ASME B18.8.1-2014

[Revision of ASME B18.8.1-1994 (R2010)]

Clevis Pins and Cotter Pins (Inch Series)

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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AN AMERICAN NATIONAL STANDARD

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

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

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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 auspices of the American Standards Association (ASA) (later the United States of America Standards Institute, and as of October 6, 1969, the American National Standards Institute, Inc. [ANSI]), with the Society of Automotive Engineers (SAE International) and the American Society of Mechanical Engineers (ASME) 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 developed a distinct difference of opinion on the part of the manufacturers and users of taper machine pins, which fact seemed to discourage the members of the committee from attempting standardization on any of the types of pins within its scope. The sponsor organizations made frequent efforts to revive this project through letters and the distribution of technical literature on this general subject, without avail. In December 1941, in its periodic review of standards projects for which the Society was sponsor, the ASME Standardization Committee decided that there was little hope for reviving this project 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 Section 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, which was duplicated in printer's proof form, under a date of October 1946, and distributed to the members of Sectional Committee B5 for letter ballot approval. Subsequent to the approval of the Sectional Committee, the proposal was next approved by the sponsor bodies, and presented to the ASA 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 ASA on July 9, 1954.

In 2013, a major U.S. manufacturer of cotter pins brought to the attention of the B18.8 Subcommittee that there were several issues in this Standard for cotter pins that needed modification. None of the modifications change the pin's function or quality.

The first change is to open the tolerance on the total shank diameter, *A*, in Table 1 to make cotter pins easier to produce and to bring this tolerance in line with the other feature tolerances. The second modification is to increase the tolerance on gage hole diameter in Table 3 for holes of $\frac{3}{16}$-in. nominal diameter and up to be more consistent with the ratio of gage hole to nominal diameter of the nominal hole sizes below $\frac{3}{16}$ in. The third change is to modify the gap wording in para. 3.4.2 to include 3 ranges and increase the gap on $\frac{3}{8}$-in. and larger nominal diameters. Finally, in para. 3.5.3, the ductility wording "... being bent back upon itself once with no..." has no indication of a bent radius. A bent radius in relation to the pin nominal size has been added and expressed as a given diameter of pin to wrap the legs around 180 deg (i.e., $\frac{1}{8}$-in. nominal to be bent back 180 deg around a 118-in. diameter gage pin).

Several changes were also made to clevis pins. The following clevis pin sizes were added: $\frac{9}{16}$, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, $1\frac{7}{8}$, and 2 in. Table 2 was added to describe how to derive the effective length, *G*, based on the various shank lengths, *M*.

This revision was approved as an American National Standard on November 5, 2014.

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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Secretary, B18 Standards Committee
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Two Park Avenue
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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.

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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.

Requests 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 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 go.asme.org/B18committee.

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CLEVIS PINS AND COTTER PINS (INCH SERIES)

1 INTRODUCTION

1.1 Scope

1.1.1 This Standard covers the complete dimensional and general data for clevis pins sizes $^3/_{16}$ in. through 2 in. and cotter (split) pins sizes $^1/_{32}$ in. through $^3/_4$ in. of various materials.

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

1.1.3 There is no ISO standard comparable to this Standard.

1.2 Dimensions

All dimensions in this Standard are given in inches and apply before plating or coating. Tolerancing is in accordance with ASME Y14.5.

1.3 Responsibility

The responsible party for the performance of the products within the scope of this Standard is the organization that supplies the components to the purchaser and certifies or represents that the component was manufactured, tested, and inspected in accordance with this specification and meets all of its requirements.

1.4 Inspection and Quality Assurance

Unless otherwise specified by the purchaser, acceptability shall be based on conformance with the requirements specified in ASME B18.18.

1.5 Terminology

For definitions of terms relating to pins or features thereof used in this Standard, refer to ASME B18.12.

1.6 Reference Standards

ASME B18.12, Glossary of Terms for Mechanical Fasteners
ASME B18.18, Quality Assurance for Fasteners
ASME Y14.5, Dimensioning and Tolerancing
Publisher: The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990; Order Department: 22 Law Drive, P. O. Box 2900, Fairfield, NJ 07007-2900 (www.asme.org)

ASTM A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A380, Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems
ASTM A493, Standard Specification for Stainless Steel Wire and Wire Rods for Cold Heading and Cold Forging
ASTM A751, Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
ASTM B134/B134M, Standard Specification for Brass Wire
ASTM E384, Standard Test Method for Knoop and Vickers Hardness of Materials
ASTM F1941, Standard Specification for Electrodeposited Coatings on Threaded Fasteners (Unified Inch Screw Threads (UN/UNR))
ASTM F2329, Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners
Publisher: ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959 (www.astm.org)

SAE J864, Surface Hardness Testing With Files
Publisher: SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001 (www.sae.org)

2 GENERAL DATA — CLEVIS PINS

2.1 Clevis Pin Application

The clevis pins covered herein are intended for general applications. The clevis pins specified are intended for use in conjunction with clevises and rod end eyes, and the cotter pins contained herein. Tables 1 and 2 contain dimensional data relative to clevis pin dimensions.

2.2 Clevis Pin Head

2.2.1 Clevis Pin Top of Head. The top of the head shall be flat and either chamfered or rounded at outer periphery.

2.2.2 Clevis Pin Bearing Surface. The bearing surface of the head shall be flat and square with the axis of pin (determined over a distance from under the head equivalent to 1.5 times the basic pin diameter) within 2 deg.

2.2.3 Clevis Pin Head Periphery. The periphery of the head shall be within a circular runout equal to 12% of the maximum head diameter or 0.020 in., whichever is greater, with respect to the axis of the shank, as determined over a length under the head equal to the nominal pin diameter.

2.3 Clevis Pin Lengths

All clevis pin sizes are available in a variety of nominal lengths. Table 2 provides a means of determining the cotter pin hole location, *M*, for all nominal pin lengths, *G*, for each clevis pin size.

2.3.1 Clevis Pin Measurement. The *G* and *M* lengths of the clevis pin shall be measured, parallel to the axis of pin, from the bearing surface of the head.

2.4 Clevis Pin Hole

2.4.1 Clevis Pin Hole Location. The clevis pin hole location is dimension, *M*.

2.4.2 Clevis Pin Hole Alignment and Angularity. The axis of hole through the shank shall not be offset from the axis of pin by more than 0.010 in. for the $^3\!/_{16}$-in. and $^1\!/_4$-in. nominal pin size and 0.020 in. for all larger pin sizes, and shall be square with the axis of pin within 2 deg.

2.4.3 Clevis Pin Hole Chamfer. The hole shall be chamfered or edges otherwise relieved at both ends to remove all burrs and sharp edges.

2.5 Clevis Pin Material and Heat Treatment

Unless otherwise specified by the purchaser, clevis pins shall be made of either low or medium carbon steel.

When case hardened pins are specified, they shall be resistant to a No. 58 file in accordance with SAE J864. In the event of dispute, case hardness and depth shall be evaluated by micro-hardness according to ASTM E384. The case hardness shall be a minimum of 633 HV (HRC 57) with a depth between 0.010 in. and 0.016 in.

2.6 Clevis Pin Finish

Clevis pins shall normally be furnished with a plain (as processed) finish, not plated or coated. Other finishes, where required, shall be subject to agreement between the manufacturer and the purchaser.

Finishes such as the following are suitable for use on clevis pins:

(a) Electroplating per ASTM B633 or F1941 (cadmium is not a recommended finish)

(b) Hot dipped zinc coatings ASTM A153 or F2329

(c) Passivation of corrosion resistant pins per ASTM A380

2.7 Clevis Pin Workmanship

Clevis pins shall be free from burrs, loose scale, sharp edges, and all other defects affecting their serviceability.

2.8 Clevis Pin Designation

Clevis pins shall be designated by the following data, in the sequence shown:

(a) product name (noun first)
(b) ASME B18.8.1
(c) nominal size (fraction or decimal equivalent)
(d) length (fraction)
(e) material
(f) protective finish, if required

Examples:
(1) Pin, Clevis, ASME B18.8.1, $^1\!/_4 \times ^3\!/_4$, Steel, Zinc Plated, ASTM F1941, Fe/Zn 5AT
(2) Pin, Clevis, ASME B18.8.1, 0.375 × $1^1\!/_8$, Steel, Case Hardened, Plain Finish

2.9 Clevis Pin Marking

Case hardened pins shall be marked with a capital "H" located in the center of the top of the head. The manufacturer's identification mark shall also be located anywhere on top of the head. Marks may be raised or indented.

3 GENERAL DATA — COTTER PINS

3.1 Cotter Pin Application

The cotter pins specified are intended for use with clevis pins contained herein and in pinned bolt and nut assemblies or other type of free-fitting pinned assemblies in general applications.

3.2 Cotter Pin Head Design

A degree of leeway shall be permissible in the design of the head provided; however, the specified minimum outside diameter is maintained as specified in Table 4.

3.3 Cotter Pin Length

3.3.1 Cotter Pin Measurement. The length of pin, *L*, shall be measured, parallel to the axis of the pin, from the plane of contact of a gage (see Fig. 1) with the head of the pin to the end of the prong or pin as depicted in the illustrations for the respective points types. The gage shall have a hole equal to the specified gage hole diameter (see Table 4) within a tolerance of ±0.001 in. The permissible break or rounding at the gauging edges of gauging holes shall not exceed 0.005 in. The pin shall be inserted into the gage with finger pressure (force not to exceed 8 oz).

Where pins having point types other than those illustrated herein are gauged, the length, *L*, shall be measured from the plane of contact of the gage with the end of the shortest prong.

3.3.2 Cotter Pin Tolerance on Length. The tolerance on length of cotter pins shall be as specified in Table 3.

3.3.3 Cotter Pin Preferred Lengths. Tables 5 and 6 depict the preferred sizes and lengths of pins that are normally available. Other sizes and lengths are produced, as required by the purchaser.

3.4 Cotter Pin Prongs

3.4.1 Cotter Pin Preferred Points. The preferred point type shall be the extended prong — square cut or hammer lock designs illustrated, as specified by purchaser. Variations of the extended prong design and other types of points are also available, subject to mutual agreement between the purchaser and manufacturer.

3.4.2 Cotter Pin Prong Alignment. The ends of the pins shall not be open and any gaps occurring between the prongs along the shank portion of pins beyond the end shall not exceed 0.015 in. for pins under $\frac{7}{64}$ in. in diameter; 0.025 in. for pins from $\frac{7}{64}$ in. to $\frac{3}{8}$ in. in diameter, and 0.045 in. for pins $\frac{3}{8}$ in. and over. The misalignment of prongs over the entire length of shank shall not stop the pin from being inserted into the gaging hole.

3.5 Cotter Pin Material and Test

3.5.1 Cotter Pin Material. Unless otherwise specified by the purchaser, cotter pins shall be made of low carbon steel.

When so specified by purchaser, pins may also be made from material such as ASTM A493, Types 302 (UNS S30200), 304 (UNS S30400), and 316 (UNS S31600) corrosion resistant steel; ASTM B134, Alloy 260 (UNS C26000), cartridge brass; Monel Alloy (UNS N04400); or other material as agreed upon between manufacturer and purchaser.

3.5.2 Cotter Pin Analysis. Chemical composition determinations shall be made in accordance with methods given in ASTM Standard A751 when composition verification is specified.

3.5.3 Cotter Pin Ductility. Each prong of the cotter pin shall be capable of withstanding being bent back 180 deg around a pin with a diameter equal to the nominal size with no visible indication of fracture occurring at the point of bend.

3.5.4 Cotter Pin Wire Section. Cotter pins are manufactured from approximately half-round wire and it is desirable that the flat side of the wire have a small degree of rounding at the edges rather than sharp corners.

3.6 Cotter Pin Finish

Unless otherwise specified by the purchaser, cotter pins shall be supplied with a plain (as processed) finish, not plated or coated. Other finishes, where required, shall be subject to agreement between the manufacturer and purchaser.

3.7 Cotter Pin Workmanship

Cotter pins shall be free from excessive burrs, cracks, loose scale, sharp edges, and all other defects affecting their serviceability.

3.8 Cotter Pin Designation

Cotter pins shall be designated by the following data, in sequence shown:

(a) product name (noun first)
(b) ASME B18.8.1
(c) nominal size (fraction or decimal equivalent)
(d) pin length (fractions)
(e) point type
(f) material and protective finish, if required

EXAMPLES:
(1) Pin, Cotter, ASME B18.8.1, $\frac{1}{8} \times 1\frac{1}{4}$, Extended Prong Type, Steel, Zinc-Plated, ASTM F1941, 8A
(2) Pin, Cotter, ASME B18.8.1, 0.250 × $1\frac{1}{2}$, Hammer Lock Type, Steel, Corrosion Resistant, UNS S30400, Passivated, ASTM A380

Fig. 1 Cotter Pin Length Gage

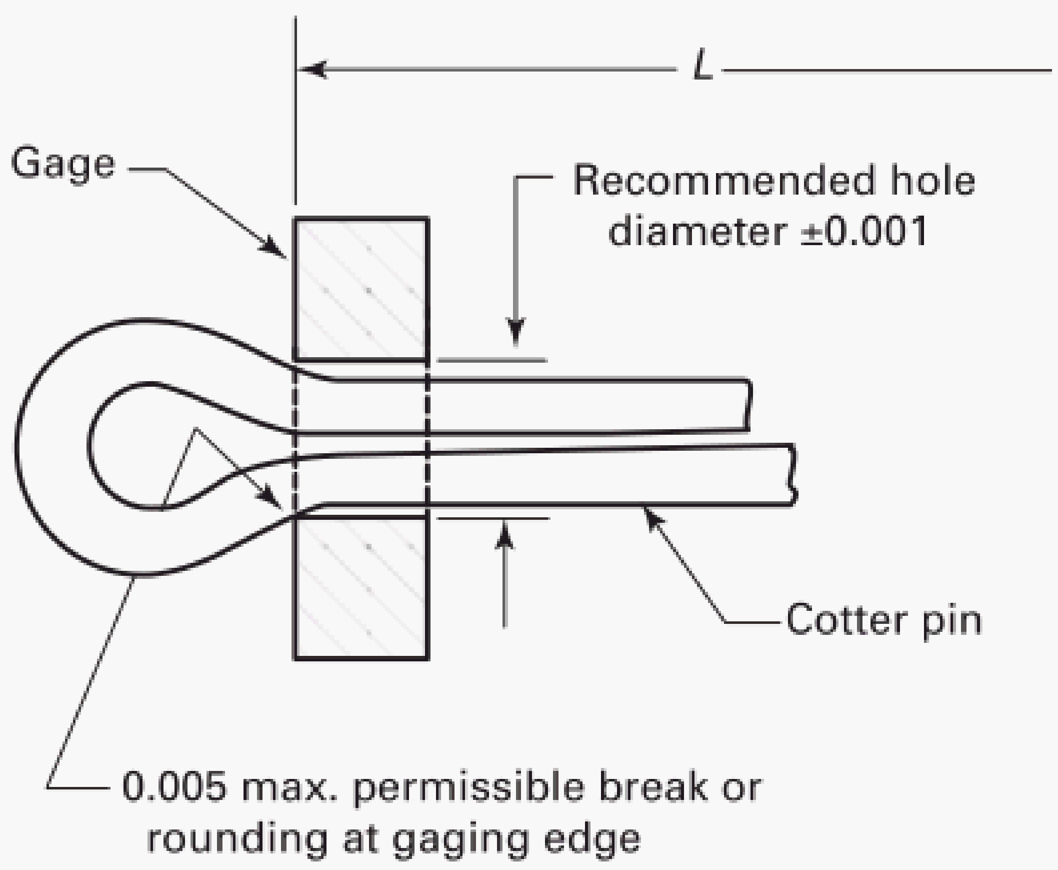
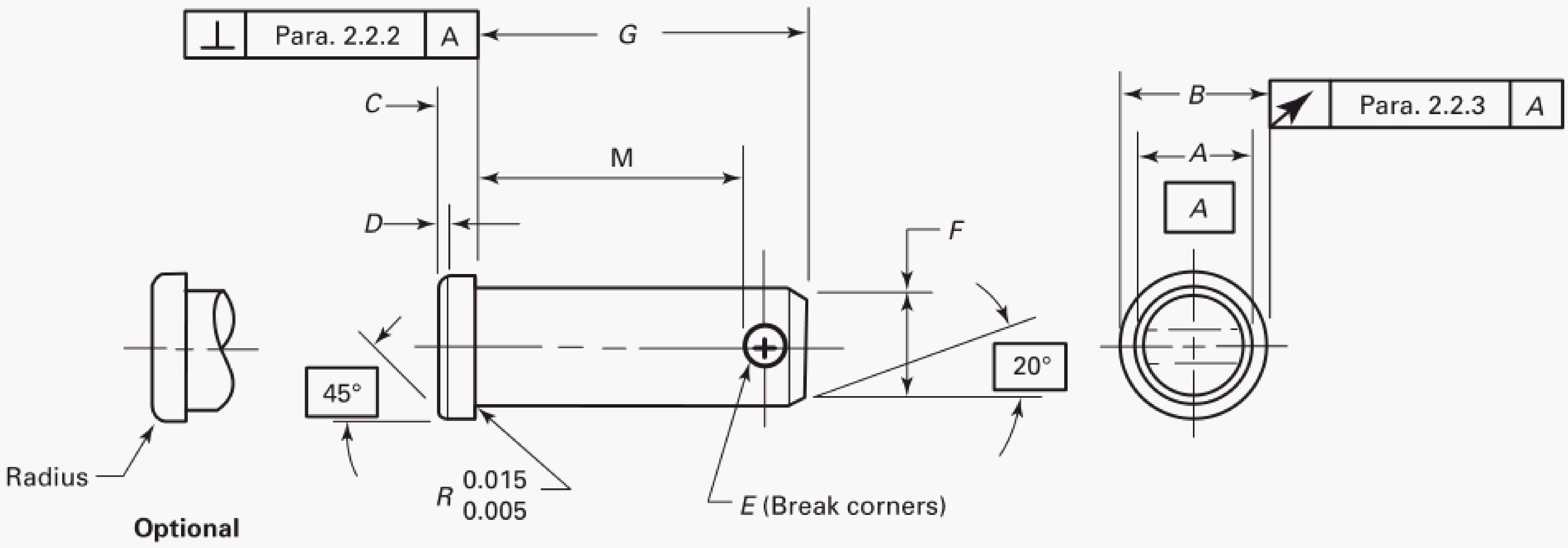


Table 1 Clevis Pin Dimensions



Clevis Pin		Shank Diameter, *A*		Head Diameter, *B*		Head Height, *C*		Head Chamfer, *D*, ±0.01	Point Diameter, *F*	
Size	Nominal	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.
3/16	0.188	0.186	0.181	0.32	0.30	0.07	0.05	0.02	0.15	0.14
1/4	0.250	0.248	0.243	0.38	0.36	0.10	0.08	0.03	0.21	0.20
5/16	0.312	0.311	0.306	0.44	0.42	0.10	0.08	0.03	0.26	0.25
3/8	0.375	0.373	0.368	0.51	0.49	0.13	0.11	0.03	0.33	0.32
7/16	0.438	0.436	0.431	0.57	0.55	0.16	0.14	0.04	0.39	0.38
1/2	0.500	0.496	0.491	0.63	0.61	0.16	0.14	0.04	0.44	0.43
9/16	0.562	0.558	0.553	0.82	0.80	0.21	0.19	0.06	0.50	0.49
5/8	0.625	0.621	0.616	0.82	0.80	0.21	0.19	0.06	0.56	0.55
3/4	0.750	0.746	0.741	0.94	0.92	0.26	0.24	0.07	0.68	0.67
7/8	0.875	0.871	0.866	1.04	1.02	0.32	0.30	0.09	0.80	0.79
1	1.000	0.996	0.991	1.19	1.17	0.35	0.33	0.10	0.93	0.92
1 1/8	1.125	1.130	1.150	1.330	1.360	0.42	0.33	0.12	1.01	1.00
1 1/4	1.250	1.250	1.260	1.500	1.470	0.42	0.33	0.12	1.12	1.11
1 3/8	1.375	1.375	1.355	1.770	1.730	0.53	0.44	0.15	1.23	1.22
1 1/2	1.500	1.500	1.480	2.020	1.980	0.59	0.50	0.18	1.35	1.34
1 5/8	1.625	1.625	1.605	2.200	2.160	0.59	0.50	0.18	1.46	1.45
1 3/4	1.750	1.750	1.730	2.140	2.100	0.59	0.50	0.18	1.57	1.56
1 7/8	1.875	1.875	1.855	2.270	2.230	0.59	0.50	0.18	1.68	1.67
2	2.000	2.000	1.980	2.400	2.360	0.59	0.50	0.18	1.80	1.79

Table 2 Clevis Pin Lengths

Clevis Pin		Effective Length, *M* [Note (1)]	Reference [Note (2)]	
Size	Nominal	$+\frac{3}{64}$, −0	Cotter Pin Diameter	Cotter Pin Hole Size, *E* [Note (3)]
$\frac{3}{16}$	0.188	$M = G - \frac{9}{64}$	$\frac{1}{16}$	$\frac{3}{32}$
$\frac{1}{4}$	0.250	$M = G - \frac{9}{64}$	$\frac{1}{16}$	$\frac{3}{32}$
$\frac{5}{16}$	0.312	$M = G - \frac{7}{32}$	$\frac{1}{8}$	$\frac{5}{32}$
$\frac{3}{8}$	0.375	$M = G - \frac{7}{32}$	$\frac{1}{8}$	$\frac{5}{32}$
$\frac{7}{16}$	0.438	$M = G - \frac{7}{32}$	$\frac{1}{8}$	$\frac{5}{32}$
$\frac{1}{2}$	0.500	$M = G - \frac{7}{32}$	$\frac{1}{8}$	$\frac{5}{32}$
$\frac{9}{16}$	0.562	$M = G - \frac{7}{32}$	$\frac{1}{8}$	$\frac{5}{32}$
$\frac{5}{8}$	0.625	$M = G - \frac{7}{32}$	$\frac{1}{8}$	$\frac{5}{32}$
$\frac{3}{4}$	0.750	$M = G - \frac{7}{32}$	$\frac{1}{8}$	$\frac{5}{32}$
$\frac{7}{8}$	0.875	$M = G - \frac{5}{16}$	$\frac{3}{16}$	$\frac{7}{32}$
1	1.000	$M = G - \frac{5}{16}$	$\frac{3}{16}$	$\frac{7}{32}$
$1\frac{1}{8}$	1.125	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$
$1\frac{1}{4}$	1.250	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$
$1\frac{3}{8}$	1.375	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$
$1\frac{1}{2}$	1.500	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$
$1\frac{5}{8}$	1.625	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$
$1\frac{3}{4}$	1.750	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$
$1\frac{7}{8}$	1.875	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$
2	2.000	$M = G - \frac{5}{8}$	$\frac{7}{32}$	$\frac{1}{4}$

NOTES:

(1) Standard lengths, *G*, are in $\frac{1}{8}$-in. increments unless otherwise specified.

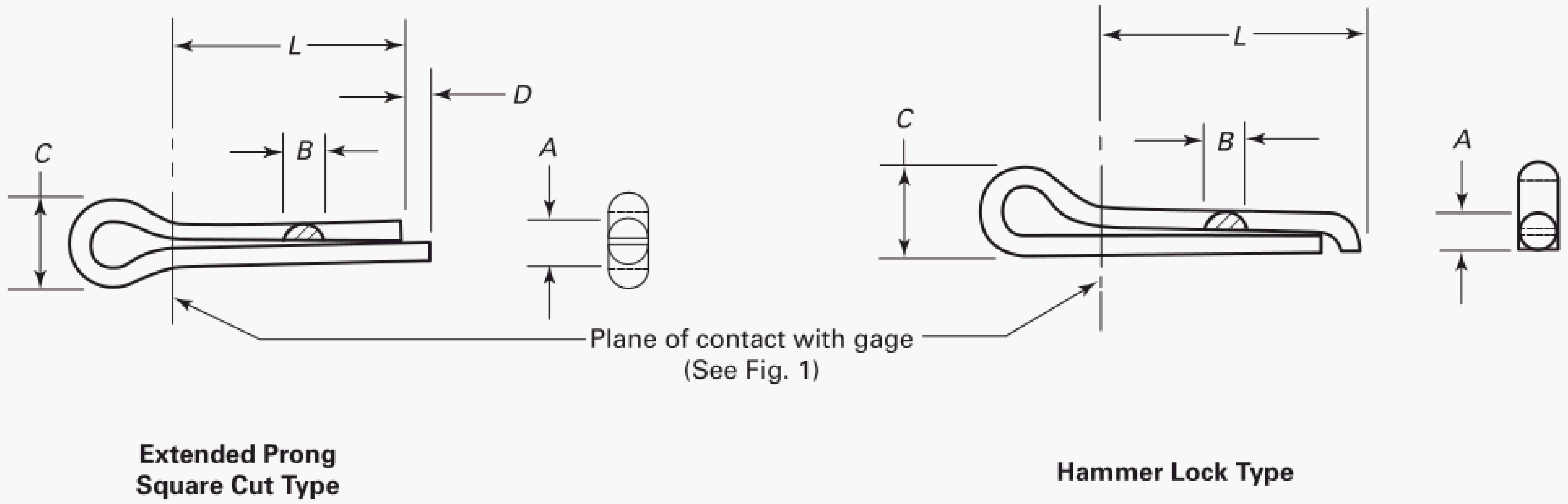
(2) Cotter pin diameter is at the discretion of the manufacturer unless otherwise specified by the purchaser. Refer to Tables 4 through 6 for cotter pin dimensions and standard lengths.

(3) Cotter pin hole size is $\frac{1}{32}$ in. over cotter pin size.

Table 3 Length Tolerance

Nominal Pin Length	Tolerance on Length
Up to 1 in.	± 0.03
1 in. and longer	± 0.06

Table 4 Dimensions of Cotter Pins



Cotter Pin [Note (1)]		Total Shank Diameter, *A* [Note (2)]		Wire Width, *B*		Head Diameter, *C*	Extended Prong Length, *D*	Gage Hole Diameter, ±0.001
Size	Nominal	Max.	Min.	Max.	Min.	Min.	Min.	
1/32	0.031	0.034	0.028	0.032	0.022	0.06	0.01	0.047
3/64	0.047	0.050	0.044	0.048	0.035	0.09	0.02	0.062
1/16	0.062	0.063	0.056	0.060	0.044	0.12	0.03	0.078
5/64	0.078	0.079	0.072	0.076	0.057	0.16	0.04	0.094
3/32	0.094	0.093	0.086	0.090	0.069	0.19	0.04	0.109
7/64	0.109	0.107	0.100	0.104	0.080	0.22	0.05	0.125
1/8	0.125	0.124	0.116	0.120	0.093	0.25	0.06	0.141
9/64	0.141	0.138	0.130	0.134	0.104	0.28	0.06	0.156
5/32	0.156	0.154	0.146	0.150	0.116	0.31	0.07	0.172
3/16	0.188	0.180	0.172	0.176	0.137	0.38	0.09	0.207
7/32	0.219	0.212	0.202	0.207	0.161	0.44	0.10	0.241
1/4	0.250	0.230	0.220	0.225	0.176	0.50	0.11	0.275
5/16	0.312	0.286	0.275	0.280	0.220	0.62	0.14	0.343
3/8	0.375	0.341	0.329	0.335	0.263	0.75	0.16	0.413
7/16	0.438	0.412	0.400	0.406	0.320	0.88	0.20	0.482
1/2	0.500	0.480	0.467	0.473	0.373	1.00	0.23	0.550
5/8	0.625	0.605	0.590	0.598	0.472	1.25	0.30	0.688
3/4	0.750	0.730	0.715	0.723	0.572	1.50	0.36	0.825

GENERAL NOTE: For additional requirements, refer to sections 1 and 3.

NOTES:

(1) 5/64, 7/32, 7/16 and 3/4 not preferred for new design.

(2) Total shank diameter, *A* dimension, is twice wire thickness. *A* is measured at end of pin where no gap is permitted.

Table 5 Preferred Sizes and Lengths of Extended Prong Type Cotter Pins

Nominal Pin Length	Pin Size											
	1/32	3/64	1/16	3/32	1/8	5/32	3/16	1/4	5/16	3/8	1/2	5/8
1/2	XX	XX	XX	XX	XX	...	...	...	...	...	...	...
3/4	XX	XX	XX	XX	XX	XX	XX	...	...	...	...	...
1	XX	XX	XX	XX	XX	XX	XX	XX	XX	...	...	...
1 1/2	...	...	XX	XX	XX	XX	XX	XX	XX	XX	...	...
2	...	...	XX	XX	XX	XX	XX	XX	XX	XX	...	...
2 1/2	...	...	...	XX	XX	XX	XX	XX	XX	XX	XX	...
3	...	...	...	...	XX	XX	XX	XX	XX	XX	XX	XX
3 1/2	...	...	...	...	...	...	XX	XX	XX	XX	XX	XX
4	...	...	...	...	...	...	XX	XX	XX	XX	XX	XX
5	...	...	...	...	...	...	...	...	XX	XX	XX	XX
6	...	...	...	...	...	...	...	...	...	XX	XX	XX

Table 6 Preferred Sizes and Lengths of Hammer Lock Type Cotter Pins

Nominal Pin Length	3/64	1/16	3/32	7/64	1/8	5/32	3/16	1/4	5/16	3/8
1/2	XX	XX	XX	XX	XX	...	...	...	...	...
3/4	XX	XX	XX	XX	XX	XX	XX	...	...	...
1	...	XX	XX	XX	XX	XX	XX	XX	XX	...
1 1/2	...	XX	XX	XX	XX	XX	XX	XX	XX	XX
2	...	XX	XX	XX	XX	XX	XX	XX	XX	XX
2 1/2	...	...	...	...	...	XX	XX	XX	XX	XX
3	...	...	...	...	...	XX	XX	XX	XX	XX
3 1/2	...	...	...	...	...	...	XX	XX	XX	XX
4	...	...	...	...	...	...	XX	XX	XX	XX

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