

CONFIRMED
DECEMBER 2007

Specification for Shaft ends

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

The Government departments and scientific and industrial organizations marked with an asterisk in the above list were directly represented on the committee entrusted with the preparation of this British Standard.

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee, was published under the authority of the Executive Board on 19 January 1970

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The following BSI references relate to the work on this standard:
Committee reference MEE/-/12
Draft for comment 67/25656

ISBN 580 05782 8

Amendments issued since publication

Amd. No.	Date of issue	Comments
2027	June 1976	Indicated by a sideline in the margin

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Foreword

This standard makes reference to the following British Standards:

BS 2045, *Preferred numbers*.

BS 3643, *ISO metric screw threads*.

BS 4235, *Metric keys and keyways — Part 1: Parallel and taper keys*.

This British Standard, which has been prepared under the authority of the Mechanical Engineering Industry Standards Committee, forms one of a series of metric standards for elements of driving and driven machines. Others in the series include shaft centre heights (metric units) and metric keys and keyways, based on corresponding Recommendations of the International Organization for Standardization (ISO) and metric shaft fitment bores for cylindrical shaft ends.

This specification is based on ISO Recommendation 775¹⁾, and within the text, attention is drawn to the fact that the stated relationship between the length of long and short shafts is not maintained throughout the series. If subsequent revisions are made to the ISO Recommendation in this or any other respect, this British Standard will be reconsidered.

The tables for conical shaft ends include essential dimensions of keys and keyways because the key size is smaller than would normally be envisaged for a particular diameter of shaft. Tolerances for cones have not been included because this subject is still under discussion at ISO. An appendix is also included giving values for transmissible torques for shafts, but it is emphasized that the table is given for guidance only (it forms part of the ISO Recommendation) and should not be directly used for design.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 13 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/R 775, "Cylindrical and 1/10 conical ends".

1 Scope

1.1 This British Standard relates to (1) cylindrical shaft ends and (2) to conical shaft ends with parallel keyway, having a conicity of 1 in 10; both types in diameters from 6 mm to 630 mm inclusive.

1.2 Provision is made for long and short series of both cylindrical and conical shafts²⁾ over most of the diameter range and for the use of both external and internal screw threads for the securing nut or bolt on conical shaft ends.

NOTE 1 Recommendations for blending radii, and form and positional tolerances are being considered.

NOTE 2 Conical shaft ends with Woodruff keys and keyways will be the subject of a future standard.

2 Relation between forms

The relation between the various forms of shaft ends, cylindrical and conical, is shown in Figure 1. This length relationship is generally valid and the exceptions are indicated in Table 1 and Table 2 and the footnotes.

3 Dimensions and tolerances

3.1 The dimensions and tolerances of long series and short series cylindrical shaft ends shall be in accordance with Table 1.

3.2 The dimensions of long series conical shaft ends shall be in accordance with Table 2 and the dimensions of short series conical shaft ends shall be in accordance with Table 3.

3.3 Relevant principal dimensions of keys and keyways and external and internal threads are given in Table 2 and Table 3. Other dimensions and tolerances for the keys and keyways shall be in accordance with BS 4235-1³⁾ and tolerances for the internal and external threads shall be in accordance with BS 3643⁴⁾.

²⁾ ISO/R 775, "Cylindrical and 1/10 conical ends".

³⁾ BS 4235, "Metric keys and keyways", Part 1, "Parallel and taper keys".

⁴⁾ BS 3643, "ISO metric screw threads".

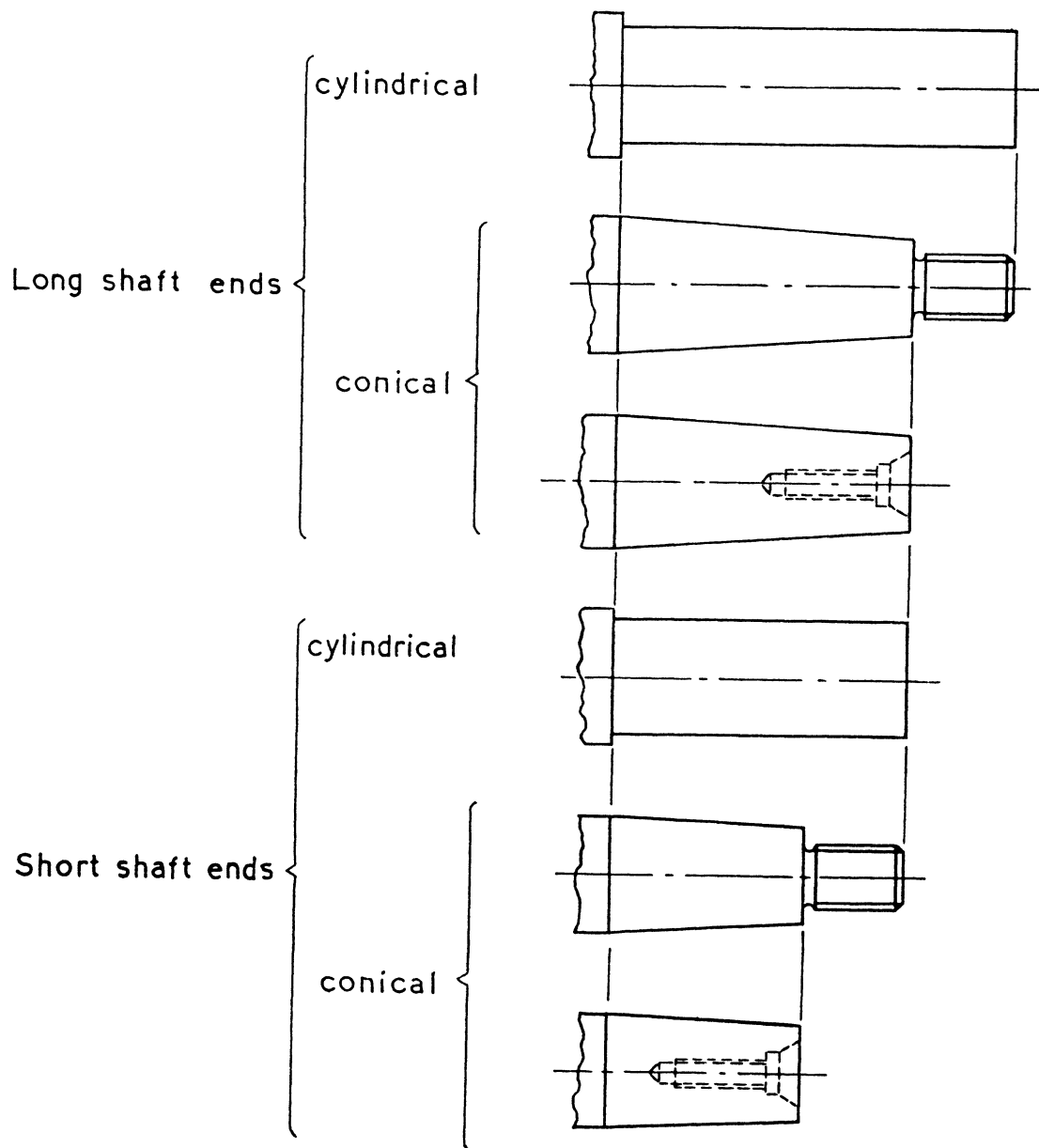


Figure 1 — Relationship between forms