INTERNATIONAL STANDARD

ISO 11901-1

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Tools for pressing — Gas springs —

Part 1:
General specifications

Outillage de presse — Ressorts à gaz —
Partie 1: Spécifications générales

Reference number
ISO 11901-1:1995(E)

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.

International Standard ISO 11901-1 was prepared by Technical Committee 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*

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Introduction

The attention of the reader of ISO 11901 is drawn to the fact that gas springs according to this part of ISO 11901 shall conform to the user's national regulations.

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Tools for pressing — Gas springs —

Part 1:
General specifications

1 Scope

This part of ISO 11901 specifies the dimensions in millimetres, nominal forces and nominal operating pressures, of gas springs.

It applies to gas springs with a nominal force between 1 000 N and 75 000 N, pressurized with nitrogen with an operating pressure between 10 MPa and 15 MPa, for use in press tools.

It also specifies marking, technical delivery conditions and designation.

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

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11901. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11901 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 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation.*

ISO 11901-2:1995, *Tools for pressing — Gas springs — Part 2: Specification of accessories.*

3 Description and terminology

See figure 1.

The gas spring is an autonomous spring pressurized with nitrogen.

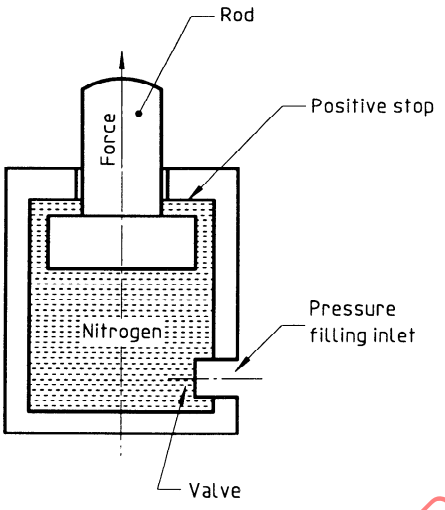

Figure 1 — Terminology

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 or on the bottom and is capped.

For gas springs of nominal force equal to or less than 2 500 N, the pressure filling inlet may be located at the end of the rod. In this case, the rod end is not spherical.

The pressure filling inlet of gas springs of nominal force of at least 2 500 N includes a pipe thread ISO 7 - Rp 1/8 according to ISO 7-1, and the pressure filling inlet of gas springs of nominal force equal to or less than 2 500 N, includes a thread M6.

4 Interchangeability dimensions and characteristics

4.1 General nominal specifications

See table 1.

Table 1 — General nominal specifications

Type	Nominal force N		Nominal operating pressure MPa	End of stroke nominal force increase coefficient
Micro	1 000	± 20	10	1,3
	1 600		10	1,3
	1 500		15	1,3
	2 500		15	1,3
Regular	3 300	± 30	10	1,3
	5 000		10	1,5
	5 000		15	1,3
	7 500		15	1,5
	10 000		10	1,5
	15 000		15	1,5
	20 000	± 60	10	1,5
	30 000		15	1,5
	33 000	± 100	10	1,5
	50 000		15	1,5
	50 300		10	1,5
	75 000		15	1,5

4.2 Gas springs of nominal force between 1 000 N and 2 500 N

See figure 2 and table 2.

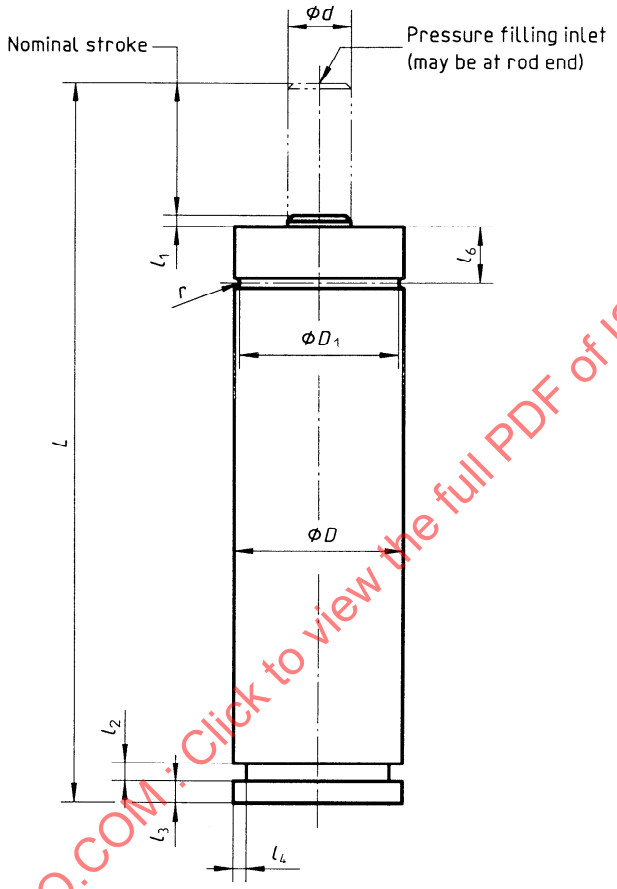

Figure 2 — Gas springs of nominal force between 1 000 N and 2 500 N

4.3 Gas springs of nominal force between 3 300 N and 7 500 N

See figure 3 and table 2.

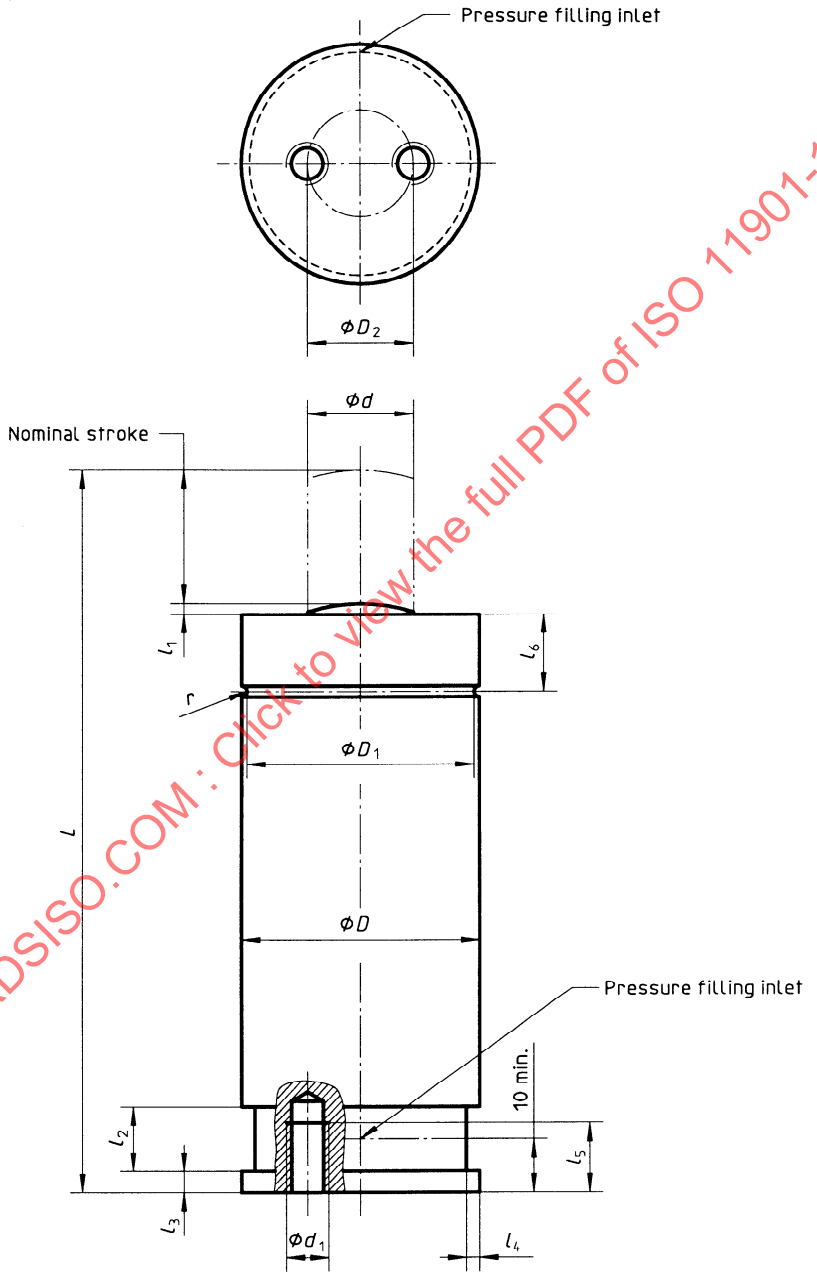

Figure 3 — Gas springs of nominal force between 3 300 N and 7 500 N

4.4 Gas springs of nominal force between 10 000 N and 75 000 N

See figure 4 and table 2.

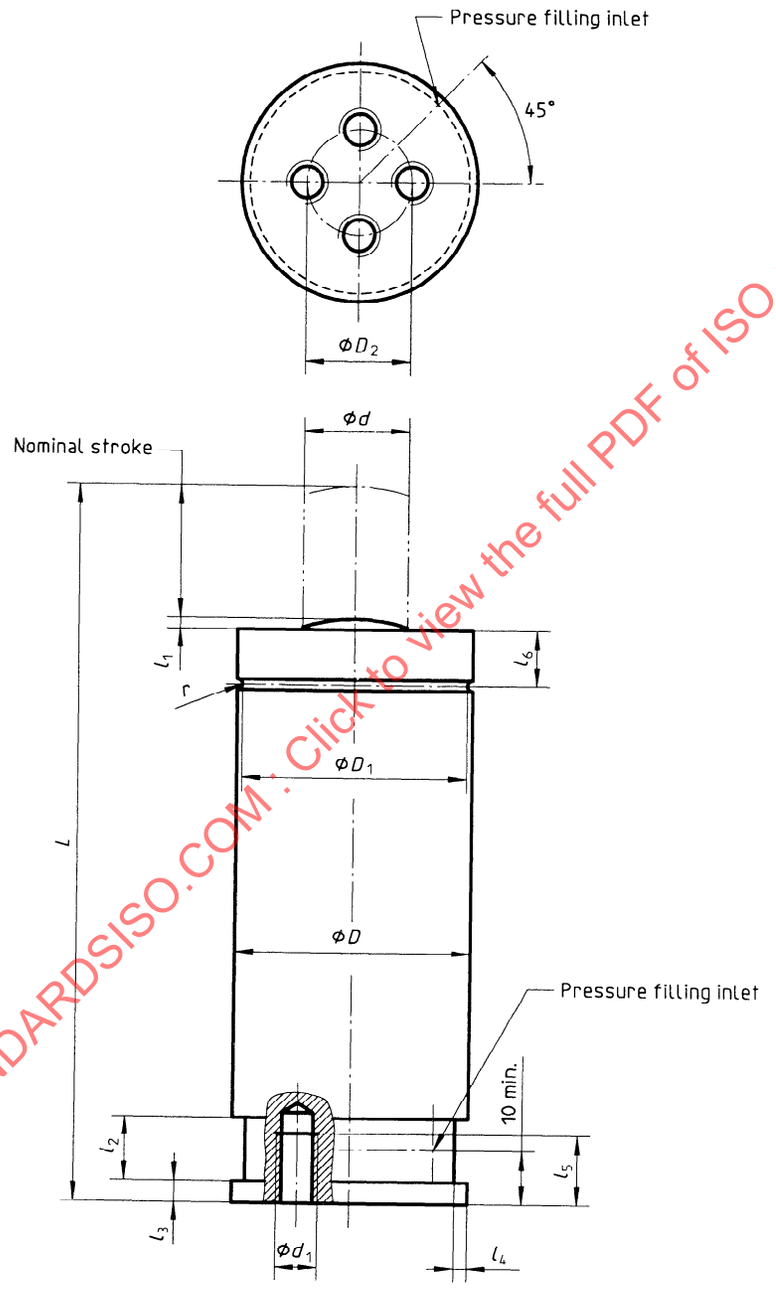

Figure 4 — Gas springs of nominal force between 10 000 N and 75 000 N

Table 2 — Dimensions

Nominal operating pressure MPa 15			10			L	l_1	l_2	l_3	l_4	l_5	l_6	r	d	D	D_1	d_1	D_2	Number of holes
Nominal force N	Nominal stroke	Force at end of stroke N	Nominal force N	Nominal stroke	Force at end of stroke N	± 0,25		min.	$^{+0,15}_{0}$	min.	± 0,3				± 0,3	$^{0}_{-0,1}$			
1 500	10 16 25 50 80	1 950	1 000	10 16 25 50 80	1 300	70 82 100 150 210	2	3,5	4	2,5	—	10,5	1	11,5	32	30	—	—	—
2 500	10 16 25 50 80	3 250	1 600	10 16 25 50 80	2 100	70 82 100 150 210	2	3,5	4	2,5	—	10,5	1	15	38	36	—	—	—
5 000	25 50 80	6 500	3 300	25 50 80	4 300	135 185 245	2	3,5	4	2,5	13	14,5	1	20	45	43	M8	20	2
7 500	25 50 80 100 125 160	11 250	5 000	25 50 80 100 125 160	7 500	145 195 255 295 345 415	3	5	8	3,5	13	14,5	2	25	50	46	M8	20	2
15 000	25 50 80 100 125 160	22 500	10 000	25 50 80 100 125 160	15 000	160 210 270 310 360 430	3	5	8	4	13	18	2,5	36	75	70	M8	40	4
30 000	25 50 80 100 125 160	45 000	20 000	25 50 80 100 125 160	30 000	170 220 280 320 370 440	3	5	8	4	13	21	2,5	50	95	90	M8	60	4

Nominal operating pressure MPa						L	l_1	l_2	l_3	l_4	l_5	l_6	r	d	D	D_1	d_1	D_2	Number of holes
15			10																
Nominal force N	Nominal stroke	Force at end of stroke N	Nominal force N	Nominal stroke	Force at end of stroke N	± 0,25		min.	$^{+0,15}_{0}$	min.	± 0,3				± 0,3	$^{0}_{-0,1}$			
50 000	25 50 80 100 125 160	75 000	33 000	25 50 80 100 125 160	50 000	190 240 300 340 390 460	3	5	8	4	16	22,5	2,5	65	120	115	M10	80	4
75 000	25 50 80 100 125 160	112 500	50 300	25 50 80 100 125 160	75 400	205 255 315 355 405 475	3	5	8	4	16	24,5	2,5	80	150	145	M10	100	4