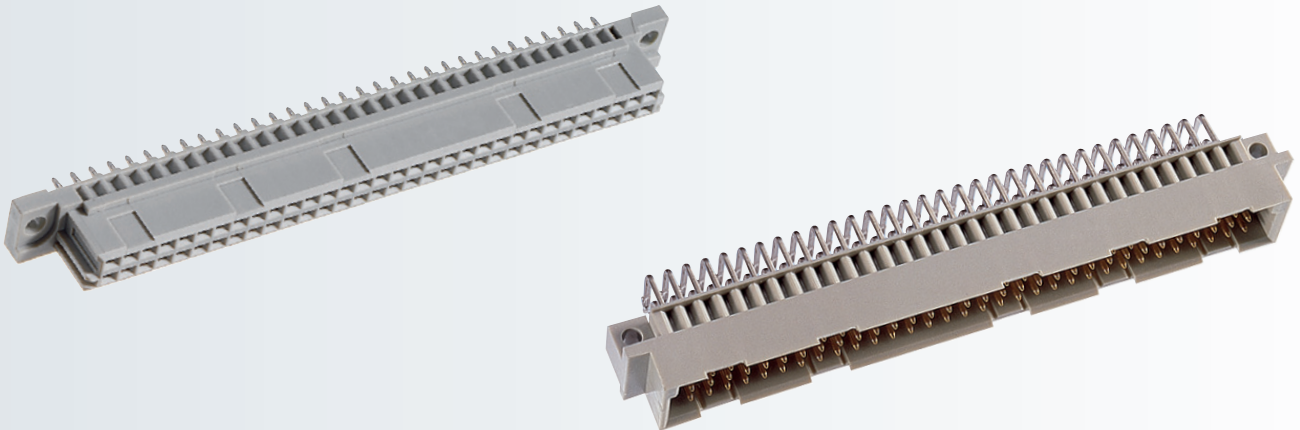
ept is pleased to announce the introduction of our high temp DIN 41612 connector series, THTR. The connectors are designed to withstand reflow temperatures and be soldered in the same production batch as other surface mount components on the PCB. This eliminates the need for additional solder operations like wave solder or press-fit.

In the past, the SMT components had to be assembled and reflow soldered, before in an additional process step the connector had been pressed into the PCB. Now the male or female connectors are soldered fully automated with the other components in the standard SMT process.

ept connectors in THTR are made from a high temperature resistant plastic, which fulfils the requirements of J-STD-020D (Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface-Mount Devices).

In accordance with RoHS compliance specifications, ept's THTR connectors are suitable for any lead free reflow solder process and are rated to a temperature peak up to 260°C.

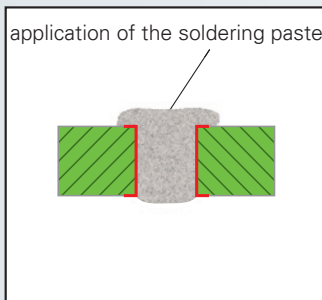
DIN connectors are widely used in many manufacturing environments with various termination methods to the PCB. ept also offers additional DIN 41612 connectors for electronic applications, including press-fit technology.



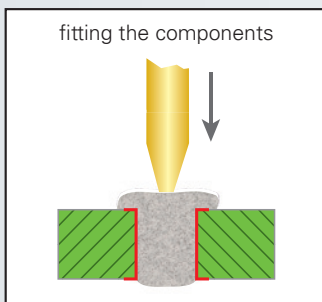
# High Temp Connectors allow One Step Reflow Solder Process

THTR-Connectors from ept for easy and cost efficient manufacturing of PC boards.

THTR (Through Hole Technology Reflow) involves the following manufacturing steps:

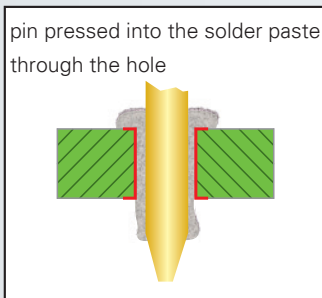


First, the solder paste is applied to the PCB. This is done either with a silk print process, a dispenser, or a solder preform.



The SMD components are then placed onto the PCB. Finally, the connectors are placed into the holes, which are filled with solder paste.

In order to insure a quality reflow solder process, a uniform heat distribution is necessary to all solder locations.



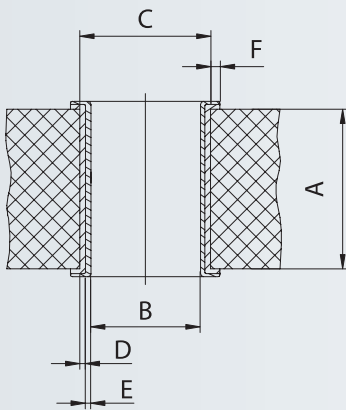
Although the connectors have a higher volume and mass as other SMT components, a longer solder time is not required. ept's high temp THTR connectors are as completely reliable as conventional wave solder connections. Additionally, all visual inspection requirements of the international standards are met.

### Technical Specifications

Technical Specifications	DIN 41612 Signal Connectors 1.5 A			
	B, B/2, B/3	C, C/2, C/3	M, M/2, M/3	VME 64x
Inverted Type	Q, Q/2	R, R/2, R/3		
<b>Basics</b>				
Standard	IEC 60603-2			
Number of contacts	64/32/20	96/48/30	78/30/12	160
Contact row designation of male and female connectors	a b	a b c		z a b c d
				a b c
Termination	Press-fit, solder, THTR		Press-fit, solder	Press-fit
Operating temperature range	-55°C to +125°C			
<b>Material</b>				
Insulator material	PBT glass filled, UL 94 V-0 PA glass filled, UL 94 V-0			
<b>Mechanical</b>				
Engaging and separating force for the complete, fully equipped connector	64 pol. < 60 N 32 pol. < 30 N 20 pol. < 18 N	96 pol. < 90 N 48 pol. < 45 N 30 pol. < 28 N		160 N
Separating force per contact (test measuring device)	> 0.15 N			
Durability according to DIN EN 60603-2 Performance level I Performance level II Performance level III	500 Mating cycles 400 Mating cycles 50 Mating cycles		500 Mating cycles 250 Mating cycles -	
<b>Electrical</b>				
max. operational current	1.5 A @ +20°C			
Contact resistance	< 20 mΩ		< 20 mΩ	< 30 mΩ
Clearance	1.2 mm		1.2	1.0
Creepage	1.2 mm		1.2	1.0
Insulation resistance	> 10 <sup>6</sup> MΩ		> 10 <sup>4</sup> MΩ	
Test voltage 50 Hz, 1 min				
	contact/contact	1000 V	1000 V	
contact/ground	1550 V	1550 V		
<b>Processing</b>				
Soldering temperature	up to 260°C (depending on the way of soldering)			
<b>Approval / Compliance</b>				
Flammability	UL (file: E130314)			
Environment	RoHS compliant			

## Technical Specifications

Technical Specifications	DIN 41612 Power Connectors 5.6 A				15 A	
	D	E	F	G	H	
<b>Basics</b>						
Standard	IEC 60603-2					
Number of contacts	32	48	48	64	11	15
Contact row designation of male and female connectors	a c	a c e	z b d	z b d f	b	z d
Termination	Press-fit, solder				solder, Faston	
Operating temperature range	-55°C to +125°C				-65°C to +125°C	
<b>Material</b>						
Insulator material	PBT glass filled, UL 94 V-0 PC glass filled, not combustible, UL 94 V-1					
<b>Mechanical</b>						
Engaging and separating force for the complete, fully equipped connector	< 40 N	< 60 N	< 75 N	< 100 N	< 80 N	< 90 N
Separating force per contact (test measuring device)	> 0.15 N		> 0.2 N	> 0.2 N	> 0.2 N	> 0.2 N
Durability according to DIN EN 60603-2	Performance level I = 500 mating cycles Performance level II = 400 mating cycles Performance level III = 50 mating cycles					
<b>Electrical</b>						
max. operational current	5.6 A @ +20°C				15 A @ +20°C	
Contact resistance	< 15 mΩ				< 8mΩ	
Clearance	3.0 mm			1.6 mm	4.5 mm	4.5 mm
Creepage	3.0 mm		1.6 mm	3.0 mm	8.0 mm	8.0 mm
Insulation resistance	> 10 <sup>6</sup> MΩ					
Test voltage 50 Hz, 1 min	1550 V		1550 V	1550 V	3100 V	
contact/contact	1550 V		2500 V	2500 V	3100 V	
contact/ground	1550 V		2500 V	2500 V	3100 V	
<b>Processing</b>						
Soldering temperature	up to 260°C					
<b>Approval / Compliance</b>						
Flammability	UL (file: E130314)					
Environment	RoHS compliant					



## Hole Specifications Press-fit Technology

### Plated through-hole according to IEC 60352-5

ept offers adapted press-fit zones for various new board surfaces.

		C female connector Special version	B/C/D/R/M/F low profile/ G low profile/VME64x	D/E/F/G
Nominal hole		Ø 0.85 mm	Ø 1.0 mm	Ø 1.6 mm
<b>imm. Sn printed circuit boards</b>				
<b>A</b>	PCB thickness	min. 1.6 mm	min. 1.6 mm	min. 1.6 mm
<b>B</b>	Plated hole	Ø 0.85 + 0.10/- 0.05 mm	Ø 1 + 0.09/- 0.06 mm	Ø 1.6 + 0.09/- 0.06 mm
<b>C</b>	Drill hole	1.0 ± 0.025 mm	1.15 ± 0.025 mm	1.75 ± 0.025 mm
<b>D</b>	Cu plating	min. 25 µm	min. 25 µm	min. 25 µm
<b>E</b>	imm. Sn plating	max. 1.5 µm	max. 1.5 µm	max. 1.5 µm
<b>F</b>	Annular ring	min. 0.1 mm	min. 0.1 mm	min. 0.1 mm
<b>Ni, Au printed circuit boards</b>				
<b>A</b>	PCB thickness	min. 1.6 mm	min. 1.6 mm	min. 1.6 mm
<b>B</b>	Plated hole	Ø 0.85 + 0.10/- 0.05 mm	Ø 1 + 0.09/- 0.06 mm	Ø 1.6 + 0.09/- 0.06 mm
<b>C</b>	Drill hole	1.0 ± 0.025 mm	1.15 ± 0.025 mm	1.75 ± 0.025 mm
<b>D</b>	Cu plating	min. 25 µm	min. 25 µm	min. 25 µm
<b>E</b>	Ni, Au plating	0.05 – 0.2 µm Au more than 2.5 – 5 µm Ni	0.05 – 0.2 µm Au more than 2.5 – 5 µm Ni	0.05 – 0.2 µm Au more than 2.5 – 5 µm Ni
<b>F</b>	Annular ring	min. 0.1 mm	min. 0.1 mm	min. 0.1 mm
<b>pure Cu printed circuit boards</b>				
<b>A</b>	PCB thickness	min. 1.6 mm	min. 1.6 mm	min. 1.6 mm
<b>B</b>	Plated hole	Ø 0.85 + 0.10/- 0.05 mm	Ø 1 + 0.09/- 0.06 mm	Ø 1.6 + 0.09/- 0.06 mm
<b>C</b>	Drill hole	1.0 ± 0.025 mm	1.15 ± 0.025 mm	1.75 ± 0.025 mm
<b>D</b>	Cu plating	min. 25 µm	min. 25 µm	min. 25 µm
<b>E</b>	OSP*	e.g. GLICOAT-SMD (F2) with 0.12 – 0.15 µm	e.g. GLICOAT-SMD (F2) with 0.12 – 0.15 µm	e.g. GLICOAT-SMD (F2) with 0.12 – 0.15 µm
<b>F</b>	Annular ring	min. 0.1 mm	min. 0.1 mm	min. 0.1 mm
<b>HAL Sn printed circuit boards</b>				
<b>A</b>	PCB thickness	min. 1.6 mm	min. 1.6 mm	min. 1.6 mm
<b>B</b>	Plated hole	Ø 0.85 + 0.10/- 0.05 mm	Ø 1 + 0.09/- 0.06 mm	Ø 1.6 + 0.09/- 0.06 mm
<b>C</b>	Drill hole	1.0 ± 0.025 mm	1.15 ± 0.025 mm	1.75 ± 0.025 mm
<b>D</b>	Cu plating	min. 25 µm	min. 25 µm	min. 25 µm
<b>E</b>	HAL Sn	5 – 15 µm	5 – 15 µm	5 – 15 µm
<b>F</b>	Annular ring	min. 0.1 mm	min. 0.1 mm	min. 0.1 mm

\* OSP = Organic Solderability Preservatives

## Technical Information to Press-fit Technology

### PCB thickness

For connectors according to DIN 41612 / IEC 60603-2 (DIN connectors), ept offers three Tcom press® press-fit zone variants for different printed circuit board thicknesses. Therefore the functionality of the Press-fit connection is optimally given for every application.

#### Part numbers key

Type	PCB thickness 1.5 to 2.0 mm	PCB thickness 2.0 to 2.8 mm	PCB thickness > 2.8 mm
<b>B, B/2, B/3 (female connectors)</b>	102-xxxxx-01	102-xxxxx-02	102-xxxxx-03
<b>C, C/2, C/3 (female connectors)</b>	104-xxxxx-01	104-xxxxx-02	104-xxxxx-03

### Hole diameter 0.85 mm

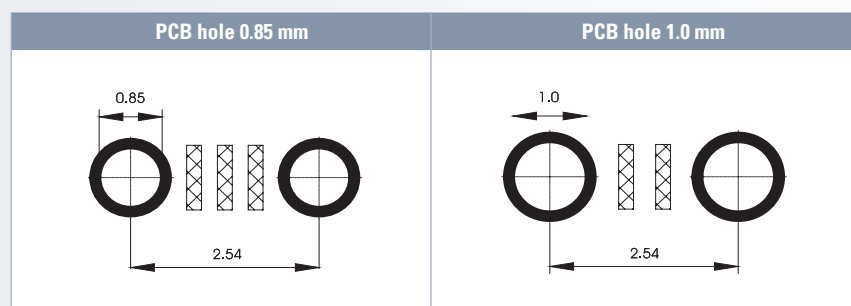
In addition to the 1.0 standard hole, for the DIN types B and C female connectors a Tcom press® press-fit zone for the 0.85 mm hole is available. This provides more space between two plated-through holes and there can be an additional circuit between the drill holes.



Tcom press® 1.0 mm/0.85 mm

#### Part numbers key for 0.85 mm Tcom press® on request

Type	Part number
<b>B, B/2, B/3 (female connectors)</b>	102-xxxxx-xx
<b>C, C/2, C/3 (female connectors)</b>	104-xxxxx-xx



# DIN 41612

## Type B Male Connector



**Type:** Male connector 90° with 2 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 32, 64

**Pitch:** 2.54 mm

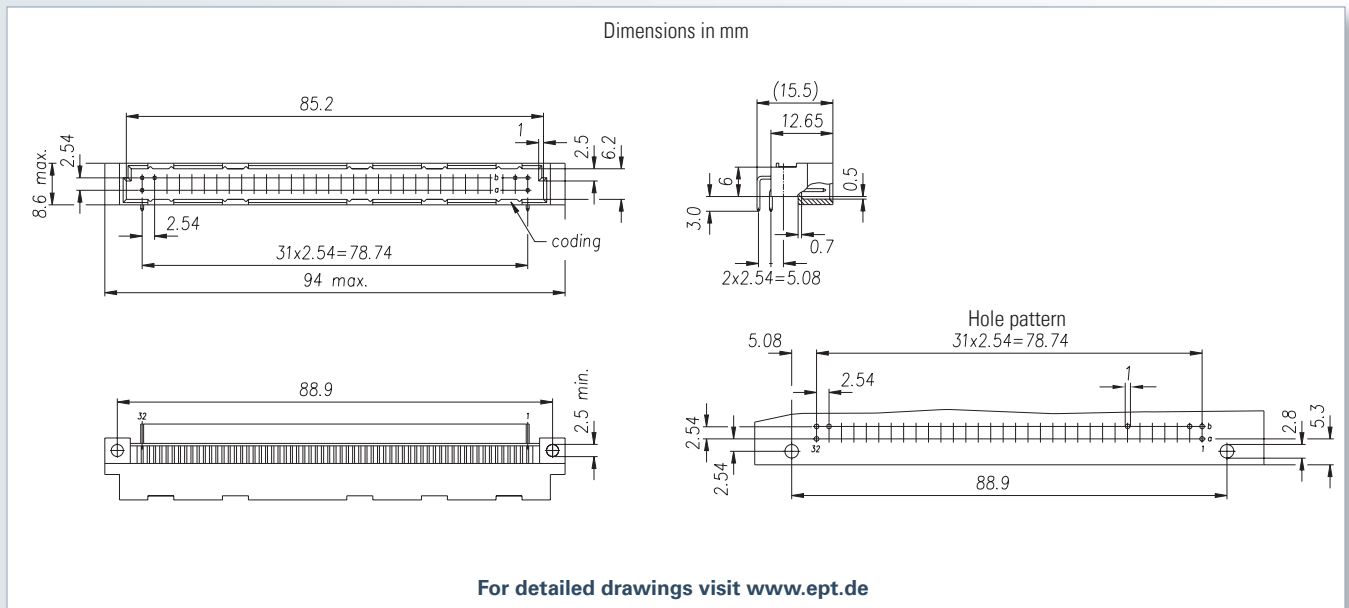
**Operational current:** 1.5 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 11



### Accessories

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**



Type B Female connector (p. 17)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		3.4 mm	13 mm
		Part number	
32		101-60004	101-65005
32		101-60014	101-65015
64		101-60064	101-65065

**On request**

- performance level I + III or customized
- special contact length
- contact arrangement



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		3.0 mm angled	3.0 mm straight	13 mm angled
		Part number		
32		101-40024	101-40025	101-40044
64		101-40064	101-40065	101-40074

**On request**

- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement



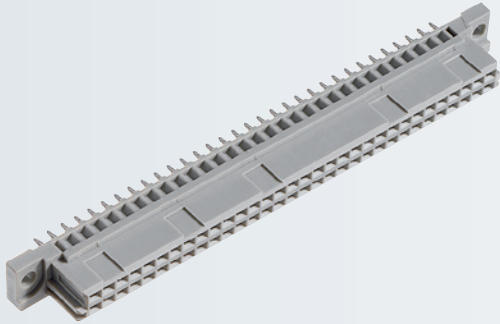
**THTR - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L
		3.0 mm angled
		Part number
32		101-40024TH
64		101-40064TH



# DIN 41612

## Type B Female Connector



**Type:** Female connector straight with 2 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 32, 64

**Pitch:** 2.54 mm

**Operational current:** 1.5 A

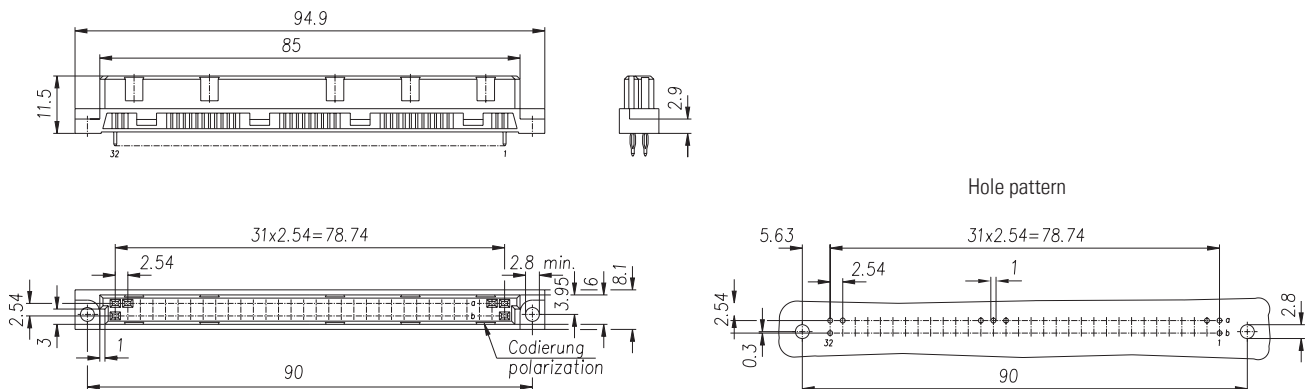
**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 11

Dimensions in mm



For detailed drawings visit [www.ept.de](http://www.ept.de)



### Accessories

- Processing tools see catalog
- Coding p. 107

### Note / Options

- Type B in IDC p. 103

### Mating connector / Application:

-  Type B Male connector (p. 15)
-  Type Q Male connector (p. 47)



**Press-fit - Performance level II** • • •

No. of contacts	Contact arrangement	PCB thickness	Termination length L			
			3.2 mm	4.6 mm	13 mm	17 mm
			Part number			
32		> 1.5 mm	-	302-63014-02	302-65015-03	302-65016-04
32		1.5 - 2.0 mm	102-63024-01	-	102-65025-01	102-65026-01
		2.0 - 2.8 mm	-	102-63024-02	102-65025-02	102-65026-02
		> 2.8 mm	-	102-63024-03	102-65025-03	102-65026-03
64		> 1.5 mm	-	302-63064-02	302-65065-03	302-65066-04

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- without flange
- contact arrangement



**Solder - Performance level II** • • •

No. of contacts	Contact arrangement	Termination length L				
		2.5 mm	3.4 mm	4.6 mm	13 mm	5.5 mm <small>manual soldering with solder lug</small>
		Part number				
32		102-40024	-	-	102-40026	102-40044
64		302-40064-05	302-40064-01	302-40064-02	302-40065-03	102-40074

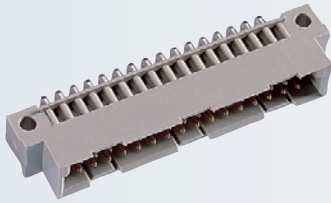
**On request**

- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement



**THTR - Performance level II** • • •

No. of contacts	Contact arrangement	Termination length L		
		2.5 mm	3.4 mm	4.6 mm
		Part number		
32		102-40024TH	-	-
64		302-40064-05TH	302-40064-01TH	302-40064-02TH



**Type:** Male connector 90° with 2 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 16, 32

**Pitch:** 2.54 mm

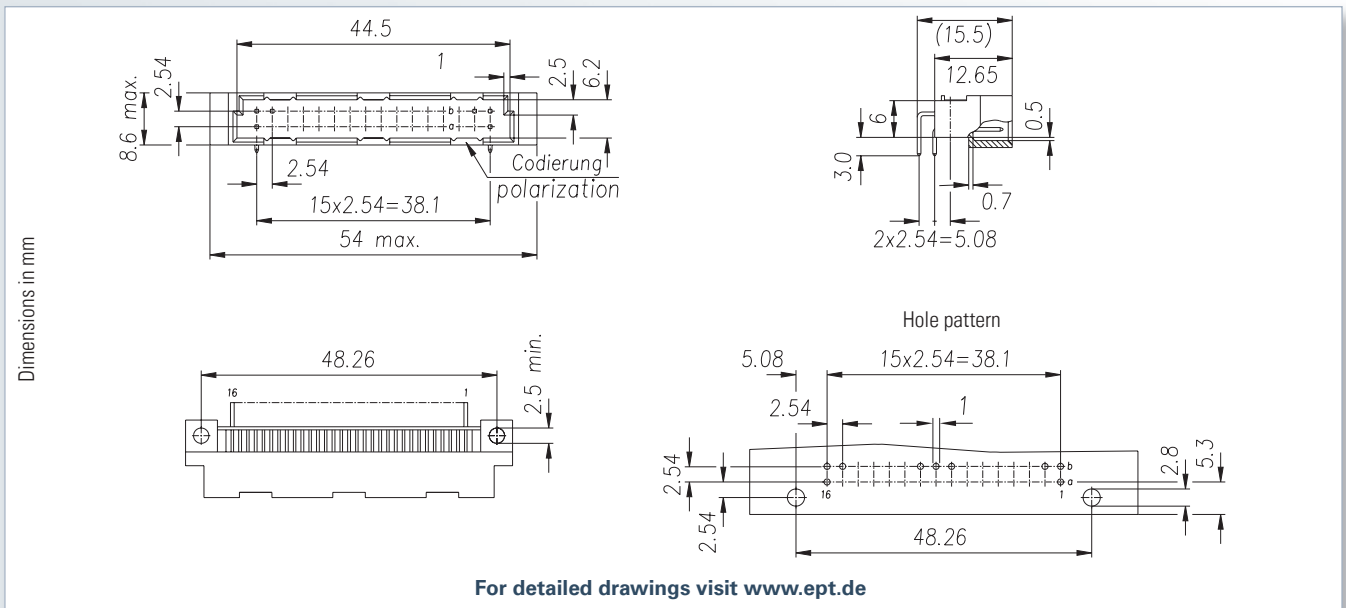
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**



Type B/2 Female connector (p. 21)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		3.4 mm	13 mm
		Part number	
16		101-69004	101-79006
32		101-69014	101-79016

**On request**

- performance level I + III or customized
- special contact length
- contact arrangement



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		3.0 mm angled	3.0 mm straight	13 mm
		Part number		
16		101-90004	101-90115	101-90006
32		101-90014	101-90105	101-90016

**On request**

- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement

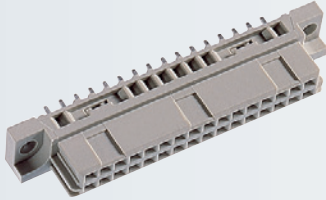


**THTR - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L
		3.0 mm angled
		Part number
16		101-90004TH
32		101-90014TH

# DIN 41612

## Type B/2 Female Connector



**Type:** Female connector straight with 2 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 16, 32

**Pitch:** 2.54 mm

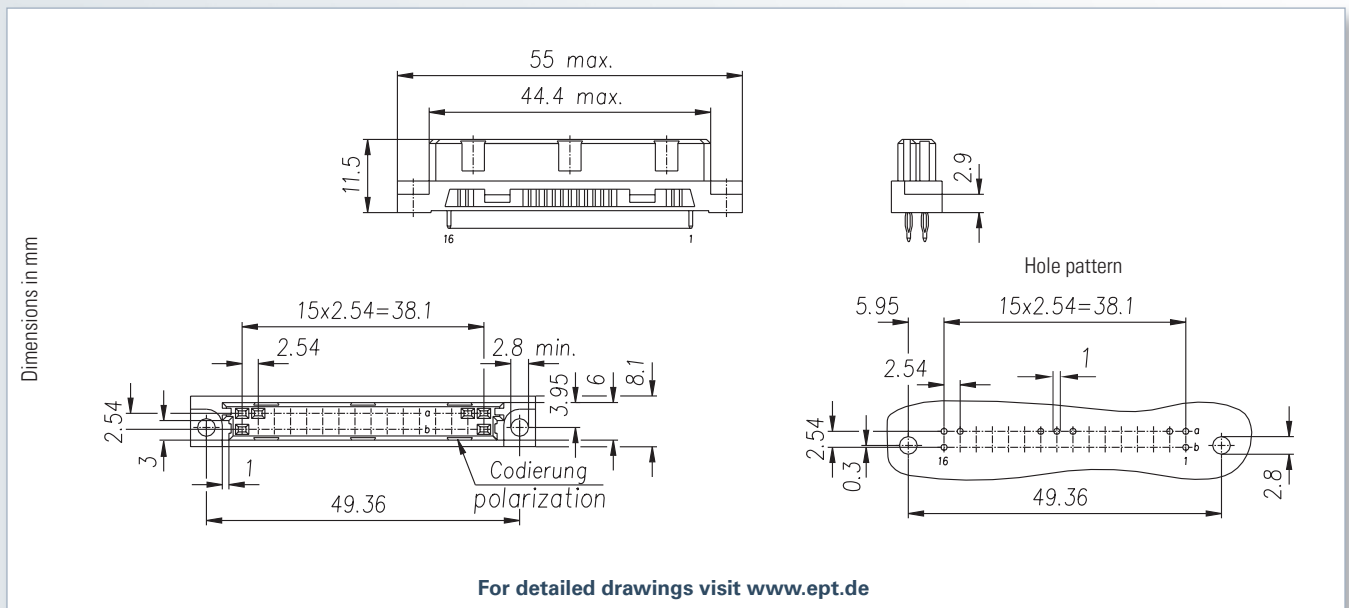
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2





Technical Specifications on page 11



### Accessories


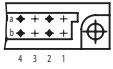

- Processing tools see catalog
- Coding p. 107

### Mating connector / Application:

-  Type B/2 Male connector (p. 19)
-  Type Q/2 Male connector (p. 48)



**Press-fit - Performance level II**


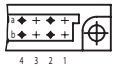
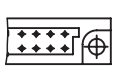
No. of contacts	Contact arrangement	PCB thickness	Termination length L 			
			3.2 mm	4.6 mm	13 mm	17 mm
			Part number			
16		1.5 - 2.0 mm	102-69004-01	-	102-79006-01	102-79106-01
		2.0 - 2.8 mm	-	102-69004-02	102-79006-02	102-79106-02
		> 2.8 mm	-	102-69004-03	102-79006-03	102-79106-03
32		1.5 - 2.0 mm	102-69064-01	-	102-79066-01	102-79166-01
		2.0 - 2.8 mm	-	102-69064-02	102-79066-02	102-79166-02
		> 2.8 mm	-	102-69064-03	102-79066-03	102-79166-03

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- without flange
- contact arrangement



**Solder - Performance level II**


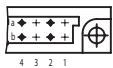

No. of contacts	Contact arrangement	Termination length L 			
		2.5 mm	4 mm	13 mm	5.5 mm <small>Manual soldering with solder lug</small>
		Part number			
16		102-90004	102-90005	102-90006	102-90025
32		102-90064	102-90065	102-90066	102-90075

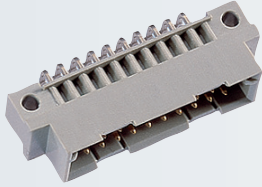
**On request**

- performance level I + III or customized
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement



**THTR - Performance level II**

No. of contacts	Contact arrangement	Termination length L 	
		2.5 mm	4 mm
		Part number	
16		102-90004TH	102-90005TH
32		102-90064TH	102-90065TH



**Type:** Male connector 90° with 2 rows

**Termination:** Press-fit, solder

**Number of contacts:** 10, 20

**Pitch:** 2.54 mm

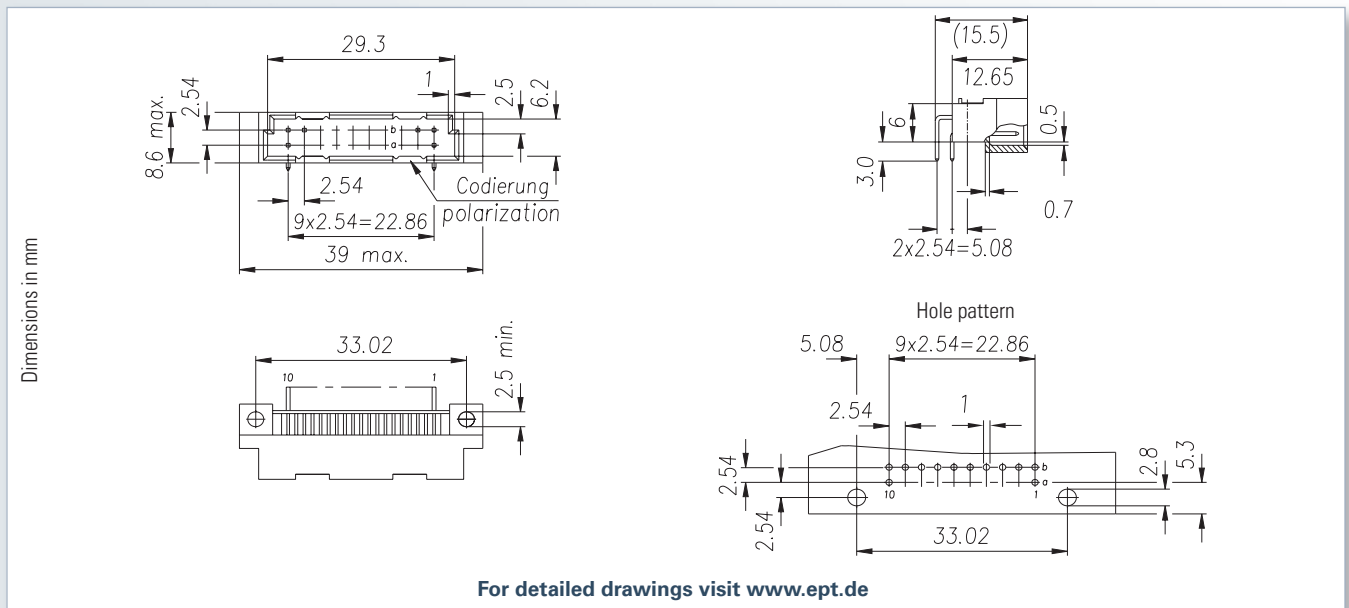
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**



Type B/3 Female connector (p. 25)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		3.4 mm	13 mm
		Part number	
20		101-68014	101-78016

**On request**

- performance level I + III or customized
- special contact length
- contact arrangement



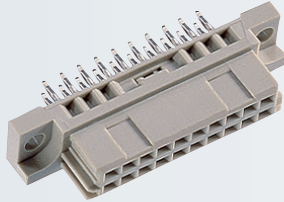
**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		3.0 mm angled	3.0 mm straight	13 mm angled
		Part number		
10		101-80004	101-80105	101-80006
20		101-80014	101-80115	101-80016

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement





**Type:** Female connector straight with 2 rows

**Termination:** Press-fit, solder

**Number of contacts:** 10, 20

**Pitch:** 2.54 mm

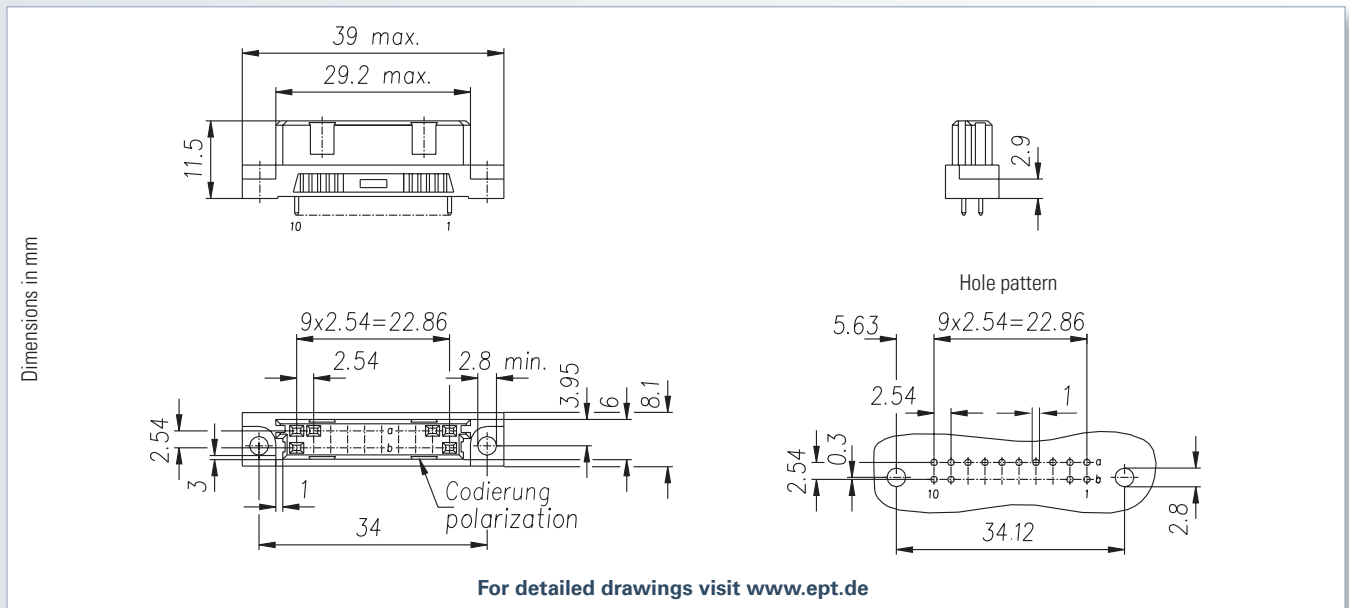
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



#### Accessories

- Processing tools see catalog
- Coding p. 107



**Mating connector / Application:**



Type B/3 Male connector (p. 23)



**Press-fit - Performance level II**




No. of contacts	Contact arrangement	PCB thickness	Termination length L 			
			3.2 mm	4.6 mm	13 mm	17 mm
			Part number			
20		1.5 - 2.0 mm	102-68014-01	-	102-78016-01	102-78116-01
		2.0 - 2.8 mm	-	102-68014-02	102-78016-02	102-78116-02
		> 2.8 mm	-	102-68014-03	102-78016-03	102-78116-03

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- without flange
- contact arrangement

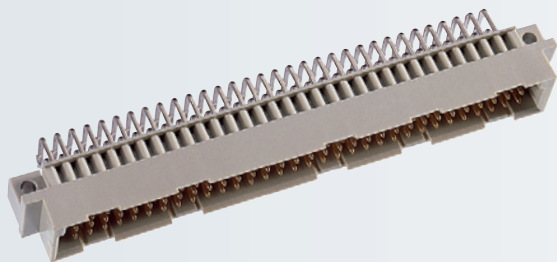


**Solder - Performance level II**

No. of contacts	Contact arrangement	Termination length L 			
		2.5 mm	4 mm	13 mm	5.5 mm <small>Manual soldering with solder lug</small>
		Part number			
10		102-80004	102-80005	102-80006	102-80025
20		102-80064	102-80065	102-80066	102-80075

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Male connector 90° with 2 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 32, 48, 64, 96

**Pitch:** 2.54 mm

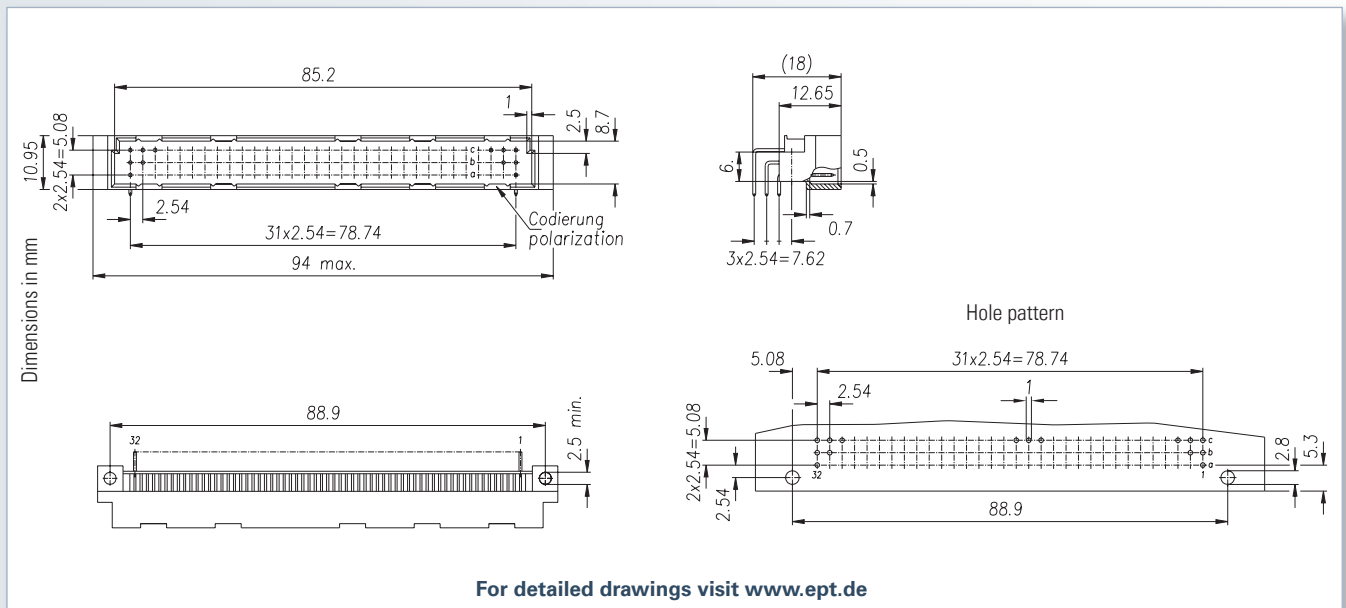
**Operational current:** 1.5 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**

- Type C Female connector (p. 29)
- Type R Female connector (p. 51)



**Press-fit - Performance level II**

No. of contacts	Contact arrangement	Termination length L	
		3.4 mm	13 mm
Part number			
32		103-60014	103-65015
48		103-60044	103-65045
64		103-60054	103-65055
96		103-60064	103-65065

**On request**

- performance level I + III or customized
- special contact length
- contact arrangement



**Solder - Performance level II**

No. of contacts	Contact arrangement	Termination length L		
		3.0 mm angled	3.0 mm straight	13 mm angled
Part number				
32		103-40014	103-40015	103-40194
48		103-40024	103-40025	103-40144
64		103-40034	103-40035	103-40154
96		103-40064	103-40065	103-40174

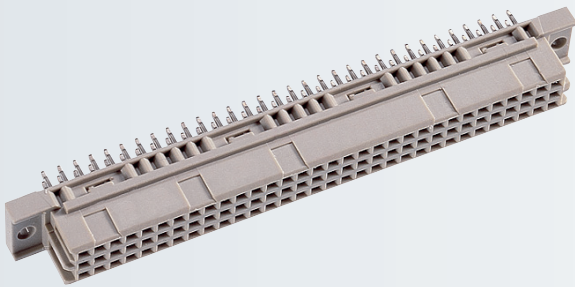


**THTR - Performance level II**

No. of contacts	Contact arrangement	Termination length L
		3.0 mm angled
Part number		
32		103-40014TH
48		103-40024TH
64		103-40034TH
96		103-40064TH

**On request**

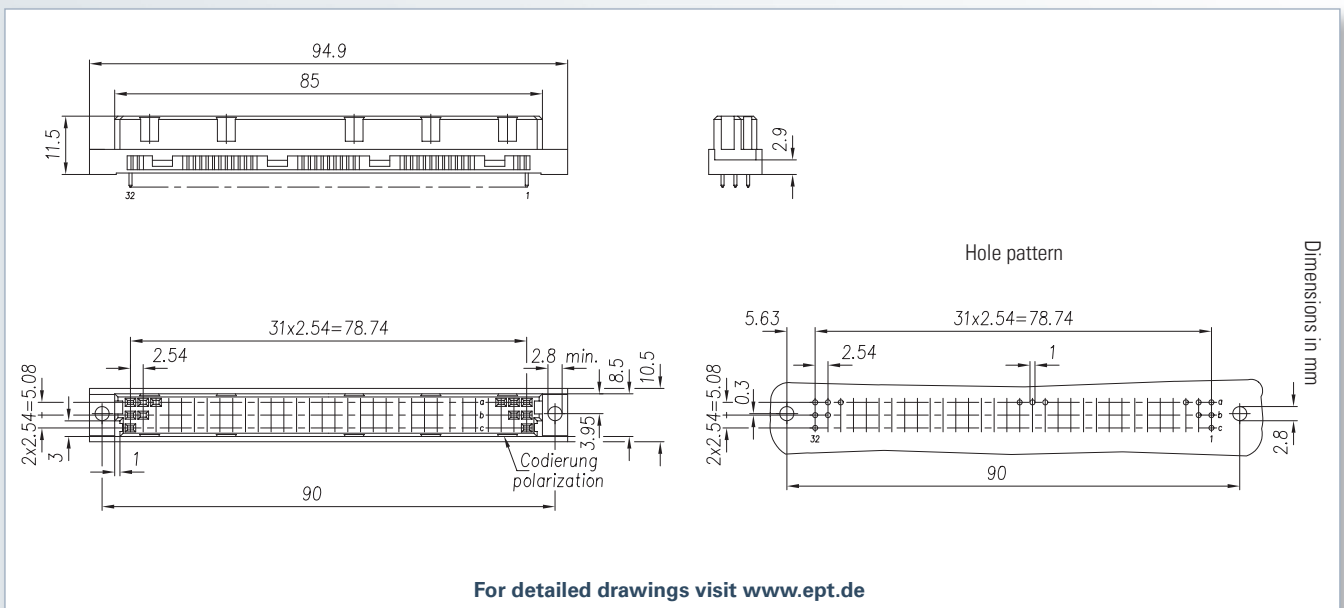
- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement



- Type:** Female connector straight with 2 rows
- Termination:** Press-fit, solder, THTR
- Number of contacts:** 32, 48, 64, 96
- Pitch:** 2.54 mm
- Operational current:** 1.5 A
- Packaging:** Tube
- Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog
- Coding p. 107
- Shroud p. 98

**Similar products**


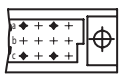
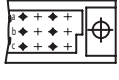
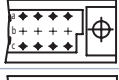

- Type C with switching function see on p. 99
- VMEx see on p. 96
- Type C in IDC see on p. 104

**Mating connector / Application:**

- Type C Male connector (p. 27)
- Type R Male connector (p. 49)



**Press-fit - Performance level II**


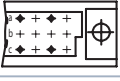
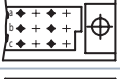


No. of contacts	Contact arrangement	PCB thickness	Termination length L 			
			3.2 mm	4.6 mm	13 mm	17 mm
			Part number			
32		1.5 - 2.0 mm	104-60014-01	-	104-65015-01	104-65016-01
		2.0 - 2.8 mm	-	104-60014-02	104-65015-02	104-65016-02
		> 2.8 mm	-	104-60014-03	104-65015-03	104-65016-03
48		1.5 - 2.0 mm	104-60044-01	-	104-65045-01	104-65046-01
		2.0 - 2.8 mm	-	104-60044-02	104-65045-02	104-65046-02
		> 2.8 mm	-	104-60044-03	104-65045-03	104-65046-03
64		> 1.5 mm	-	304-60054-02	304-65055-03	304-65056-04
96		> 1.5 mm	-	304-60064-02	304-65065-03	304-65066-04

**On request**

- contact arrangement
- without flange
- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- PCB hole 0,85 mm see on p. 13



**Solder - Performance level II**


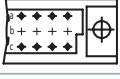
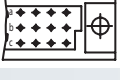
No. of contacts	Contact arrangement	Termination length L 				
		2.5 mm	3.4 mm	4.6 mm	13 mm	Solder lug
		Part number				
32		104-40014	-	-	104-40016	-
48		104-40044	-	-	104-40046	-
64		304-40054-05	304-40054-01	304-40054-02	304-40055-03	104-40115
96		304-40064-05	304-40064-01	304-40064-02	304-40065-03	104-40075

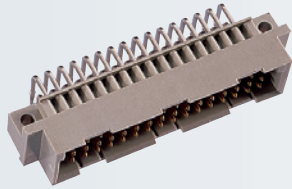
**On request**

- contact arrangement
- Board-Lock p. 106
- performance level I + III or customized
- special contact length



**THTR - Performance level II**

No. of contacts	Contact arrangement	Termination length L 		
		2.5 mm	3.4 mm	4.6 mm
		Part number		
64		304-40054-05TH	304-40054-01TH	304-40054-02TH
96		304-40064-05TH	304-40064-01TH	304-40064-02TH



**Type:** Male connector 90° with 3 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 16, 32, 48

**Pitch:** 2.54 mm

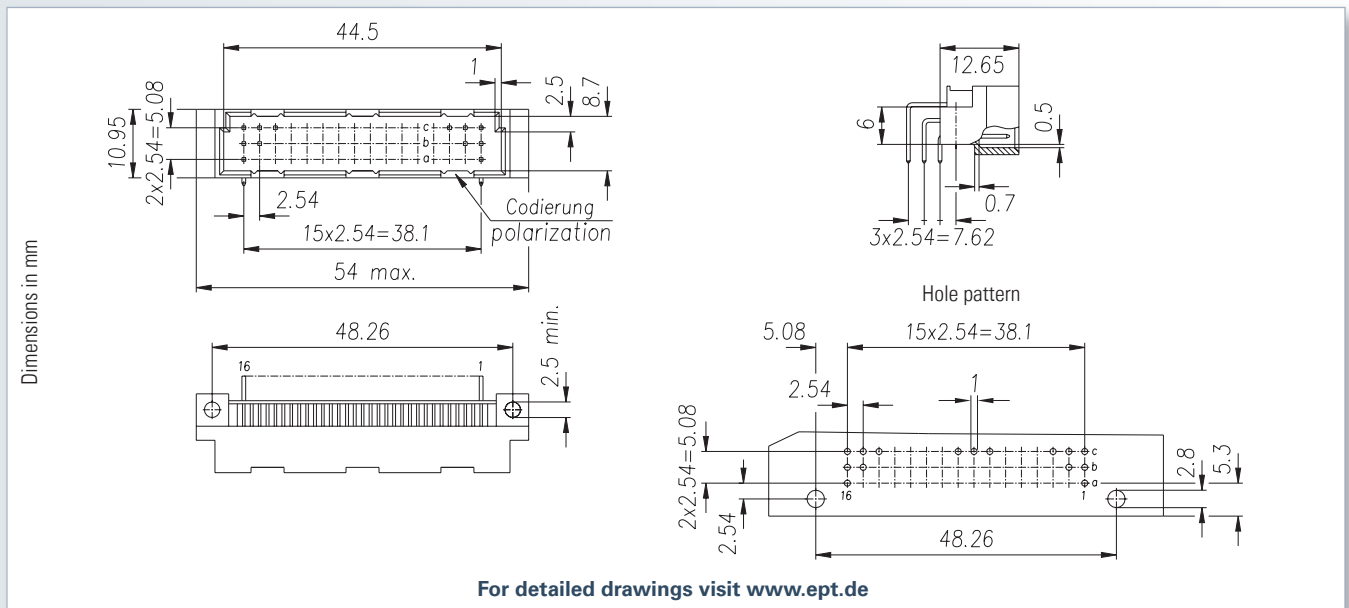
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**

- Type C/2 Female connector (p. 33)
- Type R/2 Female connector (p. 55)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		3.4 mm	13 mm
		Part number	
16		103-69004	103-79006
32		103-69014	103-79016
48		103-69064	103-79066

**On request**

- performance level I + III or customized
- special contact length
- contact arrangement



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		3.0 mm angled	3.0 mm straight	13 mm angled
		Part number		
16		103-90004	103-90105	103-90006
32		103-90014	103-90115	103-90016
48		103-90064	103-90165	103-90066

**On request**

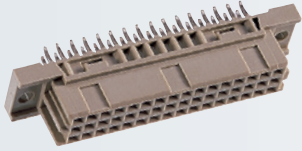
- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement



**THTR - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L
		3.0 mm angled
		Part number
16		103-90004TH
32		103-90014TH
48		103-90064TH





**Type:** Female connector straight with 3 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 16, 32, 48

**Pitch:** 2.54 mm

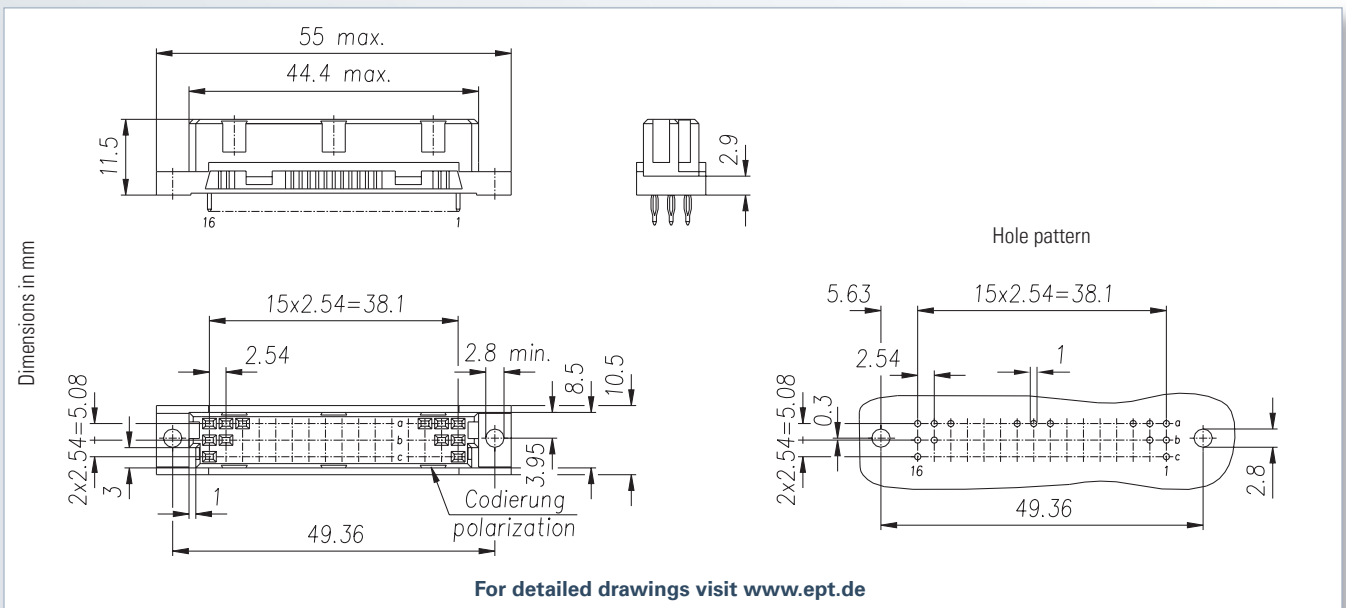
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**

- Type C/2 Male connector (p. 31)
- Type R/2 Male connector (p. 53)



**Press-fit - Performance level II** ● ● ●

No. of contacts	Contact arrangement	PCB thickness	Termination length L			
			3.2 mm	4.6 mm	13 mm	17 mm
			Part number			
16		1.5 - 2.0 mm	104-69004-01	-	104-79006-01	104-79106-01
		2.0 - 2.8 mm	-	104-69004-02	104-79006-02	104-79106-02
		> 2.8 mm	-	104-69004-03	104-79006-03	104-79106-03
32		> 1.5 mm	-	304-69014-02	304-79016-03	304-79116-04
48		> 1.5 mm	-	304-69064-02	304-79066-03	304-79166-04

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface Sn e. g. for WireWrap
- without flange
- contact arrangement



**Solder - Performance level II** ● ● ●

No. of contact	Contact arrangement	Termination length L				
		2.5 mm	3.4 mm	4.6 mm	13 mm	5.5 mm <small>Manual soldering with solder lug</small>
		Part number				
16		104-90004	-	-	104-90006	104-90025
32		304-90014-05	304-90014-01	304-90014-02	304-90016-03	104-90035
48		304-90064-05	304-90064-01	304-90064-02	304-90066-03	104-90075

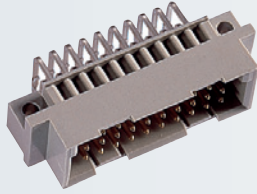
**On request**

- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement



**THTR - Performance level II** ● ● ●

No. of contacts	Contact arrangement	Termination length L		
		2.5 mm	3.4 mm	4.6 mm
		Part number		
32		304-90014-05TH	304-90014-01TH	304-90014-02TH
48		304-90064-05TH	304-90064-01TH	304-90064-02TH



**Type:** Male connector 90° with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 20, 30

**Pitch:** 2.54 mm

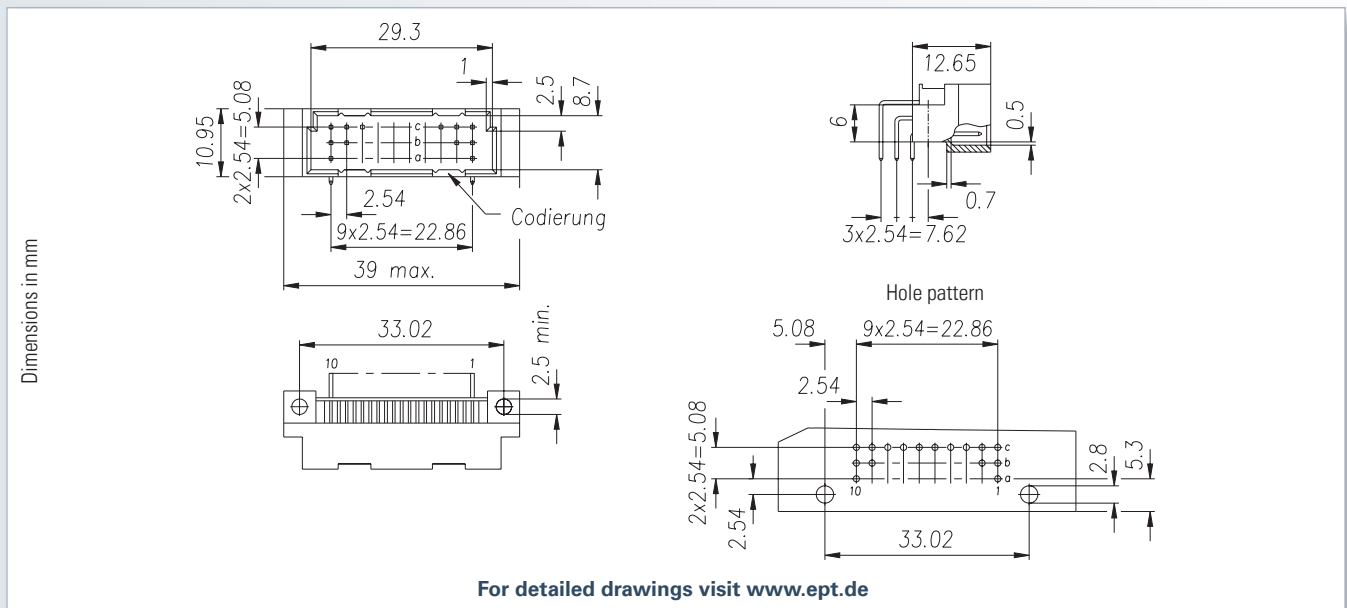
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2





Technical Specifications on page 11



**Accessories**

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**

-  Type C/3 Female connector (p. 37)
-  Type R/3 Female connector (p. 59)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		3.4 mm	13 mm
		Part number	
20		103-68004	103-78006
30		103-68014	103-78016

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement

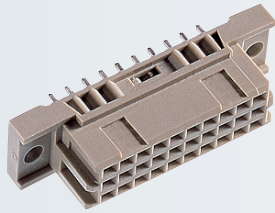


**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		3.0 mm angled	3.0 mm straight	13 mm angled
		Part number		
20		103-80014	103-80255	103-80016
30		103-80004	103-80265	103-80006

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Female connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 20, 30

**Pitch:** 2.54 mm

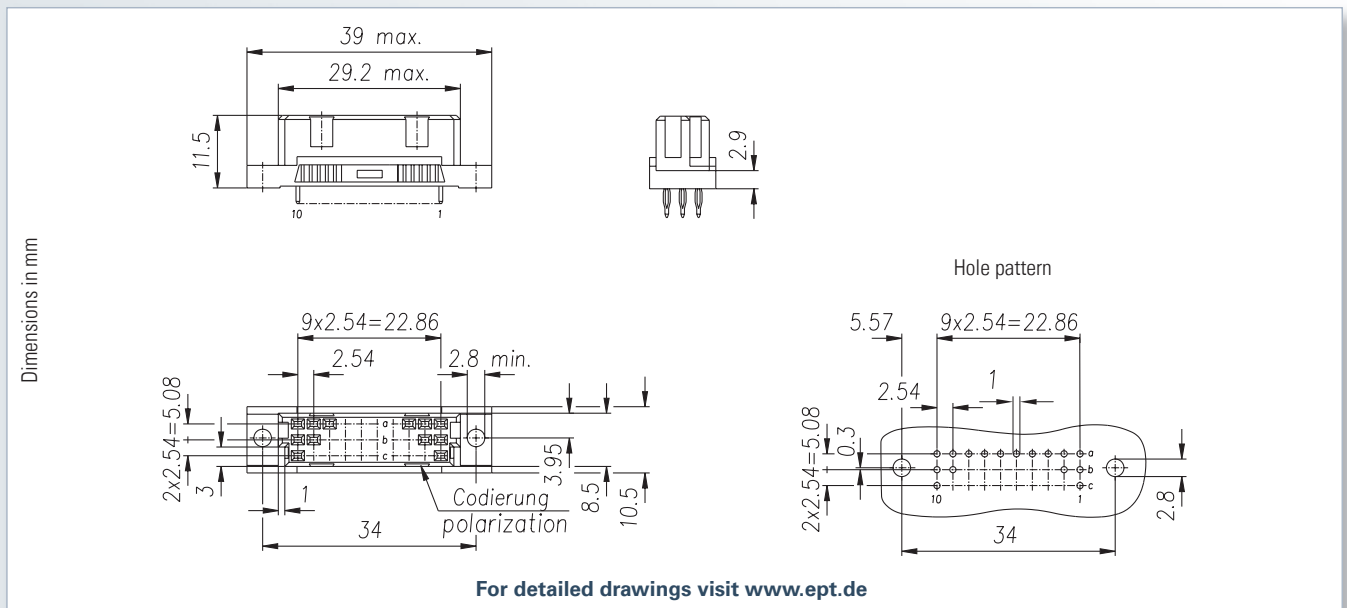
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**


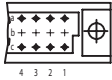
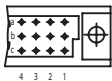
- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**

- Type C/3 Male connector (p. 35)
- Type R/3 Male connector (p. 57)



**Press-fit - Performance level II** • • •


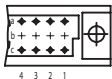
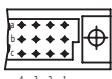
No. of contacts	Contact arrangement	Termination length L 		
		4.6 mm	13 mm	17 mm
		Part number		
20		304-68004-02	304-78006-03	304-78106-04
30		304-68014-02	304-78016-03	304-78116-04

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- without flange
- contact arrangement



**Solder - Performance level II** • • •

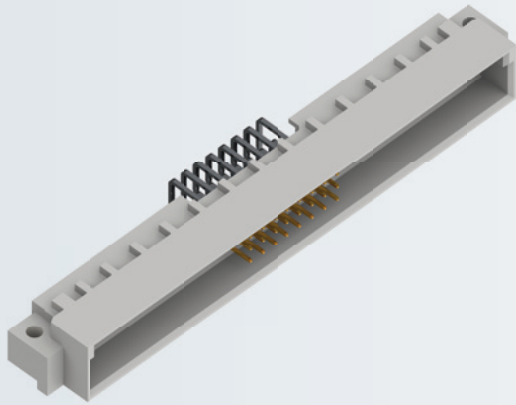
No. of contacts	Contact arrangement	Termination length L 				
		2.5 mm	3.4 mm	4.6 mm	13 mm	5.5 mm <small>Manual soldering with solder lug</small>
		Part number				
20		304-80014-05	304-80014-01	304-80014-02	304-80016-03	104-80035
30		304-80064-05	304-80064-01	304-80064-02	304-80066-03	104-80075

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement

# DIN 41612

## Type M Male Connector



**Type:** Male connector 90° with 3 rows

**Termination:** Solder

**Number of contacts:** 78+2, 60+4, 42+6, 24+8

**Pitch:** 2.54 mm

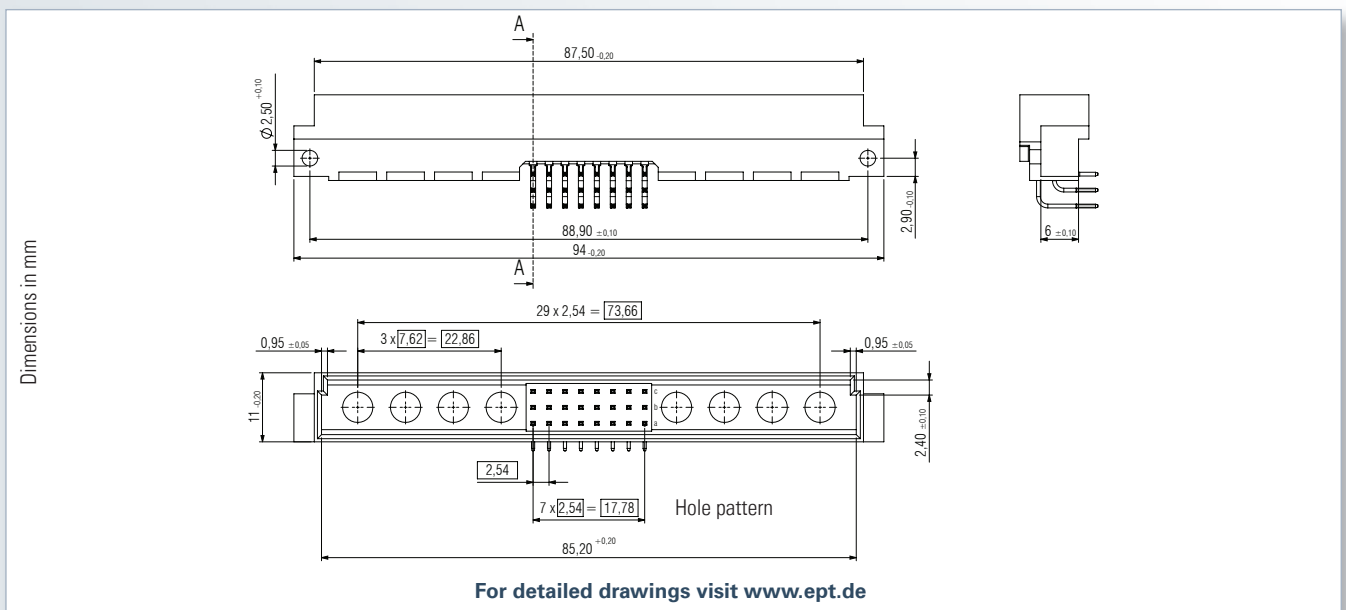
**Operational current:** 1.5 A

**Packaging:** Box

**Standard:** IEC 60603-2



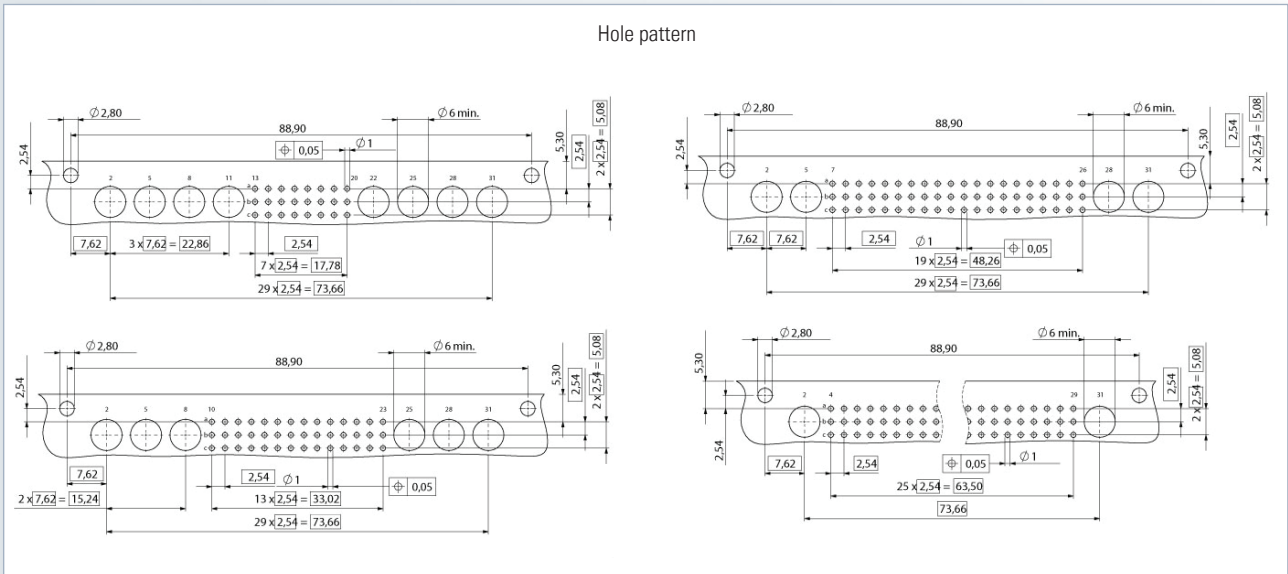
Technical Specifications on page 11



**Mating connector / Application:**



Type M Female connector (p. 41)



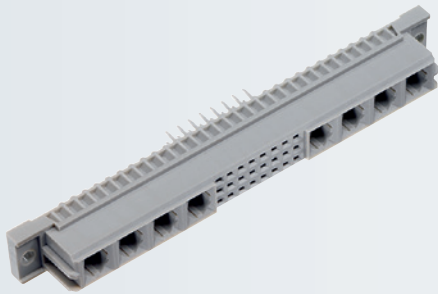
**Solder - Performance level II** ● ● ●

No. of contacts	Contact arrangement	Termination length L
		3.0 mm
		Part number
24/8		123-40181-00
42/6		123-40161-00
60/4		123-40141-00
78/2		123-40121-00

**On request**

- performance level I + III or customized





**Type:** Female connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 6+10, 78+2, 60+4, 42+6, 24+8

**Pitch:** 2.54 mm

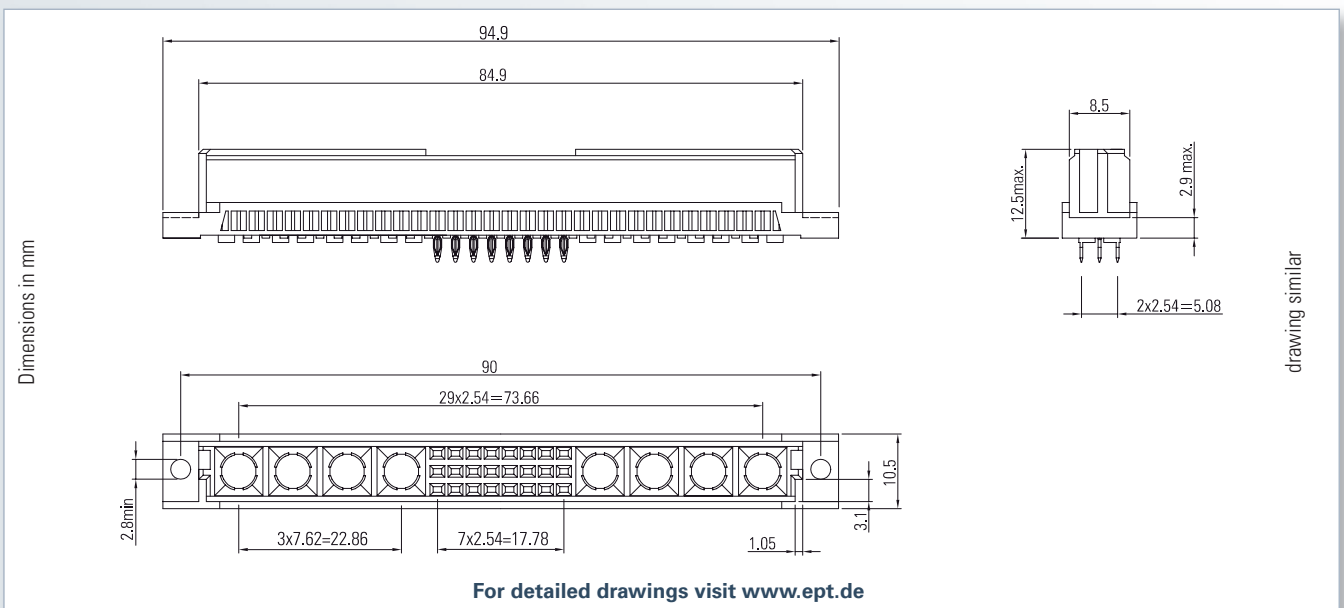
**Operational current:** 1.5 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Note**

Female connectors must be screwed or riveted onto the printed circuit at the flange.

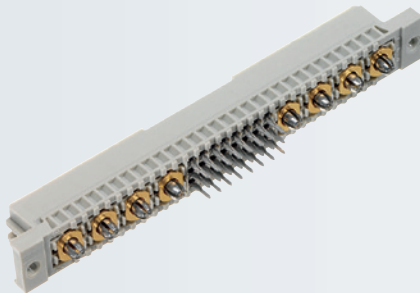
**Mating connector / Application:**



Type M Male connector (p. 39)



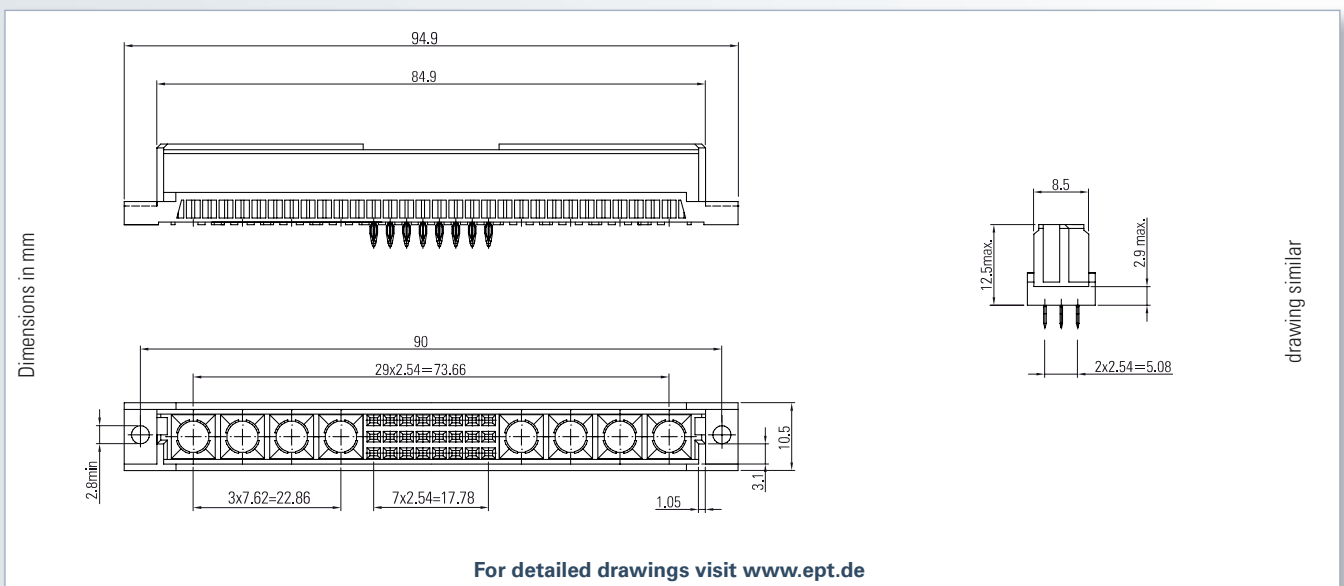
**Type M** Female Connector for special Contacts in Press-fit



- Type:** Female connector straight with 3 rows
- Terminator:** Press-fit
- Number of contacts:** 6+10, 78+2, 60+4, 42+6, 24+8
- Pitch:** 2.54 mm
- Operational current:** 1.5 A
- Packaging:** Tube
- Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- High-current contact (Part number 916-61002)

**Note**

Female connectors must be screwed or riveted onto the printed circuit at the flange.

**Mating connector / Application:**

 Type M Male connector (p. 39)

Type M Female Connector for special Contacts in Press-fit

**78/2**  
24x254 3376

**24/8**  
28x214 4388

**60/4**  
23x194 3168

**6/10**  
23x96 7366

**42/6**  
39x214 3556

**Press-fit - Performance level II**

No. of contacts	Contact arrangement	Termination length L	
		Special contact is not pre-loaded 4.6 mm	Special contact is pre-loaded 4.6 mm
		Part number	
6/10		124-60012-00	124-60012-02
24/8		124-60082-00	124-60082-02
42/6		124-60062-00	124-60062-02
60/4		124-60042-00	124-60042-02
78/2		124-60022-00	124-60022-02

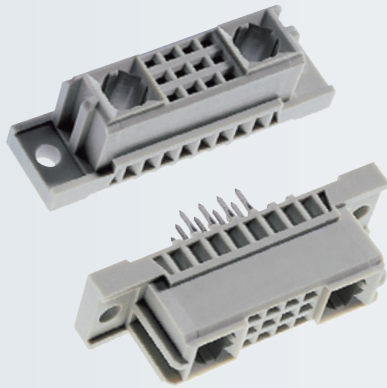
**On request**

- performance level I + III or customized
- special contact length
- processing tools
- contact arrangement

# DIN 41612



## Type M/2, M/3 Female Connector



**Type:** Female connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 30+2, 12+2

**Pitch:** 2.54 mm

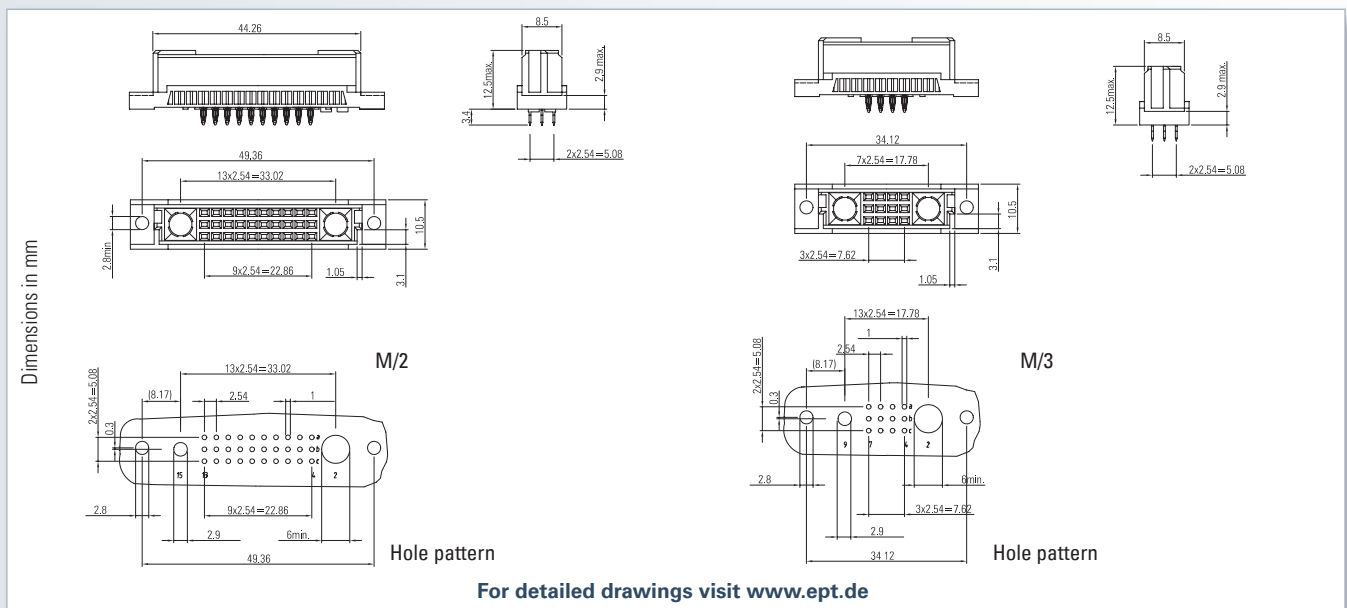
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



### Note

Female connectors must be screwed or riveted onto the printed circuit at the flange.




**Mating connector / Application:**



Type M Male connector (p. 39)



**Press-fit - Performance level II**




No. of contacts	Contact arrangement	Termination length L 	
		4.6 mm	
		Part number	
M/2 30/2		124-69122-00	
M/3 12/2		124-68122-00	

**On request**

- performance level I + III or customized
- special contact length
- processing tools



**Solder - Performance level II**




No. of contacts	Contact arrangement	Termination length L 	
		4.6 mm	
		Part number	
M/2 30/2		124-99122-00	
M/3 12/2		124-88122-00	

**On request**

- performance level I + III or customized
- special contact length
- processing tools



**Press-fit with special contact - Performance level II**

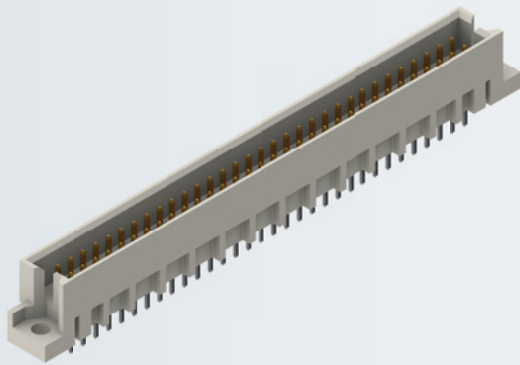
No. of contacts	Contact arrangement	Termination length L 	
		4.6 mm Special contact is not pre-loaded	4.6 mm Special contact is pre-loaded
		Part number	
M/2 30/2		124-69022-00	124-69022-02
M/3 12/2		124-68022-00	124-68022-02

**On request**

- performance level I + III or customized
- special contact length
- processing tools
- contact arrangement

# DIN 41612

## Type Q Male Connector



**Type:** Male connector straight with 2 rows

**Termination:** Solder

**Number of contacts:** 64

**Pitch:** 2.54 mm

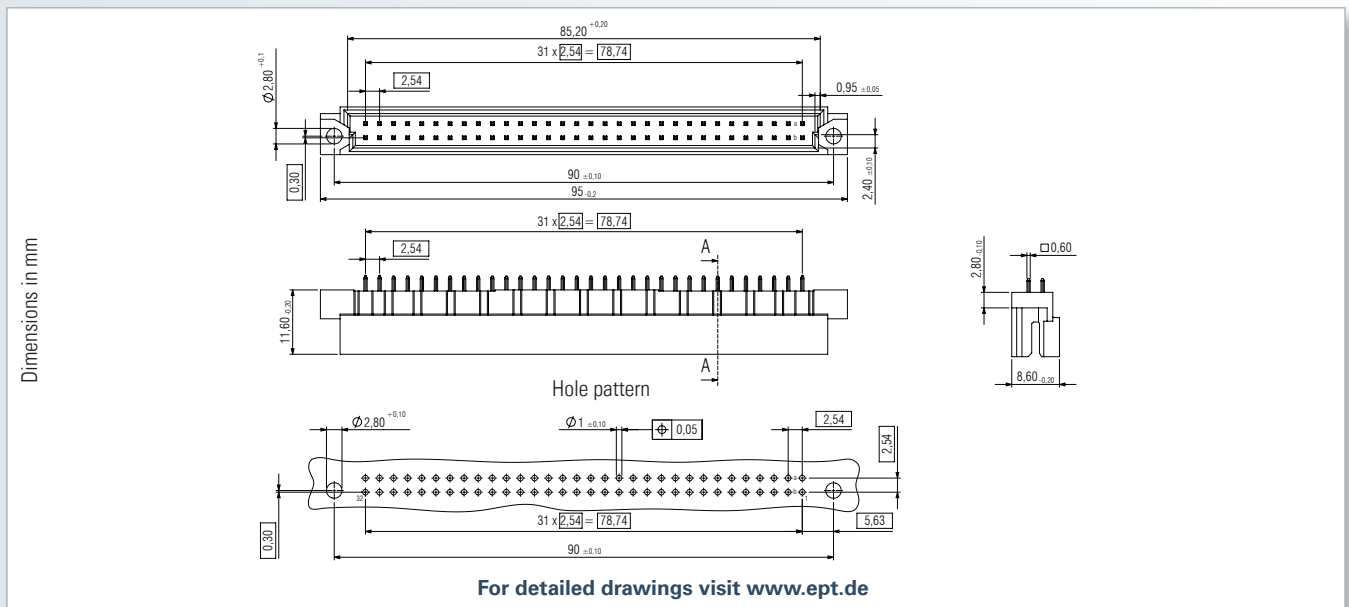
**Operational current:** 1.5 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 11



### Solder - Performance level II

No. of contacts	Contact arrangement	Termination length L	
		2.5 mm	4.0 mm
		Part number	
64		119-40065	119-40074

#### On request

- performance level I + III or customized
- Board-Lock p. 106

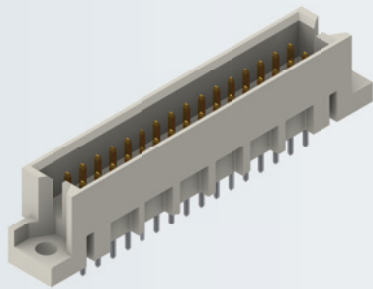
**Mating connector / Application:**



Type B Female connector (p. 17)

# DIN 41612

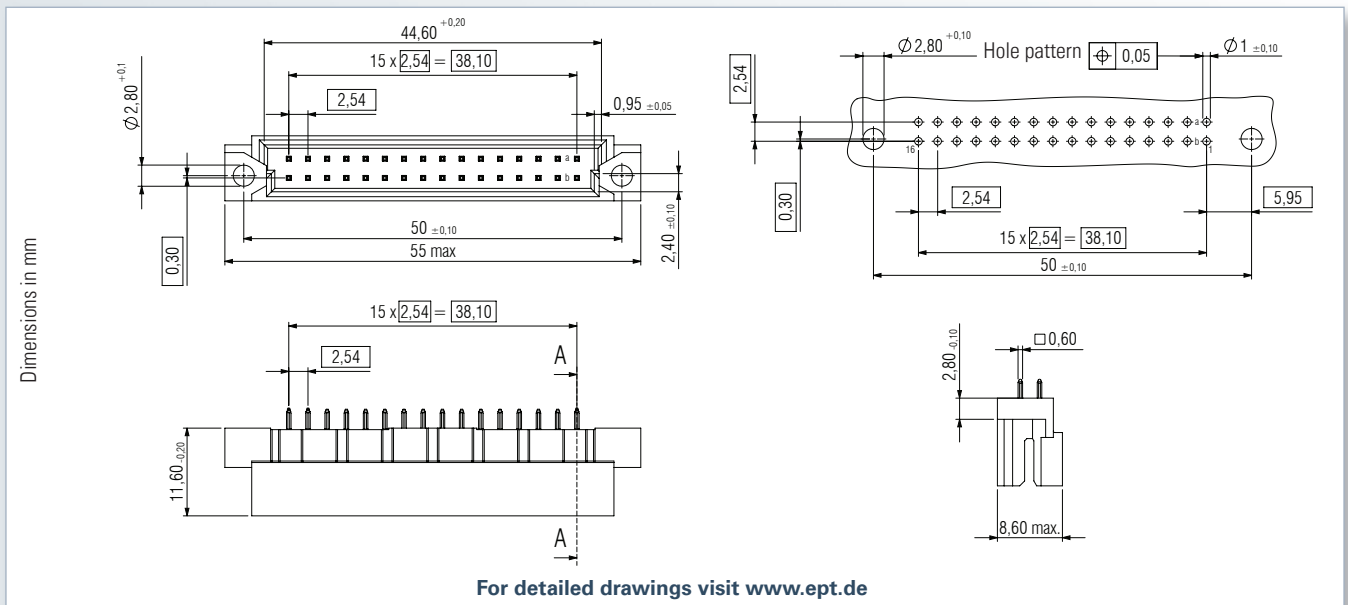
## Type Q/2 Male Connector



**Type:** Male connector straight with 2 rows  
**Termination:** Solder  
**Number of contacts:** 32  
**Pitch:** 2.54 mm  
**Operational current:** 1.5 A  
**Packaging:** Box  
**Standard:** IEC 60603-2



Technical Specifications on page 11



### Solder - Performance level II

No. of contacts	Contact arrangement	Termination length L	
		2.5 mm	4.0 mm
		Part number	
32		119-90064	119-90065

#### On request

- performance level I + III or customized
- Board-Lock p. 106

#### Mating connector / Application:

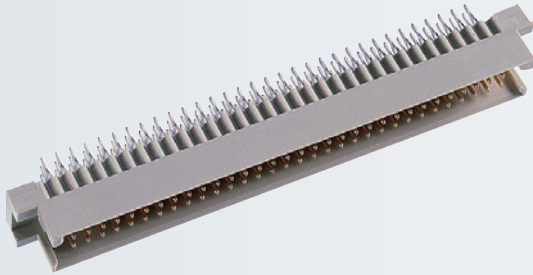


Type B/2 Female connector (p. 21)



# DIN 41612

## Type R Male Connector



**Type:** Male connector straight with 3 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 32, 48, 64, 96

**Pitch:** 2.54 mm

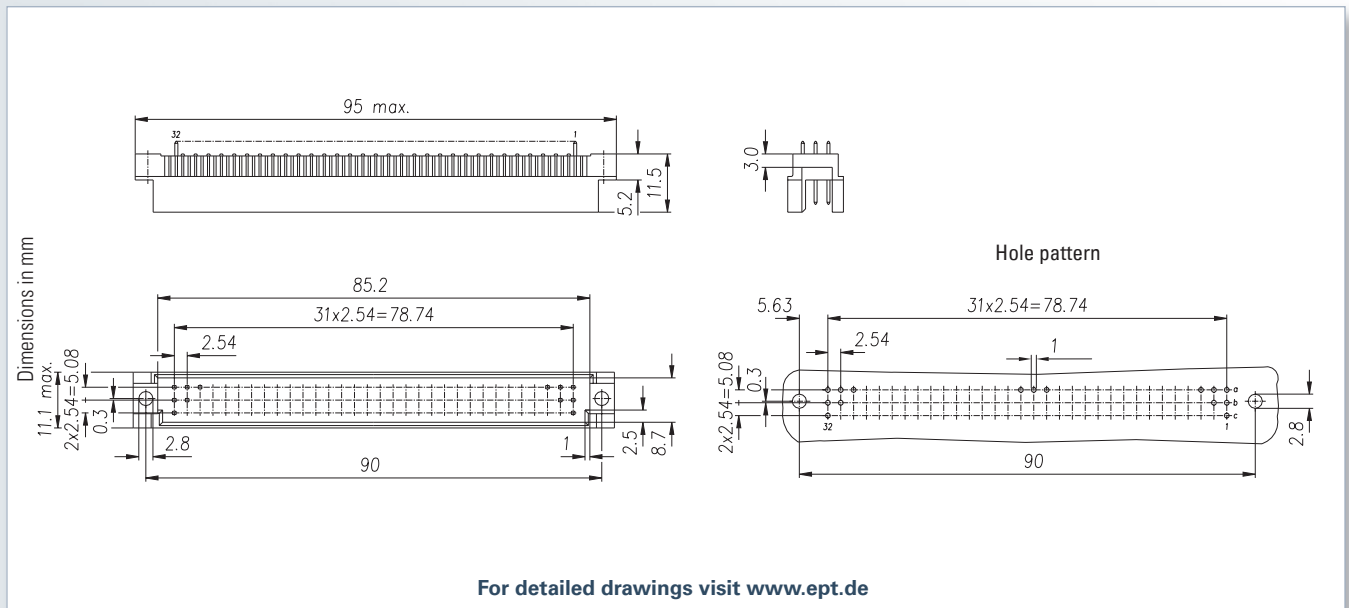
**Operational current:** 1.5 A

**Packaging:** Tube

**Standard:** IEC 60603-2





Technical Specifications on page 11



### Accessories

- Processing tools see catalog
- Shroud p. 98

### Mating connector / Application:

-  Type R Female connector (p. 51)
-  Type C Female connector (p. 29)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		4.6 mm	13 mm	17 mm
		Part number		
32		115-60014	115-65015	115-65016
48		115-60044	115-65045	115-65046
64		115-60054	115-65055	115-65056
96		115-60064	115-65065	115-65066

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- contact arrangement



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		2.5 mm	4 mm	5.5 mm <small>Manual soldering with solder lug</small>
		Part number		
32		115-40015	115-40046	—
48		115-40026	115-40025	—
64		115-40035	115-40054	115-40036
96		115-40065	115-40074	115-40066



**THTR - Performance level II** •••

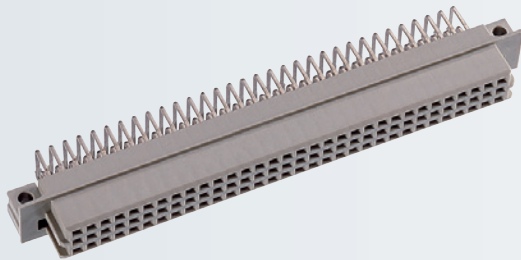
No. of contacts	Contact arrangement	Termination length L	
		2.5 mm	4 mm
		Part number	
32		115-40015TH	115-40046TH
48		115-40026TH	115-40025TH
64		115-40035TH	115-40054TH
96		115-40065TH	115-40074TH

**On request**

- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement

# DIN 41612

## Type R Female Connector



**Type:** Female connector 90° with 3 rows

**Termination:** Press-fit, solder, THTR

**Number of contacts:** 32, 48, 64, 96

**Pitch:** 2.54 mm

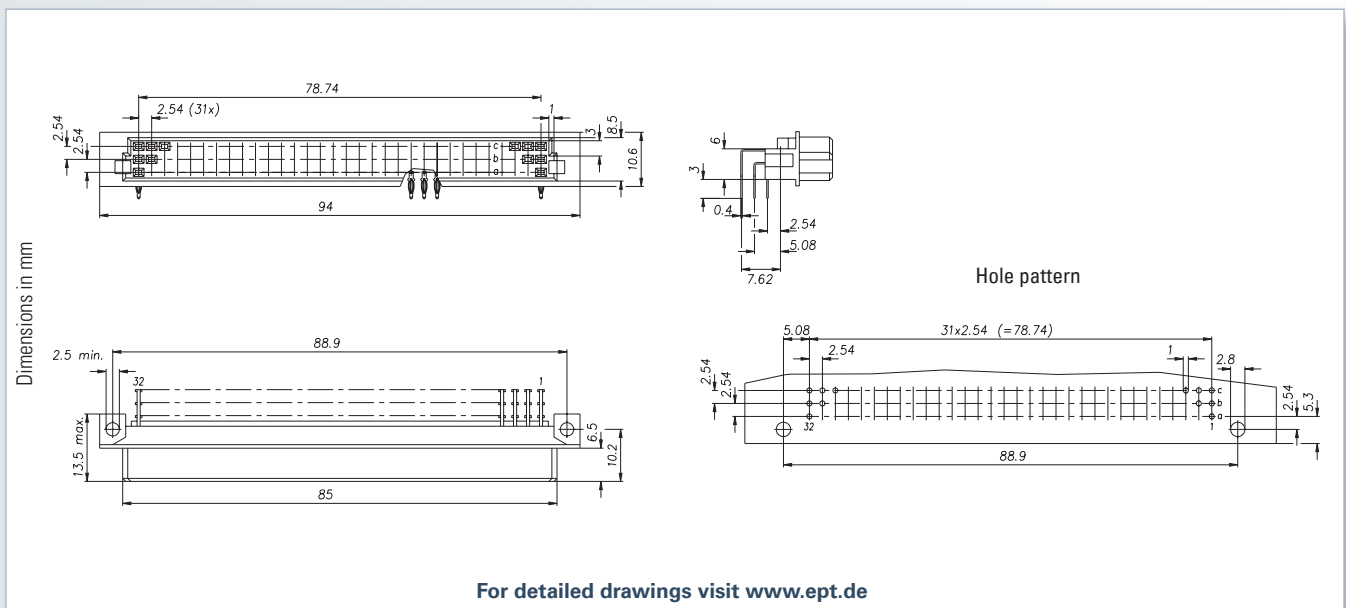
**Operational current:** 1.5 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 11



### Accessories

- Processing tools see catalog

### Mating connector / Application:

 Type R Male connector (p. 49)

 Type C Male connector (p. 27)



**Press-fit - Performance level II** • • •

No. of contacts	Contact arrangement	Termination length L
		3 mm
		Part number
64		116-60054
96		116-60074

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement



**Solder - Performance level II** • • •

No. of contacts	Contact arrangement	Termination length L
		3.0 mm
		Part number
32		116-40034
48		116-40044
64		116-40054
96		116-40074

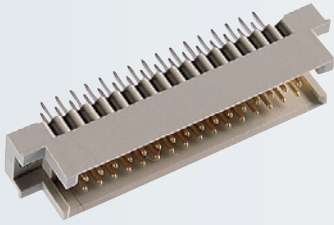
**On request**

- performance level I + III or customized
- special contact length
- other termination lengths in THTR
- Board-Lock p. 106
- contact arrangement



**THTR - Performance level II** • • •

No. of contacts	Contact arrangement	Termination length L
		3.0 mm
		Part number
32		116-40034TH
48		116-40044TH
64		116-40054TH
96		116-40074TH



**Type:** Male connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 32, 48

**Pitch:** 2.54 mm

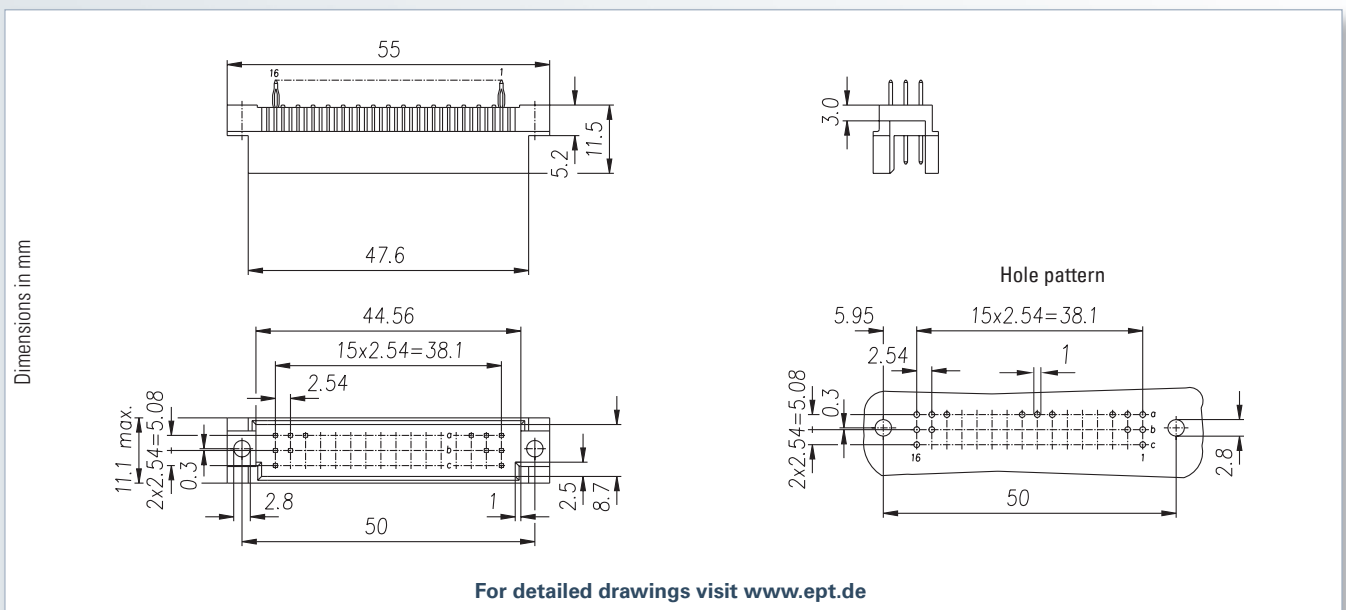
**Operational current:** 1.5 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 11



### Accessories

- Processing tools see catalog

### Mating connector / Application:

- Type R/2 Female connector (p. 55)
- Type C/2 Female connector (p. 33)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		4.6 mm	13 mm	17 mm
		Part number		
32		115-69054	115-79055	115-79056
48		115-69064	115-79065	115-79066

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- contact arrangement

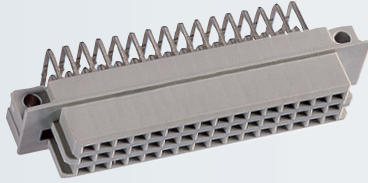


**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		2.5 mm	4 mm
		Part number	
32		115-90014	115-90015
48		115-90064	115-90065

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Female connector 90° with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 32, 48

**Pitch:** 2.54 mm

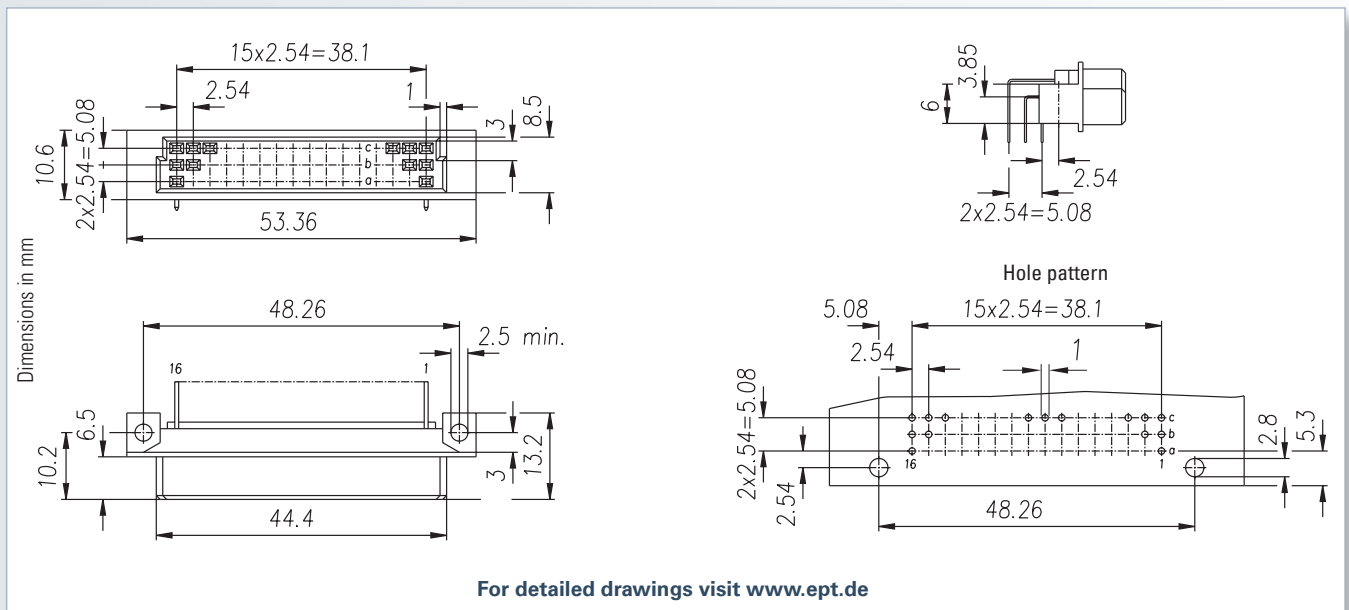
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog

**Mating connector / Application:**

Type R/2 Male connector (p. 53)

Type C/2 Male connector (p. 31)



**Press-fit - Performance level II** • • •

No. of contacts	Contact arrangement	Termination length L
		3.0 mm
		Part number
32		116-69054
48		116-69064

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement



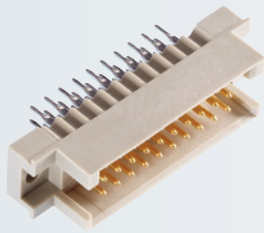
**Solder - Performance level II** • • •

No. of contacts	Contact arrangement	Termination length L
		3.0 mm
		Part number
32		116-90054
48		116-90064

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement





**Type:** Male connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 30

**Pitch:** 2.54 mm

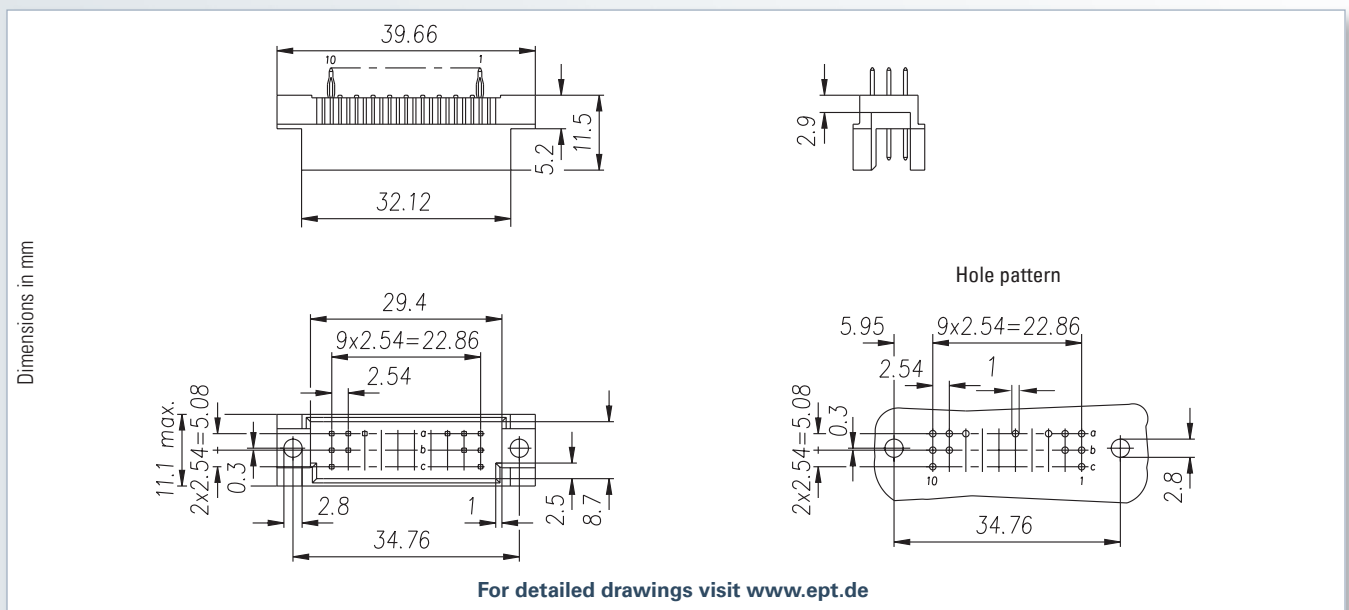
**Operational current:** 1.5 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog

**Mating connector / Application:**

 Type R/3 Female connector (p. 59)

 Type C/3 Female connector (p. 37)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		4.6 mm	13 mm	17 mm
		Part number		
30		115-68014	115-78015	115-78016

**On request**

- performance level I + III or customized
- special contact length
- alternative contact surface  
Sn e. g. for WireWrap
- contact arrangement



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		2.5 mm	4.0 mm
		Part number	
30		115-80064	115-80065

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Female connector 90° with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 30

**Pitch:** 2.54 mm

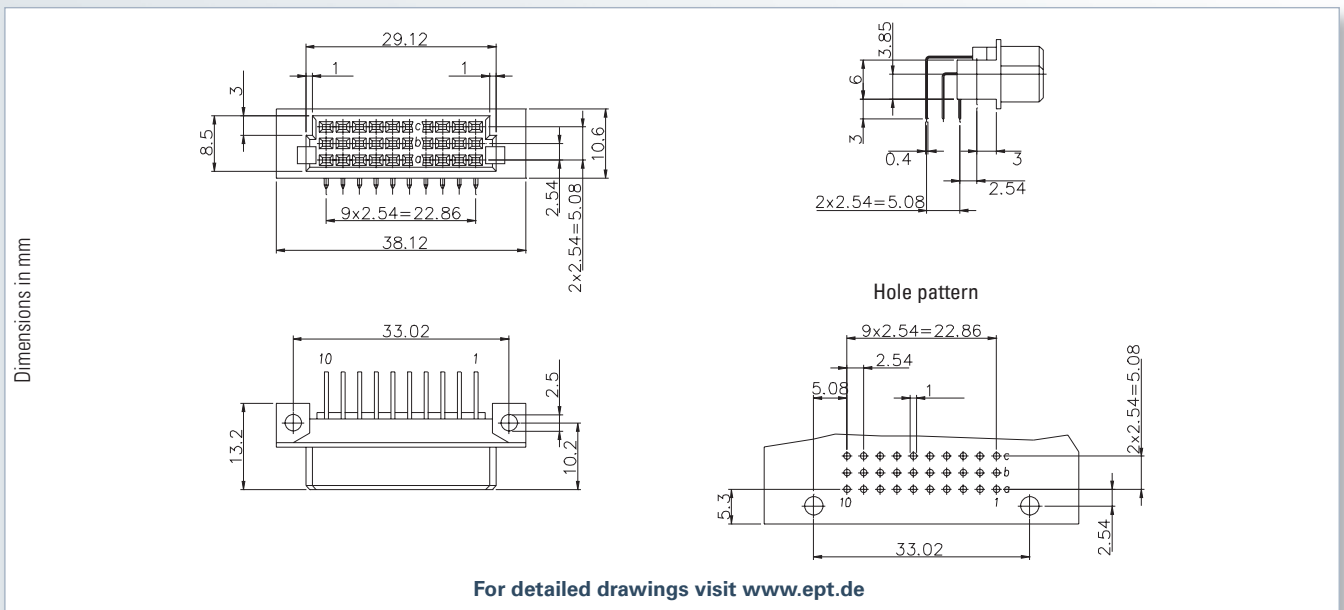
**Operational current:** 1.5 A

**Packaging:** Tray

**Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**

- Processing tools see catalog


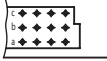
**Mating connector / Application:**

Type R/3 Male connector (p. 57)

Type C/3 Male connector (p. 35)



**Press-fit - Performance level II** •••



No. of contacts	Contact arrangement	Termination length L 
		3.0 mm
		Part number
30		116-68064

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement

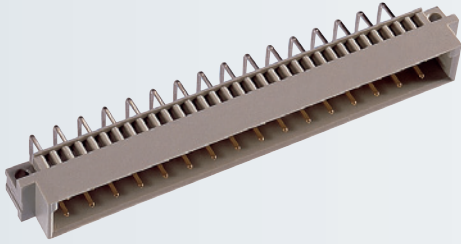


**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L 
		3.0 mm
		Part number
30		116-80064

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Male connector 90° with 2 rows

**Termination:** Solder

**Number of contacts:** 16, 32

**Pitch:** 5.08 mm

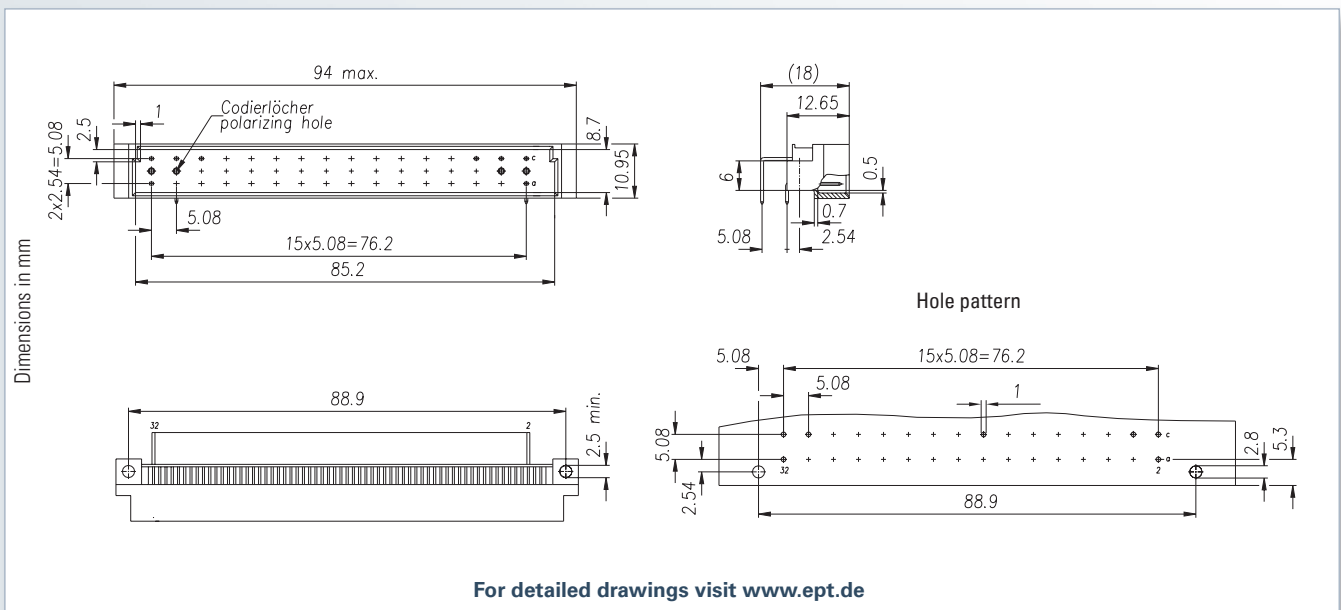
**Operational current:** 5.6 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Coding p. 107

### Mating connector / Application:



Type D Female connector (p. 63)



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		3.0 mm angled	3.7 mm straight
Part number			
16		105-40014	105-40016
32		105-40064	105-40066

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Female connector straight with 2 rows

**Termination:** Press-fit, solder

**Number of contacts:** 32

**Pitch:** 5.08 mm

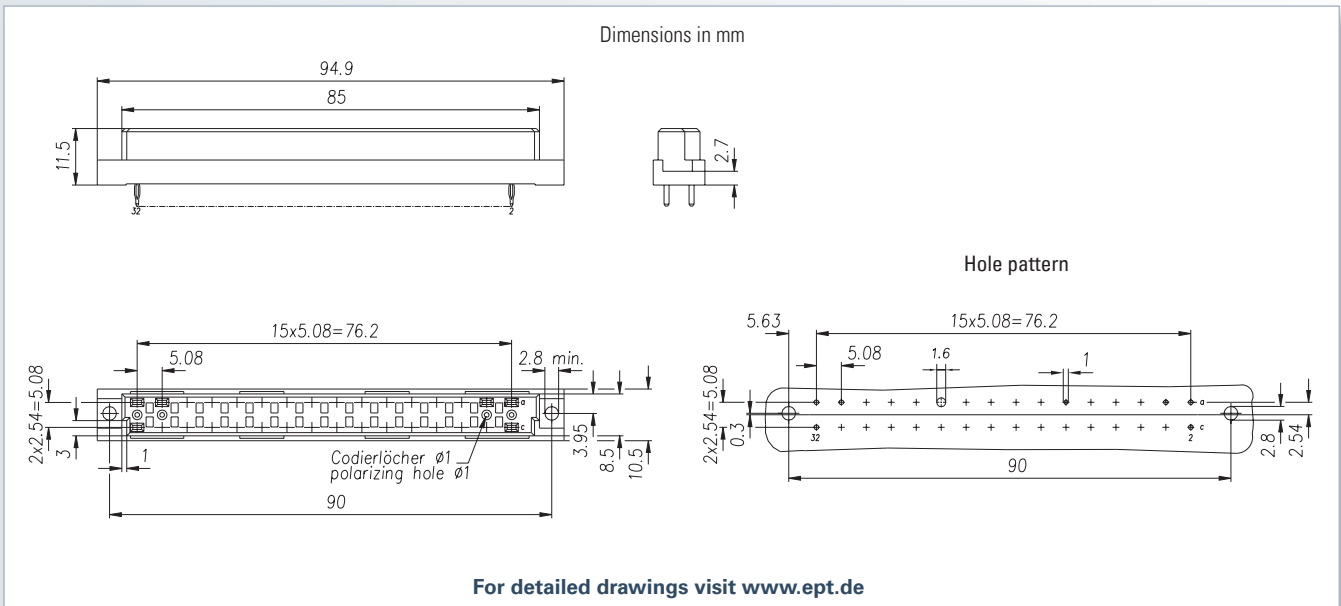
**Operational current:** 5.6 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**



Type D Male connector (p. 61)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L		
		4.6 mm	6.0 mm	20 mm
		Part number		
32		106-60084 hole diameter 1.0 mm	106-60064 hole diameter 1.6 mm	106-60065 hole diameter 1.6 mm

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement



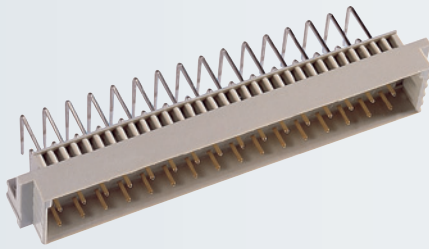
**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L				
		4.0 mm	20 mm	2.5 mm	4.6 mm	5.5 mm <small>Manual soldering with solder lug</small>
		Part number				
32		106-40064	106-40065	106-40084	106-40075	106-40066

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement





**Type:** Male connector 90° with 3 rows

**Termination:** Solder

**Number of contacts:** 32, 48

**Pitch:** 5.08 mm

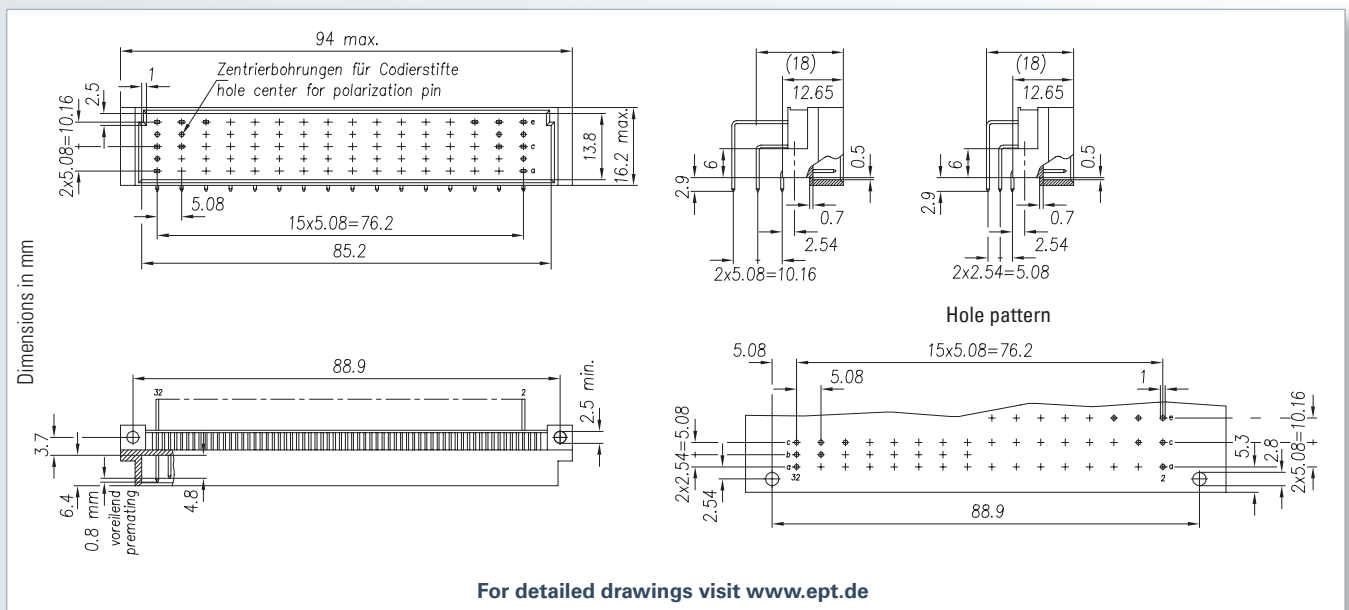
**Operational current:** 5.6 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Coding p. 107


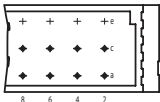
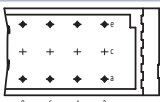
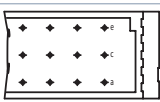
### Mating connector / Application:



Type E Female connector (p. 67)

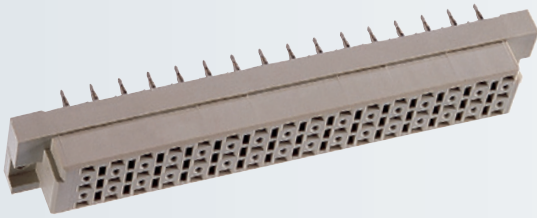


**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L 		
		2.9 mm Pitch 5.08 mm	2.9 mm Pitch 2.54 mm	3.7 mm
		Part number		
32		107-40024	107-40025	107-40026
32		107-40014	107-40015	107-40016
48		107-40064	107-40065	107-40066

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Female connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 32, 48

**Pitch:** 5.08 mm

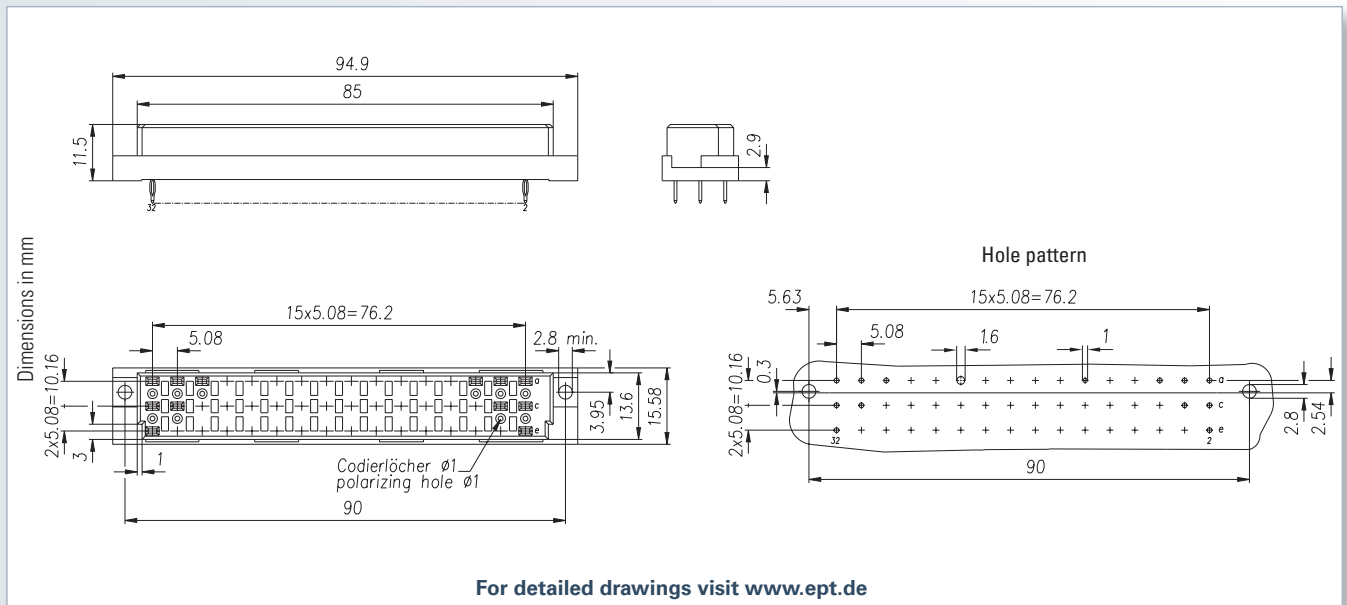
**Operational current:** 5.6 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Processing tools see catalog
- Coding p. 107

### Mating connector / Application:



Type E Male connector (p. 65)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		4.6 mm	20 mm
		Part number	
32		108-60054	108-60015
32		108-60044	108-60025
48		108-60084	108-60065

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement

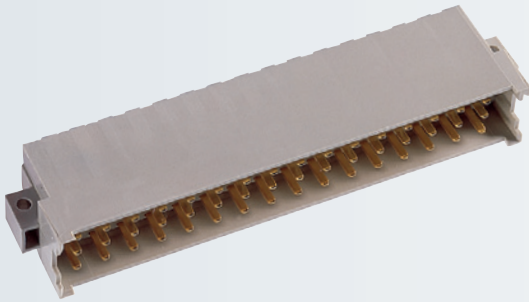


**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L				
		4.0 mm	20 mm	2.5 mm	4.6 mm	5.5 mm <small>Manual soldering with solder lug</small>
		Part number				
32		108-40014	108-40015	–	108-40044	108-40046
32		108-40024	108-40025	–	108-40034	108-40036
48		108-40064	108-40065	108-40084	108-40074	108-40076

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Male connector 90° with 3 rows

**Termination:** Solder

**Number of contacts:** 32, 48

**Pitch:** 5.08 mm x 3.81 mm

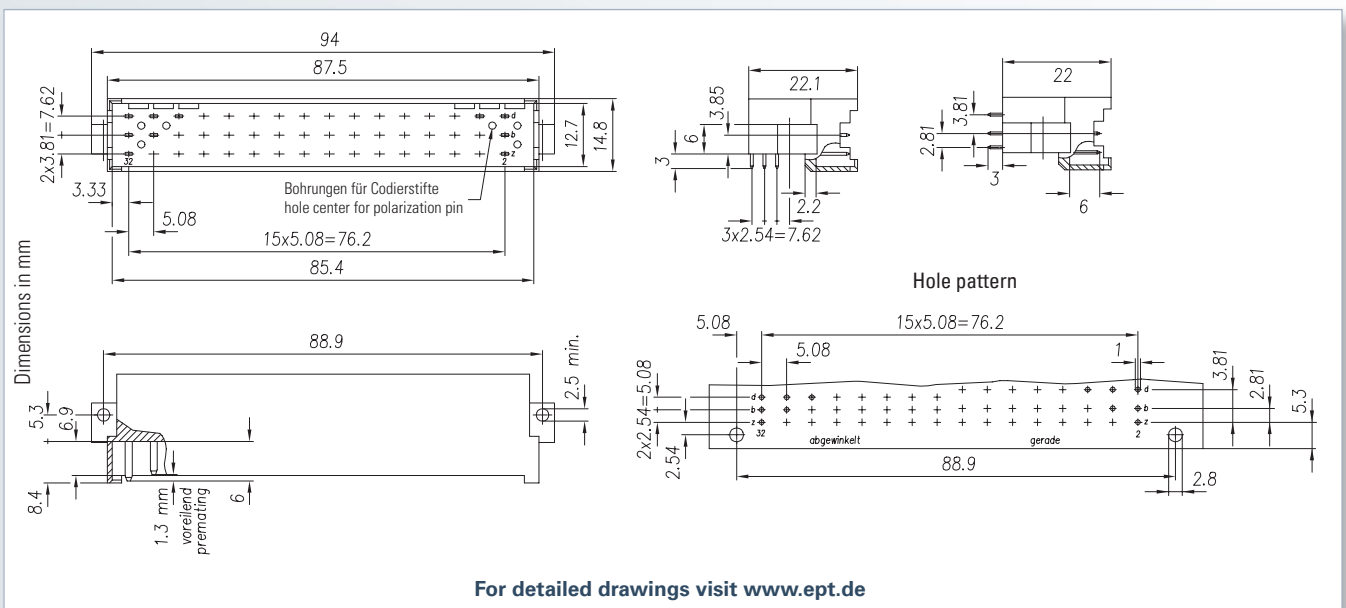
**Operational current:** 5.6 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Coding p. 107

### Mating connector / Application:



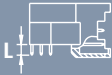
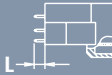

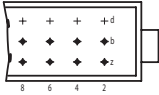
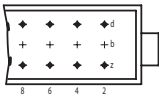
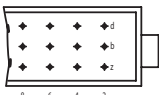
Type F Female connector (p. 71)



Type F low profile Female connector (p. 73)



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length		
		 3 mm 3 rows below	 3 mm 3 rows sideways	 3 mm 2 rows below
Artikelnummer				
32		-	109-40025	109-40024
32		109-40014	109-40015	-
48		109-40064	109-40065	-

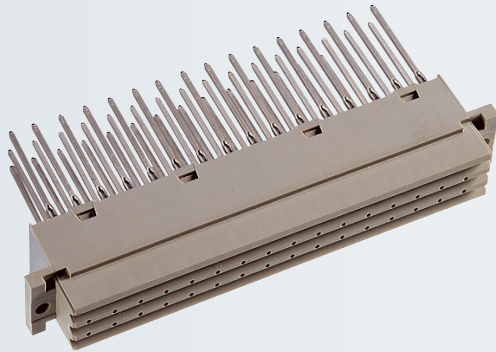
**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement

# DIN 41612



## Type F Female Connector



**Type:** Female connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 32, 48

**Pitch:** 5.08 mm x 3.81 mm

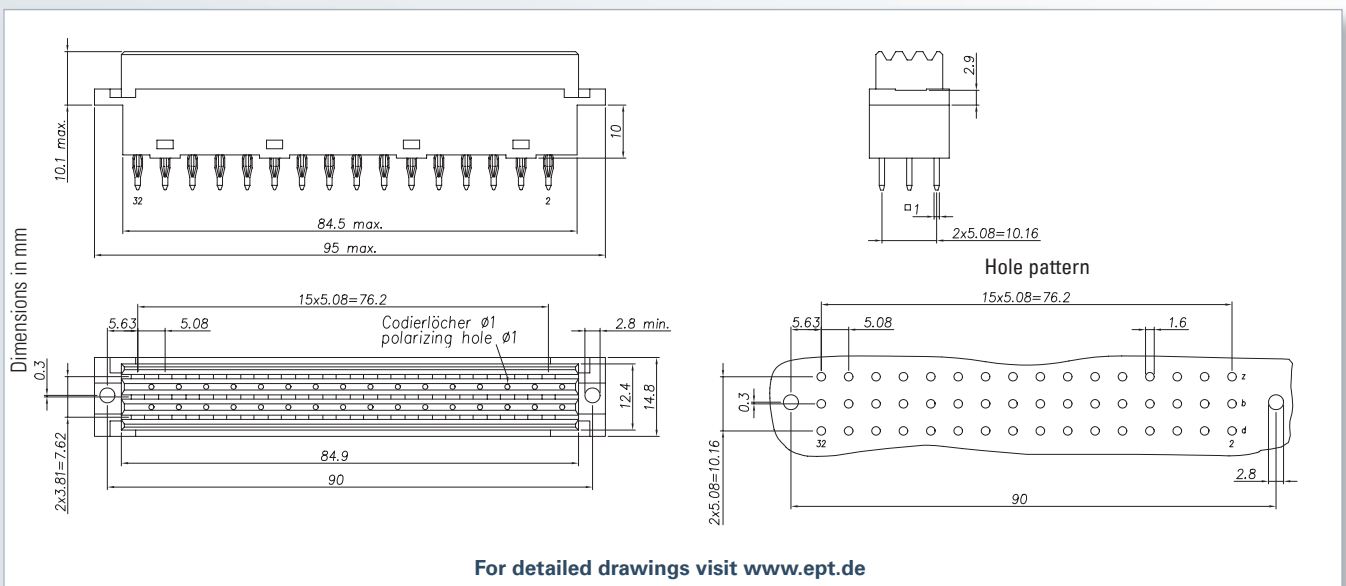
**Operational current:** 5.6 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Processing tools see catalog
- Coding p. 107


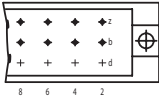
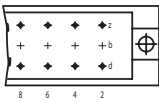
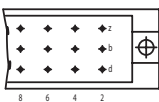
### Mating connector / Application:



Type F Male connector (p. 69)



**Press-fit - Performance level II** •••


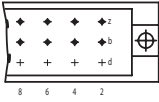
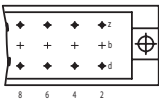
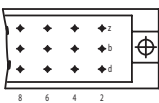
No. of contacts	Contact arrangement	Termination length L 	
		6.0 mm	22 mm
Part number			
32		110-60025	110-60024
32		110-60015	110-60014
48		110-60065	110-60064

**On request**

- performance level I + III or customized
- special contact length
- contact arrangement



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L 			
		4.5 mm Ø 1 mm	22 mm	4.5 mm Ø 0.7 mm	5.5 / 10.9 mm <small>Manual soldering with solder lug</small>
Part number					
32		110-40025	110-40024	110-40005	110-40046
32		110-40015	110-40014	110-40004	110-40036
48		110-40065	110-40064	110-40084	110-40076

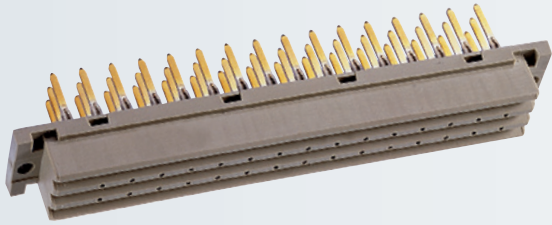
**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- contact arrangement



# DIN 41612

## Type F low Profile Female Connector



**Type:** Female connector straight with 3 rows

**Termination:** Press-fit, solder

**Number of contacts:** 32, 48

**Pitch:** 5.08 mm x 3.81 mm

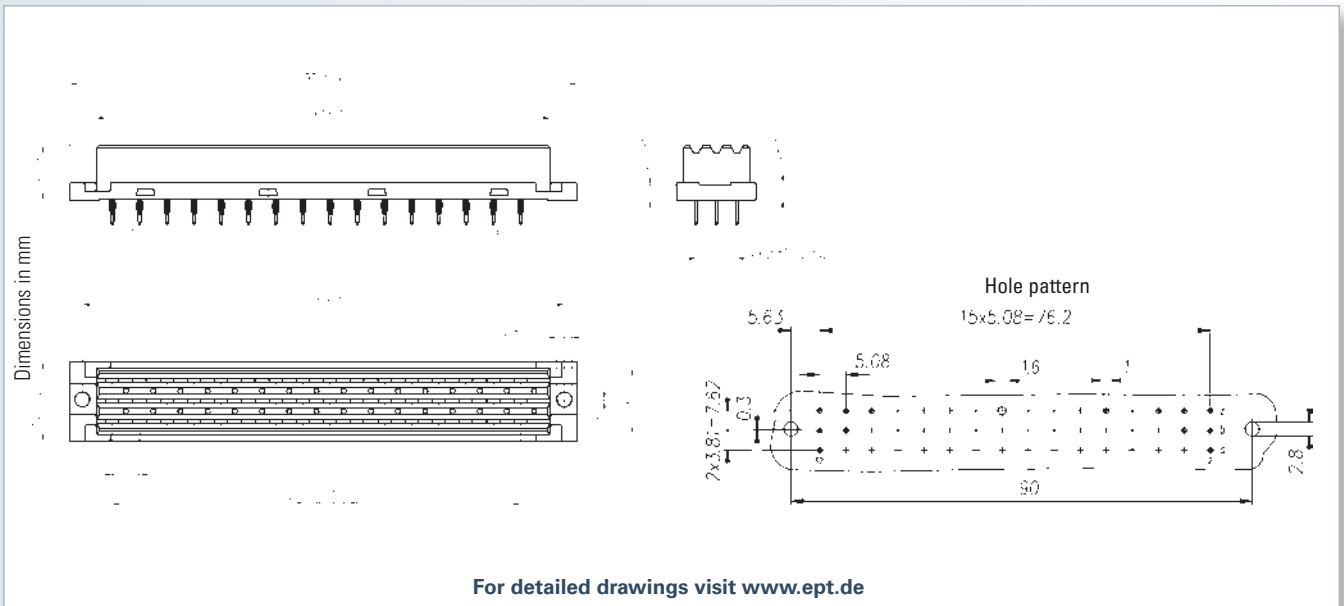
**Operational current:** 5.6 A

**Packaging:** Box, Tube

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories


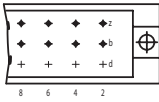
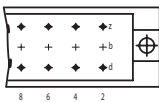
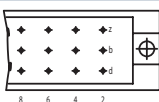
- Processing tools see catalog
- Coding p. 107

### Mating connector / Application:

 Type F Male connector (p. 69)



**Press-fit - Performance level II**


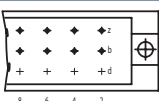
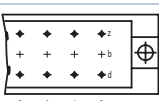
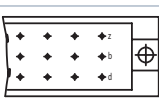
No. of contacts	Contact arrangement	Termination length L 	
		4.6 mm	12.2 mm
		Part number	
32		110-61005	110-66025
32		110-61004	110-66015
48		110-61084	110-66065

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement

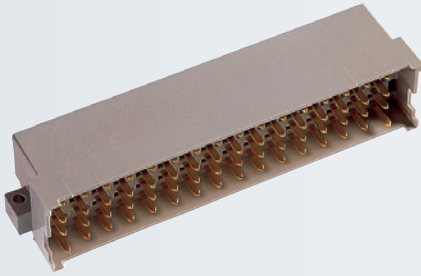


**Solder - Performance level II**

No. of contacts	Contact arrangement	Termination length L 
		4.6 mm
		Part number
32		110-40505
32		110-40504
48		110-40584

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Male connector 90° with 4 rows

**Termination:** Solder

**Number of contacts:** 64

**Pitch:** 5.08 mm x 3.81 mm

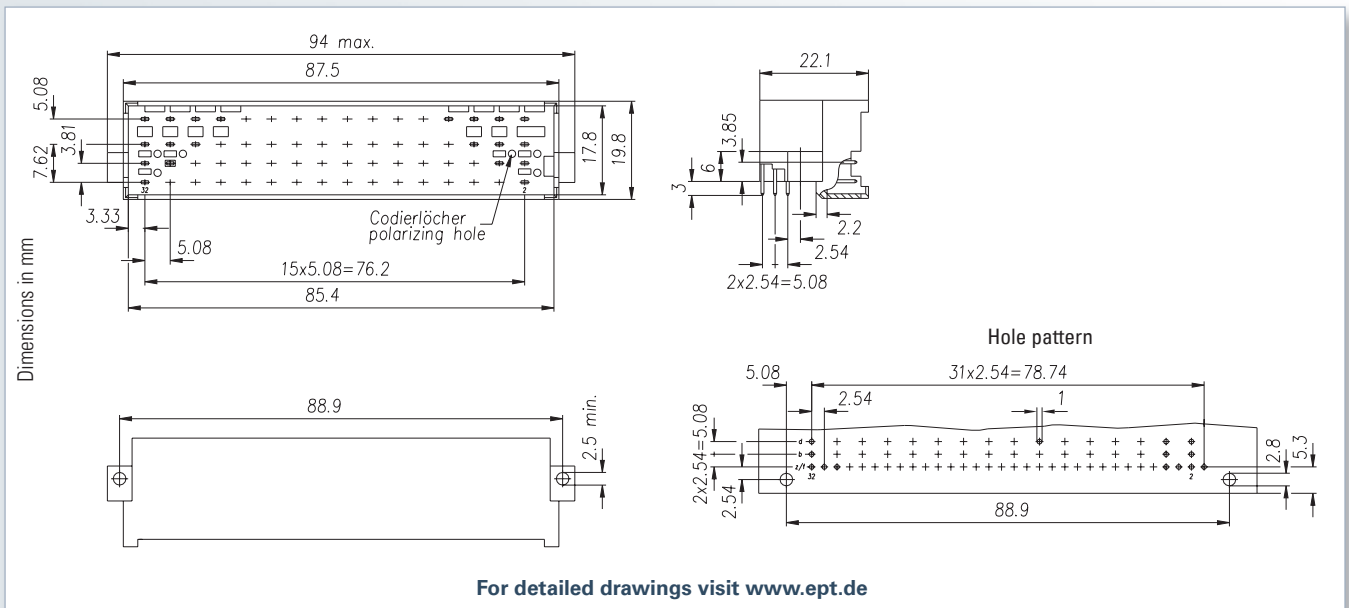
**Operational current:** 5.6 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Coding p. 107

### Mating connector / Application:

Type G Female connector (p. 77)

Type G low profile Female connector (p. 79)

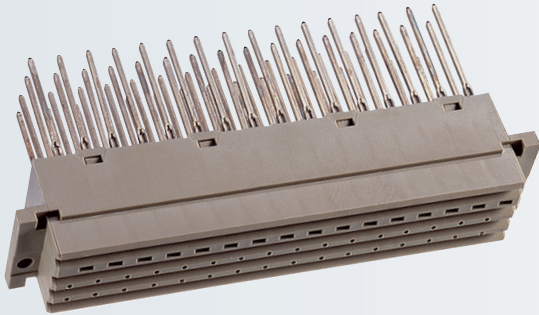


**Solder - Performance level II** •••

No. of contacts	Pre-mating contact at position	Contact arrangement	Termination length L
			3.0 mm
			Part number
64	without		111-40064
64	Z 2		111-40164
64	Z 2 and Z 32		111-40264

**On request**

- performance level I + III or customized
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Type:** Female connector straight with 4 rows

**Termination:** Press-fit, solder

**Number of contacts:** 64

**Pitch:** 5.08 mm x 3.81 mm

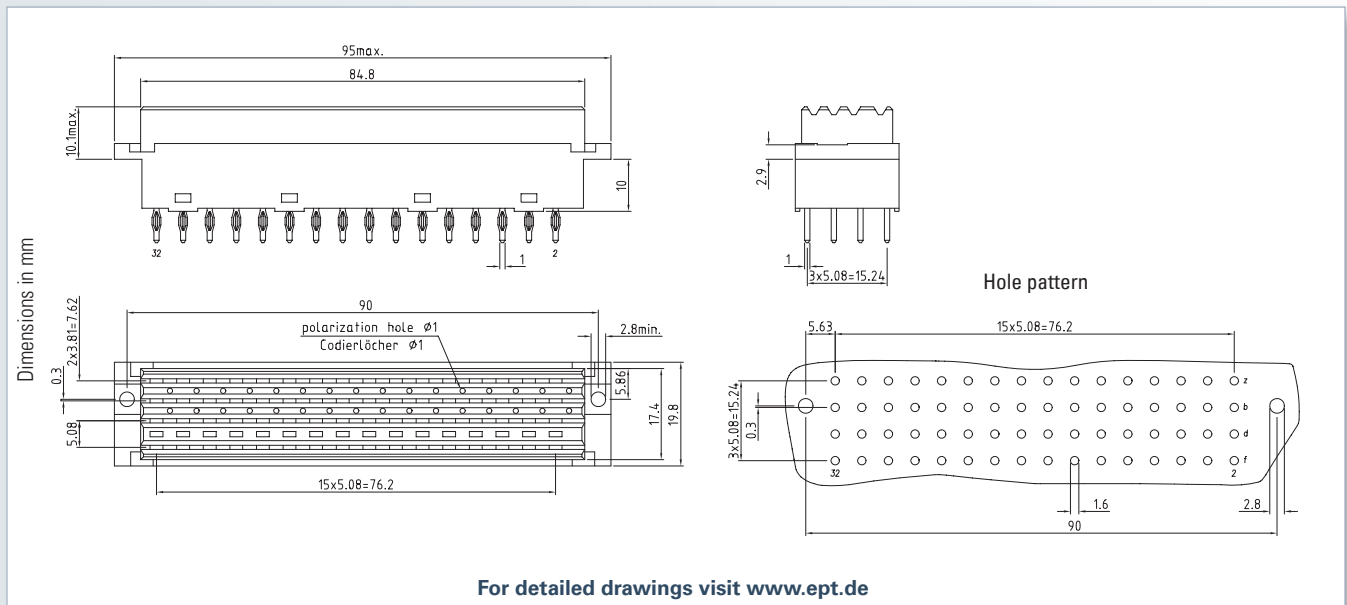
**Operational current:** 5.6 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**



Type G Male connector (p. 75)



**Press-fit - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L	
		6.0 mm	22 mm
		Part number	
64		112-60064	112-60065

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement



**Solder - Performance level II** •••

No. of contacts	Contact arrangement	Termination length L			
		4.5 mm Ø 1 mm	22 mm	4.5 mm Ø 0.7 mm	5.5 / 10.9 mm <small>Manual soldering with solder lug</small>
		Part number			
64		112-40064	112-40065	112-40084	112-40066

**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement

# DIN 41612

## Type G low Profile Female Connector



**Type:** Female connector straight with 4 rows

**Termination:** Press-fit, solder

**Number of contacts:** 64

**Pitch:** 5.08 mm x 3.81 mm

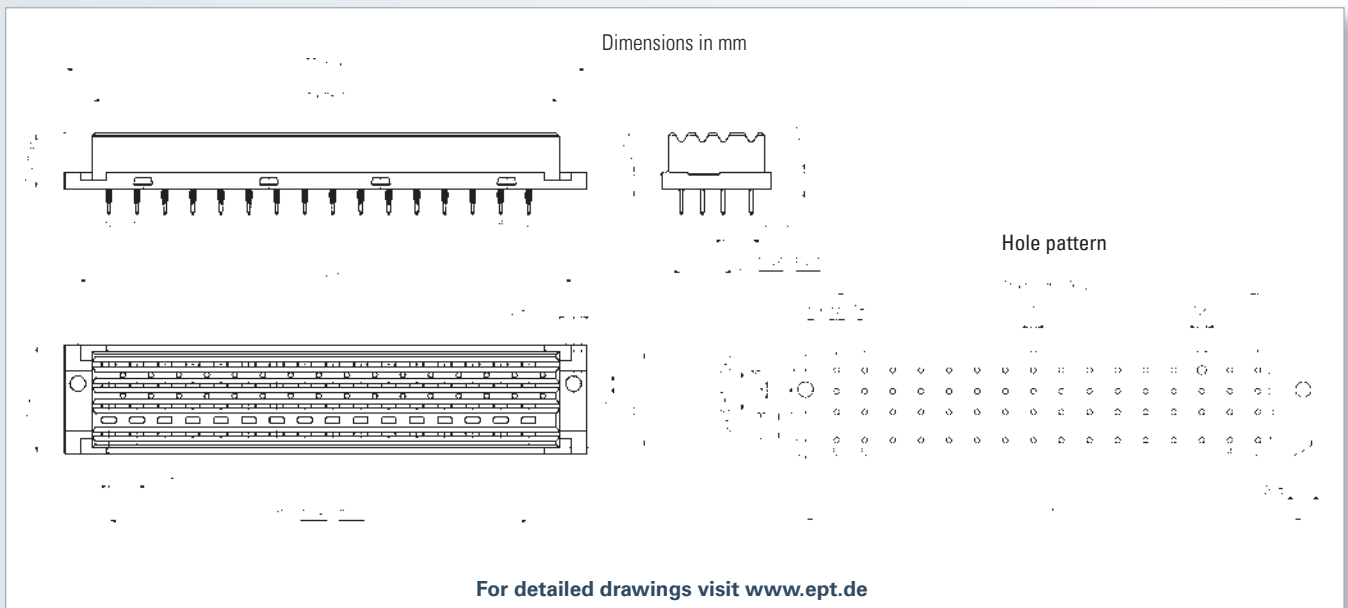
**Operational current:** 5.6 A

**Packaging:** Box, Tube

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Accessories

- Processing tools see catalog
- Coding p. 107


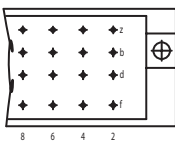
### Mating connector / Application:



Type G Male connector (p. 75)



**Press-fit - Performance level II**


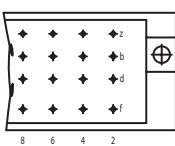
No. of contacts	Contact arrangement	Termination length L 	
		4.6 mm	12.2 mm
		Part number	
64		112-61084	112-66065

**On request**

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement



**Solder - Performance level II**

No. of contacts	Contact arrangement	Termination length L 
		4.6 mm
		Part number
64		112-40584

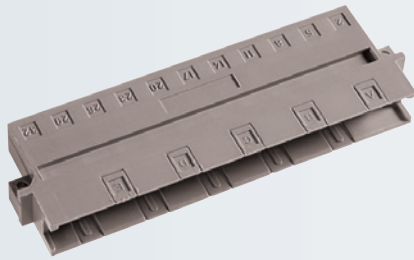
**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



# DIN 41612

## Type H11 Male Connector



**Type:** Male connector 90° with 1 row

**Termination:** Solder

**Number of contacts:** 11

**Pitch:** 7.62 mm

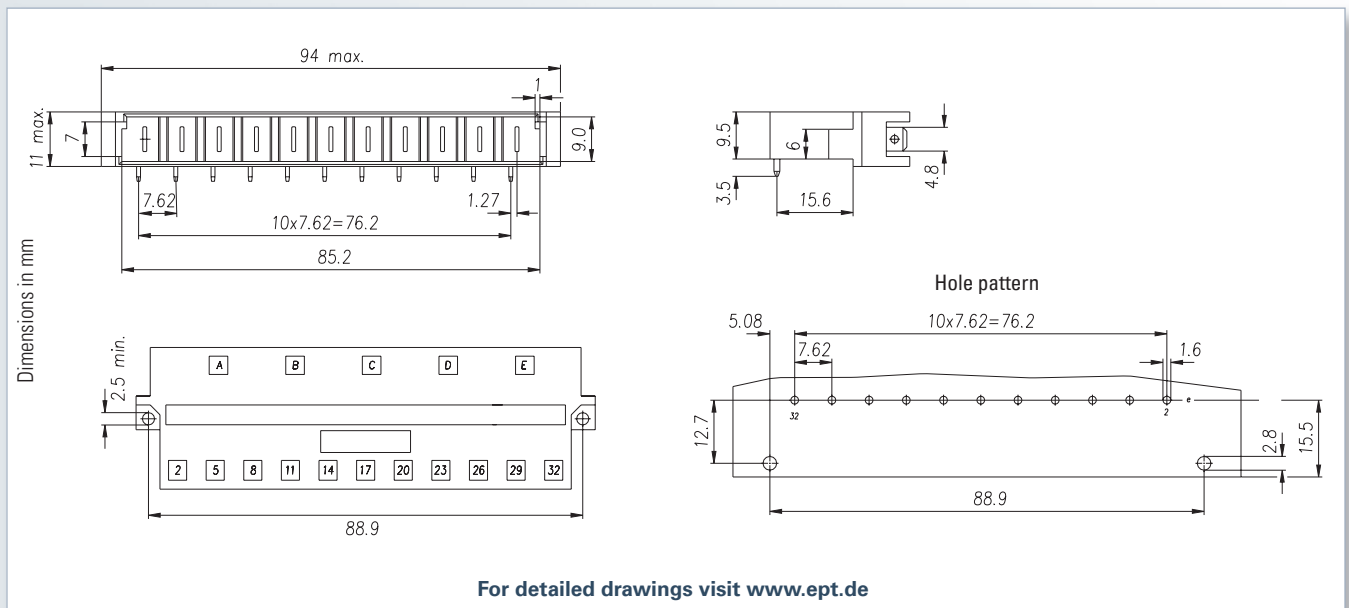
**Operational current:** 15 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



### Note

Coding possible, see on page 107


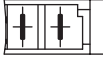
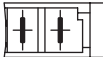
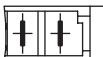
### Mating connector / Application:

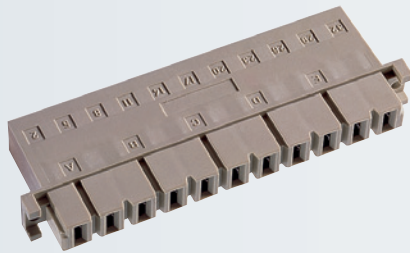


Type H11 Female connector (p. 83)



**Solder - Performance level II** • • •

No. of contacts	Pre-mating contact at position	Contact arrangement	Termination length L 
			3.5 mm
			Part number
11	without		113-40010
10+1	32		113-40015
9+2	2; 32		113-40020



**Type:** Female connector straight with 1 row

**Termination:** Faston

**Number of contacts:** 11

**Pitch:** 7.62 mm

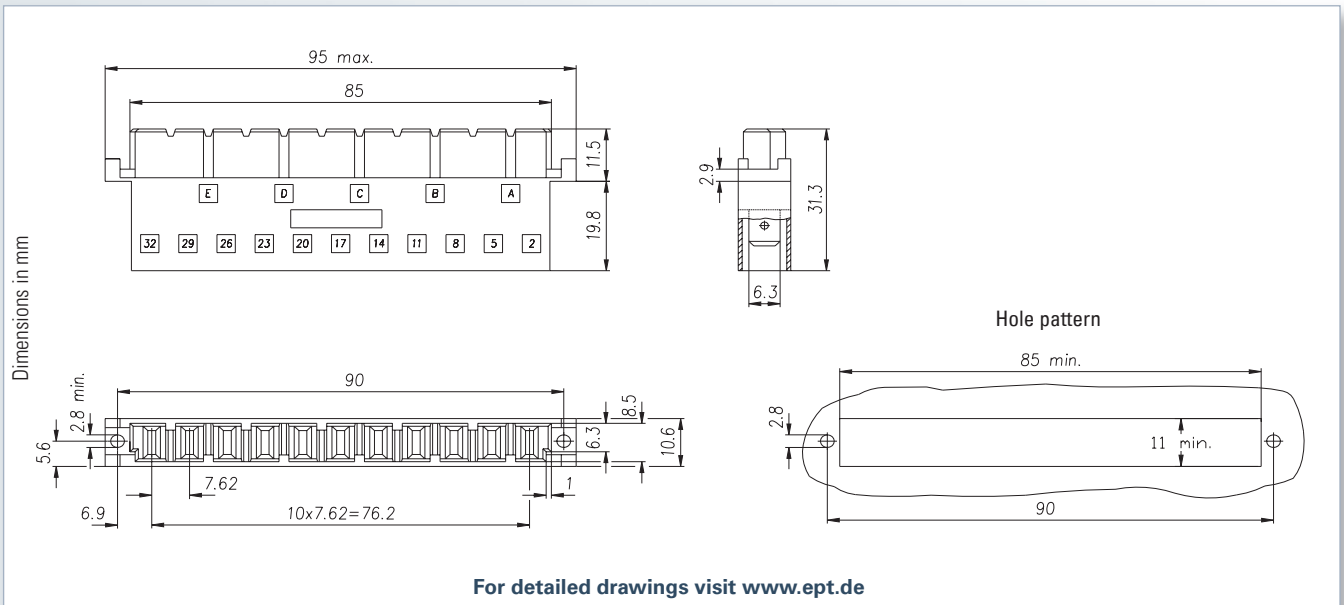
**Operational current:** 15 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



**Faston - Performance level II**

No. of contacts	Contact arrangement	Termination length L
		5.5 mm
		Part number
11		114-40040

**Accessories**

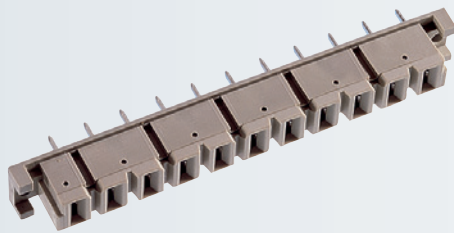
- Coding p. 107

**Mating connector / Application:**



Type H11 Male connector (p. 81)

Type H11 low Profile Female Connector



**Type:** Female connector straight with 1 row

**Termination:** Solder

**Number of contacts:** 11

**Pitch:** 7.62 mm

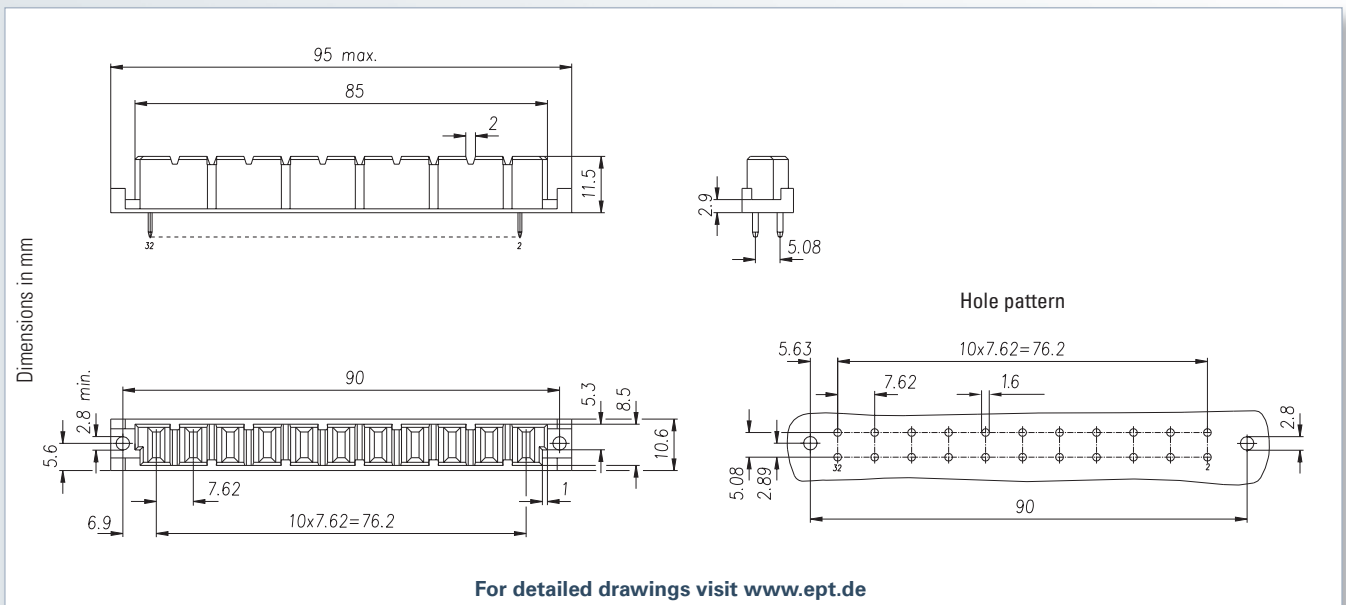
**Operational current:** 15 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



Solder - Performance level II

No. of contacts	Contact arrangement	Termination length L
		5.0 mm
		Part number
11		114-40050

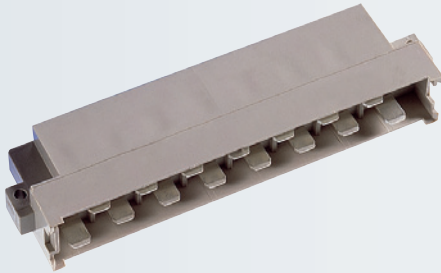
Accessories

- Coding p. 107

Mating connector / Application:



Type H11 Male connector (p. 81)



**Type:** Male connector 90° with 2 rows

**Termination:** Solder

**Number of contacts:** 15

**Pitch:** 5.08 mm x 6.0 mm

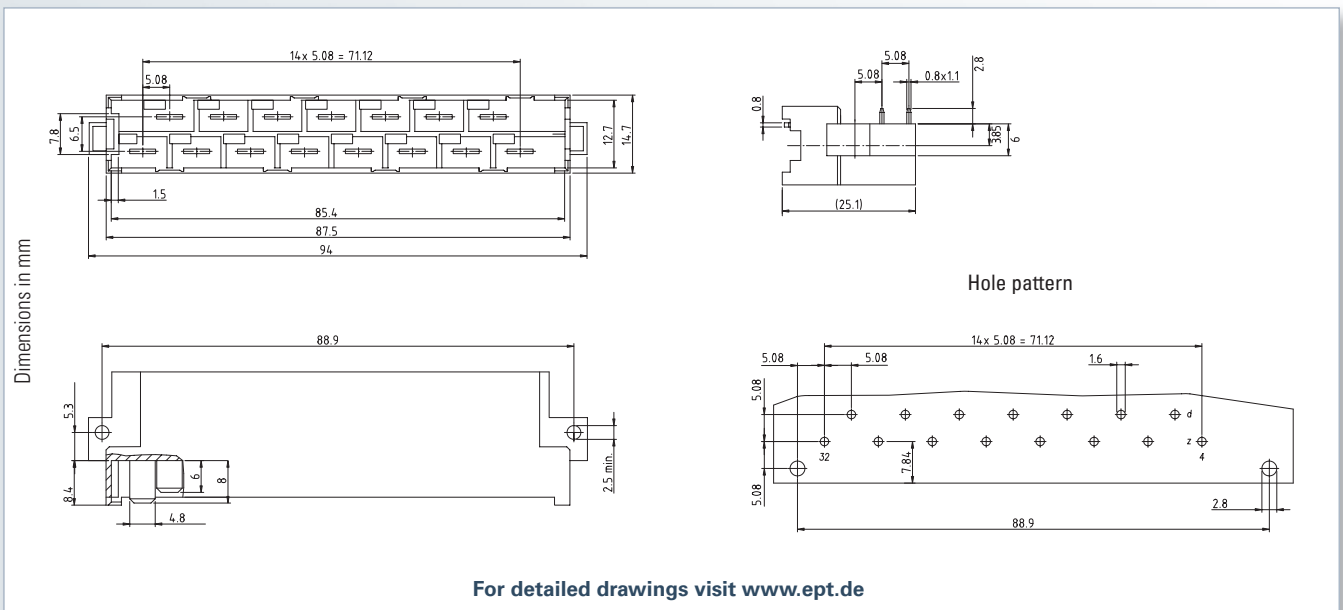
**Operational current:** 15 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12



**Note**


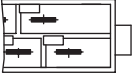
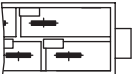
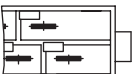
Coding possible, see on page 107

**Mating connector / Application:**

 Type H15 Female connector (p. 87)

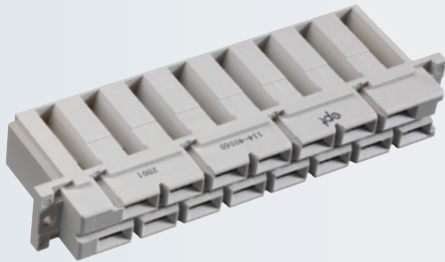


**Solder - Performance level II** •••

No. of contacts	Pre-mating contact at position	Contact arrangement	Termination length L 
			2.8 mm
			Part number
15	Z 32		113-40060
15	Z 4 and Z 32		113-40160
15	–		113-40061

**On request**

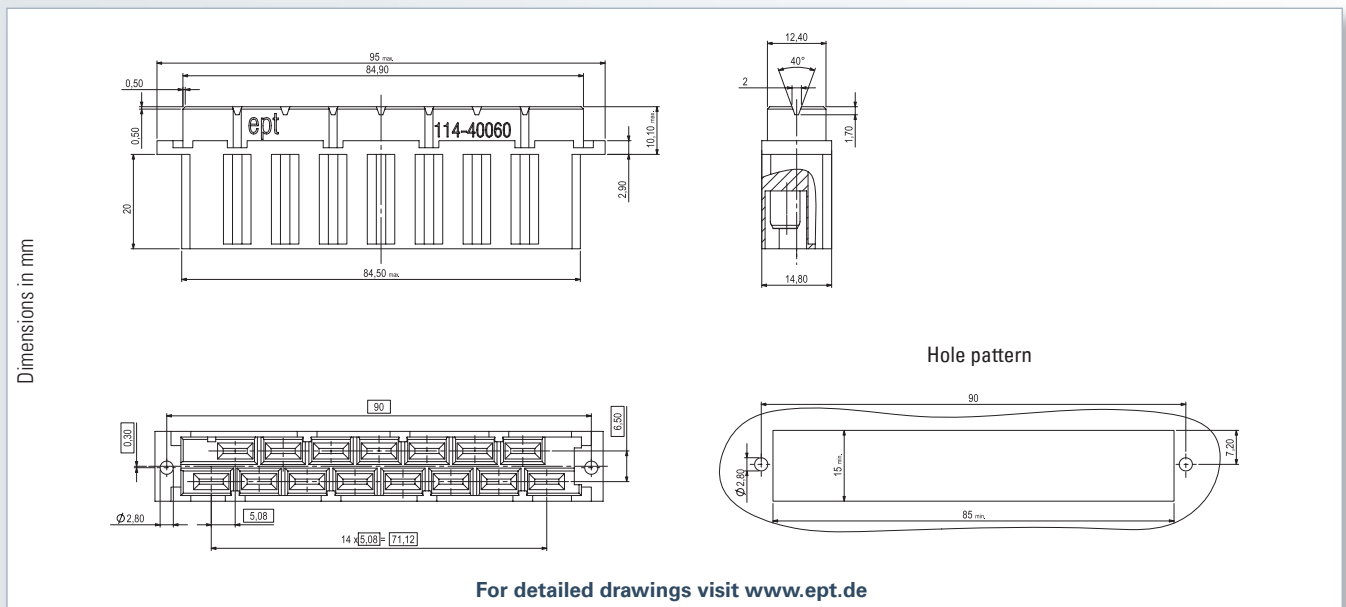
- Board-Lock p. 106
- contact arrangement



**Type:** Female connector straight with 2 rows  
**Termination:** Faston  
**Number of contacts:** 15  
**Pitch:** 5.08 mm x 6.0 mm  
**Operational current:** 15 A  
**Packaging:** Box  
**Standard:** IEC 60603-2



Technical Specifications on page 12



**Faston - Performance level II**

No. of contacts	Contact arrangement	Termination length L
		0.8 mm x 6.3 mm
		Part number
15		114-40060

**On request**

• Board-Lock p. 106

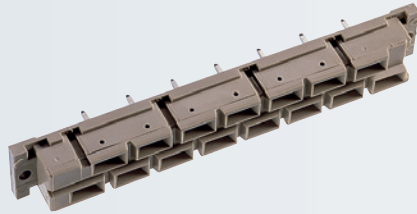
**Accessories**

• Coding p. 107

**Mating connector / Application:**

Type H15 Male connector (p. 85)

Type H15 low Profile Female Connector



**Type:** Female connector straight with 2 rows

**Termination:** Solder

**Number of contacts:** 15

**Pitch:** 5.08 mm x 6.0 mm

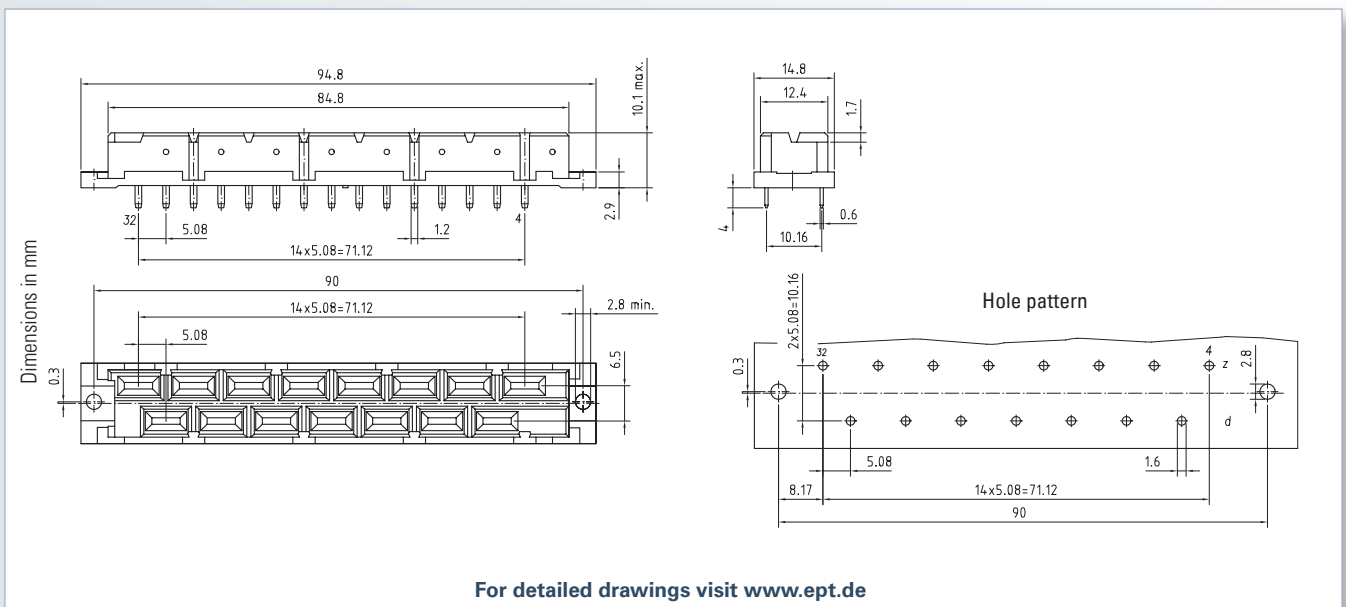
**Operational current:** 15 A

**Packaging:** Box


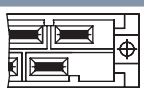
**Standard:** IEC 60603-2



Technical Specifications on page 12



**Solder - Performance level II**

No. of contacts	Contact arrangement	Termination length L 	
		4.0 mm	13 mm
		Part number	
15		114-40080	114-40090

**On request**

• Board-Lock p. 106

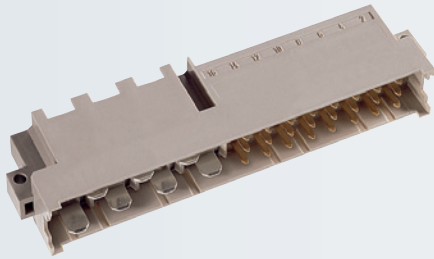
**Accessories**

• Coding p. 107

**Mating connector / Application:**

 Type H15 Male connector (p. 85)

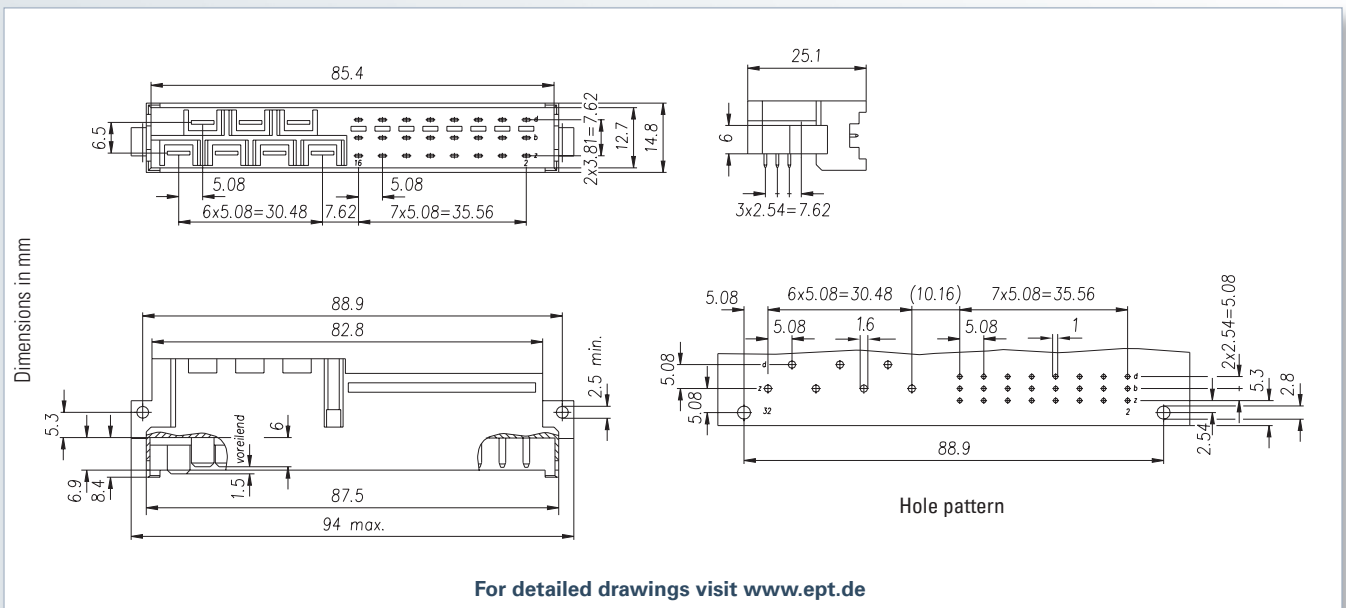




**Type:** Male connector 90°  
**Termination:** Solder  
**Number of contacts:** 7+24  
**Pitch:** 5.08 mm x 3.81 mm  
**Operational current:** 5.6 A, 15 A  
**Packaging:** Box  
**Standard:** IEC 60603-2



Technical Specifications on page 12



### Note

What is a pre-mating contact? See on page 108



### Mating connector / Application:



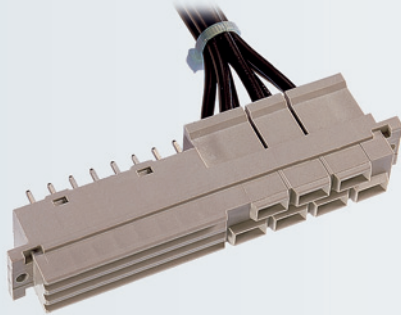
Type H7/F24 Female connector (p. 91)



**Solder - Performance level II** ● ● ●

No. of contacts	Pre-mating contact at position	Contact arrangement	Termination length L 
			3.0 mm
			Part number
7+24	Z 32		117-40164

**On request**  
 • Board-Lock p. 106



**Type:** Female connector straight

**Termination:** Solder

**Number of contacts:** 24

**Pitch:** 5.08 mm x 3.81 mm

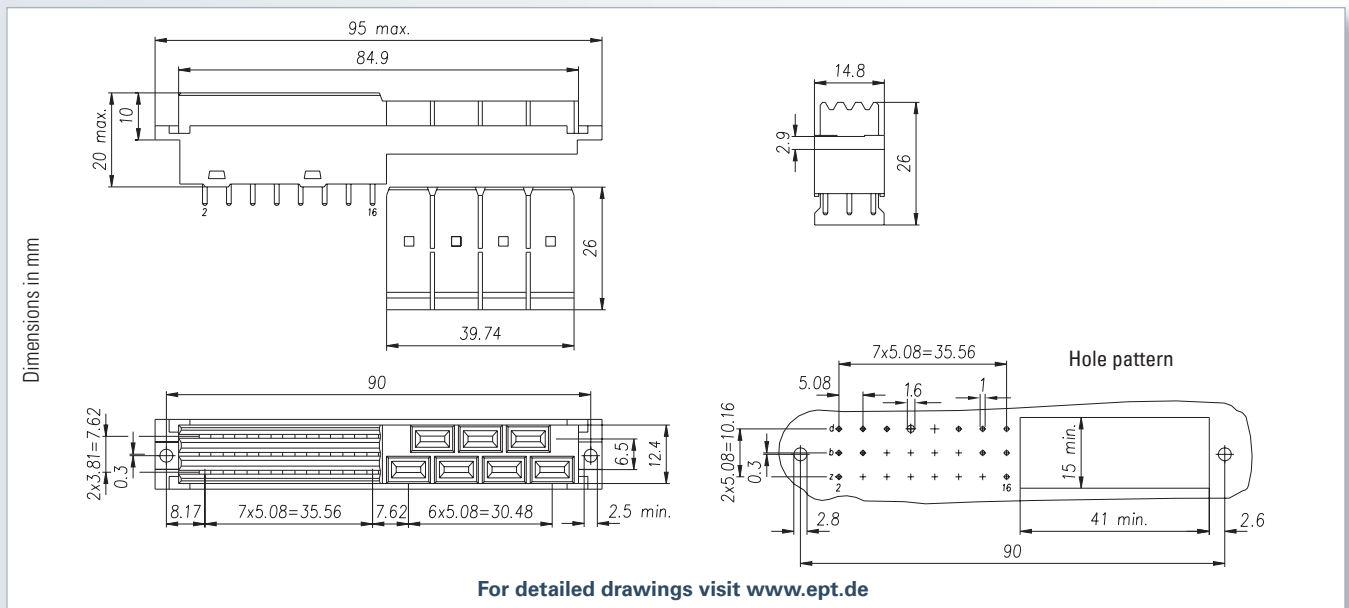
**Operational current:** 5.6 A, 15 A

**Packaging:** Box

**Standard:** IEC 60603-2



Technical Specifications on page 12




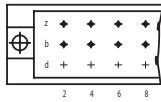
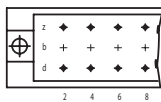
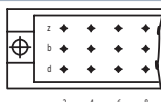
**Mating connector / Application:**



Type H7/F24 Male connector (p. 89)



**Solder - Performance level II**

No. of contacts	Contact arrangement	Termination length L 		
		4.5 mm ø 1.0 mm	22 mm	4.5 mm ø 0.7 mm
		Part number		
16		118-40025	118-40024	118-40005
16		118-40015	118-40014	118-40004
24		118-40065	118-40064	118-40084

**On request**

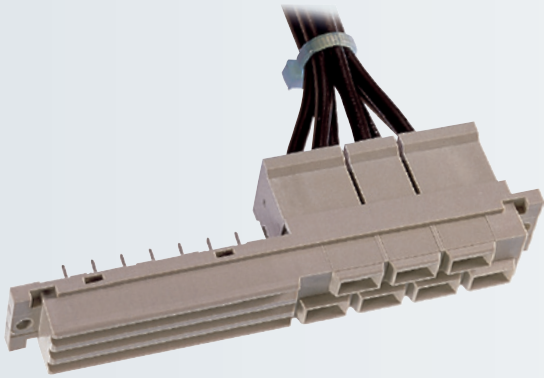
- performance level I + III or customized
- special contact length
- also in THTR
- contact arrangement



**Suitable crimp contacts**

Cross Section	Part number
1,5 - 2,5 mm <sup>2</sup>	118-21062/SN
0,5 - 1,0 mm <sup>2</sup>	118-21063/SN

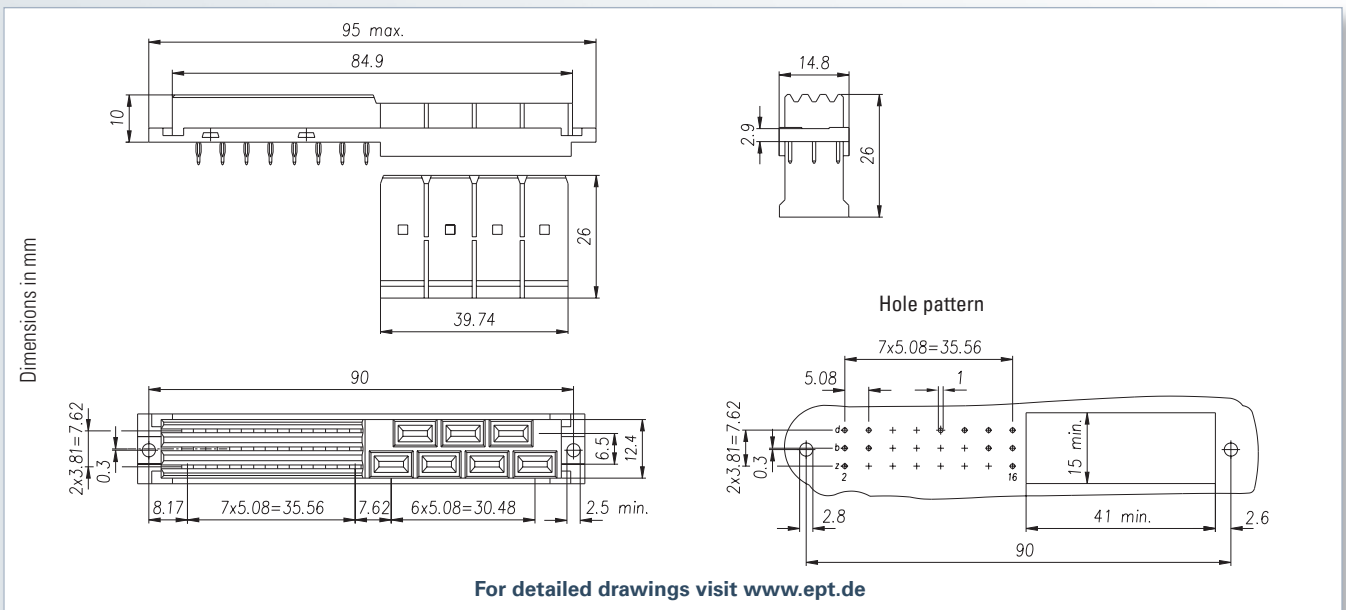
Type H7/F24 low Profile Female Connector



- Type:** Female connector straight
- Termination:** Press-fit, solder
- Number of contacts:** 7+24, 7+16
- Pitch:** 5.08 mm x 3.81 mm
- Operational current:** 5.6 A, 15 A
- Packaging:** Box
- Standard:** IEC 60603-2



Technical Specifications on page 12




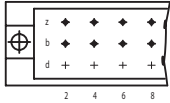
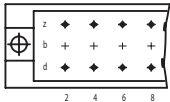
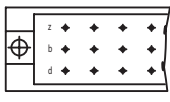
**Mating connector / Application:**



Type H7/F24 Male connector (p. 89)



**Press-fit - Performance level II**


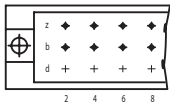
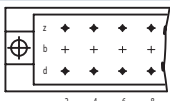
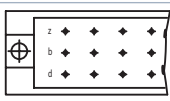
No. of contacts	Contact arrangement	Termination length L 
		4.6 mm
		Part number
7+16		118-60016
7+16		118-60006
7+24		118-60084

**On request**

- performance level I + III or customized
- special contact length
- processing tools
- without flange
- contact arrangement



**Solder - Performance level II**

No. of contacts	Contact arrangement	Termination length L 
		4.6 mm
		Part number
7+16		118-40505
7+16		118-40504
7+24		118-40584

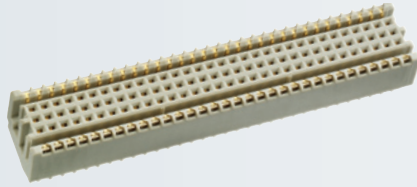
**On request**

- performance level I + III or customized
- special contact length
- also in THTR
- Board-Lock p. 106
- contact arrangement



**Suitable crimp contacts**

Cross Section	Part number
1,5 - 2,5 mm <sup>2</sup>	118-21062/SN
0,5 - 1,0 mm <sup>2</sup>	118-21063/SN



**Type:** Female connector straight with 5 rows

**Termination:** Press-fit

**Number of contacts:** 160

**Pitch:** 2.54 mm

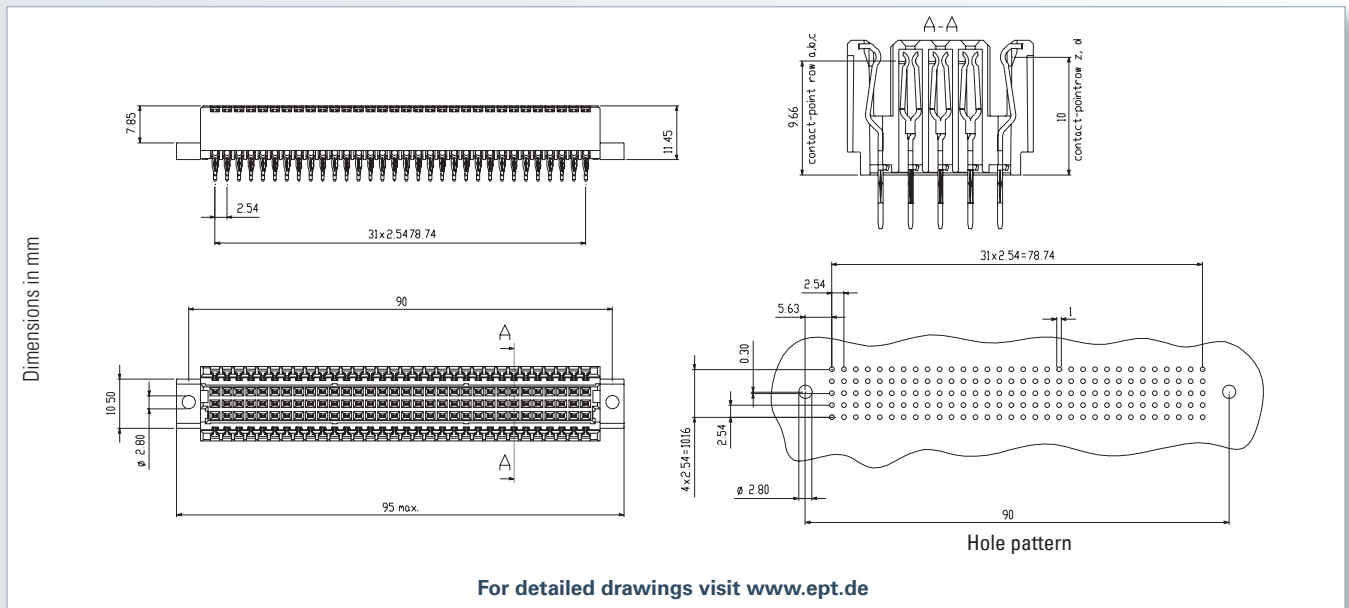
**Operational current:** 1.5 A

**Packaging:** Tube

**Standard:** IEC 60603-2



Technical Specifications on page 11




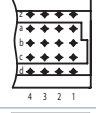
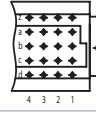
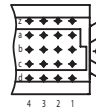
**Accessories**

- Processing tools see catalog
- Shroud p. 97

**Couldn't you find something suitable or having questions?** We will be pleased to help you! Call us: +49 8861 / 25010.



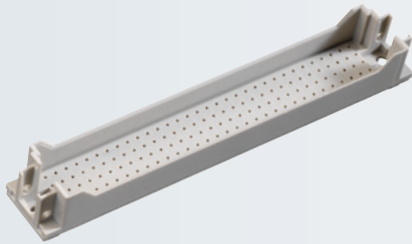
**Press fit - Performance level I** •••

No. of contacts	Contact arrangement	Termination length L 	
		4.6 mm	17 mm
		Part number	
160		306-61067-12	306-66069-14
160		306-60067-12	306-65069-14
160		306-62067-12	306-67069-14

**On request**

- performance level II + III or customized
- special contact length





**Type:** Shroud with 5 rows

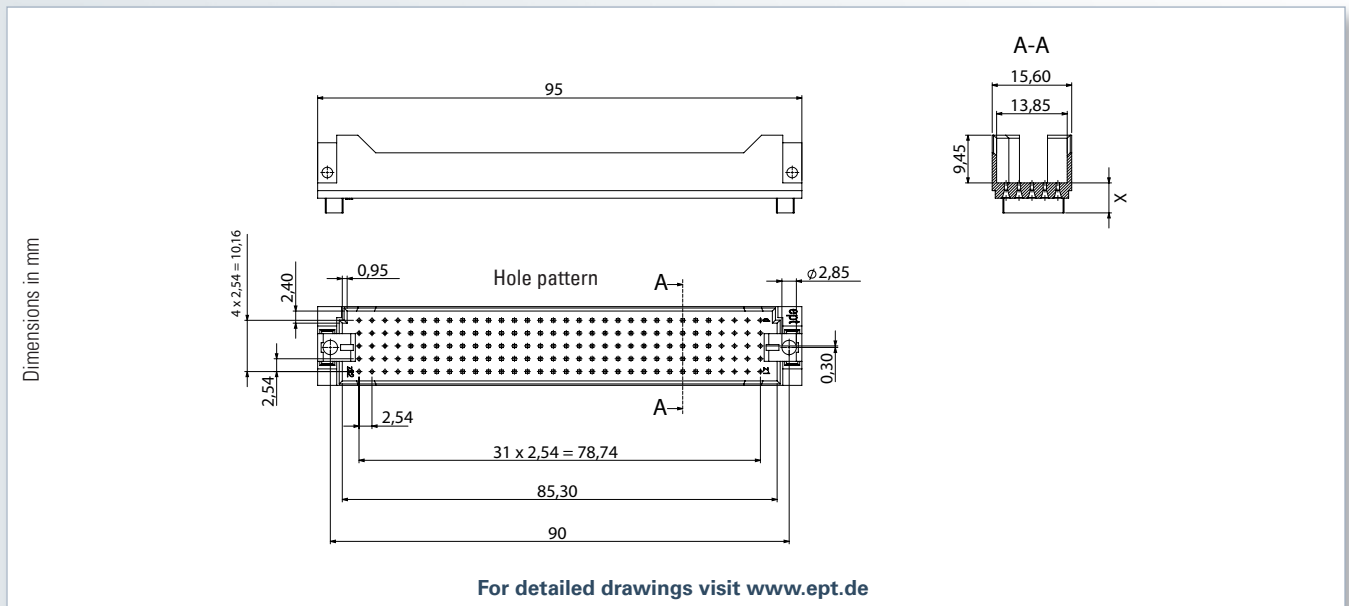
**Pitch:** 2.54 mm

**Packaging:** Bulk

**Standard:** IEC 60603-2



Technical Specifications on page 11



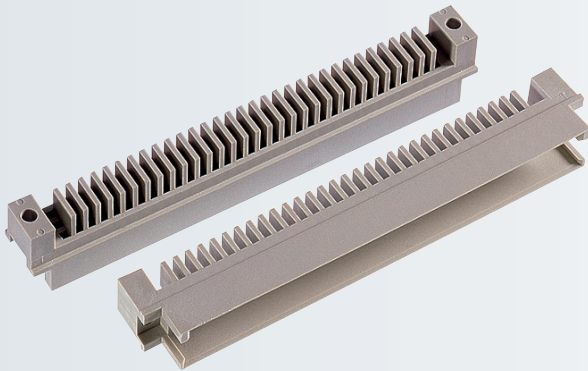
PCB thickness	X	Post length	Part number
			VME 64
3.4 mm	6.0 mm	17 mm	315-15401
4.6 mm	4.8 mm	17 mm	315-15402

**On request**

- different designs and special types

**Application:**

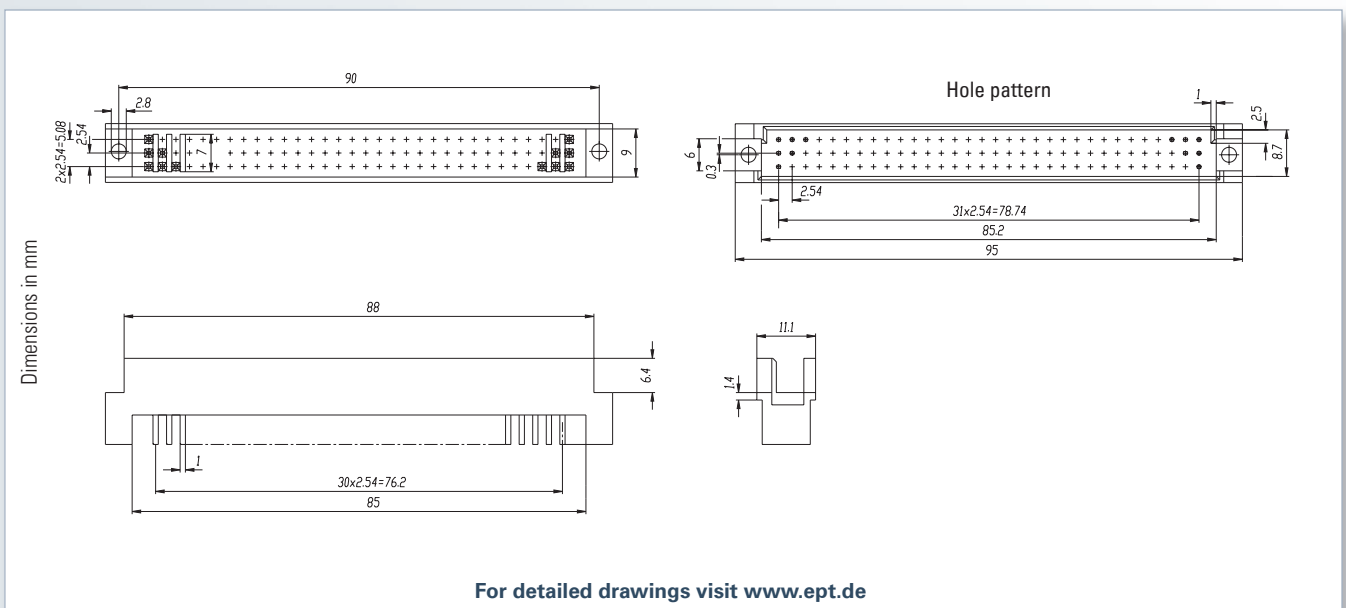
Type VME64x Female connector (p. 95)



**Type:** Shroud with 3 rows  
**Pitch:** 2.54 mm  
**Packaging:** Bulk  
**Standard:** IEC 60603-2



Technical Specifications on page 11



PCB thickness	Post length	Part number			
		C/R with nut	C/R	C/R self-retaining	C/R self-retaining without flange
2.4	13 mm	–	115-15401	–	–
2.4	17 mm	–	115-15301	–	–
3.2	13 mm	115-15701	115-15402	115-15405	115-15408
3.2	17 mm	115-15702	115-15302	–	–

**On request**

- different designs and special types

**Application:**

Type C (p. 27)

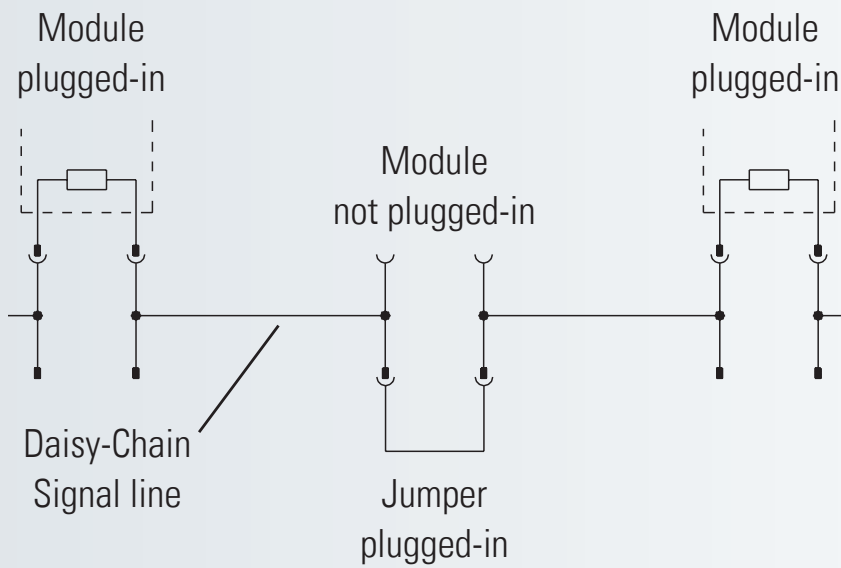
Type R (p. 49)

## Switching Connector - Female Connector with integrated Switches

**Problem**

A principle often used for different bus systems is the looping-through of signal lines via module boards, the so-called "daisy chaining". This daisy chaining, however, leads to a new problem, which becomes obvious when one of the modules is pulled from the system: The daisy chain signal connection is broken and must be re-established using jumpers. This is not easy as the modules

are located close to each other in the rack. More often a large part of the housing must be taken apart or the whole endeavour of placing the jumper on the correct pins results in "nerve-wracking fumbling". Mistakes and therefore mispositionings can happen.



# Switching Connector - Female Connector with integrated Switches

## A possible solution

The integration of switches into a standard connector according to IEC 60603-2, e.g. into a female connector type C, is a simple and elegant solution for the problem described. The contact springs of this C female connector were extended by wing-like contact tabs. A gold-plated metal disk is located between the contact springs. In rest position, with the male connector not plugged-in, the adjacent contact springs are short-circuited through placing of the contact tabs on the metal disk. With the male connector plugged-in, the contact springs are separated from each other through the contact pins of the male connector. The contact tabs of the spring are lifted off the metal disk. This interrupts the connection between the two springs. Due to the switching behavior of the C female connector, the daisy chain connection is automatically

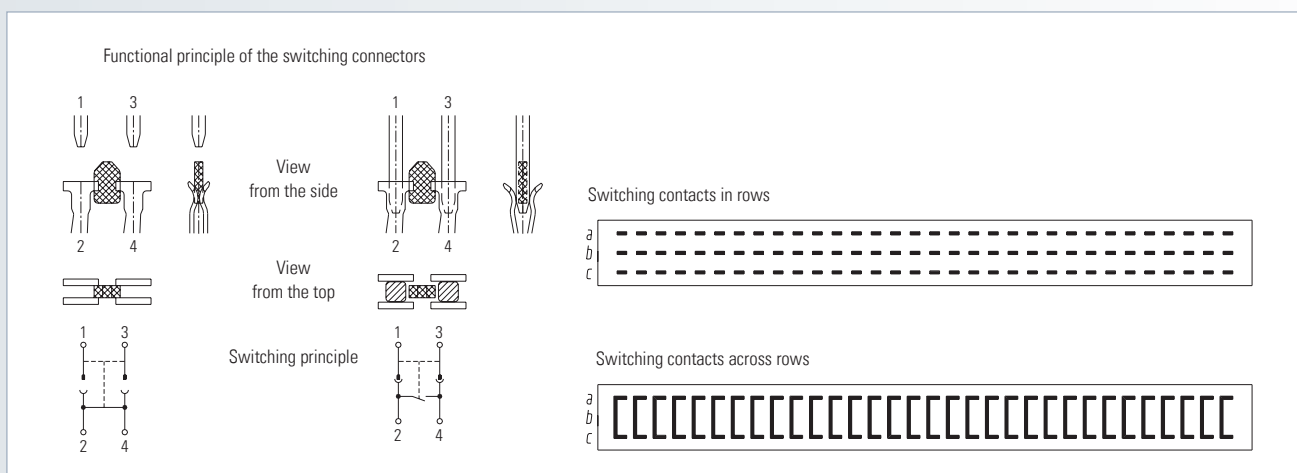
closed when the module board is pulled out. Function-wise the closed switching contact between two contact springs corresponds to a jumper automatically being plugged in when the male connector is pulled out.

## Application in the VME bus

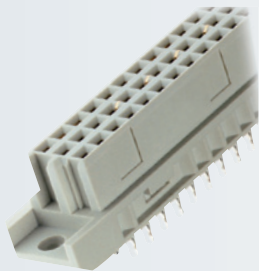
The daisy chaining principle is used for the IACK and BG 0...3 signal lines in the VME bus. By integrating a switching function at the positions of the respective signal lines in the connector, the jumpers used so far are no longer required.

## Further applications

The integrated switching function is not restricted to the positions in the C female connector stated above. A switch can be integrated between any positions in the a, b and c rows of a C female connector IEC 60603-2 and/or between the a and c rows of a C female connector IEC 60603-2. A further application for ept switching connectors are e.g. network concentrators (hubs). In this application, too, the daisy chaining is carried out fully automatically via customer-specific switching connectors.



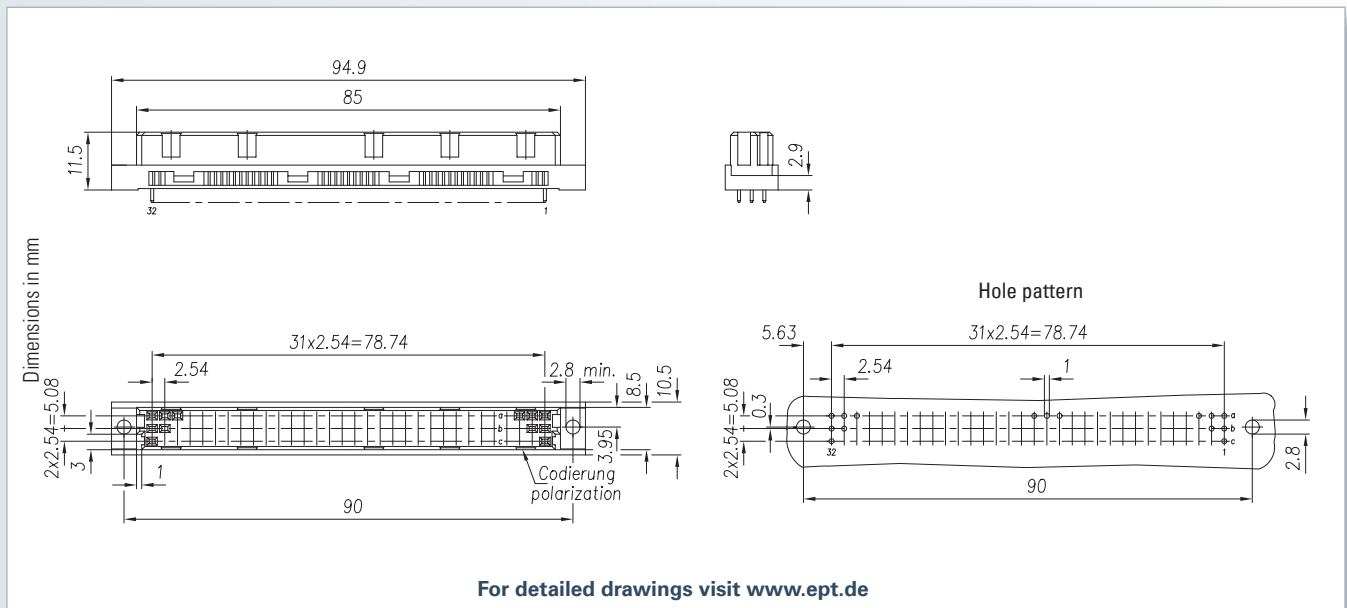
Switching Connector Female Connector



- Type:** Female connector straight with 3 rows
- Termination:** Press-fit
- Number of contacts:** 96
- Pitch:** 2.54 mm
- Operational current:** 1.5 A
- Packaging:** Tube
- Standard:** IEC 60603-2



Technical Specifications on page 11



**Accessories**


- Processing tools see catalog
- Coding p. 107

**Mating connector / Application:**

- Type C Male connector (p. 27)
- Type R Male connector (p. 49)



Press-fit - Performance level II

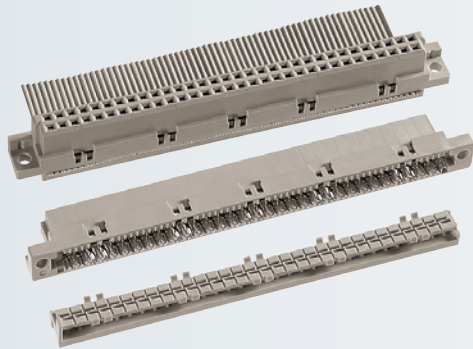
No. of contacts	Switching contacts at position	PCB thickness	Termination length L 			
			3.2 mm	4.6 mm	13 mm	17 mm
			Part number			
96	a21 – a22, b4 – b5, b6 – b7, b8 – b9, b10 – b11 for VME	1.5 - 2.0 mm	104-60464-01	-	104-65465-01	104-65466-01
		2.0 - 2.8 mm	-	104-60464-02	104-65465-02	104-65466-02
		> 2.8 mm	-	104-60464-03	104-65465-03	104-65466-03
96	a – c 1, 2, 3, 4, ..., 32	1.5 - 2.0 mm	104-60565-01	-	104-65565-01	104-65566-01
		2.0 - 2.8 mm	-	104-60565-02	104-65565-02	104-65566-02
		> 2.8 mm	-	104-60565-03	104-65565-03	104-65566-03

On request

- performance level I + III or customized
- special contact length
- without flange
- contact arrangement
- customer-specific switching bridge positions

# DIN 41612

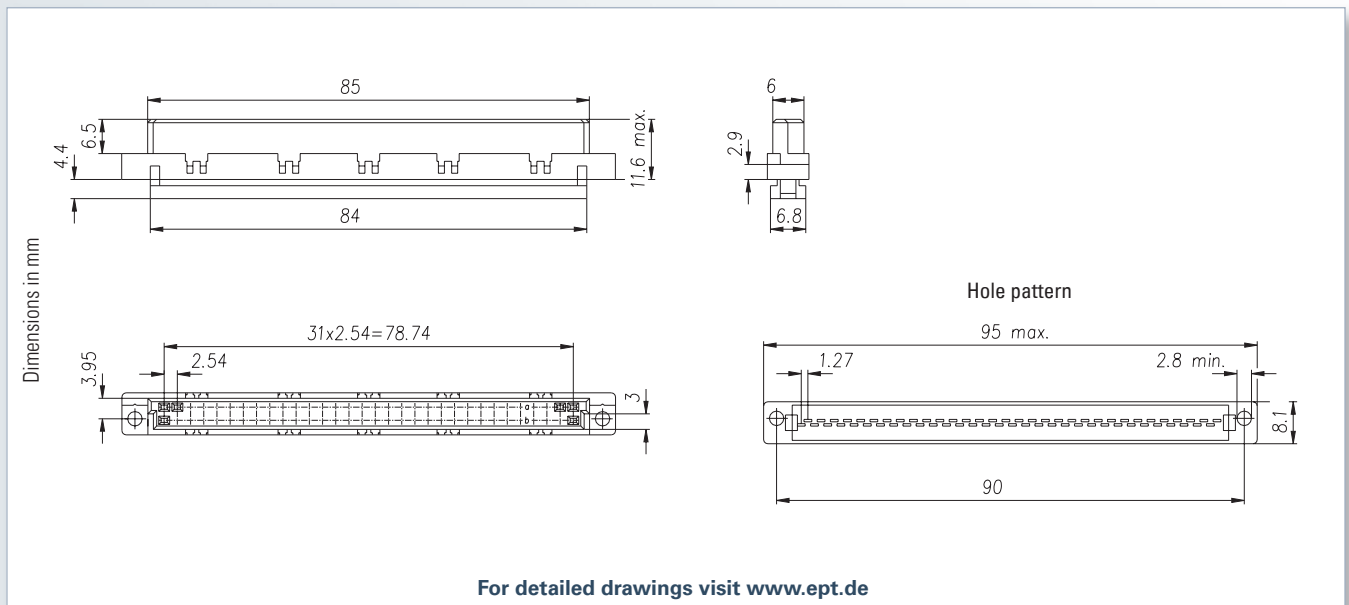
## IDC Type B Female Connector




**Type:** Female connector straight with 2 rows  
**Termination:** IDC  
**Number of contacts:** 64  
**Pitch:** 2.54 mm  
**Operational current:** 1.0 A  
**Packaging:** Box  
**Standard:** IEC 60603-2



Technical Specifications on page 11



### IDC - Performance level II

No. of contacts	Contact arrangement	Part number
64		102-49064



#### On request

- strain relief bracket
- ribbon cable
- also available in solder/press-fit (see on page 17)

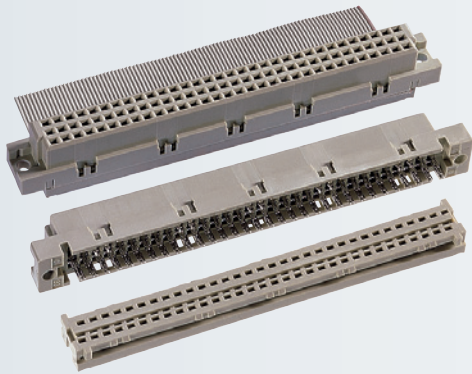
#### Note

Additional information & Technical specifications see p. 105

#### Mating connector / Application:

-  Type B Male connector (p. 15)
-  Type Q Male connector (p. 47)

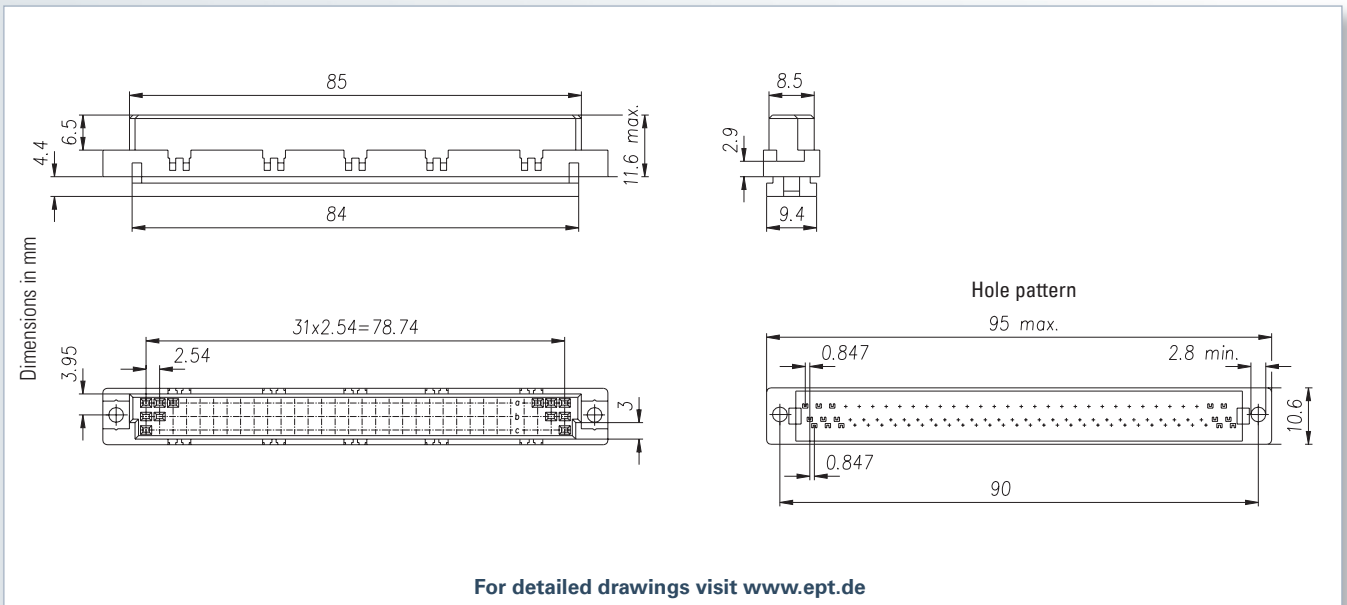
••• **DIN 41612**  
**IDC Type C Female Connector**



**Type:** Female connector straight with 3 rows  
**Termination:** IDC  
**Number of contacts:** 64, 96  
**Pitch:** 2.54 mm  
**Operational current:** 1.0 A  
**Packaging:** Box  
**Standard:** IEC 60603-2



Technical Specifications on page 11



**IDC - Performance level II** •••

No. of contacts	Contact arrangement	Part number
64		104-49054
96		104-49064

**On request**

- strain relief bracket
- ribbon cable
- also available in solder/press-fit (see on page 29)

**Note**

Additional information & Technical specifications see p. 105

**Mating connector / Application:**

- Type C Male connector (p. 27)
- Type R Male connector (p. 49)



## IDC

Insulation displacement connection technology (IDC) is a practicable, solderless technology for connecting circuit boards. In this connection technology, wires are not stripped; instead, they are placed on the insulation displacement contacts with their insulation intact and then pressed into the contacts. The insulation is severed by the sharp edges of the

displacement contacts and the wire is connected to the contacts. Because this type of connection does not require that the insulation be removed, it results in a very secure and reliable contact closure.

## Technical Specifications IDC

Connections	IDC
Insulator material	Polyester, self-extinguishing UL 94 V0
Temperature range	- 55 °C to + 125 °C
Capacity	approx. 0.5 – 1 pF
Operational current	1 A at 20 °C

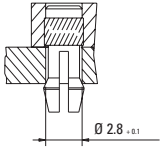
Operational voltage	220 V, 50 Hz
Test voltage	500 V/1.27 mm; 350 V/0.84 mm
Contact resistance	≤ 30 mΩ
Insulation resistance	≥ 10 <sup>6</sup> MΩ
Environment	RoHS compliant

# Board-Lock

As an alternative to the rivet and/ or screw fastening of the male and/ or female connectors to the PCBs, connectors can also be mounted and held onto PCBs using board lock's. The connector with the board lock is pressed onto the PCB to be equipped. The board locks either lock into place or are under tension. The connections are strong enough to hold the connector onto the

PCB during the soldering process. Using plated mounting holes, soldering the board locks also essentially improves the strain relief of the connector during insertion and/or withdrawal.


**Suitable for connectors with type B, C, D, E, F low profile, G low profile female connectors and R Male connectors**



Type of insertion	Forces	$F_m$	not soldered $F_h$	soldered $F_h$
Locked		< 20 N	> 10 N	> 25 N
Under tension		< 20 N	> 5 N	> 25 N

$F_m$ : max. mounting force per Board-Lock  
 $F_h$ : min. retention force per Board-Lock

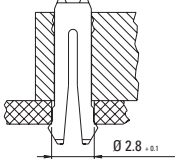
**Suitable for connectors with type B, C, D, E, F low profile, G low profile Female connectors and R Male connectors**



Part number	PCB thickness
xxx-xxxxxC1	1.6 mm
xxx-xxxxxC2	2.4 mm
xxx-xxxxxC3	3.6 mm

Ordering example: C-FL/LP 1.6 mm, part number 104-40014C1


**Suitable for connectors with type B, C, D, E, F, G Male connectors and R Female connectors**



Type of insertion	Forces	$F_m$	not soldered $F_h$	soldered $F_h$
Locked		< 30 N	> 10 N	> 20 N
Under tension		< 30 N	> 7.5 N	> 20 N

$F_m$ : max. mounting force per Board-Lock  
 $F_h$ : min. retention force per Board-Lock

**Suitable for connectors with type B, C, D, E, F, G Male connectors and R Female connectors**



Part number	PCB thickness
xxx-xxxxxC1	1.6 mm
xxx-xxxxxC2	2.4 mm
xxx-xxxxxC3	3.6 mm

Ordering example: C-ML/LP 1.6 mm, part number 103-40014C1

## Coding without losing Contacts

### Type B and C

The integrated coding of the connectors with type B and C prevents that the wrong modules are plugged in. For

coding, coding wedges are inserted into the female connector and matching parts are broken out of the insulator

material of the male connector with coding pliers.

Coding	Coding star (4 coding wedges)	Coding pliers						
<p>1) Break-out coding</p> <p>2) Insert coding wedge into the female connector</p>								
	<table border="1"> <thead> <tr> <th>Part number</th> <th>Packaging unit</th> </tr> </thead> <tbody> <tr> <td>104-19003</td> <td>25 Stars</td> </tr> </tbody> </table>	Part number	Packaging unit	104-19003	25 Stars	<table border="1"> <thead> <tr> <th>Part number</th> </tr> </thead> <tbody> <tr> <td>894-301</td> </tr> </tbody> </table>	Part number	894-301
Part number	Packaging unit							
104-19003	25 Stars							
Part number								
894-301								

### Type D, E, F and G

With connectors with type D, E, F and G holes can be drilled into the male connector and pins can be inserted

into the female connector in matching positions.

Male connectors	Female connectors					
Drill coding hole with gauge.	Insert coding pin into the coding hole using the insertion tool.					
		<table border="1"> <thead> <tr> <th>Part number - coding pin</th> <th>Packaging unit</th> </tr> </thead> <tbody> <tr> <td>106-10001</td> <td>100 items</td> </tr> </tbody> </table>	Part number - coding pin	Packaging unit	106-10001	100 items
Part number - coding pin	Packaging unit					
106-10001	100 items					
		<table border="1"> <thead> <tr> <th>Part number - insertion tool</th> </tr> </thead> <tbody> <tr> <td>894-302</td> </tr> </tbody> </table>	Part number - insertion tool	894-302		
Part number - insertion tool						
894-302						

### Type H11 and H15

Keying plug

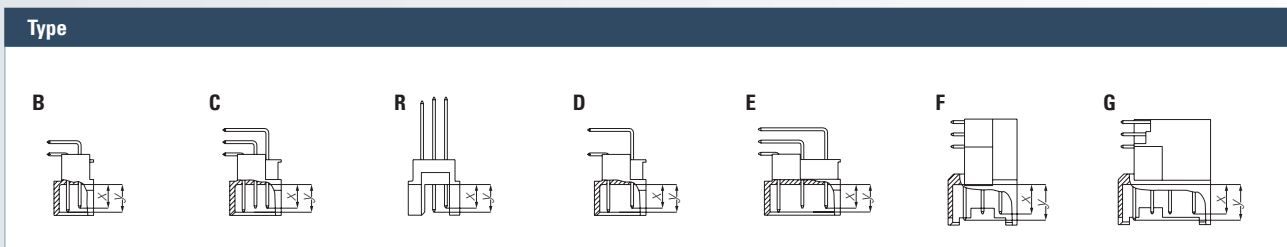
Coding	Part number
	114-30000

## Pre-mating and late-mating Contacts

Pre-mating and late-mating contacts are employed in electrical engineering to prevent voltage spikes, which can result in over-voltage. The connection is made and broken using these contacts in the first or final step.

### For DIN type B, C, R, D, E, F, G

The pre-mating contact can - as special contact arrangement - be inserted into any desired position.



Type	Standard (X)	Pre-mating (Y)			Late-mating (Y)	
		+ 0.8 mm	+ 1.0 mm	+ 1.3 mm	- 0.4 mm	- 0.8 mm
B, B/2, B/3, C, C/2, C/3	4.9	–	5.9	–	–	4.1
R, R/2, R/3	Mating side	4.9	5.7	5.9	–	4.1
	Termination side	13.0	13.8	–	12.6	12.2
D	4.9	5.7	–	–	–	–
E (Pitch 2.54 mm)	4.9	5.7 Rows a, c, e	–	–	–	–
E (Pitch 5.08 mm)	4.9	5.7 Row a	–	–	–	–
F, G	6.1	–	–	7.4	–	–

### On request

- other lengths possible for pre-mating and late-mating

# *connectors*

ept designs, produces and distributes electronic connectors for highquality applications. Founded by Bernhard Guglhör over 40 years ago, we are proud to remain an independent and family owned company. Today, we employ over 1.000 people at six locations worldwide.

Over decades we have built trusting and successful partnerships with our customers, who are the primary focus of all. Our products and core competencies are used in high-level applications.

With our motto "Precision with Passion" ept stands for the highest quality and reliability under the personal and individual touch of dedicated employees.

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