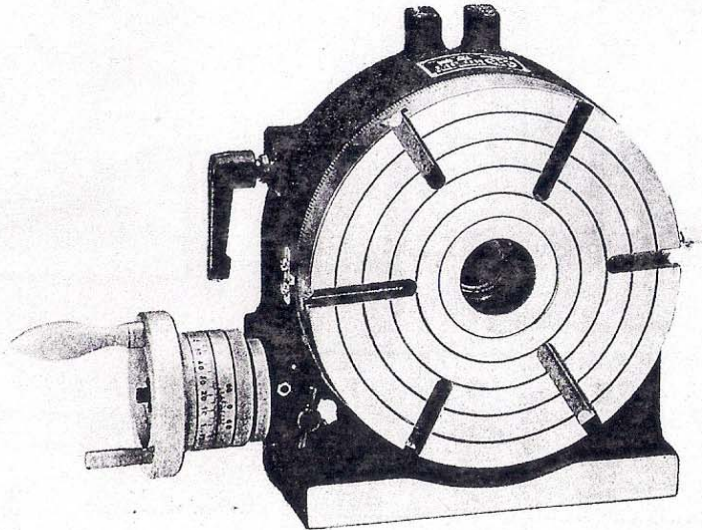


OPERATION AND SERVICE MANUAL

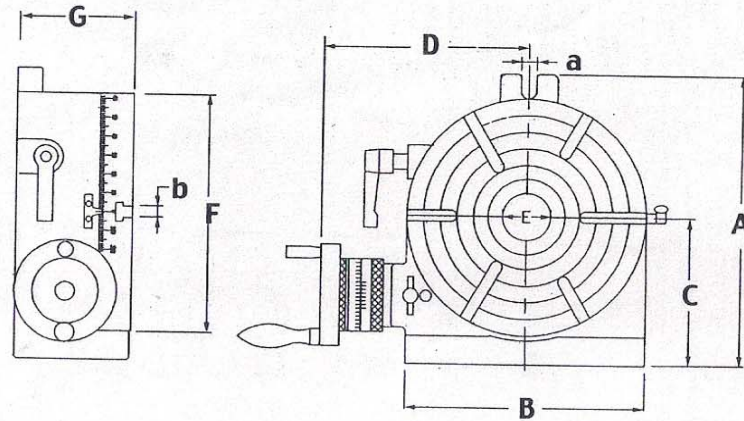
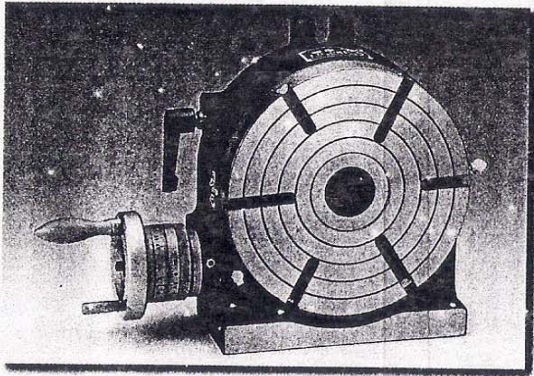


MACHINE TOOLS

MACHINE TOOLS

STORNG ROTARE TABLE

Patent products



DIMENSION CHART

MODEL	A	B	C	D	E	F	G	a	b	KG
HV-200	280	200	150	215	50	200	120	16	12	33
HV-250	310	250	155	217	50	250	120	16	12	43
HV-300	365	300	180	252	50	300	120	16	15	57

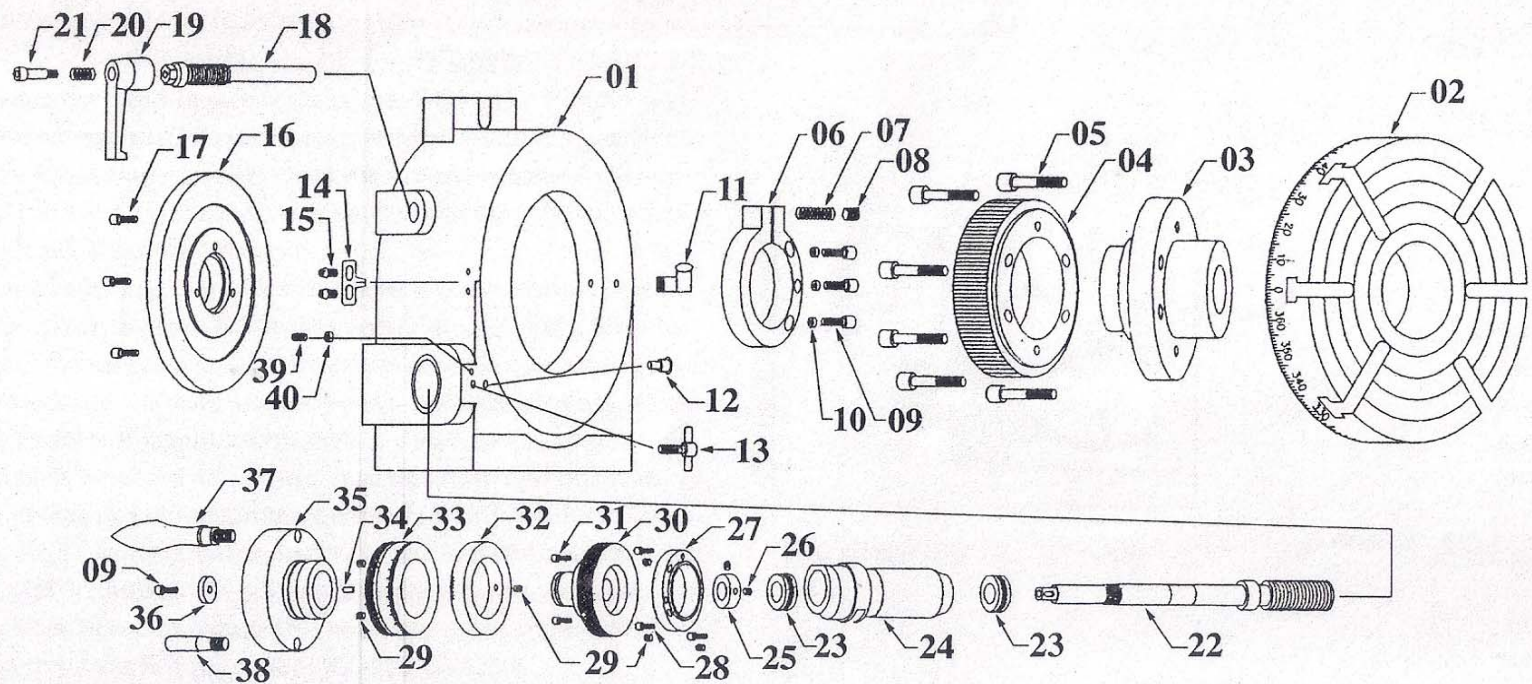
unit:mm

Suggestions for Order

The 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.

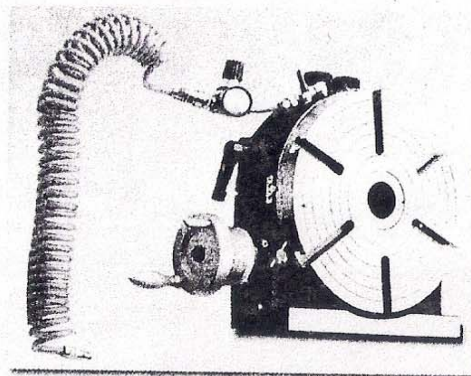




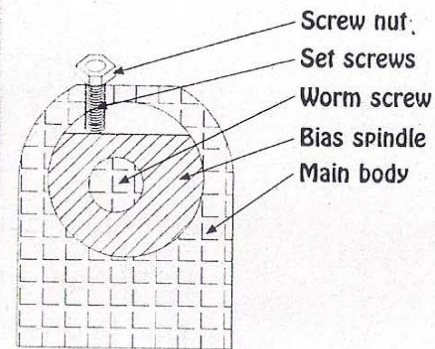
- | | | | |
|---------------------|---------------------|-----------------------|----------------------------|
| 01 Main body | 11 L-type oil cup | 21 Spring screw | 31 Screw |
| 02 Working platform | 12 Oil cup | 22 Worm screw | 32 Divided secondary ruler |
| 03 Shaft Column | 13 T-type screw | 23 Bearing(S) | 33 Divided circle |
| 04 Worm gear | 14 Indicating piece | 24 Bias spindle | 34 Key |
| 05 Screw | 15 Screw | 25 Nuts of worm screw | 35 Hand wheel |
| 06 Clamp ring | 16 Back Cover | 26 Screw | 36 Washer |
| 07 Spring | 17 Screw | 27 Fixed cover | 37 Lever of hand wheel |
| 08 Screw | 18 Clamp screw | 28 Screw | 38 Fixed lever |
| 09 Screw | 19 Clamp lever | 29 Screw | 39 Set screws |
| 10 Spring washer | 20 Spring(S) | 30 Deflector | 40 Screw nut |

Operating instructions and functions of each unit:

1. Always turn the handle clockwise. When the handle has been turned until it passes the desired position, then turn it back just once counterclockwise to the greatest extent, and then rotate it clockwise softly in order not to cause the backlash of the gear.
2. When rotate the clamp lever, there are two stages Fasten it to your desired tightness softly at the first stage to make the circular or arc process. Fasten it completely at the second stage to make heavy cutting process. You can loosen it counterclockwise. Pull the clamp lever upwards; you can adjust the desired angle and position.
3. Air-pressure regulator can be used on this product. Take unit No 11 away counterclockwise and install air-pressure regulator. Adjust air-pressure according to workpiece, and then you can rotate the working table smoothly.
(This function suit for model HV-200, HV-250)
4. The worm gear ratio is 1 :90 One turn of the handle moves the table by 4° .($360^\circ \div 4 = 90^\circ$) Microcollar is graduated in steps of 1 minute Vernier scale makes settings down to 10 seconds possible.
5. Dividing of 2 to 100 can be carried out quickly and precisely by attaching a special indexing plate.
(Please check the detail on page 6)
6. Center work can also be carried out easily by using tailstocks. Linking the tailstocks can make the mechanism and workpiece.
(Please check the detail on page 5)

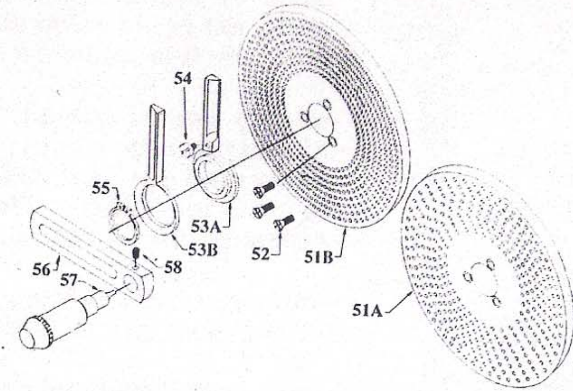
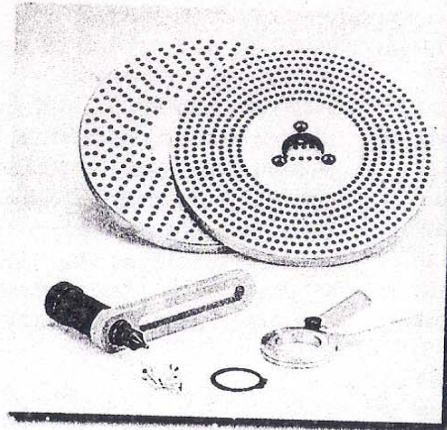
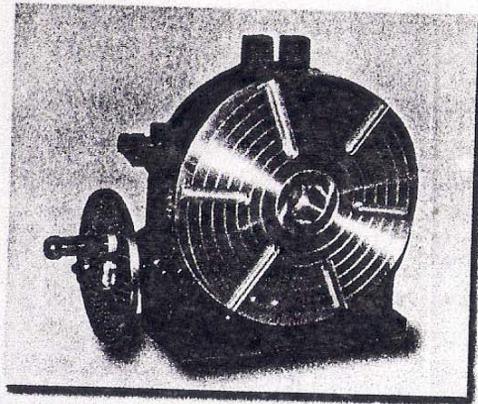


The drawing for HV-300



Process sturdy and easy.

The worm (22) and worm wheel (04) on indexing table can be adjusted by loosening T-type screws(13), rotate the shunt (30) counterclockwise, and then working table and worn can be separated or idle running. Rotate shunt(30) and hand wheel(35) to set screws(39), and the linking process can be finished. Rotate set screws(39) counterclockwise can make the crevice smaller, clockwise for larger crevice. Please adjust the crevice you desire by rotating set screws(39).



Installation of indexing plate(s):

Take screw M6 (09) and hand wheel (35) away counter clockwise put the needed indexing plate on (51), fasten three screws(52) clockwise, put the copper fork(53), buckle (54) and crank (55) on. and then fasten screw M6 (09) clockwise.

Dividing Plates (A plate and Bplate)	1
Sector	each 1
Crank handle	1
sector spring	1

In case of An Optional OP Device Attached

Indexing of 2 to 100 can be made accurately and quickly

Equation of Indexing

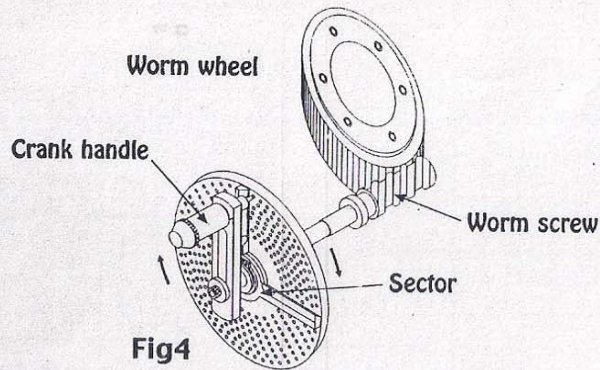
Since the worm ratio is 1:90, when the handle is made to rotate 360° revolution, the table therefore will rotate a 1/90 revolution. The relationships between handle revolution 'N' and dividual number 'T' to be sought are shown in the following equation:

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

Remarks: The index table on Page 6 is made on the basis of this equation

(Example)

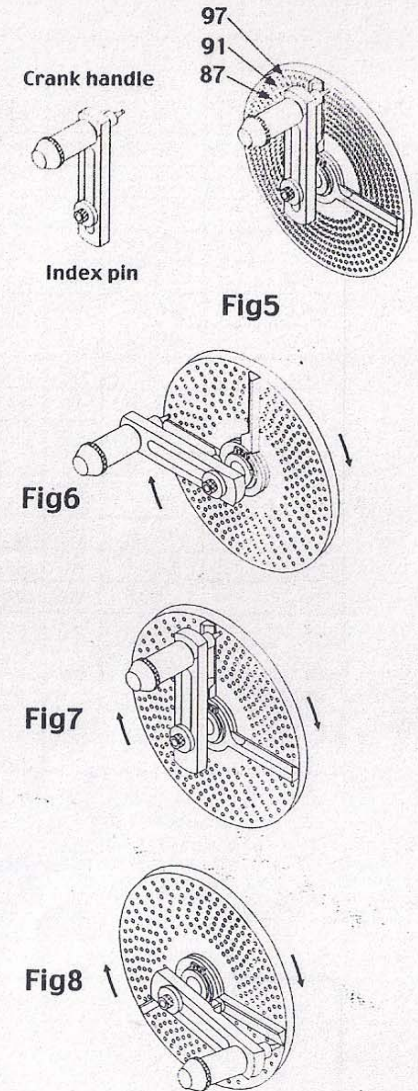
In case where the operator wants to index the position dividual into 29 equal parts. Hints on operation As for 29 dividual numbers, the number of crank handle revolution (N) is $3 \frac{2}{29}$ as shown in the table on Page 6, so that the handle should be rotated a full 360° revolution three times plus 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.



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 (Be 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.



INDEX TABLE (FOR WORM 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 28/28	34	A-34	2 22/34	50	A-30	1 24/30		B-99	1 36/99	83	B-83	1 7/83
	A-28	22 14/28	20	A-26	4 13/26	35	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		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	21	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
7	A-28	12 24/28		B-77	4 22/77		A-28	2 14/28	54	A-30	1 20/30		B-69	1 21/69	87	B-87	1 3/87
	B-77	12 66/77	22	A-44	4 4/44	37	A-37	2 16/37		70	A-28	1 8/28	88	A-44	1 1/44		
8	A-28	11 7/28		23	B-77	4 7/77	38	A-38	2 14/38		55	A-44	1 28/44	71	B-63	1 18/63	89
	A-44	11 11/44	A-46		3 42/46	39	A-26	2 8/26	B-77	1 49/77		B-71	1 19/71		90	※	1
9	※	10	24	B-69	3 63/69	40	B-91	2 28/91	56	A-28	1 17/28	72	A-32	1 8/32	91	B-91	90/91
10	※	9		A-28	3 21/28		A-28	2 7/28	57	A-38	1 22/38		A-44	1 11/44	92	A-44	45/46
11	A-44	8 8/44	25	A-44	3 33/44	41	A-44	2 11/44	58	B-87	1 48/87	73	B-73	1 17/73	93	B-93	90/93
	B-77	8 14/77		A-30	3 18/30		42	A-41	2 8/41	59	A-59	1 31/59	74	A-37	1 8/37	94	A-47
12	A-26	7 13/26	26	A-26	3 12/26	43	A-28	2 4/28	60	A-34	1 17/34	75	A-30	1 6/30	95	A-38	36/38
	A-28	7 14/28		B-91	3 42/91		44	B-63		2 9/63	A-32	1 16/32	76	A-38	1 7/38	96	A-32
13	A-26	6 24/26	27	A-30	3 10/30	45	A-43	2 4/43	61	B-61	1 29/61	77	B-77	1 13/77	97	B-97	90/97
	B-91	6 84/91		B-63	3 21/63		46	A-44		2 2/44	62	B-93	1 42/93	78	A-39	1 6/39	98
14	A-28	6 12/28	28	A-28	3 6/28	47	※	2	63	A-49	1 21/49	79	B-91		1 14/91	99	A-44
	B-77	6 33/77	29	B-87	3 9/87		48	A-46		1 44/46	B-77		1 33/77	B-79	1 11/79		B-99
15	※	6	30	※	3	49	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	50	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

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

Number of holes

A1 Plate.....26.30.34.38.41.44.47.51.57
 A2 Plate.....28.32.37.39.43.46.49.53.59
 B1 Plate.....61.67.71.77.81.87.91.97
 B2 Plate.....63.67.73.77.83.87.93.97

AGENTS: