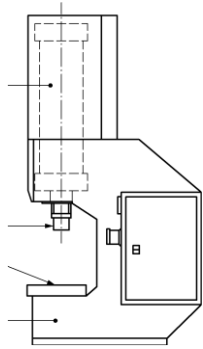


ISO EN ISO 16092-4 Machine tools safety – Part 4: Pneumatic presses

Scope of application:



down-stroking pneumatic press (part revolution clutch) press
(tools area safeguards not shown)

Overview of design-specific safety requirements and/or measures:

- Prevention of gravity fall during maintenance or repair
- Prevention of gravity fall during production
- Control and monitoring system
- Performance level of safety function
- Tool setting, maintenance and lubrication
- Information for use
- Calculation of minimal distances
- Examples and principle of pneumatic press and power interlocking

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Presses – Important type-C-standards

Overview of frequently used type-C-standards with additional information

This publication is aimed at manufacturers of presses that can be used for the cold working of the following materials:

- wholly or partly made of metal
- other sheet materials (e.g. cardboard, plastic, rubber, leather etc.)

Those presses transmit force mechanically to cut, form or work by means of tools or dies attached to or operated by slides/ram.

Anyone placing a press on to the market must be able to prove compliance with the machinery directive 2006/42/EC and any further provisions.

Presses intended for the cold working of metal are listed in Annex IV of machinery directive if the following properties are present:

- manual loading and/or unloading
- at work movable parts may have a speed > 30 mm/s and a travel exceeding > 6 mm

For those presses the procedure for assessment of conformity is to be implemented according to Article 12(3), (4) of the machinery directive.

Detailed safety requirements and protective measures for presses can be obtained from the EN ISO 16092 series of standards. This publication is intended to provide an overview of this series of standards, which comprises Type C standards.

The common requirements for presses are described in the standard EN ISO 16092-1 "Presses - Part 1: General Safety Requirements". Depending on how the press is driven (mechanical, hydraulic, pneumatic), the requirements of parts 2, 3 or 4 of the EN ISO 16092 series of standards must also be observed.

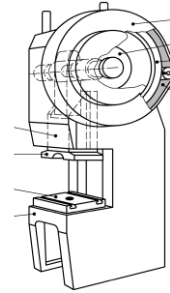
EN ISO 16092-1 Machine tools safety – Presses – Part 1: General safety requirement

Overview of safety requirements and/or measures:

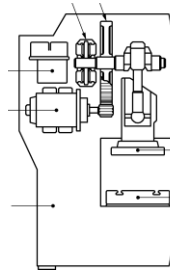
- 5.1 General
- 5.2 Basic design considerations
- 5.3 Mechanical hazards in the tools area
- 5.4 Control and monitoring system
- 5.5 Tool setting, trial strokes, maintenance and lubrication
- 5.6 Mechanical hazards - other
- 5.7 Slips, trips and falls
- 5.8 Protection against other hazards
7. Information for use

EN ISO EN ISO 16092-2 Machine tools safety- Presses – Part 2: Mechanical presses

Scope of application:



friction clutch (part revolution clutch) press (tools area safeguards not shown)



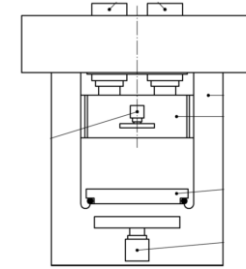
mechanical servo press (tools area safeguards not shown)

Overview of design-specific safety requirements and/or measures:

- Mechanical brake
- Slide adjustment
- Slide counterbalance systems
- Operating valves and exhaust systems
- Additional requirements for friction clutch presses
- Additional requirements for mechanical servo presses
- Prevention of gravity fall during maintenance or repair
- Control and monitoring functions
- Performance level of safety functions
- Stopping-performance (overrun) monitoring function/device
- Tool setting
- Information for use
- Calculation of minimum distances
- The setting of the rotary cam arrangement
- Determination of the stopping performance for friction clutch presses

EN ISO EN ISO 16092-3 Machine tools safety – Part 3: Hydraulic presses

Scope of application:



down stroking hydraulic press (tools area safeguards not shown)

Overview of design-specific safety requirements and/or measures:

- Hydraulic systems
- Prevention of gravity fall during maintenance or repair
- Prevention of gravity fall during production
- Control and monitoring functions
- Performance level of safety functions
- Tool setting, trial strokes, maintenance and lubrication
- Information for use
- Calculation of the minimum distances
- The response time of the hydraulic system
- Interlocking devices associated with guards
- The connection of the stopping time measurement
- Hydraulic speed limitation