

BS ISO 15524:2011



BSI Standards Publication

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

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National foreword

This British Standard is the UK implementation of ISO 15524:2011.

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

*Transmissions pneumatiques — Vérins — Vérins course courte à
simple tige, série à 1 000 kPa (10 bar), diamètres de 20 mm à 100 mm*





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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.

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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 15524 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 3, *Cylinders*.

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 — Single-rod short-stroke cylinders, 1 000 kPa (10 bar) series, bores from 20 mm to 100 mm

1 Scope

This International Standard establishes a metric series of single-rod pneumatic short-stroke cylinders with bores from 20 mm to 100 mm (inclusive) for use at maximum working pressure of 1 000 kPa [10 bar ¹⁾] with and without magnetic function. They are not equipped with adjustable cushioning, so their application is restricted to those systems where adjustable cushioning is not required.

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

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

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 Bore sizes

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

20 – 25 – 32 – 40 – 50 – 63 – 80 – 100

5 Nominal stroke

5.1 The nominal strokes shall be selected from the recommended values given in ISO 4393, as shown in Figure 1. The maximum stroke length should not exceed 100 mm.

5.2 The nominal stroke tolerances are given in Table 1.

1) 1 bar = 100 kPa = 10^5 Pa; 1 Pa = 1 N/m².

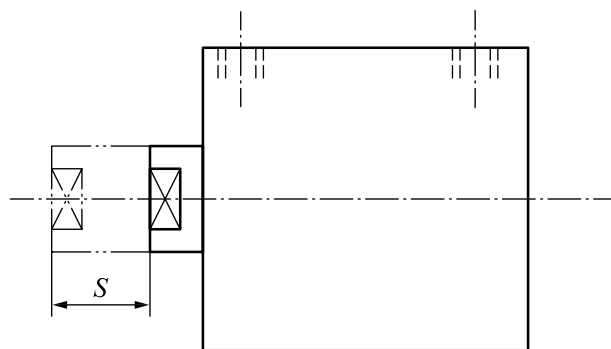


Figure 1 — Stroke, S

Table 1 — Nominal stroke tolerances

Dimensions in millimetres

Bore <i>AL</i>	Nominal stroke tolerance
20 25	+1,5 0
32 40 50	+2 0
63 80 100	+2,5 0

6 Dimensions

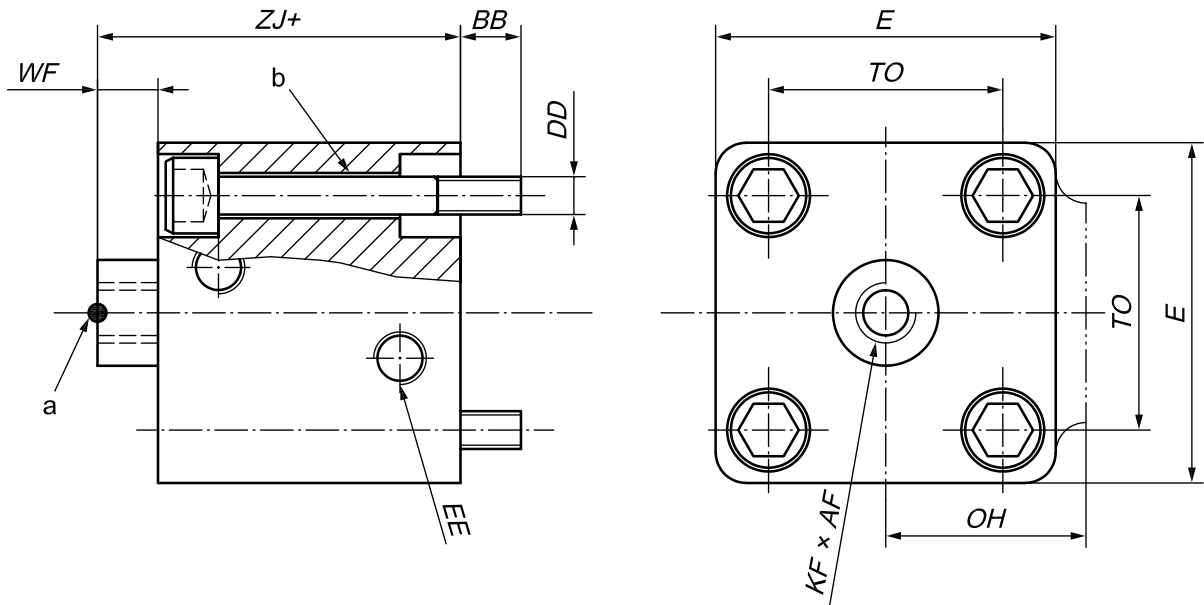
The basic dimensions of cylinders shall conform to the requirements given in Figures 2, 3 and 4 and Tables 2 and 3.

7 Mounting types

This International Standard includes the following mounting types, identified in accordance with ISO 6099.

- MB 1: Body, through bolt hole (see Figure 2 and Table 2);
- MX 8: Head and cap, tapped (see Figure 3 and Table 2);
- MX 9: Body, through two bolt hole and both ends two tapped (see Figure 4 and Table 3).

NOTE Letter code MX 9 should be added to ISO 6099.



- a TRP: theoretical reference point according to ISO 6099.
- b Fitting bolt.

Figure 2 — MB 1 — Body, through bolt hole

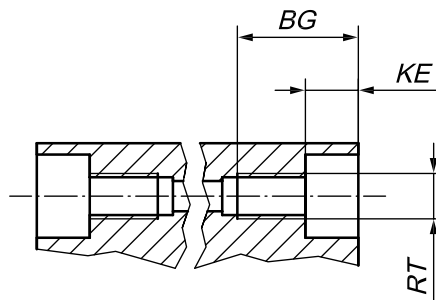


Figure 3 — MX 8 — Head and cap, tapped

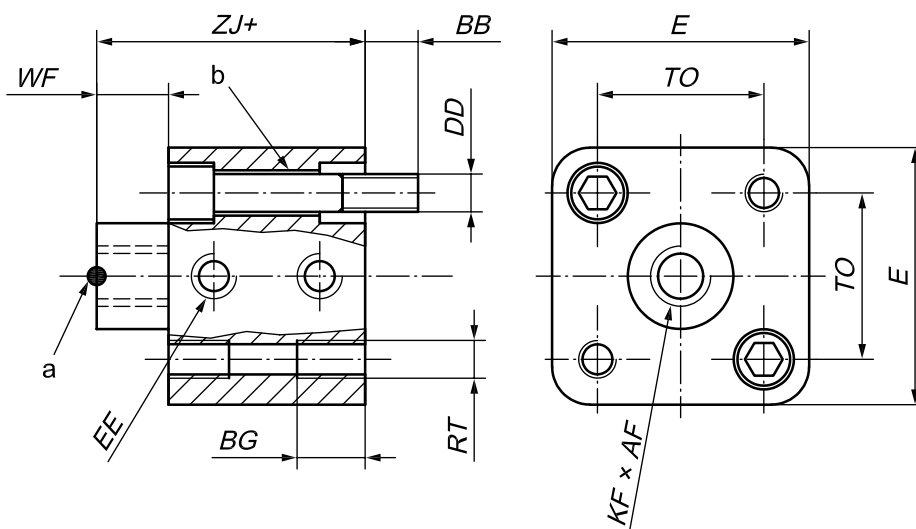
Table 2 — Dimensions of MB 1 and MX 8

Dimensions in millimetres

Bore <i>AL</i>	<i>AF</i>	<i>BB</i>	<i>BG</i>	<i>DD</i>	<i>E</i>	<i>EE</i> ^a	<i>OH</i>	<i>KE</i>	<i>KF</i>	<i>RT</i>	<i>TO</i>		<i>WF</i>		<i>ZJ</i>	
	min.	min.	min.		max.	min.	max.	max.			nom.	tol.	nom.	tol.	nom.	tol.
32	12	5	16	M5	51	G1/8	31	5,5	M8	M6	34	±0,3	7	±2	40	±2
40	12	5	16	M5	65	G1/8	33	5,5	M8	M6	40	±0,3	7	±2	46,5	±2
50	14	6	20	M6	77	G1/4	40	8	M10	M8	50	±0,5	8	±2	48,5	±2
63	14	8	25	M8	90	G1/4	47	10,5	M10	M10	60	±0,5	8	±2	54	±2
80	16	10	30	M10	103	G3/8	60	13,5	M16	M12	77	±0,5	10	±2	63,5	±2
100	16	10	30	M10	124	G3/8	72	13,5	M20	M12	94	±0,5	12	±2,5	75	±2

NOTE Dimensions *WF* and *ZJ+* are values for non-pressurised cylinders due to deformation of elastic buffers at stroke ends.

^a In accordance with ISO 16030.



- a TRP: theoretical reference point according to ISO 6099.
- b Fitting bolt.

Figure 4 — MX 9 — Body, through two bolt hole and both ends two tapped

Table 3 — Dimensions of MX 9 — Body, through two bolt hole and both ends two tapped

Dimensions in millimetres

Bore <i>AL</i>	<i>AF</i>	<i>BB</i>	<i>BG</i>	<i>DD</i>	<i>E</i>	<i>EE</i> ^a	<i>KF</i>	<i>RT</i>	<i>TO</i>		<i>WF</i>		<i>ZJ</i>	
	min.	min.	min.		max.	min.			nom.	tol.	nom.	tol.	nom.	tol.
20	7	5	10	M5	38	M5	M5	M6	25,5	±0,3	4,5	±1,5	36	±2
25	12	5	10	M5	43	M5	M6	M6	28	±0,3	5	±1,5	37,5	±2

NOTE Dimensions *WF* and *ZJ+* are values for non-pressurised cylinders due to deformation of elastic buffers at stroke ends.

^a In accordance with ISO 16030.

8 Example of ordering designation

A pneumatic short-stroke cylinder, mounting type = MB 1, bore = 40 mm, stroke = 30 mm, shall be designated as follows:

Short-stroke cylinder ISO 15524 – MB 1 – 40×30

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:

“Dimensions of pneumatic short-stroke cylinder are in accordance with ISO 15524:2011, *Pneumatic fluid power — Cylinders — Single-rod short-stroke cylinders, 1 000 kPa (10 bar) series, bores from 20 mm to 100 mm.*”

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