



 **ELECTRONICS**

D-Subminiatures Connectors and accessories

WEB Product Catalogue (2008 August revision)

FCI: SETTING THE STANDARD FOR CONNECTORS

With operations in 30 countries and sales of 1.3 billion euros in 2007, FCI is a leading manufacturer of connectors.

Our 14,200 employees are committed to providing customers with high-quality, innovative products for a wide range of consumer and industrial applications.

INTRODUCTION

The products are marketed through the international sales organisation of FCI.

FCI D-Sub product lines are present in high technology areas:

- communications,
- data,
- consumer,
- industrial,
- military.

Many styles of termination and performance levels are available and a large choice of accessories completes the range.

Our continuous improvement programme is focused on:

- Manufacturing process control,
- High quality level (ISO 9001 approved),
- Innovation

FCI is an excellent partner for your connection needs.

For more information:
www.fci.com



Check preferred and standard solutions !

| | |
|-----------------------------|-------------------------------|
| PCB applications | Cable applications |
|-----------------------------|-------------------------------|

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Nota: All dimensions in mm

INDEX

D-Sub Overview

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PCB APPLICATIONS

Standard applications

Pages

Signal standard density

| | | |
|--|---|------------------|
| Right angle | <ul style="list-style-type: none"> • Solder to board: • Press-fit: • Pin-in-Paste: | Delta D 8 |
| | | Delta D 10 |
| | | Delta D 12 |
| Straight | <ul style="list-style-type: none"> • Solder to board: • Press-fit: • Pin-in-Paste: | Delta D 14 |
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| | | Delta D 18 |
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Signal high density

| | |
|--|----------|
| <ul style="list-style-type: none"> • Solder to board • Press-fit | 20 |
| | 22 |



Power

| | | |
|-------------|--|--------------------|
| Right angle | <ul style="list-style-type: none"> • Solder to board - Full & mixed power: • Press-fit - Full power: | Delta D 28 |
| | | DW series 29 |
| | | DW series 31 |
| Straight | <ul style="list-style-type: none"> • Solder to board - Full & mixed power: • Press-fit - Full power | DW series 29 |
| | | 31 |
| | | 31 |



Demanding applications : machined signal contacts

Signal

| | |
|---|----------|
| <ul style="list-style-type: none"> • Right angle solder to board: DP series • Wire-wrap: DP series • Straight solder to board: DP series | 48 |
| | 48 |
| | 48 |



Severe environment applications

Signal

| | | |
|---------------------------|---|--------------------|
| HE 501 compliant standard | <ul style="list-style-type: none"> • Right angle: • Straight: | DM series |
| | | DM series 50 |

Power

| | | |
|-----------------------------------|---|--------------------|
| HE 508 compliant high temperature | <ul style="list-style-type: none"> • Right angle: • Straight: | DM series |
| | | DM series 52 |

| | | |
|------------------|---|---------------------|
| HE 507 compliant | <ul style="list-style-type: none"> • Right angle: • Straight: | DMW series |
| | | DMW series 54 |



CABLE APPLICATIONS

Standard applications

Pages

| | | |
|---------------|---|--|
| Signal | <ul style="list-style-type: none"> • Solder bucket • Crimp • IDC | D series 42 |
| | | 8656 series ... 44 |
| | | 8657 series ... 46 |
| Power | <ul style="list-style-type: none"> • Solder bucket • Crimp | DW series 33 DW series 33 |



Demanding applications : machined signal contacts

| | | |
|---------------|---|--------------------|
| Signal | <ul style="list-style-type: none"> • Solder bucket | DP series 48 |
|---------------|---|--------------------|



ACCESSORIES

| | | |
|------------------------|--|----------|
| Hoods | <ul style="list-style-type: none"> • Plastic • Metalised • Metallic • Others hoods | 62 |
| Locking devices | | 63 |
| Caps | | 65 |
| Brackets | | 66 |



D-Sub - Technical Characteristics

| Series | Delta D Solder to board | Delta D Press-fit | Delta D Pin-in-Paste | Mixed Power DW | D series | 8656 series |
|---|---------------------------------------|--------------------------------------|--|---|--------------------------------------|--------------------------------------|
| ENVIRONMENTAL CHARACTERISTICS | | | | | | |
| Operating temperature range | -55°C to 125°C | -55°C to 125°C | -55°C to 125°C | -55°C to 125°C | -55°C to 125°C | -55°C to 105°C |
| Salt spray | 24 hours | 24 hours | 24 hours | 24 hours | 24 hours | 24 hours |
| Damp heat | 21 days | 21 days | 21 days | 21 days | 21 days | 21 days |
| Proof version | no | no | no | no | no | no |
| UL 94 VO | E 118235 (R) | E 118235 (R) | E 118235 (R) | E 118235 (R) | E 118235 (R) | E 118235 (R) |
| NORMES AND APPROVALS | | | | | | |
| NFC 93425 | | | | compliance with HE 507 | | in compliance with |
| DIN 41652 | in compliance with | in compliance with | in compliance with | | in compliance with | in compliance with |
| Others | LNZ 4404 | | | | | |
| MATERIAL | | | | | | |
| Shell | Steel | Steel | Ni | Steel | Steel | Steel |
| Insulator | Thermoplastic | Thermoplastic | Thermoplastic | Thermoplastic | Thermoplastic | Thermoplastic |
| Contacts | Copper alloy | Copper alloy | Copper alloy | Copper alloy | Copper alloy | Copper alloy |
| STANDARD PLATING | | | | | | |
| Shell | Tin | Tin | Tin | Tin | Tin | Tin |
| Contact active area | Gold over Nickel | Gold over Nickel | Gold over Nickel | Gold over Nickel | Gold over Nickel | Gold over Nickel |
| termination area | Tin over Nickel | Tin over Nickel | Tin over Nickel | Tin over Nickel | Tin over Nickel | Tin over Nickel |
| ELECTRICAL CHARACTERISTICS | | | | | | |
| Max current rating per contact | 5 A | 5 A | 5 A | 7.5 A (signal contact) 40 A (power contact) | 5 A | 5 A |
| Dielectric withstanding voltage (DWW) | 1000 Vrms | 1000 Vrms | 1000 Vrms | 1000 Vrms | 1000 Vrms | 1000 Vrms |
| Rated voltage | 300 Vrms | 300 Vrms | 300 Vrms | 300 Vrms | 300 Vrms | 300 Vrms |
| Insulation resistance | ≥ 5000 MΩ | ≥ 5000 MΩ | ≥ 5000 MΩ | ≥ 5000 MΩ | ≥ 5000 MΩ | ≥ 5000 MΩ |
| Contact resistance | ≤ 10 mΩ * | ≤ 10 mΩ * | ≤ 10 mΩ * | ≤ 7.3 mΩ | ≤ 10 mΩ * | ≤ 10 mΩ * |
| Insertion / Extraction force per contact (N) | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. |
| MECHANICAL AND DIMENSIONAL CHARACTERISTICS | | | | | | |
| Mating / Unmating cycles | 200 min. | 200 min. | 500 min. | 500 min. | 200 min. | 200 min. |
| Contact diameter on active area | 1 mm | 1 mm | 1 mm | 3.6 mm (power contact) 1 mm (signal contact) | 1 mm | 1 mm |
| Removable contacts | no | no | no | yes (cable) | no | yes |
| WIRE | | | | | | |
| Size | | | | AWG 20 Max. (signal contact) other see page 35 | AWG 20 Max. | AWG 20 Max. |
| Max diameter on insulator | | | | — | 2.1 mm | 1.52 mm |
| LAYOUT | | | | | | |
| Number of contacts | 9, 15, 25, 37, 50* Male and Female | 9, 15, 25, 37, 50 Male and Female | 9, 15, 25, 37*, 50* Male and Female | 9, 15, 25, 37, 50* Male and Female | 9, 15, 25, 37, 50 Male and Female | 9, 15, 25, 37, 50 Male and Female |

* Straight version only

D-Sub - Technical Characteristics

| Series | 8657 series | Compact D high density | DP series | DM HE 501 / HE 508 | DMW HE 507 |
|---|----------------------------------|--|--------------------------------------|--------------------------------------|--|
| ENVIRONMENTAL CHARACTERISTICS | | | | | |
| Operating temperature range | -55°C to 125°C | -55°C to 125°C | -55°C to 125°C | -55°C to 125°C -55°C to 155°C | -55°C to 125°C |
| Salt spray | 24 hours | 24 hours | 24 hours | 48 hours | 48 hours |
| Damp heat | 21 days | 21 days | 21 days | 56 days | 56 days |
| Proof version | no | no | no | no | no |
| UL 94 VO | E 118235 (R) | E 118235 (R) | E 118235 (R) | E 118235 (R) | E 118235 (R) |
| NORMES AND APPROVALS | | | | | |
| NFC 93425 | in compliance with | | in compliance with | | |
| DIN 41652 | in compliance with | | in compliance with | | |
| Others | | | | LNZ 4404 | |
| Shell | Steel | Steel | Steel | Steel | Steel |
| MATERIAL | | | | | |
| Insulator | Thermoplastic | Thermoplastic | Thermoplastic | Thermoplastic/Thermoset | Thermoplastic/Thermoset |
| Contacts | Copper alloy | Copper alloy | Copper alloy | Copper alloy | Copper alloy |
| STANDARD PLATING | | | | | |
| Shell | Tin | Tin | Tin | Cadmium | Cadmium |
| Contact active area | Gold over Nickel | Gold over Nickel | Gold over Nickel | Gold over Nickel | Gold over Nickel |
| termination area | Tin over Nickel | Tin over Nickel | Tin over Nickel | Tin/Gold over Nickel | Tin/Gold over Nickel |
| ELECTRICAL CHARACTERISTICS | | | | | |
| Max current rating per contact | 1.5 A | 2.5 A | 7.5 A | 7.5 A | 7.5 A (signal contact) 40 A (power contact) |
| Dielectric withstanding voltage (DWW) | 1000 Vrms | 1000 Vrms | 1000 Vrms | 1000 Vrms | 1000 Vrms |
| Rated voltage | 300 Vrms | 300 Vrms | 300 Vrms | 300 Vrms | 300 Vrms |
| Insulation resistance | ≥ 5000 MΩ | ≥ 5000 MΩ | ≥ 5000 MΩ | ≥ 5000 MΩ | ≥ 5000 MΩ |
| Contact resistance | ≤ 10 mΩ * | ≤ 25 mΩ * | ≤ 7.3 mΩ | ≤ 7.3 mΩ | ≤ 7.3 mΩ |
| Insertion / Extraction force per contact (N) | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. | 5N Max. / 0.3N min. |
| MECHANICAL AND DIMENSIONAL CHARACTERISTICS | | | | | |
| Mating / Unmating cycles | 500 min. | 200 min. | 200 min. | 500 | 500 |
| Contact diameter on active area | 1 mm | 0.76 mm | 1 mm | 1 mm | 1 mm (signal contact) |
| Removable contacts | no | no | no | no | yes (coax and power) |
| WIRE | | | | | |
| Size | AWG 26 to AWG 30 | | AWG 20 Max. | AWG 20 | AWG 20 (signal contact) (other see page 36) |
| Max diameter on insulator | Flat cable | | 2.1 mm | 2.1 mm | 2.1 mm |
| LAYOUT | | | | | |
| Number of contacts | 9, 15, 25, 37 Male and Female | Solder : 15, 26, 44, 62 Press-fit: 62, 78 | 9, 15, 25, 37, 50 Male and Female | 9, 15, 25, 37, 50 Male and Female | 9, 15, 25, 37, 50 Male and Female |

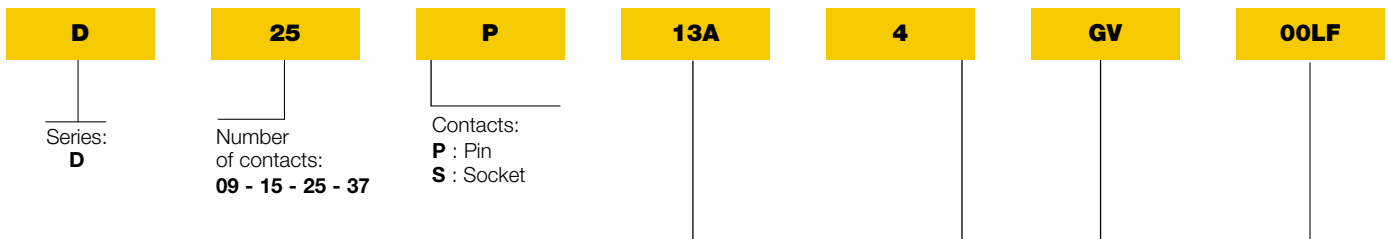
PCB applications

UL [®] **UL Recognized File E 118235 (R)**

■ In compliance with DIN 41652.



ORDERING INFORMATION



Termination:

| Code | Type | Foot print/Pitch | Length of termination | PCB thickness |
|---------------|---------------------------------------|-----------------------|-----------------------|---------------|
| 😊 13 A | Right angled – Europe standard | 10.4 / 2.54 mm | 2.90 | 1.6 |
| 13 B | Right angled – Europe standard | 10.4 / 2.54 mm | 3.70 | 2.4 and 1.6 |
| 23 A | Right angled – Europe standard | 10.4 / 2.84 mm | 2.90 | 1.6 |
| 23 B | Right angled – Europe standard | 10.4 / 2.84 mm | 3.70 | 2.4 and 1.6 |
| 😊 33 E | Right angled – US standard | 8.08 / 2.84 mm | 3.18 | 1.6 |

Durability:

4 : Standard class (≥ 200 mating / unmating)
6 : High performance class (≥ 500 mating / unmating) - LNZ 4404

Mounting options (see page 71)

Options:

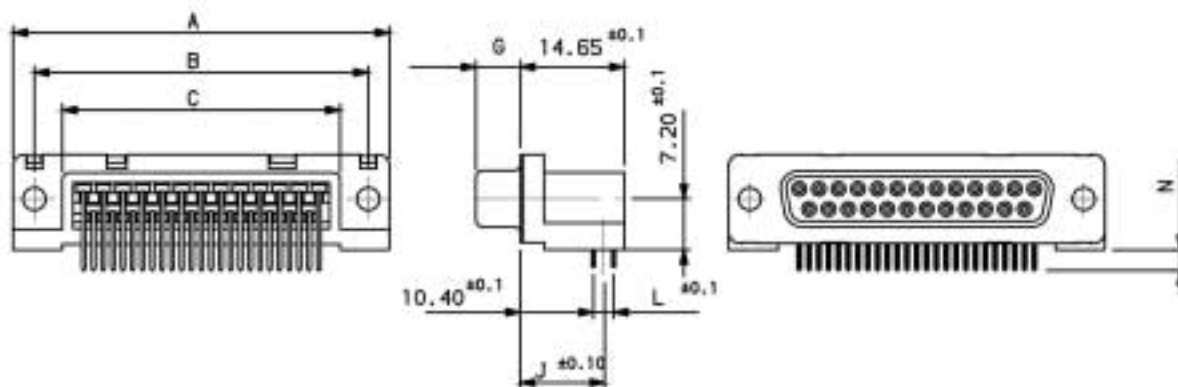
- PA** : Standard hole
- PL** : Threaded insert M3
- PX** : Threaded insert UNC 4-40
- PV** : Female screw UNC 4-40
- GI** : Harpoons + female screw M3 + elec. continuity
- GL** : Harpoons + insert M3 + elec. continuity
- 😊 **GX** : Harpoons + insert UNC 4-40 + elec. continuity
- 😊 **GV** : Harpoons + female screw UNC 4-40 + elec. continuity
- UA** : Elec. continuity
- UL** : Insert M3 + elec. continuity
- UX** : Insert UNC 4-40 + elec. continuity
- UV** : Female screw UNC 4-40 + elec. continuity

Options

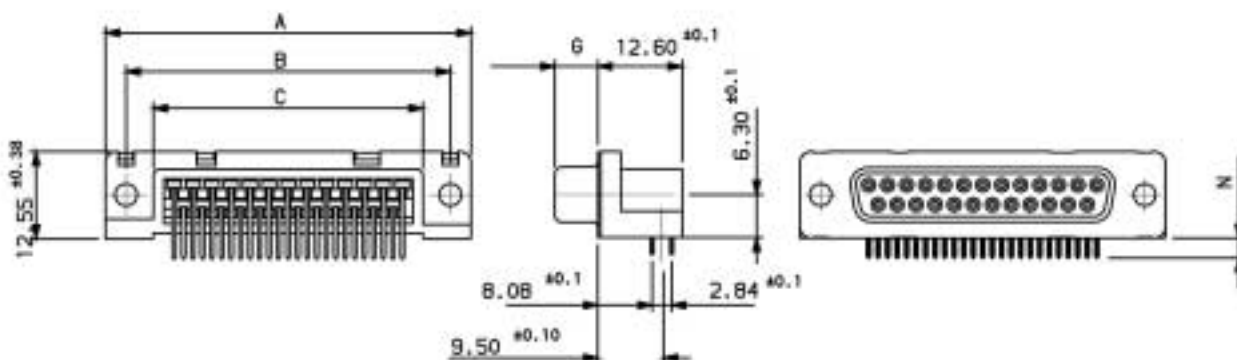
OOLF : Standard series, RoHS compatible

SPECIFIC DIMENSIONS

EUROPE STANDARD



US STANDARD






| | | A±0.38 | B±0.12 | C±0.10 | G ^{+0.25} ₋₀ | J±0.10 | | L±0.1 | | N±0.30 | | |
|----|---|--------|--------|--------|-------------------------------------|-------------|-------|-------------|------|-----------------|--------------|------|
| | | | | | | Termination | | Termination | | Terminal length | | |
| | | | | | | 13. | 23. | 13. | 23. | 13 A 23 A | 13 B 23 B | 33 E |
| 9 | P | 30.81 | 24.99 | 16.96 | 5.90 ^{+0.15} ₋₀ | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |
| | S | 30.81 | 24.99 | 16.96 | 6.05 | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |
| 15 | P | 39.14 | 33.32 | 25.18 | 5.90 ^{+0.15} ₋₀ | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |
| | S | 39.14 | 33.32 | 25.18 | 6.05 | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |
| 25 | P | 53.03 | 47.04 | 39.12 | 5.70 | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |
| | S | 53.03 | 47.04 | 39.12 | 6.05 | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |
| 37 | P | 69.32 | 63.50 | 55.68 | 5.70 | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |
| | S | 69.32 | 63.50 | 55.68 | 6.05 | 11.67 | 11.82 | 2.54 | 2.84 | 2.90 | 3.70 | 3.18 |

PCB applications

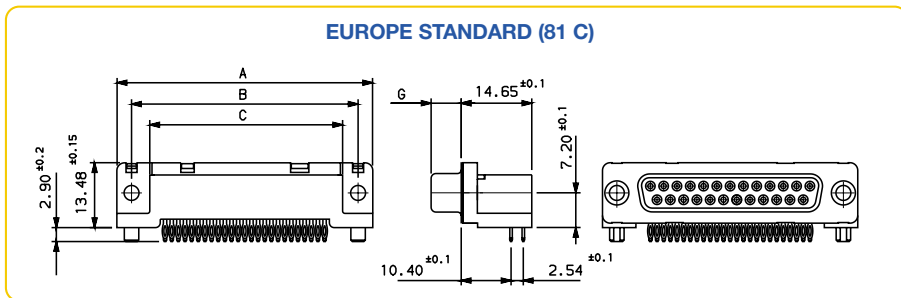
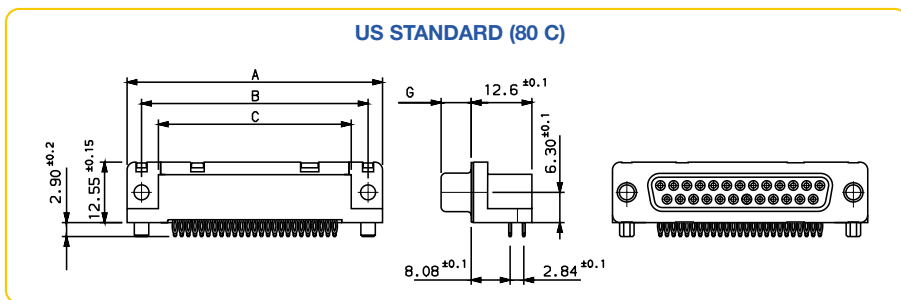
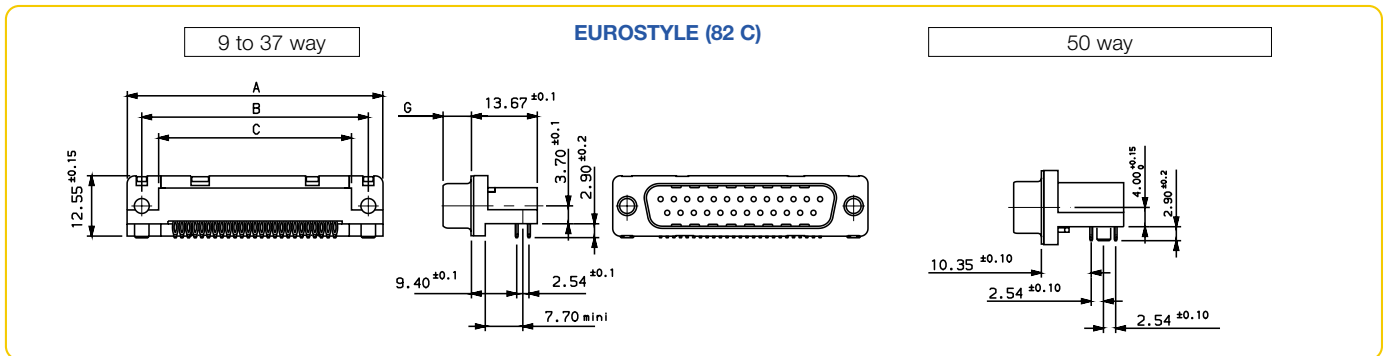
 UL Recognized File E 118235 (R)



ORDERING INFORMATION

| D | 25 | P | 82C | 4 | PA | 00LF | | | | | | | | | | | | | | | | |
|---|---|------------------------------------|-----------------------|---|----|------|------|------|--------------------|--|--|-----------|---------------------------|-----------------------|------|-------------|-------------|-------------|------|------------------|-------------|-------------|
| Series: D | Number of contacts: 09 - 15 - 25 - 37 - 50* *only for Eurostyle version | Contacts: P : Pin S : Socket | | | | | | | | | | | | | | | | | | | | |
| Termination type: | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Code</th> <th>Type</th> <th colspan="2">Foot print / Pitch</th> </tr> </thead> <tbody> <tr> <td> 82 C</td> <td>Eurostyle</td> <td>9.4 / 2.54 10.3 / 2.54</td> <td>9 to 37 way 50 way</td> </tr> <tr> <td>80 C</td> <td>US standard</td> <td>8.08 / 2.84</td> <td>9 to 37 way</td> </tr> <tr> <td>81 C</td> <td>Europe standard*</td> <td>10.4 / 2.54</td> <td>9 to 37 way</td> </tr> </tbody> </table> | | | | | | | Code | Type | Foot print / Pitch | |  82 C | Eurostyle | 9.4 / 2.54 10.3 / 2.54 | 9 to 37 way 50 way | 80 C | US standard | 8.08 / 2.84 | 9 to 37 way | 81 C | Europe standard* | 10.4 / 2.54 | 9 to 37 way |
| Code | Type | Foot print / Pitch | | | | | | | | | | | | | | | | | | | | |
|  82 C | Eurostyle | 9.4 / 2.54 10.3 / 2.54 | 9 to 37 way 50 way | | | | | | | | | | | | | | | | | | | |
| 80 C | US standard | 8.08 / 2.84 | 9 to 37 way | | | | | | | | | | | | | | | | | | | |
| 81 C | Europe standard* | 10.4 / 2.54 | 9 to 37 way | | | | | | | | | | | | | | | | | | | |
| Durability: | | | | | | | | | | | | | | | | | | | | | | |
| 4 : Standard class (≥ 200 mating / unmating) | | | | | | | | | | | | | | | | | | | | | | |
| 6 : High performance class (≥ 500 mating / unmating) | | | | | | | | | | | | | | | | | | | | | | |
| Mounting options (see page 71) | | | | | | | | | | | | | | | | | | | | | | |
| Options: | | | | | | | | | | | | | | | | | | | | | | |
| PA : Standard hole | | | | | | | | | | | | | | | | | | | | | | |
| PL : Threaded insert M3 | | | | | | | | | | | | | | | | | | | | | | |
|  PX : Threaded insert UNC 4-40 | | | | | | | | | | | | | | | | | | | | | | |
|  PV : Female screw UNC 4-40 | | | | | | | | | | | | | | | | | | | | | | |
| GL : Harpoons + insert M3 | | | | | | | | | | | | | | | | | | | | | | |
| GX : Harpoons + insert UNC 4-40 | | | | | | | | | | | | | | | | | | | | | | |
| GV : Harpoons + Female screw UNC 4-40 | | | | | | | | | | | | | | | | | | | | | | |
| Other options: | | | | | | | | | | | | | | | | | | | | | | |
| 00 : Standard, non RoHS compatible | | | | | | | | | | | | | | | | | | | | | | |
|  00LF : Standard, RoHS compatible | | | | | | | | | | | | | | | | | | | | | | |

SPECIFIC DIMENSIONS



| | A±0.38 | B±0.12 | C±0.10 | G ^{+0.25} ₋₀ | |
|-----|--------|--------|--------|----------------------------------|-----------------------|
| 9 | P | 30.81 | 24.99 | 18.00 | 5.90 ^{+0.15} |
| | S | 30.81 | 24.99 | 18.00 | 6.05 |
| 15 | P | 39.14 | 33.32 | 26.32 | 5.90 ^{+0.15} |
| | S | 39.14 | 33.32 | 26.32 | 6.05 |
| 25 | P | 53.03 | 47.04 | 40.04 | 5.70 |
| | S | 53.03 | 47.04 | 40.04 | 6.05 |
| 37 | P | 69.32 | 63.50 | 55.50 | 5.70 |
| | S | 69.32 | 63.50 | 55.50 | 6.05 |
| 50* | P | 67.10 | 61.11 | 54.10 | 5.70 |
| | S | 67.10 | 61.11 | 54.10 | 6.05 |

* Only for Eurostyle version.

PRESS-FIT FEATURES

Application by pressure on insulator • D-Sub insertion kit : 8646 3064 01
Eye of the needle design.

Metallized hole dimensions

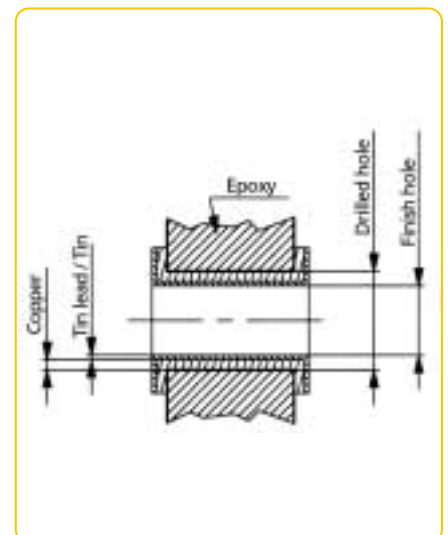
| | | Press-fit contacts | Press-fit harpoons | |
|---------------------------------------|----------------------------|----------------------------|----------------------------------|----------------------------------|
| P.C.B. hole definition (note 1 and 2) | non RoHS | Drill diameter | Ø 1.15 ref (note 3) | Ø 3.22 ref (note 3) |
| | | Drilled hole | Ø 1.18 - 1.2 | Ø 3.19 - 3.25 |
| | | Copper plating | 25 µm min (recommended 50 µ max) | 25 µm min (recommended 50 µ max) |
| | RoHS | Tin-lead plating | 15 µm max (recommended 5 µ min) | 15 µm max (recommended 5 µ min) |
| | | Finish hole (after reflow) | Ø 0.94 - 1.09 | Ø 3.02 - 3.20 |
| | | Tin plating | 0.8 to 1.2 µm | 0.8 to 1.2 µm |
| | Finish hole (after reflow) | Ø 1.00 - 1.09 | Ø 3.08 - 3.20 | |

Note 1 : These dimensions must be respected to ensure press-fit pin performance
Note 2 : According to IEC-352-S specification

Note 3 : Vital requirement for press-fit pin performance

Press-fit performance

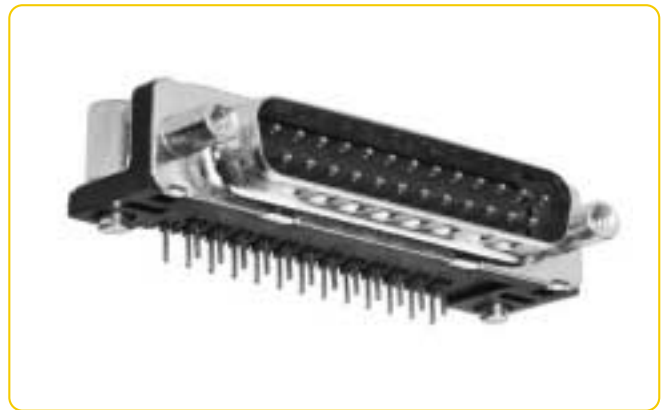
| | Press-fit contacts | Press-fit harpoons |
|------------------|--------------------|--------------------|
| Insertion force | ≤ 100 N | ≤ 120 N |
| Extraction force | ≥ 30 N | ≥ 30 N |





PCB applications

In compliance with DIN 41652:

- Reflow type: JSTD-020C
- Packaging: IEA-481-B
- Plating: BELLCORE CO GR-1217

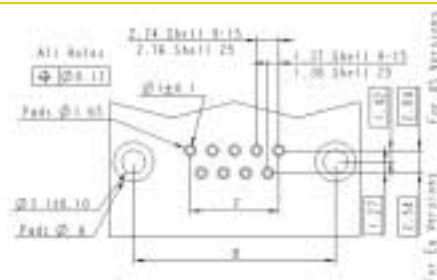


PART NUMBER

| | | | | | | | |
|--|--|---|---------------------------|---|--|--|-----------|
| D | 09 | P | 13A | 6 | RV | 12 | LF |
| Series: D | Number of contacts: 09 - 15 - 25 | Contacts: P : Pin S : Socket | | Durability: 6 : High performance class (> 500 mating/unmating) | | | |
| Termination: | | | | | | Packaging: 09 : Tray for manual positioning 12 : Tape and Reel for automatic pick and place | |
| Code | Type | Footprint/Pitch | Termination length | PCB thickness | | | |
| 13A | Right angle - Europe standard | 10.4 / 2.54 mm | 2.0 mm | 1.6 mm | | | |
| 33E | Right angle - US standard | 8.08 / 2.84 mm | 2.0 mm | 1.6 mm | | | |
| Mounting options: | | | | | | | |
| RL : Insert M3 + metal peg + electrical continuity | | | |  |  | | |
| RX : Insert UNC 4-40 + metal peg + electrical continuity | | | | | | | |
| RV : Female screw UNC 4-40 + metal peg + electrical continuity | | | | | | | |
| | | | | | | RoHS status: LF : RoHS compatible EU directive 2002/95/EC | |

RECOMMENDED LAYOUTS AND PAD DIMENSIONS

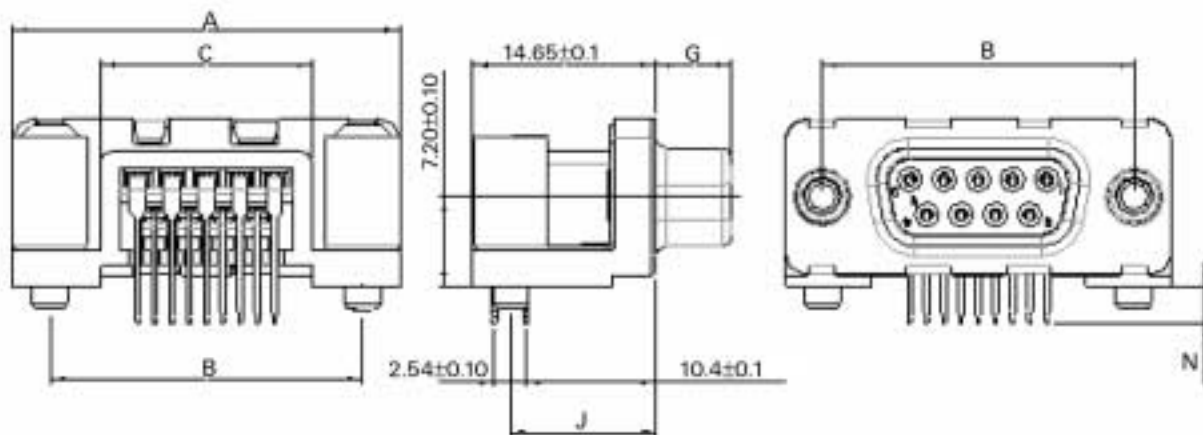
| Contacts | B ^{+0.10} | F | G |
|----------|--------------------|-------|-------|
| 09 | 24.99 | 10.96 | 8.22 |
| 15 | 33.32 | 19.18 | 16.44 |
| 25 | 47.04 | 33.12 | 30.36 |



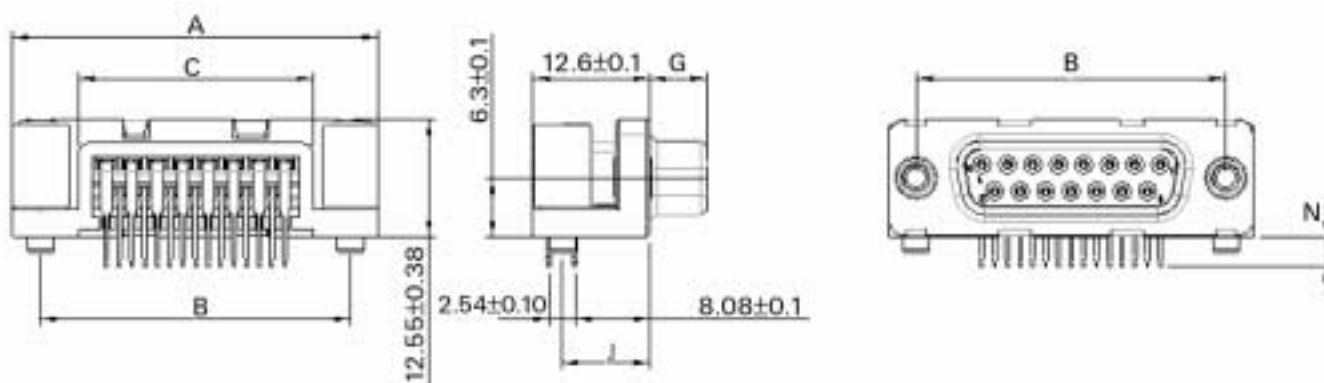
TECHNICAL FEATURES

| | |
|------------------------------------|---|
| MATERIALS | Shell: Steel, nickel plated Housing: Thermoplastic HT UL94VO Contacts: Copper Alloy - Active part: Gold over nickel - Termination: Matt Tin over nickel Accessories: Brass - Front accessories: Nickel - Metal pegs: Tin over nickel |
| OPERATING TEMPERATURE RANGE | -55° to 125°C |
| REFERENCE INFORMATION | Product lead free in accordance to RoHS 2002/EC/95 |
| MECHANICAL PERFORMANCES | Mating/unmating cycles: 500 min |
| ELECTRICAL PERFORMANCES | Current rating: 5 A Insulation resistance: ≥ 5000 MΩ Contact resistance: <10 mΩ Dielectric withstanding voltage: 1000 Vrms |

EUROPE standard



US standard



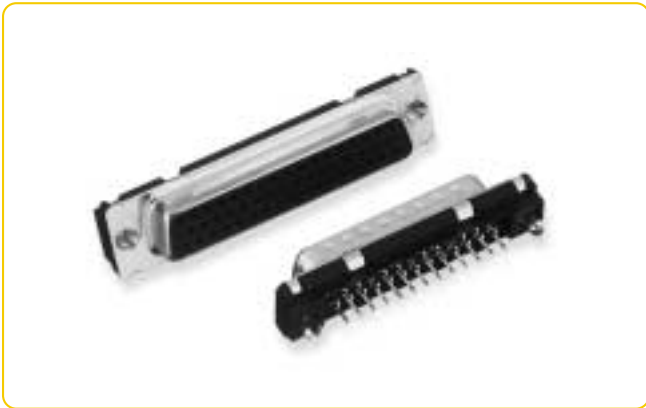
Dimensions

| | | A _{±0,38} | B _{±0,12} | C _{±0,10} | G _{0/+0,25} | J _{±0,10} | | N _{±0,30} | |
|----|---|--------------------|--------------------|--------------------|--------------------------|--------------------|----------------|--------------------|------|
| | | | | | | Termination 13 | Termination 33 | Termination length | |
| | | | | | | | | I3A 33E | I3B |
| 9 | P | 30.81 | 24.99 | 16.96 | 5.90 ^{-0/+0.15} | 11.67 | 9.50 | 2.00 | 2.90 |
| | S | 30.81 | 24.99 | 16.96 | 6.05 | 11.67 | 9.50 | 2.00 | 2.90 |
| 15 | P | 39.14 | 33.32 | 25.18 | 5.90 ^{-0/+0.15} | 11.67 | 9.50 | 2.00 | 2.90 |
| | S | 39.14 | 33.32 | 25.18 | 6.05 | 11.67 | 9.50 | 2.00 | 2.90 |
| 25 | P | 53.03 | 47.04 | 39.12 | 5.70 | 11.67 | 9.50 | 2.00 | 2.90 |
| | S | 53.03 | 47.04 | 39.12 | 6.05 | 11.67 | 9.50 | 2.00 | 2.90 |

Dimensions in mm

PCB applications

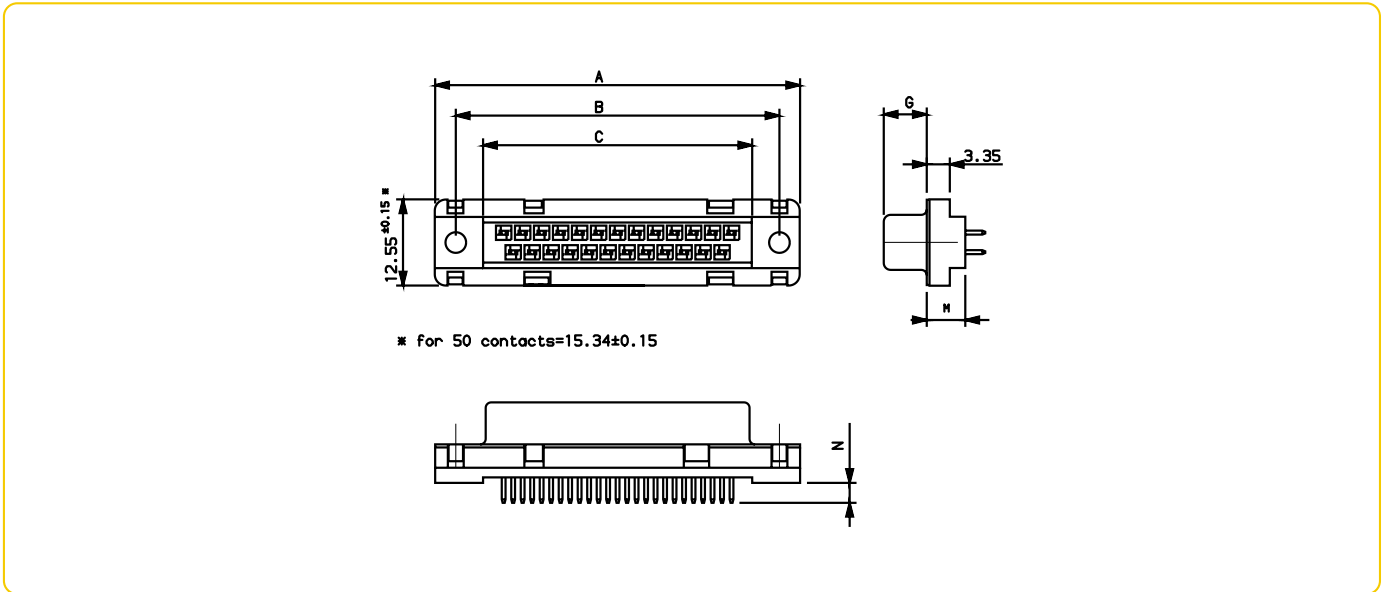
 UL Recognized File E 118235 (R)



ORDERING INFORMATION

| D | 25 | P | 24A | 4 | GV | 00LF |
|---|--|--|-----------------------|---------------|-----------|-------------|
| Series: D | Number of contacts: 09 - 15 - 25 - 37 - 50 | Contacts: P : Pin S : Socket | | | | |
| Termination: | | | | | | |
| Code | Type | Foot print/Pitch | Length of termination | PCB thickness | | |
| 14 A | Straight version (low profile) | 5.6 / 2.84 mm | 2.90 | 1.6 | | |
|  24 A | Straight version | 6 / 2.84 mm | 2.90 | 1.6 | | |
| 24 B | Straight version | 6 / 2.84 mm | 3.70 | 2.4 | | |
| 34 A | Straight version | 6.9 / 2.84 mm | 2.90 | 1.6 | | |
| Durability: | | | | | | |
| 4 : Standard class (≥ 200 mating / unmating) | | | | | | |
| 6 : High performance class (≥ 500 mating / unmating) - LNZ 4404 | | | | | | |
| Mounting options (see page 71) | | | | | | |
| Options: | | | | | | |
| PA | Standard hole | | | | | |
| PL | Threaded insert M3 | | | | | |
| PX | Threaded insert UNC 4-40 | | | | | |
| PV | Female screw UNC 4-40 | | | | | |
| GL | Harpoons + insert M3 + elec. continuity | | | | | |
| GX | Harpoons + insert UNC 4-40 + elec. continuity | | | | | |
|  GV | Harpoons + Female screw UNC 4-40 + elec. continuity | | | | | |
| Other options: | | | | | | |
| 00LF : Standard series, RoHS compatible | | | | | | |

SPECIFIC DIMENSIONS



| | | A±0.38 | B±0.12 | C±0.10 | G±0.25 -0 | M±0.10 | | | N±0.30 | |
|----|---|--------|--------|--------|-------------------------------------|----------|------|------|----------------------|------|
| | | | | | | Terminal | | | Terminal length | |
| | | | | | | 14 | 24 | 34 | 14 A 24 A 34 A | 24 B |
| 9 | P | 30.81 | 24.99 | 16.96 | 5.90 ^{+0.15} ₋₀ | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| | S | 30.81 | 24.99 | 16.96 | 6.05 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| 15 | P | 39.14 | 33.32 | 25.18 | 5.90 ^{+0.15} ₋₀ | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| | S | 39.14 | 33.32 | 25.18 | 6.05 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| 25 | P | 53.03 | 47.04 | 39.12 | 5.70 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| | S | 53.03 | 47.04 | 39.12 | 6.05 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| 37 | P | 69.32 | 63.50 | 55.68 | 5.70 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| | S | 69.32 | 63.50 | 55.68 | 6.05 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| 50 | P | 67.10 | 61.11 | 54.11 | 5.70 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |
| | S | 67.10 | 61.11 | 54.11 | 6.05 | 5.60 | 6.00 | 6.90 | 2.90 | 3.70 |

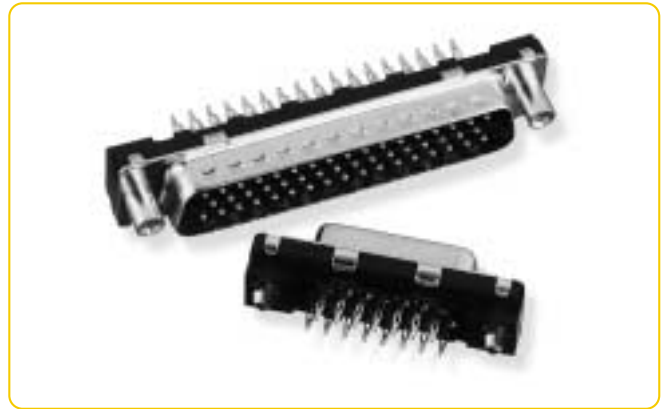
PCB applications

PRESS-FIT TERMINATION

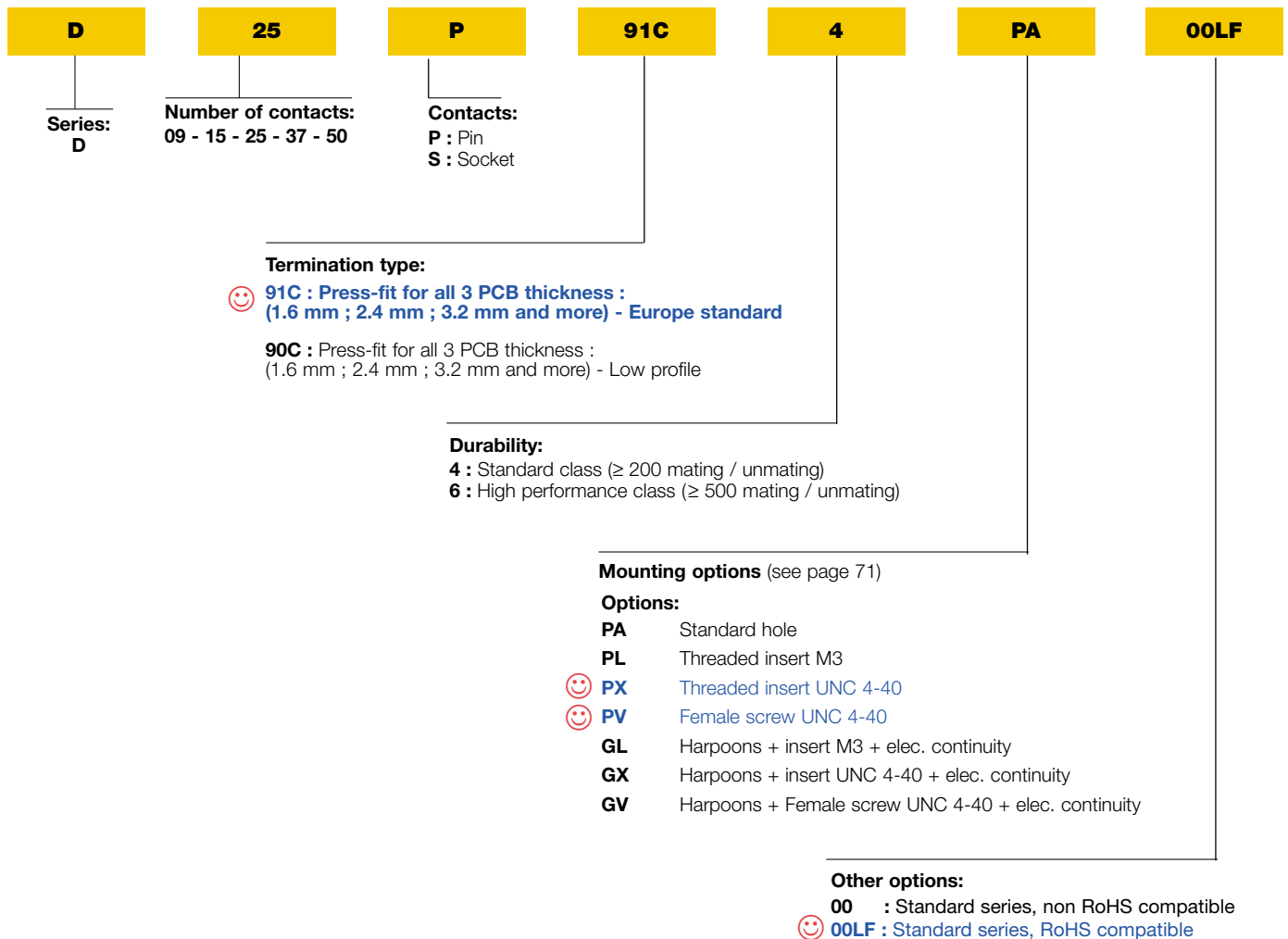


UL Recognized File E 118235 (R)

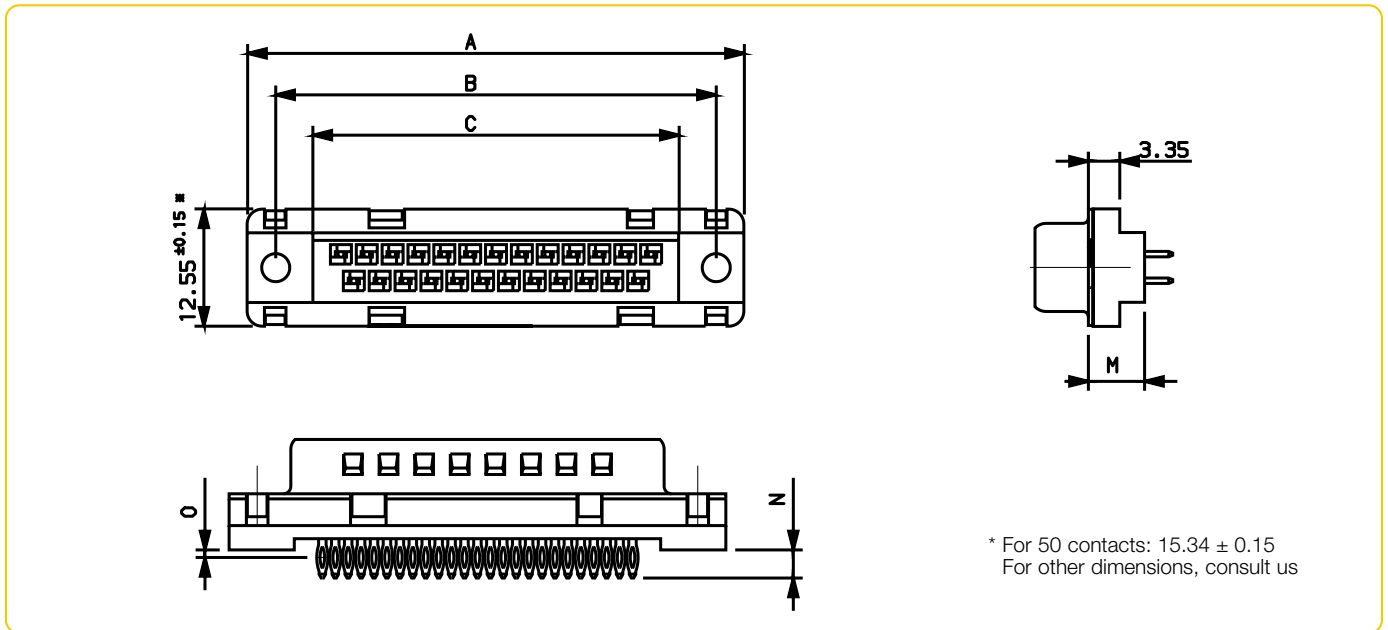
- In case of SMT (Surface Mount Technology) manufacturing process this new press-fit Delta D allows to save cost of an additional wave soldering.
- The "eye of the needle" termination combined with a special flat rock design (easy application by pressure on insulator) make this product line very attractive.



ORDERING INFORMATION



SPECIFIC DIMENSIONS



* For 50 contacts: 15.34 ± 0.15
For other dimensions, consult us

| Size | A±0.38 | B± 0.12 | C± 0.10 |
|------|--------|---------|---------|
| 09 | 30.81 | 24.99 | 16.96 |
| 15 | 39.14 | 33.32 | 25.18 |
| 25 | 53.03 | 47.04 | 39.12 |
| 37 | 69.32 | 63.50 | 55.68 |
| 50 | 66.93 | 61.11 | 53.11 |

| Termination type | M±0.1 | N±0.3 | O±0.2 |
|------------------|-------|-------|-------|
| 90 C | 5.60 | 3.40 | 1.20 |
| 91 C | 6.00 | 3.00 | 0.80 |

PRESS-FIT FEATURES

Application by pressure on insulator
D-Sub insertion kit : 8646 3064 01
Eye of the needle design.

Metallized hole dimensions

| P.C.B. hole definition (note 1 and 2) | | Press-fit contacts | Press-fit harpoons |
|---------------------------------------|----------------------------|----------------------------------|----------------------------------|
| | | Drill diameter | Ø 1.15 ref (note 3) |
| non RoHS | Drilled hole | Ø 1.18 - 1.2 | Ø 3.19 - 3.25 |
| | Copper plating | 25 µm min (recommended 50 µ max) | 25 µm min (recommended 50 µ max) |
| | Tin-lead plating | 15 µm max (recommended 5 µ min) | 15 µm max (recommended 5 µ min) |
| | Finish hole (after reflow) | Ø 0.94 - 1.09 | Ø 3.02 - 3.20 |
| RoHS | Tin plating | 0.8 to 1.2 µm | 0.8 to 1.2 µm |
| | Finish hole (after reflow) | Ø 1.00 - 1.09 | Ø 3.08 - 3.20 |

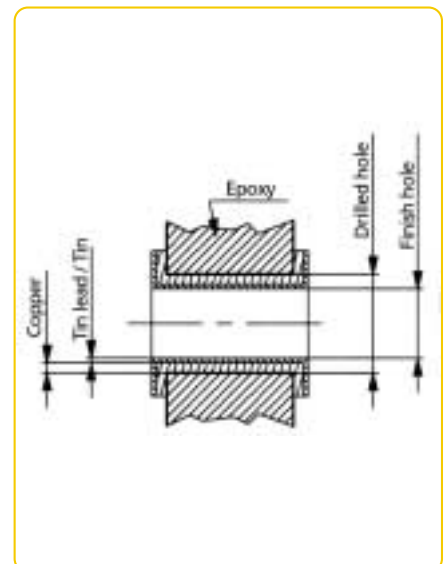
Note 1 : These dimensions must be respected to ensure press-fit pin performance

Note 2 : According to IEC-352-S specification

Note 3 : Vital requirement for press-fit pin performance

Press-fit performance

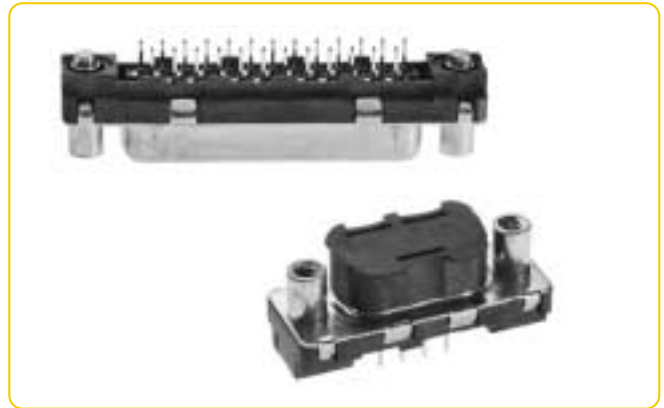
| | Press-fit contacts | Press-fit harpoons |
|------------------|--------------------|--------------------|
| Insertion force | ≤ 100 N | ≤ 120 N |
| Extraction force | ≥ 30 N | ≥ 30 N |



PCB applications

In compliance with DIN 41652:

- Reflow type: JSTD-020C
- Packaging: IEA-481-B
- Plating: BELLCORE CO GR-1217

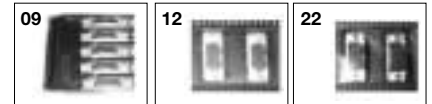


ORDERING INFORMATION

| D | 09 | P | 24A | 6 | RV | 12 | LF |
|---------------------|--|---|------------------------|---|----------------------|----|--|
| Series: D | Number of contacts: 09 - 15 - 25 - 37 - 50 | Contacts: P : Pin S : Socket | | Durability: 6 : High performance class (> 500 mating/unmating) | | | |
| | Termination: | | | | | | |
| | Code | Type | Footprint/Pitch | Termination length | PCB thickness | | |
| | 24A | Straight version | 6.0 / 2.84 mm | 2.0 mm | 1.6 mm | | |
| | 24B | Straight version | 6.0 / 2.84 mm | 2.9 mm | 2.4 mm | | |
| | Mounting options: | | | | | | |
| | RL : Insert M3 + metal peg + electrical continuity | | | | | | |
| | RX : Insert UNC 4-40 + metal peg + electrical continuity | | | | | | |
| | RV : Female screw UNC 4-40 + metal peg + electrical continuity | | | | | | |
| | | | | | | | RoHS status: LF : RoHS compatible EU directive 2002/95/EC |

Packaging:

- 09 : Tray for manual positioning
- 12 : Tape and Reel for automatic pick and place and gripper device (not available in 37 and 50 ways)
- 22 : Tape and Reel and pick-up cap for vacuum nozzle device (not available in 37 and 50 ways)



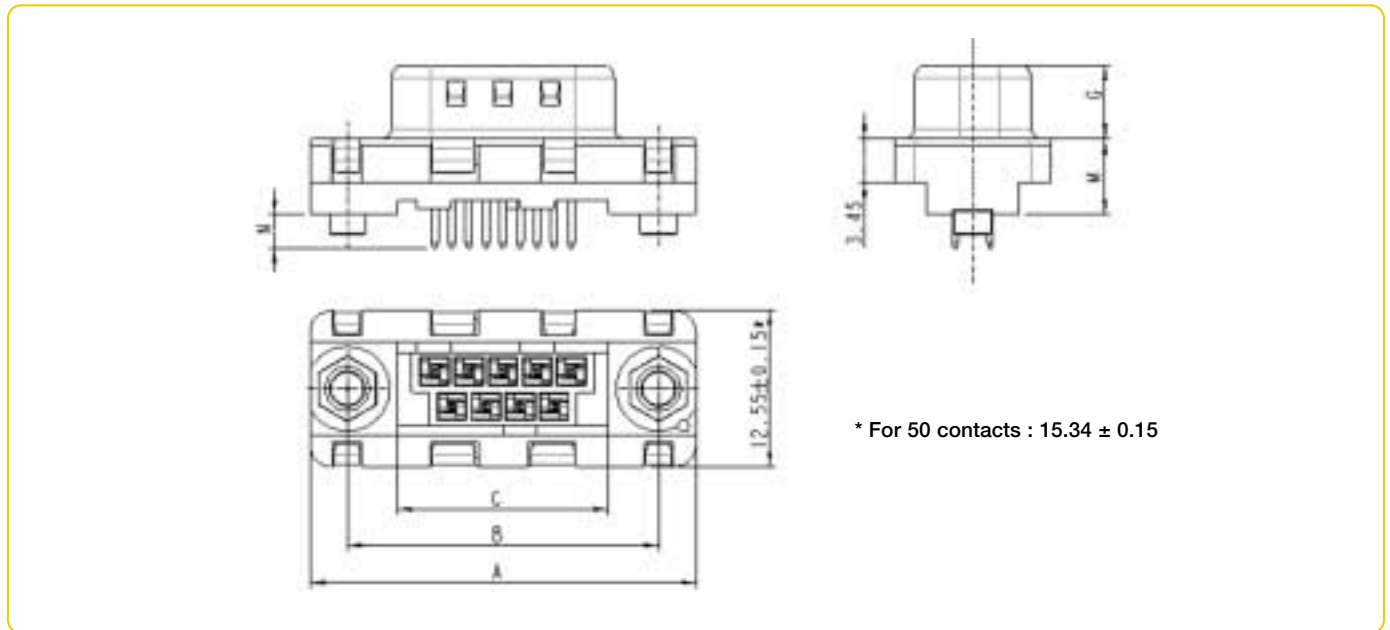
RECOMMENDED LAYOUTS AND PAD DIMENSIONS

| Contacts | B ^{±0.10} | F | G |
|----------|--------------------|-------|-------|
| 09 | 24.99 | 10.96 | 8.22 |
| 15 | 33.32 | 19.18 | 16.44 |
| 25 | 47.04 | 33.12 | 30.36 |
| 37 | 63.50 | 49.68 | 46.92 |

TECHNICAL FEATURES

| | |
|------------------------------------|--|
| MATERIALS | Shell: Steel, nickel plated Housing: Thermoplastic HT UL94VO Contacts: Copper Alloy - Active part: Gold over nickel - Termination: Matt Tin over nickel Accessories: Brass, bright tin over nickel |
| OPERATING TEMPERATURE RANGE | -55° to 125°C |
| REFERENCE INFORMATION | Product lead free in accordance to RoHS 2002/EC/95 |
| MECHANICAL PERFORMANCES | Mating/unmating cycles: 500 min |
| ELECTRICAL PERFORMANCES | Current rating: 5 A Insulation resistance: ≥ 5000 MΩ Contact resistance: <10 mΩ Dielectric withstanding voltage: 1000 Vrms |

SPECIFIC DIMENSIONS



Dimensions

| | | A ^{+0,38} | B ^{+0,12} | C ^{+0,10} | G ^{+0/+0,25} | M ^{+0,10} | N ^{+0,30} | |
|----|---|--------------------|--------------------|--------------------|--------------------------|--------------------|--------------------|------|
| | | | | | | | Termination length | |
| | | | | | | | 24A | 24B |
| 9 | P | 30.81 | 24.99 | 16.96 | 5.90 ^{-0/+0,15} | 6.00 | 2.00 | 2.90 |
| | S | 30.81 | 24.99 | 16.96 | 6.05 | 6.00 | 2.00 | 2.90 |
| 15 | P | 39.14 | 33.32 | 25.18 | 5.90 ^{-0/+0,15} | 6.00 | 2.00 | 2.90 |
| | S | 39.14 | 33.32 | 25.18 | 6.05 | 6.00 | 2.00 | 2.90 |
| 25 | P | 53.03 | 47.04 | 39.12 | 5.70 | 6.00 | 2.00 | 2.90 |
| | S | 53.03 | 47.04 | 39.12 | 6.05 | 6.00 | 2.00 | 2.90 |
| 37 | P | 69.32 | 63.50 | 55.68 | 5.70 | 6.00 | 2.00 | 2.90 |
| | S | 69.32 | 63.50 | 55.68 | 6.05 | 6.00 | 2.00 | 2.90 |
| 50 | P | 67.10 | 61.11 | 54.11 | 5.70 | 6.00 | 2.00 | 2.90 |
| | S | 67.10 | 61.11 | 54.11 | 6.05 | 6.00 | 2.00 | 2.90 |

Dimensions in mm

PCB applications

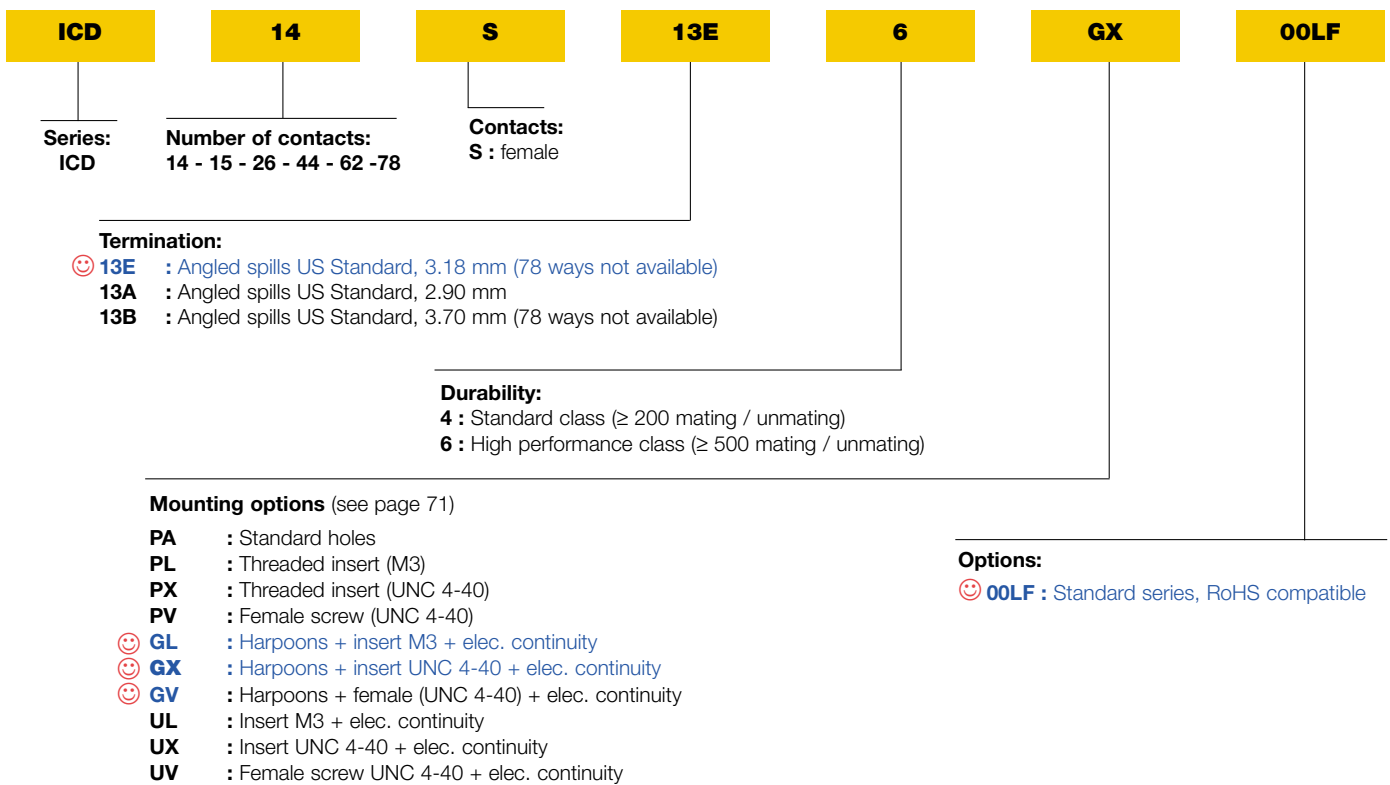


UL Recognized File E 118235 (R)

COMPACT D series has been developed to answer the increasing need for higher density packaging.

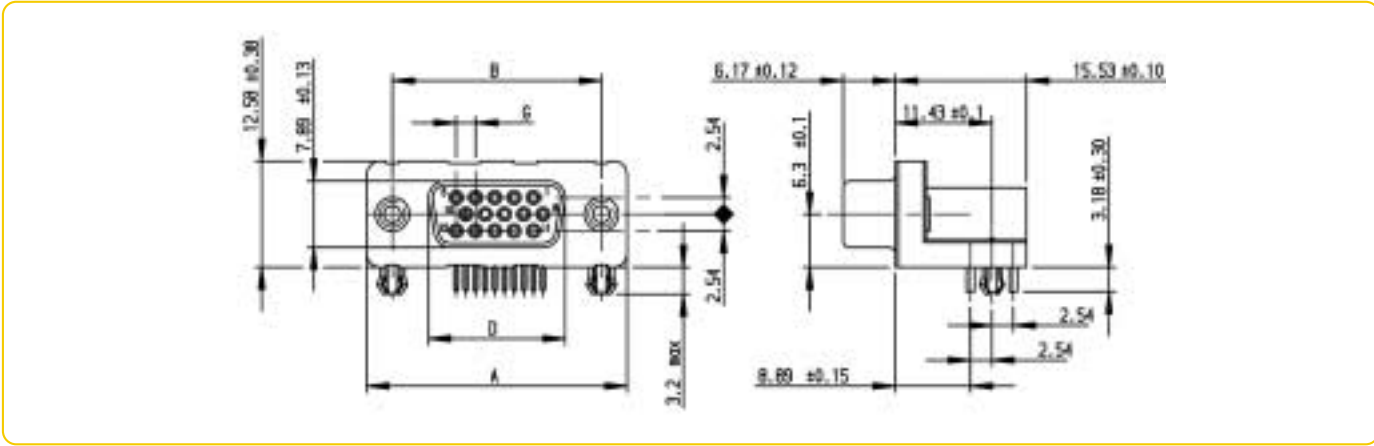


ORDERING INFORMATION



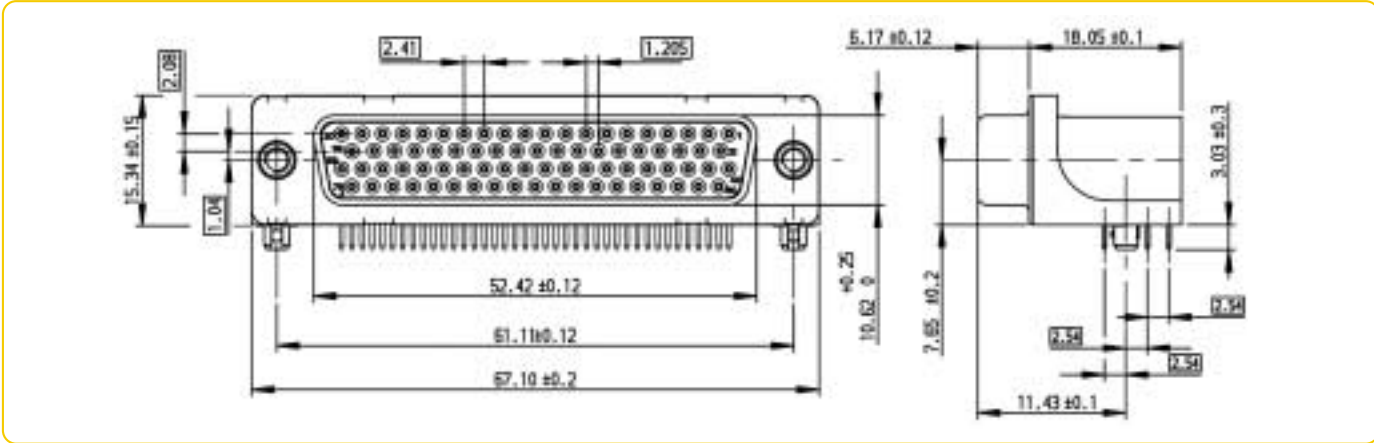
PCB applications

COMPACT D 3 ROWS (14-15/26/44/62 POS)

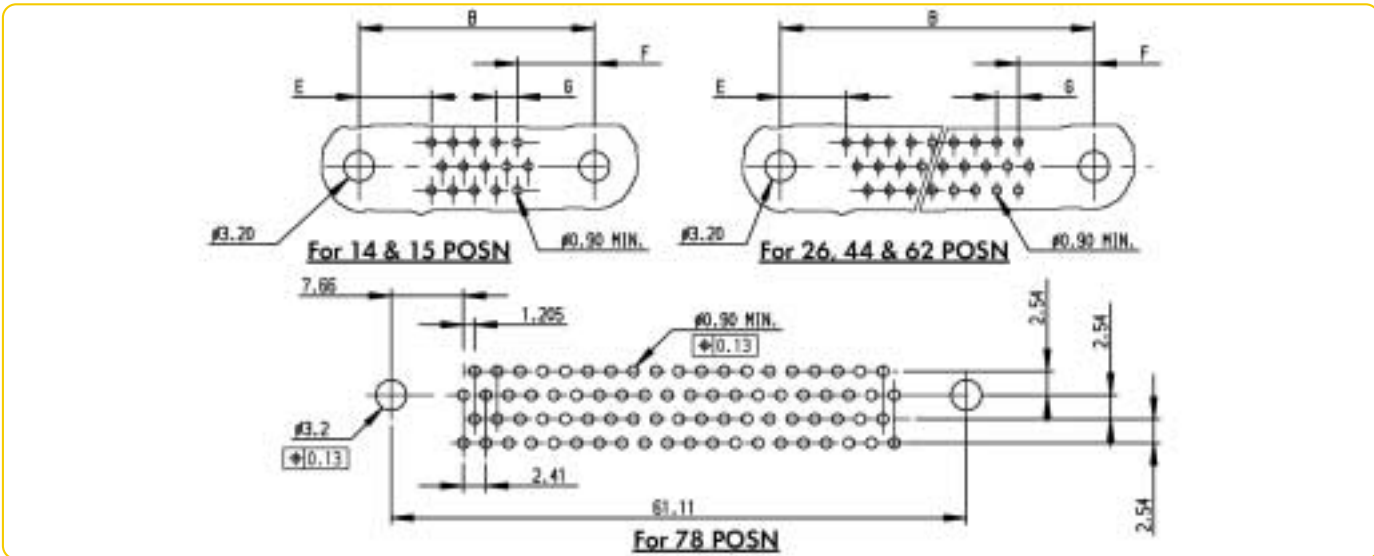


| Size | Dimensions | | | | | | |
|---------|------------|----------|----------|----------|------|------|-------|
| | A + 0.38 | B + 0.12 | C + 0.10 | D + 0.25 | E | F | G |
| 14 / 15 | 30,81 | 24,99 | 16,96 | 16,21 | 7,68 | 8,19 | 2,285 |
| 26 | 39,14 | 33,32 | 25,18 | 24,54 | 7,02 | 8,01 | 2,285 |
| 44 | 53,03 | 47,04 | 39,12 | 38,25 | 7,01 | 8,02 | 2,285 |
| 62 | 69,32 | 63,50 | 55,68 | 54,71 | 7,03 | 8,21 | 2,41 |

COMPACT D 4 ROWS (78 POS)



PCB DRILLING DIMENSIONS

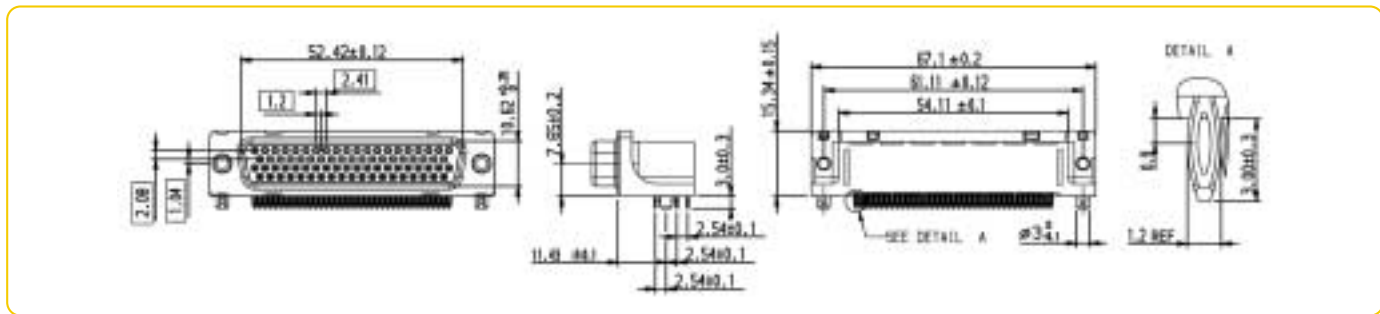


PCB applications

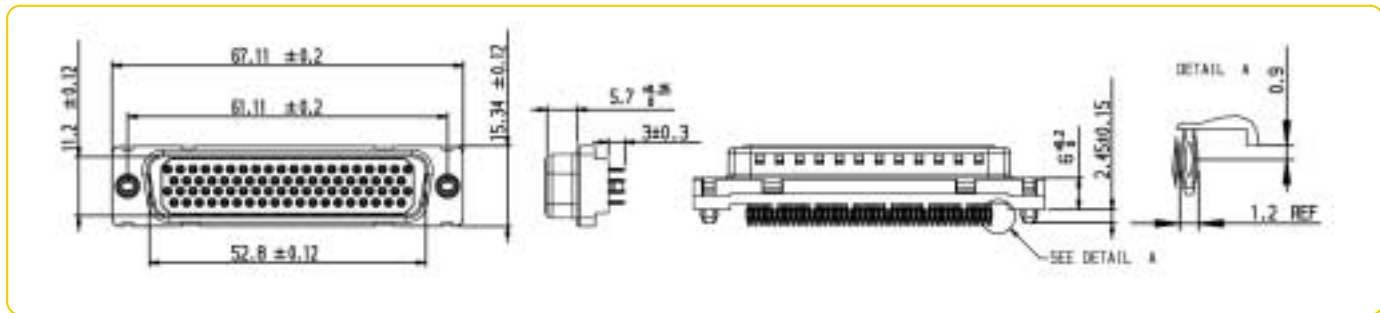


ORDERING INFORMATION

| | | | |
|---|---|--|---|
| CD78S80C | 6 | GL | OOLF |
| <p>Series: 78 way right angle female press-fit</p> | <p>Durability: 4 : Standard class (> 200 mating/unmating) 6 : High performance class (> 500 mating/unmating)</p> | <p>Mounting options: GL : Harpoons + insert M3 + elec. continuity GX : Harpoons + insert UNC 4-40 + elec. continuity GV : Harpoons + female screw UNC 4-40 + elec. continuity</p> | <p>Options: OOLF : RoHS compatible EU directive 2002/95/EC</p> |



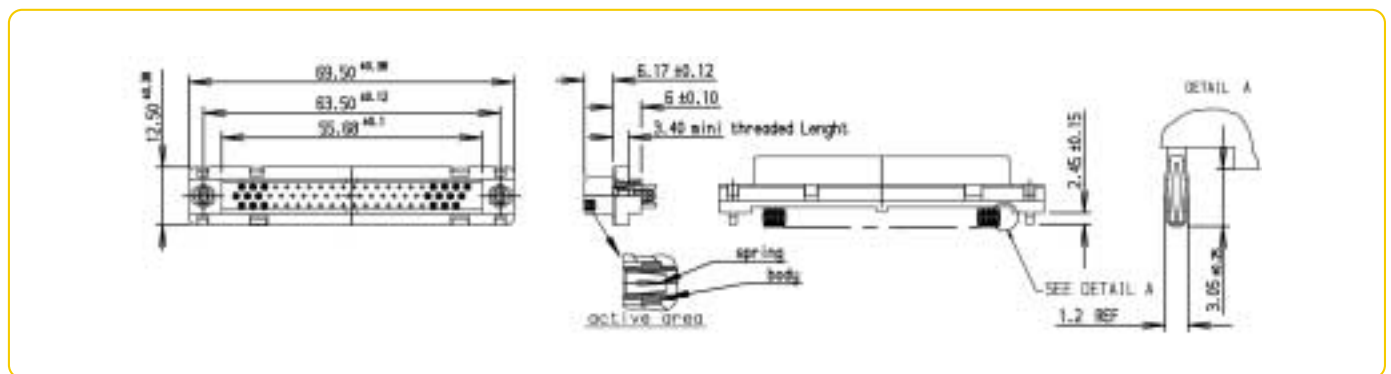
| | | | |
|--|--|--|---|
| CD78P91C | 6 | GL | OOLF |
| <p>Series: 78 way straight male press-fit</p> | <p>Plating: 4 : Standard class (> 200 mating/unmating) 6 : High performance class (> 500 mating/unmating)</p> | <p>Mounting options: GL : Harpoons + insert M3 + elec. continuity GX : Harpoons + insert UNC 4-40 + elec. continuity GV : Harpoons + female screw UNC 4-40 + elec. continuity</p> | <p>Options: OOLF : RoHS compatible EU directive 2002/95/EC</p> |



PCB applications

ORDERING INFORMATION

| | | | |
|---|---|--|--|
| CD62S91C | 6 | GL | 00LF |
| <p>Series : 62 way straight female press-fit</p> | <p>Durability: 4 : Standard class (> 200 mating/unmating) 6 : High performance class (> 500 mating/unmating)</p> | <p>Mounting options: GL : Harpoons + insert M3 + elec. continuity GX : Harpoons + insert UNC 4-40 + elec. continuity GV : Harpoons + female screw UNC 4-40 + elec. continuity</p> | <p>Options 00LF : RoHS compatible EU directive 2002/95/EC</p> |



PRESS-FIT FEATURES

Application by pressure on insulator
Eye of the needle design.

Metallized hole dimensions

| Metallized hole dimension | | Hole press-fit contact SnPb | Hole press-fit contact Sn | Hole press-fit harpoon SnPb | Hole press-fit harpoon Sn | Hole press-fit contact Copper OSP | Hole press-fit harpoon Copper OSP |
|---------------------------------------|----------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-----------------------------------|-----------------------------------|
| P.C.B. hole definition (note 1 and 2) | Drill diameter | Ø 1,15 ref (note 3) | Ø 1,15 ref (note 3) | Ø 3,22 ref (note 3) | Ø 3,22 ref (note 3) | Ø1,15 ref (note 3) | Ø 3,22 ref (note 3) |
| | Drilled hole | Ø 1,12 - Ø 1,18 | Ø 1,12 - Ø 1,18 | Ø 3,19 - Ø 3,25 | Ø 3,19 - Ø 3,25 | Ø1,12 - Ø1,18 | Ø 3,19 - Ø 3,25 |
| | Copper plating | 25µm mini - 50µm maxi | 25µm mini - 50µm maxi | 25µm mini - 50µm maxi | 25µm mini - 50µm maxi | 25µm mini - 50µm maxi | 25µm mini - 50µm maxi |
| | Tin lead plating | 5µm mini - 15µm maxi | | 5µm mini - 15µm maxi | | | |
| | Pur lead plating | | 0,8 mini to 1,2µm maxi | | 0,8 mini to 1,2µm maxi | | |
| | OSP plating (copper) | | | | | 0,20µm mini - 0,5µm maxi | 0,20µm mini - 0,5µm maxi |
| | Finish hole | Ø 0,94-1,09 | Ø 1,00-1,09 | Ø 3,00-3,20 | Ø 3,08-3,20 | Ø 1,01-1,09 | Ø3,09-3,20 |

Note 1 : These dimensions must be respected to ensure press-fit pin performance

Note 2 : According to IEC-352-S specification


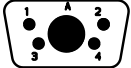
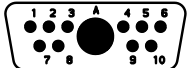
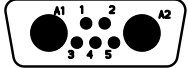
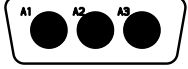

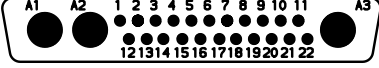
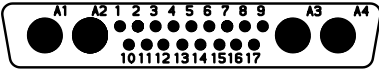
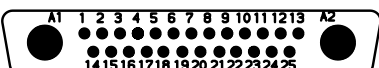

Note 3 : Vital requirement for press-fit pin performance

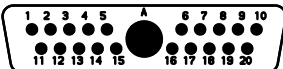
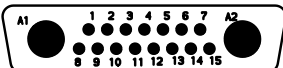
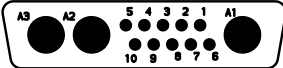
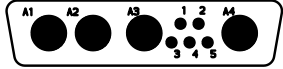

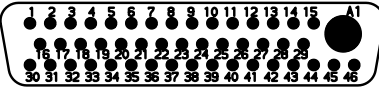
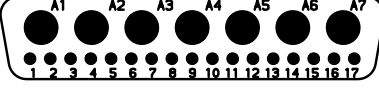

Press-fit performance

| | Press-fit contacts | Press-fit harpoons |
|-------------------------|--------------------|--------------------|
| Insertion force | < 100N | < 120N |
| SnPb / Extraction force | > 30N | > 30N |
| Copper Extraction force | > 20N | > 20N |

LAYOUTS

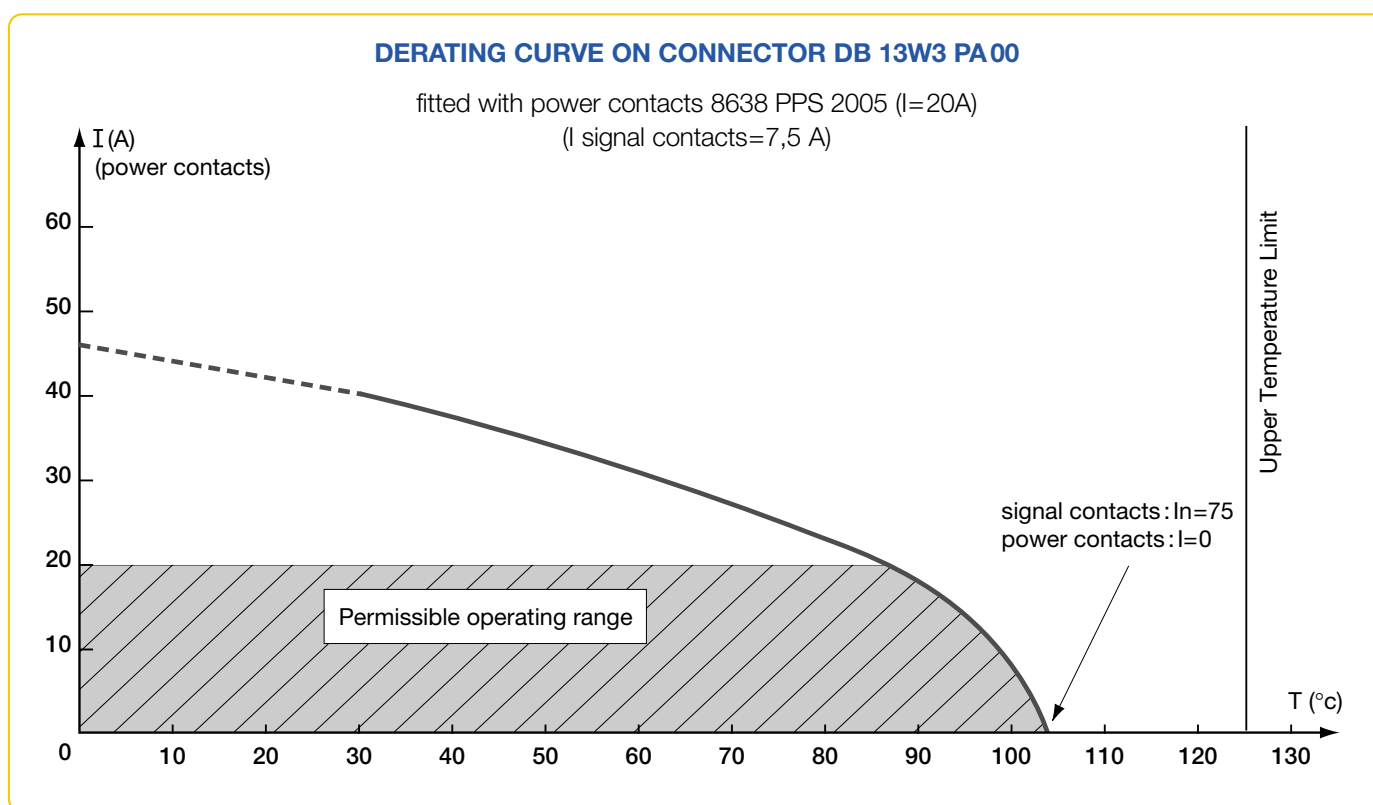
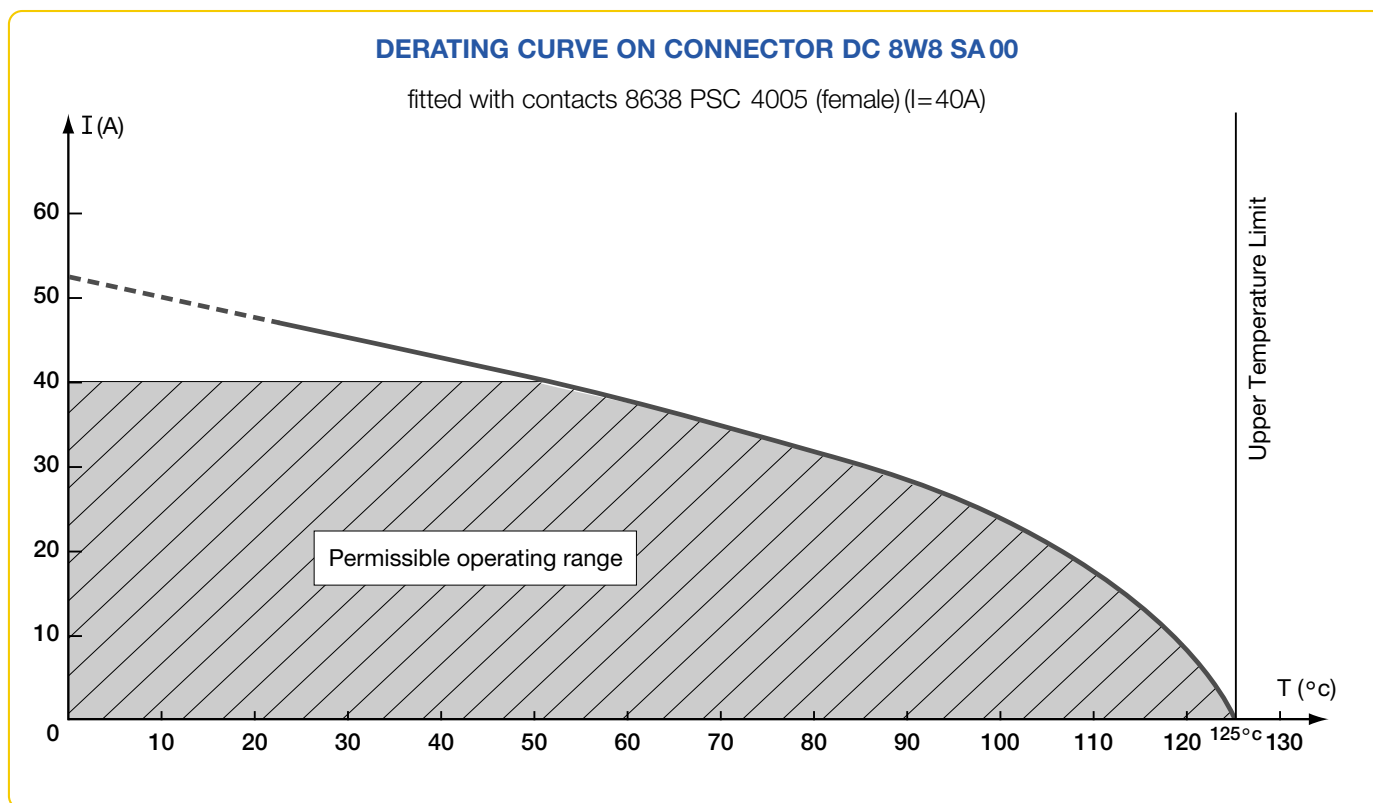
Male insulator front view

| Shell size | Layout |
|------------|--|
| E | 2V2 coded  |
| | 5W1  |
| A | 11W1  |
| | 7W2  |
| | 3W3  |
| | 3V3 coded  |
| | 25W3  |
| C | 21WA4  |
| | 27W2  |
| | 8W8  |
| | |

| Shell size | Layout |
|------------|---|
| B | 21W1  |
| | 17W2  |
| | 13W3  |
| | 9W4  |
| | 5W5  |
| D | 47W1  |
| | 24W7  |
| | 36W4  |
| | |

Example of layout codification 7W2 = 7 contacts of which 2 power contacts

DERATING CURVES



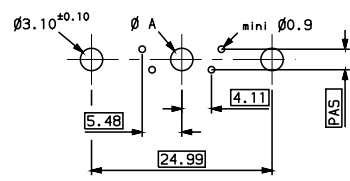
DIMENSIONS

PC board drilling

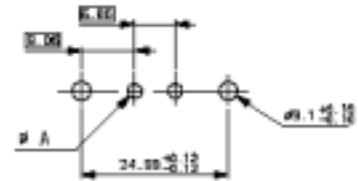
Solder termination

| Version | Step | 30 A | 40 A |
|---------|------|-------------|-------------|
| | | Ø A | |
| 3 | 2.84 | Ø 2.40±0.10 | Ø 3.10±0.10 |
| 7 | 2.84 | Ø 2.40±0.10 | Ø 3.10±0.10 |
| 5 | 2.54 | Ø 2.40±0.10 | |

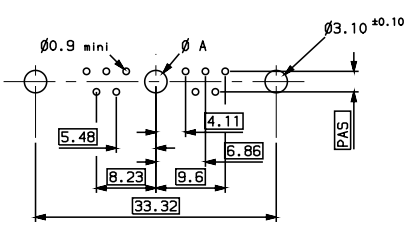
5W1
(09)



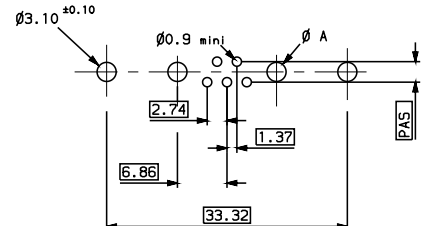
2V2
(09)



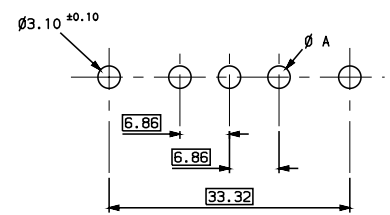
11W1
(15)



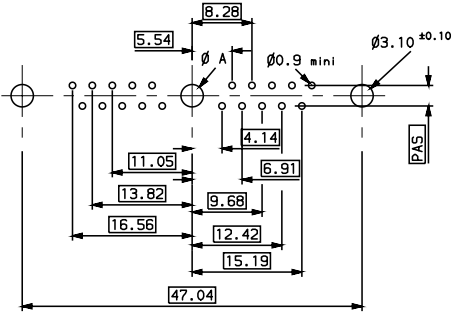
7W2
(15)



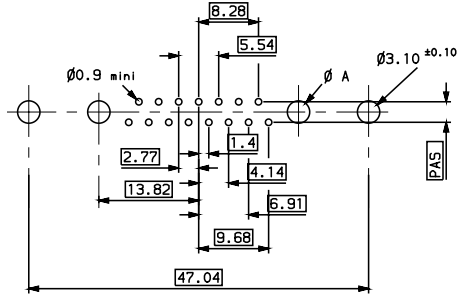
3V3
3W3
(15)



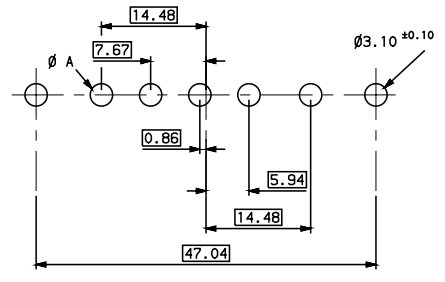
21W1
(25)



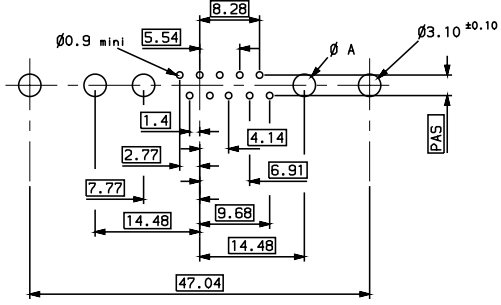
17W2
(25)



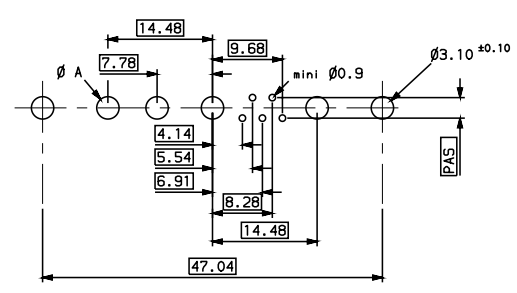
5W5
(25)



13W3
(25)

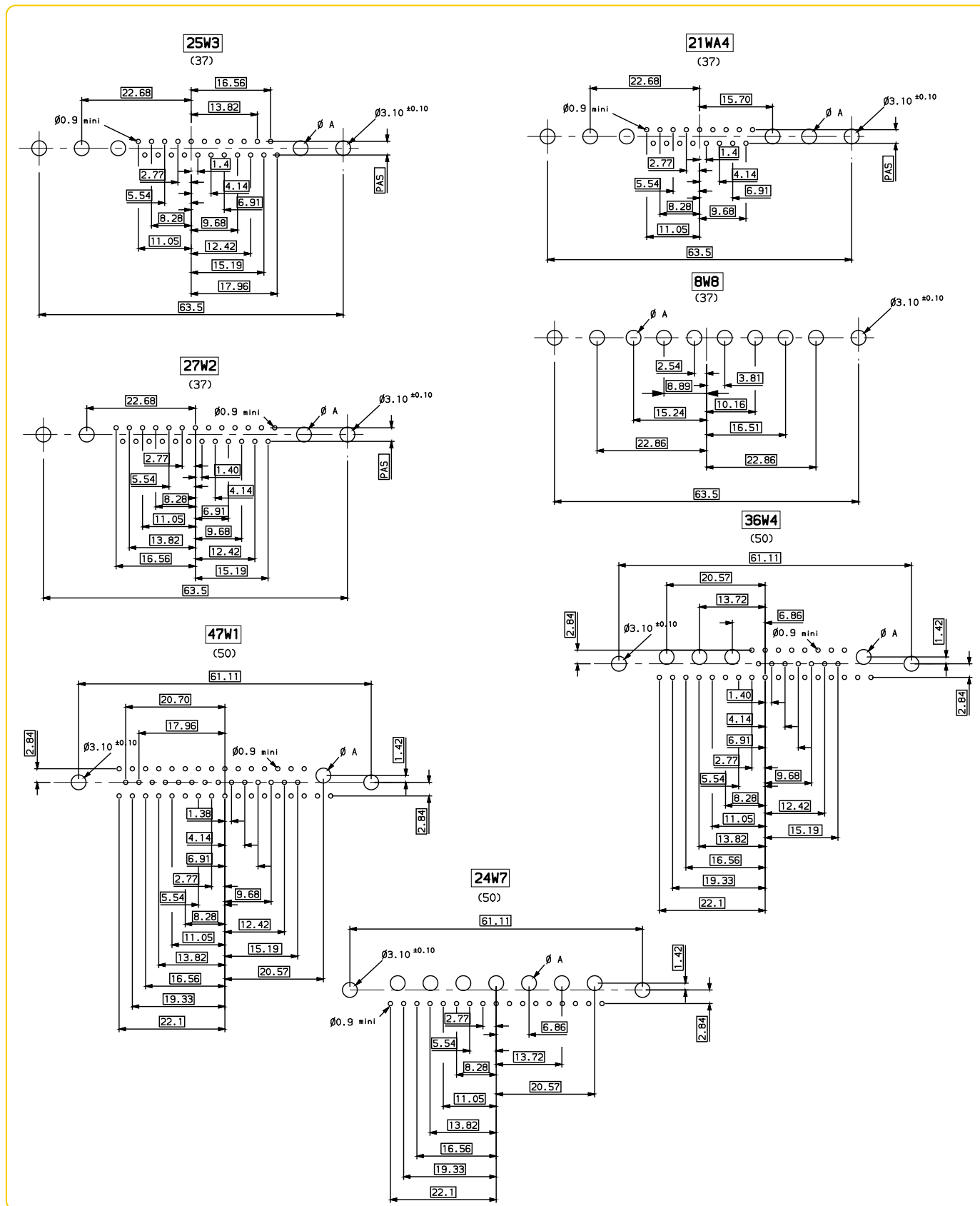


9W4
(25)



DIMENSIONS

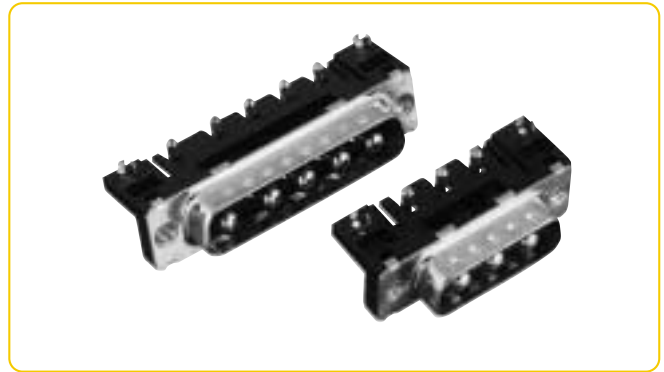
PC board drilling



PCB applications

 **UL Recognized File E 118235 (R)**

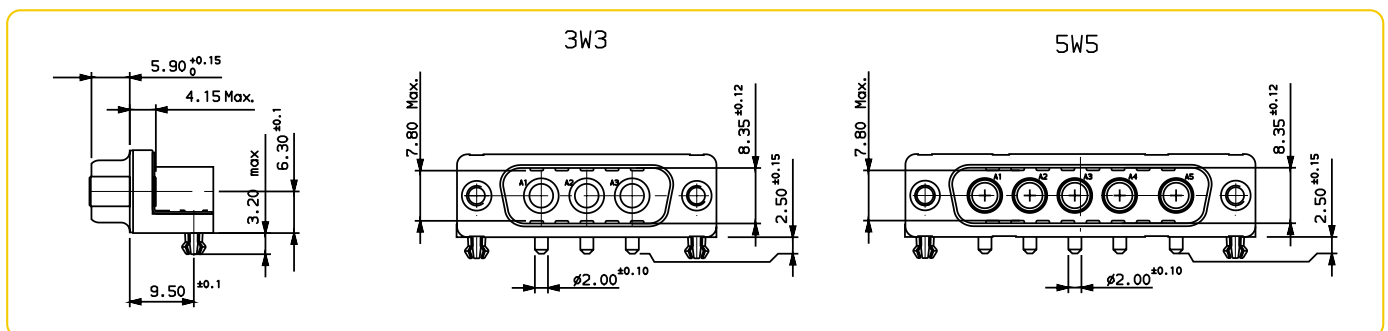
■ This monobloc insulator design with stamped and formed signal contacts combines performance and cost effectiveness.



ORDERING INFORMATION

| | | | | | | | | |
|---|----------------|----------------|----------------|-----------------------|---|----------|-----------|-------------|
| D | 3 5 | W W | 3 5 | P | 36A | 6 | GX | 08LF |
| Series: D | Layouts | | | Contacts: P : male | | | | |
| Code 36 A Type Right angle, US standard, solder Foot print 8.08 mm Length of termination 2.50 PCB thickness 1.6 | | | | | Durability: 6 : High performances class (500 ≤ mating / unmating) | | | |
| Mounting options (see page 70) Options Description ☺ GL Harpoon + insert M3 + elec. continuity ☺ GX Harpoon + insert UNC 4-40 + elec. continuity ☺ GV Harpoon + Female screw UNC 4-40 + elec. continuity | | | | | | | | |
| Power contacts: 08LF : Fitted with power contacts 30 A, RoHS compatible | | | | | | | | |

SPECIFIC DIMENSIONS



☺ Preferred option

PCB applications



UL Recognized File E 118235 (R)

STRAIGHT AND RIGHT ANGLE PC BOARD VERSIONS



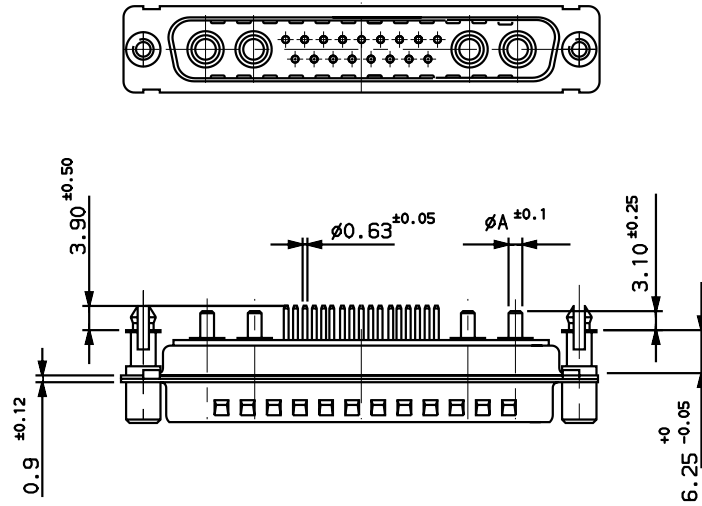
ORDERING INFORMATION

| D | B | L | 13 W 3 | P | 3 | 00 | G | 30LF | | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|--|---|---|---|--|---|------------------|---|---|---|--------------|--------------|---|---|---|---|--|--|---|--|--|
| <p>Series: D</p> | <p>Shell size (tin plated): E, A, B, C, D (only straight version)</p> | | <p>Layout of contacts: (see page 24) (for right angled versions, 47W1, 24W7, 36W4 non available)</p> | <p>Contacts: P : Pin S : Socket</p> | | <p>Durability: 00 : 200 mating / unmating 43 : 500 mating / unmating</p> | | | | | | | | | | | | | | | | | | |
| | <p>Options 1 (see page 70)</p> <table border="1"> <thead> <tr> <th></th> <th>Blank</th> <th>L</th> <th>O</th> <th>I</th> <th>V</th> </tr> </thead> <tbody> <tr> <td>Straight version</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Right angled</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> </tbody> </table> <p>X : Available</p> <p>Blank : without accessory L : Threaded insert M3 O : Threaded insert UNC 4-40 I : Female screw M3 V : Female screw UNC 4-40</p> | | Blank | L | O | I | V | Straight version | | X | X | X | X | Right angled | X | X | X | X | X | | | <p>Termination type: 3 : Straight version 5 : Right angled / Europe standard 7 : Right angled / US standard (5W1, 9W4 non available)</p> | | |
| | Blank | L | O | I | V | | | | | | | | | | | | | | | | | | | |
| Straight version | | X | X | X | X | | | | | | | | | | | | | | | | | | | |
| Right angled | X | X | X | X | X | | | | | | | | | | | | | | | | | | | |
| | | | | <p>Options 2 (see page 70) PCB accessories</p> <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>H</th> <th>G</th> <th>M</th> </tr> </thead> <tbody> <tr> <td>Straight version</td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>Right angled</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> </tbody> </table> <p>X : Available</p> <p>A : without accessory on PCB H : Locking device used for PCB thickness 2.4 mm G : Locking device used for PCB thickness 1.6 mm M : Metal brackets</p> | | A | H | G | M | Straight version | X | X | X | | Right angled | X | X | X | X | | | | | |
| | A | H | G | M | | | | | | | | | | | | | | | | | | | | |
| Straight version | X | X | X | | | | | | | | | | | | | | | | | | | | | |
| Right angled | X | X | X | X | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | <p>Power contacts: 30LF : Fitted with power contacts 30 A, RoHS compatible 40LF : Fitted with power contacts 40 A, RoHS compatible 00LF : Without power contacts, RoHS compatible</p> | | | | | | | | | | | | | | | | |

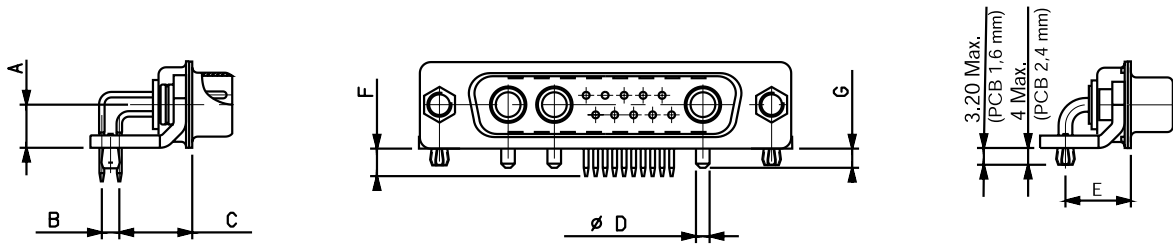
SPECIFIC DIMENSIONS

▀ Straight version

| I | 30 A | 40 A |
|-----|------|------|
| Ø A | 2 | 2.8 |



▀ Right angle version



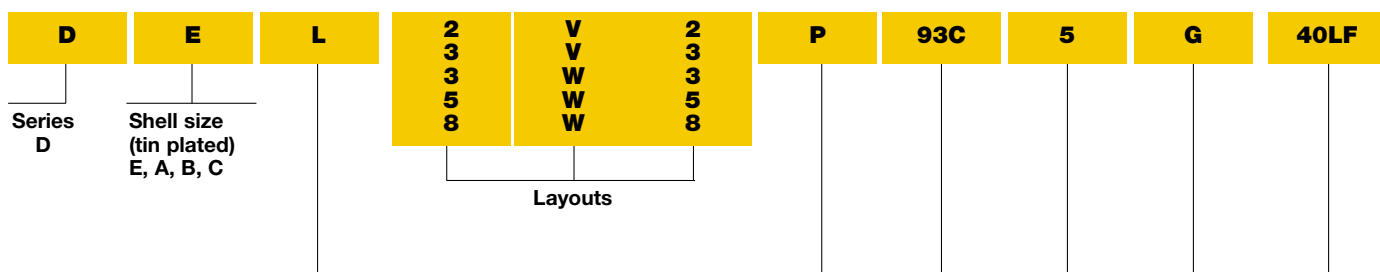
| | Termination type | Amp. | A±0.10 | B±0.20 | C±0.20 | D±0.10 | E±0.20 | F±0.50 | G±0.30 |
|--------|------------------|------|--------|--------|--------|--------|--------|--------|--------|
| Europe | 5... | 30 A | 7.20 | 2.54 | 10.30 | 2.00 | 11.65 | 4.00 | 3.60 |
| | | 40 A | 7.20 | 2.54 | 10.30 | 2.80 | 11.65 | 4.00 | 3.60 |
| U.S | 7... | 30 A | 6.30 | 2.84 | 8.08 | 2.00 | 9.50 | 3.90 | 3.60 |

PCB applications

 UL Recognized File E 118235 (R)



PART NUMBER



Front accessory

| | | | | |
|------------------|-------|---|---|---|
| | Blank | L | O | V |
| Straight version | | X | X | X |
| Right angled | X | X | X | X |

X : available



Blank : Without accessory
L : Threaded insert M3
O : Threaded insert UNC 4-40
V : Female screw UNC 4-40

Contacts:
P : Pin
S : Socket

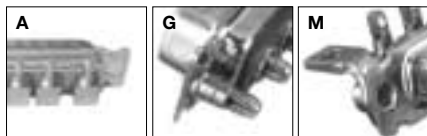
Termination type:
93C : Straight version
81C : Right angle / European standard
80C : Right angle / US standard

Durability:
5 : 200 mating / unmating
6 : 500 mating / unmating


PCB accessory

| | | | |
|------------------|---|---|---|
| | M | G | A |
| Straight version | | X | |
| Right angled | X | | X |

A : without accessory
G : Harpoon used for PCB thickness from 1.6 mm
M : Metal brackets without harpoon



Power contacts

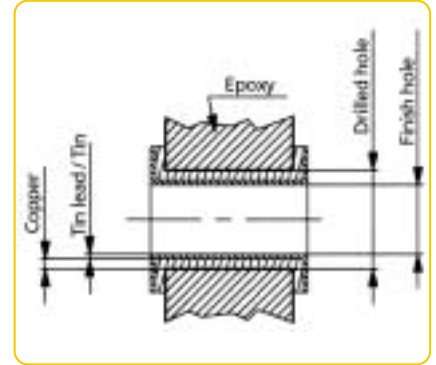
40 : Fitted with power contacts 40 A, non RoHS compatible
 **40LF** : Fitted with power contacts 40 A, RoHS compatible

PCB applications

SPECIFIC DIMENSIONS

Metallized hole dimensions

| | | | Press-fit contacts | Press-fit harpoons | |
|---------------------------------------|----------|----------------------------|---|---|---------------------------|
| P.C.B. hole definition (note 1 and 2) | | Drill diameter | $\text{Ø } 3.22 \pm 0.03$ | $\text{Ø } 3.22 \pm 0.03$ | $\text{Ø } 3.22 \pm 0.03$ |
| | | Drilled hole | $\text{Ø } 3.19 - 3.25$ | $\text{Ø } 3.19 - 3.25$ | |
| | | Copper plating | 25 μm min (recommended 50 μm max) | 25 μm min (recommended 50 μm min) | |
| | non RoHS | Tin lead plating | 15 μm max (recommended 5 μm min) | 15 μm max (recommended 5 μm min) | |
| | | Finish hole (after reflow) | $\text{Ø } 3.02 - 3.20$ | $\text{Ø } 3.02 - 3.20$ | |
| | RoHS | Tin plating | 0.8 to 1.2 μm | 0.8 to 1.2 μm | |
| | | Finish hole (after reflow) | $\text{Ø } 3.08 - 3.20$ | $\text{Ø } 3.08 - 3.20$ | |



Note 1 : These dimensions must be respected to ensure press-fit pin performance

Note 2 : According to IEC-352-S specification

Note 3 : Vital requirement for press-fit pin performance

Press-fit performance

| | Press-fit contacts | Press-fit harpoons |
|------------------|---|---|
| Insertion force | $\leq 200 \text{ N}$ (average insertion 160N) | $\leq 200 \text{ N}$ (average insertion 160N) |
| Extraction force | $\geq 30 \text{ N}$ | $\geq 30 \text{ N}$ |

Cable applications



UL Recognized File E 118235 (R)

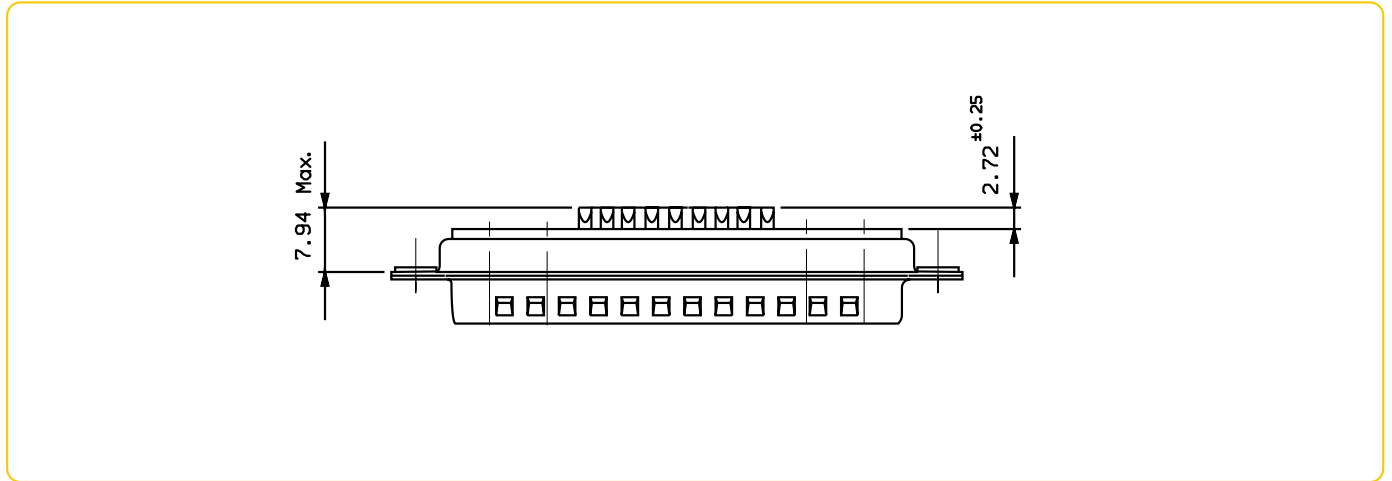


ORDERING INFORMATION (power contacts have to be ordered separately — see next page)

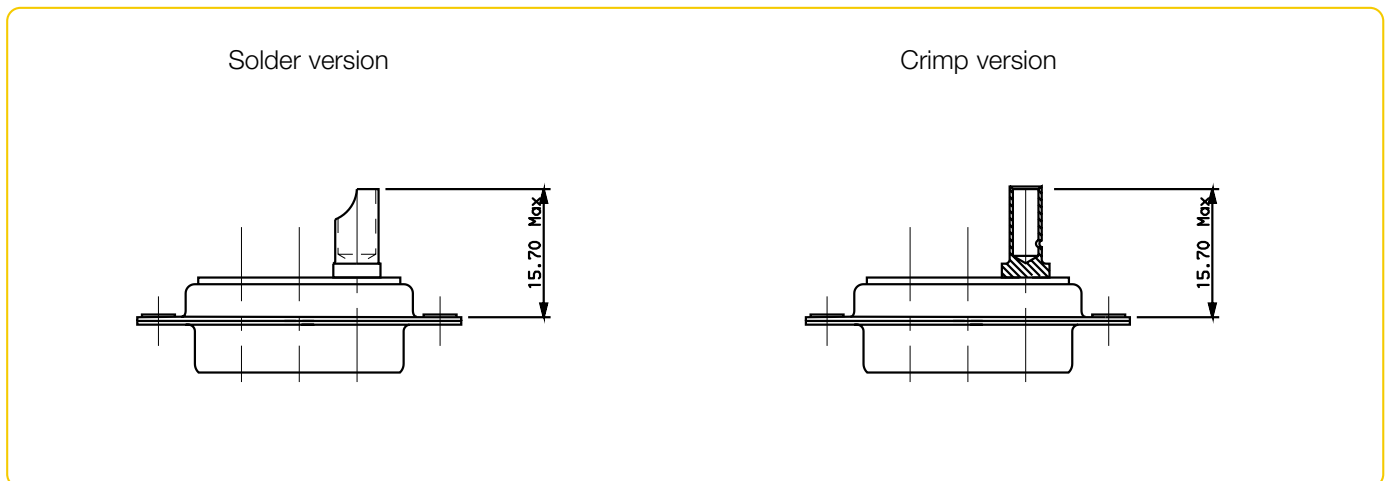
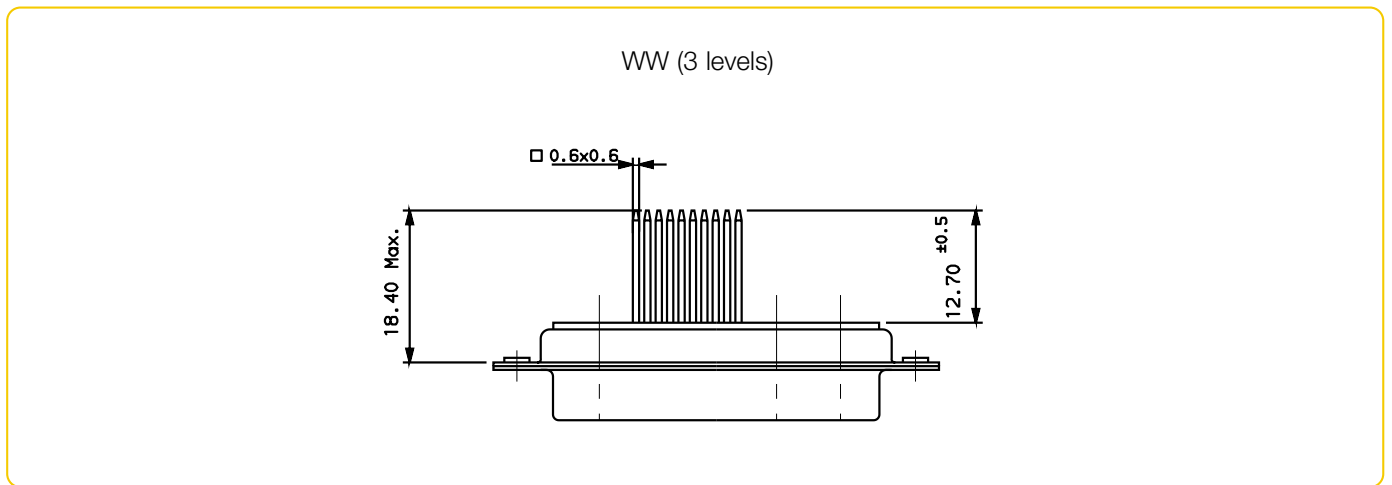
| D | B | L | 13 W 3 | P | 4 | 00 | A | 00LF | | | | | | | | | | | | | | | | | | | | | |
|---|--|----------|--|----------|--|-----------|---|-------------|---|----------------|---|---|---|---|---|---|-----------|---|---|---|---|---|---|--|--|--|--|--|--|
| Series: D | Shell size (tin plated): E, A, B, C, D | | Contacts: P : Pin S : Socket | | Durability: 00 : 200 mating / unmating 43 : 500 mating / unmating (blank for solder bucket termination) | | Termination type: 0 : Solder bucket (blank for plating 00) 4 : Wire wrap (3 levels) | | | | | | | | | | | | | | | | | | | | | | |
| Mounting Options 1 (see page 70) | | | Layout of contacts (see page 24) | | Options: A : without accessory on PCB | | Power contacts: 00LF : RoHS compatible | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th></th> <th>Blank</th> <th>L</th> <th>O</th> <th>I</th> <th>V</th> <th>F</th> </tr> </thead> <tbody> <tr> <td>Solder buckets</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Wire wrap</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> </tbody> </table> | | | | Blank | L | O | I | V | F | Solder buckets | X | X | X | X | X | X | Wire wrap | X | X | X | X | X | X | | | | | | |
| | Blank | L | O | I | V | F | | | | | | | | | | | | | | | | | | | | | | | |
| Solder buckets | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | |
| Wire wrap | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | |
| <p>X : Available</p> <p>☺ Blank : without accessory</p> <p>☺ L : Threaded insert M3</p> <p>☺ O : Threaded insert UNC 4-40</p> <p>I : Female screw M3</p> <p>V : Female screw UNC 4-40</p> <p>F : Float mounting</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SPECIFIC DIMENSIONS

■ Solder bucket



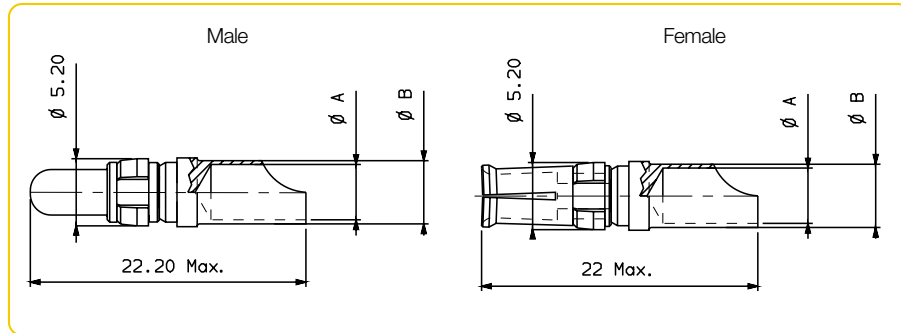
■ Wire wrap



Cable applications

POWER CONTACTS

Solder contacts

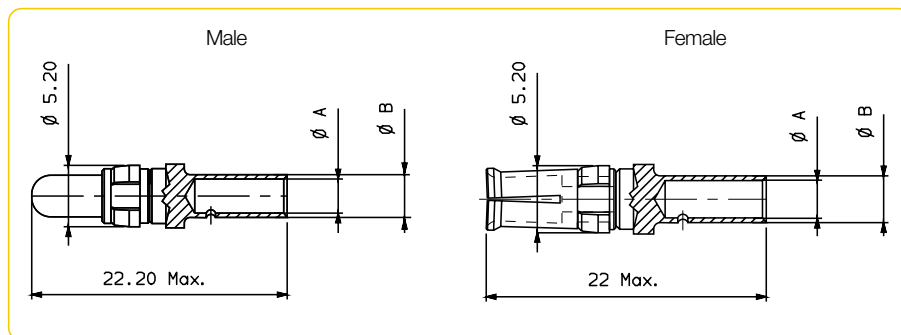


| Type | Max. current rating | Clip colour | RoHS* Part number ≥ 200 mating/unmating | RoHS* Part number ≥ 500 mating/unmating | Wire | | Strip length mm ^{+0.5} ₋₀ | Ø A ₀ ^{+0.1} | Ø B ^{+0.05} |
|--------|---------------------|-------------|--|--|------|-------------------------|--|----------------------------------|----------------------|
| | | | | | Size | section mm ² | | | |
| Male | 10A | Black | 8638PPS1005LF | 8638PPS1006LF | 16 | 1.3 | 7 | 1.7 | 2.6 |
| Male | 15A | White | 8638PPS1505LF | 8638PPS1506LF | 14 | 1.9 | 7 | 2.1 | 3 |
| Male | 20A | Red | 8638PPS2005LF | 8638PPS2006LF | 12 | 3.2 | 7 | 2.8 | 3.65 |
| Male | 40A | Blue | 8638PPS4005LF | 8638PPS4006LF | 8 | 9 | 7 | 4.4 | 5 |
| Female | 10A | Black | 8638PSS1005LF | 8638PSS1006LF | 16 | 1.3 | 7 | 1.7 | 2.6 |
| Female | 15A | White | 8638PSS1505LF | 8638PSS1506LF | 14 | 1.9 | 7 | 2.1 | 3 |
| Female | 20A | Red | 8638PSS2005LF | 8638PSS2006LF | 12 | 3.2 | 7 | 2.8 | 3.65 |
| Female | 40A | Blue | 8638PSS4005LF | 8638PSS4006LF | 8 | 9 | 7 | 4.4 | 5 |

- Clip material: plastic withstanding 125°C
- Termination plating: matt tin

* RoHS compatible EU directive 2002/95/EC

Crimp contacts



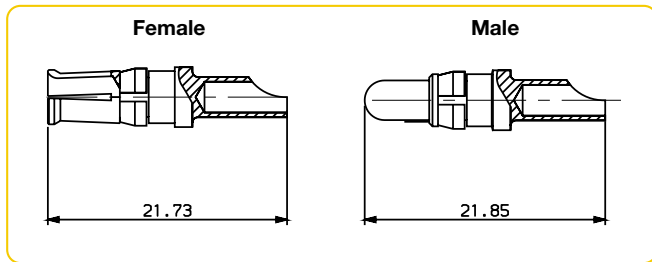
| Type | Max. current rating | Clip colour | RoHS* Part number ≥ 200 mating/unmating | RoHS* Part number ≥ 500 mating/unmating | Wire | | Strip length mm ^{+0.5} ₋₀ | Ø A ₀ ^{+0.1} | Ø B ^{+0.05} |
|--------|---------------------|-------------|--|--|----------|-------------------------|--|----------------------------------|----------------------|
| | | | | | Size | section mm ² | | | |
| Male | 10A | Black | 8638PPC1005LF | 8638PPC1006LF | 16 to 18 | 0.9 to 1.3 | 7 | 1.8 | 2.55 |
| Male | 20A | Red | 8638PPC2005LF | 8638PPC2006LF | 12 to 14 | 2 to 3 | 7 | 2.8 | 3.7 |
| Male | 30A | White | 8638PPC3005LF | 8638PPC3006LF | 9 | 6 | 7 | 3.75 | 4.65 |
| Male | 40A | Blue | 8638PPC4005LF | 8638PPC4006LF | 8 to 10 | 5 to 8 | 7 | 4.8 | 5.5 |
| Female | 10A | Black | 8638PSC1005LF | 8638PSC1006LF | 16 to 18 | 0.9 to 1.3 | 7 | 1.8 | 2.55 |
| Female | 20A | Red | 8638PSC2005LF | 8638PSC2006LF | 12 to 14 | 2 to 3 | 7 | 2.8 | 3.7 |
| Female | 30A | White | 8638PSC3005LF | 8638PSC3006LF | 9 | 6 | 7 | 3.75 | 4.65 |
| Female | 40A | Blue | 8638PSC4005LF | 8638PSC4006LF | 8 to 10 | 5 to 8 | 7 | 4.8 | 5.4 |

- Clip material: plastic withstanding 125°C
- Termination plating: matt tin

* RoHS compatible EU directive 2002/95/EC

Cable applications

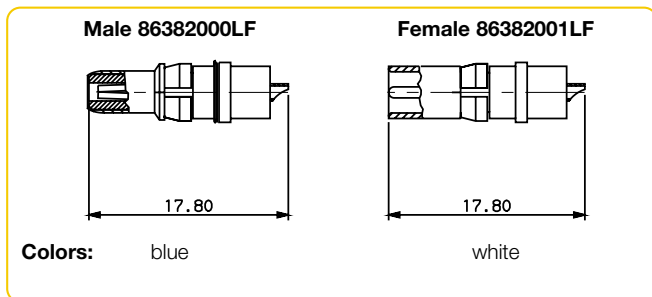
POWER CONTACTS - METAL CLIP



| Wire Size | Max. current | Part numbers | |
|-----------|--------------|--------------|-------------|
| | | Male | Female |
| AWG8 | 40A | 86303098NLF | 86303099NLF |
| AWG12 | 20A | 86303056NLF | 86303057NLF |
| AWG14 | 15A | 86303060NLF | 86303061NLF |
| AWG16 | 10A | 86303064NLF | 86303065NLF |

Durability : 500 mating/unmating

HIGH VOLTAGE CONTACTS



These removable contacts are suitable for the contact cavities of the DMW series and DW series.

The coaxial contacts are in compliance with:

- NFC 93569
- KMX4 specification

ELECTRICAL CHARACTERISTICS

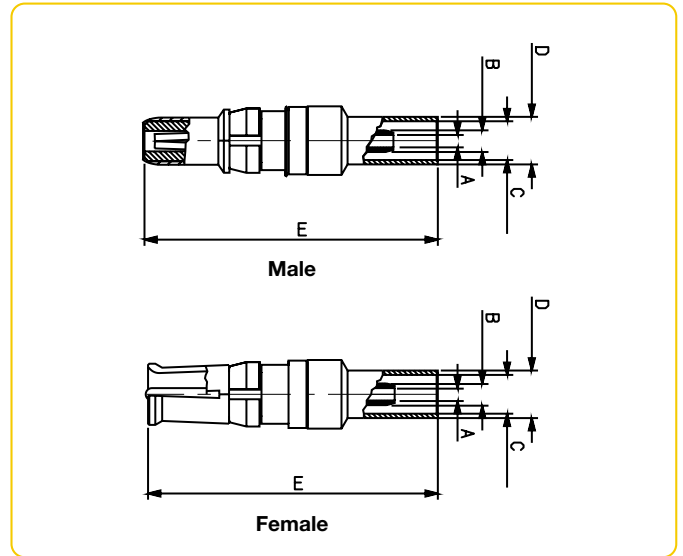
| | |
|----------------------------------|-----------------------|
| Dielectric with standing voltage | : 2800 V.r.m.s |
| Break down voltage | : 3200 V.r.m.s |
| Insulation resistance | : 10^6 M Ω |
| Contact resistance | : ≤ 5 m Ω |
| Max current rating | : 5A |
| Material | : TEFLON |

MECHANICAL CHARACTERISTICS

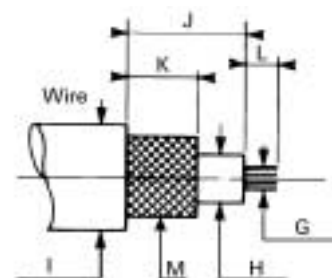
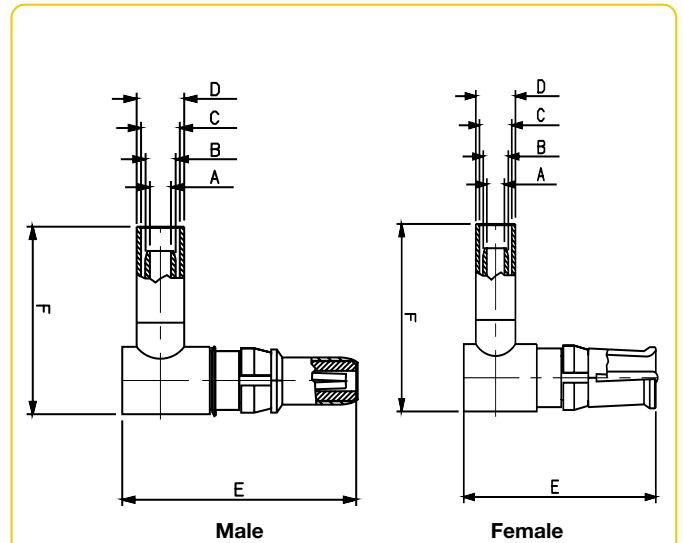
| | |
|---------------------------------|---------------------|
| Mating force per set of contact | : 3N |
| Mating endurance | : 200 |
| Temperature | : -55° C to +125° C |

COAXIAL CONTACTS

■ Straight



■ Angled



Cable applications

STANDARD COAXIAL CONTACTS

| Contact type | Part numbers | | | | Contacts dimension | | | | | | Cable | | | Wire | | | | | | | |
|--------------|-----------------|-----------------|----------------|----------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|----------|-----------|-------------------|------|------|------|------|------|------|----------|------|
| | Soldered screen | NFC 93569 KMX4 | Crimped screen | NFC 93569 KMX4 | A ^{+0.10} | B ^{+0.15} | C ^{+0.02} | D ^{+0.15} | E ^{+0.04} | F ^{+0.4} | MILC 17E | NFC 93550 | Impe- dance | G | H | I | J | K | L | M (max.) | |
| Straight | male | DM537405000NCLF | KMX4M11D02 | KMX4M12D02 | | | | | 23.60 | | | | | | | | 7.90 | 6.35 | 2 | | |
| | male | DM537405008NCLF | - | - | | | | | 21.80 | | | | | | | | | | | | 1.40 |
| Right angle | female | DM537425000NCLF | KMX4F11D02 | KMX4F12D02 | 1 | 1.75 | 2.32 | 3.20 | 23.60 | | RG 178BU | KX21A | 500±2 | 0.30 | 0.90 | 1.80 | | | | | |
| | female | DM537425008NCLF | - | - | | | | | 21.80 | | | | | | | | 9.50 | 5.95 | 1.60 | | |
| Straight | male | DM537415000NCLF | KMX4M11C02 | KMX4M12C02 | | | | | 18.64 | 15.30 | | | | | | | 7.90 | 6.35 | 2.00 | | 2.05 |
| | female | DM537435000NCLF | KMX4F11C02 | KMX4F12C02 | 1.70 | 2.46 | 3 | 3.84 | 23.60 | | RG 316U | KX22A | 50Ω ^{±2} | 0.50 | 1.50 | 2.50 | | | | | |
| Right angle | male | DM537415001NCLF | KMX4M11C01 | KMX4M12C01 | | | | | 18.64 | 15.30 | | | | | | | 9.50 | 5.95 | 1.60 | | |
| | female | DM537435001NCLF | KMX4F11C01 | KMX4F12C01 | | | | | 18.64 | 12.50 | | | | | | | | | | | |

SPECIFIC COAXIAL CONTACTS

| Contact type | Part numbers | | | | Contacts dimension | | | | | | Cable | | | Wire | | | | | | | |
|--------------|-----------------|-----------------|----------------|----------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|----------|-----------|--------------------|------|------|------|-------|------|------|----------|--|
| | Soldered screen | NFC 93569 KMX4 | Crimped screen | NFC 93569 KMX4 | A ^{+0.10} | B ^{+0.15} | C ^{+0.02} | D ^{+0.15} | E ^{+0.04} | F ^{+0.4} | MILC 17E | NFC 93550 | Impe- dance | G | H | I | J | K | L | M (Max.) | |
| Straight | male | DM537405002NCLF | - | DM537403NCLF | 2.75 | 4.40 | 5.45 | 5.95 | 26.30 | | RG 180BU | | 95Ω ^{±2} | 0.30 | 2.60 | 3.58 | 9.70 | 7.90 | 2 | 3.14 | |
| | female | DM537425002NCLF | - | DM537423NCLF | | | | | 26.30 | | | | | | | | | | | | |
| Straight | male | DM537405005NCLF | - | DM537405NCLF | | | | | 23.60 | | | | | | | | 9.50 | | 2 | | |
| | female | DM537425004NCLF | - | DM537425NCLF | 3.15 | 4.40 | 5.45 | 5.95 | 23.60 | | RG 58CU | KX15 | 500Ω ^{±2} | 0.90 | 2.95 | 4.95 | | 7.9 | | 3.81 | |
| Right angle | female | DM537435004NCLF | - | DM537436NCLF | | | | | 18.64 | 17.50 | | | | | | | 10.70 | | 2.40 | | |

PCB applications

I/O, POWER CONNECTOR

This power module I/O connectors for 48 volts applications are designed in accordance with μTCA specifications. The robust D-Sub concept based on simplified and cost effective Delta D design combines power contacts able to handle up to 24 A with signal contacts. PCB connectors are proposed in traditional solder-to-board and Pin-in-Paste versions for optimized applied cost. Specific to the design of FCI is the fact that the connector's compact footprint allows for more space on the PCB for other components.

FEATURES

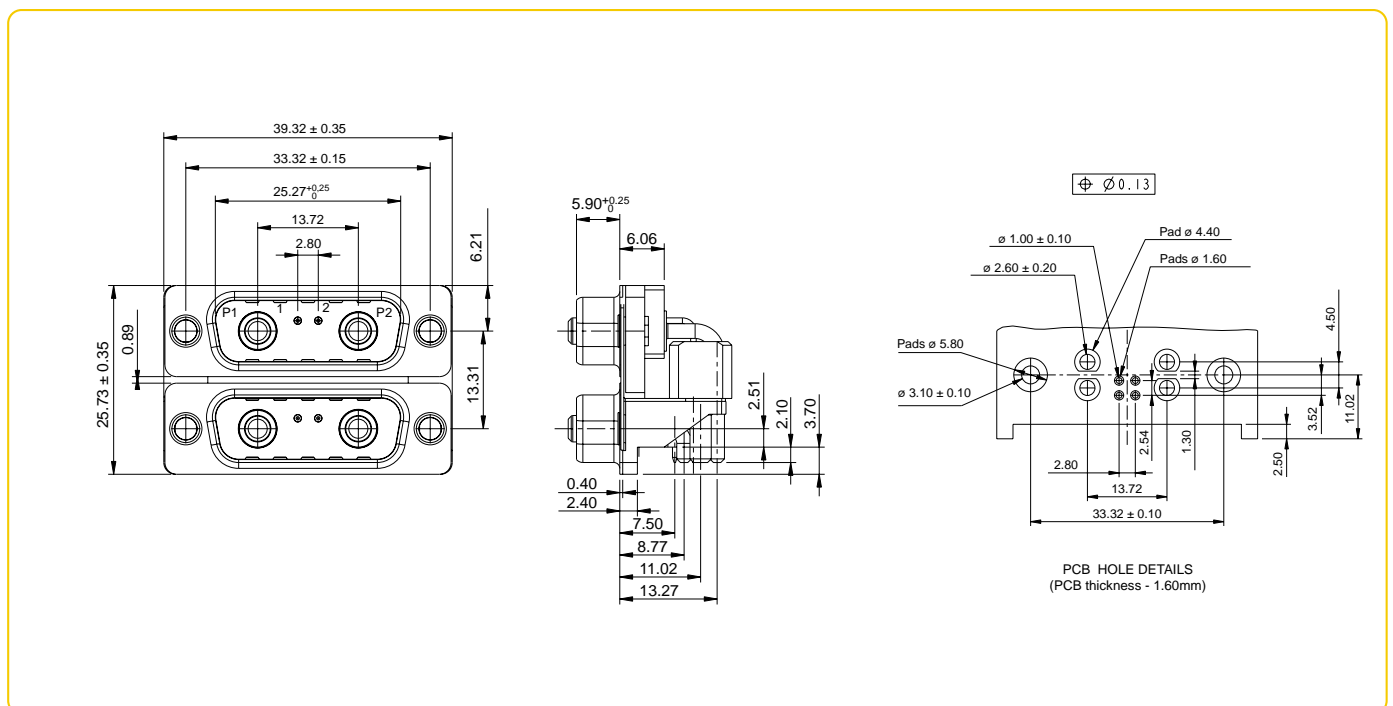
- 48 V / 24 A (shell size A)
- FMLB (First Mate Last Brake) functionality for hot plugging
- Field repairable



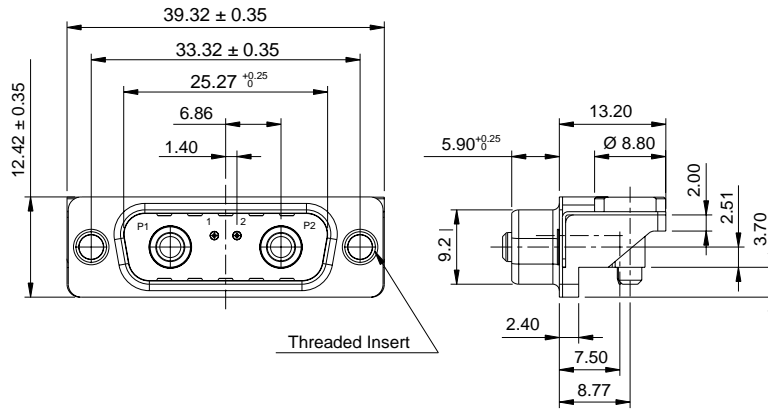
ORDERING INFORMATION

| | | | | |
|--|--|---|--|--|
| 10070158 | 002 | 12 | X | LF |
| <p>μTCA 48 V / 24 A power board connector</p> | <p>001 : Dual solder-to-board 002 : Dual Pin-in-Paste 003 : Single solder-to-board 004 : Single Pin-in-Paste</p> | <p>12 : Tape and reel packing 19 : Card box packing</p> | <p>L : M3 threaded insert X : UNC 4-40 threaded insert</p> | <p>LF : RoHS compatible EU directive 2002/95/EC</p> |

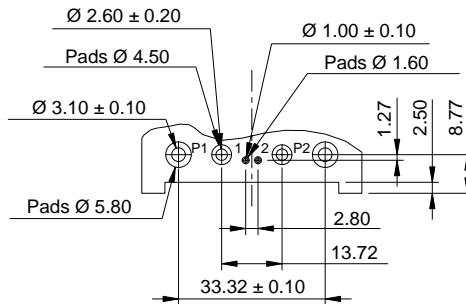
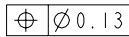
PRODUCT DRAWING



PCB applications



ALL HOLES



PCB drill & recommended pad details
(PCB thickness - 1.6 mm)

Cable applications

FEATURES

- Field repairable
- Touch proof
- Stackable hoods with high retention devices
- Cost saving jumper option for signal contacts

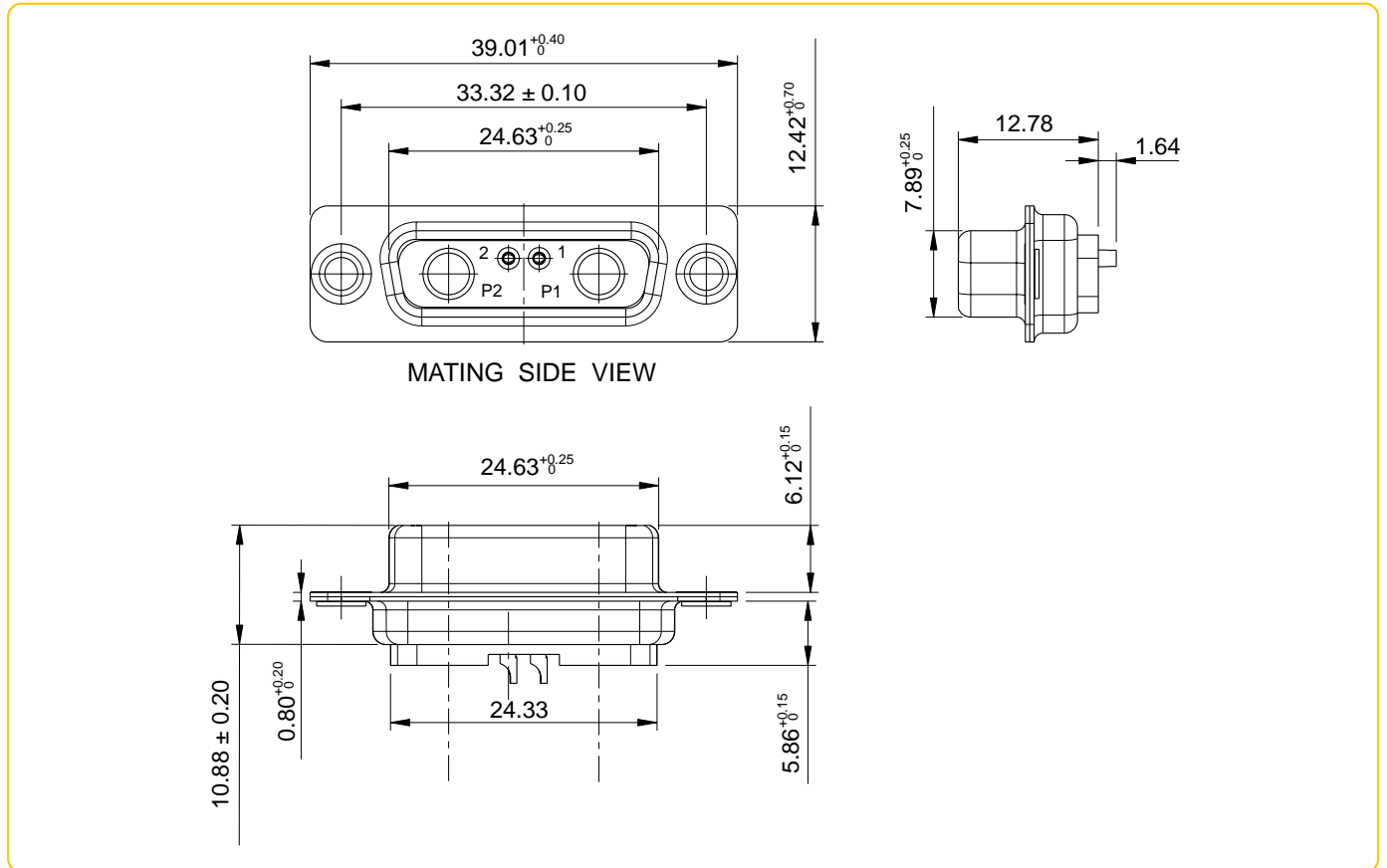


ORDERING INFORMATION

■ CABLE CONNECTOR

| | | |
|--|--|-------------------------|
| 10070165 | 001 | 19ALF |
| <p>μTCA 48 V / 24 A power cable connector</p> | <p>001 : without jumper 002 : with jumper option</p> | <p>Card box packing</p> |

PRODUCT DRAWING

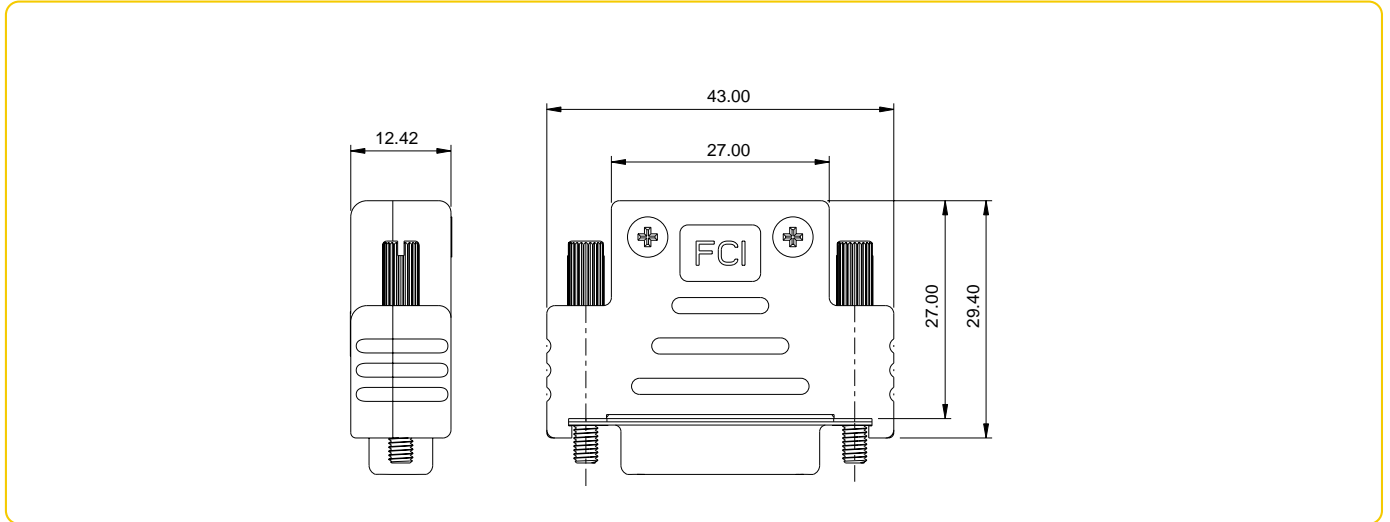


■ POWER CONTACTS

- 8638PSC3005LF** 30 A crimp contacts
- 8638PSS4005LF** 40 A solder buckets contacts

■ HOOD (stackable hood and slim design)

10070163 - 001LF



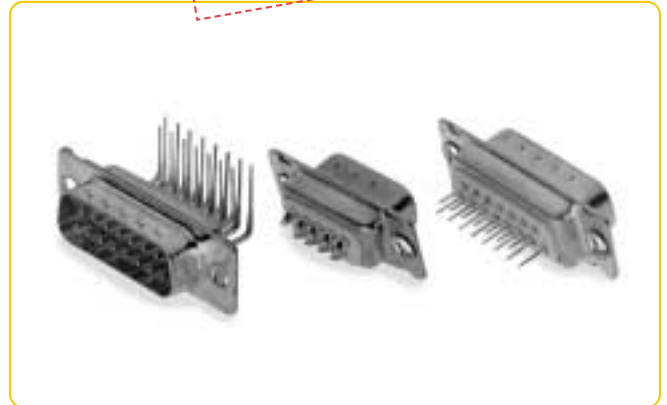
D series - Stamped and rolled contacts

PCB and Cable applications

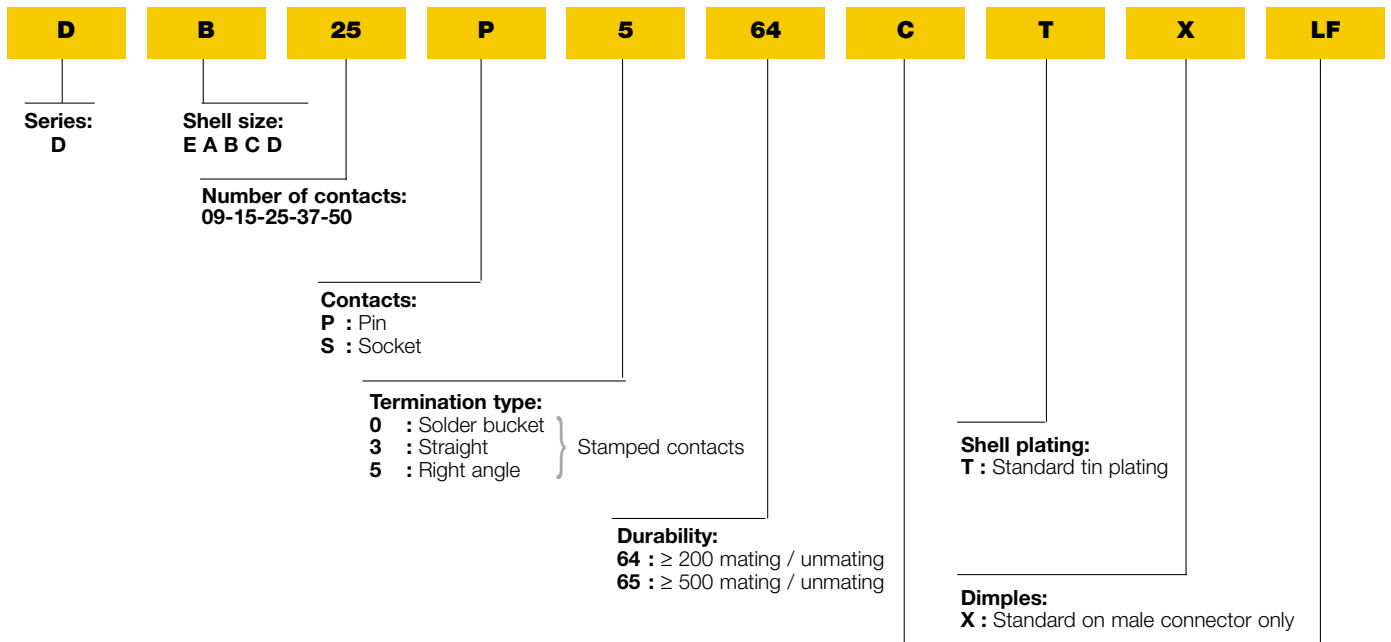


UL Recognized File E 118235

■ D series is the standard D-Sub full metal shell version with stamped contacts. This design is basically proposed in solder bucket, straight and angled version without accessories.



ORDERING INFORMATION



Options 2 (see page 70)

| Termination type Index | Straight version | Angled version | Solder buckets |
|---------------------------|-------------------|-----------------|--------------------------------|
| Blank | Without accessory | Not possible | Without accessory |
| C | Not possible | Without bracket | Not possible |
| H* | Not possible | Not possible | Shielding termination fingers* |

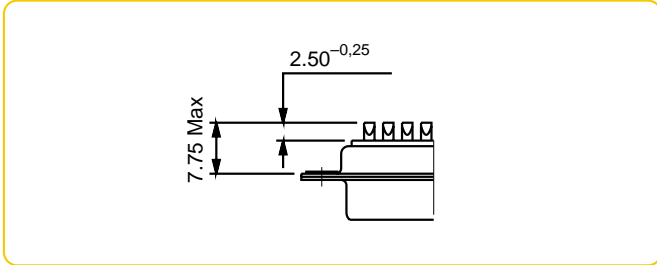
* not available on 50 way

Blank : non RoHS compatible
 LF : RoHS compatible

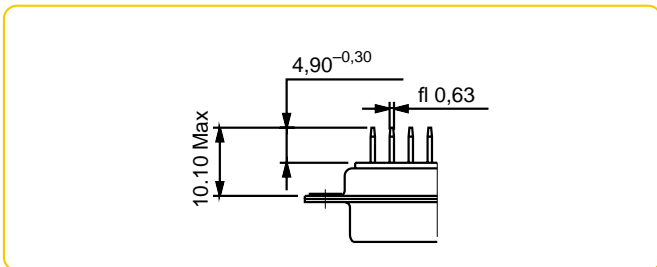
*PCB and
Cable applications*

SPECIFIC DIMENSIONS

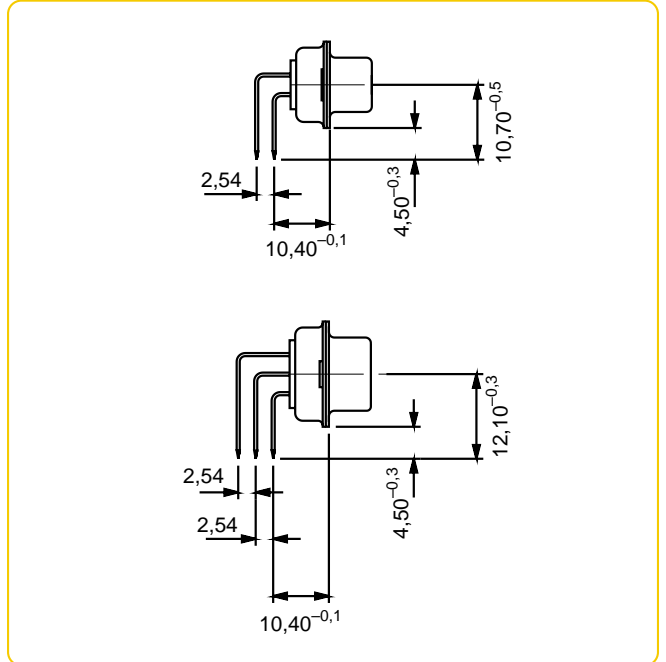
Solder buckets



Straight spills



Right angle spills



Cable applications



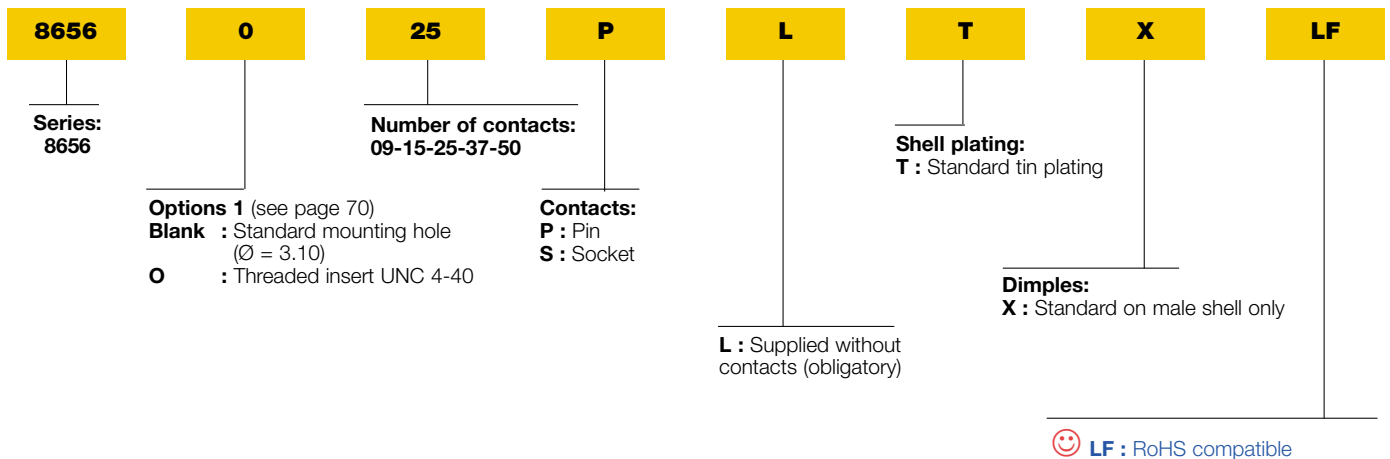
UL Recognized File E 118235

- 8656 series is a D connector with removable crimp contacts for AWG 20/24 or 24/28 wires.
- It is used for commercial cabling like computer equipment, cash registers...
- It accepts our standard accessories (hoods, locking devices) and is available with a complete range of crimping tools from hand tools to high volume production equipment.



ORDERING INFORMATION

Connector part numbers



Contact part numbers

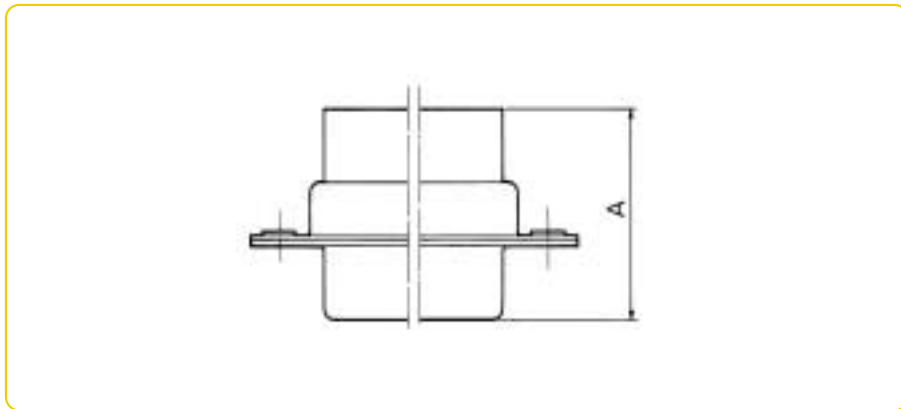
| Contact type \ Packaging type | Box of 500 contacts | Reel of 400 contacts | Reel of 5000 contacts | Reel of 10 000 contacts |
|-------------------------------|---------------------|----------------------|-----------------------|-------------------------|
| AWG 24/28 male | 865635006 ▲ | 8656300306 ▲ | 8656451006 ▲ | 8656454006 ▲ |
| AWG 24/28 female | 865635106 ▲ | 8656300406 ▲ | 8656651006 ▲ | 8656654006 ▲ |
| AWG 20/24 male | 865635206 ▲ | 8656300506 ▲ | 8656452006 ▲ | 8656453006 ▲ |
| AWG 20/24 female | 865635306 ▲ | 8656300606 ▲ | 8656652006 ▲ | 8656653006 ▲ |

▲ Contact performance code

- 4LF: ≥ 200 mating / unmating, RoHS compatible
- 5LF: ≥ 500 mating / unmating, RoHS compatible

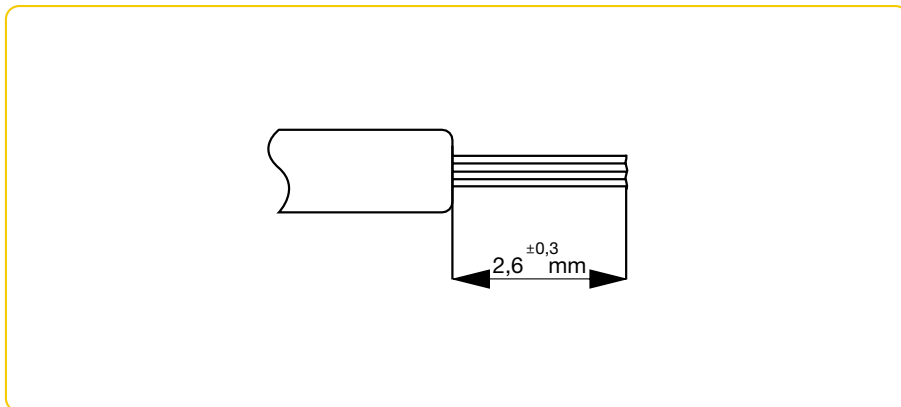
Cable applications

SPECIFIC DIMENSIONS



| | 09 | 15 | 25 | 37 | 50 |
|-------------------------|-------|-------|-------|-------|-------|
| Pin | 17.19 | 17.19 | 17.35 | 17.35 | 17.35 |
| A_{Max.} | | | | | |
| Socket | 17.44 | 17.44 | 17.44 | 17.44 | 17.44 |

CABLE PREPARATION



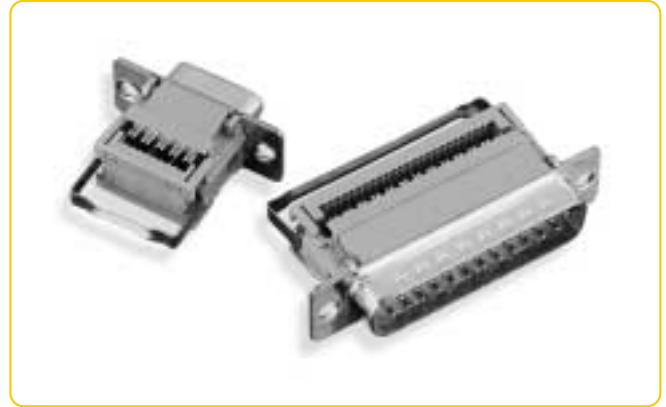
Cable applications

INSULATION DISPLACEMENT CONNECTION FOR FLAT CABLE, MULTI STRAND (AWG 26/28) OR SINGLE STRAND (AWG 28/30)

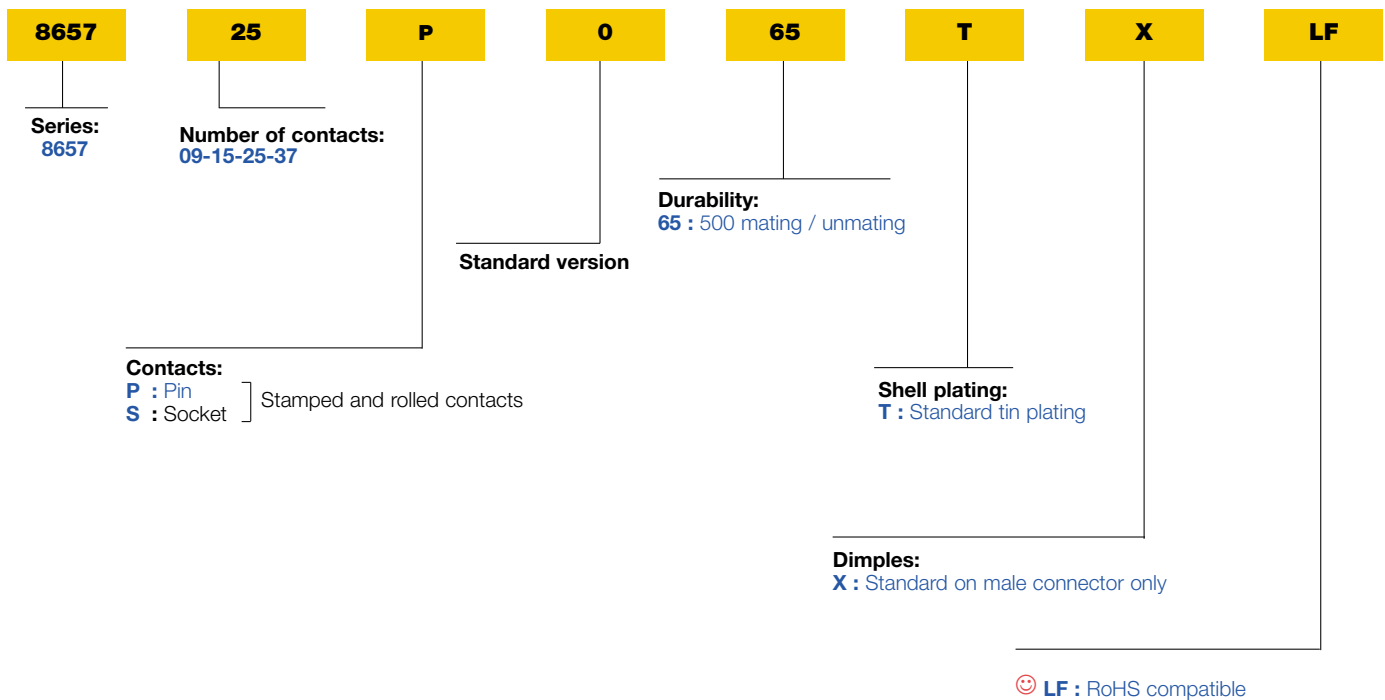


UL Recognized File E 118235

These connectors are suitable for input/output applications and interconnecting electronic equipment.



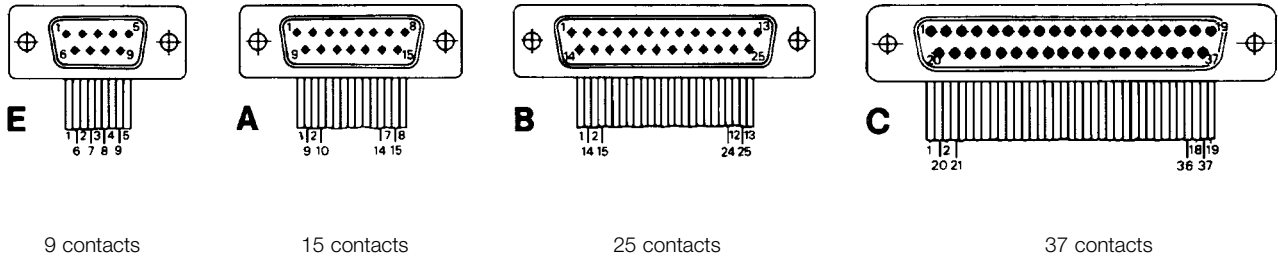
ORDERING INFORMATION



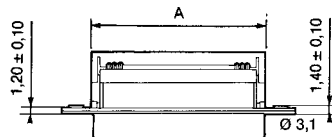
LAYOUTS

Male insulator front view

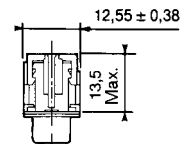
Contacts are individually numbered on the front side of the insulator



SPECIFIC DIMENSIONS



HIGH PROFILE
supplied with
metallic strain relief clamp



| | 09 | 15 | 25 | 37 |
|-----------------|-------|-------|-------|-------|
| A ± 0.25 | 19.27 | 27.50 | 41.27 | 57.70 |

PCB and
Cable applications



UL Recognized File E 118235

- DP series is designed for high performance applications, particularly in the field of telecommunications: data transmission, private automatic branch switching, telecom (LNZ listed).
- It features machined contacts and is available with solder bucket, straight spills, angled spills, and wire wrap terminations.



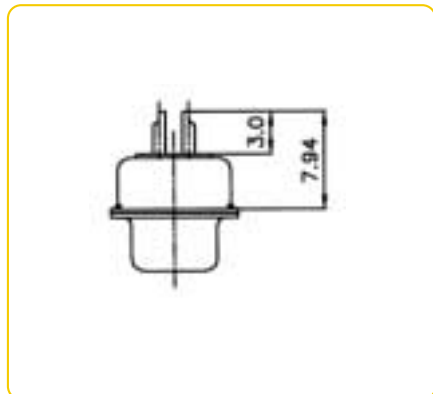
ORDERING INFORMATION

| D | B | P | V | 25 | P | 3 | 64 | C | T | X | LF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|---|--|-------------------------------|-------------------|---|----|---|---|---|----|-------|------------------|-----------------|---------------|----------------|-----------|-------|--|-------------------|--|-------------------|-------------------|---|--|---|--------------------|-------------------------------|--|---|--|---------------------------------|---|--|--|--|--|--|---|--|--|--|--|--|
| <p>Series: D</p> <p>Shell size: E, A, B, C, D</p> <p>P : Characterisation of DP series</p> <p>Front accessories (see page 70) Blank : Standard mounting holes (Ø = 3.10) L : Threaded insert M3 V : Female screw locks UNC 4-40 S : Spacers (straight spills only)</p> <p>Number of contacts: 09-15-25-37-50</p> <p>Contacts: P : Pin S : Socket</p> <p>Termination: 0 : Solder buckets (blank for plating 00) 3 : Straight spills 5 : Angled spills- 2.54 mm between rows 8 : Angled spills- 2.84 mm between rows 4 : Wire wrap (3 levels) 6 : Wire wrap (2 levels)</p> <p>Durability: 64 : ≥ 200 mating / unmating 65 : ≥ 500 mating / unmating, blank for solder bucket termination</p> <p>PCB accessories (see page 70)</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Termination type</th> <th>Straight spills</th> <th>Angled spills</th> <th>Solder buckets</th> <th>Wire wrap</th> </tr> </thead> <tbody> <tr> <td>Blank</td> <td></td> <td>Without accessory</td> <td>Two plastic brackets* Without bracket</td> <td>Without accessory</td> <td>Without accessory</td> </tr> <tr> <td>C</td> <td></td> <td rowspan="2">Harpoons (Compulsary with option L or V)</td> <td>Two metal brackets</td> <td rowspan="2">Shielding termination fingers</td> <td rowspan="2"></td> </tr> <tr> <td>M</td> <td></td> <td>Harpoons (9 to 37 ways only)</td> </tr> <tr> <td>G</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>H</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>* Except 50 pos. with monobloc plastic brackets</p> <p>Shell plating: T : Standard tin plated</p> <p>Dimples: X : Standard on male connectors only</p> <p>LF : Standard series, RoHS compatible</p> | | | | | | | | | | | | Index | Termination type | Straight spills | Angled spills | Solder buckets | Wire wrap | Blank | | Without accessory | Two plastic brackets* Without bracket | Without accessory | Without accessory | C | | Harpoons (Compulsary with option L or V) | Two metal brackets | Shielding termination fingers | | M | | Harpoons (9 to 37 ways only) | G | | | | | | H | | | | | |
| Index | Termination type | Straight spills | Angled spills | Solder buckets | Wire wrap | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Blank | | Without accessory | Two plastic brackets* Without bracket | Without accessory | Without accessory | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | | Harpoons (Compulsary with option L or V) | Two metal brackets | Shielding termination fingers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | | | Harpoons (9 to 37 ways only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

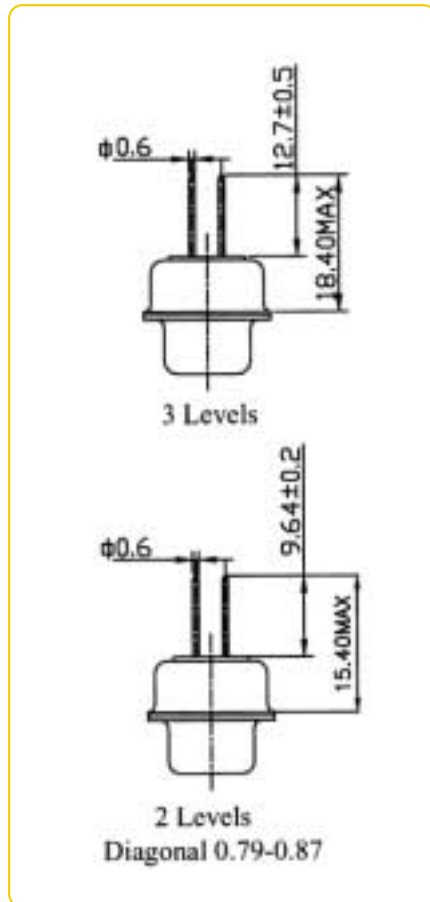
*PCB and
Cable applications*

SPECIFIC DIMENSIONS

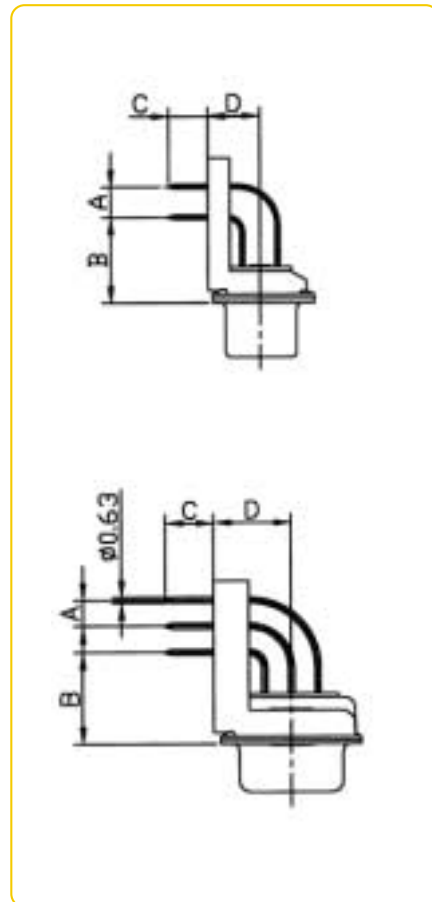
Solder buckets



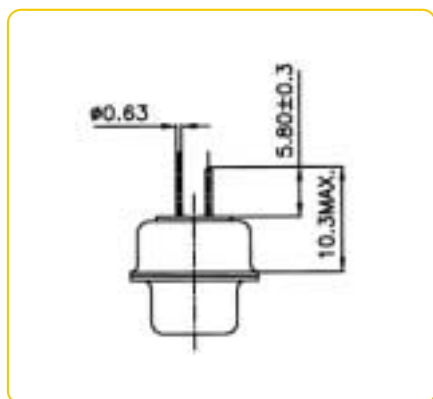
Wire wrap



Right angle spills



Straight spills



| Termination code | | 5 | 8 |
|------------------|------------------|-----------|-------|
| | | Dimension | |
| A | | 2.54 | 2.84 |
| B ± 0.1 | | 10.30 | 10.30 |
| C ± 0.5 | | 4.00 | 4.00 |
| D ± 0.1 | 9 to 37 contacts | 7.20 | 7.20 |
| | 50 contacts | 8.60 | 8.60 |

PCB and Cable applications

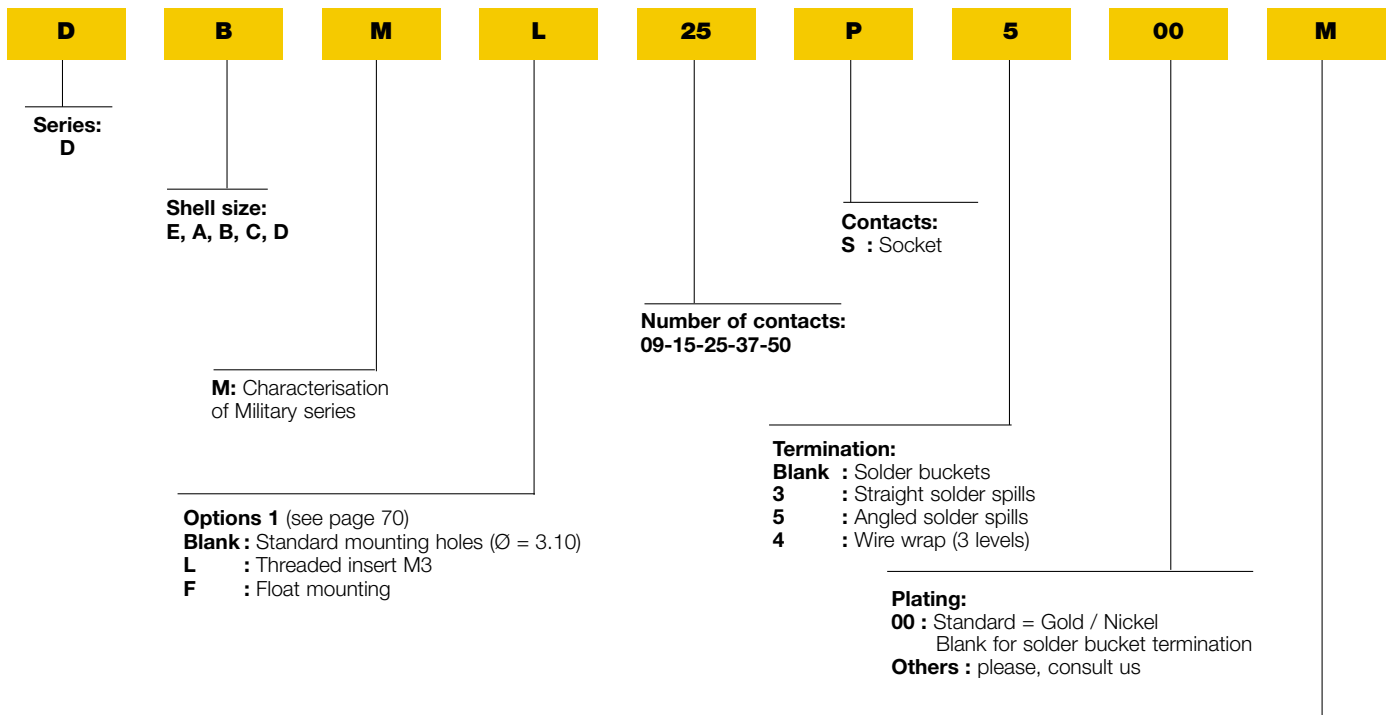


UL Rating Product File E 118235 (R)

- ▶ For aerospace, military 125° class-European standard in compliance with NFC 93425 / HE 501.
- ▶ **Shell plating:** Cadmium
- ▶ **Military and Aero applications**



ORDERING INFORMATION

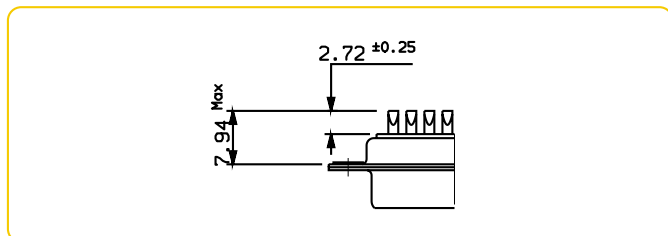


Options 2 (see page 70)

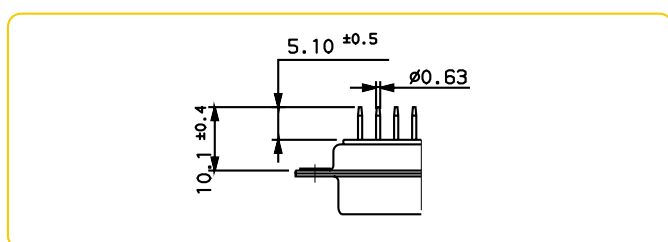
| Option | Version | Angled spills | Other terminations |
|--------|---------|------------------|--------------------|
| | Blank | Plastic brackets | Not applicable |
| | C | Without brackets | Not applicable |
| | M | Metal brackets | Not applicable |

SPECIFIC DIMENSIONS

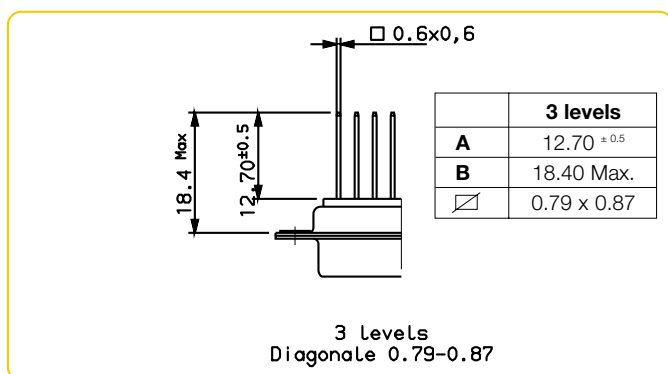
Solder buckets



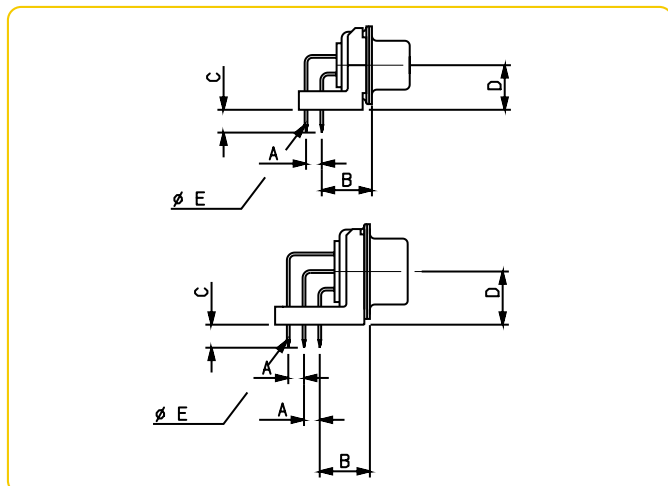
Straight spills



Wire wrap



Right angle spills



CROSS REFERENCE LIST FOR THE MAIN HE 501 AND FCI

| Connector type | | HE 501 | FCI |
|----------------|----------------|-----------------|-----------|
| Solder buckets | F | HE 501 N..AP3 | D.M..PLF |
| | | HE 501 N..AS3 | D.M..SLF |
| | Float mounting | M HE 501 F..AP3 | D.MF..PLF |
| | | F HE 501 F..AS3 | D.MF..SLF |

| Connector type | | HE 501 | FCI |
|-----------------|----------------|-------------------|---------------|
| Straight spills | Standard | M HE 501 N..YP4.3 | D.M..P 300LF |
| | | F HE 501 N..YS4.3 | D.M..S 300LF |
| | Float mounting | M HE 501 F..YP4.3 | D.MF..P 300LF |
| | | F HE 501 F..YS4.3 | D.MF..S 300LF |

| Connector type | | HE 501 | FCI |
|--------------------|----------------|-------------------|---------------|
| Wire wrap 3 levels | Standard | M HE 501 N..KP3.3 | D.M..P 400LF |
| | | F HE 501 N..KS3.3 | D.M..S 400LF |
| | Float mounting | M HE 501 F..KP3.3 | D.MF..P 400LF |
| | | F HE 501 F..KS3.3 | D.MF..S 400LF |

| Connector type | | HE 501 | FCI |
|-------------------|----------------|-------------------|---------------|
| Angled spills 500 | Standard | M HE 501 P..VP6.3 | D.M..P 500LF |
| | | F HE 501 P..VS6.3 | D.M..S 500LF |
| | Metal brackets | M HE 501 M..VP6.3 | D.M..P 500MLF |
| | | F HE 501 M..VS6.3 | D.M..S 500MLF |

| Dimension | Termination | 5 |
|---------------|------------------|-------|
| A | | 2.54 |
| B ±0.1 | | 10.30 |
| C ±0.5 | | 4.00 |
| D ±0.1 | 9 to 37 contacts | 7.20 |
| | 50 contacts | 8.60 |
| Ø E | | 0.63 |

PCB and Cable applications

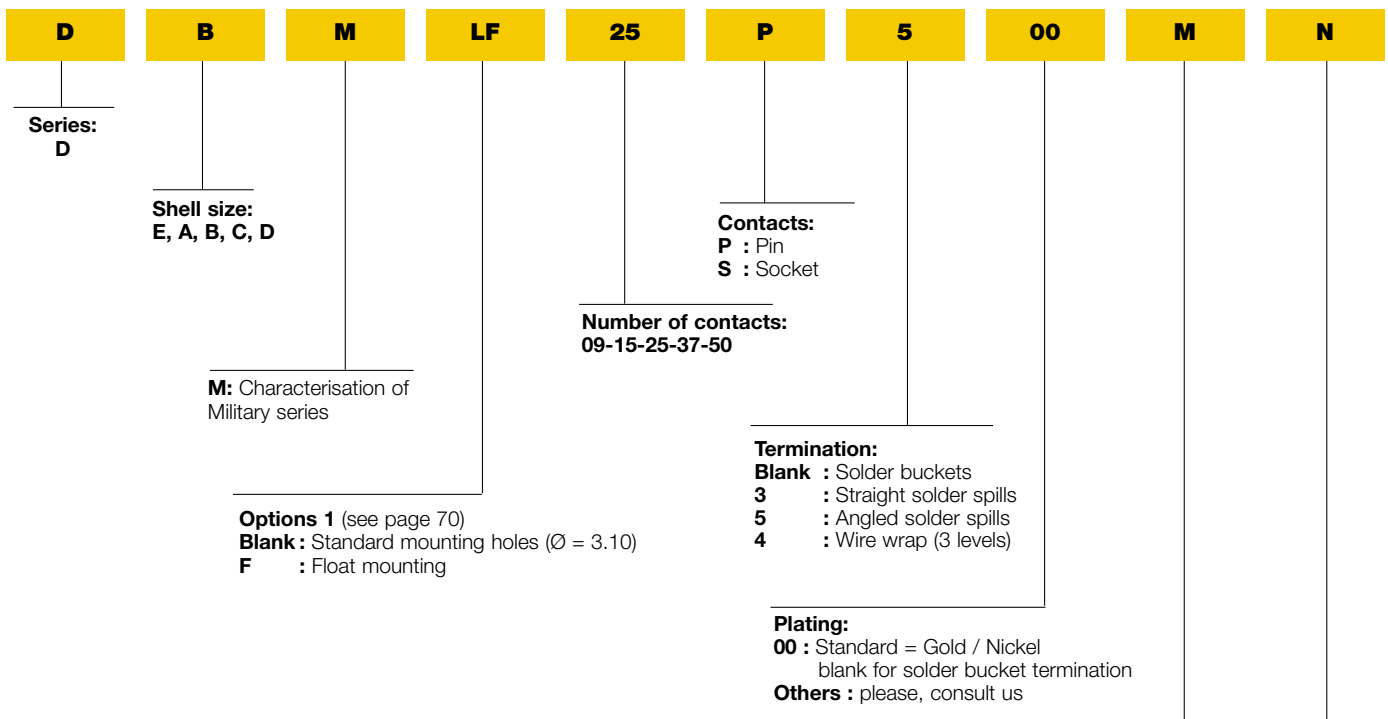


UL Rating Product File E 118235 (R)

- ▶ For particularly severe applications, especially high temperatures class + 155°C in compliance with NFC 93425 / HE 508.
- ▶ **Shell plating:** Cadmium
- ▶ **Military and Aero applications**



ORDERING INFORMATION



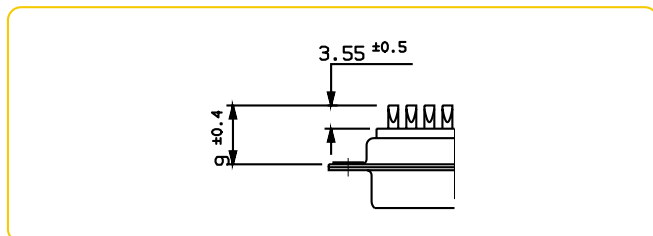
Options 2 (see page 70)

| Option | Version | Angled spills | Other terminations |
|--------|---------|------------------|--------------------|
| Blank | | Plastic brackets | Not applicable |
| C | | Without brackets | Not applicable |
| M | | Metal brackets | Not applicable |

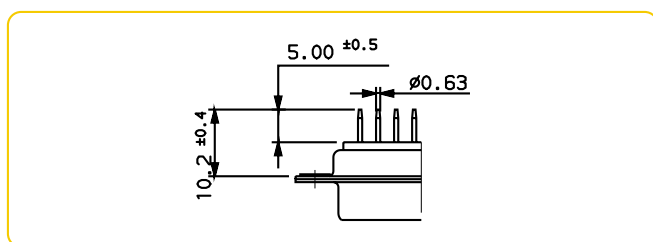
N : Obligatory for HE 508

SPECIFIC DIMENSIONS

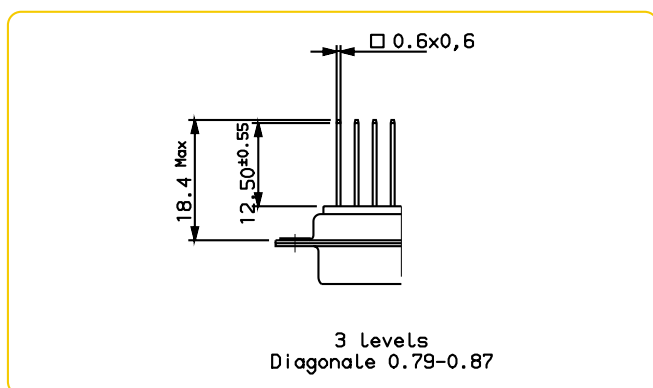
Solder buckets



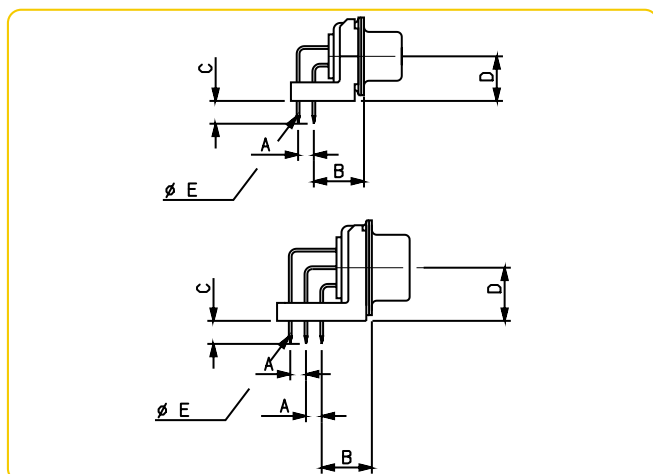
Straight spills



Wire wrap



Right angle spills



CROSS REFERENCE LIST FOR THE MAIN HE 508 AND FCI

| Connector type | | HE 508 | | FCI |
|----------------|----------------|--------|--------------|------------|
| Solder buckets | Standard | M | HE 508 N..AP | D.M..PNLF |
| | | F | HE 508 N..AS | D.M..SNLF |
| | Float mounting | M | HE 508 F..AP | D.MF..PNLF |
| | | F | HE 508 F..AS | D.MF..SNLF |

| Connector type | | HE 508 | | FCI |
|-----------------|----------------|--------|---------------|----------------|
| Straight spills | Standard | M | HE 508 N..YP4 | D.M..P 300NLF |
| | | F | HE 508 N..YS4 | D.M..S 300NLF |
| | Float mounting | M | HE 508 F..YP4 | D.MF..P 300NLF |
| | | F | HE 508 F..YS4 | D.MF..S 300NLF |

| Connector type | | HE 508 | | FCI |
|--------------------|----------------|--------|---------------|----------------|
| Wire wrap 3 levels | Standard | M | HE 508 N..KP3 | D.M..P 400NLF |
| | | F | HE 508 N..KS3 | D.M..S 400NLF |
| | Float mounting | M | HE 508 F..KP3 | D.MF..P 400NLF |
| | | F | HE 508 F..KS3 | D.MF..S 400NLF |

| Connector type | | HE 508 | | FCI |
|-------------------|----------|--------|---------------|----------------|
| Angled spills 500 | Standard | M | HE 508 P..VP6 | D.M..P 500NLF |
| | | F | HE 508 P..VS6 | D.M..S 500NLF |
| | Metal | M | HE 508 M..VP6 | D.M..P 500MNLF |
| | | | HE 508 M..VS6 | D.M..S 500MNLF |

| Dimension | Termination | 5 |
|-----------|------------------|-------|
| A | | 2.54 |
| B ±0.1 | | 10.30 |
| C ±0.5 | | 4.00 |
| D ±0.1 | 9 to 37 contacts | 7.20 |
| | 50 contacts | 8.60 |
| Ø E | | 0.63 |

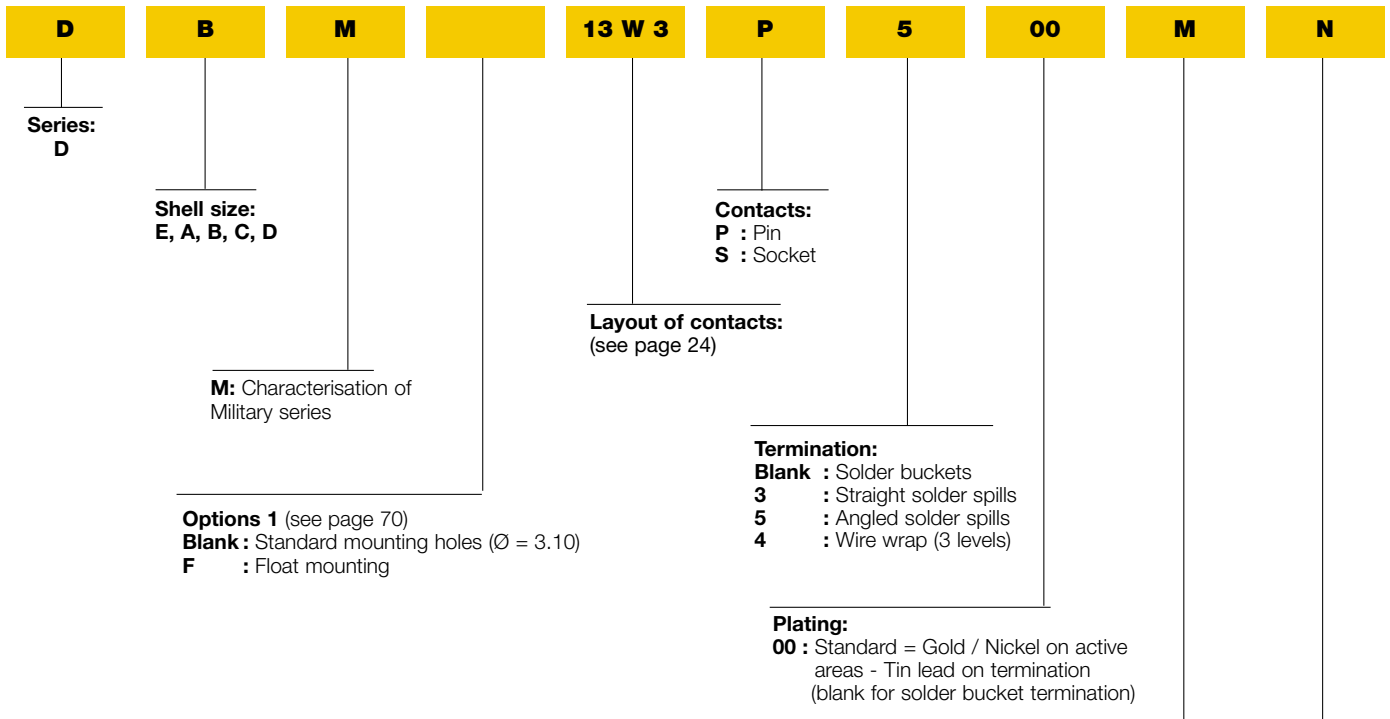
PCB and Cable applications

UL Rating Product File E 118235

- Connectors drawn from DM series. Composed of mixed arrangements of standard signal and size 8 cavities housing, coax, power, high voltage and optical removable contacts.
- Shell plating:** Cadmium
- Military and Aero applications**



ORDERING INFORMATION



Options 2 (see page 70)

| Option | Version | Angled spills | Other terminations |
|--------|---------|------------------|--------------------|
| Blank | | Plastic brackets | Not applicable |
| C | | Without brackets | Not applicable |
| M | | Metal brackets | Not applicable |

N : Compulsary in compliance with HE 507

PCB and
Cable applications

LAYOUTS

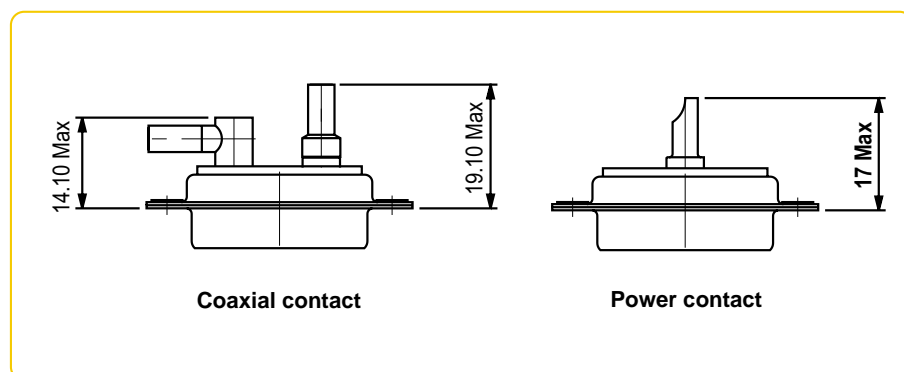
Male insulator front view

| Shell size | | Layout |
|------------|------|--------|
| E | 5W1 | |
| A | 11W1 | |
| | 7W2 | |
| | 3W3 | |
| | 3V3 | |
| | B | 21W1 |
| 17W2 | | |
| 13W3 | | |
| 9W4 | | |
| 5W5 | | |

| Shell size | | Layout |
|------------|-------|--------|
| C | 25W3 | |
| | 21WA4 | |
| | 27W2 | |
| | 8W8 | |
| D | 47W1 | |
| | 24W7 | |
| | 36W4 | |

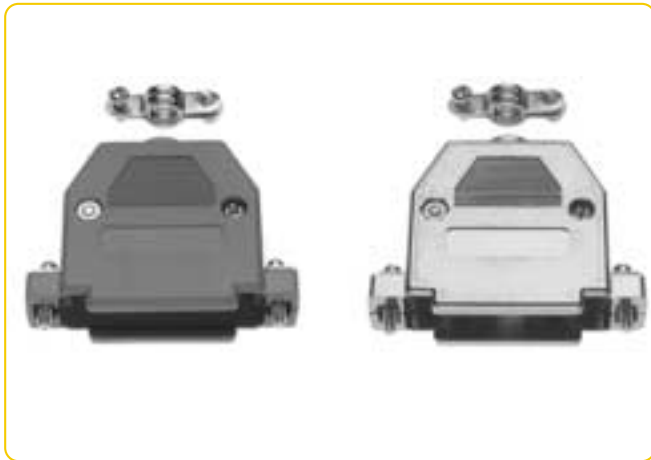
- Standard contacts
- Coaxial and power contacts

SPECIFIC DIMENSION for standard terminations, see DM series, page 51



Cable applications

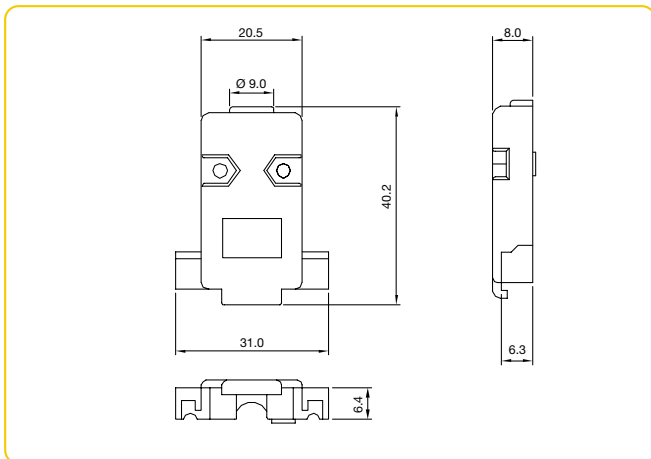
1 • Straight exit plastic and metalised hood with integrated locking - Economical series



Material : self extinguishing UL 94V0 thermoplastic
Colour : black / metalised
Temperature range : -55°C +105°C
Locking screws : UNC 4-40 thread

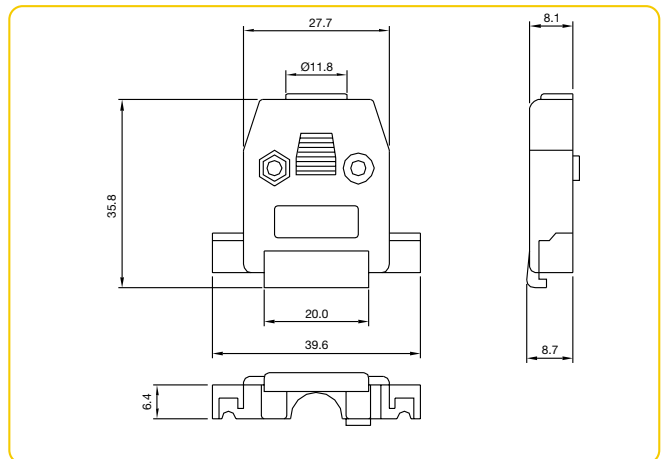
Shell size E (9 way)

- Plastic hood : part number : **10039449-00001LF**
- Metalised hood : part number : **10039449-00002LF**



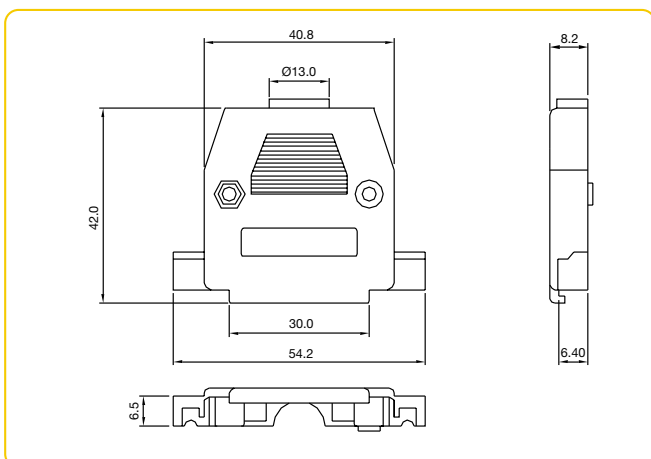
Shell size A (15 way)

- Plastic hood : part number : **10039450-00001LF**
- Metalised hood : part number : **10039450-00002LF**



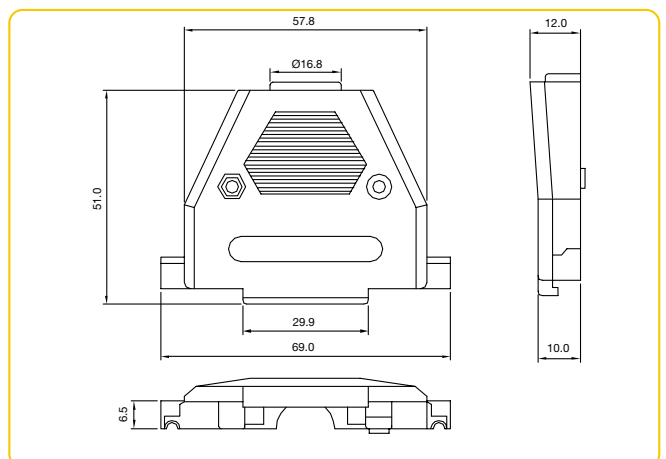
Shell size B (25 way)

- Plastic hood : part number : **10039451-00001LF**
- Metalised hood : part number : **10039451-00002LF**



Shell size C (37 way)

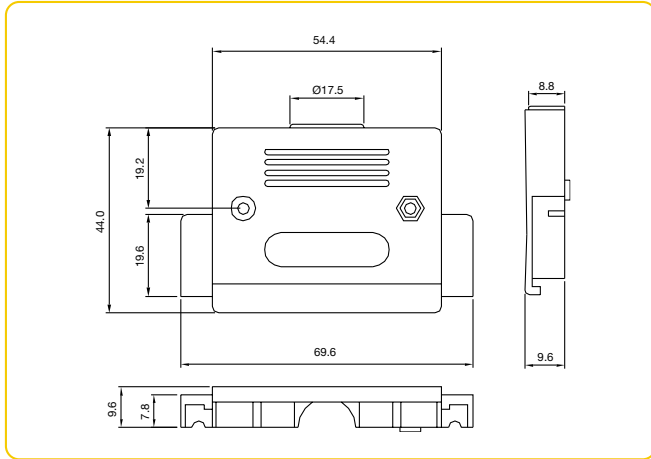
- Plastic hood : part number : **10039452-00001LF**
- Metalised hood : part number : **10039452-00002LF**



Straight exit plastic and metalised hood with integrated locking

Shell size D (50 way)

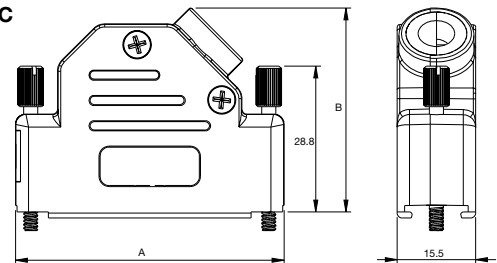
- Plastic hood : part number : **10039453-00001LF**
- Metalised hood : part number : **10039453-00002LF**



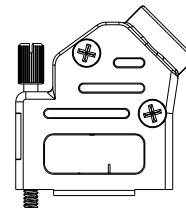
2 • Angle exit plastic hood for cable



Size A,B,C



Size E



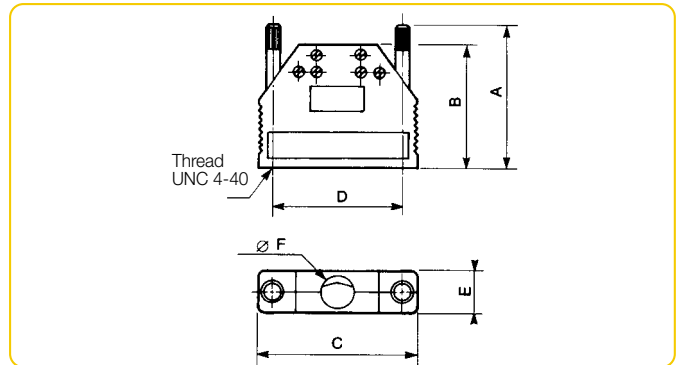
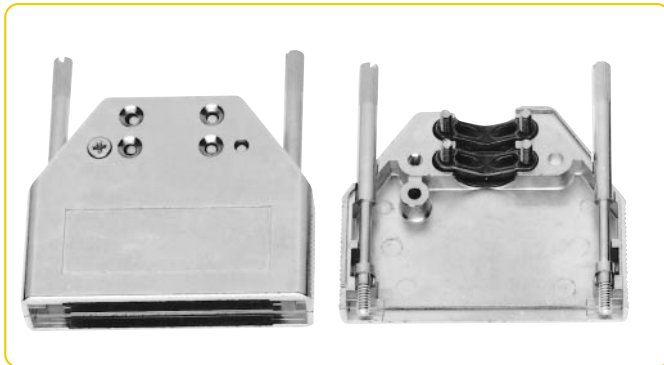
| Shell size | Part number | A | B | Cable diameter |
|------------|----------------|------|------|----------------|
| E (9) | 8655PHRA0901LF | 31.0 | 36.2 | 4 to 13 mm |
| A (15) | 8655PHRA1501LF | 39.5 | 40.2 | |
| B (25) | 8655PHRA2501LF | 53.0 | 40.2 | |
| C (37) | 8655PHRA3701LF | 69.5 | 40.2 | |

- Material** : polycarbonat UL 94V0
- Cable strain relief** : steel fibre reinforced polycarbonat UL 94V0
- Colour** : black
- Temperature range** : -40°C +120°C
- Packaging** : bulk, in box of 100 pieces
- Locking screws** : UNC 4-40 thread

All dimensions in mm

Cable applications

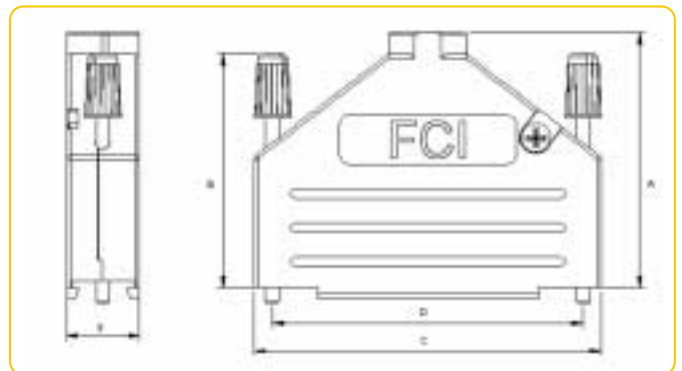
3 • Straight exit metal hood with two metal clamps for cable EMI / RFI



| Shell size | Part numbers in bulk | Packaging | Part numbers (in individual set) | Packaging | A ^{±0.1} | B ^{±0.3} | C ^{±0.1} | D ^{±0.1} | E ^{±0.2} | F max. |
|------------|----------------------|-----------|----------------------------------|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|--------|
| E | 8655MH0901LF | 80 | 8655MH0911LF | 50 | 55.00 | 45.00 | 34.40 | 24.99 | 14.70 | 7.85 |
| A | 8655MH1501LF | 80 | 8655MH1511LF | 50 | 55.00 | 45.00 | 42.70 | 33.32 | 14.70 | 11.80 |
| B | 8655MH2501LF | 60 | 8655MH2511LF | 50 | 55.00 | 45.00 | 56.70 | 47.04 | 14.70 | 11.80 |
| C | 8655MH3701LF | 40 | 8655MH3711LF | 50 | 55.00 | 45.00 | 72.95 | 63.50 | 14.70 | 11.80 |
| D | 8655MH5001LF | 40 | 8655MH5011LF | 50 | 55.00 | 45.00 | 70.60 | 61.11 | 17.30 | 14.10 |

- Material** : zamack
- Plating** : nickel
- Environment** : frequencies at 100 Mz > 40 dB
- Corrosion resistance** : 50 hours exposure to salt spray

4 • Straight exit metal hood for cable EMI / RFI - Economical series



| Shell size | Part numbers | A | B | C | D | E |
|------------|---------------|------|------|------|-------|------|
| E | 8655MH0901BLF | 38.3 | 47.3 | 31 | 24.99 | 14.6 |
| A | 8655MH1501BLF | 40.5 | 47.3 | 39.5 | 33.32 | 14.6 |
| B | 8655MH2501BLF | 47.3 | 47.3 | 53.2 | 47.04 | 14.6 |
| C | 8655MH3701BLF | 52.2 | 47.3 | 70.9 | 63.5 | 15 |

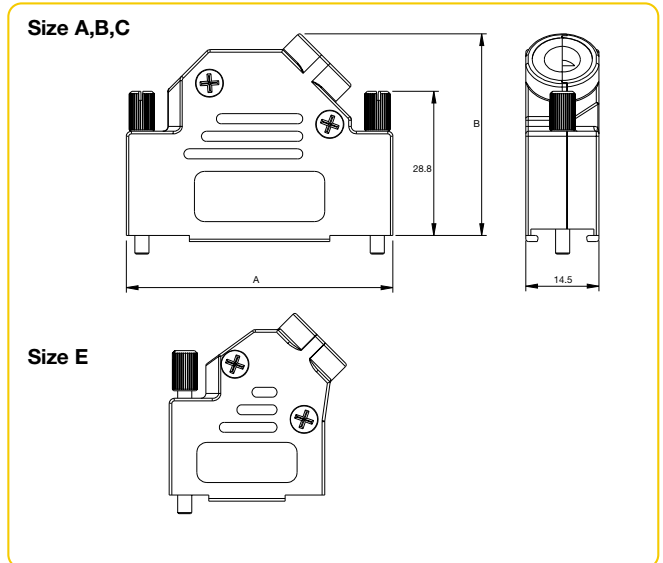
- Material** : zamack, nickel plated
- Cable strain relief** : steel fiber reinforced polycarbonat UL 94V0 for EMI/RFI screening
- Temperature range** : -40°C +120°C
- Environment** : >40 dB between 30 MHz and 1 GHz
- Packaging** : bulk, in box of 100 pieces
- Locking screws** : UNC 4-40 thread

Cable applications

5 • Angle exit metal hood for cable EMI / RFI - Economical series



| Shell size | Part number | A | B | Cable diameter |
|------------|----------------|------|------|----------------|
| E (9) | 8655MHRA0901LF | 31.0 | 36.2 | 4 to 13 mm |
| A (15) | 8655MHRA1501LF | 39.5 | 40.2 | |
| B (25) | 8655MHRA2501LF | 53.2 | 40.2 | |
| C (37) | 8655MHRA3701LF | 69.7 | 40.2 | |
| D (50) | 8655MHRA5001LF | 67.2 | 43.7 | 10 to 16 mm |

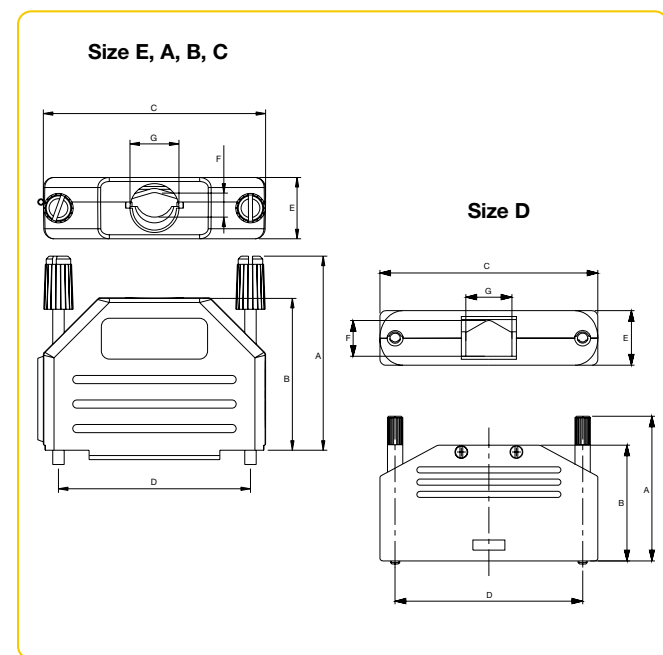


- Material** : zamack, nickel plated
- Cable strain relief** : steel fibre reinforced polycarbonat UL 94V0 for EMI/RFI screening
- Temperature range** : -40°C +120°C
- Environment** : >40 dB between 30 MHz and 1 GHz
- Packaging** : bulk, in box of 100 pieces
- Locking screws** : UNC 4-40 thread

6 • “Snap together” plastic hood



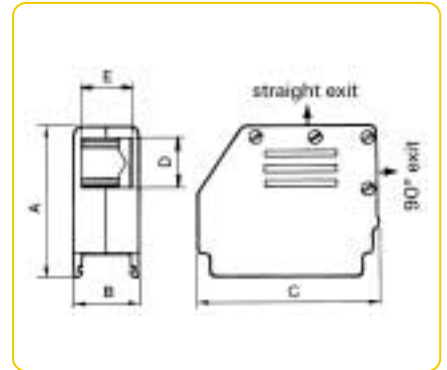
| Shell size | Part number | A | B | C | D | E | with clamp | | without clamp | | |
|------------|-------------|------|------|------|-------|----|------------|------|---------------|----|-----|
| | | | | | | | min | max | F | G | |
| E(9) | 86303637BLF | 47.3 | 31.3 | 32.4 | 24.99 | 15 | 1 | 5.5 | 8.5 | 7 | 8.5 |
| A(15) | 86303638BLF | 47.3 | 30.8 | 40.7 | 33.32 | 15 | 4 | 7 | 12 | 11 | 12 |
| B(25) | 86303639BLF | 47.3 | 37.3 | 54.4 | 47.04 | 15 | 4 | 7 | 12 | 11 | 12 |
| C(37) | 86303640BLF | 47.3 | 36 | 70.9 | 63.5 | 15 | 4 | 7 | 12 | 11 | 12 |
| D(50) | 86303641BLF | 47.3 | 37.8 | 71.2 | 61.11 | 15 | 4.4 | 11.5 | 15.5 | 14 | 18 |



- Material (size E,A,B,C)** : nylon (UL 94V2)
- Material (size D)** : thermoplastic (UL 94V2)
- Colour** : black
- Temperature range** : -40°C +95°C
- Packaging** : individual sets
- Locking screws** : UNC 4-40 thread

Cable applications

7 • Universal plastic hood with metal clamp for strain relief



| Shell size | Part numbers black hood | Part numbers metalised hood | A | B | C | with clamp | | | without clamp | |
|------------|-------------------------|-----------------------------|-------|-------|-------|------------|------|-------|---------------|-------|
| | | | | | | D | E | | D | E |
| | | | | | | | min. | max. | | |
| E | 863093C09ALF | 863093C09MLF | 29.75 | 15.50 | 24.25 | 6 | 1.90 | 10.10 | 8 | 11.50 |
| A | 863093C15ALF | 863093C15MLF | 29.75 | 15.50 | 32.50 | 6 | 1.90 | 10.10 | 8 | 11.50 |
| B | 863093C25ALF | 863093C25MLF | 46.50 | 15.50 | 46.00 | 13.50 | 2.60 | 10.10 | 16 | 11.50 |
| C | 863093C37ALF | 863093C37MLF | 46.50 | 15.50 | 60.50 | 13.50 | 2.60 | 10.10 | 16 | 11.50 |
| D | 863093C50ALF | 863093C50MLF | 48.50 | 18.00 | 56.50 | 15.50 | 4.40 | 12.60 | 18 | 14.00 |

Material (black hood):
self extinguishing UL 94V0 thermoplastic

Material (metalised):
thermoplastic

Temperature range:
-55°C +125°C

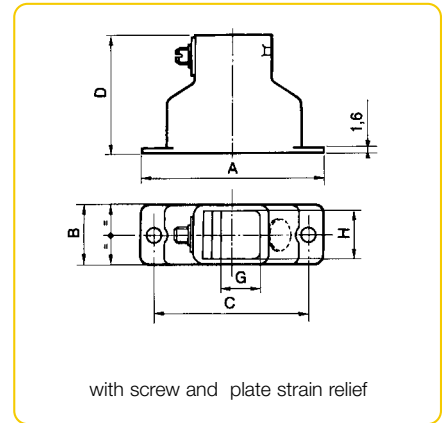
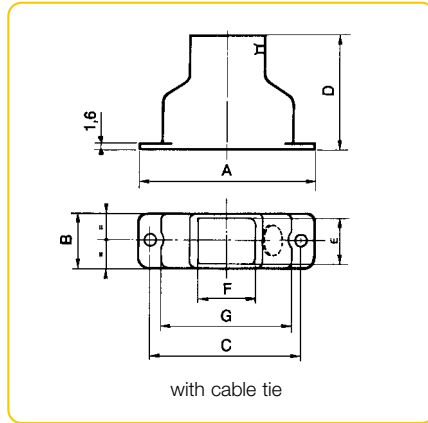
Packaging:
individual sets

All dimensions in mm

Cable applications

MONOBLOC PLASTIC HOODS FOR POTTING

8 • Straight exit



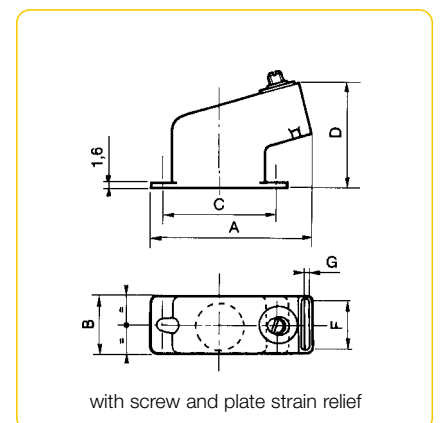
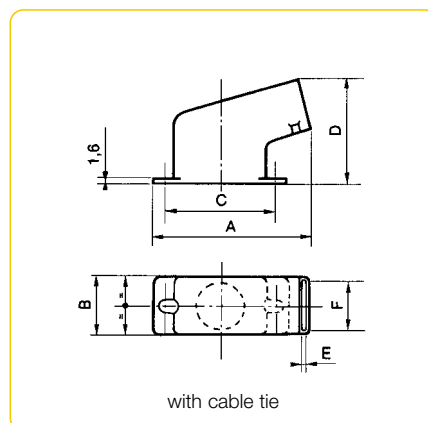
| Shell size | Part numbers | | A | B | C | D | E | F | G min. | G Max. | H |
|------------|---------------------|---------------------------|-------|-------|-------|-------|-------|-------|--------|--------|-------|
| | Hood with cable tie | Hood with screw and plate | | | | | | | | | |
| E | 863086BLF | 86303920ALF | 30.60 | 12.50 | 25.00 | 29.00 | 9.90 | 9.90 | 2.70 | 7.10 | 10.50 |
| A | 863021BLF | 86303921ALF | 38.90 | 12.50 | 33.32 | 29.00 | 9.90 | 11.90 | 4.50 | 9.10 | 10.50 |
| B | 863022BLF | 86303922ALF | 52.80 | 12.50 | 47.05 | 35.00 | 9.90 | 16.40 | 9.20 | 13.60 | 10.50 |
| C | 863023BLF | 86303923ALF | 69.10 | 12.50 | 63.50 | 41.00 | 9.90 | 23.40 | 9.20 | 20.60 | 10.50 |
| D | 863024BLF | 86303924ALF | 66.70 | 15.30 | 61.10 | 41.00 | 12.70 | 23.40 | 9.20 | 20.60 | 13.30 |

Material: self extinguishing UL rated 94 V0 thermoplastic

Temperature range: -55°C to +105°C

Colour: black

9 • Right angle exit



| Shell size | Part numbers | | A | B | C | D | E | F | G min. | G Max. |
|------------|---------------------|---------------------------|-------|-------|-------|-------|-------|-------|--------|--------|
| | Hood with cable tie | Hood with screw and plate | | | | | | | | |
| E | 86305002BLF | 86303925ALF | 30.60 | 12.50 | 25.00 | 26.20 | 10.50 | 10.50 | 2.70 | 7.10 |
| A | 863026BLF | 86303926ALF | 38.90 | 12.50 | 33.32 | 28.60 | 12.50 | 10.50 | 4.50 | 9.10 |
| B | 863027BLF | 86303927ALF | 52.80 | 12.50 | 47.05 | 36.40 | 17.00 | 10.50 | 9.20 | 13.60 |
| C | 863028BLF | 86303928ALF | 69.10 | 12.50 | 63.50 | 42.60 | 24.00 | 10.50 | 9.20 | 20.60 |
| D | 863029BLF | 86303929ALF | 66.70 | 15.30 | 61.10 | 41.60 | 24.00 | 13.30 | 9.20 | 20.60 |

Material: self extinguishing UL rated 94 V0 thermoplastic

Temperature range: -55°C to +105°C

Colour: black

Cable applications

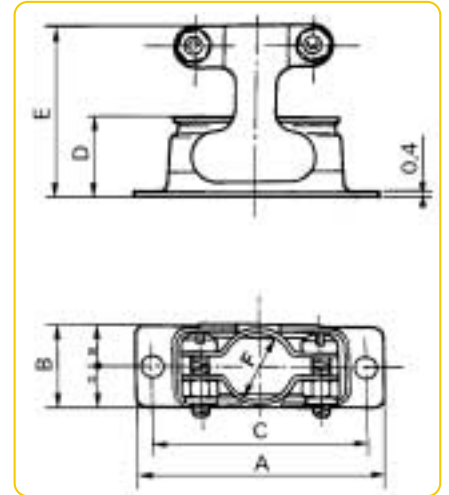
HOOD WITH CABLE CLAMPS

10 • Metal hood with circular clamp and straight exit

Material: Steel

Plating: Yellow chromate cadmium

Corrosion resistance:
50 hours exposure to salt spray



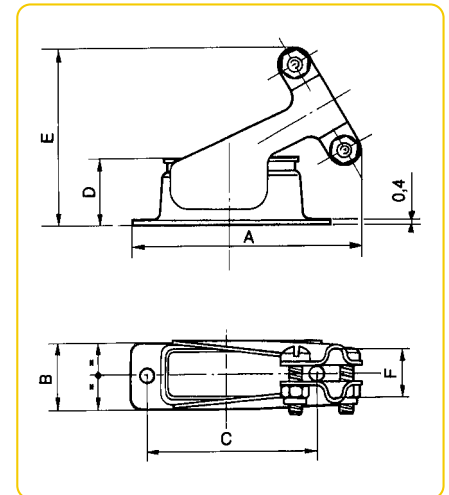
| Shell size | Part numbers | A | B | C | D | E | F |
|------------|--------------|-------|-------|-------|-------|-------|-------|
| E | 863010 | 30.55 | 12.70 | 24.99 | 12.30 | 26.40 | 8.00 |
| A | 863011 | 38.89 | 12.70 | 33.32 | 12.30 | 26.40 | 10.00 |
| B | 863012 | 52.78 | 12.70 | 47.04 | 12.30 | 27.20 | 15.00 |
| C | 863013 | 69.06 | 12.70 | 63.50 | 12.30 | 27.20 | 18.00 |
| D | 863014 | 66.67 | 15.40 | 61.17 | 12.30 | 27.20 | 20.60 |

11 • Metal hood with circular clamp and 30° exit

Material: Steel

Plating: Yellow chromate cadmium

Corrosion resistance:
50 hours exposure to salt spray



| Shell size | Part numbers | A | B | C | D | E | F |
|------------|--------------|-------|-------|-------|-------|-------|-------|
| E | 863016 | 39.00 | 12.70 | 24.99 | 12.30 | 30.60 | 8.00 |
| A | 863017 | 43.10 | 12.70 | 32.32 | 12.30 | 32.50 | 10.00 |
| B | 863018 | 55.40 | 12.70 | 47.04 | 12.30 | 34.50 | 15.05 |
| C | 863019 | 75.30 | 12.70 | 63.50 | 12.30 | 37.50 | 18.00 |
| D | 863020 | 72.80 | 15.40 | 61.11 | 12.30 | 37.60 | 20.60 |

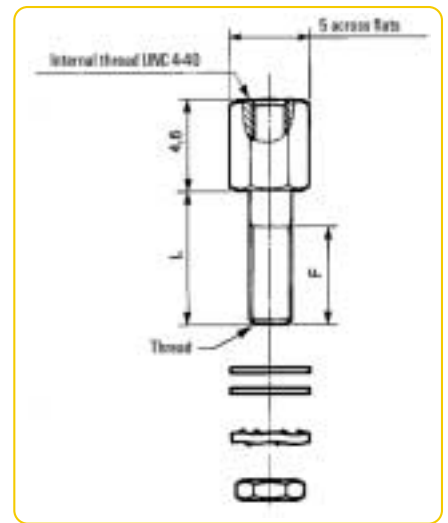
PCB and Cable applications

12 • Female screw locks

| Part numbers | Thread | L Max. | F | Material |
|--------------|----------|--------|-------|----------|
| 863001TLF | M3 | 8.30 | 6.90 | Brass |
| 86552153TLF | M3 | 8.30 | 6.90 | Steel |
| 863001017TLF | M3 | 6.30 | 5.00 | Brass |
| 863001061TLF | M3 | 13.00 | 12.00 | Brass |
| 863001060TLF | UNC 4-40 | 8.30 | 6.90 | Brass |

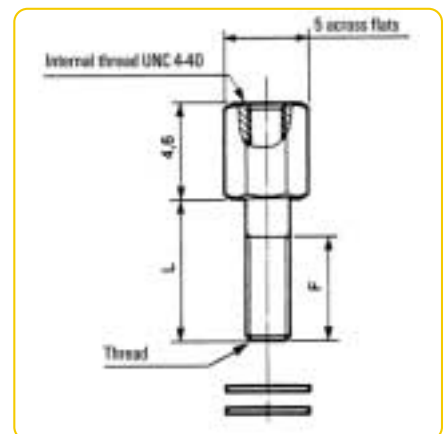
Plating: bright tin

Corrosion resistance: 50 hours exposure to salt spray



13 • Specific female screw locks for Delta D series

| Part numbers | Thread | L Max. | F | Material |
|--------------|----------|--------|-----|----------|
| 863001018TLF | M3 | 4.5 | 3.7 | Steel |
| 863001019TLF | UNC 4.40 | 4.5 | 3.7 | Steel |



TORQUE FORCE

| Material | Torque Max. (Nm) |
|----------|------------------|
| Brass | 0.5 |
| Steel | 0.7 |

14 • Male screw locks

| Shell size | Connector type | Part numbers | |
|------------|----------------|--------------|------------|
| | | | |
| E | Male | 863005ATLF | 863009ATLF |
| | Female | | |
| A | Male | 863005ATLF | 863004ATLF |
| | Female | | |
| B | Male | 863005ATLF | 863009ATLF |
| | Female | | |
| C | Male | 863008ATLF | 863002ATLF |
| | Female | 863005ATLF | |
| D | Male | 863015ATLF | 863025ATLF |
| | Female | 863003ATLF | |

For use with connector without hood or with hood 7
 For use with connector with hoods 10
 For use with connector with hood 8

Material: steel

Plating: bright tin

Corrosion resistance: 50 hours exposure to salt spray

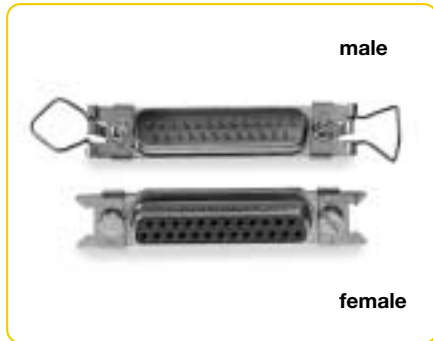
To obtain military plating (yellow chromate cadmium) exclude «TLF» in the part number (ex: 863005A)

Thread: UNC 4-40

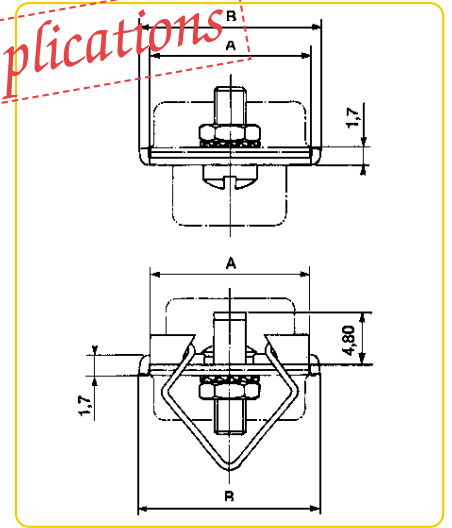


PCB and Cable applications

15 • Lever locks



PCB applications



Material: steel
Plating: passivated

| Shell size | A | B | M3 thread | | UNC 4-40 thread | |
|------------|-------|-------|------------|------------|-----------------|------------|
| | | | Female | Male | Female | Male |
| E, A, B, C | 12.50 | 14.30 | 86303425LF | 86552096LF | 86303425060LF | 86552098LF |
| D | 15.30 | 17.10 | 86303426LF | 86552097LF | 86303426060LF | 86552099LF |

16 • Specific lever locks for straight Delta D series with harpoons

| Shell size | M3 thread | | UNC 4-40 thread | |
|------------|------------|--------------|-----------------|--------------|
| | Female | Male | Female | Male |
| E, A, B, C | 86303425LF | 865520961ALF | 86303425060LF | 865520981ALF |
| D | 86303426LF | 865520971ALF | 86303426060LF | 865520991ALF |

PCB and Cable applications

17 • Metal caps

| Shell size | For use with connectors | Part numbers | Packaging |
|------------|-------------------------|--------------|-----------|
| E | Male | 86553148TLF | 30 |
| | Female | 86553113TLF | 30 |
| | | 86553138TLF* | 30 |
| A | Male | 86553149TLF | 25 |
| | Female | 86553114TLF | 25 |
| | | 86553139TLF* | 25 |
| B | Male | 86553150TLF | 20 |
| | Female | 86553115TLF | 20 |
| | | 86553140TLF* | 20 |
| C | Male | 86553151TLF | 15 |
| | Female | 86553116TLF | 15 |
| | | 86553141TLF* | 15 |
| D | Male | 86553152TLF | 10 |
| | Female | 86553117TLF | 10 |
| | | 86553142TLF* | 10 |



Material: steel

Plating: bright tin

To obtain military plating (yellow chromate cadmium) exclude "TLF" in part number (ex : 86553148A).

* Sealed caps IP 65

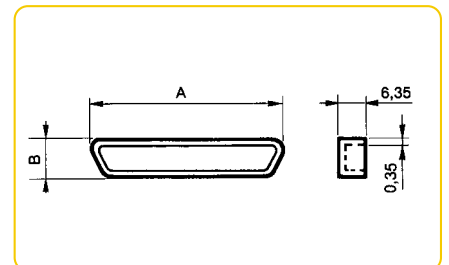
18 • Attaching cord for metal caps

86553156LF (length = 100 mm)

Packaging: individual



19 • Plastic dust cap



| Shell size | For male connector | A | B | For female connector | A | B |
|------------|--------------------|-------|-------|----------------------|-------|-------|
| E | 70518CLF | 19.17 | 10.30 | 70523CLF | 17.77 | 9.00 |
| A | 70519CLF | 27.50 | 10.30 | 70524CLF | 26.10 | 9.00 |
| B | 70520CLF | 41.67 | 10.70 | 70525CLF | 39.82 | 9.00 |
| C | 70521CLF | 58.13 | 10.70 | 70526CLF | 56.28 | 9.00 |
| D | 70522CLF | 55.49 | 13.40 | 70527CLF | 53.89 | 11.85 |

Material: thermoplastic

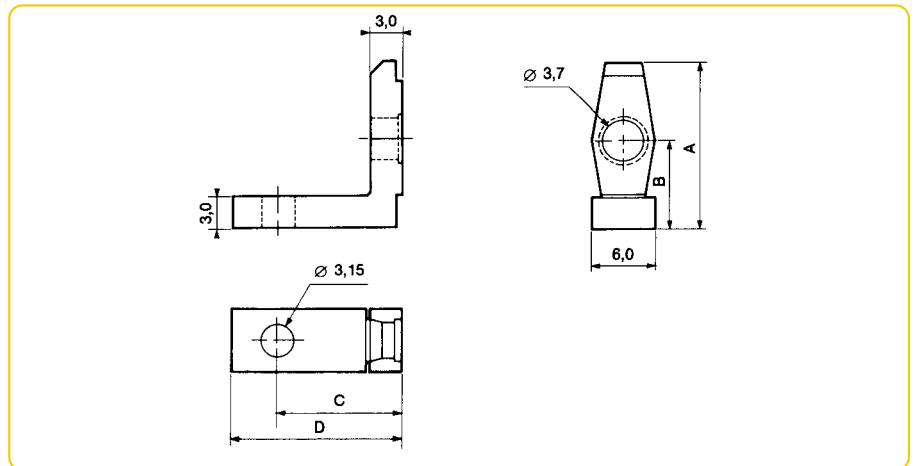
Color: red

Plastic mounting brackets are normally supplied with angled spill D-Sub connectors series D, DP, DM and DMW. However, both plastic and metal brackets can be ordered separately, using the part numbers listed below. These brackets are supplied with a screw and a nut. Order two assemblies for each connector.

20 • Plastic brackets

| Shell size | Part numbers | A | B | C | D |
|------------|--------------|-------|------|-------|-------|
| E, A, B, C | 86303714LF | 13.20 | 7.20 | 10.74 | 13.90 |
| D | 86303715LF | 16.00 | 8.60 | 12.09 | 16.50 |

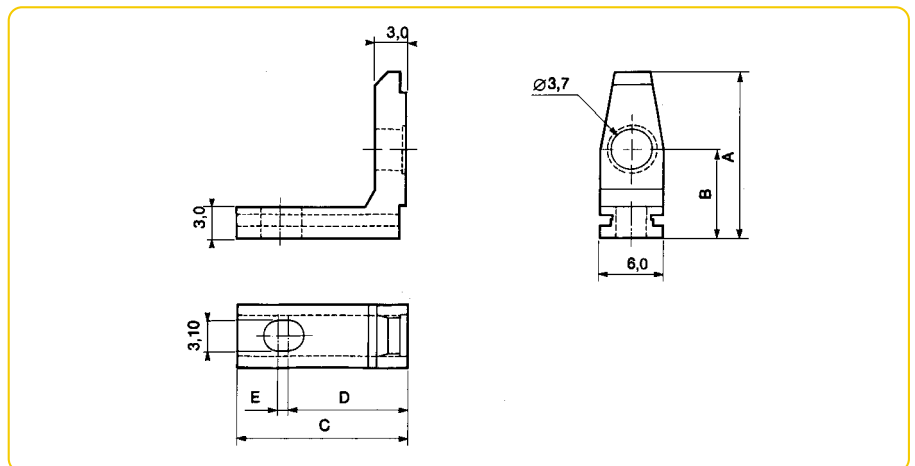
Material: UL rated 94V0 thermoplastic



21 • Plastic brackets with oblong mounting hole to PCB

| Shell size | Part numbers | A | B | C | D | E |
|------------|--------------|-------|------|-------|-------|-----|
| E, A, B, C | 86303612LF | 13.20 | 7.40 | 13.60 | 10.50 | 0.8 |
| D | 86303613LF | 16.15 | 8.80 | 16.50 | 11.60 | 1.0 |

Material: UL 94V0 rated thermoplastic

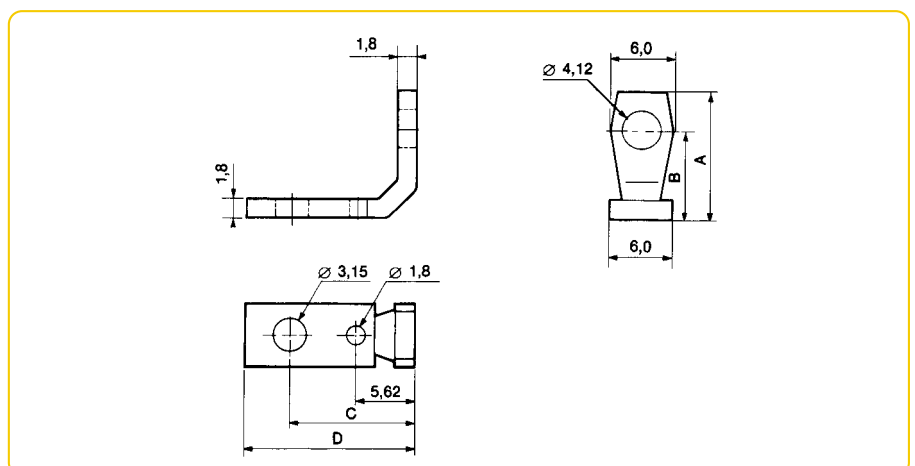


22 • Metal brackets

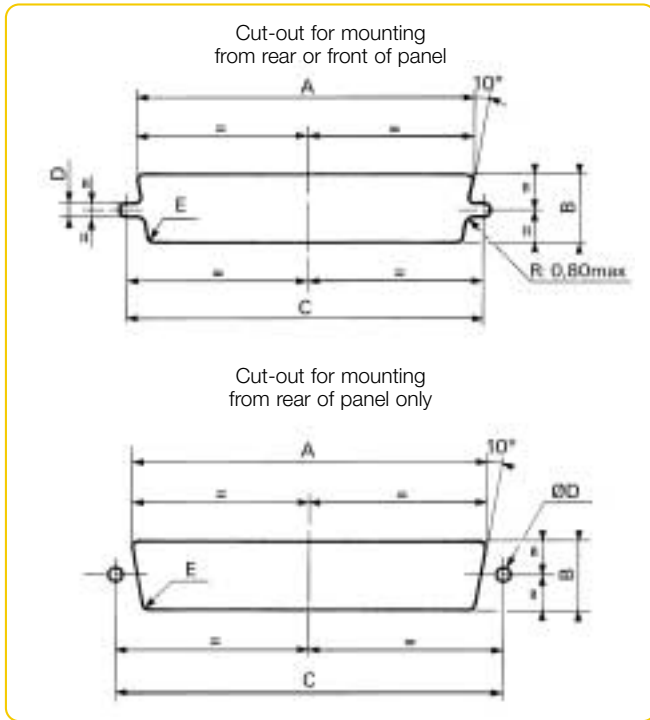
| Shell size | Part numbers | A | B | C | D |
|------------|--------------|-------|------|-------|-------|
| E, A, B, C | 86552008 | 10.55 | 7.20 | 10.74 | 13.90 |
| D | 86552009 | 12.55 | 8.60 | 12.09 | 16.50 |

Material: steel

Platium: yellow chromate cadmium



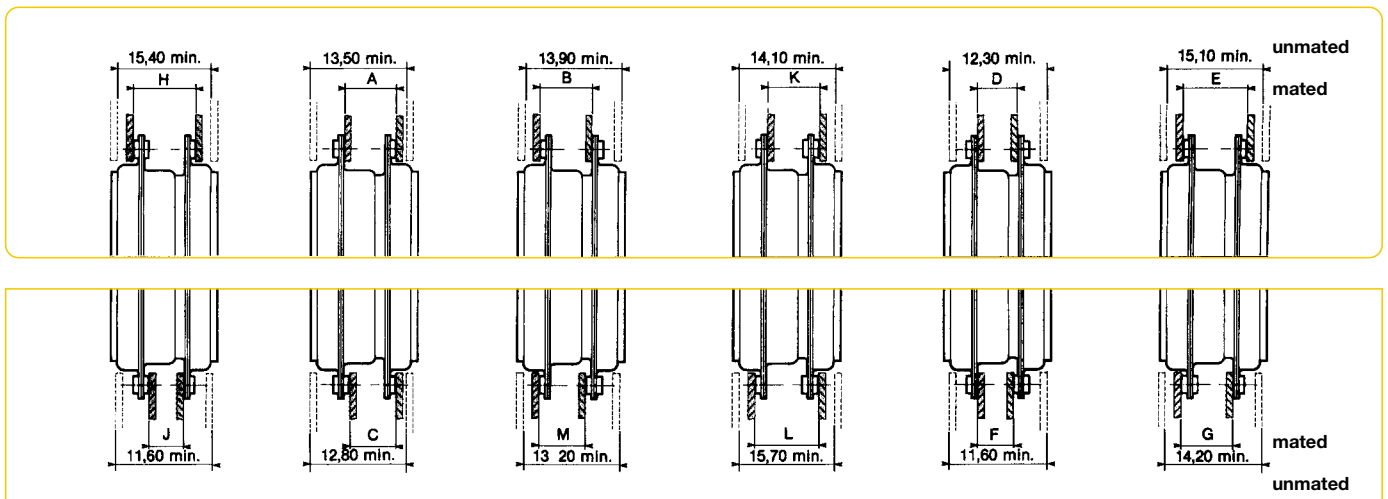
PANEL CUT-OUT



| Shell size | Type of mounting | Mounting position | A ^{±0.2} | B ^{±0.2} | C ^{±0.2} | D ^{±0.01} | E ^{±0.1} |
|------------|------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|
| E | rigid | front | 22.20 | 13.00 | 25.00 | 3.00 | 2.10 |
| | | rear | 20.50 | 11.40 | 25.00 | 3.00 | 3.30 |
| | float | front | 23.00 | 13.80 | 25.00 | 2.20 | 2.10 |
| | | rear | 21.30 | 12.20 | 25.00 | 2.20 | 3.30 |
| A | rigid | front | 30.50 | 13.00 | 33.30 | 3.00 | 2.10 |
| | | rear | 28.80 | 11.40 | 33.30 | 3.00 | 3.30 |
| | float | front | 31.30 | 13.80 | 33.30 | 2.20 | 2.10 |
| | | rear | 29.60 | 12.20 | 33.30 | 2.20 | 3.30 |
| B | rigid | front | 44.30 | 13.00 | 47.00 | 3.00 | 2.10 |
| | | rear | 42.50 | 11.40 | 47.00 | 3.00 | 3.30 |
| | float | front | 45.10 | 13.80 | 47.00 | 2.20 | 2.10 |
| | | rear | 43.30 | 12.20 | 47.00 | 2.20 | 3.30 |
| C | rigid | front | 60.70 | 13.00 | 63.50 | 3.00 | 2.10 |
| | | rear | 59.10 | 11.40 | 63.50 | 3.00 | 3.30 |
| | float | front | 61.50 | 13.80 | 63.50 | 2.20 | 2.10 |
| | | rear | 59.80 | 12.20 | 63.50 | 2.20 | 3.30 |
| D | rigid | front | 58.30 | 15.80 | 61.50 | 3.00 | 2.10 |
| | | rear | 56.30 | 14.10 | 61.50 | 3.00 | 3.30 |
| | float | front | 59.20 | 16.60 | 61.50 | 2.20 | 2.10 |
| | | rear | 57.20 | 14.90 | 61.50 | 2.20 | 3.30 |

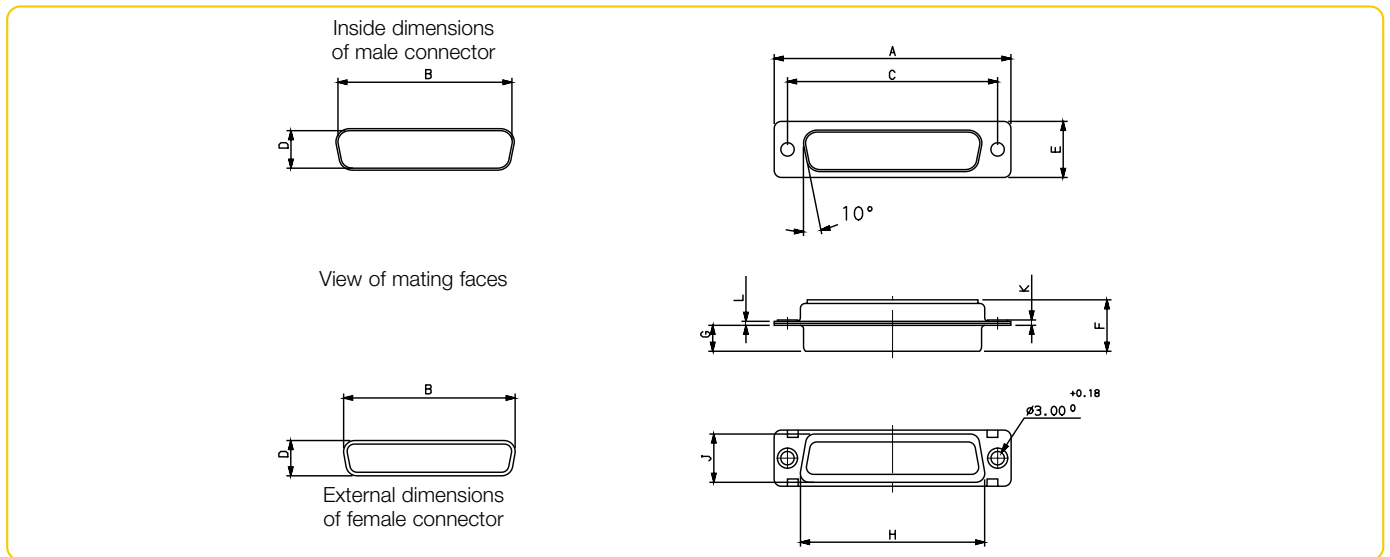
PANEL MOUNTING

It is recommended that only **one of a pair** of connectors should be float mounted. Rigid mounted connectors require 2 screws Ø 3mm, float mounting connectors require 2 screws Ø 2 mm.



| Shell size | A ^{+0.6} ₋₀ | B ^{+0.6} ₋₀ | C ^{+0.6} ₋₀ | D ^{+0.6} ₋₀ | E ^{+0.6} ₋₀ | F ^{+0.6} ₋₀ | G ^{+0.6} ₋₀ | H ^{+0.6} ₋₀ | J ^{+0.6} ₋₀ | K ^{+0.6} ₋₀ | L ^{+0.6} ₋₀ | M ^{+0.6} ₋₀ |
|------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| E | 7.65 | 7.65 | 6.85 | 6.45 | 8.85 | 5.65 | 8.25 | 9.45 | 5.65 | 8.25 | 9.45 | 6.85 |
| A | 7.65 | 7.65 | 6.85 | 6.45 | 8.85 | 5.65 | 8.25 | 9.45 | 5.65 | 8.25 | 9.45 | 6.85 |
| B | 7.55 | 7.55 | 6.75 | 6.35 | 8.85 | 5.55 | 8.15 | 9.35 | 5.55 | 8.15 | 9.35 | 6.75 |
| C | 7.55 | 7.95 | 6.75 | 6.35 | 9.15 | 5.55 | 8.35 | 9.55 | 5.55 | 8.15 | 9.75 | 7.15 |
| D | 7.55 | 7.95 | 6.75 | 6.35 | 9.15 | 5.55 | 8.35 | 9.55 | 5.55 | 8.15 | 9.75 | 7.15 |

SHELL DIMENSIONS



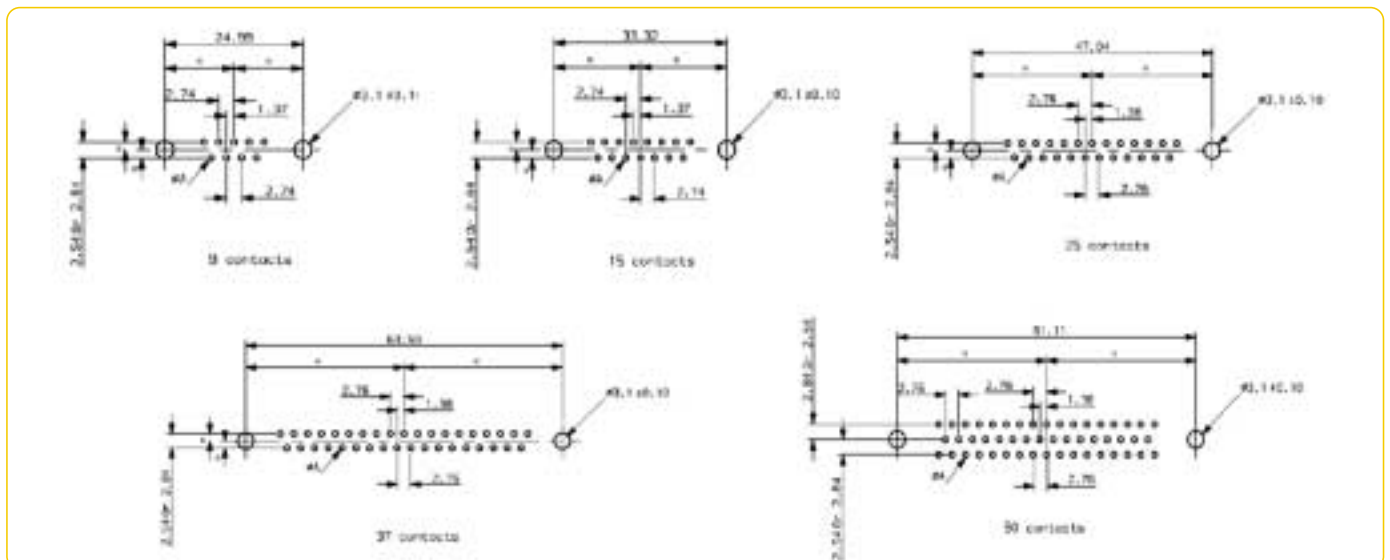
| | | A± 0.38 | B± 0.13 | C± 0.13 | D± 0.13 | E± 0.38 | F Max. | G ^{+0.25} ₋₀ | H± 0.25 | J± 0.25 | K Max. | L± 0.12 |
|---|---|---------|---------|---------|---------|---------|--------|----------------------------------|---------|---------|--------|---------|
| E | P | 30.81 | 16.91 | 24.99 | 8.35 | 12.55 | 10.99 | 5.85 | 19.27 | 10.71 | 1.50 | 0.90 |
| | S | 30.81 | 16.33 | 24.99 | 7.89 | 12.55 | 11.21 | 6.05 | 19.27 | 10.71 | 1.50 | 0.90 |
| A | P | 39.14 | 25.24 | 33.32 | 8.35 | 12.55 | 10.99 | 5.85 | 27.50 | 10.71 | 1.50 | 0.90 |
| | S | 39.14 | 24.66 | 33.32 | 7.89 | 12.55 | 11.21 | 6.05 | 27.50 | 10.71 | 1.50 | 0.90 |
| B | P | 53.03 | 38.96 | 47.04 | 8.35 | 12.55 | 11.07 | 5.75 | 41.27 | 10.71 | 1.50 | 0.90 |
| | S | 53.03 | 38.37 | 47.04 | 7.89 | 12.55 | 11.21 | 6.05 | 41.27 | 10.71 | 1.50 | 0.90 |
| C | P | 69.32 | 55.42 | 63.50 | 8.35 | 12.55 | 11.09 | 5.75 | 57.70 | 10.71 | 1.50 | 1.00 |
| | S | 69.32 | 54.83 | 63.50 | 7.89 | 12.55 | 11.21 | 6.05 | 57.70 | 10.71 | 1.50 | 0.90 |
| D | P | 66.93 | 52.80 | 61.11 | 11.20 | 15.37 | 11.09 | 5.75 | 55.32 | 13.56 | 1.70 | 1.00 |
| | S | 66.93 | 52.42 | 61.11 | 10.74 | 15.37 | 11.21 | 6.05 | 55.32 | 13.56 | 1.50 | 0.90 |

PC CARD DRILLING DIMENSIONS (mm)

(for solder versions)

Note: ϕ A= 0.8 min. for D, DP

Note: ϕ A= 0.9 min. for Delta D, Compact D, HE501, HE507, HE508 and DP US footprint



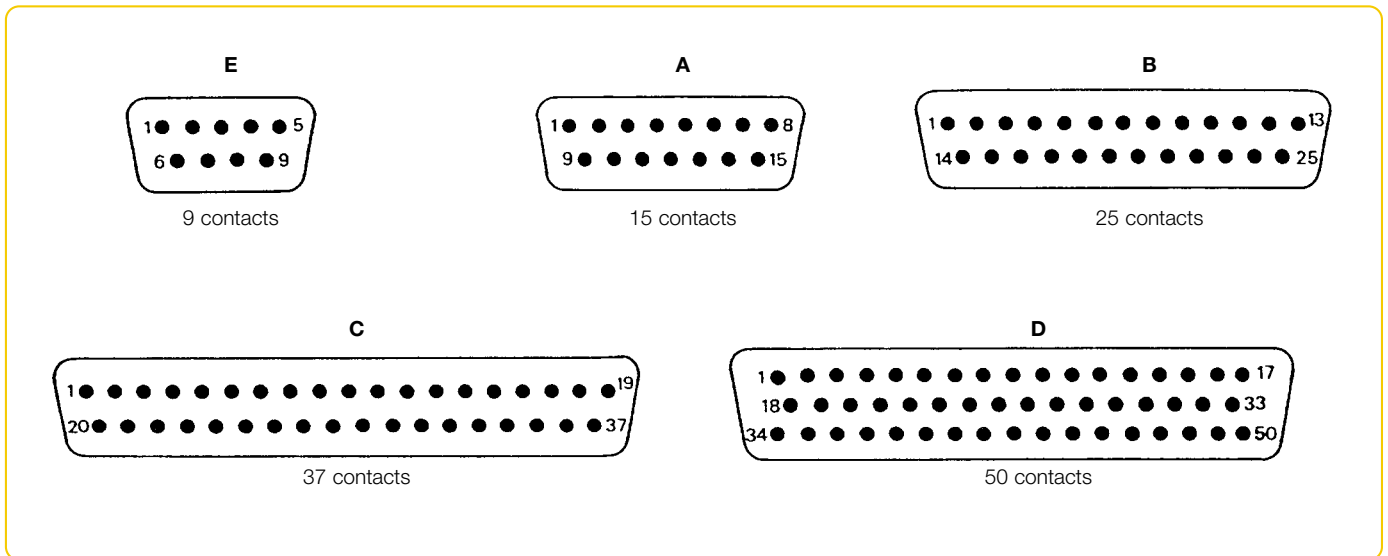
Note: pitch between row= 2.84 for straight spills

LAYOUTS

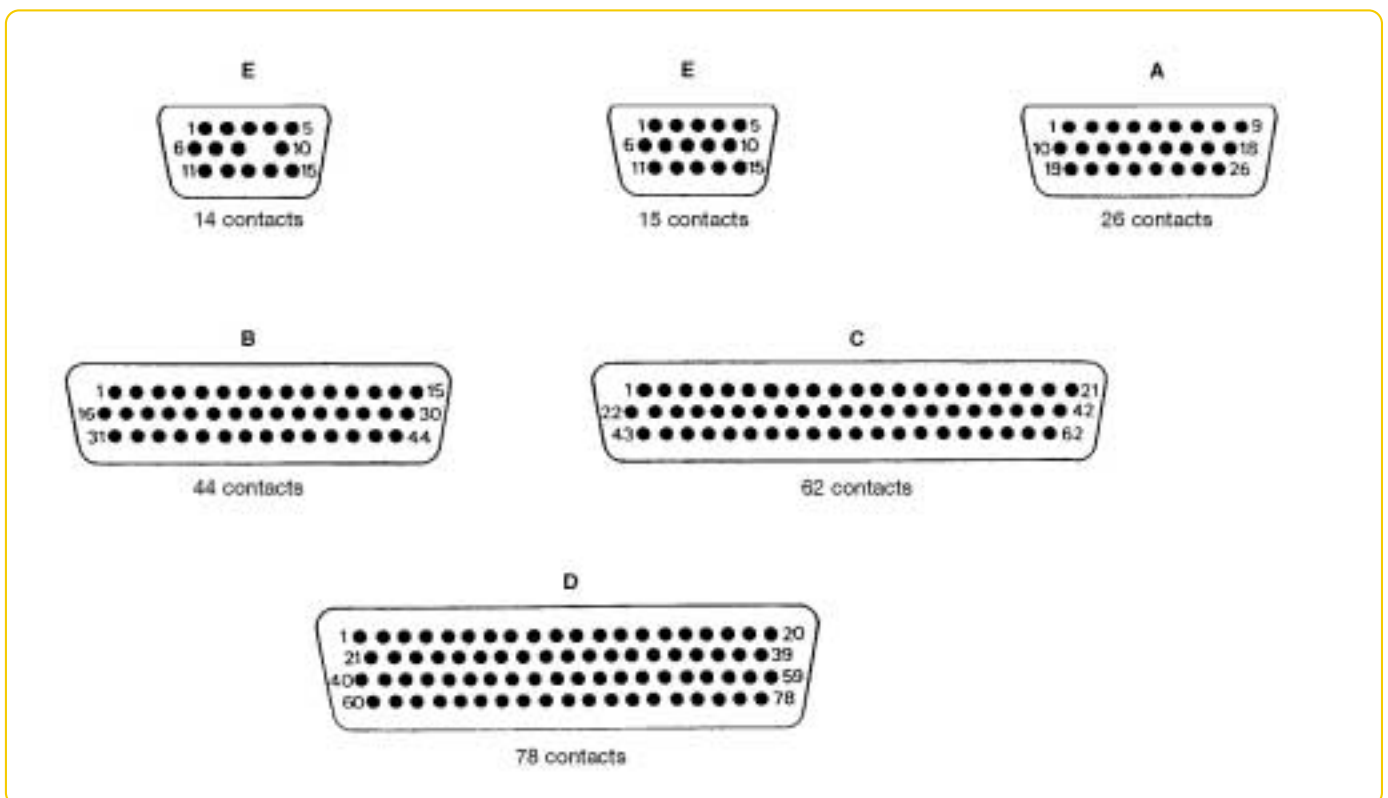
Male insulator front view

Contacts are individually numbered on both sides of the insulator.

Standard density connectors

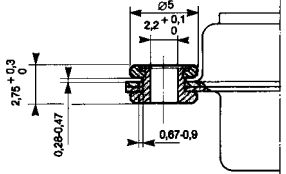

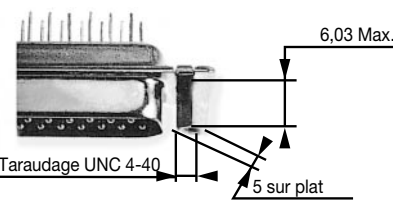
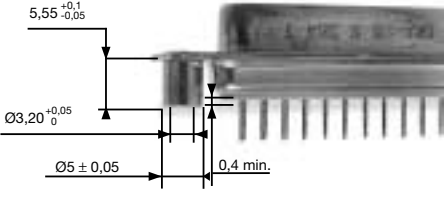


High density connectors (Compact D)


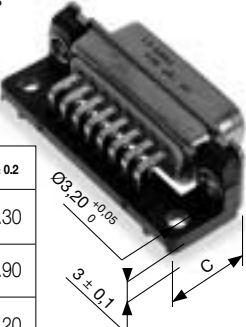
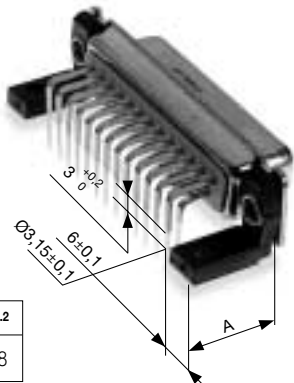
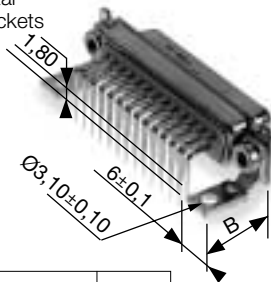

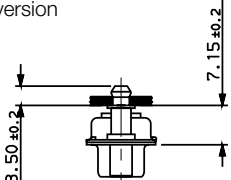
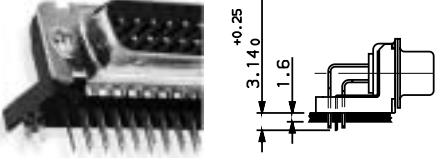

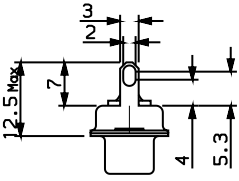


MOUNTING OPTIONS for D, DP, DW, DM, DMW, 8656, 8657 series (dimensions in mm)

Options 1

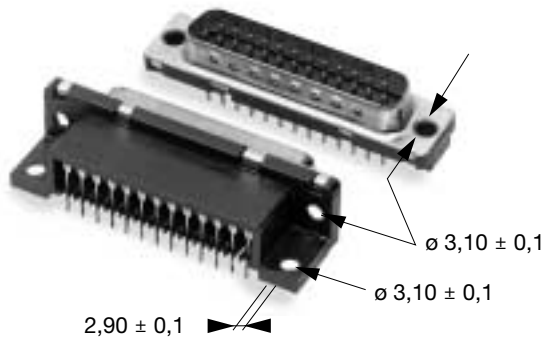
| | |
|---|---|
| <p>F Float mounting (only military series)</p>  | <p>L Threaded insert M3 O Threaded insert UNC 4-40</p>  |
| <p>V Female screw lock UNC 4-40</p>  | <p>S Spacers riveted to shell</p>  |

Options 2

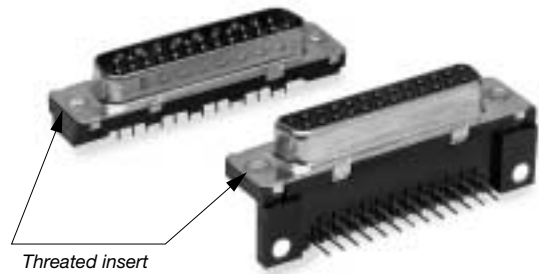
| <p>C Without bracket</p>  | <p>Blank For DM and DMW series connectors are delivered with monobloc plastic bracket P For DW series</p>  <table border="1"> <thead> <tr> <th>Termination</th> <th>C ± 0.2</th> </tr> </thead> <tbody> <tr> <td rowspan="2">5</td> <td>9 to 37 contacts</td> <td>15.30</td> </tr> <tr> <td>50 contacts</td> <td>17.90</td> </tr> <tr> <td rowspan="2">9 (US standard)</td> <td>9 to 37 contacts</td> <td>13.20</td> </tr> <tr> <td>50 contacts</td> <td>15.70</td> </tr> </tbody> </table> <p>Bracket thickness = 3^{-0.1}</p> | Termination | C ± 0.2 | 5 | 9 to 37 contacts | 15.30 | 50 contacts | 17.90 | 9 (US standard) | 9 to 37 contacts | 13.20 | 50 contacts | 15.70 | <p>Blank For DP series connectors are delivered with 2 separate plastic brackets (except for layout 50 with monobloc bracket)</p>  <table border="1"> <thead> <tr> <th>Layout</th> <th>A ± 0.2</th> </tr> </thead> <tbody> <tr> <td>9 to 37 contacts</td> <td>14.8</td> </tr> </tbody> </table> | Layout | A ± 0.2 | 9 to 37 contacts | 14.8 |
|--|---|-------------|--------------|------------------|------------------|-------------|-------------|-----------------|------------------|------------------|-------------|-------------|--|---|--------|---------|------------------|------|
| Termination | C ± 0.2 | | | | | | | | | | | | | | | | | |
| 5 | 9 to 37 contacts | 15.30 | | | | | | | | | | | | | | | | |
| | 50 contacts | 17.90 | | | | | | | | | | | | | | | | |
| 9 (US standard) | 9 to 37 contacts | 13.20 | | | | | | | | | | | | | | | | |
| | 50 contacts | 15.70 | | | | | | | | | | | | | | | | |
| Layout | A ± 0.2 | | | | | | | | | | | | | | | | | |
| 9 to 37 contacts | 14.8 | | | | | | | | | | | | | | | | | |
| <p>M Metal brackets</p>  <table border="1"> <thead> <tr> <th>Termination</th> <th>B ± 0.2</th> </tr> </thead> <tbody> <tr> <td rowspan="2">5, 8, 14, 18</td> <td>9 to 37 contacts</td> <td>14.80</td> </tr> <tr> <td>50 contacts</td> <td>17.40</td> </tr> <tr> <td rowspan="2">9 (US standard)</td> <td>9 to 37 contacts</td> <td>13.19</td> </tr> <tr> <td>50 contacts</td> <td>15.99</td> </tr> </tbody> </table> | Termination | B ± 0.2 | 5, 8, 14, 18 | 9 to 37 contacts | 14.80 | 50 contacts | 17.40 | 9 (US standard) | 9 to 37 contacts | 13.19 | 50 contacts | 15.99 | <p>U Monobloc plastic bracket with metal plate for electrical continuity (dim. same as above)</p>  | <p>G Harpoon with electrical continuity For DM and DP series available in angled version only For PCB thickness of 1.6 Metallized hole ø 3.1^{+0.12}</p> <p>straight version</p>  <p>angled version</p>  <p>except 50 way</p> | | | | |
| Termination | B ± 0.2 | | | | | | | | | | | | | | | | | |
| 5, 8, 14, 18 | 9 to 37 contacts | 14.80 | | | | | | | | | | | | | | | | |
| | 50 contacts | 17.40 | | | | | | | | | | | | | | | | |
| 9 (US standard) | 9 to 37 contacts | 13.19 | | | | | | | | | | | | | | | | |
| | 50 contacts | 15.99 | | | | | | | | | | | | | | | | |
| <p>H Shielding fingers for solder D series (not available on 50 way)</p>  |  | | | | | | | | | | | | | | | | | |

MOUNTING OPTIONS for DELTA D and COMPACT D series

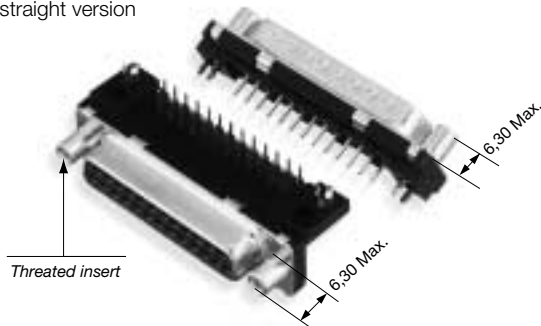
PA Standard hole without hardware



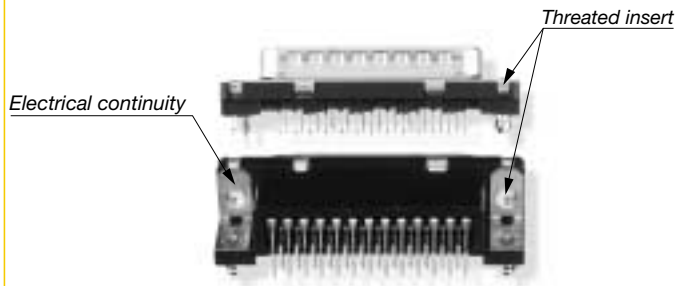
PL With threaded insert M3
PX With threaded insert UNC 4-40
PV With female screw UNC 4-40 (not represented)



GV Harpoons + Female screw UNC 4-40 + Electrical continuity through metal strip for angled version and monobloc hardware for straight version
GI Harpoons + Female screw M3 + Electrical continuity through metal strip for angled version and monobloc hardware for straight version



GL Thread M3
GX Thread UNC 4-40
 Harpoons + Insert + Electrical continuity through metal strip for angled version and monobloc hardware for straight version

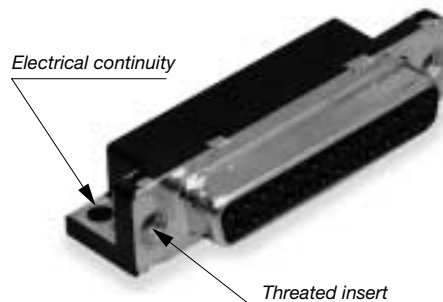


PCB thickness: 1,6 mm/Metallized toles $\varnothing 3,1^{+0,1}$

UV Female screw UNC 4-40 + Electrical continuity through metal strip



UL Insert M3 + Electrical continuity through metal strip
UX Insert UNC 4-40 + Electrical continuity through metal strip
UA Electrical continuity through metal strip



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