ASME B1.2-2025
[Revision of ASME B1.2-1983 (R2017)]

Gages and Gaging for Unified Inch Screw Threads (UN, UNR, and UNJ)

AN AMERICAN NATIONAL STANDARD

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The American Society of Mechanical Engineers
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FOREWORD

American National Standards Committee B1 for the Standardization of Screw Threads was organized in 1920 as Sectional Committee B1 under the aegis of the American Engineering Standards Committee [later the American National Standards Association, then the United States of America Standards Institute and, as of October 6, 1969, the American National Standards Institute (ANSI)], with the Society of Automotive Engineers (now SAE International) and the American Society of Mechanical Engineers (ASME) as joint sponsors.

In 1982, American National Standards Committee B1 was reorganized as the ASME Standards Committee B1, and since then it has operated under ASME procedures to produce and update standards that may become national standards after final approval by ANSI.

Representatives of the services and industry of the United States, the United Kingdom, and Canada signed a declaration of accord with respect to the unification of screw threads on November 18, 1948. The ANSI unified screw thread standard B1.1, through Quadripartite Standardization Agreement (QSTAG) 247, is subject to an international standardization agreement of the American–British–Canadian–Australian Army Standardization Program that recognizes B1.1 as a standard for unified threads to effect interchangeability of parts and equipment between the armies of the participating nations.

ASA B1.2-1941, the first American national standard for Screw Thread Gages and Gaging, was published to supplement the parent standard ASA B1.1-1935, Screw Threads for Bolts, Nuts, Machine Screws and Threaded Parts. That standard was revised and republished as unified standard ASA Bl.l-1949 and again as ASA Bl.l-1960. The unified gage standard was republished as ASA B1.2-1951 and USA B1.2-1966.

On February 9, 1973, the U.S. Department of Commerce held a meeting at the National Bureau of Standards in Washington, D.C., that was attended by representatives of government and industry screw thread interests. With the goal of eliminating parallel standards, those at the meeting recommended that the NBS Handbook H-28 be converted into a coordinating document for government screw thread standards wherein sections of H-28 would be replaced by single-page references to existing industry standards. It was further recommended that the chairman of American National Standards Committee B1 set up a group to clearly define and establish identified levels of acceptability for screw threads.

At an American National Standards Committee B1 meeting held on May 3, 1973, the following motion was unanimously approved: “The B1 Committee, recognizing the needs of industry for different levels of acceptability for screw threads, established new scopes for Standards B1.1 and B1.2 and set up a new standard, B1.3.” References to conformance criteria were removed from ANSI B1.2-1974 and additional gages and gaging data were added to suit additional conformance requirements specified in ASME B1.3 or other B1 thread documents.

The ANSI/ASME B1.2-1983 publication had considerable material added to cover the gages and measuring equipment shown in ASME B1.3, Screw Thread Gaging Systems for Dimensional Acceptability. ANSI/ASME B1.2-1983 also reapplied HI and LO to function as NOT GO gages and eliminated gages with pitch diameter outside product thread limits. ANSI/ASME B1.2-1983 was approved by the ASME Standards Committee B1 on March 18, 1983. The proposed standard was submitted by the ASME Board of Standardization to ANSI. It was approved and formally designated an American National Standard on May 16, 1983.

This 2025 edition includes the following revisions to ANSI/ASME B1.2-1983:

(a) the addition of screw thread profiles to the title of the Standard

(b) changes that reflect the incorporation of the standardization of calculation and rounding per ASME B1.30.

(c) the addition of gages for the inspection or evaluation of commercial use UNJ (rounded root form) threads. These were formerly in ASME B1.15 and consolidated into ASME B1.1.

(d) the addition of wear allowance on GO work plug gages.

(e) an increase in tolerance on the major diameter of the NOT GO working plug gage, the minor diameter of the NOT GO working ring gage, and the truncated portion of applicable setting plugs.

(f) the addition of the progressive type master set plug.

(g) the addition of crest diameter to functional diameter run-out gage.

(h) the addition of minimum material NOT GO functional diameter type indicating gages.

Following approval by the ASME B1 Committee and ASME, and after public review, ASME B1.2-2025 was approved by the American National Standards Institute on October 7, 2025.

ASME B1 COMMITTEE
Standardization and Unification of Screw Threads

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

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Revisions and Errata. The committee processes revisions to this Standard on a periodic basis 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 in the next edition of the Standard.

In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive email notifications of posted errata.

This Standard is always open for comment, and the committee welcomes proposals for revisions. Such proposals should be as specific as possible, citing the paragraph number, the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent background information and supporting documentation.

Cases. The committee does not issue cases for this Standard.

Interpretations. The committee does not issue interpretations for this Standard.

Committee Meetings. The B1 Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the secretary of the committee. Information on future committee meetings can be found on the committee web page at https://go.asme.org/B1committee.

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GAGES AND GAGING FOR UNIFIED INCH SCREW THREADS (UN, UNR, and UNJ)

1 GENERAL

1.1 Scope

This Standard provides essential specifications and dimensions for the gages used on unified inch screw thread profiles (UN, UNR, and UNJ thread form) and covers the specifications and dimensions for the thread gages and measuring equipment listed in ASME B1.3. The basic purpose and use of each gage is described.

NOTE: The gages and instruments mentioned in this Standard that are used for the calibration of screw thread gages and gage elements are the ones commonly used. This does not preclude using any other type of gage or instrument that produces results that correlate with the results of those mentioned.

1.2 Use

Gage limits and tolerances for gages made to previous editions of this Standard might not be the same as those for gages made to this edition.

Product threads accepted by gages made to previous editions of this Standard are considered acceptable whether accepted or rejected by like gages made to this edition of the Standard.

Gages within specification of either the current edition or past editions are considered acceptable.

1.3 References

The following is a list of publications referenced in this Standard. Unless otherwise specified, the latest edition shall apply.

ASME B1.1. Unified Inch Screw Threads (UN, UNR, and UNJ Thread Forms). The American Society of Mechanical Engineers.

ASME B1.3. Screw Thread Gaging Systems for Acceptability: Inch and Metric Screw Threads (UN, UNR, UNJ, M, MJ). The American Society of Mechanical Engineers.

ASME B1.7. Screw Threads: Nomenclature, Definitions, and Letter Symbols. The American Society of Mechanical Engineers.

ASME B1.25. Measurement Uncertainty Factors in the Calibration of Screw Thread Gages. The American Society of Mechanical Engineers.

ASME B1.30. Screw Threads: Standard Practice for Calculating and Rounding Dimensions. The American Society of Mechanical Engineers.

ASME B46.1. Surface Texture (Surface Roughness, Waviness, and Lay). The American Society of Mechanical Engineers.

ASME B47.1. Gage Blanks with Errata. The American Society of Mechanical Engineers.

ASME B89.1.5. Measurement of Plain External Diameters for Use as Master Discs or Cylindrical Plug Gages. The American Society of Mechanical Engineers.

ASME B89.1.6 Measurement of Plain Internal Diameters for Use as Master Rings or Ring Gages. The American Society of Mechanical Engineers.

ASME B89.1.17. Measurement of Thread Measuring Wires. The American Society of Mechanical Engineers.

ASME B89.3.1. Measurement of Out-of-Roundness. The American Society of Mechanical Engineers.

SAE AS8879. Screw Threads - UNJ Profile, Inch. SAE International.

NIST Technical Note 1297. Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results. Appendix C: NIST Technical Communications Program, Appendix E, Statements of Uncertainty Associated with Measurement Results. National Institute of Standards and Technology.