M-signal CNC ROTARY TABLE with AR21 CONTROLLER

Minimum Command Increment: 0.001° or 1sec.
AR21 controller can drive all models of NIKKEN CNC rotary table.

Single M signal provides Various Automatic Operation.
Any unequal dividing, equal dividing, arc cutting, lead cutting etc. can be done very easily.

USB interface as standard equipment
By connecting to a PC, program data and parameters can be input and output. (However, communication software is required on the PC side.)

Upgrade of Water Proof Characteristic EMC Assessment ☞ P.103
The direct out type connection is applied for all models of CNC rotary table, and the EMC assessment is satisfied as the total system.

Digital Servo System & Absolute Encoder
Very excellent acceleration/deceleration characteristics, the powered up torque and the best suited servo parameter realize the high quality and long life.
M ZRN after Power ON or after releasing the emergency stop condition is not necessary.*

Plenty of Optional Functions
True Closed Loop, Manual Pulse Generator, M Function (Input: 5/ Output: 5), External N Number Search, External Position Display, External Power ON/OFF, Pitch Error Compensation

More than 30,000 sets working in the field.
This fact ensures the highest reliability.

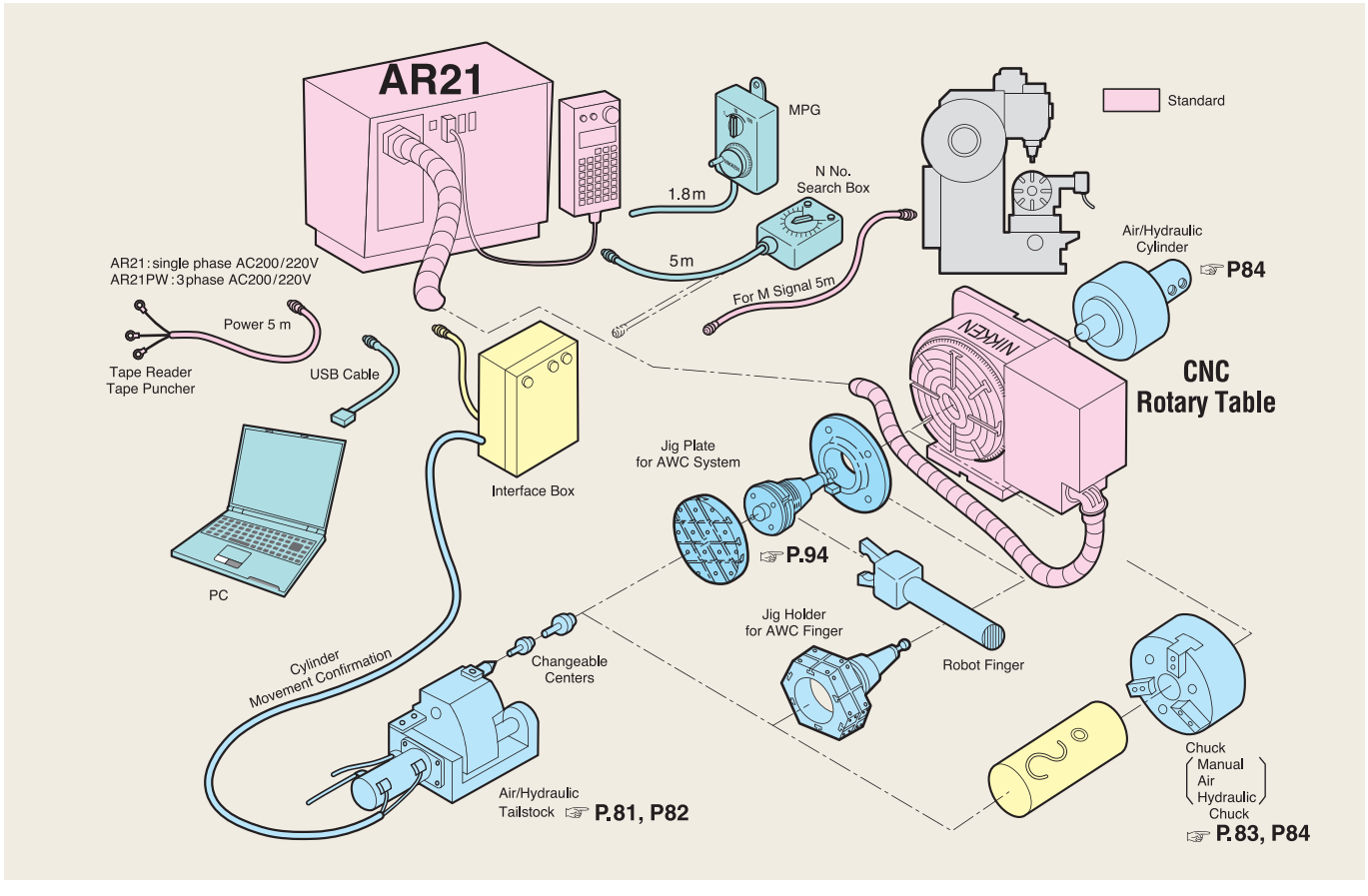
Product compatible with ROHS2-10 commands
The AR21 controller is now ROHS2-10 compliant and has the product code AR21, which can be shipped to EU member countries.

* : The operation to establish the coordinate system is required at once, when turning the POWER ON at first time just after connecting the cable. Please refer to ☞ P.62

AR21 controller
- Standard (400W, 750W) 300×280×285 10kg
- **Single Phase AC200/220V**

AR21 PW controller
- Power up (1.3KW, 1.8KW) 540×360×400 28kg
- **3 phase AC200/220V**

AR21 controller for larger capacity
- (2.7KW, 4.4KW and 11kW) is available.
- **3 phase AC200/220V**



AR21 CONTROLLER Specification

NIKKEN

Main Specification of Controller (NIKKEN-AR21 controller)

Item	Specification	Remarks
MIN. Increment	0.001° or 1″	Free Selection
MAX. Programmable Angle	±9999 rotation, ±999.999° & ±999°59'59"	Free Selection
MAX. Equal Dividing	2～9999 equal dividing	
Program Capacity	1000 Blocks	N000～N999
Input System	MDI Key Board, Pendant type	5 years memory
Programming System	Combined use of Incremental/Absolute	Free Selection of G91 / G90
Zero Return	Machine Zero Position/Work Zero Position	can be commanded from outside.
Manual Feed	Rapid Feed/Fine Feed/Step Feed/Continuous Feed	
Uni-directional Positioning	Uni-directional Positioning can be done to eliminate the mechanical backlash.	G14
Emergency Stop	Whole system stops	can be commanded from outside.
Feed Hold	Table rotation temporarily stops.	can be commanded from outside.
Jump Function	Jump to sub program etc.	
Repeating Function	By specifying start No. and final No., multiple sequence are repeated.	
Buffer Function	Reading next block, and execute job without stop.	Useful for lead cutting etc.
Dry Run	Table always rotates in rapid feed for checking.	
Key Lock Function	Even if operation button is pressed by mistake, such command is neglected for safety.	
Preparatory Function	Dwell, Clamping/Unclamping, Lead Cutting...	G04～G92
G1 Code, G2 Code	2 kind of G codes can be entered in one block.	
Block Data display	At programming, previous block data or next block data are displayed.	⬆ ⬇
USB Interface	Program data and parameters can be input and output.	
Software Limit Function	± stroke limit values can be set by parameter.	
Over Travel Detection Function	Over travel detection zone can be set at outside of software limit by using control circuit, and the CNC rotary table can be protected not to exceed safety zone.	Standard for 5AX- type tilting axis
Alarm No. Automatic Indication Function	When alarm is detected, controller automatically goes to diagnosis mode and Alarm No. is displayed.	When duplicated, it flickers every 2 sec.
Alarm Out	Alarm condition of AR21 can be sent to M/C	
Emergency Stop Out	Emergency stop condition of AR21 can be sent to M/C.	
Self Diagnosis Function	Inside situations of controller can be seen.	
Modal G Code Flicker Function	All G codes used in program are indicated in flickering.	Every 2 sec.
Pitch Error Compensation Function	Rotary axis: 15° unit, Tilting axis: 5° unit	Option
Feed Rate Override	5～200%,999% (Rapid feed)	±5%
Input Signals	1 kind of Auxiliary Function.(Automatic operation can be done by only one M signal.)	With or without contact signal *1
Output Signal	1 Block Finish signal, Work Zero Position Signal, Alarm Out Signal *2	Ask Time Chart
Servo Motor	AC servo motor with serial encoder	
Input Power	AR21 : Single phase AC200～220V、50Hz / 60Hz	400W : 480VA*3,750W : 760VA*3
	AR21 PW : 3 phase AC200～220V、50Hz / 60Hz	1.3kW : 960VA*3,1.8kW : 1.2KVA*3

*1: M signal of M/C is valid only the block without DEN (Distribution End).

*2: Work Zero Position Signal and Alarm Out Signal are optional signals.

*3 Input load capacity at 40% of average load factor.

M-SIGNAL

OPTIONAL SPECIFICATION

1 True Closed Loop

This is to be used for ultra precision rotary table.

2 Manual pulse generator (X1, X10, X100)

This pulse generator enables the table to be rotate or tilted by manual operation on every 0.001～0.1° unit.

3 Five M functions

Control and confirmation of other actuator (hydraulic tailstock, coolant controller, robot etc.) can be done from AR21side.
AR21 for AWC, this is included as standard.

4 External N Number Search Function

When plural programs are entered in 1000 blocks. Desired N number can be searched from outside (applicable also to FMS line).

5 External Power ON/OFF

Interface to perform Power ON/OFF by external circuit is available.

6 Pitch Error Compensation

Rotary Axis:
by 15° unit × 24 points
Tilting Axis:
by 5° unit × 24 points
The optimum correction value is adjusted and shipped with increased indexing accuracy.

7 Output Signal *2

Work Zero position signal is the signal set to ON while the CNC rotary table is in the work zero position. Alarm Out signal is the signal set to ON when AR21 is in alarm condition. These signals can be used for interlocking function.

8 Direct Angle Command Interface

By connecting the machine side RS232C interface to the AR21 controller, it is possible to manage all the programs of the AR21 controller.
For details, please refer to
☞ page 76.

9 Harting Connector Type...Only for AR21

Harting Connector can be corresponded to the CNC Rotary Table side.
The AR21PW controller is not compatible.

Explanation of PENDANT 1

- ON OFF ① Power Switch
- ② Emergency Stop Button
- −◀ ▶+ ③④ Manual Jog Button
- HI ⑤ High Speed Button
- AUT/MAN ⑥ Auto/Manual Select Switch
- EDT/POS ⑦ Edit/Current Position Select Switch
- START ⑧ Start Button
- STOP ⑨ Stop Button
- CF ⑩ Continuous Feed Button
- ORG ⑪ Original Point Set Button
- M ZRN ⑫ Machine Zero Return Button
- W ZRN ⑬ Work Zero Return Button
- DGN ⑭ Diagnosis Button
- ⬆ ⬇ ⑮ Increment/ Decrement of Block No.
- − OVR + OVR ⑯ Feed Rate Override Button
- RESET ⑰ Reset Key

- **READY** ·····Turned ON when input power is supplied.
- **COM.**·····Turned ON while AR21 main unit and the pendant are communicating.
- **ALARM**·····Turned ON when AR21 is in alarm condition.
- **COM . ALARM** ····Turned ON when communication time out error occurs between AR21 main unit and the pendant.

ON OFF

① Power Switch

② Emergency Stop Button

−◀ ▶+

③④ Manual Jog Button

▶+ Clockwise, −◀ Counter clockwise.
While this button is being depressed, the table continually rotates slowly. When this button is depressed once, the table steps by 0.001°(1").

HI

⑤ High Speed Button

When this button is depressed together with ③ or ④,the table rotates in rapid feed.
When jog ⑪ while depressing ⑤ ,table moves as following;

Gear Ratio	Table Movement
1 : 720	0.5°
1 : 360	1.0°
1 : 180	2.0°
1 : 120	3.0°

Gear Ratio	Table Movement
1 : 90	4.0°
1 : 60	6.0°
1 : 45	8.0°

AUT/MAN

⑥ Auto/Manual Select Switch

When this button is turn to Manual, all buttons are workable.
When this button is turn to Auto, all other buttons except ①,②,⑥,⑧,⑨,⑭,⑯,⑰ are ineffective.

EDT/POS

⑦ Edit/Current Position Select Switch

On θ of ⑱, programming or present position is displayed alternatively.

START

⑧ Start Button

The table rotates as programmed.

STOP

⑨ Stop Button

The table slows down and stops. (Feed Hold Function). When ⑧ is depressed again, the table rotates the remaining angle of the program.

CF

⑩ Continuous Feed Button

When this button is depressed, the table rotates continually. And, when ⑨ is depressed, the table stops. The desired feed and direction are to be input in N997 Block. (Refer ☞ **P. 53** ⑧)

ORG

⑪ Original Point Set Button

When this button is depressed at any angle, the position display shows 000.000°, and it is used as the work zero position. When the cumulative angle becomes 360°,work zero position signal is sent, which can be used as interlock.

M ZRN

⑫ Machine Zero Return Button

When this button is depressed, the table returns to the machine zero position (0°of the graduation of the table) clockwise in rapid feed, then low speed for final positioning.

W ZRN

⑬ Work Zero Return Button

When this button is depressed, the table returns to the position set by ⑪ clockwise in rapid feed.

DGN

⑭ Diagnosis Button

⬆

⬇

⑮ Increment/Decrement of Block No.

Previous block data and next block data are displayed.

− OVR

+ OVR

⑯ Feed Rate Override Button

POS mode : Increasing feed rate 5 to 200% every 5% → Rapid feed (999).
PRM mode : Displays the following parameters sequentially.
POS mode : Decreasing feed rate 200 to 5% every 5%.
PRM mode : Displays the proceeding parameters sequentially.

RESET

⑰ Reset Key

This is for calling N000 and also for resetting alarm display etc.

Explanation of PENDANT 2

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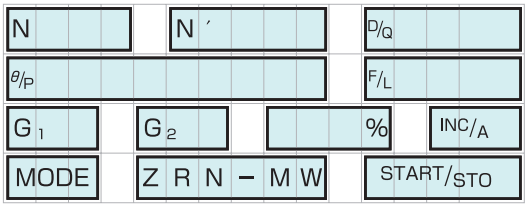
⑱ **Display**



N : Sequence No. N000～N999
N RS: Direct angle command interface is selected.
N': Jump & Return J000～J999, RET
θ : Rotation angle of table (Decimal, Sexagecimal)
0～±999.999° (Decimal)
0～±999.59'59" (Sexagecimal)
D : Equal division (divided by 2 to 9999)
F : Feed rate
Cutting feed: 0.01～9.99r/min
Rapid feed: 000
G : Preparatory function G01～G92
Two kind of G codes (G1, G2)
can be input in one block.
%: Feed rate override
(5% to 200%, or 999 for rapid feed rate)
P : Starting block No. of repeating function (G27)
Q : Final block No. of repeating function (G27)
L : Repeating frequency (G27)

INC/ABS: INC (Incremental)
ABS (Absolute)

MODE: EDT (Edit mode)
MAN (Manual mode)
AUT (Auto. mode)
MPG (MPG mode)
DGN (Diagnostic mode)

ZRN-MW:
M Flickering (Returning to M ZERO)
M (Stop at M ZERO)
W Flickering (Returning to W ZERO)
W (Stop at W ZERO)

START/STOP : START (Starting)
STOP (Stop)

N (3digits)

⑲ **Key Encoder**
For calling a certain sequence, input the number after this key so that the program of the block is display, also you can start from the program.

J (3digits)

This key is to be used when you want to call sub program N' or jump to N' after N block is completed.

RET

When sub program is finished, enter R at ⑱ N' display. And, it returns to the block next to the one where J' was commanded in the main program.

θ P
θ (±6～7digits)
P (3digits)

θ : You can input 0° to ±999.999° in 0.001° increment, or 0° to ±999° 59'59" in 1" increment.
The selection of decimal or sexagesimal system is set up by parameter.
In case of Dwell Instruction (G04), the waiting time is inputted. (0.001 to ±999.999 sec.).

P : Starting number of repeating function (G27)
000 to 999.

DIV Q
DIV(4digits)
Q(3digits)

DIV: Automatic equal dividing times 0 to 9999.
Lead cutting instruction (G07) 0 to 999.

Q : Final number of repeating function (G27)
000 to 999.

F L
F、L(3digits)

F : Cutting feed F001(0.01 r/min) to F999(9.99 r/min).
Rapid feed F000 or F0.

L : Repeating frequency 0 to 999.

G NO

Without G : Positioning
G04 : Dwell
G06 : Constant acceleration
G07 : Rotation number
＊G08 : Buffer commencing
＊G09 : Buffer ending
＊G10 : Brake unclamped
＊G11 : Brake clamped
G14 : Uni-directional positioning
＊G15 : Droop check
＊G16 : Droop cancel
G21 : Simultaneous start
G22 : Continuous start
G23 : Machine zero point return
G24 : Work zero point return
G27 : Repeating function
G28 : Programmable machine Pzero position return
＊G90 : Absolute command
＊G91 : Incremental command
G92 : Coordinate system setting

M Function (Option)
G60～G74 : Activate an actuator

How to enter G code :
0 cannot be suppressed for both G1 and G2 codes.
For example, when G1=07 and G2=08, enter them as follows;
G 0 7 0 8 ＊
and indication will become as ;

G1	G2
07	08

• DATA
When you want to enter 9°, just depress keys as θ → 9 → •, and 9.000° or 9°00′00″ is displayed.

– PRM
This is for command of Counter clockwise rotation.

INPUT
This is depressed as programming of each block being completed.
(Hereafter shown as ＊).

C
For deletion or alternation of θ, DIV, or F individually, just depress θ, DIV, or F, then depress. Also when you depress ＊ with pressing C, complete one block is deleted.

Deleting successive blocks
For example, in order to delete blocks from **N000** to **N999**, push keys N **0** – **999** at Edit mode, and jog ＊ while depressing C key.

means optional function.

Operation of the pendant of AR21 controller for tilting axis specification and for NSV index specification differs, please refer instruction manual.

⚠ Caution for AR21 Controller

- The alarm regarding the absolute encoder will be appeared, when turning the POWER ON at first time just after connecting the cable. This is because the coodinate system is not established yet. Please try as follows;
  - DGN Return to pervious mode.
  - – PRM DGN 1 • DATA 1 ＊ PRM#110=1 Writting parameter value enable.
  - G NO 7 2 • DATA 1 ＊ PRM#72=1
  - Turn the POWER OFF and ON
  - For rotary axis M ZRN Execute machine zero return.
    For tilting axis First set the temporary machine zero position and M ZRN. Please refer instruction manual for more detail.
- When the alarms regarding the absolute encoder such as ALARM#1101 or #1102 are appeared, please set PRM#71=1 and turn the POWER OFF and ON to establish the coodinate system again.

M-SIGNAL

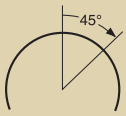
Operation & Confirmation of PROGRAMS

NIKKEN

Operation of Keys.

Before programing, be sure that mode is EDT.
Before start the programs, push ⇓⇓ ..... or ⇑⇑ ..... in EDT mode, and confirm input date.
Then start the program in MAN mode to confirm the moving.

① Angle Dividing



N 0 0 0 θ 4 5 · F 0 ✻
- Input Angle
- Rapid feed.
- No need of pressing 0 under decimal point.

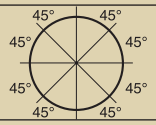
N 0 0 0 → START
- Sequence No.

② Arc Milling

N 0 0 0 θ 4 5 1 2 3 F 1 2 3 ✻
- 123 x 1/100 r/min rotation speed.
- means 45.123°
- Cutting Feed : = 2πR x 1.23 r/min = 7.7 R mm/min.

N 0 0 0 → START

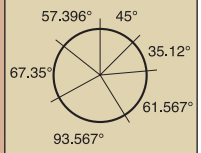
③ Equal Dividing



N 0 0 0 J 0 θ 4 5 · F 0 ✻
- After finishing N000 return to N000.

N 0 0 0 → START

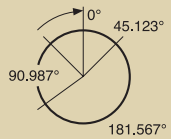
④ Unequal Dividing



N 0 0 0 θ 4 5 · F 0 ✻
0 0 1 θ 3 5 1 2 0 ✻
0 0 2 θ 6 1 5 6 7 ✻
0 0 3 θ 9 3 5 6 7 ✻
0 0 4 θ 6 7 3 5 0 ✻
0 0 5 J 0 θ 5 7 3 9 6 ✻
- In case of the same feed rate in the following blocks just command once. (Modal type)
- After finishing N005 return to N000.

N 0 0 0 → START

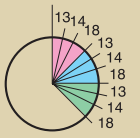
⑤ Incremental/ Absolute Dividing



N 0 0 0 θ 4 5 1 2 3 F 0 G 9 1 ✻
0 0 1 θ 1 8 1 5 6 7 ✻
0 0 2 θ 9 0 9 8 7 ✻
0 0 3 J 0 θ 0 · G 9 0 ✻
- Incremental Command (Modal Type)
- Absolute Command (Modal Type)

N 0 0 0 → START
- To W zero-point

⑥ Repeating Function

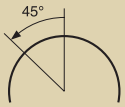


N 0 0 0 θ 1 3 · F 0 ✻
0 0 1 θ 1 4 · ✻
0 0 2 θ 1 8 · ✻
0 0 3 G 2 7 P θ 0 DIV 0 2 L F 2 ✻
- L : Repeat 2 times
- Q : Finishing N002
- θ : Starting N000
- Command of repeating function

N 0 0 0 → START

- SUB-Program (J/RET) and Loop-Jump Function (G25) can be used. However, programming can be done more easily when Repeating Function (G27) is used.

⑦ Counter Clockwise Rotation



N 0 0 0 θ PRM 4 5 · F 0 ✻
- Counter Clockwise (CCW)

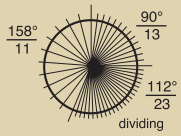
N 0 0 0 → START

⑧ Continuous Feed 0.5

N 9 9 7 θ PRM 0 · F 5 0 ✻
- Continuous feed 0.5r/min (CCW)
- Command of continuous FeedStart
- Stop

RESET CF Start STOP

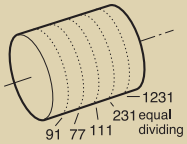
⑨ Equal Dividing of Arc



N 0 0 0 θ 9 0 · DIV 1 3 F 2 0 0 ✻
0 0 1 θ 1 1 2 · DIV 2 3 F 0 ✻
0 0 2 J 0 θ 1 5 8 · DIV 1 1 ✻
- This means 90°÷13.
- Feed rate can be commanded from 0.01 r/min to rapid speed.

N 0 0 0 → START

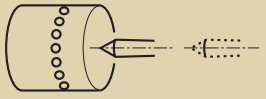
⑩ Equal Dividing of Circle (360°)



N 0 0 0 θ 3 6 0 · DIV 9 1 F 0 ✻
0 0 1 θ 3 6 0 · DIV 7 7 ✻
0 0 2 θ 3 6 0 · DIV 1 1 1 ✻
0 0 3 θ 3 6 0 · DIV 2 3 1 ✻
0 0 4 J 0 θ 3 6 0 · DIV 1 2 3 1 ✻

- 91 Equal dividing of circle and go to N001
- 77 Equal dividing of circle and go to N002
- 111 Equal dividing of circle and go to N003
- 231 Equal dividing of circle and go to N004
- 1231 Equal dividing of circle and return to N000

⑪ M function



Optional Specification

N 0 0 0 G 6 0 ✻ Tailstock forward
0 0 1 θ 3 6 0 · DIV 1 0 ✻ Circle is equally divided into 10 sections.
0 0 2 G 6 1 ✻ Tailstock backward

Example of automatic operation using M function.
G62 on the rotary axis controller is M function to active the tilting axis controller for 5AX- table.

M-SIGNAL

Example of PROGRAMS

NIKKEN

① Example for Circle Drilling & Tapping (23 equal division)

● Program of NC Machine

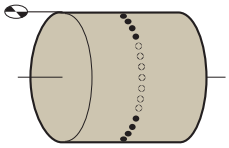
```
O 0000 ;···Main program
   :
   M98  P0100   L23 ;···Drilling cycle 23 times
   :
   M98  P0101   L23 ;···Tapping cycle 23 times
   M02 ;
O 0100 ;···Sub program 1
   :
   G01Z── ;···Drilling fixed cycle
   M21 ;
   M99 ;
O 0101 ;···Sub Program 2
   :
   G01Z── ;···Tapping fixed cycle
   M21 ;
   M99 ;
```

● Program of AR21

```
N000 J0 θ360. DIV 23 F0 ✻
```

23 equal dividing of 360°

After finishing **N000**, return to **N000** again.



23 equal dividing on circle for drilling & tapping

When NC Machine executes the sub program 23 times, drilling & tapping of 23 holes is completed with 23 equal divisions calculated to 1/23rd of 360° to third decimal places automatically, e.g. 15.652°.

② Example for Arc Milling

● Program of NC Machine

```
O 0001 ;
   :
   M21 ;
   G01Z── ;···Z axis down
   M21 ;
   G00Z── ;···Z axis up
   M21 ;
   :
```

● Program of AR21

```
N010 θ210. F0 G91 ✻ ···Rapid feed to starting point ①
```

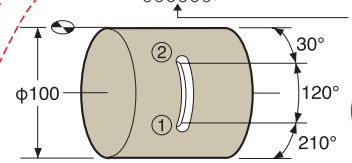
Incremental command (Modal Type)

```
011 θ120. F50 ✻ ·····Arc milling to ②
```

Milling by rotating speed of 0.5r/min

```
012 J10 θ30. F0 ✻ 30°of rapid feed to work zero position
```

After finishing **N012**, return to **N010**



Calculation of cutting speed
100 × π × 50 × 1/100r/min=
157 mm/min

③ Example for Lead Cutting

● Program of NC Machine

```
O 0003 ;
   :
   M21 ;
   G01Z── ;···Z axis down
   M21 ;
   M21 ;
   G01X40. F100 ; *1
   G00Z── ;···Z axis up
   M21 ;
   :
```

● Program of AR21

```
N020 θ240. F0 G91 ✻ ··· Rapid feed to starting point ①
021 G10 ✻ ····· Brake unclamped
022 θ79338 F55 G21 ✻ ···Cutting feed to ②
                *2
```

Simultaneous start

```
023 J20 θ0. G9011 ✻ ··· Rapid feed to work zero position
```

G90 (Absolute) & **G11** (Brake clamped)

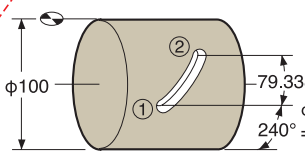


Fig. 1

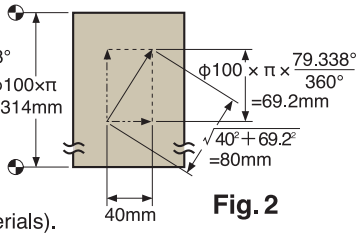


Fig. 2

Calculations for Feed Rate in Lead Cutting

1. Make a development elevation like **Fig.2** to calculate the vector.
2. Give feed in lead cutting (cutting feed from ① to ②).....e.g. 200 mm/min (depend on work piece materials).
3. Cutting speed of X axis: Fx= 200 mm/min x 40 mm ÷ 80mm =100 mm/min F100 *1
4. Cutting speed of θ axis: f = 200 mm/min x 69.2 mm ÷ 80mm =173 mm/min
   173 mm/min x 1r/min ÷ 314 mm/min =0.55r/min F55 *2

④ Example of continuous rotation as turning operation

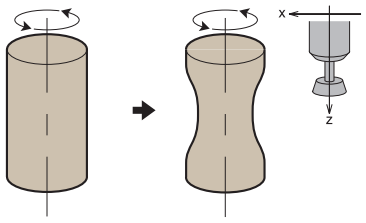
● Program of NC Machine

```
O 0004 ;
   :
   M21 ; Start continuous rotation
   :
   X & Z Contouring
   :
   M21 ; Stop continuous rotation

   M21 ; Machine zero position return with dog
```

● Program of AR21

```
N030 G22 ✻ ·····Continuous rotation
N031 J30 G28 ✻ ·····Programmable machine zero position return with dog
N997 θ PRM 10 F300 ✻
```



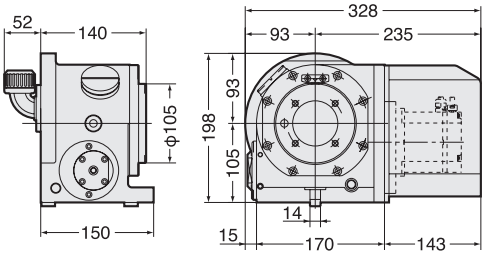
The direction and feed rate of continuous rotation are specified on N997. When higher rotation speed than standard is required, please contact with us.

M-SIGNAL

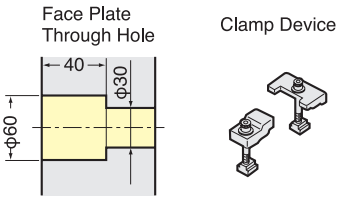
CNC ROTARY TABLE with AR21 CONTROLLER

NIKKEN

CNC105AR21-04

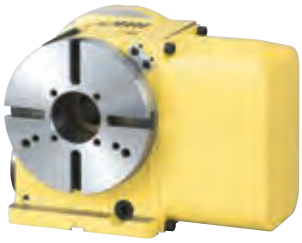


Powerful Clamping Torque : 205Nm

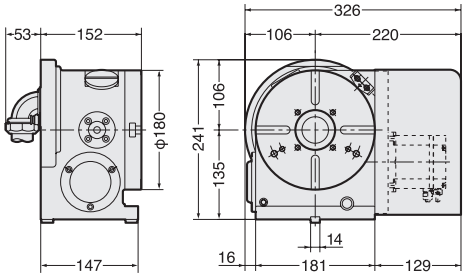


Air purge function is provided.

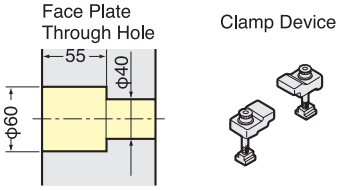
CNC180AR21-04



CNC180AR21-04 (400W) is standard. **CNC180AR21-08 (750W)** and **CNC180AR21-06 (High Torque)** are available.



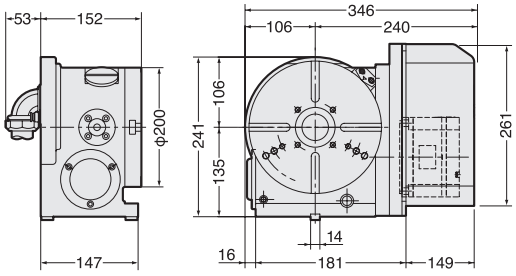
Powerful Clamping Torque : 303Nm



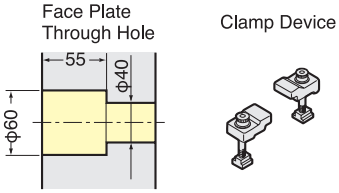
Air purge function is provided.

CNC202AR21-08

CNC202AR21-08 (750W) is standard. **CNC202AR21-06 (High Torque)** is available.



Powerful Clamping Torque : 303Nm

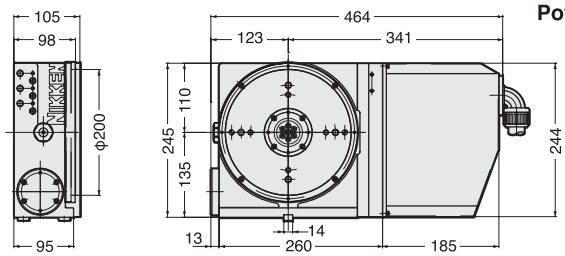


Air purge function is provided.

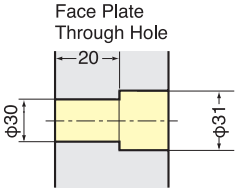
CNC205AR21-05

Rotary joint shown in photo is optional.

NC202AR21-05 (450W) is standard. ★Built-in type rotary joint 6+1 can be mounted.

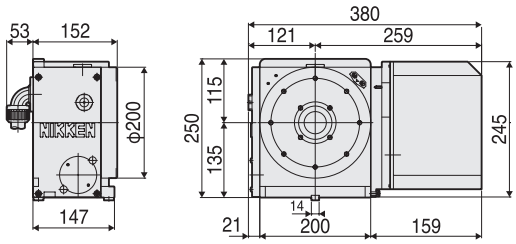


Powerful Clamping Torque : 380Nm

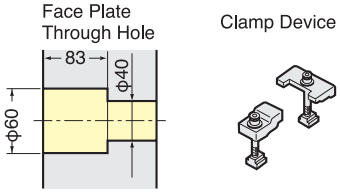


Air purge function is provided.

NCT200AR21-08

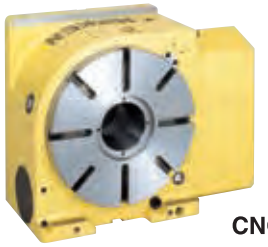


Powerful Clamping Torque : 900Nm



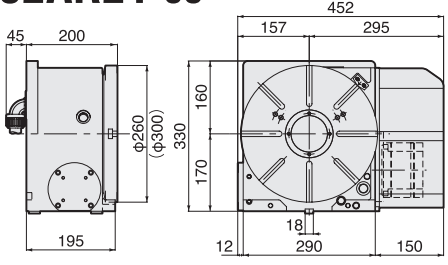
Air purge function is provided.

CNC260AR21-08, 302AR21-08

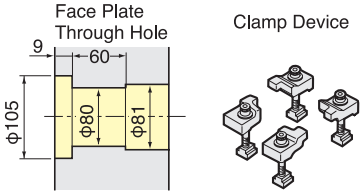


CNC260

CNC260, 302AR21-08 (750W) is standard. **CNC260, 302AR21-06 (High Torque)** is available.



Pneumatic Clamping Torque UP 588Nm



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

High seed rotation Z series is available for all models of CNC rotary table. **e.g. CNCZ260AR21**

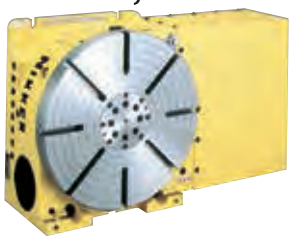
M-SIGNAL

CNC ROTARY TABLE with AR21 CONTROLLER

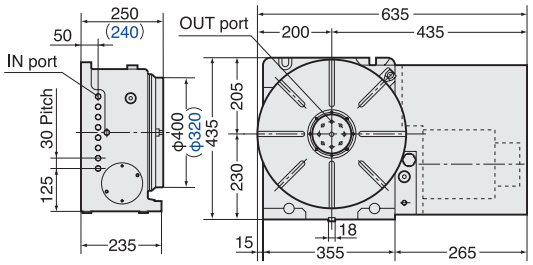
NIKKEN

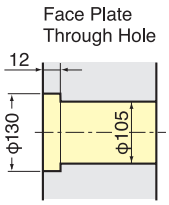
CNC321, 401AR21-18

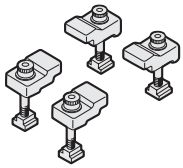
★Built-in type rotary joint can be mounted, refer to ☞P.89



Rotary joint shown in photo is optional.



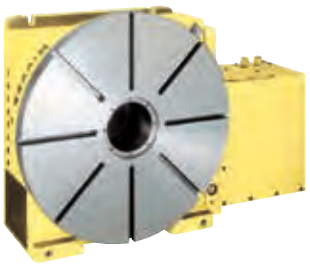


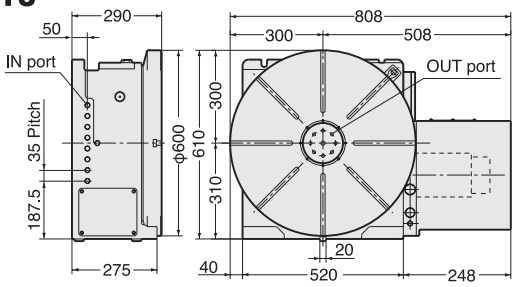


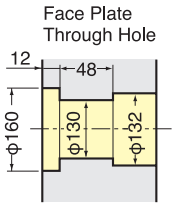
★ Please contact us for the dimension of **CNC321AR21-18**.

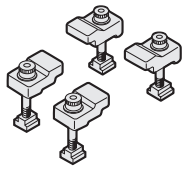
CNC501, 601, 802AR21-18

★Built-in type rotary joint can be mounted, refer to ☞P.89



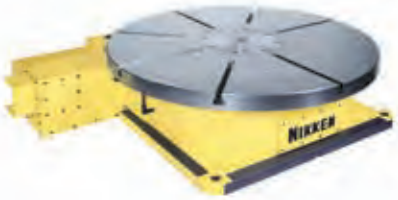




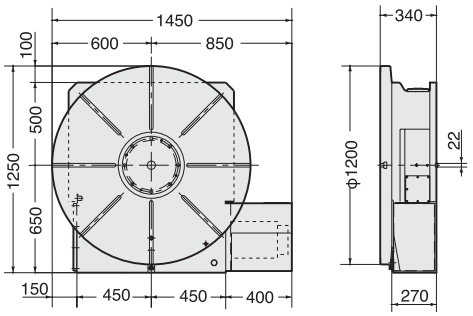


★ Please contact us for the dimension of **CNC501, 802AR21-18**.

CNC1000, 1200AR21



Center socket shown in photo is optional.

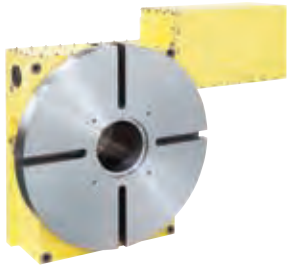


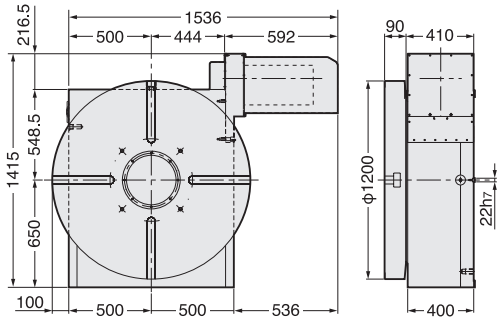
★ Ultra precision of ±3sec. is available as an option. There is no through hole on the rotary table due to the rotary encoder for ultra precision option.

★ Please contact us for the dimension of **CNC1000AR21**.

★ **Code No. will be varied according to the servo motor capacity. e.g CNC1000AR21-44 (4.4KW Motor)**

CNC1201AR21



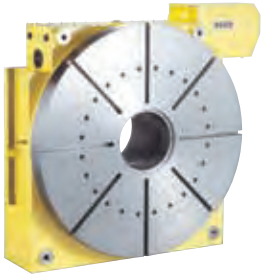


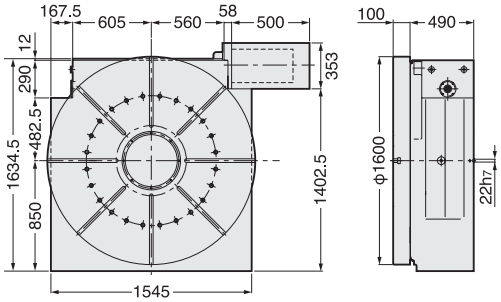
★ Ultra precision of ±3sec. is available as an option. There is no through hole on the rotary table due to the rotary encoder for ultra precision option.

★ Please contact us for the dimension of **CNC1000AR21**.

★ **Code No. will be varied according to the servo motor capacity. e.g CNC1201AR21-110 (11KW Motor)**

CNC1600AR21





★ Ultra precision of ±3sec. is available as an option. There is no through hole on the rotary table due to the rotary encoder for ultra precision option.

★ Please contact us for the dimension of **CNC2000AR21**.

★ **Code No. will be varied according to the servo motor capacity. e.g CNC1600AR21-44 (5KW Motor)**

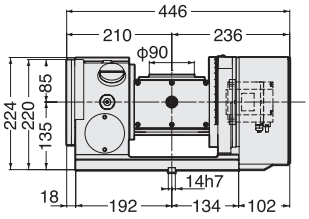
The specification of the large rotary table will be varied according to your application.

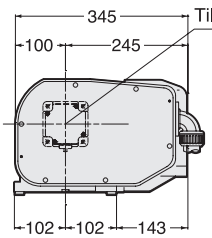
1. With/without T slot, Width of T slot
2. Spindle hole dimension···Center socket for centering is normally installed.
3. Layout of the rotary table···Vertical use, horizontal use, vertical and horizontal use
4. Total reduction ratio···Suitable capacity of the servo motor can be selected.

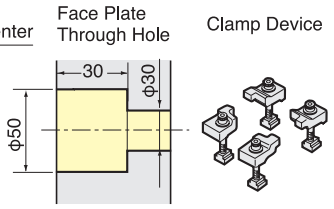
Tilting Rotary Table with AR21 Controller

NIKKEN

5AX-100WAR21







Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-100WAR21-0404

5AX-130WAR21

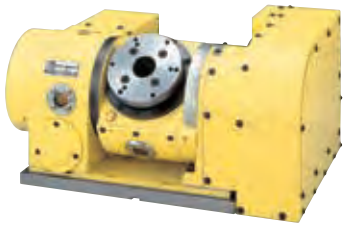
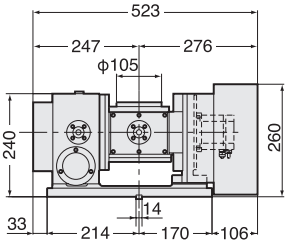
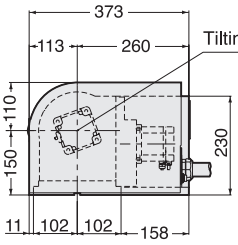
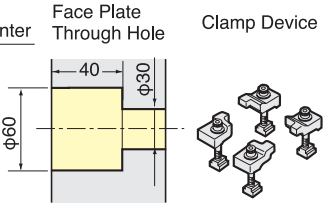


Photo with φ130mm plate.
Rotary axis cable stays.

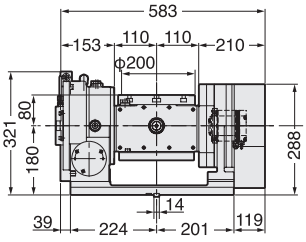


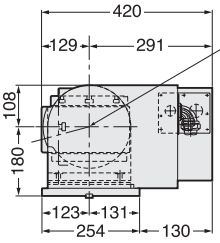


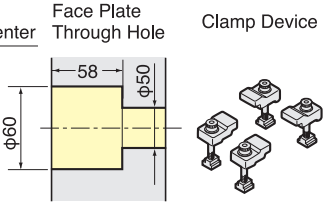


Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-130WAR21-0404

5AX-201WAR21

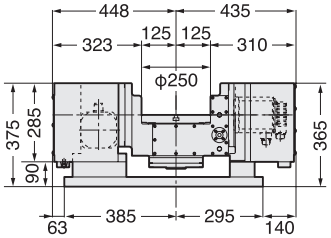


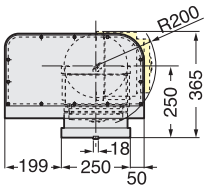


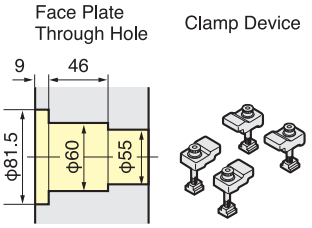


Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-201WAR21-0408

5AX-250WAR21

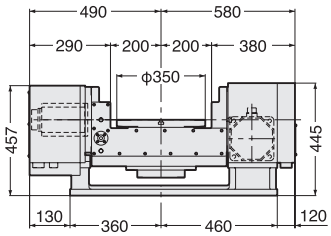


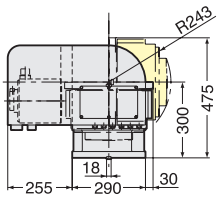


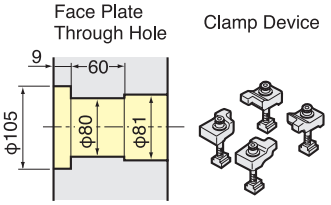


Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-250WAR21-1313

5AX-350WAR21







Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-350WAR21-1318

M-SIGNAL

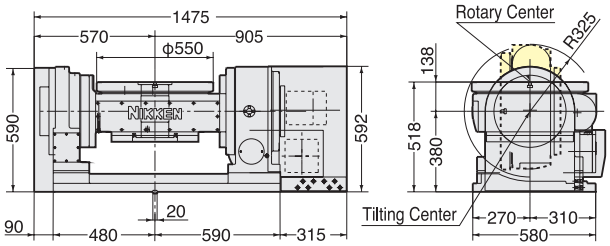
Tilting Rotary Table with AR21 Controller

NIKKEN

5AX-550WAR21

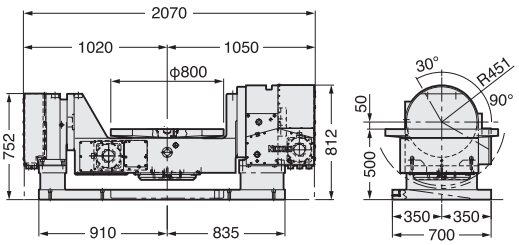
Center socket shown in photo is optional.

The specification of the large rotary table will be varied according to your application.



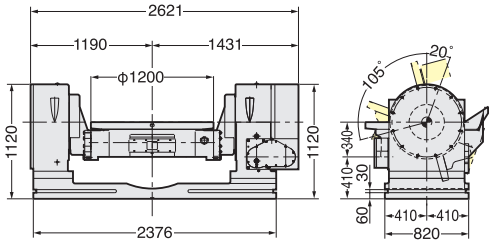
Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-550WAR21-1818

5AX-800WAR21



Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-800WAR21-1875

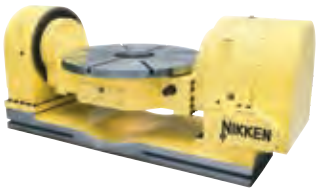
5AX-1200BWAR21



Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-1200BWAR21-4444

1. Moving angle of the tilting axis
2. Relation between the tilting axis center and the rotary axis

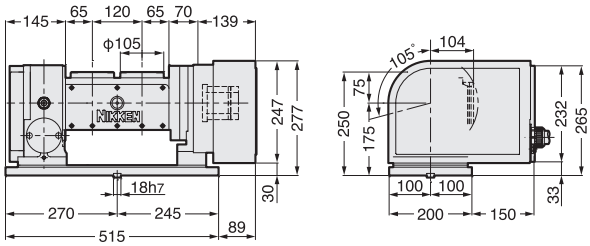
5AX-1200A:The tilting axis center is located in the same position as the center of the rotary axis body.



5AX-1200B:The tilting axis center is located in the same position as the top surface of the rotary axis.

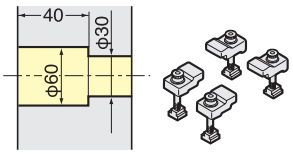
3. Tilting axis base···It can be supplied to us.
4. With/ witout T slot, Width of T slot
5. Spindle hole dimension
   ···Center socket for centering is normally attached.

5AX-2MT-105WAR21



Face Plate Through Hole

Clamp Device



Motor capacity of rotary axis and tilting axis are added at the end of Code No. e.g 5AX-2MT-105WAR21-0404
If you need a knock hole for positioning or a key way on the table surface, please contact us.

AR21 controller can drive the all models of NIKKEN rotary tables. Please contact us for the external dimension.

Back side motor mounted CNC rotary table

Top side motor mounted CNC rotary table

Multi-spindle CNC rotary table

NST manual tilting rotary table

NSVZ index

Indexing of MIN. incremental of 1° is done by AR21 controller.

NSVX rotary index table

AR21 controller can perform indexing of MIN. 1° with hirth coupling and can also perform indexing of MIN. incremental by 0.001° and profile milling.

M-SIGNAL