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Incorporating
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BRITISH STANDARD

Specification for feeler gauges

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Publishing and copyright information

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Amendments issued since publication

Amd. No.	Date	Text affected
C1	September 2009	Corrections to Table 4, Column 1

Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 30 September 2008. It was prepared by Technical Committee TDW/4, *Technology product realization*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 957-1:1941 and BS 957-2:1969, which are withdrawn.

Information about this document

This British Standard has been fully revised to bring it up to date.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies requirements for feeler gauges, comprising a series of gauging blades (blades) of graded thicknesses assembled in a protective sheath or supplied individually. These include requirements for dimensions which are expressed in metric and inch units.

This standard is applicable to blades of thicknesses:

- from 0.03 mm to 1.00 mm inclusive (metric units); and
- from 0.001 5 in to 0.025 in inclusive (inch units).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN ISO 6507, *Metallic materials – Vickers hardness test*

3 General

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 Annex A.

4 Material of blades

4.1 The blades shall be made of good quality steel and shall be hardened and tempered to a hardness of not less than 400 HV nor more than 600 HV[1)].

NOTE Consideration should be given to the corrosion resistance and toughness of steel used.

4.2 Blades shall be tested for hardness in accordance with BS EN ISO 6507 as shown in Table 1 and Table 2.

Table 1 **Hardness test – metric units**

Thickness range mm	**Test load applied for 15 s** kgf
$\geqslant 0.15 \leqslant 0.20$	1 (9.8 N approx.)
> 0.20	5 (49 N approx.)

Table 2 **Hardness test – inch units**

Thickness range in	**Test load applied for 15 s** kgf
$\geqslant 0.005 \leqslant 0.008$	1 (9.8 N approx.)
> 0.008	5 (49 N approx.)

1) BS EN ISO 6507.

4.3 Blades of thicknesses less than 0.5 mm and 0.005 in 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 (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 blade and the test piece.

5 Dimensions of blades

Blade lengths, measured overall, shall be as follows.

mm	in
75	3
100	4
150	6
300	9
	12

Blades up to 75 mm (3 in) long shall be approximately 12 mm ($\frac{1}{2}$ in) wide at the heel and may be parallel or tapered, as may be ordered by the purchaser.

Blades greater than 75 mm (3 in) shall be tapered for the outer part of their length so that the width at the tip is approximately 6 mm ($\frac{1}{4}$ in).

NOTE Blades 300 mm (12 in) or more in length may be wider.

The other ends of the blades shall be approximately semi-circular.

6 Finish

The blades, throughout, shall be free from sharp edges.

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

7 Accuracy

The mean thickness of a blade shall not depart from its nominal thickness by more than the amount given in Table 3, Column 2 or Table 4, Column 2. Any local variation in the thickness of a blade shall not exceed the amount given in Table 3, Column 3 or Table 4, Column 3.

Table 3 **Tolerances on thickness of blades – metric units**

1 **Nominal thickness of blade** mm	2 **Permissible departure from nominal thickness** mm	3 **Permissible variation in local thickness of blade** mm
> 0.03 ⩽ 0.04	± 0.004	0.004
> 0.04 ⩽ 0.35	± 0.005	0.005
> 0.35 ⩽ 0.65	± 0.008	0.008
> 0.65 ⩽ 1.0	± 0.010	0.010

Table 4 **Tolerances on thickness of blades – inch units**

1 **Nominal thickness of blade** in			2 **Permissible departure from nominal thickness** in	3 **Permissible variation in local thickness of blade** in
0.001 5	0.002	0.002 5	± 0.000 2	0.000 2
0.003	0.004	0.005		
0.006	0.007	0.008		
0.009	0.010	0.012		
0.015	0.020	0.025	± 0.000 3	0.000 3

8 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.

9 Marking

9.1 Blades

Each blade shall be legibly and permanently marked with its nominal thickness in:

- millimetres, e.g. 0.04; or
- thousandths of an inch.

9.2 Sheath

The sheath shall be legibly and permanently marked to indicate whether dimensions are expressed in metric or inch units and to display the manufacturer's or vendor's name or trade mark.

10 Protection against climatic conditions

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

NOTE Examples of suitable corrosive preventatives include lanolin, plasticized resin and soft-film grease.

Annex A (informative) Recommended combinations of blades

The past practice of manufacturers in regard to the various combinations of blades assembled together in sets has been very diverse.

With a view to simplifying the considerable number of combinations at present listed, recommended series in metric and inch units are given in Table A.1 and Table A.2. 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 two thicker blades.

Table A.1 **Combination of blades – metric units**

Set 1 mm	**Set 2** mm	**Set 3** mm	**Set 4** mm
			0.03 [A)]
			0.04 [A)]
0.05	0.05	0.05	0.05
			0.06
			0.07
			0.08
			0.09
0.10	0.10	0.10	0.10
0.15	0.15	0.15	0.15
0.20	0.20	0.20	0.20
0.25	0.25	0.25	
0.30	0.30	0.30	0.30
		0.35	
0.40	0.40	0.40	0.40
		0.45	
0.50	0.50	0.50	0.50
		0.55	
	0.60	0.60	
		0.65	
	0.70	0.70	
		0.75	
	0.80	0.80	
		0.85	
	0.90	0.90	
		0.95	
	1.00	1.00	

[A)] 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.

Table A.2 **Combination of blades – inch units**

Set 7 in	**Set 10** in	**Set 15** in
	0.001 5 [A)]	0.001 5 [A)]
0.002	0.002	0.002
		0.002 5
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

NOTE 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 0.001 5 in and 0 002 5 in blades in Set 15 enables any thickness in half-thousandths to be obtained from 0.001 5 in up to 0.015 in by the combination of not more than two blades.

[A)] In view of the delicate nature of the 0.001 5 in blade it is recommended that this blade be included in duplicate in sets 10 and 15.

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