

**SPECIFICATION FOR
FEELER GAUGES**

Part 2. Metric Units

BS 957 : Part 2 : 1969

BRITISH STANDARDS INSTITUTION

Incorporated by Royal Charter

British Standards House, 2 Park St., London, W1Y 4AA

Telegrams: Standards London W1

Telephone: 01-629 9000

THIS BRITISH STANDARD, having been approved by the Mechanical Engineering Industry Standards Committee, was published under the authority of the Executive Board on 31 July, 1969.

SBN: 580 05830 1

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject 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, numbering over 5000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, The BS Yearbook may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

BS 427. Method for Vickers hardness test.
Part 1. Testing of metals.

BS 1133. Packaging code.
Section 6. Temporary protection of metal surfaces against corrosion (during transport and storage).
Section 19. Use of desiccants in packaging.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following BSI references relate to the work on this standard:
Committee reference MEE/59 Draft for comment 68/12017

CONTENTS

	Page
Co-operating organizations	4
Foreword	5

SPECIFICATION

1. Scope	5
2. General	5
3. Material of blades	5
4. Dimensions of blades	6
5. Finish	6
6. Accuracy	6
7. Sheath	6
8. Marking	6
9. Protection against climatic conditions	6

APPENDIX

A. Recommended combinations of blades	7
---------------------------------------	---

TABLE

1. Tolerances on thickness of blades	6
--------------------------------------	---

CO-OPERATING ORGANIZATIONS

The Mechanical Engineering Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Associated Offices' Technical Committee
Association of Consulting Engineers
Association of Mining, Electrical and Mechanical Engineers
Board of Trade
British Chemical Plant Manufacturers' Association
British Compressed Air Society
British Electrical and Allied Manufacturers' Association
British Gear Manufacturers' Association
British Internal Combustion Engine Manufacturers' Association
British Mechanical Engineering Federation
British Pump Manufacturers' Association
British Steel Industry
Crown Agents for Oversea Governments and Administrations
Department of Employment and Productivity (H.M. Factory Inspectorate)
Electricity Council, the Central Electricity Generating Board and the Area Boards in England and Wales
Engineering Equipment Users' Association
Gas Council
Institute of Marine Engineers
Institution of Civil Engineers
Institution of Gas Engineers
Institution of Heating and Ventilating Engineers
Institution of Mechanical Engineers
Institution of Mechanical Engineers (Automobile Division)
Institution of Production Engineers
Locomotive and Allied Manufacturers' Association of Great Britain
London Transport Board
Machine Tool Trades Association
Ministry of Defence
Ministry of Defence, Army Department
Ministry of Power
Ministry of Public Building and Works
Ministry of Technology
Ministry of Technology—National Engineering Laboratory
Ministry of Transport
National Coal Board
National Physical Laboratory (Ministry of Technology)
Royal Institute of British Architects

**BRITISH STANDARD SPECIFICATION FOR
FEELER GAUGES
Part 2. Metric Units**

FOREWORD

Part 1 of this British Standard was first published (in imperial units) in 1941. In accordance with BSI's policy of producing fully metric standards this Part has now been prepared to provide for feeler gauges in metric units.

The recommended combinations of blades are intended to enable the user to obtain as wide a range as possible with the minimum number of blades.

SPECIFICATION

1. SCOPE

This Part of this British Standard specifies requirements for feeler gauges comprising a series of gauging blades of graded thicknesses in metric units either assembled in a protective sheath or supplied individually. Provision is made for blades of thicknesses from 0.03 mm to 1.00 mm inclusive.

2. GENERAL

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

NOTES. Recommendations for suitable combinations of blades are given in Appendix A.

3. MATERIAL OF BLADES

3.1 The blades shall be made of good quality steel and shall be hardened and tempered to a hardness of not less than 400 HV or more than 600 HV*.

3.2 Blades in the thickness range of 0.15 mm up to and including 0.20 mm shall be tested for hardness in accordance with BS 427 Part 1* using a test load of 1 kgf (9.8 N approx.) which shall be applied for 15 s. For blades above 0.20 mm a test load of 5 kgf (49 N approx.) shall be applied for 15 s.

Blades less than 0.15 mm 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 0.6 mm. 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.

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

4. DIMENSIONS OF BLADES

4.1 Length. The following lengths are recommended:

75, 100, 150 and 300 mm.

4.2 Width. The blades shall be approximately 12 mm wide at the heel and may be parallel or tapered. Blades 300 mm or more in length may be wider. The outer ends of the blades shall be approximately semi-circular.

5. FINISH

The blade surfaces and edges shall be free from deformations and have a smooth finish.

6. ACCURACY

The thickness of a blade shall not depart from its nominal thickness by more than the amount given in Column 2 of Table 1 and any variation in the thickness of a blade shall not exceed the amount given in Column 3.

TABLE 1. TOLERANCES ON THICKNESS OF BLADES

1	2	3
Nominal thickness of blade	Permissible departure from nominal thickness	Permissible variation in thickness of blade
mm	mm	mm
0.03 up to and including 0.04	± 0.004	0.004
above 0.04 up to and including 0.35	± 0.005	0.005
above 0.35 up to and including 0.65	± 0.008	0.008
above 0.65 up to and including 1.0	± 0.010	0.010

7. SHEATH

When the blades are fitted in a sheath they shall hinge smoothly and be adequately protected when folded into the sheath. The design of the hinge shall preferably facilitate the removal or replacement of blades.

8. MARKING

8.1 Blades. Each blade shall be legibly and permanently marked with its nominal thickness in millimetres, e.g. 0.04.

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

NOTE. Attention is drawn to certification facilities offered by BSI; see the back cover of this standard.

9. PROTECTION AGAINST CLIMATIC CONDITIONS

During storage and transit all feeler gauges shall be protected against climatic conditions with a suitable corrosion preventative.

NOTE. Temporary (easily removable) corrosion preventatives are dealt with fully in BS 1133, 'Packaging code', Section 6, 'Temporary protection of metal surfaces against corrosion (during transport and storage)'. Guidance on sealed packs with desiccants is given in Section 19, 'Use of desiccants in packaging'.

APPENDIX A

RECOMMENDED COMBINATIONS OF BLADES

The past practice of manufacturers in regard to the various combinations of feeler blades assembled together in sets has been very diverse. With a view to simplifying the considerable number of combinations at present listed, 4 recommended series are given below. These series are so devised as to furnish sets of the greatest utility with a minimum number of 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 2 thicker blades.

Set No. 1	Set No. 2	Set No. 3	Set No. 4
mm	mm	mm	mm
0.05	0.05	0.05	0.03*
0.10	0.10	0.10	0.04*
0.15	0.15	0.15	0.05
0.20	0.20	0.20	0.06
0.25	0.25	0.25	0.07
0.30	0.30	0.30	0.08
0.40	0.40	0.35	0.09
0.50	0.50	0.40	0.10
	0.60	0.45	0.15
	0.70	0.50	0.20
	0.80	0.55	0.30
	0.90	0.60	0.40
	1.00	0.65	0.50
		0.70	
		0.75	
		0.80	
		0.85	
		0.90	
		0.95	
		1.00	

*In view of the delicate nature of the 0.03 mm and 0.04 mm blades it is recommended that these blades be included in duplicate.

BRITISH STANDARD INSTITUTION

The British Standards Institution was founded in 1901 and incorporated by Royal Charter in 1929.

The principal objects of the Institution as set out in the charter are to co-ordinate the efforts of producers and users for the improvement, standardization and simplification of engineering and industrial materials; to simplify production and distribution; to eliminate the waste of time and material involved in the production of an unnecessary variety of patterns and sizes of articles for one and the same purpose; to set up standards of quality and dimensions, and to promote the general adoption of British Standards.

In carrying out its work the Institution endeavours to ensure adequate representation of all viewpoints. Before embarking on any project it must be satisfied that there is a strong body of opinion in favour of proceeding and that there is a recognized need to be met.

The Institution is a non-profit-making concern. It is financed by subscriptions from members—individuals, companies, technical and trade associations, and other bodies interested in its work, by a Government grant and by the sale of its publications. Membership of the Institution confers a number of specific rights and privileges. The demands on the services of the Institution are steadily increasing and can only be met if continuing and increasing support is provided by those who use British Standards.
