

Hydraulic fluid power — Four-screw, one-piece square-flange connections for use at pressures of 25 MPa and 40 MPa (250 bar and 400 bar)

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee MCE/18, Fluid power systems and components, upon which the following bodies were represented:

- Association of British Mining Equipment Companies
- British Compressed Air Society
- British Fluid Power Association
- British Hydromechanics Research Association
- British Steel Industry
- Department of Trade and Industry (National Engineering Laboratory)
- Ministry of Defence
- University of Bath

The following bodies were also represented in the drafting of the standard through a subcommittee:

- British Industrial Truck Association
- Engineering Equipment and Materials Users' Association

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Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
Introduction	1
1 Scope	1
2 Normative references	1
3 Definitions	1
4 Material	1
5 Dimensions	1
6 Finish	1
7 Identification statement	2
Annex A (informative) Equivalent SAE O-rings	9
Annex B (informative) Bibliography	9
Figure 1 — Dimensions of flanged joint and flanged connection assemblies — 25 MPa and 40 MPa (250 bar and 400 bar) series	2
Figure 2 — Dimensions of flanges — 25 MPa and 40 MPa (250 bar and 400 bar) series	4
Figure 3 — Port dimensions for flange connections	5
Figure 4 — O-ring	7
Figure 5 — Flange head with and without groove for O-rings	7
Table 1 — Dimensions of flanged joint and flanged connection assemblies — 25 MPa (250 bar) series	3
Table 2 — Dimensions of flanged joint and flanged connection assemblies — 40 MPa (400 bar) series	3
Table 3 — Dimensions of flanges — 25 MPa (250 bar) series	6
Table 4 — Dimensions of flanges — 40 MPa (400 bar) series	6
Table 5 — Dimensions of flange heads for flanges — 25 MPa (250 bar) series	8
Table 6 — Dimensions of flange heads for flanges — 40 MPa (400 bar) series	8
Table A.1 — <i>Untitled</i>	9
List of references	Inside back cover

National foreword

This British Standard has been prepared by Technical Committee MCE/18. It is identical with ISO 6164:1994 *Hydraulic fluid power — Four-screw, one-piece square-flange connections for use at pressures of 25 MPa and 40 MPa (25 bar to 400 bar)* published by the International Organization for Standardization.

Cross-references

International standard	Corresponding British Standard
	BS 3643 <i>ISO metric screw threads</i>
ISO 261:1973	Part 1:1981 <i>Principles and basic data</i> (Technically equivalent)
ISO 724:1993	

The Technical Committee has reviewed the provisions of ISO 273:1979, ISO 630:1980, ISO 898-1:1988, ISO 898-2:1992, ISO 2768-1:1989, ISO 3601-1:1988 and ISO 5598:1985 to which normative reference is made in the text and has decided that they are acceptable for use in conjunction with this standard.

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 10, 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.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Components are interconnected through their ports and associated fluid conductor fitting ends.

1 Scope

This International Standard gives complete general and dimensional specifications for four-screw, one-piece square-flange connections for use at pressures of 25 MPa and 40 MPa (250 bar¹⁾ and 400 bar).

For flange connections, a design factor of 2,5 is valid, not including weld joints, for which special instructions exist.

This International Standard also specifies the dimensions of the seals to be used, as well as the grooves to house the seals.

These connections are intended for application in hydraulic systems, on industrial and commercial products, where it is desired to avoid the use of threaded connections.

Surges of pressure higher than the nominal ratings will reduce the ability of the flange connections to retain the hydraulic fluid and this should be taken into account in the design of the hydraulic system.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 261:1973, *ISO general purpose metric screw threads — General plan*.

ISO 273:1979, *Fasteners — Clearance holes for bolts and screws*.

ISO 630:1980, *Structural steels*.

ISO 724:1993, *ISO general-purpose metric screw threads — Basic dimensions*.

ISO 898-1:1988, *Mechanical properties of fasteners — Part 1: Bolts, screws and studs*.

ISO 898-2:1992, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread*.

ISO 2768-1:1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*.

ISO 3601-1:1988, *Fluid systems — Sealing devices — O-rings — Part 1: Inside diameters, cross-sections, tolerances and size identification code*.

ISO 5598:1985, *Fluid power systems and components — Vocabulary*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 5598 apply.

4 Material

4.1 Use screws of property class 8.8 or 10.9, as specified in ISO 898-1.

4.2 Use nuts of property class 10, as specified in ISO 898-2.

4.3 Use flanges made of Fe 510 C steel or steel with minimum equivalent mechanical characteristics (structural steel in accordance with ISO 630).

4.4 Use flange heads made of Fe 360 C steel or weldable steel with minimum equivalent mechanical characteristics (structural steel in accordance with ISO 630).

5 Dimensions

5.1 For dimensions of the flanged joint and flanged connection assemblies, see Figure 1 and Table 1 and Table 2.

5.2 Select square flanges in accordance with Figure 2 and Figure 3, and Table 3 and Table 4.

5.3 Select flange heads in accordance with Figure 5 and Table 5 and Table 6.

5.4 Select seals and housing grooves in accordance with Figure 4 and Figure 5, and Table 5 and Table 6.

NOTE 1 Flange heads with seals can house O-rings or other seals that fit the same groove.

NOTE 2 Flange heads without seals are used in conjunction with tubing, connected to a flange head with a seal.

6 Finish

Refer to Figure 2 and Figure 5 for specific finish requirements.

¹⁾ 1 bar = 0,1 MPa = 10⁵ Pa; 1 Pa = 1 N/m²