BS ISO 6432:2015

BSI Standards Publication

Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, bores from 8 mm to 25 mm — Basic and mounting dimensions

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National foreword

This British Standard is the UK implementation of ISO 6432:2015. It supersedes BS ISO 6432:1985 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/18/-/3, Cylinders.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Second edition
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Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, bores from 8 mm to 25 mm — Basic and mounting dimensions

Transmissions pneumatiques — Vérins à simple tige, série 1 000 kPa (10 bar), alésages de 8 mm à 25 mm — Dimensions de base et de montage

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 131, *Fluid power systems*, Subcommittee SC 3, *Cylinders*.

This second edition cancels and replaces the first edition (ISO 6432:1985), which has been technically revised.

Introduction

In pneumatic fluid power systems, power is transmitted and controlled through a gas under pressure within a circuit.

One component of such systems is the pneumatic cylinder. This is a device which converts power into linear mechanical force and motion. It consists of a movable element, i.e. a piston, and a piston rod, operating within a cylindrical bore.

To enable them to be fastened to user mechanisms, pneumatic cylinders comprise, in addition, some devices called “mountings”.

INTERNATIONAL STANDARD ISO 6432:2015(E)

Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, bores from 8 mm to 25 mm — Basic and mounting dimensions

1 Scope

This International Standard establishes a metric series of mounting dimensions required for interchangeability of commonly used pneumatic cylinders for a maximum working pressure of 1 000 kPa (10 bar).

NOTE This International Standard allows manufacturers freedom of design in metric cylinders and does not restrict technical development but provides basic guidelines.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3320, *Fluid power systems and components — Cylinder bores and piston rod diameters and area ratios — Metric series*

ISO 4393, *Fluid power systems and components — Cylinders — Basic series of piston strokes*

ISO 4395, *Fluid power systems and components — Cylinder piston rod end types and dimensions*

ISO 5598, *Fluid power systems and components — Vocabulary*

ISO 6099, *Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types*

ISO 16030, *Pneumatic fluid power — Connections — Ports and stud ends*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5598 apply.

4 Dimensions

4.1 Basic dimensions

The basic dimensions are given in Table 1 and shown in Figure 1.

4.2 Mounting dimensions

The mounting dimensions are given in Tables 2 to 5 and shown in Figures 2 to 5.

NOTE 1 The sign + after letters means that the stroke is to be added to the actual dimension.

The tolerances of dimensions dependent on stroke included in the tables apply for strokes up to and including 100 mm. If strokes are longer than 100 mm, tolerances should be selected from national standards or by agreement between the manufacturer and user.

5 Nominal stroke

5.1 Select the nominal strokes from the recommended values shown in ISO 4393.

5.2 The nominal stroke tolerance is $^{+1,5}_{0}$ mm for strokes up to and including 100 mm. If strokes are longer than 100 mm, tolerances should be selected from national standards or by agreement between the manufacturer and user.

6 Bore sizes

Included in this series are the following bore sizes AL, in millimetres, in accordance with ISO 3320:

8 – 10 – 12 – 16 – 20 – 25

7 Mounting types

This International Standard includes a combination of the following mounting types as described in ISO 6099:

— MR3: Head threaded mounting (see Table 4, Figure 4);

— MP3: Cap fixed eye mounting (see Table 3, Figure 3);

— MS3: Head angle mounting (see Table 5, Figure 5);

— MF8: Head rectangular flange (two hole) mounting (see Table 2, Figure 2).

8 Piston rod characteristics

This International Standard applies to the following piston rod characteristics:

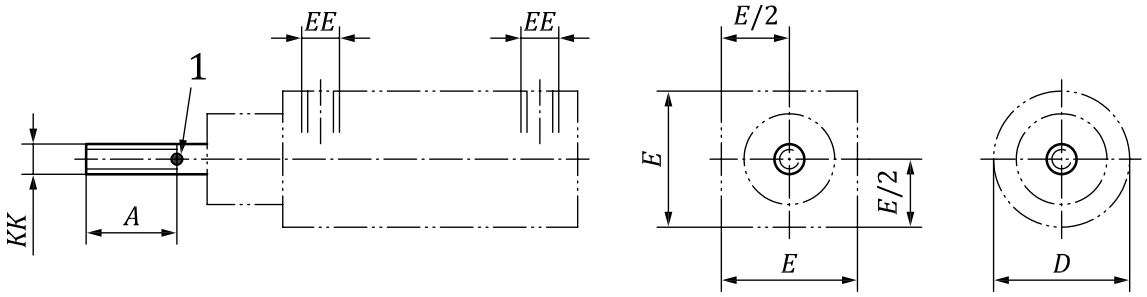
Shouldered or unshouldered male threads.

The dimensions of the piston rod threads shall be chosen in accordance with ISO 4395.

9 **Identification statement** (reference to this International Standard)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this International Standard:

"Basic, mounting and accessories dimensions of pneumatic cylinders conform to ISO 6432, *Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, bores from 8 mm to 25 mm — Basic and mounting dimensions.*"



Key

1 TRP, theoretical reference point according to ISO 6099

Figure 1 — Basic dimensions

Table 1 — Basic dimensions

Dimensions in millimetres

AL	*A*		*KK*	*EE*[a]	*E*	*D*
	nom.	tol.			max.	max.
8	12		M4	M5	18	20
10	12		M4	M5	20	22
12	16	0	M6	M5	24	26
16	16	−2	M6	M5	24	27
20	20		M8	G1/8	34	40
25	22		M10 × 1,25	G1/8	34	40

[a] *EE* conforms to ISO 16030.

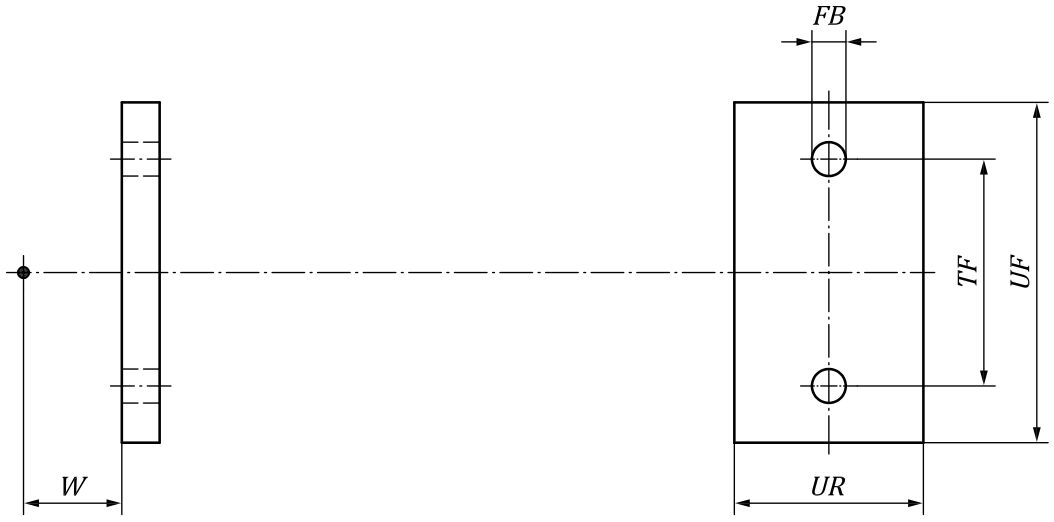


Figure 2 — Head rectangular flange (two hole) mounting (MF8)

Table 2 — Dimensions for head rectangular flange (two hole) mounting (MF8)

Dimensions in millimetres

AL	*W*[a] ±1,4	*FB* H13	*TF* Js14	*UF* max.	*UR* max.
8	13	4,5	30	45	25
10	13	4,5	30	53	30
12	18	5,5	40	55	30
16	18	5,5	40	55	30
20	19	6,6	50	70	40
25	23	6,6	50	70	40

[a] See notes in 4.2.

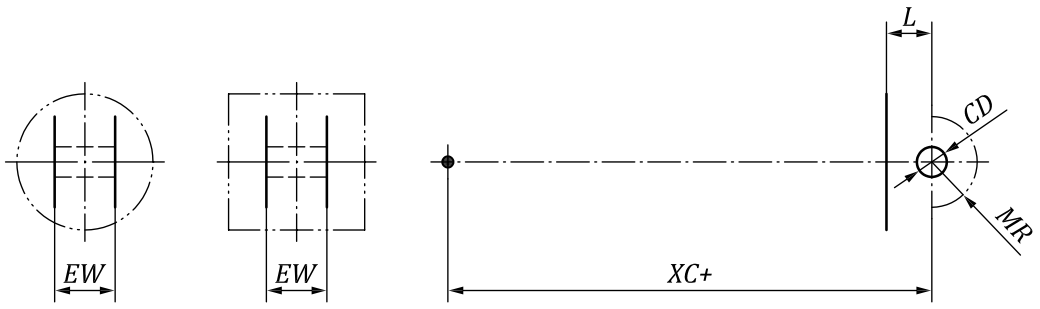


Figure 3 — Cap fixed eye mounting (MP3)

Table 3 — Dimensions for cap fixed eye mounting (MP3)

Dimensions in millimetres

AL	*EW* d13	*XC*[a] ±1	*L* min.	*CD* H9	*MR* max.
8	8	64	6	4	18
10	8	64	6	4	18
12	12	75	9	6	22
16	12	82	9	6	22
20	16	95	12	8	25
25	16	104	12	8	25

[a] See notes in 4.2.

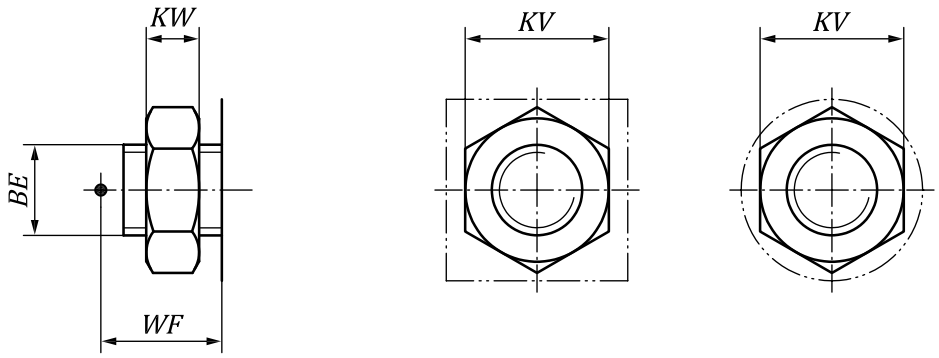


Figure 4 — Head threaded mounting (MR3)

Table 4 — Dimensions for head threaded mounting (MP3)

Dimensions in millimetres

AL	*BE*	*KW* max.	*KV* max.	*WF* ±1,2
8	M12 x 1,25	7	19	16
10	M12 x 1,25	7	19	16
12	M16 x 1,5	8	24	22
16	M16 x 1,5	8	24	22
20	M22 x 1,5	11	32	24
25	M22 x 1,5	11	32	28

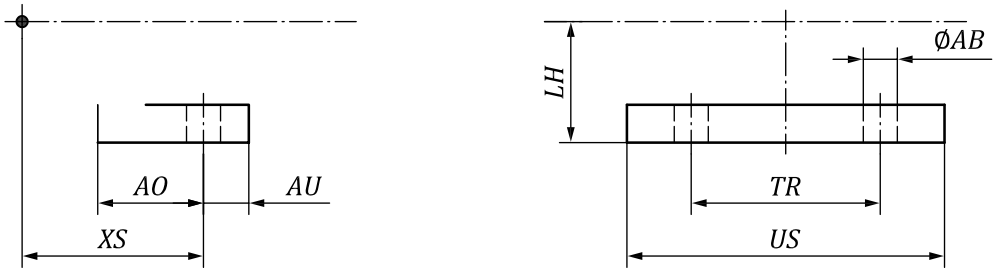


Figure 5 — Head angle mounting (MS3)

Table 5 — Dimensions for head angle mounting (MS3)

Dimensions in millimetres

AL	*XS* ±1,4	*AO* max.	*AU* max.	*LH* ±0,3	*TR* Js14	*US* max.	*AB* H13
8	24	14	6	16	25	35	4,5
10	24	14	6	16	25	42	4,5
12	32	16	7	20	32	47	5,5
16	32	16	7	20	32	47	5,5
20	36	20	8	25	40	55	6,6
25	40	20	8	25	40	55	6,6

Bibliography

[1] ISO 6430, *Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, with integral mountings, bores from 32 mm to 250 mm — Mounting dimensions*

[2] ISO 15524, *Pneumatic fluid power — Cylinders — Single-rod short-stroke cylinders, 1 000 kPa (10 bar) series, bores from 20 mm to 100 mm*

[3] ISO 15552, *Pneumatic fluid power — Cylinders with detachable mountings, 1 000 kPa (10 bar) series, bores from 32 mm to 320 mm — Basic, mounting and accessories dimensions*

[4] ISO 21287, *Pneumatic fluid power — Cylinders — Compact cylinders, 1000 kPa (10 bar) series, bores from 20 mm to 100 mm*

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