ASME B107.17-2010
(Revision of ASME B107.17M-1997)

Gages and Mandrels for Wrench Openings

AN AMERICAN NATIONAL STANDARD

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ASME
SETTING THE STANDARD

Three Park Avenue • New York, NY • 10016 USA

Date of Issuance: November 30, 2010

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

ASME issues written replies to inquiries concerning interpretations of technical aspects of this document. Periodically certain actions of the ASME B107 Committee may be published as Cases. Cases and interpretations are published on the ASME Web site under the Committee Pages at http://cstools.asme.org as they are issued.

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

CONTENTS

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 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.

The format of this Standard is in accordance with *The ASME Codes & Standards Writing Guide 2000.* Requests for interpretations of the technical requirements of this Standard should be expressed in writing to the Secretary, B107 Committee, at the address below.

Suggestions for the improvement of this Standard are welcome. They should be addressed to the Secretary, ASME B107 Standards Committee, Three Park Avenue, New York, NY 10016-5990.

The requirements of this Standard become effective at the time of publication. ASME B107.17-2010 was approved by the B107 Standards Committee on January 21, 2009 and by the Board on Standardization and Testing on April 15, 2010. It was approved by ANSI as an American National Standard on June 14, 2010.

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 is acknowledged and appreciated.

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, 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
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, the paragraph, figure or table number(s), and be written as a Question and a Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the standards 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. The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his request in the following format:

Subject:	Cite the applicable paragraph number(s) and a concise description.
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.

Requests that are not in this format will be rewritten in this 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. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

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

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 E 18, Standard Test Methods for Rockwell Hardness and Rockwell Superficial 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)

ISO 691, Wrench and Socket Openings — Metric Series — Tolerances for General Use

ISO 11168, Socket Wrenches for Spark- and Glow-Plugs

Publisher: International Organization for Standardization (ISO) Central Secretariat, 1 Ch. de la Voie-Creuse, Case postale 56, CH-1121 Geneva 20, Switzerland (www.iso.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 E 18.

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 E 18.

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 and 4M. The mandrel shall be fully engaged to the thickness of the wrench head.