

BRITISH STANDARD SPECIFICATION

FEELER GAUGES

B.S. 957 : 1941 Pt. 1

incorporating amendment issued July, 1959 (PD 3442)

**Amendment Slip No. 2, published 31 July, 1969
to B.S. 957 : 1941
Feeler gauges**

Revised text

Title. Delete the title on the cover and pages 1, 2 and 5 and substitute the following:

**'FEELER GAUGES
Part 1. Inch Units'**

British Standard number. Delete the B.S. number on the cover and pages 1 to 8 inclusive and substitute the following:

'B.S. 957 : Part 1 : 1941'.

Amendment Slip No. 3, published 16 March, 1972

to B.S. 957 : Part 1 : 1941

Feeler gauges

Part I. Inch units

Revised text

Page 4. Insert the following after the fourth paragraph:

'This standard makes reference to the following British Standard: B.S. 427. Method for Vickers hardness test. Part 1. Testing of metals.'

Clause 3. Material of blades

Delete the existing text of this clause and substitute the following:

' MATERIAL OF BLADES

3.a. The blades shall be made of good quality steel and shall be hardened and tempered to a hardness of not less than 400 HV nor more than 600 HV*.

b. Blades in the thickness range of 0.005 in up to and including 0.008 in shall be tested for hardness in accordance with B.S. 427 Part 1* using a test load of 1 kgf (9.8 N approx.) which shall be applied for 15 s. For blades above 0.008 in a test load of 5 kgf (49 N approx.) shall be applied for 15 s.

Blades less than 0.005 in thick shall be subjected to a scratch comparison test whereby the blade shall be placed on a hard, polished surface and scratched with a diamond tipped or hard steel stylus which has a tip radius of approximately 0.02 in. The mark produced shall then be compared with a similar mark produced on a steel test piece of known hardness in the range 400—450 HV. The mark shall be made in the same manner and using the same force on both the feeler blade and the test piece. '

Add the following footnote:

*B.S. 427, 'Method for Vickers hardness test', Part 1, 'Testing of metals'.

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CONFIRMATION OF B.S. 957: 1941

Feeler Gauges

This British Standard has recently been reviewed in accordance with B.S.I. procedure and has been confirmed as satisfying present requirements.

November 1959

CO-OPERATING ORGANISATIONS

The Mechanical Industry Committee under whose supervision this British Standard was prepared consists of representatives from the following Government Departments and Scientific and Industrial Organisations :

Admiralty.

Crown Agents for the Colonies.

Department of Scientific and Industrial Research.

High Commissioner for India.

H.M. Office of Works.

Home Office.

Ministry of Transport.

War Office.

Agricultural and Road Machinery Manufacturers' Association.

Association of Consulting Engineers.

British Chemical Plant Manufacturers' Association.

British Electrical and Allied Manufacturers' Association.

British Engineers' Association.

British Iron and Steel Federation.

British Marine Oil Engine Manufacturers' Association.

Engineering Insurance Companies.

Institute of Marine Engineers.

Institute of Petroleum.

Institution of Automobile Engineers

Institution of Civil Engineers.

Institution of Gas Engineers.

Institution of Heating and Ventilating Engineers.

Institution of Mechanical Engineers.

Institution of Production Engineers.

Locomotive Manufacturers' Association.

Machine Tool Trades Association.

Railway Companies of Great Britain

THIS SPECIFICATION having been approved by the Mechanical Industry Committee and endorsed by the Chairman of the Engineering Divisional Council was published under the authority of the General Council as a British Standard on 21st July, 1941.

The Institution desires to call attention to the fact that this Specification is intended to include the technical provisions necessary for the supply of the articles herein referred to, but does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, the British Standards are subjected to periodical review. Suggestions for improvements will be recorded, and in due course brought to the notice of the Committees charged with the revision of the standards to which they refer.

A complete list of British Standards, indexed and cross-indexed for reference, will be found in the Institution's Yearbook.

Other specifications for engineers' precision tools published and in course of preparation are as follows :

- B.S. 817. Cast Iron Surface Plates and Tables.**
- B.S. 818. Cast Iron Straightedges.**
- B.S. 852. Toolmakers' Straightedges.**
- B.S. 863. Steel Straightedges of Rectangular Section.**
- B.S. 869. Toolmakers' Flats and High Precision Surface Plates.**
- B.S. 870. Micrometers (External).**
- B.S. 887. Vernier Callipers.**
- B.S. 888. Slip (or Block) Gauges and their Accessories.**
- B.S. 906. Engineers' Parallels (Steel).**
- B.S. 907. Dial Gauges for Linear Measurements.**
- B.S. 939. Engineers' Squares.**
- B.S. 958. Precision Levels.**
- B.S. 959. Internal Micrometers.**
- B.S. 1054. Comparators.**

BRITISH STANDARD SPECIFICATION FOR
FEELER GAUGES

FOREWORD

This specification has been prepared under the authority of the Mechanical Industry Committee in response to a request received from the Institution of Production Engineers. It forms one of a series of specifications in course of preparation for engineers' precision tools and has been prepared with the co-operation of the manufacturers and in close collaboration with the National Physical Laboratory. This specification is directed principally towards establishing a grade of accuracy for feeler blades suitable for general toolroom use. With a view to simplifying the considerable number of different combinations of feeler blade sizes now on the market, recommendations are put forward in an appendix for three principal series which it is felt should meet all ordinary requirements.

SPECIFICATION

SCOPE

1. This specification applies to feeler gauges, comprising a series of gauging blades of graded thicknesses in inch units, assembled in a protective sheath. Provision is made for blades of thicknesses from 0.0015 in. to 0.025 in. inclusive.

GENERAL

2. The purchaser shall state in his enquiry and order the particular combination of blades and length of blades required.

NOTE. Recommendations regarding suitable combinations of blades are given in the Appendix.

MATERIAL OF BLADES

3. The blades shall be made of good quality steel, and shall be hardened and tempered to a diamond pyramid hardness number of not less than 450 for blades up to 0.005 in. thick and not less than 540 for thicker blades, the test load being 5 kg. applied for 15 seconds

DIMENSIONS OF BLADES

4. The British Standard thicknesses of blades shall be as given in Clause 6.

The British Standard lengths of blades, measured overall, shall be :
3, 4, 6, 9 and 12 inches.

The blades shall be $\frac{1}{2}$ in. wide at the heel. Blades 3 in. long may be parallel or tapered, as may be ordered by the purchaser. Blades over 3 in. long shall be tapered for the outer part of their length so that the width at the tip is approximately $\frac{1}{4}$ in.

FINISH

5. The outer ends of the blades shall be approximately semicircular and the blades, throughout, shall be free from sharp edges.

ACCURACY

6. a. *Permissible errors in thickness.* The mean thickness of a blade shall not depart from its nominal thickness by more than the following amount :

Nominal thickness of blade in.	
0·001 5	}
0·002	
0·002 5	
0·003	
0·004	
0·005	
0·006	
0·007	
0·008	
0·009	
0·010	
0·012	
	±0·0002 in. tolerance on mean thickness
0·015	}
0·020	
0·025	
	±0·0003 in. tolerance on mean thickness

*As altered
July 1959*

b. *Permissible errors in parallelism.* The maximum variation in the thickness of a blade shall not exceed 0·0002 in. for blades up to and including 0·012 in. thick and 0·0003 in. for blades over 0·012 in., up to and including 0·025 in. thick.

SHEATH

7. The sheath shall be so designed as fully to protect the blades when not in use.

The blades shall be hinged in the sheath on a screw and nut of such a design that the blades are removable. The nut shall be in the form of a bush, passing through both sides of the sheath and forming a hinge upon which the blades may be rotated.

MARKING

8. a. Blades. Each blade shall be legibly and permanently marked with its nominal thickness in thousandths of an inch.

b. Sheath. The sheath shall be legibly and permanently marked with the manufacturer's or vendor's name or trade mark.

PACKING

9. As a protection against climatic conditions the blades and sheath shall be coated with a lanolin, or other suitable anti-corrosive, preparation.

NOTE. Certain types of preparation having a petroleum jelly base have been found suitable, but it is necessary to select a preparation which will not cause staining or gumming together of the blades.

APPENDIX

RECOMMENDED COMBINATIONS OF BLADES

The present practice of manufacturers in regard to the various combinations of feeler blades assembled together in sets is very diverse. With a view to simplifying the considerable number of combinations at present listed, three recommended series are given below. These series are so devised as to furnish sets of the greatest utility with a minimum number of blades. By combining not more than two blades, a sequence of thicknesses advancing by consecutive steps of 0.001 in. each may be obtained in Set 7 up to 0.021 in., in Set 10 up to 0.026 in., and in Set 15 up to 0.035 in. The inclusion of the 0.0015 in. and 0.0025 in. blades in Set 15 enables any thickness in half-thousandths to be obtained from 0.0015 in. up to 0.015 in. by the combination of not more than two blades.

The order in which the blades are given in the series below is not that most suitable for assembly. It is desirable that each thin blade should be given the maximum protection by being interleaved between two thicker blades.

Set 7 in.	Set 10 in.	Set 15 in.
	0.0015*	0.0015*
0.002	0.002	0.002
		0.0025
0.003	0.003	0.003
0.004	0.004	0.004
0.005	0.005	0.005
0.006	0.006	0.006
		0.007
	0.008	0.008
		0.009
0.010	0.010	0.010
		0.012
0.015	0.015	0.015
	0.020	0.020
		0.025

* In view of the delicate nature of the 0.0015 in. blade it is recommended that this blade be included in duplicate in sets 10 and 15.