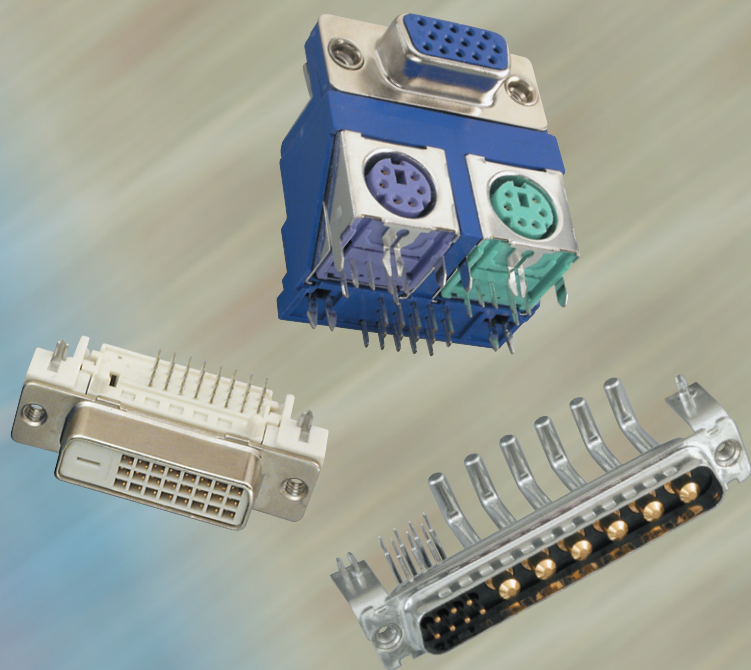


D-SUBMINIATURE CONNECTORS



Amphenol[®]

ACCESSORIES

STANDARD DENSITY

SURFACE MOUNT RECEPTACLES

HIGH DENSITY

GENERAL DESCRIPTION:

Amphenol's line of D-Subminiature rack and panel connectors is part of an industry standard for applications requiring reliable, rugged, connectors. These connectors are designed to accommodate rack and panel, cable to panel and cable to cable applications. D-Subminiature connectors are pin and socket devices that employ contacts encased in a molded dielectric insert surrounded by a "D" shaped shell for polarization.

MARKETS:

Amphenol D-Subminiature connectors can be used in commercial, industrial or military markets. We offer a broad selection of dielectric materials and contact styles and configurations to meet all of your design requirements.

APPLICATIONS INCLUDE:

- Business equipment
- Electronic office systems
- Data communications
- Medical equipment
- Mobile communications
- Consumer electronics

AMPHENOL D-SUB FEATURES:

- Industry standard interfacing RS232 and RS449 mating configurations per EIA standards.
- UL Component Recognition File number E64911
(617, 841, 17, 17D, 17HD, ED, 17RR, 17SD, 117DF, 17BH, 17TW)
- Variations available:
Solder cup
Straight pc mount solder
Right angle pc mount solder
Solderless wire wrap
Crimp
High Density Right Angle
High Density Straight
Stacked Right Angle PC mount
Surface mount
- Five shell sizes offer widest choice of contact positions:
9, 15, 25, 37 and 50 in standard density and 15, 26, 44, 62 and 78 positions in high-density.
- Inserts are flame-retardant thermoplastic.
- Accessories for all applications are available including strain reliefs, cable clamps, shielded backshells, mating hardware and connector to pc board mounting hardware.
- Automatic and manual tooling is available for both crimp and IDC versions.
- Contact Amphenol for lease information.

High Density

SPECIFICATIONS:

MATERIALS AND PLATINGS

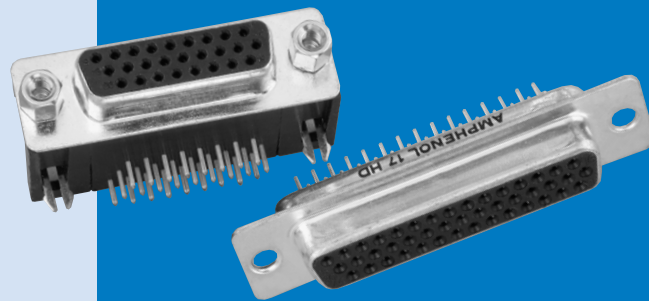
Shells	Steel, tin plated, grounding indents on plug.
Contact Material	Copper alloy
Contact Plating	Engagement area: gold (see ordering information).
Termination End	150μ" (3.81μm) tin/lead
Nickel Underplate	50μ" (1.27μm) entire contact

ELECTRICAL DATA

Current Rating	3 Amps maximum per contact
Voltage Rating	125 VAC
Dielectric Withstanding Voltage	1000 VAC (minimum)
Dielectric	Glass filled thermoplastic, black, UL 94 VO
Insulation Resistance	5,000 Megaohms (minimum)
Contact Resistance	15 Milliohms (maximum)

CLIMATIC DATA

Operating Temperature	-67°F (-55°C) to 221°F (105°C)
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17E BH/HD SERIES

Amphenol's High Density D-Subminiature connectors complement Amphenol's extensive D-Subminiature connector line. This line of connectors offers many superior features, high performance level and low installation cost.

The connector configurations are available in 15, 26, 44, 62 and 78 positions.

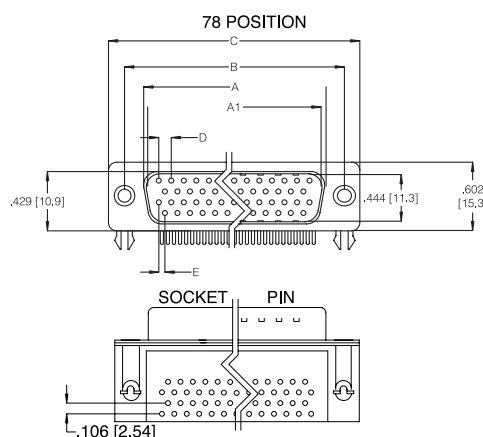
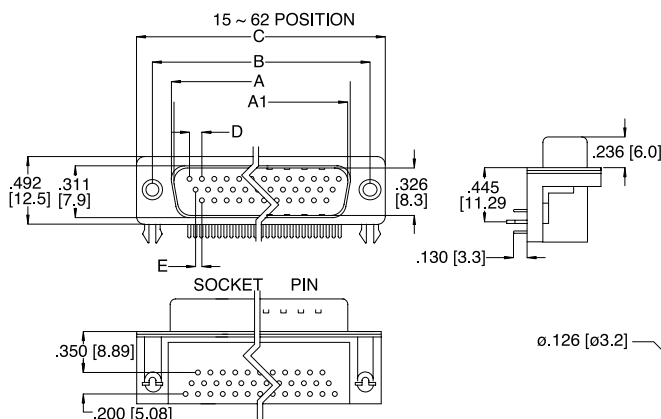
The product offering includes PCB mount connectors in both straight or right angle termination styles. Straight PCB mount are available in both Fixed Screw Machine and Stamped and Formed contacts, while Right Angle PCB mount are only available with Stamped and Formed contacts.

A cable mount version with solder terminations is also available, which can be combined with Amphenol's standard line of shielded or unshielded backshells.

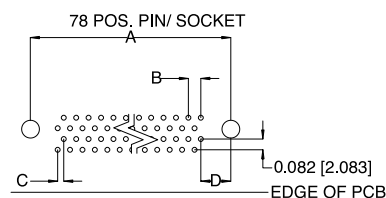
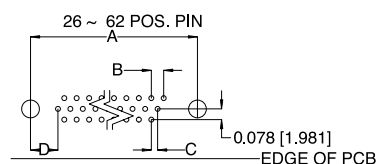
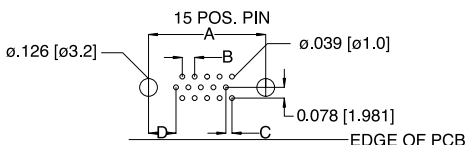
- Industrial
- Telecom
- Any industry standard I / O connections

INCHES (MM)

DIMENSIONS FOR 15 - 62 POSITION (3 ROW)(SHOWN WITH FIXED FEMALE SCREWLOCKS) DIMENSIONS FOR THE 78 POSITION (4 ROW)



CONTACTS	A SOCKET	A1 PIN	B	C	D	E
15	.642 [16.30]	.666 [16.92]	.984 [25.0]	1.213 [30.8]	.090 [2.29]	.045 [1.145]
26	.969 [24.6]	.994 [25.25]	1.311 [33.3]	1.543 [39.2]	.090 [2.29]	.045 [1.145]
44	1.508 [38.3]	1.534 [38.96]	1.854 [47.1]	2.091 [53.1]	.090 [2.29]	.045 [1.145]
62	2.157 [54.8]	2.182 [55.42]	2.50 [63.5]	2.732 [69.4]	.095 [2.41]	.047 [1.205]
78	2.05 [52.20]	2.079 [52.81]	2.40 [61.0]	2.638 [67.0]	.095 [2.41]	.047 [1.205]



CONTACTS	A	B	C	D
15	.984 [25.0]	.090 [2.29]	.045 [1.145]	.277 [7.04]
26	1.311 [33.3]	.090 [2.29]	.045 [1.145]	.271 [6.88]
44	1.854 [47.1]	.090 [2.29]	.045 [1.145]	.271 [6.88]
62	2.50 [63.5]	.095 [2.41]	.047 [1.205]	.275 [7.00]
78	2.402 [61.0]	.095 [2.41]	.047 [1.205]	.300 [7.63]

ORDERING INFORMATION

17EBH Series High Density D-Sub

Front Metal Shell, Right-Angle PC Mount

17EBH 0XX X XX X XX

Series

Number Of Positions

15, 26, 44, 62, 78

Type

P Pin (male)

S Socket (female)

PCB Mount Options

00 Clear hole

10 Arrowhead Board

Panel Mounting Options

0 .120 (3.05) Clear Hole

1 #4-40 Threaded Hole

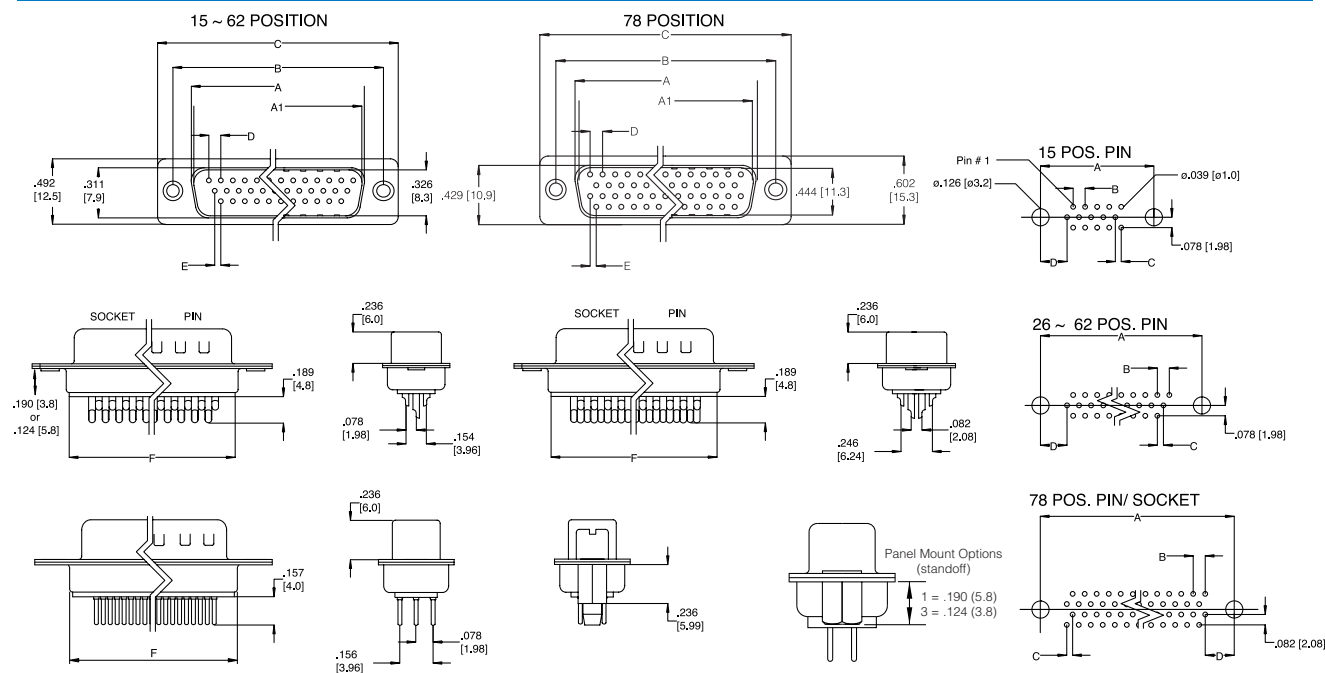
2 #4-40 Fixed Female Screw

Plating Code

AA Gold Flash over Nickel

AM 30μ" (.76μm) Gold over Nickel

DIMENSIONS



CONTACTS	A SOCKET	A1 PIN	B	C	D	E	F
15	.642 [16.30]	.666 [16.92]	.984 [25.0]	1.213 [30.8]	.090 [2.29]	.045 [1.145]	.756 [19.2]
26	.969 [24.6]	.994 [25.25]	1.311 [33.3]	1.543 [39.2]	.090 [2.29]	.045 [1.145]	1.071 [27.2]
44	1.508 [38.3]	1.534 [38.96]	1.854 [47.1]	2.091 [53.1]	.090 [2.29]	.045 [1.145]	1.618 [41.1]
62	2.157 [54.8]	2.182 [55.42]	2.50 [63.5]	2.732 [69.4]	.095 [2.41]	.047 [1.205]	2.256 [57.3]
78	2.05 [52.20]	2.079 [52.81]	2.40 [61.0]	2.638 [67.0]	.095 [2.41]	.047 [1.205]	2.169 [55.1]

CONTACTS	A	B	C	D
15	.984 [25.0]	.090 [2.29]	.045 [1.145]	.277 [7.04]
26	1.311 [33.3]	.090 [2.29]	.045 [1.145]	.277 [7.04]
44	1.854 [47.1]	.090 [2.29]	.045 [1.145]	.277 [7.04]
62	2.50 [63.5]	.095 [2.41]	.047 [0.120]	0.699
78	2.402 [61.0]	.095 [2.41]	.047 [0.120]	0.699

ORDERING INFORMATION

17E HD Series High Density D-Sub

Solder Cup & Straight P.C. Mount, Front Metal Shell Fixed Contact

17EHD 0XX X XX X XX

Series

Number Of Positions
15, 26, 44, 62, 78

Type

P Pin (male)
S Socket (female)

Termination Types:

00 Solder Cup
30 Board-mount, Vertical
32 Board-mount, Vertical with Boardlocks
33 Board-mount, Vertical with standoff, no boardlock

Panel Mounting Options:

0 .120 (3.05) Clear Hole
1 #4-40 Threaded Hole .190 (5.8)
2 #4-40 Fixed Female Screwlock
3 #4-40 Threaded Hole .124 (3.8)

Plating Code:

AA Gold Flash over Nickel
AM 30µ" (.76µm) Gold over Nickel

INCHES (MM)

Right-Angle Board Mount Connectors Front Metal Shell

SPECIFICATIONS:

MATERIALS AND PLATINGS

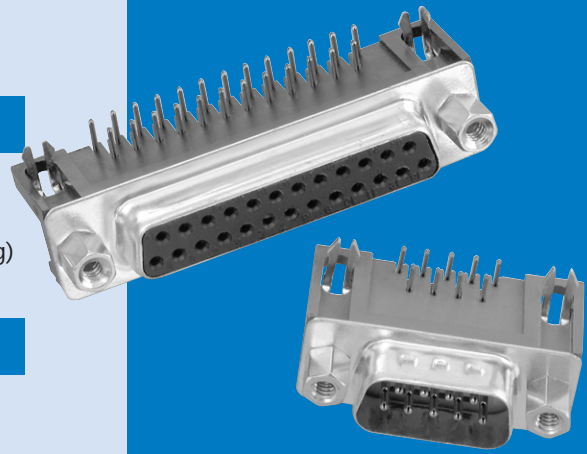
Shells	Steel, tin plated
Contacts	Precision formed copper alloy
Contact Plating	Gold over nickel
Contact Forces	Engagement: 12 oz. max. (340.2 g) Separation: .75 oz. min. (21.26 g)

ELECTRICAL DATA

Current Rating	5 amps
Dielectric Withstanding Voltage	1000 VAC/60 sec.
Dielectric	Glass filled thermoplastic, black, UL 94 VO
Contact Resistance	15 milliohms max.

CLIMATIC DATA

Temperature Range	-67°F (-55°C) to 221°F (105°C)
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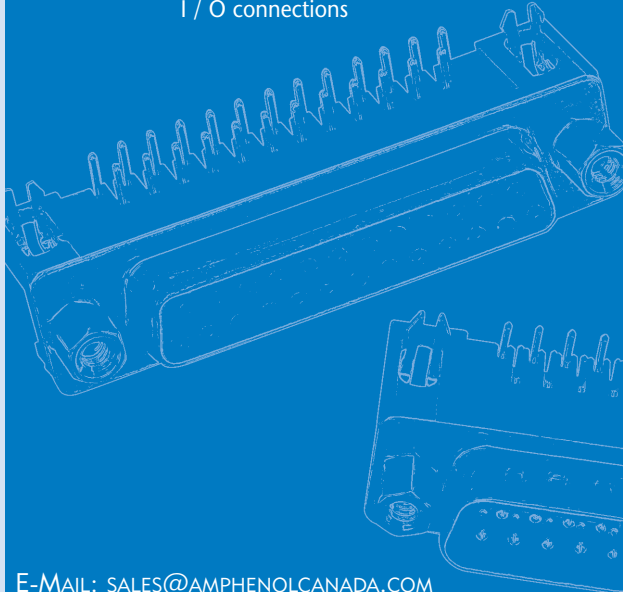


Amphenol's 6E17 series of right angle commercial connectors provide high performance at competitive prices.

The front metal shell helps to provide reduced EMI/ RFI emissions, and the contacts are selectively plated to provide additional high performance. The 6E17 series are available in a variety of board mounting and grounding options including arrowhead boardlocks and #4-40 threaded inserts.

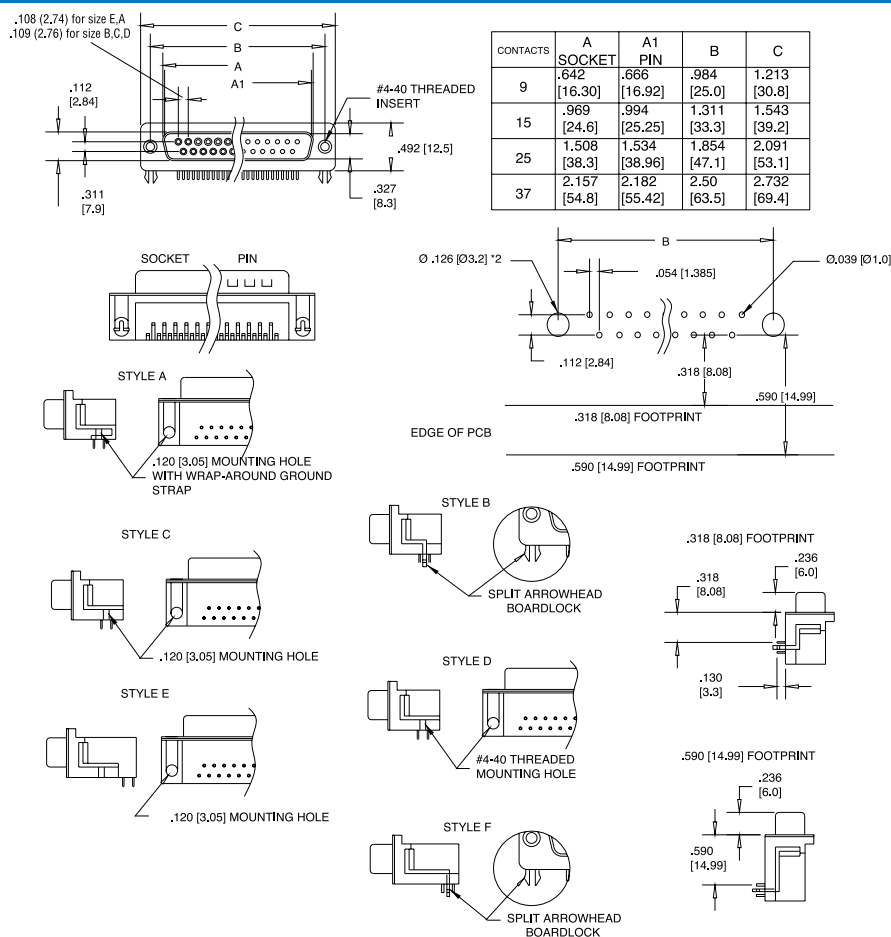
Front mounting holes are also available threaded, un-threaded and with installed female hex screwlocks.

- Industrial
- Telecom
- Any industry standard I / O connections



INCHES (MM)

DIMENSIONS



ORDERING INFORMATION

Series: **6E17** **X** **0XX** **X** **XX** **X** **XX** **X**

Number of Contacts: 09, 15, 25, 37

.318 (8.08) Footprint	.590 (14.99) Footprint	Description of PC Board Mounting Characteristics	Style
A		.120 (3.05) diameter mtg hole with wrap-around ground strap	A
C		split arrowhead boardlock	B
D	U	.120 (3.05) diameter mtg hole	C&E
J		#4-40 threaded mtg hole	D
	Y	split arrowhead boardlock	F

Code: P (Pin), S (Socket)

Contact Type: Pin (male), Socket (female)

Variation Code: E for U & Y Footprint

Contact: 20 (Tin plated receptacle), 21 (Tin plated plug with grounding indents)

Code: 0 (.120 (3.05) clear hole), 1 (#4-40 threaded hole), 2 (#4-40 threaded hole with female screwlock), 4 (Fixed female round screwlock)

Code: BF (Contact Plating: Engagement area 3µ" (.076µm) gold flash, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel; Engagement area 15µ" (.381µm) gold flash, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel; Engagement area 30µ" (.76µm) gold, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel), CF, AJ

Panel Mounting Options: .120 (3.05) clear hole, #4-40 threaded hole, #4-40 threaded hole with female screwlock, Fixed female round screwlock

Contact Plating: Engagement area 3µ" (.076µm) gold flash, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel; Engagement area 15µ" (.381µm) gold flash, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel; Engagement area 30µ" (.76µm) gold, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel

For filtered version, see page 56.

Dual Port Connectors

SPECIFICATIONS:

MATERIALS AND PLATINGS

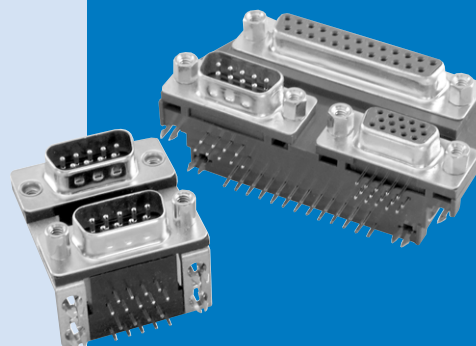
Shells	Steel, tin plated
Contacts	Precision formed copper alloy
Contact Plating	Gold over nickel
Contact Forces	Engagement: 12 oz. max. (340.2 g) Separation: .75 oz. min. (21.26 g)

ELECTRICAL DATA

Current Rating	5 amps
Dielectric Withstanding Voltage	1000 VAC/60 sec.
Dielectric	Glass filled thermoplastic, black, UL 94 VO
Contact Resistance	15 milliohms max.

CLIMATIC DATA

Temperature Range	-67°F (-55°C) to 221°F (105°C)
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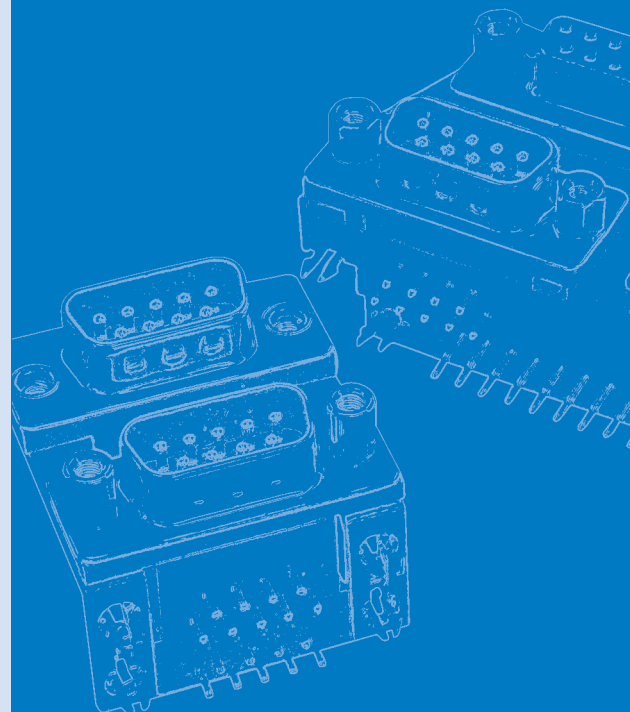
6E17 H SERIES

Amphenol's 61E7 series dual port connectors are a state of the art design. The front metal shell helps reduce EMI/RFI emissions.

Contacts are selectively plated for high performance at a low cost.

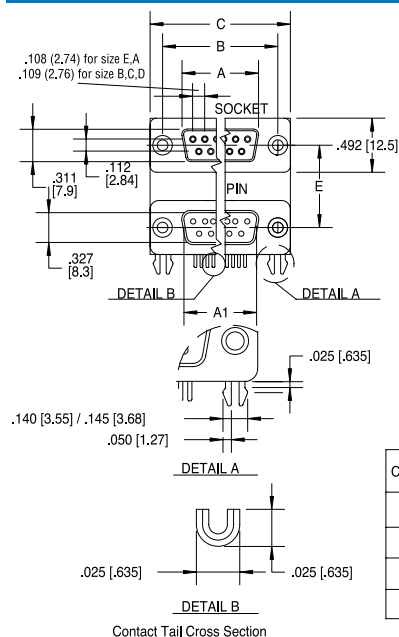
Designed to save PC board space, Amphenol's dual port "D" provides two input output connectors in a minimal amount of board space.

These connectors are available with various stacking options: same gender, mixed gender and multiple pin counts.



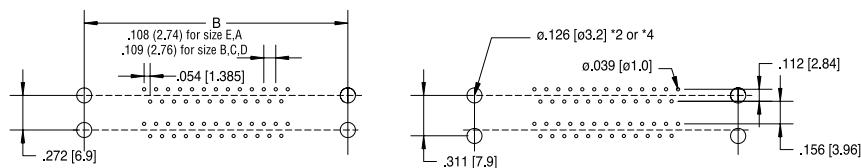
INCHES (MM)

DIMENSIONS



CONTACTS	A SOCKET	A1 PIN	B	C
9	.642 [16.30]	.666 [16.92]	.984 [25.0]	1.213 [30.8]
15	.969 [24.6]	.994 [25.25]	1.311 [33.3]	1.543 [39.2]
25	1.508 [38.3]	1.534 [38.96]	1.854 [47.1]	2.091 [53.1]
37	2.157 [54.8]	2.182 [55.42]	2.50 [63.5]	2.732 [69.4]

Code Letter	Product Description		Dimensions	
	Top Connector	Bottom Connector	E	F
A	Pin	Pin	0.900 ± 0.010 (22.86 ± 0.25)	1.415 (35.94)
B	Socket	Socket		
C	Pin	Socket		
D	Socket	Pin		
E	Pin	Pin	0.750 ± 0.010 (19.05 ± 0.25)	1.265 (32.13)
F	Socket	Socket		
G	Pin	Socket		
H	Socket	Pin		
J	Pin	Pin	0.625 ± 0.010 (15.88 ± 0.25)	1.140 (28.96)
K	Socket	Socket		
L	Pin	Socket		
M	Socket	Pin		



PCB EDGE

ORDERING INFORMATION

6E17H X XX X XX X XX X					
Series	Boardlock	Number of Contacts	Variation Code		
6E17H Dual port; right angle solder tail	C Boardlock option O No PC boardlock	18 2 x 9 30 2 x 15 50 2 x 25 74 2 x 37 40 15 / 25	L for .311 (7.89) Footprint		
		15 15 over blank 34 9 / 25 43 25 / 9+9 H15A VGA / Triple Audio	Code Housing Characteristics		
			00 Steel shell, tin plated receptacles without grounding dimples (options B, F, K)		
			01 Steel shells, tin plated plugs with grounding dimples (options A, E, J)		
			03 Steel shells, tin plated, plug shell with grounding dimples and receptacle shell without dimples (options C,G,L,D,H,M)		
			Code Panel Mounting Options		
			0 120° clear hole		
			1 #4-40 threaded hole		
			2 #4-40 threaded hole with female screwlock		
			Code Contact Plating		
			BF Engagement area 3µ" (.076µm) gold flash, terminal end area 100µ"/200µ" tin/lead, (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel		
			CF Engagement area 15µ" (.381µm) gold flash, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel		
			AJ Engagement area 30µ" (.76µm) gold, terminal end area 100µ"/200µ" (2.54µm/5.08µm) tin/lead underplate of 50µ" (1.27µm) nickel		

Consult factory for other available configurations

58.064 (22.86) Spacing	48.388 (19.05) Spacing	40.31 (15.87) Spacing	Product Description	
A	E	J	Top Connector	Bottom Connector
A	E	J	Pin	Pin
B	F	K	Socket	Socket
C	G	L	Pin	Socket
D	H	M	Socket	Pin

For filtered version, see page 55.

High Temperature Straight Board Mount Connectors

SPECIFICATIONS:

MATERIALS AND PLATINGS

Shells	Steel/nickel plated
Contacts	Precision formed copper alloy
Contact Plating	Gold over nickel

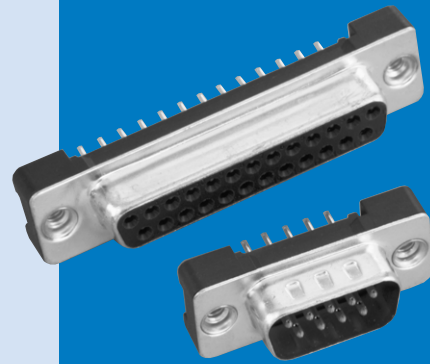
ELECTRICAL DATA

Current Rating	5 amps
Voltage Rating	600 V
Dielectric	Glass filled thermoplastic, black, UL 94 VO
Contact Resistance	10 milliohms (max.)

CLIMATIC DATA

Temperature Range	Environmental: -67°F (-55°C) to 302°F (150°C)
Process Compatibility	IR-Air Convection 500°F (260°C) for 20 seconds

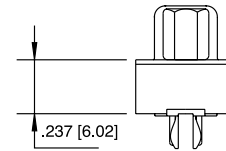
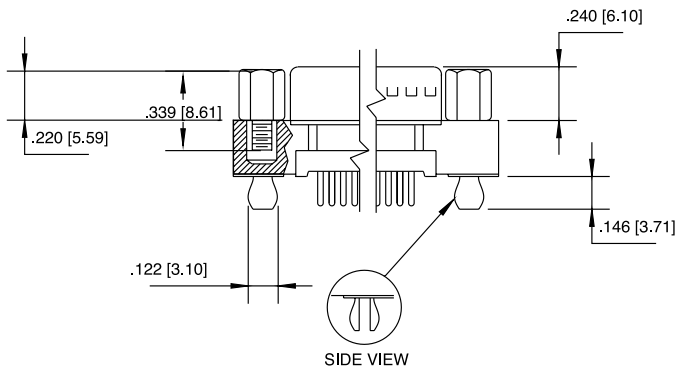
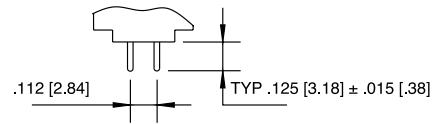
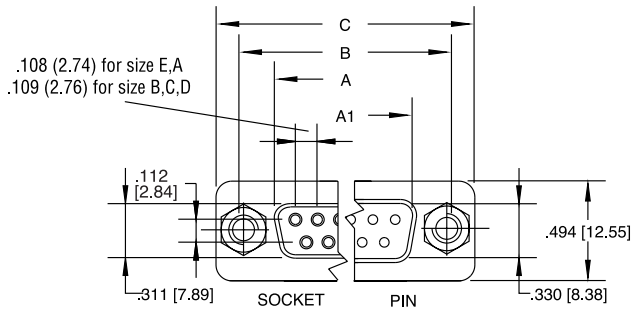
6E17S SERIES



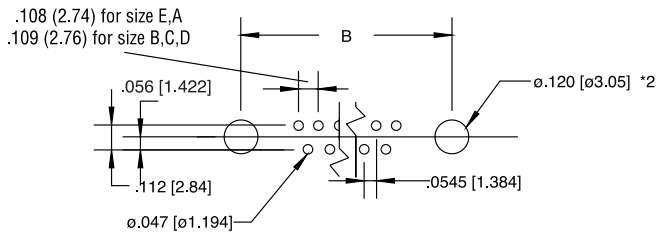
Amphenol's high temperature, low profile D-Sub connector gives you a high quality, reliable commercial connector to meet today's market demands.

INCHES (MM)

DIMENSIONS



CONTACTS	A SOCKET	A1 PIN	B	C
9	.642 [16.30]	.666 [16.92]	.984 [25.0]	1.213 [30.8]
15	.969 [24.6]	.994 [25.25]	1.311 [33.3]	1.543 [39.2]
25	1.508 [38.3]	1.534 [38.96]	1.854 [47.1]	2.091 [53.1]
37	2.157 [54.8]	2.182 [55.42]	2.50 [63.5]	2.732 [69.4]



ORDERING INFORMATION

6E17S C 0XX X XX X XX			
Series		Code	Housing Characteristics
C	Split arrowhead boardlock	20	Tin plated receptacle
O	No boardlock	21	Tin plated
Number of contacts	9, 15, 25 or 37	Code	Panel Mounting Options
Gender	P Pin (male) S Socket (female)	1	#4-40 threaded hole
Contact Plating	BJ Engagement area 10μ" (2.54μ) gold, terminal end area 100μ"/200μ" (2.54μ/5.08μ) -tin/lead, underplate of 50μ" (1.27μ) nickel AJ Engagement area 30μ" (.76μ) gold, terminal end area 100μ"/200μ" (2.54μ/5.08μ) -tin/lead, underplate of 50μ" (1.27μ) nickel	2	#4-40 threaded hole with female screwlock
		3	M-3 threaded hole

ED-EHD

D-Sub connectors - Screw-machined contacts

STANDARD AND HIGH DENSITY WATERPROOF CONNECTORS



CHARACTERISTICS

Materials and Platings	
Shells	Steel 2.5μm(100μ") min tin over 1.25μm(50μ") min nickel
Body	Glass-filled thermoplastic Flame retardant to UL94 V-0 Color Black
Contacts	Copper alloy(Brass for plug, Phosphor bronze for socket) gold over 1.25μm(50μ") min nickel
Boardlock	Copper alloy, 100μ" min. sn over 50μ" min. nickel.
Standoff	Copper alloy, 100μ" min. sn over 50μ" min. nickel.

Electrical Data	
Current rating	5.0A
Voltage rating	300V rms at 50Hz
Insulation resistance	>5000MΩ
Contact resistance	20mΩ Max.

Climatic Data	
Operating temperature	-55°C to +85°C
Salt spray	48 hours
Waterproof rating	IP 67 minimum

Mechanical Data					
Mating and unmating force Unit: kg (lb)					
No. of Cts		ED		EHD	
ED	EHD	Mate (max)	Unmate (min)	Mate (max)	Unmate (min)
9	15	3.05 (6.74)	0.36 (0.79)	3.81 (8.42)	0.52 (1.14)
15	26	5.09 (11.24)	0.46 (1.01)	5.95 (13.16)	1.05 (2.32)
25	44	8.44 (18.66)	0.81 (1.80)	9.26 (20.46)	1.37 (3.02)
Mating cycles					
		Gold flash		: 100 cycles	
		0.76μm (30μ")		: 500 cycles	

DESCRIPTION

The 17ED and 17EHD series are suitable for waterproof applications.

The machined contacts provide robustness and reliability.

This series offers:

- Panel mount connectors with solder cup, straight and right angle PCB terminations.

Connectors are waterproof unmated.

Harsh environment connectors

APPLICATIONS

- Marine electronic devices
- Industrial electrical
- Security Monitoring
- Robotics
- Lighting systems

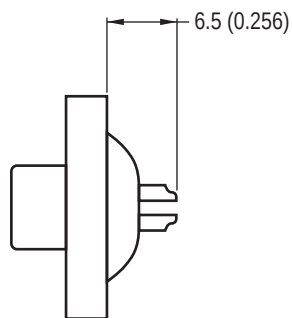


Amphenol

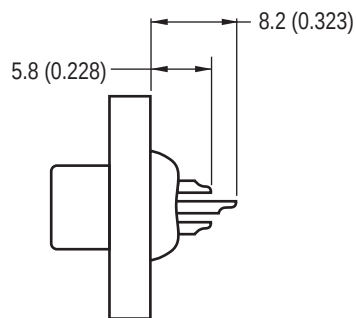
ED-EHD

Termination

Solder cup (blank) :

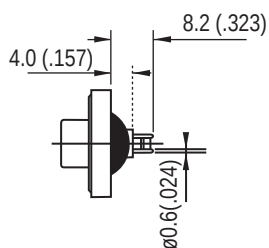


Standard density

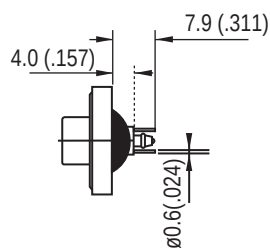


High density

Straight PCB with standoff and boardlocks:

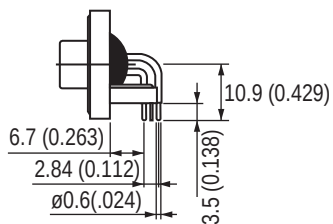


Standard density

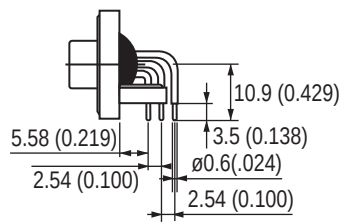


High density

Right angle PCB with brackets and boardlocks:

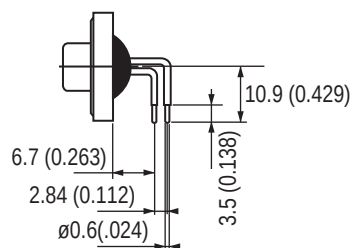


Standard density

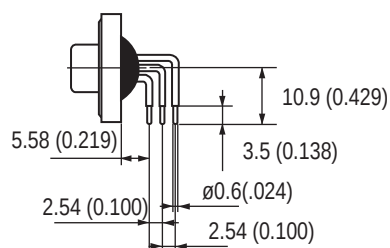


High density

Right angle PCB without brackets and boardlocks:

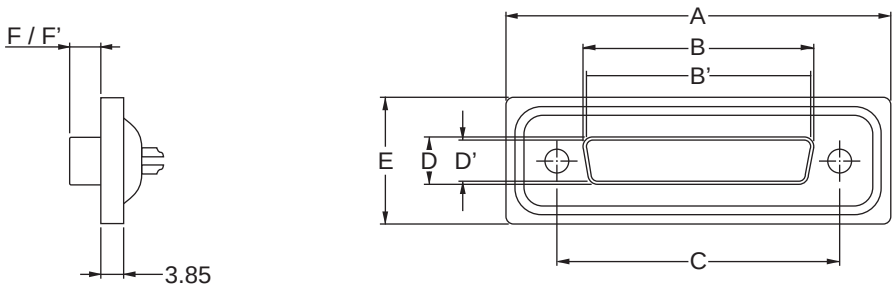


Standard density



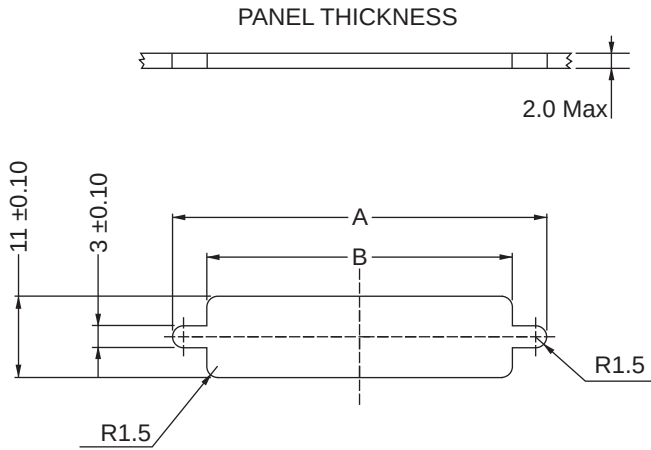
High density

Shell Size Dimensions



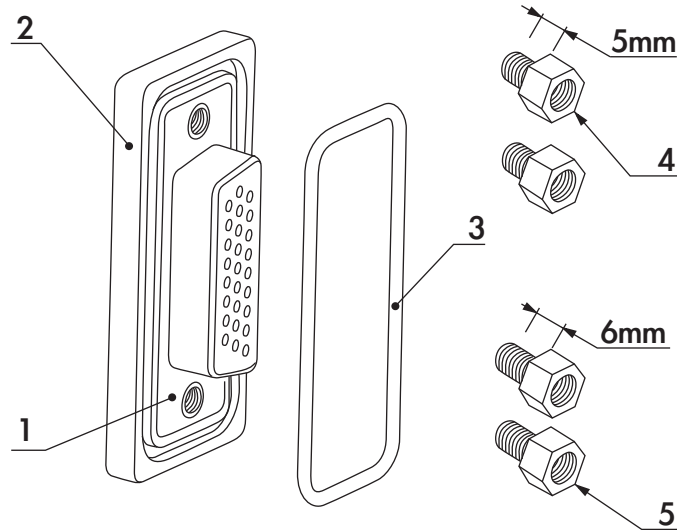
SHELL SIZE	Contact P: pin S: socket	A ±0.25 (±.010)	B 0 / -0.20 (0/- .008)	B' +0.20 / 0 (+.008/0)	C ±0.10 (±.004)	D 0 / -0.25 (0/- .010)	D' +0.25 / 0 (+.010/0)	E ±0.25 (±.010)	F +0.10/-0.20 (+.004/- .008)	F' ±0.10 (±.004)
E	P	39.4		16.8(0.661)	25.0		8.2(0.325)	21.0		5.9(0.232)
	S	(1.551)	16.4(0.646)		(0.984)	8.0(0.315)		(0.827)	6.2(0.244)	
A	P	47.7		25.1(0.988)	33.3		8.2(0.325)	21.0		5.9(0.232)
	S	(1.878)	24.8(0.976)		(1.311)	8.0(0.315)		(0.827)	6.2(0.244)	
B	P	64.5		28.8(1.528)	47.0		8.2(0.325)	21.0		5.9(0.232)
	S	(2.539)	38.5(1.513)		(1.850)	8.0(0.315)		(0.827)	6.2(0.244)	

Panel cutouts



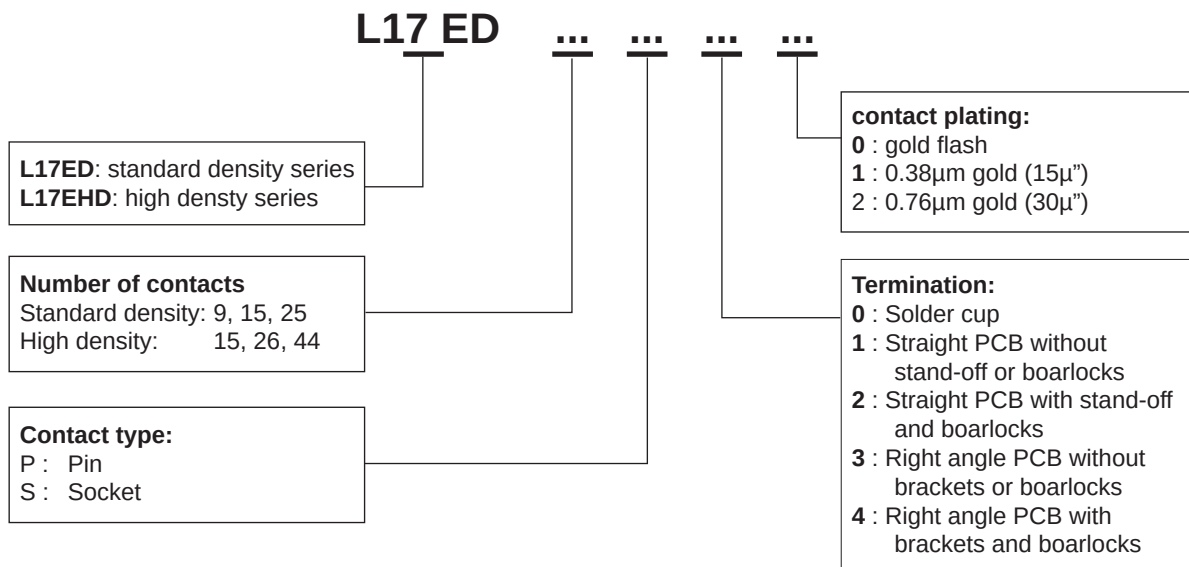
SHELL SIZE	A ±0.10(±.004)	B 0 / -0.10(0 / -.004)
E	28.8 (1.111)	20.0 (0.788)
A	36.5 (1.438)	28.0 (1.103)
B	51.0 (2.009)	41.5 (1.635)

Connector Dimensions



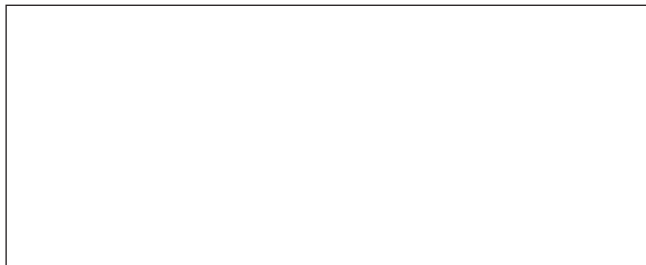
NO	Description	Material	Qty
2	Housing	Black thermoplastic UL 94-VO	1
1	Front shell	Steel tin plated	1
3	Ring	Silicone	1
4	#4-40 Front screw lock	Brass tin plated	2
5	#4-40 Front screw lock	Brass tin plated	2

How to order



For special request, please consult factory

Do not hesitate to contact us for further information



Amphenol

Amphenol IT & Communication Products

Block A3/A4, The 4th Industrial District of
Industrial Headquarters, Dong Keng Road
Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955

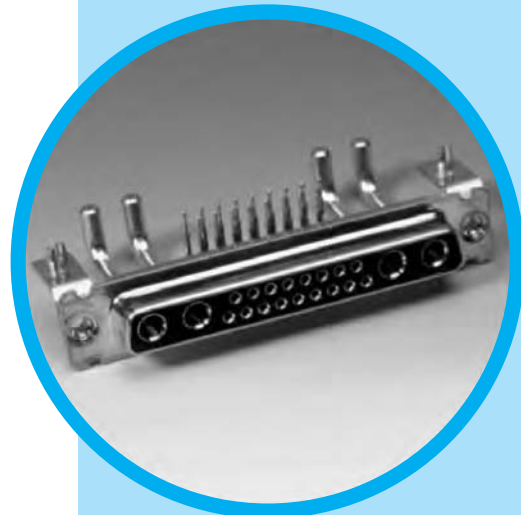
Technical Support

Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>



TW

Hybrid D'Sub series



CONTENT

Specifications

- Connectors according to: MIL C24308 - NFC93425 - HE507

Materials and platings		Electrical Data	
Shells	Steel-Tin plating	Current rating	
Insulators	High temperature black thermoplastic	Signal contacts	7.5 A. with 10 A. peaks
Signal contacts	Female: machined bronze	Power contacts	
Material	Male: machined brass	PCB terminations	10 to 40 A.
Plating finish	16μ "Au over 79μ" Ni min.	Solder cup terminations	10 to 40 A.
Or	30μ "Au over 79μ" Ni min.	Crimp terminations	10 to 40 A.
Shielded contacts	Female: machined bronze	Shielded contacts	0.5 A.
Material	Male: machined brass	Voltage rating	
Plating		Signal and power contacts	300 V.R.M.S. at 50 Hz
Inner conductor	16μ "Au or 30μm Au over 79μ" Ni	Shielded contacts	150 V.R.M.S. at 50 Hz
Outer ring	10μ "Au over 79μ" Ni	Shielded contacts	
Terminations	Tinned	Frequency range	0-1 GHz
Except solder cup and crimp terminations	gold flash	Attenuation	0.2dB
Power contacts	Female: machined bronze	V. S. W. R.	1.4(+0.04/GHz)
Material	Male: machined brass	Characteristic impedance	50 Ohms
Plating		Dielectric withstanding voltage	≥ 1000 V.R.M.S. at 50Hz
Contacts	16μ "Au or 30μ" Au over 79μ" Ni	Insulation resistance	≥ 5000 M Ohms at 500 VDC
Terminations	Tinned	Contact resistance	≤ 5m Ohms
Except solder cup and crimp terminations	gold flash	Shell resistance (electrical grounding)	≤ 1m Ohm
Brackets	Steel-Tin plating		
Front jackscrews	Brass-Tin plating		
Rear clinch nuts	Brass-Tin plating		
Boardlocks	Bronze-Tin plating		
Stand-off	Brass-Tin plating		

Climatic Data		Mechanical data	
Operating temperature	-55°C + 155°C (with peaks up to 180°C)	Shells	With or without dimples
Damp heat	56 days (40°C - 95% HR)	Contact retention force in dielectric material	> 40N
Salt spray	48 hours	Maximum mating and unmating force	
		With dimples	E size = 70 N A size = 80 N B size = 100 N C size = 150 N D size = 180 N E size = 30 N A size = 50 N B size = 80 N C size = 120 N D size = 160 N
		Without dimples	
		Compatible with process	
		IR - Air convectioned	260° for 20 s.
		Resistance to solder iron heat	260°C for 30 s.
		Mating cycles	≥ 200 (classe II) or 500 (classe I)
		Blind mating system	Available upon request
		Polarization	Available with locking accessories Consult factory



DESCRIPTION

Amphenol D'Sub TW Hybrid Series permits a mix of contacts including signal, power, shielded, high voltage and fiber optics in the same housing with 18 different contacts arrangements.

This economic series was first developed from our military series, and has improved features:

- new contacts
- new high temperature black thermoplastic insert
- PCB configurations come preloaded with fixed contacts and brackets.

These connectors are supplied with screw machined contacts which are fixed in the insulator.

A complete range of housings are also available for cable application.

A full range of arrangements compatible with reflow process

APPLICATIONS

- Commercial
- Medical
- Industrial
- Telecom
- Any application requiring optimization of space

TW / E1



Amphenol

Shell and contacts plating

CLASS II

0.4μm (16μ") Au contacts gold plating
200 mating cycles

Types	Shells and plating
77 TW	Tin plated shell <i>*Male and female</i>
717 TW	Tin plated shell with dimples <i>Male only</i>

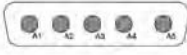
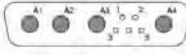
CLASS I

0.76μm (30μ") Au contacts gold plating
500 mating cycles

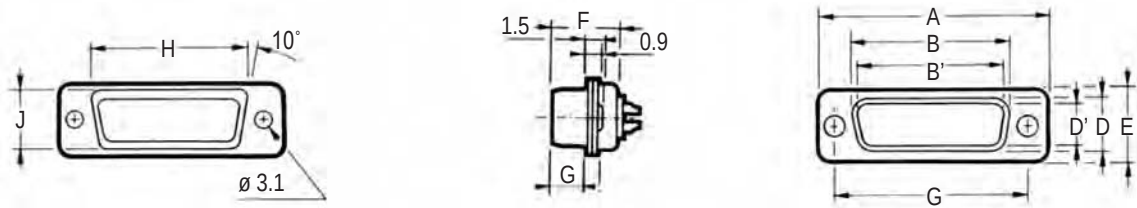
Types	Shells and plating
177 TW	Tin plated shell <i>*Male and female</i>
777 TW	Tin plated shell with dimples <i>Male only</i>

Housing arrangements

Male front view

Arrangement Shell size	 5W1 E	 7W2 A	 11W1 A
Arrangement Shell size	 3W3 A	 5W5 B	 9W4 B
Arrangement Shell size	 13W3 B	 17W2 B	 21W1 B
Arrangement Shell size	 27W2 C	 13W6 C	 17W5 C
Arrangement Shell size	 21W4 C	 8W8 C	 25W3 C
Arrangement Shell size	 24W7 D	 36W4 D	 43W2 D

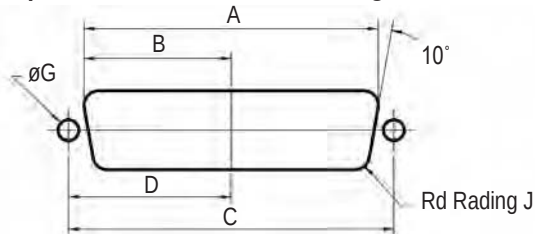
Shell size dimensions



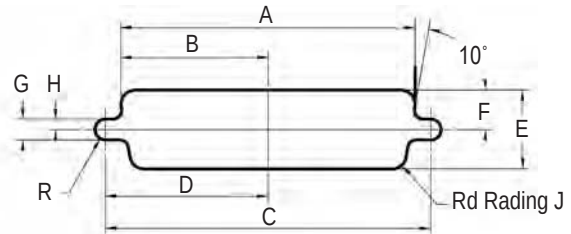
Shell size	Contact P: Pin S: Socket	A ±0.25 (±.010)	B 0/-0.20 (0/- .008)	B' +0.20/0 (+.008/0)	C ±0.10 (±.004)	D 0/-0.25 (0/- .010)	D' +0.25/0 (+.010/0)	E ±0.20 (±.008)	F +0.05/-0.20 (+.002/- .008)	F' +0.10/-0.20 (+.004/- .008)	G +0.10/-0.20 (+.004/- .008)	G' ±0.10 (±.004)	H +0.10/-0.40 (+.004/- .016)	J 0/-0.50 (0/- .020)
E	P	30.7 (1.209")		16.8 (.661")	25.0 (.984")		8.2 (.323")	12.4 (.488")		10.9 (.429")		5.9 (.232")	19.4 (.764")	11.0 (.433")
	S		16.4 (.646")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
A	P	39.0 (1.535")		25.1 (.988")	33.3 (1.311")		8.2 (.323")	12.4 (.488")		10.9 (.429")		5.9 (.232")	27.7 (1.091")	11.0 (.433")
	S		24.8 (.976")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
B	P	52.9 (2.083")		38.8 (1.528")	47.0 (1.850")		8.2 (.323")	12.4 (.488")		11.0 (.433")		5.8 (.228")	41.4 (1.630")	11.0 (.433")
	S		38.5 (1.513")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
C	P	69.2 (2.724")		55.3 (2.177")	63.5 (2.500")		8.2 (.323")	12.4 (.488")		11.0 (.433")		5.8 (.228")	57.9 (2.280")	11.0 (.433")
	S		54.9 (2.161")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
D	P	66.8 (2.630")		52.7 (2.075")	61.1 (2.406")		11.0 (.433")	15.2 (.598")		11.0 (.433")		5.8 (.228")	55.5 (2.185")	13.8 (.543")
	S		52.5 (2.067")			10.9 (.429")			11.1 (.437")		6.2 (.244")			

Panel cutouts

Optimal cutout for rear mounting

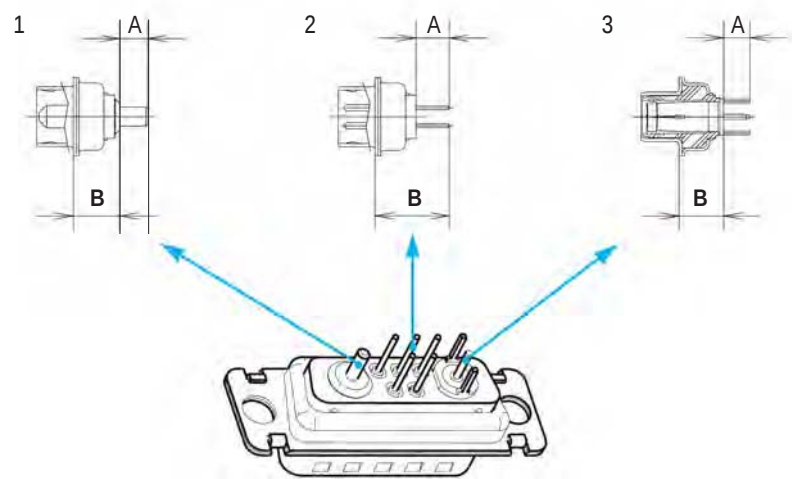


Standard cutout



Shell size	Mounting method	A ±0.20 (±.008)	B ±0.20 (±.008)	C ±0.20 (±.008)	D ±0.20 (±.008)	E ±0.20 (±.008)	F ±0.20 (±.008)	G ±0.20 (±.008)	H ±0.20 (±.008)	J ±0.20 (±.008)
E	Front	22.2 (.874")	11.1 (.437")	25.0 (.984")	12.5 (.492")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	20.5 (.807")	10.2 (.402")			11.4 (.449")	5.7 (.224")			3.4 (.134")
A	Front	30.5 (1.201")	15.3 (.602")	33.3 (1.311")	16.7 (.657")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	28.8 (1.134")	14.4 (.567")			11.4 (.449")	5.7 (.224")			3.4 (.134")
B	Front	44.3 (1.744")	22.1 (.870")	47.0 (1.850")	23.5 (.925")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	42.5 (1.673")	21.3 (.839")			11.4 (.449")	5.7 (.224")			3.4 (.134")
C	Front	60.7 (2.390")	30.4 (1.197")	63.5 (2.500")	31.7 (1.248")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	59.1 (2.327")	29.5 (1.161")			11.4 (.449")	5.7 (.224")			3.4 (.134")
D	Front	58.3 (2.295")	29.2 (1.150")	61.1 (2.406")	30.6 (1.205")	15.8 (.622")	7.9 (.311")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	56.3 (2.217")	28.2 (1.110")			14.1 (.555")	7.1 (.280")			3.4 (.134")

Straight connector footprint



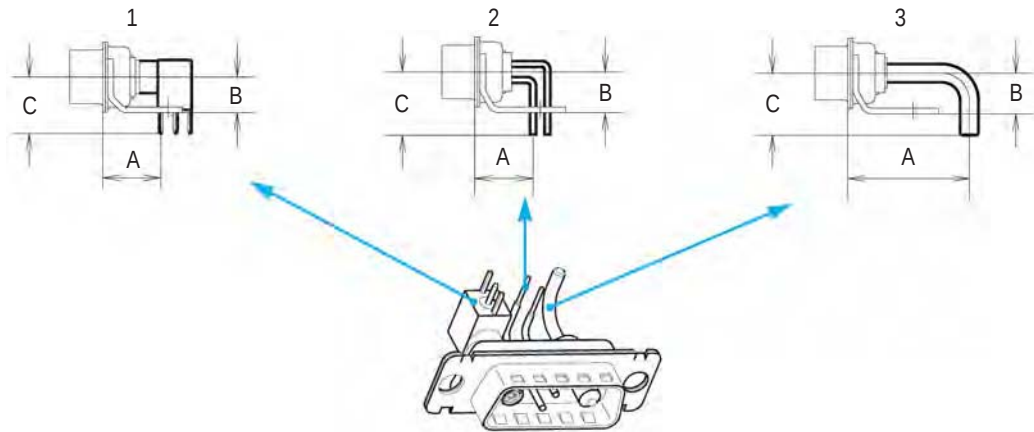
Signal tail 0.6 mm Dia. (.0236")
1.6 mm (.063")PCB
For other PCB thickness: consult factory.

Description		Dimensions	
		a	b
Power (.126" tail dia.)	1	4.80 mm (.198")	7.2 mm (.283")
Power (.0787" tail dia.)	1	4.80 mm (.198")	7.2 mm (.283")
Shielded	3	4.00 mm (.157")	7.2 mm (.283")
Signal	2	5.00 mm (.196")	11.50 mm (.453")

Straight contact combinations

Arrangement with signal contacts		Arrangement without signal contacts 3W3 - 5W5 - 8W8	
See above dimensions	Size 8 and 20 Contacts	See above dimensions	Size 8 Contacts
↓		↓	
P 3SY	Power 3.2 mm DIA. (.126") (20 to 40 A) and signal	P 3Y	Power only 3.2 mm DIA. (.126") (20 to 40 A)
P 2SY	Power 2 mm DIA. (.0787") (10 to 20 A) and signal	P 2Y	Power only 2 mm DIA. (.0787") (10 to 20 A)
CSY	Shielded and signal	CY	Shielded only
SY	Signal only		
No reference	Signal (Size 20) with solder cup terminations Housing preloaded with contacts		

Right angle connector footprint



Signal tail 0.6 mm Dia. (.0236")
1.6 mm (.063") PCB
For other PCB thickness: consult factory.

Description		Europe			Mix			MIL		
		a	b	c	a	b	c	a	b	c
Shielded	1	-	-	-	10.30mm (.406")	6.30mm (.248")	10.00mm (.394")	10.30mm (.406")	6.30mm (.248")	10.00mm (.394")
Signal	2	10.30mm (.406")	7.20mm (.283")	11.20mm (.441")	10.30mm (.406")	6.30mm (.248")	9.50mm (.374")	8.10mm (.319")	6.30mm (.248")	9.50mm (.374")
Power (.0787" tail dia.)	3	11.57mm (.456")	7.20mm (.283")	10.50mm (.413")	11.57mm (.456")	6.30mm (.248")	9.50mm (.374")	9.52mm (.375")	6.30mm (.248")	9.50mm (.374")
Power (.126" tail dia.)	3	21.46mm (.845")	7.20mm (.283")	10.50mm (.413")	21.46mm (.845")	6.30mm (.248")	9.50mm (.374")	21.46mm (.845")	6.30mm (.248")	9.50mm (.374")

Note: above dimensions correspond to sizes E to C. Consult factory for D sizes.
Connector comes equipped with contacts and brackets.

Right angle contacts combinations

Arrangement with signal contacts

European footprint	Mixed footprint	MIL (U.S.) footprint	Size 8 and 20 Contacts
EP3SV	HP3SV	MP3SV	Power 3.2 mm DIA. (.126") (20 to 40 A) and signal
EP2SV	HP2SV	MP2SV	Power 2 mm DIA. (.0787") (10 to 20 A) and signal
-	HCSV	MCSV	Shielded and signal
ESV	HSV	MSV	Signal only

Arrangement without signal contacts 3W3 - 5W5 - 8W8

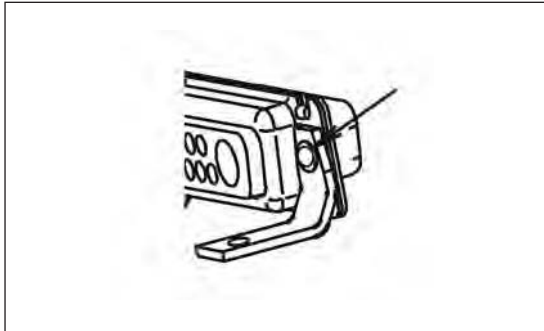
European footprint	Mixed footprint	MIL (U.S.) footprint	Size 8 contacts only
EP3V	HP3V	MP3V	Power only 3.2 mm DIA. (.126") (20 to 40 A)
EP2V	HP2V	MP2V	Power only 2.0 mm DIA. (.0787") (10 to 20 A)
-	HCV	MCV	Shielded only

Mounting options

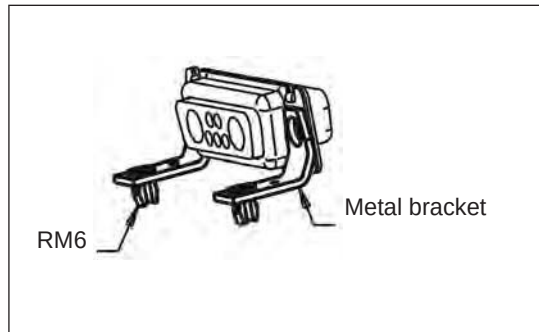
Right angle version

Connectors come equipped with metal brackets

BLANK: 3.10mm (.122") dia mounting hole

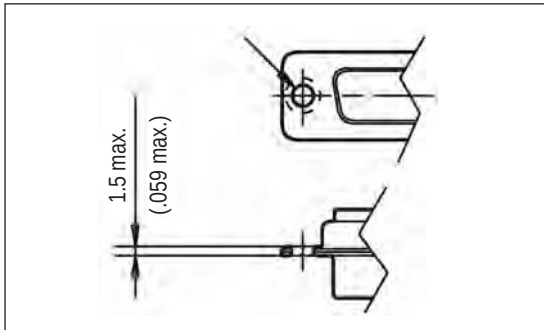


RM6: metal brackets + boardlock



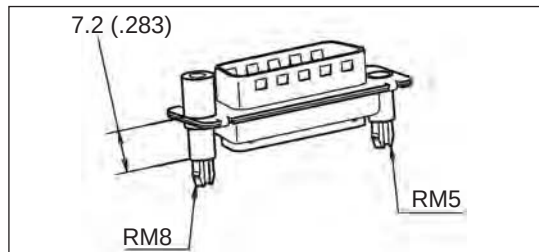
Straight version

BLANK: 3.10mm (.122") dia mounting hole



RM54: RM5 4.40 threaded

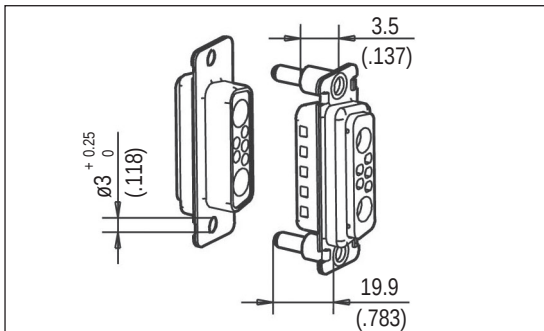
RM53: RM5 M3 threaded



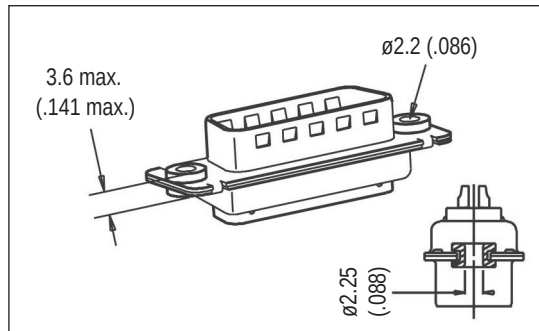
RM84: RM8 4.40 threaded

RM83: RM8 M3 threaded

A514: blind mating system



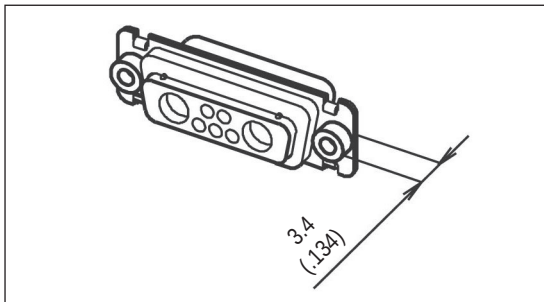
FM: float mounting system



Straight and right angle version

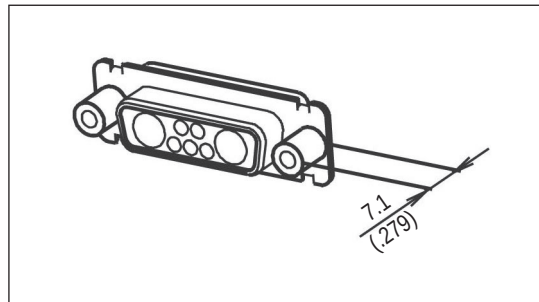
4R: 4.40 rear nut

3R: M3 rear nut

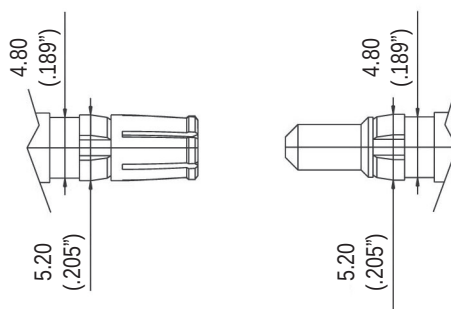


4F: 4.40 front female screwlock

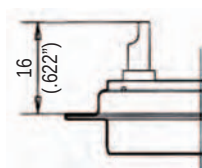
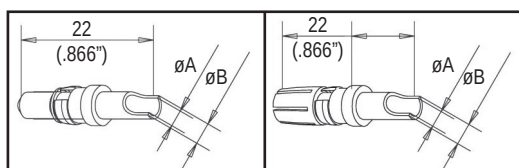
3F: M3 front female screwlock



High power contacts



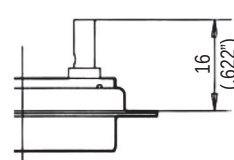
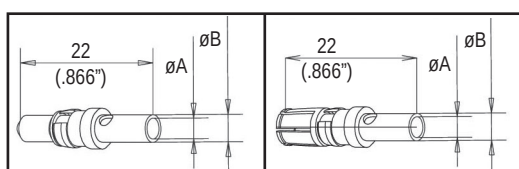
Solder cup version



P/N		Current	Dimensions	
Plug	Socket		A mm (inch)	B mm (inch)
L 17DM 53745-8	L 17DM 53744-7	10 to 20 Amp.	1.80 (.071")	2.55 (.100")
L 17DM 53745-7	L 17DM 53744-6	20 to 30 Amp.	2.80 (.110")	3.70 (.145")
L 17DM 53745-1	L 17DM 53744-1	30 to 40 Amp.	4.80 (.189")	5.60 (.220")

Trim dimensions: 7.5 mm (.295")

Crimp version



P/N		Current	Dimensions	
Plug	Socket		A mm (inch)	B mm (inch)
L 17DM 53745-208	L 17DM 53744-207	10 to 20 Amp.	1.80 (.071")	2.55 (.100")
L 17DM 53745-207	L 17DM 53744-206	20 to 30 Amp.	2.80 (.110")	3.70 (.145")
L 17DM 53745-201	L 17DM 53744-201	30 to 40 Amp.	4.80 (.189")	5.60 (.220")

Trim dimensions: 7.5 mm (.295")

Crimping tool for all sizes
L17D479SP

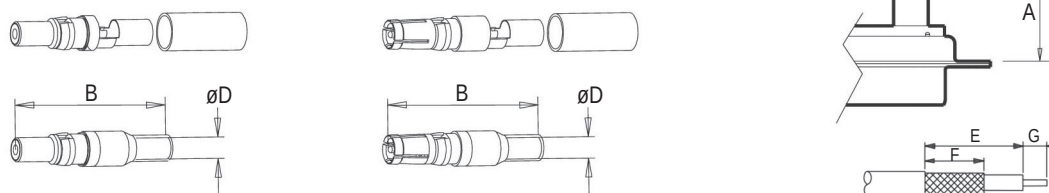


Extraction tool for sizes 8 cts



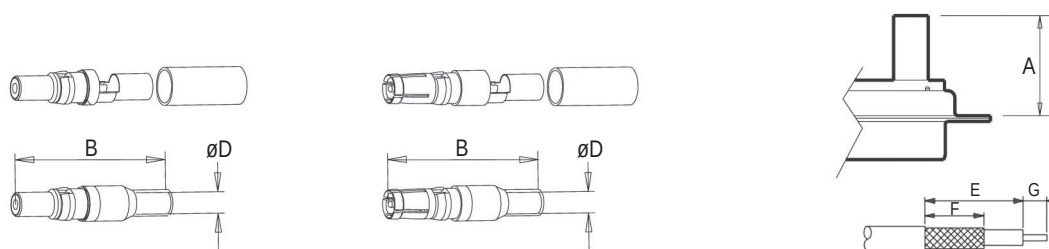
Straight shielded contacts

Crimp ferrule and inner solder



Type	P/N	Dimensions (inch)			Cable - RG	Trim dimensions (inch)		
		A Max	B	D		E	F	G
plug	L17DM 53740	18.8 (740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-1	18.8 (740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-3	21.5 (846")	23.6 (.929")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
plug	L17DM 53740-5	21.5 (846")	23.6 (.929")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742	18.8 (740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-1	18.8 (740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-3	21.5 (846")	23.6 (.929")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742-5	21.5 (846")	23.6 (.929")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")

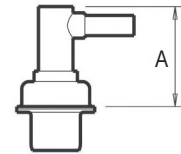
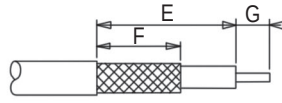
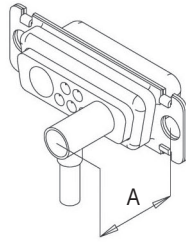
Ferrule and inner solder



Type	P/N	Dimensions (inch)			Cable - RG	Trim dimensions (inch)		
		A Max	B	D		E	F	G
short plug	L17DM 53740-5000	17.0 (669")	21.8 (.858")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-5001	18.8 (740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-5002	21.5 (846")	26.3 (1.035")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
plug	L17DM 53740-5005	21.5 (846")	26.3 (1.035")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")
plug	L17DM 53740-5008	18.8 (740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
short socket	L17DM 53742-5000	17.0 (669")	21.8 (.858")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-5001	18.8 (740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-5002	21.5 (846")	26.3 (1.035")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742-5004	21.5 (846")	26.3 (1.035")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742-50060	18.8 (740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")

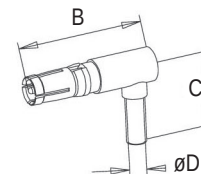
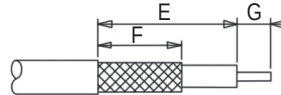
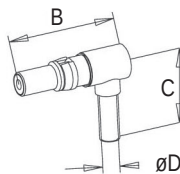
Right angled shielded contact

Crimp ferrule and inner solder



Type	P/N	Dimensions (inch)			Cable - RG	Trim dimensions (inch)		
		A Max	B	D		E	F	G
plug	L17DM 53741	13.5 (.531")	18.6 (.732")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-1	13.5 (.531")	18.6 (.732")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-3	13.5 (.531")	18.6 (.732")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
plug	L17DM 53741-4	13.5 (.531")	18.6 (.732")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-2	13.5 (.531")	18.6 (.732")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-3	13.5 (.531")	18.6 (.732")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-5	13.5 (.531")	18.6 (.732")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-6	13.5 (.531")	18.6 (.732")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")

Ferrule and inner solder



Type	P/N	Dimensions (inch)			Cable - RG	Trim dimensions (inch)		
		A Max	B	D		E	F	G
plug	L17DM 53741-5000	13.5 (.531")	18.6 (.732")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-5001	13.5 (.531")	18.6 (.732")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-5003	13.5 (.531")	18.6 (.732")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
plug	L17DM 53741-5004	13.5 (.531")	18.6 (.732")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-5000	13.5 (.531")	18.6 (.732")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-5001	13.5 (.531")	18.6 (.732")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-5003	13.5 (.531")	18.6 (.732")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-5004	13.5 (.531")	18.6 (.732")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")

Crimping tool

Hand crimp tool

227-0944 (without dies) (M 22 520/5-01)

RG cables	MIL reference	Amphenol P/N	dim. between 2 flat surface	
			cavity A	cavity B
RG 58 C/U	M 22 520/5-05	227 1221-05	5.41	-
RG 178 B/U	M 22 520/5-03	227 1221-03	-	2.67
RG 179 B/U	M 22 520/5-03	227 1221-03	3.25	-
RG 180 B/U	M 22 520/5-05	227 1221-05	-	4.52

Extraction tool

Extraction tool for sizes 8 cts

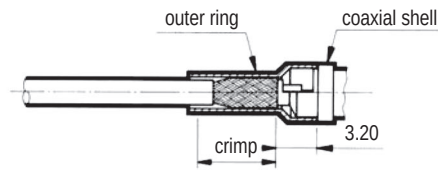
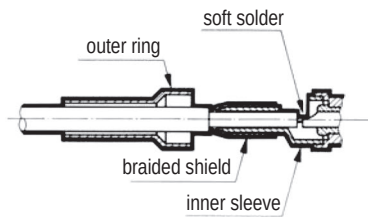
L17D429SP



Cabling instructions for shielded contacts

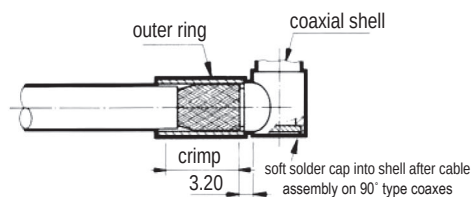
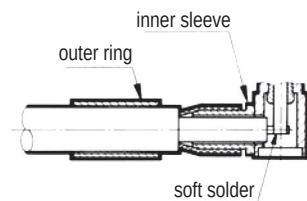
Straight crimp shielded contacts:

*inner solder contact
outer crimp contact*



Right angle crimp shielded contacts:

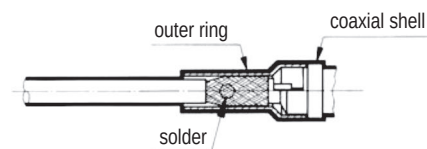
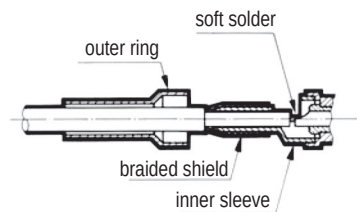
*inner solder contact
outer crimp contact*



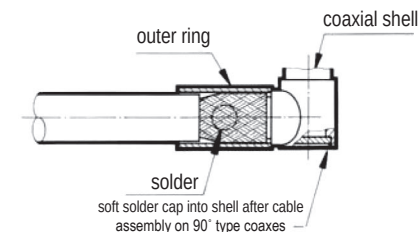
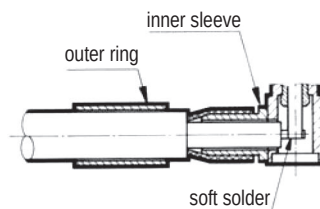
Assembly method

- Slide the outer ring over the cable jacket. Trim the cable according to the recommended dimensions.
- Insert the cable dielectric and the center conductor inside the inner sleeve.
- Solder the central conductor to the shielded center contacts.
- Slide the outer ring towards the inner sleeve and recover the braid.
- Using crimp hand tool equipped with the appropriate dies, crimp in the area defined.

Solder straight shielded contacts:



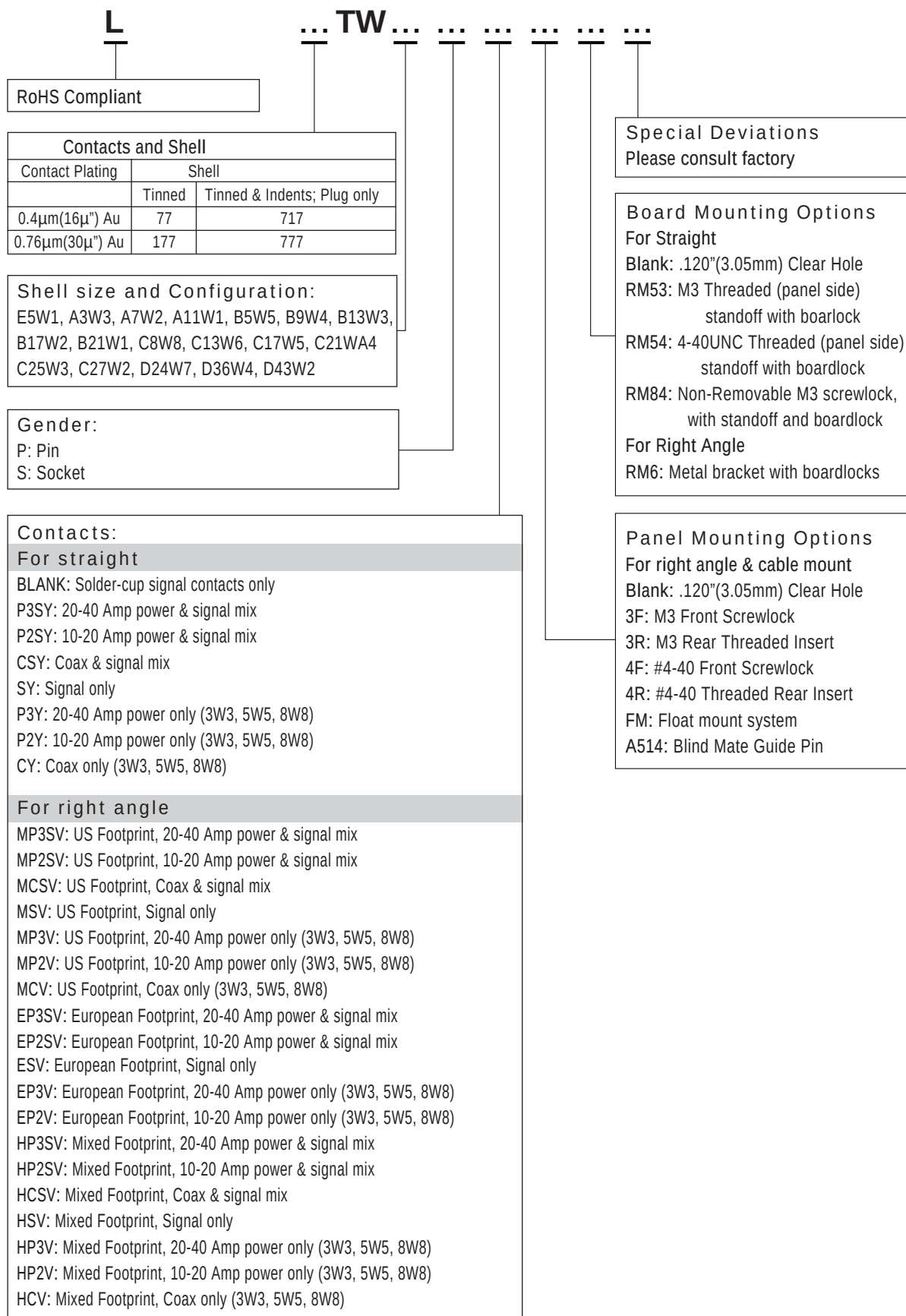
Solder right angle shielded contacts:



Assembly method

- Slide the outer ring over the cable jacket. Trim the cable according to the recommended dimensions.
- Insert the cable dielectric and the center conductor inside the inner sleeve.
- Solder the central conductor to the shielded center contacts.
- Slide the outer ring towards the inner sleeve and recover the braid.
- Solder by introducing metal through the outer ring hole.

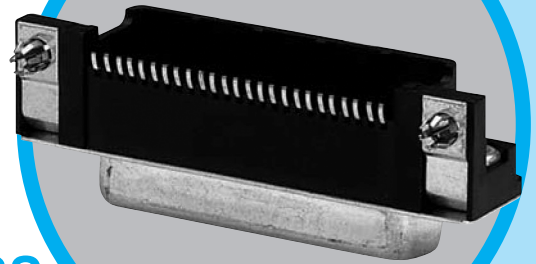
How to build your part number



SM2

D-Sub connectors - Stamped and Formed Contacts

SURFACE MOUNT CONNECTORS



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308 - NFC 93425-HE5

Materials and Platings	
Shells	Steel with tin plating
Insulator	High temperature (peak at 260°C) glass-filled thermoplastic, UL 94V-0
Socket contact	Stamped and formed brass, selected gold in mating area; 2.54µm (100µ") min. tin on termination area, with entire contact under-plated 1.27µm (50µ") min. nickel
Rear insert	Brass, 3µm up to 5µm (118µ" up to 197µ") tinned over nickel 2µm up to 3 µm (78µ" to 118µ")
Boardlock	Tin plating 4µm up to 6µm (157µ" up to 236µ") over nickel 2µm up to 3µm (78µ" up to 118µ"), insertion force: Low Insertion Force = LIF (bronze) Zero Insertion Force = ZeFo (bronze)
Screwlock	Brass, 6µm up to 10µm (236µ" up to 394µ") tinned over nickel 2µm up to 3µm (78µ" up to 118µ")
Grounding	Grounding strap: brass, 4µm up to 6µm tin plating over nickel 2µm up to 3µm (78µ" up to 118µ")

Electrical Data	
Current rating	3A
Voltage rating	300V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ max

Climatic Data	
Operating temperature	85°C, peak at 105°C
Damp heat	56 days (40°C - 95% HR)

Mechanical Data		
Single contact insertion force	1.2N < F < 2.5N	
Single contact withdrawal force	0.4N min	
LIF boardlock	8N max per connector	
Coplanarity of contacts	0.2mm (.008”) max	
Mating and unmating force		
Unit: N		
No. of Cts	Mate (max)	Unmate (min)
9 (size E)	30	3.5
15 (size A)	50	4.5
25 (size B)	83	8.0

DESCRIPTION

Amphenol SMT D-Sub is offered in right angle, receptacle with brackets, as an industry standard for I / O connections.

Boardlock features:

- LIF (Low Insertion Force) boardlock especially designed to be fully compatible with pick and place machine.
- ZeFo (Zero Force Insertion) boardlock has been designed so that once placed and expanded, secures a safe locking.

*Designed for
Pick and Place
SMT process*

APPLICATIONS

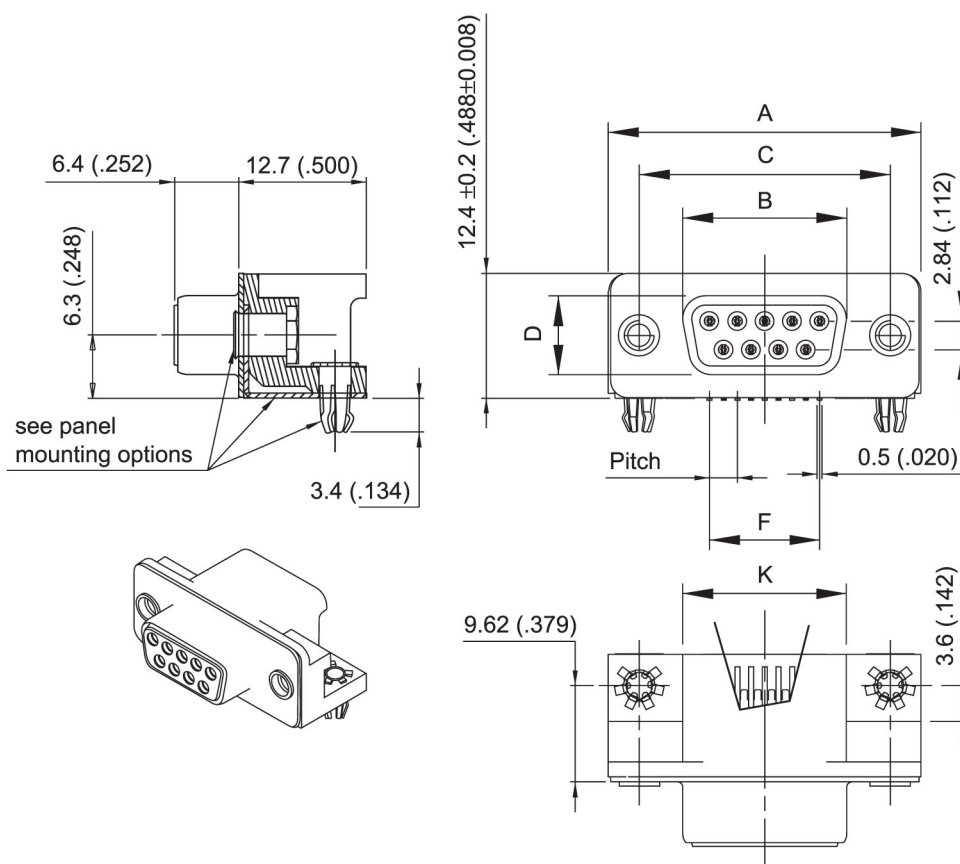
- Industrial
- Telecom
- Any industry standard I / O connections



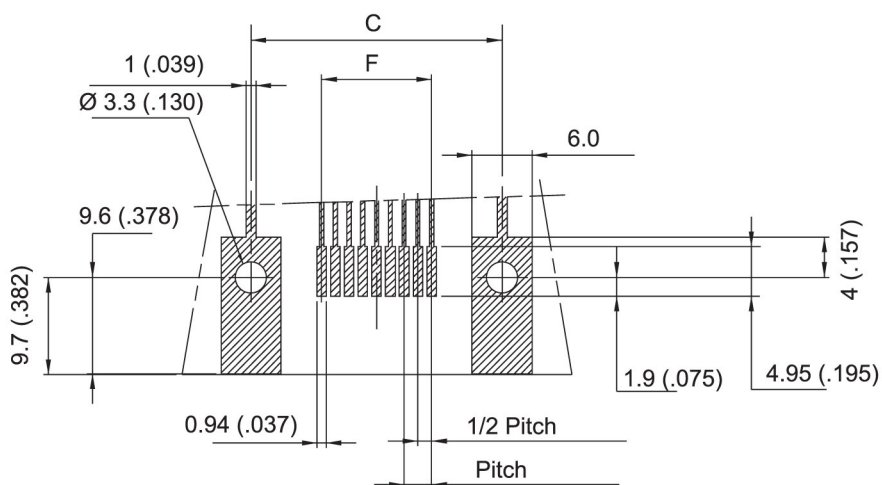
Amphenol

SM2 / E2

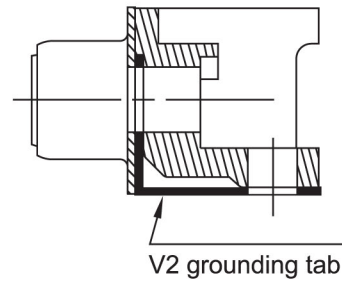
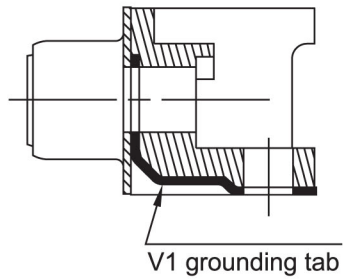
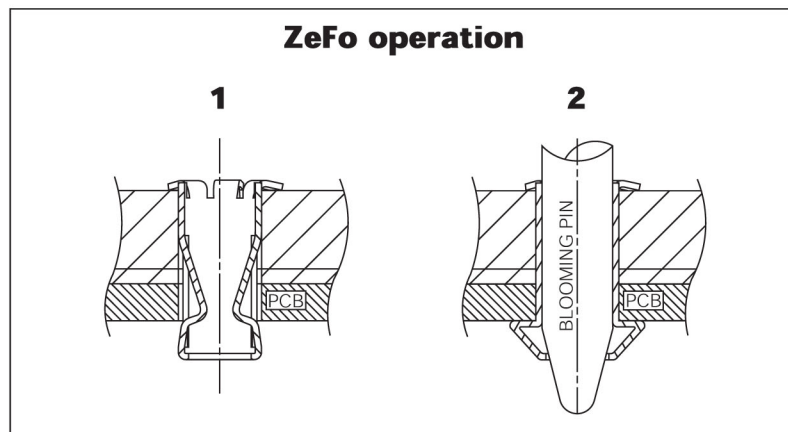
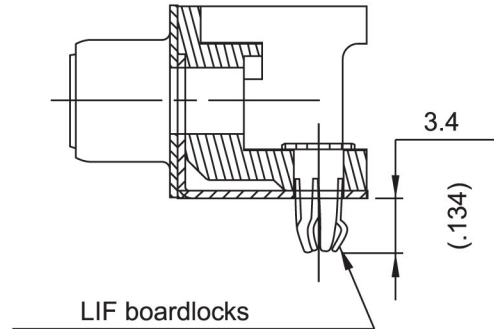
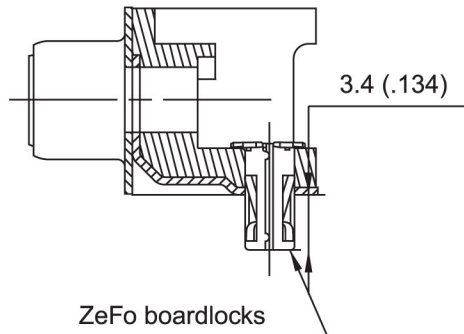
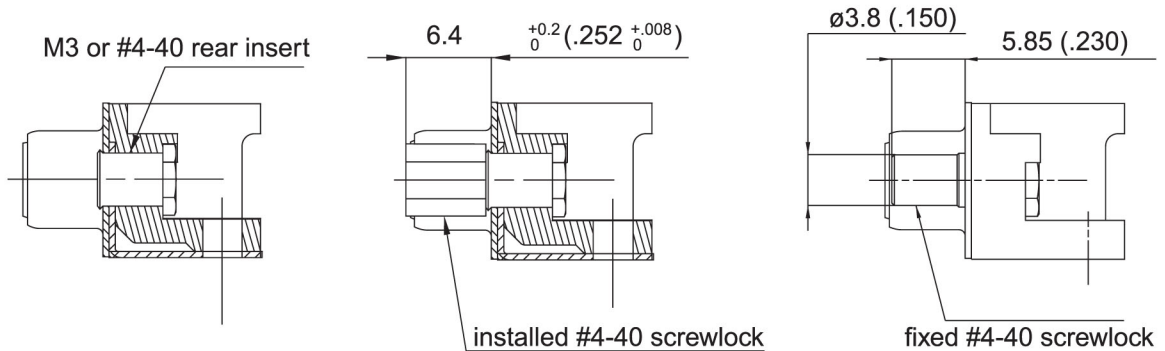
Shell Size Dimensions



PCB LAYOUT



SHELL SIZE	mm (inch)						
	A +0.05 (.002) -0.1 (.004)	B 0 -0.2 (.008)	C ±0.1 (.004)	D 0 -0.25 (.01)	PITCH	F	K
E	31.15 (1.226)	16.4 (.645)	25 (.984)	8.03 (.316)	2.74 (.1078)	10.97 (.432)	16.3 (.642)
A	39.4 (1.551)	24.8 (.976)	33.3 (1.311)	8.03 (.316)	2.74 (.1078)	19.2 (.756)	24.6 (.968)
B	53.3 (2.098)	38.5 (1.515)	47 (1.850)	8.03 (.316)	2.76 (.1086)	33.12 (1.304)	38.3 (1.508)

Panel mounting option**GROUNDING TABS:****BOARDLOCKS:****FLANGES ACCESSORIES:**

Threaded Rear

1/2

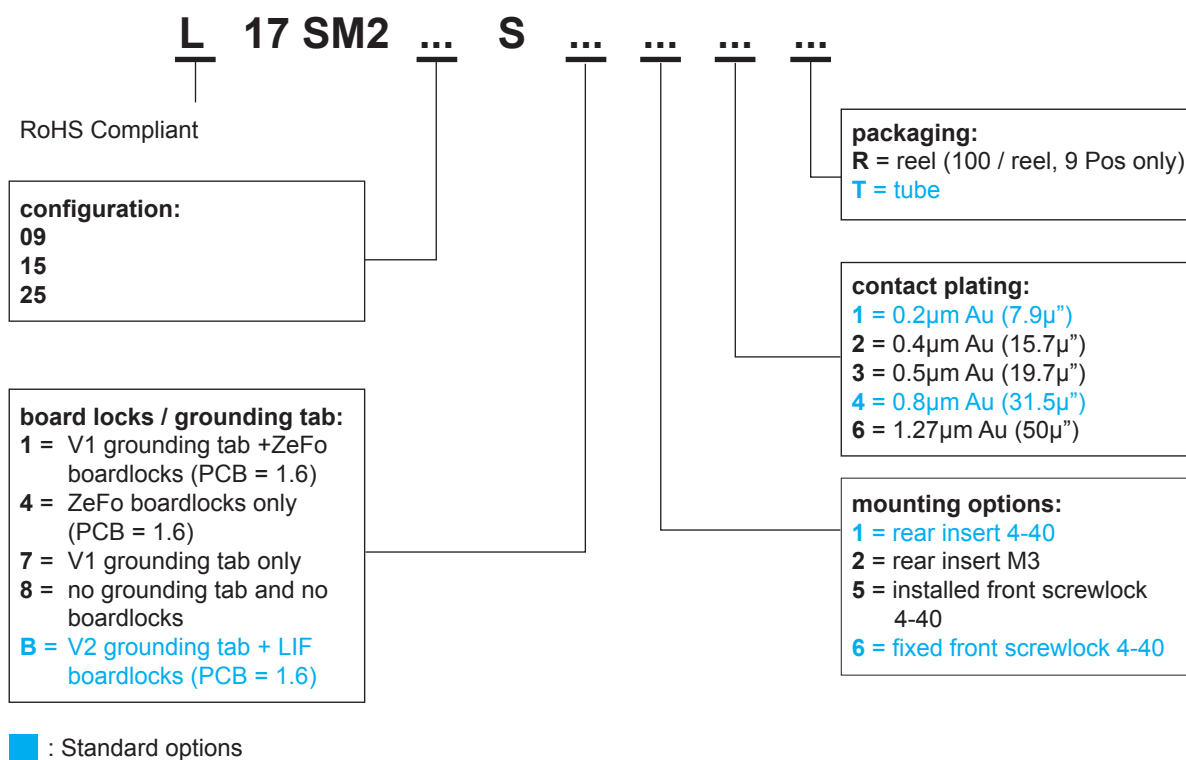
Installed Front Female

5

Fixed Front Female

6

How to order



For special request, please consult factory

Memo

[illegible]

Do not hesitate to contact us for further information

[illegible]

Amphenol

Amphenol IT & Communication Products

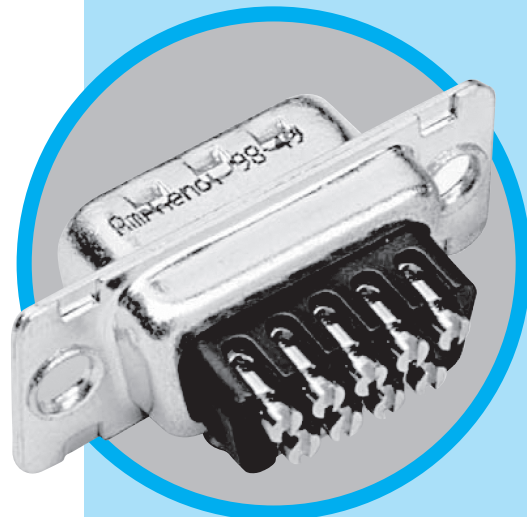
Block A3/A4, The 4th Industrial District of
Industrial Headquarters, Dong Keng Road
Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955

Technical Support

Tel:+86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

D-ST

Screw Termination D'Sub series



CHARACTERISTICS

- Connectors according to: MIL C24308 - NFC 93425-HE5

Materials and platings	
Shells	Steel, Tin plated
Insulator	Glass filled thermoplastic, UL 94V-0
Contacts	Machined brass for plug full gold Machined bronze for socket, full gold

Electrical Data	
Current rating	7,5 A max
Voltage rating	300 V RMS at 50 Hz
Withstanding voltage	1000 V RMS at 50 Hz
Insulation resistance	> 5000 MΩ at 500 V DC
Contact resistance	< 5 mΩ

Climatic Data	
Operating temperature	- 55°C to + 85°C, peak at 125°C
Damp heat	21 days (40°C - 95% HR)
Salt spray	48 hours

Mechanical Data	
Cable type	Solid or stranded
Cable gage	0.75 mm max (AWG 18) - For bigger wire, please consult factory
Screw torque	0.05 mN max
Mating cycles	100 (class II) or 500 (class I)

DESCRIPTION

The Amphenol Screw Termination D'Sub series is especially designed for field applications.

These new connectors permit easy wiring without any specific tool : Just a standard electrician's screwdriver is required.

Due to their reduced overall dimensions, these connectors are compatible with all standard hoods and accessories

*Simplify
Your cable
assemblies!*

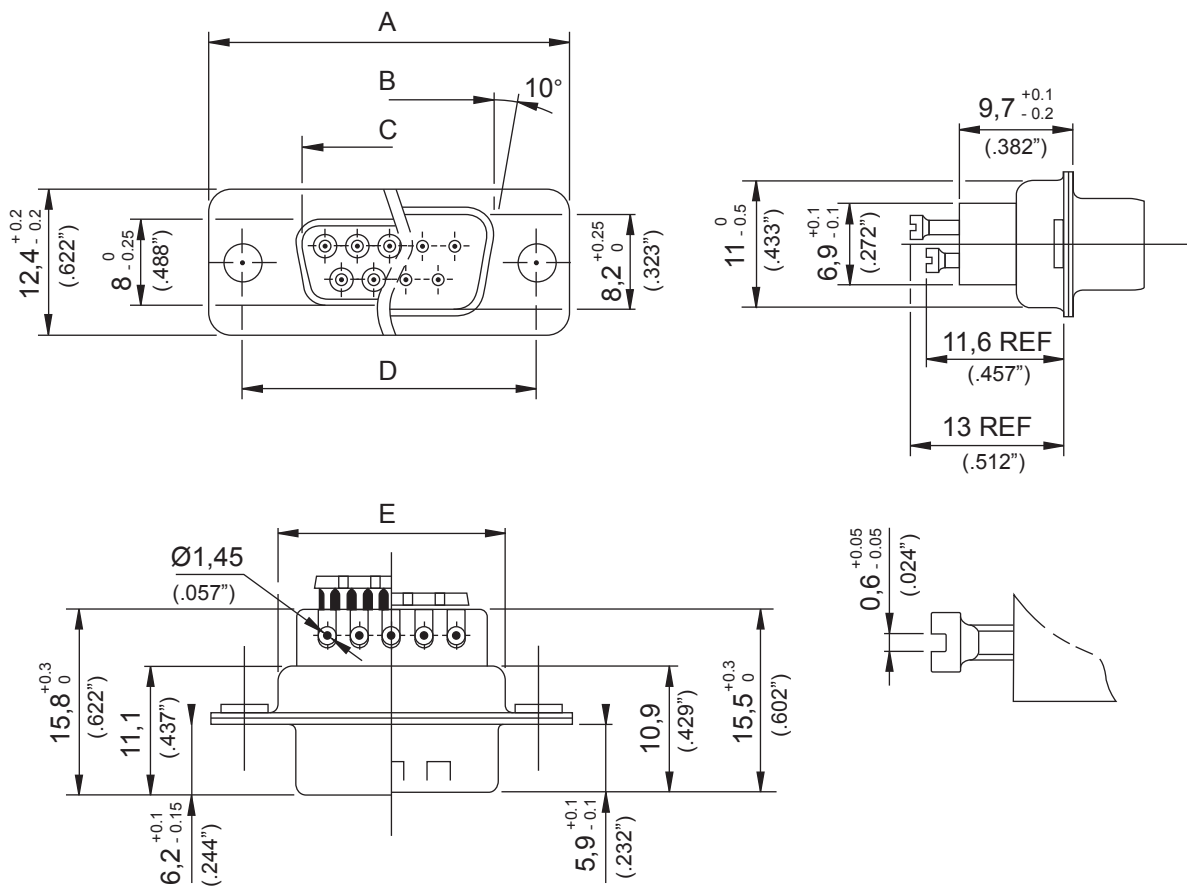
APPLICATIONS

- Industry control of speed variators,
- Houses and public buildings control of heating, air conditioning, lighting, shutters, fire safety...
- Infrastructures fluids control, motorway

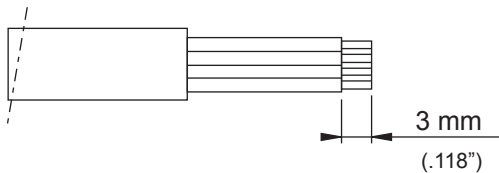


Amphenol

D-ST / E3



Cable stripping



SIZE	A +0,25 (.010") -0,25 (.010")	B 0 -0,2 (.008")	C +0,2 (.008") 0	D +0,1 (.004") -0,1 (.004")	E +0,1 (.004") -0,4 (.016")
9	30.7 (1.209")	16.4 (.646")	16.8 (.661")	25 (.984")	19.4 (.370")
15	39 (1.535")	24.8 (.976")	25.1 (.988")	33.3 (1.311")	27.7 (1.091")
25	52.9 (2.083")	38.5 (1.516")	38.8 (1.528")	47 (1.850")	41.4 (1.630")
37	69.2 (2.724")	54.9 (2.161")	55.3 (2.177")	63.5 (2.500")	57.9 (2.280")

HOW TO ORDER

RoHS Compliant

L 717D E09 P ST 1

DVZK Angled cable entry

TF

D-Sub connectors - Stamped and Formed Contacts

PRESS FIT STRAIGHT PCB TERMINATION



CHARACTERISTICS

Materials and Platings	
Shells	Steel, tin plated
Insulator	Glass-filled thermoplastic, UL 94V-0
Pin contact	Brass, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over 1.27µm (50µ") min. nickel
Socket contact	Phosphor bronze, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over; 1.27µm(50µ") min. nickel
Rear insert	Brass, 2.54µm (100µ") min. nickel plated
Boardlock	Brass, 2.54µm (100µ") min. nickel plated
Screwlock	Brass, 2.54µm (100µ") min. nickel plated

Electrical Data	
Current rating	3A
Voltage rating	300V AC
Withstanding voltage	1000V AC/rms 60Hz for one minute
Insulation resistance	1000MΩ
Contact resistance	25mΩ max

Climatic Data	
Operating temperature	-55°C to +125°C
Salt spray	24 hours

Mechanical Data	
Single contact insertion force	≤ 3.60 N
Single contact withdrawal force	≥ 0.2 N
Single contact insertion on board	≤ 100 N
Single contact withdrawal from board	≥ 20 N
Standard plating thickness	Gold flash 0.4µm (15µ") gold 0.76µm (30µ") gold

	Terminal Specification	Boardlock Specification
Finished Hole Cu Sn	1 (+0.09 -0.06) > 25 µm < 15 µm	3.1 +/- 0.05 mm Min 25 µm 5-15 µm

DESCRIPTION

The Amphenol "TF" series features eye of needle formed contacts, and insulator with closed entry contacts cavities.

This series gives you Amphenol's high standards of quality and reliability to meet all your technical requirements.

*Solderless
straight PCB
mount
connectors*

APPLICATIONS

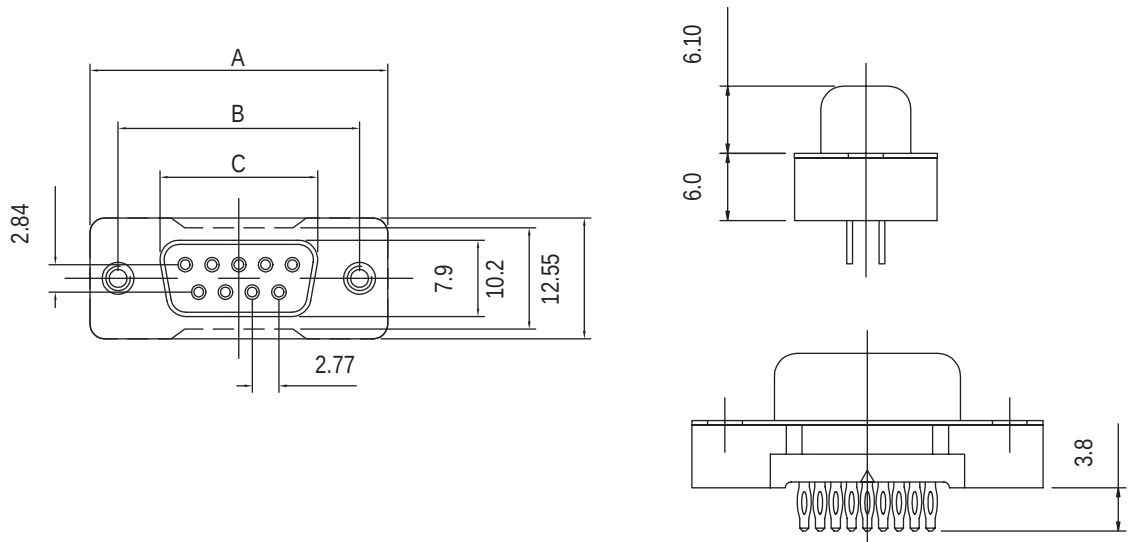
- Industrial
- Telecom
- Any backplanes connections



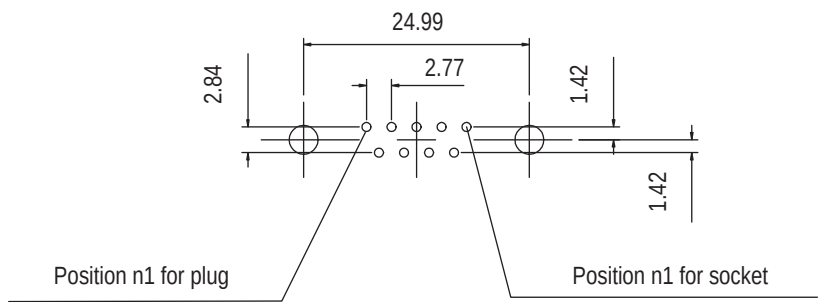
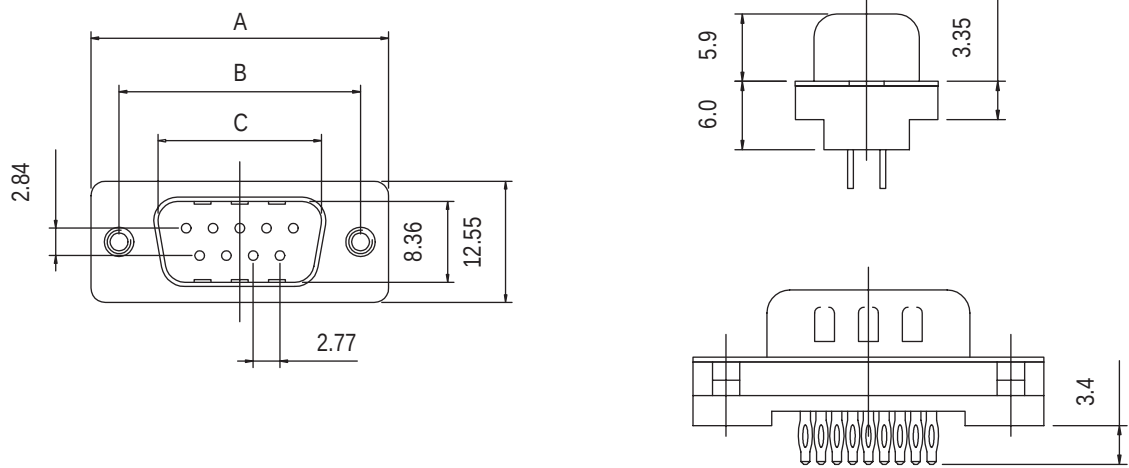
Amphenol

TF / E4

Socket version

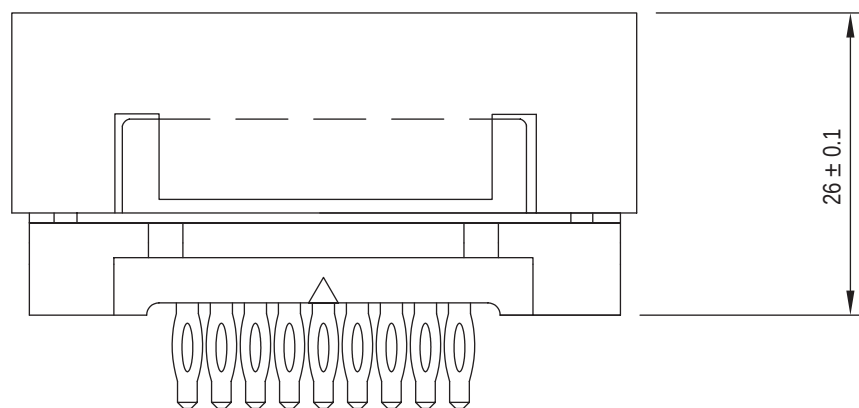


Plug version

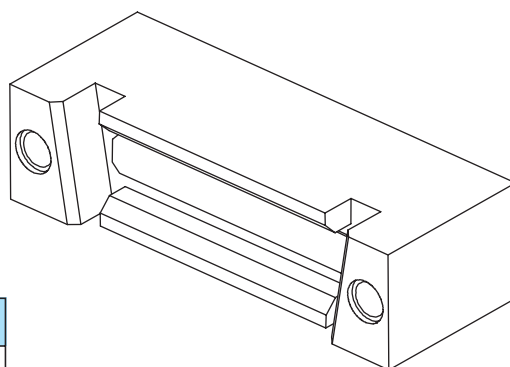


For PCB holes diameters, see on page 1 (finished holes)

Nb OF CONTACTS	DIMENSIONS mm (inch)			
	A	B	C plug	C socket
9	30.81 (1.185)	24.99 (0.984)	16.92 (0.666)	16.33 (0.643)
15	39.14 (1.54)	33.32 (1.312)	25.50 (1.004)	24.66 (0.97)
25	53.04 (2.088)	47.04 (1.852)	28.96 (1.534)	38.38 (1.511)
37	69.32 (2.729)	63.50 (2.5)	55.42 (2.182)	54.84 (2.16)

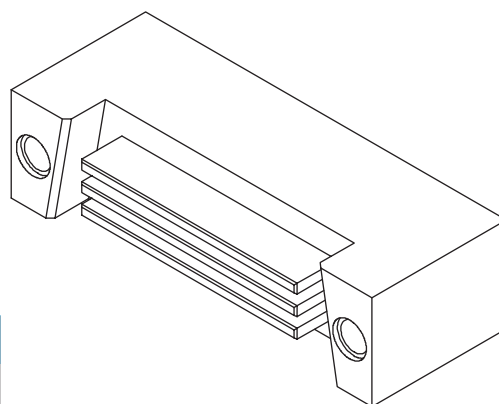


Female



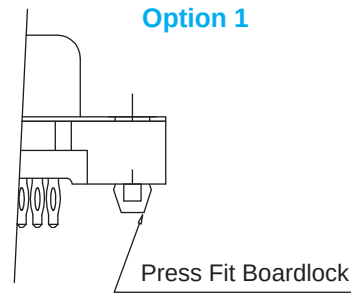
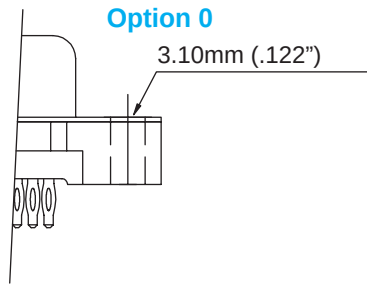
Size of connectors	Tooling PN
9	981 MC
15	982 MC
25	983 MC
37	984 MC

Male

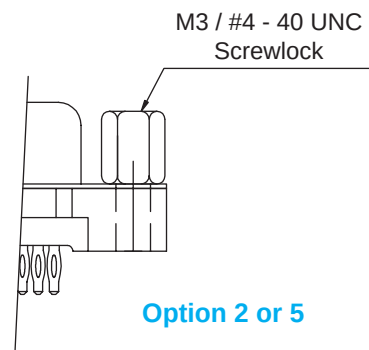
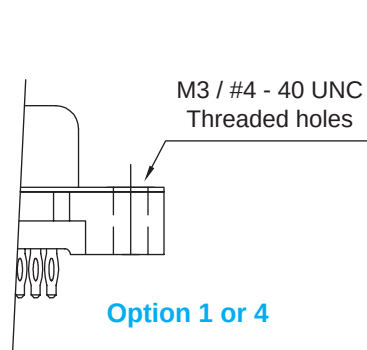


Size of connectors	Tooling PN
9	985 MC
15	986 MC
25	987 MC
37	988 MC

Board mounting option



Flange mounting option



How to order

L 17TF ...

RoHS Compliant

Series

Number of contacts :
09-15-25-37

Contact type:
1 = pin
0 = socket

Contact plating
0 = gold flash
1 = 0.4 μm (15μ")
2 = 0.76 μm (30μ")

Flange mounting option :
1 = #4-40 threaded hole
2 = #4-40 threaded hole with
#4-40 UNC screwlock
installed
4 = M3 threaded hole
5 = M3 threaded hole with
M3 screwlock installed

Board mounting option
0 = without boardlock
1 = with boardlock

Front shell plating
1 = tin over nickel

Do not hesitate to contact us for further information

Amphenol

Amphenol IT & Communication Products

Block A3/A4, The 4th Industrial District of
Industrial Headquarters, Dong Keng Road
Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955

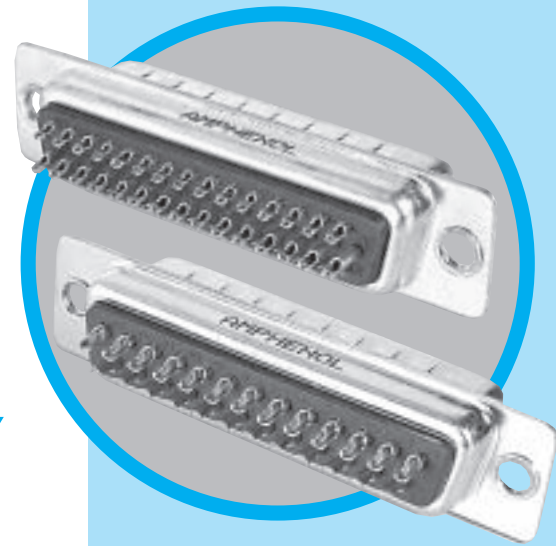
Technical Support

Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

SD

D'Sub connectors - Stamped and Formed Contacts

SOLDER-CUP TERMINATION STANDARD and HIGH DENSITY



CHARACTERISTICS

Specifications

- Connectors according to: MIL C24308 - NFC 93425-HE5

Materials and Platings	
Shells	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Pin contacts	Brass, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over 1.27µm (50µ") min. nickel
Socket contact	Phosphor bronze, selected gold in mating area; 2.54µm (100µ") min. tin- on termination area over 1.27µm (50µ") min. nickel
Rear insert	Brass, 2.54µm (100µ") min. nickel plated
Screwlock	Brass, 2.54µm (100µ") min. nickel plated

Electrical Data	
Current rating	Standard Density: 5A High Density: 3A
Voltage rating	250V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	1000MΩ at 500V DC
Contact resistance	20mΩ max

Climatic Data	
Operating temperature	-55°C to +125°C
Salt spray	24 hours

Mechanical Data					
Single contact insertion force		0.54kg (1.19lb) max			
Single contact withdrawal force		SD : 0.06kg (0.13lb) min HD : 0.02kg (0.044lb) min			
Mating and unmating force					
Unit: kg (lb)					
No. of Cts		SD		HD	
SD	HD	Mate (max)	Unmate (min)	Mate (max)	Unmate (min)
9	15	3.05 (6.74)	0.36 (0.79)	3.81 (8.42)	0.52 (1.14)
15	26	5.09 (11.24)	0.46 (1.01)	5.95 (13.16)	1.05 (2.32)
25	44	8.44 (18.66)	0.81 (1.8)	9.26 (20.46)	1.37 (3.02)
37	62	12.51 (27.65)	1.1 (2.47)	13.48 (29.78)	1.76 (3.88)
50	78	14.65 (32.38)	1.6 (3.56)	15.82 (34.96)	2.02 (4.46)
Standard plating thickness		• gold flash • 0.4µm (15µ") gold • 0.76 µm (30µ") gold			

DESCRIPTION

The Amphenol "SD" series features precision formed contacts, and insulator with closed entry contacts cavities.

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements.

*Economical
solder cup
connectors*

APPLICATIONS

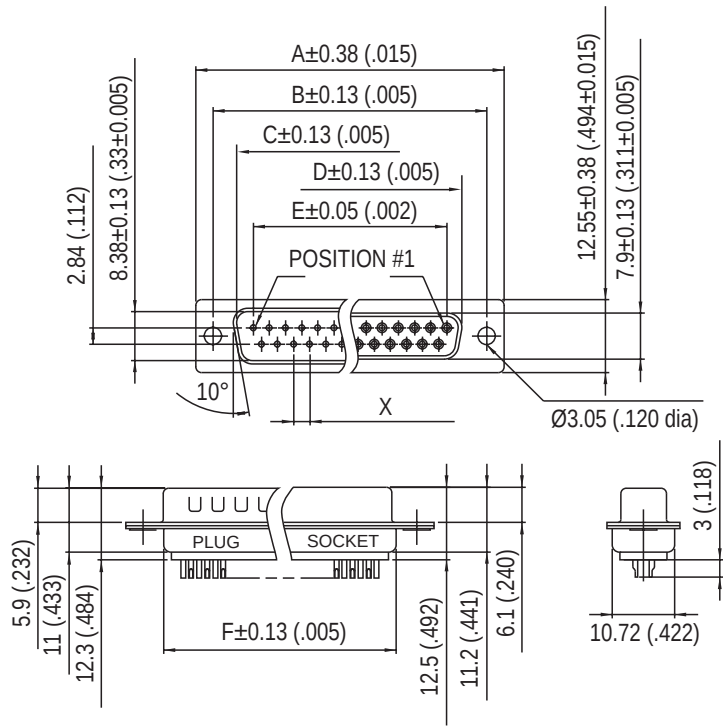
- Industrial
- Telecom
- Any industry standard I / O connections



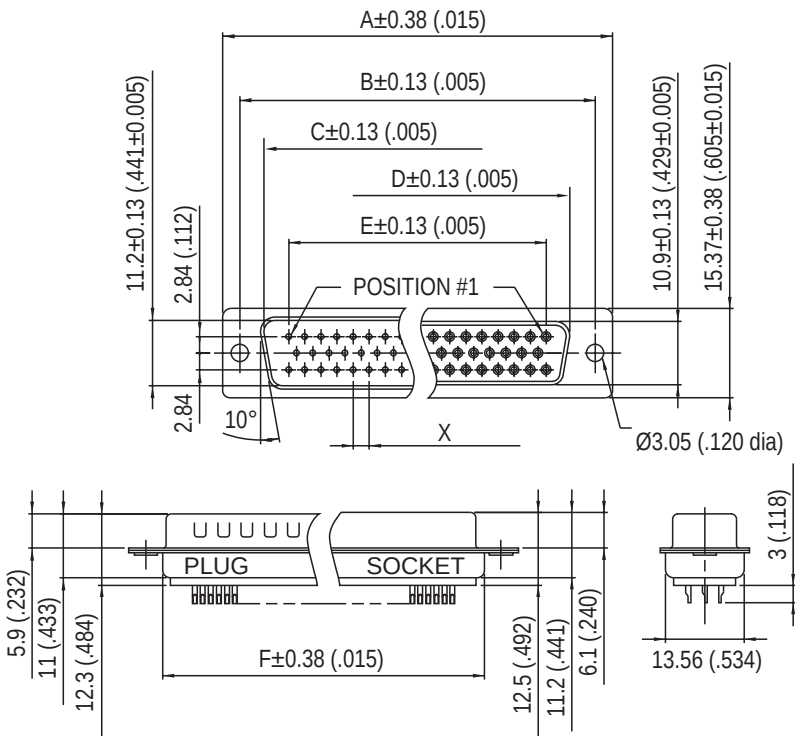
Amphenol

SD / E5

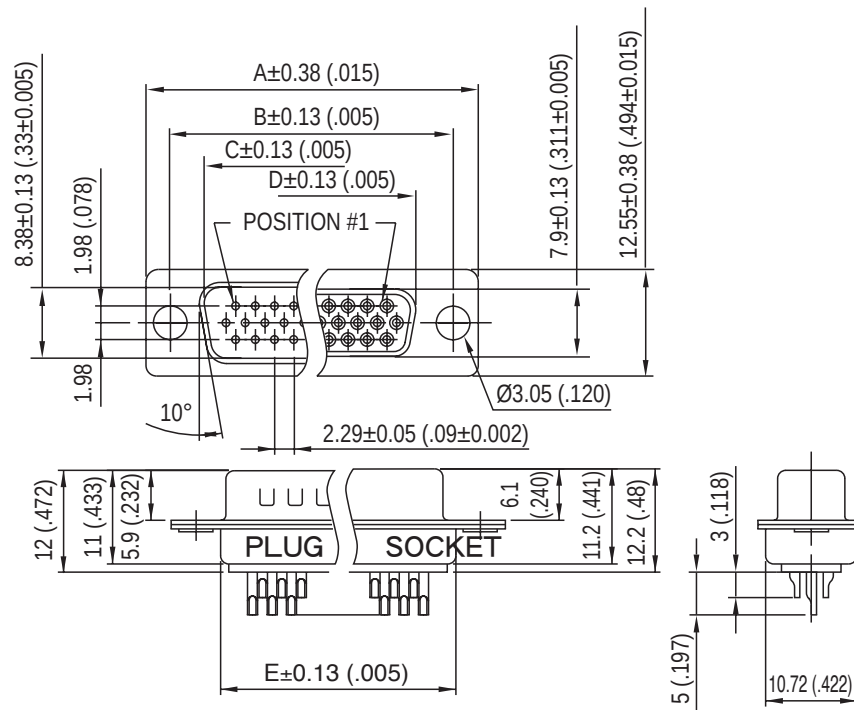
Standard Density



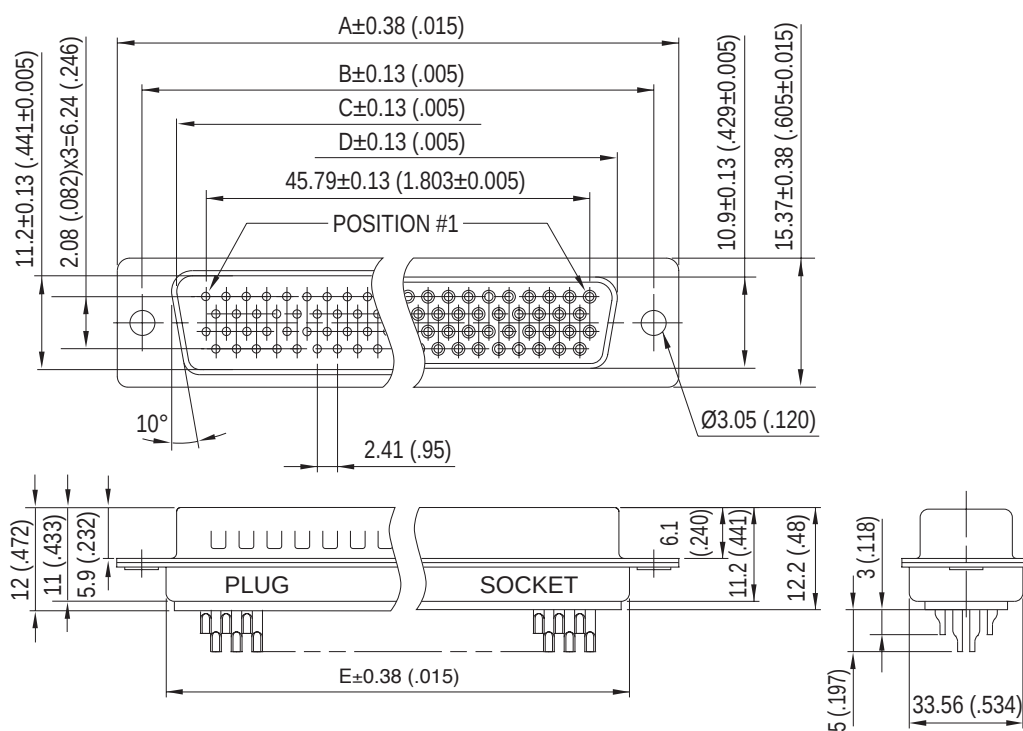
Nb OF CONTACTS	DIMENSIONS mm (inch)						
	A	B	C	D	E	F	X
9	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	11.09 (.44)	19.28 (.76)	2.74
15	39.24 (1.54)	33.32 (1.31)	24.7 (.972)	24.56 (.97)	19.39 (.76)	27.51 (1.08)	2.74
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	41.30 (1.63)	2.77
37	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	57.71 (2.27)	2.77
50	67 (2.64)	61.11 (2.41)	52.86 (2.08)	52.34 (2.06)	44.32 (1.75)	55.3 (2.18)	2.77



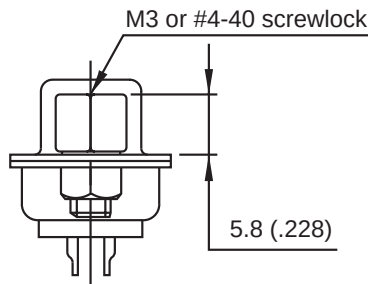
High Density



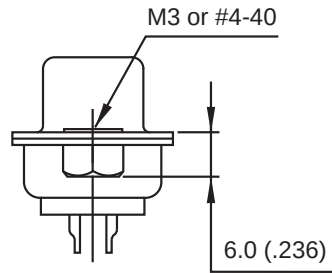
Nb OF CONTACTS	DIMENSIONS mm (inch)				
	A	B	C	D	E
15	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	19.28 (.76)
26	39.24 (1.54)	33.32 (1.31)	24.7 (.972)	24.56 (.97)	27.51 (1.08)
44	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	41.30 (1.63)
62	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	57.71 (2.27)
78	67 (2.64)	61.11 (2.41)	52.86 (2.08)	52.34 (2.06)	55.3 (2.18)

**78 CONTACTS**

Panel mounting option

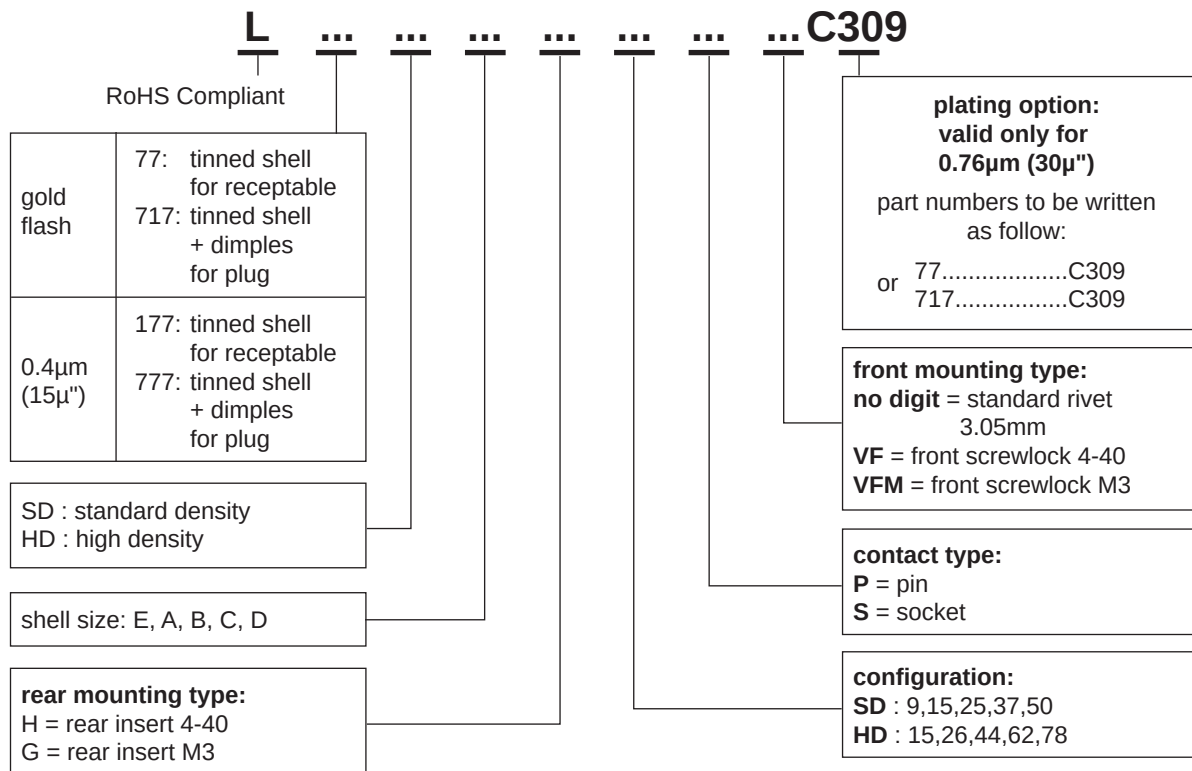


Front Female Screwlock
VF / VFM



Threaded Rear Insert
H / G

How to order



For special request, please consult factory

Do not hesitate to contact us for further information

Amphenol

Amphenol IT & Communication Products

Block A3/A4, The 4th Industrial District of
Industrial Headquarters, Dong Keng Road
Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955

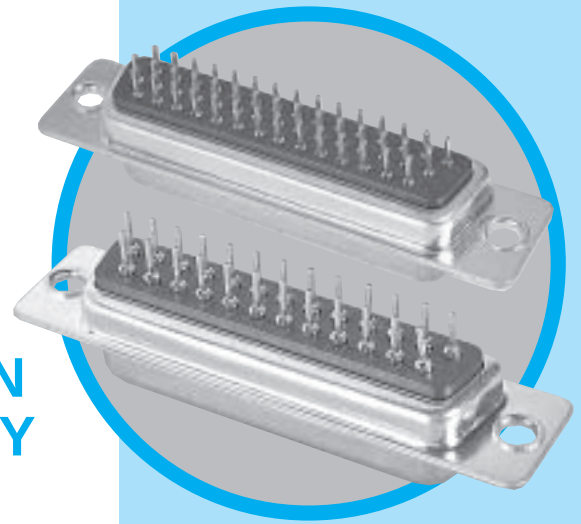
Technical Support

Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

SD

D'Sub connectors - Stamped and Formed Contacts

STRAIGHT PCB TERMINATION STANDARD and HIGH DENSITY



CHARACTERISTICS

Specifications

- Connectors according to: MIL C24308 - NFC 93425-HE5

Materials and Platings	
Shells	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Pin contacts	Brass, selected gold in mating area; 2.54µm (100 µ") min.tin on termination area over 1.27µm (50µ") min.nickel
Socket contact	Phosphor bronze, selected gold in mating area;2.54µ(100µ") min.tin on termination area over 1.27µm (50µ") min.nickel
Rear insert	Brass, 2.54µm (100µ") min.nickel plated
Boardlock	Brass, 2.54µm (100µ") min.nickel plated
Screwlock	Brass, 2.54µm (100µ") min.nickel plated (removable)

Electrical Data	
Current rating	Standard Density:5A High Density:3A
Voltage rating	250V AC/ rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	1000MΩ at 500V DC
Contact resistance	20mΩ max

Climatic Data	
Operating temperature	-55°C to +125°C
Salt spray	24 hours

Mechanical Data					
Single contact insertion force		0.54kg (1.19lb) max			
Single contact withdrawal force		SD : 0.06kg (0.13lb) min HD : 0.02kg (0.044lb) min			
Mating and unmating force					
Unit: kg (lb)					
No. of Cts		SD		HD	
SD	HD	Mate (max)	Unmate (min)	Mate (max)	Unmate (min)
9	15	3.05 (6.74)	0.36 (0.79)	3.81 (8.42)	0.52 (1.14)
15	26	5.09 (11.24)	0.46 (1.01)	5.95 (13.16)	1.05 (2.32)
25	44	8.44 (18.66)	0.81 (1.8)	9.26 (20.46)	1.37 (3.02)
37	62	12.51 (27.65)	1.1 (2.47)	13.48 (29.78)	1.76 (3.88)
50	78	14.65 (32.38)	1.6 (3.56)	15.82 (34.96)	2.02 (4.46)
Standard plating thickness		• gold flash • 0.381µm (15µ") gold • 0.76 µm (30µ") gold			

DESCRIPTION

The Amphenol "SD" series features precision formed contacts, and insulator with closed entry contacts cavities. This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements.

*Economical
straight PCB
mount connectors*

APPLICATIONS

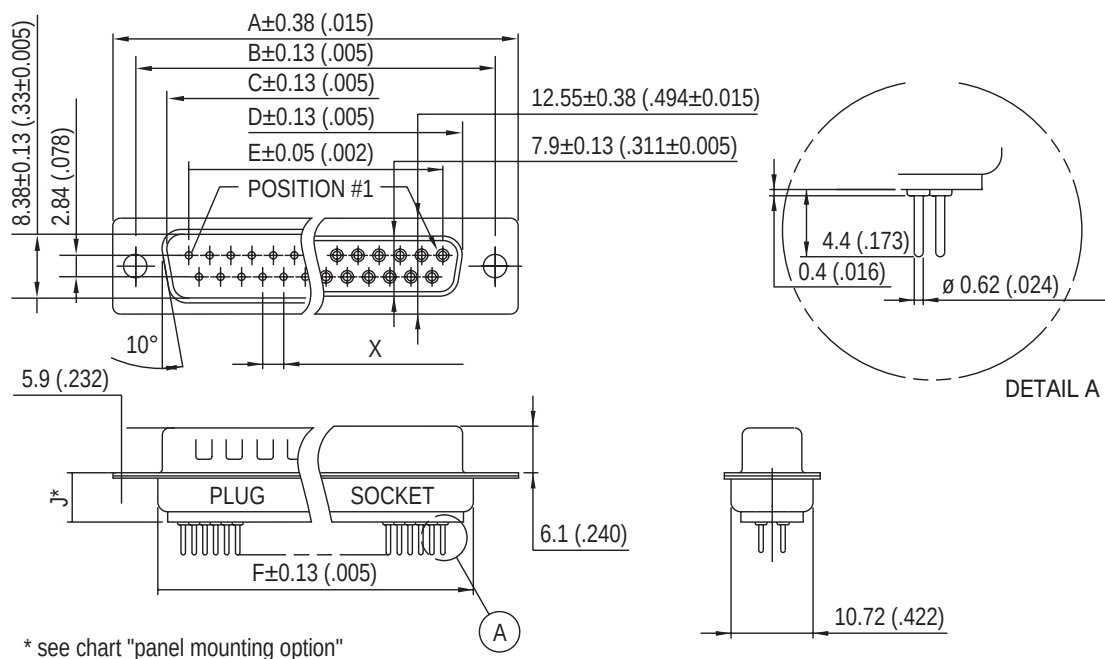
- Industrial
- Telecom
- Any industry standard I / O connections



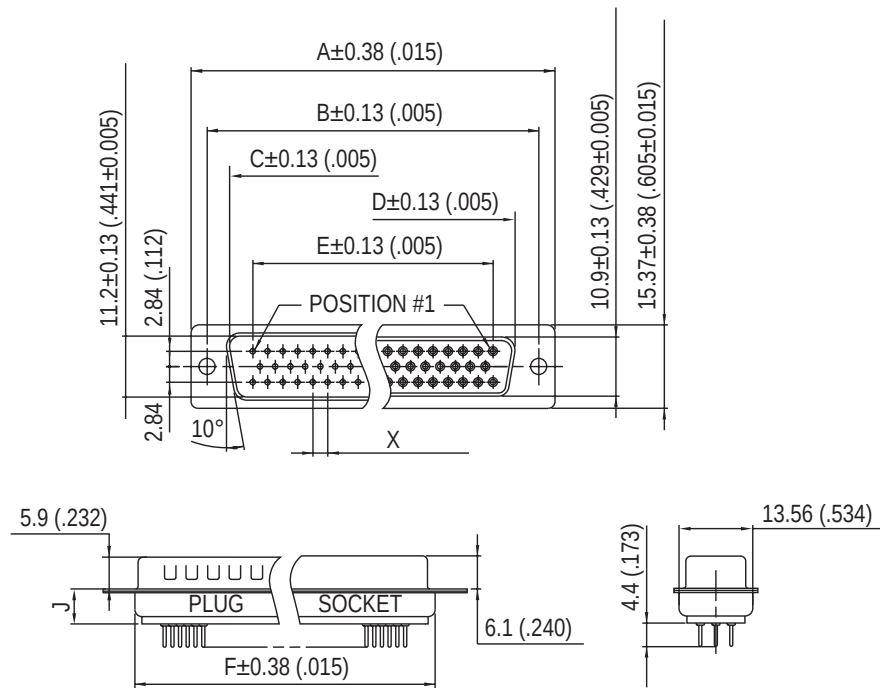
Amphenol

SD / E6

Standard Density

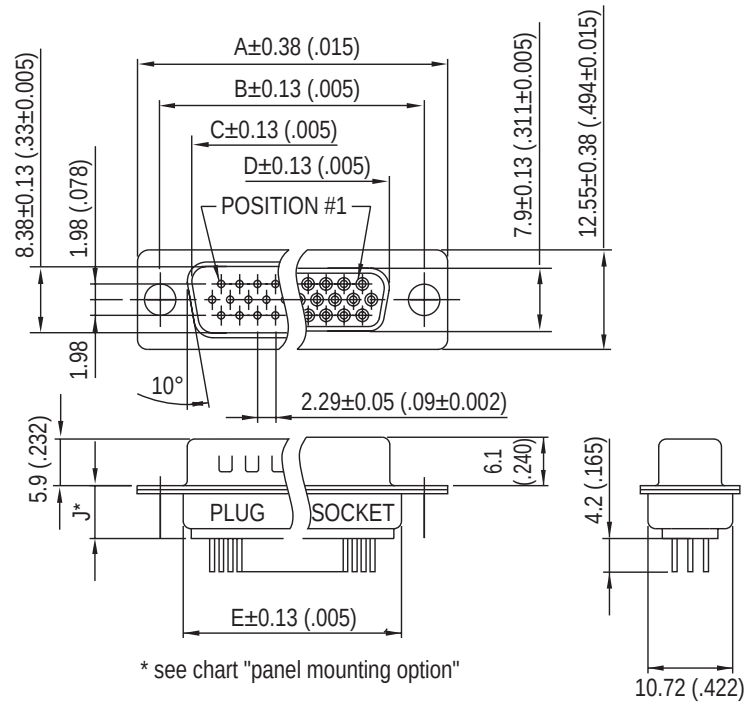


Nb OF CONTACTS	DIMENSIONS mm (inch)						
	A	B	C	D	E	F	X
9	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	11.09 (.44)	19.28 (.76)	2.74
15	39.24 (1.54)	33.32 (1.31)	24.7 (.972)	24.56 (.97)	19.39 (.76)	27.51 (1.08)	2.74
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	41.30 (1.63)	2.77
37	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	57.71 (2.27)	2.77
50	67 (2.64)	61.11 (2.41)	52.86 (2.08)	52.34 (2.06)	44.32 (1.75)	55.3 (2.18)	2.77

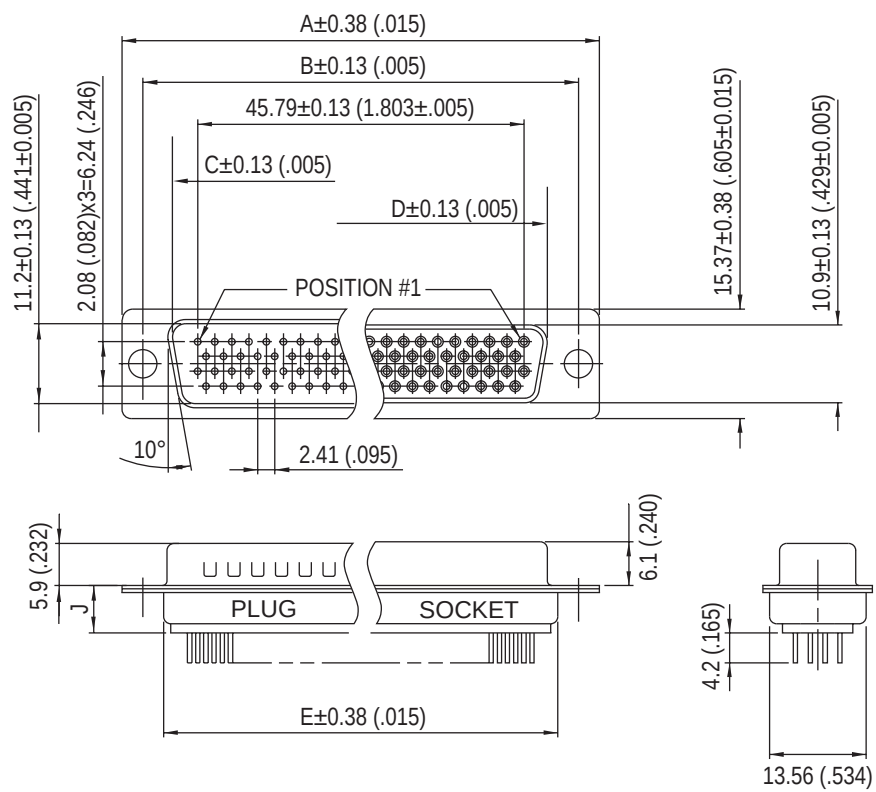


50 CONTACTS

High Density

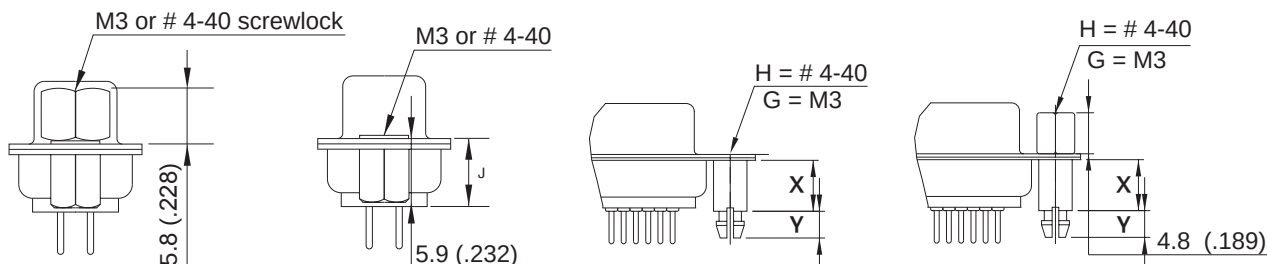


Nb OF CONTACTS	DIMENSIONS mm (inch)				
	A	B	C	D	E
15	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	19.28 (.76)
26	39.24 (1.54)	33.32 (1.31)	24.7 (.972)	24.56 (.97)	27.51 (1.08)
44	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	41.30 (1.63)
62	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	57.71 (2.27)
78	67 (2.64)	61.11 (2.41)	52.86 (2.08)	52.34 (2.06)	55.3 (2.18)



78 CONTACTS

Panel mounting option



Front Female Screwlock

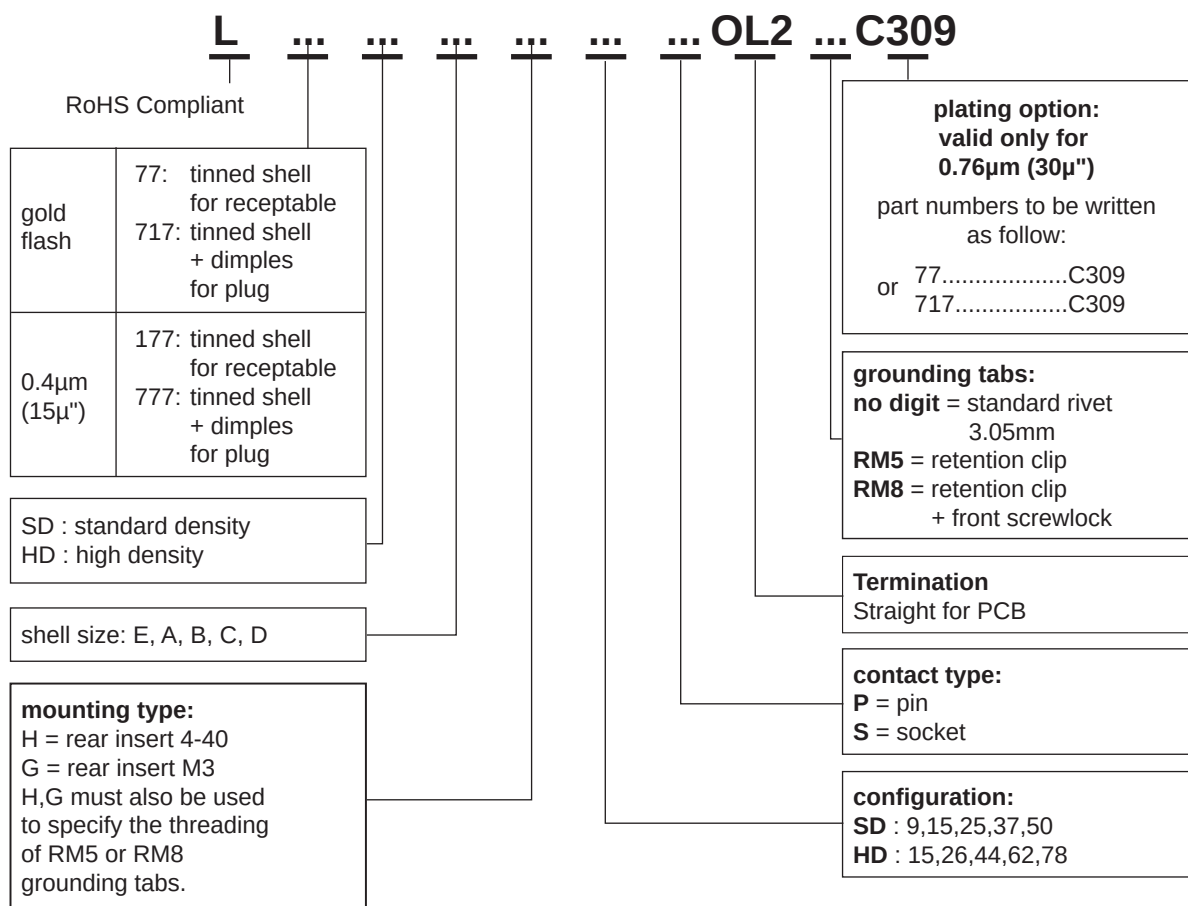
Threaded Rear Insert

RM5 Standoff Boardlock

RM8 Standoff Boardlock

	RM5 RM8	RM5G RM8G
X	6.0(.236)	12.7(.500)
Y	4.2(.165)	3.2(.126)
J	6.2(.244)	10.1(.397)

How to order



For special request, please consult factory

Do not hesitate to contact us for further information

Amphenol

Amphenol IT & Communication Products

Block A3/A4, The 4th Industrial District of
Industrial Headquarters, Dong Keng Road
Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955

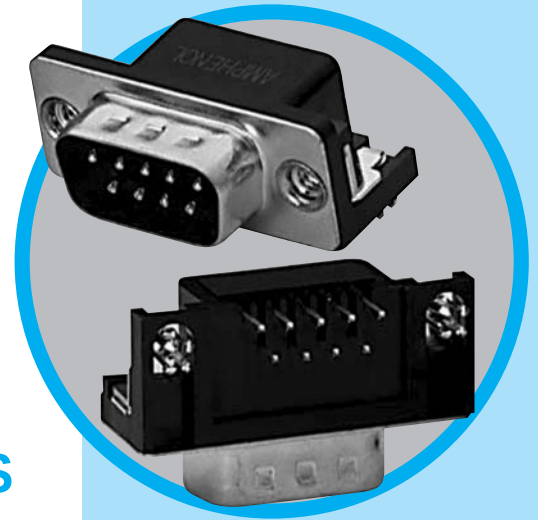
Technical Support

Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

SD

D'Sub connectors - Stamped and Formed Contacts

RIGHT ANGLE BOARD MOUNT CONNECTORS



MAIN CHARACTERISTICS

Specifications

- Connectors according to: MIL C24308 - NFC 93425-HE5

Materials and Platings	
Shells	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V- 0
Pin contacts	Brass, selected gold in mating area; 2.54µm (100 µ") min.tin on termination area over 1.27µm (50µ") min.nickel
Socket contact	Phosphor bronze, selected gold in mating area;2.54µ(100µ") min.tin on termination area over 1.27µm (50µ") min.nickel
Rear insert	Brass, 2.54µm (100µ") min.nickel plated
Boardlock	Phosphor bronze or Brass, 2.54µm (100µ") min.nickel plated
Screwlock	Brass, 2.54µm (100µ") min.nickel plated

Electrical Data	
Current rating	5A
Voltage rating	250V AC/ rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	1000MΩ at 500V DC
Contact resistance	15mΩ max

Climatic Data	
Operating temperature	-55°C to +125°C
Salt spray	24 hours

Mechanical Data				
Single contact insertion force		0.54kg (1.19lb) max		
Single contact withdrawal force		0.06kg (0.13lb) min		
Mating and unmating force				
Unit: kg (lb)				
	A4 Style		1A Style	
No. of Cts	Mate (max)	Unmate (min)	Mate (max)	Unmate (min)
9	3.05 (6.74)	0.36 (0.79)	4.6 (10.17)	0.4 (0.88)
15	5.09 (11.24)	0.46 (1.01)	7.7 (17.02)	0.5 (1.10)
25	8.44 (18.66)	0.81 (1.8)	12.7 (28.07)	0.8 (1.77)
37	12.51 (27.65)	1.1 (2.47)	17.7 (39.12)	1.2 (2.65)
Standard plating thickness				
• gold flash • 0.381µm (15µ") gold • 0.76 µm (30µ") gold				

DESCRIPTION

The Amphenol "SD" series features precision formed contacts and boardlocks.

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements.

*Economical
right angle PCB
mount
connectors*

APPLICATIONS

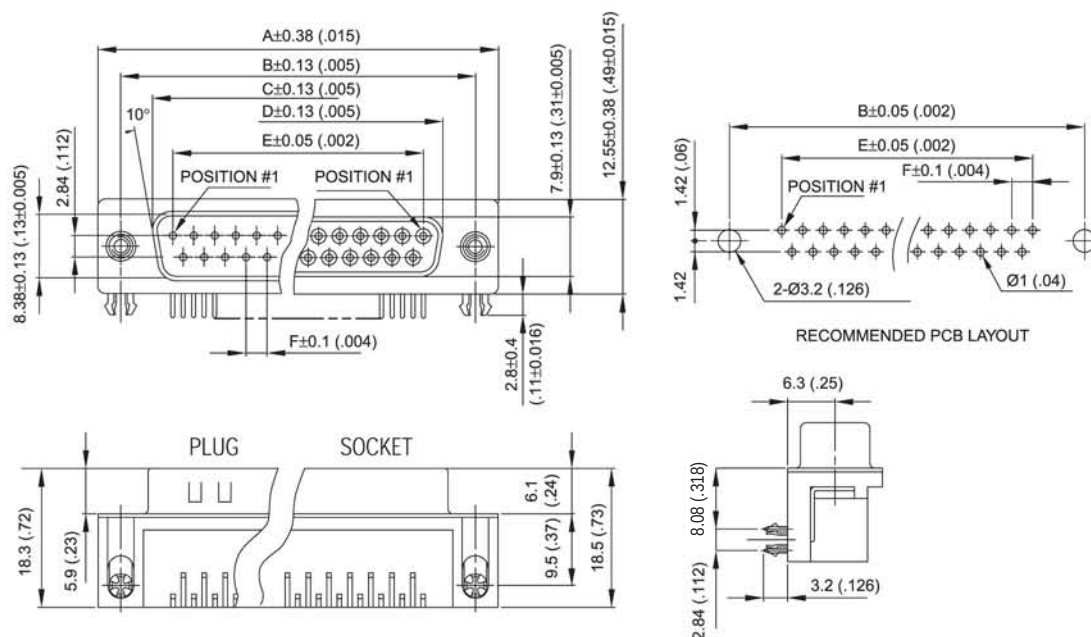
- Industrial
- Telecom
- Any industry standard I / O connections



Amphenol

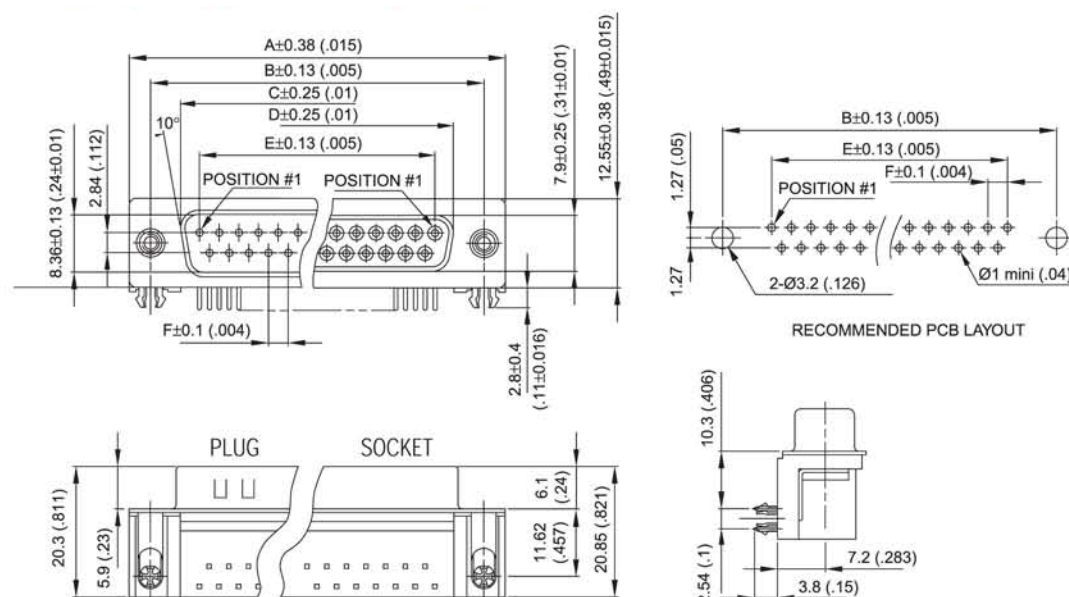
SD / E7

A4 style (MIL Footprint)



Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	F
9	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	11.09 (.44)	2.74 (.108)
15	39.14 (1.54)	33.32 (1.31)	25.25 (.99)	24.56 (.97)	19.39 (.76)	2.74 (.108)
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	2.77 (.109)
37	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	2.77 (.109)

1A style (European Footprint)



Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	F
9	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	11.96 (.43)	2.74 (.108)
15	39.1 (1.54)	33.32 (1.31)	25.25 (.99)	24.66 (.97)	19.18 (.755)	2.74 (.108)
25	53.09 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	2.77 (.109)
37	69.4 (2.73)	63.50 (2.50)	55.42 (2.18)	54.84 (2.16)	49.86 (1.96)	2.77 (.109)

Amphenol



The diagram illustrates the structure of a part number, with callouts for various options. The part number is shown as **L** **SD** **CH** **C309**, with ellipses (...) indicating optional digits between the main segments.

Callouts:

- L**: RoHS Compliant
- gold flash**: 77: tinned shell for receptable; 717: tinned shell + dimples for plug
- 0.4µm (15µ")**: 177: tinned shell for receptable; 777: tinned shell + dimples for plug
- shell size: E, A, B, C**
- configuration: 9, 15, 25, 37**
- contact type:**
 - P = pin
 - S = socket
- plating option: valid only for 0.76µm (30µ")**
 - part numbers to be written as follow:
 - or 77 SD.....C309
 - 717 SD.....C309
- mounting options:**
 - 4F = front screwlock 4-40
 - 3F = front screwlock M3
 - 4R = rear insert 4-40
 - 3R = rear insert M3
- PCB locking type:**
 - grounding tabs
 - + board locks
- Footprint:**
 - 1A (European)
 - A4 (MIL)

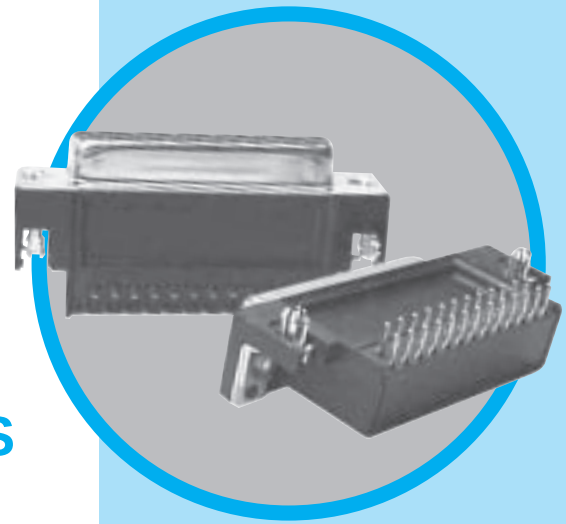
HOW TO ORDER

SD/E7

SD

D-Sub connectors - Stamped and Formed Contacts

RIGHT ANGLE BOARD MOUNT CONNECTORS FOOTPRINT 14.99 mm (.590")



CHARACTERISTICS

Specifications

- UL File: E119881
- Connectors according to MIL C24308

Materials and Platings	
Shells	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Pin contacts	Brass, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over 1.27µm (50µ") min. nickel
Socket contact	Phosphor bronze, selected gold in mating area; 2.54µm (100µ") min. tin- on termination area over 1.27µm (50µ") min. nickel
Rear insert	Brass, 2.54µm (100µ") min. nickel plated
Screwlock	Brass, 2.54µm (100µ") min. nickel plated

Electrical Data	
Current rating	5A
Voltage rating	600V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ max

Climatic Data	
Operating temperature	-55°C to +125°C
Salt Spray	24 hours

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
9 (size E)	3.05 (6.74)	0.36 (0.79)
15 (size A)	5.09 (11.24)	0.46 (1.01)
25 (size B)	8.44 (18.66)	0.81 (1.8)
37 (size C)	12.51 (27.65)	1.1 (2.47)
Standard plating thickness		
• gold flash		
• 0.4µm (15µ") gold		
• 0.76 µm (30µ") gold		

DESCRIPTION

The Amphenol "SD" series features precision formed contacts and boardlocks.

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements.

*Economical
right angle PCB
mount connectors*

APPLICATIONS

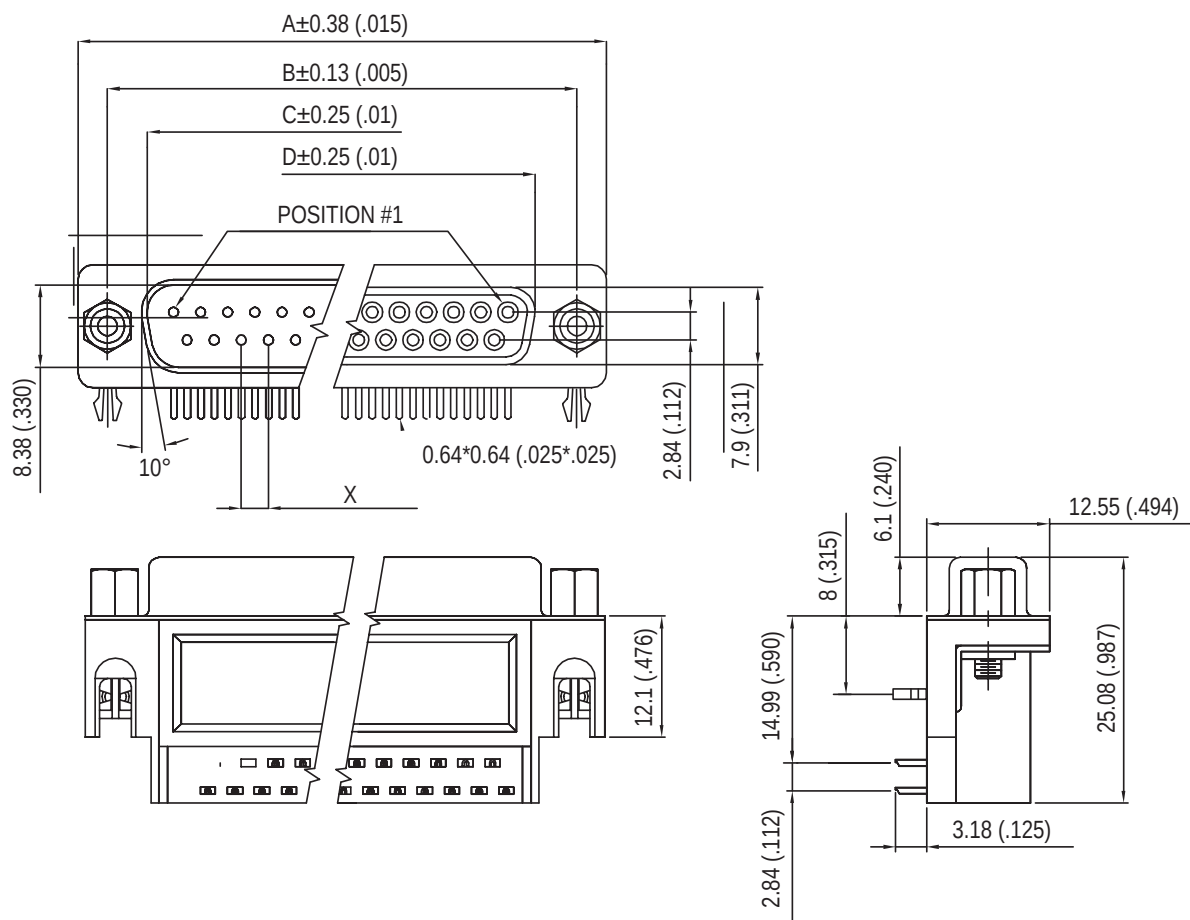
- Industrial
- Telecom
- Any industry standard I / O connections



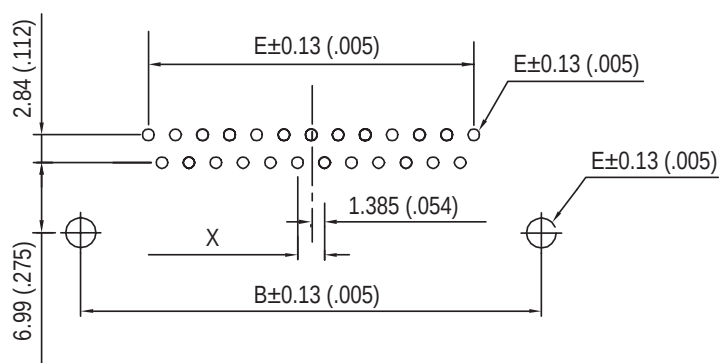
Amphenol

SD / E8

Shell Size Dimensions

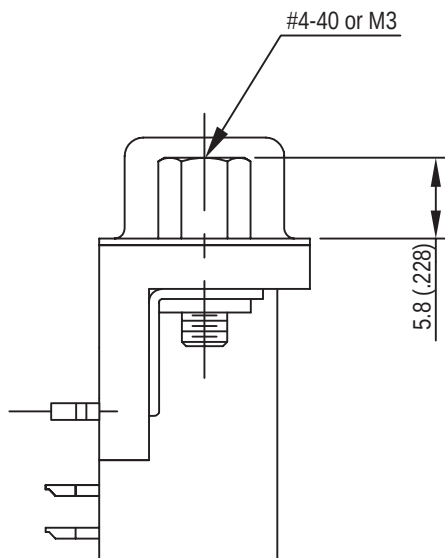


Recommended P.C.B. Layout

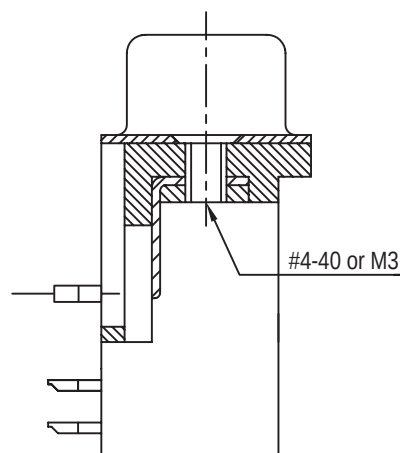


Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	X
9	30.84 (1.214)	24.99 (.984)	16.92 (.666)	16.26 (.640)	11.08 (.436)	2.74
15	39.24 (1.545)	33.32 (1.312)	25.25 (.994)	24.56 (.967)	19.39 (.763)	2.74
25	53.04 (2.088)	47.04 (1.852)	38.96 (1.534)	38.30 (1.508)	33.24 (1.309)	2.77
37	69.34 (2.730)	63.50 (2.500)	55.42 (2.182)	54.76 (2.156)	49.86 (1.963)	2.77

Panel mounting option



Front Female Screwlock
4F/3F



Threaded Rear Insert
4R/3R

How to order

L **...** **SD** **...** **...** **...** **AB** **CH** **...** **C309**

RoHS Compliant

gold flash	77: tinned shell for receptable 717: tinned shell + dimples for plug
0.4μm (15μ")	177: tinned shell for receptable 777: tinned shell + dimples for plug

shell size: E, A, B, C

configuration: 09, 15, 25, 37

contact type:
P = pin
S = socket

plating option:
valid only for 0.76μm (30μ")
part numbers to be written as follow:
77SD.....C309
or
717SD.....C309

mounting options:
4F = front screwlock 4-40
3F = front screwlock M3
4R = rear insert 4-40
3R = rear insert M3

PCB locking type:
grounding tabs + boardlocks

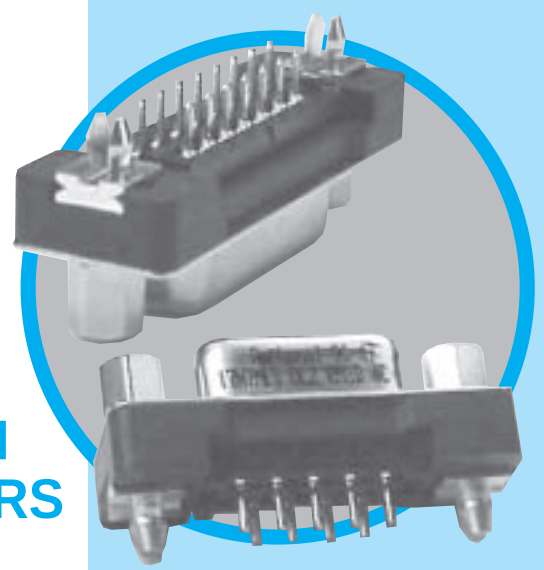
footprint: 14.99 mm (.590")

For special request, please consult factory

TS

D-Sub connectors - Stamped and Formed Contacts

STRAIGHT PCB TERMINATION ONE METAL SHELL CONNECTORS



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shells	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Contacts	Copper alloy, with selective gold plating
Boardlock	Brass with nickel plating
Screwlock	Brass with nickel plating

Electrical Data	
Current rating	5A
Voltage rating	600V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ max

Climatic Data	
Operating temperature	-55°C to +125°C

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
9	3.05 (6.74)	0.36 (0.79)
15	5.09 (11.24)	0.46 (1.01)
25	8.44 (18.66)	0.81 (1.8)
37	12.51 (27.65)	1.1 (2.47)
Standard plating thicknesses		
- gold flash 0.4µm (15µ") gold 0.76 µm (30µ") gold		

DESCRIPTION

The one shell D-sub Amphenol series features, stamped and formed contacts.

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements

*Economical
straight PCB,
one shell
connectors*

APPLICATIONS

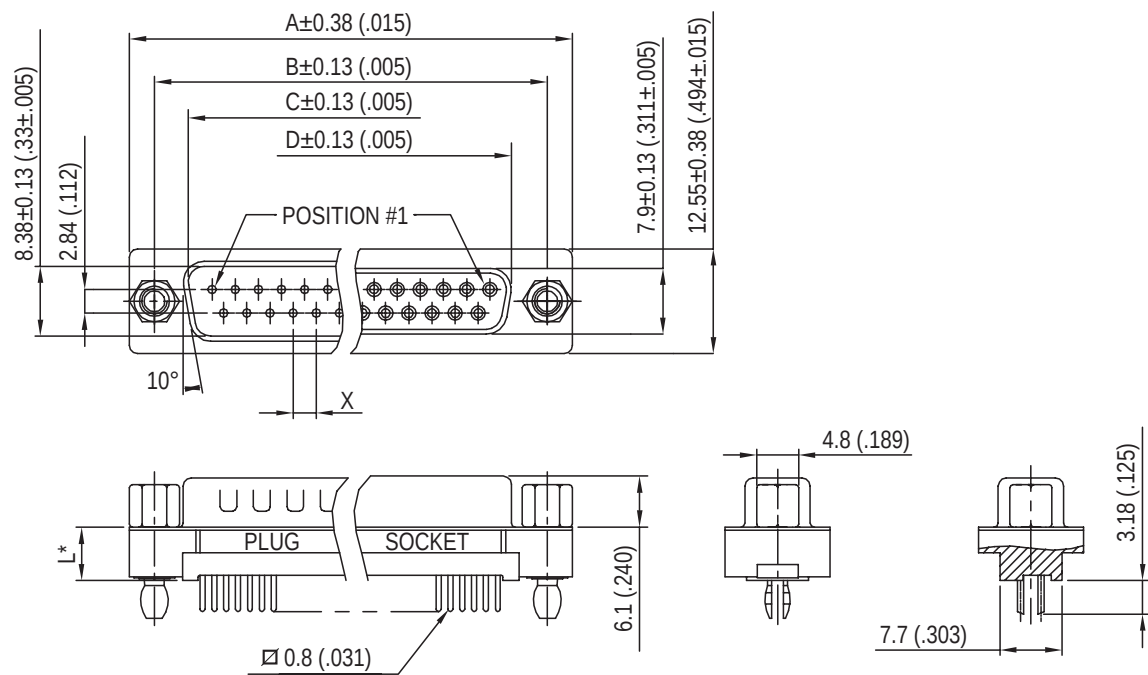
- Industrial
- Telecom
- Any industry standard I / O connections



Amphenol

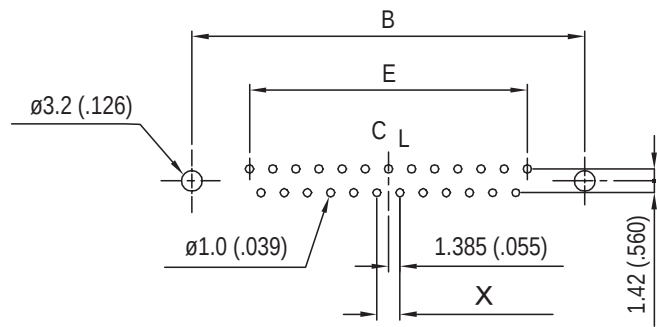
TS / E10

Shell Size Dimensions



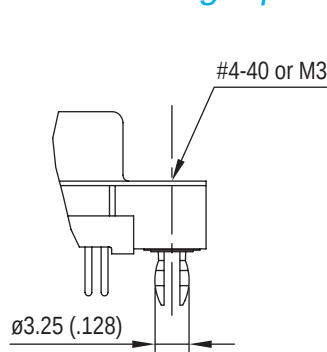
*see chart "how to order"

RECOMMENDED P.C.B. LAYOUT

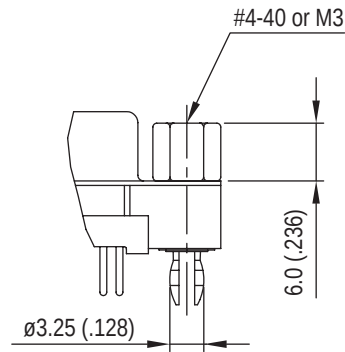


Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	X
9	30.84 (1.21)	24.99 (.984)	16.92 (.666)	16.26 (.640)	11.08 (.436)	2.74
15	39.24 (1.54)	33.32 (1.31)	25.25 (.994)	24.56 (.967)	19.39 (.763)	2.74
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.30 (1.51)	33.24 (1.31)	2.77
37	69.34 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	2.77

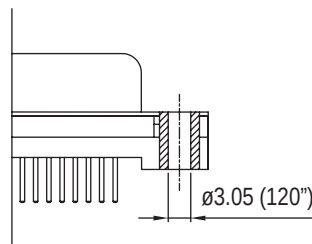
Panel mounting option



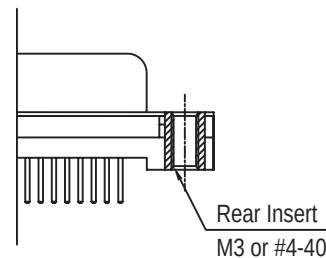
Boardlock with Threaded Insert
RM5



Boardlock with Front Screwlock
RM8



Clear Hole



Rear Insert Threaded

How to order

L ... **TS** **C309**

RoHS Compliant	
gold flash	77: tinned shell for receptable 717: tinned shell + dimples for plug
0.4µm (15µ")	177: tinned shell for receptable 777: tinned shell + dimples for plug
shell size: E, A, B, C	
mounting options: Blank = Clear Hole G = M3 H = 4.40 H,G must also be used to specify the threading of RM5 or RM8 grounding tabs	
configuration: 09, 15, 25, 37	

plating option:
valid only for 0.76µm (30µ")
part numbers to be written as follow:
77.....C309
or
717.....C309

board mounting options:
Blank = Clear Hole
RM5 = retention clip
RM8 = retention clip + front screwlock

termination:
OL2 : L = 6.02mm (.237")
OL2C : L = 11.48mm (.452")

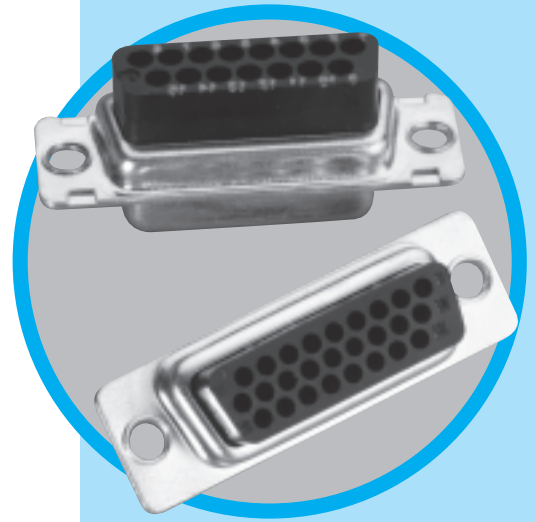
contact type:
P = pin
S = socket

For special request, please consult factory

RR-HR

D-Sub connectors - Stamped and Formed Contacts

REAR RELEASE CRIMP CONNECTORS



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings		
Shells	Tinned steel with or without dimples on plug connector	
Insulator Boardlock	Black glass-filled thermoplastic, UL 94V-0	
Screwlock	Brass, 3µm to 5µm (118µ" to 197µ") tin over nickel 2µm to 3µm (78µ" to 118µ")	
Screwlock	Brass, 6µm to 10µm (236µ" to 394µ") tin over nickel 2µm to 3µm (78µ" to 118µ")	
Contacts	Under plating	Crimp side
0.2µm (8µ") gold	2µm (78µ") nickel	gold flash or tin
0.5µm (20µ") gold	2µm (78µ") nickel	gold flash or tin
0.76µm (30µ") gold	2µm (78µ") nickel	gold flash or tin

Electrical Data	
Current rating	5A
Voltage rating	500V AC/rms 50Hz
Withstanding voltage	RR: 1000V AC/rms 50Hz for 1 minute HR: 1000V AC/rms 60Hz for 1 minute
Insulation resistance	RR: 5000MΩ HR: 1000MΩ
Contact resistance	10mΩ max
Wire size	20-28 AWG max insulation Ø1.27mm (.05")

Climatic Data	
Operating temperature	-55°C to +125°C

Mechanical Data					
Mating and unmating force					
Unit: kg (lb)					
No. of Cts		Mate (max)		Unmate (min)	
RR	HR	RR	HR	RR	HR
9 (size E)	15 (size E)	3.05 (6.74)	3.81 (8.42)	0.36 (0.79)	0.52 (1.14)
15 (size A)	26 (size A)	5.09 (11.24)	5.95 (13.16)	0.46 (1.01)	1.05 (2.32)
25 (size B)	44 (size B)	8.44 (18.66)	9.26 (20.46)	0.81 (1.8)	1.37 (3.02)
37 (size C)	62 (size C)	12.51 (27.65)	13.48 (29.78)	1.1 (2.47)	1.76 (3.88)
50 (size D)	78 (size D)	14.65 (32.38)	15.82 (34.96)	1.6 (3.56)	2.02 (4.46)

DESCRIPTION

Designed for high volume production, Amphenol's rear release crimp connector and contacts provide significant cost saving.

- EMI / RFI shell configuration.
- Removable, reusable contacts.
- Automatic and manual tooling available.

*Simplify
your cable
assemblies*

APPLICATIONS

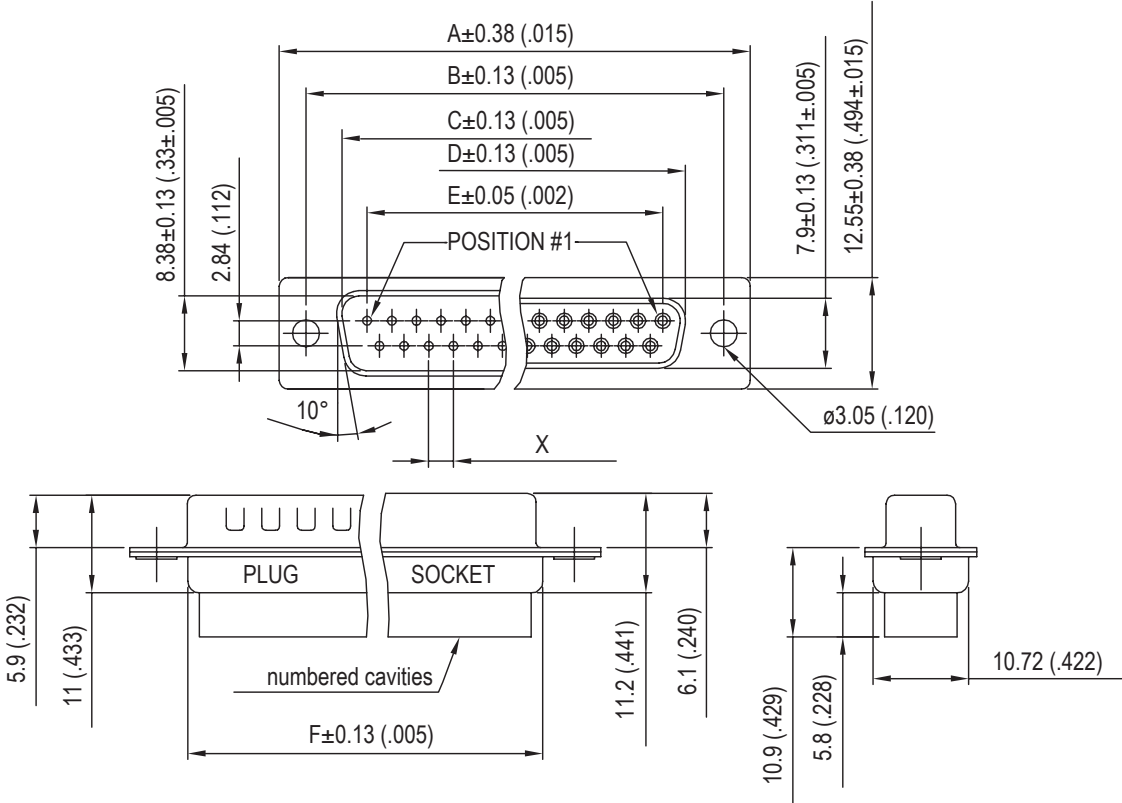
- Commercial
- Industrial
- Telecom
- Any industry standard I / O connections



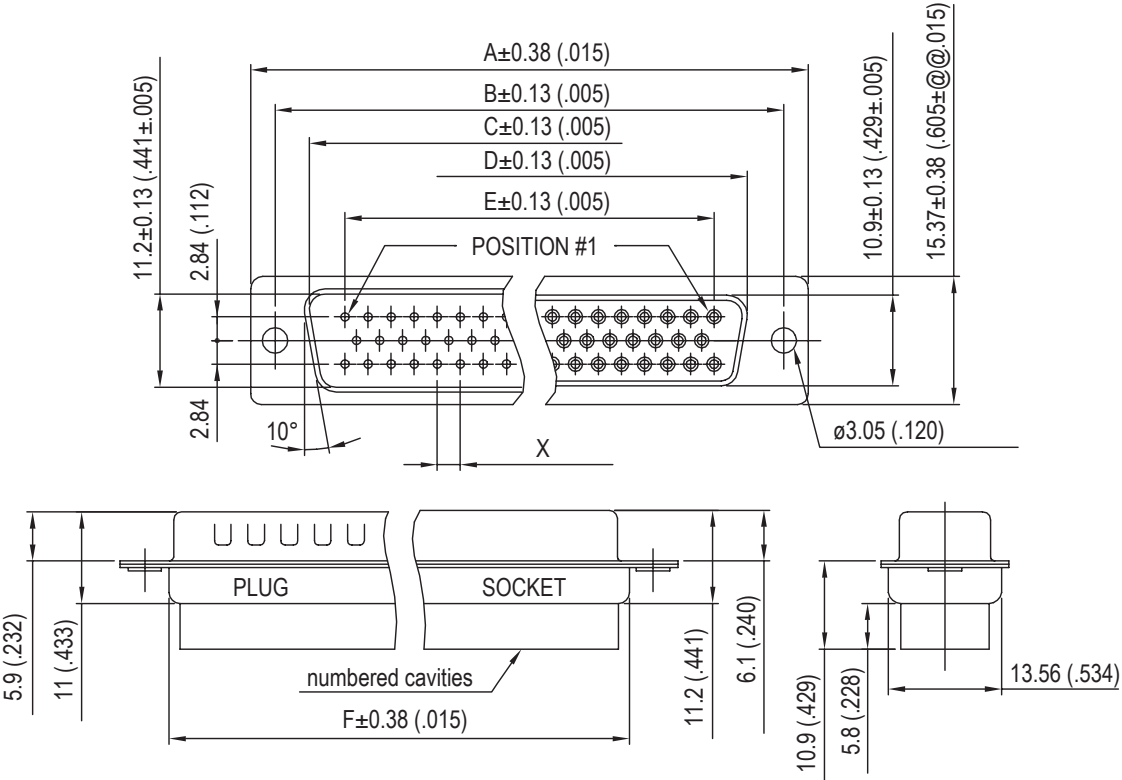
Amphenol

RR-HR / E11

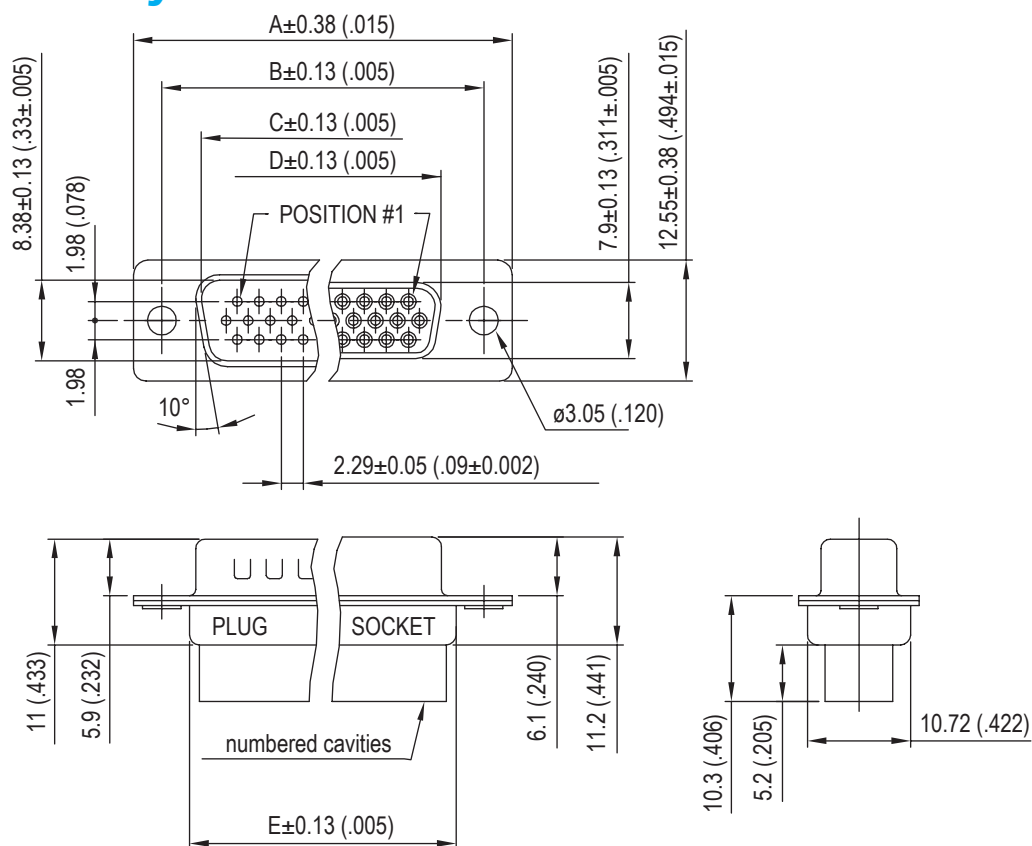
Standard density RR



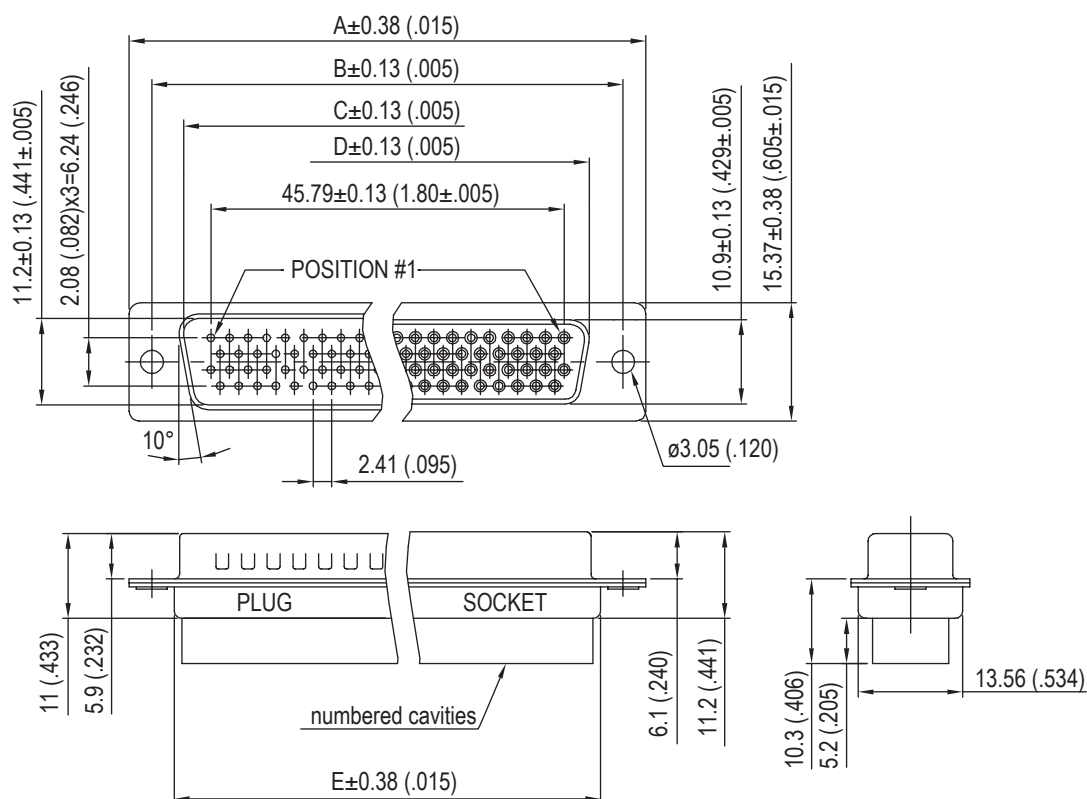
Nb OF CONTACTS	DIMENSIONS mm (inch)						
	A	B	C	D	E	F	X
9	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	11.09 (.44)	19.28 (.76)	2.74
15	39.24 (1.54)	33.32 (1.31)	24.7 (.972)	24.56 (.97)	19.39 (.76)	27.51 (1.08)	2.74
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	41.30 (1.63)	2.77
37	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	57.71 (2.27)	2.77
50	67 (2.64)	61.11 (2.41)	52.86 (2.08)	52.34 (2.06)	44.32 (1.75)	55.3 (2.18)	2.77



High density HR

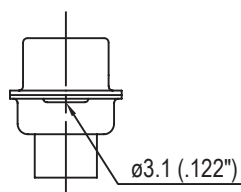


Nb OF CONTACTS	DIMENSIONS mm (inch)				
	A	B	C	D	E
15	30.84 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	19.28 (.76)
26	39.24 (1.54)	33.32 (1.31)	24.7 (.972)	24.56 (.97)	27.51 (1.08)
44	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	41.30 (1.63)
62	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	57.71 (2.27)
78	67 (2.64)	61.11 (2.41)	52.86 (2.08)	52.34 (2.06)	55.3 (2.18)

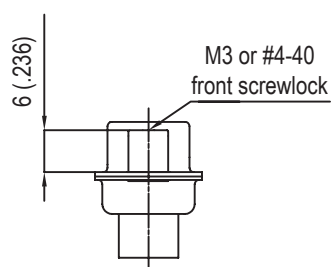


Panel mounting option

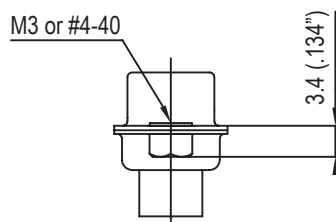
Standard density:



Standard rivet ø 3.1mm
no digit

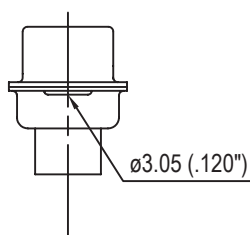


Fixed front female screwlock
VF / VFM

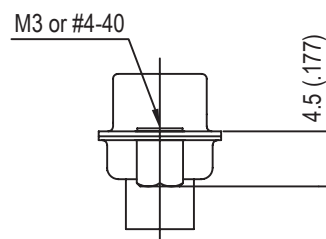


Threaded rear insert
H / G

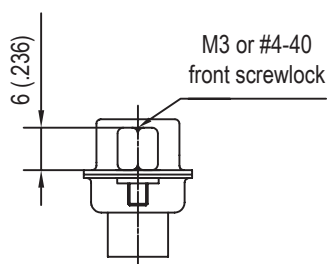
High density:



Standard rivet ø3.05mm
no digit



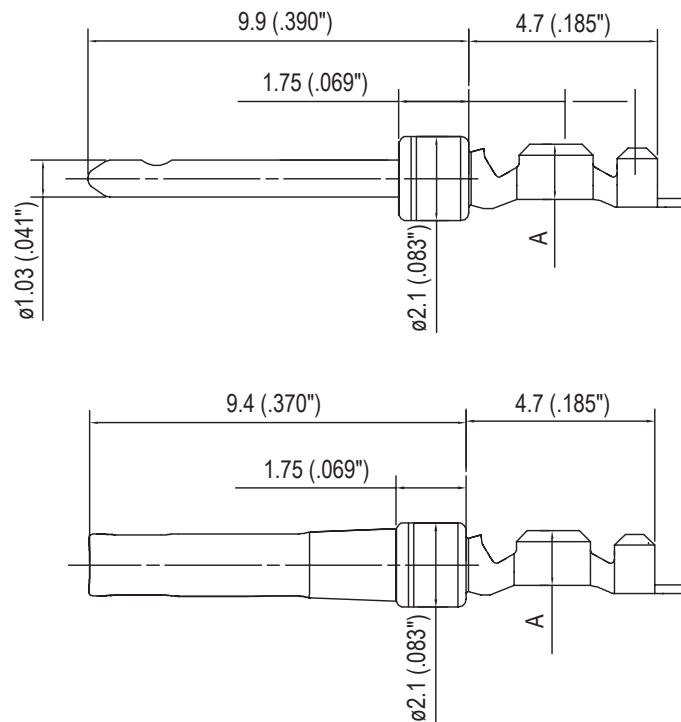
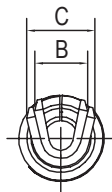
Threaded rear insert
H / G



Fixed front female screwlock
VF / VFM

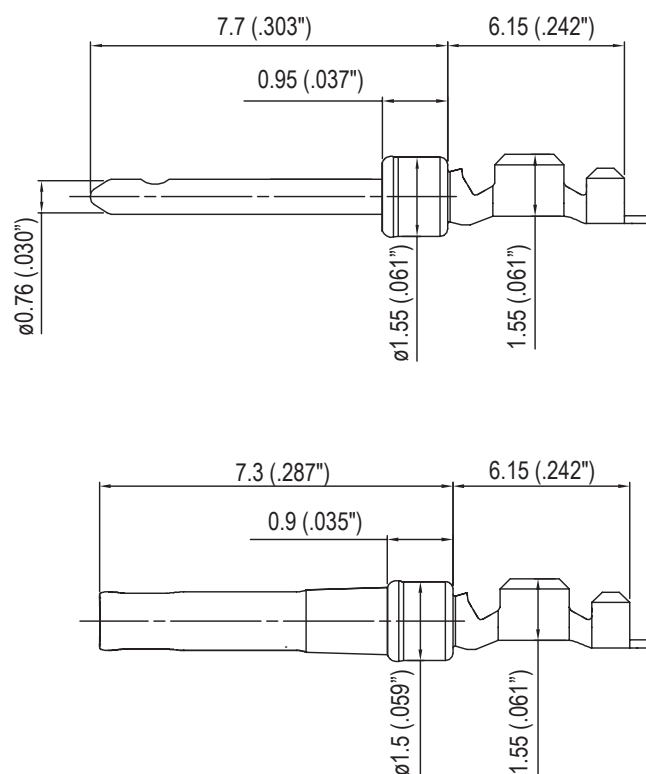
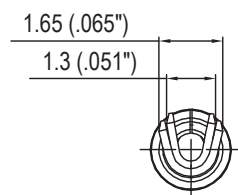
Contacts

Standard density:



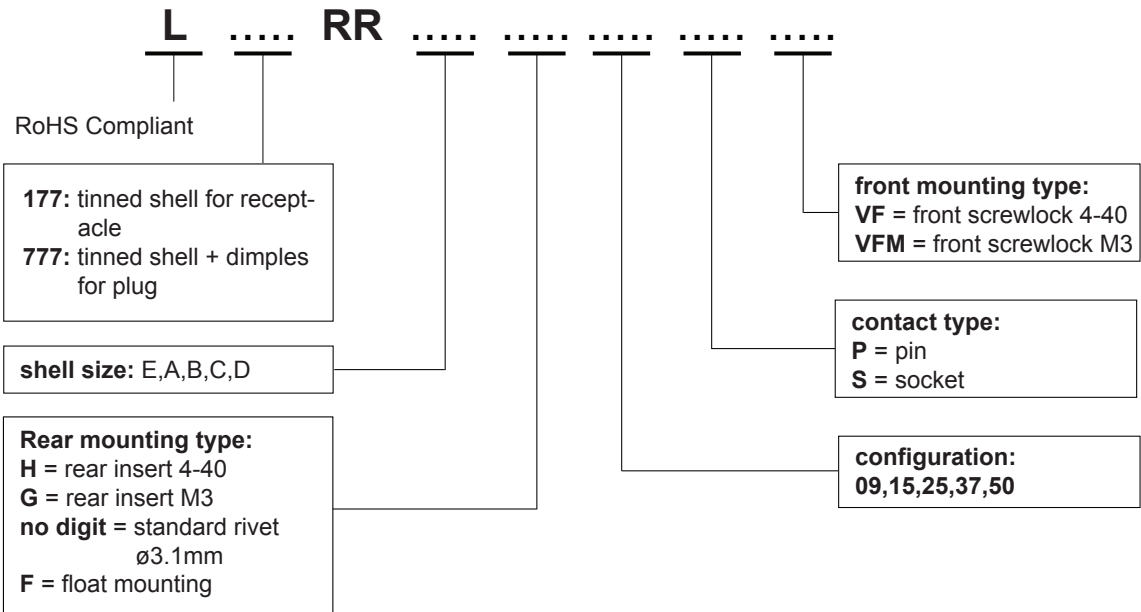
AWG	A	B	C
20-24	1.8 (.071")	1.9 (.075")	2.5 (.098")
24-28	1.4 (.055")	1.5 (.059")	1.7 (.066")

High density:

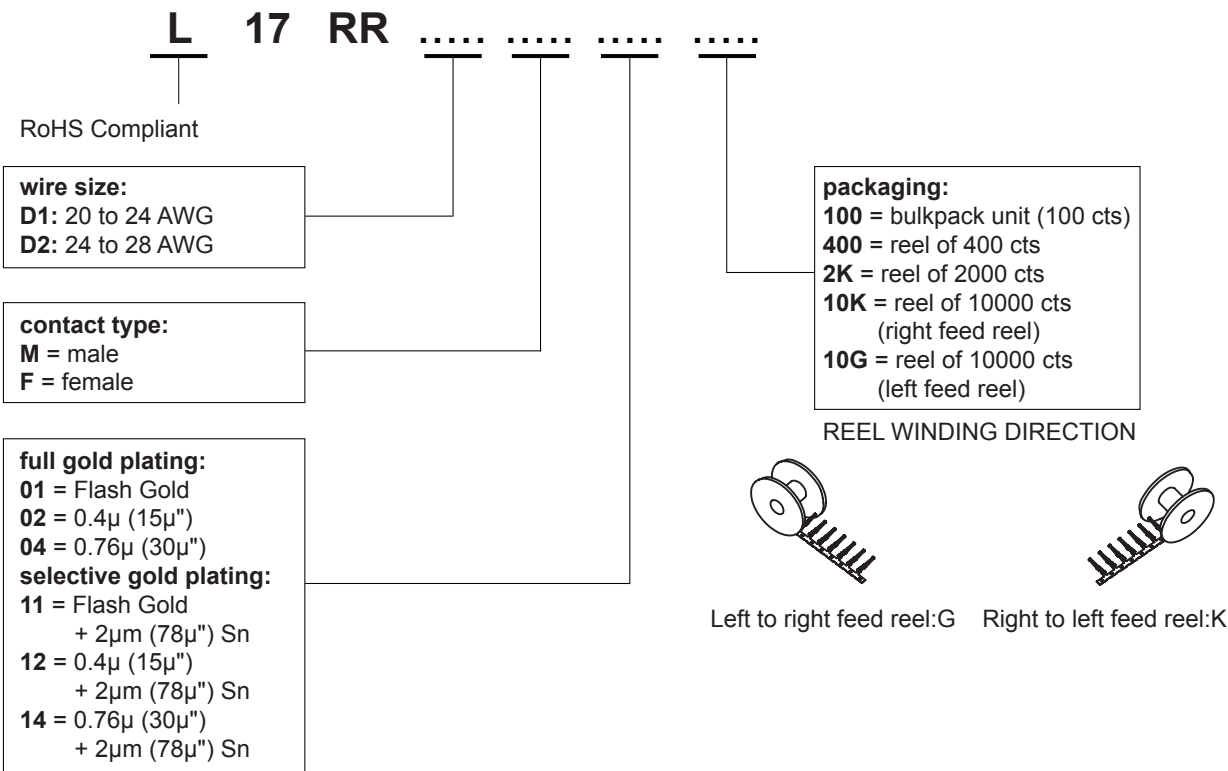


How to order RR (standard density)

Housings



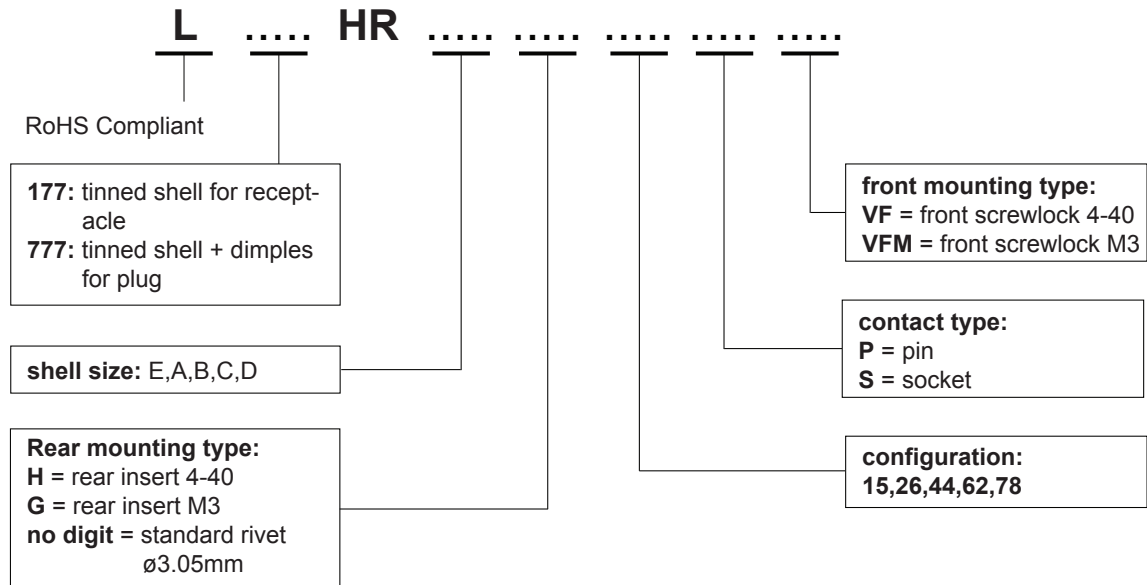
Contacts



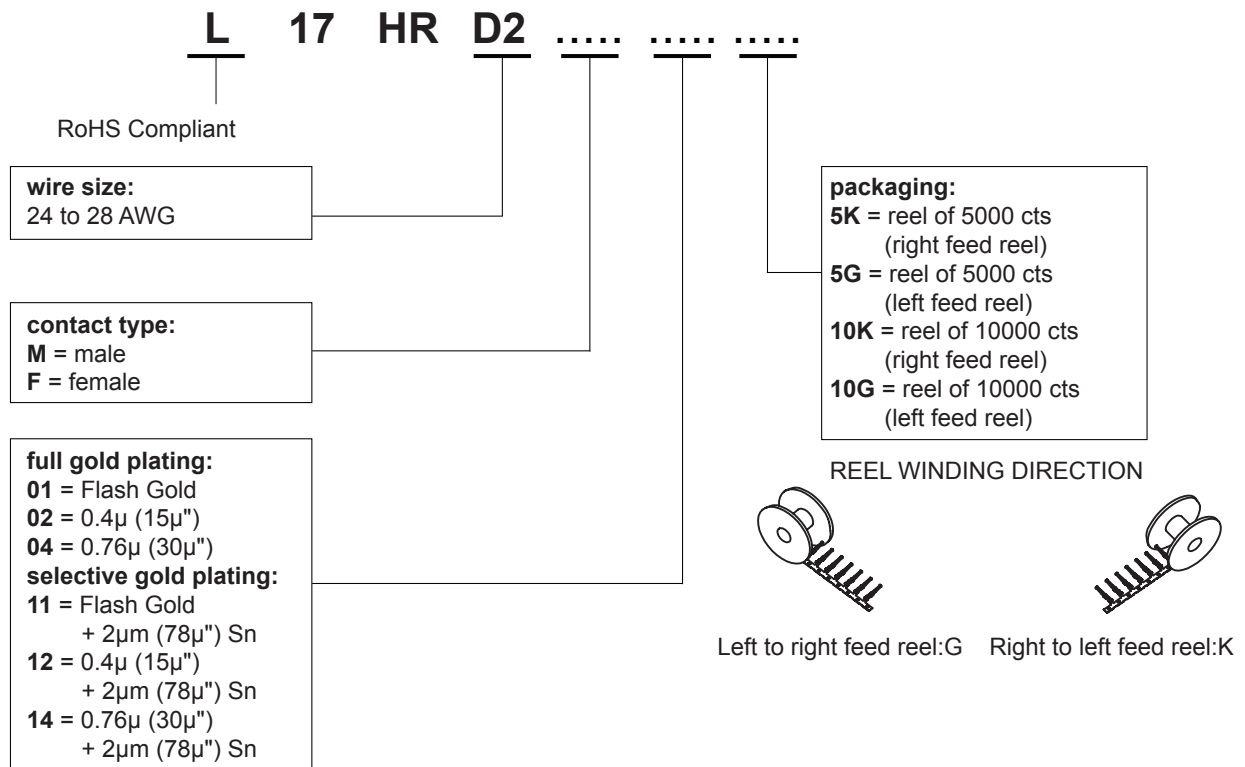
For special request, please consult factory

How to order HR (high density)

Housings



Contacts



For special request, please consult factory

Tooling for crimp contacts

For standard density crimp contacts: 17RR series

- | | |
|---|-------------|
| • contact insertion and removal tool | 17D 438 SP |
| • hand crimp tool for single contacts AWG 20 to 28 | 17D 440 SP |
| • hand crimp tool for reels of 400 contacts | FA 0000 762 |
| crimp dies: AWG 20 to 24 | FA 0000 104 |
| crimp dies: AWG 24 to 28 | FA 0000 102 |
| • stripping box | FE 0400 |
| • automatic crimp machine for reels of 2000 to 10000 contacts | 970 MC |
| crimp dies: AWG 20 to 24 | 968 MC |
| crimp dies: AWG 24 to 28 | 972 MC |

For high density crimp contacts: 17HR series

- | | |
|---|--------|
| • automatic crimp machine for reels of 2000 to 10000 contacts | 970 MC |
| crimp dies: AWG 24 to 28 | 973 MC |

Do not hesitate to contact us for further information



Amphenol

Amphenol IT & Communication Products

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Technical Support

Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

DFR

D-Sub connectors - Stamped and Formed Contacts

FLAT RIBBON D-SUB CONNECTORS



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shells	Steel with nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Pin contacts	Brass, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over 1.27µm (50µ") min. nickel
Socket contact	Phosphor bronze, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over 1.27µm (50µ") min. nickel
Rear insert	Brass, 2.54µm (100µ") min. nickel plated
Screwlock	Brass, 2.54µm (100µ") min. nickel plated

Electrical Data	
Current rating	5A
Voltage rating	250V AC/rms 60Hz
Withstanding voltage	1000V AC/rms 60Hz for one minute
Insulation resistance	1000MΩ
Contact resistance	20mΩ max

Climatic Data	
Operating temperature	-40°C to +125°C

Mechanical Data		
Single contact insertion force	0.54kg (1.19lb) max	
Single contact withdrawal force	0.06kg (0.13lb) min	
Mating and unmating force	Unit: kg (lb)	
	No. of Cts	Mate (max) Unmate (min)
	9 (size E)	3.05 (6.74) 0.36 (0.79)
	15 (size A)	5.09 (11.24) 0.46 (1.01)
	25 (size B)	8.44 (18.66) 0.81 (1.8)
	37 (size C)	12.51 (27.65) 1.1 (2.47)
Standard plating thicknesses	• gold flash • 0.4µm (15µ") gold • 0.76 µm (30µ") gold	

DESCRIPTION

These connectors are suitable for compact requirement of modern peripheral equipment.

Special contact design allows usage of standard 1.27mm (.05") flat cable. Suitable with all standard D-Sub hoods.

*Simplify
Your cable
assemblies!*

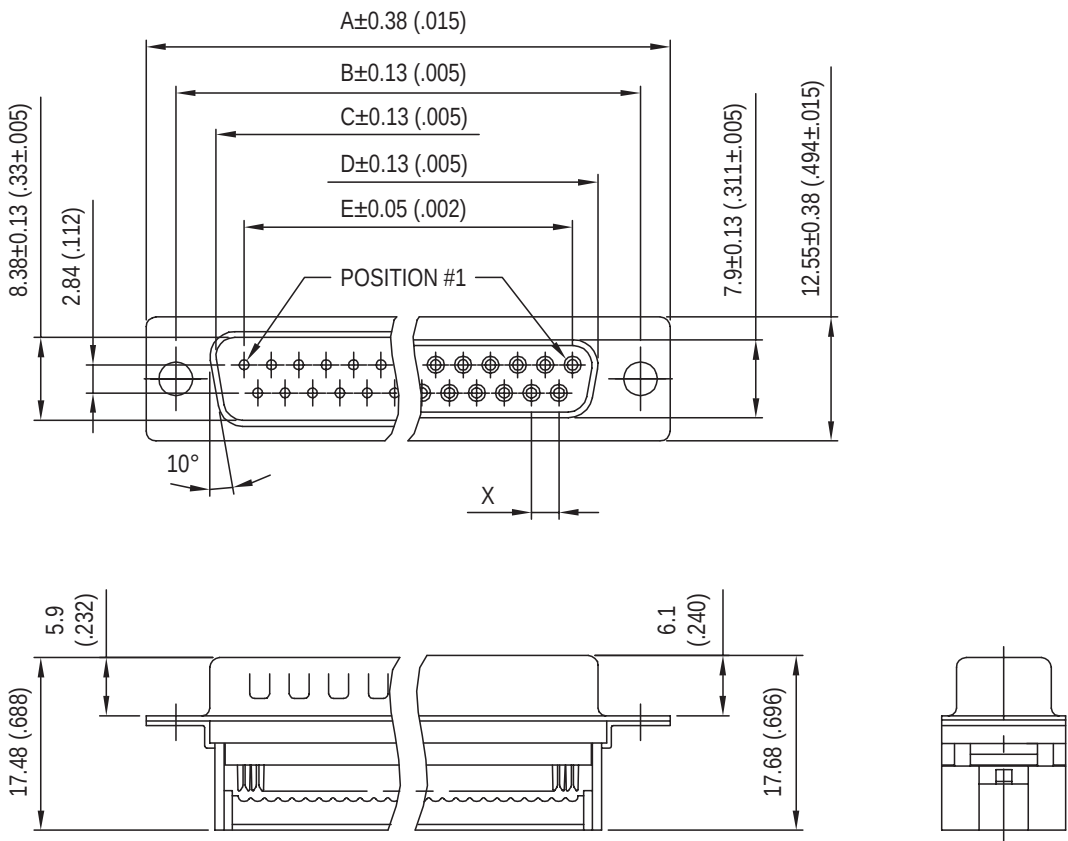
APPLICATIONS

- Industrial
- Telecom
- Any industry standard I / O connections



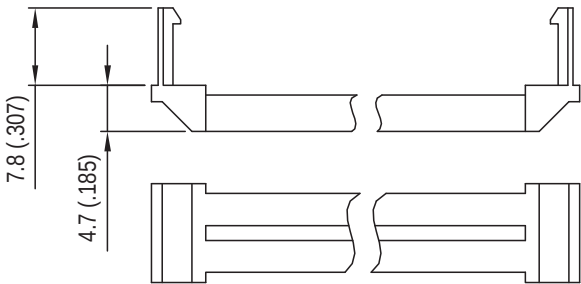
Amphenol

DFR / E12

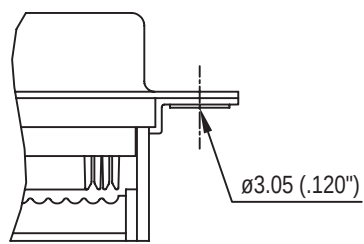


Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	X
9	30.84 (1.21)	24.99 (.984)	16.92 (.666)	16.24 (.639)	11.09 (.437)	2.74
15	39.24 (1.54)	33.32 (1.31)	24.70 (.972)	24.56 (.967)	19.39 (.763)	2.74
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	2.77
37	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	2.77

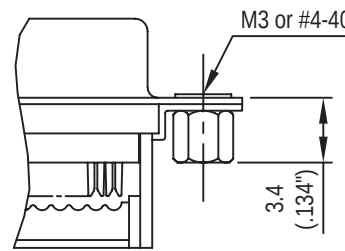
STRAIN RELIEF



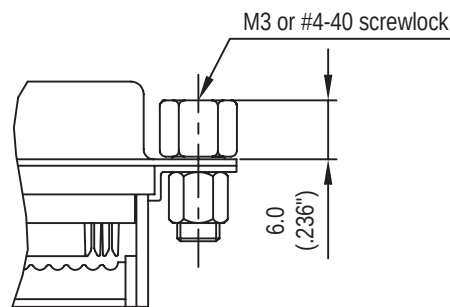
Panel mounting option



Standard rivet $\varnothing 3.05\text{mm}$
no digit

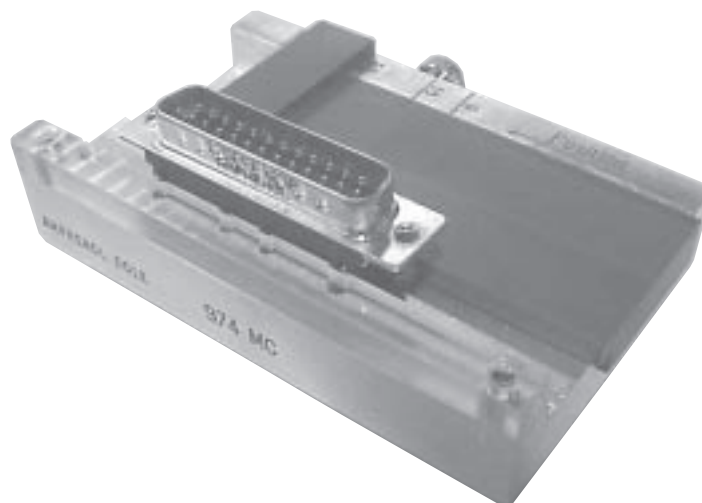


Threaded rear insert
B / D



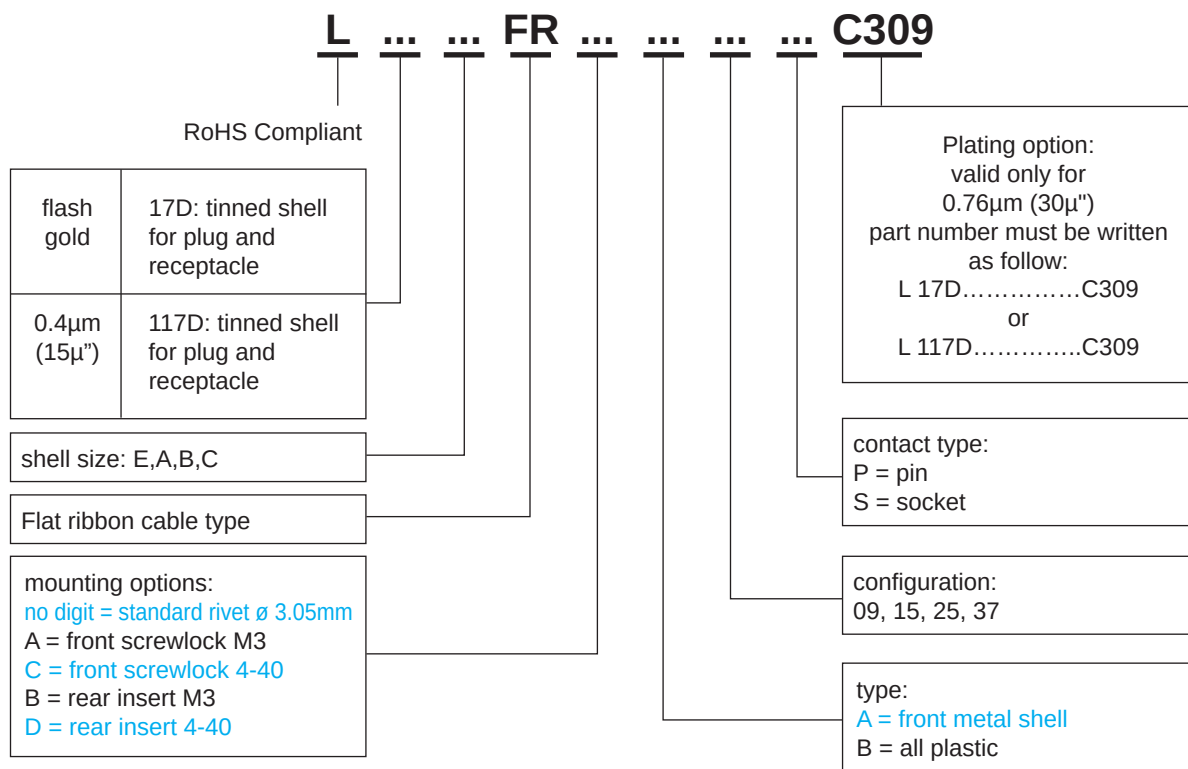
Front female screwlock
A / C

Tool



Support for hand termination tool:
974MC

How to order



■ : Standard options

For special request, please consult factory

Do not hesitate to contact us for further information



Amphenol

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 Gong Ming Town, Shen Zhen China
 Fax: +86(0)755 2754 9955

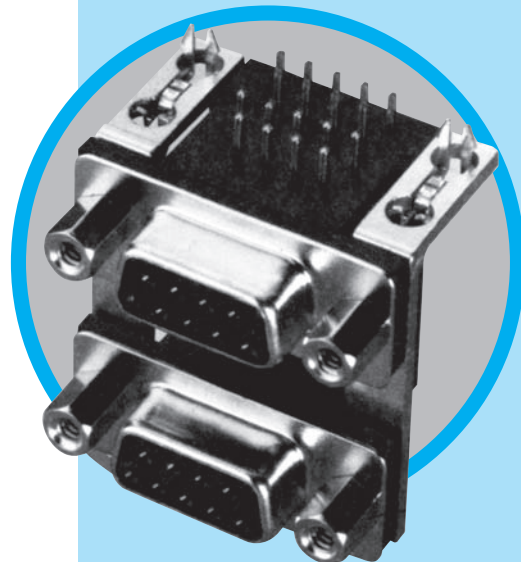
Technical Support

Tel: +86(0)755 2717 7945
 Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

17H

D-Sub connectors - Stamped and Formed Contacts

DUAL PORT D-SUB CONNECTORS



MAIN CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and platings	
Shells	Steel, tin plated
Insulator	Glass-filled thermoplastic, UL 94V-0
Pin contacts	Brass, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over 1.27µm (50µ") min. nickel
Socket contact	Phosphor bronze, selected gold in mating area; 2.54µm (100µ") min. tin on termination area over 1.27µm (50µ") min. nickel
Rear insert	Brass, 2.54µm (100µ") min. nickel plated
Boardlock	Phosphor bronze, 2.54µm (100µ") min. tin plated
Screwlock	Brass, 2.54µm (100µ") min. nickel plated

Electrical Data	
Current rating	3A
Voltage rating	250V AC/rms 60Hz
Withstanding voltage	1000V AC/rms 60Hz for one minute
Insulation resistance	1000MΩ
Contact resistance	20mΩ max

Climatic Data	
Operating temperature	-55°C to +125°C
Salt spray	24 hours

Mechanical Data		
Single contact insertion force	0.54kg (1.19lb) max	
Single contact withdrawal force	0.06kg (0.13lb) min	
Mating and unmating force	Unit: kg (lb)	
No. of Cts	Mate (max)	Unmate (min)
9	3.05 (6.74)	0.36 (0.79)
15	5.09 (11.24)	0.46 (1.01)
25	8.44 (18.66)	0.81 (1.8)
15 (Hi-den)	3.81 (8.42)	0.52 (1.14)
Standard plating thicknesses	• gold flash • 0.4µm (15µ") gold • 0.76 µm (30µ") gold	

DESCRIPTION

Amphenol's G17H dual port connectors are a state of the art design. The front metal shell helps reduce EMI / RFI emissions.

Designed to save PC board space, Amphenol's dual port provides two I / O connectors in a minimal amount of board space.

*Economical
dual port
connectors*

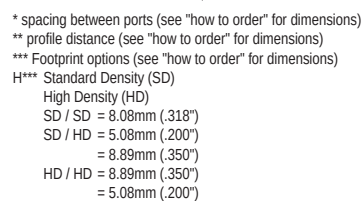
APPLICATIONS

- Industrial
- Telecom
- Any industry standard I / O connections



Amphenol

17H / E13



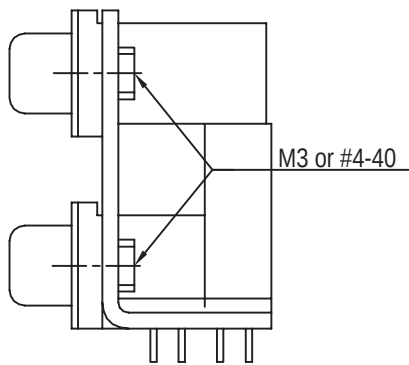
Technical drawing of a boardlock assembly showing dimensions and tolerances. The drawing includes the following specifications:

- Overall width: $3.81 (.150)$
- Top edge thickness: $1.27 (.050)$
- Bottom edge thickness: $2.84 (.112)$
- Internal width: $B \pm 0.13 (.005)$
- Internal width tolerance: $E \pm 0.05 (.002)$
- Internal width dimension: X
- Top edge diameter: $\varnothing 3.05 (.120)$
- Bottom edge diameter: $\varnothing 1.02 (.040)$
- Internal diameter: $2.84 (.112)$
- Internal diameter tolerance: $8.08 (.318)$
- Internal diameter dimension: $8 (.315)$
- Note: "only for quad boardlock"

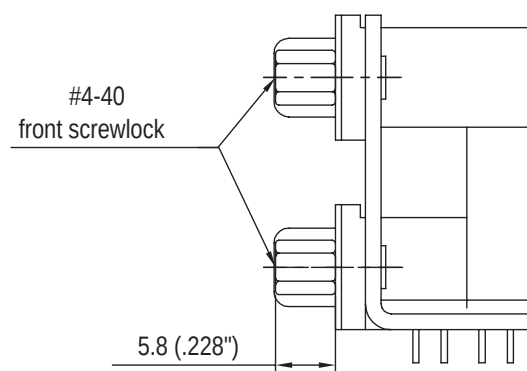
Amphenol

Panel mounting option

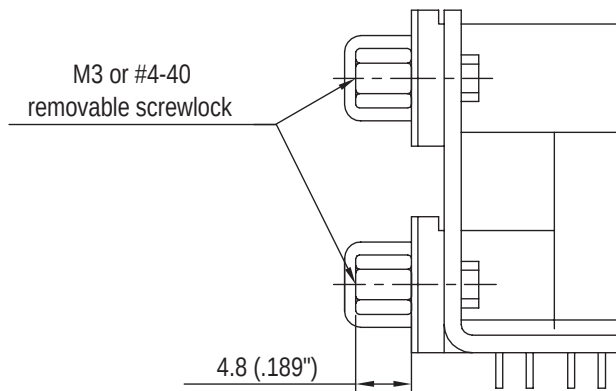
Flange mounting options:



Threaded rear insert
0 / 4

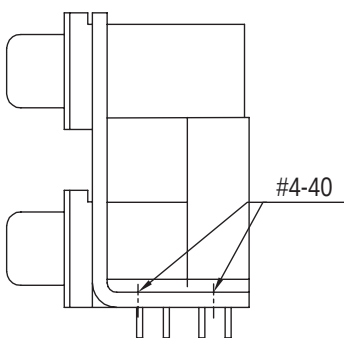


Fixed front female screwlock
7

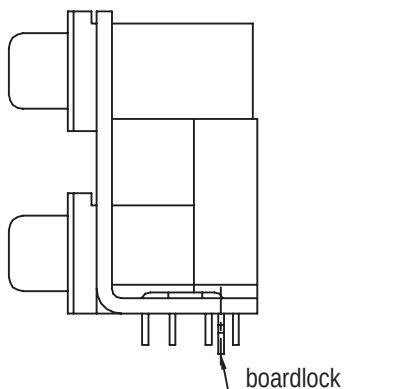


Removable female screwlock
1 / 5

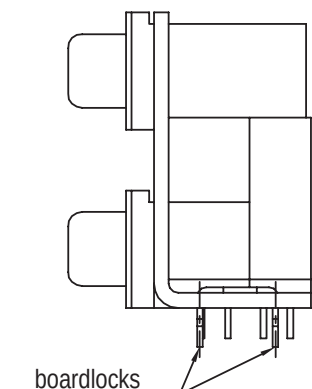
Board mounting options:



Threaded hole
1



Dual arrowhead boardlock
2



Quad arrowhead boardlock
3

Dual Port Connectors

L17H X X X X X X X X

Spacing Between Ports

- 1 - F = 15.88mm (.625")
G = 28.42mm (1.12")
2 - F = 19.05mm (.750")
G = 31.60mm (1.24")
3 - F = 22.86mm (.900")
G = 35.41mm (1.39")
4 - **SCSI**
G = 12.80mm (.504")
7 - F = 20.70mm (.815")
G = 32.20mm (1.26")

Top Connector

- 1 = 9 Pos. Male
2 = 9 Pos. Female
3 = 15 Pos. Male
4 = 15 Pos. Female
5 = 25 Pos. Male
6 = 25 Pos. Female
7 = 15 Pos. High Density Female
8 = 50 Pos. Female SCSI
9 = 26 Pos. High Density Female
J = 15 Pos. High Density Male
D = 37 Pos. Male
E = 37 Pos. Female
F = 44 Pos. High Density Male
G = 44 Pos. High Density Female
M = 62 Pos. High Density Male
N = 62 Pos. High Density Female
P = 78 Pos. High Density Male
Q = 78 Pos. High Density Female

Bottom Connector

- 1 = 9 Pos. Male
2 = 9 Pos. Female
3 = 15 Pos. Male
4 = 15 Pos. Female
5 = 25 Pos. Male
6 = 25 Pos. Female
7 = 15 Pos. High Density Female
8 = 50 Pos. Female SCSI
9 = 26 Pos. High Density Female
K = 15 Pos. High Density Male
D = 37 Pos. Male
E = 37 Pos. Female
F = 44 Pos. High Density Male
G = 44 Pos. High Density Female
M = 62 Pos. High Density Male
N = 62 Pos. High Density Female
P = 78 Pos. High Density Male
Q = 78 Pos. High Density Female
R = 9 Pos. Male + 9 Pos. Male
S = 9 Pos. Female + 9 Pos. Female

Footprint Options

- SD / SD**
BLANK = 8.08mm (.318")
SD / HD
BLANK = 5.08mm (.200")
889 = 8.89mm (.350")
HD / HD
BLANK = 8.89mm (.350")
508 = 5.08mm (.200")

Flange Mounting Options

- 0 = 4-40unc Rear Insert
1 = 4-40unc Removable Screwlock
3 = 3.05mm (.120") Clear Hole
4 = M3 Rear Insert
5 = M3 Removable Screwlock
7 = 4-40unc Fixed Front Screwlock

Board Mounting Options

- 1 = 4 * Threaded 4-40unc Inserts
2 = Dual Arrowhead Boardlocks
3 = Quad Arrowhead Boardlocks
4 = 3.18mm (.125") Clear Hole

Shell Plating

- 1 = Bright Tin / Nickel
2 = Nickel

Contact Plating

- 0 = Flash Gold
1 = 0.4μm (15μ") Gold
2 = 0.76μm (30μ") Gold
3 = Full Flash Gold
4 = 1.27μm (50μ") Gold

For special request, please consult factory

Do not hesitate to contact us for further information

Amphenol

Amphenol IT & Communication Products

Block A3/A4, The 4th Industrial District of
Industrial Headquarters, Dong Keng Road
Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955

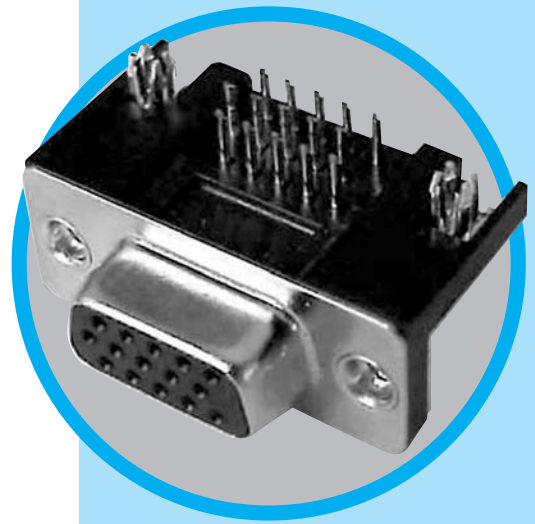
Technical Support

Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
http://www.dsubconnector.com

HT

D-Sub connectors - Stamped and Formed Contacts

RIGHT ANGLE HIGH TEMPERATURE AND HIGH DENSITY CONNECTORS



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shell	Steel, tin over nickel plating
Insulator	Glass filled thermoplastic, UL 94V-0
Contacts	Copper alloy, selective gold plating
Rear insert	Brass with nickel plating
Screwlock	Brass with nickel plating
Grounding clip	Copper alloy with tin plating

Electrical Data	
Current rating	3A
Voltage rating	300V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ max

Climatic Data	
Operating temperature	-55°C to +150°C, resist to short term (30s) at 260°C

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
15	3.81 (8.42)	0.52 (1.14)
26	5.95 (13.16)	1.05 (2.32)
44	9.26 (20.46)	1.37 (3.02)
62	13.48 (29.78)	1.76 (3.88)
Standard plating thicknesses • gold flash • 0.4 μm (15μ") gold • 0.76 μm (30μ") gold		

DESCRIPTION

The Amphenol "HT" series allows the customers to use through hole connectors with reflow soldering process.

This series gives you Amphenol's high standards of quality and reliability to meet of your commercial requirements

*Economical
right angle PCB,
high temperature
connectors*

APPLICATIONS

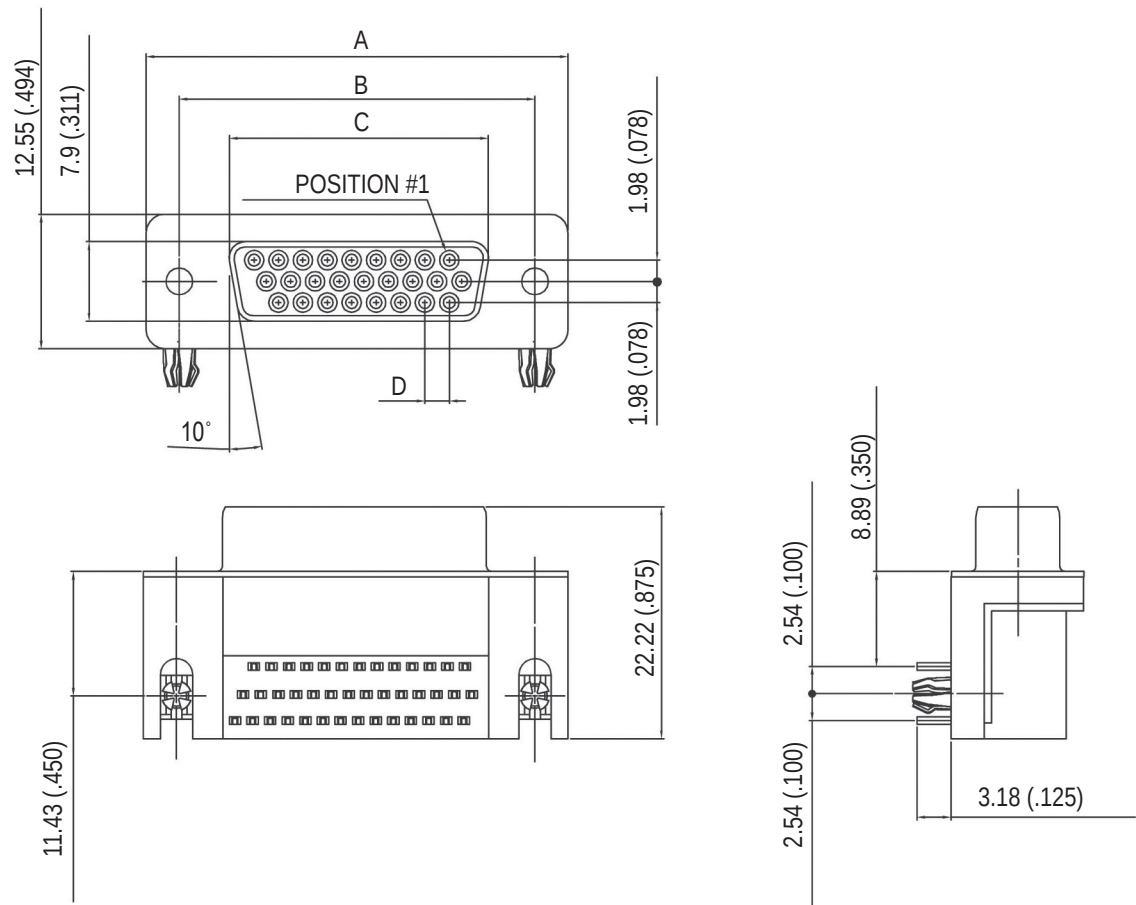
- Industrial
- Telecom
- Any industry standard I / O connections



Amphenol

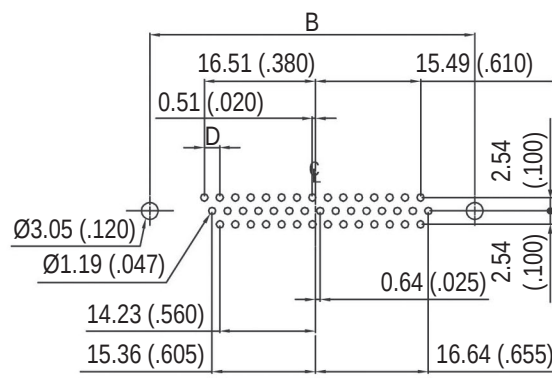
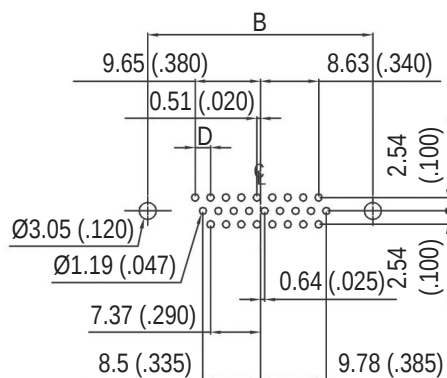
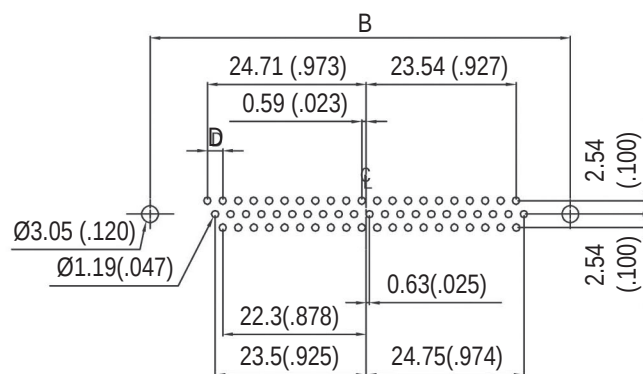
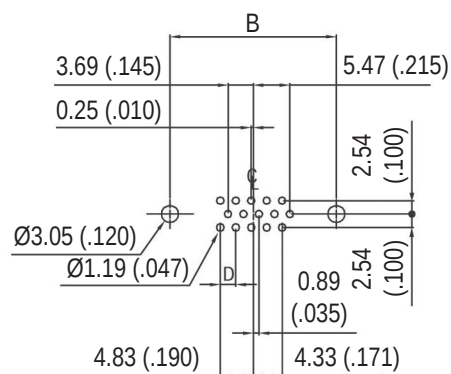
HT / E14

Shell size dimensions

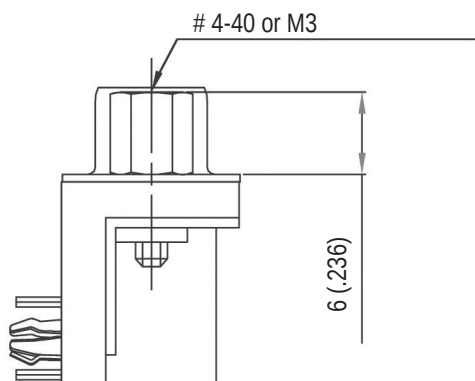


Nb OF CONTACTS	Dimensions mm (inch)			
	A	B	C	D
15	30.84 (1.214)	24.99 (.984)	16.26 (.640)	2.29 (.090)
26	39.24 (1.545)	33.32 (1.312)	24.56 (.967)	2.29 (.090)
44	53.04 (2.088)	47.04 (1.852)	38.30 (1.508)	2.29 (.090)
62	69.34 (2.730)	63.50 (2.500)	54.76 (2.156)	2.41 (.095)

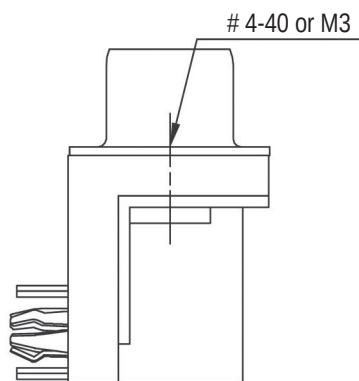
P.C.B. Layout



Panel mounting option

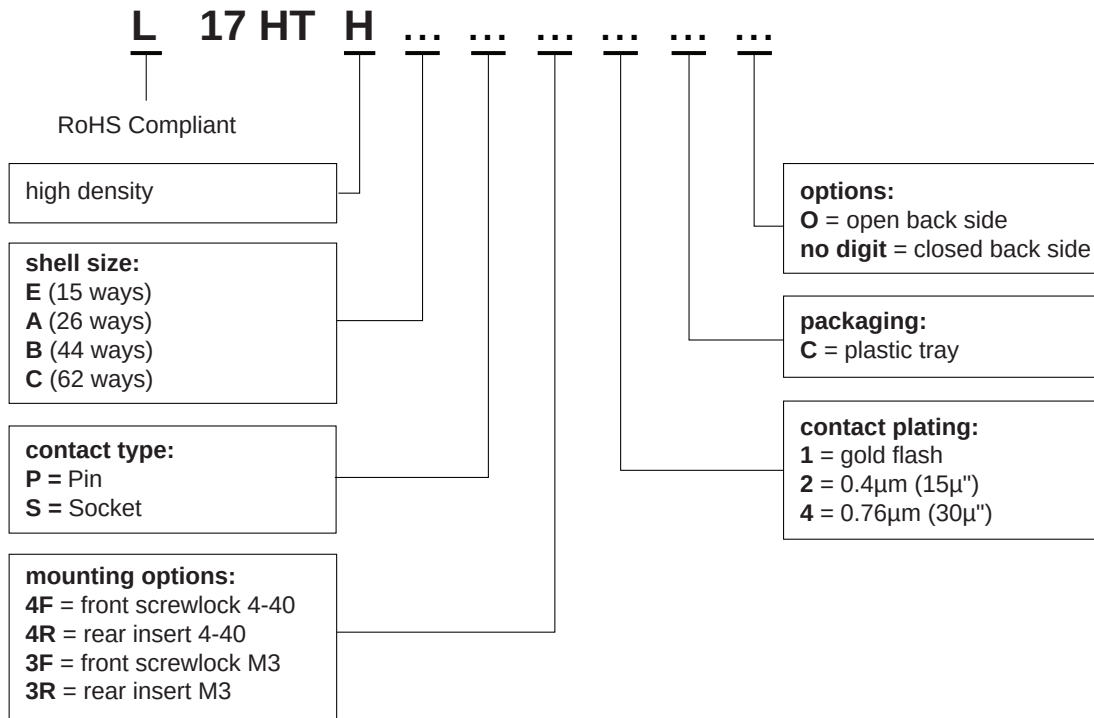


Front female screwlock
4F/3F



Threaded rear insert
4F/3F

How to order



For special request, please consult factory

Do not hesitate to contact us for further information

Amphenol

Amphenol IT & Communication Products

Block A3/A4, The 4th Industrial District of
 Industrial Headquarters, Dong Keng Road
 Gong Ming Town, Shen Zhen China
 Fax: +86(0)755 2754 9955

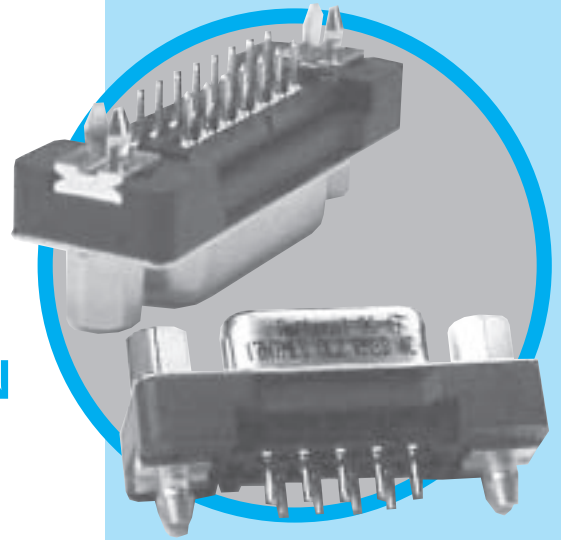
Technical Support

Tel: +86(0)755 2717 7945
 Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

HT

D-Sub connectors - Stamped and Formed Contacts

STRAIGHT PCB TERMINATION HIGH TEMPERATURE CONNECTORS



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shell	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Contacts	Copper alloy, selective gold plating
Boardlock	Brass with nickel plating
Screwlock	Brass with nickel plating

Electrical Data	
Current rating	5A
Voltage rating	600V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ max

Climatic Data	
Operating temperature	-55°C to +150°C, resist to short term (30s) at 260°C

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
9	3.05 (6.74)	0.36 (0.79)
15	5.09 (11.24)	0.46 (1.01)
25	8.44 (18.66)	0.81 (1.8)
37	12.51 (27.65)	1.1 (2.47)
Standard plating thicknesses		
- gold flash 0.76 μm (30μ") gold		

DESCRIPTION

The Amphenol "HT" series allows the customers to use through hole connectors with reflow soldering process.

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements

*Economical
straight PCB,
high temperature
connectors*

APPLICATIONS

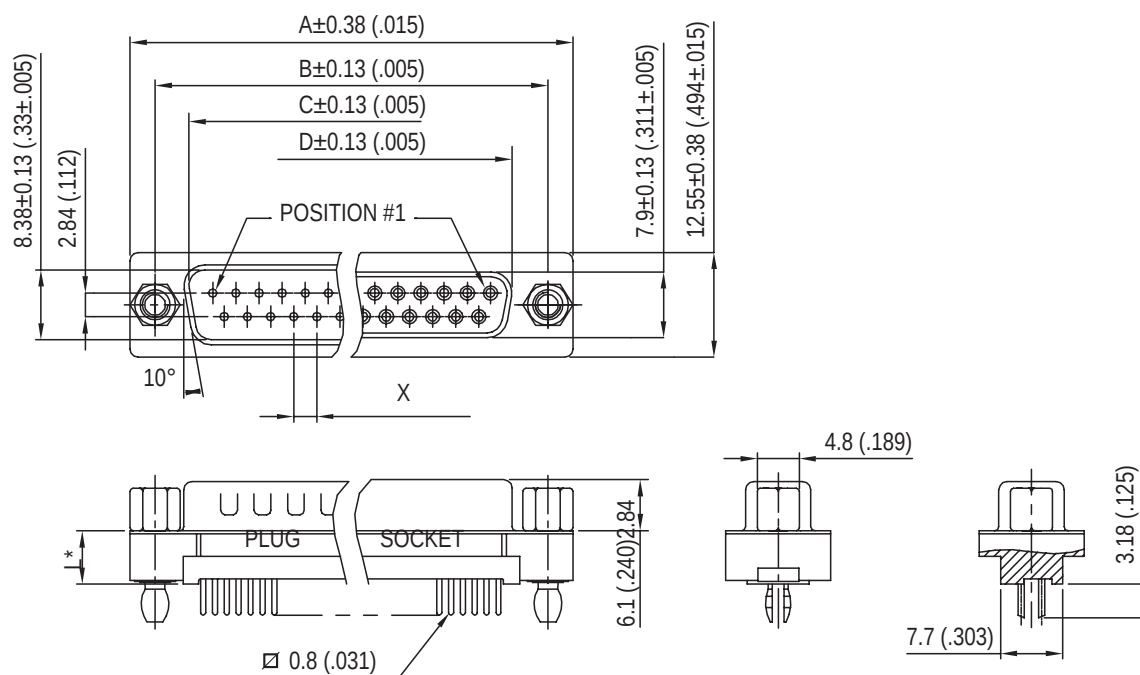
- Industrial
- Telecom
- Any industry standard I / O connections



Amphenol

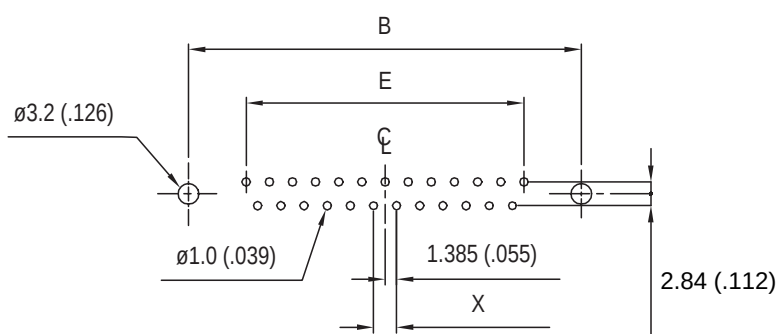
HT / E15

Shell size dimensions



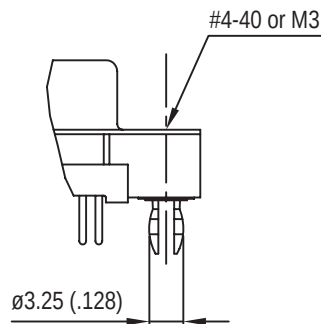
*see chart "how to order"

Recommended P.C.B. Layout

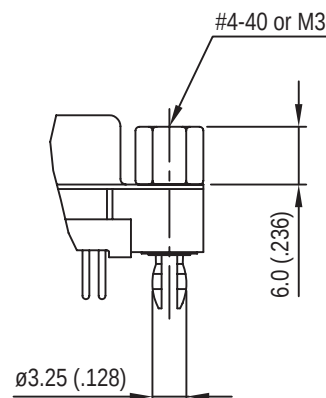


Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	X
9	30.84 (1.21)	24.99 (.984)	16.92 (.666)	16.26 (.640)	11.08 (.436)	2.74
15	39.24 (1.54)	33.32 (1.31)	25.25 (.994)	24.56 (.967)	19.39 (.763)	2.74
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	2.77
37	69.34 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	2.77

Panel mounting option

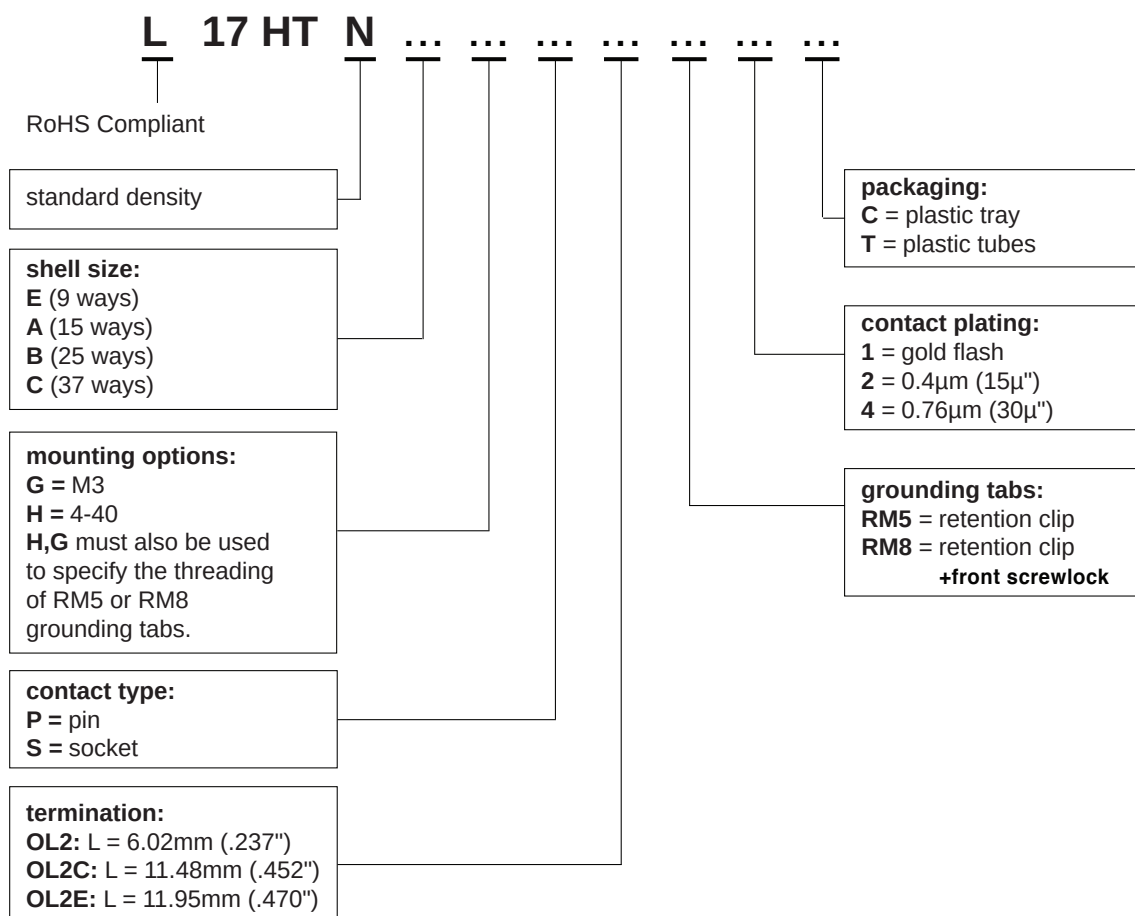


Standoff boardlock
RM5



Standoff boardlock
RM8

How to order

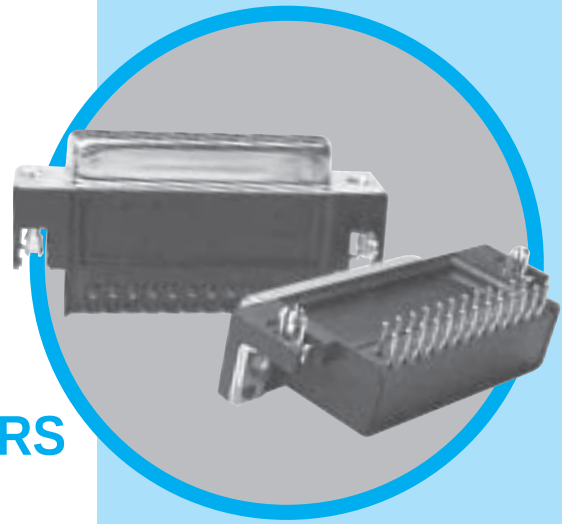


For special request, please consult factory

HT

D-Sub connectors - Stamped and Formed Contacts

RIGHT ANGLE HIGH TEMPERATURE CONNECTORS FOOTPRINT 14.99mm (.590")



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shells	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Contacts	Copper alloy, selective gold plating
Rear insert	Brass with nickel plating
Screwlock	Brass with nickel plating
Grounding clip	Copper alloy with tin plating

Electrical Data	
Current rating	5A
Voltage rating	600V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ max

Climatic Data	
Operating temperature	-55°C to +150°C, resist to short term (30s) at 260°C

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
9	3.05 (6.74)	0.36 (0.79)
15	5.09 (11.24)	0.46 (1.01)
25	8.44 (18.66)	0.81 (1.8)
37	12.51 (27.65)	1.1 (2.47)
Standard plating thicknesses • gold flash • 0.4 μm (15μ") gold • 0.76 μm (30μ") gold		

DESCRIPTION

The Amphenol "HT" series allows the customers to use through hole connectors with reflow soldering process.

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements

*Economical
right angle PCB,
high temperature
connectors*

APPLICATIONS

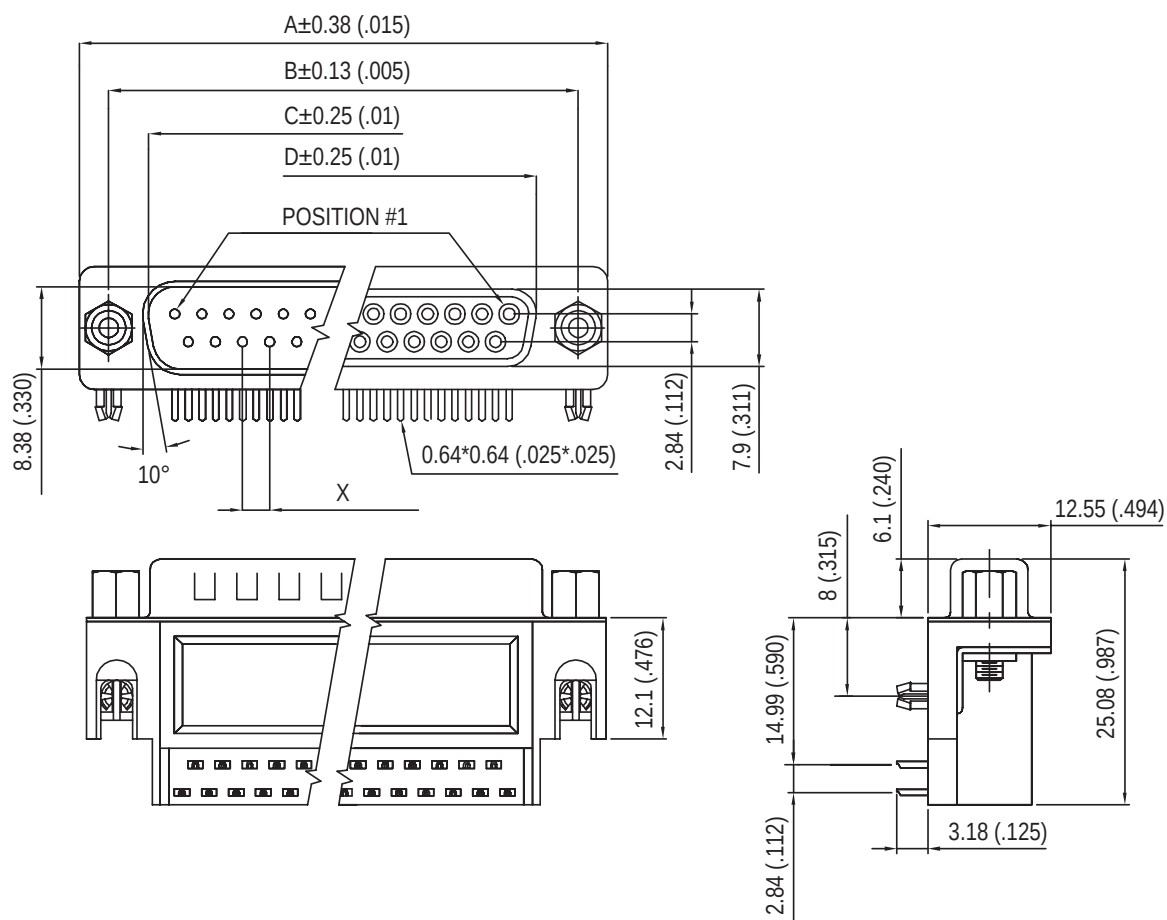
- Industrial
- Telecom
- Any industry standard I / O connections



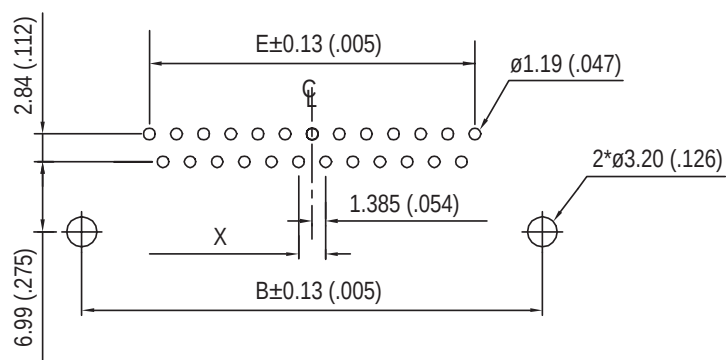
Amphenol

HT / E16

Shell size dimensions

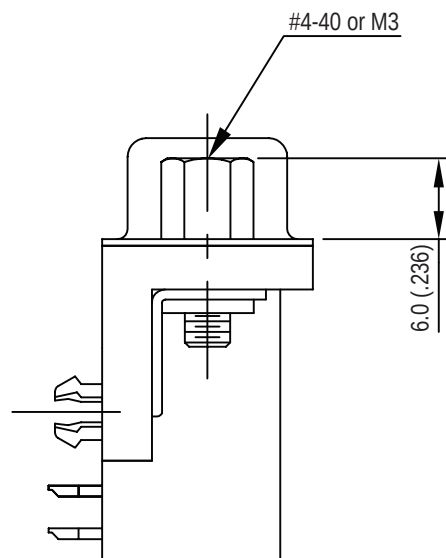


Recommended P.C.B. Layout

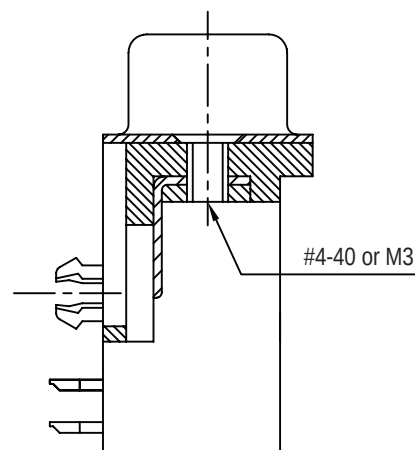


Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	X
9	30.84 (1.214)	24.99 (.984)	16.92 (.666)	16.26 (.640)	11.08 (.436)	2.74
15	39.24 (1.545)	33.32 (1.312)	25.25 (.994)	24.56 (.967)	19.39 (.763)	2.74
25	53.04 (2.088)	47.04 (1.852)	38.96 (1.534)	38.30 (1.508)	33.24 (1.309)	2.77
37	69.34 (2.730)	63.50 (2.500)	55.42 (2.182)	54.76 (2.156)	49.86 (1.963)	2.77

Panel mounting option

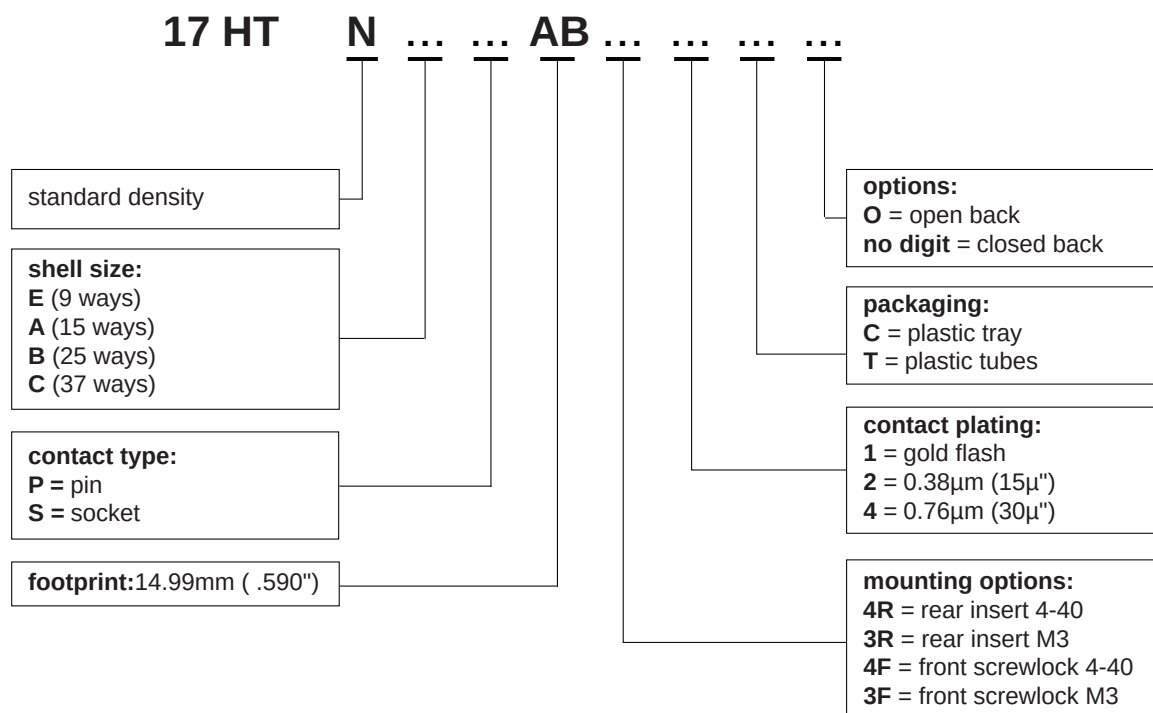


Front female screwlock
4F/3F



Threaded rear insert
4R/3R

How to order

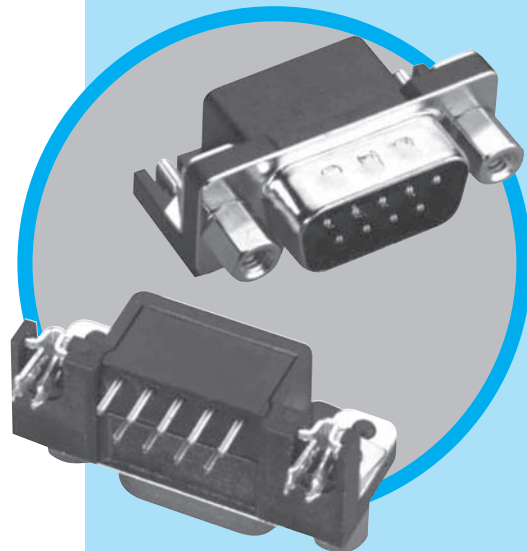


For special request, please consult factory

HTN

D-Sub connectors - Stamped and Formed Contacts

RIGHT ANGLE HIGH TEMPERATURE CONNECTORS



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shell	Steel, tin over nickel plating
Insulator	Glass-filled thermoplastic, UL 94V-0
Contacts	Copper alloy, selective gold plating
Rear insert	Brass, tin over nickel plating
Screwlock	Brass, tin over nickel plating
Grounding clip	Copper alloy with tin plating

Electrical Data	
Current rating	5A
Voltage rating	600V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ max

Climatic Data	
Operating temperature	-55°C to +150°C, resist to short term soldering at 260°C for 20sec.

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
9	3.05 (6.74)	0.36 (0.79)
15	5.09 (11.24)	0.46 (1.01)
25	8.44 (18.66)	0.81 (1.8)
37	12.51 (27.65)	1.1 (2.47)
Standard plating thicknesses		
• Gold flash • 0.4 μm (15μ") Gold • 0.76 μm (30μ") Gold		

DESCRIPTION

The Amphenol HTN series allows the use of a through hole connector with reflow soldering process. This series gives you Amphenol's high standard of quality and reliability, to meet all of your commercial requirements.

*Economical
right angle PDB,
high temperature
connectors*

APPLICATIONS

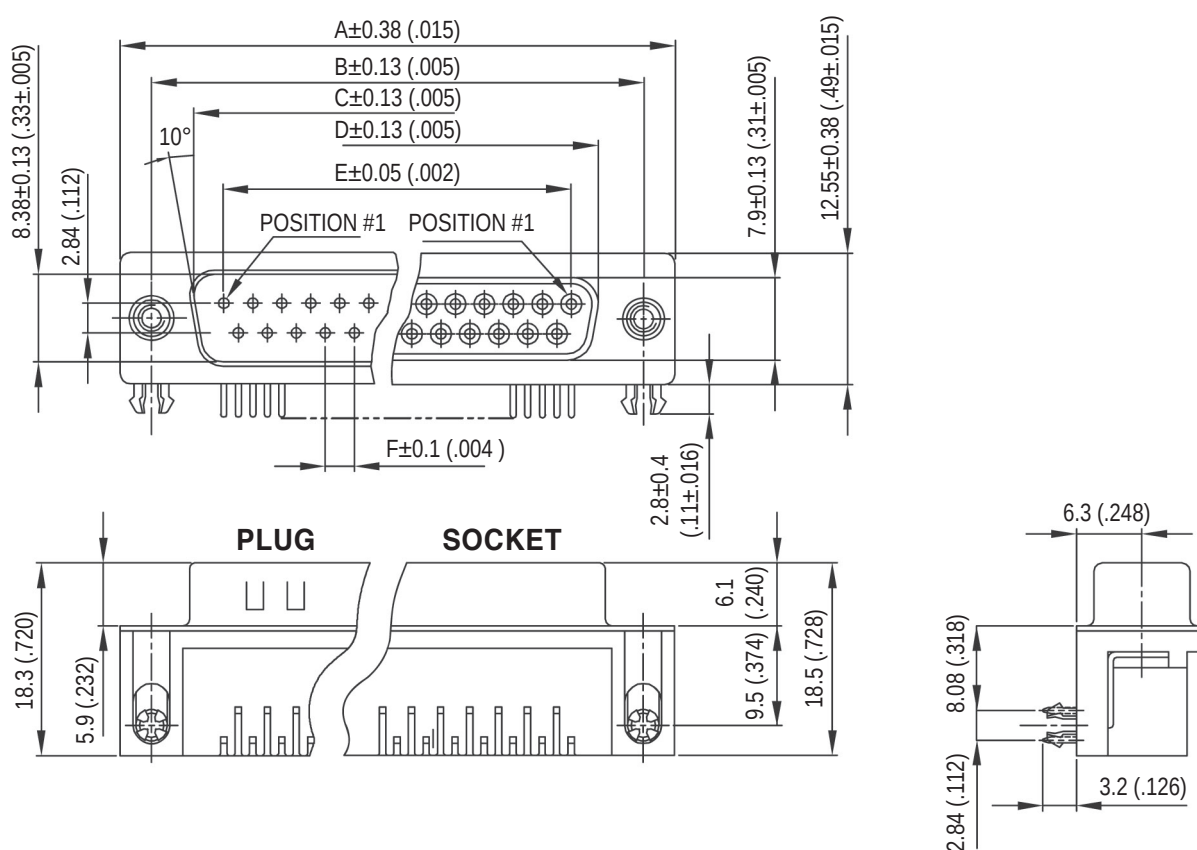
- Industrial
- Telecom
- Any industry standard I / O connections



Amphenol

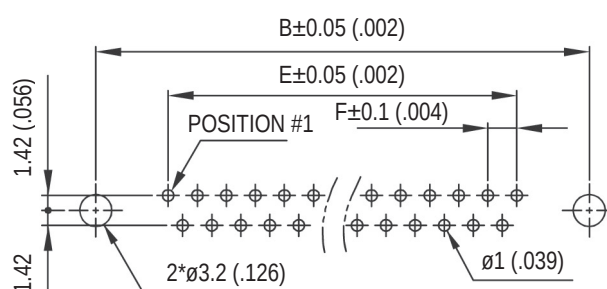
HTN / E17

Shell size dimensions

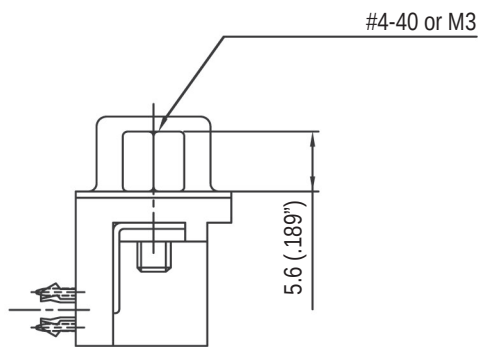


Nb OF CONTACTS	DIMENSIONS mm (inch)					
	A	B	C	D	E	F
9	30.81 (1.21)	24.99 (.98)	16.92 (.67)	16.24 (.64)	11.09 (.44)	2.74 (.108)
15	39.14 (1.54)	33.32 (1.31)	25.25 (.99)	24.56 (.97)	19.39 (.76)	2.74 (.108)
25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)	33.24 (1.31)	2.77 (.109)
37	69.32 (2.73)	63.50 (2.50)	55.42 (2.18)	54.76 (2.16)	49.86 (1.96)	2.77 (.109)

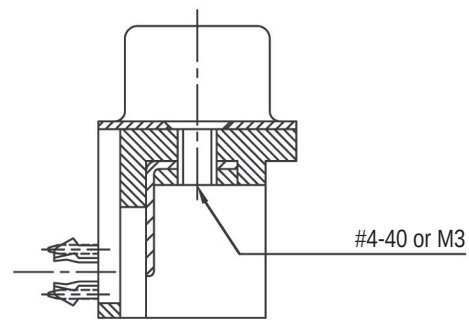
Recommended P.C.B. Layout



Panel mounting option

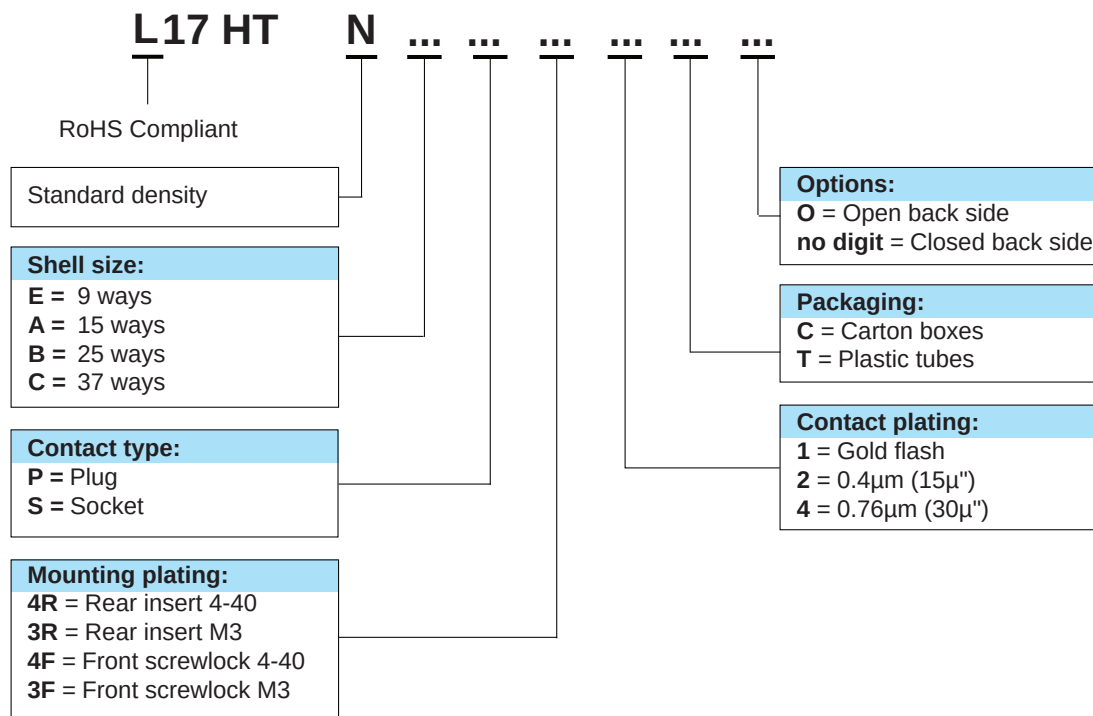


Front female screwlock
4F/3F



Threaded rear insert
4R/3R

How to order

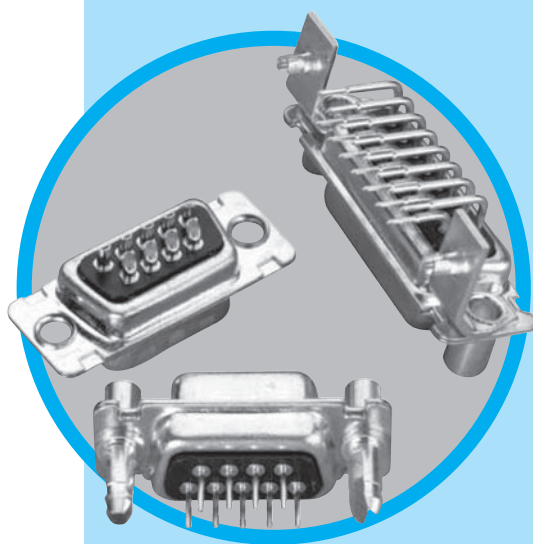


For special request, please consult factory

D-DF

D-Sub connectors - Screw-machined Contacts

FIXED MACHINED CONTACT CONNECTOR



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308 - NFC93425-HE5

Materials and Platings	
Shells	Steel tinned with dimples on plug connector
Insulator	Glass-filled thermoplastic, UL 94V-0
Rear insert	Brass, 3µm up to 5µm (118µ" up to 197µ") tinned over nickel 2µm up to 3µm (78µ" up to 118µ")
Boardlock	Tin plating 4µm up to 6µm (157µ" up to 236µ") over nickel 2µm up to 3µm (78µ" up to 118µ")
Screwlock	Brass, 6µm up to 10µm (236µ" up to 394µ") tinned over nickel 2µm up to 3µm (78µ" up to 118µ")
Contacts	D: brass DF: pin = brass socket = copper alloy Right angle version: full gold plating over 2µm to 3µm nickel Straight version: full gold plating over 2µm up to 3µm (78µ" up to 118µ") nickel

Electrical Data	
Current rating	7.5A
Voltage rating	300V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50Hz for one minute
Insulation resistance	5000MΩ
Contact resistance	D: 8.5mΩ max DF: 5mΩ max

Climatic Data	
Operating temperature	D / DF: -55°C to + 125°C
Salt spray	48 hours
Humidity	D: 21 days (40°C - 95% HR) DF: 56 days (40°C - 95% HR)

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
9 (size E)	3.05 (6.74)	0.36 (0.79)
15 (size A)	5.09 (11.24)	0.46 (1.01)
25 (size B)	8.44 (18.66)	0.81 (1.8)
37 (size C)	12.51 (27.65)	1.1 (2.47)
50 (size D)	14.65 (32.38)	1.6 (3.56)

DESCRIPTION

Amphenol's 17D and 17DF series fixed contact D-Subminiature connector is suitable for industrial or telecom use.

The machined contact provide stability and reliability.

This series offers the broadest range of termination options in the Amphenol line.

*Connectors
for industrial
and
telecom use*

APPLICATIONS

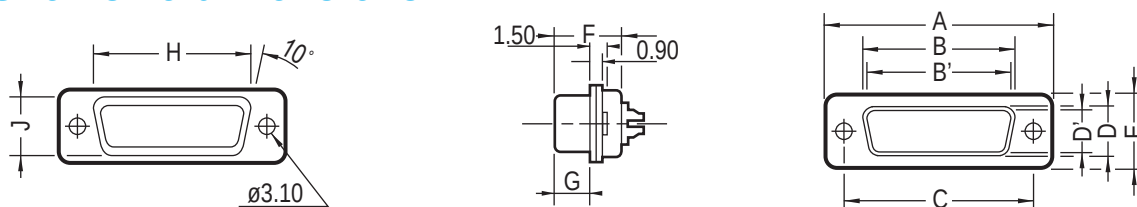
- Medical
- Industrial
- Telecom
- Any industry standard I / O connections



Amphenol

D-DF / E18

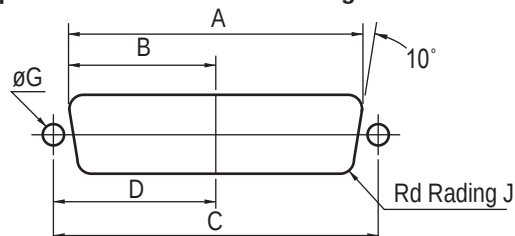
Shell size dimensions



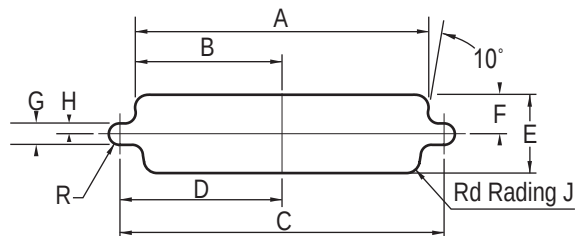
Shell size	Contact P: Pin S: Socket	A ±0.25 (±.010)	B 0/-0.20 (0/- .008)	B' +0.20/0 (+.008/0)	C ±0.10 (±.004)	D 0/-0.25 (0/- .010)	D' +0.25/0 (+.010/0)	E ±0.20 (±.008)	F +0.05/-0.20 (+.002/- .008)	F' +0.10/-0.20 (+.004/- .008)	G +0.10/-0.20 (+.004/- .008)	G' ±0.10 (±.004)	H +0.10/-0.40 (+.004/- .016)	J 0/-0.50 (0/- .020)
E	P	30.7 (1.209")		16.8 (.661")	25.0 (.984")		8.2 (.323")	12.4 (.488")		10.9 (.429")		5.9 (.232")	19.4 (.764")	11.0 (.433")
	S		16.4 (.646")			8.0 (.315")			11.1 (.437)		6.2 (.244")			
A	P	39.0 (1.535")		25.1 (.988")	33.3 (1.311")		8.2 (.323")	12.4 (.488")		10.9 (.429")		5.9 (.232")	27.7 (1.091")	11.0 (.433")
	S		24.8 (.976")			8.0 (.315")			11.1 (.437)		6.2 (.244")			
B	P	52.9 (2.083")		38.8 (1.528")	47.0 (1.850")		8.2 (.323")	12.4 (.488")		11.0 (.433")		5.8 (.228")	41.4 (1.630")	11.0 (.433")
	S		38.5 (1.513")			8.0 (.315")			11.1 (.437)		6.2 (.244")			
C	P	69.2 (2.724")		55.3 (2.177")	63.5 (2.500")		8.2 (.323")	12.4 (.488")		11.0 (.433")		5.8 (.228")	57.9 (2.280")	11.0 (.433")
	S		54.9 (2.161")			8.0 (.315")			11.1 (.437)		6.2 (.244")			
D	P	66.8 (2.630")		52.7 (2.075")	61.1 (2.406")		11.0 (.433")	15.2 (.598")		11.0 (.433")		5.8 (.228")	55.5 (2.185")	13.8 (.543")
	S		52.5 (2.067")			10.9 (.429")			11.1 (.437)		6.2 (.244")			

Panel cutouts

Optimal cutout for rear mounting



Standard cutout



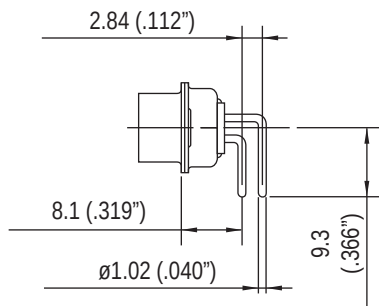
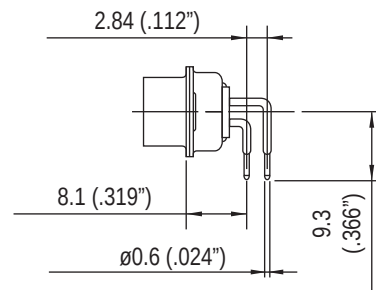
Shell size	Mounting method	A ±0.20 (±.008)	B ±0.20 (±.008)	C ±0.20 (±.008)	D ±0.20 (±.008)	E ±0.20 (±.008)	F ±0.20 (±.008)	G ±0.20 (±.008)	H ±0.20 (±.008)	J ±0.20 (±.008)
E	Front	22.2 (.874")	11.1 (.437")	25.0 (.984")	12.5 (.492")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	20.5 (.807")	10.2 (.402")			11.4 (.449")	5.7 (.224")			3.4 (.134")
A	Front	30.5 (1.201")	15.3 (.602")	33.3 (1.311")	16.7 (.657")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	28.8 (1.134")	14.4 (.567")			11.4 (.449")	5.7 (.224")			3.4 (.134")
B	Front	44.3 (1.744")	22.1 (.870")	47.0 (1.850")	23.5 (.925")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	42.5 (1.673")	21.3 (.839")			11.4 (.449")	5.7 (.224")			3.4 (.134")
C	Front	60.7 (2.390")	30.4 (1.197")	63.5 (2.500")	31.7 (1.248")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	59.1 (2.327")	29.5 (1.161")			11.4 (.449")	5.7 (.224")			3.4 (.134")
D	Front	58.3 (2.295")	29.2 (1.150")	61.1 (2.406")	30.6 (1.205")	15.8 (.622")	7.9 (.311")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	56.3 (2.217")	28.2 (1.110")			14.1 (.555")	7.1 (.280")			3.4 (.134")

Termination

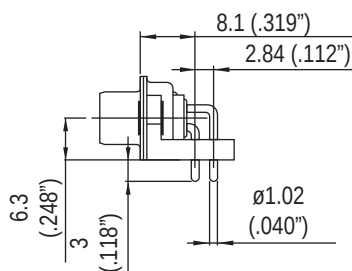
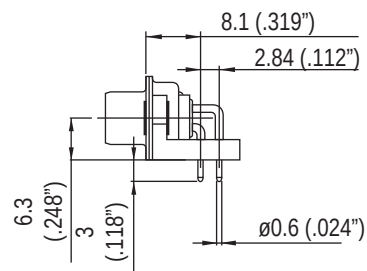
Right angle

MIL Footprint

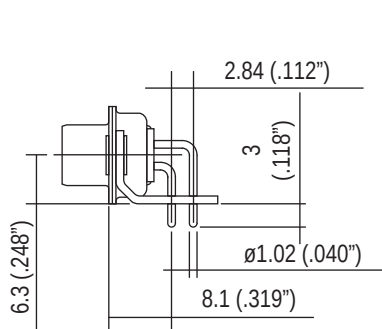
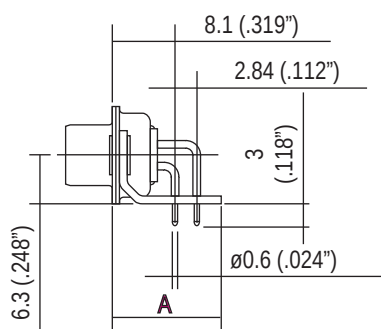
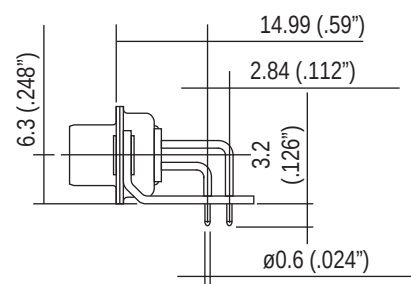
without bracket:

**C****A4**

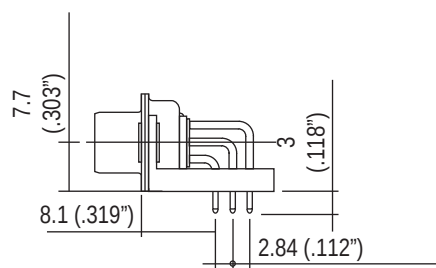
plastic bracket:

**AJ3****AJ4**

metal bracket:

**A****AM4: A=13.2mm**
AZ4: A=11.5mm**AM4B**

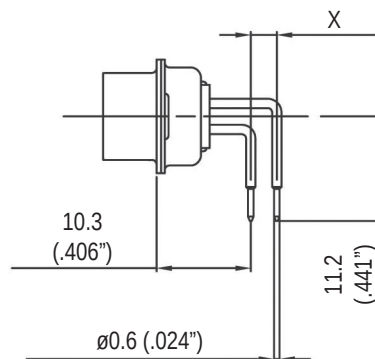
50 contacts:



Termination

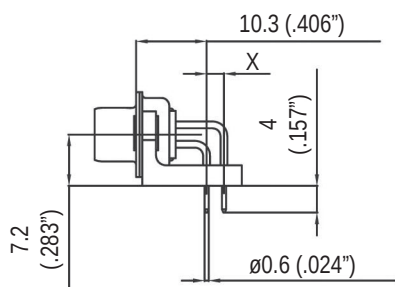
European footprint

without bracket:

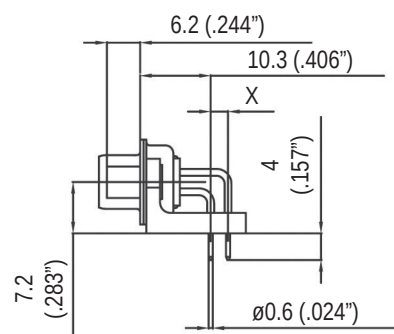


1AON: X=2.54mm
1BON: X=2.84mm

plastic bracket:

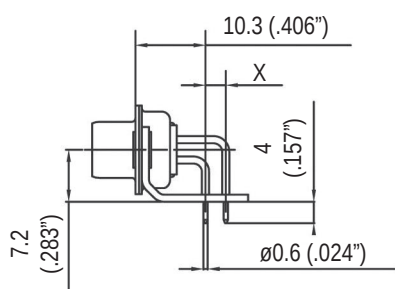


1APN: X=2.54mm
1BPN: X=2.84mm

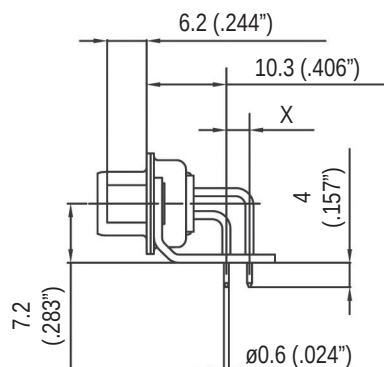


1AUN: X=2.54mm
1BUN: X=2.84mm

metal bracket:

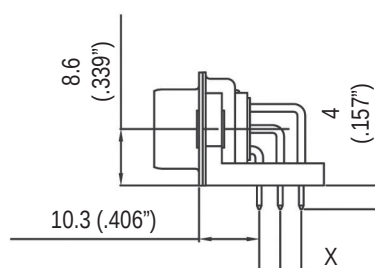


1AMN: X=2.54mm
1BMN: X=2.84mm



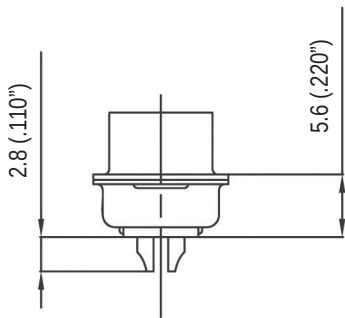
1ATN: X=2.54mm
1BTN: X=2.84mm

50 contacts:

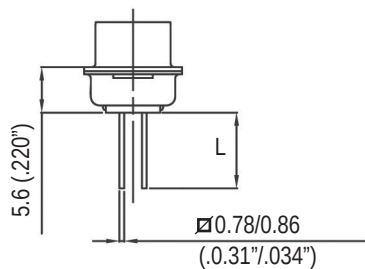


Termination

Solder Cup:

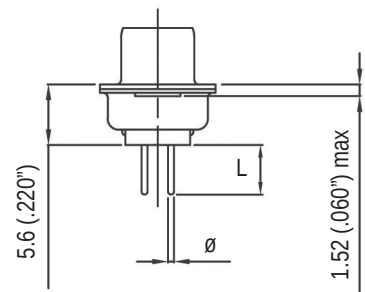


Wire Wrap:



termination	Nb of wraps	L
F179	2	9.6mm (.378")
F179A	3	13mm (.512")

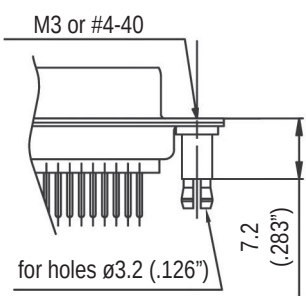
Straight PCB:



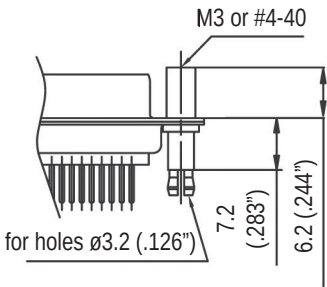
termination	Ø	L
U	0.6mm (.024")	3.2mm (.126")
V	1.02mm (.040")	2.4mm (.095")
T	0.6mm (.024")	4mm (.157")
OL2	0.6mm (.024")	5.5mm (.217")

Grounding tabs:

For straight termination



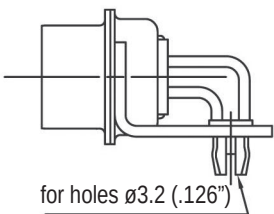
RM5



RM8

For R/A termination

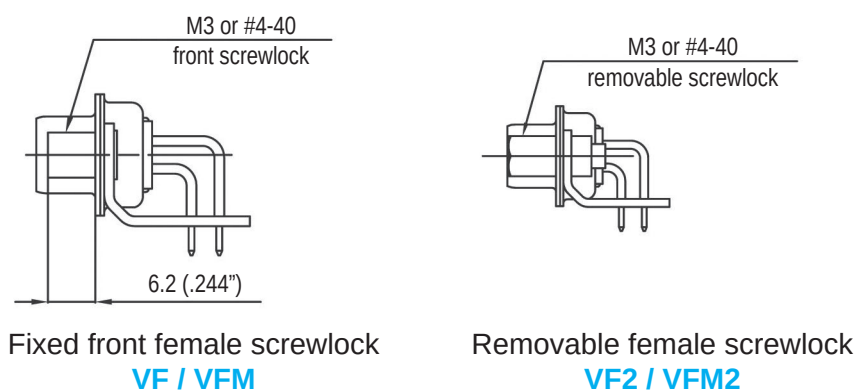
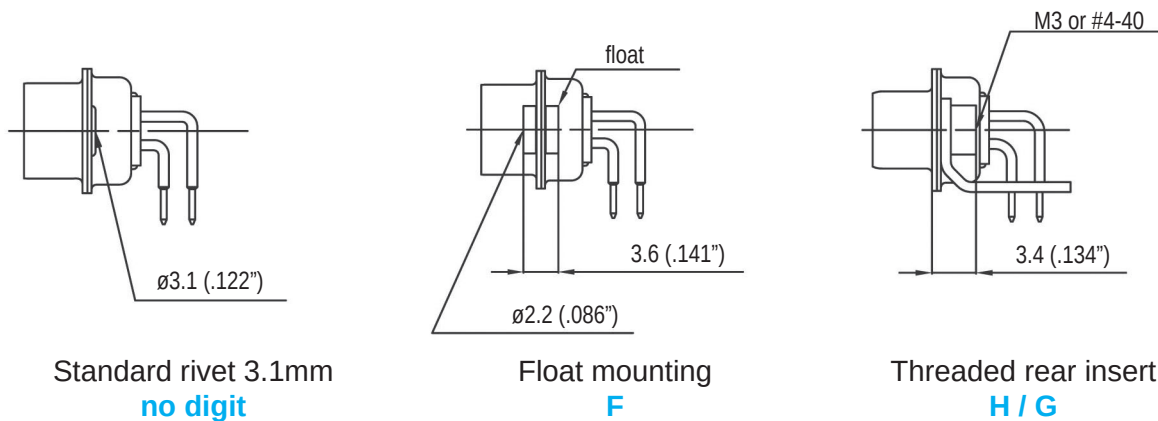
FOR PCB 1.6



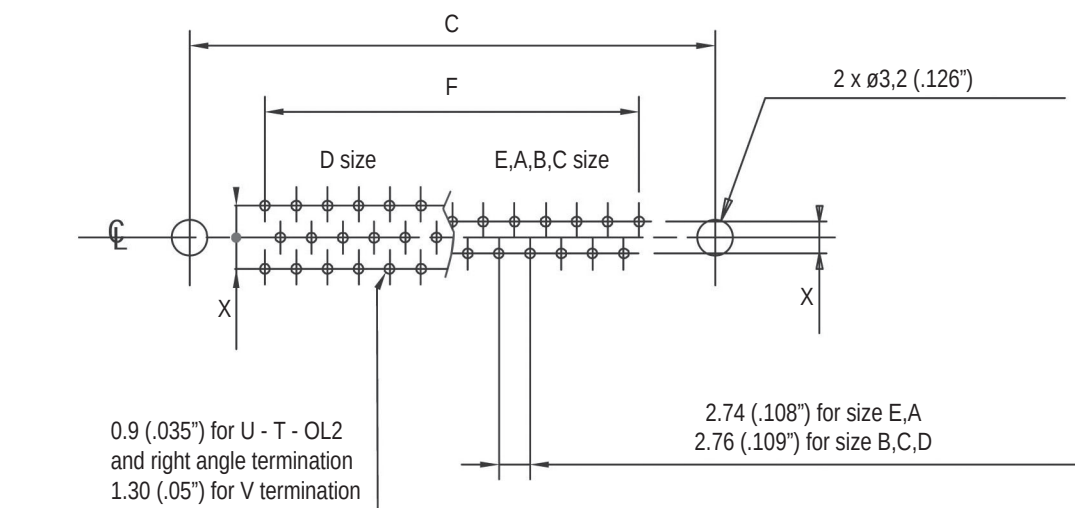
RM6

Panel mounting option

For straight and R/A termination



Recommended PCB Layout

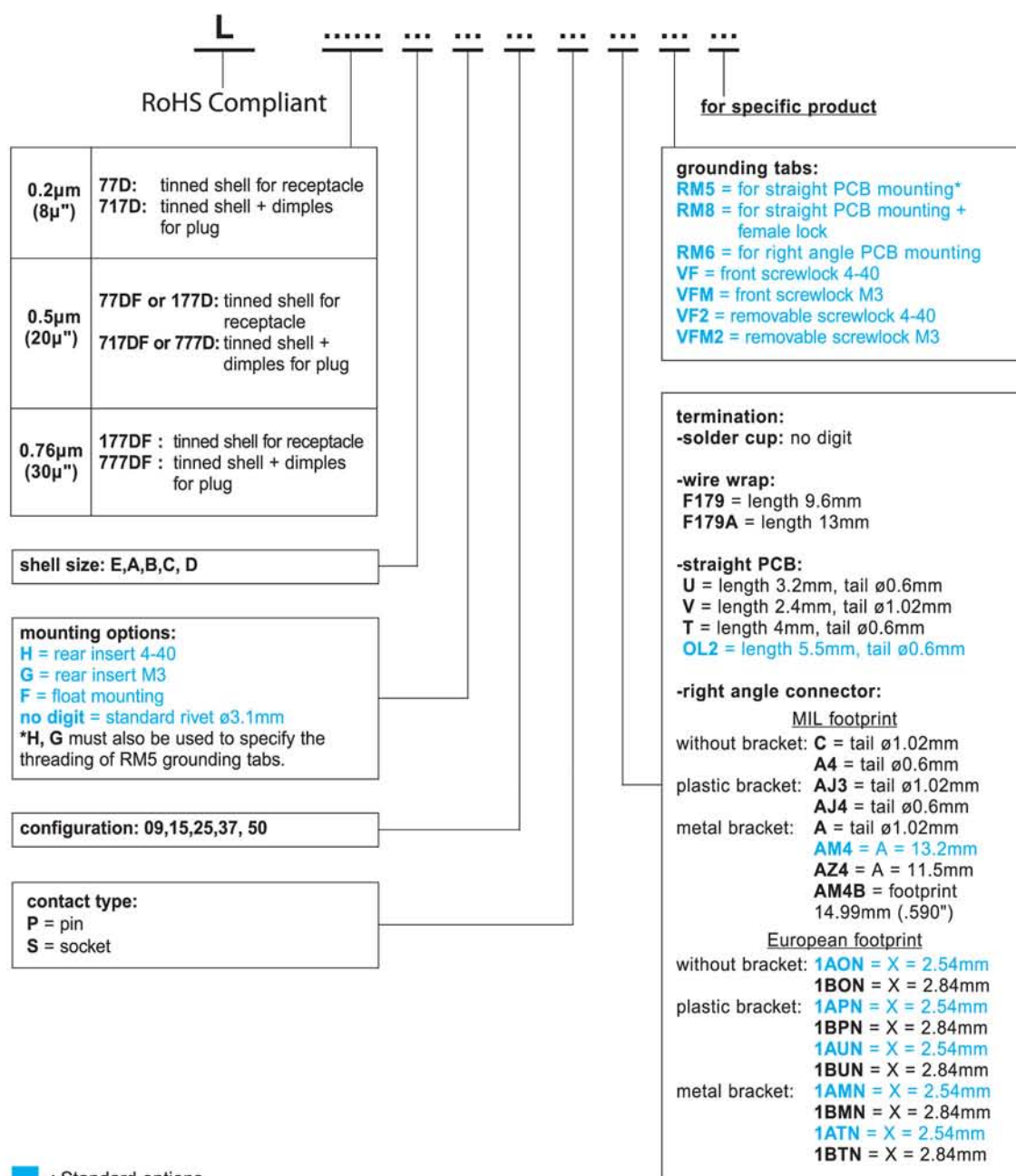


For straight PCB: X = 2.84mm (.112")

For right angle PCB: MIL: X = 2.84mm (.112")

European: X = 2.54mm (.100"), 2.84mm in option

	size E	size A	size B	size C	size D
C$\pm 0,1$ (.004)	25 (.984)	33.3 (1.311)	47 (1.85)	63.5 (2.5)	61.1 (2.406)
F$\pm 0,05$ (.002)	10.96 (.431)	19.18 (.755)	33.12 (1.304)	49.68 (1.956)	44.2 (1.74)

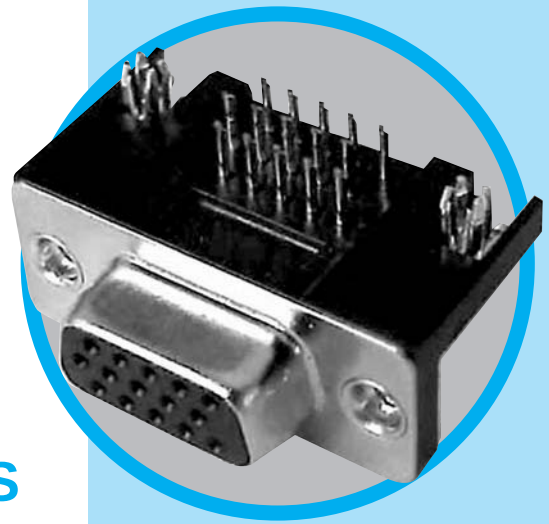


For special request, please consult factory

HD

D-Sub connectors - Stamped and Formed Contacts

RIGHT ANGLE HIGH DENSITY CONNECTORS



MAIN CHARACTERISTICS

Specifications

- Connectors according to: MIL C24308

Materials and Platings	
Shells	Steel, tin over nickel plating
Body	Glass filled thermoplastic, UL 94V-0
Contacts	Copper alloy, selective gold plating
Rear insert	Brass with nickel plating
Screwlock	Brass with nickel plating
Grounding clip	Copper alloy with tin plating

Electrical Data	
Current rating	3A
Voltage rating	300V AC/rms 50Hz
Withstanding voltage	1000V AC/rms 50HZ for one minute
Insulation resistance	5000MΩ
Contact resistance	10mΩ Max.

Climatic Data	
Operating temperature	-55°C to +125°C

Mechanical Data		
Mating and unmating force		
Unit: kg (lb)		
No. of Cts	Mate (max)	Unmate (min)
15	3.81 (8.42)	0.52 (1.14)
26	5.95 (13.16)	1.05 (2.32)
44	9.26 (20.46)	1.37 (3.02)
62	13.48 (29.78)	1.76 (3.88)
Standard plating thickness		
• gold flash • 0.4μm (15μ") gold • 0.76μm (30μ") gold		

DESCRIPTION

Amphenol's high density D-Sub connectors complement Amphenol's extensive D-Sub connector line. This line offers many superior features, high performance level and low installation cost.

The decreased contact spacing accommodates greater signal density in comparison to conventional D-Sub connectors.

*Economical
right angle PCB*

APPLICATIONS

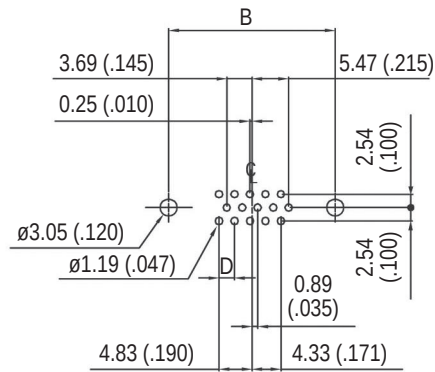
- Industrial
- Telecom
- Any industry standard I / O connections



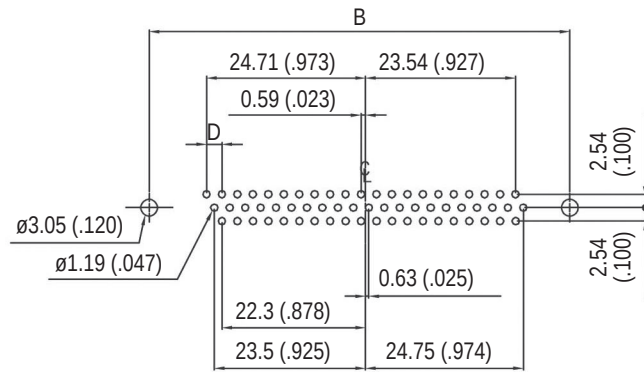
Amphenol

HD / E19

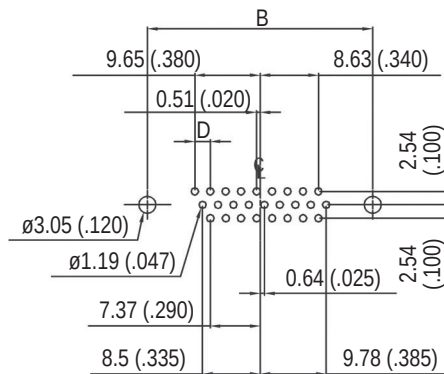
P.C.B. Layout



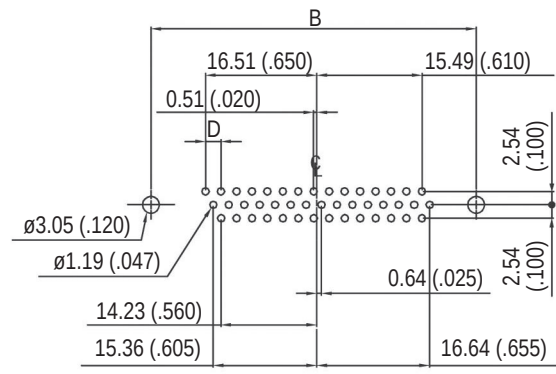
15 PIN



62 PIN



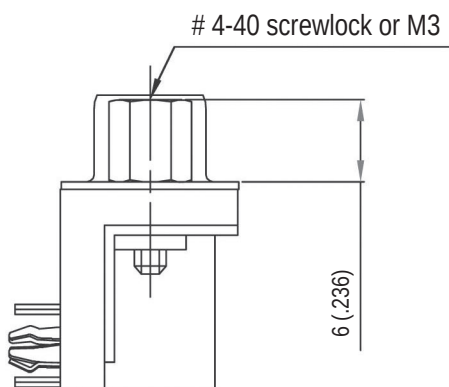
26 PIN



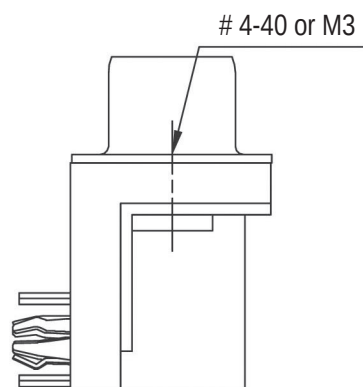
44 PIN

Socket - Top side PCB layouts

Panel mounting option

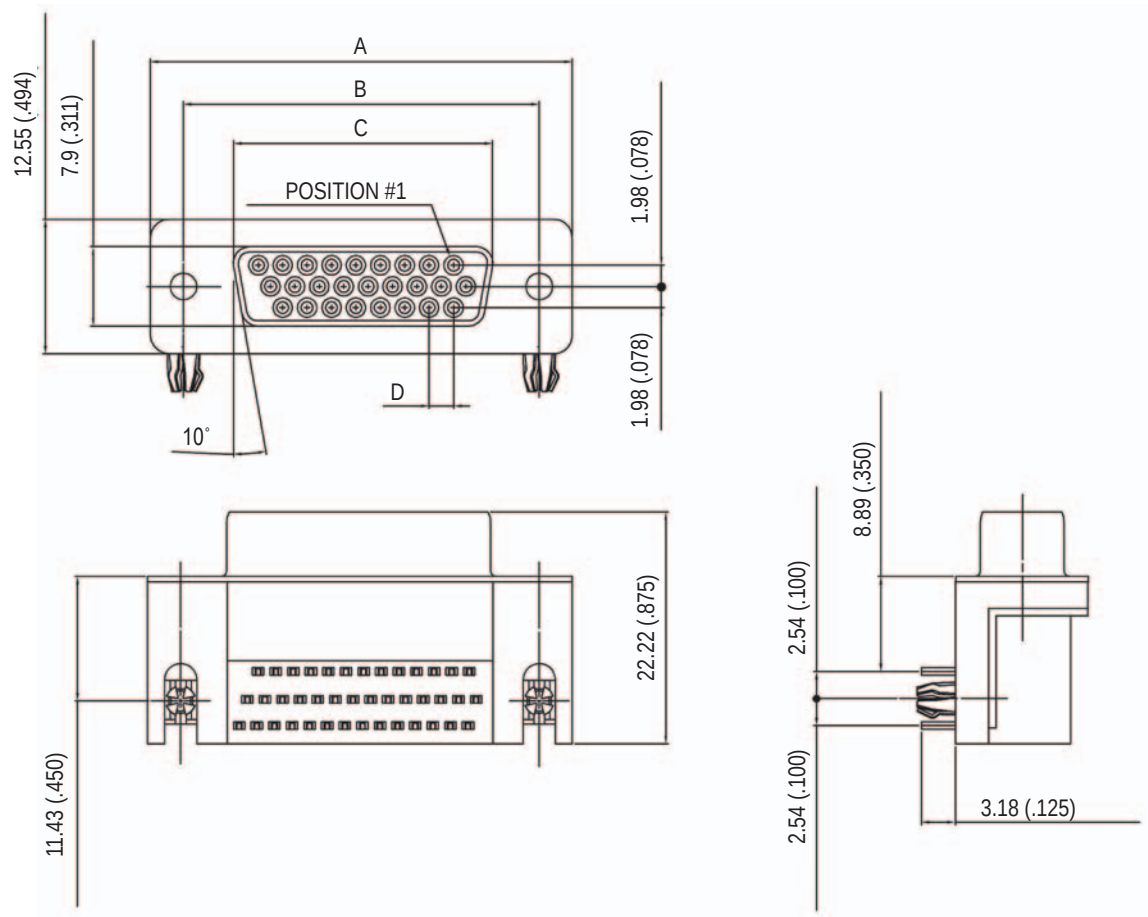


Front female screwlock
4F / 3F



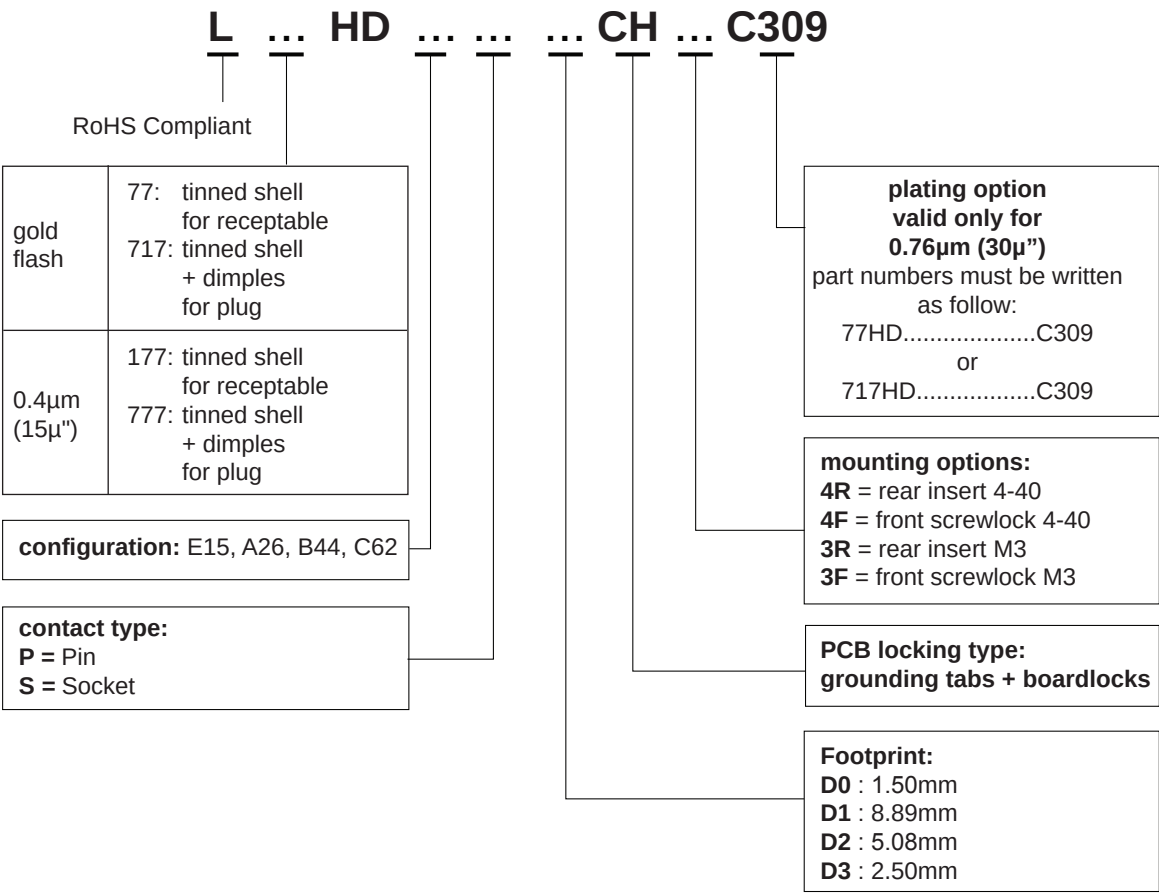
Threaded rear insert
4R / 3R

Shell size dimensions



NB OF CONTACTS	DIMENSIONS mm (inch)			
	A	B	C	D
15	30.84 (1.214)	24.99 (.984)	16.26 (.640)	2.29 (.090)
26	39.24 (1.545)	33.32 (1.312)	24.56 (.967)	2.29 (.090)
44	53.04 (2.088)	47.04 (1.852)	38.30 (1.508)	2.29 (.090)
62	69.34 (2.730)	63.50 (2.500)	54.76 (2.156)	2.41 (.095)

How to order



For special request, please consult factory

Do not hesitate to contact us for further information

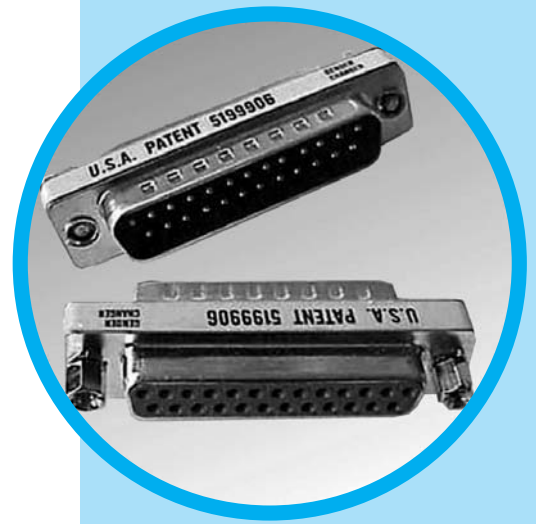
Amphenol

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 Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

G517-A

D-Sub connectors - Stamped and Formed Contacts

GENDER CHANGER



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shells	Steel, 2.54µm (100µ") tin over 1.27µm (50µ") nickel plated
Insulator	Glass-filled nylon, UL 94V-0
Pin contacts	Brass, gold plated over 1.27µm (50µ") nickel
Screwlock	Brass, 2.54µm (100µ") min. nickel plated

Electrical Data	
Current rating	5A
Voltage rating	250V AC/rms 60Hz
Withstanding voltage	1000V AC/rms 60Hz for one minute
Insulation resistance	1000MΩ
Contact resistance	20mΩ max

Climatic Data	
Operating temperature	-55°C to +105°C

DESCRIPTION

These connectors allow you to change the gender of your cable assembly, and or panel D-Sub connectors.

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements.

*Economical
gender changer
D-Sub's*

APPLICATIONS

- Industrial
- Telecom
- Any industry standard I / O connections

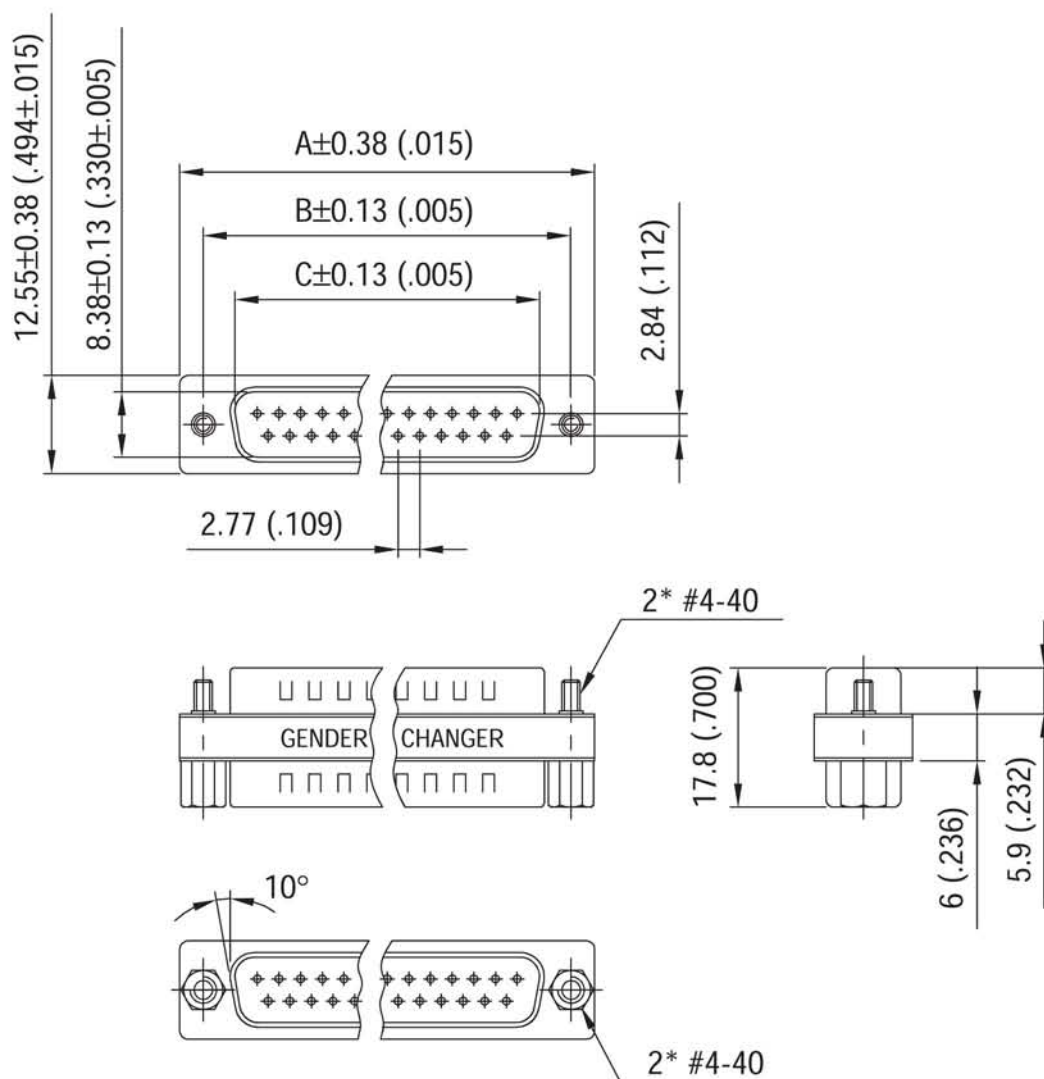


Amphenol

G517-A / E20

Shell size dimensions

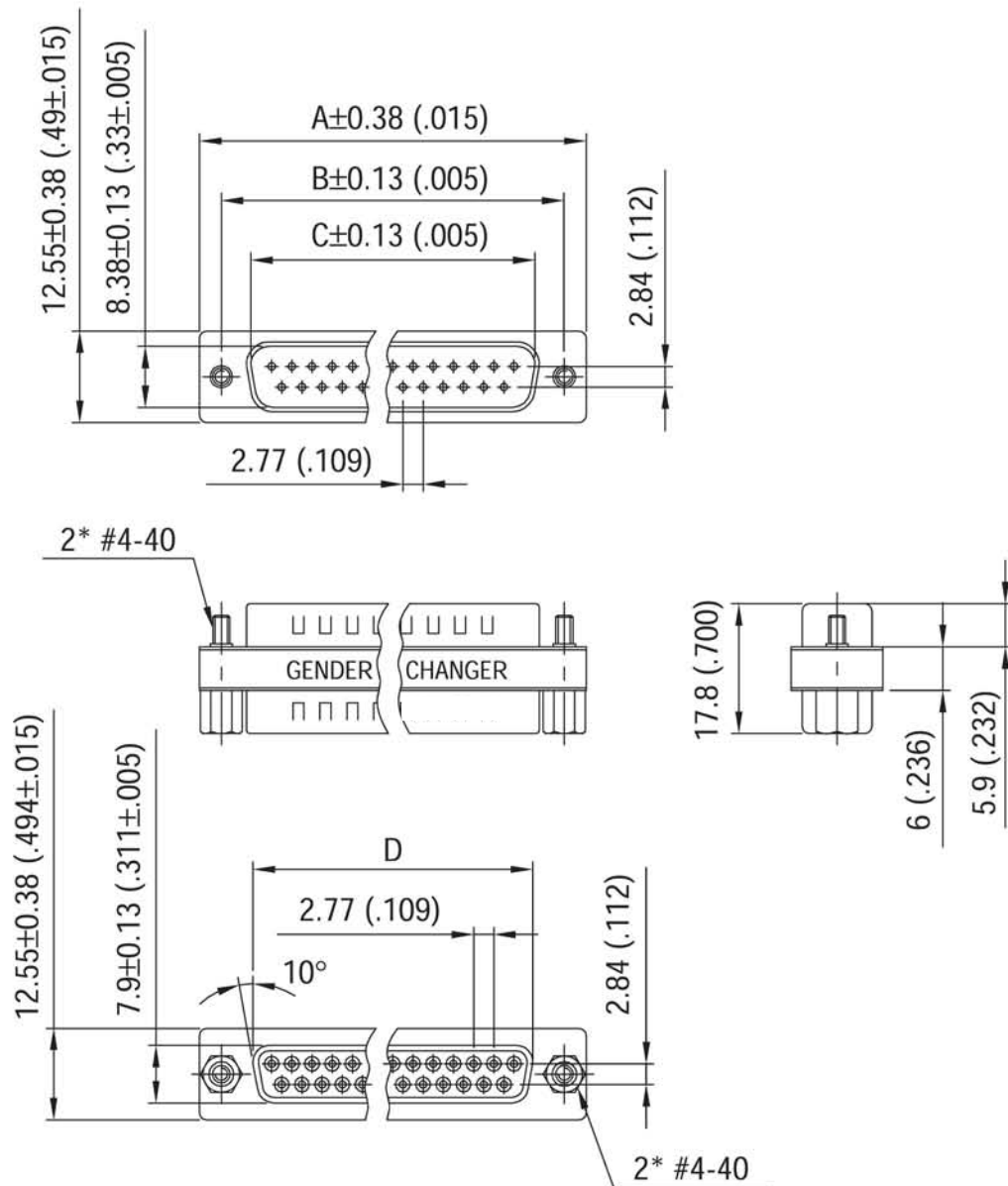
Male to male adaptor



PAPT NUMBER	Nb OF CONTACTS	DIMENSIONS mm (inch)		
		A	B	C
L G517 97001	9	30.81 (1.21)	24.99 (.984)	16.92 (.666)
L G517 97002	15	39.14 (1.54)	33.32 (1.31)	25.25 (.994)
L G517 97003	25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)
L G517 97004	37	69.32 (2.73)	63.5 (2.50)	55.42 (2.18)

Shell size dimensions

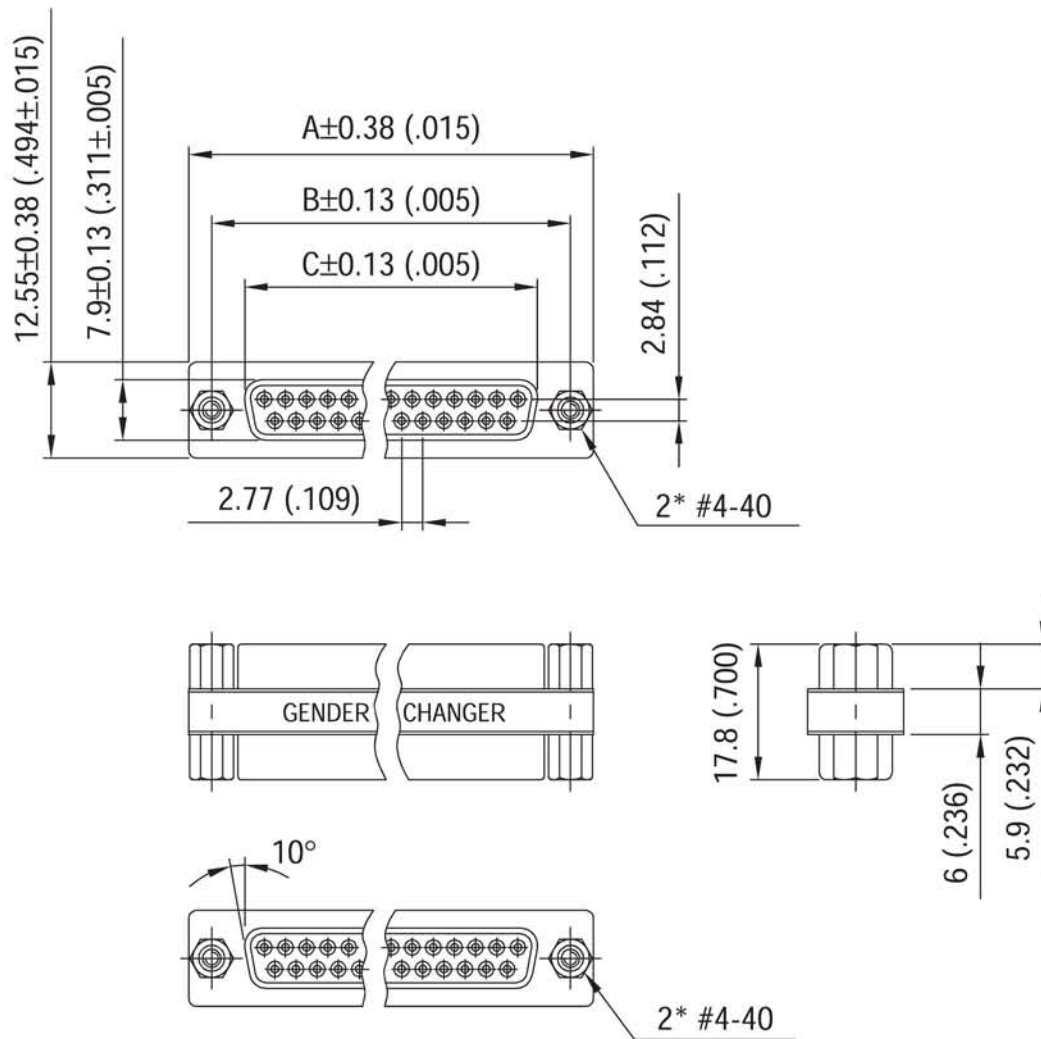
Male to female adaptor



PAPT NUMBER	Nb OF CONTACTS	DIMENSIONS mm (inch)			
		A	B	C	D
L G517 97009	9	30.81 (1.21)	24.99 (.984)	16.92 (.666)	16.33 (.643)
L G517 97010	15	39.14 (1.54)	33.32 (1.31)	25.25 (.994)	24.66 (.971)
L G517 97011	25	53.04 (2.09)	47.04 (1.85)	38.96 (1.53)	38.38 (1.51)
L G517 97012	37	69.32 (2.73)	63.5 (2.50)	55.42 (2.18)	55.84 (2.20)

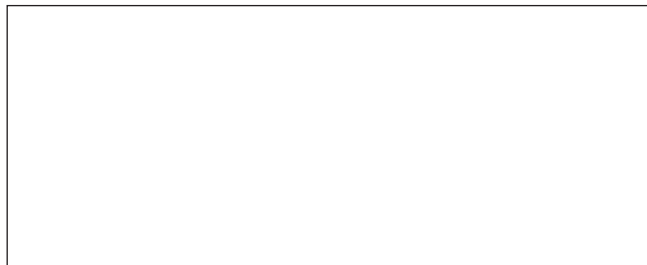
Shell size dimensions

Female to female adaptor



PAPT NUMBER	Nb OF CONTACTS	DIMENSIONS mm (inch)		
		A	B	C
L G517 97005	9	30.81 (1.21)	24.99 (.984)	16.33 (.643)
L G517 97006	15	39.14 (1.54)	33.32 (1.31)	24.66 (.971)
L G517 97007	25	53.04 (2.09)	47.04 (1.85)	38.38 (1.51)
L G517 97008	37	69.32 (2.73)	63.5 (2.50)	55.84 (2.20)

Do not hesitate to contact us for further information



Amphenol

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Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>

G517-B

D-Sub connectors - Stamped and Formed Contacts

ADAPTORS D-SUB TO D-SUB 9 TO 9 AND 25 TO 25



CHARACTERISTICS

Specifications

- Connectors according to MIL C24308

Materials and Platings	
Shells	Steel, 2.54µm (100µ") tin over 1.27µm (50µ") nickel plated
Insulator	Glass-filled nylon, UL 94V-0
Pin contacts	Brass, gold plated over 1.27µm (50µ") nickel
Socket Contact	Phosphor bronze, gold plated over 1.27µm (50µ") nickel
Overmold	PVC, UL 94V-0
Screw	Brass with nickel plating

Electrical Data	
Current rating	5A
Voltage rating	250V AC/rms 60Hz
Withstanding voltage	1000V AC/rms 60Hz for one minute
Insulation resistance	1000MΩ
Contact resistance	20mΩ max

Climatic Data	
Operating temperature	-55°C to +105°C

DESCRIPTION

This series gives you Amphenol's high standards of quality and reliability to meet all of your commercial requirements.

*Economical
D-Sub
adaptors*

APPLICATIONS

- Industrial
- Telecom
- Any industry standard I / O connections

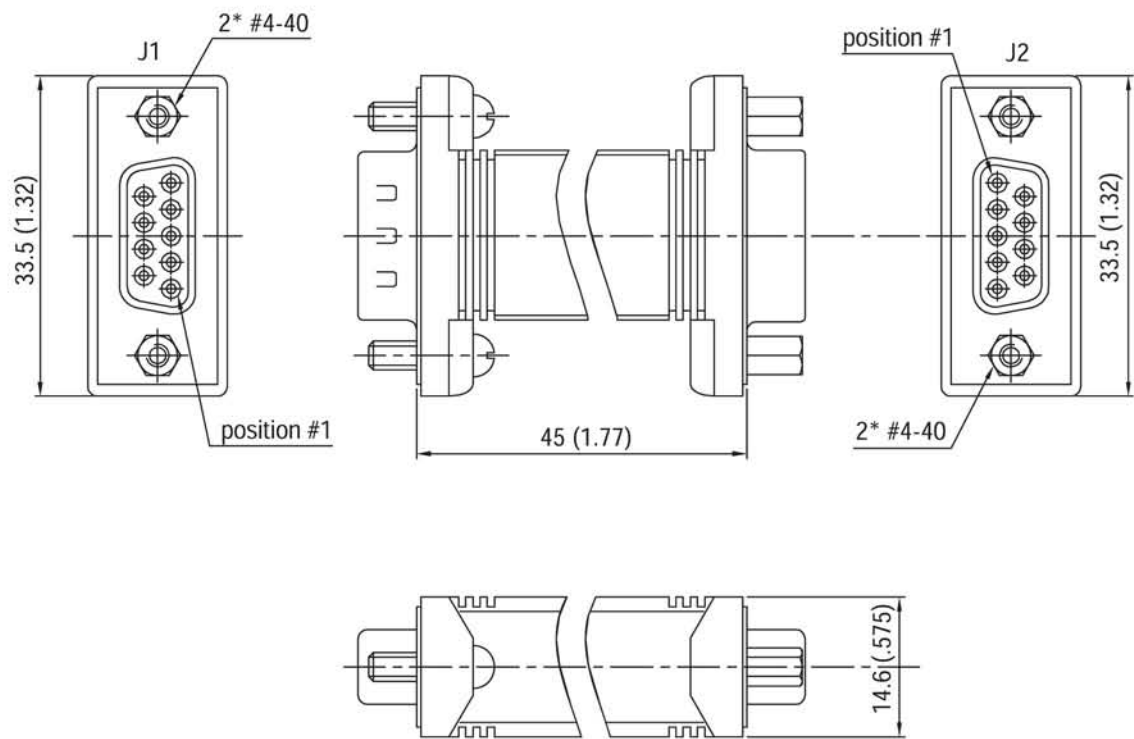


Amphenol

G517-B / E21

Shell size dimensions

9-position to 9-position



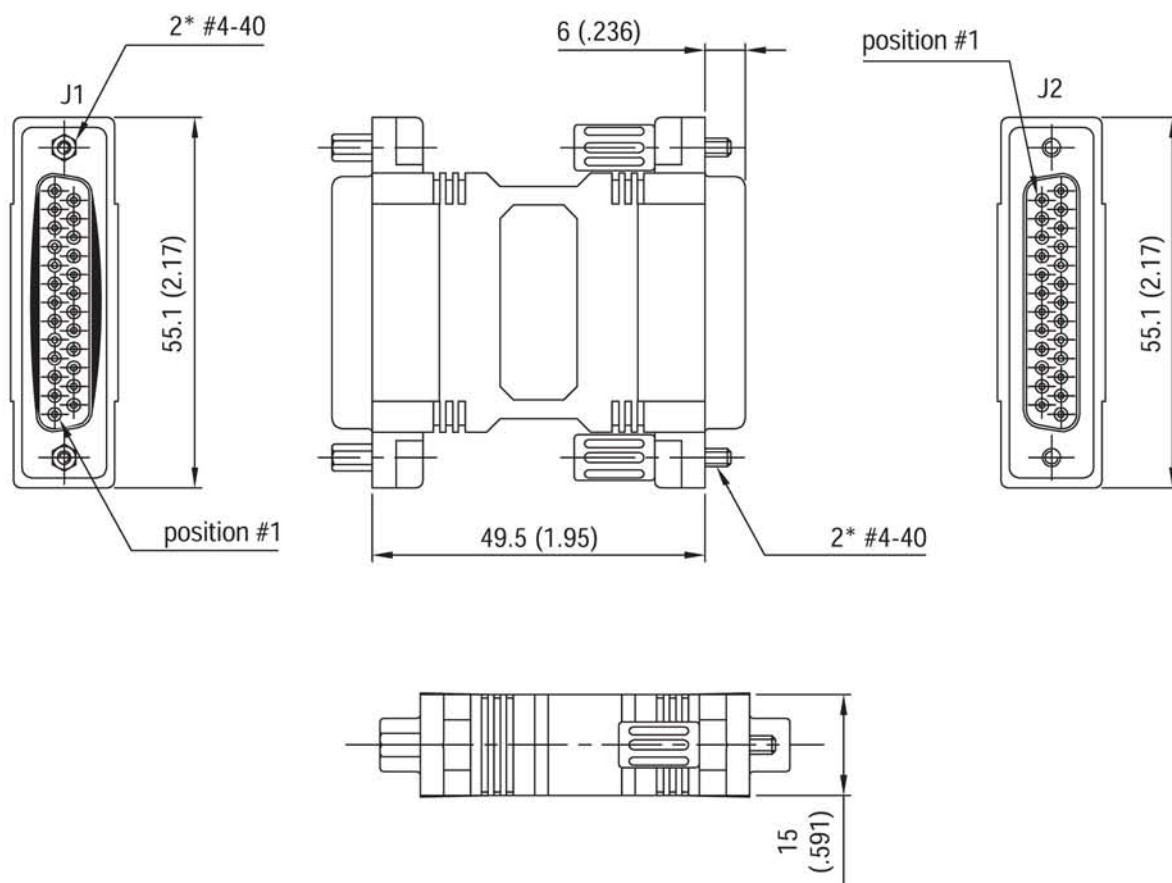
Wiring table

J1	2	3	4	5	6	7	8
J2	3	2	6	5	4	8	7

PAPT NUMBER	Description	Color
L G517 97001 L G517 97002 L G517 97015	D-Sub Male 9-pos. to D-sub Male 9-pos.	beige gray black
L G517 97016 L G517 97017 L G517 97018	D-Sub Female 9-pos. to D-sub Female 9-pos.	beige gray black
L G517 97019 L G517 97020 L G517 97021	D-Sub Male 9-pos. to D-sub Female 9-pos.	beige gray black

Shell size dimensions

25-position to 25-position



Wiring table

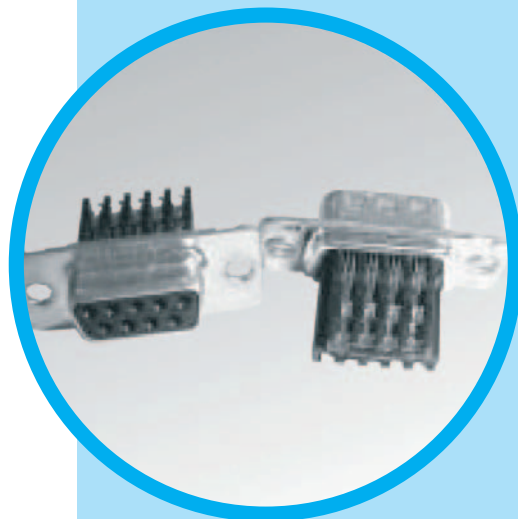
J1	1	2	3	4	...	24	25
J2	1	2	3	4	...	24	25

PAPT NUMBER	Description	Color
L G517 97022 L G517 97023 L G517 97024	D-Sub Male 25-pos. to D-sub Male 25-pos.	beige gray black
L G517 97025 L G517 97026 L G517 97027	D-Sub Female 25-pos. to D-sub Female 25-pos.	beige gray black
L G517 97028 L G517 97029 L G517 97030	D-Sub Male 25-pos. to D-sub Female 25-pos.	beige gray black

MP

D-Sub connectors - Stamped and Formed Contacts

IDC DISCRETE WIRE CONNECTORS



CHARACTERISTICS

Materials and Platings	
Shells	Steel, tin over nickel
Contacts	Phosphor bronze
Plating	Contact area: gold over nickel IDC area: tin over nickel
Wire types	Solid and stranded wires AWG 24-28

Electrical Data	
Current rating	5A
Voltage rating	500V AC at sea level
Dielectric	Thermoplastic Polyesther UL 94 VO rated

Climatic Data	
Operating temperature	-55°C to +125°C
Salt spray	24 hours

Mechanical Data	
Mating and unmating force	Size E 30 N Max. 3.5 N Mini. Size A 50 N Max. 4.5 N Mini. Size B 83 N Max. 8.0 N Mini. Size C 123 N Max. 11.0 N Mini.
Standard plating thickness	Gold flash 0.4µm (15µ") Gold 0.76 µm (30µ") Gold

DESCRIPTION

Amphenol IDC discrete D-sub connectors offer a low-profile design that accommodates many of the compact requirements of computer interfacing, instrumentation and, business equipment. Fast, four-point solderless termination ensures reliable connections. This series is available in 9, 15, 25, & 37 contact configurations. Contacts, including stain relief, are easily removable in case of repair.

*Simplify
your cable
assemblies*

APPLICATIONS

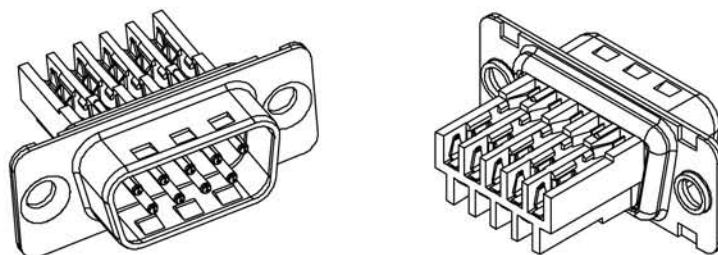
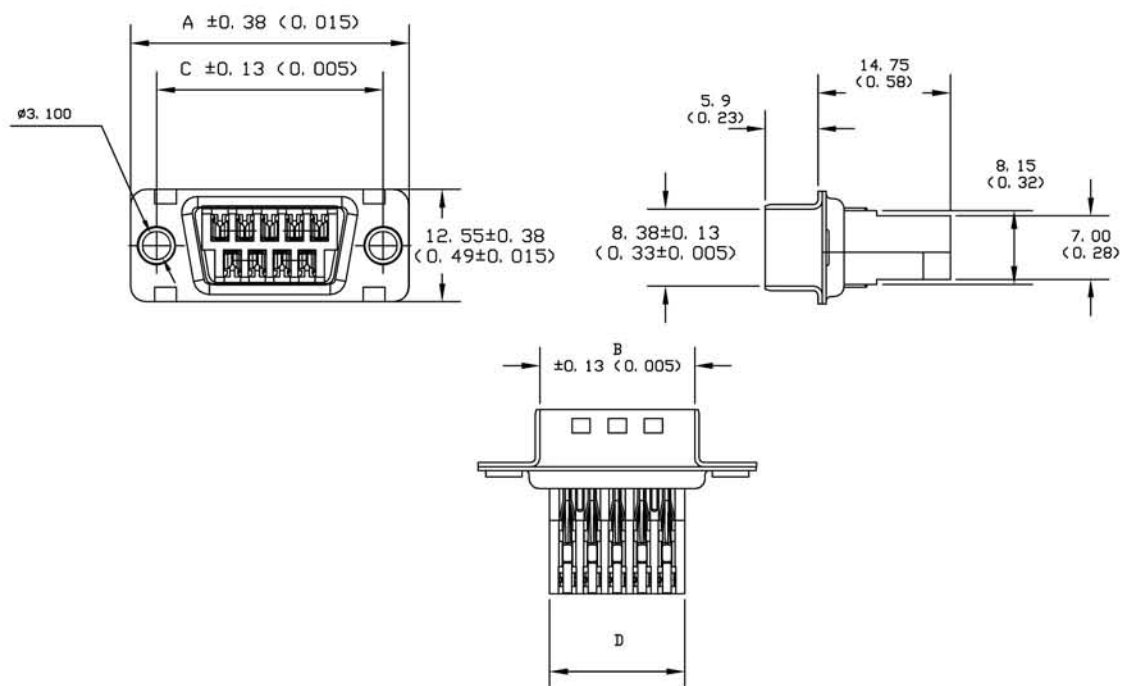
- Industrial
- Telecom
- Any industry standard I/O connections

IDC / E25



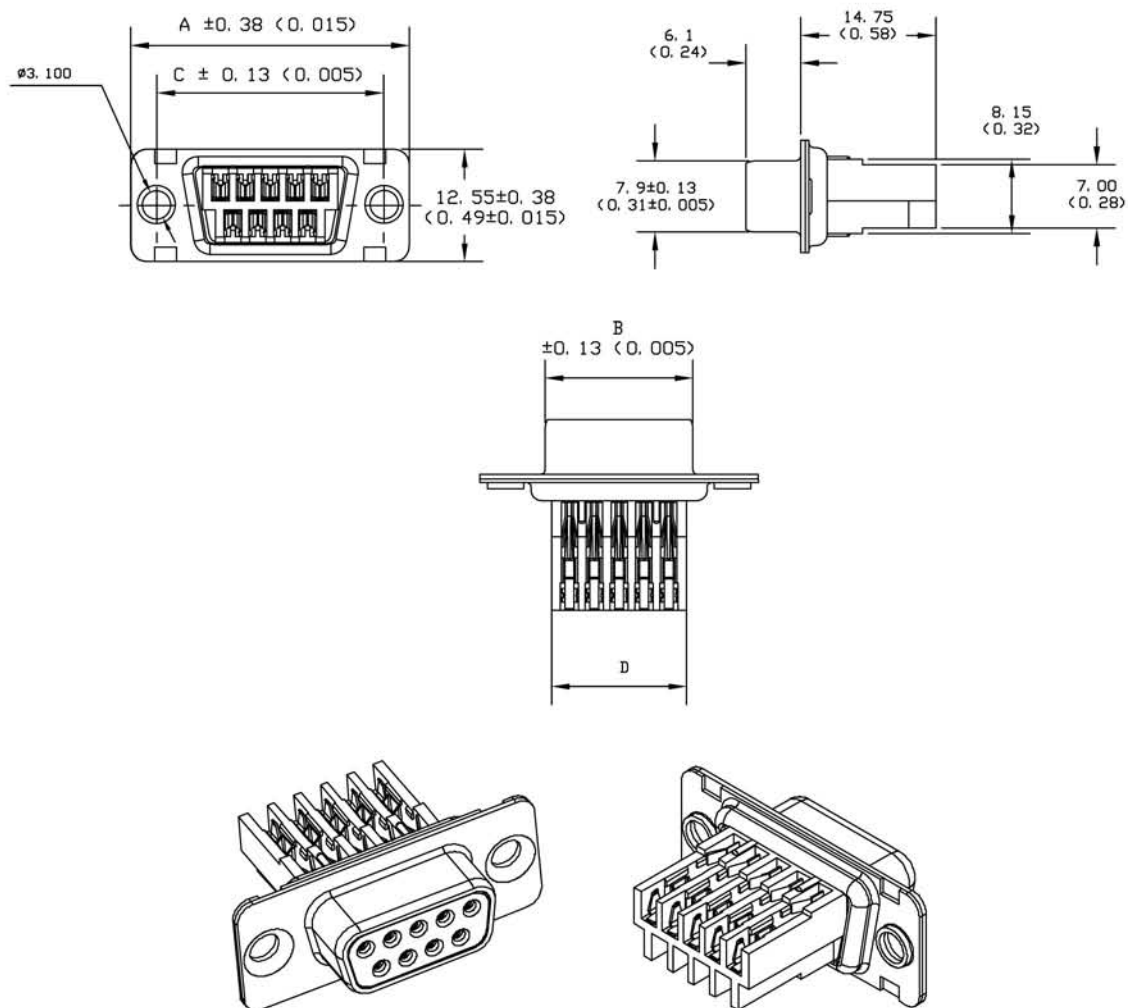
Amphenol

Plug version



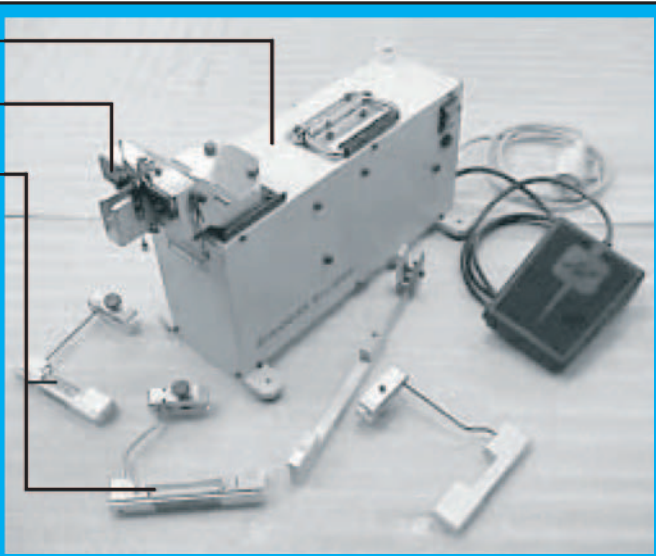
Nb OF CONTACTS	DIMENSIONS mm (<i>inch</i>)			
	A	B	C	D
9	30.81 (1.21)	16.92 (0.67)	24.99 (0.98)	14.90 (0.59)
15	39.14 (1.54)	25.25 (0.99)	33.32 (1.31)	23.00 (0.91)
25	53.04 (2.09)	38.96 (1.53)	47.04 (1.85)	36.90 (1.45)
37	69.32 (2.73)	55.42 (2.18)	63.50 (2.50)	59.30 (2.33)

Socket version

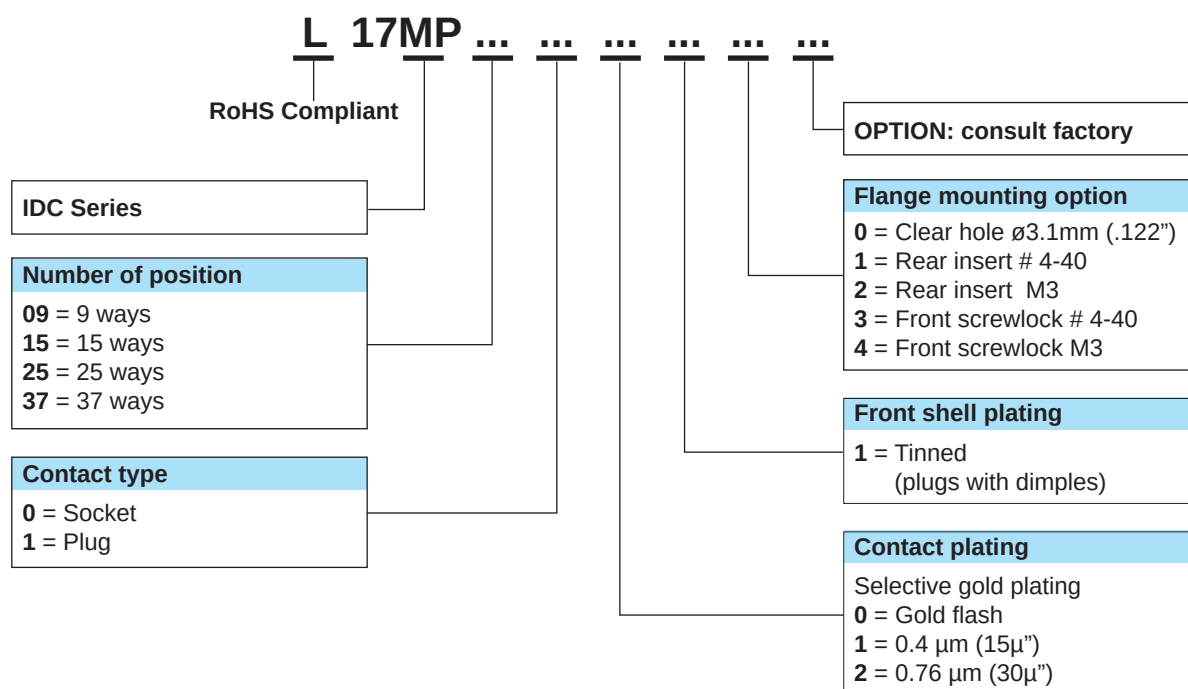


Nb OF CONTACTS	DIMENSIONS mm (inch)			
	A	B	C	D
9	30.81 (1.21)	16.24 (0.64)	24.99 (0.98)	14.90 (0.59)
15	39.14 (1.54)	24.56 (0.97)	33.32 (1.31)	23.00 (0.91)
25	53.04 (2.09)	38.38 (1.51)	47.04 (1.85)	36.90 (1.45)
37	69.32 (2.73)	54.76 (2.16)	63.50 (2.50)	59.30 (2.33)

Tooling for IDC connectors

Terminating frame Ref: 21046			
Terminating head Ref: 976 MC			
Connector holders references			
Number of Contacts	Plug	Socket	
09	991 MC	992 MC	
15	993 MC	994 MC	
25	995 MC	996 MC	
37	997 MC	998 MC	
Hand tool Ref: 989 MC Single insertion tool			

How to order



Do not hesitate to contact us for further information

Amphenol

Amphenol IT & Communication Products

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Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955

Technical Support

Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>



For Sea, Air or Land, these connectors are SEALED! Amphenol's SD308 Sealed D-Subminiature Connectors are available in the full range of standard density and hi-density insert arrangements, pin and socket contacts. These connectors are supplied with fixed screw machine contacts and are available in Solder Cup, Straight PCB, and Right Angle PCB terminations.

- Ruggedized Computers and Peripheral Equipment
- Industrial Controllers
- 21st Century Soldier
- Ideal For Retrofit Applications Or Late Design-In

SPECIFICATIONS:

PRODUCT FEATURES

- One piece machined Aluminum Shell
- Gold Plated Screw Machine Contacts
- Hi Grade Thermoplastic Inserts -67°F to +257°F (-55°C to +125°C)
- Integrated Blind Panel Mounts
- Supplied with Conductive Panel Seal Gasket

MATERIALS AND PLATINGS

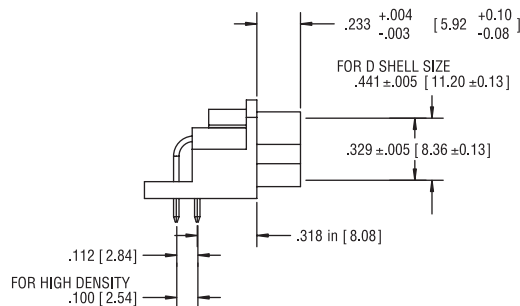
Shells	Machined aluminum alloy, tin plated
Inserts	High temperature resistant polyethersulfone per mil-p-46185
Contacts	Copper alloy, 20µ" (0.51µm) gold plated over nickel.
Seal	Silicone elastomer with nickel plated graphite flake

ELECTRICAL DATA

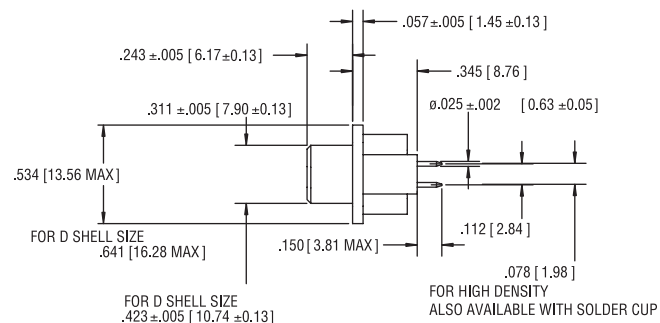
Current Rating	5A
Insulation Resistance	5 GIGOHM @ 500 VDC
Working Voltage	120 VAC
D.W.V.	1,000 VAC pin to pin & pin to shell

CLIMATIC DATA

Operating Temperature	-67°F to +257°F (-55°C to +125°C)
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PLUG - SIDE VIEW



RECEPTACLE - SIDE VIEW

SD308 - E09 - S - A - 1 - 000

Series Designation

Shell Size & Number Of Contacts

STD Density E09, A15, B25, C37, D50

HIGH Density E15, A26, B44, C62, D78, 6106

Contact Type

S=Socket Contact P= Pin Contact

000 = Standard part

other deviations as required

Mounting Type

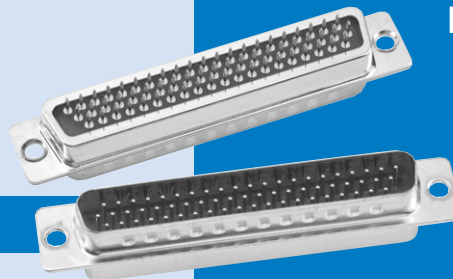
1 = 4-40 Blind Nut

2 = 4-40 Blind Nut with R/A Mounting Bracket

Termination Style

A = Right Angle pcb B = Vertical pcb

C = Solder Cup



SPECIFICATIONS:

DESCRIPTION

- Hi reliability filtering in multi row arrangements
- Stamped and Formed shells
- Screw Machine Contacts and Hi Reliability inserts
- Available in all Hi-Density insert patterns

MATERIALS AND PLATINGS

Shells	Stamped steel shell, tin plated
Inserts	High temperature resistant polyethersulfone per MIL-P-46185
Contacts	Machined copper alloy, 20µ" (0.51µm) gold plated over nickel
Capacitor	Barium titanate ceramic array

ELECTRICAL DATA

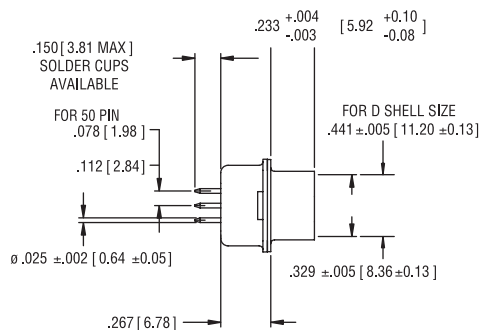
Current Rating	5 A
Insulation Resistance	5 GIGOHM @ 500 VDC
Working Voltage	200 VDC
D.W.V.	500 VDC pin to pin & pin to shell
Capacitance	+/- 20% (see P/N description)

CLIMATIC DATA

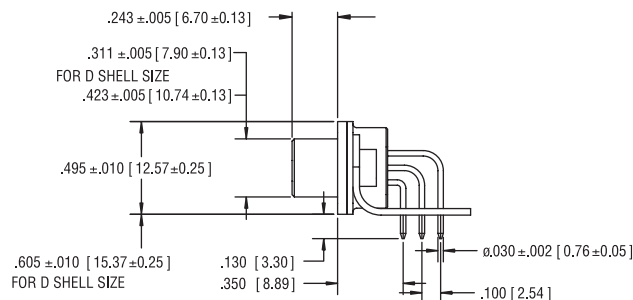
Operating Temperature	-67°F to +257°F (-55°C to +125°C)
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For 50 position and all high density versions. Amphenol's FD308 Filtered D-Subminiature connectors are available in the full range of hi-density insert arrangements, pin and socket contacts, plus the 50 position standard density. These connectors are supplied with fixed screw machine contacts and are available in Straight and Right Angle PCB terminations and Solder Cup.

- Computers and Peripheral Equipment
- Avionics Systems Ideal For Retrofit Applications Or Late Design-In



PLUG - SIDE VIEW



RECEPTACLE - SIDE VIEW

FD308 - B44 - S - A - 1 - A2 - 000

Series Designation

Size & Number Of Contacts

STD Density E09, A15, B25, C37, D50
High Density E15, A26, B44, C62, D78, 6104

Contact Type

S = Socket Contact P = Pin Contact

Termination Style

A = Right Angle pcb
B = Vertical pcb
C = Solder Cup

000 = Standard part
other deviations as required

Capacitance Code

A2 = 200 PF 02 = 2000 PF
A4 = 400 PF 05 = 5000 PF
01 = 1000 PF

Mounting Type

1 = 4-40 Clinch Nut
2 = Ø.120 (3.05) Hole
3 = R/A Mounting Bracket
4 = 4-40 Clinch Nut
with R/A Mounting Bracket

ORDERING INFORMATION - IDC

FCC17 - E09 - S - W - 4 - 8 - 0 - G

Series Designation

Size and Configuration

15 & 25 Size Consult Factory.

Connector Type

S: Socket P: Pin Consult Factory.

Termination Type

W: IDC *

Mounting

2: .120 (3.05) Diameter Through Hole
4: 4-40 Threaded Inserts
6: M3 Threaded Inserts

Special

G: 50 Micro Inches Gold

Modifier

0: Standard Product
x: Special or Custom Versions

Capacitance Value

D: 50 pF	5: 1,000 pF
0: 180 pF	E: 2,200 pF
F: 330 pF	9: 5,600 pF
1: 470 pF	8: 47,000 pF
4: 820 pF	

Other Capacitance values available.
Consult Factory.

ORDERING INFORMATION - FILTERED PRESS FIT

FCC17 - B25 - S - R - 4 - 8 - 0 - G

Series Designation

Size and Configuration *

Connector Type

S: Socket P: Pin Consult Factory.

Termination Type

R: Press Fit

Mounting

2: .120 (3.05) Diameter Through Hole	5: 4-40 Threaded Standoff
3: 4-40 Self Locking Threaded Insert	6: M3 Threaded Inserts
4: 4-40 Threaded Inserts	E: Code 4 with 4-40 Hex Jack Socket

Special

G: 50 Micro Inches Gold

Modifier

0: Standard Product
x: Special or Custom Versions

Capacitance Value

D: 50 pF	5: 1,000 pF
0: 180 pF	E: 2,200 pF
F: 330 pF	9: 5,600 pF
1: 470 pF	8: 47,000 pF
4: 820 pF	

Other Capacitance values available.
Consult Factory.

ORDERING INFORMATION - STACKED D-SUB

FCC17 - 2 - BP - BS - 4 - 5 - 5 - X

Series Designation

Vertical Mounting Dimension Between Connectors

1 = .625 (15.88)
2 = .750 (19.05)

Upper Connector Configuration (Size and Style)

EP: 9 pin	BP: 25 pin
ES: 9 socket	BS: 25 socket
AP: 15 pin	CP: 37 pin
AS: 15 socket	CS: 37 socket

Lower Connector Configuration

(Size and Style) same as Upper Connector Configuration

Mounting

2: .120 (3.05) Diameter Through Hole on Flanges
4: 4-40 Threaded Inserts on Flanges
E: 4-40 Hex Jack Sockets (supplied loose)

Modifier

0: Standard Product
x: Special or Custom VersionsLower Connector Filter Capacitance
same as Upper Connector Filter
Capacitance Designation

Upper Connector Filter Capacitance

D: 50 pF	5: 1,000 pF
0: 180 pF	E: 2,200 pF
F: 330 pF	7: 1,200 pF
1: 470 pF	9: 5,600 pF
4: 820 pF	8: 47,000 pF

* For Additional Mounting Options and
Filter Capacitance - Consult Factory

ORDERING INFORMATION - D-SUB

FCC17 - B25 - S - C - 4 - 4 - 0 - G

Series Designation _____

Size _____
E09, A15, B25, C37

Connector type _____
A - Adapter P - Pin S - Socket

Termination Type _____
A - Right Angle PC Tail, .318 (8.08) Footprint
B - Right Angle PC Tail, .405 (10.29) Footprint
C - Right Angle PC Tail, .590 (14.99) Footprint
D - Pin/Socket Adapter
E - Vertical Mount PC Tail
M - Solder Cup
N - Vertical Mount PC Tail - Long Body

Mounting options*
A: 4-40 Threaded PC Tail Standoffs with Boardlock, Vertical Mount Only
E: 4-40 Hex Jack Sockets (supplied loose)
F: 4-40 Round Fixed Jack Sockets
2: .120 (3.05) diameter Through hole
3: Self-Locking 4-40 Threaded Inserts
4: 4-40 Threaded Inserts (Standard)
5: 4-40 Threaded Stand-Offs, Vertical Mount
6: M3 Threaded inserts

Specials
No Digit: Standard 15µ" (0.38µm) gold
G: 50µ" (1.27µm) gold
K: 30µ" (0.76µm) gold
L: Standard Connector with added ferrite block

Modifier
0 = Standard Product (Boardlocks on Right Angle D-Subs)
B = Metal Mounting Brackets, for Right Angle D-Subs
D = .315 (8.00) to Boardlock for .590 (14.99) footprint
E = Plastic Bracket - No Boardlock
F = No Boardlock, No plastic or metal Bracket - Alignment Strip Only
X = Specials or Custom Versions

Filter Capacitance (pF)*
D: 50 pF 5: 1,000 pF
B: 100 pF 7: 1,200 pF
0: 180 pF E: 2,200 pF
F: 330 pF 9: 5,600 pF
1: 470 pF 8: 47,000 pF
4: 820 pF

* For Additional Mounting Options and Filter Capacitance - Consult Factory

ORDERING INFORMATION - COMBO D-SUB

FCC17 - A - 3W3 - P - M - 4 - 5 - 0 - G

Series Designation _____

Shell Size _____
A, B, C, D, E

Arrangement _____

Connector type _____
A = Adapter, P = Pin, S = Socket

Termination type _____
D = Pin/Socket Adapter
E = Power PC Tail - 40A - .126 (3.20) Dia., .175 (4.44) Lg.
K = Power Solder Cup - 10A - Wire Size 16
L = Power Solder Cup - 20A - Wire Size 12
M = Power Solder Cup - 40A - Wire Size 8
R = Power Press Fit - 20A - .145 (3.68) Lg. - .126 (3.20) Dia. Hole

Mounting Options
2 = .120 (3.05) dia. mounting holes
3 = 4-40 Threads Self locking
4 = 4-40 Threads
5 = 4-40 Standoffs - PC tail only
6 = M3 Threads
E = 4-40 Hex Jack Sockets (supplied loose)

Plating Option
Blank = Standard 30µ" (0.76µm) gold
G = 50µ" (1.27µm) gold

Modifier
0 = Standard
X = Specials or Custom versions (Consult Factory)

Filter Capacitance (pF)
D: 50 pF 5: 1000 pF
B: 100 pF 7: 1200 pF
o: 180 pF E: 2200 pF
f: 330 pF 9: 5600 pF
l: 470 pF 8: 47000 pF
4: 820 pF

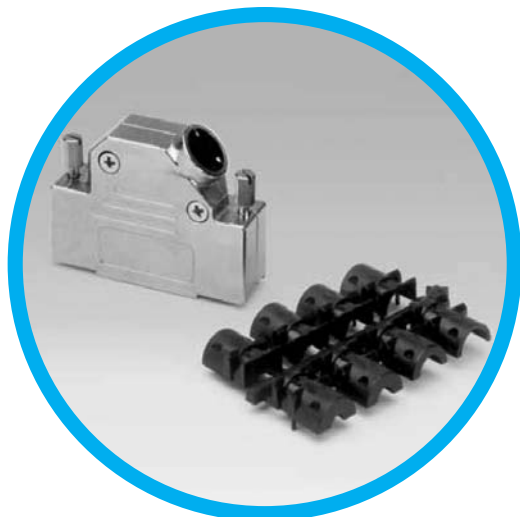
* For Additional Mounting Options and Filter Capacitance - Consult Factory

D'Sub Metallic Hoods

DTZK & DVZK series

MAIN CHARACTERISTICS

- **Material and plating:**
Zinc die-cast, nickel plated
- **Cable strainrelief:**
Steel fiber reinforced Polycarbonate UL94V-O
- **Temperature range:**
-40°C to 120°C
- **Cable diameter:**
3 to 13mm
- **Attenuation factor:**
> 40 dB between 30 MHz and 1 GHz
- **Approvals:**
VDE 0871 - FCC 20780 - 89 / 336 / EU



DESCRIPTION

Amphenol metallic hood series for D'Sub connectors offers protection from magnetic and radio interference to cable assemblies.

Easily assembled these hoods are suitable for all industrial and telecom applications.

*Shield
Your cable
assemblies!*

APPLICATIONS

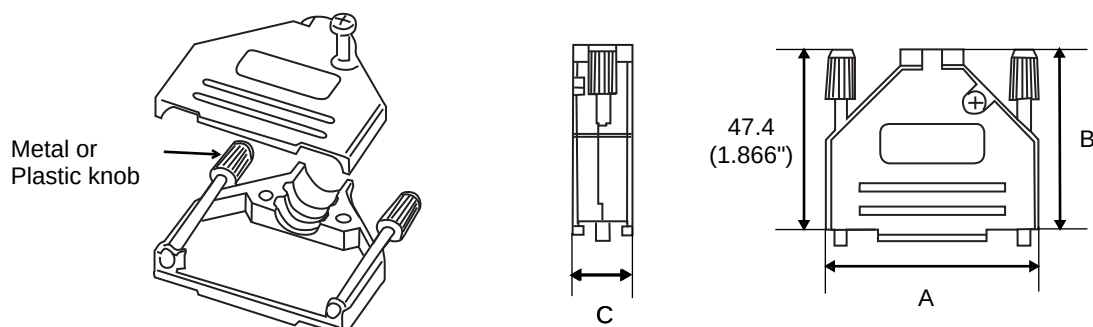
- Industrial
- Military
- Telecom
- Any application requiring EMI/RFI protection



Amphenol

D'SUB ACCESSORIES / E23

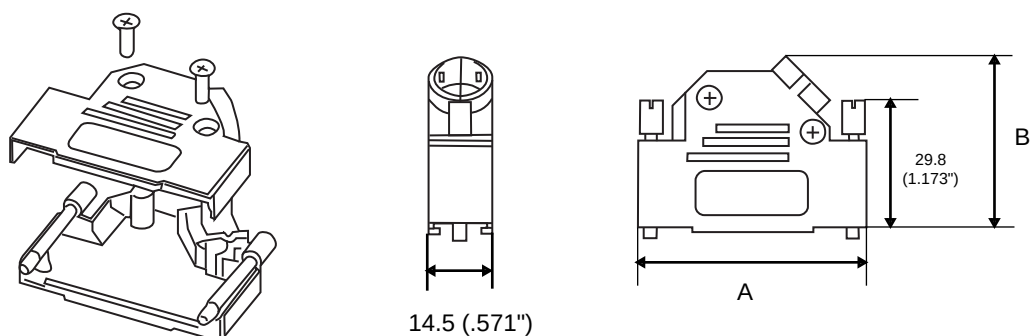
DTZK Series



Part number	A	B
L17DTZK9Kxx	21 (.827'')	38.3 (1.508'')
L17DTZK15Kxx	39.5 (1.555'')	40.5 (1.594'')
L17DTZK25Kxx	54.4 (2.144'')	47.3 (1.862'')
L17DTZK37Kxx	70.9 (2.791'')	52.2 (2.055'')

xx = Blank for plastic knob and FM for metal knob

DVZK Series



Part number	A	B
L17DVZK9Kxx	31 (1.220'')	36,2 (1.425'')
L17DVZK15Kxx	39,5 (1.555'')	40,2 (1.583'')
L17DVZK25Kxx	53,2 (2.094'')	40,2 (1.583'')
L17DVZK37Kxx	69,7 (2.744'')	40,2 (1.583'')

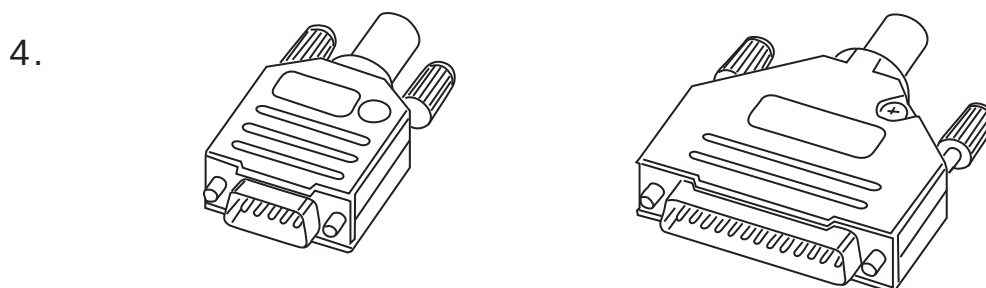
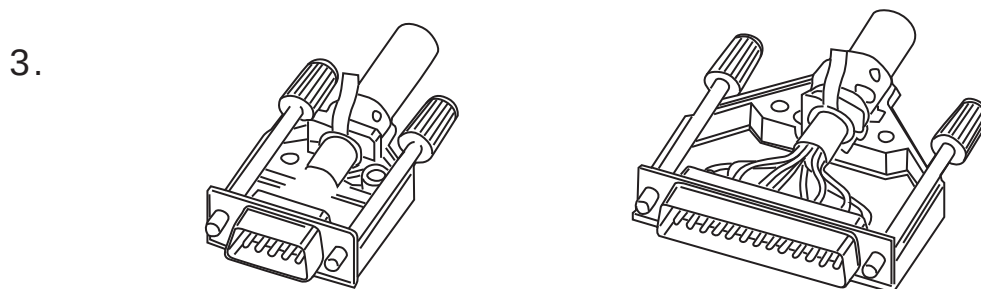
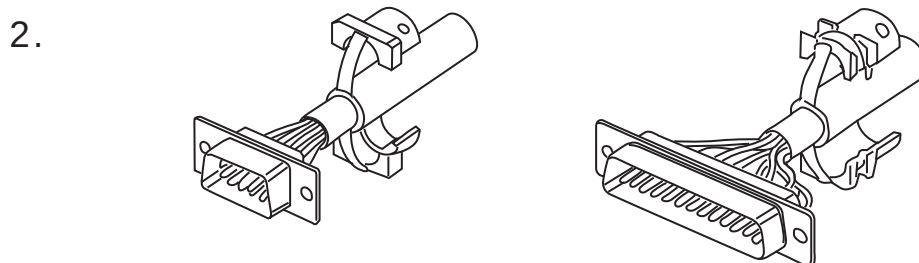
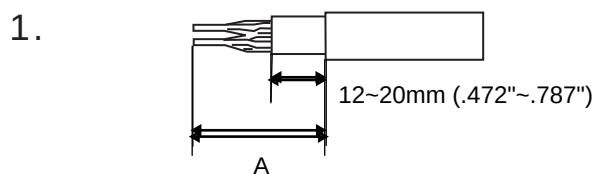
xx = Blank for plastic knob and FM for metal knob



9 Size equipped with only one screw

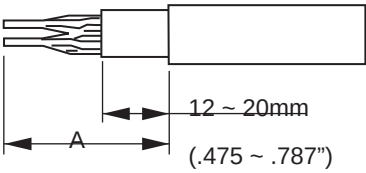
Assembly Instructions DTZK Series

Type	A
L17DTZK9Kxx	30
L17DTZK15Kxx	(1.181")
L17DTZK25Kxx	40
L17DTZK37Kxx	(1.575")

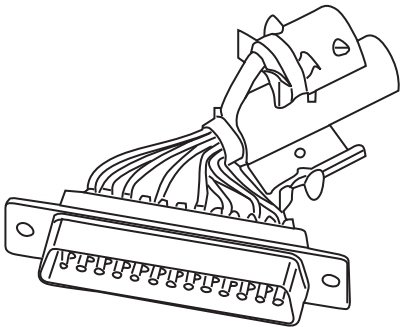


A Assembly Instructions DVZK Series

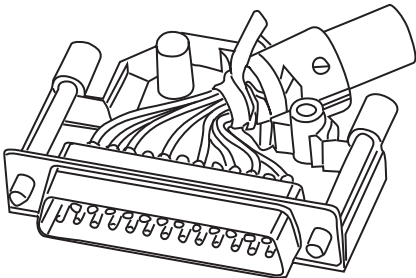
1.



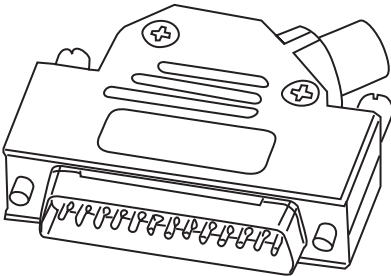
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3.

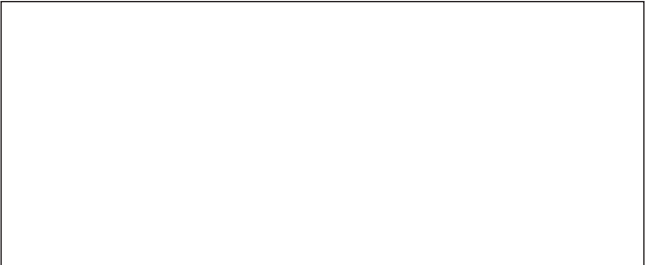


4.



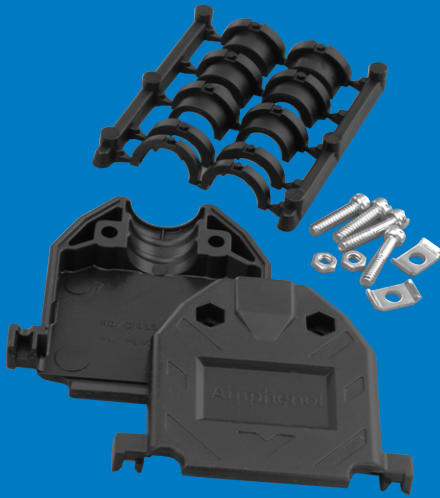
Type	A
L17DVZK9Kxx	30
L17DVZK15Kxx	(1.181")
L17DVZK25Kxx	45
L17DVZK37Kxx	(1.772")

Do not hesitate to contact us for further information



Amphenol

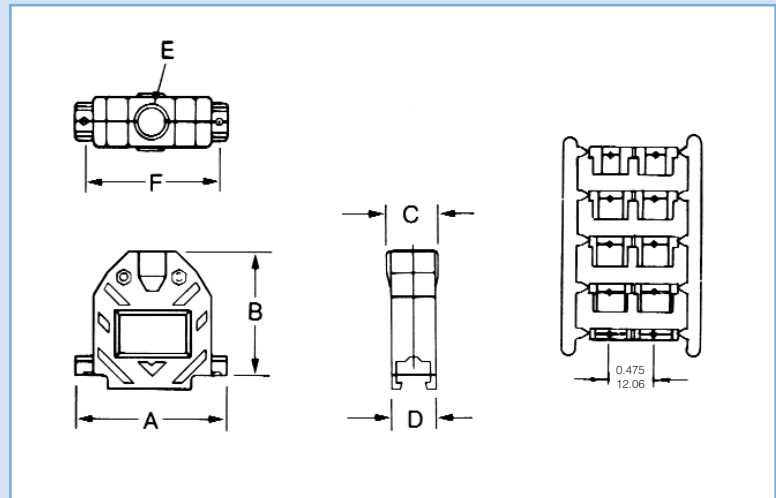
Amphenol IT & Communication Products
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Gong Ming Town, Shen Zhen China
Fax: +86(0)755 2754 9955
Technical Support
Tel: +86(0)755 2717 7945
Info-dsub@amphenol.com.cn
<http://www.dsubconnector.com>



Amphenol's black plastic backshell accommodates most standard and high-density D-Subminiature connectors and is appropriate for most cable assemblies. This version is economical and highly durable. The split-grommet insert provides cable strain relief while making it easy to assemble.

SPECIFICATIONS:

Housing Material:	Styrene (UL 94 VO)
Grommet Material:	Polypropylene
Mounting Hardware:	Steel, clear zinc finish *RoHS Compliant



DIMENSIONS AND ORDERING INFORMATION

Shell Size	Standard # of Contacts	Hi-Density # of Contacts	Part #	Dimensions						Cable Diameter Range	
				A	B	C	D	E	F	Minimum	Maximum
E	9	15	17E-1724-1	1.217 (30.91)	1.547 (39.29)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	0.984 (24.99)	0.210 (5.33)	0.350 (8.89)
A	15	26	17E-1725-1	1.545 (39.24)	1.505 (38.23)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	1.312 (33.32)	0.210 (5.33)	0.350 (8.89)
B	25	44	17E-1726-1	2.090 (53.08)	1.655 (42.04)	0.710 (18.03)	0.640 (16.26)	0.522 (13.26)	1.857 (47.17)	0.230 (5.84)	0.450 (11.43)
C	37	62	17E-1727-1	2.734 (69.44)	1.830 (46.48)	0.906 (23.01)	0.640 (16.26)	0.726 (18.44)	2.500 (63.50)	0.350 (8.89)	0.640 (16.26)
D	50	78	17E-1728-1	2.645 (67.18)	1.855 (47.12)	0.940 (23.88)	0.770 (19.56)	0.726 (18.44)	2.406 (61.11)	0.350 (8.89)	0.640 (16.26)

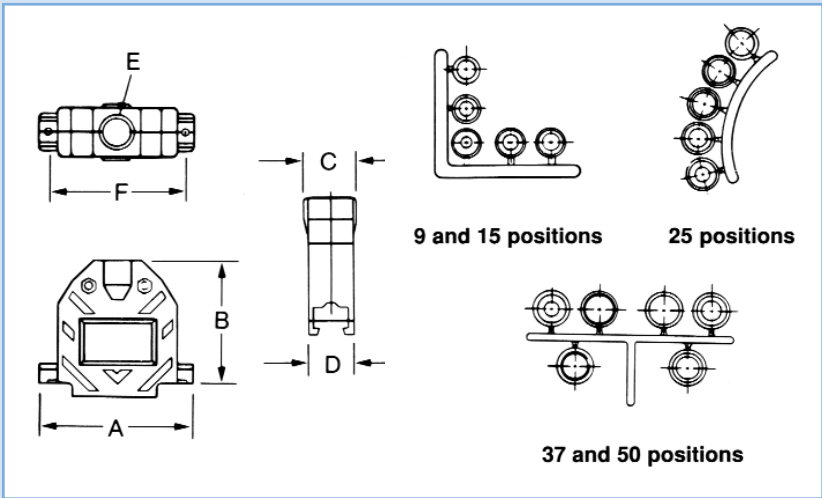
Plated Plastic Backshell

SPECIFICATIONS:

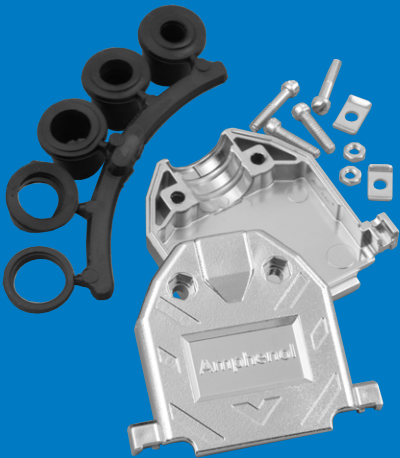
Housing Material:	ABS Polymer
Plating:	Nickel over copper
Grommet Material:	PVC (UL 94 VO)
Mounting Hardware:	Steel, clear zinc finish *RoHS Compliant

ASSEMBLY INSTRUCTIONS

1. Select the tightest insert that will fit over the cable and thread the cable through it, placing the end with the smaller O.D. (the end without the washer) towards the connector.
2. Cut the jacket, fold the shielding back over the outside of the insert and cut it just short of the washer.
3. Install jackscrews and connector.
4. Place the washer in the outermost depression in the exit area of the hood and screw the cover closed.



ACCESSORIES



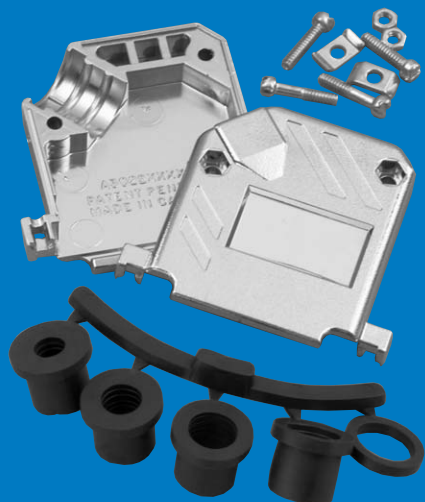
Amphenol's plated plastic backshell accommodates most standard and high-density D-Subminiature connectors and is appropriate for cable assemblies requiring compliance to FCC 20780. This version is highly durable and provides EMI/RFI protection. The rubber grommet compression insert forces the cable's shielding against the inside of the cable exit area, assuring shielding.

DIMENSIONS AND ORDERING INFORMATION

Shell Size	Standard # of Contacts	Hi-Density # of Contacts	Part #	Dimensions						Cable Diameter Range	
				A	B	C	D	E	F	Minimum	Maximum
E	9	15	17E-1724-2	1.217 (30.91)	1.547 (39.29)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	0.984 (24.99)	0.210 (5.33)	0.320 (8.13)
A	15	26	17E-1725-2	1.545 (39.24)	1.505 (38.23)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	1.312 (33.32)	0.210 (5.33)	0.320 (8.13)
B	25	44	17E-1726-2	2.000 (50.8)	1.655 (42.04)	0.710 (18.03)	0.640 (16.26)	0.522 (13.26)	1.857 (47.17)	0.230 (5.84)	0.450 (11.43)
C	37	62	17E-1727-2	2.730 (69.34)	1.830 (46.48)	0.906 (23.01)	0.640 (16.26)	0.726 (18.44)	2.500 (63.50)	0.350 (8.89)	0.650 (16.51)
D	50	78	17E-1728-2	2.645 (67.18)	1.855 (47.12)	0.940 (23.88)	0.440 (11.18)	0.726 (18.44)	2.406 (61.11)	0.350 (8.89)	0.650 (16.51)

INCHES (MM)

ACCESSORIES



Amphenol's plated plastic backshell accommodates most standard and high-density D-Subminiature connectors and is appropriate for cable assemblies requiring compliance to FCC 20780. This version is highly durable and provides EMI/RFI protection. The rubber grommet compression insert forces the cable's shielding against the inside of the cable exit area, assuring shielding. The 45° cable exit helps save space behind equipment.

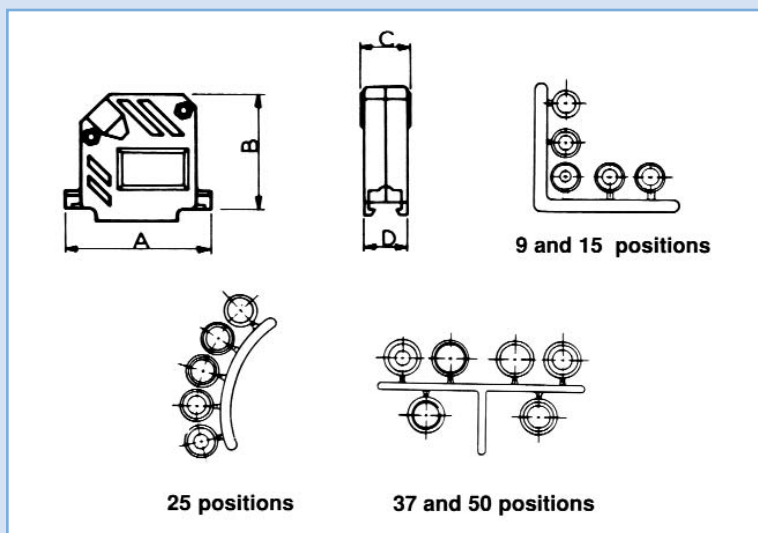
45° Plated Plastic Backshell

SPECIFICATIONS:

Housing Material:	ABS Polymer
Plating:	Nickel over copper
Grommet Material:	PVC (UL 94 VO)
Mounting Hardware:	Steel, clear zinc finish *RoHS Compliant

ASSEMBLY INSTRUCTIONS

1. Select the tightest insert that will fit over the cable and thread the cable through it, placing the end with the smaller O.D. (the end without the washer) towards the connector.
2. Cut the jacket, fold the shielding back over the outside of the insert and cut it just short of the washer.
3. Install jackscrews and connector.
4. Place the washer in the outermost depression in the exit area of the hood and screw the cover closed.



DIMENSIONS AND ORDERING INFORMATION

Shell Size	Standard # of Contacts	Hi-Density # of Contacts	Part #	Dimensions						Cable Diameter Range	
				A	B	C	D	E	F	Minimum	Maximum
E	9	15	17E-1824-2	1.217 (30.91)	1.430 (36.32)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	0.984 (24.99)	0.210 (5.33)	0.320 (8.13)
A	15	26	17E-1825-2	1.545 (39.24)	1.568 (39.83)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	1.312 (33.32)	0.210 (5.33)	0.320 (8.13)
B	25	44	17E-1826-2	2.090 (53.09)	1.735 (44.07)	0.710 (18.03)	0.640 (16.26)	0.522 (13.26)	1.857 (47.17)	0.230 (5.84)	0.450 (11.43)
C	37	62	17E-1827-2	2.734 (69.44)	1.976 (50.19)	0.906 (23.01)	0.640 (16.26)	0.726 (18.44)	2.500 (63.5)	0.350 (8.89)	0.650 (16.51)

Two-Piece Die Cast Shielded Backshells

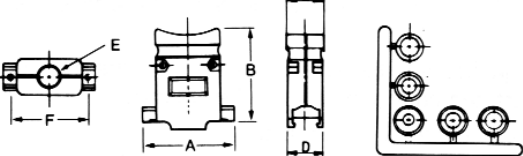
SPECIFICATIONS:

Housing Material:	Die cast zinc
Grommet Material:	PVC (UL 94 VO)
Mounting Hardware:	Steel, clear zinc finish *RoHS Compliant

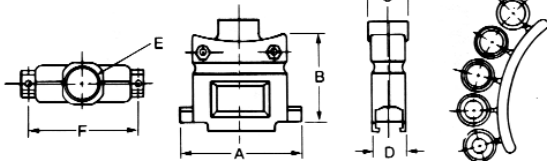
ASSEMBLY INSTRUCTIONS

1. Select the tightest insert that will fit over the cable and thread the cable through it, placing the end with the smaller O.D. (the end without the washer) towards the connector.
2. Cut the jacket, fold the shielding back over the outside of the insert and cut it just short of the washer.
3. Install jackscrews and connector.
4. Place the washer in the outermost depression in the exit area of the hood and screw the cover closed.

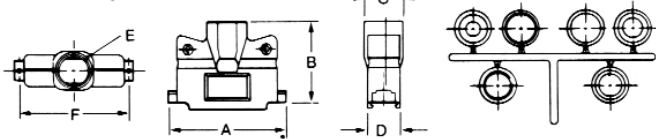
9 and 15 positions



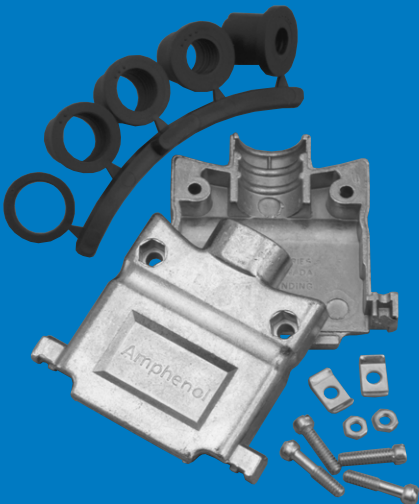
25 positions



37 and 50 positions



ACCESSORIES



Amphenol’s metal backshell accommodates most standard and high-density D-Subminiature connectors and is appropriate for cable assemblies requiring compliance to FCC 20780. This version is highly durable and provides EMI/RFI protection. The rubber grommet compression insert forces the cable’s shielding against the inside of the cable exit area, assuring shielding.

DIMENSIONS AND ORDERING INFORMATION

Shell Size	Standard # of Contacts	Hi-Density # of Contacts	Part #	Dimensions						Cable Diameter Range	
				A	B	C	D	E	F	Minimum	Maximum
E	9	15	17E-1657-09	1.217 (30.91)	1.430 (36.32)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	0.984 (24.99)	0.210 (5.33)	0.320 (8.13)
A	15	26	17E-1657-15	1.545 (39.24)	1.568 (39.83)	0.640 (16.26)	0.640 (16.26)	0.400 (10.16)	1.312 (33.32)	0.210 (5.33)	0.320 (8.13)
B	25	44	17E-1657-25	2.090 (53.09)	1.735 (44.07)	0.710 (18.03)	0.640 (16.26)	0.522 (13.26)	1.857 (47.17)	0.230 (5.84)	0.450 (11.43)
C	37	62	17E-1657-37	2.734 (69.44)	1.976 (50.19)	0.906 (23.01)	0.640 (16.26)	0.726 (18.44)	2.500 (63.5)	0.350 (8.89)	0.640 (16.26)

INCHES (MM)