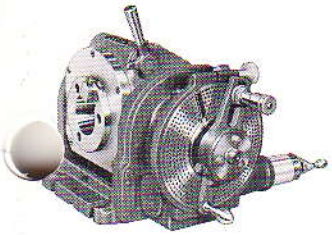
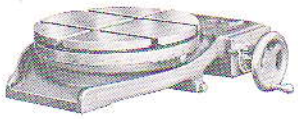
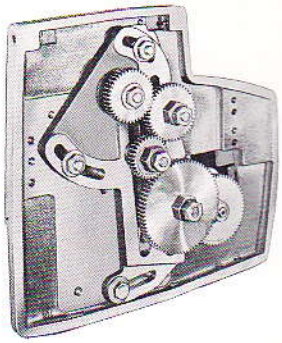
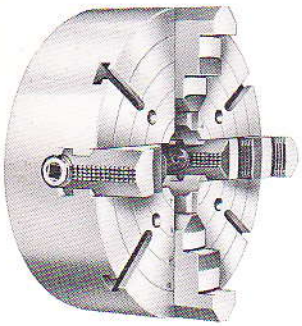
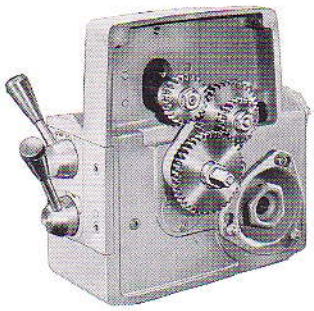
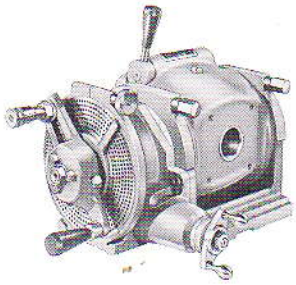
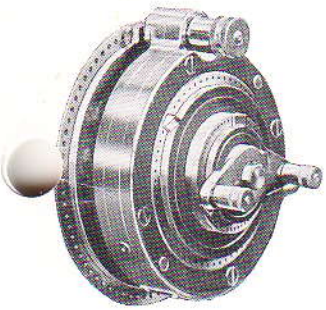
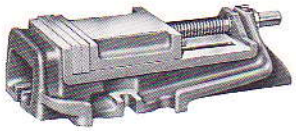
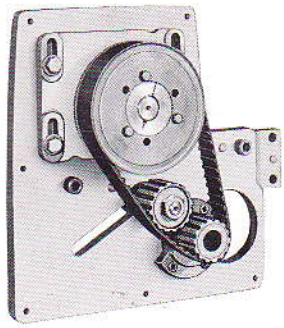
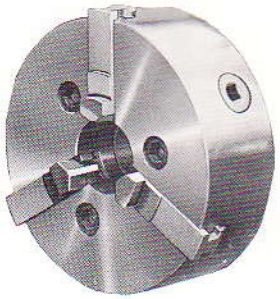




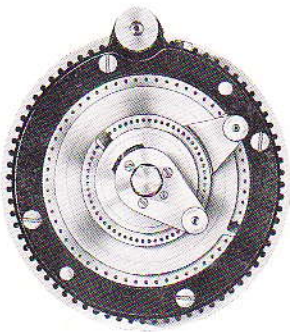
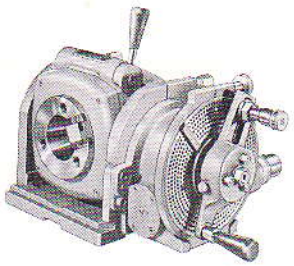




bulletin WH-68
First Edition — April, 1958





KEARNEY & TRECKER
MILWAUKEE®

WORKHOLDING ATTACHMENTS and ACCESSORIES

. . . convert standard milling machines into special purpose tools . . . add productivity by performing jobs not normally achieved on standard machines.

INDEX

(TO THE FINEST MILLING MACHINE WORKHOLDING ATTACHMENTS)

KEARNEY & TRECKER

MILWAUKEE®

WORKHOLDING ATTACHMENTS and ACCESSORIES

DIVIDING HEAD — indexes the workpiece.

— to mill leads.

CONVENTIONAL LEAD — power to the dividing head to mill leads.

LOW LEAD — power to the dividing head and to the rotary table to mill leads.

— power to the rotary to the rotary table for circular milling.

TAILSTOCK — supports the workpiece at the other end.

STEADY REST — supports the workpiece in the middle.

CHUCK — supports the workpiece in the dividing head or machine spindle for rotary milling or indexing.

CHUCK ADAPTER — Adapts the chuck to the dividing head or machine spindle.

INDEX PLATE — accurate divisions of the circle or arc.

ASTRONOMICAL DIVIDER — 1,296,000 divisions!

ROTARY TABLE — circular milling . . . with or without a lead.

ROTARY TABLE DRIVE BRACKET — power to the rotary table for circular milling.

VISES — hold the workpiece on the table.

LOCATING KEYS — accurately locate the attachment on the machine table.

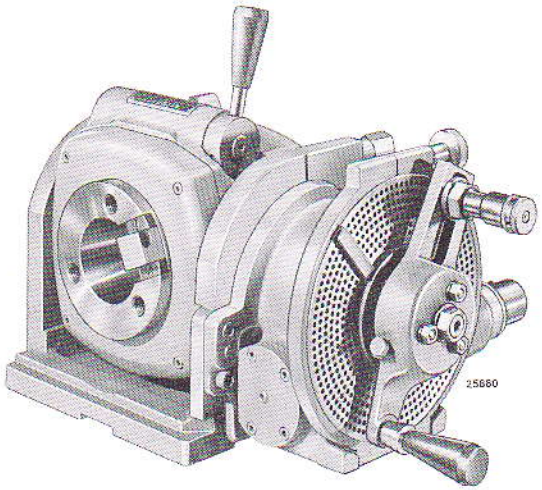
Before referring to any dimensions in this bulletin, see page 33 for an explanation of the Kearney & Trecker system of dimensioning as used throughout the bulletin.

Series 5810 and Series 4045
5 TO 1 RATIO

UNIVERSAL DIVIDING HEADS

10"- 12"- 14" SIZES

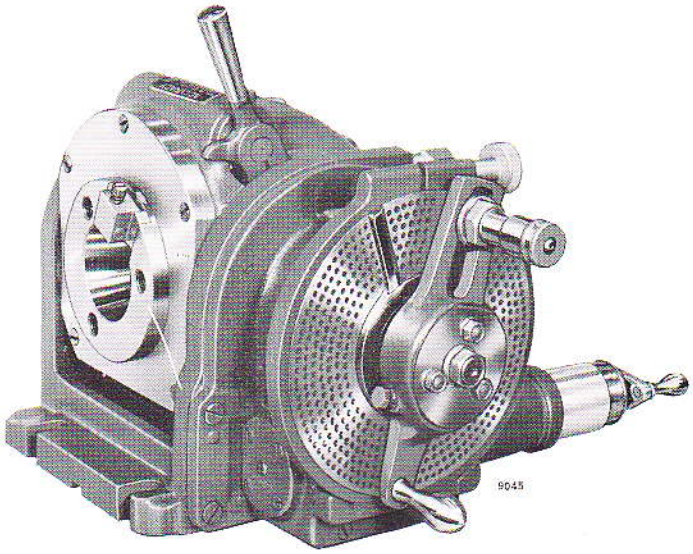
KEARNEY & TRECKER MILWAUKEE



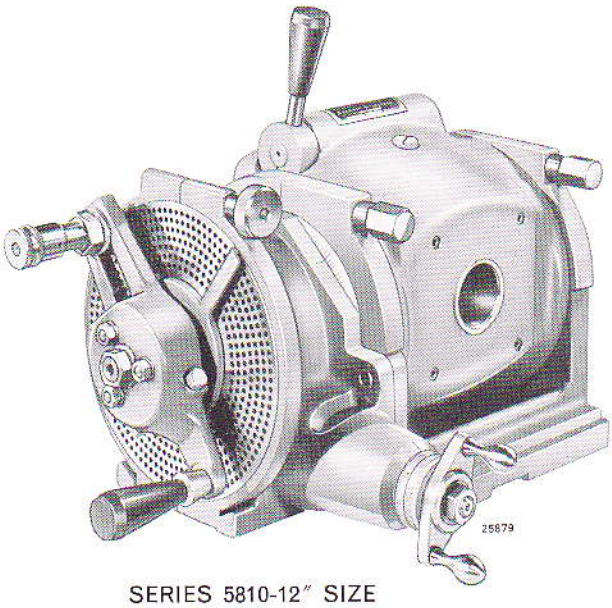
SERIES 5810-10" SIZE

Indexing operations and those requiring leads are performed quickly and accurately with Kearney & Trecker universal spiral dividing heads, available in 10", 12" and 14" sizes. Their 5 to 1 hypoid gear ratio shortens the working time between the index plunger and the spindle; less than one complete turn of the crank is required for each division when dividing a circle into five or more parts.

Spindles and worm shafts are mounted in pre-loaded, thrust-absorbing anti-friction bearings for high performance accuracy under load and no-load conditions. All model sizes have No. 50 taper spindles and exclusive worm and worm-wheel construction which eliminates backlash. The spindle's clamping system locks it securely without disturbing the position of the workpiece.



SERIES 4045-14" SIZE

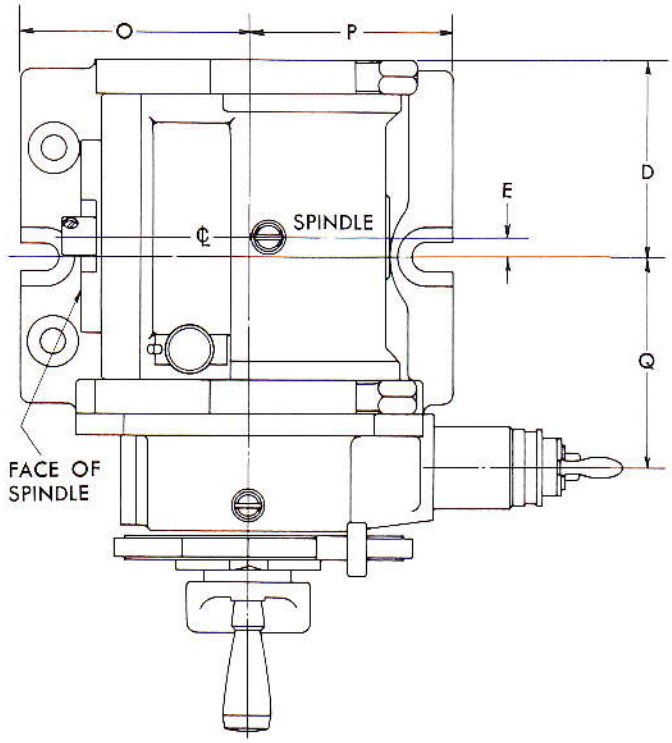


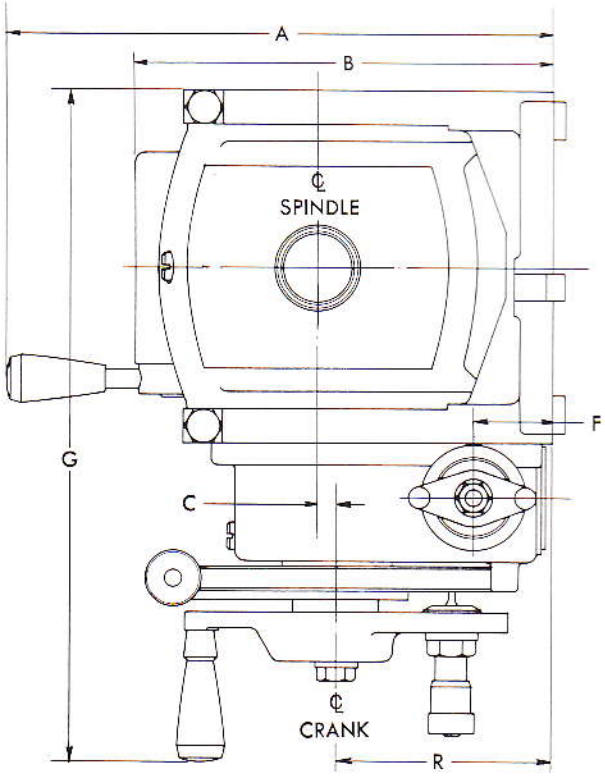
SERIES 5810-12" SIZE

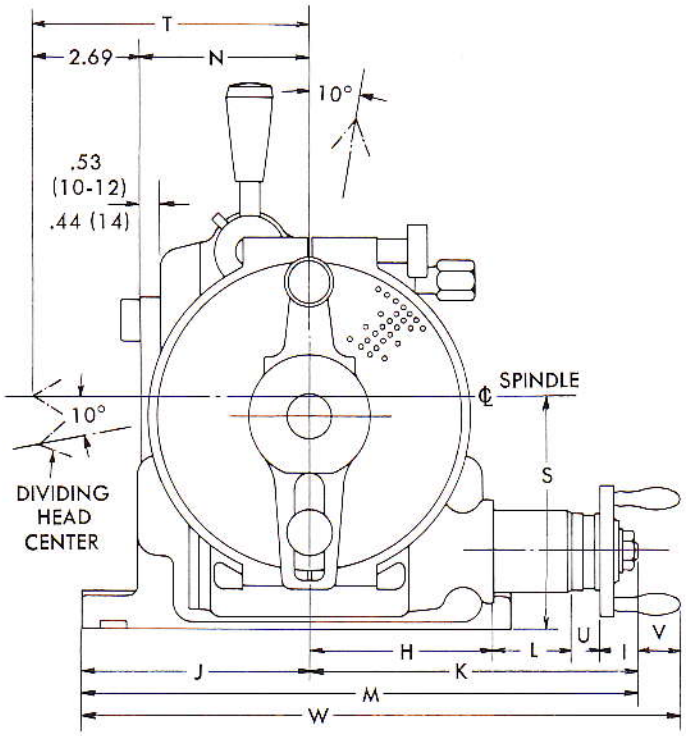
The dividing head input shaft (worm shaft) is readily adaptable for use with the conventional or low lead attachments. See pages 8 and 10. When manual rotation of the spindle is required, a removable crank at the end of the worm shaft provides for hand feed. The index plunger is spring loaded and can be adjusted radially to engage any circle of holes in the index plate.

CAPACITIES and PHYSICAL DIMENSIONS

Series 5810 and Series 4045 DIVIDING HEADS







	10″ HEAD	12″ HEAD	14″ HEAD
A	13.31	14.31	16.31
B	9.81	10.81	13.50
C	.50		1.00
D	4.66		6.44
E	.50		.88
F	2.03		2.44
G	17.50		20.94
H	4.81		7.41
I	1.00		1.03
J	5.75		6.38
K	8.59		11.22
L	2.00		2.03
M	14.34		17.59
N	4.41		5.06
O	5.75		6.38
P	5.25		7.00
Q	5.56		7.56
R	4.56	5.56	6.06
S	5.06	6.06	7.06
T	7.12		7.75
U	.78		.75
V	1.12		1.09
W	15.47		8.69

Also refer to pages 4 thru 7 for additional information on drive and spindle locations, table mounting, and lead and power drives.

DIVIDING HEAD and MILLING MACHINE

REFERENCE CHART

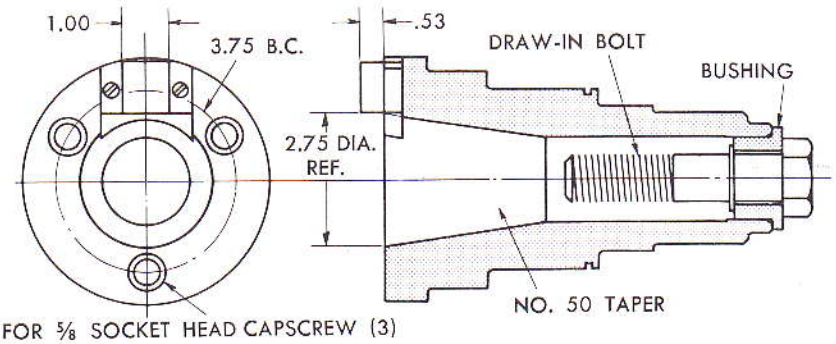
Recommended sizes of dividing heads for use on Kearney & Trecker milling machines—ONLY when used with power drive—either conventional lead or low lead.

MACHINE	10″-12″ DIVIDING HEADS	14″ DIVIDING HEAD
1E, 2E, 2CE, 1H, 1CH, 103CH, 2HL, 2CHL, 203CH, 2H	CON.	①
2CH, 205CH, 205SA, 205S-12, 307S-12	CON. or LOW	①
2K, 2KM, 2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16, 3CE, 310S-15, 315S-15, 410S-15, 415S-15, 3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30), 4CSM(30), 315TF, 330TF, 415TF, 430TF, 320TF-17, 330TF-17, 420TF-17, 430TF-17, 4K, 4CSM, 4CK, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	CON. or LOW	CON. or LOW

CON. = CONVENTIONAL LEAD BOX LOW = LOW LEAD BOX

① NOT POWER DRIVEN ON THESE MACHINES.

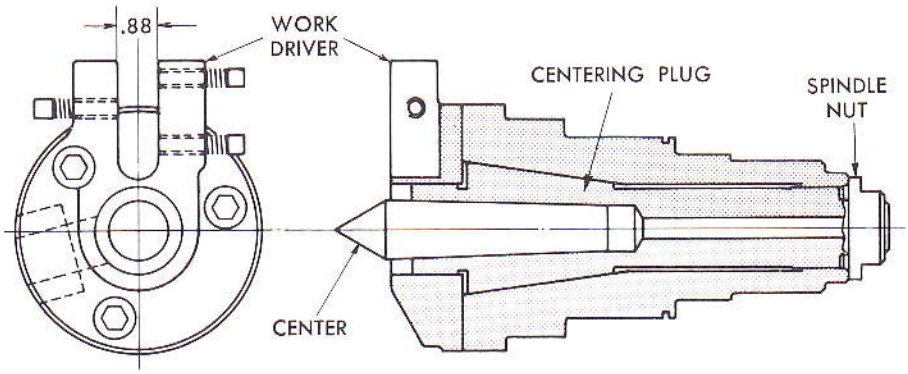
NON-RECOMMENDED SIZES OF DIVIDING HEADS MAY BE USED ON ANY MILLING MACHINE—BUT **NOT UNDER POWER FROM A LEAD BOX!** ALSO, SPECIAL LOCATING KEYS MAY BE REQUIRED. CHECK "LOCATING KEY" CHART ON PAGE 25 FOR CORRECT LOCATING KEYS.



DIVIDING HEAD SPINDLE WHEN ARBOR DRAW-IN BOLT IS USED

The sectional view at the left illustrates the dividing head spindle conditions when an arbor setup is used. This setup is usually applied when a chuck adapter (if required) is employed to install some sizes of 3-jaw chucks on dividing heads or some sizes of 4-jaw chucks on machine spindles.

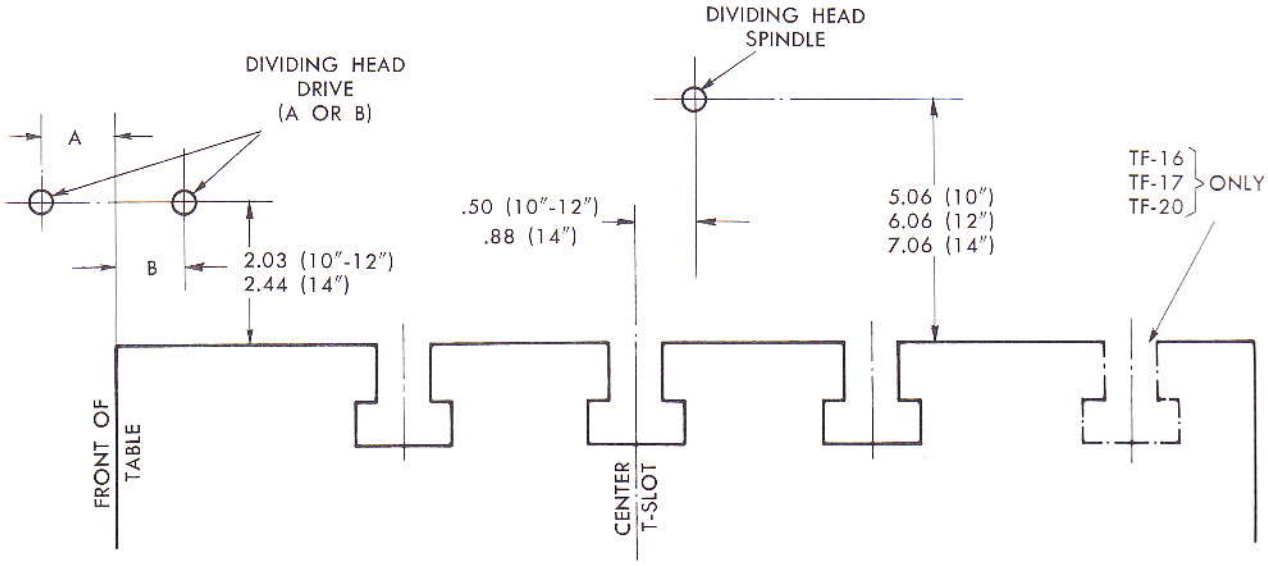
The sectional view at the right shows the dividing head spindle conditions when a work driver and work center setup is used. This setup is usually applied when machining a workpiece, using indexing operations, or when the workpiece requires the application of rotary milling.



DIVIDING HEAD SPINDLE WHEN WORK DRIVER AND WORK CENTER ARE USED

DIVIDING HEAD

DRIVE and SPINDLE LOCATIONS

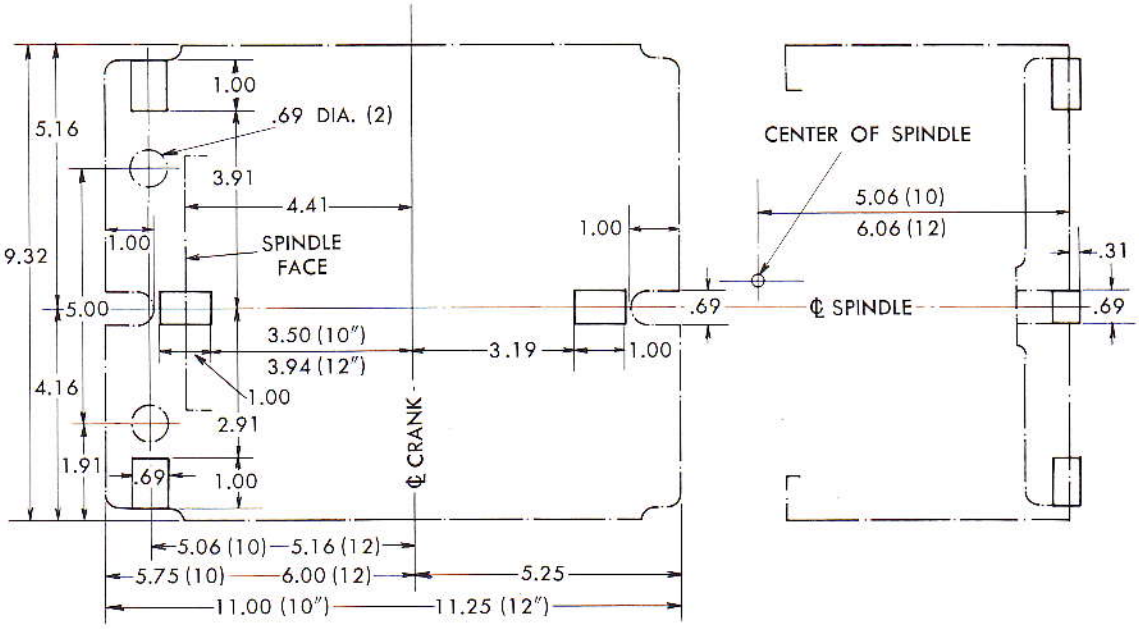


The chart and dimensional drawing on this page show dividing head drive and spindle locations relative to the machine table. It locates the dividing head spindle relative to the center T-slot and top of table, and also locates the dividing head drive relative to the front and top of table. An "A" dimension means the drive is ahead of the front of table, whereas a "B" dimension means the drive is to the rear of the table front.

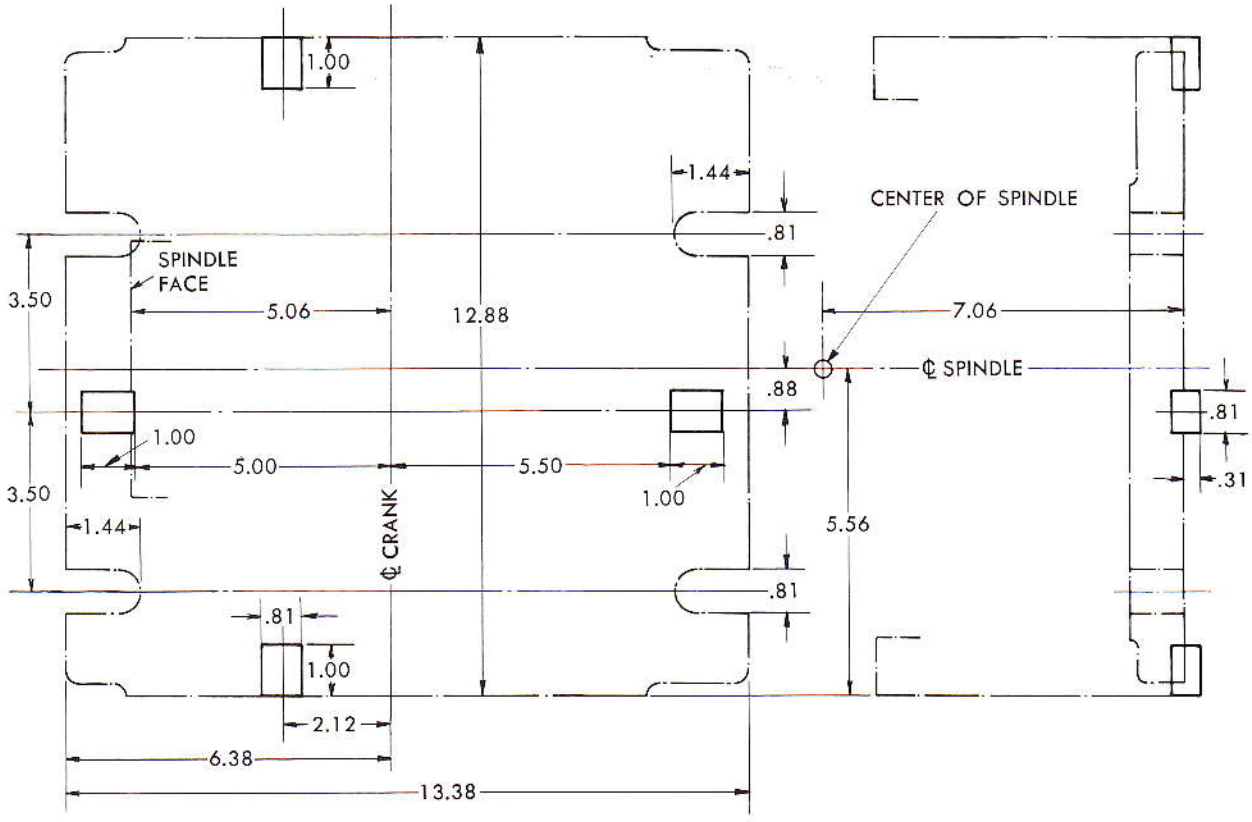
MACHINE	10"-12" DIVIDING HEADS		14" DIVIDING HEAD	
	A	B	A	B
1E, 2E, 2CE	.06	—	①	①
1H, 2HL	1.81	—	①	①
1CH, 103CH, 2CHL, 203CH	.81	—	①	①
2H	1.06	—	①	①
2CH, 205CH, 205SA, 205S-12, 307S-12	.44	—	①	①
2K, 2KM	.06	—	2.44	—
2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 215TF-16, 220TF-16, 315TF-16, 320TF-16	—	.69	1.69	—
210TF, 220TF, 310TF, 320TF, 3CE	—	.94	1.44	—
310S-15, 315S-15, 410S-15, 415S-15, 4H, 4CH, 415CH, 415CH-16, 4CSM(30), 415TF, 430TF, 420TF-17, 430TF-17	—	1.31	1.06	—
3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30), 315TF, 330TF, 320TF-17, 330TF-17	—	1.69	.69	—
4K	—	1.94	.44	—
4CSM, 4CK, 5H, 5HM, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	—	2.94	—	.56

① NOT USED ON THESE MACHINES.

DIVIDING HEAD MOUNTING DIMENSIONS



SERIES 5810-10"-12"



SERIES 4045-14"

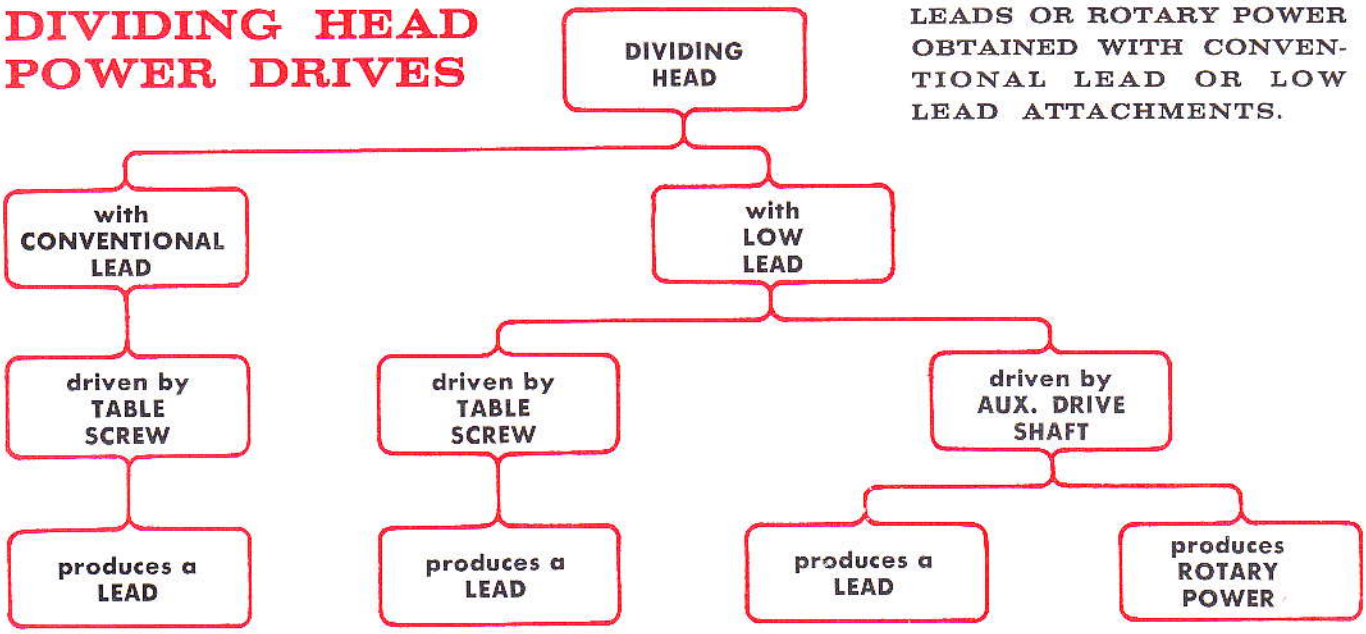
MAXIMUM DISTANCE BETWEEN CENTERS

DIVIDING HEAD and TAILSTOCK

MACHINE	10"-12" ①	14" ①
1E, 2E, 2CE	31.25	②
1H, 1CH, 103CH	19.25	②
2HL, 2CHL, 203CH	25.25	②
2H, 2CH, 205CH, 205SA	29.12	②
205S-12	35.12	②
307S-12	41.12	②
2K, 2KM, 2CK, 210CH, 210CH-14, 2CSM(20)	35.62	26.50
3H, 3CH, 310CH, 310CH-14, 3CSM(20)	43.62	34.50
210TF, 220TF, 215TF-16, 220TF-16	41.62	32.50
310TF, 320TF, 315TF-16, 320TF-16, 310S-15, 315S-15	47.62	38.50
3CE	46.62	37.50
410S-15, 415S-15	55.62	46.50
3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30)	42.12	34.50
4H, 4CH, 415CH, 415CH-16, 4CSM(30)	52.12	44.50
315TF, 330TF, 320TF-17, 330TF-17	50.12	42.50
415TF, 430TF, 420TF-17, 430TF-17	58.12	50.50
4K	58.75	53.62
4CSM, 4CK	68.75	63.62
5H, 5HM	72.75	67.62
5CSM, 5CK	76.75	63.62
6CSM, 6CK	86.75	71.62
425TF, 450TF, 430TF-20, 450TF-20	66.75	61.62
525TF, 550TF, 530TF-20, 550TF-20	74.75	69.62
625TF, 650TF, 630TF-20, 650TF-20	84.75	79.62

① DIVIDING HEAD AND TAILSTOCK SIZE.
② NOT ON THIS MACHINE.
NOTE: THE MAXIMUM EFFECTIVE CUTTING DISTANCE BETWEEN CENTERS IS EQUAL TO MACHINE TABLE TRAVEL.

DIVIDING HEAD POWER DRIVES



LEADS OR ROTARY POWER OBTAINED WITH CONVENTIONAL LEAD OR LOW LEAD ATTACHMENTS.

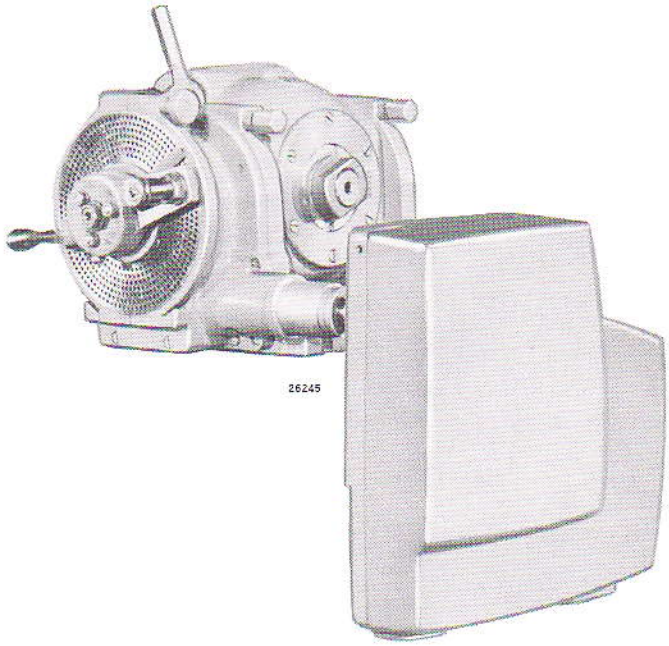
Series 5798

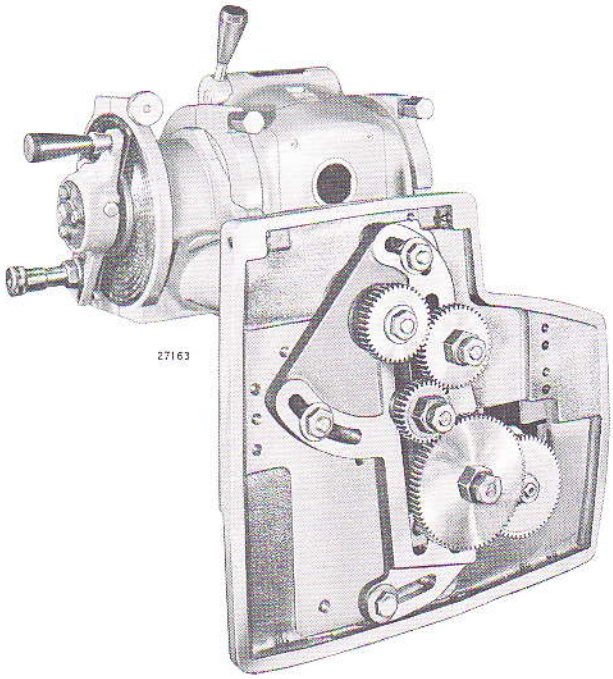
CONVENTIONAL LEAD ATTACHMENT

FOR DIVIDING HEADS

KEARNEY & TRECKER MILWAUKEE

MORE THAN 1300 LEADS...from .670" to 149.31" 13 change gears provide these leads. All leads above 3" can be cut by power. Machine rapid traverse can be applied to all leads above 10". Power is obtained directly from the table lead screw and transmitted thru the change gears to the dividing head worm shaft. Either right hand or left hand spiral milling operations are possible. Left hand spirals require the use of one idler gear; right hand spirals use none or two idler gears. The gear mechanism is completely enclosed, insuring full-operating safety.





The current series 5798 conventional lead attachment can drive such non-current dividing heads as the 8" H (2882), 10" H (2959), 10" K (4043) and 12" K (4044) without requiring special adapters or fittings other than furnished as standard equipment. This applies only to machines listed in the chart on page 9.

Also see "Drive Sleeves and Drive Shafts," page 28, for pertinent dimensions.

CONVENTIONAL LEAD CHANGE GEARS

CHANGE GEAR	No. of TEETH	CHANGE GEAR	No. of TEETH
102661	24	102667	56
102662	28	102668	64
102663	32	102669	72
102664	40	102670	86
102665	44	102671	100
102666	48		

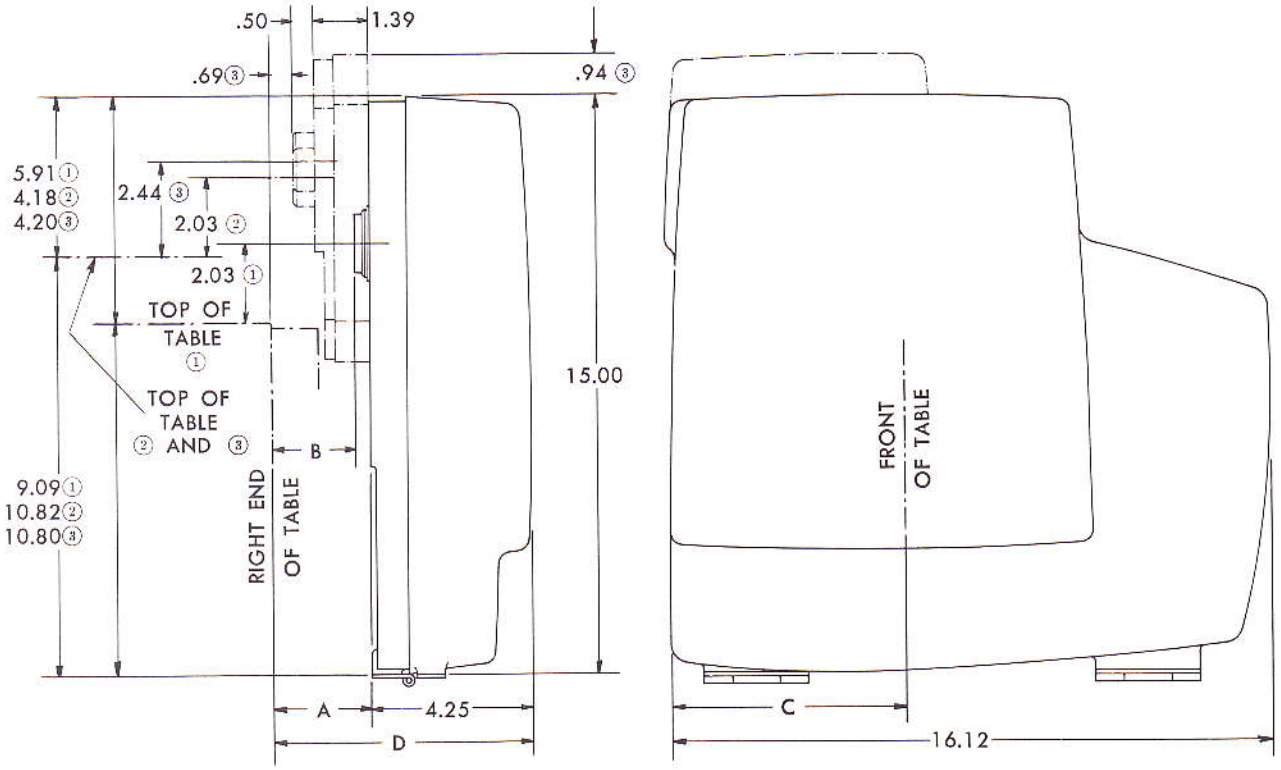
Two 24-tooth, two 48-tooth and one each of the nine remaining gears constitute a set of 13 change gears furnished as standard equipment with each conventional lead attachment. Additional or replacement gears may be purchased separately. Used in proper combination, they readily effect more than 1300 leads by power, from .670" to 149.31" Change gears from non-current conventional lead attachment units 2881, 2893, 2922, 4010 and 4116 are not interchangeable with change gears from current series 5798.

MOUNTING DIMENSIONS

Series 5798 CONVENTIONAL LEAD ATTACHMENT

MACHINE	DRIVE SHAFT LOCATION		A	B	C		D
	10″-12″ HEAD	14″ HEAD			10″-12″	14″	
1E, 2E, 2CE	①	④	2.19	1.81	5.56	—	6.44
1H, 2HL	①	④	2.19	1.81	7.31	—	6.44
1CH, 103CH, 2CHL, 203CH	①	④	2.19	1.81	6.31	—	6.44
2H	①	④	2.03	1.66	6.56	—	6.28
2CH, 205CH, 205SA, 205S-12, 307S-12	①	④	2.03	1.66	5.94	—	6.28
2K, 2KM	①	③	2.56	2.19	5.56	7.94	6.81
2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 215TF-16, 220TF-16, 315TF-16, 320TF-16	①	③	2.56	2.19	4.81	7.19	6.81
210TF, 220TF, 310TF, 320TF, 3CE	①	③	2.56	2.19	4.56	6.94	6.81
310S-15, 315S-15, 410S-15, 415S-15	①	③	2.56	2.19	4.19	6.56	6.81
4H, 4CH, 415CH, 415CH-16, 3CSM(30), 4CSM(30), 415TF, 430TF, 420TF-17, 430TF-17	②	③	2.56	—	4.19	6.56	6.81
3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30), 315TF, 330TF, 320TF-17, 330TF-17	②	③	2.56	—	3.81	6.19	6.81
4K	②	③	2.56	—	3.56	5.94	6.81
4CSM, 4CK, 5H, 5HM, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF, 20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	②	③	3.19	—	2.56	4.94	7.44

① DRIVE SHAFT LOCATION OF 10″ AND 12″ DIVIDING HEADS WHEN NO ADAPTER IS REQUIRED.
② DRIVE SHAFT LOCATION OF 10″ AND 12″ DIVIDING HEADS WHEN ADAPTER IS REQUIRED.
③ DRIVE SHAFT LOCATION OF 14″ DIVIDING HEAD — ADAPTER REQUIRED.
④ NOT USED ON THIS MACHINE.

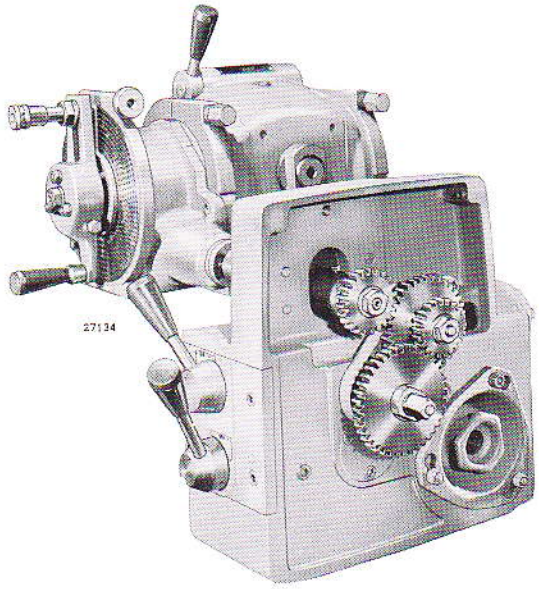


Series 5814

LOW LEAD ATTACHMENT

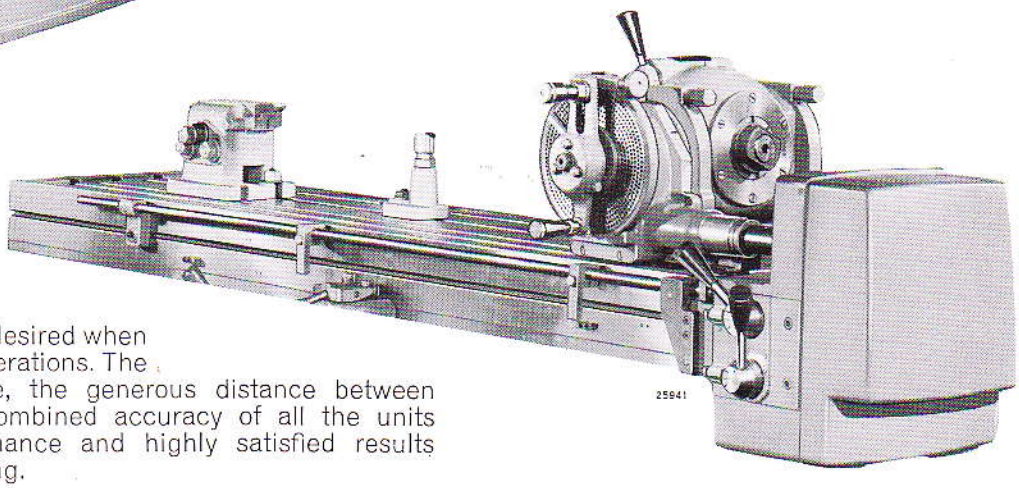
FOR DIVIDING HEADS AND ROTARY TABLES

KEARNEY & TRECKER MILWAUKEE



OVER 40,000 LEADS BY POWER . . . from .0219″ to 2918.4″ . . . with many of the short leads stepped up or down in increments as little as .0001″. Power feed and power rapid traverse can be used on all leads, both left hand and right hand. 17 change gears plus three sets of worms and worm wheels are standard equipment and make this wide range of leads possible.

The low lead attachment is also used with the rotary tables, to mill scrolls or do similar circular milling operations. Those circular milling operations not requiring a lead can be performed on the dividing head or rotary table by removing the worm or wormwheel from the table lead screw. For such operations, the table auxiliary drive shaft is the source of power. (Also refer to information at bottom of page 25.)



The combination of the low lead attachment, dividing head, steady rest and tailstock forms a team which leaves nothing to be desired when performing spiral milling operations. The number of leads available, the generous distance between centers and the overall combined accuracy of all the units produces ease of performance and highly satisfied results unequalled in circular milling.

LOW LEAD CHANGE GEARS

CHANGE GEAR	No. of TEETH	CHANGE GEAR	No. of TEETH
103354	20	103362	28
103355	21	103363	29
103356	22	103364	30
103357	23	103365	32
103358	24	103366	34
103359	25	103367	36
103360	26	103368	38
103361	27	103369	40

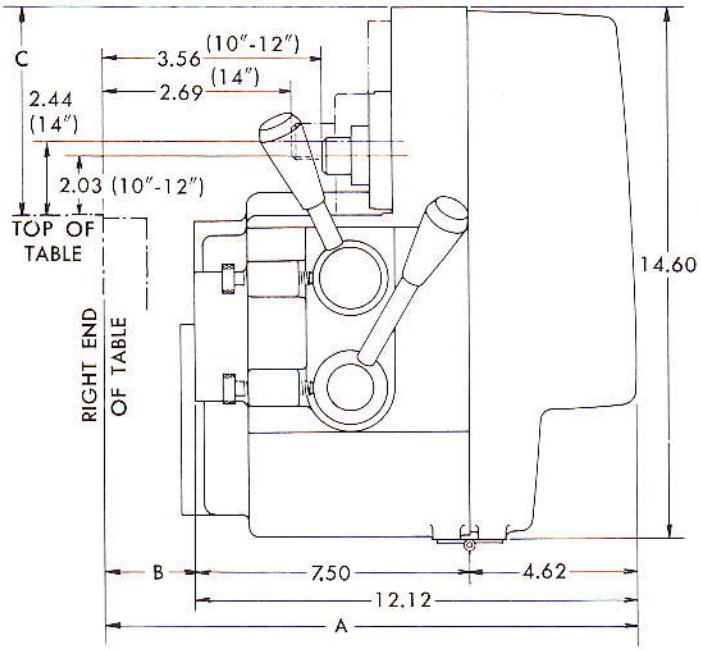
A quantity of two 20-tooth gears and one each of the remaining 15 constitute a set of 17 change gears furnished as standard equipment with each low lead attachment. In addition, three sets of worms and wormwheels are provided to effect some 42,362 leads by power, from .0219″ to 2918.4″. Additional or replacement gears may be purchased separately. Worm to wormwheel ratios are 1:96, 1:24 and 1:3.

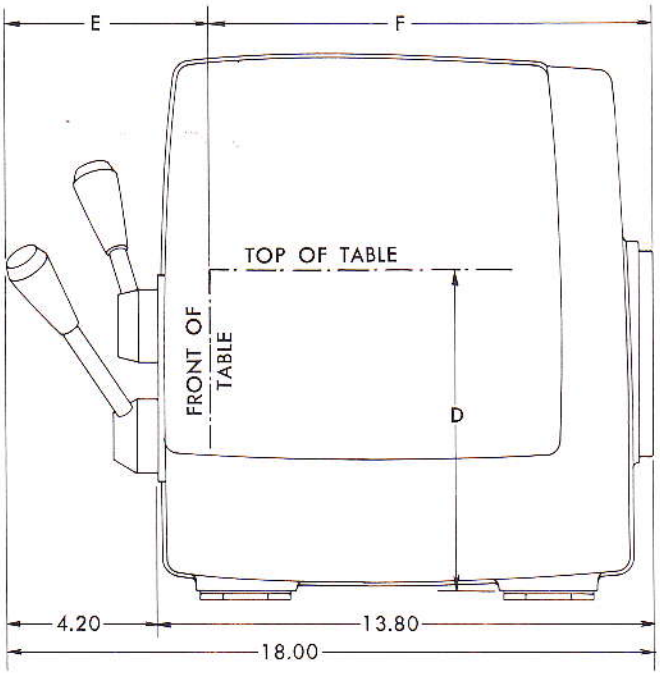
MOUNTING DIMENSIONS

Series 5814 LOW LEAD ATTACHMENT

MACHINE ①	A	B	C	D	E	F
2CH, 205CH, 205SA	14.00	1.88	6.28	8.32	7.88	10.12
205S-12, 307S-12	14.00	1.88	6.22	8.38	7.88	10.12
2K, 2KM	14.00	1.88	6.03	8.57	7.88	10.12
2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16	14.00	1.88	6.03	8.57	7.12	10.88
3CE	14.00	1.88	6.03	8.57	6.88	11.12
310S-15, 315S-15, 410S-15, 415S-15	14.12	2.00	6.03	8.57	6.12	11.88
3K, 3KM, 3CK, 315CH, 315CH-16, 4H, 4CH, 415CH, 415CH-16, 3CSM(30), 4CSM(30), 315TF, 330TF, 415TF, 430TF, 320TF-17, 330TF-17, 420TF-17, 430TF-17	14.00	1.88	5.72	8.88	6.12	11.88
4K	14.50	2.38	5.34	9.26	5.50	12.50
4CSM, 4CK, 5H, 5HM, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	14.50	2.38	5.34	9.26	4.50	12.50

① SERIES 5814 LOW LEAD ATTACHMENT **CANNOT** DRIVE ANY DIVIDING HEAD OR ROTARY TABLE ON THE FOLLOWING MACHINES: 1E, 2E, 2CE, 1H, 1CH, 103CH, 2HL, 2CHL, 203CH, 2H.





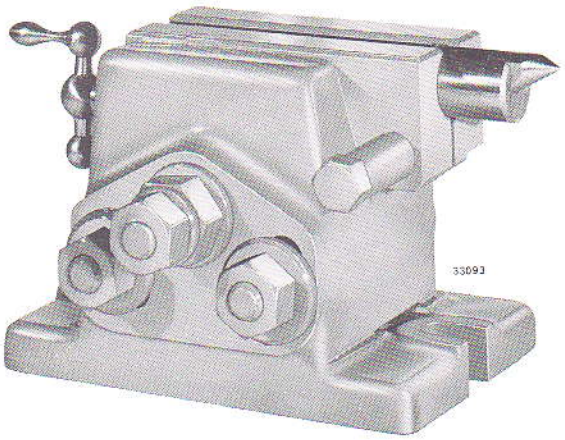
The low lead attachment will drive 10", 12" and 14" dividing heads on specific model machines as shown in the chart on page 14, but only where the word "Low" appears in the dividing head columns. It will also drive the former 10"K, 12"K and 12"H dividing heads on the machines shown in the above chart, but will NOT drive the former 10"H dividing head on any machine.

Series 5811 and Series 2811

TAILSTOCKS

FOR DIVIDING HEADS

KEARNEY & TRECKER MILWAUKEE

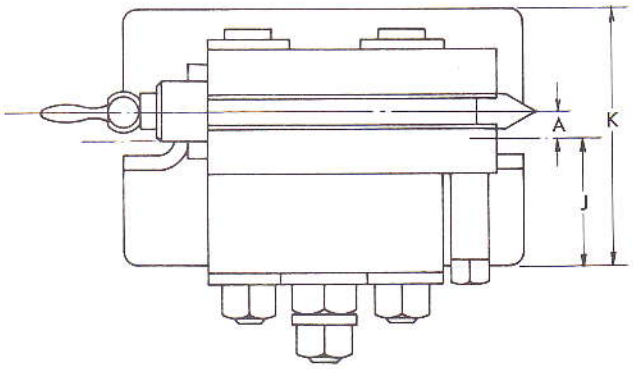


FOR USE WITH 10"-12"-14" DIVIDING HEADS

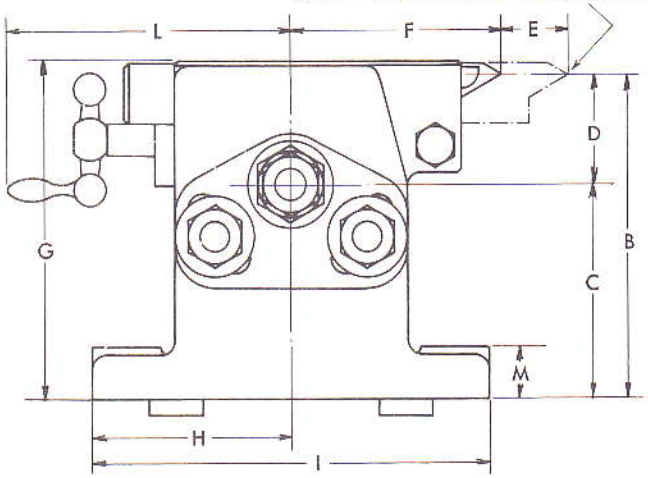
The tailstock is equipped with locating keys and clamp bolts to locate its work center in precise alignment with the center of the dividing head spindle. The tailstock center is made of hardened and ground alloy steel, readily replaceable if damaged.

Longitudinal movement of the center is controlled with a worm, rack and ballcrank. The center can be locked in any position. Rack and pinion swivel the center to 16° above or below horizontal. Taper milling operations are readily performed on reamers, pipe taps, plugs, etc.

PHYSICAL DIMENSIONS



CENTER SWIVELS 16°
ABOVE AND BELOW HORIZONTAL



	10" TAILSTOCK	12" TAILSTOCK	14" TAILSTOCK
A	.50		.88
B Min.	5.06	6.06	7.06
B Max.	6.38	7.38	8.50
C	3.00	4.00	4.69
D Min.	2.06		2.38
D Max.	3.38		3.81
E	1.25		1.38
F Min.	3.94		4.75
F Max.	5.19		6.12
G Min.	5.28	6.28	7.31
G Max.	6.59	7.59	8.75
H	3.75		4.88
I	7.50		9.75
J	2.41		1.19
K	4.81		6.25
L	5.38		6.75
M	.88	1.00	1.00

Logical design permits the cutter to approach as close as ¼" to the work center at the sides and at the top, an exceedingly desirable feature when milling flats or spirals on small workpieces.

Refer to page 7 for tailstock and dividing head use relative to distances between centers. See page 13 for steady rests used with tailstock-dividing head setups.

Series 2805, 2806 and 2807

STEADY RESTS

FOR DIVIDING HEADS

KEARNEY & TRECKER MILWAUKEE

FOR USE WITH 10" - 12" - 14" DIVIDING HEADS

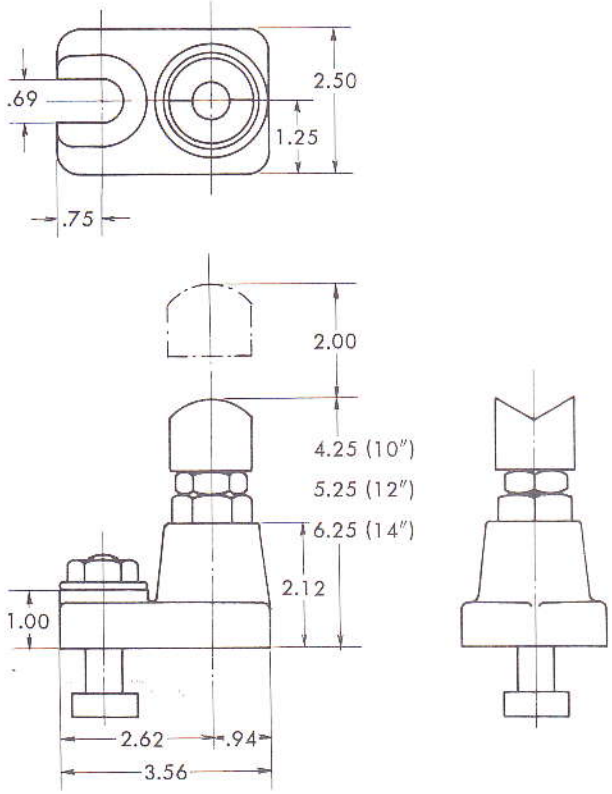
Machining on long, slender workpieces using a dividing head and tailstock as a workholding medium demands added support at or near the center to prevent distortion caused by the cutting forces imposed upon the workpiece. This support is the steady rest, which can be used in any position on the machine table since it is not confined by locating keys.

The workpiece rests in a V-block which swivels in an adjustable elevating post that can be locked in any position in its vertical range, with a jam nut.

Also, refer to dividing heads, pages 2 thru 7, and to tailstocks, page 12.

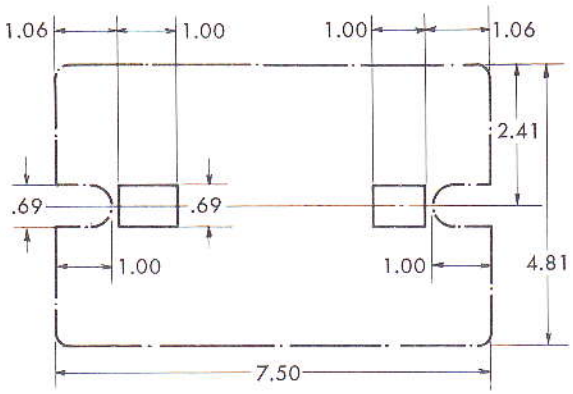
MOUNTING DIMENSIONS

STEADY RESTS

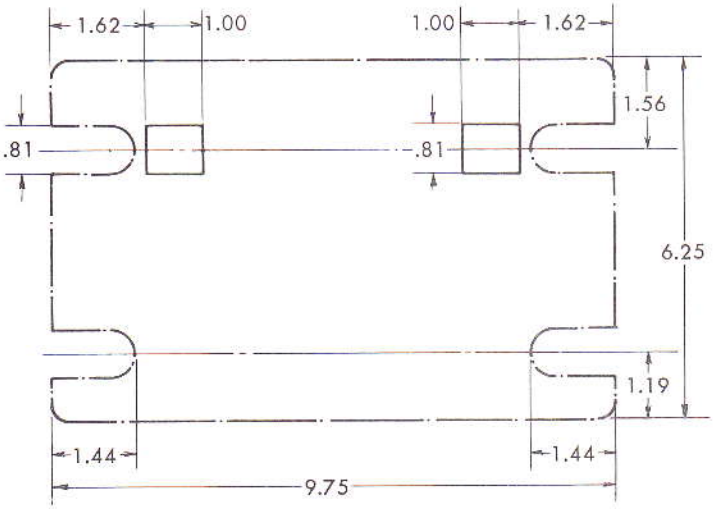


MOUNTING DIMENSIONS

10" and 12" TAILSTOCKS



14" TAILSTOCK



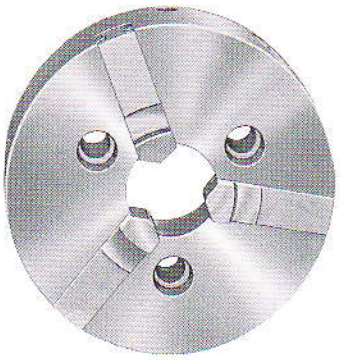
3-Jaw

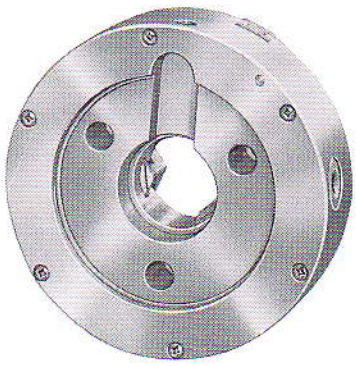
UNIVERSAL CHUCKS

6"- 7"- 8"- 9" SIZES

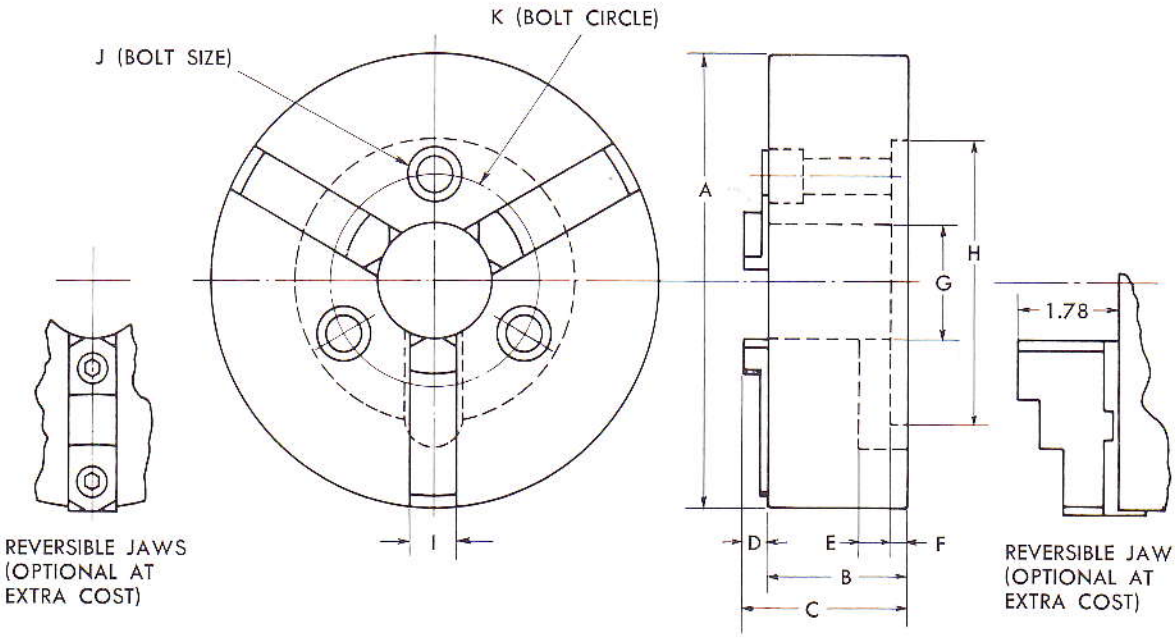
KEARNEY & TRECKER MILWAUKEE

FOR DIVIDING HEADS and MILLING MACHINE SPINDLES





Three-jaw universal scroll chucks are self-centering and are designed for use with Kearney & Trecker dividing heads and milling machines. They center and bolt to the dividing head or machine spindle nose directly or with the aid of adapters (see page 16). They are equipped with single step jaws for internal or external holding engagement. Three-step reversible jaws are available at extra cost.



PHYSICAL and MOUNTING DIMENSIONS

6"- 7"- 8"- 9" 3 JAW CHUCKS

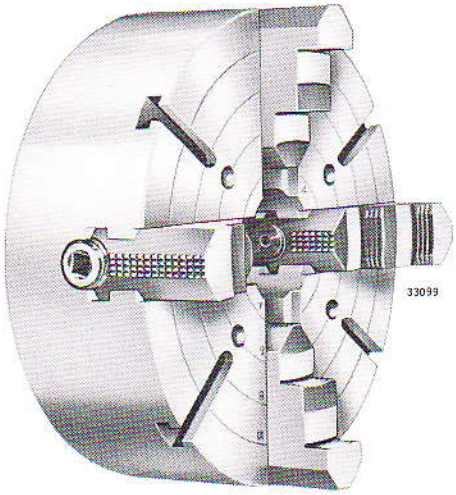
CHUCK SIZE	A	B	C	D	E	F	G	H	I	J	K
6	6.25	1.94	2.38	.44	.34	.25	1.75	3.50	.62	.50	2.62
7	7.25	2.50	2.94	.44	.53	.31	2.00	5.06	1.00	.62	3.75
8	8.00	2.50	2.94	.44	.53	.31	2.00	5.06	1.00	.62	3.75
9	9.00	2.62	3.06	.44	.53	.31	2.50	5.06	1.00	.62	3.75

4-Jaw

INDEPENDENT CHUCKS

6"- 8"- 10" SIZES

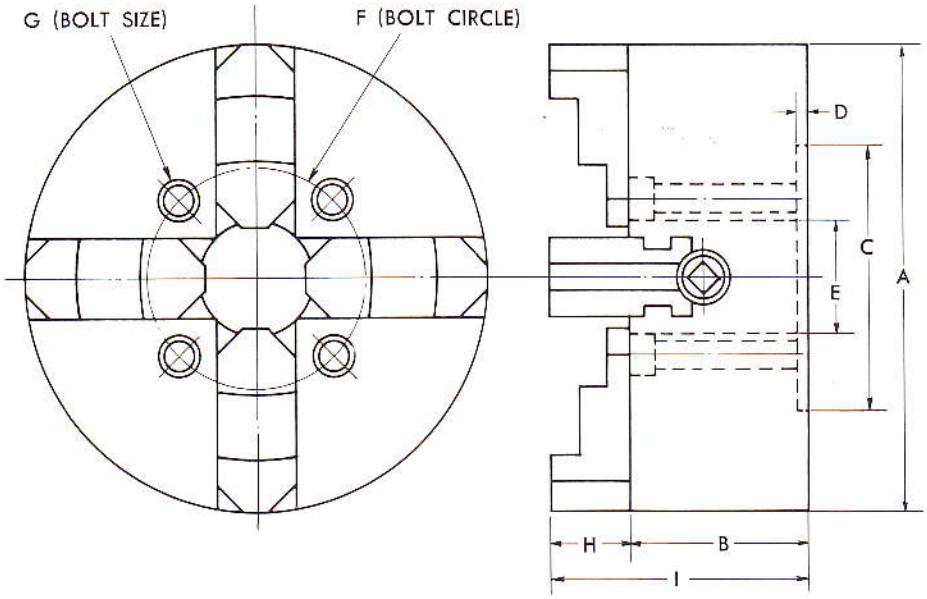
KEARNEY & TRECKER MILWAUKEE



FOR DIVIDING HEADS

The four-jaw independent chuck is of semi-steel construction, with solid, reversible jaws. These chucks are extremely accurate, have unusual maximum jaw movement and are self-aligning. They are precision-made and center and bolt to dividing head spindles directly or with the aid of adapters (see page 17).

Due to their design and purpose (four independently operated jaws), these chucks are usually used on dividing heads, but can be installed on machine spindles (consult factory).



PHYSICAL and MOUNTING DIMENSIONS

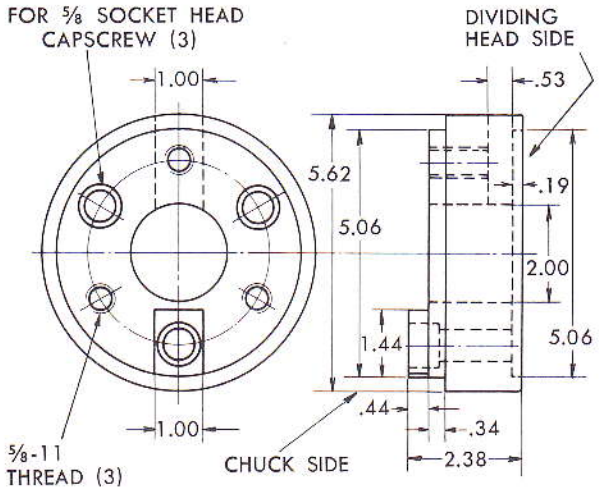
6"- 8"- 10" 4 JAW INDEPENDENT CHUCKS

CHUCK SIZE	A	B	C	D	E	F	G	H	I
6	6	2.69	5.61	.12	1.56	4.83	.38	1.06	3.75
8	8.25	3.20	4.72	.19	2.00	3.94	.44	1.38	4.58
10	10.06	3.81	5.61	.25	2.50	4.50	.62	1.69	5.50

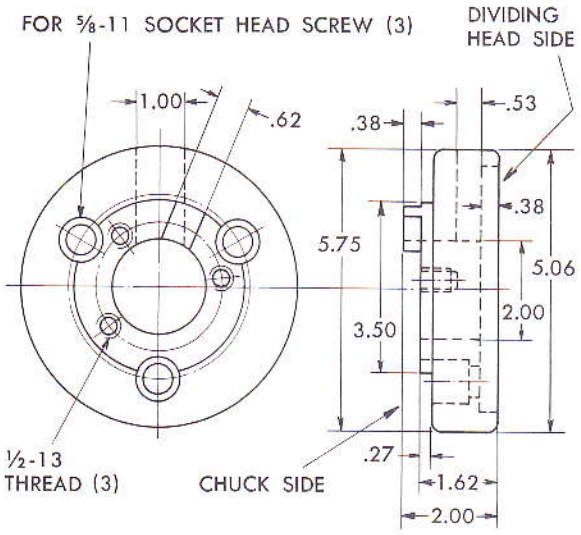
3-Jaw and 4-Jaw
CHUCK ADAPTERS

KEARNEY & TRECKER MILWAUKEE

3 JAW UNIVERSAL CHUCKS TO 10"-12"-14" DIVIDING HEADS



26560



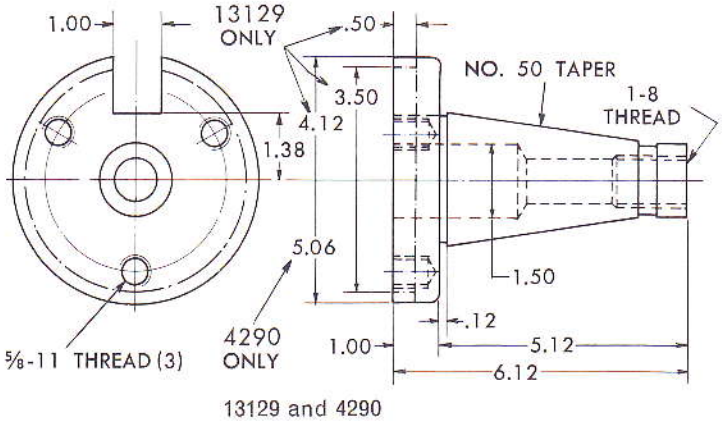
S-4686-2

CHUCK SIZE	DIVIDING HEAD		
	10	12	14
6	S-4686-2	S-4686-2	S-4686-2
7	①	①	①
8	26560	①	①
9	26560	26560	①

① NO ADAPTER REQUIRED

Three-jaw universal chucks are installed on dividing heads and machine spindles with or without the aid of chuck adapters, as outlined in the two charts on this page. Where no adapter is required, the chuck bolts directly to the dividing head spindle. Refer to page 14 for complete three-jaw chuck information.

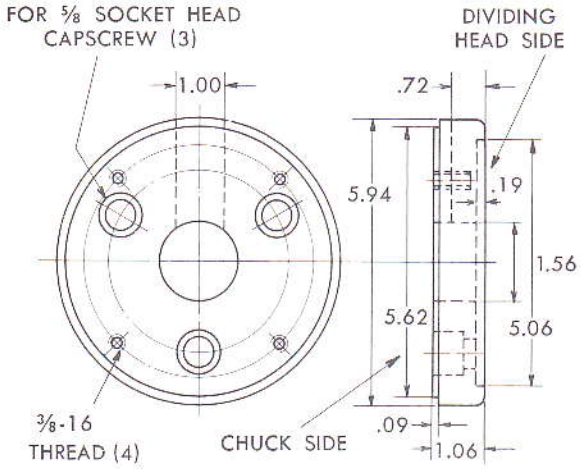
3 JAW UNIVERSAL CHUCKS TO MILLING MACHINE SPINDLES



13129 and 4290

CHUCK SIZE	No. 50 TAPER MACHINE SPINDLE
6	13129
7	4290
8	4290
9	4290

Chuck adapters may or may not be required to install chucks on dividing heads and milling machine spindles. The charts and dimensional drawings on these two pages (16 and 17) offer adequate information on such requirements. If an adapter is required for installation, it is normally included in the price and purchase of the chuck, also included is all necessary hardware. If an existing chuck is to be used for installation other than originally intended, the information on these two pages will aid in making the selection of any adapter which may be required for change-over.



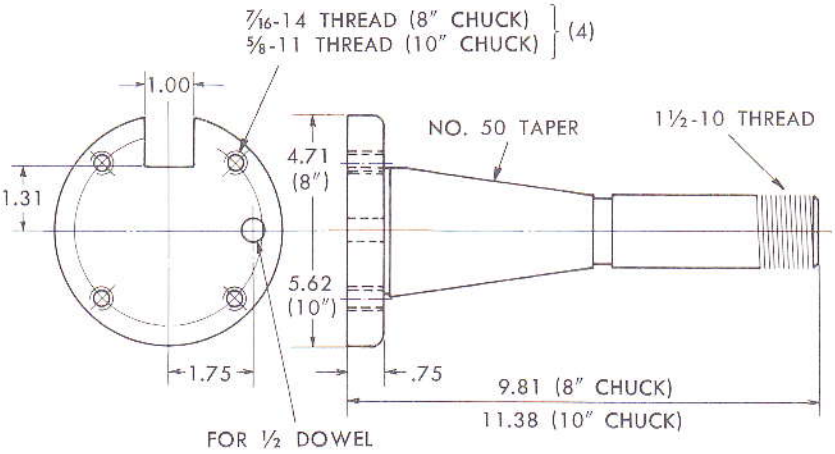
S-4872

4 JAW INDEPENDENT CHUCKS TO 10"-12"-14" DIVIDING HEADS

CHUCK SIZE	DIVIDING HEAD		
	10	12	14
6	S-4872	S-4872	①
8	S-5441-4	S-5441-4	①
10	①	①	112452

① THIS COMBINATION NOT USED.

Four-jaw independent chucks are installed on dividing heads with or without the aid of chuck adapters, as outlined in the chart on this page. Where no adapter part number appears, that size chuck and dividing head combination is not recommended, is not practical or cannot be used.



S-5441-4 and 112452

The charts on these two pages (16 and 17) indicate small chucks used on large dividing heads and large chucks used on small dividing heads. Such combinations, while possible, are not recommended both economically and practically from the viewpoint of chuck size versus dividing head size. A small chuck installed on a large dividing head may limit milling operations, whereas a large chuck on a small dividing head may overburden the capacities of the dividing head if cutting forces and load are too great. Such conditions should be seriously considered when purchasing chucks and dividing heads so as to profit from the proper combination.

Dividing Head
INDEX PLATES

KEARNEY & TRECKER MILWAUKEE

Index plates are fitted and doweled together as a set of two to form a single unit. Each plate has seven concentric circles of holes which have a tolerance of ± .0001″ between adjacent holes. The number of holes in each circle is indicated on the circle; every tenth hole in each circle is circumscribed for simplified identification.

STANDARD and OPTIONAL HIGH NUMBER

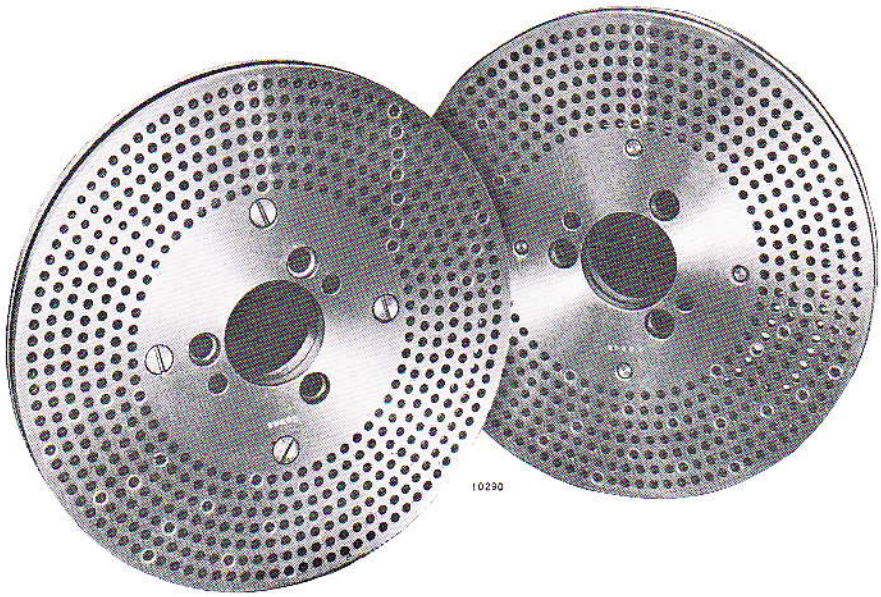


PLATE NO.	INDEX HOLES PER CIRCLE						
22689 ①	54	58	68	76	78	88	98
22690 ①	60	66	72	84	92	96	100
22691 ②	56	62	69	77	83	91	99
22692 ②	52	59	64	73	81	87	94
22693 ②	53	61	67	74	82	89	97
22694 ②	51	57	63	71	79	86	93

① STANDARD EQUIPMENT ON ALL DIVIDING HEADS.

② OPTIONAL AS A SET OF FOUR AT EXTRA COST. THE COMPLETE SET OF SIX INDEX PLATES CAN BE USED TO DIVIDE A CIRCLE AS FOLLOWS:

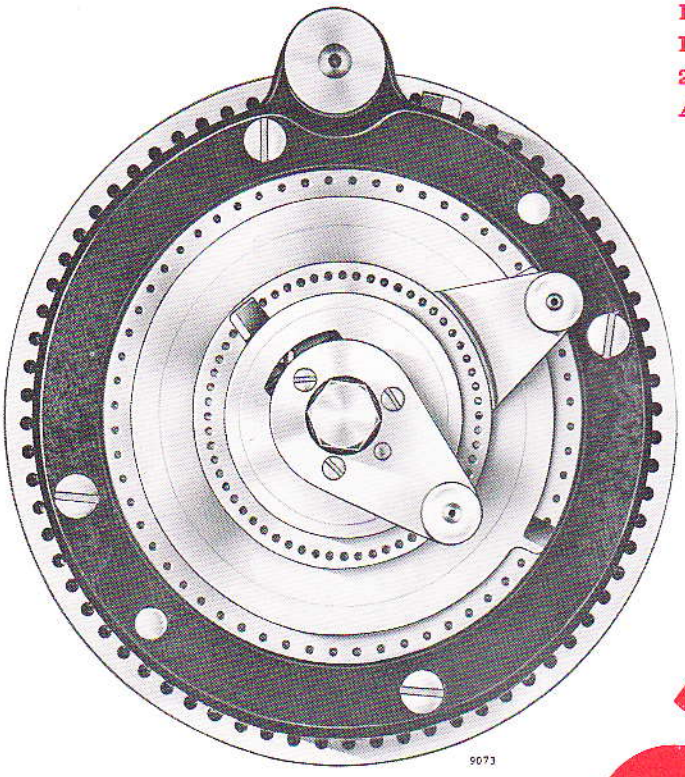
1. ALL DIVISIONS FROM 2 THRU 100.
2. ALL DIVISIONS THRU 500 WHICH ARE DIVISIBLE BY 5 EXCEPT 175, 200, 225, 275, 325, 350, 375, 400, 425, 450 AND 475.

Dividing Head

ASTRONOMICAL DIVIDER

KEARNEY & TRECKER MILWAUKEE

EXTREMELY ACCURATE . . . PRE[illegible]SE[illegible] DIVIDES A CIRCLE INTO 360 [illegible]GREES, 21,600 MINUTES, OR 1,296,000 S[illegible]S[illegible]E[illegible] ARC, OR ANY COMBINATIO[illegible]F[illegible].



SERIES 2910 ASTRONOMICAL DIVIDER

The Astronomical Divider replaces the standard double index plates and attaches to the dividing head in place of the crank and plunger assembly. When installed on a dividing head, the overall depth of the dividing head is increased, by only .38", that is, further to the front than the standard index crank.

Three sets of index plates and index plungers are provided. The degree (outside) plate has 72 holes, each representing one degree. Five revolutions of the "degree" index crank rotate the spindle 360 degrees. The "minute" (intermediate) and "second" (small) index plates each have 60 holes, each hole equal to one minute and one second of arc respectively. If a given arc is in degrees only, the "degree" plunger is moved only. If the arc is in degrees and minutes, the minute plunger is moved first, then the degree plunger. If the arc is in degrees, minutes and seconds, the "second" plunger is moved first, then the "minute" and "degree" plungers in that sequence. Adjustable index fingers are provided for each index plunger to simplify indexing through equal divisions.

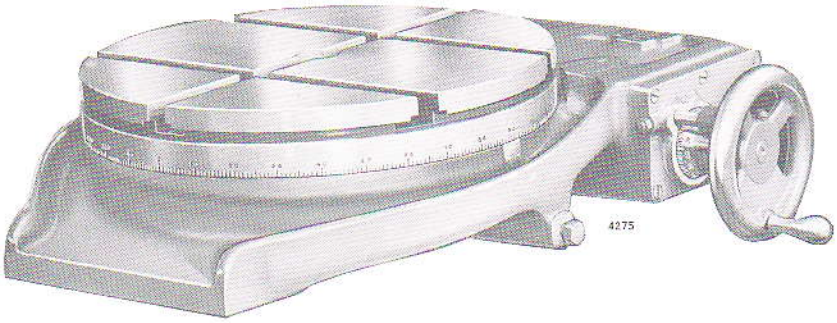
SERIES 2910 ASTRONOMICAL DIVIDER
INSTALLED ON SERIES 4045 DIVIDING HEAD

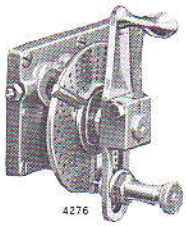
Series 2837, 2917, 2901 and 2925

ROTARY TABLES

12" - 16" - 20" - 24" SIZES

KEARNEY & TRECKER MILWAUKEE





INDEX PLATE AND CRANK UNIT

Rotary tables are available in 12", 16", 20" and 24" sizes, each in four arrangements; handwheel and microdial type, and index and crank style, both of which can be manually operated or power driven. Kearney & Trecker rotary tables are of minimum height for rigid work foundation and have flanged runways for quick coolant and chip dispersal. A hole in the center of the table accommodates a locating arbor, and the table can be clamped in any position. The quick reference chart below shows the sizes of rotary tables adaptable to given milling machine models, and indicates whether they are manually operated or can be power driven.

ROTARY TABLE and MILLING MACHINE

REFERENCE CHART

MACHINE	ROTARY TABLE SIZE			
	12"	16"	20"	24"
1E, 2E, 2CE, 1H, 2HL, 1CH, 103CH, 2CHL, 203CH, 2H, 2CH, 205CH, 205SA	MANUAL and POWER	MANUAL and POWER	①	①
205S-12, 307S-12	MANUAL and POWER	MANUAL and POWER	MANUAL and POWER	①
2K, 2KM, 3H, 2CK, 210CH, 210CH-14, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16	MANUAL	MANUAL and POWER	MANUAL and POWER	①
3CE	MANUAL	MANUAL and POWER	MANUAL and POWER	MANUAL
310S-15, 315S-15, 410S-15, 415S-15, 3K, 3KM, 4H, 3CK, 315CH, 315CH-16, 4CH, 415CH, 415CH-16, 3CSM(30), 4CSM(30), 315TF, 330TF, 415TF, 430TF, 320TF-17, 330TF-17, 420TF-17, 430TF-17, 4K, 5H, 5HM, 4CSM, 5CSM, 6CSM, 4CK, 5CK, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	MANUAL	MANUAL and POWER	MANUAL and POWER	MANUAL and POWER

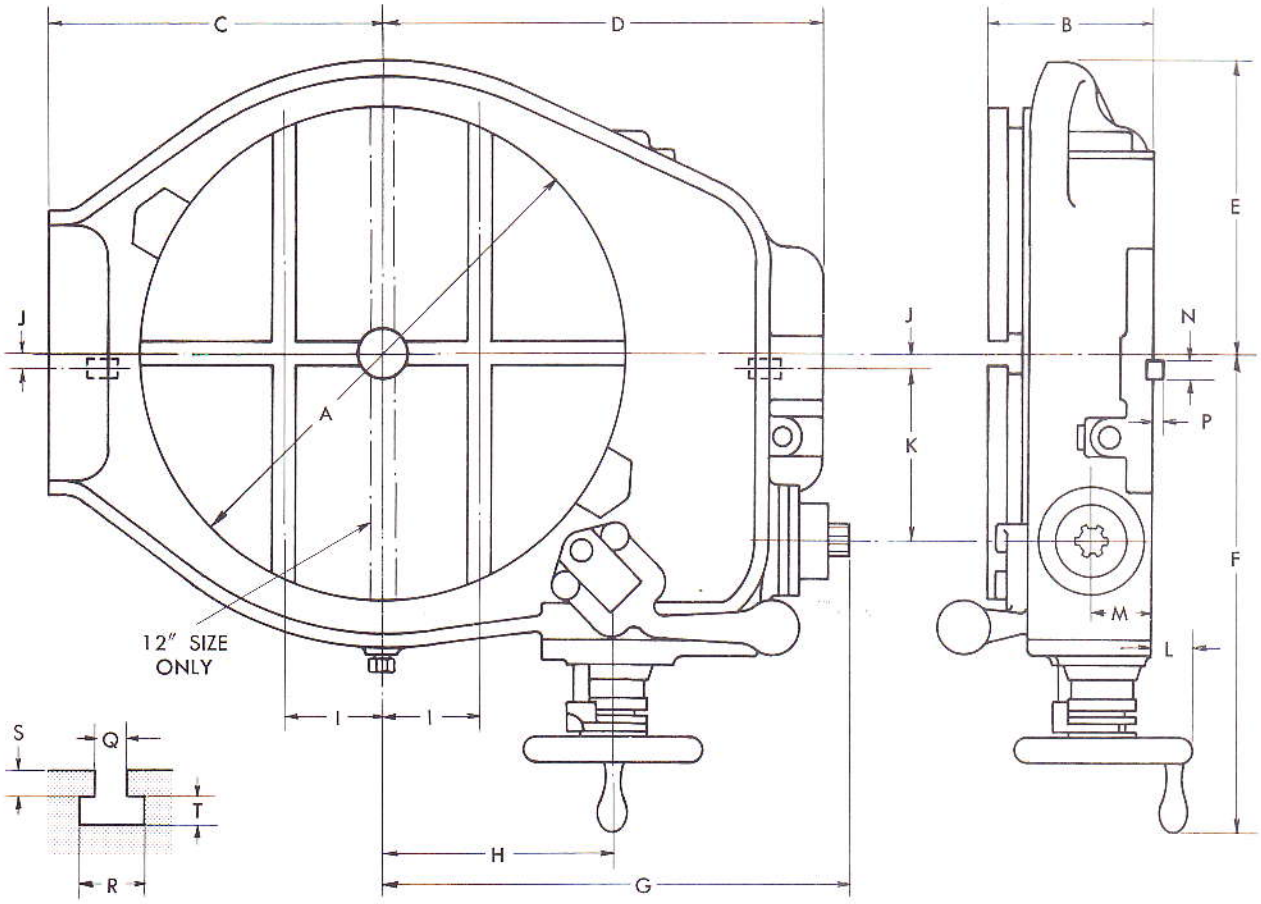
MANUAL — THIS SIZE ROTARY TABLE CAN BE OPERATED MANUALLY ON THIS MACHINE.
POWER — THIS SIZE ROTARY TABLE CAN BE OPERATED BY POWER ON THIS MACHINE.
① — THIS SIZE ROTARY TABLE **NOT** RECOMMENDED FOR USE EITHER MANUALLY OR BY POWER ON THIS MACHINE.
FOR ANY ARRANGEMENT OTHER THAN SHOWN IN THIS CHART, CONSULT FACTORY.

PHYSICAL DIMENSIONS

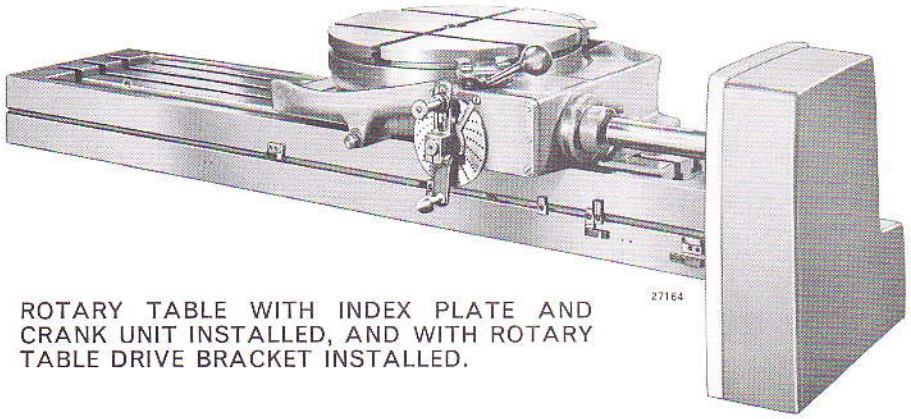
12", 16", 20", 24" ROTARY TABLES

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T
12	12.00	4.44	8.50	11.88	7.56	13.81	12.75	5.75	0①	0	5.00	1.75	1.62	.69	.31	.69	1.19	.50	.50
16	16.00	5.50	11.00	14.62	9.56	15.62	15.36	7.69	3.25	.50	5.56	1.38	2.03	.69	.31	.69	1.19	.62	.50
20	20.00	5.50	13.50	16.31	12.00	17.06	16.99	9.27	4.25	.50	5.56	1.38	2.03	.69	.31	.69	1.19	.62	.50
24	24.00	5.75	15.75	21.25	14.56	19.00	22.11	10.86	5.50	0	7.56	1.12	2.44	.81	.31	.81	1.44	.62	.62

① TWO T-SLOTS AT RIGHT ANGLE TO EACH OTHER, ON TABLE CENTERLINES.



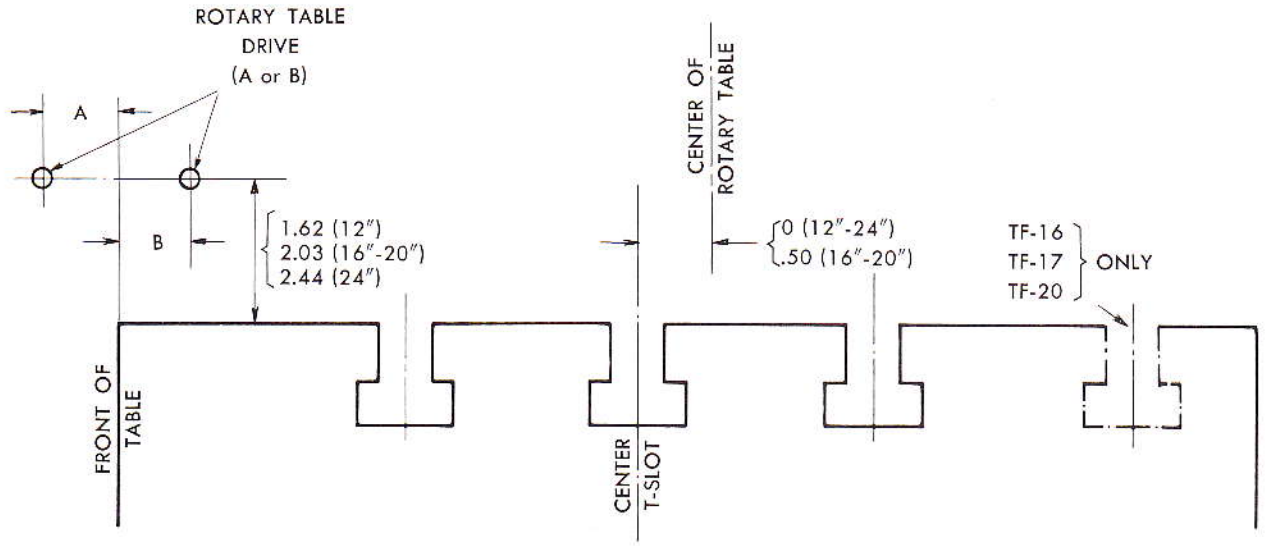
Indexing ratios vary with each size rotary table; 60 to 1 for the 12" size, 80 to 1 for the 16", 100 to 1 for the 20" and 120 to 1 for 24". Inherently, the ratio is the number of revolutions of the handwheel required to produce one complete revolution of the rotary table.



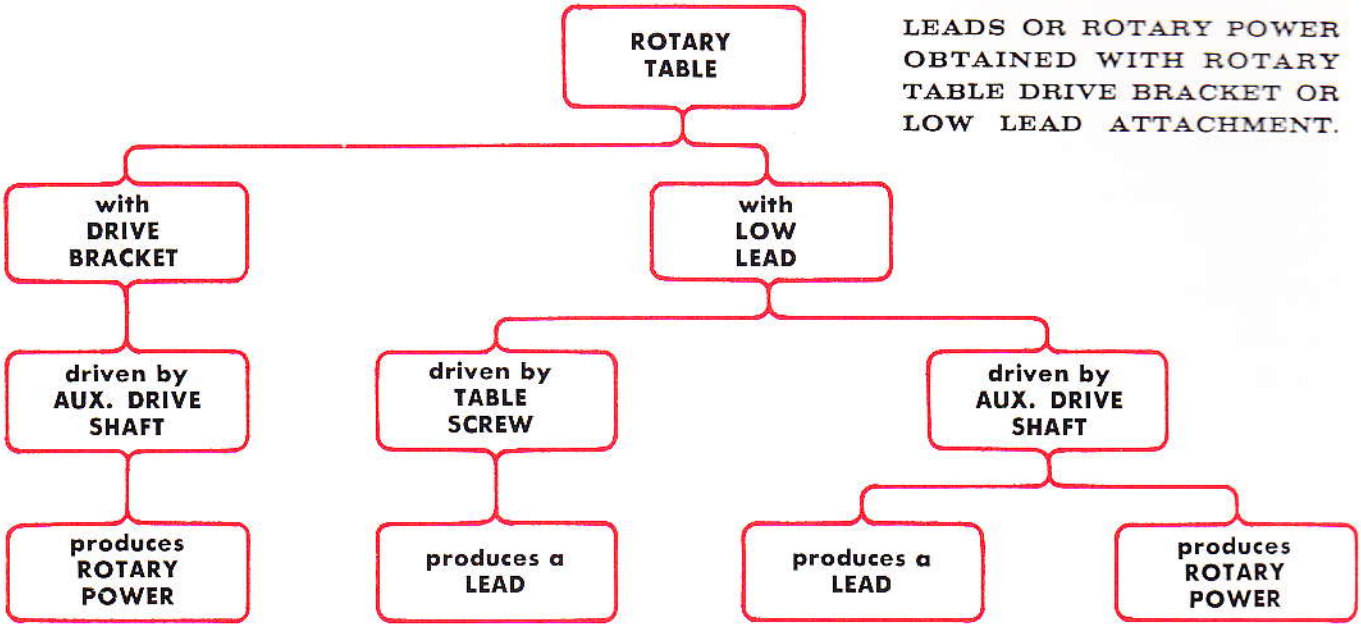
ROTARY TABLE WITH INDEX PLATE AND CRANK UNIT INSTALLED, AND WITH ROTARY TABLE DRIVE BRACKET INSTALLED.

ROTARY TABLE DRIVE and TABLE CENTER LOCATIONS

MACHINE	12″ A	12″ B	16″ A	16″ B	20″ A	20″ B	24″ A	24″ B
1E, 2E, 2CE	—	1.00	—	.44	—	—	—	—
1H, 2HL	.75	—	1.31	—	—	—	—	—
1CH, 103CH, 2CHL, 203CH	—	.25	.31	—	—	—	—	—
18AC, 18CH, 103CHP, 24AC, 24CH, 203CHP	—	1.44	—	.88	—	—	—	—
2H	0	0	.56	—	—	—	—	—
2CH, 205CH, 205SA, 205S-12, 307S-12	—	1.50	—	.94	—	—	—	—
2K, 2KM	—	—	—	.44	—	.44	—	—
2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20)	—	—	—	1.19	—	1.19	—	—
210TF, 220TF, 310TF, 320TF	—	—	—	1.44	—	1.44	—	—
215TF-16, 220TF-16, 315TF-16, 320TF-16	—	—	—	1.19	—	1.19	—	—
3CE	—	—	—	1.44	—	1.44	—	—
310S-15, 315S-15, 410S-15, 415S-15	—	—	—	1.81	—	1.81	.19	—
3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30), 315TF, 330TF	—	—	—	2.19	—	2.19	—	.19
4H, 4CH, 415CH, 415CH-16, 4CSM(30), 415TF, 430TF	—	—	—	1.81	—	1.81	.19	—
320TF-17, 330TF-17	—	—	—	2.19	—	2.19	—	.19
420TF-17, 430TF-17	—	—	—	1.81	—	1.81	.19	—
4K	—	—	—	2.44	—	2.44	—	.44
4CSM, 4CK, 5H, 5HM, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF	—	—	—	3.44	—	3.44	—	1.44
430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	—	—	—	3.44	—	3.44	—	1.44



ROTARY TABLE POWER DRIVES



LEADS OR ROTARY POWER OBTAINED WITH ROTARY TABLE DRIVE BRACKET OR LOW LEAD ATTACHMENT.

The application of power drive greatly increases the productivity of any Kearney & Trecker rotary table. Power feed of machines and of rotary table can be combined or applied independently of each other. (For power drive application and results relative to power drive medium, see preceding chart.) The power drive design permits longitudinal adjustment of the rotaty table on the machine table.

Power feed permits rapid milling in a circular plane on work of every description. On machines having a low lead attachment, the added feature of producing a lead is available and permits the milling of cams, spirals, scrolls, etc.

The feed rate at the periphery of the rotary table relative to the feed selected on the machine feed dial can be determined from the following chart. All controls are front mounted, an extremely important safety feature. All size tables have two adjustable peripheral trip dogs for table feed trip-out. Anti-friction bearings, hardened and ground worm (adjustable) and oil submerged working components provide for extremely low cost maintenance.

RATIO OF ROTARY TABLE PERIPHERAL FEED TO MACHINE FEED DIAL SETTING

12", 16", 20", 24" ROTARY TABLES

Using Rotary Table Drive Bracket Unit 5813

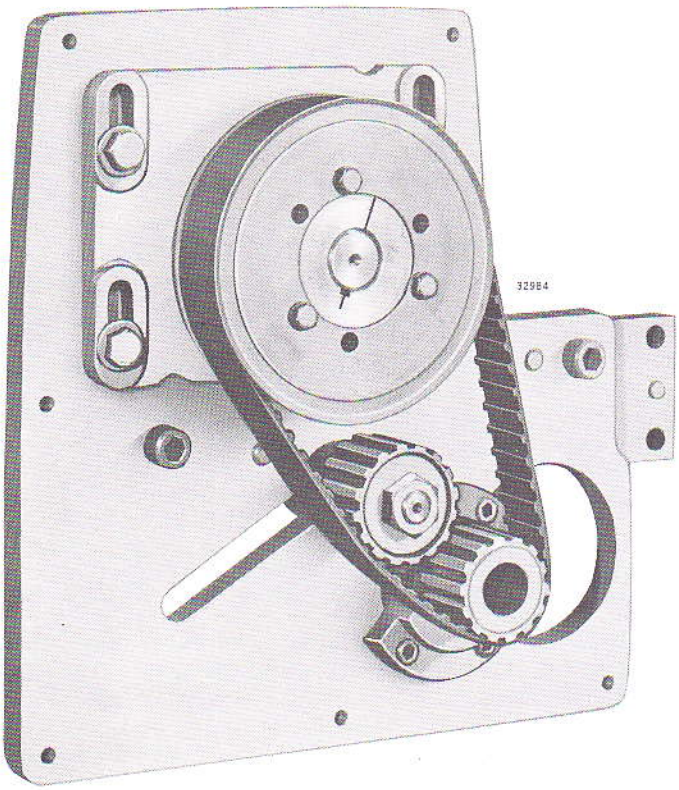
MACHINE	RATIO ①
1E, 2E, 2CE, 1H, 2HL, 2H, 2K, 2KM, 3H, 3CE, 3K, 3KM, 4H, 3CK, 315CH, 315CH-16, 4CH, 415CH, 415CH-16, 3CSM(30), 4CSM(30), 315TF, 320TF, 330TF, 430TF, 320TF-17, 330TF-17, 420TF-17, 430TF-17, 4K, 5H, 5HM, 4CSM, 5CSM, 6CSM, 4CK, 5CK, 6CK, 425, 525TF, 625TF, 450TF, 550TF, 650TF, 430TF-20, 530TF-20, 630TF-20, 450TF-20, 550TF-20, 650TF-20	1.00
1CH, 103CH, 2CHL, 203CH, 310S-15, 315S-15, 410S-15, 415S-15	1.20
2CH, 205CH, 205SA, 205S-12, 307S-12, 2CK, 210CH, 210CH-14, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16	1.30

① MULTIPLY MACHINE FEED DIAL SETTING BY RATIO TO OBTAIN TRUE PERIPHERAL FEED RATE (IPM) OF ROTARY TABLE.

Series 5813

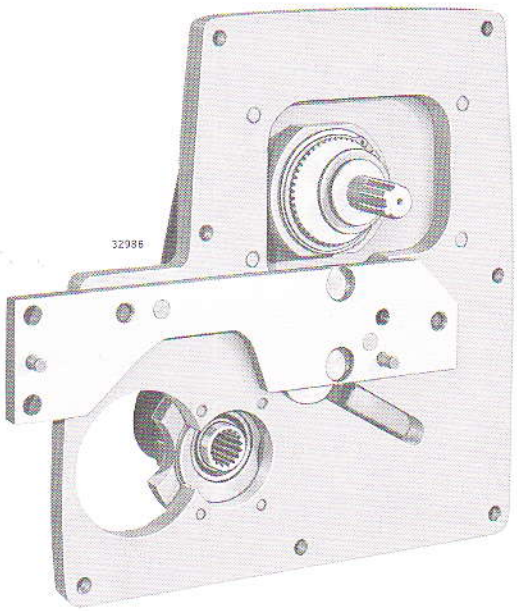
ROTARY TABLE DRIVE BRACKET

KEARNEY & TRECKER MILWAUKEE

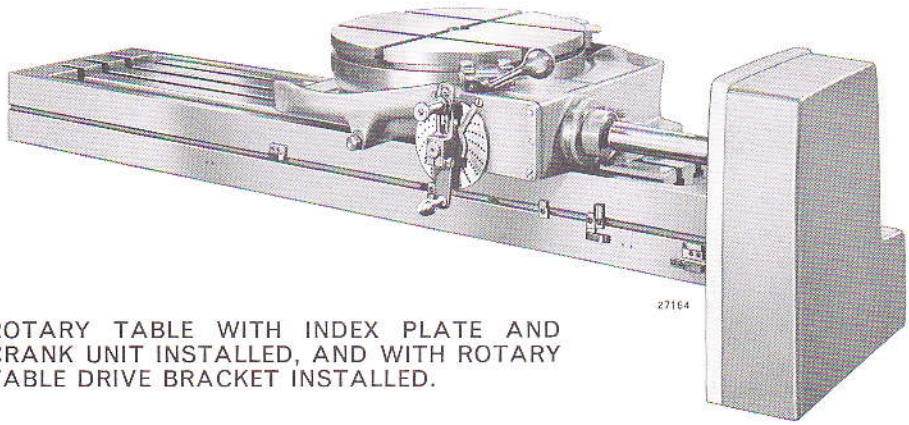


The rotary table drive bracket is of unusual mechanical design; it incorporates a timing type drive belt to transmit motion (power). This type of construction provides for quiet operation, and since no mechanical advantage is needed, it fulfills all power transfer requirements exceedingly well. Power is furnished by the table auxiliary drive shaft to the lower (driver) pulley, then by the belt to the upper (driven) pulley and on thru the rotary table drive sleeve, drive shaft and to the rotary table.

An adjustable-position idler pulley takes up the belt slack which is caused by the change of position of the upper (driven) pulley due to pulley bracket adjustment. Using the correct adapter (mounting) plate, the rotary table drive bracket can be installed on all of the Kearney & Trecker machines shown in the chart on page 25. (Refer to explanation at bottom of page 25.)



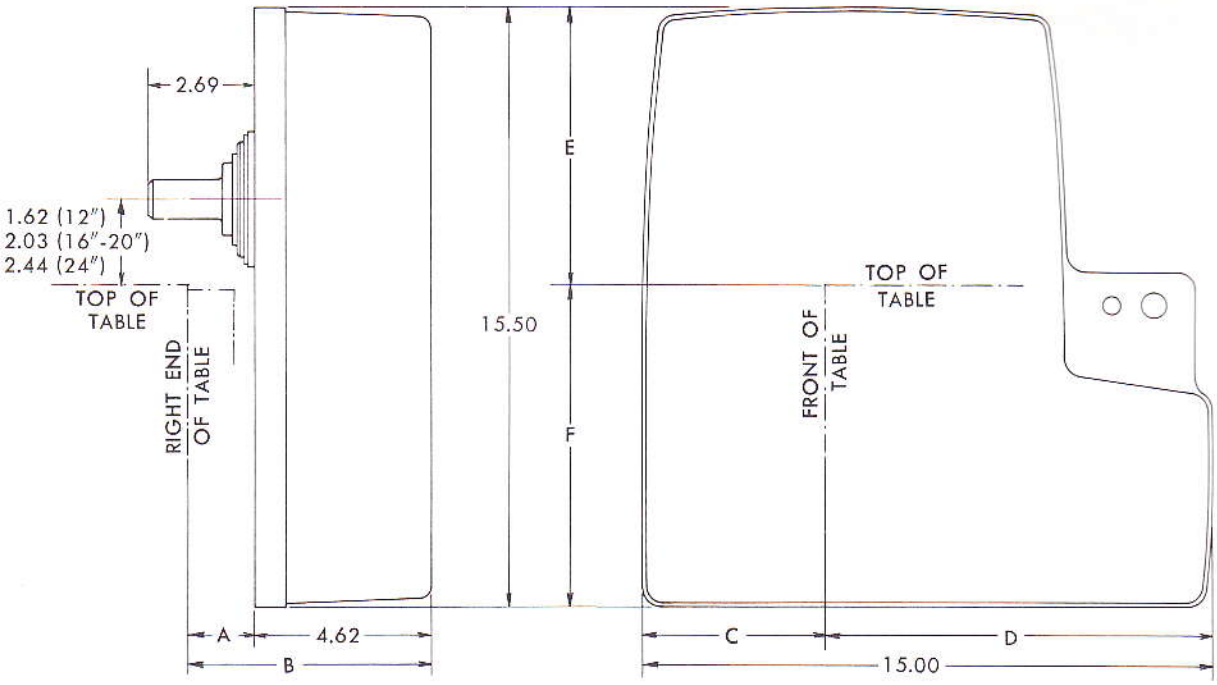
REAR VIEW OF ROTARY TABLE DRIVE BRACKET SHOWING ADAPTER PLATE ATTACHED, AND DRIVE (OUTPUT) SHAFT.



ROTARY TABLE WITH INDEX PLATE AND CRANK UNIT INSTALLED, AND WITH ROTARY TABLE DRIVE BRACKET INSTALLED.

PHYSICAL and MOUNTING DIMENSIONS

Series 5813 ROTARY TABLE DRIVE BRACKET



MACHINE	A	B	C	D	E	F
1E, 2E, 2CE	1.75	6.38	5.81	9.19	7.94	7.56
1H, 2HL	1.75	6.38	7.56	7.44	7.94	7.56
1CH, 103CH, 2CHL, 203CH	1.75	6.38	6.56	8.44	7.94	7.56
2H	1.88	6.50	6.81	8.19	7.19	8.31
2CH, 205CH, 205SA, 205S12, 307S-12	1.88	6.50	5.31	9.69	7.19	8.31
2K, 2KM	1.75	6.38	3.53	11.47	6.94	8.56
2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16	1.75	6.38	4.75	10.25	6.94	8.56
3CE	1.75	6.38	4.53	10.47	6.94	8.56
310S-15, 315S-15, 410S-15, 415S-15	1.88	6.50	4.25	10.75	6.94	8.56
3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM (30), 315TF, 330TF, 4H,4CH, 415CH, 415CH-16, 4CSM(30), 415TF, 430TF, 320TF-17, 330TF-17, 420TF-17, 430TF-17	1.75	6.38	4.25	10.75	6.62	8.88
4K	2.25	6.88	4.06	10.94	6.25	9.25
4CSM, 4CK, 5H, 5HM, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF, 20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	2.25	6.88	3.06	11.94	6.25	9.25

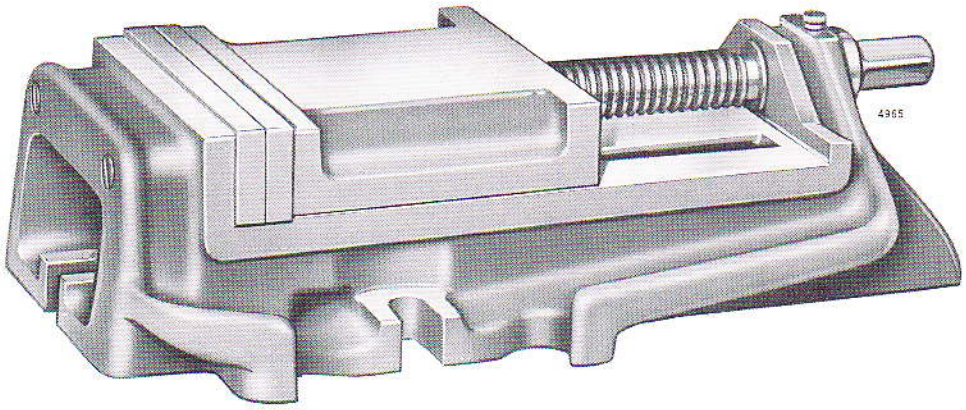
The rotary table drive bracket can be used on power feed models of the rotary table only. If the milling machine is equipped with a low lead attachment, a rotary table drive bracket is not required since a low lead attachment offers a wider scope of operations. A low lead attachment will drive the suggested size rotary table on a milling machine as shown in the chart on page 20, but only where the word "POWER" appears in the chart. When purchasing a rotary table drive bracket for a specific machine and rotary table, all necessary mounting hardware including the adapter bracket is included.

Series 2950, 2952, 2557 and 2558

PLAIN AND SWIVEL VISES

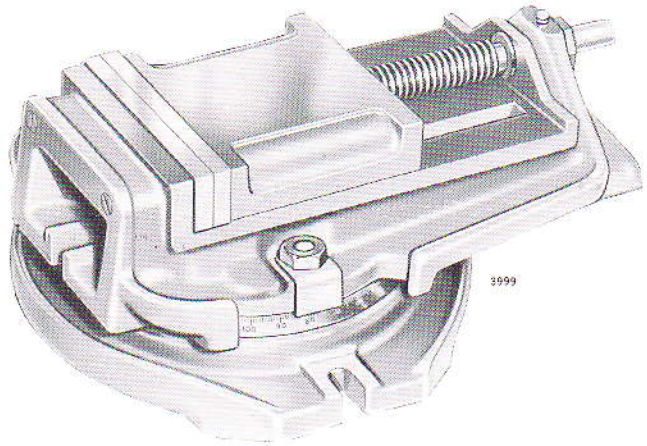
6″ - 7″ - 8″ - 9″ SIZES

KEARNEY & TRECKER MILWAUKEE



Plain and swivel vises are available in 6″, 7″, 8″ and 9″ sizes. Standard equipment includes a clamping crank, hold-down bolts with nuts and washers, and locating keys. High grade, heat-treated alloy steel jaws, ground square and parallel, provide accurate work alignment. The jaws are removable for possible substitution of special workholding jaws.

The vises combine accuracy with rugged, dependable service. Castings are high-strength semi-steel. All adjustable components are precision fit and properly gibbed for smooth, easy movement. The overall height of the vise has an exceedingly low profile to allow maximum working area between the top of the vise and the milling machine cutter. This low profile design results in extra rigid setups. The 6″ and 7″ vises and swivel bases have coolant drain troughs. The swivel base is accurately graduated through 360°. Vises may be used singly or in multiples for reciprocal milling cycle operations, when jigs and fixtures are considered too costly.



PHYSICAL DIMENSIONS

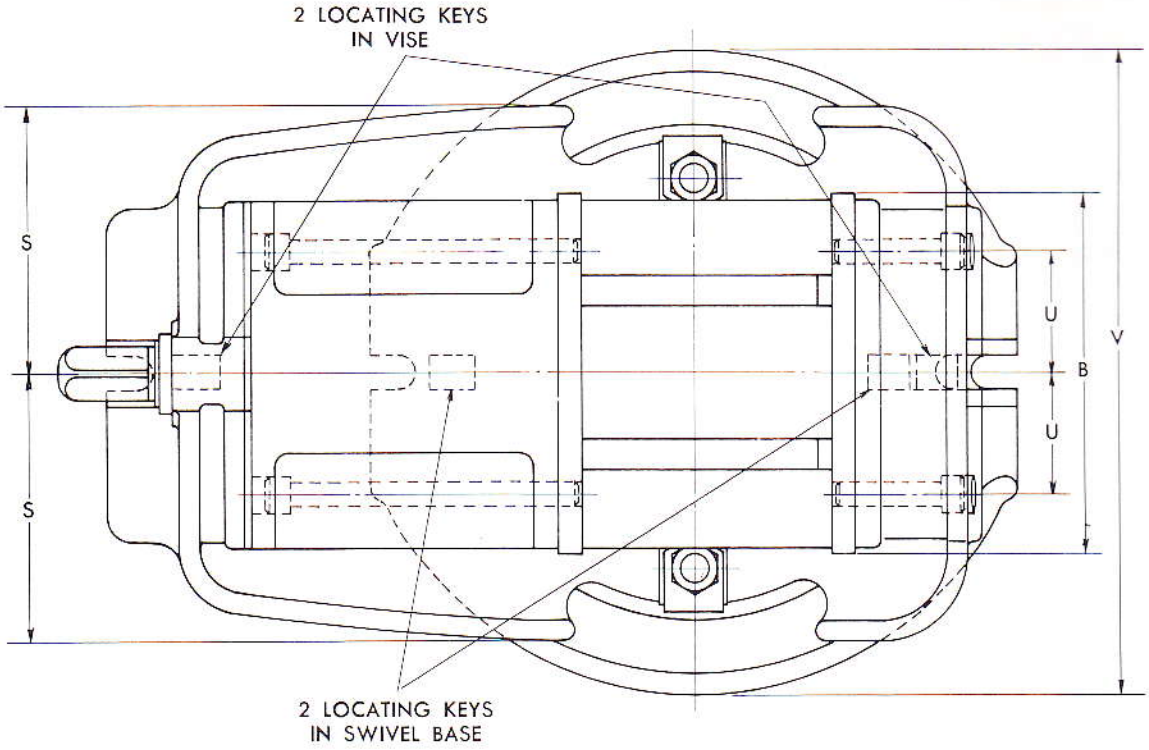
PLAIN and SWIVEL VISES

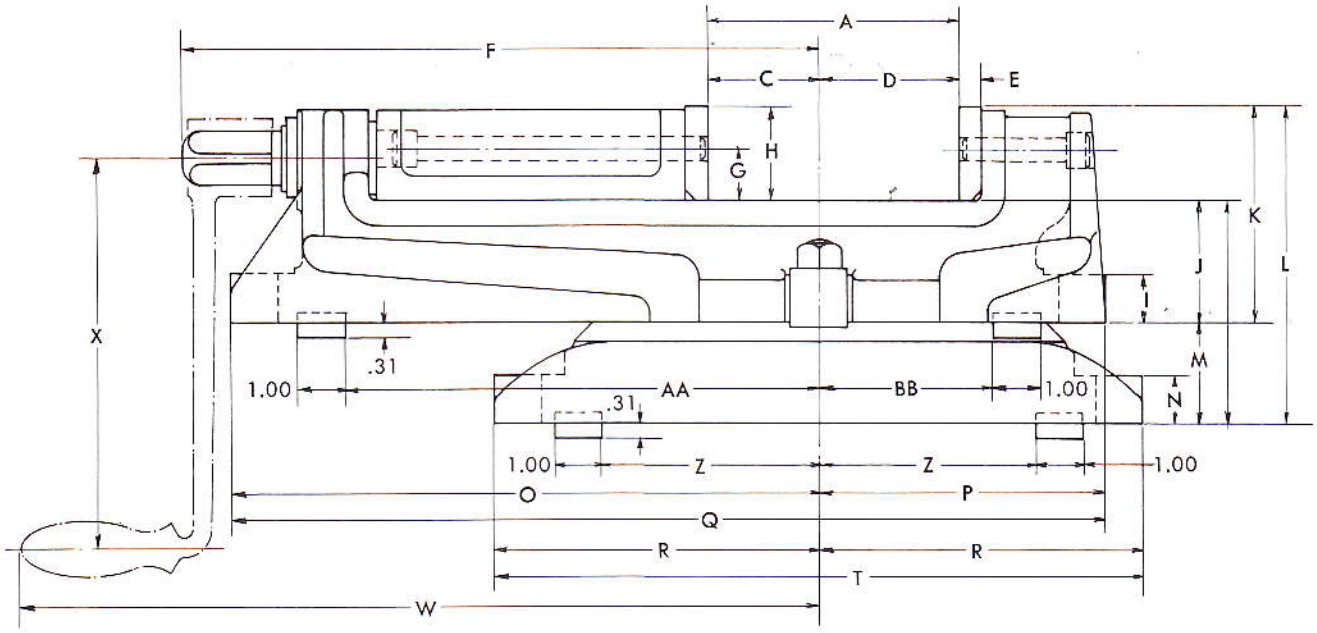
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
6″ VISE	4.19	6.38	1.78	2.41	.47	11.00	.72	1.50	.81	2.31	3.81	5.75	1.94	.81
7″ VISE	5.25	7.38	2.34	2.91	.47	13.25	1.06	1.94	1.00	2.50	4.44	6.56	2.06	1.00
8″ VISE	6.19	8.38	3.22	2.97	.47	14.81	1.19	2.19	1.00	2.62	4.81	6.94	2.12	1.00
9″ VISE	7.50	9.38	3.72	3.78	.47	17.94	1.38	2.69	1.00	2.88	5.56	7.69	2.25	1.00

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB
6″ VISE	10.38	5.00	15.38	6.00	4.69	12.00	2.12	11.38	15.75	6.50	4.25	3.69	8.00	2.62
7″ VISE	12.25	6.00	18.25	6.75	5.50	13.50	2.50	13.25	16.75	8.00	4.56	4.50	9.88	3.62
8″ VISE	13.75	5.94	19.69	7.00	4.88	14.00	3.00	12.00	18.19	8.00	4.75	5.06	11.50	3.69
9″ VISE	16.75	7.75	24.25	8.25	5.75	16.50	3.50	14.00	21.19	8.00	5.12	6.00	14.50	5.50

PHYSICAL DIMENSIONS

PLAIN and SWIVEL VISES

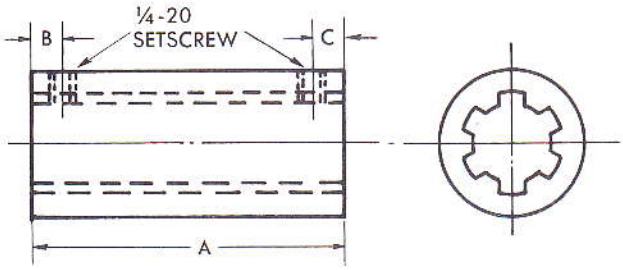


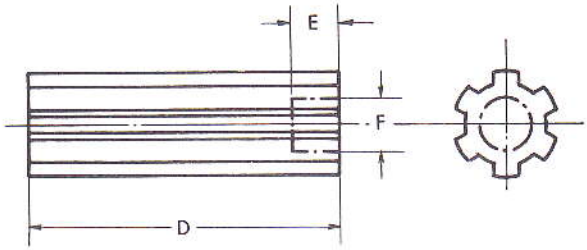


Series 2950 is a 6" plain vise or includes swivel base 2957 to form the 6" swivel vise. The same conditions apply for the 2952-7" vise with 2953 swivel base; 2557-8" plain vise with 2562 swivel base, and 2558-9" plain vise with 2563 swivel base. They should be ordered as plain or swivel vises accordingly.

KEARNEY & TRECKER MILWAUKEE

DRIVE SLEEVES AND DRIVE SHAFTS





DRIVE SLEEVES

PART NO.	A	B	C
21295	1.44	.25	.25
102508	3.25	.31	.31
102512	7.25	.31	.31
102513	10.75	.31	.31
102515	1.00	—	.25

DRIVE SHAFTS

PART NO.	D	E	F
102510	4.20	—	—
102511	7.19	—	—
102514	12.50	—	—
102516	2.25	.50	.56

DRIVE SLEEVES and DRIVE SHAFTS

LOW LEAD

MACHINE	DRIVE SLEEVE			DRIVE SHAFT		
	105208	102512	102513	102510	102511	102514
2CH, 205CH, 205SA	2	—	—	1	1	—
205S-12, 307S-12, 2K, 2KM, 3H, 2CK, 210CH, 210CH-14, 3CH, 310CH, 310CH-14, 3CE	2	1	—	1	1	—
2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16, 310S-15, 315S-15, 410S-15, 415S-15, 3K, 3KM, 4H, 3CK, 315CH, 315CH-16, 4CH, 415CH, 415CH-16, 3CSM(30), 4CSM(30), 315TF, 330TF, 415TF, 430TF, 320TF-17, 330TF-17, 420TF-17, 430TF-17, 4K, 5H, 5HM, 4CSM, 5CSM, 6CSM, 4CK, 5CK, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	2	—	1	1	—	1

DRIVE SLEEVES and DRIVE SHAFTS

CONVENTIONAL LEAD

MACHINE	DRIVE SLEEVE			DRIVE SHAFT		
	105208	102512	102513	102510	102511	102514
1E, 2E, 2CE, 1H, 2HL, 1CH, 103CH, 2CHL, 203CH, 2H, 2CH, 205CH, 205SA	1	—	—	1	—	—
205S-12, 307S-12, 2K, 2KM, 3H, 2CK, 210CH, 210CH-14, 3CH, 315CH, 315CH-14, 3CE, 3K, 3KM, 4H, 3CK, 315CH, 315CH-16, 4CH, 415CH, 415CH-16	1	①	—	1	1	—
310S-15, 315S-15, 410S-15, 415S-15	1	1	—	1	1	—
2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16, 3CSM(30), 4CSM(30), 315TF, 330TF, 415TF, 430TF, 320TF-17, 330TF-17, 420TF-17, 430TF-17, 4K, 5H, 5HM, 4CSM, 5CSM, 6CSM, 4CK, 5CK, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	1	—	1	1	—	1

① ADD ONE NO. 102512 DRIVE SLEEVE FOR 3CK, 315CH, 315CH-16, 4CH, 415CH MACHINES WITH AUTOCYCLE.

DRIVE SLEEVES and DRIVE SHAFTS

ROTARY TABLE DRIVE BRACKET

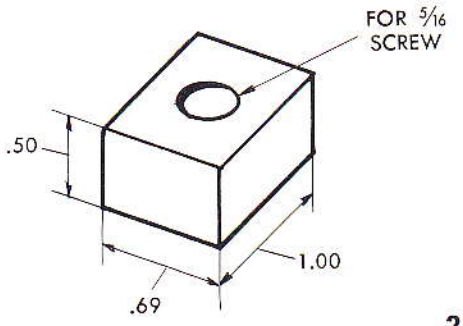
MACHINE	DRIVE SLEEVE		DRIVE SHAFT	
	102508	102512	102510	102511
1E, 2E, 2CE, 1H, 2HL, 1CH, 103CH, 2CHL, 203CH, 2H, 2CH, 205CH, 205SA, 205S-12, 307S-12	12-16	—	12-16	—
2K, 2KM, 3H, 2CK, 210CH, 210CH-14, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16, 3CE	16-20	—	16-20	—
3K, 3KM, 4H, 3CK, 315CH, 315CH-16, 4CH, 415CH, 415CH-16, 3CSM(30), 4CSM(30), 315TF, 330TF, 320TF-17, 330TF-17	—	16-20-24	16-20-24	—
310S-15, 315S-15, 410S-15, 415S-15, 415TF, 430TF, 420TF-17, 430TF-17, 4K, 5H, 5HM, 4CSM, 5CSM, 6CSM, 4CK, 5CK, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	—	16-20-24	—	16-20-24

12, 16, 20 OR 24 INDICATES SIZE OF ROTARY TABLE. INCLUDE ONE NO. 21295 DRIVE SLEEVE FOR ALL MACHINES.

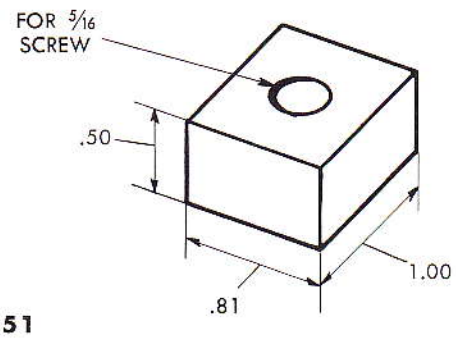
The drive sleeves and drive shafts on these two pages (28 and 29) are standard equipment relative to the part numbers and quantities shown in the three charts on these pages. In each case, the sleeves and shafts shown locate the respective attachment longitudinally on the milling machine table for the best milling and operating conditions. If the location of the attachment on the table is to be other than that obtained with standard equipment sleeves and shafts, shorter or longer sleeves and shafts may be ordered from the charts at the top of page 28. All sleeves and shafts, and attachment input shafts have 1"-6 splines and all are interchangeable.

Attachment
LOCATING KEYS
(or Tongues)

KEARNEY & TRECKER
MILWAUKEE

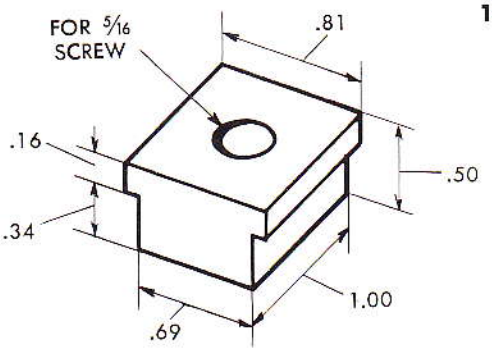


25021

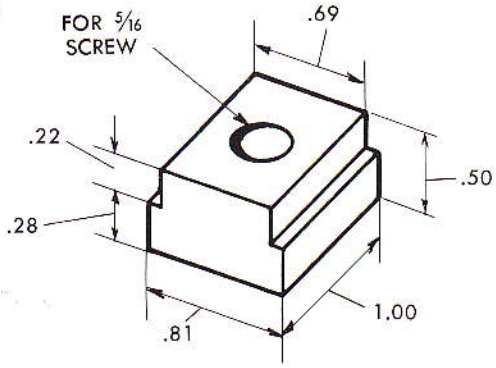


20151

19843



22090



FOR LOCATING DIVIDING HEADS, TAILSTOCKS, ROTARY TABLES AND VISES ON MILLING MACHINE TABLES.

KEY No. 25021 (1 1/16) to locate
6″-7″-8″ Vises
10″-12″ Dividing Heads
12″-16″-20″ Rotary Tables
10″-12″ Tailstocks

KEY No. 19843 (13/16 to 1 1/16) to locate
9″ Vise
14″ Dividing Head
24″ Rotary Table
14″ Tailstock

ON **1E, 2E, 2CE, 1H, 2HL, 1CH, 103CH, 2CHL, 203CH, 18HC, 18CH, 103CHP, 24AC, 24CH, 203CHP, 2H, 2CH, 205CH, 205SA, 205S-12, 307S-12, 2K, 2KM, 2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20), 210TF, 220TF, 310TF, 320TF, 215TF-16, 220TF-16, 315TF-16, 320TF-16, 3CE, 3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30), 315TF, 330TF, 320TF-17, 330TF-17.**

KEY No. 20151 (13/16) to locate
9″ Vise
14″ Dividing Head
24″ Rotary Table
14″ Tailstock

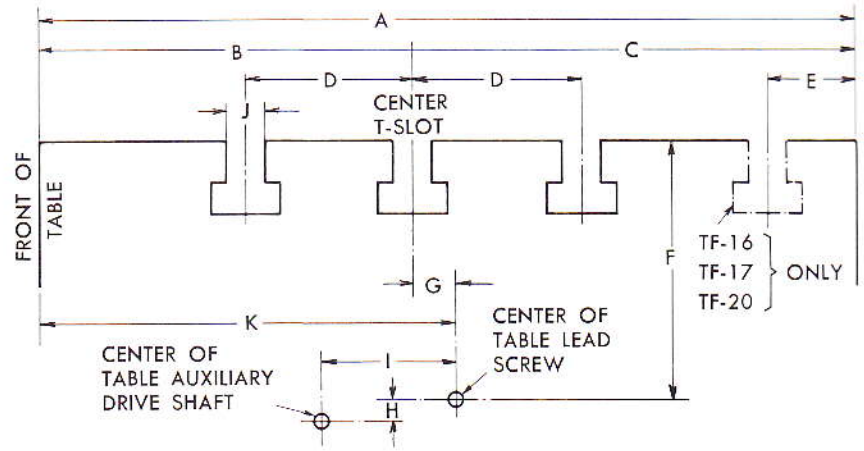
KEY No. 22090 (1 1/16 to 13/16) to locate
6″-7″-8″ Vises
10″-12″ Dividing Heads
12″-16″-20″ Rotary Tables
10″-12″ Tailstocks

ON **310S-15, 315S-15, 410S-15, 415S-15, 4H, 4CH, 415CH, 415CH-16, 4CSM(30), 415T, 430TF, 420TF-17, 430TF-17, 4K, 4CSM, 4CK, 5H, 5HM, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF, 430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20.**

NOTE: NOT ALL SIZE ATTACHMENTS FIT ON ALL SIZE MILLING MACHINES. CONSULT INDIVIDUAL ATTACHMENT CHARTS.

MILLING MACHINE TABLE DATA

KEARNEY & TRECKER MILWAUKEE



MACHINE	A	B	C	D	E	F	G	H	I	J	K
1E, 2E, 2CE	12.00	6.00	6.00	2.25	—	4.00	0	.44	2.12	.69	6.00
1H, 2HL	9.00	4.25	4.75	2.25	—	4.00	0	.44	2.12	.69	4.25
1CH, 103CH, 2CHL, 203CH	10.50	5.25	5.25	2.25	—	4.00	0	.44	2.12	.69	5.25
2H	10.00	5.00	5.00	2.25	—	4.75	0	.44	2.12	.69	5.00
2CH, 205CH, 205SA, 205S-12, 307S-12	12.00	6.50	5.50	2.25	—	4.75	0	.44	2.12	.69	6.50
2K, 2KM	12.00	6.00	6.00	2.75	—	5.00	.50	0	2.33	.69	6.50
2CK, 210CH, 210CH-14, 3H, 3CH, 310CH, 310CH-14, 2CSM(20), 3CSM(20)	13.50	6.75	6.75	2.75	—	5.00	.50	0	2.33	.69	7.25
210TF, 220TF, 310TF, 320TF	14.00	7.00	7.00	2.75	—	5.00	.25	0	2.33	.69	7.25
215TF-16, 220TF-16, 315TF-16, 320TF-16	15.75	6.75	9.00	2.75	1.62	5.00	.50	0	2.33	.69	7.25
3CE	15.00	7.00	8.00	2.75	—	5.00	.50	0	2.33	.69	7.50
310S-15, 315S-15, 410S-15, 415S-15	15.00	7.38	7.62	3.50	—	5.00	.88	0	2.80	.81	8.25
3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30), 315TF, 330TF	15.50	7.75	7.75	2.75	—	5.31	.50	0	2.80	.69	8.25
4H, 4CH, 415CH, 415CH-16, 4CSM(30), 415TF, 430TF	15.50	7.38	8.12	3.50	—	5.31	.88	0	2.80	.81	8.25
320TF-17, 330TF-17	17.00	7.75	9.25	2.75	1.88	5.31	.50	0	2.80	.69	8.25
420TF-17, 430TF-17	17.00	7.38	9.62	3.50	1.50	5.31	.88	0	2.80	.81	8.25
4K	16.00	8.00	8.00	3.50	—	5.69	.88	0	3.25	.81	8.88
4CSM, 4CK, 5H, 5HM, 5CSM, 5CK, 6CSM, 6CK, 425TF, 450TF, 525TF, 550TF, 625TF, 650TF	18.00	9.00	9.00	3.50	—	5.69	.88	0	3.25	.81	9.88
430TF-20, 450TF-20, 530TF-20, 550TF-20, 630TF-20, 650TF-20	19.50	9.00	10.50	3.50	2.00	5.69	.88	0	3.25	.81	9.88

General Information

AUXILIARY DRIVE SHAFTS

FOR MILLING MACHINE TABLES

KEARNEY & TRECKER MILWAUKEE

AUXILIARY DRIVE SHAFTS

MACHINE	AUXILIARY DRIVE SHAFT
1E, 2E, 2CE, 1H, 1CH, 103CH, 2HL, 2CHL, 203CH, 2H, 205CH, 205SA	111428
205S-12	111429
307S-12	111430
2K, 2KM, 2CK, 210CH, 210CH-14, 2CSM(20)	103284
3H, 3CH, 310CH, 310CH-14, 3CSM(20)	103285
210TF, 220TF, 215TF-16, 220TF-16	103286
310TF, 320TF, 315TF-16, 320TF-16	103287
3CE	103289
310S-15, 315S-15	103295
410S-15, 415S-15	103296
3K, 3KM, 3CK, 315CH, 315CH-16, 3CSM(30)	103291
4H, 4CH, 415CH, 415CH-16, 4CSM(30)	103292
315TF, 330TF, 320TF-17, 330TF-17	103293
415TF, 430TF, 420TF-17, 430TF-17	103294
4K	103299
4CSM, 4CK	103330
5H, 5HM	103305
5CSM, 5CK	103302
6CSM, 6CK	103306
425TF, 450TF, 430TF-20, 450TF-20	103301
525TF, 550TF, 530TF-20, 550TF-20	103303
625TF, 650TF, 630TF-20, 650TF-20	103307

When purchasing conventional lead and low lead attachments, or rotary table drive brackets, the milling machine table auxiliary drive shaft for the subject machine is included as standard equipment with each attachment. The chart on this page, showing each machine model and its auxiliary drive shaft part number has been included as a matter of convenience for reference and ordering if desired.

General Information

DECIMAL-FRACTION CONVERSION CHART

KEARNEY & TRECKER MILWAUKEE

Kearney & Trecker uses the decimal system of dimensioning on all of their engineering drawings. With specific exceptions, all dimensions are expressed as two, three or four place decimals. The use of the decimal system is retained and continued in this bulletin.

However, for all practical purposes we have limited its use to two (2) decimal places for reason of simplicity. This chart converts two (2) place decimals to equivalent fractions.

2 DECIMAL PLACES	FRACTION	2 DECIMAL PLACES	FRACTION
.02	1/64	.52	33/64
.03	1/32	.53	17/32
.05	3/64	.55	35/64
.06	1/16	.56	9/16
.08	5/64	.58	37/64
.09	3/32	.59	19/32
.11	7/64	.61	39/64
.12	1/8	.62	5/8
.14	9/64	.64	41/64
.16	5/32	.66	21/32
.17	11/64	.67	43/64
.19	3/16	.69	11/16
.20	13/64	.70	45/64
.22	7/32	.72	23/32
.23	15/64	.73	47/64
.25	1/4	.75	3/4
.27	17/64	.77	49/64
.28	9/32	.78	25/32
.30	19/64	.80	51/64
.31	5/16	.81	13/16
.33	21/64	.83	53/64
.34	11/32	.84	27/32
.36	23/64	.86	55/64
.38	3/8	.88	7/8
.39	25/64	.89	57/64
.41	13/32	.91	29/32
.42	27/64	.92	59/64
.44	7/16	.94	15/16
.45	29/64	.95	61/64
.47	15/32	.97	31/32
.48	31/64	.98	63/64
.50	1/2	1.00	1

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