

TABLE 1(a) – COMPONENT TYPE VARIANTS AND RANGE OF COMPONENTS

Variants		Shell Size Note 1	Weight Max. g Note 2	Mating Force N Max.	Unmating Force	
Shell Finish					N Max.	N Min.
Nickel	Gold					
01	02	9	2.3	25	25	1.3
01	02	15	3.1	42	42	2
01	02	21	3.9	58	58	2.9
01	02	25	4.4	70	70	3.5
01	02	31	5.2	86	86	4.3
01	02	37	6	103	103	5.1
01	02	51	7.3	142	142	7.1
01	02	51-2R	7.3	142	142	7.1

NOTES:

- See Figures 2.1(a) and 2.1(b).
- Weight without cables, backshell, floating eyelets, captive nut and contacts (see Para. 4.5.4.4). Add 0.4 grammes for connectors with floating mounts and 1 gramme for connectors with captive nuts. See Figure 2.3 and ESCC Detail Specification Nos. [3901/002](#) and [3901/013](#) for the weight of cable and ESCC Detail Specification No. [3401/078](#) for contact weights.

TABLE 1(b) - MAXIMUM RATINGS

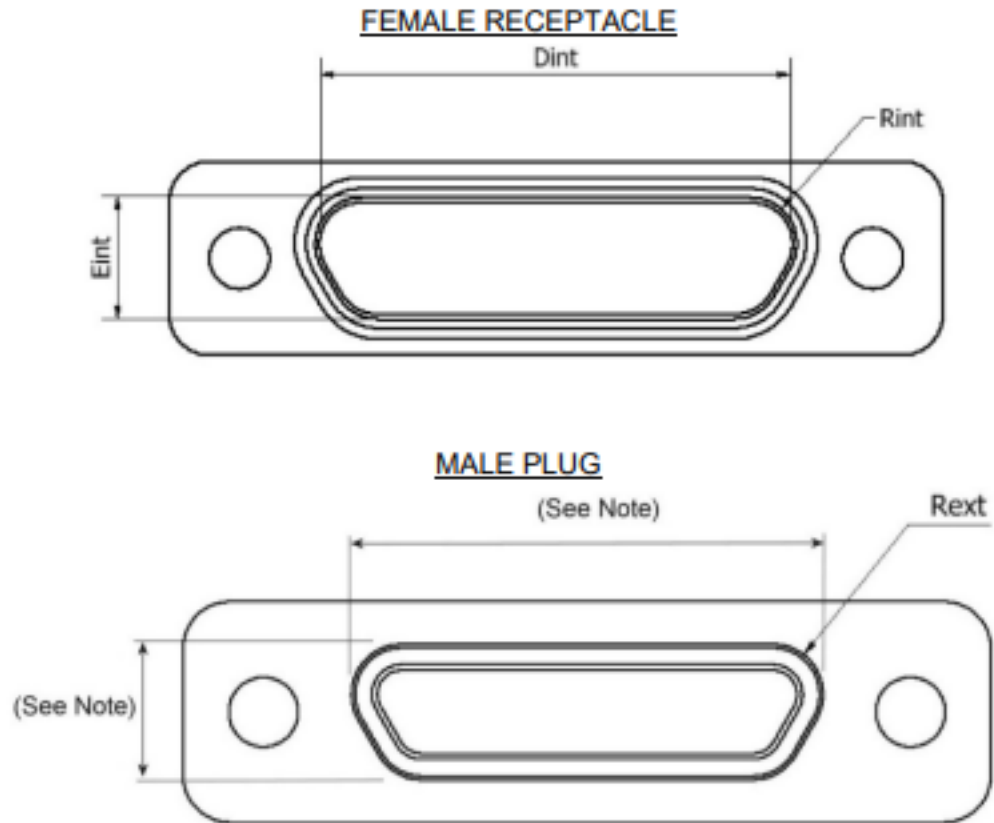
No.	Characteristic	Symbol	Maximum Rating	Unit	Remarks
1	Working Voltage	U_R	150	Vrms	Note 1
2	Rated Current with AWG24 wire	I_R	3.5	A	Note 2
	AWG26 and uninsulated solid wire		2.5		
	AWG28 wire		1.5		
3	Operating Temperature Range	T_{op}	-55 to +125	°C	T_{amb}
4	Storage Temperature Range	T_{stg}	-65 to +125	°C	-

NOTES:

- At Sea Level, between contacts, and contact and shell. U_R requires derating at altitudes above sea level. See Figure 1(a).
- I_R requires derating if the number of carrying contacts in the connector is 2 or greater. See Figure 1(b).

FIGURE 2 - PHYSICAL DIMENSIONS

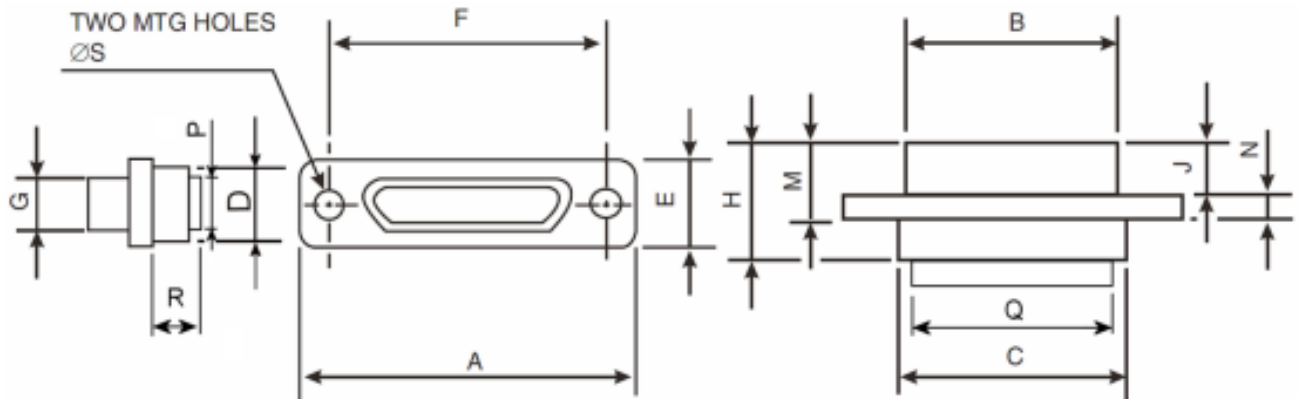
FIGURE 2.0 – MALE AND FEMALE INTERFACE DIMENSIONS



NOTE: These dimensions are specified in the Plug (Male Contacts) Figure on the following page.

Shell Size	<u>Dint</u> Min.	<u>Eint</u> Min.	Rint Min.	Rext Max.
9	8.49	4.7	1.704	1.699
15	12.3	4.7	1.704	1.699
21	16.11	4.7	1.704	1.699
25	18.65	4.7	1.704	1.699
31	22.46	4.7	1.704	1.699
37	26.27	4.7	1.704	1.699
51	25	5.8	1.704	1.699
51-2R	35.16	4.7	1.704	1.699

Figure 2.1(a) – Connector Shells - Plug (Male Contacts)



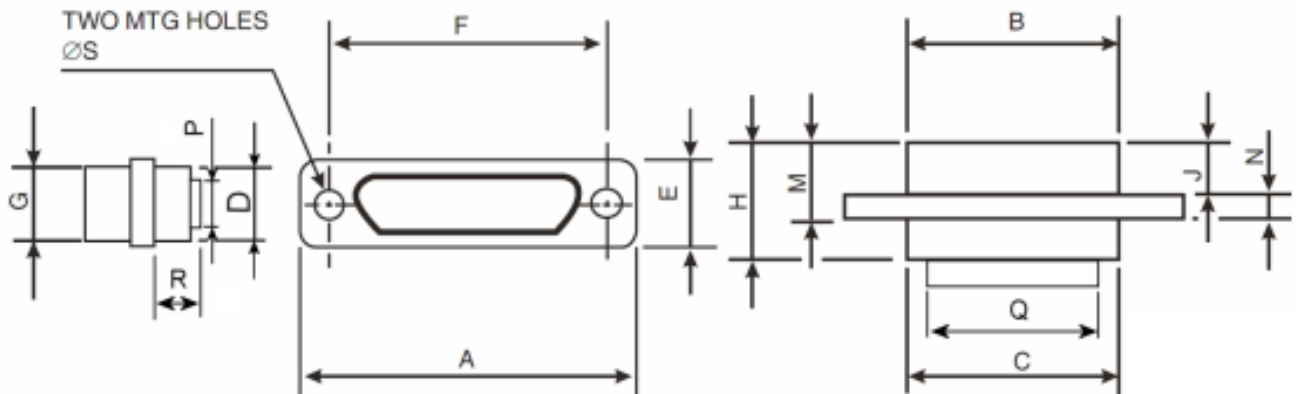
Shell Size	A	B	C	D	E	F		G	H	J	M	N		ØS	
	Max.	Max.	Max.	Max.	Max.	Min.	Max.	Max.	Max.	Max.	Max.	Min.	Max.	Min.	Max.
9	19.94	8.48	10.16	6.86	7.82	14.22	14.48	4.69	10.57	4.72	7.26	2.23	2.49	2.23	2.44
15	23.75	12.29	13.97	6.86	7.82	18.03	18.29	4.69	10.57	4.72	7.26	2.23	2.49	2.23	2.44
21	27.56	16.1	17.78	6.86	7.82	21.84	22.1	4.69	10.57	4.72	7.26	2.23	2.49	2.23	2.44
25	30.1	18.64	20.32	6.86	7.82	24.38	24.64	4.69	10.57	4.72	7.26	2.23	2.49	2.23	2.44
31	33.91	22.45	24.13	6.86	7.82	28.19	28.45	4.69	10.57	4.72	7.26	2.23	2.49	2.23	2.44
37	37.72	26.26	27.94	6.86	7.82	32	32.26	4.69	10.57	4.72	7.26	2.23	2.49	2.23	2.44
51	36.45	24.99	26.67	7.87	8.92	30.73	30.99	5.78	10.57	4.72	7.26	2.23	2.49	2.23	2.44
51-2R	46.61	35.15	36.83	6.86	7.82	40.89	41.15	4.69	10.57	4.72	7.26	2.23	2.49	2.23	2.44

Shell Size	P	Q	R
	Max.	Max.	Max.
9	4.4	7.8	5.7
15	4.4	11.6	5.7
21	4.4	15.4	5.7
25	4.4	17.95	5.7
31	4.4	21.75	5.7
37	4.4	25.6	5.7
51	5.3	24.3	5.7
51-2R	4.4	34.5	5.7

NOTES:

- All dimensions are in millimetres.

Figure 2.1(b) – Connector Shells - Receptacle (Female Contacts)



Shell Size	A Max.	B Max.	C Max.	D Max.	E Max.	F		G Max.	H Max.	J Max.	M Max.	N		ØS	
						Min.	Max.					Min.	Max.	Min.	Max.
9	19.94	10.16	10.16	6.86	7.82	14.22	14.48	6.38	10.9	5.05	7.59	2.23	2.49	2.23	2.44
15	23.75	13.97	13.97	6.86	7.82	18.03	18.29	6.38	10.9	5.05	7.59	2.23	2.49	2.23	2.44
21	27.56	17.78	17.78	6.86	7.82	21.84	22.1	6.38	10.9	5.05	7.59	2.23	2.49	2.23	2.44
25	30.1	20.32	20.32	6.86	7.82	24.38	24.64	6.38	10.9	5.05	7.59	2.23	2.49	2.23	2.44
31	33.91	24.13	24.13	6.86	7.82	28.19	28.45	6.38	10.9	5.05	7.59	2.23	2.49	2.23	2.44
37	37.72	27.94	27.94	6.86	7.82	32	32.26	6.38	10.9	5.05	7.59	2.23	2.49	2.23	2.44
51	36.45	26.67	26.67	7.87	8.92	30.73	30.99	7.47	10.9	5.05	7.59	2.23	2.49	2.23	2.44
51-2R	46.61	36.83	36.83	6.86	7.82	40.89	41.15	6.38	10.9	5.05	7.59	2.23	2.49	2.23	2.44

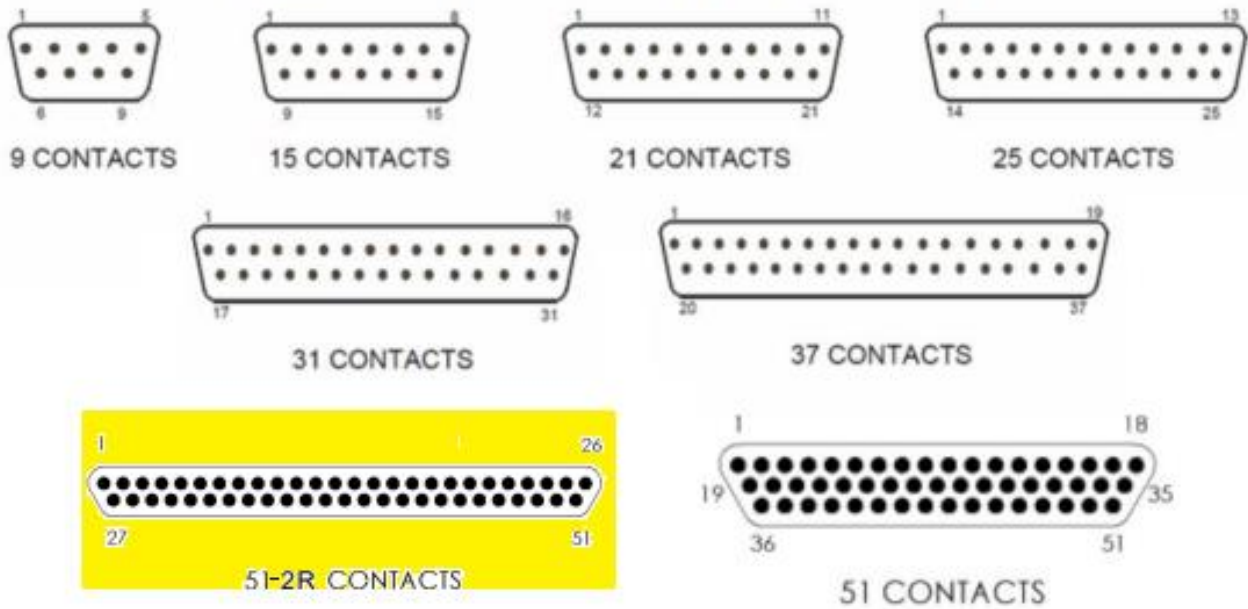
Shell Size	P Max.	Q Max.	R Max.
9	4.4	7.8	5.7
15	4.4	11.6	5.7
21	4.4	15.4	5.7
25	4.4	17.95	5.7
31	4.4	21.75	5.7
37	4.4	25.6	5.7
51	5.3	24.3	5.7
51-2R	4.4	34.5	5.7

NOTES:

- All dimensions are in millimetres.

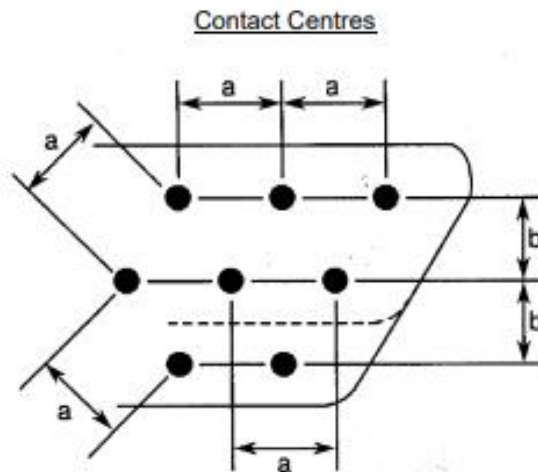
FIGURE 3 – CONTACT ARRANGEMENTS

FRONT VIEW OF MALE INSERT – USE MIRROR VIEW FOR FEMALE INSERT



NOTES:

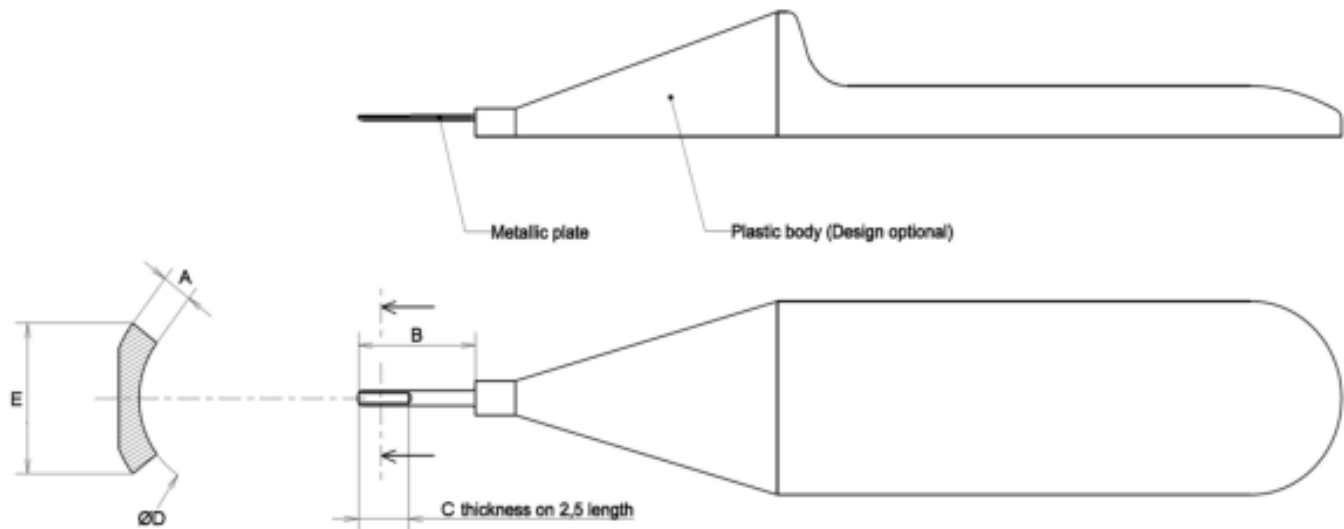
1. Only the outside contact cavities on each row are identified in the drawing, the remainder follow sequentially. Contact numbers are shown outside the insert for readability.



NOTES:

1. a = Distance between contact centres: 1.27mm (typical).
2. b = Distance between rows: 1.09mm (typical).

FIGURE 4 – CONTACT REMOVAL TOOL



Shell Size	Dimensions (mm)									Notes
	A		B		C		ØD		E	
	Min	Max	Min	Max	Min	Max	Min	Max	Max.	
9 to 37	0.13	0.17	5.7	6	0.1	0.11	0.83	0.87	0.75	2 rows of contacts
51 and 51-2R	0.07	0.09	5.7	6	0.06	0.07	0.83	0.87	0.75	2/3 rows of contacts

4 REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the connectors specified herein are stated in this specification and ESCC Generic Specification No. 3401. Deviations from the Generic Specification, applicable to this specification only, are listed in Para. 4.2.

Deviations from the applicable Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirements and do not affect the components' reliability, are listed in the appendices attached to this specification.

4.2 DEVIATIONS FROM GENERIC SPECIFICATION

4.2.1 Deviations from Special In-process Controls

None.

4.2.2 Deviations from Final Production Tests (Chart II)

- (a) Para. 9.5, Magnetism Level: Not applicable.
- (b) Para. 9.2, Mating Verification: Not applicable.
- (c) Para. 9.3, Contact Retainer Test: Replaced by a 100% visual inspection with dedicated equipment.

4.5.4 Characteristics

The characteristics to be marked in the following order of precedence are:

- (a) Mounting.
- (b) Shell Size.
- (c) Contact Type.
- (d) Contact Information.

The information shall be constituted and marked as follows (example): Y37P-FO

- Mounting: Y
- Shell size: 37
- Contact Type: P
- Contact Information: -FO

4.5.4.1 *Fixing Option*

The letter "Y" shall indicate a floating mount. The letter "E" shall indicate captive nuts. If the shell has standard mounting holes, the letter shall be omitted.

4.5.4.2 *Shell Size*

Shell size shall be designated by the number of contacts.

Specified numbers are: 9, 15, 21, 25, 31, 37, 51 and 51-2R

4.5.4.3 *Contact Type*

Contact types shall be indicated by the following code letters.

Code Letter	Contact Type
P	Male
S	Female

4.5.4.4 *Contact Information*

-FO = Connector ordered without contacts. This information shall not be marked on the connector; it is only included on the packaging and all relevant data documentation.

Contacts must be from the same Manufacturer as the connector in which they are fitted and this shall be verified prior to assembly.

4.5.4.5 *Traceability Information*

Traceability information shall be marked in accordance with the requirements of ESCC Basic Specification No. 21700.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured in respect of electrical characteristics are scheduled in Table 2. Unless otherwise specified, the measurements shall be performed at $T_{amb} = +22 \pm 3^{\circ}\text{C}$.

4.6.2 Electrical Measurements at High and Low Temperatures

Not applicable.

4.6.3 Circuits for Electrical Measurements
Not applicable.

4.7 BURN-IN AND ELECTRICAL MEASUREMENTS (TABLES 4 AND 5)
Not applicable.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE

No.	Characteristic	Symbol	ESCC 3401 Test Method	Test Condition	Limits		Unit
					Min.	Max.	
1	Insulation Resistance	R_i	Para. 9.1.1.1	Para. 9.1.1.1	5000 (Note 2)	-	MΩ
					2500 (Note 3)	-	
2	Voltage Proof Leakage Current	I_L	Para. 9.1.1.2	600 Vrms Note 2	-	2	mA
				450 Vrms Note 3	-	2	
3	Mated Shell Conductivity (Voltage Drop) Note 1	V_D	Para. 9.1.1.4	Para. 9.1.1.4	Not applicable		mV

NOTES:

1. Applicable to mated connectors with grounding option.
2. Applicable for shell sizes 9 to 37 and 51-2R (2 rows of contacts).
3. Applicable for shell size 51 (3 rows of contacts).

TABLES 3, 4 AND 5

Not applicable.