

ISO 16092-4:2019-11 (E)

Machine tools safety - Presses - Part 4: Safety requirements for pneumatic presses

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	List of significant hazards	2
5	Safety requirements and/or measures	2
5.1	General	2
5.2	Basic design considerations	2
5.2.1	Hydraulic and pneumatic systems -- Common features	2
5.2.2	Pneumatic systems	2
5.2.3	Hydraulic systems	2
5.2.4	Electric systems	2
5.3	Mechanical hazards in the tools area	2
5.3.1	Major danger zone	2
5.3.2	Safeguarding measures	2
5.3.3	Other safety requirements	2
5.3.4	Release of trapped persons between the tools	2
5.3.5	Release of persons trapped inside enclosed areas	3
5.3.6	Prevention of gravity fall during maintenance or repair	3
5.3.7	Prevention of unintended gravity fall during production (down-stroking press)	3
5.4	Control and monitoring system	3
5.4.1	Control and monitoring functions	3
5.4.2	Muting	4
5.4.3	Selection devices	4
5.4.4	Position sensors	4
5.4.5	Control devices	4
5.4.6	Valves	4
5.4.7	Performance level of safety functions	4
5.5	Tool-setting, trial strokes, maintenance and lubrication	19
5.6	Mechanical hazards -- Other	19
5.7	Slips, trips and falls	19
5.8	Protection against other hazards	19
6	Verification of the safety requirements and/or measures	19
7	Information for use	20
7.1	General	20
7.2	Marking	20
7.3	Warnings	21
7.4	Instruction handbook	21
Annex A (informative) Additional significant hazards, hazardous situations and protective measures		22
Annex B (normative) Calculation of minimum distances		23

Annex C (informative) Examples and principles of pneumatic press and power interlocking	24
Bibliography	27