SLOVENSKI STANDARD
SIST ISO 6431:1997

01-februar-1997

Fluidna tehnika - Pnevmatika - Enosmerni valji vrste 1000 kPa (10 bar) z ločljivimi elementi za pritrditev in premeri od 32 mm do 320 mm - Vgradne mere

Pneumatic fluid power -- Single rod cylinders, 1 000 kPa (10 bar) series, with detachable mountings, bores from 32 mm to 320 mm -- Mounting dimensions

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Transmissions pneumatiques -- Vérins 1 000 kPa (10 bar) à simple tige, à fixations détachables, de diamètres d'alésage 32 mm à 320 mm -- Dimensions d'interchangeabilité

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Ta slovenski standard je istoveten z: **ISO 6431:1992**

ICS:

23.100.20	Hidravlični valji	Cylinders

SIST ISO 6431:1997 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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INTERNATIONAL STANDARD

ISO 6431

Second edition
1992-05-15

Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, with detachable mountings, bores from 32 mm to 320 mm — Mounting dimensions

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Transmissions pneumatiques — Vérins 1 000 kPa (10 bar) *à simple tige, à fixations détachables, de diamètres d'alésage* 32 mm *à* 320 mm *— Dimensions d'interchangeabilité*

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Reference number
ISO 6431:1992(E)

SIST ISO 6431:1997

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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International Standard ISO 6431 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Sub-Committee SC 3, *Cylinders*.

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This second edition cancels and replaces the first edition (ISO 6431:1983), which has been technically revised.

Annex A of this International Standard is for information only.

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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 fluid power cylinder. This is a device that converts power into linear mechanical force and motion. It consists of a movable element, i.e. a piston and piston rod, operating within a cylindrical bore.

To enable them to be fastened to user mechanisms, pneumatic cylinders have devices called "mountings". This International Standard deals with pneumatic cylinders for which these mountings can be detached from the main body of the device. The detachable mountings can be replaced without dismantling the basic cylinder.

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Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, with detachable mountings, bores from 32 mm to 320 mm — 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)1).

It applies to pneumatic cylinders with detachable mountings.

NOTES

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

2 ISO 6430 deals with cylinders for which mountings are integrated in the main body of the device.

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 228-1:1982, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Designation, dimensions and tolerances.*

ISO 4393:1978, *Fluid power systems and components — Cylinders — Basic series of piston strokes.*

ISO 4395:1978, *Fluid power systems and components — Cylinders — Piston rod thread dimensions and types.*

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

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3 Definitions

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

4 Dimensions

Basic dimensions are shown in figure 1 and are given in table 1.

Mounting dimensions for cylinders manufactured in accordance with this International Standard shall be selected from tables 2 to 9.

NOTE 3 The tolerances of dimensions dependent on stroke included in the tables apply for strokes up to and including 1 250 mm. If strokes are longer than 1 250 mm, tolerances should be selected from national standards or by agreement between the manufacturer and user.

5 Nominal stroke

5.1 Nominal strokes shall be selected from the recommended values shown in ISO 4393.

1) 1 bar = 100 kPa = 10^5 Pa; 1 Pa = 1 N/m^2.

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5.2 Nominal stroke tolerances are given in table 1.

Table 1 — Nominal stroke tolerances

Dimensions in millimetres

Bore	Nominal stroke, S	Nominal stroke tolerance[1)]
32 40 50	$S \leqslant 500$	$^{+2}_{0}$
	$500 < S \leqslant 1\,250$	$^{+3,2}_{0}$
63 80 100	$S \leqslant 500$	$^{+2,5}_{0}$
	$500 < S \leqslant 1\,250$	$^{+4}_{0}$
125 160 200 250 320	$S \leqslant 500$	$^{+4}_{0}$
	$500 < S \leqslant 1\,250$	$^{+5}_{0}$

1) See note 3 in clause 4.

6 Bore sizes

The following bore sizes, in millimetres, are included in this series:

32 — 40 — 50 — 63 — 80 — 100 — 125 — 160 — 200 — 250 — 320

7 Mounting styles

This International Standard includes the following mounting styles, as described in ISO 6099:

MF1 — Head, rectangular flange (see figure 2 and table 3)

MF2 — Cap, rectangular flange (see figure 3 and table 4)

MP2 — Cap, detachable clevis (see figure 4 and table 5)

MP4 — Cap, detachable eye (see figure 5 and table 6)

MS1 — End angles (see figure 6 and table 7)

MT4 — Intermediate fixed or movable trunnion (male) (see figure 7 and table 8)

MX1 — Both ends, studs or tie rods extended (see figure 8 and table 9)

8 Piston rod characteristics

8.1 This International Standard covers piston rods which have a shouldered male thread end (see figure 1 and table 2 for basic dimensions).

8.2 The dimensions of the piston rod threads are chosen in accordance with ISO 4395.

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9 Identification statement (Reference to this International Standard)

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

"Interchangeable cylinder mounting dimensions are selected in accordance with ISO 6431:1992, *Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, with detachable mountings, bores from 32 mm to 320 mm — Mounting dimensions*."

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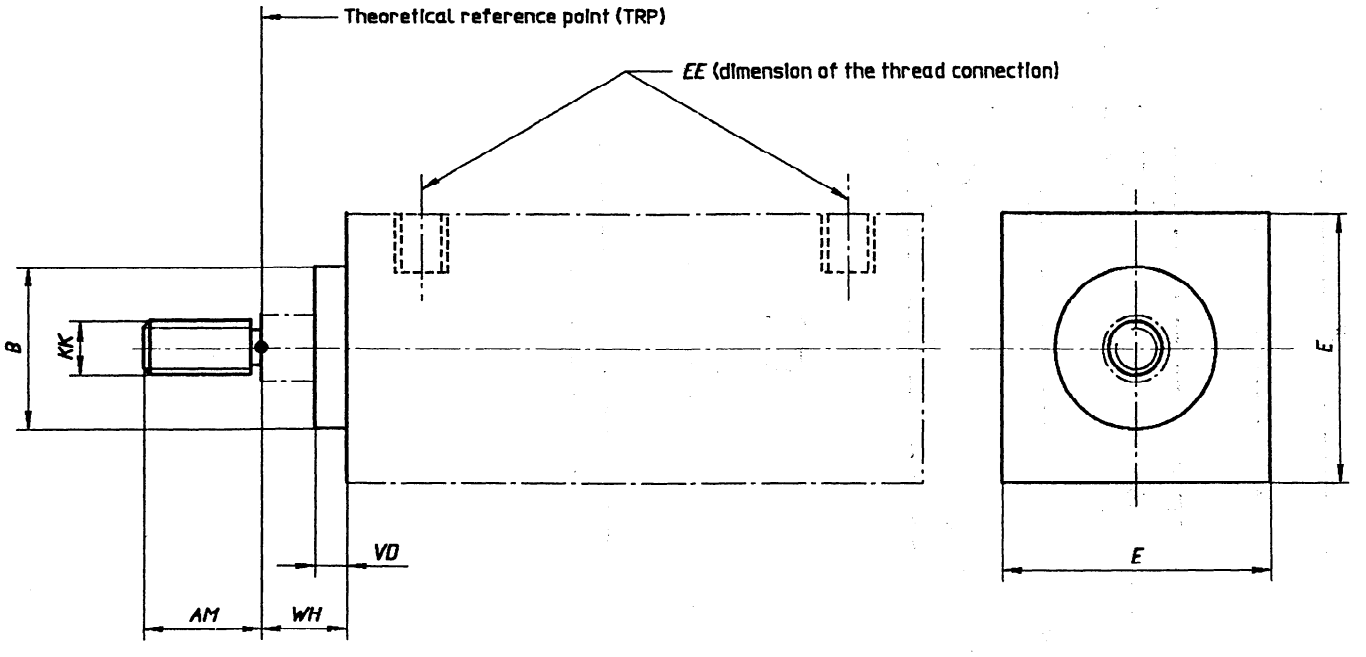

Figure 1 — Basic dimensions

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Table 2 — Basic dimensions

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Dimensions in millimetres

Bore	*B*	*KK* [1]	*AM* [1]		*VD*	*WH*	*EE* [2]		*E*
	max.		nom.	tol.		min.	metric	inch.	max.
32	30	M10 × 1,25	22			16	M10 × 1	G1/8	50
40	36	M12 × 1,25	24			20	M14 × 1,5	G1/4	58
50	48	M16 × 1,5	32			25	M14 × 1,5	G1/4	70
63	48	M16 × 1,5	32			25	M18 × 1,5	G3/8	85
80	60	M20 × 1,5	40			30	M18 × 1,5	G3/8	105
100	60	M20 × 1,5	40	$^{0}_{-2}$	3)	35	M22 × 1,5	G1/2	130
125	72	M27 × 2	54			45	M22 × 1,5	G1/2	157
160	108	M36 × 2	72			60	M27 × 2	G3/4	195
200	108	M36 × 2	72			70	M27 × 2	G3/4	238
250	126	M42 × 2	84			80	M33 × 2	G1	290
320	144	M48 × 2	96			90	M33 × 2	G1	353

NOTE — The dimensions indicated relate to every type of mounting shown in all other figures.

1) Dimensions *KK* and *AM* given for the piston rod end threads correspond to the "long" type as in ISO 4395.

2) The inch series of port threads *EE* is chosen in accordance with ISO 228-1. A definitive choice of port threads *EE* will be made later.

3) Dimension *VD* is given either in the national standards, where they exist, or by manufacturers of cylinders.