HIGH DENSITY CONNECTORS

NANO-D PITCH

As the need for increased miniaturisation is becoming ever greater, AXON' has developed an ultra-high density solution within the existing micro connector size. By putting nano contacts and nano pitch spacing into an existing micro shell, extremely compact connectors with very high pin counts can be produced in circular, rectangular, plastic and metal forms.

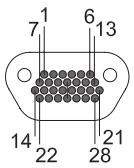
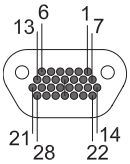
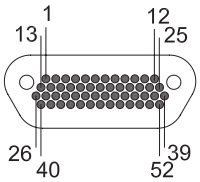
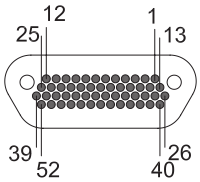
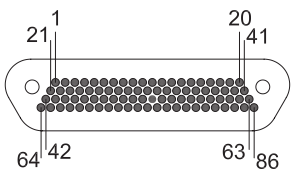
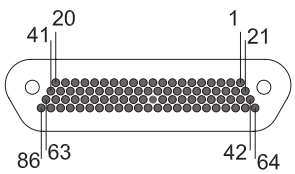
Optimal cabling density is achieved in a rectangular ultra high density connector made with Nano-D contacts and spacing inside a standard Micro-D shell size. Such a connector can accommodate a very large amount of pins while retaining excellent Micro-D reliability.

Most electrical and environmental performances are comparable to those of standard Nano-D connectors (250VAC, 200°C), combined with the robustness and shielding efficiency of the Micro-D metal shell.

This same process can be applied to most of the standard and special Micro-D range, making it possible to have ultra high density versions of PCB connectors, wide flange versions, circular, rectangular and combo style versions- with a mix of Micro-D and Nano-D contacts.

▲ RECTANGULAR HIGH DENSITY MICRO-D CONNECTORS

Contact arrangements

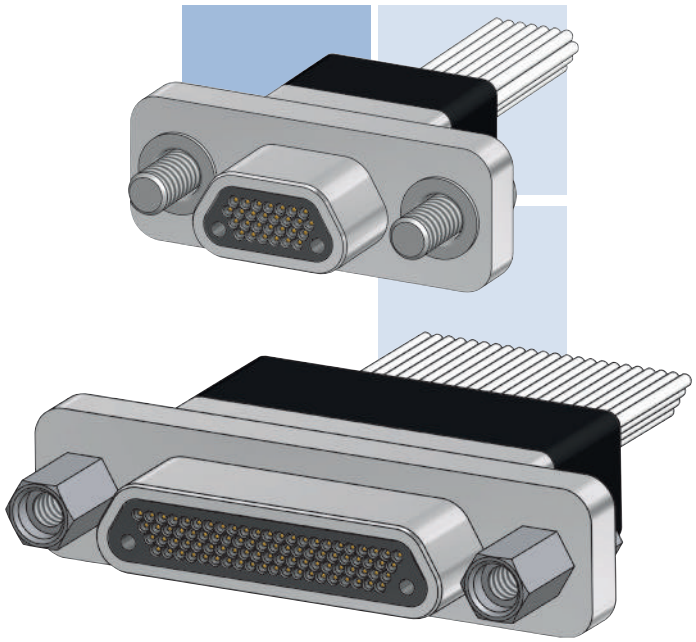
MATING FACE OF MALE CONNECTOR	MATING FACE OF FEMALE CONNECTOR
	
28 NANO WAYS IN A 9 WAY MICRO INSERT	
	
52 NANO WAYS IN A 15 WAY MICRO INSERT	
	
86 NANO WAYS IN A 25 WAY MICRO INSERT	

Electrical & mechanical characteristics

CHARACTERISTIC	SPECIFICATION	TEST METHOD
CURRENT RATING	1 A max.	EIA-364-70
SIGNAL CONTACT RESISTANCE	71 mΩ max.	EIA-364-06
INSULATION RESISTANCE	5000 MΩ min. @ 100 V DC	EIA-364-21
DIELECTRIC WITHSTANDING VOLTAGE - SEA LEVEL 0 m - ALTITUDE 21 km (70,000 ft)	 250 V AC 100 V AC	EIA-364-20
CONTACT ENGAGING AND SEPARATION FORCE	141 g max. (5 oz) 11 g min. (0.4 oz)	EIA-364-37
CONNECTOR MATING AND DE-MATING FORCE	198 g (7 oz) x number of contacts max.	EIA-364-13
CONTACT RETENTION	0.9 kg (2 lbs) for 5 seconds min.	EIA-364-29
DURABILITY	200 mating cycles min.	EIA-364-09
TEMPERATURE RANGES - STANDARD - HIGH TEMP	 -55°C / +150°C -55°C / +200°C	
VIBRATION	20 g's - No discontinuity >1µs	EIA-364-28 - TEST CONDITION IV
SHOCK	50 g's - No discontinuity >1µs	EIA-364-27 - TEST CONDITION E
SALT SPRAY	48 hours	EIA-364-26 - TEST CONDITION B
HUMIDITY	Insulation resistance > 1MΩ	EIA-364-31 - METHOD IV

Material & Finish

COMPONENT	MATERIAL	FINISH
MALE CONTACT (TWIST PIN)	PRECIOUS METAL ALLOY IN ACCORDANCE WITH ASTM-B-477 OR 541 OR 562	NONE
	BERYLLIUM COPPER IN ACCORDANCE WITH ASTM-B-194	GOLD PLATING IN ACCORDANCE WITH ASTM-B488, TYPE II, CLASS 1 (1.27µM (0.050") MIN.), CODE C OVER NICKEL UNDERPLATE IN ACCORDANCE WITH SAE-AMS-QQ-N-290 CLASS 2 (1.27µM (0.050") TO 3.81µM (0.150"))
FEMALE CONTACT	BERYLLIUM COPPER IN ACCORDANCE WITH ASTM-B-194	
METAL SHELL	ALUMINIUM ALLOY, TYPE 6061 IN ACCORDANCE WITH SAE-AMS-QQ-A-250/11	ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 3 OR 4, GRADE B
	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
PLASTIC / INSERT / PCB TRAY	LIQUID CRYSTAL POLYMER, 30% LOADED GLASS FIBRE POLYESTER, 94V0, IN ACCORDANCE WITH MIL-M-24519 (200°C)	
	PEEK	
HARDWARE	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
ENCAPSULANT	EPOXY RESIN	
INSULATED WIRE	PTFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH NEMA-HP3	
UNINSULATED WIRE	GOLD PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A-59551	



PIGTAIL CONNECTOR

METAL SHELL

- High performance metal connector and PTFE wires
- Operating temperature: 150°C or 200°C
- 28 to 86 contacts

IDENTIFICATION CODE

MDHDA	2	52	P	1	L	050	L

SERIES
MDHDA : Micro-D High Density AXON.

CONNECTOR TYPE
1 : Cadmium aluminum shell + potting 150°C.
2 : Nickel aluminum shell + potting 150°C.
3 : Nickel aluminum shell + potting 200°C.

NUMBER OF CONTACTS
28, 52, 86.
See page 230 for contact arrangements.

CONNECTOR GENDER
P : Male (pin contacts).
S : Female (socket contacts).

WIRE TYPE
1 : UT3007, AWG 30, 7 strands, 160V.
2 : ET3207, AWG 32, 7 strands, 250V.
3 : ET3407, AWG 34, 7 strands, 250V.
4 : ET3607, AWG 36, 7 strands, 250V.

COLOUR CODE
L : All white.
F : All yellow.
W : 10 colour repeat.
See page 20 for colour code.

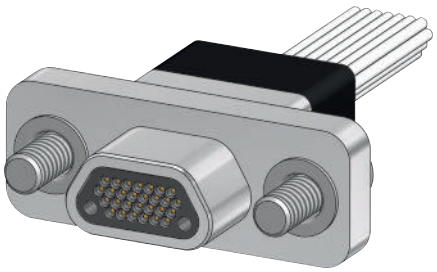
WIRE LENGTH (cm)
Attention ! Wire length in centimetres - (1cm = 10mm = 0.394").

L	L ≤ 10	10 < L ≤ 100	L >100
in cm (inches)	L ≤ 3.940	3.940 < L ≤ 39.40	L > 39.40
TOLERANCE	-0 / +0.5	-0 / +3	-0 / +5
in cm (inches)	-0 / +0.200	-0 / +1.180	-0 / +1.970

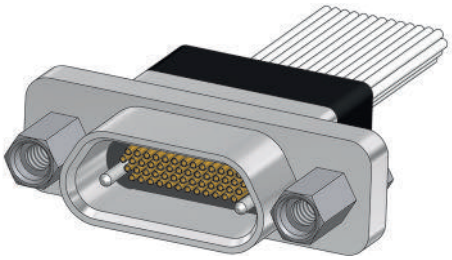
HARDWARE
B : No hardware.
C : U-clips with low profile hex skt head jackscrews (removable).
D : U-clips with low profile slot head jackscrews (removable).
M : Low profile socket hex head jackscrews (removable).
N : High profile socket hex head jackscrews (removable).
S : Low profile slot head jackscrews (removable).
T : High profile slot head jackscrews (removable).
P : Jackposts (removable).
K : High profile slot head jackscrews (non removable).
L : Low profile socket hex head jackscrews (non removable).
F : Float mount (non removable).

DIMENSIONS

Dimensions are in millimetres (inches).

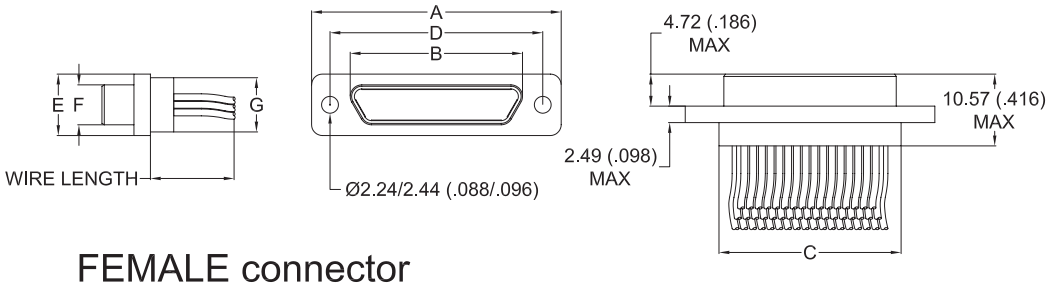


▲ PIGTAIL 28 WAY PLUG

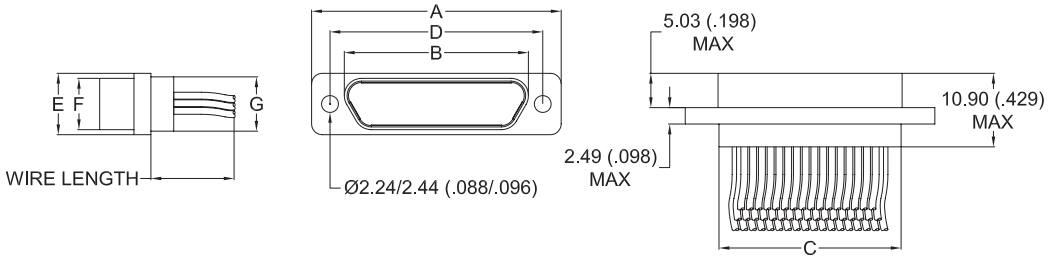


▲ PIGTAIL 86 WAY RECEPTACLE

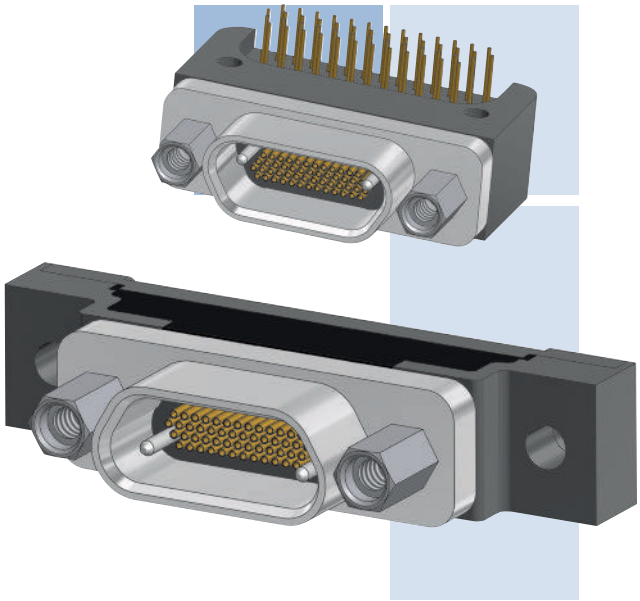
MALE connector



FEMALE connector



	A ± 0.25 (±.010)	B max.		C - 0.46/+0.25 (-.018/+0.10)	D ± 0.13 (±.005)	E ± 0.25 (±.010)	F max.		G max.
		Male	Female				Male	Female	
28 P / 28 S	19.69 .775	8.48 .334	10.16 .400	9.91 .390	14.35 .565	7.57 .298	4.69 .185	6.35 .250	6.86 .270
52 P / 52 S	23.50 .925	12.29 .484	14.00 .551	13.72 .540	18.16 .715	7.57 .298	4.69 .185	6.35 .250	6.86 .270
86 P / 86 S	29.85 1.175	18.64 .734	20.35 .801	20.07 .790	24.51 .965	7.57 .298	4.69 .185	6.35 .250	6.86 .270



PCB CONNECTOR

0.025" PITCH

METAL SHELL

-Board Straight connector and Board Right angle connector for flexible and rigid printed circuit board
- Operating temperature: 150°C or 200°C
- Several tail lengths available

IDENTIFICATION CODE

MDHDA	2	52	S	BS	W	G	1

SERIES
MDHDA : Micro-D High Density AXON.

CONNECTOR TYPE
1 : Cadmium aluminum shell + potting 150°C.
2 : Nickel aluminum shell + potting 150°C.
3 : Nickel aluminum shell + potting 200°C.

NUMBER OF CONTACTS
28, 52, 86 (number of nano-D contact).
See page 230 for contact arrangements.

CONNECTOR GENDER
P : Male (pin contacts).
S : Female (socket contacts).

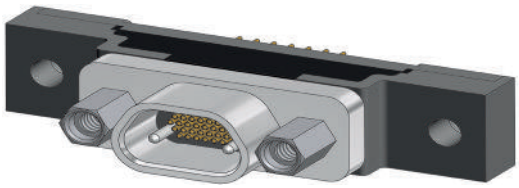
PCB VERSION
BS : Board Straight connector 0.025" pitch.
CBR : Condensed Board Right Angle connector 0.025" pitch.

HARDWARE
B: No hardware.
P : Jackposts (non removable).
T : Threaded inserts installed.
W : Jackpost and threaded inserts installed.

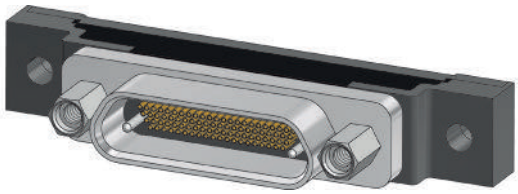
CONDUCTOR TYPE
G: Gold plated solid conductor AWG30.

TAIL LENGTH
1 : 2.80mm (0.110").
2 : 3.80mm (0.150").
3 : 4.80mm (0.190").

BOARD STRAIGHT TYPE (BS) 0.025” PITCH



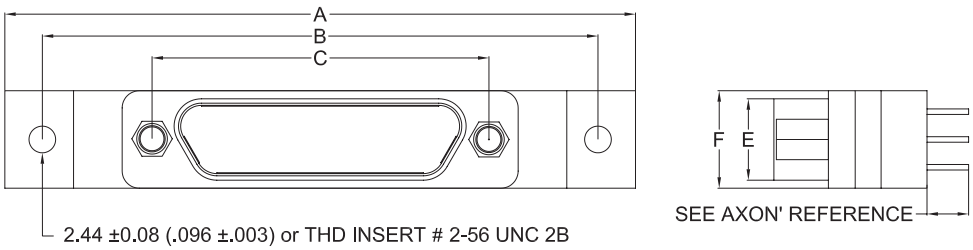
▲ BS 0.025” 28 WAY RECEPTACLE

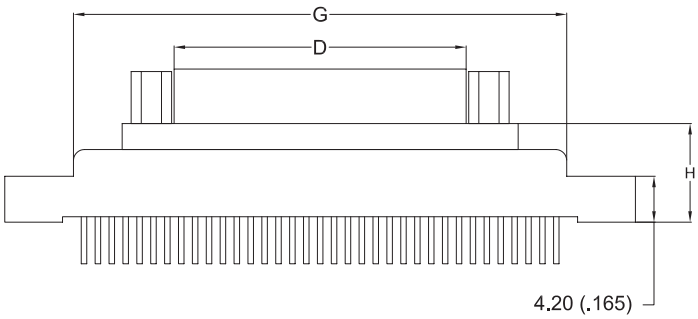


▲ BS 0.025” 86 WAY RECEPTACLE

DIMENSIONS

Dimensions are in millimetres (inches).



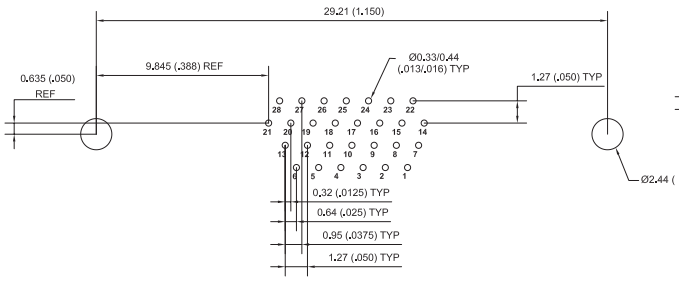


	A max.	B ± 0.18 (±.007)	C ± 0.13 (±.005)	D max.		E max.		F max.	G max.	H max.
				Male	Female	Male	Female			
28 P / 28 S	35.31 1.390	29.21 1.150	14.35 .565	8.48 .334	10.16 .400	4.69 .185	6.35 .250	7.82 .308	19.94 .785	9.02 .355
52 P / 52 S	35.31 1.390	29.21 1.150	18.16 .715	12.29 .484	14.00 .551	4.69 .185	6.35 .250	7.82 .308	24.00 .945	9.02 .355
86 P / 86 S	44.20 1.740	38.10 1.500	24.51 .965	18.64 .734	20.35 .801	4.69 .185	6.35 .250	7.82 .308	32.39 1.275	9.02 .355

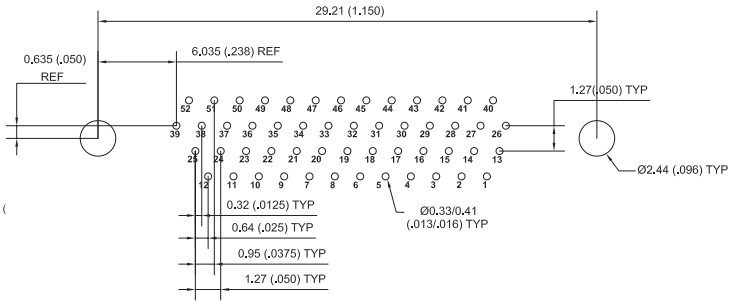
PCB LAYOUT FOR HIGH DENSITY BS TYPE 0.025" CONNECTORS

MALE CONNECTORS

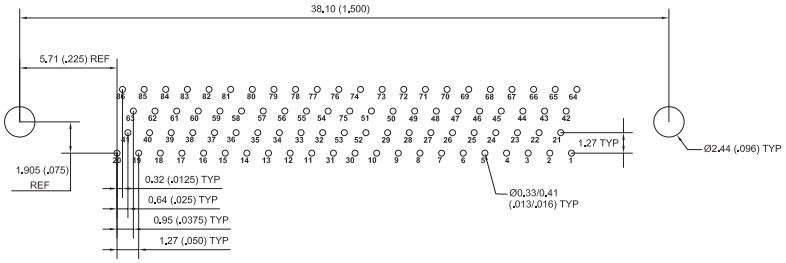
28 CONTACTS - VIEW B



52 CONTACTS - VIEW B

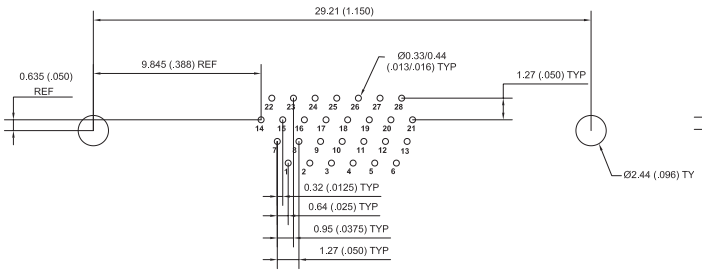


86 CONTACTS - VIEW B

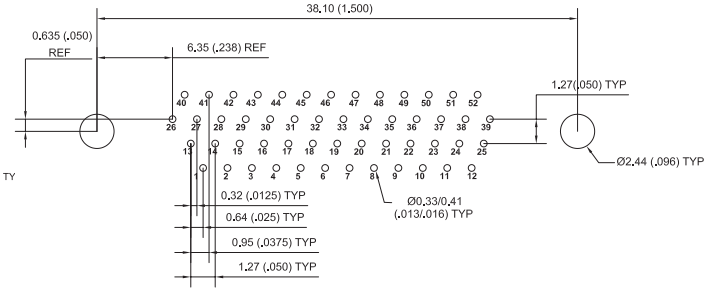


FEMALE CONNECTORS

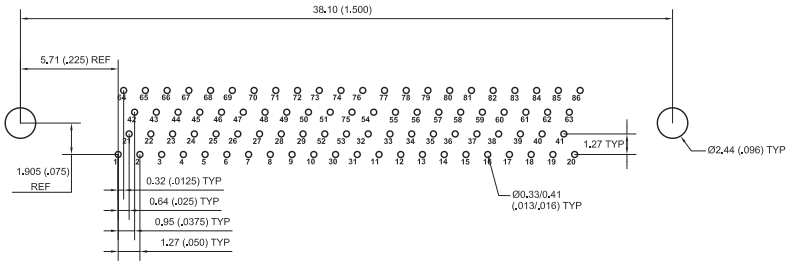
28 CONTACTS - VIEW B



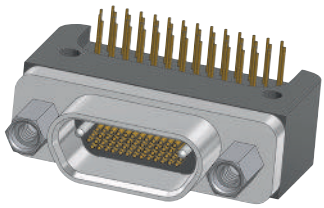
52 CONTACTS - VIEW B



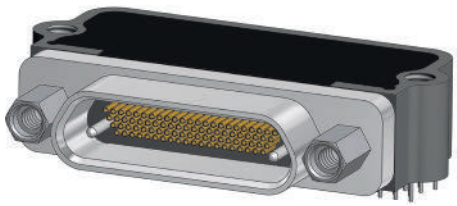
86 CONTACTS - VIEW B



CONDENSED BOARD RIGHT (CBR) 0.025” PITCH



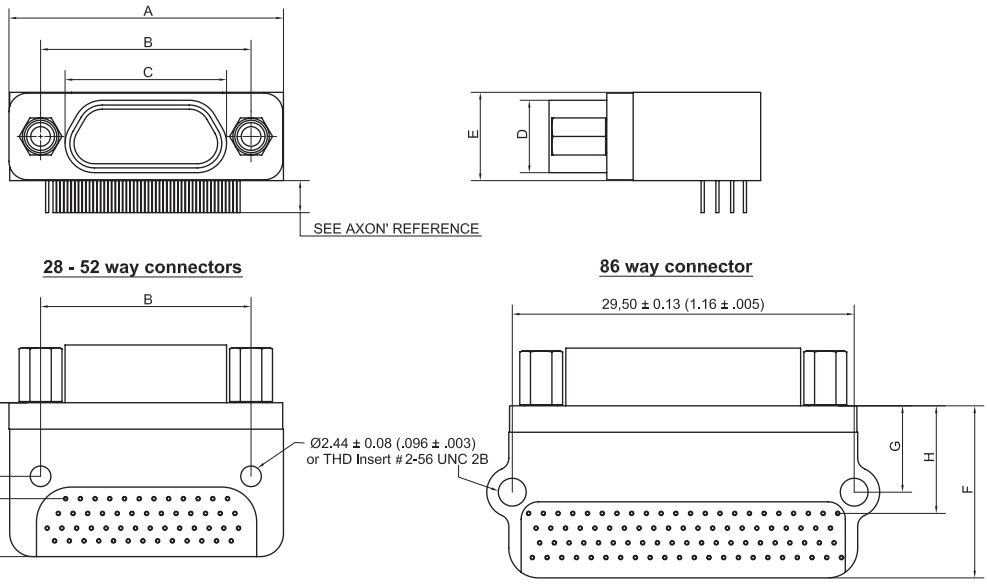
▲ CBR 0.025” 52 WAY RECEPTACLE



▲ CBR 0.025” 86 WAY RECEPTACLE

DIMENSIONS

Dimensions are in millimetres (inches).

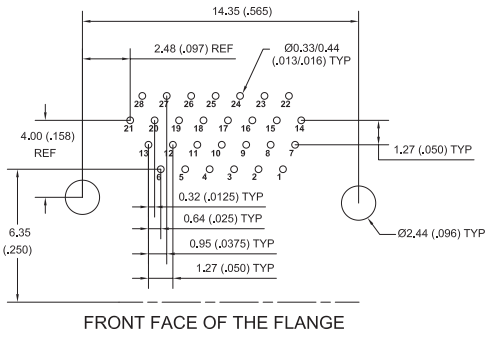


	A max.	B ± 0.13 (±.005)	C max.		D max.		E max.	F max.	G ± 0.25 (±.010)	H ± 0.25 (±.010)
			Male	Female	Male	Female				
28 P / 28 S	19.94 .785	14.35 .565	8.48 .334	10.16 .400	4.69 .185	6.35 .250	7.82 .308	13.50 .532	6.35 .250	7.81 .308
52 P / 52 S	23.75 .935	18.16 .715	12.29 .484	14.00 .551	4.69 .185	6.35 .250	7.82 .308	13.50 .532	6.35 .250	8.28 .326
86 P / 86 S	30.10 1.185	24.51 .965	18.64 .734	20.35 .801	4.69 .185	6.35 .250	7.82 .308	15.00 .590	7.45 .293	9.28 .365

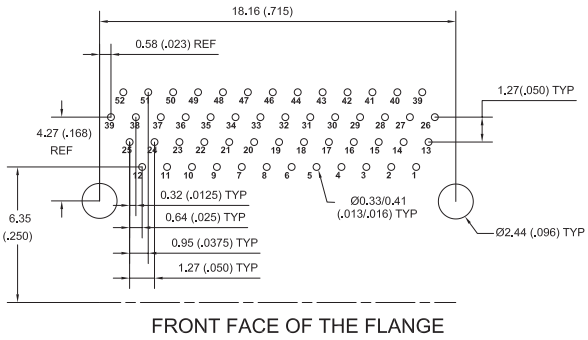
PCB LAYOUT FOR HIGH DENSITY CBR TYPE 0.025" CONNECTORS

MALE CONNECTORS

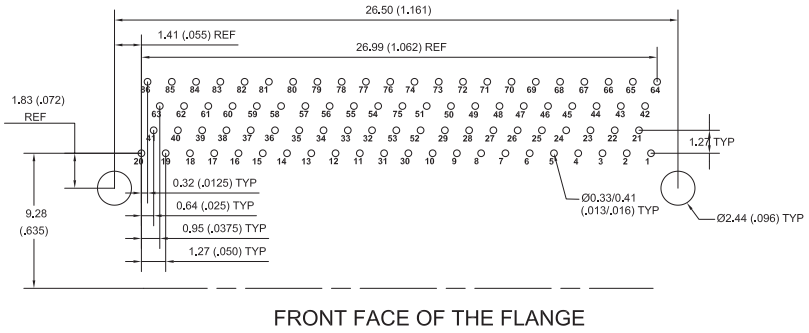
28 CONTACTS - VIEW B



52 CONTACTS - VIEW B

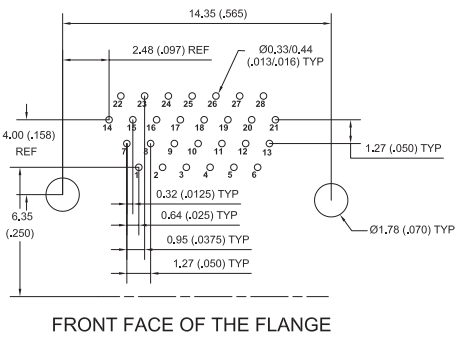


86 CONTACTS - VIEW B

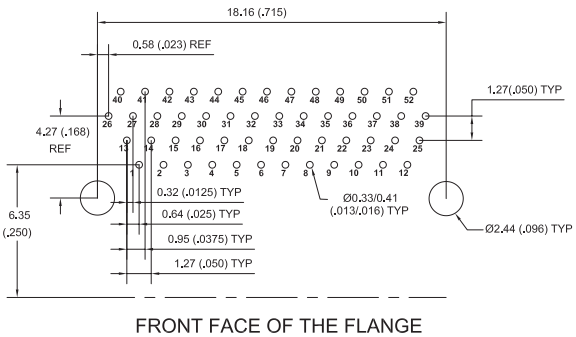


FEMALE CONNECTORS

28 CONTACTS - VIEW B



52 CONTACTS - VIEW B



86 CONTACTS - VIEW B