



**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

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# **PCB APPLICATIONS**

Standard	applications		Pages					
Signal standard	Right angle	<ul><li>Solder to board:</li><li>Press-fit:</li><li>Pin-in-Paste:</li></ul>	Delta D					
density	Straight	<ul><li>Solder to board:</li><li>Press-fit:</li><li>Pin-in-Paste:</li></ul>	Delta D       14         Delta D       16         Delta D       18					
		D series also available (Design	n with two shells) 42					
Signal high density		Solder to board  • Press-fit						
Power	Right angle	<ul><li>Solder to board - Full a</li><li>Press-fit - Full power:</li></ul>	Delta D 28 DW series 29					
	Straight	<ul><li>Solder to board - Full &amp;</li><li>Press-fit - Full power .</li></ul>	DW series 29	- September 1				
Demand	ing applicatio	ns : machined signal c	ontacts					
Signal		<ul> <li>Right angle solder to be</li> <li>Wire-wrap: DP series</li> <li>Straight solder to boar</li> </ul>						
Severe e	nvironment a	pplications						
	HE 501 compliant standard	<ul><li>Right angle:</li><li>Straight:</li></ul>	DM series DM series 50					
Signal	HE 508 compliant high temperature	<ul><li>Right angle:</li><li>Straight:</li></ul>	DM series DM series 52					
Power	HE 507 compliant	<ul><li>Right angle:</li><li>Straight:</li></ul>	DMW series 54					

#### **CABLE APPLICATIONS**



	Delta D Solder to board	Delta D Press-fit	Delta D Pin-in-Paste	Mixed Power DW	D series	8656 series
ENVIRONMENTAL CHAP	RACTERISTICS					
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 APPROV	ALS					
NFC 93425				compliance with HE 50	7	in compliance with
DIN 41652	in compliance with	in compliance with	in compliance with	•	in compliance with	in compliance with
Others	LNZ 4404	·	·		<u> </u>	
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
Contacts	Соррег апоу	Соррег апоу	Copper alloy	Соррег апоу	Соррег апоу	Соррег апоу
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 CHARACT	ERISTICS					
	5 A	5 A	5 A	7.5 A (signal contact)	5 A	5 A
Max current rating per contact	5 A	5 A	5 A	7.5 A (signal contact) 40 A (power contact)	5 A	5 A
Max current rating per contact Dieletric withstanding	5 A 1000 Vrms	5 A 1000 Vrms	5 A 1000 Vrms	, •	5 A 1000 Vrms	5 A 1000 Vrms
Max current rating per contact Dieletric withstanding voltage (DWV)				40 A (power contact)		
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage	1000 Vrms	1000 Vrms	1000 Vrms	40 A (power contact) 1000 Vrms	1000 Vrms	1000 Vrms
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance	1000 Vrms 300 Vrms	1000 Vrms 300 Vrms	1000 Vrms 300 Vrms	40 A (power contact) 1000 Vrms 300 Vrms	1000 Vrms 300 Vrms	1000 Vrms 300 Vrms
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction	1000 Vrms 300 Vrms ≥ 5000 MΩ	1000 Vrms 300 Vrms ≥ 5000 MΩ	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *	40 A (power contact) 1000 Vrms 300 Vrms ≥ 5000 MΩ	1000 Vrms 300 Vrms ≥ 5000 MΩ	1000 Vrms 300 Vrms ≥ 5000 MΩ
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *	40 A (power contact) $1000 \text{ Vrms}$ $300 \text{ Vrms}$ $\geq 5000 \text{ M}\Omega$ $\leq 7.3 \text{ m}\Omega$	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *	40 A (power contact) $1000 \text{ Vrms}$ $300 \text{ Vrms}$ $\geq 5000 \text{ M}\Omega$ $\leq 7.3 \text{ m}\Omega$	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)  MECHANICAL AND DIM Mating / Unmating cycles Contact diameter	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *  5N Max. / 0.3N min.	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ *  5N Max. / 0.3N min.	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min	40 A (power contact)  1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 7.3 mΩ  1. 5N Max. / 0.3N min.	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N mi
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)  MECHANICAL AND DIM Mating / Unmating cycles Contact diameter on active area	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ENSIONAL CHARAC 200 min.	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  STERISTICS 200 min.	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min  500 min.	40 A (power contact)  1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 7.3 mΩ  1.5N Max. / 0.3N min.  500 min.  3.6 mm (power contact)	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.	1000 Vrms 300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)  MECHANICAL AND DIM Mating / Unmating cycles Contact diameter on active area	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ENSIONAL CHARAC 200 min. 1 mm	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ETERISTICS 200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min  500 min.  1 mm	40 A (power contact)  1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 7.3 mΩ  1.5N Max. / 0.3N min.  500 min.  3.6 mm (power contact)  1 mm (signal contact)	1000 Vrms  300 Vrms  ≥ 5000 M $\Omega$ ≤ 10 m $\Omega$ *  5N Max. / 0.3N min.  200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N mi  200 min. 1 mm
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)  MECHANICAL AND DIM Mating / Unmating cycles Contact diameter on active area Removable contacts	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ENSIONAL CHARAC 200 min. 1 mm	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ETERISTICS 200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min  500 min.  1 mm	40 A (power contact)  1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 7.3 mΩ  1.5N Max. / 0.3N min.  500 min.  3.6 mm (power contact)  1 mm (signal contact)  yes (cable)	1000 Vrms  300 Vrms  ≥ 5000 M $\Omega$ ≤ 10 m $\Omega$ *  5N Max. / 0.3N min.  200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N m  200 min. 1 mm
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)  MECHANICAL AND DIM Mating / Unmating cycles Contact diameter on active area Removable contacts  WIRE	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ENSIONAL CHARAC 200 min. 1 mm	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ETERISTICS 200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min  500 min.  1 mm	40 A (power contact)  1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 7.3 mΩ  1.5N Max. / 0.3N min.  500 min.  3.6 mm (power contact)  1 mm (signal contact)	1000 Vrms $300 \text{ Vrms}$ ≥ 5000 M $\Omega$ ≤ 10 m $\Omega$ * 5N Max. / 0.3N min.	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N mi  200 min. 1 mm
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)  MECHANICAL AND DIM Mating / Unmating cycles Contact diameter on active area Removable contacts  WIRE Size	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ENSIONAL CHARAC 200 min. 1 mm	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ETERISTICS 200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min  500 min.  1 mm	40 A (power contact)  1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 7.3 mΩ  1. 5N Max. / 0.3N min.  500 min.  3.6 mm (power contact)  1 mm (signal contact)  yes (cable)  AWG 20 Max. (signal contact)	1000 Vrms $300 \text{ Vrms}$ ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N mi  200 min. 1 mm  yes
Max current rating per contact Dieletric withstanding voltage (DWV) Rated voltage Insulation resistance Contact resistance Insertion / Extraction force per contact (N)  MECHANICAL AND DIM Mating / Unmating cycles Contact diameter on active area Removable contacts  WIRE	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ENSIONAL CHARAC 200 min. 1 mm	1000 Vrms  300 Vrms ≥ 5000 MΩ ≤ 10 mΩ * 5N Max. / 0.3N min.  ETERISTICS 200 min. 1 mm	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min  500 min.  1 mm	40 A (power contact)  1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 7.3 mΩ  1. 5N Max. / 0.3N min.  500 min.  3.6 mm (power contact) 1 mm (signal contact) yes (cable)  AWG 20 Max. (signal contact) other see page 35	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N min.  200 min. 1 mm  no  AWG 20 Max.	1000 Vrms  300 Vrms  ≥ 5000 MΩ  ≤ 10 mΩ *  5N Max. / 0.3N mi  200 min. 1 mm  yes  AWG 20 Max.

<sup>\*</sup> Straight version only

Series	8657 series	Compact D high density	DP series	DM HE 501 / HE 508	DMW HE 507
ENVIRONMENTAL CHA	RACTERISTICS				
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 APPROV	ALS				
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/Thermose
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
terrilliation area	I TIITOVEI NICKEI	TITI OVEL TNICKEL	TIT OVEL NICKEL	TIT/GOID OVER MICKEL	TIT/GOID OVER NICKER
ELECTRICAL CHARACT	TERISTICS				
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	$\geq$ 5000 M $\Omega$
Contact resistance	≤ 10 mΩ *	≤ 25 mΩ *	≤7.3 mΩ	≤7.3 mΩ	$\leq$ 7.3 m $\Omega$
Insertion / Extraction force per contact (N)	5N Max. / 0.3N min.	5N Max. / 0.3N min.			
	IENSIONAL CHARACTERIS		000 min	500	500
Mating / Unmating cycles Contact diameter	500 min. 1 mm	200 min. 0.76 mm	200 min. 1 mm	500 1 mm	500 1 mm (signal contact)
on active area					
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
LAVOUT					
LAYOUT  Number of contacts	9, 15, 25, 37	Solder: 15, 26, 44, 62	9, 15, 25, 37, 50	9, 15, 25, 37, 50	9, 15, 25, 37, 50



**OOLF** 

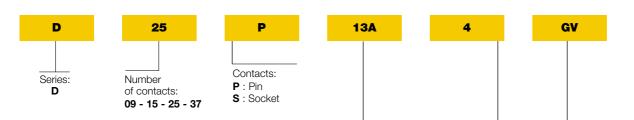


# UL Recognized File E 118235 (R)

In compliance with DIN 41652.



#### ORDERING INFORMATION



#### **Termination:**

	Code	Туре	Foot print/Pitch	Length of termination	PCB thickness
$\odot$	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
$\odot$	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

: Threaded insert M3 ы

PΧ : 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

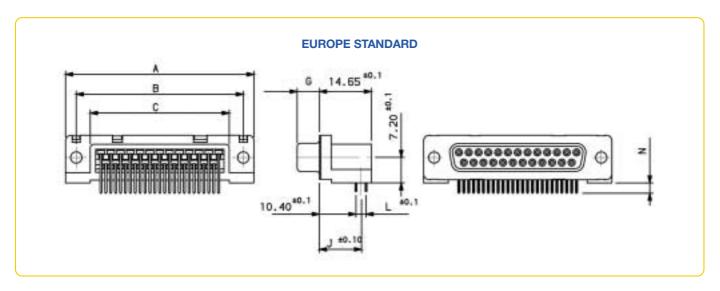
**UV**: Female screw UNC 4-40 + elec. continuity

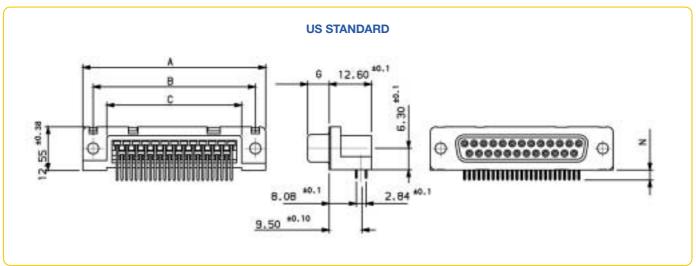
00LF: Standard series, RoHS compatible

Technical characteristics - page 6

Preferred option







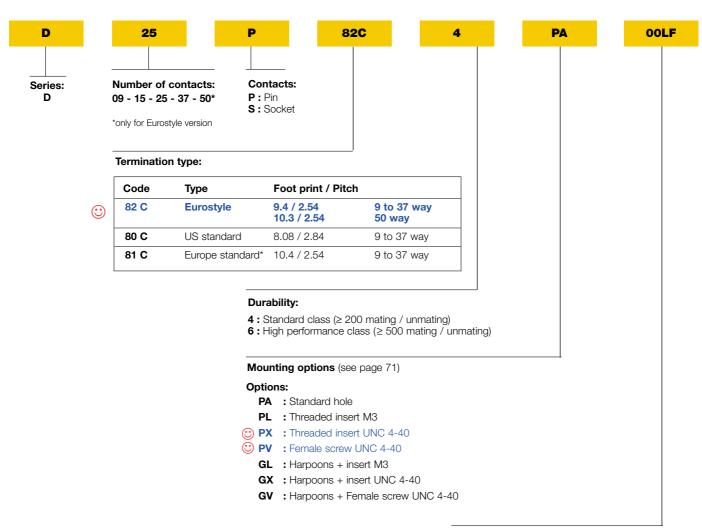
		A+0.29	<b>A</b> ±0.38	<b>A</b> +0.38	<b>A</b> +0 38	<b>B</b> ±0.12	C±0.10	<b>G</b> <sup>+0,25</sup>	<b>J</b> ±0	).10	L±0	).1		N±0.30	
	<b>A</b> 20.00		M2000 B2012 C2010		<b>G</b> -0	Termination		Termination		Terminal length					
						13.	23.	13.	23.	13 A 23 A	13 B 23 B	33 E			
9	Р	30.81	24.99	16.96	5.90 ±0.15	11.67	11.82	2.54	2.84	2.90	3.70	3.18			
9	S	30.81	24.99	16.96	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18			
15	Р	39.14	33.32	25.18	5.90 ±0.15	11.67	11.82	2.54	2.84	2.90	3.70	3.18			
15	S	39.14	33.32	25.18	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18			
25	Р	53.03	47.04	39.12	5.70	11.67	11.82	2.54	2.84	2.90	3.70	3.18			
25	S	53.03	47.04	39.12	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18			
37	Р	69.32	63.50	55.68	5.70	11.67	11.82	2.54	2.84	2.90	3.70	3.18			
31	S	69.32	63.50	55.68	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18			







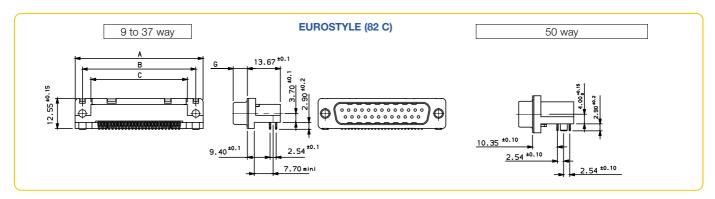
#### **ORDERING INFORMATION**

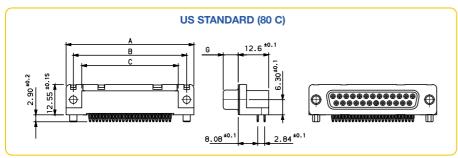


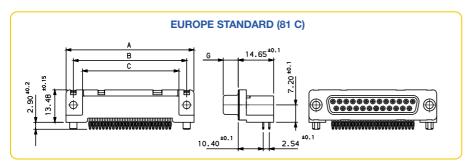
#### Other options:

00 : Standard, non RoHS compatibleOOLF : Standard, RoHS compatible









		A±0.38	B±0.12	C±0.10	G+0,25
9	Р	30.81	24.99	18.00	5.90+0.15
9	s	30.81	24.99	18.00	6.05
15	P	39.14	33.32	26.32	5.90+0.15
13	s	39.14	33.32	26.32	6.05
25	P	53.03	47.04	40.04	5.70
23	s	53.03	47.04	40.04	6.05
37	Р	69.32	63.50	55.50	5.70
31	s	69.32	63.50	55.50	6.05
	Р	67.10	61.11	54.10	5.70
50*	s	67.10	61.11	54.10	6.05

<sup>\*</sup> Only for Eurostyle version.

#### PRESS-FIT FEATURES

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

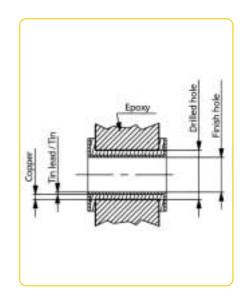
#### Metallized hole dimensions

			Press-fit contacts	Press-fit harpoons	
		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	
P.C.B. hole		Copper plating	25 μm min (recommended 50 μ max)	25 μm min (recommended 50 μ max)	
definition	non	Tin-lead plating	15 μm max (recommended 5 μ min)	15 μm max (recommended 5 μ min)	
(note 1 and 2)	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	
	NUI IO	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



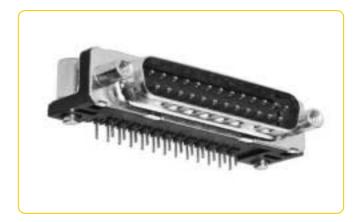


EU directive 2002/95/EC

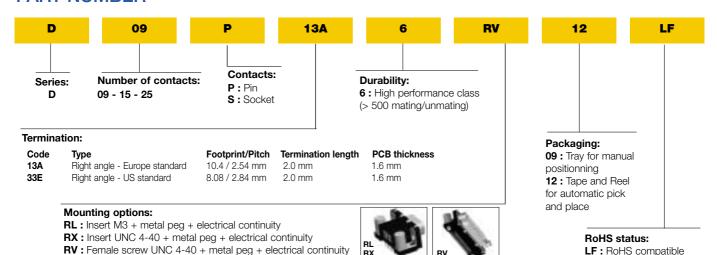
#### In compliance with DIN 41652:

Reflow type: JSTD-020CPackaging: IEA-481-B

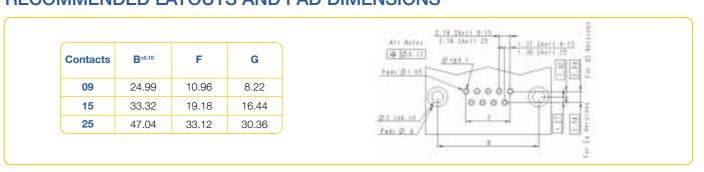
► Plating: BELLCORE CO GR-1217



#### PART NUMBER



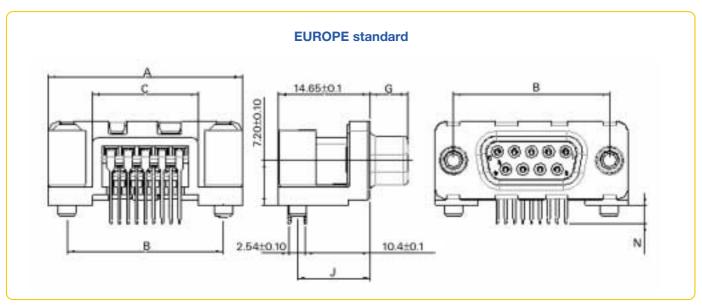
# RECOMMENDED LAYOUTS AND PAD DIMENSIONS

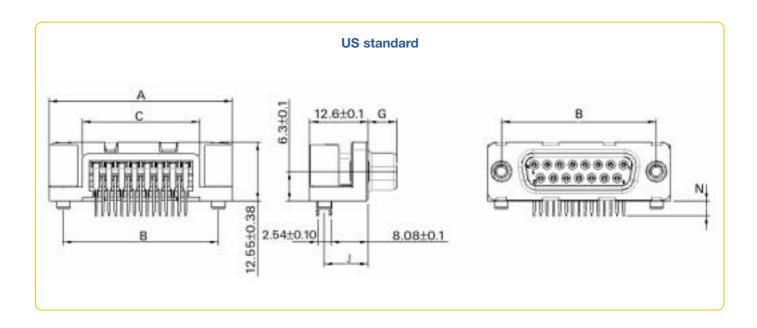


#### **TECHNICAL FEATURES**

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: $\geq$ 5000 M $\Omega$ Contact resistance: $<$ 10 m $\Omega$ Dielectric withstanding voltage: 1000 Vrms







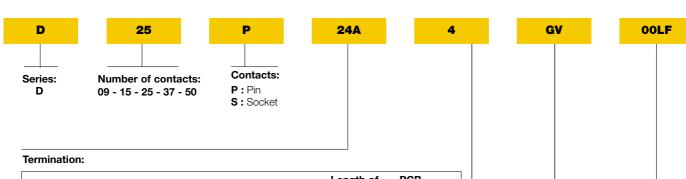
Dimensions									
						J±	0,10	N±0,30	
		A±0,38	B±0,12	C±0,10	<b>G</b> -0/+0,25			Termination length	
						Termination 13	Termination 33	13A 33E	I3B
9	Р	30.81	24.99	16.96	5.90 -0/+0.15	11.67	9.50	2.00	2.90
9	S	30.81	24.99	16.96	6.05	11.67	9.50	2.00	2.90
15	Р	39.14	33.32	25.18	5.90 -0/+0.15	11.67	9.50	2.00	2.90
15	S	39.14	33.32	25.18	6.05	11.67	9.50	2.00	2.90
0E	Р	53.03	47.04	39.12	5.70	11.67	9.50	2.00	2.90
25	S	53.03	47.04	39.12	6.05	11.67	9.50	2.00	2.90







#### **ORDERING INFORMATION**



	Code	Туре	Foot print/Pitch	Length of termination	PCB thickness	
	14 A	Straight version (low profile)	5.6 / 2.84 mm	2.90	1.6	
$\odot$	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

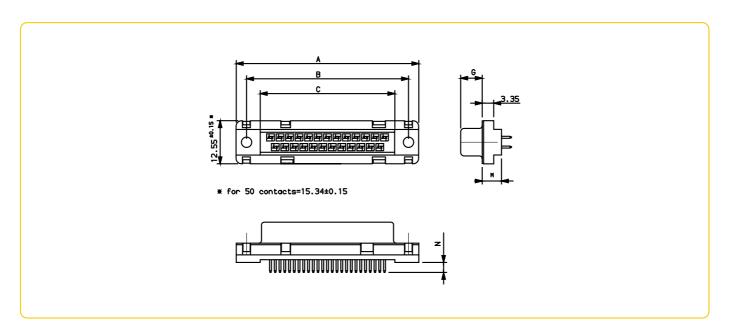
GV Harpoons + Female screw UNC 4-40 + elec. continuity

Other options:

00LF: Standard series, RoHS compatible

Other options





						<b>M</b> ±0.10		N±0	.30	
		<b>A</b> . 0.00	<b>B</b> ±0.12	C±0.10	0.005		Terminal			length
		<b>A</b> ±0.38	B±0.12	<b>G</b> ±0.10	G±0.25	14	24	34	14 A 24 A 34 A	24 B
9	P	30.81	24.99	16.96	5.90 +0.15	5.60	6.00	6.90	2.90	3.70
9	s	30.81	24.99	16.96	6.05	5.60	6.00	6.90	2.90	3.70
15	Р	39.14	33.32	25.18	5.90 +0.15	5.60	6.00	6.90	2.90	3.70
15	S	39.14	33.32	25.18	6.05	5.60	6.00	6.90	2.90	3.70
0.5	Р	53.03	47.04	39.12	5.70	5.60	6.00	6.90	2.90	3.70
25	S	53.03	47.04	39.12	6.05	5.60	6.00	6.90	2.90	3.70
07	Р	69.32	63.50	55.68	5.70	5.60	6.00	6.90	2.90	3.70
37	S	69.32	63.50	55.68	6.05	5.60	6.00	6.90	2.90	3.70
	Р	67.10	61.11	54.11	5.70	5.60	6.00	6.90	2.90	3.70
50	S	67.10	61.11	54.11	6.05	5.60	6.00	6.90	2.90	3.70



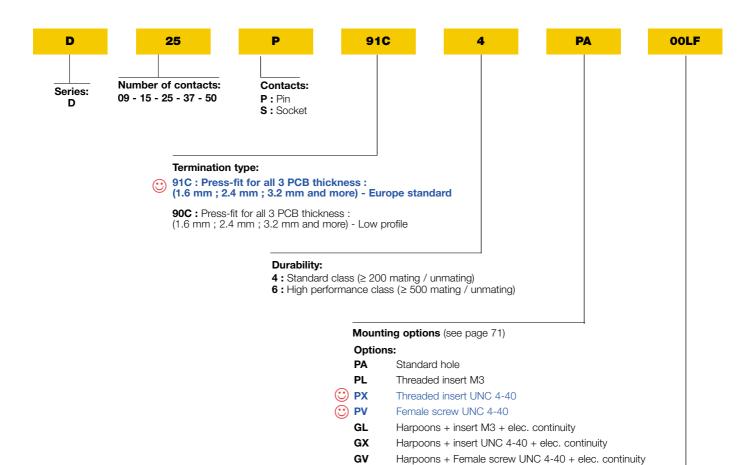
#### PRESS-FIT TERMINATION



- 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

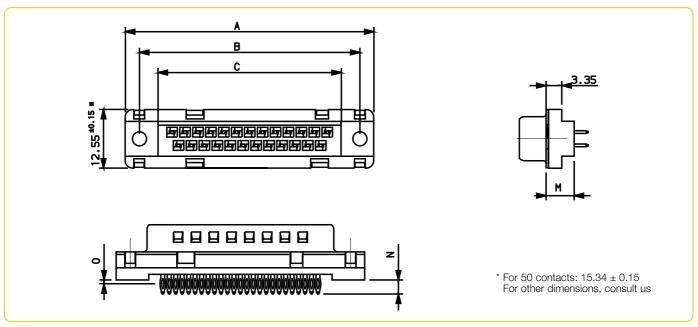


#### Other options:

00 : Standard series, non RoHS compatible

00LF : Standard series, RoHS compatible





Size	<b>▲</b> ±0.38	<b>B</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	<b>M</b> ±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
		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
P.C.B. hole		Copper plating 25 μm min (recommended 50 μ max)		25 μm min (recommended 50 μ max)
definition	non RoHS RoHS	Tin-lead plating	15 μm max (recommended 5 μ min)	15 μm max (recommended 5 μ min)
(note 1 and 2)		Finish hole (after reflow)	Ø 0.94 - 1.09	Ø 3.02 - 3.20
ĺ		Tin plating	0.8 to 1.2 μm	0.8 to 1.2 μm
	NUI IO	Finish hole (after reflow)	Ø 1.00 - 1.09	Ø 3.08 - 3.20

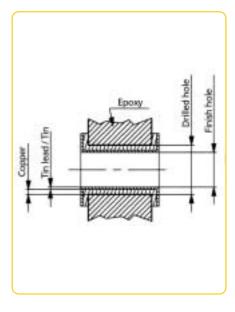
Note 1 : These dimensions must be respected to ensure press-fit pin performance

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





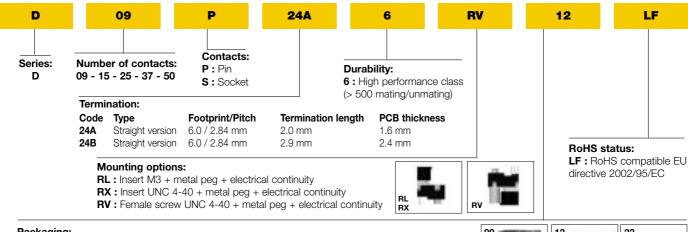
#### In compliance with DIN 41652:

► Reflow type: JSTD-020C Packaging: IEA-481-B

Plating: BELLCORE CO GR-1217



#### **ORDERING INFORMATION**



#### 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)

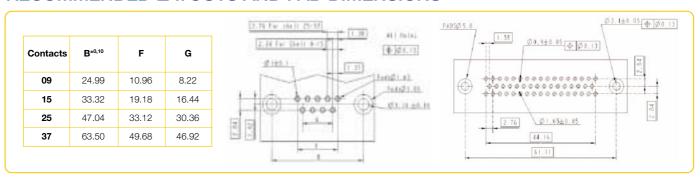
22: Tape and Reel and pick-up cap for vacuum nozzle device (not available in 37 and 50 ways)







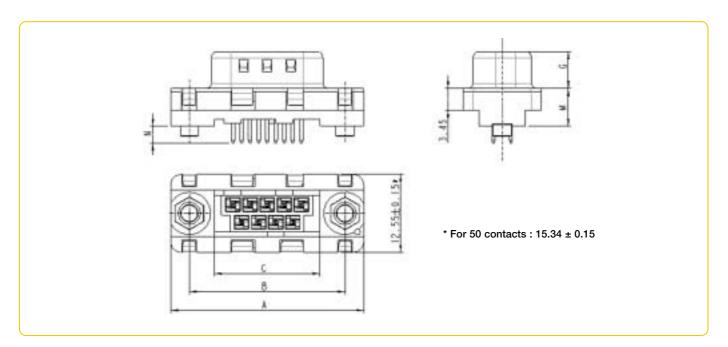
#### RECOMMENDED LAYOUTS AND PAD DIMENSIONS



#### **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: $\geq$ 5000 M $\Omega$ Contact resistance: $<$ 10 m $\Omega$ Dielectric withstanding voltage: 1000 Vrms





#### **Dimensions**

				B=0,12 C=0,10 G=0,40 M=0,10			N <sup>±0,30</sup>	
		A±0,38	B <sup>±0,12</sup>			<b>M</b> ±0,10	Termination lenght	
							24A	24B
9	Р	30.81	24.99	16.96	5.90 -0/+0.15	6.00	2.00	2.90
9	S	30.81	24.99	16.96	6.05	6.00	2.00	2.90
15	Р	39.14	33.32	25.18	5.90 -0/+0.15	6.00	2.00	2.90
13	S	39.14	33.32	25.18	6.05	6.00	2.00	2.90
25	Р	53.03	47.04	39.12	5.70	6.00	2.00	2.90
25	S	53.03	47.04	39.12	6.05	6.00	2.00	2.90
37	Р	69.32	63.50	55.68	5.70	6.00	2.00	2.90
31	S	69.32	63.50	55.68	6.05	6.00	2.00	2.90
50	Р	67.10	61.11	54.11	5.70	6.00	2.00	2.90
50	S	67.10	61.11	54.11	6.05	6.00	2.00	2.90

Dimensions in mm



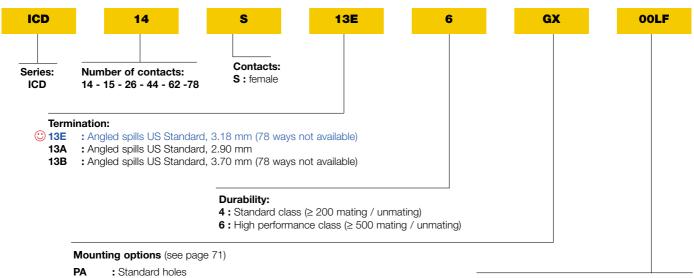


# UL Recognized File E 118235 (R)

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



#### **ORDERING INFORMATION**



PL: Threaded insert (M3)
PX: Threaded insert (UNC 4-40)
PV: Female screw (UNC 4-40)

⊕ GL
 ⊕ GX
 ⊕ GY
 : Harpoons + insert M3 + elec. continuity
 ⊕ Harpoons + insert UNC 4-40 + elec. continuity
 ⊕ Harpoons + female (UNC 4-40) + elec. continuity

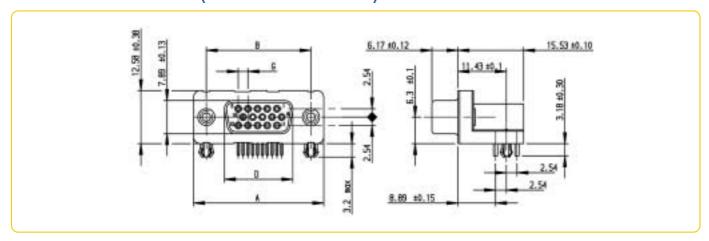
UL : Insert M3 + elec. continuity
UX : Insert UNC 4-40 + elec. continuity
UV : Female screw UNC 4-40 + elec. continuity

#### **Options:**

© 00LF: Standard series, RoHS compatible

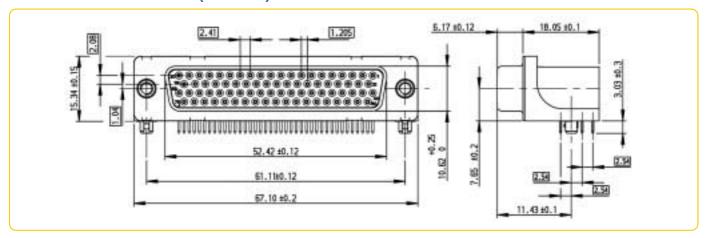


# COMPACT D 3 ROWS (14-15/26/44/62 POS)

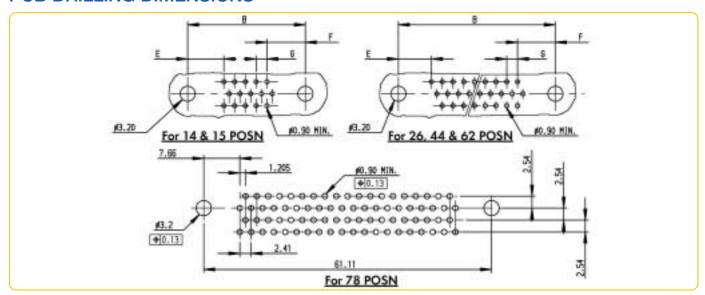


Size	Dimensions									
	A + 0.38	B + 0.12	C + 0.10	D + 0.25	E	F	G			
14 / 15	30,81	24,99	16,96	16,21	7,68	8,19	2,285			
26	39,14	33,32	25,18	24,54	7,02	8,01	2,285			
44	53,03	47,04	39,12	38,25	7,01	8,02	2,285			
62	69,32	63,50	55,68	54,71	7,03	8,21	2,41			

# **COMPACT D 4 ROWS (78 POS)**



# PCB DRILLING DIMENSIONS









#### **ORDERING INFORMATION**

CD78S80C

Series:

78 way right angle female press-fit

6

#### **Durability:**

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

GL

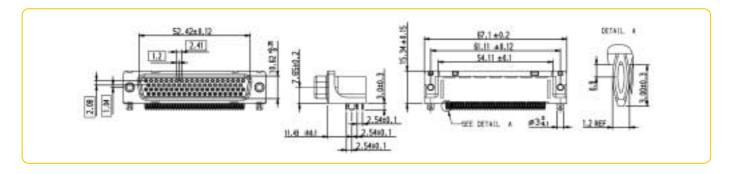
#### Mounting options:

- **GL**: Harpoons + insert M3 + elec. continuity
- GX: Harpoons + insert UNC 4-40
- + elec. continuity
- GV: Harpoons + female screw UNC 4-40
  - + elec. continuity

OOLF

#### Options:

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



1

Series:

78 way straight male press-fit

**CD78P91C** 

#### Plating:

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

6

GL

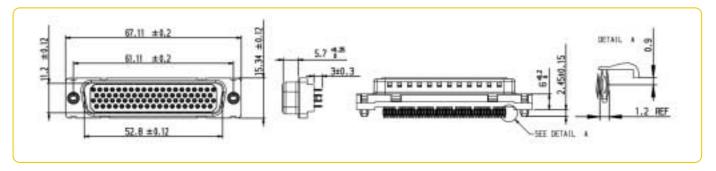
#### Mounting options:

- **GL:** Harpoons + insert M3 + elec. continuity
- GX: Harpoons + insert UNC 4-40
  - + elec. continuity
- **GV**: Harpoons
  - + female screw UNC 4-40
  - + elec. continuity

OOLF

#### Options:

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





#### ORDERING INFORMATION

CD62S91C
Series:

62 way straight

female press-fit

6

#### **Durability:**

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

GL

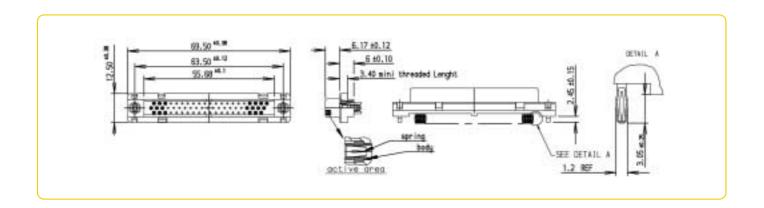
#### Mounting options:

- **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.	Drill diameter	orill diameter 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 1,12 - 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
hole definition	Tin lead plating	5μm mini - 15μ maxi		5μm mini - 15μ maxi			
(note 1 and 2)	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**

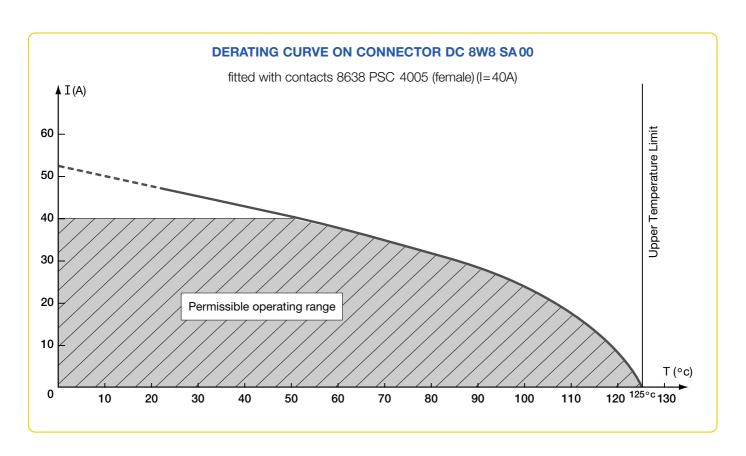
#### ► Male insulator front view

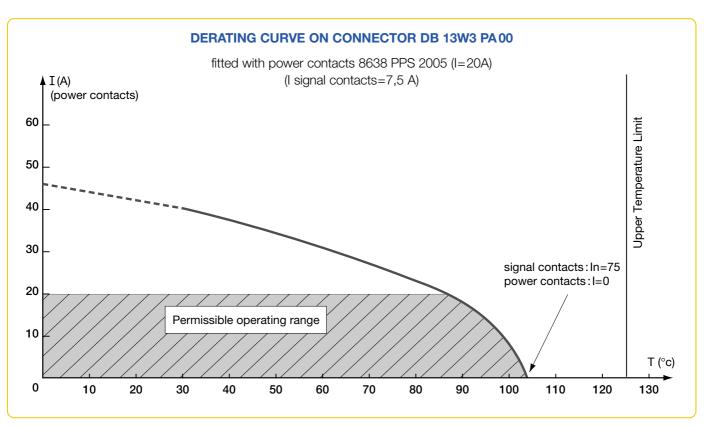
Shell size		Layout
E	2V2 coded	
	5W1	
	11W1	7 6 4 5 6
A	7W2	A1 1 2 A2 A
^	3W3	A1
	3V3 coded	A1 A3 A3
	25W3	A1 A2 1 2 3 4 5 6 7 8 9 10 11 A3 12 13 14 15 16 17 18 19 20 21 22
С	21WA4	A1 A2 1 2 3 4 5 6 7 8 9 A3 A4 10 11 11 12 13 14 15 16 17
C	27W2	A1 1 2 3 4 5 6 7 8 9 1011 1213 A2
	8W8	A1

Shell size		Layout
	21W1	1 2 3 4 5 A 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
	17W2	1 2 3 4 5 6 7 A2
В	13W3	A3 A2 1 A1
	9W4	A1
	5W5	A1
	47W1	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 6 16 17 16 19 20 7 20 20 20 20 20 20 20 20 20 20 20 20 20
D	24W7	A1
	36W4	A1

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

# **DERATING CURVES**







#### **DIMENSIONS**

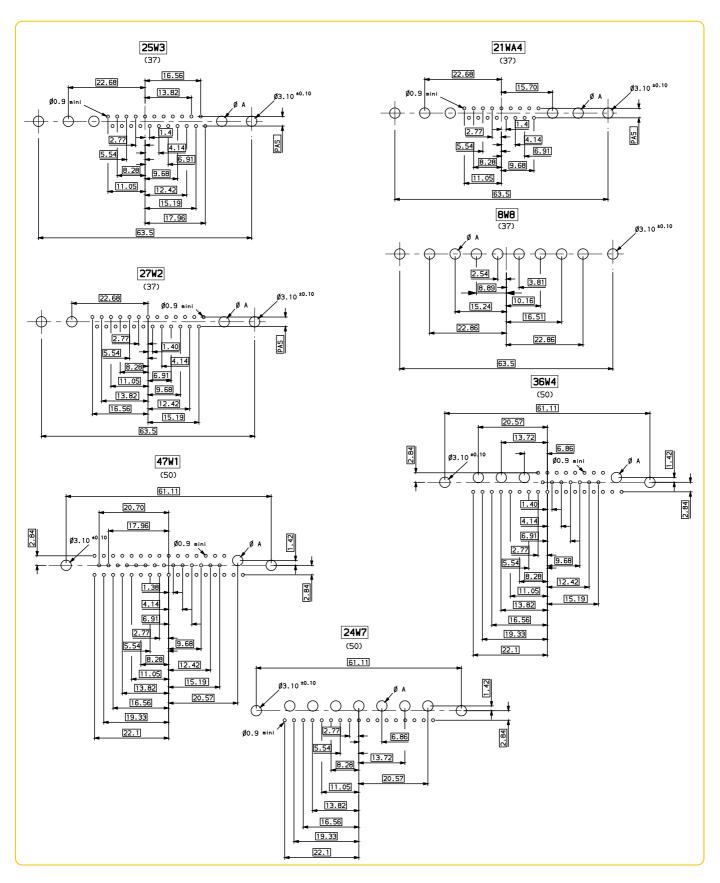
# ► PC board drilling

#### **5W1** (09) 2V2 000 Solder termination 30 A 40 A Ø3.10<sup>±0.10</sup> Version Step ØΑ 3 2.84 Ø 2.40±0.10 Ø 3.10±0.10 PAS 四.1集簿 7 2.84 Ø 2.40±0.10 24.99 5 2.54 Ø 2.40±0.10 Ø 3.10±0.10 24.90常設 **7W2** (15) 11 W 1 3/3 3W3 (15) (15) ø3.10 <sup>±0.10</sup> Ø3.10 <sup>±0.10</sup> PAS PAS 6.86 6.86 6.86 33.32 33.32 33.32 21W1 17W2 (25) (25) 5W5 (25) Ø3.10 <sup>±0.10</sup> 14.48 Ø3.10 <sup>±0.10</sup> Ø3.10 ±0.10 Ø0.9 mini .14 14.48 47.04 47.04 47.04 13W3 9W4 (25) (25) ø3.10 <sup>±0.10</sup> ø3.10 <sup>±0.10</sup> ini Ø0.9 4.14 PAS 9.68 14.48 14.48 47.04



#### **DIMENSIONS**

# **PC** board drilling



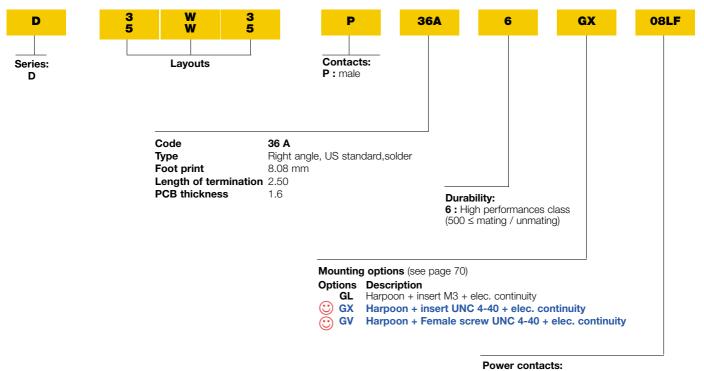


# UL Recognized File E 118235 (R)

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

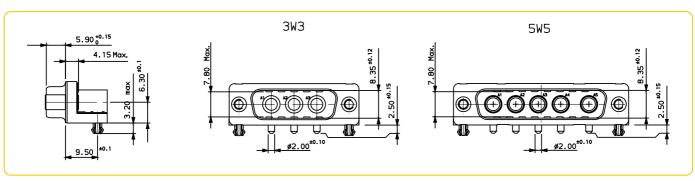


#### ORDERING INFORMATION



**08LF:** Fitted with power contacts 30 A, RoHS compatible

#### SPECIFIC DIMENSIONS



Preferred option



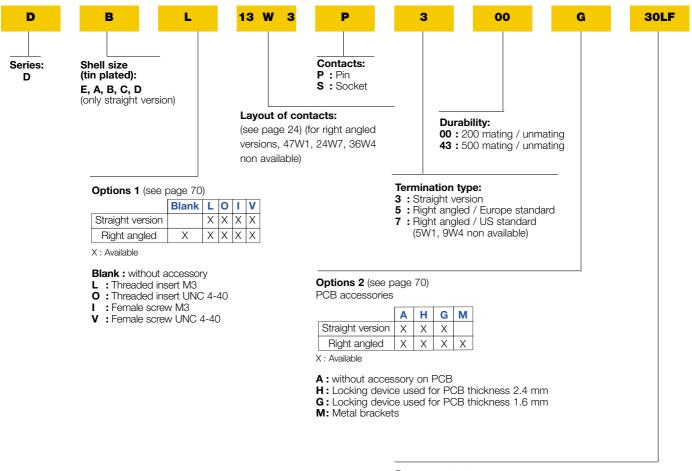
UL Recognized File E 118235 (R)

# STRAIGHT AND RIGHT ANGLE PC BOARD VERSIONS





#### ORDERING INFORMATION

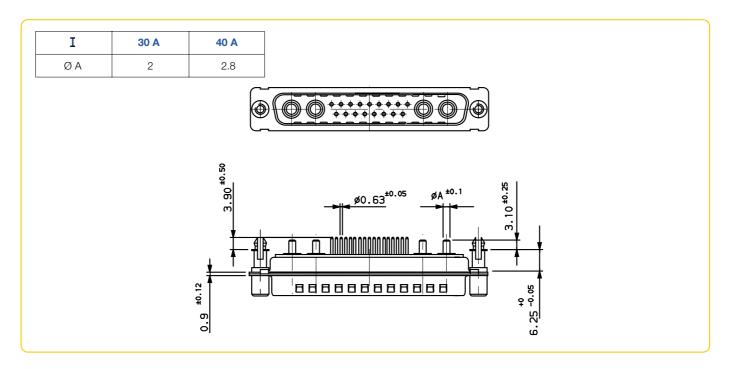


#### Power contacts:

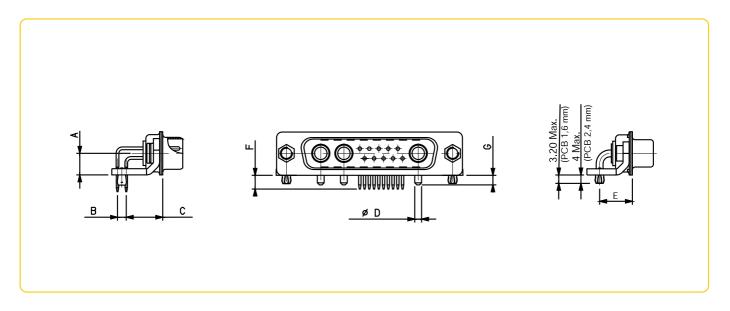
**30LF**: Fitted with power contacts 30 A, RoHS compatible **40LF**: Fitted with power contacts 40 A, RoHS compatible **00LF**: Without power contacts, RoHS compatible



# Straight version



# ► Right angle version



	Termination type	Amp.	<b>A</b> ±0.10	<b>B</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

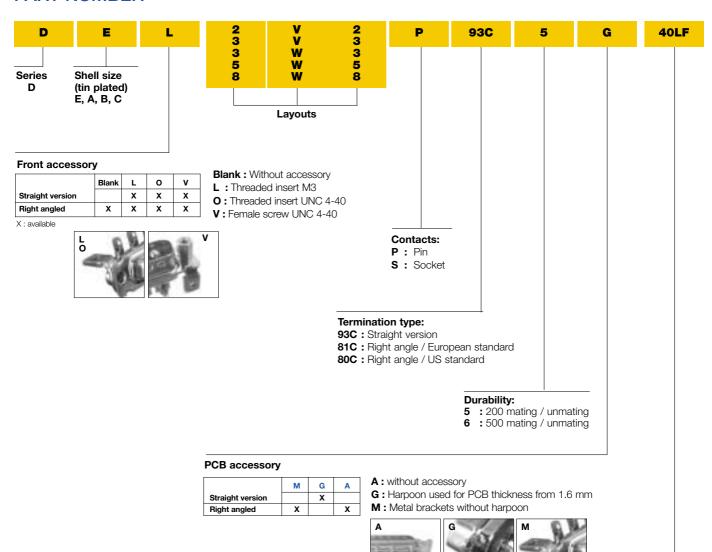


# UL Recognized File E 118235 (R)





#### **PART NUMBER**



#### **Power contacts**

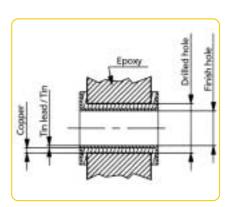
**40** : Fitted with power contacts 40 A, non RoHS compatible

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



#### Metallized hole dimensions

			Press-fit contacts	Press-fit harpoons		
and 2)		Drill diameter	Ø 3.22 ±0.03	Ø 3.22 ±0.03		
		Drilled hole	Ø 3.19 - 3.25	Ø 3.19 - 3.25	Ø 3,22 ± 0,03	
		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)		
		Finish hole (after reflow)	Ø 3.02 - 3.20	Ø 3.02 - 3.20	0,00	
	RoHS	Tin plating	0.8 to 1.2 μm	0.8 to 1.2 μm		
		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	

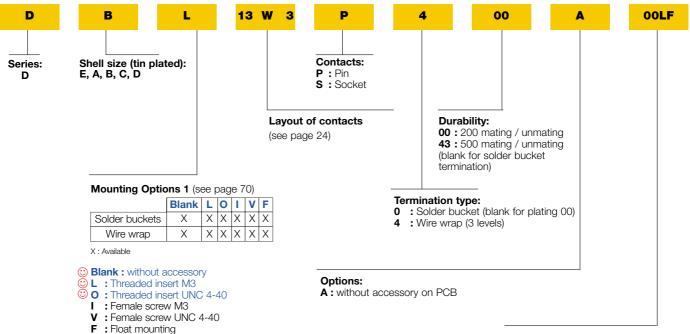


UL Recognized File E 118235 (R)





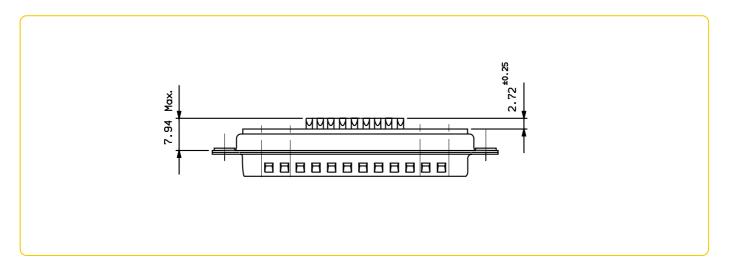
# ORDERING INFORMATION (power contacts have to be ordered separately — see next page)



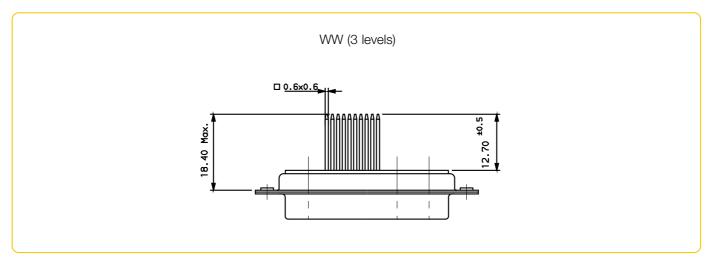
Power contacts: 00LF: RoHS compatible

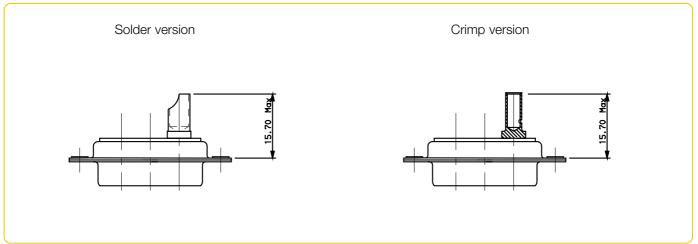


#### Solder bucket



#### Wire wrap

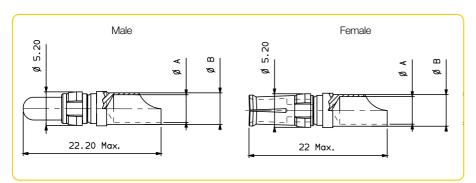






# **POWER CONTACTS**

#### Solder contacts

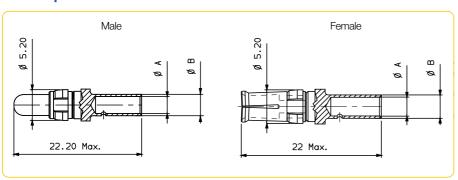




T	Man	0!:!	D-110+ D-+h	Dallot Bast south as	Wir	-	Strip		Ø B <sup>±0.05</sup>
Туре	Max. current rating	Clip colour	RoHS* Part number ≥ 200 mating/unmating	RoHS* Part number ≥ 500 mating/unmating	Size	section mm²	length mm <sup>+0.5</sup>	Ø A <sub>0</sub> <sup>+0.1</sup>	Ø B-
Male	10A	Black	8638PPS1005LF	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

<sup>-</sup> Clip material: plastic withstanding 125°C

# Crimp contacts



					Wir	-	Strip	av a ±0.1	~ =+0.05
Туре	Max. current rating	Clip colour	RoHS* Part number ≥ 200 mating/unmating	RoHS* Part number ≥ 500 mating/unmating	Size	section mm²	length mm <sup>+0.5</sup>	Ø A <sub>0</sub> <sup>+0.1</sup>	Ø B <sup>±0.05</sup>
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

<sup>-</sup> Clip material: plastic withstanding 125°C - Termination plating: matt tin

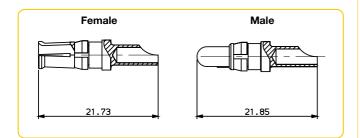
<sup>-</sup> Termination plating: matt tin

<sup>\*</sup> RoHS compatible EU directive 2002/95/EC

<sup>\*</sup> RoHS compatible EU directive 2002/95/EC



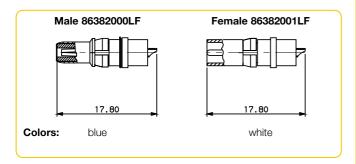
#### **POWER CONTACTS - METAL CLIP**



Wire	Max.	Part numbers			
Size	current	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**

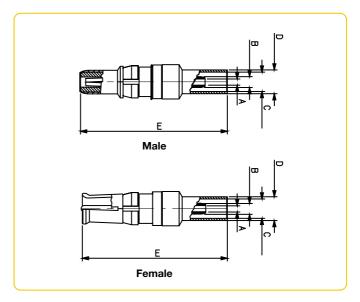
Dielectric with standing voltage	: 2800 V.r.m.s
Break down voltage	: 3200 V.r.m.s
Insulation resistance	: 10 <sup>6</sup> ΜΩ
Contact resistance	: ≤ 5 mΩ
Max current rating	: 5A
Material	: TEFLON

#### **MECHANICAL CHARACTERISTICS**

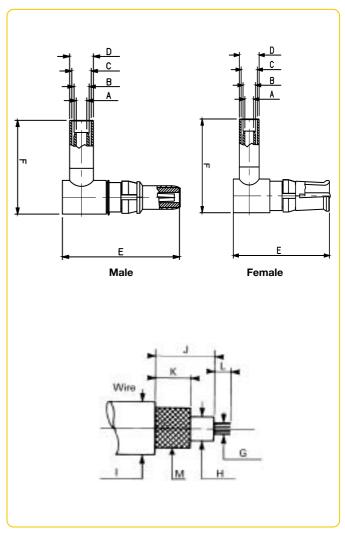
Mating force per set of contact	: 3N
Mating endurance	: 200
Temperature	: -55° C to +125° C

# **COAXIAL CONTACTS**

# Straight



# Angled



# Cable applications

# STANDARD COAXIAL CONTACTS

Coni	tact		Part n	Part numbers			S	ıtacts d	Contacts dimension	Ē		0	Cable				>	Wire		
<b>.</b> ₹	type	Soldered screen	NFC 93569 KMX4	Crimped screen	NFC 93569 KMX4	<b>A</b> ±0.10	<b>B</b> ± 0.15	<b>C</b> <sup>‡ 07</sup>	D±0.15	<b>—</b>	<b>1</b> ± 0.4	MILC 1	NFC Impe- 93550 dance		g	I	_	<u>-</u>	<b>ک</b> د	(max.)
	male	DM537405000NCLF	KMX4M11D02	DM53740NCLF	KMXM12D02					23.60										
to to	male	DM537405008NCLF	I	I	I				24	21.80							2	7.90 6.35	2 52	
	female	DM537425000NCLF	KMX4F11D02	DM53742NCLF	KMX4F12D02	+	1 75	c	2	23.60		BG	\$ 5				S			T
	female	DM537425006NCLF	I	I	I	_	6/:1	75.7		21.80	<del>-</del>	_	W.Z. I.A. 304,12.Z.		08:0	 Op:	06.1			<del>.</del> .
<u>‡</u>	male	DM537415000NCLF	KMX4M11C02	DM53741NCLF	KMX4M12C02				Ψ.	18.64	15.30						đ	0 0	7. OK	_
angle	female	DM537435000NCLF	KMX4F11C02	DM537432NCLF	KMX4F12C02				Ψ.	18.64	15.30						5			<b>.</b>
<u>}</u>	male	DM537405001NCLF	KWK4M11D01	DM537401NCLF	KMX4M12D01					23.60								9	2000	_
Ollaly III	female	DM537425001NCLF	KMX4F11D01	DM537421NCLF	KMX4F12D01	170	97 0	c	2	23.60		2	W V V V V	Z UU	, G	1 50 0	0 50			0
<u>‡</u>	male	DM537415001NCLF	KMX4M11C01	DM537411NCLF	KMX4M12C01	2	9	כ		18.64	15.30	316U	5					0 50	7.05	
angle	female	DM537435001NCLF	KMX4F11C01	DM537433NCLF	KMX4F12C01				-	18.64	12.50						>			)

# SPECIFIC COAXIAL CONTACTS

ile Wire	C Impe- G H I J K L	0 07 70 2 FR 0 770 700 0	00:1	0	5002** 0.90 2.95 4.95 7.9	10.70
Cable	MILC NFC Impe- 17E 93550 dance	22	180BU		RG KX15	98
sion	H ± 04	26.30	26.30	23.60	23.60	18.64 17.50
Contacts dimension	C * 02 D * 0.15	7 A A A O A			5.45 5.95	
Cont	<b>D</b> ± 0.15	6	r f	5 4.40		
	NFC 93569 A ± 010 KMX4		-	I	- 3.15	ı
Part numbers	Crimped screen	DM537403NCLF	DM537423NCLF	DM537405NCLF	DM537425NCLF	DM537436NCLF
Part n	NFC 93569 KMX4	I	1	I	I	I
	Soldered screen	male DM537405002NCLF	female DM537425002NCLF	male DM537405005NCLF	female DM537425004NCLF	female DM537435004NCLF
	type	male	female	male	female	emale



#### I/O, POWER CONNECTOR

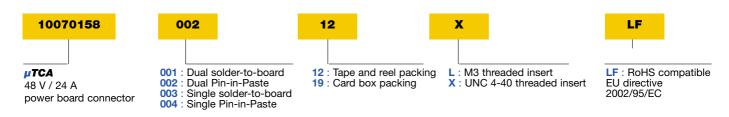
This power module I/O connectors for 48 volts applications are designed in accordance with  $\mu TCA$  specifications. The robust D-Sub concept based on simplified and cost effective Delta D design combines power contacts able to handle up to 24 A with signal contacts. PCB connectors are proposed in 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**

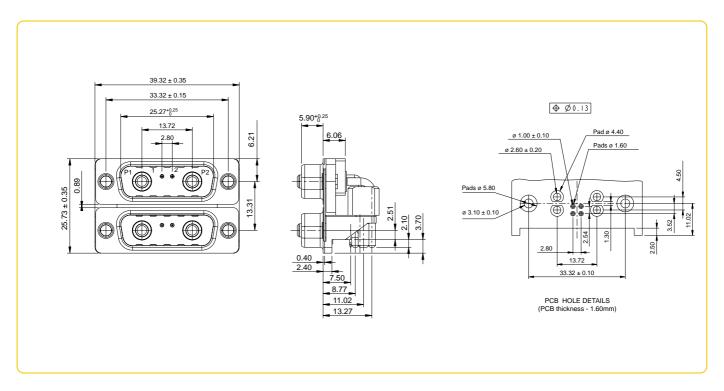
- ► 48 V / 24 A (shell size A)
- FMLB (First Mate Last Brake) functionality for hot plugging
- Field reparable



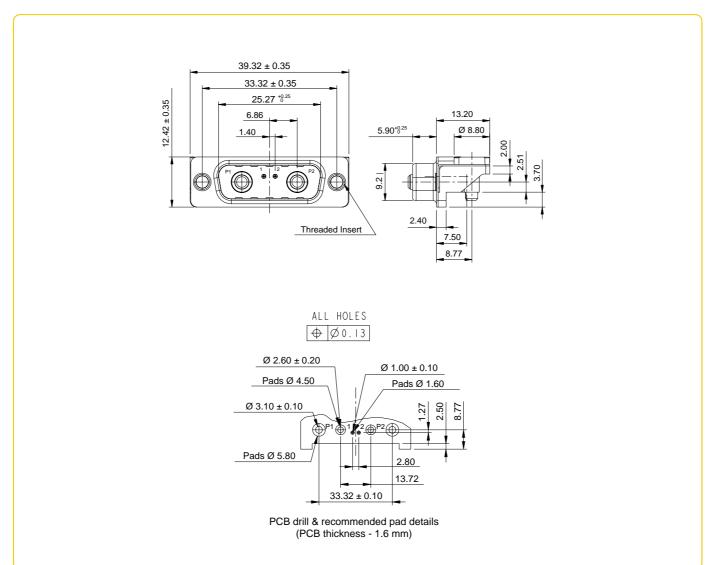
#### **ORDERING INFORMATION**



#### PRODUCT DRAWING









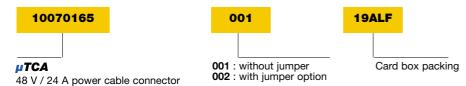
#### **FEATURES**

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

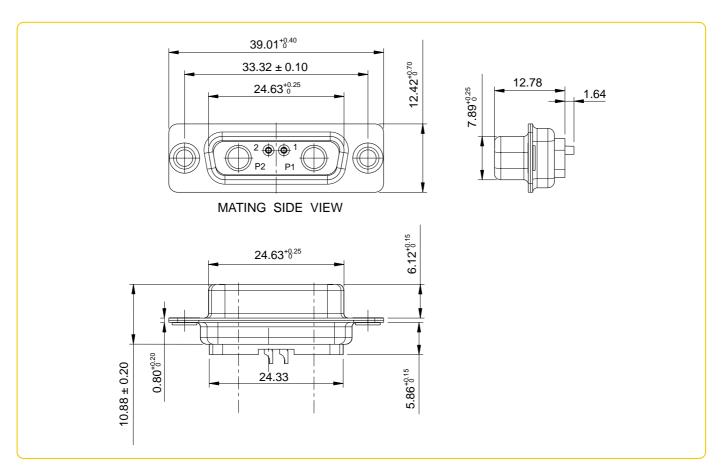


#### **ORDERING INFORMATION**

#### **CABLE CONNECTOR**



#### PRODUCT DRAWING



**POWER CONTACTS** 

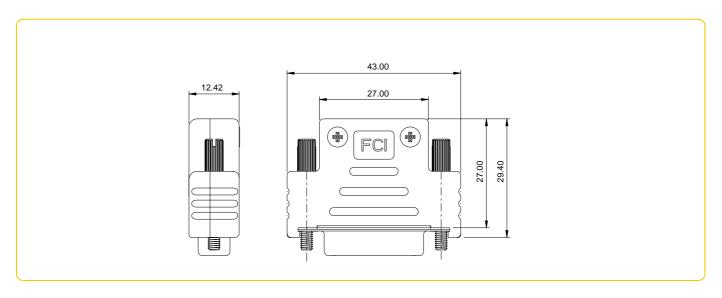
8638PSC3005LF 8638PSS4005LF

30 A crimp contacts 40 A solder buckets contacts



#### ► HOOD (stackable hood and slim design)

#### 10070163 - 001LF



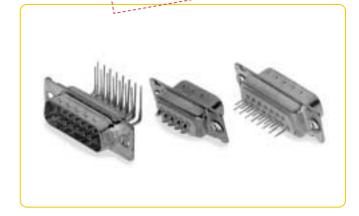
#### D series - Stamped and rolled contacts



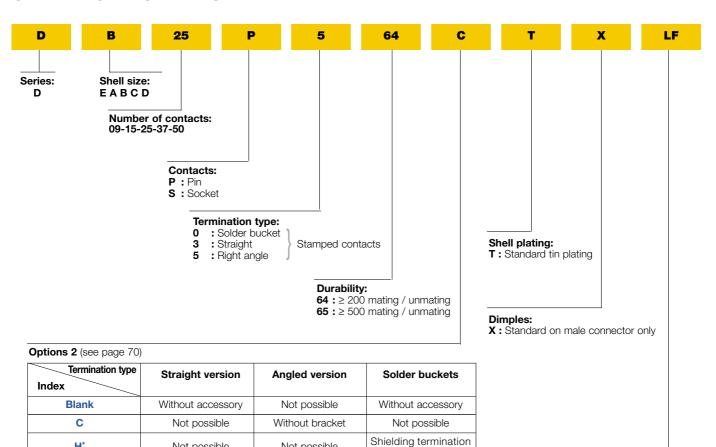
#### **UL Recognized File E 118235**

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



fingers\*

H\* \* not available on 50 way

Blank: non RoHS compatible ULF: RoHS compatible

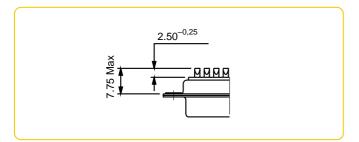
Not possible

Not possible

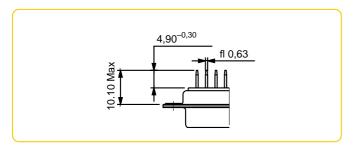
# PCB and Cable applications

#### **SPECIFIC DIMENSIONS**

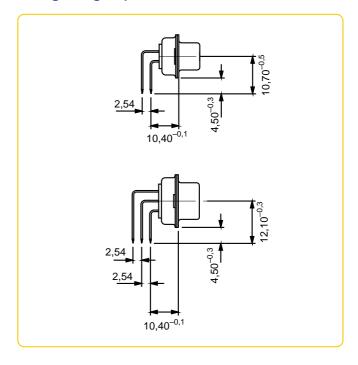
#### Solder buckets



#### Straight spills



#### Right angle spills

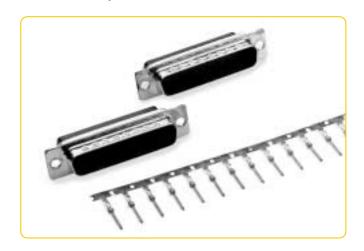






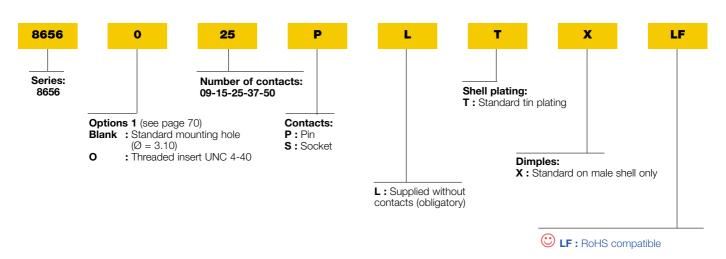
#### **UL Recognized File E 118235**

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



#### **ORDERING INFORMATION**

#### Connector part numbers



#### Contact part numbers





Contact type	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

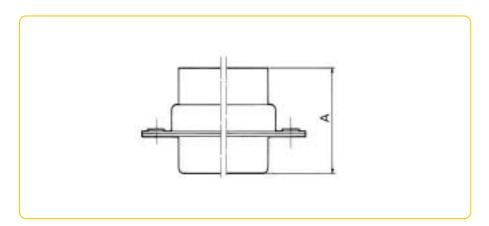
**4LF**:  $\geq$  200 mating / unmating, RoHS compatible **5LF**:  $\geq$  500 mating / unmating, RoHS compatible

Technical characteristics - page 6

Preferred option

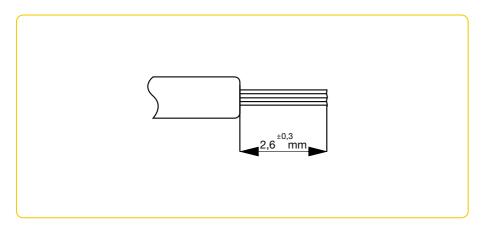


#### **SPECIFIC DIMENSIONS**



	09	15	25	37	50
AMax.	17.19	17.19	17.35	17.35	17.35
	17.44	17.44	17.44	17.44	17.44

#### **CABLE PREPARATION**





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

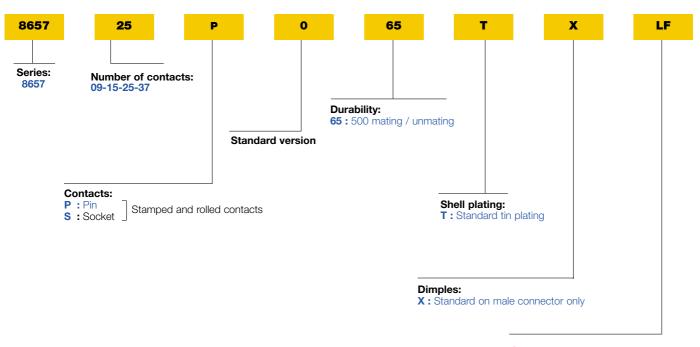


#### **UL Recognized File E 118235**

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



#### ORDERING INFORMATION

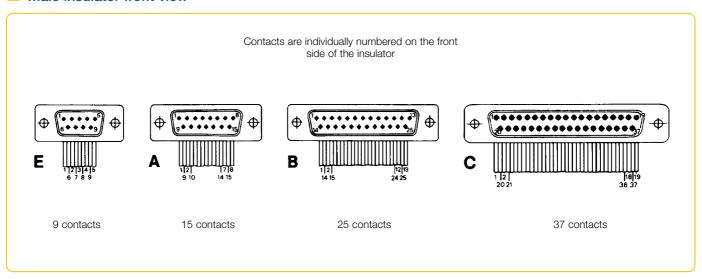


© LF: RoHS compatible

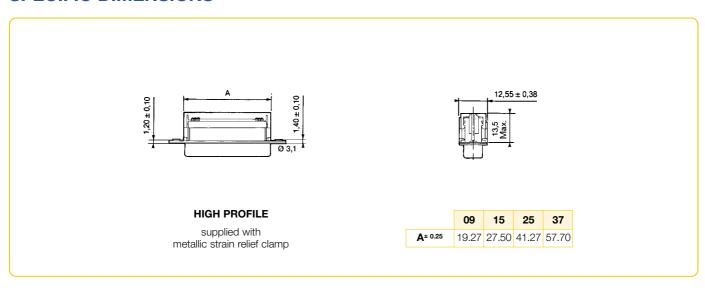


#### **LAYOUTS**

#### Male insulator front view



#### **SPECIFIC DIMENSIONS**

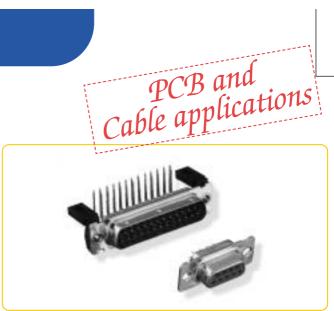




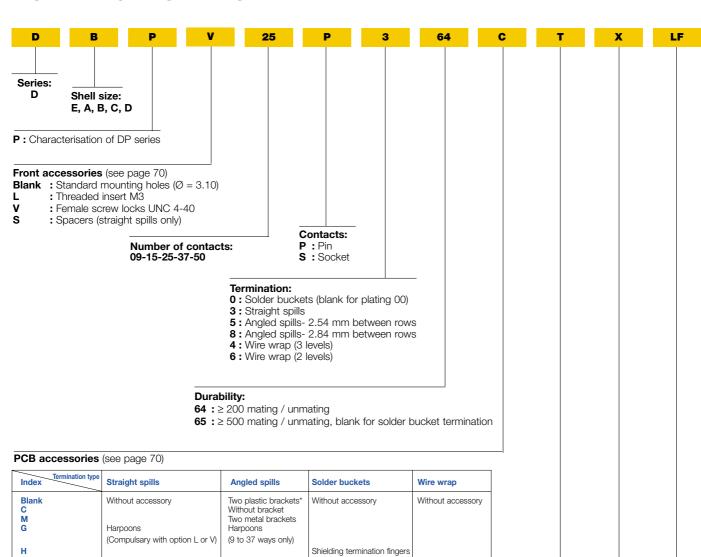
#### **UL Recognized File E 118235**

- 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



н \* Except 50 pos. with monobloc plastic brackets

Shell plating:

T: Standard tin plated

Dimples:

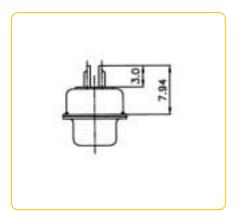
X: Standard on male connectors only

LF: Standard series, RoHS compatible

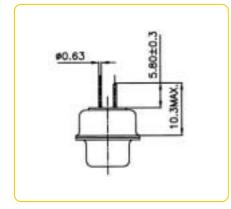
# PCB and Cable applications

#### **SPECIFIC DIMENSIONS**

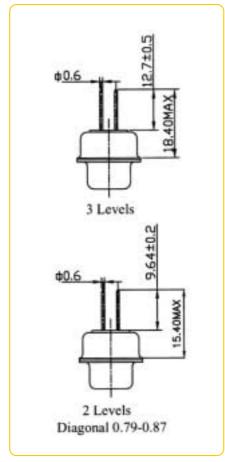
#### Solder buckets



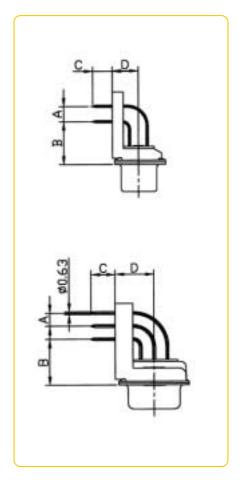
#### Straight spills



#### Wire wrap



Right angle spills

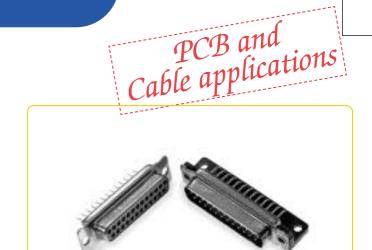


Dimens	Termination code	5	8
	Α	2.54	2.84
	<b>B</b> ± 0.1	10.30	10.30
	<b>C</b> ± 0.5	4.00	4.00
D± 0.1	9 to 37 contacts	7.20	7.20
020.1	50 contacts	8.60	8.60

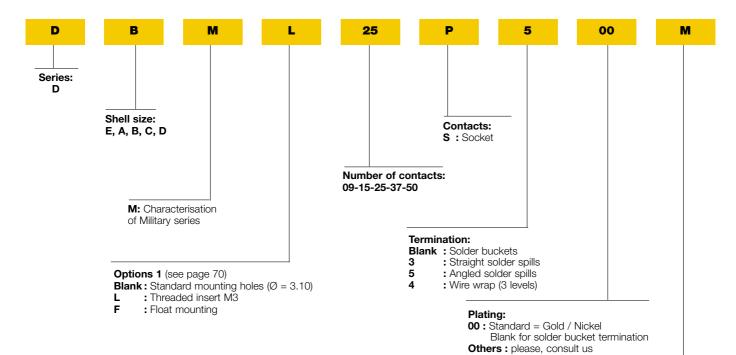


#### **UL Rating Product File E 118235 (R)**

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



#### **ORDERING INFORMATION**

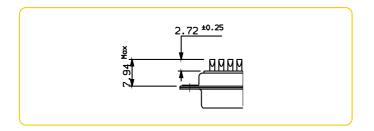


#### Options 2 (see page 70)

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

#### **SPECIFIC DIMENSIONS**

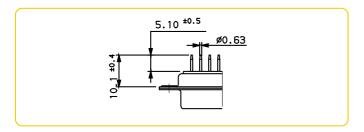
#### Solder buckets



#### CROSS REFERENCE LIST FOR THE MAIN HE 501 AND FCI

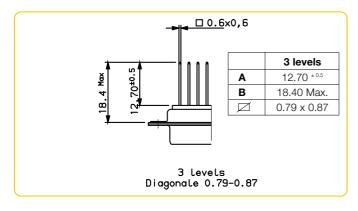
Con	nector type	)	HE 501	FCI
			HE 501 NAP3	D.MPLF
Solder		F	HE 501 NAS3	D.MSLF
buckets	Float	М	HE 501 FAP3	D.MFPLF
	mounting	F	HE 501 FAS3	D.MFSLF

#### Straight spills



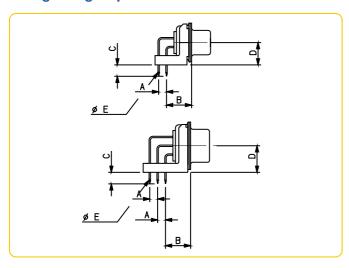
Con	nector type	)	HE 501	FCI
	Standard	M	HE 501 NYP4.3	D.MP 300LF
Straight	Otaridara	F	HE 501 NYS4.3	D.MS 300LF
spills	Float	M	HE 501 FYP4.3	D.MFP 300LF
	mounting	F	HE 501 FYS4.3	D.MFS 300LF

#### Wire wrap



Con	nector type	)	HE 501	FCI
	Standard	M	HE 501 NKP3.3	D.MP 400LF
Wire wrap	Otaliaa a	F	HE 501 NKS3.3	D.MS 400LF
3 levels	Float	M	HE 501 FKP3.3	D.MFP 400LF
	mounting	F	HE 501 FKS3.3	D.MFS 400LF

#### Right angle spills



Con	nector type	•	HE 501	FCI
	Standard	М	HE 501 PVP6.3	D.MP 500LF
Angled spills	Ottanaara	F	HE 501 PVS6.3	D.MS 500LF
500	Metal	М	HE 501 MVP6.3	D.MP 500MLF
	brackets	F	HE 501 MVS6.3	D.MS 500MLF

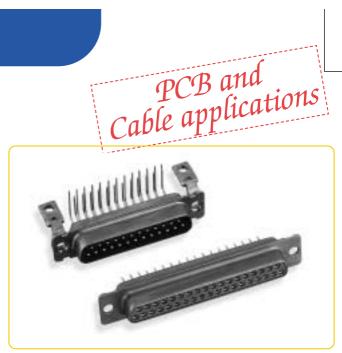
Dimension	Termination	5
Α		2.54
B± 0.1		10.30
C± 0.5		4.00
D ± 0.1	9 to 37 contacts	7.20
D = 0.1	50 contacts	8.60
ØE		0.63



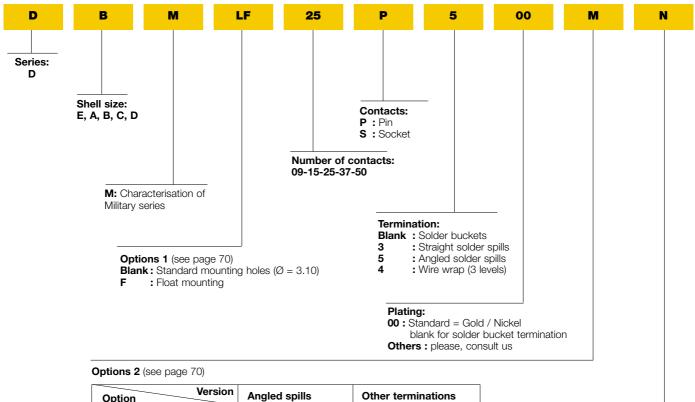
#### **UL Rating Product File E 118235 (R)**

- For particulary severe applications, especially high temperatures class + 155°C in compliance with NFC 93425 / HE 508.
- Military and Aero applications





#### **ORDERING INFORMATION**

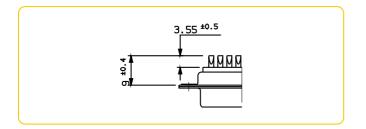


Option Version	Angled spills	Other terminations
Blank	Plastic brackets	Not applicable
C	Without brackets	Not applicable
M	Metal brackets	Not applicable

N: Obligatory for HE 508

#### **SPECIFIC DIMENSIONS**

#### Solder buckets

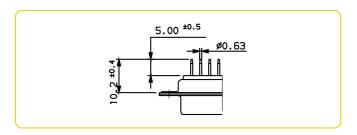


## MAIN HE 508 AND FCI

**CROSS REFERENCE LIST FOR THE** 

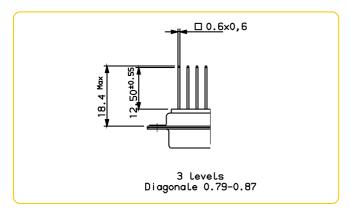
Cor	nector type	•	HE 508	FCI
	Standard	M HE 508 NAP		D.MPNLF
Solder	Otanaara	F	HE 508 NAS	D.MSNLF
buckets	Float mounting	М	HE 508 FAP	D.MFPNLF
		F	HE 508 FAS	D.MFSNLF

#### Straight spills



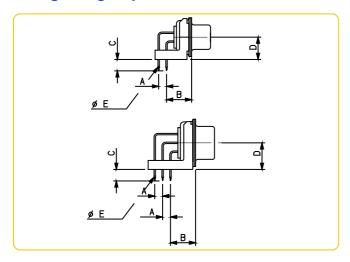
Con	nector type	•	HE 508	FCI	
	Standard	M	HE 508 NYP4	D.MP 300NLF	
Straight	Otanaara	F	HE 508 NYS4	D.MP 300NLF D.MS 300NLF D.MFP 300NLF	
spills	Float	M	HE 508 FYP4	D.MFP 300NLF	
	mounting	F	HE 508 FYS4	D.MFS 300NLF	

#### Wire wrap



Con	Connector type		HE 508	FCI	
	Standard	M	HE 508 NKP3	D.MP 400NLF	
Wire wrap	Otanaara	Otariaara	F	HE 508 NKS3	D.MS 400NLF
3 levels	Float	M	HE 508 FKP3	D.MFP 400NLF	
	mounting	F	HE 508 FKS3	D.MFS 400NLF	

#### Right angle spills



Con	nector type	•	HE 508	FCI	
	Standard	М	HE 508 PVP6	D.MP 500NLF	
Angled spills	Otandard	Otandard	F	HE 508 PVS6	D.MS 500NLF
500	Metal	М	HE 508 MVP6	D.MP 500MNLF	
			HE 508 MVS6	D.MS 500MNLF	

Dimensi	Termination ion	5
Α		2.54
B ± 0.1		10.30
C ± 0.5		4.00
D ± 0.1	9 to 37 contacts	7.20
D ±0.1	50 contacts	8.60
ØE		0.63

### AI®

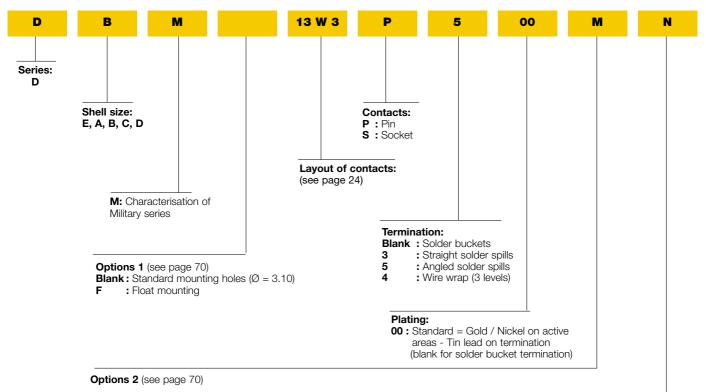
#### **UL Rating Product File E 118235**

- 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**



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



#### **LAYOUTS**

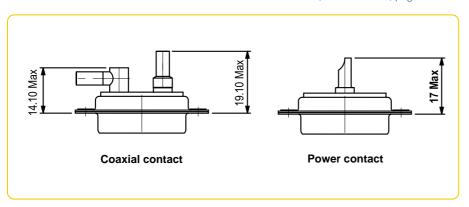
#### Male insulator front view

Shell size		Layout
E	5W1	
	11W1	1 2 3 Å 4 5 6 7 8 9 10
A	7W2	A1 1 2 A2 A2 A2
А	3W3	A1
	3 <b>V</b> 3	A1
	21W1	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
	17W2	1 2 3 4 5 6 7
В	13W3	A3 A2 5 4 3 2 1 A1 A
	9 <b>W</b> 4	A1
	5W5	A1

Shell size		Layout
	25W3	A1 A2 1 2 3 4 5 6 7 8 9 10 11 A3 12 13 14 15 16 17 18 19 20 21 22 A3
_	21WA4	A1 A2 1 2 3 4 5 6 7 8 9 A3 A4 101112 13 14 15 16 17
С	27W2	A1 1 2 3 4 5 6 7 8 9 101111213 A2
	8W8	A1
	47W1	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 A1 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
D	24W7	A1
	36W4	A1

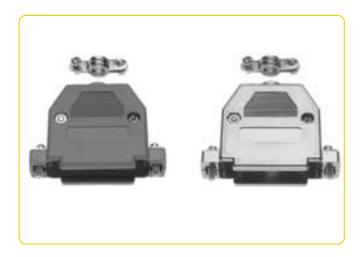
- Standard contacts
- Coaxial and power contacts

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





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

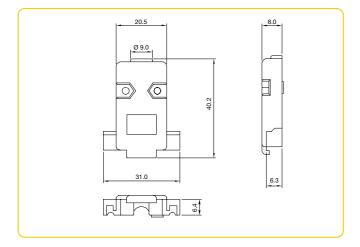


Material : self extinguishing UL 94V0 thermoplastic

Colour : black / metalised
Temperature range : -55°C +105°C
Locking screws : UNC 4-40 thread

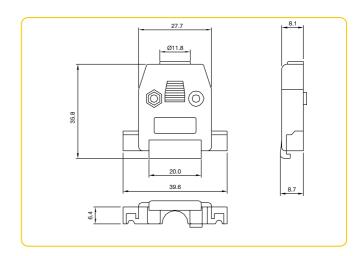
#### Shell size E (9 way)

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



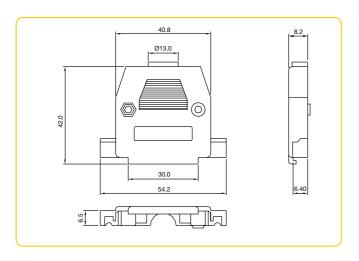
#### Shell size A (15 way)

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



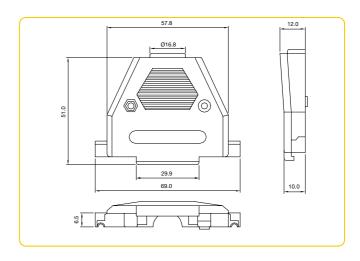
#### Shell size B (25 way)

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



#### Shell size C (37 way)

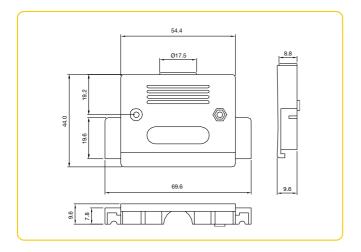
Plastic hood : part number : 10039452-00001LF
 Metalised hood : part number : 10039452-00002LF



#### Straight exit plastic and metalised hood with integrated locking

#### Shell size D (50 way)

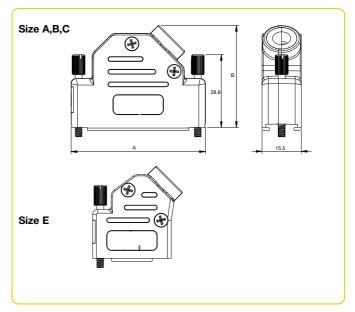
Plastic hood : part number : 10039453-00001LF
 Metalised hood : part number : 10039453-00002LF



#### ≥ 2 • Angle exit plastic hood for cable



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



Material : polycarbonat UL 94V0

Cable strain relief : steel fibre reinforced polycarbonat UL 94V0

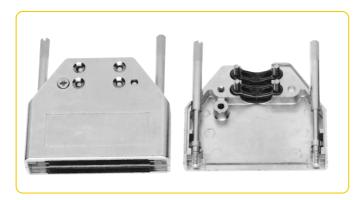
Colour : black

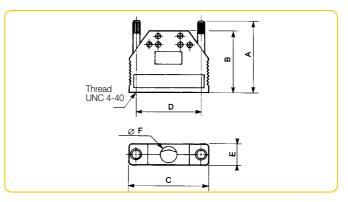
Temperature range  $\,$ : -40°C +120°C

Packaging : bulk, in box of 100 pieces
Locking screws : UNC 4-40 thread



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





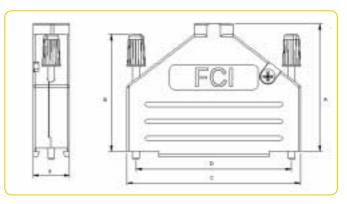
Shell size	Part numbers in bulk	Packaging	Part numbers (in individual set)	Packaging	<b>A</b> ± 0.1	B <sup>± 0.3</sup>	C± 0.1	<b>D</b> ±0.1	<b>E</b> ±0.2	F max.
E	8655MH09 <b>01</b> LF	80	8655MH09 <b>11</b> LF	50	55.00	45.00	34.40	24.99	14.70	7.85
Α	8655MH15 <b>01</b> LF	80	8655MH15 <b>11</b> LF	50	55.00	45.00	42.70	33.32	14.70	11.80
В	8655MH25 <b>01</b> LF	60	8655MH25 <b>11</b> LF	50	55.00	45.00	56.70	47.04	14.70	11.80
С	8655MH37 <b>01</b> LF	40	8655MH37 <b>11</b> LF	50	55.00	45.00	72.95	63.50	14.70	11.80
D	8655MH50 <b>01</b> LF	40	8655MH50 <b>11</b> 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	Α	В	С	D	E
E	8655MH0901BLF	38.3	47.3	31	24.99	14.6
Α	8655MH1501BLF	40.5	47.3	39.5	33.32	14.6
В	8655MH2501BLF	47.3	47.3	53.2	47.04	14.6
С	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

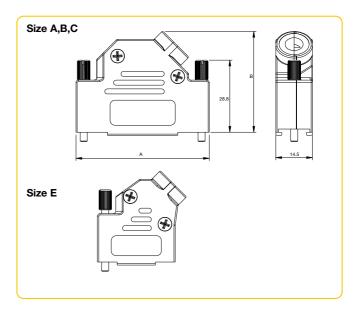
Packaging : bulk, in box of 100 pieces
Locking screws : UNC 4-40 thread



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



Shell size	Part number	A	В	Cable diameter
E (9)	8655MHRA0901LF	31.0	36.2	
A (15)	8655MHRA1501LF	39.5	40.2	4 to 13 mm
B (25)	8655MHRA2501LF	53.2	40.2	4 10 13 111111
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

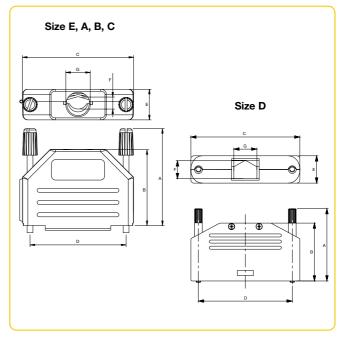


							with clan		ıp	without clamp	
Shell size	Part number	Α	В	С	D	E	min	F max	G	F	G
E(9)	86303637BLF	47.3	31.3	32.4	24.99	15	1	5.5	8.5	7	8.5
A(15)	86303638BLF	47.3	30.8	40.7	33.32	15	4	7	12	11	12
B(25)	86303639BLF	47.3	37.3	54.4	47.04	15	4	7	12	11	12
C(37)	86303640BLF	47.3	36	70.9	63.5	15	4	7	12	11	12
D(50)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

Material (size E,A,B,C): nylon (UL 94V2)

Material (size D): thermoplastic (UL 94V2)

Colour : black
Temperature range : -40°C +95°C
Packaging : individual sets
Locking screws : UNC 4-40 thread

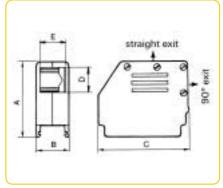




#### ▶ 7 • Universal plastic hood with metal clamp for strain relief



	Part	1 201	v	vith clam	ıp	without clamp				
Shell size	numbers black	numbers metalised	Α	В	С	D		E	D	Е
	hood	hood				D	min.	max.		-
Е	863093C09ALF	863093C09MLF	29.75	15.50	24.25	6	1.90	10.10	8	11.50
Α	863093C15ALF	863093C15MLF	29.75	15.50	32.50	6	1.90	10.10	8	11.50
В	863093C25ALF	863093C25MLF	46.50	15.50	46.00	13.50	2.60	10.10	16	11.50
С	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

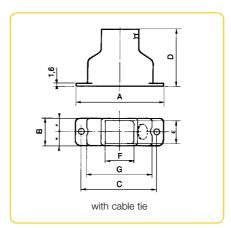
All dimensions in mm



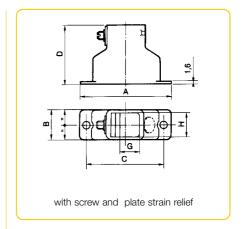
#### MONOBLOC PLASTIC HOODS FOR POTTING

#### ▶ 8 • Straight exit





	Part numbers										
Shell size	Hood with cable tie	Hood with screw and plate	A	В	С	D	E	F	G min.	G Max.	Н
E	863086BLF	86303920ALF	30.60	12.50	25.00	29.00	9.90	9.90	2.70	7.10	10.50
Α	863021BLF	86303921ALF	38.90	12.50	33.32	29.00	9.90	11.90	4.50	9.10	10.50
В	863022BLF	86303922ALF	52.80	12.50	47.05	35.00	9.90	16.40	9.20	13.60	10.50
С	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



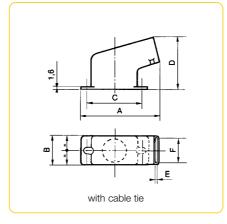
**Material:** self extinguishing UL rated 94 V0 thermoplastic

**Temperature range:** -55°C to +105°C

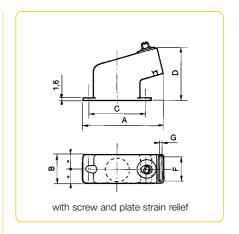
Colour: black

#### ▶ 9 • Right angle exit





	Part nur	Part numbers								
Shell size	Hood with cable tie	Hood with screw and plate	A	В	С	D	E	F	G min.	G Max.
E	86305002BLF	86303925ALF	30.60	12.50	25.00	26.20	10.50	10.50	2.70	7.10
Α	863026BLF	86303926ALF	38.90	12.50	33.32	28.60	12.50	10.50	4.50	9.10
В	863027BLF	86303927ALF	52.80	12.50	47.05	36.40	17.00	10.50	9.20	13.60
С	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



#### **HOOD WITH CABLE CLAMPS**

#### ▶ 10 • Metal hood with circular clamp and straight exit

Material: Steel

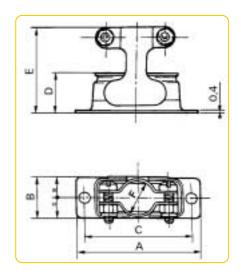
Plating: Yellow chromate cadmium

Corrosion resistance:

50 hours exposure to salt spray



Shell size	Part numbers	Α	В	С	D	E	F
Е	863010	30.55	12.70	24.99	12.30	26.40	8.00
Α	863011	38.89	12.70	33.32	12.30	26.40	10.00
В	863012	52.78	12.70	47.04	12.30	27.20	15.00
С	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

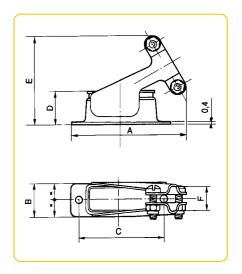
Plating: Yellow chromate cadmium

Corrosion resistance:

50 hours exposure to salt spray



Shell size	Part numbers	Α	В	С	D	Е	F
E	863016	39.00	12.70	24.99	12.30	30.60	8.00
Α	863017	43.10	12.70	32.32	12.30	32.50	10.00
В	863018	55.40	12.70	47.04	12.30	34.50	15.05
С	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



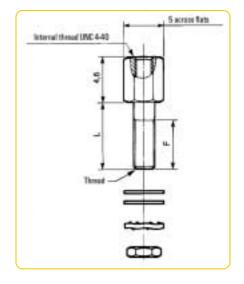


#### ■ 12 • Female screw locks

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

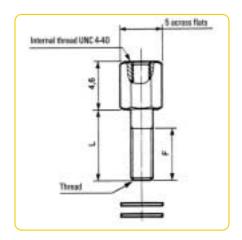
Plating: bright tin

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	МЗ	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

A Series Let Series Let Series Series Series Let Series Se

Shell size	Connector type	Part numbers					
Е	Male						
_	Female						
Α	Male	863005ATLF					
^	Female	000000ATE					
В	Male		863004ATLF	863009ATLF			
	Female		000004A1E1				
С	Male	863008ATLF					
Ŭ	Female	863005ATLF					
D	Male	863015ATLF	863003ATI F	863025ATLF			
5	Female	863003ATLF	00000ZATEI	000023A1L1			

Material: steel

Plating: bright tin

**Corrosion resistance:** 50 hours exposure to salt spray

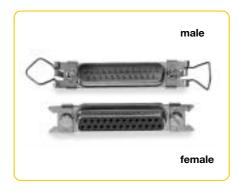
To obtain military plating (yellow chromate cadmium) exclude «TLF» in the part number (ex: 863005A)

Thread: UNC 4-40



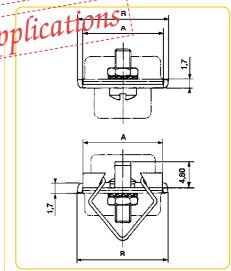
#### D-Sub - Locking devices

#### ► 15 • Lever locks





Shell size	Α	В	M3 th	read	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 th	nread	UNC 4-40 thread		
SHEII SIZE	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	
	Male	86553148TLF	30	
E	Female	86553113TLF	30	
	i ciliale	86553138TLF*	30	
	Male	86553149TLF	25	
Α	Female	86553114TLF	25	
	i ciliale	86553139TLF*	25	
	Male	86553150TLF	20	
В	Female	86553115TLF	20	
	remaie	86553140TLF*	20	
	Male	86553151TLF	15	
С	Female	86553116TLF	15	
	i ciliale	86553141TLF*	15	
	Male	86553152TLF	10	
D	Female	86553117TLF	10	
	i emale	86553142TLF*	10	



Material: steel

Plating: bright tin

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

#### ■ 18 • Attaching cord for metal caps

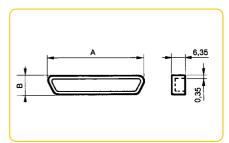
86553156LF (length = 100 mm) Packaging: individual



#### ▶ 19 • Plastic dust cap



Shell size	For male connector	Α	В	For female connector	Α	В
E	70518CLF	19.17	10.30	70523CLF	17.77	9.00
Α	70519CLF	27.50	10.30	70524CLF	26.10	9.00
В	70520CLF	41.67	10.70	70525CLF	39.82	9.00
С	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

<sup>\*</sup> Sealed caps IP 65

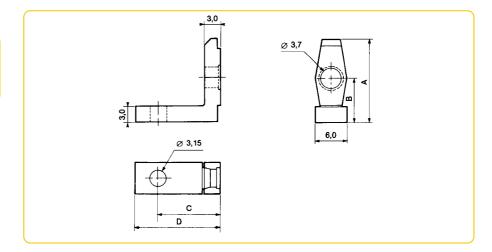


Plastic mounting brackets are normally supplied with angled spill D-Sub connectors series D, DP, DM and DMW. However, both plastic and metal brackets can be ordered separately, using the part numbers listed below. These brackets are supplied with a screw and a nut. Order two assemblies for each connector.

#### ≥ 20 • Plastic brackets

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

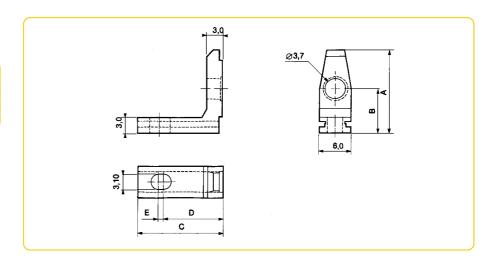
Material: UL rated 94V0 thermoplastic



#### ■ 21 • Plastic brackets with oblong mounting hole to PCB

Shell size	Part numbers	Α	В	С	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

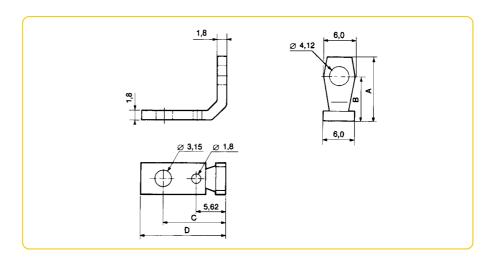


#### ≥ 22 • Metal brackets

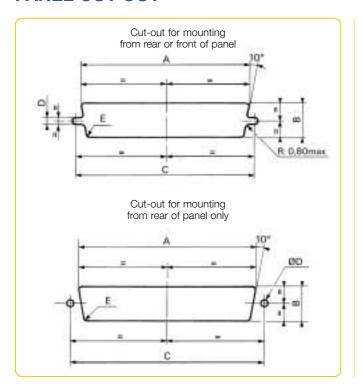
Shell size	Part numbers	Α	В	С	D	
E, A, B, C	86552008	10.55	7.20	10.74	13.90	
D	86552009	12.55	8.60	12.09	16.50	

Material: steel

Platium: yellow chromate cadmium



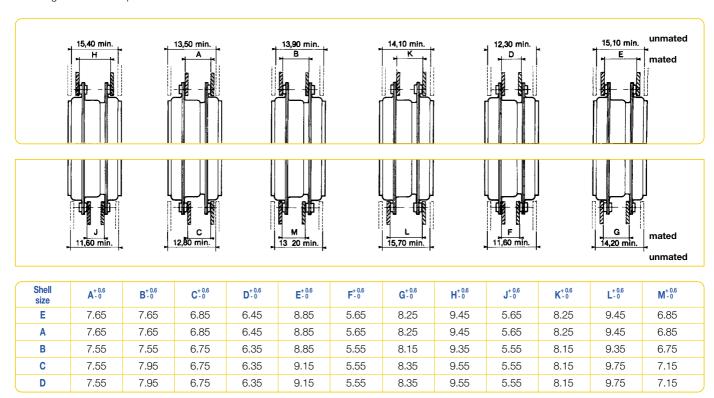
#### **PANEL CUT-OUT**



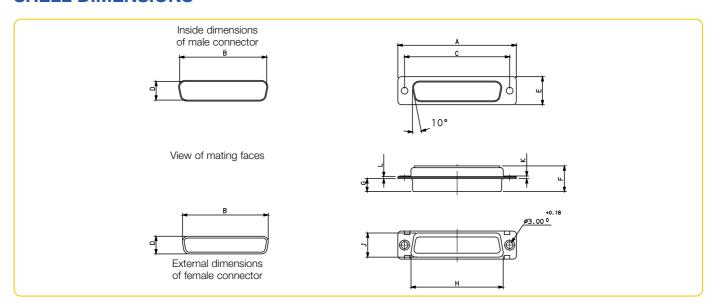
Shell size	Type of mounting	Mounting position	A <sup>± 0.2</sup>	B <sup>± 0.2</sup>	C <sup>± 0.2</sup>	D <sup>± 0.01</sup>	E <sup>± 0.1</sup>
	rigid	front	22.20	13.00	25.00	3.00	2.10
Е	rigiu	rear	20.50	11.40	25.00	3.00	3.30
-	float	front	23.00	13.80	25.00	2.20	2.10
	lioat	rear	21.30	12.20	25.00	2.20	3.30
	rigid	front	30.50	13.00	33.30	3.00	2.10
Α	rigiu	rear	28.80	11.40	33.30	3.00	3.30
^	float	front	31.30	13.80	33.30	2.20	2.10
	lioat	rear	29.60	12.20	33.30	2.20	3.30
	rigid	front	44.30	13.00	47.00	3.00	2.10
В	ng.a	rear	42.50	11.40	47.00	3.00	3.30
	float	front	45.10	13.80	47.00	2.20	2.10
	lioat	rear	43.30	12.20	47.00	2.20	3.30
	rigid	front	60.70	13.00	63.50	3.00	2.10
С	rigiu	rear	59.10	11.40	63.50	3.00	3.30
Ů	float	front	61.50	13.80	63.50	2.20	2.10
	llout	rear	59.80	12.20	63.50	2.20	3.30
	rigid	front	58.30	15.80	61.50	3.00	2.10
D	rigiu	rear	56.30	14.10	61.50	3.00	3.30
	float	front	59.20	16.60	61.50	2.20	2.10
	iioat	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 DIMENSIONS**

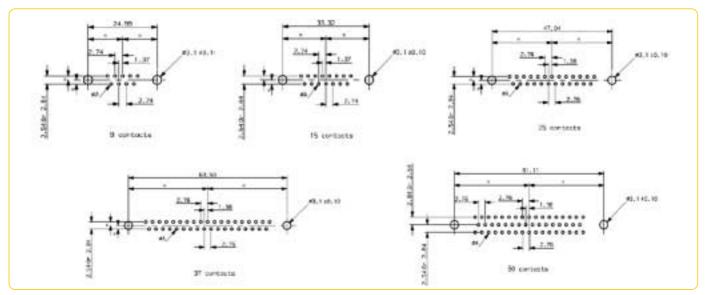


		<b>A</b> ± 0.38	B± 0.13	C± 0.13	D± 0.13	E± 0.38	F Max.	<b>G</b> <sup>+ 0.25</sup>	H± 0.25	<b>J</b> ± 0.25	K Max.	L± 0.12
Е	Р	30.81	16.91	24.99	8.35	12.55	10.99	5.85	19.27	10.71	1.50	0.90
_	S	30.81	16.33	24.99	7.89	12.55	11.21	6.05	19.27	10.71	1.50	0.90
	Р	39.14	25.24	33.32	8.35	12.55	10.99	5.85	27.50	10.71	1.50	0.90
Α	S	39.14	24.66	33.32	7.89	12.55	11.21	6.05	27.50	10.71	1.50	0.90
В	Р	53,03	38.96	47.04	8.35	12.55	11.07	5.75	41.27	10.71	1.50	0.90
В	S	53,03	38.37	47.04	7.89	12.55	11.21	6.05	41.27	10.71	1.50	0.90
С	Р	69.32	55.42	63.50	8.35	12.55	11.09	5.75	57.70	10.71	1.50	1.00
U	S	69.32	54.83	63.50	7.89	12.55	11.21	6.05	57.70	10.71	1.50	0.90
D	Р	66.93	52.80	61.11	11.20	15.37	11.09	5.75	55.32	13.56	1.70	1.00
ט	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

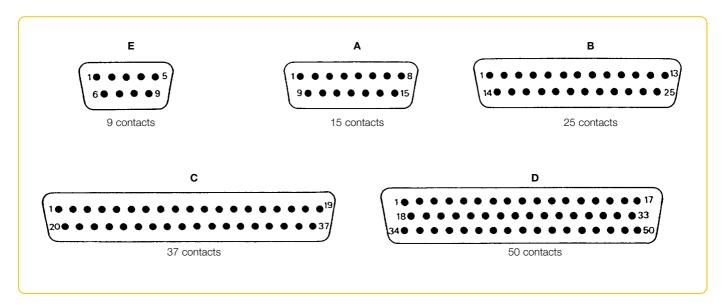
#### **D-Sub Technical Characteristics**

#### **LAYOUTS**

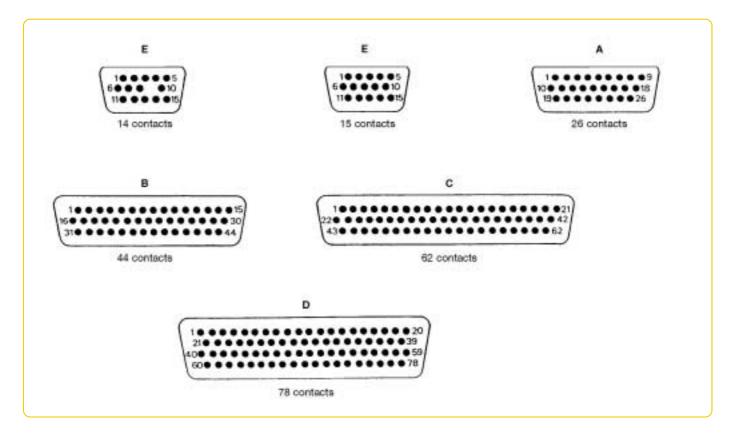
#### Male insulator front view

Contacts are individually numbered on both sides of the insulator.

#### Standard density connectors

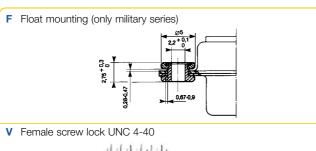


#### High density connectors (Compact D)



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

#### Options 1

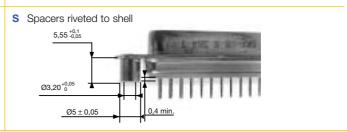


Threaded insert M3 Threaded insert UNC 4-40





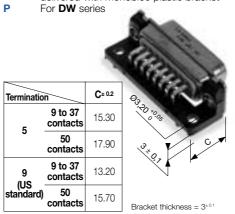
Taraudage UNC 4



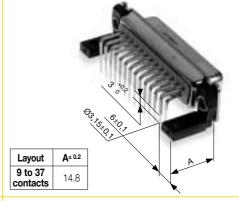
#### Options 2

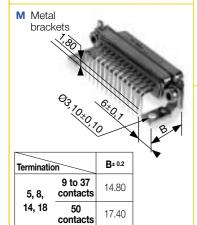






Blank For DP series connectors are delivered with 2 separate plastic brackets (except for layout 50 with monobloc bracket)



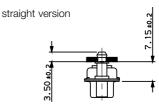


U Monobloc plastic bracket with metal plate for electrical continuity (dim. same as above)



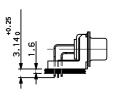


Harpoon with electrical continuity For **DM** and **DP** series available in angled For **PCB** thickness of 1.6 Metallized hole ø 3.1+



angled version





except 50 way

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

13.19

15.99

9 to 37

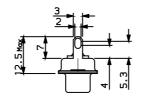
contacts

50

contacts

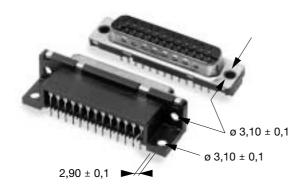
(US standard)



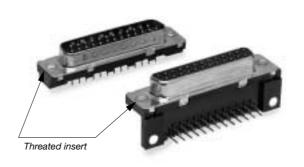


#### MOUNTING OPTIONS for DELTA D and COMPACT D series

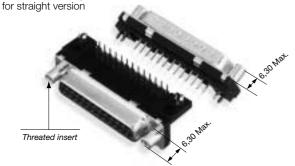
PA Standard hole without hardware



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

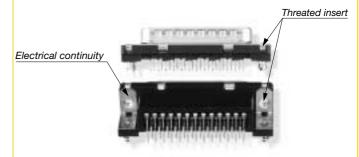


- GV Harpoons + Female screw UNC 4-40 + Electrical continuity through metal strip for angled version and monobloc hardware for straight
- GI Harpoons + Female screw M3 + Electrical continuity through metal strip for angled version and monobloc hardware



- **GL** Thread M3
- GX Thread UNC 4-40

Harpoons + Insert + Electrical continuity through metal strip for angled version and monobloc hardware for straight version

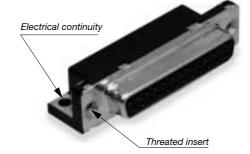


UV Female screw UNC 4-40 + Electrical continuity through metal strip



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

PCB thickness: 1,6 mm/Metallized toles Ø 3,1±0,1



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#### FCI:

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D09P13A4PX00LF D09P13A6UV00LF D09P13A6UX00LF D09P13B4UV00LF D09P13B6UA00LF
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D09S14A6GV00LF D09S23A4GV00LF D09S23A6GX00LF D09S23B6GV00LF D09S23B6PA00LF
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