ASME B107.110-2019
(Revision of ASME B107.110-2012)

Socket Wrenches, Handles, and Attachments

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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

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FOREWORD

The American National Standards Committee B107, Socket Wrenches and Drives, under sponsorship of The American Society of Mechanical Engineers (ASME), was reorganized on June 28, 1967, as an ASME Standards Committee and its title was changed to Hand Tools and Accessories. In 1996 its scope was expanded to include safety considerations. In 1999 ASME initiated a project to consolidate hand tool standards by category of tool. The initial implementation included distinct standards within a single publication bearing a three-digit number corresponding to the responsible B107 subcommittee. Subsequent revisions are intended to integrate the component standards, resulting in a more traditional document. To maintain continuity within the user community, the former component standard numbers are retained as categories in the consolidated standard, and designations are provided in Nonmandatory Appendix A.

The purposes of this Standard are to define dimensional, performance, and safety requirements specifically applicable to socket wrenches, handles, and attachments for hand socket wrenches; to specify test methods to evaluate performance relating to the defined requirements; and to indicate limitations of safe use.

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The 2012 edition of this Standard superseded ASME B107.1-2002, Socket Wrenches, Hand (Inch Series); ASME B107.2, Socket Wrenches, Extensions, Adaptors, and Universal Joints, Power Drive (Impact) (Inch Series); ASME B107.5M, Socket Wrenches, Hand (Metric Series); ASME B107.10, Handles and Attachments for Hand Socket Wrenches; ASME B107.12, Nutdrivers; ASME B107.33M, Socket Wrenches, Impact (Metric Series); and ASME B107.34, Socket Wrenches for Spark Plugs. Socket wrenches previously described in ASME B107.5M were included in Category 1. Socket wrenches and attachments previously described in ASME B107.33M were included in Category 2.

The 2012 edition completed the integration of the component standards into a single document. Principal changes in that edition were increased proof load values for ratchet handles and attachments, and the addition of length classes.

Members of the Hand Tools Institute Wrench Standards Committee, through their knowledge and hard work, have been major contributors to the development of the B107 wrench standards. Their active efforts in the promotion of these standards are acknowledged and appreciated.

The format of this Standard is in accordance with The ASME Codes & Standards Writing Guide 2000. References to tables in U.S. Customary units and tables in SI units are in accordance with ASME Boiler and Pressure Vessel Code, 2013, Section VIII, Division 1, Appendix GG-2(b): "The table designation (e.g., table number) is the same for both the U.S. Customary and SI tables, with the addition of suffix 'M' to the designator for the SI table, if a separate table is provided. For some small tables, where interpolation is not required, SI units are placed in parentheses after the U.S. Customary unit." In general, separate SI tables are provided when product nominal sizes are in SI units.

ASME B107.110-2019 was approved by the B107 Standards Committee on April 5, 2019, and by the Board on Standards and Testing on August 19, 2019. It was approved as an American National Standard on August 29, 2019.

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 or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B107 Standards Committee
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Two Park Avenue
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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.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Interpretations. Upon request, the B107 Standards 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.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the B107 Standards Committee at the above address. The request for an 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 in one or two words.
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. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

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

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

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 and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the B107 Standards Committee. Future Committee meeting dates and locations can be found on the Committee Page at http://go.asme.org/B107committee.

SOCKET WRENCHES, HANDLES, AND ATTACHMENTS

1 SCOPE

This Standard provides performance and safety requirements for socket wrenches (sockets), handles used with these wrenches, nutdrivers, and attachments used with socket wrenches, hereinafter collectively referred to as tools. The tools covered in this Standard are listed by Category number in Table 3-1. The names and intended uses given in Table 3-1 are those generally recognized.

Inclusion of dimensional data in this Standard is not intended to imply that all of the products described herein are stock production sizes. Manufacturers may produce sizes not listed in this Standard. Consumers are requested to consult with manufacturers concerning lists of stock production sizes and lengths.

2 REFERENCES

The following is a list of publications referenced in this Standard. The latest edition shall be used.

ASME B107.4, Driving and Spindle Ends for Portable Hand, Impact, Air, and Electric Tools (Percussion Tools Excluded)
ASME B107.17, Gages and Mandrels for Wrench Openings
Publisher: The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990 (www.asme.org)

ASTM B117, Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B537, Standard Practice for Rating of Electroplated Panels Subjected to Atmospheric Exposure
ASTM B571, Standard Practice for Qualitative Adhesion Testing of Metallic Coatings
ASTM D968, Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D2240, Standard Test Method for Rubber Property — Durometer Hardness
ASTM E18, Standard Test Methods for Rockwell Hardness of Metallic Materials
Publisher: The American Society for Testing and Materials (ASTM International), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 (www.astm.org)

Guide to Hand Tools — Selection, Safety Tips, Proper Use and Care
Publisher: Hand Tools Institute (HTI), 25 North Broadway, Tarrytown, NY 10591-3201 (www.hti.org)

SAE J1703, Motor Vehicle Brake Fluid
Publisher: Society of Automotive Engineers (SAE International), 400 Commonwealth Drive, Warrendale, PA 15096 (www.sae.org)

3 CLASSIFICATION

Categories, Types, Classes, and Styles of tools covered in this Standard are shown in Table 3-1 and the applicable figures indicated therein.[1]

4 PERFORMANCE REQUIREMENTS

The illustrations shown herein are descriptive and not restrictive, and are not intended to preclude the manufacture of tools that are otherwise in accordance with this Standard. Dimensions shall be in accordance with the applicable tables unless otherwise specified. Lengths in U.S. Customary tables are in inches; lengths in SI tables are in millimeters. Tools shall pass all applicable tests in section 5 and meet category requirements as applicable.

4.1 Design

4.1.1 Nut End Socket Opening. The internal wrench opening of a single-hexagon (6-point) or a double-hexagon (12-point) configuration, or a single-square (4-point) or a double-square (8-point) configuration shall conform to one of the following wrench opening designs.

(a) Standard Single- or Double-Hexagon Configuration. This design consists of a simple geometric single-hexagon (6-point) or a double-hexagon (12-point) configuration having an across-flats and an across-corner shape for fitting with commercial hexagon fasteners.

(b) Modified Single- or Double-Hexagon Configuration. This design consists of a geometric single-hexagon (6-point) or a double-hexagon (12-point) configuration that does not contact on the fastener's corners.

(c) Standard Single- or Double-Square Configuration. This design consists of a simple geometric single-square (4-point) or a double-square (8-point)

[1] Length classes are provided for Categories 1 and 2 socket wrenches in Tables 4.2.5-2 through 4.2.5-7M. Length ranges are provided for Category 10, Type II, Class 2, Style A attachments in Tables 4.2.3-2 and 4.3.2-3.