



Page 1 of 28

**CONNECTORS, ELECTRICAL, RECTANGULAR,  
REMOVABLE CRIMP CONTACTS**

**BASED ON TYPE D\*MA**

**ESCC Detail Specification No. 3401/002**

Issue 14	January 2025
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DCR No.	CHANGE DESCRIPTION
<a href="#">1593</a> , <a href="#">1698</a> , <a href="#">1710</a>	Specification upissued to incorporate changes per DCR.

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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 with Removable Crimp Contacts, Standard (Gauge 20) and High Density (Gauge 22) Contact Arrangements, based on Type D\*MA.

It shall be read in conjunction with:

- ESCC Generic Specification No. [3401](#), Connectors, Electrical, Non-Filtered, Circular and Rectangular.
- ESCC Detail Specification No. [3401/005](#), Contacts, Electrical, Crimp, for [3401/002](#) Connectors.
- ESCC Detail Specification No. [3401/022](#), Accessories for Rectangular Connectors [3401/001](#), [3401/002](#) and Connector Savers [3401/020](#), [3401/080](#).
- ESCC Detail Specification No. [3401/072](#), Lightweight Accessories for Rectangular Connectors [3401/001](#) and [3401/002](#).
- ESCC Detail Specification No. [3401/085](#), Fast-Locking Screw Lock Assemblies for Rectangular Connectors [3401/001](#), [3401/002](#) and Connector Savers [3401/020](#), [3401/080](#).

the requirements of which are supplemented herein.

### 1.2 COMPONENT TYPE VARIANTS

The different sizes of connectors 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. 3401/005, Contacts, Electrical, Crimp, for 3401/002 Connectors.
- (c) ESCC Detail Specification No. 3401/022, Accessories for Rectangular Connectors 3401/001, 3401/002 and Connector Savers 3401/020, 3401/080.
- (d) ESCC Detail Specification No. 3401/072, Lightweight Accessories for Rectangular Connectors 3401/001 and 3401/002.
- (e) ESCC Detail Specification No. 3401/085, Fast-Locking Screw Lock Assemblies for Rectangular Connectors 3401/001, 3401/002 and Connector Savers 3401/020, 3401/080.
- (f) MIL-DTL-24308, Rack and Panel Connectors, Miniature.

**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) – TYPE VARIANTS**

Variant	Shell Size (1)	Max. Weight (g) (2)		Max Weight With Grommet (g) (3)		Mating Force (N max) (4)	Unmating Force (4)	
		Male	Female	Male	Female		N min	N max
01 (Gauge 20 Contacts)	E	5.5	6	6.5	7	30	3.5	20
	A	7.6	8.3	9	9.7	50	4.5	34
	B	12.5	13.6	14.6	15.7	83	8	55
	C	17.4	18.9	20.4	21.9	123	11	83
	D	20.5	22.3	24	25.8	166	14.5	120
02 (Gauge 22 Contacts)	E	5.2	6	6.15	6.95	46	3.4	28
	A	7.4	8	8.7	9.3	77	4.5	46
	B	11	12	13	14	127	7.9	77
	C	15.6	17	18.35	19.75	177	11.3	109
	D	18.2	20	21.6	23.4	222	14.7	136
	F	23	25	-	-	295	20.3	177

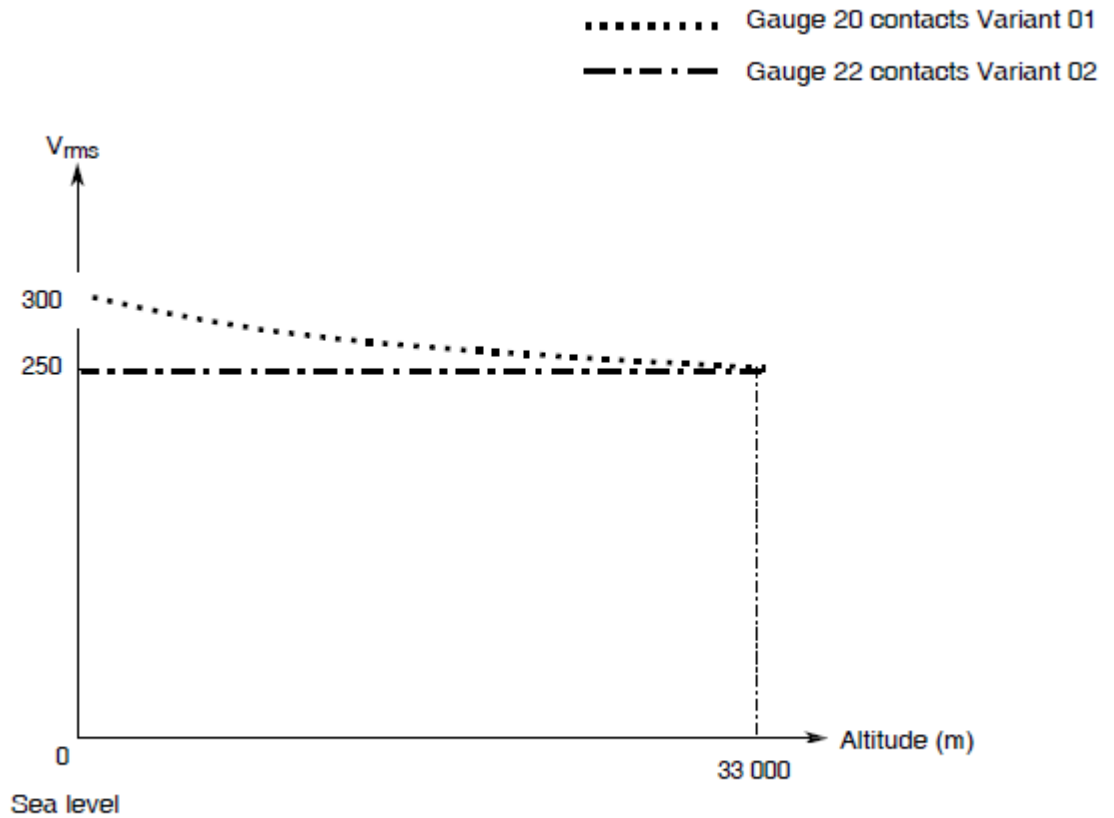
**NOTES:**

1. See Figure 2(b).
2. For connectors without contacts and without rear grommet, but see Para. 4.5.2.1(i). See ESCC Detail Specification No. 3401/005 for contact weights.
3. For connectors with rear grommet, without contacts, but see Para. 4.5.2.1(i). See ESCC Detail Specification No. 3401/005 for contact weights.
4. For mating of connectors that include a plug connector (with male contacts) with a dimpled shell (shell sizes E, A, B, C, D only) (see Figure 2(d) and Para. 4.5.2.1(h)), the maximum mating and unmating force shall be increased by 20N.

**TABLE 1(b) MAXIMUM RATINGS**

No.	Characteristics	Symbol	Maximum Rating		Unit
			Min	Max	
1	Working Voltage (Sea Level)	$U_R$			
	Variant 01		-	300	Vrms
	Variant 02		-	250	Vrms
2	Operating Temperature Range	$T_{op}$	-55	+125	°C
3	Storage Temperature Range	$T_{stg}$	-65	+125	°C

**FIGURE 1 - PARAMETER DERATING INFORMATION**



Working Voltage versus Altitude



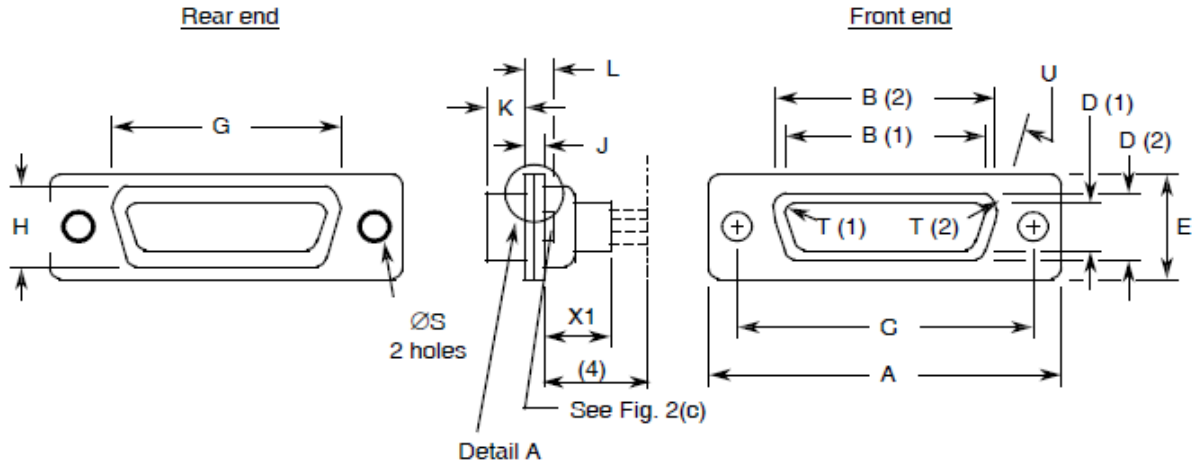
**FIGURE 2 – PHYSICAL DIMENSIONS**

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

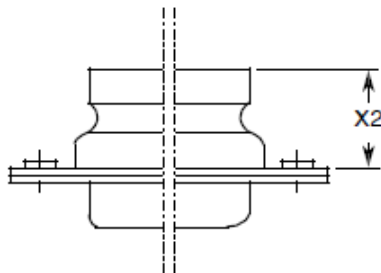
SHELL SIZE E

STANDARD MOUNTING HOLES

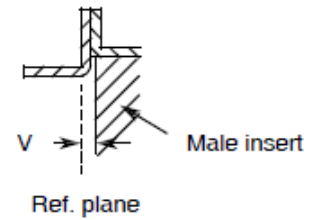
FIXED MOUNT



REAR GROMMET VERSION



DETAIL A

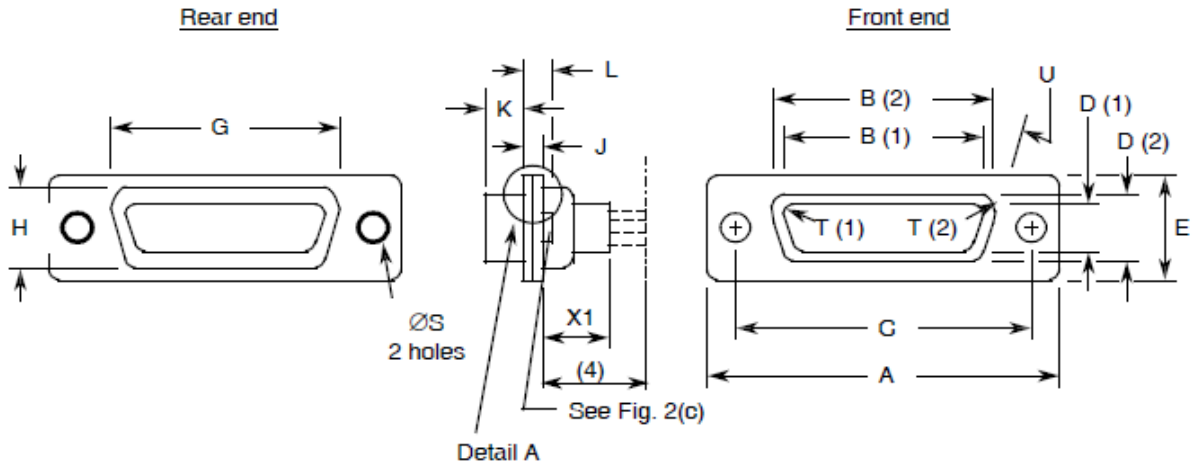


Contact Type	Connector Type	Symbol/Dim.	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>G</u>	<u>H</u>	<u>J</u>	<u>K</u>	<u>L</u>	<u>ØS</u>	<u>I</u>	<u>U</u>	<u>V</u>	<u>X1</u>	<u>X2</u>
Male	Plug	Min	30.43	16.79	24.87	8.23	12.17	19.02	10.46	0.51	5.82	0.89	2.92	2.59	9	0	-	-
		Max	31.19	17.04	25.12	8.48	12.93	19.53	10.97	1.02	6.05	1.52	3.2	2.69	11	0.6	9.53	15.18
Female	Receptacle	Min	30.43	16.21	24.87	7.77	12.07	19.02	10.46	0.51	6.05	0.89	2.92	2.46	9	-	-	-
		Max	31.19	16.46	25.12	8.03	12.93	19.53	10.97	1.02	6.3	1.52	3.2	2.62	11	-	9.53	15.8

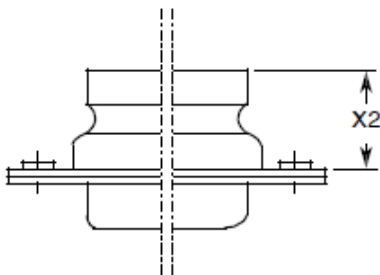
**NOTES:**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in mm (angles in degrees).
4. Contacts [340100505B](#), [340100506B](#), [340100515B](#) and [340100516B](#) protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

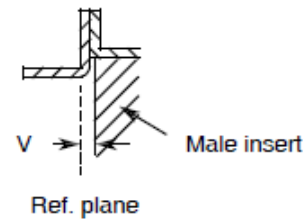
SHELL SIZE A  
STANDARD MOUNTING HOLES  
FIXED MOUNT



REAR GROMMET VERSION



DETAIL A

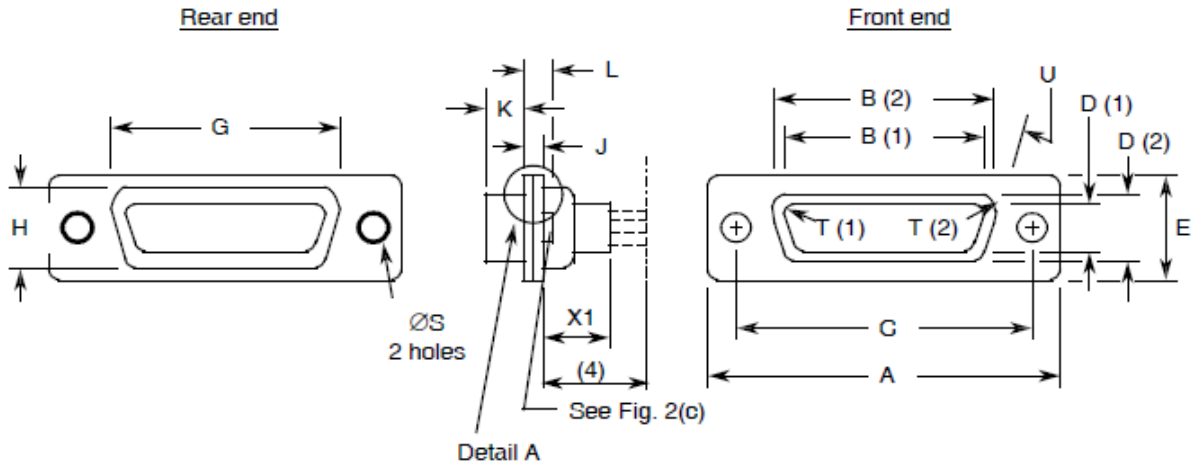


Contact Type	Connector Type	Symbol/Dim.	A	B	C	D	E	G	H	J	K	L	ØS	I	U	V	X1	X2
Male	Plug	Min	38.76	25.12	33.2	8.23	12.17	27.25	10.46	0.51	5.82	0.89	2.92	2.59	9	0	-	-
		Max	39.52	25.37	33.45	8.48	12.93	27.76	10.97	1.02	6.05	1.52	3.2	2.69	11	0.6	9.53	15.18
Female	Receptacle	Min	38.76	24.54	33.2	7.77	12.17	27.25	10.46	0.51	6.05	0.89	2.92	2.46	9	-	-	-
		Max	39.52	24.79	33.45	8.03	12.93	27.76	10.97	1.02	6.3	1.52	3.2	2.62	11	-	-	9.53

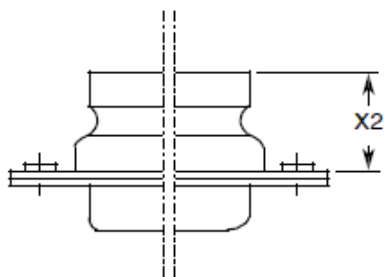
**NOTES:**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in mm (angles in degrees).
4. Contacts [340100505B](#), [340100506B](#), [340100515B](#) and [340100516B](#) protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

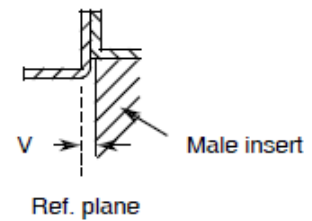
SHELL SIZE B  
STANDARD MOUNTING HOLES  
FIXED MOUNT



REAR GROMMET VERSION



DETAIL A

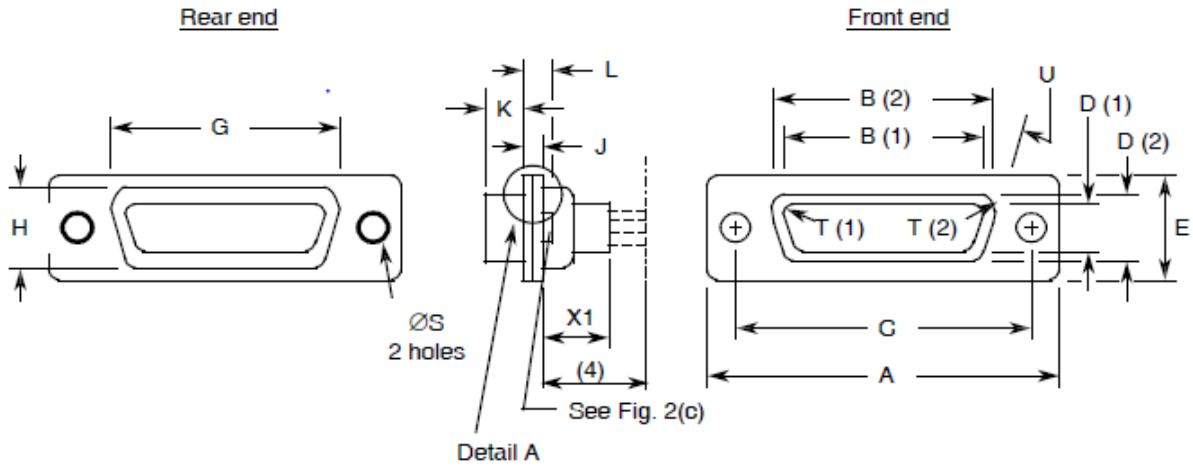


Contact Type	Connector Type	Symbol/Dim.	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	E	G	H	J	K	L	ØS	I	<u>U</u>	V	X1	X2
Male	Plug	Min	52.65	38.84	46.91	8.23	12.17	41.02	10.46	0.51	5.69	1.05	2.92	2.59	9	0	-	-
		Max	53.42	39.09	47.17	8.48	12.93	41.53	10.97	1.24	5.99	1.78	3.2	2.69	11	0.6	9.53	15.18
Female	Receptacle	Min	52.65	38.25	46.91	7.77	12.17	41.02	10.46	0.51	6.05	0.89	2.92	2.46	9	-	-	-
		Max	53.42	38.51	47.17	8.03	12.93	41.53	10.97	1.02	6.3	1.52	3.2	2.62	11	-	9.53	15.18

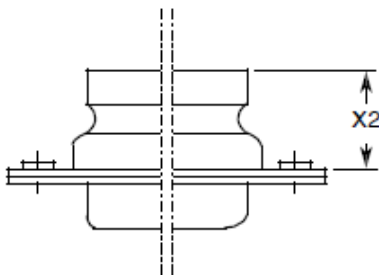
**NOTES:**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in mm (angles in degrees).
4. Contacts [340100505B](#), [340100506B](#), [340100515B](#) and [340100516B](#) protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

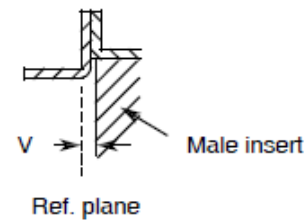
SHELL SIZE C  
STANDARD MOUNTING HOLES  
FIXED MOUNT



REAR GROMMET VERSION



DETAIL A

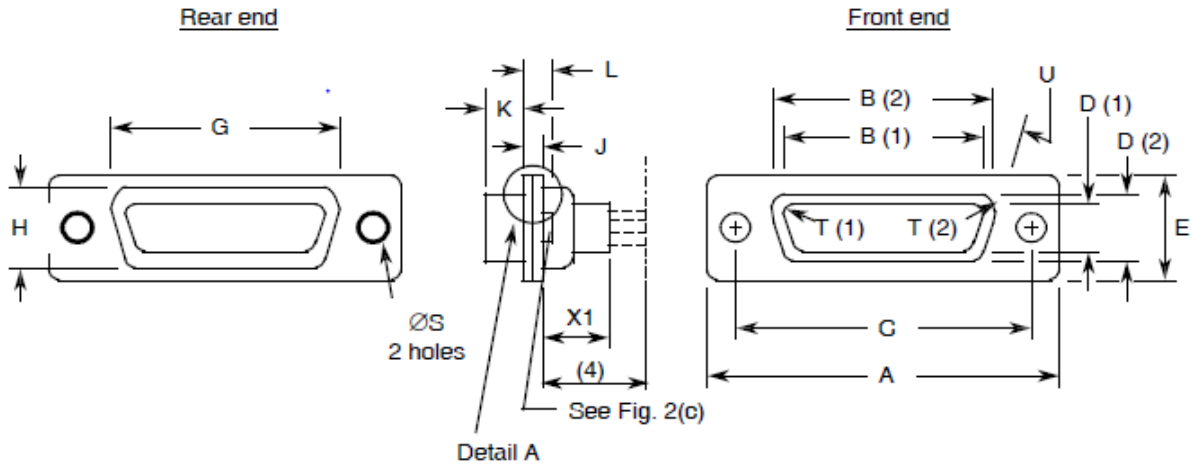


Contact Type	Connector Type	Symbol/Dim.	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	E	G	H	J	K	L	$\varnothing S$	<u>I</u>	<u>U</u>	V	X1	X2
Male	Plug	Min	68.94	55.3	63.37	8.23	12.17	57.45	10.46	0.51	5.69	1.05	2.92	2.59	9	0	-	-
		Max	69.7	55.55	63.63	8.48	12.93	57.96	10.97	1.24	5.99	1.78	3.2	2.69	11	0.6	9.53	15.18
Female	Receptacle	Min	68.94	54.71	63.37	7.77	12.17	57.45	10.46	0.51	6.05	0.89	2.92	2.46	9	-	-	-
		Max	69.7	54.97	63.63	8.03	12.93	57.96	10.97	1.02	6.3	1.52	3.2	2.62	11	-	9.53	15.18

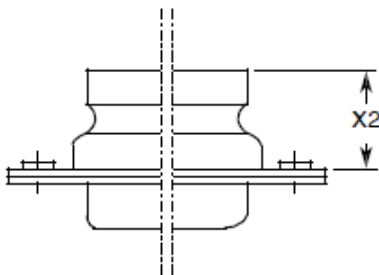
**NOTES:**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in mm (angles in degrees).
4. Contacts [340100505B](#), [340100506B](#), [340100515B](#) and [340100516B](#) protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

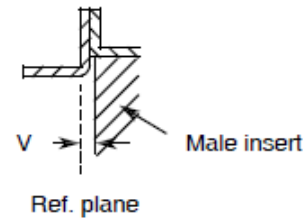
SHELL SIZE D  
STANDARD MOUNTING HOLES  
FIXED MOUNT



REAR GROMMET VERSION



DETAIL A

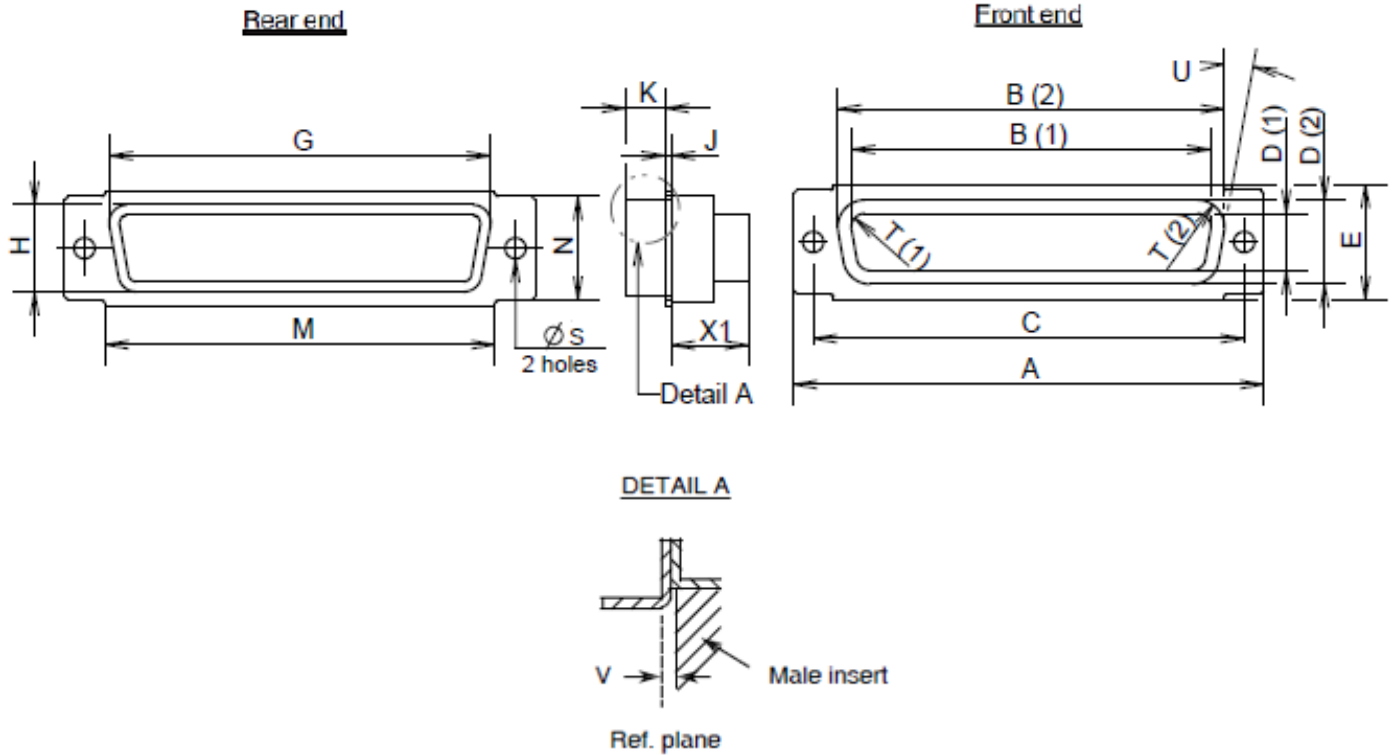


Contact Type	Connector Type	Symbol/Dim.	A	B	C	D	E	G	H	J	K	L	ØS	I	U	V	X1	X2
Male	Plug	Min	66.55	52.68	60.99	11.07	14.99	55.07	13.31	0.51	5.69	1.05	2.92	2.59	9	0	-	-
		Max	67.31	52.93	61.24	11.33	15.75	55.58	13.82	1.24	5.99	1.78	3.2	2.69	11	0.6	9.53	15.18
Female	Receptacle	Min	66.55	52.3	60.99	10.62	14.99	55.07	13.31	0.51	6.05	0.89	2.92	2.46	9	-	-	-
		Max	67.31	52.55	61.24	10.87	15.75	55.58	13.82	1.02	6.3	1.52	3.2	2.62	11	-	9.53	15.18

**NOTES:**

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in mm (angles in degrees).
4. Contacts [340100505B](#), [340100506B](#), [340100515B](#) and [340100516B](#) protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

SHELL SIZE F  
STANDARD MOUNTING HOLES  
FIXED MOUNT

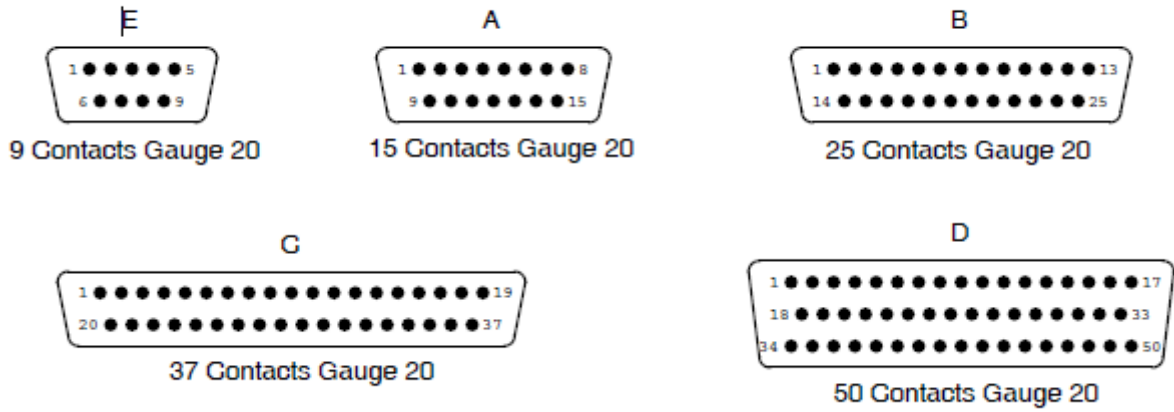


Contact Type	Connector Type	Symbol/Dim.	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	E	G	H	J	<u>K</u>	M	N	ØS	I	<u>U</u>	<u>V</u>	X1
Male	Plug	Min	68.94	56.06	63.37	12.65	16.92	58.75	15.45	0.74	5.69	57.25	15	2.92	2.59	9	0	-
		Max	69.7	56.31	63.63	12.9	17.68	59.25	15.95	1.24	5.99	57.75	15.5	3.2	2.69	11	0.6	9.53
Female	Receptacle	Min	68.94	55.47	63.37	12.19	16.92	58.75	15.45	0.51	6.05	57.25	15	2.92	2.46	9	-	-
		Max	69.7	55.73	63.63	12.45	17.68	59.25	15.95	1.02	6.3	57.75	15.5	3.2	2.62	11	-	9.53

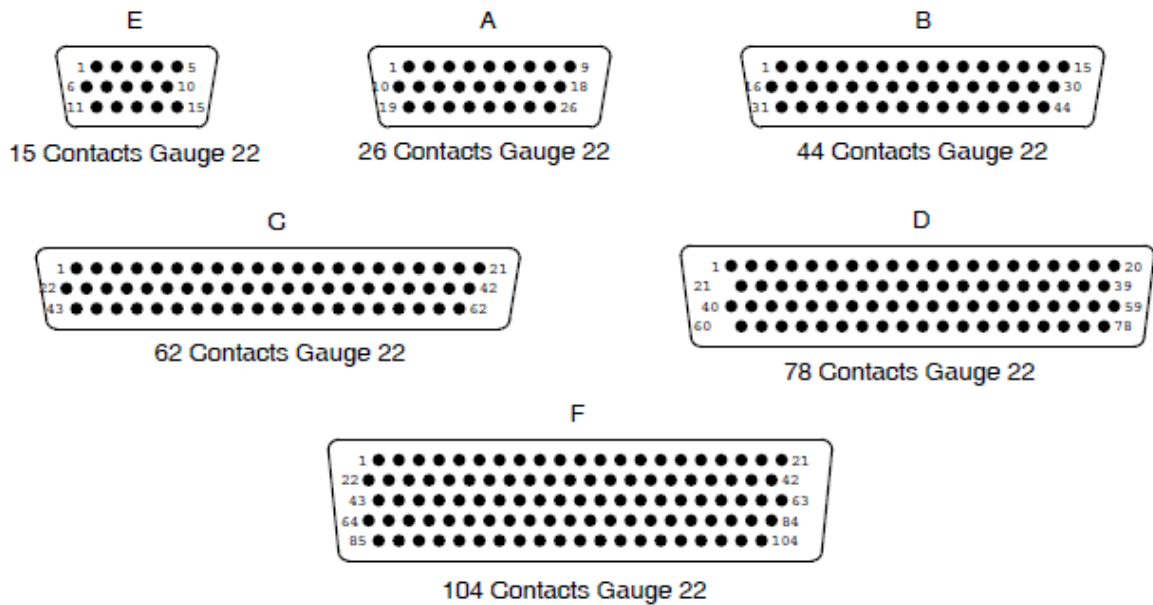
**NOTES:**

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

**FIGURE 2(b) - CONTACT ARRANGEMENTS**  
**VARIANT 01 - STANDARD CONTACT ARRANGEMENTS**  
**FRONT VIEW MALE INSERT**



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



**NOTES:**

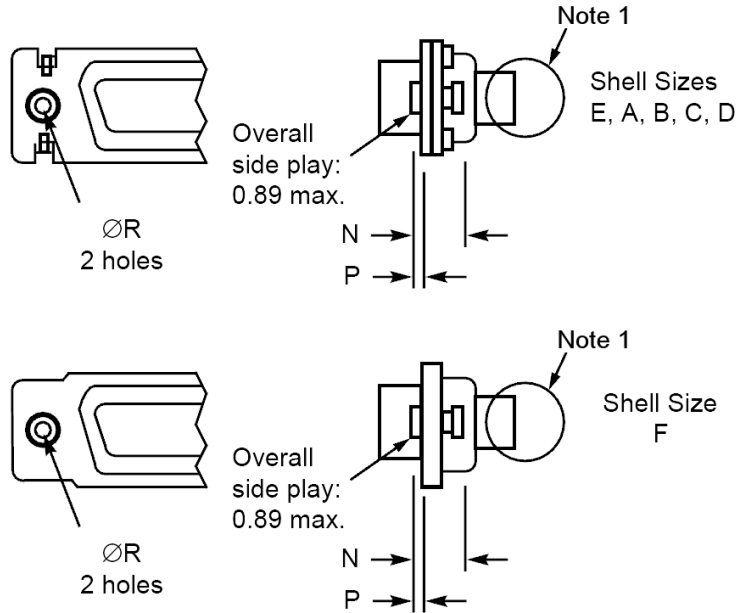
1. Contact locations are in conformity with [MIL-DTL-24308](#) specification sheets and shall not be checked during procurement.
2. Both sides of the insert shall be marked with the minimum marking shown.

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

OTHER MOUNTING TYPES

FLOATING MOUNT - TYPE Y

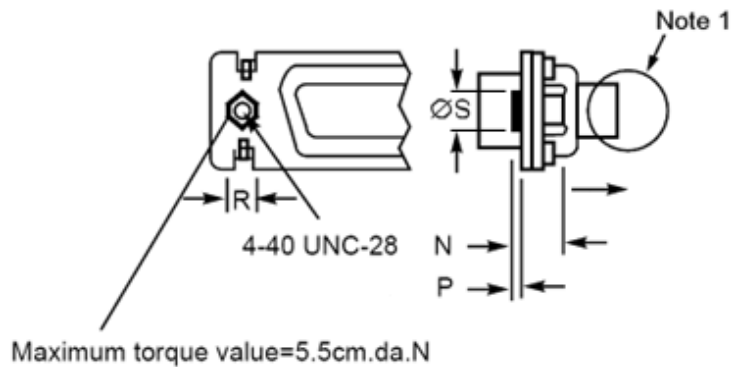
SHELL SIZES E, A, B, C, D, F



Contact Type	Symbol/Dim.	N	P	$\varnothing R$
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 NUTS - TYPE E

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



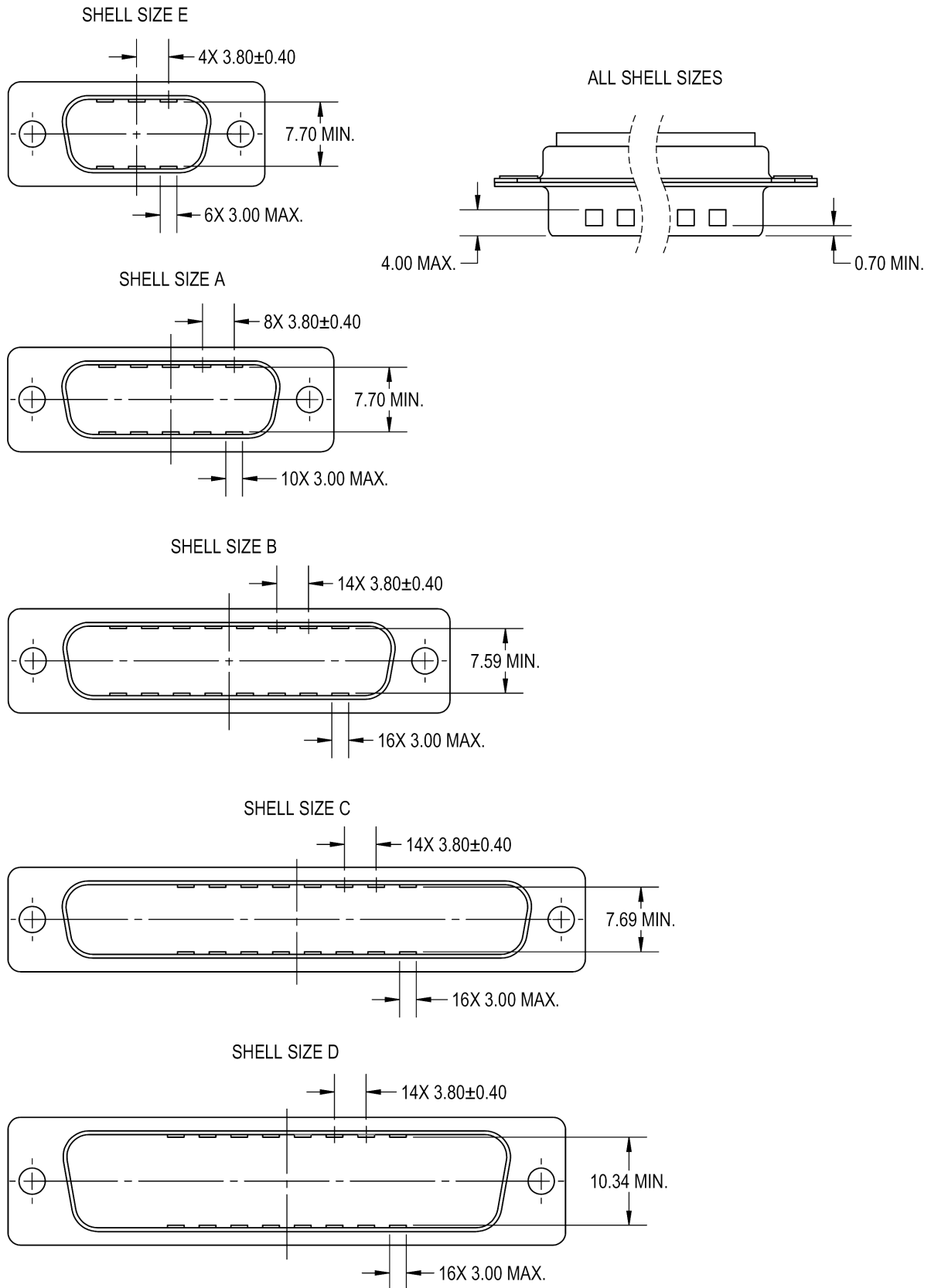
Contact Type	Symbol/Dim.	N	P	R	$\varnothing S$
Male	Min.	3.4	0	4.3	-
	Max.	4.2	0.5	4.7	5.2
Female	Min.	3.4	0	4.3	-
	Max.	4.2	0.5	4.7	5.2

**NOTES:**

1. See Figure 2(a) for other dimensions.



**FIGURE 2(d) – PLUG CONNECTORS WITH DIMPLED SHELL**



**NOTES:**

1. All dimensions are in mm.

## 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.

#### 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.

#### 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, without contacts, shall be as specified in Table 1(a).

#### 4.3.3 Contact Capability

As specified in ESCC Detail Specification No. [3401/005](#).

#### 4.3.4 Contact Retention (In Insert)

As specified in ESCC Detail Specification No. [3401/005](#).

#### 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

As specified in ESCC Detail Specification No. [3401/005](#).

#### 4.3.9 Engagement and Separation Forces

As specified in ESCC Detail Specification No. [3401/005](#).

#### 4.3.10 Oversize Pin Exclusion

As specified in ESCC Detail Specification No. [3401/005](#).

#### 4.3.11 Probe Damage

As specified in ESCC Detail Specification No. [3401/005](#).

#### 4.3.12 Solderability

As specified in ESCC Detail Specification No. [3401/005](#).

### 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, D shall be made of brass. The standard plating finish (i.e. no Modification Code) shall be 0.7µm minimum of gold over 1µm minimum of copper. An alternative plating finish is 12.7µm minimum electroless nickel (Modification Code A175).

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

#### 4.4.3 Contacts

As specified in ESCC Detail Specification No. [3401/005](#).

#### 4.4.4 Contact Retaining Clip

The retaining clip shall be made of beryllium copper.

#### 4.4.5 Guiding and Locking Devices

As specified in ESCC Detail Specification Nos. [3401/022](#), [3401/072](#) and [3401/085](#)

#### 4.4.6 Magnetism Level

The allowable value of magnetism shall not exceed that specified for the relevant level (see Para. 4.5.2.1(g)). 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.

Each component and/or the component's primary package shall be marked in respect of:

- (a) Contact number marking (see Figure 2(b)).
- (b) The ESCC qualified components symbol (for ESCC qualified components only).
- (c) The ESCC Component Number (see Para. 4.5.2).
- (d) Traceability information.

##### 4.5.2 The ESCC Component Number

The ESCC Component Number shall be constituted as follows (note 1):

Example: 340100201BDAMAY15PNMBA175DFO

- Detail Specification Reference: 3401002
- Component Type Variant Number: 01 (as required; see Table 1(a))
- Testing Level: B
- Characteristic code: Series: D
- Characteristic code: Shell Size: A (as required)
- Characteristic code: Insert Type: MA
- Characteristic code: Alternative Design: Y (as required)
- Characteristic code: Contact Arrangement: 15 (as required)
- Characteristic code: Contact Gender: P (as required)
- Characteristic code: Magnetism Level: NMB (as required)
- Characteristic code: Modification Code(s): A175D (if/as required)
- Characteristic code: Contact Information: FO

#### **NOTES:**

1. A dash (-) or space may be included as part of the ESCC Component Number marking in order to separate one or more of the individual characteristic codes.

4.5.2.1 *Characteristics Codes*

Characteristics to be codified as part of the ESCC Component Number shall be as follows:

- (a) **Series**  
The connector series shall be indicated by the code letter: D.
- (b) **Shell Size**  
The shell size shall be indicated by the following code letters: E, A, B, C, D, F. See Table 1(a).
- (c) **Insert Type**  
The type of insert shall be indicated by the code letters: MA
- (d) **Alternative Design**  
Alternative design shall be indicated by the following code letters:
  - E: captive nuts; see Figure 2(c) (see note)
  - Y: floating mount; see Figure 2(c) (see note)
  - G: rear dust proof grommet; see Figure 2(a) (with standard mounting holes)
  - YG: floating mount and rear dust proof grommet; see Figures 2(a) and 2(c)

**NOTE:**

If the shell has standard mounting holes, this code letter shall be omitted.

- (e) **Contact Arrangement**  
The contact arrangement shall be indicated by the following codes; see Figure 2(b):

Code	Shell Size	Number of Contacts Gauge 20	Number of Contacts Gauge 22
9	E	9	N/A
15	A	15	N/A
15	E	N/A	15
25	B	25	N/A
26	A	N/A	26
37	C	37	N/A
44	B	N/A	44
50	D	50	N/A
62	C	N/A	62
78	D	N/A	78
104	F	N/A	104

- (f) **Contact Gender**  
The gender of the contacts shall be indicated by the following code letters:
  - P: male contact
  - S: female contact

- (g) Magnetism Level  
The magnetism level shall be indicated by the following codes:

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.

- (h) Modification Code  
A modification code shall be included in the ESCC Component Number when required, otherwise it shall be omitted. When more than a single code is applicable, all codes shall be concatenated together.

Finish codes: the following modification codes shall apply when required (see Para. 4.4.1):

- A175: electroless nickel finish for shell sizes E, A, B, C, D only.
- A174: electroless nickel finish for shell size F only.
- FR172: gold over electroless nickel finish for shell size F only.

Other codes: the following modification codes shall apply when required:

- D: plug connector (with male contacts) with dimpled shell (see Figure 2(d))

- (i) Contact Information  
These connectors shall be ordered without contacts as indicated by the code FO.

This code shall not be marked on the component but shall be marked on the component's primary package.

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

#### 4.5.3 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  $T_{amb} = +22 \pm 3^{\circ}\text{C}$ .

##### 4.6.2 Electrical Measurements at High and Low Temperatures (Table 3)

Not applicable.

##### 4.6.3 Circuits for Electrical Measurements (Figure 4)

Not applicable.

#### 4.7 BURN-IN AND ELECTRICAL MEASUREMENTS (TABLES 4 AND 5)

Not applicable.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS

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  $T_{amb} = +22 \pm 3^{\circ}C$ .

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  $T_{amb} = +22 \pm 3^{\circ}C$ .

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

Not applicable.

4.8.5 Electrical Circuits for Operating Life Test

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 2 – ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE**

No.	Characteristic	Symbol	Specification and Test Method	Test Condition	Limits		Unit
					Min	Max	
1	Insulation Resistance	Ri	ESCC 3401 Para. 9.1.1.1	Para. 9.1.1.1	5000	-	MΩ
2	Voltage Proof Leakage Current Variant 01 Variant 02	I <sub>L</sub>	ESCC 3401 Para. 9.1.1.2	1250Vrms (1) 1000Vrms	- -	2 2	mA
3	Mated Shell Conductivity (Voltage Drop) (2)	Vd	ESCC 3401 Para. 9.1.1.4	Para. 9.1.1.3	Not applicable		mV

**NOTES:**

1. When connectors are equipped with 340100505B and 340100506B contacts, each crimp barrel shall be isolated from adjacent contacts with insulation material.
2. Applicable to mated connectors with grounding option.

**TABLES 3, 4 AND 5**

Not applicable.

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

No.	ESCC Generic Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
01	Wiring	Para. 9.10	ESCC 3401/005	-	-	-	-	
02	Vibration	Para. 9.11	<b>Initial Measurements</b> Coupling Screw(s) Unlocking Torque	-	-	Record Values		
			<b>Final Measurements</b> Coupling Screw(s) Unlocking Torque Drift Visual Examination	Full Engagement - - -	$\Delta$ - -	-25 - -	+25 - -	%
03	Shock or Bump	Para. 9.12	<b>Final Measurements</b> Visual Examination	Full Engagement -	- -	- -	- -	
04	Climatic Sequence	Para. 9.13	<b>Dry Heat</b> Insulation Resistance	Table 2 Item 1	Ri	1000	-	M $\Omega$
			<b>Low Air Pressure</b> Voltage Proof Leakage Current	Figure 1	I <sub>L</sub>	Table 2 Item 2		
			<b>Damp Heat</b> Insulation Resistance	Immediately after test Table 2 Item 1	Ri	100	-	M $\Omega$
			External Visual Inspection	<b>After 1 - 24hrs Recovery</b> ESCC 3401 Para. 9.7	-	ESCC 3401 Para. 9.7		
			Insulation Resistance Voltage Proof Leakage Current	Table 2 Item 1 Table 2 Item 2	Ri I <sub>L</sub>	Table 2 Item 1 Table 2 Item 2		
05	Seal Test	Para. 9.9	ESCC 3401 Para. 9.9			Not applicable		
06	Plating Thickness	Para. 9.14	Thickness	-	-	ESCC 3401/005		
07	Joint Strength	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 Current	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		



No.	ESCC Generic Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
10	Endurance	Para. 9.18	<b>Initial Measurements</b> Mating/Unmating Forces  Low Level Contact Resistance 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 Current	-  ESCC 3401/005  Table 2 Item 3  - -  ESCC 3401/005  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. ESCC 3401/005  Not applicable Table 2 Item 1 Table 2 Item 2		
11	Permanence of Marking	Para. 9.19	As applicable	-	-	-	-	
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 Resistance Mated Shell Conductivity  <b>Final Measurements</b> Visual Examination Mating/Unmating Forces  Low Level Contact Resistance Drift Rated Current Contact Resistance Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Current Contact Retention (In Insert)	ESCC 3401/005  Table 2 Item 3  - -  ESCC 3401/005  ESCC 3401/005  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 I <sub>L</sub> -	 Record Values  Not applicable    -   - Para. 4.3.5 of this spec. ESCC 3401/005  ESCC 3401/005  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

No.	ESCC Generic Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
18	Overload Test	Para. 9.26	Internal Temperature Rated Current Contact Resistance Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Current	- ESCC 3401/005 Table 2 Item 3 Table 2 Item 1 Table 2 Item 2	T Rcr Vd Ri I <sub>L</sub>	-	+100	°C
19	Maintenance Ageing	Para. 9.27	Visual Examination Contact Retention Contact Insertion & Withdrawal Forces	- Para. 4.3.4 of this spec. Para. 4.3.8 of this spec.	-	-	-	
20	Engage/Separation Forces	Para. 9.28 & Para. 4.3.9 of this spec.	Force	-	-	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.		Para. 4.3.9		
23	Solderability	Para. 9.31 & Para. 4.3.12 of this spec.	-	-	-	Para. 4.3.12		

**NOTES:**

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

**APPENDIX A**  
**AGREED DEVIATIONS FOR C&K CONNECT (F)**

ITEMS AFFECTED	DESCRIPTION OF DEVIATIONS										
Para. 4.2.2 Deviations from Final Production Tests - Chart II	Para. 9.3, Contact Retainer Test may be omitted provided that a 100% external visual inspection of the contact retainer clips positioned within the insert is performed in accordance with the C&K PID requirements.										
Para. 4.5.2 The ESCC Component Number Para. 4.5.2.1(i) Contact Information	Connectors may be ordered without the contact information characteristic code (i.e. -FO) being included in the ESCC Component Number. In which case, unless otherwise advised by C&K during the Ordering process, the contacts, of the appropriate quantity, to be supplied with the connectors shall be as follows: <table border="1" data-bbox="528 667 1313 896"> <thead> <tr> <th data-bbox="528 667 1121 712">Ordered Connector (without -FO)</th> <th data-bbox="1121 667 1313 712">Contacts</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 712 1121 757">340100201BD*MA*P* (with Male Contacts)</td> <td data-bbox="1121 712 1313 757"><a href="#">340100511B</a></td> </tr> <tr> <td data-bbox="528 757 1121 801">340100201BD*MA*S* (with Female Contacts)</td> <td data-bbox="1121 757 1313 801"><a href="#">340100512B</a></td> </tr> <tr> <td data-bbox="528 801 1121 846">340100202BD*MA*P* (with Male Contacts)</td> <td data-bbox="1121 801 1313 846"><a href="#">340100517B</a></td> </tr> <tr> <td data-bbox="528 846 1121 891">340100202BD*MA*S* (with Female Contacts)</td> <td data-bbox="1121 846 1313 891"><a href="#">340100518B</a></td> </tr> </tbody> </table>	Ordered Connector (without -FO)	Contacts	340100201BD*MA*P* (with Male Contacts)	<a href="#">340100511B</a>	340100201BD*MA*S* (with Female Contacts)	<a href="#">340100512B</a>	340100202BD*MA*P* (with Male Contacts)	<a href="#">340100517B</a>	340100202BD*MA*S* (with Female Contacts)	<a href="#">340100518B</a>
Ordered Connector (without -FO)	Contacts										
340100201BD*MA*P* (with Male Contacts)	<a href="#">340100511B</a>										
340100201BD*MA*S* (with Female Contacts)	<a href="#">340100512B</a>										
340100202BD*MA*P* (with Male Contacts)	<a href="#">340100517B</a>										
340100202BD*MA*S* (with Female Contacts)	<a href="#">340100518B</a>										

**APPENDIX B**  
**AGREED DEVIATIONS FOR SOURIAU (F)**

ITEMS AFFECTED	DESCRIPTION OF DEVIATIONS										
Para. 4.2.2 Deviations from Final Production Tests - Chart II	Para. 9.3, Contact Retainer Test may be omitted provided that a 100% external visual inspection of the contact retainer clips positioned within the insert is performed in accordance with the SOURIAU PID requirements.										
Para. 4.5.2 The ESCC Component Number Para. 4.5.2.1(i) Contact Information	Connectors may be ordered without the contact information characteristic code (i.e. -FO) being included in the ESCC Component Number. In which case, unless otherwise advised by SOURIAU during the Ordering process, the contacts, of the appropriate quantity, to be supplied with the connectors shall be as follows: <table border="1" data-bbox="528 667 1311 900"> <thead> <tr> <th data-bbox="533 667 1118 712">Ordered Connector (without -FO)</th> <th data-bbox="1123 667 1307 712">Contacts</th> </tr> </thead> <tbody> <tr> <td data-bbox="533 712 1118 757">340100201BD*MA*P* (with Male Contacts)</td> <td data-bbox="1123 712 1307 757"><a href="#">340100501B</a></td> </tr> <tr> <td data-bbox="533 757 1118 801">340100201BD*MA*S* (with Female Contacts)</td> <td data-bbox="1123 757 1307 801"><a href="#">340100502B</a></td> </tr> <tr> <td data-bbox="533 801 1118 846">340100202BD*MA*P* (with Male Contacts)</td> <td data-bbox="1123 801 1307 846"><a href="#">340100507B</a></td> </tr> <tr> <td data-bbox="533 846 1118 891">340100202BD*MA*S* (with Female Contacts)</td> <td data-bbox="1123 846 1307 891"><a href="#">340100508B</a></td> </tr> </tbody> </table>	Ordered Connector (without -FO)	Contacts	340100201BD*MA*P* (with Male Contacts)	<a href="#">340100501B</a>	340100201BD*MA*S* (with Female Contacts)	<a href="#">340100502B</a>	340100202BD*MA*P* (with Male Contacts)	<a href="#">340100507B</a>	340100202BD*MA*S* (with Female Contacts)	<a href="#">340100508B</a>
Ordered Connector (without -FO)	Contacts										
340100201BD*MA*P* (with Male Contacts)	<a href="#">340100501B</a>										
340100201BD*MA*S* (with Female Contacts)	<a href="#">340100502B</a>										
340100202BD*MA*P* (with Male Contacts)	<a href="#">340100507B</a>										
340100202BD*MA*S* (with Female Contacts)	<a href="#">340100508B</a>										