AN AMERICAN NATIONAL STANDARD

Gages and Gaging for Unified Inch Screw Threads

ANSI/ASME B1.2-1983

(REVISION OF ANSI B1.2-1974)

REAFFIRMED 2007

FOR CURRENT COMMITTEE PERSONNEL
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SPONSORED AND PUBLISHED BY

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

United Engineering Center 345 East 47th Street New York, N. Y. 10017

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NOTE: See FED-STD-H28/6: Screw-Thread Standards for Federal Services, Section 6, Gages and Gaging for Unified Screw Threads – UN and UNR Thread Forms

NOTICE: When reaffirmation, amendment revision, or cancellation of this standard is initially proposed, the industry group responsible for this Standard shall inform the military coordinating activity of the proposed change and request their participation.

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(Project THDS-0045)

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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.

Date of Issuance: June 15, 1984

FOREWORD

(This Foreword is not part of American National Standard ANSI/ASME B1.2-1983, Gages and Gaging for Unified Inch Screw Threads.)

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, Inc.), with the Society of Automotive Engineers and the American Society of Mechanical Engineers 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 the American Society of Mechanical Engineers Procedures to produce and update standards which may become ANSI Standards after final approval by the American National Standards Institute.

A declaration of accord with respect to the unification of screw threads was signed on November 18, 1948, by representatives of the services and industry of the United States, the United Kingdom, and Canada. The ANSI Unified Screw Thread Standard B1.1, through the quadripartite standardization agreement (QST AG) 247, Unified Threads, is subject to an international standardization agreement through the instrumentality of the American-British-Canadian-Australian Army Standardization Program, which recognizes B1.1 as a standard for Unified Threads when it is required to effect the interchangeability of parts and equipment between the armies of the participating nations.

The first American National Standard for Screw Thread Gages and Gaging was published as ASA B1.2-1941 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 a Unified Standard ASA B1.1-1949 and again as ASA B1.1-1960. The Unified Gage Standard was republished as ASA B1.2-1951 and USA B1.2-1966.

On February 9, 1973, a meeting was held by the Department of Commerce at the National Bureau of Standards, Washington, D.C., 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, unanimous approval was given to the following motion: "The B1 Committee recognizing the needs of industry for different levels of acceptability for screw threads, establishes new scopes for Standards B1.1 and B1.2 and sets 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 ANSI B1.3 or other B1 thread documents.

This new publication, designated ANSI/ASME B1.2-1983, has had considerable new material added to cover the many options of gages and measuring equipment shown in ANSI B1.3, Screw Thread Gaging Systems for Dimensional Acceptability. It has also re-

applied HI and LO to function as NOT GO gages and has eliminated gages with pitch diameter outside product thread limits. ANSI B1.2 was approved by the ASME Standards Committee B1 on March 18, 1983.

The proposed standard was submitted by the ASME Board of Standardization to the American National Standards Institute. It was approved and formally designated an American National Standard on May 16, 1983.

ASME STANDARDS COMMITTEE B1
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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GAGES AND GAGING FOR UNIFIED INCH SCREW THREADS

1 INTRODUCTION

This Standard provides essential specifications and dimensions for the gages used on Unified inch screw threads (UN and UNR thread form), and covers the specifications and dimensions for the thread gages and measuring equipment listed in Tables 1 and 2. The basic purpose and use of each gage are also described.

1.1 References

The latest editions of the following documents form a part of this Standard, to the extent specified herein.

American National Standards

ANSI B1.1	Unified Inch Screw Threads (UN and UNR Thread Form
ANSI B1.3	Screw Thread Gaging Systems for Dimensional Acceptability
ANSI B1.7	Nomenclature, Definitions, and Letter Symbols for Screw Threads
ANSI B46.1	Surface Texture: Surface Roughness, Waviness, and Lay
ANSI B47.1	Gage Blanks
ANSI B89.1.6	Measurement of Qualified Plain Internal Diameters for Use as Master Rings and Ring Gages
ANSI B89.1.9	Precision Inch Gage Blocks for Length Measurement (Through 20 in.)
ANSI B89.3.1	Measurement of Out-of-Roundness

1.2 Classification

In this Standard, the term NOT GO, previously known as HI and LO, is used to identify functional diameter thread gages.

1.3 Federal Government Use

When this Standard is approved by the Department of Defense and federal agencies and is incorporated into FED-STD-H28/6, Screw Thread Standard for Federal Services, Section 6, the use of this Standard by the federal government will be subject to all requirements and limitations of FED-STD-H28/6.

2 BASIC PRINCIPLES

2.1 Accuracy in Gaging

Thread plug gages are controlled by direct measuring methods. Thread ring gages, thread snap limit gages, and indicating thread gages are controlled by reference to the appropriate setting gages or direct measuring methods or both.

2.2 Limitations of Gaging

2.2.1 Product threads accepted by a gage of one type may be verified by other types. It is possible, however, that parts which are near a limit may be accepted by one type and rejected by another. Also, it is possible for two individual limit gages of the same type to be at opposite extremes of the gage tolerances permitted, and borderline product threads accepted by one gage could be rejected by another. For these reasons, a product screw thread is considered acceptable when it passes a test by any of the permissible gages in ANSI B1.3 for the gaging system specified, provided the gages being used are within the tolerances specified in this Standard.

2.2.2 Gaging large product external and internal threads equal to or greater than 6.25 in. nominal size with plain and threaded plug and ring gages presents problems for technical and economic reasons. In these instances, verification may be based on use of modified snap or indicating gages or measurement of thread elements. Various types of gages or measuring devices in addition to those defined in this document are available and acceptable when properly correlated to this Standard. Producer and user should agree on the method and equipment used.