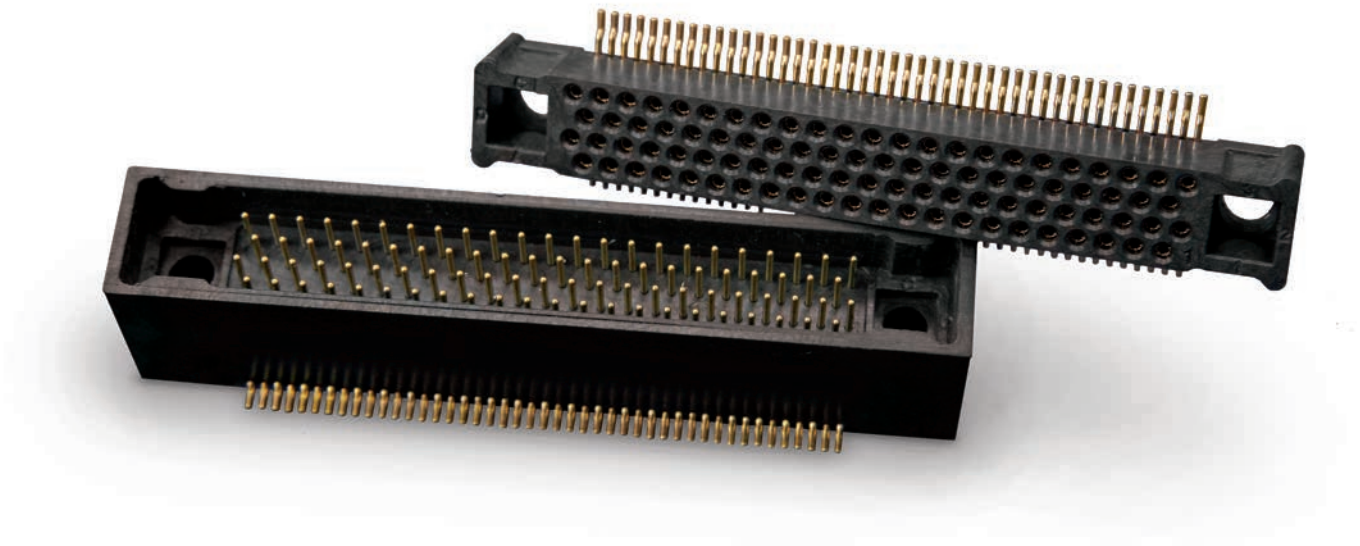
smiths interconnect

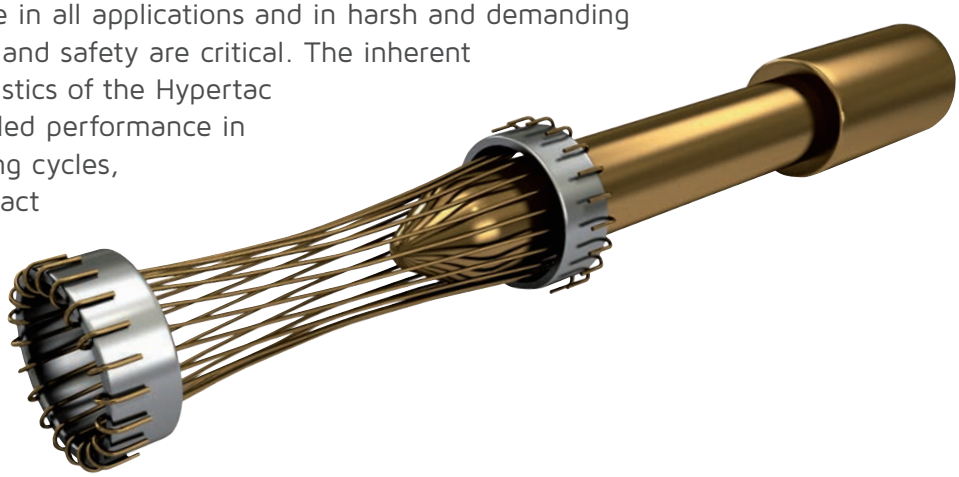
HDLP Series

High Density, Low Profile Connectors



Hypertac® Hyperboloid Technology

Smiths Interconnect offers an extensive range of superior contact technologies suitable for standard and custom solutions. Hypertac® (HYPERboloid conTACt) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths.



Features	Benefits
Low insertion/extraction forces The angle of the socket wires allows tight control of the pin insertion and extraction forces. The spring wires are smoothly deflected to make line contact with the pin.	**High density interconnect systems** Significant reductions in size and weight of sub-system designs. No additional hardware is required to overcome mating and un-mating forces.
Long contact life The smooth and light wiping action minimizes wear on the contact surfaces. Contacts perform up to 100,000 insertion/ extraction cycles with minimal degradation in performance.	**Low cost of ownership** The Hypertac contact technology will surpass most product requirements, thus eliminating the burden and cost of having to replace the connector or the entire subsystem.
Lower contact resistance The design provides a far greater contact area and the wiping action of the wires insures a clean and polished contact surface. Our contact technology has about half the resistance of conventional contact designs.	**Low power consumption** The lower contact resistance of our technology results in a lower voltage drop across the connector reducing the power consumption and heat generation within the system.
Higher current ratings The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times.	**Maximum contact performance** The lower contact resistance of the Hypertac contact reduces heat build-up; therefore Hypertac contacts are able to handle far greater current in smaller contact assemblies without the detrimental effects of high temperature.
Immunity to shock & vibration The low mass and resultant low inertia of the wires enable them to follow the most abrupt or extreme excursions of the pin without loss of contact. The contact area extends 360° around the pin and is uniform over its entire length. The 3 dimensional symmetry of the Hypertac contact design guarantees electrical continuity in all circumstances.	**Reliability under harsh environments** Harsh environmental conditions require connectors that will sustain their electrical integrity even under the most demanding conditions such as shock and vibration. The Hypertac contact provides unmatched stability in demanding environments when failure is not an option.

Technical Characteristics

Mechanical

Contact diameter	0.015 inches / 0.39 mm
Contact life cycles	2,000+ operations
Temperature range	-55°C to 125°C
Extraction forces	1.0 oz. / 28.3 grams typical, per contact

Material

Insulator material	Liquid crystal polymer (LCP)
Contact material	Copper alloy
Socket wire material	Beryllium copper
Interfacial seal material	Fluorosilicone
Guides material	Stainless steel

Electrical

Contact resistance	8 milliohms max
Current rating	1 amp per contact
Voltage rating	250 Volts, DC or AC, peak, at sea level

Contact plating finishes

Connector finish ordering code	Description	Component	Component finish ordering code	Conforms to	Plating thickness
U	Gold plate	Socket	-/9	ASTM-B-488 Type II Grade C, Class 1	1.27 µm gold plate min 50 µin gold plate min
		Pin	-/7	ASTM-B-488 Type II Grade C, Class 1	1.27 µm gold plate min 50 µin gold plate min

Disclaimer 2022

All of the information included in this catalogue is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.
Smiths Interconnect makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use.
Smiths Interconnect reserves the right to modify design and specifications, in order to improve quality, keep pace with technological development or meet specific production requirements.

How To Order

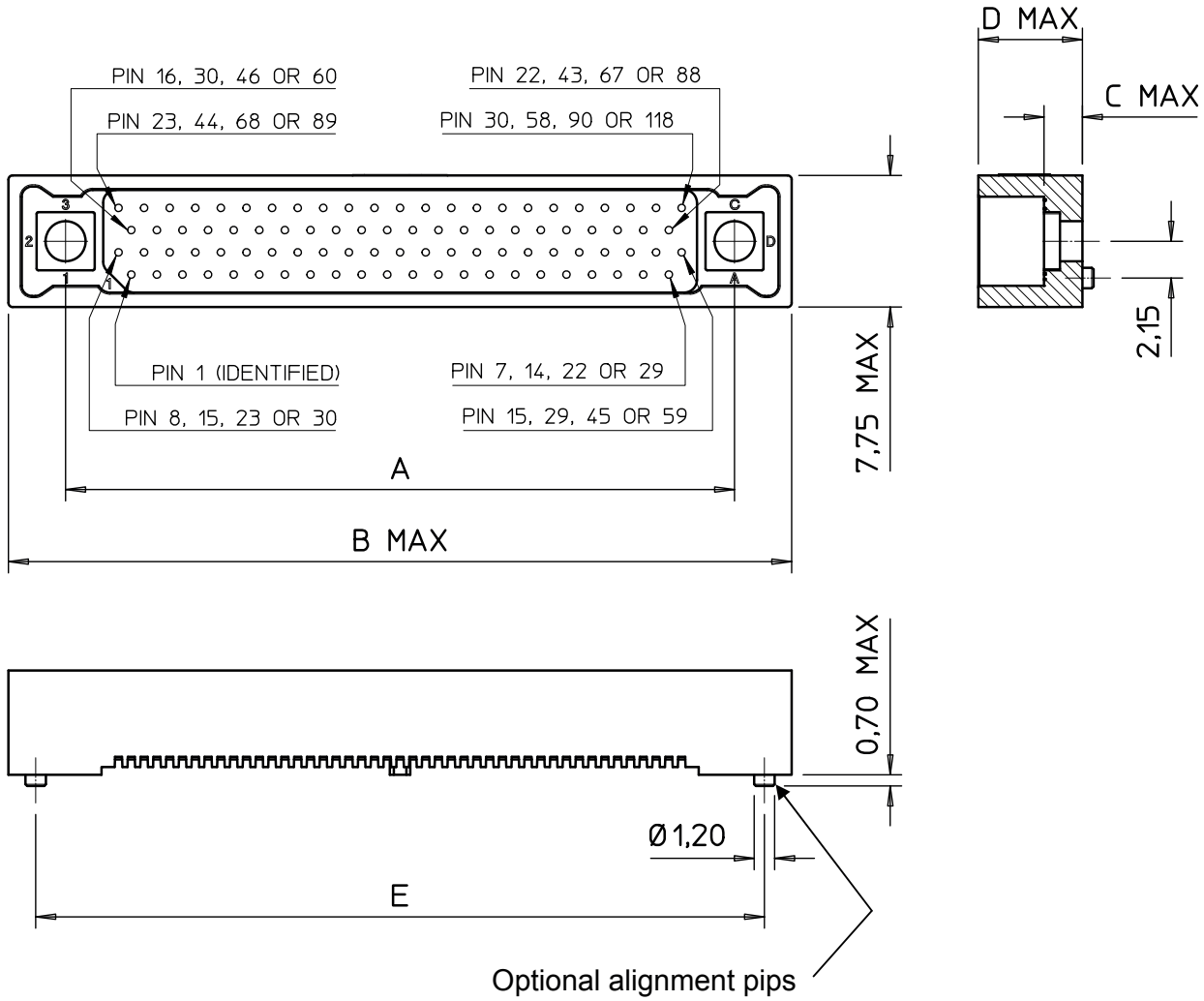
H D L P								
1	2	3	4	5	6	7	8	9

1 Connector family	
2 Alignment pips	1 With 2 Without *Default is 2 if insulator style is 9*
3 Insulator height/style	1 Single 2 Double* 9 90° *Default is 9 for 90° contact termination (90° female not currently available)* * Double height applies to Male connectors only
4 Number of contacts	0 3 0 0 5 8 0 9 0 1 1 8
5 Contact plating	U Standard gold plating S Gold plate with tin dipped terminations *(PC Tail only)*
6 Contact gender	M Male F Female
7 Contact terminations *(Contact factory for more details)*	C Through board solder - Straight PC Tail - 2.26 mm long D Through board solder - Straight PC Tail - 3.16 mm long E Through board solder - Straight PC Tail - 3.86 mm long H Through board solder - 90° PC Tail - 2.26 mm long J Through board solder - 90° PC Tail - 3.16 mm long K Through board solder - 90° PC Tail - 3.86 mm long Q Surface mount - Straight
8 Guides *(Contact factory for more details)*	A A No guide hardware B _ Locking socket* D _ Locking post* F _ Polarizing socket* H _ Polarizing pin* J _ Connector to board fixing* L _ Guide socket* O _ Guide pin* P _ Guide pin transverse mounting*
9 Standard variations *(Contact factory for more details)*	0 P 0 Back potted terminations and supplied with interfacial seal (preferred) 0 P X Tinned, back potted and supplied with interfacial seal 0 P C Back potted, conformally coated and supplied with interfacial seal

* Other Guide Hardware configurations may also be available, please contact the factory for more information. Each Guide needs two characters in the part number, for details please see page 11-13.

Insulators

Male / straight

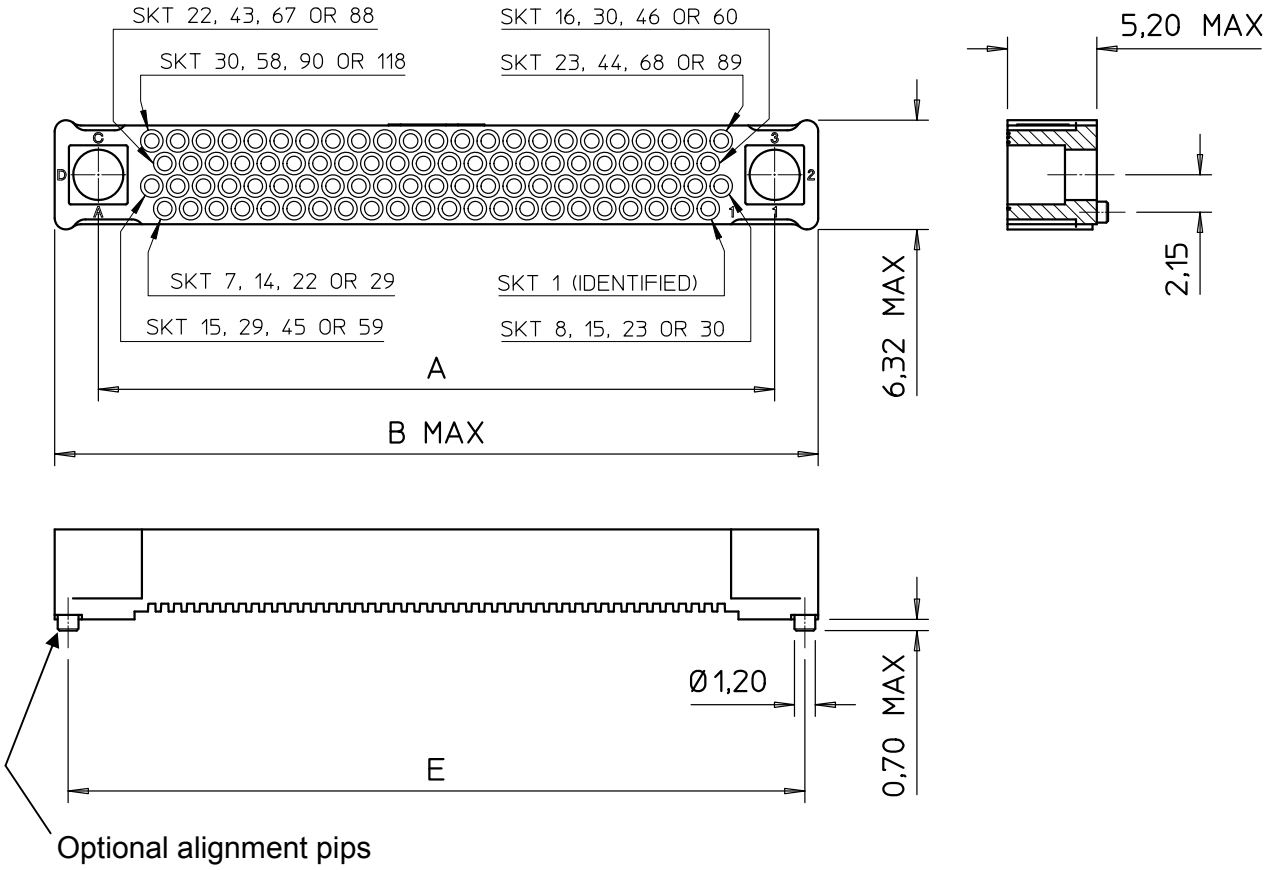


No. of positions	30		58		90		118	
	Single	Double	Single	Double	Single	Double	Single	Double
Dimension A	16.70 0.657″	-	27.20 1.070″	-	39.20 1.543″	-	49.70 1.957″	-
Dimension B	23.45 0.923″	-	33.95 1.337″	-	45.95 1.809″	-	56.45 2.222″	-
Dimension C	2.28 0.090″	6.85 0.270″	2.28 0.090″	6.85 0.270″	2.28 0.090″	6.85 0.270″	2.28 0.090″	6.85 0.270″
Dimension D	6.18 0.243″	10.75 0.423″	6.18 0.243″	10.75 0.423″	6.18 0.243″	10.75 0.423″	6.18 0.243″	10.75 0.423″
Dimension E	20.20 0.795″	-	30.70 1.209″	-	42.70 1.681″	-	53.20 2.094″	-

Dimension are in mm and inches

Insulators

Female / straight

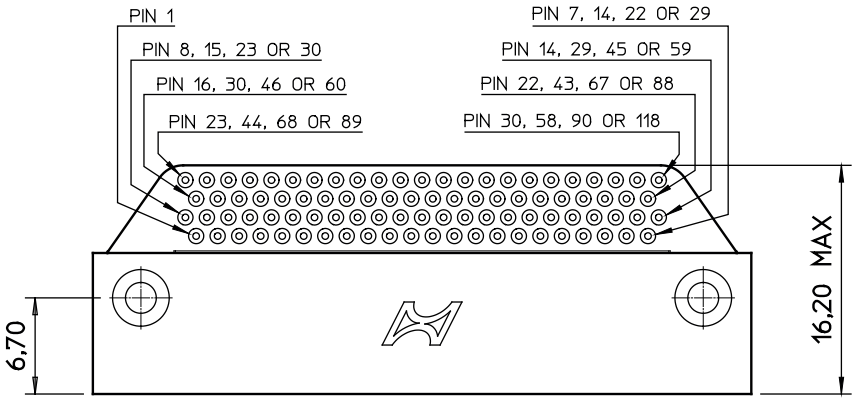


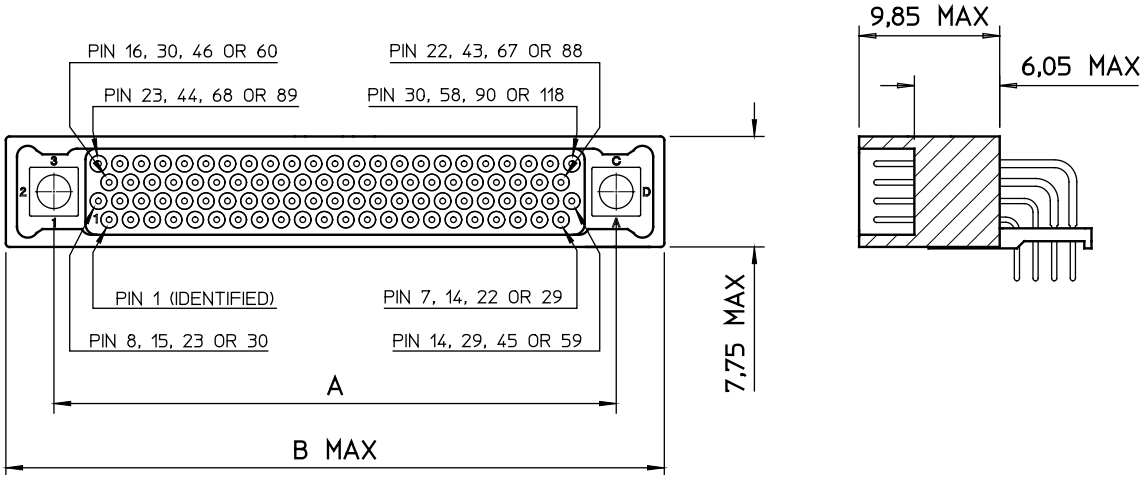
No. of positions	30	58	90	118
Dimension A	16.70 0.657"	27.20 1.070"	39.20 1.543"	49.70 1.957"
Dimension B	21.80 0.858"	32.30 1.272"	44.30 1.744"	54.80 2.157"
Dimension E	20.20 0.795"	30.70 1.209"	42.70 1.681"	53.20 2.094"

Dimension are in mm and inches

Insulators

Male connector, 90 degree (all dimensions are nominal unless stated)



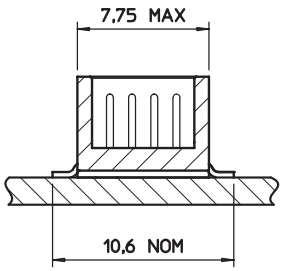


90° Male

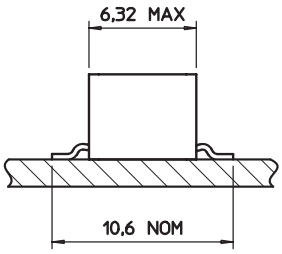
No. of positions	30	58	90	118
Dimension A	16.70	27.20	39.20	49.70
Dimension B	23.45	33.95	45.95	56.45

Contact terminations

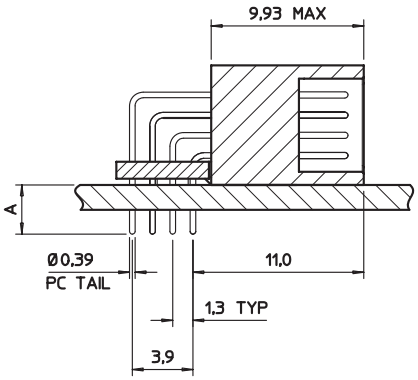
Male SMT



Female SMT

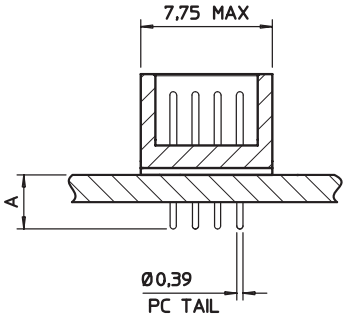


Male 90° PCB



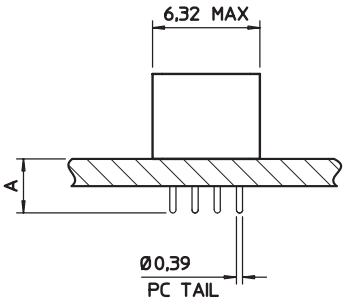
Termination style	Dimension A
H	2.26 0.089"
J	3.16 0.124"
K	3.86 0.152"

Male vertical PCB



Termination style	Dimension A
C	2.26 0.089"
D	3.16 0.124"
E	3.86 0.152"

Female vertical PCB



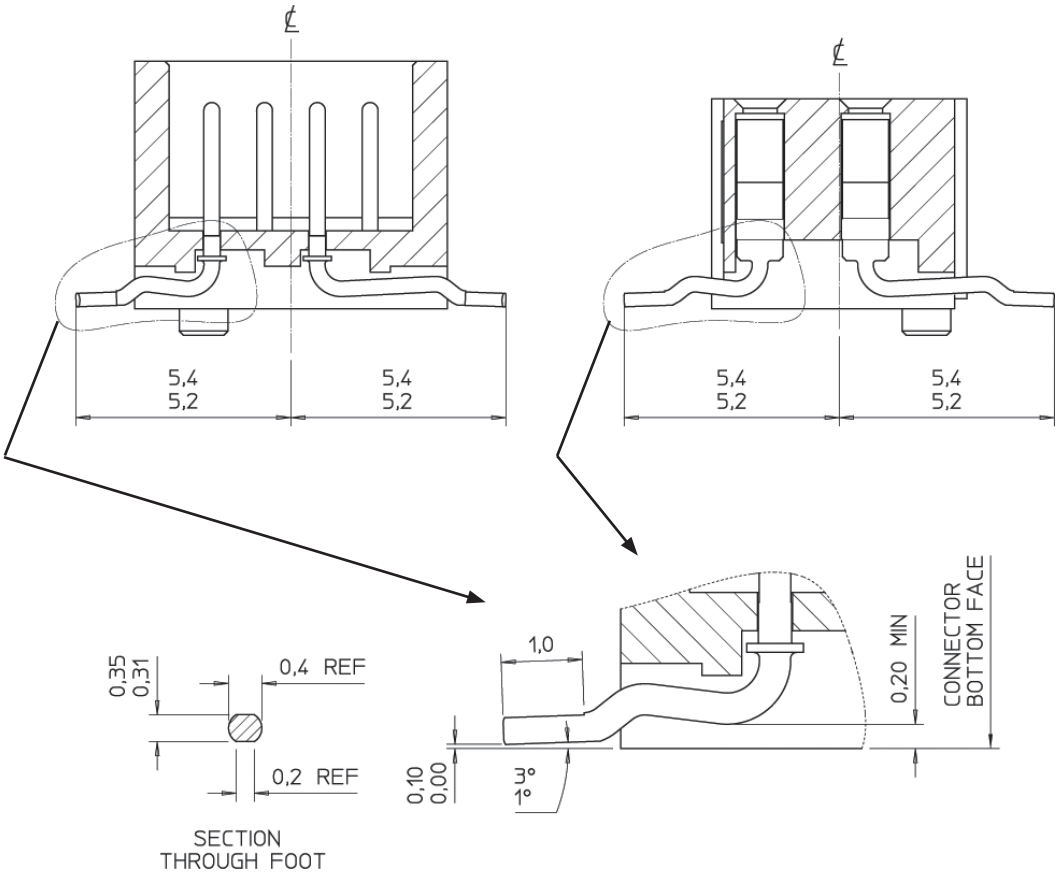
Termination style	Dimension A
C	2.26 0.089"
D	3.16 0.124"
E	3.86 0.152"

Dimension are in mm and inches

Surface mount termination geometry

Male connectors

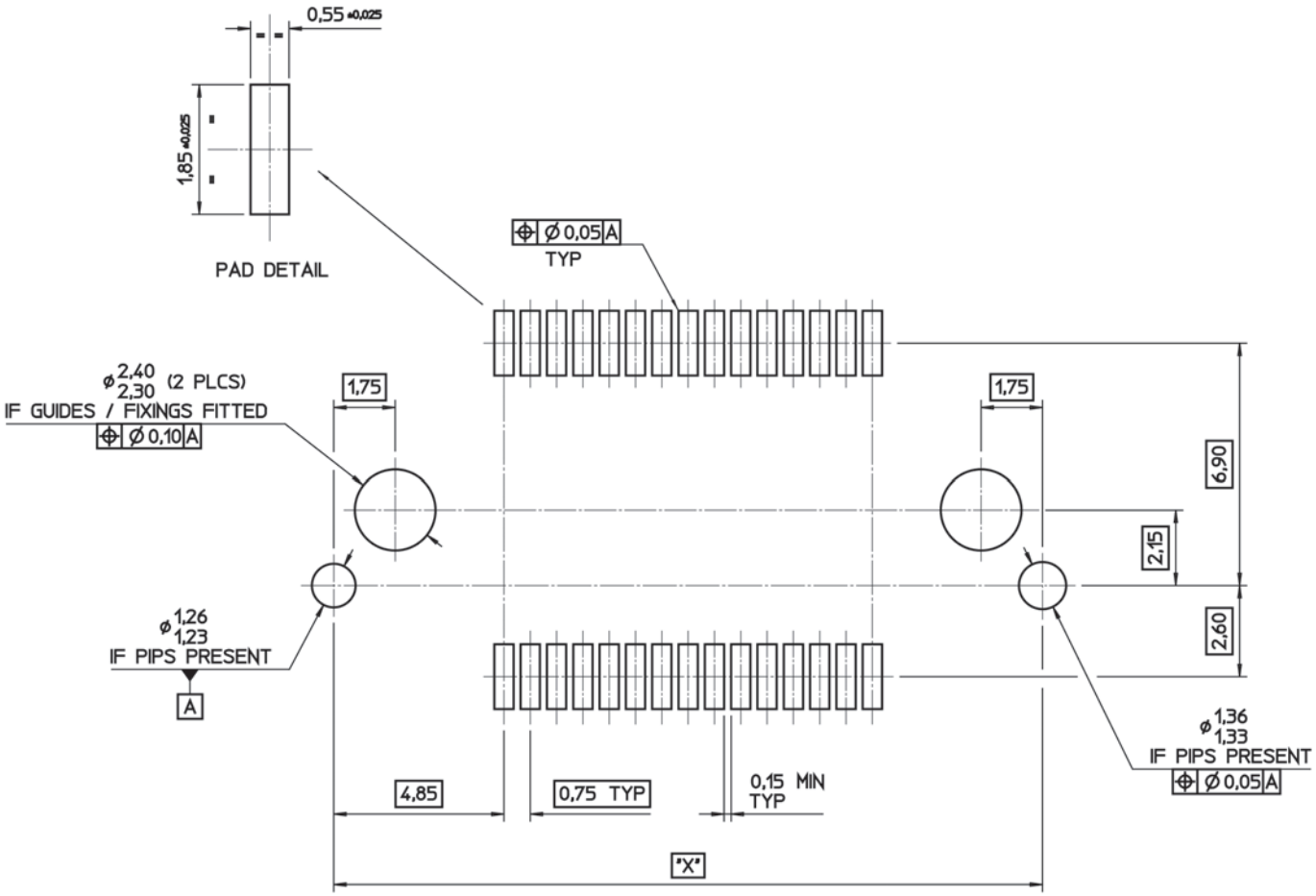
Femal connectors



Dimensions in mm, not to scale

Circuit board preparation detail

Surface mount

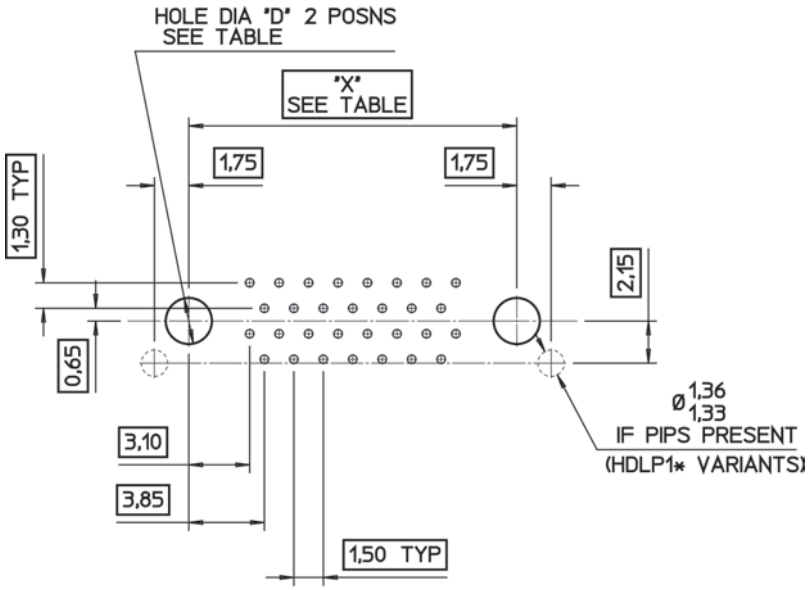


Connector	Dimension X
30 WAY	20.20
58 WAY	30.70
90 WAY	42.70
118 WAY	53.20

Dimensions in mm, not to scale
Sizes shown are recommended but not obligatory

Circuit board preparation detail

Straight PC tail



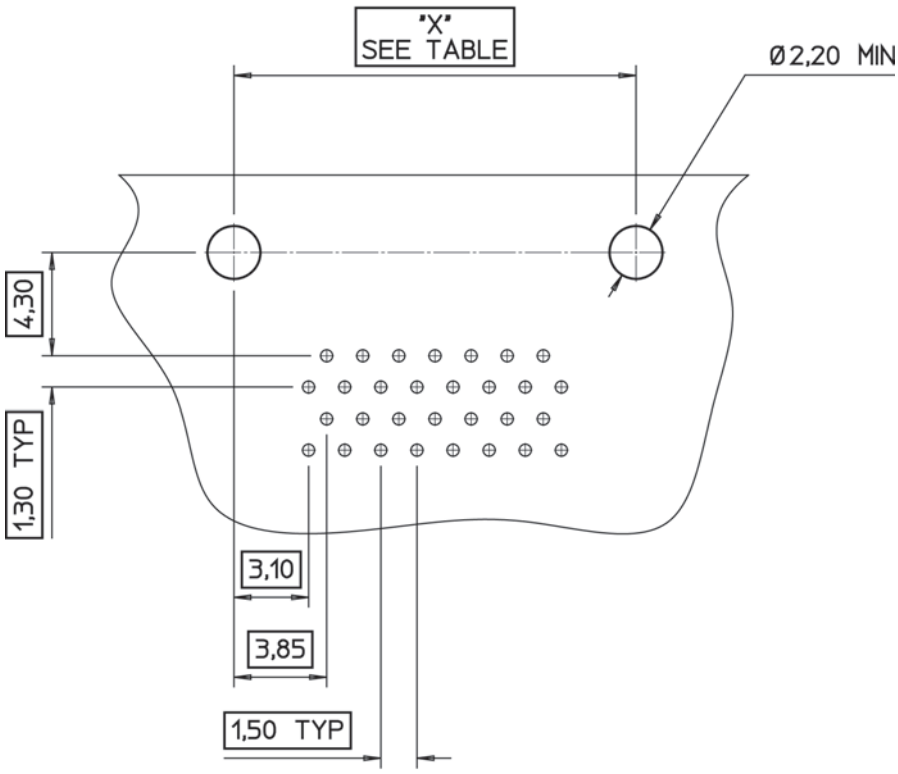
Connector	Dimension X
30 WAY	16,70
58 WAY	27,20
90 WAY	39,20
118 WAY	49,70

Guide style	Dimension D min
J*	2,20
H*	2,20
F*	2,20
O*	2,20
L*	2,90
D*	2,20
B1 & BA	N/A
B2*	2,90

Dimensions in mm, not to scale
Sizes shown are recommended but not obligatory

Circuit board preparation detail

90° PC tail



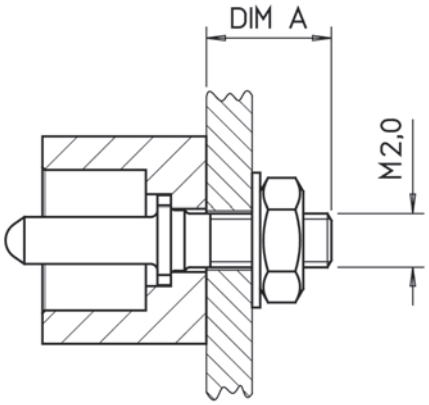
Connector	Dimension X
30 WAY	16.70
58 WAY	27.20
90 WAY	39.20
118 WAY	49.70

Dimensions in mm, not to scale
Sizes shown are recommended but not obligatory

Guide hardware

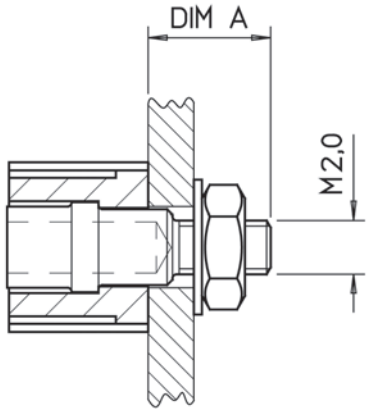
Connectors need to be secured to PCB to avoid stress on solder joints. This can be achieved using Hypertac guide hardware or any other suitable means.

Male - guide pin style O*



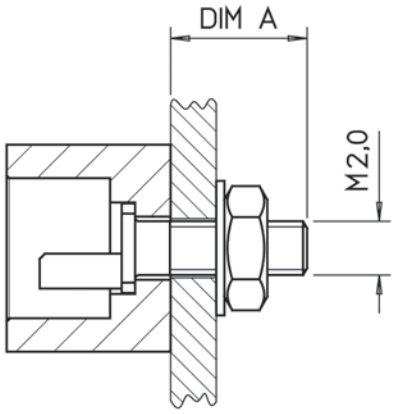
Style	Board thickness	Dimension A max
OA	1.0 - 2.0 mm	5.0
OB	2.1 - 4.0 mm	7.0

Female - guide socket style L*



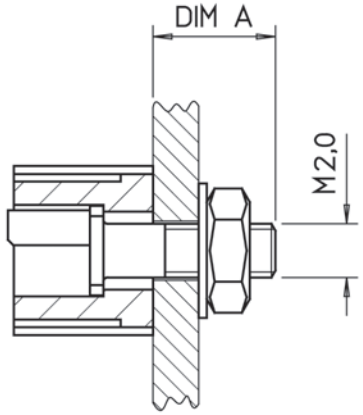
Style	Board thickness	Dimension A max
LA	1.5 - 2.0 mm	5.0
LB	2.1 - 4.0 mm	7.0

Male - polarising pin style H*



Style	Board thickness	Dimension A max
HA	1.0 - 2.0 mm	5.5
HB	2.1 - 4.0 mm	7.5

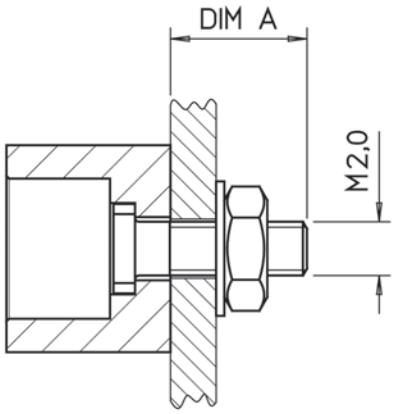
Female - polarising pin style F*



Style	Board thickness	Dimension A max
FA	1.0 - 2.0 mm	5.0
FB	2.1 - 4.0 mm	7.0

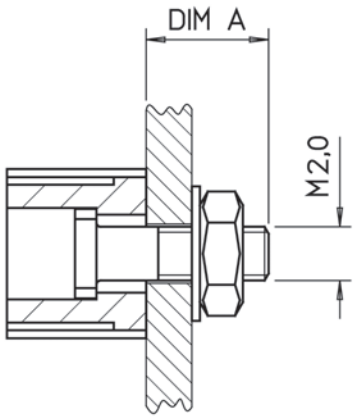
Guide hardware

Male - fixing screw style J*



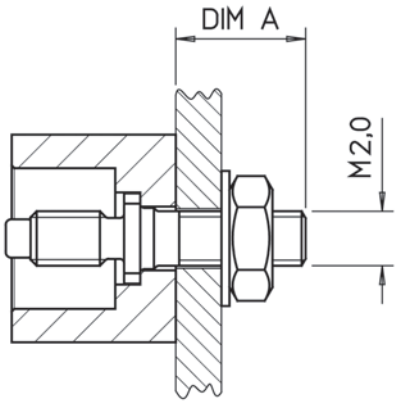
Style	Board thickness	Dimension A max
JA	1.0 - 2.0 mm	5.5
JB	2.1 - 4.0 mm	7.5

Female - fixing screw style J*



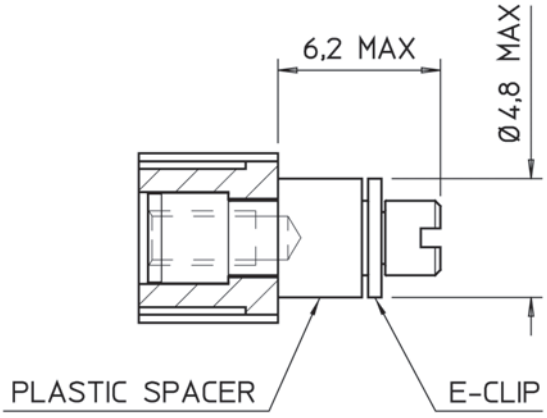
Style	Board thickness	Dimension A max
JA	1.0 - 2.0 mm	5.0
JB	2.1 - 4.0 mm	7.0

Male - fixed jacking post style DA & DB



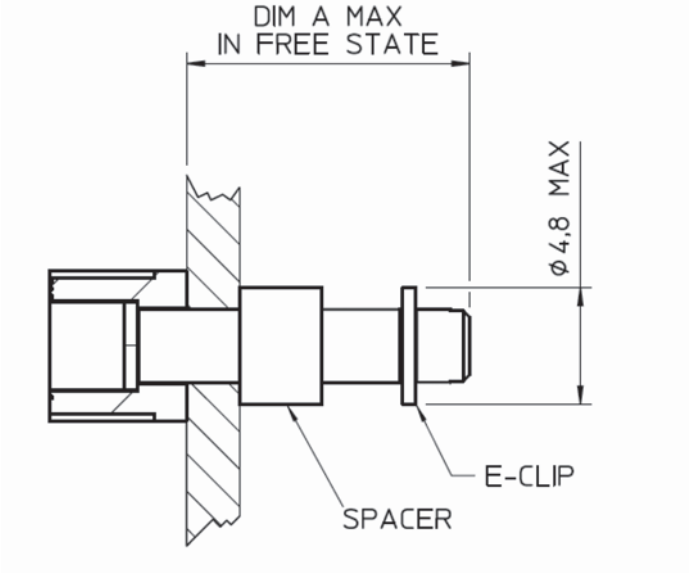
Style	Board thickness	Dimension A max
DA	1.0 - 2.0 mm	5.1
DB	2.1 - 4.0 mm	7.1

Female - rotating jacking socket free connector style BA



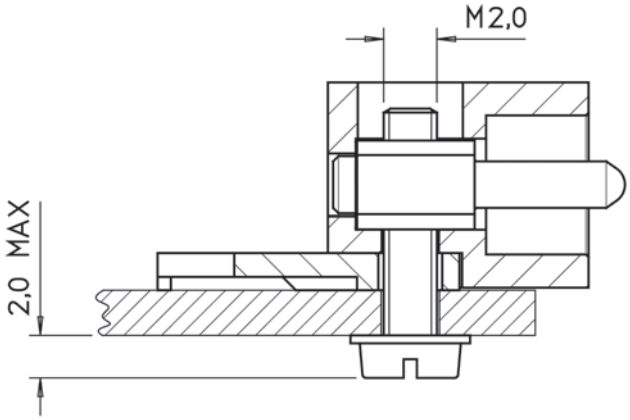
Guide hardware

Female - locking socket styles B3 & B2



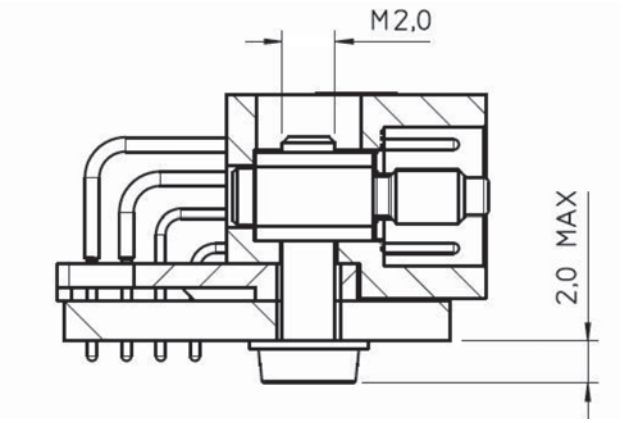
Style	Board thickness	Dimension A max mm
B3	0.5 - 2.0 mm	9.28
B2	2.1 - 4.0 mm	10.98

Male 90° - guide pin style P*



Style	Board thickness
PA	1.0 - 2.0 mm
PB	2.1 - 4.0 mm

Male 90° - locking post styles DL & DM



Style	Board thickness
DL	1.6 - 2.0 mm
DM	2.1 - 4.0 mm

Worldwide Support

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