International Standard

ISO 11901-1

Tools for pressing — Gas springs —

Part 1: General specifications

Outillage de presse — Ressorts à gaz —

Partie 1: Spécifications générales

Third edition
2025-02

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Foreword

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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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 8, *Tools for pressing and moulding*.

This third edition cancels and replaces the second edition (ISO 11901-1:2003), which has been technically revised.

The main changes are as follows:

— deletion in the description of the location of the pressure filling inlet for gas spring of type 1 500 and 2 500;

— modification of the initial force of gas spring of type 15 000, 30 000, 50 000, 75 000 and 100 000;

— modification of the length of gas spring type 900 with a nominal stroke of 38;

— modification of the design of gas spring type 1 500 and 2 500;

— addition of new strokes for of gas spring type 900, 1 500, 2 500, 5 000, 7 500, 15 000, 30 000, 50 000 and 75 000;

— replacement of length l_4 with diameter D_4 in Table 3 and in Figure 3, Figure 4 and Figure 5.

A list of all parts in the ISO 11901 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The attention of the user of this document is drawn to the fact that national regulations in regard to gas springs apply.

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Tools for pressing — Gas springs —

Part 1: General specifications

1 Scope

This document specifies the dimensions, in millimetres, nominal initial forces and type of gas springs.

It applies to gas springs of type 900 to 100 000, pressurized with nitrogen with a nominal initial force of between 900 N ± 5 % and 100 600 N ± 5 %, for use in press tools.

This document 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 are referred to in the text in such a way that some or all of their content constitutes requirements 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 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*

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3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Description and terminology

See Figure 1.

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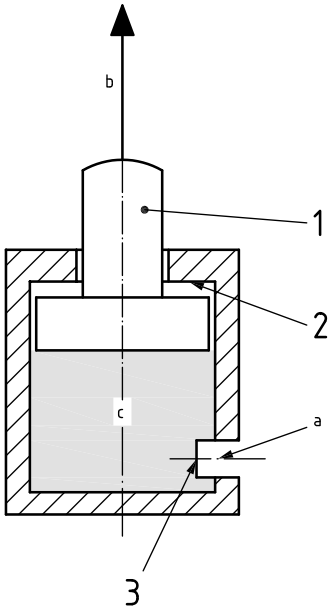

Key

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

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Figure 1 — Terminology

The gas spring is an autonomous spring pressurized with nitrogen.

At rest position, the rod is pushed out.

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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.

The pressure filling inlet of gas springs of type of at least 2 500 includes a pipe thread ISO 7 - Rp 1/8 which shall be in accordance with ISO 7-1 and the pressure filling inlet of gas springs of type equal or less than 2 500 shall include an M6 thread.

5 Interchangeability dimensions and characteristics

5.1 General nominal specifications

See Table 1.

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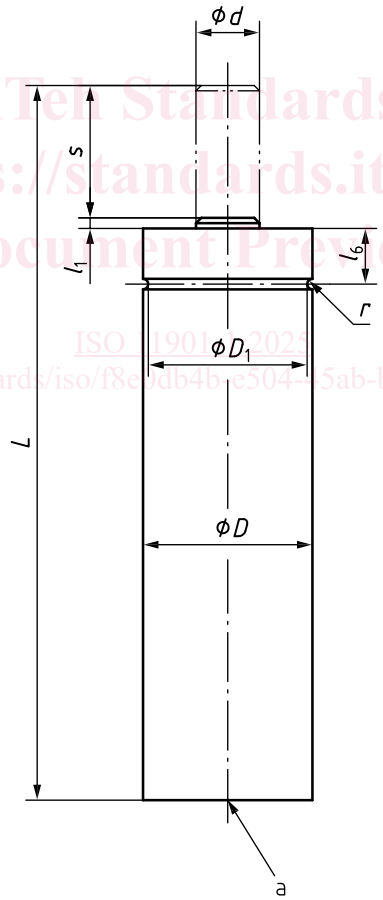
Table 1 — General nominal specifications

Type	Initial force N		Maximum filling pressure MPa	End of stroke nominal force increase coefficient
900	900	±5 %	18	1,5
1 500	1 700		15	1,3
2 000	2 000		18	1,5
2 500	2 600		15	1,3
5 000	4 700			1,5
7 500	7 400			
15 000	15 300			
30 000	29 450			
50 000	49 800			
75 000	75 400			
100 000	106 000			

5.2 Gas springs of type 900 and 2 000

See Figure 2 and Table 2.



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The general tolerance shall be ISO 2768-m according to ISO 2768-1.

[a] Pressure filling inlet.

Figure 2 — Gas springs of type 900 and 2 000

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Table 2 — Dimensions of gas springs of type 900 and 2 000 — Maximum filling pressure 18 MPa

Type	Nominal stroke *s*	*L* ±0,25	l_1 +1 0	l_6 +1 0	*r*	*d*	*D* ±0,3	D_1 0 −0,1
900	15	72	1	16	1	8	19	17
	25	92						
	38	118,2						
	50	142						
	63	172						
	80	205						
	100	245						
	125	295						
2 000	15	72	1			12	25	23
	25	92						
	38	118,2						
	50	142						
	63	172						
	80	205						
	100	245						
	125	295						

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5.3 Gas springs of type 1 500

See Figure 3 and Table 3.

5.4 Gas springs of type 2 500

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See Figure 4 and Table 3.

5.5 Gas springs of type 5 000 to 7 500

See Figure 5 and Table 3.

5.6 Gas springs of type 15 000 to 100 000

See Figure 6 and Table 3.

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