BRITISH STANDARD

BS 4082-1: 1969

Specification for

External dimensions for vertical in-line centrifugal pumps —

Part 1: "I" type

Confirmed December 2011

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

Documents
Document Sharing Hub

Full document details: BS 4082-1:1969

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 Confederation*
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)
Radio Industry Council
Royal Institute of British Architects

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 British Standard:

Association of Hydraulic Equipment Manufacturers
British Hydromechanics Research Association
British Railways Board
Institution of Electrical Engineers
Institution of Mining Engineers
Institution of Water Engineers
Metropolitan Water Board
Ministry of Defence, Navy Department
Oil Companies Materials Association

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee, was published under the authority of the Executive Board on 30 April 1969

© BSI 08-1999

First published December 1966
First revision April 1969

The following BSI references relate to the work on this standard:
Committee reference MEE/29 and MEE/29/2
Draft for comment 68/30997

ISBN 580 05019 X

Amendments issued since publication

Amd. No.	Date	Comments

Documents
Document Sharing Hub

Full document details: BS 4082-1:1969

Contents

		Page
Co-operating organizations		Inside front cover
Foreword		ii
1	Scope	1
2	Definitions	1
3	Selection of pump	1
4	Pressure and temperature ratings	4
5	Designation of pump	4
6	Dimensions	4
7	Branches and branch flanges	6
8	Direction of rotation	7
Appendix A Derivation of the basic selection chart grid		8
Appendix B Change of speed		8
Figure 1 — Basic selection chart for pumps		3
Figure 2 — Dimensions for vertical in-line pumps — "I" type		6
Figure 3 — Selection chart for pumps operating at 1 450 rev/min		9
Figure 4 — Selection chart for pumps operating at 1 750 rev/min		10
Figure 5 — Selection chart for pumps operating at 3 500 rev/min		11
Table 1 — Quantity classification		1
Table 2 — Differential head classification		2
Table 3 — Casing test pressure rating		4
Table 4 — Standard dimensions for "I" type pumps		5
Table 5 — Tolerances		5
Table 6 — Branch flanges		7

© BSI 08-1999

Documents
Document Sharing Hub
Full document details: BS 4082-1:1969

Foreword

This standard makes reference to the following British Standards:

BS 1560, *Steel pipe flanges and flanged fittings for the petroleum industry*.

BS 4082, *External dimensions for vertical in-line centrifugal pumps — Part 2: "U" type*.

BS . . . ., *Flanges and bolting for pipes, valves and fittings*[1].

This British Standard, prepared under the authority of the Mechanical Engineering Industry Standards Committee, is the first revision of BS 4082-1 dealing with the standardization of the principal external dimensions of a range of vertical "in-line" centrifugal pumps, and applies to pumps with the "I" configuration of the inlet and outlet branches (see Clause **2**, Definitions).

The standard has been prepared to provide a range of standard principal external dimensions (metric) for specified duties, to ensure interchangeability of pump units.

Pumps of the peripheral or gear type normally associated with small quantities are not precluded from complying with this standard, provided they conform to the requirements in Clause **2** and the dimensions in Table 4.

The standard does not require pump manufacturers to produce pumps for all the operating zones defined on the basic selection chart (Figure 1). Pumps for duties outside the zones defined may be developed for inclusion in this British Standard at a later date.

In this revision provision has been made for pump flanges to be in accordance with BS . . . ., "*Flanges and bolting for pipes, valves and fittings*"[1], or alternatively to BS 1560, "*Steel pipe flanges and flanged fittings for the petroleum industry*". Both these standards are in metric units.

It should be noted that BS . . . .[1] reflects current European practice and is based on the International Federation of the National Standardization Association's (ISA) Bulletin 5A (1940), "Pipes and fittings", which also forms the basis for European Standards on flanges including the German DIN Standards. Flanges to BS 1560 (Class 300) correspond closely to ASA **B.16.5** (300) and BS 1560 (Class 150) correspond closely to ASA **B.16.5** (150).

It is therefore recommended that in view of the international usage of the type of pump covered by this British Standard, the flange dimensions adopted for castings should be the greatest envelope dimensions (diameter and thickness) provided by these standards.

This standard does not provide, at present, dimensional requirements for the flange connection between the pump and the motor, shaft extensions nor shaft ends, but it is intended to include such requirements in a later edition. Requirements relating to the performance testing of pumps are given in BS 599, "*Methods of testing pumps*".

A further standard in this series is BS 4082-2, covering pumps with the "U" configuration of the inlet and outlet branches.

It is proposed to submit this British Standard to the International Organization for Standardization (ISO) as the basis for a future ISO Recommendation.

NOTE The coherent system of units adopted by ISO, known as the SI system, has been used in this British Standard. The pressure unit adopted is the "bar", which is not itself an SI unit, but which is defined, as 10^5 N/m^2, where the newton (N) is the SI unit of force. The "bar" also approximates to one atmosphere.
Information concerning SI units is given in BS 350, "*Conversion factors and tables*", and PD 5686, "*The use of SI units*".

[1] In course of preparation.

© BSI 08-1999
Documents
Document Sharing Hub
Full document details: BS 4082-1:1969

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 to iv, pages 1 to 11 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.

Documents
Document Sharing Hub

Full document details: BS 4082-1:1969

blank

Documents
Document Sharing Hub
Full document details: BS 4082-1:1969