

ANSI B11.3–2002 (R2007)

American National Standard for Machine Tools –

Safety Requirements for Power Press Brakes

Secretariat and Accredited Standards Developer:

AMT – The Association For Manufacturing Technology
7901 Westpark Drive
McLean, VA 22102

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Foreword (This Foreword is not part of the requirements of American National Standard B11.3-2002)

The primary objective of this standard is to eliminate or control hazards to individuals associated with press brakes by establishing requirements for the design, construction, operation and maintenance of these machines. To accomplish this objective, responsibilities have been assigned to the supplier (e.g., manufacturer, rebuilder, reconstructor, installer, integrator), the user, and individuals in the working environment.

The words “safe” and “safety” are not absolutes. Safety begins with good design. While the goal of this standard is to eliminate injuries, this standard recognizes that risk factors cannot be practically reduced to zero in any human activity. This standard is not intended to replace good judgment and personal responsibility. Operator skill, attitude, training, job monotony, fatigue and experience are safety factors that must be considered by the user.

Press brakes and associated equipment technologies are continuously evolving. This standard reflects the most commonly used and time-tested state of the art at the time of its approval. The inclusion or omission of language relative to any evolving technology, either in the requirements or explanatory area of this standard, in no way infers acceptance or rejection of such technologies.

Inquiries with respect to the application or the substantive requirements of this standard, and suggestions for its improvement, are welcomed and should be sent to the AMT – The Association For Manufacturing Technology, 7901 Westpark Drive, McLean, Virginia 22102-4269, Attention: B11 Secretariat.

This standard was processed and submitted for ANSI approval by the B11 Accredited Standards Committee on Safety Standards for Machine Tools. Committee approval of this standard does not necessarily imply that all committee members voted for its approval. At the time this standard was approved as an American National Standard, the ANSI B11 Accredited Standards Committee was composed of the following member organizations:

John W. Russell, PE, CSP Chairman
Gary D. Kopps, Vice-Chairman
David A. Felinski, Secretary

Organizations Represented

Name of Representative(s)

	Delegate	Alternate
Aerospace Industries Association of America	Will Wood, ARM	Robert Eaker
Alliance of American Insurers	John Russell, PE, CSP (D)	Keith Lessner
Aluminum Extruders Council	Jeff Dziki	Martin Bidwell
American Institute of Steel Construction	Thomas Schlafly	
American Society of Safety Engineers	Bruce Main, PE, CSP	George Karosas, PE, CSP
Association For Manufacturing Technology	Russell Bensman	
Can Manufacturers Institute	Geoff Cullen	
Deere and Company	Gary D. Kopps	Ellen K. Blanshan
Forging Industry Association	John W. Commet	Karen Taylor
General Motors Corporation	Michael Taubitz	
Graphic & Product Identification Mfgs. Assn.	Donald Root	
International Association of Machinists & Aerospace Workers, District Lodge 142	Jim Soptic	Ken Hass

Intl. Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW)	Jim Howe, CSP	Luiz Vazquez
Machinery Dealers National Association	John Stencil, III	James Heppner, Jr.
Metal Building Manufacturers Association	Charles M. Stockinger	Charles E. Praeger
Metal Powder Industries Federation	Dennis Cloutier, CSP	Donald White
National Electrical Manufacturers Association	Vincent A. Baclawski	Frank Kitzantides
National Fluid Power Association	June VanPinsker	
National Tooling and Machining Association	Andy Levine	Richard R. Walker
Precision Metalforming Association	Christopher E. Howell	Christie Carmigiano
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Unified Abrasives Manufacturers' Association, Bonded Division	Charles S. Conant	
U.S. Department of the Navy (NAVSEA)	William Hanna	William Thacker

At the time this standard was approved, the ANSI B11 ASC **B11.3 Subcommittee** had the following members who participated in the development of this revision:

James V. Kirton, Chairman	Dean Albrecht	Halkin Tool Ltd.
David A. Felinski, Secretary	Peter Barroso	Barroso Engineering, Inc.
	Samuel Boytor	Fox Controls, Inc.
	Michael S. Carlson	Banner Engineering
	Dennis Cloutier	Cincinnati, Inc.
	Paul Cyr	U.S. Department of Labor-OSHA
	Howard DeWees	SICK, Inc.
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	George Fargher	Tapeswitch Corp.
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	George Schreck	Komatsu America Industries Corp.
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	James T. Strother	SMACNA, Inc.

Explanation of the format of the standard

This ANSI B11.3 – 2002 standard is divided into parts formerly referred to as sections or chapters and now referred to as clauses in line with the new ANSI style manual. Major divisions of clauses are referred to as subclauses and, when referenced by other text in the standard, are denoted by the subclause number (e.g., see 5.1).

The standard uses a two-column format to provide supporting information for requirements. The material in the left column is confined to “Standards Requirements” only, and is so captioned. The right column, captioned “Explanatory Information” contains information that the writing Subcommittee felt would clarify the standard. This column should not be construed as being a part of the requirements of this American National Standard.

Operating rules (safe practices) are not included in either column of this standard unless they are of such nature as to be vital safety requirements, equal in weight to other requirements, or guides to assist in compliance with the standard.

As in all American National Standards, the term “SHALL” denotes a requirement that is to be strictly followed in order to conform to this standard; no deviation is permitted. The term “SHOULD” denotes a recommendation, a practice or condition among several alternatives, or a preferred method or course of action.

Similarly, the term “CAN” denotes a possibility, ability or capability, whether physical or causal, and the term “MAY” denotes a permissible course of action within the limits of the standard.

By convention, the B11 standards do not use the term “and/or” but instead, the term “OR” is used as an inclusive disjunction, meaning *one or the other or both*.

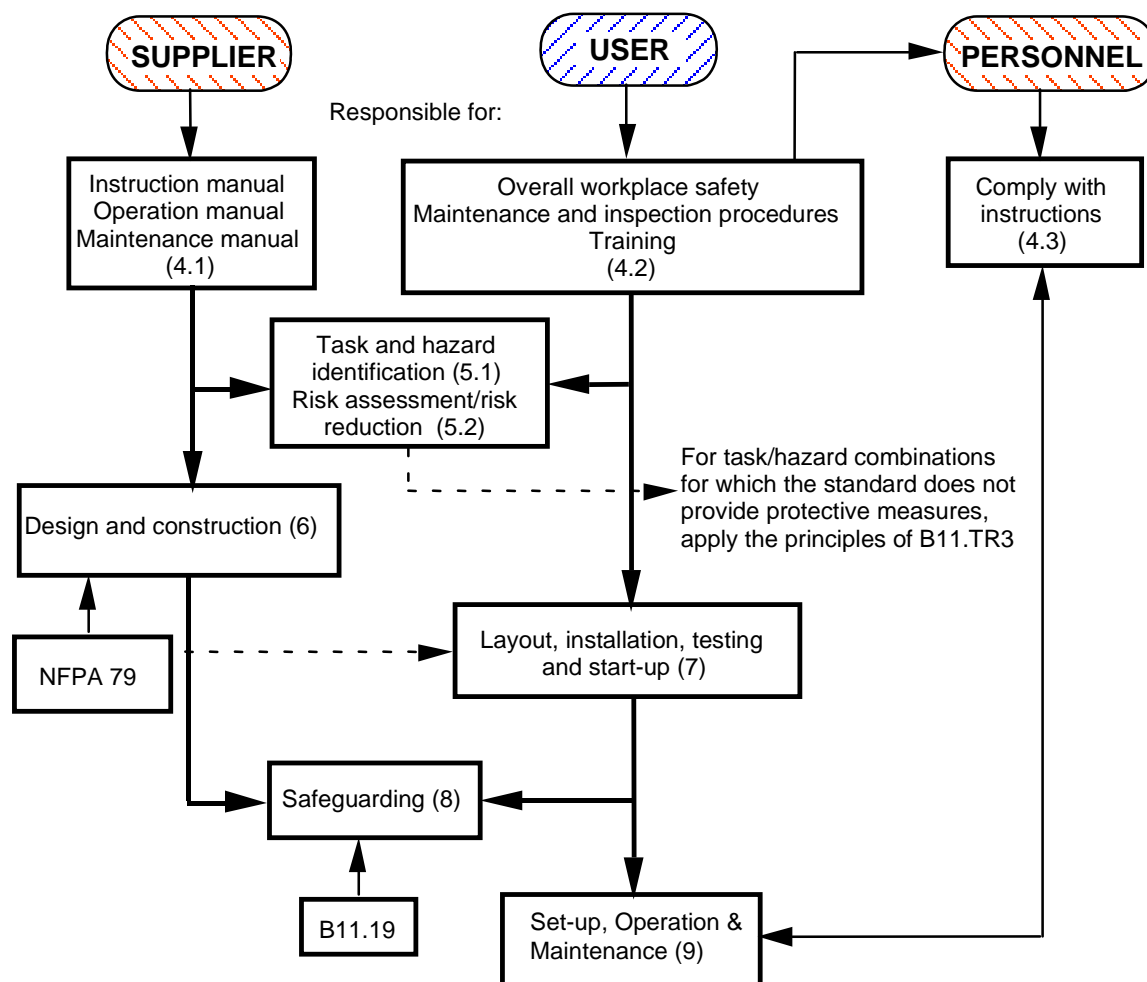
Suggestions for improvement of this standard will be welcome. They should be sent to AMT-The Association For Manufacturing Technology, 7901 Westpark Drive, McLean, VA 22102 – Attention: B11 Secretariat

Introduction

The primary purpose of every machine tool is to process parts. This is accomplished by the machine imparting process energy onto the workpiece. Inadvertent interference with, or accidental misdirection of the released energy during production, maintenance, commissioning and de-commissioning may result in injury.

The primary purpose of the ANSI B11 series of machine tool safety standards is to devise and propose ways to minimize risks of the potential hazards. This can be accomplished either by an appropriate machine design, by restricting personnel or other individuals' access to hazard areas, and by devising work procedures to minimize personnel exposure to hazardous situations. This is the essence of the ANSI B11 series of safety standards.

The responsibility for the alleviation of these risks is divided between the equipment supplier, its user and its operating personnel, as follows (numbers in parentheses refer to the clause numbers in these standards which address that responsibility):



Standard Requirements

Explanatory Information

American National Standard for Machine Tools-

Safety Requirements for Power Press Brakes

1 Scope

1.1 General

The requirements of this standard apply to those machine tools classified as power press brakes (hereinafter referred to simply as “press brakes”), which are designed and constructed for the specific purpose of bending material.

The requirements of this standard also apply to powered folding machines.

NOTE – Where used in this standard, the terms *machine* or *system* refer to the press brake or press brake production system.

1.2 Exclusions

Excluded from the requirements of this standard are: mechanical power presses; hydraulic power presses; hand brakes; tangent benders; apron brakes; and other similar types of metal-bending machines.

2 Normative References

The following normative documents contain provisions that, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements subject to this American National Standard should apply the most recent editions of the normative documents listed below.

29 CFR 1910.147: *Control of hazardous energy (lockout/tagout)* (For more information, www.osha.gov)

29 CFR 1910.333: *Selection and Use of Electrical Work Practices* (For more information, www.osha.gov)

E1.1

To achieve this purpose, the press brake is provided with a plate-type ram and a plate-type bed with standard provisions for attaching standardized press brake tooling.

This machine is sometimes referred to as a “bending brake” or a “brake press.”

Where used in this standard, the terms “press brake” or “press brake production system” are intended to include powered folding machines.

E2 Informative References

ANSI / ASME B5.56M-1994, *Specification and Performance Standard, Power Shears*

ANSI B11.TR1–1993. *Ergonomic Guidelines for the Design, Installation and Use of Machine Tools.*

Standard Requirements

Explanatory Information

ANSI B11.19-1990 (R1995), *Safeguarding When Referenced by the Other B11 Machine Tool Safety Standards Performance Criteria for the Design, Construction, Care and Operation.*

ANSI B11.TR3 -- 2000. Risk Assessment and Risk Reduction – A guide to estimate, evaluate and reduce risks associated with machine tools.

ANSI / ASME B15.1-2000, *Safety Standard for Mechanical Power Transmission Apparatus.*

ANSI Z244.1--1993, *For personal protection, Lockout/Tagout/Energy*

ANSI / ASME Boiler and Pressure Vessel Code, 2001. Division 1 (Section VIII)

ANSI / NFPA / JIC T2.24.1R1-2000, Hydraulic fluid power – Systems standard for stationary industrial machinery

ANSI / IES-RP-7-1991, *Industrial Lighting.*

ANSI / NFPA 70 – 2002, *The National Electrical Code*

ANSI / NFPA 70E,-2000, *Electrical Safety Requirements for Employee Workplaces.*

ANSI / NFPA 79-1997, *Electrical Standard for Industrial Machinery.*

3 Definitions

For the purposes of this standard, the following definitions apply.

3.1 actuating control: An operator control used to initiate machine motion or other machine function.

3.2 adjustable barrier guard: A guard with provisions for adjustment to accommodate various jobs or tooling set-ups.

3.3 antirepeat: The function of the control system or device that limits the machine to a single cycle.

3.4 awareness barrier: An awareness device that warns individuals by means of physical contact.

3.5 barrier guard: See *guard*.

3.6 bed: The stationary member of the machine that supports the tooling and other associated equipment.

3.7 blanking: Bypassing a portion of the sensing field of a presence-sensing safeguarding device.

3.8 brake: A mechanism for stopping, slowing or preventing motion.