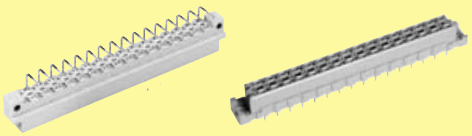
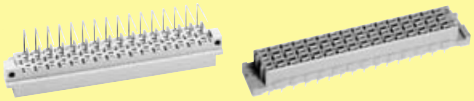
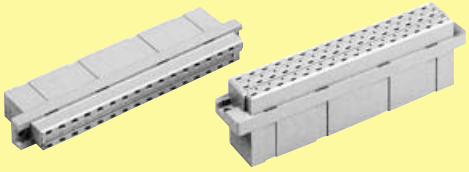
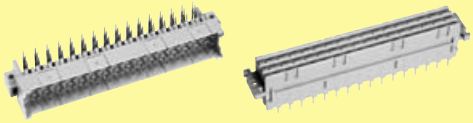
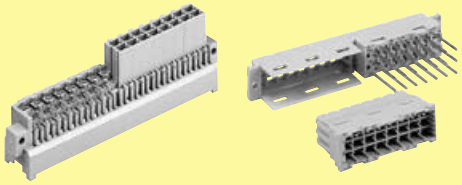
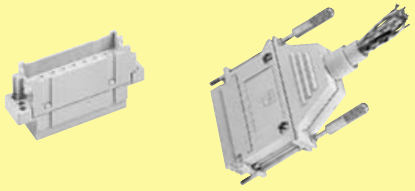
## Types D, E, F, FM, 2F, F9, interface connectors I/U


| | Page |
|---|---|
| Technical characteristics types D and E | 02.10 |
| Type D connectors  | 02.11 |
| Type E connectors  | 02.15 |
| Technical characteristics piggyback connectors | 02.20 |
| Piggyback connectors  | 02.21 |
| Technical characteristics types F, F9, FM and 2F | 02.24 |
| Type F connectors  | 02.25 |
| Type F9 connectors | 02.35 |
| Type FM connectors  | 02.36 |
| Type 2F connectors  | 02.38 |
| Coding systems | 02.41 |

## Number of contacts

| | |
|---|---|
| Type D | 32 |
| Type E | 48 |

## Contact spacing (mm)

| | | |
|---|---|---|
| Type D | 5,08 | |
| Type E | male connector | 5.08 x 5.08 |
| | male connector | 2.54 x 5.08 |
| | female connector | 5.08 x 5.08 |

## Working current

6 A max.

see current carrying capacity chart

## Clearance

| | |
|---|---|
| Types D und E | ≥ 3.0 mm |
| Type E male connector row separation 2.54 mm | ≥ 1.6 mm |

## Creepage

≥ 3.0 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

## Test voltage $U_{r.m.s.}$

1.55 kV

## Contact resistance

≤ 15 mΩ for wire wrap and solder connections

≤ 20 mΩ including crimp connections

## 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

## Degree of protection for crimp terminal

IP 20

according to DIN 40 050

## Electrical termination

| | |
|---|---|
| Male connector | Solder pins for pcb connections Ø 1.0 ± 0.1 mm according to IEC 60 326-3 |
| Female connector | Wrap posts 1 x 1 mm diagonal 1.34-1.45 mm |
| | Solder pins for pcb connections Ø 1.0 ± 0.1 mm according to IEC 60 326-3 |
| | Angled solder pins 1 x 1 mm for pcb connections Ø 1.6 ± 0.1 mm |
| | Solder lugs Crimp terminal 0.09-1.5 mm² |

## Insertion and withdrawal force

32 way ≤ 40 N

48 way ≤ 75 N

## Materials

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

## Contact surface

| | |
|---|---|
| Contact zone | Selectively gold plated according to performance level[1)] |

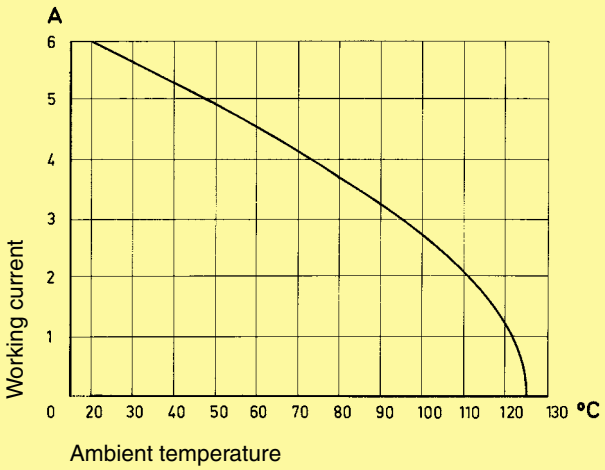
[1)] Explanation of performance levels see chapter 00

| | |
|---|---|
| Mating conditions | see chapter 00 |
| Coding systems | see pages 02.41 and 02.42 |
| Mounting clips | 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

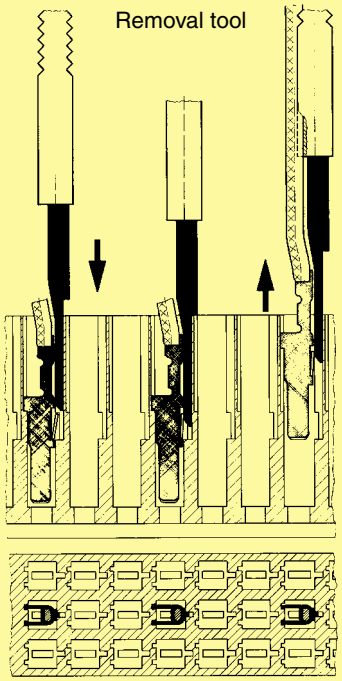



## Fitting the crimp contacts

After crimping the wires onto the contacts with the help of a crimping tool or an automatic crimping machine the contacts should be correctly oriented and inserted into the cavities of the connector moulding in the required configuration. They snap into position and are firmly held in place. A light pull on the wire assures the correct tensile strength of the contact. When using stranded wires with a gauge below 0.37 mm² an insertion tool is necessary.

## Removing the crimp contacts

The removal tool is inserted into a slot on the side of the respective crimp cavity. This action compresses the contact retaining spring therefore the contact can then be easily withdrawn using a light pull on the wire. This action will cause no damage to the contact/wire which can be repositioned/refitted as necessary. The drawing demonstrates the crimp removal procedure (max. 5x).



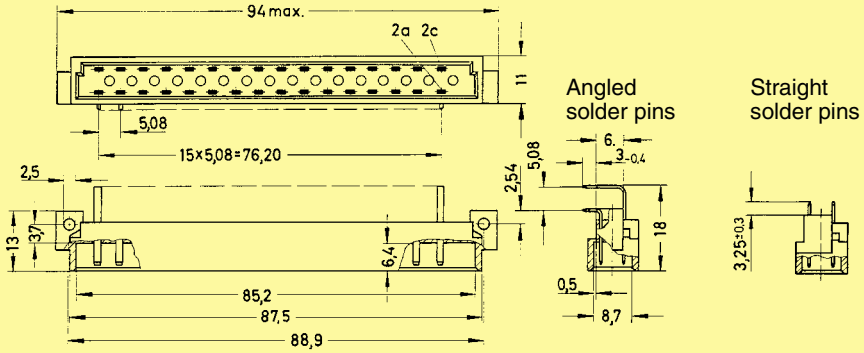
Number of contacts

# 32

## Male connectors

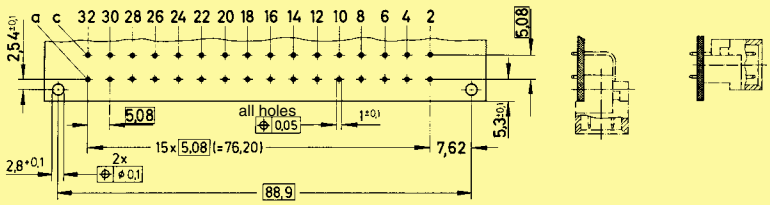
| Identification | Number of contacts | Contact arrangement | Part No. | Performance levels according to IEC 60 603-2. Explanation chapter 00 | |
|---|---|---|---|---|---|
| | | | 3 | 2 | 1 |
| Male connector with angled solder pins | 32 | | 09 04 132 7921 | 09 04 132 6921<br>09 04 332 6921[b]<br>09 04 632 6921[c] | 09 04 132 2921 |
| | 30 + 2▲ | | | 09 04 132 6951<br>09 04 632 6951[c] | 09 04 632 2951[c] |
| Male connector with straight solder pins | 32 | | | 09 04 132 6922 | |
| | 30 + 2▲ | | | 09 04 132 6952 | |

### Dimensions




### Board drillings

Mounting side

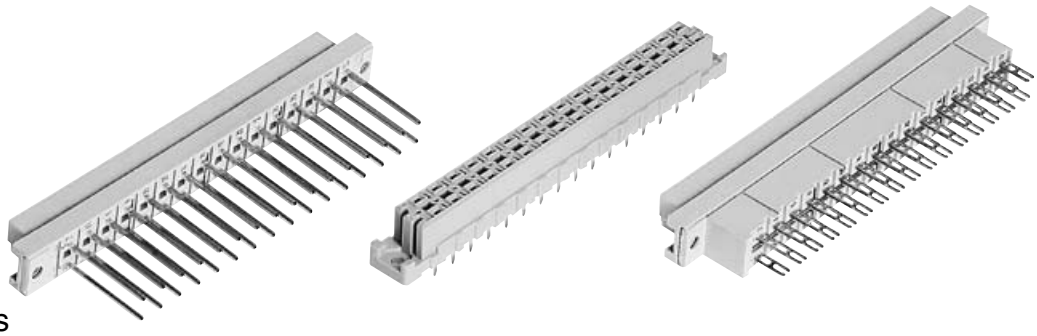



Dimensions in mm

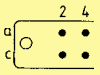
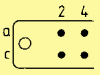
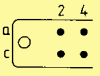
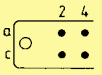
▲ Male connectors with 2 leading contacts [(0.8 mm) pos. a2 and a32]
Other contact arrangements on request
[b] Connectors with snap-in clips see chapter 00
[c] Connectors with coding see page 02.42

Number of contacts

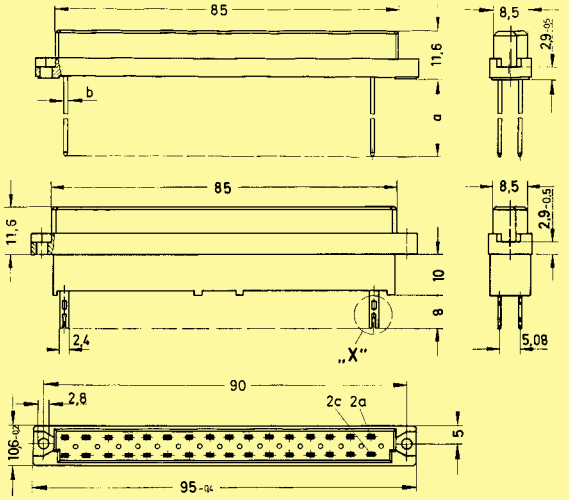
# 32



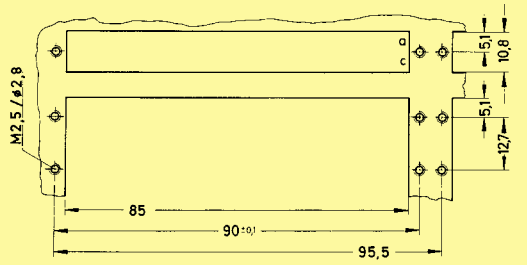
## Female connectors

| Identification | Number of contacts | Contact arrangement | Part No. | Performance levels according to IEC 60 603-2. Explanation chapter 00 | |
|---|---|---|---|---|---|
| | | | 3 | 2 | 1 |
| Female connector with solder pins 2.9 mm | 32 |  | 09 04 232 7832 | 09 04 232 6832<br>09 04 732 6832[c] | 09 04 232 2832 |
| Female connector with solder pins 4.5 mm | 32 |  | 09 04 232 7831 | 09 04 232 6831<br>09 04 332 6831[b]<br>09 04 732 6831[c] | 09 04 232 2831 |
| Female connector with wrap posts 20 mm | 32 |  | 09 04 232 7821 | 09 04 232 6821<br>09 04 732 6821[c] | 09 04 232 2821 |
| Female connector with solder lugs | 32 |  | 09 04 232 7823 | 09 04 232 6823 | 09 04 232 2823 |

### Dimensions

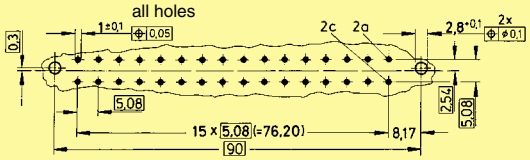



### Panel cut out



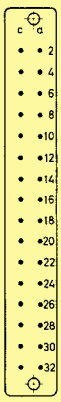

### Board drillings

Mounting side




Contact arrangement

View from termination side



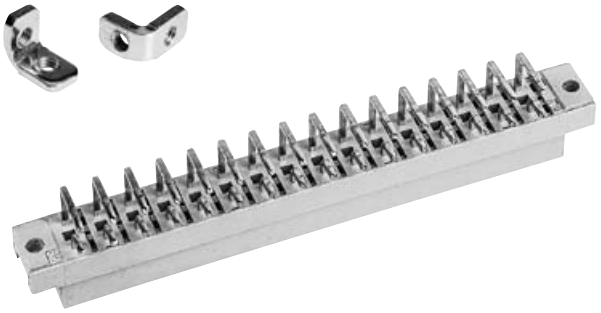
32

Dimensions in mm

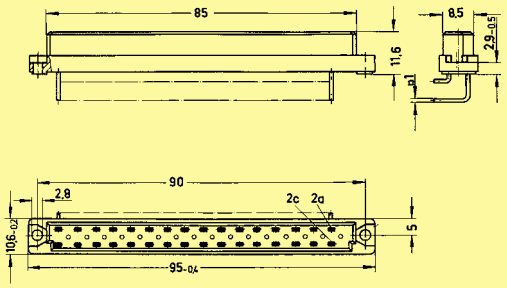
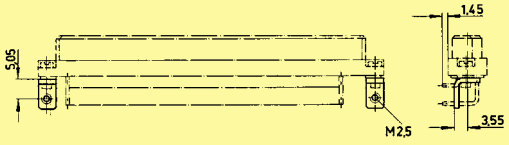
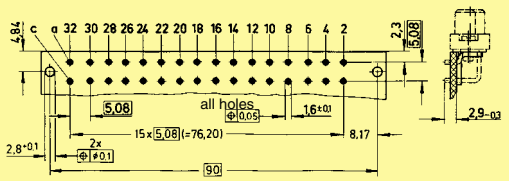
[b] Connectors with snap-in clips see chapter 00
[c] Connectors with coding see page 02.42

Number of contacts

# 32



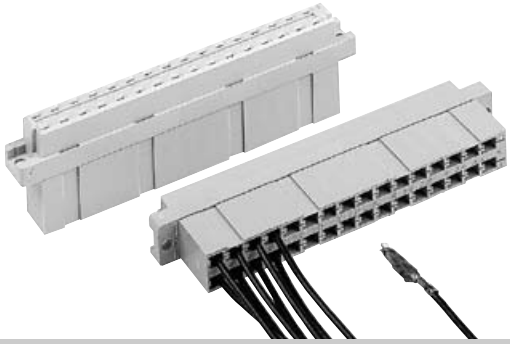
## Female connectors

| Identification | Number of contacts | Contact arrangement | Part No. | Performance levels according to IEC 60 603-2. Explanation chapter 00 | | |
|---|---|---|---|---|---|---|
| | | | | 3 | 2 | 1 |
| Female connector with angled solder pins 1 x 1 mm | 32 | | 09 04 232 7826 | | 09 04 232 6826 | 09 04 232 2826 |
| Dimensions | | | | |  | |
| Fixing bracket Metal<br><br>[1] order 2 pieces for one connector | | | 09 06 000 9912[1] | |  | |
| Board drillings<br>Mounting side | | | | |  | |

Dimensions in mm

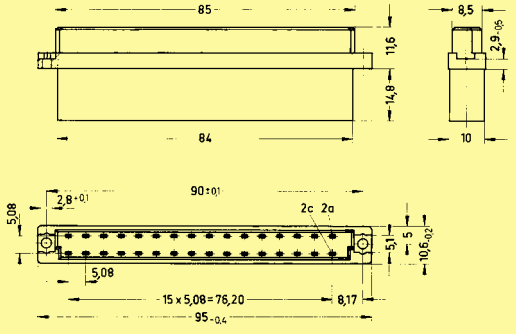
Number of contacts

# max. 32

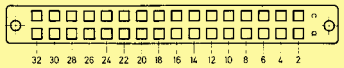


## Female connectors



| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Female connector for crimp contacts**<br>Order contacts separately | 32 | 09 04 032 3213 |  | |

Contact arrangement View from termination side

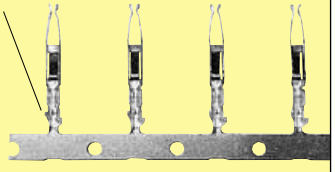



Shell housing 09 03 096 0501 see chapter 20

| Identification | Identification Wire gauge | Part No. Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|
| **Female crimp FC contacts** | | | |
| Bandoliered contacts (approx. 2 ,500 pieces) | 1 | 09 06 000 6484 | 09 06 000 6474 |
| | 2 | 09 06 000 6481 | 09 06 000 6471 |
| | 3 | 09 06 000 6482 | 09 06 000 6472 |
| Bandoliered contacts (approx. 250 pieces) | 1 | 09 06 000 7484 | 09 06 000 7474 |
| | 2 | 09 06 000 7481 | 09 06 000 7471 |
| | 3 | 09 06 000 7482 | 09 06 000 7472 |
| Individual contacts[1)] | 1 | 09 06 000 8484 | 09 06 000 8474 |
| | 2 | 09 06 000 8481 | 09 06 000 8471 |
| | 3 | 09 06 000 8482 | 09 06 000 8472 |
| **Female contacts with solder lugs[2)]** (lockable) | | | 09 06 000 6420 |

| | | Wire gauge mm² | AWG | Insulation ø mm |
|---|---|---|---|---|
| FC 1 | 1 | 0.09 - 0.25 | 28 - 24 | 0.7 - 1.5 |
| FC 2 | 2 | 0.14 - 0.56 | 26 - 20 | 0.8 - 2.0 |
| FC 3 | 3 | 0.5 - 1.5 | 20 - 16 | 1.6 - 2.8 |

Identification



Bandoliered contacts

Individual contacts

3.5 + 0.5 mm of insulation is stripped from the wires to be crimped

Insertion, removal and crimping tools see chapter 30



[1)] Packaging unit 1,000 pieces

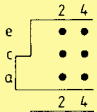
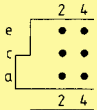
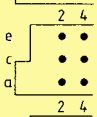
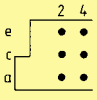
[2)] Solder contacts must not be used together with shell housing A. Special contact surface: 2 µm gold.

Number of contacts

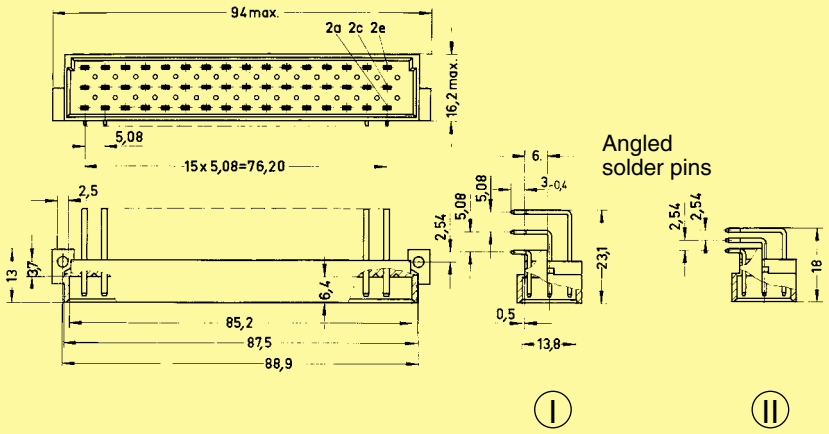
# 48

Ⅱ Ⅰ

## Male connectors

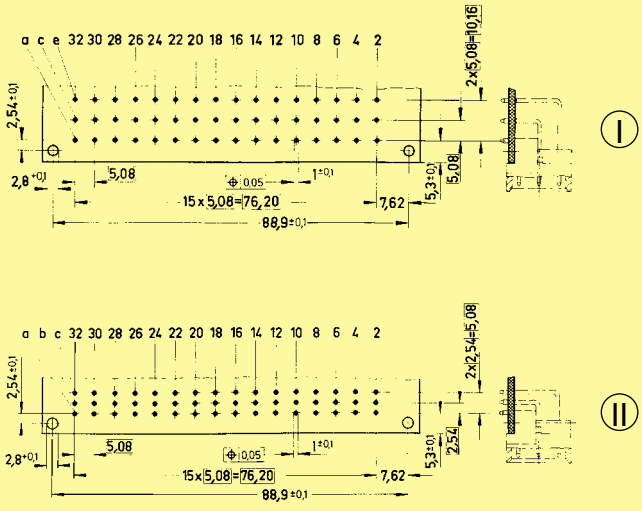
| Identification | Number of contacts | Contact arrangement | Part No. | Performance levels according to IEC 60 603-2. Explanation chapter 00 | |
|---|---|---|---|---|---|
| | | | 3 | 2 | 1 |
| **Male connector with angled solder pins** | | | | | |
| Row separation termination side 5.08 mm Ⅰ | 48 |  | 09 05 148 7921 | 09 05 148 6921<br>09 05 348 6921[b]<br>09 05 648 6921[c] | 09 05 148 2921<br>09 05 648 2921[c] |
| | 46 + 2▲ |  | | 09 05 148 6951 | |
| Row separation termination side 2.54 mm Ⅱ | 48 |  | 09 05 148 7931 | 09 05 148 6931 | 09 05 148 2931 |
| | 46 + 2▲ |  | | 09 05 148 6961 | |

**Dimensions**




**Board drillings**

Mounting side




Dimensions in mm

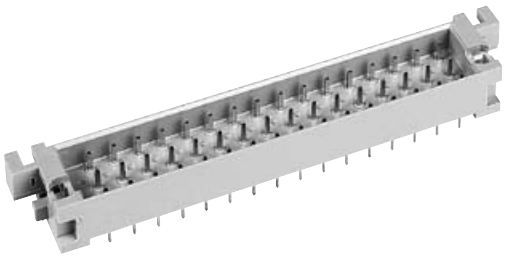
▲ Male connectors with 2 leading contacts [(0.8 mm) pos. a2 and a32]
Other contact arrangements on request

[b] Connectors with snap-in clips see chapter 00

[c] Connectors with coding see page 02.42

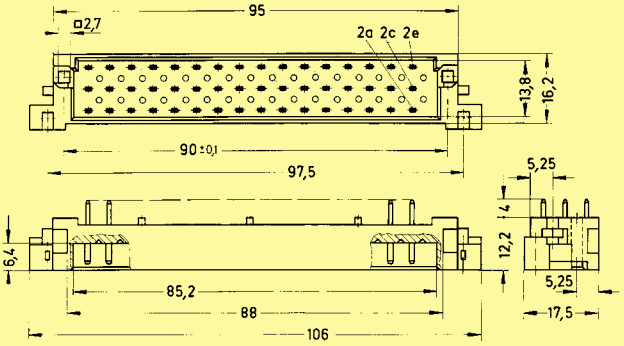
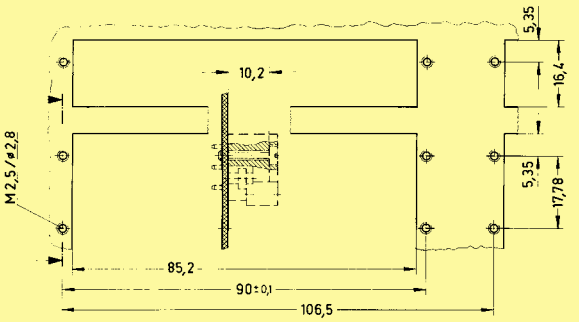
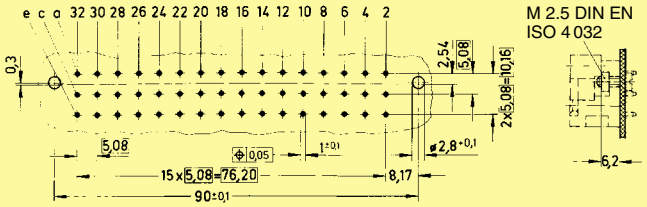
Number of contacts

# 48

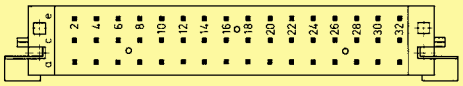


## Interface connector I



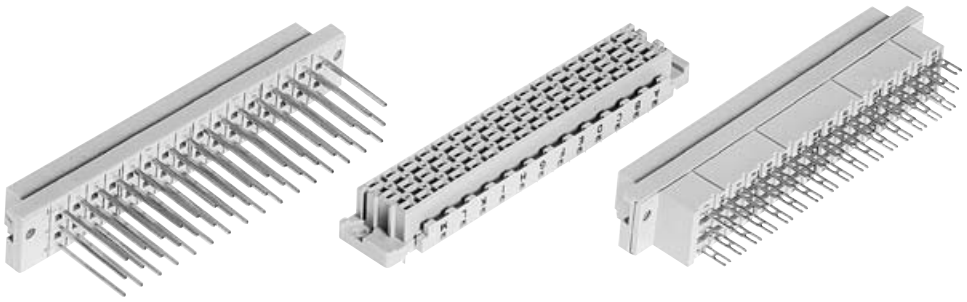
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Interface connector I with solder pins 0.6 x 0.6 mm | 48 | Performance level 2 acc. to IEC 60 603-2<br><br>09 05 048 6924 |  | |
| Panel cut out | | |  | |
| Board drillings<br>Mounting side | | |  | |

Contact arrangement View from termination side

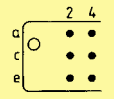
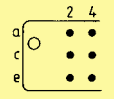
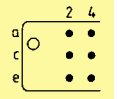
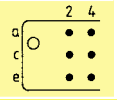


Number of contacts

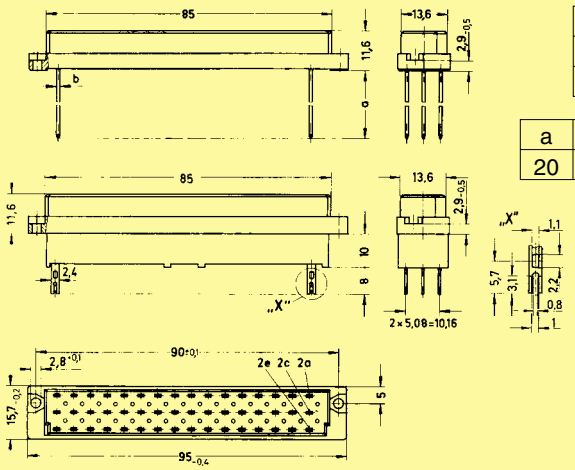
# 48



## Female connectors

| Identification | Number of contacts | Contact arrangement | Part No. | Performance levels according to IEC 60 603-2. Explanation chapter 00 | | |
|---|---|---|---|---|---|---|
| | | | | 3 | 2 | 1 |
| Female connector with solder pins 2.9 mm | 48 |  | 09 05 248 7832 | 09 05 248 6832 | 09 05 248 2832 |
| Female connector with solder pins 4.5 mm | 48 |  | 09 05 248 7831 | 09 05 248 6831<br>09 05 348 6831[b)]<br>09 05 748 6831[c)] | 09 05 248 2831<br>09 05 748 2831[c)] |
| Female connector with wrap posts 20 mm | 48 |  | 09 05 248 7821 | 09 05 248 6821 | 09 05 248 2821 |
| Female connector with solder lugs | 48 |  | 09 05 248 7823 | 09 05 248 6823 | 09 05 248 2823 |
| Female connector with press-in pins | Part Nos. and variants see chapter 04 | | | | |

## Dimensions



| a |
|---|
| 2.9 |
| 4.5 |

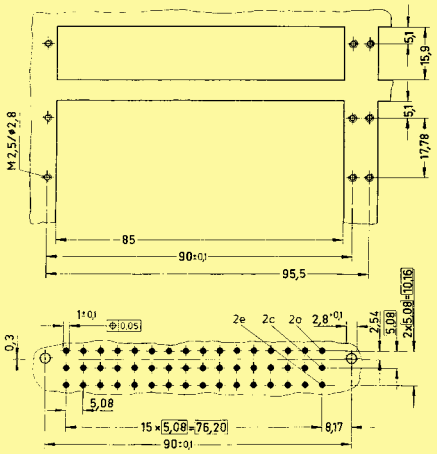
Solder pins

| a | b |
|---|---|
| 20 | □1 |

Wrap posts

Solder lugs

## Panel cut out

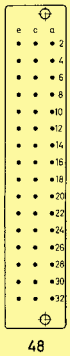


## Board drillings

Mounting side

Contact arrangement

View from termination side



Dimensions in mm

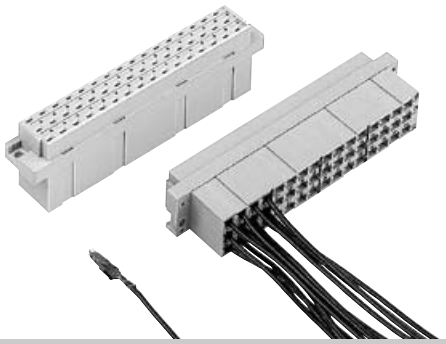




[b)] Connectors with snap-in clips see chapter 00
[c)] Connectors with coding see page 02.42

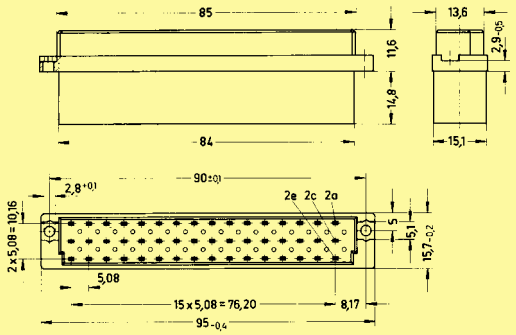
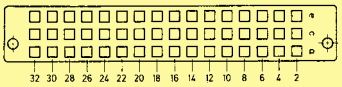
Number of contacts

# max. 48



## Female connectors

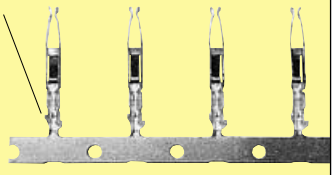
DIN Power to 6 A

| Identification | Number of contacts | Part No. | Drawing / Dimensions in mm |
|---|---|---|---|
| **Female connector for crimp contacts**<br>Order contacts separately | 48 | 09 05 048 3202<br>09 05 548 3202[c] |  <br>Contact arrangement View from termination side<br>  <br>Shell housing 09 05 048 0501 see chapter 20 |

| Identification | Identification Wire gauge | Part No. Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|
| **Female crimp FC contacts** | | | |
| Bandoliered contacts (approx. 2 ,500 pieces) | 1 | 09 06 000 6484 | 09 06 000 6474 |
| | 2 | 09 06 000 6481 | 09 06 000 6471 |
| | 3 | 09 06 000 6482 | 09 06 000 6472 |
| Bandoliered contacts (approx. 250 pieces) | 1 | 09 06 000 7484 | 09 06 000 7474 |
| | 2 | 09 06 000 7481 | 09 06 000 7471 |
| | 3 | 09 06 000 7482 | 09 06 000 7472 |
| Individual contacts[1] | 1 | 09 06 000 8484 | 09 06 000 8474 |
| | 2 | 09 06 000 8481 | 09 06 000 8471 |
| | 3 | 09 06 000 8482 | 09 06 000 8472 |
| **Female contacts with solder lugs[2]** (lockable) | | | 09 06 000 6420 |

| | | Wire gauge mm² | AWG | Insulation ø mm |
|---|---|---|---|---|
| FC 1 | 1 | 0.09 - 0.25 | 28 - 24 | 0.7 - 1.5 |
| FC 2 | 2 | 0.14 - 0.56 | 26 - 20 | 0.8 - 2.0 |
| FC 3 | 3 | 0.5 - 1.5 | 20 - 16 | 1.6 - 2.8 |

Identification



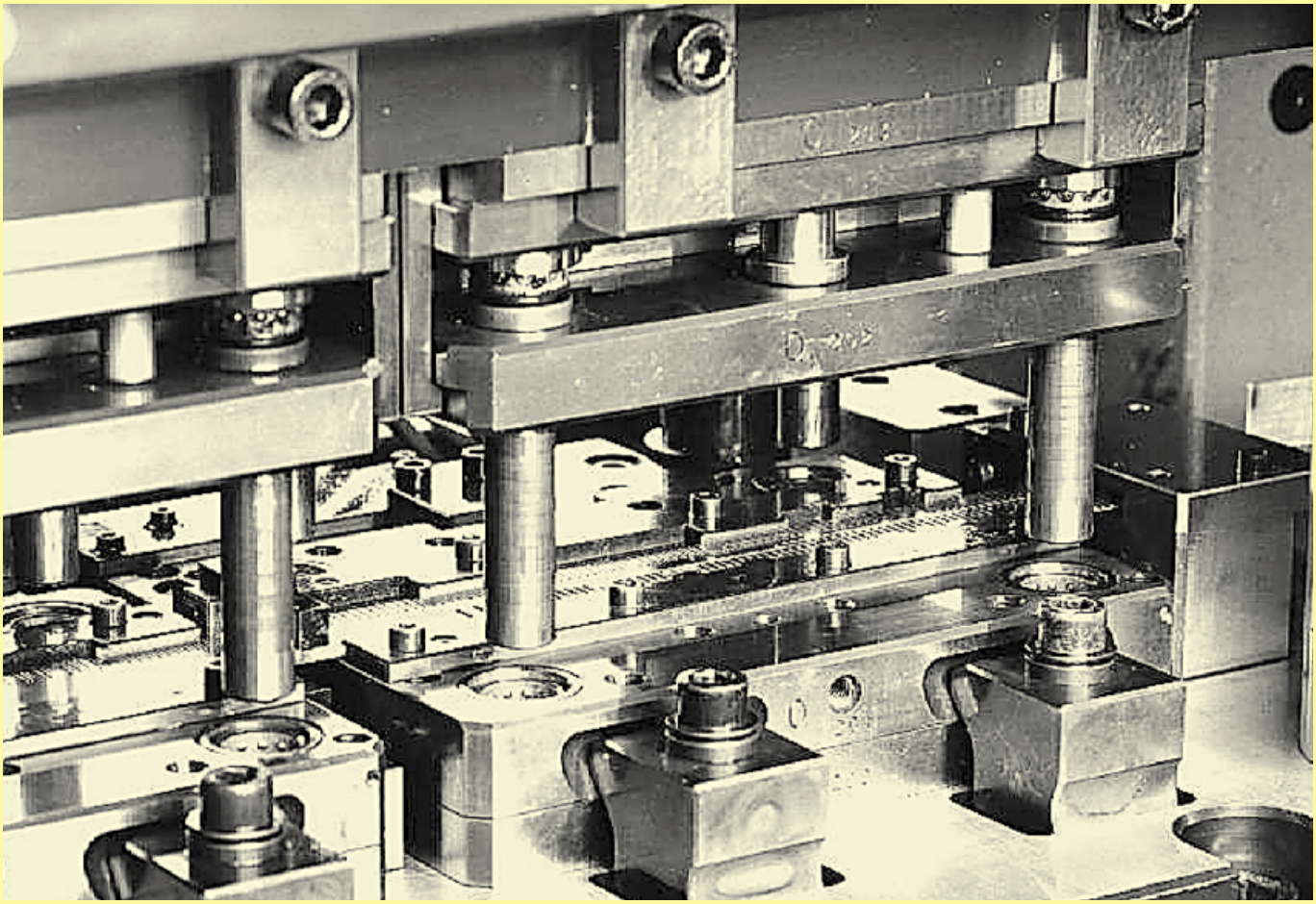
Bandoliered contacts

Individual contacts

3.5 + 0.5 mm of insulation is stripped from the wires to be crimped

Insertion, removal and crimping tools see chapter 30

[c] Connectors with coding see page 02.42
[1] Packaging unit 1,000 pieces
[2] Solder contacts must not be used together with shell housing A. Special contact surface: 2 µm gold.



Our claim is quality.

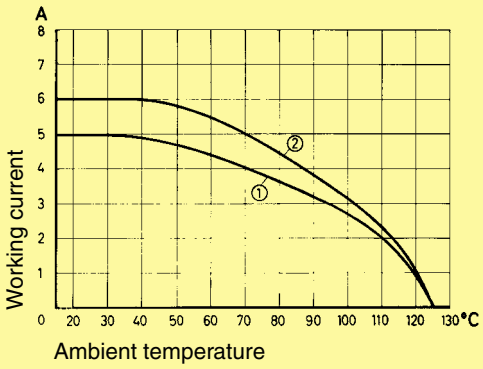
Simultaneous and fully automated high-speed stamping of several contacts with small tolerances.

| | |
|---|---|
| Number of contacts | 16, 32, 48 |
| Working current | 6 A max. |
| see current carrying capacity chart | |
| Clearance | |
| 16 ways | ≥ 1.6 mm |
| 32, 48 ways | ≥ 1.6 mm |
| Creepage | |
| 16 ways | ≥ 1.6 mm |
| 32, 48 ways | ≥ 3.0 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 |
| Contact resistance | ≤ 20 mΩ |
| Insulation resistance | ≥ $10^{12}$ Ω |
| Termination | Crimp terminal 0.09-1.5 mm² |
| Materials | |
| Mouldings and hoods | Thermoplastic resin, glass-fibre filled |
| 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




① with shell housing ② without shell housing

## Piggyback connectors for interfacing with female connectors with wrap posts 1 x 1 mm

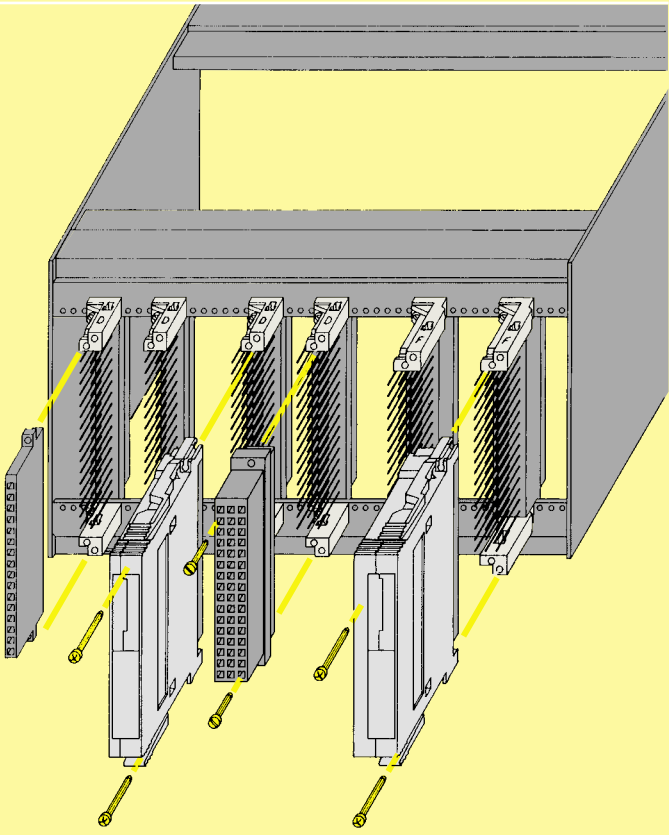
The problem of interfacing systems designed for the distribution or collection of electronic signals can be overcome by the use of piggyback connectors. Designed to be mounted on the rear of DIN 41 612 type wire wrap female connectors (1 x 1 mm posts) these piggyback elements can be used to terminate input and output cables.

Distance fixing brackets are fitted to provide either a latching or screw fixing facility over the two level wire wrap plane.

The female crimp contacts used in these versions are designed for 1 x 1 mm posts.

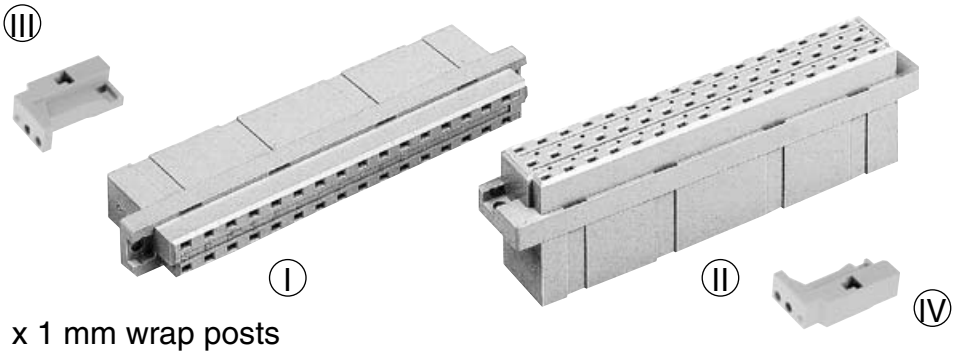
After crimping they can be easily inserted into the chambers of the connector body with the aid of an insertion tool. Insertion errors can be simply rectified with the use of a removal tool.

2 and 3 row piggyback connectors can be mounted in shell housings C and open hood G. Security is provided by either latches or screws to the distance fixing brackets.

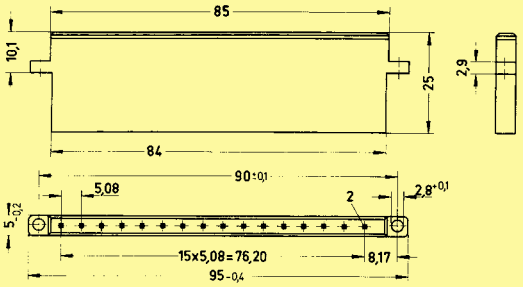
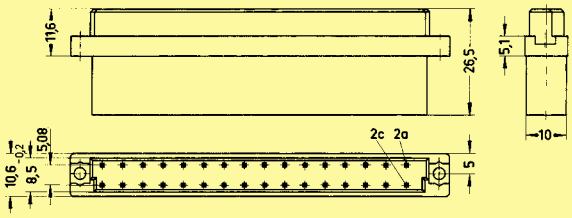
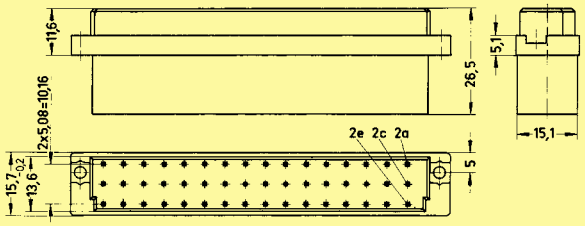
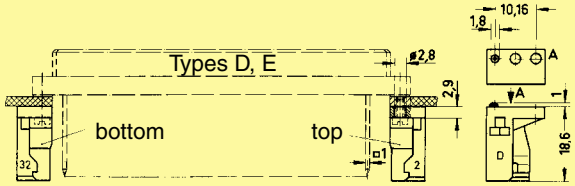
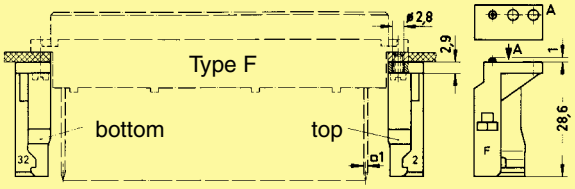


Number of contacts

# max. 48



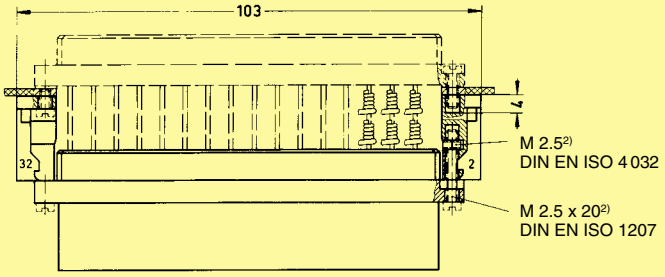

## Piggyback connectors for 1 x 1 mm wrap posts

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Piggyback connector for crimp contacts**<br>Order contacts separately | 16 | 09 04 016 3201 |  | |
| Ⅰ | 32 | 09 04 032 3215 |  | |
| Ⅱ | 48 | 09 05 048 3204 |  | |
| **Female FC crimp contacts**<br>individual contacts[1] FC1 FC2 FC3<br>Bandoliered contacts (approx. 2,500 pcs.) FC1 FC2 FC3<br>**Mateable with 1 x 1 mm wrap posts** | | 09 06 000 6464<br>09 06 000 6461<br>09 06 000 6462<br>09 06 000 6454<br>09 06 000 6451<br>09 06 000 6452 | Identification<br> | Identi-fication / Wire gauge mm² / AWG / Insulations ø mm<br>1 0.09-0.25 28-24 0.7-1.5<br>2 0.14-0.56 26-20 0.8-2.0<br>3 0.50-1.50 20-16 1.6-2.8<br>1 0.09-0.25 28-34 0.7-1.5<br>2 0.14-0.56 26-20 0.8-2.0<br>3 0.50-1.50 20-16 1.6-2.8<br>3.5 + 0.5 mm of insulation is stripped from the wires to be crimped.<br>Crimping tools see chapter 30 |
| **Distance fixing brackets for female connectors**<br>Type D<br>Type E | | top (pos. 2)<br>09 04 000 9907<br>bottom (pos. 32)<br>09 04 000 9906 |  | |
| Type F<br>Ⅲ<br>Ⅳ | | top (pos. 2)<br>09 06 000 9936<br>bottom (pos. 32)<br>09 06 000 9937 |  | |

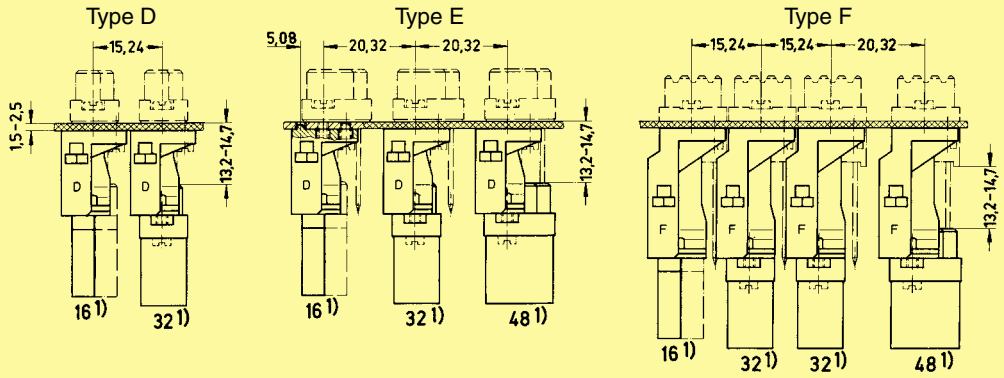
[1] Packaging unit 1,000 pieces

| Identification | Drawing | Dimensions in mm |
|---|---|---|

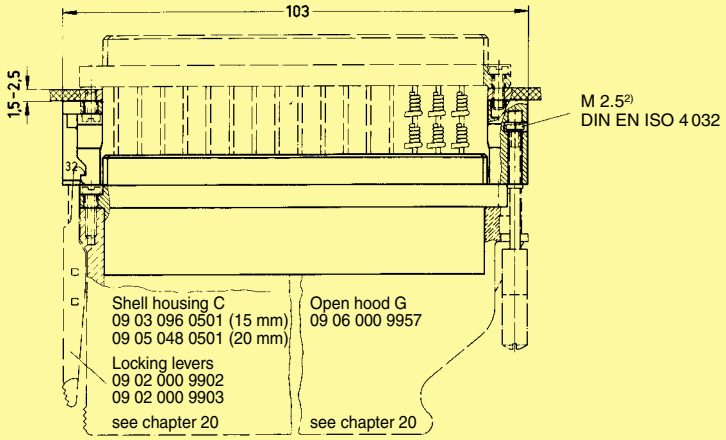
Mounting examples of piggyback connectors

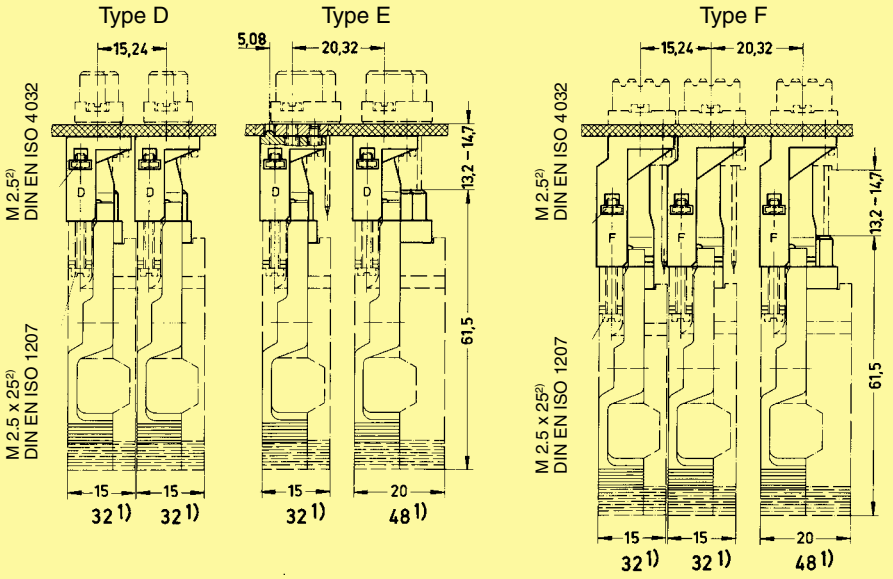



without housings




with housings






[1)] Number of contacts piggyback connector
[2)] Doesn't belong to the scope of supply

## Number of contacts

| | |
|---|---|
| Type F | 48, 32 |
| Type FM | 45 |
| Type 2F | max. 24 |
| Type F9 | max. 9 |

## Contact spacing (mm)

5.08

## Working current

6 A max.

see current carrying capacity chart

## Clearance

≥ 1.6 mm

## Creepage

≥ 3.0 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 $U_{r.m.s.}$

1.55 kV (contact-contact)
2.5 kV (contact-ground)

## Contact resistance

≤ 15 mΩ for wire wrap and solder connections
≤ 20 mΩ including crimp connections

## 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

## Electrical termination

| | |
|---|---|
| Male connector | Solder pins for pcb connections Ø 1 ± 0.1 mm according to IEC 60 326-3<br>Wrap posts 1 x 1 mm diagonal 1.34-1.45 mm<br>Crimp terminal 0.09-1.5 mm² |
| Female connector | Wrap posts 1 x 1 mm diagonal 1.34-1.45 mm<br>Solder pins for pcb connections Ø 1 ± 0.1 mm according to IEC 60 326-3<br>Angled solder pins 1 x 1 mm for pcb connections Ø 1.6 ± 0.1 mm<br>Solder lugs<br>Crimp terminal 0.09-1.5 mm² |
| Distributor | Crimp terminal 0.09-1.5 mm² |

## Insertion and withdrawal force

48 way ≤ 75 N
45 way ≤ 70 N
32 way ≤ 50 N
24 way ≤ 37 N

## Materials

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

## Contact surface

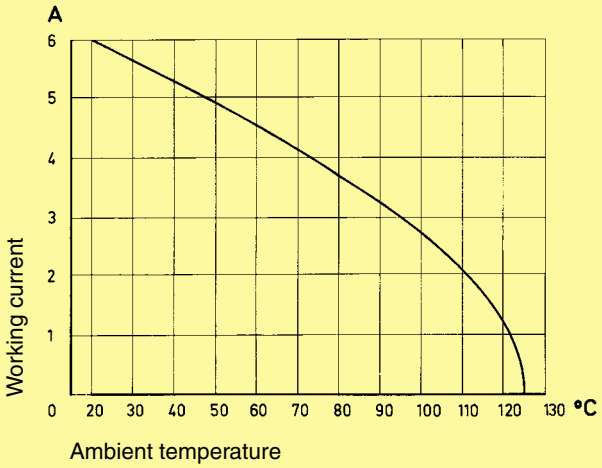
| | |
|---|---|
| Contact zone | Selectively plated according to performance level[1)] |

[1)] Explanation of performance levels 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

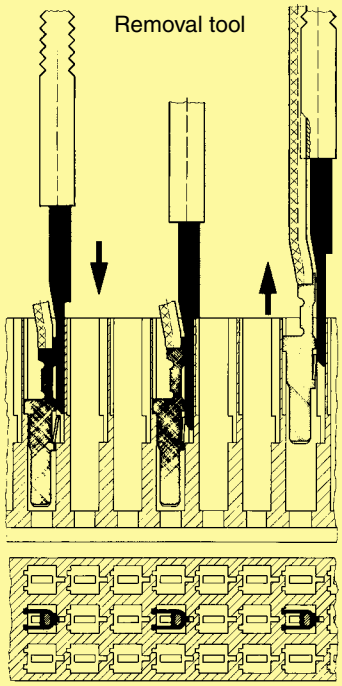



## Fitting the crimp contacts

After crimping the wires onto the contacts with the help of a crimping tool or an automatic crimping machine the contacts should be correctly oriented and inserted into the cavities of the connector moulding in the required configuration. They snap into position and are firmly held in place. A light pull on the wire assures the correct tensile strength of the contact. When using stranded wires with a gauge below 0.37 mm² an insertion tool is necessary.

## Removing the crimp contacts

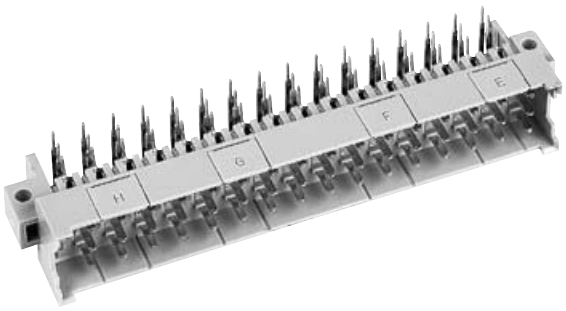
The removal tool is inserted into a slot on the side of the respective crimp cavity. This action compresses the contact retaining spring therefore the contact can then be easily withdrawn using a light pull on the wire. This action will cause no damage to the contact/wire which can be repositioned/refitted as necessary. The drawing demonstrates the crimp removal procedure (max. 5x).




| | |
|---|---|
| Mating conditions | see chapter 00 |
| Coding systems | see pages 02.41 and 02.42 |
| Mounting clips | see chapter 00 |

Number of contacts

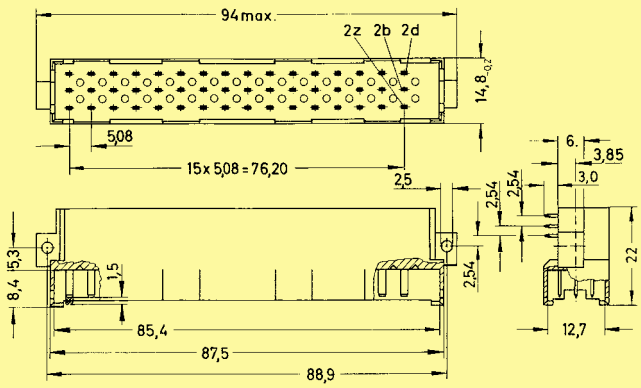
# 48, 32



## Male connectors

| Identification | Number of contacts | Contact arrangement | Part No. | Performance levels according to IEC 60 603-2. Explanation chapter 00 | |
|---|---|---|---|---|---|
| | | | 3 | 2 | 1 |
| Male connector with angled solder pins[1)] | 48 | | 09 06 148 7901 | 09 06 148 6901<br>09 06 348 6901[b)] | 09 06 148 2901 |
| | 32 | | 09 06 132 7901<br>09 06 332 7901[b)] | 09 06 132 6901 | 09 06 132 2901 |
| | 32 | | 09 06 132 7931 | 09 06 132 6931<br>09 06 332 6931[b)] | 09 06 132 2931 |
| 1 leading contact (position z 32) | 47 + 1 | | | 09 06 148 6921<br>09 06 348 6921[b)] | 09 06 148 2921 |
| | 31 + 1 | | 09 06 132 7921 | 09 06 132 6921 | 09 06 132 2921 |
| 2 leading contacts (positions b 2 + b 32) | 46 + 2 | | | 09 06 148 6925 | 09 06 148 2925 |

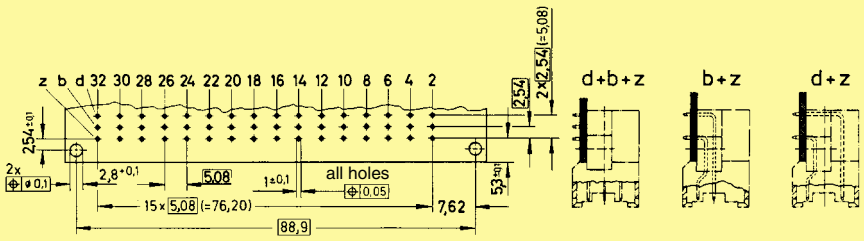
## Dimensions




Angled solder pins

## Board drillings

Mounting side




Dimensions in mm

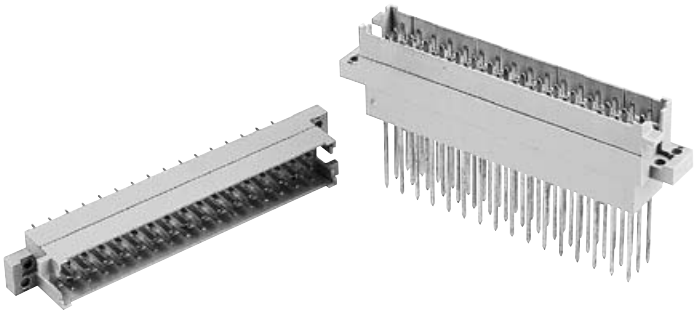
DIN Power to 6 A



1) With shroud coding, see also page 02.41
b) Connectors with snap-in clips see chapter 00

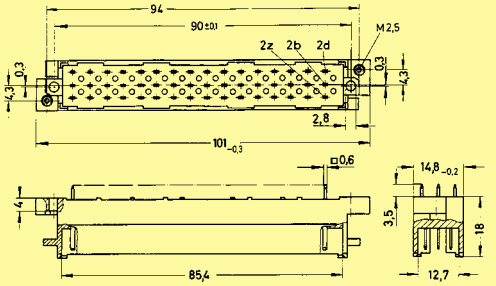
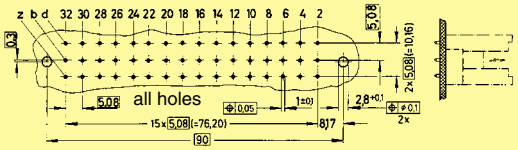
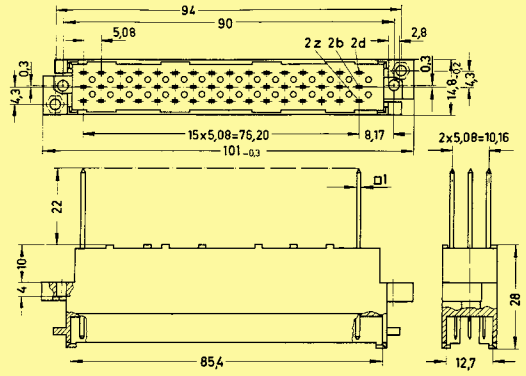
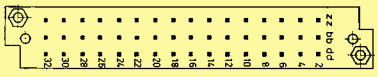
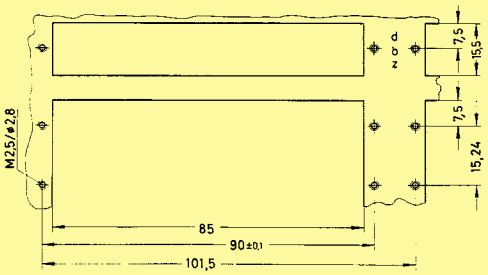
Number of contacts

# 48, 32



## Interface connectors I



| Identification | Number of contacts | Contact arrangement | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|---|
| **Interface connector I with solder pins**[1)] 0.6 x 0.6 mm | | | Performance level 1* | | |
| | 48 | | 09 06 048 2905 |  | |
| | 32 | | 09 06 032 2905 | | |
| | 32 | | 09 06 032 2941 | | |
| **Board drillings** Mounting side | | | |  | |
| **Interface connector I with wrap posts**[1)] 1 x 1 mm | | | Performance level 1* |  | |
| without nut | 48 | | 09 06 048 2903 | | |
| with nut | 48 | | 09 06 048 2963 | | |
| without nut | 32 | | 09 06 032 2903 | | |
| with nut | 32 | | 09 06 032 2963 | Contact arrangement View from termination side  | |
| **Panel cut out** | | | |  | |

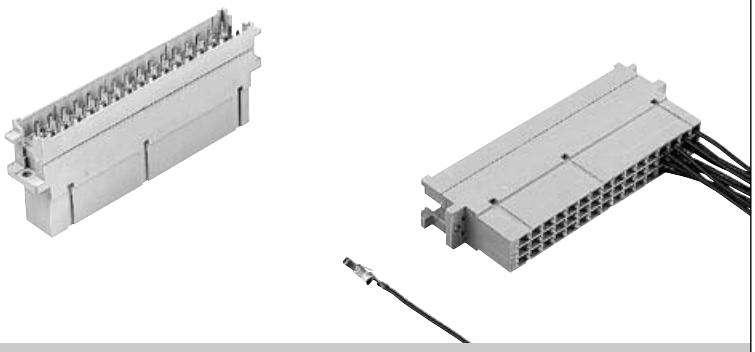


* Acc. to IEC 60 603-2, performance level 2 on request

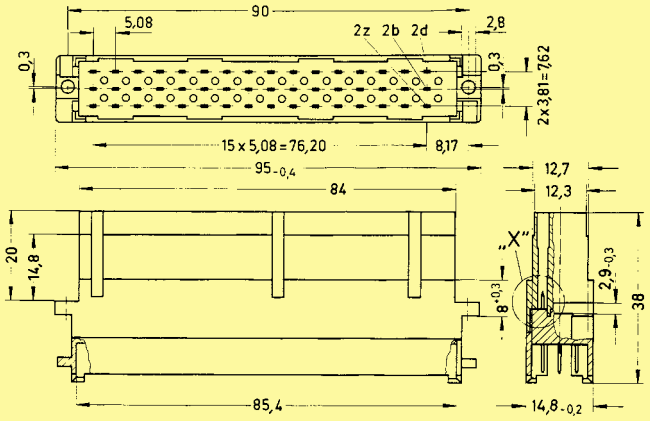
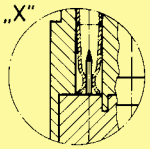
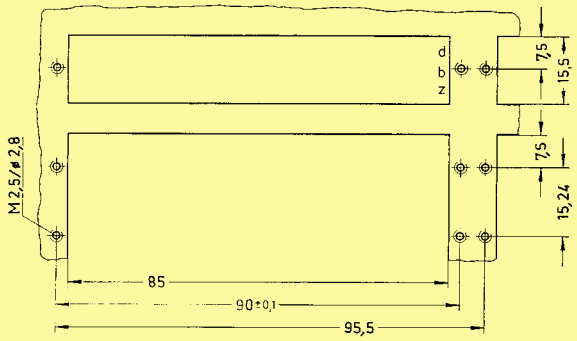
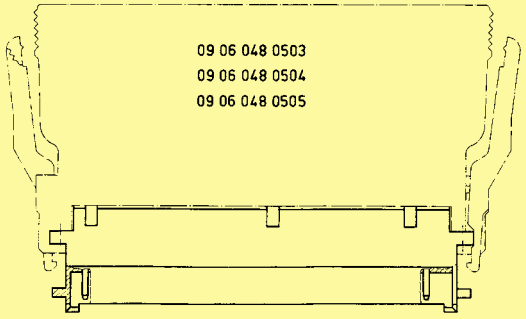
[1)] With shroud coding, see also page 02.41

Number of contacts

# 48



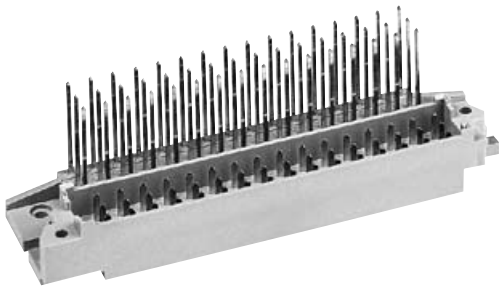
## Interface connector I

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Interface connector I utilising female crimp contacts[1)]<br>Order crimp contacts separately see page 02.29 | 48 | Performance level 1 acc. to IEC 60 603-2<br><br>09 06 048 2906 |  <br>Contact arrangement View from termination side<br> <br>  <br>Shell housing see chapter 20 | |
| Panel cut out<br><br>Mounted in shell housing B | | |  <br>  | |

[1)] With shroud coding, see also page 02.41

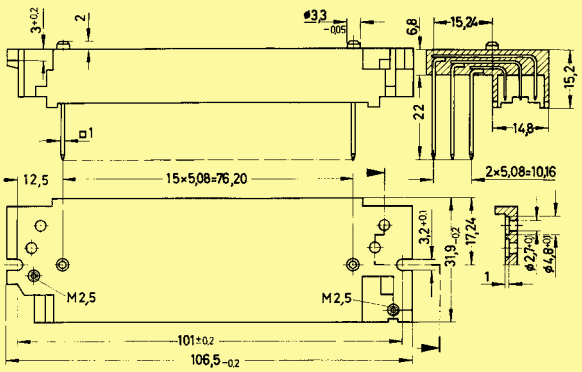
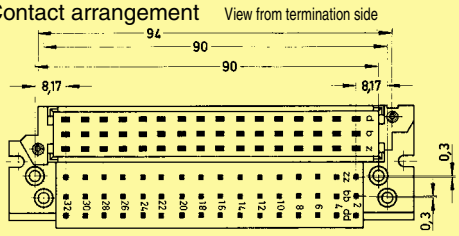
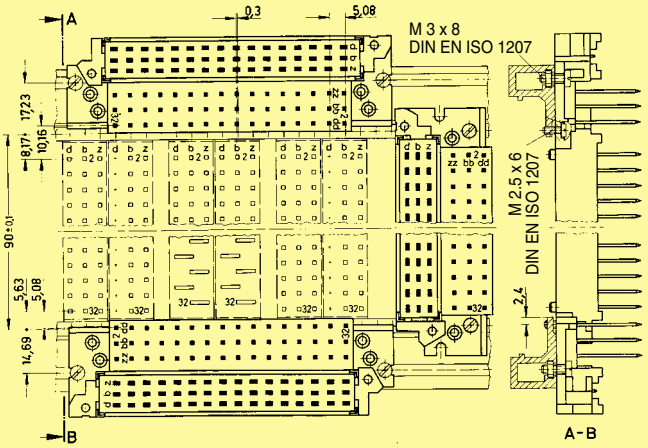
Number of contacts

# 48



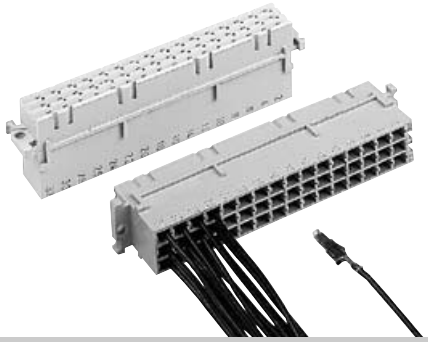
## Interface connector U



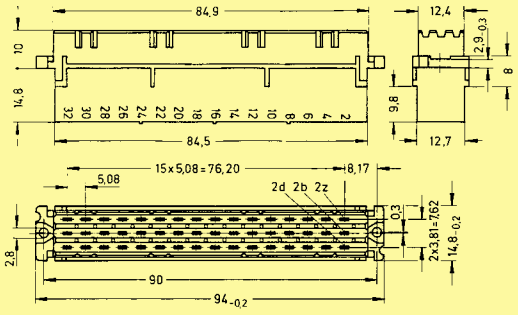
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Interface connector U with wrap posts 1 x 1 mm | 48 | Performance level 1 acc. to IEC 60 603-2<br><br>09 06 048 2981 |  <br>Contact arrangement View from termination side<br>  | |
| Mounting example | | |  | |

Number of contacts

# max. 48



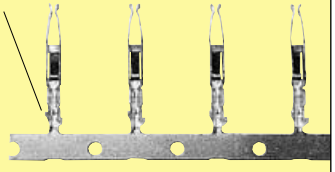
## Female connectors

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Female connector for crimp contacts[1)]**<br>Order contacts separately | 48 | 09 06 248 3201 |  <br>Contact arrangement View from termination side<br> <br>Shell housing see chapter 20 | |

| Identification | Identification Wire gauge | Part No. Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|
| **Female crimp FC contacts** | | | |
| Bandoliered contacts (approx. 2,500 pieces) | 1 | 09 06 000 6484 | 09 06 000 6474 |
| | 2 | 09 06 000 6481 | 09 06 000 6471 |
| | 3 | 09 06 000 6482 | 09 06 000 6472 |
| Bandoliered contacts (approx. 250 pieces) | 1 | 09 06 000 7484 | 09 06 000 7474 |
| | 2 | 09 06 000 7481 | 09 06 000 7471 |
| | 3 | 09 06 000 7482 | 09 06 000 7472 |
| Individual contacts[2)] | 1 | 09 06 000 8484 | 09 06 000 8474 |
| | 2 | 09 06 000 8481 | 09 06 000 8471 |
| | 3 | 09 06 000 8482 | 09 06 000 8472 |
| **Female contacts with solder lugs[3)]** (lockable) | | | 09 06 000 6420 |

| | | Wire gauge mm² | AWG | Insulation ø mm |
|---|---|---|---|---|
| FC 1 | 1 | 0.09 - 0.25 | 28 - 24 | 0.7 - 1.5 |
| FC 2 | 2 | 0.14 - 0.56 | 26 - 20 | 0.8 - 2.0 |
| FC 3 | 3 | 0.5 - 1.5 | 20 - 16 | 1.6 - 2.8 |

Identification



Bandoliered contacts

Individual contacts

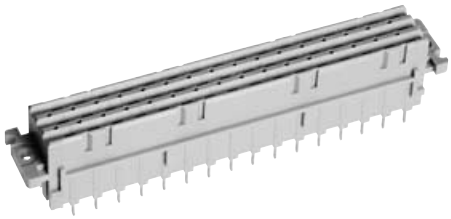
3.5 + 0.5 mm of insulation is stripped from the wires to be crimped

Insertion, removal and crimping tools see chapter 30

[1)] With shroud coding, see also page 02.41
[2)] Packaging unit 1,000 pieces
[3)] Solder contacts must not be used together with shell housing A. Special contact surface: 2 µm gold.

Number of contacts

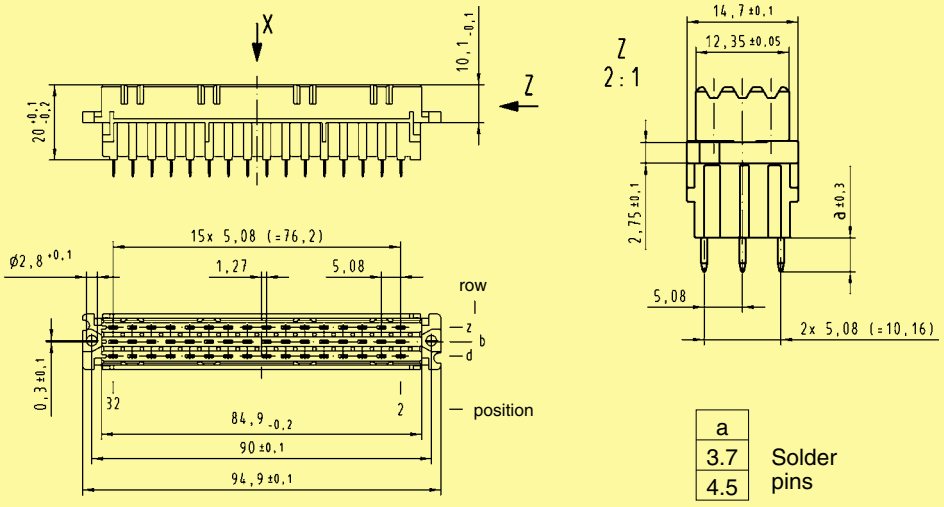
# 48, 32



## Female connectors

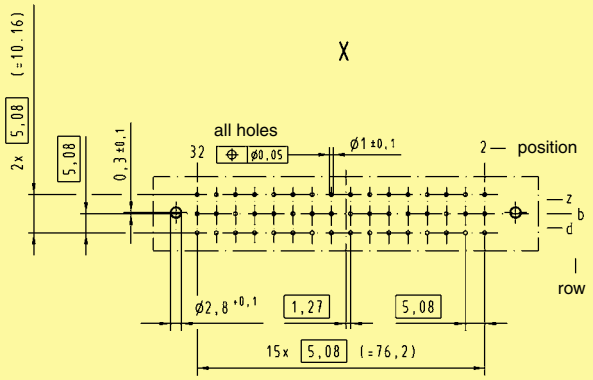
| Identification | Number of contacts | Contact arrangement | Part No. 3 | Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|---|---|
| Female connector with solder pins 3.7 mm[1)] | 48 | | 09 06 248 7848 | 09 06 248 6848 | 09 06 248 2848 |
| | 32 | | | 09 06 232 6848 | 09 06 232 2848 |
| | 32 | | | 09 06 232 6858 | 09 06 232 2858 |
| Female connector with solder pins 4.5 mm[1)] | 48 | | 09 06 248 7835 | 09 06 248 6835 | 09 06 248 2835 |
| | 32 | | | 09 06 232 6835 | 09 06 232 2835 |
| | 32 | | | 09 06 232 6845 | 09 06 232 2845 |

## Dimensions




## Board drillings

Mounting side

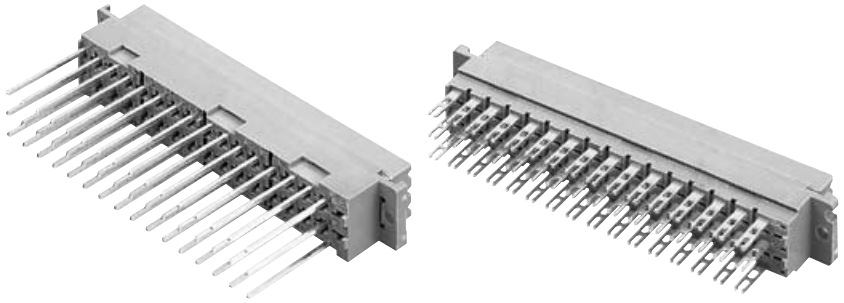



Dimensions in mm

[1)] With shroud coding, see also page 02.41

Number of contacts

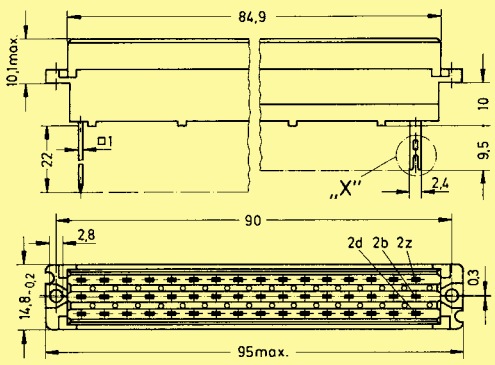
# 48, 32

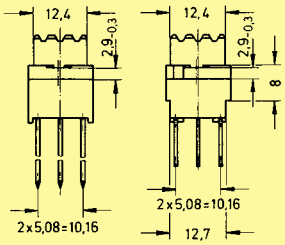


## Female connectors

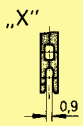
| Identification | Number of contacts | Contact arrangement | Part No. 3 | Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|---|---|
| Female connector with wrap posts 22 mm | 48 | | 09 06 248 7821 | 09 06 248 6821 | 09 06 248 2821 |
| | 32 | | 09 06 232 7821 | 09 06 232 6821 | 09 06 232 2821 |
| | 32 | | 09 06 232 7831 | 09 06 232 6831 | 09 06 232 2831 |
| Female connector with solder lugs | 48 | | 09 06 248 7823 | 09 06 248 6823 | 09 06 248 2823 |
| open solder lug | 32 | | 09 06 232 7823 | 09 06 232 6823 | 09 06 232 2823 |
| | 32 | | 09 06 232 7843 | 09 06 232 6843 | 09 06 232 2843 |

### Dimensions

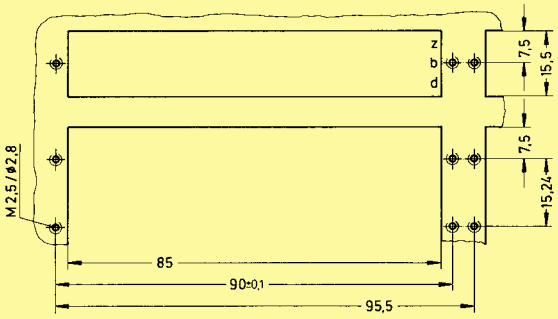



Solder lugs

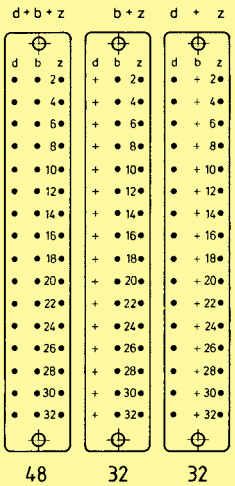



### Panel cut out




Contact arrangement

View from termination side




Dimensions in mm

Identification strips for female connectors with wrap posts 09 06 000 9939

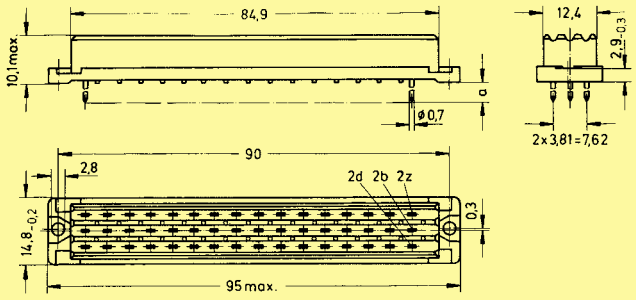
Number of contacts

# 48, 32

## Female connectors

| Identification | Number of contacts | Contact arrangement | Part No. | Performance levels according to IEC 60 603-2. Explanation chapter 00 | |
|---|---|---|---|---|---|
| | | | 3 | 2 | 1 |
| Female connector “low profile” with solder pins 3.2 mm | 48 | | 09 06 248 7833 | 09 06 248 6833 | 09 06 248 2833 |
| | 32 | | | 09 06 232 6833 | |
| | 32 | | | 09 06 232 6893 | |
| Female connector “low profile” with solder pins 4.5 mm | 48 | | 09 06 248 7834 | 09 06 248 6834 | 09 06 248 2834 |
| | 32 | | | 09 06 232 6834 | |
| | 32 | | 09 06 232 7894 | 09 06 232 6894 | 09 06 232 2894 |
| Female connector with press-in pins | | | Part Nos. and variants see chapter 04 | | |

Dimensions

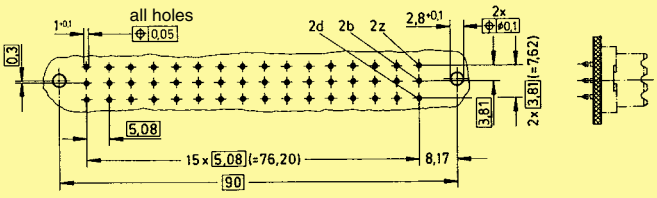



| a |
|---|
| 3.2 |
| 4.5 |

Solder pins

Board drillings

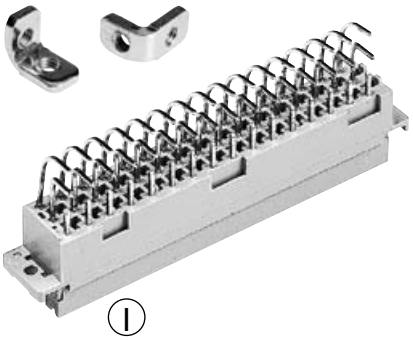
Mounting side



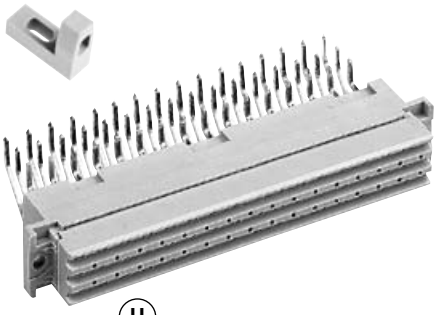

Dimensions in mm

Number of contacts

# 48, 32

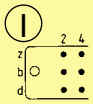
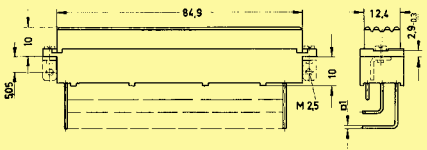
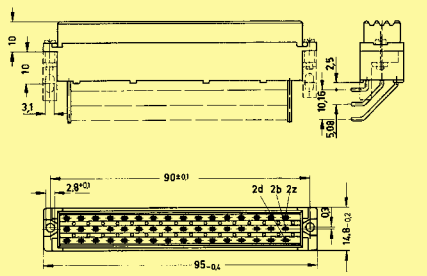
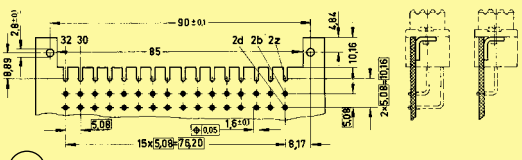
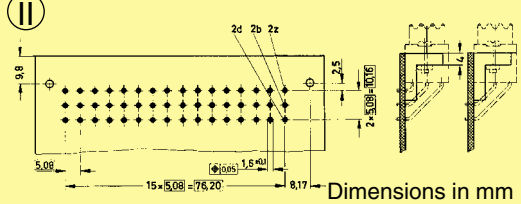


Ⅰ



Ⅱ

## Female connectors

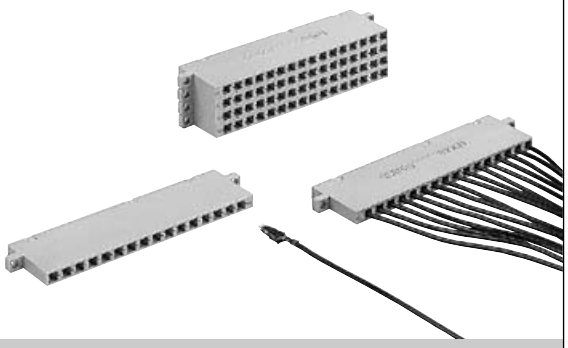
| Identification | Number of contacts | Contact arrangement | Part No. 3 | Performance levels according to IEC 60 603-2. Explanation chapter 00<br>2 | <br>1 |
|---|---|---|---|---|---|
| Female connector with angled solder pins 1 x 1 mm | 48 | Ⅰ  | performance level 3 or special gold plating on request | 09 06 248 6826 | performance level 1 or special gold plating on request |
| | 32 | | | 09 06 232 6826 | |
| | 48 | Ⅱ | | 09 06 248 6836 | |
| | 32 | | | 09 06 232 6846 | |
| | 32 | | | 09 06 232 6836 | |
| Dimensions | | | | Ⅰ  | |
| | | | | Ⅱ  | |
| Fixing bracket | | Metal | 09 06 000 9912[1] | for version Ⅰ | |
| [1] Order 2 pieces for one connector | | Plastic | 09 06 000 9975[1] | for version Ⅱ | |
| Board drillings<br>Mounting side | | | | Ⅰ  | |
| | | | | Ⅱ  | |



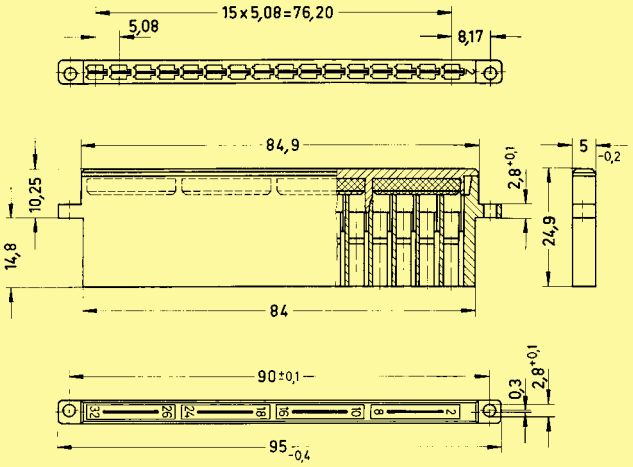
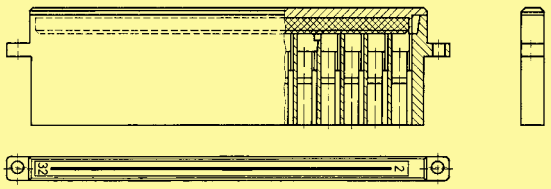
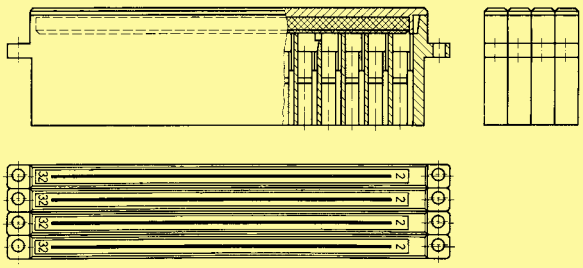
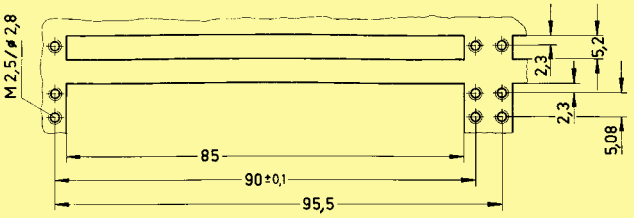
Dimensions in mm

Number of contacts

# 64, 16

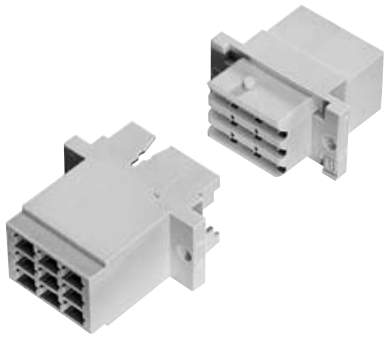


## Universal adaptors

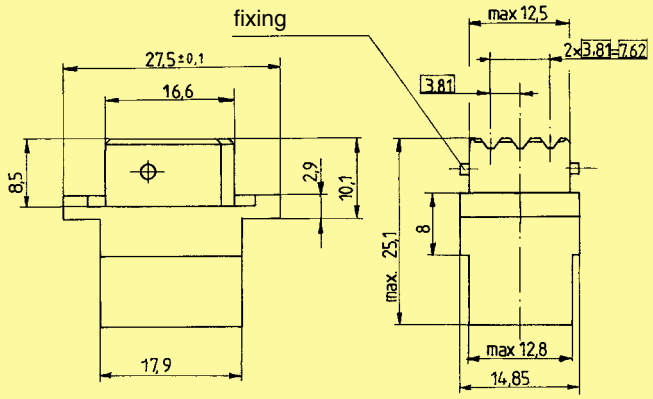
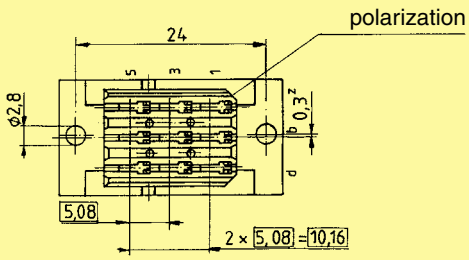
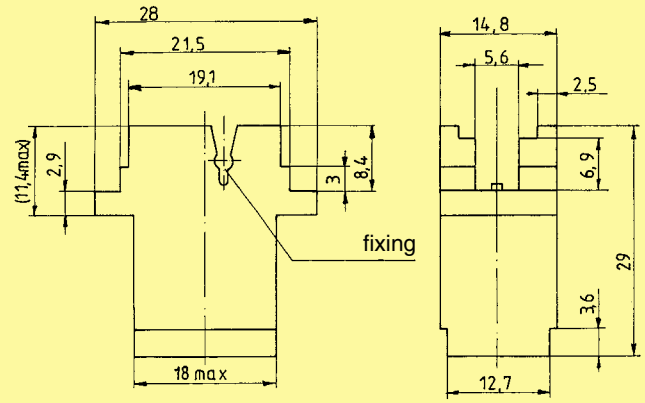
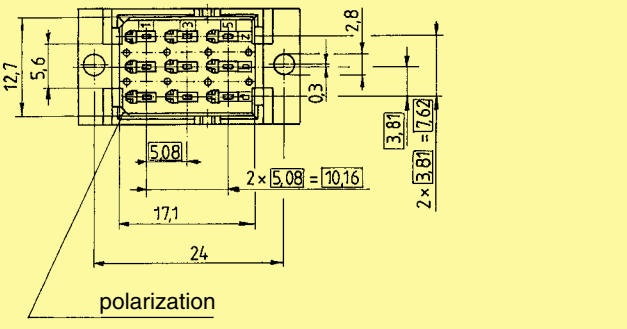
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Universal adaptor utilising crimp contacts<br>crimp contacts<br>see page 02.29 | 4 x 4 | 09 06 016 3301 |  | |
| | 16 x 1 | 09 06 016 3302 |  | |
| | 16 x 4 | 09 06 064 3302 |  | |
| Panel cut out | | |  | |

Number of contacts

# max. 9

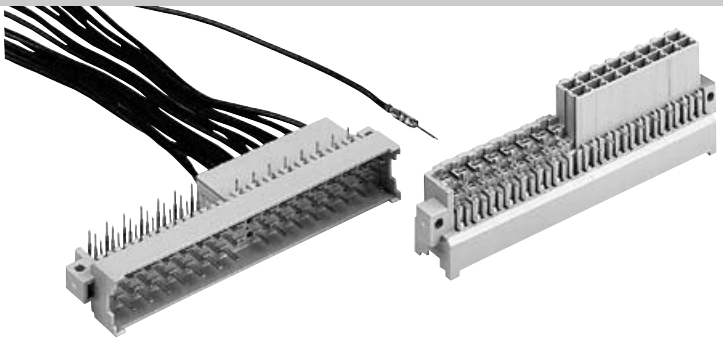


## Female and male connectors

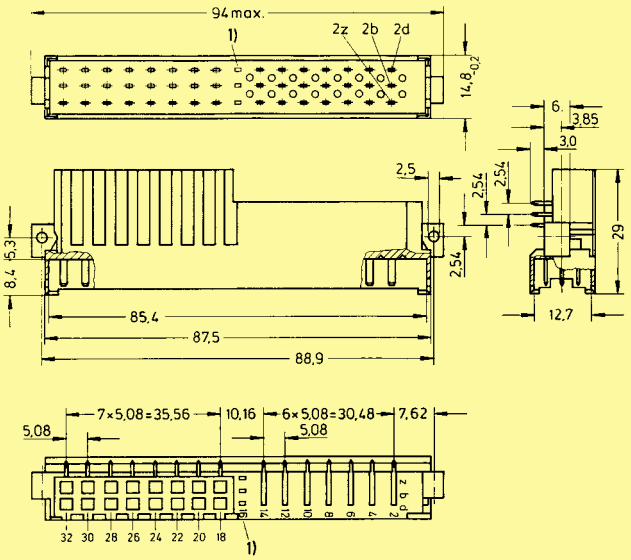
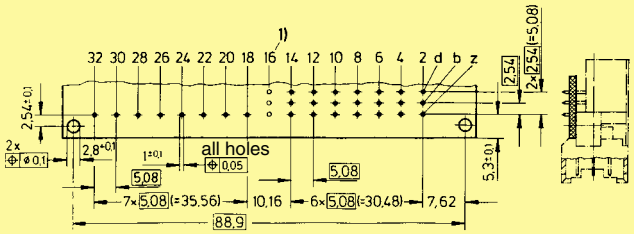
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Female connector for crimp contacts<br>Order contacts separately | 9 | 09 06 209 3201 |  | |
| Female crimp contacts | | see page 02.29 |  | |
| Male connector for crimp contacts<br>Order contacts separately | 9 | 09 06 109 3401 |  | |
| Male crimp contacts | | see page 02.38 |  | |

Number of contacts

# 45



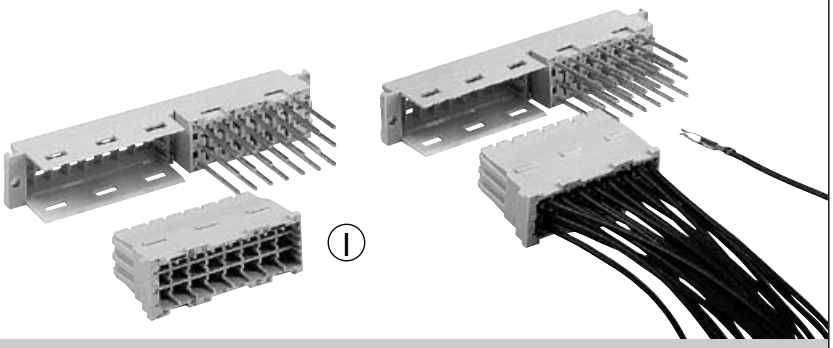
## Male connectors

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Male connector**<br><br>29 angled solder pins<br><br>16 cavities for male crimp contacts<br><br>crimp contacts<br>see page 02.38 | 45 | Performance level 1 acc. to IEC 60 603-2<br><br>09 06 145 2971 |  | |
| **Board drillings**<br>Mounting side | | |  | |

1) A special 48 way version with 3 extra angled solder contacts at position 16 (rows d, b, z) can be supplied

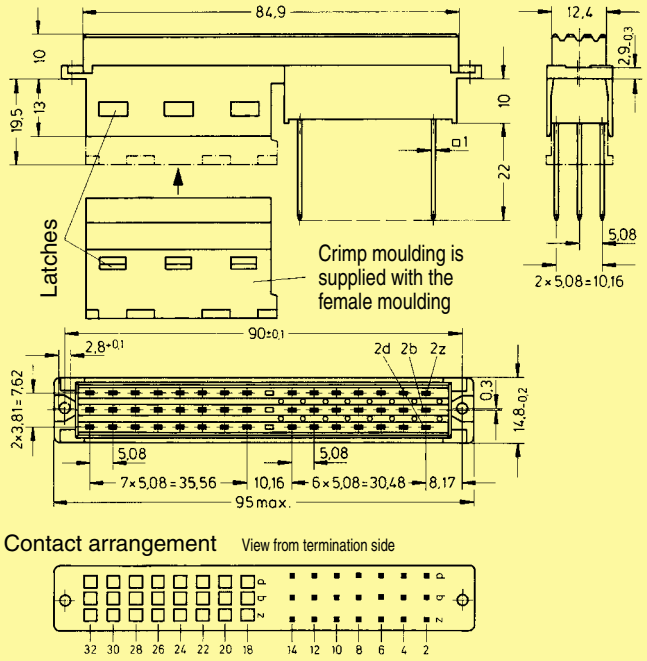
Number of contacts

# 45



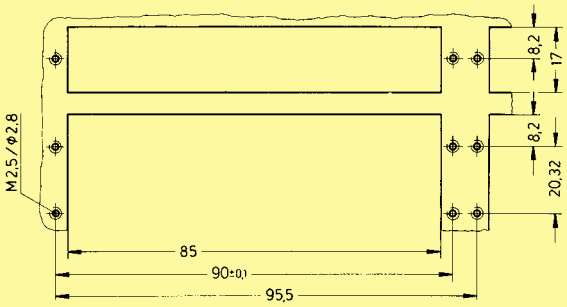
Female connectors

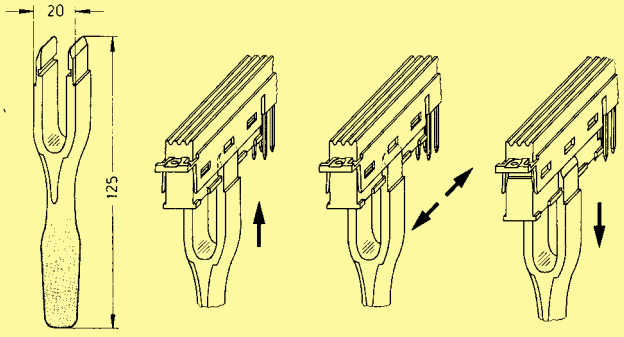
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Female connector | | Performance level 1 acc. to IEC 60 603-2 | | |
| Female moulding<br>with 21 wrap posts 22 mm | 45 | 09 06 045 2871 | | |
| with 21 solder pins 4.5 mm | 45 | 09 06 045 2875 | | |
| Crimp moulding<br>for 24 female crimp contacts Ⓘ | | 09 06 024 3202 | | |
| crimp contacts<br>see page 02.29 | | | | |
| Panel cut out | | | | |
| Removal tool for the crimp moulding | | 09 99 000 0172 | | |




Contact arrangement View from termination side



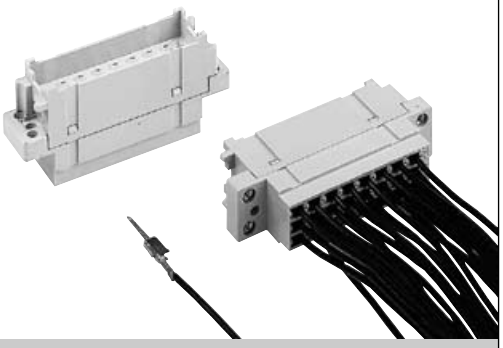



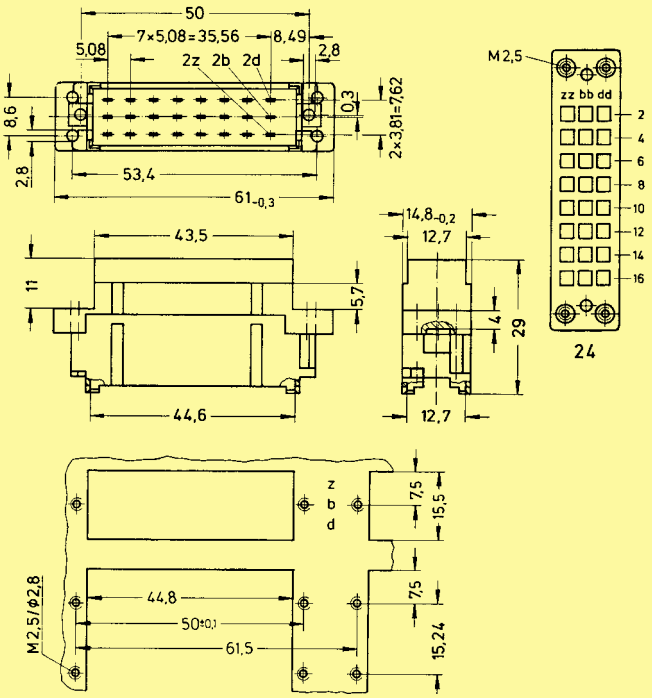

The crimp moulding can be extracted with the help of the removal tool.

Number of contacts

# max. 24



## Interface connector I

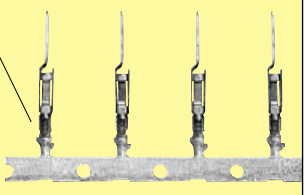
| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Interface connector I for male crimp contacts**<br>Order contacts separately | 24 | 09 26 024 3411 |  | |



| Identification | Identification Wire gauge | Part No. Performance levels according to IEC 60 603-2. Explanation chapter 00 2 | 1 |
|---|---|---|---|
| **Male crimp FC contacts** | | | |
| Bandoliered contacts (approx. 2,500 pieces) | 1 | 09 06 000 9564 | 09 06 000 9544 |
| | 2 | 09 06 000 9561 | 09 06 000 9541 |
| | 3 | 09 06 000 9562 | 09 06 000 9542 |
| Bandoliered contacts (approx. 250 pieces) | 2 | | 09 06 000 5541 |
| | 3 | | 09 06 000 5542 |
| Individual contacts[1)] | 1 | 09 06 000 9574 | 09 06 000 9554 |
| | 2 | 09 06 000 9571 | 09 06 000 9551 |
| | 3 | 09 06 000 9572 | 09 06 000 9552 |

| | | Wire gauge mm² | AWG | Insulation ø mm |
|---|---|---|---|---|
| FC 1 | 1 | 0.09 - 0.25 | 28 - 24 | 0.7 - 1.5 |
| FC 2 | 2 | 0.14 - 0.56 | 26 - 20 | 0.8 - 2.0 |
| FC 3 | 3 | 0.5 - 1.5 | 20 - 16 | 1.6 - 2.8 |

Identification



Bandoliered contacts

Individual contacts

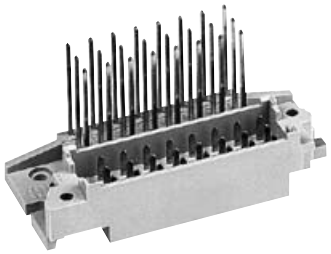
3.5 + 0.5 mm of insulation is stripped from the wires to be crimped

Insertion, removal and crimping tools see chapter 30

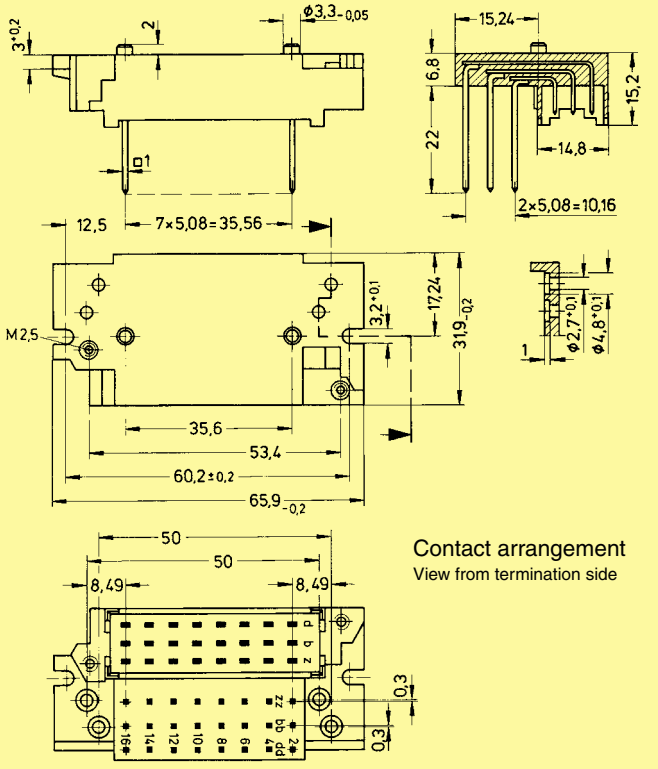
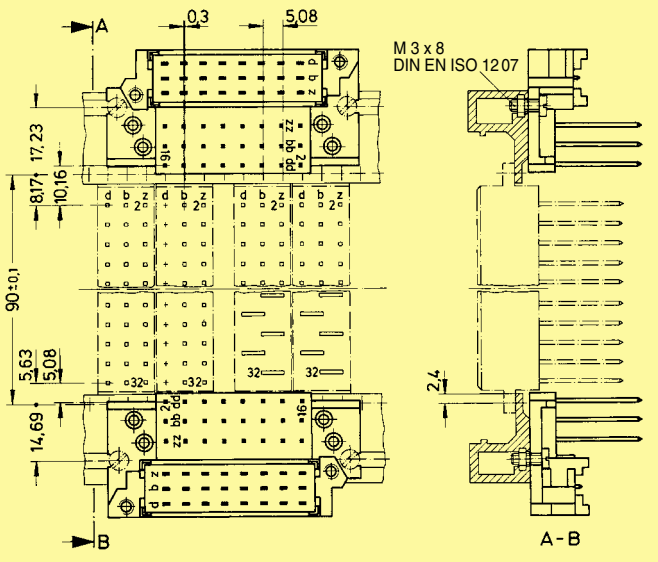
[1)] Packaging unit 1,000 pieces

Number of contacts

# max. 24

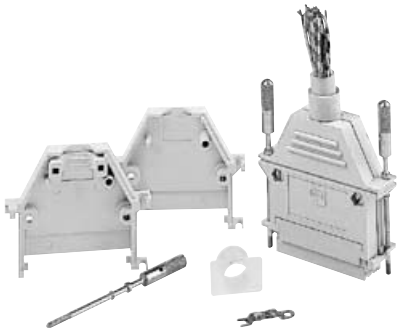


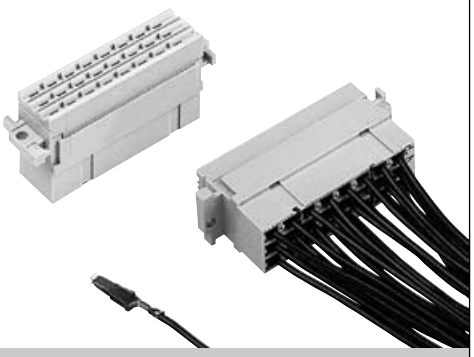
## Interface connector U

| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| Interface connector U<br>with wrap posts<br>1 x 1 mm | 24 | Performance level 1<br>acc. to IEC 60 603-2<br><br>09 26 024 2981 |  | |
| Mounting example | | |  | |

Number of contacts

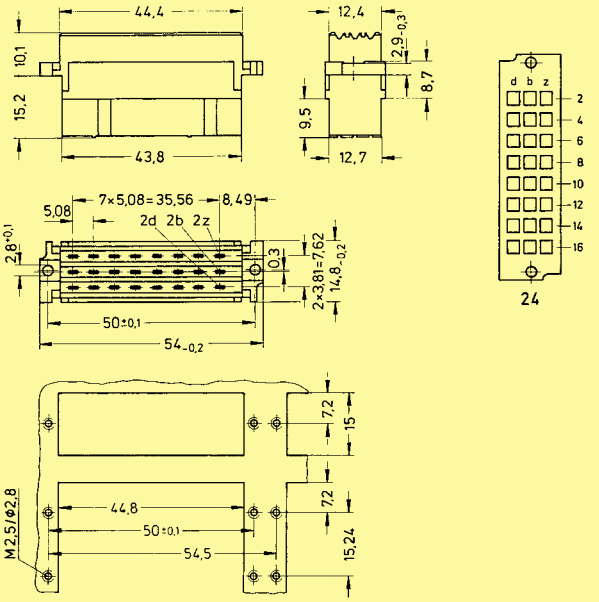
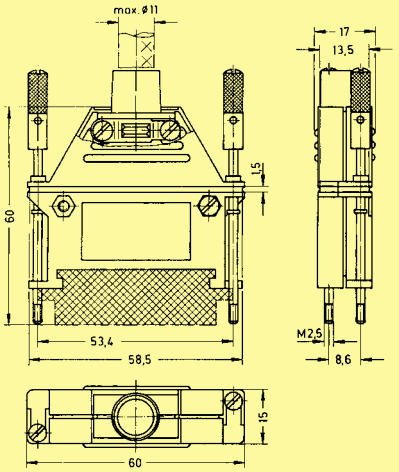
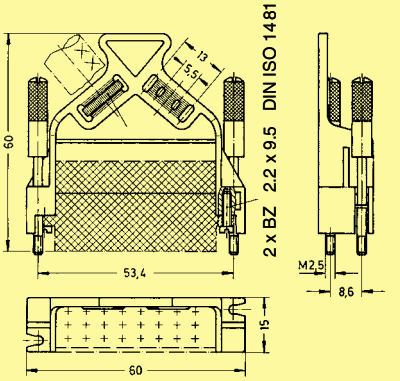
# max. 24





## Female connectors



| Identification | Number of contacts | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|---|
| **Female connector for crimp contacts**<br>Order contacts separately<br>see page 02.29 | 24 | 09 26 024 3201 |  | |
| **Shell housing A with integrated fixing screws**<br>Supplied with:<br>Shell 2x<br>Locking screw 2x<br>Screw M3x10 2x<br>Nut M3 2x<br>Screw BZ 2.9x9.5 2x<br>Cable clamp 1x<br>Tension relief 1x | | 09 26 024 0401 |  | |
| **Open hood**<br>Supplied with:<br>Open hood 1x<br>Locking screw 2x<br>Screw BZ 2.2x9.5 2x<br>Cable tie 1x | | 09 26 000 9901 |  | |

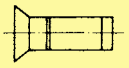
| Identification | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|

## Coding system with contact loss

Code pin for types D, E, F, FM, 2F

09 04 000 9908

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.



Plastic

Removal tool for male contacts

09 99 000 0038

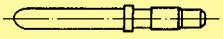
## Coding system without contact loss

With the aid of the marked indents between the contact rows of the male connector a hole has to be drilled at the desired position (also see drawing). The code pin can then be inserted into the corresponding cavity of the female connector by means of the insertion tool.
This coding system is available only for the types D, E, F and interface connectors I

with code pin

Code pin

09 06 000 9950

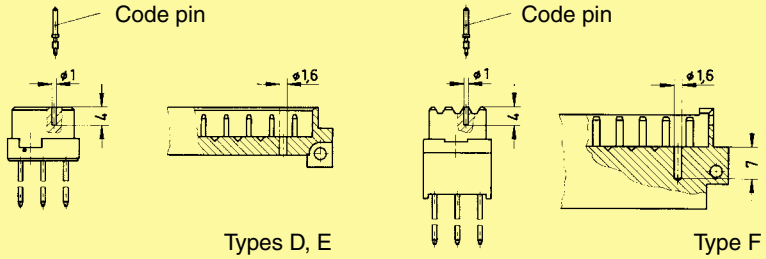


Metal

Insertion tool

09 99 000 0103

Mounting example



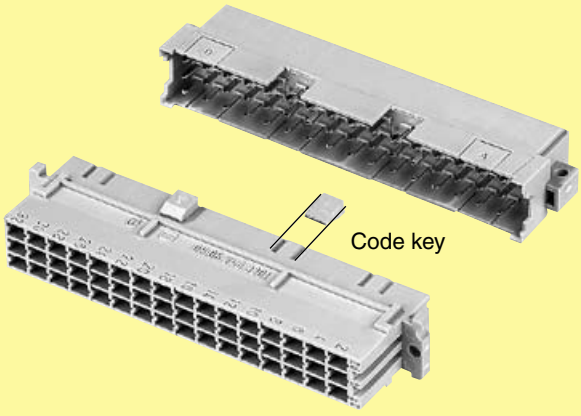

shroud coding

Type F

Code key

09 06 001 9919

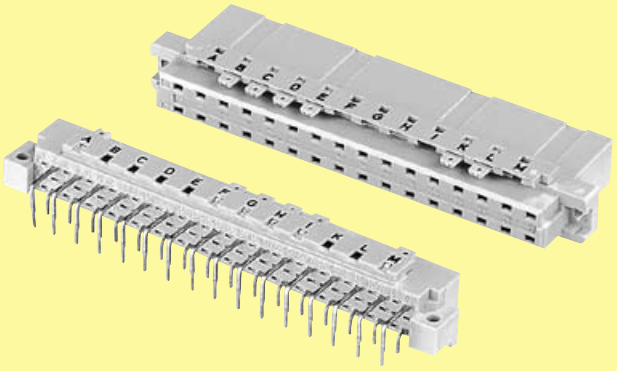
Insert the code key into one of the keyways of the female connector as shown in the drawing. Break out the corresponding area of the male shroud.
Connectors coded this way can only be applied in a minimum rack spacing of 20.32 mm.

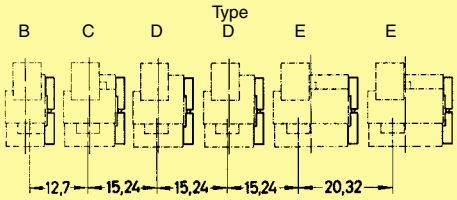


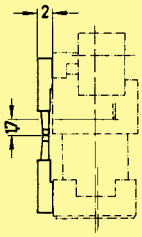

## Tool for breaking out the coding area of the male shroud

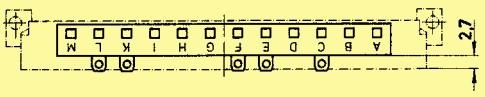
09 99 000 0242

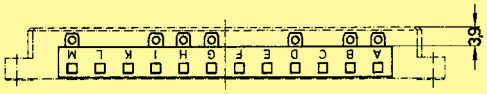
| Identification | Part No. | Drawing | Dimensions in mm |
|---|---|---|---|
| Coding system <u>without</u> contact loss | Male and female connectors<br><br>Types B, C, D and E<br><br>see product pages or on request | To avoid accidental and incorrect mating of adjacent connectors a coding system is required.This coding system is an integral part of both male and female connactors. A comb with 12 coding pins, which is supplied under a single part number, allows over 900 coding variations. The pins are to be locked into the male and female connectors.<br><br>The connectors with the integrated coding facility are supplied for types B, C, D and E and are available for all variants.<br><br>Please contact us. | |
| Coding pins<br><br>Mounting example | 12 pins on a comb<br><br>09 02 000 9928 | | |

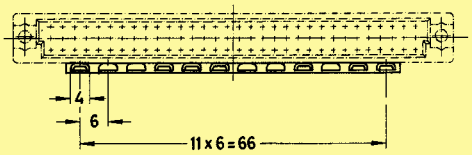




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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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