ASME B5.8-2001
[Revision of ANSI B5.8-1972 (R1994)]

CHUCKS AND CHUCK JAWS

AN AMERICAN NATIONAL STANDARD



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FOREWORD

The original edition of this Standard, known as ASA B5.8-1936, was developed by Technical Committee 11 on Chucks and Chuck Jaws of Sectional Committee B5 on the standardization of small tools and machine tool elements.

Sectional Committee B5 was organized in September of 1922 under the procedure of the American Standards Association and is sponsored by the National Machine Tool Builders' Association, the Society of Automotive Engineers, Metal Cutting Tool Institute, and The American Society of Mechanical Engineers.

Technical Committee 11 was organized in New York on December 4, 1928. Technical Committee 4 on spindle noses was organized on December 5, 1928. These two committees worked in close cooperation with each other and with manufacturers and users of engine lathes, turret lathes, and automatic lathes in developing standards for spindle noses and chucks.

A joint preliminary report was issued by these two committees in April, 1930, known as "The April 1930 Report of Technical Committees 4 and 11 on Proposed Standard Spindle Noses and Chucks," and was distributed in industry for criticism and comment in May, 1930.

As a result of suggestions and criticisms and the addition of considerable material offered by industry, the two committees in May, 1935, released designs for chucks which were later incorporated in American Standard Chucks and Chuck Jaws, (ASA B5.8-1936). The companion spindle noses were at that time incorporated in American Standard for Lathe Spindle Noses (ASA B5.9-1936).

In 1943, the Engineering Committee on Standardization of Engine and Tool Room Lathes, appointed by the National Machine Tool Builders' Association, was formed for further study on the standardization of various elements including spindle noses. As a result of its study, this committee recommended that the Type D and Type L spindle noses be established as alternate American Standards for engine lathes. These recommendations were approved by the Engine Lathe Group of the National Machine Tool Builders' Association in October, 1944, and were approved by Sectional Committee B5 in November, 1944.

At the November, 1944 meeting of Sectional Committee B5, it was agreed that American Standard Lathe Spindle Noses (ASA B5.9-1936) should be revised to include five sizes of the Type L spindle noses; the two smaller sizes of Types A, B, and D spindles, namely, the 2 in. and 3 in.; and one larger size, namely, the 28 in. This revision was completed in May, 1947, for presentation to the Sectional Committee. Following the approval by the Sectional Committee it was later approved by the four sponsors and the American Standards Association, and was designated on March 30, 1948, as American Standard Spindle Noses for Tool Room Lathes, Engine Lathes, Turret Lathes, and Automatic Lathes (ASA B5.9-1948).

Further revisions of an editorial nature were approved by Sectional Committee B5 in 1953 resulting in the latest revision now designated ASA B5.9-1954.

At its meeting in December, 1948, Sectional Committee B5 voted to revise American Standard Chucks and Chuck Jaws (ASA B5.8-1936) to include specifications for chucks for the Type L spindle nose, and voted to make such changes as present-day practice

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indicates are desirable so that the revision will be a proper companion standard for the one on spindle noses.

Technical Committee 11 was reorganized for this purpose in the early part of 1949. This revision, in printer's proof form, dated February, 1952 was presented to the members of Sectional Committee for vote on approval by letter ballot.

Following approval of the sectional committee and sponsors, this revision was presented to the American Standards Association for approval and designation as an American Standard on January 27, 1954.

On October 23, 1963, meetings of the Technical Committee 11 were begun to review and discuss the general updating of the American Standard Chucks and Chuck Jaws Standard (ASA B5.8-1954). Final acceptance was given by this Committee in February, 1970 and it was forwarded to the members of Standards Committee B5 for their approval.

Following approval of the B5 Standards Committee, the Revision was submitted to the American National Standards Institute and approved on April 14, 1972 as ANSI B5.8-1972.

After a number of dormant years, Technical Committee 11 was restarted in 1996. During a period of about a year, the re-energized committee reviewed the 1972 version of this Standard and updated it to reflect present conditions and usage. This Standard is intended to be used for the existing inch-based chucks.

This Standard brings forth American Standard inch dimensions for chucks which continue to be used.

Suggestions for the improvement of this Standard are welcome. They should be addressed to The American Society of Mechanical Engineers, Secretary, B5 Main Committee, Three Park Avenue, New York, NY 10016-5990.

This Standard was approved as an American National Standard on January 3, 2001.

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Machine Tools, Components, Elements, Performance, and Equipment

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

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CHUCKS AND CHUCK JAWS

1 SCOPE AND PURPOSE

This Standard applies to chucks for use on engine lathes, tool room lathes, turret lathes, and automatic lathes and fit American Standard Spindle Noses of ANSI-B5.9-1967. They may be used on other applications for which they are suitable (see pages 4 and 5 of ANSI-B5.9-1967). It is within the scope of this Standard to establish:

(a) duty classes

(b) standard chuck diameters

(c) top jaw interchangeability

(d) mounting interchangeability (USA-Standard Spindle Noses)

(e) draw-bar interchangeability for power chucks

(f) identification code for body, master jaws, top jaws dimensions, where interchangeability of chucks may be involved

(g) nomenclature

2 CHUCK SIZES AND DIAMETERS

The following table gives the approximate chuck body diameters of each size of standard chuck. All standard chucks with two jaws, three jaws, or four jaws, whether independent, self-centering, or combination type, both wrench-operated and draw-bar operated, shall be made so that the outside diameter of the chuck body is one of these sizes. The name of each chuck shall be as given in the following table. For example, a chuck, the body of which is $6\frac{1}{2}$ in. in diameter, shall be known as a 6 in. chuck; one with a body 12 in. in diameter shall be known as a 12 in. chuck.

Name of Chuck, in.	Actual Outside Diameter of Body
6	6.50
8	8.25
10	10
12	12
15	15
18	18
21	21
24	24
28	28
32	32
36	36

3 SPECIFICATIONS OF CLASS I CHUCKS

Class I chucks are medium-duty, wrench-operated chucks with master jaws of the tongue-and-groove type for use on engine lathes and for other applications where the service is not severe. These chucks are provided with master jaws of the dimensions given in Table 1. The tops of the master jaws project above the face of the chucks in all sizes. The mating dimensions of top jaws for these chucks are given in Table 2. Standard three-step reversible top jaws for these chucks may or may not be made so that with the long gripping surface of the top jaws inwardly mounted, the top jaws and the master jaws will both grip a piece of bar stock inserted through the chuck. When the three-step jaws are reversed, the inner ends of top jaws may or may not have gripping surfaces. If they do, the ends of the master jaws project inward beyond the top jaws to provide a definite shoulder on the master jaw for locating any piece that may be gripped by the inner step of the top jaws. These chucks may have two or more jaws and may be of the independent, self-centering or combination type.

4 SPECIFICATIONS OF CLASS II CHUCKS

Class II chucks are heavy-duty wrench-operated or draw-bar operated chucks with master jaws of the tongue-and-groove type for use on turret lathes and for other applications where the service is severe. These chucks are of stronger construction than Class I chucks. The wrench-operated chucks may be either hand operated or power operated. The draw-bar operated chucks are actuated by an air cylinder, a hydraulic cylinder, or other means. These chucks may have two or more jaws, and may be of the independent, self-centering, or combination type.

5 BODY DIMENSION AND MASTER JAW DIMENSIONS OF CLASS II WRENCH-OPERATED CHUCKS

Table 3 gives body dimensions and master jaw dimensions of Class II wrench-operated chucks. The tops of the master jaws of chucks project above the face of chuck bodies with the option of 12 in. and

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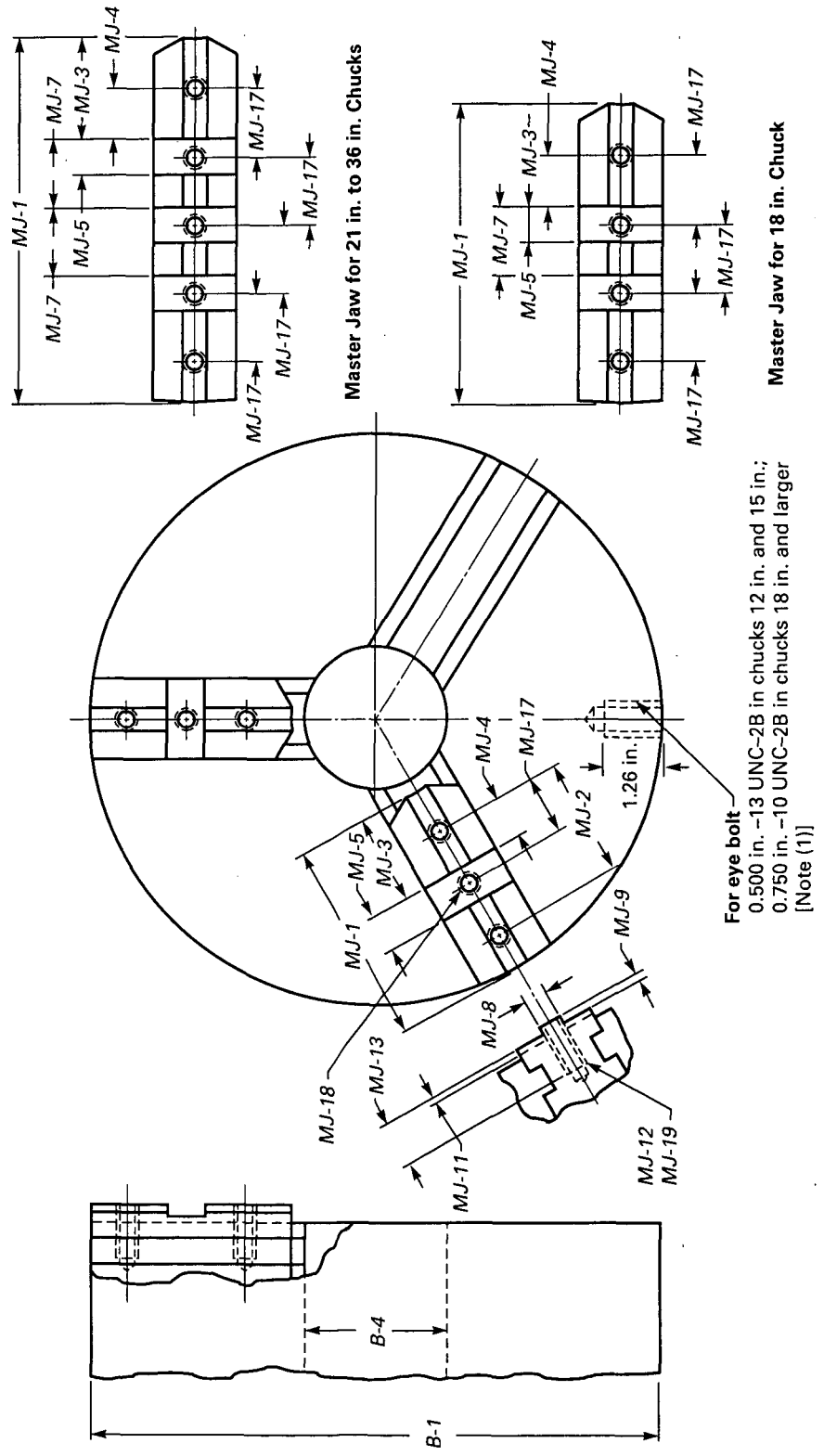


TABLE 1 ILLUSTRATION

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TABLE 1 CLASS I, TONGUE AND GROOVE, MEDIUM-DUTY WRENCH-OPERATED CHUCKS

Nominal Size of Chuck	Center Hole (Min.), *B-4*	Length of Jaw, *MJ-1*	Center to Center Screw Holes, *MJ-2* [Note (2)]	Cross Slot to Center Line of Bite, *MJ-3*	Screw Center to Cross Slot Edge, *MJ-4* [Note (2)]	Width of Cross Slot, *MJ-5*		Cross Slot to Cross Slot, *MJ-7*	Width of Tongue, *MJ-8*		Height of Tongue, *MJ-9*		Depth of Cross Slot, *MJ-11*		Tapped Hole (UNC-3B) *MJ-12*	Full Depth of Thread, *MJ-13*	Center to Center of Holes, *MJ-17* [Note (2)]	Number of Cross Slots, *MJ-18*	Number of Topped Holes, *MJ-19*
						Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.					
6	1.38	2.56	1.500	1.125	0.500	0.500	0.4995	. . .	0.312	0.310	0.14	0.12	0.18	0.16	0.375–16	0.76	. . .	1	2
8	1.50	3.06	1.750	1.375	0.625	0.500	0.4995	. . .	0.312	0.310	0.14	0.12	0.18	0.16	0.375–16	0.76	. . .	1	2
10	2.12	3.62	2.125	1.562	0.688	0.750	0.7495	. . .	0.500	0.498	0.14	0.12	0.18	0.16	0.500–13	0.88	. . .	1	2
12	3.00	4.26	2.500	1.875	0.875	0.750	0.7495	. . .	0.500	0.498	0.14	0.12	0.18	0.16	0.500–13	1.00	1.250	1	3
15	3.25	5.00	3.000	2.250	1.125	0.750	0.7495	. . .	0.500	0.498	0.14	0.12	0.30	0.28	0.625–11	1.12	1.500	1	3
18	4.25	6.50	3.000	2.250	1.125	0.750	0.7495	1.500	0.500	0.498	0.14	0.12	0.30	0.28	0.750–10	1.50	1.500	2	4
21	4.25	8.00	3.000	2.250	1.125	0.750	0.7495	1.500	0.500	0.498	0.14	0.12	0.30	0.28	0.750–10	1.50	1.500	3	5
24	5.00	8.00	3.000	2.250	1.125	0.750	0.7495	1.500	0.500	0.498	0.14	0.12	0.30	0.28	0.750–10	1.50	1.500	3	5
28	6.00	8.00	3.000	2.250	1.125	0.750	0.7495	1.500	0.500	0.498	0.14	0.12	0.30	0.28	0.750–10	1.50	1.500	3	5
32	6.00	8.00	3.000	2.250	1.125	0.750	0.7495	1.500	0.500	0.498	0.14	0.12	0.30	0.28	0.750–10	1.50	1.500	3	5
36	6.00	8.00	3.000	2.250	1.125	0.750	0.7495	1.500	0.500	0.498	0.14	0.12	0.30	0.28	0.750–10	1.50	1.500	3	5

GENERAL NOTES:
(a) All dimensions are in inches.
(b) For reference, see Table 1 illustration beginning on page 2.

NOTES:
(1) Number and location of holes should accommodate balance of chuck.
(2) Holes located within 0.006 in. of true position.

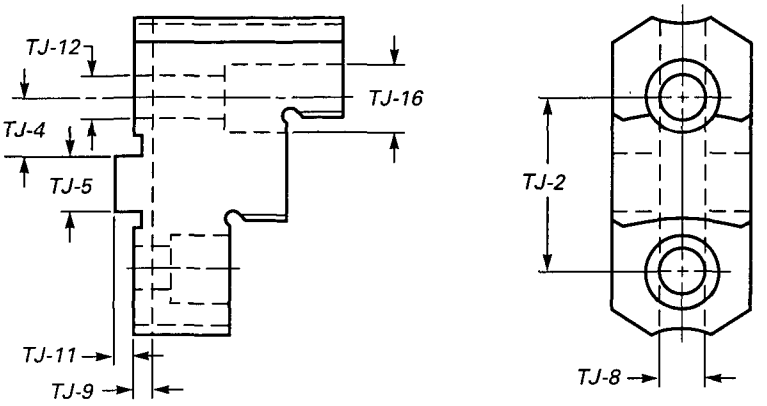


TABLE 2 THREE-STEP REVERSIBLE TOP JAWS FOR CLASS I CHUCKS WITH TONGUE AND GROOVE JAWS

Nominal Size of Chuck	Center to Center Screw Holes, *TJ-2* [Note (1)]	Screw Center to Edge of Key, *TJ-4* [Note (1)]	Width of Cross Key, *TJ-5*		Width of Tongue Slot, *TJ-8*		Depth of Tongue Slot, *TJ-9*		Height of Cross Key, *TJ-11*		Drill Size for Screws, *TJ-12*	C'Bore for Screw Head, *TJ-16*
			Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
6	1.500	0.500	0.499	0.498	0.315	0.313	0.17	0.15	0.12	0.10	0.406	0.609
8	1.750	0.625	0.499	0.498	0.315	0.313	0.17	0.15	0.12	0.10	0.406	0.609
10	2.125	0.688	0.749	0.748	0.503	0.501	0.17	0.15	0.12	0.10	0.531	0.797
12	2.500	0.875	0.749	0.748	0.503	0.501	0.17	0.15	0.12	0.10	0.531	0.797
15	3.000	1.125	0.749	0.748	0.503	0.501	0.17	0.15	0.25	0.23	0.656	1.000
18 to 36	3.000	1.125	0.749	0.748	0.503	0.501	0.17	0.15	0.25	0.23	0.781	1.188

GENERAL NOTES:
(a) All dimensions are in inches.
(b) See Table 1 for Class I, Tongue and Groove, Medium-Duty, Wrench-Operated Chucks.
NOTE:
(1) Holes located within 0.006 in. of true position.

larger to be below the face of body. Mating dimensions of top jaws for these chucks are given in Table 6. Standard three-step reversible top jaws for these chucks may or may not be made so that with the long gripping surface of the top jaws inwardly mounted, the top jaws and the master jaws will both grip a piece of bar stock inserted through the chuck. When the three-step jaws are reversed, the inner ends of the master jaws project inward beyond the top jaws to provide a definite shoulder on the master jaws for locating any piece that may be gripped by the inner step of the top jaws.

6 BODY DIMENSIONS AND MASTER JAW DIMENSIONS OF CLASS II DRAW-BAR OPERATED CHUCKS

Table 4 gives the body dimensions and master jaw dimensions of Class II draw-bar operated chucks. The tops of the master jaws are above the face of the chuck bodies for all sizes. Mating dimensions of top jaws for these chucks are given in Table 5.

7 CLASS I AND CLASS II COMPARISON

The tongues and grooves of the master jaws of Class I and Class II chucks of the same size are identical. However, the tapped holes MJ-12 of Class II chucks are larger than the corresponding tapped holes of Class I chucks of sizes 6 in. to 15 in.

8 SPECIFICATIONS OF CLASS III CHUCKS

Class III chucks are heavy-duty wrench-operated or draw-bar operated chucks with master jaws of the

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serrated type for use on turret lathes and for other applications where the service is severe, and where the top jaws may be set at various locations along the face of the master jaws. Body dimensions are given in Tables 6 and 8. Master jaw dimensions, dimensions of top jaws, master keys and jaw nuts for one type only of serrations are shown in Tables 7 and 9. The tops of the master jaws may or may not be below the face of the chuck bodies on wrench-operated chucks and may be either above or below the face of the bodies on draw-bar operated chucks. When the tops of the master jaws are below the face of the chuck, the tops of the master jaws should be approximately 0.12 in. below the face of the chuck as shown toward the left side of Table 4; and when the tops of the master jaws are above the face of the chuck, they should be approximately 0.18 in. above as shown toward the right side of Table 4.

These chucks may have two or more jaws and may be of the independent or self-centering type.

9 SPECIFICATIONS OF CHUCKS FOR USA STANDARD SPINDLE NOSES

9.1 Specifications of Chucks for Type A and Type B Spindle Noses

Chucks for Type A and Type B spindle noses shall have the mounting made to the dimensions of Table 4 of ANSI B5.9-1967.

9.2 Specifications of Chucks for Type D-1 Spindle Noses

Chucks for Type D-1 spindle noses shall have the mounting made to the dimensions shown in Tables 7, 9, 11, or 13 of ANSI B5.9-1967.

9.3 Specifications of Chucks for Type L Spindle Noses

Chucks for Type L spindle noses shall have the mounting made to the dimensions given in Table 29 of ANSI B5.9-1967.

10 DIRECTIONS FOR BALANCING OF CHUCKS

10.1 Directions for Balancing of Chucks for Type A, Type B, and Type D-1 Spindles

When chucks for Type A, Type B, or Type D-1 spindles are to be balanced, such chucks shall be balanced on an arbor that has itself previously been balanced without the chuck being mounted on it. The location of the cap screws, bolts, or studs for holding such chuck to the arbor must also be in balance. (See Table 5 of ANSI B5.9-1967.)

10.2 Directions for Balancing of Chucks for Type L Spindles

When chucks for Type L spindles are to be balanced, the driving keyway shall have been previously finish machined in the taper. Such chucks shall then be balanced on a taper arbor provided with a full key and two screws holding the key in place, the taper, keyseat, key and two screws to be according to Table 28 of ANSI B5.9-1967. Such taper arbor shall have been previously balanced with a partial key that fills the keyseat and has an outside contour that coincides with the taper. To run in balance with such chucks, the Type L spindle should be balanced with a partial key that fills the keyseat and has an outside contour that coincides with the taper.

11 DEFINITIONS

chuck: as covered by this Standard, a workpiece holding device to be mounted on a machine spindle as further described in *combination chuck, draw-bar operated chuck, independent chuck, self-centering chuck, and wrench-operated chuck.*

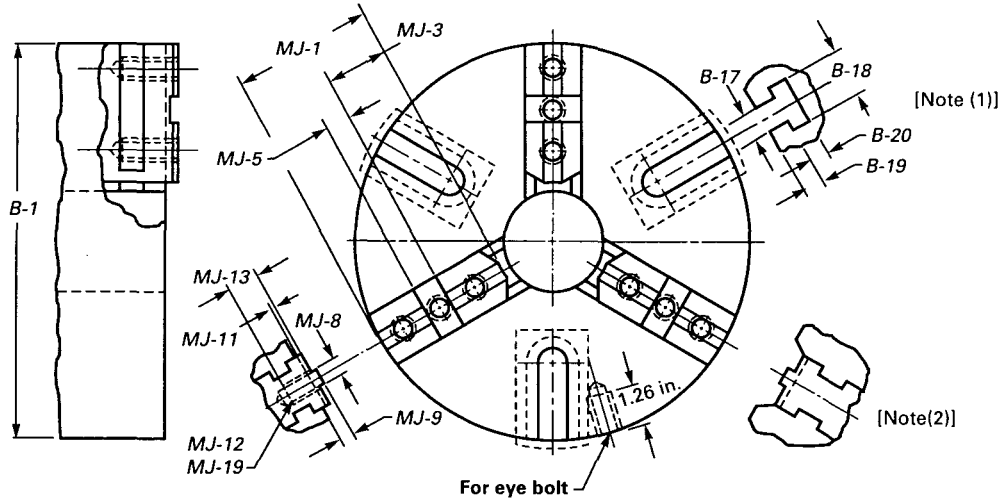
chuck body: that part of the chuck that encloses the operating mechanism for opening and closing the master jaws. It may be made of two pieces, if required, by the chuck design.

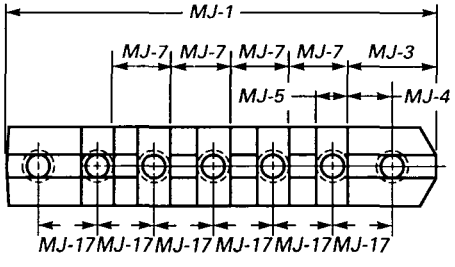
combination chuck: a chuck in which are combined features of both the independent and self-centering chucks. The work holding jaws may collectively be moved as in self-centering chuck and/or individually adjusted as in an independent chuck. This chuck may have either three or four jaws and is intended for use in holding work pieces of any form or outline, eccentrically or concentrically.

draw-bar operated chuck: a chuck in which the jaws are opened or closed by means connected to an operating bar or tube located on the central axis of the chuck and extending through the spindle of the machine tool on which the chuck is mounted. The operating bar or tube is usually actuated by an air cylinder, a hydraulic cylinder, or other power means located at the rear end of the spindle.

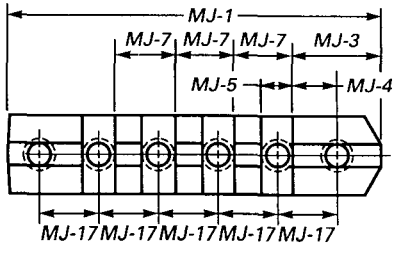
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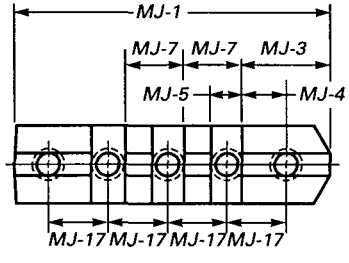




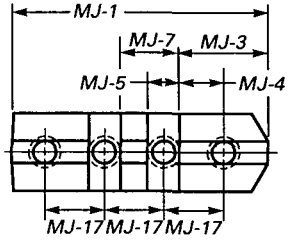
Master Jaw for 36 in. Chucks



Master Jaw for 32 in. Chucks



Master Jaw for 24 in. and 28 in. Chucks



Master Jaw for 18 in. and 21 Chucks

TABLE 3 ILLUSTRATION

TABLE 3 CLASS II, HEAVY-DUTY WRENCH-OPERATED CHUCKS WITH TONGUE AND GROOVE JAWS

Nominal Size of Chuck	Diameter of Body, *B-1*	Width of Throat, *B-17*	Width of Head Space, *B-18*		Depth of Throat, *B-19*		Depth of Head Space, *B-20*		Length of Jaw, *MJ-1*	Center to Center Bolt Holes, *MJ-2* [Note (4)]	Cross Slot to Centerline on Bite, *MJ-3*	Bolt Center to Cross Slot Edge, *MJ-4* [Note (4)]	Width of Cross Slot, *MJ-5*	
			Max.	Min.	Max.	Min.	Max.	Min.					Max.	Min.
6	6.50	...	...	...	...	...	...	...	2.56	1.500	1.125	0.500	0.500	0.4995
8	8.25	...	...	...	...	...	...	...	3.06	1.750	1.375	0.625	0.500	0.4995
10	10.00	...	...	...	...	...	...	...	3.62	2.125	1.562	0.688	0.750	0.7495
12	12.00	0.69	1.25	1.19	0.88	0.44	0.48	0.45	4.26	2.500	1.875	0.875	0.750	0.7495
15	15.00	0.81	1.47	1.38	1.06	0.56	0.62	0.59	5.00	3.000	2.250	1.125	0.750	0.7495
18	18.00	0.81	1.47	1.38	1.06	0.56	0.62	0.59	6.50	3.000	2.250	1.125	0.750	0.7495
21	21.00	0.81	1.47	1.38	1.06	0.56	0.62	0.59	6.50	3.000	2.250	1.125	0.750	0.7495
24	24.00	0.81	1.47	1.38	1.06	0.56	0.62	0.59	8.00	3.000	2.250	1.125	0.750	0.7495
28	28.00	0.81	1.47	1.38	1.06	0.56	0.62	0.59	8.00	3.000	2.250	1.125	0.750	0.7495
32	32.00	0.81	1.47	1.38	1.06	0.56	0.62	0.59	9.50	3.000	2.250	1.125	0.750	0.7495
36	36.00	0.81	1.47	1.38	1.06	0.56	0.62	0.59	11.00	3.000	2.250	1.125	0.750	0.7495

Nominal Size of Chuck	Cross Slot to Cross Slot, *MJ-7*	Width of Tongue, *MJ-8*		Height of Tongue, *MJ-9*		Depth of Cross Slot, *MJ-11*		Tapped Holes (UNC-3B), *MF-12*	Full Depth of Thread, *MJ-13*	Center-to-Center of Holes, *MJ-17* [Note (4)]	Number of Cross Slots, *MJ-18*	Number of Tapped Holes, *MJ-19*
		Max.	Min.	Max.	Min.	Max.	Min.					
6	...	0.312	0.310	0.12	0.10	0.17	0.15	0.4375–14	0.76	...	1	2
8	...	0.312	0.310	0.12	0.10	0.17	0.15	0.500–13	0.85	...	1	2
10	...	0.500	0.498	0.12	0.10	0.17	0.15	0.625–11	1.06	...	1	2
12	...	0.500	0.498	0.12	0.10	0.17	0.15	0.625–11	1.20	1.250	1	3
15	...	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	1	3
18	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	2	4
21	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	2	4
24	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	3	5
28	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.875–9	1.50	1.500	3	5
32	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.875–9	1.50	1.500	4	6
36	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.875–9	1.50	1.500	5	7

GENERAL NOTES:
(a) All dimensions are in inches.
(b) For reference, see Table 3 illustration beginning on page 6.

NOTES:
(1) The three T-slots are for reference only.
(2) Optional: Face of body to project above top of master jaw 12 in. to 36 in. chucks inclusive.
(3) Number and location of holes should accommodate balance of chucks.
(4) Holes located within 0.006 in. of true position.

independent chuck: A chuck in which each individual work holding jaw is moved to or from the work pieces by a screw without disturbing the position of any other jaw. This type of chuck is usually made with four jaws so that in addition to holding work pieces or regular form, any work piece of irregular form or outline, may be satisfactorily held.

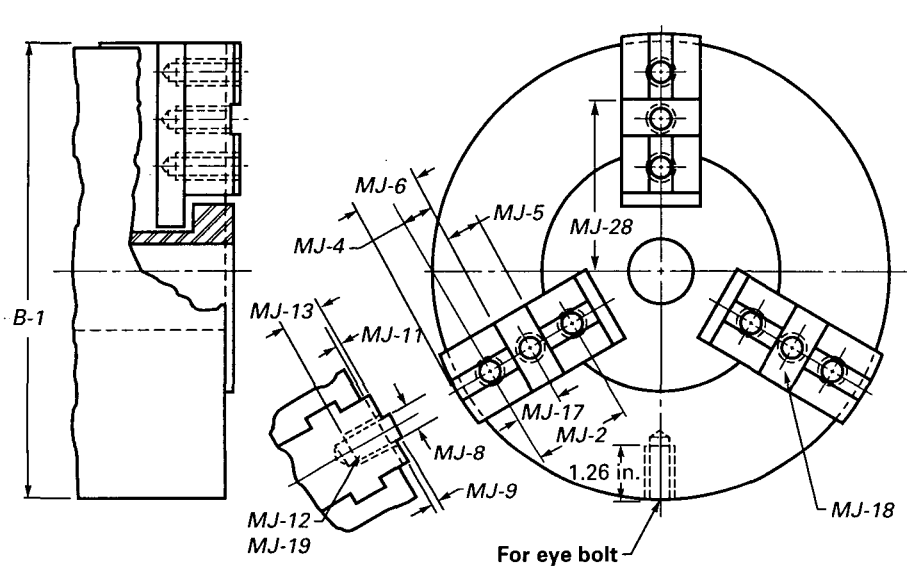
master jaw: a member formed to fit the jaw slots in the chuck body and serves as a base on which a top jaw of any required form may be mounted.

self-centering chuck: a chuck in which all jaws move to or away from the work piece and maintain one common center. The jaws may be moved by a scroll, or rack gear and screws, or by levers or other means that move all jaws the same amount. This chuck may have two or more jaws.

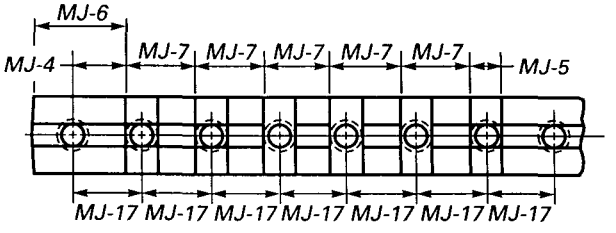
top jaw: a workholding member intended to be mounted on a master jaw. It may be reversible for internal or external holding.

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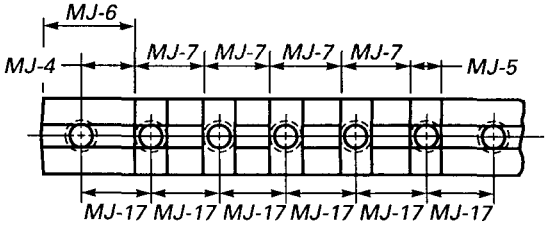
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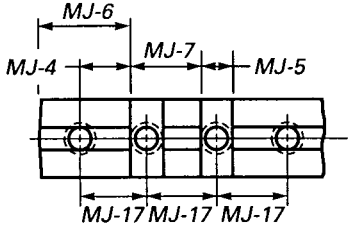
For eye bolt
0.500 in. –13 UNC–2B in chucks 12 in. and 15 in.;
0.750 in. –10 UNC–2B in chucks 18 in. and larger
[Note (1)]



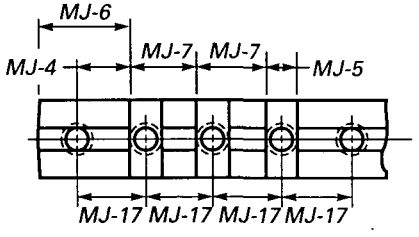
Master Jaw for 36 in. Chuck



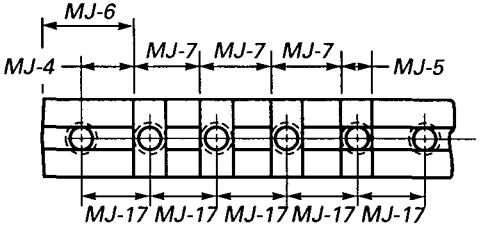
Master Jaw for 32 in. Chuck



Master Jaw for 18 in. and 21 in. Chucks



Master Jaw for 24 in. Chuck



Master Jaw for 28 in. Chuck

TABLE 4 ILLUSTRATION

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TABLE 4 CLASS II, HEAVY-DUTY DRAW-BAR OPERATED CHUCKS WITH TONGUE AND GROOVE JAWS

Nominal Size of Chuck	Center-to-Center Screw Holes, *MJ-2*, [Note (2)]	Bolt Center to Cross Slot Edge, *MJ-4* [Note (2)]	Width of Cross Slot, *MJ-5*		Outside Edge to Cross Slot Edge, *MJ-6*	Cross Slot to Cross Slot, *MJ-7*	Width of Tongue, *MJ-8*		Height of Tongue, *MJ-9*		Depth of Cross Slot, *MJ-11*		Tapped Holes (UNC-3B), *MJ-12*	Full Depth of Thread, *MJ-13*	Center to Center of Holes, *MJ-17* [Note (2)]	Number of Cross Slots, *MJ-18*	Number of Tapped Holes, *MJ-19*
			Max.	Min.			Max.	Min.	Max.	Min.	Max.	Min.					
6	1.500	0.500	0.500	0.4995	0.938	...	0.312	0.310	0.12	0.10	0.17	0.15	0.4375–14	0.76	...	1	2
8	1.750	0.625	0.500	0.4995	1.188	...	0.312	0.310	0.12	0.10	0.17	0.15	0.500–13	0.88	...	1	2
10	2.125	0.687	0.750	0.7495	1.312	...	0.500	0.498	0.12	0.10	0.17	0.15	0.625–11	1.06	...	1	2
12	2.500	0.875	0.750	0.7495	1.625	...	0.500	0.498	0.12	0.10	0.17	0.15	0.625–11	1.20	1.250	1	3
15	3.000	1.125	0.750	0.7495	2.000	...	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	1	3
18	3.000	1.125	0.750	0.7495	2.000	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	2	4
21	3.000	1.125	0.750	0.7495	2.000	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	2	4
24	3.000	1.125	0.750	0.7495	2.000	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.750–10	1.50	1.500	3	5
28	3.000	1.125	0.750	0.7495	2.000	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.875–9	1.50	1.500	4	6
32	3.000	1.125	0.750	0.7495	2.000	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.875–9	1.50	1.500	5	7
36	3.000	1.125	0.750	0.7495	2.000	1.500	0.500	0.498	0.12	0.10	0.30	0.28	0.875–9	1.50	1.500	6	8

GENERAL NOTES:
(a) All dimensions are in inches.
(b) For reference, see Table 4 illustration beginning on page 8.

NOTES:
(1) Number and location of holes should accommodate balance of chucks.
(2) Holes located within 0.006 in. of true position.

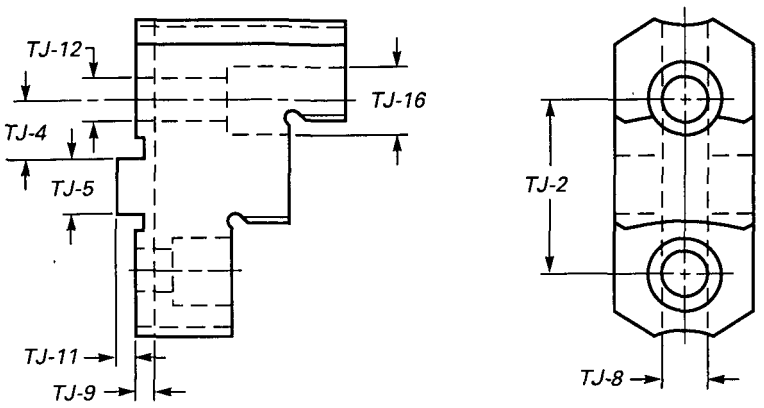


TABLE 5 THREE-STEP REVERSIBLE TOP JAWS FOR CLASS II CHUCKS WITH TONGUE AND GROOVE JAWS

Nominal Size of Chuck	Center-to-Center Screw Holes, *TJ-2* [Note (1)]	Screw Center to Edge of Key, *TJ-4* [Note (1)]	Width of Cross Key, *TJ-5*		Width of Tongue Slot, *TJ-8*		Depth of Tongue Slot, *TJ-9*		Height of Cross Key, *TJ-11*		Drill Size for Screws, *TJ-12*	C'Bore for Screw Head, *TJ-16*
			Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
6	1.500	0.500	0.499	0.498	0.315	0.313	0.17	0.15	0.12	0.10	0.469	0.703
8	1.750	0.625	0.499	0.498	0.315	0.313	0.17	0.15	0.12	0.10	0.531	0.797
10	2.125	0.688	0.749	0.748	0.503	0.501	0.17	0.15	0.12	0.10	0.656	1.000
12	2.500	0.875	0.749	0.748	0.503	0.501	0.17	0.15	0.12	0.10	0.656	1.000
15 to 24	3.000	1.125	0.749	0.748	0.503	0.501	0.17	0.15	0.25	0.23	0.781	1.188
28 to 36	3.000	1.125	0.749	0.748	0.503	0.501	0.17	0.15	0.25	0.23	0.906	1.375

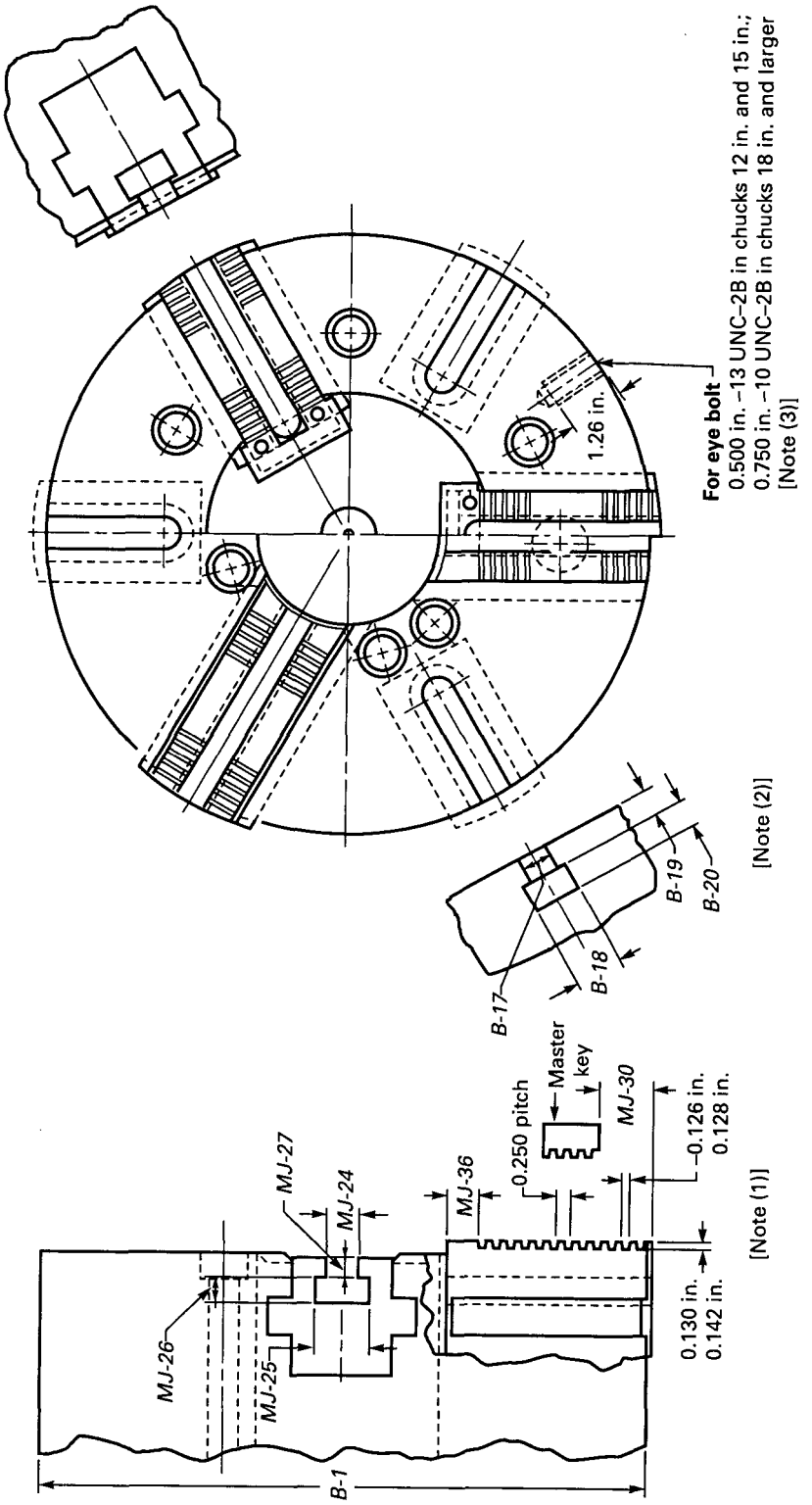
GENERAL NOTES:
(a) All dimensions are in inches.
(b) See Tables 3 and 4 for Class II, Heavy-Duty Wrench-Operated or Draw-Bar Operated Chucks.

NOTE:
(1) Holes located within 0.006 in. of true position.

wrench-operated chuck: a chuck in which the jaws are opened or closed by means of a wrench. The wrench may be either hand-operated or power-operated. One end of the wrench engages a member usually in the periphery of the chuck to open or close the chuck and is withdrawn from the chuck before the chuck starts to rotate.

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TABLE 6 ILLUSTRATION



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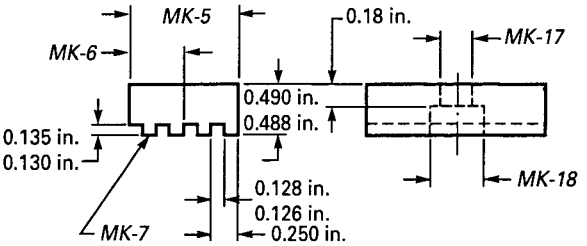
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TABLE 6 CLASS III, HEAVY-DUTY WRENCH-OPERATED OR DRAW-BAR OPERATED CHUCKS WITH SQUARE-SERRATED JAWS

Nominal Size of Chuck	Width of Throat, *B-17*	Width of Head Space, *B-18*		Depth of Throat, *B-19*		Depth of Head Space, *B-20*		Width of Throat, *MJ-24*		Width of Head Space, *MJ-25*		Depth of Head Space, *MJ-26*	Depth of Throat, *MJ-27*		Min., *MJ-30*	Start of Serrations (Min.), *MJ-36*
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.		
8	...	...	...	...	...	...	...	0.755	0.753	1.16	1.10	0.44	0.46	0.44	0.50	0.62
10	...	...	...	...	...	...	...	0.755	0.753	1.16	1.10	0.44	0.46	0.44	0.50	0.62
12	0.69	1.25	1.19	0.88	0.44	0.48	0.45	0.755	0.753	1.16	1.10	0.44	0.46	0.44	0.76	0.62
15	0.81	1.47	1.38	1.06	0.56	0.62	0.59	1.005	1.003	1.40	1.34	0.50	0.64	0.62	0.76	0.88
18	0.81	1.47	1.38	1.06	0.56	0.62	0.59	1.005	1.003	1.40	1.34	0.50	0.64	0.62	0.76	0.88
21	0.81	1.47	1.38	1.06	0.56	0.62	0.59	1.005	1.003	1.40	1.34	0.50	0.64	0.62	1.00	1.12
24	0.81	1.47	1.38	1.06	0.56	0.62	0.59	1.005	1.003	1.40	1.34	0.50	0.64	0.62	1.00	1.12
28	0.81	1.47	1.38	1.06	0.56	0.62	0.59	1.192	1.190	1.68	1.62	0.76	0.90	0.88	1.00	1.18
32	0.81	1.47	1.38	1.06	0.56	0.62	0.59	1.192	1.190	1.68	1.62	0.76	0.90	0.88	1.00	1.18
36	0.81	1.47	1.38	1.06	0.56	0.62	0.59	1.192	1.190	1.68	1.62	0.76	0.90	0.88	1.00	1.18

GENERAL NOTES:
(a) All dimensions are in inches.
(b) For reference, see Table 6 illustration beginning on page 11.
(c) See Tables 7, 8, and 9 for dimensions of master key, jaw nut, and three step reversible top jaws.

NOTES:
(1) Jaws optional above or below chuck face.
(2) The three T-slots are for reference only.
(3) Number and location of holes should accommodate balance of chucks.

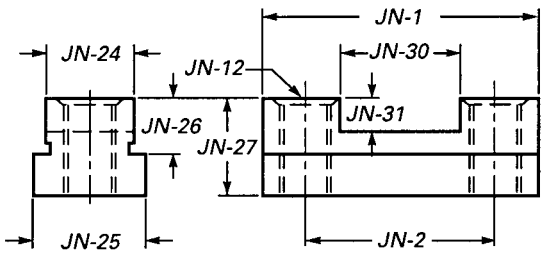


Top Jaw Master Key

TABLE 7 MASTER KEY FOR SQUARE-SERRATED CLASS III CHUCKS

Nominal Size of Chuck	Width of Key, *MK-5*		Edge to Center of Screw, *MK-6* [Note (1)]	Number of Teeth, *MK-7*	Drill Size for Screw, *MK-17*	C'Bore for Screw Head, *MK-18*
	Max.	Min.				
8	0.745	0.744	0.375	3	0.281	0.422
10	0.995	0.994	0.500	4	0.344	0.515
12	0.995	0.994	0.500	4	0.344	0.515
15 and 18	1.487	1.486	0.750	6	0.406	0.609
21 and 24	1.487	1.486	0.750	6	0.406	0.609
28 and 36	1.531	1.530	0.766	6	0.406	0.609

GENERAL NOTE: All dimensions are in inches.
NOTE:
(1) Holes located within 0.006 in. of true position.



Master Jaw Nut

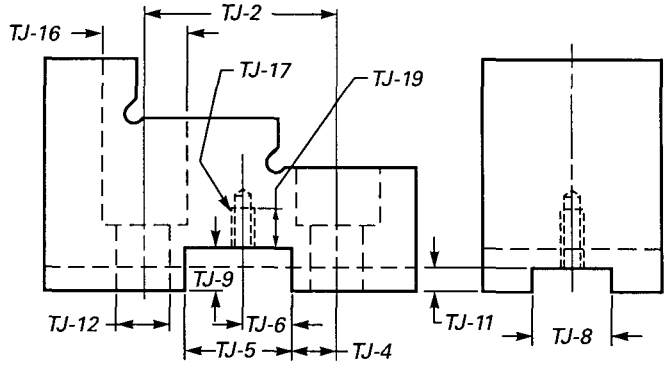
TABLE 8 JAW NUT FOR SQUARE-SERRATED CLASS III CHUCKS

Nominal Size of Chuck	Length of Nut, *JN-1*	Center-to-Center Tapped Holes, *JN-2* [Note (1)]	Size of Tapped Holes (UNC–2B), *JN-12*	Width of Tongue, *JN-24*		Min. Width of Nut Flange, *JN-25*	Height of Tongue, *JN-26*		Thickness of Nut, *JN-27*	Length of Slot, *JN-30*	Depth of Slot, *JN-31*
				Max.	Min.		Max.	Min.			
8	2.32	1.438	0.500–13	0.750	0.749	1.000	0.64	0.62	1.00	0.88	0.38
10	2.62	1.750	0.500–13	0.750	0.749	1.000	0.64	0.62	1.00	1.12	0.38
12	2.62	1.750	0.500–13	0.750	0.749	1.000	0.64	0.62	1.00	1.12	0.38
15 and 18	3.76	2.500	0.750–10	1.000	0.999	1.250	0.82	0.80	1.26	1.62	0.46
21 and 24	4.26	3.000	0.750–10	1.000	0.999	1.250	1.08	1.06	1.26	1.62	0.46
28 and 36	4.50	3.000	0.875–9	1.187	1.186	1.562	1.08	1.06	1.76	1.62	0.46

GENERAL NOTE: All dimensions are in inches.
NOTE:
(1) Holes located within 0.006 in. of true position.

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Reversible Top Jaw

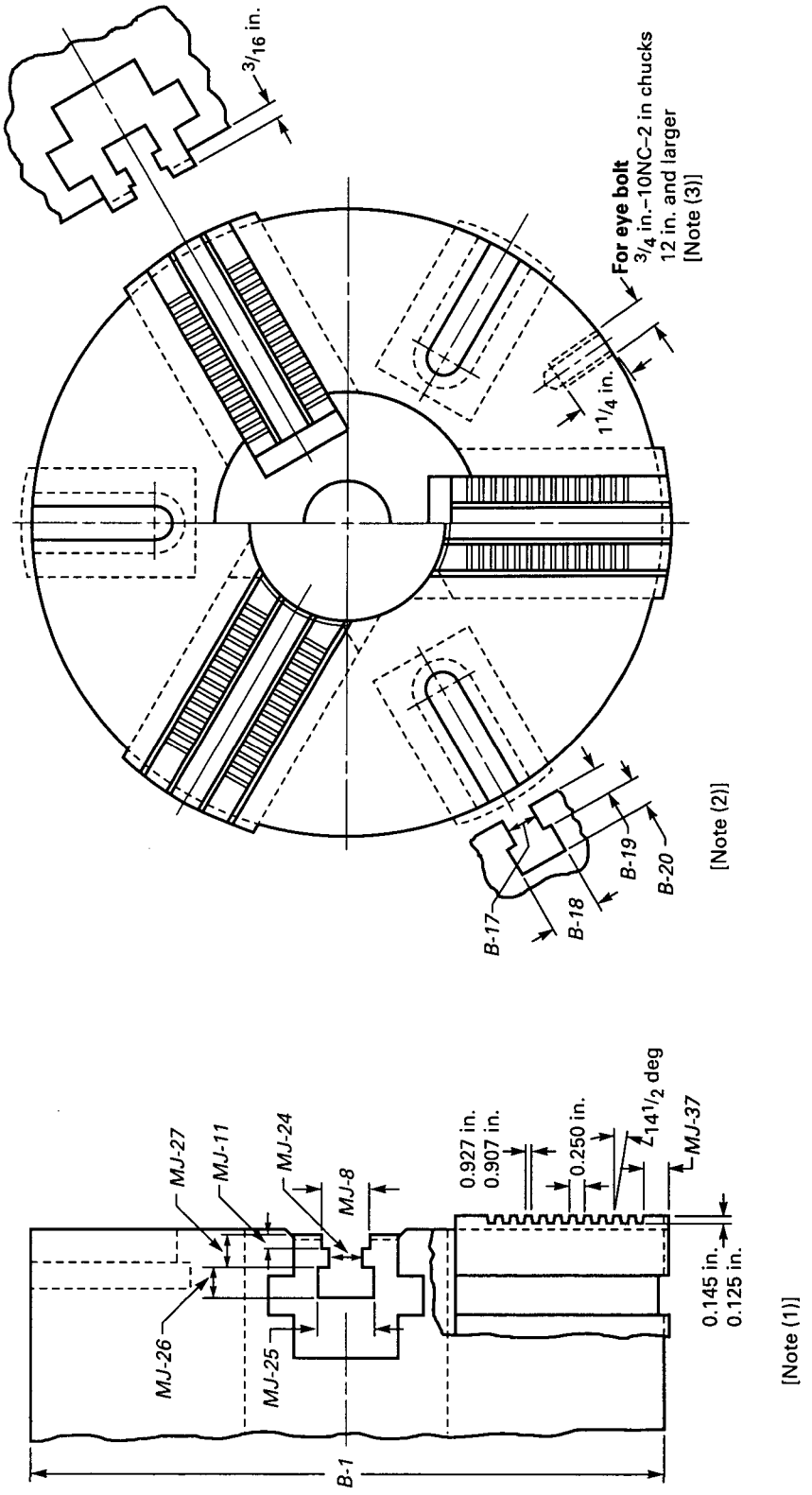
TABLE 9 THREE-STEP REVERSIBLE SQUARE-SERRATED TOP JAWS FOR CLASS III CHUCKS

Nominal Size of Chuck	Center to Center Screw Holes, *TJ-2* [Note (1)]	Screw Center to Edge of Key Slot, *TJ-4* [Note (1)]	Width of Key Slot, *TJ-5*		Edge of Key Slot to Screw, *TJ-6* [Note (1)]	Width of Tongue Slot, *TJ-8*		Depth of Key Slot, *TJ-9*		Depth of Tongue Slot, *TJ-11*		Drill Size for Screws, *TJ-12*	Size of C'Bore for Screw Heads, *TJ-16*	Size of Tapped Hole (UNC-3B), *TJ-17*	Full Depth of Thread, *TJ-19*
			Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.				
8	1.438	0.344	0.747	0.746	0.375	0.753	0.751	0.385	0.380	0.24	0.22	0.531	0.797	0.250–20	0.38
10	1.750	0.375	0.997	0.996	0.500	0.753	0.751	0.385	0.380	0.24	0.22	0.531	0.797	0.3125–18	0.44
12	1.750	0.375	0.997	0.996	0.500	0.753	0.751	0.385	0.380	0.24	0.22	0.531	0.797	0.3125–18	0.44
15 and 18	2.500	0.500	1.489	1.488	0.750	1.003	1.001	0.385	0.380	0.24	0.22	0.781	1.188	0.375–16	0.62
21 and 24	3.000	0.750	1.489	1.488	0.750	1.003	1.001	0.385	0.380	0.24	0.22	0.781	1.188	0.375–16	0.62
28 and 36	3.000	0.750	1.533	1.532	0.766	1.190	1.188	0.385	0.380	0.24	0.22	0.906	1.375	0.375–16	0.62

GENERAL NOTES:
(a) All dimensions are in inches.
(b) See Table 6 for Class III, Heavy-Duty Wrench-Operated or Draw-Bar Operated Chucks with Square-Serrated Jaws.

NOTE:
(1) Holes located within 0.006 in. of true position.

TABLE 10 ILLUSTRATION



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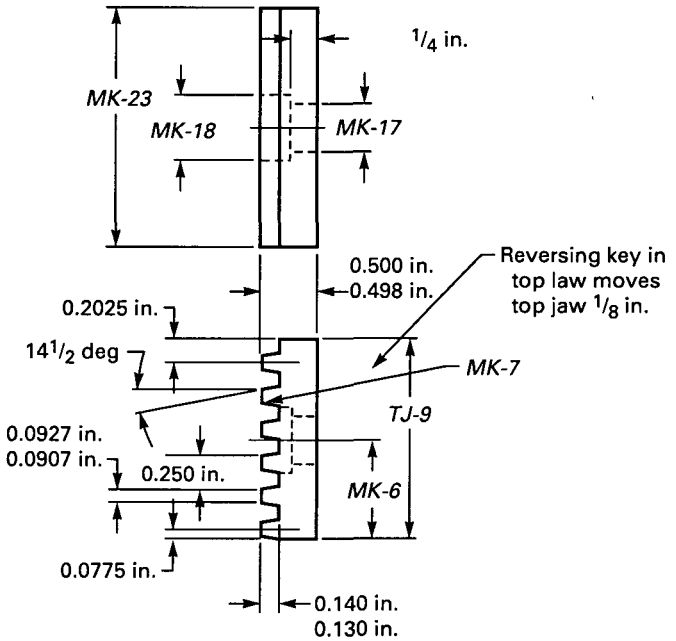
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TABLE 10 CLASS III, HEAVY-DUTY WRENCH-OPERATED OR DRAW-BAR OPERATED CHUCKS WITH ACME-SERRATED JAWS

Nominal Size of Chuck	Body						Master Jaw								
	Width of Throat, *B-17*	Width of Head Space, *B-18*		Depth of Throat, *B-19*	Depth of Head Space, *B-20*		Width of Tongue Slot, *MJ-8*		Depth of Tongue Slot, *MJ-11*	Width of Throat, *MJ-24*		Width of Head Space, *MJ-25*		Depth of Head Space, *MJ-26*	Depth of Throat, *MJ-27*	Outside Edge to First Tooth, *MJ-37*
		Max.	Min.		Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.			
10	...	...	...	...	...	...	0.752	0.750	1/4	0.697	0.687	1 1/32	31/32	7/16	9/16	1/2
12	11/16	1 1/4	1 3/16	7/16 to 7/8	31/64	29/64	0.877	0.875	1/4	0.822	0.812	1 5/32	1 3/32	1/2	5/8	3/4
15	13/16	1 15/32	1 3/8	9/16 to 1 1/16	5/8	19/32	1.002	1.000	5/16	0.947	0.937	1 11/32	1 9/32	5/8	3/4	3/4
18	13/16	1 15/32	1 3/8	9/16 to 1 1/16	5/8	19/32	1.002	1.000	5/16	0.947	0.937	1 11/32	1 9/32	5/8	3/4	3/4
21	13/16	1 15/32	1 3/8	9/16 to 1 1/16	5/8	19/32	1.252	1.250	5/16	1.197	1.187	1 21/32	1 19/32	3/4	7/8	1
24	13/16	1 15/32	1 3/8	9/16 to 1 1/16	5/8	19/32	1.252	1.250	5/16	1.197	1.187	1 21/32	1 19/32	3/4	7/8	1
28	13/16	1 15/32	1 3/8	9/16 to 1 1/16	5/8	19/32	1.252	1.250	5/16	1.197	1.187	1 21/32	1 19/32	3/4	7/8	1
32	13/16	1 15/32	1 3/8	9/16 to 1 1/16	5/8	19/32	1.252	1.250	5/16	1.197	1.187	1 21/32	1 19/32	3/4	7/8	1
36	13/16	1 15/32	1 3/8	9/16 to 1 1/16	5/8	19/32	1.252	1.250	5/16	1.197	1.187	1 21/32	1 19/32	3/4	7/8	1

GENERAL NOTES:
(a) All dimensions are in inches.
(b) For reference, see Table 10 illustration beginning on page 15.
(c) Tolerances of $\pm 1/64$ are permissible unless otherwise specified.

NOTES:
(1) Jaws optional above or below chuck face.
(2) The three T-slot dimensions are for reference only.
(3) Number and location of holes should accommodate balance of chuck.



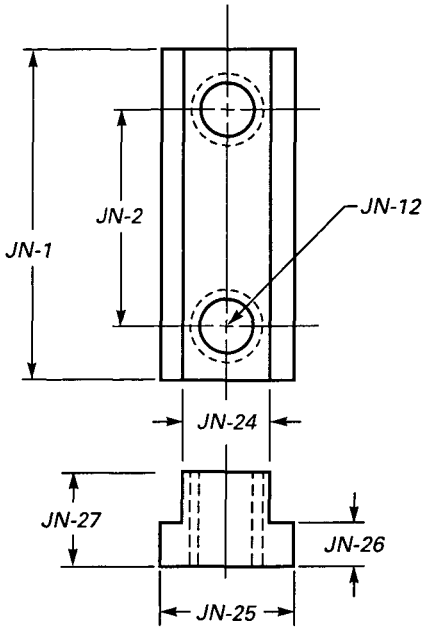
Master Key

TABLE 11 MASTER KEY FOR ACME-SERRATED CLASS III CHUCKS

Nominal Size of Chuck	Length of Key, *MK-5*		Edge to Center of Screw, *MK-6*		Number of Teeth, *MK-7*	Drill Size for Screw, *MK-17*	C'Bore for Screw Head, *MK-18*	Width of Key, *MK-23*
	Max.	Min.	Max.	Min.				
10	1.030	1.029	0.523	0.507	4	11/32	15/32	1 5/8
12	1.030	1.029	0.523	0.507	4	11/32	15/32	1 7/8
15 and 18	1.530	1.529	0.773	0.757	6	13/32	19/32	2 3/8
21 to 36	1.530	1.529	0.773	0.757	6	13/32	19/32	2 7/8

GENERAL NOTES:
(a) All dimensions are in inches.
(b) Tolerances of ±1/64 are permissible unless otherwise specified.

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Jaw Nut

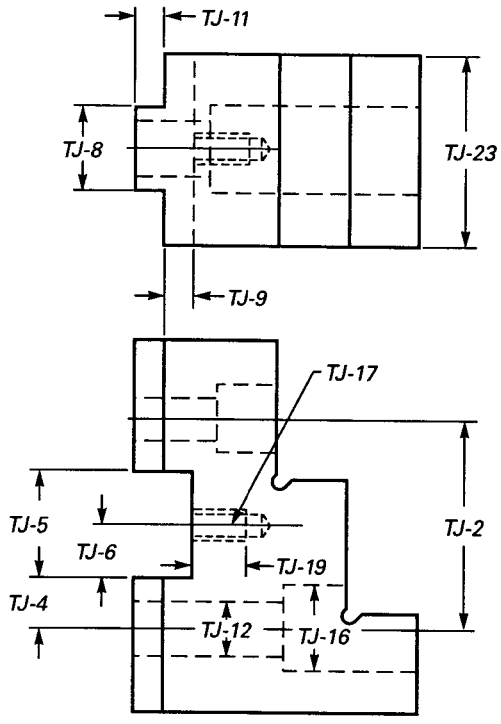
TABLE 12 JAW NUT FOR ACME-SERRATED CLASS III CHUCKS

Nominal Size of Chuck	Length of Nut, *JN-1*	Center to Center Tapped Holes, *JN-2*	Tapped Holes, *JN-12*	Width of Tongue, *JN-24*		Width of Nut, *JN-25*	Thickness of Flange, *JN-26*	Thickness of Nut, *JN-27*
				Max.	Min.			
10	$2\frac{5}{8}$	$1\frac{3}{4}$	$\frac{1}{2}$–13NC–2	0.680	0.675	$\frac{15}{16}$	$\frac{3}{8}$	$\frac{5}{8}$
12	3	2	$\frac{5}{8}$–11NC–2	0.805	0.800	$1\frac{1}{16}$	$\frac{7}{16}$	$\frac{3}{4}$
15 and 18	$3\frac{3}{4}$	$2\frac{1}{2}$	$\frac{3}{4}$–10NC–2	0.903	0.925	$1\frac{1}{4}$	$\frac{9}{16}$	$\frac{15}{16}$
21 to 36	$4\frac{1}{2}$	3	$\frac{7}{8}$–9NC–2	1.180	1.175	$1\frac{9}{16}$	$\frac{11}{16}$	$1\frac{3}{16}$

GENERAL NOTES:
(a) All dimensions are in inches.

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Reversible Top Jaw

TABLE 13 THREE-STEP REVERSIBLE TOP JAWS, ACME-SERRATED FOR CLASS III CHUCKS

Nominal Size of Chuck	Center-to-Center Bolt Holes, *TJ-2*	Bolt Center to Edge of Key Slot, *TJ-4*	Width of Key Slot, *TJ-5*		Edge of Key Slot to Screw, *TJ-6*		Width of Tongue, *TJ-8*		Depth of Key Slot, *TJ-9*		Height of Tongue, *TJ-11*	Drill Size for Bolts, *TJ-12*	C'Bore for Bolt Head, *TJ-16*	Tapped Holes, *TJ-17*	Full Depth of Thread, *TJ-19*	Width of Jaw, *TJ-23*
			Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.						
10	1 3/4	3/8	1.031	1.030	0.523	0.507	0.749	0.747	0.377	0.375	3/16	17/32	25/32	5/16–18NC–2	7/16	1 5/8
12	2	1/2	1.031	1.030	0.523	0.507	0.874	0.872	0.377	0.375	3/16	21/32	29/32	5/16–18NC–2	7/16	1 7/8
15 and 18	2 1/2	1/2	1.531	1.530	0.773	0.757	0.998	0.996	0.377	0.375	1/4	25/32	1 1/32	3/8–16NC–2	9/16	2 3/8
21 to 36	3	3/4	1.531	1.530	0.773	0.757	1.248	1.246	0.377	0.375	1/4	29/32	1 5/32	3/8–16NC–2	9/16	2 7/8

GENERAL NOTES:
(a) All dimensions are in inches.
(b) Tolerances of ±1/64 are permissible unless otherwise specified.

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