ASME B18.8.2-2020
[Revision of ASME B18.8.2-2000 (R2010)]

Taper Pins, Dowel Pins, Straight Pins, Grooved Pins, and Spring Pins (Inch Series)

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers
Two Park Avenue • New York, NY • 10016 USA

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The American Society of Mechanical Engineers
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FOREWORD

The need for a standard covering machine pins was recognized by industry as far back as March, 1926, when the Sectional Committee on the Standardization of Machine Pins was organized under the procedure of the American Standards Association (later 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.

For the next year or two an effort was made via correspondence to develop a basis on which a standard for straight, taper, split, and dowel pins might be established. This correspondence exposed a distinct difference of opinion on the part of the manufacturers and users of taper machine pins, which seemed to discourage the members of the committee from attempting standardization on any of the types of pins within its scope. The sponsor organization made frequent efforts to revive this project through letters and the distribution of technical literature on this general subject, without avail.

In December, 1941, during its periodic review of Society-sponsored standards, the ASME Standardization Committee decided that reviving the project was unlikely and voted (subject to acceptance by the sponsors) to suggest to the ASA the transfer of this project to Sectional Committee B5 on the Standardization of Small Tools and Machine Tool Elements. The sponsors agreed and on July 7, 1942, the ASA sanctioned this action and Sectional Committee B43 was discharged and the project was officially transferred to Sectional Committee B5.

At its meeting in December, 1942, Sectional Committee B5 voted to enlarge its scope to include machine pins. Technical Committee No. 23 was subsequently established and charged with the responsibility for technical content of standards covering machine pins. This group held its first meeting on November 30, 1943, at which time a subgroup on Correlation and Recommendations was appointed and it was voted to include clevis pins in addition to the other pin types already under consideration. Several drafts were prepared by the subgroup, distributed for critical comment to users, manufacturers, and general interests and revised and resubmitted for comments. This action finally resulted in acceptance by Technical Committee 23 of a draft dated November, 1945. Proofs of the draft, with a date of October, 1946 were distributed to the members of Sectional Committee B5 for letter ballot approval. After the approval of the Sectional Committee, the proposal was next approved by the sponsor bodies, and presented to the American Standards Association for approval as an American Standard. This designation was granted on July 7, 1947.

Following the issuance of the standard it became apparent that the table on cotter pins needed revision. Accordingly in 1953 a proposed revision was submitted to the Sectional Committee. After attaining Sectional Committee and sponsor approval this revision was approved by the American Standards Association on July 9, 1954 as ASA B5.20-1954.

In 1956 and 1957, in response to requests from industry, extensive changes were incorporated into a proposed revision. These included revisions to chamfer values and tolerances on straight pins and unhardened ground dowel pins; revisions to under-head-to-hole, pin end dimensions, and hole size tolerances on clevis pins; addition of chisel point to cotter pin end-styles; and the incorporation of coverage on grooved pins. Following Sectional Committee and sponsor approvals, this revision was adopted by the American Standards Association on March 25, 1958, as ASA B5.20-1958.

In late 1961, Sectional Committee B5 suggested that Sectional Committee B18 on the standardization of bolts, nuts, rivets, screws, and similar fasteners assume jurisdiction over standards for pins. Recognizing that the bulk of the products covered in the ASA B5.20 standards were fastener rather than machine oriented, this recommendation was supported by the B18 Committee and officially endorsed by the sponsor organizations. Consequently this Committee, at the September 14, 1962 meeting, decreed that Subcommittee 23* should be formed to review and update the pin standard.

At the initial meeting, held on June 3, 1964, Subcommittee 23* decided to add standards for spring pins and to establish seven subgroups, each of which would have technical responsibility for specific pin products, and to publish respective products under separate cover as projects were completed.

Over several years, work by Subgroups 2, 3, 4, 5, and 6 culminated in a proposal for revising the standards covering taper, dowel, straight, and grooved pins and including coverage for spring pins (which was approved through letter ballot by Subcommittee 8 on February 24, 1977). After acceptance by American National Standards Committee B18 and the sponsor organizations, this document was submitted to the American National Standards Institute for approval as an American National Standard. Approval was granted on April 5, 1978 and the standard was published under the designation ANSI B18.8.2, superseding in part the coverage provided in ASA B5.20-1958.

*As of April 1, 1966 Subcommittee 23 was redesignated Subcommittee 8.

The B18.8.2-1978 edition was reaffirmed without change in 1989. The 1995 edition of B18.8.2 contained significant changes to the 1989 edition of B18.8.2 and was developed by the American Society of Mechanical Engineers B18 Committee on Fasteners. ASME B18.8.2-2000 was approved by the American National Standards Institute on June 22, 2000, and reaffirmed in 2010.

In 2017, the committee agreed to revise this Standard. The technical request prompting the revision began with some confusion in the industry regarding the diameter (*A*) of grooved pins. This revision clarifies that this dimension may be affected during the grooving process and shall not be cause for rejection. ASME B18.8.2-2020 was initially approved by ANSI as an American National Standard on April 16, 2020. However, publication was postponed to allow the committee to remove unrelated dimensions from Table C-1. ASME B18.8.2-2020 was again approved by ANSI as an American National Standard on October 30, 2020.

ASME B18 COMMITTEE
Standardization of Bolts, Nuts, Rivets, Screws, Washers, and Similar Fasteners

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

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CORRESPONDENCE WITH THE B18 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, B18 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 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 B18 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 B18 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 B18 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 B18 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 B18 Standards Committee. Future Committee meeting dates and locations can be found on the Committee Page at http://go.asme.org/B18committee.

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TAPER PINS, DOWEL PINS, STRAIGHT PINS, GROOVED PINS, AND SPRING PINS (INCH SERIES)

1 INTRODUCTION

1.1 Scope

1.1.1 This Standard covers the dimensional and general data for taper pins, dowel pins, straight pins, grooved pins, and spring pins. Also included are appendices providing supplementary information for the drilling of holes for taper pins and the testing of pins in double shear.

1.1.2 The inclusion of dimensional data in this Standard is not intended to imply that all the products described are stock production sizes. Consumers should consult with manufacturers concerning lists of stock production sizes.

1.2 Comparison With ISO Standards

Since these are inch fastener standards, there are no comparable ISO standards.

1.3 Dimensions

Unless otherwise specified, all dimensions are in inches. All dimensions shall apply before coating. Symbols specifying geometric characteristics are in accord with ASME Y14.5.

1.4 Options

Where specified, options shall be at the discretion of the manufacturer unless otherwise agreed upon by the manufacturer and purchaser. Special materials, coatings, lubrication, or packaging requirements shall be specified by the purchaser.

1.5 Terminology

For definitions of terminology not specified in this Standard, refer to ASME B18.12.

1.6 Referenced Standards

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

ASME B18.8.1, Clevis Pins and Cotter Pins (Inch Series)
ASME B18.12, Glossary of Terms for Mechanical Fasteners
ASME B18.18, Quality Assurance for Fasteners
ASME B18.24, Part Identifying Number (PIN) Code System for B18 Fastener Products
ASME B46.1, Surface Texture (Surface Roughness, Waviness, and Lay)
ASME Y14.5, Dimensioning and Tolerancing
Publisher: The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990 (www.asme.org)

1.7 Related Standards

Standards for clevis pins and cotter pins, inch series are published in ASME B18.8.1.

1.8 Part Identifying Number

For a Part Identifying Number, refer to ASME B18.24.

2 GENERAL DATA FOR PINS

2.1 Types of Pins

2.1.1 Taper Pins. Taper pins shall have a uniform taper over the pin length with both ends crowned. Most sizes are supplied in both commercial and precision classes, the latter having generally tighter tolerances and being more closely controlled in manufacture. Dimensions for both classes are given in Table 3.1.1-1.

2.1.2 Dowel Pins. The following three varieties of dowel pins are covered.

2.1.2.1 Hardened Ground Machine Dowel Pins. This variety of hardened dowel pins shall have ground cylindrical sides with one end pointed slightly to enter mating drive-fit holes and the other end rounded or crowned for driving purposes. They are available in standard and oversize diameter series to satisfy initial and replacement requirements, respectively. Dimensions for both series are given in Table 4.1.1-1.

2.1.2.2 Hardened Ground Production Dowel Pins. This variety of hardened dowel pin shall have ground cylindrical sides with both ends rounded sufficiently to enable the pin to be pressed into drive-fit holes. Dimensions are given in Table 5.1.1-1.