

Specification for

Multi-contact edge socket electrical connectors —

**Single or double sided,
open ended, metal
fixing flanges, guide
key location,
replaceable contacts,
through-board solder
or wire wrap
terminations —
Full assessment level**

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 26 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	Comments

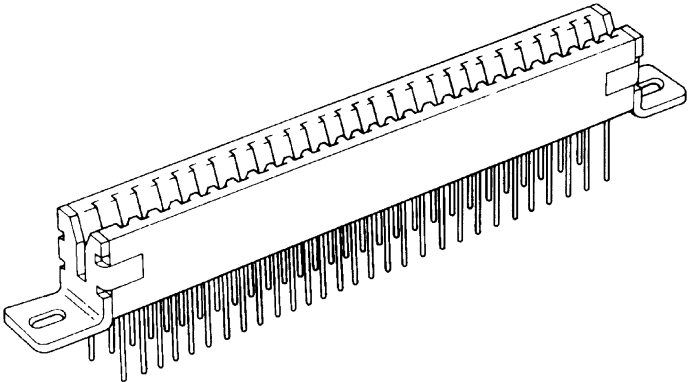
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ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH BS 9520	MANUFACTURER'S TYPE NUMBER See PD 9002 For order information see clause 5
TYPICAL CONNECTOR  For marking information, see clause 4. For outline drawings see A.1 and A.2.	MULTI-CONTACT EDGE SOCKET ELECTRICAL CONNECTORS SINGLE OR DOUBLE SIDED, OPEN ENDED WITH METAL FIXING FLANGES, GUIDE KEY LOCATION REPLACEABLE CONTACTS AND THROUGH BOARD SOLDER OR WIRE WRAP TERMINATIONS
	ENVIRONMENTAL CATEGORY 55/125/21
	FULL ASSESSMENT LEVEL

This specification shall be read in conjunction with BS 9520.

1 Pattern number

The specification number without the letters BS is used as the pattern number. This range of connectors is known as pattern 9526 N0002.

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

2 Related documents

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

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

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

BS 9526, *Rules for the preparation of detail specifications for electrical edge socket connectors of assessed quality — Full and basic assessment levels.*

PD 9002 BS 9000 component selection guide

3 Description of component and intended application

Multi-contact edge socket connectors with 2.54 mm contact spacing open ends and metal fixing flanges fitted. Intended for use with single or double sided printed boards of 1.42 mm to 1.80 mm thickness.

The connectors are available in sizes up to a maximum of 85 contacts per side.

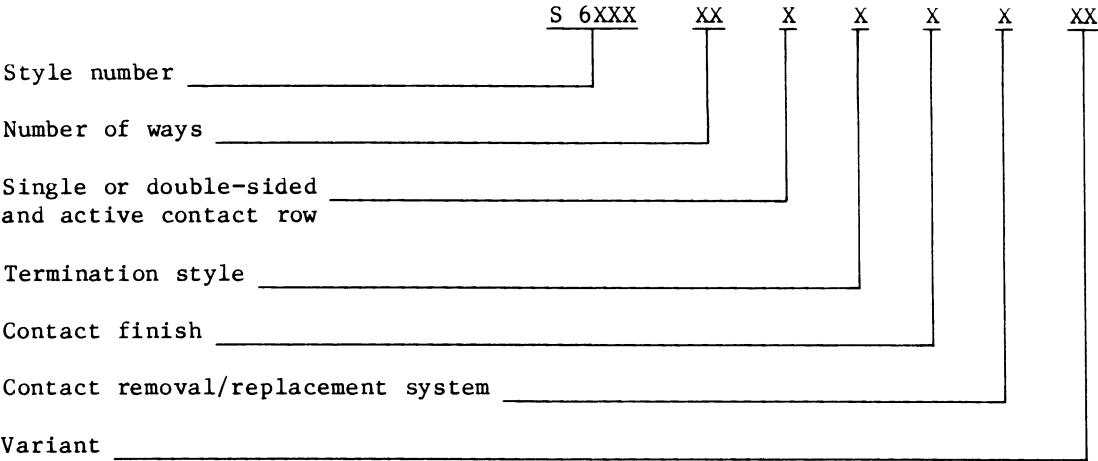
Front or rear removable/replaceable contacts are available in the connector range with front or rear release for each direction of removal. Replacement contacts, keys and metal fixing flanges used with this range of connectors shall be identical with the originals. The method of contact removal and replacement and the tools required will depend upon the design of individual connectors.

The mandatory method of location is by a guide key which replaces an opposite pair of contacts, and one such key shall be provided per connector (see clause 10).

The establishment of all safety factors concerning the use of these connectors is the responsibility of the user.

4 Marking of the connector and package

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 as follows:



Style number:	As shown in A.2 of this specification. This is the control drawing number with the prefix “CC/” deleted.
Number of ways:	Digits denoting the number of contacts along one side of the connector.
Single or double-sided and active contact row:	A = single-sided, side A active, single row of terminations B = single-sided, side B active, single row of terminations E = single-sided, side A active, double row of terminations F = single-sided, side B active, double row of terminations D = double-sided, both sides active
Terminations style:	S = solder for wire W = wire wrap T = through-board solder, short spill L = through-board solder, long spill X = through-board solder, extra long spill
Contact finish:	A = hard acid gold alloy
Contact removal/replacement system:	A = rear release/front removable contacts B = rear release/rear removable contacts C = front release/front removable contacts D = front release/rear removable contacts
Variant:	Digits identifying an individual connector, parts and associated tools for replacement purposes. As in BS 9002.
Example reference number:	S 6001 85 D S A B XX

Packaging shall include the manufacturer’s assembly and contact replacement instructions. Full instructions for the removal and replacement of contacts and keys shall be provided by the manufacturer. Packages of replacement parts shall include an outline drawing showing salient dimensions.

5 Ordering information

The following information shall be given when ordering parts to this specification:

- a) The number of this detail specification, i.e. BS 9526 N0002, Issue 1.
- b) The individual (type) reference number as described in clause 4 of this detail specification.

- c) Details of marking which may be required in addition to that specified in clause 4 of this detail specification.
- d) Details of any requirements, e.g. contact omission plans, additional contacts or keys, etc.

6 Outline drawings

See Appendix A of this specification for the following:

- A.1** Outline dimensions, mass, board piercing and panel cut-out details
- A.2** Termination styles and dimensions
- A.3** Printed board layout edge dimensions and guide key applications
- A.4** Assessment board details and dimensions
- A.5** Gauges

NOTE Outline drawings include a cross-reference to the relevant National Supervising Inspectorate control drawings.

7 Ratings

7.1 Electrical

7.1.1 Current

- a) Maximum current per individual contact (in isolation)¹⁾:
 - at 25 °C ambient temperature: 3 A
 - at 85 °C ambient temperature: 1.5 A
- b) Maximum current per contact through all contacts simultaneously:
 - at 25 °C ambient temperature: 1.5 A
 - at 85 °C ambient temperature: 1.0 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

	See level 1 013 mbar ^a	8 500 m 300 mbar
Working voltage ^b (nominal) d.c. or a.c. peak	350	250
Voltage proof d.c. or a.c. peak	1 050	500
^a 1 mbar = 10 ² N/m ² = 100 Pa. ^b Establishment of electrical safety factors is the responsibility of the user.		

7.2 Environmental

Environmental classification	55/125/21
Low air pressure severity	300 mbar
Vibration severity ^a	10 Hz to 500 Hz, 0.75 mm/10g _n , Duration 6 h
Shock severity	NA
Acceleration severity	NA
Bump severity	390 m/s ² (40g _n) 1 000 ± 10 bumps

^a The vibration test is carried out using an assessment board (see A.4 of this specification). In practice, the vibration performance will vary with the size and weight of board used, and also with the method of mounting the connector.

¹⁾ i.e. when only one contact per connector is electrically loaded.

7.3 Endurance

Mechanical ^a	250 operations
High temperature, long term (current as in 7.1)	1 000 h at 85 °C
High temperature, short term (no electrical load)	250 h at 125 °C

^a The mechanical endurance test is carried out using a gauge (see A.5 of this specification). Endurance with a printed board is critically dependent upon the preparation of the board particularly the leading edge, and also the type of plating used.

8 Characteristics

8.1 Connector range (See A.1 and A.2 of this specification)

8.2 Electrical

Maximum contact resistance (initially)	15 mΩ
Maximum contact resistance (after conditioning)	20 mΩ
Minimum insulation resistance (initially)	100 000 MΩ (method A) 1 000 MΩ (method B)
Minimum insulation resistance (hot and after conditioning)	100 MΩ (method B)

8.3 Mechanical

Engaging and separating force, connector ^a	2.8 N (0.63 lbf) max. per contact pair 0.2 N (0.045 lbf) min. per contact pair
Contact retention (in insert) (moulding)	
Termination styles T, L, X and W	20 N (4.50 lbf) min.
Termination style S	10 N (2.25 lbf) min.
Contact holding force, gauge mass	15.3 g
Guide key (locating) retention	10 N (2.25 lbf)
Static load (mating)	4 N (0.90 lbf) per contact pair

^a These values should be multiplied by the number of contact pairs in a particular connector to obtain the total engaging and separating forces for that connector. Force values refer to the use of gauges.

8.4 Fluid resistance. The connectors are resistant to the following fluids listed in Appendix E of BS 9520: isopropanol, 1,1,2-trichloro trifluoroethane, 1,1,1-trichlorethane, and trichlorethylene

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 Guide keys (locating). It is possible for mismatching to occur with this range of connectors and the mating printed boards at extremes of tolerance under the application of practical tolerancing, unless guide keys are used. Where practicable, guide keys should be situated near the centre of the connector.

10.2 Guide keys (polarizing). Polarization is effected by additional guide keys fitted by the user as required in place of contacts (see A.3.2 of this specification).

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 in subgroups marked “(D)” shall not be accepted for release under BS 9000 (see 2.6.5 of BS 9000-1).

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

Fitting and wiring of contacts shall be in accordance with the manufacturer's instructions.

Polytetrafluoroethylene (PTFE) extruded insulation equipment wire to BS G 210 shall be used. (To ensure that the wiring 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	
<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	<u>Inspection level S-3, AQL 1.5 %</u> 1.2.4.4 Method A or B. Unmated. Voltage as specified in 7.1.2 of this specification. Duration 5 s	As in 1.2.4.4
<u>Subgroup A5</u> CTR information	1.1.11 The result of subgroup A1 shall be reported as attributes information	
Group B	To be applied on a sampling basis lot-by-lot Subgroups B3 to B7 are not applicable Connectors shall have contacts fitted and wired as required for tests	
<u>Subgroup B1</u> Insulation resistance Engaging and separating force, connector Contact holding force	<u>Inspection level S-4, AQL 1.5 %</u> 1.2.4.3 Method A or B (500 ± 50 V) 1.2.5.2 Forces as specified in 8.3 of this specification using gauges as prescribed in A.5 of this specification 1.2.5.8 With 10 sizings and using gauges as prescribed in A.5 of this specification	1 000 MΩ min. As in 1.2.5.2 As in 1.2.5.8
<u>Subgroup B2 (D)</u> Soldering ^a Contact resistance	<u>Inspection level S-4, AQL 4 %</u> Specimens from subgroup B.1 may be used 1.2.6.6 Method 1 Recovery period 1 h 1.2.4.1(1) Using gauges as prescribed in A.5 of this specification	Satisfactory tinning. No loosening of parts or other damage such as would impair performance 15 mΩ max.

^a Applicable only to connectors having terminations intended to be soldered.

Inspection	BS 9520 reference and conditions of test	Requirements as in BS 9520
<u>Subgroup B8</u> CTR information	1.1.11 Results from the tests in subgroups B1 and B2 shall be reported as attributes information	
Group C	To be applied on a sampling basis at three-monthly intervals Subgroups C2, C3 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> Dimensions, outline	<u>Inspection level S-3, AQL 4 %</u> 1.2.3.1 In addition wire wrap and through-board termination positions shall be checked using the gauges prescribed in A.5 of this specification	Dimensions as specified in A.1 and A.2 of this specification. The terminations shall accept the gauges
<u>Subgroup C5 (D)</u> Mechanical endurance High temperature endurance Insulation resistance (hot) Final measurements Contact resistance Voltage proof Engaging and separating force, connector Visual examination	<u>Inspection level S-3, AQL 4 %</u> 1.2.7.1 250 operations at 15 operations per minute maximum, using gauges as prescribed in A.5 of this specification 1.2.7.2 250 h duration at 125 °C. No electrical load and unmated During the conditioning the following measurements shall be made: 1.2.4.3 Method B (500 ± 50 V) Unmated at 125 °C. Measured eight times at intervals of not less than 24 h After 1 1/2 h to 2 h recovery 1.2.4.1(1) Using gauges as prescribed in A.5 of this specification 1.2.4.4 Method B. Voltage as specified in 7.1.2 of this specification 1.2.5.2 Forces as specified in 8.3 of this specification, using gauges as prescribed in A.5 of this specification 1.2.2(3) Without dismantling 1.2.2(4)	100 MΩ min. 20 mΩ max. As in 1.2.4.4 As in 1.2.5.2 As in 1.2.2(3) As in 1.2.2(4)
<u>Subgroup C6</u> CTR information	1.1.11 The results from the final measurements in subgroup C5 shall be reported as attributes information The final contact resistance and insulation resistance results of the tests in subgroup C5 and the minimum insulation resistance at upper category temperature in C5 shall be reported as measurements information	