

550 -046 -048 -050
 -052 -054 -055 -056
550 -106 -108 -110
 -112 -115

Rotary Milling Table, High Precision Rotary Table

Two types are summarized here collectively. The mechanisms common to these tables are shown on some page of their description.

This is so designed as to permit machining operations at a higher dimension than that of circular tables. The base can be used in a vertical position, so enabling to carry out center work.

Stock No. & Dimensions Rotary milling Table

Stock No.	Table		Base dimension		Handle position					Width of guide block			Width of T-slot			Bolt slots			Center sleeve	Weight kg lb
	Outer diameter	Height	A	B	a	b	h	c	d	e	f	Type	R	k	g	h	i	Center sleeve		
550-046	130	80	240	160	138	54	28	14	10	10	16	16	16	10	10	10	10	MT-2	11	24.3
550-048	240	165	265	220	184	85	36	16	12	12	17	17	17	10	10	10	10	MT-3	28	61.7
550-030	290	115	325	280	204	105	36.5	14.2	12	12	17	17	15	10	10	10	10	MT-3	44	97.0
550-057	300	135	388	330	244	113	46	16	14	14	19	19	16	16	16	16	16	MT-4	67	147.7
550-054	330	140	430	380	300	132	47	16	16	16	18	18	16	16	16	16	16	MT-4	91	200.2
550-055	400	160	560	430	316	160	57.5	16	16	16	18	18	15	15	15	15	15	MT-5	135	297.6
550-056	1575	630	1060	1633	1244	630	226	63	63	63	71	71	60	60	60	60	60	MT-5	390	859.6
550-056	500	175	660	540	540	331	153	63	63	63	63	63	63	63	63	63	63	MT-6	390	859.6

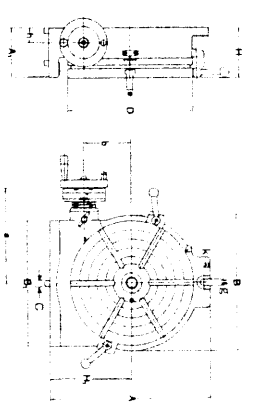
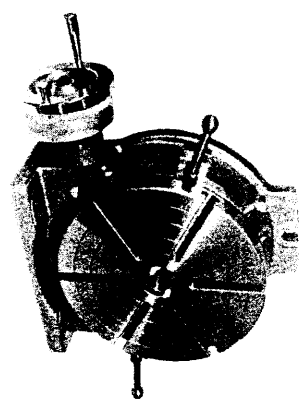


Fig 1



High Precision Rotary Table

This is widely used for circular cutting work, angle setting, boring, spot-facing and similar work in conjunction with a milling machine. (Refer to Page 2) However it has no oil groove on the base.

Stock No. & Dimensions High precision Rotary Table

Stock No.	Table		Base dimension		Handle position					Width of T-slot			Bolt slots			Center sleeve	Weight kg lb			
	Outer diameter	Height	A	B	a	b	h	c	d	e	f	Type	R	k	g			h	i	
550-106	150	80	210	170	134.5	54	28	10	10	10	10	10	10	10	10	10	10	10	MT-2	17.0
550-108	200	105	280	225	179	85	36	12	12	12	14	14	10	10	10	10	10	MT-3	28.0	
550-110	250	115	330	280	204	105	38.5	12	12	12	16	16	12	12	12	12	12	MT-3	38.0	
550-112	300	135	380	330	244	118	46	14	14	14	18	18	12	12	12	12	12	MT-4	62.0	
550-115	380	145	460	410	350	152	47	16	16	16	18	18	16	16	16	16	16	MT-5	102.0	

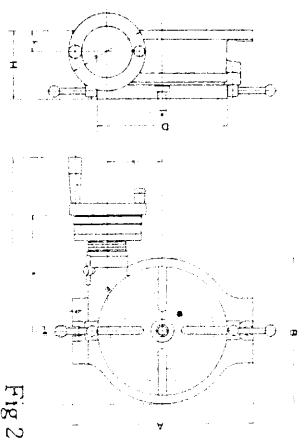
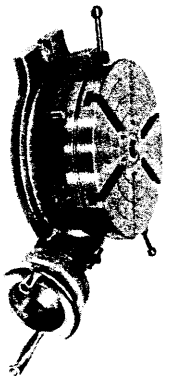
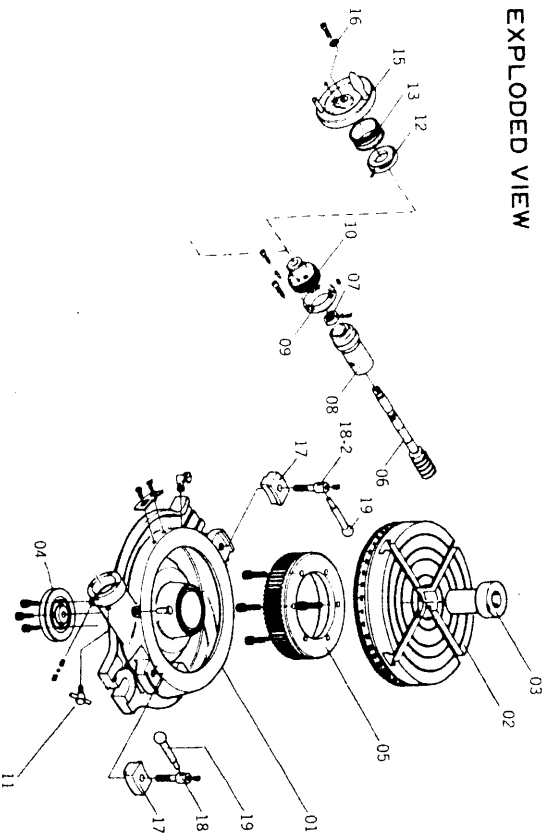


Fig 2



High precision Rotary Table

EXPLODED VIEW



Parts No. & Parts Names

RCT-01	Base	RCT-17	Clamp Piece
RCT-02	Table	RCT-18	Clamp bolt
RCT-08	Worm metal	RCT-19	Clamp handle
RCT-11	Metal setting screw		

Features and Mechanisms

1. Turn the handle clockwise at all times. When this handle has been turned until it passes the desired position, turn back it once counterclockwise to a great extent and then softly rotate it clockwise so as not to cause the backlash of the gear.
2. When turning the right and left table stoppers **19** and **19** inwards concurrently, they are pushed down because the projected part of the stopper piece **17** is fitted into the slot section on the center of

the side of the table, thus clamping the table. The bolt **18-2** is a left-handed screw and the bolt **18** is a right-handed one.

3. The center hole has a Morse tapered sleeve, so that jigs and measuring apparatus can be fitted with precision.

4. The worm gear ratio is 1:90. As a result, 90 turns of the handle lead to one turn of the table, and the table moves 4° for one turn of the handle. ($360^\circ \div 90 = 4^\circ$, in case of stock No.550-115, $360^\circ \div 120 = 3^\circ$)

5. Dividing of 2 to 100 can be carried out quickly and accurately by attaching a Dividing Mechanism (See Page 5). The DM cannot be attached to Type Stock No.550-106.

6. Loosen the metal clamp handle **11** and rotate the switch metal **10** until it touches the stopper. The worm gear and wheel have now been disengaged, thus enabling to turn the table manually.

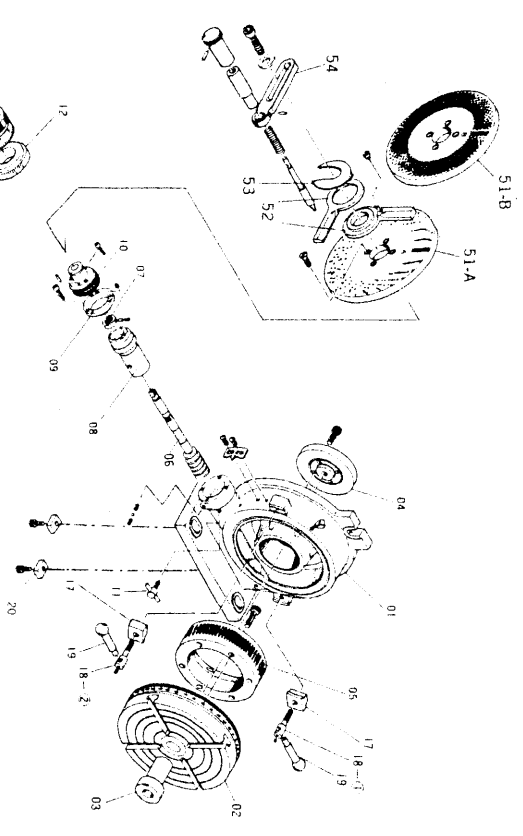
*** Suggestions for Ordering**

The parts No. & parts names expressed in the operation and service manual are abbreviated for description. Therefore, when ordering parts for replacement, be sure to specify article marks, article Nos. and component Nos., which are shown in the table of Order No. & Dimensions.

550-110	—	RCT-01	—	7504-Y
↓		↓		↓
Stock No.		Component No.		Operation and Service Manual No.

When ordering parts for a product purchased a long time ago, specify its serial No. Operation and Service Manual No. together with the above-mentioned Nos., since the number is useful for checking their design changes. (N.B) When ordering parts in accordance with the exploded view No. and the like given in the catalog of a single product or all products, be sure to write in addition its page so as to distinguish from the Operation and Service Manual No.

Rotary milling Table EXPLODED VIEW



Parts No. & Parts Names

- | | |
|---------------------------|--------------------|
| RT-01 Main body | RT-12 Vernier ring |
| RT-02 Table | RT-13 Micro-collar |
| RT-05 Worm wheel | RT-17 Clamp piece |
| RT-08 Worm metal | RT-18 Clamp bolt |
| RT-11 Metal setting screw | RT-19 Clamp handle |

Stock No. 550-056 is partially different from the part shown in this exploded view.

This point is that the table is clamped by rotating the clamp handle located at the side of the body so as to tighten the clamp ring that is supporting the handle.

How to Adjust

1. Adjusting Mesh of Worm Gear

Loosen the metal clamp handle and turn the switch metal clockwise until it touches the stopper. The worm gear has now been disengaged. Turn it counterclockwise until it touches the stopper, the worm and gear wheel will engage. Tighten the metal clamp handle after engagement. An additional adjustment can be obtained by removing the screw (A) and steel ball and turning the inner screw (B) counterclockwise, so bringing the worm in closer engagement with the gear wheel. Turning clockwise brings the worm away from the wheel. After adjustment insert the steel ball and tighten the screw (A).

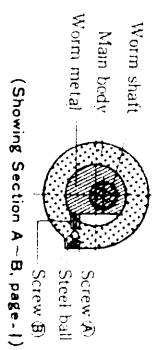


Fig. 7

2. Axial Adjustment of Worm Shaft

When axial slackness occurs gear adjustment is carried out by tightening the inside worm shaft nut after the handle, vernier ring and switch metal have been removed. After adjustment, lock the nut on the shaft by means of the set screw.

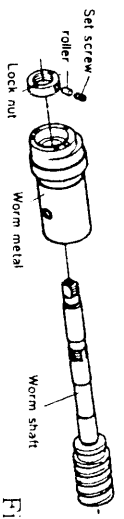


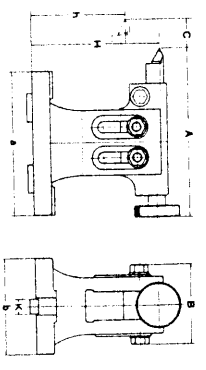
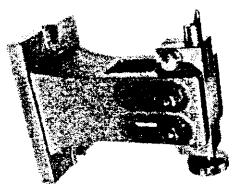
Fig. 8

Features and Mechanisms

1. The worm gear ratio is 1 : 90.
 - One turn of the handle moves the table through 4°.
 - Micro-collar is graduated in steps of 1'.
 - Vernier scale makes settings down to 10 seconds possible.
2. Dividing of 2 to 100 can be carried out quickly and accurately

Special Accessories

Tailstock



This tailstock is rigidly designed for use in centering of various tables, index tables, etc., so completely eliminating mis alignment of center in case of operation. It is most suitable for heavy centering work.

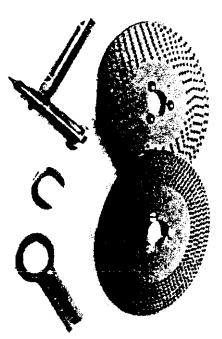
Stock No. & Dimensions for Tail Stock

Stock No	Center Height		A	B	a	b	c	k	Suitable for
	Max	Min							
553 299	100	75	175	79	130	92	30	14	550 046
	3.94	2.96	6.89	3.11	5.12	3.62	1.18	0.55	
553 300	135	100	176	83	150	100	30	16	550 048
	5.31	3.94	6.93	3.27	5.91	3.94	1.18	0.63	
553 301	170	135	202	112	180	130	35	16	550 050
	6.69	5.31	7.95	4.41	7.09	5.12	1.38	0.63	
553 311	240	170	202	120	200	140	35	16	550 052
	9.06	6.69	7.95	4.72	7.87	5.51	1.38	0.63	550 054
553 312	300	210	265	142	220	160	60	16	550 055
	11.81	8.27	10.43	5.59	8.66	6.30	2.36	0.63	550 056

Unit: mm/in

Dividing Mechanism

- by attaching a Dividing Mechanism. The DM cannot be attached to Stock No. 550-046. (See Page 4.)
3. Center work can also be carried out by using the base in the vertical position in conjunction with a tailstock. (See Page 4.)
4. The worm gear engagement is adjusted by the switch metal in the same manner as that of High precision Rotary table. (See Page 2.)



When using the DM (Dividing Mechanism) device, the indexing of 2 to 100 positions can be carried out in accuracy and speedier with the use of two index plates, sector, crank handle, etc.

Stock No. & Dimensions

Stock No.	Dividing plate set series	Major dimension of DM			Weight kg/lb	Shipping measurement (ft ³)	Applicable table
		Inner diameter of sector arm	Outer diameter of spring clip	Groove width in handle plate			
550 111	(3holes) PCD-42, 1.65	28.7	44	10	4	0.11	Stock No. 550-048, -050, -052, -054
550	(4holes) PCD-46, 1.81	32	56	0.39	8.82		Stock No. 550-108, -110, -112, -115
111-4H		1.25	2.20	0.55	4		Stock No. 550-056

Note: DM cannot be mounted on Stock No. 550-046
Stock No. 550-105

In case of An Optional DM Device Attached

Indexing of 2 to 100 can be made accurately and quickly.

Equation of Indexing

Since the worm ratio is 1 : 90, when the handle is made to rotate a 360° revolution, the table therefore will rotate a 1/90 revolution. The relationships between handle revolution 'N' and dividual number 'T' to be sought are shown in the following equation:

$$N = \frac{90}{T}$$

Remarks: The index table—Worm ratio 1 : 90—on page 6, (for stock No. 550—115) the index table—worm ratio 1 : 120—on page 7 is made on the basis of this equation.

(Example)

In case where the operator wants to index the position divided into 29 equal parts.

Hints on operation

As for 29 dividual numbers, the number of crank handle revolutions (N) is $3 \frac{3}{7}$ as shown in the table on Page 6, so that the handle should be rotated a full 360° revolution three times plus an interval of nine holes (in this time, it means hole intervals not hole numbers). After setting this point as a start point, rotate the handle a full 360° revolution three times plus an interval of nine holes. When the procedure is repeated in turn as many as 29 times, the indexing of dividing into 29 equal parts is thus achieved.

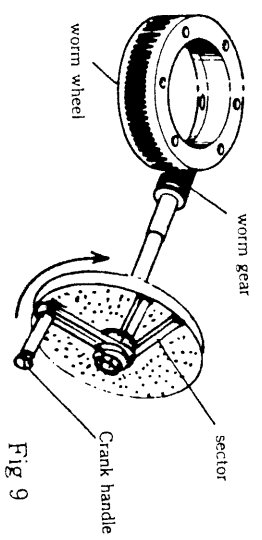


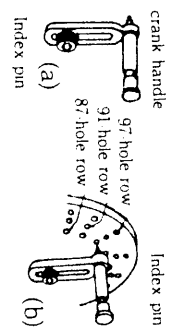
Fig 9

Operations of Crank Handle and Sector

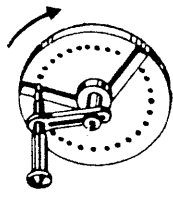
In case of the Example 'Division into 29 Equal Parts' aforesaid, it is natural that indexing operation should proceed with the intervals

of nine holes after setting the index plate (B plate) on which a row of 87 holes are provided. But in this method, the operator has to count nine holes' intervals one by one. He must feel inefficient. In this viewpoint, it is necessary to use a device called 'sector' to avoid such troublesome procedures. The following will describe some necessary procedures for operation of the sector.

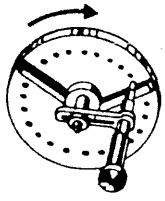
- Loosen the crank handle lock nut, adjust its length so as to cause the index pin to fall in the train of 87 holes, and retighten it.
- Loosen the set-screws of the sector, open two arms in accordance with the interval of nine holes (total numbers of holes are ten) and retighten with set-screws.
- First, bring the left arm of the sector near to the index pin's left side.
- Next, rotate the crank handle clockwise to apply it to the right arm of the sector so that the index pin will fall in the hole located at this right arm's left side surface.
- Rotate the sector clockwise this time, and put the right side surface of the left arm to the left side of the index pin. In this time, the relationships between the index pin and the sector's left arm in their positions are the same as in Par. c). The index plate hole that actually accommodates the index pin is located at the point where goes across ten holes to the right away from the hole as in Par. c).
- Repeat the same procedures as necessary.



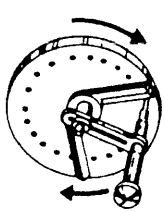
(b)



(c)



(d)



(e)

Index Table (For worm ratio 1:90) Remark: This Indexing Table is adaptable for devices-gear ratio 1:90.

T	H	N	T	H	N	T	H	N	T	H	N	T	H	N	T	H	N						
2	*	45	17	A-34	5	10/34	32	A-32	2	26/32	48	A-32	1	28/32	65	B-91	1	35/91	81	B-81	1	9/81	
3	*	30	18	*	5		33	B-99	2	72/99	49	A-49	1	41/49	66	A-44	1	16/44	82	A-41	1	4/41	
4	A-26	22	13/26	19	A-38	4	28/38	34	A-34	2	22/34	50	A-30	1	24/30	66	B-99	1	36/99	83	B-83	1	7/83
	A-28	22	14/28	20	A-26	4	13/26	34	A-28	2	16/28	51	A-34	1	26/34	67	B-67	1	23/67	84	A-28	1	2/28
5	*	18			A-28	4	14/28	35	B-63	2	36/63	52	A-26	1	19/26	68	A-34	1	11/34	85	A-34	1	2/34
6	*	15			A-28	4	8/28	36	A-26	2	13/26	53	A-53	1	37/53	69	A-46	1	14/46	86	A-43	1	2/43
	A-28	12	24/28	21	B-77	4	22/77	36	A-28	2	14/28	54	A-30	1	20/30	69	B-69	1	21/69	87	B-87	1	3/87
7	B-77	12	66/77		A-44	4	4/44	37	A-37	2	16/37	54	B-63	1	42/63	70	A-28	1	8/28	88	A-44	1	1/44
	A-28	11	7/28	22	B-77	4	7/77	38	A-38	2	14/38	55	A-44	1	28/44	70	B-63	1	18/63	89	B-89	1	1/89
8	A-44	11	11/44		A-46	3	42/46	39	A-26	2	8/26	55	B-77	1	49/77	71	B-71	1	19/71	90	*	1	
9	*	10		23	B-69	3	63/69		B-91	2	28/91	56	A-28	1	17/28	72	A-32	1	8/32	91	B-91		90/91
10	*	9		24	A-28	3	21/28	40	A-28	2	7/28	57	A-38	1	22/38	72	A-44	1	11/44	92	A-46		45/46
	A-44	8	8/44		A-44	3	33/44		A-44	2	11/44	58	B-87	1	48/87	73	B-73	1	17/73	93	B-93		90/93
11	B-77	8	14/77	25	A-30	3	18/30	41	A-41	2	8/41	59	A-59	1	31/59	74	A-37	1	8/37	94	A-47		45/47
	A-26	7	13/26		A-26	3	12/26	42	A-28	2	4/28	60	A-34	1	17/34	75	A-30	1	6/30	95	A-38		36/38
12	A-28	7	14/28	26	B-91	3	42/91		B-63	2	9/63		A-32	1	16/32	76	A-38	1	7/38	96	A-32		30/32
	A-26	6	24/26		A-30	3	10/30	43	A-43	2	4/43	61	B-61	1	29/61	77	B-77	1	13/77	97	B-97		45/97
13	B-91	6	84/91	27	B-63	3	21/63	44	A-44	2	2/44	62	B-93	1	42/93	78	A-39	1	6/39	98	A-49		45/49
	A-28	6	12/28		A-28	3	6/28	45	*	2			A-49	1	21/49	78	B-91	1	14/91	99	A-44		40/44
14	B-77	6	33/77	29	B-87	3	9/87	46	A-46	1	44/46	63	B-77	1	33/77	79	B-79	1	11/79	99	B-99		90/99
15	*	6		30	*	3			B-69	1	66/69	64	A-32	1	13/32	80	A-32	1	4/32	100	A-30		27/30
16	A-32	5	20/32	31	B-93	2	84/93	47	A-47	1	43/47	65	A-26	1	10/26	81	B-63	1	7/63				

Description of In the index table.

This table is the one being calculated for the index plate with hole numbers shown below.

Number of holes

A Plate:....26, 28, 30, 32, 34, 37, 38, 39, 41, 43, 44, 46, 47, 49, 51, 53, 57, 59
 B Plate:....61, 63, 67, 69, 71, 73, 77, 79, 81, 83, 87, 89, 91, 93, 97, 99

Description of codes used in the index table.

- T : Desired dividural number
- N : Number of revolution of the crank handle
- H : Hole number of the index plate
- * : Option
- A : Using A plate
- B : Using B plate

Index Table (For Worm Ratio 1 : 120) Remark: This Indexing Table is adaptable for devices-gear ratio 1 : 120.

T	H	N	T	H	N	T	H	N	T	H	N	T	H	N	T	H	N	T	H	N		
2	*	60	18	B-93	6	62/93	33	B-77	3	49/77	48	A-44	2	22/44	66	A-44	1	36/44	83	B-83	1	37/83
3	*	40	19	A-38	6	12/38	34	A-34	3	18/34	49	A-49	2	22/49	67	B-99	1	81/99	84	A-49	1	21/49
4	*	30	20	*	6		35	A-28	3	12/28	50	A-30	2	12/30	67	B-67	1	53/67	84	B-63	1	27/63
5	*	24	21	A-28	5	20/28	35	B-63	3	27/63	51	A-51	2	18/51	68	A-34	1	26/34	85	A-34	1	14/34
6	*	20	21	B-91	5	65/91	36	A-30	3	10/30	52	A-26	2	8/26	69	A-46	1	34/46	85	A-43	1	17/43
7	A-28	17	22	A-44	5	20/44	36	B-63	3	21/63	53	B-91	2	28/91	69	B-69	1	51/69	87	B-87	1	33/87
8	B-63	17	22	B-99	5	45/99	37	A-37	3	9/37	53	A-53	2	14/53	70	A-49	1	35/49	88	A-44	1	16/44
9	A-30	15	23	A-46	5	10/46	38	A-46	5	10/46	54	B-81	2	18/81	71	B-63	1	45/63	88	B-77	1	28/77
9	A-30	13	23	B-69	5	15/69	39	A-26	3	2/26	54	B-99	2	22/99	71	B-71	1	49/71	89	B-80	1	31/89
10	B-63	13	24	*	5		39	B-91	3	7/91	55	A-44	2	8/44	72	A-30	1	20/30	90	A-30	1	10/30
10	*	12	25	A-30	4	24/30	40	*	3		55	B-77	2	14/77	72	B-93	1	62/93	90	B-93	1	31/93
11	A-44	10	26	A-39	4	24/39	41	A-41	2	38/41	56	A-49	2	7/49	73	B-73	1	47/73	91	B-91	1	29/91
11	B-77	10	26	B-91	4	56/91	41	A-28	2	24/28	56	B-91	2	13/91	74	A-37	1	23/37	92	A-46	1	14/46
12	*	10	27	B-63	4	28/63	42	B-63	2	54/63	57	A-57	2	6/57	75	A-30	1	18/30	92	B-69	1	21/69
13	A-26	9	27	B-81	4	36/81	43	A-43	2	34/43	58	B-87	2	6/87	76	A-38	1	22/38	93	B-93	1	27/93
13	B-91	9	27	A-28	4	8/28	43	A-44	2	32/44	59	A-59	2	2/59	77	B-77	1	43/77	94	A-47	1	13/47
14	A-49	8	28	B-63	4	18/63	44	B-77	2	56/77	60	*	2		77	A-26	1	14/26	95	A-38	1	10/38
14	B-77	8	29	B-87	4	12/87	44	A-30	2	20/30	61	A-51	1	59/61	78	B-91	1	49/91	95	A-32	1	8/32
15	*	8	30	*	4		45	B-63	2	42/63	62	B-93	1	87/93	79	B-79	1	41/79	96	A-44	1	11/44
16	A-34	7	31	B-93	3	81/93	46	A-46	2	28/46	63	B-63	1	57/63	80	A-34	1	17/34	97	B-97	1	23/97
16	A-46	7	32	A-32	3	24/32	46	B-69	2	42/69	64	A-32	1	28/32	80	A-46	1	23/46	98	A-49	1	11/49
17	A-34	7	32	A-44	3	33/44	47	A-47	2	26/47	64	A-26	1	22/26	81	B-81	1	39/81	99	B-99	1	21/99
18	A-30	6	33	A-44	3	28/44	48	A-38	2	19/38	65	B-91	1	77/91	82	A-41	1	19/41	100	A-30	1	6/30

Before operation ascertain the ratio of worm gear.

Ratio of worm gear is easily found by number of times of turning of handle needed to rotate spindle or turnable once.

Number of holes
 A Plate....26, 28, 30, 32, 34, 37, 38, 39, 41, 43, 44, 46, 47, 49, 51, 53, 57, 59
 B Plate....61, 63, 67, 69, 71, 73, 77, 79, 81, 83, 87, 89, 91, 93, 97, 99

Two dividing plates are available.

Which have the following number of the holes.

Remarks T : Nos. of Division

- N : Rotation of Crank
- H : Holes of dividing Plate
- * : free choice
- A : Plate-A type Should be used
- B : Plate-B type Should be used