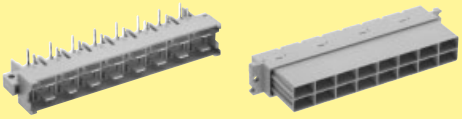
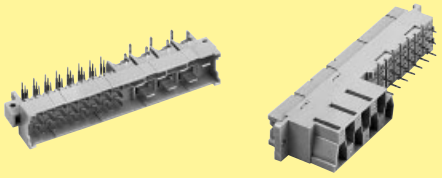
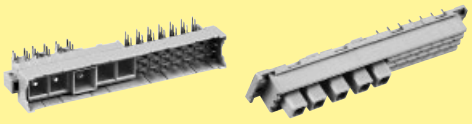
## Types H, H15, H16, H3, MH 24 + 7, MH 21 + 5

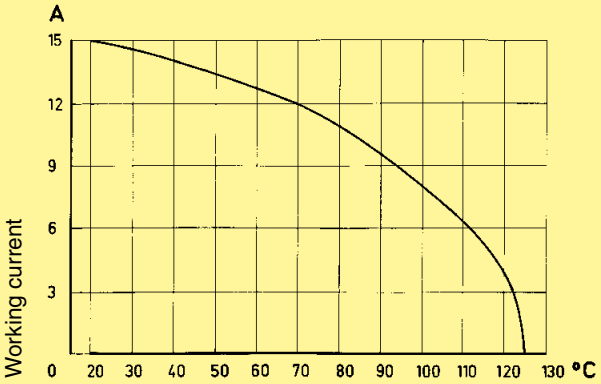

| | Page |
|---|---|
| Technical characteristics type H | 04.10 |
| Type H15 connectors  | 04.11 |
| Type H16 connectors  | 04.16 |
| Type H3 connectors  | 04.17 |
| Technical characteristics type MH | 04.20 |
| Type MH 24 + 7 connectors  | 04.22 |
| Type MH 21 + 5 connectors  | 04.24 |

| | | |
|---|---|---|
| **Number of contacts** | | 15, 16<br>14 + 1 leading contact (position z 32)<br>13 + 2 leading contacts (position z 4 und z 32)<br>3 |
| **Working current**<br>see current carrying capacity chart | | 15 A max. |
| **Clearance** | Type H15:<br>Type H3: | ≥ 4.5 mm<br>≥ 4.0 mm |
| **Creepage** | Type H15:<br>Type H3: | ≥ 8.0 mm<br>≥ 3.7 mm |
| **Working voltage**<br>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<br>Explanations see chapter 00<br><br>Connectors should not be mated under voltage |
| **Test voltage $U_{r.m.s.}$** | Type H15:<br>Type H3: | ≥ 3.1 kV<br>≥ 2.5 kV |
| **Contact resistance** | | ≤ 8 mΩ |
| **Insulation resistance** | | ≥ $10^{12}$ Ω for standard articles<br>≥ $10^{11}$ Ω for special NFF articles (with part-no. ending 222) |
| **Temperature range**<br>The higher temperature limit includes the local ambient and heating effects of the contacts under load | | – 55 °C … + 125 °C |
| **Electrical termination** | | Connector with faston 6.3 x 2.5 (faston blade width x wire gauge) according to DIN 46 245 and DIN 46 247<br>Solder pins for pcb connections Ø 1.6 ± 0.1 mm DIN EN 60 097<br><br>Cage clamp terminal 0.14-1.5 mm² |
| **Insertion and withdrawal force** | Type H15:<br>Type H3: | ≤ 90 N<br>≤ 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 chapter 00 | |

## Current carrying capacity

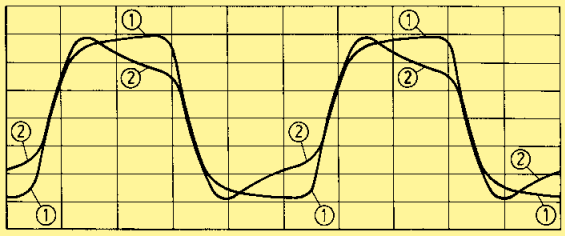
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the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

Control and test procedures according to DIN IEC 60 512




## Low currents and voltages

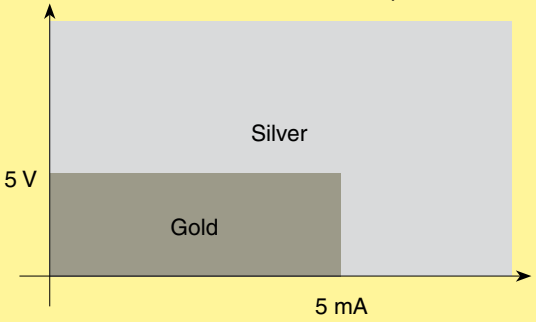
Type H standard contacts have a silver plated surface. This precious metal has excellent conductive properties. In the course of a contact's lifetime, the silver surface generates a black oxide layer due to its affinity to sulphur. This layer is smooth and very thin and is partly interrupted when the 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 artifically aged contact representing a twenty year life is compared with a new contact.




Changes to the transmitted signal after artifical 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.



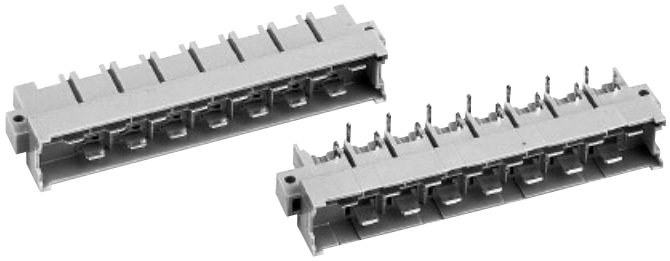

Recommendation

DIN Power up to 15 A

# DIN 41 612 · Type H15

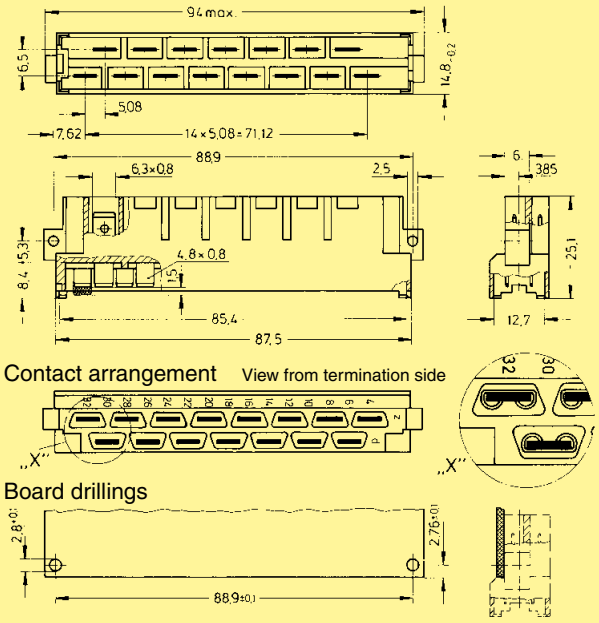
Number of contacts

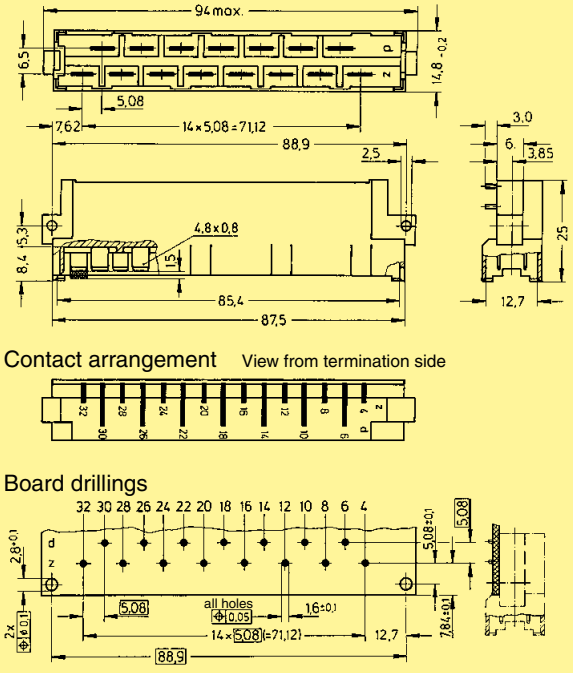
**15**



## Male connectors

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Male connector for faston 6.3 x 2.5** | | Performance level 1 acc. to IEC 60603-2 | | |
| | 15 | 09 06 015 2912[1)f)] | | |
| 1 leading contact (position z 32) | 14 + 1 | 09 06 015 2931[1)f)] | | |
| 2 leading contacts (position z 4 + z 32) | 13 + 2 | 09 06 015 2922[1)f)] | | |
| **Male connector with angled solder pins[3)]** | | | | |
| | 15 | 09 06 115 2911[1)]<br>09 06 115 2911 222[1)f)] | | |
| 1 leading contact (position z 32) | 14 + 1 | 09 06 115 2932[1)]<br>09 06 115 2932 222[1)f)] | | |
| 2 leading contacts (position z 4 + z 32) | 13 + 2 | 09 06 115 2921[1)]<br>09 06 115 2991[2)] | | |
| **Male connector with straight solder pins** | | | | |
| | 15 | 09 06 015 2913[1)f)] | | |
| 1 leading contact (position z 32) | 14 + 1 | 09 06 015 2914[1)f)] | | |



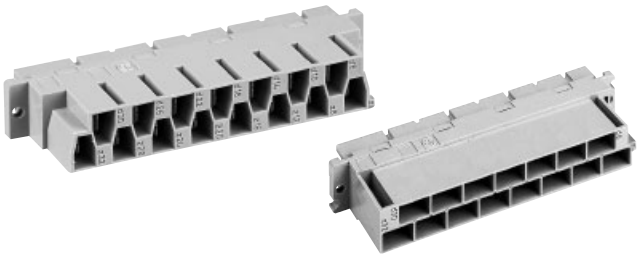

[1)] Variant with silver plated contacts
[2)] Variant with gold plated contacts
[3)] With shroud coding, see chapter 00

[f)] Railway classification NFF 16-101, Smoke index: F1, Flammability class: I2

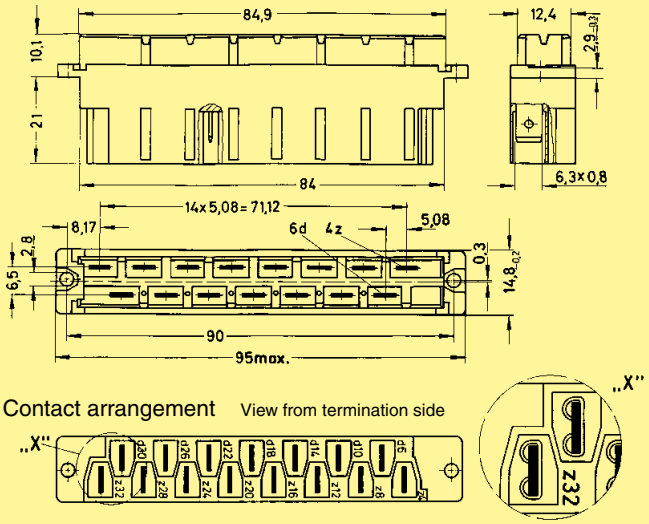
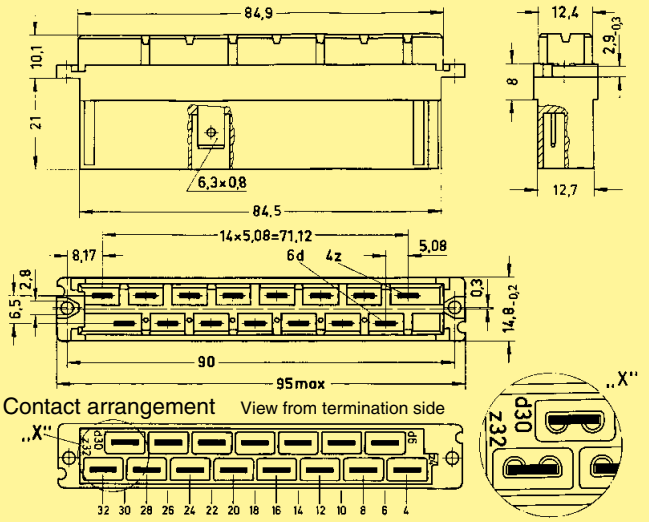
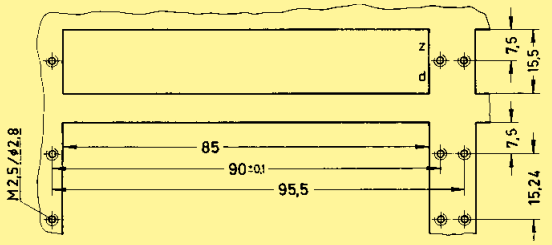
# DIN 41 612 · Type H15

Number of contacts

## 15



## Female connectors

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Female connector for faston 6.3 x 2.5[1)]<br>Cannot be used in a shell housing | 15 | Performance level 1 acc. to IEC 60603-2<br>09 06 215 2811 |  | |
| Female connector for faston 6.3 x 2.5[1)]<br>May be used in a shell housing | 15<br>15 | 09 06 215 2871<br>09 06 215 2871 222[f)] |  <br>Shell housing see chapter 20 | |
| Panel cut out | | |  | |

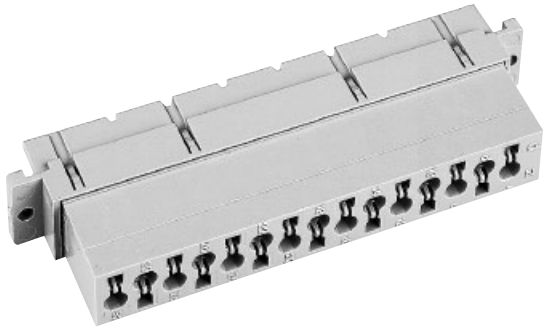
[1)] With shroud coding, see chapter 00
[f)] Railway classification NFF 16-101, Smoke index: F1, Flammability class: I2

DIN Power up to 15 A

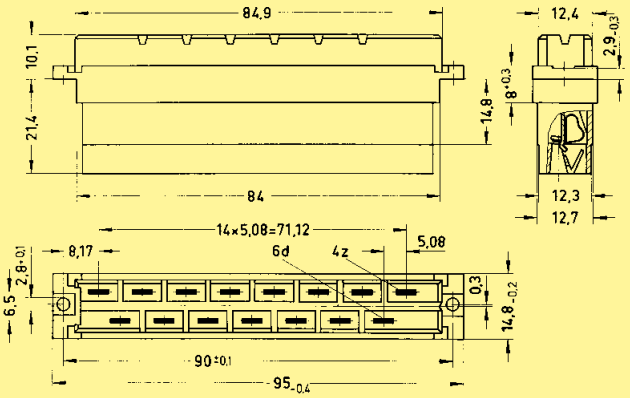
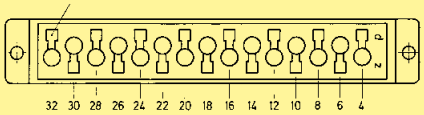
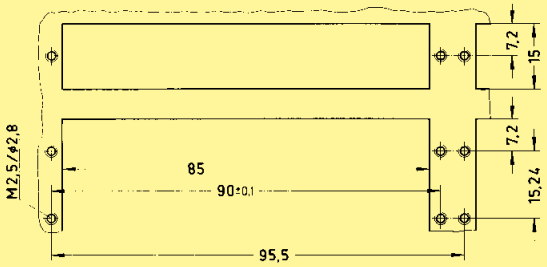
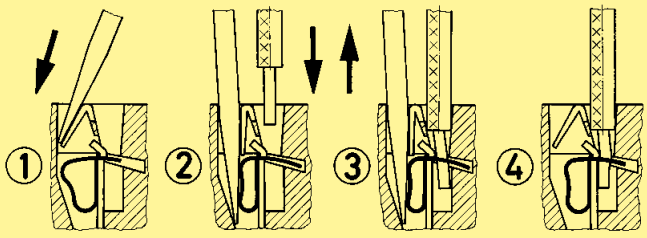
# DIN 41 612 · Type H15

Number of contacts

**15**



## Female connectors

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Female connector with cage clamp**<br>May be used in a shell housing | 15 | Performance level 1 acc. to IEC 60 603-2<br>09 06 015 2813[f] |  <br>Contact arrangement View from termination side<br>Slot for screw driver<br>  <br>Shell housing see chapter 20 | |
| **Panel cut out** | | |  | |
| **Termination instructions** | | |  <br>Screw driver width: 2.5 x 0.4 mm<br>Stripping length: 4 - 10 mm<br>Wire gauge: 0.14 - 1.5 mm² (AWG 26 - 16) | |

[f] Railway classification NFF 16-101, Smoke index: F1, Flammability class: I2

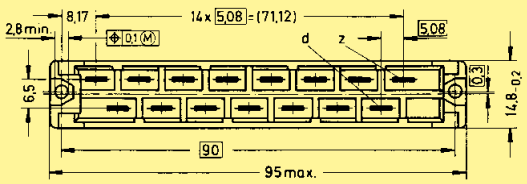
# DIN 41 612 · Type H15

Number of contacts

## 15

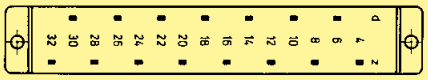
## Female connectors

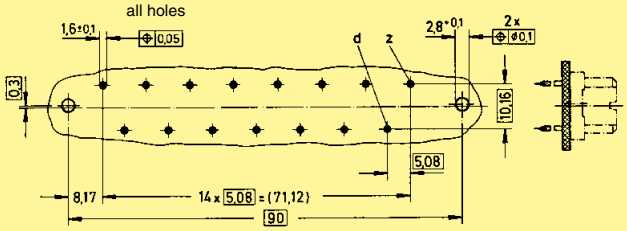
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Female connector “low profile“ with solder pins[3] | | Performance level 1 acc. to IEC 60 603-2 | | |
| 2.7 mm | 15 | 09 06 215 2812[1] | | |
| 4 mm | 15 | 09 06 215 2821[1]<br>09 06 215 2821 222[1)f)]<br>09 06 215 2892[2]<br>09 06 215 2892 222[2)f)] | | |
| 5.5 mm | 15 | 09 06 215 2890[2] | | |
| 7 mm | 15 | 09 06 215 2831[1]<br>09 06 215 2891[2] | | |
| 10 mm | 15 | 09 06 215 2841[1] | | |
| Board drillings<br>Mounting side | | | | |


| a |
|---|
| 2.7 |
| 4 |
| 5.5 |
| 7 |
| 10 |

Contact arrangement View from termination side




[1)] Variant with silver plated contacts
[2)] Variant with gold plated contacts
[3)] With shroud coding, see chapter 00

[f)] Railway classification NFF 16-101, Smoke index: F1, Flammability class: I2

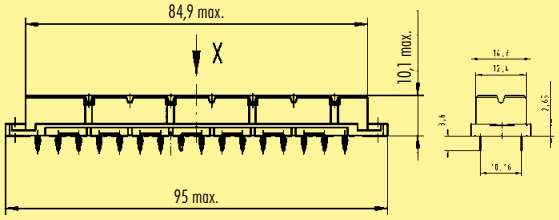
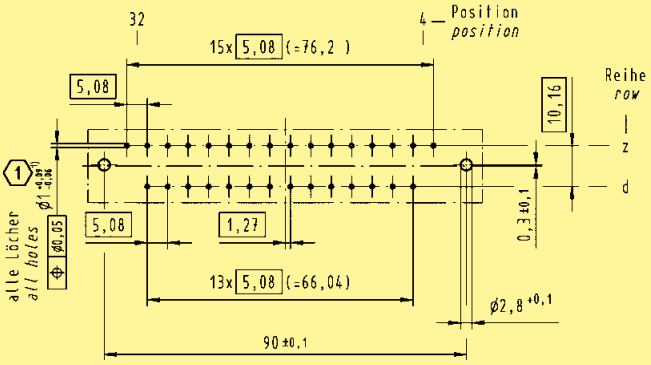
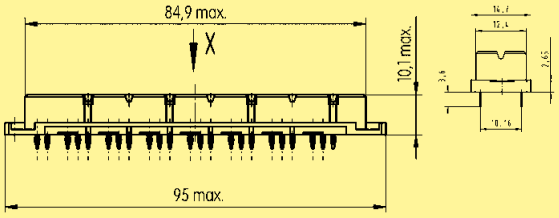
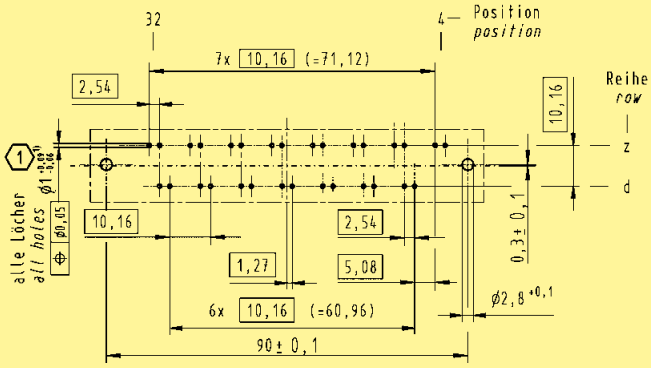
DIN Power up to 15 A

# DIN 41 612 · Type H15

Number of contacts

15

## Female connectors

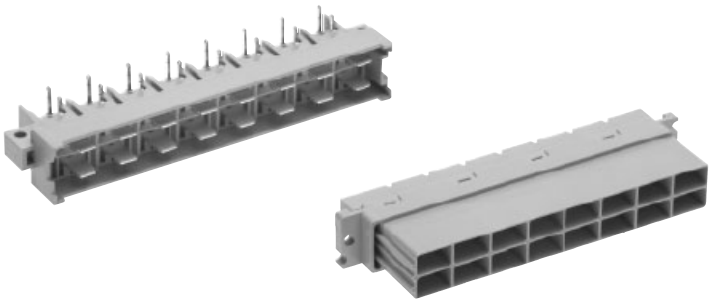
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Female connector “low profile“ with press-in pins 3.6 mm | | Performance level 1 acc. to IEC 60 603-2 |   | |
| Contact space termination side 5.08 mm | 15 | 09 06 215 2854<br>09 06 215 2854 222[f)] | Board drillings<br>Mounting side<br>   | |
| Contact space termination side 2.54 mm | 15 | 09 06 215 2856 |   | |
| | | | Board drillings<br>Mounting side<br>   | |

[1)] Refer to recommended configuration of pcb holes, see page 00.25
[f)] Railway classification NFF 16-101, Smoke index: F1, Flammability class: I2

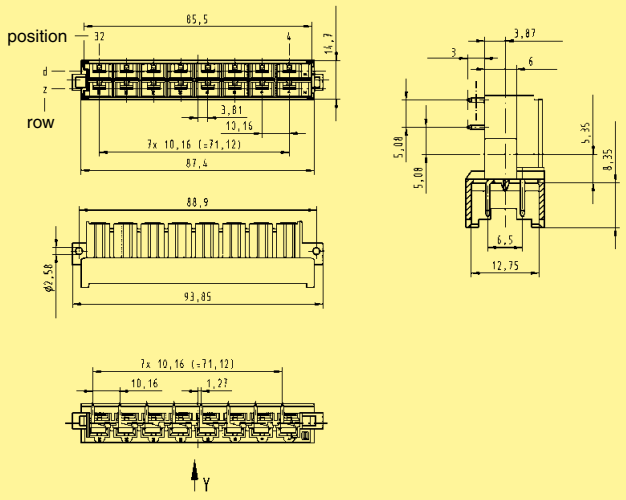
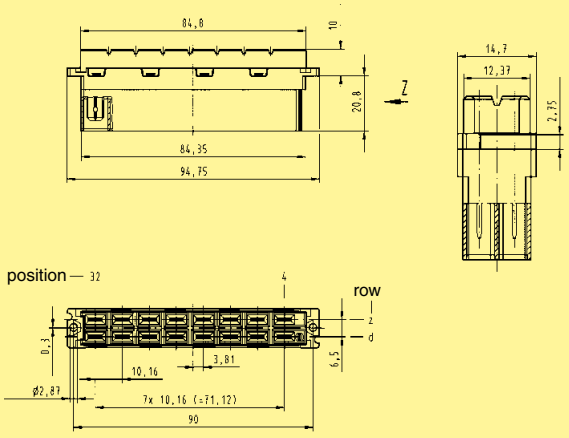
# DIN 41 612 · Type H16

Number of contacts

## 16



## Male connectors

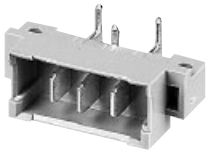
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Male connector with angled solder pins | 16 | Performance level 1 acc. to IEC 60 603-2<br>09 06 116 2511 |  | |
| Female connector for faston 6.3 x 2.5 | 16 | 09 06 216 2411 |  | |

DIN Power up to 15 A

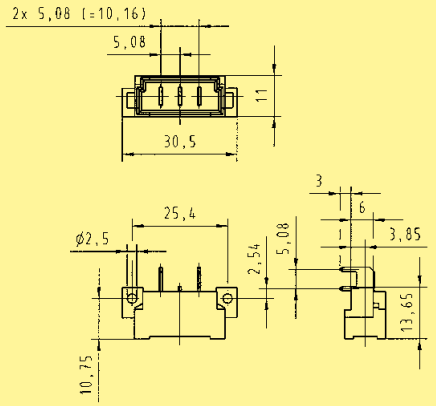
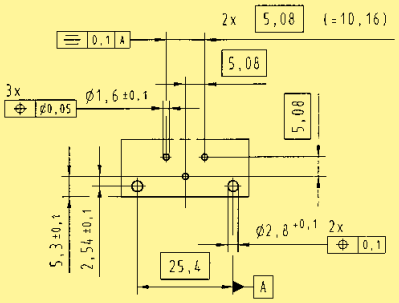
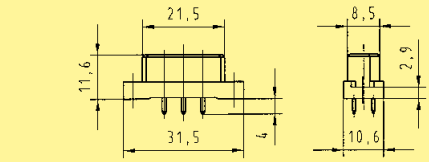
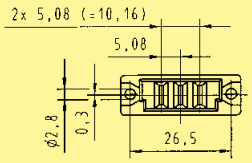
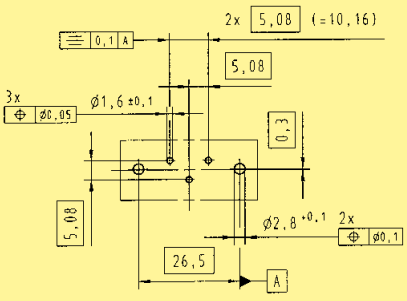
# DIN 41 612 · complementary type H3

Number of contacts

**3**



## Male and female connectors

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Male connector with angled solder pins and preleading middle contact | 3 | Performance level 1 acc. to IEC 60603-2<br>09 06 203 2911 |  <br>Board drillings<br>  | |
| Female connector with solder pins | 3 | 09 06 203 2811 |  <br>  <br>Board drillings<br>  | |

DIN Power up to 15 A

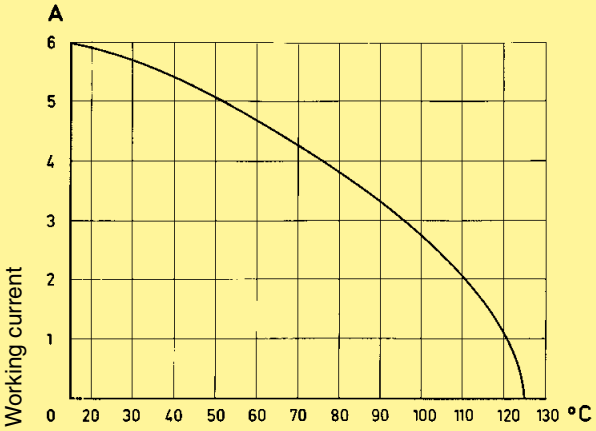
| | |
|---|---|
| **ELECTRONIC SECTION** | |
| Number of contacts | 21, 24 + 7 |
| Contact spacing (mm) | |
| Male connector | 2.54 x 5.08 |
| Female connector | 5.08 |
| Working current | 6 A max. |
| see current carrying capacity chart | |
| Clearance | ≥ 1.6 mm |
| Creepage | ≥ 3 mm |
| Working voltage | |
| 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<br>≤ 20 mΩ including crimp connection |
| Electrical termination | Solder pins for pcb connection<br>Ø 1 ± 0.1 mm acc. to IEC 60 326-3<br>Wrap posts 1 x 1 mm<br>diagonal 1.34-1.45 mm<br>Crimp terminal 0.09-1.5 mm² |
| 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 | Connector for faston 6.3 x 2.5<br>(faston width x wire gauge)<br>acc. to DIN 46 245 and DIN 46 247<br>Solder pins for pcb connection<br>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 for standard articles<br>≥ $10^{11}$ Ω for special NFF articles<br>(with part-no. ending 222) |
| 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 |

## Current carrying capacity

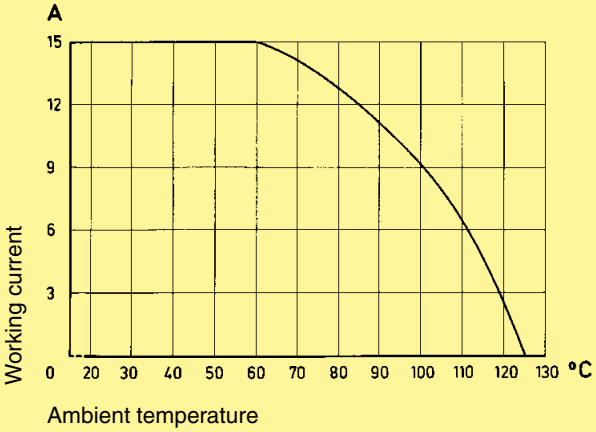
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the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

Control and test procedures according to DIN IEC 60 512

### Electronic section




### Heavy duty section




* only for type MH 24 + 7

[1)] Explanation of performance levels see chapter 00

Mating conditions see chapter 00

Coding systems see chapter 00

DIN Power up to 15 A

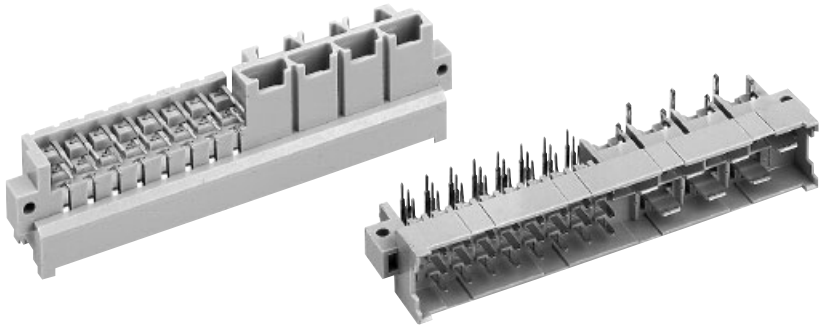
# Notes

# DIN 41 612 · complementary type MH

Number of contacts

**24 + 7**

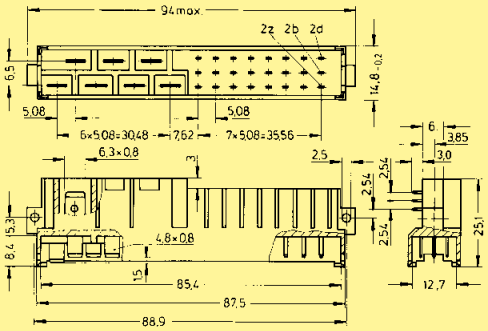
F + H



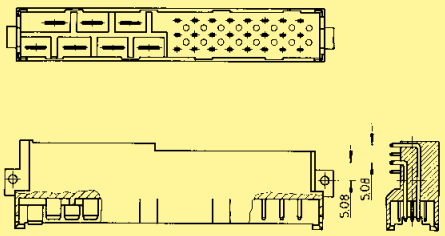
## Male connectors

| Identification | Number of contacts | Part No. 3 | Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|---|
| **Male connector for faston 6.3 x 2.5** | | | | |
| 1 leading contact (position z 32) | 24 + 7 | | 09 06 031 6921[f)] | 09 06 031 2921[f)] |
| 2 leading contacts (position z 2 + z 32) | 24 + 7 | | 09 06 031 6923[f)] | |
| **Male connector with angled solder pins[1)]** | | | | |
| 1 leading contact (position z 32) | 24 + 7 | | 09 06 131 6922 | |
| 2 leading contacts (position z 2 + z 32) | 24 + 7 | | 09 06 131 6924<br>09 06 331 6924[b)] | |

Faston terminal

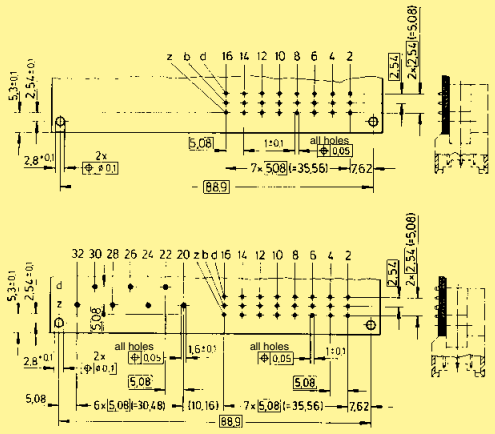



Angled solder pins



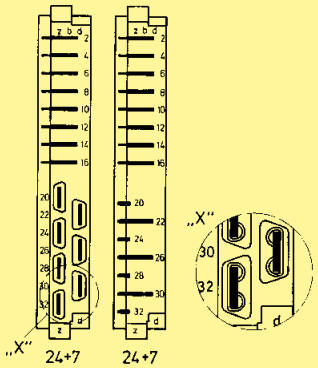

## Board drillings

Mounting side




Contact arrangement

View from termination side




Dimensions in mm

[1)] With shroud coding, see chapter 00

[b)] Connector with fixing clip see chapter 00

[f)] Railway classification NFF 16-101, Smoke index: F1, Flammability class: I2

DIN Power up to 15 A

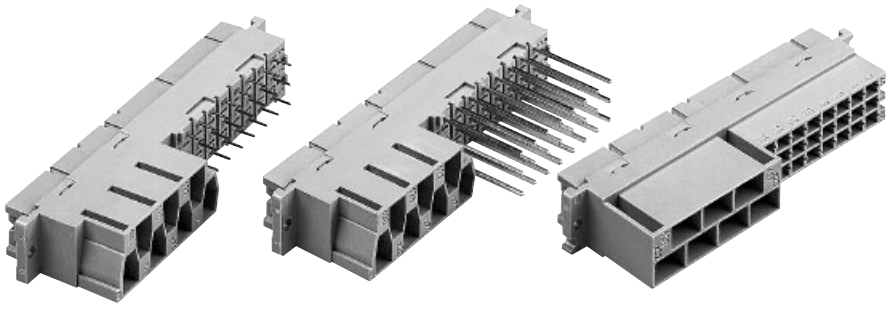
# DIN 41 612 · complementary type MH

Number of contacts

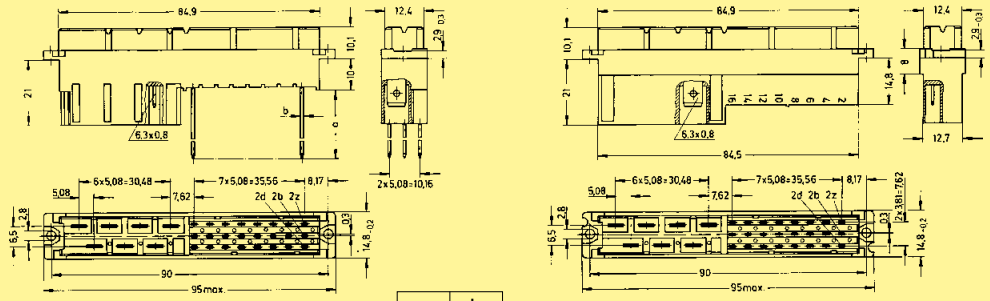
**24 + 7**

F + H

## Female connectors

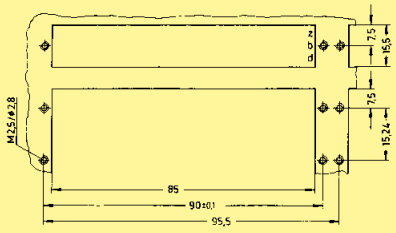


| Identification | Number of contacts | Part No. 3 | Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|---|
| Female connector with solder pins 4.5 mm[1)] | 24 + 7 | | 09 06 231 6822<br>09 06 231 6822 222[f)] | 09 06 231 2822 |
| Female connector with wrap posts 1 x 1 mm[1)] | 24 + 7 | | 09 06 231 6821 | 09 06 231 2821<br>09 06 231 2821 222[f)] |
| Female connector for crimp contacts[1)]<br>Order contacts separately, see chapter 03 | 24 + 7 | | | 09 06 231 2881<br>09 06 231 2881 222[f)] |



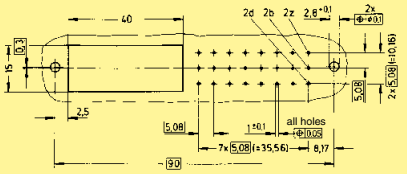
| a | b |
|---|---|
| 4.5 | □0.6 |
| 22 | □1 |

## Panel cut out



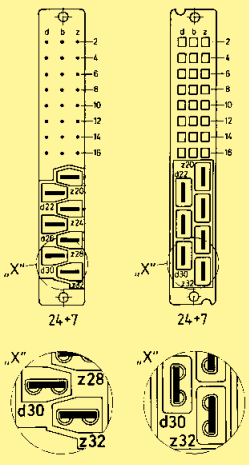
## Board drillings

Mounting side



## Contact arrangement

View from termination side




Shell housing for female connector with crimp contacts see chapter 20

Dimensions in mm

DIN Power up to 15 A



[1)] With shroud coding, see chapter 00

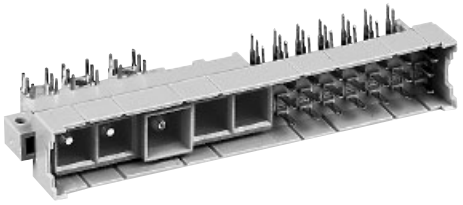
[f)] Railway classification NFF 16-101, Smoke index: F1, Flammability class: I2

# DIN 41 612 · complementary type MH

Number of contacts

**21 + 5**

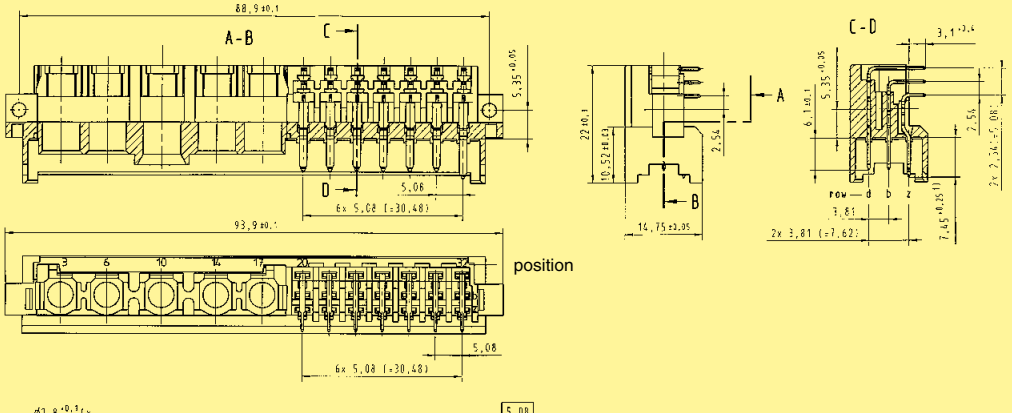
F + M



## Male connectors

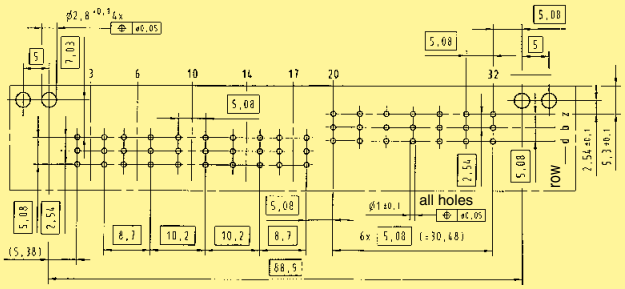
| Identification | Number of contacts | Part No. 3 | Performance levels according to IEC 60603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|---|
| Male connector with angled solder pins (without special contacts)* | 21 + 5 | Performance level 3 on request | 09 06 121 6981 | Performance level 1 on request |
| High current contact for printed circuit terminations max. 40 A[2] | | | 09 03 000 6127 | |
| leading contact max. 40 A[2] | | | 09 03 000 6128 | |
| Removal tool | | | 09 99 000 0328 | |

### Dimensions




### Board drillings

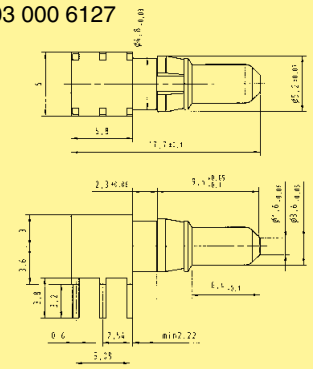
Mounting side



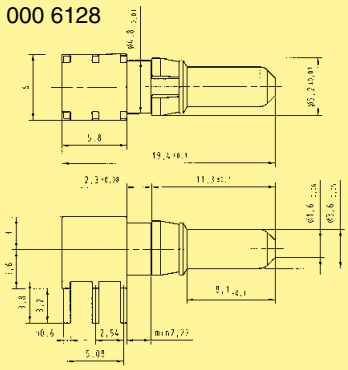

[1] Leading contact in position z 32

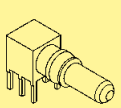
### Dimensions

09 03 000 6127



09 03 000 6128





Dimensions in mm

* Pre-loaded with special contacts on request
Code keys see chapter 00

[2] Depending on the pcb design

Further special contacts see chapter 01

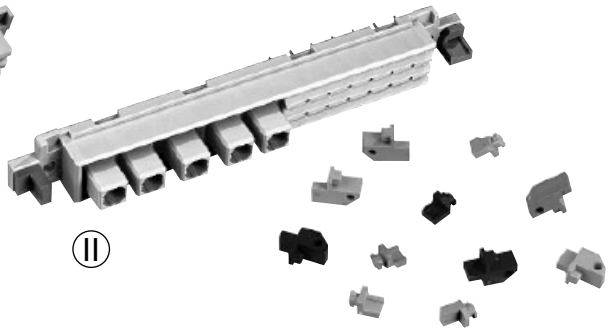
# DIN 41 612 · complementary type MH

Number of contacts

**21 + 5**

F + M

Ⅰ

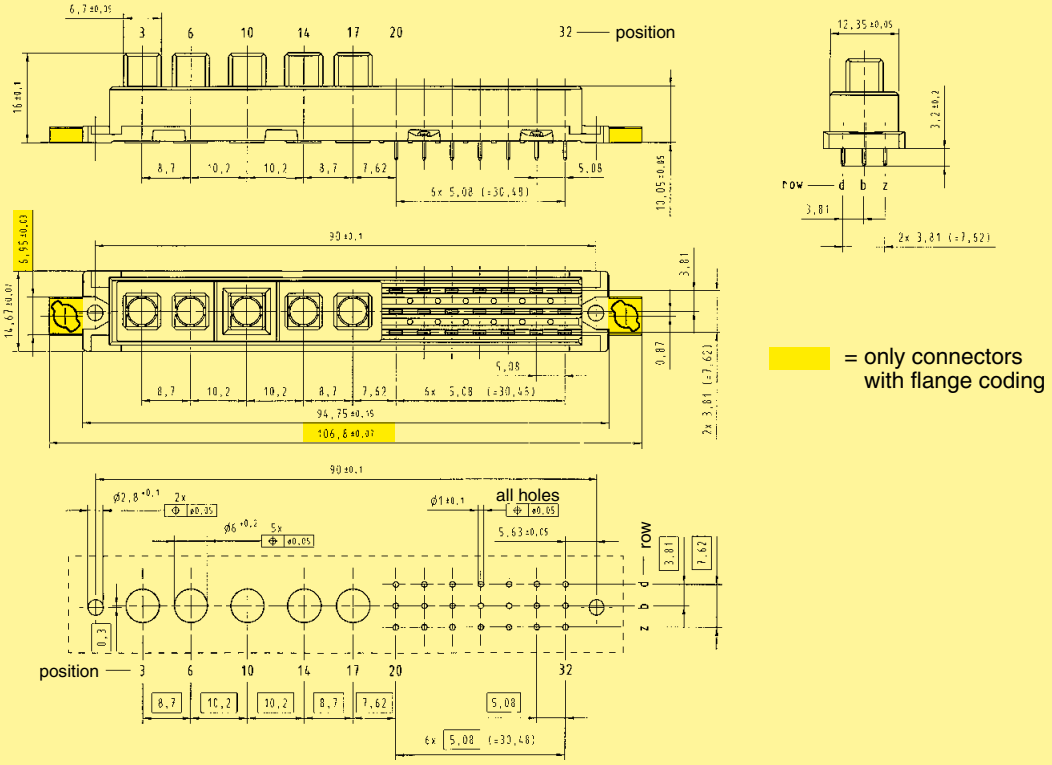


Ⅱ

## Female connectors

| Identification | Number of contacts | Part No. 3 | Performance levels according to IEC 60603-2. 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 | |

### Dimensions

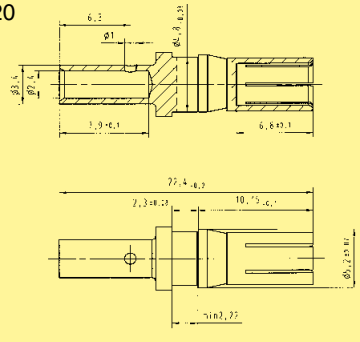



### Board drillings

Mounting side

### Dimensions

09 03 000 6220



Dimensions in mm

DIN Power up to 15 A



[1] Code keys see chapter 00

Removal tool for contacts is available with part number 09 99 000 0174

Further special contacts see chapter 01

# Notes