



MICRO-D SERIES



Rectangular Connectors

**ULTRAMINIATURE CONNECTORS
ACCORDING TO ESCC 3401 029 & MIL-DTL-83513
WITH HIGH RELIABILITY CONTACTS**

HC CONTACT TECHNOLOGY



The majority of the connectors that we manufacture have machine turned 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

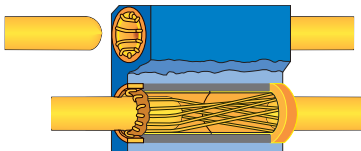
an outer sleeve or shank that carries the termination of the socket.

The spring wires within the socket are set at a small angle to the centre 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.

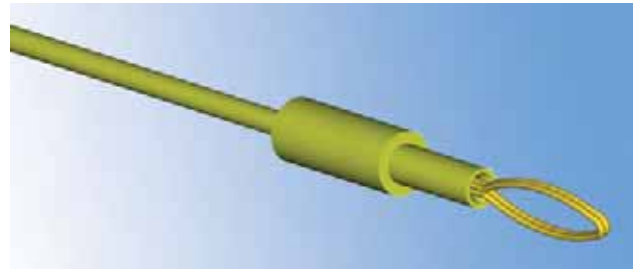
This construction allows very tight control of the spring forces and hence of the insertion and withdrawal forces.

The smallest practical pin diameter is 0.3mm (0.118in) but there is effectively no upper limit.



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

FF CONTACT TECHNOLOGY



The FF pin contact is made of two spring wire loops, and mates with a passive socket sleeve.

The wire loops offer four contact areas which ensure, thanks to the flexibility brought by the springs, an extreme stability in the most severe environments with a high level of shocks and vibrations.

This contact meets the performances required on the equipments for Space, Military and Civil avionics such as radars, flight computers, transponders, etc... It can be incorporated in any applications requiring an ultra high density.

The FF contact is suitable for PCB connectors, as well as I/O rectangular or circular connectors, standard or custom designs.



- 0.3mm ultraminiature pin contact
- Low insertion and separation forces
- High current rating
- Suitable for micro currents
- Immune to shocks & vibrations
- Large number of mating cycles
- EPPL2 listed: ESCC 3401 029/041
- Used in the RX interposer series which is EPPL2 listed and program approved

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MICRO-D CONNECTORS & SAVERS

- 0.3mm contacts, 1.27mm pitch
- Rated current up to 3Amps
- Low mating force
- Up to 3000 mating cycles
- Immunity to shocks & vibrations
- Filter version available - Consult factory

PLASTIC SHELL

- GFB, using FF pin technology, conforms to MIL-DTL-83513 plastic shell
- GTB, using HC socket technology is interchangeable with MIL-DTL-83513 plastic shell
- Layouts 9, 25 & 37 ways - consult factory for other layouts

SPACE GRADE METAL SHELL

- GFS, using FF pin technology, conforms to ESCC 3401 029/041/032 (EPPL2 listed) and MIL-DTL-83513
- Layouts 9, 15, 21, 25, 31, 37, 51 & *100 ways

* Only MIL-DTL-83513

TECHNICAL CHARACTERISTICS

MATERIALS & FINISHES

Contacts		
Pin wires		Copper alloy & Au/Ni
Socket contact and pin body		Brass & Au/Ni
Plastic shell		Thermoplastic
Metal shell and plating		Aluminium alloy (Chemical Ni or Au/Ni)
Potting		Epoxy
Mounting hardware		Stainless steel

MECHANICAL

Contact mating force		0.70N Maxi
Connector mating/unmating cycles		3000 mini
Sinusoidal vibrations	[No discontinuity, measured down to 2ns]	10Hz/2000Hz - 1.5mm - 20g
Shocks		600g/0.4ms
Random vibrations (GFS only)		Acc. to ESCC 3401 029/041

ELECTRICAL

Current rating		3A
Contact resistance		15mΩ Maxi
Insulation resistance		5000 MΩ / 500VAC
Dielectric withstanding voltage		600VAC / 1mn

ENVIRONMENTAL

Temperature range		-55°C +125°C
Dry heat		1000h at +125°C
Corrosion		96h
Humidity		56 days

PART NUMBERING

G F S 09 - 15 30 203

SERIES

MODEL

- F** FF contact, MIL-DTL 83513
- T** HC contact

SHELL

- A** Metal shell with anodic protection
- B** Plastic shell
- C** Metal shell, Cadmium plated
- N** Metal shell, Chemical Ni acc. to ESCC 3401 029/041
- S** Metal shell, Gold over Ni acc. to ESCC 3401 029/041
- T** Metal shell, Tin plating

LAYOUT

- 09
 - *15
 - *21
 - 25
 - *31
 - 37
 - 51
 - **100
- * Consult factory for availability in GFB & GTB series
** Available in MIL-DTL 83513 only

WIRE GAUGE

- Not wired
- 1 AWG 24
- 2 AWG 25
- 3 AWG 26
- 4 AWG 28
- 5 AWG 30

PART - POLARITY - PLATING

13 Male plug, standard plating	22 Female receptacle, standard plating
15 Male plug, MIL-DTL plating	24 Female receptacle, MIL-DTL plating
17 Male plug, tinned pin	26 Female receptacle, tinned termination
1B Male plug, lead free tinned pin	2A Female receptacle, lead free tinned termination
19 Male plug, tinned pin MIL-DTL plating	28 Female receptacle, tinned termination MIL-DTL plating
1D Male plug, tinned pin MIL-DTL plating (lead free)	2C Female receptacle, lead free tinned MIL-DTL plating
55 Male plug, ESCC level	44 Female receptacle and Saver, ESCC level
57 Male plug, tinned pin ESCC level	46 Female receptacle, tinned termination ESCC level

CONTACT TERMINATION

10	90° through board													
30	Straight through board													
50	Cable assembly length: insulated yellow wire or ESCC 3401 013 wire for GF- (except GFB)													
to	Code	50	51	52	53	54	55	56	57	58	59	60	61	62
62	Length	76.2	152.4	203.2	254	304.8	457.2	508	609.9	762	914.1	1219.2	1828.8	3048
63	Cable assembly length: insulated multicolour wire or ESCC 3401 002 wire for GF- (except GFB)													
to	Code	63	64	65	66	67	68	69	70	71	72	73	74	75
75	Length	76.2	152.4	203.2	254	304.8	457.2	508	609.9	762	914.1	1219.2	1828.8	3048
76	Cable assembly, un-insulated solid wire length													
to	Code	76	77	78	79	80	81	82	83	84	85	86	87	
87	Length	3.18	3.81	4.83	6.35	9.52	12.7	19.05	25.4	38.1	50.8	63.5	76.2	
91	Saver connector													

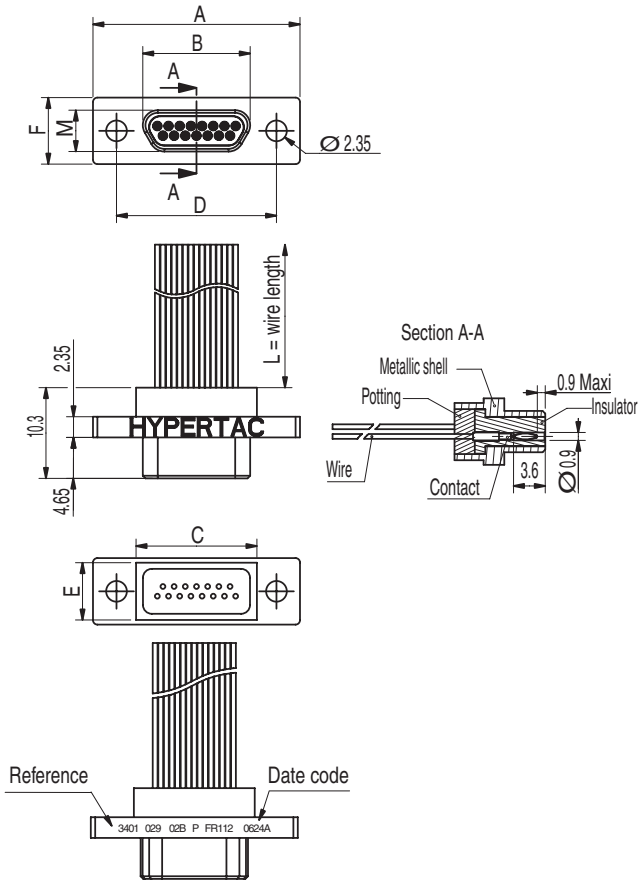
MOUNTING HARDWARE

200	Female screw locks	202	Male screw locks	700*	Saver screwlock
201		203			
205*		204*			
206*					

*204 acc. to ESCC 3401 032 variante 02, *205 acc. to ESCC 3401 032 variante 02, * 206 acc. to ESCC 3401 032 variante 01, *700 acc. to ESCC 3401 032 variante 05

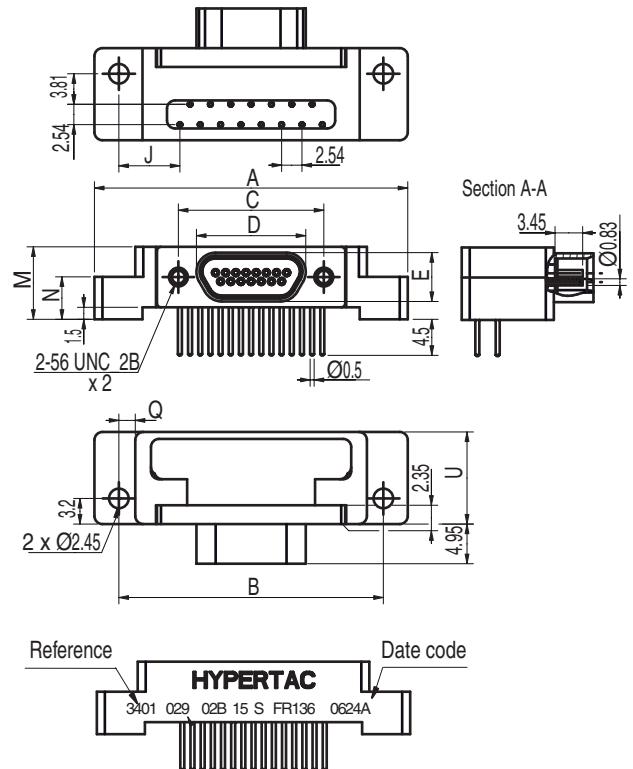
GF- DIMENSIONS / ESCC 3401 029 METAL SHELLS

PLUG



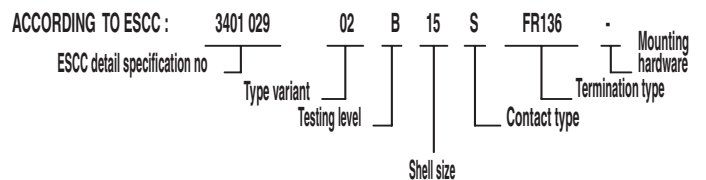
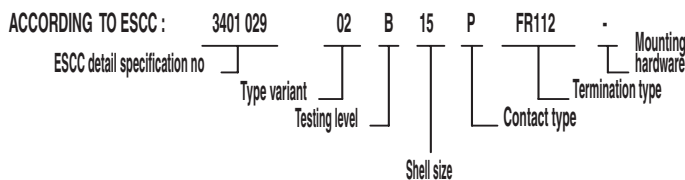
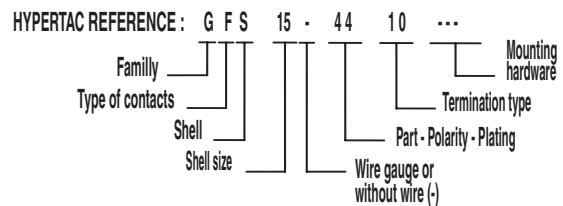
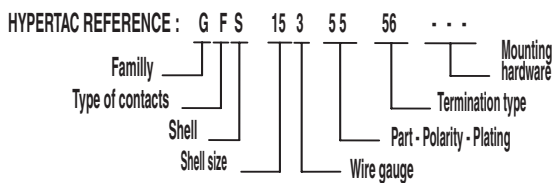
Shell size	A	B	C	D	E	F
09	19.68	8.39	9.91	14.35	7	8.35
15	23.50	12.2	13.72	18.16	10.80	12.15
21	27.30	16.01	17.53	21.97	14.60	15.95
25	29.84	18.55	20.07	24.51	17.15	18.50
31	33.66	22.36	23.88	28.32	20.95	22.30
37	37.46	26.17	27.69	32.13	24.75	26.10
51	36.20	24.9	26.42	30.86	23.50	24.80

RECEPTACLE



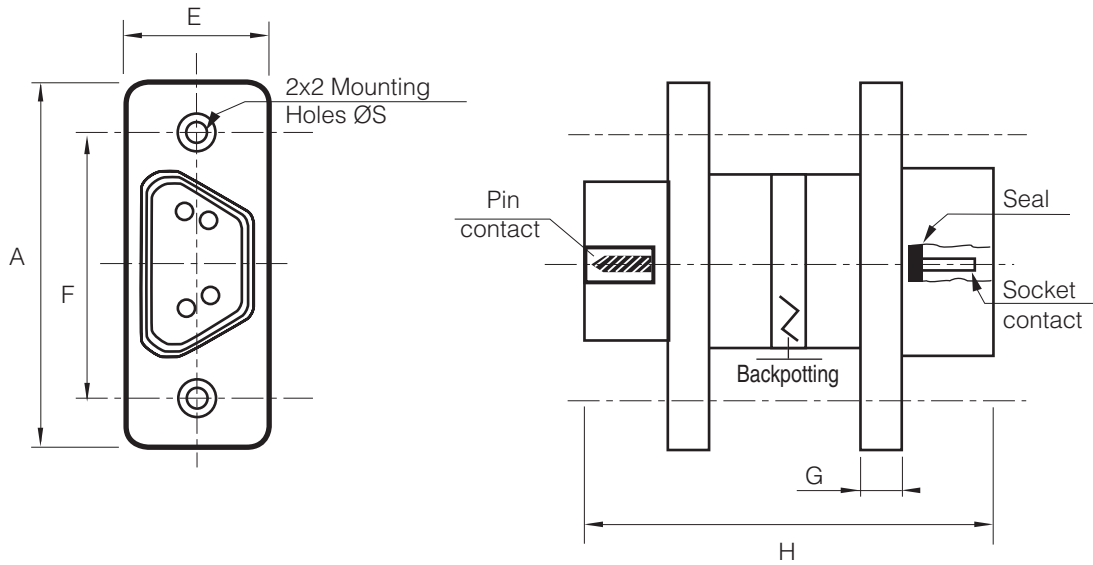
Shell size	A	B	C	D	E	J	M	N	Q	U
09PS	35.31	29.21	14.35	9.85	6.10	9.53	9.05	5.3	2.05	11.5
15PS	39.12	33.02	18.16	13.65	6.10	7.62	9.05	5.3	2.05	11.5
21PS	42.93	36.84	21.97	17.45	6.10	5.72	9.05	5.3	2.05	11.5
25PS	45.47	39.38	24.51	20.00	6.10	4.45	9.05	5.3	2.05	11.5
31PS	51.82	45.72	28.32	23.80	6.10	3.81	9.05	5.3	2.05	11.5
37PS	59.44	53.34	32.13	27.60	6.10	3.81	9.05	5.3	2.05	11.5
51PS	47.50	40.64	30.86	26.35	7.15	1.27	10.25	5.96	2.10	14.35

HYPERTAC / ESCC 3401 029 CROSS REFERENCES



Dimensions in mm (nominal values unless otherwise indicated)

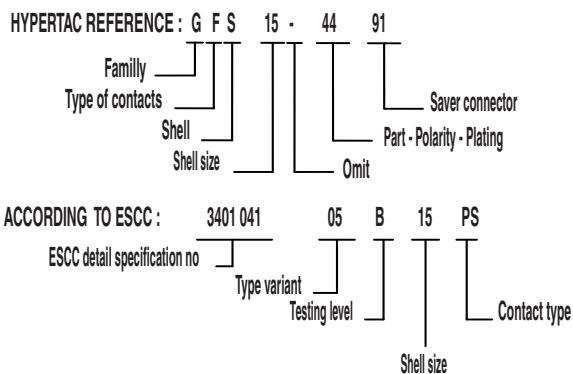
GF- SAVER DIMENSIONS / ESCC 3401 041 METAL SHELLS



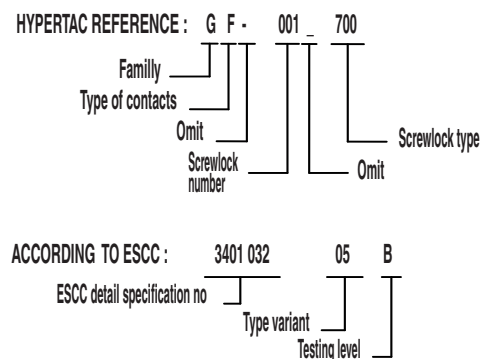
Variant	Size	A	E	F	G	H	Ø S	
		MAX	MAX	MAX	Nominal	Nominal	min	MAX
01	09PS	19.94	7.75	14.35	2.29	22.86	2.23	2.39
02	15PS	23.75	7.75	18.16	2.29	22.86	2.23	2.39
03	21PS	27.56	7.75	21.97	2.29	22.86	2.23	2.39
04	25PS	30.10	7.75	24.51	2.29	22.86	2.23	2.39
05	31PS	33.91	7.75	28.32	2.29	22.86	2.23	2.39
06	37PS	37.72	7.75	32.13	2.29	22.86	2.23	2.39
07	51PS	36.45	8.76	30.86	2.29	22.86	2.23	2.39

HYPERTAC / ESCC 3401 041 CROSS REFERENCES

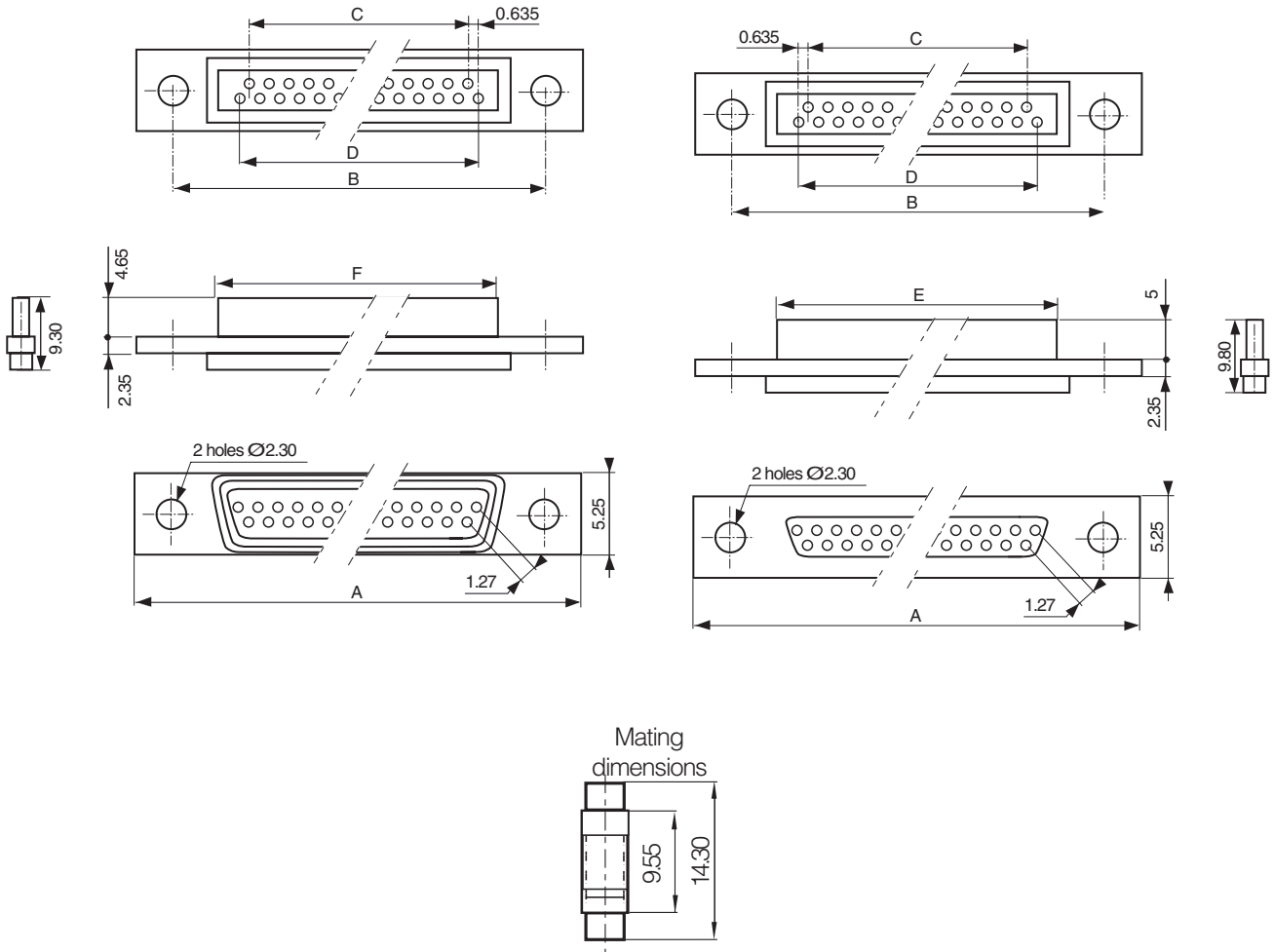
SAVER CONNECTOR



SCREWLOCK



GFB & GTB DIMENSIONS PLASTIC SHELL

RECEPTACLE
PLUG


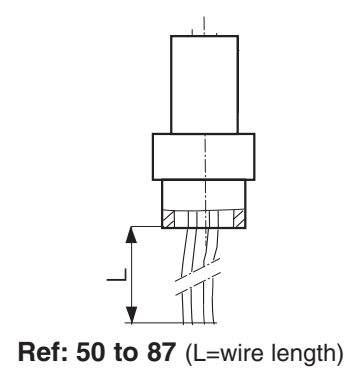
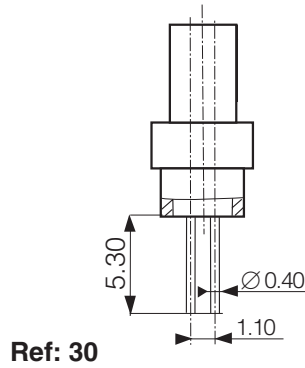
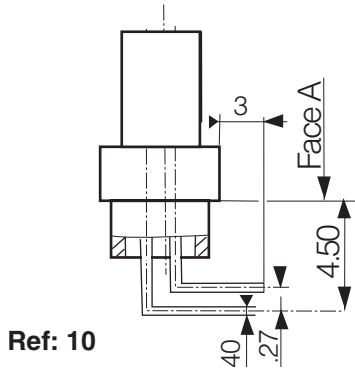
Contacts Nb	Dimensions					
	A	B	C	D	E	F
09	19.75	14.35	3.81	5.08	7.35	7.40
* 15	23.55	18.16	7.62	8.89	11.15	11.20
* 21	27.35	21.97	11.43	12.70	14.95	15.00
25	29.90	24.51	13.97	15.24	17.50	17.55
* 31	33.70	28.32	17.78	19.05	21.30	21.35
37	37.50	32.13	21.59	22.86	25.10	25.15

* Consult factory

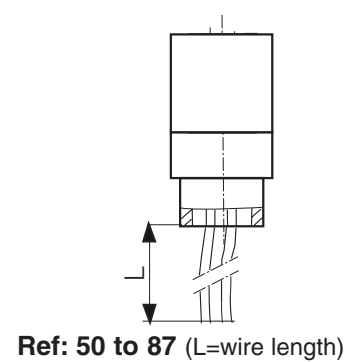
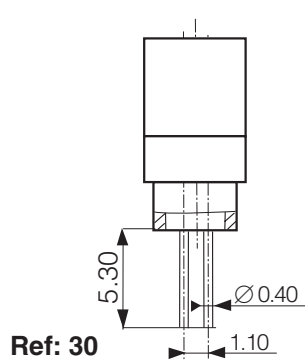
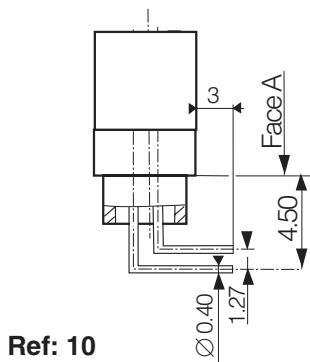
GFB & GTB CONTACT TERMINATIONS

- GFB are using FF contact technology (see on the page 2 of the cover)
- GTB are using HC contact technology (see on the page 2 of the cover)

PLUG



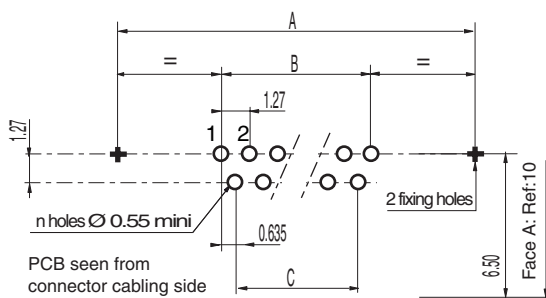
RECEPTACLE



PREPARATION BOARD DETAILS

90° through board

Straight through board



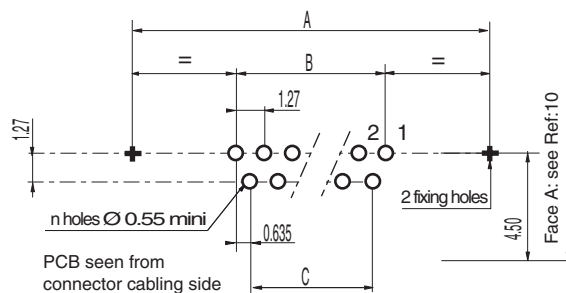
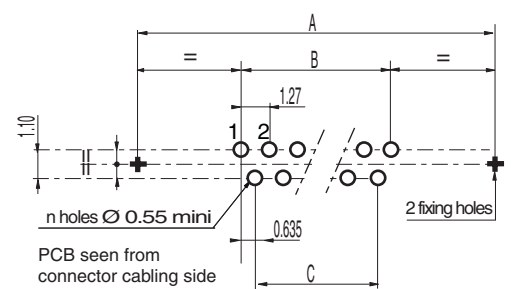
PLUG

Contacts Dimensions
Nb A B C

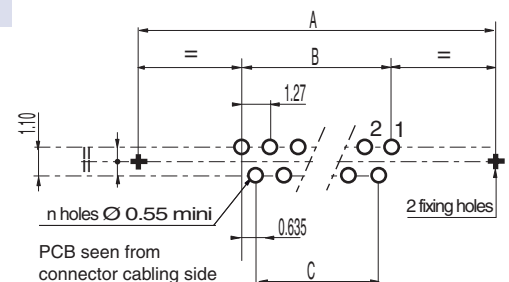
09 14.35 5.08 3.81

25 24.51 15.24 13.97

37 32.13 22.86 21.59



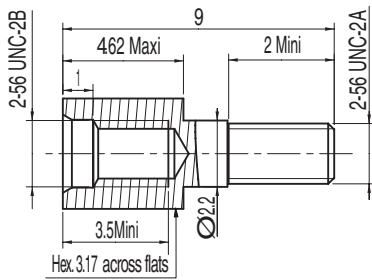
RECEPTACLE



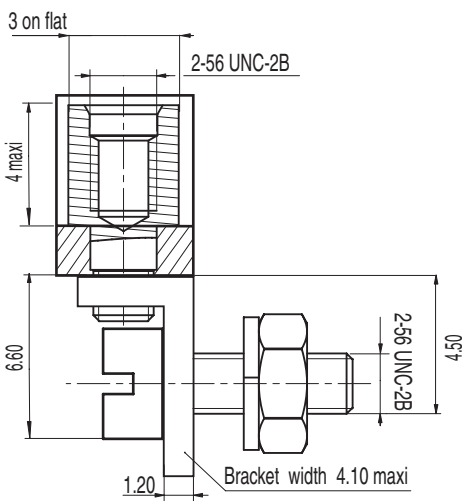
Dimensions in mm (nominal values unless otherwise indicated)

MOUNTING HARDWARE

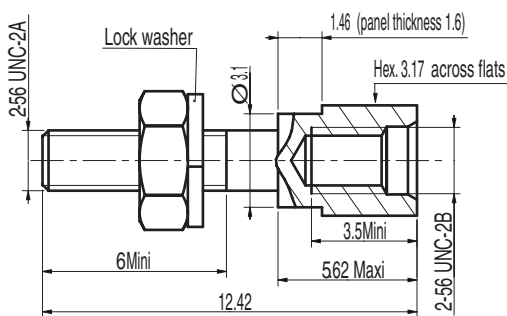
FEMALE SCREWLOCK



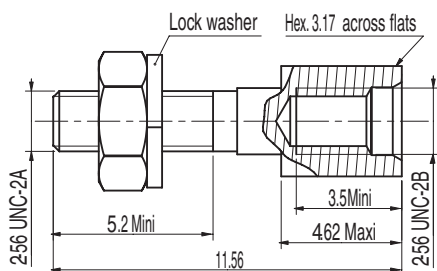
Ref: 200 (vertical mounting)



Ref: 201 (transverse mounting)

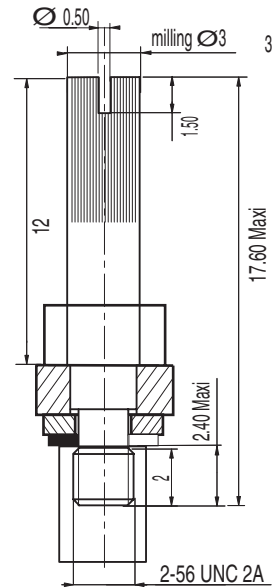


Ref: 205 (vertical mounting)

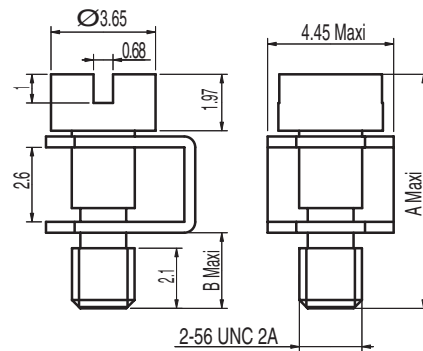


Ref: 206 (vertical mounting)

MALE SCREWLOCK

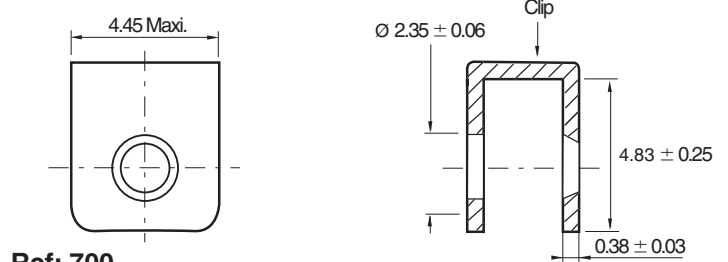
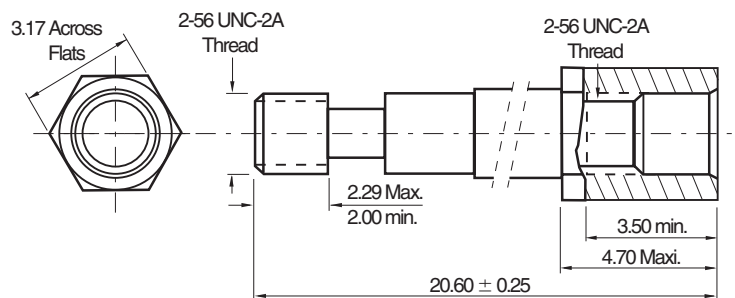


Ref: 202 (vertical mounting)



Ref	203	204	(vertical mounting)
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B	4.20	3.10	

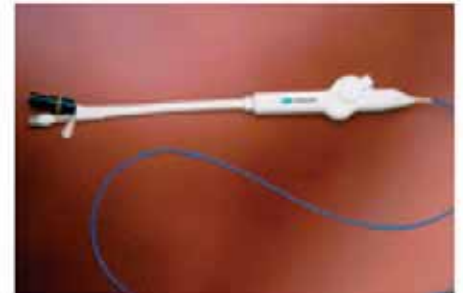
SAVER SCREWLOCK



Ref: 700

Dimensions in mm (nominal values unless otherwise indicated)

NOTES



**Hypertac is part of the global engineering business Smiths Group.
Hypertac manufactures many other styles of connectors besides the products described in this
catalogue (including custom designs).**

Please contact your nearest Hypertac sales office for further details (see back cover).

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