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 !**

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Nota: All dimensions in mm

PCB APPLICATIONS

Standard applications

Pages

Signal standard density

Right angle
- Solder to board: Delta D 8
- Press-fit: Delta D 10
- Pin-in-Paste: Delta D 12

Straight
- Solder to board: Delta D 14
- Press-fit: Delta D 16
- Pin-in-Paste: Delta D 18

D series also available (Design with two shells) ... 42

Signal high density
- Solder to board 20
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Power

Right angle
- Solder to board - Full & mixed power:
  Delta D 28
  DW series 29
- Press-fit - Full power: DW series 31

Straight
- Solder to board - Full & mixed power:
  DW series 29
- Press-fit - Full power 31

Demanding applications : machined signal contacts

Signal
- Right angle solder to board: DP series
- Wire-wrap: DP series
- Straight solder to board: DP series 48

Severe environment applications

Signal

HE 501 compliant standard
- Right angle: DM series
- Straight: DM series 50

HE 508 compliant high temperature
- Right angle: DM series
- Straight: DM series 52

Power

HE 507 compliant
- Right angle: DMW series
- Straight: DMW series 54

CABLE APPLICATIONS

Standard applications

Pages

Signal

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Power

- Solder bucket — DW series 33
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Demanding applications : machined signal contacts

Signal

- Solder bucket — DP series 48

ACCESSORIES

Hoods

- Plastic
- Metalised
- Metalic
- Others hoods

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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 termination area	Gold over Nickel Tin over Nickel	Gold over Nickel Tin over Nickel	Gold over Nickel Tin over Nickel	Gold over Nickel Tin over Nickel	Gold over Nickel Tin over Nickel	Gold 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
Dieletric withstanding voltage (DWV)	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

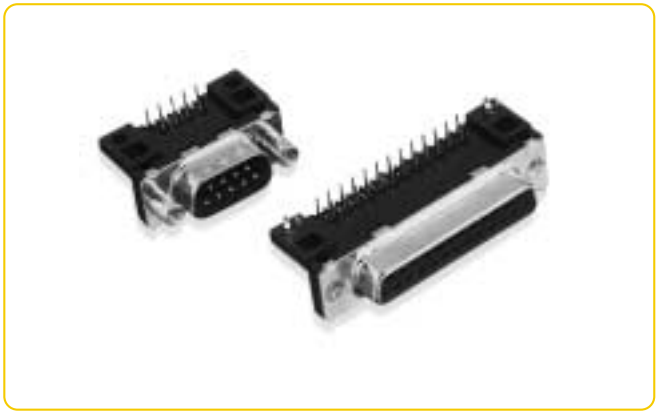
D-Sub - Technical Characteristics

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 termination area	Gold over Nickel Tin over Nickel	Gold over Nickel Tin over Nickel	Gold over Nickel Tin over Nickel	Gold over Nickel Tin/Gold over Nickel	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)
Dieletric withstanding voltage (DWV)	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 Recognized File E 118235 (R)

In compliance with DIN 41652.



ORDERING INFORMATION

D	25	P	13A	4	GV	00LF

Series: **D**

Number of contacts: **09 - 15 - 25 - 37**

Contacts: **P** : Pin, **S** : Socket

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
00LF : Standard series, RoHS compatible

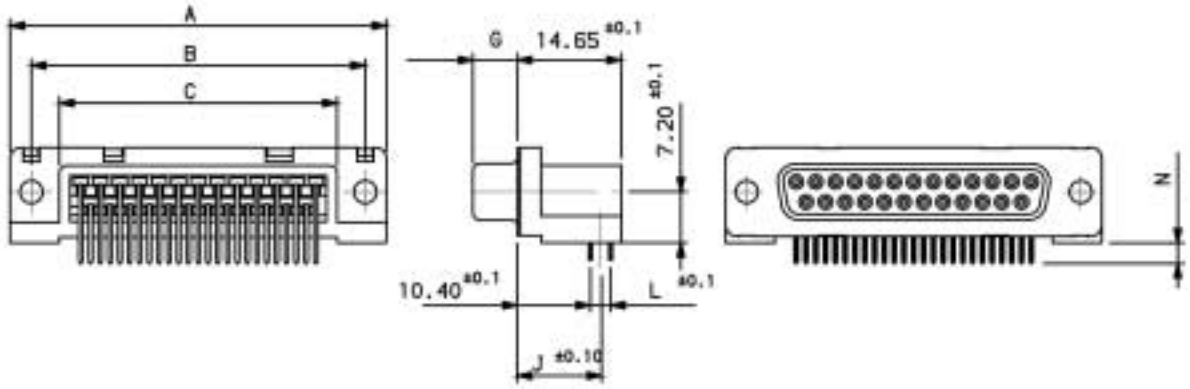
Technical characteristics – page 6

☺ Preferred option

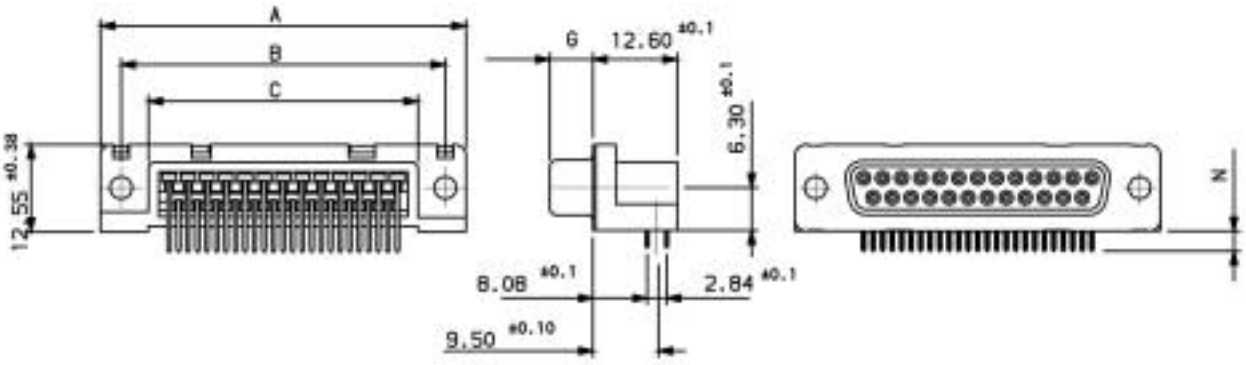
PCB applications

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:

	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

Technical characteristics – page 6

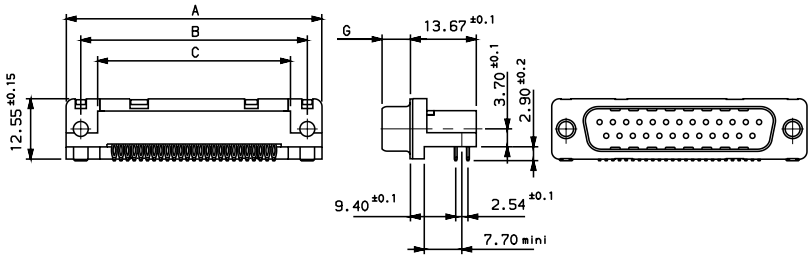
☺ Preferred option

PCB applications

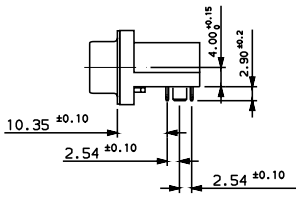
SPECIFIC DIMENSIONS

EUROSTYLE (82 C)

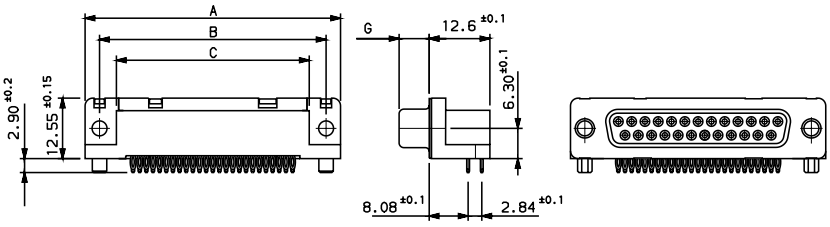
9 to 37 way



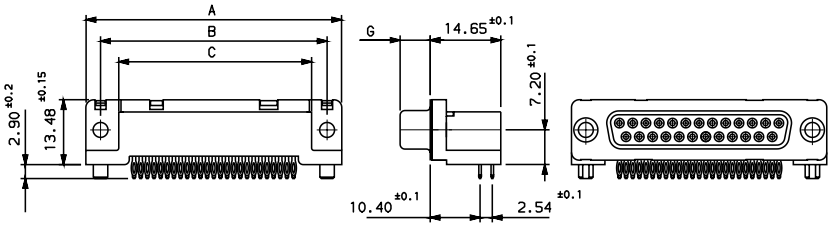
50 way



US STANDARD (80 C)



EUROPE STANDARD (81 C)



		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.

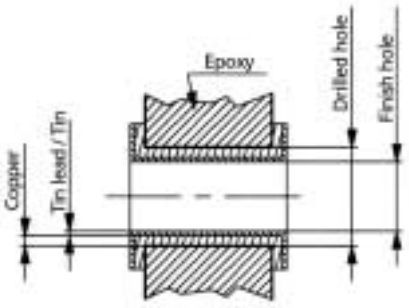
PRESS-FIT FEATURES

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)		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)
	non RoHS	Tin-lead plating	15 µm max (recommended 5 µ min)	15 µm max (recommended 5 µ min)
	non RoHS	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
	RoHS	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

DELTA D - Right angle Pin-in-Paste

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:

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

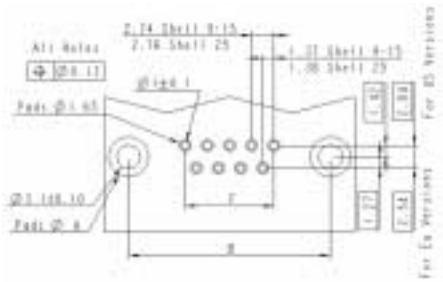
Mounting options:
RL : Insert M3 + metal peg + electrical continuity
RX : Insert UNC 4-40 + metal peg + electrical continuity
RV : Female screw UNC 4-40 + metal peg + electrical continuity

Packaging:
09 : Tray for manual positionning
12 : Tape and Reel for automatic pick and place

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

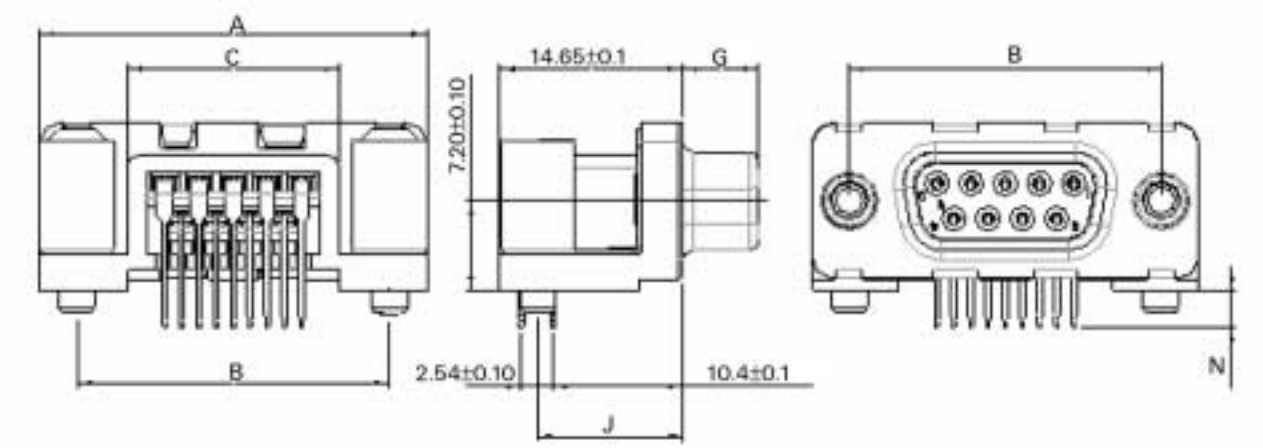


TECHNICAL FEATURES

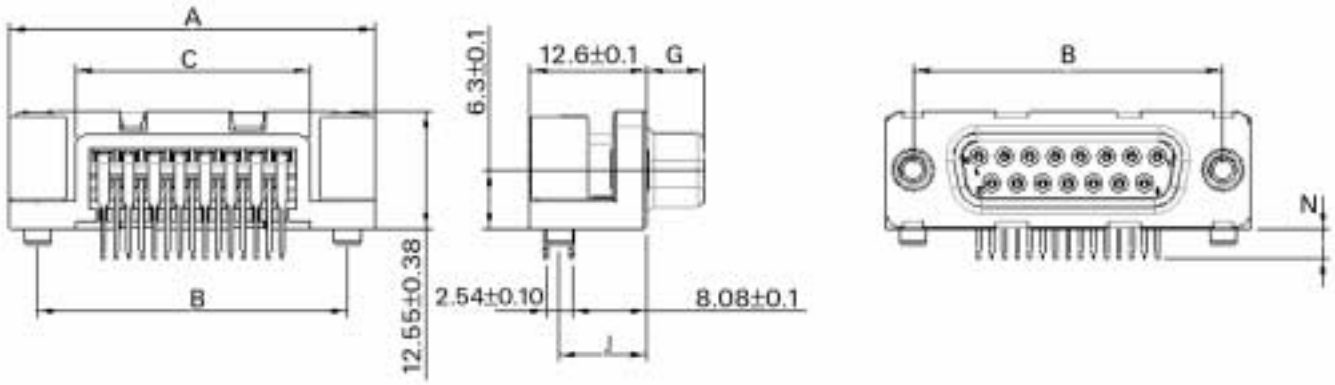
MATERIALS	Shell: Steel, nickel plated Housing: Thermoplastic HT UL94VO Contacts: Copper Alloy - Active part: Gold over nickel - Termination: Matt Tin over nickel Accessories: Brass - Front accessories: Nickel - Metal pegs: Tin over nickel
OPERATING TEMPERATURE RANGE	-55° to 125°C
REFERENCE INFORMATION	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

PCB applications

EUROPE standard



US standard



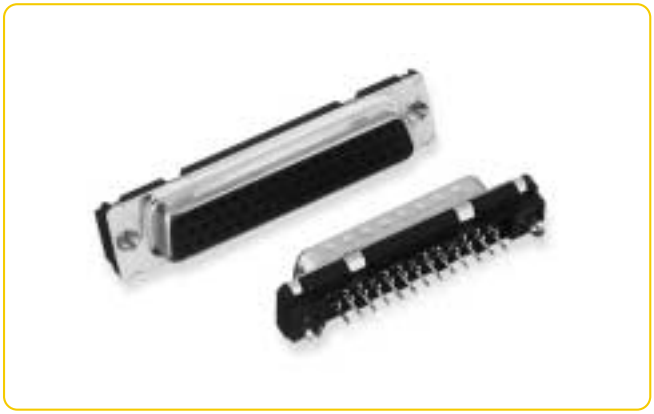
Dimensions

		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

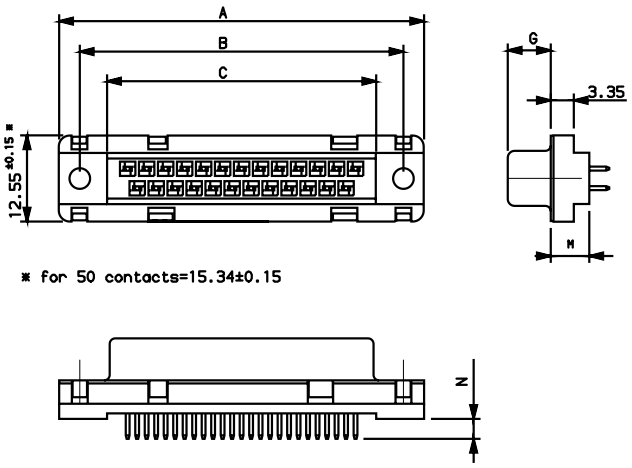
Other options:
00LF : Standard series, RoHS compatible

Technical characteristics – page 6

☺ Preferred option

PCB applications

SPECIFIC DIMENSIONS



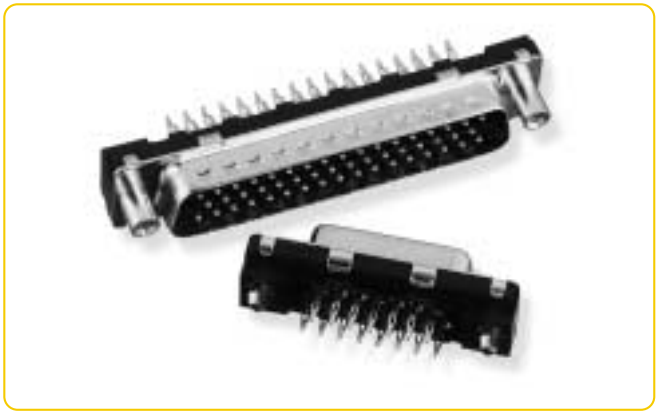
		A ±0.38	B ±0.12	C ±0.10	G +0.25 -0	M ±0.10			N ±0.30	
						Terminal			Terminal length	
						14	24	34	14 A 24 A 34 A	24 B
9	P	30.81	24.99	16.96	5.90 +0.15 -0	5.60	6.00	6.90	2.90	3.70
	S	30.81	24.99	16.96	6.05	5.60	6.00	6.90	2.90	3.70
15	P	39.14	33.32	25.18	5.90 +0.15 -0	5.60	6.00	6.90	2.90	3.70
	S	39.14	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

D	25	P	91C	4	PA	00LF

Series:
D

Number of contacts:
09 - 15 - 25 - 37 - 50

Contacts:
P : Pin
S : Socket

Termination type:
☺ **91C : Press-fit for all 3 PCB thickness :**
(1.6 mm ; 2.4 mm ; 3.2 mm and more) - Europe standard

90C : Press-fit for all 3 PCB thickness :
(1.6 mm ; 2.4 mm ; 3.2 mm and more) - Low profile

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 + elec. continuity
GX	Harpoons + insert UNC 4-40 + elec. continuity
GV	Harpoons + Female screw UNC 4-40 + elec. continuity

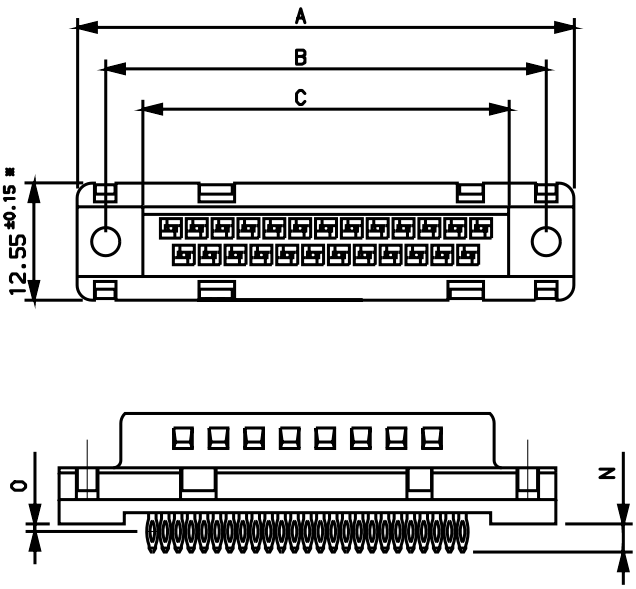
Other options:
00 : Standard series, non RoHS compatible
☺ **00LF : Standard series, RoHS compatible**

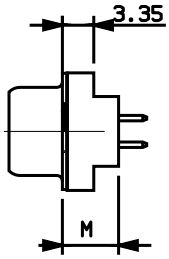
Technical characteristics – page 6

☺ Preferred option

PCB applications

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

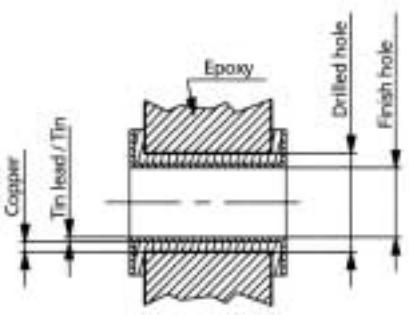
PRESS-FIT FEATURES

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

Metallized hole dimensions

			Press-fit contacts	Press-fit harpoons
P.C.B. hole definition (note 1 and 2)		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)
	non RoHS	Tin-lead plating	15 µm max (recommended 5 µ min)	15 µm max (recommended 5 µ min)
	non RoHS	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
	RoHS	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

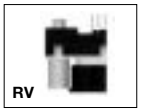
Contacts:
P : Pin
S : Socket

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

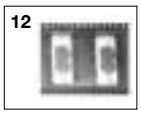
Durability:
6 : High performance class (> 500 mating/unmating)

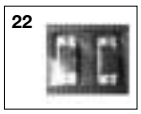
Mounting options:
RL : Insert M3 + metal peg + electrical continuity
RX : Insert UNC 4-40 + metal peg + electrical continuity
RV : Female screw UNC 4-40 + metal peg + electrical continuity



RoHS status:
LF : RoHS compatible EU directive 2002/95/EC

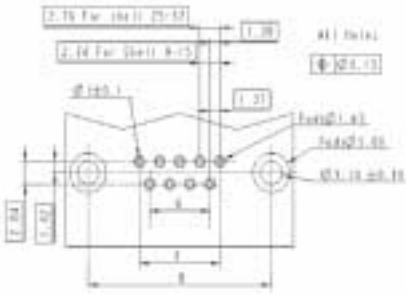
Packaging:
09 : Tray for manual positionning
12 : Tape and Reel for automatic pick and place and gripper device (not available in 37 and 50 ways)
22 : Tape and Reel and pick-up cap for vacuum nozzle device (not available in 37 and 50 ways)

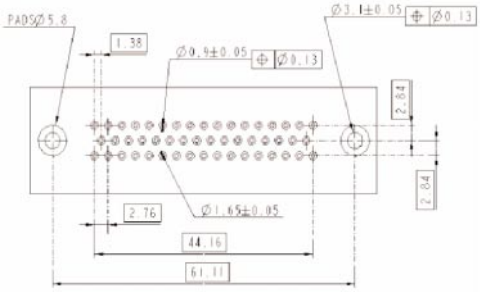




RECOMMENDED LAYOUTS AND PAD DIMENSIONS

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



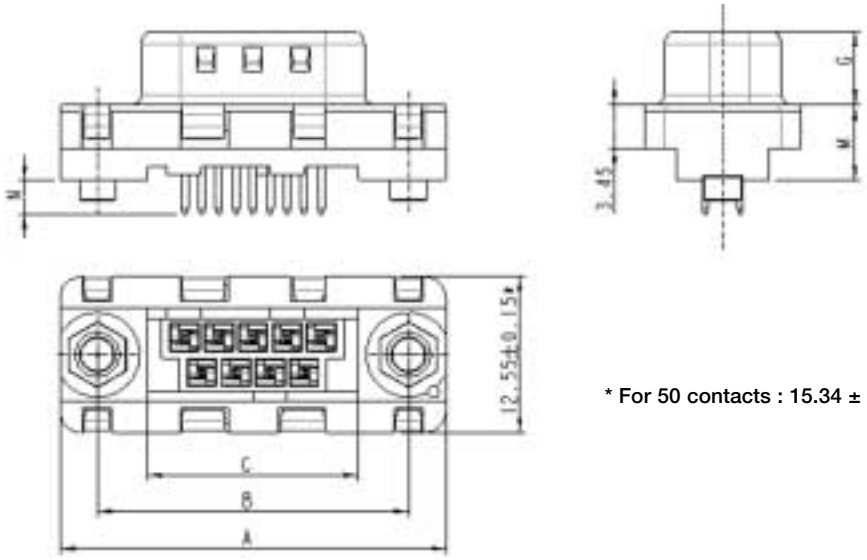


TECHNICAL FEATURES

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

PCB applications

SPECIFIC DIMENSIONS



* For 50 contacts : 15.34 ± 0.15

Dimensions

		A ±0,38	B ±0,12	C ±0,10	G -0/+0,25	M ±0,10	N ±0,30	
							Termination lenght	
							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

ICD	14	S	13E	6	GX	00LF

Series:
ICD

Number of contacts:
14 - 15 - 26 - 44 - 62 -78

Contacts:
S : female

Termination:
☺ **13E** : Angled spills US Standard, 3.18 mm (78 ways not available)
13A : Angled spills US Standard, 2.90 mm
13B : Angled spills US Standard, 3.70 mm (78 ways not available)

Durability:
4 : Standard class (≥ 200 mating / unmating)
6 : High performance class (≥ 500 mating / unmating)

Mounting options (see page 71)

PA : Standard holes
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 (UNC 4-40) + elec. continuity
UL : Insert M3 + elec. continuity
UX : Insert UNC 4-40 + elec. continuity
UV : Female screw UNC 4-40 + elec. continuity

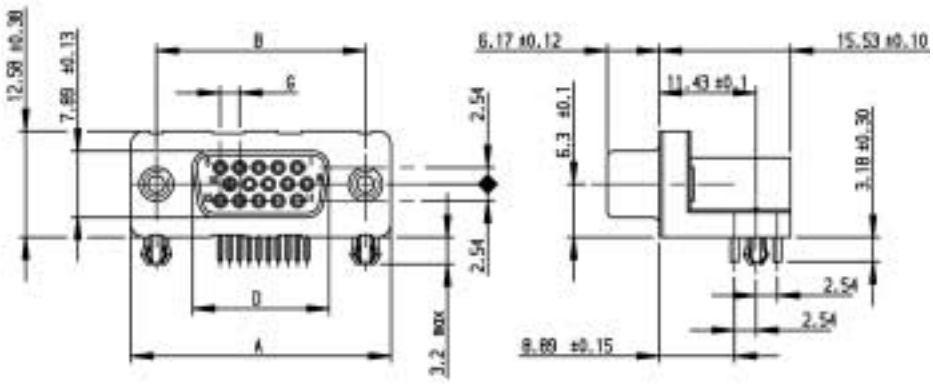
Options:
☺ **00LF :** Standard series, RoHS compatible

Technical characteristics – page 6

☺ Preferred option

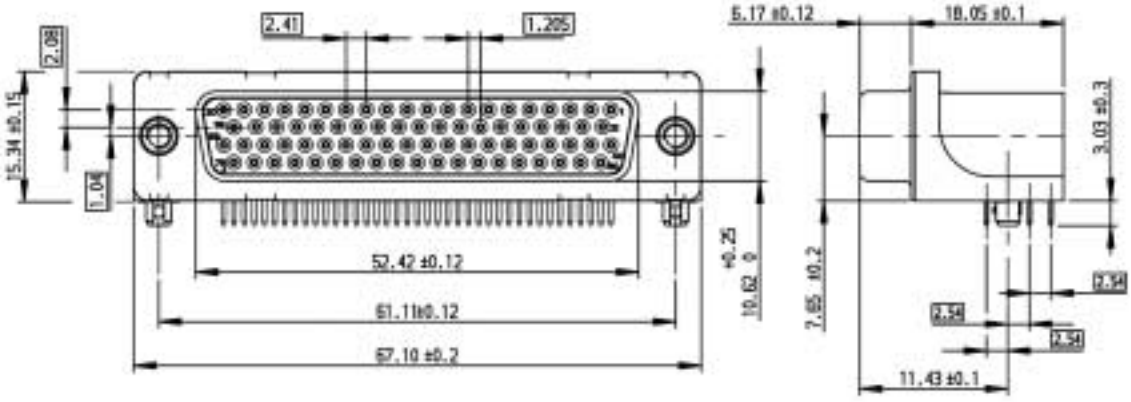
PCB applications

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

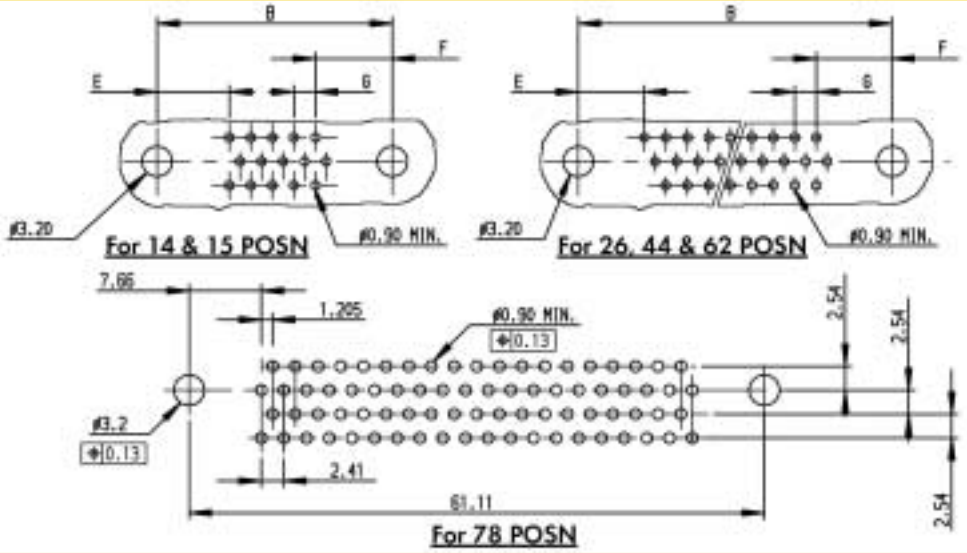


Size	Dimensions						
	A ± 0.38	B ± 0.12	C ± 0.10	D ± 0.25	E	F	G
14 / 15	30,81	24,99	16,96	16,21	7,68	8,19	2,285
26	39,14	33,32	25,18	24,54	7,02	8,01	2,285
44	53,03	47,04	39,12	38,25	7,01	8,02	2,285
62	69,32	63,50	55,68	54,71	7,03	8,21	2,41

COMPACT D 4 ROWS (78 POS)



PCB DRILLING DIMENSIONS



PCB applications

UL Recognized File E 118235 (R)

ORDERING INFORMATION

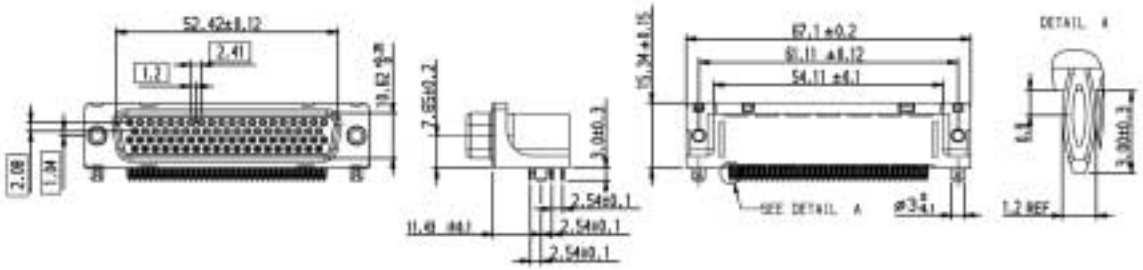
CD78S80C	6	GL	00LF

Series:
78 way right angle female press-fit

Durability:
4 : Standard class (> 200 mating/unmating)
6 : High performance class (> 500 mating/unmating)

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

Options:
00LF : RoHS compatible EU directive 2002/95/EC



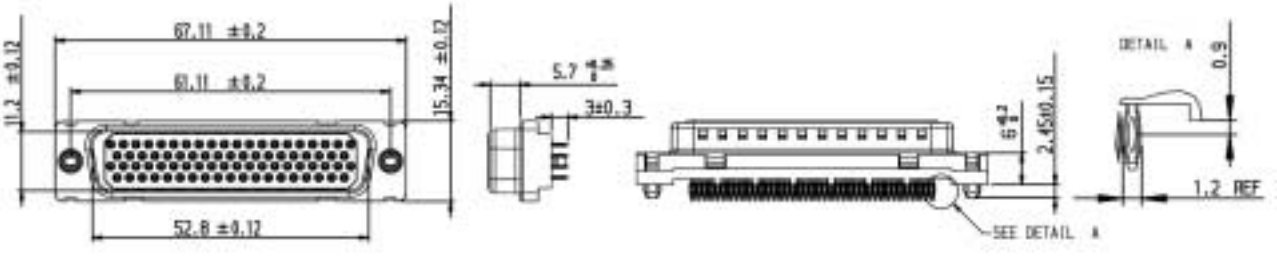
CD78P91C	6	GL	00LF

Series:
78 way straight male press-fit

Plating:
4 : Standard class (> 200 mating/unmating)
6 : High performance class (> 500 mating/unmating)

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

Options:
00LF : RoHS compatible EU directive 2002/95/EC



PCB applications

ORDERING INFORMATION

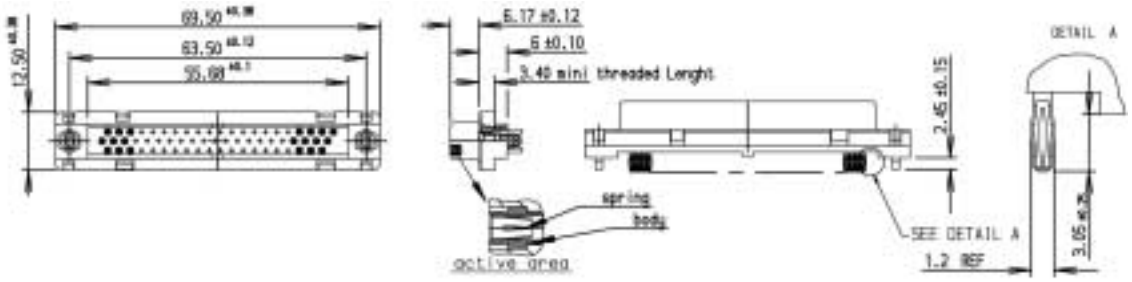
CD62S91C	6	GL	00LF

Series :
62 way straight female press-fit

Durability:
4 : Standard class (> 200 mating/unmating)
6 : High performance class (> 500 mating/unmating)

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

Options
00LF : RoHS compatible EU directive 2002/95/EC



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 - 50µ maxi	25µm mini - 50µ maxi	25µm mini - 50µ maxi	25µm mini - 50µ maxi	25µm mini - 50µ maxi	25µm mini - 50µ maxi
	Tin lead plating	5µm mini - 15µ maxi		5µm mini - 15µ maxi			
	Pur lead plating		0,8 mini to 1,2µ maxi		0,8 mini to 1,2µ maxi		
	OSP plating (copper)					0,20µm mini - 0,5µ maxi	0,20µm mini - 0,5µ 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

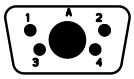
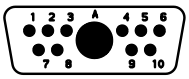
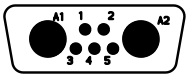
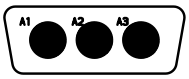
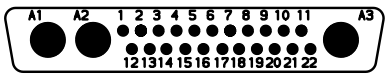
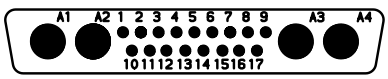
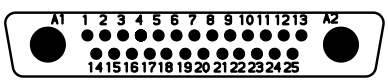
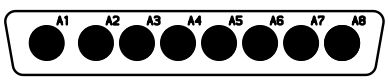
Note 1 : These dimensions must be respected to ensure press-fit pin performance
Note 2 : According to IEC-352-S specification
Note 3 : Vital requirement for press-fit pin performance

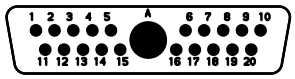
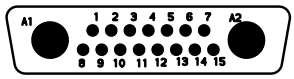
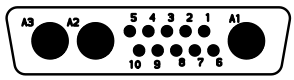
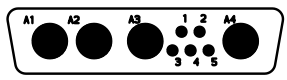
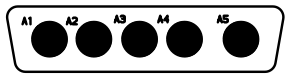
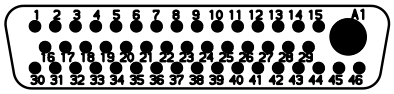
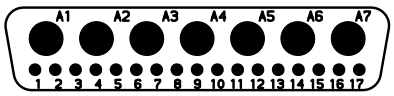
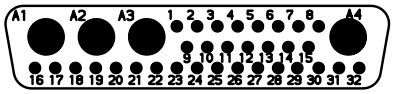
Press-fit performance

	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	
C	25W3	
	21WA4	
	27W2	
	8W8	

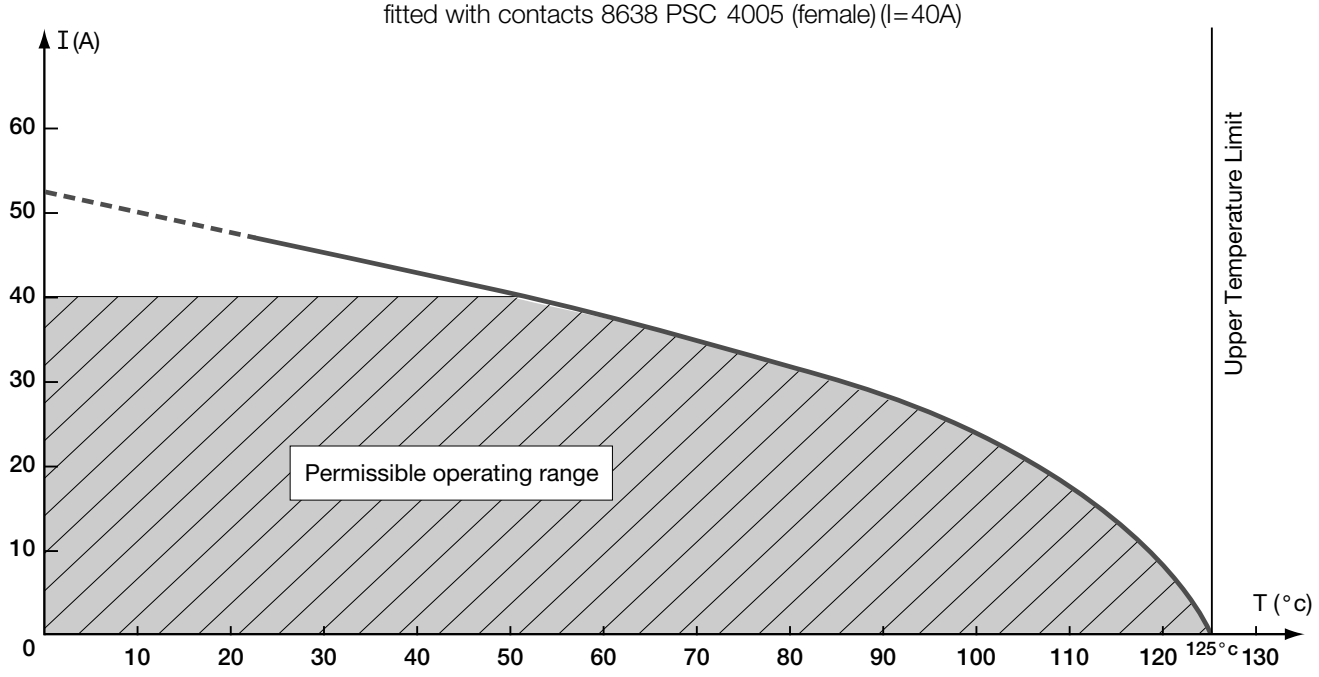
Shell size	Layout	
B	21W1	
	17W2	
	13W3	
	9W4	
	5W5	
D	47W1	
	24W7	
	36W4	

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

DERATING CURVES

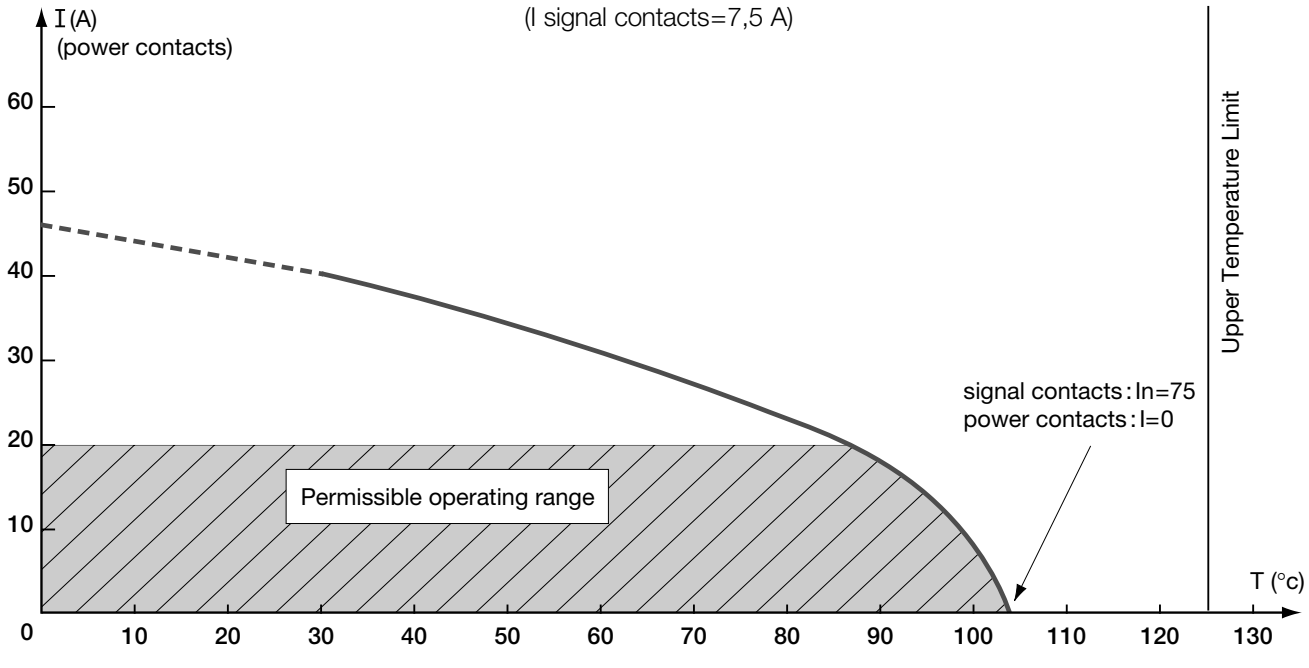
DERATING CURVE ON CONNECTOR DC 8W8 SA 00

fitted with contacts 8638 PSC 4005 (female) (I=40A)



DERATING CURVE ON CONNECTOR DB 13W3 PA 00

fitted with power contacts 8638 PPS 2005 (I=20A)
(I signal contacts=7,5 A)



PCB applications

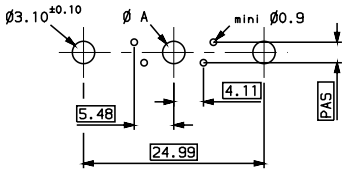
DIMENSIONS

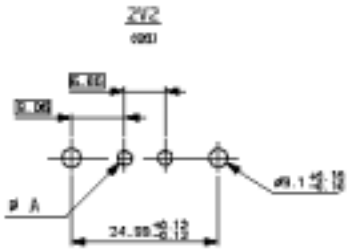
PC board drilling

Solder termination

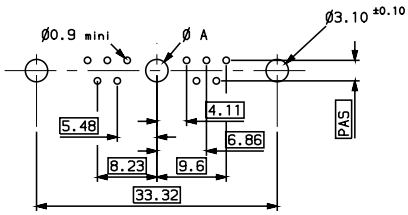
Version	Step	30 A	40 A
		Ø A	
3	2.84	Ø 2.40±0.10	Ø 3.10±0.10
7	2.84	Ø 2.40±0.10	
5	2.54	Ø 2.40±0.10	Ø 3.10±0.10

5W1
(09)

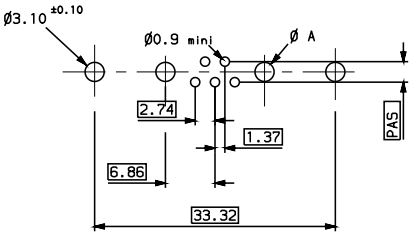




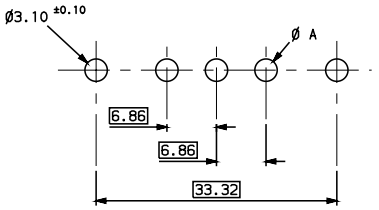
11W1
(15)



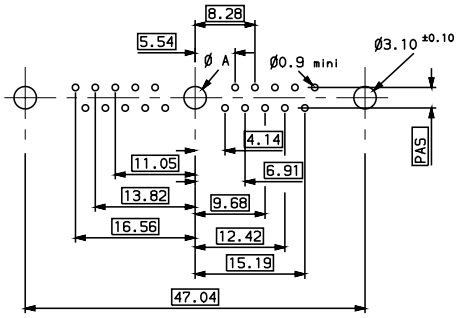
7W2
(15)



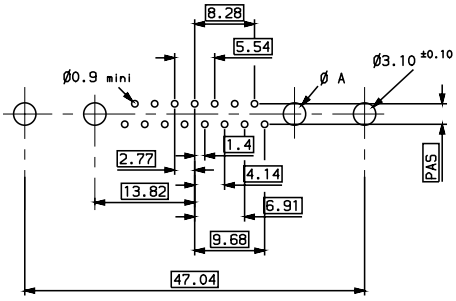
3V3
3W3
(15)



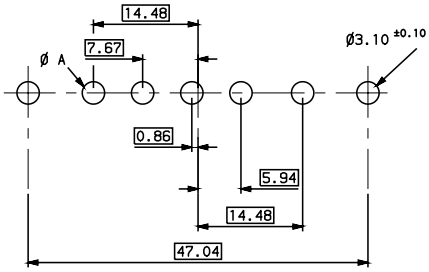
21W1
(25)



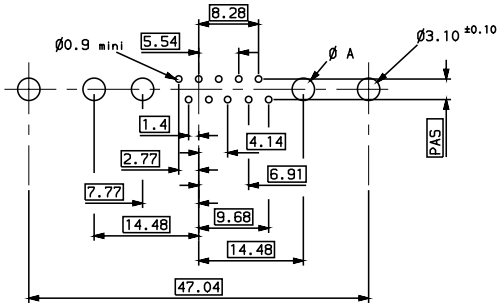
17W2
(25)



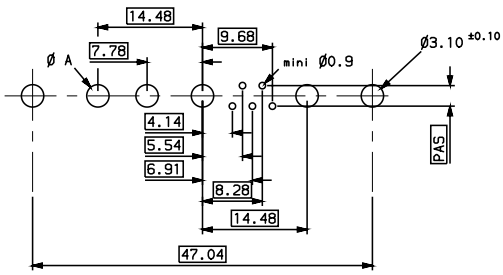
5W5
(25)



13W3
(25)



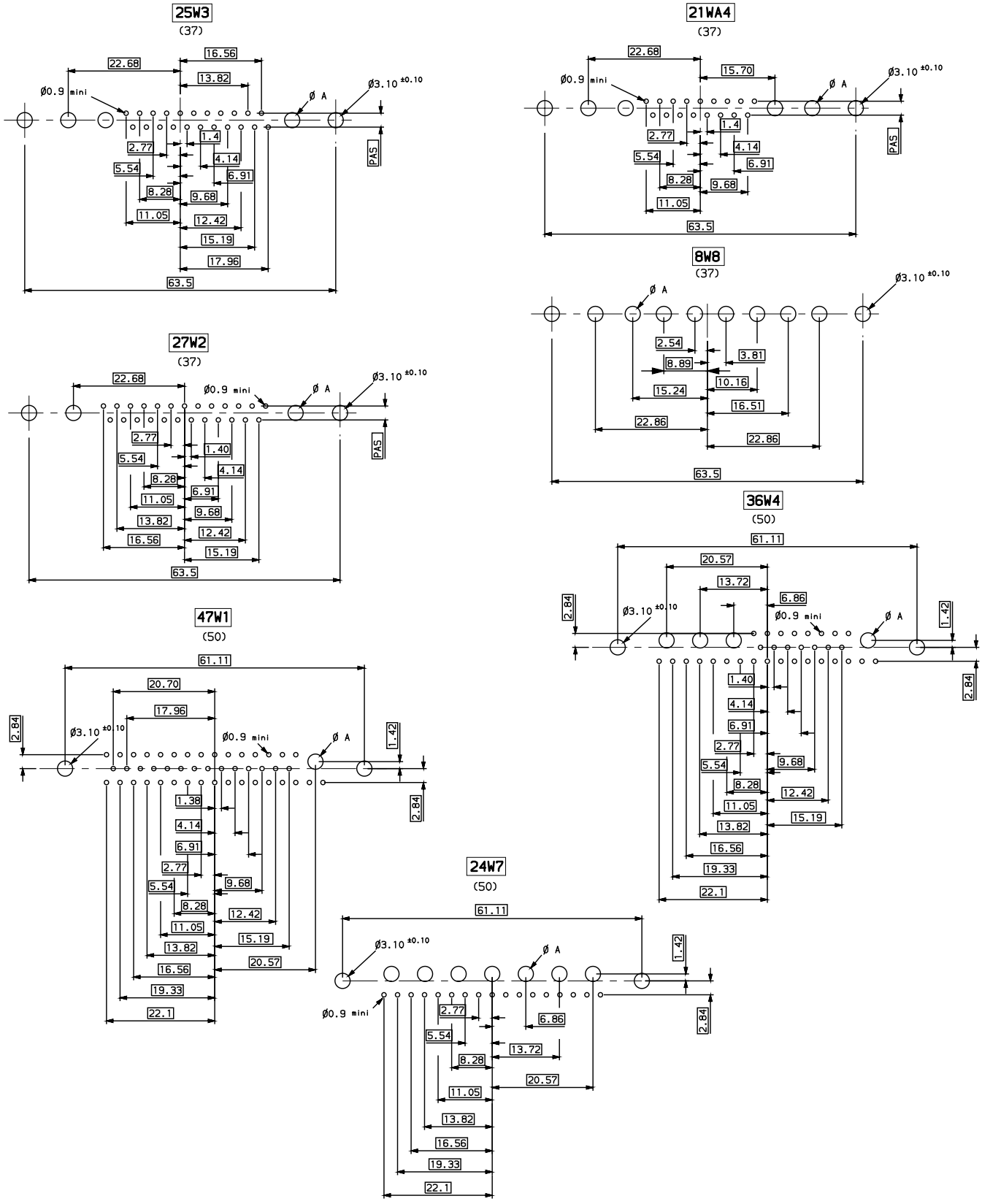
9W4
(25)



PCB applications

DIMENSIONS

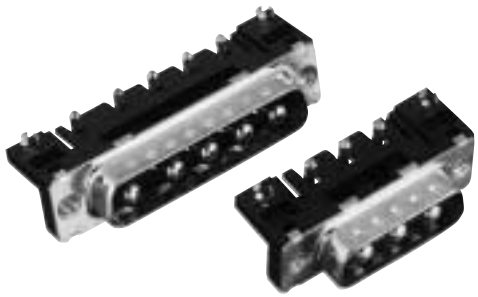
PC board drilling



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

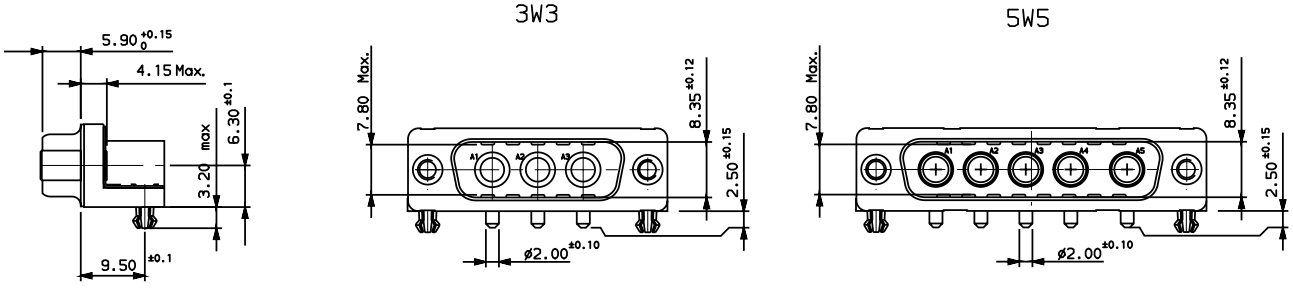
Durability:
6 : High performances class
(500 ≤ mating / unmating)

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

Series:
D

Shell size (tin plated):
E, A, B, C, D
(only straight version)

Options 1 (see page 70)

	Blank	L	O	I	V
Straight version		X	X	X	X
Right angled	X	X	X	X	X

X : Available

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

Layout of contacts:
(see page 24) (for right angled versions, 47W1, 24W7, 36W4 non available)

Contacts:
P : Pin
S : Socket

Termination type:
3 : Straight version
5 : Right angled / Europe standard
7 : Right angled / US standard
(5W1, 9W4 non available)

Durability:
00 : 200 mating / unmating
43 : 500 mating / unmating

Options 2 (see page 70)
PCB accessories

	A	H	G	M
Straight version	X	X	X	
Right angled	X	X	X	X

X : Available

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

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

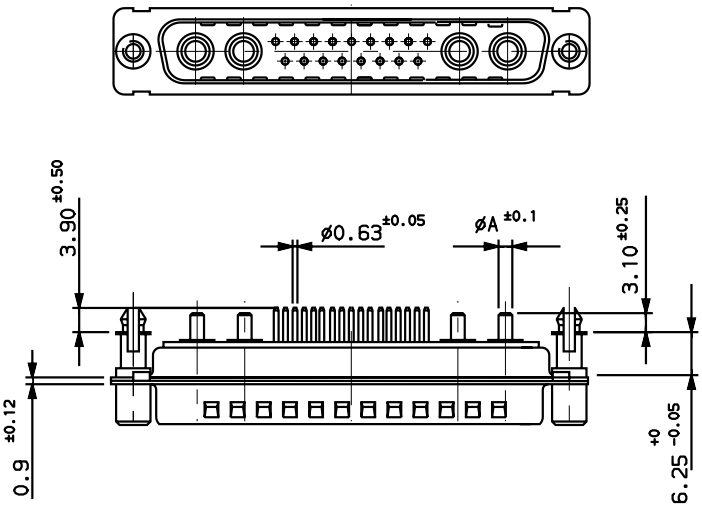
Technical characteristics – page 6

PCB applications

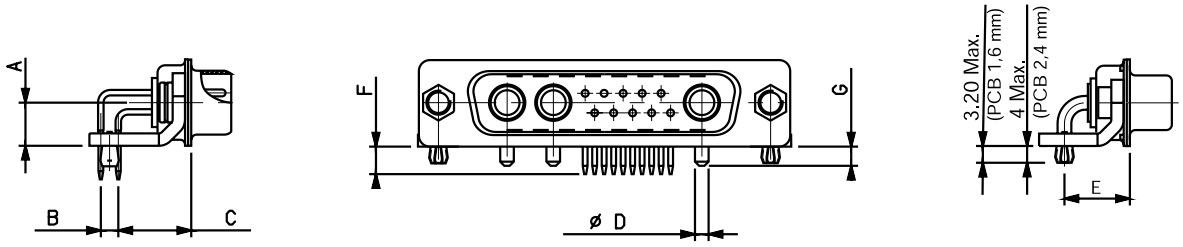
SPECIFIC DIMENSIONS

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

D	E	L	2 3 3 5 8	V V W W W	2 3 3 5 8	P	93C	5	G	40LF

Series D

Shell size (tin plated)
E, A, B, C

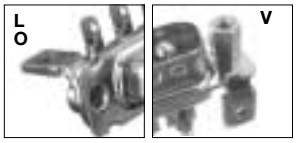
Layouts

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

For other technical characteristics, see page 6.

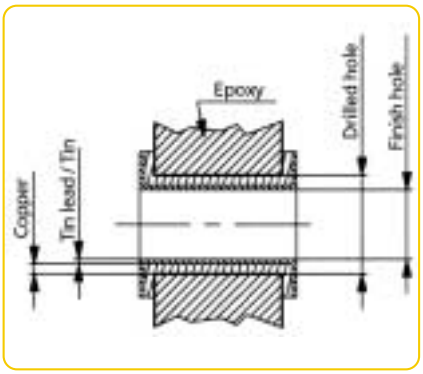
☺ Preferred option

PCB applications

SPECIFIC DIMENSIONS

Metallized hole dimensions

			Press-fit contacts	Press-fit harpoons	
P.C.B. hole definition (note 1 and 2)		Drill diameter	**Ø 3.22** $^{\pm 0.03}$	**Ø 3.22** $^{\pm 0.03}$	Ø 3,22 ± 0,03
		Drilled hole	Ø 3.19 - 3.25	Ø 3.19 - 3.25	
		Copper plating	25 µm min (recommended 50 µ max)	25 µm min (recommended 50 µ min)	
	non RoHS	Tin lead plating	15 µm max (recommended 5 µ min)	15 µm max (recommended 5 µ min)	
	non RoHS	Finish hole (after reflow)	Ø 3.02 - 3.20	Ø 3.02 - 3.20	
	RoHS	Tin plating	0.8 to 1.2 µm	0.8 to 1.2 µm	
	RoHS	Finish hole (after reflow)	Ø 3.08 - 3.20	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	≤ 200 N (average insertion 160N)	≤ 200 N (average insertion 160N)
Extraction force	≥ 30 N	≥ 30 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

Mounting Options 1 (see page 70)

	Blank	L	O	I	V	F
Solder buckets	X	X	X	X	X	X
Wire wrap	X	X	X	X	X	X

X : Available

☺ **Blank :** without accessory
☺ **L :** Threaded insert M3
☺ **O :** Threaded insert UNC 4-40
I : Female screw M3
V : Female screw UNC 4-40
F : Float mounting

Layout of contacts
(see page 24)

Contacts:
P : Pin
S : Socket

Termination type:
0 : Solder bucket (blank for plating 00)
4 : Wire wrap (3 levels)

Durability:
00 : 200 mating / unmating
43 : 500 mating / unmating
(blank for solder bucket termination)

Options:
A : without accessory on PCB

Power contacts:
00LF : RoHS compatible

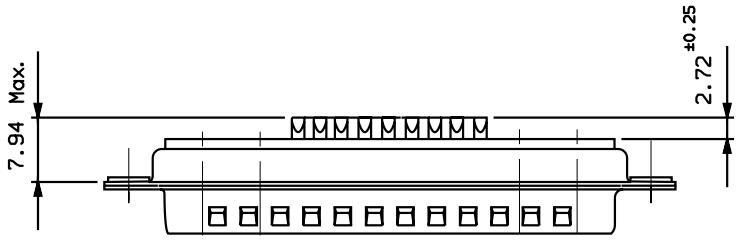
Technical characteristics – page 6

☺ Preferred option

Cable applications

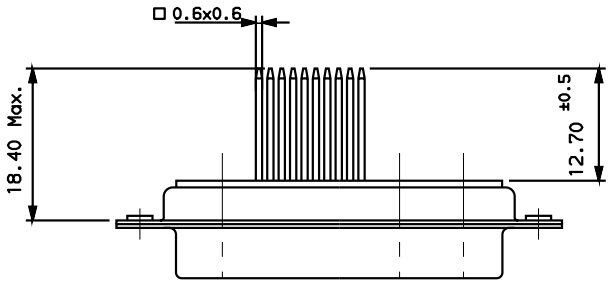
SPECIFIC DIMENSIONS

Solder bucket

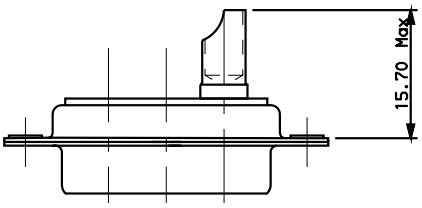


Wire wrap

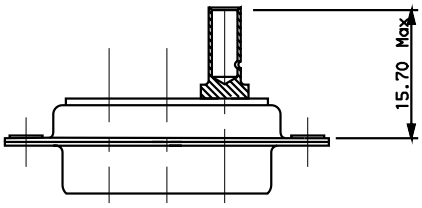
WW (3 levels)



Solder version



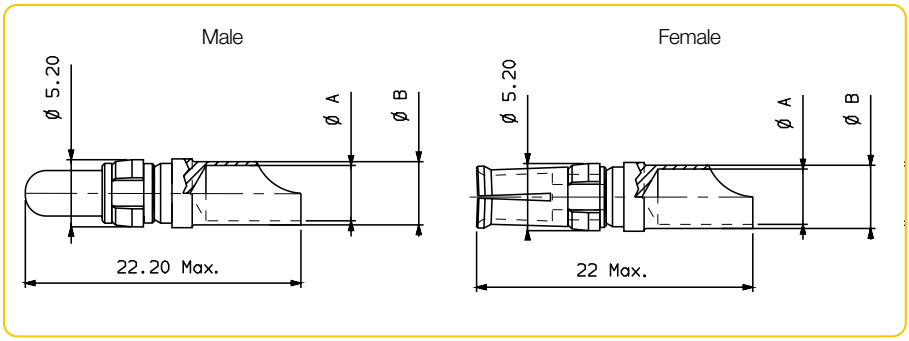
Crimp version



Cable applications

POWER CONTACTS

Solder contacts

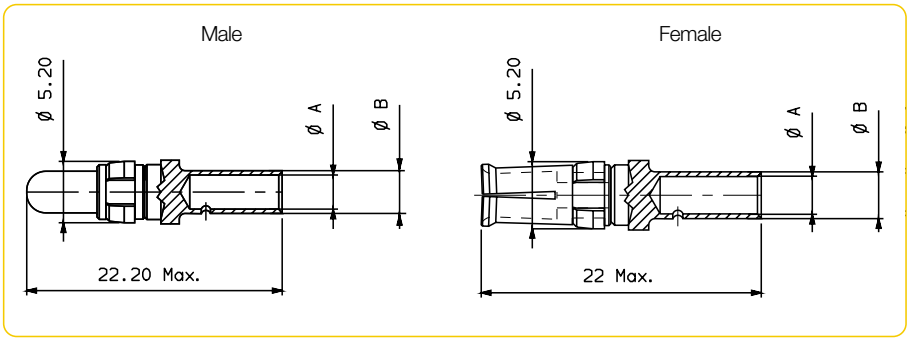


Type	Max. current rating	Clip colour	RoHS* Part number ≥ 200 mating/unmating	RoHS* Part number ≥ 500 mating/unmating	Wire Size	Wire section mm²	Strip length $mm^{+0.5}_{+0}$	Ø $A_0^{+0.1}$	Ø $B^{\pm0.05}$
Male	10A	Black	8638PPS1005LF	8638PPS1006LF	16	1.3	7	1.7	2.6
Male	15A	White	8638PPS1505LF	8638PPS1506LF	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



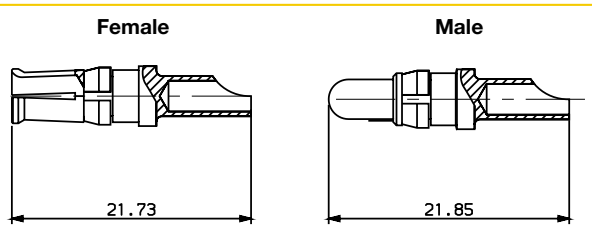
Type	Max. current rating	Clip colour	RoHS* Part number ≥ 200 mating/unmating	RoHS* Part number ≥ 500 mating/unmating	Wire Size	Wire section mm²	Strip length $mm^{+0.5}_{+0}$	Ø $A_0^{+0.1}$	Ø $B^{\pm0.05}$
Male	10A	Black	8638PPC1005LF	8638PPC1006LF	16 to 18	0.9 to 1.3	7	1.8	2.55
Male	20A	Red	8638PPC2005LF	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

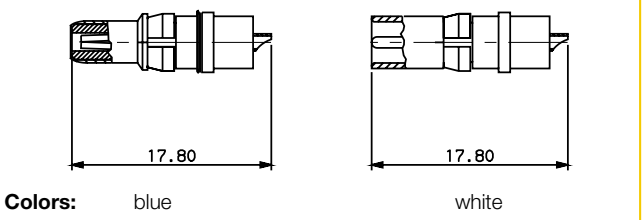
POWER CONTACTS - METAL CLIP



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 coxial contacts are in compliance with:
- NFC 93569
- KMX4 specification

ELECTRICAL CHARACTERISTICS

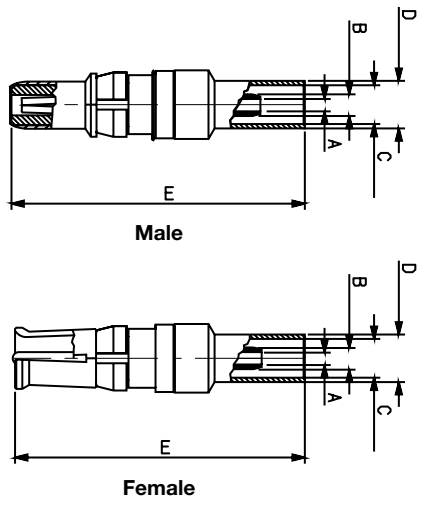
Dielectric with standing voltage	: 2800 V.r.m.s
Break down voltage	: 3200 V.r.m.s
Insulation resistance	: 10^6 MΩ
Contact resistance	: ≤ 5 mΩ
Max current rating	: 5A
Material	: TEFLON

MECHANICAL CHARACTERISTICS

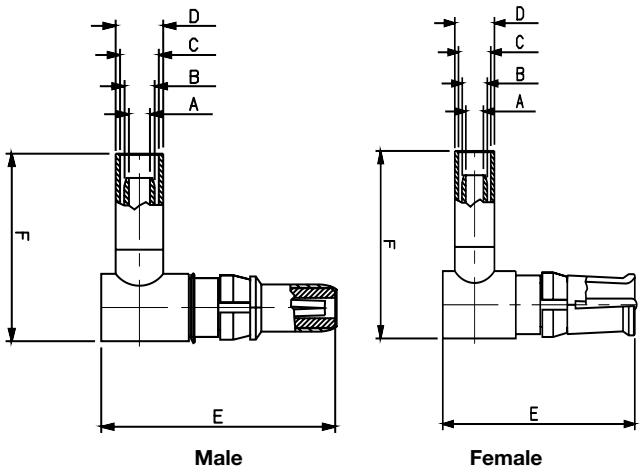
Mating force per set of contact	: 3N
Mating endurance	: 200
Temperature	: -55° C to +125° C

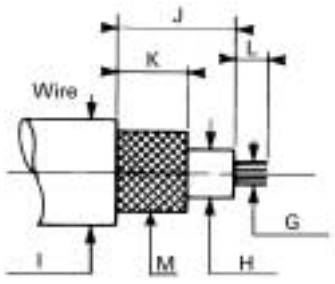
COAXIAL CONTACTS

Straight



Angled





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 ±0.2	D ±0.15	E ±0.4	F ±0.4	MILC 17E	NFC 93550	Impe-dance	G	H	I	J	K	L	M (max.)
Straight	male	DM537405000NCLF	KMX4M11D02	DM53740NCLF	KMXM12D02	1	1.75	2.32	3.20	23.60		RG 178BU	KX21A	50Ω±2	0.30	0.90	1.80	7.90	6.35	2	1.40
	male	DM537405008NCLF	–	–	–					21.80											
	female	DM537425000NCLF	KMX4F11D02	DM53742NCLF	KMX4F12D02					23.60											
	female	DM537425006NCLF	–	–	–					21.80											
Right angle	male	DM537415000NCLF	KMX4M11C02	DM53741NCLF	KMX4M12C02					18.64	15.30							9.50	5.95	1.60	
	female	DM537435000NCLF	KMX4F11C02	DM537432NCLF	KMX4F12C02					18.64	15.30										
Straight	male	DM537405001NCLF	KMX4M11D01	DM537401NCLF	KMX4M12D01	1.70	2.46	3	3.84	23.60		RG 316U	KX22A	50Ω±2	0.50	1.50	2.50	7.90	6.35	2.00	2.05
	female	DM537425001NCLF	KMX4F11D01	DM537421NCLF	KMX4F12D01					23.60											
Right angle	male	DM537415001NCLF	KMX4M11C01	DM537411NCLF	KMX4M12C01					18.64	15.30							9.50	5.95	1.60	
	female	DM537435001NCLF	KMX4F11C01	DM537433NCLF	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 ±0.2	D ±0.15	E ±0.4	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	–	3.15	4.40	5.45	5.95	23.60		RG 58CU	KX15	50Ω±2	0.90	2.95	4.95	9.50	7.9	2	3.81
	female	DM537425004NCLF	–	DM537425NCLF	–					23.60											
Right angle	female	DM537435004NCLF	–	DM537436NCLF	–					18.64	17.50							10.70		2.40	

Cable applications

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.

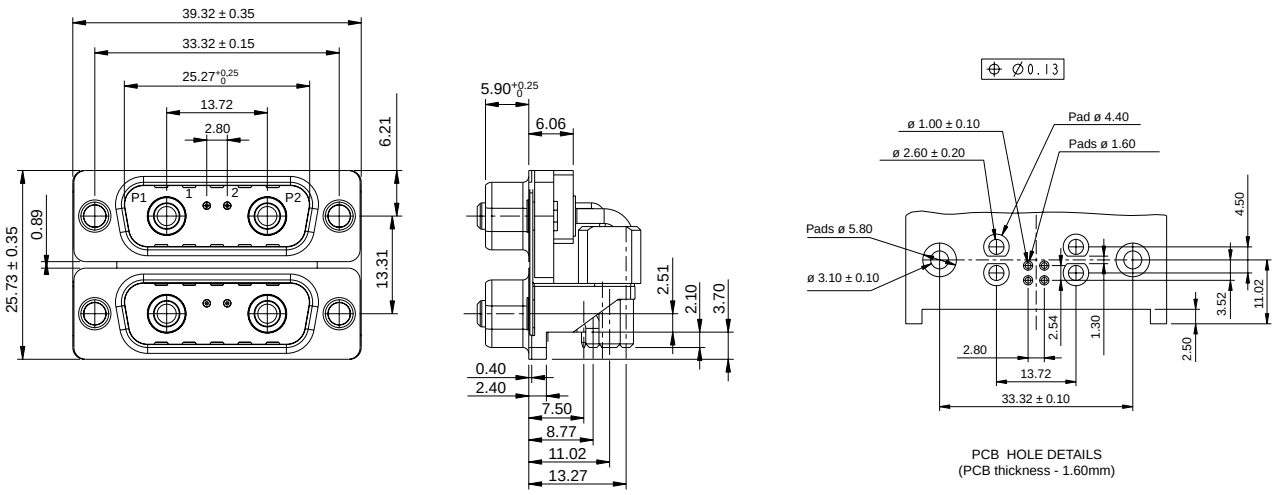
FEATURES

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

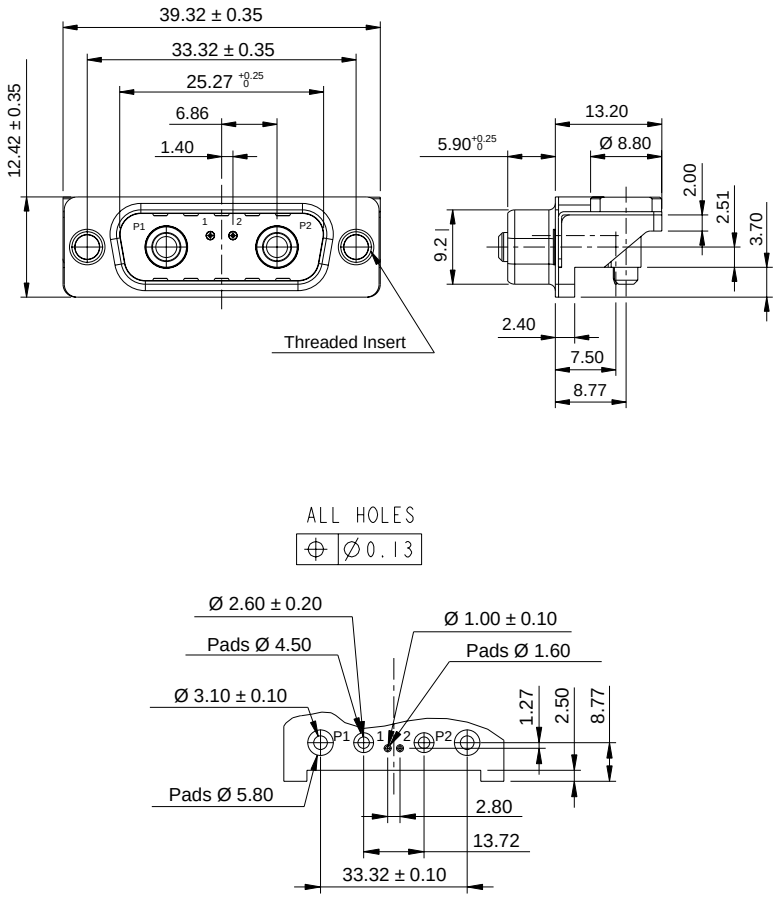
ORDERING INFORMATION

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

PRODUCT DRAWING



PCB applications



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

Cable applications

FEATURES

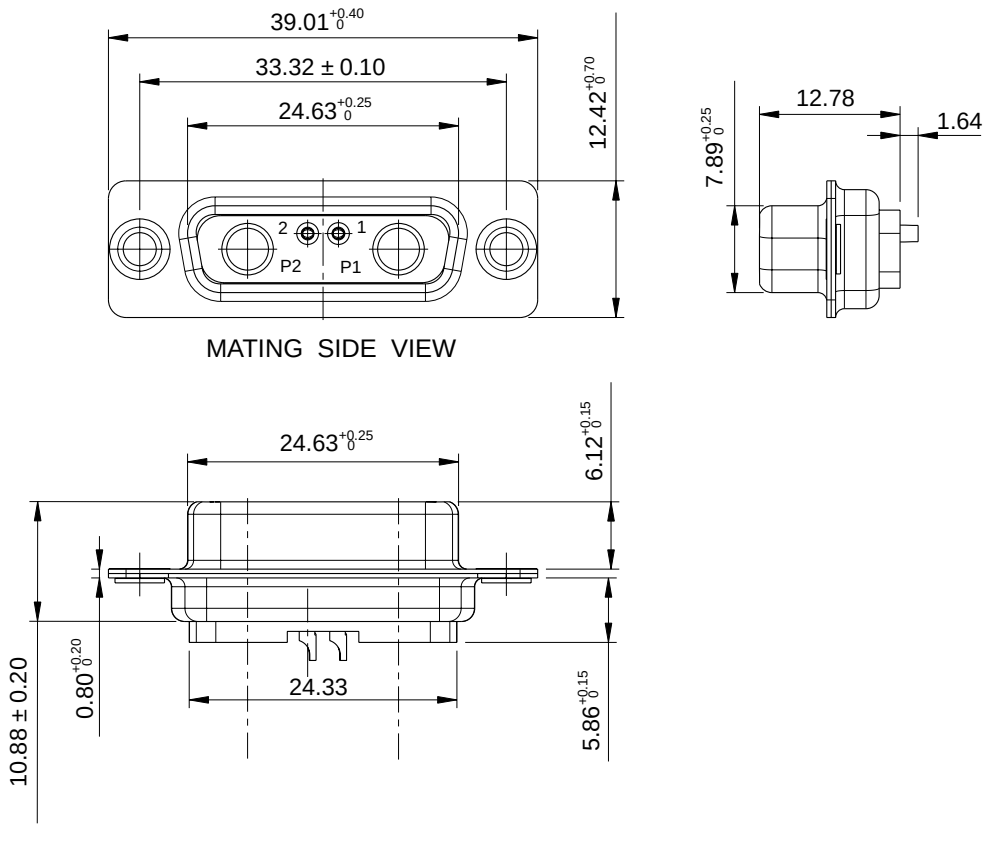
- Field reparable
- Touch proof
- Stackable hoods with high retention devices
- Cost saving jumper option for signal contacts

ORDERING INFORMATION

CABLE CONNECTOR

10070165	001	19ALF
μTCA 48 V / 24 A power cable connector	**001** : without jumper **002** : with jumper option	Card box packing

PRODUCT DRAWING



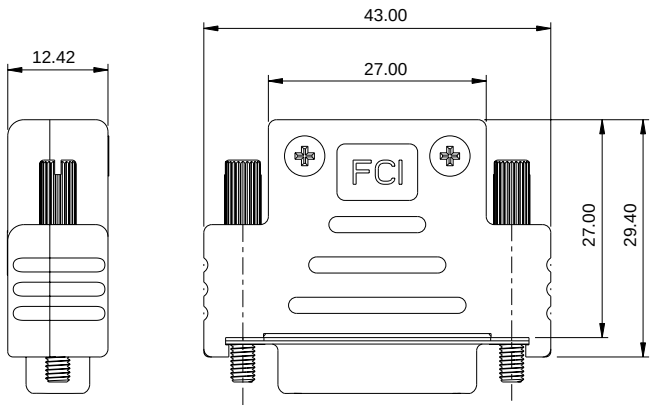
POWER CONTACTS

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

Cable applications

HOOD (stackable hood and slim design)

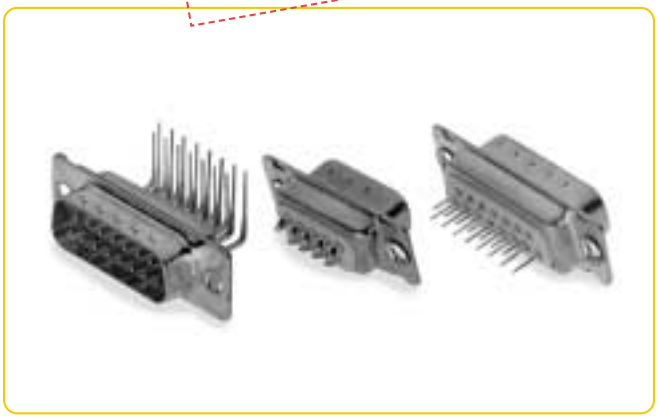
10070163 - 001LF



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

D	B	25	P	5	64	C	T	X	LF

Series:
D

Shell size:
E A B C D

Number of contacts:
09-15-25-37-50

Contacts:
P : Pin
S : Socket

Termination type:
0 : Solder bucket
3 : Straight
5 : Right angle
} Stamped contacts

Durability:
64 : ≥ 200 mating / unmating
65 : ≥ 500 mating / unmating

Shell plating:
T : Standard tin plating

Dimples:
X : Standard on male connector only

Blank : non RoHS compatible
☺ **LF :** RoHS compatible

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

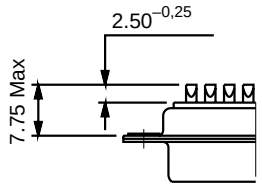
Technical characteristics – page 6

☺ Preferred option

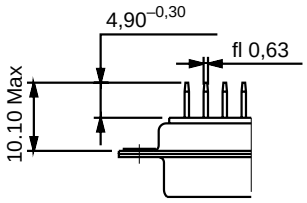
PCB and Cable applications

SPECIFIC DIMENSIONS

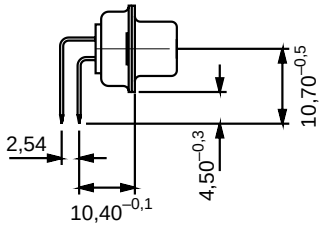
Solder buckets

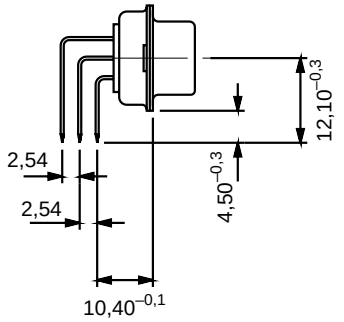


Straight spills



Right angle spills

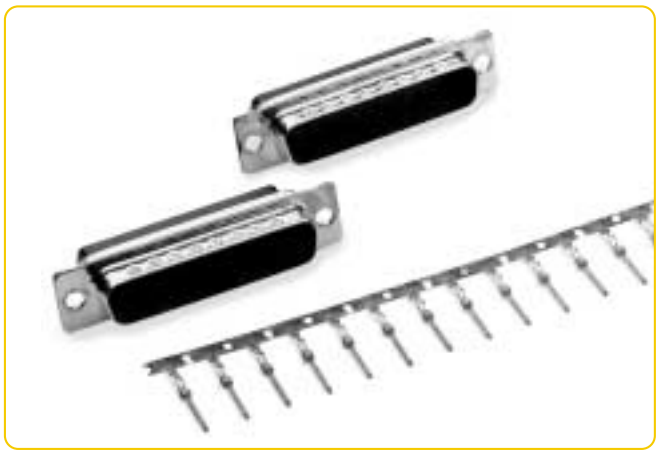




Cable applications

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

8656	0	25	P	L	T	X	LF

Series:
8656

Options 1 (see page 70)
Blank : Standard mounting hole (Ø = 3.10)
O : Threaded insert UNC 4-40

Number of contacts:
09-15-25-37-50

Contacts:
P : Pin
S : Socket

L : Supplied without contacts (obligatory)

Shell plating:
T : Standard tin plating

Dimples:
X : Standard on male shell only

☺ **LF :** RoHS compatible

Contact part numbers

Contact type \ Packaging type	Box of 500 contacts ☺	Reel of 400 contacs	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

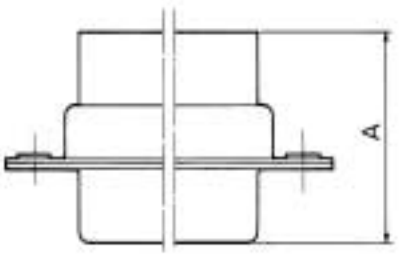
4LF: ≥ 200 mating / unmating, RoHS compatible
5LF: ≥ 500 mating / unmating, RoHS compatible

Technical characteristics – page 6

☺ Preferred option

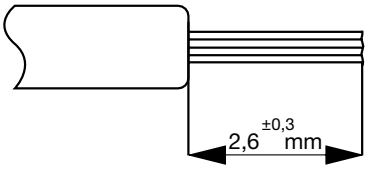
Cable applications

SPECIFIC DIMENSIONS



	09	15	25	37	50
Pin AMax.	17.19	17.19	17.35	17.35	17.35
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

8657	25	P	0	65	T	X	LF

Series:
8657

Number of contacts:
09-15-25-37

Contacts:
P : Pin
S : Socket
Stamped and rolled contacts

Standard version

Durability:
65 : 500 mating / unmating

Shell plating:
T : Standard tin plating

Dimples:
X : Standard on male connector only

☺ **LF :** RoHS compatible

Technical characteristics - see page 7

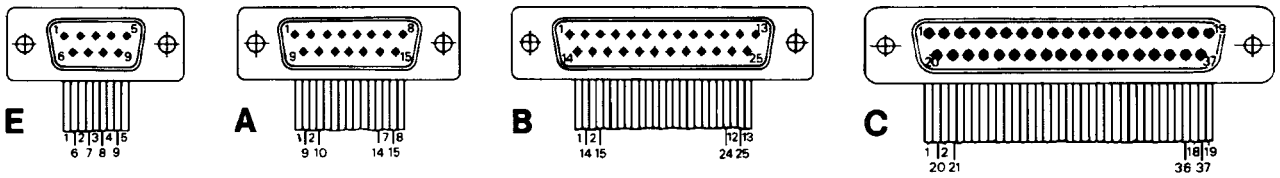
☺ Preferred option

Cable applications

LAYOUTS

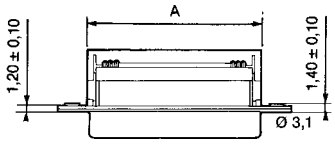
Male insulator front view

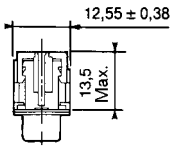
Contacts are individually numbered on the front side of the insulator



9 contacts | 15 contacts | 25 contacts | 37 contacts

SPECIFIC DIMENSIONS





HIGH PROFILE

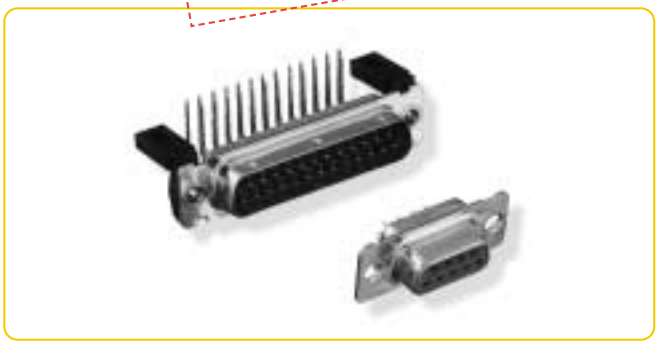
supplied with
metallic strain relief clamp

	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

Series:
D

Shell size:
E, A, B, C, D

P : Characterisation of DP series

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)

Number of contacts:
09-15-25-37-50

Contacts:
P : Pin
S : Socket

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)

Durability:
64 : ≥ 200 mating / unmating
65 : ≥ 500 mating / unmating, blank for solder bucket termination

PCB accessories (see page 70)

Index / Termination type	Straight spills	Angled spills	Solder buckets	Wire wrap
Blank	Without accessory	Two plastic brackets*	Without accessory	Without accessory
C		Without bracket		
M		Two metal brackets		
G	Harpoons (Compulsary with option L or V)	Harpoons (9 to 37 ways only)		
H			Shielding termination fingers	

* Except 50 pos. with monobloc plastic brackets

Shell plating:
T : Standard tin plated

Dimples:
X : Standard on male connectors only

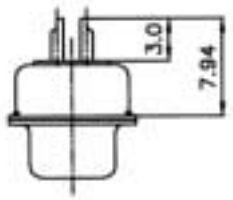
LF : Standard series, RoHS compatible

Technical characteristics – page 7

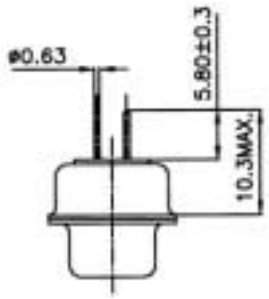
PCB and Cable applications

SPECIFIC DIMENSIONS

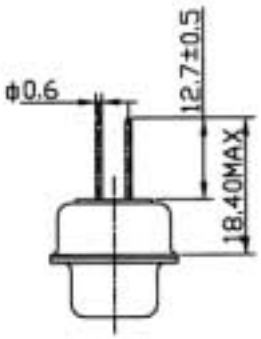
Solder buckets



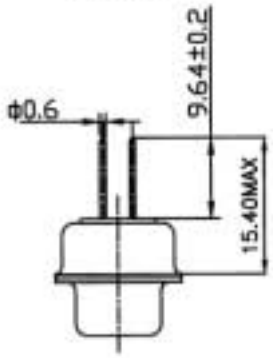
Straight spills



Wire wrap

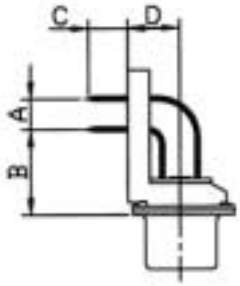


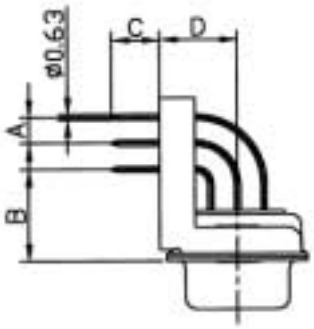
3 Levels



2 Levels
Diagonal 0.79-0.87

Right angle spills





Dimension \ Termination code		5	8
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

D	B	M	L	25	P	5	00	M

Series:
D

Shell size:
E, A, B, C, D

M: Characterisation of Military series

Options 1 (see page 70)
Blank : Standard mounting holes (Ø = 3.10)
L : Threaded insert M3
F : Float mounting

Number of contacts:
09-15-25-37-50

Contacts:
S : Socket

Termination:
Blank : Solder buckets
3 : Straight solder spills
5 : Angled solder spills
4 : Wire wrap (3 levels)

Plating:
00 : Standard = Gold / Nickel
Blank for solder bucket termination
Others : please, consult us

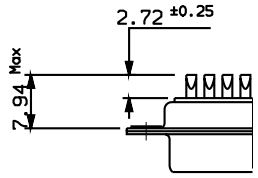
Options 2 (see page 70)

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

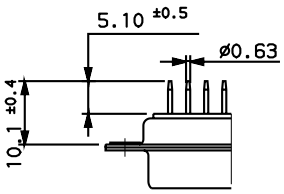
Technical characteristics – page 7

SPECIFIC DIMENSIONS

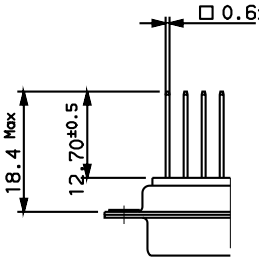
Solder buckets



Straight spills



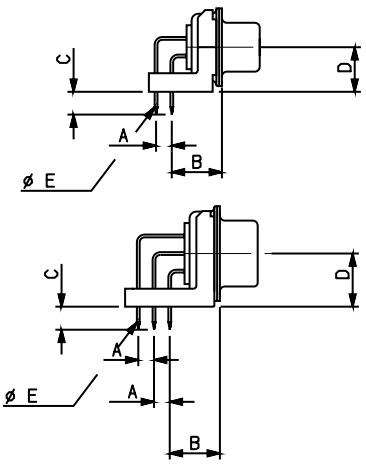
Wire wrap



	3 levels
A	12.70 ± 0.5
B	18.40 Max.
⊠	0.79 x 0.87

3 levels
Diagonale 0.79-0.87

Right angle spills



CROSS REFERENCE LIST FOR THE MAIN HE 501 AND FCI

Connector type			HE 501	FCI
Solder buckets			HE 501 N..AP3	D.M..PLF
		F	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 particulary severe applications, especially high temperatures class + 155°C in compliance with NFC 93425 / HE 508.
- **Shell plating:** Cadmium
- **Military and Aero applications**

ORDERING INFORMATION

D	B	M	LF	25	P	5	00	M	N

Series:
D

Shell size:
E, A, B, C, D

M: Characterisation of Military series

Options 1 (see page 70)
Blank : Standard mounting holes (Ø = 3.10)
F : Float mounting

Number of contacts:
09-15-25-37-50

Contacts:
P : Pin
S : Socket

Termination:
Blank : Solder buckets
3 : Straight solder spills
5 : Angled solder spills
4 : Wire wrap (3 levels)

Plating:
00 : Standard = Gold / Nickel
blank for solder bucket termination
Others : please, consult us

Options 2 (see page 70)

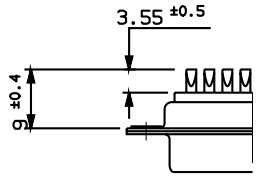
Option \ Version	Angled spills	Other terminations
Blank	Plastic brackets	Not applicable
C	Without brackets	Not applicable
M	Metal brackets	Not applicable

N : Obligatory for HE 508

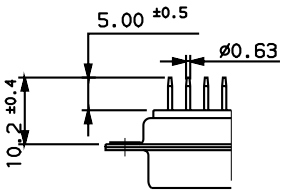
Technical characteristics – page 7

SPECIFIC DIMENSIONS

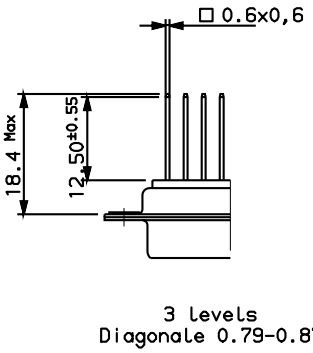
Solder buckets



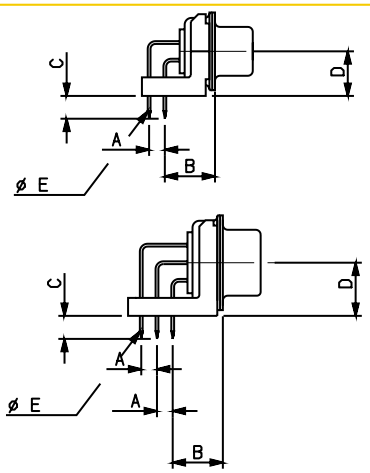
Straight spills



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

D	B	M		13 W 3	P	5	00	M	N

Series:
D

Shell size:
E, A, B, C, D

M: Characterisation of Military series

Options 1 (see page 70)
Blank : Standard mounting holes (Ø = 3.10)
F : Float mounting

Layout of contacts:
(see page 24)

Contacts:
P : Pin
S : Socket

Termination:
Blank : Solder buckets
3 : Straight solder spills
5 : Angled solder spills
4 : Wire wrap (3 levels)

Plating:
00 : Standard = Gold / Nickel on active areas - Tin lead on termination (blank for solder bucket termination)

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

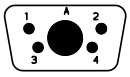
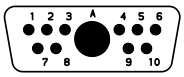
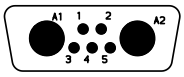
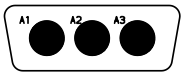
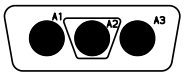
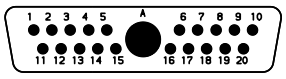
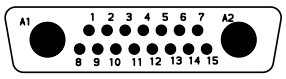
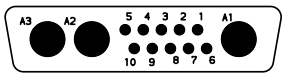
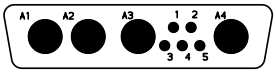
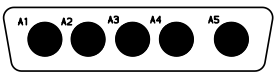
N : Compulsary in compliance with HE 507

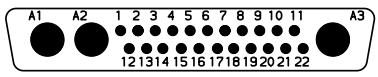
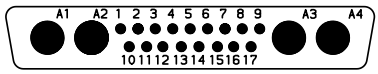
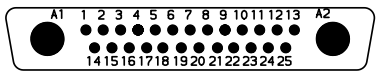
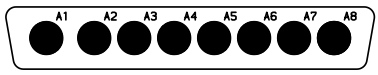
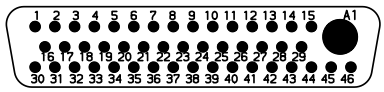
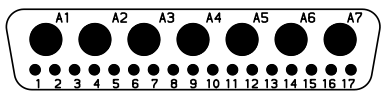
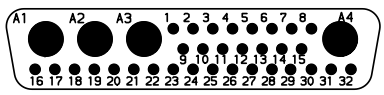
Technical characteristics – page 7

PCB and Cable applications

LAYOUTS

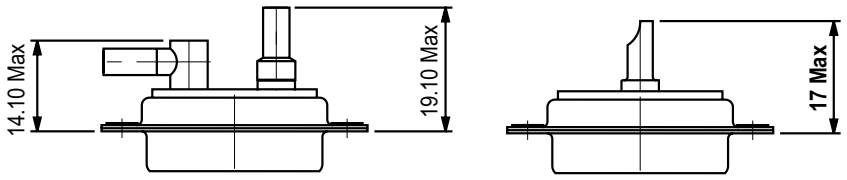
Male insulator front view

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

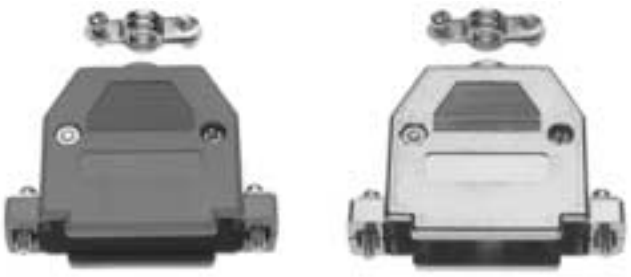


Coaxial contact

Power contact

Cable applications

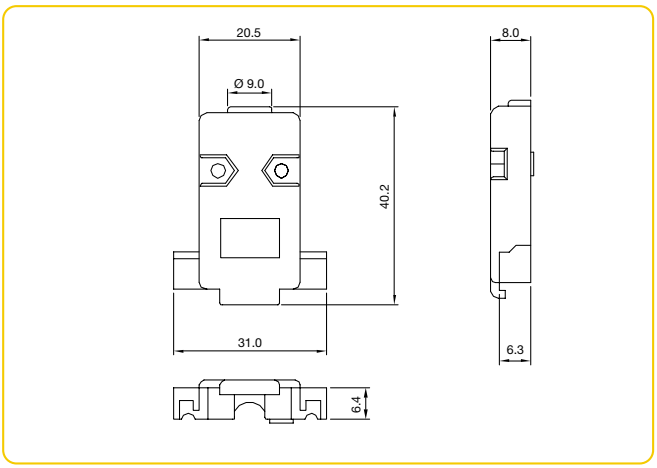
1 • Straight exit plastic and metalised hood with integrated locking - Economical series



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

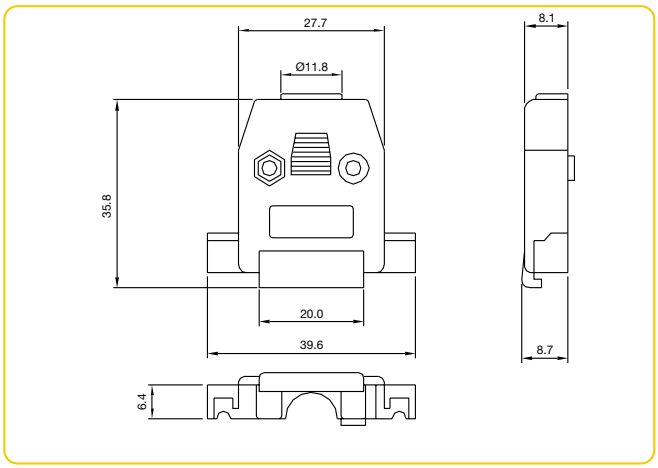
Shell size E (9 way)

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



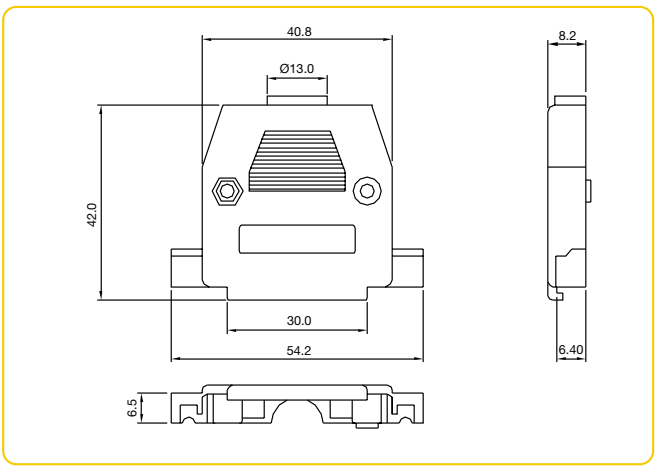
Shell size A (15 way)

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



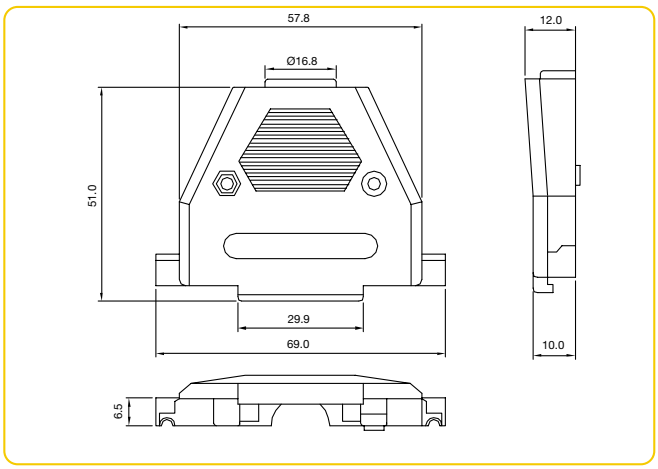
Shell size B (25 way)

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



Shell size C (37 way)

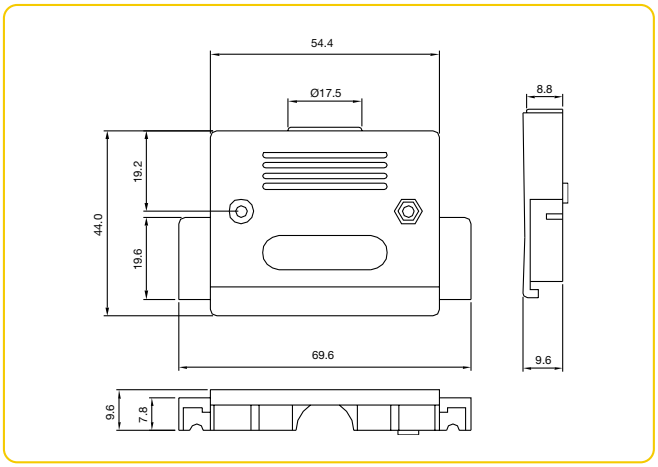
- Plastic hood : part number : **10039452-00001LF**
- Metalised hood : part number : **10039452-00002LF**



Straight exit plastic and metalised hood with integrated locking

Shell size D (50 way)

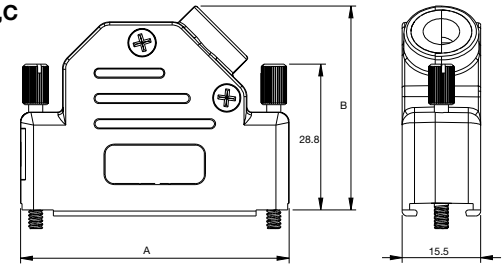
- Plastic hood : part number : **10039453-00001LF**
- Metalised hood : part number : **10039453-00002LF**



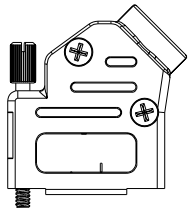
2 • Angle exit plastic hood for cable

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	

Size A,B,C



Size E

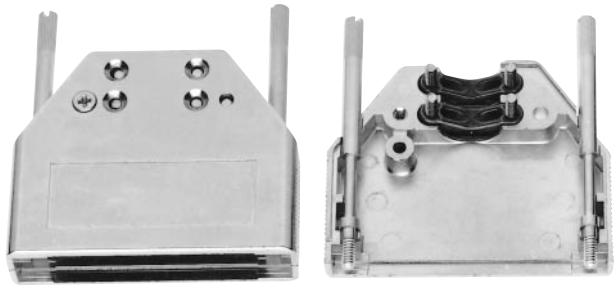


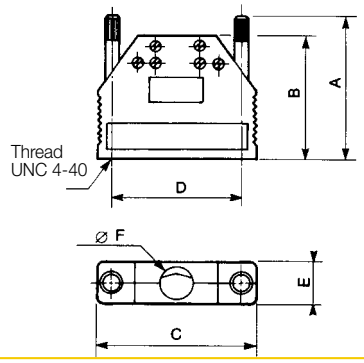
Material	:	polycarbonat UL 94V0
Cable strain relief	:	steel fibre reinforced polycarbonat UL 94V0
Colour	:	black
Temperature range	:	-40°C +120°C
Packaging	:	bulk, in box of 100 pieces
Locking screws	:	UNC 4-40 thread

All dimensions in mm

Cable applications

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

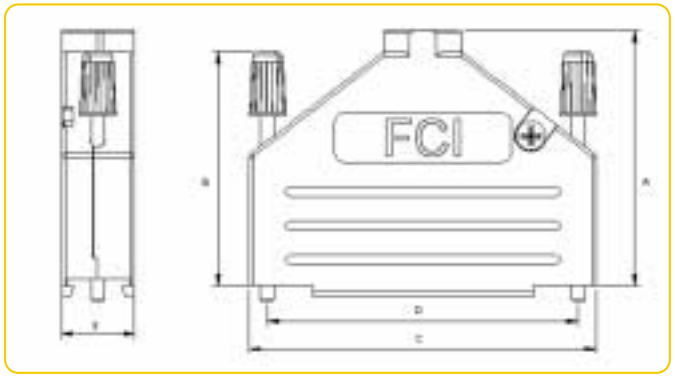




Shell size	Part numbers in bulk	Packaging	Part numbers (in individual set)	Packaging	A ± 0.1	B ± 0.3	C ± 0.1	D ± 0.1	E ± 0.2	F max.
E	8655MH09**01**LF	80	8655MH09**11**LF	50	55.00	45.00	34.40	24.99	14.70	7.85
A	8655MH15**01**LF	80	8655MH15**11**LF	50	55.00	45.00	42.70	33.32	14.70	11.80
B	8655MH25**01**LF	60	8655MH25**11**LF	50	55.00	45.00	56.70	47.04	14.70	11.80
C	8655MH37**01**LF	40	8655MH37**11**LF	50	55.00	45.00	72.95	63.50	14.70	11.80
D	8655MH50**01**LF	40	8655MH50**11**LF	50	55.00	45.00	70.60	61.11	17.30	14.10

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

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



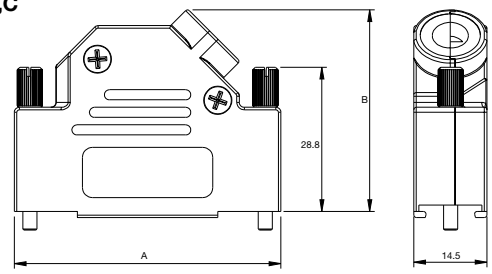
Shell size	Part numbers	A	B	C	D	E
E	8655MH0901BLF	38.3	47.3	31	24.99	14.6
A	8655MH1501BLF	40.5	47.3	39.5	33.32	14.6
B	8655MH2501BLF	47.3	47.3	53.2	47.04	14.6
C	8655MH3701BLF	52.2	47.3	70.9	63.5	15

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

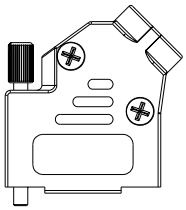
Cable applications

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

Size A,B,C



Size E

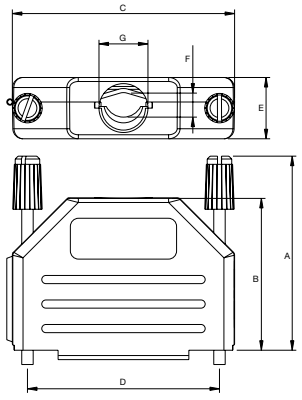


Shell size	Part number	A	B	Cable diameter
E (9)	8655MHRA0901LF	31.0	36.2	4 to 13 mm
A (15)	8655MHRA1501LF	39.5	40.2	
B (25)	8655MHRA2501LF	53.2	40.2	
C (37)	8655MHRA3701LF	69.7	40.2	
D (50)	8655MHRA5001LF	67.2	43.7	10 to 16 mm

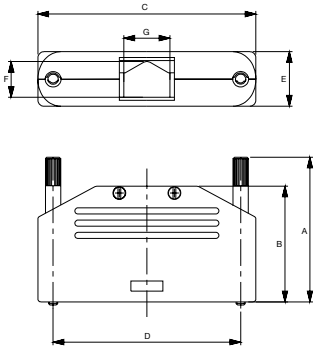
Material : zamack, nickel plated
Cable strain relief : steel fibre reinforced polycarbonat UL 94V0 for EMI/RFI screening
Temperature range : -40°C +120°C
Environment : >40 dB between 30 MHz and 1 GHz
Packaging : bulk, in box of 100 pieces
Locking screws : UNC 4-40 thread

6 • "Snap together" plastic hood

Size E, A, B, C



Size D

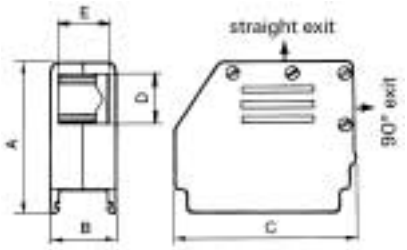


Shell size	Part number	A	B	C	D	E	with clamp F min	with clamp F max	with clamp G	without clamp F	without clamp G
E(9)	86303637BLF	47.3	31.3	32.4	24.99	15	1	5.5	8.5	7	8.5
A(15)	86303638BLF	47.3	30.8	40.7	33.32	15	4	7	12	11	12
B(25)	86303639BLF	47.3	37.3	54.4	47.04	15	4	7	12	11	12
C(37)	86303640BLF	47.3	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

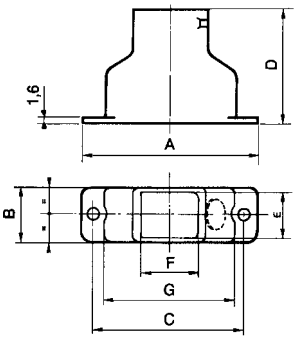
Packaging:
individual sets

All dimensions in mm

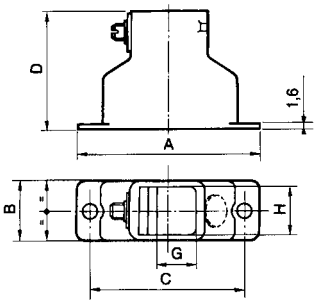
Cable applications

MONOBLOC PLASTIC HOODS FOR POTTING

8 • Straight exit



with cable tie



with screw and plate strain relief

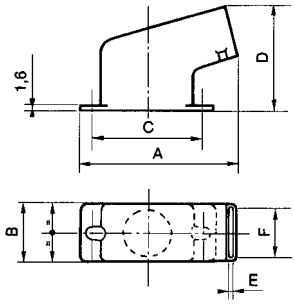
Shell size	Part numbers		A	B	C	D	E	F	G min.	G Max.	H
	Hood with cable tie	Hood with screw and plate									
E	863086BLF	86303920ALF	30.60	12.50	25.00	29.00	9.90	9.90	2.70	7.10	10.50
A	863021BLF	86303921ALF	38.90	12.50	33.32	29.00	9.90	11.90	4.50	9.10	10.50
B	863022BLF	86303922ALF	52.80	12.50	47.05	35.00	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

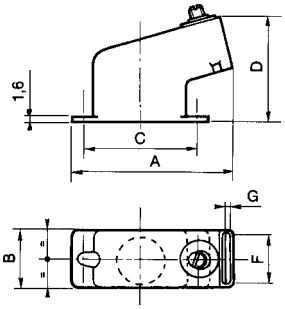
Temperature range:
-55°C to +105°C

Colour: black

9 • Right angle exit



with cable tie



with screw and plate strain relief

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

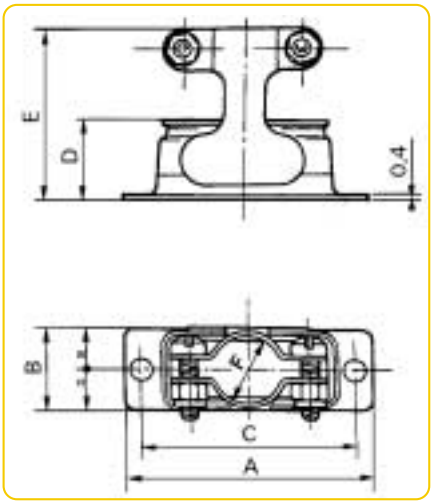
HOOD WITH CABLE CLAMPS

10 • Metal hood with circular clamp and straight exit

Material: Steel

Plating: Yellow chromate cadmium

Corrosion resistance:
50 hours exposure to salt spray



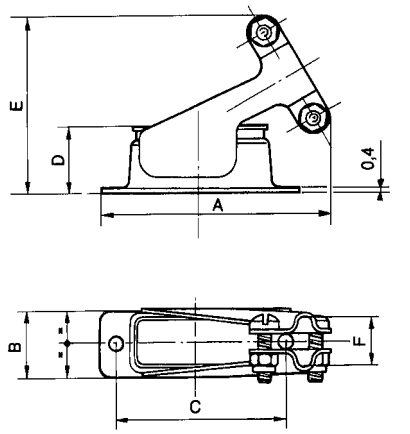
Shell size	Part numbers	A	B	C	D	E	F
E	863010	30.55	12.70	24.99	12.30	26.40	8.00
A	863011	38.89	12.70	33.32	12.30	26.40	10.00
B	863012	52.78	12.70	47.04	12.30	27.20	15.00
C	863013	69.06	12.70	63.50	12.30	27.20	18.00
D	863014	66.67	15.40	61.17	12.30	27.20	20.60

11 • Metal hood with circular clamp and 30° exit

Material: Steel

Plating: Yellow chromate cadmium

Corrosion resistance:
50 hours exposure to salt spray



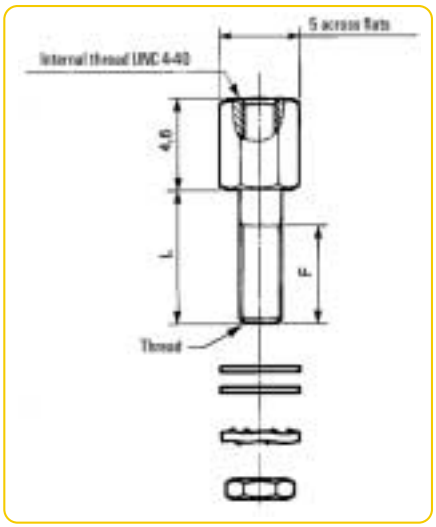
Shell size	Part numbers	A	B	C	D	E	F
E	863016	39.00	12.70	24.99	12.30	30.60	8.00
A	863017	43.10	12.70	32.32	12.30	32.50	10.00
B	863018	55.40	12.70	47.04	12.30	34.50	15.05
C	863019	75.30	12.70	63.50	12.30	37.50	18.00
D	863020	72.80	15.40	61.11	12.30	37.60	20.60

PCB and Cable applications

12 • Female screw locks

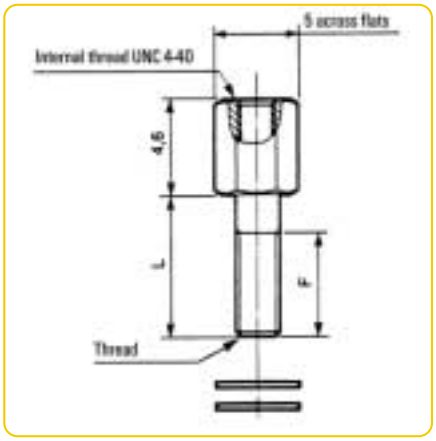
Part numbers	Thread	L Max.	F	Material
863001TLF	M3	8.30	6.90	Brass
86552153TLF	M3	8.30	6.90	Steel
863001017TLF	M3	6.30	5.00	Brass
863001061TLF	M3	13.00	12.00	Brass
863001060TLF	UNC 4-40	8.30	6.90	Brass

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: For use with connector without hood or with hood 7	For use with connector with hoods 10	For use with connector with hood 8
E	Male	863005ATLF	863004ATLF	863009ATLF
	Female			
A	Male			
	Female			
B	Male			
	Female			
C	Male	863008ATLF		
	Female	863005ATLF		
D	Male	863015ATLF	863002ATLF	863025ATLF
	Female	863003ATLF		

Material: steel

Plating: bright tin

Corrosion resistance:
50 hours exposure to salt spray

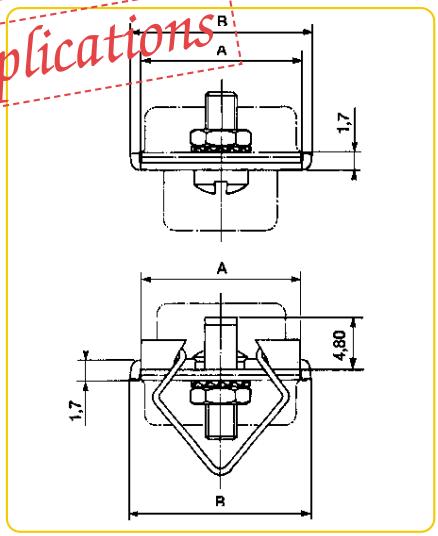
To obtain military plating (yellow chromate cadmium) exclude «TLF» in the part number (ex: 863005A)

Thread: UNC 4-40

PCB and Cable applications

PCB applications

15 • Lever locks



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

Material: steel
Plating: passivated

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

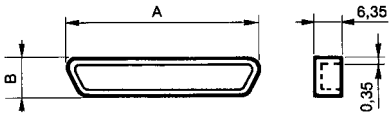
To obtain military plating (yellow chromate cadmium) exclude “TLF” in part number (ex : 86553148A).

* 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

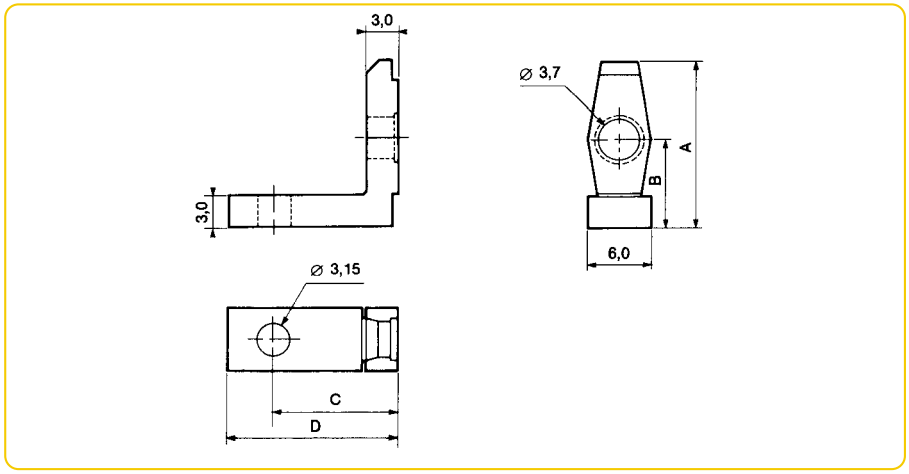
PCB applications

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

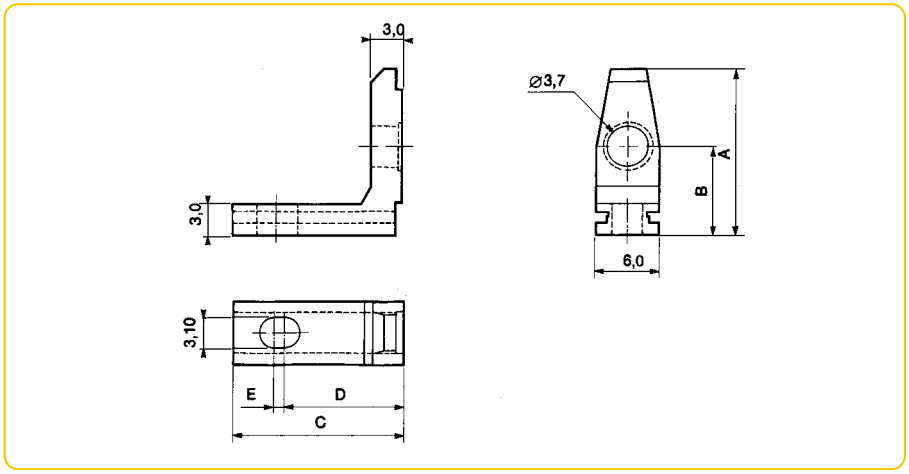
Material: UL rated 94V0 thermoplastic



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

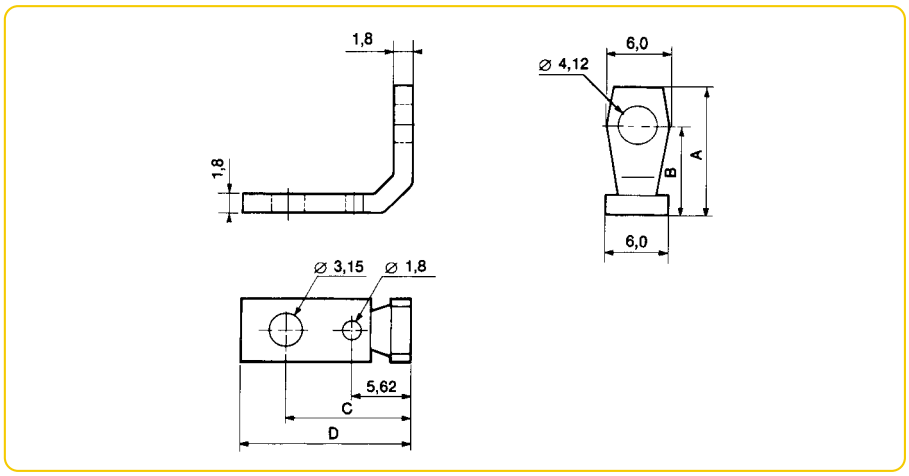


22 • Metal brackets

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

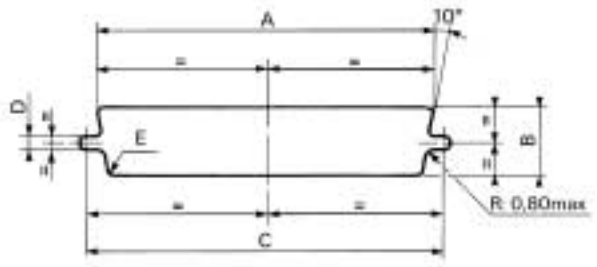
Material: steel

Platium: yellow chromate cadmium

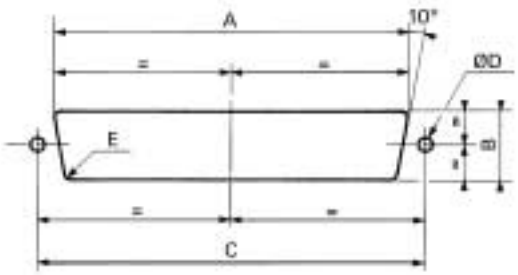


PANEL CUT-OUT

Cut-out for mounting
from rear or front of panel



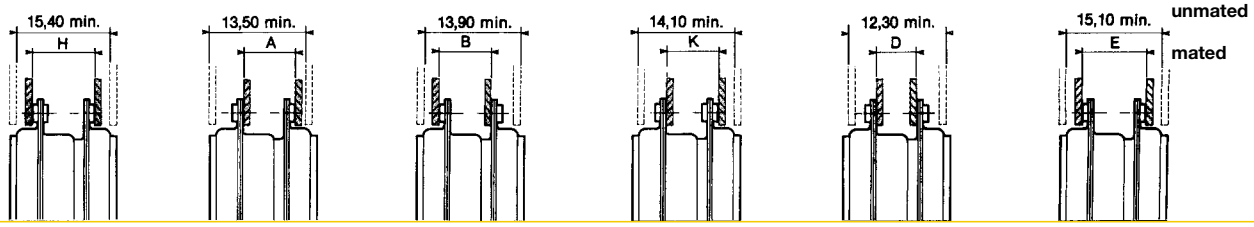
Cut-out for mounting
from rear of panel only

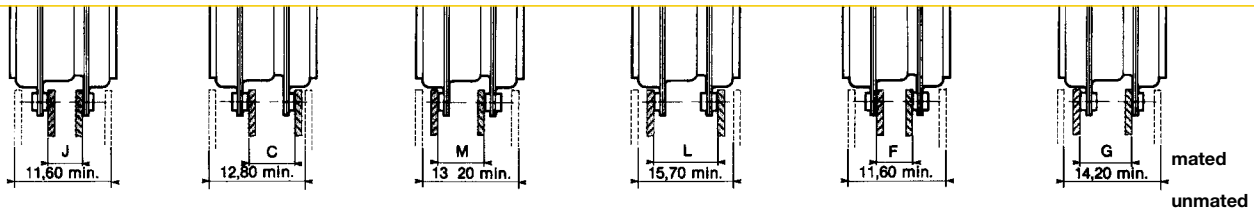


Shell size	Type of mounting	Mounting position	A ± 0.2	B ± 0.2	C ± 0.2	D ± 0.01	E ± 0.1
E	rigid	front	22.20	13.00	25.00	3.00	2.10
		rear	20.50	11.40	25.00	3.00	3.30
	float	front	23.00	13.80	25.00	2.20	2.10
		rear	21.30	12.20	25.00	2.20	3.30
A	rigid	front	30.50	13.00	33.30	3.00	2.10
		rear	28.80	11.40	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

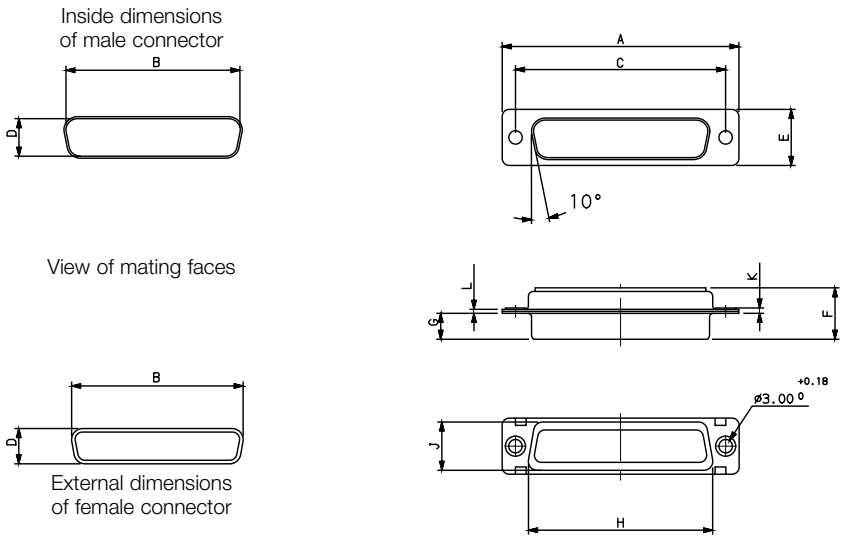
It is recommended that only **one of a pair** of connectors should be float mounted. Rigid mounted connectors require 2 screws Ø 3mm, float mounting connectors require 2 screws Ø 2 mm.





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



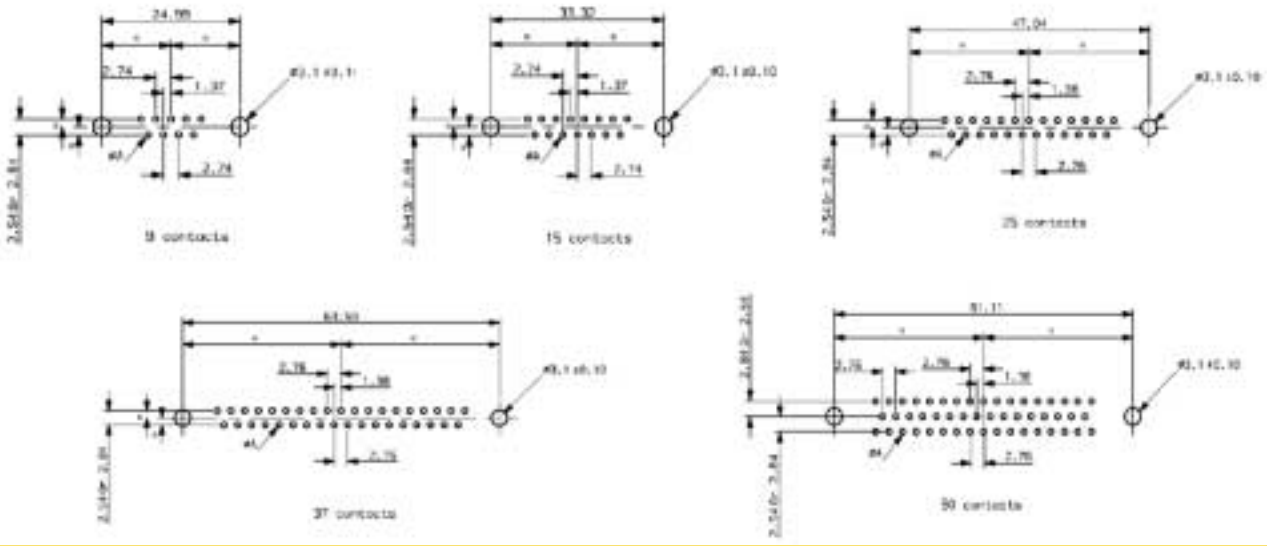
		A ± 0.38	B ± 0.13	C ± 0.13	D ± 0.13	E ± 0.38	F Max.	G +0.25 -0	H ± 0.25	J ± 0.25	K Max.	L ± 0.12
E	P	30.81	16.91	24.99	8.35	12.55	10.99	5.85	19.27	10.71	1.50	0.90
	S	30.81	16.33	24.99	7.89	12.55	11.21	6.05	19.27	10.71	1.50	0.90
A	P	39.14	25.24	33.32	8.35	12.55	10.99	5.85	27.50	10.71	1.50	0.90
	S	39.14	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: Ø A= 0.8 min. for D, DP

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



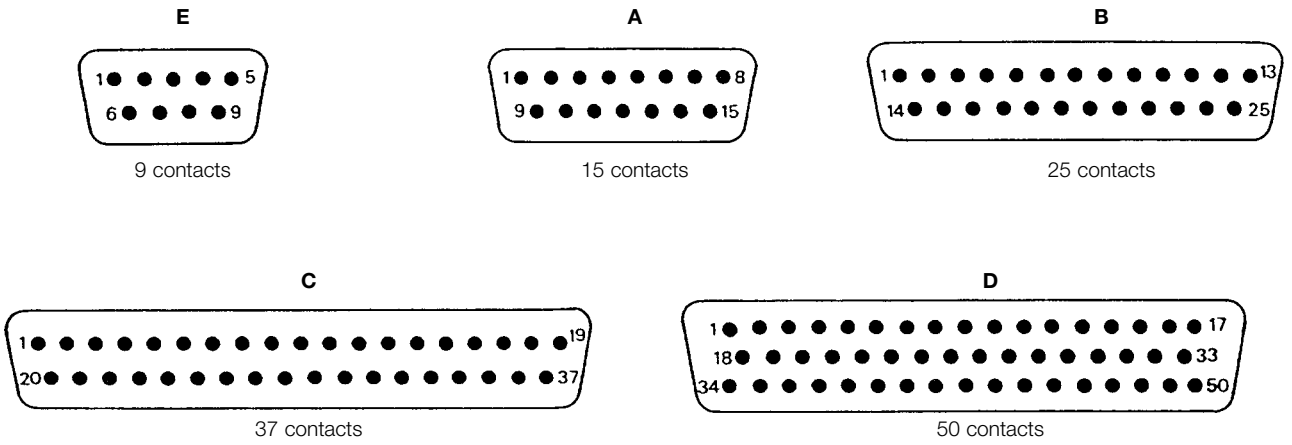
Note: pitch between row= 2.84 for straight spills

LAYOUTS

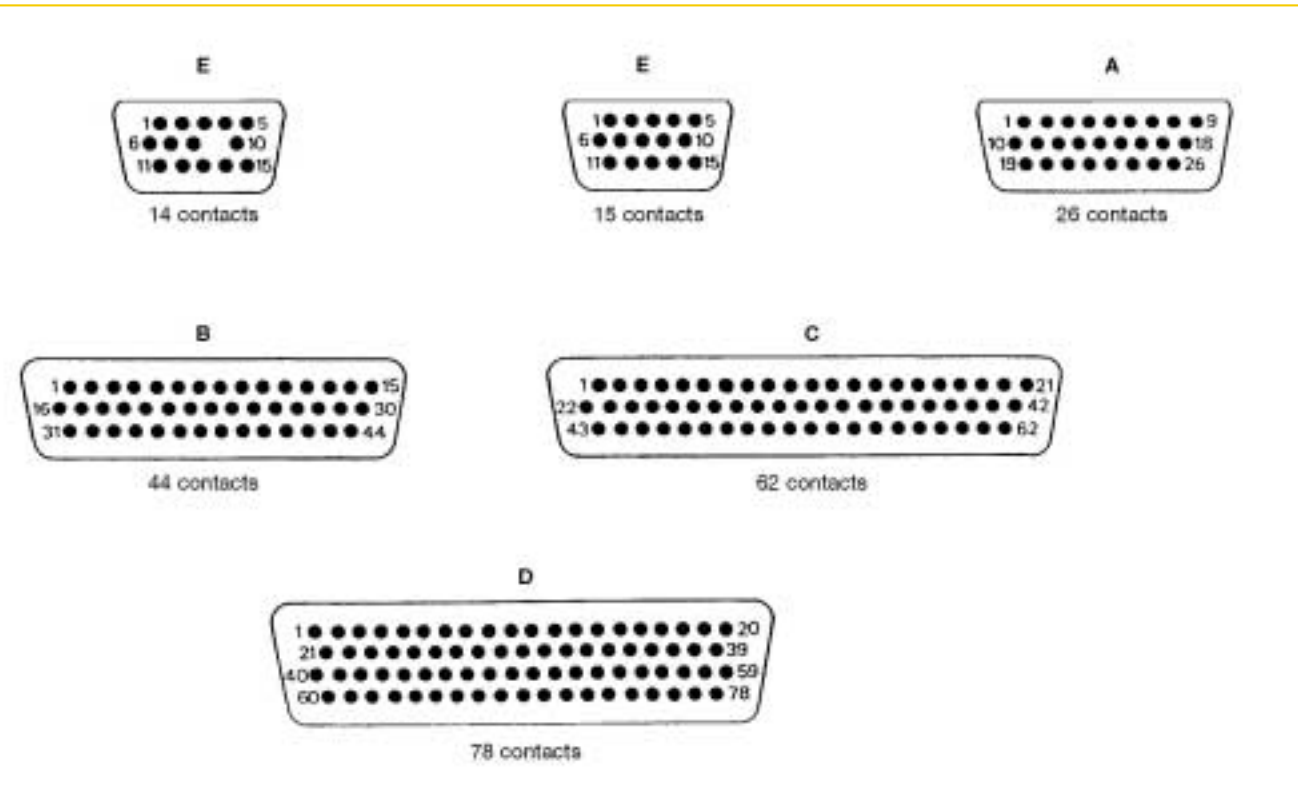
Male insulator front view

Contacts are individually numbered on both sides of the insulator.

Standard density connectors



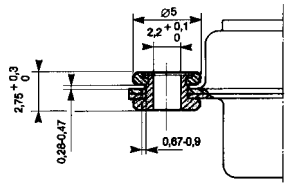
High density connectors (Compact D)



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

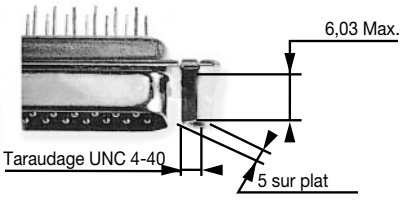
Options 1

F Float mounting (only military series)

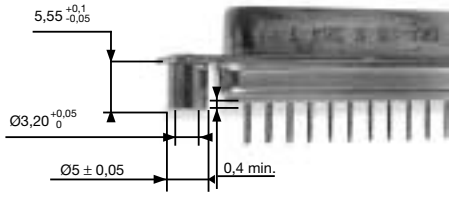


L Threaded insert M3
O Threaded insert UNC 4-40

V Female screw lock UNC 4-40



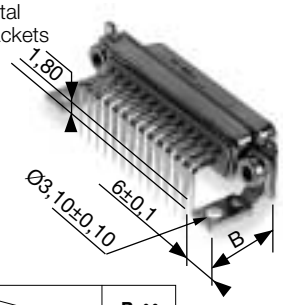
S Spacers riveted to shell



Options 2

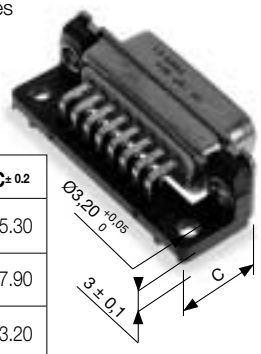
C Without bracket

M Metal brackets



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

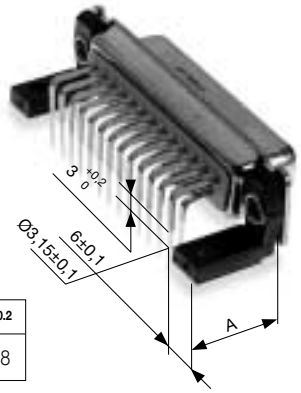
Blank For **DM** and **DMW** series connectors are delivered with monobloc plastic bracket
P For **DW** series



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

Bracket thickness = 3 ± 0.1

Blank For **DP** series connectors are delivered with 2 separate plastic brackets (except for layout 50 with monobloc bracket)

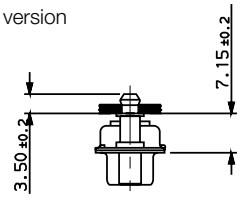


Layout	A± 0.2
9 to 37 contacts	14.8

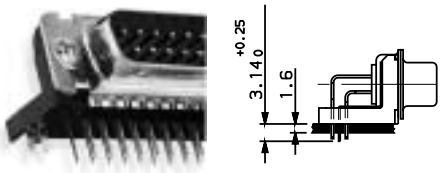
U Monobloc plastic bracket with metal plate for electrical continuity (dim. same as above)

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

straight version

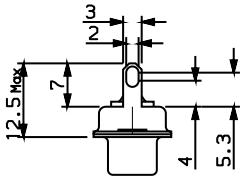


angled version



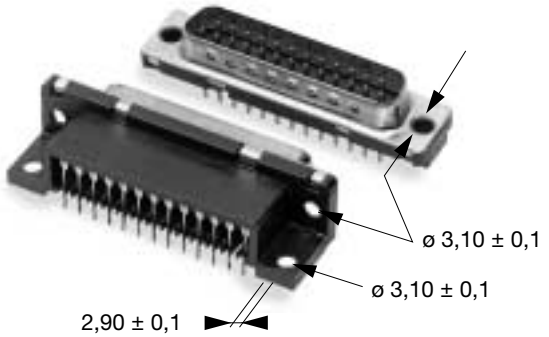
except 50 way

H Shielding fingers for solder D series (not availble on 50 way)

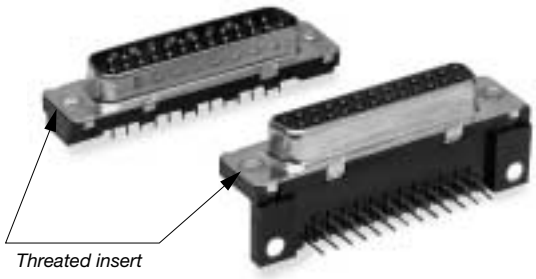


MOUNTING OPTIONS for DELTA D and COMPACT D series

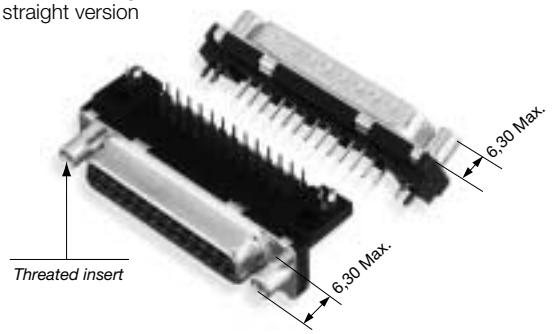
PA Standard hole without hardware



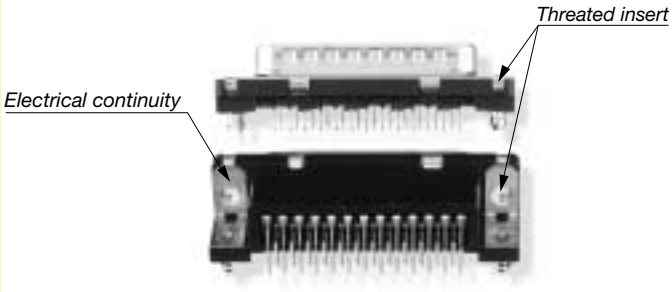
PL With threated insert M3
PX With threated insert UNC 4-40
PV With female screw UNC 4-40 (not represented)



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



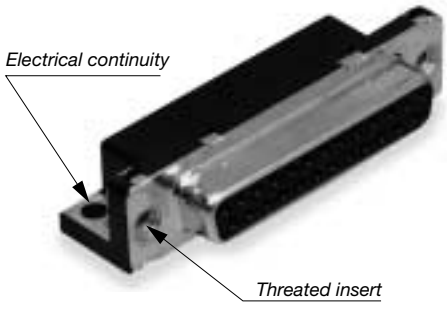
GL Thread M3
GX Thread UNC 4-40
Harpoons + Insert + Electrical continuity through metal strip for angled version and monobloc hardware for straight version



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

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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