ASME B107.50M-1998

BRICK CHISELS AND BRICK SETS: SAFETY REQUIREMENTS

AN AMERICAN NATIONAL STANDARD

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This Standard will be revised when the Society approves the issuance of a new edition. There will be no addenda or written interpretations of the requirements of this Standard issued to this Edition.

The American Society of Mechanical Engineers
Three Park Avenue, New York, NY 10016-5990

FOREWORD

(This Foreword is not part of ASME B107.50M-1998.)

The American National Standards Committee B107, Socket Wrenches and Drives, under sponsorship of The American Society of Mechanical Engineers (ASME), held its organizational meeting on June 28, 1967. Subsequently, the committee was reorganized as an ASME Standards Committee, and its title was changed to Hand Tools and Accessories.

The development of this Standard was initiated by the Striking/Struck Tools Standards Committee, consisting of technical representatives of manufacturer members of the Hand Tools Institute (HTI).

This Standard was previously designated ANSI/HTI B209.5-1991.

The scope of this Standard is limited to the essential safety considerations specifically applicable to brick chisels and brick sets.

Suggestions for improvement of this Standard are welcome. They should be sent to The American Society of Mechanical Engineers, Attn: Secretary, ASME B107 Main Committee, Three Park Avenue, New York, NY 10016-5990.

This Standard was approved as an American National Standard on January 30, 1998.

ASME B107 Committee
Hand Tools and Accessories

(The following is the roster of the Committee at the time of approval of this Standard.)

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General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B107 Standards Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Interpretations. Upon request, the B107 Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B107 Standards Committee.

The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings, which are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B107 Standards Committee regularly holds meetings, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B107 Standards Committee.

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BRICK CHISELS AND BRICK SETS: SAFETY REQUIREMENTS

1 GENERAL

1.1 Scope

This Standard provides safety requirements for the design, construction, testing, and use of brick chisels and brick sets that are intended specifically for use in scoring and cutting brick and masonry block.

1.2 Purpose

This Standard is intended to serve as a guide in selecting, testing, and using the hand tools covered. Details of design, testing, and use of the tools covered are specified only as they relate to safety. It is not the purpose of this Standard to specify the details of manufacturing.

This Standard is also meant to serve as a guide in developing manuals and posters and for training personnel in safe practices.

1.3 Application

This Standard may be used as a guide by state authorities or other regulatory bodies in the formulation of laws or regulations. It is also intended for voluntary use by establishments that use or manufacture the tools covered.

The methods employed to ensure compliance with this Standard shall be determined by the proper regulatory or administrative authority.

1.4 Shall and Should

Mandatory requirements of this Standard are characterized by the word *shall*. If a provision is of an advisory nature, it is indicated by the word *should* or is stated as a recommendation.

1.5 Equivalent

The word *equivalent* in the Standard shall be interpreted to mean alternative designs or features that will provide an equal degree of safety.

2 NORMATIVE REFERENCES

The following documents form a part of this Standard to the extent specified herein. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI Z87.1-1989, Practice for Occupational and Educational Eye and Face Protection; Supplement ANSI Z87.1a-1991

ANSI Z535.4-1991, Product Safety Signs and Labels

Publisher: American National Standards Institute, 11 West 42nd Street, New York, NY 10036

ASTM A 29/A 29M-93a, Standard Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold-Finished, General Requirements for

ASTM A 322-91, Standard Specification for Steel Bars, Alloy, Standard Grades

ASTM A 331-95, Standard Specification for Steel Bars, Alloy, Cold-Finished

ASTM A 576-90b (Reapproved 1995), Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality

ASTM A 681-94, Standard Specification for Tool Steels Alloy

ASTM E 18-94, Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

Publisher: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428

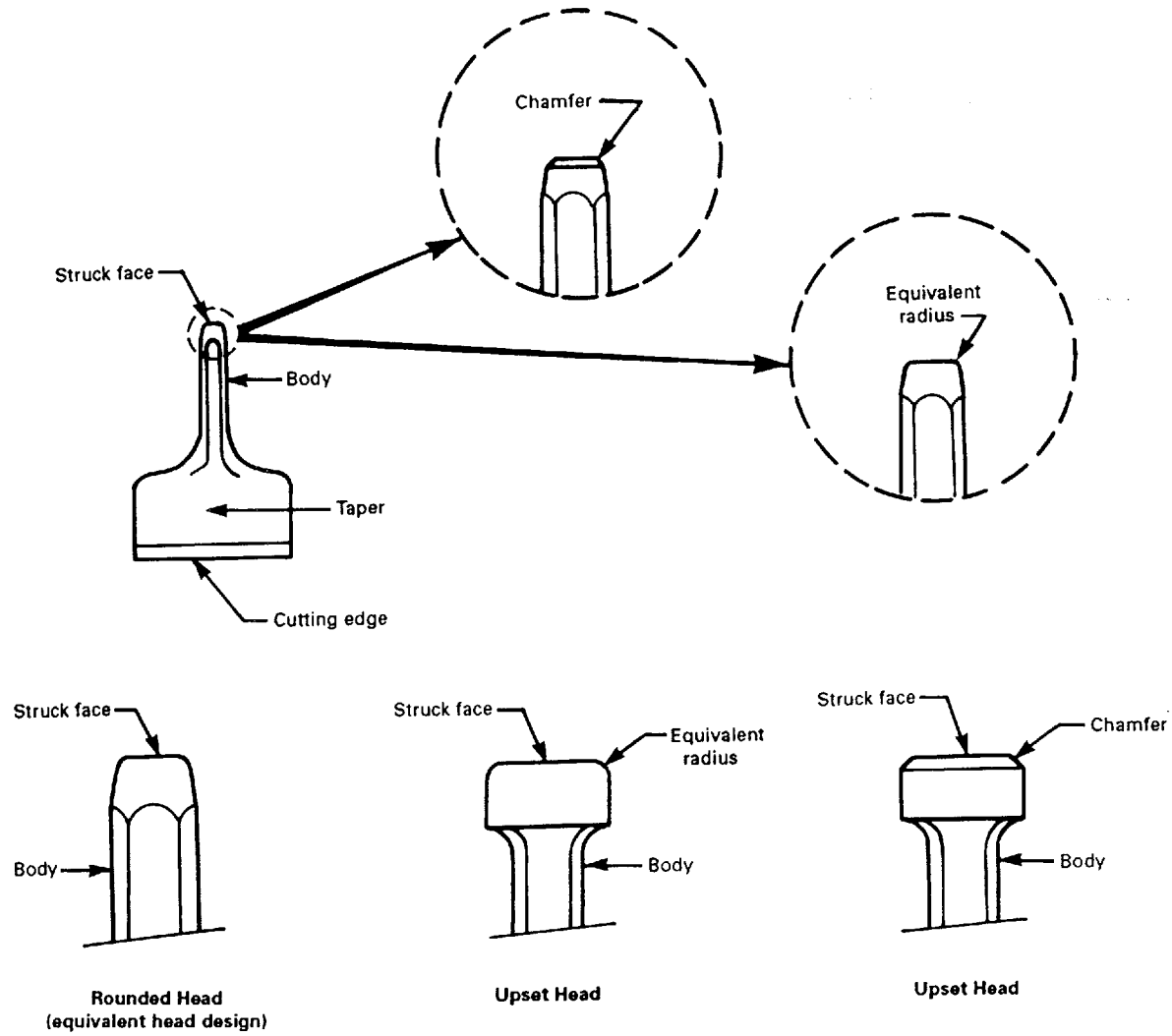

FIG. 1 NOMENCLATURE FOR BRICK SET AND BRICK CHISEL

Guide to Hand Tools — Selection, Safety Tips, Proper Use and Care

Publisher: Hand Tools Institute, 25 North Broadway, Tarrytown, NY 10591

3 DEFINITIONS

For the purpose of this Standard, the following definitions apply (see Figs. 1 and 2 as applicable):

bevel: the angular portion of the chisel or set adjacent to the cutting edge and extending to the taper.

body: the straight portion of the chisel or set between the chamfer and the taper.

chamfer: the angled flat surface or equivalent radius between the struck face and the body of the chisel or set encircling the perimeter of the struck face.

cutting edge: the edge formed by the bevel or bevels at the end opposite the struck face.

rounded head: an equivalent design for the struck face and chamfer portion of the chisel or set.

safety message: the information imprinted on or affixed to the chisel or set that is intended to promote safety.

struck face: the portion of the chisel or set exclusive of the chamfer and body, at the end opposite the

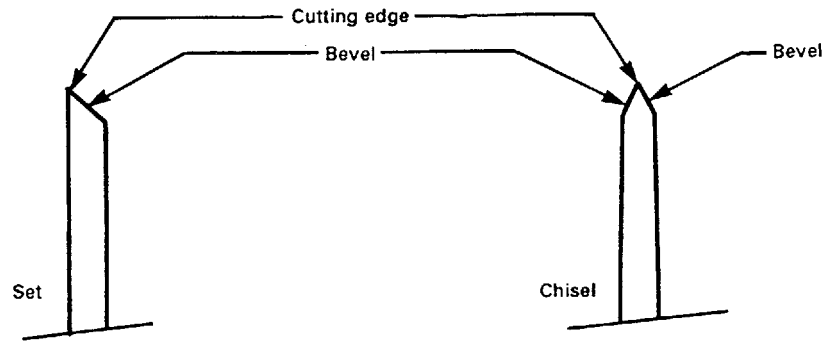

FIG. 2 CONFIGURATION OF BRICK SET AND BRICK CHISEL BEVELS

cutting edge.

taper: the portion of the chisel or set between the body and the bevel with a gradually reducing cross-sectional area.

upset head: the portion of the body having an enlarged cross-sectional area at the struck end of the tool including and underlying the struck face.

4 GENERAL REQUIREMENTS

4.1 Design

Brick chisels and brick sets shall have a cutting edge on one end and a struck face on the opposite end to be struck by a ball peen, hand drilling, or engineer's hammer of the appropriate size. The hammer of the appropriate size shall have a striking face approximately 0.375 in. (9.53 mm) larger in diameter than the struck face of the chisel or set.

Styles of chisels and sets according to usage are listed here and are shown in Figs. 1 and 2.

brick chisels: for cutting brick and masonry block.

brick sets: for scoring, adjusting and trimming brick and masonry block.

4.1.1 The struck face of brick chisels and brick sets shall have a flat or convex shape.

4.1.2 The struck face shall have a chamfer of approximately 45 deg. or equivalent radius all around the perimeter with a width equal to approximately one-tenth of the diameter of the material behind the struck face. For example, if the body stock size equals 0.50 in. (12.7 mm), then the chamfer width (see Fig. 1) will equal approximately 0.05 in. (1.3 mm).

4.1.3 All brick chisels and brick sets shall be free of nonfunctional sharp edges, points, and surface roughness that could inflict personal injury to the user while handling these tools.

4.2 Materials

4.2.1 Brick chisels and brick sets shall be made from special-quality, fine-grain, hot-rolled or cold-finished carbon or alloy steel bars, or from an equivalent material, having good wear-resisting and shock-resisting qualities and conforming to any of the following standards: ASTM A 29/A 29M, ASTM A 322, ASTM A 331, ASTM A 576, or ASTM A 681.

4.2.2 Brick chisels and brick sets shall be free of manufacturing and material defects such as seams, laps, pipes, and cold shuts that would jeopardize sound construction. They shall conform to the requirements for mechanical properties specified in para. 4.3 and shall withstand the tests described in paras. 4.4.2 through 4.4.4.

4.3 Mechanical Properties

4.3.1 Chisel bevels and set bevels shall be hardened and tempered to not less than 35 HRC nor more than 55 HRC at a distance of not less than 0.25 in. (6.4 mm) from the cutting edge.

4.3.2 The hardness of the struck face of the chisel or set shall not exceed 45 HRC.

4.4 Tests

Many tests required herein are inherently hazardous, and adequate safeguards for personnel and property shall be employed in conducting such tests.

4.4.1 General. Brick chisels and brick sets shall be capable of meeting tests specified in paras. 4.4.2 through 4.4.4. Separate (new) samples shall be used for each of these tests. Failure to meet the requirements of any one of the tests indicates that the chisels or sets are not in compliance with this Standard.

4.4.2 Hardness Determination Test. Hardness determinations with respect to cutting edges and struck faces shall be made on a fixtured tool or on a suitable mounted or unmounted specimen that has been cut from the tool using the wet-abrasive or other equivalent method. Any hardness test that uses equipment and methods equivalent to Rockwell hardness determination equipment as specified in ASTM E 18 shall be acceptable.

4.4.3 Impact Test for Brick Chisels. There shall be no chipping, spalling, cracking, dulling, or turning of the cutting edge; no mushrooming or chipping of the head (struck face); and no bending of the tool when tested according to the following procedure. Normal deformation at either end is permitted.[1]

The brick chisel shall be mounted vertically with the cutting edge resting crosswise on the largest surface of a rectangular common brick having a minimum thickness of 2.00 in. (50.8 mm) and a width of at least 3.00 in. (76.2 mm).

The brick shall rest on a solid foundation that supports the entire brick surface, such as a block weighing not less than 10 lb (4.5 kg). A steel weight of 5 lb (2.3 kg) and having a striking face hardness of 45 HRC to 60 HRC or equivalent shall be dropped 20 times from a height of 10.0 in. (254 mm) squarely onto the chisel struck face. The diameter of the striking face of the weight shall not be less than 0.375 in. (9.53 mm) larger than the struck face of the chisel. Typically the weight is cylindrical and is dropped through a seamless tube slightly larger than the diameter of the weight. The test brick shall be moved after each drop of the weight to make a new impression.

4.4.4 Impact Test for Brick Sets. The impact test for brick sets shall be the same as the test in para. 4.4.3, except that the weight shall be dropped 10 times.

5 SAFETY REQUIREMENTS AND LIMITATIONS OF USE

(a) Brick chisels and brick sets are special-purpose tools designed, manufactured, and intended only for use in scoring and cutting brick and masonry block.

(b) To avoid possible eye or other bodily injury, these tools shall not be used to cut metal objects or concrete.

(c) A hammer blow should always be struck squarely with the hammer face parallel with the struck face of the brick chisel or brick set. Glancing blows, overstrikes, and understrikes should be avoided.

(d) No surface of the chisel or set other than the struck face shall be struck. The ball peen, hand drilling, or engineer's hammer of the appropriate size shall have a striking face with a diameter approximately 0.375 in. (9.53 mm) larger than the struck face of the brick chisel or brick set.

(e) Brick chisels and brick sets shall never be struck by a bricklayer's hammer.

(f) Brick chisels and brick sets shall not be used for prying or wedging.

(g) Safety goggles or equivalent eye protection conforming to ANSI Z87.1 shall be worn by the user and all persons in the immediate area where any brick chisels or brick sets are being used to avoid possible eye injury from flying objects.

(h) Brick chisels and brick sets shall be inspected prior to each use, and their use discontinued at the first sign of bending of the chisels or sets or of chipping or cracking of the cutting edge or the struck face.

(i) Except as indicated in paras. 5(j) and 5(k), no area, section, or portion of the brick chisels or brick sets shall be ground, welded, treated by reheating, or otherwise altered from the original condition as furnished by the manufacturer.

[1] The striking test is so severe that a degree of permissible deformation, such as denting of the struck face, can be anticipated. A much less severe test would avoid this, but it would not provide the level of safety assurance desired.

(j) As dulling of the cutting edge occurs from tool usage, the cutting edge shall be resharpened or redressed to its original contour only by the use of a whetstone or file.[2]

(k) Any mushrooming of the struck face shall be promptly redressed to its original contour by the use of a hand file.[2]

(l) Instructors or employers, or both, shall stress proper use and safety in the use of brick chisels and brick sets and shall emphasize the necessity to wear and ensure the use of safety goggles. The publication, Guide to Hand Tools — Selection, Safety Tips, Proper Use and Care, provides guidelines for the safe use of these tools.

(m) Each brick chisel and brick set shall be stamped, labeled, or otherwise marked with the following safety message or equivalent:

WARNING
WEAR SAFETY GOGGLES
USER AND BYSTANDER

This safety message shall be located in a position that will not interfere with the quality or performance of the tool.

The principles given in ANSI Z535.4 shall be used as a guide for alternate, equivalent methods of labeling.

[2] It is understood that industrial users with adequate facilities and properly trained personnel may choose to redress or resharpen these tools by other means without altering the metallurgical characteristics of the tool.

AMERICAN NATIONAL STANDARDS FOR HAND TOOLS

Socket Wrenches, Hand (Inch Series) B107.1-1993
Socket Wrenches, Extensions, Adaptors, and Universal Joints, Power Drive (Impact) (Inch Series) B107.2-1995
Socket Wrenches, Power Drive (Non-Impact) (Inch Series) ..... B107.3-1978(R1991)
Driving and Spindle Ends for Portable Hand, Impact, Air, and Electric Tools (Percussion Tools Excluded) B107.4M-1995
Socket Wrenches, Hand (Metric Series) B107.5M-1994
Wrenches, Box, Angled, Open End, Combination, Flare Nut, and Tappet (Inch Series) B107.6-1994
Adjustable Wrenches B107.8M-1996
Wrenches, Box, Angled, Open End, Combination, Flare Nut, and Tappet (Metric Series) B107.9M-1994
Handles and Attachments for Hand Socket Wrenches — Inch and Metric Series B107.10M-1996
Pliers, Diagonal Cutting, and Nippers, End Cutting B107.11M-1993
Nut Drivers (Spin Type, Screwdriver Grip) (Inch Series) B107.12-1997
Pliers — Long Nose, Long Reach B107.13M-1996
Hand Torque Tools B107.14M-1994
Flat Tip and Phillips Screwdrivers B107.15-1993
Shears (Metal Cutting, Hand) B107.16M-1998
Gages, Wrench Openings, Reference B107.17M-1997
Pliers (Wire Twister) B107.18M-1996
Pliers, Retaining Ring B107.19-1993
Pliers (Lineman's, Iron Worker's, Gas, Glass, and Fence) B107.20M-1992
Wrench, Crowfoot Attachments B107.21-1998
Electronic Cutters B107.22M-1998
Pliers, Multiple Position, Adjustable B107.23M-1997
Pliers — Performance Test Methods B107.25M-1996
Pliers, Multiple Position (Electrical Connector) B107.27-1996
Electronic Torque Instruments B107.28M-1997
Electronic Tester, Hand Torque Tools B107.29M-1997
Screwdrivers, Cross Tip Gaging B107.31M-1997
Socket Wrenches for Spark Plugs B107.34M-1997
Nut Drivers (Spin Type, Screwdriver Grip) (Metric Series) B107.35M-1997
Electronic Pliers B107.38M-1998
Nail Hammers — Safety Requirements B107.41M-1997
Hatchets: Safety Requirements B107.42M-1997
Wood-Splitting Wedges: Safety Requirements B107.43M-1997
Glaziers' Chisels and Wood Chisels: Safety Requirements B107.44M-1998
Ripping Chisels and Flooring/Electricians' Chisels: Safety Requirements B107.45M-1998
Stud, Screw, and Pipe Extractors: Safety Requirements B107.46M-1998
Metal Chisels: Safety Requirements B107.47M-1998
Metal Punches and Drift Pins: Safety Requirements B107.48M-1998
Nail Sets: Safety Requirements B107.49M-1998
Brick Chisels and Brick Sets: Safety Requirements B107.50M-1998
Nail-Puller Bars: Safety Requirements B107.52M-1998
Ball Peen Hammers: Safety Requirements B107.53M-1998
Axes: Safety Requirements B107.55M-1998

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