

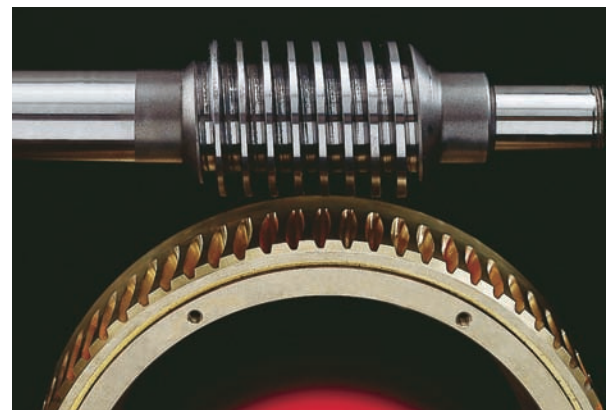
● HIGH ACCURACY AND HIGH RIGIDITY

Adoption of new double-lead worm gear--engagement between worm wheel and worm shaft has been improved, and tooth profile has been modified--has contributed greatly to increased dynamic accuracy. To remove the defect of single-lead worm gear. Close-tolerance taper roller bearing assembly is used, and the rotating slide part is finished in a super precision manner, which in turn, implements highly improved overall accuracy.

● SLEEVE TYPE CLAMPING MECHANISM

with this system, the Rotary Table is clamped by applying hydraulic pressure to the outer circumference of the turn table. Since the sleeve is positioned closest to the workpiece, the table clamp force is enlarged. This system is not only advantageous for heavy duty cutting but also helps improve the machining accuracy and extend the service life of the Rotary Table.

- This rotary table has been specifically developed to fulfill the requirements of a fully automatic machining process in association with a machine tool. They are used for milling, grinding and drilling of spindles, slots, plannes or bores in the radial or axial direction of the workpiece.
- Can be equipped with stepping motor or DC/AC servo motors.
- Carefully designed, rigid construction to assure high and constant indexing accuracy.
- Can operate as function M or as 4th axis or more, in machining units or numerically controlled machines, and are equally capable of being fitted to any other type of non-NC machine-tools.
- Hardened and ground steel worm, mounted on high precision combined radial-axial bearings.
- Worm mounted on an axial support system, which allows adjustment and suppression of any backlash existing between the worm and the worm-wheel after long-time service.
- High precision
Axial and radial runout within 0.01mm, Cumulative indexing accurate within 15 sec.



DOUBLE LEAD WORM GEARS SYSTEM

- New design/special material



PROGRAMMABLE SERVO MOTOR CONTROLLER

● SPECIFICATIONS

ORDER NO.	VNCM-150 $\frac{L}{R}$	VNCM-220 $\frac{L}{R}$	VNCM-250 $\frac{L}{R}$	VNCM-320 $\frac{L}{R}$	VNCM-400 $\frac{L}{R}$	
Right-hand type	○	○	○	○	○	
Left-hand type	○	○	○	○	○	
Turntable diameter	Ø160	Ø225	Ø250	Ø320	Ø400	
Table height(Horizontal pos.)	150	165	165	220	250	
Table center height(Vertical pos.)	135	160	160	210	255	
Center bore diameter	Ø35H7	Ø40H7	Ø40H7	Ø40H7	Ø40H7	
T-slot size	12H7	12H7	12H7	14H7	14H7	
Guide-block size	14h7	14h7	14h7	18h7	18h7	
Number of worm wheel teeth	72	72	72	72	72	
Servo motor type	FANUC α 3	FANUC α 6	FANUC α 6	FANUC α 12	FANUC α 6	FANUC α 12
Speed reduction ratio	1/90	1/180	1/180	1/180	1/360	1/180
Table graduation angle per 1 pulse	0.001°	0.001°	0.001°	0.001°	0.001°	0.001°
Table rotation speed	22.2r.p.m./ (Motor 2,000r.p.m.)	11.1r.p.m./ (Motor 2,000r.p.m.)	11.1r.p.m./ (Motor 2,000r.p.m.)	11.1r.p.m./ (Motor 2,000r.p.m.)	5.5r.p.m./ (Motor 2,000r.p.m.)	11.1r.p.m./ (Motor 2,000r.p.m.)
Clamp method & Clamp torque (kg-m)	8/ (Air 5kg/cm ²)	50/ (Hydraulic 35kg/ cm ²)	50/ (Hydraulic 35kg/ cm ²)	85/ (Hydraulic 35kg/cm ²)	180/ (Hydraulic 35kg/ cm ²)	
Load capacity, horizontal(kg)	150	250	250	350	500	
Load capacity, vertical(kg)	75	100	100	150	200	
Inertia force (kg-cm-sec ²)	4.3	12.3	12.3	38.5	99.8	
Max.torque capacity of worm gear (kg-m)	15	48	48	78	170	
Max. workpiece diameter	160	225	225	320	400	
Cumulative indexing accuracy sec.	20"	15"	15"	15"	15"	
Repeatability sec.	4"	4"	4"	4"	4"	
Inertia force(convert into motor shaft) kg-cm-sec ² X10 ⁻²	0.2	0.24	0.34	1.85	1.35	1.94
Net weight (kg)	55	75	75	200	300	
CODE NO.	4001-001	4001-002	4001-003	4001-004	4001-005	

- Other makers' servo motors can be installed.

● ACCURACY STANDARD

NO.	Inspection Item	Inspection Item
1	Table top flatness (concave)	Per overall length 0.01
2	Table top runout	0.015
3	Parallelism of table top and frame bottom	Per overall length 0.02
4	Table spindle center runout	0.01
5	Center bore runout	Hole end 0.01
		Per 100mm 0.01
6	Perpendicularity of table top to frame bottom	Per overall length 0.02
7	Perpendicularit of table top to frame bottom guide block	Per overall length 0.02
8	Cumulative indexing accuracy	15"
9	Parallelism of center line between headstock and tailstock to frame bottom guide block	Per 300mm 0.02
10	Height difference of both center lines of headstock (Tailstock center line should be higher)	0.02

1		4		7	
2		5		8	An optical measuring instrument should be used for indexing accuracy measurements.
3		6			



- Motor case setted on the back of the body, increased the space for moving forward and backward, suitable for large or small NC machine using.
- Use of precision lead worm gear assures highly accurate dividing independently of table rotating direction. Further, no backlash will be produced.
- Wide range of machining is accomplished by connecting the Drive Table with Mcode of machining center.
- When used with machining center, the Drive Table will widen the range of applications; circular cutting dividing into equal parts, dividing into unequal parts, lead cutting, can cutting etc.
- MACHINE ZERO AND WORK ZERO. Zero Return Function to either Zero.
- BACKLASH COMPENSATION.
- BUILT-IN PNEUMATIC BRAKE FUNCTION.

Dimensions

Unit:mm

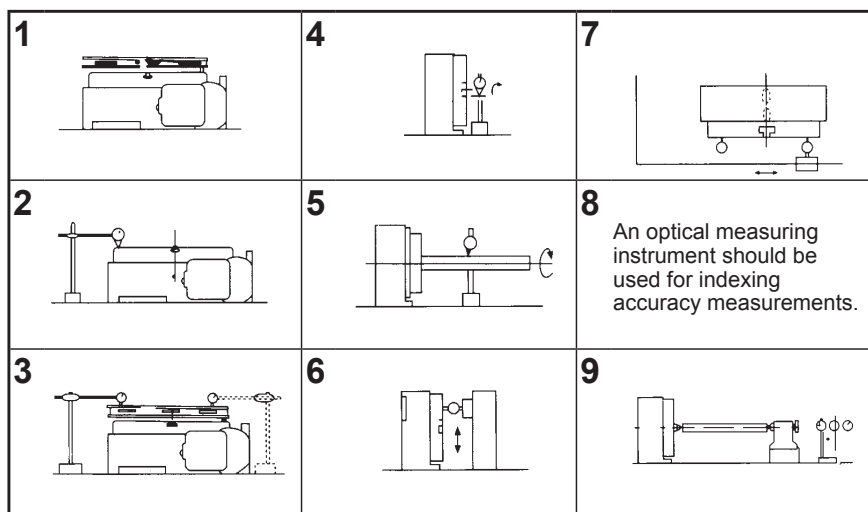
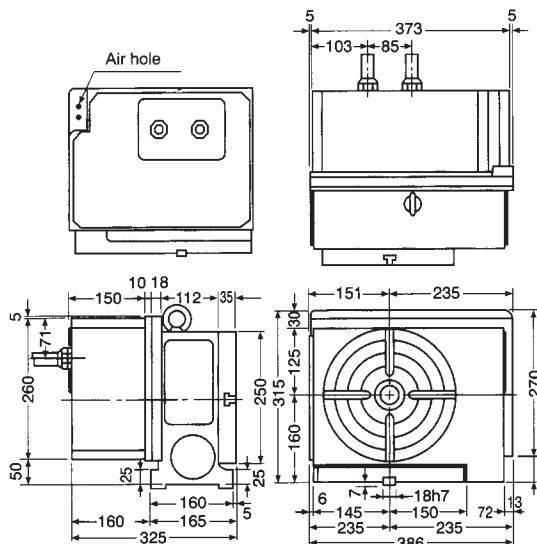
Item		
Table diameter		250
Table height		315
Center height		160
Center hole diameter		32
Table reference groove width		14
Key way		18
Clamping force(kgf-m)	Penumatic	20
Allowable work diameter		250
Allowable weight	Horizontal setup Vertical setup	200 100
Allowable work inertia(kgf-cm sec ²)		12.5
Total reduction ratio		1:90
Rotary speed(rpm)		11.1
Allowable machine torque(kgf-m)		48

ACCURACY STANDARD



Unit:mm

NO	Inspection Itme		Tolerance
1	Table top flatness(concave)	Per overall length	0.01
2	Table top runout		0.015
3	Parallelism of table top and frame bottom	Per overall length	0.02
4	Table spindle center runout		0.01
5	Center bore runout	Hole end Per 100mm	0.01 0.01
6	Perpendicularity of table top to frame bottom	Per overall length	0.02
7	Perpendicularity of table top to frame bottom guide block	Per overall length	0.02
8	Cumulative indexing accuracy		15"
9	Parallelism of center line between headstock and tailstok to frame bottom guide block	Per 300mm	0.02
10	Height difference of both headstock and tailstock center lines(Tailstock center line should be higher)		0.02

VNCX-10

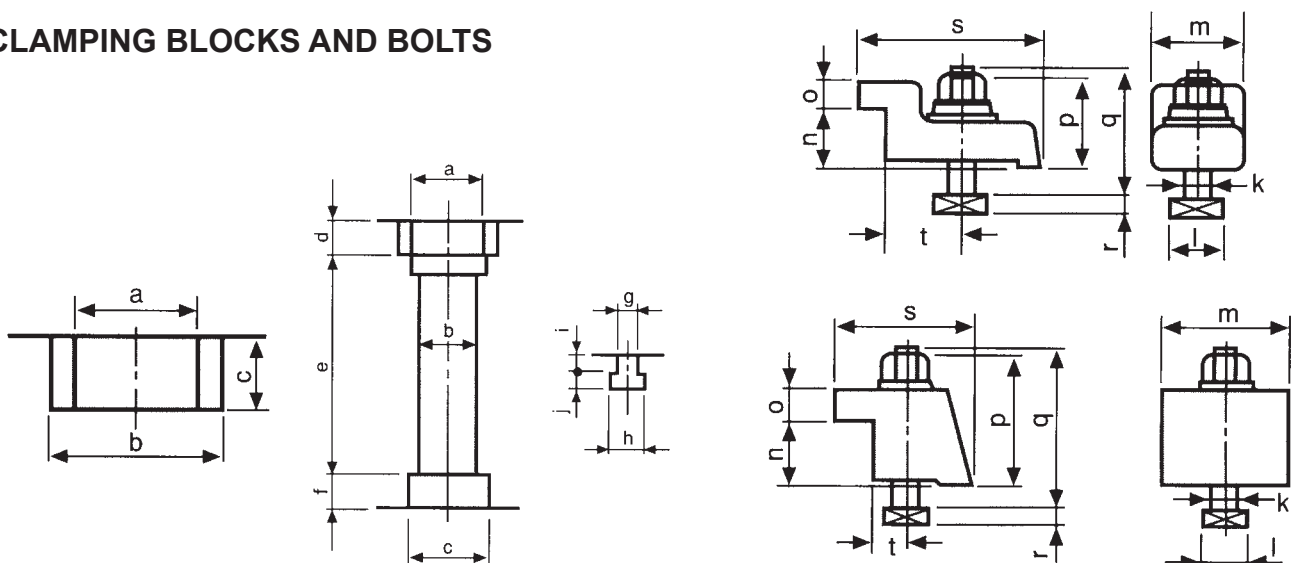


● Optional accessories (For NC ROTARY TABLE)

<p>VHR-100MF VHR-101MF</p>  <p>MITSUBISHI MOTOR & FANUC MOTOR</p> <p>Servo controller + Servo motor</p>	 <p>Flang & Center for VNCM-320, 400</p>	 <p>Automatic power chuck</p>	 <p>Flanged scroll chuck</p>
<p>VHR-110F VHR-112F</p>  <p>Stepping controller + Stepping motor</p>	<p>VHR-20</p>  <p>Air-hydraulic for the table clamp Hydraulic unit (VNCM-320, 400)</p>	 <p>Automatic tailstock</p>	 <p>Manual tailstock</p>
<p>VHR-116S</p>  <p>SIEMERS MOTOR</p>	<p>VHR-10</p>  <p>Hydraulic unit</p>	<p>Standard accessories</p>  <p>Clamping blocks and bolts</p>	

ORDER NO.	Suitable for	CODE NO.
VHR-10	NC Rotary table	4002-010
VHR-20	NC Rotary table	4002-020
VHR-100MF	VNCM-150, 220, 250 MITSUBISHI & FANUC MOTOR	4002-030
VHR-101MF	VNCM-320, 400 MITSUBISHI & FANUC MOTOR	4002-031
VHR-110F	VNCM-150, 220, 250 FANUC MOTOR	4002-040
VHR-112F	VNCM-320, 400 STEPPING MOTOR	4002-041
VHR-116S	VNCM-150, 220, 250 STEPPING MOTOR	4002-042
VHR-117S	VNCM-320, 400 SIEMERS MOTOR	4002-043

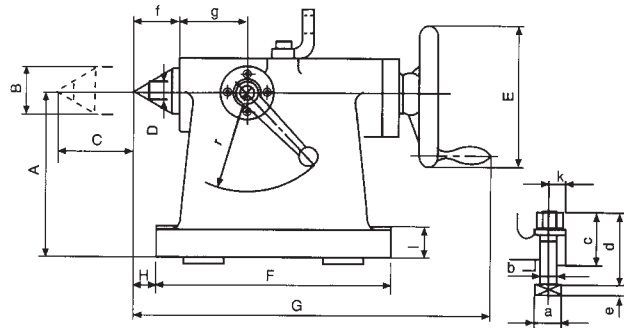
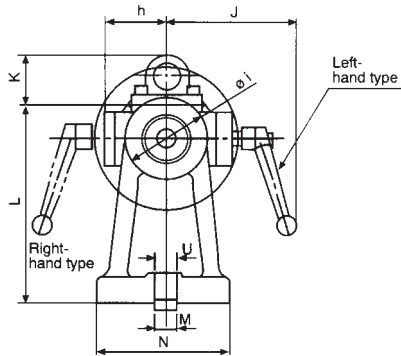
● CLAMPING BLOCKS AND BOLTS



Unit:mm

ORDER NO.	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
VNCM-150	∅35H7	∅40	∅35	16	114	20	12H7	19	11	8	∅12	□23	40	25	15	57	75	8	52	15
VNCM-220/250	∅40H7	∅32	∅45	20	124	20	12H7	19	11	8	∅16	□28	40	25	12	43	63	11	80	33
VNCM-320	∅40H7	∅42	∅50	20	139	30	14H7	23	14	9	∅16	□28	46	30	15	46	70	11	90	31
VNCM-400	∅40H7	∅41	∅50	20	164	30	14H7	23	14	9	∅16	□28	46	30	15	46	70	11	90	31

Tailstock For NC Rotary Table



Unit:mm

ORDER NO.	Main dimension For	Center height A	Center diameter B	Storke C	pointed end diameter D	Handle diameter E	Base dimensions FXM	G	H	I	J	K	L
TS-135	VNCM-150	135	∅45 MT#3	55	∅14	125	215x120	332	25	25	109	-	164
TS-160	VNCM-220 VNCX-10 VNCM-250	160	∅45 MT#3		∅18	140	230x130	356	30	30	129	53	193
TS-210	VNCM-320	210			230x146	243							
TS-255	VNCM-400	255	∅55 MT#3	50	160	270x170	412		35	131		255	

Unit:mm

ORDER NO.	Main dimension For	Guide-block size M	a	b	c	d	e	u	f	g	h	j	k	r	Net weight (kgs)	CODE NO.
TS-135	VNCM-150	18	23	12	42	60	8	19	40	69	44	70	17.5	80	20.6	4002-001
			26	16	46	70	10									
			28	16	46	70	11									
TS-160	VNCM-220 VNCX-10 VNCM-250	18	20	12	49	70	8	19	45	70	52	80	95	23.1	4002-002	
			26	16	51	75	10									
TS-210	VNCM-320	18	28	16	51	72	11	23	50	75	54	85	95	29.4	4002-003	
			34	20	57	85	13									
TS-255	VNCM-400	18	32	18	60	90	11	23	50	75	54	85	95	38.7	4002-004	
			34	20	52	90	13									

Listed in the above table are examples of applicable models. Those not listed above should be selected so that the center height of the rotary table and dividing heads is the same as that of the tailstock.