RF COAXIAL ADAPTORS

BASED ON TYPE SMA

ESCC Detail Specification No. 3402/003

Issue 5	November 2023

Document Custodian: European Space Agency – see https://escies.org

LEGAL DISCLAIMER AND COPYRIGHT

DOCUMENTATION CHANGE NOTICE

(Refer to https://escies.org for ESCC DCR content)

DCR No.	CHANGE DESCRIPTION
1445	Specification updated to incorporate changes per DCR.

TABLE OF CONTENTS

1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, and test and inspection data for the component type variants and/or the range of components specified below. It supplements the requirements of, and shall be read in conjunction with, the ESCC Generic Specification listed under Applicable Documents.

1.2 APPLICABLE DOCUMENTS

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

(a) ESCC Generic Specification No. 3402.

(b) MIL-STD-348, Department of Defence Interface Standard: Radio Frequency Connector Interfaces.

1.3 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.

1.4 THE ESCC COMPONENT NUMBER AND COMPONENT TYPE VARIANTS

1.4.1 The ESCC Component Number

The ESCC Component Number shall be constituted as follows:

Example: 3402003012

- Detail Specification Reference: 3402003
- Component Type Variant Number: 01 (as required)
- Characteristic code: Material/Plating (Type 2): 2 (as required)

1.4.1.1 Characteristics Codes

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

(a) Material/Plating: Connector material and plating (see Para. 1.7) expressed by means of the following codes:

Material/Plating	Code
Beryllium Copper, Gold plated, Copper underplate (Type 1)	1
Beryllium Copper, Gold plated, Nickel underplate (Type 2)	2
Amagnetic Stainless Steel, Electro-passivated (Type 3)	3
Amagnetic Stainless Steel, Gold plated (Type 4)	4

1.4.2 Component Type Variants

The component type variants applicable to this specification are as follows:

Variant Number	Description (Notes 1, 2)
01	Straight Adaptor, Male - Male (Note 3)
02	Straight Adaptor, Male - Female (Note 3)
03	Straight Adaptor, Female - Female (Note 3)
04	Straight Bulkhead Adaptor, Female - Female (Note 3)
05	Elbow Adaptor, Male - Female
06	T-Adaptor, Female - Female/Male
07	Hermetic Adaptor, Female - Female
08	T-Adaptor, Female - Female/Female
09	Square Flange Adaptor, Male - Female
10	Square Flange Adaptor, Female - Female
11	Straight Adaptor, Male – Male (Maximum Operating Temperature = +165°C) (Note 3)
12	Straight Adaptor, Male – Female (Maximum Operating Temperature = +165°C) (Note 3)
13	Straight Adaptor, Female – Female (Maximum Operating Temperature = +165°C) (Note 3)
14	Straight Bulkhead Adaptor Female – Female (Maximum Operating Temperature = +165°C) (Note 3)
15	Elbow Adaptor, Male - Female

NOTES:

1. See Para. 3 for details.
2. For available connector materials and finishes, see Paras. 1.4.1.1(a) and 1.7.
3. Variants 11 to 14 are high temperature capability versions of Variants 01 to 04 respectively.

1.5 MAXIMUM RATINGS

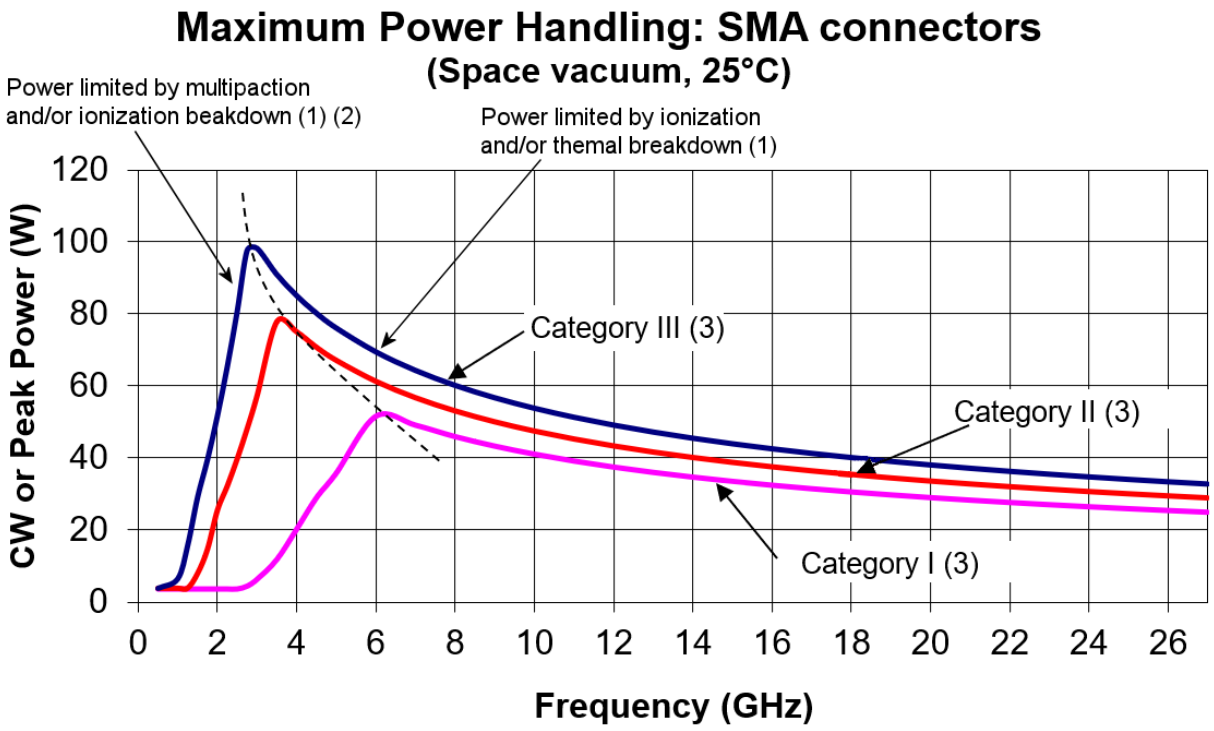
The maximum ratings shall not be exceeded at any time during use or storage.

Maximum ratings shall only be exceeded during testing to the extent specified in this specification and when stipulated in Test Methods and Procedures of the ESCC Generic Specification.

Characteristics	Symbol	Maximum Ratings	Unit	Remarks
Power	P	See Para. 3		Notes 1, 2
Nominal Impedance	Z	50	Ω	-
Operating Frequency Range	f	See Para. 3	GHz	Note 1
Operating Voltage	V_{op}	335	Vrms	-
Operating Temperature Range	T_{op}	See Para. 3	°C	-
Storage Temperature Range	T_{stg}	As per T_{op}	°C	-
Coupling Nut Torque (Coupling Proof Torque)	Tq	170	N.cm	See Note 3 for nominal coupling torque

NOTES:

1. Derate Power with respect to Operating Frequency as follows:



The following details apply:

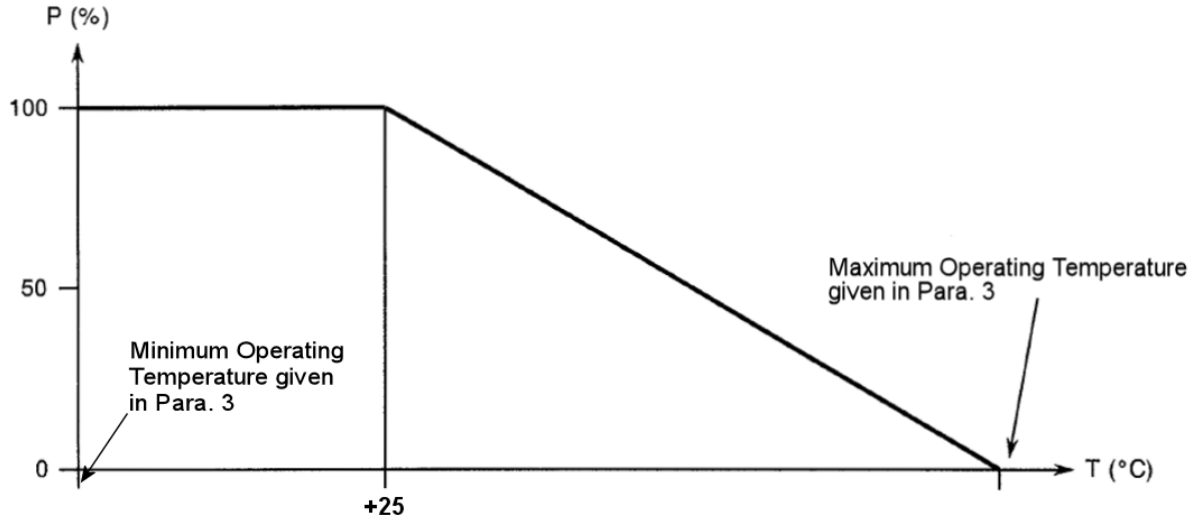
a) Load VSWR is better than 1.3:1.

b) The part of the curve limited by multipaction takes into account a 6dB margin.

c) See Para. 3 for applicability of power handling categories to the different variants.

d) These power handling curves have been constructed using the ESCC Multipactor Tool v1.0.

2. Derate Power with respect to Operating Temperature as follows:



3. Whenever a test is performed on mated pairs of connectors, the pairs shall be torqued at 100 ±20N.cm.

1.6 PHYSICAL DIMENSIONS (SEE ALSO PARA. 3)

1.6.1 Connector Interface Dimensions and Connector Interface Gauge Dimensions

(a) SMA Male Connector Interface: compatible with series SMA pin contact interface as specified in MIL-STD-348.

(b) SMA Female Connector Interface: compatible with series SMA socket contact interface as specified in MIL-STD-348.

(c) SMA Male Gauge Interface: compatible with series SMA pin contact test connector interface as specified in MIL-STD-348.

(d) SMA Female Gauge Interface: compatible with series SMA socket contact test connector interface as specified in MIL-STD-348.

1.7 MATERIALS AND FINISHES

Materials and finishes shall be as follows (as applicable, see Paras. 1.4.1.1(a) and 3):

1.7.1 Type 1

(a) Shell, Coupling Nut: beryllium copper, plated gold 2.5µm minimum over copper 2.5µm minimum.

(b) Centre Contact:
- Male: beryllium copper or brass, plated gold 2.5µm minimum over copper 2.5µm minimum.
- Female: beryllium copper, plated gold 2.5µm minimum over copper 2.5µm minimum.

(c) Insulator: PTFE.

(d) Gasket, Front: silicone.

(e) Rear Nut: brass or copper, plated gold 2.5µm minimum over copper 2.5µm minimum.

(f) Washers: copper alloy, plated gold 0.5µm minimum over nickel 2µm minimum.

1.7.2 Type 2

(a) Shell, Coupling Nut: beryllium copper, plated gold 1.27µm minimum over nickel 2µm minimum.

(b) Centre Contact:
- Male: beryllium copper or brass, plated gold 1.27µm minimum over nickel 2µm minimum.
- Female: beryllium copper, plated gold 1.27µm minimum over nickel 2µm minimum.

(c) Insulator: PTFE.

(d) Gasket, Front: silicone.

(e) Rear Nut: brass or copper, plated gold 0.5µm minimum over nickel 2µm minimum.

(f) Washers: copper alloy, plated gold 0.5µm minimum over nickel 2µm minimum.

1.7.3 Type 3

(a) Shell, Coupling Nut: amagnetic stainless steel, electro-passivated.

(b) Centre Contact:
- Male: beryllium copper or brass, plated gold 1.27µm minimum over nickel 2µm minimum.
- Female: beryllium copper, plated gold 1.27µm minimum over nickel 2µm minimum.

(c) Insulator: PTFE.

(d) Gasket, Front: silicone.

(e) Rear Nut: stainless steel, electro-passivated.

(f) Washers: copper alloy, plated nickel 2µm minimum.

1.7.4 Type 4

(a) Shell, Coupling Nut: amagnetic stainless steel, plated gold 1.27µm minimum over nickel 2µm minimum.

(b) Centre Contact:
- Male: beryllium copper or brass, plated gold 1.27µm minimum over nickel 2µm minimum.
- Female: beryllium copper, plated gold 1.27µm minimum over nickel 2µm minimum.

(c) Insulator: PTFE.

(d) Gasket, Front: silicone.

(e) Rear Nut: stainless steel, plated gold 0.5µm minimum over nickel 2µm minimum.

(f) Washers: copper alloy, plated gold 0.5µm minimum over nickel 2µm minimum.

2 REQUIREMENTS

2.1 GENERAL

The complete requirements for procurement of the components specified herein are as stated in this specification and the ESCC Generic Specification. Permitted deviations from the Generic Specification, applicable to this specification only, are listed below.

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

2.1.1 Deviations from the Generic Specification

2.1.1.1 Deviations from Screening Tests – Chart F3

(a) Coupling Proof Torque: shall not be performed on connectors with a female contact; it shall be performed on connectors with a male contact.

2.2 MARKING

The marking shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and as follows.

The information to be marked on the component or the primary package shall be:

(a) The ESCC qualified components symbol (for ESCC qualified components only).

(b) The ESCC Component Number (see Para. 1.4.1).

(c) Traceability information.

2.3 ENVIRONMENTAL AND MECHANICAL TESTS

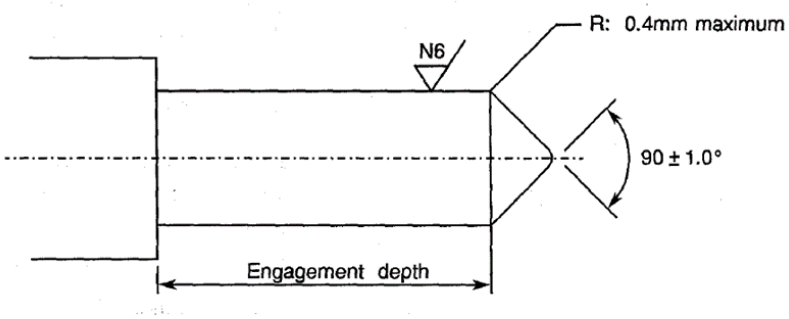
The following requirements apply to tests performed on the connector (and contact) lot as specified in the ESCC Generic Specification:

(a) Contact Engagement and Separation Forces:

	Oversize Test Pin Test	Maximum Diameter Test Pin Test	Minimum Diameter Test Pin Test
Test Pin Diameter (mm) (1)	0.9525 to 0.955	0.94 to 0.942	0.902 to 0.904
Engagement Depth (mm) (1)	0.76 to 1.14	1.27 to 1.91	1.27 to 1.91
Engagement Force (N)	-	13.34 maximum	-
Separation Force (N)	-	-	0.28 minimum

NOTES:

1. Test Pins details:



(b) Coupling Proof Torque: See Para. 1.5.

(c) Mating and Unmating Forces: Maximum torque: 24N.cm.

(d) Centre Contact Retention: See Para. 3.

(e) Seal: See Para. 3.

2.4 ROOM TEMPERATURE ELECTRICAL MEASUREMENTS

The measurements shall be performed at T_{amb} = +22 ±3°C.

Characteristics	Symbols	Test Method and Conditions	Limits		Units
			Min	Max	
Insulation Resistance	R_I	ESCC No. 3402	5	-	GΩ
Voltage Proof Leakage Current (Voltage Proof)	I_L	ESCC No. 3402 See Para. 3 Note 1	-	2	mA

NOTES:

1. Between centre contact and shell.

2.5 INTERMEDIATE AND END-POINT ELECTRICAL MEASUREMENTS

Unless otherwise specified, the measurements shall be performed at T_{amb} = +22 ±3°C.

Unless otherwise specified, the test methods and test conditions shall be as per the corresponding test defined in Para. 2.4 Room Temperature Electrical Measurements.

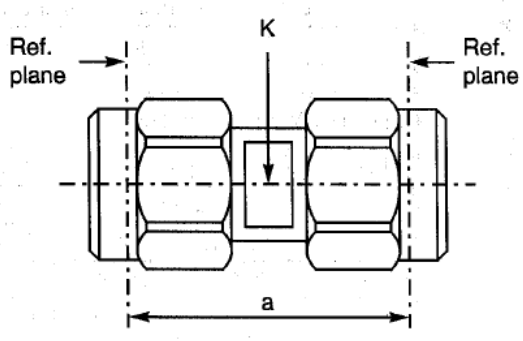
Test Reference per ESCC No. 3402	Characteristics and Test Conditions Ref. ESCC No. 3402	Symbols	Limits		Units
			Min	Max	
Random Vibration	Contact Resistance: I_T = 10mA, V_T = 6V				
	Centre Contact:	R_{ctc}	-	3	mΩ
Mechanical Shock	Contact Resistance: I_T = 10mA, V_T = 6V				
	Centre Contact:	R_{ctc}	-	3	mΩ
Temperature Cycling	Contact Resistance: I_T = 10mA, V_T = 6V				
	Centre Contact:	R_{ctc}	-	3	mΩ
	Voltage Proof Leakage Current:	I_L	Note 1		
Electrical Measurements at Room Temperature	Insulation Resistance:	R_I	Note 1		
	Voltage Proof Leakage Current:	I_L	Note 1		
	Contact Resistance: I_T = 10mA, V_T = 6V				
	Centre Contact:	R_{ctc}	-	3	mΩ
	Shell:	R_{cts}	-	2	mΩ
	VSWR (Note 3):	VSWR	Note 2		
	Insertion Loss:	LI	Note 2		
Endurance	Contact Resistance: I_T = 10mA, V_T = 6V				
	Centre Contact:	R_{ctc}	-	4	mΩ
	Shell:	R_{cts}	-	3	mΩ

NOTES:

1. As specified in Para. 2.4.
2. As specified in Para. 3.
3. Measured with suitable low level RF power applied.

3 COMPONENT TYPE VARIANTS – DETAIL REQUIREMENTS

3.1 VARIANT 01 – STRAIGHT ADAPTOR, MALE - MALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	14.9	15.1	
K	-	5.5	2 flats

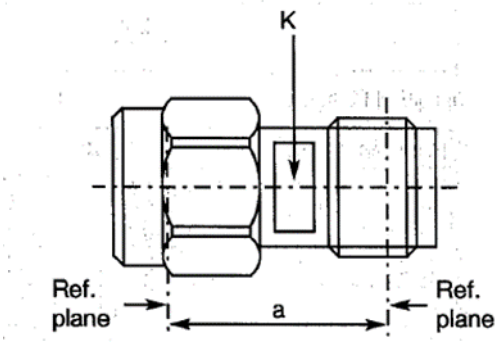
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	4.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +105	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

3.2 VARIANT 02 – STRAIGHT ADAPTOR, MALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	12.4	12.65	
K	5.4	5.5	2 flats

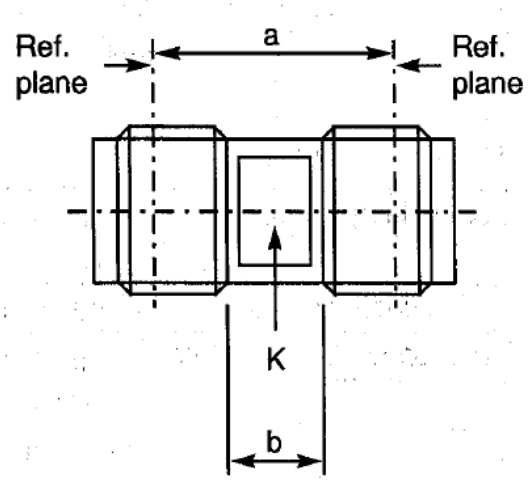
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	3.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +105	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

3.3 VARIANT 03 – STRAIGHT ADAPTOR, FEMALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	10.1	10.3	
b	4.4	-	
K	4.9	5.1	2 flats

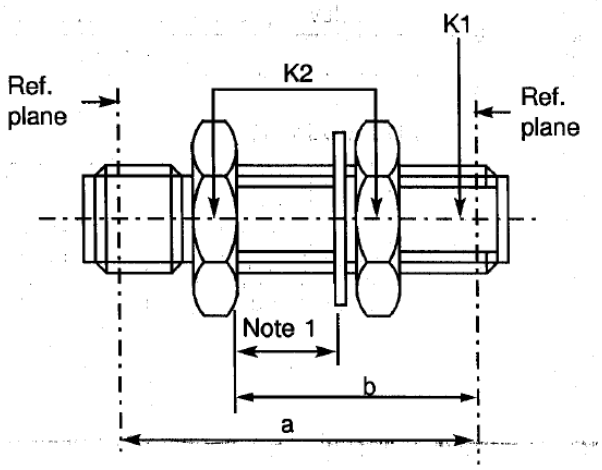
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	1.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +105	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

3.4 VARIANT 04 – STRAIGHT BULKHEAD ADAPTOR, FEMALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	-	18.4	
b	12.5	12.85	
K1	-	6	1 flat
K2	-	8	Hex.

NOTES:
1. Maximum panel thickness: 6mm

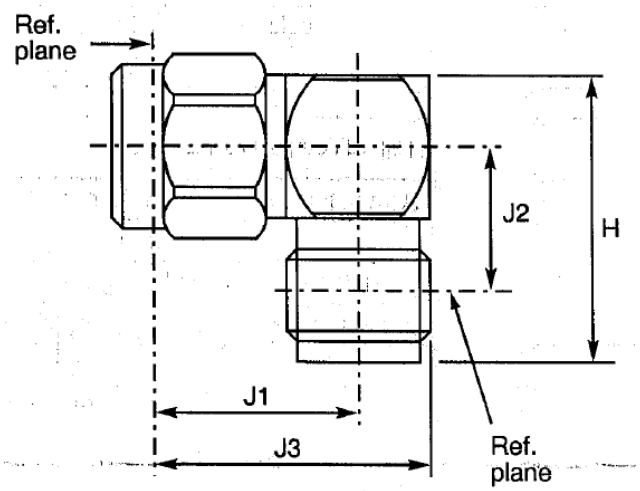
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	4.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +105	°C
Seal: Maximum leakage	Not applicable	

NOTES:
2. For information purposes only.

3.5 VARIANT 05 – ELBOW ADAPTOR, MALE - FEMALE



Symbol	Dimensions mm	
	Min	Max
H	14.2	15.9
J1	9.1	9.5
J2	9.1	9.5
J3	12.2	12.95

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.05 + 0.01 f (GHz)	
Maximum insertion loss	0.02 + 0.06 $\sqrt{f}$ (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

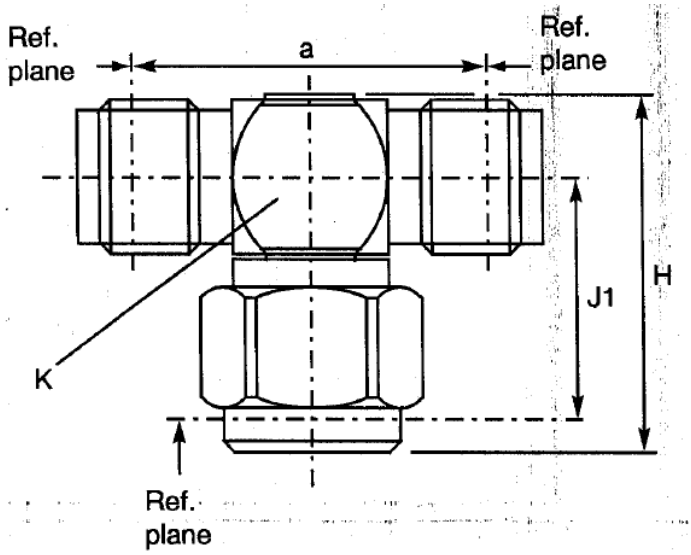
MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	2.8	N.cm
Maximum weight	4.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +105	°C
Seal: Maximum leakage	Not applicable	

NOTES:

1. For information purposes only.

3.6 VARIANT 06 – T-ADAPTOR, FEMALE – FEMALE/MALE



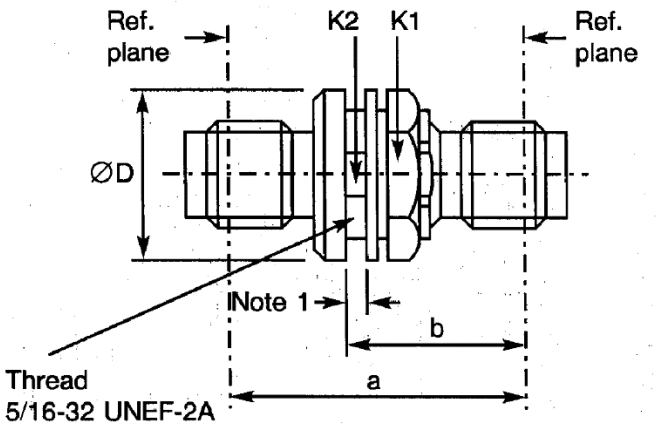
Symbol	Dimensions mm		Notes
	Min	Max	
a	14.09	14.2	
H	15.7	16.75	
J1	9.75	10	
K	-	7	Across flat

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 12.4	GHz
Maximum voltage standing wave ratio (VSWR)	Not applicable	
Maximum insertion loss	Not applicable	
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	Not applicable	

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	2.8	N.cm
Maximum weight	5.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +165	°C
Seal: Maximum leakage	Not applicable	

3.7 VARIANT 07 – HERMETIC ADAPTOR, FEMALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	12.4	12.65	
K	5.4	5.5	2 flats
a	18.5	18.9	
b	11.7	13.2	
ØD	12.9	14.2	

NOTES:
1. Maximum panel thickness: 4.3mm

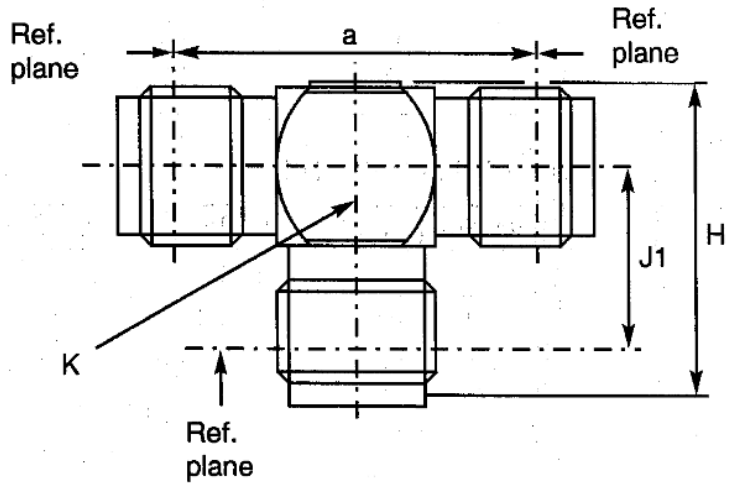
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.015 f (GHz)	
Maximum insertion loss	0.02 + 0.15 $\sqrt{f}$ (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	II	
RF Leakage (Note 2)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	Not applicable	
Minimum centre contact retention torque	Not applicable	
Maximum weight	7	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-40 to +165	°C
Seal: Maximum leakage	10^{-8}	atm.cm^3/s

NOTES:
2. For information purposes only.

3.8 VARIANT 08 – T-ADAPTOR, FEMALE – FEMALE/FEMALE



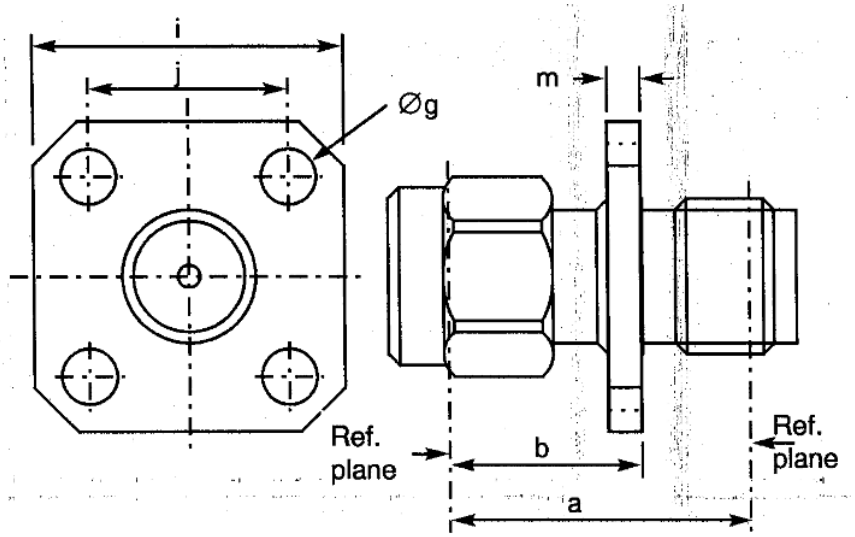
Symbol	Dimensions mm		Notes
	Min	Max	
a	14	14.2	
H	13.25	13.65	
J1	7.9	8.2	
K	-	7	2 flats

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 12.4	GHz
Maximum voltage standing wave ratio (VSWR)	Not applicable	
Maximum insertion loss	Not applicable	
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	Not applicable	

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	5.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +165	°C
Seal: Maximum leakage	Not applicable	

3.9 VARIANT 09 – SQUARE FLANGE ADAPTOR, MALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	17.05	17.1	
b	9.45	9.55	
Øg	2.55	2.7	4 holes
i	12.6	12.8	
j	8.59	8.69	
m	1.4	1.8	

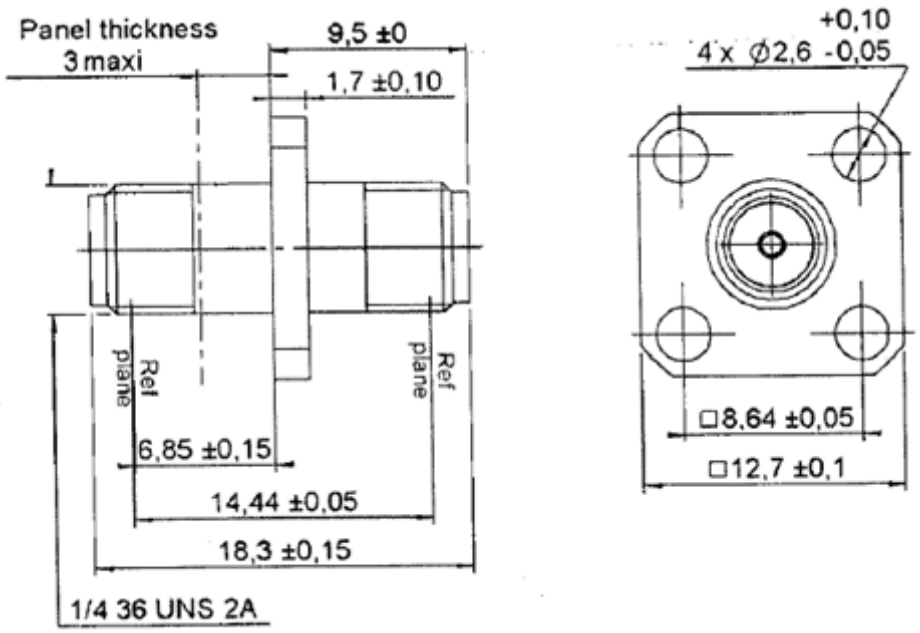
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	5.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +105	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

3.10 VARIANT 10 – SQUARE FLANGE ADAPTOR, FEMALE – FEMALE



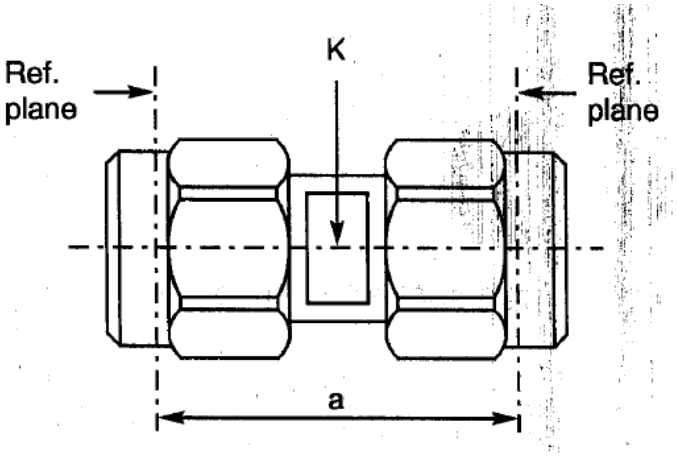
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	I	
RF Leakage (Note 2)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	4.2	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +165	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. All dimensions are in mm.
2. For information purposes only.

3.11 VARIANT 11 – STRAIGHT ADAPTOR, MALE - MALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	14.9	15.1	
K	-	5.5	2 flats

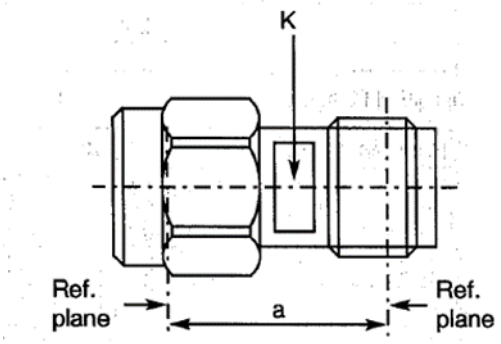
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	4.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +165	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

3.12 VARIANT 12 – STRAIGHT ADAPTOR, MALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	12.4	12.65	
K	5.4	5.5	2 flats

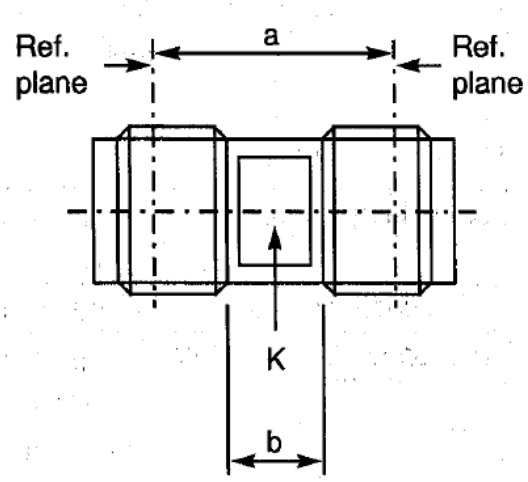
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	3.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +165	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

3.13 VARIANT 13 – STRAIGHT ADAPTOR, FEMALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	10.1	10.3	
b	4.4	-	
K	4.9	5.1	2 flats

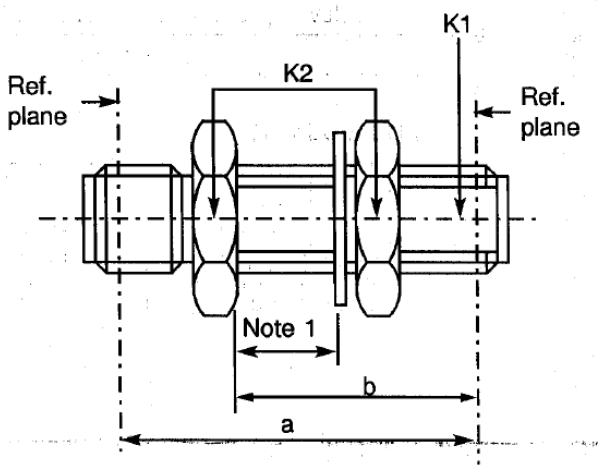
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	1.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +165	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

3.14 VARIANT 14 – STRAIGHT BULKHEAD ADAPTOR, FEMALE - FEMALE



Symbol	Dimensions mm		Notes
	Min	Max	
a	-	18.4	
b	12.5	12.85	
K1	-	6	1 flat
K2	-	8	Hex.

NOTES:
1. Maximum panel thickness: 6mm

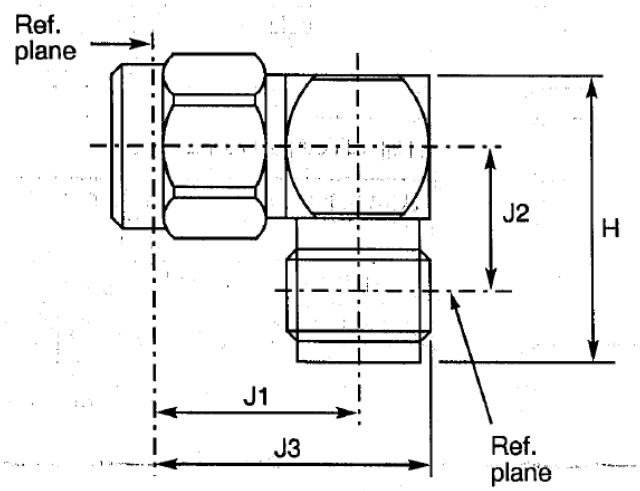
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.008 f (GHz)	
Maximum insertion loss	0.02 + 0.06 √f (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	I	
RF Leakage (Note 2)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	Not applicable	
Maximum weight	4.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +165	°C
Seal: Maximum leakage	Not applicable	

NOTES:
2. For information purposes only.

3.15 VARIANT 15 – ELBOW ADAPTOR, MALE - FEMALE



Symbol	Dimensions mm	
	Min	Max
H	14.2	15.9
J1	9.1	9.5
J2	9.1	9.5
J3	12.2	12.95

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	1.1 + 0.006 f (GHz)	
Maximum insertion loss	0.02 + 0.06 $\sqrt{f}$ (GHz)	dB
Voltage proof	1000	Vrms
Power Handling Category (see Para. 1.5 Note 1)	III	
RF Leakage (Note 1)	-95 + f (GHz)	dBi

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Minimum centre contact retention force (axial)	27	N
Minimum centre contact retention torque	2.8	N.cm
Maximum weight	4.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Operating temperature range	-65 to +105	°C
Seal: Maximum leakage	Not applicable	

NOTES:
1. For information purposes only.

APPENDIX A
AGREED DEVIATIONS FOR RADIALL (F)

ITEMS AFFECTED	DESCRIPTION OF DEVIATIONS
Para 1.4.1, The ESCC Component Number	The ESCC Component Number may include the additional Manufacturer's code 'B' as indicated in the following example: Example: 340200301**B**2

APPENDIX B
AGREED DEVIATIONS FOR ROSENBERGER (D)

ITEMS AFFECTED	DESCRIPTION OF DEVIATIONS
Para 1.4.1, The ESCC Component Number	The ESCC Component Number may include the additional Manufacturer's code 'B' as indicated in the following example: Example: 340200301**B**2