

CONFIRMED
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Specification for

Gear hobs —

**Part 1: Hobs for general purposes 1 d.p.
to 20 d.p. inclusive**

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:

Admiralty*	Institute of Marine Engineers
Air Ministry	Institute of Petroleum
Associated Offices' Technical Committee	Institution of Civil Engineers
Association of Consulting Engineers (Incorporated)	Institution of Gas Engineers
British Chemical Plant Manufacturers' Association	Institution of Heating and Ventilating Engineers
British Compressed Air Society	Institution of Mechanical Engineers
British Electrical and Allied Manufacturers' Association*	Institution of Mechanical Engineers (Automobile Division)
British Engineers' Association	Institution of Production Engineers*
British Gear Manufacturers' Association*	Locomotive and Allied Manufacturers' Association of Great Britain
British Internal Combustion Engine Manufacturers' Association	Machine Tool Trades Association*
British Iron and Steel Federation	Ministry of Aviation*
British Railways, The British Transport Commission	Ministry of Labour and National Service
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Electricity Council, The Generating Boards and the Area Boards for England and Wales	Ministry of Works
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Gas Council	National Physical Laboratory (D.S.I.R.)
High Commission of India	Radio Industry Council
	War Office

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the Committee entrusted with the preparation of this standard:

Board of Trade	Parsons and Marine Engineering Turbine Research Association
Milling Cutter and Reamer Association	Society of Motor Manufacturers and Traders
North East Coast Institution of Engineers and Shipbuilders	Manufacturers of gear hobs

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 18 December 1959

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Foreword

This standard makes reference to the following British Standards:

BS 350, *Conversion factors and tables*.

BS 436, *Machine cut gears. A. Helical and straight spur*.

BS 2519, *Glossary of terms and notation for toothed gearing*.

BS 2062, *Gear hobs — Part 2: Hobs for turbine gears: Grade AA: Accuracy*.

This revision of the 1953 edition has been carried out under the authority of the Mechanical Engineering Industry Standards Committee in response to various requests.

In drafting this revision the Committee has taken account of the work of the International Standards Organization and of current American specifications.

This specification now covers the range 1 to 20 d.p. inclusive only and the tooth form and pitches given are in agreement with ISO Recommendations Nos. R53 and R54 and BS 436:1940, Figure 5.¹⁾ A new specification for pitches finer than 20 d.p. will be drafted in due course.

The need for a hob for general purposes of greater accuracy than formerly has been met by including a Grade AA hob in Part 1. At the same time the opportunity has been taken to illustrate the elements to which each type of permissible error refers, indicating a typical method of test similar to other recent British Standards for gear cutting tools.

Details of the marking recommended for hobs, and the information to be given when ordering, are given in Appendix C and Appendix D respectively.

The revision of Part 2¹⁾ of the 1953 edition will be published at a later date and the Committee considers that the publication of the revision of Part 1 should not be delayed until Part 2 is completed.

A table of approximate equivalents is given in Appendix G. More precise conversions should be based on the tables given in BS 350, "*Conversion factors and tables*".

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, 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.

¹⁾ ISO Recommendation R53, "*Basic rack of cylindrical gears for general engineering*".

ISO Recommendation R 54, "*Modules and diametral pitches of cylindrical gears for general engineering*".

BS 436, "*Machine cut gears. A. Helical and straight spur*".

BS 2062, "*Gear hobs*". Part 2. *Hobs for turbine gears: Grade AA: Accuracy*.

1 Scope

Part 1 of this British Standard applies to non-topping single-start right-hand and left-hand finishing hobs for helical and straight spur gears for general purposes. It covers the following grades of accuracy:

- | | |
|---------------------------------|------------------------|
| Grade AA | } Ground profile hobs. |
| Grade A | |
| Grade B | |
| Grade D: Unground profile hobs. | |

Grade C (which is given in American and other specifications) is not included.

Unless otherwise specified by the purchaser, the hobs supplied in accordance with this British Standard will be right-hand.

2 Terms and notation

The general terms used, common to gears and hobs, are taken from BS 2519, "Glossary of terms and notation for gearing".

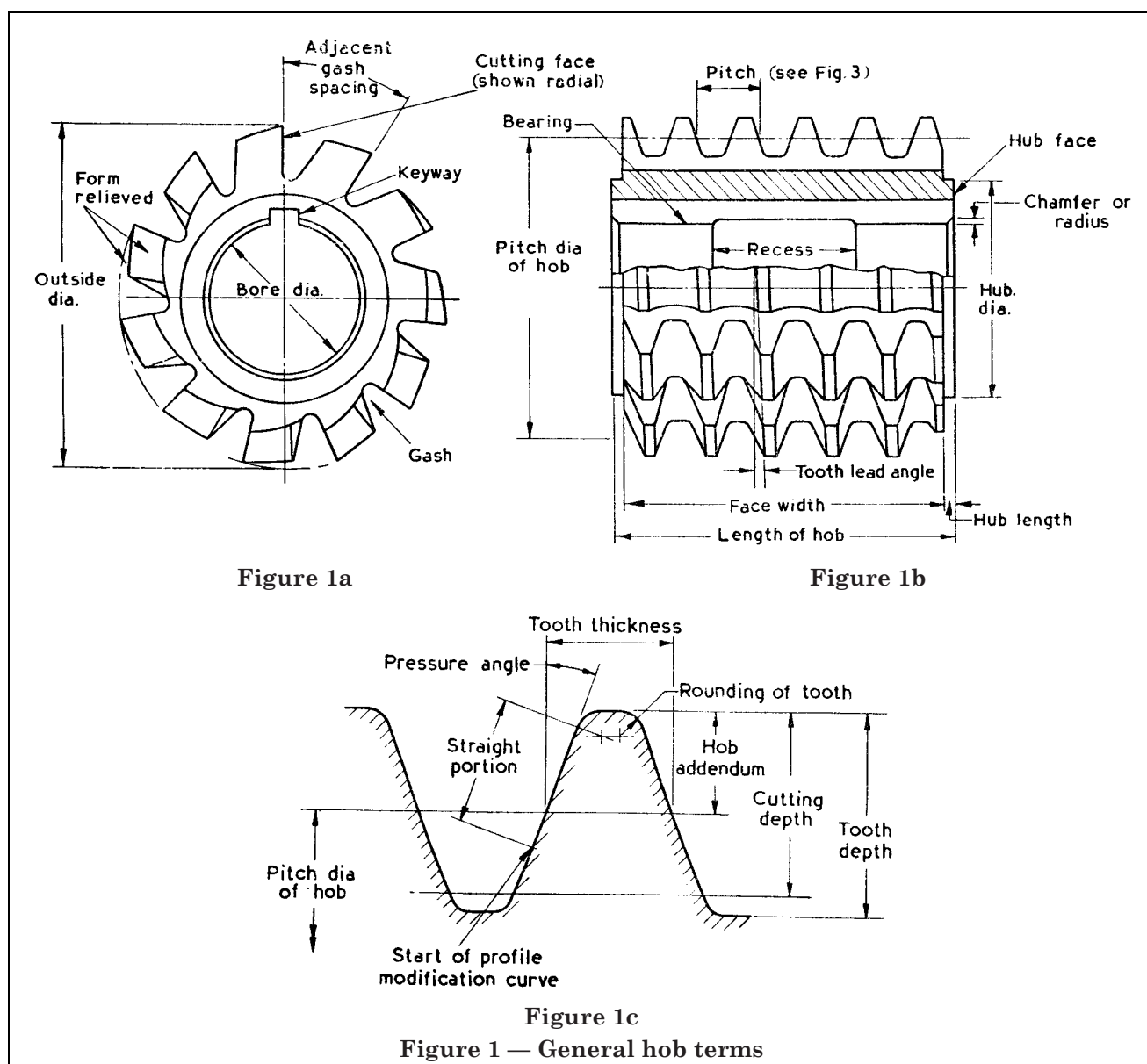


Table 1 — Dimensions of gear hobs for general purposes
(See Figure 1)

Normal diametral pitch	Overall		Length of recess (approximate)	Bore diameter	Hub	
	Outside diameter	Length			Diameter (approximate)	Length (approximate)
	in.	in.	in.	in.	in.	in.
1	10 ³ / ₄	15	5	2 ¹ / ₂	4 ¹ / ₂	3/ ₈
1¹/₄	8 ³ / ₄	12	4	2	3 ³ / ₄	3/ ₈
1¹/₂	8	10	3 ¹ / ₂	2	3 ³ / ₄	5/ ₁₆
1³/₄	7 ¹ / ₄	9	3	2	3 ¹ / ₂	5/ ₁₆
2	6	8	2 ³ / ₄	1 ¹ / ₂	2 ¹ / ₂	5/ ₁₆
2 ¹ / ₄	5 ³ / ₄	8	2 ³ / ₄	1 ¹ / ₂	2 ¹ / ₂	1/ ₄
2¹/₂	5 ¹ / ₂	7	2 ¹ / ₄	1 ¹ / ₂	2 ¹ / ₂	1/ ₄
2 ³ / ₄	5 ¹ / ₄	6	2	1 ¹ / ₂	2 ¹ / ₂	1/ ₄
3	4 ¹ / ₂	5	1 ³ / ₄	1 ¹ / ₄	2 ¹ / ₄	1/ ₈
3 ¹ / ₂	4 ¹ / ₄	4 ³ / ₄	1 ⁵ / ₈	1 ¹ / ₄	2 ¹ / ₄	1/ ₈
4	4	4	1 ³ / ₈	1 ¹ / ₄	2 ¹ / ₈	1/ ₈
4 ¹ / ₂	3 ³ / ₄	3 ³ / ₄	1 ¹ / ₄	1 ¹ / ₄	2 ¹ / ₁₆	1/ ₈
5	3 ¹ / ₂	3 ¹ / ₂	1 ¹ / ₄	1 ¹ / ₄	2 ¹ / ₁₆	1/ ₈
5 ¹ / ₂	3 ¹ / ₂	3 ¹ / ₂	1 ¹ / ₄	1 ¹ / ₄	2 ¹ / ₁₆	1/ ₈
6	3 ¹ / ₂	3 ¹ / ₂	1 ¹ / ₄	1 ¹ / ₄	2	1/ ₈
7	3 ¹ / ₄	3 ¹ / ₄	1 ¹ / ₈	1 ¹ / ₄	2	1/ ₈
8	3	3	1	1 ¹ / ₄	1 ¹⁵ / ₁₆	1/ ₈
9	3	3	1	1 ¹ / ₄	1 ¹⁵ / ₁₆	1/ ₈
10	3	3	1	1 ¹ / ₄	1 ¹⁵ / ₁₆	1/ ₈
12	2 ³ / ₄	2 ³ / ₄	1	1 ¹ / ₄	1 ⁷ / ₈	1/ ₈
14	2 ¹ / ₂	2 ¹ / ₂	7/ ₈	1 ¹ / ₄	1 ⁷ / ₈	1/ ₈
16	2 ¹ / ₂	2 ¹ / ₂	7/ ₈	1 ¹ / ₄	1 ⁷ / ₈	1/ ₈
18	2 ¹ / ₂	2 ¹ / ₂	7/ ₈	1 ¹ / ₄	1 ⁷ / ₈	1/ ₈
20	2 ¹ / ₂	2 ¹ / ₂	7/ ₈	1 ¹ / ₄	1 ⁷ / ₈	1/ ₈
12	2	2	3/ ₄	3/ ₄	1 ³ / ₁₆	1/ ₈
14	1 ⁷ / ₈	1 ⁷ / ₈	5/ ₈	3/ ₄	1 ³ / ₁₆	1/ ₈
16	1 ⁷ / ₈	1 ⁷ / ₈	5/ ₈	3/ ₄	1 ³ / ₁₆	1/ ₈
18	1 ⁷ / ₈	1 ⁷ / ₈	5/ ₈	3/ ₄	1 ³ / ₁₆	1/ ₈
20	1 ⁷ / ₈	1 ⁷ / ₈	5/ ₈	3/ ₄	1 ¹ / ₄	1/ ₈

NOTE 1 Although dimensions are given for the hub diameter this feature should be as large as possible, and this also applies to adjacent spacing collars.
NOTE 2 The hub periphery is the reference datum surface.
NOTE 3 Preferred pitches are shown in bold type.

3 Tooth form

The hob tooth shall be such that it will generate gears corresponding to the basic rack tooth profile²⁾ shown in Figure 2, having profile modification within the range stated.

4 Dimensions

The dimensions of the hobs shall be in accordance with Table 1, subject to the provisions of Clauses 5 to 9 inclusive.

Equivalent pitches are set out in Appendix E and the preferred pitches are printed in bold type.

²⁾ See BS 436, Figure 5.