ASME B107.17-2015
(Revision of ASME B107.17-2010)

Gages and Mandrels for Wrench Openings

AN AMERICAN NATIONAL STANDARD

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Two Park Avenue • New York, NY • 10016 USA

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This Standard will be revised when the Society approves the issuance of a new edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the Committee Web page and under go.asme.org/InterpsDatabase. Periodically certain actions of the ASME B107 Committee may be published as Cases. Cases are published on the ASME Web site under the B107 Committee Page at go.asme.org/B107committee as they are issued.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The B107 Committee Page can be found at go.asme.org/B107committee. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting “Errata" in the "Publication Information" section.

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 on Socket Wrenches and Drives was originally under the sponsorship of The American Society of Mechanical Engineers (ASME). It was subsequently reorganized as an ASME Standards Committee, and its title was changed to Hand Tools and Accessories. In 1996, the Committee's scope was expanded to include safety considerations.

The purpose of ASME B107.17 is to establish final inspection gage sizes and test mandrel sizes for wrench openings, and spark plug wrench openings for inch and metric sizes. This Standard does not cover every available size, but only those most commonly manufacturered.

This Standard may also 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 instruments covered.

Changes in the 2015 edition include removal of unused references, corrections to values in Table 4M, and increased significant digits in the plus tolerances in Tables 4 and 4M.

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

This revision was approved as an American National Standard on June 19, 2015.

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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CORRESPONDENCE WITH THE B107 COMMITTEE

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
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

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 for the purpose of providing 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 at go.asme.org/Inquiry.

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.
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 that are necessary to explain the question; however, they should not contain proprietary names or information.

Request 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 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 go.asme.org/B107committee.

GAGES AND MANDRELS FOR WRENCH OPENINGS

1 SCOPE

This Standard establishes final inspection gage sizes and test mandrel sizes for wrench openings and spark plug wrench openings for inch and metric sizes. This Standard does not cover every available size, but only those most commonly manufactured.

2 APPLICATION

The gages covered by this Standard shall be used to ensure the manufacture of conforming products in inch and metric sizes.

3 REFERENCES

The following documents are referenced in this Standard. The latest edition shall be used.

ASTM E18, Standard Test Methods for Rockwell Hardness of Metallic Materials

Publisher: American Society for Testing and Materials (ASTM International), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 (www.astm.org)

4 REQUIREMENTS

The gages shall be similar to those shown in Fig. 1 for hex gages and Fig. 2 for square gages. Dimensions in inch series tables are in inches, and dimensions in metric series tables are in millimeters, except as specified.

4.1 Material

4.1.1 Gages. The gages shall be made of steel, suitable for the purpose intended and hardened to 60 HRC minimum. The hardness shall be tested using procedures outlined in ASTM E18.

4.1.2 Mandrels. The mandrels shall be made of steel, suitable for the purpose intended, and hardened to 56 HRC minimum. The hardness shall be tested using procedures outlined in ASTM E18.

4.2 Gage Use and Design

The gages shall be of the sizes and tolerances given in Tables 1, 1M, 2, 2M, 3, and 3M. Formulas are provided for sizes not listed.

The gages shall be used in accordance with accepted practices. Manufacturers may use gages with tighter dimensions than those shown herein.

The size for all limits (GO and NO GO) gages shall not exceed the extreme limits specified herein. All variations (manufacturing tolerance, calibration error, wear allowance, etc.) in the gages, whatever their cause or purpose, shall bring these gages within the extreme limits of this gage size specified within this Standard. Thus a gage that represents a minimum limit may be larger, but never smaller, than the minimum size specified; likewise, the gage that represents a maximum limit may be smaller, but never larger, than the maximum size specified.

4.2.1 Rounding Method. Rounding method is to be used for determining dimensions for gages. When the next digit beyond the last digit to be retained is

(a) less than 5, the last digit to be retained is not changed

(b) 5 or more, the last digit to be retained is increased by one

4.3 Mandrels Use and Design

4.3.1 Mandrels for Nut End Socket Openings. The hexagon mandrels shall be of the size and tolerances given in Tables 4 and 4M. The square mandrels shall be of the size and tolerance given in Table 5. The mandrel shall be inserted into the nut end socket opening to the depth indicated in the applicable table.

4.3.2 Mandrels for Wrench Openings. The hexagon mandrels shall be of the size and tolerances given in Tables 4, 4M, and 5. The mandrel shall be fully engaged to the thickness of the wrench head.