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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 42596.3-2023**

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**Machine tools safety - Presses - Part 3: Safety requirements for  
hydraulic presses**

机床安全 压力机 第3部分：液压机安全要求

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Standardization Administration of the PRC**

## Table of Contents

|                                                   |    |
|---------------------------------------------------|----|
| 1 Scope .....                                     | 1  |
| 2 Normative references .....                      | 1  |
| 3 Terms and Definitions .....                     | 1  |
| 4 Significant hazard list .....                   | 1  |
| 8 Protective measures against other hazards ..... | 18 |
| 30 Reference .....                                | 31 |

### Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting: This document is part 3 of GB/T 42596 "Safety Presses for Machine Tools": GB/T 42596 has issued the following parts:

--- Part 1: General safety requirements;

--- Part 3: Safety requirements for hydraulic presses: This document is modified to adopt ISO 16092-3:2017 "Safety presses for machine tools - Part 3: Safety requirements for hydraulic presses": The technical differences between this document and ISO 16092-3:2017 and their reasons are as follows:

--- ISO 4413:2010 was replaced by GB/T 3766-2015 with normative references (see Chapter 5), the consistency between the two documents The degree of stability is modified to adapt to the technical conditions of our country and increase operability;

--- ISO 16092-1:2017 was replaced by GB/T 42596:1-2023 with normative references (see Chapter 5), between the two documents The degree of consistency is modified to adapt to our country's technical conditions and increase operability: The following editorial changes have been made to this document:

--- "Table 1 in ISO 16092-3:2017" in Chapter 4 is changed to "Table A:1 in GB/T 42596:1-2023;"

--- The content of the suspension section of 5:2:3 is moved into 5:2:3:1;

--- The content of the suspension section of 5:3:6 is moved into 5:3:6:1;

--- The content of the suspension section of 5:5 is moved into 5:5:1;

1 Deleted the article title;

--- 5:5:2 deleted the heading: Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This document is proposed by China Machinery Industry Federation: This document is under the jurisdiction of the National Forging Machinery Standardization Technical Committee (SAC/TC220): This document is drafted by: Hefei Heforging Intelligent Manufacturing Co., Ltd.; Chongqing Jiangdong Machinery Co., Ltd.; Huzhou Machine Tool Factory Co., Ltd.; Company, Rongcheng East China Forging Machine Tool Co., Ltd.; Zhongshan Shenglong Forging Machinery Co., Ltd.; Guangdong Chuangxing Precision Manufacturing Co., Ltd.; Division, Tianjin Tianduan Press Co., Ltd.; Guangdong Qixin Auto Parts Co., Ltd.; Zhejiang Jinaolan Machine Tool Co., Ltd.; Chengdu Zhengxi Liquid Pressure Equipment Manufacturing Co., Ltd.; Shenzhen Hengtuogao Industrial Technology Co., Ltd.; Wuxi Pengda Hydraulic Machine Tool Factory, Foshan Xinuo Hydraulic Sealing Technology Co., Ltd.; Pilz Electronics (Changzhou) Co., Ltd: The main drafters of this document: Yan Jianwen, Liu Xuefei, Shen Zhongwei, Li Guishan, Qiu Yuliang, Lu Weining, Chen Liangjin, Ouyang Zhiyao, Sui Yan, Lu Shiguang, Ding Weimin, Zeng Huan, Wang Zhenli, Sun Tie, Liu Furisan, Shan Huabo:

According to GB/T 15706-2012, this document belongs to category C standard: When the requirements in the category C standard are different from those specified in the category A or B standards, the requirements of this category C standard take precedence over other standards: According to the requirements of the standard, the machine shall be designed and manufactured according to the requirements of this category C standard: GB/T 42596 "Safety presses for machine tools" is proposed to be divided into the following four parts:

--- Part 1: General safety requirements;

--- Part 2: Safety requirements for mechanical presses;

## 1 Scope

GB/T 42596.3-2023 is Part 3 of the Chinese series on press safety, and covers hydraulic presses. A hydraulic press is in one respect safer than a mechanical one, since it can be stopped anywhere in the stroke rather than having to complete it, and in another respect worse, since the slide can drift or fall under its own weight when the fluid leaks past a valve, and it can develop full force at any position. The safety case therefore turns on the hydraulic system as much as on the guarding. The standard lists the significant hazards and sets the safety requirements: the basic design, the mechanical hazards in the die area, the control and monitoring system, die and stroke adjustment, maintenance and lubrication, other mechanical hazards, slips, trips and falls, and protection against other hazards, followed by the verification and the information for use with its marking, warnings and instruction handbook. It took effect on 1 December 2023.

This document specifies the safety techniques to be adopted by the design, manufacture and supplier of hydraulic presses for cold working of cold metal or parts of cold metal

requirements and measures: This document applies to hydraulic presses ranging from small high-speed machines operated by a single operator for the production of small workpieces to large Large, slow machine tools operated by multiple operators for complex workpieces:

## 2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document:

GB/T 3766-2015 General rules and safety requirements for hydraulic transmission systems and their components ( ISO 4413:2010, MOD) GB/T 14048:

20 Low-voltage switchgear and control equipment - Part 5-8: Three-position enabling switch for control circuit appliances and switching elements Off ( GB/T 14048:20-2013, IEC 60947-5-8:2006, IDT)

GB/T 15706-2012 General Principles of Machinery Safety Design Risk Assessment and Risk Reduction ( ISO 12100:2010, IDT)

GB/T 16855:1-2018 Safety-related components of machinery safety control systems Part 1: General principles for design ( ISO 13849-1: 2015, IDT)

GB/T 16855:2-2015 Safety-related components of machinery safety control systems Part 2: Validation ( ISO 13849-2:2012, IDT)

GB/T 18831-2017 Design and selection principles of interlocking devices related to machinery safety and guards ( ISO 14119: 2013, IDT)

GB/T 42596:1-2023 Machine Tool Safety Press Part 1: General Safety Requirements ( ISO 16092-1:2017, MOD)

## 3 Terms and Definitions

GB/T 15706-2012, GB/T 16855:1-2018, GB/T 42596:1-2023 and the following terms and definitions apply in this document: 3:1 support valve restraintvalve A device that prevents the slider from falling due to its own weight:

## 4 List of major hazards

Carry out a risk assessment for the machines defined in the scope to identify all significant hazards, hazardous situations and events for which specific action is required to eliminate or reduce risk: These hazards are listed in Table A:1 of GB/T 42596:1-2023: Other hazards

are listed in Table A:1 of Appendix A of this document:

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