Z142-10
(reaffirmed 2019)

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

Legal Notice for Standards

Canadian Standards Association (operating as "CSA Group") develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document's fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party's intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document's compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group's and/or others' intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA Group reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF format.

Limited copies of this document in printed or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents thereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.

Standards Update Service

Z142-10
March 2010

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

To register for e-mail notification about any updates to this publication
- go to **store.csagroup.org**
- click on **Product Updates**

The **List ID** that you will need to register for updates to this publication is **24205**.

If you require assistance, please e-mail **techsupport@csagroup.org** or call 416-747-2233.

Visit CSA Group's policy on privacy at **www.csagroup.org/legal** to find out how we protect your personal information.

Z142-10

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

Published in March 2010 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3

To purchase standards and related publications, visit our Online Store at store.csagroup.org
or call toll-free 1-800-463-6727 or 416-747-4044.

ISBN 978-1-55491-379-4

Contents

Tables

Figures

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 primary 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 list and 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.*

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) wire 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