



SLOVENSKI STANDARD
SIST ISO 10099:2002
01-julij-2002

ISO 10099:2002

Pneumatic fluid power -- Cylinders -- Final examination and acceptance criteria

Transmissions pneumatiques -- Vérins -- Critères de réception et de vérification finale

ITEN STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: ISO 10099:2001

SIST ISO 10099:2002

<https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002>

ICS:

23.100.20 Pomoč pri delu Cylinders

SIST ISO 10099:2002 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 10099:2002](#)

<https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7-189cc90487e3/sist-iso-10099-2002>

INTERNATIONAL STANDARD

ISO
10099

Second edition
2001-05-01

Pneumatic fluid power — Cylinders — Final examination and acceptance criteria

*Transmissions pneumatiques — Vérins — Critères de réception et de
vérification finale*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 10099:2002](https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002)

[https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-
189cc90487e3/sist-iso-10099-2002](https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002)



Reference number
ISO 10099:2001(E)

© ISO 2001

ISO 10099:2001(E)**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ISO 10099:2002](https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002)

<https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002>

© ISO 2001

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 10099 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 3, *Cylinders*.

This second edition cancels and replaces the first edition (ISO 10099:1990), which has been technically revised.

ITEH STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 10099:2002](https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7-189cc90487e3/sist-iso-10099-2002)

<https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7-189cc90487e3/sist-iso-10099-2002>

ISO 10099:2001(E)**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 piston rod, operating within a cylindrical bore.

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

[SIST ISO 10099:2002](https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae77-189cc90487e3/sist-iso-10099-2002)

<https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae77-189cc90487e3/sist-iso-10099-2002>

Pneumatic fluid power — Cylinders — Final examination and acceptance criteria

1 Scope

This International Standard specifies functional tests for a final examination and the acceptance criteria for double-acting pneumatic cylinders with a single-rod used in pneumatic fluid power systems.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 8778, *Pneumatic fluid power — Standard reference atmosphere*.

<https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002>

3 Terms and definitions

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

4 Identity check

The following features shall be assured by means of quality assurance practices carried out either at final assembly or, earlier, in the manufacturing process:

- type;
- stroke length;
- overall length;
- model label;
- bore;
- piston rod protrusion and thread diameter;
- magnetic operation;
- mounting dimensions (including trunnion position);

ISO 10099:2001(E)

- correct cushion option or options;
- port type(s), location(s) and size(s).

5 Functional tests at ≤ 150 kPa [1,5 bar¹⁾]

With the cushion-adjusting device, if any, fully open, cycle the cylinder. Breakaway and full-stroke movement shall occur in both directions and the rod shall extend and retract smoothly. Carry out the tests with the cylinder in the horizontal position.

6 Leakage tests at 150 kPa (1,5 bar) and 630 kPa (6,3 bar)

6.1 After a cycling a few times, apply air at 150 kPa (1,5 bar) and then at 630 kPa (6,3 bar) to the rear port, venting the opposite port to atmosphere. Ensure that the checking method and measurement devices are suitable for recording the total leakage at the rear cylinder chamber, summarizing all leakage at all critical points:

- a) front port;
- b) joint between rear end cap and tube;
- c) around rear cushion adjusting device and around non-return valve, if any;
- d) porosity in rear end cap;
- e) any other external joints.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The leakage shall not exceed the values given in Table 1.

6.2 After cycling a few times, apply air at 150 kPa (1,5 bar) and then at 630 kPa (6,3 bar) to the front port, venting the opposite port to atmosphere. Ensure that the checking method and measurement devices are suitable for recording the total leakage at the front cylinder chamber, summarizing all leakage at all critical points:

- a) rear port;
- b) joint between front end cap and tube;
- c) around front cushion adjusting device and around non-return valve, if any;
- d) porosity in front end cap;
- e) any other external joints;
- f) around piston rod nose seal;
- g) joint between front end cap and bearing.

The leakage shall not exceed the value given in the Table 1.

6.3 If special limitations on leakage are specified by customers, the amount of leakage and the test method shall be agreed between the customer and the manufacturer.

1) 1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm²

Table 1 — Maximum leakage of a cylinder chamber

Cylinder bore (mm)	8, 10, 12	16, 20, 25	32, 40, 50	63, 80, 100	125, 160, 200	250, 320
Leak rate (dm ³ /h ANR) ^a	0,6	0,8	1,2	2	3	5
^a See ISO 8778.						

7 Cushioning test at 630 kPa (6,3 bar) (applicable to cushioned cylinder only)

Adjust the cushion-adjusting device to apply effective cushioning and cycle the cylinder at 630 kPa (6,3 bar). The piston rod shall be effectively decelerated before it reaches the end of stroke in both directions.

8 Identification statement (Reference to this International Standard)

It is strongly recommended that manufacturers use the following statement in test reports, catalogues and sales literature when electing to comply with this International Standard:

“Acceptance test for pneumatic cylinders in accordance with ISO 10099:2001, *Pneumatic fluid power cylinder — Final examination and acceptance criteria*”.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ISO 10099:2002](https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002)

<https://standards.iteh.ai/catalog/standards/sist/0d3fd4c9-5cb3-4805-ae7f-189cc90487e3/sist-iso-10099-2002>