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Tools for pressing — Gas springs —

Part 4: Gas springs with increased spring force and same built height

Outillage de presse — Ressorts à gaz —

Partie 4: Ressorts à gaz à force accrue à même encombrement en hauteur

Reference number
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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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding*.

ISO 11901 consists of the following parts, under the general title *Tools for pressing — Gas springs*:

— *Part 1: General specifications*

— *Part 2: Specification of accessories*

— *Part 3: Gas spring with increased spring force and compact built height*

— *Part 4: Gas springs with increased spring force and same built height*

Introduction

The attention of the user of ISO 11901 is drawn to the fact that gas springs will have to conform to the national regulations of the user country.

Tools for pressing — Gas springs —

Part 4: Gas springs with increased spring force and same built height

1 Scope

This part of ISO 11901 specifies the dimensions (in millimetres), nominal initial forces and types of gas springs.

It is applicable to gas springs with increased spring force and same built height of type 10 000 to 95 000, pressurized with nitrogen with a nominal initial force of between 10 000 N ± 5 % and 95 000 N ± 5 %, for use in press tools.

It also specifies marking, technical delivery conditions and designation.

NOTE Specifications of mounting accessories for gas springs are given in ISO 11901-2.

2 Normative references

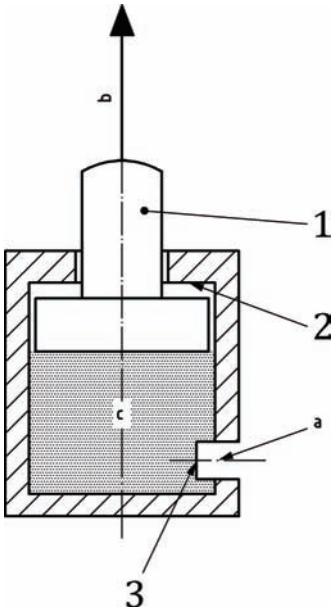
The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

3 Description and terminology

See Figure 1.



Key

1	rod
2	positive stop
3	valve
a	Pressure filling inlet.
b	Force.
c	Nitrogen.

Figure 1 — Terminology

The gas spring is an autonomous spring pressurized with nitrogen.

At rest position, the rod is pushed out.

This gas spring feature has a gas inlet for pressurization or depressurization. The inlet is located on the casing and is capped.

The pressure filling inlet of the gas springs includes a pipe thread ISO 7 - Rp 1/8 in accordance with ISO 7-1.

4 Interchangeability dimensions and characteristics

4.1 General nominal specifications

See Table 1.

Table 1 — General nominal specifications

Type	Nominal initial force N		Maximum filling pressure MPa	End of stroke nominal force increase coefficient
10 000	10 000	±5 %	15	1,5
24 000	24 000			1,6
42 000	42 000			1,5
66 000	66 000			1,5
95 000	95 000			1,5

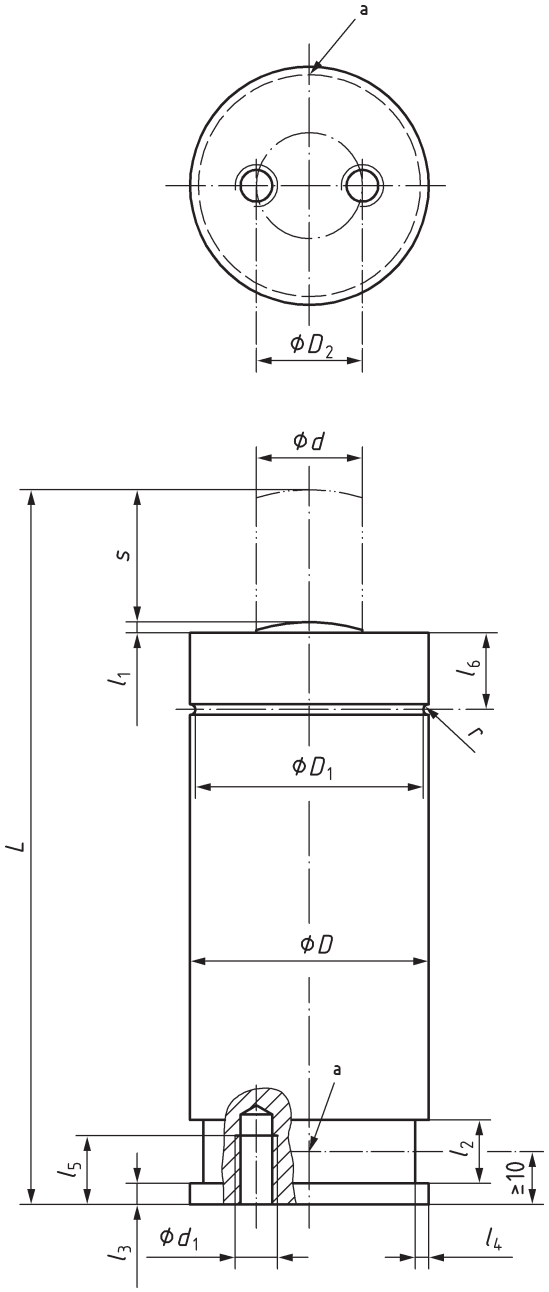
4.2 Gas springs of type 10 000

See Figure 2 and Table 2.

4.3 Gas springs of type 24 000 to 95 000

See Figure 3 and Table 2.

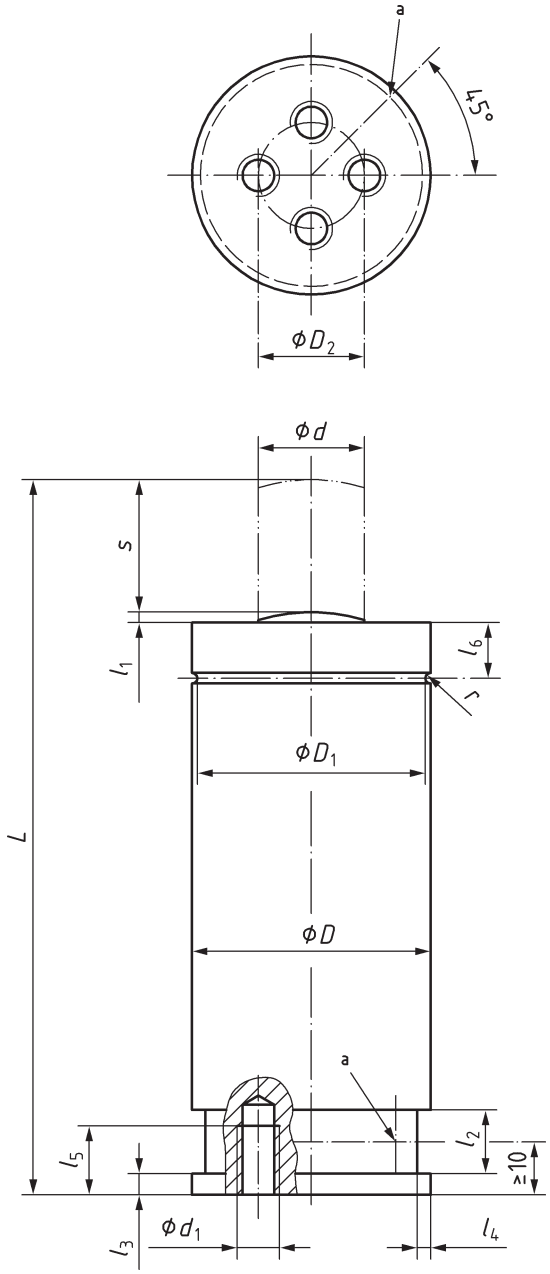
General tolerance: ISO 2768-m



a Pressure filling.

Figure 2 — Gas spring of type 10 000

General tolerance: ISO 2768-m



a Pressure filling inlet.

Figure 3 — Gas springs of type 24 000 to 95 000

Table 2 — Dimensions of gas springs of type 10 000 to 95 000 — Maximum filling pressure 15 MPa

Dimensions in millimetres

Type	Nominal stroke a	L ±0,25	l_1	l_2 min	l_3 $^{+0,15}_{0}$	l_4 min	l_5 min	l_6	r	d	D ±0,3	D_1 $^{0}_{-0,1}$	d_1	D_2	Number of holes
10 000	25	145	3	5	8	3,5	13	14.5	2	28	50	46	M8	20	2
	50	195													
	80	255													
	100	295													
	125	345													
	160	415													
	200	495													
	250	595													
	300	695													
24 000	25	160	3	5	8	4	13	18	2,5	45	75	70	M8	40	4
	50	210													
	80	270													
	100	310													
	125	360													
	160	430													
	200	510													
	250	610													
	300	710													
42 000	25	170	3	5	8	4	13	21	2,5	60	95	90	M8	60	4
	50	220													
	80	280													
	100	320													
	125	370													
	160	440													
	200	520													
	250	620													
	300	720													
66 000	25	190	3	5	8	4	16	22,5	2,5	75	120	115	M10	80	4
	50	240													
	80	300													
	100	340													
	125	390													
	160	460													
	200	540													
	250	640													
	300	740													

Table 2 *(continued)*

Type	Nominal stroke a	L ±0,25	l_1	l_2 min	l_3 $^{+0,15}_{0}$	l_4 min	l_5 min	l_6	r	d	D ±0,3	D_1 $^{0}_{-0,1}$	d_1	D_2	Number of holes
95 000	25	205	3	5	8	4	16	24,5	2,5	90	150	145	M10	100	4
	50	255													
	80	315													
	100	355													
	125	405													
	160	475													
	200	555													
	250	655													
	300	755													

5 Marking

Gas springs shall be labelled in an indelible way, with at least the following information:

a) the manufacturer's name;

b) the gas used;

c) the date of manufacture;

d) the maximum filling pressure;

e) the type.

6 Technical delivery conditions

Gas springs shall be supplied at the nominal pressure at a reference temperature of 20 °C.

NOTE Increase in temperature increases pressure at constant volume according to the following formula:

$$p_t = p_0 (1 + 0{,}003\,6\,\Delta t)$$

where

p_t is the nitrogen pressure, in megapascals, at temperature *t;*

p_0 is the nitrogen pressure, in megapascals, at reference temperature;

Δt is the temperature variation.

The rod shall be slightly oiled and protected against shocks.

7 Designation

A gas spring in accordance with this part of ISO 11901 shall be designated by:

— "Gas spring";

— reference to this part of ISO 11901, i.e. ISO 11901-4;

— the type;

— the nominal stroke, in millimetres.

EXAMPLE A gas spring of type 24 000, nominal stroke of 25 mm is designated as follows:

Gas spring ISO 11901-4 - 24 000 × 25

Bibliography

[1] ISO 11901-2, *Tools for pressing — Gas springs — Part 2: Specification of accessories*

[2] Council directive 97/23/CE “Pressure equipment”

ICS 25.120.10

Price based on 9 pages