

OBSOLESCE — NOT TO
BE USED ON NEW
DESIGNS. SUPERSEDED BY
BS 5751.

Specification for

Housings for hydraulic seals for reciprocating applications

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

The Government department 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 British Standard:

Association of Hydraulic Equipment Manufacturers	Hydraulic Association
Engineering Industries Association	Ministry of Defence, Navy Department
Fluid Seal Manufacturers' Association	Ministry of Technology — National Engineering Laboratory

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee, was published under the authority of the Executive Board on 11 September 1970

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Contents

	Page
Co-operating organizations	Inside front cover
Foreword	ii
1 Scope	1
2 Application	1
3 General	1
4 Dimensions	1
5 Tolerances and surface texture	1
6 Lead-in chamfers	1
Figure 1 — Typical housing for external type seal	2
Figure 2 — Typical housing for internal type seal	5
Table 1 — Housing dimensions for external type seal	3
Table 2 — Housing dimensions for internal type seal	6

Foreword

This British Standard has been revised, under the authority of the Mechanical Engineering Industry Standards Committee, as it is considered necessary to have a standard range of metric housing sizes. It will be noted that the title has been made slightly more restrictive in order that it may more truly represent the scope of the standard.

The dimensions given in this standard, although providing the necessary basis for standardization in the manufacture and application of hydraulic seals, should not be regarded as providing all the information required for design purposes. It is for example very desirable to consult the seal manufacturer on the disposition of tolerances on the inner and outer diameters to ensure that proper interference is provided between the seal and its mating surface.

Obsolescent (by Amendment No. 1)

For new designs of hydraulic cylinders BS 1658 has been rendered obsolescent by the publication of BS 5751, which implements Draft International Standard ISO/DIS 5597-1 "*Hydraulic fluid power — Seal housings — Dimensions and tolerances — Part I: Cylinder rod and piston seals for reciprocating applications*" published by the International Organization for Standardization (ISO).

BS 1658 has been retained to provide a standard for replacement seals.

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 8, 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 Scope

This British Standard specifies the dimensions for long housings and short housings for hydraulic seals for reciprocating applications. The range of sizes is from 6 mm to 500 mm for rods, and from 16 mm to 540 mm for cylinders.

2 Application

It is intended that the housings shall accommodate hydraulic seals where working pressures do not exceed 340 bar (34 MN/m²).

The types of housings covered by this standard are illustrated in Figure 1 and Figure 2, but it should be noted that these figures are diagrammatic only and do not represent recommendations for housing design. It is recommended that the seal manufacturer be consulted on details of housing design which are not specified in this standard.

3 General

The manner of construction of hydraulic seals varies with each manufacturer and no attempt is made to lay down details of seal design.

The exact degree of interference between the hydraulic seal and its housing is a characteristic related to the design of the seal and therefore this standard does not lay down tolerance limits on the housing diameters.

Housings should be designed with due consideration to the supporting face behind the seal. If large clearances and corner radii are permitted behind the seal, extrusion damage may occur.

Corners of supporting surfaces are required to provide maximum support against extrusion but all sharp edges shall be removed.

4 Dimensions

The dimensions of the housings shall be as given in Table 1 and Table 2; these are related to the illustrations given in Figure 1 and Figure 2 respectively.

5 Tolerances and surface texture

The working clearances and surface texture of dynamic metal parts directly affect the performance of the seal and it is recommended that the manufacturer of the hydraulic seals should be consulted.

The tolerance on the length of the housing shall be + 0.25 mm – 0 mm.

6 Lead-in chamfers

The location of the lead-in chamfer shall be as shown in Figure 1 and Figure 2.

The chamfer shall make an angle of 15° with the axis and its length shall be not less than the following:

External diameter of housing	Minimum length of chamfer (L)
mm	mm
Up to and including 65	2.5
Over 65 up to and including 175	4.0
Above 175	5.0