NIKKEN

CNC ROTARY TABLE SERIES

CAT.NO.816F

Made in Japan, Made by

NIKKEN is one of the few manufacturers of machine tools that designs and manufactures in-house the key components of its rotary tables in order to realize the exceptional performance customer requirements.

■Spirit of Innovation   In pursuit of exceptional performance

Our name "NIKKEN" derives from Japanese characters meaning "doing research & study every day," and this expresses the spirit of our company. Today this spirit is alive in each and every component of our innovative NIKKEN CNC rotary table products. To achieve unmatched high precision, high rigidity, and durability, we utilize a variety of key components incorporating our own innovative ideas, rather than relying on off-the-shelf parts. This is exactly what NIKKEN CNC rotary tables makes the superior performance possible.

■Long Life Concept   In-house design and manufacturing for secure environment

Although our products are highly durable, it is necessary to replace parts occasionally due to breakdowns or maintenance. Since NIKKEN designs and manufactures key components in-house, our customers avoid the risk of not being able to perform product repairs or maintenance due to being discontinued off-the-shelf parts. You can continue to rely on our high-precision products under secure environment over the long term. This is a key concept behind NIKKEN products.

The Heart of NIKKEN CNC Rotary Table
Carbide Worm System ●

Steel Way HRC58-60

Ion Nitrided Worm Wheel HV980

Carbide Worm Screw

■Solid Carbide Worm Screw

This is NIKKEN s unique design, superior to traditional steel worm screw. olid carbide worm screw is allowed longer life and minimal wear compared to tradition al worm system to use specially hard material. This alongs with the hand pairing of the custom made steel worm wheel to eliminates backlash.

Carbide Worm Screw

■HV980 Heat Treated Steel Worm Wheel

The material used for the NIKKEN worm wheel is custom made steel, specially hardened and ion nitrided on the teeth. As a consequence, frictions between the gears are eliminated.

Depth 0.1 mm
HV980
Inside
HRC36

Hardness of Worm Wheel
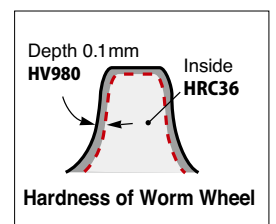
Unique "Bearing system"
Independent Double Thrust and Radial Bearing System ●

NIKKEN Bearing system allow for more points of contact versus traditional ball bearings of cross roller bearings, resulting in smooth and accurate rotation.

■Thr t ：T b lar Thr t eari

Tubular thrust bearings dampen vibration and protect the internal gears during crash situations.

■ adia l： eedle oller eari

The high accuracy is implemented in "Hand picked and matched" Needle Roller Bearings between rotary table and faceplate assembly assuring the utmost rotation accuracy and elimination of any play or unnecessary movement between the two parts.
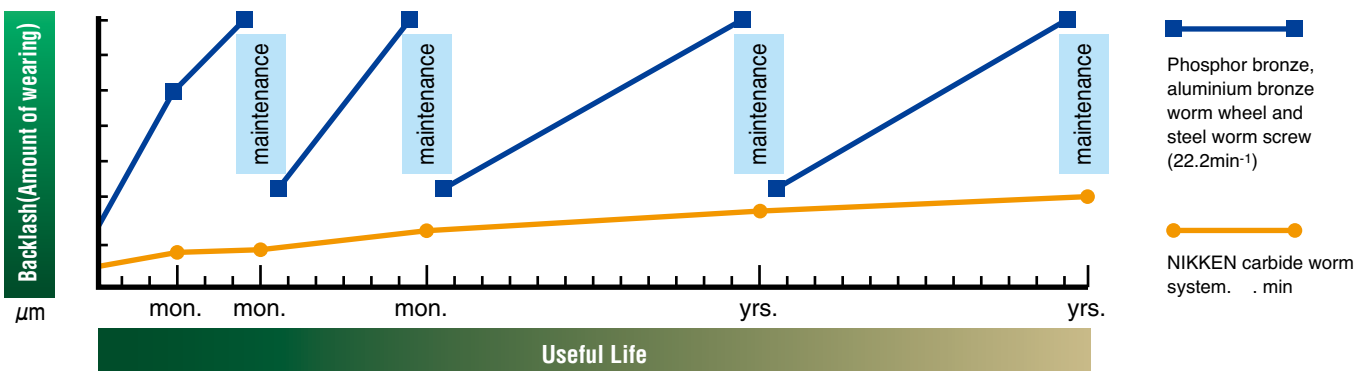
Tubular Thrust Bearings

Needle Roller Bearings

NIKKEN.
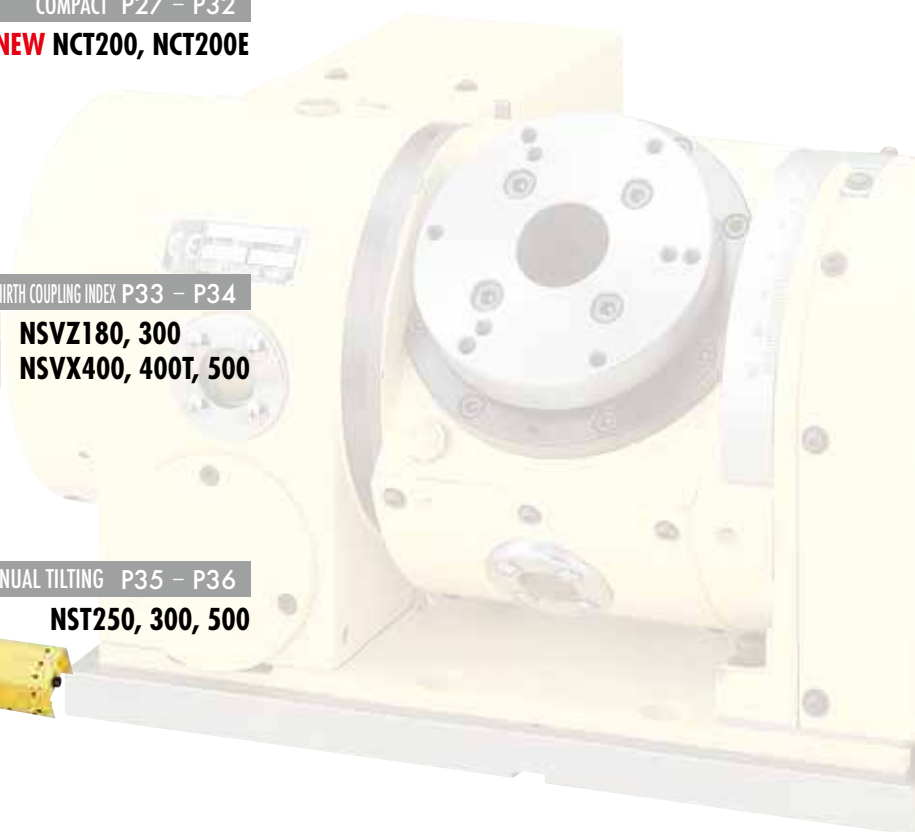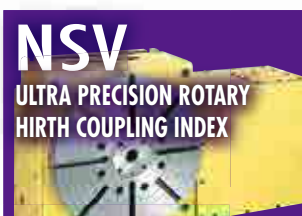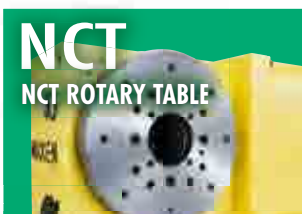
RIGIDITY   ACCURACY   DURABILITY

Our thoroughgoing passion for high rigidity and high precision results in products of excellent durability that retain their precision even after long-term use. This boosts the operating ratio and cuts maintenance costs, contributing to a substantial reduction in costs overall.

Backlash(Amount of wearing)

maintenance

μm

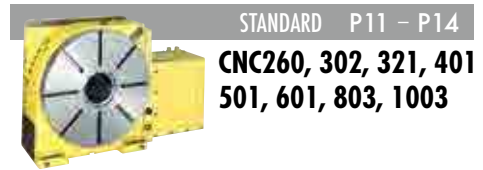mon.   mon.   mon.   yrs.   yrs.

Useful Life

Phosphor bronze, aluminium bronze worm wheel and steel worm screw (22.2min^{-1})

NIKKEN carbide worm system.   . min

NIKKEN CNC rotary table extensive

CNC
CNC ROTARY TABLE

COMPACT   P7 – P10
105, 180, 202,
NEW CNC205

STANDARD   P11 – P14
CNC260, 302, 321, 401
501, 601, 803, 1003

LARGE   P15 – P16
CNC1000,1200,
1201, 1600

TOP SIDE MOTOR MOUNTED   P17 – P20
CNC202T, 260T, 302T
321T, 401T, 501T, 601T

BACK SIDE MOTOR MOUNTED   P21 – P22
CNC180B, 202B, 260B
302B, 321B, 401B

BIG BORE   P23 – P24
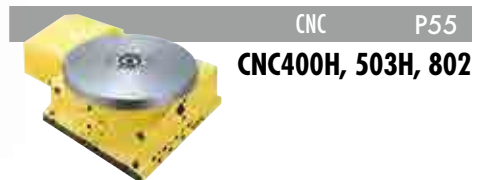CNCB350, B450, B630

MULTI-SPINDLE   P25 – P26
CNC100-2W,
3W, 4W,
180-2W, 202-2W,
260-2W

NCT
NCT ROTARY TABLE

COMPACT P27 – P32
NEW NCT200, NCT200E

NSV
ULTRA PRECISION ROTARY HIRTH COUPLING INDEX

HIRTH COUPLING INDEX P33 – P34
NSVZ180, 300
NSVX400, 400T, 500

NST
MANUAL TILTING ROTARY TABLE

MANUAL TILTING P35 – P36
NST250, 300, 500

lineup to match your own applications.

5AX
TILTING ROTARY TABLE

COMPACT P37 – P40
NEW 5AX-100,130 201

STANDARD P41 – P44
5AX-230, 250, 350, 550

LARGE P45 – P46
5AX-800,1200

MALTI-SPINDLE P47 – P48
5AX-2MT-105, 4MT-105

DD
ROTARY TABLE with DD MOTOR

5AX-DD P49, P53
NEW 5AX-DD100, 200A, 200B

DD P51
DD180, 250, 400
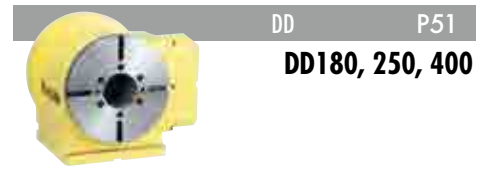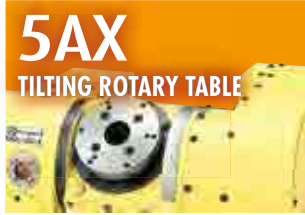
Notes on the Use of DD TABLES P54

BUILT-IN
BUILT IN type ROTARY TABLE

CNC P55
CNC400H, 503H, 802

5AX P56
5AX-T400,B450
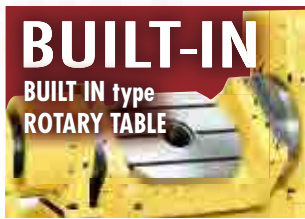
SERVO MOTOR

SERVO MOTOR P57 – P58
Servo Motor List ・ Relation between Unbalancing load and Servo Motor ・ Flow Chart of the Addtional Axis Control

M-SIGNAL
ROTARY TABLE with NIKKEN CONTROLLER

α21 CONTROLLR P59 – P68

EZ CONTROLLR P69 – P74

TECHNICAL INFORMATION P75 – P78

CNC
NCT
NSV
NST
5AX
DD
BUILT-IN
MOTORS
M-SIGNAL
ACC
O/P
TEC
SERV

# How to Select Your Best CNC Rotary Table

NIKKEN

1 How CNC Rotary Table is Controlled

■ Additional Axis

You can choose additional axis when the machine has 4th or 5th axis.
CNC rotary table can be controlled by machine in this case.

1. 4th or 5th amplifier is required for the machine. It should be used exactly the same one used for X, Y and Z axis. Install same servomotor(s) used for X, Y and Z axis.
2. The type of the servomotor or amplifier is defined by the types of rotary table.
3. Decide by whom servomotor will be supplied.
4. External dimensions and specifications depend on the type of servomotor.
5. Parameter configuration, hydraulic connection, wiring and installation of amplifiers should be provided by machine tool builders.

4th (or 5th) AXIS M/C

CNC Rotary Table
X-axis
Y-axis
Z-axis
(Amplifier)
4th AXIS (or 5th AXIS)
Power & Feed back cable (Optional)
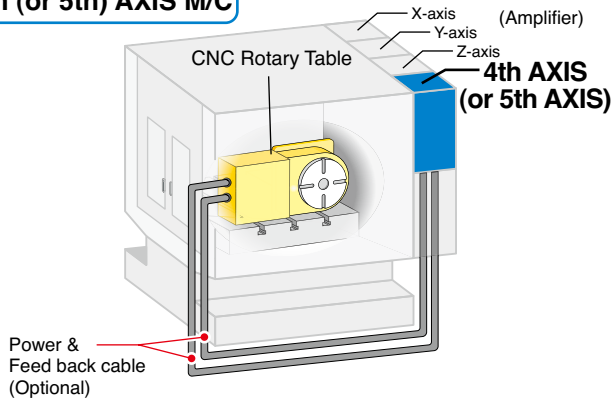
■ NIKKEN Controller (M-signal)

You can choose NIKKEN Controller when the machine doesn't have additional axis.
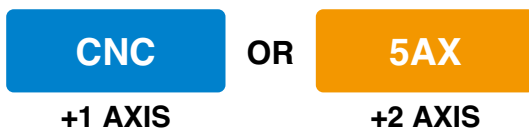Note: at least one M-signal code is required.

1. At least one M-Signal is required on the machine.
2. Input M-signal as "index start" command on the machine, high accuracy indexing, equally divided indexing (2-9999), or lead operation is allowed.
3. Control unit, servo-motor and all cables will be supplied by NIKKEN.

3th AXIS M/C

CNC Rotary Table
(Amplifier)
M-signal
M-signal cable
Power & Feed back cable (Optional)
Nikken controller
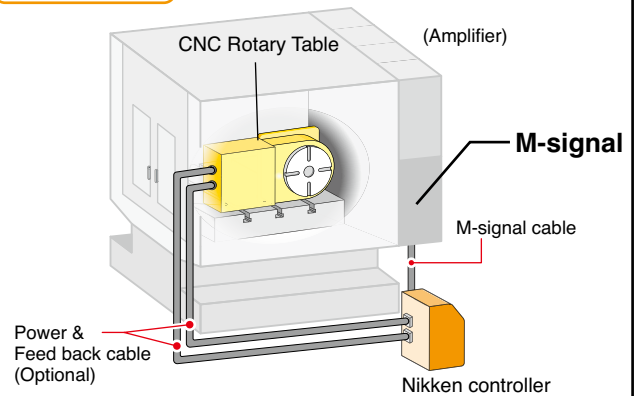
2 Select +1 AXIS or +2 AXIS

CNC OR **5AX**

+1 AXIS **+2 AXIS**

5 High Speed or Standard?

Standard OR **High speed**

3 Select Face Plate Diameter

Component DIA.	Component Weight
Diameter of the components should not exceed the face plate diameter of the table.	Component weight should not exceed the maximum load capacity of the face plate diameter of the table.
Ex.)Workpiece DIA. : φ150	
Ex.)Workpiece DIA. : φ180	＊Vertical W kg

6 Select Options

ROTARY JOINT **ULTRA PRECISION** **SUPPORT TABLE** **TAIL STOCK**

＊Refer to icons on each page for the other functions.

4 Select the Servomotor Position

Select the servomotor position which is suitable for the application to take into consideration to avoid the interference with the machine.

Left Hand   Right Hand   Back Side   Top Side

7 Select Accessories

Scroll chuck   Tailstock   Support Table

＊Refer to icons on each page for the other functions.

5

CNC 401 L F A - M

- **With/without Motor**
  Non: without motor
  M: with motor
- **Type of motor**
  Non: DC servo, A: AC servo
- **Motor maker**
- **Motor mounting location**
  Non: Right mount, L: Left mount,
  B: Back mount, T: Top mount
- **Diameter of the rotary table face plate (mm)**
- **Code No. of vertical/horizontal type CNC rotary table**

M-signal CTRL	*Code No.
∝21Controller	AA21
*5AX : Both Axis	WAA21
*5AX : Each Axis	DAA21
EZController	EZ

Makers for Additional Axis CTRL	*Code No.
FANUC	F
MELDAS	M
OSP	OSP
YASNAC	Y
SIEMENS	Z
SANYO	S
TOSNUC	T

Servomotors for Brother *SPEEDIO* is exclusive. EX.)NCT□200□□SA-BR2
The last part of the product code must be "SA-BR2".

● **Single Axis CNC Rotary Table**

NCT 200 E L F A - M

- **With/without Motor** Non: without motor
  M: with motor
- **Type of motor** Non: DC servo, A: AC servo
- **Motor maker**
- **Motor mounting location**
  Non: Right mount, L: Left mount,
  B: Back mount, T: Top mount
- **Face Plate**
  W/O Face Plate : E
  With Face Plate : No Letter
- **Diameter of the rotary table face plate (mm)**
- **Code No. of high clamping torque compact CNC Rotary Table**
  NCT : Standerd
  NCTZ : High Speed

NCT200

● **5AX Rotary & Tilting Table**

5AX- 350 F A - M

- **With/without Motor**
  Non: without motor, M: with motor
- **Type of motor** Non: DC servo, A: AC servo
- **Motor maker**
- **Rotary axis motor mounting location** Non: Right mount, L: Left mount
- **Diameter of the table face plate (mm)**
- **Tilting axis motor mounting location**
  Non: Parallel mount
  A: Back mount
  B: Back of rotary axis
  T: Top mount
- **Code No. of Rotray & Tilting Table**

5AX-350

● **Multi-Spindle CNC Rotary Table**

CNC 100-2W-120 F A - M

- **With/without Motor**
  Non: without motor, M: with motor
- **Type of motor** Non: DC servo, A: AC servo
- **Motor maker**
- **Motor mounting location** Non: Right mount,
  L: Left mount, B: Back mount, T: Top mount
- **Pitch between the spindles 120, 250, 320**
- **Number of spindles**
- **Diameter of the rotary table face plate (mm)**
- **Code No. of vertical/horizontal type CNC rotary table**

CNC100-2W

● **5AX Multi Spindle Rotary & Tilting Table**

5AX - 2MT - 105 - 120 F A - M

- **With/without Motor**
  Non: without motor
  M: with motor
- **Type of motor**
  Non: DC servo, A: AC servo
- **Motor maker**
- **Rotary axis motor mount location**
  Non: Right mount, L: Left mount
- **Pitch distance between the spindles**
- **Diameter of the table face plate (mm)**
- **Number of rotary axis spindles**
- **Code No. of Rotray & Tilt Table**

5AX-2MT-105

● **Rotary Hirth Coupling Index Table**

NSV X 400 F A - M

- **With/without Motor**
  Non: without motor, M: with motor
- **Type of motor** Non: DC servo, A: AC servo
- **Motor maker**
- **Motor mounting location** Non: Right mount
  L: Left mount, T: Top mount
- **Diameter of the table face plate (mm)**
- **X: Index & Rotary Table**
  Z: Index Table
- **Code No. of Hirth Coupling Index Table**
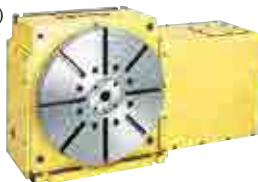
NSVX400

● **Manual Tilting CNC Rotary Table**

NST 300 F A - M

- **With/without Motor**
  Non: without motor, M: with motor
- **Type of motor** Non: DC servo, A: AC servo
- **Motor maker**
- **Rotary axis motor mount location** Non: Right mount, L: Left mount
- **Diameter of the table face plate (mm)**
- **Code No. of ManualTilting CNC Rotary Table**

**NST300**

6

COMPACT CNC ROTARY TABLE

NIKKEN

CNC105 and accessories

■ Wide application can be offered from small drilling press to M/C

■ Suitable for indexing/leads cutting of small size work pieces

■ Various kinds of the work chucking attachments can be offered from 5C collet fixtures to the air/hyd. chuck

— MOTOR MOUNTED —	— FACE PLATE —	— M-SIGNAL METHOD —		
R RIGHT HAND	**WITH** FACE PLATE	**α21** CTRL	**ADD. AXIS**	**ACCURACY SPEC.**
L LEFT HAND	**W/O** FACE PLATE	**EZ** CTRL	P.57	P.99
		P.59 P.69		

ROTARY JOINT P.89	**ULTRA PRECISION** P.87	**SUPPORT TABLE** P.79	**TAIL STOCK** P.81	**SCROLL CHUCK** P.83	**POWER CHUCK** P.84	**CLAMP DEVICE** P.85	**T-NUT** P.86

■ Specifications

( ):High Speed CNC ROTARY Table Z series

Item / Code No.		CNC105 CNCZ105	CNC180 CNCZ180	CNC202 CNCZ202
Diameter of Table	φmm	105	180	200
Diameter of Spindle Hole	φmm	φ60H7 φ30	φ60H7 φ40	φ60H7 φ40
Center Height	mm	105	135	135
Width of T Slot	mm	φ10H7 Pin hole	$12^{+0.018}_{0}$	$12^{+0.018}_{0}$
Clamping System		Pneumatic*4	Pneumatic*4	Pneumatic*4
Clamping Torque	N·m	205	303	303
Table Inertia at Motor Shaft $\left(\frac{GD^2}{4}\right)$ kg·m²×10⁻³		0.06	0.08	0.09
Servo Motor	min⁻¹	α iF1·3000	α iF2·3000	α iF4·3000
MIN. Increment		0.001°	0.001°	0.001°
Rotation Speed	min⁻¹	33.3(66.6)	33.3(66.6)	33.3(66.6)
Total Reduction Ratio		1/90(1/45)	1/90(1/45)	1/90(1/45)
Indexing Accuracy	sec	±30	±20	±20
Net Weight	kg	32	45	55
MAX. Work Load on the Table	Vertical kg	30	100	100
	Horizontal kg	60	200	200
MAX. Thrust Load applicable on the Table	N	8800	18000	18000
	*1 F×L N·m	275	542	542
	F×L N·m	220	690	690
Guide Line of MAX. Unbalancing Load	*2 N·m	–	30	50
MAX. Work Inertia	Vertical $+\left(\frac{GD^2}{4}\right)$ kg·m²	0.04(0.02)	0.4(0.2)	1.0(0.5)
Driving Torque	*3 N·m	36(27)	72(54)	144(115)

*1 This is the strength of the worm wheel without brake. It is applied against dynamic cutting thrust.

*2 The guide line of MAX unbalancing load means the unbalancing load, when the rotary table is used with support table in vertical application. The guide line figure will be different according to the servo motor, please refer to ☞ P.57 for more detail.

*3 Driving torque means the torque at MAX. rotation speed after acceleration. Driving torque is almost constant and independent from the load except unbalancing load is applied.

*4 Air Intensifying Booster system is available if the supplied air pressure is under 0.5MPa or the brake torque is required to increase. ☞ **P.95**
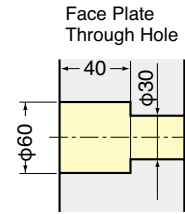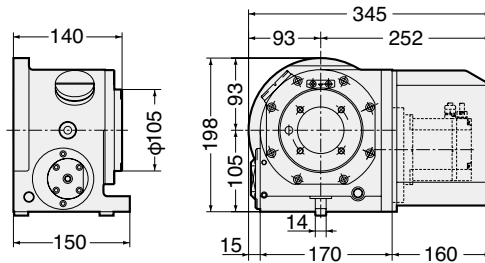
★α iF4/5000 motor can be mounted on **CNC180**.
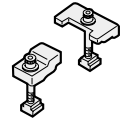
CNC105, 180, 202

NIKKEN

External dimensions depend on the type of the servo motor. Indicated dimensions are in case of FANUC. Please contact us for CAD files (2D:DXF, 3D:PARASOLID).
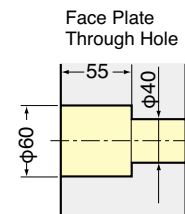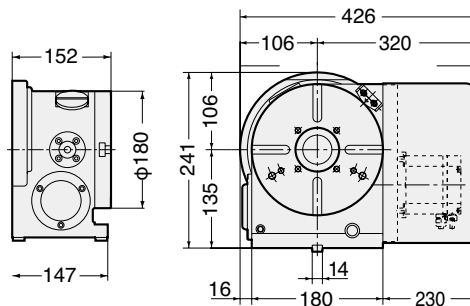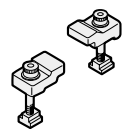
CNC105, CNCZ105

140 · φ105 · 150

345 · 93 · 252 · 198 · 93 · 105 · 14 · 15 · 170 · 160

Face Plate Through Hole

40 · φ30 · φ60

Clamp Device

R RIGHT HAND | L LEFT HAND | W/O FACE PLATE | α21 CTRL | EZ CTRL

Air purge function is provided inside the motor cover as standard.

CNC180, CNCZ180

152 · φ180 · 147

426 · 106 · 320 · 241 · 106 · 135 · 14 · 16 · 180 · 230

Face Plate Through Hole

55 · φ40 · φ60

Clamp Device

R RIGHT HAND | L LEFT HAND | WITH FACE PLATE | α21 CTRL | EZ CTRL

Air purge function is provided inside the motor cover as standard.

CNC202, CNCZ202

152 · φ200 · 147

451 · 106 · 345 · 241 · 106 · 135 · 14 · 16 · 180 · 255

Face Plate Through Hole

55 · φ40 · φ60

Clamp Device

R RIGHT HAND | L LEFT HAND | WITH FACE PLATE | α21 CTRL | EZ CTRL

Air purge function is provided inside the motor cover as standard.

MOTOR MOUNTED		FACE PLATE		M-SIGNAL METHOD			
R RIGHT HAND	**L** LEFT HAND	**WITH** FACE PLATE	**W/O** FACE PLATE	**α21** CTRL	**EZ** CTRL	**ADD. AXIS**	**ACCURACY SPEC.**
				P.59	P.69	P.57	P.99
ROTARY JOINT	**ULTRA PRECISION**	**SUPPORT TABLE**	**TAIL STOCK**	**SCROLL CHUCK**	**POWER CHUCK**	**CLAMP DEVICE**	**T-NUT**
P.89	P.87	P.79	P.81	P.83	P.84	P.85	P.86

Ultra Slim Model for Trunnion Application
CNC205

380Nm
Air-hydraulic Unit Provided as Standard Equipment

Astoundingly powerful clamping capability in spite of the slim body

For machines with no hydraulic power source, the air-hydro unit provides powerful hydraulic supply functionality using only an air supply. In spite of its slim body, it delivers an astounding 380 Nm of clamping power, enabling a variety of applications, such as use of a cradle jig.

98mm
Ultrathin Specification to Maximize Machining Space

Demonstrates the true worth of a compact machining center with limited machining space.
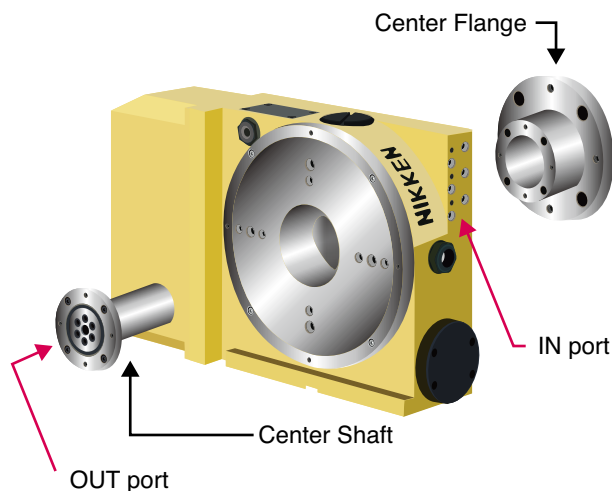
The body thickness of 98mm is 54mm slimmer than previous models. Allows enlargement of the cradle jig work mounting area on machines with limited machining space, such as the BT30 compact machining center.

High Speed
Z Type is also Available

Reducing cycle time enhances productivity

The lineup also includes the highly rotatable Z type that further reduces machining cycle time. By setting the speed reduction ratio to 1/2 that of the standard type, 200% speedup is achieved.

Built-in
Supports Mounting of Built-in Rotary Joints

Automated component mounting/unmounting with minimal increase in size.

The rotary table body is already provided with IN ports, so the rotary joint specification can be changed with minimal increase in the body dimensions.

Ultra-slim
Ultrathin Support Table is also Available.

Contributes to a further expansion of machining area when used with the CNC205.

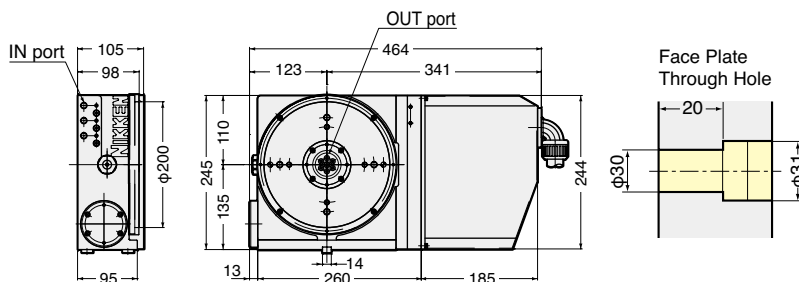Center Flange

IN port

Center Shaft

OUT port

NEW
Ultrathin Support Table with Clamping System

Ex.)
Trunnion Application with CNC205L and a Support Table

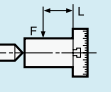TAS-100N

9 ∗Center socket（30H7）will be installed in case of non-rotary joint.

CNC205 NEW

NIKKEN

Rotary joint is included in the photo.

IN port 105 98 φ200 95
OUT port 464 123 341 244 245 110 135 13 14 260 185

Face Plate Through Hole 20 φ30 φ31
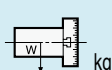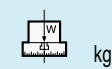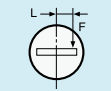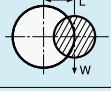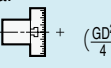
*Rotary joint is included in the layout with α21 controller.

■ Specifications

Item / Code No.		Standard	High Speed
Right Hand Mounted Moter		**CNC205**	**CNCZ205**
Left Hand Mounted Moter		**CNC205L**	**CNCZ205L**
Diameter of Table ϕmm		200	200
Diameter of Spindle Hole ϕmm		Φ30H7	Φ30H7
Center Height mm		135	135
Width of T Slot mm		—	—
Clamping System		Air Hydraulic Booster Built-in type	Air Hydraulic Booster Built-in type
Clamping Torque N·m		380	380
Table Inertia at Motor Shaft $\left(\frac{GD^2}{4}\right)$ kg·m²×10⁻³		0.15	0.15
Servo Motor min⁻¹		α iF2・3000	α iF2・3000
MIN. Increment		0.001°	0.001°
Rotation Speed min⁻¹		33.3	66.6
Total Reduction Ratio		1/90	1/45
Indexing Accuracy sec		±20	±20
Net Weight kg		45	45
MAX. Work Load on the Table	Vertical W kg	100 （with suppart）	100 （with suppart）
	Horizontal W kg	—	—
MAX. Thrust Load applicable on the Table	*1 L F F×L N·m	670	670
	F L F×L N·m	690	690
Guide Line of MAX. Unbalancing Load	*2 L W N·m	30	30
MAX. Work Inertia	Vertical + $\left(\frac{GD^2}{4}\right)$ kg·m²	0.40	0.20
Driving Torque	*3 N·m	72	54

＊1 This is the strength of the worm wheel without brake. It is applied against dynamic cutting thrust.
＊2 The guide line of MAX unbalancing load means the unbalancing load, when the rotary table is used with support table in vertical application.
   The guide line figure will be different according to the servo motor, please refer to ☞P.57 for more detail.
＊3 Driving torque means the torque at MAX. rotation speed after acceleration. Driving torque is almost constant and independent from the load
   except unbalancing load is applied.

10

STANDARD CNC ROTARY TABLE

NIKKEN

- The rotary table can be used vertically or horizontally depending on the application
- Best match for a medium-size machining center
- Standard model with motors mounted on the body side

CNC260

--- MOTOR MOUNTED --- · FACE PLATE · M-SIGNAL METHOD ·

| R RIGHT HAND | L LEFT HAND | WITH FACE PLATE | W/O FACE PLATE | α21 CTRL P.59 | EZ CTRL P.69 | ADD. AXIS P.57 | ACCURACY SPEC. P.99 |

| ROTARY JOINT P.89 | ULTRA PRECISION P.87 | SUPPORT TABLE P.79 | TAIL STOCK P.81 | SCROLL CHUCK P.83 | POWER CHUCK P.84 | CLAMP DEVICE P.85 | T-NUT P.86 |

■ Specifications

( ):High Speed CNC ROTARY Table Z series

Item / Code No.		CNC260 CNCZ260	CNC302*4 CNCZ302	CNC321*4 CNCZ321	CNC401 CNCZ401
Diameter of Table φmm		260	300	320	400
Diameter of Spindle Hole φmm		φ80H7	φ80H7	φ105H7	φ105H7
Center Height mm		170	170	230	230
Width of T Slot mm		$12^{+0.018}_{0}$	$12^{+0.018}_{0}$	$12^{+0.018}_{0}$	$14^{+0.018}_{0}$
Clamping System		Pneumatic*3/ Hydraulic	Pneumatic*3/ Hydraulic	Hydraulic	Hydraulic
Clamping Torque N·m		588 / 1568	588 / 1568	1760	1760
Table Inertia at Motor Shaft $\left(\frac{GD^2}{4}\right)$ kg·m²×10⁻³		0.33	0.33	2.8	2.8
Servo Motor min⁻¹		αiF4·3000	αiF4·3000	αiF12·2000	αiF12·2000
MIN. Increment		0.001°	0.001°	0.001°	0.001°
Rotation Speed min⁻¹		25.0(50.0)	25.0(50.0)	22.2(44.4)	22.2(44.4)
Total Reduction Ratio		1/120(1/60)	1/120(1/60)	1/90(1/45)	1/90(1/45)
Indexing Accuracy sec		20	20	15	15
Net Weight kg		115	120	200	230
MAX. Work Load on the Table	Vertical kg	175	175	250	250
	Horizontal kg	350	350	500	500
MAX. Thrust Load applicable on the Table	N	42480	42480	53100	53100
	*1 F×L N·m	1442	1442	2648	2648
	F×L N·m	2320	2320	3840	3840
Guide Line of MAX. Unbalancing Load	*2 N·m	50	50	100	100
MAX. Work Inertia	Vertical $\left(\frac{GD^2}{4}\right)$ kg·m²	3.2(1.6)	3.2(1.6)	6.4(3.2)	6.4(3.2)
Driving Torque	*3 N·m	192(153)	192(153)	432(345)	432(345)

*1 This is the strength of the worm wheel without brake. It is applied against dynamic cutting thrust.
*2 The guide line of MAX unbalancing load means the unbalancing load, when the rotary table is used with support table in vertical application.
   The guide line figure will be different according to the servo motor, please refer to ☞ P.59 for more detail.
*3 Air-air Booster system is available if the supplied air pressure is under 0.5MPa or the brake torque is required to increase. ☞ P.95
*4 CNC302,321 is semi-standard model.
★The air-hydraulic booster is available, when the rotary table with hydraulic clamping system is used on the M/C without hydraulic source, please refer to ☞ P.95.
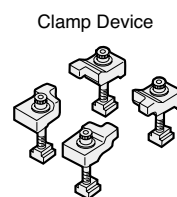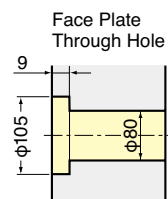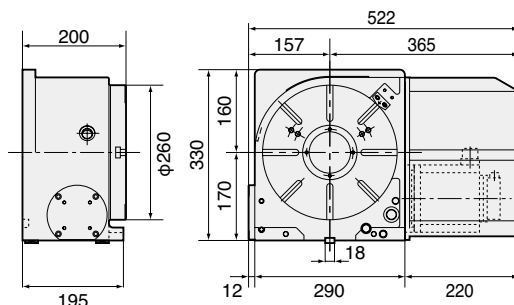★ αiF8/4000 motor can be mounted on **CNC260, 302.**
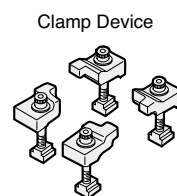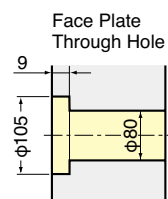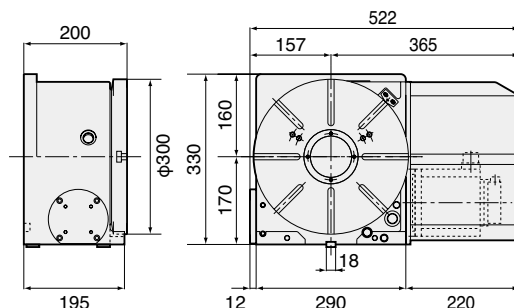
CNC260, 302, 321, 401

NIKKEN

External dimensions depend on the type of the servo motor. Indicated dimensions are in case of FANUC. Please contact us for CAD files (2D:DXF, 3D:PARASOLID).
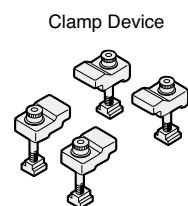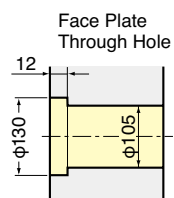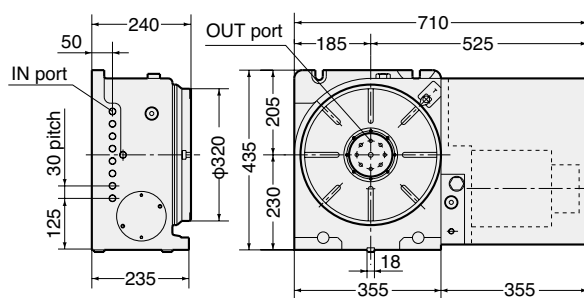
CNC260, CNCZ260

For the rotary table with pneumatic clamping, air purge function is provided inside the motor cover as standard.

CNC302, CNCZ302

For the rotary table with pneumatic clamping, air purge function is provided inside the motor cover as standard.
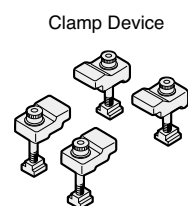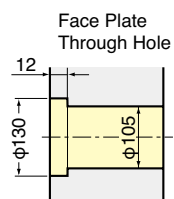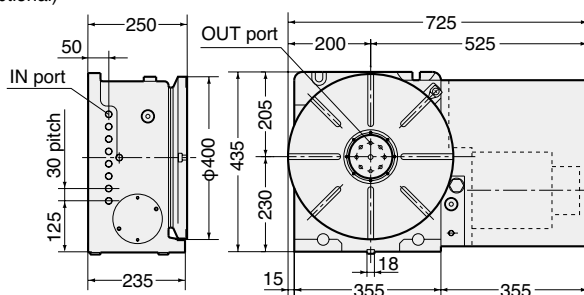
CNC321, CNCZ321

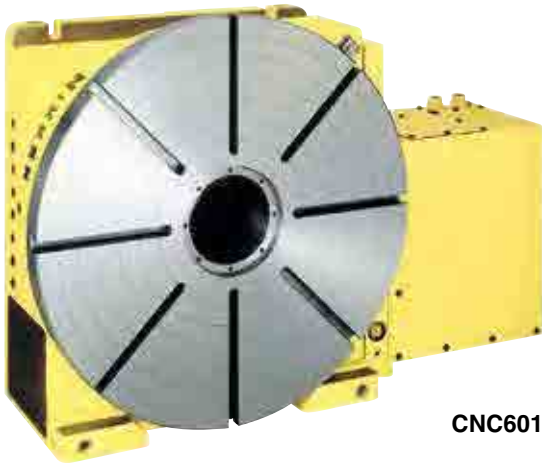Rotary joint is included in the layout. (optional)

CNC401, CNCZ401

Rotary joint is included in the photo. (optional)

STANDARD CNC ROTARY TABLE

NIKKEN

■ Dividing and lead cutting for large size work piece is suitable

■ Large through hole and powerful clamping system

■ Ideal for deep cutting of highly rigid material

CNC601

─ MOTOR MOUNTED ─   ─ FACE PLATE ─   ─ M-SIGNAL METHOD ─

R RIGHT HAND	L LEFT HAND	WITH FACE PLATE	W/O FACE PLATE	α21 CTRL	EZ CTRL	ADD. AXIS	ACCURACY SPEC.
				P.59	P.69	P.57	P.99

ROTARY JOINT	ULTRA PRECISION	SUPPORT TABLE	TAIL STOCK	SCROLL CHUCK	POWER CHUCK	CLAMP DEVICE	T-NUT
P.89	P.87	P.79	P.81	P.83	P.84	P.85	P.86

■ Specifications

( ):High Speed CNC ROTARY Table Z series

Item / Code No.		CNC501 CNCZ501	CNC601 CNCZ601	CNC803	CNC1003
Diameter of Table ϕmm		500	600	800	1000
Diameter of Spindle Hole ϕmm		Φ130H7	Φ130H7	Φ230H7	Φ230H7
Center Height mm		310	310	550	550
Width of T Slot mm		$14^{+0.018}_{0}$	$14^{+0.018}_{0}$	$22H7$*4	$22H7$*4
Clamping System		Hydraulic	Hydraulic	Hydraulic	Hydraulic
Clamping Torque N·m		4655	4655	7000	7000
Table Inertia at Motor Shaft $\left(\frac{GD^2}{4}\right)$ kg·m²×10⁻³		6.8	4.9	6.2	6.3
Servo Motor min⁻¹		αiF12·2000	αiF12·2000	αiF30·2000	αiF30·2000
MIN. Increment		0.001°	0.001°	0.001°	0.001°
Rotation Speed min⁻¹		16.6(33.3)	11.1(22.2)	5.5	5.5
Total Reduction Ratio		1/120(1/60)	1/180(1/90)	1/360	1/360
Indexing Accuracy sec		15	15	15	15
Net Weight kg		470	500	2070	2210
MAX. Work Load on the Table	Vertical kg	400	400	2000	2000
	Horizontal kg	800	800	4000	4000
MAX. Thrust Load applicable on the Table	N	150000	150000	281250	281250
	*1 F×L N·m	5709	5709	20067	20067
	F×L N·m	16650	16650	42190	42190
Guide Line of MAX. Unbalancing Load	*2 N·m	200	200	300	300
MAX. Work Inertia	Vertical $+\left(\frac{GD^2}{4}\right)$ kg·m²	19.4(9.7)	37(18.5)	234	234
Driving Torque	*3 N·m	576(460)	864(690)	3168	3168

*1 This is the strength of the worm wheel without brake. It is applied against dynamic cutting thrust.

*2 The guide line of MAX unbalancing load means the unbalancing load, when the rotary table is used with support table in vertical application.
The guide line figure will be different according to the servo motor, please refer to ☞ P.59 for more detail.

*3 Driving torque means the torque at MAX. rotation speed after acceleration. Driving torque is almost constant and independent from the load except unbalancing load is applied.
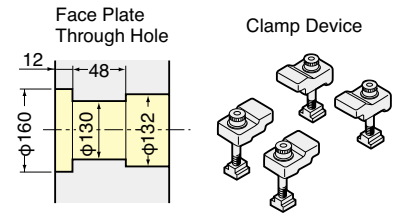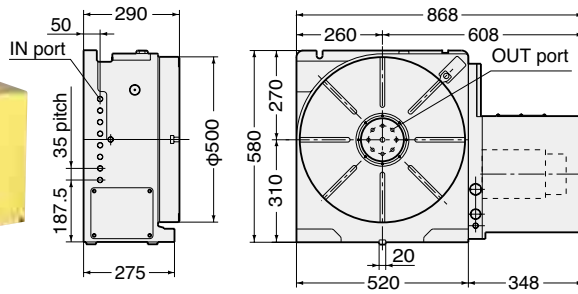
★Total reduction ratio of 1/180 is also available for **CNC501T**.   ★αiF22/4000 motor can be mounted on **CNC501, 601**.
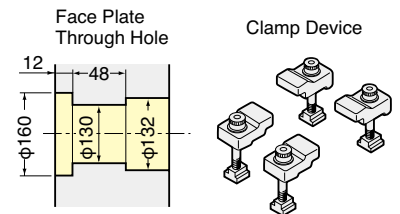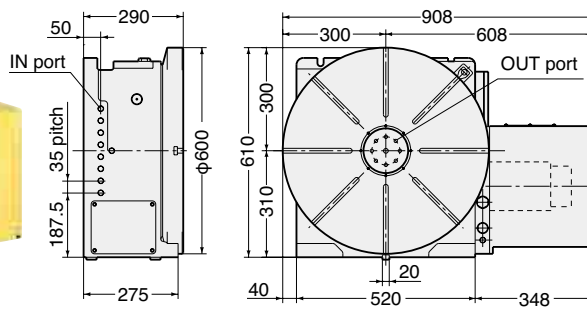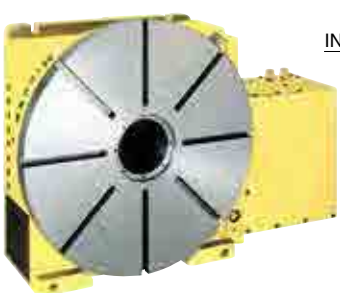
CNC501, 601, 803, 1003

NIKKEN

External dimensions depend on the type of the servo motor. Indicated dimensions are in case of FANUC. Please contact us for CAD files (2D:DXF, 3D:PARASOLID).

CNC501, CNCZ501

IN port · OUT port · Face Plate Through Hole · Clamp Device

50 / 290 / 868 / 260 / 608 / φ500 / 35 pitch / 187.5 / 275 / 580 / 270 / 310 / 520 / 20 / 348
12 / 48 / φ160 / φ130 / φ132

R RIGHT HAND **L** LEFT HAND **WITH** FACE PLATE **α21** CTRL

Rotary joint is included in the layout. (optional)

CNC601, CNCZ601

50 / 290 / 908 / 300 / 608 / φ600 / 35 pitch / 187.5 / 275 / 610 / 300 / 310 / 40 / 520 / 20 / 348
12 / 48 / φ160 / φ130 / φ132

R RIGHT HAND **L** LEFT HAND **WITH** FACE PLATE **α21** CTRL

Rotary joint is included in the layout. (optional)

CNC803

425 / 415 / 882 / φ800 / 490 / 550 / 590 / 410 / 15 / 415 / 415 / 467 / 22h7
25 / 389 / φ310 / φ230 / φ446

R RIGHT HAND **WITH** FACE PLATE **α21** CTRL
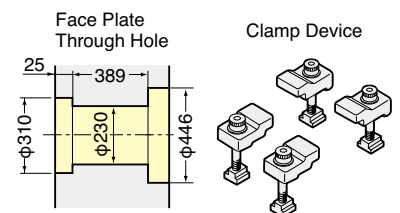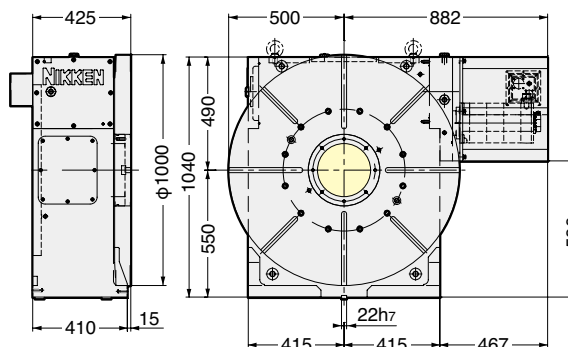
CNC803B

CNC803 : the servomotor is mounted at back side, suitable for the application for pallet on Horizontal machines.

25 / 389 / φ310 / φ230 / φ446

CNC1003

425 / 500 / 882 / φ1000 / 1040 / 490 / 550 / 590 / 410 / 15 / 415 / 415 / 467 / 22h7

R RIGHT HAND **WITH** FACE PLATE **α21** CTRL

14

LARGE CNC ROTARY TABLE

NIKKEN

CNC1600

- ■ Ideal for indexing and lead cutting of large work pieces
- ■ Tooth thickness module 10 and ultrahigh rigidity among best in class.(CNC1600)
- ■ Ideal for aircraft- and energy-related parts

— MOTOR MOUNTED —		— FACE PLATE —		— M-SIGNAL METHOD —			
R RIGHT HAND	**L** LEFT HAND	**WITH** FACE PLATE	**W/O** FACE PLATE	**α21** CTRL P.59	**EZ** CTRL P.69	**ADD. AXIS** P.57	**ACCURACY SPEC.** P.99
ROTARY JOINT P.89	**ULTRA PRECISION** P.87	**SUPPORT TABLE** P.79	**TAIL STOCK** P.81	**SCROLL CHUCK** P.83	**POWER CHUCK** P.84	**CLAMP DEVICE** P.85	**T-NUT** P.86

■ Specifications   The specification will be varied according to your application. Please contact us.

Item / Code No.		CNC1000*1	CNC1200*1	CNC1201*1	CNC1600*1
Diameter of Table	φmm	1000	1200	1200	1600
Diameter of Spindle Hole *2	φmm	300H7	300H7	300H7	400H7
Center Height	mm	Horizontal	Horizontal	650	850
Width of T Slot *3	mm	22H7 *3	22H7 *3	22H7 *3	28H7 *3
Clamping System		Hydraulic	Hydraulic	Hydraulic	Hydraulic
Clamping Torque	N·m	18000	18000	18000	35000
Servo Motor	min⁻¹	αiF22・2000		αiF30・2000	
MIN. Increment		0.001°	0.001°	0.001	0.001
Rotation Speed	min⁻¹	5.5	5.5	2.7	2.7
Total Reduction Ratio*4		1/360	1/360	1/720	1/720
Indexing Accuracy	sec	15	15	15	15
Indexing Accuracy of Ultra Precision	sec	±3	±3	±3	±3
Net Weight	kg	1700	1850	3500 *5	5250 *5
MAX. Work Load on the Table	Vertical kg	——	——	6500	10000
	Horizontal kg	7000	7000	13000	30000
MAX. Thrust Load applicable on the Table	N	281250	375000	1333330	2000000
	*6 F×L N·m	24080	24080	79025	111952
	F×L N·m	42190	67500	240000	510000
MAX. Work Inertia	Vertical kg·m²	1300	1300	2300	6400
MAX. Allowable Torque	N·m	3168	3168	8640	8640

*1 **CNC1000, 1200, 1600** is semi-standard model.
*2 The diameter of the spindle hole is restricted for the ultra precision type with Heidenhain rotary encoder.
*3 Standard large rotary tables are without T slot. T slot is available as an option, please specify the width of the T slot.
*4 Total reduction ratio and motor can be changed according to your application, please contact us.
*5 Net weight of the rotary table is for horizontal application. The weight of the back support for vertical application is not included.
*6 **This is the strength of the worm wheel without brake. It is applied against dynamic cutting thrust.**

CNC
NCT
NSV
NST
5AX
DD
BUILT-IN
MOTORS
M-SIGNAL
ACC
O/P
TEC
SERV

CNC1000, 1200, 1201, 1600

NIKKEN

External dimensions depend on the type of the servo motor. Indicated dimensions are in case of FANUC. Please contact us for CAD files (2D:DXF, 3D:PARASOLID).
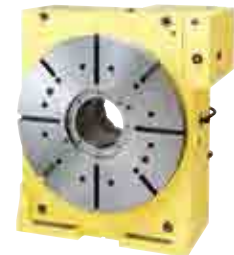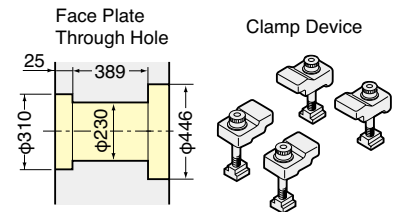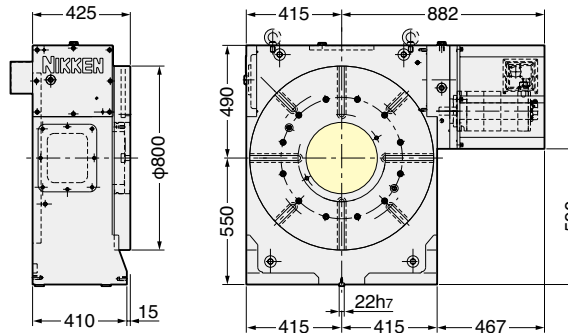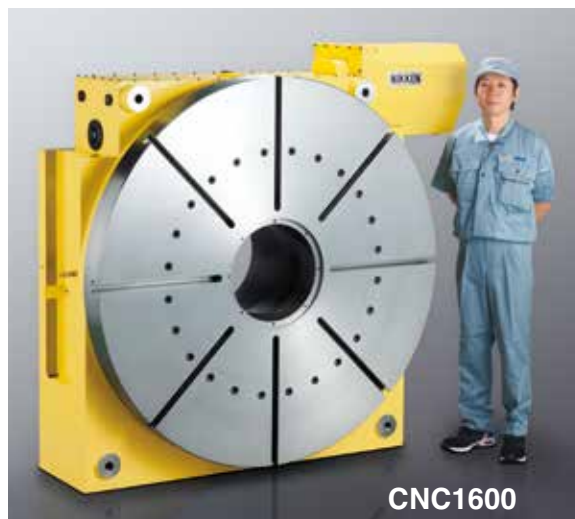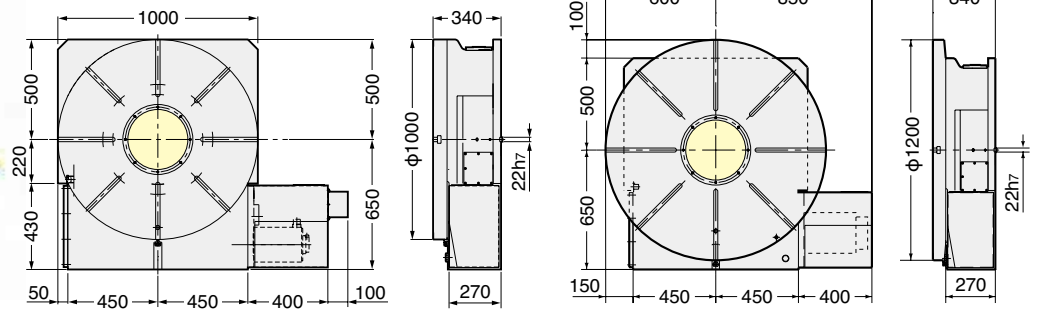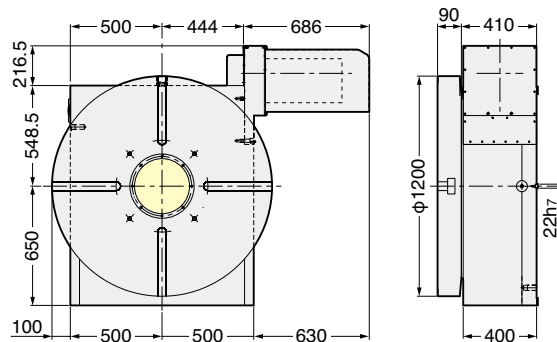
CNC1000,1200

★ Exclusively for Horizontal models.

R RIGHT HAND **WITH** FACE PLATE **α21** CTRL

CNC1201

R RIGHT HAND **WITH** FACE PLATE **α21** CTRL

★ Please contact us about the back support for vertical use.

CNC1600

R RIGHT HAND **WITH** FACE PLATE **α21** CTRL
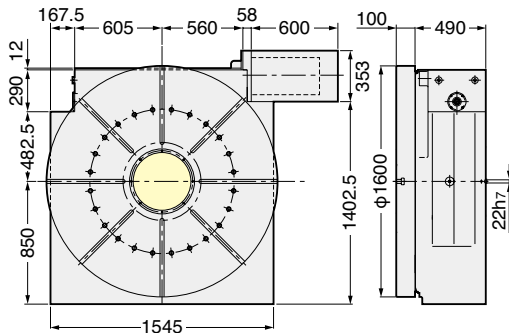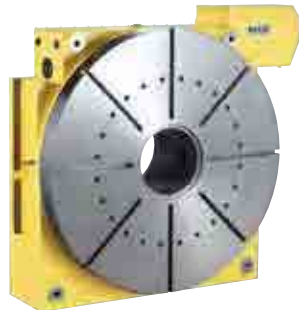
★ Please contact us about the back support for vertical use.
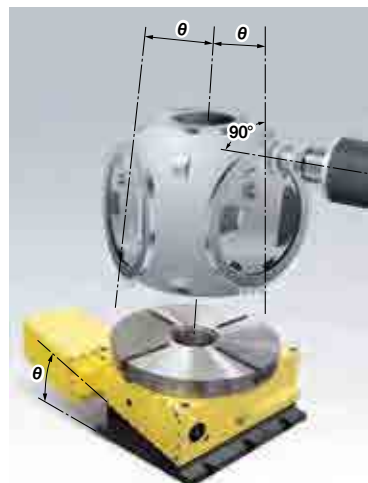
Configuration of the large rotary table on the horizontal M/C to machine a propeller hub of the windmill.

Indexing of the turbine shaft

16

TOP SIDE MOTOR MOUNTED CNC ROTARY TABLE

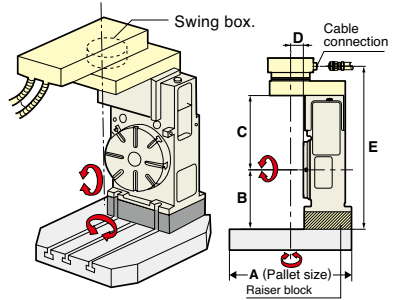**NIKKEN**

■ Ideal for automation of small parts by mounting of jig holder

Also ideal for B-axis of general-purpose horizontal machining center. Figure at right shows example of pallet mounting.
Please specify A, B, C, D and E.

Swing box.

Cable connection

A (Pallet size)
Raiser block

CNC302T

MOTOR MOUNTED		FACE PLATE		M-SIGNAL METHOD			
T TOP SIDE	**B** BACK SIDE	**WITH** FACE PLATE	**W/O** FACE PLATE	**α21** CTRL	**EZ** CTRL	**ADD. AXIS**	**ACCURACY SPEC.**
				P.59	P.69	P.57	P.99
ROTARY JOINT	**ULTRA PRECISION**	**SUPPORT TABLE**	**TAIL STOCK**	**SCROLL CHUCK**	**POWER CHUCK**	**CLAMP DEVICE**	**T-NUT**
P.89	P.87	P.79	P.81	P.83	P.84	P.85	P.86

■ Specifications

( ):High Speed CNC ROTARY Table Z series

Item / Code No.		CNC202T CNCZ202T	CNC260T CNCZ260T	CNC302T *5 CNCZ302T
Diameter of Table	φmm	200	260	300
Diameter of Spindle Hole	φmm	φ60H7 φ40	φ80H7	φ80H7
Center Height	mm	150	170	170
Width of T Slot	mm	$12^{+0.018}_{0}$	$12^{+0.018}_{0}$	$12^{+0.018}_{0}$
Clamping System		Pneumatic*4	Pneumatic*4 / Hydraulic	Pneumatic*4 / Hydraulic
Clamping Torque	N·m	303	588 / 1568	588 / 1568
Table Inertia at Motor Shaft $\left(\frac{GD^2}{4}\right)$ kg·m²×10⁻³		1.0	1.5	1.5
Servo Motor	min⁻¹	αiF4·3000	αiF4·3000	αiF4·3000
MIN. Increment		0.001°	0.001°	0.001°
Rotation Speed	min⁻¹	25.0 (50.0)	25.0 (50.0)	25.0 (50.0)
Total Reduction Ratio		1/120 (1/60)	1/120 (1/60)	1/120 (1/60)
Indexing Accuracy	sec	±20	20	20
Net Weight	kg	70	160	165
MAX. Work Load on the Table	Vertical kg	100	175	175
	Horizontal kg	——	——	——
MAX. Thrust Load applicable on the Table	N	18000	42480	42480
	*1 F×L N·m	542	1442	1442
	F×L N·m	690	2320	2320
Guide Line of MAX. Unbalancing Load	*2 N·m	50	50	50
MAX. Work Inertia	Vertical $+\left(\frac{GD^2}{4}\right)$ kg·m²	1.0 (0.5)	3.2 (1.6)	3.2 (1.6)
Driving Torque	*3 N·m	192 (153)	192 (153)	192 (153)

*1 This is the strength of the worm wheel without brake. It is applied against dynamic cutting thrust.
*2 The guide line of MAX unbalancing load means the unbalancing load, when the rotary table is used with support table in vertical application.
　The guide line figure will be different according to the servo motor, please refer to ☞ P.57 for more detail.
*3 Driving torque means the torque at MAX. rotation speed after acceleration. Driving torque is almost constant and independent from the load except unbalancing load is applied.
*4 Air Intensifying Booster system is available if the supplied air pressure is under 0.5MPa or the brake torque is required to increase. ☞ P.95　*5 CNC302T is semi-standard model.
★ CNCZ series table can not be recommended for the application with large unbalancing load. CNCZ series table is recommended for the application only with light load.