
**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

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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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”.

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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

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:

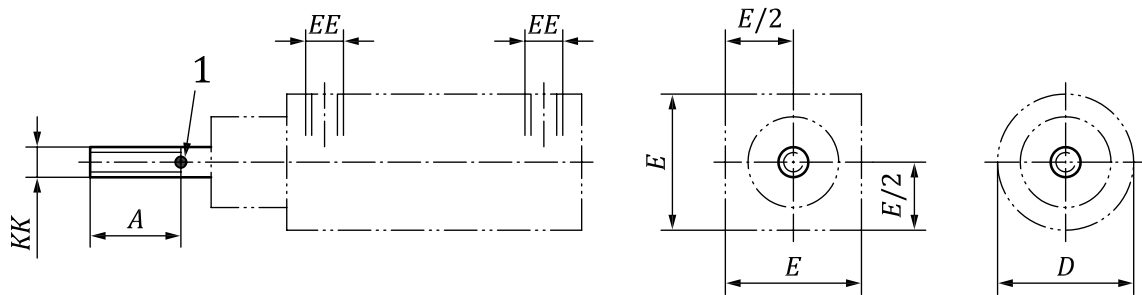
Shouldered or unshouldered male threads.

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

<i>AL</i>	<i>A</i>		<i>KK</i>	<i>EE</i> ^a	<i>E</i>	<i>D</i>
	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.

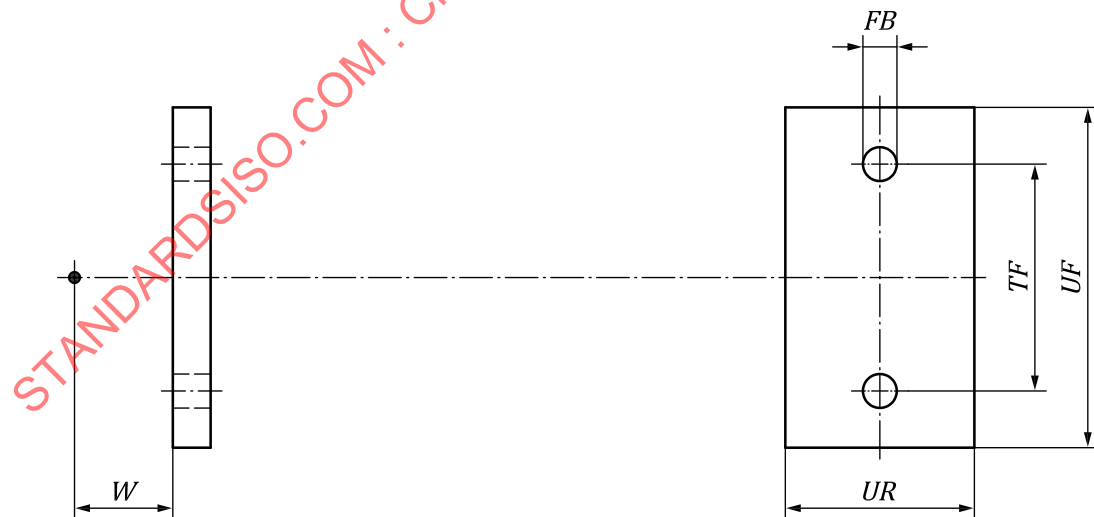
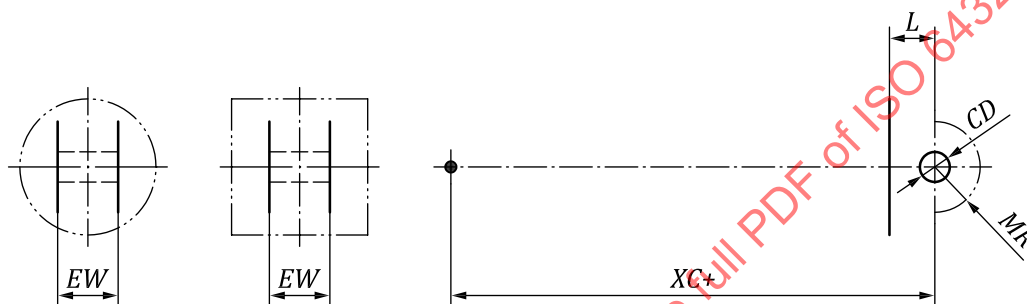
**Figure 2 — Head rectangular flange (two hole) mounting (MF8)**

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

Dimensions in millimetres

<i>AL</i>	<i>W</i> ^a ±1,4	<i>FB</i> H13	<i>TF</i> Js14	<i>UF</i> max.	<i>UR</i> 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

<i>AL</i>	<i>EW</i> d13	<i>XC</i> ^a ±1	<i>L</i> min.	<i>CD</i> H9	<i>MR</i> 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

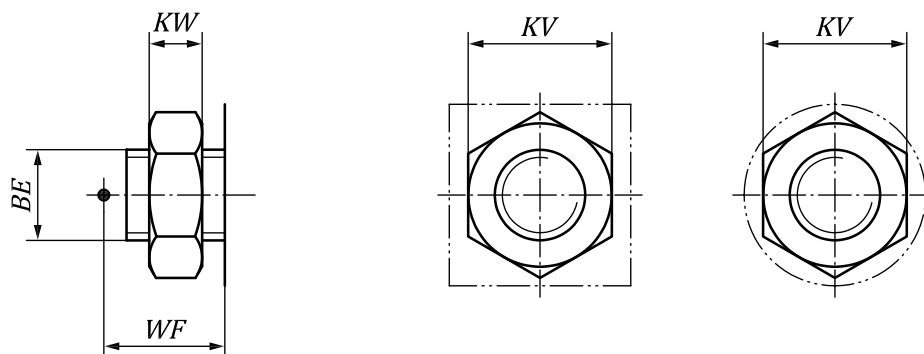
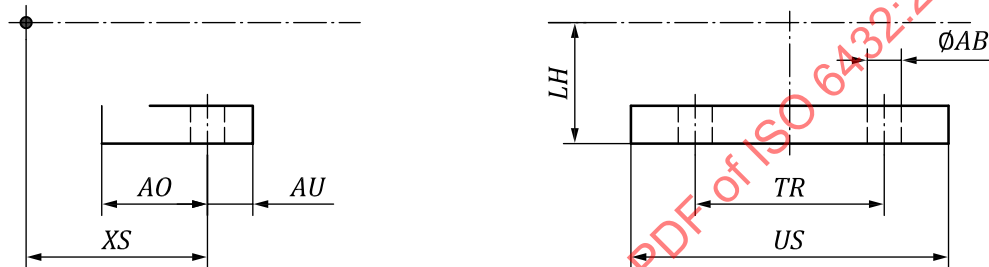
^a See notes in 4.2.**Figure 4 — Head threaded mounting (MR3)**

Table 4 — Dimensions for head threaded mounting (MP3)

Dimensions in millimetres

<i>AL</i>	<i>BE</i>	<i>KW</i> max.	<i>KV</i> max.	<i>WF</i> ±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

<i>AL</i>	<i>XS</i> ±1,4	<i>AO</i> max.	<i>AU</i> max.	<i>LH</i> ±0,3	<i>TR</i> Js14	<i>US</i> max.	<i>AB</i> 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