

Detail specification for multi-contact two-part printed board electrical connectors

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 52, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date of issue	Comments
4276	May 1983	
6856	June 1992	Indicated by a sideline in the margin

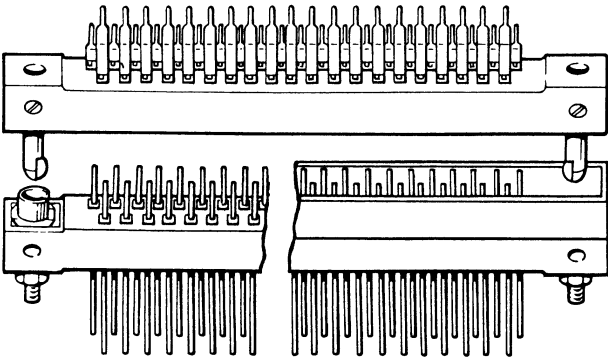
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ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH BS 9520	MANUFACTURER'S TYPE NUMBER See PD 9002 For ordering information see clause 5
TYPICAL CONNECTORS  For marking information see clause 4 For outline drawings see A.2	MULTI-CONTACT TWO-PART PRINTED BOARD ELECTRICAL CONNECTORS^a ENVIRONMENTAL CATEGORY 55/125/56 FULL PLUS ADDITIONAL ASSESSMENT (See also note to clause 3)
^a See also clause 3 of this specification.	

1 Pattern number

The specification number without the letters BS is used as the pattern number. This range of connectors is known as Pattern 9525 N0001.

2 Related documents

BS 1407, *High carbon bright steel (silver steel).*

BS 4393, *Tin or tin-lead coated copper wire.*

BS 5310, *Hand crimping tools for the termination of electrical cables and wires for low frequency and radio frequency applications.*

BS 6001, *Sampling procedures and tables for inspection by attributes.*

BS 9000, *General requirements for electronic components of assessed quality.*

Refer to Qualified Products List PD 9002 for details of manufacturers approved to this specification.

BS 9520, *Electrical connectors of assessed quality for frequencies below 3 MHz: generic data and methods of test.*

BS 9525, *Rules for the preparation of detail specifications for multi-contact 2-part PB connectors.*

PD 9002, *BS 9000 component selection guide.*

BS G 210, *PTFE insulated equipment wires (with silver plated copper conductors).*

3 Description of connector and intended application

Multi-contact two-part connectors, unsealed, environment resistant with parallel and/or perpendicular mounting for printed boards of nominal thickness of 1.60 mm and 3.20 mm, where the contacts are arranged in two rows spaced 2.54 mm apart. In each row, the contact pitch is 2.54 mm and the contacts of one row are offset 1.27 mm relative to those of the other row. Male contacts have a nominal diameter of 0.6 mm, and the available contact termination styles are listed in clause 4. Contact finish is hard acid gold alloy.

Contacts and guides used in this range of connectors are replaceable but not interchangeable between different manufacturers' connectors. Any replacement of contacts and guides shall only be by contacts and guides supplied by the original manufacturer.

Performance of connectors complying with this specification is only assessed with mated pairs from the same manufacturer. The method of contact removal and replacement and the tools required depend on the design of the individual connectors (see PD 9002 (in which are listed manufacturers' factory codes) and also 4.3 of this specification).

Male contact connectors are available as a variant with integrally moulded shrouds for contact protection. Separately moulded shrouds for the same purpose with other variants up to 96 ways are available as accessories.

Fixed and floating-bush mounting styles are available, but connectors with floating bush mountings are not intended to be mated together and are unsuitable also for through-board solder applications.

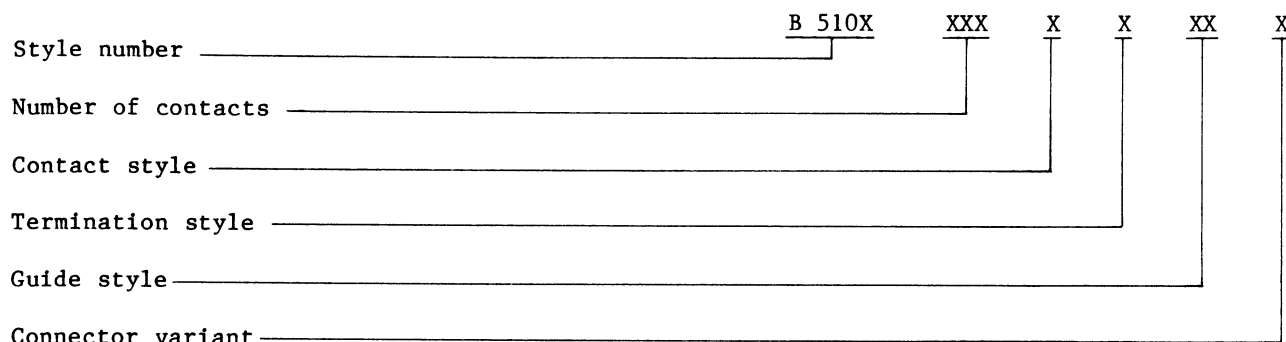
Polarizing and guiding are achieved by means of male and female guides. Male guides are provided with a key and female guides with a corresponding keyway. The key and keyway may be orientated by the user to any one of six angular positions of 60°. The combination of the six positions of each guide allows 36 polarizing positions in each connector. Connectors with 72 or more contacts have an additional central guide, normally plain but a polarized guide is available as a variant making available 216 polarizing positions. Mirror image combinations which may cause contact damage are non-preferred, e.g. 1D, 3F, 5B, 2E, 4A and 6C etc. (see A.1).

Alternatively, the complete range of connectors is available with non-polarizing guides, jack screws or quarter-turn locking guides in place of polarizing guides. Quarter-turn locking guides have four preferred polarizing positions in the unlocked conditions, namely F6, D2, C5 and A5.

NOTE Full plus additional assessment includes salt mist and industrial atmosphere tests applied to specimens which have been subjected to the 1 000 h high temperature endurance test.

4 Marking of the component and package

4.1 Connector reference numbers. The marking shall be in accordance with 1.1.6 of BS 9520. The individual reference number required by 1.1.6 3) of BS 9520 consists of abbreviations to identify individual connectors or accessories in accordance with 4.1 and 4.2.



Style number: B 5100 (fixed connector) or B 5101 (free connector). As in A.1.2 (see also 10.1 and 10.2).

Number of contacts: Three digits denoting the number of contact positions as shown on the appropriate outline drawing in A.1.3.

Contact style: M = male contact. F = female contact.

Termination style:

- C = crimp.
- L = through-board solder (90°).
- E = through-board solder (90°, extra long tail).
- S = solder for wire.
- T = through-board solder.
- V = solder for double-sided board, edge mounted.
- W = wire wrap (3 wraps).
- Z = wire wrap (2 wraps).
- H = hybrid arrangement to user's requirement.
- M = flexible circuit-through board solder-straight

Guide style: Two digits. As in A.2.

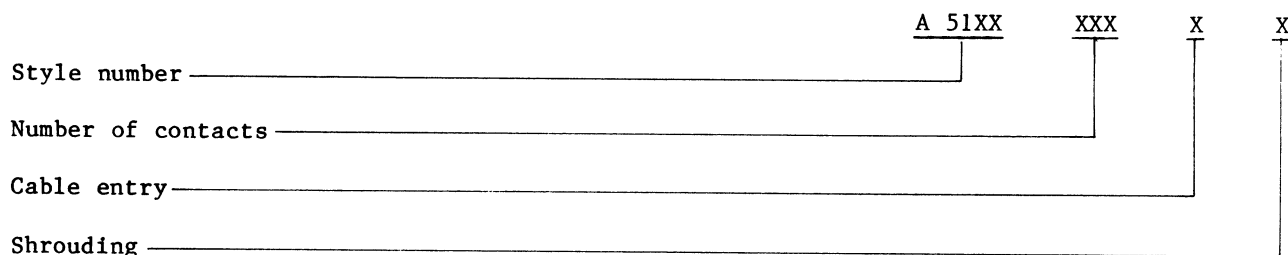
00 = connector supplied without guides.

Connector variant:

- 0 = stainless steel guides/jack screws and mountings.
- 1 = nickel plated guides/jack screws and mountings.
- 2 = as in 1 above but with an integral stiffening bar (for 72, 84, 96 and 120 way connectors only).
- 3 = as in 1 above but with integral moulded contact shroud and with the centre guide polarized.
- 4 = as in 0 above but centre guide polarized
- 5 = as in 1 above but centre guide polarized
- 6 = as in 9 below but centre guide polarized
- 7 = as in 1 above but with integral moulded shroud.
- 8 = as 0 above but with integral stiffening bar for 72, 84, 96 and 120 way connectors only.
- 9 = as 0 above but with integral moulded contact shroud.

Example reference numbers: B 5100 120 M S 22 1)
B 5101 120 F L 61 1) typical mating pair.

4.2 Accessory reference numbers. The individual reference numbers consist of abbreviations as follows:



Style number: A 5117 (shrouds) or A 5118 (covers) (see also **A.3.1** and **A.3.3**).

Number of contacts: Quoted for shrouds (96 way max.) and covers (65 way max.). Three digits as in **A.1.3**.

Cable entry: Quoted for covers only. One letter as follows. (See also **A.3.3**.)

- A = top entry for round cable
- B = top entry for flat cable
- C = side entry for round cable

Shrouding: Quoted for covers only. A digit as follows. (See also **A.3.3**.)

- 1 = contacts unshrouded
- 2 = contacts fully shrouded
- 3 = contacts shrouded one side only

Example reference numbers: A 5118 084 B1, A 5117 053

4.3 Packaging. Packaging shall include the manufacturer's full instructions for assembly and contact removal/replacement including details of special tools required. Packages of replacement parts shall also include an outline drawing showing salient dimensions.

5 Ordering information

The following information shall be given when ordering connectors complying with the requirements of this detail specification:

- a) The number of this detail specification, i.e. BS 9525 N0001, Issue 2.
- b) The individual (type) reference number as described in clause 4.
- c) Details of markings which may be required in addition to that specified in clause 4.
- d) Details of any special requirements, e.g. contact omission plans, centre guide polarizing position, etc.

When ordering replacement contacts and/or guides they shall only be obtained from the manufacturer who supplied the appropriate original parts. They shall be identified by reference to the manufacturer's factory identification code. As the technical standard has not changed between this issue and the previous issue it shall be permitted for items to be marked with Issue 1 part numbers as shown in Appendix G. This arrangement exists for maintenance use only and not for new designs in which case the Issue 2 style reference numbers quoted herein shall apply.

6 Outline drawings

See Appendix A for the following.

A.1 Compatibility chart, typical assembly arrangements, contact arrangements and polarization

A.2 Outline drawings, panel/board preparation, polarizing/jacking styles, mounting and mass

A.3 Accessories

A.4 Test board details and dimensions

A.5 Gauges

NOTE Outline drawings include a cross-reference to the relevant National Supervising Inspectorate control drawings, which will also include details of individual manufacturer's approved replacement contacts and tools.

7 Ratings

7.1 Electrical

7.1.1 Current

- a) Maximum current per individual contact (in isolation)¹⁾:
 - at 85 °C ambient temperature: 1.5 A
- b) Maximum current per contact through all contacts simultaneously:
 - at 25 °C ambient temperature: 3 A
 - at 85 °C ambient temperature: 1 A

The performance of any connector listed in this specification shall at all times exceed the maximum continuous rating of the appropriate printed board and the bunched rating of the appropriate wire or cable of equivalent temperature rating, and this rating shall be the determining factor.

7.1.2 Voltage

- a) Working voltage (nominal)^a d.c. or a.c. peak:
 - at sea level (1 013 mbar^b): 170 V
- b) Proof voltage d.c. or a.c. peak:
 - at sea level (1 013 mbar) : 1 000 V
 - at 8 500 m (300 mbar) : 250 V

^a Establishment of electrical safety factors is the responsibility of the user.

^b 1 mbar = 10 Nm = 100 Pa.

7.2 Environmental

Environmental classification	55/125/56
Low air pressure severity	300 mbar
Vibration severity	10 Hz to 2 000 Hz, 0.75 mm/98 m/s ² (10 g _n) Duration = 6 h
Bump severity	390 m/s ² (40g _n), 4 000 ± 10 bumps
Shock severity	490 m/s ² (50g _n), for 11 ms
Acceleration severity	490 m/s ² (50g _n)

7.3 Endurance

Mechanical operation	500 operations ^a
Electrical load and temperature, long term [current as in 7.1.1 b)]	1 000 h at 85 °C
Electrical load and temperature, short term (no electrical load)	250 h at 125 °C

^a Initial 10 % of operations using jack screws or quarter-turn locking guides if incorporated.

8 Characteristics

8.1 Connector and accessory range (see A.1, A.2 and A.3)

Electrical

Maximum contact resistance (initially)	10 mΩ
Maximum contact resistance (after conditioning)	15 mΩ
Minimum insulation resistance (initially)	5 GΩ
Minimum insulation resistance (hot and after conditioning)	100 MΩ

¹⁾ That is, when only one contact per connector is electrically loaded.

8.3 Mechanical. Engaging and separating force, connector

Number of contact pairs	Force	
	N max.	N min.
17	17	3.4
29	29	5.8
33	33	6.6
41	41	8.2
53	53	10.6
65	65	13.0
72	72	14.4
84	84	16.8
96	96	19.2
120	120	24.0

Contact retention (in moulding)

Terminations:

C, L, S, T, E and V 20 N initially
 18 N after insert ageing

W and Z 30 N initially
 27 N after insert ageing

Contact holding force 0.15 N minimum

Crimp barrel accommodation

Number and nominal diameter of wires ^a mm	CMA (nominal)
19/0.15	663
7/0.20	434
7/0.15	244
^a Stranded copper wires in accordance with BS G 210.	

NOTE CMA (circular mil area) is defined as the area of a circle having a diameter of one mil (0.001 in). The value quoted here are derived from the formula d^2n , where:

d is the nominal diameter of each wire in mils;

n is the number of individual wires in the conductor.

Wire wrap terminations

Maximum wire diameter 0.4 mm

8.4 Fluid resistance. The connectors are resistant to the following fluids.

Isopropanol; 1,1,2-trichloro trifluoroethane; 1,1,1-trichloroethane and trichloroethylene

9 Certified test records

Certified test records (CTRs) shall be prepared in accordance with 1.1.11 of BS 9520.

10 Additional information

10.1 Connector styles. A fixed connector is rack or mother board mounted, having female guides and male or female contacts. Contact cavity identification is by numbers from right to left when viewing the mating face; the reference place being at the base (see **A.1.2**).

A free connector is cable or daughter board mounted, having male guides and male or female contacts. Contact cavity identification is by numbers from left to right when viewing the mating face; the reference plane being at the base (see **A.1.2**).

A coupler connector replaces a fixed connector in a daughter-to-daughter board mounted application, has female guides and male or female contacts. Contact cavity identification is by numbers from right to left when viewing the mating face: the reference plane being at the base (see **A.1.2**).

Connectors are supplied with guides polarized at positions 1 and A or quarter-turn locking guides polarized at positions F and 6 in the unlocked condition (see also **A.1.2**).

10.2 Reverse (non-preferred) contact identification. Connectors supplied in accordance with this specification are also available with male guides fitted in fixed connectors and female guides in free connectors. This is defined as reverse contact identification but it is NON-STANDARD and ELECTRICAL MIS-MATING can occur. Connectors having this system of contact identification should be used only for replacement or maintenance purposes (see also **A.1.2**).

11 Quality assessment procedure

Group C tests need not be carried out for Qualification Approval or when subsequent group D tests are performed.

12 Inspection requirements

Samples subjected to tests marked “(D)” shall not be accepted for release under BS 9000 (see **2.6.5** of BS 9000-1:1971).

Unless otherwise specified herein, tests shall be performed at an ambient temperature between 15 °C and 35 °C.

The assemblies shall be in accordance with the manufacturer's instructions. Polytetrafluoroethylene (PTFE) extruded insulation equipment wire in accordance with BS G 210 shall be used. Manufacturers supplying crimp contacts shall show the National Supervising Inspectorate (NSI) that all contact, conductor and crimp tooling combinations are satisfactory before commencing Qualification Approval testing.

NOTE Where practicable, connectors should be mounted on the test boards prescribed in **A.3**.

To ensure that the wiring/mounting operation has been carried out satisfactorily, it is advisable to apply insulation resistance and contact resistance tests.

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
GROUP A	To be applied on a sampling basis lot-by-lot except subgroup A0 Subgroups A2 and A3 are not applicable Insertable contacts need not be fitted unless required for test	
<u>Subgroup A0</u> Visual examination	<u>100 % inspection</u> 1.2.2 1)	As in 1.2.2 1)
<u>Subgroup A1</u> Visual examination	<u>Inspection level S-3, AQL 1.5 %</u> 1.2.2 2)	As in 1.2.2 2)
<u>Subgroup A4</u> Voltage proof ^a	<u>Inspection level S-3, AQL 1.5 %</u> 1.2.4.4 Method B. Voltage as in 7.1.2 b) of this specification. Duration 5 s	As in 1.2.4.4
<u>Subgroup A5</u> CTR information	1.1.11 The result from the test in subgroup A1 shall be reported as attributes information	

^a This test may be carried out with connectors mated.

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
GROUP B	To be applied on a sampling basis lot-by-lot Subgroups B3 to B7 not applicable Connectors shall have all contacts fitted and wired when required for test	
<u>Subgroup B1</u>	<u>Inspection level S-4, AQL 1 %</u>	
Gauging procedure	1.2.3.3 2)	As in 1.2.3.3 2)
Insulation resistance ^a	1.2.4.3 Method B, (500 ± 50 V)	5 GΩ min.
Engaging and separating force, connector ^b	1.2.5.2 Force as in 8.3 of this specification	As in 1.2.5.2
Contact holding force	1.2.5.8 After 3 sizings using gauge prescribed in A.4 of this specification	As in 1.2.5.8
<u>Subgroup B2 (D)^c</u>	<u>Inspection level S-4, AQL 4 %</u>	
Solderability ^d	Samples from subgroup B1 may be used 1.2.6.6.1 Solder bath method for termination styles L, E, T, V, W and Z. Soldering iron method for termination style S. Size B. Application time 3 s	Satisfactory tinning
Contact resistance	1.2.4.1 1) Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only	10 mΩ max.
Contact retention (in insert)	1.2.5.3 Force as in 8.3 of this specification	As in 1.2.5.3
<u>Subgroup B8</u>		
CTR information	1.1.11 Results from the tests in subgroups B1 and B2 shall be reported as attributes information	
^a This test may be carried out with connectors mated. ^b Not applicable to connectors having jack screws or quarter-turn locking guides. ^c This test subgroup is destructive unless contacts which have been tested are replaced by new contacts prior to delivery of components. ^d Not applicable to connectors having termination style C.		

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
GROUP C	To be applied on a sampling basis at three-monthly intervals Subgroups C2 and C4 are not applicable The issue number of the manufacturing drawing shall be checked against that on the approval certificate	
<u>Subgroup C1</u>	<u>Inspection level S-3, AQL 1 %</u>	
Dimensions, outline	1.2.3.1	As in 1.2.3.1
<u>Subgroup C3 (D)</u>	<u>Inspection level S-3, AQL 4 %</u>	
	Samples from subgroup C1 may be used	
Contact resistance	1.2.4.1 1) Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only	10 mΩ max.
Rapid change of temperature	1.2.6.7 – 55 °C to + 125 °C	
Damp heat, steady state	1.2.6.14 21 days. Working voltage as specified in 7.1.2 a) of this specification. Polarization voltage 60 V d.c.	
	1.2.6.14 1) i)	As in 1.2.6.14 1) i)
	After 1½ h to 2 h recovery	
<u>Final measurements</u>	1.2.6.14 2) a. Method B, (500 ± 50 V)	100 MΩ min.
	b.	As in 1.2.6.14 2)b)
	c. Not applicable	
	d. As in 1.2.4.1 1).	15 mΩ max.
	Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only	
	e. By hand	As in 1.2.6.14 2)e)
	f. Not applicable	
	g. Not applicable	
	h. Method B. voltage as in 7.1.2 b) of this specification	As in 1.2.6.14 2)h)

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
<u>Subgroup C3 (D)</u> (cont'd)		
Solderability ^a	1.2.6.6.1 Solder bath method for termination styles L, E, T, V, W and Z Soldering iron method for termination style S. Size B. Application time 3 s	Satisfactory tinning
<u>Subgroup C5 (D)</u>	<u>Inspection level S-3, AQL 4 %</u>	
Mechanical operation ^b	1.2.7.1 50 operations (at 15 operations per min maximum)	
Electrical load and temperature	1.2.7.2 250 h duration at 125 °C No electrical load During the conditioning the following measurements shall be made:	
Insulation resistance	1.2.4.3 Method B, (500 ± 50 V), mated, at 125 °C Measured 8 times at intervals of not less than 24 h After 1½ h to 2 h recovery	100 MΩ min.
<u>Final measurements</u>	Specimens shall be mated unless otherwise stated	
Contact resistance	1.2.4.1 1) Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only	15 mΩ max.
Voltage proof	1.2.4.4 Method B. Voltage as in 7.1.2 b) of this specification. Duration 5 s	As in 1.2.4.4
Engaging and separating force, connector	1.2.5.2 Forces as specified in 8.3 of this specification	As in 1.2.5.2
Visual examination	1.2.2 3) 1.2.2 4)	As in 1.2.2 3) As in 1.2.2 4)
^a Not applicable to connectors having termination style C. ^b Initial 10 % of operations shall be carried out using jack screws or quarter-turn locking guides if incorporated. Jack screws, where applicable, shall be operated evenly and progressively during engagement and separation.		

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
<u>Subgroup C6</u> CTR information	1.1.11 The results from the final measurements in subgroups C3 and C5 shall be reported as attributes information The final contact resistance and insulation resistance results of the tests in subgroups C3 and C5 and the minimum insulation resistance at upper category temperature in C5 shall be reported as measurements information	
GROUP D	To be applied at three-yearly intervals The issue number of the manufacturing drawing shall be checked and recorded	
<u>Subgroup D0</u> Dimension, detail and materials	Sample size: one specimen of each piece part of the connector range submitted for approval. Common piece parts need not be duplicated. No failure allowed 1.2.3.2	As in 1.2.3.2
<u>Subgroup D1</u> Dimensions, outline	For samples see Appendix C of this specification. No failure allowed 1.2.3.1	As in A.2 of this specification
Mass ^a	1.2.5.1 Including contacts	As in A.2 of this specification
Gauging procedure	1.2.3.3 1) See also Appendix C of this specification for the selection of samples of types within the range for submission to National Supervising Inspectorate for compatibility control 1.2.3.3 3)^b Using mating items	As in 1.2.3.3 1) As in 1.2.3.3 3)
^a This test shall be performed for initial Qualification Approval only. ^b This test is applicable to fixed polarized styles only.		

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
<u>Subgroup D2 (D)</u>	For samples see Appendix B of this specification. One failure allowed	
Insert (moulding) ageing	1.2.5.10 Five insertions and withdrawals for each of two contacts per connector using manufacturers' recommended tools. For all terminations other than style C, a replacement contact shall be used at each insertion. Contact retention forces initially and after ageing as in 8.3 of this specification	Maximum axial displacement under load (with contact retention forces after ageing) = 0.3 mm
Probe damage	1.2.5.9 Use tool and test probes specified in A.4.3 of this specification	As in 1.2.5.9
Robustness of terminations ^a	1.2.6.5 1) Not applicable	
	2) Termination style S only Applied force: 3 N	As in 1.2.6.5 2)
	3) Termination styles W and Z only. The post shall be wrapped with two wraps (style Z) or three wraps (style W), each having six complete turns of 0.4 mm diameter tin coated soft copper alloy wire to BS 4393	As in 1.2.6.5 3)
Termination torsion	Termination styles W and Z only. As in torsion Appendix D of this specification with an applied torque of 0.006 N m	There shall be no permanent damage to the moulding or termination other than a 15° maximum deflection when the torque is removed.
Solderability ^b	1.2.6.6.1 Including resistance to soldering heat	Satisfactory tinning
	Solder bath method for termination styles L, E, T, V, W and Z	No loosening of parts or other damage such as would impair performance
	Soldering iron method for termination style S. Size B. Application time 10 s	
^a Not applicable to connectors having contacts with termination styles C, L, T, E and V. ^b Not applicable to connectors having termination style C.		

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
<u>Subgroup D2 (D)</u> (cont'd)		
Torque overload (locking devices) ^a	As in Appendix E of this specification	As in Appendix E of this specification
Locking integrity ^b	As in Appendix F of this specification	As in Appendix F of this specification
<u>Subgroup D3 (D)</u>	For samples see Appendix B of this specification. One failure allowed	
Bump	1.2.6.1 390 m/s ² (40 g _n) 4 000 ± 40 bumps	As in 1.2.6.1
Vibration, general	1.2.6.2.1 Procedure A 10 Hz to 2 000 Hz, 0.75 mm/98 m/s ² (10g _n) Duration 6 h	As in 1.2.6.2.1
Shock	1.2.6.3 490 m/s ² (50g _n) Duration 11 ms	As in 1.2.6.3
Acceleration, steady state	1.2.6.4 490 m/s ² (50g _n)	As in 1.2.6.4
<u>Final measurements</u>		
Visual examination	1.2.2 4)	As in 1.2.2 4)
Contact resistance	1.2.4.1 1) Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only	15 mΩ max.
<u>Subgroup D4 (D)</u> <u>Subgroup D4(i)</u>	For samples see Appendix B of this specification. One failure allowed	
Rapid change of temperature	1.2.6.7 – 55 °C to 125 °C	As in 1.2.6.7
Climatic sequence (general)	1.2.6.11 Severity 55/125/56 No electrical load or electrical and mechanical checks during conditioning	
^a Applicable only to connectors having jack screws or quarter-turn locking guides. ^b Applicable only to connectors with male quarter-turn locking guides.		

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
<u>Subgroup D4(i)</u> (cont'd)	1.2.6.11 1) At -55°C 2) Not applicable 3) Voltage as in 7.1.2 b) of this specification of 300 mbar After $1\frac{1}{2}$ h to 2 h recovery	By hand As in 1.2.6.11 3)
<u>Final measurements</u>	1.2.6.11a i) Method B, $(500 \pm 50 \text{ V})$ ii) iii) Not applicable iv) As in 1.2.4.1 1) Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only v) vi) Not applicable vii) Method B Voltage as in 7.1.2 b) of this specification. Duration 5 s	100 MΩ min. As in 1.2.6.11a ii) 15 mΩ max. By hand As in 1.2.6.11a vii)
<u>Subgroup D4(ii)</u>	Sample size: one fixed and one free mating connector of the largest size for which approval is sought. Sample may be taken from subgroup D4(i). No failure allowed	
Flammability	1.2.6.8 Point of impingement of applied flame: any corner of mating face. Burning of visible flame 15 s max.	As in 1.2.6.8
<u>Subgroup D5 (D)</u>	For samples see Appendix B of this specification. One failure allowed	
Contact resistance	1.2.4.1 1) Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only	10 m Ω max.
Damp heat, steady state	1.2.6.14 Duration 56 days. Working voltage as in 7.1.2 a) of this specification. Polarizing voltage 60 V d.c.	

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
<u>Subgroup D5 (D)</u> (cont'd)		
	1.2.6.14 1) After 1½ h to 2 h recovery	As in 1.2.6.14 1)
<u>Final measurements</u>	1.2.6.14 2) a. Method B, (500 ± 50 V)	100 MΩ min.
	b.	As in 1.2.6.14 2)b
	c. Not applicable	
	d. As in 1.2.4.1 1) Measured at 1.5 mm from the rear face of the connector on termination styles W and Z only	15 mΩ max.
	e.	By hand
	f. Not applicable	
	g. Not applicable	
	h. Method B. Voltage as in 7.1.2 b) of this specification. Duration 5 s	As in 1.2.6.14 2)h
<u>Subgroup D6 (D)</u>	For samples see Appendix B of this specification. One failure allowed	
Mechanical operation ^a	1.2.7.1 500 operations (at 15 operations per min maximum)	
Electrical load and temperature	1.2.7.2 1 000 h Current as in 7.1.1 b) of this specification The temperature of the specimen shall be maintained and the following measurement made:	
Insulation resistance	1.2.4.3 Method B, (500 ± 50 V) mated, at 125 °C After 1½ h to 2 h recovery Specimens shall remain mated	100 MΩ min.
^a Initial 10 % of operations shall be carried out using jack screws or quarter-turn locking guides if incorporated. Jack screws, where applicable, shall be operated evenly and progressively during engagement and separation.		