

Trapezoidal Connectors Serie TMC

to DIN 41 652 and Mil-C-24308

Crimp Snap-in



General

TMC (Trapezoidal Miniature Connector) series connectors are used for interfacing applications.

They are used for the standardized V 24 interface, for example. ERNI supplies the TMC series in housing sizes 9, 15, 25, 37 and 50 pins, with the following connection techniques:

- Dip-solder • Hand-solder • Wire-wrap
- Crimp snap-in • Solderless press-in

This data sheet gives the technical data and ordering instructions for crimp snap-in. For the remaining connection modes there are separate data sheets. The wide range of ERNI cable housings also fit the **Crimp Snap-in** connectors.

This data sheet gives ordering instructions for series KSG 185 cable housings. The ordering instructions for series KSG 183 and KSG 184 are given in the Trapezoidal Connectors Data Sheet.

The metal connector housings are all-round tin-plated. The plug connectors (P) are internally laminated in the contact area for flat shielding contacting. As a result the housing remains closed at the sides.

Main feature

- 5 housing sizes with 9, 15, 25, 37 and 50 pins
- Tin-plated metal housing
- **Laminated ground contact for screening**
- Installation in KSG 183, 184 and 185 possible
- Contacts available in various batch sizes
- Individual contact mounting, also partial mounting
- Wide range of accessories
- Compatible with all common makes
- Preparation for tools of other manufacturers also possible

Accessories

Our data sheets give ordering instructions for the standard design versions. We can of course produce almost

any variant. Let us know what you need, together with the quantity. We will give you a budgeted proposal for the design required.

As accessories we offer:

- Integral riveting nuts
- Spacer bolts with internal thread
- Hexagon bolts for screw-in locking
- Floating fixings
- Ground bar
- Ground bar with fixing clips
- Cable housings for snap-in locking
- Cable housings for slide locking
- Cable housings for snap-in and/or screw-in locking
- Metallized cable housings for shielding

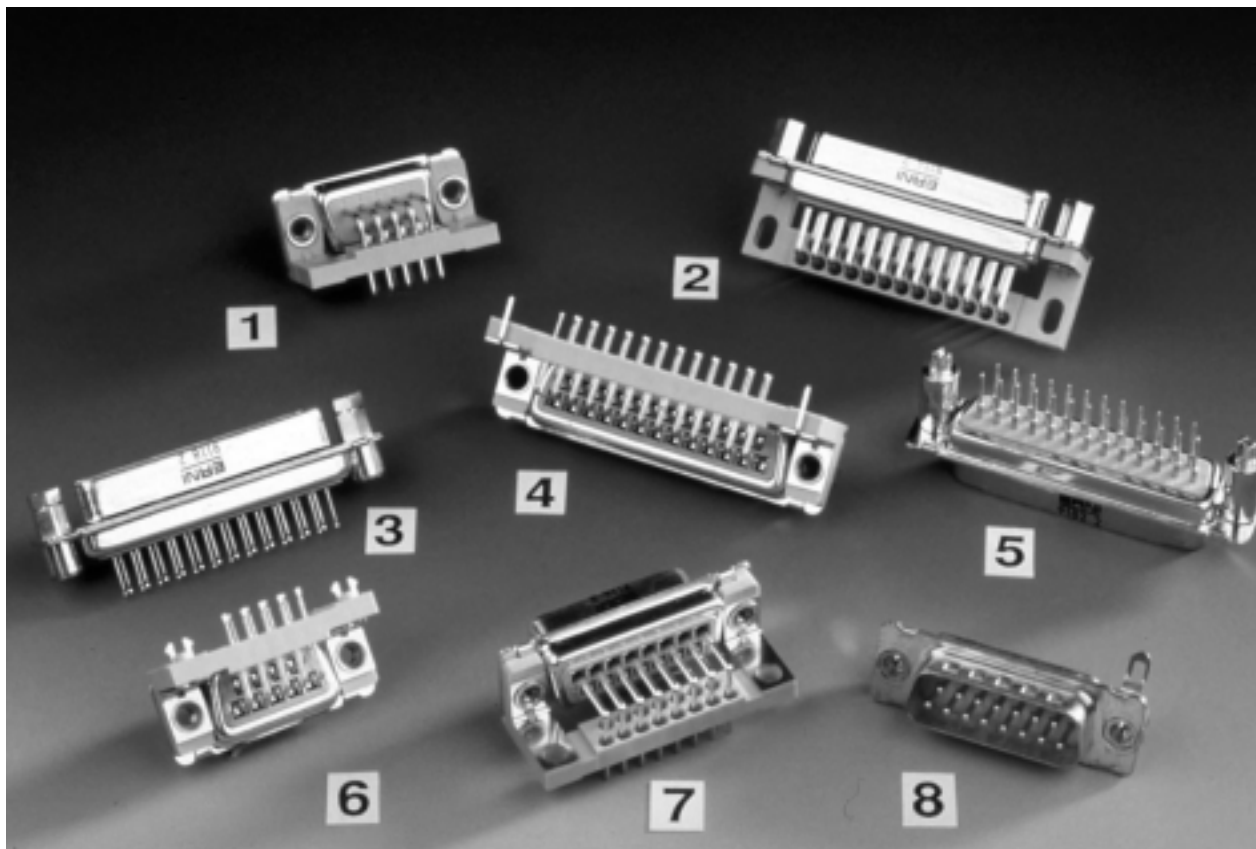
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Integrated Accessories



Riveted nut (see fig. 1)

On the version with riveted nut there is a nut riveted into the mounting flanges of the connector so that it cannot twist. The thread is available as a M3 and #4/40 version. This facilitates fitting into housings or front panels.

Threaded bolt (see fig. 2)

To ensure secure connector locking, a screw locking device is frequently used with threaded bolts. TMC connectors from ERNI are available with riveted threaded bolts. These hexagon bolts are available with internal threads of M3 and #4/40. For the user it means there is no need for loose accessories.

Spacer bolt (see fig. 3)

Due to the design of the TMC connectors a spacer is required for vertical assembly on PC Boards. These parts are supplied by ERNI as individual accessories.

Ground pin (see fig. 4)

The additional ground pin is designed for connecting up to the PC Board chassis contact, for example.

Spacer bolt with mounting clip (on request) (see fig. 5)

These spacer bolts can be snapped into the mounting holes on the PC Board. If the holes are plated-through there will also be a solder joint.

Ground clip (see fig. 6)

For screening contact there are angled ERNI TMC connector ground clips available. These clips are soldered into the mounting holes on the PC Board, thus creating a firm chassis connection.

Ground bar (see fig. 7)

Ground bars on angled connectors are attached to the guide frame on the PC Board. This makes it possible to make connection with chassis conductors on the pc board.

Ground eyelet (on request) (see fig. 8)

With the ground lug the chassis contact can be soldered on.

Electrical and Mechanical Characteristics

Versions	TMC-Plug Connectors to Performance Level 207 TMC-Socket Connectors to Performance Level 207	
Number of pins	2-rows 9, 15, 25, 37 und 3-rows 50 contacts	
Conductor cross-section	0.50-0.56 mm ² (AWG 20) 0.30-0.35 mm ² (AWG 22) 0.20-0.25 mm ² (AWG 24)	0.12-0.15 mm ² (AWG 26) 0.08-0.11 mm ² (AWG 28)
Temperature range	-65° ... +125°C	
Permissible humidity	Annual average ≤ 80 %, max. 100%	
Creepage and clearances	≥ 0.9 mm	
Working current at 25°C	5 A max.	
Test voltage	contact/contact contact/ground	1000 V _{eff} 1200 V _{eff}
Contact resistance	≤ 10 mΩ	
Insulation resistance	≥ 10 ¹⁰ Ω	
Shock and vibration proofness	No discontinuity at 20 g and 10...2000 Hz	
Shock resistance	to 50 g	
Metal protective collar	Steel, tin-plated plug connector (P) with lamination	
Insulating body	PBT 15 % GV color black	
Inflammability of the plastic	Non flammable as per UL 94 V-0	
Comperative creepage figure to DIN IEC 112 for PBT	CTI 275 / CTI 175 M	
Service life	Performance Level 2 ≥ 200 mating cycles	

Example of how to order

P = Plug connector
S = Socket connector

Product name		Insert number of pins		Termination	
TMC-P-...CSI (Crimp-Snap in)		Number of pins			
Number of pins	09	15	25	37	50
Standard					
	023 117	023 118	023 119	023 120	023 121*
Version (type of accessory)		Part no.			

* = Version currently with dimple ground contact

Dimension tables

Plug Connectors (P)

Number of pins	A ±0.3	B +0.2	C ±0.2	D +0.2	E ±0.3	F ±0.2	G +0.3	H ±0.3	J ±0.2	K max.	L max.
9	30.8	16.8	25	8.3	12.5	10.8	5.8	19.3	10.8	1.5	1.1
15	39.1	25.1	33.3	8.3	12.5	10.8	5.8	27.5	10.8	1.5	1.1
25	53	38.9	47	8.3	12.5	10.8	5.8	41.3	10.8	1.5	1.1
37	69.3	55.3	63.5	8.3	12.5	10.8	5.8	57.7	10.8	1.5	1.1
50	67	52.7	61.1	11.0	15.4	10.8	5.8	55.3	13.6	1.5	1.1

Socket Connectors (S)

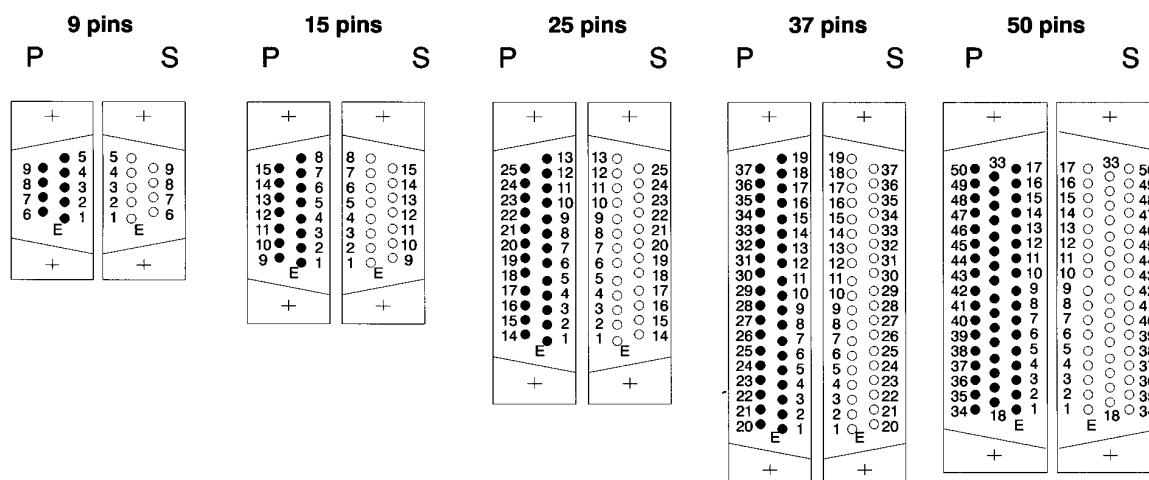
Number of pins	A ±0.3	B -0.2	C ±0.2	D -0.2	E ±0.3	F ±0.2	G -0.3	H ±0.3	J ±0.2	K max.	L max.
9	30.8	16.4	25	8.0	12.5	11.0	6.3	19.3	10.8	1.5	1.1
15	39.1	24.7	33.3	8.0	12.5	11.0	6.3	27.5	10.8	1.5	1.1
25	53	38.5	47	8.0	12.5	11.0	6.3	41.3	10.8	1.5	1.1
37	69.3	54.9	63.5	8.0	12.5	11.0	6.3	57.7	10.8	1.5	1.1
50	67	52.5	61.1	10.8	15.4	11.0	6.3	55.3	13.6	1.5	1.1

Other terminations for connectors of series TMC

- L = Solder cup
- TL = Straight solder pin termination for print assembly
- LP = Angled solder pin termination for print assembly (with and without guide frame)
- W = Wire-wrap termination
- EE = Elastic press-fit-zone, solderless press-fit

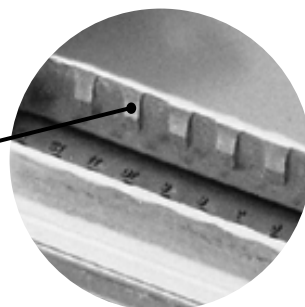
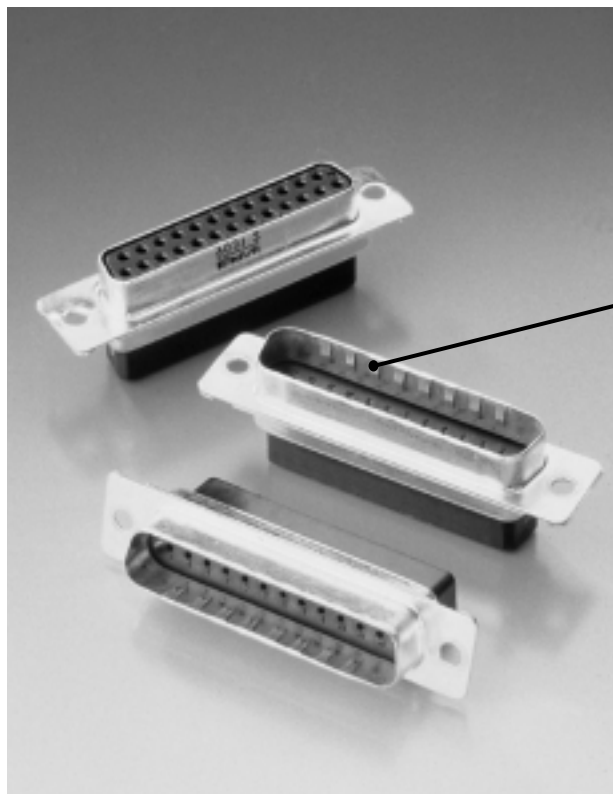
Separate data sheets are available for these versions.

Contact identification (wiring side)



Insulating Bodies for Plug Connectors (P)

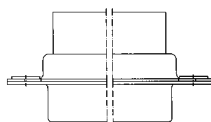
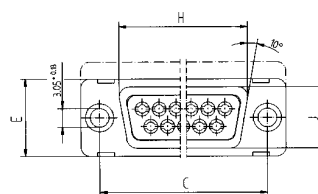
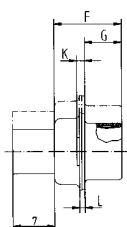
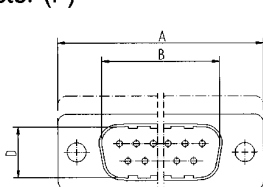
with laminated ribbing



Laminated ground contact for screening

Dimensional Drawings

Plug Connector (P)

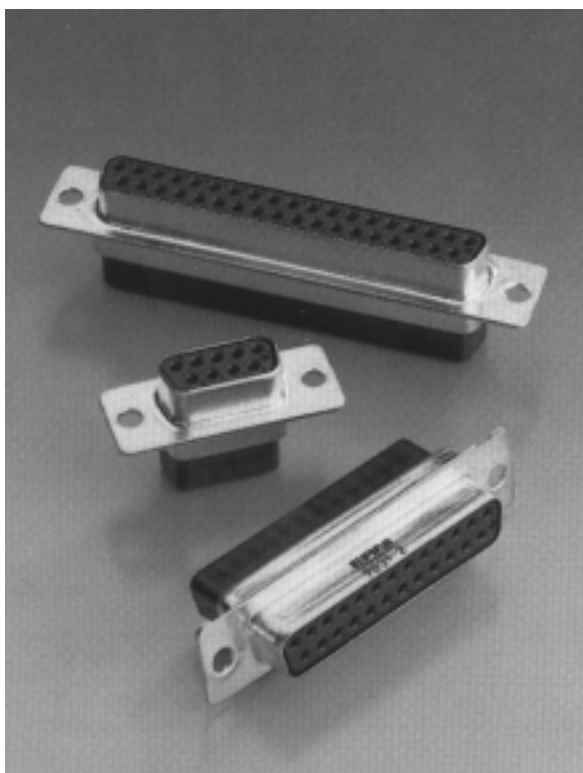


For dimension details see page 4.

Ordering Instructions

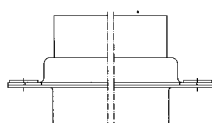
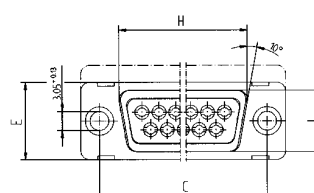
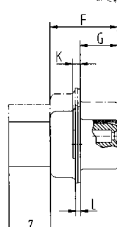
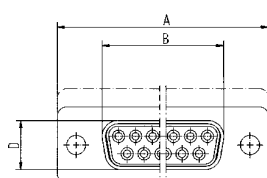
	TMC-P-....CSI (Crimp-Snap in)				
Number of pins	09	15	25	37	50
Standard	Standard version				
	014 177	014 179	014 181	014 183	014 185

Insulating Bodies for Socket Connectors (S)



Dimensional Drawings

Socket Connector (S)



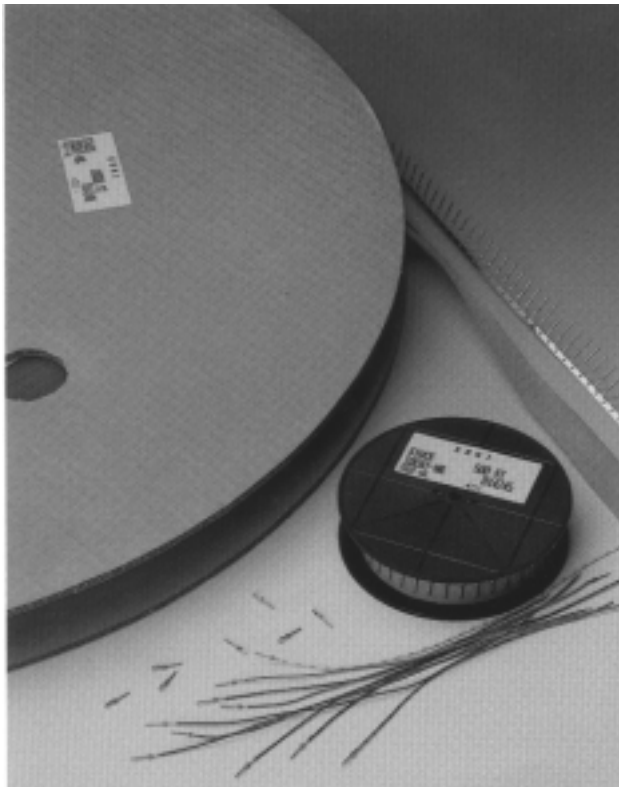
For dimension details see page 4.

Ordering Instructions

	TMC-S-....CSI (Crimp-Snap in)				
Number of pins	09	15	25	37	50
Standard	Standard version				
	014 176	014 178	014 180	014 182	014 184

Crimp Contacts for Plug Connectors (P)

AWG 28-20 0.08-0.56 mm²



Delivered as:

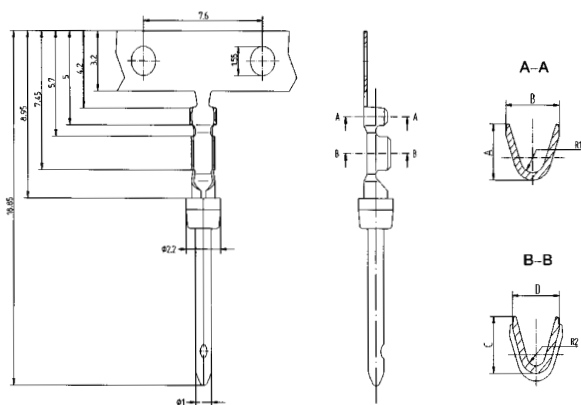
Loose contacts

Reels with 500 contacts for hand crimping tool

Reels with 10.000 contacts for automatic crimper

Dimensional Drawings

Crimp contacts for Plug Connectors (P)



AWG	mm ²	max. Ø	Dimension mm					
			A	B	C	D	R1	R2
26-20	0.14-0.56	1.5	2.0	2.5	1.9	1.9	0.6	0.5
28-24	0.08-0.25	1.0	1.5	1.7	1.5	1.5	0.4	0.3

Ordering Instructions

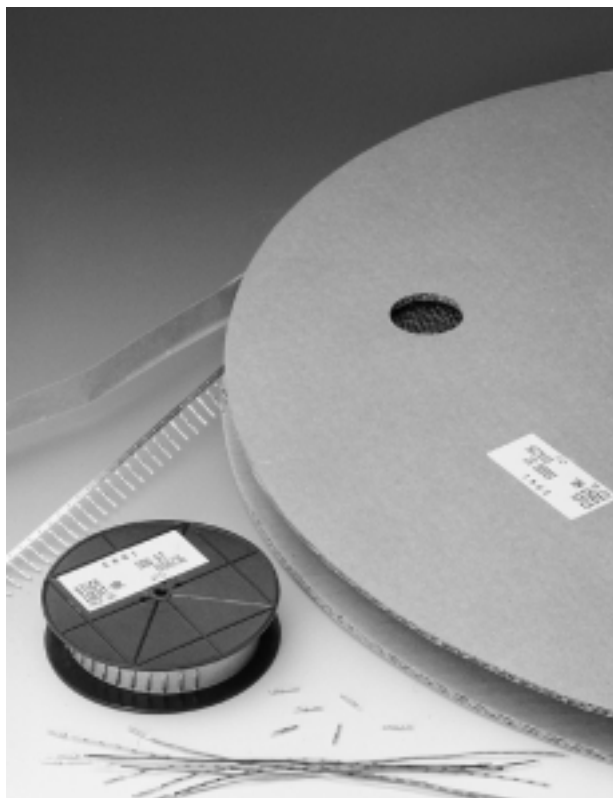
Performance Level 2, 200 mating cycles

	Loose contacts	Reel 500 pieces	Reel 10.000 pieces
Part number AWG 26-20	014 243	014 246	014 249
Part number AWG 28-24	014 242	014 245	014 248

Other performance levels and AWG ranges on request.

Crimp Contacts for Socket Connectors (S)

AWG 28–20 0.08–0.56 mm²



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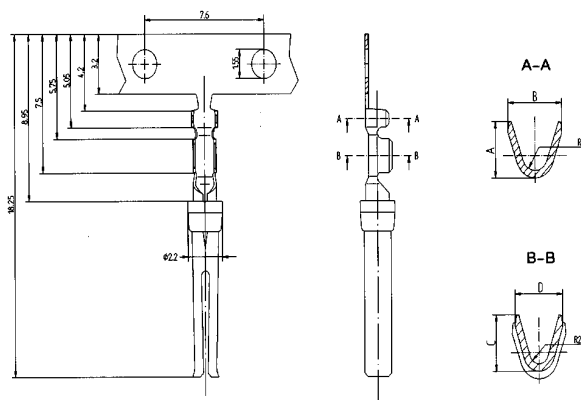
Loose contacts

Reels with 500 contacts for hand crimping tool

Reels with 10.000 contacts for automatic crimper

Dimensional Drawings

Crimp contacts for Socket Connectors (S)



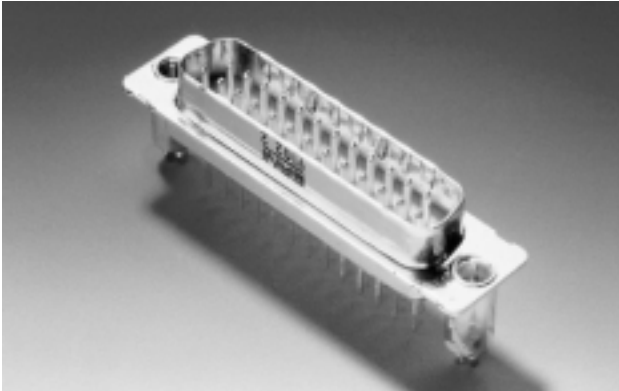
AWG	mm ²	max. Ø	Dimension mm					
			A	B	C	D	R ₁	R ₂
26–20	0.14–0.56	1.5	2.0	2.5	1.9	1.9	0.6	0.5
28–24	0.08–0.25	1.0	1.5	1.7	1.5	1.5	0.4	0.3

Ordering Instructions

Performance Level 2, 200 mating cycles

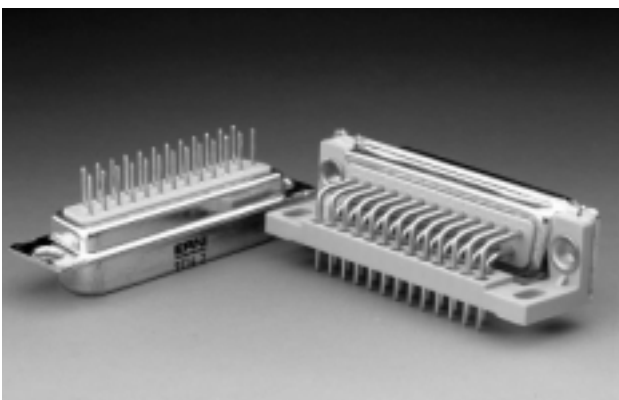
	Loose contacts	Reel 500 pieces	Reel 10.000 pieces
Part number AWG 26–20	014 234	014 237	014 240
Part number AWG 28–24	014 233	014 236	014 239

Other performance levels and AWG ranges on request.



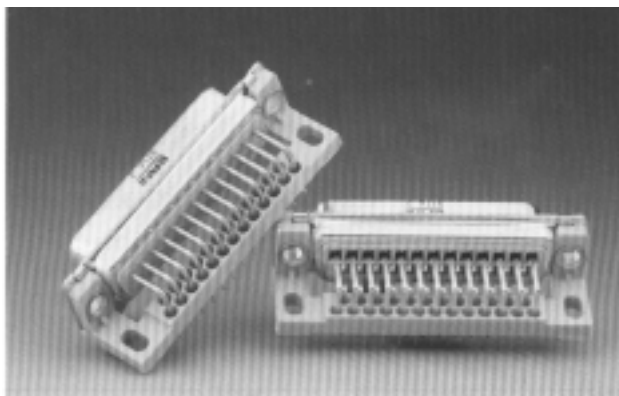
Tinned metal housings and laminated ground contacts

The metal housings on the TMC connectors (standard versions) from ERNI are tinned so as to achieve better contact for the chassis connection. Specially punched grooves on the metal protective collar of the male connectors ensure reliable contact. Together with the ERNI connector housings in the metallized version and grounding accessories on the connectors an optimal electromagnetically compatible application is achieved.



Solid punched male contacts

Due to a special manufacturing process we are in a position to offer solid punched male contacts. These versions have a tinned terminal zone and are suitable for a current-carrying capacity of up to 7.5 A.



Guide frame for angled connectors

For mounting purposes and better guidance of angled TMC connectors with pins for dip-soldering the standard versions are equipped with a guide frame made of plastic.

With this guide frame the connectors can be screwed or riveted onto PC Boards.

Versions with a guide frame and mounting clip are clipped into the pc boards and soldered in place



Connector housings for TMC connectors

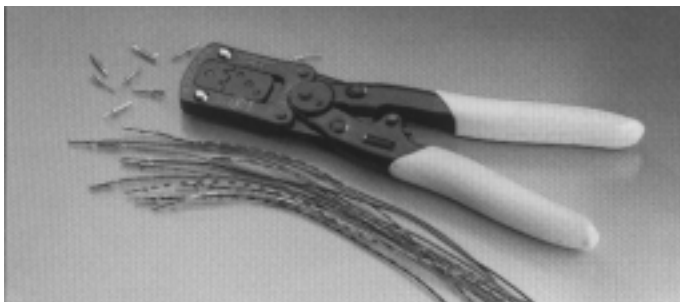
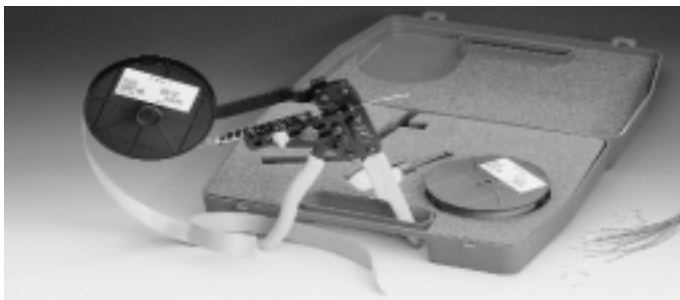
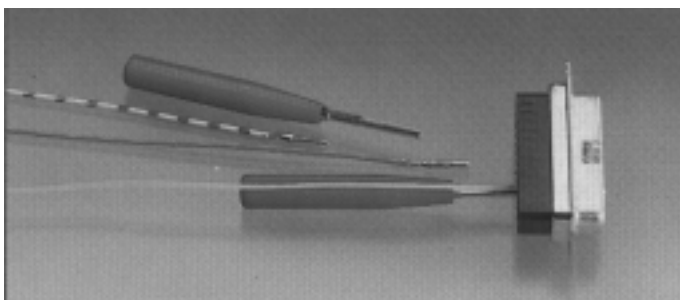
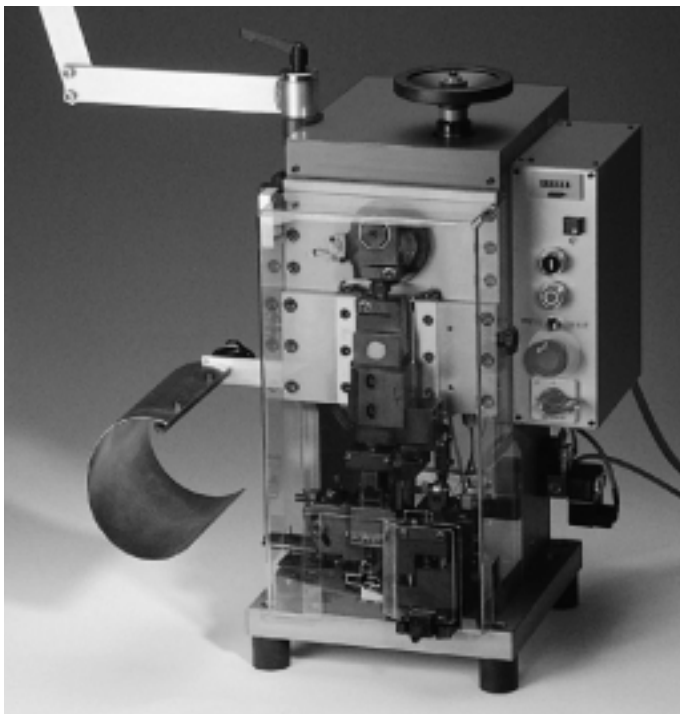
ERNI has also developed connector housings for Series TMC interface connectors.

- **KSG 183 housing with engagement locking**
- **KSG 184 housing with slide locking**
- **KSG 185 housing with engagement and/or screw locking, integrated coding**

These two-shell connector housings are also available in metallized versions. Together with the ERNI TMC connectors, which have laminated ground contacts, screening is optimized.

Processing Tools

Technical Data and Ordering Instructions

	Hand crimping tool for loose contacts AWG 20–28 0.08–0.56 mm ²	Part number
		014 374
	Hand crimping tool for reels with 500 contacts incl. reel holder and adjustable feed AWG 20–28 0.08–0.5 mm ²	Part number
		014 375
	Mounting and dismounting tool for AWG 20–28	Part number
		014 373
	Crimp presses are available for the automated usage of the crimp contacts. Please refer to our ERNI-team when purchasing this press.	