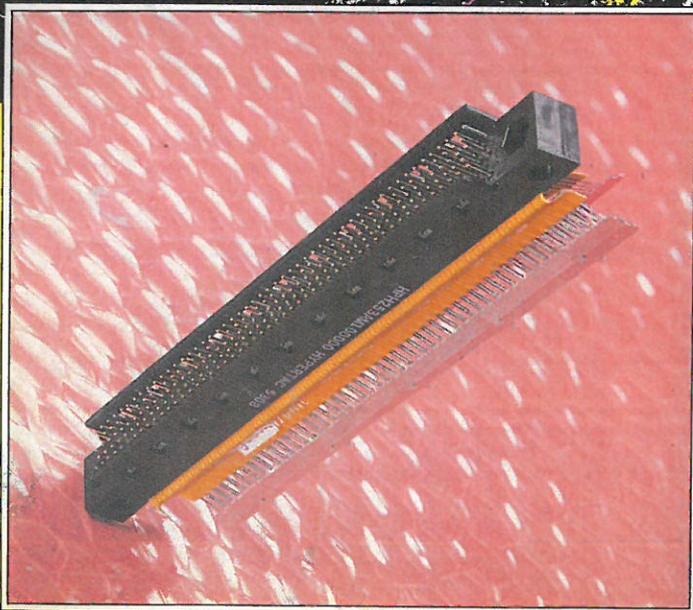
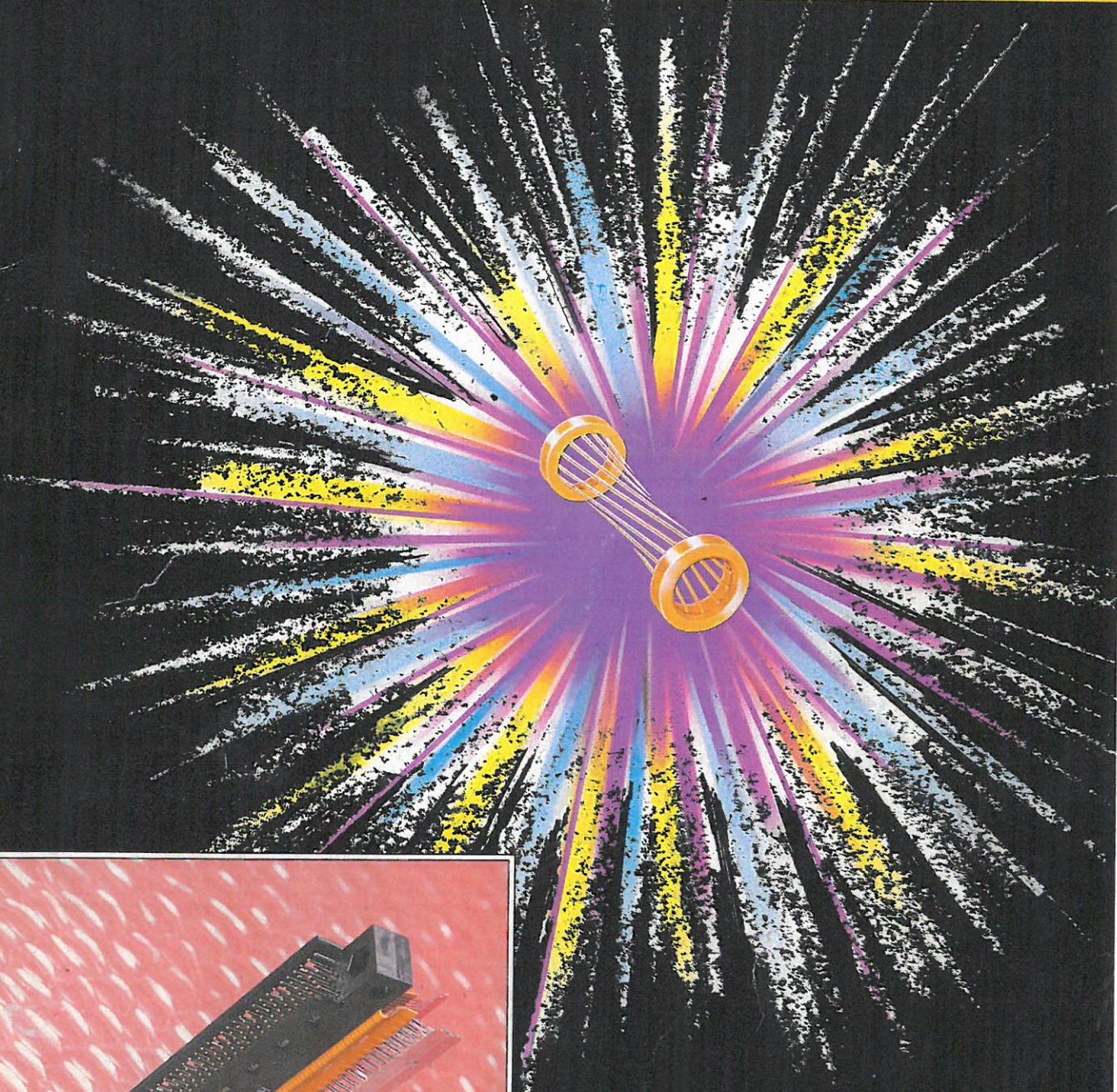

QUALITY INTERCONNECTIONS



**HIGH DENSITY
PRINTED BOARD CONNECTORS**

HYPERTAC

HYPERTAC



Hypertac was established in 1960 for the design, manufacture and marketing of a range of superb quality interconnection products based upon the highly reliable low insertion force 'Hypertac' socket principle.

The products immediately established the reputation of being the finest connectors in the world — a reputation they maintain to this day.

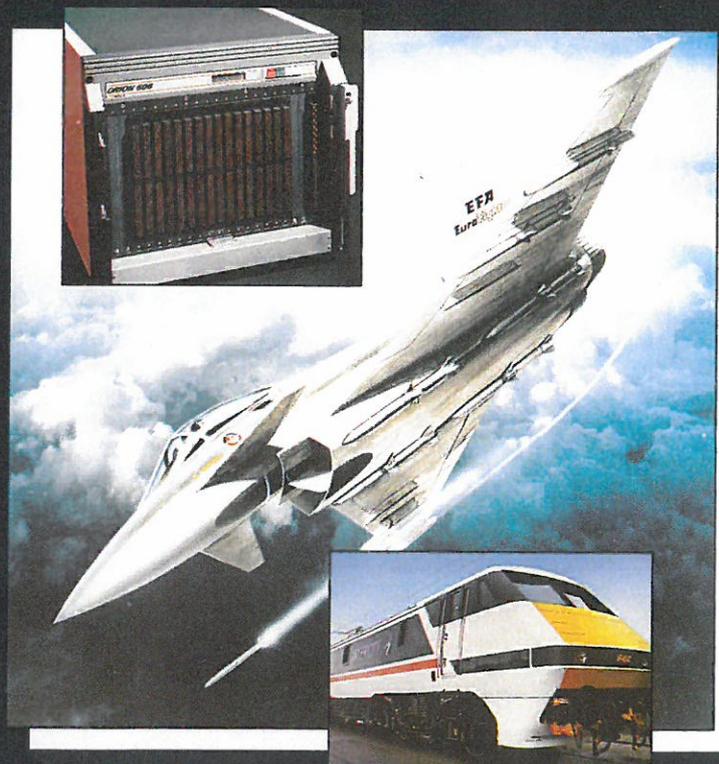
From their headquarters and manufacturing plant in North London, which covers 33,000 sq. feet and employs over 200 people, the needs of the UK and other parts of Europe are served. The United States, a growing market for Hypertac, is serviced by SI-TAC Connectors Inc. from a new facility which has been opened in California and staffed with a highly qualified team of experienced professionals.

APPLICATIONS

Over the past thirty years, the high integrity Hypertac connector has proven to be the ideal connector for applications where reliability is paramount.

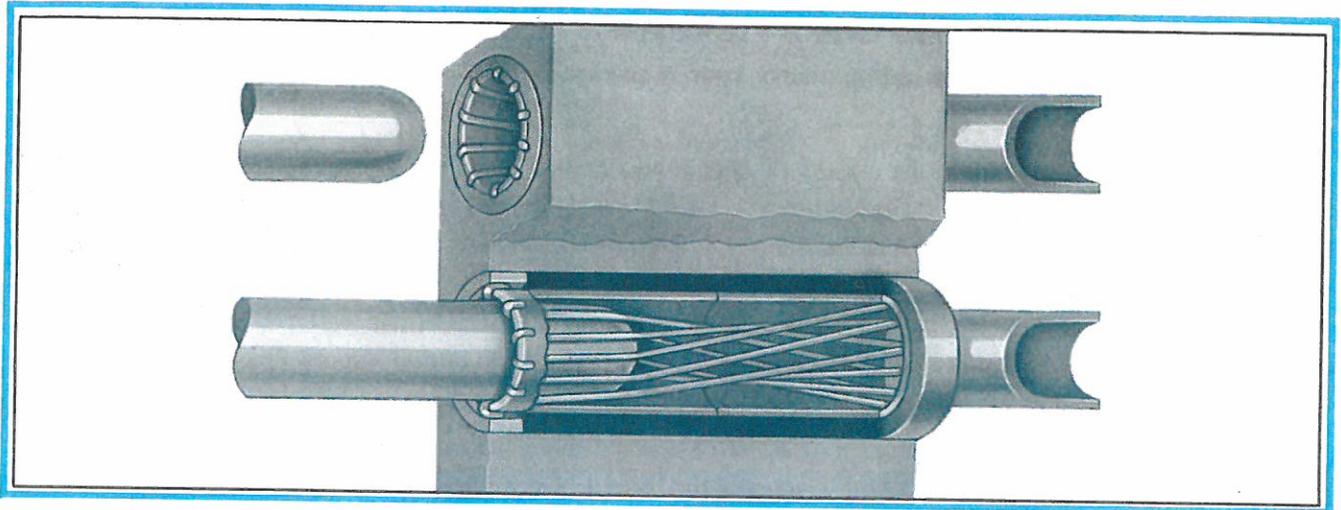
These include:

- Military aerospace and civil avionics
- Defence systems
- Naval electronics
- Automatic test equipment
- Medical equipment
- Space projects
- Rail traction
- Industrial equipment
- Robotics
- Telecommunications



The Principle of the HYPERTAC® Socket

The majority of the connectors that we manufacture have machine turned round pins in the male half and the unique HYPERTAC® socket in the female half. The socket has a number of spring wires, the position of which is defined by a wire carrier which is itself fitted into an outer sleeve or shank that carries the termination of the socket.



The spring wires within the socket are set at a small angle to the center line and are deflected when the pin enters. Each spring wire is deflected within its elastic limit and makes a line contact with the pin. There is a very smooth wiping action and little wear of the plated surfaces of the pin and the socket wires. This construction allows very tight control of the spring forces and hence of the insertion and withdrawal forces.

The smallest practical pin diameter is 0.5mm (0.02in) but there is effectively no upper limit.

Performance features of this combination of round pin in a HYPERTAC® socket are:

- ★ Low insertion and separation forces
- ★ Multiple contact areas
- ★ Long life and low rate of wear
- ★ Low electrical resistance
- ★ High reliability
- ★ Uniform electrical and mechanical characteristics over a high number of operations
- ★ Shock and vibration proof
- ★ High current and voltage ratings



The Benefits of Hypertac® Contact Technology

ENDURANCE

The Hypertac® contact is capable of significantly enhanced performance, above and beyond the requirements of BS and MIL approval. Tests have been successfully concluded as follows:

- ★ 500 Insertion and withdrawals followed by 1000 hours at 125°C, multiple exposure to salt mist, or 21 days exposure to sulphur dioxide.
- ★ 20,000 full insertion and withdrawal cycles in a benign environment.
- ★ Over 10 million fretting cycles of approximately 1 mm movement.

TEMPERATURE

The very low contact resistance of the Hypertac® socket ensures the minimum temperature rise at high currents.

Peak temperature of insulator material is the primary limiting factor. Materials used in Hypertac connectors are chosen to:

- ★ Provide Widest Ambient Temperature range
- ★ Withstand Temperature Peaks during assembly, even those generated during Vapour Phase soldering.

VOLTAGE RATING

The exposed airgap and surface path length determine the breakdown voltage. The voltage rating can be improved by the use of additional dielectric material such as:

- ★ Fluorosilicone interfacial seals.
- ★ Potting or conformal coating.

In addition, contacts may be selectively loaded into the insulator to ensure maximum airgaps. General ratings are shown in the table.

TEST RESULTS FOR CONNECTOR TYPE HPD						
Altitude						
Feet	0	15,000	30,000	50,000	70,000	100,000
Kilometres	0	4.5	9.2	15.2	21.3	30.4
Temperature						
Degrees C	25°	-15°	-44°	-56°	-55°	-46°
Flashover, Volts						
d.c.	4,300	3,900	3,000	1,500	950	510
a.c. 400 Hz*	1,920	1,700	1,320	920	620	415
Withstanding						
d.c.	3,200	2,900	2,200	1,100	700	375
a.c. 400 Hz*	1,400	1,250	975	675	450	300
Rated Voltage						
d.c.	1,000	950	725	350	225	120
a.c. 400 Hz*	450	400	325	225	150	100

*r.m.s. Measurements

MIL Std 202 Method 301, MIL Std 1344 Method 3001

CURRENT RATING

The Hypertac® contact design and manufacturing tolerances endows the product with the following attributes:

- ★ Double the current rating of other contact designs of a similar size.
- ★ Current surges considerably in excess of d.c. rating e.g. 4 Amp 0.6mm rated contact will withstand 50 Amp, 5 second pulse, at 25°C
- ★ Low contact resistance in high current application minimises temperature rise thereby enabling higher density interconnects.

We will be pleased to advise on your application and installation requirements. Hypertac® contacts can provide the solution to your interconnection needs.



Contact Plating Finishes

Connector Finish Ordering Code	Description	Component	Component Finish Ordering Code	Qualified to:	Plating Thickness*
A	Gold Plate	Socket	-/5	BS 9525	0.8 μm gold plate 32 μin gold plate
		Pin	-/6	BS 9525	0.8 μm gold plate 32 μin gold plate
U	Gold Plate	Socket	-/9	MIL-G-45204	1.27 μm gold plate 50 μin gold plate
		Pin	-/7	MIL-G-45204	1.27 μm gold plate 50 μin gold plate

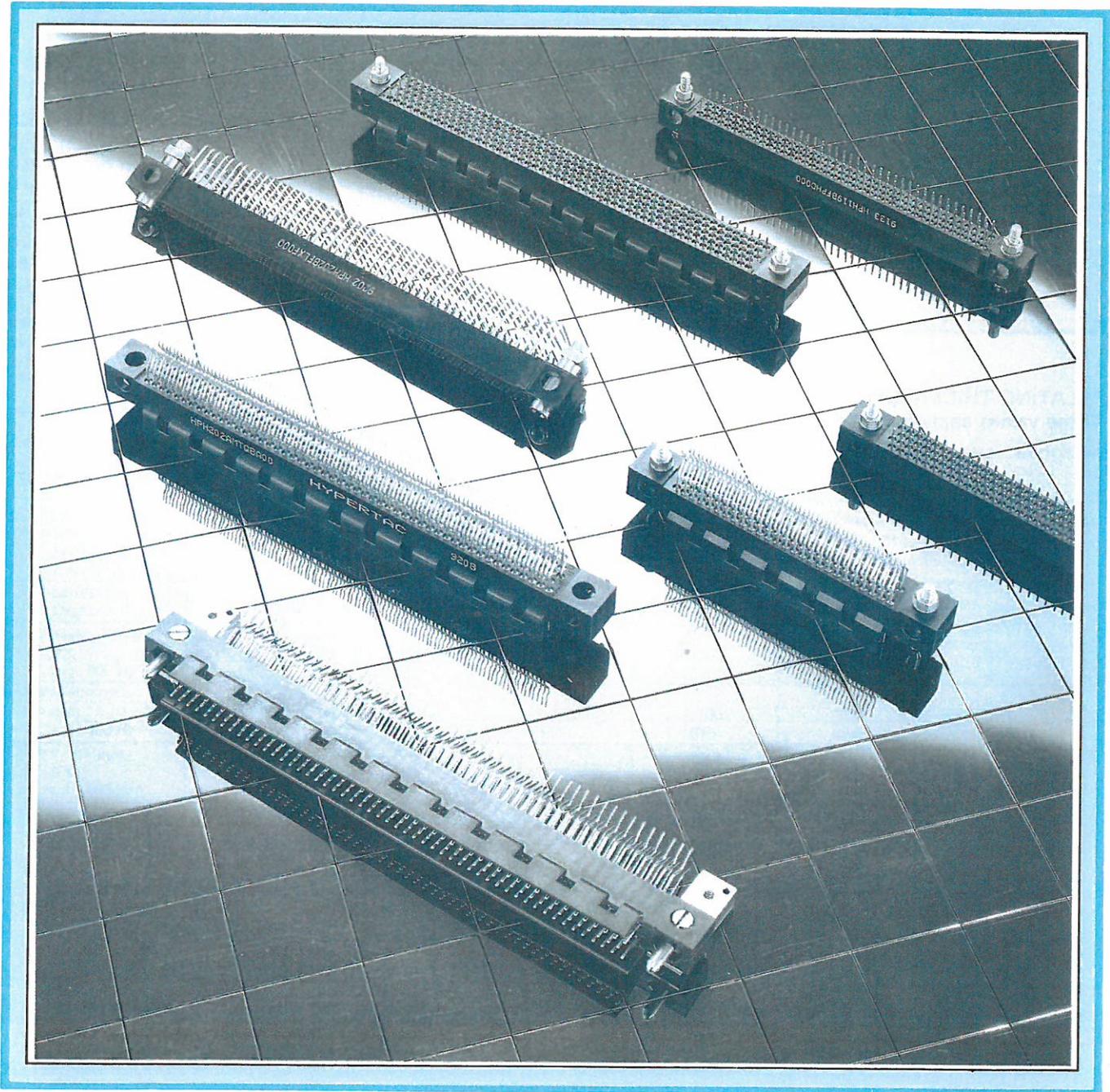
***PLATING THICKNESS**

These values apply to mating surfaces.



High Density Printed Board Connectors HPH

- ★ Up to 303 contacts on a 1.905 mm (0.075 in.) staggered grid.
- ★ Low engagement and withdrawal forces.
- ★ Low contact resistance maintained under shock and vibration.
- ★ Long life and low rate of wear for high reliability.
- ★ 0.6 mm (0.024 in.) nominal pin diameter.
- ★ Three, four, five and six rows.
- ★ Removable contacts for ease of maintenance.



High Density Printed Board Connectors

HPH

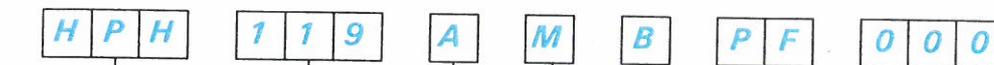
SPECIFICATION

Materials

Insulators	: Polyphenylene sulphide
Contact Pin and Socket	: Brass
Socket Wires	: Beryllium copper
Guides	: Nickel plated brass or stainless steel
Male Pin Diameter	: 0.6mm nominal
Contact Plating	: Gold plate
Contact Resistance	: 7 milliohms maximum

Current Rating	: 4 Amps
Voltage Rating	: 170 V dc or ac peak nominal
Proof Voltage	: 800 V minimum
Insulation Resistance	: 5 Gigohms minimum at 500 Vdc
Mechanical Endurance	: In excess of 2000 operations
Engagement/Withdrawal Forces	: 0.42 N (1.5 oz) nominal per contact
Temperature	: -55 to +150°C

ORDERING INFORMATION



PREFIX

No. OF CAVITIES
77, 102, 119, 152, 202, 253, 303*

CONTACT PLATING

A = Gold plate
U = Gold plate per MIL-G-45204
B = A Plating with tin dipped termination
S = U Plating with tin dipped termination

CONTACT GENDER

M = Male
F = Female
C = Pin carrier
D = Shrouded pin carrier

CONTACT TERMINATION

B = Through board solder — 90° (standard)
E = Through board solder — straight (long)
F = Flex Terminations
K = Through board solder — straight (extra long)
L = Through board solder — 90° (long)
P = Through board solder — straight (standard)
R = Through board solder — 90° (extra long) — male only (3 row only)
X = Through board solder — straight (short)
S = Solder bucket — male only
T = Surface mount — male only
Y = Pin carrier — male only

Other terminations consult sales.

*Please consult Sales Office for availability.

STANDARD VARIATIONS

000 = No variation
0P0 = Back potted

POLARISING/GUIDES

A* = Guide (female) non polarised, vertical mounting
B* = Guide (female) non polarised, transverse mounting, T bracket
D* = Guide (male) non polarised, vertical mounting
E* = Guide (male) non polarised, transverse mounting, T bracket
H* = Guide (female) polarised, vertical mounting
J* = Guide (female) polarised, vertical mounting X slots
K* = Guide (female) polarised, transverse mounting, T bracket
L* = Guide (female) polarised, transverse mounting, X slots
N* = Guide (male) polarised, vertical mounting
P* = Guide (male) polarised, transverse mounting, T bracket
Q* = Guide (male) polarised/non-polarised, transverse mounting, L bracket
X* = Jack socket (female) polarised, non rotating, transverse mounting
Y* = Jack guide (male) polarised, rotating, vertical mounting
5* = Guide (male) polarised/non-polarised, transverse mounting
* = Refer to board thickness and number of rows



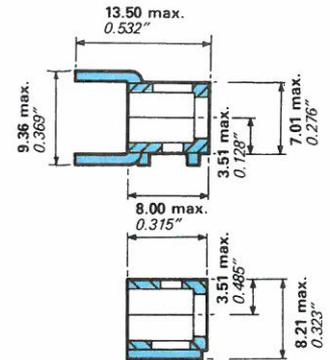
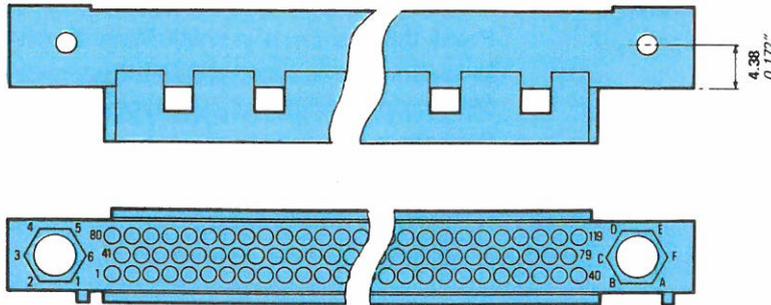
High Density Printed Board Connectors HPH

All diagrams are shown in 3rd angle projection and dimensioned in millimetres and inches

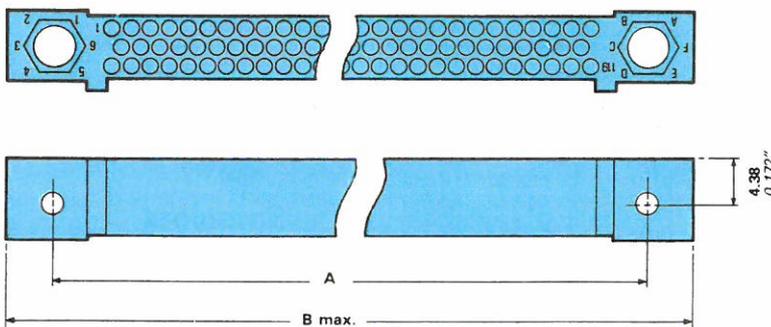
INSULATORS

3 ROW

Male Half



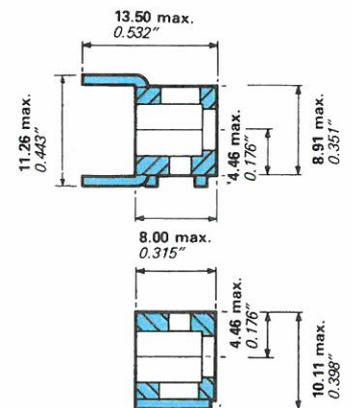
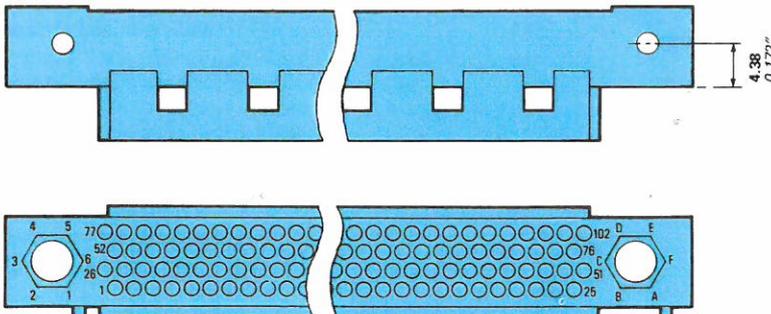
Female Half



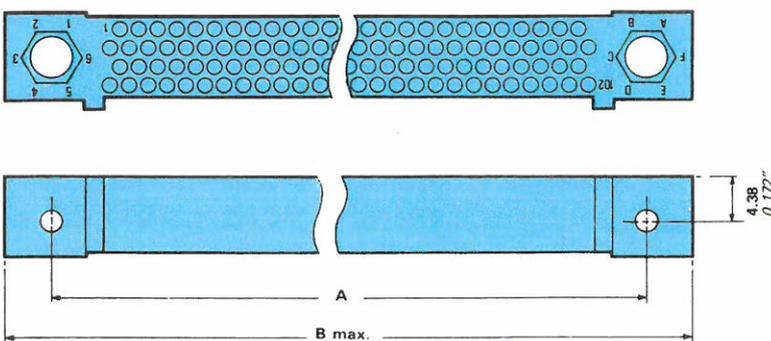
No. of Positions	77	119	152
Dimension A	59.06 2.330"	85.73 3.375"	106.68 4.200"
Dimension B	68.38 2.692"	95.05 3.742"	116.00 4.567"

4 ROW

Male Half



Female Half



No. of Positions	102	202
Dimension A	59.18 2.330"	106.68 4.200"
Dimension B	68.50 2.697"	116.00 4.567"



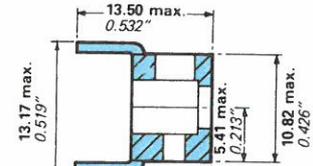
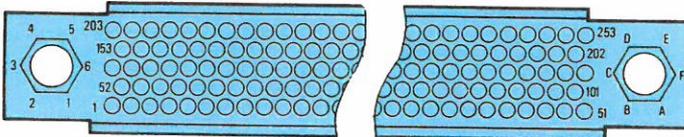
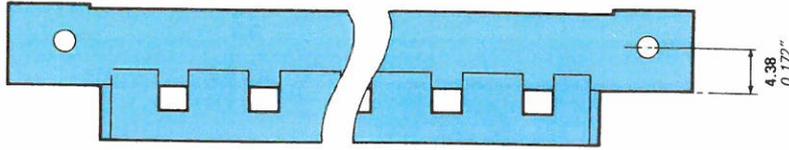
High Density Printed Board Connectors HPH

All diagrams are shown in 3rd angle projection and are dimensioned in millimetres and inches

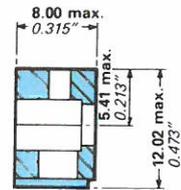
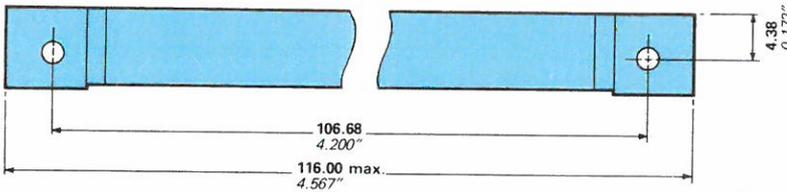
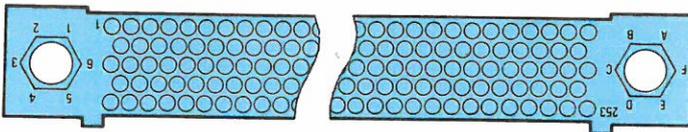
INSULATORS

5 ROW

Male Half

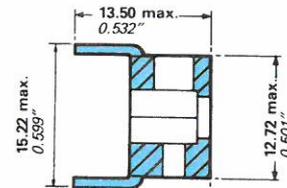
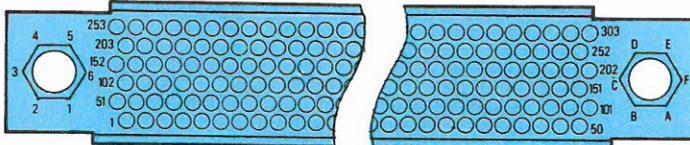
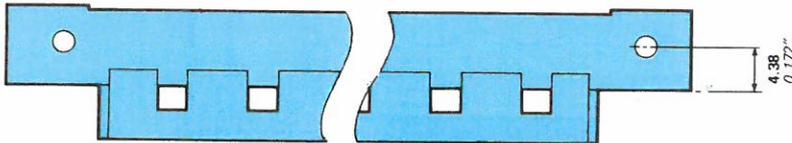


Female Half

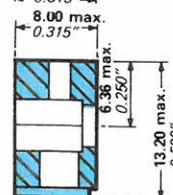
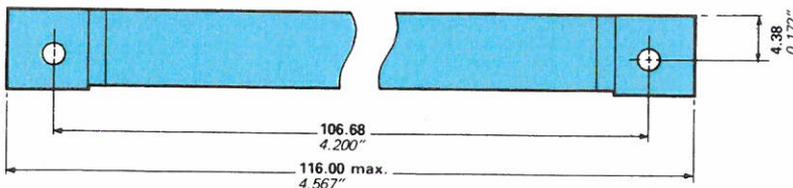
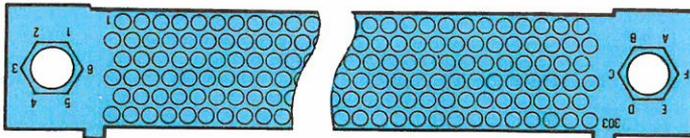


6 ROW

Male Half



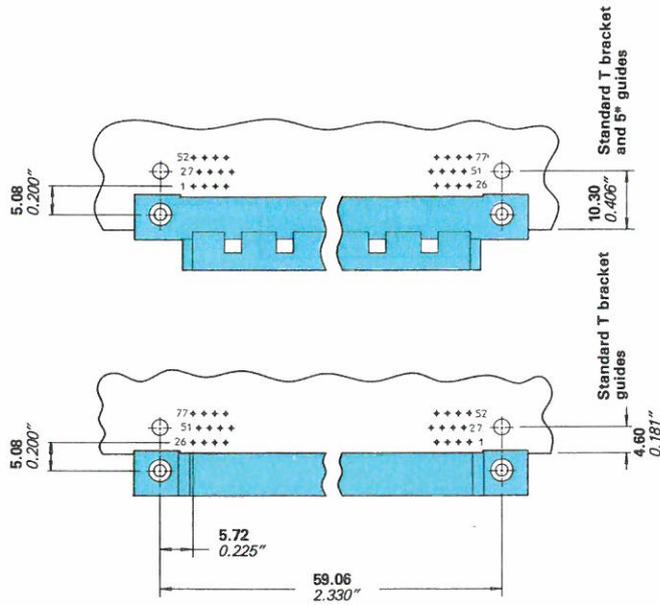
Female Half



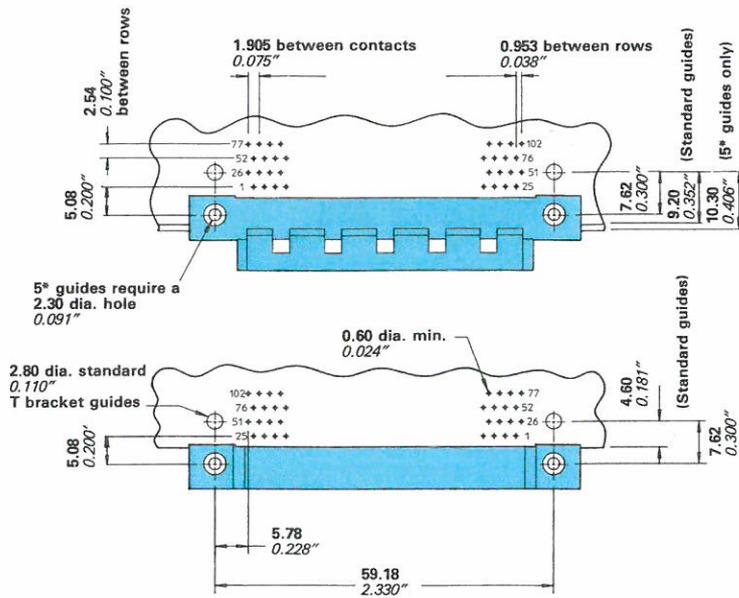
High Density Printed Board Connectors HPH

BOARD PREPARATION

77 Position

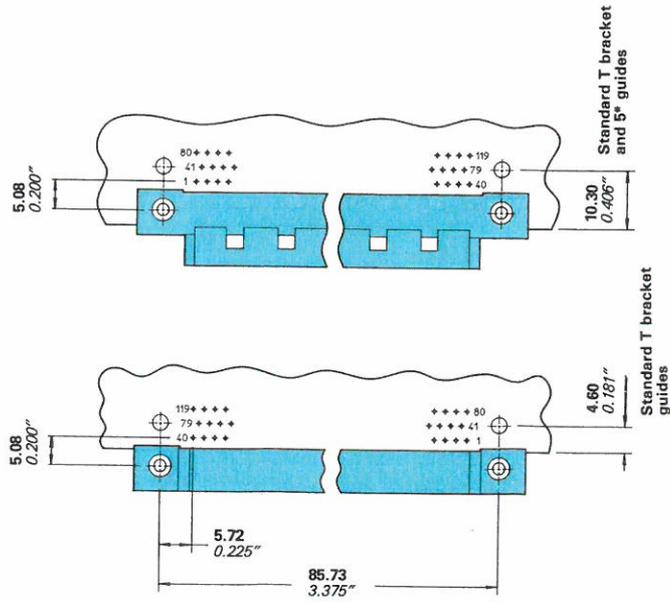


102 Position

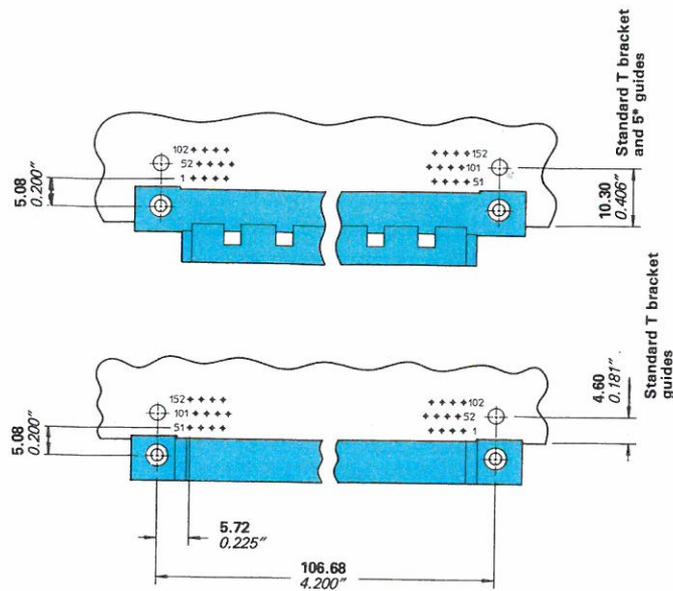


High Density Printed Board Connectors HPH

119 Position

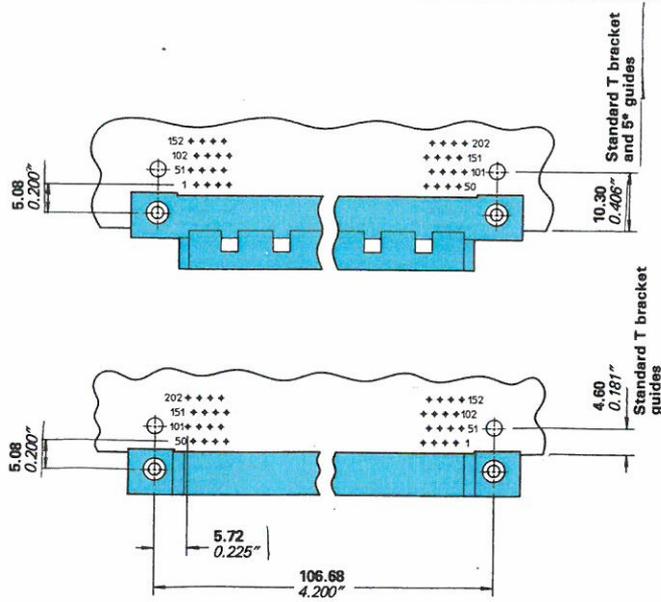


152 Position

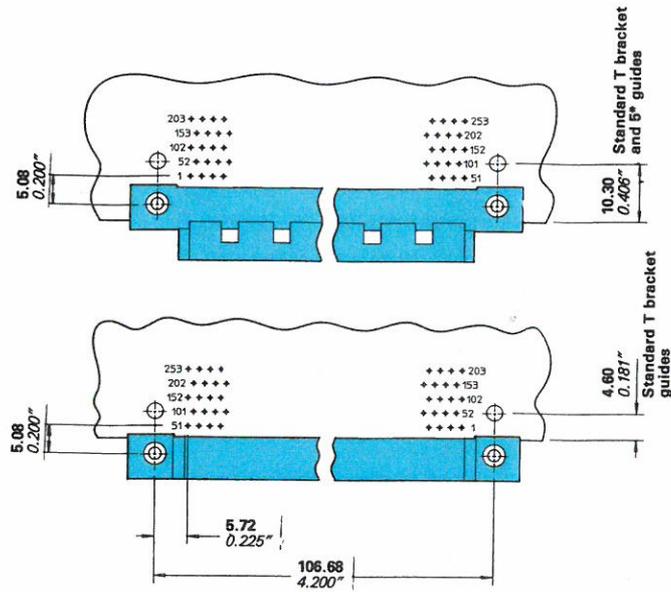


High Density Printed Board Connectors HPH

202 Position



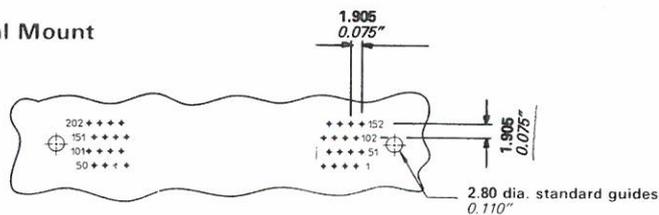
253 Position



NOTES

- (1) All dimensions are as the 102 position board unless stated otherwise
- (2) Vertical connector details have the same numbers but the guide holes are positioned centrally (See example below).

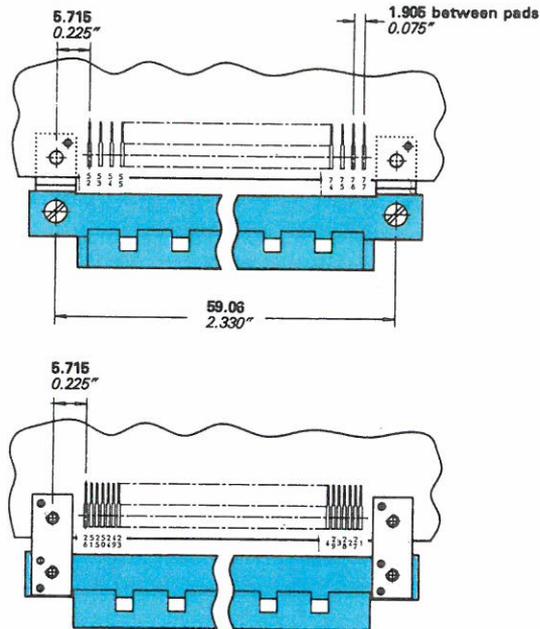
202 Position Female Connector Vertical Mount



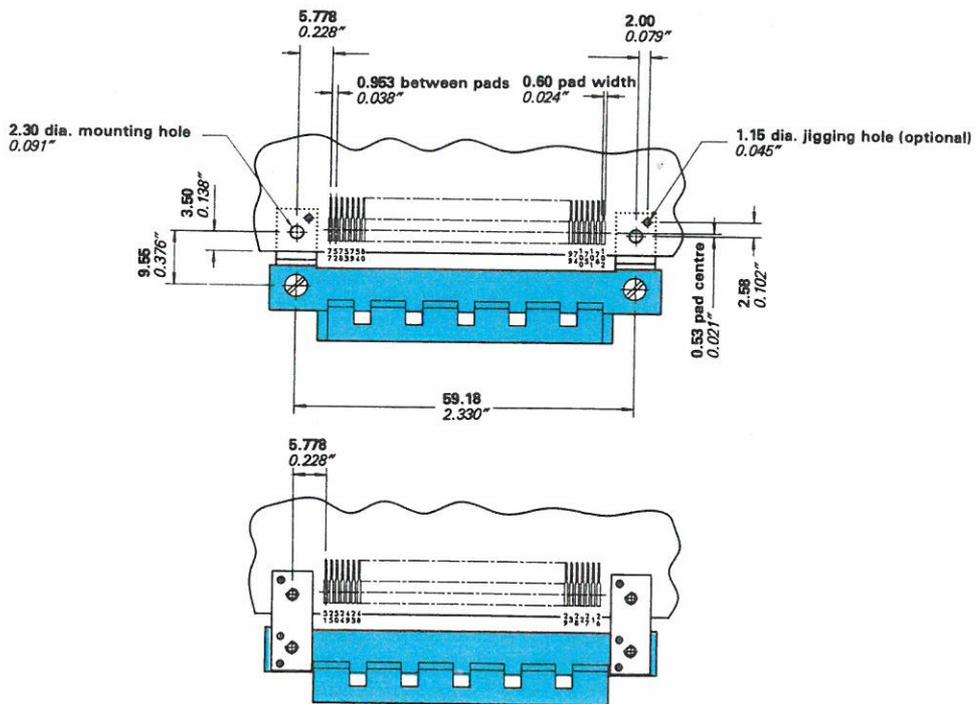
High Density Printed Board Connectors HPH

BOARD PREPARATION SURFACE MOUNT

77 Position

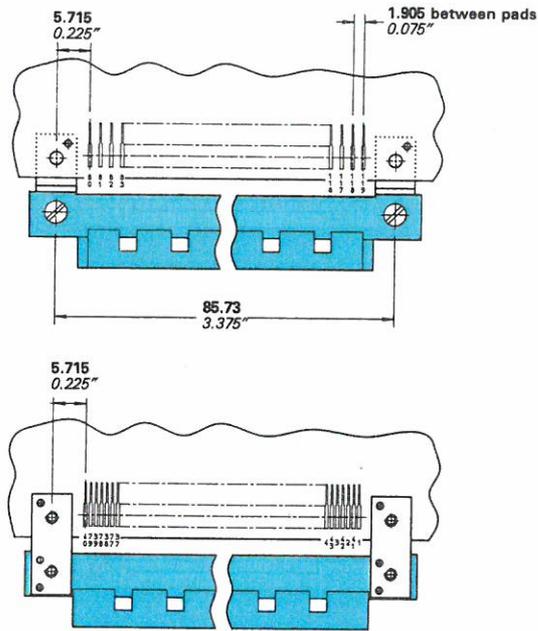


102 Position

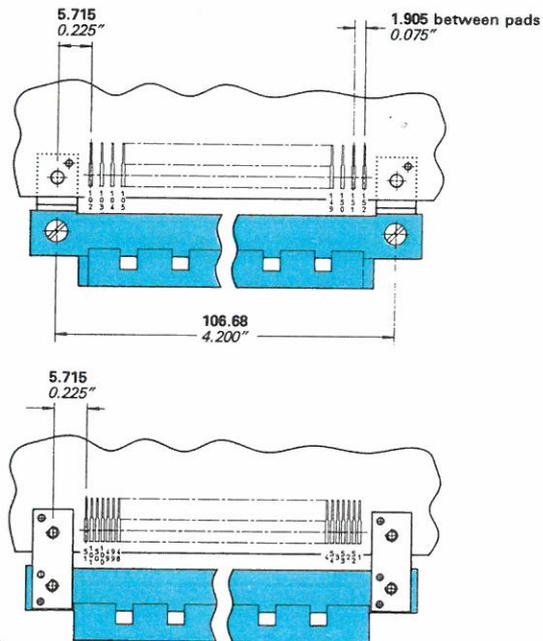


High Density Printed Board Connectors HPH

119 Position

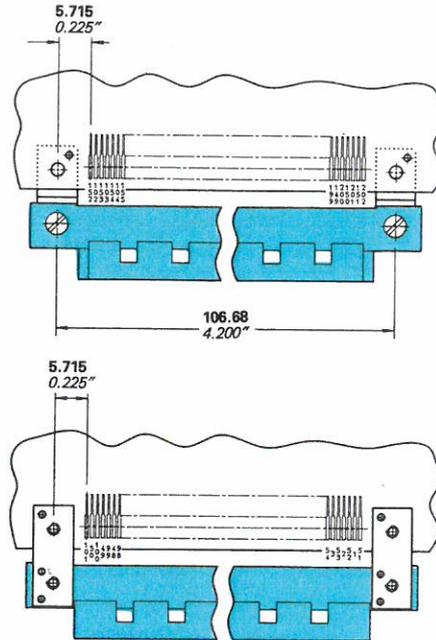


152 Position



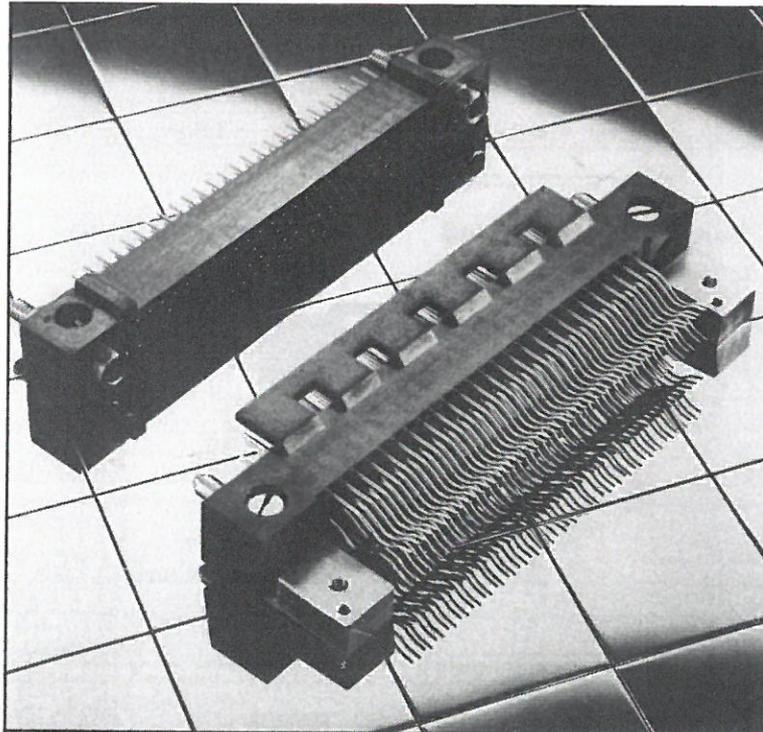
High Density Printed Board Connectors HPH

202 Position



NOTE

All dimensions are as the 102 position board unless otherwise stated.



Surface Mount Connector — 102 Position

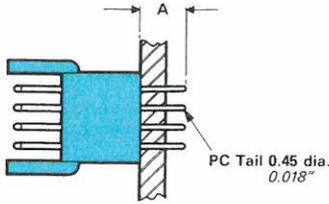


High Density Printed Board Connectors HPH

TERMINATIONS

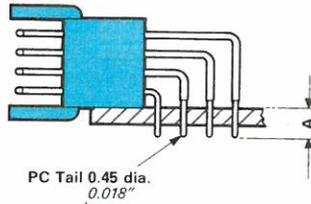
Male Half

Through Board Solder -- Straight



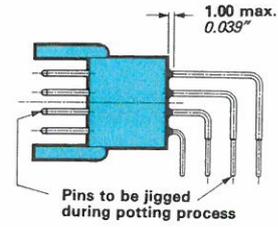
Termination	Dimension A
X	3.00 0.118"
P	4.50 0.177"
E	5.55 0.219"
K	6.70 0.264"

Through Board Solder -- 90°



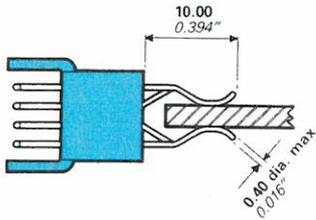
Termination	Dimension A
B	2.85 0.112"
L	4.00 0.157"
R	5.45 0.215"
3 row only	

Back Potted

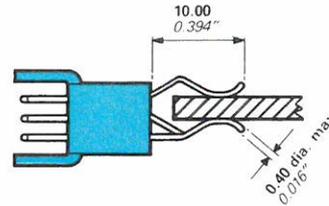


Style T

Surface Mount -- Centre Board 4 Row



Surface Mount -- Offset Board 3 Row



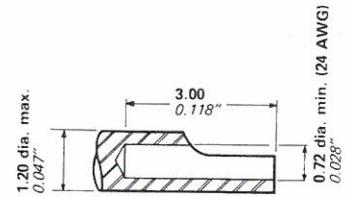
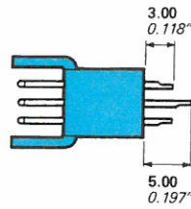
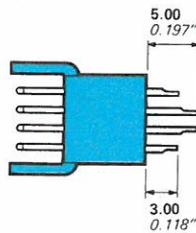
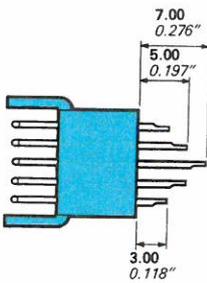
Style S

Solder Bucket -- 5 Row

Solder Bucket -- 4 Row

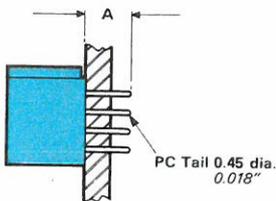
Solder Bucket -- 3 Row

Solder Bucket Details



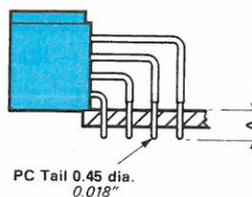
Female Half

Through Board Solder -- Straight



Termination	Dimension A
X	3.00 0.118"
P	4.50 0.177"
E	5.55 0.219"
K	6.70 0.264"

Through Board Solder -- 90°

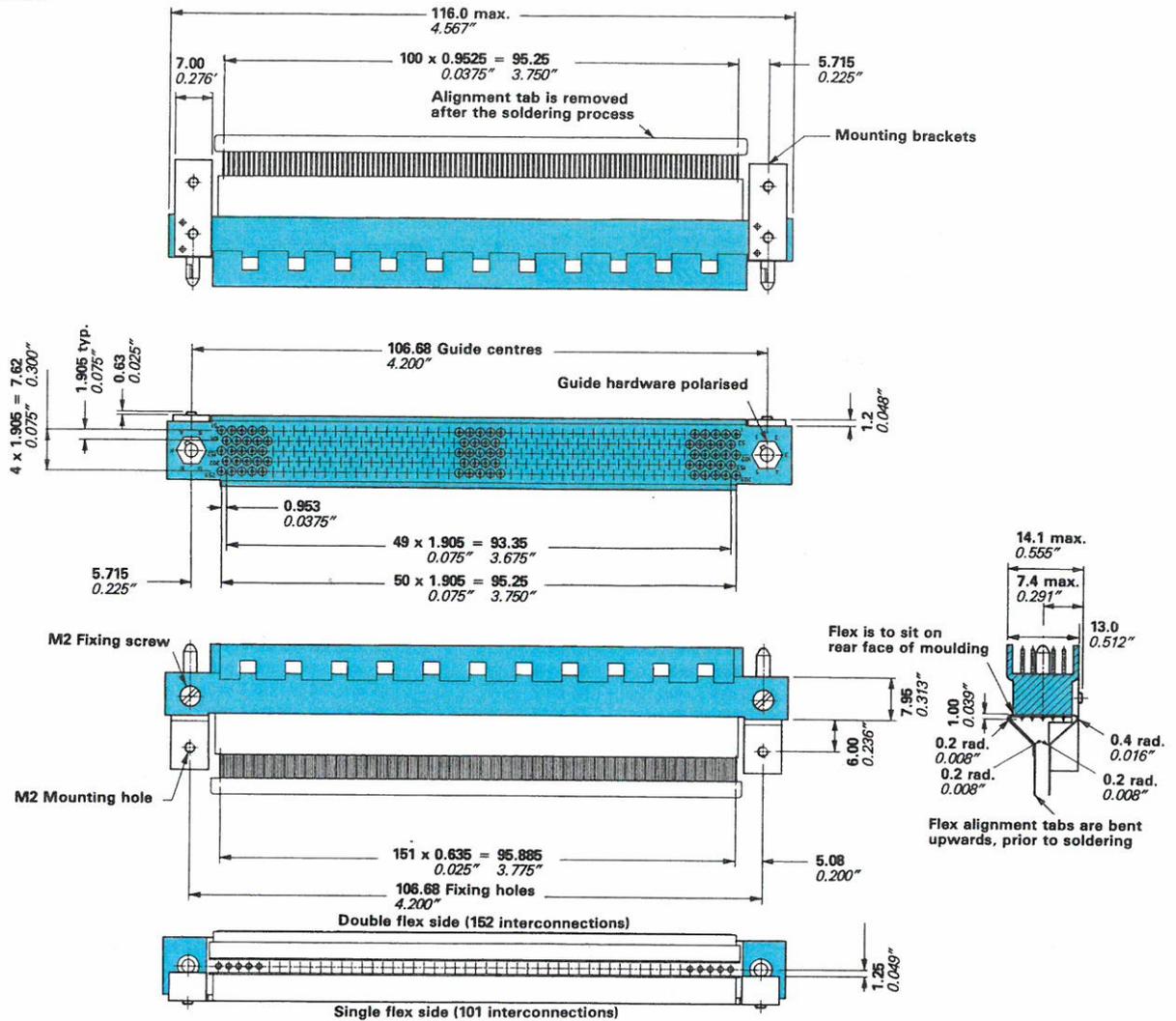


Termination	Dimension A
B	2.85 0.112"
L	4.00 0.157"

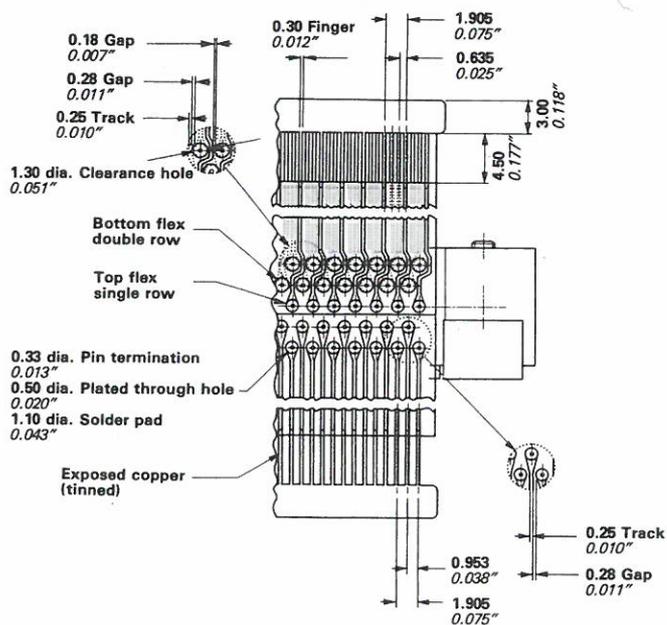
High Density Printed Board Connectors HPH

Flexible Circuit

(As illustrated on front cover)

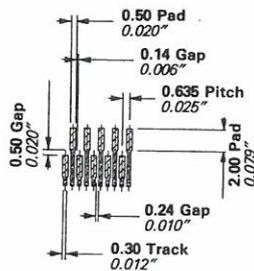


Connector Termination — Typical (Ref. only)

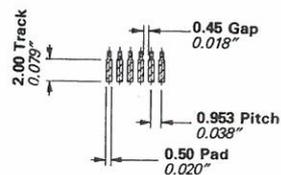


Board Details — Typical (Ref. only)

Double Flex



Single Flex



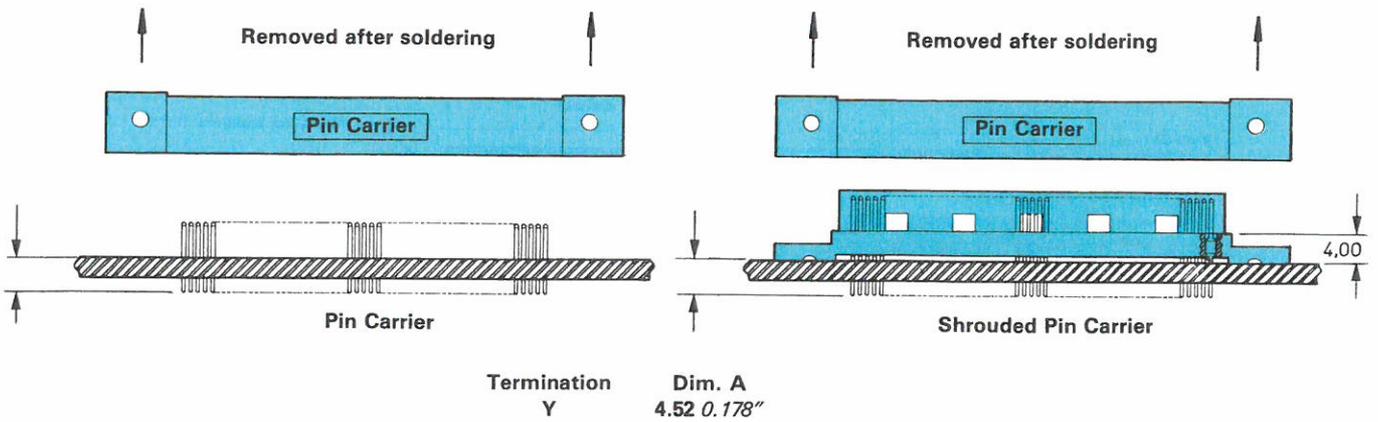
Double Flex Position on Board



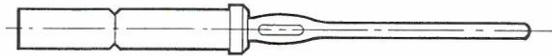
High Density Printed Board Connectors HPH

Pin Carrier

Shrouded Pin Carrier

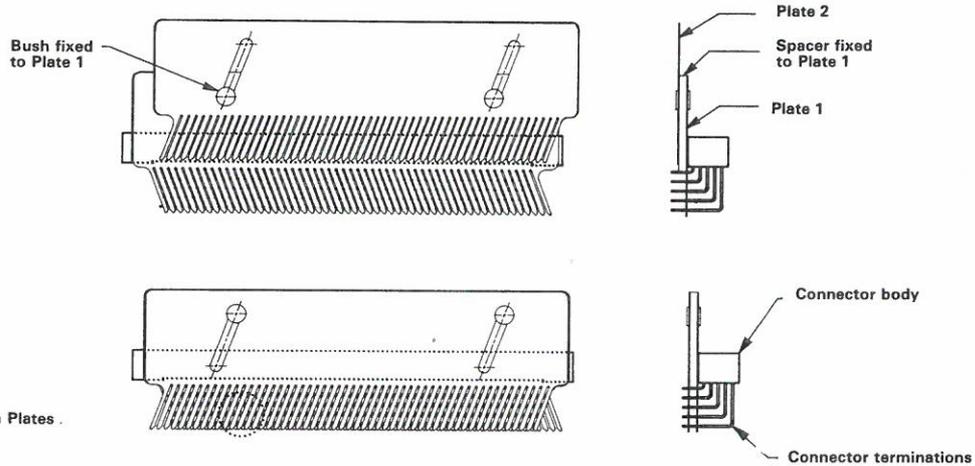


Compliant Terminations



A range of Compliant Terminations are available — please contact the Sales Office.

ACCESSORIES Alignment Comb



No. of Positions	Part No.
152, 202, 253	HPH 522
119	HPH 523
102, 77	HPH 524

Interfacial Seal

Code No. HPH 516



Length and width can be cut to required size



High Density Printed Board Connectors HPH

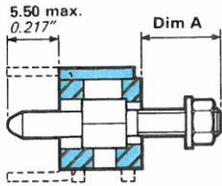
GUIDE INTERMATEABILITY CHART

FEMALE HPH Style	MALE																																																																
	DA	DB	DC	DD	DE	DF	EA	EB	EC	EE	EF	EG	EJ	EK	EL	EN	EP	EQ	GA	NA	NB	NC	PA	PB	PC	PE	PF	PG	PJ	PK	PL	PN	PP	PQ	PS	QA	QB	QC	OD	OE	OF	OG	OH	OJ	OK	OL	OM	ON	OP	OQ	OR	OS	OT	RA	RB	YA	YD	3A	3C	5A	5B	5C	5D	5E	5F
AA	█																		█																																														
AB	█																		█																																														
AC	█																		█																																														
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AF	█																		█																																														
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KG	█																		█																																														
KJ	█																		█																																														
KK	█																		█																																														
KL	█																		█																																														
KN	█																		█																																														
KP	█																		█																																														
KQ	█																		█																																														
LA	█																		█																																														
LB	█																		█																																														
LC	█																		█																																														
LE	█																		█																																														
LF	█																		█																																														
LG	█																		█																																														
LJ	█																		█																																														
LX	█																		█																																														
LL	█																		█																																														
LN	█																		█																																														
LP	█																		█																																														
LQ	█																		█																																														
SA	█																		█																																														
SB	█																		█																																														
SC	█																		█																																														
TA	█																		█																																														
TB	█																		█																																														
TE	█																		█																																														
TF	█																		█																																														
TJ	█																		█																																														
TK	█																		█																																														
TN	█																		█																																														
TP	█																		█																																														
WA	█																		█																																														
WB	█																		█																																														
WD	█																		█																																														
WE	█																		█																																														
XA	█																		█																																														
XB	█																		█																																														
XE	█																		█																																														
XF	█																		█																																														
XJ	█																		█																																														
XX	█																		█																																														
XN	█																		█																																														
XP	█																		█																																														
92	█																		█																																														



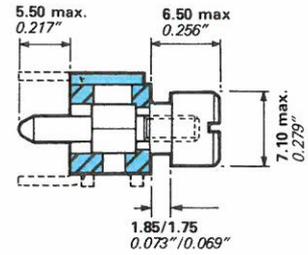
High Density Printed Board Connectors HPH

GUIDES MALE

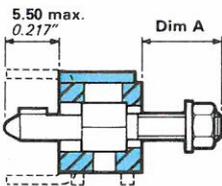


Style	Board Thickness	Dim. A max.
DD	1.00 0.040"	5.00 0.197"
DA	2.54 0.100"	6.55 0.258"
DB	5.08 0.200"	9.00 0.354"
DF	N/A	16.60 0.654"

Style D*
Non Polarised Vertical Mounting

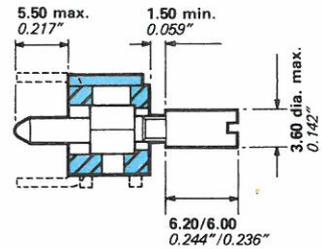


Style DC
Non Polarised Vertical Mounting
(Floating)

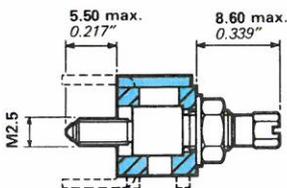


Style	Board Thickness	Dim. A max.
NC	1.60 0.063"	5.70 0.224"
NA	2.54 0.100"	6.55 0.258"
NB	5.08 0.200"	9.00 0.354"

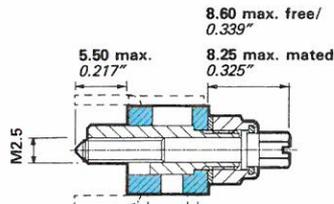
Style N*
Polarised Vertical Mounting



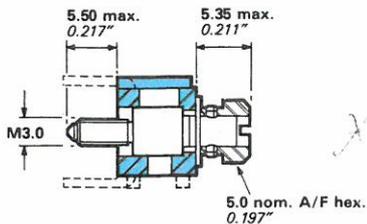
Style DE
Non Polarised Vertical Mounting



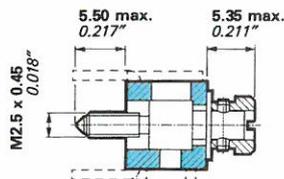
Style YA
Jack Guide Polarised Rotating
Vertical Mounting
Max. Torque 1lb



Style YD
Jack Screw Polarised
Vertical Mounting



Style 3A
Jack Guide Non Polarised Rotating
Free Connector

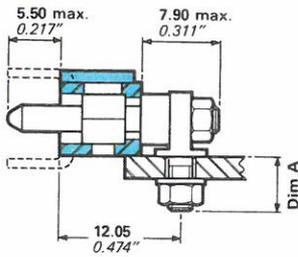


Style 3C
Jack Guide Non Polarised Rotating
Free Connector

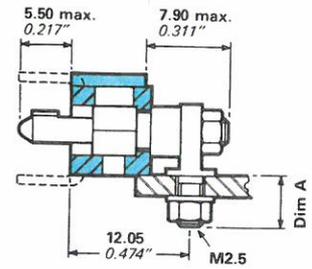


High Density Printed Board Connectors HPH

GUIDES MALE

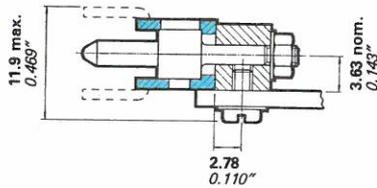


3 Row	4 Row	5 Row	Board Thickness	Dim. A max.
EA/PA	EB/PB	EC/PC	1.60 0.063"	4.70 0.185"
EE/PE	EF/PF	EG/PG	2.00 0.079"	5.10 0.210"
EJ/PJ	EK/PK	EL/PL	2.54 0.100"	5.70 0.224"
EN/PN	EP/PP	EQ/PQ	3.20 0.126"	6.30 0.248"

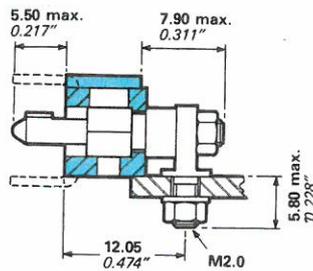


Style E*
Non Polarised Transverse Mounting
T Bracket

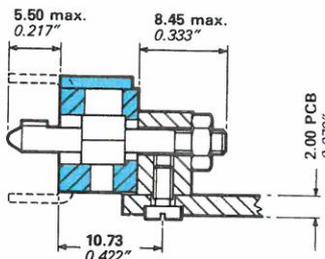
Style P*
Polarised Transverse Mounting
T Bracket



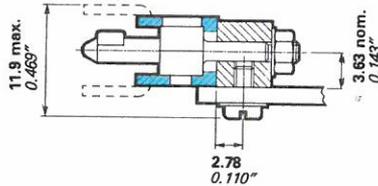
Style GA
Non Polarised Transverse Mounting



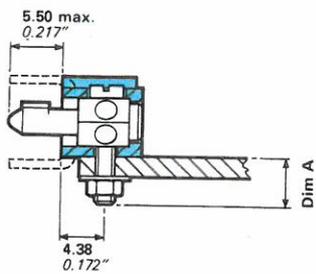
Style PS
Polarised Transverse Mounting



Style RA
Polarised Transverse Mounting
(5 Row)

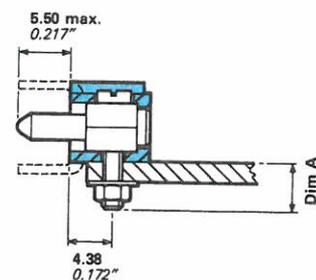


Style RB
Polarised Transverse Mounting



Style 5A/5B/5C
Polarised Transverse Mounting

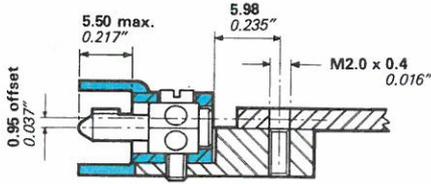
Style	No. of Rows	Board Thickness	Dim. A max.
5A/5D	3	1.60 - 2.00 0.063" - 0.079"	4.55 - 5.55 0.179" - 0.219"
5B/5E	3	2.54 - 3.20 0.100" - 0.126"	5.55 - 6.55 0.219" - 0.259"
5B/5E	4	1.60 - 2.00 0.063" - 0.079"	4.60 - 5.60 0.181" - 0.221"
5C/5F	4	2.54 - 3.20 0.100" - 0.126"	6.60 - 7.60 0.260" - 0.299"
5C/5F	5	1.60 - 3.20 0.063" - 0.126"	5.65 - 6.65 0.222" - 0.262"



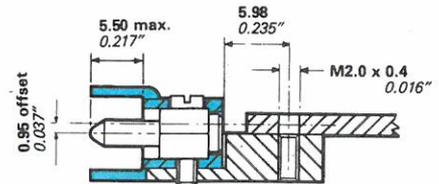
Style 5D/5E/5F
Non Polarised Transverse Mounting

High Density Printed Board Connectors HPH

GUIDES MALE

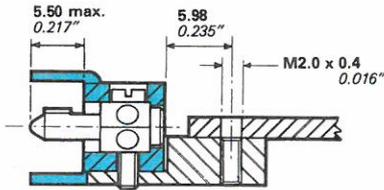


Style	Board Thickness
3 Row	
QB/QH	1.60 0.063"
QA/QG	2.00 0.079"
QC/QJ	2.54 0.100"



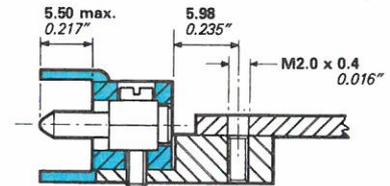
Style QA/QB/QC
Polarised Transverse Mounting
L Bracket

Style QG/QH/QJ
Non Polarised Transverse Mounting
L Bracket

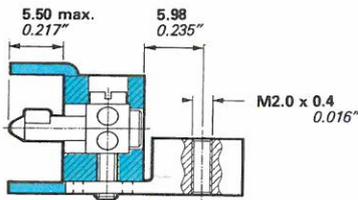


Style	Board Thickness
4 Row	
QD/QK	1.60 0.063"
QE/QL	2.00 0.079"
QF/QM	2.54 0.100"

Style QD/QE/QF
Polarised Transverse Mounting
L Bracket

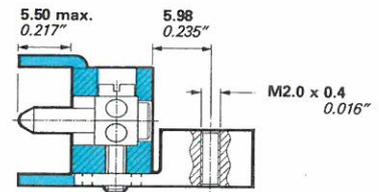


Style QK/QL/QM
Non Polarised Transverse Mounting
L Bracket



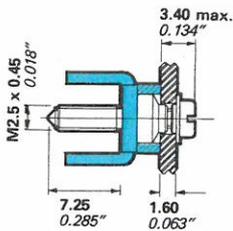
Style	Board Thickness
5 Row	
QN/QR	1.60 0.063"
QP/QS	2.00 0.079"
QQ/QT	2.54 0.100"

Style QN/QP/QQ
Polarised Transverse Mounting
L Bracket



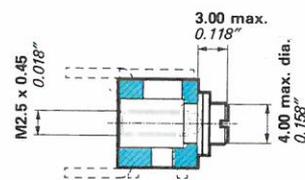
Style QR/QS/QT
Non Polarised Transverse Mounting
L Bracket

Pin Carrier Guide (Male)



Style 91
Jack Screw Non Polarised
Vertical Mounting

Pin Carrier Guide (Female)

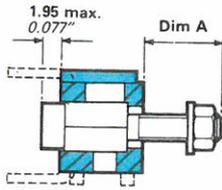


Style 92
Jack Socket Non Polarised
Vertical Mounting



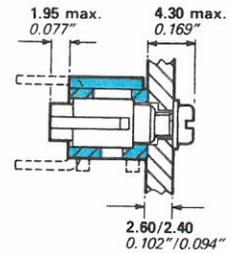
High Density Printed Board Connectors HPH

GUIDES FEMALE

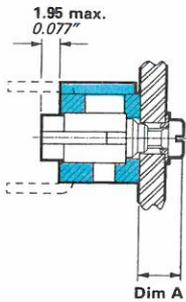


Style	Board Thickness	Dim. A max.
AC	1.00 0.040"	5.00 0.197"
AA	2.54 0.100"	6.55 0.258"
AB	5.08 0.200"	9.00 0.354"
AD	N/A	26.00 1.024"

Style A*
Non Polarised Vertical Mounting

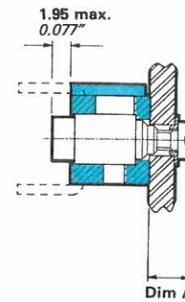


Style HE
Polarised Vertical Mounting

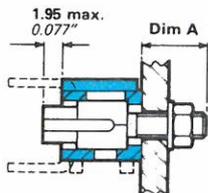


Style	Board Thickness	Dim. A max.
AF/HF	1.60 0.063"	3.40 0.134"
AG/HG	2.50 0.098"	4.30 0.169"

Style HF/HG
Polarised Vertical Mounting

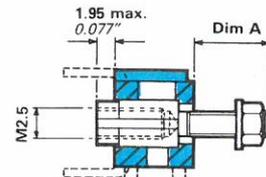


Style AF/AG
Non Polarised Vertical Mounting



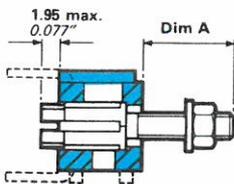
Style	Board Thickness	Dim. A max.
HA	2.54 0.100"	6.55 0.258"
HD	3.20 0.126"	7.20 0.284"
HB	5.08 0.200"	9.00 0.354"

Style H*
Polarised Vertical Mounting



Style	Board Thickness	Dim. A max.
WA	2.54 0.100"	6.55 0.258"
WB	5.08 0.200"	9.00 0.354"

Style W*
Polarised Vertical Mounting



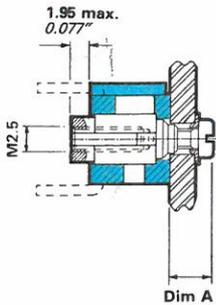
Style	Board Thickness	Dim. A max.
JA	2.54 0.100"	6.55 0.258"
JB	5.08 0.200"	9.00 0.354"

Style J*
Polarised Vertical Mounting 6 Slots

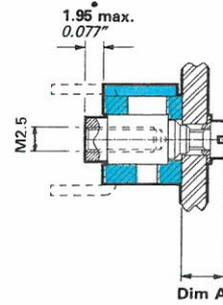


High Density Printed Board Connectors HPH

GUIDES FEMALE

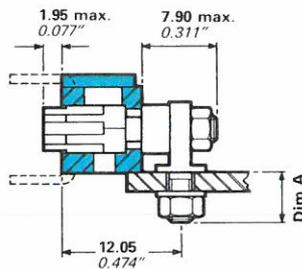
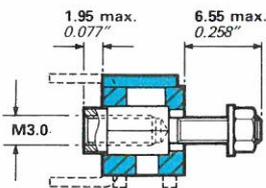


Style	Board Thickness	Dim. A max.
SB/WD	1.60 0.063"	3.40 0.134"
SC/WE	2.50 0.098"	4.30 0.169"



Style WD/WE
Jack Socket Polarised
Vertical Mounting

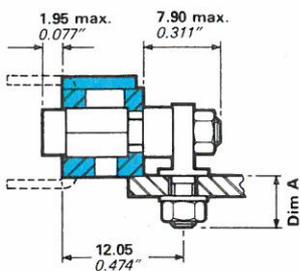
Style SB/SC
Jack Socket Non Polarised
Vertical Mounting



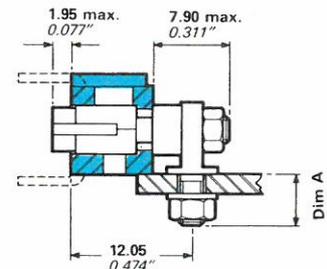
Style			Board Thickness	Dim. A max.
3 Row	4 Row	5 Row		
LN	LP	LQ	1.60 0.063"	4.70 0.185"
LA	LB	LC	2.00 0.079"	5.10 0.210"
LE	LF	LG	2.54 0.100"	5.70 0.224"
LJ	LK	LL	3.20 0.126"	6.30 0.248"

Style SA
Jack Socket Non Polarised
Vertical Mounting

Style L*
Polarised Transverse Mounting 6 Slots

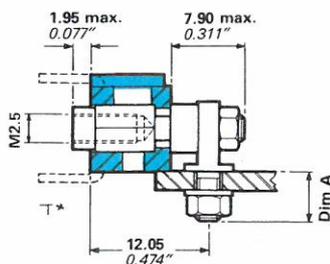


Style			Board Thickness	Dim. A max.
3 Row	4 Row	5 Row		
BA/KA	BB/KB	BC/KC	1.60 0.063"	4.70 0.185"
BE/KE	BF/KF	BG/KG	2.00 0.079"	5.10 0.210"
BJ/KJ	BK/KK	BL/KL	2.54 0.100"	5.70 0.224"
BN/KN	BP/KP	BQ/KQ	3.20 0.126"	6.30 0.248"

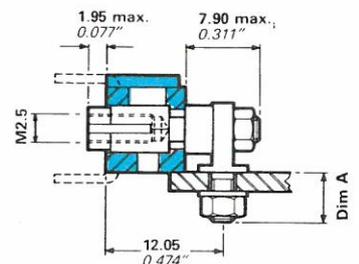


Style B*
Non Polarised Transverse Mounting

Style K*
Polarised Transverse Mounting
T Bracket



Style		Board Thickness	Dim. A max.
3 Row	4 Row		
TA/XA	TB/XB	1.60 0.063"	4.70 0.185"
TE/XE	TF/XF	2.00 0.079"	5.10 0.210"
TJ/XJ	TK/XK	2.54 0.100"	5.70 0.224"
TN/XN	TP/XP	3.20 0.126"	6.30 0.248"



Style T*
Jack Socket Non Polarised Transverse Mounting
T Bracket

Style X*
Jack Socket Polarised Non Rotating
Transverse Mounting T Bracket

