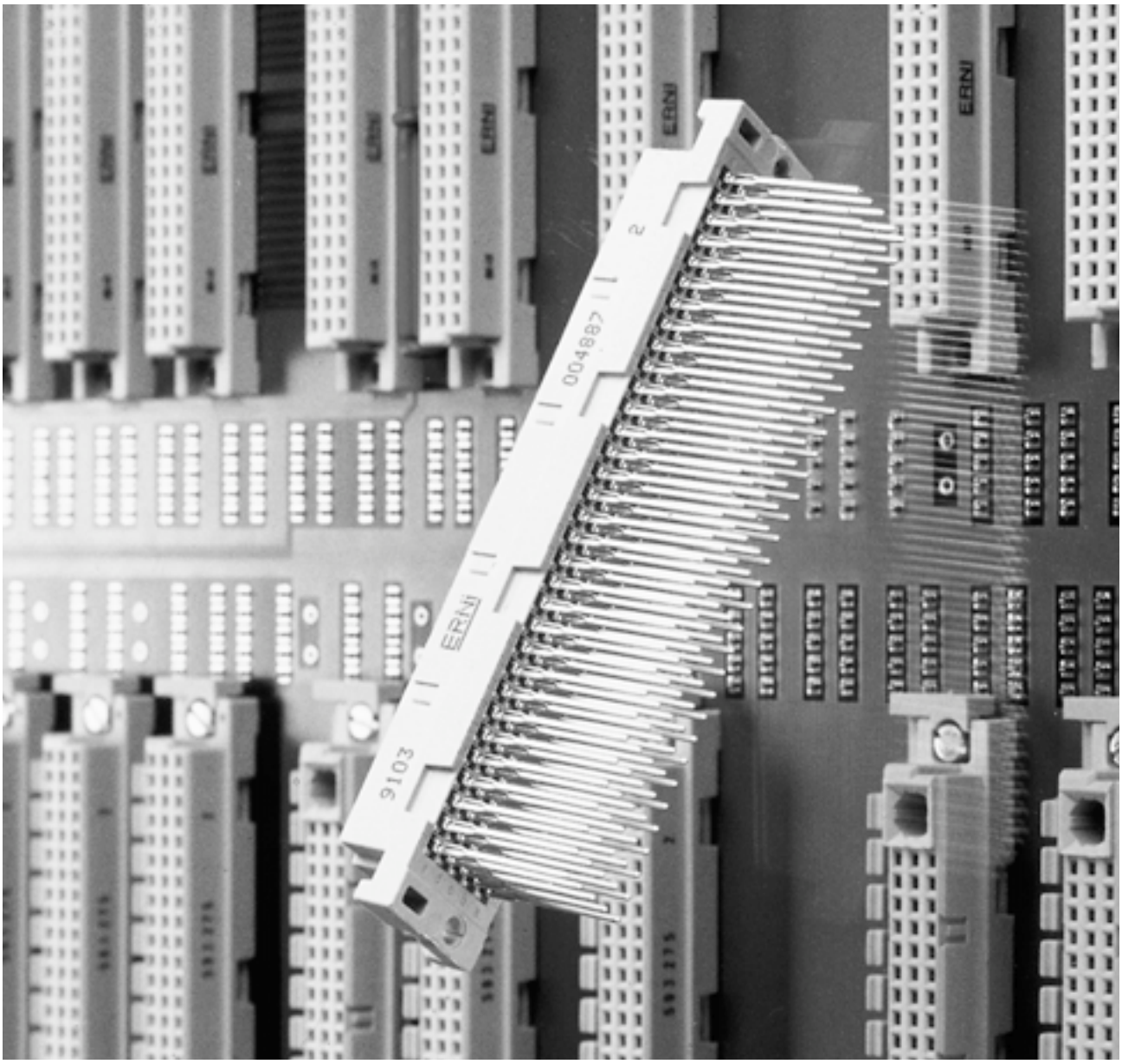
ERNIPRESS

DIN 41612/IEC 60603-2 Press-fit connectors



Benefits of ERNIPRESS

Gas-tight, corrosionproof and mechanically strong connection

No soldering errors

No terminal stress

Easy handling

No flux problems

Low tooling investment

Interchangeable contacts

No additional manual soldering of interface connectors

No additional fastening of the connectors

Contact is made in the copper-layer, not in the tin-layer of the pcb

Assembly possible on both sides

No additonal washing, therefore no environmental pollution due to cleaning agents

General

In a electronics and electrical engineering the solderless press-fit technique has become more and more widespread in the light of increasing miniaturization and higher packing densities.

ERNI's compliant press-fit zone is reliable connection between the PC Board and the connector.

ERNI offers a comprehensive press-fit range for all connector types. Also included in the ERNI press-fit range are the right angle press-fit connectors for mounting on the plug-in module PCB's (see ERNI's „Plug-in conntectors with right angled press-in terminations" catalog). The press-fit zone is designed so that the gas-tight corrosion-free contact takes place in the copper layer of the plated-through drillhole. The tin layer of the PCB drillhole is penetrated.

Solderless press-fit connectors are an integral part of today's modern electronic packaging bus systems. The main function of a bus system is to connect assemblies with one another and their power supply. Since plug-in modules are becoming more and more powerful, the demands placed on the bus systems are continually increasing. Higher system speeds and the overall shrinking of the connection structure are making the bus system a more crucial part of the control system.

With newer assembly processes for PC Boards, like press-fit termination, the mechanism is now available to utilize more powerful electromechanical components. ERNIPRESS solderless press-fit connectors are a perfect fit for such applications. Furthermore, there are many applications where the delicate structure of the PC Board cannot withstand the harshness of automated soldering processes.

Requirements expect of the PCB

In manufacturing the PC Board for the press-fit technique it is essential that the recommended DIN PC Board specifications be met. The dimensions of the plated through drillholes and their hole design are described in IEC 60352-5.

The quality and long-term performance of a press-fit connector are influenced by the following factors:

a) Base material of the PCB.
To meet UL requirements, epoxy glass fabric type Hgw 2372.1 to DIN 7735, FR 4, should be used.

b.) Adherence to drillhole tolerances.
For optimum and uniform plating of the metallization of the PCB, a selective rack technique, flexible anode arrangement and continuous plating bath monitoring are suggested.

c.) Drillhole diameter and positioning.
Maintaining the correct roughness of the drillhole wall and restricting drill bit travel are critical production processes.

d.) PCB hole and layout requirements.
A minimal residual ring width of 0.1 mm, finished hole tolerances, layer thicknesses, and a high quality consistent conductive pattern are all critical.

e.) Insertion and retention forces.
Measurement of these forces should be checked.

Insertion and retention forces

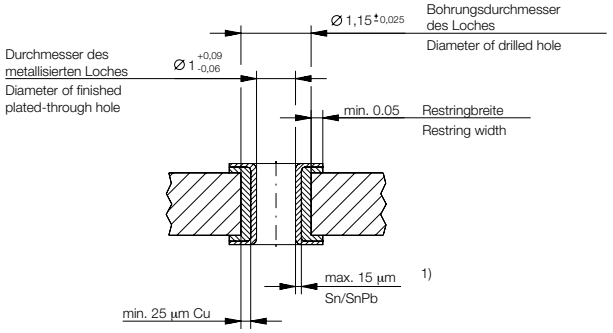
The design of the press-fit zone of the ERNIPRESS connectors performs a dual function. On the one hand this design has high elasticity and therefore can accomodate large hole tolerances. On the other hand, the press-fit zone's design ensures high edge loading at the copper layer of the PCB hole resulting in a gas-tight, corrosion-proof and mechanically secure connection.

Due to the special shape of the press-fit zone, insertion forces are not detrimental to the hole plating.

Retention forces of the contacts in the PCB hole are sufficient to withstand the torques which occur during wire wrap termination. Typical average values for retention force are between 50 – 110 N per contact depending upon PCB thicknesses.

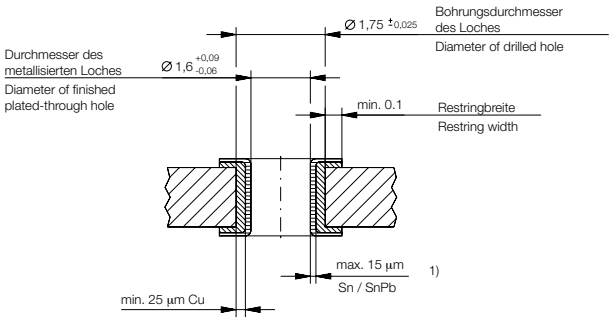
For more details please refer to the data sheet entitled „ERNI-PRESS – Long-term test programms to DIN 41611, Part 5 for Compliant Press-fit zones".

Hole design



Female connectors size **B, B/2, B/3, C, C/2, C/3, M, E 160, H 11, H 15**

Male connectors size **Q, Q/2, Q/3, R, R/2, R/3, RD 128, TE 160**



Female connectors size D, E, F

PSB drillhole pattern

Insertion side

Female connectors B[1] and C
Male connectors Q[1] and R

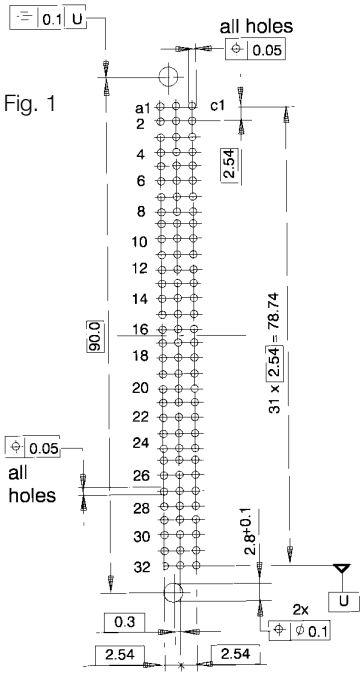
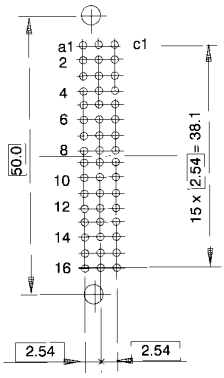


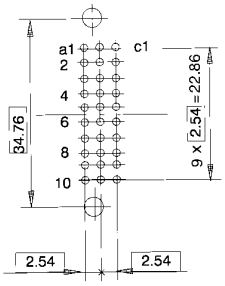
Fig. 1

Female connectors B/2[1] and C/2
Male connectors Q/2[1] and R/2



for other dimensions see fig. 1

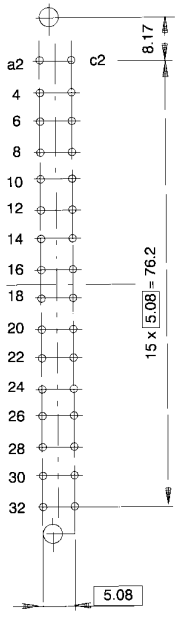
Female connectors B/3[1] and C/3
Male connectors Q/3[1] and R/3



for other dimensions see fig. 1

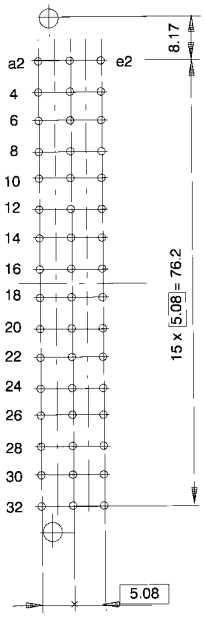
[1] For sizes B, B/2, B/3, Q, Q/2 and Q/3 only rows a and b apply

Female connectors D



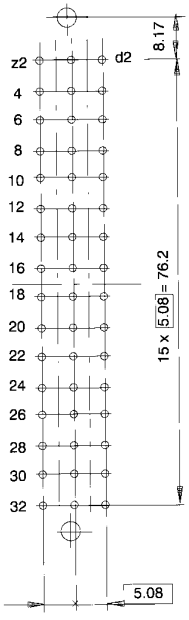
for other dimensions see fig. 1

Female connectors E



for other dimensions see fig. 1

Female connectors F

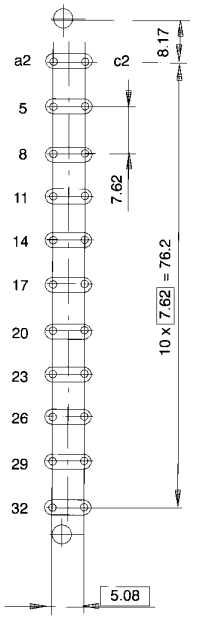


for other dimensions see fig. 1

PSB drillhole pattern

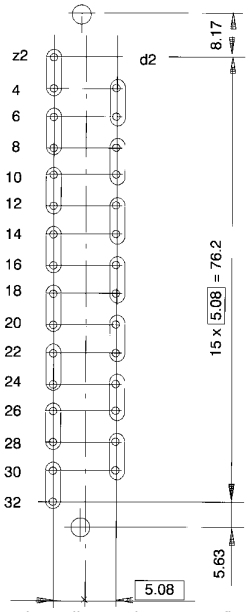
Insertion side

Female connectors H 11



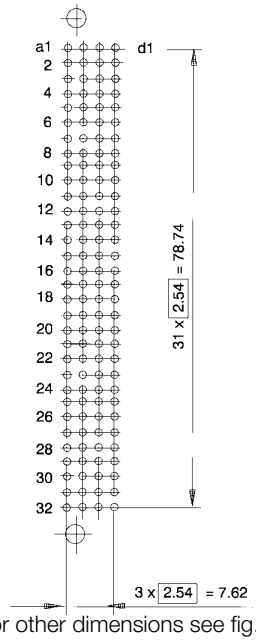
for other dimensions see fig. 1

Female connectors H 15



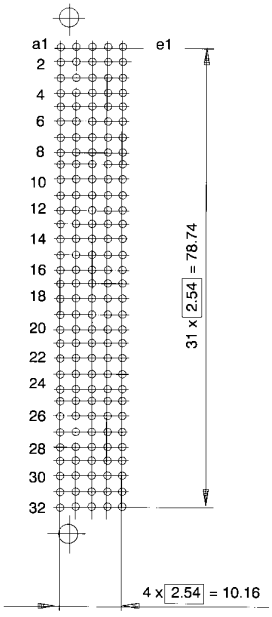
for other dimensions see fig. 1

Female connectors CD 128
Male connectors RD 128



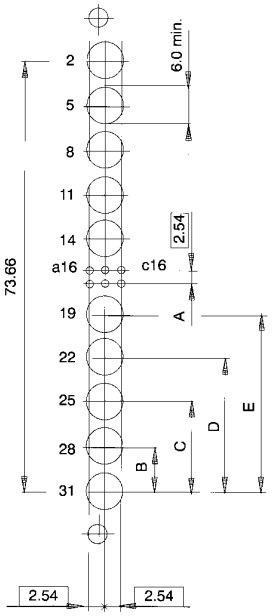
for other dimensions see fig. 1

Female connectors E 160
Male connectors TE 16



for other dimensions see fig. 1

Female connectors M



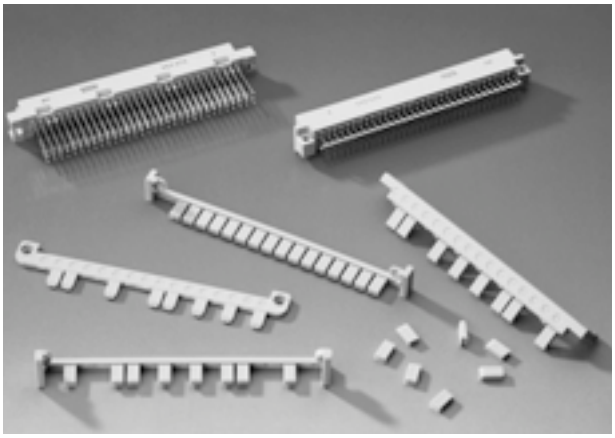
for other dimensions see fig. 1

Max. number of pins	Dimensions of mm				
	A	B	C	D	E
78 + 2 SK	25 x 2.54 = 63.50	—	—	—	—
60 + 4 SK	19 x 2.54 = 48.26	3 x 2.54 = 7,62	—	—	—
42 + 6 SK	13 x 2.54 = 33.02	3 x 2.54 = 7.62	6 x 2.54 =15.24	—	—
24 + 8 SK	7 x 2.54 = 17.78	3 x 2.54 = 7.62	6 x 2.54 = 15.24	9 x 2.54 = 22.86	—
6 + 10 SK	1 x 2.54 = 17.78	3 x 2.54 = 7.62	6 x 2.54 = 15.24	9 x 2.54 = 22.86	12 x 2.54 = 30.48

Codings

Various coding systems are available for the connectors contained in this data sheet.

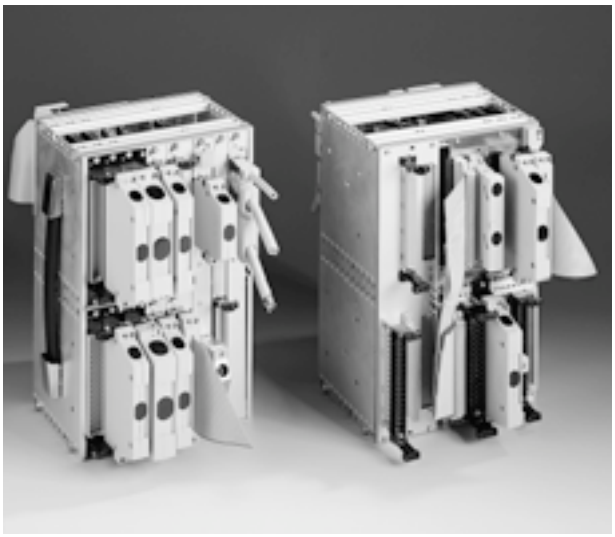
- Integrated coding with coding wedges. In this case coding wedges are fitted into the female connectors and the male connectors are provided with corresponding recesses.
- Integrated coding with coding pins. In this case coding pins are inserted into the female connectors and holes are drilled in the male connectors in the coding positions.
- Coding with coding strips.These coding strips are mounted together with the connector. For ERNI coding strips no extra modular space is required in the 19" rack system.



Wiring accessories

The ERNI connector housing range together with the ERNI interface connector system offers optimum protection for all plug-in interfaces for DIN 41612/IEC 60603-2 connectors. The range is dimensioned for the 19" rack system. Suitable variants are available for virtually every type of connector. Whether you intend to use a short type B/2 connector or a 64-pin insulation displacement connector, the ERNI range offers you the ideal housing.

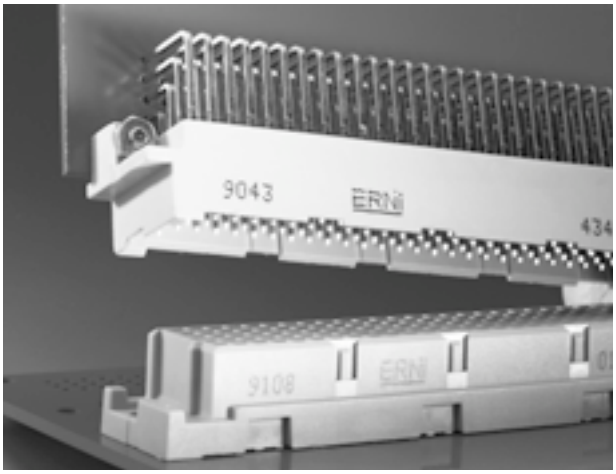
- **KSG 173** Sizes: B, C, D, E, M, H11, H15, Q, R, E160, TE160, RD128
- **KSG 193** Sizes: B/2, C/2, Q/2, R/2
- **KSG 203** Sizes: F, Fi
- **KSG 253** Sizes: C (IDC)
- **KSG 204** Sizes: F, Fi



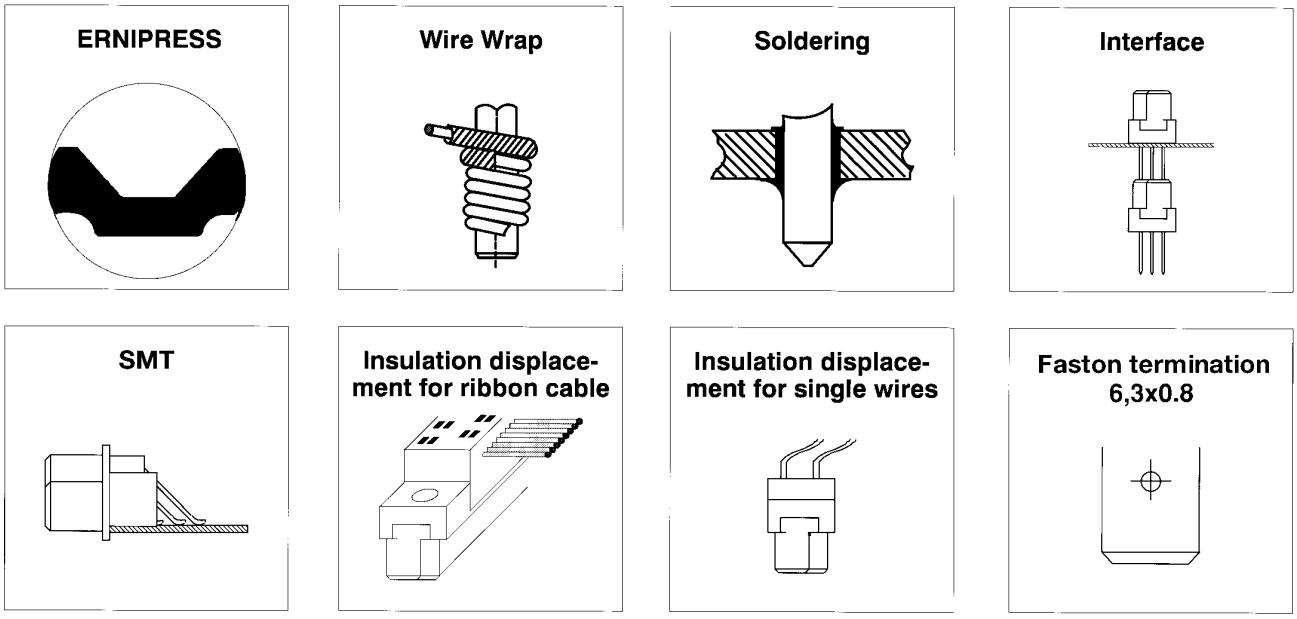
The connector housings are prepared for a maximum of 3 cable outlets and are fitted with strain-relief clamps. A metal-plated version for screening purposes is also available.
For plug-in interfaces on the front or back panel of the rack ERNI has developed guide elements and guide frames in collaboration with well-known users. These elements permit exact guidance for correct mating and provide robust screw locking. In addition you can fit a coding device.

Pre-centering

For applications of connectors with early make/last break contacts the male connector moulding with pre-centering ensures even more reliable mating.
The mouldings of the female connectors have a recess at an appropriate point.
The dimensions of these versions do not conform to the specifications of DIN 41612/IEC 60603-2. The ordering details are not listed in this data sheet but they can be supplied on request.
Male connectors with pre-centering do not fit female connectors without a pre-centering recess.



Types of termination on ERNI connectors



Electrical and Mechanical Characteristics

Size			**B** **B/2** **B/3**	**C** **C/2** **C/3**	**D**	**E**	**F**	**H**		**M**	**CD128**	**E160**
Reversed Size			**Q** **Q/2** **Q/3**	**R** **R/2** **R/3**							**RD128**	**TE160**
Max. number of pins			64 32 20	96 48 30	32	48	48	11	15	78	128	160
Contract row designation of male and female connectors			ab	abc	ac	ace	zbd	ac	zd	abc	abcd	abcde
Temperature range			-65° . . . + 125°C									
Permissible humidity			Annual average ≤ 80%, max. 100%									
Creepage (Cr) and clearance (Cl) in mm	Contact to ground	Cr	1.8		1.8		6.0	8.0	4.5	3.0	1.8	
		Cl	1.6		1.6		3.5	4.5	4.5	2.5	1.6	
	Contact to contact within a row	Cr	1.2		3.0		3.0	8.0	4.5	1.2	1.2	
		Cl	1.2		3.0		1.6	4.5	4.5	1.2		
	between a row	Cr	1.2		3.0	3.0	3.0	8.0	4.5	1.2	1.2	
		Cl	1.2		3.0	3.0	1.6	4.5	4.5	1.2	1.2	
Current rating at ambient temperature		A										
		+ 20°C	4.0			5.5		20.0		4.0	3.0	
		+ 70°C	2.0			4.0		15.0		2.0	2.0	
		+ 100°C	1.0			2.5		10.0		1.0	1.0	
Test voltage, 50Hz, 1min												
Contact/contact		Veff	1000		1000		1550	3100		1000		
Contact/ground		Veff	1550		1550		2500	3100		1550		
Contact resistance		mΩ	≤ 20		≤ 15			≤ 8		≤ 20		
Insulation resistance		Ω	≥ 10^{12} at 100 VDC									
Shock and vibration proofness			no contact breakdown at 20g and 10...2000Hz									
Housing material of male and female connectors			PBT 30% GV		PC 30% GV PBT 30% GV			PBT 30% GV				
Comparative creepage figure to DIN IEC 112		PBT	CTI 275/CTI 175 M		CTI 275/CTI 175 M			CTI 275/CTI 175 M				
		PC			CTI 150-175/CTI 100M							
Service life to DIN 41 612, Part 5			Performance level 1 ≥ 500 Mating-cycles Performance level 2 ≥ 400 Mating-cycles Performance level 3 ≥ 50 Mating-cycles									
Mating and withdrawal force for the assembled connector			≤ 60 ≤ 30 ≤ 18	≤ 90 ≤ 45 ≤ 28	≤ 40	≤ 60	≤ 75	≤ 80	≤ 90	≤ 90	≤ 100	≤ 110
Withdrawal force per contact (test blade)		N	≥ 0.15				≥ 0.2			≥ 0.15		
Inflammability of the plastic		PBT	UL 94 V-0		UL 94 V-0			UL 94 V-0				
		PC			UL 94 V-1							

Certificates of approval

UL Connectors size B, C, B/2, C/2, B/3, C/3, E 160, H 11, H 15, D, E, F and the reversed size Q, R, Q/2, R/2, Q/3 and R/3 have been approved by the American approval authority „Underwriters Laboratories Inc.“.
File no. E 84703.

CSA Size B, C, B/2, B/3, C/3, E 160, H 11, H 15, D, E, F, Q, R, Q/2, R/2, Q/3 and R/3 are listed by the Canadian approval authority „Canadian Standards Assocation“ under file no. LR 62504.

Early make/last break

0.8 mm early make/last break male contacts are possible at all positions in rows a, b, c, d and e.

Other lengths on request.

Performance levels

107 Conforms to the requirements as per DIN 41612/IEC 60603-2 performance level 1
500 mating cyles
Contact zone gold-plated
Terminal zone tin-plated

101 Same as for version 107 but transfer zone (5.0 mm) in the terminal area gold-plated

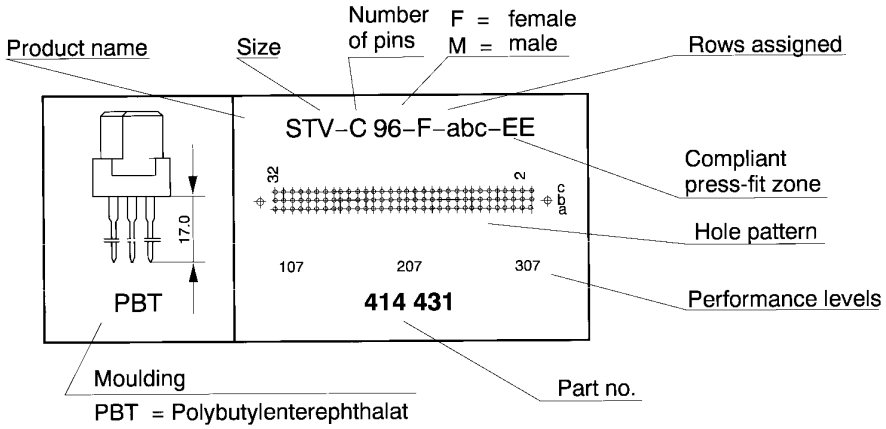
207 Conforms to the requirements as per DIN 41612/IEC 60603-2 performance level 2
400 mating cyles
Contact zone gold-plated
Terminal zone tin-plated

201 Same as for version 207 but transfer zone (5.0 mm) in the terminal area gold-plated

307 Conforms to the requirements as per DIN 41612/IEC 60603-2 performance level 3
50 mating cyles
Contact zone gold-plated
Terminal zone tin-plated

301 Same as for version 307 but transfer zone (5.0 mm) in the terminal area gold-plated

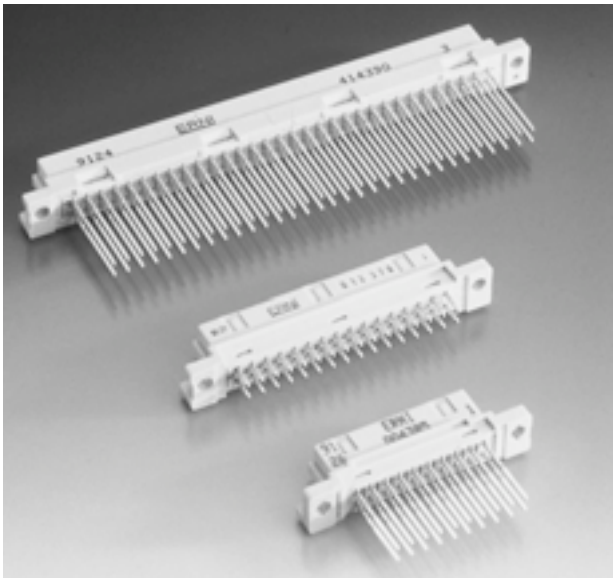
Example how to order



Size B
acc. to DIN 41 612/IEC 60603-2

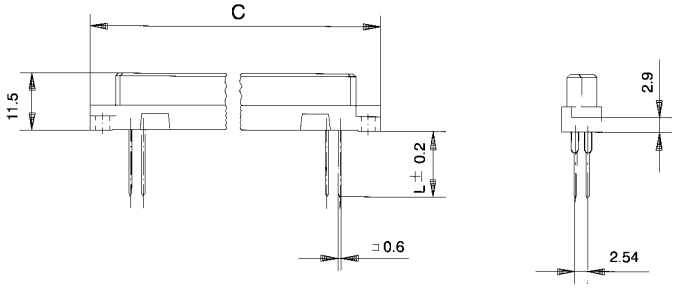
Size B/2
acc. to VG 95324, short version of size B

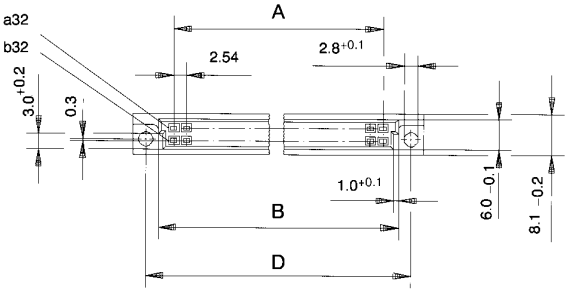
Size B/3
third-length of size B



Dimensional drawings

Female connector

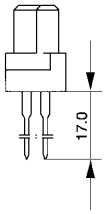
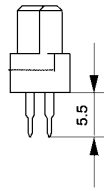




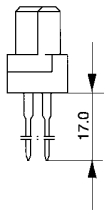
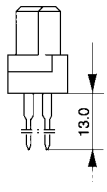
	B	B/2	B/3
A	31 x 2.54 = 78.74	15 x 2.54 = 38.1	9 x 2.54 = 22.86
B	$85.0_{-0.2}$	$44.4_{-0.2}$	$29.1_{-0.2}$
C	95.0 max.	55.0 max.	39.76 max.
D	$90.0^{\pm 0.1}$	$50.0^{\pm 0.1}$	$34.76^{\pm 0.1}$

Ordering informations

Female connector

	Size B	Size B/2	Size B/3
 PBT	STV–B 64–F–ab–EE 32 1 *Contact supporting press–in tool* 107 207 307 **414388 414389 414390** *Flat press–in tool* *Connector open without bottom strip* 107 207 307 **023364 023365**	STV–B/2 32–F–ab–EE 16 1 *Contact supporting press–in tool* 107 207 307 **414310**	STV–B/3 20–F–ab–EE 10 1 *Contact supporting press–in tool* 107 207 307 **023366**
 PBT	STV–B 64–F–ab–EE 32 1 *Contact supporting press–in tool* 107 207 307 **414397 414398 414399** *Flat press–in tool* *Connector open without bottom strip* 107 207 307 **023367 023108**	STV–B/2 32–F–ab–EE 16 1 *Contact supporting press–in tool* 107 207 307 **414313**	STV–B/3 20–F–ab–EE 10 1 *Contact supporting press–in tool* 107 207 307 **023368**

Female connectors with transfer-zone

	Size B	Size B/2	Size B/3
 PBT	STV–B 64–F–ab–EEUE 1) 32 1 *Contact supporting press–in tool* 101 201 301 **023369 423213 023370** *Flat press–in tool* *Connector open without bottom strip* 101 201 301 **023371 023372**	STV–B/2 32–F–ab–EEUE 1) 16 1 *Contact supporting press–in tool* 101 201 301 **023373**	STV–B/3 20–F–ab–EEUE 1) 10 1 *Contact supporting press–in tool* 101 201 301 **023374**
 PBT	STV–B 64–F–ab–EEUE 1) 32 1 *Contact supporting press–in tool* 101 201 301 **023375 023376 023377** *Flat press–in tool* *Connector open without bottom strip* 101 201 301 **023378 023379**	STV–B/2 32–F–ab–EEUE 1) 16 1 *Contact supporting press–in tool* 101 201 301 **023380**	STV–B/3 20–F–ab–EEUE 1) 10 1 *Contact supporting press–in tool* 101 201 301 **023381**

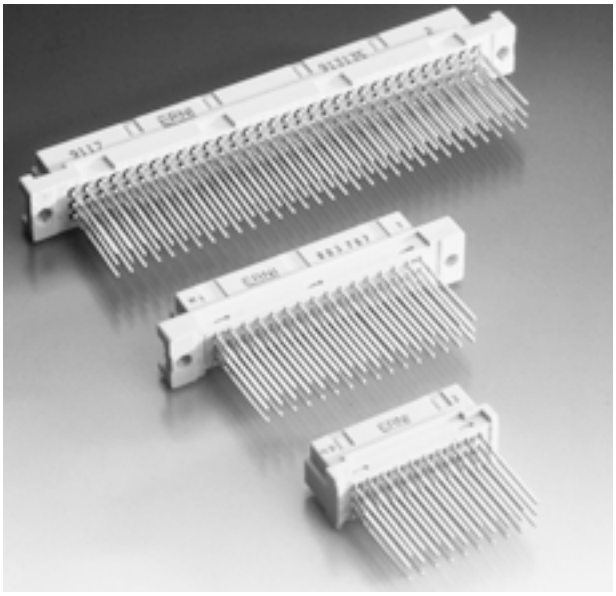
1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

Other versions on request.

Size C
acc. to DIN 41 612/IEC 60603-2

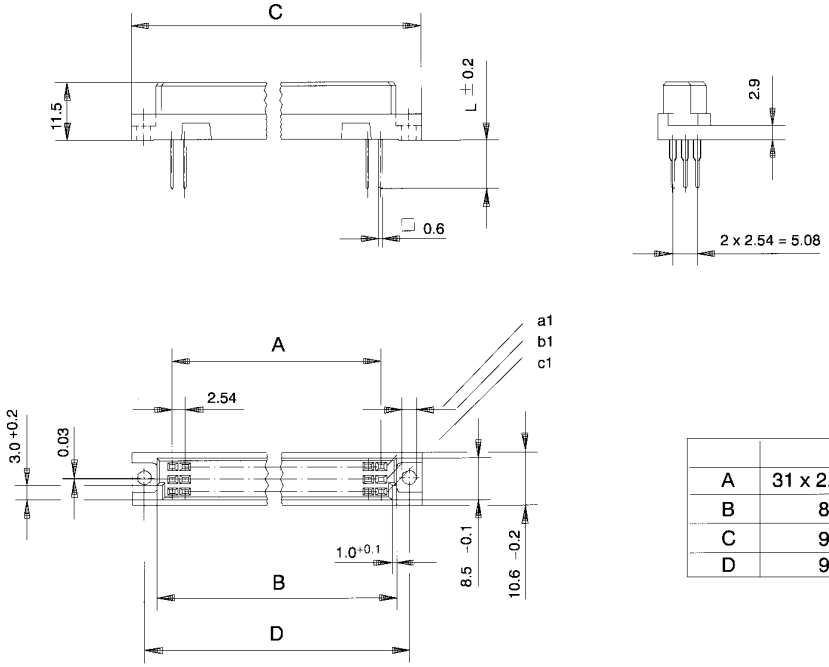
Size C/2
acc. to VG 95324, short version of size C

Size C/3
third-length of size C



Dimensional drawings

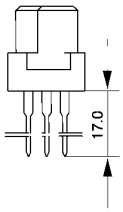
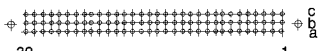
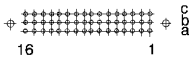
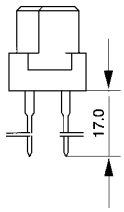
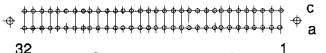
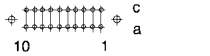
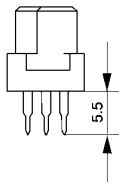
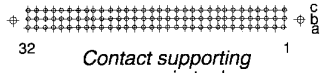
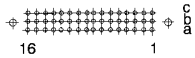
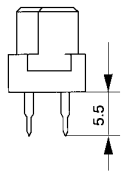
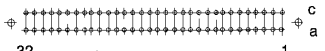
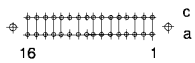
Female connector



	C	C/2	C/3
A	31 x 2.54 = 78.74	15 x 2.54 = 38.1	9 x 2.54 = 22.86
B	$85.0_{-0.2}$	$44.4_{-0.2}$	$29.1_{-0.2}$
C	95.0 max.	55.0 max.	39.76 max.
D	$90.0^{\pm 0.1}$	$50.0^{\pm 0.1}$	$34.76^{\pm 0.1}$

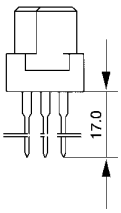
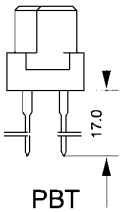
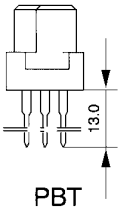
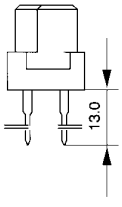
Ordering informations

Female connector

	Size C	Size C/2	Size C/3
 PBT	STV–C 96–F–abc–EE  *Contact supporting press–in tool* 107 207 307 **414430** **414431** **414432** *Flat press–in tool Connector open without bottom strip* 107 207 307 **004707** **913111**	STV–C/2 48–F–abc–EE  *Contact supporting press–in tool* 107 207 307 **023620** **414361**	STV–C/3 30–F–abc–EE  *Contact supporting press–in tool* 107 207 307 **023382**
 PBT	STV–C 64–F–ac–EE  *Contact supporting press–in tool* 107 207 307 **414427** **414428** **414429** *Flat press–in tool Connector open without bottom strip* 107 207 307 **023383** **913132**	STV–C/2 32–F–ac–EE  *Contact supporting press–in tool* 107 207 307 **414358**	STV–C/3 20–F–ac–EE  *Contact supporting press–in tool* 107 207 307 **023384**
 PBT	STV–C 96–F–abc–EE  *Contact supporting press–in tool* 107 207 307 **414436** **414437** **414438** *Flat press–in tool Connector open without bottom strip* 107 207 307 **013159** **913110**	STV–C/2 48–F–abc–EE  *Contact supporting press–in tool* 107 207 307 **023761**	STV–C/3 30–F–abc–EE  *Contact supporting press–in tool* 107 207 307 **023385**
 PBT	STV–C 64–F–ac–EE  *Contact supporting press–in tool* 107 207 307 **414272** **414273** **414274** *Flat press–in tool Connector open without bottom strip* 107 207 307 **013990** **913133**	STV–C/2 32–F–ac–EE  *Contact supporting press–in tool* 107 207 307 **414367**	STV–C/3 20–F–ac–EE  *Contact supporting press–in tool* 107 207 307 **023386**

Ordering informations

Female connector

	Size C	Size C/2	Size C/3
 PBT	STV–C 96–F–abc–EEUE 1) 32 1 c b a *Contact supporting press–in tool* 101 201 301 **593274 593275 593276** *Flat press–in tool* *Connector open without bottom strip* 101 201 301 **023387 913135**	STV–C/2 48–F–abc–EEUE 1) 16 1 c b a *Contact supporting press–in tool* 101 201 301 **023388**	STV–C/3 30–F–abc–EEUE 1) 10 1 c b a *Contact supporting press–in tool* 101 201 301 **023389**
 PBT	STV–C 64–F–ac–EEUE 1) 32 1 c a *Contact supporting press–in tool* 101 201 301 **593271 593272 593273** *Flat press–in tool* *Connector open without bottom strip* 101 201 301 **023390 913134**	STV–C/2 32–F–ac–EEUE 1) 16 1 c a *Contact supporting press–in tool* 101 201 301 **023391**	STV–C/3 20–F–ac–EEUE 1) 10 1 c a *Contact supporting press–in tool* 101 201 301 **023392**
 PBT	STV–C 96–F–abc–EEUE 1) 32 1 c b a *Contact supporting press–in tool* 101 201 301 **003533 003534 023393** *Flat press–in tool* *Connector open without bottom strip* 101 201 301 **013808 013964**	STV–C/2 48–F–abc–EEUE 1) 16 1 c b a *Contact supporting press–in tool* 101 201 301 **023394**	STV–C/3 30–F–abc–EEUE 1) 10 1 c b a *Contact supporting press–in tool* 101 201 301 **023395**
 PBT	STV–C 64–F–ac–EEUE 1) 32 1 c a *Contact supporting press–in tool* 101 201 301 **003531 003532 023396** *Flat press–in tool* *Connector open without bottom strip* 101 201 301 **013991 013397**	STV–C/2 32–F–ac–EEUE 1) 16 1 c a *Contact supporting press–in tool* 101 201 301 **023398**	STV–C/3 20–F–ac–EEUE 1) 10 1 c a *Contact supporting press–in tool* 101 201 301 **023399**

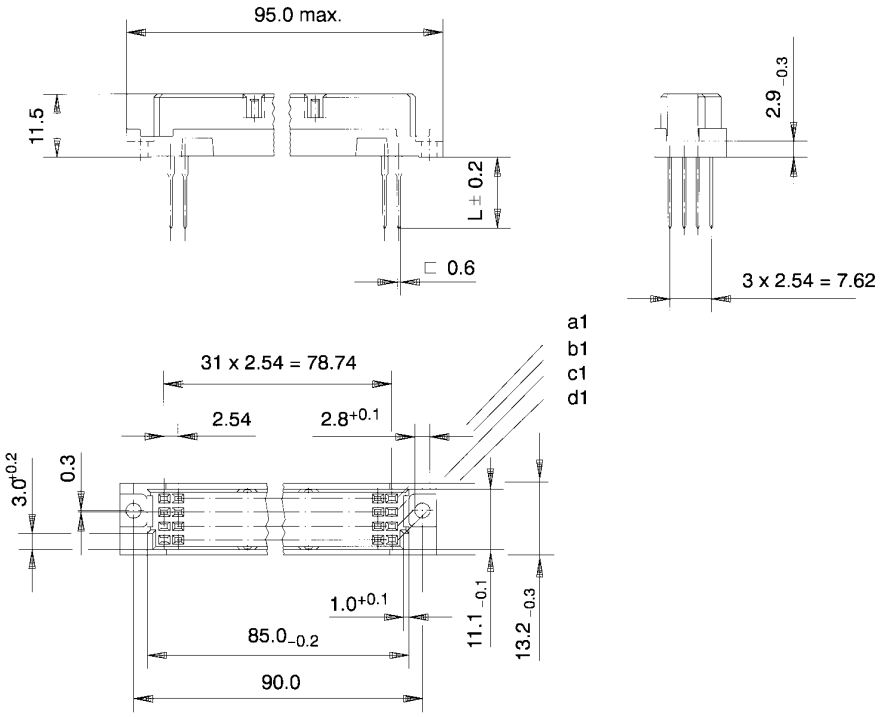
1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

Other versions on request.

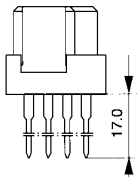
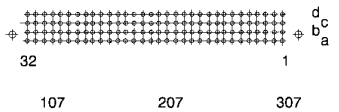
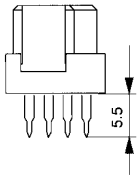
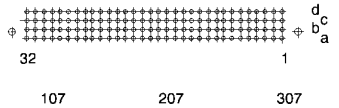
Size CD 128

Connector with 4 rows of contacts, each with up to 32 contacts

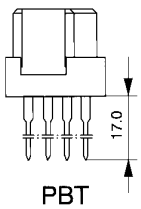
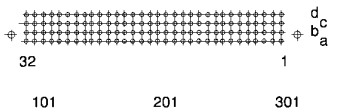
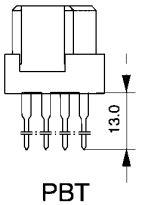
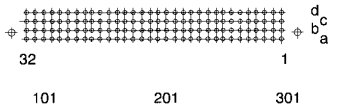
Dimensional drawings



Female connector

	Size CD128
 PBT	STV–CD128–F–abcd–EE  **033355** **913655**
 PBT	STV–CD128–F–abcd–EE  **913658** **033035**

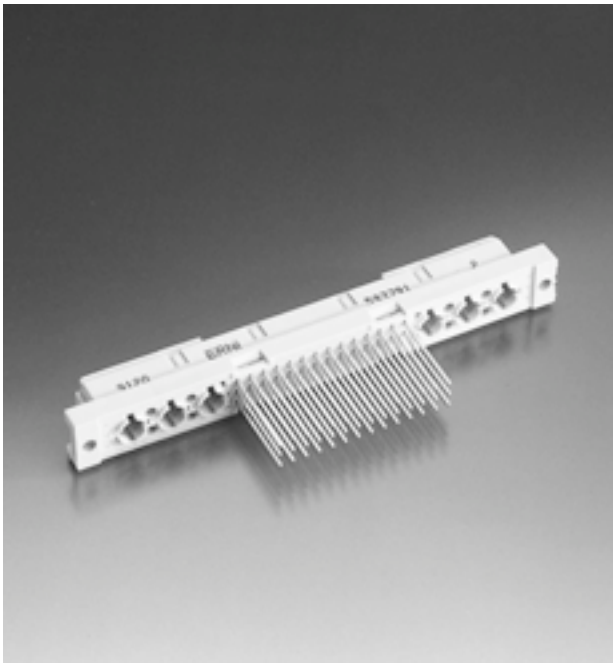
Female connectors with transfer-zone

	Size CD128
 PBT	STV–CD128–F–abcd–EEUE[1]  **033104**
 PBT	STV–CD128–F–abcd–EEUE[1]  **033223**

1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

Size M

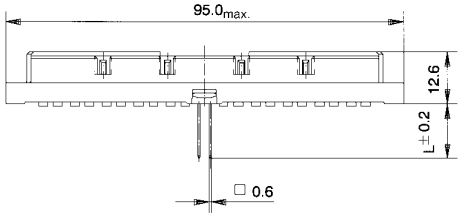
acc. to DIN 41612/IEC 60603-2

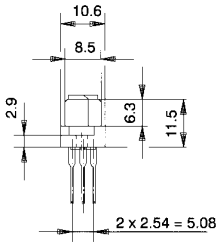


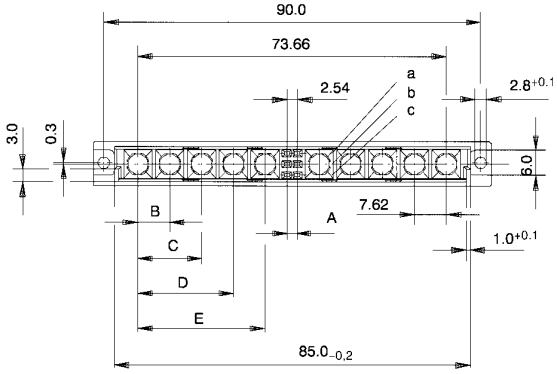
The size M connectors come with a range of 5 different housings with a specific number of pre-loaded signal pins in each. The balance of the connector housing would be customer loaded with the individual M series contacts (referred to here as SK's); either high current contacts (up to 40 A), coaxial contacts, and/or fiber optic contacts. For more information refer to „Connectors Type M DIN 41 612/IEC 60603-2" data sheet.

Dimensional drawings

Female connector



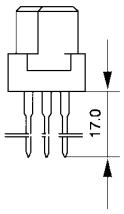
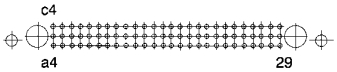
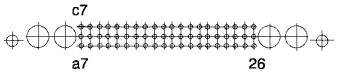
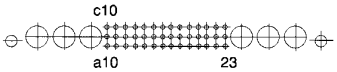
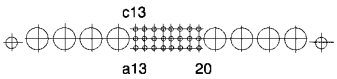
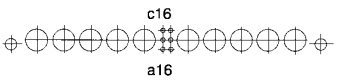
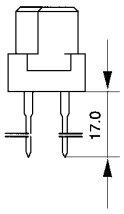
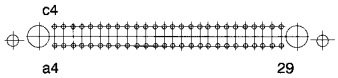
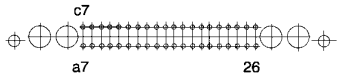
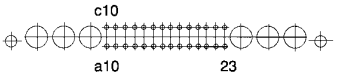
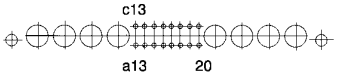
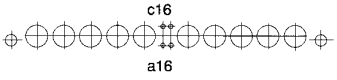
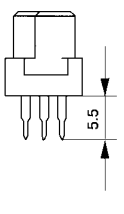
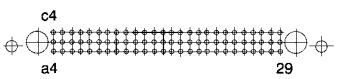
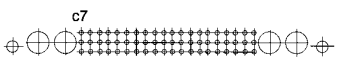
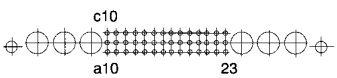
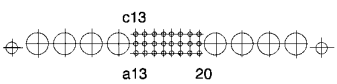
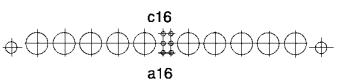




Max. number of pins	Dimensions in mm				
	A	B	C	D	E
78 + 2 SK	25 x 2.54 = 63.50	—	—	—	—
60 + 4 SK	19 x 2.54 = 48.26	3 x 2.54 = 7.62	—	—	—
42 + 6 SK	13 x 2.54 = 33.02	3 x 2.54 = 7.62	6 x 2.54 =15.24	—	—
24 + 8 SK	7 x 2.54 = 17.78	3 x 2.54 = 7.62	6 x 2.54 = 15.24	9 x 2.54 = 22.86	—
6 + 10 SK	1 x 2.54 = 17.78	3 x 2.54 = 7.62	6 x 2.54 = 15.24	9 x 2.54 = 22.86	12 x 2.54 = 30.48

Ordering informations

Female connectors Contact supporting press-in tool

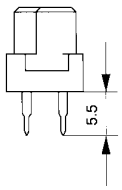
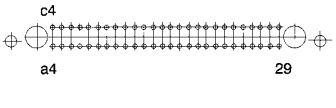
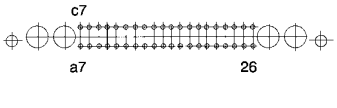
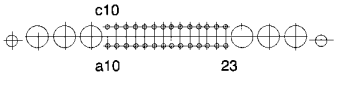
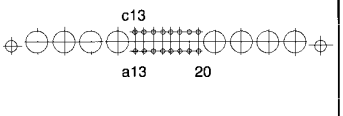
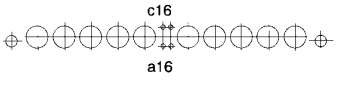
	Size M	Size M	Size M
 PBT	STV–M 78/2–F–abc–EE  107 207 307 **593784 593785**	STV–M 60/4–F–abc–EE  107 207 307 **593787 593788**	STV–M 42/6–F–abc–EE  107 207 307 **593790 593791**
	STV–M 24/8–F–abc–EE  107 207 307 **593793 593794**	STV–M 6/10–F–abc–EE  107 207 307 **023433 023434**	
 PBT	STV–M 52/2–F–ac–EE  107 207 307 **594132 594133**	STV–M 40/4–F–ac–EE  107 207 307 **594135 594136**	STV–M 28/6–F–ac–EE  107 207 307 **594134 594139**
	STV–M 16/8–F–ac–EE  107 207 307 **594141 594142**	STV–M 4/10–F–ac–EE  107 207 307 **023501 023502**	
 PBT	STV–M 78/2–F–abc–EE  107 207 307 **593796 593797**	STV–M 60/4–F–abc–EE  107 207 307 **593799 593800**	STV–M 42/6–F–abc–EE  107 207 307 **593802 593803**
	STV–M 24/8–F–abc–EE  107 207 307 **593805 593806**	STV–M 6/10–F–abc–EE  107 207 307 **023445 023446**	

Other versions on request.

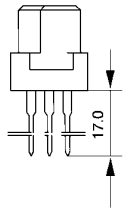
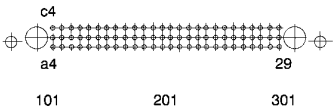
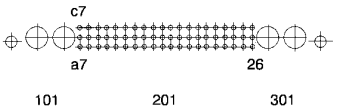
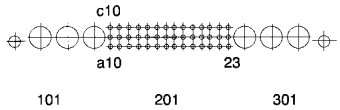
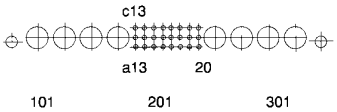
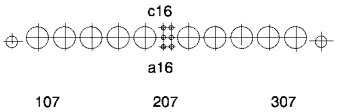
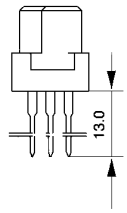
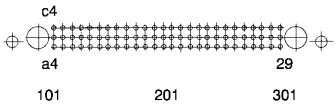
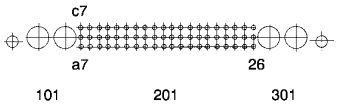
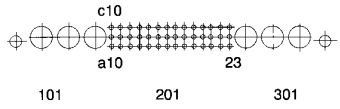
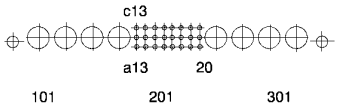
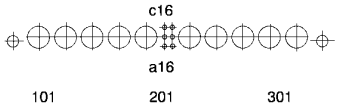
Ordering informations

Female connectors

Contact supporting press-in tool

	Size M	Size M	Size M
 PBT	STV–M 52/2–F–ac–EE  **594144** **594145**	STV–M 40/4–F–ac–EE  **594147** **594148**	STV–M 28/6–F–ac–EE  **594150** **594151**
	STV–M 16/8–F–ac–EE  **594153** **594154**	STV–M 4/10–F–ac–EE  **023408** **023409**	

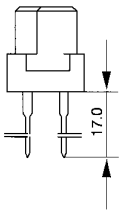
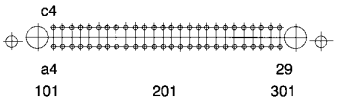
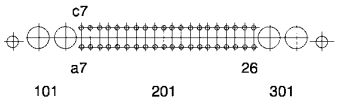
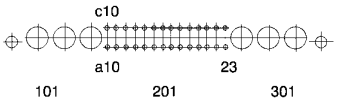
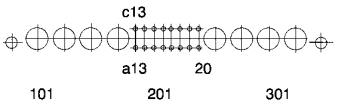
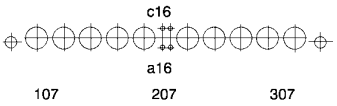
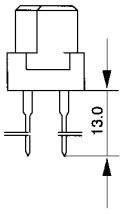
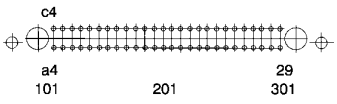
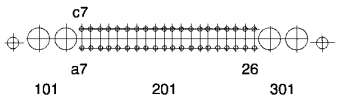
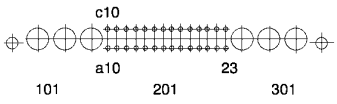
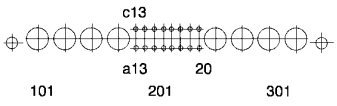
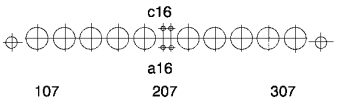
Female connectors with transfer-zone

	Size M	Size M	Size M
 PBT	STV–M 78/2–F–abc–EEUE[1)]  **433884**	STV–M 60/4–F–abc–EEUE[1)]  **433883**	STV–M 42/6–F–abc–EEUE[1)]  **023400**
	STV–M 24/8–F–abc–EEUE[1)]  **023401**	STV–M 6/10–F–abc–EEUE[1)]  **023410**	
 PBT	STV–M 78/2–F–abc–EEUE[1)]  **023402**	STV–M 60/4–F–abc–EEUE[1)]  **004837**	STV–M 42/6–F–abc–EEUE[1)]  **004128**
	STV–M 24/8–F–abc–EEUE[1)]  **023403**	STV–M 6/10–F–abc–EEUE[1)]  **023411**	

1) Terminals nickel-plated over full length. Transfer-zone (5.0 mm) hard gold-plated.
Other versions on request.

Ordering informations

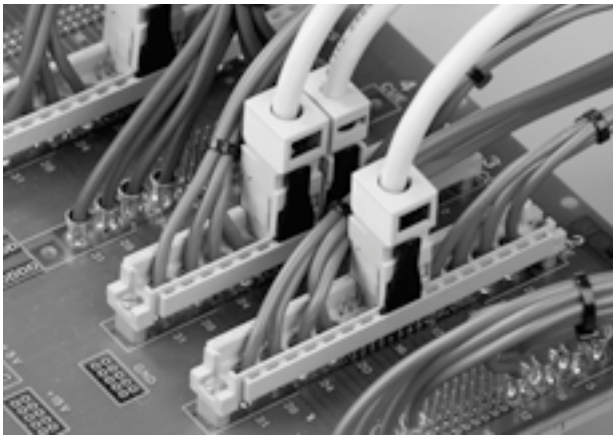
Female connectors with transfer-zone Contact supporting press-in tool

	Size M	Size M	Size M
 PBT	STV–M 52/2–F–ac–EEUE[1)]  **023435**	STV–M 40/4–F–ac–EEUE[1)]  **023437**	STV–M 28/6–F–ac–EEUE[1)]  **023439**
	STV–M 16/8–F–ac–EEUE[1)]  **023441**	STV–M 4/10–F–ac–EEUE[1)]  **023443**	
 PBT	STV–M 52/2–F–ac–EEUE[1)]  **023436**	STV–M 40/4–F–ac–EEUE[1)]  **023438**	STV–M 28/6–F–ac–EEUE[1)]  **023440**
	STV–M 16/8–F–ac–EEUE[1)]  **023442**	STV–M 4/10–F–ac–EEUE[1)]  **023444**	

1) Terminals nickel-plated over full length. Transfer-zone (5.0 mm) hard gold-plated.
Other versions on request.

Special application

To provide protection of the pins on the back panel and to allow for additional connection to the front and back panel, ERNI offers the modular connector housing system.
This system is made up of guide frames and cable housings for the panel connectors and individual wire connectors for mating.
This individual wire connectors utilize a discrete wire insulation displacement (IDC) termination method for efficiently connecting to multiple round wires. These wire connectors are available in a series of pin counts in both 2 and 3 rows versions.
For more details, please refer to „Mateable transfer wiring-system“ and „Modular connector housing system“ catalogs.

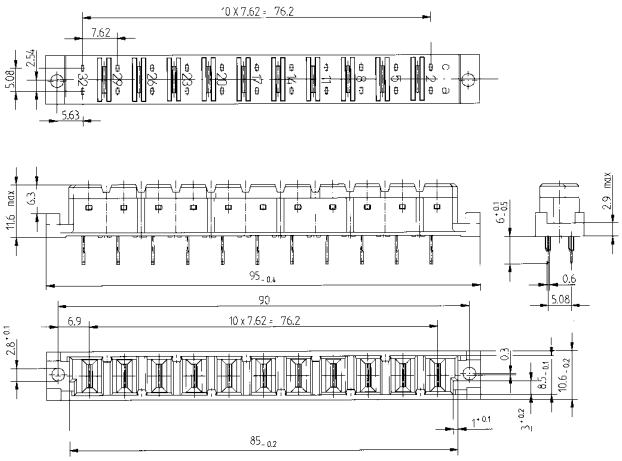


Size H 11

Mating and mounting conditions acc. to DIN 41612/IEC 60603-2

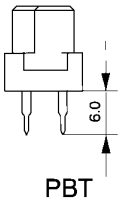
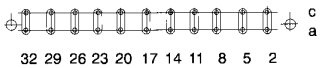
Dimensional drawings

Female connector



Ordering informations

Female connectors

	Size H11
 PBT	STV–H11–F–EE  32 29 26 23 20 17 14 11 8 5 2 1 **424655**

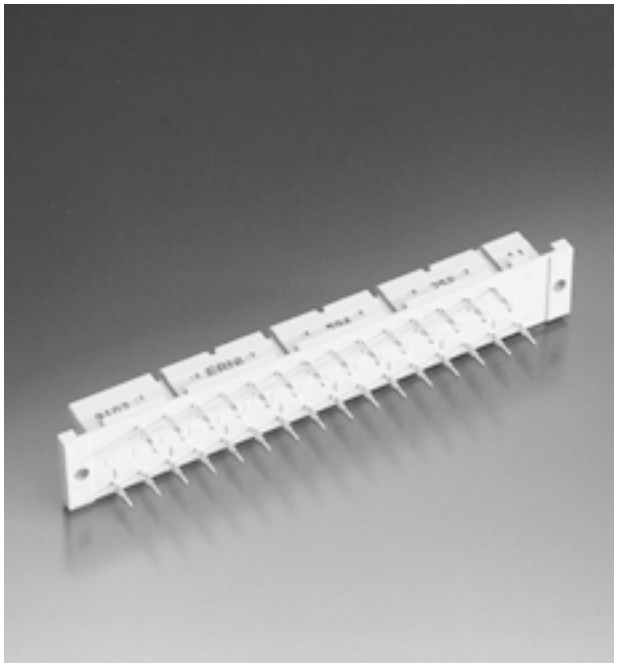
Other versions on request.

Flat press-in tool

Mating side electroplated with silver.
Wiring side tin-plated.

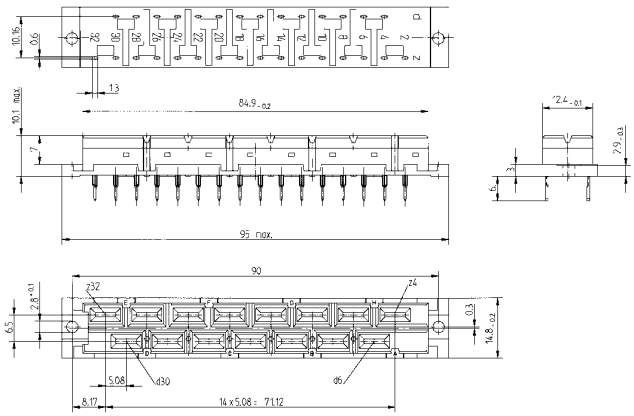
Size H 15

acc. to DIN 41612/IEC 60603-2



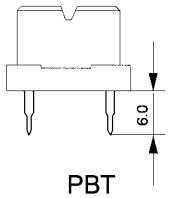
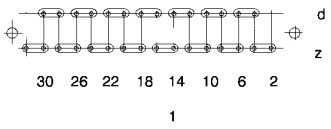
Dimensional drawings

Female connector



Ordering informations

Female connectors

	Size H15
 PBT	STV–H15–F–EE  **594752**

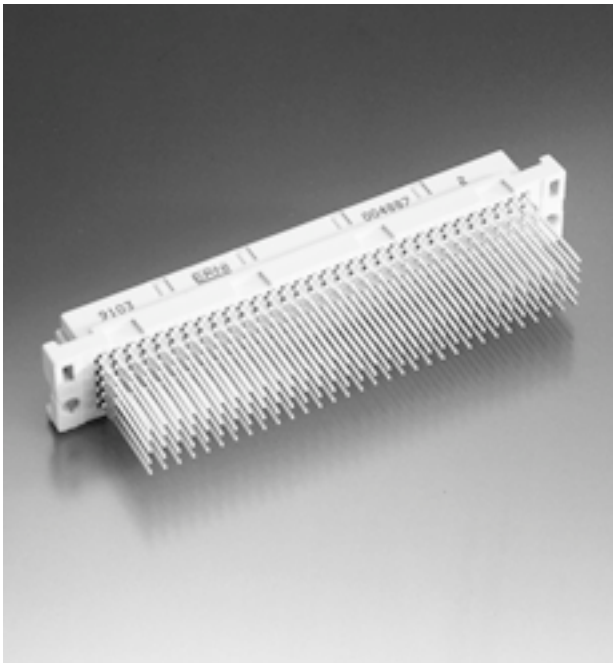
Other versions on request.

Flat press-in tool

Mating side electroplated with silver.
Wiring side tin-plated.

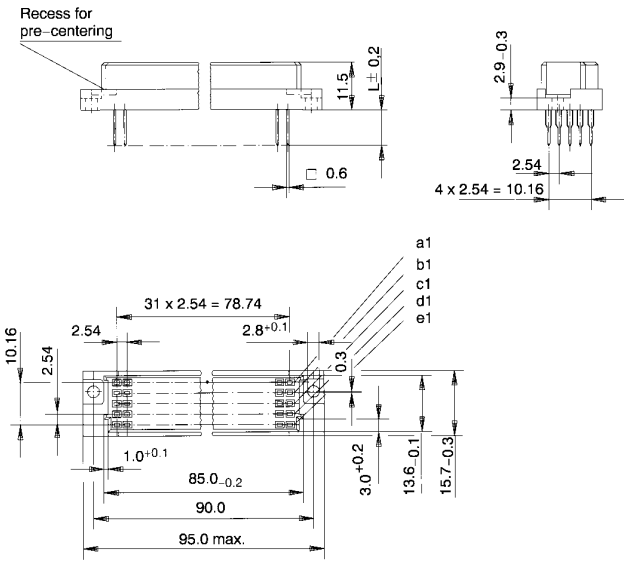
Size E 160

Same design as size E acc. to DIN 41612/IEC 60603-2



Dimensional drawings

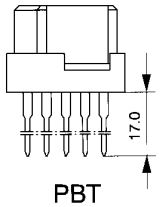
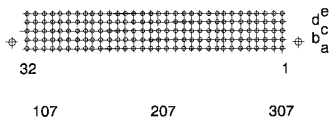
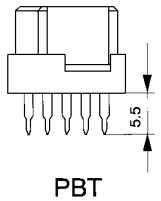
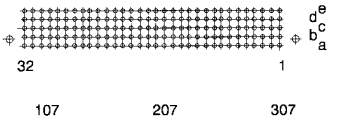
Female connector



Ordering informations

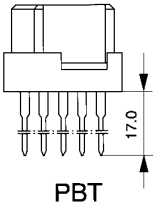
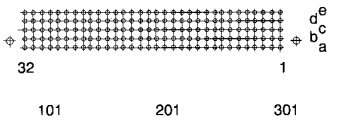
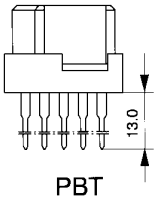
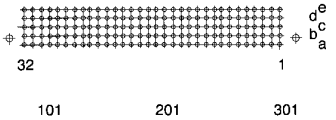
Flat press-in tool

Female connector

	Size E160
 PBT	STV-E160-F-abcde-EE  **023404** **004886**
 PBT	STV-E160-F-abcde-EE  **023406** **004885**

Other versions on request.

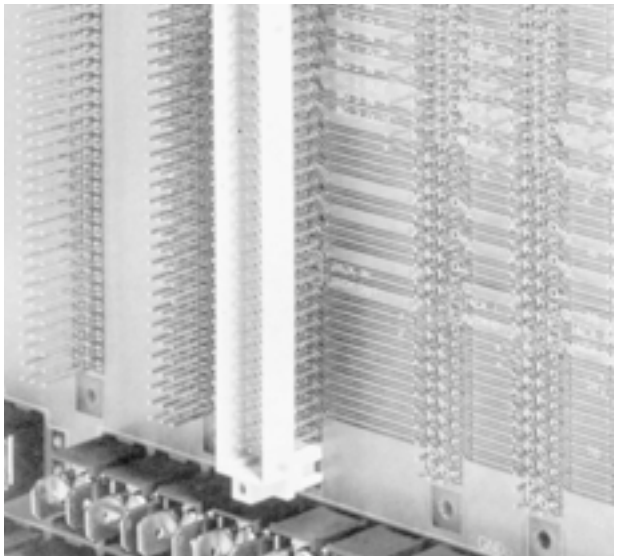
Female connectors with transfer-zone

	Size E160
 PBT	STV-E160-F-abcde-EEUE[1]  **023405** **004887**
 PBT	STV-E160-F-abcde-EEUE[1]  **023407** **013315**

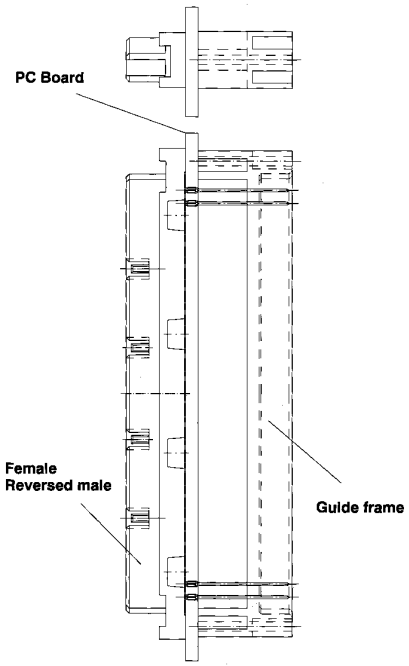
1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

Guide frame

for mounting on PC Boards
with connectors size C, R, CD 128, RD 128, E 160, TE 160



Interface on the wiring side of a control system with the aid of interface connectors play an important role in signal transfer. One of the many advantages of the press-fit technique ist that the interface connection to the wiring side can be made easily. This connection to the wiring side of a PC Board loaded with press-fit connectors can be accomplished by simply mounting guide frames to the rear (wiring) side. ERNI has developed guide frames with varying heights for the C, R, CD 128, RD 128, E 160 and TE 160 sizes.
For information on the ERNI guide frames, please contact the local ERNI sales office.

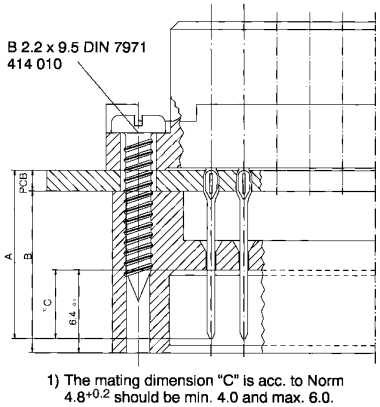


Ordering informations

(All dimensions in mm)

PCB	Maiting dimension	Totel height	Contact length	Part–No. Guide frame			
LP	C	B	A	E 160 TE 160	CD 128 RD 128	C 96 R 96	C/2–48 R/2–48
2.4	6.0	11.0	13	064729	064728	433215	034798
3.2	5.2						
2.4	5.6	11.4	13	064586	064584	434286	034797
3.2	4.8						
1.6	6.0	11.8	13	064708	064713	013275	034702
2.4	5.2						
3.2	4.4						
1.6	5.3	12.5	13	064585	064583	414715	034799
2.4	4.5						
1.6	4.2	13.6	13	064709	064714	014145	034796
2.4	5.8	15.2	17	064710	064715	333139	034800
3.2	5.0						
1.6	5.8	16.0	17	064711	064716	414219	034801
2.4	5.0						
3.2	4.2						
2.4	5.8	18.2	20	064712	064717	413971	034802
3.2	5.0						

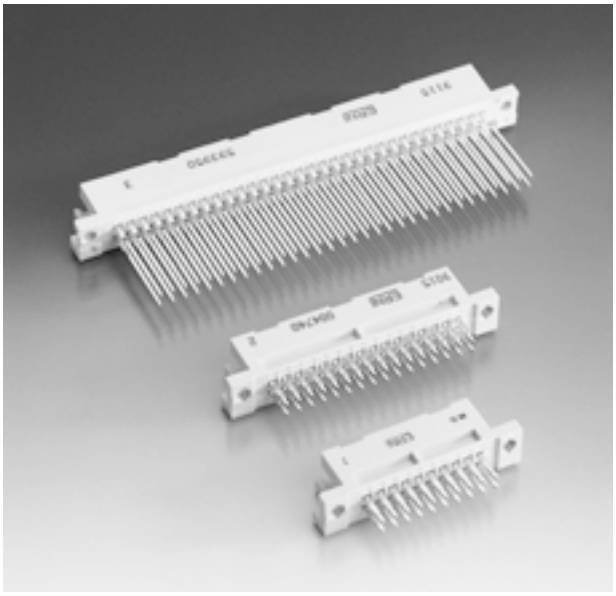
Please abserve sufficient overlapping length.



Size Q **Reversed style, acc. to DIN 41 612/IEC 60603-2**

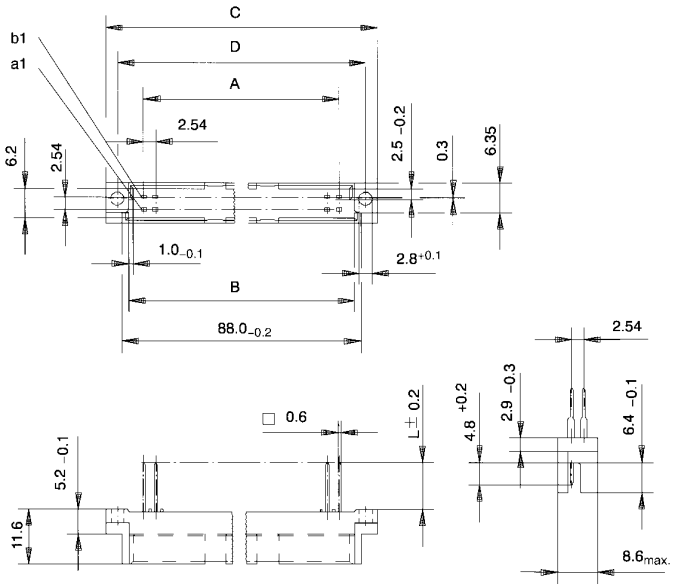
Size Q/2 **Reversed style, short version of size Q**

Size Q/3 **Reversed style, third-length of size Q**



Dimensional drawings

Male connector

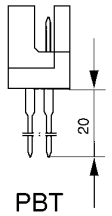
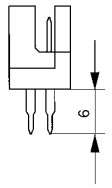


	Q	Q/2	Q/3
A	31 x 2.54 = 78.74	15 x 2.54 = 38.1	9 x 2.54 = 22.86
B	$85.2^{+0.2}$	$44.6^{+0.2}$	$29.3^{+0.2}$
C	95.0 max.	55.0 max.	39.76 max.
D	$90.0^{\pm 0.1}$	$50.0^{\pm 0.1}$	$34.76^{\pm 0.1}$

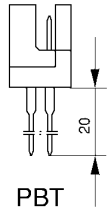
Ordering details

Male connectors

Contact supporting press-in tool

	Size Q	Size Q/2	Size Q/3
 PBT	STV–Q 64–M–ab–EE 32 1 107 207 307 **023416** **593949**	STV–Q/2 32–M–ab–EE 16 1 107 207 307 **013887**	STV–Q/3 20–M–ab–EE 10 1 107 207 307 **023417**
 PBT	STV–Q 64–M–ab–EE 32 1 107 207 307 **023418** **593952**	STV–Q/2 32–M–ab–EE 16 1 107 207 307 **004740**	STV–Q/3 20–M–ab–EE 10 1 107 207 307 **433777**

Male connectors with transfer-zone

	Size Q	Size Q/2	Size Q/3
 PBT	STV–Q 64–M–ab–EEUE [1] 32 1 101 201 301 **593963** **593964**	STV–Q/2 32–M–ab–EEUE [1] 16 1 101 201 301 **023420**	STV–Q/3 20–M–ab–EEUE [1] 10 1 101 201 301 **023421**

1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

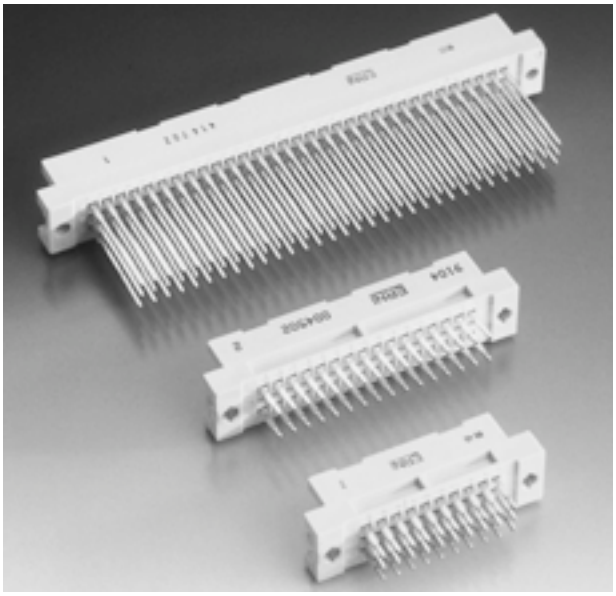
Other versions on request.

0,8 mm early make/last break contacts are possible at all positions.

Size R
Reversed style, acc. to DIN 41 612/IEC 60603-2

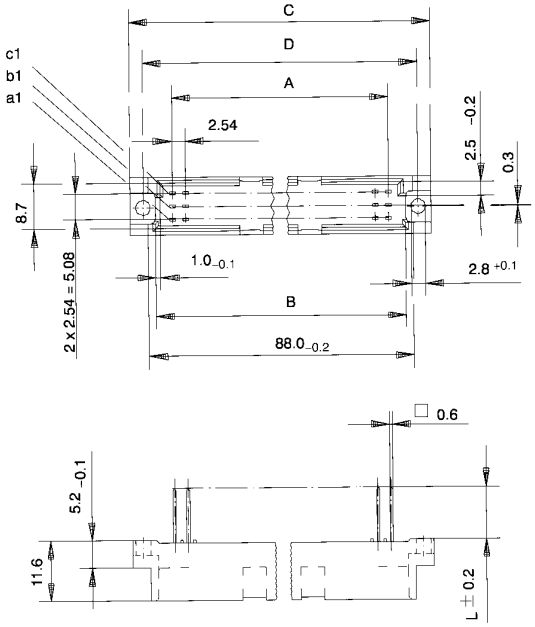
Size R/2
Reversed style, short version of size R

Size R/3
Reversed style, third-length of size R



Dimensional drawings

Male connector

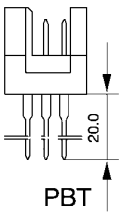
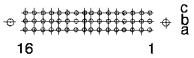
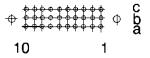
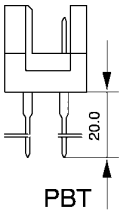
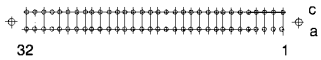
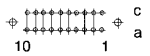
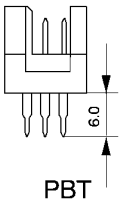
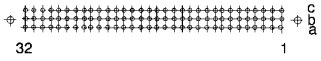
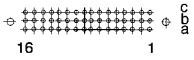
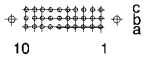
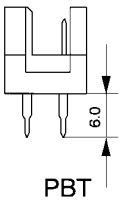
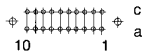


	R	R/2	R/3
A	31 x 2.54 = 78.74	15 x 2.54 = 38.1	9 x 2.54 = 22.86
B	$85.2^{+0.2}$	$44.6^{+0.2}$	$29.3^{+0.2}$
C	95.0 max.	55.0 max.	39.76 max.
D	$90.0^{\pm 0.1}$	$50.0^{\pm 0.1}$	$34.76^{\pm 0.1}$

Ordering informations

Male connectors

Contact supporting press-in tool

	Size R	Size R/2	Size R/3
 PBT	STV–R 96–M–abc–EE  107 207 307 **414690** **414691**	STV–R/2 48–M–abc–EE  107 207 307 **004993**	STV–R/3 30–M–abc–EE  107 207 307 **023419**
 PBT	STV–R 64–M–ac–EE  107 207 307 **414687** **414688**	STV–R/2 32–M–ac–EE  107 207 307 **023422**	STV–R/3 20–M–ac–EE  107 207 307 **023423**
 PBT	STV–R 96–M–abc–EE  107 207 307 **593413** **593414**	STV–R/2 48–M–abc–EE  107 207 307 **004480**	STV–R/3 30–M–abc–EE  107 207 307 **433780**
 PBT	STV–R 64–M–ac–EE  107 207 307 **593410** **593411**	STV–R/2 32–M–ac–EE  107 207 307 **004502**	STV–R/3 20–M–ac–EE  107 207 307 **023424**

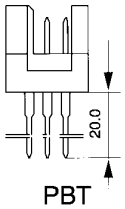
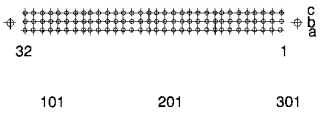
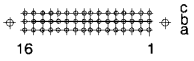
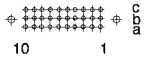
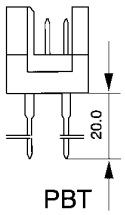
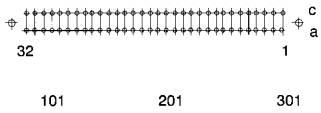
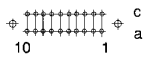
Other versions on request.

0,8 mm early make/last break contacts
are possible at all positions.

Ordering informations

Male connectors with transfer-zone

Contact supporting press-in tool

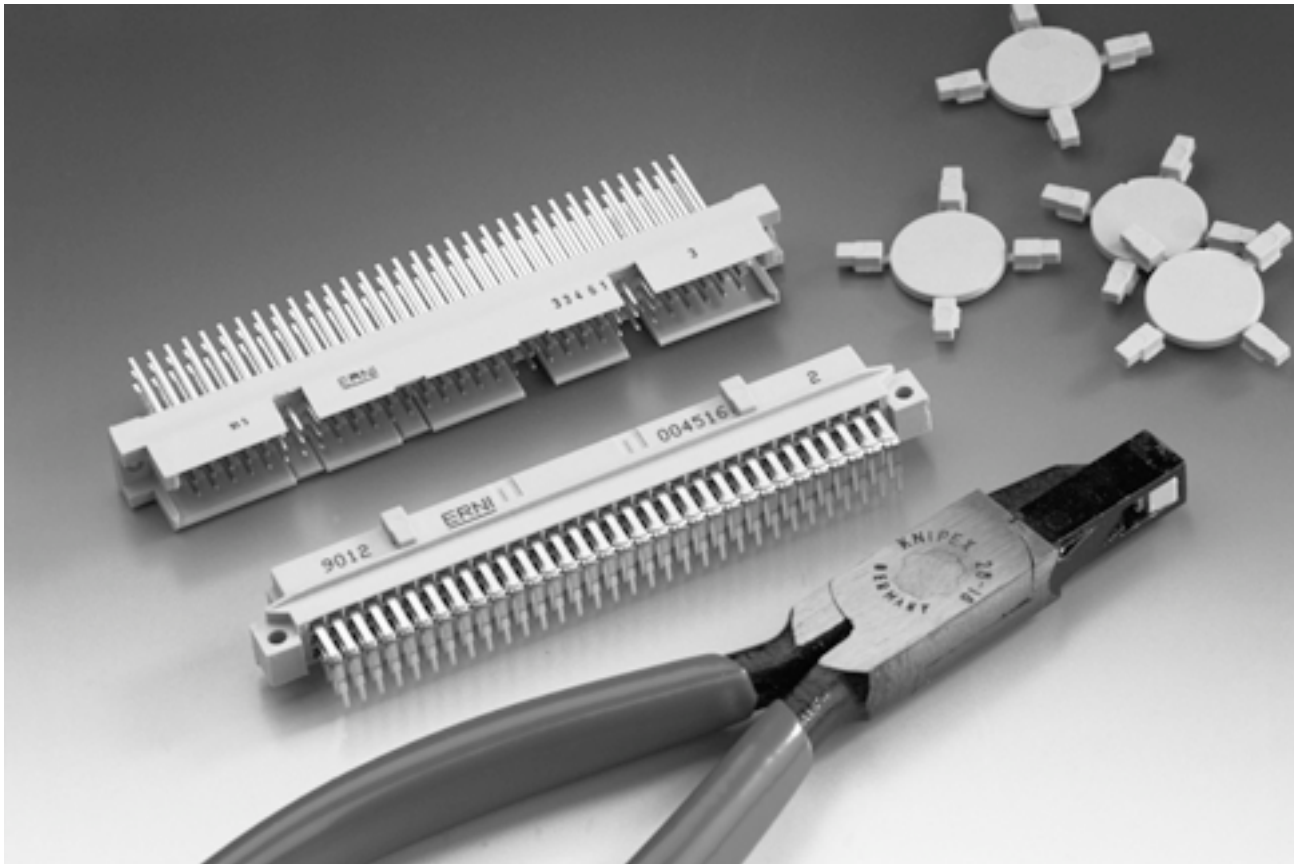
	Size R	Size R/2	Size R/3
 PBT	STV–R 96–M–abc–EEUE 1)  **414702** **414703**	STV–R/2 48–M–abc–EEUE 1)  **023425**	STV–R/3 30–M–abc–EEUE 1)  **023426**
 PBT	STV–R 64–M–ac–EEUE 1)  **414699** **414700**	STV–R/2 32–M–ac–EEUE 1)  **023427**	STV–R/3 20–M–ac–EEUE 1)  **023428**

1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

Other versions on request.

0,8 mm early make/last break contacts are possible at all positions.

Application example



In order to avoid any incorrect connections being made which could lead to the damage of sensitive electronic equipment due to overload, provisions are available for coding the connector halves.
Connector sizes B/2, B/3, C/2, C/3, M and the inverse versions are provided with this integral coding.

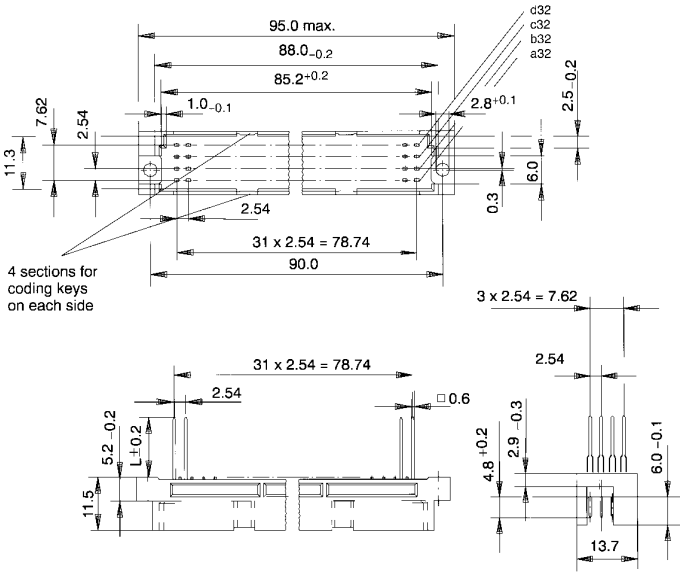
The integral coding is accomplished by breaking off (with pliers) the coding tab positions on the male connector.
Coding slots are made on the corresponding locations as well on the female connector.
For information on coding systems, please contact the local ERNI sales office.

Size RD 128

Reversed style with 4 rows of contacts, each with

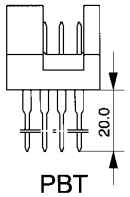
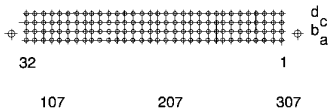
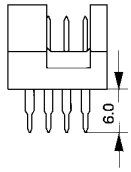
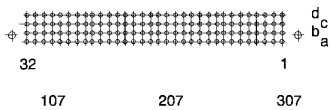
Dimensional drawings

Male connector



Ordering informations

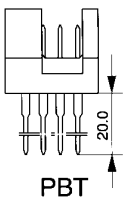
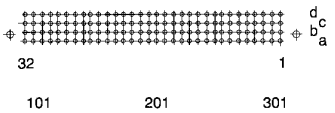
Male connectors

	Size RD128
 PBT	STV–RD128–M–abcd–EE  **013181**
 PBT	STV–RD128–M–abcd–EE  **013178**

Other versions on request.

Contact supporting press-in tool

Male connectors with transfer-zone

	Size RD128
 PBT	STV–RD128–M–abcd–EEUE[1)]  **013154**

1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

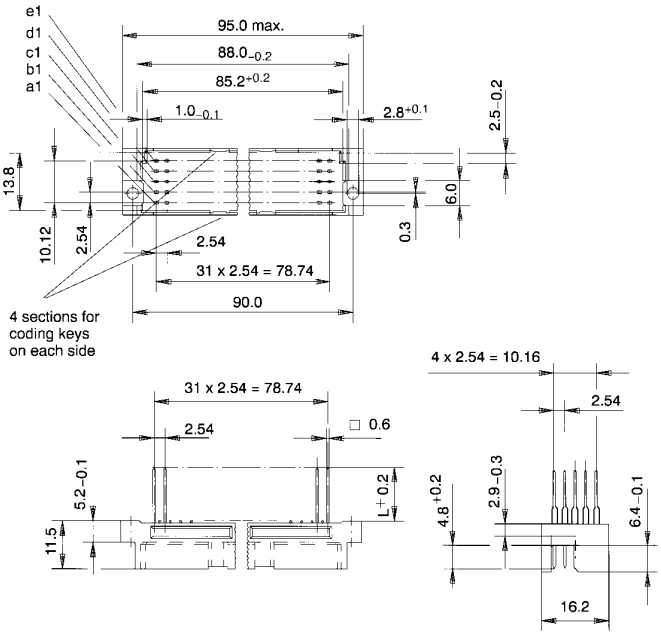
0,8 mm early make/last break contacts are possible at all positions.

Size TE 160

Reversed style of size E 160

Dimensional drawings

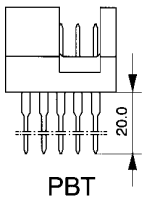
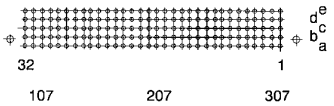
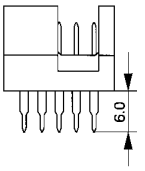
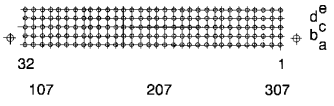
Male connector



Contact supporting press-in tool

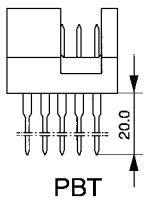
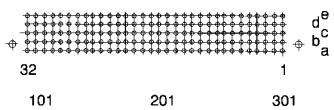
Ordering informations

Male connectors

	Size TE160
 PBT	STV–TE160–M–abcde–EE  **013164**
 PBT	STV–TE160–M–abcde–EE  **013161**

Other versions on request.

Male connectors with transfer-zone

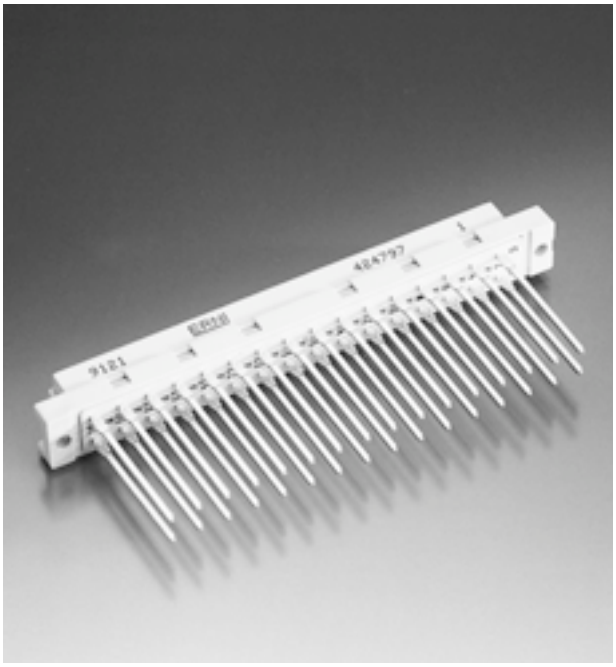
	Size TE160
 PBT	STV–TE160–M–abcde–EEUE[1]  **013155**

1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

0,8 mm early make/last break contacts are possible at all positions.

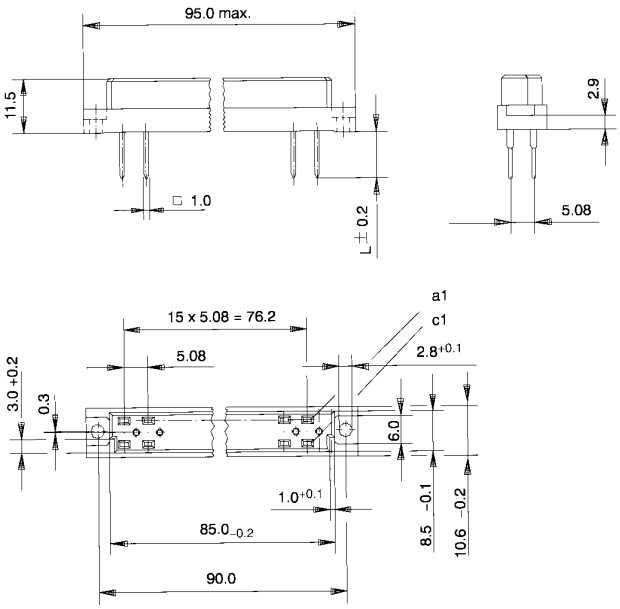
Size D

acc. to DIN 41 612/IEC 60603-2



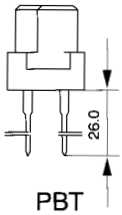
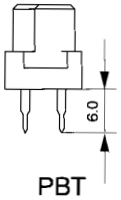
Dimensional drawings

Female connector



Ordering informations

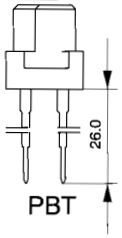
Female connectors

	Size D
 PBT	STV–D 32–F–ac–EE  32 2 c a 107 207 307 **424797 424798 424799**
 PBT	STV–D 32–F–ac–EE  32 2 c a 107 207 307 **424803 424804 424805**

Other versions on request.

Contact supporting press-in tool

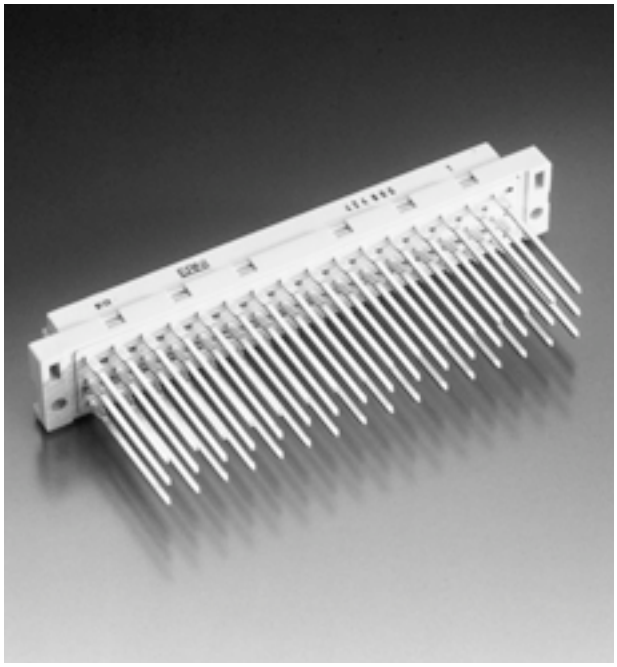
Female connectors with transfer-zone

	Size D
 PBT	STV–D 32–F–ac–EEUE[1]  32 2 c a 101 201 301 **424801**

1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

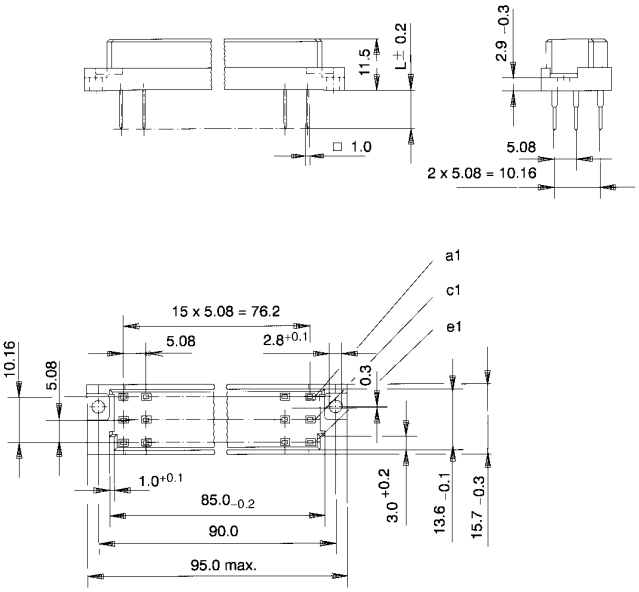
Size E

acc. to DIN 41 612/IEC 60603-2



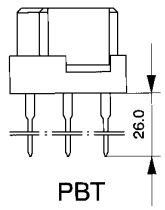
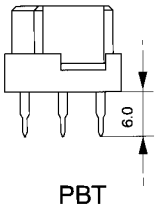
Dimensional drawings

Female connector



Ordering informations

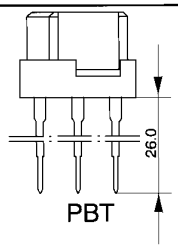
Female connectors

	Size E		
 PBT	STV–E 48–F–ace–EE		
	107	207	307
	424806	**424807**	**424808**
 PBT	STV–E 48–F–ace–EE		
	107	207	307
	424812	**424813**	**424814**

Other versions on request.

Contact supporting press-in tool

Female connectors with transfer-zone

	Size E		
 PBT	STV–E 48–F–ace–EEUE[1)]		
	101	201	301
	424810		

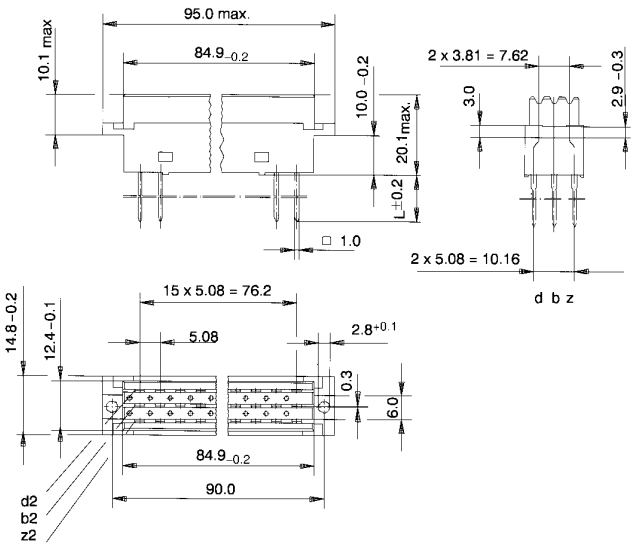
1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

Size F

acc. to DIN 41 612/IEC 60603-2

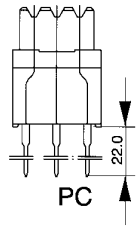
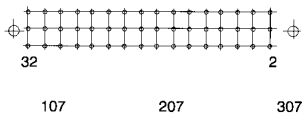
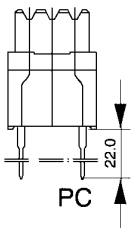
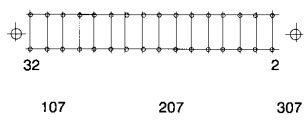
Dimensional drawings

Female connector



Ordering informations

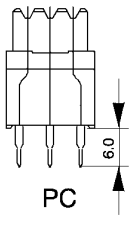
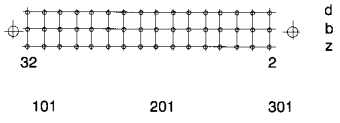
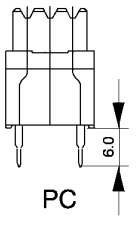
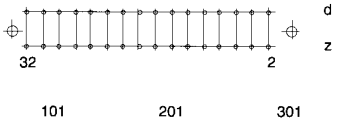
Female connectors

	Size F
	STV–F 48–F–zbd–EE  **593990** **593991**
	STV–F 48–F–zd–EE  **593993** **593994**

Other versions on request.

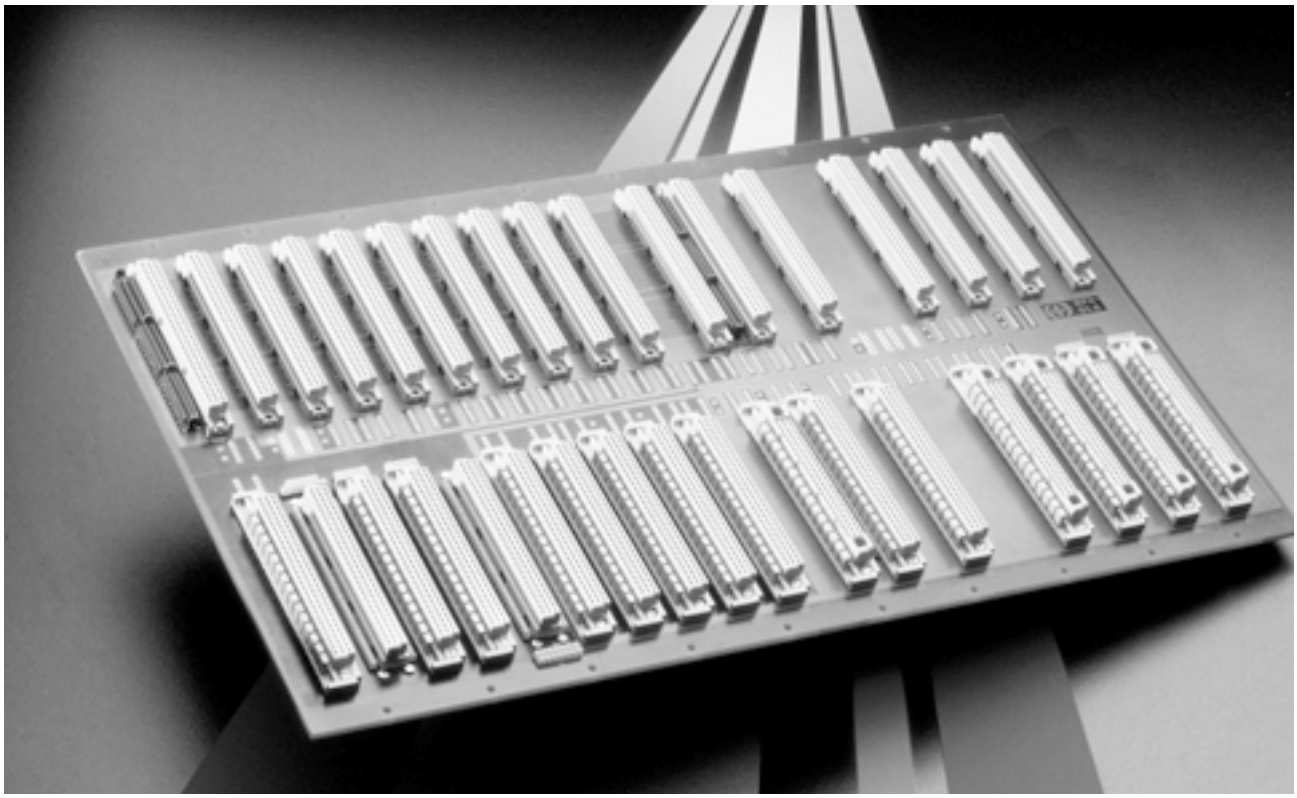
Contact supporting press-in tool

Female connectors with transfer-zone

	Size F
	STV–F 48–F–zbd–EEUE[1)]  **013970** **594491**
	STV–F 48–F–zd–EEUE[1)]  **023429** **433010**

1) Terminals nickel-plated over full length.
Transfer-zone (5.0 mm) hard gold-plated.

Application example



Apart from the connectors which the user press-fits himself, ERNI also offers complete bus systems. These systems are matched to solderless wiring at the layout stage in collaboration with the user.

Our comprehensive service includes:

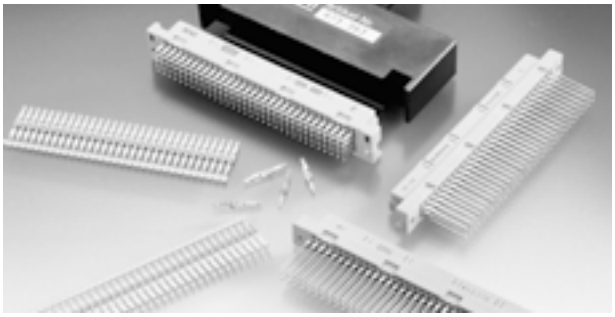
- Collaboration on layout preparation
- Procurement of PC Board
- Testing of PC Board
- Assembly of the components
- Electrical testing of the system for short circuit and continuity

Press-in tools

Pneumatically assisted bench press with pressure measuring unit.

General

The male and female connectors are press-fitted into the PC Board in a one-step operation. No additional securing such as screw hardware is necessary.
Press-fitting of female connector sizes B, B/2, B/3, C, C/2, C/3, M, D, E and F is performed with the aid of a contact-supporting press-in tool which transmits the insertion force to the individual contacts direct.
For female connector sizes B and C, an additional version is offered which can be press-fitted with just a flat press-in tool. Insertion force is absorbed by the connector housing.
Female connector sizes E 160, H 11 and H 15 are similary press-fitted with a flat press-in tool.
When press-fitting the inverted male connectors the insertion force is transferred to the male contacts direct.
The forces occuring can be indicated on a pressure measuring unit during the press-fit process and printed out via an analysis system.



Flat press-in tool

Pressure measurement analysis system

Ordering informations

Press-in tools for female connectors

Size	Contact supporting upper section	Flat upper section	Lower section
B	**473277**	**473382**	**473161**
B/2	**473278**		
B/3	**473468**		
C	**473275**	**473383**	
C/2	**473279**		
C/3	**473469**		
H11		**473436**	
H15		**473435**	**473162**

Size	Contact supporting upper section	Flat upper section	Lower section
M24	**473347**		**473161**
M42	**473346**		
M60	**473345**		
M72	**473344**		
E160	**473260**	**473363**	**473362**
D	**473260**		**473222**
E	**473257**		
F	**473262**		

Press-in tools for reversed male connectos

Size	Contact supporting upper section	Lower section
Q	**473323**	**473161**
Q/2	**473464**	
Q/3	**473466**	

Size	Contact supporting upper section	Lower section
R	**473233**	**473161**
R/2	**473465**	
R/3	**473467**	
RD128	**471605**	**473362**
TE160	**471607**	

On request ERNI offers you various versions of bench presses.

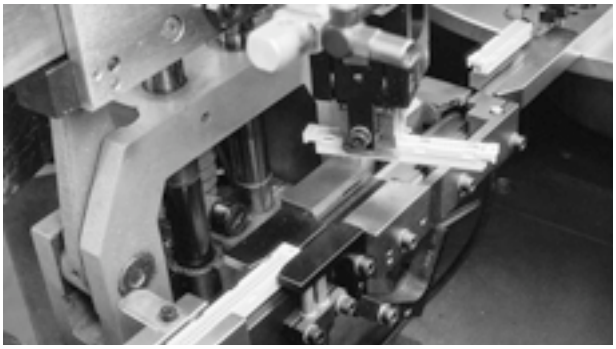
Innovations

Mouldings

The staff at ERNI Tooling and Equipment Design have plenty of experience in developing injection moulds for high-quality mouldings made of suitable materials for use in electronics. As the moulds for manufacturing of these insulation housings are made in the ERNI Tool Shop Department you enjoy single-source precision.

Contacts

Reliable contacts are a key policy at ERNI. Again and again ERNI designers and ERNI toolmakers have set about tackling new challenges in cutting out metal. Complex bends, precision cut edges and very small contact pitches are a matter of routine.
It is customers' requirements which count when new tools are being developed and built.



Production Know-How

Well-known customers have come to appreciate the precision of ERNI production. At ERNI you will find jobs for fine mechanical production of components. Ranging from the handling of coil wire to the assembly of contacts in insulation housings and precision adjustment of contacts you will find an abundance of know-how at ERNI.
ERNI are always the right people to approach when it comes to connecting insulation housings and contacts.

Comprehensive Solutions

At ERNI you can obtain individual parts or a comprehensive solution tailored to meet requirements.
Consulting sales engineers take in customers' problems all over the world, they coordinate them with internal advisors and the departments responsible at the plant.
Sale office consultants are at your disposal on the telephone in the plant. For your comprehensive solution from ERNI you will find experience in the fields of development, toolmaking, special-purpose machine construction, fine mechanical production and quality assurance.