

**Code for power press operation: Health, safety, and
safeguarding requirements**



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Contents

Technical Committee on Power Press Operation vii

Preface x

1 Scope 1

2 Reference publications 2

3 Definitions 4

4 Principles of machine safety 11

- 4.1 Eliminate hazards through inherently safe design 11
- 4.2 Identify hazards and assess risk 11
- 4.3 Design and select guards and any other safeguarding devices against any residual risks 11
- 4.4 Additional precautions 11
- 4.5 Additional considerations 11
- 4.6 Machine safety — Implementation at the user's stage 12

5 Responsibilities 12

- 5.1 Manufacturer 12
 - 5.1.1 General responsibilities 12
 - 5.1.2 Design and construction 12
 - 5.1.3 Hazard identification 12
 - 5.1.4 Hazard control 12
 - 5.1.5 Instructions 12
- 5.2 Integrator/modifier 12
 - 5.2.1 General responsibilities 12
 - 5.2.2 Hazard identification 12
 - 5.2.3 Hazard control 12
- 5.3 Employer 13
 - 5.3.1 General responsibilities 13
 - 5.3.2 Hazard identification 13
 - 5.3.3 Hazard control 13
- 5.4 Authorized personnel 13

6 Hazard identification and control 13

- 6.1 Hazard identification 13
 - 6.1.1 Design and construction 13
 - 6.1.2 Installation 14
 - 6.1.3 Use 14
 - 6.1.4 Care 15
- 6.2 Hazard control 15

7 Machinery requirements 16

- 7.1 General requirements 16
 - 7.1.1 Safety blocking devices 16
 - 7.1.2 Slide/ram/platen counterbalance systems 17
 - 7.1.3 Stop buttons 18
 - 7.1.4 Electrical and electronic requirements 18
 - 7.1.5 Energy-isolating devices 21
 - 7.1.6 Fluid-powered die-clamping systems 22

7.1.7	Data plate	22
7.2	Machine requirements for mechanical presses and mechanical press brakes	22
7.2.1	Brake requirements	22
7.2.2	Clutches	23
7.2.3	Pneumatic requirements	24
7.2.4	Flywheel/crank angle indication and rotation	24
7.2.5	Overload protection	25
7.2.6	Stopping performance monitor (brake monitor)	25
7.2.7	Slide/ram/platen adjustment	26
7.2.8	Pressurizing of hydraulic nuts on tie rods	26
7.3	Machine requirements for hydraulic/pneumatic presses and hydraulic/pneumatic press brakes	27
7.3.1	General	27
7.3.2	Circuits and components	27
7.3.3	Load-holding system to prevent unintended gravity falls during production	29
7.3.4	Load holding to prevent gravity falls during non-production times	29
7.4	Mechanical direct drive presses	29
8	Safety-related control system performance (hardware/software)	30
8.1	General	30
8.2	Auxiliary equipment control system performance	30
8.3	Safety-related software- and firmware-based controllers	30
9	Safeguarding of personnel	30
9.1	Responsibility	30
9.2	Implementation	31
9.3	Sources of hazards	31
9.4	Safeguarding methodology selection	31
9.5	Safeguarding requirements	31
9.5.1	General	31
9.5.2	Requirements for safety circuit performance	31
9.6	Press brake safeguarding	31
9.6.1	General	31
9.6.2	Alternative manufacturing process	32
9.6.3	Alternative safeguarding methods	32
9.6.4	Laser-actuated active opto-electronic protective device (AOPD) systems moving with the slide/ram/platen	32
9.6.5	Hold-to-run control foot pedal	35
10	Stopping times and distances	35
10.1	Formula to calculate minimum safe distance	35
10.2	Safe distance determination	36
10.3	Safe distance determination for mechanical direct driven presses	36
10.4	Hand speed	36
10.5	Two-hand trip for full-revolution clutch-presses	37
11	Classification and selection of safeguards	37
11.1	Safeguards	37
11.1.1	General performance requirements	37
11.1.2	Application requirements	37
11.2	Operator restraint devices	38
11.2.1	General	38
11.2.2	Pullback device (pullout device)	38
11.2.3	Holdback device (holdout or fixed restraining device)	39
11.3	Safeguarding devices	39

- 11.3.1 Interlocking safeguarding devices 39
- 11.3.2 Requirements for safeguarding devices that signal a stop 40
- 11.3.3 Two-hand control device 41
- 11.3.4 Two-hand tripping devices (full-revolution presses only) 42
- 11.3.5 Safety light curtains/screens 42
- 11.3.6 Area scanning safeguarding devices 43
- 11.3.7 Radio frequency (RF)/capacitance devices 44
- 11.3.8 Safety mat systems 44
- 11.4 Auxiliary equipment safeguarding 44
- 11.5 Material threading and tailout 45

12 Training and operation 45

13 Maintenance and inspection 46

- 13.1 Employer responsibility 46
- 13.2 Inspection procedure 46
- 13.3 Manufacturer's instructions 46
- 13.4 Replacement parts 46

14 Personal protective equipment 46

- 14.1 Eye protection 46
- 14.2 Foot protection 46
- 14.3 Head protection 47
- 14.4 Hearing protection 47
- 14.5 Hand protection 47
- 14.6 Other protective equipment 47
- 14.7 Cleaning 47
- 14.8 Training and instruction 47

15 Work environment 47

- 15.1 Lighting 47
- 15.2 Noise 47

16 Warning signs and labels 47

17 Emergency plan 48

18 Lockout procedures 48

19 Use of dies 49

- 19.1 Die design 49
- 19.2 Set-up, adjustment, cleaning, or repair 50
- 19.3 Die handling 50
- 19.4 Die setting 50
 - 19.4.1 Die setting information 50
 - 19.4.2 Die-setting procedures 50
- 19.5 Die fastening procedures 50
- 19.6 Turnover bar 51
- 19.7 Die tryout 51

Annexes

- A** (informative) — Knowledge and skills of a qualified press operator 63
- B** (informative) — Ergonomics 64
- C** (informative) — Counterbalance for mechanical stamping presses 65

- D** (informative) — Pneumatic/hydraulic clutch/brake operation 72
E (informative) — Openings and safe distances 73
F (informative) — Stopping times and distances 80
G (informative) — Mechanical press stuck on bottom 81
H (informative) — High-risk activities integral to production 82
I (informative) — Maintenance and high-risk activities 83
-

Tables

- 1** — Permissible openings and safe distances, mm (in) 51
2 — Summary of safeguarding applications 52
-

Figures

- 1** — Pneumatic system: Spring-set brake/air-actuated clutch 53
2 — Pneumatic system: Combination clutch/brake unit 54
3 — Pneumatic system: Air-set brake/air-actuated clutch 55
4 — Typical air supply schematic 56
5 — Typical pipe installation (for information only) 56
6 — Hydraulic nut on tie rod 57
7 — Example of a redundant and monitored control circuit for a downstroking hydraulic press 58
8 — Punch and die 59
9 — Punch and die with hemming 59
10 — Radius tools 60
11 — Rib tools 60
12 — Channel tools 61
13 — Flattening tools 61
14 — Test piece 62

Preface

This is the fifth edition of CSA Z142, *Code for power press operation: Health, safety, and safeguarding requirements*. It supersedes the previous editions, published in 2002 under the title *Code for Power Press Operation: Health, Safety, and Guarding Requirements*, and 1990, 1976, and 1957 under the title *Code for Punch Press and Brake Press Operation: Health, Safety, and Guarding Requirements*.

This Standard specifies requirements for the design, manufacturing, installation, maintenance, operation, and safeguarding of power presses to prevent injuries and accidents and enhance the safety of personnel who operate, set up, and maintain power presses.

The scope of this new edition has been expanded to include direct drive and servo presses, which have become increasingly common in Canada. This edition also includes new requirements for equipment, procedures, and training related to pressurization of hydraulic tie rod nuts. The need for these requirements arose from the recommendations of a coroner's jury in an inquest into the death of a worker in 2005 who died after he was struck in the throat by the female section of a quick-connect hydraulic coupling when he was unscrewing it from the port of a hydraulic cylinder. It was unknown to the workers that there was a dangerous buildup of hydraulic pressure behind the coupling. This edition also includes requirements for the use of laser-actuated active opto-electronic protective devices (AOPDs) on press brakes, aligned with the requirements of EN 12622. The requirements for control performance have been updated and aligned with international machine safety standards to incorporate into this Standard performance levels equivalent to control reliability. The term used for control performance requirements has been revised in this Standard to harmonize with other standards to enable equipment imported from other countries to meet the performance requirements of this Standard. This change does not result in an increase in performance level requirements. The term "safety circuit performance" is now used in this Standard. This Standard allows for the use of other standards that have equivalent levels to "control reliability", which was the term used in the 2002 edition.

It was the intent of the Technical Committee to harmonize this Standard, where possible and appropriate, with international and binational standards. The Technical Committee worked to ensure alignment with ANSI B11.1.

This Standard was prepared by the Technical Committee on Power Press Operation, under the jurisdiction of the Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee. It will be submitted to the Standards Council of Canada for approval as a National Standard of Canada.

March 2010

Notes:

- (1) Use of the singular does not exclude the plural (and vice versa) when the sense allows.
- (2) Although the intended normal application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the user of the Standard to judge its suitability for their particular purpose.
- (3) This publication was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee in order to yet not be in full agreement with all clauses of this publication.
- (4) CSA Standards are subject to periodic review, and suggestions for their improvement will be referred to the appropriate committee.
- (5) All enquiries regarding this Standard, including requests for interpretation, should be addressed to Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.
 - (a) requests for interpretation should
 - (a) define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;
 - (b) provide an explanation of circumstances surrounding the actual field condition; and
 - (c) be phrased where possible to permit a specific "yes" or "no" answer.

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are published in CSA's periodical Info Update, which is available on the CSA Web site at www.csa.ca.

Z142-10

Code for power press operation: Health, safety, and safeguarding requirements

1 Scope

1.1

This Standard applies to the design, manufacturing, installation, maintenance, and operation of power presses (referred to hereafter as “presses”). The purpose of this Standard is to reduce the risk of injury to people working on or adjacent to presses during press set-up, operation, and maintenance.

1.2

This Standard covers the occupational health and safety requirements for all classes of presses, i.e., mechanical (servo, part-revolution clutch, and full-revolution clutch), hydraulic, and pneumatic, that are fitted with a slide/ram/platen (or slide/ram/platens), and with dies for blanking, cutting, trimming, drawing, punching, forming, bending, stamping, assembling, or processing metal or other materials, or for die proving and tryout.

Note: The following are examples of equipment commonly referred to as power presses:

- (a) manually fed presses;
- (b) automatically fed presses;
- (c) transfer presses;
- (d) tandem line presses;
- (e) servo presses/direct-drive presses;
- (f) press brakes;
- (g) powdered-metal presses;
- (h) presses used within production cells;
- (i) spotting presses; and
- (j) presses used in the hydro-forming process.

1.3

The following machines are excluded from this Standard:

- (a) cold headers and forming machines;
- (b) horizontal and vertical bulldozers;
- (c) eyelet machines;
- (d) forging presses and hammers;
- (e) high-energy-rate presses;
- (f) spot and projection welders;
- (g) injection moulding machines;
- (h) riveting machines;
- (i) turret presses;
- (j) die termination machines;
- (k) bearing and bushing insertion machines;
- (l) leak testers;
- (m) die-casting machines;
- (n) printing industry presses and die-cutting machines;
- (o) extrusion presses;

- (p) horizontal benders; and
- (q) ironworking machines.

1.4

This Standard specifies general health and safety requirements for presses and details safety requirements in danger zones in and around the point of operation.

1.5

Machines processing material whose temperature during processing exceeds 760 °C (1400°F) are associated with the metal-forging industry and are outside of the scope of this Standard.

1.6

A press is typically not a stand-alone device, but is integrated into an automated work cell with other machinery or devices that have Standards covering their use. Accordingly, users of this Standard should review the requirements of other applicable Standards as a part of implementing the requirements of this Standard.

1.7

In CSA standards, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (nonmandatory) to define their application.

1.8

The values given in SI (metric) are the units of record for the purposes of this standard. The values given in parentheses are for information and comparison only.

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.

CSA (Canadian Standards Association)

B51-09

Boiler, pressure vessel, and pressure piping code

C22.1-09

Canadian Electrical Code, Part I

C22.2 No. 139-1982 (R2005)

Electrically operated valves

CAN/CSA-Z94.1-05

Industrial protective headwear — Performance, selection, care, and use