

BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON W1A 2BS	BS 9210 N0006: Part 3 Issue 1 December 1985
SPECIFICATION AVAILABLE FROM BRITISH STANDARDS INSTITUTION LINFORD WOOD MILTON KEYNES MK14 6LE TELEPHONE 0908 320033 TELEX 825777 (BSI MK G)	PAGE 1 OF 70 PAGES
ELECTRONIC COMPONENTS OF ASSESSED QUALITY: DETAIL SPECIFICATION IN ACCORDANCE WITH BS 9210	Radio frequency co-axial connector series SMA 50Ω, unsealed, soldered centre contact, clamp outer for flexible cables, solder outer for semi-rigid cables
ASSOCIATED PARTS: BS 9210 N0006: PART 1 BS 9210 N0006: PART 2	Part 3: Detail specification parameters
	Climatic Category: 55/155/21
	FULL ASSESSMENT LEVEL
Refer to Qualified Products List PD 9002 and/or CECC 00200 for details of manufacturers approved to this specification.	

CONTENTS

Appendix A. Outline drawings and details of variants
Appendix B. Details of panel piercings

APPENDIX A. OUTLINE DRAWINGS AND DETAILS OF VARIANTS

A.1 General

The dimensions shown in the outline drawings in this appendix are the maximum dimensions for that style and variant unless otherwise stated.

A.2 Drawing projection

Third angle projection is used where projected views are shown.

A.3 Working voltage

Working voltage and proof voltage are defined at 40 Hz to 60 Hz for the convenience of test houses. In practice working voltage and proof voltage are influenced by frequency, duty cycle, altitude and service conditions which should be taken into consideration. Voltages greater than those specified may be applied in appropriate applications.

A.4 Listing of connector styles

Style reference number	Description
00-03	Connector, fixed, straight, 4 hole fixing, cable outlet, female centre contact
01-03	Connector, coupler, free, straight, cable outlet, female centre contact
02-02	Connector, fixed, straight, 4 hole fixing, solder bucket, male centre contact
02-03	Connector, fixed, straight, 4 hole fixing, solder bucket, female centre contact
03-02	Connector, fixed, straight, 2 hole fixing, solder bucket, male centre contact
03-03	Connector, fixed, straight, 2 hole fixing, solder bucket, female centre contact
05-03	Connector, fixed, single hole, front mounting, solder bucket, female centre contact
06-02	Connector, free, straight, cable outlet, male centre contact
07-03	Connector, fixed, straight, single hole, rear mounting, cable outlet, female centre contact

[Appendix A.4 contd.]

Style reference number	Description
08-02	Connector, free, right angle, cable outlet, male centre contact
09-03	Connector, fixed, straight, 2 hole fixing, cable outlet, female centre contact
10-03	Connector, fixed, right angle, 4 hole fixing, solder bucket, female centre contact
13-02	Connector, fixed, straight, printed board mounting, male centre contact
13-03	Connector, fixed, straight, printed board mounting, female centre contact
14-02	Connector, fixed, right angle, printed board mounting, male centre contact
14-03	Connector, fixed, right angle, printed board mounting, female centre contact
15-04	Adaptor connector, free, straight, two male centre contacts
15-05	Adaptor connector, free, straight, two female centre contacts
15-08	Adaptor connector, free, straight, one male, one female centre contacts
16-08	Adaptor connector, free, right angle, one male, one female centre contacts
18-05	Adaptor connector, fixed, straight, single hole mounting, two female centre contacts
24-03	Connector fixed, straight, component mounting, 4-hole fixing, female centre contact
25-03	Connector fixed, straight, component mounting, 2-hole fixing, female centre contact
26-03	Connector, fixed, single hole, rear mounting, solder bucket, female centre contact
36-03	Connector, fixed, straight, threaded body, front or rear mounting, female centre contact
98-12	Cover protective, for connector fixed and connector coupler free
99-12	Cover protective, for connector free

[Appendix A.5

A.5 Listing of connector variants

Connector variant	Cables BS 2136/URM No.	Cables based on MIL-C-17 RG No. (for information only)
Matched		
AB	110	178 B/U 404 /U
AC	95	
AE	109 116	316 /U 174 A/U
AH	72 108	303 /U
AJ	43 76	58 C/U
AK	-	142 B/U* 223 /U 400 /U
PK	-	RG 405/U*
PM	-	RG 402/U*
PO	-	†
KK	Stub contact (circular cross section)	
YY	For coding not applicable	
ZZ	Solder bucket (for equipment wire)	

*These cables are required for testing variants AK, PK and PM as there are no equivalent British Standard cables.

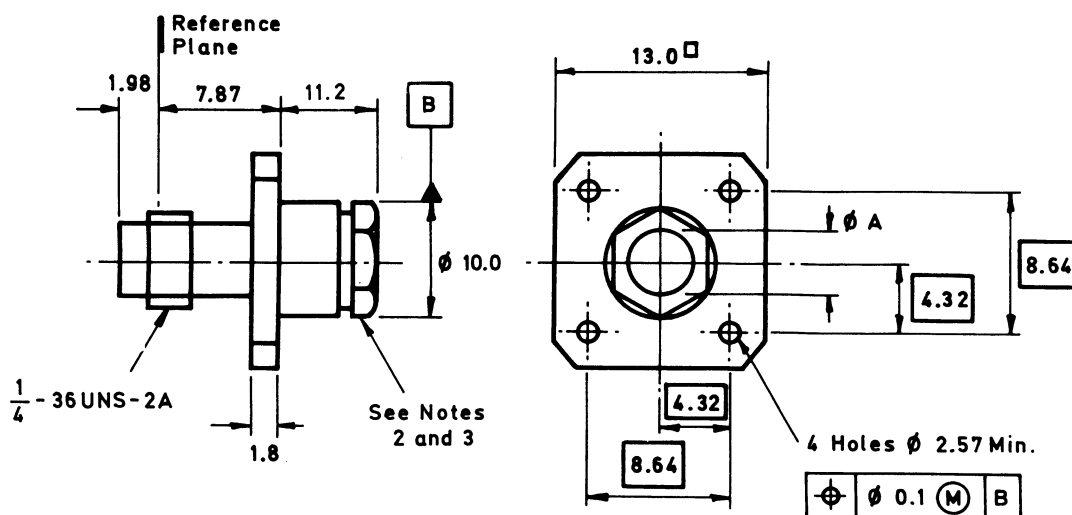
†The variant designator PO is for use with a semi-rigid cable employing a microporous dielectric. There is currently no BS 2316 or MIL-C-17 specification for this cable.

[Appendix A.5 Style 00-03]

Style 00-03

(Flexible cable)

Connector fixed, straight, 4 hole fixing, cable outlet, female centre contact



NOTE 1. The body is to accommodate the captive contact and the means of terminating and retaining the cable.

NOTE 2. Flats are to be suitable for open-ended wrenches in accordance with BS 192.

NOTE 3. Flats or hexagon profile.

Variant	$\phi A \text{ min.}$	Working voltage		Proof voltage	
		Sea level	At 20 km (44 mbar)	Sea level	At 20 km (44 mbar)
AB	2.05	170 V	45 V	510 V	125 V
AC	2.75	250 V	65 V	750 V	150 V
AE	3.05	250 V	65 V	750 V	150 V
AH	4.80	335 V	85 V	1 kV	200 V
AJ	5.25	335 V	85 V	1 kV	200 V
AK	5.60	335 V	85 V	1 kV	200 V

[Appendix A.5 Style 00-03 contd.]

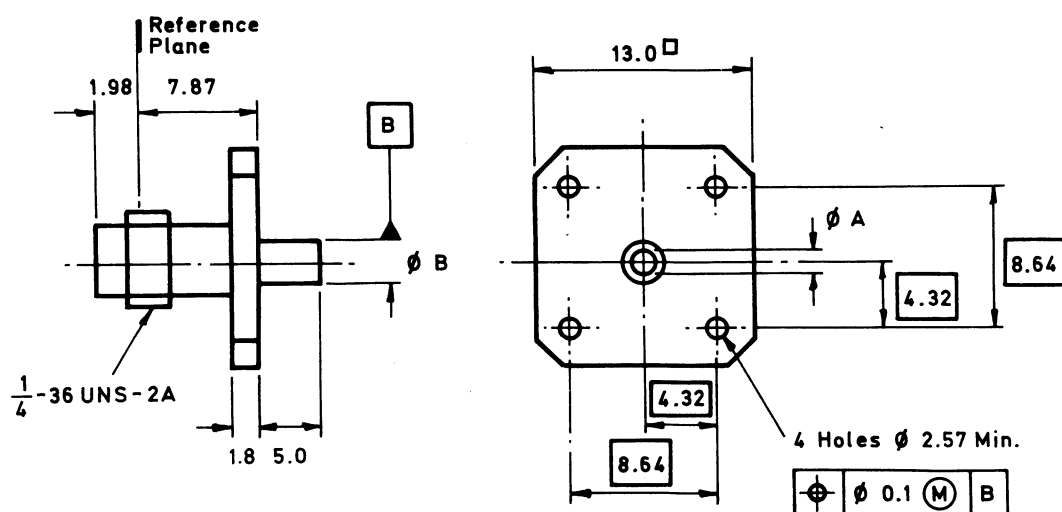
Ratings (including limiting conditions of use) and characteristics

Nominal characteristic impedance	50 Ω
Reflection factor (max.)	0.09 + 0.01f over frequency range 2 GHz to 12.4 GHz
VSWR (max.)	1.2 + 0.03f over frequency range 2 GHz to 12.4 GHz
Working voltage (d.c. or a.c. peak)	
(a) At sea level	) See table and A.3
(b) At altitude of 20 km (44 mbar)	
Proof voltage (d.c. or a.c. peak)	
(a) At sea level	) See table and A.3
(b) At altitude of 20 km (44 mbar)	
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm) crossover at approximately 98 m/s ²) 60 Hz
(c) Acceleration	
(d) Duration	6 h
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/155/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m

Style 00-03

(Semi-rigid cable)

Connector fixed, straight, 4 hole fixing,
cable outlet, female centre contact



NOTE. For use with semi-rigid cable.

Variant	ϕA min.	ϕB max.	Working voltage		Proof voltage	
			Sea level	At 20 km (44 mbar)	Sea level	At 20 km (44 mbar)
PK	2.23	4.0	250 V	65 V	750 V	150 V
PM	3.63	5.4	335 V	85 V	1 kV	200 V
PO	3.63	5.4	335 V	85 V	1 1V	200 V

[Appendix A.5 Style 00-03 contd.]

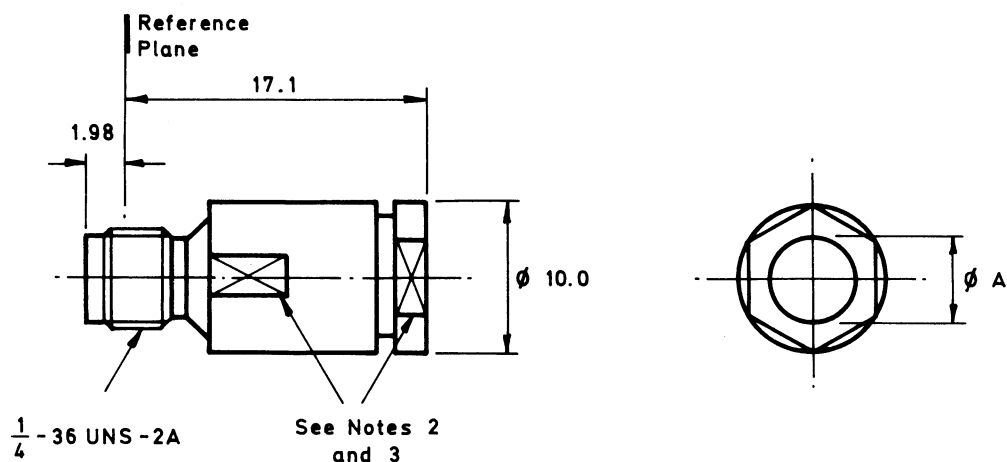
Ratings (including limiting conditions of use) and characteristics

Nominal characteristic impedance	50 Ω
Reflection factor (max.)	0.034 + 0.004f over frequency range 2 GHz to 18 GHz
VSWR (max.)	1.07 + 0.01f over frequency range 2 GHz to 18 GHz
Working voltage (d.c. or a.c. peak)	
(a) At sea level	)
(b) At altitude of 20 km (44 mbar)	)
	See table and A.3
Proof voltage (d.c. or a.c. peak)	
(a) At sea level	)
(b) At altitude of 20 km (44 mbar)	)
	See table and A.3
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm) crossover at
(c) Acceleration	98 m/s ²) approximately 60 Hz
(d) Duration	6 h
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/105/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m

Style 01-03

(Flexible cable)

Connector coupler, free, straight, cable outlet, female centre contact



NOTE 1. The body is to accommodate the captive contact (for use with flexible cable) and the means of terminating and retaining the cable.

NOTE 2. Flats are to be suitable for open-ended wrenches in accordance with BS 192.

NOTE 3. Flats or hexagon profile.

Variant	$\varnothing A$ min.	Working voltage		Proof voltage	
		Sea level	At 20 km (44 mbar)	Sea level	At 20 km (44 mbar)
AB	2.05	170 V	45 V	510 V	125 V
AC	2.75	250 V	65 V	750 V	150 V
AE	3.05	250 V	65 V	750 V	150 V
AH	4.80	335 V	85 V	1 kV	200 V
AJ	5.25	335 V	85 V	1 kV	200 V
AK	5.6	335 V	85 V	1 kV	200 V

[Appendix A.5 Style 01-03 contd.]

Ratings (including limiting conditions of use) and characteristics

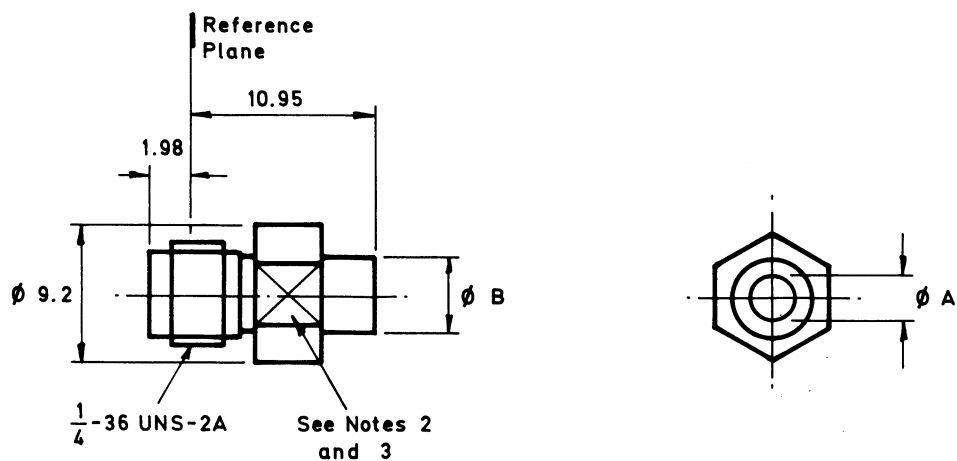
Nominal characteristic impedance	50 Ω
Reflection factor (max.)	0.09 + 0.01f over frequency range 2 GHz to 12.4 GHz
VSWR (max.)	1.2 + 0.03f over frequency range 2 GHz to 12.4 GHz
Working voltage (d.c. or a.c. peak)	
(a) At sea level	)
(b) At altitude of 20 km (44 mbar)	)
	See table and A.3
Proof voltage (d.c. or a.c. peak)	
(a) At sea level	)
(b) At altitude of 20 km (44 mbar)	)
	See table and A.3
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm)
(c) Acceleration	98 m/s ²)
(d) Duration	6 h
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/155/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m

[Appendix A.5 Style 01-03 contd.]

Style 01-03

(Semi-rigid cable)

Connector coupler, free, straight, cable outlet, female centre contact



NOTE 1. For use with semi-rigid cables.

NOTE 2. Flats are to be suitable for open-ended wrenches in accordance with BS 192.

NOTE 3. Flats or hexagon profile.

Variant	ϕA min.	ϕB max.	Working voltage		Proof voltage	
			Sea level	At 20 km (44 mbar)	Sea level	At 20 km (44 mbar)
PK	2.23	4.0	250 V	65 V	750 V	150 V
PM	3.63	5.4	335 V	85 V	1 kV	200 V
PO	3.63	5.4	335 V	85 V	1 kV	200 V

[Appendix A.5 Style 01-03 contd.]

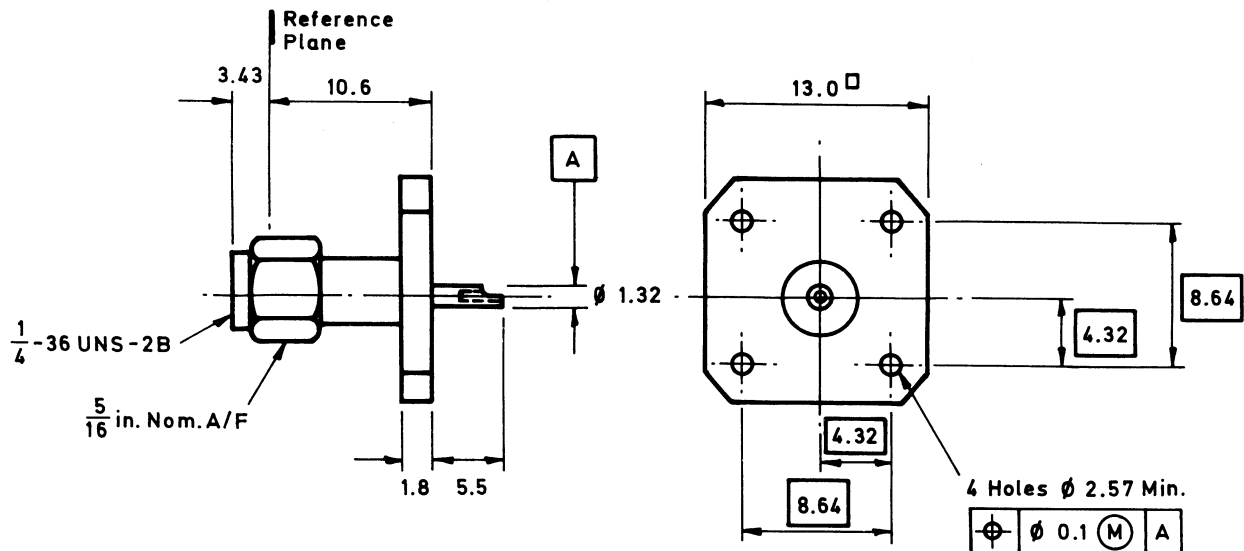
Ratings (including limiting conditions of use) and characteristics

Nominal characteristic impedance	50 Ω
Reflection factor (max.)	0.034 + 0.004f over frequency range 2 GHz to 18 GHz
VSWR (max.)	1.07 + 0.01f over frequency range 2 GHz to 18 GHz
Working voltage (d.c. or a.c. peak)	
(a) At sea level	)
(b) At altitude of 20 km (44 mbar)	)
	See table and A.3
Proof voltage (d.c. or a.c. peak)	
(a) At sea level	)
(b) At altitude of 20 km (44 mbar)	)
	See table and A.3
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm) crossover at
(c) Acceleration	98 m/s ²) approximately
(d) Duration	6 h
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/105/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m



Style 02-02-ZZ

Connector fixed, straight, 4 hole fixing, solder bucket, male centre contact



NOTE. Solder bucket to accommodate at least one conductor 0.64 diameter.
Orientation of bucket optional.

[Appendix A.5 Style 02-02-ZZ contd.]

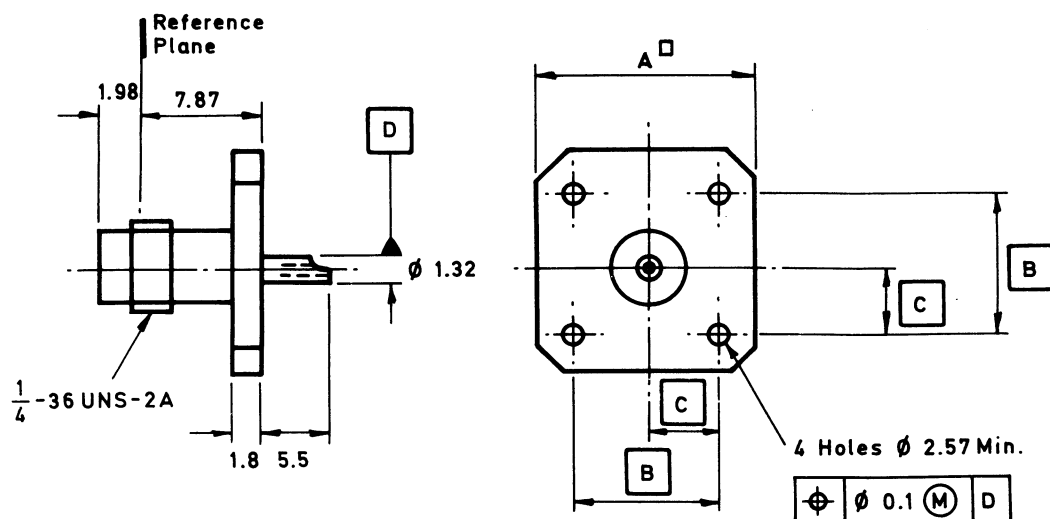
Ratings (including limiting conditions of use) and characteristics

Nominal characteristic impedance	50 Ω
Reflection factor (max.)	Not measured
VSWR (max.)	Not measured
Working voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	335 V
(b) At altitude of 20 km (44 mbar)	85 V
Proof voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	1000 V
(b) At altitude of 20 km (44 mbar)	250 V
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm) crossover at
(c) Acceleration	98 m/s ²) approximately
(d) Duration	60 Hz
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/155/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m

[Appendix A.5 Style 02-03-ZZ

Style 02-03-ZZ

Connector fixed, straight, 4 hole fixing, solder bucket, female centre contact



NOTE. Solder bucket to accommodate at least one conductor 0.64 diameter.
Orientation of bucket optional.

Variant	A max.	B	C
01	13.0	8.64	4.32
02	17.7	12.8	6.4
03	25.5	18.3	9.15

[Appendix A.5 Style 02-03-ZZ contd.]

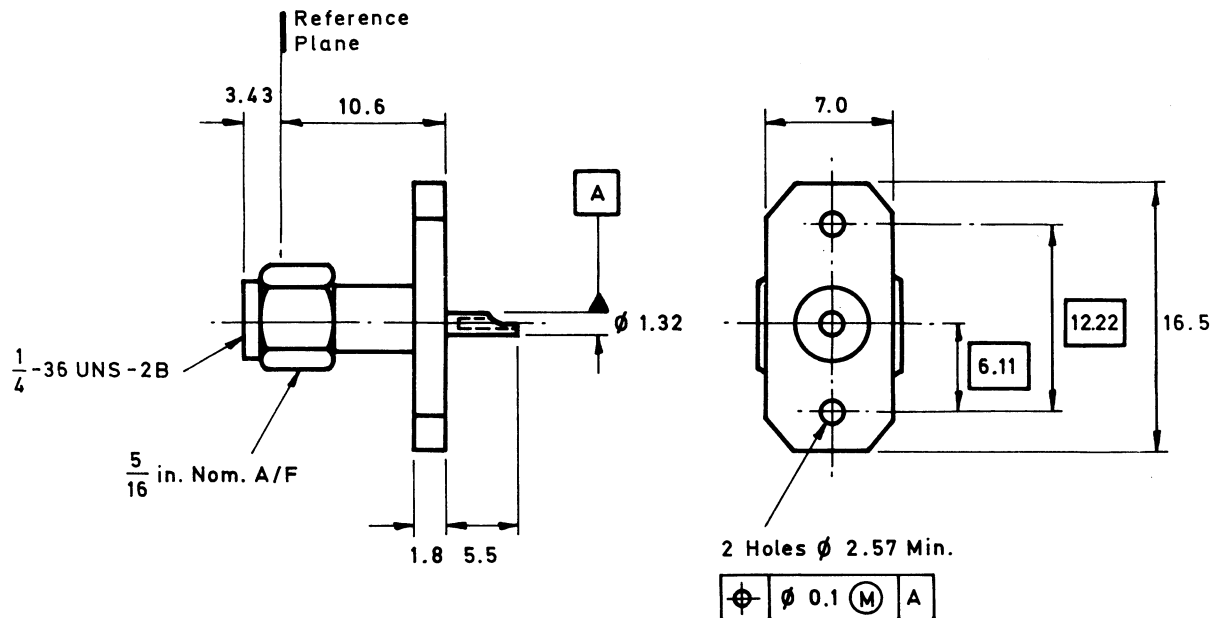
Ratings (including limiting conditions of use) and characteristics

Nominal characteristic impedance	50 Ω
Reflection factor (max.)	Not measured
VSWR (max.)	Not measured
Working voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	335 V
(b) At altitude of 20 km (44 mbar)	85 V
Proof voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	1000 V
(b) At altitude of 20 km (44 mbar)	250 V
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm) crossover at
(c) Acceleration	98 m/s ²) approximately
(d) Duration	6 h
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/155/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m

[Appendix A.5 Style 03-02-ZZ

Style 03-02-ZZ

Connector fixed, straight, 2 hole fixing, solder bucket, male centre contact



NOTE. Solder bucket to accommodate at least one conductor 0.64 diameter.
Orientation of bucket optional.

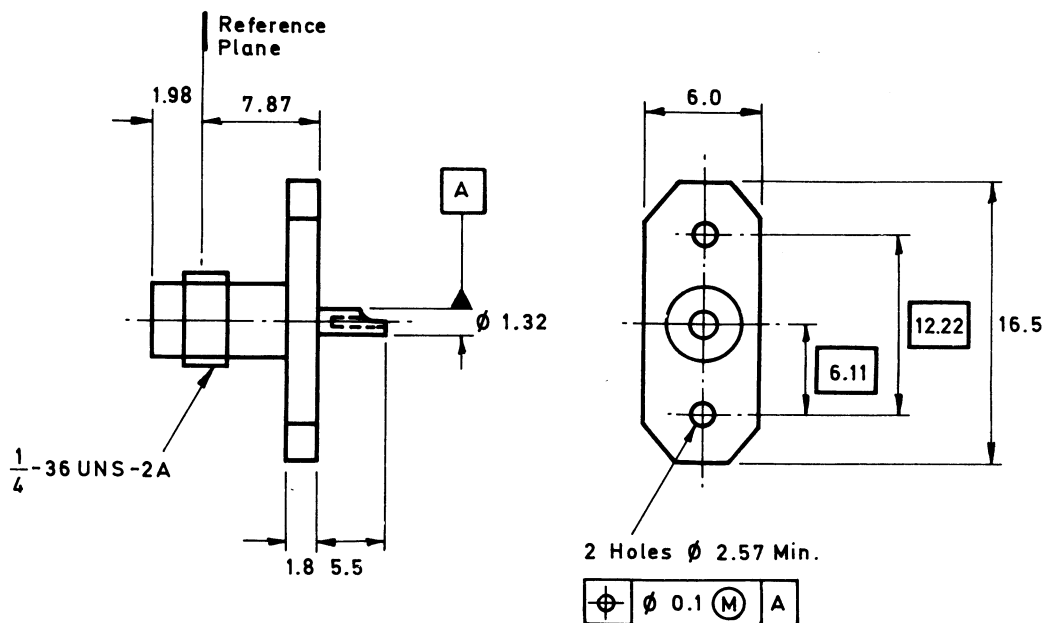
[Appendix A.5 Style 03-02-ZZ contd.]

Ratings (including limiting conditions of use) and characteristics

Nominal characteristic impedance	50 Ω
Reflection factor (max.)	Not measured
VSWR (max.)	Not measured
Working voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	335 V
(b) At altitude of 20 km (44 mbar)	85 V
Proof voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	1000 V
(b) At altitude of 20 km (44 mbar)	250 V
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm) crossover at
(c) Acceleration	98 m/s ²) approximately
(d) Duration	6 h
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/155/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m

Style 03-03-ZZ

Connector fixed, straight, 2 hole fixing, solder bucket, female centre contact



NOTE. Solder bucket to accommodate at least one conductor 0.64 diameter.
Orientation of bucket optional.

[Appendix A.5 Style 03-03-ZZ contd.]

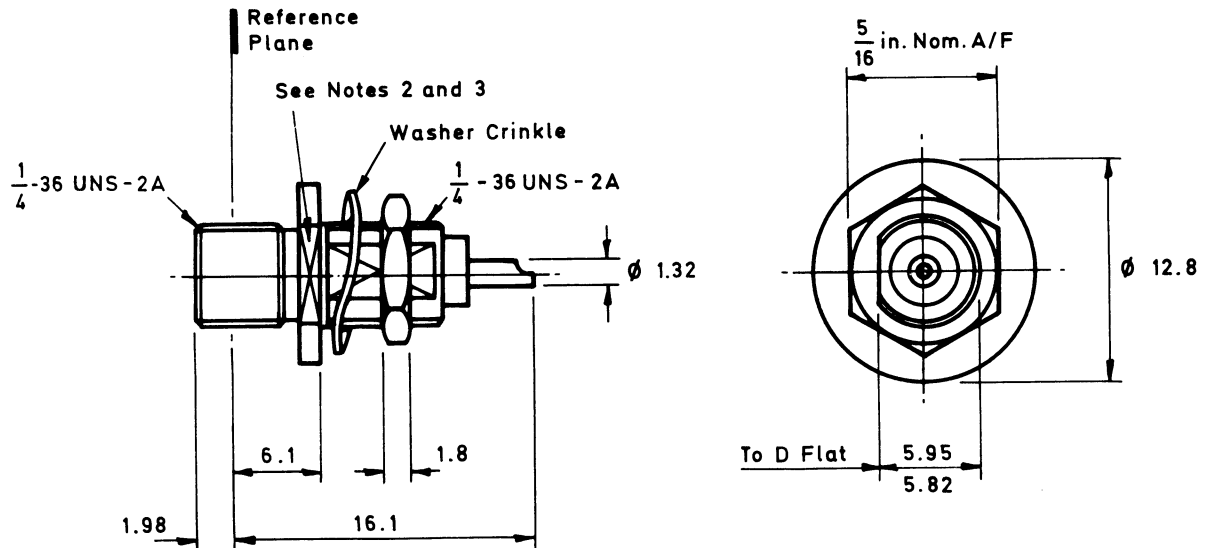
Ratings (including limiting conditions of use) and characteristics

Nominal characteristic impedance	50 Ω
Reflection factor (max.)	Not measured
VSWR (max.)	Not measured
Working voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	335 V
(b) At altitude of 20 km (44 mbar)	85 V
Proof voltage (d.c. or a.c. peak)	See A.3
(a) At sea level	1000 V
(b) At altitude of 20 km (44 mbar)	250 V
Current rating d.c. (max.)	0.25 A
Contact resistance (max.)	
(a) Before conditioning	3 m Ω
(b) After conditioning	8 m Ω
Outer conductor continuity (max.)	
(a) Before conditioning	2 m Ω
(b) After conditioning	7 m Ω
Insulation resistance (min.)	
(a) Before conditioning	5 G Ω
(b) After conditioning	200 M Ω
Vibration severity	
(a) Frequency range	10 Hz to 2 kHz
(b) Displacement	0.75 mm) crossover at
(c) Acceleration	98 m/s ²) approximately 60 Hz
(d) Duration	6 h
Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category	55/155/21
Impact severity (free specimens only)	Five impacts at 1 m
Engagement and separation torque	0.25 N.m max.
Normal coupling torque	0.8 N.m to 1.1 N.m
Proof coupling torque	1.65 N.m

[Appendix A.5 Style 05-03-ZZ

Style 05-03-ZZ

Connector fixed, single hole, front mounting, solder bucket, female centre contact



NOTE 1. Solder bucket to accommodate at least one conductor 0.64 diameter.
Orientation of bucket optional.

NOTE 2. Flats to be suitable for open-ended wrenches in accordance with BS 192.

NOTE 3. Flats or hexagon profile.

[Appendix A.5 Style 05-03-ZZ contd.]