Commercial Standard CS8-51

SUPERSEDES CS8–41

GAGE BLANKS

A RECORDED VOLUNTARY STANDARD OF THE TRADE

U. S. DEPARTMENT OF COMMERCE

CHARLES SAWYER, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

Office of Industry and Commerce

H. B. McCOY, Director

IN COOPERATION WITH

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UNITED STATES DEPARTMENT OF COMMERCE
Charles Sawyer, Secretary

Gage Blanks

(FOURTH EDITION)

[Effective April 15, 1951]

CONTENTS

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 3¾ 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.

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 *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 splineways 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 0.510 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 0.510 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 0.510 inch, the *reversible* or *trilock* design with reversible gaging members from above 1.510 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 the small diameters. This gage comprises 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, or reversed to increase the useful life of the gage.

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 0.510 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 8, and tables 1 to 4, pages 9-11.

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 8. See also tables 5, 6, 8, and 9, pages 12-13, 15-16.

3.1.4 REVERSIBLE OR TRILOCK DESIGN, ABOVE 1.510 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 1.510 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 8-9. See also tables 7, 10, and 11, pages 14, 17, and 18.

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

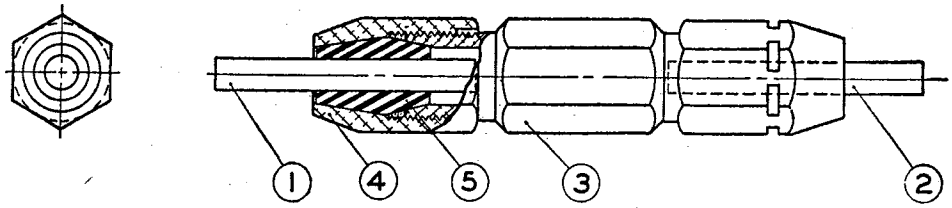
3.1.5.1 Because of the fact that large plug gages are heavy and difficult to handle, it was necessary to adopt a design for the range above 8.010 inches which would have the lightest possible section consistent with strength and permanence. The annular design having a rim and web of properly proportioned 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 19.

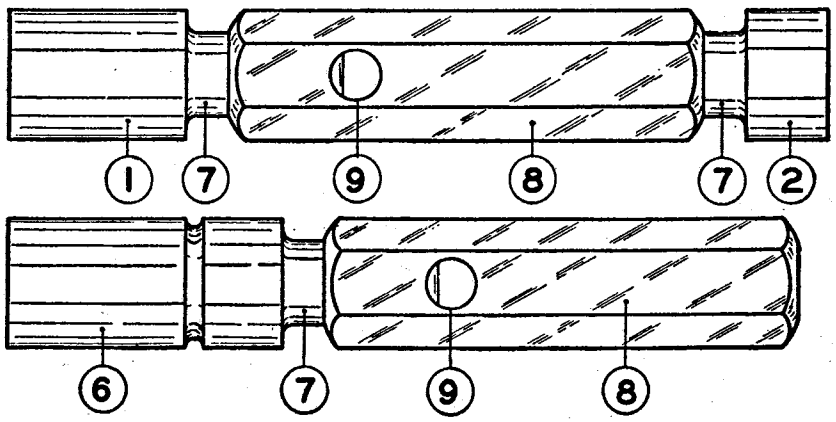
3.2 Handles for Plain Cylindrical and Thread Plug Gage Blanks

3.2.1 Handles of the wire type gages are hexagonal with hexagonal clamping nuts, handles for both taper lock and reversible or trilock gages are of the hexagonal type, while commercial ball handles are employed for the annular plug gage and for certain of the larger ring gages. Wire type gage handles are dimensioned in tables 1 and 2; taper lock and reversible or trilock handles in tables 5, 6, and 7.

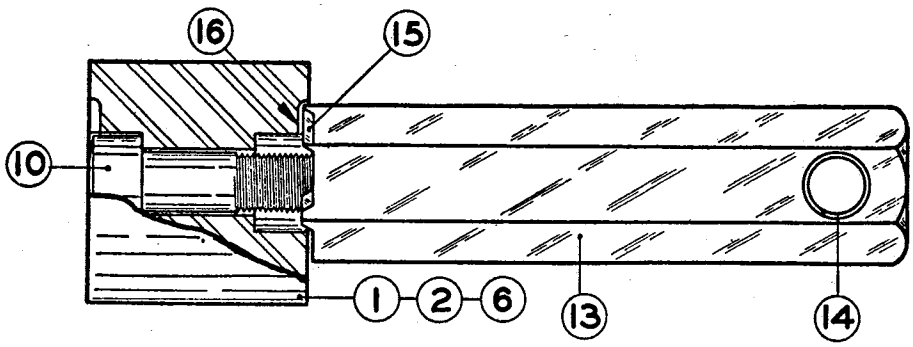
3.2.2 Handles as designed for all gages offer a feature of economy in that they may be disassembled from gaging members, when the latter are worn out, or discarded for any other reason, and then reassembled with new gaging members, thus giving them, with reasonable care, practically indefinite life.



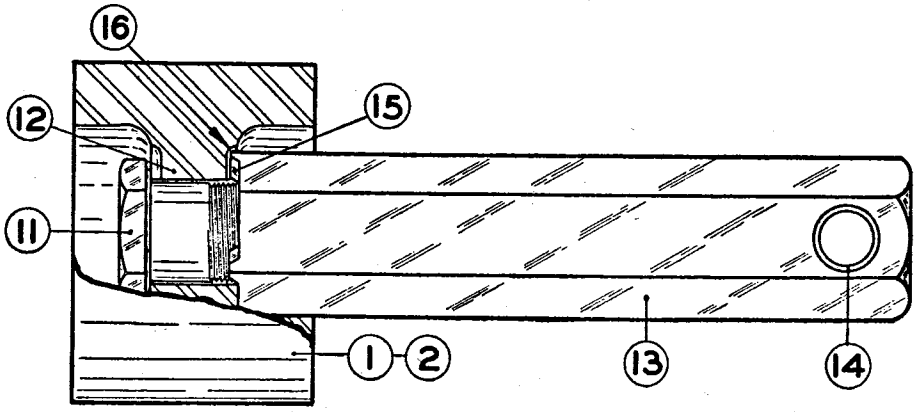
Range: Above 0.030 to and including 0.510 inch.



Range: Above 0.059 to and including 1.510 inches.



Range: Above 1.510 to and including 2.510 inches.



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.
2. "Not go" gaging member.
3. Wire type handle.
4. Clamping nut.
5. Collet bushing.
6. Progressive gaging member.
7. Shank.
8. Taper lock handle.
9. Drift hole or slot.
10. Socket head screw.
11. Hexagon head screw.
12. Web.
13. Handle for reversible gage.
14. Cross-pin hole.
15. Locking prong.
16. Locking groove.

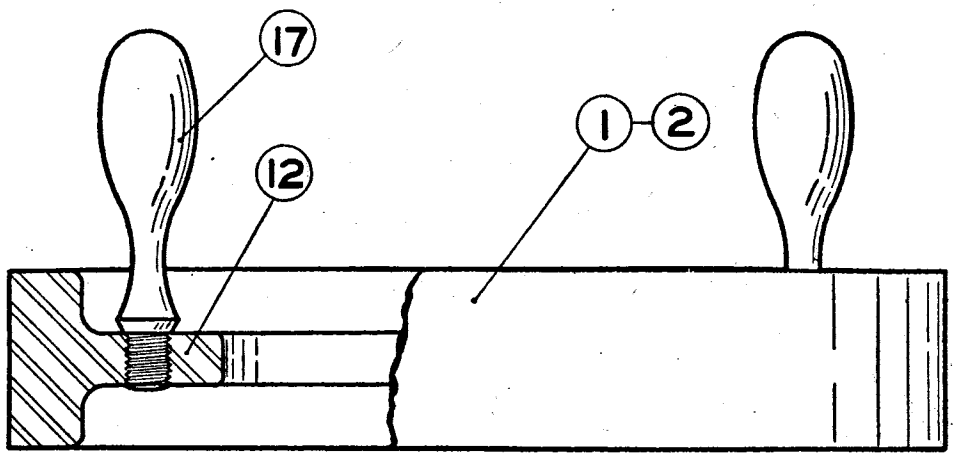
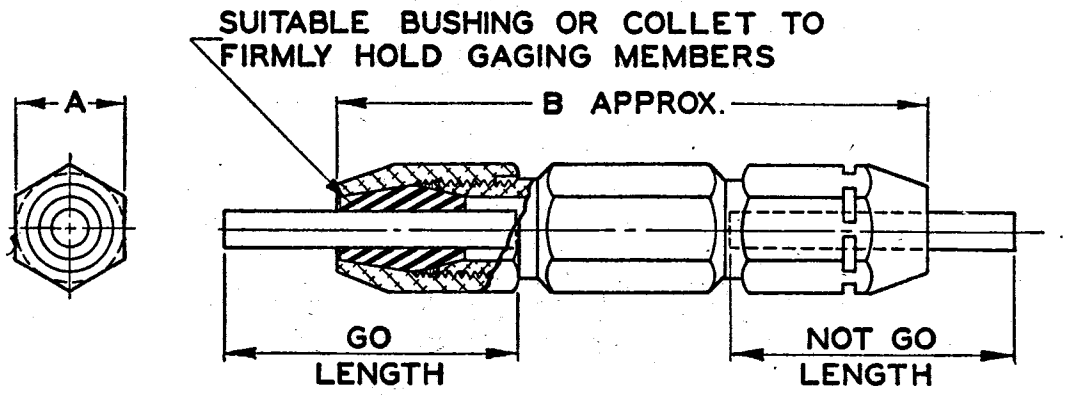


FIGURE 1B. *Plain cylindrical plug gages, details of construction—range above 8.010 to and including 12.010 inches.*

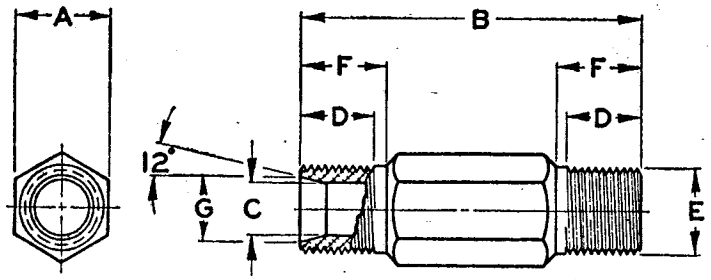
1. "Go" gaging member.
2. "Not go" gaging member.
12. Web.
17. Ball handle.

TABLE 1. *Handles for plain cylindrical plug gages, wire type design, range above 0.030 to and including 0.510 inch.*



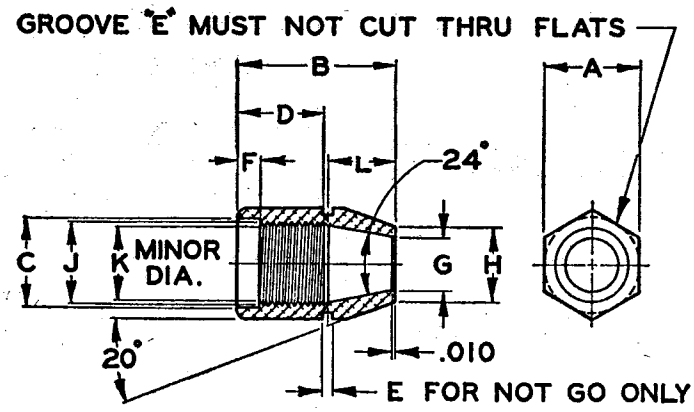
Handle No.	Size range		"Go" and "not go" length	A	B
	Above—	To and including—			
	in.	*in.*	*in.*	*in.*	*in.*
1 W	0.030	0.075	1	1/4	1 29/32
2 W	.075	.180	1 1/4	3/8	2 15/32
3 W	.180	.281	1 1/2	9/16	3 1/8
4 W	.281	.406	1 3/4	11/16	3 19/32
5 W	.406	.510	2	13/16	4 3/16

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



Handle No.	Size range		A	B	C	D	E	F	G
	Above—	To and including—							
	in.	*in.*	*in.*	*in.*	*in.*	*in.*		*in.*	*in.*
1 W-----	0.030	0.075	1/4	1 5/16	3/32	9/32	12–32NEF–2A	21/64	0.151
2 W-----	.075	.180	3/8	1 27/32	5/16	5/16	5/16–32NEF–2A	7/16	.235
3 W-----	.180	.281	9/16	2 1/8	19/64	13/32	1/2–28UNEF–2A	1/2	.348
4 W-----	.281	.406	11/16	2 19/32	27/64	7/16	5/8–28UN–2A	5/8	.473
5 W-----	.406	.510	13/16	3 1/16	33/64	5/8	3/4–28UN–2A	3/4	.588

TABLE 3. *Wire type plug gage nuts.*

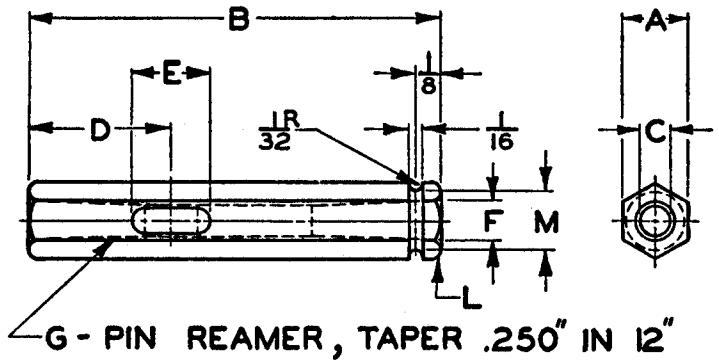


Handle No.	Size range		A	B	C	D	E	F	G	H	J	K	L
	Above—	To and including—											
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*		*in.*	*in.*
1 W---	0.030	0.075	1/4	9/16	0.230 .220	11/32	1/32	3/32	0.078	7/32	12–32NEF–2B	0.1822 .1868	5/32
2 W---	.075	.180	3/8	11/16	.326 .316	7/16	1/32	1/8	.185	5/16	5/16–32NEF–2B	.2787 .2833	7/32
3 W---	.180	.281	9/16	15/16	.514 .504	1/2	1/16	1/8	.285	7/16	1/2–28UNEF–2B	.4613 .4666	13/32
4 W---	.281	.406	11/16	1 1/16	.640 .630	5/8	1/16	1/4	.412	9/16	5/8–28UN–2B	.5863 .5915	7/16
5 W---	.406	.510	13/16	1 1/4	.765 .755	3/4	1/16	3/16	.515	21/32	3/4–28UN–2B	.7113 .7166	1/2

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

Bushing No.	Size range	Bushing No.	Size range
	in.		*in.*
1–W–.035	0.030–.035	3–W–.220	0.212–.220
1–W–.040	.035–.040	3–W–.228	.220–.228
1–W–.045	.040–.045	3–W–.236	.228–.236
1–W–.050	.045–.050	3–W–.244	.236–.244
1–W–.055	.050–.055		
		3–W–.252	.244–.252
1–W–.060	.055–.060	3–W–.261	.252–.261
1–W–.065	.060–.065	3–W–.271	.261–.271
1–W–.070	.065–.070	3–W–.281	.271–.281
1–W–.075	.070–.075		
		4–W–.291	.281–.291
2–W–.082	.075–.082	4–W–.301	.291–.301
2–W–.089	.082–.089	4–W–.311	.301–.311
2–W–.096	.089–.096	4–W–.321	.311–.321
2–W–.103	.096–.103		
2–W–.110	.103–.110	4–W–.331	.321–.331
		4–W–.341	.331–.341
2–W–.117	.110–.117	4–W–.351	.341–.351
2–W–.124	.117–.124	4–W–.361	.351–.361
2–W–.131	.124–.131		
2–W–.138	.131–.138	4–W–.371	.361–.371
2–W–.145	.138–.145	4–W–.382	.371–.382
		4–W–.394	.382–.394
2–W–.152	.145–.152	4–W–.406	.394–.406
2–W–.159	.152–.159		
2–W–.166	.159–.166	5–W–.420	.406–.420
2–W–.173	.166–.173	5–W–.435	.420–.435
2–W–.180	.173–.180	5–W–.450	.435–.450
		5–W–.465	.450–.465
3–W–.188	.180–.188		
3–W–.196	.188–.196	5–W–.480	.465–.480
3–W–.204	.196–.204	5–W–.495	.480–.495
3–W–.212	.204–.212	5–W–.510	.495–.510

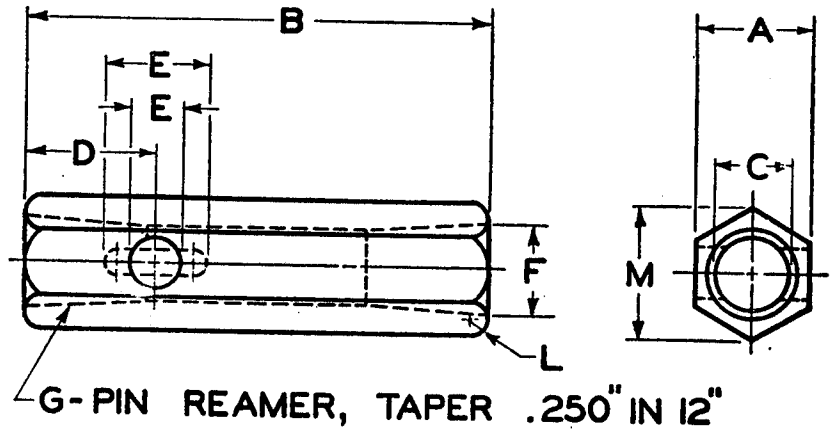
TABLE 5. *Handles for plain cylindrical and thread plug gages, taper lock design, range above 0.059 to and including 0.240 inch.*



Handle size No.	Nominal range, thread plug diameters, inclusive		Decimal range, plain and thread plug diameters		General dimensions										
	From—	To—	Above—	To and including—	A	B	C Drill size	D	E	F		G	L	M	
										Min.	Max.			Min.	Max.
	No.	*No.*	*in.*	*in.*	*in.*	*in.*		*in.*	*in.*	*in.*	*in.*	*No.*	*in.*	*in.*	*in.*
000	0	3	0.059	0.105	3/16	1 1/2	No. 34 (0.111)	9/16	5/64 by 1/4	0.125	0.126	000	1/32	0.172	0.177
00	4	6	.105	.150	1/4	1 3/4	No. 29 (0.136)	5/8	3/32 by 5/16	.155	.156	0	1/32	.235	.240
0	8	12	.150	.240	5/16	2	No. 20 (0.161)	11/16	1/8 by 3/8	.180	.181	2	1/32	.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.

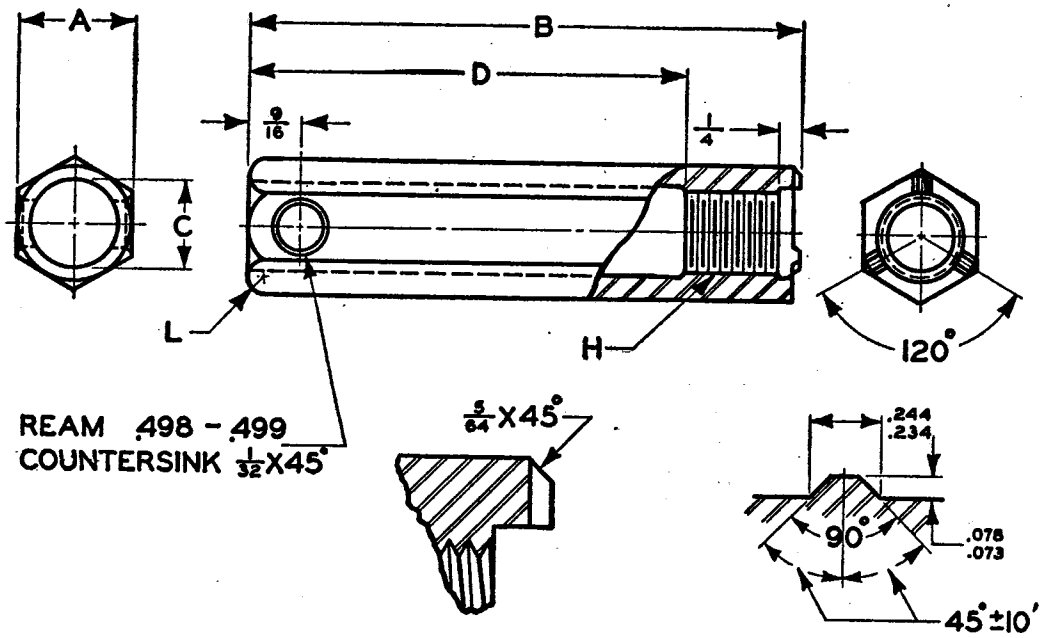
TABLE 6. *Handles for plain cylindrical and thread plug gages, taper lock design, range above 0.240 to and including 1.510 inches.*



Handle size No.	Nominal range, thread plug diameters, inclusive		Decimal range, plain and thread plug diameters		General dimensions									
	From—	To—	Above—	To and including—	*A*	*B*	*C*	*D*	*E*	*F*		*G*	*L*	*M* Reference
										Min.	Max.			
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*No.*	*in.*	*in.*
1	1/4	5/16	0.240	0.365	3/8	2 3/4	7/32	25/32	1/8 by 1/2	0.239	0.240	4	1/16	0.433
2	3/8	1/2	.365	.510	1/2	3	0.29	25/32	15/64	.309	.310	6	1/16	.577
3	9/16	3/4	.510	.825	11/16	3 1/4	25/64	27/32	11/32	.409	.410	7	3/32	.794
4	7/8	1 1/8	.825	1.135	7/8	3 5/8	27/64	63/64	3/8	.609	.610	10	5/32	1.010
5	1 1/4	1 1/2	1.135	1.510	1	4	25/32	1 1/8	7/16	.809	.810	11	1/8	1.155

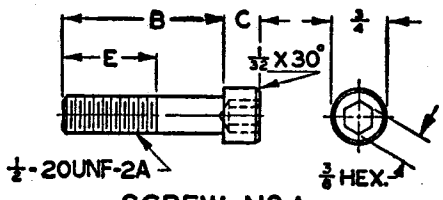
NOTE.—Taper lock handles are standard for all taper pipe thread plug gages to and including 2-inch nominal pipe size (see table 23).

TABLE 7. *Handles for plain cylindrical, thread, and spline (involute, serrated, straight-sided) plug gages, reversible or trilock design, range above 1.510 to and including 8.010 inches.*

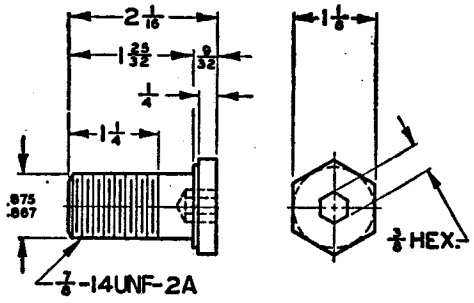


ENLARGED SECTION OF LOCKING PRONG

Handle size No.	Nominal range		Decimal range		General dimensions						Screw No.
	From—	To—	Above—	To and including—	*A*	*B*	*C*	*D*	*H*	*L*	
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*Tap through*	*in.*	
5½	1½	2	1.510	2.010	1	4½	¾	3¾	½–20UNF–2B	⅛	1
6	2	2½	2.010	2.510	1⅛	5	13/16	4¼	½–20UNF–2B	⅛	1
7	2½	8	2.510	8.010	1¼	6	15/16	4¾	⅞–14UNF–2B	5/32	2

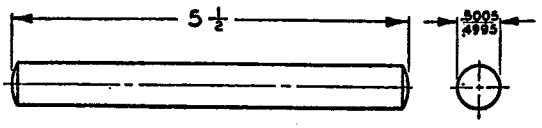


SCREW NO 1



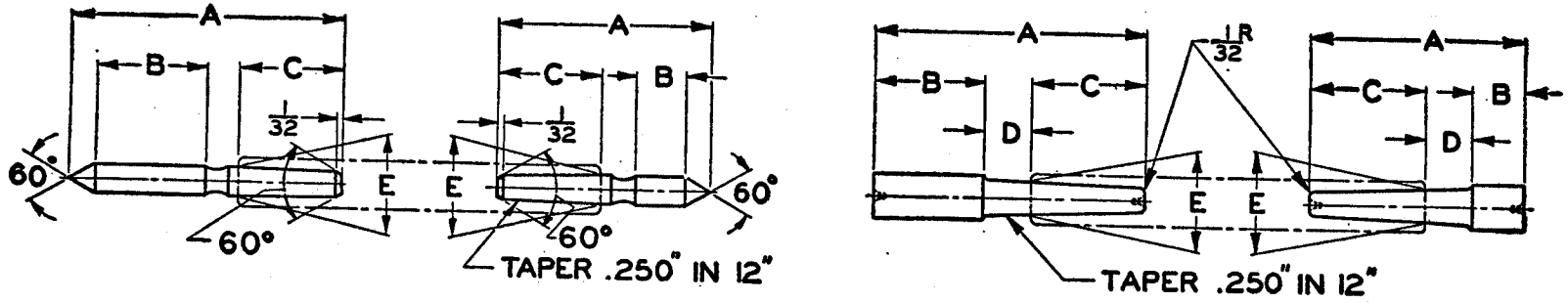
SCREW NO 2

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



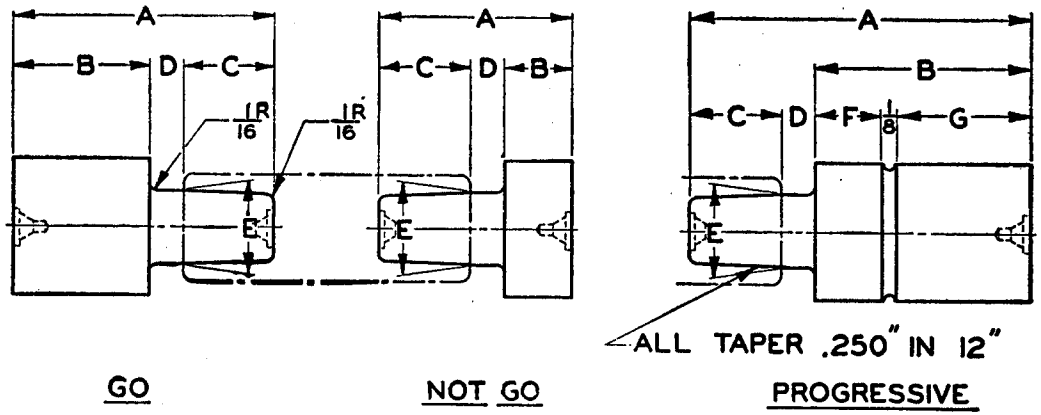
CROSS BAR FOR NO 5½ 6&7 HANDLE (OPTIONAL)

TABLE 8. *Plain cylindrical plug gaging members, taper lock design, range above 0.059 to and including 0.240 inch.*



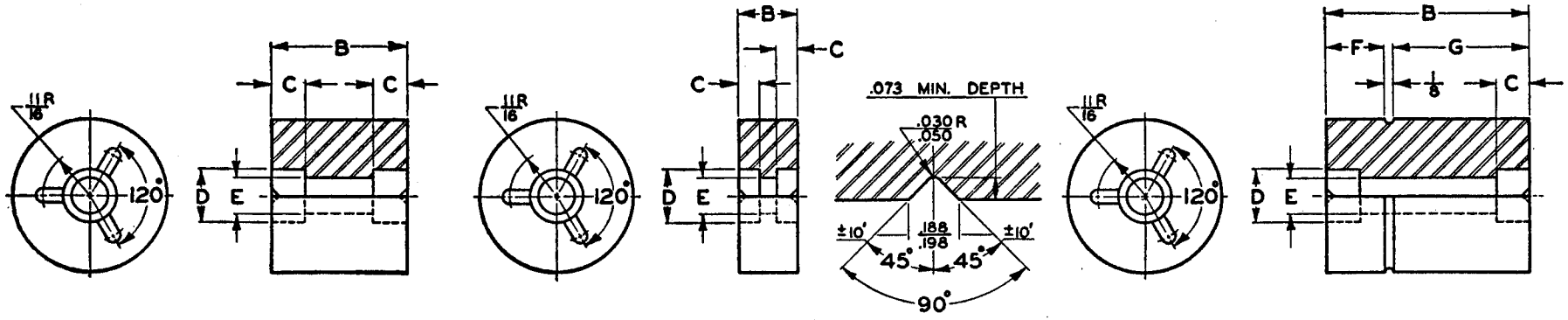
Handle size No.	Range in diameters		General dimensions											
			"Go"						"Not go"					
	Above—	To and including—	A	B	C	D	E		A	B	C	D	E	
							Min.	Max.					Min.	Max.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
000	0.059	0.105	1 5/32	3/8	1/2		0.125	0.126	31/32	5/16	1/2		0.125	0.126
00	.105	.150	1 11/32	7/16	9/16		.155	.156	1 1/8	7/32	9/16		.155	.156
0	.150	.240	1 15/32	19/32	5/8	1/4	.180	.181	1 5/32	9/32	5/8	1/4	.180	.181

TABLE 9. *Plain cylindrical plug gaging members, taper lock design, range above 0.240 to and including 1.510 inches.*



Handle size No.	Range in diameters		General dimensions																			
			"Go"						"Not go"						Progressive							
	Above—	To and including—	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		F	G
							Min.	Max.					Min.	Max.					Min.	Max.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	0.240	0.365	1¾	¾	¾	¼	0.239	0.240	1 5/16	5/16	¾	¼	0.239	0.240	2 3/16	1 3/16	¾	¼	0.239	0.240	5/16	¾
2	.365	.510	2	1	¾	¼	.309	.310	1 3/8	⅜	¾	¼	.309	.310	2½	1½	¾	¼	.309	.310	⅜	1
3	.510	.825	2¼	1¼	¾	¼	.408	.410	1½	½	¾	¼	.408	.410	2⅞	1⅞	¾	¼	.408	.410	½	1¼
4	.825	1.135	2 9/16	1⅜	⅞	5/16	.608	.610	1 13/16	⅝	⅞	5/16	.608	.610	3 5/16	2⅛	⅞	5/16	.608	.610	⅝	1⅜
5	1.135	1.510	2⅞	1½	1	⅜	.808	.810	2⅛	¾	1	⅜	.808	.810	3¾	2⅜	1	⅜	.808	.810	¾	1½

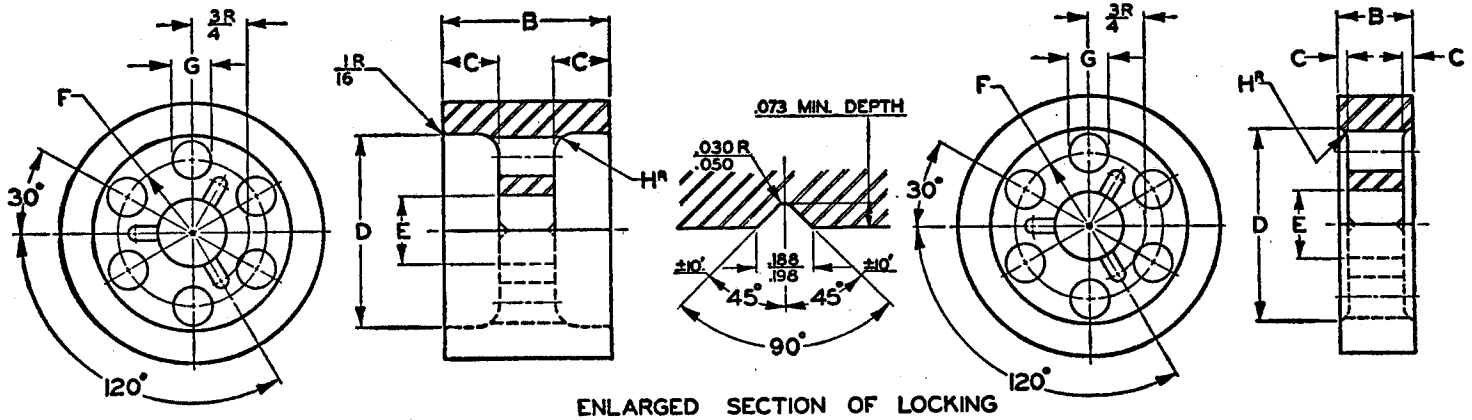
TABLE 10. *Plain cylindrical plug gaging members, reversible or trilock design, range above 1.510 to and including 2.510 inches.*



Handle size No.	Plain plug diameters				"Go"				"Not go"				Progressive					
	Nominal range, inclusive		Decimal range		*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*F*	*G*
	From—	To—	Above—	To and including—														
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
5½	1½	2	1.510	2.010	1⅞	½	25/32	17/32	⅞	5/16	25/32	17/32	2⅞	½	25/32	17/32	⅞	1⅞
6	2	2½	2.010	2.510	2	½	25/32	17/32	⅞	5/16	25/32	17/32	3	½	25/32	17/32	⅞	2

NOTE.—Locking grooves are not required on the small end of "progressive" gages.

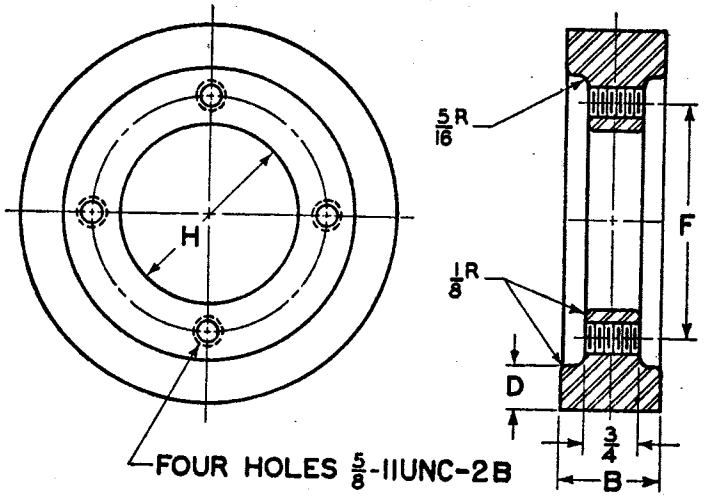
TABLE 11. *Plain cylindrical plug gaging members, reversible or trilock design, range above 2.510 to and including 8.010 inches.*

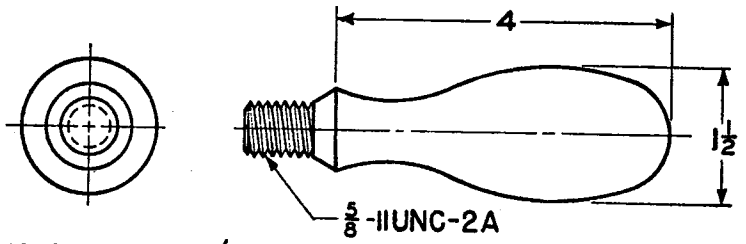


ENLARGED SECTION OF LOCKING GROOVE – 3 REQUIRED ON BOTH ENDS OF ALL GAGES

Handle size No.	Plain plug diameters				GO "Go"							NOT GO "Not go"						
	Nominal range, inclusive		Decimal range		*B*	*C*	*D*	*E*	*F*	*G*	*H*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
	From—	To—	Above—	To and including—														
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
7	2 1/2	3	2.510	3.010	2 1/8	11/16	1 7/8	29/32	------	------	5/16	1	1/8	1 7/8	29/32	------	------	5/16
7	3	3 1/2	3.010	3.510	2 1/4	3/4	2 1/4	29/32	------	------	5/16	1	1/8	2 1/4	29/32	------	------	5/16
7	3 1/2	4	3.510	4.010	2 1/4	3/4	2 5/8	29/32	------	------	5/16	1	1/8	2 5/8	29/32	------	------	5/16
7	4	4 1/2	4.010	4.510	2 1/4	3/4	3	29/32	1 1/16	3/4	5/16	1	1/8	3	29/32	1 1/16	3/4	5/16
7	4 1/2	5	4.510	5.010	2 1/4	3/4	3 7/16	29/32	1 3/16	13/16	5/16	1	1/8	3 7/16	29/32	1 3/16	13/16	5/16
7	5	5 1/2	5.010	5.510	2 1/4	3/4	3 7/8	29/32	1 1/4	7/8	5/16	1	1/8	3 7/8	29/32	1 1/4	7/8	5/16
7	5 1/2	6	5.510	6.010	2 1/4	3/4	4 5/16	29/32	1 3/8	1	5/16	1	1/8	4 5/16	29/32	1 3/8	1	5/16
7	6	6 1/2	6.010	6.510	2 1/4	3/4	4 3/4	29/32	1 1/2	1 1/8	5/16	1	1/8	4 3/4	29/32	1 1/2	1 1/8	5/16
7	6 1/2	7	6.510	7.010	2 1/4	3/4	5 1/4	29/32	1 5/8	1 1/4	5/16	1	1/8	5 1/4	29/32	1 5/8	1 1/4	5/16
7	7	7 1/2	7.010	7.510	2 1/4	3/4	5 3/4	29/32	1 3/4	1 3/8	5/16	1	1/8	5 3/4	29/32	1 3/4	1 3/8	5/16
7	7 1/2	8	7.510	8.010	2 1/4	3/4	6 1/4	29/32	1 7/8	1 1/2	5/16	1	1/8	6 1/4	29/32	1 7/8	1 1/2	5/16

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





NO. 8 HANDLE (COMMERCIAL NO. 8 BALL HANDLE)

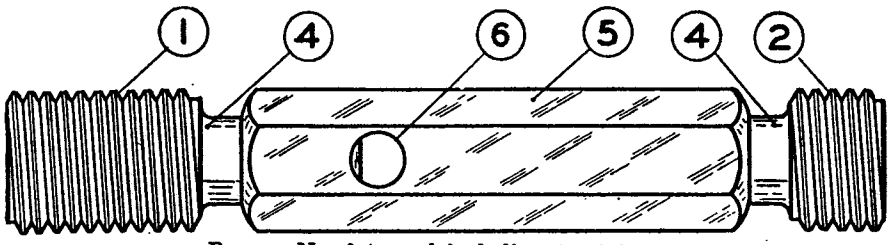
Handle size No.[1]	Plain plug diameters				B		D	F	H
	Nominal range, inclusive		Decimal range						
	From—	To—	Above—	To and including—	"Go"	"Not go"			
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
8	8	8½	8.010	8.510	2¼	1	¾	5¼	4
8	8½	9	8.510	9.010	2¼	1	25/32	5⅝	4⅜
8	9	9½	9.010	9.510	2¼	1	13/16	6	4¾
8	9½	10	9.510	10.010	2¼	1	27/32	6½	5⅛
8	10	10½	10.010	10.510	2¼	1	⅞	7	5½
8	10½	11	10.510	11.010	2¼	1	29/32	7½	5⅞
8	11	11½	11.010	11.510	2¼	1	15/16	8	6¼
8	11½	12	11.510	12.010	2¼	1	31/32	8½	6⅝

[1] Two required per gage.

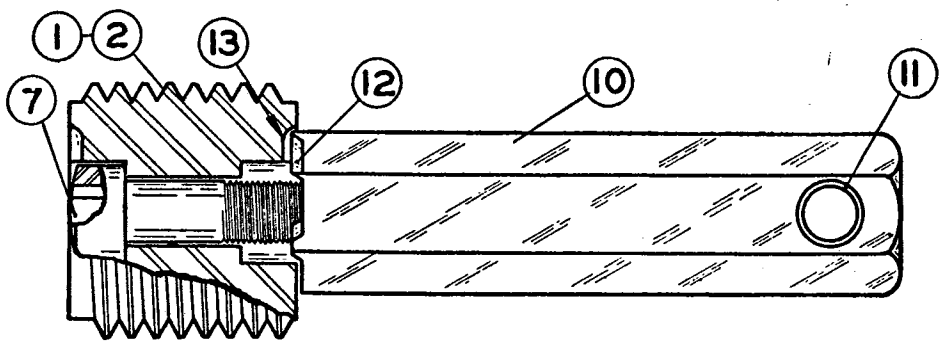
3.3 Thread Plug Gage Blanks

3.3.1 The taper lock, reversible or trilock, and annular designs have been adopted for thread plug gage blanks and handles and follow the plain cylindrical plug gage designs described on pages 5 to 18, with the exception that the length of thread gaging members is slightly different in some instances, and the use of taper lock blanks and handles for pipe-thread plug gages is stand-

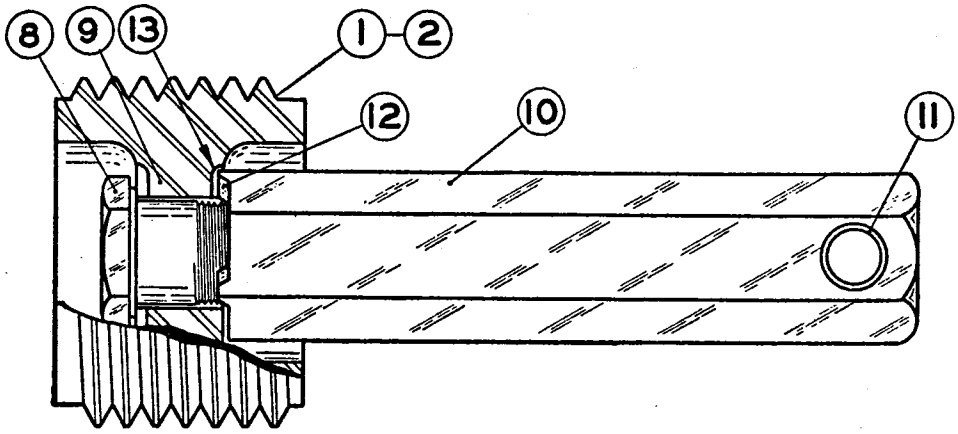
ard to and including 2 inches nominal pipe size. General details of construction will be apparent from figure 2, page 21. Data for thread plug gages are presented in tables 13 to 17. Tables (18 and 19) setting forth dimensions of gaging members for large instrument thread plugs are given on pages 27-28, and tables (20, 21, and 22) for thread setting plugs on pages 29-30. Another table (23) specifying handles and gaging members for pipe-thread plug gages is set forth on page 31.



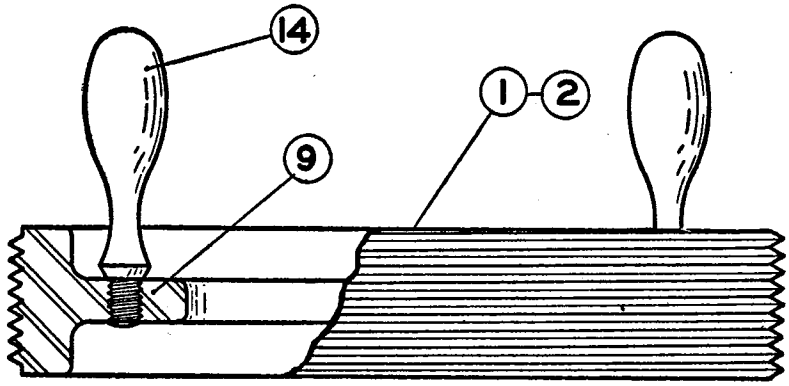
Range: No. 0 to and including 1.510 inches.



Range: Above 1.510 to and including 2.510 inches.



Range: Above 2.510 to and including 8.010 inches.

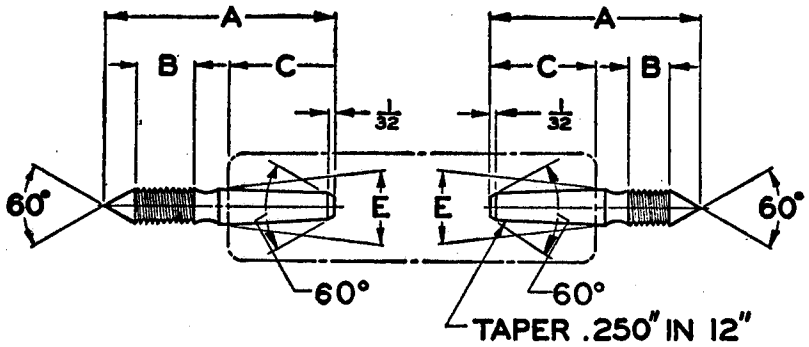


Range: Above 8.010 to and including 12.010 inches.

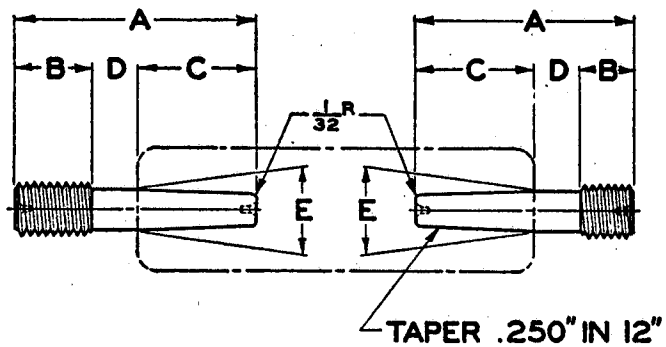
FIGURE 2. *Thread plug gages, details of construction.*

1. "Go" gaging member.
2. "Not go" gaging member.
4. Shank.
5. Taper lock handle.
6. Drift hole or slot.
7. Socket head screw.
8. Hexagon head screw.
9. Web.
10. Handle for reversible or trilock gage.
11. Cross-pin hole.
12. Locking prong.
13. Locking groove.
14. Ball handle.

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



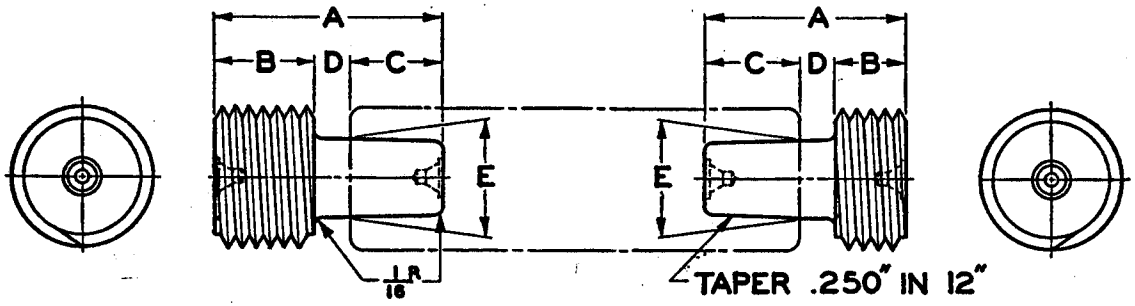
NO. 0 TO NO. 6, INCLUSIVE



NO. 8 TO NO. 12, INCLUSIVE

Handle size No.	Range, thread plug diameters				General dimensions											
	Nominal, inclusive		Decimal		"Go"						"Not go"					
	From—	To—	Above—	To and including—	*A*	*B*	*C*	*D*	*E*		*A*	*B*	*C*	*D*	*E*	
									Min.	Max.					Min.	Max.
	No.	*No.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
000	0	3	0.059	0.105	1 1/32	1/4	1/2	---	0.125	0.126	31/32	3/16	1/2	---	0.125	0.126
00	4	6	.105	.150	1 7/32	5/16	9/16	---	.155	.156	1 1/8	7/32	9/16	---	.155	.156
0	8	12	.150	.240	1 9/32	11/32	5/8	1/4	.180	.181	1 5/32	9/32	5/8	1/4	.180	.181

TABLE 14. *Thread plug gaging members, taper lock design, range from ¼ to 1½ inches, inclusive.*



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

Handle size No.	Range				Threads per inch	General dimensions										
	Thread plug diameters					"Go"						"Not go"				
	Nominal range, inclusive		Decimal range			A	B	C	D	E		A	B	C	D	E
	From—	To—	Above—	To and including—						Min.	Max.					Min.	Max.
	in.	in.	in.	in.		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	¼	5/16	0.240	0.365		1½	½	¾	¼	0.239	0.240	1 5/16	5/16	¾	¼	0.239	0.240
2	⅜	½	.365	.510		1¾	¾	¾	¼	.309	.310	1⅜	⅜	¾	¼	.309	.310
3	9/16	¾	.510	.825		1⅞	⅞	¾	¼	.408	.410	1½	½	¾	¼	.408	.410
4	⅞	1⅛	.825	1.135		2 3/16	1	⅞	5/16	.608	.610	1 13/16	5/8	⅞	5/16	.608	.610
5	1¼	1½	1.135	1.510	Coarser than 12	2 5/8	1¼	1	⅜	.808	.810	2⅛	¾	1	⅜	.808	.810
5	1¼	1½	1.135	1.510	12 and finer	2⅜	1	1	⅜	.808	.810	2⅛	¾	1	⅜	.808	.810

NOTE.—Taper lock gaging members are standard for all taper pipe-thread plug gages to and including 2-in. nominal pipe size. (See table 23, p. 31.)

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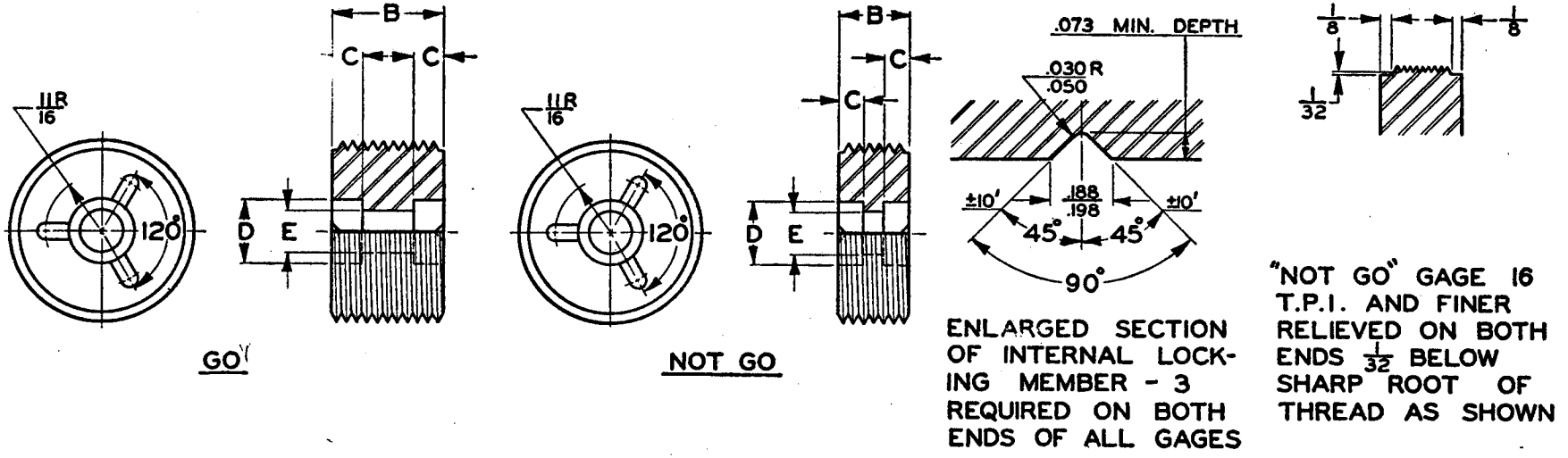
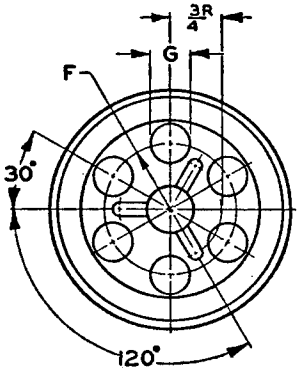
TABLE 15. *Thread plug gaging members, reversible or trilock design, range above 1½ to and including 2½ inches.*

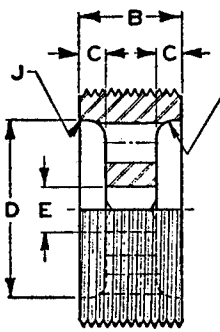


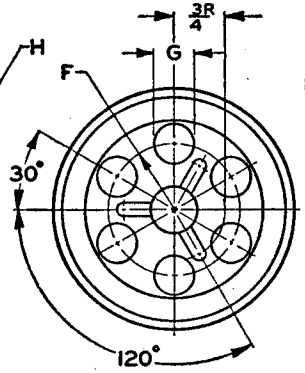
Handle size No.	Thread plug diameters				"Go"												"Not go"			
	Nominal range, inclusive		Decimal range		7 threads per inch and coarser				Finer than 7 threads per inch and coarser than 16				16 threads per inch and finer				All pitches			
	From—	To—	Above—	To and including—	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
5½	1½	2	1.510	2.010	1⅞	½	25/32	17/32	1¼	3/8	25/32	17/32	⅞	5/16	25/32	17/32	⅞	5/16	25/32	17/32
6	2	2½	2.010	2.510	2	½	25/32	17/32	1⅜	3/8	25/32	17/32	⅞	5/16	25/32	17/32	⅞	5/16	25/32	17/32

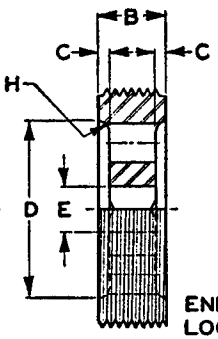
TABLE 16. *Thread plug gaging members, reversible or trilock design, range above 2½ to and including 8 inches.*



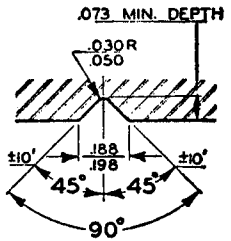
GO







NOT GO

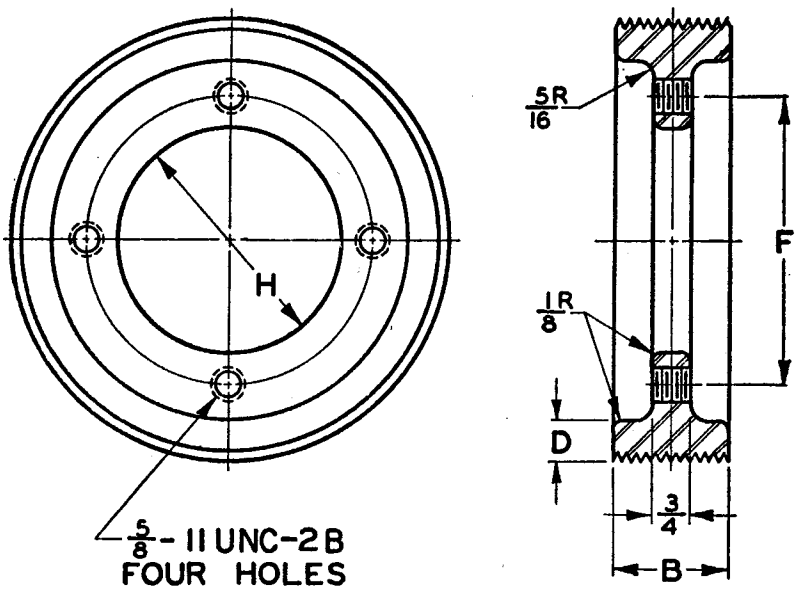


ENLARGED SECTION OF LOCKING GROOVE - 3 REQUIRED ON BOTH ENDS OF ALL GAGES

"NOT GO" GAGES 16 T.P.I. AND FINER RELIEVED ON BOTH ENDS 1/32 BELOW SHARP ROOTS OF THREADS AS SHOWN

Handle size No.	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	C	H	J	B	C	H	J	B	C	H	B	C	H	D	E	F	G
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
7	2½	3	2.510	3.010	2⅛	11/16	5/16	1/16	1½	3/8	5/16	1/16	1	1/8	3/16	1	1/8	3/16	1⅞	29/32		
7	3	3½	3.010	3.510	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	2¼	29/32		
7	3½	4	3.510	4.010	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	2⅝	29/32		
7	4	4½	4.010	4.510	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	3	29/32	1 1/16	¾
7	4½	5	4.510	5.010	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	3 7/16	29/32	1 3/16	13/16
7	5	5½	5.010	5.510	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	3⅞	29/32	1¼	⅞
7	5½	6	5.510	6.010	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	4 5/16	29/32	1 3/8	1
7	6	6½	6.010	6.510	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	4¾	29/32	1½	1 1/8
7	6½	7	6.510	7.010	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	5¼	29/32	1 5/8	1¼
7	7	7½	7.010	7.510	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	5¾	29/32	1¾	1⅜
7	7½	8	7.510	8.010	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	6¼	29/32	1⅞	1½

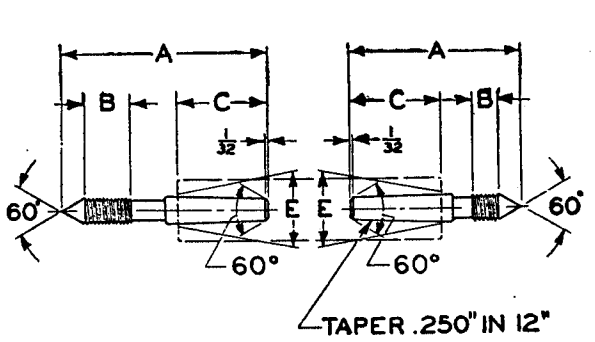
TABLE 17. *Thread plug gaging members, annular design, range above 8 to and including 12 inches.*



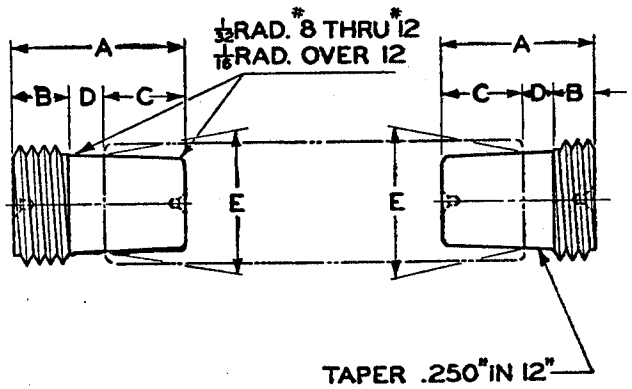
Handle size No.[1]	Thread plug diameters				"Go"			"Not go"	All		
	Nominal range, inclusive		Decimal range		7 threads per inch and coarser	Finer than 7 threads per inch and coarser than 16	16 threads per inch and finer	All pitches	All pitches		
	From—	To—	Above—	To and including—	*B*				*D*	*F*	*H*
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
8	8	8 1/2	8.010	8.510	2 1/4	1 1/2	1	1	3/4	5 1/4	4
8	8 1/2	9	8.510	9.010	2 1/4	1 1/2	1	1	25/32	5 5/8	4 3/8
8	9	9 1/2	9.010	9.510	2 1/4	1 1/2	1	1	13/16	6	4 3/4
8	9 1/2	10	9.510	10.010	2 1/4	1 1/2	1	1	27/32	6 1/2	5 1/8
8	10	10 1/2	10.010	10.510	2 1/4	1 1/2	1	1	7/8	7	5 1/2
8	10 1/2	11	10.510	11.010	2 1/4	1 1/2	1	1	29/32	7 1/2	5 7/8
8	11	11 1/2	11.010	11.510	2 1/4	1 1/2	1	1	15/16	8	6 1/4
8	11 1/2	12	11.510	12.010	2 1/4	1 1/2	1	1	31/32	8 1/2	6 5/8

[1] Two required per gage.

TABLE 18. *Large instrument thread plug gaging members, taper lock design, range No. 0 to 1½ inches, inclusive.*



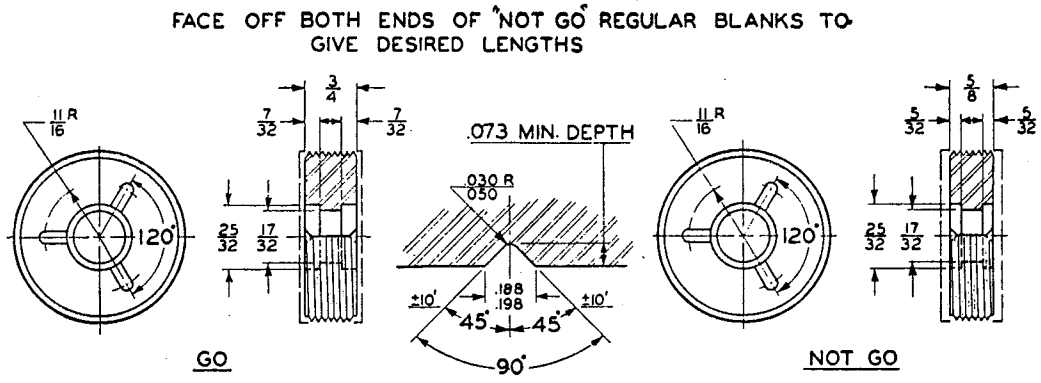
NO. 0 TO NO. 6 INCLUSIVE



NO. 8 TO 1½" INCLUSIVE

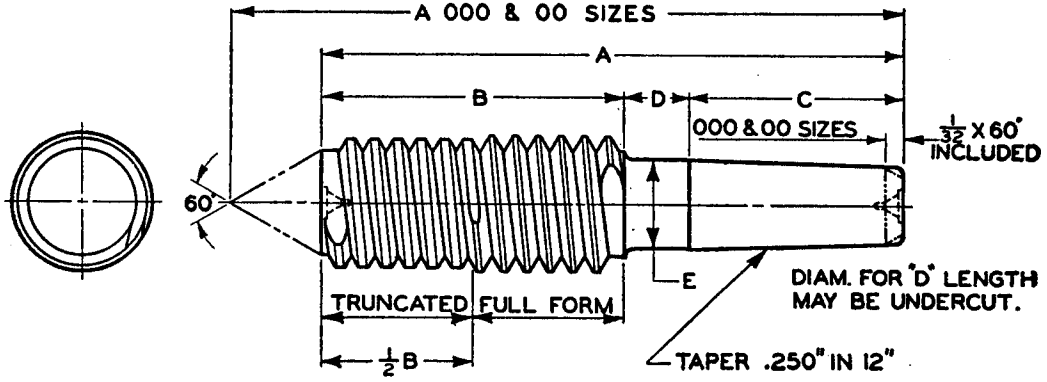
Handle size No.	Thread plug diameters				TPI finer than—	General dimensions										
	Nominal range, inclusive		Decimal range			"Go"						"Not Go"					
	From—	To—	Above—	To and including—		A	B	C	D	E		A	B	C	D	E	
										Min.	Max.					Min.	Max.
	No. or in.	*No. or in.*	*in.*	*in.*		*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
000	No. 0	No. 3	0.059	0.105	80	31/32	3/16	1/2	------	0.125	0.126	29/32	1/8	1/2	------	0.125	0.126
00	No. 4	No. 6	.105	.150	60	1 1/8	7/32	9/16	------	.155	.156	1 1/16	5/32	9/16	------	.155	.156
0	No. 8	No. 12	.150	.240	48	1 5/32	9/32	5/8	1/4	.180	.181	1 3/32	7/32	5/8	1/4	.180	.181
1	1/4	5/16	.240	.365	40	1 5/16	5/16	3/4	1/4	.239	.240	1 1/4	1/4	3/4	1/4	.239	.240
2	3/8	1/2	.365	.510	36	1 3/8	3/8	3/4	1/4	.309	.310	1 5/16	5/16	3/4	1/4	.309	.310
3	9/16	3/4	.510	.825	32	1 1/2	1/2	3/4	1/4	.408	.410	1 3/8	3/8	3/4	1/4	.408	.410
4	7/8	1 1/8	.825	1.135	28	1 13/16	5/8	7/8	5/16	.608	.610	1 5/8	7/16	7/8	5/16	.608	.610
5	1 1/4	1 1/2	1.135	1.510	28	2 1/8	3/4	1	3/8	.808	.810	1 7/8	1/2	1	3/8	.808	.810

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



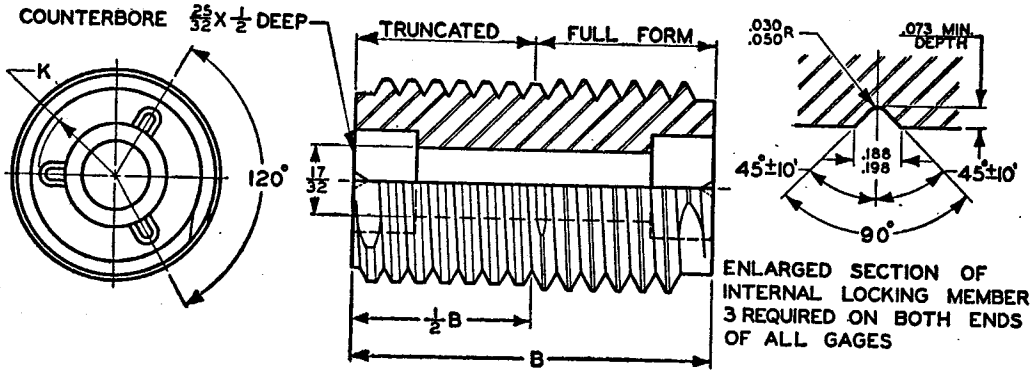
Handle size No.	Thread plug diameters				Threads per inch finer than—
	Nominal range, inclusive		Decimal range		
	From—	To—	Above—	To and including—	
	in.	*in.*	*in.*	*in.*	
5½	1½	2	1.510	2.010	28
6	2	2½	2.010	2.510	28

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



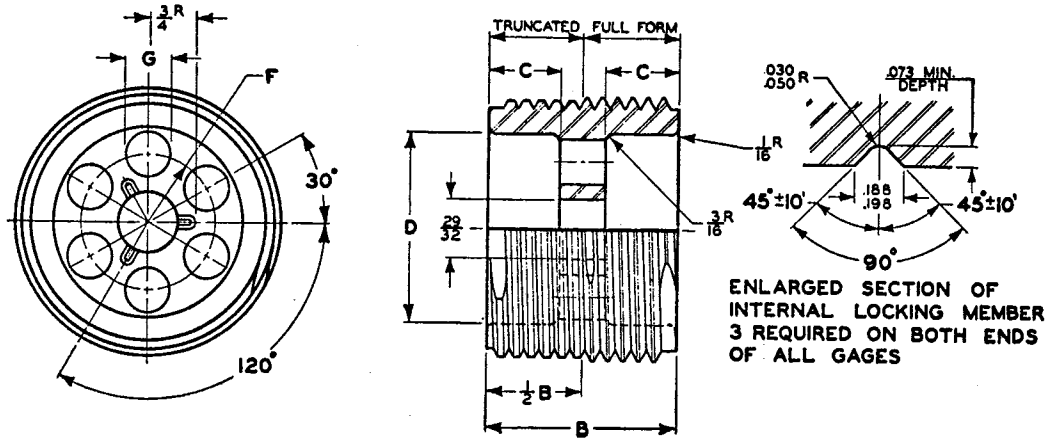
Handle size No.	Thread diameters				General dimensions											
	Nominal range, inclusive		Decimal range		For thin ring						For thick ring					
	From—	To—	Above—	To and including—	*A*	*B*	*C*	*D*	*E*		*A*	*B*	*C*	*D*	*E*	
									Min.	Max.					Min.	Max.
	No. or in.	*No. or in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
000	No. 0	No. 2	0.059	0.090	1 5/32	3/8	1/2	-------	0.125	0.126	-------	-------	-------	-------	-------	-------
000	No. 3	No. 3	.090	.105	1 7/32	7/16	1/2	-------	.125	.126	-------	-------	-------	-------	-------	-------
00	No. 4	No. 6	.105	.150	1 11/32	7/16	9/16	-------	.155	.156	-------	-------	-------	-------	-------	-------
0	No. 8	No. 12	.150	.240	1 15/32	19/32	5/8	1/4	.180	.181	-------	-------	-------	-------	-------	-------
1	1/4	5/16	.240	.365	1 3/4	3/4	5/8	1/4	.239	.240	-------	-------	-------	-------	-------	-------
2	3/8	1/2	.365	.510	2	1	3/4	1/4	.309	.310	-------	-------	-------	-------	-------	-------
3	9/16	3/4	.510	.825	2 1/4	1 1/4	3/4	1/4	.408	.410	2 7/8	1 7/8	3/4	1/4	0.408	0.410
4	7/8	1 1/8	.825	1.135	2 11/16	1 1/2	7/8	5/16	.608	.610	3 5/16	2 1/8	7/8	5/16	.608	.610
5	1 1/4	1 1/2	1.135	1.510	3	1 5/8	1	3/8	.808	.810	3 3/4	2 3/8	1	3/8	.808	.810

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



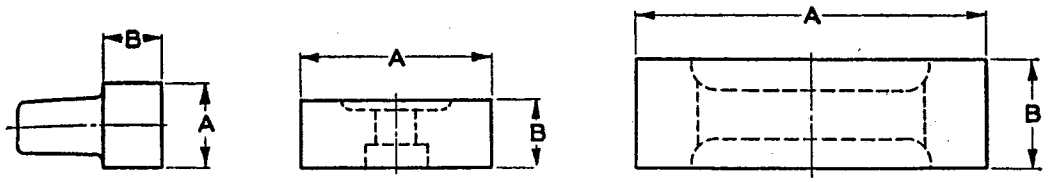
Handle size No.	Thread diameters				K (radius)	B	
	Nominal range		Decimal range				
	From—	To—	Above—	To and including—		For thin ring	For thick ring
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
5½	1½	2	1.510	2.010	5/8	1⅞	2⅞
6	2	2½	2.010	2.510	11/16	2	3

TABLE 22. *Thread setting plug gaging members, truncated type, range above 2½ to and including 5 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			
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
7	2½	3	2.510	3.010	2⅛	11/16	3	1⅛	1⅞	------	------
7	3	3½	3.010	3.510	2¼	¾	3	1⅛	2¼	------	------
7	3½	4	3.510	4.010	2¼	¾	3⅛	1 5/16	2⅝	------	------
7	4	4½	4.010	4.510	2¼	¾	3⅛	1 5/16	3	1 11/16	¾
7	4½	5	4.510	5.010	2¼	¾	3⅛	1 5/16	3 7/16	1 5/16	1 5/16

TABLE 23. *Pipe-thread plug gaging members, range ⅛ to 8 inches, inclusive.*



Nominal pipe size	Handle size No.	Type blank	A	B
in.			*in.*	*in.*
1/8	2	Taper lock	7/16	0.310
1/4	3	do	9/16	.450
3/8	3	do	11/16	.460
1/2	4	do	7/8	.580
3/4	4	do	1 1/16	.600
1	5	do	1 3/8	.740
1 1/4	5	do	1 11/16	.770
1 1/2	5	do	1 15/16	.790
2	5	do	2 7/16	.830
2 1/2	6	Reversible	2 15/16	1.210
3	6	do	3 9/16	1.300
3 1/2	7	do	4 1/16	1.350
4	7	do	4 9/16	1.425
4 1/2	7	do	5 1/16	1.475
5	7	do	5 5/8	1.550
6	7	do	6 3/4	1.700
8	8	Annular	8 3/4	1.900

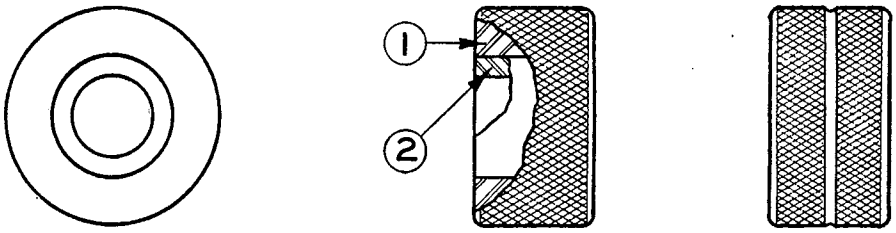
NOTE.—Taper lock gaging members and handles are standard for pipe thread plug gages to and including 2 inches nominal pipe size. The general dimensions of handles and gaging members referred to in this table are given in tables 6, 7, 12, 14, 15, 16, and 17.

3.4 Plain Ring Gage Blanks

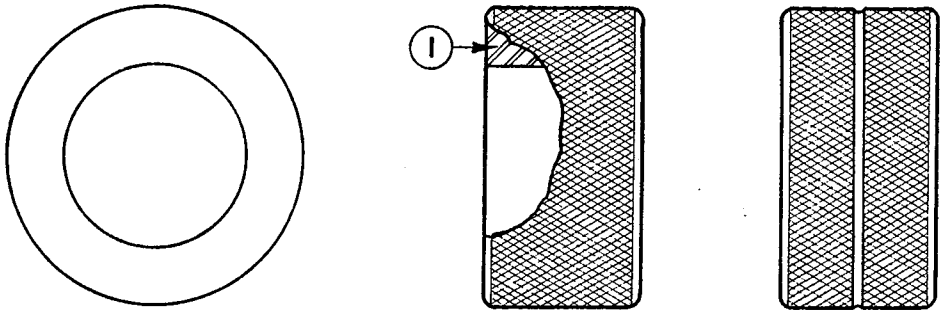
3.4.1 The use of the solid ring gage design for size control being well established, the committee's work on plain ring gages was concerned chiefly with matters of proportion. In the smaller sizes of plain ring gages a hardened bushing may be pressed into a soft gage body, in place of the one-piece ring 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 32, and dimensions are given in tables 24 and 25, pages 33-34.

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.

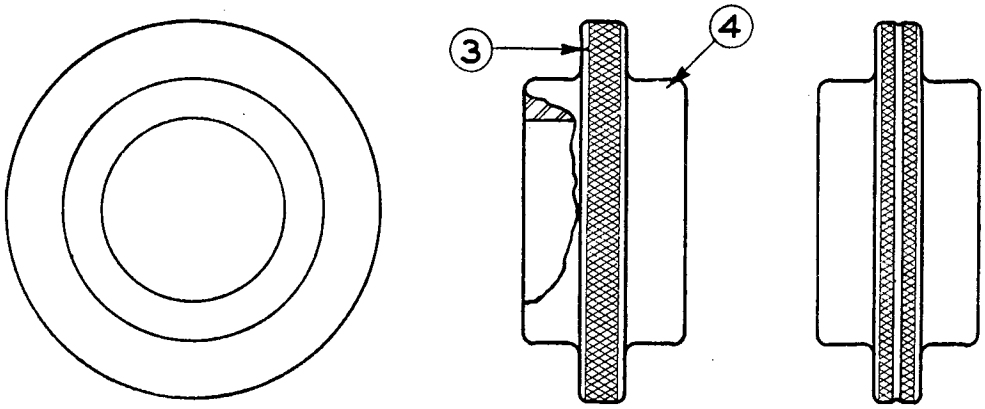
3.4.3 Gages in sizes above 5.510 inches are provided with ball handles.



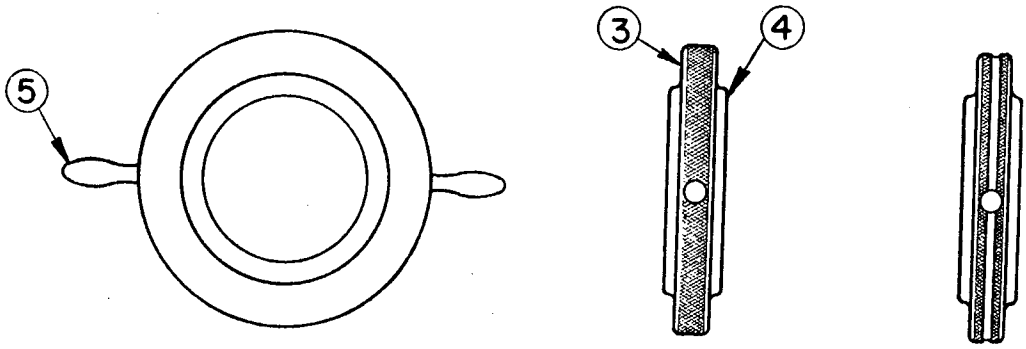
Range: Above 0.059 to and including 0.510 inch (solid design shown below is optional).



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.

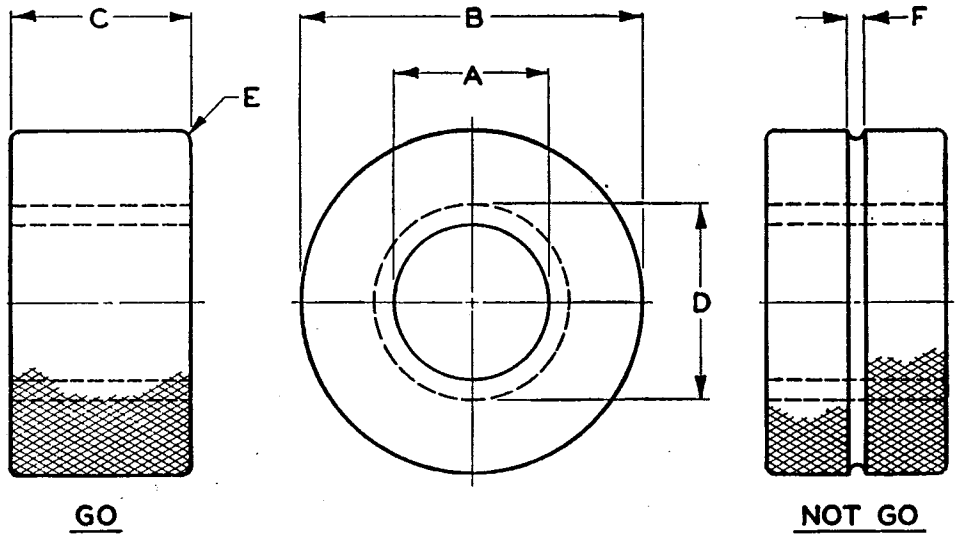


Range: Above 5.510 to and including 12.260 inches.

FIGURE 3. *Plain ring gages, details of construction.*

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

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



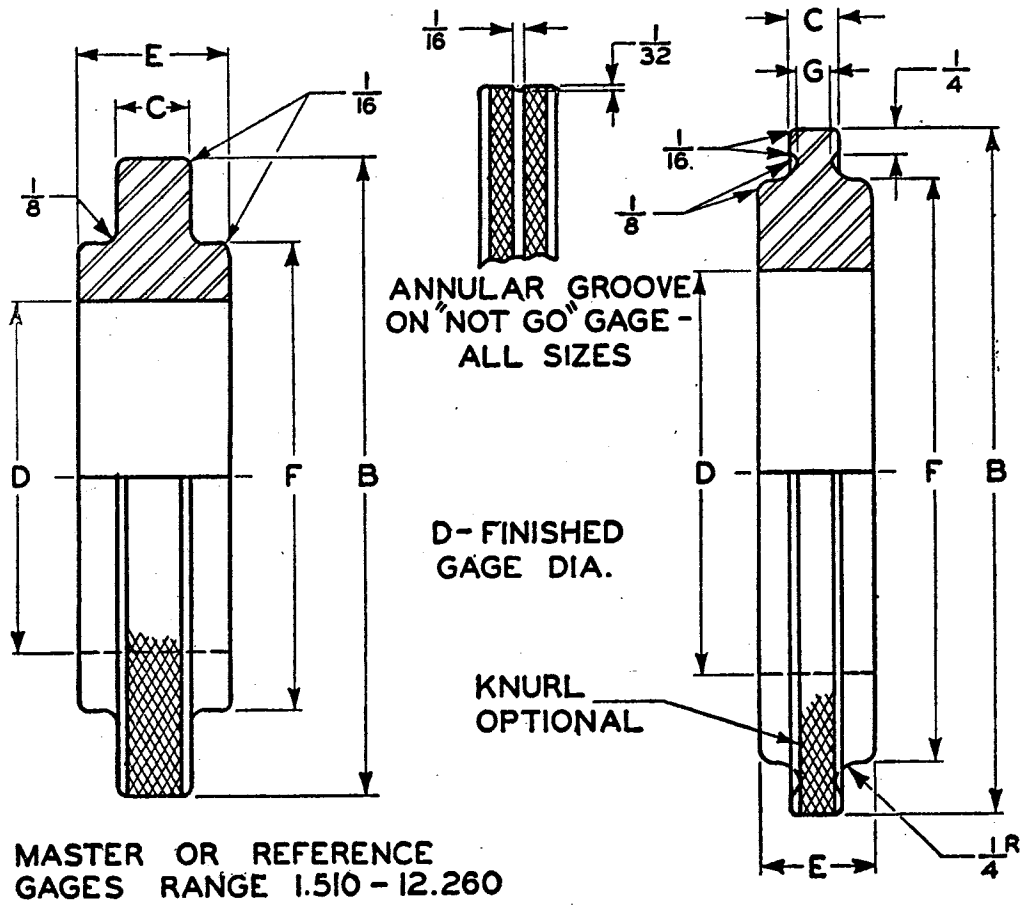
Ring size No.	A Range		General dimensions					
	Above—	To and including—	B Outside diameter	C Thickness	D Bushing diameter[1]	E Radius	F "Not go" groove width	Length of bushing
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	
00	0.059	0.150	15/16	3/16	3/8	1/32	1/32	(1 2)
0	.150	.240	15/16	3/8	7/16	1/32	1/16	(1 2)
1	.240	.365	1 1/8	9/16	9/16	1/16	3/32	(1 2)
2	.365	.510	1 3/8	3/4	3/4	1/16	3/32	(1 2)
3	.510	.825	1 3/4	15/16	(3)	3/32	3/32	(3)
4	.825	1.135	2 1/8	1 1/8	(3)	3/32	3/32	(3)
5	1.135	1.510	2 1/2	1 5/16	(3)	3/32	3/32	(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.

TABLE 25. *Plain ring gages, range above 1.510 to and including 12.260 inches.*



Ring size No.	A (range for D)		Master or reference ring gages				Inspection or working ring gages				
	Above—	To and including—	B	C	E	F	B	C	E	F	G
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
6	1.510	2.010	4	1/2	1 1/2	D+ 7/8	4	7/16 (1/2[a])	1	2 7/8	---
7	2.010	2.510	4 1/2	9/16	1 1/2	D+ 7/8	4 1/2	7/16 (9/16[a])	1	3 3/8	---
8	2.510	3.010	5	5/8	1 1/2	D+1	D+2 3/16	7/16 (5/8[a])	1	D+ 7/8	---
9	3.010	3.510	5 1/2	11/16	1 1/2	D+1	D+2 3/8	7/16	1	D+ 7/8	---
10	3.510	4.010	6 3/8	3/4	1 1/2	D+1 1/8	D+2 9/16	7/16	1	D+ 7/8	---
11	4.010	4.760	7 1/4	7/8	1 1/2	D+1 1/8	D+2 3/4	9/16	1 1/8	D+ 7/8	3/4
12	4.760	5.510	8 1/4	1	1 1/2	D+1 1/8	D+2 15/16	9/16	1 1/8	D+ 7/8	3/4
13	5.510	6.260	9 1/4	1	1 1/2	D+1 1/8	D+3 1/8	9/16	1 1/8	D+ 7/8	3/4
14	6.260	7.010	10 1/4	1	1 1/2	D+1 1/8	D+3 5/16	5/8	1 5/16	D+ 15/16	7/8
15	7.010	7.760	11 1/4	1	1 1/2	D+1 1/8	D+3 1/2	5/8	1 5/16	D+ 15/16	7/8
16	7.760	8.510	12 1/4	1	1 1/2	D+1 1/8	D+3 11/16	5/8	1 1/4	D+1	7/8
17	8.510	9.260	13 1/4	1	1 1/2	D+1 1/8	D+3 7/8	5/8	1 1/4	D+1	7/8
18	9.260	10.010	14 1/4	1	1 1/2	D+1 1/8	D+4 1/16	11/16	1 5/16	D+1 1/16	1
19	10.010	10.760	15 1/4	1	1 1/2	D+1 1/8	D+4 1/4	11/16	1 5/16	D+1 1/16	1
20	10.760	11.510	16 1/4	1	1 1/2	D+1 1/8	D+4 7/16	11/16	1 3/8	D+1 1/8	1
21	11.510	12.260	17 1/4	1	1 1/2	D+1 1/8	D+4 5/8	11/16	1 3/8	D+1 1/8	1

[a] Permissive, to facilitate use of master blank.

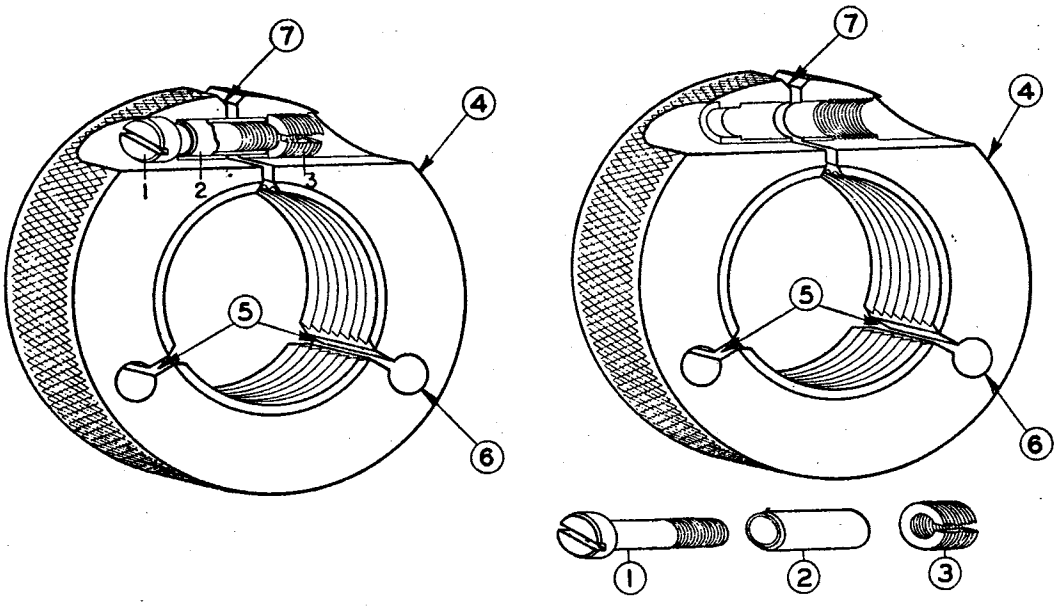


FIGURE 4. *Thread ring gage locking device, details of construction, range No. 0 to 5½ inches, inclusive.*

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

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 12¼ inches, inclusive, and for parts for the thread ring gage locking device, are given in tables 26 to 31, pages 39 to 46.

3.5.4. Five types of thread ring gage blanks for straight threads have been provided as illustrated in figures 5A and 5B, pages 37-38, 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 ½ inch; (*b*) fine pitches,[1] "go" and "not go," above ½ to and including 5½ inches; (*c*) coarse pitches, "not go" only, above ½ to and including 5½ inches.

(3) A thick flanged type with two adjusting slots for all "go" coarse pitch gages, above ½ to and including 5½ 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 5.510 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 5.510 to and including 12.260 inches.

3.5.5 For taper pipe threads a solid flanged type has been provided, as shown in table 32, page 47, for nominal pipe sizes from ⅛ to 8 inches, inclusive.

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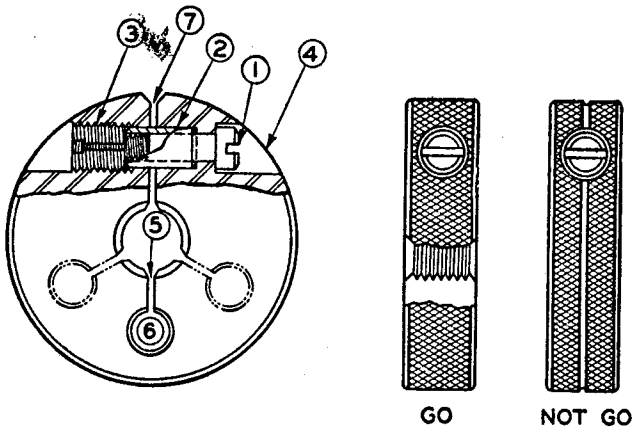
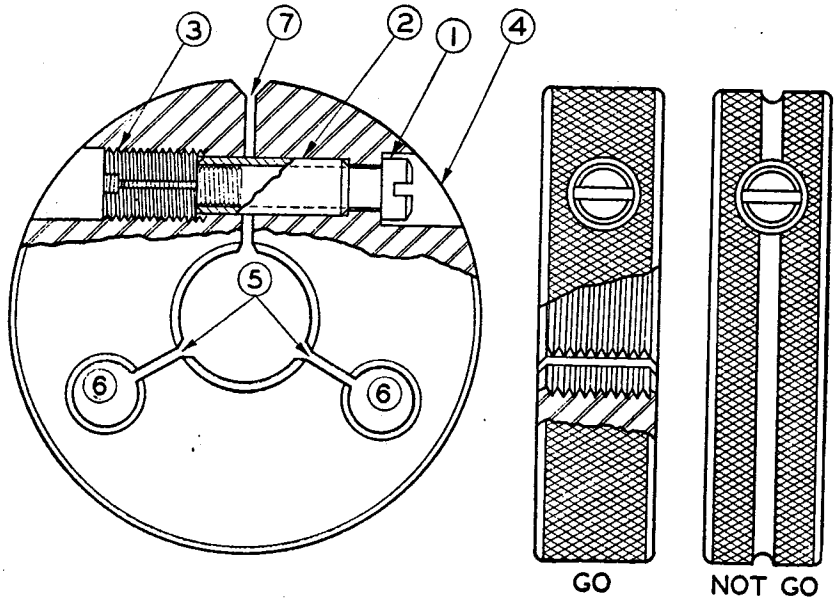
[1] Specific information as to the meaning of the terms "fine pitches" and "coarse pitches," as used above, is given in the note under table 26, page 40.



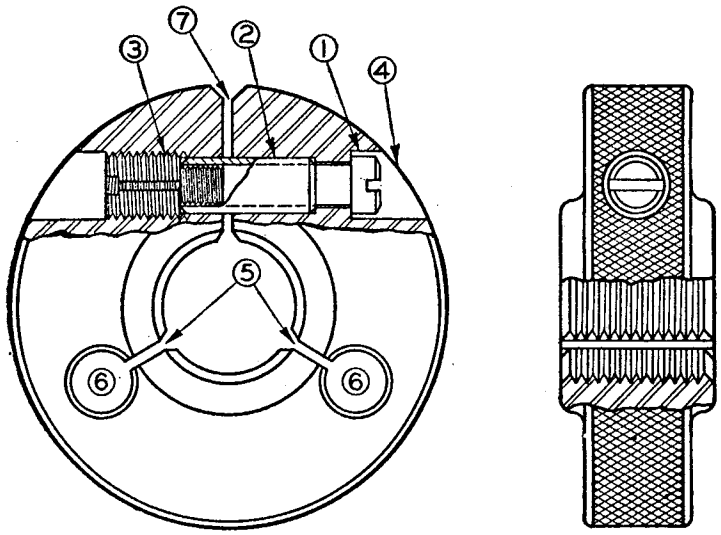
Range: 0.060 to and including 0.150 inch, "go" and "not go" gages, all pitches. Two adjusting slots are optional with the gage manufacturer.



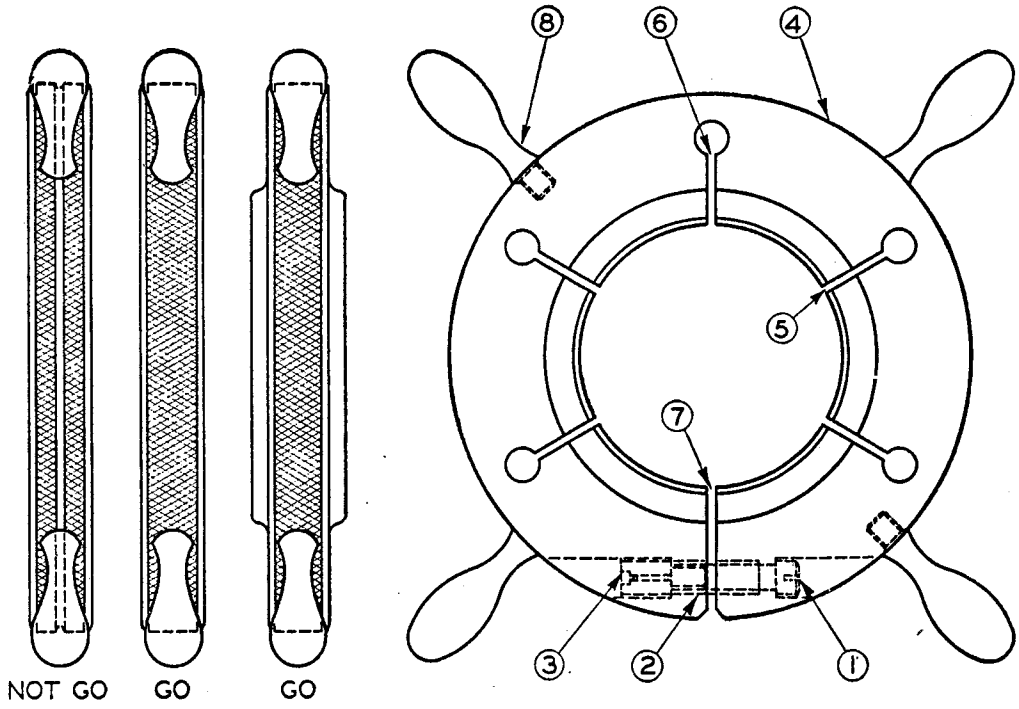
Range: Above 0.150 to and including 0.510 inch, "go" and "not go" gages, all pitches; 0.510 to and including 4.760 inches, "go" and "not go" gages, fine pitches; 0.510 to and including 4.760 inches, "not go" gages only, coarse pitches.

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

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



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



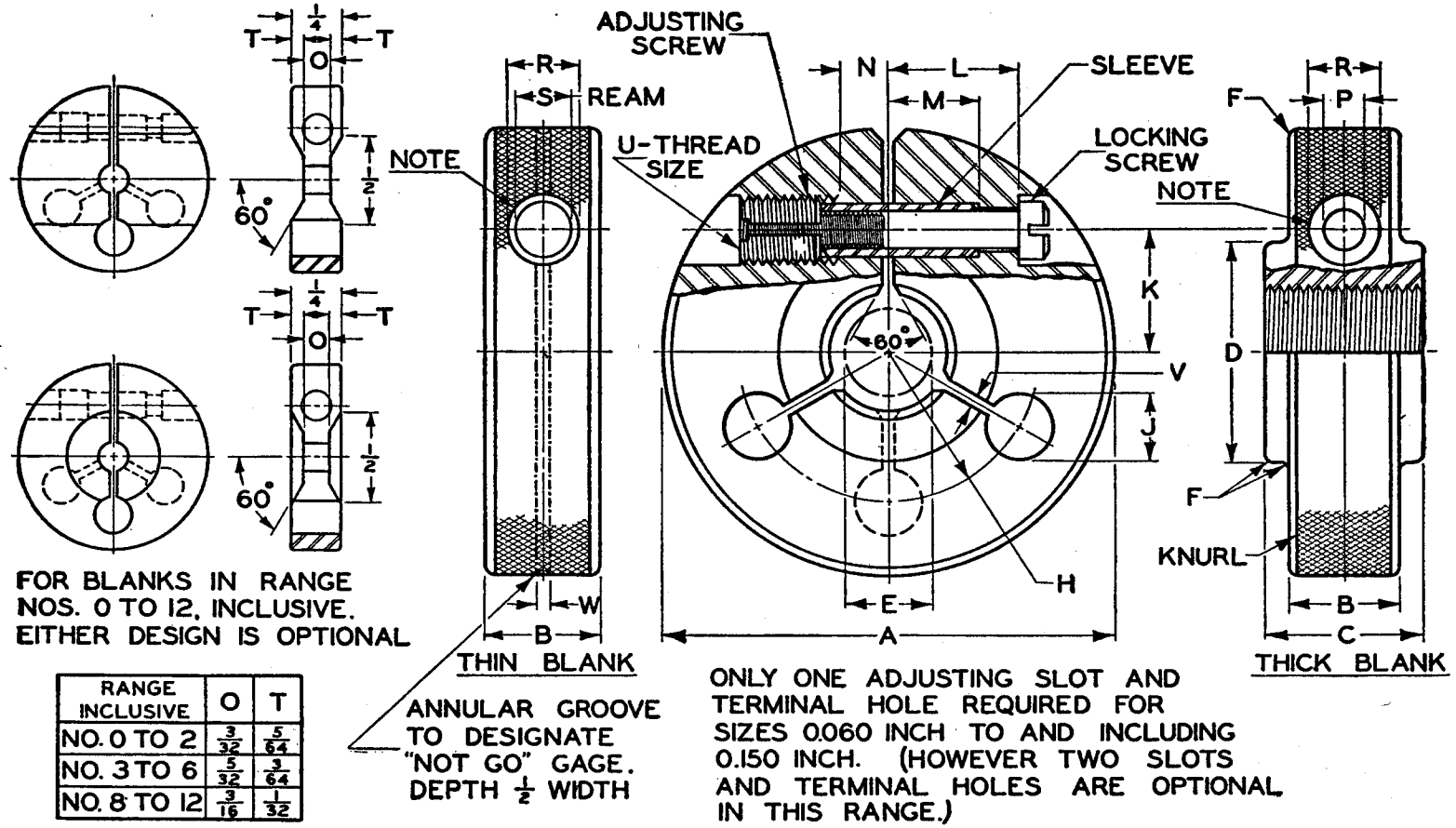
Range: Above 4.760 to and including 12.260 inches.

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 4¾ inches (large instrument thread, No. 0 to and including No. 12).*



RANGE INCLUSIVE	O	T
NO. 0 TO 2	3/32	5/64
NO. 3 TO 6	5/32	3/64
NO. 8 TO 12	3/16	1/32

NOTE: SCREWS AND SLEEVE ARE NOT SHOWN.

TABLE 26. *Thread ring gages, range No. 0 to and including 4¾ inches*—Continued

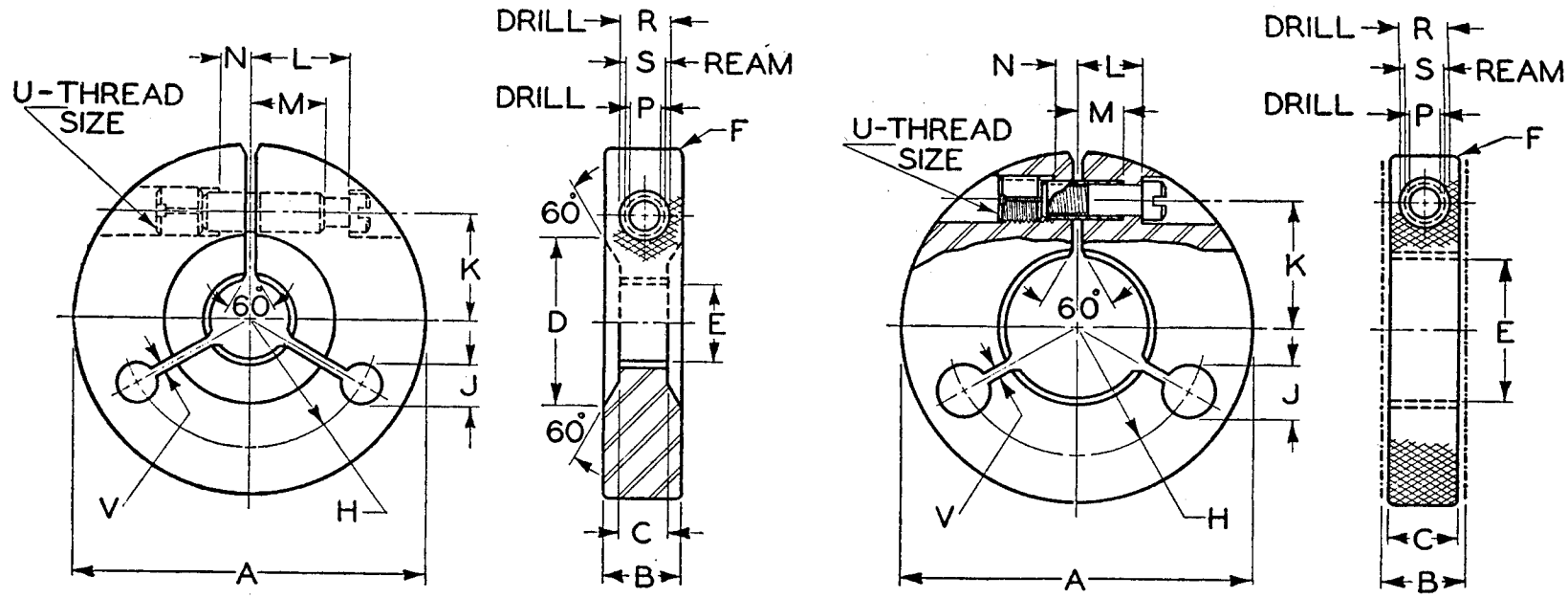
Nominal range, inclusive	Decimal range, above and including—	General dimensions																			
		A	*B*	*C*	*D*	*E*	*F*	*H*	*J*	*K*	*L*	*M* ±1/64	*N* ±1/64	*P* Drill size	*R* Drill size	*S* Ream		*U*			*V*	*W*
																Min.	Max.	Size	Pitch diameter			
																			Min.	Max.		
No. or in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*No. or in.*	*in.*	*in.*	*in.*		*in.*	*in.*	*in.*	*in.*
Nos. 0 to 6[1]	0.059	1	¼	-----	----	-----	1/32	5/16	5/32	5/16	7/32	5/32	1/16	No. 41 (0.0960)	11/64 (0.1719)	0.1370	0.1373	No. 8–36	0.1460	0.1478	0.010	1/32
	.150																				(2)	
Nos. 8 to 12	.150	1	¼	-----	----	-----	1/32	5/16	5/32	5/16	7/32	5/32	1/16	No. 41 (0.0960)	11/64 (0.1719)	.1370	.1373	No. 8–36	.1460	.1478	1/64	1/32
	.240																					
¼ to 5/16	.240	1⅜	11/32	-----	----	5/32	1/32	7/16	3/16	3/8	11/32	¼	⅛	No. 31 (0.1200)	7/32 (0.2187)	.1810	.1813	No. 12–28	.1928	.1950	1/32	1/16
	.365																					
⅜ to ½	.365	1¾	7/16	-----	----	3/16	3/64	19/32	¼	15/32	½	⅜	5/16	No. 25 (0.1495)	17/64 (0.2656)	.2150	.2153	¼–28	.2268	.2290	1/32	3/32
	.510																					
9/16 to ¾	.510	2⅜16	9/16	¾	1 1/16	11/32	1/16	¾	5/16	11/16	17/32	13/32	7/32	No. 7 (0.2010)	21/64 (0.3281)	.2720	.2723	5/16–24	.2854	.2878	1/16	3/32
	.825																					
⅞ to 1⅛	.825	2⅝	11/16	15/16	1½	9/16	1/16	31/32	5/16	⅞	17/32	13/32	9/32	No. 1 (0.2280)	25/64 (0.3906)	.3340	.3344	⅜–24	.3479	.3503	1/16	3/32
	1.135																					
1¼ to 1½	1.135	3¼	¾	1⅛	1⅞	27/32	1/16	1 3/16	⅜	1⅛	5/8	7/16	5/16	17/64 (0.2656)	29/64 (0.4531)	.3890	.3894	7/16–20	.4050	.4076	1/16	3/32
	1.510																					
1⅝ to 2	1.510	3¾	13/16	1¼	2⅜	1 3/16	3/32	1 7/16	⅜	1⅜	5/8	7/16	5/16	17/64 (0.2656)	29/64 (0.4531)	.3890	.3894	7/16–20	.4050	.4076	1/16	⅛
	2.010																					
2⅛ to 2½	2.010	4½	⅞	1 5/16	2⅞	1 19/32	3/32	1¾	7/16	1 11/16	13/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	.4510	.4515	½–20	.4675	.4701	3/32	⅛
	2.510																					
2⅝ to 3	2.510	5	⅞	1⅜	3⅜	2	3/32	2	7/16	1 15/16	13/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	.4510	.4515	½–20	.4675	.4701	3/32	⅛
	3.010																					
3⅛ to 3½	3.010	5½	15/16	1 7/16	3⅞	2 7/16	3/32	2 7/32	7/16	2 3/16	13/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	.4510	.4515	½–20	.4675	.4701	3/32	⅛
	3.510																					
3⅝ to 4	3.510	6⅜	15/16	1½	4⅝	2 15/16	3/32	2⅝	½	2 1/16	1	¾	⅝	13/32 (0.4062)	41/64 (0.6406)	.5710	.5715	⅝–18	.5889	.5919	3/32	⅛
	4.010																					
4⅛ to 4¾	4.010	7¼	1	1½	5⅜	3⅜	3/32	3 1/32	½	3	1	¾	⅝	13/32 (0.4062)	41/64 (0.6406)	.5710	.5715	⅝–18	.5889	.5919	3/32	⅛
	4.760																					

[1] Blanks for the range Nos. 0 to 6, inclusive, may be either counterbored or milled, as shown in illustration above. [2] Approximate.

NOTE.—Thin gage blanks are to be used for all "not go" thread ring gages. For "go" thread ring gages, use thin or thick blanks as follows:

Diameter	Thin blank	Thick blank
From No. 0 to ½ inch, inclusive.	All pitches	----------
Above ½ to 1⅛ inches, inclusive.	Pitches 12 threads per inch and finer except 9/16–12.	Pitches coarser than 12 threads per inch.
Above 1⅛ inches	Pitches 10 threads per inch and finer.	Pitches coarser than 10 threads per inch.

TABLE 27. *Large 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. "$\frac{W}{2}$" = DEPTH.

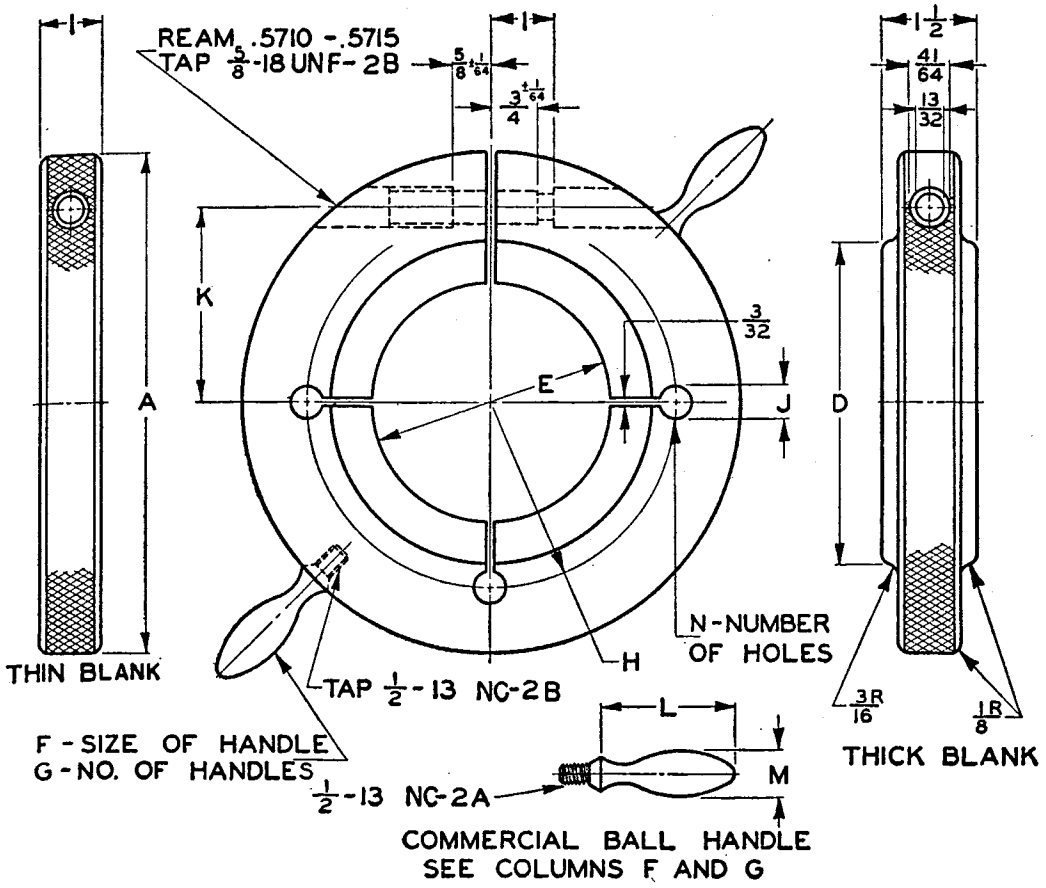
GAGES ABOVE .510 TO 2.510 INC.- KNURL FINISH.
FACE BOTH ENDS

TABLE 27. *Large 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* ±1/64	*N* ±1/64
in.	*in.*	*in.*		*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1/4 to 5/16	0.240	0.365	40	1 3/8	11/32	1/4	3/4	5/32	1/32	7/16	3/16	3/8	11/32	1/4	1/8
5/16 to 1/2	.365	.510	36	1 3/4	7/16	5/16	1	3/16	3/64	19/32	1/4	15/32	1/2	5/16	3/16
9/16 to 3/4	.510	.825	32	2 3/16	9/16	15/32	--------	11/32	1/16	3/4	5/16	11/16	17/32	13/32	7/32
7/8 to 1 1/8	.825	1.135	28	2 5/8	11/16	17/32	--------	9/16	1/16	31/32	5/16	7/8	17/32	13/32	9/32
1 1/4 to 1 1/2	1.135	1.510	28	3 1/4	3/4	5/8	--------	27/32	1/16	1 5/16	3/8	1 1/8	5/8	7/16	5/16
1 5/8 to 2	1.510	2.010	28	3 3/4	15/16	5/8	--------	1 3/16	3/32	1 7/16	3/8	1 3/8	5/8	7/16	5/16
2 1/8 to 2 1/2	2.010	2.510	28	4 1/2	7/8	11/16	--------	1 19/32	5/32	1 3/4	7/16	1 11/16	13/16	9/16	7/16

Nominal range, inclusive	General dimensions							
	P Drill size	*R* Drill size	*S* Ream		*U*			*V*	*W*
			Min.	Max.	Size	Pitch diameter			
						Min.	Max.		
in.	*No. or in.*	*in.*	*in.*	*in.*	*No. or in.*	*in.*	*in.*	*in.*	*in.*
1/4 to 5/16	No. 31 (0.1200)	7/32 (0.2187)	0.1810	0.1813	No. 12–28	0.1928	0.1950	1/32	1/16
5/16 to 1/2	No. 25 (.1495)	17/64 (.2656)	.2150	.2153	1/4–28	.2268	.2290	1/32	3/32
9/16 to 3/4	No. 7 (.2010)	21/64 (.3281)	.2720	.2723	5/16–24	.2854	.2878	1/16	3/32
7/8 to 1 1/8	No. 1 (.2280)	25/64 (.3906)	.3340	.3344	3/8–24	.3479	.3503	1/16	3/32
1 1/4 to 1 1/2	17/64 (.2656)	29/64 (.4531)	.3890	.3894	7/16–20	.4050	.4076	1/16	3/32
1 5/8 to 2	17/64 (.2656)	29/64 (.4531)	.3890	.3894	7/16–20	.4050	.4076	1/16	1/8
2 1/8 to 2 1/2	21/64 (.3281)	33/64 (.5156)	.4510	.4515	1/2–20	.4675	.4701	3/32	1/8

TABLE 28. *Thread ring gages, range above 4.760 to and including 12.260 inches*

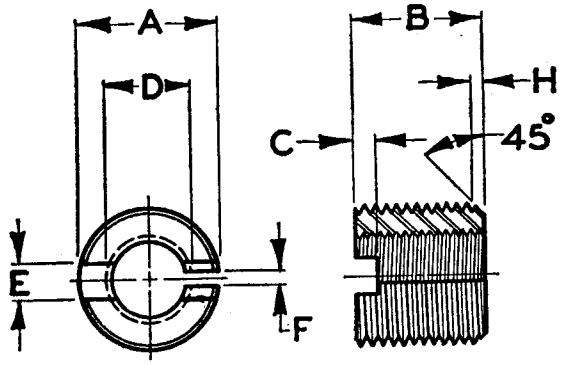


Nominal range, inclusive	Decimal range		A	D	E	F	G	H	J	K	N
	Above—	To and including—									
in.	*in.*	*in.*	*in.*	*in., size*	*in.*	*Size No.*	*Number*	*in.*	*in.*	*in.*	*Number*
4¾ to 5½	4.760	5.510	8¼	+1⅛	4	------	------	3 7/16	½	3½	2
5½ to 6¼	5.510	6.260	9¼	1⅛	4¾	6	2	3 15/16	½	3 15/16	2
6¼ to 7	6.260	7.010	10¼	1⅛	5½	6	2	4 7/16	½	4⅜	3
7 to 7¾	7.010	7.760	11¼	1⅛	6¼	6	2	4 13/16	⅝	5	3
7¾ to 8½	7.760	8.510	12¼	1⅛	7	6	2	5 5/16	⅝	5⅛	3
8½ to 9¼	8.510	9.260	13¼	1⅛	7¾	7	4	5 13/16	⅝	5⅝	5
9¼ to 10	9.260	10.010	14¼	1⅛	8½	7	4	6 7/32	11/16	6⅛	5
10 to 10¾	10.010	10.760	15¼	1⅛	9¼	7	4	6 23/32	11/16	6⅝	5
10¾ to 11½	10.760	11.510	16¼	1⅛	10	7	4	7¼	¾	7¼	5
11½ to 12¼	11.510	12.260	17¼	1⅛	10¾	7	4	7⅝	¾	7⅝	5

NOTE.—For use of thin or thick blanks, see note, table 26, page 40. Locking device is the same size in the range above 3⅝ to and including 12¼ inches.

HANDLE DIMENSIONS		
Handle No.	*L*	*M*
	in.	*in.*
6	3⅜	1¼
7	3¾	1⅜

TABLE 29. *Thread ring gage adjusting screws.*

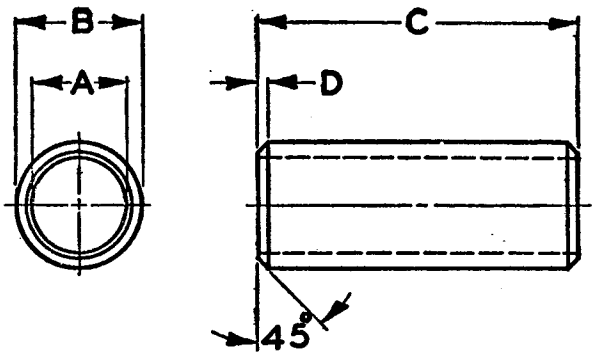


Gage range, nominal	A					B[1]	C
	Size (external thread)	Pitch diameter		Minor diameter			
		Min.	Max.	Min.	Max.		
No. or in.		*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
Nos. 0 to 12	No. 8–36	0.1442	0.1460	0.1315	0.1333	3/16	3/64
1/4 to 5/16	No. 12–28	.1906	.1928	.1744	.1766	1/4	3/64
3/8 to 1/2	1/4–28	.2246	.2268	.2084	.2106	5/16	1/16
9/16 to 3/4	5/16–24	.2830	.2854	.2641	.2665	5/16	1/16
7/8 to 1 1/8	3/8–24	.3455	.3479	.3266	.3290	3/8	5/64
1 1/4 to 2	7/16–20	.4024	.4050	.3797	.3823	7/16	5/64
2 1/8 to 3 1/2	1/2–20	.4649	.4675	.4422	.4448	1/2	3/32
3 5/8 to 12 1/4	5/8–18	.5859	.5889	.5607	.5637	9/16	3/32

Gage range, nominal	D				E	F	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 (0.070)	1/32	1/64	0.020
1/4 to 5/16	No. 4–48	.0985	.1001	42 (.093)	1/32	1/64	.020
3/8 to 1/2	No. 6–40	.1218	.1235	32 (.116)	3/64	1/32	.020
9/16 to 3/4	No. 10–32	.1697	.1716	20 (.161)	3/64	1/32	1/32
7/8 to 1 1/8	No. 12–28	.1928	.1950	14 (.182)	1/16	3/64	1/32
1 1/4 to 2	1/4–28	.2268	.2290	3 (.213)	1/16	3/64	1/32
2 1/8 to 3 1/2	5/16–24	.2854	.2878	I (.272)	5/64	1/16	3/64
3 5/8 to 12 1/4	3/8–24	.3479	.3503	Q (.332)	5/64	1/16	3/64

[1] Tolerance on length $B = \pm$ 1/64 in.

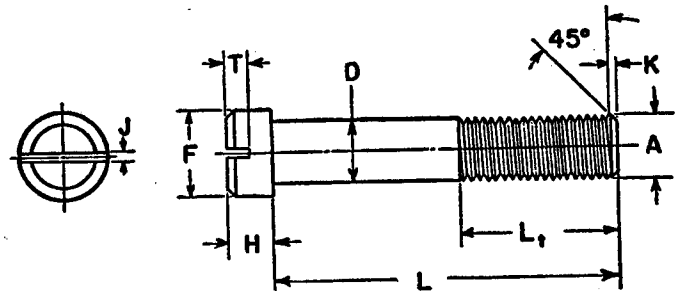
TABLE 30. *Thread ring gage sleeves.*



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	1/4	0.010
1/4 to 5/16	No. 32	.116	.1808	.1810	7/16	.020
3/8 to 1/2	No. 27	.144	.2148	.2150	5/8	.020
9/16 to 3/4	No. 10	.193	.2718	.2720	11/16	1/32
7/8 to 1 1/8	No. 2	.221	.3337	.3340	3/4	1/32
1 1/4 to 2	F	.257	.3887	.3890	13/16	1/32
2 1/8 to 3 1/2	P	.323	.4507	.4510	1 1/16	5/64
3 5/8 to 12 1/4	25/64	.391	.5707	.5710	1 1/2	5/64

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

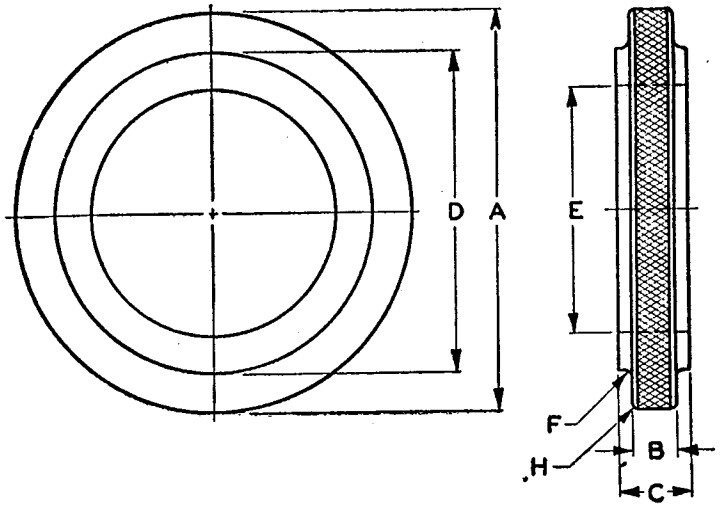
TABLE 31. *Thread ring gage locking screws.*



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.		*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
Nos. 0 to 12	2–64NF–3A	0.0745	0.0759	0.0840	0.0860	0.136	0.140	0.066	0.083	0.023	0.031	0.025	0.037	0.010	39/64	5/16
1/4 to 5/16	4–48NF–3A	.0969	.0985	.1096	.1120	.178	.183	.088	.107	.031	.039	.035	.048	.020	33/32	5/16
3/8 to 1/2	6–40NF–3A	.1201	.1218	.1353	.1380	.221	.226	.111	.132	.039	.048	.045	.060	.020	1	7/16
9/16 to 3/4	10–32NF–3A	.1678	.1697	.1867	.1900	.306	5/16	.156	.180	.050	.060	.064	.083	1/32	1 1/16	7/16
7/8 to 1 1/8	12–28NF–3A	.1906	.1928	.2127	.2160	.337	11/32	.178	.205	.056	.067	.074	.094	1/32	1 5/16	1/2
1 1/4 to 2	1/4–28UNF–3A	.2246	.2268	.2464	.2500	.367	3/8	.207	.237	.064	.075	.087	.109	1/32	1 23/64	9/16
2 1/8 to 3 1/2	5/16–24UNF–3A	.2830	.2854	.3084	.3125	.429	7/16	.262	.295	.072	.084	.110	.137	3/64	1 25/32	5/8
3 5/8 to 12 1/4	3/8–24UNF–3A	.3455	.3479	.3705	.3750	.553	9/16	.315	.355	.081	.094	.133	.164	3/64	2 3/16	3/4

[1] Tolerance on length $L = \pm 1/32$ in.

TABLE 32. *Taper pipe thread ring gages, range ⅛ to 8 inches, inclusive*



Nominal pipe size	A	B	C	D	E	F	H
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
⅛	1 1/8	1/8	1/4	11/16	9/32	1/32	1/32
¼	1 5/16	9/64	9/32	27/32	3/8	1/32	1/32
⅜	1 1/2	9/64	11/32	1	1/2	1/32	1/32
½	1 11/16	5/16	27/64	1 3/16	5/8	3/64	1/32
¾	1 15/16	13/64	7/16	1 7/16	13/16	3/64	1/32
1	2 5/16	17/64	1/2	1 11/16	1	3/64	1/32
1¼	2 3/4	9/32	33/64	2 1/16	1 1/4	3/64	3/64
1½	3 1/16	9/32	33/64	2 1/4	1 1/2	3/64	3/64
2	3 5/8	19/64	17/32	2 3/4	2	1/16	3/64
2½	4 1/4	1/2	13/16	3 3/8	2 3/8	3/32	1/16
3	5	9/16	29/32	4	3 1/16	3/32	1/16
3½	5 5/8	5/8	61/64	4 9/16	3 9/16	3/32	1/16
4	6 1/4	5/8	1	5 1/16	4 1/16	3/32	1/16
4½	7	21/32	1	5 5/8	4 9/16	3/32	1/16
5	7 5/8	23/32	1 1/16	6 3/16	5 1/8	3/32	3/32
6	8 7/8	23/32	1 3/32	7 5/16	6 3/16	3/32	3/32
8	11 1/2	13/16	1 5/16	9 1/2	8 1/8	1/8	3/32

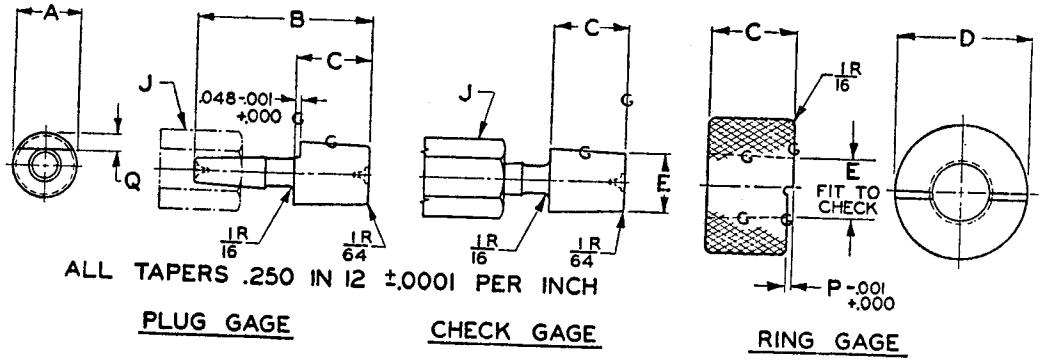
3.6 Taper Plug and Ring Gages for Checking Taper Lock Handles and Gaging Members

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 48.

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.*



PLUG GAGES FOR CHECKING HANDLES

Size No. of handle to be gaged	*A* +0.0000 −0.0001	*B*	*C*	*J* Handle size No.	*Q*
	in.	*in.*	*in.*		*in.*
000	0.126	1 3/8	1/2	000	0.015
00	.156	1 17/32	9/16	00	.015
0	.181	1 17/32	5/8	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 5/16	7/8	3	.100
5	.810	2 5/16	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.	*P* +0.000 −0.001
	in.	*in.*	*in.*		*in.*
000	0.1146	9/16	1	000	0.0480
00	.1433	5/8	1	00	.0480
0	.1670	11/16	1 1/8	0	.0480
1	.2234	13/16	1 1/8	1	.0480
2	.2934	13/16	1 1/4	1	.0480
3	.3924	7/8	1 3/8	2	.0960
4	.5898	1	1 9/16	3	.0960
5	.7872	1 1/8	1 3/4	3	.0960

NOTE.—Dimensions not specified above shall conform to American Gage Design Standards, tables 5, 6, 8, and 9, pages 12-13, 15-16.

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:

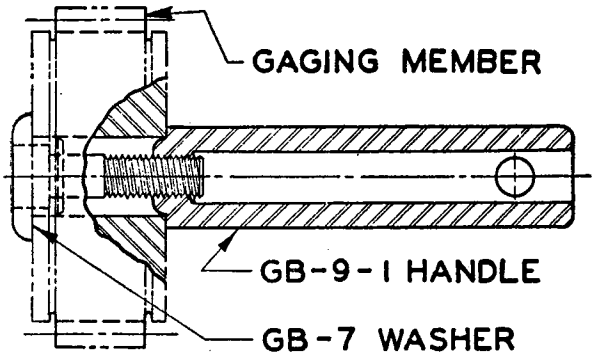
Spline plug gages and relieved-type spline plug gages, with integral handles, for sizes to and including 2 inches.

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.

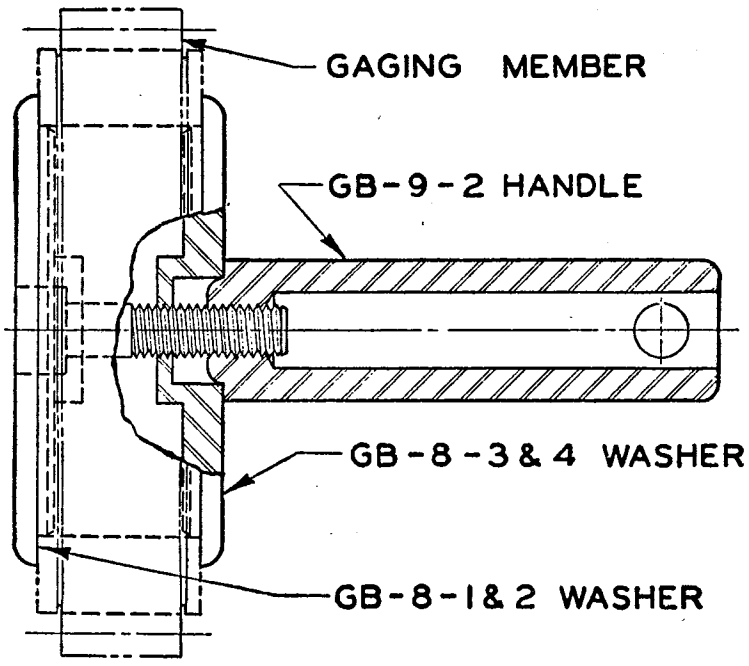
Spline tapered tooth plug gages, with either integral or detachable handles, for sizes to and including 8 inches.
Plug gage stands.
Spline tapered tooth plug gages for sizes to and including 8 inches.

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 alinement 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 51 and 52.

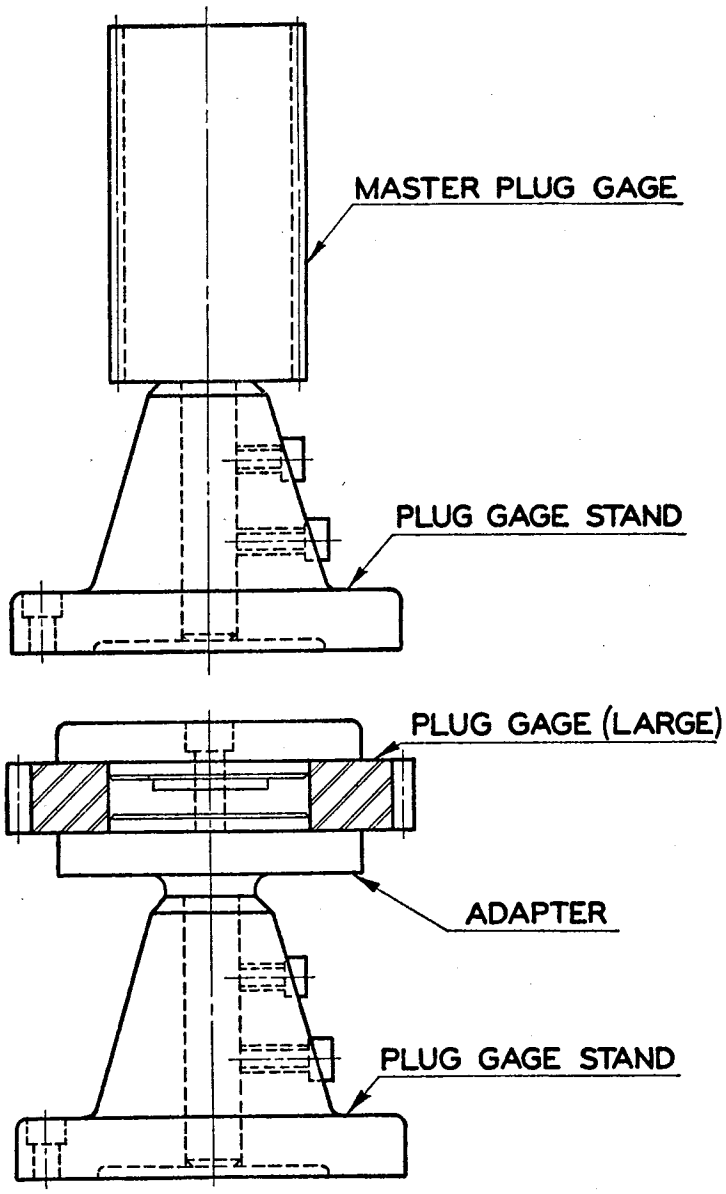
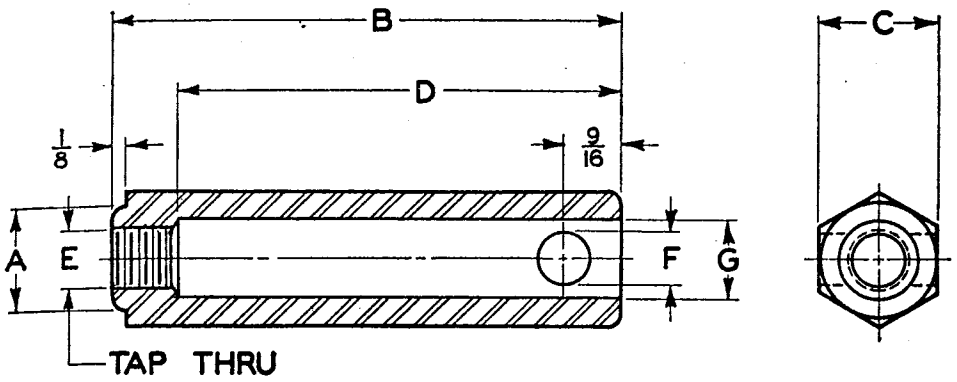


FIGURE 7. *Spline plug gage stands.*

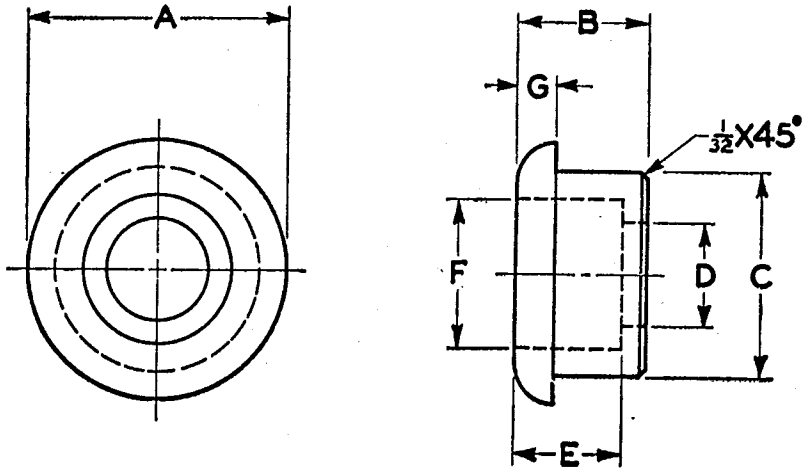
TABLE 34. *Handles for spline plug gages, range above 1.5 to and including 8.0 inches*



Handle No.	Dimensions						
	A	*B*	*C*	*D*	*E*	*F*	*G*
	in.	in.	in.	in.		in.	in.
GB-9-1	47/64	4 1/8	13/16	3 3/4	3/8-24UNF-2B	3/8	1/2
GB-9-2[1]	63/64	4 7/8	1 1/8	4 1/4	1/2-20UNF-2B	1/2	13/16

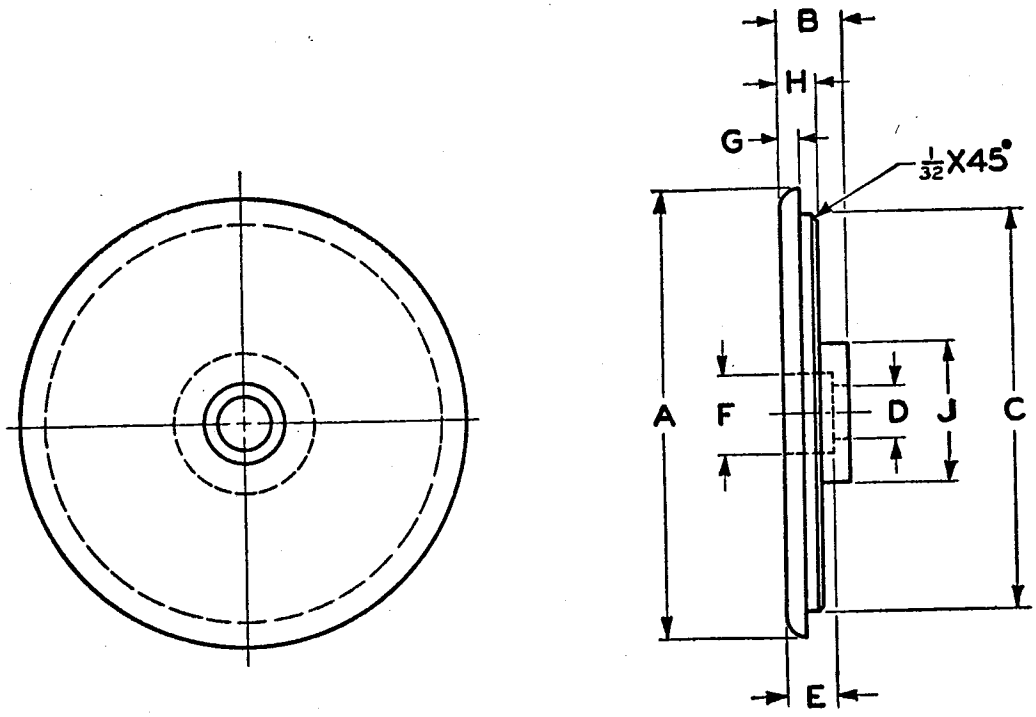
[1] Can be made from A.G.D. handle No. 6.

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



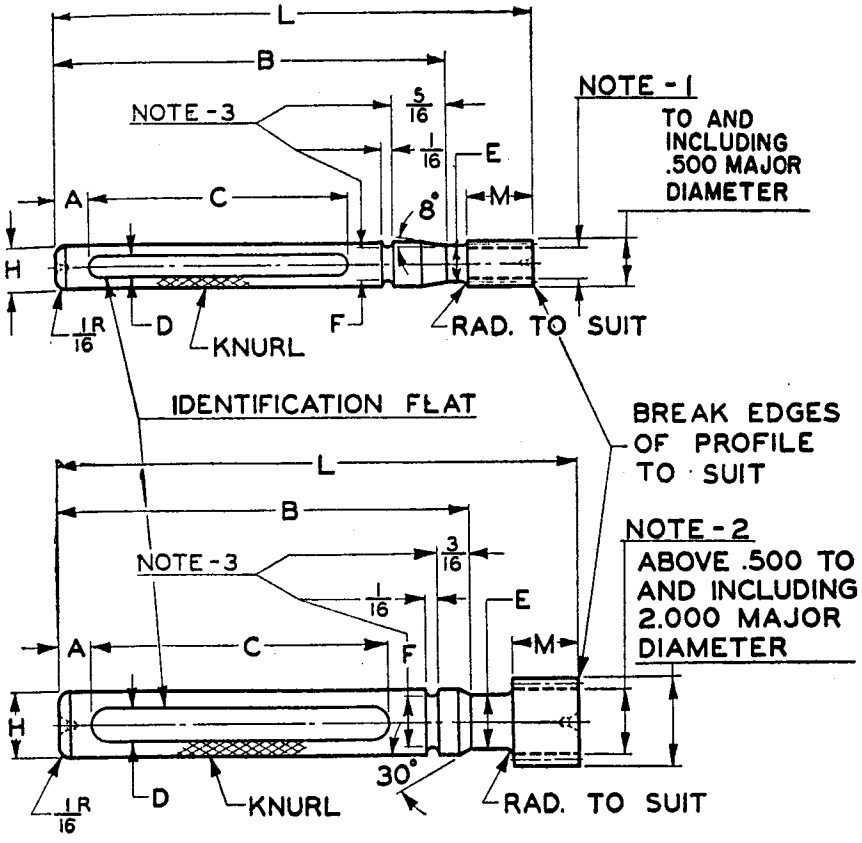
Washer No.	Dimensions						
	A	*B*	*C*	*D*	*E*	*F*	*G*
	in.	in.	in.	in.	in.	in.	in.
GB-7-1	1	1/2	47/64	13/32	3/8	19/32	5/16
GB-7-2	1 1/4	5/8	63/64	17/32	1/2	25/32	3/16

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*
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
GB–8–1	3	5/8	2 47/64	17/32	1/2	25/32	3/16	5/16	1 1/4
GB–8–2	4 3/8	5/8	3 63/64	17/32	1/2	25/32	3/16	5/16	1 1/4
GB–8–3	3	5/8	2 47/64	17/32	1/2	1 1/64	3/16	5/16	1 1/4
GB–8–4	4 3/8	5/8	3 63/64	17/32	1/2	1 1/64	3/16	5/16	1 1/4

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



Major diameter		Dimensions											
Above—	To and including—	*A*	*B*		*C*	*D*	*E*	*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.*
0.000	0.250	3/16	2 1/8	2 1/4	1 1/2	1/8	7/32 (max.)[1]	[3]	5/16	1/4	2 3/4	3/8	1/4
.250	.375	3/16	2 1/8	2 1/4	1 1/2	3/16	1/4 (max.)[2]	[3]	1/4	5/16	2 7/8	1/2	3/8
.375	.500	3/16	2 1/4	2 3/8	1 3/4	3/16	5/16 (max.)[2]	[3]	5/16	3/8	3	1/2	3/8
.500	.750	9/32	2 7/16	2 9/16	1 7/8	1/4	3/8 (max.)[2]	[3]	3/8	7/16	3 3/8	5/8	1/2
.750	1.000	5/16	2 1/2	2 3/4	1 7/8	5/16	1/2	[3]	1/2	9/16	3 5/8	3/4	1/2
1.000	1.500	5/16	2 3/4	3 1/8	2 1/8	5/16	11/16	[3]	11/16	3/4	4 1/8	1	5/8
1.500	2.000	5/16	2 3/4	3 1/8	2 1/8	5/16	11/16	[3]	11/16	3/4	4 1/4	1 1/8	3/4

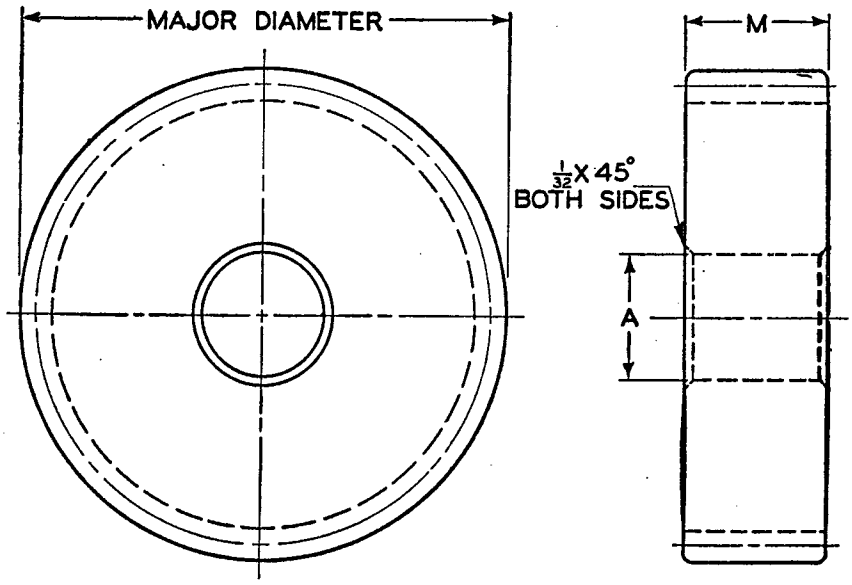
[1] To clear minor diameter by approximately 0.005 in.

[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.

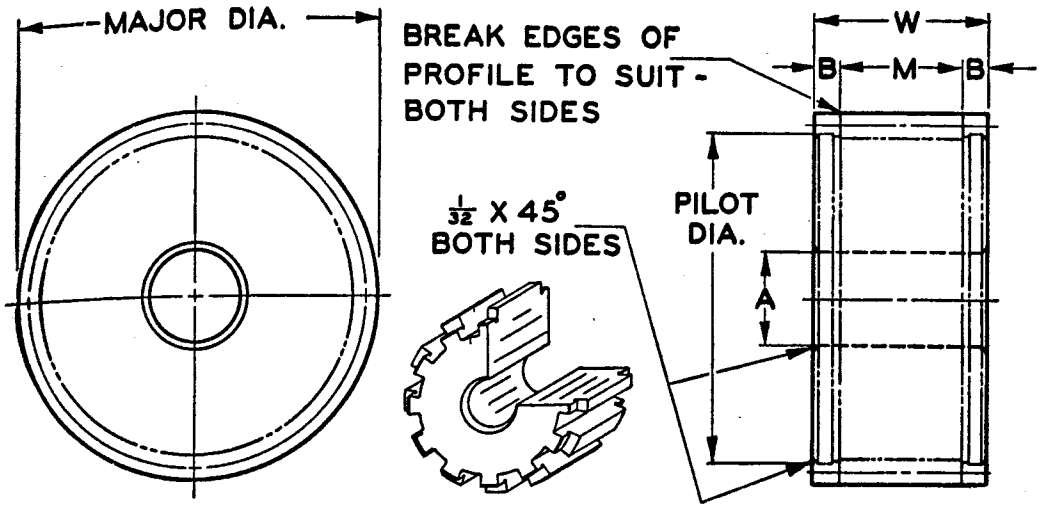
TABLE 38. *Involute, serrated, and straight-sided spline plug gaging members, range above 1.5 to and including 8.0 inches.*



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	1⅛	⅞	GB–9–1	GB–7–1
3.000	5.000	1.0000	1.0003	1½	1	GB–9–2	GB–7–2
5.000	7.000	2.7500	2.7504	1½	1	GB–9–2	GB–8–1 and 3[1]
7.000	8.000	4.0000	4.0005	1½	1	GB–9–2	GB–8–2 and 4[1]

[1] See figure 7, page 50, for stand adapter.

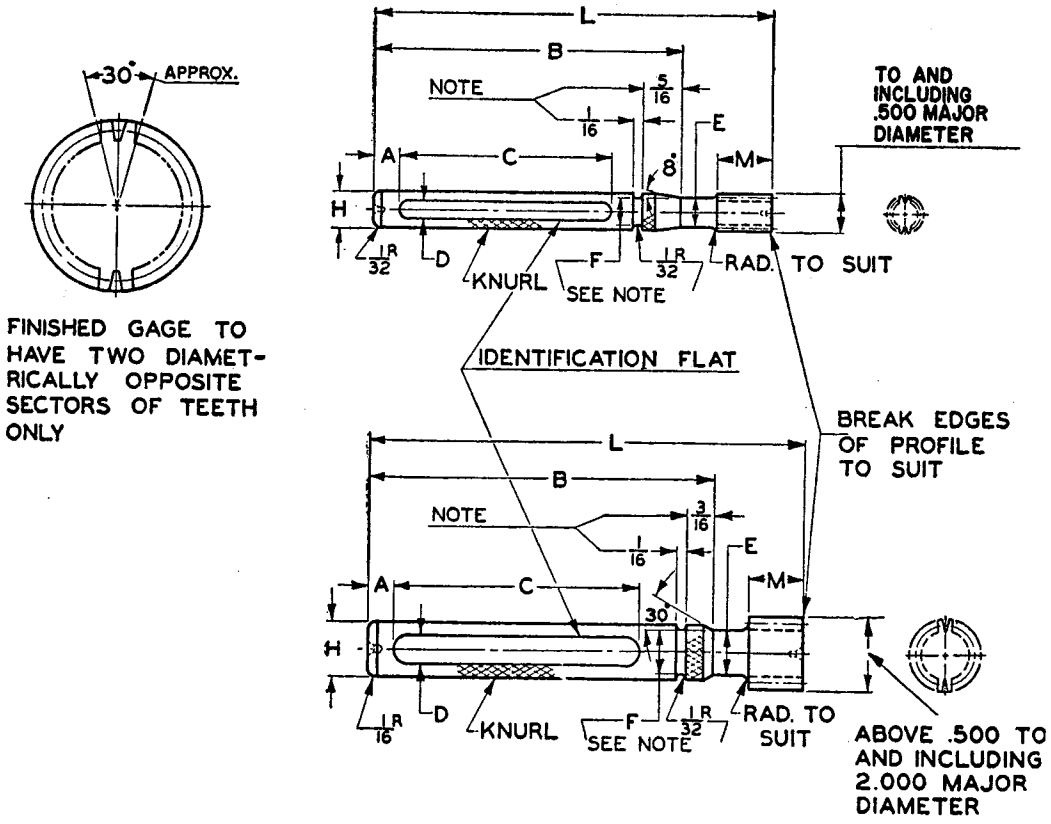
TABLE 39. *Involute, serrated, and straight-sided spline plug gaging members, pilot type, range above 1.5 to and including 8.0 inches.*



Major diameter		Dimensions								
Above—	To and including—	A		B	M		W		Handle No.	Washer No.
		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	1/8	1 1/8	7/8	1 3/8	1 1/8	GB–9–1	GB–7–1
3.000	5.000	1.0000	1.0003	1/8	1 1/2	1	1 3/4	1 1/4	GB–9–2	GB–7–2
5.000	7.000	2.7500	2.7504	1/8	1 1/2	1	1 3/4	1 1/4	GB–9–2	GB–8–1 and 3[1]
7.000	8.000	4.0000	4.0005	5/16	1 1/2	1	1 7/8	1 3/8	GB–9–2	GB–8–2 and 4[1]

[1] See figure 7, page 50, for stand adapter.

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



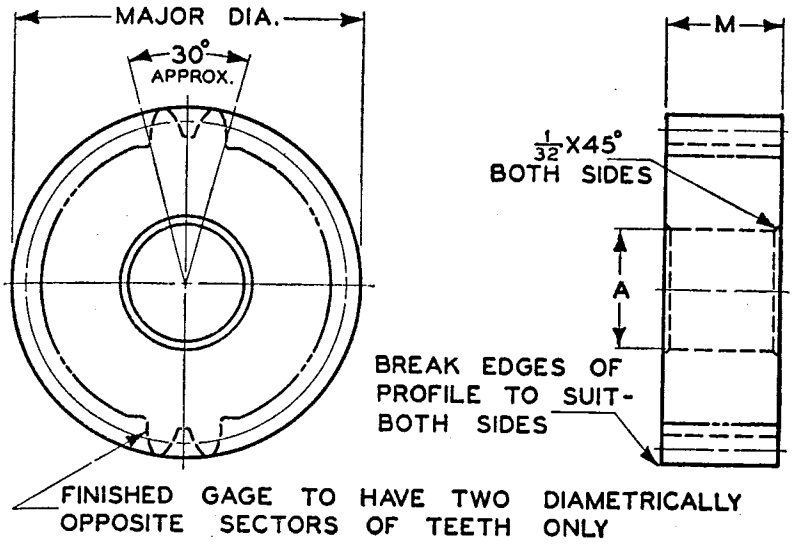
Major diameter		Dimensions											
Above—	To and including—	A	B		C	D	E[2]	F		H	L	M	
			"Go"	"Not go"				"Go"	"Not go"			"Go"	"Not go"
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
0.000	0.250	3/16	2 1/8	2 1/4	1 1/2	1/8	7/32 (max.)	(1)	5/16	1/4	2 3/4	5/8	1/4
.250	.375	3/16	2 1/8	2 1/4	1 1/2	5/16	1/4 (max.)	(1)	1/4	5/16	2 7/8	1/2	3/8
.375	.500	3/16	2 1/4	2 3/8	1 3/4	5/16	5/16 (max.)	(1)	5/16	3/8	3	1/2	3/8
.500	.750	9/32	2 7/16	2 9/16	1 7/8	1/4	3/8 (max.)	(1)	3/8	7/16	3 3/8	5/8	1/2
.750	1.000	5/16	2 1/2	2 3/4	1 7/8	5/16	1/2	(1)	1/2	9/16	3 5/8	3/4	1/2
1.000	1.500	5/16	2 3/4	3 1/8	2 1/8	5/16	11/16	(1)	11/16	3/4	4 1/8	1	5/8
1.500	2.000	5/16	2 3/4	3 1/8	2 1/8	5/16	11/16	(1)	11/16	3/4	4 1/4	1 1/8	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.

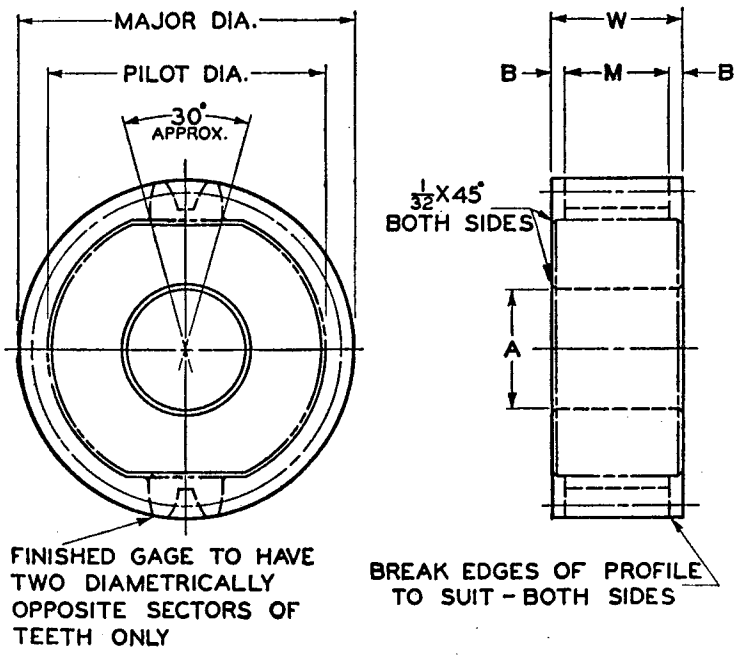
TABLE 41. *Involute and serrated spline plug gaging members, relieved type, range above 1.5 to and including 8.0 inches*



Major diameter		Dimensions					
		A		*M*		Handle No.	Washer No.
Above—	To and including—	Min.	Max.	"Go"	"Not go"		
in.	*in.*	*in.*	*in.*	*in.*	*in.*		
1.500	3.000	0.7500	0.7503	1⅛	⅞	GB-9-1	GB-7-1
3.000	5.000	1.0000	1.0003	1½	1	GB-9-2	GB-7-2
5.000	7.000	2.7500	2.7504	1½	1	GB-9-2	GB-7-1 and 3[1]
7.000	8.000	4.0000	4.0005	1½	1	GB-9-2	GB-7-2 and 4[1]

[1] See figure 7, page 50, for stand adapter.

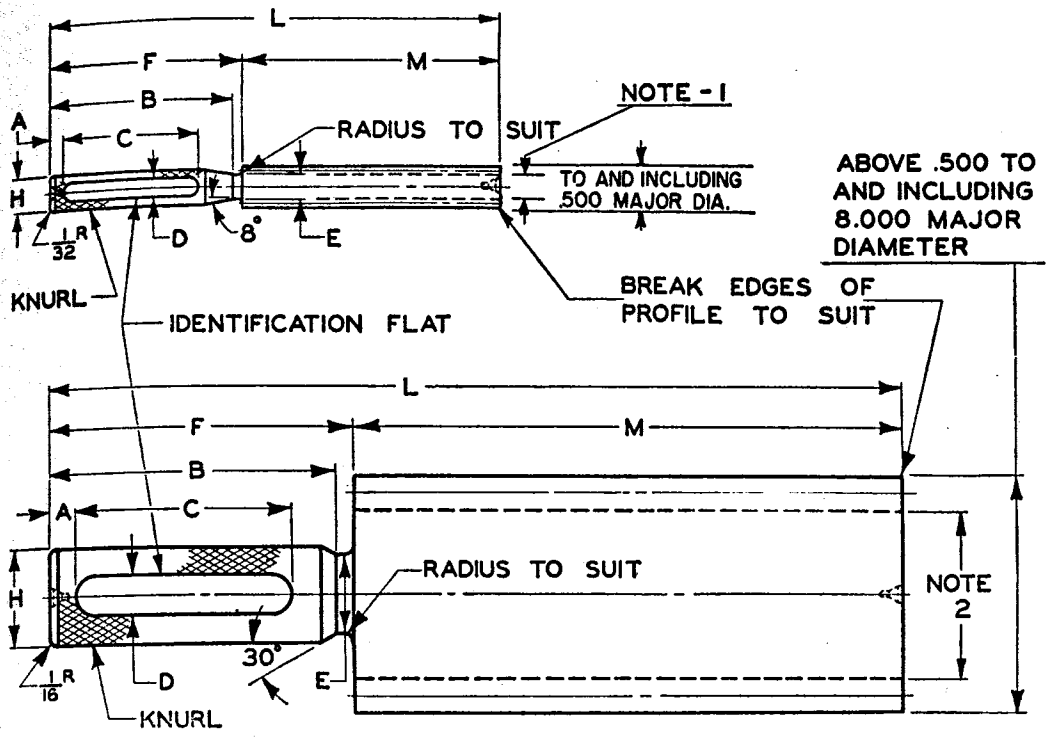
TABLE 42. *Involute and serrated spline plug gaging members, pilot relieved type, range above 1.5 to and including 8.0 inches.*



Major diameter		Dimensions								
Above—	To and including—	*A*		*B*	*M*		*W*		Handle No.	Washer No.
		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	1/8	1 1/8	7/8	1 3/8	1 1/8	GB–9–1	GB–7–1
3.000	5.000	1.0000	1.0003	1/8	1 1/2	1	1 3/4	1 1/4	GB–9–2	GB–7–2
5.000	7.000	2.7500	2.7504	1/8	1 1/2	1	1 3/4	1 1/4	GB–9–2	GB–8–1 and 3[1]
7.000	8.000	4.0000	4.0005	9/16	1 1/2	1	1 7/8	1 3/8	GB–9–2	GB–8–2 and 4[1]

[1] See figure 7, page 50, for stand adapter.

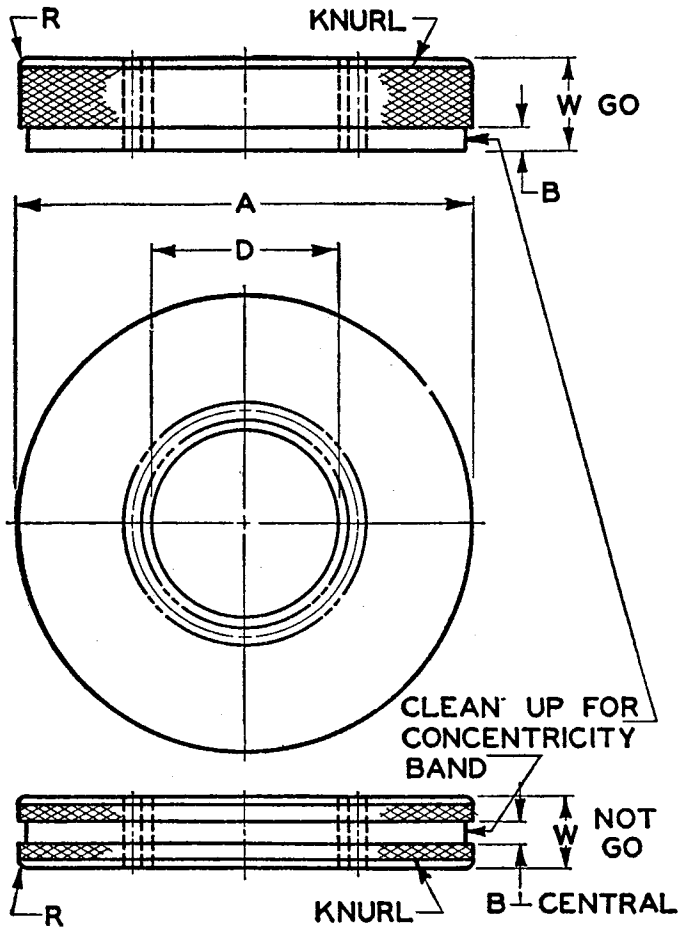
TABLE 43. *Involute, serrated, and straight-sided spline tapered tooth plug gages, master and working, range to and including 8 inches.*



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	5/16	2 1/8	1 1/2	1/8	7/32 (max.)[1]	2 3/8	1/4	4.5 × P.D.
.250	.375	5/16	2 1/8	1 1/2	5/16	1/4 (max.)[2]	2 3/8	5/16	4.5 × P.D.
.375	.500	5/16	2 3/8	1 3/4	5/16	5/16 (max.)[2]	2 1/2	3/8	4.5 × P.D.
.500	.625	9/32	2 1/2	1 7/8	1/4	3/8 (max.)[2]	2 3/4	7/16	4.5 × P.D.
.625	.750	9/32	2 1/2	1 7/8	1/4	3/8 (max.)[2]	2 3/4	7/16	4 × P.D.
.750	1.250	5/16	2 9/16	1 7/8	5/16	1/2	2 7/8	9/16	4 × P.D.
1.250	1.750	5/16	2 13/16	2 1/8	5/16	11/16	3 1/8	3/4	4 × P.D.
1.750	2.250	3/8	3 1/16	2 1/4	3/8	3/4	3 3/8	1	7
2.250	3.000	3/8	3 7/16	2 1/2	1/2	1	3 5/8	1 1/4	7
3.000	8.000	3/8	3 11/16	2 3/4	1/2	1	3 7/8	1 1/4	7

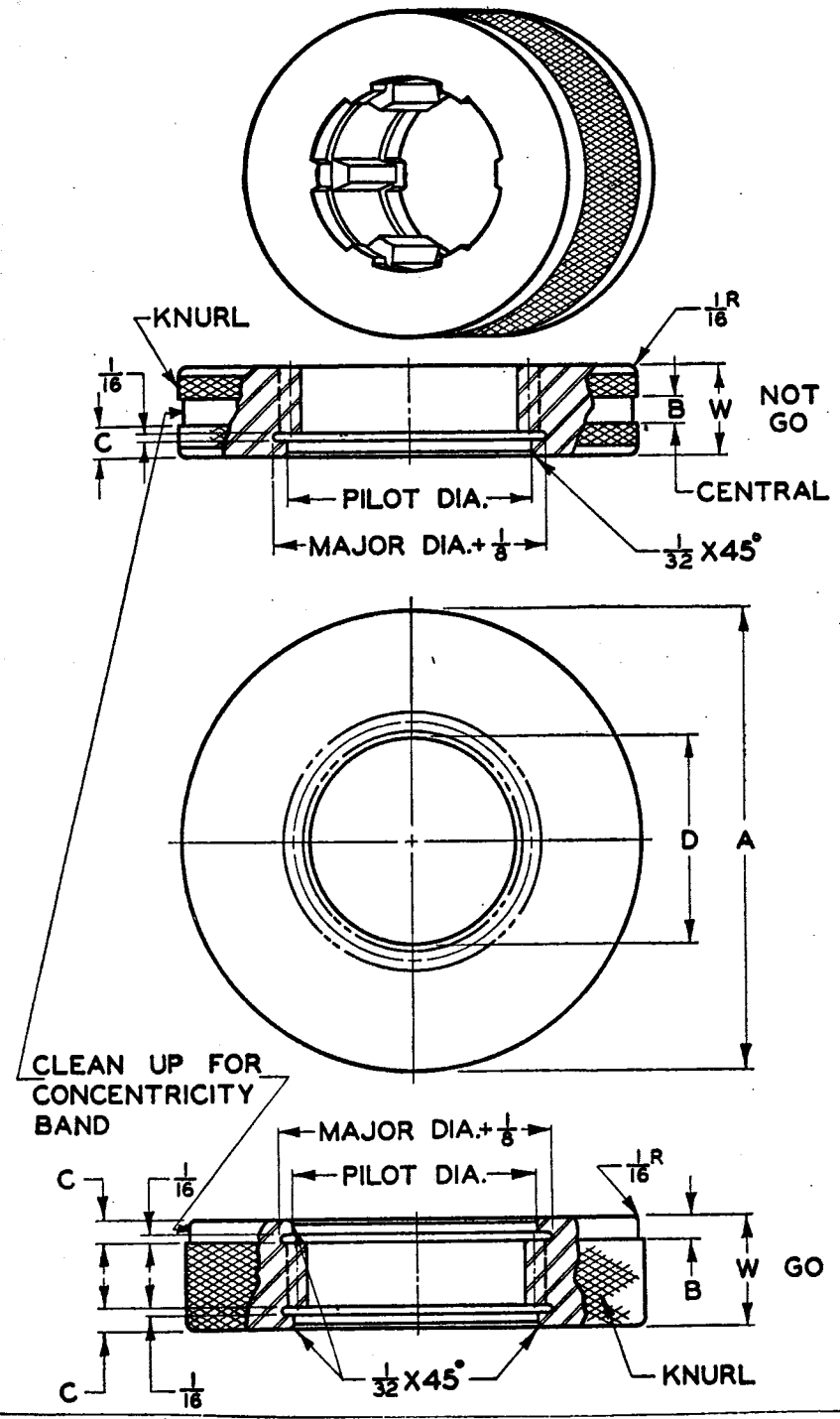
[1] Minor diameter minus approximately 0.005 in.
[2] To clear minor diameter by approximately 0.010 in.

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



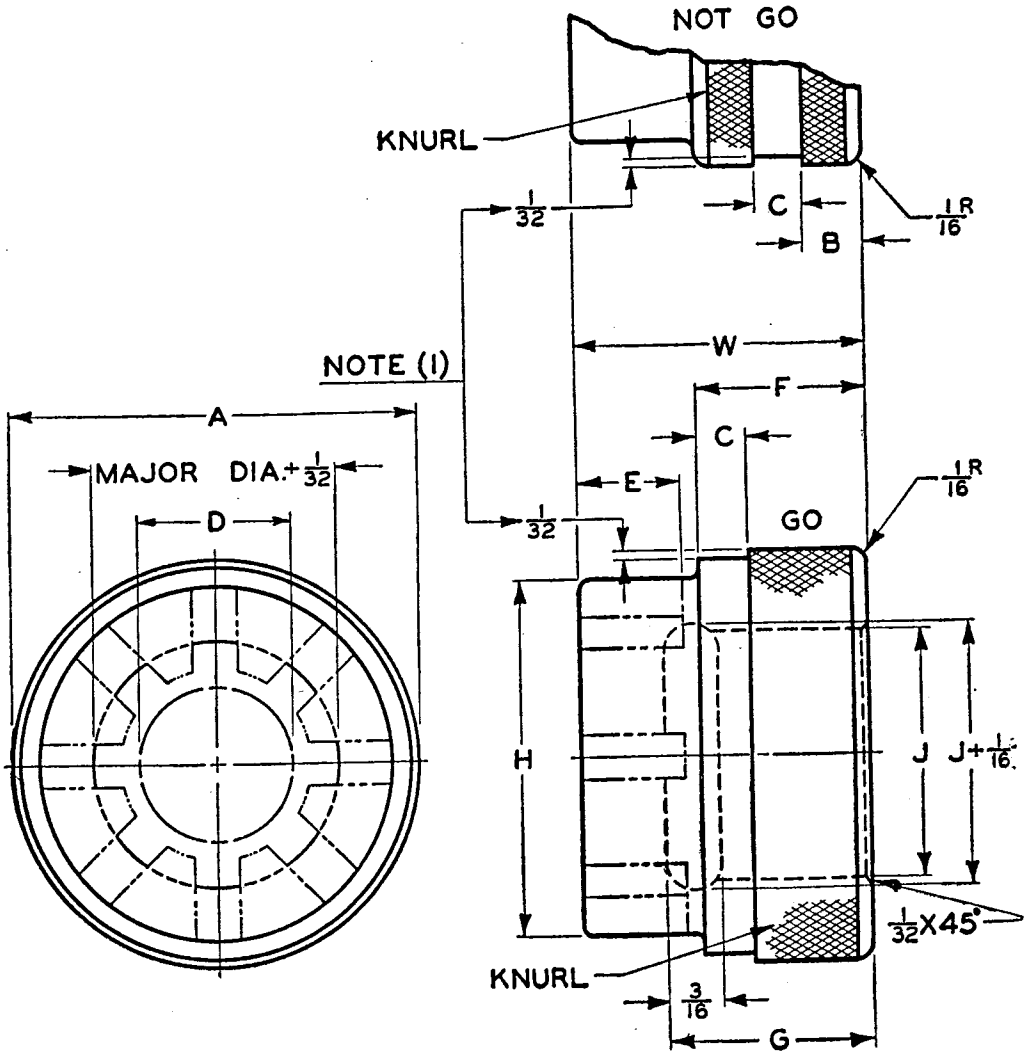
Major diameter		Dimensions					
Above—	To and including—	*A*	*B*	*D*	*R*	*W*	
						"Go"	"Not go"
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
0.000	0.375	1 1/2	3/32	0	1/32	1/4	1/4
.375	.500	1 1/2	1/8	3/16	1/32	3/8	3/8
.500	1.000	2 1/4	1/8	5/16	1/32	1/2	3/8
1.000	1.500	3	3/16	5/8	1/16	5/8	1/2
1.500	2.250	4	3/16	1	1/16	5/8	1/2
2.250	3.000	4 3/4	1/4	1 5/8	1/16	3/4	5/8
3.000	4.000	6	1/4	2 3/8	1/16	3/4	5/8
4.000	5.000	7	1/4	3 3/8	1/16	1	3/4
5.000	6.000	8	1/4	4 3/8	1/16	1	3/4
6.000	7.000	9 1/2	1/4	5 3/8	1/16	1 1/8	7/8
7.000	8.000	10 1/2	1/4	6 3/8	1/16	1 1/8	7/8

TABLE 45. *Involute and serrated spline 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"
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1.500	2.250	4	3/16	3/16	1	7/8	11/16
2.250	3.000	4 3/4	1/4	1/4	1 5/8	1	13/16
3.000	4.000	6	1/4	1/4	2 3/8	1 1/8	7/8
4.000	5.000	7	1/4	1/4	3 3/8	1 1/4	1
5.000	6.000	8	1/4	1/4	4 3/8	1 1/4	1
6.000	7.000	9 1/2	1/4	1/4	5 3/8	1 3/8	1 1/8
7.000	8.000	10 1/2	1/4	1/4	6 3/8	1 3/8	1 1/4

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

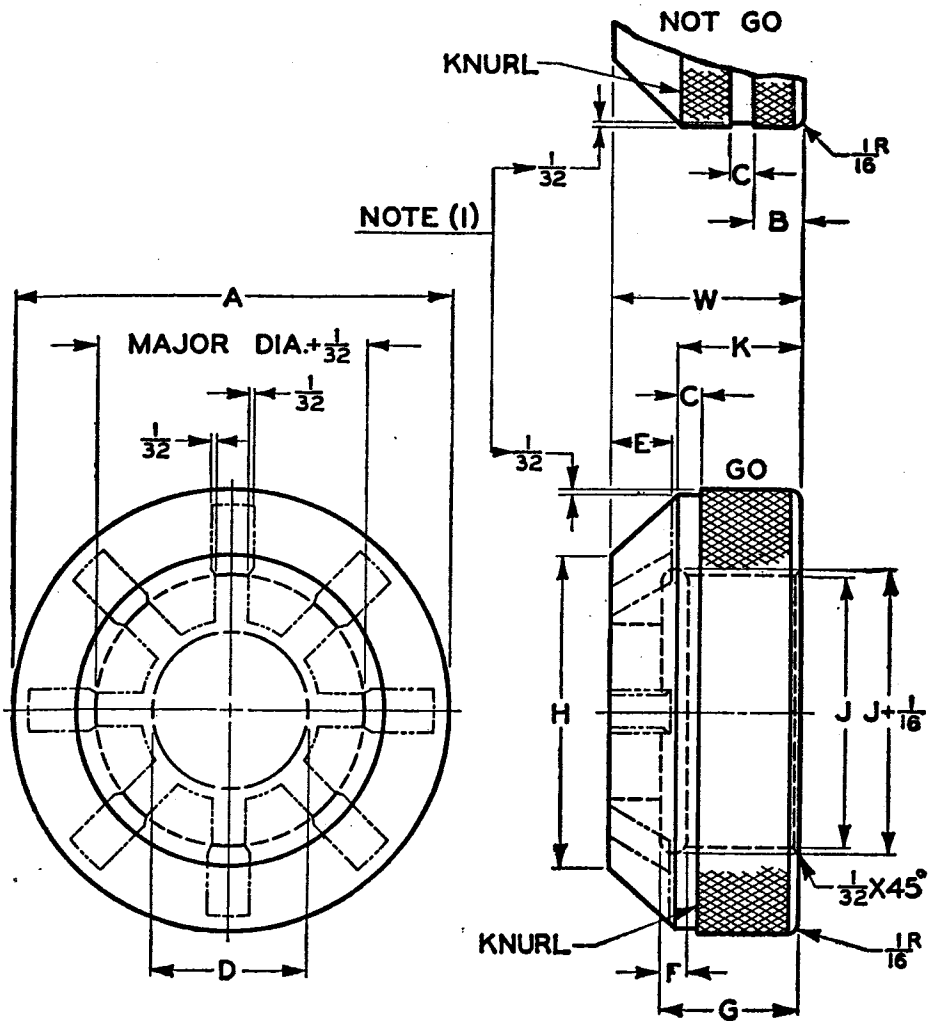


Major diameter		Dimensions									
Above—	To and including—	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*W*
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
0.000	0.250	1	3/16	1/8	0	1/4	1/2	5/8	3/4	(1)	13/16
.250	.500	1 1/4	3/16	1/8	0	5/16	1/2	5/8	1	(1)	7/8
.500	.750	1 1/2	7/32	3/16	0	3/8	5/8	3/4	1 3/8	(1)	1 1/16
.750	1.000	1 3/4	9/32	3/16	3/8	7/16	3/4	7/8	1 5/8	(1)	1 1/4

[1] Major 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 relation ring gages, prong type for space widths greater than 0.070 inch, range to and including 6.0 inches.*

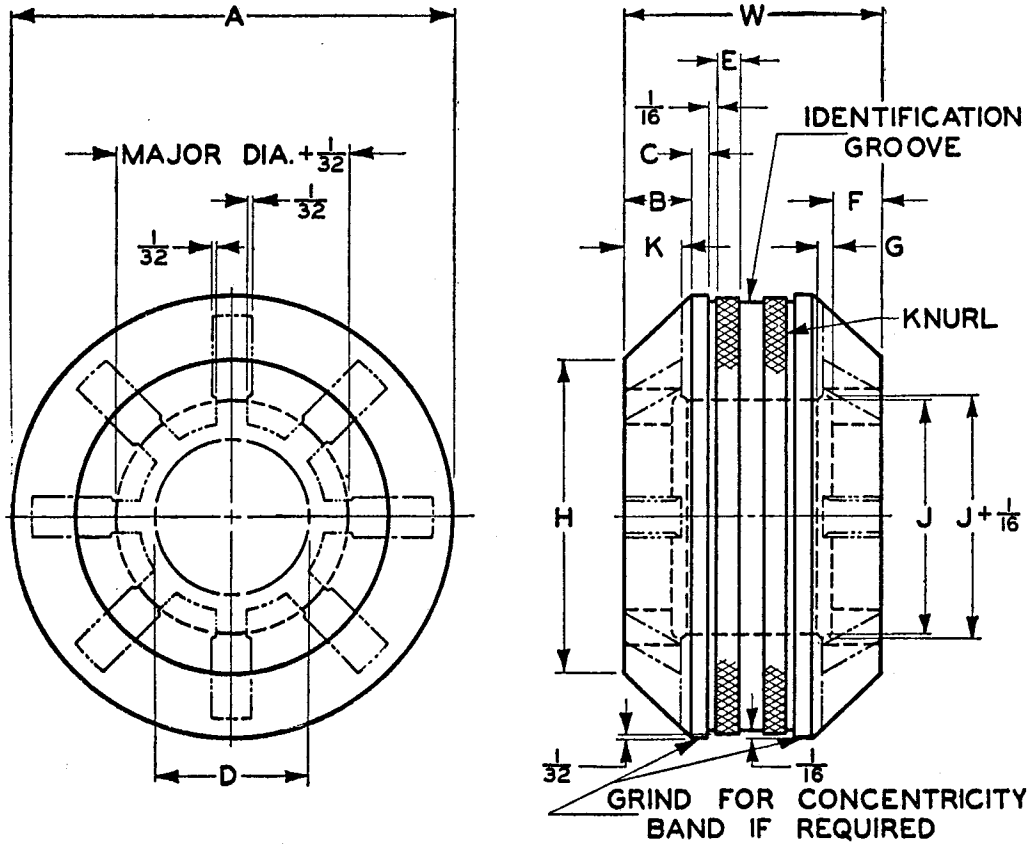


Major diameter		Dimensions										
Above—	To and including—	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*W*
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
0.000	0.500	1 5/8	1/4	5/16	0	9/16	5/16	15/16	3/4	(1)	11/16	1 3/8
.500	1.000	2 1/8	3/8	5/16	3/8	9/16	5/16	1 5/16	1 1/4	(1)	15/16	1 5/8
1.000	1.500	2 3/4	7/16	5/16	5/8	9/16	5/16	1 5/16	1 13/16	(1)	1 1/16	1 3/4
1.500	2.000	3 1/2	13/32	5/16	1	11/16	5/16	1 5/16	2 3/8	(1)	1	1 3/4
2.000	2.500	4 1/4	17/32	5/16	1 3/8	11/16	5/16	1 7/16	3	(1)	1 1/4	2
2.500	3.000	5	9/16	1/4	1 3/4	11/16	5/16	1 9/16	3 1/2	(1)	1 3/8	2 1/8
3.000	4.000	6	23/32	1/4	2 1/8	3/4	1/4	1 15/16	4 5/8	(1)	1 11/16	2 1/2
4.000	5.000	7 1/2	13/16	1/4	3 1/8	3/4	1/4	2 3/16	5 5/8	(1)	1 7/8	2 3/4
5.000	6.000	8 1/2	7/8	1/4	3 7/8	3/4	1/4	2 5/16	6 5/8	(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.

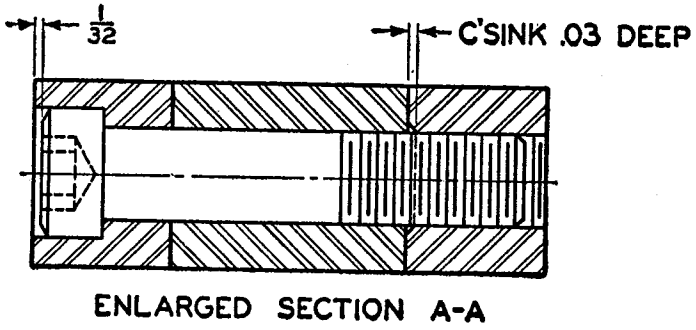
TABLE 48. *Straight-sided spline alinement ring gages, double-end prong type, range above 1.0 to and including 6.0 inches.*

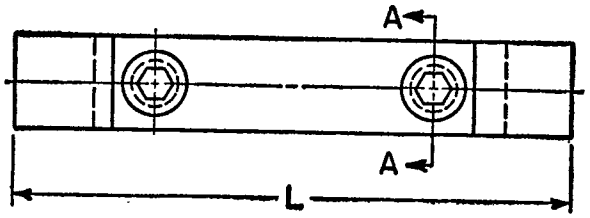


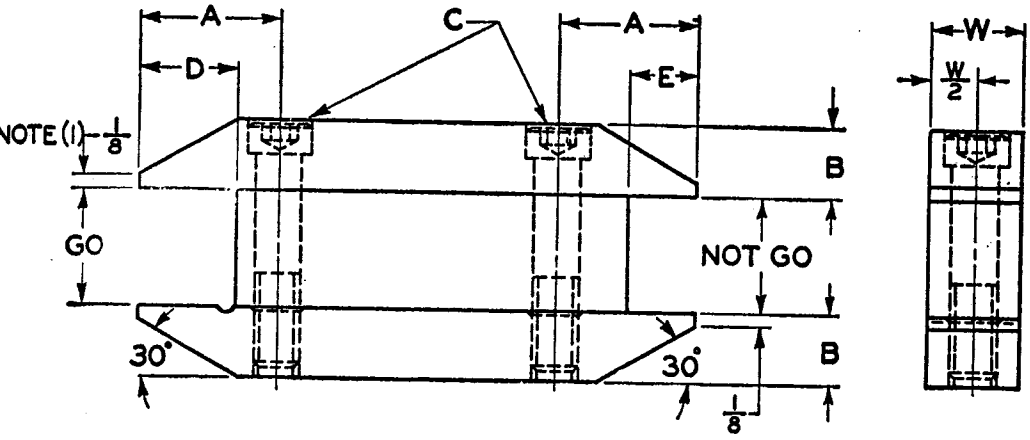
Major diameter		Dimensions										
Above—	To and including—	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*W*
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1.000	1.500	2 3/4	11/16	1/8	5/8	3/16	7/16	3/16	1 13/16	(1)	9/16	2 3/8
1.500	2.000	3 1/2	3/4	1/8	1	3/16	9/16	3/16	2 3/8	(1)	11/16	2 1/2
2.000	2.500	4 1/2	3/4	3/16	1 3/8	1/4	9/16	3/16	3	(1)	11/16	2 3/4
2.500	3.000	5	3/4	3/16	1 3/4	1/4	9/16	3/16	3 1/2	(1)	11/16	2 7/8
3.000	4.000	6	13/16	1/4	2 1/8	5/16	9/16	1/4	4 5/8	(1)	3/4	3 1/4
4.000	5.000	7 1/2	7/8	1/4	3 1/8	3/8	9/16	1/4	5 5/8	(1)	3/4	3 1/4
5.000	6.000	8 1/2	1	1/4	3 7/8	7/16	11/16	1/4	6 5/8	(1)	7/8	3 7/8

[1] Major 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	2	3/8	5/8	5/16	10–32NF–2A/B	(1)	(2)
.250	.500	2½	½	¾	5/16	10–32NF–2A/B	(1)	(2)
.500	.750	3	½	¾	3/8	¼–20UNC–2A/B	(1)	(2)

[1] $\frac{\text{Major diameter} - \text{minor diameter}}{2} + 3/16.$

[2] $\frac{\text{Major diameter} - \text{minor diameter}}{2} + 1/16.$

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.

TABLE 50. *Machine taper plug gages, with tang.*

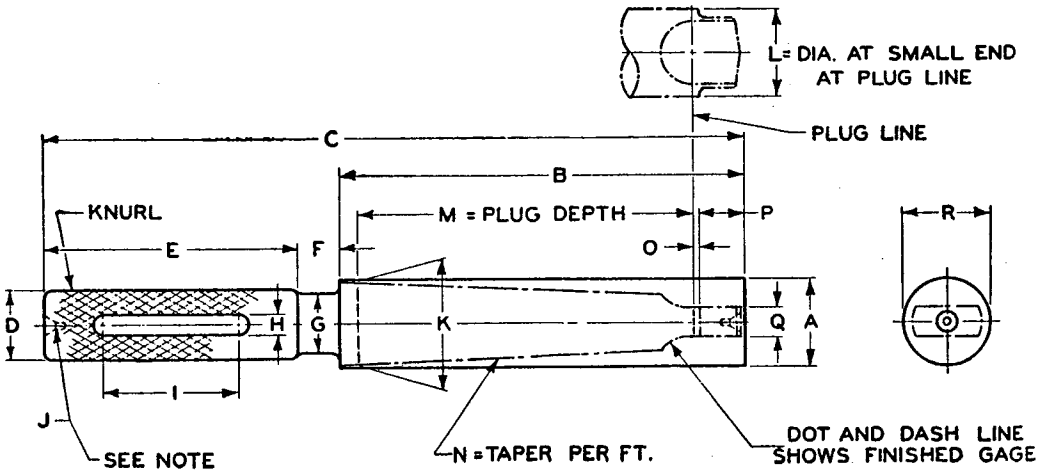


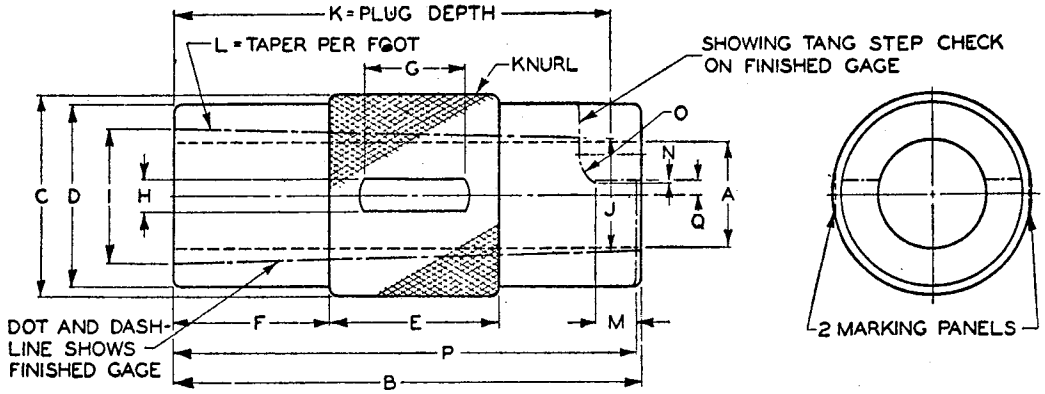
TABLE 50. *Machine taper plug gages, with tang*—Continued

Blank No.	Blank dimensions										Used for—
	A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	[1]*J*	
	in.	in.	in.	in.	in.	in.	in.	in.	in.		
1	17/64	1 7/16	3 11/16	5/16	1 7/8	3/8	3/16	3/16	1 1/2	A–1	B & S #1
2	21/64	1 3/4	4	5/16	1 7/8	3/8	5/16	5/16	1 1/2	A–1	B & S #2
3	13/32	2 7/16	4 15/16	3/8	2 1/8	3/8	5/16	1/4	1 1/2	C–2	B & S #3; Morse #0
4	29/64	2 11/32	5 15/32	7/16	2 3/4	3/8	5/16	1/4	1 1/2	C–2	B & S #4
5	9/16	2 13/16	6 1/8	7/16	2 7/8	7/16	3/8	1/4	1 1/2	D–1	B & S #5; Morse #1
6	3/4	3 11/16	7 1/8	5/8	3	7/16	9/16	1/4	1 1/2	D–1	B & S #7; Morse #2
7	5/8	3 1/8	6 1/2	9/16	2 7/8	1/2	1/2	1/4	1 1/2	D–1	B & S #6
8	31/32	4 3/8	8 3/16	3/4	3 1/4	9/16	11/16	1/4	1 1/2	E–1	B & S #8; Morse #3
9	1 17/64	5	9 1/16	1	3 1/2	9/16	7/8	5/16	2	F–1	B & S #9; Morse #4
10	1 9/32	6	10 3/8	1	3 3/4	5/8	7/8	5/16	2	F–1	B & S #10
11	1 17/32	5 3/8	10 3/8	1 1/8	4 3/8	5/8	1	5/16	2	F–1	Morse #4 1/2
12	1 17/32	7 1/32	12 5/32	1 1/4	4 1/2	5/8	1 1/8	5/16	2	F–1	B & S #11
13	1 25/32	6 1/8	11 1/4	1 1/2	4 1/2	5/8	1 1/8	3/8	2	F–1	Morse #5
14	1 53/64	8 3/16	13 5/16	1 1/2	4 1/2	5/8	1 1/8	3/8	2	F–1	B & S #12
15	2 1/32	8 3/4	14	1 1/2	4 5/8	5/8	1 1/8	5/8	2	J–1	B & S #13
16	2 3/8	9 11/32	14 23/32	1 5/8	4 3/4	5/8	1 1/4	3/8	2	J–1	B & S #14
17	2 17/32	8 9/16	13 15/16	1 5/8	4 3/4	5/8	1 3/8	3/8	2	J–1	Morse #6
18	2 41/64	9 27/32	15 5/32	1 3/4	5	5/8	1 3/8	3/8	2	J–1	B & S #15
19	2 29/32	10 1/2	16 1/8	1 3/4	5	5/8	1 3/8	3/8	2	J–1	B & S #16
20	3 5/16	11 5/8	17 1/4	1 3/4	5	5/8	1 3/8	3/8	2	M–1	Morse #7

Blank No.	Finished dimensions								Used for—
	K	*L*	*M*	*N*	*O*	*P*	*Q*	*R*	
	in.	in.	in.	in.	in.	in.	in.	in.	
1	0.23922	0.2000	15/16	0.502	1/16	3/16	1/8	0.170	B & S #1
2	.29968	.2500	1 3/16	.502	1/16	1/4	5/32	.220	B & S #2
3	.37525	.3125	1 1/2	.502	1/16	5/16	3/16	.282	B & S #3
	.3561	.252	2	.6246	1/16	3/16	5/32	15/64	Morse #0
4	.42065	.3500	1 11/16	.5024	1/16	11/32	7/32	.320	B & S #4
5	.53883	.4500	2 1/8	.5016	1/16	3/8	1/4	.420	B & S #5
	.4750	.369	2 1/8	.59858	1/16	9/32	13/64	11/32	Morse #1
6	.7201	.600	2 7/8	.50147	1/16	15/32	5/16	.560	B & S #7
	.700	.572	2 9/16	.59941	1/16	11/32	1/4	17/32	Morse #2
7	.59961	.5000	2 3/8	.50329	1/16	7/16	9/32	.460	B & S #6
8	.8987	.7500	3 9/16	.50100	1/16	1/2	11/32	.710	B & S #8
	.938	.778	3 5/16	.60235	1/16	15/32	5/16	23/32	Morse #3
9	1.0775	.9001	4 1/4	.50085	1/16	9/16	3/8	.860	B & S #9
	1.231	1.020	4 1/16	.62326	1/16	17/32	15/32	31/32	Morse #4
10	1.2596	1.04465	5	.51612	1/16	21/32	7/16	1.010	B & S #10
11	1.500	1.266	4 1/2	.6240	1/16	19/32	9/16	1 13/64	Morse #4 1/2
12	1.4978	1.24995	5 15/16	.5010	1/16	21/32	7/16	1.210	B & S #11
13	1.748	1 475	5 5/16	.63151	1/16	21/32	5/8	1 13/32	Morse #5
14	1.7968	1.5001	7 1/8	.49973	1/16	3/4	1/2	1.460	B & S #12
15	2.0731	1.75005	7 3/4	.50020	1/16	3/4	1/2	1.710	B & S #13
16	2.3437	2.000	8 1/4	.5000	1/16	27/32	9/16	1.960	B & S #14
17	2.494	2.116	7 1/4	.62565	1/16	31/32	3/4	2	Morse #6
18	2.6145	2.2500	8 3/4	.5000	1/16	27/32	9/16	2.210	B & S #15
19	2.8855	2.500	9 1/4	.5000	1/16	15/16	5/8	2.450	B & S #16
20	3.270	2.750	10	.62400	1/16	1 7/32	1 1/8	2 5/8	Morse #7

[1] See table 54, page 72.

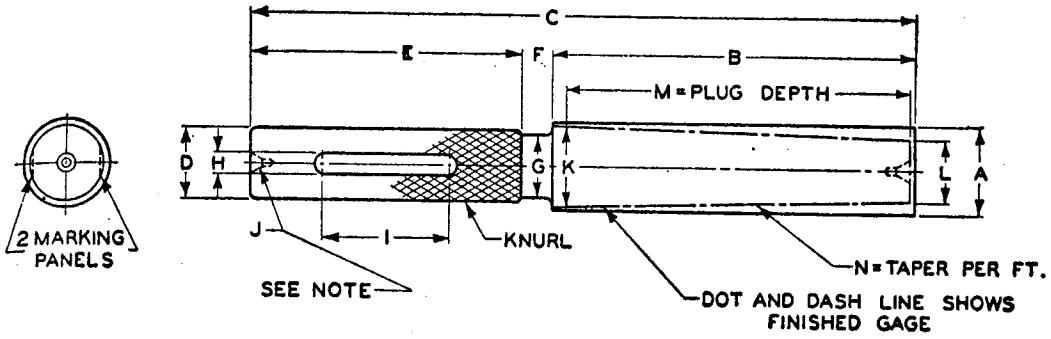
TABLE 51. *Machine taper ring gages, with tang.*



Blank No.	Blank dimensions								Used for—
	A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	
	in.	in.	in.	in.	in.	in.	in.	in.	
1	11/64	1 17/32	15/16	7/8	1/2	1/4	1/2	1/2	B & S #1
2	7/32	1 17/32	1 1/16	1	1/2	1/2	1/2	1/2	B & S #2
3	7/32	2 1/4	1 1/16	1	1	39/64	5/8	1/2	Morse #0
4	9/32	1 29/32	1 3/16	1 1/8	3/4	9/16	3/4	1/2	B & S #3
5	5/16	2 1/8	1 1/4	1 3/16	3/4	5/32	3/4	1/2	B & S #4
6	21/64	2 15/32	1 5/16	1 1/4	1	23/32	5/8	1/2	Morse #1
7	37/64	2 19/32	1 3/8	1 5/16	1 1/4	5/32	1 1/8	1/2	B & S #5
8	15/32	2 29/32	1 1/2	1 7/16	1 3/8	1/2	1 1/8	1/2	B & S #6
9	17/32	2 31/32	1 3/8	1 5/16	1 1/16	15/16	3/4	1/2	Morse #2
10	9/16	3 7/16	1 7/8	1 3/4	1 1/2	1/2	1 1/4	9/16	B & S #7
11	45/64	4 5/32	2 1/4	2 1/8	2	3/4	1 3/4	9/16	B & S #8
12	47/64	3 23/32	1 11/16	1 9/16	1 3/16	1 1/4	3/4	1/2	Morse #3
13	55/64	4 29/32	2 3/8	2 1/4	2 1/4	7/8	2	5/8	B & S #9
14	31/32	4 21/32	2 1/4	2 1/8	1 5/8	1 1/2	1	1/2	Morse #4
15	1	5 3/4	2 7/8	2 3/4	2 3/8	1 3/8	2	5/8	B & S #10
16	1 13/64	6 11/16	3	2 7/8	2 1/2	1 5/8	2	5/8	B & S #11
17	1 27/64	5 29/32	2 3/4	2 5/8	2 3/8	1 3/4	1 1/2	5/8	Morse #5
18	1 29/64	7 31/32	3 3/8	3 1/4	2 1/2	2	2	5/8	B & S #12
19	1 45/64	8 19/32	3 5/8	3 1/2	2 3/4	2 3/8	2	5/8	B & S #13
20	1 15/16	9 3/16	3 5/8	3 1/2	3 1/4	2 3/4	2	5/8	B & S #14
21	2 3/64	8 5/16	3 5/8	3 1/2	3 3/4	2 1/4	1 1/2	5/8	Morse #6
22	2 3/16	9 23/32	3 3/4	3 5/8	3 3/8	3 1/8	2	5/8	B & S #15
23	2 7/16	10 5/16	4 1/4	4 3/8	3 5/8	3 1/4	2	5/8	B & S #16
24	2 43/64	11 5/16	5	4 7/8	6	2 5/8	1 1/2	5/8	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	15/16	0.502	9/32	1/64	3/16	1 3/16	1/16	B & S #1
2	.29968	.250	1 3/16	.502	11/32	1/64	3/16	1 1/2	5/64	B & S #2
3	.35610	.252	2	.6246	11/32	1/64	3/16	2 7/32	0.078	Morse #0
4	.37525	.3125	1 1/2	.502	13/32	1/64	3/16	1 7/8	3/32	B & S #3
5	.42065	.350	1 11/16	.5024	7/16	1/64	5/16	2 3/32	7/64	B & S #4
6	.4750	.369	2 1/8	.59858	7/16	1/64	3/16	2 7/16	0.1015	Morse #1
7	.53883	.4500	2 1/8	.5016	15/32	1/32	5/16	2 9/16	1/8	B & S #5
8	.59961	.5000	2 3/8	50329	17/32	1/32	5/16	2 7/8	9/64	B & S #6
9	.700	.572	2 9/16	.59941	1/2	1/32	5/16	2 15/16	0.125	Morse #2
10	.7201	.600	2 7/8	.50147	9/16	1/32	3/8	3 13/32	5/32	B & S #7
11	.8987	.750	3 9/16	.5010	19/32	1/32	3/8	4 1/8	11/64	B & S #8
12	.938	.778	3 3/16	.60235	5/8	1/32	5/16	3 11/16	0.156	Morse #3
13	1.0775	.9001	4 1/4	.50085	21/32	1/32	7/16	4 7/8	5/16	B & S #9
14	1.231	1.020	4 1/16	.62326	11/16	1/32	5/16	4 5/8	0.234	Morse #4
15	1.2596	1.04465	5	.51612	3/4	1/32	7/16	5 23/32	7/32	B & S #10
16	1.4978	1.24995	5 15/16	.5010	3/4	1/32	1/2	6 21/32	7/32	B & S #11
17	1.748	1.475	5 3/16	.63151	13/16	1/32	3/8	5 7/8	0.312	Morse #5
18	1.7968	1.5001	7 1/8	.49973	27/32	1/32	1/2	7 15/16	1/4	B & S #12
19	2.0731	1.75005	7 3/4	.50020	27/32	1/32	5/8	8 9/16	1/4	B & S #13
20	2.3437	2.000	8 1/4	.5000	15/16	1/32	5/8	9 5/32	9/32	B & S #14
21	2.494	2.116	7 1/4	.62565	1 1/4	1/32	3/8	8 1/4	0.375	Morse #6
22	2.6145	2.250	8 3/4	.5000	1 1/16	1/32	5/8	9 21/32	9/32	B & S #15
23	2.8855	2.500	9 1/4	.5000	1 11/32	1/32	5/8	10 1/4	5/16	B & S #16
24	3.270	2.750	10	.6240	1 3/8	1/32	3/8	11 1/4	0.5625	Morse #7

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*	[1]*J*		*K*	*L*	*M*	*N*
	in.	in.	in.	in.	in.	in.	in.	in.	in.			in.	in.	in.	in.
1	21/64	1 1/4	3 5/8	5/16	2	3/8	3/16	3/16	1 1/2	A–1	Jarno #1	0.125	0.100	1/2	0.600
											Jarno #2	.250	.200	1	.600
											ASA #239	.23922	.200	15/16	.502
											ASA #299	.29968	.250	1 3/16	.502
											B & S #1	.23922	.200	15/16	.502
2	13/32	2 1/4	5 1/8	3/8	2 1/2	3/8	1/4	1/4	1 1/2	C–2	B & S #2	.29968	.250	1 3/16	.502
											B & S #3	.37525	.3125	1 1/2	.502
											Jarno #3	.375	.300	1 1/2	.600
											Morse #0	.3561	.252	2	.6246
											ASA #375	.37525	.3125	1 1/2	.502
3	17/32	2 3/8	5 1/2	7/16	2 3/4	3/8	3/8	1/4	1 1/2	C–2	B & S #4	.42065	.3500	1 11/16	.5024
											Jarno #4	.500	.400	2	.600
											Morse #1	.4750	.369	2 1/8	.59858
											ASA #1	.4750	.369	2 1/8	.59858
4	21/32	2 3/4	6 1/16	5/8	2 7/8	7/16	7/16	1/4	1 1/2	D–1	B & S #5	.53883	.450	2 1/8	.5016
											B & S #6	.59961	.500	2 3/8	.50329
5	23/32	1 1/8	4 5/16	5/8	2 7/8	5/16	3/8	1/4	1 1/2	D–1	Jarno #5	.625	.500	2 1/2	.600
											Series #10	.625	.375	0.8571	3.500
6	25/32	3 1/4	6 11/16	5/8	3	7/16	9/16	1/4	1 1/2	D–1	B & S #7	.7201	.600	2 7/8	0.50147
											Jarno #6	.750	.600	3	.600
											Morse #2	.700	.572	2 9/16	.59941
7	31/32	1 9/16	4 15/16	3/4	3	3/8	1/2	1/4	1 1/2	E–1	ASA #2	.7000	.5720	2 9/16	.59941
											Series #20	.875	.500	1.2857	3.500
8	31/32	3 15/16	7 11/16	3/4	3 1/4	1/2	5/8	1/4	1 1/2	E–1	B & S #8	.8987	.750	3 9/16	0.5010
											Jarno #7	.875	.700	3 1/2	.600
											Morse #3	.938	.778	3 5/16	.60235
											ASA #3	.9380	.77805	3 5/16	.60235
9	17/64	4 1/2	8 1/2	1	3 1/2	1/2	7/8	5/16	2	E–1	B & S #9	1.0775	.9001	4 1/4	.50085
											Jarno #8	1.000	.800	4	.600
10	1 9/32	5 1/4	9 1/2	1	3 3/4	1/2	7/8	5/16	2	F–1	B & S #10	1.2596	1.04465	5	.51612
											Jarno #9	1.125	.900	4 1/2	.600
											Jarno #10	1.250	1.000	5	.600
											Morse #4	1.231	1.020	4 1/16	.62326
											ASA #4	1.2310	1.020	4 1/16	.62326
11	1 11/32	2 5/16	6 15/16	1	4 1/8	1/2	11/16	1/4	1 1/2	F–1	Series #30	1.250	.6875	1.928	3.500
12	1 13/32	5 13/16	10 9/16	1 1/8	4 1/4	1/2	1	5/16	2	F–1	Jarno #11	1.375	1.100	5 1/2	0.600

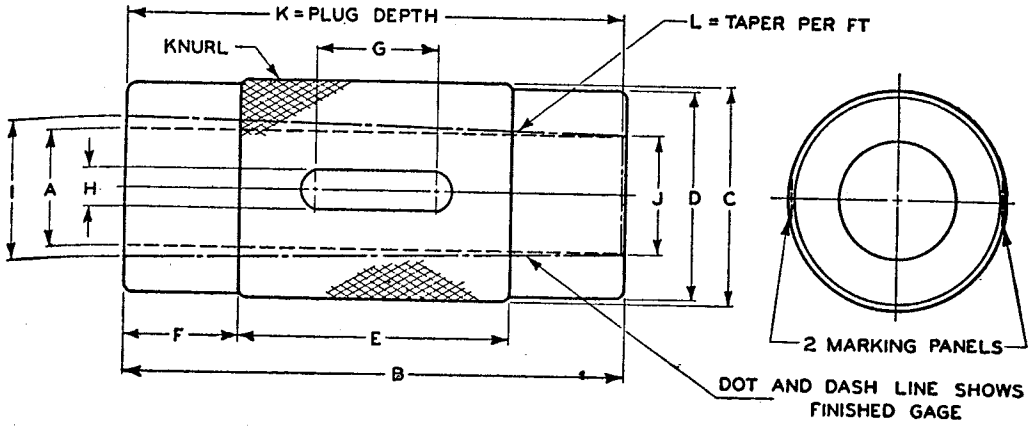
[1] See table 54, page 72.

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*	[1]*J*		*K*	*L*	*M*	*N*
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*			*in.*	*in.*	*in.*	*in.*
13	1 17/32	4 3/4	9 5/8	1 1/8	4 3/8	1/2	1	5/16	2	F-1	ASA #4 1/2	1.5000	1.2660	4 1/2	0.62400
											Morse #4 1/2	1.5000	1.266	4 1/2	.6240
14	1 21/32	6 3/4	11 3/4	1 1/4	4 1/2	1/2	1 3/16	5/16	2	F-1	B & S #11	1.4978	1.24995	5 15/16	.5010
											Jarno #12	1.500	1.200	6	.600
											Jarno #13	1.625	1.300	6 1/2	.600
15	1 25/32	5 9/16	10 11/16	1 1/2	4 1/2	5/8	1 3/8	3/8	2	F-1	Morse #5	1.748	1.475	5 3/16	.63151
											ASA #5	1.7480	1.475	5 3/16	.63151
16	1 27/32	2 15/16	7 15/16	1 1/2	4 1/2	1/2	1	5/16	2	F-1	Series #40	1.750	1.000	2.5715	3.500
17	1 29/32	7 3/4	12 7/8	1 1/2	4 1/2	5/8	1 3/8	3/8	2	F-1	B & S #12	1.7968	1.5001	7 1/8	0.49973
											Jarno #14	1.750	1.400	7	.600
											Jarno #15	1.875	1.500	7 1/2	.600
18	2 1/64	5	10 1/4	1 1/2	4 5/8	5/8	1 3/8	5/16	2	J-1	ASA #200	2.000	1.70312	4 3/4	.7500
19	2 5/32	8 3/4	14	1 1/2	4 5/8	5/8	1 3/8	3/8	2	J-1	B & S #13	2.0731	1.75005	7 3/4	.50020
											Jarno #16	2.000	1.600	8	.600
											Jarno #17	2.125	1.700	8 1/2	.600
20	2 9/32	9 1/2	14 7/8	1 5/8	4 3/4	5/8	1 3/8	3/8	2	J-1	Jarno #18	2.250	1.800	9	.600
21	2 3/8	8 5/8	14	1 5/8	4 3/4	5/8	1 3/8	3/8	2	J-1	B & S #14	2.3437	2.000	8 1/4	.500
22	2 13/32	10	15 3/8	1 5/8	4 3/4	5/8	1 3/8	3/8	2	J-1	Jarno #19	2.375	1.900	9 1/2	.600
23	2 33/64	5 1/2	10 7/8	1 5/8	4 3/4	5/8	1 3/8	5/16	2	J-1	ASA #250	2.5000	2.1562	5 1/2	.7500
24	2 17/32	7 5/8	13	1 5/8	4 3/4	5/8	1 3/8	3/8	2	J-1	Morse #6	2.494	2.116	7 1/4	.62565
											ASA #6	2.494	2.116	7 1/4	.62565
25	2 17/32	10 1/2	16 1/8	1 3/4	5	5/8	1 3/8	3/8	2	J-1	Jarno #20	2.500	2.000	10	.600
26	2 41/64	9 1/8	14 3/4	1 3/4	5	5/8	1 3/8	3/8	2	J-1	B & S #15	2.6145	2.2500	8 3/4	.500
27	2 55/64	4 9/16	10 5/16	1 3/4	5	5/8	1 1/4	5/16	2	J-1	Series #50	2.750	1.562	4.073	3.500
28	2 29/32	9 5/8	15 1/4	1 3/4	5	5/8	1 3/8	3/8	2	J-1	B & S #16	2.8855	2.500	9 1/4	0.500
29	3 1/64	6 1/2	12 1/8	1 3/4	5	5/8	1 3/8	5/16	2	M-1	ASA #300	3.0000	2.6093	6 1/4	.75000
30	3 5/16	10 1/8	15 7/8	1 3/4	5	3/4	1 1/2	3/8	2	M-1	B & S #17	3.1552	2.7500	9 3/4	.500
31	3 5/16	10 3/8	16	1 3/4	5	5/8	1 1/2	3/8	2	M-1	Morse #7	3.270	2.750	10	.624
											ASA #7	3.270	2.750	10	.6240
32	3 15/32	10 5/8	16 5/8	1 7/8	5 1/4	3/4	1 1/2	3/8	2	M-1	B & S #18	3.4271	3.000	10 1/4	.500
33	3 33/64	7 1/4	13 1/4	1 7/8	5 1/4	3/4	1 1/2	5/16	2	M-1	ASA #350	3.5000	3.0625	7	.75000
34	4 1/64	8	14	1 7/8	5 1/4	3/4	1 1/2	5/16	2	M-1	ASA #400	4.000	3.5156	7 3/4	.7500
35	4 33/64	8 3/4	14 3/4	1 7/8	5 1/4	3/4	1 1/2	5/16	2	M-1	ASA #450	4.500	3.9687	8 1/2	.7500
36	5 1/64	9 1/2	15 1/2	1 7/8	5 1/4	3/4	1 1/2	5/16	2	M-1	ASA #500	5.000	4.4208	9 1/4	.7500
37	4 3/8	6 5/8	12 5/8	1 7/8	5 1/4	3/4	1 1/2	5/16	2	M-1	Series #60	4.250	2.3906	6 3/8	3.500

[1] See table 54, page 72.

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*
	in.	in.	in.	in.	in.	in.	in.	in.		in.	in.	in.	in.
1	5/64	17/32	3/4	-----	17/32	-----	17/32	3/8	Jarno #1	0.125	0.100	1/2	0.600
2	5/16	1 1/32	15/16	-----	1 1/32	-----	1 1/32	1/2	B & S #1	.23922	.200	15/16	.502
									ASA #239	.23922	.200	15/16	.502
									Jarno #2	.250	.200	1	.600
3	15/64	1 7/32	1 1/16	-----	1 7/32	-----	1 7/32	1/2	B & S #2	.29968	.250	1 1/16	.502
4	15/64	2 1/32	1 1/16	1	1	1/2	1	1/2	ASA #299	.29968	.250	1 1/16	.502
									Morse #0	.3561	.252	2	.6246
5	9/32	1 17/32	1 3/16	1 1/8	1	1/4	1	1/2	B & S #3	.37525	.3125	1 1/2	.502
									Jarno #3	.375	.300	1 1/2	.600
									ASA #375	.37525	.3125	1 1/2	.502
6	21/64	1 23/32	1 5/16	1 1/4	1	11/32	1	1/2	B & S #4	.42065	.3500	1 11/16	.5024
7	23/64	2 5/32	1 1/4	1 3/16	1	9/16	1	1/2	Morse #1	.4750	.369	2 1/8	.59858
									ASA #1	.4750	.369	2 1/8	.59858
8	23/64	1 1/16	1 1/4	-----	1 1/16	-----	1 1/16	1/2	Series #10	.625	.375	0.8571	3.500
9	3/8	2 5/32	1 1/4	1 3/16	1 1/2	5/16	1	1/2	B & S #5	.53883	.450	2 1/8	.5016
									Jarno #4	.500	.400	2	.600
10	31/64	2 19/32	1 1/2	1 7/16	1 1/2	17/32	1 1/8	1/2	B & S #6	.59961	.500	2 3/8	.50329
									Jarno #5	.625	.500	2 1/2	.600
									Morse #2	.700	.572	2 9/16	.59941
									ASA #2	.700	.572	2 9/16	.59941
11	31/64	1 9/16	1 1/2	1 7/16	7/8	7/32	7/8	1/2	Series #20	.875	.500	1.2857	3.500
12	37/64	3 1/32	1 7/8	1 3/4	1 3/4	5/8	1 1/4	1/2	B & S #7	.7201	.600	2 7/8	.50147
									Jarno #6	.750	.600	3	.600
13	43/64	2 5/16	2 3/8	2 1/4	1 1/8	3/8	1	1/2	Series #30	1.250	.6875	1.928	3.500
14	11/16	3 19/32	2 1/8	2	2	25/32	1 3/4	9/16	B & S #8	.8987	.750	3 9/16	.5010
									Jarno #7	.875	.700	3 1/2	.600
15	49/64	3 7/32	1 11/16	1 9/16	1 7/16	7/8	1	1/2	Morse #3	.938	.778	3 3/16	.60235
16	25/32	4 1/32	2 1/4	2 1/8	2 1/4	7/8	2	5/8	ASA #3	.938	.77805	3 3/16	.60235
									Jarno #8	1.000	.800	4	.600
17	7/8	4 7/32	2 3/8	2 1/4	2 1/4	1 1/8	2	5/8	B & S #9	1.0775	.9001	4 1/4	.50085
									Jarno #9	1.125	.900	4 1/2	.600
18	61/64	2 15/16	3	2 7/8	1 5/8	17/32	1 3/8	1/2	Series #40	1.750	1.000	2.5715	3.500
19	63/64	5 1/32	2 1/2	2 3/8	3	1	2	5/8	B & S #10	1.2596	1.04465	5	.51612
									Jarno #10	1.250	1.000	5	.600
20	1	4 3/32	2 7/8	2 3/4	1 3/4	1 5/32	1 1/2	1/2	Morse #4	1.231	1.020	4 1/16	.62326
21	1 5/64	5 17/32	2 1/2	2 3/8	3	1 1/4	2	5/8	ASA #4	1.231	1.020	4 1/16	.62326
									Jarno #11	1.375	1.100	5 1/2	.600

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.
22	1 3/16	6 1/32	2 3/4	2 5/8	3 1/4	1 3/8	2	5/8	B & S #11	1.4978	1.24995	5 15/16	0.5010
									Jarno #12	1.500	1.200	6	.600
23	1 1/4	4 17/32	2 3/8	2 1/4	2	1 1/8	1 1/2	1/2	Morse #4 1/2	1.500	1.266	4 1/2	.6240
									ASA #4 1/2	1.500	1.266	4 1/2	.6240
24	1 9/32	6 17/32	3	2 7/8	4	1 1/4	2	5/8	Jarno #13	1.625	1.300	6 1/2	.600
25	1 3/8	7 1/32	3 1/4	3 1/8	4	1 1/2	2	5/8	Jarno #14	1.750	1.400	7	.600
26	1 29/64	5 7/32	2 3/4	2 5/8	2 1/16	1 1/2	1 1/2	1/2	Morse #5	1.748	1.475	5 5/16	.63151
									ASA #5	1.748	1.475	5 5/16	.63151
27	1 31/64	7 17/32	3 3/8	3 1/4	4	1 3/4	2	5/8	B & S #12	1.7968	1.5001	7 1/8	.49975
									Jarno #15	1.875	1.500	7 1/2	.600
28	1 35/64	4 9/16	4 1/4	4 1/8	2 3/4	5/8	2	5/8	Series #50	2.750	1.562	4.073	3.500
29	1 37/64	8 1/32	3 3/8	3 1/4	5	1 1/2	2	5/8	Jarno #16	2.000	1.600	8	0.600
30	1 11/16	8 17/32	3 5/8	3 1/2	5	1 3/4	2	5/8	Jarno #17	2.125	1.700	8 1/2	.600
31	1 11/16	4 25/32	3 1/8	3 1/16	2	1 5/8	1 1/2	1/2	ASA #200	2.000	1.70312	4 3/4	.7500
32	1 47/64	7 25/32	3 3/8	3 1/4	3 3/8	2 1/16	2	5/8	B & S #13	2.0731	1.75005	7 3/4	.50020
33	1 25/32	9 1/32	3 3/4	3 5/8	5	2	2	5/8	Jarno #18	2.250	1.800	9	.600
34	1 7/8	9 17/32	3 5/8	3 1/2	5 1/2	2	2	5/8	Jarno #19	2.375	1.900	9 1/2	.600
35	1 63/64	8 9/32	3 5/8	3 1/2	4 1/2	1 7/8	2	5/8	B & S #14	2.3437	2.000	8 1/4	.500
36	1 63/64	10 1/32	3 3/4	3 5/8	6	2	2	5/8	Jarno #20	2.500	2.000	10	.600
37	2 1/32	7 5/16	3 1/2	3 3/8	3 3/4	1 3/4	1 1/2	1/2	Morse #6	2.494	2.116	7 1/4	.62565
									ASA #6	2.494	2.116	7 1/4	.62565
38	2 3/64	5 9/16	3 3/4	3 11/16	2 1/2	1 1/2	1 1/2	1/2	ASA #250	2.500	2.1562	5 1/2	.7500
39	2 15/64	8 13/16	4	3 7/8	3 3/4	2 1/2	2	1/2	B & S #15	2.6145	2.2500	8 3/4	.500
40	2 23/64	6 1/2	5 3/4	5 5/8	3 1/2	1 15/32	2	5/8	Series #60	4.250	2.3906	6 5/8	3.500
41	2 31/64	9 5/16	4 1/2	4 3/8	4	2 5/8	2	5/8	B & S #16	2.8855	2.500	9 1/4	0.500
42	2 15/32	6 5/16	4 1/4	4 3/16	3 1/4	1 1/2	1 1/2	1/2	ASA #300	3.000	2.6093	6 1/4	.7500
43	2 47/64	10 1/16	5	4 7/8	4	3	2	5/8	B & S #17	3.1552	2.7500	9 3/4	.500
									Morse #7	3.270	2.750	10	.624
44	2 61/64	10 5/16	5 1/2	5 3/8	4	3 1/8	2	5/8	ASA #7	3.270	2.750	10	.624
									B & S #18	3.4271	3.000	10 1/4	.500
45	3 3/64	7 1/16	4 3/4	4 11/16	3 1/2	1 3/4	1 1/2	1/2	ASA #350	3.500	3.0625	7	.7500
46	3 1/4	7 13/16	5 1/4	5 3/16	4	1 7/8	2	5/8	ASA #400	4.000	3.5156	7 3/4	.7500
47	3 61/64	8 9/16	5 3/4	5 11/16	5	1 3/4	2	5/8	ASA #450	4.500	3.9687	8 1/2	.7500
48	4 13/32	9 5/16	6 1/4	6 3/16	5 1/2	1 7/8	2	5/8	ASA #500	5.000	4.4208	9 1/4	.7500

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

Size	Diameter of body	Diameter of drill point	Size	Diameter of body	Diameter of drill point
	in.	in.		in.	in.
A1	1/8	3/64	F1	7/16	5/32
C2	13/64	1/16	J1	1/2	7/32
D1	15/64	5/64	M1	5/8	7/32
E1	0.300	5/32			

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 2½ to 4½ inches, divided into eight ranges.

Model No. 2: Covering sizes from 4½ to 6½ 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.

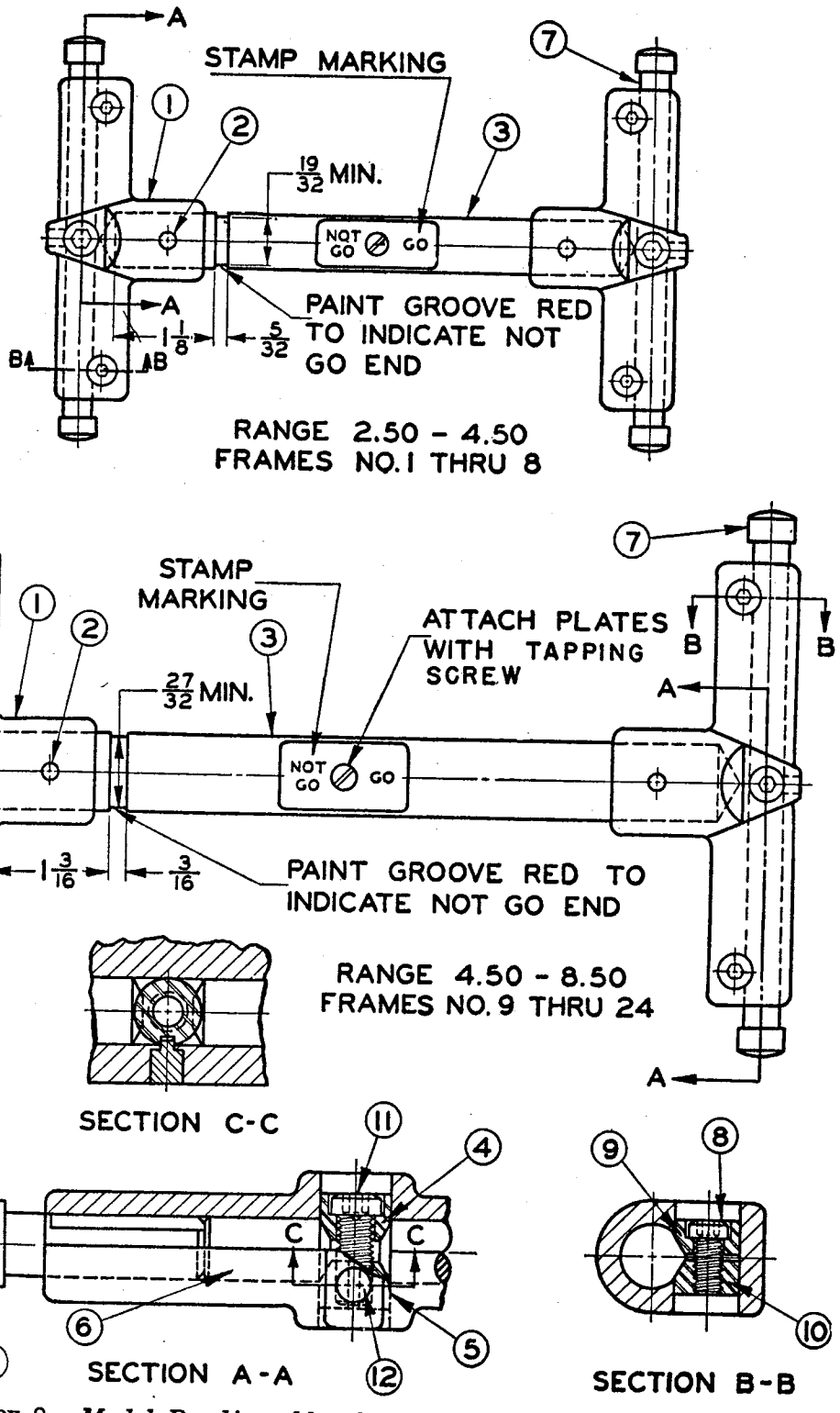
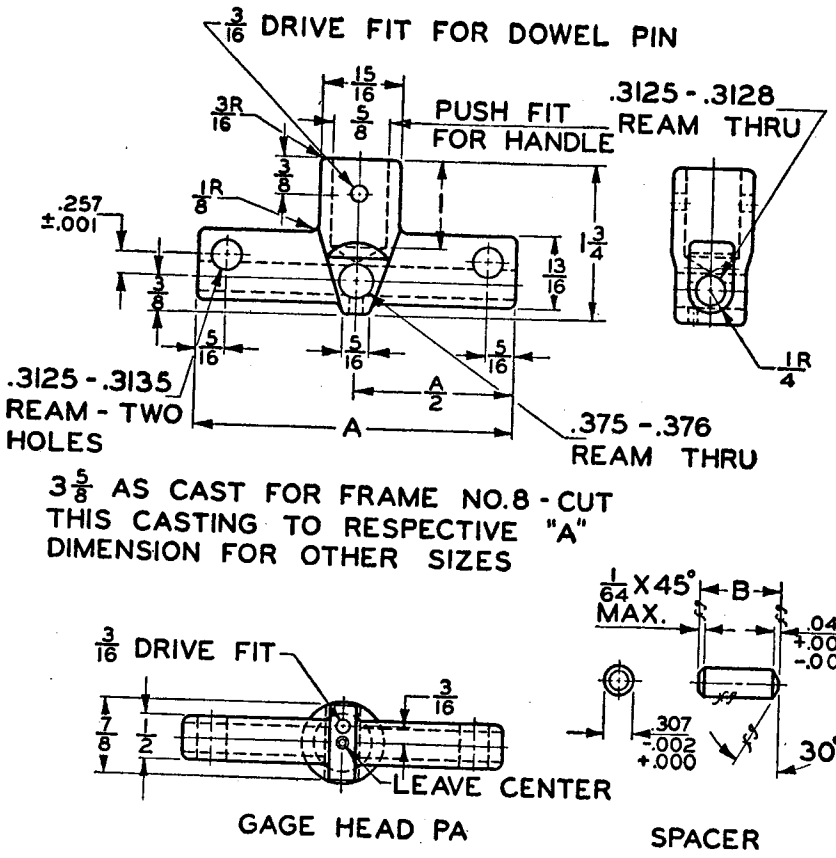


FIGURE 8. *Model P adjustable plug gages, details of construction.*

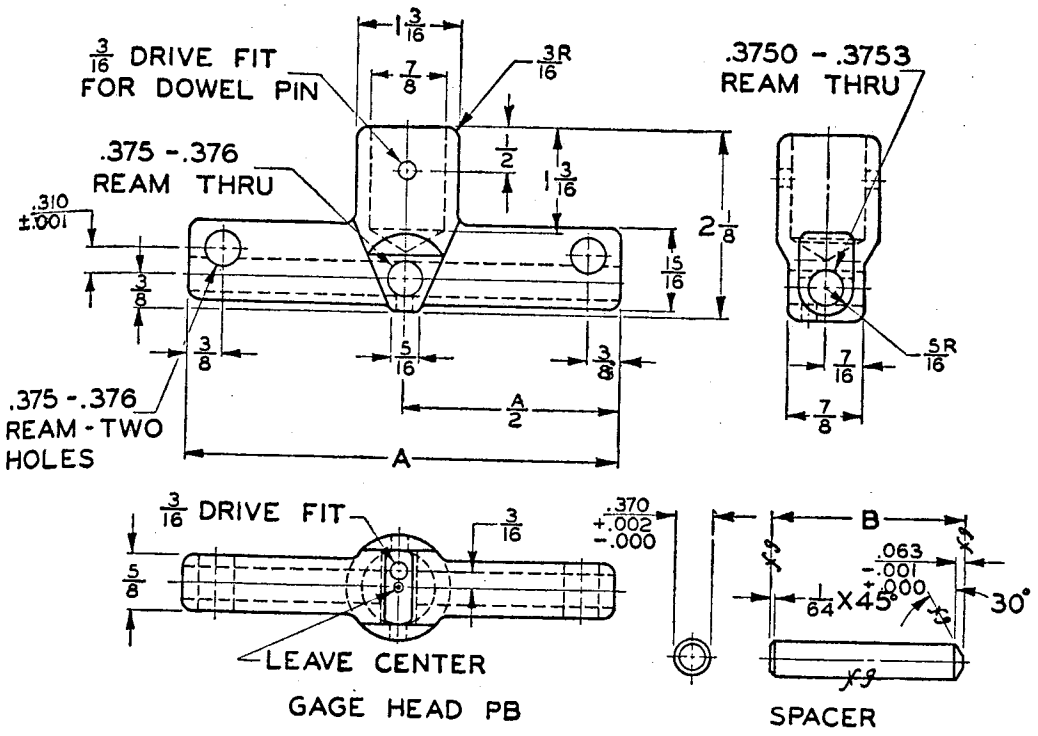
1. Gage head.
2. Dowel pin.
3. Handle.
4. Adjusting bushing.
5. Adjusting nut.
6. Spacer.
7. Gaging button.
8. Locking screw.
9. Locking bushing.
10. Locking nut.
11. Adjusting screw.
12. Key pin.

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—	To and including—		
	in.	*in.*	*in.*	*in.*
1	2½	2⅝	1 31/32	None
	2⅝	2¾	1 31/32	0.250
	2¾	2⅞	2⅛	.312
	2⅞	3	2⅛	.375
2	3	3⅛	2⅜	.437
	3⅛	3¼	2⅜	.287
	3¼	3⅜	2⅝	.350
	3⅜	3½	2⅝	.412
3	3½	3⅝	2⅞	.475
	3⅝	3¾	2⅞	.537
	3¾	3⅞	3⅛	.600
	3⅞	4	3⅛	.662
4	4	4⅛	3⅜	.725
	4⅛	4¼	3⅜	.787
	4¼	4⅜	3⅝	.850
	4⅜	4½	3⅝	.912

TABLE 56. *Model P adjustable plug gage, range above 4½ to and including 8½ inches, details of gage head and spacer.*



Frame No.	Range Above—	Range To and including—	A	B ±0.001	Frame No.	Range Above—	Range To and including—	A	B ±0.001
	in.	*in.*	*in.*	*in.*		*in.*	*in.*	*in.*	*in.*
9	4 1/2	4 5/8	3 11/16	0.614	17	6 1/2	6 5/8	5 11/16	1.614
	4 5/8	4 3/4	3 11/16	.676		6 5/8	6 3/4	5 11/16	1.676
10	4 3/4	4 7/8	3 15/16	.739	18	6 3/4	6 7/8	5 15/16	1.739
	4 7/8	5	3 15/16	.801		6 7/8	7	5 15/16	1.801
11	5	5 1/8	4 3/16	.864	19	7	7 1/8	6 3/16	1.864
	5 1/8	5 1/4	4 3/16	.926		7 1/8	7 1/4	6 3/16	1.926
12	5 1/4	5 3/8	4 7/16	.989	20	7 1/4	7 3/8	6 7/16	1.989
	5 3/8	5 1/2	4 7/16	1.051		7 3/8	7 1/2	6 7/16	2.051
13	5 1/2	5 5/8	4 11/16	1.114	21	7 1/2	7 5/8	6 11/16	2.114
	5 5/8	5 3/4	4 11/16	1.176		7 5/8	7 3/4	6 11/16	2.176
14	5 3/4	5 7/8	4 15/16	1.239	22	7 3/4	7 7/8	6 15/16	2.239
	5 7/8	6	4 15/16	1.301		7 7/8	8	6 15/16	2.301
15	6	6 1/8	5 1/16	1.364	23	8	8 1/8	7 3/16	2.364
	6 1/8	6 1/4	5 3/16	1.426		8 1/8	8 1/4	7 3/16	2.426
16	6 1/4	6 3/8	5 7/16	1.489	24	8 1/4	8 3/8	7 7/16	2.489
	6 3/8	6 1/2	5 7/16	1.551		8 3/8	8 1/2	7 7/16	2.551

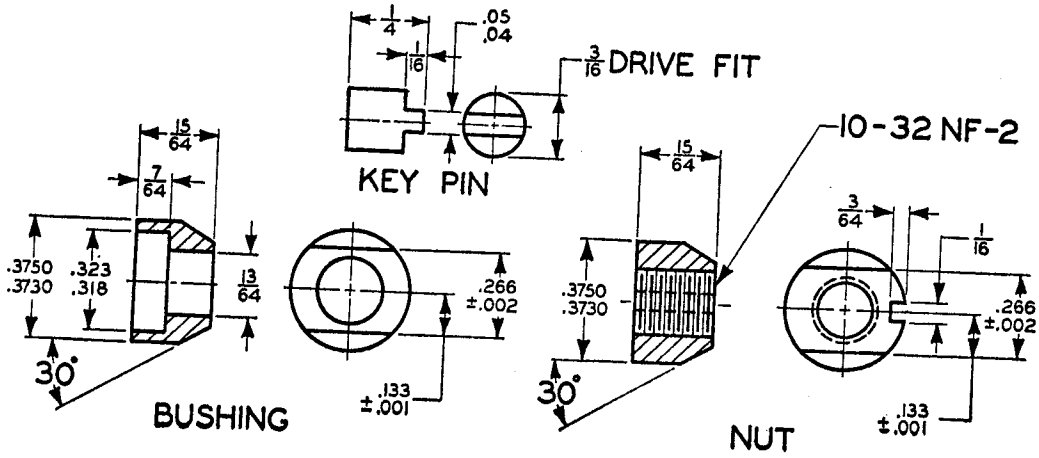
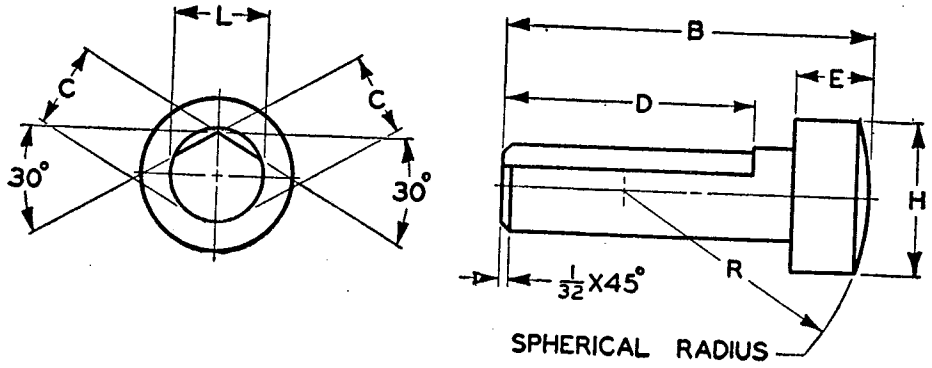


FIGURE 9. *Model P adjustable plug gage bushing, nut, and key pin.*

TABLE 57. *Model P adjustable plug gage gaging buttons.*



Range		B	C		D	E	H		L		R
Above—	To and including—	±0.001	Max.	Min.			Max.	Min.	Max.	Min.	
in	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	
2 1/2	2 5/8	1.147	0.300	0.298	13/16	15/64	0.505	0.500	0.3125	0.3123	1
2 5/8	3 1/8	0.960	.300	.298	13/16	15/64	.505	.500	.3125	.3123	1
3 1/8	4 1/2	1.172	.300	.298	13/16	15/64	.505	.500	.3125	.3123	1
4 1/2	8 1/2	1.531	.358	.356	1 1/32	5/16	.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	3/16" diam × 1 1/16" long	3/16" diam × 1 3/16" long.
3	Handle	1/2" O.D. × 0.095" wall thickness × 4 3/4" long, seamless steel tubing.	1/2" O.D. × 0.095" wall thickness × 10 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 been 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 79-80, 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 79-80, and dimensions are given in tables 59 to 71, inclusive, pages 80 to 91, and figure 11, page 92.

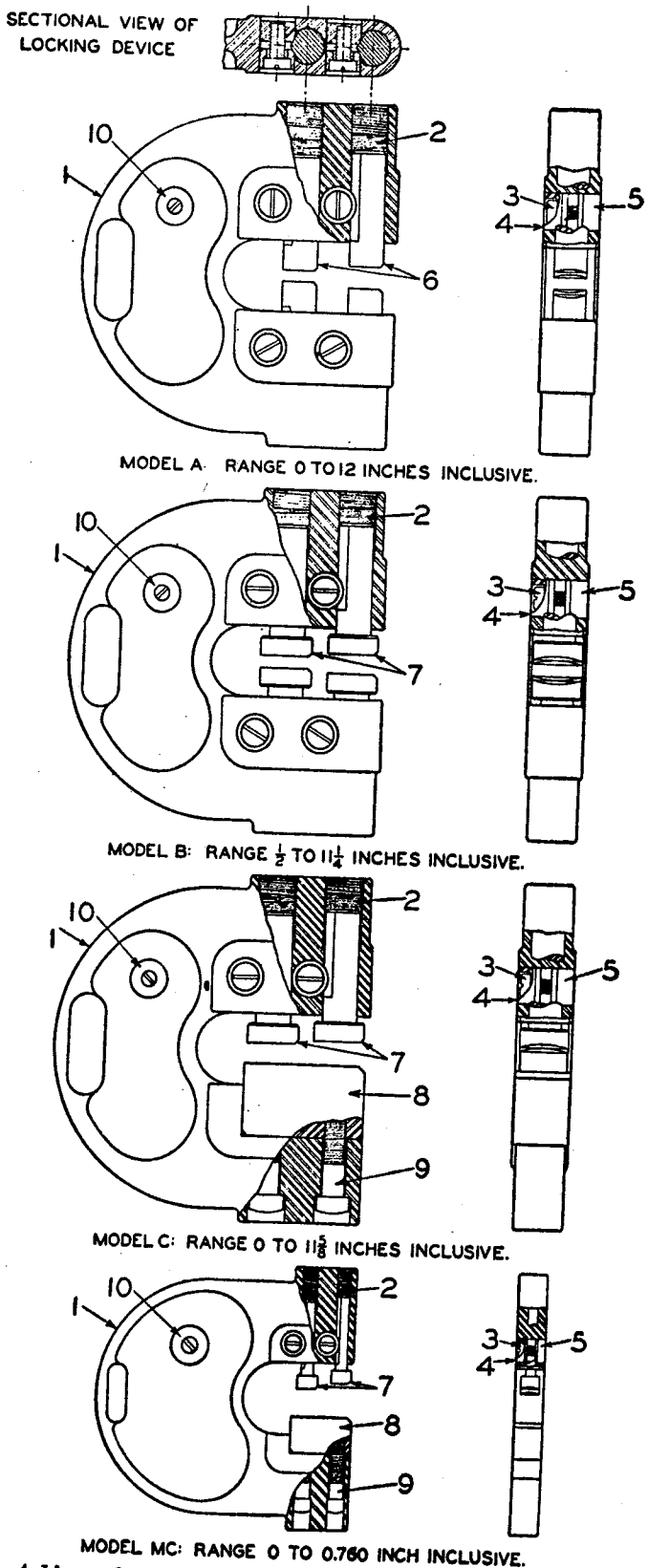


Figure 10A. *Adjustable snap gages, details of construction—models A, B, C, and MC.*

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

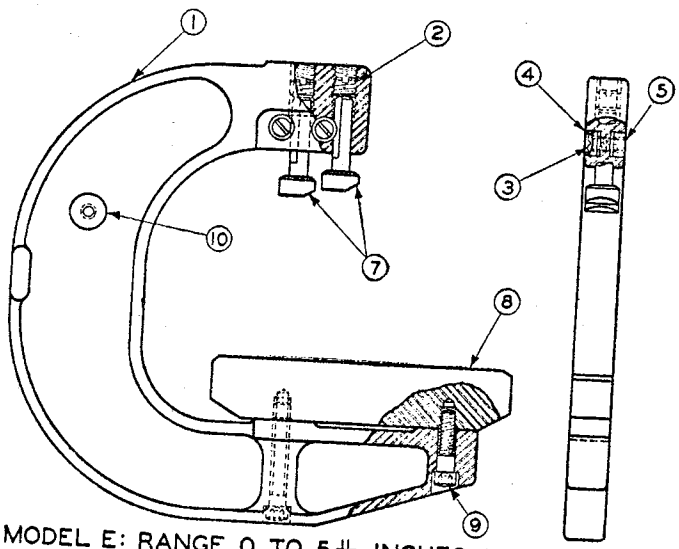


FIGURE 10B. *Adjustable snap gages, details of construction—model E.*

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

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

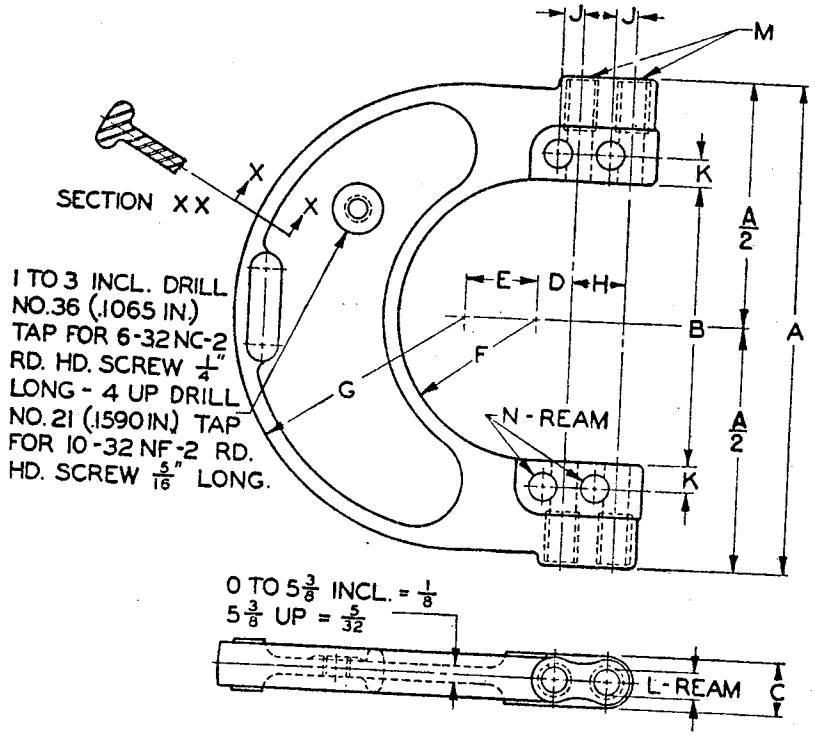
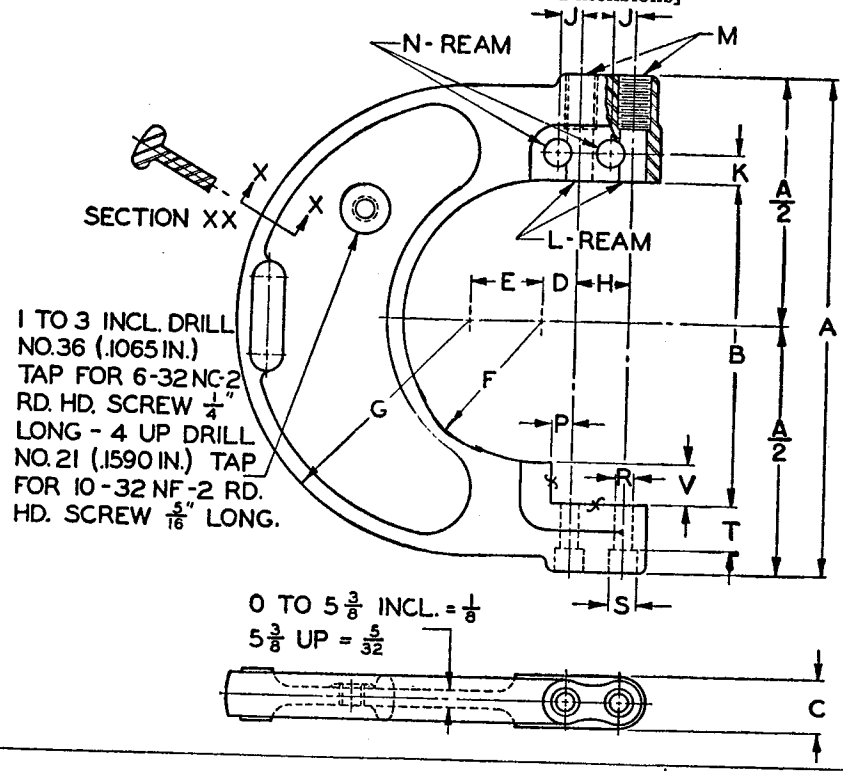


TABLE 59. *Plain adjustable snap gages, models A and B, details of frame*—Continued

Model A			Model B			Frame No.	A	B	C	D	E	F	G	H	J		K	L		M	N	
Symbol	Range		Symbol	Range											Max.	Min.		Max.	Min.		Max.	Min.
	Above—	To and including—		Above—	To and including—																	
	in.	in.		in.	in.		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		in.	in.
A–1	0	½				1	3	⅝	31/64	⅜	5/16	5/16	1⅜	19/32	0.258	0.256	5/16	0.3128	0.3125	0.3325–40NS–2	0.3135	0.3125
A–2	½	1				2	3½	1⅛	31/64	⅜	5/16	9/16	1⅝	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125
A–3	1	1½	B–3	½	1	3	4	1⅝	31/64	⅜	7/16	13/16	1⅞	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125
A–4	1½	2	B–4	1	1½	4	4½	2⅛	31/64	⅜	9/16	1 1/16	2⅛	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125
A–5	2	2½	B–5	1½	2	5	5	2⅝	31/64	⅜	11/16	1 5/16	2⅜	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125
A–6	2½	3	B–6	2	2½	6	5½	3⅛	31/64	⅜	13/16	1 9/16	2⅝	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125
A–7	3	3¾	B–7	2½	3⅛	7	6⅞	3 15/16	39/64	7/16	⅞	1 31/32	3 5/16	23/32	.311	.309	⅜	.3753	.3750	.3950–40NS–2	.376	.375
A–8	3¾	4½	B–8	3⅛	3⅞	8	7⅝	4 11/16	39/64	7/16	1	2 11/32	3 11/16	23/32	.311	.309	⅜	.3753	.3750	.3950–40NS–2	.376	.375
A–9	4½	5¼	B–9	3⅞	4⅝	9	8⅜	5 7/16	39/64	7/16	1⅛	2 23/32	4 1/16	23/32	.311	.309	⅜	.3753	.3750	.3950–40NS–2	.376	.375
A–10	5¼	6	B–10	4⅝	5⅜	10	9⅛	6 5/16	39/64	7/16	1¼	3 3/32	4 7/16	23/32	.311	.309	⅜	.3753	.3750	.3950–40NS–2	.376	.375
A–11	6	7	B–11	5⅜	6¼	11	10¾	7¼	47/64	½	1⅜	3 5/8	5¼	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375
A–12	7	8	B–12	6¼	7¼	12	11¾	8¼	47/64	½	1½	4⅛	5¾	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375
A–13	8	9	B–13	7¼	8¼	13	12¾	9¼	47/64	½	1⅝	4⅝	6¼	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375
A–14	9	10	B–14	8¼	9¼	14	13¾	10¼	47/64	½	1¾	5⅛	6¾	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375
A–15	10	11	B–15	9¼	10¼	15	14¾	11¼	47/64	½	1⅞	5⅝	7¼	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375
A–16	11	12	B–16	10¼	11¼	16	15¾	12¼	47/64	½	2	6⅛	7¾	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375

TABLE 60. *Plain adjustable snap gages, model C, details of frame (part 1).*

[See table 60 (part 2) for other dimensions]



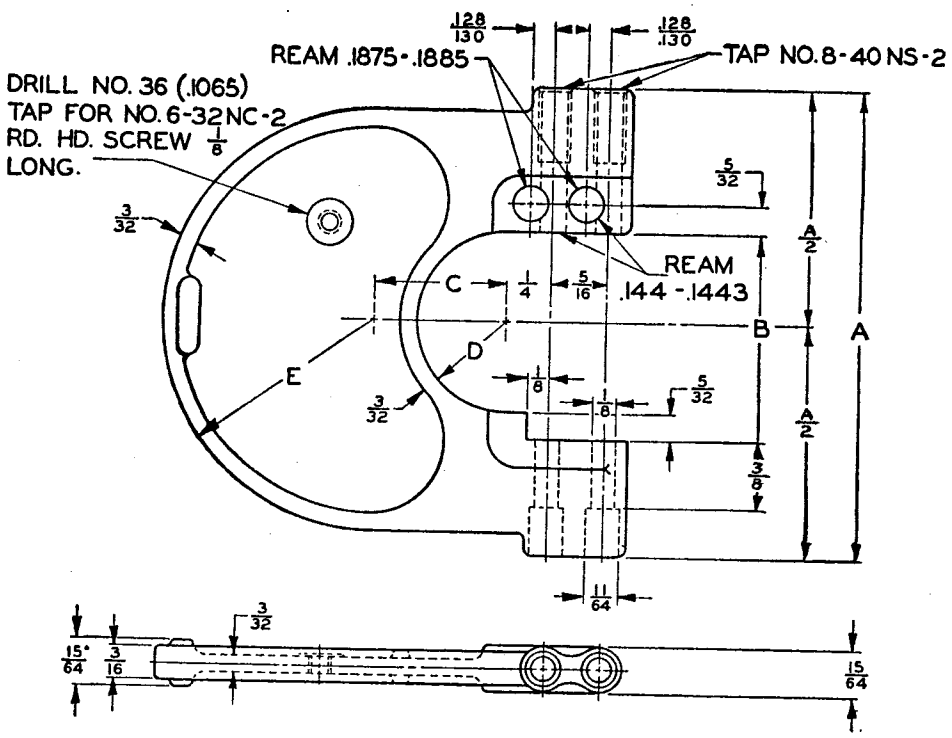
Model C				
Symbol	Range		Height of anvil	Frame No.
	Above—	To and including—		
	in.	*in.*	*in.*	
C-1	0	1/4	1/2	1
C-2	1/4	1/2	3/4	
C-2X	1/4	1/2	1/2	
C-3	1/2	3/4	3/4	2
C-3X	1/2	3/4	1/2	
C-4	3/4	1	3/4	
C-4X	3/4	1	1/2	3
C-5	1	1 1/4	3/4	
C-5X	1	1 1/4	1/2	4
C-6	1 1/4	1 1/2	3/4	
C-6X	1 1/4	1 1/2	1/2	5
C-7	1 1/2	1 3/4	3/4	
C-7X	1 1/2	1 3/4	1/2	6
C-8	1 3/4	2	3/4	
C-8X	1 3/4	2	1/2	7
C-9	2	2 1/4	3/4	
C-9X	2	2 1/4	1/2	8
C-10	2 1/4	2 1/2	3/4	
C-10X	2 1/4	2 1/2	1/2	9
C-11	2 1/2	2 3/4	3/4	
C-11X	2 1/2	2 3/4	1/2	10
C-12	2 3/4	3 1/16	15/16	
C-12X	2 3/4	3 1/16	9/16	11
C-13	3 1/16	3 7/16	15/16	
C-13X	3 1/16	3 7/16	9/16	12
C-14	3 7/16	3 13/16	15/16	
C-14X	3 7/16	3 13/16	9/16	13
C-15	3 13/16	4 3/16	15/16	
C-15X	3 13/16	4 3/16	9/16	14
C-16	4 3/16	4 9/16	15/16	
C-16X	4 3/16	4 9/16	9/16	15
	4 9/16	4 15/16	15/16	
	4 9/16	4 15/16	9/16	16
	4 15/16	5 5/16	15/16	
	4 15/16	5 5/16	9/16	17
	5 5/16	5 11/16	15/16	
	5 5/16	5 11/16	9/16	18
	5 11/16	6 1/8	15/16	
	5 11/16	6 1/8	9/16	19
	6 1/8	6 5/8	15/16	
	6 1/8	6 5/8	9/16	20
	6 5/8	7 1/8	15/16	
	6 5/8	7 1/8	9/16	21
	7 1/8	7 5/8	15/16	
	7 1/8	7 5/8	9/16	22
	7 5/8	8 1/8	15/16	
	7 5/8	8 1/8	9/16	23
	8 1/8	8 5/8	15/16	
	8 1/8	8 5/8	9/16	24
	8 5/8	9 1/8	15/16	
	8 5/8	9 1/8	9/16	25
	9 1/8	9 5/8	15/16	
	9 1/8	9 5/8	9/16	26
	9 5/8	10 1/8	15/16	
	9 5/8	10 1/8	9/16	27
	10 1/8	10 5/8	15/16	
	10 1/8	10 5/8	9/16	28
	10 5/8	11 1/8	15/16	
	10 5/8	11 1/8	9/16	29
	11 1/8	11 5/8	15/16	
	11 1/8	11 5/8	9/16	30

TABLE 60. *Plain adjustable snap gages, model C, details of frame (part 2).*

[See table 60 (part 1) for symbols, range, etc.]

Frame No.	A	B	C	D	E	F	G	H	J		K	L		M	N		R		S	T	P	V
									Max.	Min.		Max.	Min.		Max.	Min.	Max.	Min.				
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.		in.	in.	in.	in.	in.	in.	in.	in.
1	3	1 1/16	31/64	3/8	3/16	5/16	1 3/8	19/32	0.258	0.256	5/16	0.3128	0.3125	0.3325–40NS–2	0.3135	0.3125	0.1927	0.1900	5/16	1/2	1/4	7/16
2	3 1/2	1 9/16	31/64	3/8	5/16	9/16	1 5/8	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125	.1927	.1900	5/16	1/2	1/4	7/16
3	4	2 1/16	31/64	3/8	7/16	13/16	1 7/8	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125	.1927	.1900	5/16	1/2	1/4	7/16
4	4 1/2	2 9/16	31/64	3/8	9/16	1 1/16	2 1/8	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125	.1927	.1900	5/16	1/2	1/4	7/16
5	5	3 1/16	31/64	3/8	11/16	1 5/16	2 3/8	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125	.1927	.1900	5/16	1/2	1/4	7/16
6	5 1/2	3 9/16	31/64	3/8	13/16	1 9/16	2 5/8	19/32	.258	.256	5/16	.3128	.3125	.3325–40NS–2	.3135	.3125	.1927	.1900	5/16	1/2	1/4	7/16
7	6 7/8	4 13/32	39/64	7/16	7/8	1 31/32	3 5/16	23/32	.311	.309	3/8	.3753	.375	.3950–40NS–2	.3760	.3750	.2531	.2500	3/8	21/32	5/16	15/32
8	7 5/8	5 5/32	39/64	7/16	1	2 11/32	3 23/32	23/32	.311	.309	3/8	.3753	.375	.3950–40NS–2	.3760	.3750	.2531	.2500	3/8	21/32	5/16	15/32
9	8 3/8	5 29/32	39/64	7/16	1 1/8	2 23/32	4 3/32	23/32	.311	.309	3/8	.3753	.375	.3950–40NS–2	.3760	.3750	.2531	.2500	3/8	21/32	5/16	15/32
10	9 1/8	6 21/32	39/64	7/16	1 1/4	3 3/32	4 7/16	23/32	.311	.309	3/8	.3753	.375	.3950–40NS–2	.3760	.3750	.2531	.2500	3/8	21/32	5/16	15/32
11	10 3/4	7 3/4	47/64	1/2	1 3/8	3 5/8	5 1/4	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375	.3158	.3125	7/16	13/16	3/8	1/2
12	11 3/4	8 3/4	47/64	1/2	1 1/2	4 1/8	5 3/4	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375	.3158	.3125	7/16	13/16	3/8	1/2
13	12 3/4	9 3/4	47/64	1/2	1 5/8	4 5/8	6 1/4	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375	.3158	.3125	7/16	13/16	3/8	1/2
14	13 3/4	10 3/4	47/64	1/2	1 3/4	5 1/8	6 3/4	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375	.3158	.3125	7/16	13/16	3/8	1/2
15	14 3/4	11 3/4	47/64	1/2	1 7/8	5 5/8	7 1/4	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375	.3158	.3125	7/16	13/16	3/8	1/2
16	15 3/4	12 3/4	47/64	1/2	2	6 1/8	7 3/4	27/32	.365	.363	7/16	.4378	.4375	.4575–40NS–2	.4385	.4375	.3158	.3125	7/16	13/16	3/8	1/2

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



Symbol	Range		Frame No.	A	B	C	D	E
	Above—	To and including—						
	in.	*in.*		*in.*	*in.*	*in.*	*in.*	*in.*
MC–00	0.000	0.195	00	2¼	35/32	⅝	5/16	1
MC–00X	.195	.385						
MC–0	.385	.570	0	2⅝	1 5/32	¾	½	1 3/16
MC–0X	.570	.760						

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

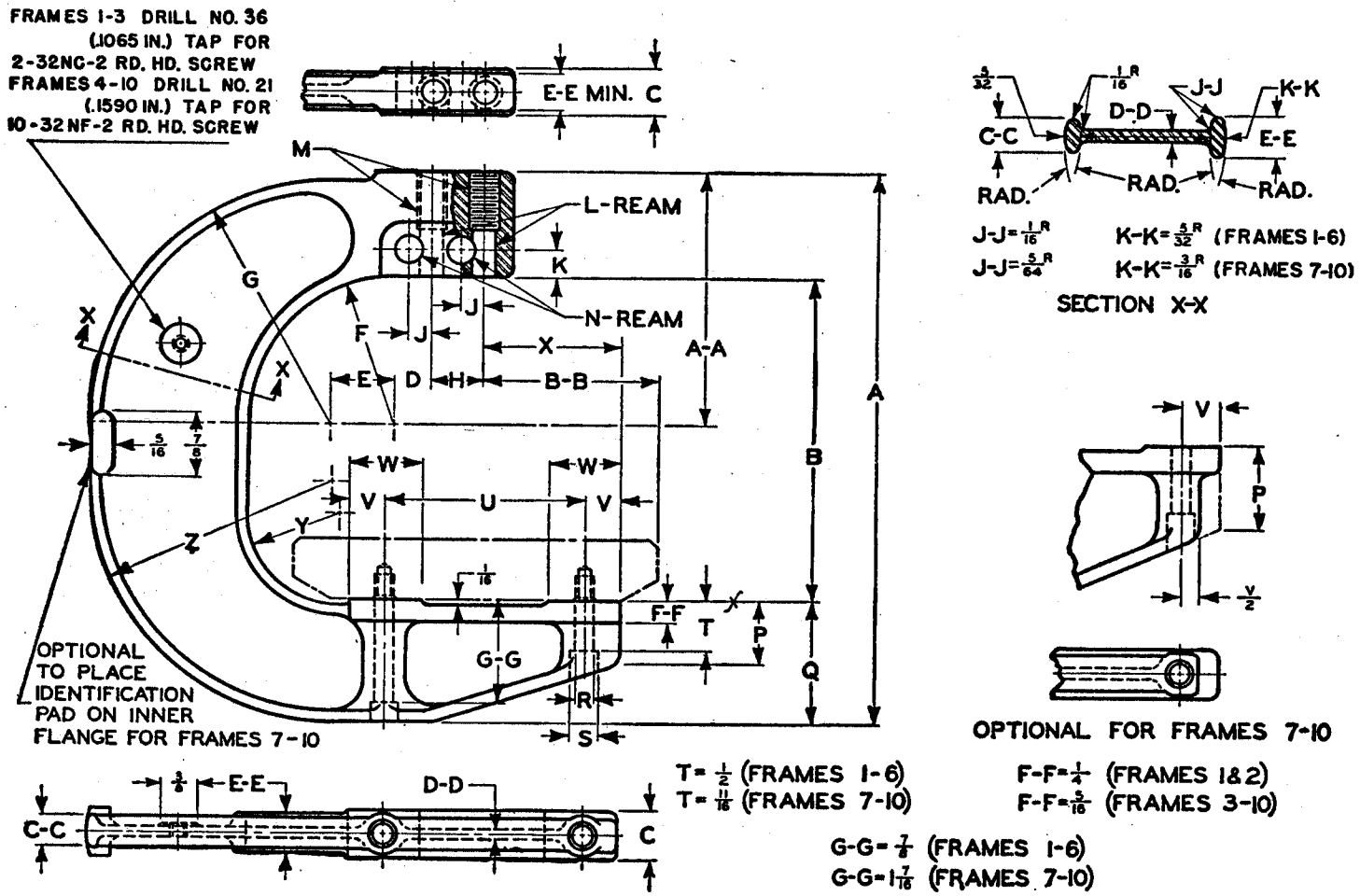


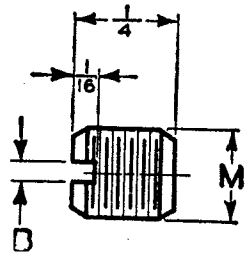
TABLE 62. *Adjustable snap gages, extended anvil, model E, details of frame*—Continued

Model E—Symbol and range	Frame No.	Dimensions[1]					
		A	*P*	*Q*	*U*	*V*	*W*
		in.	in.	in.	in.	in.	in.
E–1—0 to ¼	1	3 3/8	9/16	1 1/8	1 1/4	5/16	5/8
E–2—¼ to ½; E–2X—½ to ¾	2	3 15/16	5/8	1 3/16	1 1/4	5/16	5/8
E–3—¾ to 1; E–3X—1 to 1¼	3	4 1/2	5/8	1 1/4	1 1/2	3/8	3/4
E–4—1¼ to 1½; E–4X—1½ to 1¾	4	5 1/16	11/16	1 5/16	1 3/4	3/8	3/4
E–5—1¾ to 2; E–5X—2 to 2¼	5	5 11/16	3/4	1 7/16	2	3/8	3/4
E–6—2¼ to 2½; E–6X—2½ to 2¾	6	6 5/16	13/16	1 9/16	2 1/4	3/8	13/16
E–7—2¾ to 3 1/16; E–7X—3 1/16 to 3 7/16	7	7 9/16	7/8	1 11/16	2 3/4	1/2	1
E–8—3 7/16 to 3 13/16; E–8X—3 13/16 to 4 3/16	8	8 7/16	15/16	1 13/16	3 3/16	9/16	1 1/8
E–9—4 3/16 to 4 9/16; E–9X—4 9/16 to 4 15/16	9	9 5/16	1	1 15/16	3 9/16	5/8	1 1/4
E–10—4 15/16 to 5 5/16; E–10X—5 5/16 to 5 11/16	10	10 3/16	1 1/16	2 1/16	4	11/16	1 3/8

Model E—Symbol and range	Frame No.	*X*	*Y*	*Z*	*A–A*	*B–B*	*C–C*	*D–D*	*E–E*
		in.	in.	in.	in.	in.	in.	in.	in.
E–1—0 to ¼	1	7/8	1/4	1 3/16	1 1/2	1	11/32	7/64	7/16
E–2—¼ to ½; E–2X—½ to ¾	2	7/8	1/2	1 3/8	1 3/4	1	11/32	7/64	7/16
E–3—¾ to 1; E–3X—1 to 1¼	3	1 1/8	5/8	1 5/8	2	1 1/4	3/8	1/8	7/16
E–4—1¼ to 1½; E–4X—1½ to 1¾	4	1 1/4	3/4	1 13/16	2 1/4	1 1/2	3/8	1/8	7/16
E–5—1¾ to 2; E–5X—2 to 2¼	5	1 3/8	13/16	2	2 1/2	1 3/4	3/8	1/8	7/16
E–6—2¼ to 2½; E–6X—2½ to 2¾	6	1 9/16	1	2 1/4	2 3/4	2	3/8	1/8	7/16
E–7—2¾ to 3 1/16; E–7X—3 1/16 to 3 7/16	7	1 15/16	1 1/4	2 13/16	3 7/16	2 7/16	7/16	9/64	9/16
E–8—3 7/16 to 3 13/16; E–8X—3 13/16 to 4 3/16	8	2 1/4	1 3/8	3 3/16	3 13/16	2 13/16	7/16	9/64	9/16
E–9—4 3/16 to 4 9/16; E–9X—4 9/16 to 4 15/16	9	2 1/2	1 1/2	3 1/2	4 3/16	3 3/16	7/16	5/32	9/16
E–10—4 15/16 to 5 5/16; E–10X—5 5/16 to 5 11/16	10	2 13/16	1 5/8	3 3/4	4 9/16	3 9/16	7/16	5/32	9/16

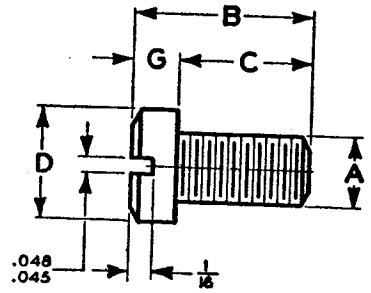
[1] Dimensions for letters B, C, D, E, F, G, H, J, K, L, M, N, R, and S are the same as for model C (table 60).

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



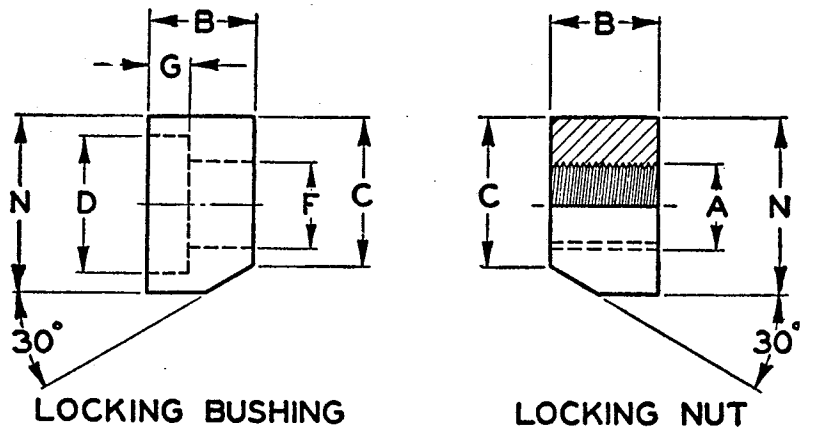
Snap gage frame Nos., inclusive	B		M
	Max.	Min.	
	in.	*in.*	
1 to 6	0.048	0.045	0.3325–40NS–3
7 to 10	.048	.045	.3950–40NS–3
11 to 16	.048	.045	.4575–40NS–3

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.*



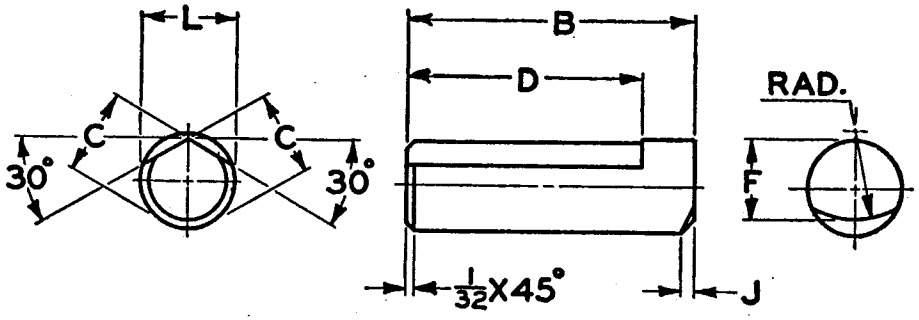
Snap gage frame Nos., inclusive	A	B	C	D		G
				Max.	Min.	
		in.	*in.*	*in.*	*in.*	*in.*
1 to 6	8–36NF–2	7/16	11/32	0.252	0.248	3/32
7 to 10	10–32NF–2	17/32	27/64	.315	.310	7/64
11 to 16	12–28NF–2	21/32	17/32	.346	.341	1/8

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.*



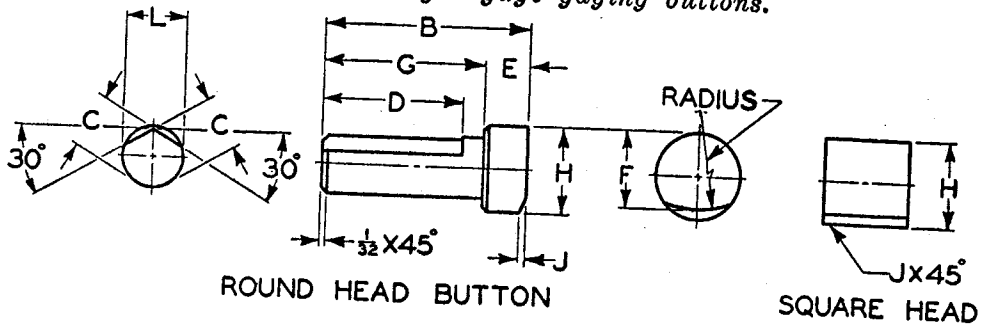
Snap gage frame Nos., inclusive	A	B	C		D		F	G	N	
			Max.	Min.	Max.	Min.			Max.	Min.
		in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1 to 6	8–36NF–2	11/64	0.276	0.271	0.260	0.255	11/64	3/32	0.3125	0.3105
7 to 10	10–32NF–2	15/64	.333	.328	.323	.318	13/64	1/64	.3750	.3730
11 to 16	12–28NF–2	19/64	.385	.380	.355	.350	15/64	1/8	.4375	.4355

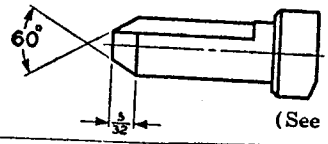
TABLE 66. *Model A snap gage gaging pins.*



Snap gage frame Nos., inclusive	B	C		D	F	J	L	
		Max.	Min.				Max.	Min.
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1 to 6	15/16	0.300	0.298	13/16	17/64	3/64	0.3125	0.3123
7 to 10	1 7/32	.358	.356	1 1/32	21/64	5/64	.375	.3748
11 to 16	1 1/2	.417	.415	1 1/4	3/8	1/16	.4375	.4373

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





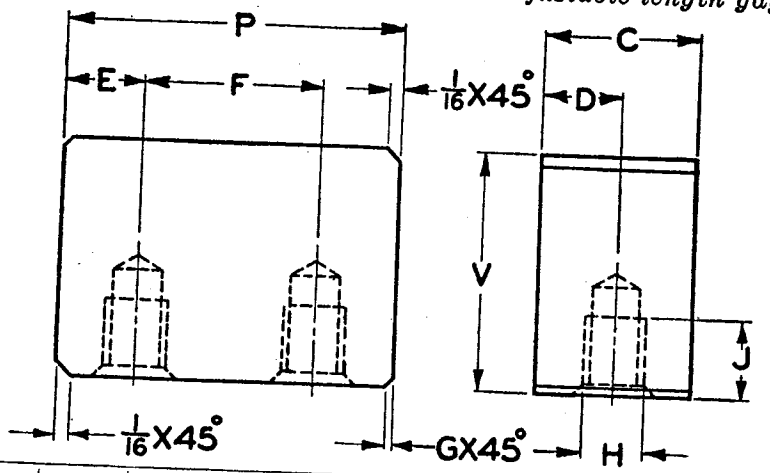
(See footnote 1.)

Snap gage frame Nos., inclusive	B	C		D	E	F	G	H		J	L	
		Max.	Min.					Max.	Min.		Max.	Min.
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1 to 6[1]	1 3/16	0.300	0.298	1 3/16	1/4	7/16	15/16	0.505	0.500	3/64	0.3125	0.3123
7 to 10	1 17/32	.358	.356	1 1/32	5/16	9/16	1 7/32	.630	.625	3/64	.3750	.3748
11 to 16	1 7/8	.417	.415	1 1/4	3/8	5/8	1 1/2	.755	.750	1/16	.4375	.4373

[1] Modification of gaging button to permit assembly in model C, frame No. 1, range No. 0 to 1/4 in.

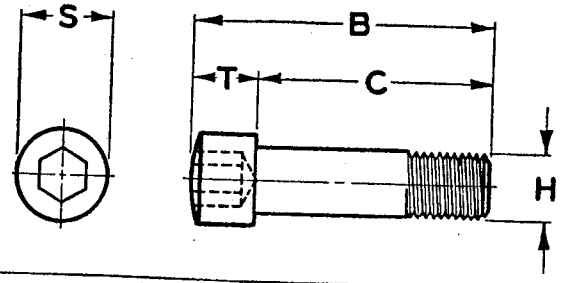
NOTE.—Square-head gaging buttons are optional.

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



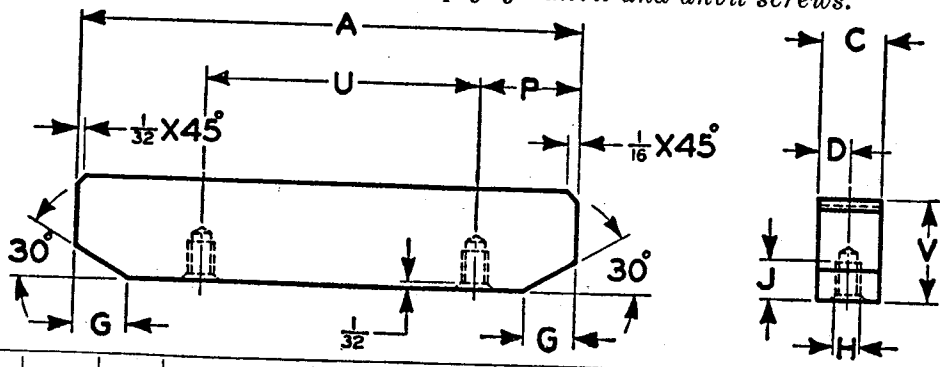
Snap gage symbol	Snap gage frame Nos., inclusive	C		D		E	F	G	H	J	P	V
		Max.	Min.	Max.	Min.							
		in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*		*in.*	*in.*	*in.*
C–1 & C–2X to C–6X	1 to 6	0.505	0.500	0.2525	0.2500	1/4	19/32	1/64	10–32NF–2B	5/16	1 3/32	1/2
C–2 to C–6	2 to 6	.505	.500	.2525	.2500	1/4	19/32	1/64	10–32NF–2B	5/16	1 3/32	1/2
C–7X to C–10X	7 to 10	.630	.625	.3150	.3125	5/16	23/32	1/32	1/4–28UNF–2B	11/32	1 11/32	9/16
C–7 to C–10	7 to 10	.630	.625	.3150	.3125	5/16	23/32	1/32	1/4–28UNF–2B	11/32	1 11/32	15/16
C–11X to C–16X	11 to 16	.755	.750	.3775	.3750	3/8	27/32	1/32	5/16–24UNF–2B	3/8	1 19/32	5/8
C–11 to C–16	11 to 16	.755	.750	.3775	.3750	3/8	27/32	1/32	5/16–24UNF–2B	3/8	1 19/32	1 1/8

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



Snap gage frame Nos., inclusive	B	C	H	S	T
	in.	in.		in.	in.
1 to 6	15/16	3/4	10-32NF-2A	5/16	13/64
7 to 10	1 3/16	15/16	1/4-28UNF-2A	3/8	1/4
11 to 16	1 7/16	1 1/8	5/16-24UNF-2A	7/16	5/16

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

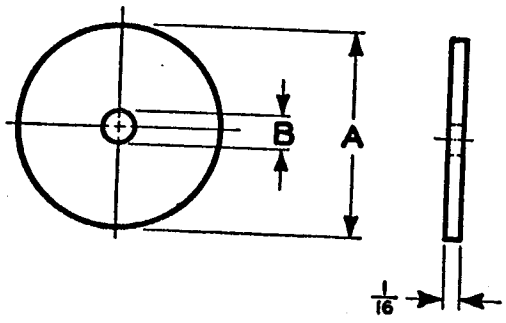


Gage No.	Frame No.	A	C Max.	C Min.	D Max.	D Min.	G	H	J	P	U	V
		in.	in.	in.	in.	in.	in.		in.	in.	in.	in.
E-1	1	2 1/8	0.505	0.500	0.2525	0.250	1/8	10-32NF-2B	5/16	7/16	1 1/4	1/2
E-2	2	2 1/8	.505	.500	.2525	.250	1/8	10-32NF-2B	5/16	7/16	1 1/4	3/4
E-2X	2	2 1/8	.505	.500	.2525	.250	1/8	10-32NF-2B	5/16	7/16	1 1/4	1/2
E-3	3	2 5/8	.505	.500	.2525	.250	1/8	10-32NF-2B	5/16	1/2	1 1/2	3/4
E-3X	3	2 5/8	.505	.500	.2525	.250	1/8	10-32NF-2B	5/16	1/2	1 1/2	1/2
E-4	4	3 1/8	.505	.500	.2525	.250	1/4	10-32NF-2B	5/16	5/8	1 3/4	3/4
E-4X	4	3 1/8	.505	.500	.2525	.250	1/4	10-32NF-2B	5/16	5/8	1 3/4	1/2
E-5	5	3 5/8	.505	.500	.2525	.250	3/8	10-32NF-2B	5/16	3/4	2	3/4
E-5X	5	3 5/8	.505	.500	.2525	.250	3/8	10-32NF-2B	5/16	3/4	2	1/2
E-6	6	4 1/8	.505	.500	.2525	.250	7/16	10-32NF-2B	5/16	13/16	2 1/4	3/4
E-6X	6	4 1/8	.505	.500	.2525	.250	7/16	10-32NF-2B	5/16	13/16	2 1/4	1/2
E-7	7	5	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	11/32	1	2 3/4	15/16
E-7X	7	5	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	11/32	1	2 3/4	9/16
E-8	8	5 3/4	.630	.625	.3150	.3125	9/16	1/4-28UNF-2B	11/32	1 1/8	3 3/16	15/16
E-8X	8	5 3/4	.630	.625	.3150	.3125	1/2	1/4-28UBF-2B	11/32	1 1/8	3 3/16	9/16
E-9	9	6 1/2	.630	.625	.3150	.3125	11/16	1/4-28UNF-2B	11/32	1 5/16	3 9/16	15/16
E-9X	9	6 1/2	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	11/32	1 5/16	3 9/16	9/16
E-10	10	7 1/4	.630	.625	.3150	.3125	3/4	1/4-28UNF-2B	11/32	1 7/16	4	15/16
E-10X	10	7 1/4	.630	.625	.3150	.3125	1/2	1/4-28UNF-2B	11/32	1 7/16	4	9/16

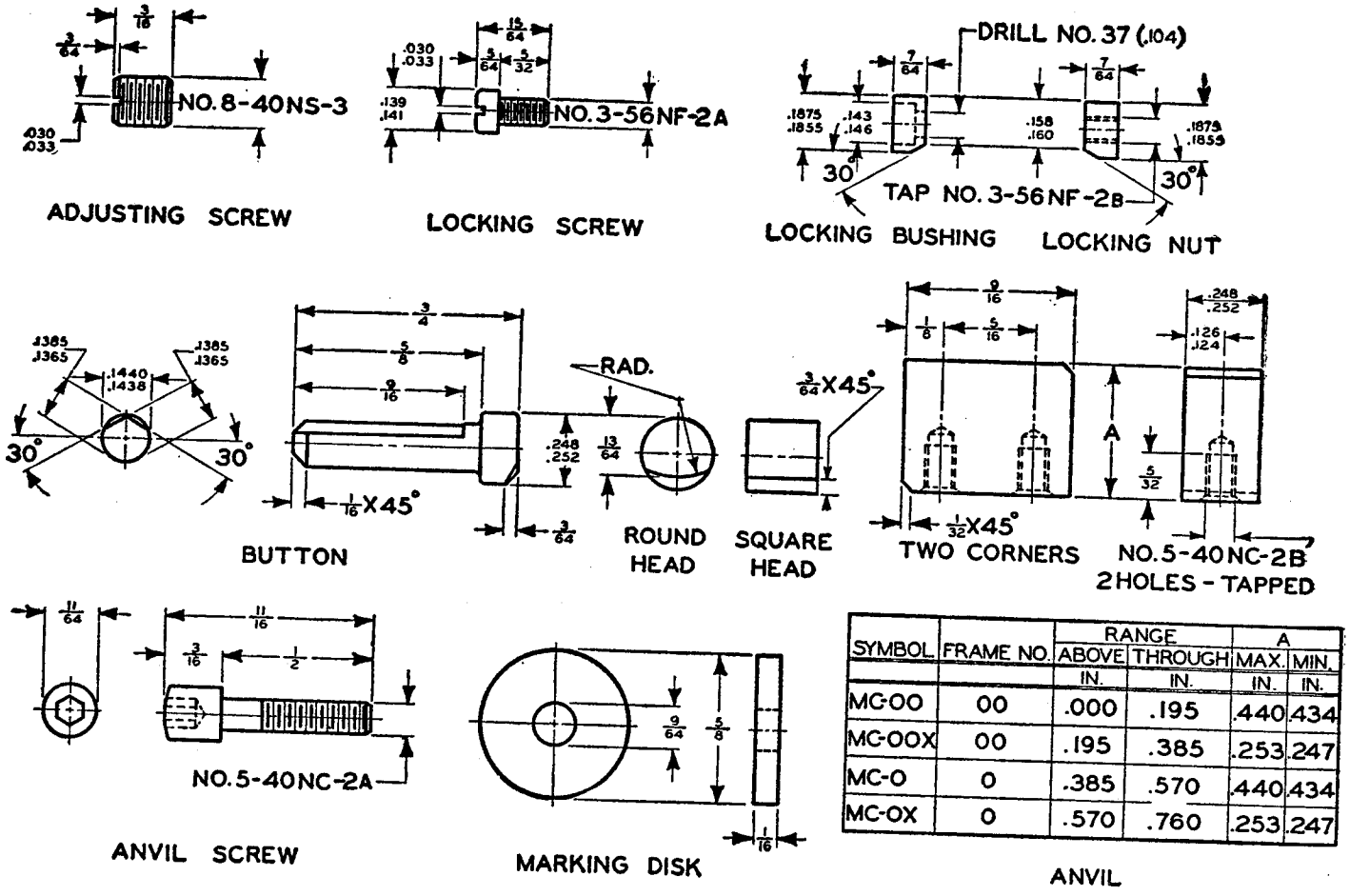
ANVIL SCREWS (HEXAGON-SOCKET-HEAD CAP SCREWS)

Frame Nos. inclusive	Size	Length	
		Front screw	Rear screw
		in.	in.
1 to 6	10-32NF—2A	1 3/4	1 1/8
7 to 10	1/4-28UNF—2A	1	1 3/4

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*
	in.	*in.*
00, 0, and 1	5/8	9/64
2 and 3	7/8	9/64
4 to 16	1	13/64



SYMBOL	FRAME NO.	RANGE ABOVE IN.	RANGE THROUGH IN.	A MAX. IN.	A MIN. IN.
MC-00	00	.000	.195	.440	.434
MC-00X	00	.195	.385	.253	.247
MC-0	0	.385	.570	.440	.434
MC-0X	0	.570	.760	.253	.247

FIGURE 11. *Model MC snap gage, details.*

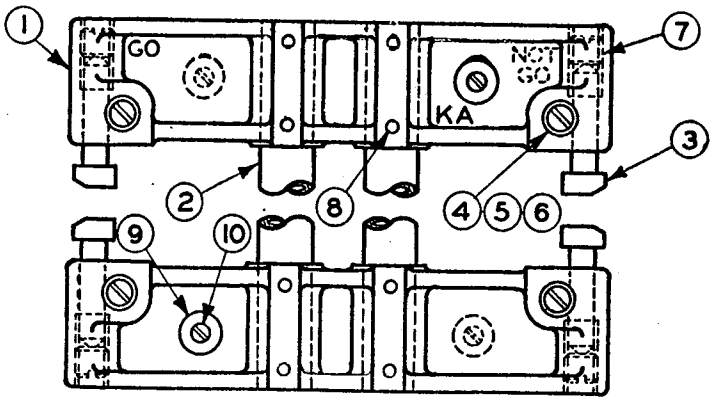
3.11 Adjustable Length Gages

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.

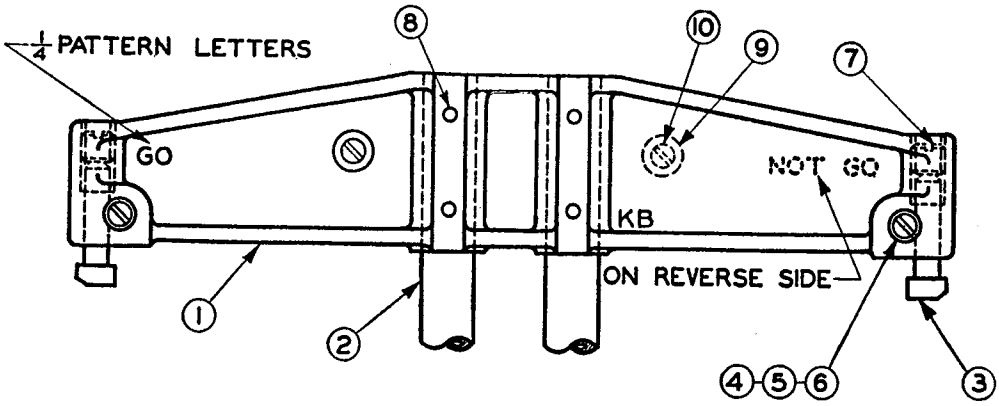
3.11.2 The American Gage Design Standard adjustable length gage employs, for gaging members and adjusting and locking means, the same fittings which are utlized in adjustable snap gages, as detailed in table 73, page 101.

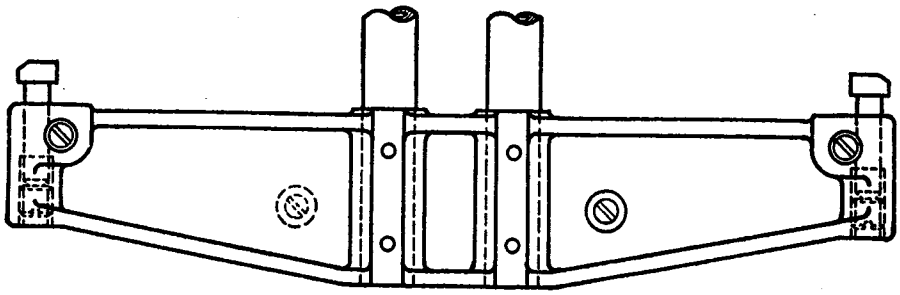
3.11.3 The gage heads are designed in two models: (*a*) the double-sided model with "go" and "not go" gaging members on opposite sides of the spacing tubes, and (*b*) the progressive model with two pairs of gaging members on the same side of the spacing tubes. All models may be used to cover a very wide range, as the spacing tubes may be constructed in any length desired. See table 72, page 95.

3.11.4 General details of construction and dimensions are shown in figures 12 to 16, pages 94 to 100.



MODEL KA

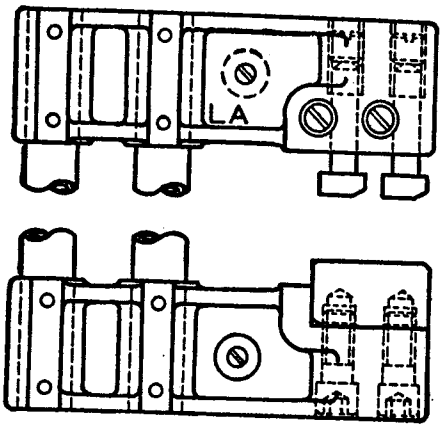




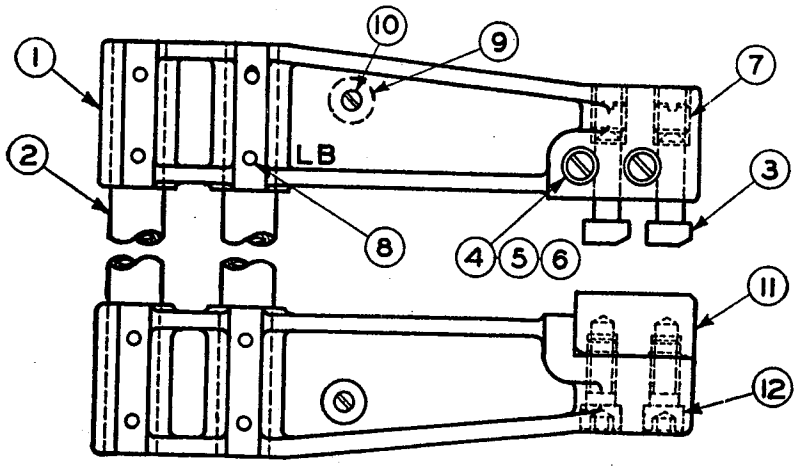
MODEL KB

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

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



MODEL LA



MODEL LB

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

1. Gage head.
2. Spacing tube.
3. Gaging button.
4. Locking screw.
5. Locking nut.
6. Locking bushing.
7. Adjusting screw.
8. Dowel pin.
9. Marking disk.
10. Marking disk screw.
11. Anvil.
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.	*in.*	*in.*
0	12	0.005
12	30	.010
30	----------	.020

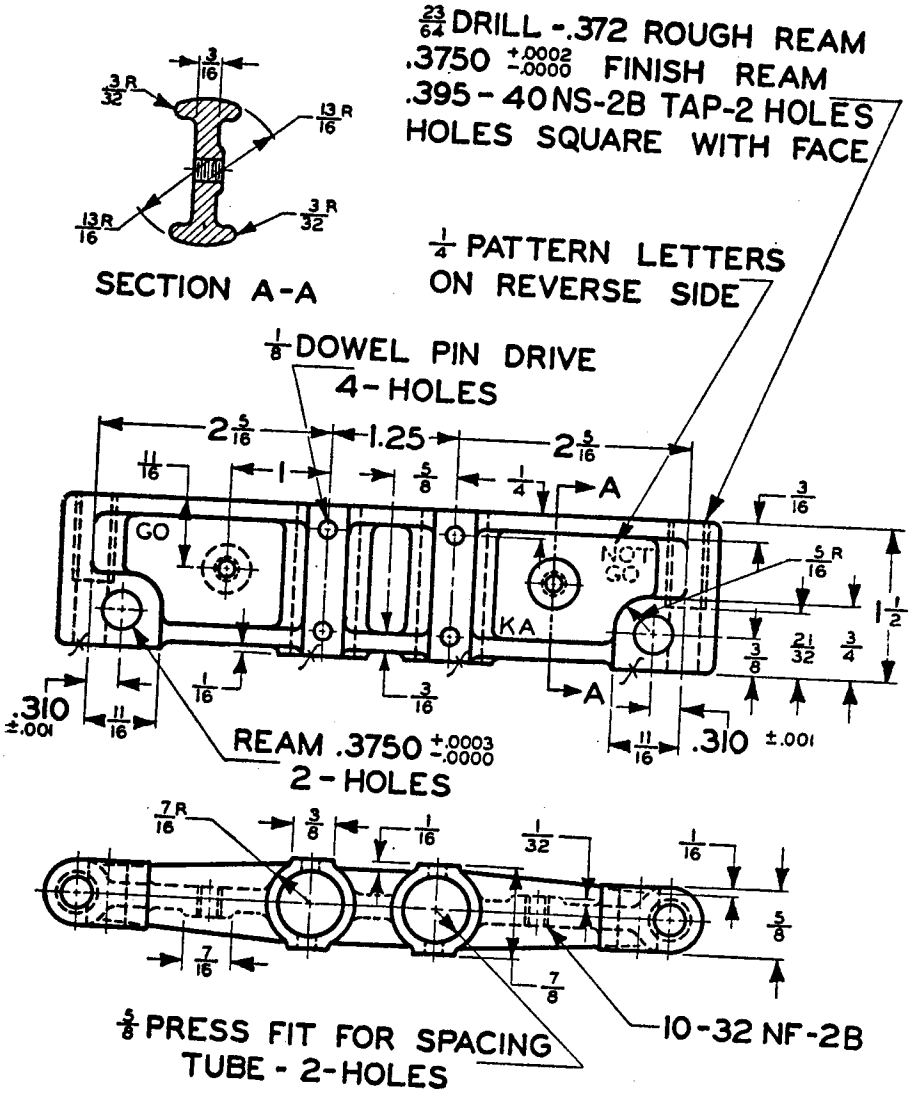


FIGURE 14A. *Adjustable length gage, double-sided, model KA, details of gage heads.*

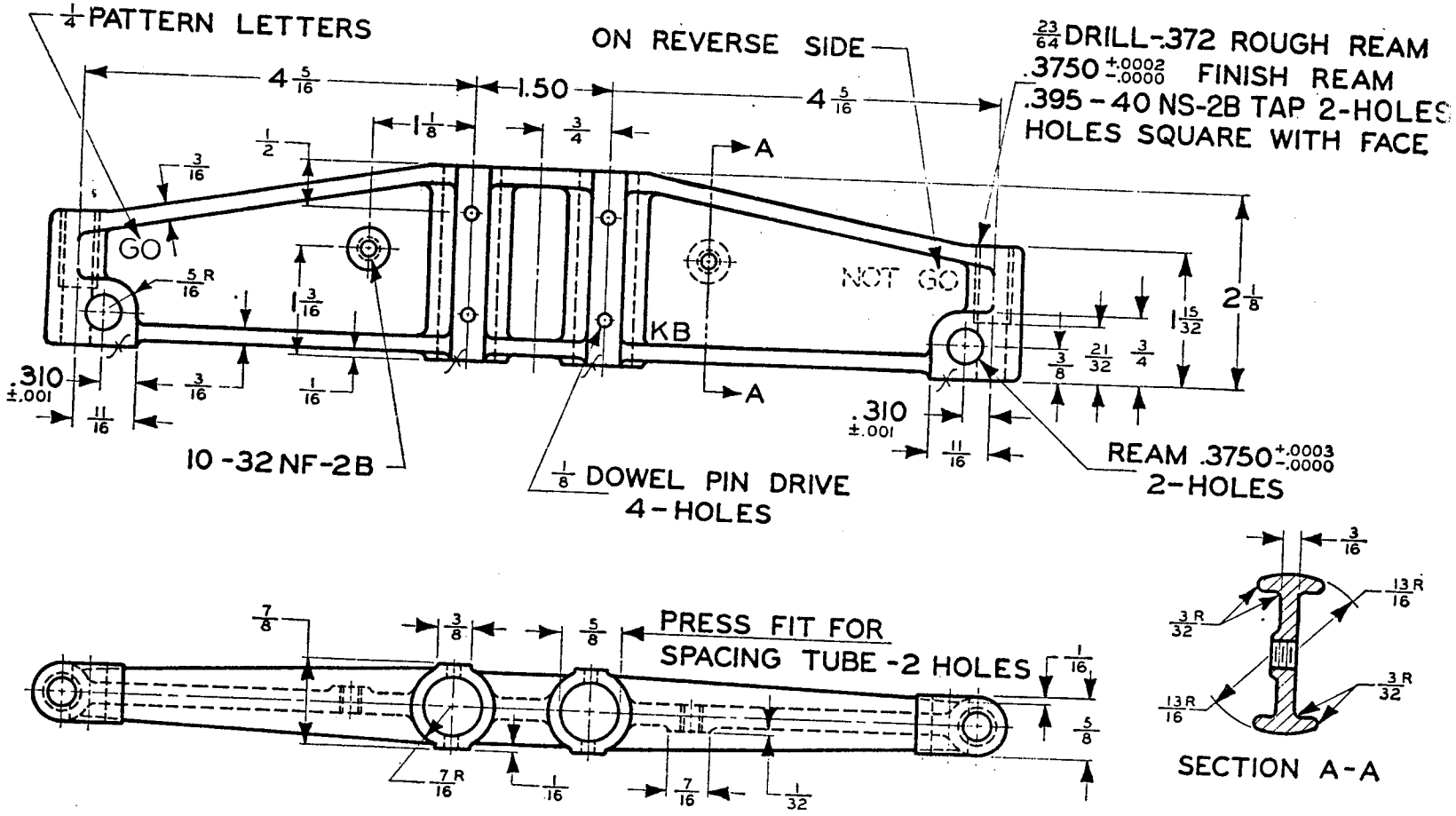


FIGURE 14B. *Adjustable length gage, double-sided, model KB, details of gage heads.*

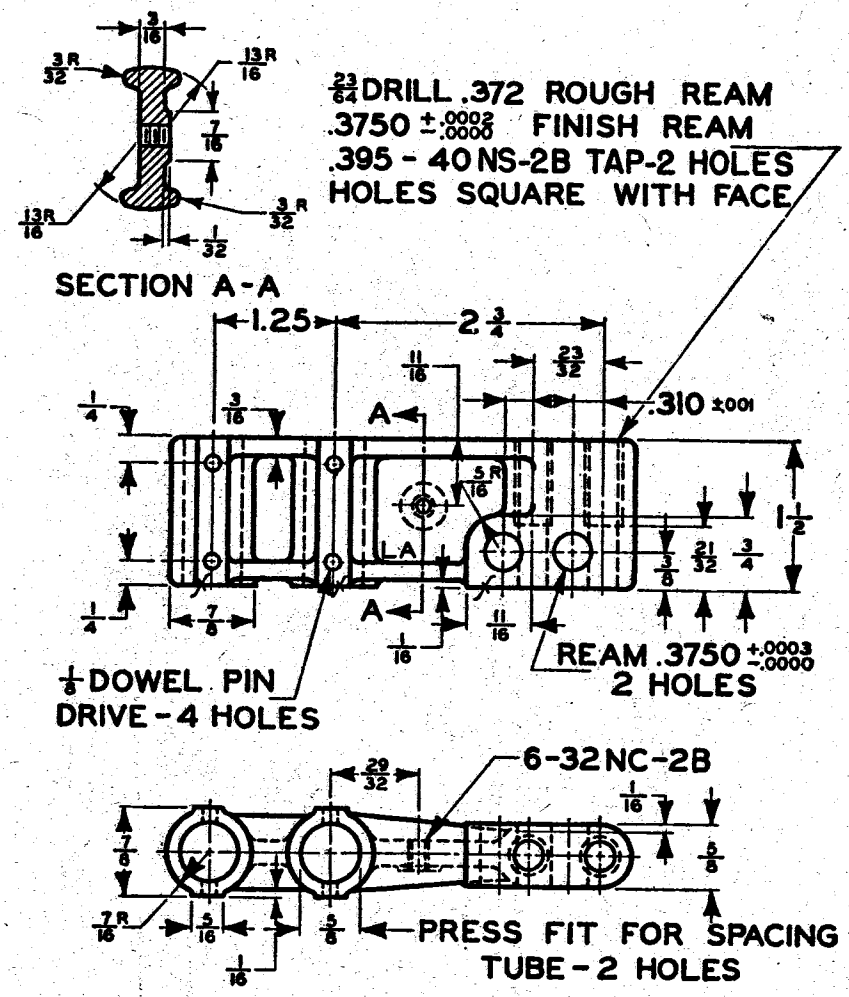


FIGURE 15A. *Adjustable length gage, progressive, model LA, details of gage heads.*

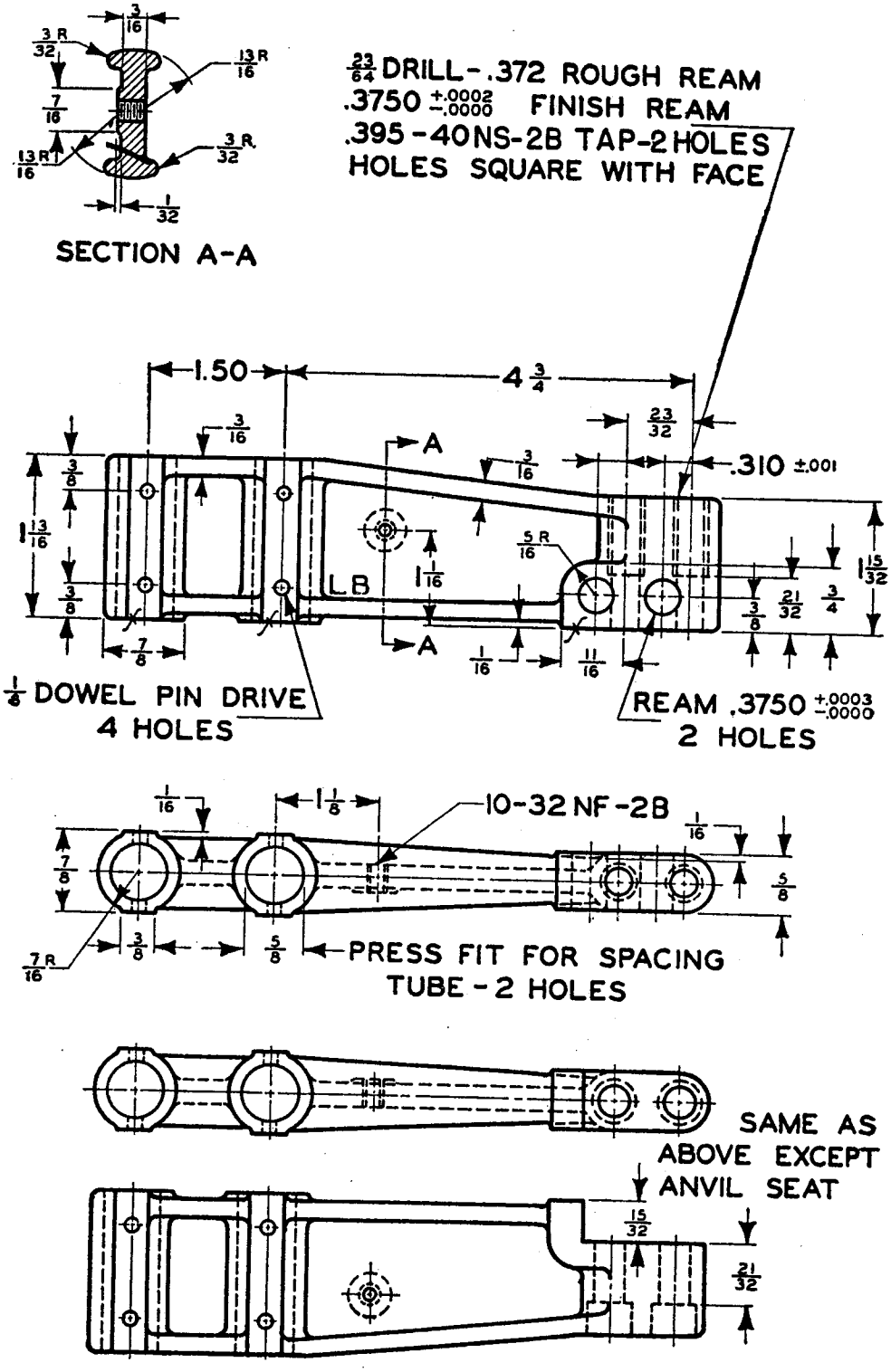


FIGURE 15B. *Adjustable length gage, progressive, model LB, details of gage heads.*

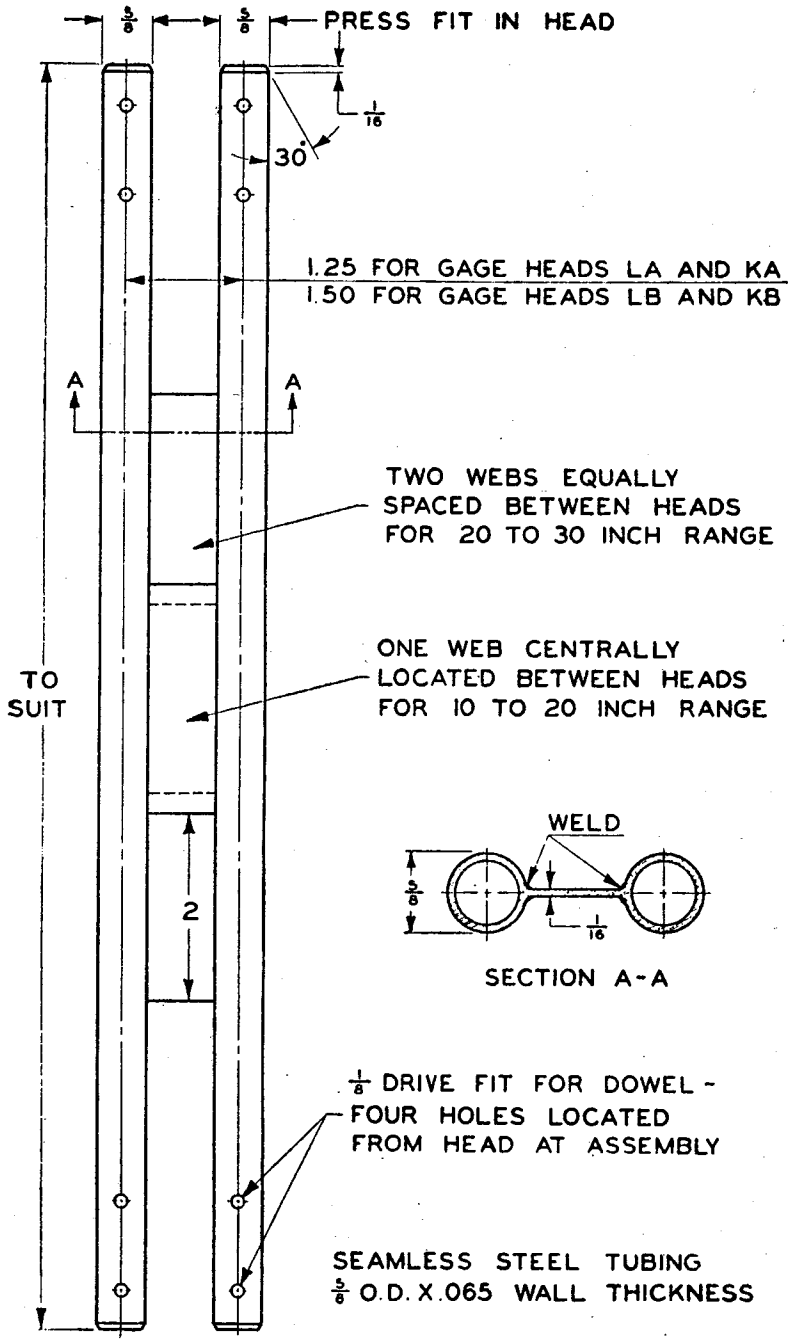


FIGURE 16. *Adjustable length gages, details of spacing tubes.*

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	⅛" dia. × ⅞"	⅛" dia. × ⅞".
Marking disk	Table 71, frames 2 and 3	Table 71, frames 4–16.
Marking disk screw	No. 10–32NF–2A × ¼"	No. 10–32NF–2A × ¼".

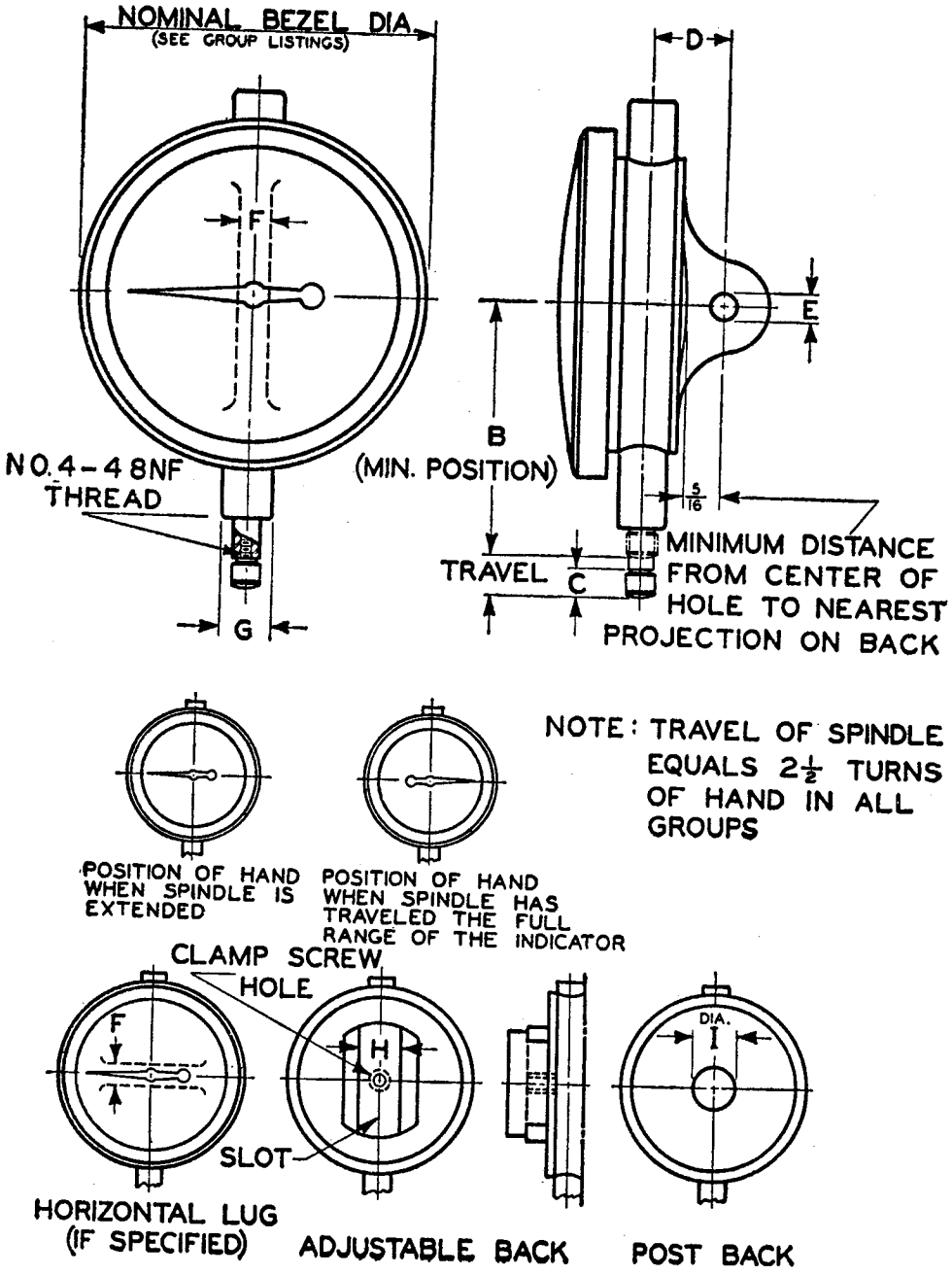
Part	Progressive—(specification or reference)	
	Model LA	Model LB
Gage head	Figure 15A	Figure 15B.
Spacing tube	Figure 16	Figure 16.
Gaging button	Table 67, frames 7–10	Table 67, frames 7–10.
Locking screw	Table 64, frames 7–10	Table 64, frames 7–10.
Locking nut	Table 65, frames 7–10	Table 65, frames 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	⅛" dia. × ⅞"	⅛" dia. × ⅞".
Marking disk	Table 71, frames 2 and 3	Table 71, frames 4–16.
Marking disk screw	No. 6–32NC–2A × ¼"	No. 10–32NF–2A × ¼".
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 102, 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 2½ 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—				−0.00		−0.001 −0.003	+0.005 −0.000	−0.001 −0.003
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1	1⅜	2	1⅝	¼	¾	¼	¼	⅜	½	½
2	2	2⅜	2	¼	¾	¼	¼	⅜	½	½
3	2⅜	3	2⅛	¼	¾	¼	¼	⅜	½	½
4	3	3¾	2⅝	¼	¾	¼	¼	⅜	½	½

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 104 to 109, and in figures 17 and 18, pages 103 and 108, 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.

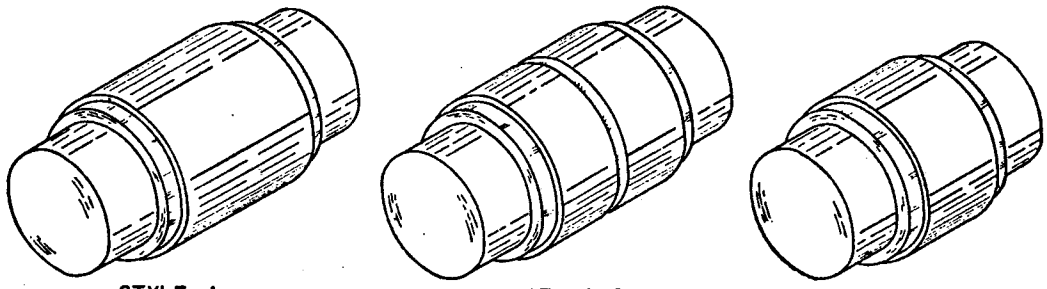
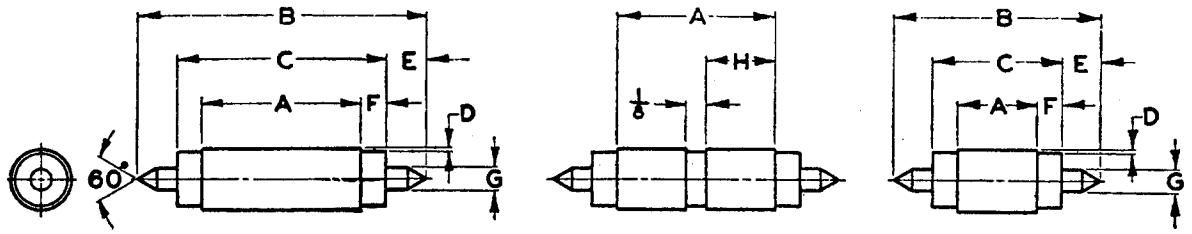


FIGURE 17. *Master disks, styles 1, 2, and 3.*

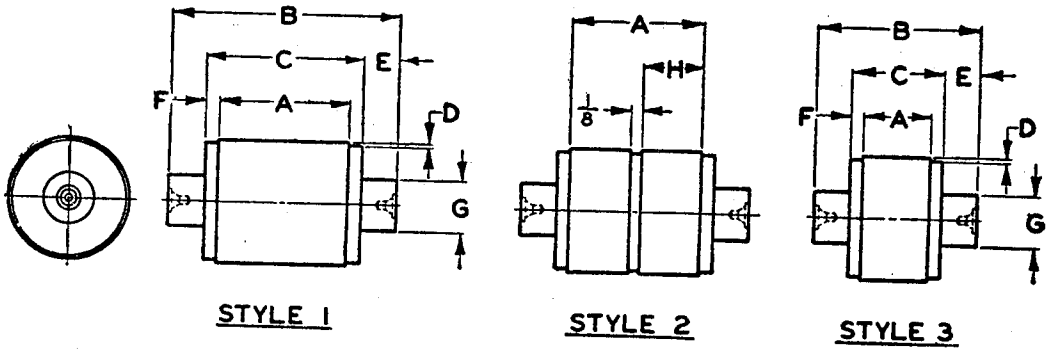
TABLE 75. *Master disks, range above 0.105 to and including 0.365 inch.*



STYLE 1 STYLE 2 STYLE 3

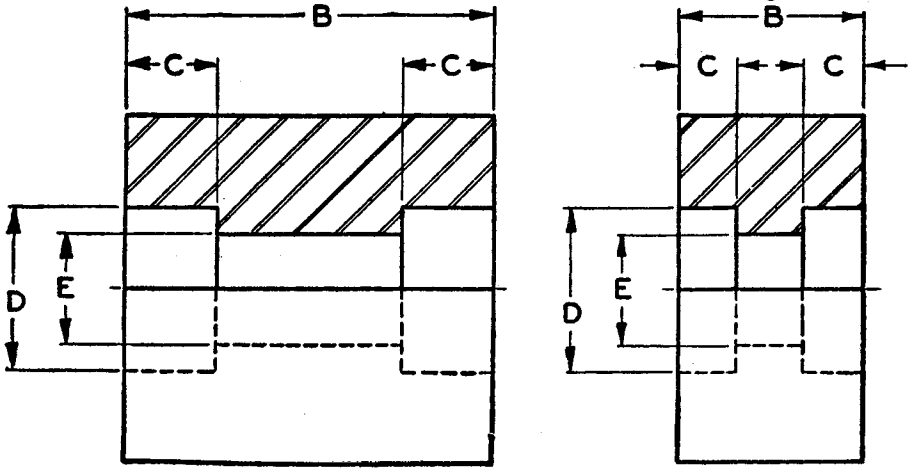
Range in diameters		Styles 1 and 2								Style 3						
Above—	To and including—	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*A*	*B*	*C*	*D*	*E*	*F*	*G*
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
0.105	0.150	3/4	1 9/16	1 1/16	0.005	1/4	5/32	0.050	5/16	3/8	1 3/16	11/16	0.005	1/4	5/32	0.050
.150	.240	7/8	1 11/16	1 3/16	.005	1/4	5/32	.080	3/8	7/16	1 1/4	3/4	.005	1/4	5/32	.080
.240	.365	1	1 13/16	1 5/16	.010	1/4	5/32	.128	7/16	1/2	1 5/16	13/16	.010	1/4	5/32	.128

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



Range in diameters		Styles 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.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
0.365	0.510	1 1/8	2 1/16	1 7/16	0.010	5/16	5/32	0.188	1/2	9/16	1 1/2	7/8	0.010	5/16	5/32	0.188
.510	.825	1 1/4	2 3/16	1 9/16	.010	5/16	5/32	.250	9/16	5/8	1 9/16	15/16	.010	5/16	5/32	.250
.825	1.135	1 3/8	2 9/16	1 11/16	.010	7/16	5/32	.500	5/8	11/16	1 7/8	1	.010	7/16	5/32	.500
1.135	1.510	1 5/8	2 13/16	1 15/16	.010	7/16	5/32	.625	3/4	13/16	2	1 1/8	.010	7/16	5/32	.625

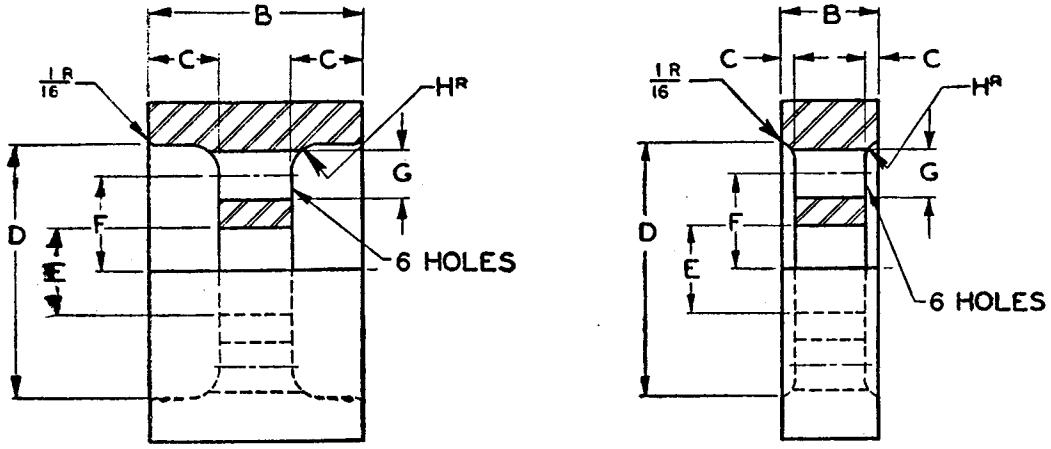
TABLE 77. *Master disks, range above 1.510 to and including 2.510 inches.*



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 7/8	1/2	25/32	17/32	7/8	9/32	25/32	17/32
2.010	2.510	2	1/2	25/32	17/32	7/8	9/32	25/32	17/32

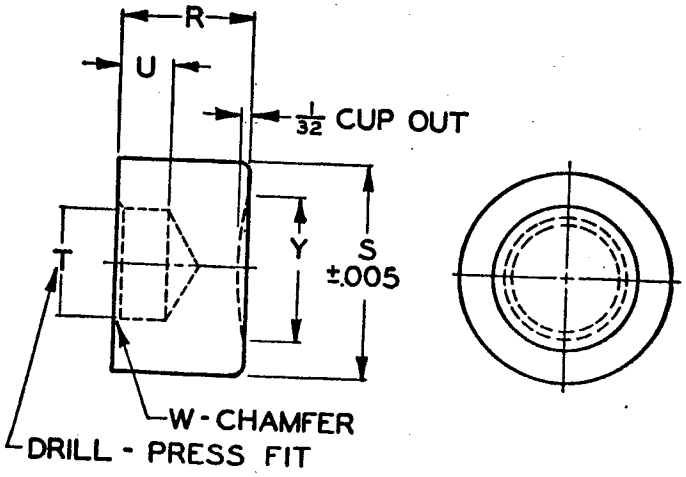
TABLE 78. *Master disks, range above 2.510 to and including 8.010 inches.*



STYLE 1 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 1/8	11/16	1 7/8	29/32	-----	-----	5/16	1	1/8	1 7/8	29/32	-----	-----	5/16
3.010	3.510	2 1/4	3/4	2 1/4	29/32	-----	-----	5/16	1	1/8	2 1/4	29/32	-----	-----	5/16
3.510	4.010	2 1/4	3/4	2 5/8	29/32	-----	-----	5/16	1	1/8	2 5/8	29/32	-----	-----	5/16
4.010	4.510	2 1/4	3/4	3	29/32	1 1/16	3/4	5/16	1	1/8	3	29/32	1 1/16	3/4	5/16
4.510	5.010	2 1/4	3/4	3 7/16	29/32	1 5/16	1 5/16	5/16	1	1/8	3 7/16	29/32	1 5/16	1 5/16	5/16
5.010	5.510	2 1/4	3/4	3 7/8	29/32	1 1/4	7/8	5/16	1	1/8	3 7/8	29/32	1 1/4	7/8	5/16
5.510	6.010	2 1/4	3/4	4 5/16	29/32	1 3/8	1	5/16	1	1/8	4 5/16	29/32	1 3/8	1	5/16
6.010	6.510	2 1/4	3/4	4 3/4	29/32	1 1/2	1 1/8	5/16	1	1/8	4 3/4	29/32	1 1/2	1 1/8	5/16
6.510	7.010	2 1/4	3/4	5 1/4	29/32	1 5/8	1 1/4	5/16	1	1/8	5 1/4	29/32	1 5/8	1 1/4	5/16
7.010	7.510	2 1/4	3/4	5 3/4	29/32	1 3/4	1 3/8	5/16	1	1/8	5 3/4	29/32	1 3/4	1 3/8	5/16
7.510	8.010	2 1/4	3/4	6 1/4	29/32	1 7/8	1 1/2	5/16	1	1/8	6 1/4	29/32	1 7/8	1 1/2	5/16

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



Range in diameters		R	S	T	U	W	Y
Above—	To and including—			Drill size			
in.	*in.*	*in.*	*in.*		*in.*		*in.*
0.105	0.150	7/16	3/32	No. 55 (0.052)	9/32		
.150	.240	7/16	1/8	No. 46 (0.081)	9/32		
.240	.365	7/16	7/32	No. 30 (0.128)	9/32	1/64×45°	0.142
.365	.510	1/2	11/32	No. 12 (0.189)	11/32	1/32×45°	.223
.510	.825	1/2	1/2	1/4 (0.250)	11/32	1/32×45°	.325
.825	1.135	5/8	3/4	1/2 (0.500)	15/32	1/32×45°	.529
1.135	1.510	5/8	1	5/8 (0.625)	15/32	1/32×45°	.649

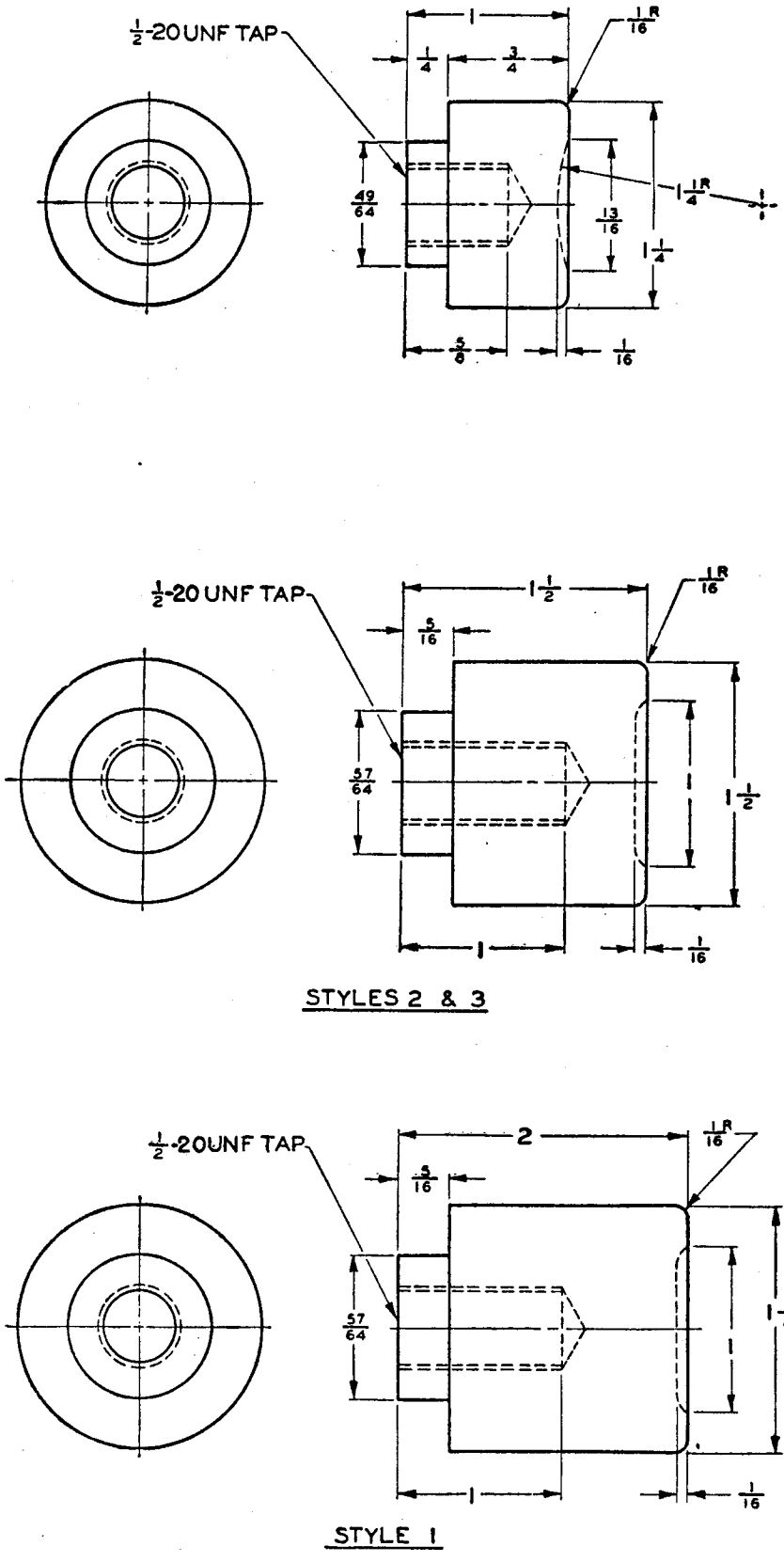
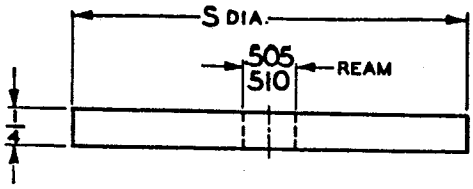


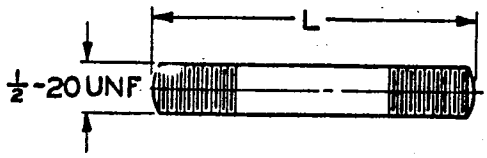
FIGURE 18. *Insulating grips for master disks, range above 1.510 to and including 8.010 inches.*

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



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

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 3/8	2 1/2	1 3/8
2.510	8.010	2	3 1/8	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 110, 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.

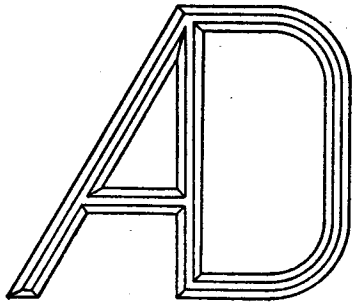


FIGURE 19. *Official monogram for designating products made to American Gage Design Standards.*

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 110 to 113, be adhered to whenever practicable.

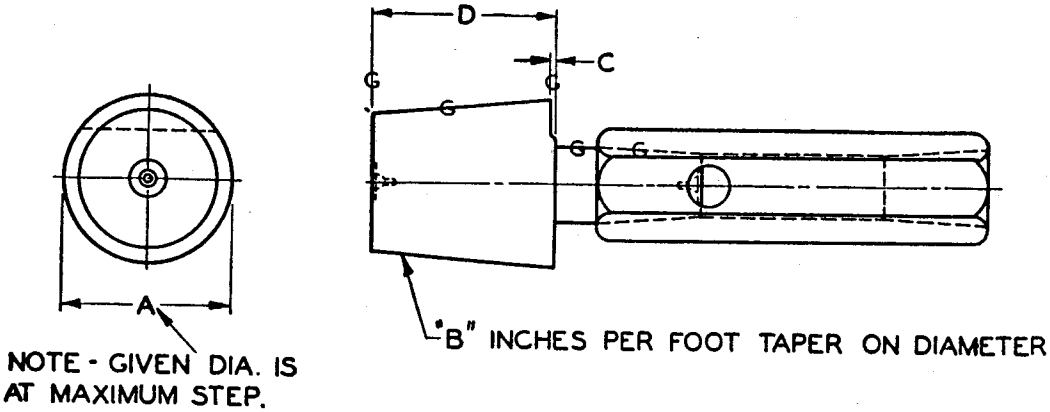


FIGURE 20. *Recommended design of taper plug gage for special applications and method of dimensioning.*

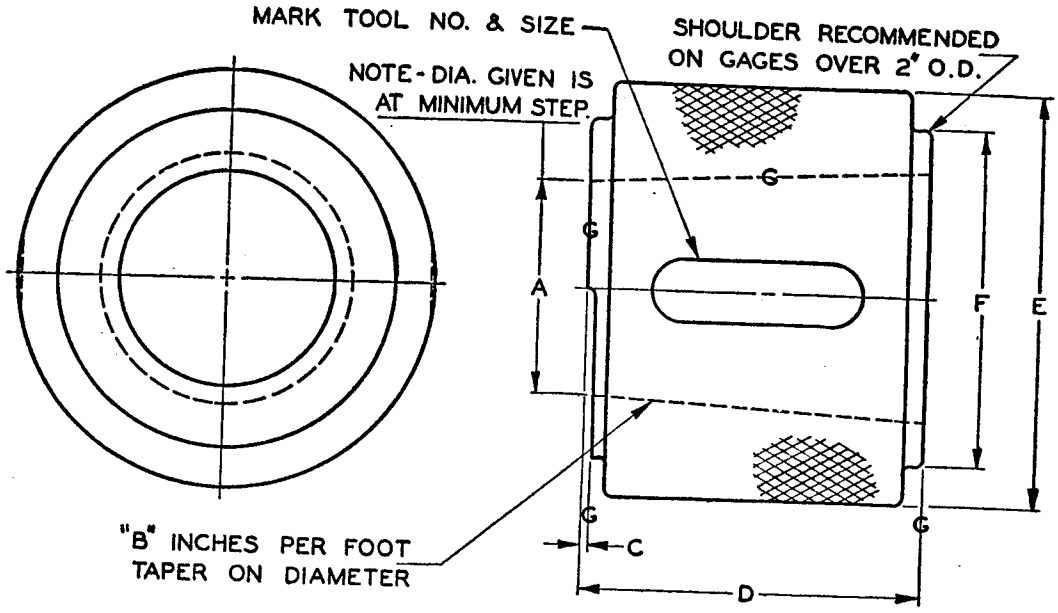


FIGURE 21. *Recommended design of taper ring gage for special applications and method of dimensioning.*

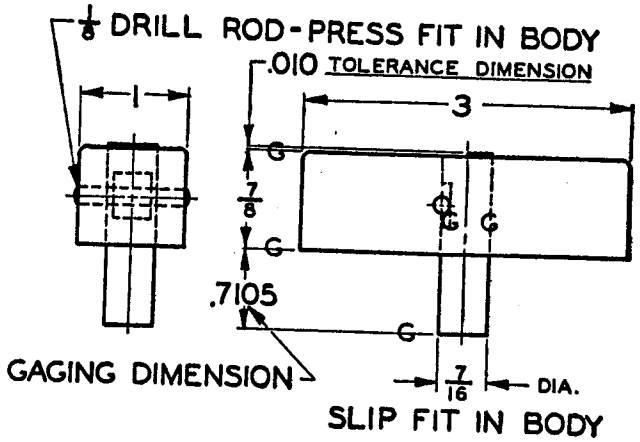


FIGURE 22. *Recommended design of short flush pin gage and method of dimensioning.*

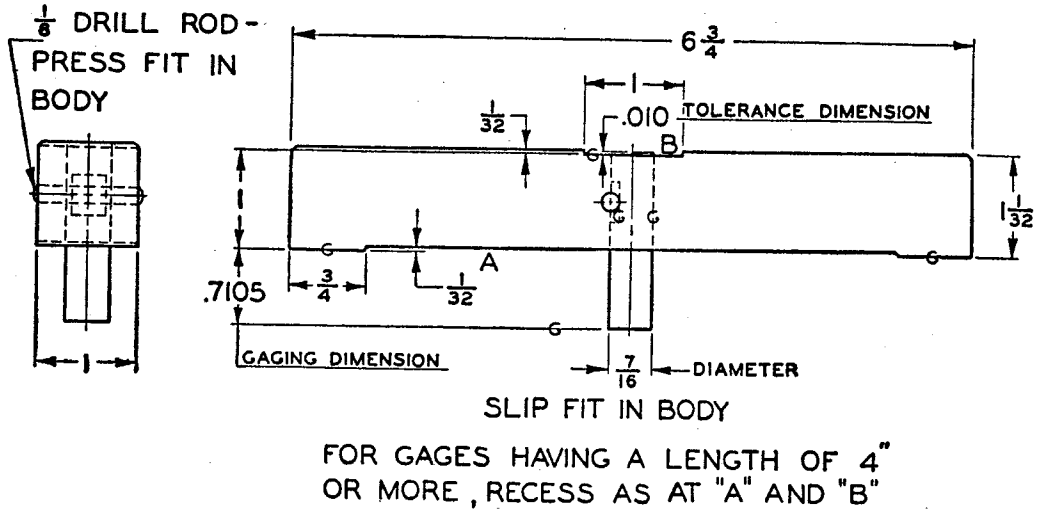


FIGURE 23. *Recommended design of long flush pin gage and method of dimensioning.*

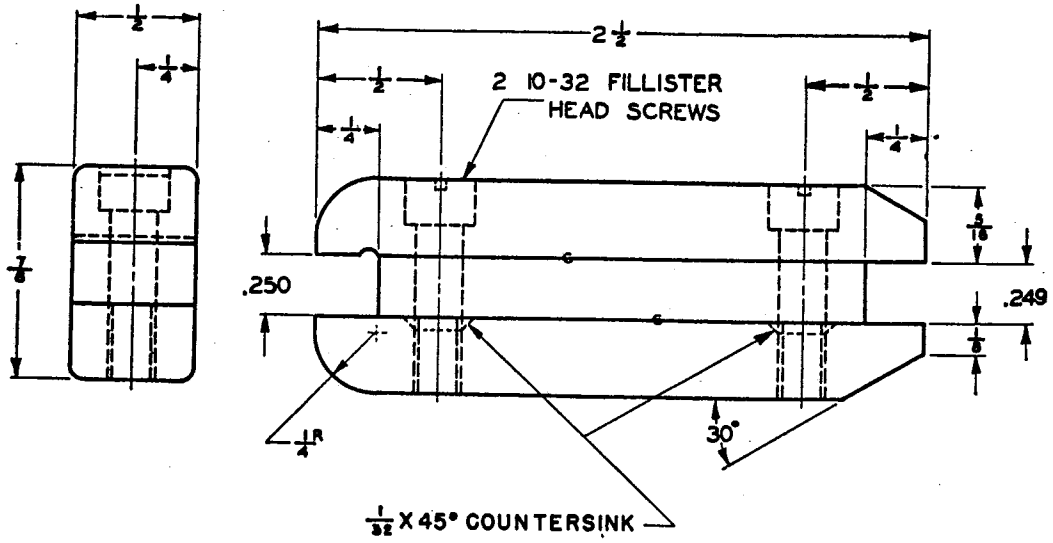
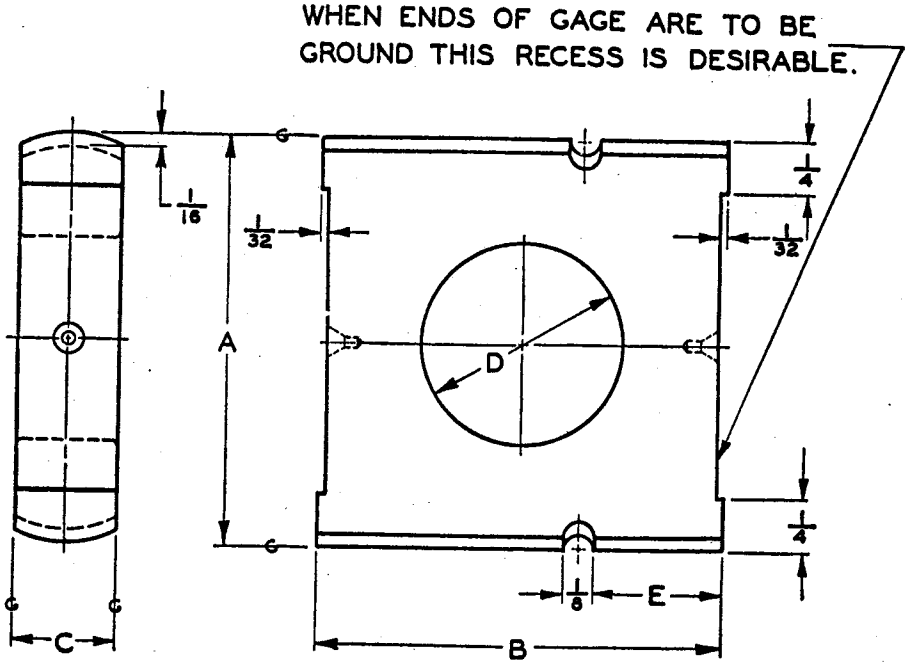


FIGURE 24. *Recommended design of built-up snap gage.*

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



DIMENSIONS B, D, AND E TO SUIT

A Range in diameters		*C* Thickness
Above—	To and including—	
in.	*in.*	*in.*
1.510	2.010	7/16
2.010	2.510	1/2
2.510	3.010	9/16
3.010	3.510	5/8
3.510	4.010	11/16
4.010	5.010	3/4
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 Standing Committee and representative manufacturers, distributors and users, this commercial standard was issued by the United States Department of Commerce, effective from April 15, 1951.

EDWIN W. ELY,
Chief, Commodity Standards Division.

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 4½ 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.

Project Managers: F. E. Powell and A. S. Best, Commodity Standards Division, Office of Industry and Commerce.
Technical Adviser: I. H. Fullmer, Gage Section, Optics and Metrology Division, National Bureau of Standards.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or the Commodity Standards Division, Office of Industry and Commerce, U. S. Department of Commerce, which acts as secretary for the committee.

H. B. HAMBLETON, *chairman*

H. B. HAMBLETON, Colonel, U. S. A. (Retired), Brielle, N. J.
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AMERICAN GAGE DESIGN COMMITTEE

The following, among others, have participated in the work of the American Gage Design Committee:

Chairman: H. B. Hambleton.

Chairman emeritus: J. O. Johnson.

Erik Aldeborgh,[3] The Standard Gage Co., Poughkeepsie, N. Y.
Warren Ames,[3] B. C. Ames Co., Waltham, Mass.
A. D. Anderson,[1] U. S. Naval Gun Factory, Washington, D. C.
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J. C. Bath,[1] John Bath & Co., Worcester, Mass.
A. S. Beam,[1] Vinco Corp., Detroit, Mich.
H. W. Bearce (secretary, A.G.D.C. 1926–44), Hebron, Maine.
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See footnotes on page 119.

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Harold Souder,[1] Detroit Arsenal, Centerline, Mich.
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G. H. Stimson,[1] Greenfield Tap & Die Corp., Greenfield, Mass.
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S. B. Terry,[1] Munitions Board, Washington, D. C.
F. P. Tisch,[1] Pheoll Manufacturing Co., Chicago, Ill.
H. L. Van Keuren, The Van Keuren Co., Boston, Mass.
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W. B. Walker,[1] Rock Island Arsenal, Rock Island, Ill.
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See footnotes on page 119.

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Charles E. Winter, Winter Brothers Co., Wrentham, Mass.
George R. Worner, Taylor Instrument Cos., Rochester, N. Y.

[1] Member of technical subcommittee.
[2] Member of editorial subcommittee.
[3] Member of dial indicator subcommittee.

ACCEPTORS

A list of the organizations that have individually accepted this standard for use as far as practicable in the production, distribution, or purchase of gage blanks will be furnished upon application to the Commodity Standards Division, United States Department of Commerce, Washington 25, D. C.

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 Industry and Commerce,
U. S. Department of Commerce,
Washington 25, D. C.

Gentlemen:

We believe that the Commercial Standard CS8–51 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production[1] distribution[1] purchase[1]

of gage blanks. We reserve the right to depart from it 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 which one. 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 commercial 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.

* U.S. GOVERNMENT PRINTING OFFICE : 1959 O—511805

1955 Supplement to Commercial Standard CS8-51

GAGE BLANKS

A RECORDED VOLUNTARY STANDARD OF THE TRADE

U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary

OFFICE OF TECHNICAL SERVICES
Commodity Standards Division

IN COOPERATION WITH
NATIONAL BUREAU OF STANDARDS

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price 10 cents

COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Technical Services and with the National Bureau of Standards.

The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or 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 enforcible through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or a Commercial Standard originates 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 effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action.

UNITED STATES DEPARTMENT OF COMMERCE

Sinclair Weeks, Secretary

Gage Blanks

[Supplement Effective July 1, 1955]

Introduction

The purpose of this supplement to Commercial Standard CS8–51 is to provide additional data for gage blanks adopted by the American Gage Design Committee as American Gage Design Standards.

This supplement is to be used in conjunction with the 1951 edition of the Commercial Standard. The list which follows is given to facilitate reference to the tables, paragraphs, and figures that are affected by the data presented in this supplement.

REFERENCES TO ADDITIONS AND CHANGES

Commercial Standard CS8–51	1955 Supplement		Commercial Standard CS8–51	1955 Supplement	
Page	Item	Page	Page	Item	Page
2	Paragraph 1.2	3	39–40	Table 26	14
2	Paragraph 2.1	3	41–42	Table 27	14
6	Paragraph 3.1.2.1	4	53	Table 37	14
7	Paragraph 3.2.1	4	54	Table 38	14
8	Figure 1A	4–5	55	Table 39	14
9	Table 1	5	58	Table 42	14
10	Table 2	6	59	Table 43	14
10	Tables 2A and 2B	6–7	60	Table 44	14
10	Table 3	8	61	Table 45	15
11	Table 4	9	62	Table 46	15
13	Table 6	9	63	Table 47	15
14	Table 7 (figures)	9	64	Table 48	16
15	Table 8A	9	66	Table 50 (figure)	16
19	Paragraph 3.3.1	10	68	Table 51	16
21	Figure 2	10	70	Table 52	16
22	Table 13A	11	72	Table 53	16
27	Table 18	11	78	Paragraph 3.10.9	16
28	Table 19	11	92	Figure 11	16
29	Table 20	12	93	Paragraph 3.11.5	16
30	Tables 21 and 22	13			

1. SCOPE

Page 2, following paragraph 1.1, add paragraph 1.2:

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

Page 2, paragraph 2.1. Add the following definition:

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

3. DETAILS OF CONSTRUCTION, AMERICAN GAGE DESIGN STANDARDS

Page 6, paragraph 3.1.2.1. Revise to read:

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.

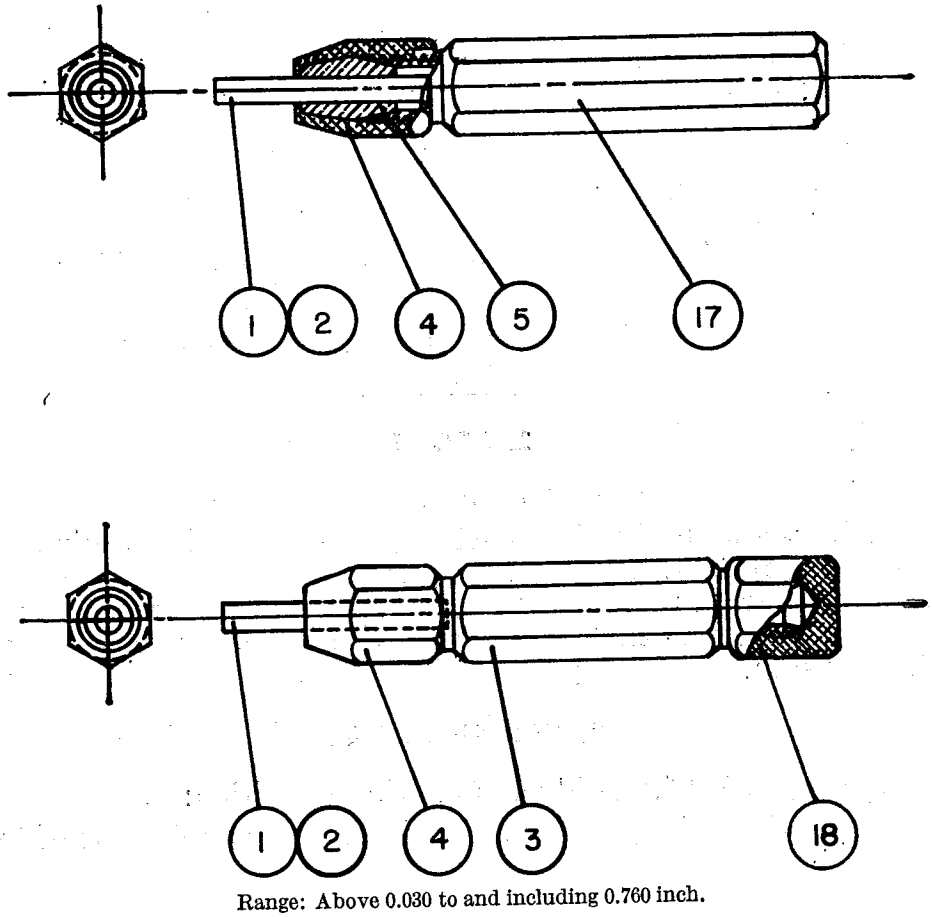
Page 7, paragraph 3.2.1. Revise to read:

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 the single-end type is covered in this standard. 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, 23, and 28.

Page 8, figure 1A.

Change the legend for the view at top of page from "Range: Above 0.030 to and including 0.510 inch" to "Range: Above 0.030 to and including 0.760 inch."

Add to figure 1A, below the view at top of page, the following two views and legend:



Range: Above 0.030 to and including 0.760 inch.

Under figure 1A, make the following additions and changes in the legend pertaining to parts:

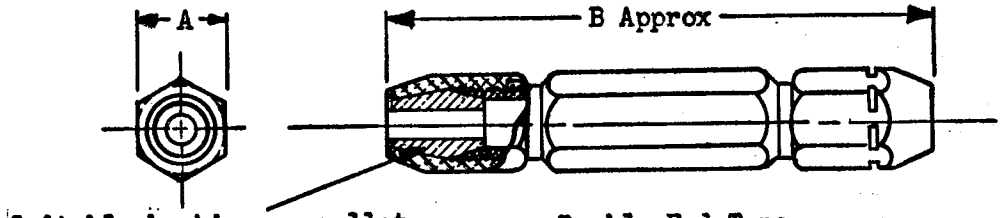
Change No. 3 from "Wire type handle" to "Double-end wire type handle."

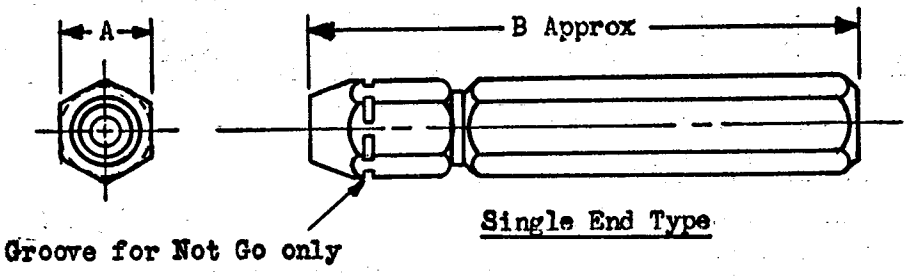
Add: No. 17. Single-end wire type handle.

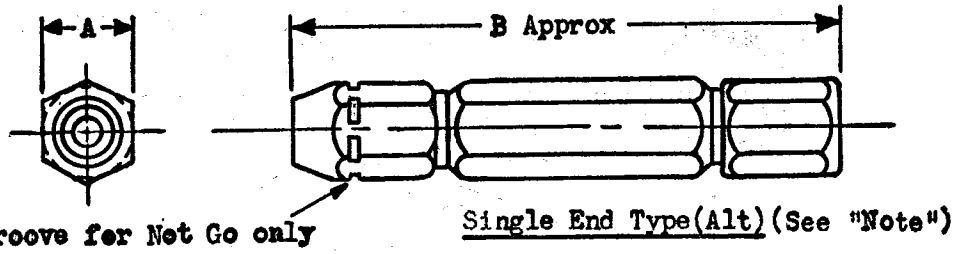
Add: No. 18. Capping nut.

Page 9, table 1. Delete this table and substitute the following:

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*







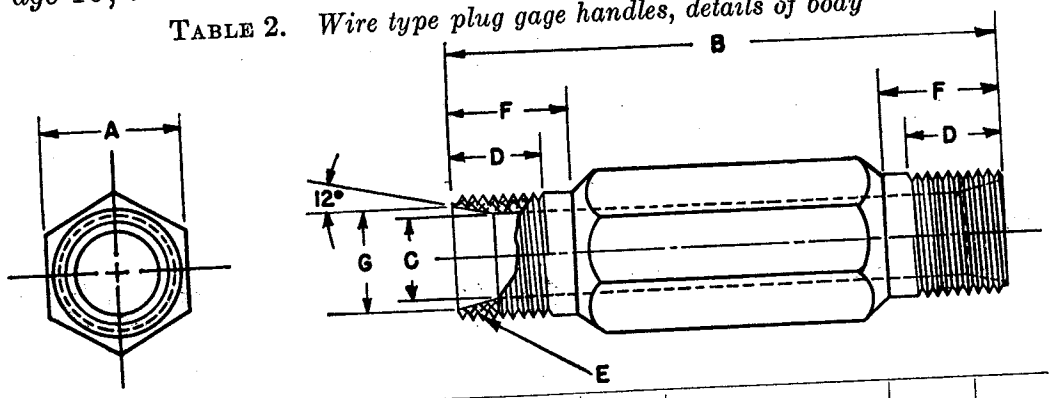
NOTE.—The alternate single-end type is a double-end type converted to suit single-end applications.

Handle size No.			Size range, nominal		*A*	*B*
Double end	Single end	Single end (alt.)	Above—	To and including—		
			in.	*in.*	*in.*	*in.*
1 W	1 W-S	1 W-A	0.030	0.075	1/4	1 29/32
2 W	2 W-S	2 W-A	.075	.180	3/8	2 15/32
3 W	3 W-S	3 W-A	.180	.281	9/16	3 1/8
4 W	4 W-S	4 W-A	.281	.406	1 1/16	3 19/32
5 W	5 W-S	5 W-A	.406	.510	1 3/16	4 3/16
6 W [1]	6 W-S [1]	6 W-A [1]	.510	.635	1 5/16	4 17/32
7 W [1]	7 W-S [1]	7 W-A [1]	.635	.760	1 1/16	4 21/32

[1] Nos. 6 W and 7 W sizes were added to items previously reviewed by the acceptors (pages 19–20), upon approval by the technical subcommittee, American Gage Design Committee, in order to provide all available information on wire type gages in general use in the industry.

Page 10, table 2. Delete this table and substitute the following:

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

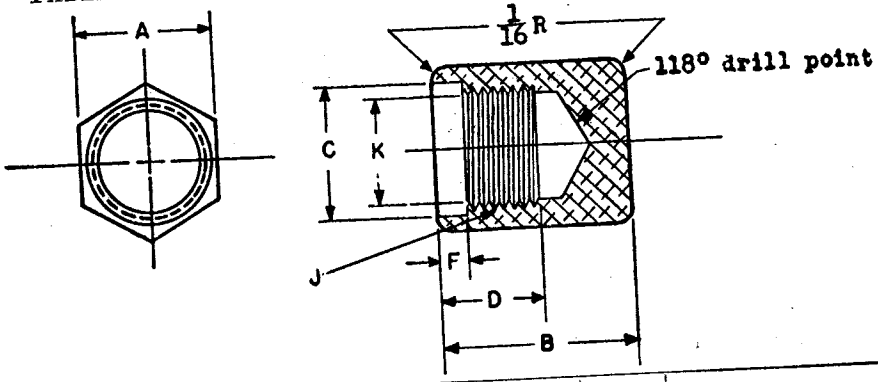


Handle size No.	Size range		A	B	C	D	E	F	G
	Above—	To and including—							
	in.	*in.*	*in.*	*in.*	*in.*	*in.*		*in.*	*in.*
1 W	0.030	0.075	¼	1 5/16	3/32	9/32	No. 12-32NEF-2A	21/64	0.151
2 W	.075	.180	3/8	1 27/32	3/16	5/16	5/16-32NEF-2A	7/16	.235
3 W	.180	.281	9/16	2 1/8	19/64	13/32	½-28UNEF-2A	½	.348
4 W	.281	.406	11/16	2 19/32	27/64	7/16	5/8-28UNS-2A	5/8	.473
5 W	.406	.510	13/16	3 1/16	33/64	5/8	¾-28UNS-2A	¾	.588
6 W [1]	.510	.635	15/16	3¼	41/64	5/8	7/8-28UNS-2A	¾	.740
7 W [1]	.635	.760	1 1/16	3 3/8	49/64	5/8	1-28UNS-2A	¾	.865

[1] See footnote 1, table 1, of this supplement.

Page 10. Add tables 2A and 2B:

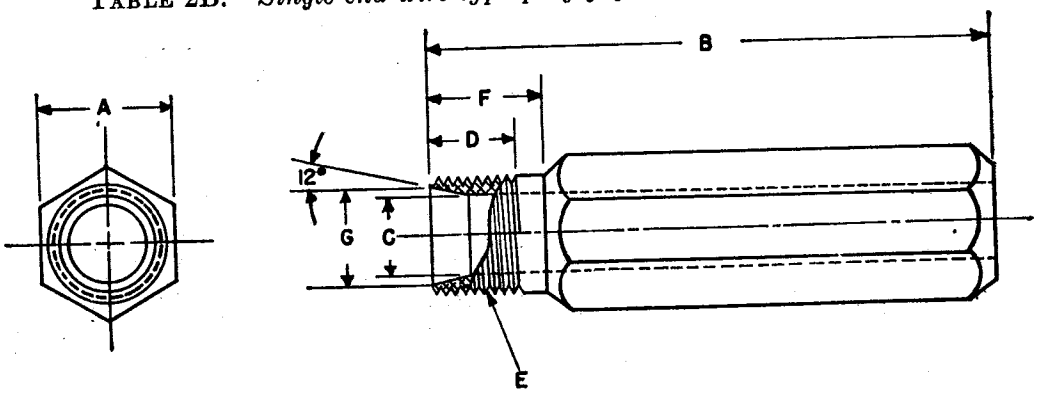
TABLE 2A. *Wire type plug gage handles, details of capping nut*



Handle size No.	Size range, nominal		A	B	C	D	F	J	K (minor diameter)
	Above—	To and including—							
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*		*in.*
1 W-A	0.030	0.075	¼	5/8	0.220	5/16	3/32	No. 12-32NEF-2B	0.182
					.230				.190
2 W-A	.075	.180	3/8	1 1/16	.316	3/8	1/8	5/16-32NEF-2B	.279
					.326				.286
3 W-A	.180	.281	9/16	1 5/16	.504	7/16	1/8	½-28UNEF-2B	.461
					.514				.470
4 W-A	.281	.406	11/16	1 1/16	.630	9/16	¼	5/8-28UNS-2B	.586
					.640				.595
5 W-A	.406	.510	13/16	1¼	.755	11/16	3/16	¾-28UNS-2B	.711
					.765				.720
6 W-A [1]	.510	.635	15/16	1 9/32	.880	11/16	3/16	7/8-28UNS-2B	.836
					.890				.845
7 W-A [1]	.635	.760	1 1/16	1 9/32	1.005	11/16	3/16	1-28UNS-2B	.961
					1.015				.970

[1] See footnote 1, table 1, of this supplement.

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

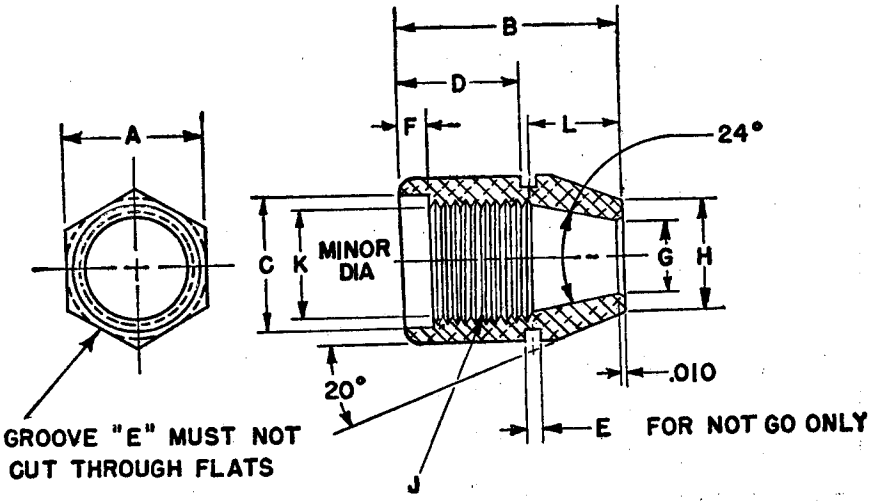


Handle size No.	Size range, nominal: Above—	Size range, nominal: To and including—	A	B	C	D	E	F	G
	in.	*in.*	*in.*	*in.*	*in.*	*in.*		*in.*	*in.*
1 W-S	0.030	0.075	1/4	1 5/8	3/32	9/32	No. 12-32NEF-2A	21/64	0.151
2 W-S	.075	.180	3/8	2 5/32	3/16	5/16	5/16-32NEF-2A	7/16	.235
3 W-S	.180	.281	9/16	2 5/8	19/64	13/32	1/2-28UNEF-2A	1/2	.348
4 W-S	.281	.406	1 1/16	3 3/32	27/64	7/16	5/8-28UNS-2A	5/8	.473
5 W-S	.406	.510	1 3/16	3 5/8	33/64	5/8	3/4-28UNS-2A	3/4	.588
6 W-S [1]	.510	.635	1 5/16	3 7/8	41/64	5/8	7/8-28UNS-2A	3/4	.740
7 W-S [1]	.635	.760	1 1/16	4	49/64	5/8	1-28UNS-2A	3/4	.865

[1] See footnote 1, table 1, of this supplement.

Page 10, table 3. Delete this table and substitute the following:

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—											
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*		*in.*	*in.*
1 W	0.030	0.075	1/4	9/16	0.220 .230	1 1/32	1/32	3/32	0.078	7/32	No. 12-32NEF-2B	0.182 .190	5/32
2 W	.075	.180	3/8	11/16	.316 .326	7/16	1/32	1/8	.185	5/16	5/16-32NEF-2B	.279 .286	7/32
3 W	.180	.281	9/16	15/16	.504 .514	1/2	1/16	1/8	.285	7/16	1/2-28UNEF-2B	.461 .470	13/32
4 W	.281	.406	11/16	1 1/16	.630 .640	5/8	1/16	1/4	.412	9/16	5/8-28UNS-2B	.586 .595	7/16
5 W	.406	.510	13/16	1 1/4	.755 .765	3/4	1/16	3/16	.515	2 1/32	3/4-28UNS-2B	.711 .720	1/2
6 W [1]	.510	.635	15/16	1 9/32	.880 .890	1 3/16	1/16	3/16	.640	3/4	7/8-28UNS-2B	.836 .845	1/2
7 W [1]	.635	.760	1 1/16	1 9/32	1.005 1.015	1 3/16	1/16	3/16	.765	7/8	1-28UNS-2B	.961 .970	1/2

[1] See footnote 1, table 1, of this supplement.

Page 11, table 4. Add the following items:

Bushing No.	Size range	Bushing No.	Size range
6-W-.532	.510-.532	7-W-.656	.635-.656
6-W-.547	.532-.547	7-W-.672	.656-.672
6-W-.563	.547-.563	7-W-.688	.672-.688
6-W-.579	.563-.579	7-W-.704	.688-.704
6-W-.594	.579-.594	7-W-.719	.704-.719
6-W-.610	.594-.610	7-W-.735	.719-.735
6-W-.625	.610-.625	7-W-.750	.735-.750
6-W-.635	.625-.635	7-W-.760	.750-.760

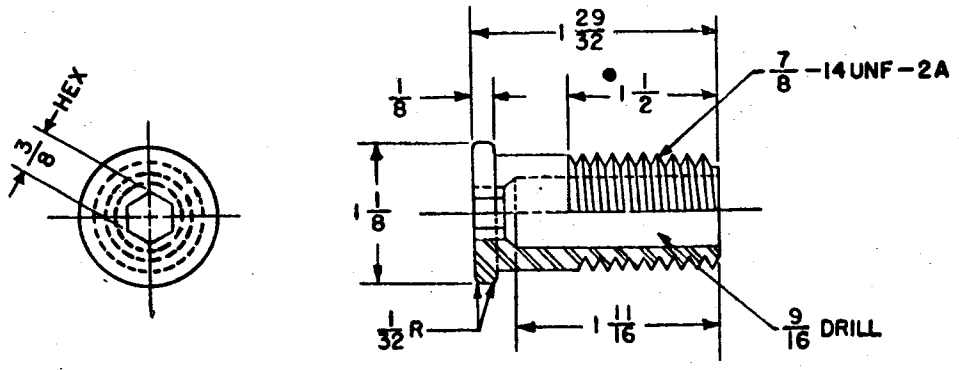
Page 13, table 6.

For handle size No. 5, dimension *A*, change 1 to 1⅛.

Page 14, table 7.

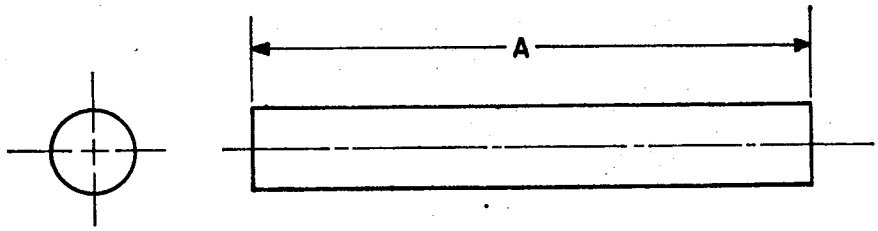
On illustration, add dimension *C* to counterbore diameter on locking-prong end.

Under table 7, add design shown below for screw No. 2. Design for screw No. 2 shown in CS8–51 becomes the alternate design.



Page 15. Add table 8A:

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* [2]
	Above—	To and including—	
	in.	*in*	*in.*
1 W, 1 W-S, or 1 W-A	0.030	0.075	1
2 W, 2 W-S, or 2 W-A	.075	.180	1¼
3 W, 3 W-S, or 3 W-A	.180	.281	1½
4 W, 4 W-S, or 4 W-A	.281	.406	1¾
5 W, 5 W-S, or 5 W-A	.406	.510	2
6 W, 6 W-S, or 6 W-A [1]	.510	.635	2
7 W, 7 W-S, or 7 W-A [1]	.635	.760	2

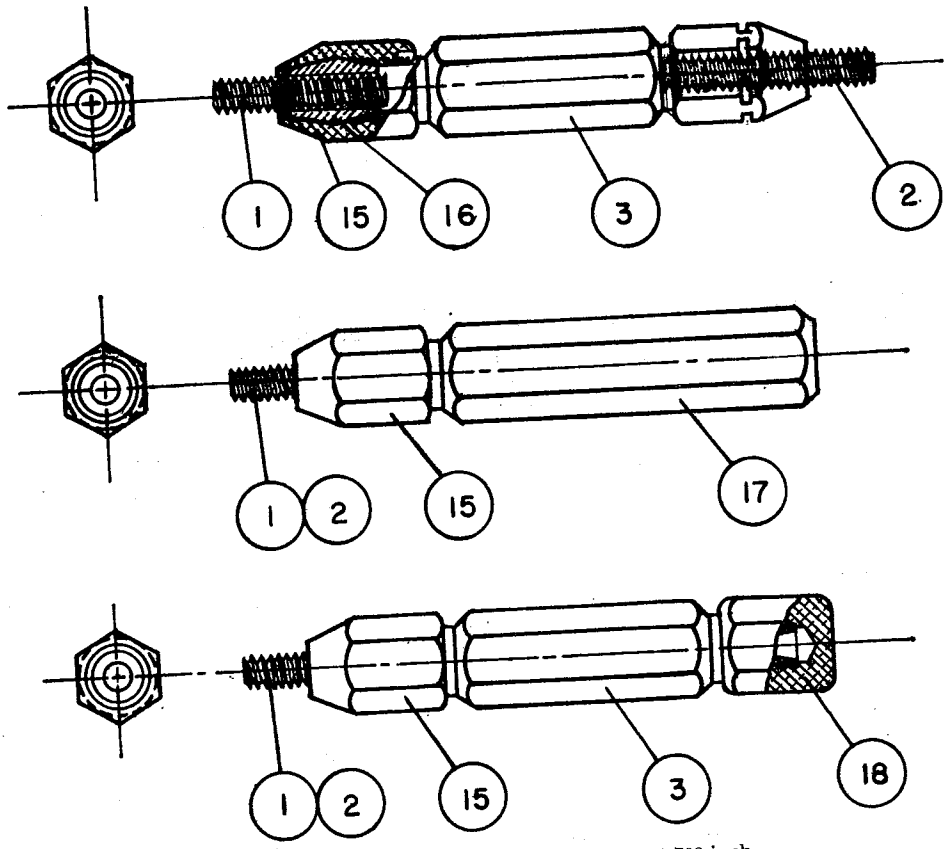
[1] See footnote 1, table 1, of this supplement.

[2] Lengths shown for *A* in ranges above 0.030 in. to and including 0.510 in. are minimum. Commercially available lengths exceeding these values shall be considered as acceptable alternates.

Page 19, paragraph 3.3.1. Delete the first sentence and substitute the following:

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 5 to 19, 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.

Page 21, figure 2. Add the following views and legend to this figure:



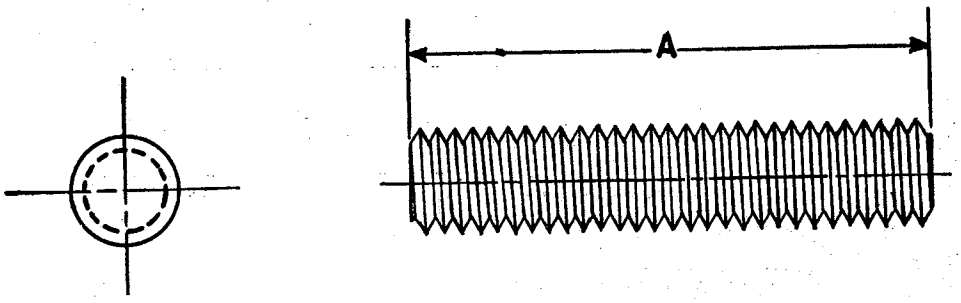
Range: Above 0.059 to and including 0.760 inch.

In the legend under the figure, add the following pertaining to parts:

No. 3. Double-end wire type handle.
No. 15. Clamping nut.
No. 16. Threaded collet bushing to hold gaging member firmly.
No. 17. Single-end wire type handle.
No. 18. Capping nut.

Page 22. Add table 13A:

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 [2]	
	Nominal range, inclusive		Decimal range			
	From—	To—	Above—	To and including—	"Go"	"Not go"
	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	½	½
2 W, 2 W-S, or 2 W-A	No. 2	No. 5	.075	.130	⅝	⅝
2 W, 2 W-S, or 2 W-A	No. 6	No. 8	.130	.180	¾	¾
3 W, 3 W-S, or 3 W-A	No. 10	¼	.180	.281	⅞	⅞
4 W, 4 W-S, or 4 W-A	¼	5/16	.281	.320	1	1
4 W, 4 W-S, or 4 W-A	5/16	⅜	.320	.406	1⅛	1⅛
5 W, 5 W-S, or 5 W-A	⅜	7/16	.406	.450	1¼	1¼
5 W, 5 W-S, or 5 W-A	7/16	½	.450	.510	1⅜	1⅜
6 W, 6 W-S, or 6 W-A [1]	½	⅝	.510	.635	1½	1⅜
7 W, 7 W-S, or 7 W-A [1]	⅝	¾	.635	.760	1¾	1⅜

[1] See footnote 1, table 1, of this supplement.
[2] These lengths apply to standard and special diameter-pitch combinations not covered by table 18. Lengths shown for *A* in ranges above 0.030 in. to and including 0.510 in. are minimum. Commercially available lengths exceeding these values shall be considered as acceptable alternates.

Page 27, table 18. Change title to read:

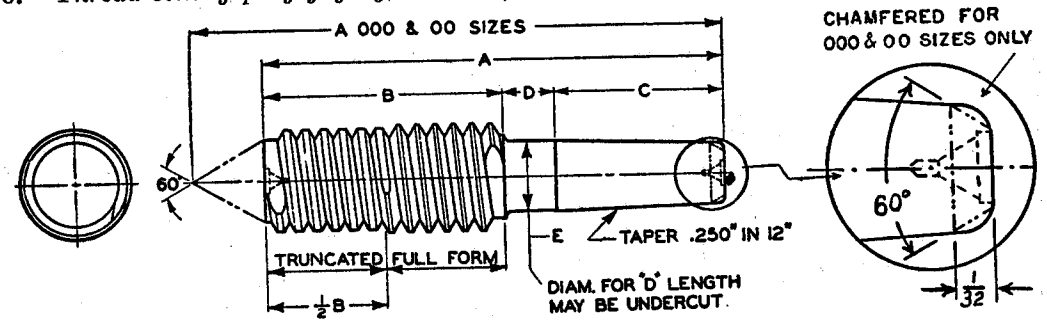
TABLE 18. *Fine-pitch instrument thread plug gaging members, taper lock design, range No. 0 to 1½ inches, inclusive.*

Page 28, table 19. Change title to read:

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

Page 29, table 20. Delete this table and substitute the following new illustration and table:

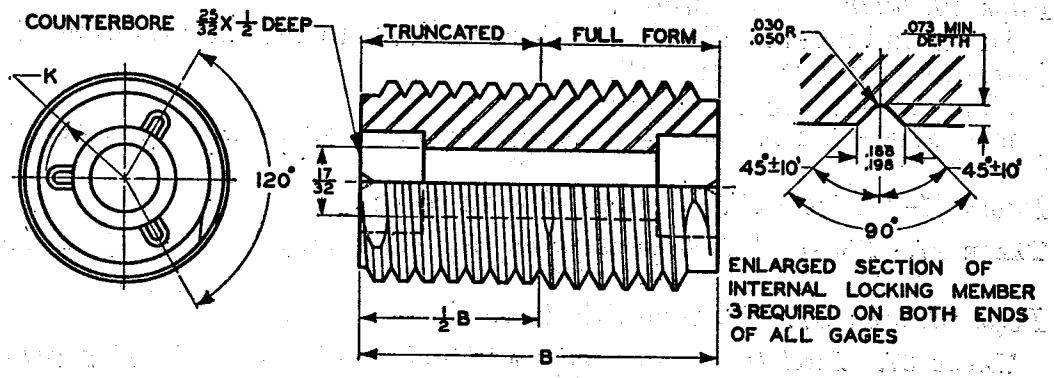
TABLE 20. *Thread-setting plug gaging members, truncated type, range No. 0 to 1½ inches, inclusive*



Handle size No.	Thread diameters				General dimensions									
	Nominal range, inclusive		Decimal range		For thin ring		For thick ring		For fine-pitch instrument thread ring		C	D	E	
	From—	To—	Above—	To and including—	A	B	A	B	A	B			Min	Max
	No. or in.	No. or in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
000	No. 0	No. 2	0.059	0.090	1	7/32					½		0.125	0.126
000	No. 3	No. 3	.090	.105	1 3/32	3/8					½		.125	.126
00	No. 4	No. 6	.105	.150	1 7/32	3/8					9/16		.155	.156
0	No. 8	No. 12	.150	.240	1 9/32	13/32					5/8	¼	.180	.181
1	¼	5/16	.240	.365	1¾	¾			1 9/16	9/16	¾	¼	.239	.240
2	3/8	½	.365	.510	2	1			1 11/16	1 1/16	¾	¼	.309	.310
3	9/16	¾	.510	.825	2¼	1¼	2 7/8	1 7/8	2	1	¾	¼	.408	.410
4	⅞	1⅛	.825	1.135	2 11/16	1½	3 5/16	2⅛	2 5/16	1⅛	⅞	5/16	.608	.610
5	1¼	1½	1.135	1.510	3.	1⅝	3¾	2⅜	2 11/16	1 5/16	1	⅜	.808	.810

Page 30, table 21. Delete this table and substitute the following new table (no change in illustration):

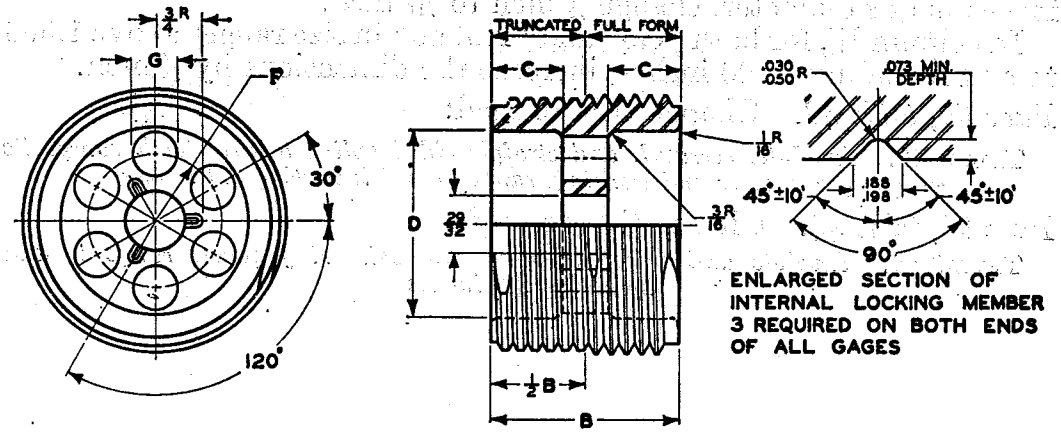
TABLE 21. *Thread-setting plug gaging members, truncated type, range above 1½ to and including 2½ inches*



Handle size No.	Thread diameters				B			
	Nominal range		Decimal range		K (radius)	For thin ring	For thick ring	For fine-pitch instrument thread ring
	From—	To—	Above—	To and including—				
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
5½	1½	2	1.510	2.010	5/8	1 7/8	2 7/8	1 5/16
6	2	2½	2.010	2.510	1 1/16	2	3	1 7/16

Page 30, table 22. Delete this table and substitute the following new table (no change in illustration):

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			
	in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
7	2½	3	2.510	3.010	1 7/8	9/16	3	1 1/8	1 7/8		
7	3	3½	3.010	3.510	2	5/8	3 1/8	1 1/8	2 1/4		
7	3½	4	3.510	4.010	2	5/8	3 1/4	1 3/16	2 5/8		
7	4	4¾	4.010	4.760	2 1/8	1 1/16	3 1/4	1 3/16	3	1 1/16	3/4
7	4¾	5½	4.760	5.510	2 1/8	1 1/16	3 1/4	1 3/16	3 7/16	1 3/16	1 3/16
7	5½	6¼	5.510	6.260	2 1/8	1 1/16	3 1/4	1 3/16	4 5/16	1 3/8	1

Pages 39–40, table 26. Change title to read:

TABLE 26. *Thread ring gages, range No. 0 to and including 4¾ inches; also fine-pitch instrument thread ring gages, No. 0 to and including No. 12*

Page 40, table 26 (continued).

In "Nominal range" column, item "Nos. 8 to 12," add reference to footnote 1 after the figure 12.

Change footnote 1 to read:

[1] Blanks for the range Nos. 0 to 12, inclusive, may be either counterbored or milled, as shown in illustration above.

Pages 41–42, table 27. Change title to read:

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

Page 53, table 37. Change title to read:

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

Page 54, table 38. Change title to read:

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

Page 55, table 39. Change title to read:

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

In column *B*, for size ranges above 1.500 to and including 7.000 inches major diameter, change ⅛ inch to 3/16 inch.

In column *W*, for both "Go" and "Not go" in size ranges above 1.500 to and including 7.000 inches, increase the dimensions by ⅛ inch.

Page 58, table 42.

In column *B*, for size ranges above 1.500 to and including 7.000 inches major diameter, change ⅛ inch to 3/16 inch.

In column *W*, for both "Go" and "Not go" in size ranges above 1.500 to and including 7.000 inches, increase the dimensions by ⅛ inch.

Page 59, table 43. Change title to read:

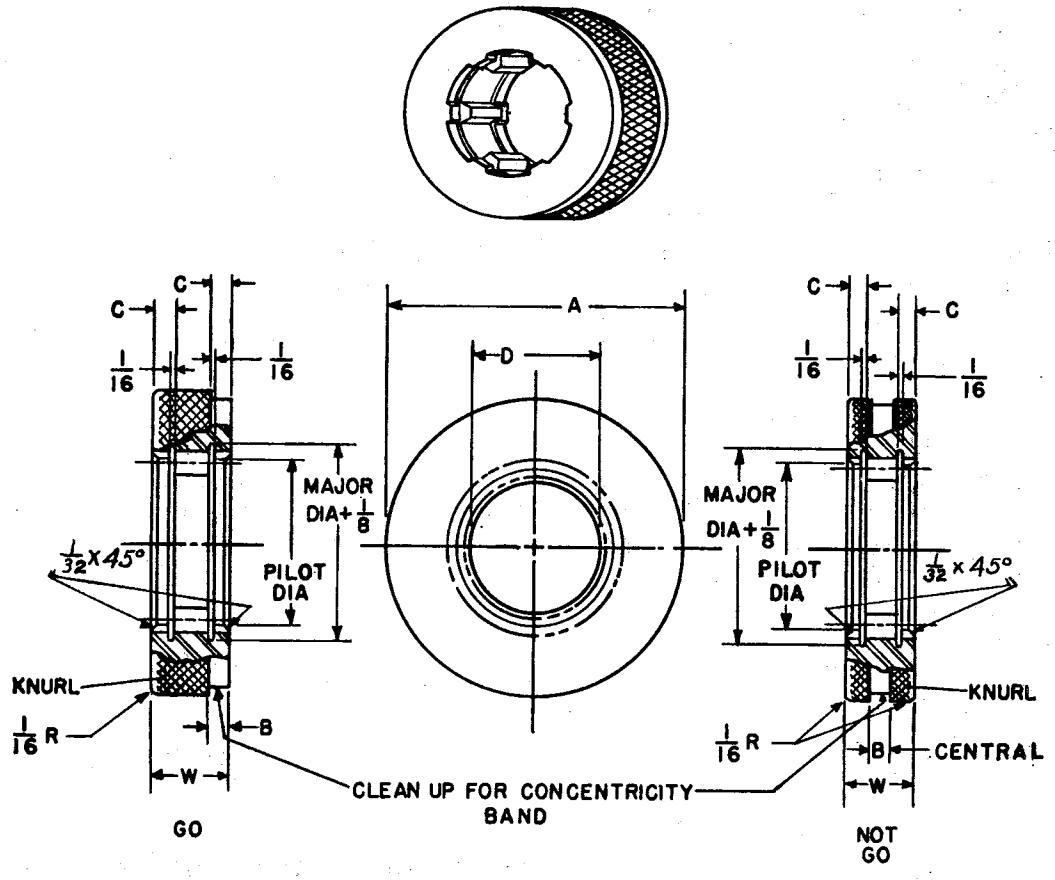
TABLE 43. *Involute, serrated, and straight-sided spline tapered-tooth composite plug gages, master and working, range to and including 8.0 inches*

Page 60, table 44. Change title to read:

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

Page 61, table 45. Delete this table and substitute the following:

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"
in.	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
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 5/8	1 1/4	1 1/8
3.000	4.000	6	1/4	1/4	2 3/8	1 1/4	1 1/8
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 5/8	1 3/8
7.000	8.000	10 1/2	1/4	1/4	6 3/8	1 5/8	1 3/8

Page 62, table 46. Change title to read:

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*

On the illustration, change "J+1/16" to "J+1/8."

Page 63, table 47. Change title to read:

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.*

On the illustration, change "J+1/16" to "J+1/8."

In column *F*, for size ranges above 0.000 to and including 3.000 inches, change 5/16 inch to 3/16 inch.

Page 64, table 48. Change title to read:

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

On the illustration, change "J+1/16" to "J+1/8."

Page 66, table 50. On the illustration, change end view to show *R* as the tang diameter.

Page 68, table 51.

In column *C*, for blank No. 23, change 4¼ inches to 4⅜ inches.

In column *D*, for blank No. 23, change 4⅜ inches to 4¼ inches.

Page 70, table 52. In column *K*, for blank No. 30, change 3.1552 inches to 3.1562 inches.

Page 72, table 53. In column *I*, for blank No. 43, change 3.1552 inches to 3.1562 inches.

Page 78. Add paragraph 3.10.9:

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.

Page 92, figure 11.

View showing locking screw: Change overall dimension for screw from 15/64 to ¼; delete 5/32 dimension under head.

View showing locking bushing: Insert dimension of 5/64 for depth of counterbore.

Page 93. Add paragraph 3.11.5:

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.

4. EFFECTIVE DATE

4.1. Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this Supplement to Commercial Standard CS8–51 was issued by the United States Department of Commerce, effective from July 1, 1955.

EDWIN W. ELY,
Chief, Commodity Standards Division.

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 the 1955 Supplement to Commercial Standard CS8–51 constitutes a useful standard of practice, and we individually plan to utilize the standard and supplement as far as practicable in the

production[1] distribution[1] purchase[1]

of gage blanks. We reserve the right to depart from them 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.

ACCEPTORS

The organizations listed below have individually accepted this standard and supplement for use as far as practicable in the production, distribution, or purchase of gage blanks. In accepting this standard they reserved the right to depart from it as they individually deem advisable. It is expected that articles which actually comply with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

FIRMS AND OTHER INTERESTS

American Blower Corp., Detroit, Mich.
American Bosch Division, American Bosch Arma Corp., Springfield, Mass.
American Screw Co., Willimantic, Conn.
Ames, B. C., Co., Waltham, Mass.
Automotive Gear Works, Inc., Richmond, Ind.
Bailey Meter Co., Cleveland, Ohio
Barber-Colman Co., Rockford, Ill.
Bath, John, & Co., Inc., Worcester, Mass.
Bendix Products Division of Bendix Aviation Corp., South Bend, Ind.
Bethlehem Steel Co., Bethlehem, Pa.
Birken Manufacturing Co., Hartford, Conn.
Black & Decker Manufacturing Co., Towson, Md.
Boeing Airplane Co., Seattle, Wash.
Briggs & Stratton Corp., Milwaukee, Wis.
Brown & Sharpe Manufacturing Co., Providence, R. I.
Browne & Lail Co., Inc., Santa Monica, Calif.
Bryant Chucking Grinder Co., Springfield, Vt.
Bullard Co., Bridgeport, Conn.
Cadillac Gage Co., Detroit, Mich.
Card, S. W., Manufacturing Co., Division Union Twist Drill Co., Mansfield, Mass.
Cheshire Products, Inc., Hamden, Conn.
Chevrolet—Central Office, Division of General Motors Corp., Detroit, Mich.
Chicago Screw Co., Bellwood, Ill.
Chrysler Corp., Detroit, Mich.
Cleveland Twist Drill Co., Cleveland, Ohio
Cole-Hersee Co., Boston, Mass.
Crane Co., Chicago, Ill.
Curtiss-Wright Corp., Caldwell, N. J.
Dearborn Gage Co., Dearborn, Mich.
Detroit Tap & Tool Co., Base Line, Mich.
DoAll Co., Des Plaines, Ill.
Dole Valve Co., Chicago, Ill.
Douglas Aircraft Co., Inc., Santa Monica Division, Santa Monica, Calif.
Eaton Manufacturing Co., Axle Division, Cleveland, Ohio
Elco Tool & Screw Corp., Rockford, Ill.
Elgin National Watch Co., Elgin, Ill.
Equitable Engineering Co., Detroit, Mich.
Everard Tap & Die Corp., New York, N. Y.
Fairbanks, Morse & Co., Beloit Works, Beloit, Wis.
Falk Manufacturing Corp., Milwaukee, Wis.
Federal Products Corp., Providence, R. I.
Food Machinery & Chemical Corp., San Jose, Calif.
Ford Motor Co., Dearborn, Mich.
G & H Engineering Service, Long Beach, Calif.
General Controls Co., Glendale, Calif.
General Electric Co., Schenectady, N. Y.
General Motors Corp., Detroit, Mich.
Greenfield Tap & Die Corp., Greenfield, Mass.
Hall Gage & Manufacturing, Inc., East Detroit, Mich.
Hamill Manufacturing Co., Monroeville, Pa.
Hamilton Watch Co., Lancaster, Pa.
Hanson-Whitney Co., Division of Whitney Chain Co., Hartford, Conn.
Huber Tool Works, San Carlos, Calif.
Huron Machine Products Inc., Dearborn, Mich.
International Business Machines Corp., Endicott, N. Y.
International Harvester Co., Inspection Methods, Chicago, Ill.
Jack & Heintz Inc., Cleveland, Ohio
Jeffrey Manufacturing Co., Columbus, Ohio
Johnson Gage Co., Bloomfield, Conn.
King Seeley Corp., Ann Arbor Division, Ann Arbor, Mich.
Laharco Industries, Minneapolis, Minn.
Leeds & Northrup Co., Philadelphia, Pa.
Lincoln Park Industries, Inc., Lincoln Park, Mich.
Lockheed Aircraft Corp., California Division, Burbank, Calif.
Lofstrand Co., Rockville, Md.
Logansport Machine Co., Inc., Logansport, Ind.
Merz Engineering Inc., Indianapolis, Ind.
Michigan, University of, Ann Arbor, Mich.
Micromatic Hone Corp., Detroit, Mich.
Micro-Precision, Inc., Evanston, Ill.
Midwestern Tool Co., Chicago, Ill.
Mine Safety Appliances Co., Pittsburgh, Pa.
Morse Chain Co., Detroit, Mich.
Morse, H. E., Co., Holland, Mich.
Morse Twist Drill & Machine Co., New Bedford, Mass.
National Twist Drill & Tool Co., Rochester, Mich.
Nilsson Gage Co., Inc., Poughkeepsie, N. Y.
Northern Electric Co., Ltd., Montreal, Quebec, Canada
Northrop Aircraft, Inc., Hawthorne, Calif.
Oliver Corp., Charles City, Iowa
Optical Gaging Products Inc., Rochester, N. Y.
Ottney, L. E., & Co., Clawson, Mich.
P & L Manufacturing Co., Inc., Anaheim, Calif.
Pelleo Manufacturing Corp., Mount Vernon, N. Y.
Pheoll Manufacturing Co., Chicago, Ill.
Pipe Machinery Co., Wickliffe, Ohio
Pratt & Whitney Division, Niles-Bement-Pond Co., West Hartford, Conn.
Precision Gage & Tool Co., Dayton, Ohio
Remington Arms Co., Inc., Bridgeport, Conn.
Republic Gage Co., Detroit, Mich.
Scovill Manufacturing Co., Waterbury, Conn.
Sheffield Corp., Dayton, Ohio
Sheppard, R. H., Co., Inc., Hanover, Pa.
Size Control Co., Division of American Gage & Machine Co., Chicago, Ill.
South Shore Tool & Development Inc., Mentor, Ohio
Sperry Gyroscope Co., Great Neck, Long Island, N. Y.
Standard Gage Co., Inc., Poughkeepsie, N. Y.
Standard Tool Co., Cleveland, Ohio
Starrett, L. S., Co., Athol, Mass.
Sun Shipbuilding & Dry Dock Co., Chester, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Swedish Gage Company of America, Dearborn, Mich.
Syntron Co., Homer City, Pa.
Taft-Peirce Manufacturing Co., Woonsocket, R. I.
Taylor Instrument Cos., Rochester, N. Y.
Thompson Products, Inc., Cleveland, Ohio
Threadwell Tap & Die Co., Greenfield, Mass.
Timken Roller Bearing Co., Canton, Ohio
Torrington Co., Torrington, Conn.
Turner Bros., Inc., Ferndale, Mich.
Universal Instruments Corp., Binghamton, N. Y.
Universal Thread Grinding Co., Bridgeport, Conn.
Van Keuren Co., Watertown, Mass.
Wahl, John E., Co., Chicago, Ill. (General support.)
Warner & Swasey Co., Cleveland, Ohio
Westinghouse Electric Corp., Pittsburgh, Pa.
White, S. S., Dental Manufacturing Co., Staten Island, N. Y.
Whittet-Higgins Co., Providence, R. I.
Woodworth, N. A., Co., Detroit, Mich.
York Corp., York, Pa.

U. S. GOVERNMENT AGENCIES

Department of Defense, Standardization Division, Office of Assistant Secretary of Defense (Supply and Logistics).
Department of the Air Force: Headquarters, Air Materiel Command, Wright-Patterson Air Force Base, Ohio.
Department of the Army:
  Chemical Officer, Office of the Chief:
    Engineering Agency, Army Chemical Center, Md.
    Inspection Equipment Agency, Army Chemical Center, Md.
  Engineers, Office of the Chief of: Engineering, Research, and Development Division.
  Ordnance, Office of the Chief of:
    Birmingham (Ala.) Ordnance District.
    Chicago (Ill.) Ordnance District.
    Cincinnati (Ohio) Ordnance District.
    Cleveland (Ohio) Ordnance District.
    Detroit (Mich.) Ordnance District.
Department of the Army—Continued
  Ordnance, Office of the Chief of—Continued
    New York (N. Y.) Ordnance District.
    Philadelphia (Pa.) Ordnance District.
    Picatinny Arsenal, Dover, N. J.
    Pittsburgh (Pa.) Ordnance District.
    Redstone Arsenal, Madison, Ala.
    Rochester (N. Y.) Ordnance District.
    Rock Island (Ill.) Arsenal.
    St. Louis (Mo.) Ordnance District.
    San Francisco Ordnance District, Oakland, Calif. (General support.)
    Springfield (Mass.) Armory.
    Springfield (Mass.) Ordnance District.
    Watertown (Mass.) Arsenal.
    Watervliet (N. Y.) Arsenal.
Department of the Navy:
  Bureau of Ordnance.
  Bureau of Ships.
  U. S. Naval Gun Factory.
Department of Commerce, National Bureau of Standards.

Other Commercial Standards

A list of all effective Commercial Standards may be obtained from the Commodity Standards Division, Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. These publications may be purchased at the prices indicated on the list, which also includes directions for ordering copies.

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