



Pages 1 to 42

**CONNECTORS, ELECTRICAL, RECTANGULAR,  
NON-REMOVABLE SOLDER BUCKET, PCB AND  
WIRE-WRAP CONTACTS AND  
REMOVABLE COAXIAL AND  
POWER CONTACTS,  
BASED ON TYPE D\*M**

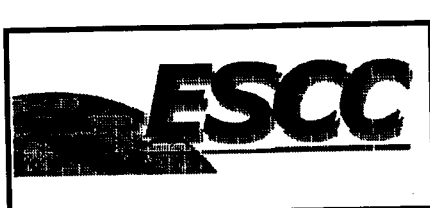
**ESCC Detail Specification No. 3401/001**

**ISSUE 3**

**December 2006**



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	ESCC Detail Specification No. 3401/001		PAGE i ISSUE 3
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DCR No.	CHANGE DESCRIPTION
249	Specification upissued to incorporate editorial and technical changes per DCR.

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**APPENDICES (Applicable to specific Manufacturers only)**

None.

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## 1. GENERAL

### 1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Connectors, Electrical, Rectangular, Non-removable Solder Bucket, PCB and Wire-wrap Contacts and removable Coaxial and Power Contacts, based on type D\*M. It shall be read in conjunction with:-

ESCC Generic Specification No. 3401, Connectors, Electrical, Non-Filtered, Circular and Rectangular.

ESCC Detail Specification No. 3401/004, Contacts, Coaxial, Crimp and Solder, for 3401/001 Connectors.

ESCC Detail Specification No. 3401/022, Accessories for Rectangular Connectors 3401/001, 3401/002 and Connector Savers 3401/020.

ESCC Detail Specification No. 3401/040, Contacts, Power, Crimp and Solder, for 3401/001 Connectors.

the requirements of which are supplemented herein.

### 1.2 RANGE OF COMPONENTS

The different sizes of the connectors and contact types specified herein, which are also covered by this specification, together with their mechanical characteristics, are given in Table 1(a).

### 1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the connectors specified herein, are scheduled in Table 1(b).

### 1.4 PARAMETER DERATING INFORMATION

The applicable derating information for the connectors specified herein is shown in Figure 1.

### 1.5 PHYSICAL DIMENSIONS

The physical dimensions of the connectors specified herein are shown in Figure 2.

## 2. APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:-

- (a) ESCC Generic Specification No. 3401 for Connectors, Electrical, Non-Filtered, Circular and Rectangular.
- (b) ESCC Detail Specification No. 3401/004, Contacts, Coaxial, Crimp and Solder for 3401/001 Connectors.
- (c) ESCC Detail Specification No. 3401/022, Accessories for Rectangular Connectors, 3401/001, 3401/002 and Connector Savers 3401/020.
- (d) ESCC Detail Specification No. 3401/040, Contacts, Power, Crimp and Solder for 3401/001 Connectors.
- (e) MIL-C-24308, Rack and Panel Connectors, Miniature.
- (f) MIL-G-45204, Gold Plating, Electro-deposited.
- (g) MIL-C-14550, Copper Plating, Electro-deposited.

## 3. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic Specification No. 21300 shall apply.



**TABLE 1(a) - RANGE OF COMPONENTS**

SHELL SIZES

VARIANT	SHELL SIZE (1)	MAX. WEIGHT (g) (2) (3)		MATING FORCE (N. max)	UNMATING FORCE	
		Male	Female		N. min	N. max
01 (Gauge 20 Contacts)	E	4.5	5.0	30	3.5	20
	A	5.5	7.0	50	4.5	34
	B	9.0	10.0	83	8.0	55
	C	12.5	13.5	123	11.0	83
	D	13.5	15	166	14.5	120
02 (Gauge 22 Contacts)	E	5.2	6.0	46	3.4	28
	A	7.4	8.0	77	4.5	46
	B	11.0	12.0	127	7.9	77
	C	15.6	17.0	177	11.3	109
	D	18.2	20.0	222	14.7	136
	F	23.0	25.0	295	20.3	177

**NOTES**

- See Figure 2(b).
- Weights without contacts or accessories.
- Connector weights shall be calculated from the number of contacts used, plus the weight of the power or coaxial contact given in ESCC Detail Specification Nos. 3401/040 or 3401/004, plus the connector weight.

**TABLE 1(a) - RANGE OF COMPONENTS (CONTD)**

CONTACT TYPES

CONTACT CODES	CONTACT TYPES	Weight of Contacts (g)			
		Variant 01		Variant 02	
		Male	Female	Male	Female
- PCB Contacts (Ø)	Gauge 20 solder bucket for wire sizes AWG 20 to 24	0.19	0.22	-	-
Tail 0.60 Tail 0.76					
OL3 -	Straight PCB solder contact gauges 20 and 22	0.17	0.20	0.17	0.20
- Z	Straight PCB solder contact gauge 20	0.17	0.20	-	-
1AON 2AON	Gauge 20 90° PCB solder contact (2.54mm row spacing)	0.24(4)	0.29(4)	-	-
1BON 2BON	Gauge 20 90° PCB solder contact (2.84mm row spacing)	0.28(5)	0.34(5)	-	-
		0.32(6)	0.37(6)	-	-
1CON -	Gauge 22 90° PCB solder contact (1.98mm row spacing shell sizes E, A, B and C)	-	-	0.188	0.212
1DON -	Gauge 22 90° PCB solder contact (2.08mm row spacing shell size D)	-	-	(7)	(7)
1(8)7N 2(9)7N	Gauge 20 90° PCB solder contact equipped with 90° bracket and screw locks 4-40 (2)	0.24(4)	0.29(4)	-	-
1(8)9N 2(9)9N	Gauge 20 90° PCB solder contact equipped with 90° bracket and screw locks M3 (2)	0.28(5)	0.34(5)	-	-
		0.32(6)	0.37(6)	-	-
F179A	Gauge 20 wire-wrap contacts for wire sizes AWG 26 to 30	0.28	0.34	-	-
-	Power and coaxial contacts (See relevant Detail Specification)	(3)	(3)	-	-

**NOTES**

- See Figure 2(c).
- Weight of brackets and nuts: 3.5g.
- See Figure 2(b). Power and coaxial contacts shall be ordered separately in accordance with ESCC Detail Specification Nos. 3401/040 and 3401/004 respectively.
- Weight of contact in row nearest to connector mounting plane (Ref. Plane).
- Weight of contact in row farthest from connector mounting plane (Ref. Plane), except for size D where it is the middle row.
- For size D only, weight of contact in row farthest from connector mounting plane (Ref. Plane).
- Average weight.
- A, B, C or D, as applicable.
- A or B, as applicable.

**TABLE 1(b) - MAXIMUM RATINGS**

No.	CHARACTERISTICS	SYMBOL	MAXIMUM RATING	UNIT	REMARKS
1	Working Voltage Sea Level - Gauge 20 Contacts (Var. 01) - Gauge 22 Contacts (Var. 02) - Power, High Voltage and Straight Coaxial Contacts - 90° Coaxial Contacts	$U_R$	300 250 250 200	Vrms	Note 1
2	Rated Current - Gauge 20 and Coaxial Centre Contacts - Gauge 22 (PCB Contacts) - Power Contacts	$I_R$	7.5 3.0 40	A	-
3	Operating Temperature Range	$T_{op}$	-55 to +125	°C	$T_{amb}$
4	Storage Temperature Range	$T_{stg}$	-65 to +125	°C	
5	Soldering Temperature	$T_{sol}$	+260	°C	Note 2

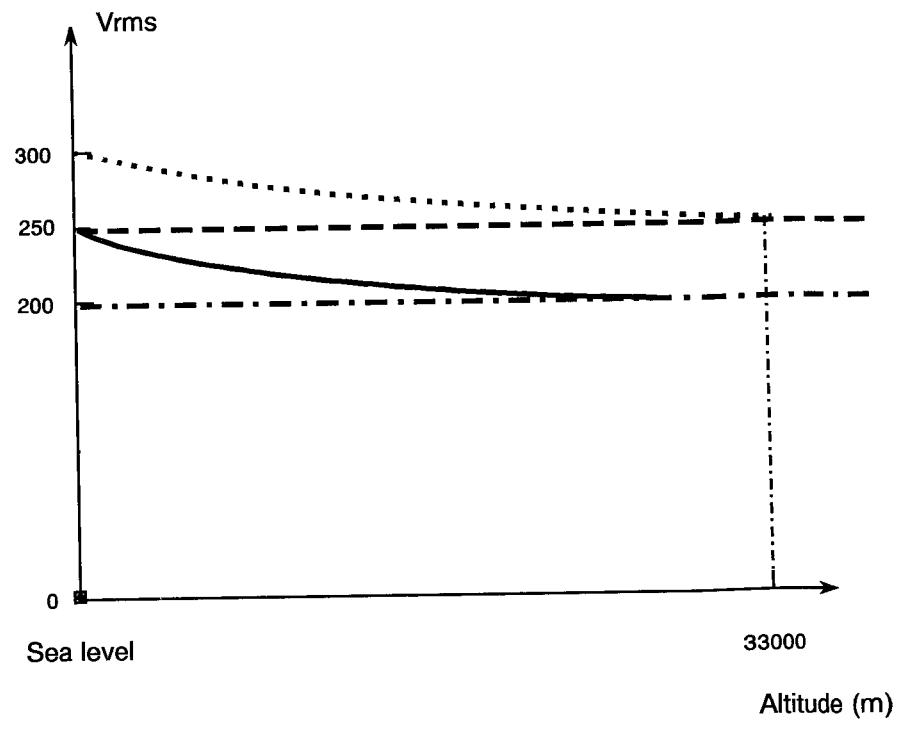
**NOTES**

1. Between contact and shell.
2. Duration 10 seconds maximum and the same contact shall not be resoldered until 3 minutes have elapsed.



**FIGURE 1 - PARAMETER DERATING INFORMATION**

- ..... Gauge 20 contacts
- Gauge 22 Contacts
- - - - - Power and Coaxial Contacts
- . . . . 90° Coaxial Contacts



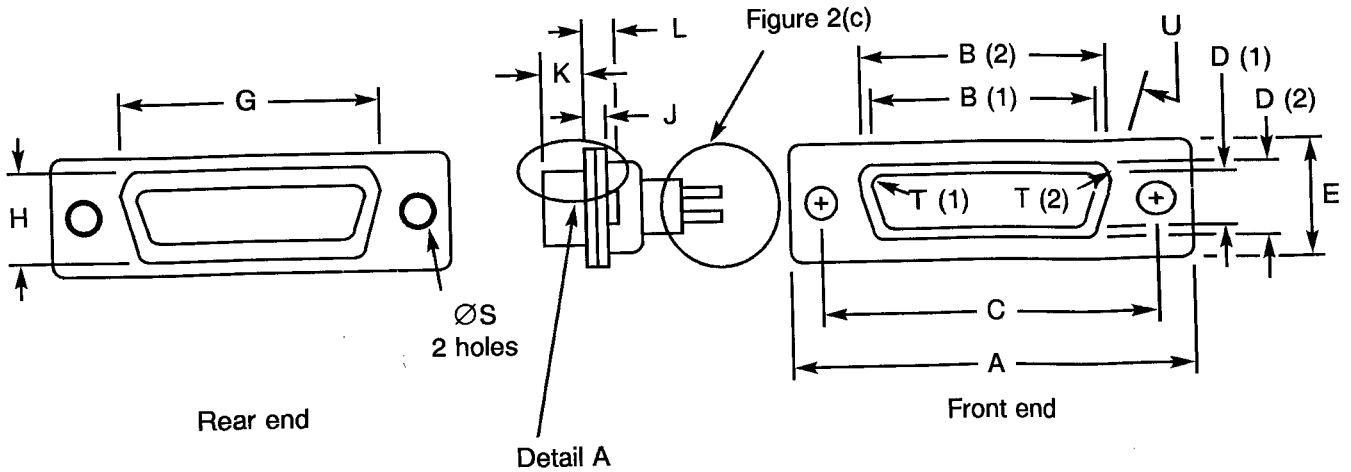
Working Voltage versus Altitude

**FIGURE 2 - PHYSICAL DIMENSIONS**

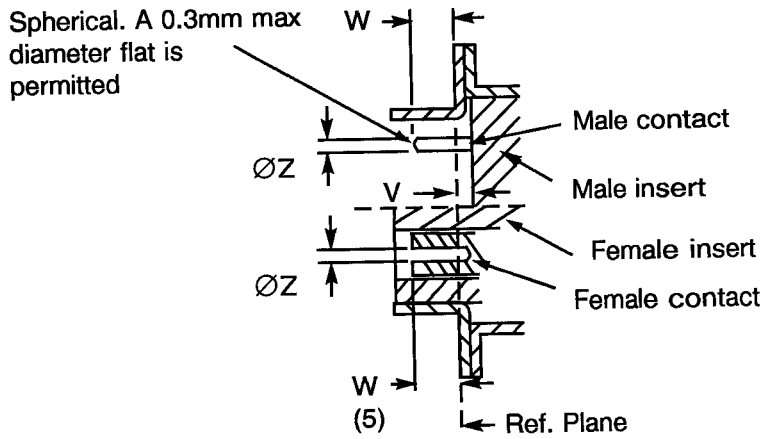
**FIGURE 2(a) - RECEPTACLES AND PLUGS**

**SHELL SIZE E**

Standard Mounting Holes



**DETAIL A**



Contact Type	Symbol/Dim.	A	<u>B</u>	<u>C</u>	<u>D</u>	E	G	H	J	<u>K</u>	L	ØS	I	<u>U</u>	<u>V</u>	W	ØZ	
																	V.01	V.02
Male	min.	30.43	16.79	24.87	8.23	12.17	19.02	10.46	0.51	5.82	0.89	2.92	2.59	9.0	0	4.03	0.99	0.75
	max.	31.26	17.04	25.12	8.48	12.93	19.53	10.97	1.02	6.13	1.52	3.20	2.69	11.0	0.4	-	1.04	0.77
Female	min.	30.43	16.21	24.87	7.77	12.17	19.02	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	3.63	1.07	0.89
	max.	31.26	16.46	25.12	8.03	12.93	19.53	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	-	1.14	0.95

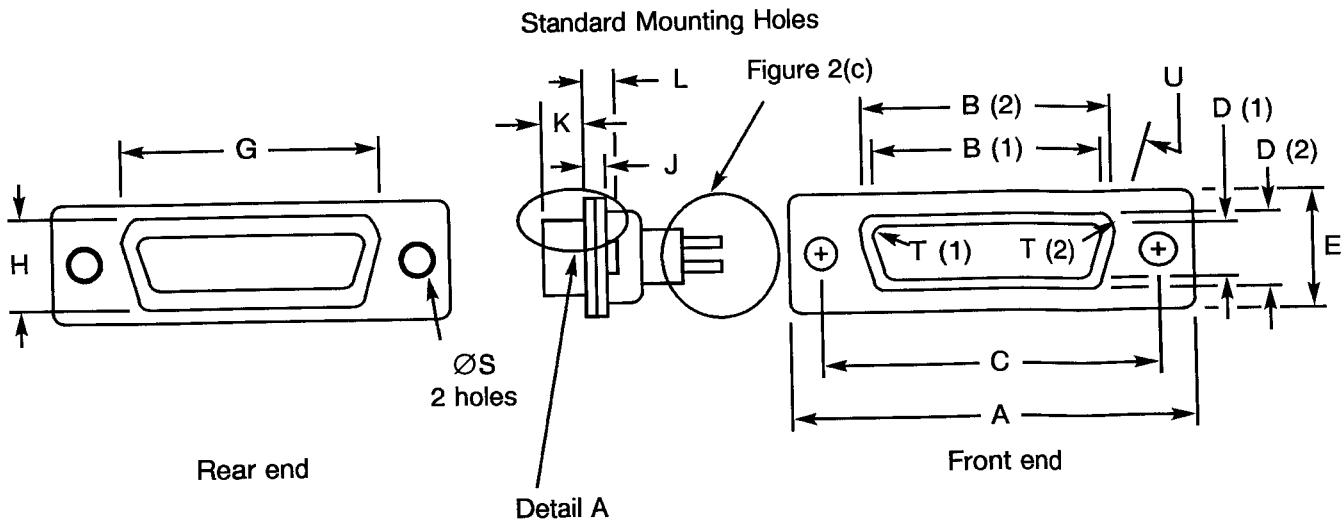
**NOTES**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Underlined dimensions, in table, are critical to ensure intermateability.
5. Electrical contact position in female contact.

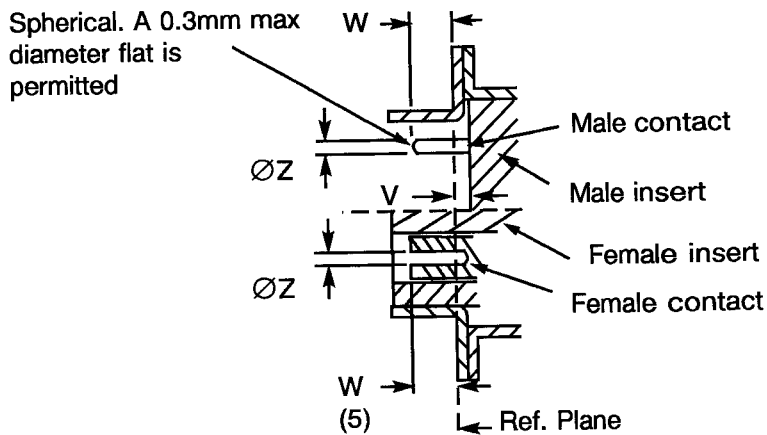
**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(a) - RECEPTACLES AND PLUGS**

**SHELL SIZE A**



**DETAIL A**



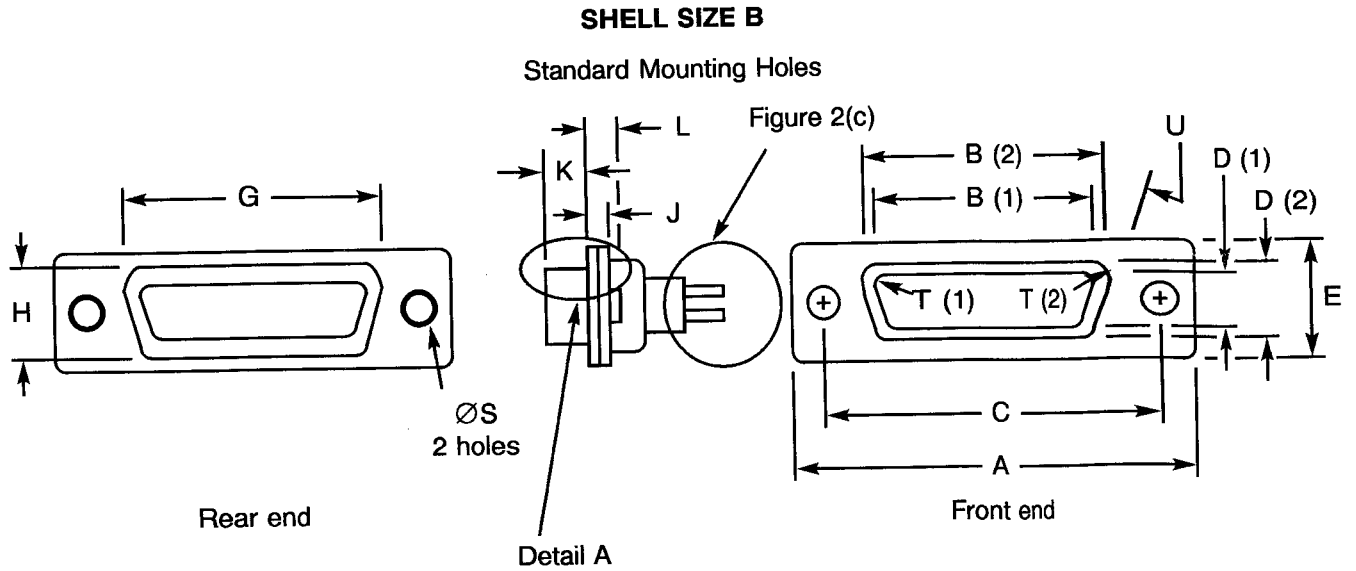
Contact type	Symbol/Dim.	A	B	C	D	E	G	H	J	K	L	ØS	T	U	V	W	ØZ	
																	V.01	V.02
Male	min.	38.76	25.12	33.20	8.23	12.17	27.25	10.46	0.51	5.82	0.89	2.92	2.59	9.0	0	4.03	0.99	0.75
	max.	39.52	25.37	33.45	8.48	12.93	27.76	10.97	1.02	6.13	1.52	3.20	2.69	11.0	0.4	-	1.04	0.77
Female	min.	38.76	24.54	33.20	7.77	12.17	27.25	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	3.63	1.07	0.89
	max.	39.52	24.79	33.45	8.03	12.93	27.76	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	-	1.14	0.95

**NOTES**

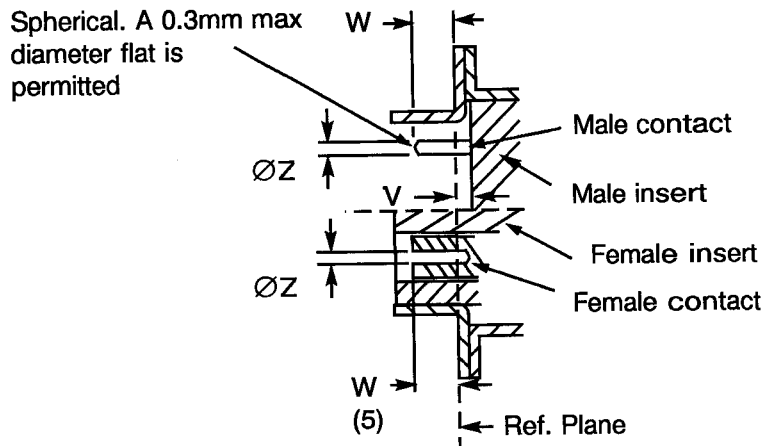
1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Underlined dimensions, in table, are critical to ensure intermateability.
5. Electrical contact position in female contact.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(a) - RECEPTACLES AND PLUGS**



**DETAIL A**



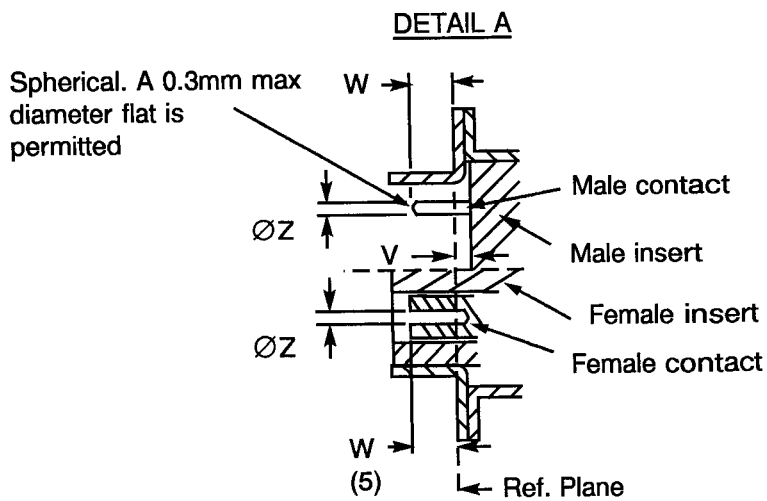
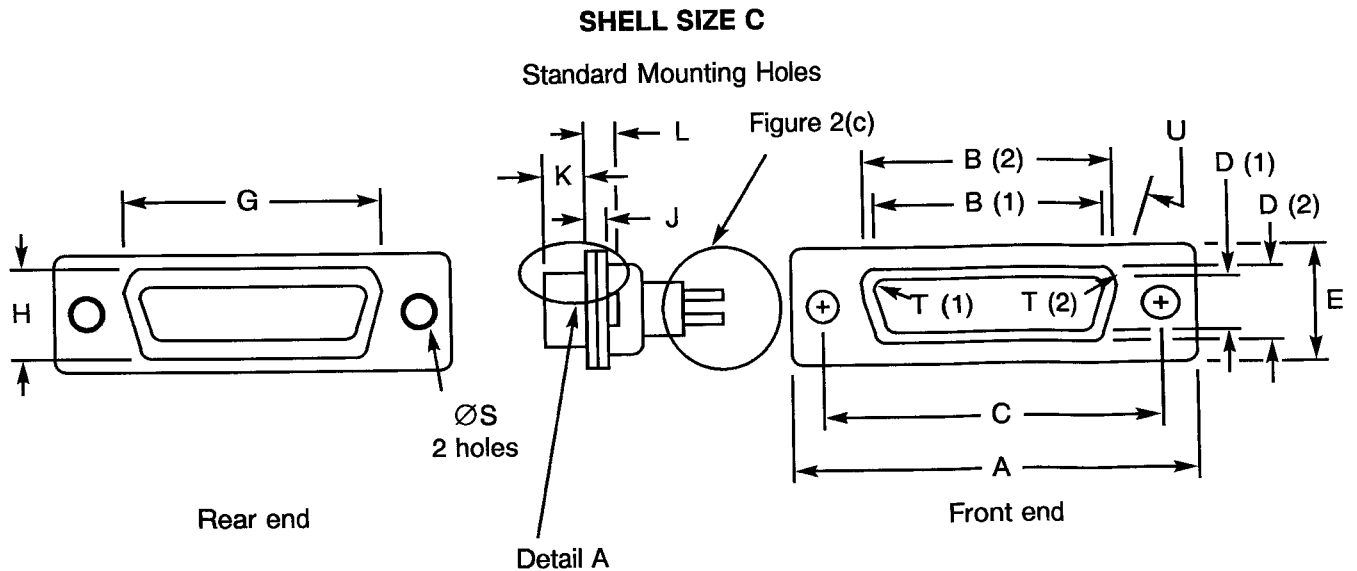
Contact Type	Symbol/Dim.	A	<u>B</u>	<u>C</u>	<u>D</u>	E	G	H	J	K	L	ØS	T	<u>U</u>	V	W	ØZ	
																	V.01	V.02
Male	min.	52.65	38.84	46.91	8.23	12.17	41.02	10.46	0.51	5.69	1.05	2.92	2.59	9.0	0	3.81	0.99	0.75
	max.	53.42	39.09	47.17	8.48	12.93	41.53	10.97	1.24	6.13	1.78	3.20	2.69	11.0	0.6	-	1.04	0.77
Female	min.	52.65	38.25	46.91	7.77	12.17	41.02	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	3.63	1.07	0.89
	max.	53.42	38.51	47.17	8.03	12.93	41.53	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	-	1.14	0.95

**NOTES**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Underlined dimensions, in table, are critical to ensure intermateability.
5. Electrical contact position in female contact.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(a) - RECEPTACLES AND PLUGS**



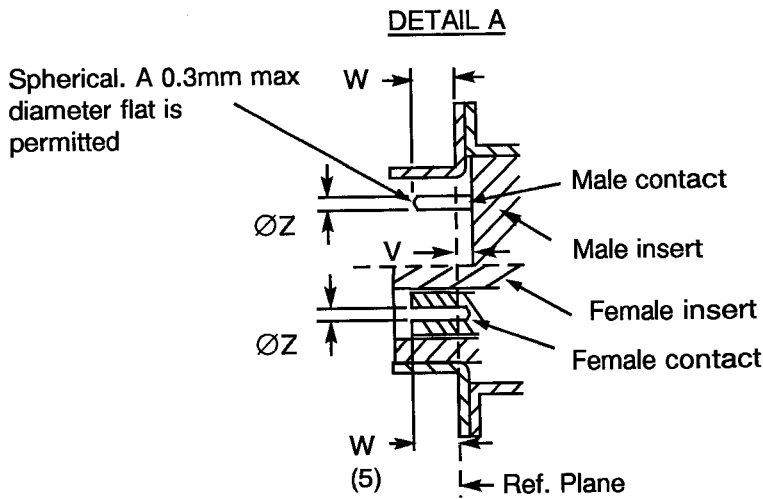
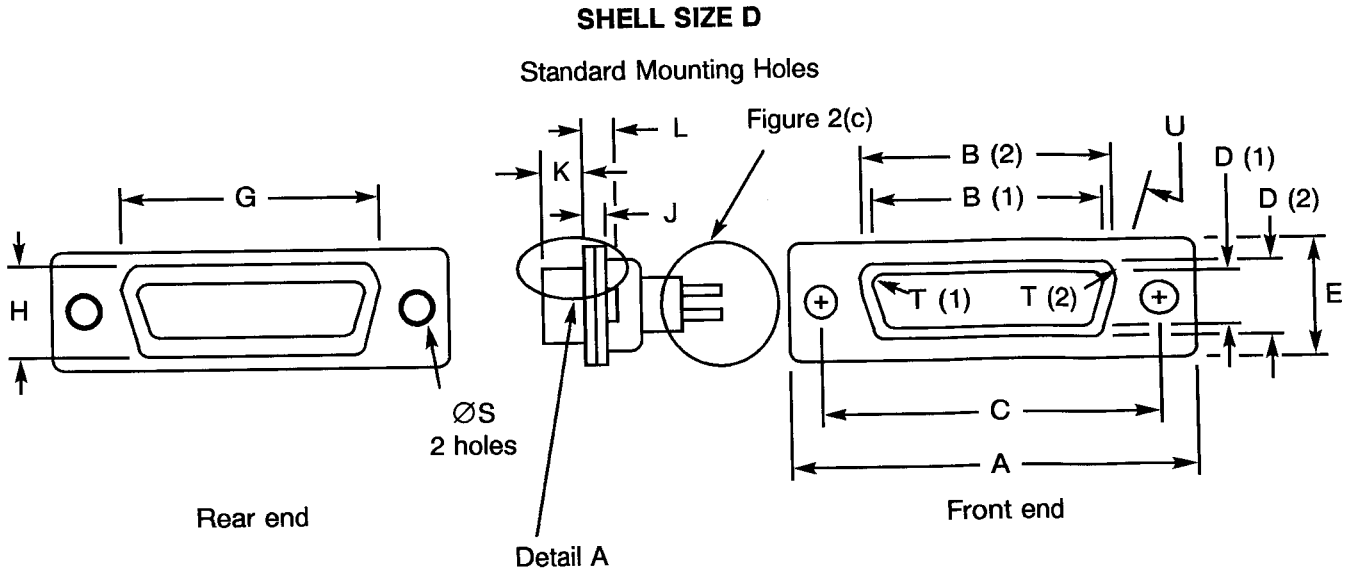
Contact Type	Symbol/Dim.	A	B	C	D	E	G	H	J	K	L	ØS	I	U	V	W	ØZ	
																	V.01	V.02
Male	min.	<u>68.94</u>	<u>55.30</u>	<u>63.37</u>	8.23	12.17	57.45	10.46	0.51	5.69	1.05	2.92	2.59	9.0	0	3.81	0.99	0.75
	max.	69.70	55.55	63.63	8.48	12.93	57.96	10.97	1.24	6.13	1.78	3.20	2.69	11.0	0.6	-	1.04	0.77
Female	min.	<u>68.94</u>	<u>54.71</u>	<u>63.37</u>	7.77	12.17	57.45	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	3.63	1.07	0.89
	max.	69.70	54.97	63.63	8.03	12.93	57.96	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	-	1.14	0.95

**NOTES**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Underlined dimensions, in table, are critical to ensure intermateability.
5. Electrical contact position in female contact.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(a) - RECEPTACLES AND PLUGS**



Contact Type	Symbol/ Dim.	A	<u>B</u>	<u>C</u>	<u>D</u>	E	G	H	J	K	L	ØS	<u>I</u>	<u>U</u>	V	W	ØZ	
			V.01	V.02														
Male	min.	66.55	52.68	60.99	10.95	14.99	55.07	13.31	0.51	5.69	1.05	2.92	2.59	9.0	0	3.81	0.99	0.75
	max.	67.31	52.93	61.24	11.33	15.75	55.58	13.82	1.24	6.13	1.78	3.20	2.69	11.0	0.6	-	1.04	0.77
Female	min.	66.55	52.30	60.99	10.62	14.99	55.07	13.31	0.51	5.87	0.89	2.92	2.46	9.0	-	3.63	1.07	0.89
	max.	67.31	52.55	61.24	10.87	15.75	55.58	13.82	1.02	6.30	1.52	3.20	2.62	11.0	-	-	1.14	0.95

**NOTES**

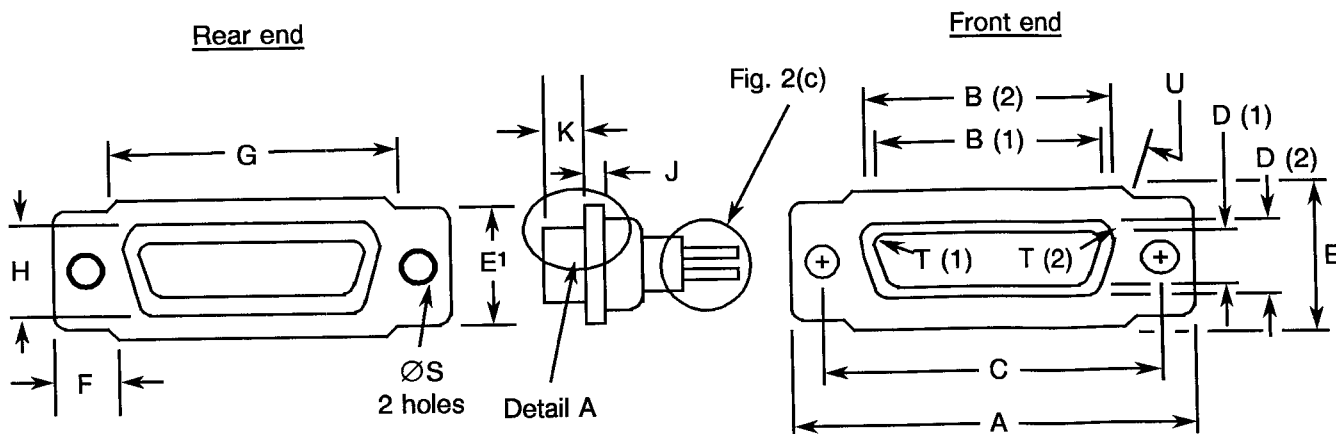
1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Underlined dimensions, in table, are critical to ensure intermateability.
5. Electrical contact position in female contact.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(a) - RECEPTACLES AND PLUGS (CONTINUED)**

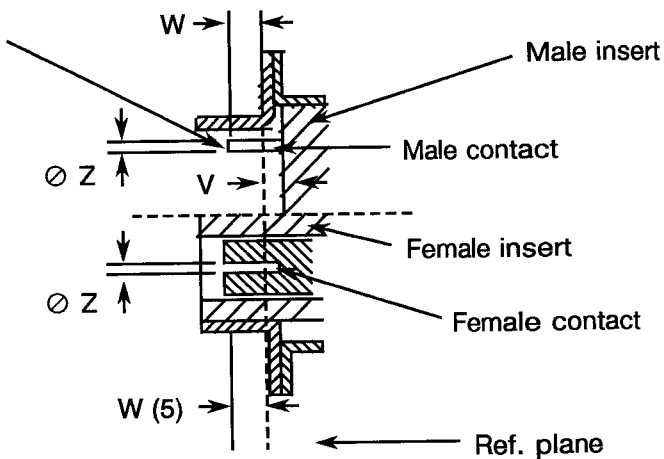
**SHELL SIZE F**

Standard Mounting Holes



**DETAIL A**

Spherical. A 0.3mm max. diameter flat is permitted



Contact Type	Symbol/Dim.	A	<u>B</u>	<u>C</u>	<u>D</u>	E	E1	F	G	H	J	<u>K</u>	$\varnothing S$	<u>I</u>	<u>U</u>	V	W	$\varnothing Z$
Male	min.	68.94	56.06	63.37	12.65	16.92	14.99	5.17	58.75	15.45	0.74	5.69	2.92	2.59	9.0	0	3.81	0.75
	max.	69.70	56.31	63.63	12.90	17.68	15.75	5.43	59.25	15.95	1.24	5.99	3.20	2.69	11.0	0.6	-	0.77
Female	min.	68.94	55.47	63.37	12.19	16.92	14.99	5.17	58.75	15.45	0.51	6.05	2.92	2.46	9.0	-	3.63	0.89
	max.	69.70	55.73	63.63	12.45	17.68	15.75	5.43	59.25	15.95	1.02	6.30	3.20	2.62	11.0	-	-	0.95

**NOTES**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Underlined dimensions, in table, are critical to ensure intermateability.
5. Electrical contact position in female contact.

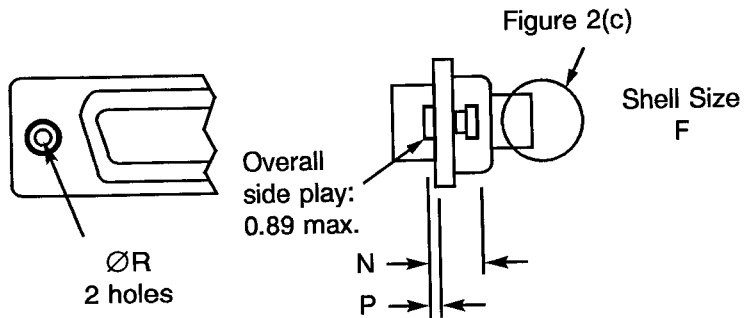
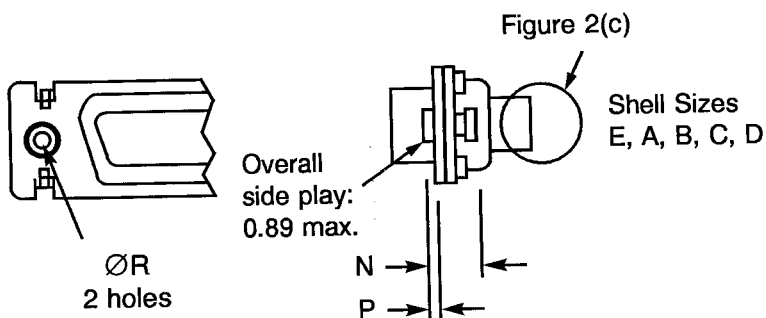
**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(a) - RECEPTACLES AND PLUGS**

OTHER MOUNTING TYPES

FLOATING MOUNT - TYPE 'Y'

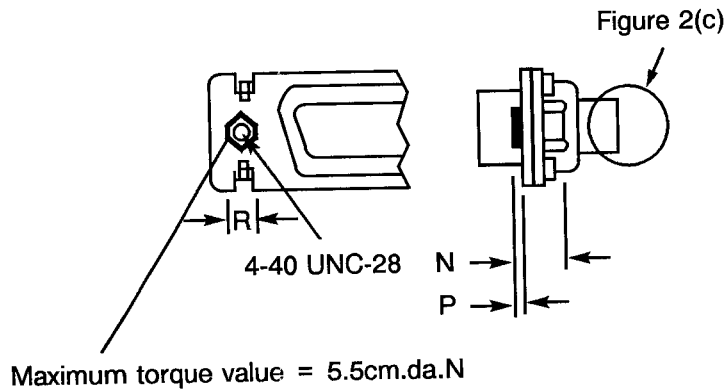
SHELL SIZES E, A, B, C, D AND F



Contact Type	Symbol/Dim.	N	P	ØR
Male	Min.	2.4	0.76	2.2
	Max.	3.3	0.86	2.3
Female	Min.	2.4	0.76	2.2
	Max.	3.3	0.86	2.3

CAPTIVE NUT - TYPE 'E'

SHELL SIZES E, A, B, C AND D



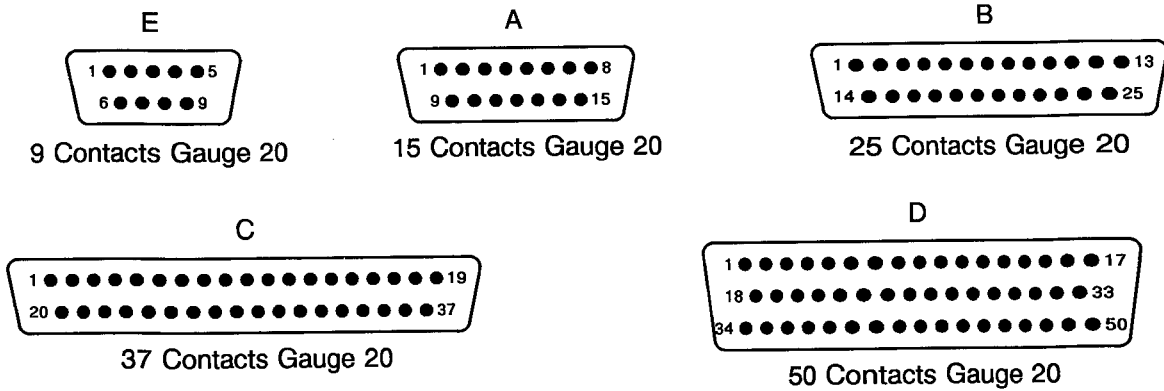
Contact Type	Symbol/Dim.	N	P	R
Male	Min.	3.4	0.2	4.3
	Max.	4.2	0.4	4.7
Female	Min.	3.4	0.2	4.3
	Max.	4.2	0.4	4.7



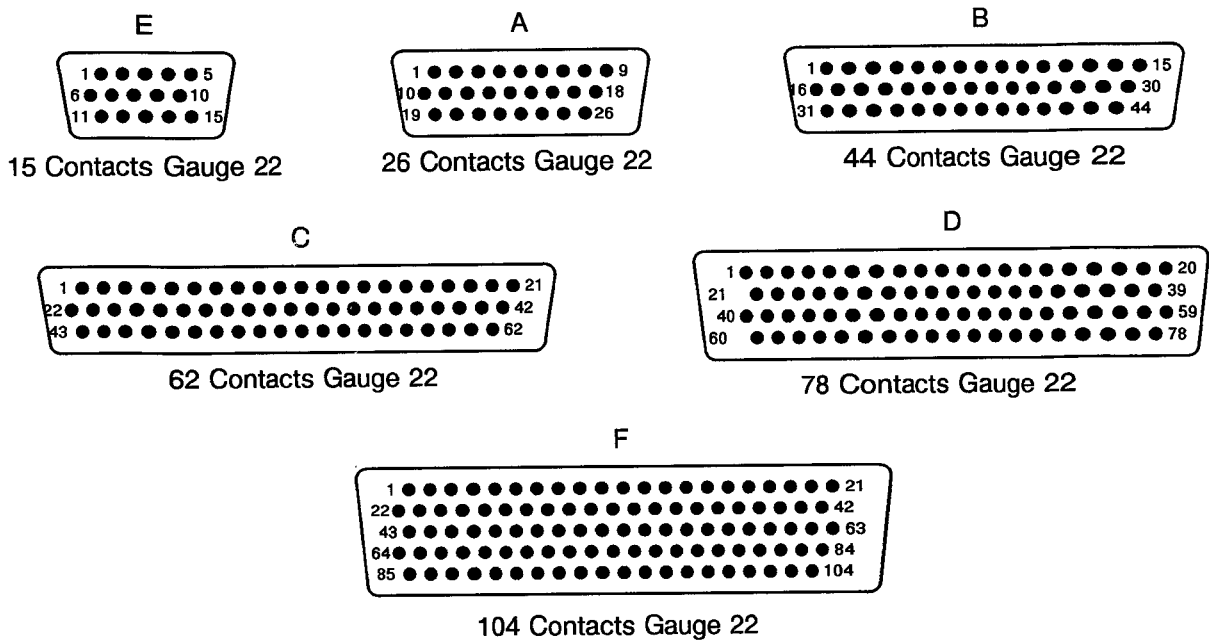
**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(b) - CONTACT ARRANGEMENTS**

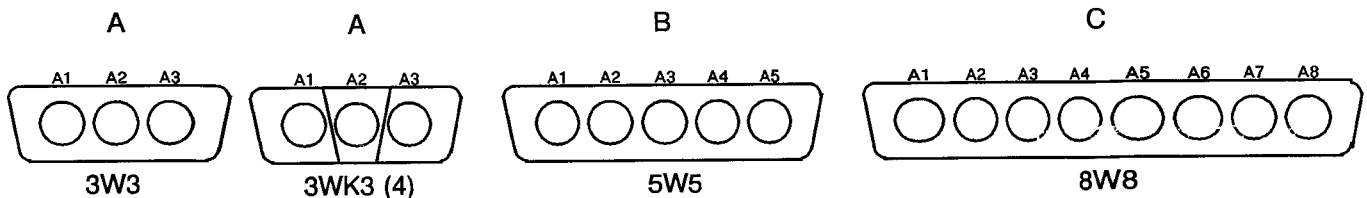
**VARIANT 01 - STANDARD CONTACT ARRANGEMENTS**  
**FRONT VIEW MALE INSERT**



**VARIANT 02 - HIGH DENSITY CONTACT ARRANGEMENTS**  
**FRONT VIEW MALE INSERT**



**POWER AND COAXIAL CONTACT ARRANGEMENTS FOR VARIANT 01 ONLY**



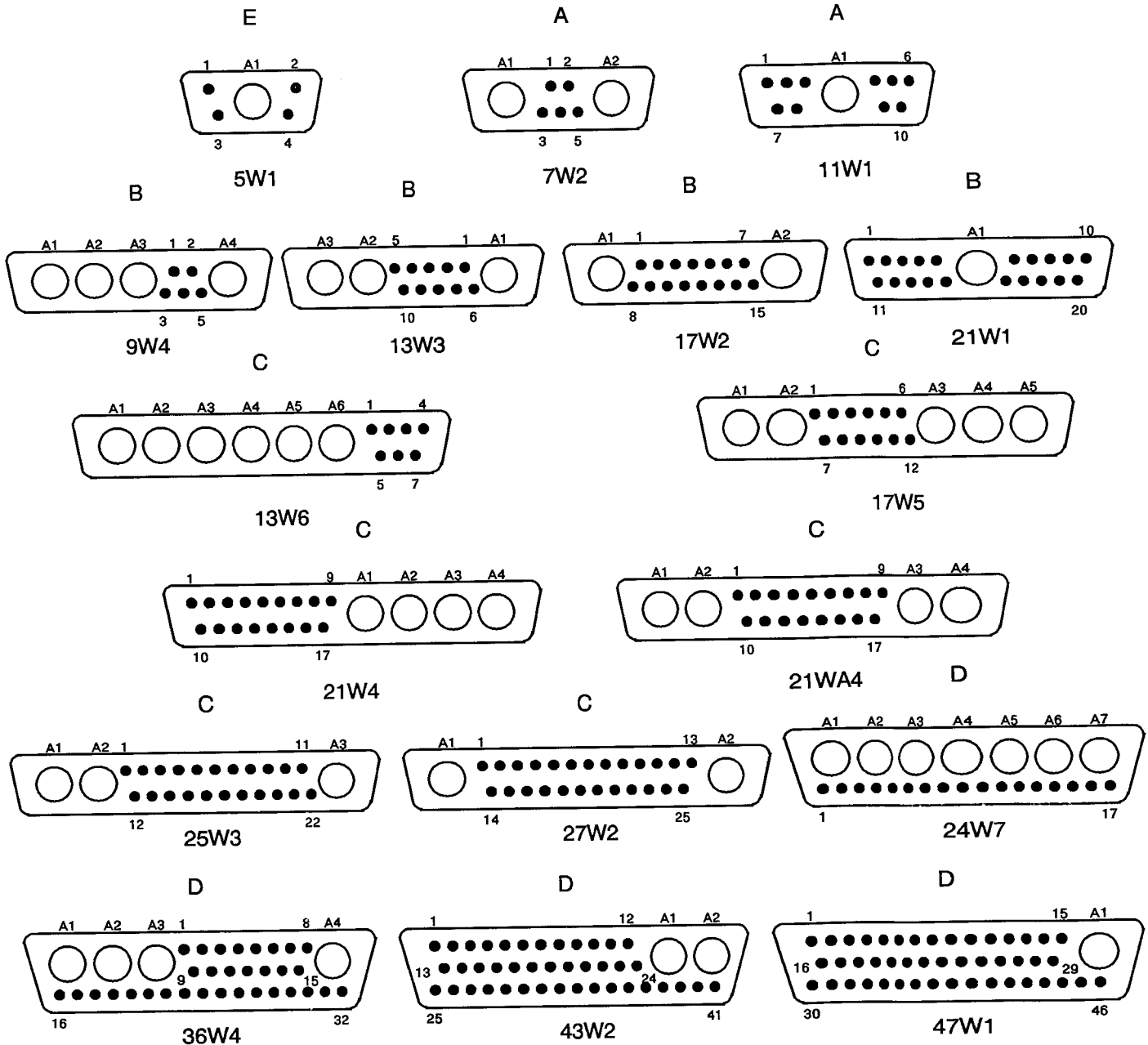
**NOTES:** See Page 16.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(b) - CONTACT ARRANGEMENTS (CONTINUED)**

**(FRONT VIEW MALE INSERT)**

**MIXED CONTACT ARRANGEMENTS FOR VARIANT 01 ONLY (CONTINUED)**



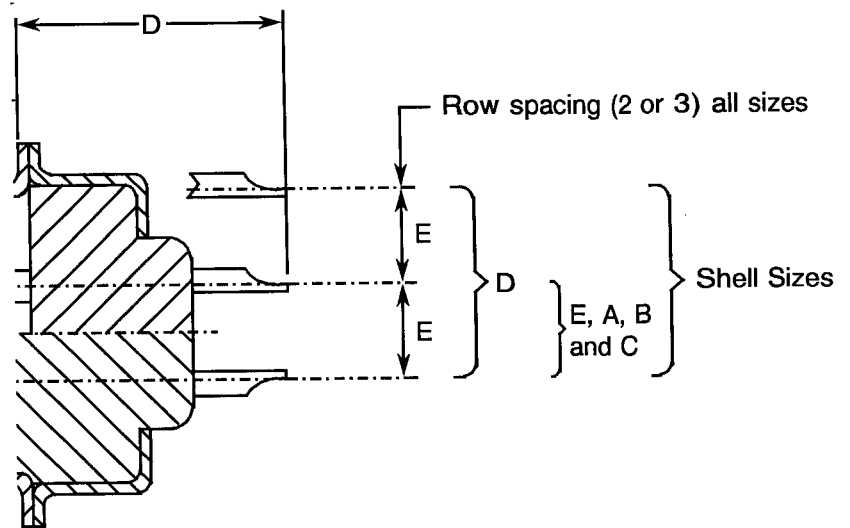
**NOTES**

1. Contact locations are in conformity with MIL-C-24308 specification sheets and shall not be checked during procurement.
2. Both sides of the insert shall be marked with the minimum marking shown. Contact numbers are shown outside the inserts for readability.
3. See Para. 4.5 for definition of letters and numbers.
4. 3WK3 insulator with built-in keying (middle part recessed or protruding with respect to each side), to avoid mismounting (K = keyed).

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

FIGURE 2(c) - REAR END

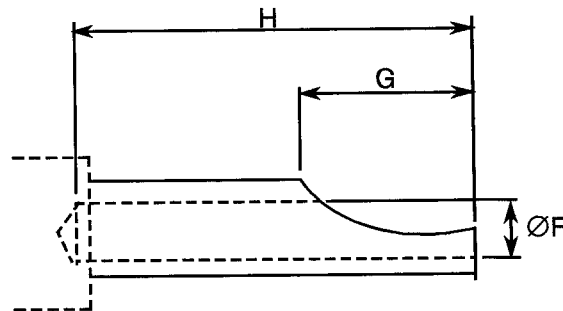
**Gauge 20 Solder Bucket Contacts (CODE - )**



Pitch between contacts

Connector shell sizes E and A: 2.74.

Connector shell sizes B, C and D: 2.76.



Symbol/ Dim.	$\underline{D}$ (2) (3)	$\underline{D}$ (4)	E (5)	$\underline{\text{ØF}}$	G	H
min.	-	-	2.77	1.1	1.4	2.4
max.	10.71	10.91	2.91	1.15	2.5	-

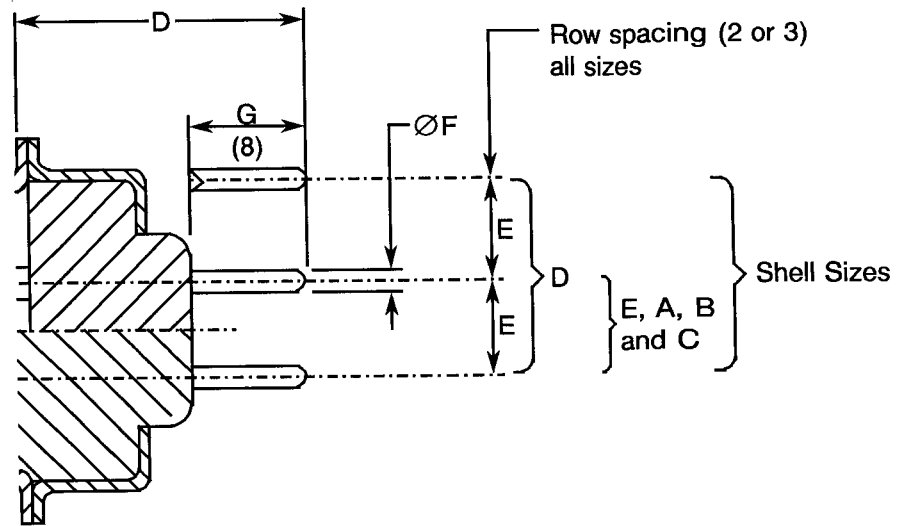
**NOTES**

1. All dimensions are in mm.
2. Connectors equipped with female contacts all sizes.
3. Connectors equipped with male contacts sizes E and A.
4. Connectors equipped with male contacts sizes B, C and D.
5. Typical = 2.84.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 20 Straight PCB Solder Contacts (Codes OL3 and Z)**



Pitch between contacts

Connector shell sizes E and A: 2.74.

Connector shell sizes B, C and D: 2.76.

Symbol/ Dim.	<u>D</u>	<u>D</u>	E	<u>ØF</u>		<u>G</u>
	(2)	(3)		(4)	(5)	
min.	9.7	9.9	2.77	0.50	0.69	3.1
max.	11.5	11.7	2.91	0.65	0.84	5.3

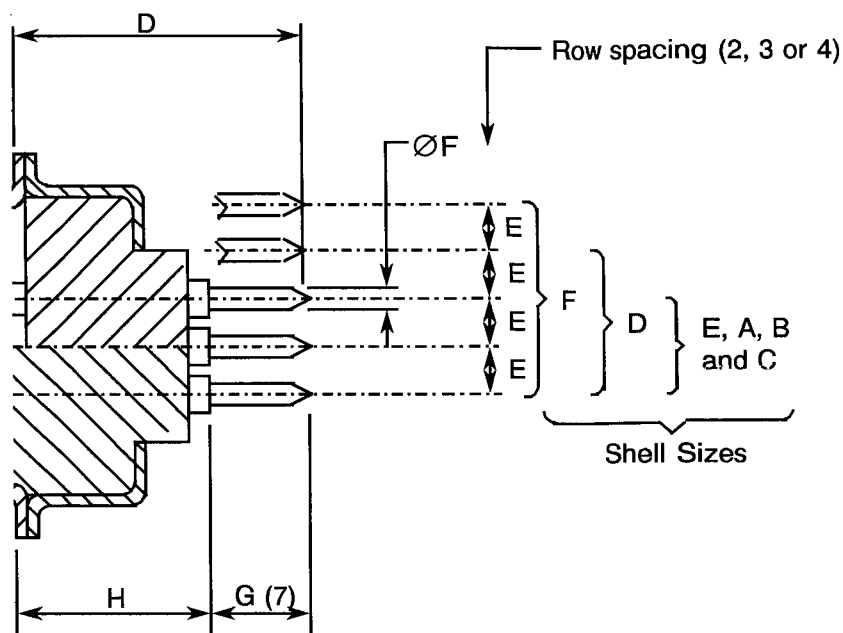
**NOTES**

1. All dimensions are in mm.
2. Connectors equipped with female contacts all sizes.
3. Connectors equipped with male contacts sizes E and A.
4. Connectors equipped with male contacts sizes B, C and D.
5. Typical = 2.84.
6. Typical = 0.60.
7. Typical = 0.76.
8. Dimension G is the length of the PCB tail extension of the contact.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 22 Straight PCB Solder Contacts (Code OL3)**



Pitch between contacts

Connector shell sizes E, A and B: 2.29.

Connector shell sizes C, D and F: 2.41.

Symbol/ Dim.	D			E		ØF	G (7)	H		
	(2)	(3)	(4)	Sizes E, A, B, C (5)	Sizes D, F (6)			(2)	(3)	(4)
min.	-	-	-	1.91	2.01	0.50	4.6	-	-	-
max.	16.17	16.01	16.21	2.05	2.15	0.65	4.8	11.37	11.21	11.41

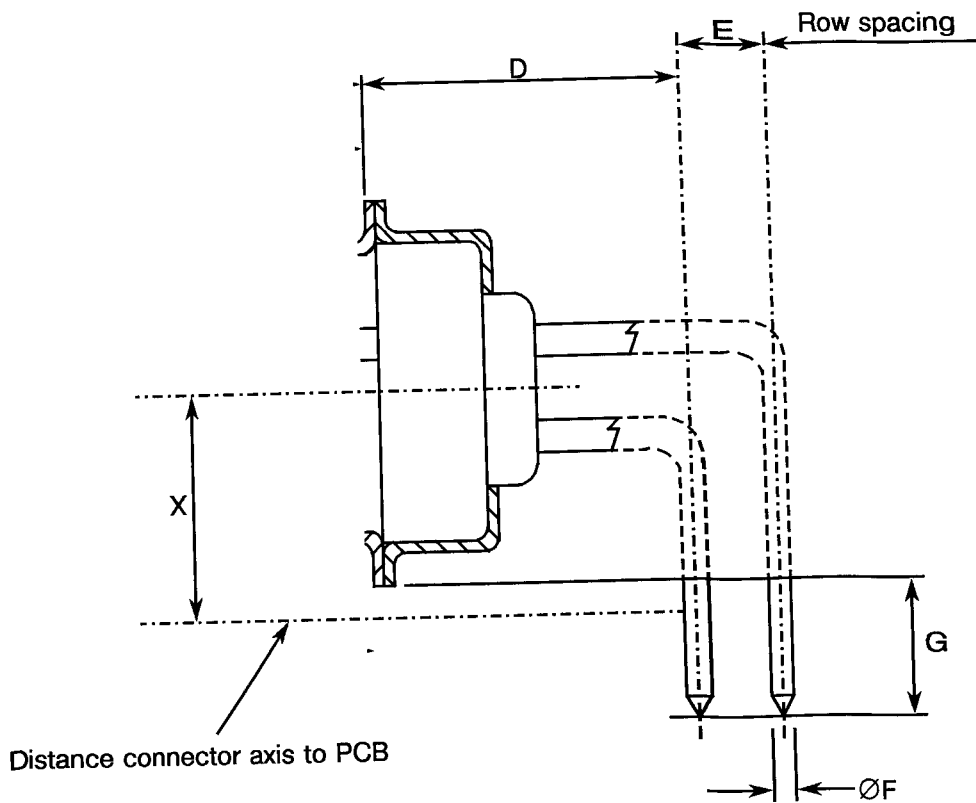
**NOTES**

- All dimensions are in mm.
- Connectors equipped with female contacts all sizes.
- Connectors equipped with male contacts sizes E and A.
- Connectors equipped with male contacts sizes B, C, D and F.
- Typical = 1.98.
- Typical = 2.08.
- Dimension G is the length of the PCB tail extension of the contact.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

FIGURE 2(c) - REAR END (CONTINUED)

Gauge 20 90° PCB Solder Contacts (Sizes E, A, B and C) (Codes 1AON, 1BON, 2AON and 2BON)



Pitch between contacts

Connector shell sizes E and A: 2.74.  
Connector shell sizes B and C: 2.76.

Symbol/ Dim.	D		E		ØF		G	X
	(2)	(3)	(4)	(5)	(6)	(7)		
min.	10.1	10.3	2.49	2.79	0.50	0.69	4.7	7.2
max.	10.3	10.5	2.59	2.89	0.65	0.84	5.3	7.5

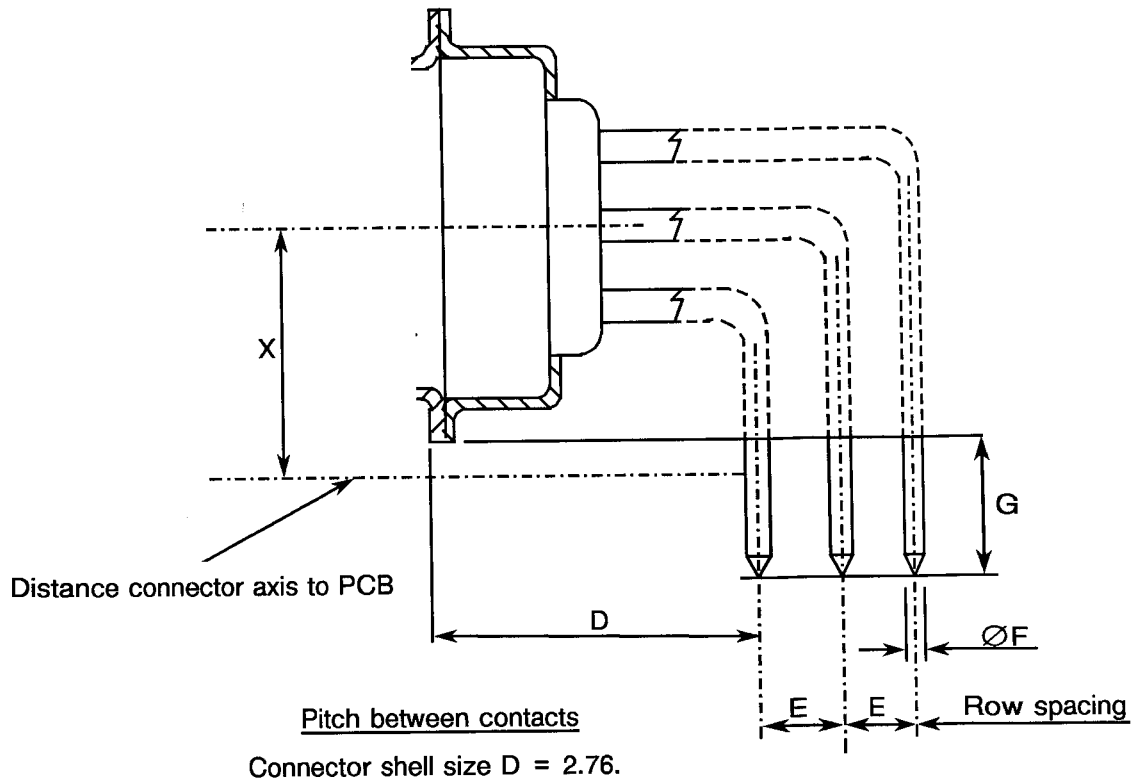
**NOTES**

1. All dimensions are in mm.
2. Connectors equipped with female contacts all sizes.
3. Connectors equipped with male contacts sizes E and A.
4. Connectors equipped with male contacts sizes B and C.
5. Typical = 2.54.
6. Typical = 2.84.
7. Typical = 0.60.
8. Typical = 0.76.
9. Typical = 7.35.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 20 90° PCB Solder Contacts (Size D) (Codes 1AON, 1BON, 2AON and 2BON)**



Symbol/ Dim.	D		E		ØF		G	X
	(2)	(3)	(*)AON (4)	(*)BON (5)	1AON 1BON (6)	2AON 2BON (7)		
min.	10.1	10.3	2.49	2.79	0.50	0.69	4.7	8.6
max.	10.3	10.5	2.59	2.89	0.65	0.84	5.3	8.8

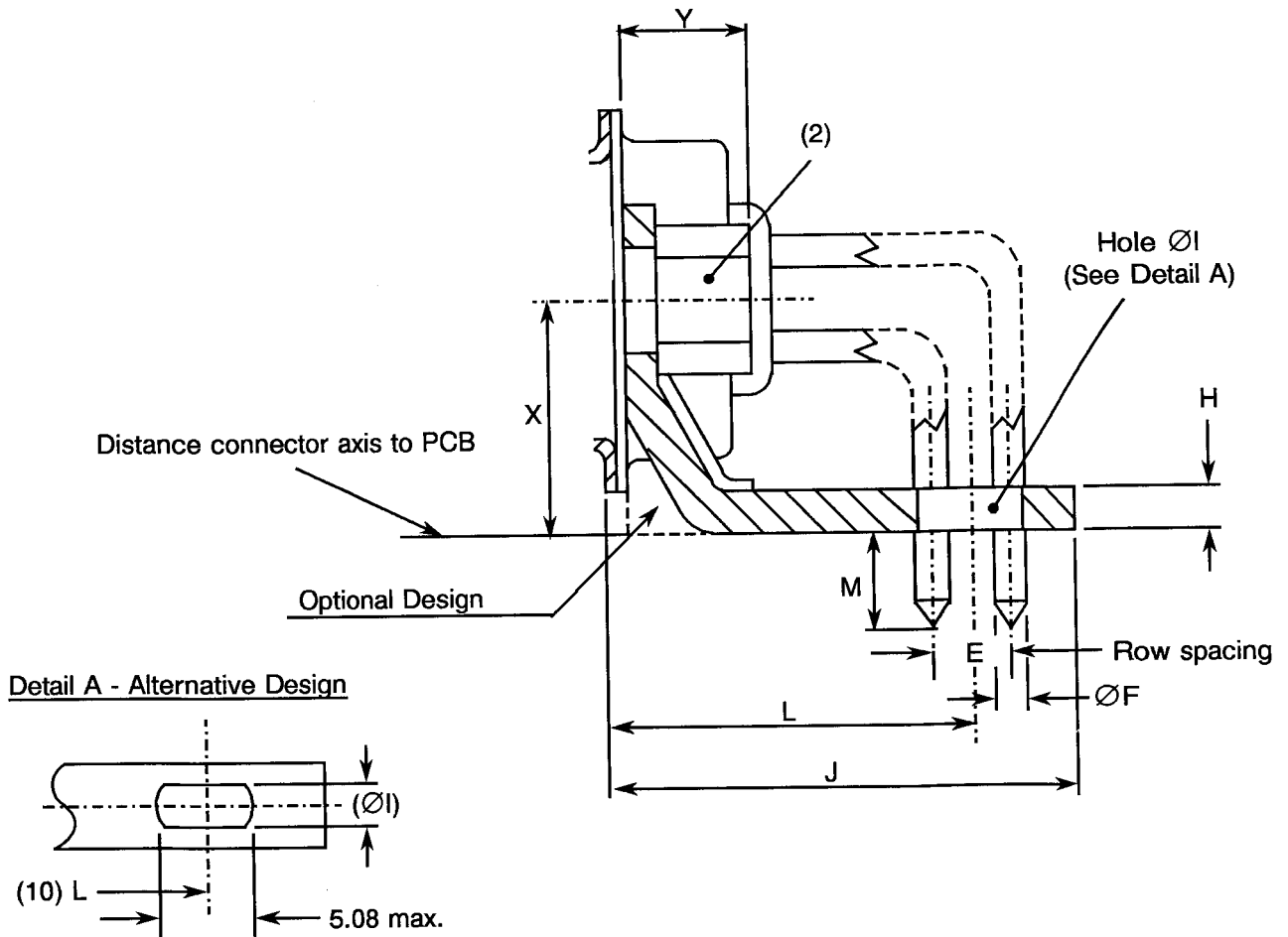
**NOTES**

1. All dimensions are in mm.
2. Connectors equipped with female contacts.
3. Connectors equipped with male contacts.
4. Typical = 2.54.
5. Typical = 2.84.
6. Typical = 0.60.
7. Typical = 0.76.
8. Typical = 8.70.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 20 PCB Solder Contacts with 90° Brackets and Screw Locks (Sizes E, A, B and C)  
(Codes 1A7N, 1A9N, 1B7N, 1B9N, 2A7N, 2A9N, 2B7N and 2B9N)**



Symbol/ Dim.	E		ØF		H	ØI	J		L				M	X	Y
	(*)A7N (3)	(*)B7N (4)	1(*)7N (5)	2(*)7N (6)			(7)	(8)	(7)		(8)				
									(*)A7N (*)A9N	(*)B7N (*)B9N	(*)A7N (*)A9N	(*)B7N (*)B9N			
min.	2.49	2.79	0.50	0.69	1.0	3.12	-	-	11.37	11.52	11.57	11.72	3.6	7.2	-
max.	2.59	2.89	0.65	0.84	3.2	3.32	15.6	15.8	11.57	11.72	11.77	11.92	4.4	7.5	7.0

**NOTES**

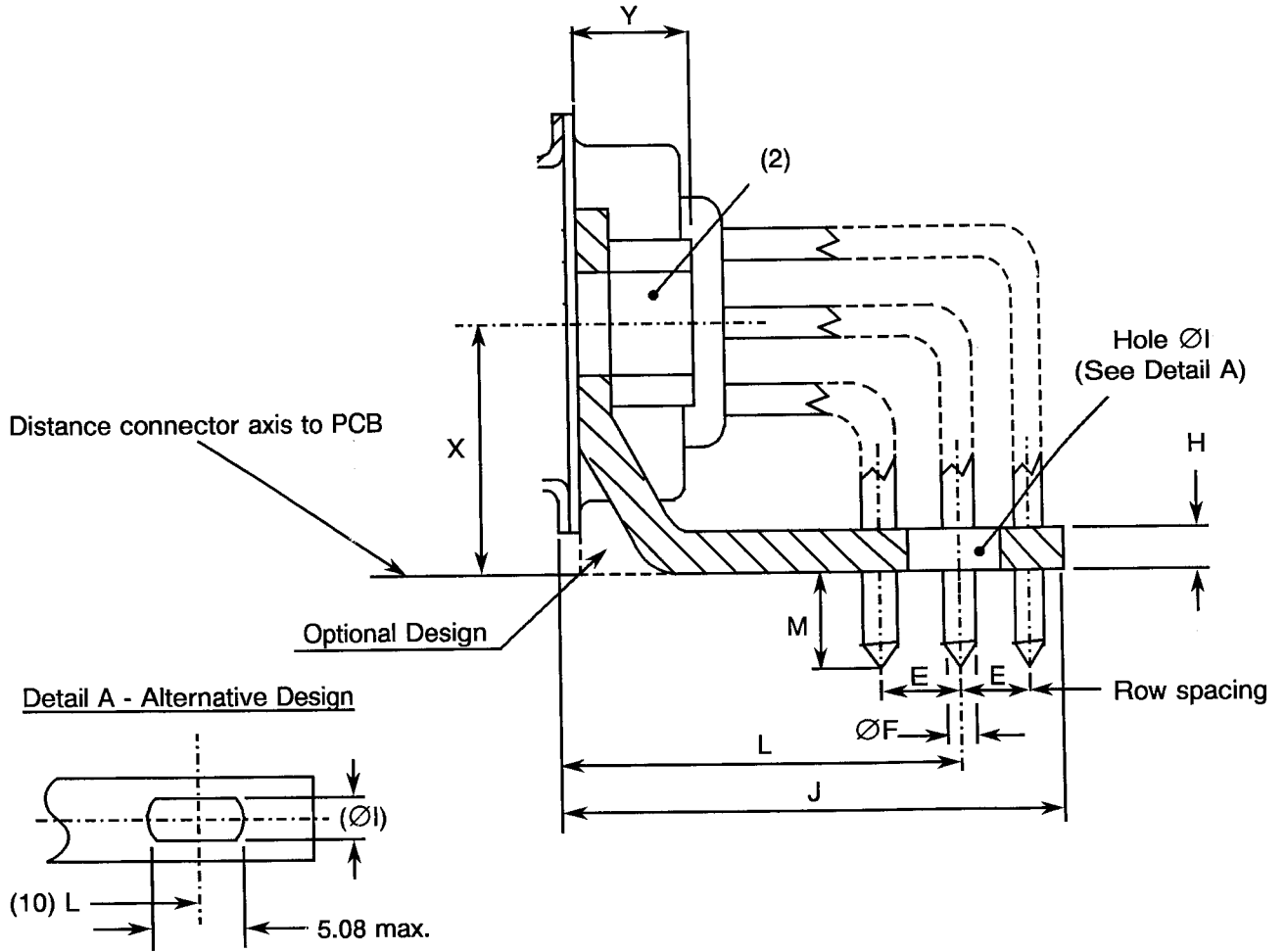
- All dimensions are in mm.
- Codes (\*)A7N and (\*)B7N: Nut 4-40.  
Codes (\*)A9N and (\*)B9N: Nut M3.
- Typical = 2.54.
- Typical = 2.84.
- Typical = 0.60.
- Typical = 0.76.
- Connectors equipped with female contacts all sizes and connectors equipped with male contacts sizes E and A.
- Connectors equipped with male contacts sizes B and C.
- Typical = 7.35.
- This alternative design takes into account the different possible values of L.



**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 20 PCB Solder Contacts with 90° Brackets and Screw Locks (Size D)**  
(Codes 1A7N, 1A9N, 1B7N, 1B9N, 2A7N, 2A9N, 2B7N and 2B9N)



Symbol/ Dim.	E		ØF		H	ØI	J		L				M	X	Y
	(*)A7N (3)	(*)B7N (4)	1(*)7N (5)	2(*)7N (6)			(7)	(8)	(7)		(8)				
									(*)A7N (3)	(*)B7N (4)	(*)A7N (3)	(*)B7N (4)			
min.	2.49	2.79	0.50	0.69	1.0	3.12	-	-	12.64	12.94	12.84	13.14	3.6	8.6	-
max.	2.59	2.89	0.65	0.84	3.2	3.32	17.5	17.7	12.84	13.14	13.04	13.34	4.4	8.8	7.0

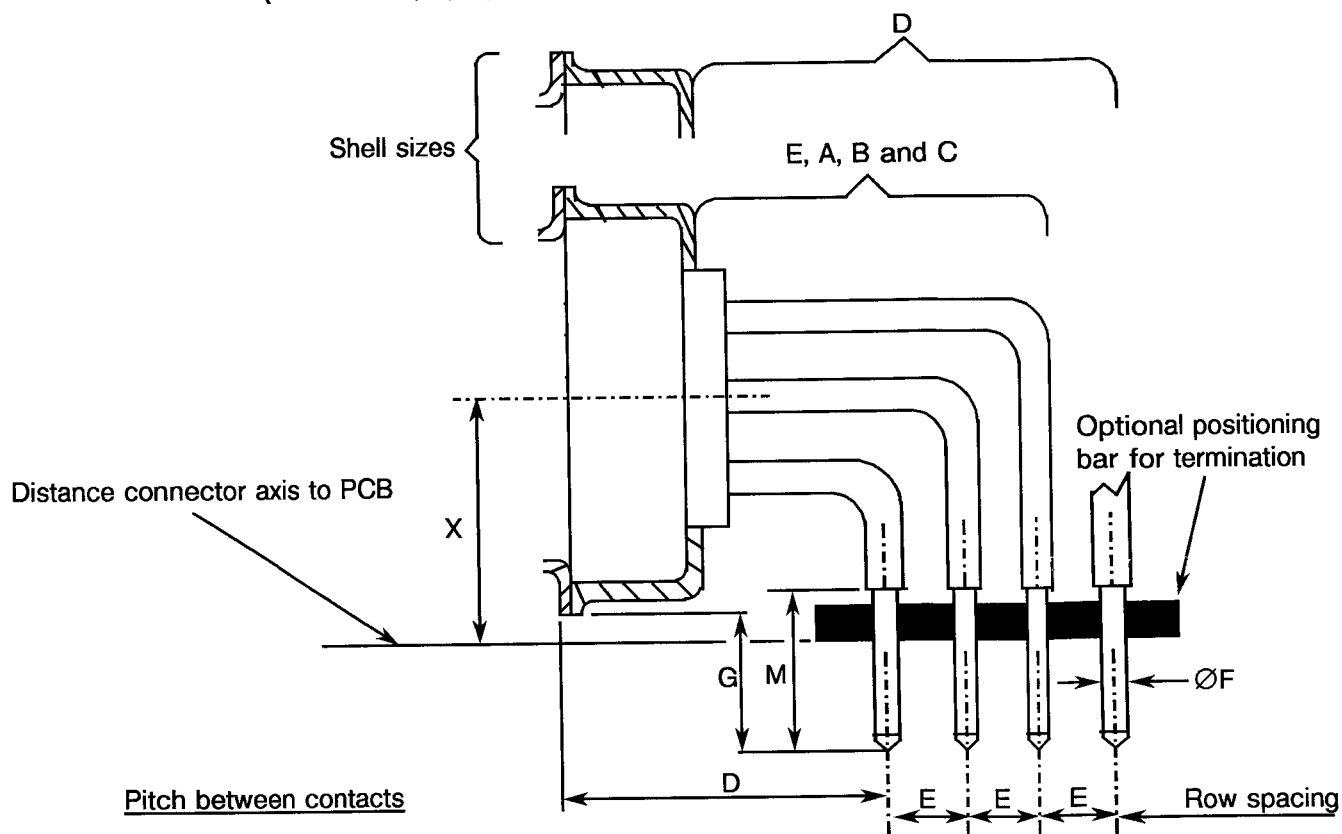
**NOTES**

- All dimensions are in mm.
- Codes (\*)A7N and (\*)B7N: Nut 4-40  
Codes (\*)A9N and (\*)B9N: Nut M3.
- Typical = 2.54.
- Typical = 2.84.
- Typical = 0.60.
- Typical = 0.76.
- Connectors equipped with female contacts.
- Connectors equipped with male contacts.
- Typical = 8.70.
- This alternative design takes into account the different possible values of L.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 22 90° PCB Solder Contacts  
(For Sizes E, A, B, C code 1CON and Size D code 1DON)**



Connector shell sizes E, A and B = 2.29.  
Connector shell sizes C and D = 2.41.

Code	Symbol/ Dim.	D		E		ØF	G	M	X
		(2)	(3)	(4)	1CON (5)				
1CON	min.	11.98	12.18	1.93	-	0.50	4.7	5.3	7.2
	max.	12.48	12.68	2.03	-	0.65	5.3	5.4	7.5
1DON	min.	11.98	12.18	-	2.03	0.50	4.7	5.3	8.6
	max.	12.48	12.68	-	2.13	0.65	5.3	5.4	8.8

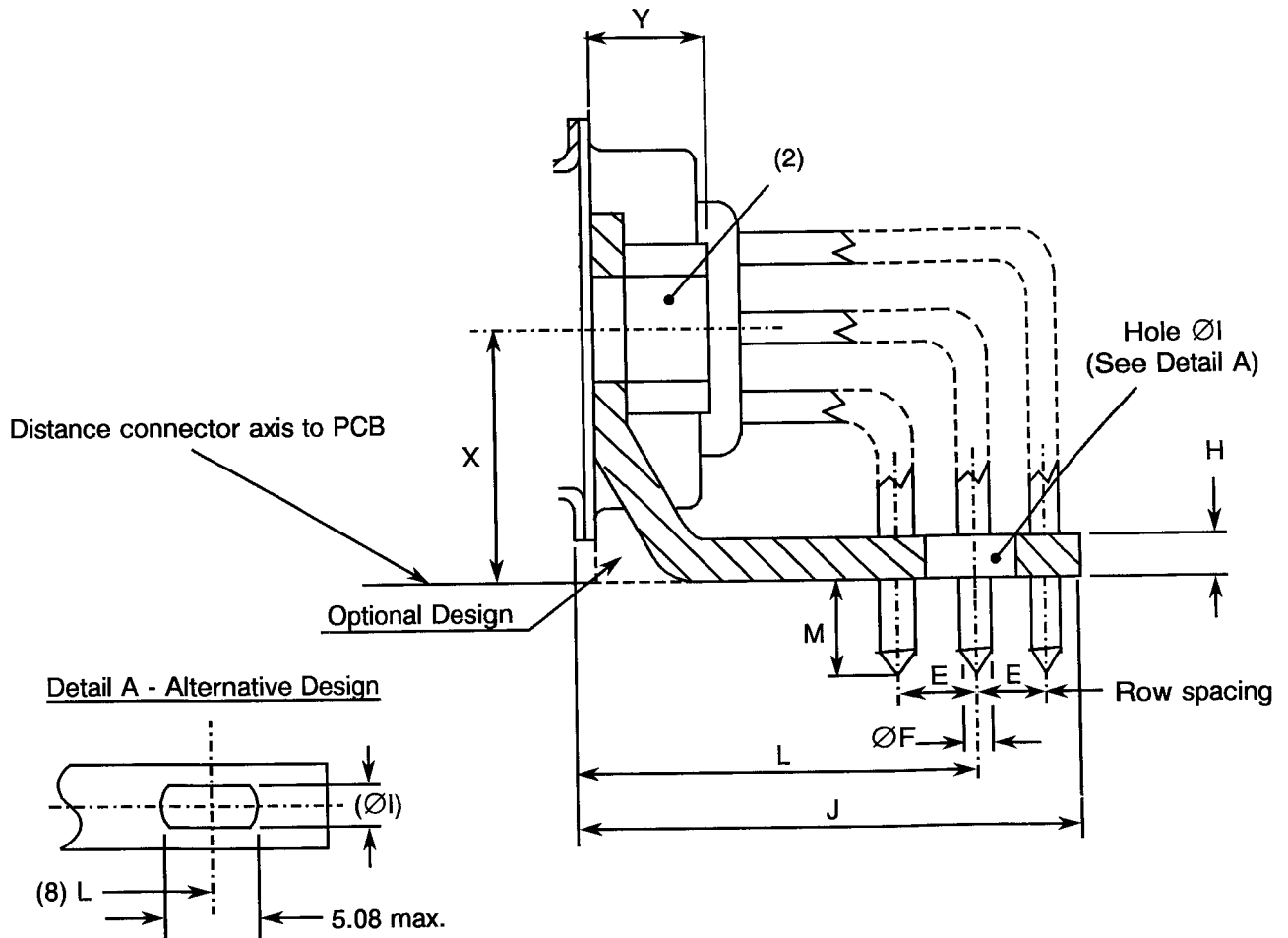
**NOTES**

1. All dimensions are in mm.
2. Connectors equipped with female contacts all sizes.
3. Connectors equipped with male contacts sizes E and A.
4. Connectors equipped with male contacts sizes B, C and D.
5. Typical = 1.98.
6. Typical = 2.08.
7. For sizes E, A, B and C, Typical = 7.35.
8. For size D, Typical = 8.70.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 22 PCB Solder Contacts with 90° Brackets and Screw Locks (Sizes E, A, B and C)  
(Codes 1C7N and 1C9N)**



Symbol/ Dim.	E	ØF	ØI	H	J		L		M	X	Y
					(4) (6)	(5) (6)	1C7N 1C9N (4)	1C7N 1C9N (5)			
min.	1.93	0.50	3.12	1.0	-	-	14.11	14.31	3.6	7.2	-
max.	2.03	0.65	3.32	3.2	18.3	18.5	14.31	14.51	4.4	7.5	7.0

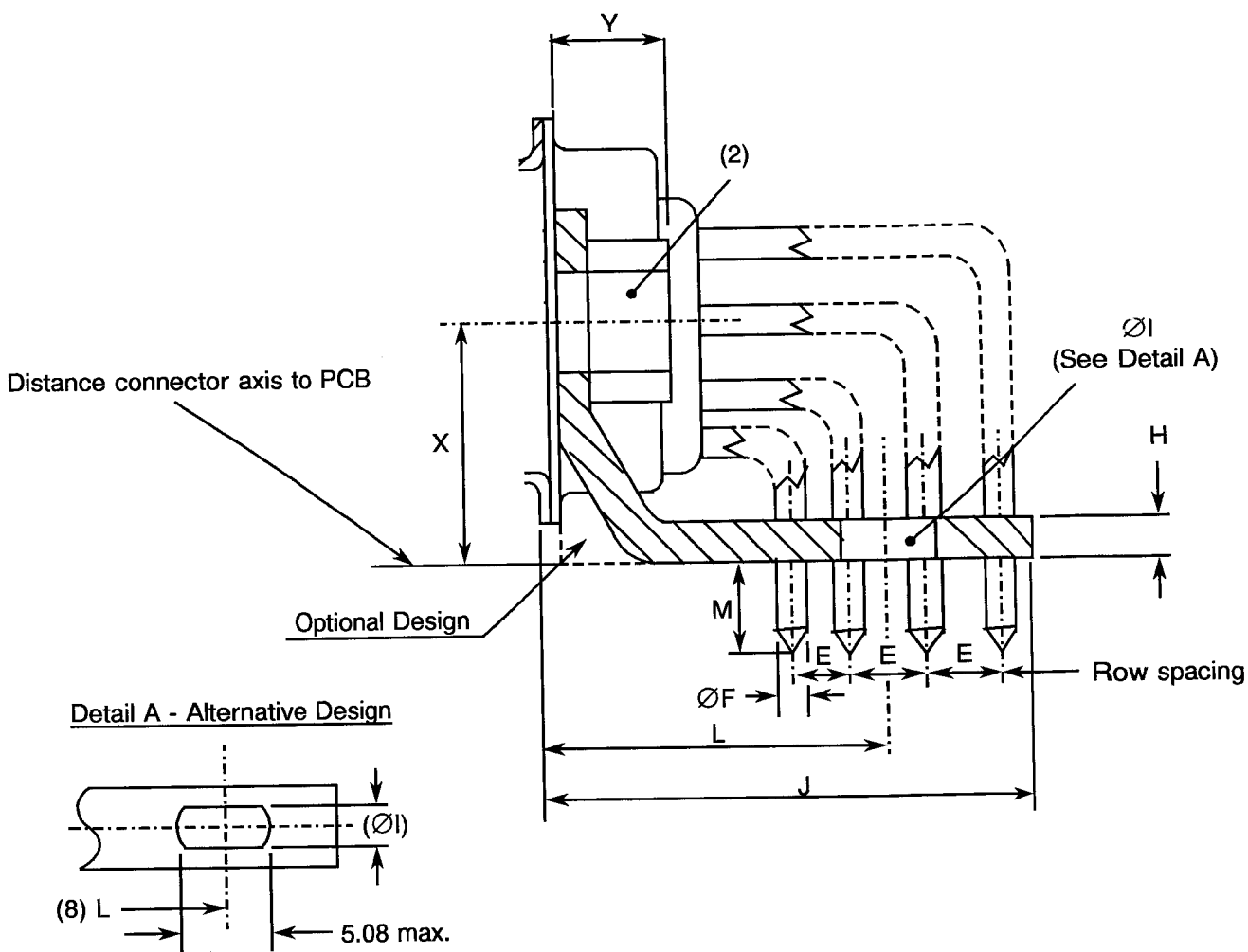
**NOTES**

1. All dimensions are in mm.
2. Code 1C7N: Nut 4-40.  
Code 1C9N: Nut M3.
3. Typical = 1.98.
4. Connectors equipped with female contacts all sizes and connectors equipped with male contacts sizes E and A.
5. Connectors equipped with male contacts sizes B and C.
6. Optional positioning bar for termination included.
7. Typical = 7.35.
8. This alternative design takes into account the different possible values of L.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 22 PCB Solder Contacts with 90° Brackets and Screw Locks (Size D)  
(Codes 1D7N and 1D9N)**



Symbol/ Dim.	E (3)	ØF	ØI	H	J		L		M	X (7)	Y
					(4)	(6)	(4)	(5)			
min.	2.03	0.50	3.12	1.0	-	-	15.25	15.45	3.6	8.6	-
max.	2.13	0.65	3.32	3.2	20.5	20.7	15.45	15.65	4.4	8.8	7.0

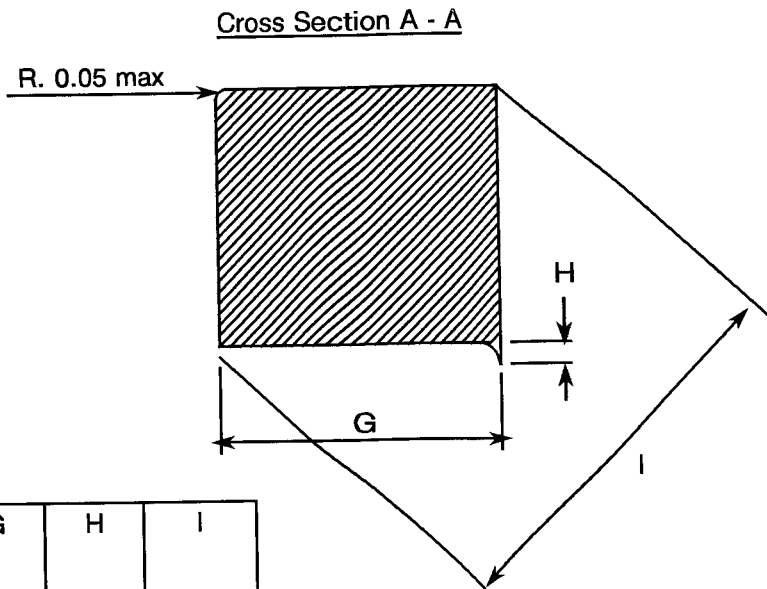
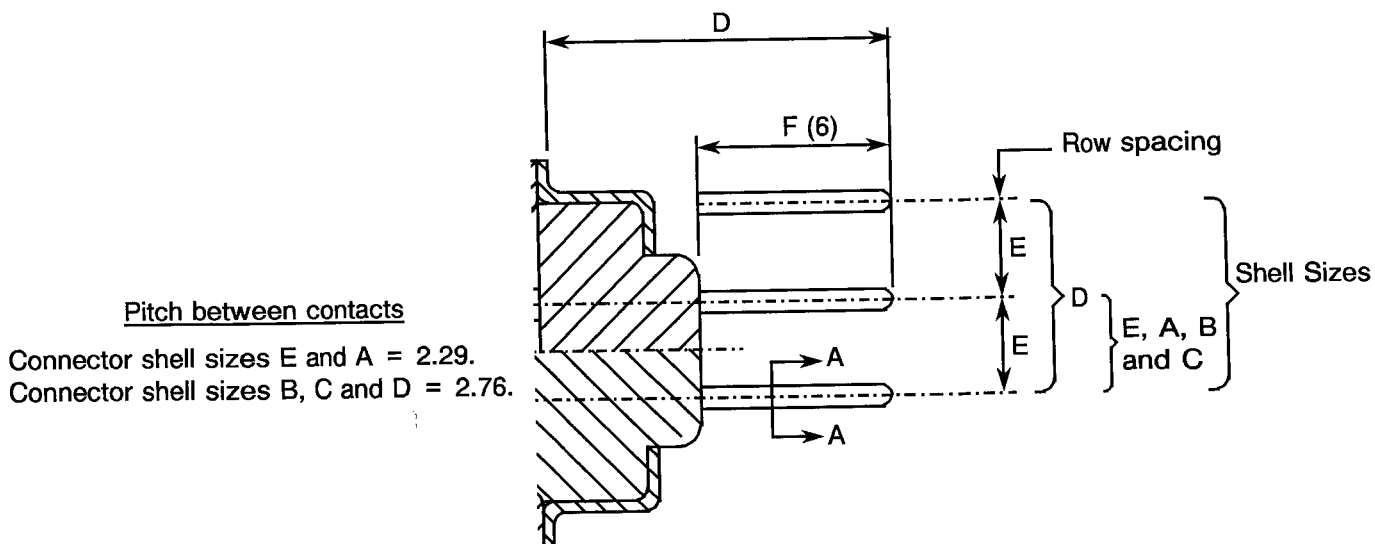
**NOTES**

- All dimensions are in mm.
- Code 1D7N: Nut 4-40.  
Code 1D9N: Nut M3.
- Typical = 2.08.
- Connectors equipped with female contacts.
- Connectors equipped with male contacts.
- Optional positioning bar for termination included.
- Typical = 8.70.
- This alternative design takes into account the different possible values of L.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

**Gauge 20 Wire-Wrap Contacts (Code F179A)**



Symbol/ Dim.	D		E (5)	F (6)	G	H	I
	(2)	(3)					
min.	-	-	2.77	12.6	0.59	-	0.787
max.	20.1	20.3	2.91	12.8	0.61	0.02	0.864

**NOTES**

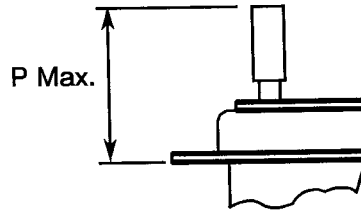
1. All dimensions are in mm.
2. Connectors equipped with female contacts all sizes.
3. Connectors equipped with male contacts sizes E and A.
4. Connectors equipped with male contacts sizes B, C and D.
5. Typical = 2.84.
6. Dimension F is the length of the square part of the contact.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

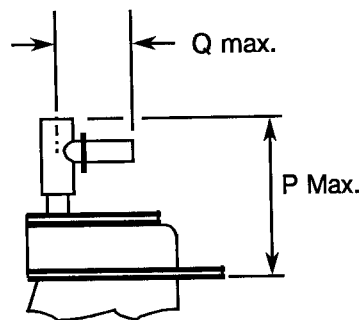
**Power and Coaxial Contacts (Code - )**

Straight Coaxial Contacts



Symbol	Connectors equipped with Variant Number per 3401/004			
	3401/004 Variants 01-02-05-06-11-12-15-16		3401/004 Variants 09-10-19-20	
P	19.6 (2) (3)	19.8 (4)	22.3 (2) (3)	22.5 (4)

90° Coaxial Contacts



Symbol	Connectors equipped with 3401/004 Variants 03-04-07-08-13-14-17-18	
P	14.3 (2) (3)	14.5 (4)
Q	12.5	

**NOTES**

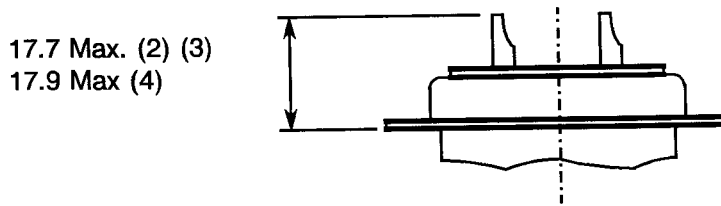
1. All dimensions are in mm.
2. Connectors equipped with female contacts all sizes.
3. Connectors equipped with male contacts sizes E and A.
4. Connectors equipped with male contacts sizes B, C and D.

**FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)**

**FIGURE 2(c) - REAR END (CONTINUED)**

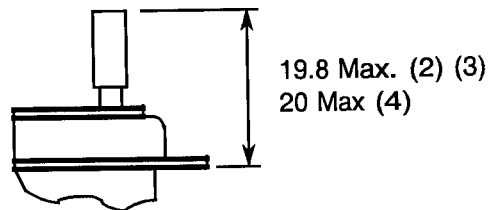
**Power and Coaxial Contacts ( Code - ) (Continued)**

Power Solder Contact



3401/001 connectors equipped with contact Variants 01 through 06 of 3401/040

Power Crimp Contact



3401/001 connectors equipped with contact Variants 07 through 12 of 3401/040

**NOTES**

1. All dimensions are in mm.
2. Connectors equipped with female contacts all sizes.
3. Connectors equipped with male contacts sizes E and A.
4. Connectors equipped with male contacts sizes B, C and D.

	<p style="text-align: center;">ESCC Detail Specification No. 3401/001</p>	<p style="text-align: right;">PAGE 31 ISSUE 3</p>
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**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. 9.1.1.4, Mated Shell Conductivity: Not applicable.
- (b) Para. 9.9, Seal Test: Not applicable.

**4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)**

Not applicable.

**4.2.4 Deviations from Qualification Tests (Chart IV)**

- (a) Para. 9.1.1.4, Mated Shell Conductivity: Not applicable.
- (b) Para. 9.9, Seal Test: Not applicable.
- (c) Para. 9.24, Jackscrew Retention: Not applicable.
- (d) Para. 9.27, Maintenance Ageing: Not applicable to gauge 20 and 22 contacts.

**4.2.5 Deviations from Lot Acceptance Tests (Chart V)**

- (a) Para. 9.1.1.4, Mated Shell Conductivity: Not applicable.
- (b) Para. 9.9, Seal Test: Not applicable.

**4.3 MECHANICAL REQUIREMENTS**

**4.3.1 Dimension Check**

The dimensions of the connectors specified herein shall be verified in accordance with the requirements set out in Para. 9.6 of ESCC Generic Specification 3401 and shall conform to those shown in Figure 2 of this specification. Only the underlined dimensions shall be checked during procurement.

**4.3.2 Weight**

The maximum weight of the connectors specified herein, with contacts, shall be as specified in Table 1(a).



4.3.3 Contact Capability

For the purpose of this test, the pick-up and drop weights shall be as follows.

CONTACTS	MEASUREMENTS	PICK-UP WEIGHT	DROP WEIGHT
Gauge 20	Weight (g)	28.35	226.8
	Pin diameter (mm)	0.990 to 0.993	1.039 to 1.040
	Insertion depth (mm)	4.0	4.0
Gauge 22	Weight (g)	19.84	226.8
	Pin diameter (mm)	0.749 to 0.751	0.773 to 0.775
	Insertion depth (mm)	4.0	4.0

See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

4.3.4 Contact Retention (in insert)

The contact retention force of gauge 20 and 22 contacts within the insert shall be 40N.

See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

4.3.5 Mating and Unmating Forces

The forces applied for mating and unmating of the connectors shall conform to the values specified in Table 1(a).

4.3.6 Insert Retention (in shell)

Connector inserts shall withstand a pressure of 42.8N/cm<sup>2</sup> without being dislodged from the shell.

4.3.7 Jackscrew Retention

Not applicable.

4.3.8 Contact Insertion and Withdrawal Forces

See ESCC Detail Specifications 3401/004 & 3401/040 for coaxial and power contacts. Not applicable to other contact types.

4.3.9 Engagement and Separation Forces

The engagement and separation forces of the female contacts shall be tested with the applicable test pin and shall not exceed the values of the table hereunder.

CONTACTS	MEASUREMENTS	DIAMETER (mm)		ENGAGEMENT MAX (N)	SEPARATION (N)	
		MIN	MAX		MIN	MAX
Gauge 20	Max Ø Test Pin	1.039	1.040	3.33	-	2.22
	Min Ø Test Pin	0.990	0.993	-	0.28	-
Gauge 22	Max Ø Test Pin	0.773	0.775	3.33	-	2.22
	Min Ø Test Pin	0.749	0.751	-	0.20	-

See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

4.3.10 Oversize Pin Exclusion

The diameter of the test pin and the force applied to it shall be as follows.

CONTACTS	TEST PIN DIA. (mm)		FORCE (N) MAX
	MIN	MAX	
Gauge 20	1.166	1.170	3.33
Gauge 22	0.905	0.907	2.43

See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

4.3.11 Probe Damage

The probe diameter and the moment at the end of the probe shall be as follows.

CONTACTS	PROBE DIA. (mm)		MOMENT (N.cm)
	MIN	MAX	
Gauge 20	1.007	1.033	5.65
Gauge 22	0.749	0.774	1.30

See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

4.3.12 Solderability

Size A soldering iron shall be used.

See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the connectors specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Shells

Shells of shell sizes E, A, B, C and D shall be made of brass. The plating shall be 0.7µm minimum of gold over 1.0 µm minimum of copper.

Shells of shell size F shall be made of aluminium alloy. The plating shall be either 25.4 µm minimum of electroless nickel (Modification Code A174) or 0.7 µm minimum of gold with 25.4 µm minimum electroless nickel underplating (Modification Code FR172).

4.4.2 Inserts

Inserts shall be made of glass-fibre filled diallylphthalate resin or a suitable thermoplastic material.

4.4.3 Contacts

The contact body shall be made of copper alloy with an underplate of 1.0µm minimum of copper to MIL-C-14450, gold plated with 1.27µm minimum of gold, Type 2 Grade C of MIL-G-45204.

The female contact spring element shall be made of copper alloy with an underplate of 1.0µm minimum of nickel or copper to MIL-C-14450, gold plated with 1.27µm minimum of gold, Type 2 Grade C of MIL-G-45204.

4.4.4 Contact Retaining Clip

Not applicable to gauge 20 and 22 contacts.

See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

4.4.5 Guiding and Locking Devices

As specified in ESCC Detail Specification No. 3401/022.

4.4.6 Magnetism Level

The allowable value of magnetism shall not exceed that specified for the relevant level (see Para. 4.5.4.7). Only magnetism levels NMC and NMD are verified.

4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and the following paragraphs. When the component is too small to accommodate all of the marking specified, as much as space permits shall be marked and the marking information, in full, shall accompany the component in its primary package.

The information to be marked and the order of precedence, shall be as follows:-

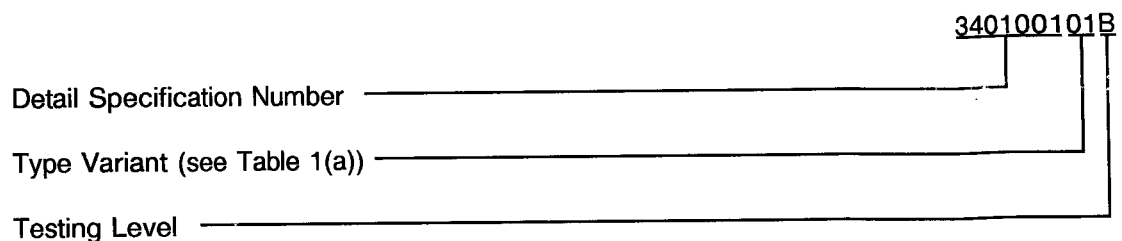
- (a) Contact Identification.
- (b) The ESCC Component Number.
- (c) Characteristics
- (d) Traceability Information.

4.5.2 Contact Position

Contact position shall be marked on the inserts in accordance with Figure 2(b).

4.5.3 The ESCC Component Number

The ESCC Component Number shall be constituted and marked as follows:



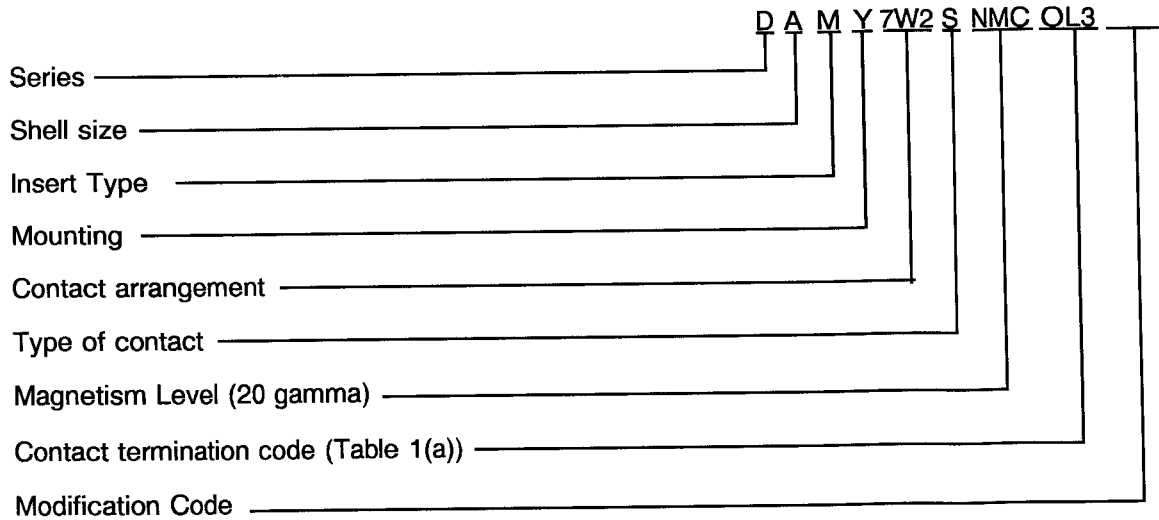
4.5.4 Characteristics

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

- (a) Series.
- (b) Shell size.
- (c) Insert type.
- (d) Mounting.
- (e) Contact arrangement.
- (f) Type of contact.
- (g) Magnetism Level.
- (h) Contact termination code.

(g) Modification code.

The information shall be constituted and marked as follows:-



#### 4.5.4.1 Series

This connector series shall be designated by the letter 'D'.

#### 4.5.4.2 Shell Size

The shell size shall be indicated by the letters specified hereafter.

Code	E	A	B	C	D	F
------	---	---	---	---	---	---

#### 4.5.4.3 Insert Type

This insert type is defined by the letter 'M'.

#### 4.5.4.4 Mounting

The letter "E" indicates a captive nut.

The letter "Y" indicates a floating mount.

If the shell has fixed mounting holes, these letters shall be omitted.

#### 4.5.4.5 Contact Arrangement

The number of contacts shall be as shown in Figure 2(b) and contact arrangements shall be indicated by the codes specified hereafter.

CODE	SHELL SIZE	NUMBER OF CONTACTS GAUGE 20	NUMBER OF CONTACTS GAUGE 22	NUMBER OF COAXIAL AND/OR POWER CONTACTS
9	E	9	0	0
5W1	E	4	0	1
15	A	15	0	0
15	E	0	15	0
3W3	A	0	0	3
3WK3	A	0	0	3 (1)
7W2	A	5	0	2
11W1	A	10	0	1
25	B	25	0	0
26	A	0	26	0
5W5	B	0	0	5
9W4	B	5	0	4
13W3	B	10	0	3
17W2	B	15	0	2
21W1	B	20	0	1
37	C	37	0	0
8W8	C	0	0	8
13W6	C	7	0	6
17W5	C	12	0	5
21WA4	C	17	0	4 (2)
21W4	C	17	0	4 (2)
25W3	C	22	0	3
27W2	C	25	0	2
44	B	0	44	0
50	D	50	0	0
24W7	D	17	0	7
36W4	D	32	0	4
43W2	D	41	0	2
47W1	D	46	0	1
62	C	0	62	0
78	D	0	78	0
104	F	0	104	0

#### NOTES

1. 2 male plus 1 female or 2 female plus 1 male (see Para. 4.5.4.6).
2. See Figure 2 for physical differences.

#### 4.5.4.6 Type of Contact

The contact types shall be indicated by the following code letters.

CODE LETTER	CONTACT TYPE
P	Male
S	Female

For the 3WK3 arrangement, the contact cavities A1 and A3 shall determine the code letter to be used.

#### 4.5.4.7 Magnetism Level

The following codes shall be used for magnetism level.

CODE	DEFINITION
NMB	Magnetism Level: $\leq$ 200 gamma (1)
NMC	Magnetism Level: $\leq$ 20 gamma
NMD	Magnetism Level: $\leq$ 2 gamma

#### NOTES

1. Guaranteed, but not measured.

#### 4.5.4.8 Contact Termination Code

Contact terminations shall be indicated as given in Table 1(a), Contact Types. For mixed contact arrangements, (see Figure 2(b)), the gauge 20 contact type shall determine the contact code used.

#### 4.5.4.9 Modification Code

The modification code for the finish of shell size F (aluminium alloy) shall be:

- A174 for the electroless nickel finish.
- FR172 for the gold over electroless nickel finish.

The modification code shall be omitted for shell sizes E, A, B, C and D.

#### 4.5.5 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, these measurements shall be performed at  $T_{amb} = +22 \pm 3$  °C.

##### 4.6.2 Electrical Measurements at High and Low Temperatures

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	Ri	Para. 9.1.1.1	Para. 9.1.1.1	5000	-	MΩ
2	Voltage Proof Leakage Current	I <sub>L</sub>	Para. 9.1.1.2	(1)	-	2.0	mA
3	Mated Shell Conductivity (Voltage Drop) (2)	Vd	Para. 9.1.1.4	Para. 9.1.1.4	Not applicable		mV
4	Contact Resistance (Low Level Current)	Rcl max.	Para. 9.1.1.3	Para. 9.1.1.3	-	6.0	mΩ
	Gauge 20				-	12	
	Gauge 22 (PCB Contacts) Coaxial } Power } (3)				-	12	
5	Contact Resistance (Rated Current) (3)	Rcr max.	Para. 9.1.1.3	Gauge 20: 7.5A Gauge 22: 3.0A	-	5.0 10	mΩ

**NOTES**

1. - Gauge 20 contacts: 1250Vrms.  
 - Gauge 22 contacts, power and straight coaxial contacts: 1000Vrms.  
 - 90° Coaxial contacts: 800Vrms.  
 - For mixed contact arrangements, the voltage applied between dissimilar contacts shall be the higher that would be applied between either of the contacts in question tested with an identical contact.
2. Applicable to mated connectors with grounding option.
3. See ESCC Detail Specifications 3401/004 and 3401/040 for coaxial and power contacts.

**TABLES 3, 4 AND 5**

Not applicable

	<p style="text-align: center;">ESCC Detail Specification No. 3401/001</p>	<p style="text-align: right;">PAGE 39 ISSUE 3</p>
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4.6.3 Circuit for Electrical Measurements (Figure 4)

Not applicable.

4.7 BURN-IN AND ELECTRICAL MEASUREMENTS

Not applicable.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESCC GENERIC SPECIFICATION NO. 3401)

4.8.1 Measurements and Inspections on Completion of Environmental Tests

The parameters to be measured and inspections to be performed on completion of environmental testing shall be those specified in Table 6. Unless otherwise specified, the measurements shall be performed at  $T_{amb} = +22 \pm 3 \text{ }^\circ\text{C}$ .

4.8.2 Measurements and Inspections at Intermediate Points during Endurance Tests

Not applicable.

4.8.3 Measurements and Inspections on Completion of Endurance Tests

The parameters to be measured and inspections to be performed on completion of endurance tests shall be those specified in Table 6. Unless otherwise specified, the measurements shall be performed at  $T_{amb} = +22 \pm 3 \text{ }^\circ\text{C}$ .

4.8.4 Conditions for Operating Life Test (Part of Endurance Testing)

Not applicable.

4.8.5 Electrical Circuits for Operating Life Test (Figure 5)

Not applicable.

4.8.6 Conditions for High Temperature Storage Test (Part of Endurance Testing)

The requirements for the high temperature storage test are specified in Section 9 of ESCC Generic Specification No. 3401. The conditions for high temperature storage testing shall be the maximum storage temperature specified in Table 1(b) of this specification.



**TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTING**

NO.	ESCC GENERIC NO. 3401		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN	MAX	
01	Seal Test	Para. 9.9	ESCC 3401 Para. 9.9			Not applicable		
02	Wiring	Para. 9.10 & Table 1(a) of this spec.	Low Level Contact Resist.	Table 2 Item 4	Rcl	Table 2 Item 4		
03	Vibration	Para. 9.11	<b>Initial Measurements</b> Coupling Screw(s) Unlocking Torque <b>Final Measurements</b> Full Engagement Coupling Screw(s) Unlocking Torque Drift Visual Examination	-	-	Record Values		
			Visual Examination	-	Δ	-25	+25	%
04	Shock or Bump	Para. 9.12	Full Engagement Visual Examination	-		-	-	
05	Climatic Sequence	Para. 9.13	<b>Dry Heat</b> Insulation Resistance <b>Low Air Pressure</b> Voltage Proof Leakage Curr.  <b>Damp Heat</b> Insulation Resistance <b>Final Measurements</b> External Visual Inspection  Insulation Resistance Voltage Proof Leakage Curr.	At High Temperature Table 2 Item 1  Figure 1  Immediately after test Table 2 Item 1 After 1-24 hrs Recovery ESCC 3401 Para. 9.7 Table 2 Item 1 Table 2 Item 2	Ri  I <sub>L</sub>  Ri  Ri I <sub>L</sub>	1 000  ESCC 3401 Para. 9.13.5  100  ESCC 3401 Para. 9.7 Table 2 Item 1 Table 2 Item 2	-  -  -  -	MΩ  MΩ
06	Plating Thickness	Para. 9.14	Thickness	-	-	Para. 4.4.3 of this spec		
07	Joint Strength (N/A to solder contacts)	Para. 9.15	ESCC 3401 Para 9.15	-	-	ESCC 3401 - Para. 9.15		
08	Rapid Change of Temperature	Para. 9.16	Visual Examination Insulation Resistance Voltage Proof Leakage Curr.	Table 2 Item 1 Table 2 Item 2	- Ri I <sub>L</sub>	-  Table 2 Item 1 Table 2 Item 2		
09	Contact Retention (in insert)	Para. 9.17 & Para. 4.3.4 of this spec.	Contact Displacement	-	-	ESCC 3401 Para. 9.17		
10	Endurance	Para. 9.18	<b>Initial Measurements</b> Mating/Unmating Forces Low Level Contact Resist Mated Shell Conductivity <b>Final Measurements</b> Visual Examination Mating/Unmating Forces Low Level Contact Resistance Drift Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Curr.	Table 2 Item 4 Table 2 Item 3  -  Table 2 Item 4 Table 2 Item 5  Table 2 Item 3 Table 2 Item 1 Table 2 Item 2	F Rcl Vd  -  F ΔRcl  Vd Ri I <sub>L</sub>	Para. 4.3.5 of this spec Record Values Not applicable  -  Para. 4.3.5 of this spec - 3.0  Not applicable Table 2 Item 1 Table 2 Item 2	-  -  -  mΩ	

**NOTES** 1. The tests in this table refer to either Chart IV or V and shall be used as applicable.



**TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTING (CONTINUED)**

NO.	ESCC GENERIC NO. 3401		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN	MAX	
11	Permanence of Marking	Para. 9.19	-	-	-	-	-	
12	Mating/Unmating Forces	Para. 9.20	Force	-	F	Para. 4.3.5 of this spec		
13	High Temperature Storage	Para. 9.21	<b>Initial Measurements</b> Low Level Contact Resis. Mated Shell Conductivity <b>Final Measurements</b> Visual Examination Mating/Unmating Forces Low Level Contact Resistance Drift Rated Current Contact Resis. Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Curr. Contact Retention (in insert)	Table 2 Item 4 Table 2 Item 3 - Table 2 Item 4 Table 2 Item 5 Table 2 Item 3 Table 2 Item 1 Table 2 Item 2 Para 4.3.4 of this spec.	Rcl Vd - F ΔRcl Rcr Vd Ri IL	Record Values Not applicable - - Para. 4.3.5 of this spec - 3.0 mΩ Table 2 Item 5 Not applicable Table 2 Item 1 Table 2 Item 2 ESCC 3401 Para. 9.17		
14	Corrosion	Para. 9.22	Visual Examination	-	-	-	-	
15	Insert Retention (in shell)	Para. 9.23 & Para. 4.3.6 of this spec.	Visual Examination	-	-	Para. 4.3.6		
16	Jackscrew Retention	Para. 9.24 & Para. 4.3.7 of this spec.	Visual Examination	-	-	Not applicable		
17	High Temperature Measurements	Para. 9.25	Insulation Resistance	Table 2 Item 1	Ri	500	-	MΩ
18	Overload Test	Para. 9.26	Internal Temperature Rated Current Contact Resis. Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Curr.	Table 2 Item 5 Table 2 Item 3 Table 2 Item 1 Table 2 Item 2	T Rcr Vd Ri IL	-	+ 100	°C
19	Maintenance Ageing	Para. 9.27 & Para. 4.2.4 of this spec.	Visual Examination Contact Retention (in insert) Contact Insertion & Withdrawal Forces	- Para 4.3.4 of this spec. Para. 4.3.8 of this spec.	-	-	-	ESCC 3401 Para. 9.17 Para. 4.3.8

**NOTES** 1. The tests in this table refer to either Chart IV or V and shall be used as applicable.

**TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTING (CONTINUED)**

NO.	ESCC GENERIC NO. 3401		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN	MAX	
20	Engage/Separation Forces	Para. 9.28 & Para. 4.3.9 of this spec	Force	-	F	Para. 4.3.9		
21	Oversize Pin Exclusion	Para. 9.29 & Para. 4.3.10 of this spec				ESCC 3401 Para. 9.29		
22	Probe Damage	Para. 9.30 & Para. 4.3.11 of this spec	Contact Separation Force	Para. 4.3.9 of this spec	F	Para. 4.3.9		
23	Solderability	Para. 9.31 & Para. 4.3.12 of this spec.			-	ESCC 3401 Para. 9.31		

**NOTES**

1. The tests in this table refer to either Chart IV or V and shall be used as applicable.