ASME B47.1-2007

(Revision of ASME/ANSI B47.1-1988)

REAFFIRMED 2022

Gage Blanks

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

ERRATA
to
ASME B47.1-2007
Gage Blanks

On page 48, Table 32, decimal range for line 8-T corrected. Lines 9-T and 10-T added. The revised table is on the following page.

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
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Table 32 Thread Ring Gages — Range No. 0 to and Including 4¾ in.; Also Fine-Pitch Instrument Thread Ring Gages, No. 0 to and Including No. 12 (Cont'd)

Ring Size No.	Ring Assembly No.	Nominal Range, Inclusive, No. or in.	Decimal Range, Above and Including	General Dimensions																			
				A	*B*	*C*	*D*	*E*	*F*	*H*	*J*	*K*	*L*	*M* ± 1/64	*N* ± 1/64	Drill Size, *P* (No. or in.)	Drill Size, *R*	Ream, *S*		*U*			*V*	*W*
																		Min.	Max.	Size	Pitch Diameter Min.	Pitch Diameter Max.		
1-T	1	No. 0 to 6 (1)	0.059–0.230	1	1/4	...	...	...	1/32	5/16	5/32	5/16	7/32	5/32	1/16	No. 41 (0.0960)	11/64 (0.1719)	0.1370	0.1373	0.164-36	0.1400	0.1478	0.010 (2)	1/32
2-T	2	1/4–5/16	0.230–0.365	1 3/8	11/32	...	...	5/32	1/32	7/16	3/16	3/8	11/32	1/4	1/8	No. 31 (0.1200)	7/32 (0.2187)	0.1810	0.1813	0.216-28	0.1928	0.1950	1/32	1/16
3-T	3	3/8–1/2	0.365–0.510	1 3/4	7/16	...	...	3/16	3/64	19/32	1/4	15/32	1/2	3/8	3/16	No. 25 (0.1495)	17/64 (0.2656)	0.2150	0.2153	0.250-28	0.2268	0.2290	1/32	3/32
4-T	4	9/16–3/4	0.510–0.825	2 3/16	9/16	3/4	1 1/16	11/32	1/16	3/4	5/16	11/16	17/32	13/32	7/32	No. 7 (0.2010)	21/64 (0.3281)	0.2720	0.2723	0.3125-24	0.2854	0.2878	1/16	3/32
5-T	5	1/8–1 1/8	0.825–1.135	2 5/8	11/16	15/16	1 1/2	9/16	1/16	31/32	5/16	7/8	17/32	13/32	9/32	No. 1 (0.2280)	25/64 (0.3906)	0.3340	0.3344	0.375-24	0.3479	0.3503	1/16	3/32
6-T	6	1 1/4–1 1/2	1.135–1.510	3 1/4	3/4	1 1/8	1 7/8	27/32	1/16	1 3/16	3/8	1 1/8	5/8	7/16	5/16	17/64 (0.2656)	29/64 (0.4531)	0.3890	0.3894	0.4375-20	0.4050	0.4076	1/16	3/32
7-T	6	1 5/8–2	1.510–2.010	3 3/4	13/16	1 1/4	2 3/8	1 3/16	3/32	1 7/16	3/8	1 3/8	5/8	7/16	5/16	17/64 (0.2656)	29/64 (0.4531)	0.3890	0.3894	0.4375-20	0.4050	0.4076	1/16	1/8
8-T	7	2 1/8–2 1/2	2.010–2.510	4 1/2	7/8	1 5/16	2 7/8	1 19/32	3/32	1 3/4	7/16	1 11/16	13/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	0.4510	0.4515	0.500-20	0.4675	0.4701	3/32	1/8
9-T	7	2 5/8–3	2.510–3.010	5	7/8	1 3/8	3 3/8	2	3/32	2	7/16	1 15/16	13/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	0.4510	0.4515	0.500-20	0.4675	0.4701	3/32	1/8
10-T	7	3 1/8–3 1/2	3.010–3.510	5 1/2	15/16	1 7/16	3 7/8	2 7/16	3/32	2 7/32	7/16	2 3/16	13/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	0.4510	0.4515	0.500-20	0.4675	0.4701	3/32	1/8
11-T	8	3 5/8–4	3.510–4.010	6 3/8	15/16	1 1/2	4 5/8	2 15/16	3/32	2 5/8	1/2	2 9/16	1	3/4	5/8	13/32 (0.4062)	41/64 (0.6406)	0.5710	0.5715	0.625-18	0.5889	0.5919	3/32	1/8
12-T	8	4 1/8–4 3/4	4.010–4.760	7 1/4	1	1 1/2	5 3/8	3 3/8	3/32	3 1/32	1/2	3	1	3/4	5/8	13/32 (0.4062)	41/64 (0.6406)	0.5710	0.5715	0.625–18	0.5880	0.5919	3/32	1/8

GENERAL NOTES:

(a) All dimensions are in inches.

(b) Thin gage blanks are to be used for all NOT GO thread ring gages. For GO thread ring gages, use thin or thick blanks as follows.

Diameter, in.	Thin Blank	Thick Blank
From No. 0 to 1/2, inclusive	All pitches	...
Above 1/2 to 1 1/8, inclusive	Pitches 12 TPI and finer except 9/16–12	Pitches coarser than 12 TPI
Above 1 1/8	Pitches 10 TPI and finer	Pitches coarser than 10 TPI

(c) Screws and sleeves are not shown.

(d) Special thicker blanks are sometimes required for checking long lengths of engagement or exceptionally coarse pitch threads.

(e) Solid working thread ring gages are of similar standard thickness and furnished without adjustment feature. Outside diameter of solid ring blanks may be smaller to suit particular requirements. See Table 39 for solid setting and master thread ring gage blanks.

NOTES:

(1) Blanks for the range Nos. 0 to 12, inclusive, may be either counterbored or milled, as shown in illustration for Table 32.

(2) Approximate.

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Gage Blanks

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

Three Park Avenue • New York, NY 10016

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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.

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

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Mandatory Appendices

FOREWORD

The original American Gage Design Committee was formed in 1926 to consolidate, for the benefit of industry at large, the many independent efforts at gage standardization that were in progress at the time.

In March 1930, the standards developed were published as Miscellaneous Publication No. 100 of the National Bureau of Standards, entitled "Plain and Thread Plug and Ring Gage Blanks, Recommended Commercial Standards," and were subsequently promulgated by the Department of Commerce as Commercial Standard CS8-30. They were later approved by the American Standards Association (now the American National Standards Institute) as American Standard B47-1932.

The first revision was designated CS8-33 and also approved as ASA B47-1933. A second revision was made in 1940, and a third revision was published as CS8-51, effective April 15, 1951. A Supplement was issued to CS8-51 in 1955 and preparation of a fourth revision in supplement form was approved in 1961. It was decided, however, to issue a new document instead of adding another supplement and, in 1961, the American Gage Design Committee, operating under the guidance of a Chairman, Secretary, Executive Committee, and seven technical subcommittees, prepared the last revision of this document published by the U.S. Department of Commerce as Commercial Standard CS8-61.

In 1962, the American Standards Association accepted the responsibility for distribution and maintenance of the American Gage Design Standard CS8-61, Gage Blanks. The American Standards Association designated this standard as ASA B47.1-1962.

U.S.A. Standards Committee B47 was organized and staffed at a meeting held in Dearborn, Michigan, in January 1969. This Committee functions under the new designation American National Standards Committee B47. Seven subcommittees worked on the revision of the B47.1-1962 document.

In 1975, the dial indicator standardization was transferred from the jurisdiction of the B47.1 Standards Committee to that of ANSI Standards Committee B89.

An American Standard implies a consensus of those substantially concerned with its scope and provisions. An American Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American Standard does not in any respect preclude anyone, whether he has approved the standard or not, from manufacturing, marketing, purchasing, or using products, process, or procedures not conforming to the standard. American Standards are subject to periodic review and users are cautioned to obtain the latest editions. Producers of goods made in conformity with the American Standard are encouraged to state, on their own, responsibility in advertising and promotion material, or on tags or labels, that the goods are produced in conformity with particular American Standards.

A metric translation of B47.1 was issued in 1978. This separate document, B47.1A, contained primarily a soft conversion of certain dimensions and tables considered to be most important. It established official metric diameter ranges and gaging lengths for plain and thread plug and ring gages and related handles, plus snap gage ranges. Note that changes made in the 1981 revision of B47.1 automatically superseded the metric dimensions since it is intended that blank lengths, size ranges, and other dimensions be essentially the same whether expressed in inches or millimeters. Appendix A of that document gives helpful information for converting other inch dimensions into millimeters.

The 1981 revision was approved as an American National Standard by the American National Standards Institute and designated as ANSI B47.1 on March 1981.

A periodic review of this Standard, undertaken by the Committee in 1986, resulted in agreement that the standard be updated to include revision to trilock blanks lightening holes and some of the snap gage anvil screws and snap gage frames in order to make the dimensions standard, as well as in the agreement that pipe trilock blanks 3.5 in. to 6 in. should be the same as smaller trilock in reference to the locking grooves and counterbore.

It was also agreed that the metric supplement, B47.1aM, which was published in 1982, be a part of this Standard in the form of an Appendix. The intent of the supplement was to establish metric range and gaging lengths for plugs, handles, and snap gage ranges. Dimensions are soft conversions.

A proposal containing these and other changes, as well as editorial corrections, was prepared for and balloted by letter ballot to ASME Committee B47. Following approval by ASME, the 1988 edition was submitted to the American National Standards Institute, and was approved as an American National Standard on February 18, 1988.

In 2006 a revision of the document included footnote changes and further clarification of various tables. It also gave the Committee an opportunity to correct prior dimensional errors.

This Standard was approved as an American National Standard on January 29, 2007.

ASME B47 COMMITTEE
Gage Blanks

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

STANDARDS COMMITTEE OFFICERS

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CORRESPONDENCE WITH THE B47 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 proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B47 Standards Committee
The American Society of Mechanical Engineers
Three 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 edition, the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal including any pertinent documentation.

Attending Committee Meetings. The B47 Standards Committee schedules meetings as needed, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B47 Standards Committee.

GAGE BLANKS

1 SCOPE

This Standard covers standard designs for the following:

(a) plain and thread plug gage blanks to 12.010 in. maximum gaging diameter

(b) plain and thread ring gage blanks to 12.260 in. maximum gaging diameter

(c) involute and serrated spline plug and ring gage blanks to 8.000 in. major diameter

(d) straight-sided spline plug and ring gage blanks to major diameters of 8.000 in. for plugs and 6.000 in. for rings

(e) machine taper plug and ring gage blanks to 5.000 in. gaging diameter

(f) adjustable snap gages to 12 in.

(g) adjustable length gages to any desired length

(h) master disks up to 8.010 in. in diameter

Recommended general designs covering taper plug and ring gages for special applications, flush-pin gages, and flat plug gages are also included.

This Standard is intended to deal only with the dimensions of blanks, frames, and fittings. However, it is expected that gages made from these blanks shall be finished in accordance with accepted good gage making practice with respect to accuracy and workmanship.

NOTES:

(1) While compliance to the revised specifications in this document is urged as soon as possible, the use of blanks and designs in ASME/ANSl B47.1-1988 is permissible for a period of 5 years from approval date of this document.

(2) Types of steel or other material for gage blanks and components are not standardized in this document. The type of material and hardness should be agreed upon by producer and user of the gages.

(3) Certain tables in this document show both nominal thread ranges as well as decimal ranges. In such cases, the decimal range establishes the official dividing line from one blank or handle size to the next.

(4) The following designates correct blank size to use:
- *(a)* thread plugs — go actual major
- *(b)* plain plugs — no go major
- *(c}* thread rings — go actual major
- *(d)* plain rings — go gage/dimensions

2 TERMINOLOGY

The following glossary is intended to clarify the meaning of certain technical terms employed in this Standard. The definitions are not intended to be general; rather, they are specific as to their application to the American Gage Design Standards.

adjusting screw: a threaded member employed for adjusting, to any predetermined setting, the gaging pins or gaging buttons of an adjustable snap, plug, or length gage.

adjusting slots: radial slots provided in thread ring gages in order to facilitate expansion and contraction of gage size by means of the adjusting device. An adjusting slot always terminates in an adjusting slot terminal hole.

American Gage Design Standard: designates gages made to the design specifications promulgated by the American Gage Design Committee.

anvil: designates the gaging member of a gage when constructed as a fixed nonadjustable block, or as the integral jaw of the gage.

disk, marking: a plate that can be attached to a gage frame to provide, when suitably marked, a means of identification for the gage.

disk, master: a cylinder provided with insulating grips, used for setting comparators, snap gages, etc.

drift hole (also known as drift slot): a small hole or slot provided in the side of a taper lock gage handle near the GO end, through which a pin or drift may be inserted for the purpose of ejecting the gaging member from the handle.

flange: external portion of a large ring gage that is reduced in sections for the purpose of lightening the gage.

frame of a snap gage: the body portion of the gage as distinct from the gaging pins, gaging buttons, anvils, and adjusting or locking mechanism.

gage, adjustable length: a complete external caliper gage employed for the size control of relatively large external dimensions, comprising length gage spacing tubes and length gage heads.

gage, annular plug: a shell type plug gage in which the gaging member is in the form of a ring, the external surface of which is the gaging section, the central portion of the web being machined away for the purpose of reducing weight, ball handles being provided for convenience in handling. This construction is employed for plain and thread plug gages in the ranges above 8.010 in.

gage, composite spline: gage having a full complement of teeth.