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OFFICE OF STANDARDS SERVICES

**COMMERCIAL STANDARD CS8-61
GAGE BLANKS**

Commercial Standard CS8-61, Gage Blanks, was withdrawn by the U.S. Department of Commerce on October 21, 1974.

The following standard was used to replace CS8-61: American National Standard Institute/American Society of Mechanical Engineers **ANSI/ASME Standard B47.1**, Gage Blanks.

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DEPARTMENT OF COMMERCE

National Bureau of Standards

GAGE BLANKS

Withdrawal of Commercial Standard

In accordance with § 10.12 of the Department's "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10, as revised; 35 FR 8349 dated May 28, 1970), notice is hereby given of the withdrawal of Commercial Standard CS 8-61, "Gage Blanks."

It has been determined that this standard serves no useful purpose due to the fact that the subject is adequately covered by a replacement document published by the American National Standards Institute as B 47.1, "Gage Blanks (American Gage Design)."

This action is taken in furtherance of the Department's announced intentions as set forth in the public notice appearing in the FEDERAL REGISTER of June 4, 1974 (39 FR 19799), to withdraw this standard.

The effective date for the withdrawal of this standard will be October 21, 1974. This withdrawal action terminates the authority to refer to this standard as a voluntary standard developed under the Department of Commerce procedures.

Dated: August 9, 1974.

RICHARD W. ROBERTS,
Director.

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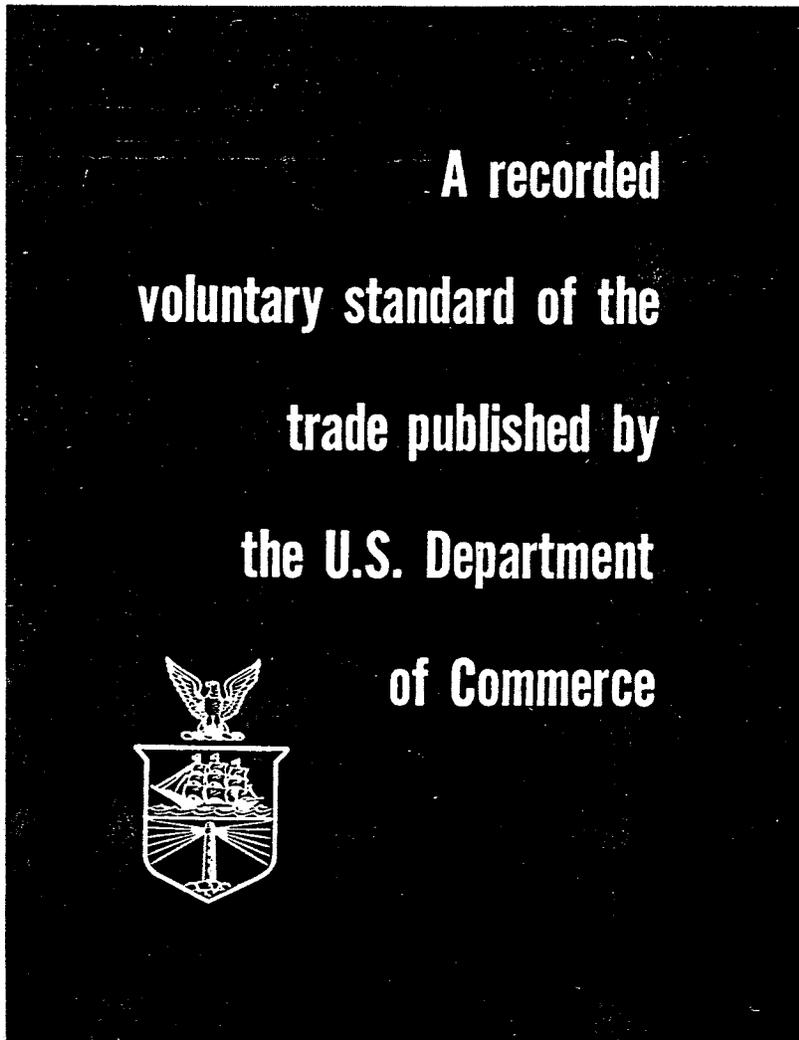
COMMERCIAL STANDARD CS8-61

Supersedes CS8-51

~~DONALD R. MACKAY~~

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Gage Blanks



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Luther H. Hodges, Secretary

BUSINESS AND DEFENSE SERVICES ADMINISTRATION

OFFICE OF TECHNICAL SERVICES

Commodity Standards Division

With the cooperation of the
National Bureau of Standards

COMMERCIAL STANDARDS

Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Technical Services, Business and Defense Services Administration, and with the National Bureau of Standards. Their purpose is to establish quality criteria, standard methods of test, rating, certification, and labeling of manufactured commodities, and to provide uniform bases for fair competition.

The adoption and use of a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

Commercial Standards originate with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The division by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the division assures continuous servicing of each Commercial Standard through review and revision whenever, in the opinion of the industry, changing conditions warrant such action.

SIMPLIFIED PRACTICE RECOMMENDATIONS

Under a similar procedure the Commodity Standards Division cooperates with industries in the establishment of Simplified Practice Recommendations. Their purpose is to eliminate avoidable waste through the establishment of standards of practice for sizes, dimensions, varieties, or other characteristics of specific products: to simplify packaging practices; and to establish simplified methods of performing specific tasks.

Gage Blanks

(FIFTH EDITION)

[Effective July 1, 1961]

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1. SCOPE

1.1 This standard covers standard designs for plain and thread plug gage blanks to 12.010 inches maximum gaging diameter; plain and thread ring gage blanks to 12.260 inches maximum gaging diameter; involute and serrated spline plug and ring gage blanks to 8.000 inches major diameter, and straight-sided spline plug and ring gage blanks to major diameters of 8.000 inches for plugs and 6.000 inches for rings; machine taper plug and ring gage blanks to 5.000 inches gaging diameter; adjustable plug gages from 2.50 to 8.50 inches gaging diameters; adjustable snap gages to 12 inches; adjustable length gages to any desired length; dial indicators up to $3\frac{3}{4}$ inches nominal bezel diameter; and master disks up to 8.010 inches in diameter. Recommended general

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

1.2. 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.

2. TERMINOLOGY

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

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

An *adjustable plug gage* is an internal caliper gage comprising a gaging head at either or both ends of a handle with gaging members and adjusting and locking means inserted in the head so as to be set and locked to any predetermined size within the range of the gage.

An *adjusting screw* is 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 are 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.—The caption "American Gage Design Standard" has been adopted to designate gages made to the design specifications promulgated by the American Gage Design Committee.

An *annular plug gage* is 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 inches.

The term *anvil* is employed to designate the gaging member of a gage when constructed as a fixed nonadjustable block, or as the integral jaw of the gage.

A *composite spline gage* is one having a full complement of teeth.

A *dial indicator* is a mechanism for amplifying and measuring the displacement of a movable contact point, thereby measuring a dimension or variations from a standard dimension, comprising essentially a case with means for mounting the indicator, a spindle carrying the contact point, an amplifying mechanism, a pointer, and a graduated dial.

The *drift hole* or *drift slot* is 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.

The *flange* is that external portion of a large ring gage which is reduced in section for the purpose of lightening the gage.

A *flat plug gage* is a plug gage made in the form of a central axial segment of a plain cylindrical plug gage.

A *flush-pin gage* is a gage for checking the distance between two surfaces, comprising a body having a through hole, and a pin in the hole which projects from a face of the body a distance equal to the dimension to be gaged when the opposite or indicating end of the pin is flush with the opposite face of the body. The indicating end of the pin or the adjacent face of the body has a step of a depth equal to the tolerance on the dimension gaged.

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

A *gaging button* is an adjustable gaging member of an adjustable snap, plug, or length gage, consisting of a shank and a flanged portion, the latter constituting the gaging section.

The *gaging member* is that integral unit of a gage which is accurately finished to size and is employed for size control of the work. In taper lock plug gages, the gaging member consists of a shank and a gaging section.

The *gaging section* is that portion of the gage which comes into physical contact with the work. In the plug range above 1.510 to and including 12.010 inches, the gaging section is identical with the gaging member.

The *handle* is that portion of a gage which is employed as supporting means for the gaging member or members. In the American Gage Design Standards, four types of handles are employed, namely: The taper lock design handle, the reversible design handle, the wire type gage handle, and the ball handle.

The *hub* is the midsection of a flanged ring gage. It determines the length of the gaging section.

An *involute spline gage* is a gage having on its gaging circumference a number of involute shaped teeth which correspond in contour, number, diameter, and spacing with the product specifications.

Length gage heads are the end portions of a length gage carrying and including the gaging members, which can be set and locked to any predetermined size within the range of adjustment.

Length gage spacing tubes constitute the central portion of a length gage, which carry at their extremities the two length gage heads.

Lightening holes are drilled holes provided in the heavier sizes of gaging members for the purpose of reducing the weight of the gage.

The *locking slot* is that slot which passes entirely through the wall of a thread ring gage. In conjunction with the thread ring

gage locking device, it permits expansion and contraction of the gage blank during manufacturing and reconditioning.

A *marking disk* is a plate which can be attached to a gage frame to provide, when suitably marked, a means of identification for the gage.

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

A *plain adjustable snap gage* is a complete external caliper gage employed for the size control of plain external dimensions, comprising an open frame, in both jaws of which gaging members are provided, one or more pairs of which can be set and locked to any predetermined size within the range of the gage.

A *plain cylindrical plug gage* is a complete internal gage of single- or double-ended type for the size control of holes and other applications. It consists of a handle and a gaging member or members, with suitable locking means.

A *plain ring gage* is an external gage of circular form employed for the size control of external diameters. In the smaller sizes it may consist of a gage body into which is pressed a *bushing*, the latter being accurately finished to size for gaging purposes.

A *plain solid snap gage* is a complete external caliper gage employed for the size control of plain external dimensions, comprising an open frame and jaws, the latter carrying gaging members in the form of fixed, parallel, nonadjustable anvils.

A *progressive cylindrical plug gage* is a complete internal gage consisting of a handle and a gaging member in which the "go" and "not go" gaging sections are combined in a single unit secured to one end of the handle.

A *reversible or trilock plug gage* is a plug gage in which three wedge-shaped locking prongs on the handle are engaged with corresponding *locking grooves* in the gaging member by means of a single through screw, thus providing a self-centering support with a positive lock. This design is standard for all plug gages in the ranges above 1.510 to and including 8.010 inches, with the exception of pipe-thread plug gages, for which it is standard in the ranges above 2-inch nominal pipe size, to and including 6-inch nominal pipe size.

A *serrated spline gage* is a gage having on its gaging circumference a number of straight-sided triangular-shaped teeth which correspond in angle, contour, number, diameter, and spacing with the product specifications.

The *shank* is that portion of the gaging member which is employed for fixing the gaging member in the handle or frame.

The *snap gage locking device* is that portion of an adjustable snap, plug, or length gage which is employed for locking the adjustable gaging members in fixed position. It comprises a locking screw, a locking bushing, and a locking nut.

A *snap gage pin* is a straight, unflanged adjustable gaging member of an adjustable snap gage.

A *spline plug gage* is a plug gage having a series of projecting keys equally spaced about the periphery, which fit into the spline-ways to be gaged.

A *spline ring gage* is a ring gage having keys which are complementary to the splined shaft to be gaged.

A *straight-sided spline gage* is a gage having on its gaging circumference a number of keys or keyways with parallel sides which correspond in width, number, spacing, and diameter with the product specifications.

A *taper lock plug gage* is a plug gage in which the gaging member has a taper shank, which is forced into a taper hole in the handle. This design is standard for plug gages in the range above 0.059 inch to and including 1.510 inches, and for pipe-thread plug gages to and including 2-inch nominal pipe size. (The wire type plug gage is standard in the range above 0.030 to and including 0.760 inch. See definition.)

A *taper plug gage* is an internal gage in the form of a frustum of a cone having diameter, taper, and length suitable for the internal gaging of taper dimensions in accordance with the specifications of the product. An extended portion may be provided for checking a tang slot when specified.

A *taper plug gage tang* is that portion of a taper plug gage which conforms to the width and centrality of the driving slot of the tool spindle.

A *taper ring gage* is an external gage, the internal contour of which conforms to the frustum of a cone having diameter, taper, and length suitable for the gaging of external taper dimensions in accordance with the specifications of the product. An extended portion may be provided for checking a driving tang when specified.

A *taper ring gage tang check* is that portion of a taper ring gage which conforms to the shape of and checks the dimensions of the driving tang on the tool shank.

A *thread plug gage* is a complete internal thread gage of either single- or double-ended type, comprising a handle and a threaded gaging member or members, with suitable locking means.

A *thread ring gage* is an external thread gage employed for the size control of threaded work, with means of adjustment provided.

The *thread ring gage locking device* provides an effectual means of expanding, contracting, and locking the thread ring gage during the manufacturing or resizing processes. It comprises an adjusting screw, a locking screw, and a sleeve.

Trilock plug gage.—See “reversible or trilock plug gage.”

A *wire type plug gage* is a plug gage comprising a gaging member of straight cylindrical section throughout its length held in a collet-type handle. This design is standard in the range above 0.030 to and including 0.760 inch.

3. DETAILS OF CONSTRUCTION, AMERICAN GAGE DESIGN STANDARDS

3.1 Plain Cylindrical Plug Gage Blanks

3.1.1 Four separate designs have been adopted for plain cylindrical plug gages—the *taper lock* design for the range from 0.059 to and including 1.510 inches, the *wire type* design from 0.030 to and including 0.760 inch, the *reversible or trilock* design with reversible gaging members from above 0.760 to and including 8.010 inches, and the *annular* design for the range from above

8.010 to and including 12.010 inches. For sizes above 0.240 inch to and including 2.510 inches, both straight and progressive gaging members are provided.

3.1.2 WIRE TYPE DESIGN, ABOVE 0.030 TO AND INCLUDING 0.510 INCH.

3.1.2.1 Considerations of convenience and economy have indicated the desirability of having a wire type design of plain plug gage in small diameters. This gage is comprised of a wire type member or members held firmly in a collet type handle of suitable proportions. The gaging member may be extended from the handle a specific amount, as desired, and reversed to increase the useful life of the gage. These gages are available in both single-end and double-end types.

3.1.2.2 Dimensions and tolerances have been established for handles and collets to accommodate any diameter of plug through the range above 0.030 to and including 0.760 inch. Lengths for a given range of diameters have been established for the wire type plugs. Details of construction will be apparent from figure 1A, page 10, and tables 1 to 4, pages 13-17.

3.1.3 TAPER LOCK DESIGN, ABOVE 0.059 TO AND INCLUDING 1.510 INCHES.

3.1.3.1 It was felt that the taper lock design was particularly well suited for the smaller sizes of plain plug gages. This type of gage is simple and is economical to produce and maintain. The gaging member has a taper shank which is forced into a taper hole in the handle. When properly assembled, the taper lock gage possesses the rigidity of a solid gage and is entirely free of shake or "wink." Drift slots or drift holes are provided near one end of the handle, permitting gaging members to be removed when replacement is necessary. In the case of double-end gages, one end is removed by running a rod through the hollow handle. In the smaller size ranges above 0.059 to and including 0.240 inch, a groove is provided near one end of the handle to designate the "not go" end, as the length of the "go" member in this range is often insufficient to distinguish it clearly from the "not go" member. The groove is omitted as unnecessary above 0.240 inch.

3.1.3.2 Complete dimensional tolerances have been established for the mating parts of gaging members and handles, insuring absolute interchangeability of gaging members and handles wherever manufactured. General details of construction will be apparent from figure 1A, page 10. See also tables 5, 6, 8, and 9, pages 18-19, 22-24.

3.1.4 REVERSIBLE OR TRILOCK DESIGN, ABOVE 0.760 TO AND INCLUDING 8.010 INCHES.

3.1.4.1 Considerations of rigidity of construction and long life have dictated the choice of the reversible or trilock design for the size range above 0.760 to and including 8.010 inches. With this construction there is no chance for shake or "wink" to interfere with the sensitive feel so necessary in gages of this type. Three

wedge-shaped locking prongs on the handle are engaged with corresponding grooves in the gaging member by a single through screw, thus providing a self-centering support with a positive lock. This results in a degree of rigidity equivalent to that of a solid gage. The useful life of the plug, furthermore, is materially increased, for when one end is worn the plug can be reversed; it is then, for most purposes, as good as new.

3.1.4.2 The construction is protected by carefully worked out dimensional limits, and interchangeability is insured between gaging members and handles, wherever manufactured. Details of construction will be apparent from figures 1A and 1B, pages 11-12. See also tables 7, 10, and 11, pages 20, 25, and 26.

3.1.5 ANNULAR DESIGN, ABOVE 8.010 TO AND INCLUDING 12.010 INCHES.

3.1.5.1 Because of the fact that large plug gages are heavy and difficult to handle, it was necessary to adopt a design for the range above 8.010 inches which would have the lightest possible section consistent with strength and permanence. The annular design having a rim and web of properly proportioned section, the center being bored out for purposes of weight reduction, has, therefore, been adopted as standard. The web is provided with four tapped holes for convenience in bolting to a face plate during manufacturing. Two of these are further employed for fixing ball handles to the gaging member.

3.1.5.2 Details of construction have been worked out and are completely dimensioned in table 12, page 27.

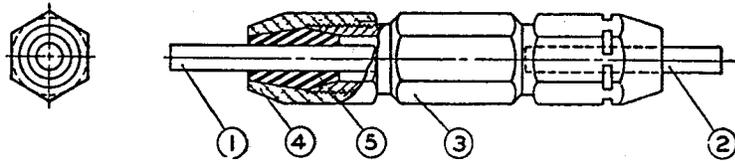
3.2 Handles for Plain Cylindrical and Thread Plug Gage Blanks

3.2.1 Handles for wire type gages are hexagonal with hexagonal clamping nuts, and are provided in both single-end and double-end types. See tables 1, 2, 2A, 2B, and 3 for details. Handles for the taper lock type are hexagonal and are provided with tapered holes in both ends. See tables 5 and 6. Handles for the trilock type gages are hexagonal, and are provided in both single-end and double-end types. See table 7. Commercial ball handles are employed for the annular plug gage and for certain of the large ring gages. See references in tables 12, 17, and 28, pages 27, 36, and 57.

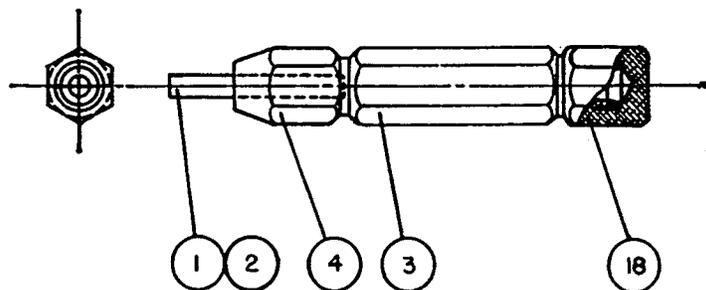
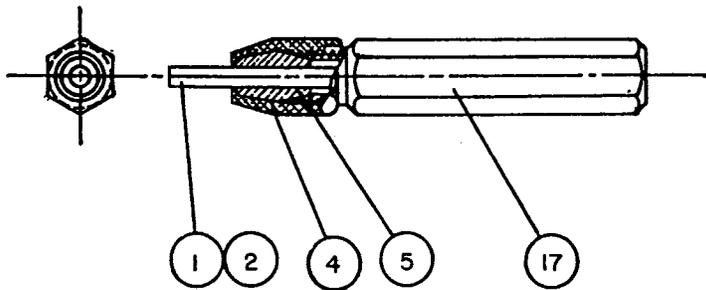
3.2.2 Handles as designed for all gages offer a feature of economy in that they may be disassembled from gaging members, when the latter are worn out, or discarded for any other reason, and then reassembled with new gaging members, thus giving them, with reasonable care, practically indefinite life.

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COMMERCIAL STANDARD CS8-61



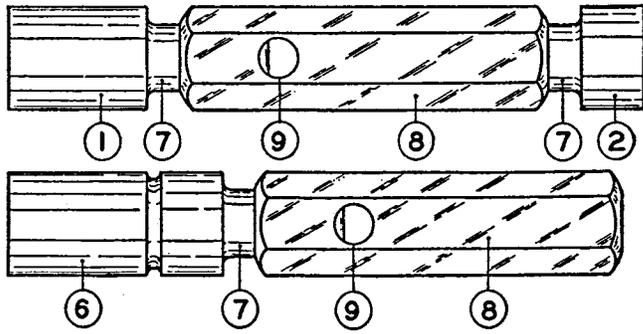
Range: Above 0.030 to and including 0.760 inch.



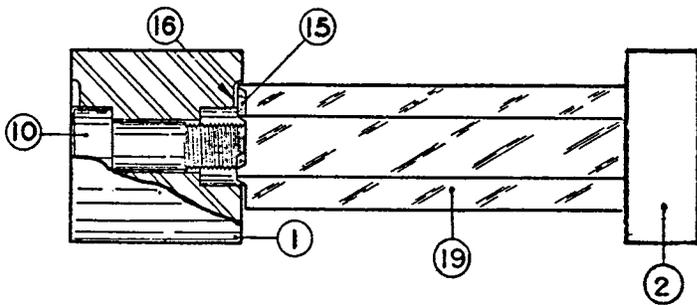
Range: Above 0.030 to and including 0.760 inch.

FIGURE 1A.
(For title and notation, see p. 12.)

GAGE BLANKS

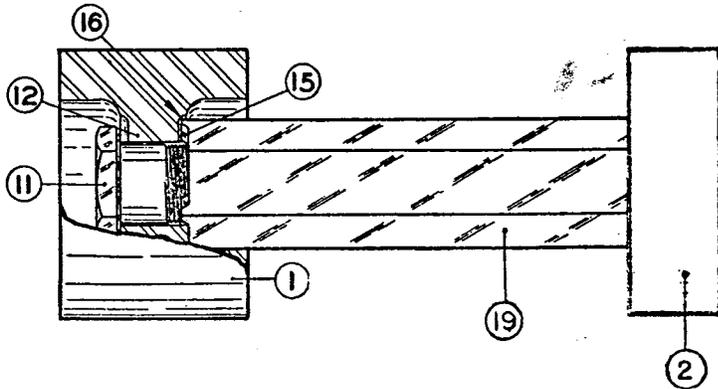


Range: Above 0.059 to and including 1.510 inches.



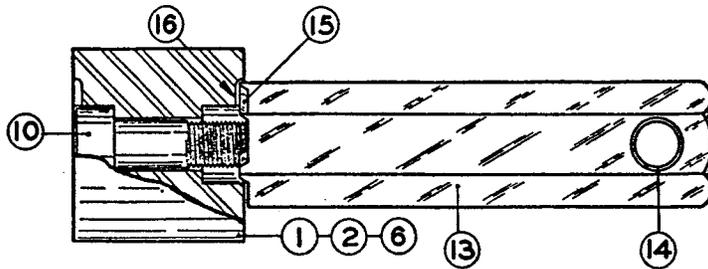
Range: Above 0.760 to and including 2.510 inches.

NOTE.—For range above 0.760 to and including 1.510 inches the locking screw should be tightened only enough to hold member to handle securely, thereby avoiding excessive distortion of gaging member.



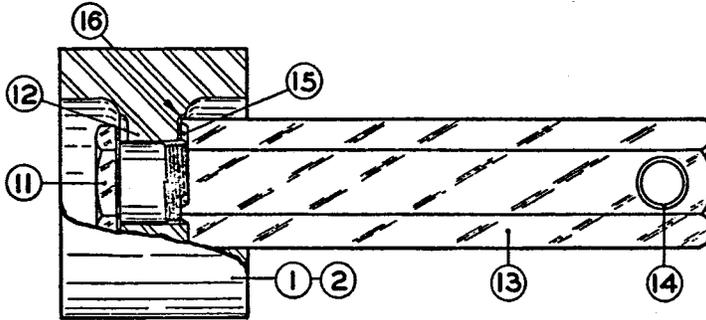
Range: Above 2.510 to and including 8.010 inches.

FIGURE 1A.
(For title and notation, see p. 12.)



Range: Above 0.760 to and including 2.510 inches.

NOTE.—For range above 0.760 to and including 1.510 inches the locking screw should be tightened only enough to hold member to handle securely, thereby avoiding excessive distortion of gaging member.



Range: Above 2.510 to and including 8.010 inches.

FIGURE 1A. Plain cylindrical plug gages, details of construction—ranges above 0.030 to and including 8.010 inches.

- | | |
|---------------------------------|----------------------------------|
| 1. "Go" gaging member. | 11. Hexagon head screw. |
| 2. "Not go" gaging member. | 12. Web. |
| 3. Double-end wire type handle. | 13. Single-end trlock handle. |
| 4. Clamping nut. | 14. Cross-pin hole. |
| 5. Collet bushing. | 15. Locking prong. |
| 6. Progressive gaging member. | 16. Locking groove. |
| 7. Shank. | 17. Single-end wire type handle. |
| 8. Taper lock handle. | 18. Capping nut. |
| 9. Drift hole or slot. | 19. Double-end trlock handle. |
| 10. Socket head screw. | |

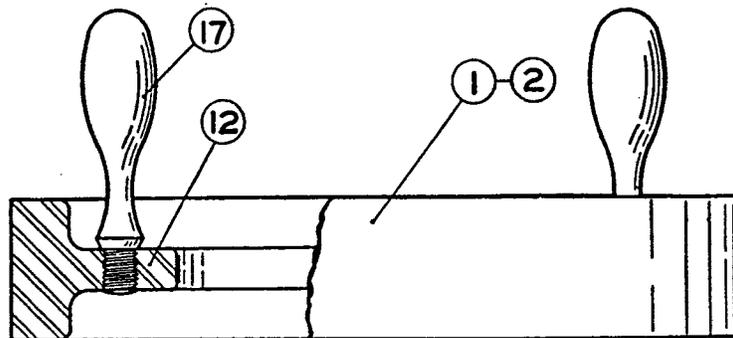
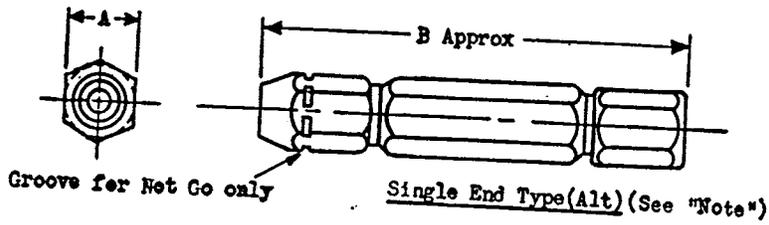
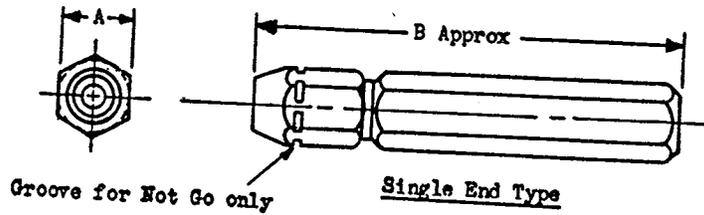
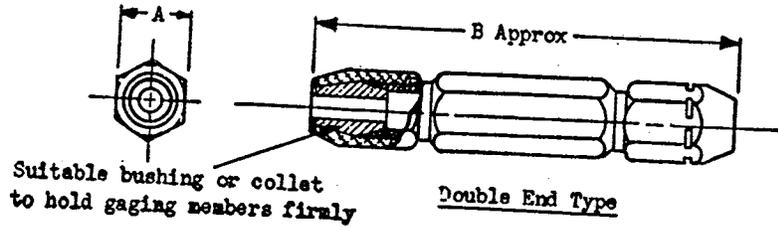


FIGURE 1B. Plain cylindrical plug gages, details of construction—range above 8.010 to and including 12.016 inches.

- | | |
|----------------------------|------------------|
| 1. "Go" gaging member. | 12. Web. |
| 2. "Not go" gaging member. | 17. Ball handle. |

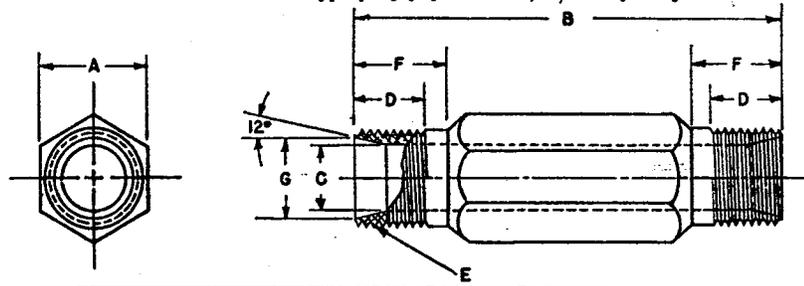
TABLE 1. Handles for reversible plain cylindrical and reversible thread plug gages, wire type design, range above 0.030 to and including 0.760 inch



NOTE.—The alternate single-end type is a double-end type converted to suit single-end applications.

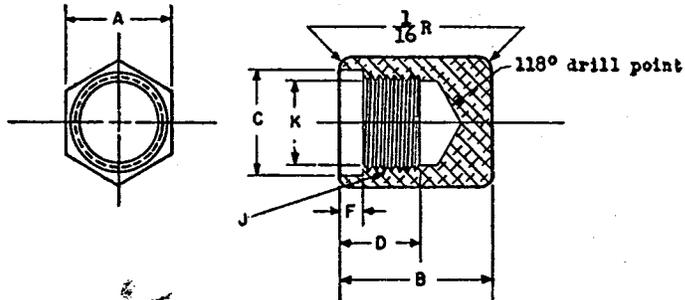
Handle size No.			Size range, nominal		A	B
Double end	Single end	Single end (alt.)	Above—	To and including—		
1 W	1 W-S	1 W-A	in.	in.	in.	in.
2 W	2 W-S	2 W-A	0.030	0.075	$\frac{3}{4}$	$1\frac{3}{4}$
3 W	3 W-S	3 W-A	.075	.150	$\frac{3}{8}$	$2\frac{1}{2}$
4 W	4 W-S	4 W-A	.180	.281	$\frac{3}{16}$	$3\frac{1}{4}$
5 W	5 W-S	5 W-A	.281	.406	$\frac{1}{4}$	$3\frac{1}{2}$
6 W	6 W-S	6 W-A	.406	.510	$\frac{1}{2}$	$4\frac{1}{2}$
7 W	7 W-S	7 W-A	.510	.635	$\frac{3}{4}$	$4\frac{1}{2}$
			.635	.760	$1\frac{1}{4}$	$4\frac{1}{2}$

TABLE 2. Wire type plug gage handles, details of body



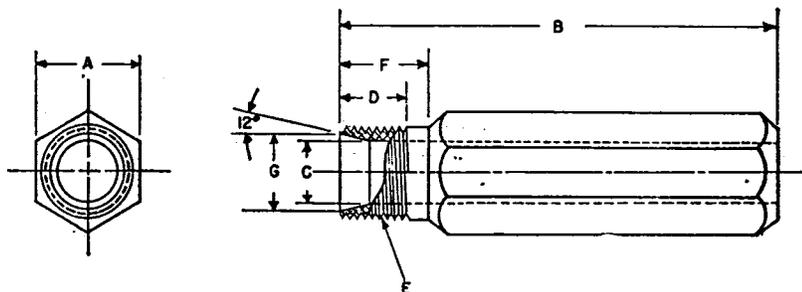
Handle size No.	Size range		A	B	C	D	E	F	G
	Above—	To and including—							
1 W.....	in. 0.030	in. 0.075	3/4	1 1/4	3/32	9/32	No. 12-32NEF-2A	in. 2 1/4	in. 0.151
2 W.....	.075	.180	3/8	1 1/2	127/32	3/8	3/8-32NEF-2A	7/8	.235
3 W.....	.180	.281	9/16	2 1/8	19/64	13/32	1/2-28UNEF-2A	1 1/2	.348
4 W.....	.281	.406	1 1/16	2 19/32	27/64	7/16	5/8-28UNS-2A	5/8	.473
5 W.....	.406	.510	1 3/16	3 1/16	23/64	5/8	3/4-28UNS-2A	3/4	.588
6 W.....	.510	.635	1 5/16	3 3/4	43/64	5/8	7/8-28UNS-2A	3/4	.740
7 W.....	.635	.760	1 1/2	3 3/8	49/64	5/8	1-28UNS-2A	3/4	.865

TABLE 2A. Wire type plug gage handles, details of capping nut



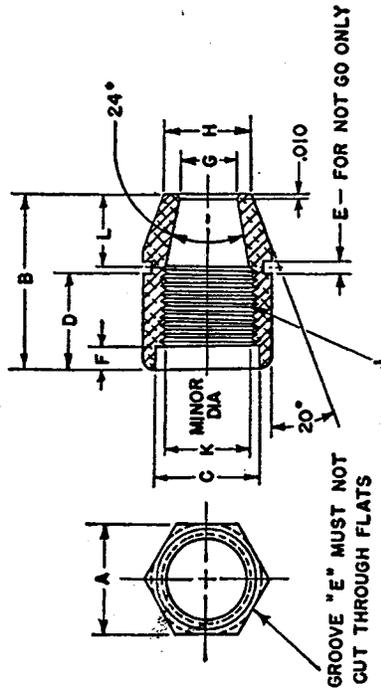
Handle size No.	Size range, nominal		A	B	C	D	F	J	K (minor diameter)
	Above—	To and including—							
1 W-A.....	0.030	0.075	3/4	3/8	0.220 0.230 0.236	5/16	3/32	No. 12-32NEF-2B	0.182 0.190 0.279
2 W-A.....	.075	.180	3/8	1 1/16	.316 .326 .504	3/8	1/8	3/8-32NEF-2B	.286 .461
3 W-A.....	.180	.281	9/16	1 3/16	.514 .630 .640	7/16	3/8	1/2-28UNEF-2B	.470 .586 .595
4 W-A.....	.281	.406	1 1/16	1 1/8	.755 .765	9/16	3/4	5/8-28UNS-2B	.711 .720
5 W-A.....	.406	.510	1 3/16	1 3/4	.880 .890	1 1/16	3/4	3/4-28UNS-2B	.836 .845
6 W-A.....	.510	.635	1 5/16	1 9/16	1.005 1.015	1 1/8	3/4	7/8-28UNS-2B	.961 .970
7 W-A.....	.635	.760	1 1/2	1 9/16		1 1/8	3/4	1-28UNS-2B	

TABLE 2B. Single-end wire type plug gage handles, details of body



Handle size No.	Size range, nominal		A	B	C	D	E	F	G
	Above—	To and including—							
1 W-S.....	in. 0.030	in. 0.075	in. 1/4	in. 1 5/8	in. 3/32	in. 9/32	No. 12-32NEF-2A	in. 2 1/64	in. 0.151
2 W-S.....	.075	.180	3/8	2 5/8	3/16	5/16	3/16-32NEF-2A	7/16	.235
3 W-S.....	.180	.251	9/16	2 5/8	19/64	13/32	1/4-28UNEF-2A	1/2	.348
4 W-S.....	.281	.406	1 1/16	3 3/8	27/64	7/16	5/8-28UNF-2A	5/8	.473
5 W-S.....	.406	.510	1 3/16	3 3/8	33/64	5/8	3/4-28UNS-2A	3/4	.588
6 W-S.....	.510	.635	1 5/16	3 3/8	41/64	5/8	7/8-28UNS-2A	3/4	.740
7 W-S.....	.635	.760	1 1/2	4	49/64	5/8	1-28UNS-2A	3/4	.865

TABLE 3. Wire type plug gage nuts



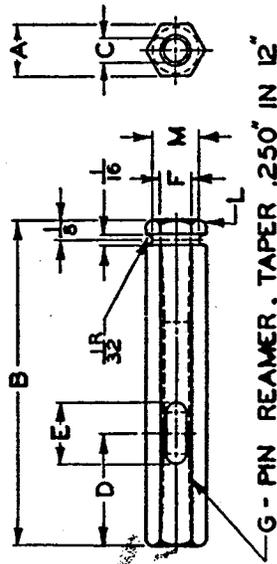
Handle size No.	Size range		A	B	C	D	E	F	G	H	J	K	L
	Above—	To and including—											
1 W.....	.030	.075	1/4	1/16	0.220	1 3/32	1/32	3/32	0.078	7/32	No. 12-32NEF-2B	0.162	9/32
2 W.....	.075	.180	3/8	1/16	.260	7/16	1/32	1/8	0.185	7/16	1/16-32NEF-2B	.180	7/32
3 W.....	.180	.281	1/2	1/16	.326	1/2	1/16	1/8	.285	7/16	1/4-28UNEF-2B	.279	1 1/32
4 W.....	.281	.406	3/4	1/16	.504	5/8	1/16	1/4	.412	7/16	3/8-28UNS-2B	.451	1 1/8
5 W.....	.406	.510	1 1/4	1/16	.630	3/4	1/16	3/8	.515	7/16	1/2-28UNS-2B	.600	1 1/2
6 W.....	.510	.635	1 3/4	1/16	.755	7/8	1/16	7/8	.640	3/4	3/4-28UNS-2B	.710	1 3/4
7 W.....	.635	.760	1 3/4	1/16	1.005	1 1/2	1/16	1 1/2	.765	3/4	1-28UNS-2B	.835	1 3/4
					1.015							.981	1 3/4
												.970	1 3/4

TABLE 4. Wire type plug gage collet bushings, size ranges.

Bushing No.	Size range in.	Bushing No.	Size range in.
1-W-.035	0.030-.035	4-W-.291	0.281-.291
1-W-.040	.035-.040	4-W-.301	.291-.301
1-W-.045	.040-.045	4-W-.311	.301-.311
1-W-.050	.045-.050	4-W-.321	.311-.321
1-W-.055	.050-.055		
		4-W-.331	.321-.331
1-W-.060	.055-.060	4-W-.341	.331-.341
1-W-.065	.060-.065	4-W-.351	.341-.351
1-W-.070	.065-.070	4-W-.361	.351-.361
1-W-.075	.070-.075		
		4-W-.371	.361-.371
2-W-.082	.075-.082	4-W-.382	.371-.382
2-W-.089	.082-.089	4-W-.394	.382-.394
2-W-.096	.089-.096	4-W-.406	.394-.406
2-W-.103	.096-.103		
2-W-.110	.103-.110	5-W-.420	.406-.420
		5-W-.435	.420-.435
2-W-.117	.110-.117	5-W-.450	.435-.450
2-W-.124	.117-.124	5-W-.465	.450-.465
2-W-.131	.124-.131		
2-W-.138	.131-.138	5-W-.480	.465-.480
2-W-.145	.138-.145	5-W-.495	.480-.495
		5-W-.510	.495-.510
2-W-.152	.145-.152		
2-W-.159	.152-.159	6-W-.532	.510-.532
2-W-.166	.159-.166	6-W-.547	.532-.547
2-W-.173	.166-.173	6-W-.563	.547-.563
2-W-.180	.173-.180	6-W-.579	.563-.579
3-W-.188	.180-.188	6-W-.594	.579-.594
3-W-.196	.188-.196	6-W-.610	.594-.610
3-W-.204	.196-.204	6-W-.625	.610-.625
3-W-.212	.204-.212	6-W-.635	.625-.635
3-W-.220	.212-.220	7-W-.656	.635-.656
3-W-.228	.220-.228	7-W-.672	.656-.672
3-W-.236	.228-.236	7-W-.688	.672-.688
3-W-.244	.236-.244	7-W-.704	.688-.704
3-W-.252	.244-.252	7-W-.719	.704-.719
3-W-.261	.252-.261	7-W-.735	.719-.735
3-W-.271	.261-.271	7-W-.750	.735-.750
3-W-.281	.271-.281	7-W-.760	.750-.760

NOTE.—Bushings must be adjustable for any plug within the respective size ranges tabulated.

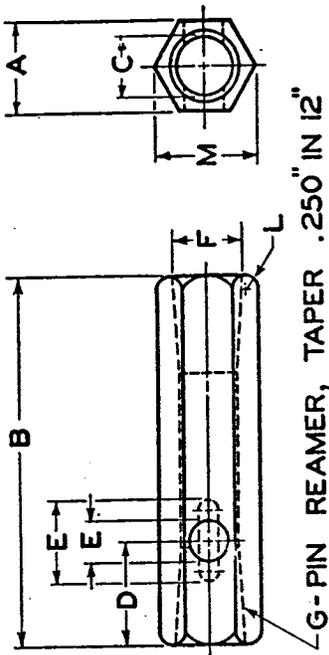
TABLE 5. Handles for plain cylindrical and thread plug gages, taper lock design, range above 0.059 to and including 0.240 inch.



Handle size No.	Nominal range, thread plug diameters, inclusive		Decimal range, plain and thread plug diameters		General dimensions										
	From— No.	To— No.	Above— in.	To and including— in.	A	B	C	D	E	F		G	L	M	
000.....	0	3	0.059	0.105	1/4	1 1/2	No. 34 (0.111)	1/4	1/4 by 1/4	Min. in. 0.125	Max. in. 0.120	000	1/4	Min. in. 0.172	Max. in. 0.177
00.....	4	6	.105	.150	1/4	1 1/2	No. 29 (0.120)	1/4	1/4 by 1/4	.155	.156	0	1/4	.235	.240
0.....	8	12	.150	.240	1/4	2	No. 20 (0.161)	1 1/4	1/4 by 1/4	.180	.181	2	1/4	.297	.302

NOTE.—The purpose of the groove in the "not go" end of the handle is to distinguish the "not go" from the "go" end.

TABLE 6. Handles for plain cylindrical and thread plug gages, taper lock design, range above 0.240 to and including 1.510 inches.



Handle size No.	Nominal range, thread plug diameters, inclusive		Decimal range, plain and thread plug diameters		General dimensions							M Reference			
	From—	To—	Above—	To and including—	A	B	C	D	E	F			G	L	
										Min.	Max.				
1.....	1/4	1/2	0.240	1/2	1/4	1/2	1/2	1/2	1/2 by 1/8	0.239	0.240	No. 4	1/2	1/4	0.433
2.....	1/2	3/4	.365	3/4	0.20	3/4	3/4	3/4	11/16	.309	.310	6	1/2	1/2	.577
3.....	3/4	1	.510	1	3/4	1	1	1	1 1/4	.409	.410	7	3/4	3/4	.794
4.....	1	1 1/4	.855	1 1/4	1	1 1/4	1 1/4	1 1/4	1 1/2	.609	.610	10	1	1	1.010
5.....	1 1/4	1 1/2	1.155	1.510	1	1 1/4	1 1/4	1 1/4	1 3/4	.809	.810	11	1 1/4	1 1/4	1.155

NOTE.—Taper lock handles are standard for all taper pipe thread plug gages to and including 2-inch nominal pipe size (see table 23).

TABLE 7. Handles for plain cylindrical, thread, and spline (involute, serrated, straight-sided) plug gages, reversible or tristock design range above 0.760 to and including 8.010 inches.

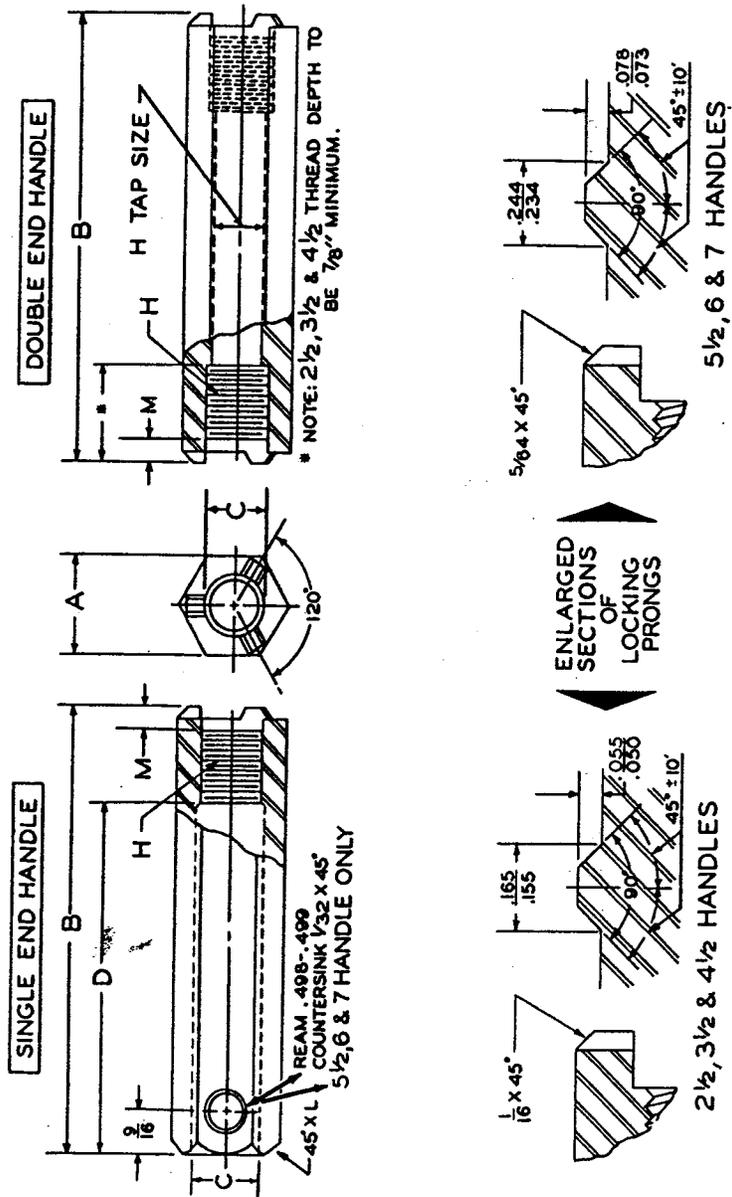
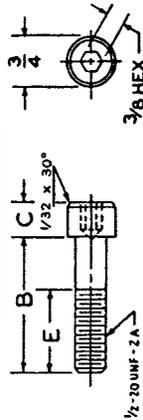


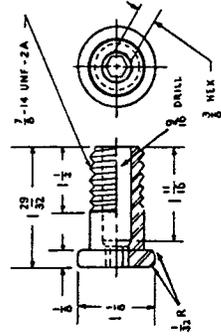
TABLE 7.—Continued

HANDLE SIZE NO.	NOMINAL RANGE		DECIMAL RANGE		GENERAL DIMENSIONS							SCREW NO.
	FROM	TO	ABOVE	TO AND INCL.	A	B	C	D	H	L	M	
2 1/2	3/4	1 5/16	.760	.947	1/2	4	5/16	3	1/4-20 UNC - 2B	1/16	1/8	3
3 1/2	1 5/16	1 1/8	.947	1.135	5/8	4	25/64	3	1/4-20 UNC - 2B	1/16	1/8	3
4 1/2	1 1/8	1 1/2	1.135	1.510	13/16	4	9/16	3	3/8-16 UNC - 2B	3/32	1/8	4
5 1/2	1 1/2	2	1.510	2.010	1	4 1/2	3/4	3 3/4	1/2-20 UNF - 2B	1/8	1/4	1
6	2	2 1/2	2.010	2.510	1 1/8	5	13/16	4 1/4	1/2-20 UNF - 2B	1/8	1/4	1
7	2 1/2	8	2.510	8.010	1 1/4	6	15/16	4 3/4	7/8-14 UNF - 2B	5/32	1/4	2

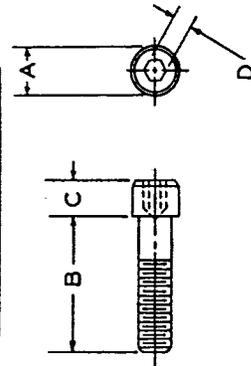
SCREW NO. 1.



SCREW NO. 2.



SCREW NO. 3 & 4



PLUG	B	C	E
GO-FOR FINE THDS.	1 1/2	5/16	1 1/4
16 T.P.I. AND FINER	1 1/2	5/16	1 1/4
NOT GO	2 1/4	1/2	1 1/4
GO	3 1/4	1/2	2 1/8

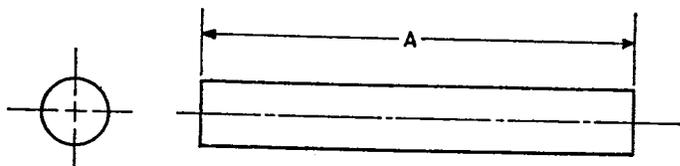


CROSS BAR FOR NO 5 1/2
6 AND 7 HANDLE (OPTIONAL)

SCREW NUMBER	SOCKET HEAD CAP SCREW SIZE	A	3/8" LENGTH				
			GO	NOT GO	C	D	
3	1/4-20UNC-2A	3/8	1 1/2	1 1/2	1	1/4	3/16
4	3/8-16UNC-2A	9/16	1 1/2	1 1/2	1 1/4	1/4	3/8

* C DIM. FOR NOT GO SCREW IS 1/4".

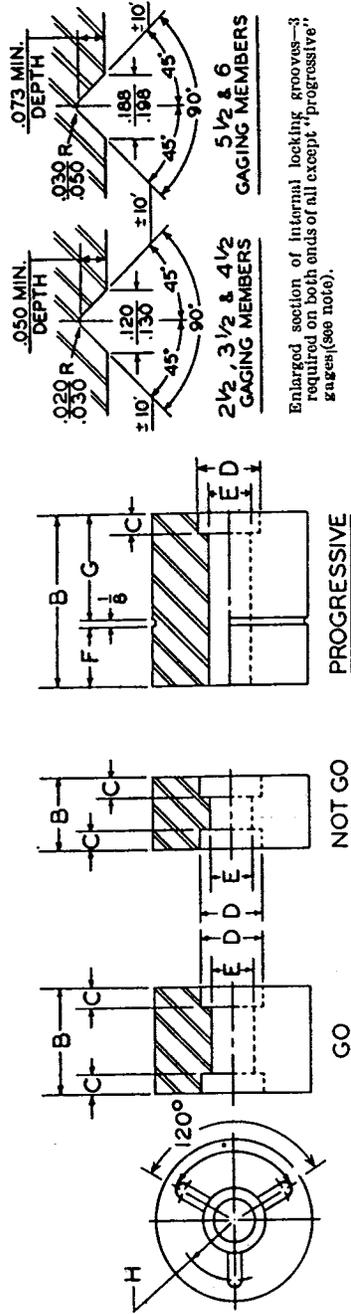
TABLE 8A. Plain cylindrical plug gage blanks, wire type design, range above 0.030 to and including 0.760 inch



Handle size No.	Range in diameter		"Go" and "Not go" length, A ¹
	Above—	To and including—	
1 W, 1 W-S, or 1 W-A	in.	in.	in.
2 W, 2 W-S, or 2 W-A	0.030	0.075	1
3 W, 3 W-S, or 3 W-A	.075	.180	1¼
4 W, 4 W-S, or 4 W-A	.180	.281	1½
5 W, 5 W-S, or 5 W-A	.281	.406	1¾
6 W, 6 W-S, or 6 W-A	.406	.510	2
7 W, 7 W-S, or 7 W-A	.510	.635	2
	.635	.760	2

¹ Lengths shown for A in ranges above 0.030 in. to and including 0.760 in. are minimum. Commercially available lengths exceeding these values shall be considered as acceptable alternates.

TABLE 10. Plain cylindrical plug gaging members, reversible or trilock design, range above .760 to and including 2.510 inches.

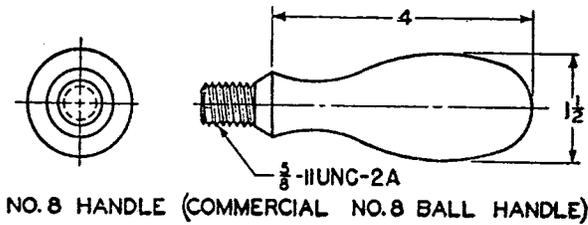
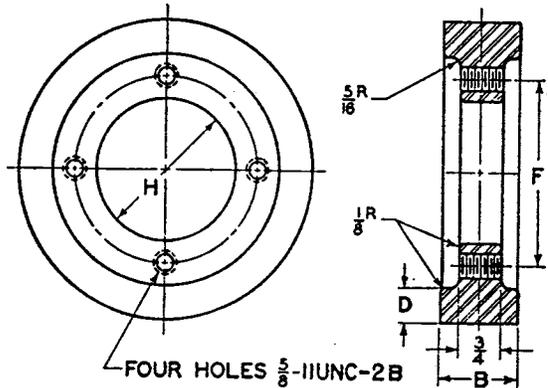


Enlarged section of internal locking grooves—3 required on both ends of all except "progressive" gages (see note).

HANDLE SIZE NO.	PLAIN PLUG DIAMETERS		"GO"			"NOT GO"			"PROGRESSIVE"									
	NOMINAL RANGE INCL. FROM TO		B	C	D	B	C	D	E	F	G	H						
	DECIMAL RANGE ABOVE TO & INCL.																	
2 1/2	3/4	15/16	.760	.947	1 1/4	1/4	25/64	17/64	3/4	1/4	25/64	17/64	*				15/64	
3 1/2	15/16	1 1/8	.947	1.135	1 3/8	1/4	25/64	17/64	3/4	1/4	25/64	17/64	*				21/64	
4 1/2	1 1/8	1 1/2	1.135	1.510	1 1/2	3/8	37/64	25/64	3/4	1/4	37/64	25/64	*				27/64	
5 1/2	1 1/2	2	1.510	2.010	1 7/8	1/2	25/32	17/32	7/8	5/16	25/32	17/32	27/64	1/2	25/32	17/32	7/8	1 1/8
6	2	2 1/2	2.010	2.510	2	1/2	25/32	17/32	7/8	5/16	25/32	17/32	3	1/2	25/32	17/32	7/8	1 1/2

NOTE.—See Table 9 for taperlock "Progressive" members in range from .760 through 1.510.

TABLE 12. Plain cylindrical plug gages, annular design, range above 8.010 to and including 12.010 inches.



Handle size No. ¹	Plain plug diameters				B		D	F	H
	Nominal range, inclusive		Decimal range		"Go"	"Not go"			
	From—	To—	Above—	To and including—					
8.....	8	8 1/2	8.010	8.510	2 1/4	1	5 1/4	4	
8.....	8 1/2	9	8.510	9.010	2 1/4	1	5 3/8	4 3/4	
8.....	9	9 1/2	9.010	9.510	2 1/4	1	6	4 3/4	
8.....	9 1/2	10	9.510	10.010	2 1/4	1	6 1/2	5 3/4	
8.....	10	10 1/2	10.010	10.510	2 1/4	1	7	5 1/4	
8.....	10 1/2	11	10.510	11.010	2 1/4	1	7 1/2	5 3/4	
8.....	11	11 1/2	11.010	11.510	2 1/4	1	8	6 1/4	
8.....	11 1/2	12	11.510	12.010	2 1/4	1	8 1/2	6 3/4	

¹Two required per gage.

3.3 Thread Plug Gage Blanks

3.3.1 The wire type, taper lock, trilock, and annular designs have been adopted for thread plug gage blanks and handles. The designs are patterned after the plain cylindrical plug gage blanks described on pages 7 to 27, with the exception that the length of thread gaging members is slightly different in some instances. The use of taper lock blanks and handles for pipe thread plug gages is standard to and including 2 inches nominal pipe size. General

details of construction will be apparent from figure 2, pages 28-30. Data for thread plug gages are presented in tables 13 to 17. Tables (18 and 19) setting forth dimensions of gaging members for fine-pitch instrument thread plugs are given on pages 37-38, and tables (20, 21, and 22) for thread setting plugs on pages 39-40. Tables (23 and 23A) specifying handles and gaging members for pipe-thread plug gages are set forth on pages 41-42.

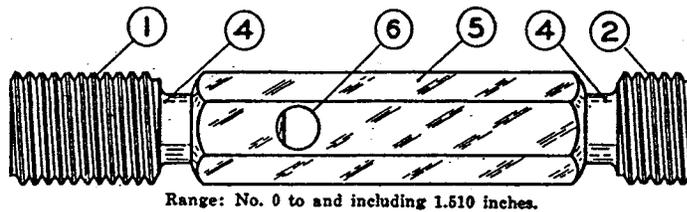
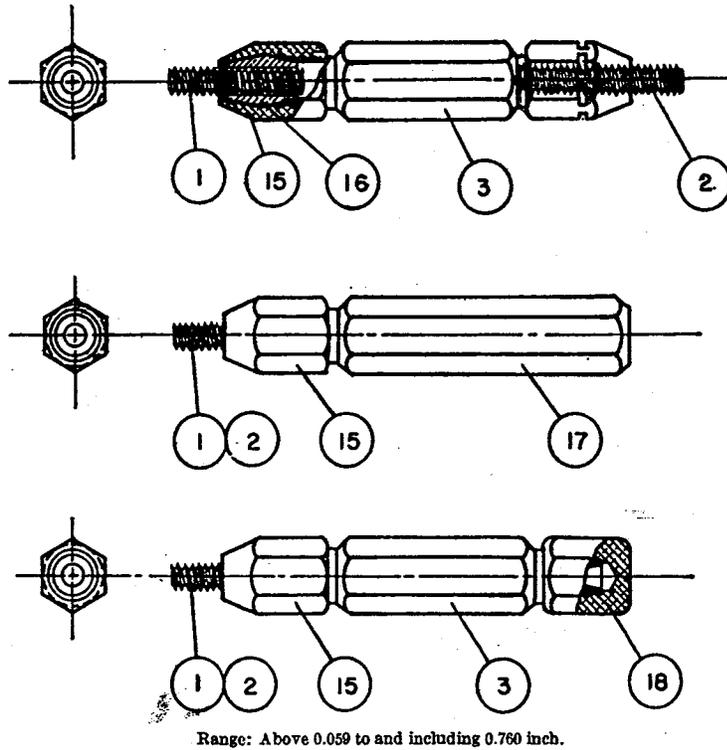
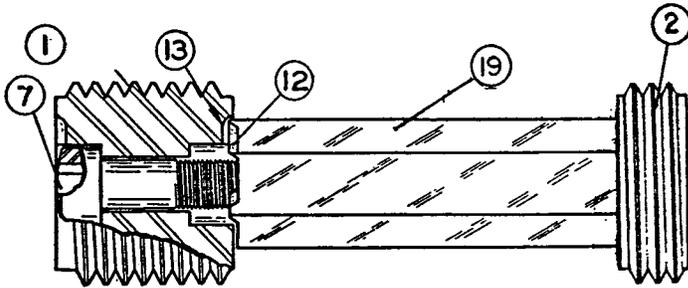
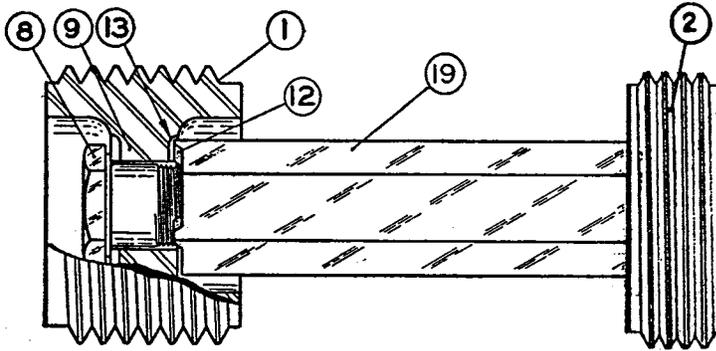


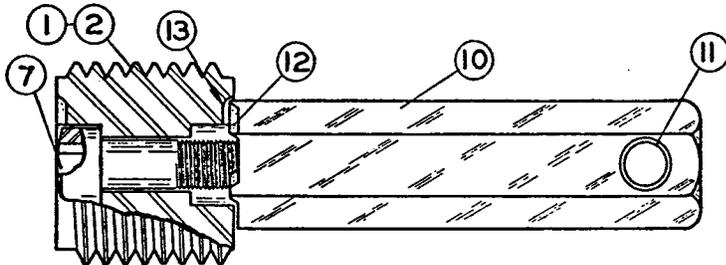
FIGURE 2.
(For title and notation, see p. 30.)



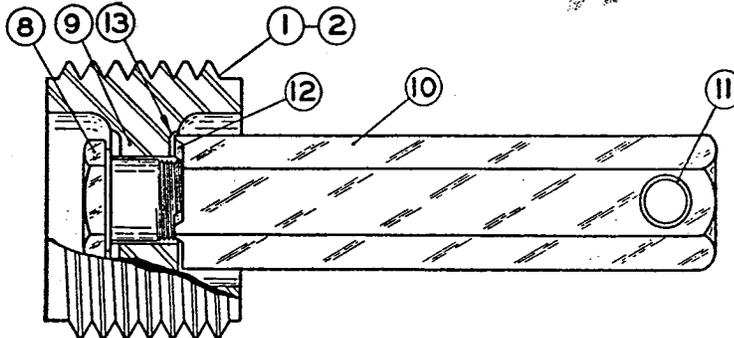
Range: Above 0.760 to and including 2.510 inches.



Range: Above 2.510 to and including 8.010 inches.

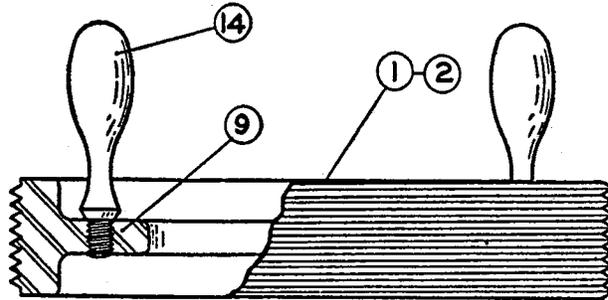


Range: Above 1.510 to and including 2.510 inches.



Range: Above 2.510 to and including 8.010 inches.

FIGURE 2.
(For title and notation, see p. 30.)

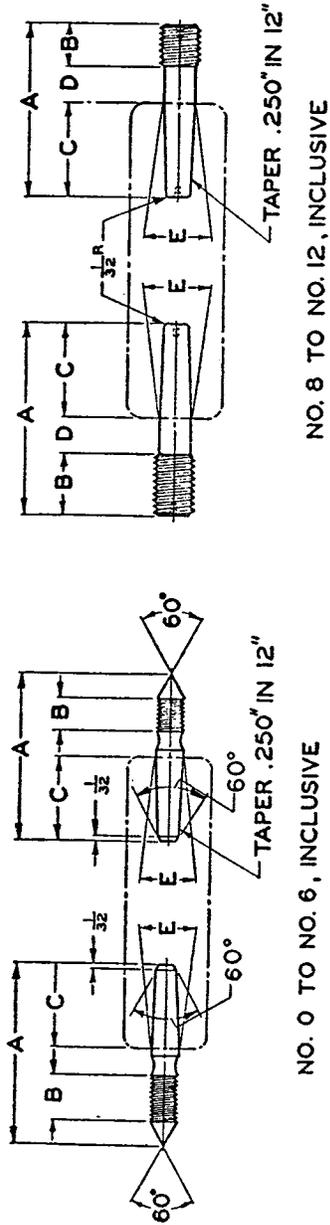


Range: Above 8.010 to and including 12.010 inches.

FIGURE 2. Thread plug gages, details of construction.

- | | |
|---------------------------------|--|
| 1. "Go" gaging member. | 11. Cross-pin hole. |
| 2. "Not go" gaging member. | 12. Locking prong. |
| 3. Double-end wire type handle. | 13. Locking groove. |
| 4. Shank. | 14. Ball handle. |
| 5. Taper lock handle. | 15. Clamping nut. |
| 6. Drift hole or slot. | 16. Threaded collet bushing to hold gaging mem-
ber firmly. |
| 7. Socket head screw. | 17. Single-end wire type handle. |
| 8. Hexagon head screw. | 18. Capping nut. |
| 9. Web. | 19. Double-end trilock handle. |
| 10. Single-end trilock handle. | |

TABLE 13. Thread plug gaging members, taper lock design, range from No. 0 to No. 12, inclusive

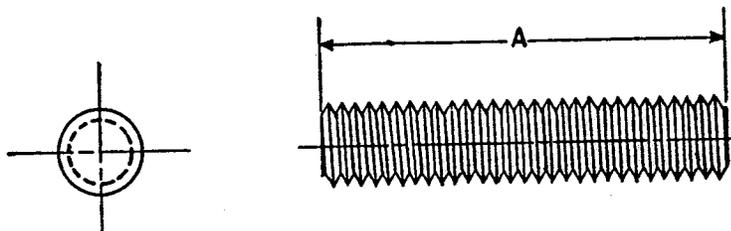


NO. 8 TO NO. 12, INCLUSIVE

NO. 0 TO NO. 6, INCLUSIVE

Handle size No.	General dimensions															
	Range, thread plug diameters					"Go"					"Not go"					
	Nominal, inclusive		Decimal			A	B	C	D	E	A	B	C	D	E	F
From—	To—	Above—	To and including—	To and including—	in.	in.	in.	in.	Min. in.	Max. in.	in.	in.	in.	Min. in.	Max. in.	
000.....	No. 0	No. 3	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{8}$
00.....	4	6	0.050	0.105	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	0.125	0.126	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	0.125	0.126
0.....	8	12	0.105	0.150	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	0.155	0.156	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	0.155	0.156
0.....			0.150	0.240	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	0.181	0.181	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	0.180	0.181

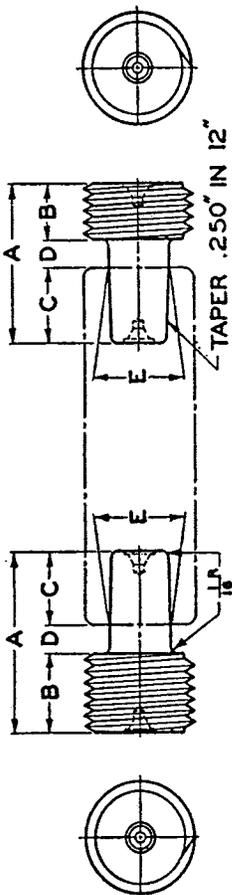
TABLE 13A. Reversible thread plug gaging members, wire type design, range above 0.030 to and including 0.760 inch



Handle size No.	Thread diameters				A—Length ¹	
	Nominal range, inclusive		Decimal range		"Go"	"Not go"
	From—	To—	Above—	To and including—		
	No. or in.	No. or in.	in.	in.	in.	in.
1 W, 1 W-S, or 1 W-A.....	No. 0	No. 1	0.030	0.075	$\frac{1}{2}$	$\frac{1}{2}$
2 W, 2 W-S, or 2 W-A.....	No. 2	No. 5	.075	.130	$\frac{3}{8}$	$\frac{3}{8}$
2 W, 2 W-S, or 2 W-A.....	No. 6	No. 8	.130	.180	$\frac{3}{4}$	$\frac{3}{4}$
3 W, 3 W-S, or 3 W-A.....	No. 10	14	.180	.281	$\frac{7}{8}$	$\frac{7}{8}$
4 W, 4 W-S, or 4 W-A.....	14	16	.281	.320	1	1
4 W, 4 W-S, or 4 W-A.....	$\frac{9}{16}$	$\frac{3}{4}$	.320	.406	$1\frac{1}{8}$	$1\frac{1}{8}$
5 W, 5 W-S, or 5 W-A.....	$\frac{3}{8}$	$\frac{7}{16}$	.406	.450	$1\frac{1}{4}$	$1\frac{1}{4}$
5 W, 5 W-S, or 5 W-A.....	$\frac{7}{16}$	$\frac{1}{2}$	.450	.510	$1\frac{3}{8}$	$1\frac{3}{8}$
6 W, 6 W-S, or 6 W-A.....	$\frac{1}{2}$	$\frac{3}{8}$	.510	.635	$1\frac{1}{2}$	$1\frac{1}{2}$
7 W, 7 W-S, or 7 W-A.....	$\frac{3}{4}$	$\frac{3}{4}$	.635	.760	$1\frac{3}{4}$	$1\frac{3}{4}$

¹ These lengths apply to standard and special diameter-pitch combinations not covered by table 13. Lengths shown for A in ranges above 0.030 in. to and including 0.760 in. are minimum. Commercially available lengths exceeding these values shall be considered as acceptable alternates.

TABLE 14. Thread plug gaging members, taper lock design, range from 1/4 to 1 1/2 inches, inclusive.

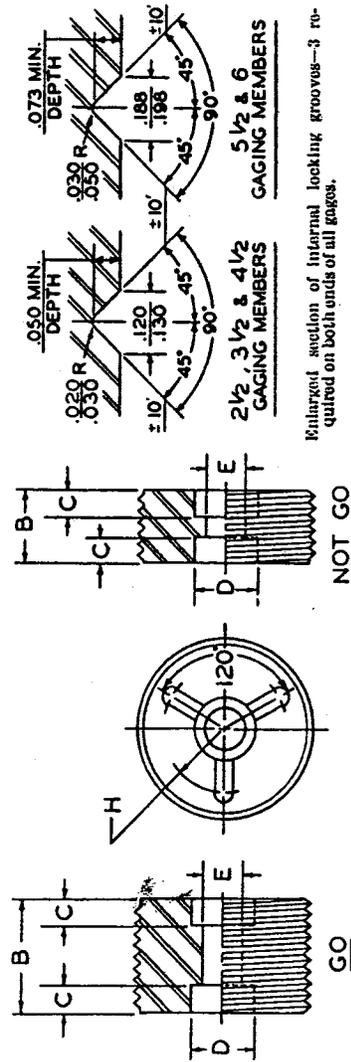


[Not less than three full threads must remain on "Not go" plug]

Handle size No.	Range						General dimensions																									
	Thread plug diameters						Threads per inch						"Go"						"Not go"													
	Nominal range, inclusive		Decimal range		To and including		Threads per inch						A		B		C		D		E		A		B		C		D		E	
	From—	To—	Above—		in.		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
1	1/4	1/4	0.240	0.305	in.	0.240	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
2	3/8	3/8	0.365	0.510	in.	0.310	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
3	1/2	1/2	0.510	0.825	in.	0.408	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
4	3/4	3/4	0.825	1.135	in.	0.610	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2
5	1	1	1.135	1.510	in.	0.808	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2
6	1 1/2	1 1/2	1.510	1.810	in.	0.808	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2

NOTE.—Taper lock gaging members are standard for all taper pipe-thread plug gages to and including 2-in. nominal pipe size. (See tables 23, 23A, pp. 41-42.)

TABLE 15. Thread plug gaging members reversible or trilock design, range above 1/4 to and including 2 1/2 inches.

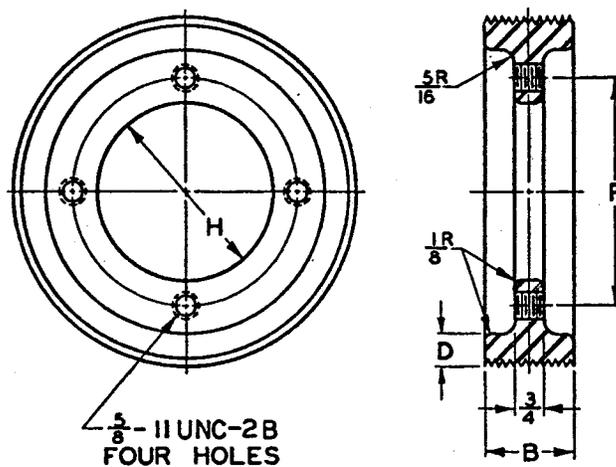


With a tight section of internal locking grooves—3 required on both ends of all gages.

HANDLE SIZE NO.	THREAD PLUG DIAMETERS		"GO"							"NOT GO"									
	NOMINAL RANGE INCL. FROM	DECIMAL RANGE TO & INCL. ABOVE	7 PITCH AND COARSER		FINE T. T. & COARSER THAN 13		13 T. T. AND FINER			"NOT GO"		ALL PITCHES							
			B	C	D	E	B	C	D	E	B	C	D	E	B	C	D	E	
2 1/2	3/4	15/16	.760	.947	1 1/4	1 1/8	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
3 1/2	15/16	1 1/8	.947	1.135	1 3/8	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
4 1/2	1 1/8	1 1/2	1.135	1.510	1 1/2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
HANDLE SIZE NO.	THREAD PLUG DIAMETERS		"GO"							"NOT GO"									
	NOMINAL RANGE INCL. FROM	DECIMAL RANGE TO & INCL. ABOVE	7 T. T. AND COARSER		FINE T. T. & COARSER THAN 16		16 T. T. AND FINER			"NOT GO"		ALL PITCHES							
			B	C	D	E	B	C	D	E	B	C	D	E	B	C	D	E	
5 1/2	1 1/2	2	1.510	2.010	1 7/8	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
6	2	2 1/2	2.010	2.510	2	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8

Note.—Dimensions are in inches.

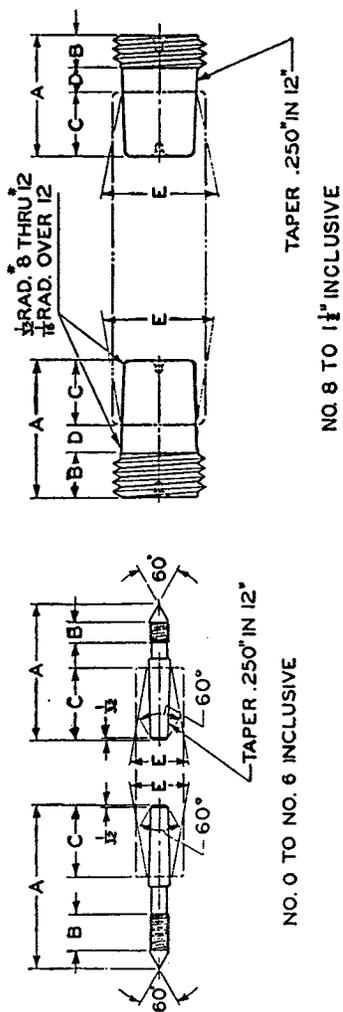
TABLE 17. Thread plug gaging members, annular design, range above 8 to and including 12 inches.



Handle size No. ¹	Thread plug diameters				"Go"			"Not go"	All		
	Nominal range, inclusive		Decimal range		7 threads per inch and coarser	Finer than 7 threads per inch and coarser than 16	16 threads per inch and finer	All pitches	All pitches		
	From—	To—	Above—	To and including—					B		
	in.	in.	in.	in.	in.	in.	in.	in.	D	F	H
8-----	8	8 1/2	8.010	8.510	2 1/4	1 1/2	1	1	1 1/2	5 1/2	4
8-----	8 1/2	9	8.510	9.010	2 1/4	1 1/2	1	1	1 1/2	5 1/2	4 1/2
8-----	9	9 1/2	9.010	9.510	2 1/4	1 1/2	1	1	1 1/2	6	4 1/2
8-----	9 1/2	10	9.510	10.010	2 1/4	1 1/2	1	1	1 1/2	6 1/2	5 1/2
8-----	10	10 1/2	10.010	10.510	2 1/4	1 1/2	1	1	1 1/2	7	5 1/2
8-----	10 1/2	11	10.510	11.010	2 1/4	1 1/2	1	1	1 1/2	7 1/2	5 1/2
8-----	11	11 1/2	11.010	11.510	2 1/4	1 1/2	1	1	1 1/2	8	6 1/2
8-----	11 1/2	12	11.510	12.010	2 1/4	1 1/2	1	1	1 1/2	8 1/2	6 1/2

¹Two required per gage.

TABLE 18. Fine-pitch instrument thread plug gaging members, taper lock design, range No. 0 to 1½ inches, inclusive.



NO. 0 TO NO. 6 INCLUSIVE

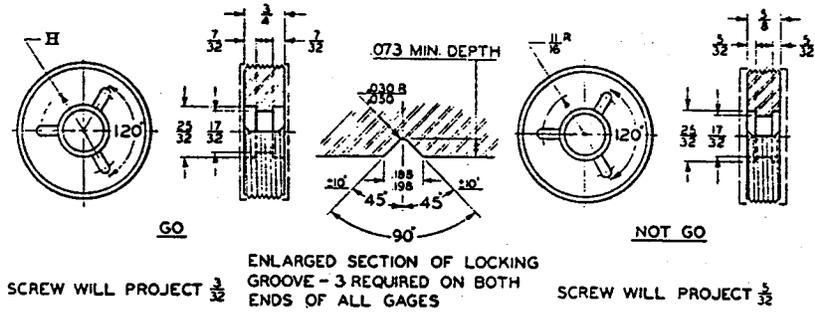
TAPER .250" IN 12"

NO. 8 TO 1½" INCLUSIVE

Handle size No.	Thread plug diameters				TPI finer than—	General dimensions												
	Nominal range, inclusive		Decimal range			"Go"						"Not Go"						
	From—	To—	Above—	To and including—		A	B	C	D	E	Min.	Max.	A	B	C	D	E	Min.	Max.
000	No. 0	No. 3	0.105	0.105	80	1/16	1/16	1/16	1/16	1/16	0.125	1/16	1/16	1/16	1/16	1/16	0.125	1/16
00	No. 4	No. 6	0.106	0.150	60	1/16	1/16	1/16	1/16	1/16	.155	1/16	1/16	1/16	1/16	1/16	.155	1/16
0	No. 8	No. 12	0.140	0.200	48	1/16	1/16	1/16	1/16	1/16	.181	1/16	1/16	1/16	1/16	1/16	.181	1/16
1	No. 16	No. 24	0.205	0.300	36	1/16	1/16	1/16	1/16	1/16	.239	1/16	1/16	1/16	1/16	1/16	.239	1/16
2	No. 32	No. 48	0.305	0.500	24	1/16	1/16	1/16	1/16	1/16	.309	1/16	1/16	1/16	1/16	1/16	.309	1/16
3	No. 60	No. 72	0.510	0.825	16	1/16	1/16	1/16	1/16	1/16	.408	1/16	1/16	1/16	1/16	1/16	.408	1/16
4	No. 96	No. 120	0.825	1.125	12	1/16	1/16	1/16	1/16	1/16	.608	1/16	1/16	1/16	1/16	1/16	.608	1/16
5	No. 144	No. 180	1.125	1.510	8	1/16	1/16	1/16	1/16	1/16	.810	1/16	1/16	1/16	1/16	1/16	.810	1/16

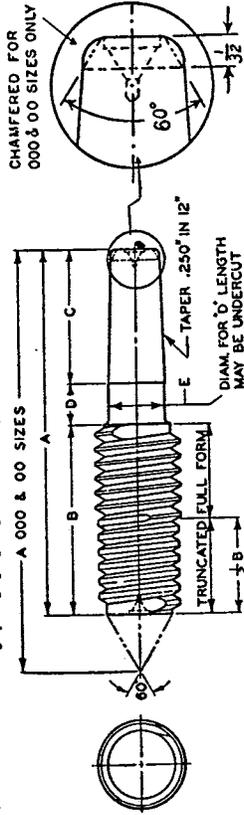
TABLE 19. *Fine-pitch instrument thread plug gaging members, reversible or trilock design, range above 1½ to and including 2½ inches.*

FACE OFF BOTH ENDS OF 'NOT GO' REGULAR BLANKS TO GIVE DESIRED LENGTHS



Handle size No.	Thread plug diameters				Threads per inch finer than—	H
	Nominal range, inclusive		Decimal range			
	From—	To—	Above—	To and including—		
5½	in. 1½	in. 2	in. 1.510	in. 2.010	28	$\frac{3}{16}$
6	2	2½	2.010	2.510	28	$\frac{5}{16}$

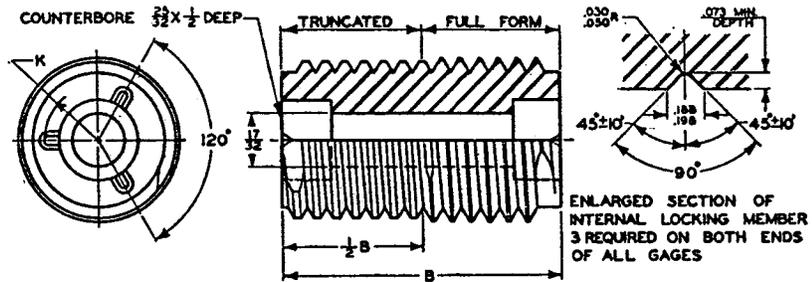
TABLE 20. Thread-setting plug gaging members, truncated type, range No. 0 to 1½ inches, inclusive



Handsize No.	Thread diameters		General dimensions											
	Nominal range, inclusive		Decimal range		For thin ring		For thick ring		For fine-pitch instrument thread ring		D		E	
	From—	To—	Above—	To and including—	A	B	A	B	A	B	A	B	Min	Max
000	No. 0	No. 2	in. 0.059	in. 0.000	in. 1/32	in. 7/32	in. 1/4	in. 1/4	in. 1/4	in. 1/4	in. 1/4	in. 1/4	in. 0.125	in. 0.126
000	No. 3	No. 3	.060	.105	3/8	3/8	1/2	1/2	1/2	1/2	1/2	1/2	.125	.126
00	No. 4	No. 6	.105	.200	1/2	1/2	3/4	3/4	3/4	3/4	3/4	3/4	.150	.150
0	No. 8	No. 12	.200	.400	3/4	3/4	1	1	1	1	1	1	.180	.181
1	1/4	1/2	.400	.800	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	.230	.230
2	3/8	1/2	.600	.825	1 1/4	1 1/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	.300	.310
3	1/2	3/4	.800	1.125	1 3/4	1 3/4	2	2	2	2	2	2	.400	.410
4	3/4	1 1/4	1.125	1.510	2 1/4	2 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	.600	.610
5	1 1/4	1 1/2	1.510	1.510	3	3	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	.800	.810

NOTE.—For full form (basic crest) setting plugs, use go thread plug gaging members—tables 13 and 14. For fine pitch instrument threads—table 18.

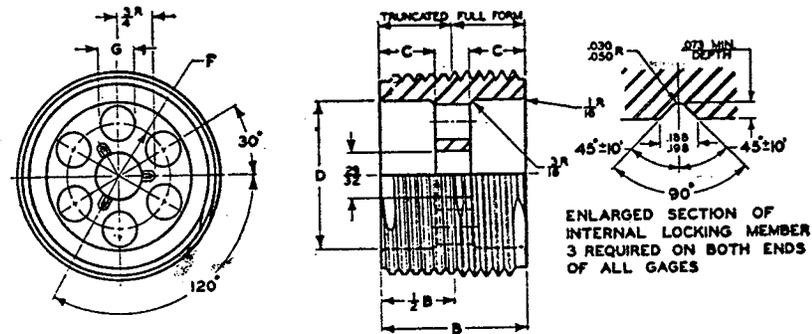
TABLE 21. Thread-setting plug gaging members, truncated type, range above 1½ to and including 2½ inches



Handle size No.	Thread diameters				K (radius)	R		
	Nominal range		Decimal range			For thin ring	For thick ring	For fine-pitch instrument thread ring
	From—	To—	Above—	To and including—				
5½	in. 1½	in. 2	in. 1.510	in. 2.010	in. 9/16	in. 17/8	in. 27/8	in. 19/16
6	2	2½	2.010	2.510	5/8	2	3	17/8

NOTE.—For full form (basic crest) setting plug, use go thread plug gaging members—table 15. For fine pitch instrument threads—table 19.

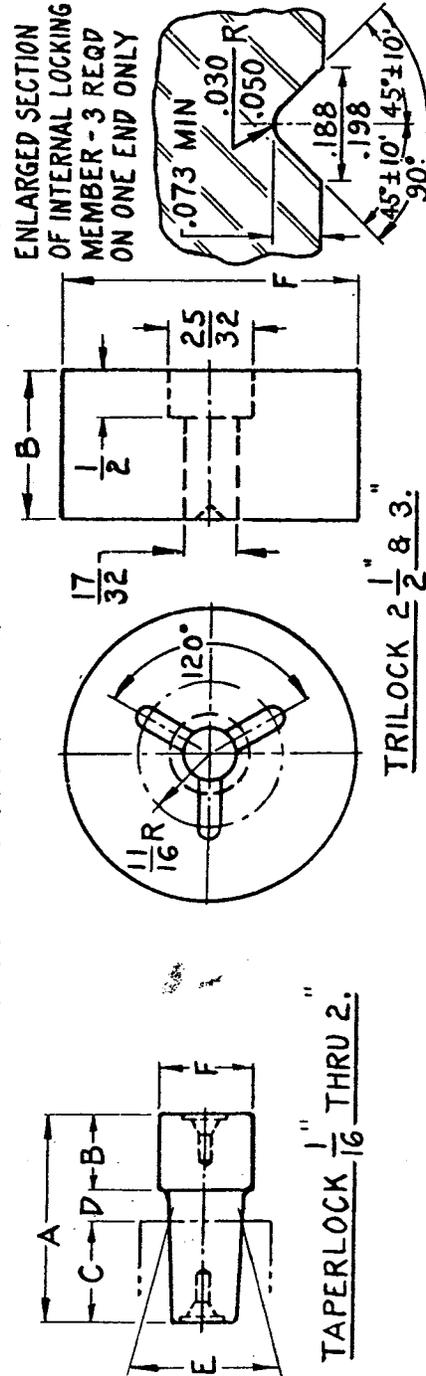
TABLE 22. Thread-setting plug gaging members, truncated type, range above 2½ to and including 6¼ inches



Handle size No.	Thread diameters				General dimensions						
	Nominal range		Decimal range		For thin ring		For thick ring		D	F (radius)	G
	From—	To—	Above—	To and including—	B	C	B	C			
7	2½	3	2.510	3.010	17/8	9/16	3	17/8	17/8	17/8	1
7	3	3½	3.010	3.510	2	5/8	3 3/8	1 3/8	2 1/2	1 3/8	1
7	3½	4	3.510	4.010	2	5/8	3 3/4	1 3/4	2 3/4	1 3/4	1
7	4	4½	4.010	4.760	2 1/8	1 1/2	3 3/4	1 3/4	3	1 3/4	1 1/2
7	4½	5½	4.760	5.510	2 1/8	1 1/2	3 3/4	1 3/4	3 1/2	1 3/4	1 1/2
7	5½	6¼	5.510	6.260	2 1/2	1 3/4	3 3/4	1 3/4	4 1/2	1 3/4	1 1/2

NOTE.—For full form (basic crest) setting plug, use go thread plug gaging members—table 15.

TABLE 23A. Taper pipe thread plug gaging members, for L-3 and minor diameter check (6 step).



Nominal pipe size	Type blank	Handle size No.	General dimensions						
			A	B	C	D	E	F	
3/8-27	Taperlock	1	1.420	.420	3/8	3/8	.239	.240	3/8
3/8-27	do	2	1.440	.420	3/8	3/8	.309	.310	3/8
3/8-27	do	3	1.500	.420	3/8	3/8	.408	.410	3/8
3/8-27	do	4	1.620	.420	3/8	3/8	.408	.410	3/8
3/8-27	do	5	1.928	.420	3/8	3/8	.008	.010	3/8
1-11 1/2	do	4	1.028	.780	7/8	7/8	.008	.010	1 1/4
1-11 1/2	do	5	2.315	.940	1	1	.808	.810	1 1/4
1 1/2-11 1/2	do	5	2.315	.940	1	1	.808	.810	1 1/4
2-11 1/2	do	5	2.315	.940	1	1	.808	.810	1 1/4
2 1/2-8	do	6	1.580	1.580	1	1	.808	.810	2 1/2
3-8	do	6	1.580	1.580	1	1	.808	.810	2 1/2
3-8	do	6	1.580	1.580	1	1	.808	.810	2 1/2

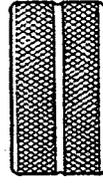
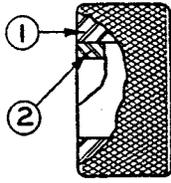
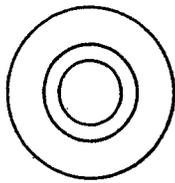
NOTE.—Sizes and dimensions in inches.

3.4 Plain Ring Gage Blanks

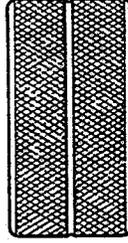
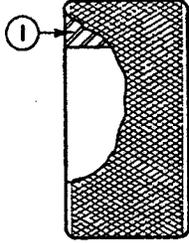
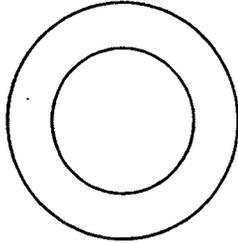
3.4.1 The use of the solid ring gage design for size control being well established, the committee's work on plain ring gages was concerned chiefly with matters of proportion. In the smaller sizes of plain ring gages a hardened bushing may be pressed into a soft gage body, in place of the one-piece ring gage. This design is optional in the range above 0.059 to and including 0.510 inch. However, the single-piece gage may be employed in this range, and it is standard in all cases above 0.510 inch. Gages in sizes above 1.510 inches are flanged, in order to eliminate unnecessary weight and to facilitate handling. General details of construction are shown in figure 3, page 44, and dimensions are given in tables 24 and 25, pages 45-46.

3.4.2 No dimensional difference exists between "go" and "not go" blanks of identical size range and service class, but an annular groove is provided in the periphery of "not go" blanks as a means of identification.

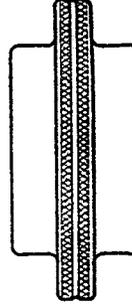
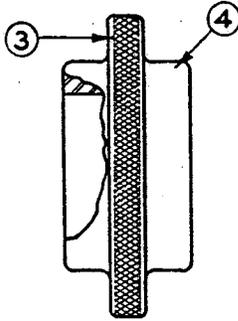
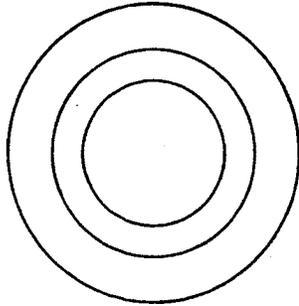
3.4.3 Gages in sizes above 5.510 inches are provided with ball handles.



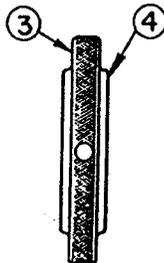
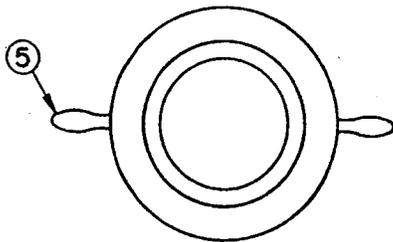
Range: Above 0.059 to and including 0.510 inch (solid design shown below is optional).



Range: Above 0.510 to and including 1.510 inches (optional above 0.059 to and including 0.510 inch).



Range: Above 1.510 to and including 5.510 inches.

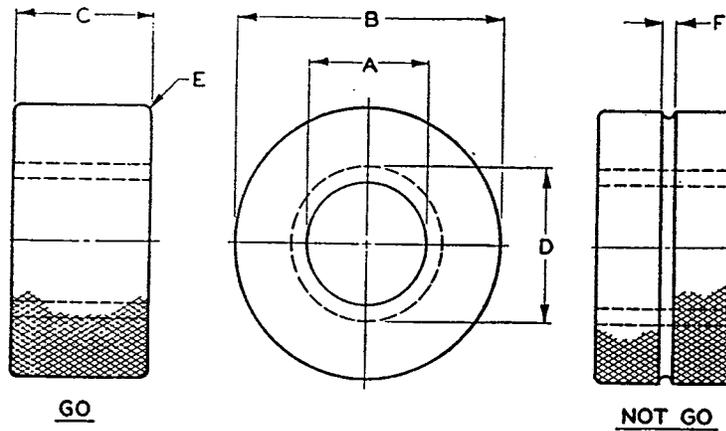


Range: Above 5.510 to and including 12.260 inches.

FIGURE 3. Plain ring gages, details of construction.

- | | |
|-------------|------------|
| 1. Body. | 4. Hub. |
| 2. Bushing. | 5. Handle. |
| 3. Flange. | |

TABLE 24. Plain ring gages, range above 0.059 to and including 1.510 inches.



Ring size No.	A Range		General dimensions					
	Above—	To and including—	B Outside diameter	C Thickness	D Bushing diameter ¹	E Radius	F "Not go" groove width	Length of bushing
00	.059	.150	1 15/16	3/16	3/8	1/4	1/4	(1 3)
0	.150	.240	1 15/16	3/8	1/2	1/2	1/4	(1 3)
1	.240	.365	1 11/8	3/8	3/4	1/2	3/4	(1 3)
2	.365	.510	1 3/8	3/4	1	1/2	3/4	(1 3)
3	.510	.825	1 3/4	15/16	(3)	3/4	3/4	(3)
4	.825	1.135	2 1/8	1 1/8	(3)	3/4	3/4	(3)
5	1.135	1.510	2 1/2	1 3/8	(3)	3/4	3/4	(3)

¹ Ring gages of sizes 00, 0, 1, and 2 may be of the bushing type or of the solid type, at the option of the manufacturer.

² Bushings may be 1/16 inch longer than ring thickness, but are ground flush after hole is finished.

³ Sizes 3, 4, and 5 are solid.

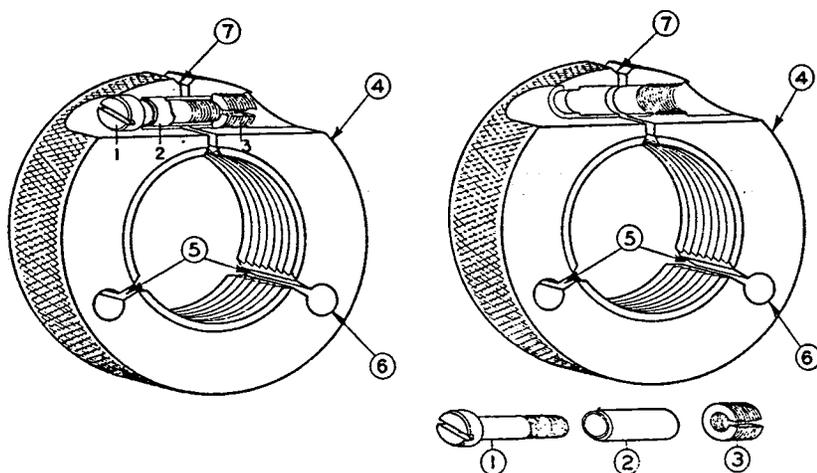


FIGURE 4. Thread ring gage locking device, details of construction, range No. 0 to 5½ inches, inclusive.

- | | |
|---------------------|----------------------------------|
| 1. Locking screw. | 5. Adjusting slots. |
| 2. Sleeve. | 6. Adjusting slot terminal hole. |
| 3. Adjusting screw. | 7. Locking slot. |
| 4. Body. | |

3.5 Thread Ring Gage Blanks

3.5.1 The committee found universal accord as to the superiority of the adjustable thread ring gage over the solid type, with the result that all American Gage Design Standard thread ring gage blanks are equipped with an effective device for adjusting and locking the gage in the manufacturing or resizing processes. Of the many locking devices considered, the single-unit locking device was finally adopted as standard, as it permits a minimum diameter of blank for a given size range, and provides a simple adjustment and positive lock without introducing, into the gage body, any mechanical stresses which might tend to create distortion after setting. Referring to figure 4, above, the construction and operation of this device are as follows.

3.5.2 The adjusting screw (3) is threaded externally and internally and split longitudinally. Turning this screw to the right exerts pressure on the sleeve (2) against the shoulder in the left-hand side of the gage here shown, thus spreading the ring. Once the ring has been properly adjusted by means of adjusting screw (3) the adjustment is locked by tightening locking screw (1). The tightening of locking screw (1) exerts a pull between the shoulder, immediately under its head, and the internal threads of the adjusting screw (3), which causes the adjusting screw to expand into the threads in the wall of the gage, the thrust of this action being taken up longitudinally by the sleeve (2). Therefore, the clamping is accomplished by expansion of the adjusting screw equally in all directions and not by the application of any eccentric forces that tend to distort the gage or upset the adjustment. The

locking pressure, it is seen, is taken up centrally in the locking screw itself as the reacting support is directly under the head of the locking screw in the form of a shoulder in the gage. The sleeve (2), being accurately fitted, serves as a large dowel to maintain the alinement of the gage.

3.5.3 Dimensions for thread ring gage blanks in the range from No. 0 to 12 $\frac{1}{4}$ inches, inclusive, and for parts for the thread ring gage locking device, are given in tables 26 to 31, pages 53 to 61.

3.5.4. Five types of thread ring gage blanks for straight threads have been provided as illustrated in figures 5A and 5B, pages 49-52, namely:

(1) A thin flat-disk type with one adjusting slot (two slots optional) for all diameters and pitches, both "go" and "not go," Nos. 0 to 6, inclusive.

(2) A thin flat-disk type with two adjusting slots for the following: (a) All diameters and pitches, "go" and "not go," above No. 6 to and including $\frac{1}{2}$ inch; (b) fine pitches,¹ "go" and "not go," above $\frac{1}{2}$ to and including 4 $\frac{3}{4}$ inches; (c) coarse pitches, "not go" only, above $\frac{1}{2}$ to and including 4 $\frac{3}{4}$ inches.

(3) A thick flanged type with two adjusting slots for all "go" coarse pitch gages, above $\frac{1}{2}$ to and including 4 $\frac{3}{4}$ inches.

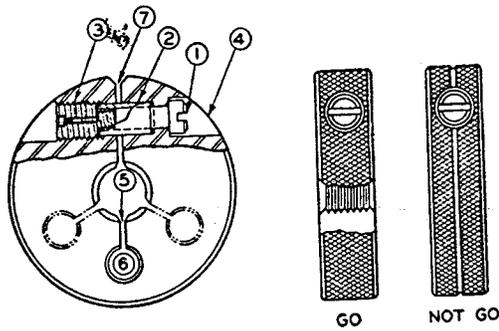
(4) A thin flat type provided with ball handles and with a plurality of adjusting slots for all fine-pitch "go" gages and all "not go" gages in the range above 4.760 to and including 12.260 inches.

(5) A thick flanged type provided with ball handles and a plurality of adjusting slots for all coarse-pitch "go" gages in the range from 4.760 to and including 12.260 inches.

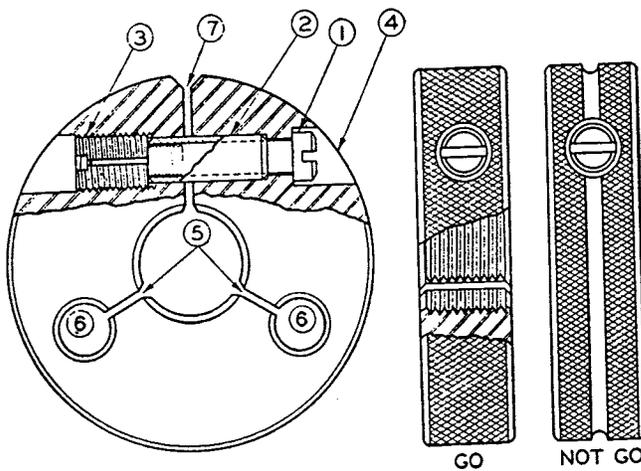
3.5.5. For thread setting and master ring gages, a solid thin flat disk type and a solid thick flanged type are provided in Table 31A, pages 62-63.

3.5.6 For taper pipe threads a solid flanged type has been provided, as shown in table 32, page 64, for nominal pipe sizes from $\frac{1}{8}$ to 8 inches, inclusive.

¹ Specific information as to the meaning of the terms "fine pitches" and "coarse pitches," as used above, is given in the note under table 26, page 54.



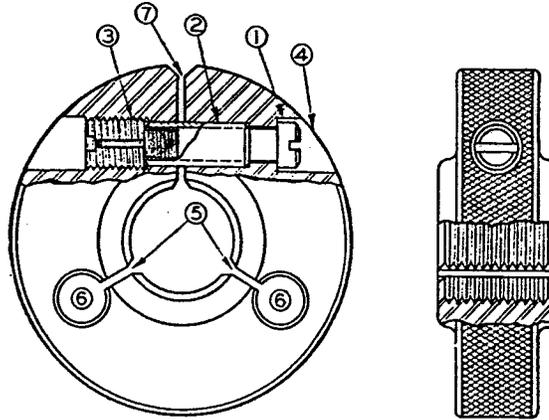
Range: 0.060 to and including 0.150 inch, "go" and "not go" gages, all pitches. Two adjusting slots are optional with the gage manufacturer.



Range: Above 0.150 to and including 0.510 inch, "go" and "not go" gages, all pitches; 0.510 to and including 4.760 inches, "go" and "not go" gages, fine pitches; 0.510 to and including 4.760 inches, "not go" gages only, coarse pitches.

FIGURE 5A. Thread ring gages, details of construction—ranges 0.060 to and including 4.760 inches.

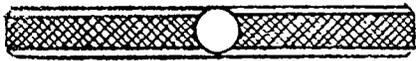
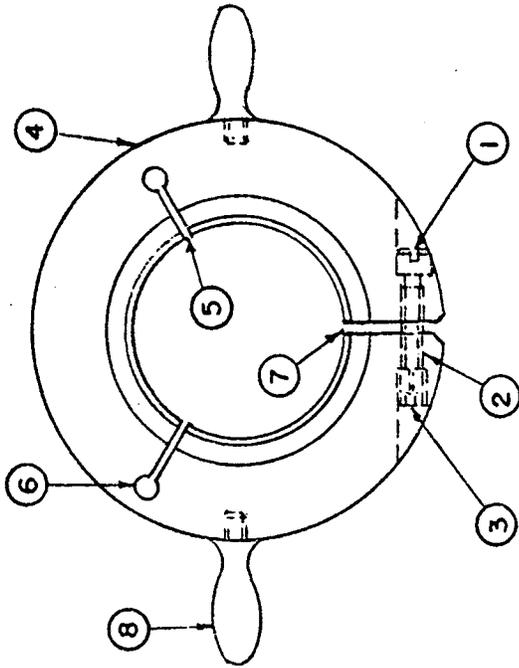
- | | |
|---------------------|----------------------------------|
| 1. Locking screw. | 5. Adjusting slot. |
| 2. Sleeve. | 6. Adjusting slot terminal hole. |
| 3. Adjusting screw. | 7. Locking slot. |
| 4. Body. | |



Range: Above 0.510 to and including 4.760 inches, "go" gages only, coarse pitches.

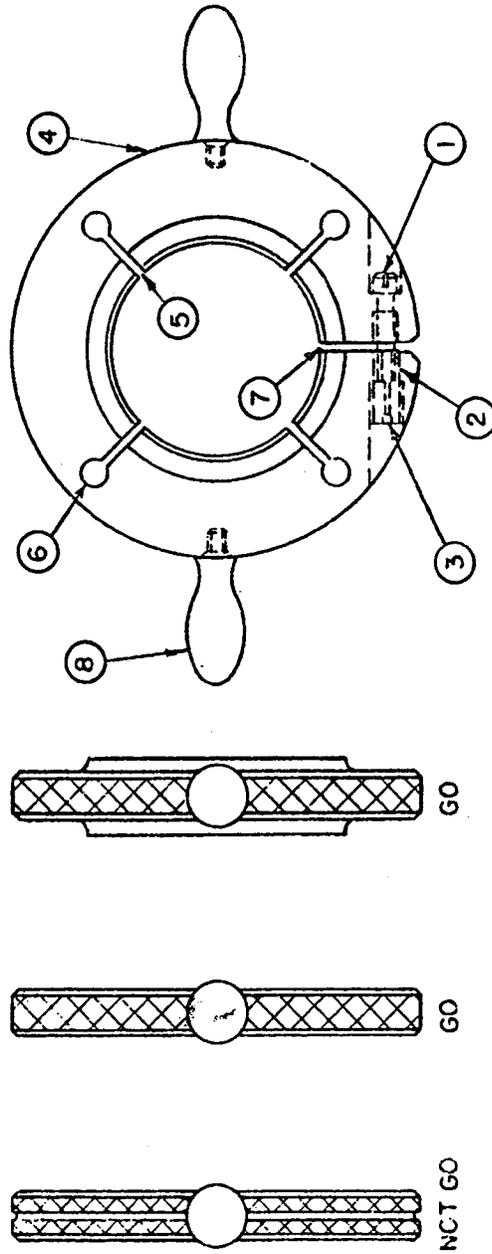
FIGURE 5B.
(For title and notation, see p. 52.)

GAGE BLANKS



Range: Above 4.760 to and including 8.510 inches.

FIGURE 5B.
(For title and notation, see p. 52.)



Range: Above 8.610 to and including 12.260 inches.

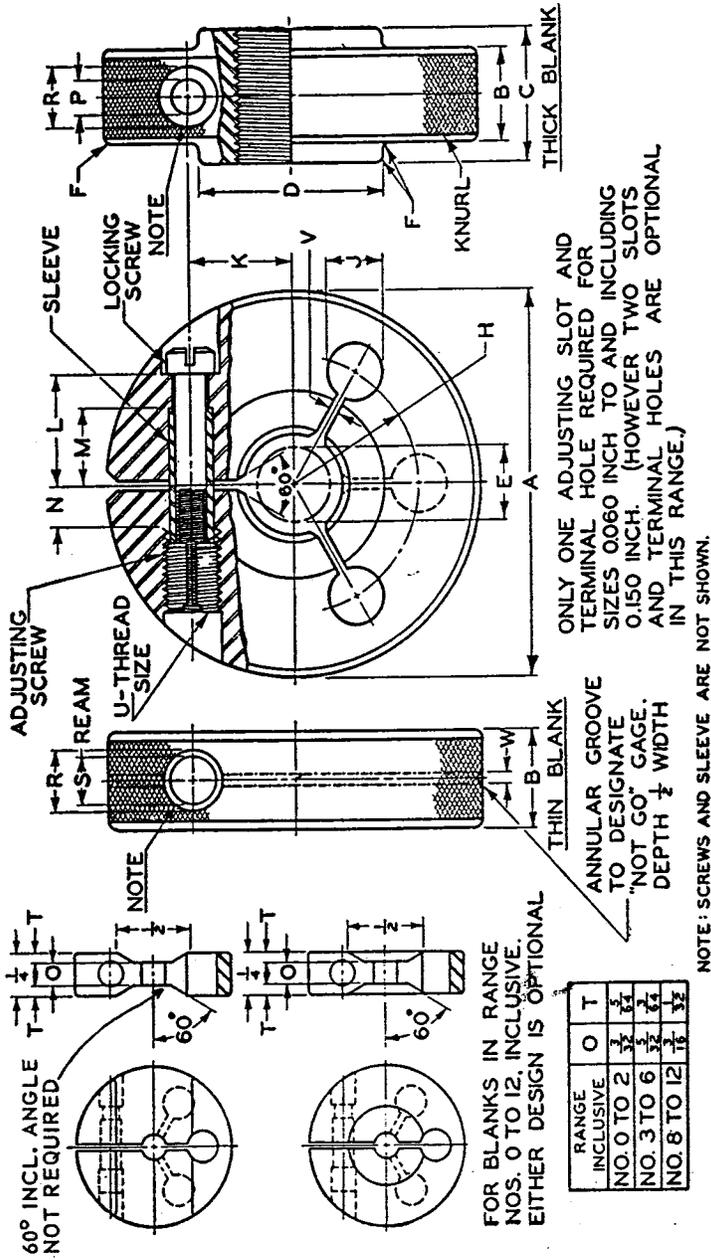
FIGURE 5B. Thread ring gages, details of construction—range above 0.510 to and including 12.260 inches.

Note.—Thick blank for coarse pitches, "go" gages. Thin blank for fine pitches, "go" gages, and all "not go" gages.

- 1. Locking screw.
- 2. Sleeve.
- 3. Adjusting screw.
- 4. Body.

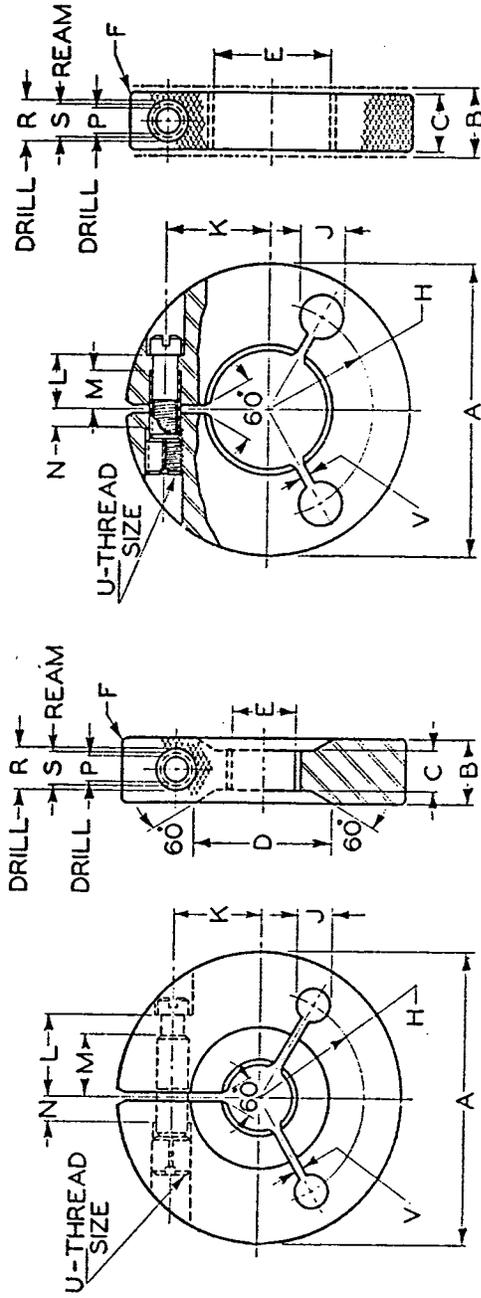
- 5. Adjusting slot.
- 6. Adjusting slot terminal hole.
- 7. Locking slot.
- 8. Ball handle.

TABLE 26. Thread ring gages, range No. 0 to and including $4\frac{3}{4}$ inches; also fine-pitch instrument thread ring gages, No. 0 to and including No. 12



GAGE BLANKS

TABLE 27. Fine-pitch instrument thread ring gages, range above 0.240 to and including 2.510 inches



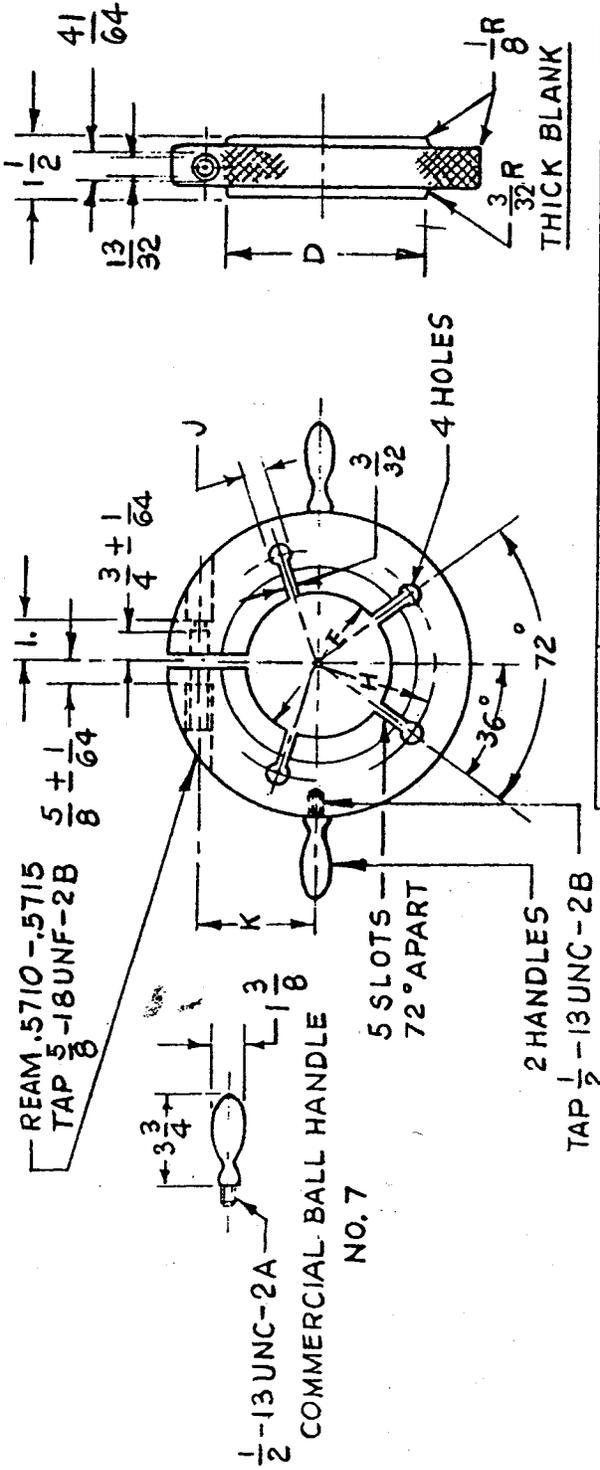
GAGES ABOVE .240 TO .510 INC.—KNURL FINISH RECESS BOTH ENDS
 ANNULAR GROOVE TO DESIGNATE "NOT GO" GAGE "W" WIDTH, "W" DEPTH.
 GAGES ABOVE .510 TO 2.510 INC.—KNURL FINISH FACE BOTH ENDS

TABLE 27. Fine-pitch instrument thread ring gages, range above 0.240 to and including 2.510 inches—Continued

Nominal range, inclusive	Decimal range		TPI finer than—	General dimensions											
	Above—	To and including—		A	B	C	D	E	F	H	J	K	L	M ± 1/4	N ± 1/4
1/4 to 1/2	in. 0.240	in. 0.365	40	in. 1 3/4	in. 1 1/2	in. 1 1/2	in. 1 3/4	in. 1 1/2							
3/8 to 1/2	in. 0.365	in. .510	36	in. 1 3/4	in. 1 1/2	in. 1 1/2	in. 1 3/4	in. 1 1/2							
1/2 to 3/4	in. .510	in. .825	32	in. 2 1/4	in. 1 3/4	in. 1 3/4	in. 2 1/4	in. 1 3/4							
3/4 to 1	in. .825	in. 1.135	28	in. 2 3/4	in. 2 1/4	in. 2 1/4	in. 3 1/4	in. 2 1/4							
1 to 1 1/4	in. 1.135	in. 1.510	28	in. 3 1/4	in. 2 3/4	in. 2 3/4	in. 4 1/4	in. 2 3/4							
1 1/4 to 1 1/2	in. 1.510	in. 2.010	28	in. 3 3/4	in. 3 1/4	in. 3 1/4	in. 4 3/4	in. 3 1/4							
1 1/2 to 2 1/4	in. 2.010	in. 2.510	28	in. 4 1/4	in. 3 3/4	in. 3 3/4	in. 5 1/4	in. 3 3/4							

Nominal range, inclusive	General dimensions										
	P Drill size	R Drill size	S Round	U Pitch diameter		V	W				
	Min.	Max.	Min.	Max.	Size	Min.	Max.				
1/4 to 1/2	No. 31 (0.1200)	in. 0.1873	No. 12-28	in. 0.1928	No. 12-28	in. 0.1050	in. 1/4				
3/8 to 1/2	No. 25 (.1495)	in. 0.2150	No. 14-28	in. 0.2268	No. 14-28	in. 0.2000	in. 3/8				
1/2 to 3/4	No. 19 (.2010)	in. 0.2720	No. 16-24	in. 0.2854	No. 16-24	in. 0.2500	in. 1/2				
3/4 to 1	No. 14 (.2280)	in. 0.3340	No. 18-24	in. 0.3470	No. 18-24	in. 0.3000	in. 3/4				
1 to 1 1/4	No. 11 (.2650)	in. 0.3890	No. 20-20	in. 0.4050	No. 20-20	in. 0.3500	in. 1				
1 1/4 to 1 1/2	No. 8 (.2850)	in. 0.3890	No. 22-20	in. 0.4050	No. 22-20	in. 0.3500	in. 1 1/4				
1 1/2 to 2 1/4	No. 7 (.3281)	in. 0.4510	No. 24-20	in. 0.4675	No. 24-20	in. 0.4076	in. 1 1/2				

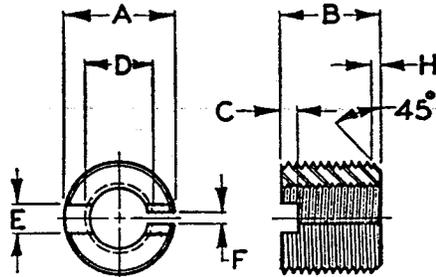
TABLE 28A. Thread ring gages, range above 8.510 inches to and including 12.260 inches.



NOMINAL RANGE, INCLUSIVE	DECIMAL RANGE		A	D	E	H	J	K
	ABOVE	TO & INCLUDING						
8-1/2 to 9-1/4	8.510	9.260	13-1/4	+1-1/8	7-3/4	5-15/16	5/8	5-5/8
9-1/4 to 10	9.260	10.010	14-1/4	1-1/8	8-1/2	6-7/32	11/16	6-1/8
10 to 10-3/4	10.010	10.760	15-1/4	1-1/8	9-1/4	6-23/32	11/16	6-5/8
10-3/4 to 11-1/2	10.760	11.510	16-1/4	1-1/8	10	7-1/4	3/4	7-1/4
11-1/2 to 12-1/4	11.510	12.260	17-1/4	1-1/8	10-3/4	7-5/8	3/4	7-5/8

NOTE—Dimensions in inches.

TABLE 29. Thread ring gage adjusting screws.

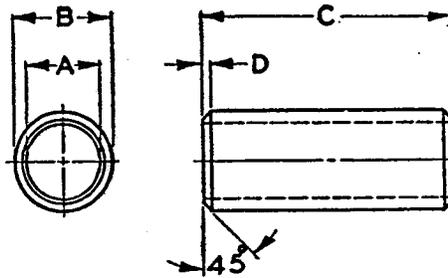


Gage range, nominal	A					B ¹	C
	Size (external thread)	Pitch diameter		Minor diameter			
		Min.	Max.	Min.	Max.		
No. or in.	in.	in.	in.	in.	in.	in.	in.
Nos. 0 to 12.....	No. 8-36	0.1442	0.1460	0.1315	0.1333	$\frac{1}{16}$	$\frac{3}{64}$
$\frac{1}{4}$ to $\frac{1}{2}$	No. 12-28	.1906	.1928	.1744	.1766	$\frac{1}{8}$	$\frac{1}{16}$
$\frac{3}{8}$ to $\frac{1}{2}$	$\frac{1}{4}$ -28	.2246	.2268	.2084	.2106	$\frac{3}{16}$	$\frac{1}{8}$
$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{3}{8}$ -24	.2830	.2854	.2641	.2665	$\frac{1}{4}$	$\frac{1}{8}$
$\frac{3}{4}$ to 1 $\frac{1}{4}$	$\frac{1}{2}$ -24	.3455	.3479	.3266	.3290	$\frac{3}{8}$	$\frac{1}{4}$
1 $\frac{1}{4}$ to 2.....	$\frac{3}{4}$ -20	.4024	.4050	.3797	.3823	$\frac{1}{2}$	$\frac{1}{4}$
2 $\frac{1}{4}$ to 3 $\frac{1}{2}$	$\frac{1}{2}$ -20	.4649	.4675	.4422	.4448	$\frac{3}{4}$	$\frac{1}{2}$
3 $\frac{1}{4}$ to 12 $\frac{1}{4}$	$\frac{3}{8}$ -18	.5859	.5889	.5607	.5637	$\frac{1}{2}$	$\frac{1}{2}$

Gage range, nominal	D				E	P	H
	Size (internal thread)	Pitch diameter		Tap drill			
		Min.	Max.				
No. or in.	in.	in.		in.	in.	in.	
Nos. 0 to 12.....	No. 2-64	0.0759	0.0773	50 (.070)	$\frac{1}{64}$	$\frac{1}{64}$	0.020
$\frac{1}{4}$ to $\frac{1}{8}$	No. 4-48	.0985	.1001	42 (.093)	$\frac{1}{32}$	$\frac{1}{64}$	.020
$\frac{3}{8}$ to $\frac{1}{2}$	No. 6-40	.1218	.1235	32 (.116)	$\frac{1}{16}$	$\frac{1}{32}$	.020
$\frac{1}{2}$ to $\frac{3}{4}$	No. 10-32	.1697	.1716	20 (.161)	$\frac{3}{64}$	$\frac{1}{16}$	$\frac{1}{32}$
$\frac{3}{4}$ to 1 $\frac{1}{4}$	No. 12-28	.1928	.1950	14 (.182)	$\frac{1}{8}$	$\frac{3}{64}$	$\frac{1}{16}$
1 $\frac{1}{4}$ to 2.....	$\frac{1}{2}$ -28	.2268	.2290	3 (.213)	$\frac{1}{4}$	$\frac{3}{64}$	$\frac{1}{8}$
2 $\frac{1}{4}$ to 3 $\frac{1}{2}$	$\frac{3}{4}$ -24	.2854	.2878	1 (.272)	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{3}{16}$
3 $\frac{1}{4}$ to 12 $\frac{1}{4}$	$\frac{1}{2}$ -24	.3479	.3503	Q (.332)	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$

¹ Tolerance on length B = ± 1/64 in.

TABLE 30. Thread ring gage sleeves.

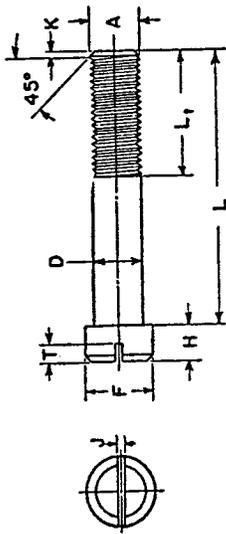


Gage range, nominal	A		B		C ¹	D
	Drill size	Decimal equivalent	Min.	Max.		
No. or in.		in.	in.	in.	in.	in.
Nos. 0 to 12.....	No. 43.....	0.089	0.1368	0.1370	$\frac{3}{8}$	0.010
$\frac{1}{8}$ to $\frac{1}{4}$	No. 32.....	.116	.1808	.1810	$\frac{1}{2}$	.020
$\frac{3}{8}$ to $\frac{1}{2}$	No. 27.....	.144	.2148	.2150	$\frac{3}{4}$	.020
$\frac{5}{8}$ to $\frac{3}{4}$	No. 10.....	.193	.2718	.2720	$1\frac{1}{4}$	$\frac{1}{2}$
$\frac{3}{4}$ to $1\frac{1}{4}$	No. 2.....	.221	.3337	.3340	$\frac{3}{4}$	$\frac{1}{2}$
$1\frac{1}{4}$ to 2.....	F.....	.257	.3887	.3890	$1\frac{1}{4}$	$\frac{1}{2}$
$2\frac{1}{4}$ to $3\frac{1}{4}$	P.....	.323	.4507	.4510	$1\frac{1}{4}$	$\frac{1}{2}$
$3\frac{1}{4}$ to $12\frac{1}{4}$	$\frac{3}{4}$.....	.391	.5707	.5710	$1\frac{1}{2}$	$\frac{1}{2}$

¹ Tolerance on length C = $\pm 1/64$ in.

GAGE BLANKS

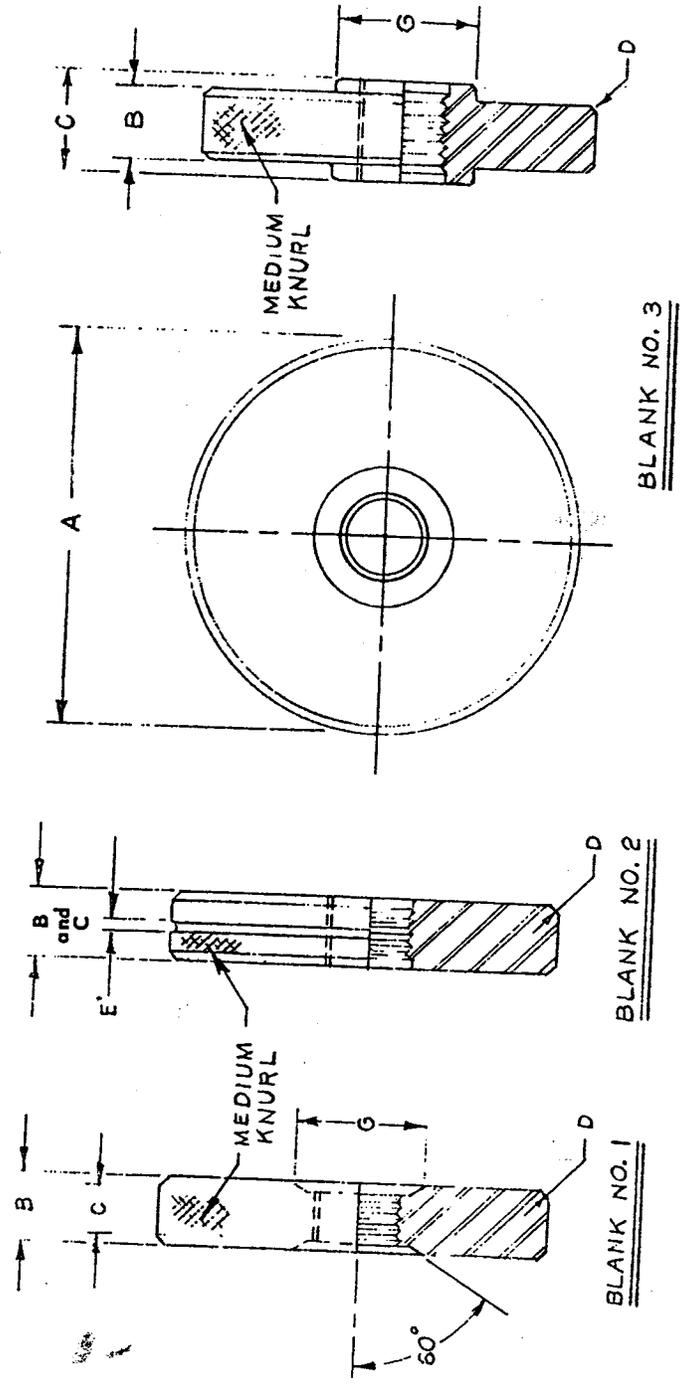
TABLE 31. Thread ring gage locking screws.



Gage range, nominal	A		D		F		H		J		T		K	L ¹	L _t	
	Size	Pitch diameter		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				Max.
		Min.	Max.													
No. or in.																
Nom. 0 to 12																
1/4 to 1/2																
3/8 to 1/2																
1/2 to 3/4																
3/4 to 1 1/4																
1 1/4 to 2																
2 1/4 to 3 1/4																
3 1/4 to 12 1/4																
	2-64UNF-3A	.0745	.0759	.0840	.136	.138	.178	.183	.205	.207	.237	.237	.262	.262	.295	.295
	4-48UNF-3A	.0985	.0999	.1090	.178	.183	.223	.228	.250	.250	.287	.287	.315	.315	.355	.355
	6-40UNF-3A	.1218	.1232	.1353	.223	.228	.273	.278	.300	.300	.337	.337	.365	.365	.405	.405
	10-32UNF-3A	.1678	.1692	.1867	.300	.300	.360	.360	.420	.420	.457	.457	.485	.485	.525	.525
	12-28UNF-3A	.1908	.1922	.2127	.337	.337	.407	.407	.467	.467	.504	.504	.532	.532	.572	.572
	1/4-28UNF-3A	.2340	.2354	.2444	.420	.420	.480	.480	.540	.540	.577	.577	.605	.605	.645	.645
	3/8-24UNF-3A	.2835	.2849	.3084	.457	.457	.517	.517	.577	.577	.614	.614	.642	.642	.682	.682
	1/2-24UNF-3A	.3435	.3449	.3705	.553	.553	.613	.613	.673	.673	.710	.710	.738	.738	.778	.778

¹ Tolerance on length L = ± 1/32 in.

TABLE 31A. Thread setting and master (ref) ring gage blanks, range .059 to 6.010.

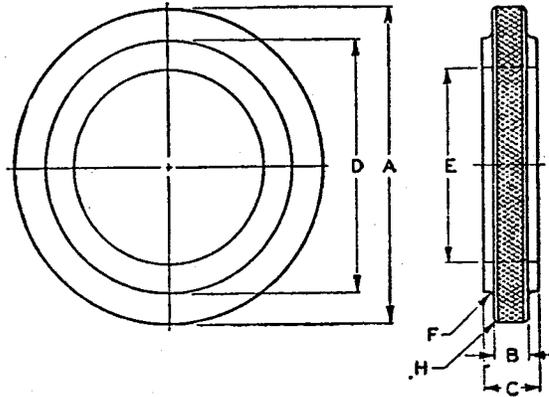


NOTE.—“G” dimension is 0.375 in. larger than the maximum major diameter of the thread and is applied only when dimension “C” is less than or greater than the blank width (dim. “B”).
 ORTIX.—When blank No. 1 is used, diameter “G” may be counterbored to dimension “C” from one side.
 Annular groove (dim. “E”) to designate “III” (not so) gage, depth $\frac{1}{8}$ width.

TABLE 31A. Thread setting and master (ref) ring gage blanks, range .050 to 6.010—
Continued

Nominal range, inclusive	Decimal range above and including	General dimensions					Reference only	
		A	B	C	D	E	Threads per inch	4 pitches
Nos. or in.	in.	in.	in.	pitches	in.	in.		
Nos. 0 to 6.....	0.059 .150	1	0.125	4	3/64	1/32	80 72 64	0.050000 .055556 .062500
Nos. 8 to 12.....	.130 .240	1	.167	4	3/64	3/64	56 48	.071428 .083332
1/4 to 3/16.....	.240 .365	1/4	.167	4	1/64	3/64	44 40	.090909 .100000
3/8 to 1/2.....	.365 .516	1/4	.200	4	1/32	1/16	36 32	.111112 .125000
9/16 to 3/4.....	.510 .825	1/2	.256	4	3/64	1/16	28 24	.142556 .166668
7/8 to 1 1/8.....	.825 1.135	1/2	.333	4	3/64	3/64	20 18	.200000 .222224
1 1/4 to 1 1/2.....	1.135 1.510	2/4	.333	4	3/64	3/64	16 14	.250000 .285716
1 5/8 to 2.....	1.510 2.010	3/4	.333	4	3/64	3/64	13 12	.307692 .333332
2 1/8 to 2 1/2.....	2.010 2.510	3/4	.333	4	3/64	3/64	11 1/2 11	.347828 .363636
2 3/8 to 3.....	2.510 3.010	4/8	.333	4	3/64	3/64	10 9	.400000 .444444
3 1/8 to 3 1/2.....	3.010 3.510	4/8	.500	4	3/64	3/64	8 7	.500000 .571428
3 3/8 to 4.....	3.510 4.010	5/2	.500	4	3/64	3/64	6 5	.666668 .800000
4 1/8 to 4 3/4.....	4.010 4.760	6/4	.500	4	3/64	3/64	4 1/2 4	.888888 1.000000
4 3/8 to 5 3/8.....	4.760 5.385	7	.500	4	3/64	3/64		
5 1/8 to 6.....	5.385 6.010	7 3/4	.500	4	3/64	3/64		

NOTE.—#1 Blank—All Pitches where dimension "C" is less than dimension "B."
 #2 Blank—All Pitches where dimensions "C" and "B" are the same.
 #3 Blank—All Pitches where dimension "C" is greater than dimension "B."
 Although not reviewed by the technical subcommittee, American Gage Design Committee, table 31A was included in order to provide all available information on current gage blanks in general use in the industry.

TABLE 32. Taper pipe thread ring gages, range $\frac{1}{8}$ to 8 inches, inclusive

Nominal pipe size	A	B	C	D	E	F	H
in.	in.	in.	in.	in.	in.	in.	in.
$\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$1\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{4}$	$1\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$1\frac{3}{8}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{3}{8}$
$\frac{3}{8}$	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	1	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{1}{2}$	$1\frac{5}{8}$	$\frac{5}{8}$	1	$1\frac{5}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
1	$2\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	2	1	1
$1\frac{1}{4}$	$2\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
$1\frac{1}{2}$	$3\frac{1}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$	$2\frac{5}{8}$	$2\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$
2	$3\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$2\frac{3}{4}$	3	$1\frac{3}{4}$	$1\frac{3}{4}$
$2\frac{1}{2}$	$4\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$2\frac{3}{4}$	$3\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$
3	5	$1\frac{3}{4}$	$1\frac{3}{4}$	3	4	$1\frac{3}{4}$	$1\frac{3}{4}$
$3\frac{1}{2}$	$5\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$3\frac{1}{4}$	$4\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$
4	$6\frac{1}{4}$	$1\frac{3}{4}$	1	4	5	$1\frac{3}{4}$	$1\frac{3}{4}$
$4\frac{1}{2}$	7	$1\frac{3}{4}$	1	$4\frac{1}{2}$	$5\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$
5	$7\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	5	6	$1\frac{3}{4}$	$1\frac{3}{4}$
6	$8\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$5\frac{1}{2}$	$6\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$
8	$11\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$	7	$8\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$

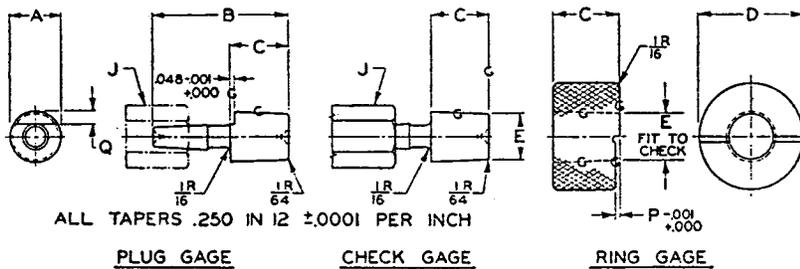
3.6 Taper Plug and Ring Gages for Checking Taper Lock Handles and Gaging Members

3.6.1 It has been deemed advisable to formulate specifications for a complete set of finished gages for inspecting the taper shanks and handles of gages of taper lock design.

3.6.2 A complete set consists of a taper plug, a taper ring, and a taper check plug for each size range. General details of construction will be apparent from table 33, page 65.

3.6.3 The taper limits established by the American Gage Design Committee for taper lock handles and shanks may be readily maintained by the use of the gages shown in table 33, in which the taper plug gage is of the single-end limit type, with a ground step representing the minimum size of hole. Equally satisfactory results may be secured by using a single-end taper plug gage, on which a scribed line represents the minimum size of hole and the shoulder of the gage represents the maximum size of hole. Both designs are sanctioned by the American Gage Design Committee.

TABLE 33. Plug and ring gages for checking handles and gaging member taper shanks of taper lock plug gages, range above 0.059 to and including 1.510 inches.



ALL TAPERS .250 IN 12 ±.0001 PER INCH

PLUG GAGE

CHECK GAGE

RING GAGE

PLUG GAGES FOR CHECKING HANDLES

Size No. of handle to be gaged	A +0.0000 -0.0001	B	C	J Handle size No.	Q
000	in. 0.126	in. 1 1/2	in. 1/2	000	in. 0.015
00	.156	1 1/2	5/16	00	.015
0	.181	1 1/2	3/8	0	.020
1	.240	2	3/4	1	.025
2	.310	2	3/4	1	.025
3	.410	2	3/4	2	.050
4	.610	2 1/4	3/4	3	.100
5	.910	2 1/2	1	3	.200

RING GAGES FOR CHECKING GAGING MEMBERS, AND CHECK GAGES

Size No. of shank to be gaged	E -0.0000 +0.0001	C	D	J Handle size No.	J' +0.000 -0.001
000	in. 0.1146	in. 1 1/8	in. 1	000	in. 0.0480
00	.1433	1 1/8	1	00	.0480
0	.1670	1 1/8	1 1/8	0	.0480
1	.2234	1 1/8	1 1/8	1	.0480
2	.2934	1 1/8	1 1/8	1	.0480
3	.3924	1 1/8	1 1/8	2	.0960
4	.5898	1	1 1/8	3	.0960
5	.7872	1 1/8	1 1/4	3	.0960

NOTE.—Dimensions not specified above shall conform to American Gage Design Standards, tables 5, 6, 8, and 9, pages 18-19, 22-24.

3.7 Involute, Serrated, and Straight-Sided Spline Plug and Ring Gage Blanks

3.7.1 The development of standard gage blanks, required for a standard gaging system for involute, serrated, and straight-sided splines, was requested of the committee. A system of such blanks is presented herein.

3.7.2 The series of blanks for producing gages used in the gaging of internal splines comprises the following:

Spline plug gages and relieved-type spline plug gages, with integral handles, for sizes to and including 2 inches.

Spline gaging members, pilot-type spline gaging members, and pilot relieved-type spline gaging members, with handles for same, for sizes above 1.5 to and including 8 inches.

Spline tapered tooth plug gages, with either integral or detachable handles, for sizes to and including 8 inches.

Plug gage stands.

Spline tapered tooth plug gages for sizes to and including 8 inches.

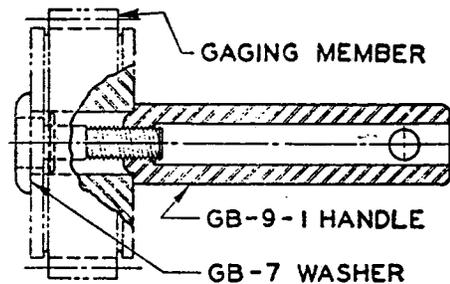
3.7.3 The series of blanks for producing gages used in the gaging of external splines comprises the following:

Spline ring gages and pilot-type spline ring gages for sizes to and including 8 inches.

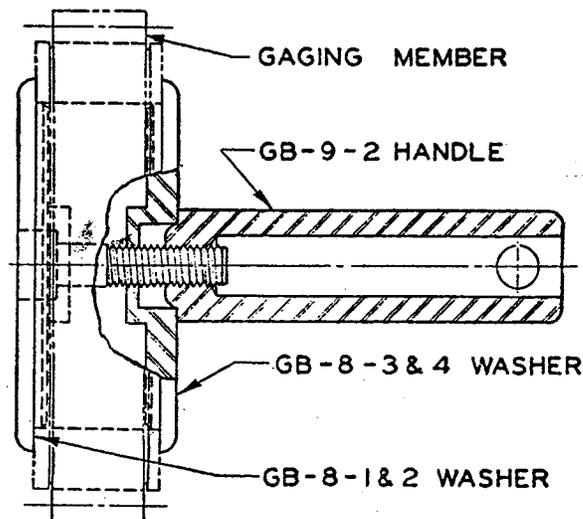
Prong-type spline relation ring gages in two models, one for space widths greater than 0.070 inch and one for widths of 0.070 inch or less.

Double-end prong-type spline alignment ring gages for sizes above 1 inch to and including 6 inches.

Built-up double-end snap gages for tooth thicknesses to and including 0.750 inch.



Range: Above 1.5 to and including 5.0 inches.



Range: Above 5.0 to and including 8.0 inches.

FIGURE 6. Three-piece spline plug gage assembly.

NOTE.—For details of handles and washers see tables 34, 35, and 36, pages 68-69.

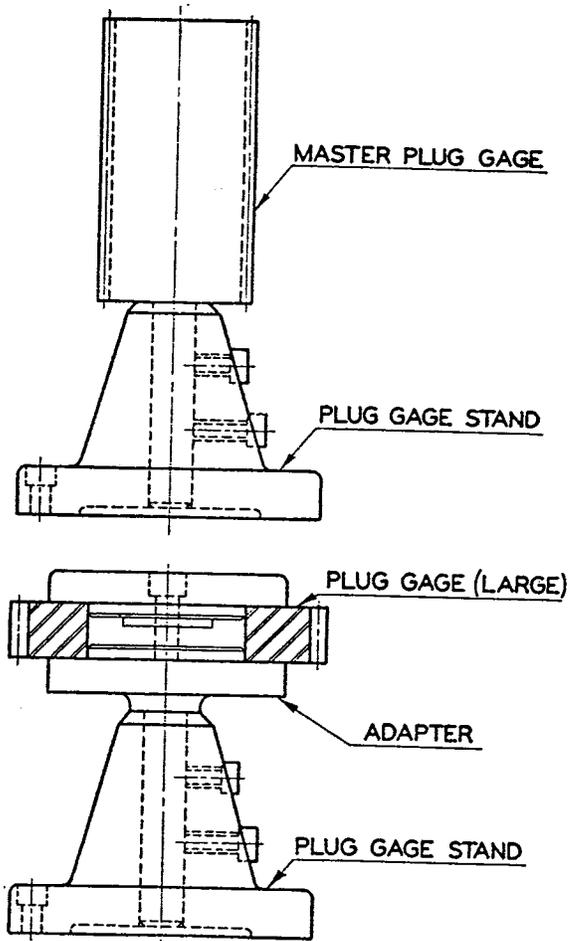
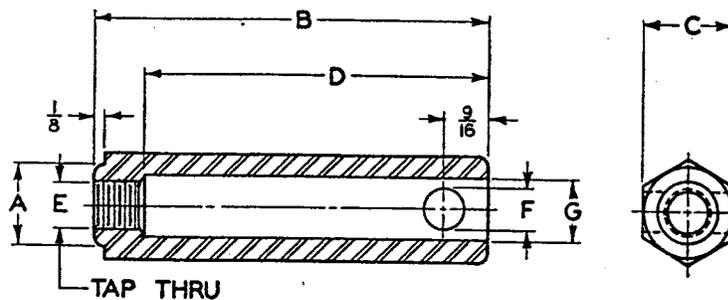


FIGURE 7. Spline plug gage stands.

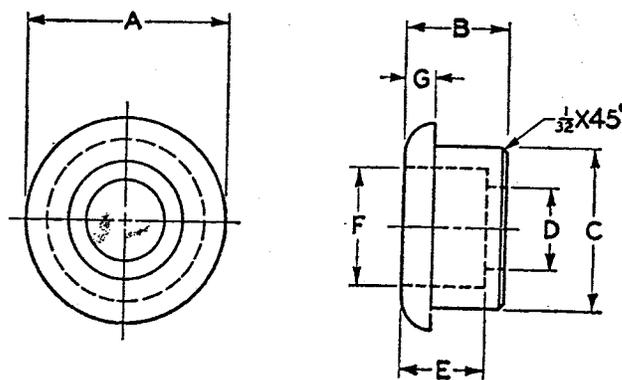
TABLE 34. Handles for spline plug gages, range above 1.5 to and including 8.0 inches



Handle No.	Dimensions						
	A	B	C	D	E	F	G
GB-9-1	in. $1\frac{1}{4}$	in. $4\frac{1}{4}$	in. $1\frac{1}{2}$	in. $3\frac{3}{4}$	$\frac{3}{8}$ -24UNF-2B	in. $\frac{3}{8}$	in. $1\frac{1}{4}$
GB-9-2 ¹	in. $1\frac{1}{4}$	in. $4\frac{1}{4}$	in. $1\frac{1}{2}$	in. $4\frac{1}{4}$	$\frac{1}{2}$ -20UNF-2B	in. $\frac{1}{2}$	in. $1\frac{1}{2}$

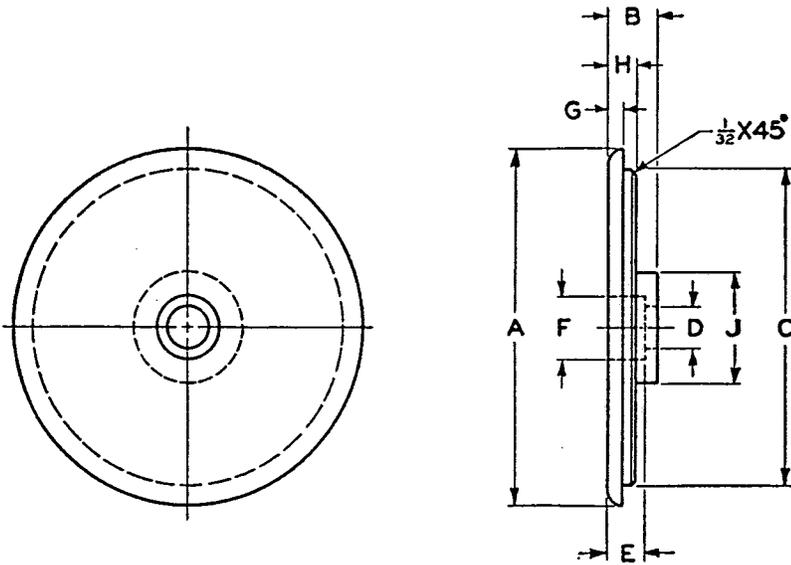
¹Can be made from A.G.D. handle No. 6.

TABLE 35. Washers for spline plug gaging members (cup type, small), range above 1.5 to and including 5.0 inches.



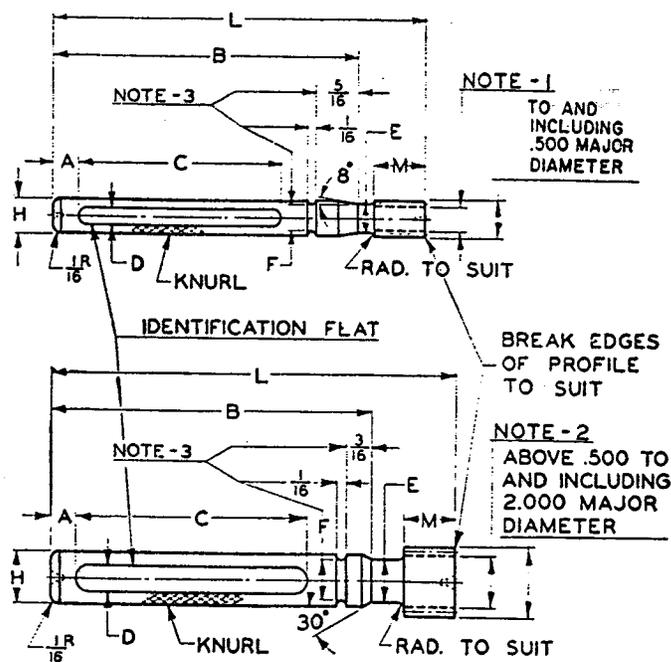
Washer No.	Dimensions						
	A	B	C	D	E	F	G
GB-7-1	in. 1	in. $1\frac{1}{2}$	in. $1\frac{1}{4}$	in. $1\frac{1}{2}$	in. $\frac{3}{8}$	in. $1\frac{1}{2}$	in. $\frac{3}{8}$
GB-7-2	in. $1\frac{1}{4}$	in. $2\frac{1}{4}$	in. $1\frac{1}{4}$	in. $1\frac{1}{2}$	in. $\frac{1}{2}$	in. $1\frac{1}{2}$	in. $\frac{1}{2}$

TABLE 36. Washers for spline plug gaging members (cup type, large), range above 5.0 to and including 8.0 inches.



Washer No.	Dimensions									
	A	B	C	D	E	F	G	H	J	
GB-8-1	3	$\frac{3}{8}$	$2\frac{47}{64}$	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{23}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	$1\frac{1}{4}$	
GB-8-2	$4\frac{3}{8}$	$\frac{3}{8}$	$3\frac{23}{64}$	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{23}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	$1\frac{1}{4}$	
GB-8-3	3	$\frac{3}{8}$	$2\frac{47}{64}$	$1\frac{1}{2}$	$\frac{1}{2}$	$1\frac{1}{4}$	$\frac{3}{16}$	$\frac{5}{16}$	$1\frac{1}{4}$	
GB-8-4	$4\frac{3}{8}$	$\frac{3}{8}$	$3\frac{23}{64}$	$1\frac{1}{2}$	$\frac{1}{2}$	$1\frac{1}{4}$	$\frac{3}{16}$	$\frac{5}{16}$	$1\frac{1}{4}$	

TABLE 37. Involute, serrated, and straight-sided spline composite plug gages, range to and including 2.0 inches



Major diameter		Dimensions											
Above	To and including	.1	B		C	D	E	P		H	L	M	
			"Go"	"Not go"				"Go"	"Not go"			"Go"	"Not go"
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
0.000	0.250	3/16	2 1/4	2 1/4	1 1/2	1 1/2	1 1/2 (max.) ¹	(3)	1 1/2	1/4	2 3/4	3 1/2	1 1/4
.250	.375	3/16	2 1/4	2 1/4	1 1/2	1 1/2	1 1/2 (max.) ²	(3)	1 1/2	1/4	2 7/8	3 1/2	1 1/2
.375	.500	3/16	2 1/4	2 3/8	1 3/4	1 3/4	1 3/4 (max.) ²	(3)	1 3/4	3/16	3	3 3/4	1 3/4
.500	.750	3/16	2 1/2	2 3/8	1 3/4	1 3/4	1 3/4 (max.) ²	(3)	1 3/4	1/2	3 3/8	3 3/4	1 3/4
.750	1.000	3/16	2 1/2	2 3/4	1 3/4	1 3/4	1 3/4	(3)	1 3/4	1/2	3 3/4	3 3/4	1 3/4
1.000	1.500	3/16	2 3/4	3 1/4	2 1/8	2 1/8	1 1/2	(3)	1 1/2	1/2	4 1/2	4 1/2	1 3/4
1.500	2.000	3/16	2 3/4	3 1/2	2 1/8	2 1/8	1 1/2	(3)	1 1/2	1/2	4 1/2	4 1/2	1 3/4

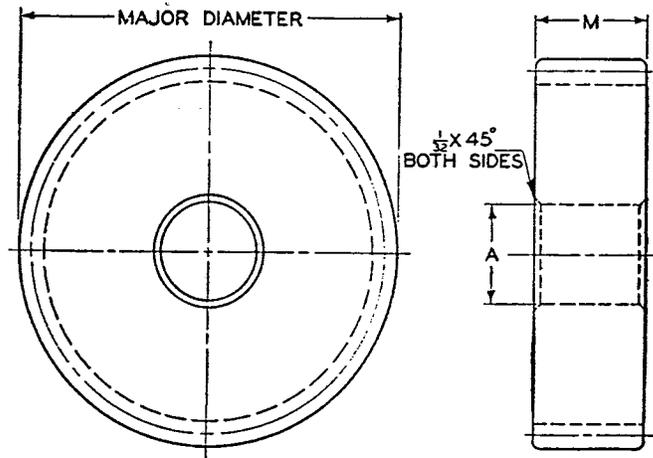
¹ To clear minor diameter by approximately 0.005 in.

² To clear minor diameter by approximately 0.010 in.

³ These dimensions apply to "not go" only.

NOTE.—An alternate design having a removable or reversible member similar to that shown in table 38 may be used.

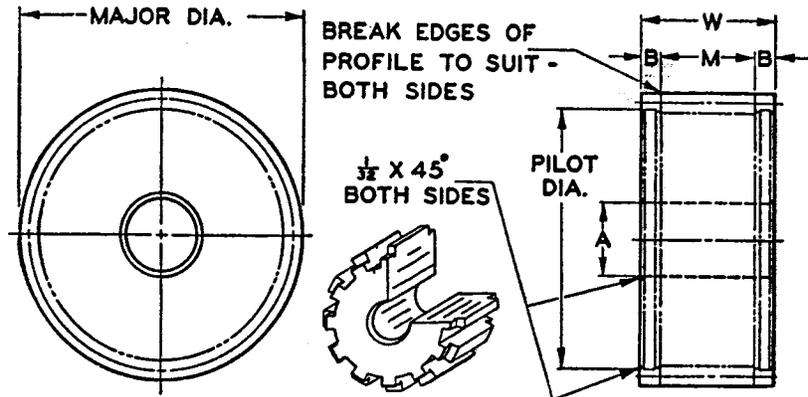
TABLE 38. *Involute, serrated, and straight-sided spline composite plug gaging members, range above 1.5 to and including 8.0 inches*



Major diameter		Dimensions					
Above—	To and including—	A		M		Handle No.	Washer No.
		Min.	Max.	"Go"	"Not go"		
in.	in.	in.	in.	in.	in.		
1.500	3.000	0.7500	0.7503	$1\frac{1}{8}$	$\frac{7}{8}$	GB-9-1	GB-7-1
3.000	5.000	1.0000	1.0003	$1\frac{1}{2}$	1	GB-9-2	GB-7-2
5.000	7.000	2.7500	2.7504	$1\frac{1}{2}$	1	GB-9-2	GB-8-1 and 3 ¹
7.000	8.000	4.0000	4.0005	$1\frac{1}{2}$	1	GB-9-2	GB-8-2 and 4 ¹

¹ See figure 7, page 67, for stand adapter.

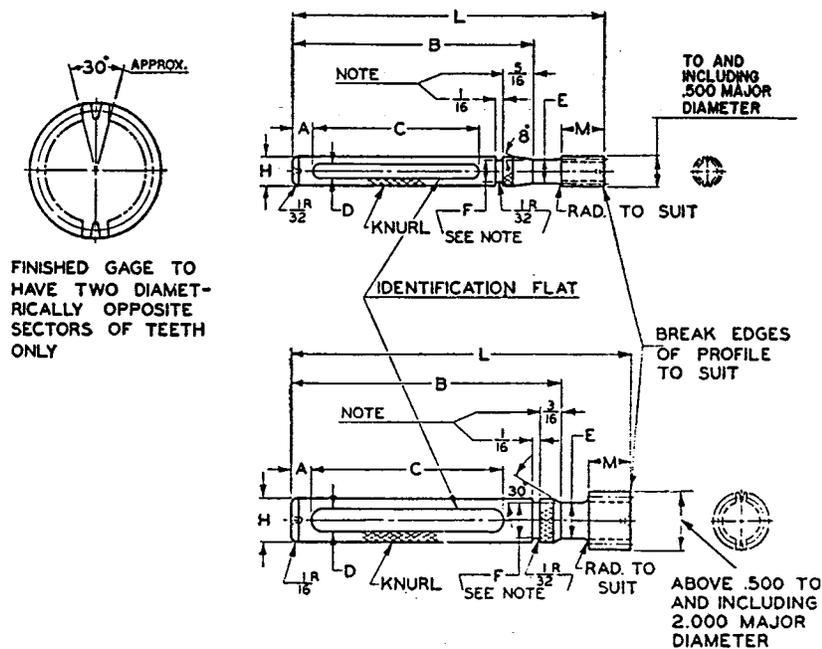
TABLE 39. *Involute, serrated, and straight-sided spline composite plug gaging members, pilot type, range above 1.5 to and including 8.0 inches*



Major diameter		Dimensions								Handle No.	Washer No.
Above—	To and including—	A		B	M		W				
		Min.	Max.		"Go"	"Not go"	"Go"	"Not go"			
in.	in.	in.	in.	in.	in.	in.	in.	in.			
1.500	3.000	0.7500	0.7503	$\frac{3}{16}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{13}{16}$	GB-9-1	GB-7-1	
3.000	5.000	1.0000	1.0003	$\frac{3}{16}$	$\frac{13}{16}$	1	$\frac{13}{16}$	$\frac{13}{16}$	GB-9-2	GB-7-2	
5.000	7.000	2.7500	2.7504	$\frac{3}{16}$	$\frac{13}{16}$	1	$\frac{13}{16}$	$\frac{13}{16}$	GB-9-2	GB-8-1 and 3 ¹	
7.000	8.000	4.0000	4.0005	$\frac{3}{16}$	$\frac{13}{16}$	1	$\frac{13}{16}$	$\frac{13}{16}$	GB-9-2	GB-8-2 and 4 ¹	

¹ See figure 7, page 67, for stand adapter.

TABLE 40. Involute and serrated spline plug gages, relieved type, range to and including 2.0 inches.



FINISHED GAGE TO HAVE TWO DIAMETRICALLY OPPOSITE SECTORS OF TEETH ONLY

BREAK EDGES OF PROFILE TO SUIT

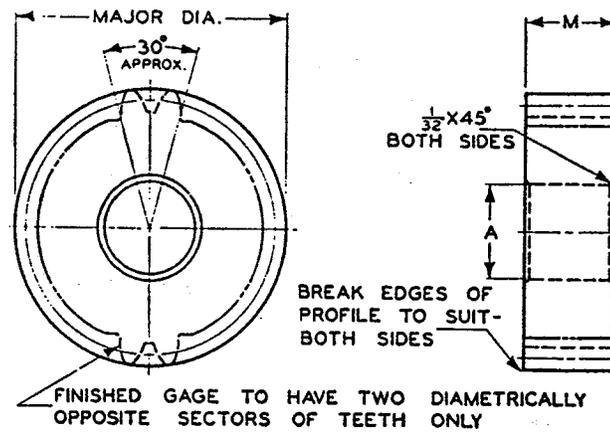
ABOVE .500 TO AND INCLUDING 2.000 MAJOR DIAMETER

Major diameter		Dimensions												
Above—	To and including—	A	B			C	D	E ¹	F		H	L	M	
			“Go”	“Not go”	“Go”				“Not go”	“Go”			“Not go”	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
0.000	0.250	$\frac{1}{16}$	$2\frac{1}{8}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{4}$ (max.)	(1)	$\frac{1}{16}$	$\frac{1}{4}$	$2\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{4}$	
.250	.375	$\frac{1}{16}$	$2\frac{1}{8}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{5}{16}$	$\frac{3}{4}$ (max.)	(1)	$\frac{1}{4}$	$\frac{5}{16}$	$2\frac{7}{8}$	$\frac{1}{2}$	$\frac{3}{8}$	
.375	.500	$\frac{1}{16}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$1\frac{3}{4}$	$\frac{3}{8}$	$\frac{5}{8}$ (max.)	(1)	$\frac{3}{8}$	$\frac{3}{8}$	3	$\frac{1}{2}$	$\frac{3}{8}$	
.500	.750	$\frac{1}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$	$1\frac{7}{8}$	$\frac{1}{2}$	$\frac{3}{4}$ (max.)	(1)	$\frac{1}{2}$	$\frac{1}{2}$	$3\frac{1}{8}$	$\frac{5}{8}$	$\frac{1}{2}$	
.750	1.000	$\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$1\frac{7}{8}$	$\frac{5}{16}$	$\frac{1}{2}$	(1)	$\frac{1}{2}$	$\frac{5}{16}$	$3\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{2}$	
1.000	1.500	$\frac{1}{8}$	$2\frac{3}{4}$	$3\frac{1}{8}$	$2\frac{1}{8}$	$\frac{3}{8}$	$\frac{11}{16}$	(1)	$\frac{11}{16}$	$\frac{3}{4}$	$4\frac{1}{8}$	1	$\frac{5}{8}$	
1.500	2.000	$\frac{1}{8}$	$2\frac{3}{4}$	$3\frac{1}{8}$	$2\frac{1}{8}$	$\frac{5}{16}$	$\frac{11}{16}$	(1)	$\frac{11}{16}$	$\frac{3}{4}$	$4\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{4}$	

¹ These dimensions apply to “not go” gages only.
² May be reduced to clear minor diameter of teeth.

NOTE.—An alternate design may be used having a removable or reversible member similar to that shown in table 38:

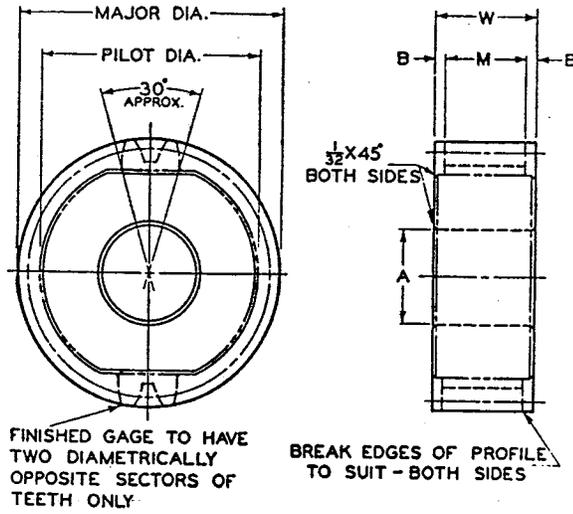
TABLE 41. *Involute and serrated spline plug gaging members, relieved type, range above 1.5 to and including 8.0 inches*



Major diameter		Dimensions					
Above—	To and including—	A		M		Handle No.	Washer No.
		Min.	Max.	"Go"	"Not go"		
in.	in.	in.	in.	in.	in.		
1.500	3.000	0.7500	0.7503	1 1/4	3/4	GB-9-1	GB-7-1
3.000	5.000	1.0000	1.0003	1 1/2	1	GB-9-2	GB-7-2
5.000	7.000	2.7500	2.7504	1 1/2	1	GB-9-2	GB-7-1 and 3 ¹
7.000	8.000	4.0000	4.0005	1 1/2	1	GB-9-2	GB-7-2 and 4 ¹

¹ See figure 7, page 67, for stand adapter.

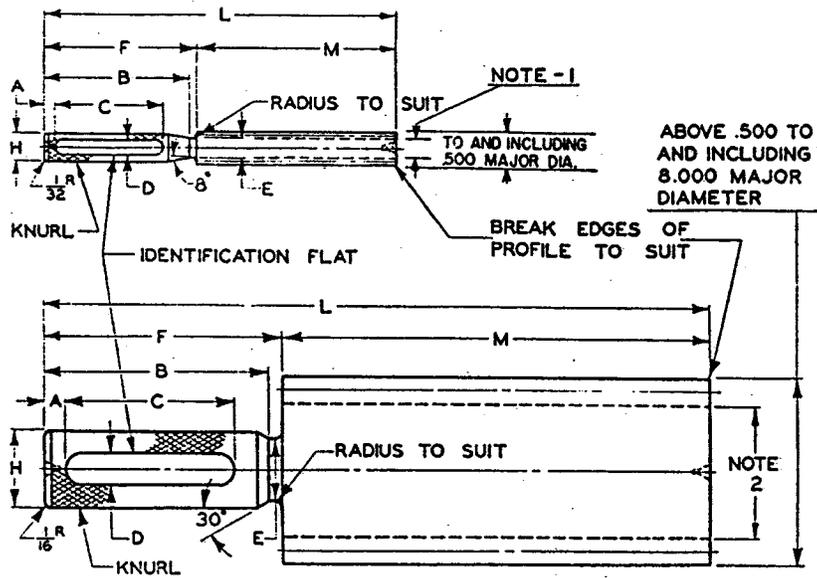
TABLE 42. *Involute and serrated spline plug gaging members, pilot relieved type, range above 1.5 to and including 8.0 inches.*



Major diameter		Dimensions								Handle No.	Washer No.
Above	To and including	A		B	M		W				
		Min.	Max.		"Go"	"Not go"	"Go"	"Not go"			
in.	in.	in.	in.	in.	in.	in.	in.	in.			
1.500	3.000	0.7500	0.7503	3/16	1 1/8	1 1/8	1 1/8	1 1/8	GB-9-1	GB-7-1	
3.000	5.000	1.0000	1.0003	3/16	1 1/8	1	1 1/8	1 1/8	GB-9-2	GB-7-2	
5.000	7.000	2.7500	2.7504	3/16	1 1/8	1	1 1/8	1 1/8	GB-9-2	GB-8-1 and 3 ¹	
7.000	8.000	4.0000	4.0005	3/16	1 1/8	1	1 1/8	1 1/8	GB-9-2	GB-8-2 and 4 ¹	

¹ See figure 7, page 67, for stand adapter.

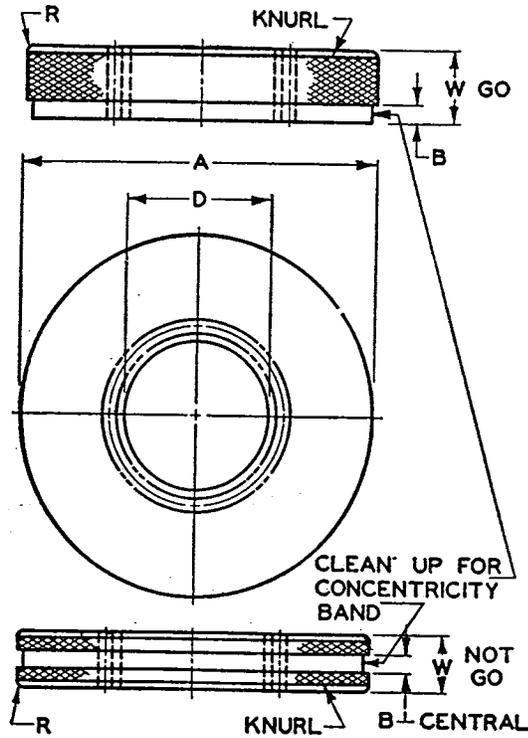
TABLE 43. *Involute, serrated, and straight-sided spline tapered-tooth composite plug gages, master and working, range to and including 8.0 inches*



Major diameter		Dimensions							
Above—	To and including—	A	B	C	D	E	F	H	M (max.)
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
0.000	0.250	$\frac{1}{16}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$ (max.) ¹	$2\frac{3}{4}$	$\frac{1}{2}$	$4.5 \times P.D.$
.250	.375	$\frac{1}{16}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$ (max.) ¹	$2\frac{3}{4}$	$\frac{1}{2}$	$4.5 \times P.D.$
.375	.500	$\frac{1}{16}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$ (max.) ¹	$2\frac{3}{4}$	$\frac{1}{2}$	$4.5 \times P.D.$
.500	.625	$\frac{1}{16}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$ (max.) ¹	$2\frac{3}{4}$	$\frac{1}{2}$	$4.5 \times P.D.$
.625	.750	$\frac{1}{16}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$ (max.) ¹	$2\frac{3}{4}$	$\frac{1}{2}$	$4 \times P.D.$
.750	1.250	$\frac{1}{8}$	$2\frac{3}{4}$	$1\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$2\frac{3}{4}$	$\frac{3}{8}$	$4 \times P.D.$
1.250	1.750	$\frac{1}{8}$	$2\frac{3}{4}$	$2\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$3\frac{1}{4}$	$\frac{3}{8}$	$4 \times P.D.$
1.750	2.250	$\frac{1}{8}$	$3\frac{1}{4}$	$2\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$3\frac{1}{4}$	$1\frac{1}{4}$	7
2.250	3.000	$\frac{1}{8}$	$3\frac{1}{4}$	$2\frac{3}{4}$	$\frac{1}{2}$	1	$3\frac{1}{4}$	$1\frac{1}{4}$	7
3.000	8.000	$\frac{1}{8}$	$3\frac{1}{4}$	$2\frac{3}{4}$	$\frac{1}{2}$	1	$3\frac{1}{4}$	$1\frac{1}{4}$	7

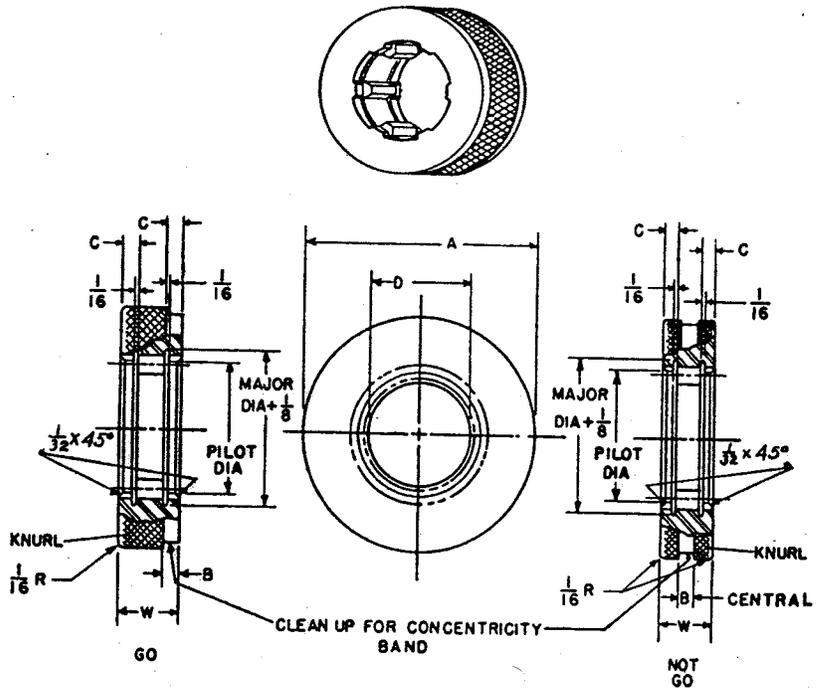
¹ Minor diameter minus approximately 0.005 in.
² To clear minor diameter by approximately 0.010 in.

TABLE 44. Involute and serrated spline composite ring gages, range to and including 8.0 inches



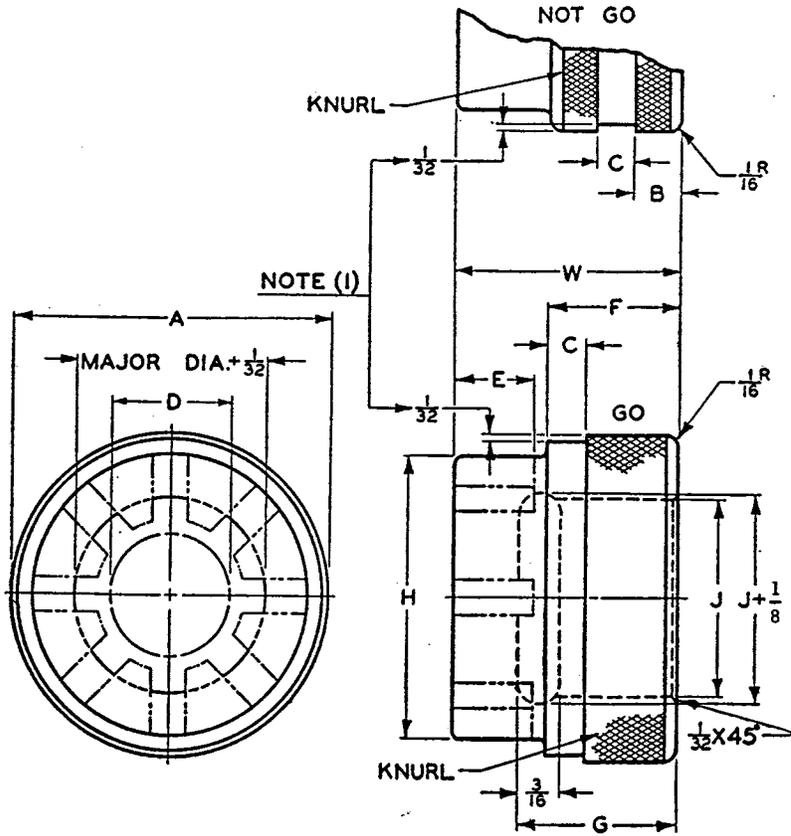
Major diameter		Dimensions						
Above—	To and including—	A	B	D	R	W		
in.	in.	in.	in.	in.	in.	"Go"	"Not go"	
0.000	0.375	1 1/2	1/8	0	1/16	1/16	1/16	
.375	.500	1 1/2	1/8	0	1/16	1/16	1/16	
.500	1.000	2 1/4	1/8	0	1/16	1/16	1/16	
1.000	1.500	3	1/8	0	1/16	1/16	1/16	
1.500	2.250	4	1/8	1	1/16	1/16	1/16	
2.250	3.000	4 3/4	1/4	1 5/8	1/16	1/16	1/16	
3.000	4.000	6	1/4	2 3/8	1/16	1/16	1/16	
4.000	5.000	7	1/4	3 3/8	1/16	1/16	1/16	
5.000	6.000	8	1/4	4 3/8	1/16	1	1/16	
6.000	7.000	9 1/2	1/4	5 3/8	1/16	1	1/16	
7.000	8.000	10 1/2	1/4	6 3/8	1/16	1 1/4	1/16	

TABLE 45. *Involute and serrated spline composite ring gages, pilot type, range above 1.5 to and including 8.0 inches*



Major diameter		Dimensions					
Above—	To and including—	A	B	C	D	W	
						"Go"	"Not go"
<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>
1.500	2.250	4	3/16	3/16	1	1	7/8
2.250	3.000	4 3/4	1/4	1/4	1 1/2	1 1/4	1 1/8
3.000	4.000	6	1/4	1/4	2 3/8	1 3/4	1 1/4
4.000	5.000	7	1/4	1/4	3 3/8	1 1/2	1 1/4
5.000	6.000	8	1/4	1/4	4 3/8	1 1/2	1 1/4
6.000	7.000	9 1/2	1/4	1/4	5 3/8	1 1/2	1 1/4
7.000	8.000	10 1/2	1/4	1/4	6 3/8	1 1/2	1 1/4

TABLE 46. Straight-sided spline composite ring gages, prong type, for space widths 0.070 inch or less, range to and including 1.0 inch

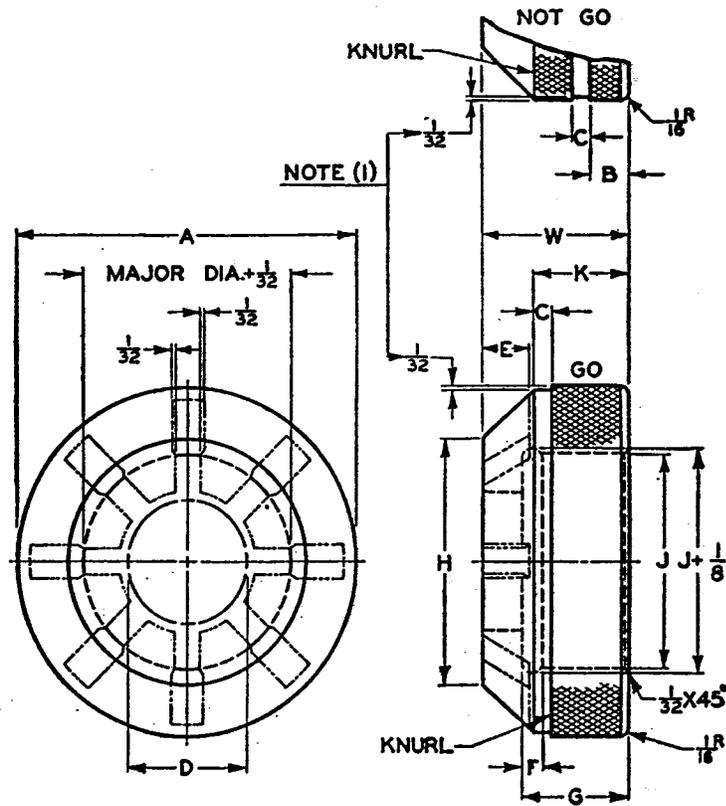


Major diameter		Dimensions									
Above—	To and including—	A	B	C	D	E	F	G	H	J	W
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
0.000	0.250	1	3/4	1/2	0	3/4	1/2	1/2	3/4	(0)	1 1/4
.250	.500	1 1/4	1	3/4	0	1	3/4	3/4	1	(0)	1 1/2
.500	.750	1 3/4	1 1/4	1	0	1 1/4	1	1	1 1/4	(0)	1 3/4
.750	1.000	2	1 3/4	1 1/4	3/4	1 3/4	1 1/4	1 1/4	1 3/4	(0)	2

¹Major diameter plus minimum of 1/32 in. to the nearest 1/8 in.

NOTE 1. — Grind for concentricity band if required.

TABLE 47. Straight-sided spline composite ring gages, prong type, for space widths greater than 0.070 inch, range to and including 6.0 inches.

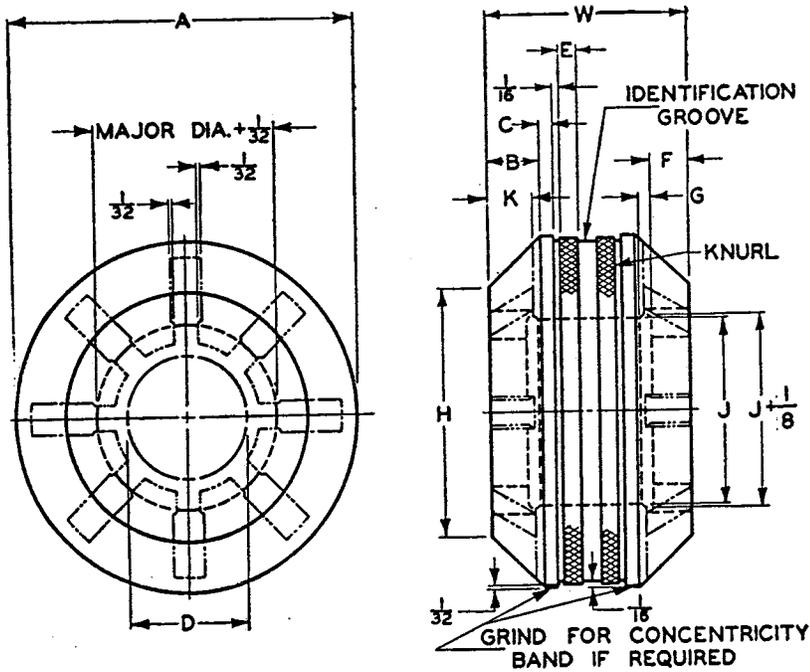


Major diameter		Dimensions										
Above—	To and including—	A	B	C	D	E	F	G	H	J	K	W
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
0.000	0.500	1 1/8	3/8	1/8	0	1/8	3/16	1 1/8	1 1/8	(1)	1 1/8	1 1/8
.500	1.000	2 1/8	3/8	1/8	1/8	1/8	3/16	1 1/8	1 1/8	(1)	1 1/8	1 1/8
1.000	1.500	2 3/8	3/8	1/8	1/8	1/8	3/16	1 1/8	1 1/8	(1)	1 1/8	1 1/8
1.500	2.000	3 1/8	3/8	1/8	1	1 1/8	3/16	1 1/8	2 3/8	(1)	1	1 1/8
2.000	2.500	4 1/8	1 1/2	3/8	1 3/8	1 1/8	3/16	1 1/8	3	(1)	1 1/8	2
2.500	3.000	5	1 3/8	3/8	1 3/8	1 1/8	3/16	1 1/8	3 1/8	(1)	1 3/8	2 1/8
3.000	4.000	6	1 7/8	3/8	2 1/8	1 1/8	3/16	1 1/8	4 3/8	(1)	1 1/8	2 1/8
4.000	5.000	7 1/8	1 7/8	3/8	3 1/8	1 1/8	3/16	1 1/8	5 3/8	(1)	1 1/8	2 1/8
5.000	6.000	8 1/8	1 7/8	3/8	3 3/8	1 1/8	3/16	1 1/8	6 3/8	(1)	2	3

¹ Major diameter plus minimum of 1/32 in. to the nearest 1/8 in.

NOTE 1.—Grind for concentricity band if required.

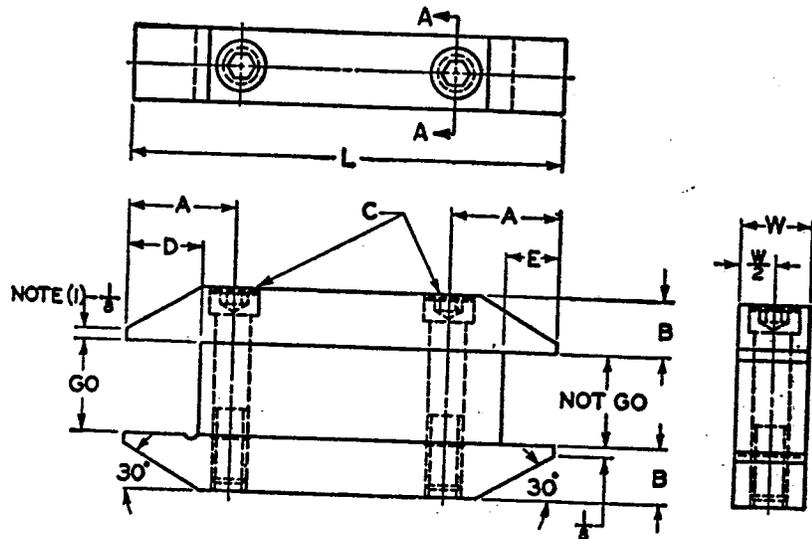
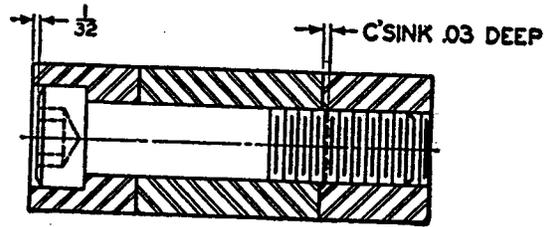
TABLE 48. Straight-sided spline composite alinement ring gages, double-end prong type, range above 1.0 to and including 6.0 inches



Major diameter		Dimensions										
Above—	To and including—	A	B	C	D	E	F	G	H	J	K	W
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1.000	1.500	2 3/4	1 1/4	1/2	1 1/4	3/8	7/16	3/8	1 13/16	(1)	3/8	2 3/4
1.500	2.000	3 1/2	1 3/4	1/2	1	3/8	7/16	3/8	2 3/4	(1)	11/16	2 1/2
2.000	2.500	4 1/2	2 1/4	1/2	1 3/4	1/2	7/16	3/8	3	(1)	11/16	2 3/4
2.500	3.000	5	2 3/4	1/2	1 3/4	1/2	7/16	3/8	3 1/4	(1)	11/16	2 7/8
3.000	4.000	6	3 1/4	1/2	2 1/4	1/2	7/16	1/2	4 1/4	(1)	3/4	3 1/4
4.000	5.000	7 1/2	4 1/4	1/2	3 1/4	1/2	7/16	1/2	5 1/2	(1)	3/4	3 1/2
5.000	6.000	8 1/2	5 1/4	1/2	3 7/8	1/2	7/16	1/2	6 1/2	(1)	3/4	3 7/8

¹Major diameter plus minimum of 1/32 in.

TABLE 49. Built-up double-ended snap gages for tooth thickness of straight-sided external splines.



Tooth thickness		Dimensions						
Above—	To and including—	L	W	A	B	C	D	E
in.	in.	in.	in.	in.	in.		in.	in.
0.000	0.250	$\frac{2}{3}$	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{3}{16}$	10-32NF-2A/B.....	(0)	(0)
.250	.500	$2\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	10-32NF-2A/B.....	(0)	(0)
.500	.750	3	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{4}$ -20UNC-2A/B.....	(0)	(0)

¹Major diameter — minor diameter
2 + 8/16.

²Major diameter — minor diameter
2 + 1/16.

NOTE 1.—Check individual gage for interference.

3.8 Machine Taper Plug and Ring Gage Blanks

3.8.1 Taper plug and ring gages for standard machine tapers have been in use for many years. In response to demands for standard designs of gage blanks for Morse, B & S, Jarno, A.S.A., and Series Nos. 10 to 50 milling machine tapers, the committee has designed gage blanks as follows:

- Taper ring gages, with tang, 24 blanks.
- Taper plug gages, with tang, 20 blanks.
- Taper ring gages, without tang, 48 blanks.
- Taper plug gages, without tang, 37 blanks.

3.8.2 As useful information but not comprising an essential part of the standard for gage blanks, the finished dimensions of these gages are also tabulated.

3.8.3 Brown & Sharpe tapers as listed in Tables 50-53 inclusive are not used in all cases. Brown & Sharpe tapers in No. 4, 5, 7, 9, 10 and 11 sizes as used for Milling Machines, Milling Arbors, Shank Cutters, etc., have different plug depths and different diameters at the end of the sockets. No blank dimensions have been established for these but the essential finished dimensions for these sizes are as follows:

B&S milling machine tapers		
Taper No.	Plug depth M	Plugs K or Rings I
4	1 1/4	.4023
5	1 3/4	.5232
7	3	.7254
9	4	1.0671
10	5 1/16	1.2893
11	6 3/4	1.5318

TABLE 50. Machine taper plug gages, with tang.

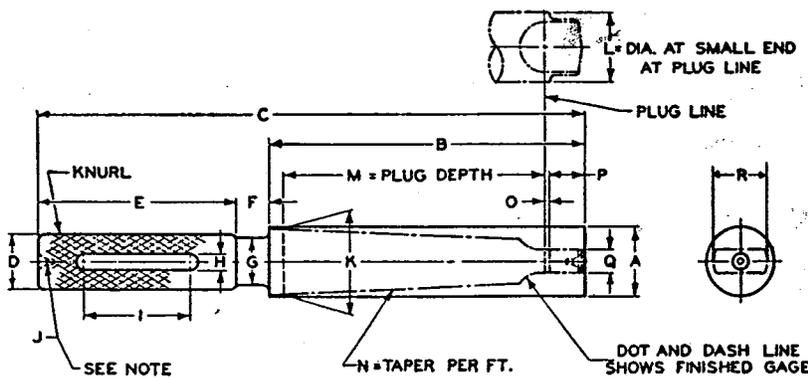


TABLE 50. Machine taper plug gages, with tang—Continued

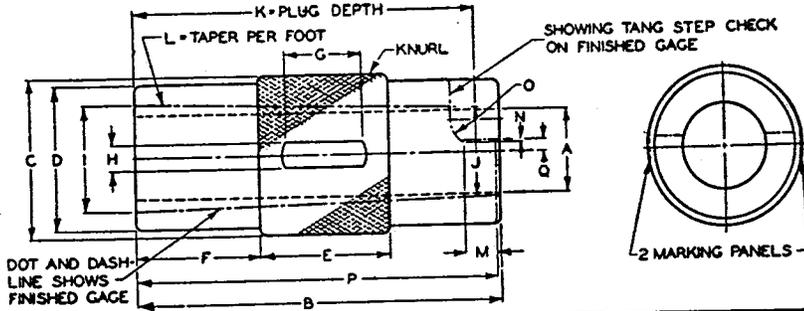
Blank No.	Blank dimensions										Used for—	
	A	B	C	D	E	F	G	H	I	J		
1.....	$\frac{11}{16}$	$\frac{1}{4}$	$3\frac{11}{16}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	A-1	B & S #1
2.....	$\frac{11}{16}$	$\frac{1}{4}$	4	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	A-1	B & S #2
3.....	$\frac{13}{16}$	$\frac{27}{64}$	$4\frac{13}{16}$	$\frac{3}{8}$	$\frac{23}{64}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	C-2	B & S #3
4.....	$\frac{13}{16}$	$\frac{27}{64}$	$5\frac{13}{16}$	$\frac{3}{8}$	$\frac{23}{64}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	C-2	Morse #0
5.....	$\frac{1}{2}$	$\frac{27}{64}$	6 $\frac{1}{4}$	$\frac{3}{8}$	$\frac{23}{64}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	D-1	B & S #4
6.....	$\frac{3}{4}$	$3\frac{11}{16}$	7 $\frac{3}{4}$	$\frac{3}{8}$	3	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	D-1	B & S #5
7.....	$\frac{3}{4}$	$3\frac{1}{4}$	6 $\frac{1}{2}$	$\frac{3}{8}$	$\frac{23}{64}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	D-1	B & S #6
8.....	$\frac{15}{16}$	4 $\frac{3}{8}$	8 $\frac{3}{8}$	$\frac{3}{4}$	$3\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	E-1	B & S #7
9.....	$1\frac{11}{16}$	5	9 $\frac{1}{2}$	1	$3\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	2	2	F-1	Morse #3
10.....	$1\frac{1}{2}$	6	10 $\frac{3}{4}$	1	$3\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	2	2	F-1	B & S #8
11.....	$1\frac{11}{16}$	5 $\frac{3}{8}$	10 $\frac{3}{4}$	$1\frac{1}{4}$	4 $\frac{3}{4}$	$\frac{3}{4}$	1	$\frac{3}{4}$	2	2	F-1	B & S #9
12.....	$1\frac{11}{16}$	7 $\frac{1}{8}$	12 $\frac{1}{2}$	$1\frac{1}{2}$	4 $\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	F-1	Morse #4 $\frac{1}{2}$
13.....	$1\frac{11}{16}$	6 $\frac{1}{4}$	11 $\frac{1}{2}$	$1\frac{1}{2}$	4 $\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	F-1	B & S #10
14.....	$1\frac{11}{16}$	8 $\frac{1}{8}$	13 $\frac{1}{2}$	$1\frac{1}{2}$	4 $\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	F-1	Morse #5
15.....	$2\frac{1}{8}$	8 $\frac{3}{8}$	14	$1\frac{1}{2}$	4 $\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	F-1	B & S #11
16.....	$2\frac{3}{8}$	9 $\frac{1}{8}$	14 $\frac{3}{4}$	$1\frac{3}{4}$	4 $\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	J-1	B & S #12
17.....	$2\frac{1}{2}$	8 $\frac{3}{4}$	13 $\frac{3}{4}$	$1\frac{3}{4}$	4 $\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	J-1	B & S #13
18.....	$2\frac{1}{2}$	9 $\frac{3}{8}$	15 $\frac{1}{2}$	$1\frac{3}{4}$	5	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	J-1	Morse #6
19.....	$2\frac{3}{4}$	10 $\frac{1}{4}$	16 $\frac{1}{2}$	$1\frac{3}{4}$	5	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	J-1	B & S #14
20.....	$3\frac{1}{4}$	11 $\frac{3}{8}$	17 $\frac{1}{4}$	$1\frac{3}{4}$	5	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	2	2	M-1	B & S #15
												Morse #7

Blank No.	Finished dimensions								Used for—
	K	L	M	N	O	P	Q	R	
1.....	0.23922	0.2000	0.502	0.502	0.170	0.170	0.170	0.170	B & S #1
2.....	$.29968$	$.2500$	$.502$	$.502$	$.220$	$.220$	$.220$	$.220$	B & S #2
3.....	$.37525$	$.3125$	$.502$	$.502$	$.282$	$.282$	$.282$	$.282$	B & S #3
4.....	$.3581$	$.252$	$.6246$	$.6246$	$.320$	$.320$	$.320$	$.320$	B & S #4
5.....	$.42065$	$.3500$	$.5024$	$.5024$	$.420$	$.420$	$.420$	$.420$	Morse #0
6.....	$.53883$	$.4500$	$.5016$	$.5016$	$.420$	$.420$	$.420$	$.420$	B & S #5
7.....	$.4750$	$.369$	$.59858$	$.59858$	$.560$	$.560$	$.560$	$.560$	B & S #6
8.....	$.7201$	$.600$	$.50147$	$.50147$	$.710$	$.710$	$.710$	$.710$	Morse #1
9.....	$.700$	$.572$	$.59941$	$.59941$	$.860$	$.860$	$.860$	$.860$	B & S #7
10.....	$.59961$	$.5000$	$.50329$	$.50329$	$.860$	$.860$	$.860$	$.860$	B & S #8
11.....	$.8987$	$.7500$	$.50100$	$.50100$	$.860$	$.860$	$.860$	$.860$	B & S #9
12.....	$.938$	$.778$	$.60235$	$.60235$	$.860$	$.860$	$.860$	$.860$	B & S #10
13.....	1.0775	$.9001$	$.50085$	$.50085$	1.010	1.010	1.010	1.010	Morse #3
14.....	1.231	1.020	$.62326$	$.62326$	1.210	1.210	1.210	1.210	B & S #11
15.....	1.2597	1.04463	$.51612$	$.51612$	1.460	1.460	1.460	1.460	Morse #4
16.....	1.500	1.266	$.6240$	$.6240$	1.710	1.710	1.710	1.710	B & S #12
17.....	1.4978	1.24995	$.5010$	$.5010$	1.960	1.960	1.960	1.960	B & S #13
18.....	1.748	1.475	$.63151$	$.63151$	2.210	2.210	2.210	2.210	Morse #5
19.....	1.7968	1.5001	$.49973$	$.49973$	2.450	2.450	2.450	2.450	B & S #14
20.....	2.0731	1.75005	$.50020$	$.50020$	2.710	2.710	2.710	2.710	B & S #15
16.....	2.3437	2.000	$.5000$	$.5000$	2.960	2.960	2.960	2.960	B & S #16
17.....	2.494	2.116	$.62565$	$.62565$	3.210	3.210	3.210	3.210	Morse #6
18.....	2.6146	2.2500	$.5000$	$.5000$	3.460	3.460	3.460	3.460	B & S #17
19.....	2.8854	2.500	$.5000$	$.5000$	3.710	3.710	3.710	3.710	B & S #18
20.....	3.270	2.750	$.62400$	$.62400$	3.960	3.960	3.960	3.960	Morse #7

¹ See table 54, page 69.

*See paragraph 3.8.3 on page 83.

TABLE 51. Machine taper ring gages, with tang.

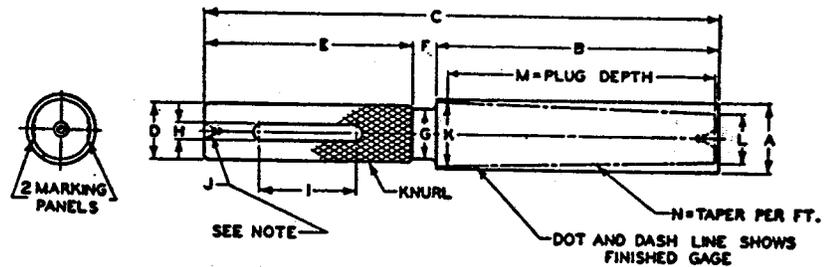


Blank No.	Blank dimensions								Used for—
	A	B	C	D	E	F	G	H	
	in.	in.	in.	in.	in.	in.	in.	in.	
1	1 1/4	1 1/2	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	B & S #1
2	1 1/2	1 3/4	1 1/2	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	B & S #2
3	1 3/4	2 1/4	1 3/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	Morse #0
4	1 3/4	2 1/2	1 3/4	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	B & S #3
5	1 3/4	2 3/4	1 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #4*
6	2 1/4	2 3/4	1 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	Morse #1
7	2 1/4	2 3/4	1 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #5*
8	2 1/4	2 3/4	1 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #6
9	2 1/4	2 3/4	1 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	Morse #2
10	2 1/4	3 1/4	1 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #7*
11	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #8
12	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	Morse #3
13	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #9*
14	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	Morse #4
15	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #10*
16	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #11*
17	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	Morse #5
18	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #12
19	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #13
20	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #14
21	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	Morse #6
22	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #15
23	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	B & S #16
24	2 3/4	3 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	Morse #7

Blank No.	Finished dimensions									Used for—
	I	J	K	L	M	N	O	P	Q	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	
1	0.23922	0.200	1 1/4	0.502	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	B & S #1
2	.29968	.250	1 3/4	.502	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	B & S #2
3	.35610	.252	2	.6246	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	Morse #0
4	.37525	.3125	1 1/2	.502	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	B & S #3
5	.42065	.350	1 1/4	.5024	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	B & S #4
6	.4750	.369	2 1/4	.59858	1 3/4	1 3/4	1 3/4	2 1/4	0.1015	Morse #1
7	.53883	.4500	2 3/4	.5018	1 3/4	1 3/4	1 3/4	2 3/4	1 3/4	B & S #5
8	.59961	.5000	2 3/4	.50329	1 3/4	1 3/4	1 3/4	2 3/4	1 3/4	B & S #6
9	.700	.572	2 3/4	.59941	1 3/4	1 3/4	1 3/4	2 3/4	0.125	Morse #2
10	.7201	.600	2 3/4	.50147	1 3/4	1 3/4	1 3/4	3 1/4	1 3/4	B & S #7
11	.8987	.750	3 1/4	.5010	1 3/4	1 3/4	1 3/4	4 1/4	1 1/4	B & S #8
12	.938	.778	3 1/4	.60235	1 3/4	1 3/4	1 3/4	3 1/4	0.156	Morse #3
13	1.0775	.9001	4 1/4	.50065	1 3/4	1 3/4	1 3/4	4 3/4	1 3/4	B & S #9
14	1.231	1.020	4 1/4	.62326	1 3/4	1 3/4	1 3/4	4 3/4	0.234	Morse #4
15	1.2597	1.04465	5	.51612	1 3/4	1 3/4	1 3/4	5 1/4	1 3/4	B & S #10
16	1.4978	1.24995	5 1/4	.5010	1 3/4	1 3/4	1 3/4	6 1/4	1 3/4	B & S #11
17	1.748	1.475	5 3/4	.63151	1 3/4	1 3/4	1 3/4	5 3/4	0.312	Morse #5
18	1.7968	1.5001	7 1/4	.49973	1 3/4	1 3/4	1 3/4	7 1/4	1 3/4	B & S #12
19	2.0731	1.75005	7 3/4	.50020	1 3/4	1 3/4	1 3/4	8 3/4	1 3/4	B & S #13
20	2.3437	2.000	8 1/4	.5000	1 3/4	1 3/4	1 3/4	9 1/4	1 3/4	B & S #14
21	2.494	2.116	7 1/4	.62565	1 3/4	1 3/4	1 3/4	8 1/4	0.375	Morse #6
22	2.6146	2.250	8 3/4	.5000	1 3/4	1 3/4	1 3/4	9 1/4	1 3/4	B & S #15
23	2.8854	2.500	9 3/4	.5000	1 3/4	1 3/4	1 3/4	10 1/4	1 3/4	B & S #16
24	3.270	2.750	10	.6240	1 3/4	1 3/4	1 3/4	11 1/4	0.5625	Morse #7

*See paragraph 3.8.3 on page 83.

TABLE 52. Machine taper plug gages, without tang.



Blank No.	Blank dimensions										Used for—	Finished dimensions				
	A	B	C	D	E	F	G	H	I	J ¹		K	L	M	N	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
1	1/4	1 1/4	3 1/4	1/2	2	3/4	1/2	1/2	1 1/2	1 1/2	A-1	{ Jarno #1 .0.125 Jarno #2 .250 ASA #239 .23922 ASA #299 .29968 B & S #1 .23922	{ .100 .200 .200 .250 .200	{ 1 1/4 1 1/4 1 1/4 1 1/4 1 1/4	{ .600 .600 .502 .502 .502	
2	1/2	2 1/4	5 1/4	3/4	2 1/2	3/4	3/4	3/4	1 1/2	1 1/2	C-2	{ B & S #2 .29968 B & S #3 .37525 Jarno #3 .375 Morse #0 .3561 ASA #375 .37525	{ .250 .3125 .300 .252 .3125	{ 1 1/4 1 1/4 1 1/4 2 1 1/4	{ .502 .502 .600 .6246 .502	
3	1/2	2 3/4	5 3/4	3/4	2 3/4	3/4	3/4	3/4	1 1/2	1 1/2	C-2	{ B & S #4* .42065 Jarno #4 .500 Morse #1 .4750 ASA #1 .4750	{ .3500 .400 .369 .369	{ 1 1/4 2 2 1/4 2 1/4	{ .5024 .600 .59858 .59858	
4	1/2	2 3/4	6 1/4	3/4	2 3/4	3/4	3/4	3/4	1 1/2	1 1/2	D-1	{ B & S #5* .53883 B & S #6 .59961 Jarno #5 .625 Series #10 .625	{ .450 .500 .500 .375	{ 2 1/4 2 1/4 2 1/4 0.8671	{ .5016 .50239 .600 3.500	
5	1/2	1 3/4	4 1/4	3/4	2 1/4	3/4	3/4	3/4	1 1/2	1 1/2	D-1	{ B & S #7* .7201 Jarno #6 .750 Morse #2 .700 ASA #2 .7000 Series #20 .875	{ .600 .600 .572 .5720 .500	{ 2 1/4 2 1/4 2 1/4 2 1/4 1.2857	{ 0.50147 .600 .59941 .59941 3.500	
6	1/2	3 1/4	6 1/4	3/4	3	3/4	3/4	3/4	1 1/2	1 1/2	D-1	{ B & S #8 .8987 Jarno #7 .875 Morse #3 .938 ASA #3 .9380	{ .750 .700 .778 .77805	{ 3 1/4 3 1/4 3 1/4 3 1/4	{ 0.5010 .600 .60235 .60235	
7	1/2	1 3/4	4 1/4	3/4	3	3/4	3/4	3/4	1 1/2	1 1/2	E-1	{ B & S #9* 1.0775 Jarno #8 1.000	{ .9001 .800	{ 4 1/4 4	{ .50085 .600	
8	1/2	3 3/4	7 1/4	3/4	3 3/4	3/4	3/4	3/4	1 1/2	1 1/2	E-1	{ B & S #10* 1.2597 Jarno #9 1.125 Jarno #10 1.250 Morse #4 1.231 ASA #4 1.2310	{ 1.04465 .900 1.000 1.020 1.020	{ 5 4 1/4 5 4 1/4 4 1/4	{ .51612 .600 .600 .62326 .62326	
9	1 1/4	4 1/4	8 1/4	1	3 3/4	3/4	3/4	1 1/2	2	2	F-1	{ Series #30 1.250 Jarno #11 1.375	{ .6877 1.100	{ 1.928 5 1/4	{ 3.500 0.600	

¹ See table 54, page 89.
*See paragraph 3.8.3 on page 83.

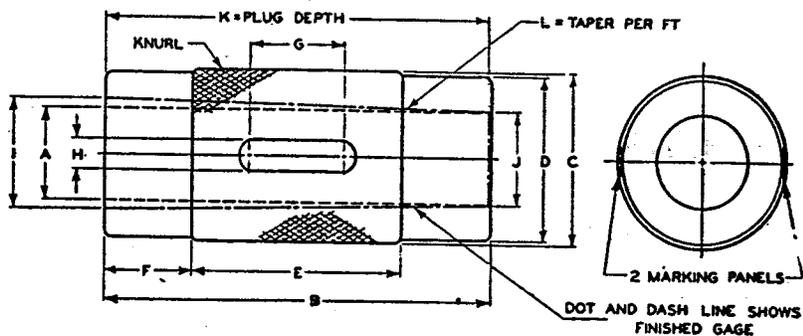
TABLE 52. Machine taper plug gages, without tang — Continued.

Blank No.	Blank dimensions										Used for—	Finished dimensions				
	A	B	C	D	E	F	G	H	I	J ¹		K	L	M	N	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		in.	in.	in.	in.	
13	1 1/2	4 3/4	9 3/4	1 1/2	4 3/4	1/2	1	1/2	1/2	1/2	F-1	ASA #4 1/2 Morse #4 1/2	1.5000 1.5000	1.2680 1.268	4 1/2 4 1/2	0.6240 .6240
14	1 1/2	6 3/4	11 3/4	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	F-1	B&S #11* Jarno #12 Jarno #13	1.4978 1.500 1.625	1.24995 1.200 1.300	5 1/4 6 6 1/2	.5010 .600 .600
15	1 1/2	5 3/4	10 1/4	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	F-1	Morse #5 ASA #5	1.748 1.7480	1.475 1.475	5 1/4 5 1/4	.63151 .63151
16	1 7/8	2 1/4	7 1/4	1 1/2	4 1/2	1/2	1	1/2	1/2	1/2	F-1	Series #40 B & S #12	1.750 1.7968	1.000 1.5001	2.5715 7 1/4	3.500 0.49973
17	1 7/8	7 3/4	12 3/4	1 1/2	4 1/2	1/2	1 1/2	1/2	1/2	1/2	F-1	Jarno #14 Jarno #15	1.750 1.875	1.400 1.500	7 7 1/2	.600 .600
18	2 1/4	5	10 1/4	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	J-1	ASA #200 B & S #13	2.000 2.0731	1.70312 1.75005	4 3/4 7 3/4	.7500 .50020
19	2 1/4	8 3/4	14	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	J-1	Jarno #16 Jarno #17	2.000 2.125	1.600 1.700	8 8 1/2	.600 .600
20	2 1/4	9 1/4	14 1/4	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	J-1	Jarno #18	2.250	1.800	9	.600
21	2 1/4	8 3/4	14	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	J-1	B & S #14	2.3437	2.000	8 1/4	.500
22	2 1/4	10	15 1/4	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	J-1	Jarno #19	2.375	1.900	9 1/4	.600
23	2 1/4	5 1/4	10 1/4	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	J-1	ASA #250	2.5000	2.1562	5 1/2	.7500
24	2 1/4	7 3/4	13	1 1/2	4 3/4	1/2	1 1/2	1/2	1/2	1/2	J-1	Morse #6 ASA #6	2.494 2.494	2.116 2.116	7 1/4 7 1/4	.62565 .62565
25	2 1/4	10 1/4	16 1/4	1 1/2	5	1/2	1 1/2	1/2	1/2	1/2	J-1	Jarno #20	2.500	2.000	10	.600
26	2 1/4	9 1/4	14 1/4	1 1/2	5	1/2	1 1/2	1/2	1/2	1/2	J-1	B & S #15	2.6148	2.2500	8 3/4	.500
27	2 1/4	4 3/4	10 1/4	1 1/2	5	1/2	1 1/2	1/2	1/2	1/2	J-1	Series #50	2.750	1.582	4.073	3.500
28	2 1/4	9 1/4	15 1/4	1 1/2	5	1/2	1 1/2	1/2	1/2	1/2	J-1	B & S #16	2.8854	2.500	9 1/4	0.500
29	3 1/4	6 1/4	12 1/4	1 1/2	5	1/2	1 1/2	1/2	1/2	1/2	M-1	ASA #300	3.0000	2.6093	6 1/4	.75000
30	3 1/4	10 1/4	15 1/4	1 1/2	5	1/2	1 1/2	1/2	1/2	1/2	M-1	B & S #17	3.1562	2.7500	9 3/4	.500
31	3 3/4	10 3/4	16	1 1/2	5	1/2	1 1/2	1/2	1/2	1/2	M-1	Morse #7 ASA #7	3.270 3.270	2.750 2.750	10 10	.624 .6240
32	3 3/4	10 3/4	16 1/4	1 1/2	5 1/4	1/2	1 1/2	1/2	1/2	1/2	M-1	B & S #18	3.4271	3.000	10 1/4	.500
33	3 3/4	7 1/4	13 1/4	1 1/2	5 1/4	1/2	1 1/2	1/2	1/2	1/2	M-1	ASA #350	3.5000	3.0625	7	.75000
34	4 1/4	8	14	1 1/2	5 1/4	1/2	1 1/2	1/2	1/2	1/2	M-1	ASA #400	4.000	3.5156	7 3/4	.7500
35	4 1/4	8 3/4	14 1/4	1 1/2	5 1/4	1/2	1 1/2	1/2	1/2	1/2	M-1	ASA #450	4.500	3.9687	8 1/2	.7500
36	5 1/4	9 1/2	15 1/2	1 1/2	5 1/4	1/2	1 1/2	1/2	1/2	1/2	M-1	ASA #500	5.000	4.4208	9 1/4	.7500
37	4 3/4	6 3/4	12 3/4	1 1/2	5 1/4	1/2	1 1/2	1/2	1/2	1/2	M-1	Series #60	4.250	2.3906	6 3/4	3.500

¹ See table 54, page 89.

*See paragraph 3.8.3 on page 83.

TABLE 53. Machine taper ring gages, without tang.



Blank No.	Blank dimensions								Used for—	Finished dimensions			
	A	B	C	D	E	F	G	H		I	J	K	L
1	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	Jarno #1 B & S #1 ASA #239	0.125 .23922 .23922	0.100 .200 .200	$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$	$\frac{1}{2}$.502 .502
2	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	Jarno #2	.250	.200	1	.600
3	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	B & S #2 ASA #299	.29968 .29968	.250 .250	$\frac{1}{4}$ $\frac{1}{4}$	.502 .502
4	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	$\frac{1}{2}$	1	$\frac{1}{2}$	Morse #0 B & S #3	.3581 .37525	.252 .3125	2	.6246 .502
5	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{1}{2}$	1	$\frac{1}{2}$	Jarno #3 ASA #375	.375 .37525	.306 .3125	$\frac{1}{4}$ $\frac{1}{4}$	.600 .600
6	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{1}{2}$	1	$\frac{1}{2}$	B & S #4	.42065	.3500	$\frac{1}{4}$	.5024
7	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{1}{2}$	1	$\frac{1}{2}$	Morse #1 ASA #1	.4750 .4750	.369 .369	$\frac{1}{4}$ $\frac{1}{4}$	.59858 .59858
8	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	Series #10 B & S #5	.625 .53883	.375 .450	0.8571	3.500 .5016
9	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{1}{2}$	Jarno #4	.500	.400	2	.600
10	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	B & S #6 Jarno #5 Morse #2	.59961 .625 .700	.500 .500 .572	$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$	.50329 .600 .59941
11	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	ASA #2 Series #20	.700 .875	.572 .500	$\frac{1}{4}$ 1.2857	.59941 3.500
12	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	B & S #7	.7201	.600	$\frac{1}{4}$	.50147
13	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{1}{2}$	Jarno #6 Series #30	.750 1.250	.600 .6875	3 1.928	.600 3.500
14	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	2	2	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	B & S #8 Jarno #7	.8987 .875	.750 .700	$\frac{1}{4}$ $\frac{1}{4}$	.5010 .600
15	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{1}{2}$	Morse #3 ASA #3	.938 .938	.778 .77805	$\frac{1}{4}$ $\frac{1}{4}$	.60235 .60235
16	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	2	$\frac{1}{2}$	Jarno #8	1.000	.800	4	.600
17	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	2	$\frac{1}{2}$	B & S #9 Jarno #9	1.0775 1.125	.9001 .900	$\frac{1}{4}$ $\frac{1}{4}$	.50085 .600
18	$\frac{1}{4}$	$\frac{1}{2}$	3	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	Series #40	1.750	1.000	2.5715	3.500
19	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	3	1	2	$\frac{1}{2}$	B & S #10 Jarno #10	1.2597 1.250	1.04465 1.000	5 5	.51812 .600
20	1	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	Morse #4 ASA #4	1.231 1.231	1.020 1.020	$\frac{1}{4}$ $\frac{1}{4}$	.62326 .62326
21	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	3	$\frac{1}{2}$	2	$\frac{1}{2}$	Jarno #11	1.375	1.100	$\frac{1}{4}$	.600

*See paragraph 3.8.3 on page 83.

TABLE 53. Machine taper ring gages, without tang — Continued

Blank No.	Blank dimensions								Used for—	Finished dimensions			
	A	B	C	D	E	F	G	H		I	J	K	L
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
22	1 3/8	6 1/8	2 3/4	2 3/4	3 1/4	1 3/4	2	5/8	(B & S #11* Jarno #12	1.4978 1.500	1.24995 1.200	5 1/4 8	0.5010 .600
23	1 3/4	4 1/2	2 3/4	2 3/4	2	1 1/4	1 1/4	3/4	(Morse #4 1/2 ASA #4 1/2	1.500 1.500	1.288 1.288	4 1/4 4 1/4	.6240 .6240
24	1 3/4	6 1/2	3	2 3/4	4	1 3/4	2	3/4	Jarno #13	1.625	1.300	6 1/2	.600
25	1 3/4	7 1/4	3 1/4	3 1/4	4	1 3/4	2	3/4	Jarno #14	1.750	1.400	7	.600
26	1 3/4	5 3/4	2 3/4	2 3/4	2 3/4	1 1/4	1 1/4	3/4	(Morse #5 ASA #5	1.748 1.748	1.475 1.475	5 3/4 5 3/4	.63151 .63151
27	1 3/4	7 1/4	3 3/4	3 3/4	4	1 3/4	2	3/4	(B & S #12 Jarno #15	1.7968 1.875	1.5001 1.500	7 1/4 7 1/4	.49978 .600
28	1 3/4	4 3/4	4 1/4	4 1/4	2 3/4	1 1/4	2	3/4	Series #50	2.750	1.562	4.073	3.500
29	1 3/4	8 1/4	3 3/4	3 3/4	5	1 1/4	2	3/4	Jarno #16	2.000	1.600	8	0.600
30	1 3/4	8 1/4	3 3/4	3 3/4	5	1 1/4	2	3/4	Jarno #17	2.125	1.700	8 1/4	.600
31	1 3/4	4 3/4	3 1/4	3 1/4	2	1 1/4	1 1/4	3/4	ASA #200	2.000	1.70812	4 3/4	.7500
32	1 3/4	7 3/4	3 3/4	3 3/4	3 3/4	2 3/4	2	3/4	B & S #13	2.0731	1.75006	7 3/4	.50020
33	1 3/4	9 1/4	3 3/4	3 3/4	5	2	2	3/4	Jarno #18	2.250	1.800	9	.600
34	1 3/4	9 1/4	3 3/4	3 3/4	5 1/4	2	2	3/4	Jarno #19	2.375	1.900	9 1/4	.600
35	1 3/4	8 3/4	3 3/4	3 3/4	4 3/4	1 3/4	2	3/4	B & S #14	2.3437	2.000	8 3/4	.500
36	1 3/4	10 1/4	3 3/4	3 3/4	6	2	2	3/4	Jarno #20	2.500	2.000	10	.600
37	2 3/8	7 3/8	3 3/4	3 3/4	3 3/4	1 3/4	1 1/4	3/4	(Morse #6 ASA #6	2.494 2.494	2.116 2.116	7 3/4 7 3/4	.62565 .62565
38	2 3/8	5 3/8	3 3/4	3 1/4	2 1/4	1 1/4	1 1/4	3/4	ASA #250	2.500	2.1562	5 1/4	.7500
39	2 3/8	8 1/4	4	3 3/4	3 3/4	2 1/4	2	3/4	B & S #15	2.6146	2.2500	8 1/4	.500
40	2 3/8	6 1/4	5 3/4	5 3/4	3 3/4	1 1/4	2	3/4	Series #60	4.250	2.3906	6 1/4	3.500
41	2 3/8	9 3/4	4 3/4	4 3/4	4	2 3/4	2	3/4	B & S #16	2.8854	2.500	9 3/4	0.500
42	2 3/8	6 3/4	4 3/4	4 3/4	3 3/4	1 1/4	1 1/4	3/4	ASA #300	3.000	2.6093	6 3/4	.7500
43	2 3/8	10 1/4	5	4 3/4	4	3	2	3/4	(B & S #17 Morse #7	3.1562 3.270	2.7500 2.750	9 3/4 10	.500 .624
44	2 3/8	10 1/4	5 3/4	5 3/4	4	3 3/4	2	3/4	(ASA #7 B & S #18	3.270 3.4271	2.750 3.000	10 10 1/4	.624 .500
45	3 3/8	7 3/8	4 3/4	4 3/4	3 1/4	1 3/4	1 1/4	3/4	ASA #350	3.500	3.0625	7	.7500
46	3 3/8	7 3/8	5 3/4	5 3/4	4	1 3/4	2	3/4	ASA #400	4.000	3.5156	7 3/4	.7500
47	3 3/8	8 3/8	5 3/4	5 1/4	5	1 3/4	2	3/4	ASA #450	4.500	3.9687	8 3/4	.7500
48	4 1/8	9 3/8	6 3/4	6 3/4	5 1/4	1 3/4	2	3/4	ASA #500	5.000	4.4208	9 3/4	.7500

*See paragraph 3.8.3 on page 88.

TABLE 54. Sizes of combination drills and countersinks (for machine taper plug gages).

Size	Diameter		Size	Diameter	
	of body	of drill point		of body	of drill point
	in.	in.		in.	in.
A1	1/4	1/4	F1	1/4	1/4
C2	1 1/4	1 1/4	J1	1 1/4	1 1/4
D1	1 1/4	1 1/4	M1	1 1/4	1 1/4
E1	0.300	1/4			

3.9 Adjustable Plug Gages

3.9.1 For the gaging of distances between plane parallel surfaces, for the diameters of large cylindrical holes, and for other similar applications, the committee has developed a well-balanced, standard design, adjustable plug gage in two models:

Model No. 1: Covering sizes from 2 1/2 to 4 1/2 inches, divided into eight ranges.

Model No. 2: Covering sizes from 4 1/2 to 6 1/2 inches, divided into eight ranges.

3.9.2 All gage heads may be produced from the same blank. Certain parts such as locking screws, locking bushings, and lock-

ing nuts are common to these gages, adjustable length gages, and adjustable snap gages. Spacers for gaging buttons are readily produced from drill rod.

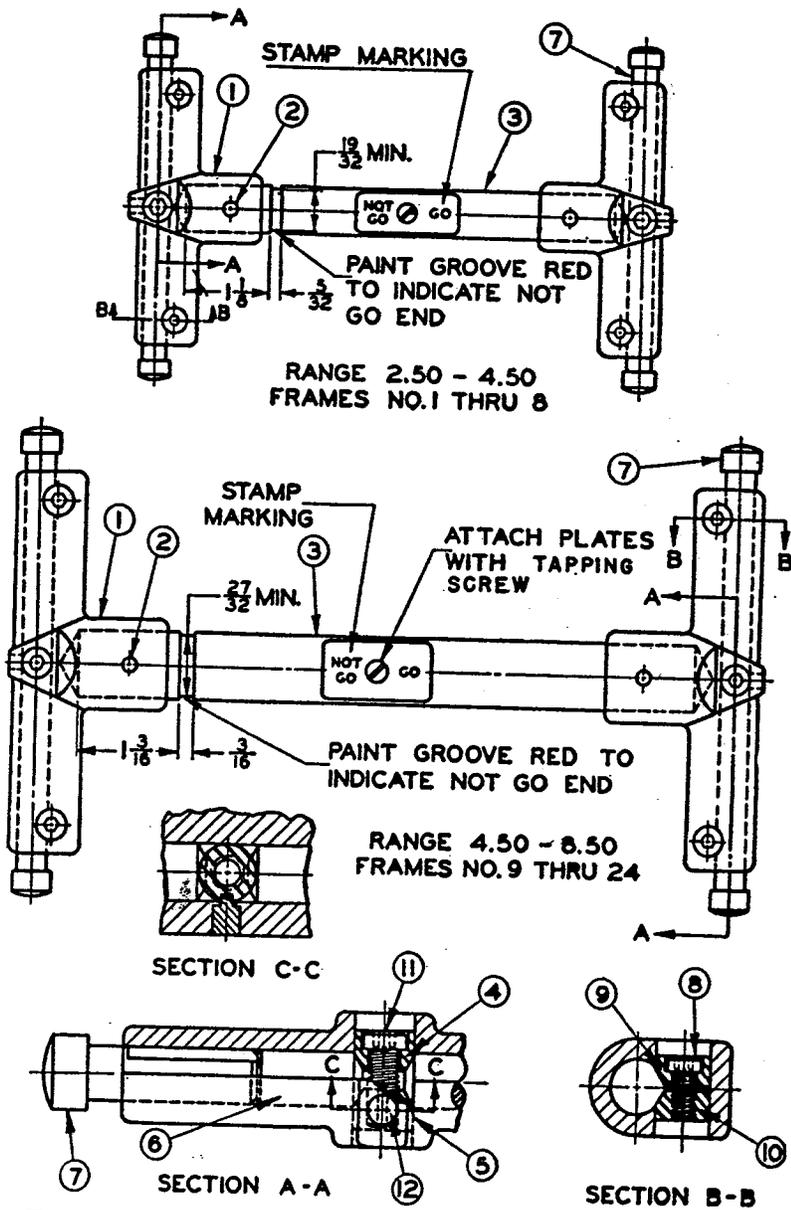
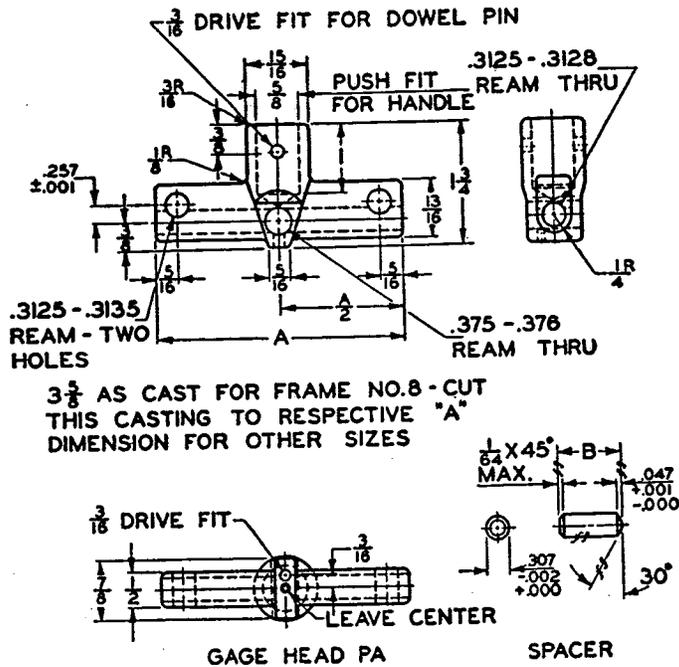


FIGURE 8. Model P adjustable plug gages, details of construction.

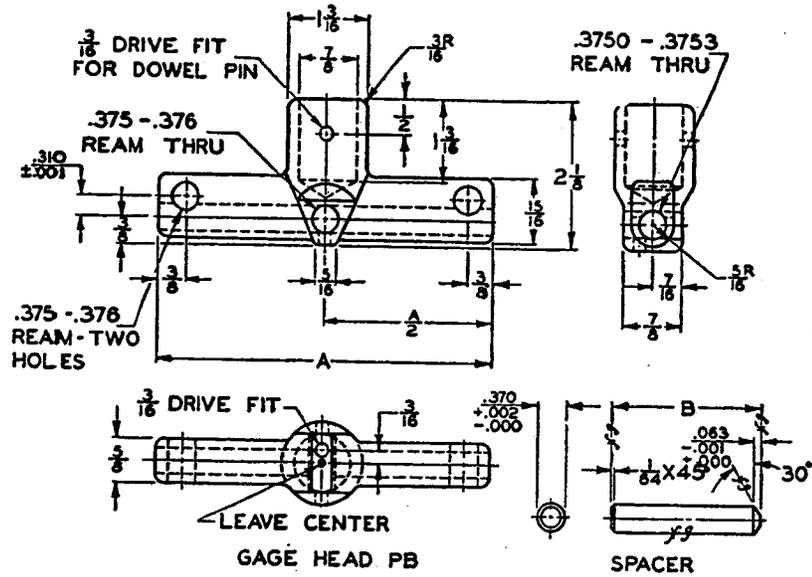
- | | | | |
|---------------|-----------------------|---------------------|----------------------|
| 1. Gage head. | 4. Adjusting bushing. | 7. Gaging button. | 10. Locking nut. |
| 2. Dowel pin. | 5. Adjusting nut. | 8. Locking screw. | 11. Adjusting screw. |
| 3. Handle. | 6. Spacer. | 9. Locking bushing. | 12. Key pin. |

TABLE 55. Model P adjustable plug gage, range above 2½ to and including 4½ inches, details of gage head and spacer.



Frame No.	Range		A	±0.001
	Above— in.	To and including— in.		
1	{ 2½ 2½ 2½	{ 2½ 2½ 2½	in. 1½	None
2				.250
3	{ 3 3¼	{ 3¼ 3¼	in. 2¼	.312
4				.375
5	{ 3½ 3½	{ 3½ 3½	in. 2¾	.437
6				.287
7	{ 3¾ 3¾	{ 3¾ 3¾	in. 3¼	.350
8				.412
9	{ 4 4¼	{ 4¼ 4¼	in. 3¾	.475
10				.537
11	{ 4½ 4½	{ 4½ 4½	in. 4¼	.600
12				.662
13	{ 4¾ 4¾	{ 4¾ 4¾	in. 4¾	.725
14				.787
15	{ 5 5	{ 5 5	in. 5¼	.850
16				.912

TABLE 56. Model P adjustable plug gage, range above 4 1/2 to and including 8 1/2 inches, details of gage head and spacer.



Frame No.	Range		A	B ±0.001	Frame No.	Range		A	B ±0.001
	Above—	To and including—				Above—	To and including—		
9	4 1/2	4 3/4	3 1/4	0.614	17	6 1/2	6 3/4	5 1/4	1.614
10	4 3/4	4 7/8	3 1/4	.676	18	6 3/4	6 7/8	5 1/4	1.676
	4 7/8	5	3 1/4	.739		6 7/8	7	5 1/4	1.739
11	5	5 1/4	4 1/4	.864	19	7	7 1/4	6 1/4	1.864
	5 1/4	5 1/2	4 1/4	.926		7 1/4	7 1/2	6 1/4	1.926
12	5 1/2	5 3/4	4 1/4	.989	20	7 1/2	7 3/4	6 1/4	1.989
	5 3/4	5 7/8	4 1/4	1.051		7 3/4	8	6 1/4	2.051
13	5 7/8	6	4 1/4	1.114	21	7 7/8	8 1/8	6 1/4	2.114
	6	6 1/4	4 1/4	1.176		8 1/8	8 1/4	6 1/4	2.176
14	6 1/4	6 1/2	4 1/4	1.239	22	8 1/4	8 1/2	6 1/4	2.239
	6 1/2	6 3/4	4 1/4	1.301		8 1/2	8 3/4	6 1/4	2.301
15	6 3/4	6 7/8	5 1/4	1.364	23	8 3/4	8 7/8	7 3/4	2.364
	6 7/8	7	5 1/4	1.426		8 7/8	9	7 3/4	2.426
16	7	7 1/4	5 1/4	1.489	24	9	9 1/4	7 3/4	2.489
	7 1/4	7 1/2	5 1/4	1.551		9 1/4	9 1/2	7 3/4	2.551

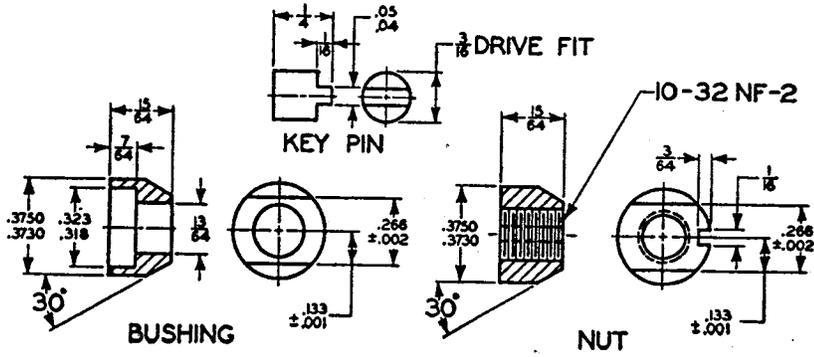
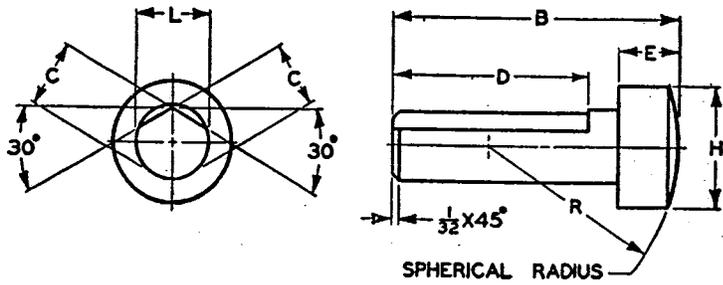


FIGURE 9. Model P adjustable plug gage bushing, nut, and key pin.

TABLE 57. Model P adjustable plug gage gaging buttons.



Range		B ± 0.001	C		D	E	H		L		R
Above—	To and including—		Max.	Min.			Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
2 1/2	2 3/4	1.147	0.300	0.298	1 1/8	1 1/8	0.505	0.500	0.3125	0.3123	1
2 3/4	3 1/8	0.960	.300	.298	1 1/8	1 1/8	.505	.500	.3125	.3123	1
3 1/8	4 1/8	1.172	.300	.298	1 1/8	1 1/8	.505	.500	.3125	.3123	1
4 1/8	8 1/2	1.531	.358	.356	1 1/8	1 1/8	.630	.625	.375	.3748	2

TABLE 58. Model P adjustable plug gage parts list.

Part		Range 2.50 to and including 4.50 in., frames No. 1 to and including No. 8	Range 4.50 to and including 8.50 in., frames No. 9 to and including No. 24
Number	Name	(Specification or reference)	(Specification or reference)
1	Gage head	Table 55	Table 56
2	Dowel pins	$\frac{1}{16}$ " diam \times $\frac{1}{4}$ " long	$\frac{1}{16}$ " diam \times $\frac{1}{4}$ " long
3	Handle	$\frac{1}{4}$ " O.D. \times 0.005" wall thickness \times $4\frac{1}{4}$ " long, seamless steel tubing.	$\frac{1}{4}$ " O.D. \times 0.005" wall thickness \times $10\frac{1}{4}$ " long, seamless steel tubing.
4	Adjusting bushing	Figure 9	Figure 9
5	Adjusting nut	Figure 9	Figure 9
6	Spacer	Table 55	Table 56
7	Gaging button	Table 57	Table 57
8	Locking screw	Table 64, frames 1-6	Table 64, frames 7-10
9	Locking bushing	Table 65, frames 1-6	Table 65, frames 7-10
10	Locking nut	Table 65, frames 1-6	Table 65, frames 7-10
11	Adjusting screw	Table 64, frames 7-10	Table 64, frames 7-10
12	Key pin	Figure 9	Figure 9

3.10 Plain Adjustable Snap Gages

3.10.1 A large number of adjustable snap gage designs have been developed by various firms, both in this country and abroad. Although in general construction and appearance the gages are very similar, they differ so much in detail that there has no possibility of obtaining interchangeability of parts among them.

3.10.2 In response to insistent demand, the committee has undertaken the development of an adjustable snap gage which would embody the most desirable features of the gages manufactured and thus enable the gage maker to produce gages which would conform to a common standard.

3.10.3 Five styles of adjustable snap gages have been provided as illustrated in figures 10A and 10B, pages 96-97, namely:

Model A: Employing four gaging pins.

Model B: Employing four gaging buttons, either square or round.

Model C: Employing two gaging buttons, either square or round, and single block anvil.

Model MC: A miniature snap gage with two gaging buttons, either square or round, and a single block anvil.

Model E: Employing two gaging buttons, either square or round, and a single block anvil extending beyond the gaging buttons.

3.10.4 The frames of models A, B, and C have been so designed that common patterns can be used for all three. Frames are of the conventional C or semicircular type, of cast iron with solid web. Particular attention was given to weight, which approximated the average of former proprietary designs.

3.10.5 The straight gaging pins are of circular cross section, an arcuate bevel being provided at the front edge where they first engage the work. The flanged gaging buttons are provided with either square or circular heads, the former being chamfered on their forward edges, and the latter being provided with an arcuate

bevel where they first engage the work. The gap between "go" and "not go" has been kept to a minimum.

3.10.6 A locking device was adopted which has stood the test of time—the three-piece type with two flats on the shank of the gaging button or pin, and a locking nut and locking bushing, each provided with a bevel flat.

3.10.7 In the development of these gages, exceptional care was taken at every turn to insure that they should embody all of the best features of snap gage design, and the design adopted incorporates:

- (1) A design of frame which has proved to be exceptionally rigid under severe tests.
- (2) Reduction of weight to as low a point as strength of materials permits.
- (3) Distribution of metal to assure a nice balance and feel.
- (4) An effective and proved locking device.
- (5) Suitable construction of gaging pins, buttons, and anvils to give ample rigidity and maintain accuracy.
- (6) Ease and simplicity of adjustment.
- (7) Provision for sealing.
- (8) Careful selection of limits and tolerances to preserve accuracy and permit interchangeability.

3.10.8 General details of construction are shown in figures 10A and 10B, pages 96, 97, and dimensions are given in tables 59 to 71, inclusive, pages 98-108, and figure 11, page 109.

3.10.9 It is recognized that the report of the American Gage Design Committee deals only with the dimensions of blanks, frames, and fittings, but in the case of the adjustable limit snap gages it is expected that, when assembled, the parts will have been so finished as to produce a gage of quality and accuracy comparable to that of any good commercial gage.

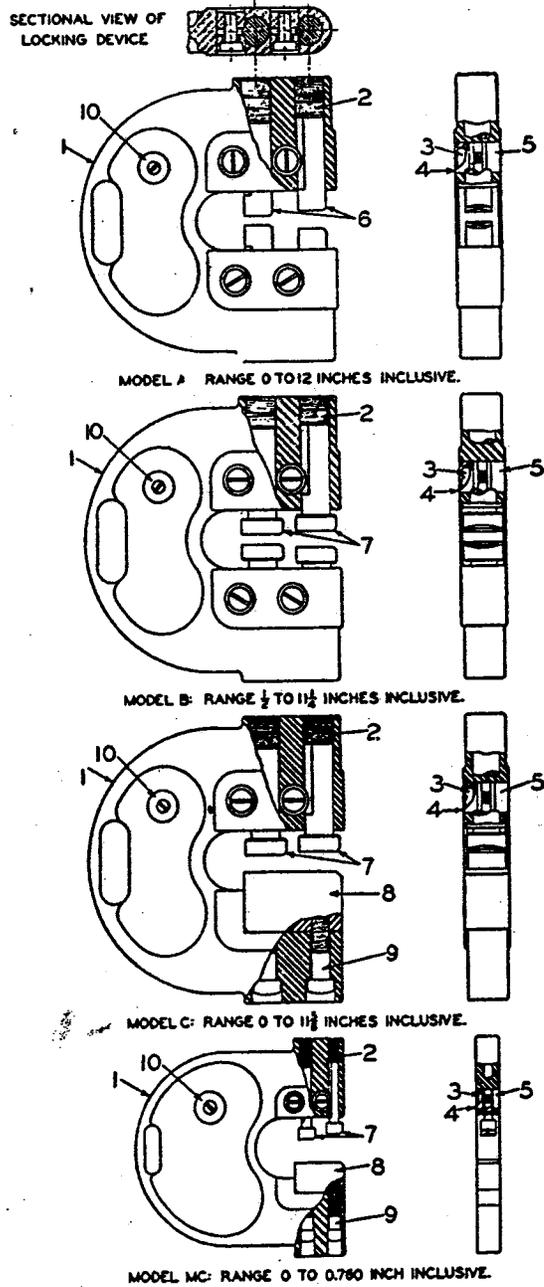


Figure 10A. Adjustable snap gages, details of construction—models A, B, C, and MC.

- | | | |
|---------------------|---------------------|-------------------|
| 1. Frame. | 4. Locking bushing. | 8. Anvil. |
| 2. Adjusting screw. | 5. Locking nut. | 9. Anvil screw. |
| 3. Locking screw. | 6. Gaging pin. | 10. Marking disk. |
| | 7. Gaging button. | |

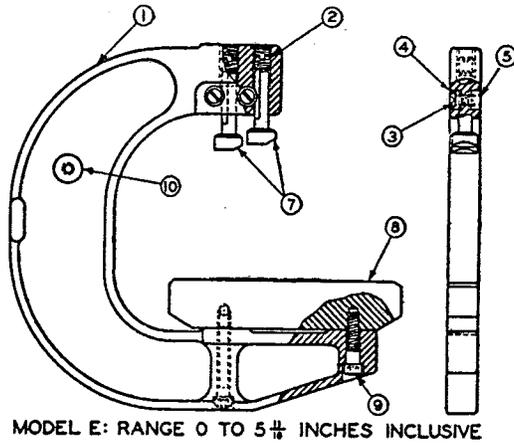


FIGURE 10B. Adjustable snap gages, details of construction—model E.

- | | | |
|---------------------|---------------------|-------------------|
| 1. Frame. | 4. Locking bushing. | 8. Anvil. |
| 2. Adjusting screw. | 5. Locking nut. | 9. Anvil screw. |
| 3. Locking screw. | 7. Gaging button. | 10. Marking disk. |

TABLE 59. Plain adjustable snap gages, models A and B, details of frame.

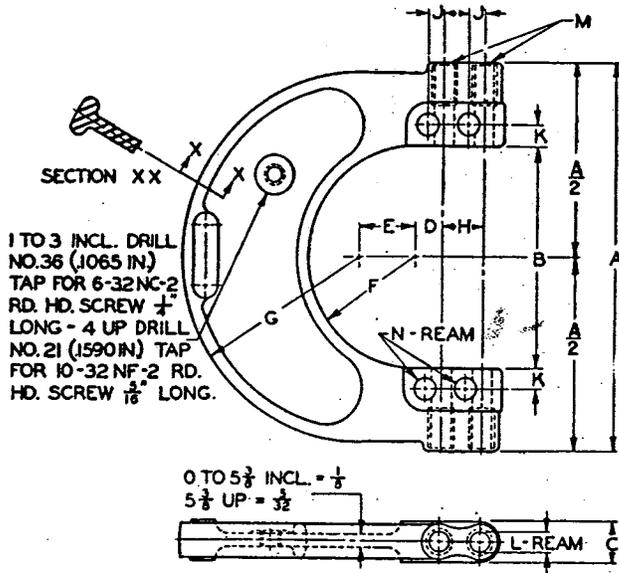
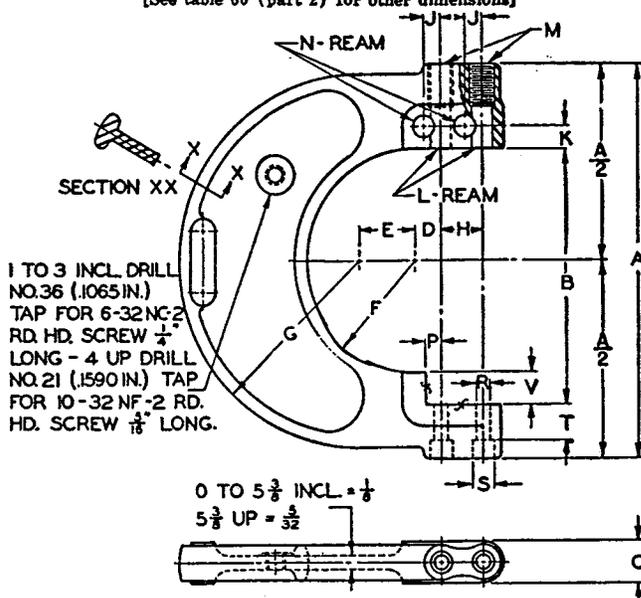
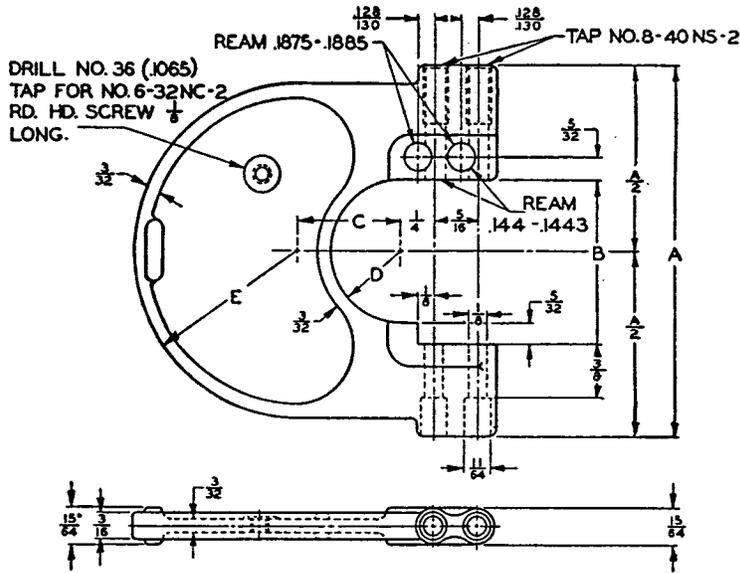


TABLE 60. Plain adjustable snap gages, model C, details of frame (part 1).
 [See table 60 (part 2) for other dimensions]



Model C		Range	Height of anvil	Frame No.
Symbol				
	Above—	To and including—		
	in.	in.	in.	
C-1	0	1/4	1/2	1
C-2	1/4	1/2	3/4	2
C-2X	1/2	3/4	3/4	2
C-3	3/4	1	3/4	3
C-3X	1	1 1/4	3/4	3
C-4	1 1/4	1 1/2	3/4	4
C-4X	1 1/2	1 3/4	3/4	4
C-5	1 3/4	2	3/4	5
C-5X	2	2 1/4	3/4	5
C-6	2 1/4	2 1/2	3/4	6
C-6X	2 1/2	2 3/4	3/4	6
C-7	2 3/4	3 1/4	15/16	7
C-7X	3 1/4	3 3/4	15/16	7
C-8	3 3/4	3 15/16	15/16	8
C-8X	3 15/16	4 1/4	15/16	8
C-9	4 1/4	4 11/16	15/16	9
C-9X	4 11/16	4 3/4	15/16	9
C-10	4 3/4	5 1/4	15/16	10
C-10X	5 1/4	5 11/16	15/16	10
C-11	5 11/16	6 1/2	1 1/8	11
C-11X	6 1/2	6 5/8	1 1/8	11
C-12	6 5/8	7 1/4	1 1/8	12
C-12X	7 1/4	7 3/8	1 1/8	12
C-13	7 3/8	8 1/4	1 1/8	13
C-13X	8 1/4	8 3/8	1 1/8	13
C-14	8 3/8	9 1/4	1 1/8	14
C-14X	9 1/4	9 3/8	1 1/8	14
C-15	9 3/8	10 1/4	1 1/8	15
C-15X	10 1/4	10 3/8	1 1/8	15
C-16	10 3/8	11 1/4	1 1/8	16
C-16X	11 1/4	11 3/8	1 1/8	16

TABLE 61. Plain adjustable snap gages, model MC, details of frame.



Symbol	Range		Frame No.	A	B	C	D	E		
	Above—	To and including—								
MC-00	in. 0.000	in. 0.195	00	in. 2 1/4	in. 3 3/4	in. 3/4	in. 3/4	in. 1		
MC-00X	.195	.385		0	2 3/8	1 3/8	3/4	3/4	1 1/4	
MC-0	.385	.570			0	2 3/8	1 3/8	3/4	3/4	1 1/4
MC-0X	.570	.760				2 3/8	1 3/8	3/4	3/4	1 1/4

TABLE 62. Adjustable snap gages, extended anvils, model E, details of frame.

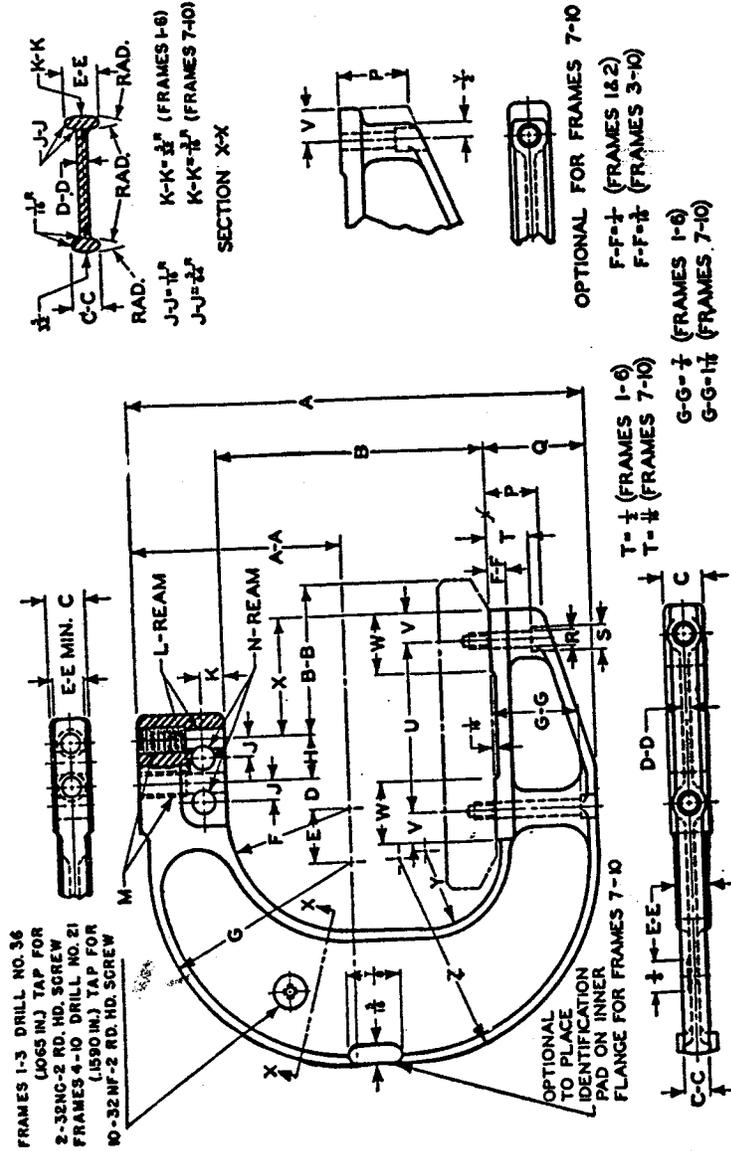
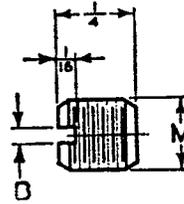


TABLE 62. Adjustable snap gages, extended anvil, model E, details of frame—Continued

Model E—Symbol and range	Frame No.	Dimensions ¹													
		A	P	Q	U	V	W	X	Y	Z	A-A	B-B	C-C	D-D	E-E
E-1-0 to 1/4	1	3 3/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-2-1/4 to 1	2	3 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-3-1/2 to 1 1/4	3	4 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-4-1 1/4 to 1 1/2	4	5 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-5-1 1/2 to 2	5	5 11/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-6-2 1/4 to 2 1/2	6	6 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-7-2 1/2 to 3 1/4	7	7 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-8-3 1/4 to 3 1/2	8	8 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-9-4 1/4 to 4 1/2	9	9 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
E-10-4 1/2 to 5 1/4	10	10 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	
Model E—Symbol and range															
E-1-0 to 1/4	1	3 3/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-2-1/4 to 1	2	3 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-3-1/2 to 1 1/4	3	4 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-4-1 1/4 to 1 1/2	4	5 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-5-1 1/2 to 2	5	5 11/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-6-2 1/4 to 2 1/2	6	6 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-7-2 1/2 to 3 1/4	7	7 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-8-3 1/4 to 3 1/2	8	8 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-9-4 1/4 to 4 1/2	9	9 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
E-10-4 1/2 to 5 1/4	10	10 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4

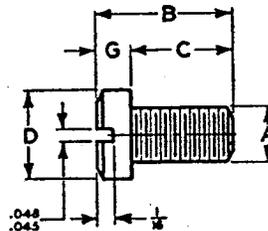
¹ Dimensions for letters B, C, D, E, F, G, H, J, K, L, M, N, R, and S are the same as for model C (table 60).

TABLE 63. Models A, B, C, and E snap gage, and models K and L adjustable length gage adjusting screws.



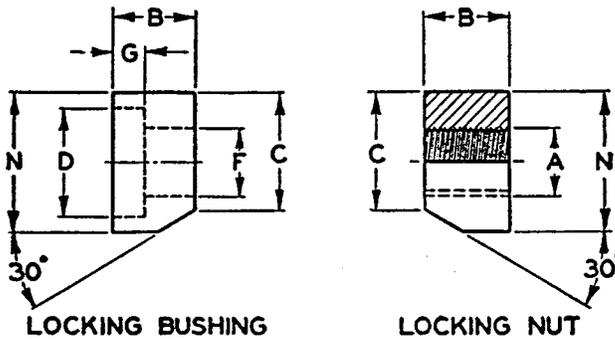
Snap gage frame Nos., inclusive	B		M
	Max.	Min.	
1 to 6.....	in. 0.048	in. 0.045	0.3325-40NS-3
7 to 10.....	.048	.045	.3950-40NS-3
11 to 16.....	.048	.045	.4575-40NS-3

TABLE 64. Models A, B, C, and E snap gage, and models K and L adjustable length gage locking screws; and model P adjustable plug gage adjusting and locking screws.



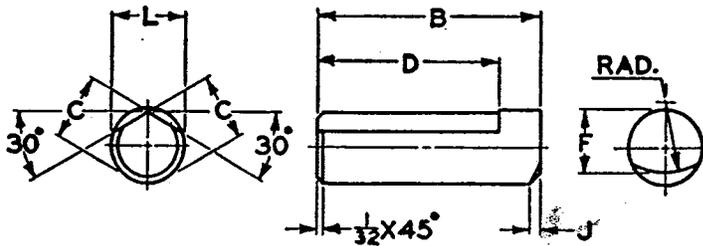
Snap gage frame Nos., inclusive	A	B	C	D		G
				Max.	Min.	
1 to 6.....	8-36NF-2	in. 1 1/4	in. 1 1/2	in. 0.252	in. 0.248	in. 1/2
7 to 10.....	10-32NF-2	1 1/4	1 1/2	.315	.310	1/2
11 to 16.....	12-28NF-2	1 1/2	1 3/4	.346	.341	3/8

TABLE 65. Models A, B, C, and E snap gage, model P adjustable plug gage, and models K and L adjustable length gage locking bushings and nuts.



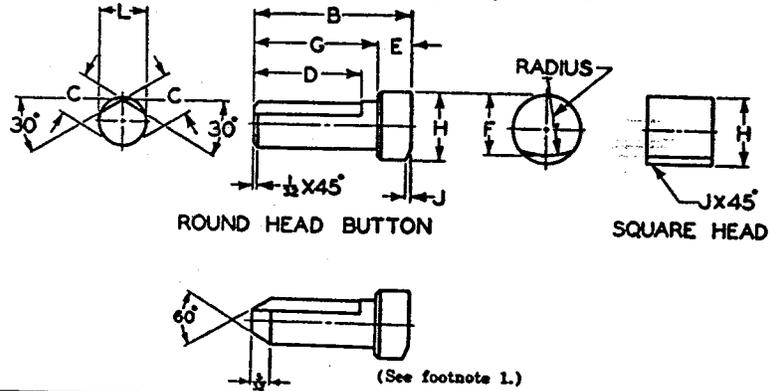
Snap gage frame Nos., inclusive	A	B	C		D		F	G	N	
			Max.	Min.	Max.	Min.			Max.	Min.
1 to 6.....	8-36NF-2	1 1/4	in.	in.	in.	in.	in.	in.	in.	in.
7 to 10.....	10-32NF-2	1 1/4	0.276	0.271	0.260	0.255	1 1/4	1/4	0.3125	0.3105
11 to 16.....	12-28NF-2	1 1/4	.333	.328	.323	.318	1 1/4	1/4	.3750	.3730
			.385	.380	.355	.350	1 1/4	1/4	.4375	.4355

TABLE 66. Model A snap gage gaging pins.



Snap gage frame Nos., inclusive	B	C		D	P	J	L	
		Max.	Min.				Max.	Min.
1 to 6.....	in.	in.	in.	in.	in.	in.	in.	in.
7 to 10.....	1 1/4	0.300	0.298	1 1/4	1 1/4	1/4	0.3125	0.3123
11 to 16.....	1 1/4	.358	.356	1 1/4	1 1/4	1/4	.375	.3748
		.417	.415	1 1/4	1 1/4	1/4	.4375	.4373

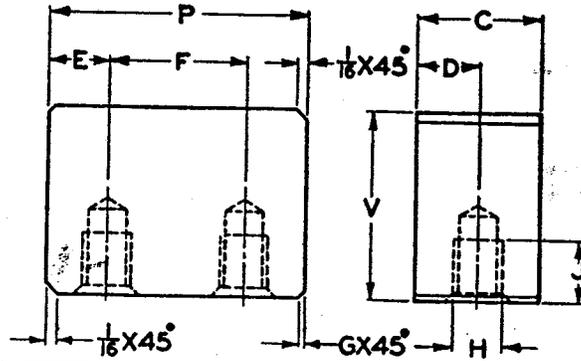
TABLE 67. Models B, C, and E snap gage, and models K and L adjustable length gage gaging buttons.



Snap gage frame Nos., inclusive	B	C		D	E	F	G	H		J	L	
		Max.	Min.					Max.	Min.		Max.	Min.
1 to 6 ¹	1 1/4	0.300	0.298	1 1/8	1/2	1/4	1 1/8	0.505	0.500	1/4	0.3125	0.3123
7 to 10.....	1 1/2	.358	.356	1 1/4	1/2	1/4	1 1/4	.630	.625	3/8	.3750	.3748
11 to 16.....	1 3/4	.417	.415	1 1/2	1/2	1/4	1 1/2	.755	.750	1/2	.4375	.4373

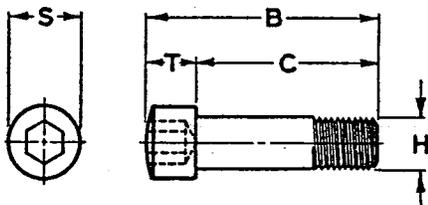
¹ Modification of gaging button to permit assembly in model C, frame No. 1, range No. 0 to 1/4 in.
 Note.—Square-head gaging buttons are optional.

TABLE 68. Model C snap gage and model L adjustable length gage anvils.



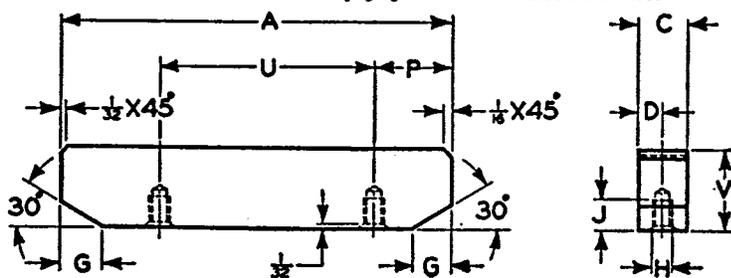
Snap gage symbol	Snap gage frame Nos., inclusive	C		D		E	F	G	H	J	P	V
		Max.	Min.	Max.	Min.							
C-1 & C-2X to C-6X.....	1 to 6	0.505	0.500	0.2525	0.2500	1/4	1 1/8	1/4	10-32NF-2B	1/4	1 1/8	1 1/8
C-2 to C-6.....	2 to 6	.505	.500	.2525	.2500	1/4	1 1/8	1/4	10-32NF-2B	1/4	1 1/8	1 1/8
C-7X to C-10X.....	7 to 10	.630	.625	.3150	.3125	1/4	1 1/4	1/4	1/4-28UNF-2B	1/4	1 1/4	1 1/4
C-7 to C-10.....	7 to 10	.630	.625	.3150	.3125	1/4	1 1/4	1/4	1/4-28UNF-2B	1/4	1 1/4	1 1/4
C-11X to C-16X.....	11 to 16	.755	.750	.3775	.3750	1/4	1 1/2	1/4	1/4-24UNF-2B	1/4	1 1/2	1 1/2
C-11 to C-16.....	11 to 16	.755	.750	.3775	.3750	1/4	1 1/2	1/4	1/4-24UNF-2B	1/4	1 1/2	1 1/2

TABLE 69. Model C snap gage and model L adjustable length gage anvil screws.



Snap gage frame Nos., inclusive	B	C	H	S	T
1 to 6.....	in. 1 1/4	in. 3/4	10-32NF-2A	in. 1 1/4	in. 1 1/4
7 to 10.....	1 1/2	1 1/4	1/4-28UNF-2A	1 1/2	1 1/4
11 to 16.....	1 3/4	1 1/2	1/4-24UNF-2A	1 3/4	1 1/2

TABLE 70. Model E snap gage anvil and anvil screws.

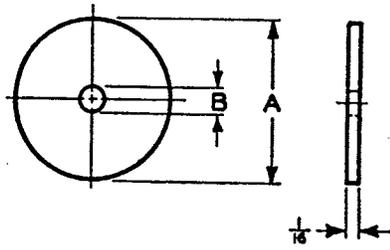


Gage No.	Frame No.	A	C		D		G	H	J	P	U	V
			Max.	Min.	Max.	Min.						
E-1	1	2 1/4	.505	.500	.2525	.250	1/2	10-32NF-2B	1 1/2	1 1/2	1 1/2	1 1/2
E-2	2	2 1/4	.505	.500	.2525	.250	1/2	10-32NF-2B	1 1/2	1 1/2	1 1/2	1 1/2
E-2X	2	2 1/4	.505	.500	.2525	.250	1/2	10-32NF-2B	1 1/2	1 1/2	1 1/2	1 1/2
E-3	3	2 1/4	.505	.500	.2525	.250	1/2	10-32NF-2B	1 1/2	1 1/2	1 1/2	1 1/2
E-3X	3	2 1/4	.505	.500	.2525	.250	1/2	10-32NF-2B	1 1/2	1 1/2	1 1/2	1 1/2
E-4	4	3 1/4	.505	.500	.2525	.250	3/4	10-32NF-2B	1 1/2	1 1/2	1 1/2	1 1/2
E-4X	4	3 1/4	.505	.500	.2525	.250	3/4	10-32NF-2B	1 1/2	1 1/2	1 1/2	1 1/2
E-5	5	3 1/4	.505	.500	.2525	.250	3/4	10-32NF-2B	1 1/2	1 1/2	2	1 1/2
E-5X	5	3 1/4	.505	.500	.2525	.250	3/4	10-32NF-2B	1 1/2	1 1/2	2	1 1/2
E-6	6	4 1/4	.505	.500	.2525	.250	1/2	10-32NF-2B	1 1/2	1 1/2	2 1/2	1 1/2
E-6X	6	4 1/4	.505	.500	.2525	.250	1/2	10-32NF-2B	1 1/2	1 1/2	2 1/2	1 1/2
E-7	7	5	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1	2 1/2	1 1/2
E-7X	7	5	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1	2 1/2	1 1/2
E-8	8	5 1/4	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1 1/2	3 1/4	1 1/2
E-8X	8	5 1/4	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1 1/2	3 1/4	1 1/2
E-9	9	6 1/4	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1 1/2	3 3/4	1 1/2
E-9X	9	6 1/4	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1 1/2	3 3/4	1 1/2
E-10	10	7 1/4	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1 1/2	4	1 1/2
E-10X	10	7 1/4	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	1 1/2	1 1/2	4	1 1/2

ANVIL SCREWS (HEXAGON-SOCKET-HEAD CAP SCREWS)

Frame Nos. inclusive	Size	Length	
		Front screw	Rear screw
1 to 6.....	10-32NF-2A	in. 1 1/2	in. 1 1/2
7 to 10.....	1/4-28UNF-2A	1	1 1/4

TABLE 71. Models A, B, C, E, and MC snap gage, and models KA, KB, LA, and LB adjustable length gage marking disks.



Snap gage frame Nos., inclusive	A	B
00, 0, and 1.....	$\frac{1}{16}$	$\frac{1}{16}$
2 and 3.....	$\frac{3}{16}$	$\frac{1}{16}$
4 to 16.....	1	$\frac{13}{16}$

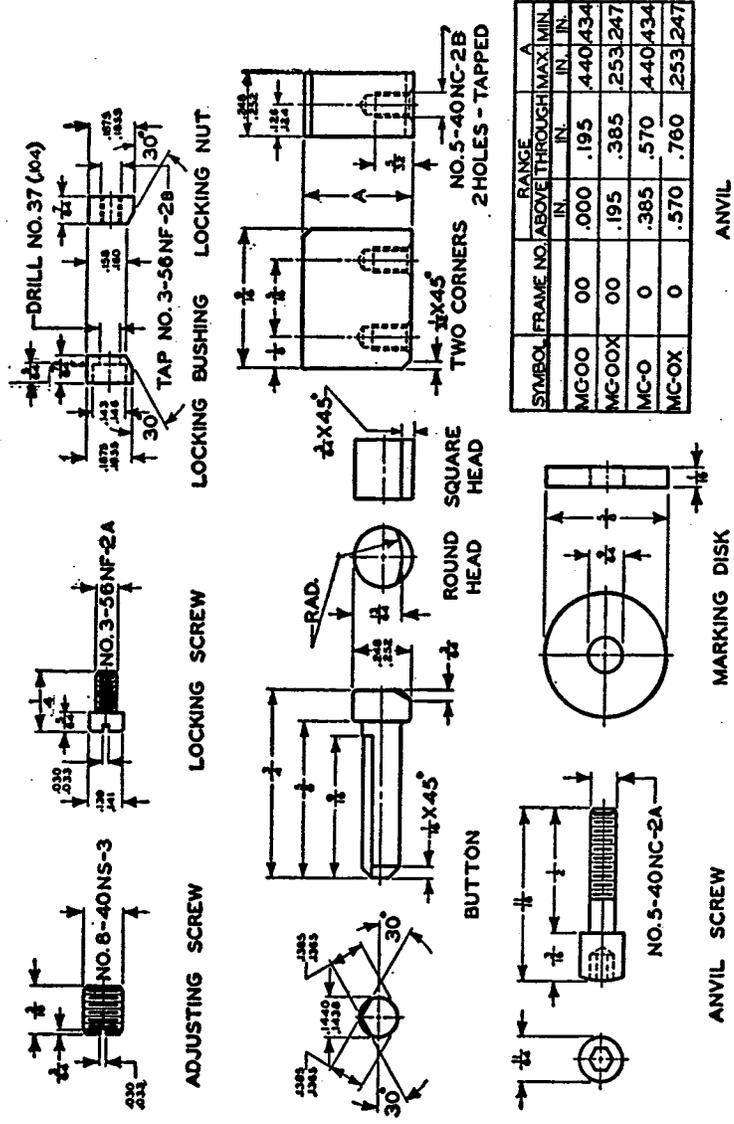


FIGURE 11. Model MC snap gage, details.

3.11 Adjustable Length Gages

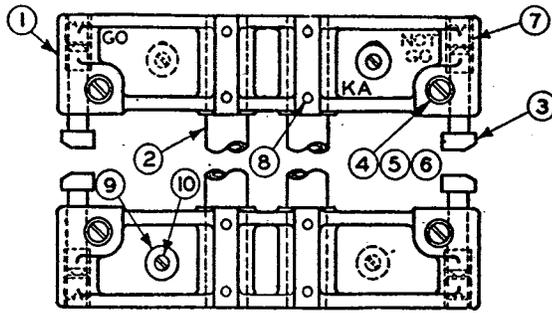
3.11.1 As a corollary to the development of the adjustable snap gage, the committee felt that it would be a valuable contribution to gaging practice to develop an adjustable length gage in which the ease of setting and facility in handling that are characteristic of the snap gage could be applied to length measurement.

3.11.2 The American Gage Design Standard adjustable length gage employs, for gaging members and adjusting and locking means, the same fittings which are utilized in adjustable snap gages, as detailed in table 73, page 118.

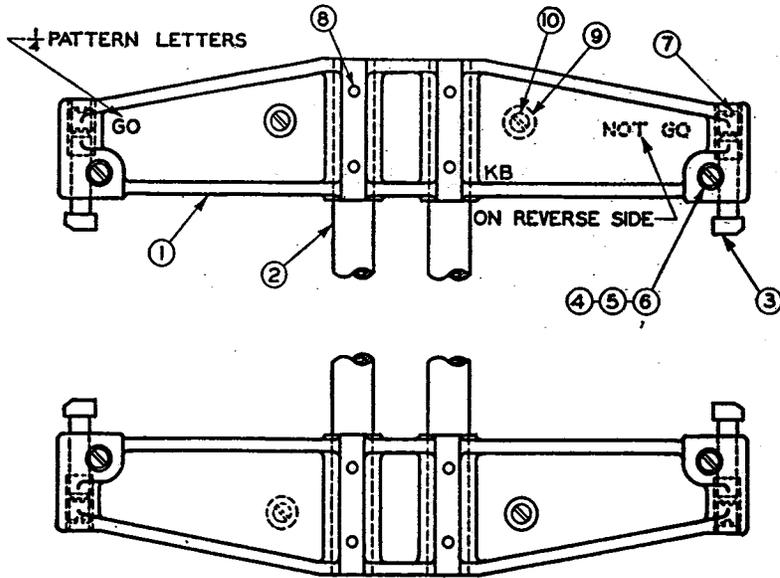
3.11.3 The gage heads are designed in two models: (a) the double-sided model with "go" and "not go" gaging members on opposite sides of the spacing tubes, and (b) the progressive model with two pairs of gaging members on the same side of the spacing tubes. All models may be used to cover a very wide range, as the spacing tubes may be constructed in any length desired. See table 72, page 112.

3.11.4 General details of construction and dimensions are shown in figures 12 to 16, pages 111 to 117.

3.11.5 It is recognized that the report of the American Gage Design Committee deals only with the dimensions of blanks, frames, and fittings, but in the case of adjustable length gages it is expected that, when assembled, the parts will have been so finished as to produce a gage of quality and accuracy comparable to that of any good commercial gage.



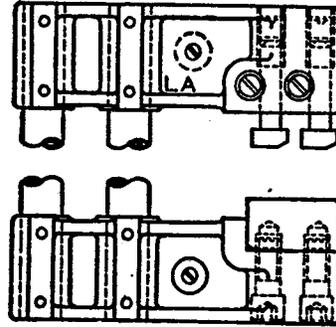
MODEL KA



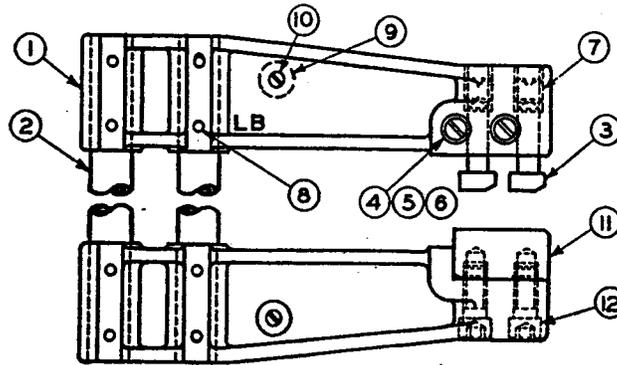
MODEL KB

FIGURE 12. Adjustable length gage, double-sided, models KA and KB, details of construction.

- | | | |
|-------------------|---------------------|-------------------------|
| 1. Gage head. | 4. Locking screw. | 8. Dowel pin. |
| 2. Spacing tube. | 5. Locking nut. | 9. Marking disk. |
| 3. Gaging button. | 6. Locking bushing. | 10. Marking disk screw. |
| | 7. Adjusting screw. | |



MODEL LA



MODEL LB

FIGURE 13. Adjustable length gage, progressive, models LA and LB, details of construction.

- | | | |
|-------------------|---------------------|-------------------------|
| 1. Gage head. | 5. Locking nut. | 9. Marking disk. |
| 2. Spacing tube. | 6. Locking bushing. | 10. Marking disk screw. |
| 3. Gaging button. | 7. Adjusting screw. | 11. Anvil. |
| 4. Locking screw. | 8. Dowel pin. | 12. Anvil screw. |

TABLE 72. Recommended applicability of adjustable length gage as related to product tolerance.

Range		Product tolerance, not less than—
Above—	To and including—	
in. 0	in. 12	in. 0.005
12	30	.010
30	-----	.020

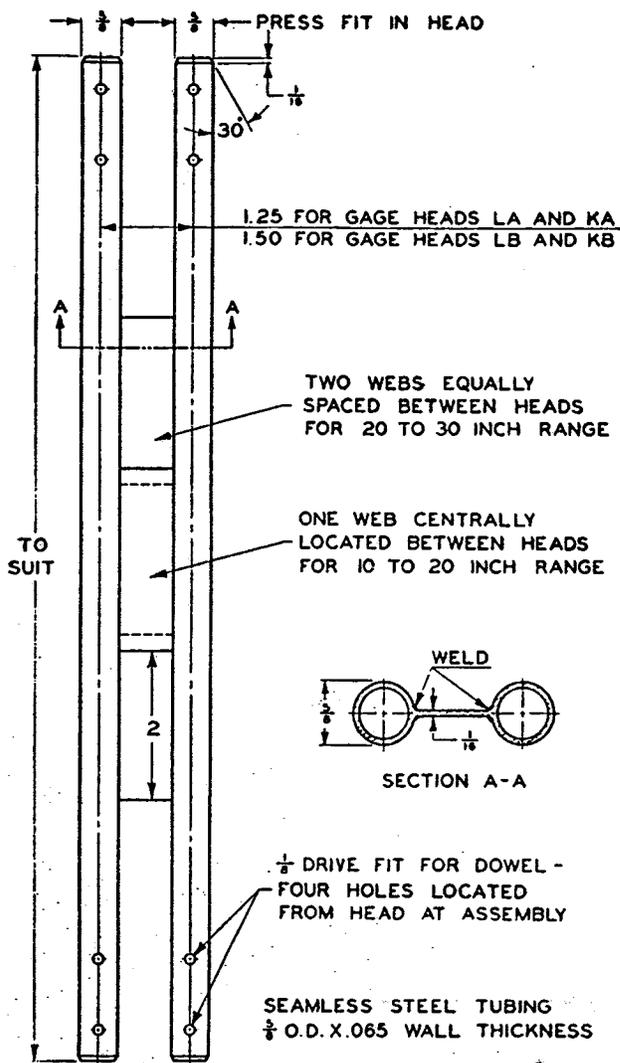


FIGURE 16. Adjustable length gages, details of spacing tubes.

TABLE 73. Adjustable length gages, parts list.

Part	Double-sided—(specification or reference)	
	Model KA	Model KB
	Gage head.....	Figure 14A.....	Figure 14B.....
Spacing tube.....	Figure 16.....	Figure 16.....
Gaging button.....	Table 67, frames 7-10.....	Table 67, frames 7-10.....
Locking screw.....	Table 64, frames 7-10.....	Table 64, frames 7-10.....
Locking nut.....	Table 65, frames 7-10.....	Table 65, frames 7-10.....
Locking bushing.....	Table 65, frames 7-10.....	Table 65, frames 7-10.....
Adjusting screw.....	Table 63, frames 7-10.....	Table 63, frames 7-10.....
Dowel pins.....	$\frac{1}{16}$ " dia. \times $\frac{1}{4}$ ".....	$\frac{1}{16}$ " dia. \times $\frac{1}{4}$ ".....
Marking disk.....	Table 71, frames 2 and 3.....	Table 71, frames 4-16.....
Marking disk screw.....	No. 10-32NF-2A \times $\frac{1}{4}$ ".....	No. 10-32NF-2A \times $\frac{1}{4}$ ".....

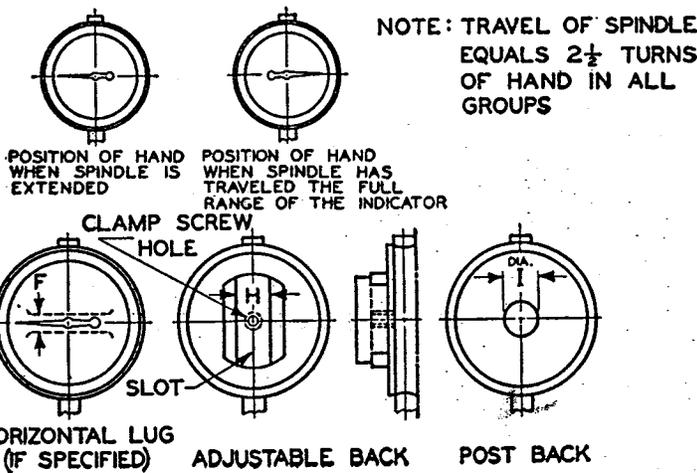
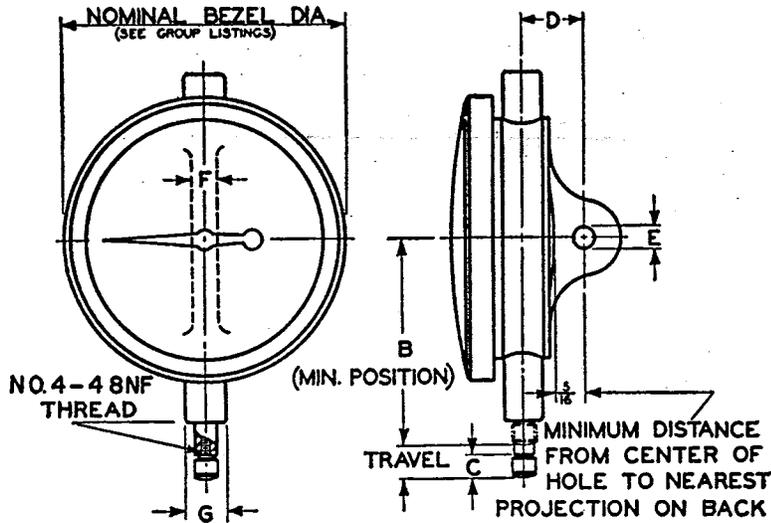
Part	Progressive—(specification or reference)	
	Model LA	Model LB
	Gage head.....	Figure 15A.....	Figure 15B.....
Spacing tube.....	Figure 16.....	Figure 16.....
Gaging button.....	Table 67, frames 7-10.....	Table 67, frames 7-10.....
Locking screw.....	Table 64, frames 7-10.....	Table 64, frames 7-10.....
Locking nut.....	Table 65, frames 7-10.....	Table 65, frames 7-10.....
Locking bushing.....	Table 65, frames 7-10.....	Table 65, frames 7-10.....
Adjusting screw.....	Table 63, frames 7-10.....	Table 63, frames 7-10.....
Dowel pins.....	$\frac{1}{16}$ " dia. \times $\frac{1}{4}$ ".....	$\frac{1}{16}$ " dia. \times $\frac{1}{4}$ ".....
Marking disk.....	Table 71, frames 2 and 3.....	Table 71, frames 4-16.....
Marking disk screw.....	No. 6-32NC-2A \times $\frac{1}{4}$ ".....	No. 10-32NF-2A \times $\frac{1}{4}$ ".....
Anvil.....	Table 68, frames 7-10.....	Table 68, frames 7-10.....
Anvil screw.....	Table 69, frames 7-10.....	Table 69, frames 7-10.....

3.12 Dial Indicators

3.12.1 In 1938 a subcommittee, composed of dial indicator manufacturers and users, was appointed to consider the possibility of standardizing basic mounting dimensions of dial indicators so that various makes and models might be interchangeably mounted. As a result of the recommendations of the subcommittee, the dimensions shown in table 74, page 119, were approved and adopted by the American Gage Design Committee in June 1939, and adjusted in March 1947 to include horizontal lug, adjustable, and post back construction.

3.12.2 In addition to standard mounting dimensions, it was decided that the range or spindle travel should be consistent with the magnification, and the practice was adopted to have the spindle travel equal to $2\frac{1}{2}$ revolutions of the indicating hand, except for special applications requiring greater travel. Another practice which was adopted was to set the indicating hand at the 9 o'clock position (one-fourth revolution to the left of zero) when the spindle is in the rest position. This practice permits measuring on both the plus and minus sides of zero without making a full revolution of the indicating hand.

TABLE 74. Dial indicators.



Group	Nominal bezel diameters		B	C	D	E	F	G	H	I
	Above	To and including								
1.....	in. 1 3/8	in. 2	in. 1 3/4	in. 1 3/4	in. 1 3/4	in. 1 3/4	in. 1 3/4	in. 1 3/4	in. 1 3/4	in. 1 3/4
2.....	2	2 3/4	2	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4
3.....	2 3/4	3	2 1/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4
4.....	3	3 3/4	2 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4

NOTE.—For further information, refer to Commercial Standard CS(E)119-45, Dial Indicators, or latest revision thereof.

3.13 Master Disks

3.13.1 Master disks have been manufactured by various firms and have been widely used for the setting and checking of comparators and adjustable snap gages, and for other applications where precision gage blocks might be used but where gages of cylindrical form would be preferred. The designs shown in tables 75 to 81, inclusive, pages 121 to 126, and in figures 17 and 18, pages 120 and 125, were adopted as standard by the committee in 1938. These cover the range of sizes from above 0.105 inch to and including 8.010 inches.

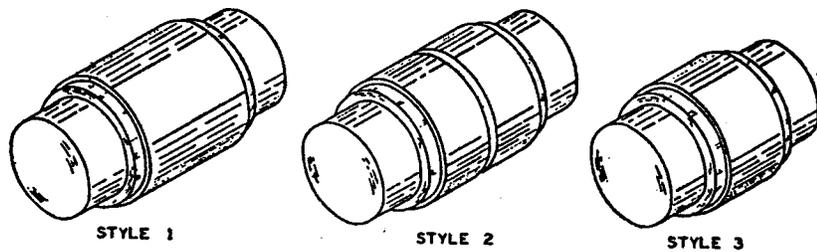
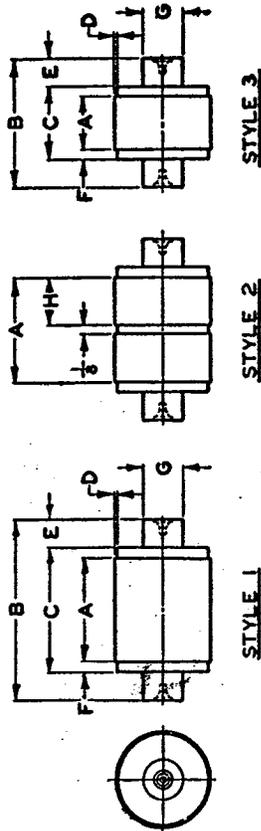


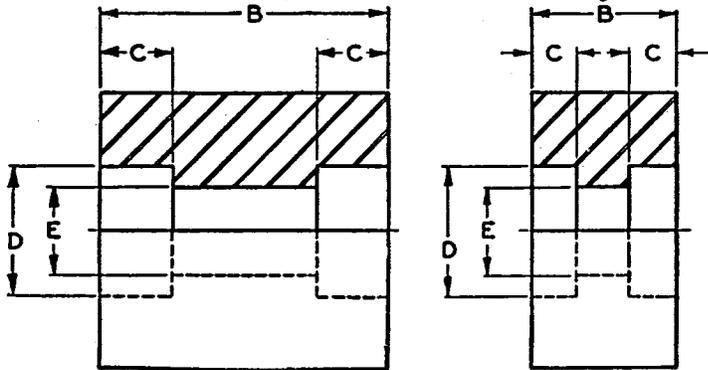
FIGURE 17. Master disks, styles 1, 2, and 3.

TABLE 76. Master disks, range above 0.365 to and including 1.510 inches.



Range in diameters		Style 1 and 2										Style 3				
Above—	To and including—	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G
in. 0.365	in. 0.510	1 1/4	2 1/4	1 1/4	0.010	1/4	1/4	0.188	1/4	1/4	1 1/4	1/4	0.010	1/4	1/4	0.188
.510	.825	1 1/4	2 1/4	1 1/4	.010	3/8	3/8	.250	3/8	3/8	1 1/4	3/8	.010	3/8	3/8	.250
.825	1.135	1 1/4	2 1/4	1 1/4	.010	1/2	1/2	.500	1/2	1/2	1 1/4	1/2	.010	1/2	1/2	.500
1.135	1.510	1 1/4	2 1/4	1 1/4	.010	3/4	3/4	.625	3/4	3/4	1 1/4	3/4	.010	3/4	3/4	.625

TABLE 77. Master disks, range above 1.510 to and including 2.510 inches.

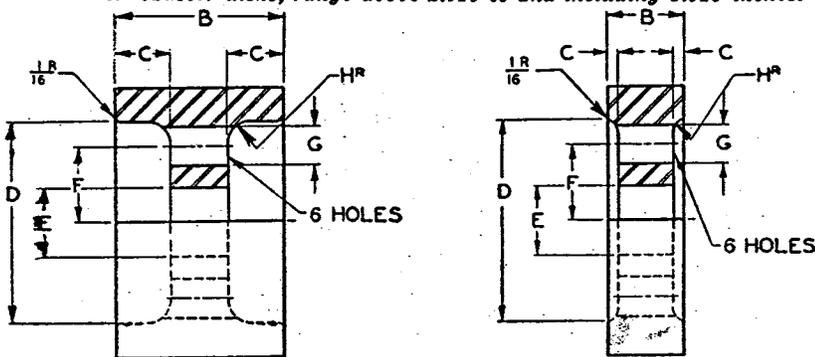


STYLE-1

STYLES-2 & 3

Range in diameters		Style 1				Styles 2 and 3			
Above—	To and including—	B	C	D	E	B	C	D	E
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1.510	2.010	1 1/2	1/2	25/64	17/32	1 1/8	3/16	25/64	17/32
2.010	2.510	2	1/2	25/64	17/32	1 1/8	3/16	25/64	17/32

TABLE 78. Master disks, range above 2.510 to and including 8.010 inches.

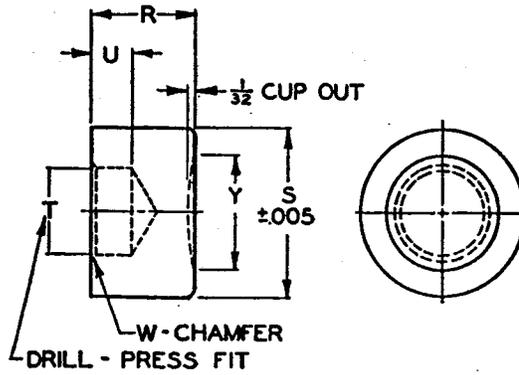


STYLE I

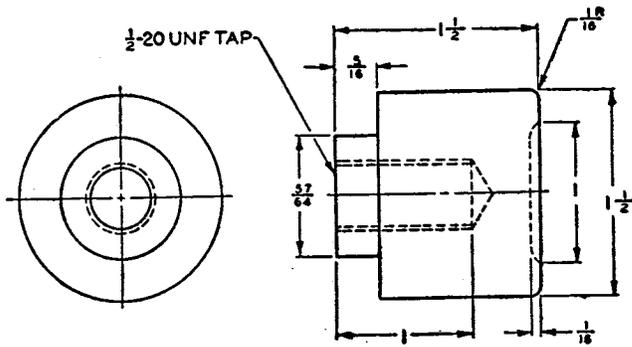
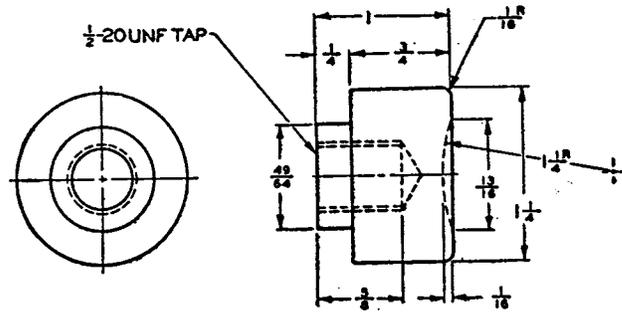
STYLES 2 & 3

Range in diameters		Style 1								Styles 2 and 3							
Above—	To and including—	B	C	D	E	F	G	H	B	C	D	E	F	G	H		
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		
2.510	3.010	2 1/4	1 1/16	1 7/8	25/32	---	---	1 1/8	1	1 1/8	1 7/8	25/32	---	---	1 1/8		
3.010	3.510	2 3/4	5/8	2 1/4	25/32	---	---	1 1/8	1	1 1/8	2 1/4	25/32	---	---	1 1/8		
3.510	4.010	2 3/4	5/8	2 3/8	25/32	---	---	1 1/8	1	1 1/8	2 3/8	25/32	---	---	1 1/8		
4.010	4.510	2 3/4	5/8	3	25/32	1 1/4	3/4	1 1/8	1	1 1/8	3	25/32	1 1/4	3/4	1 1/8		
4.510	5.010	2 3/4	5/8	3 1/4	25/32	1 1/4	1 1/4	1 1/8	1	1 1/8	3 1/4	25/32	1 1/4	1 1/4	1 1/8		
5.010	5.510	2 3/4	5/8	3 3/8	25/32	1 1/4	1 1/4	1 1/8	1	1 1/8	3 3/8	25/32	1 1/4	1 1/4	1 1/8		
5.510	6.010	2 3/4	5/8	4	25/32	1 1/4	1 1/4	1 1/8	1	1 1/8	4	25/32	1 1/4	1 1/4	1 1/8		
6.010	6.510	2 3/4	5/8	4 1/4	25/32	1 1/4	1 1/4	1 1/8	1	1 1/8	4 1/4	25/32	1 1/4	1 1/4	1 1/8		
6.510	7.010	2 3/4	5/8	5 1/4	25/32	1 1/4	1 1/4	1 1/8	1	1 1/8	5 1/4	25/32	1 1/4	1 1/4	1 1/8		
7.010	7.510	2 3/4	5/8	5 3/4	25/32	1 1/4	1 1/4	1 1/8	1	1 1/8	5 3/4	25/32	1 1/4	1 1/4	1 1/8		
7.510	8.010	2 3/4	5/8	6 1/4	25/32	1 1/4	1 1/4	1 1/8	1	1 1/8	6 1/4	25/32	1 1/4	1 1/4	1 1/8		

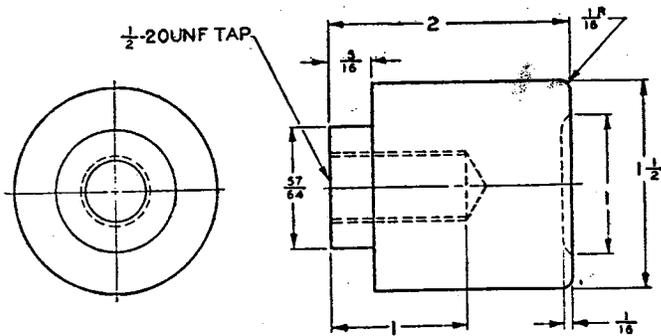
TABLE 79. Insulating grips for master disks, range above 0.105 to and including 1.510 inches.



Range in diameters		R	S	T Drill size	U	W	Y
Above—	To and including—						
in.	in.	in.	in.		in.		in.
0.105	0.150	$\frac{1}{16}$	$\frac{3}{16}$	No. 55 (0.052)	$\frac{3}{16}$		
.150	.240	$\frac{1}{8}$	$\frac{1}{2}$	No. 48 (0.081)	$\frac{1}{8}$		
.240	.365	$\frac{1}{8}$	$\frac{1}{2}$	No. 30 (0.128)	$\frac{1}{8}$	$\frac{1}{8} \times 45^\circ$	0.142
.365	.510	$\frac{1}{8}$	$\frac{11}{16}$	No. 12 (0.189)	$\frac{1}{8}$	$\frac{1}{8} \times 45^\circ$	.223
.510	.825	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$ (0.250)	$\frac{1}{4}$	$\frac{1}{8} \times 45^\circ$	.325
.825	1.135	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{2}$ (0.500)	$\frac{1}{4}$	$\frac{1}{8} \times 45^\circ$	.529
1.135	1.510	$\frac{3}{8}$	1	$\frac{3}{4}$ (0.625)	$\frac{3}{8}$	$\frac{1}{8} \times 45^\circ$	.649



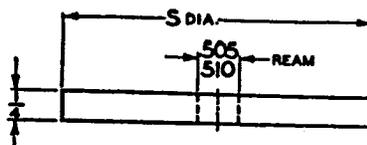
STYLES 2 & 3



STYLE 1

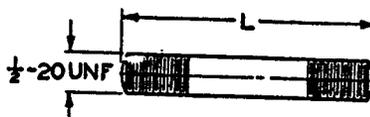
FIGURE 18. Insulating grips for master disks, range above 1.510 to and including 8.010 inches.

TABLE 80. Separator plates for master disks, range above 1.510 to and including 8.010 inches.



Range in diameters		S Diameter	Range in diameters		S Diameter
Above—	To and including—		Above—	To and including—	
in.	in.	in.	in.	in.	in.
1.510	2.010	1 1/4	5.010	5.510	4 13/16
2.010	2.510	1 1/2	5.510	6.010	5 1/4
2.510	3.010	2 1/4	6.010	6.510	5 15/16
3.010	3.510	2 3/4	6.510	7.010	6 1/8
3.510	4.010	3 1/4	7.010	7.510	6 11/16
4.010	4.510	3 3/4	7.510	8.010	6 3/4
4.510	5.010	4 1/8			7 1/8

TABLE 81. Tie rods for master disks, range above 1.510 to and including 8.010 inches.



Range in diameters		L Length		
Above—	To and including—	"Go," style 1	"Go" and "No. go," style 2	"Not go," style 3
in.	in.	in.	in.	in.
1.510	2.510	2 1/2	2 1/2	1 3/4
2.510	8.010	2	3 1/4	2

4. OFFICIAL MONOGRAM FOR DESIGNATING PRODUCTS MADE TO AMERICAN GAGE DESIGN STANDARDS

4.1 The optional use of the monogram shown in figure 19, page 127, to identify gages made to American Gage Design Standards, is sanctioned by the committee. The monogram, it will be noted, consists of the initials "AD," the right-hand side of the

"A" and the straight side of the "D" being common. The monogram, if used, should be placed adjacent to the maker's trade mark.

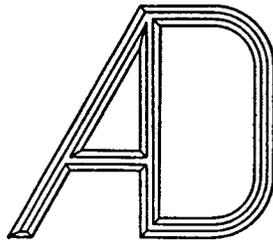


FIGURE 19. Official monogram for designating products made to American Gage Design Standards.

5. APPLICATION OF AMERICAN GAGE DESIGN STANDARDS TO SPECIAL TYPES OF GAGES, RECOMMENDED PRACTICE

5.1 While the American Gage Design Standards have been adopted with specific types and sizes of gages in mind, it is recommended that standard blanks, handles, etc., be used wherever practicable in the design and manufacture of special gages, the design of which did not come within the scope of the committee's work.

5.2 Where lengths and diameters are entirely special and blanks of standard dimensions cannot be utilized, it is further recommended that standard handles and fittings be used.

5.3 Observance of the above practices will tend to reduce costs and facilitate procurement.

5.4 There are many commonly used gages which are not adaptable to detailed standardization, but which can be classified, to advantage, as to types or general designs. A number of these have been studied by the American Gage Design Committee, and it is recommended that the general constructions outlined in figures 20 to 24, and table 82, pages 127 to 130, be adhered to whenever practicable.

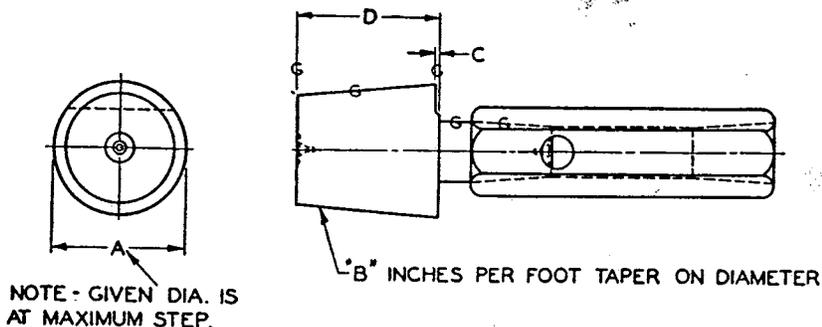


FIGURE 20. Recommended design of taper plug gage for special applications and method of dimensioning.

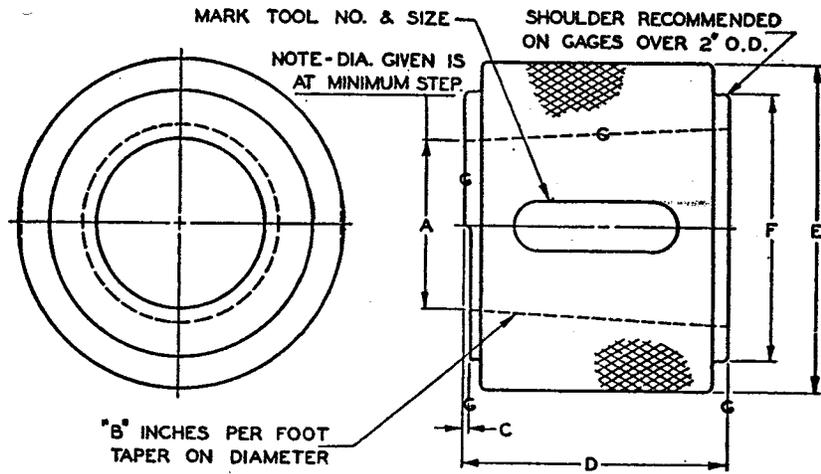


FIGURE 21. Recommended design of taper ring gage for special applications and method of dimensioning.

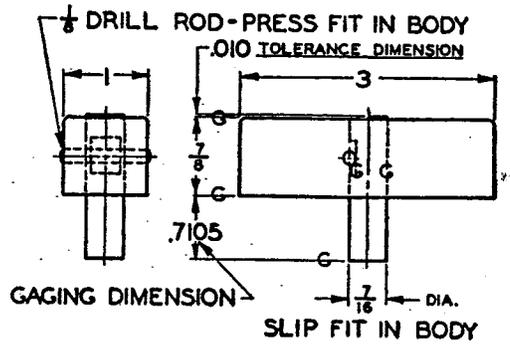


FIGURE 22. Recommended design of short flush pin gage and method of dimensioning.

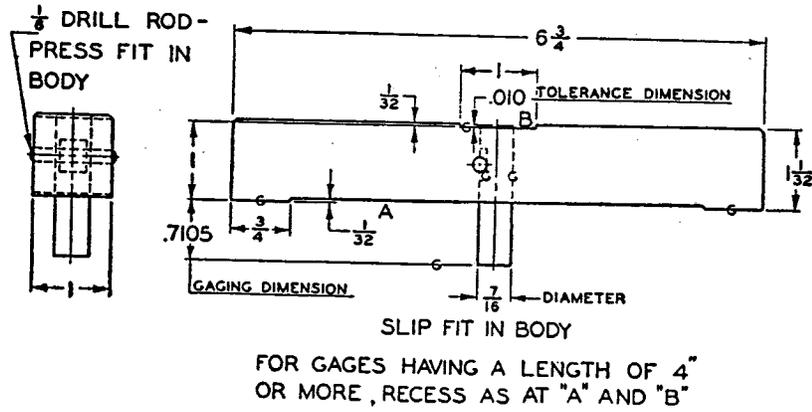


FIGURE 23. Recommended design of long flush pin gage and method of dimensioning.

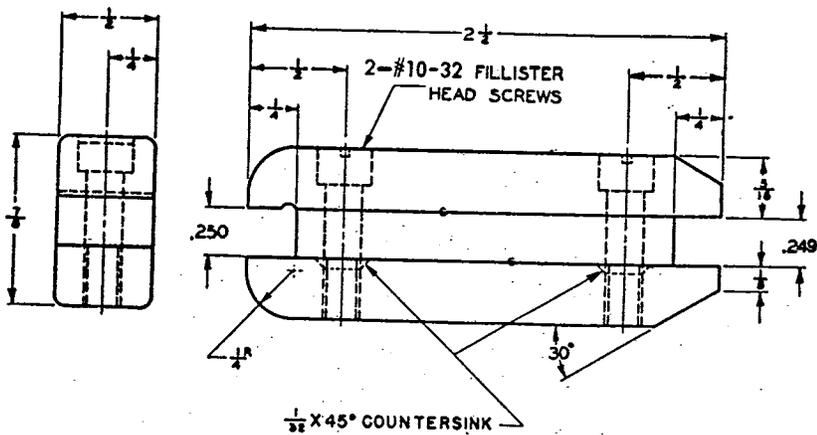
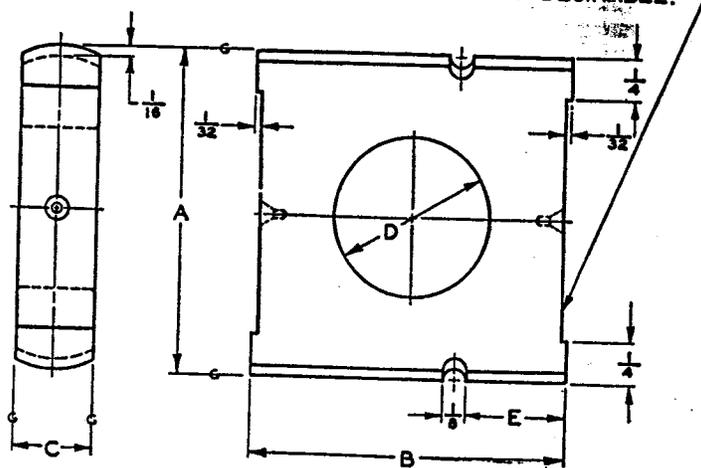


FIGURE 24. Recommended design of built-up snap gage.

TABLE 82. Recommended design of flat plug gages, range above 1.510 to and including 8.010 inches.

WHEN ENDS OF GAGE ARE TO BE GROUND THIS RECESS IS DESIRABLE.



DIMENSIONS B, D, AND E TO SUIT

A		C
Range in diameters		
Above—	To and including—	Thickness
in.	in.	in.
1.510	2.010	1/16
2.010	2.510	1/8
2.510	3.010	3/16
3.010	3.510	1/4
3.510	4.010	5/16
4.010	5.010	3/8
5.010	6.010	7/8
6.010	8.010	1

6. EFFECTIVE DATE

6.1 Having been passed through the regular procedure of the Commodity Standards Division, and approved by the American Gage Design Committee and representative manufacturers, distributors and users listed herein, this commercial standard was issued by the United States Department of Commerce, effective from July 1, 1961.

HISTORY OF PROJECT

The American Gage Design Committee was formed in December 1926 to consolidate for the benefit of industry at large the independent efforts, which were already in progress on the part of a number of large industrial concerns, representatives of United States Government departments, and several of the leading gage manufacturers, to simplify gaging practice through the adoption of standard designs for gage blanks and component parts. The designs developed by the American Gage Design Committee, which were made available to all, would minimize the necessity for the manufacture of special gages of the simpler types. The committee was given full support and recognition by engineering societies, the American Standards Association, the National Bureau of Standards, the War and Navy Departments, and the National Screw Thread Commission. It should be pointed out, however, that the major work of the committee was contributed by industry itself, many of the country's largest industrial units in widely diversified fields being represented by active membership on the committee.

By the spring of 1929, formal design standards had been completed and adopted for plain plug and ring, and thread plug and ring gages of all sizes above 0.059 to and including $4\frac{1}{2}$ inches in diameter. These standards were published in March 1930 as Miscellaneous Publication No. 100 of the National Bureau of Standards, entitled "Plain and Thread Plug and Ring Gage Blanks, Recommended Commercial Standard," and were subsequently promulgated by the Department of Commerce as Commercial Standard CS8-30. They were later approved by the American Standards Association as American Standard B47-1932.

FIRST REVISION

The widespread and almost immediate adoption of the original American Gage Design Standards by gage manufacturers and industry at large led to a very insistent demand that this work be extended to include gages of larger sizes and of other types commonly in use. Since the original standard was published a considerable number of suggestions had been received from industry at large, particularly in response to the adherence survey of the American Gage Design Standards. The committee gave every suggestion the most painstaking study, and the best of them were adopted.

No attempt was made to set gage tolerances or fits, the work being confined solely to selection of the best possible designs for gage blanks inasmuch as the work on fits and tolerances of the National Screw Thread Commission and of the Sectional Committee on Allowances and Tolerances for Cylindrical Parts and Limit Gages was available for use in connection with gages made to American Gage Design Standards.

The revised standard was published and promulgated by the Department of Commerce as Gage Blanks (Second Edition). Com-

mercial Standard CS8-33, effective for new production January 1, 1934, and for clearance of existing stocks one year later. It was also approved as American Standard B47-1933.

SECOND REVISION

On October 22, 1940, on recommendation of the American Gage Design Committee and with the approval of the standing committee, a second revision was circulated to producers and users for acceptance. This revision covered additional gage blanks for thread setting plug gages, taper thread ring gages, dial indicators, and master disks. Standard designs without complete dimensional specifications were recommended for spline plug and ring gages, taper plug and ring gages, flush-pin gages, built-up snap gages, and flat plug gages. Adjustable length gages were completely revised, and minor revisions recorded for trilock handles, plain and thread ring gages in the smallest ranges, taper plug and ring gages for checking taper lock handles and gaging members, plain adjustable snap gages, and twin ring gage blanks. Upon acceptance by a satisfactory majority of the industry, the establishment of the revision was announced December 27, 1940.

In promulgating these standards, the committee did not intend to render obsolete existing stocks of gages in the hands of manufacturers or users; rather it was the intention to provide a standard which could be gradually adopted through replacement of existing stocks. Representing the best ideas of industry at large, including gage makers and gage users, the American Gage Design Standards should merit whole-hearted support, acceptance, and use by gage purchasers, and should render obsolete the wasteful and costly practice of requisitioning gages to individual design standards. Tool supervisors and standards departments of large industrial concerns should find it advantageous to adopt, as soon as practicable, the American Gage Design Standards as a substitute for any individual standards being used.

The committee's efforts to make available in every instance the best possible design of gage blank were materially furthered by the generous action of the gage manufacturers represented on the committee, most of whom offered without reservation to dedicate to public use their proprietary patent rights on any gage construction the utilization of which might be desired by the committee. The committee gave formal recognition to the specific action of the Pratt & Whitney Co., of Hartford, Conn., and of the Taft-Peirce Manufacturing Co., of Woonsocket, R. I., in contributing, respectively, their patented trilock plug gage design and patented single-unit thread ring gage locking device to public use, as a part of this standardization program.

THIRD REVISION

The American Gage Design Committee, in 1945, undertook to develop a revision of the commercial standard to bring gage blank designs into conformity with desirable developments during the preceding war period. Special committees were formed to develop

standard designs for wire type plug gages, spline gages, adjustable plug gages, dial indicators, and other items. The recommendations of the various committees were given in a report, TS-4500, which was circulated to all participants in the work of the American Gage Design Committee. Comments on the report were considered on May 14, 1948, and adjustments were carefully developed in accordance with the consensus of those concerned. The adjusted details were approved by the technical subcommittee on April 24, 1950, and the entire revision was referred to a special committee to verify all modifications agreed upon. The special committee completed its technical review and verification on May 11, 1950, and recommended publication of the revised commercial standard.

Need for the revised standard became very urgent with the rapid increase in the production of arms and equipment for the military services late in 1950, and with the approval of the standing committee and representative producers, distributors, and users, the revised standard was issued as Commercial Standard CS8-51, effective April 15, 1951.

The principal additions to the standard include spline gages, adjustable plug gages, wire type handles, and taper gages. Modifications in designs of adjustable snap gages, and a number of improvements in dial indicators are also embodied in the revised standard.

Supplement. In 1953-54 American Gage Design meetings were held to discuss the possibilities of issuing a supplement to bring the standard up to date. As a result a 1955 Supplement CS8-51 was published after being widely accepted by interested manufacturers, distributors and users. The Supplement covered the additions of single end wire type gage handles, plain plug wire type gage blanks, reversible thread plug wire type gaging members, some changes to the thread-setting plug gaging members and spline ring gages, and other miscellaneous changes and additions.

FOURTH REVISION

It was resolved at an American Gage Design meeting held in Boston, Massachusetts on 15 January 1958 that another supplement should be prepared to include all new data agreed upon by the committee since the 1955 publication. The data were assembled as a draft supplement, TS-5471, and circulated on January 27, 1960 for consideration and approval. The new supplement received general industry acceptance, which was announced June 1, 1961. However, a second separate added document was considered impracticable, and all of the supplemental data were incorporated in a new single edition. The major additions in the 1961 revised edition of CS8 include "baby" trilock handles and gage blanks; taper pipe thread gaging members (L-1, L-3, and minor diameter check); a new design for thread ring gages (two squeeze holes—4.760 to 8.510 inches, four squeeze holes—8.510 to 12.260 inches); thread setting and master (ref) ring gage blanks (0.059 to 6.010); and additional Brown & Sharpe milling machine tapers.

AMERICAN GAGE DESIGN COMMITTEE

ORGANIZATION 1961

The American Gage Design Committee operates under the guidance of a Chairman, Secretary, Executive Committee, Editorial Committee, and Technical Subcommittees. The 1961 roster of these groups is given below. The Chairman and the Executive Committee also serve as a Standing Committee which reviews suggestions for revision of the Commercial Standard prior to circulation to the industry for acceptance. Comments concerning the standard may be addressed to any member of the Executive Committee or to the Commodity Standards Division, Office of Technical Services, U.S. Department of Commerce, which acts as secretary for the committee.

All interested organizations and individuals who wish to participate in the work of the American Gage Design Committee are invited to make their wishes known to the Commodity Standards Division or to the chairman of any of the committees listed. The principal participants in the 1961 revision are included in the list of Acceptors which follows the lists of committees.

Chairman: M. L. Fruechtenicht, Dept. of the Army, Ordnance Corps

Secretary: A. S. Best, Commodity Standards Division

Executive Committee:

Wm. H. Gourlie, The Sheffield Corp., Dayton, Ohio
 P. V. Miller, Taft-Pierce Manufacturing Co., Woonsocket, R.I.
 S. B. Sherwood, General Motors Corporation, Detroit, Mich.
 Jay E. Watson, Pratt & Whitney Co., Inc., West Hartford, Conn.
 I. H. Fullmer, National Bureau of Standards
 C. B. Keane, Department of the Army, Ordnance Corps

Editorial Committee:

G. H. Stimson, Greenfield Tap & Die Division, Greenfield, Mass.
 W. H. Gourlie, The Sheffield Corp., Dayton, Ohio
 J. E. Watson, Pratt & Whitney Co., Inc., West Hartford, Conn.
 C. B. Keane, Department of the Army, Ordnance Corps
 A. S. Best, Commodity Standards Division
 I. H. Fullmer, National Bureau of Standards

Technical Subcommittees:

1. Baby Trilock Plug Gage Blanks:

Chairman—R. E. Lamb, Republic Gage Co., Detroit, Mich.
 R. Mahlmeister, The Sheffield Corp., Dayton, Ohio
 C. W. Moeller, Pratt & Whitney Co., Inc., West Hartford, Conn.
 E. E. Olds, Size Control Co., Chicago, Ill.
 C. H. Bauer, Cadillac Gage Co., Warren, Mich.
 J. C. Bath, John Bath Co., Inc., Worcester, Mass.
 P. V. Miller, Taft-Pierce Manufacturing Co., Woonsocket, R.I.
 I. H. Fullmer, National Bureau of Standards
 J. S. Higgins, Whittet-Higgins Co., Providence, R.I.
 F. Carney, Huron Machine Products, Inc., Dearborn, Mich.

2. Roll Thread Snap Gages:

- Chairman—Wm. J. Darmody, The Sheffield Corp., Dayton, Ohio.
 G. H. Stimson, Greenfield Tap & Die Division, Greenfield, Mass.
 S. G. Johnson, Johnson Gage Co., Bloomfield, Conn.
 F. L. Calkins, Wright Air Development Division, Wright-Patterson Air Force Base, Ohio.
 J. Ratzkin, Department of the Navy, Naval Weapons Plant.
 Jay E. Watson, Pratt & Whitney Co., Inc., West Hartford, Conn.
 P. V. Miller, Taft-Pierce Manufacturing Co., Woonsocket, R.I.

3. Pipe Thread Gage Blanks:

- Chairman—G. H. Stimson, Greenfield Tap & Die Division, Greenfield, Mass.
 F. L. Calkins, Wright Air Development Division, Wright-Patterson Air Force Base, Ohio.
 R. L. Gergen, Pipe Machinery Co., Wickliffe, Ohio.
 Carl W. Moeller, Pratt & Whitney Co., Inc., West Hartford, Conn.
 W. H. Gourlie, The Sheffield Corp., Dayton, Ohio.

4. Rigidity Large Thread Ring Gages & Redesign of Adjusting & Locking Mechanism:

- Chairman—P. V. Miller, Taft-Pierce Manufacturing Co., Woonsocket, R.I.
 J. S. Higgins, Whittet-Higgins Co., Providence, R.I.
 H. E. Lindemann, Huron Machine Products, Inc., Dearborn, Mich.
 W. H. Gourlie, The Sheffield Corporation, Dayton, Ohio.
 Jay E. Watson, Pratt & Whitney Co., Inc., West Hartford, Conn.
 C. V. Briner, Pipe Machinery Co., Wickliffe, Ohio.

5. Spline Gage Blanks:

- Chairman—Albert S. Beam, Vinco Corp., Detroit, Mich.
 George L. Breur, Curtiss-Wright Corp., Caldwell, N.J.
 Arthur D. Anderson, Department of Navy, Naval Weapons Plant.
 J. Q. Holmes, General Motors Corp., Detroit, Mich.
 R. Spall, Detroit Arsenal, Detroit, Mich.
 F. L. Calkins, Wright Air Development Division, Wright-Patterson Air Force Base, Ohio.

6. Substitution of Established AGD Blanks for Instrument Blanks:

- Chairman—R. L. Gergen, The Pipe Machinery Co., Wickliffe, Ohio.
 Wm. J. Darmody, The Sheffield Corp., Dayton, Ohio.
 G. H. Stimson, Greenfield Tap & Die Div., Greenfield, Mass.
 C. W. Moeller, Pratt & Whitney Co., Inc., West Hartford, Conn.
 P. V. Miller, Taft-Pierce Manufacturing Co., Woonsocket, R.I.
 W. C. Foote, Dearborn Gage Co., Dearborn, Mich.
 Jay E. Watson, Pratt & Whitney Co., Inc., West Hartford, Conn.
 C. D. Carter, Western Electric Co., Chicago, Ill.

7. Handles for Fine Pitch Instrument Threads below 1 inch and Re-evaluation of proportions of existing AGD Handles for sizes below 0.760:

- Chairman—C. D. Carter, Western Electric Co., Chicago, Ill.
 H. B. Burkhart, Cadillac Gage Co., Warren, Mich.
 J. E. Hendricks, Hamilton Watch Co., Lancaster, Pa.
 R. S. Fox, Pratt & Whitney Co., Inc., West Hartford, Conn.
 W. G. Van Keuren, Van Keuren Co., Boston, Mass.
 E. E. Olds, Size Control Co., Chicago, Ill.
 R. Mahlmeister, The Sheffield Corp., Dayton, Ohio

ACCEPTORS

The manufacturers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Commercial Standard prior to its publication. The acceptances indicate an intention to utilize the standard as far as practicable, but reserve the right to depart from it as may be deemed desirable. The list is published to show the extent of recorded public support for the standard, and should not be construed as indicating that all products made by the acceptors actually comply with its requirements.

Products that meet all requirements of the standard may be identified as such by a certificate, grade mark, or label. Purchasers are encouraged to require such specific evidence of compliance, which may be given by the manufacturer whether or not he is an acceptor.

AC Spark Plug Division, General Motors Corp., Flint, Mich.
 Active Grinding & Manufacturing Co., Chicago, Ill.
 AI Research Manufacturing Company of Los Angeles, Los Angeles, Calif.
 Allison Division, General Motors Corp., Indianapolis, Ind.
 American Bosch Division of American Bosch Arma Corp., Springfield, Mass.
 Bath, John, & Co., Inc., Worcester, Mass.
 Bell & Howell Co., Chicago, Ill.
 Bell Telephone Laboratories, Inc., New York, N.Y.
 Bendix Products Division of Bendix Corp., South Bend, Ind.
 Boeing Airplane Co., Seattle, Wash.
 Briggs & Stratton Corp., Milwaukee, Wis.
 Cadillac Gage Co., Warren, Mich.
 Canadian Aviation Electronics, Montreal, P. Quebec, Canada
 Chicago Screw Co., Bellwood, Ill.
 Curtiss Wright Corp., Curtiss Propeller Division, Caldwell, N.J.
 DeKalb Precision Industries, DeKalb, Ill.
 Detroit Tap & Tool Co., Warren, Mich.
 DoAll Co., Des Plaines, Ill.
 du Pont, E. I., de Nemours & Co., Inc., Wilmington, Del.
 Eaton Manufacturing Co., Automotive Gear Division, Richmond, Ind.
 Elco Tool & Screw Corp., Rockford, Ill.
 Elgin National Watch Co., Elgin, Ill.
 Everard Tap & Die Corp., New York, N.Y.
 Ex-Cell-O Corporation, Greenville Plant, Greenville, Ohio
 Fairchild Aircraft & Missiles Division, Hagerstown, Md.
 Falk Corp., Milwaukee, Wis.
 Federal Products Corp., Providence, R.I.
 Godwin Gage Co., Detroit, Mich.
 Greenfield Tap & Die Division of United-Greenfield Corp., Greenfield, Mass.
 Hamilton Standard Division, United Aircraft Corp., Windsor Locks, Conn.
 Hanson-Whitney Co., Hartford, Conn.
 Hell-Coil Corp., Danbury, Conn.
 Huron Machine Products, Inc., Dearborn, Mich.
 Industrial Products Division, Brown & Sharpe Manufacturing Co., Providence, R.I.
 International Business Machines Corp., Endicott, N.Y.
 Jeffrey Manufacturing Co., Columbus, Ohio
 Johnson Gage Co., Bloomfield, Conn.
 King-Seeley Division of King Seeley Corp., Ann Arbor, Mich.
 Laharco Industries Inc., Minneapolis, Minn.
 Lawson & Sessions Co., Cleveland, Ohio
 Leeds & Northrup Co., Philadelphia, Pa.
 Lincoln Gage Co., St. Clair Shores, Mich.
 Lincoln Park Industries, Inc., Lincoln Park, Mich.
 Lockheed Aircraft Corp., Burbank, Calif.
 Lycoming Division, AVCO Corp., Stratford, Conn.
 Master Gage Co., Berkley, Mich.
 Morse Twist Drill & Machine Co., New Bedford, Mass.
 New York Air Brake Co., Watertown, N.Y.
 Northrop Corp., Norair Division, Hawthorne, Calif.
 North American Aviation, Inc., Los Angeles, Calif.
 Oliver Corp., South Bend, Ind.
 P & L Manufacturing Co., Inc., Anaheim, Calif.
 Perfex Gage & Tool Co., Mt. Clemens, Mich.
 Pratt & Whitney Co., Inc., West Hartford, Conn.
 Precision Gage Co., Inc., Chicago, Ill.
 Precision Gage & Tool Co., Dayton, Ohio

ACCEPTORS—Continued

Qualified Gage Co., Berkley, Mich.
 Radio Corporation of America, Camden, N.J.
 Remington Arms Co., Inc., Bridgeport, Conn.
 Republic Gage Co., Detroit, Mich.
 Robin Hood Precision Products Inc., Van Nuys, Calif.
 Royal Oak Products Co., Madison Heights, Mich.
 Sandia Corp., Department 4420, Albuquerque, N. Mex.
 Scovill Manufacturing Co., Waterbury, Conn.
 Sheffield Corp., Dayton, Ohio
 Size Control Co., Division of American Gage & Machine Co., Chicago, Ill.
 Southern Railway System, Washington, D.C.
 Sundstrand Machine Tool, Division of Sundstrand Corp., Belvidere, Ill.
 Taft-Pierce Manufacturing Co., Woonsocket, R.I.
 Taylor Instrument Companies, Rochester, N.Y.
 Treco Co., Berkley, Mich.
 Timken Roller Bearing Co., Canton, Ohio
 Tourek, J. J. Manufacturing Co., Chicago, Ill.
 Tubular Micrometer Co., St. James, Minn.
 United States Testing Co., Inc., Hoboken, N.J.
 Universal Thread Grinding Co., Fairfield, Conn.
 Waltz Brothers, Inc., Chicago, Ill.
 Warner & Swasey Co., Cleveland, Ohio
 Western Electric Co., Inc., Chicago, Ill.
 White, S. S., Dental Manufacturing Co., Staten Island, N.Y.
 Whittet-Higgins Co., Providence, R.I.
 Woodward Governor Co., Rockford, Ill.

U.S. GOVERNMENT AGENCIES**Department of the Air Force :**

Air Research and Development Command, Wright Air Development Division, Wright-Patterson Air Force Base, Ohio

Department of the Army :

Army Chemical Corps, Gage Design Branch, Army Chemical Center, Md.

Ordnance, Office of the Chief of :

Detroit (Mich.) Arsenal, Quality Assurance Division
 Frankford (Pa.) Arsenal, Metrology Division
 Picatinny (N.J.) Arsenal
 Redstone (Ala.) Arsenal, Army Rocket & Guided Missile Agency
 Rock Island (Ill.) Arsenal
 Springfield (Mass.) Armory
 Watertown (Mass.) Arsenal
 Watervliet (N.Y.) Arsenal

Department of the Navy :

Bureau of Naval Weapons
 Naval Weapons Plant

Department of Commerce, National Bureau of Standards

General Services Administration

Department of the Interior

Veterans Administration

WITHDRAWN

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COMMERCIAL STANDARD CS8-61

CS8-61

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date

Commodity Standards Division,
Office of Technical Services,
U. S. Department of Commerce,
Washington 25, D. C.

Gentlemen:

We believe that Commercial Standard CS8-61 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production¹ distribution¹ purchase¹

of gage blanks. We reserve the right to depart from the standard as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

(Cut on this line)

Signature of authorized officer

(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer

Organization

(Fill in exactly as it should be listed)

Street address

City, zone, and State

¹ Underscore the one that applies. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General Support" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial Standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of Commercial Standards is to establish, for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of Commercial Standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.