

Types H, H 3, MH 24 + 7, MH 21 + 5

Page

Technical characteristics type H

03.10

Type H connectors



03.11

Type H 3 connectors

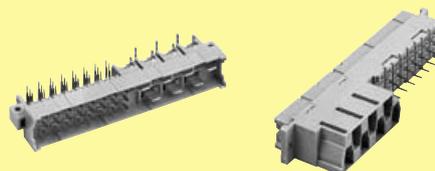


03.15

Technical characteristics type MH

03.20

Type MH 24 + 7 connectors



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Type MH 21 + 5 connectors



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Coding systems



03.26

Number of contacts
 15
 14 + 1 leading contact
 (position z 32)
 13 + 2 leading contacts
 (position z 4 und z 32)
 3

Working current
 15 A max.
 see current carrying capacity chart

Clearance
 Type H: ≥ 4.5 mm
 Type H 3: ≥ 4.0 mm

Creepage
 Type H: ≥ 8.0 mm
 Type H 3: ≥ 3.7 mm

Working voltage
 The working voltage also depends on the clearance and creepage dimensions of the pcb itself and the associated wiring according to the safety regulations of the equipment Explanations see chapter 00
 Connectors should not be mated under voltage

Test voltage $U_{r.m.s.}$
 Type H: ≥ 3.1 kV
 Type H 3: ≥ 2.5 kV

Contact resistance ≤ 8 m Ω

Insulation resistance $\geq 10^{12}$ Ω

Temperature range -55 °C ... $+125$ °C

The higher temperature limit includes the local ambient and heating effects of the contacts under load

Electrical termination

Male connector
 Connector with faston 6.3 x 2.5 (faston blade width x wire gauge) according to DIN 46 245 and DIN 46 247
 Solder pins for pcb connections $\varnothing 1.6 \pm 0.1$ mm DIN EN 60 097

Female connector
 Connector for faston 6.3 x 2.5 (faston blade width x wire gauge) according to DIN 46 245 and DIN 46 247
 Solder pins for pcb connections $\varnothing 1.6 \pm 0.1$ mm DIN EN 60 097
 Cage clamp terminal 0.14-1.5 mm²

Insertion and withdrawal force

Type H: ≤ 90 N
 Type H 3: ≤ 20 N

Materials

Mouldings Thermoplastic resin, glass-fibre filled, UL 94-V0
 Contacts Copper alloy

Contact surface

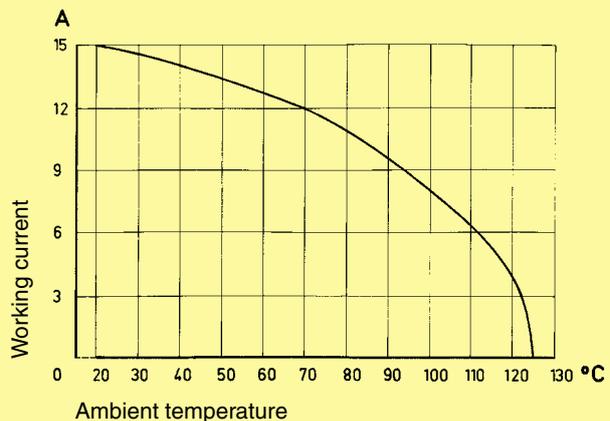
Contact zone Hard silver plated or gold plated

Mating conditions see chapter 00
 Coding systems see page 03.26

Current carrying capacity

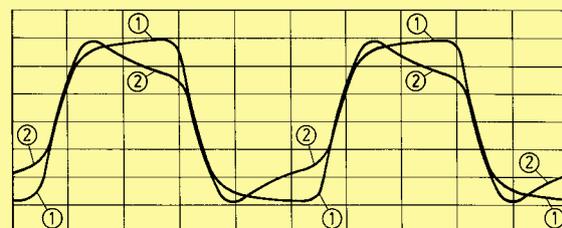
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the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

Control and test procedures according to DIN IEC 60 512



Low currents and voltages

Type H standard contacts have a silver plated surface. This precious metal has excellent conductive properties. In the course of a contact's lifetime, the silver surface generates a black oxide layer due to its affinity to sulphur. This layer is smooth and very thin and is partly interrupted when the contacts are mated and unmated, thus guaranteeing very low contact resistances. In the case of very low currents or voltages small changes to the transmitted signal may be encountered. This is illustrated below where an artificially aged contact representing a twenty year life is compared with a new contact.



Changes to the transmitted signal after artificial ageing
 ① new contact ② after ageing

In systems where such a change to the transmitted signal could lead to faulty functions and also in extremely aggressive environments, HARTING recommend the use of gold plated contacts.

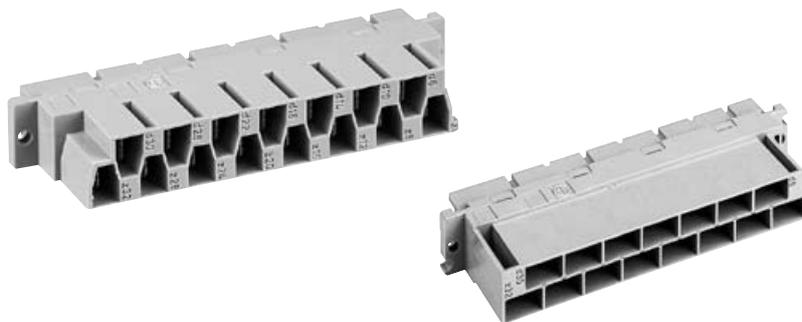
Below is a table derived from actual experiences.



Recommendation

Number of contacts

15



Female connectors

DIN Power to 15 A

Identification	Number of contacts	Part No.	Drawing	Dimensions in mm
<p>Female connector for faston 6.3 x 2.5¹⁾</p> <p>Cannot be used in a shell housing</p>	15	<p>Performance level 1²⁾</p> <p>09 06 215 2811</p>	<p>View from termination side</p>	
<p>Female connector for faston 6.3 x 2.5¹⁾</p> <p>May be used in a shell housing</p>	15	<p>Performance level 1²⁾</p> <p>09 06 215 2871</p>	<p>View from termination side</p>	
<p>Panel cut out</p>				

Shell housing see chapter 20

¹⁾ With shroud coding, see also page 03.26
²⁾ Acc. to IEC 60 603-2

Number of contacts

15



Female connectors

Identification	Number of contacts	Part No.	Drawing	Dimensions in mm
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Female connector*
with solder pins
"low profile"³⁾

Performance level 1
acc. to IEC 60 603-2



DIN Power
to 15 A

2.7 mm

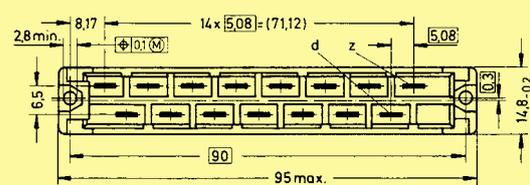
15

09 06 215 2812¹⁾

4 mm

15

09 06 215 2821¹⁾
09 06 215 2892²⁾



5.5 mm

15

09 06 215 2890²⁾

7 mm

15

09 06 215 2831¹⁾
09 06 215 2891²⁾

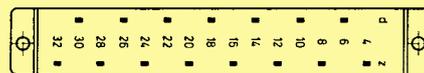
a
2.7
4
5.5
7
10

10 mm

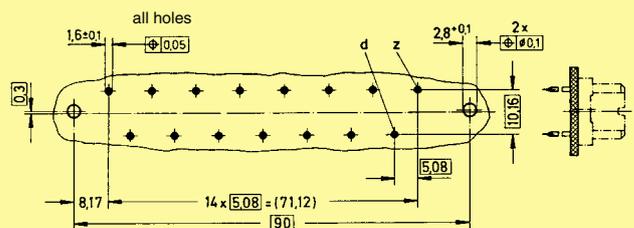
15

09 06 215 2841¹⁾

Contact arrangement View from termination side



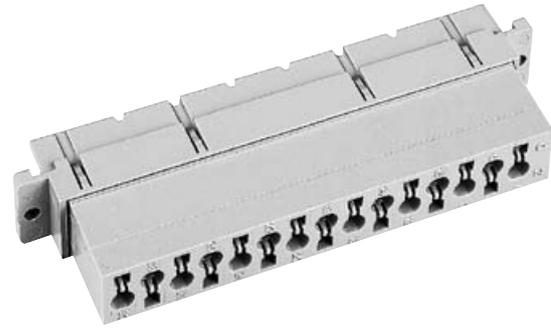
Board drillings
Mounting side



¹⁾ Variant with silver plated contacts
²⁾ Variant with gold plated contacts
³⁾ With shroud coding, see also page 03.26

Number of contacts

15



Female connectors

Identification	Number of contacts	Part No.	Drawing	Dimensions in mm
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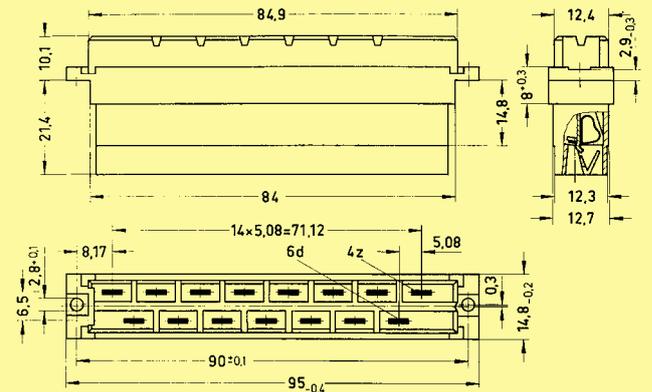
Female connector with cage clamp

May be used in a shell housing

15

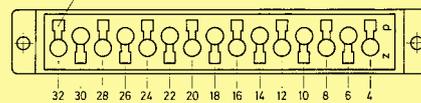
Performance level 1 acc. to IEC 60 603-2

09 06 015 2813



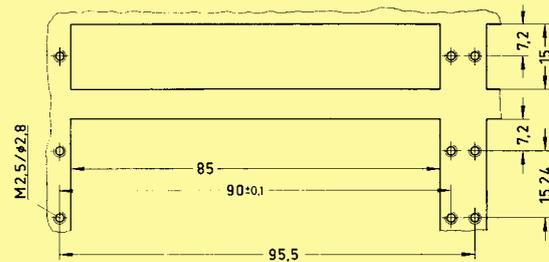
Contact arrangement View from termination side

Slot for screw driver

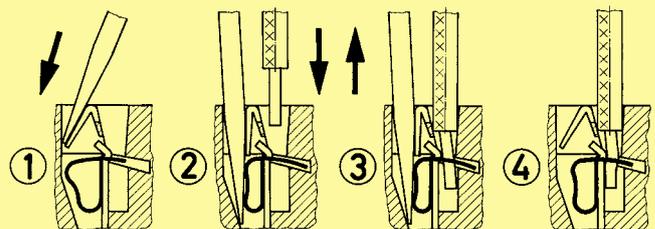


Shell housing see chapter 20

Panel cut out



Termination instructions



Screw driver width: 2.5 x 0.4 mm
 Stripping length: 4 - 7 mm
 Wire gauge: 0.14 - 1.5 mm² (AWG 26 - 16)

Number of contacts

3



Male and female connectors

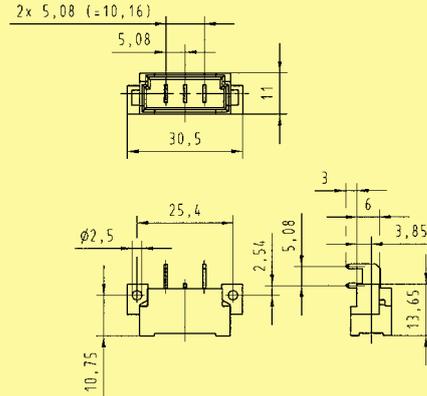
Identification	Number of contacts	Part No.	Drawing	Dimensions in mm
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Male connector with angled solder pins and preleading middle contact

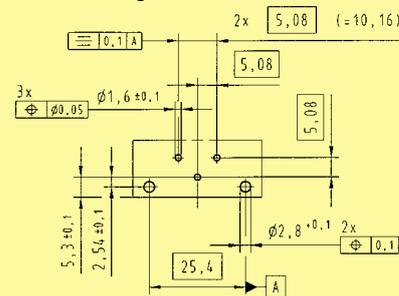
3

Performance level 1¹⁾

09 06 203 2911



Board drillings

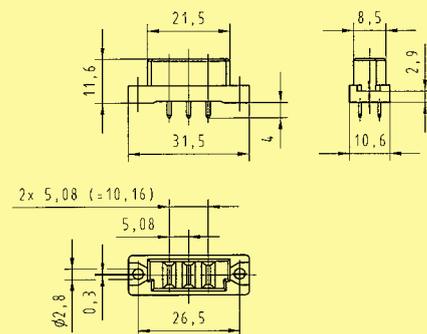


Female connector with solder pins

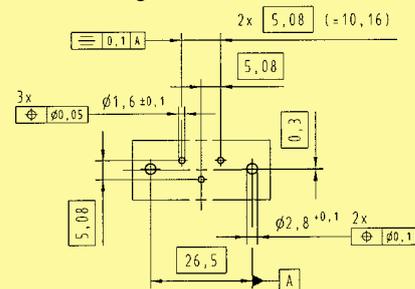
3

Performance level 1¹⁾

09 06 203 2811



Board drillings



DIN Power to 15 A

03 15

¹⁾ Acc. to IEC 60 603-2

ELECTRONIC SECTION

Number of contacts	21, 24
Contact spacing (mm)	
Male connector	2.54 x 5.08
Female connector	5.08
Working current	6 A max. see current carrying capacity chart
Clearance	≥ 1.6 mm
Creepage	≥ 3 mm
Working voltage	
The working voltage also depends on the clearance and creepage dimensions on the pcb itself, and the associated wiring	
according to the safety regulations of the equipment. Explanations see chapter 00	
Test voltage $U_{r.m.s.}$	1.55 kV
Contact resistance	≤ 15 mΩ wrap, solder termination ≤ 20 mΩ including crimp connection

Electrical termination	
Male connector	Solder pins for pcb connection Ø 1 ± 0.1 mm acc. to IEC 60 326-3 Wrap posts 1 x 1 mm diagonal 1.34-1.45 mm
Female connector	Solder pins for pcb connection Ø 1 ± 0.1 mm acc. to IEC 60 326-3 Crimp terminal 0.09-1.5 mm ²

Contact surface	
Contact zone	Selectively plated according to performance level ¹⁾

HEAVY DUTY SECTION*

Number of contacts	7
Working current	15 A max. see current carrying capacity chart
Clearance	≥ 4.5 mm
Creepage	≥ 8.0 mm
Working voltage	
The working voltage also depends on the clearance and creepage dimensions on the pcb itself, and the associated wiring	
according to the safety regulations of the equipment. Explanations see chapter 00	
Test voltage $U_{r.m.s.}$	3.1 kV
Contact resistance	≤ 8 mΩ

Electrical termination	
Male and female connector	Connector for faston 6.3 x 2.5 (faston width x wire gauge) acc. to DIN 46 245 and DIN 46 247
Male connector	Solder pins for pcb connection Ø 1.6 ± 0.1 mm acc. to DIN EN 60 097

Contact surface	
Contact zone	Hard silver plated

BOTH PARTS

Insulation resistance	≥ 10 ¹² Ω
Temperature range	- 55 °C ... + 125 °C
The higher temperature limit includes the local ambient and heating effects of the contacts under load	

Insertion and withdrawal force ≤ 85 N

Materials	
Mouldings	Thermoplastic resin, glass-fibre filled, UL 94-V0
Contacts	Copper alloy

* only for type MH 24 + 7
¹⁾ Explanation of performance levels see chapter 00

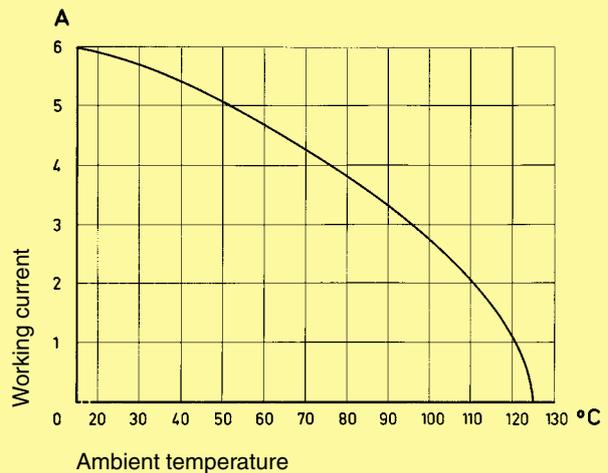
Mating conditions	see chapter 00
Coding systems	see page 03.26

Current carrying capacity

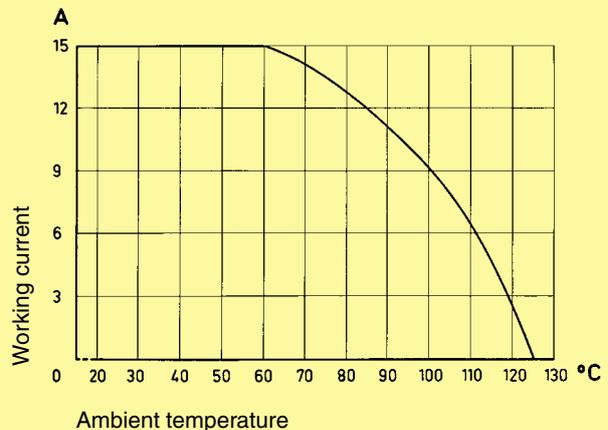
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the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

Control and test procedures according to DIN IEC 60 512

Electronic section



Heavy duty section



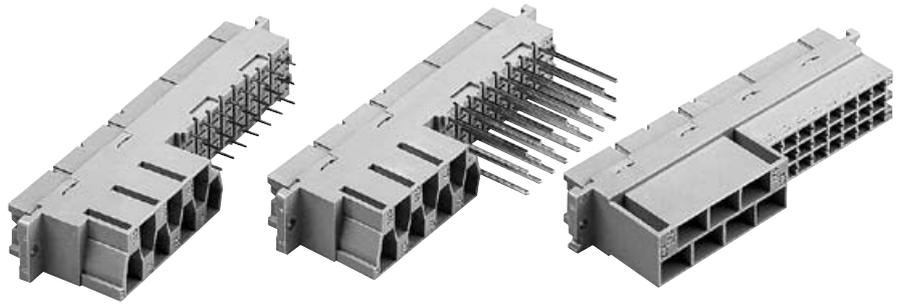
DIN Power to 15 A



DIN Power
to 15 A

Number of contacts

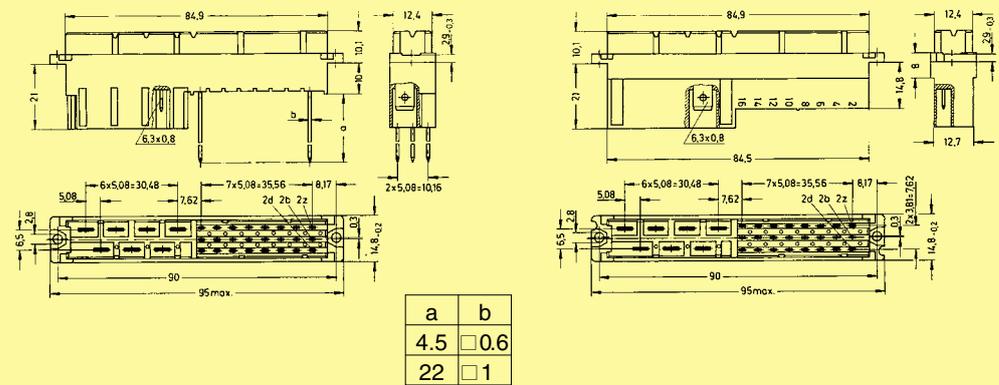
24 + 7
F + H



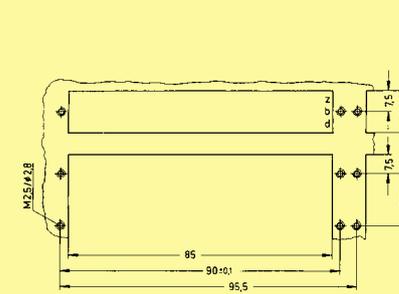
Female connectors

Identification	Number of contacts	Part No.		
		3	2	1
Female connector with solder pins 4.5 mm ¹⁾	24 + 7		09 06 231 6822	09 06 231 2822
Female connector with wrap posts 1 x 1 mm ¹⁾	24 + 7		09 06 231 6821	09 06 231 2821
Female connector for crimp contacts ¹⁾ Order contacts separately, see chapter 02	24 + 7			09 06 231 2881

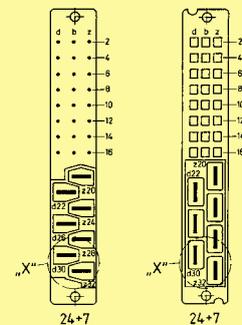
DIN Power to 15 A



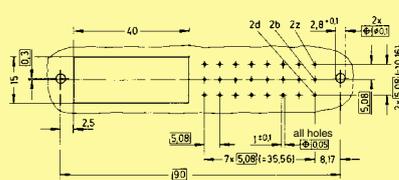
Panel cut out



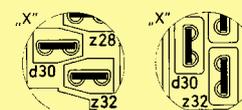
Contact arrangement
View from termination side



Board drillings
Mounting side



Shell housing for female connector with crimp contacts
see chapter 20



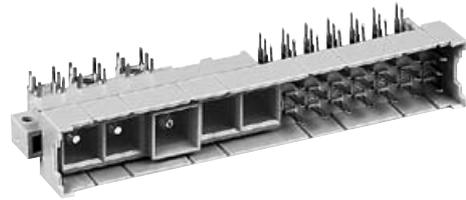
Dimensions in mm

¹⁾ With shroud coding, see also page 03.26

Number of contacts

21 + 5

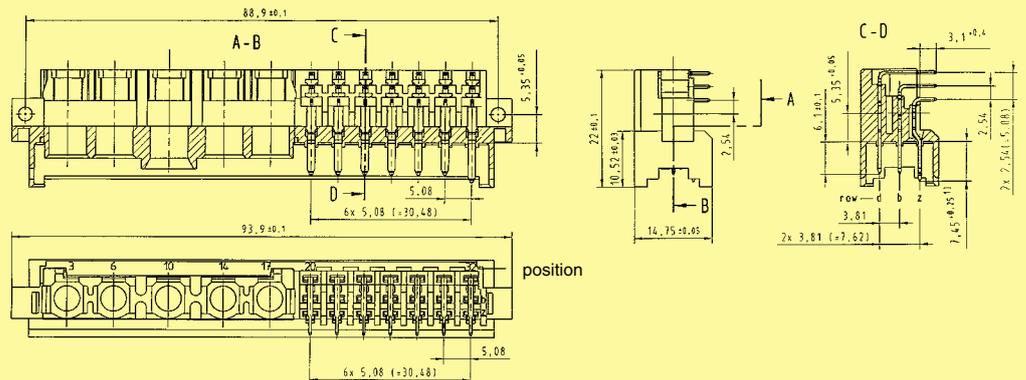
F + M



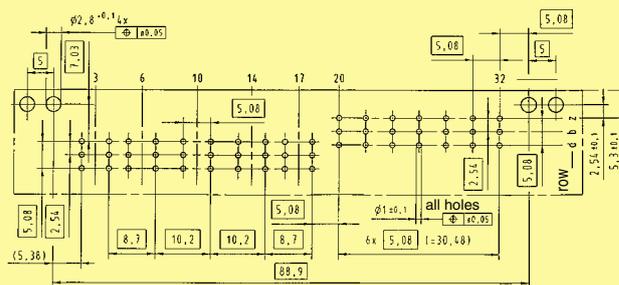
Male connectors

Identification	Number of contacts	Part No. 3	Performance levels according to IEC 60 603-2. Explanation chapter 00 2	1
Male connector with angled solder pins (without special contacts)*	21 + 5	Performance level 3 on request	09 06 121 6981	Performance level 1 on request
High current contact for printed circuit terminations max. 40 A ²⁾ leading contact max. 40 A ²⁾			09 03 000 6127 09 03 000 6128	
Removal tool			09 99 000 0328	

Dimensions

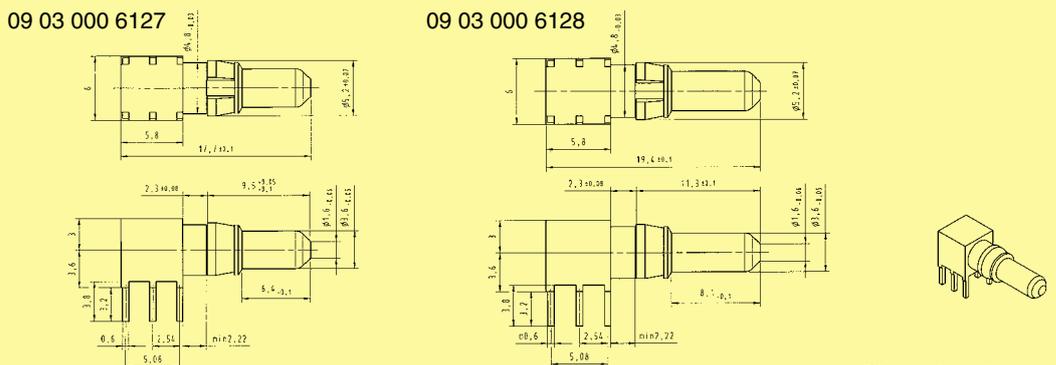


Board drillings Mounting side



1) Leading contact in position z 32

Dimensions



Dimensions in mm

* Pre-loaded with special contacts on request

Code keys see page 03.26

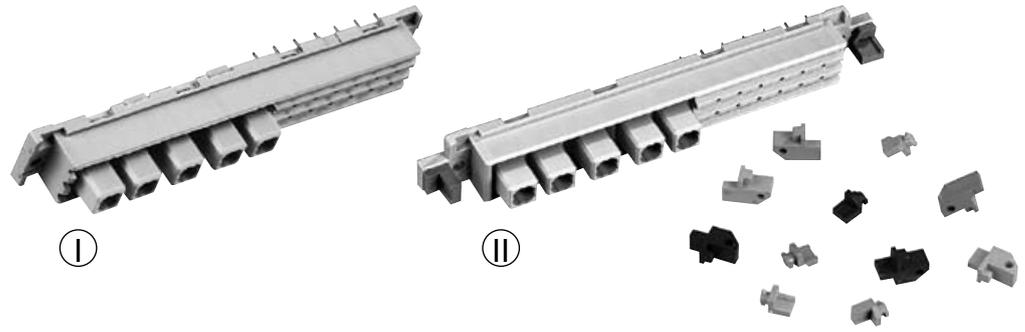
2) Depending on the pcb design

DIN 41 612 · complementary type MH



Number of contacts

21 + 5
F + M

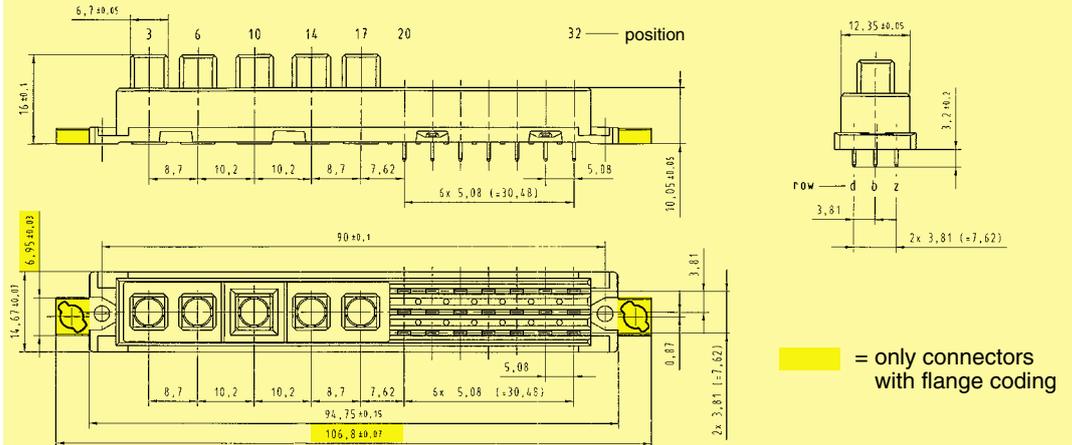


Female connectors

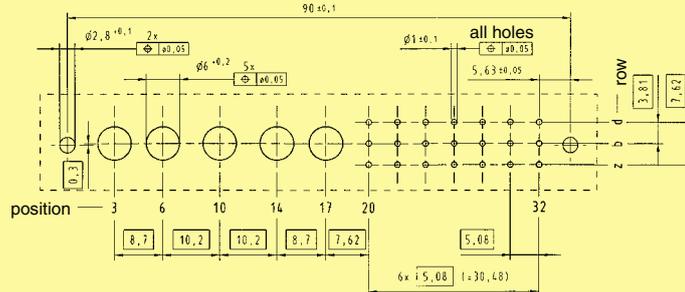
Identification	Number of contacts	Part No. 3	Performance levels according to IEC 60 603-2. Explanation chapter 00 2	1	
Female connector with solder pins 3.2 mm (without special contacts)	without flange coding (I)	21 + 5	Performance level 3 on request	09 06 221 6883	Performance level 1 on request
	with flange coding ¹⁾ (II)	21 + 5		09 06 721 6883	
High current contact Crimp contacts for printed circuit termination 20 A				09 03 000 6220	

DIN Power to 15 A

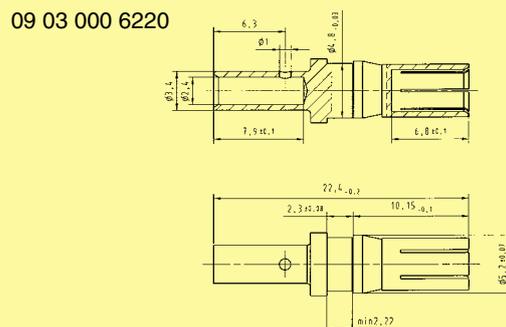
Dimensions



Board drillings
Mounting side



Dimensions



Dimensions in mm

03
25

¹⁾ Code keys see page 03.26
Removal tool for contacts is available with part number 09 99 000 0174

Identification	Part No.	Drawing	Dimensions in mm
Coding system with contact loss	Code pin Type MH 09 04 000 9908 Removal tool for male contacts 09 99 000 0038	<p>To avoid accidental and incorrect mating of adjacent connectors a coding system is required. The coding is achieved by means of a code pin which is inserted into the selected chamber of the female connector (the contact cavity must be filled with a female contact!). The opposite male contact must be removed with the help of the specially designed tool.</p> <p>Plastic</p>	
Coding system without contact loss shroud coding Types H, MH 24 + 7	Code key 09 06 001 9918	<p>Type H Type MH</p> <p>Code key</p>	<p>Insert the code key into one of the keyways of the female connector as shown in the drawing. Break out the corresponding area of the male shroud. Connectors coded this way can only be applied in a minimum rack spacing of 20.32 mm.</p>
flange coding Type MH 21 + 5 colour red blue green orange	Code keys for male connectors 09 06 001 9950 09 06 001 9951 09 06 001 9952 09 06 001 9953 for female connectors 09 06 001 9960 09 06 001 9961 09 06 001 9962 09 06 001 9963	<p>can be mounted with a screwdriver (max. width 3 mm)</p>	
Tool for breaking out the coding area of the male shroud	09 99 000 0242		