
**Pneumatic fluid power — Cylinders,
1 000 kPa (10 bar) series — Mounting
dimensions of rod-end clevises**

*Transmissions pneumatiques — Vérins, série à 1 000 kPa (10 bar) —
Dimensions d'interchangeabilité des chapes d'extrémité de tige*



Reference number
ISO 8140:2009(E)

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8140 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 3, *Cylinders*.

This third edition cancels and replaces the second edition (ISO 8140:1991), 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 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.

Pneumatic fluid power — Cylinders, 1 000 kPa (10 bar) series — Mounting dimensions of rod-end clevises

1 Scope

This International Standard specifies the mounting dimensions required for interchangeability of rod-end clevises of pneumatic cylinders. The rod-end clevises have been designed specifically for use with 1 000 kPa [10 bar¹⁾] series cylinders manufactured in accordance with ISO 6430, ISO 6432 and ISO 15552, but this does not limit their application.

The clevises are used on piston rods of pneumatic cylinders for mechanically transmitting the cylinder force. The design of the clevises is based on the maximum forces resulting from the specified internal diameter of the cylinders and pressure according to ISO 6430, ISO 6432 and ISO 15552.

2 Normative references

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

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 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*

ISO 6432, *Pneumatic fluid power — Single rod cylinders — 10 bar (1 000 kPa) series — Bores from 8 to 25 mm — Mounting dimensions*

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*

3 Terms and definitions

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

The identification code for mounting dimensions and mounting types is in accordance with ISO 6099.

1) 1 bar = 100 kPa = 10⁵ Pa; 1 Pa = 1 N/m².

4 Mounting dimensions

See Figure 1 and Table 1.

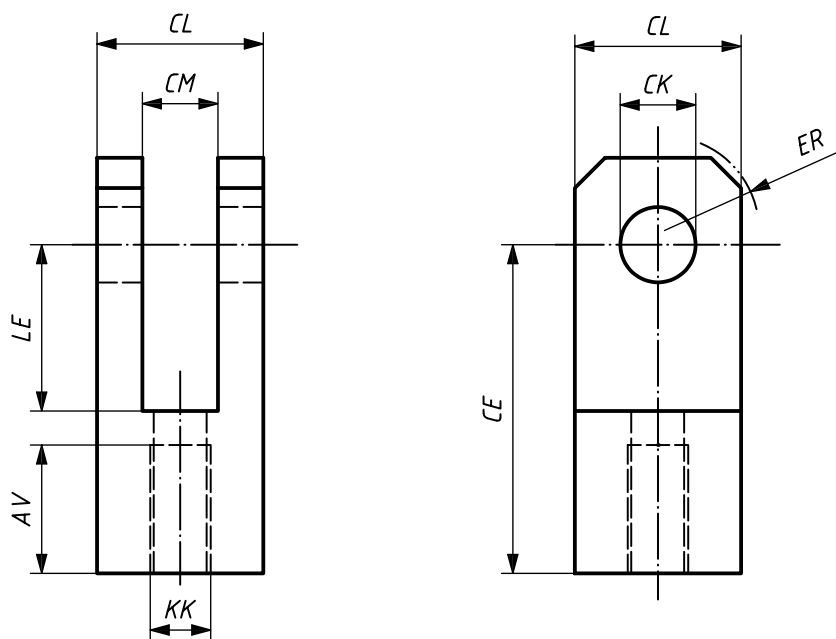


Figure 1 — AP2 — Rod clevis

Table 1 — Dimensions of AP2 — Rod clevis

Dimensions in millimetres

<i>KK</i>	<i>AV</i> min.	<i>CK</i> H9	<i>CE</i>	<i>CL</i> max.	<i>CM</i>		<i>LE</i> min.	<i>ER</i> max.
						tol.		
M4 × 0,7	8	4	16	8	4	+0,4 +0,1	8	6,5
M6 × 1	12	6	24	12	6	+0,4 +0,1	12	9,5
M8 × 1,25	16	8	32	16	8	+0,50 +0,15	16	13
M10 × 1,25	20	10	40	20	10	+0,50 +0,15	20	16
M12 × 1,25	22	12	48	24	12	+0,50 +0,15	24	19
M16 × 1,5	28	16	64	32	16	+0,50 +0,15	32	25
M20 × 1,5	33	20	80	40	20	+0,60 +0,15	40	32
M27 × 2	51	30	110	55	30	+0,60 +0,15	54	45
M36 × 2	56	35	144	70	35	+0,60 +0,15	72	57
M42 × 2	60	40	168	85	40	+0,60 +0,15	84	77
M48 × 2	65	50	192	96	50	+0,60 +0,15	96	88

5 Application instructions

5.1 Installation

5.1.1 The tolerance of f8 (see ISO 286-2) is recommended for the bearing shaft.

5.1.2 The rod and clevis shall be locked with a locking nut.

5.2 Lubrication

5.2.1 Sufficient lubrication shall be provided for the satisfactory performance of the rod-end clevises.

5.2.2 The method and frequency of such lubrication depend on the particular operating conditions.

6 Example of ordering designation

A rod-end clevis with a bore of $CK = 20$ mm shall be designated as follows:

Rod clevis ISO 8140 – 20

7 Identification statement (reference to this International Standard)

It is strongly recommended to manufacturers who have chosen to conform to this International Standard that the following statement be used in test reports, catalogues and sales literature:

“Pneumatic cylinder rod-end clevis mounting dimensions in accordance with ISO 8140:2009, *Pneumatic fluid power — Cylinders, 1 000 kPa (10 bar) series — Mounting dimensions of rod-end clevises.*”

Bibliography

- [1] ISO 286-2, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

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