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Tools for pressing — Gas springs —

Part 5: Safety instructions for gas springs

Outillage de presse — Ressorts à gaz —

Partie 5: Instructions de sécurité pour les ressorts à gaz

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Foreword

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

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

This document was developed to align the ISO standard with the most commonly used gas springs safety standard, and to give some recommendations about instructions for use.

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Tools for pressing — Gas springs —

Part 5:
Safety instructions for gas springs

1 Scope

This document describes the safety requirements for gas springs in accordance with ISO 11901-1, ISO 11901-3 and ISO 11901-4 intended for use in press tool and their correct installation instructions.

The instructions and operating conditions described in Annex A help to maximise lifetime and ensure the safe operation of nitrogen gas springs.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document

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

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

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

4 Safety protection for nitrogen gas springs

4.1 General

Incorrect use of nitrogen gas springs can pose a risk to people and the machine/die.

Some potential causes of damage and the mode of operation of the protection equipment used to avoid them are described in 4.2 to 4.4.

4.2 Uncontrolled return stroke safety protection

It is possible that the piston rod of the nitrogen gas spring does not immediately follow the return stroke of the press: this can be caused by a jammed tool part or cam (see Figure 1). As a result, when the jammed part is released, the piston rod of the nitrogen gas spring exceeds the permitted speed during the return stroke and the piston rod slams unchecked onto the final stop (return stroke of the rod pushing out the jammed part without stamping counterforce). This can seriously damage the nitrogen gas spring or cause it to fail. To avoid this, nitrogen gas springs shall be designed to vent the gas to the atmosphere – thereby depressurizing the spring – in the event that the maximum permitted piston rod speed is exceeded. This reduces the risk of injuries caused by the ejection of gas spring parts.

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