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CNO.2R-52

CATALOGUE



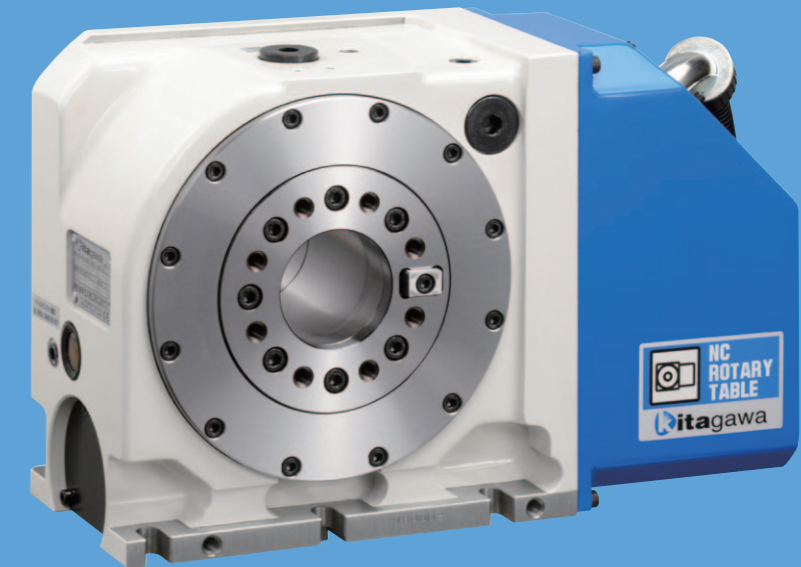
NC ROTARY TABLE SERIES



NC ROTARY TABLE SERIES



# NC ROTARY TABLE



Kitagawa

Web showroom : <https://prod.kiw.co.jp/exhibition/mtools/en/>





**NC ROTARY  
TABLE**

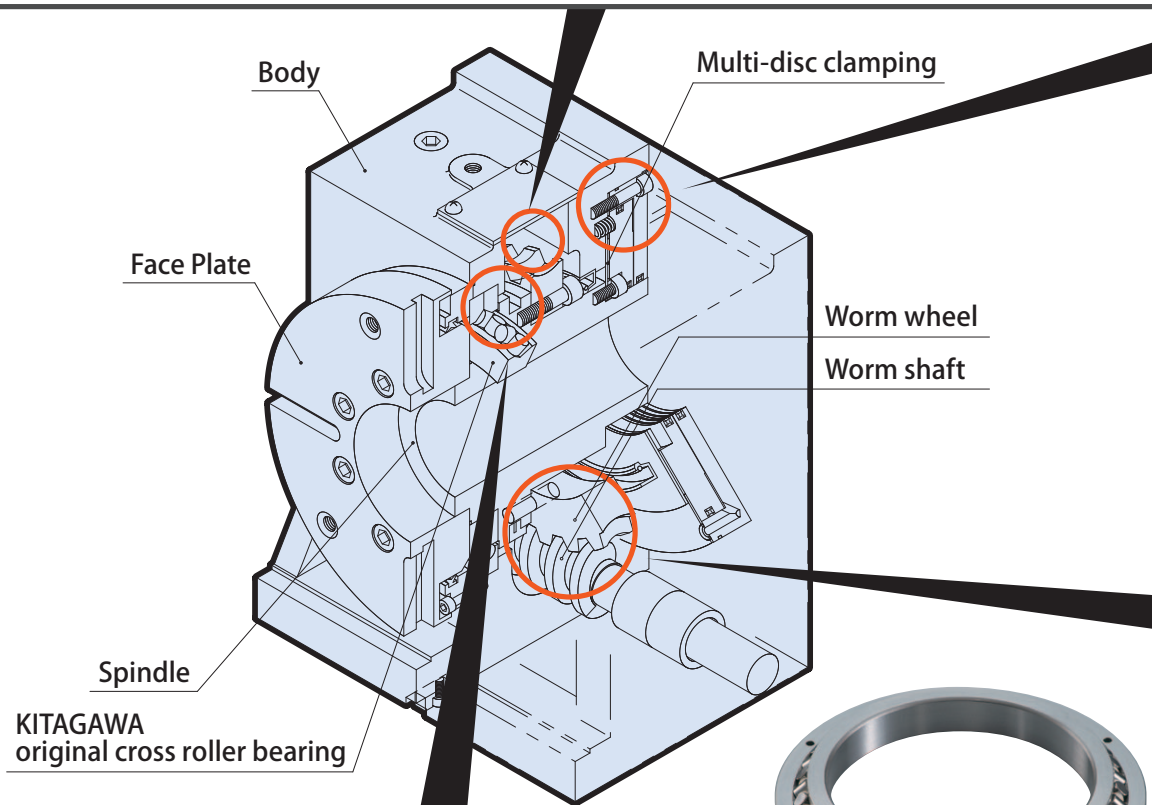
# NC ROTARY TABLE FEATURES

## High clamping torque, high accuracy and high rigidity

### KITAGAWA NC Rotary tables feature proven technology

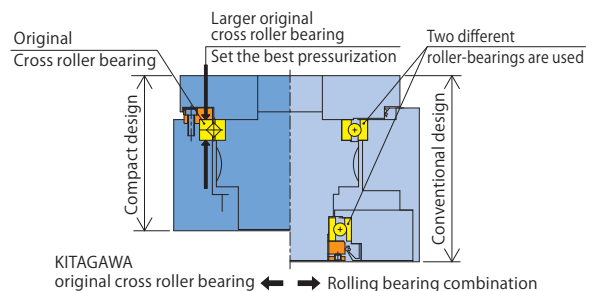
## Special material to eliminate worm wheel wear

Kitagawa's special material contains hard inter-metallic compounds to give improved wear characteristics over conventional models.



## Original Kitagawa cross roller bearing

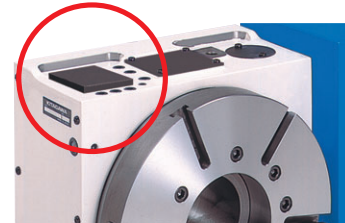
KITAGAWA original cross roller bearing supports the main spindle. Construction of the original bearing has high rigidity compared with conventional types, and the original bearing allows the body design to be compact. With over 30 years experience using the original bearing the best pressurization is set meaning high accuracy and high rigidity.



# High clamping torque mechanism

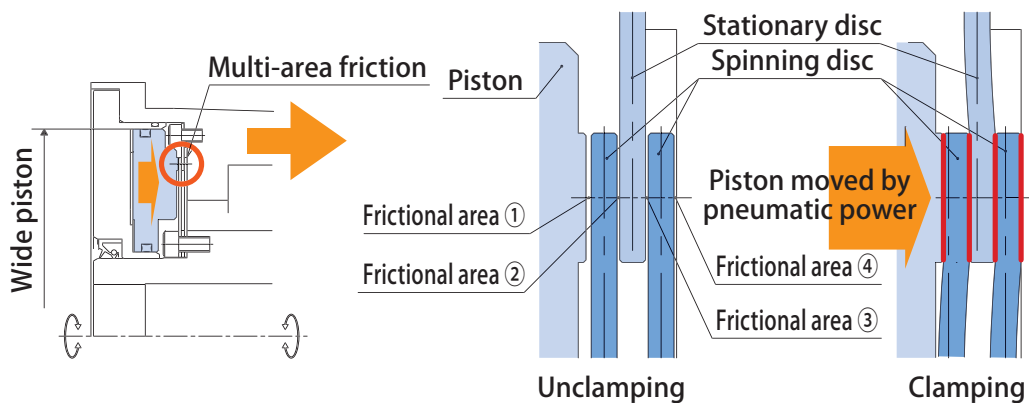
## ● Air-hydro high clamping system. (T·X series)

Powerful clamping torque can be achieved within a compact design using built-in air-hydraulic booster.



## ● Multi-disc clamping system. (MK series, MR series, CK series, GT series)

Multi-disc clamping system with multi-friction surfaces enables increased clamping torque when compared to conventional air clamped models.

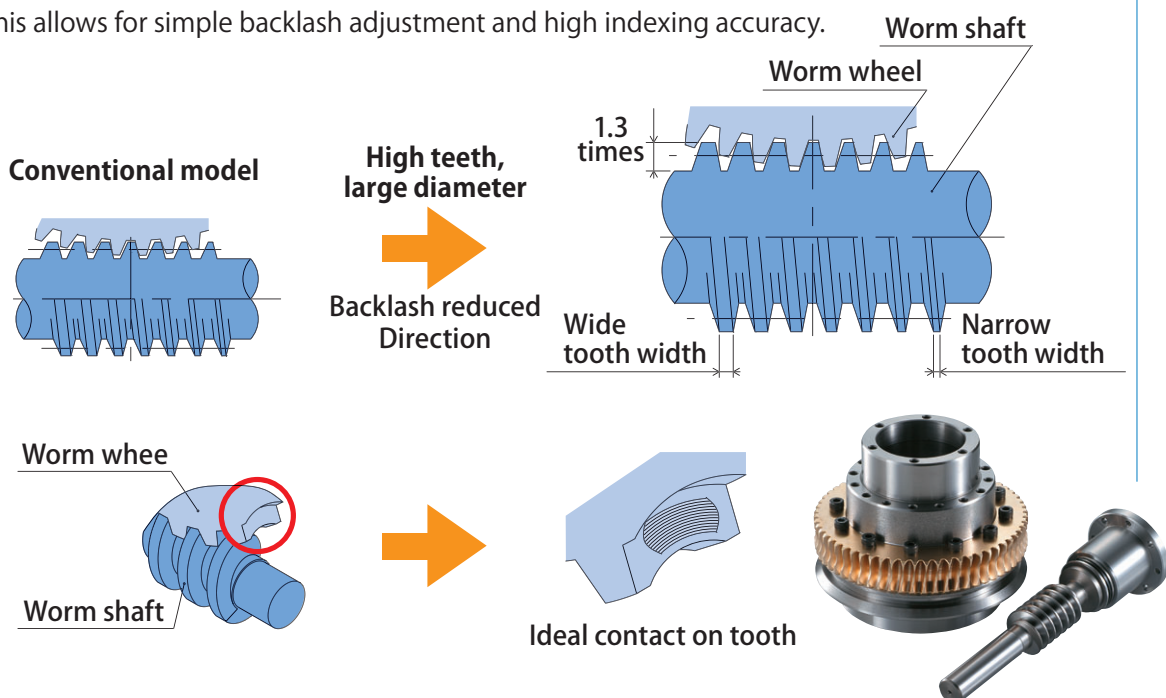


# Large diameter gear with high teeth offering increased strength

Large diameter worm wheel and high gear teeth reduces the pressure on the teeth surfaces. This achieves high accuracy with reduced processing load and wear.

## Double-lead worm shaft

Double-lead worm shaft creates ideal contact between the worm shaft and worm wheel. This allows for simple backlash adjustment and high indexing accuracy.





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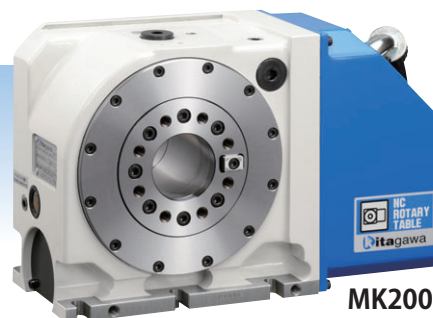
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






## High-performance and easy-to use model.

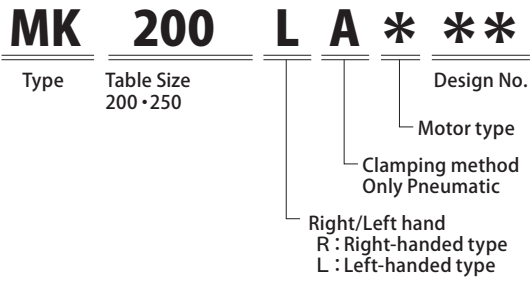
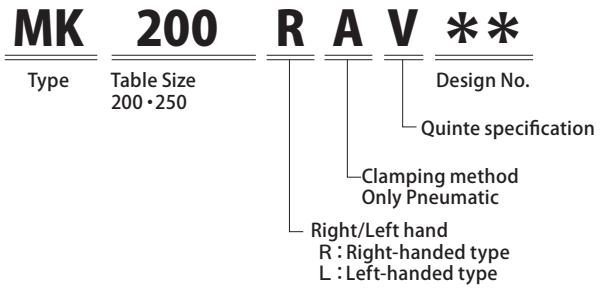
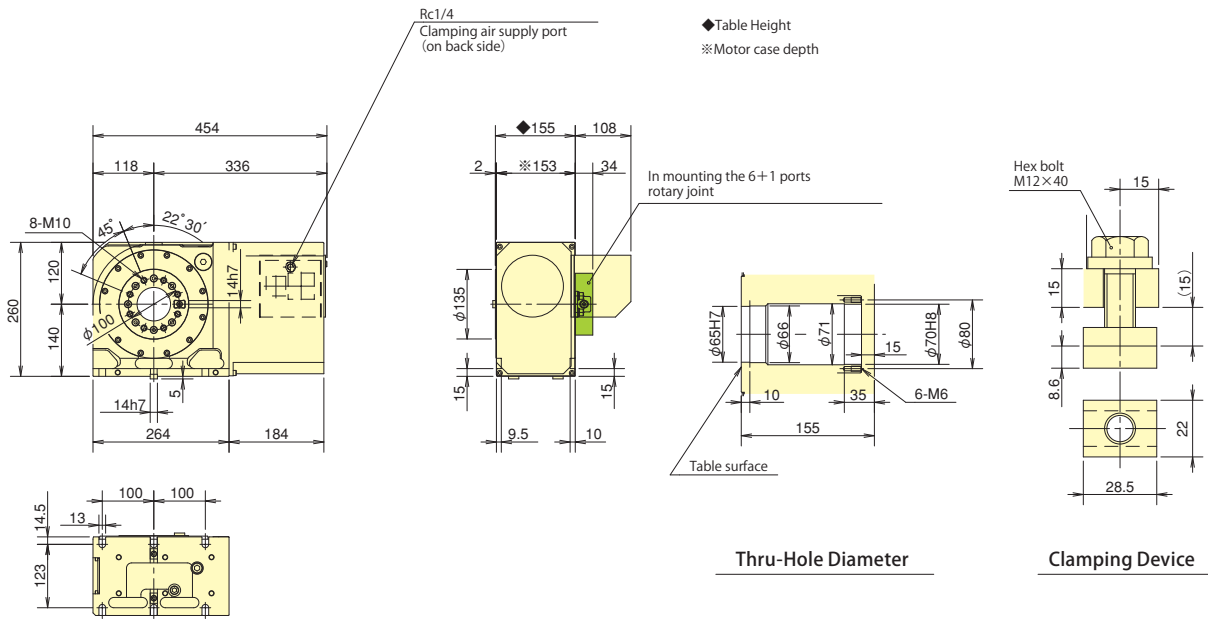
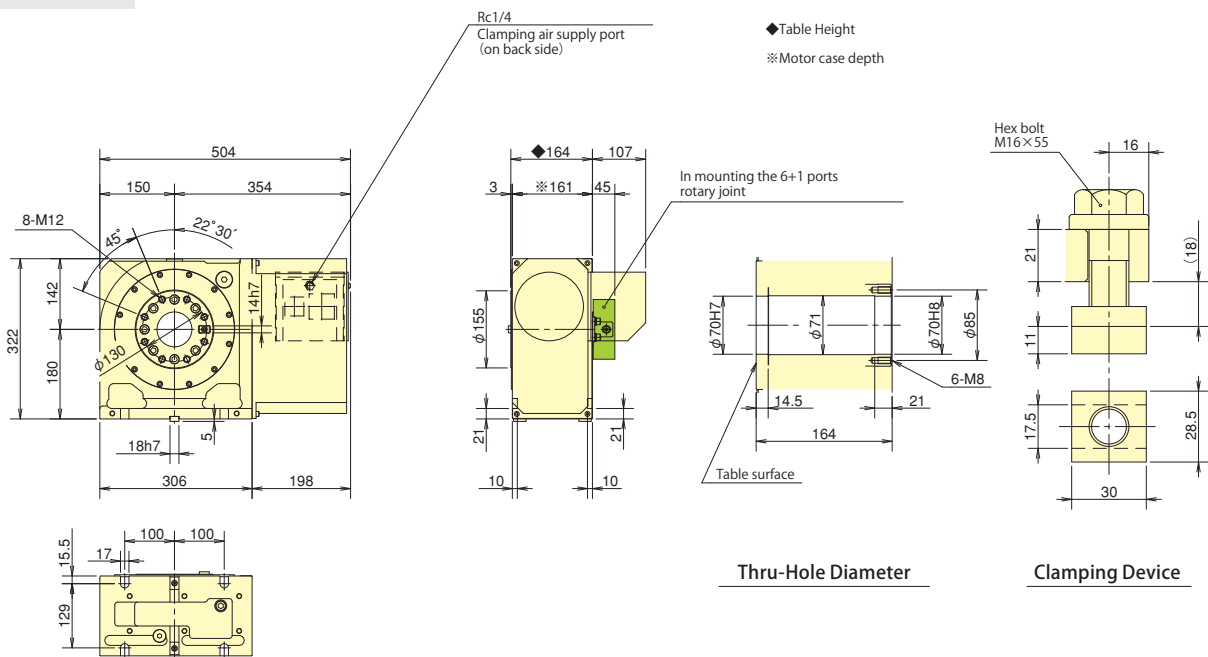
- Performance improved, Powerful clamping torque
  - Improved mounting, Reduced effective thickness and improved chip flow
  - Wide selection of rotary joints
- \*CE correspondence


**MK200**

### Specifications

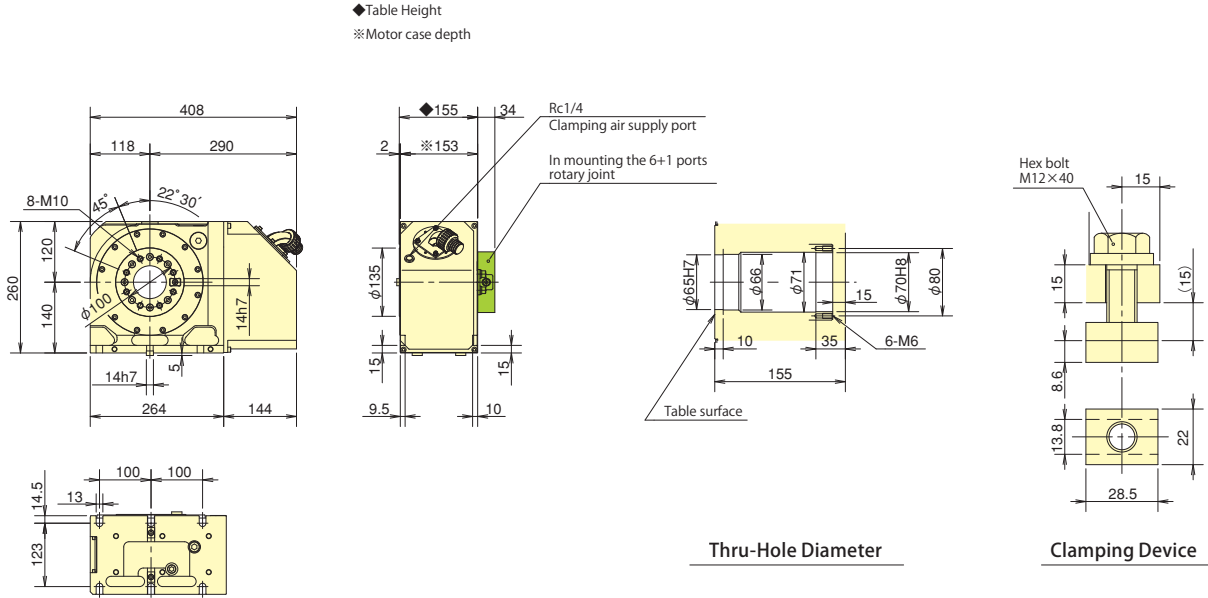
Model		MK200	MK250
Right-handed type		○	○
Left-handed type		○	○
Table dia (mm)		φ 135	φ 155
Centre hole dia (mm)		φ 65H7	φ 70H7
Through hole dia (mm)		φ 70	φ 70
Centre height (mm)		140	180
Clamping method		Pneumatic	Pneumatic
Clamping torque (at pneumatic 0.5MPa) (N·m)		570	1000
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.000095	0.00041
Servomotor (for FANUC specification)		α iF4/5000-B	α iF4/5000-B
Total reduction ratio		1/90	1/90
Max. rotation speed (min <sup>-1</sup> )		33.3	33.3
Allowable work inertia (kg·m <sup>2</sup> )		1.00	1.95
Indexing accuracy (sec)		20	20
Repeatability (sec)		4	4
Mass of product (kg)		60	95
Manual tailstock (as an option-P97 reference)		MR200RN	MR250RN
Tail spindle (as an option-P101 reference)		MSRC140/MSR142A TSR142A	MSR181A TSR181A
Rotary joint (as an option-P103 reference)		Hydraulic/Pneumatic 6-port + multi-purpose hole	Hydraulic/Pneumatic 6-port + multi-purpose hole
Allowable mass of workpiece	Horizontal installation (kg) 	200	250
	Vertical installation (kg) 	100	125
Allowable load (When clamped to table)	F (kN) 	17	21
	F×L (N·m) 	1100	1600
	F×L (N·m) 	570	1000
Allowable cutting torque (Worm gear strength)	T (N·m) 	270	480

Note) 1. The switch for pressure checking is incorporated to all series except TC / DM/ LR series. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Rotary joint is fixed to jig side. 5 Each product mass is determined by a Kitagawa M signal spec.

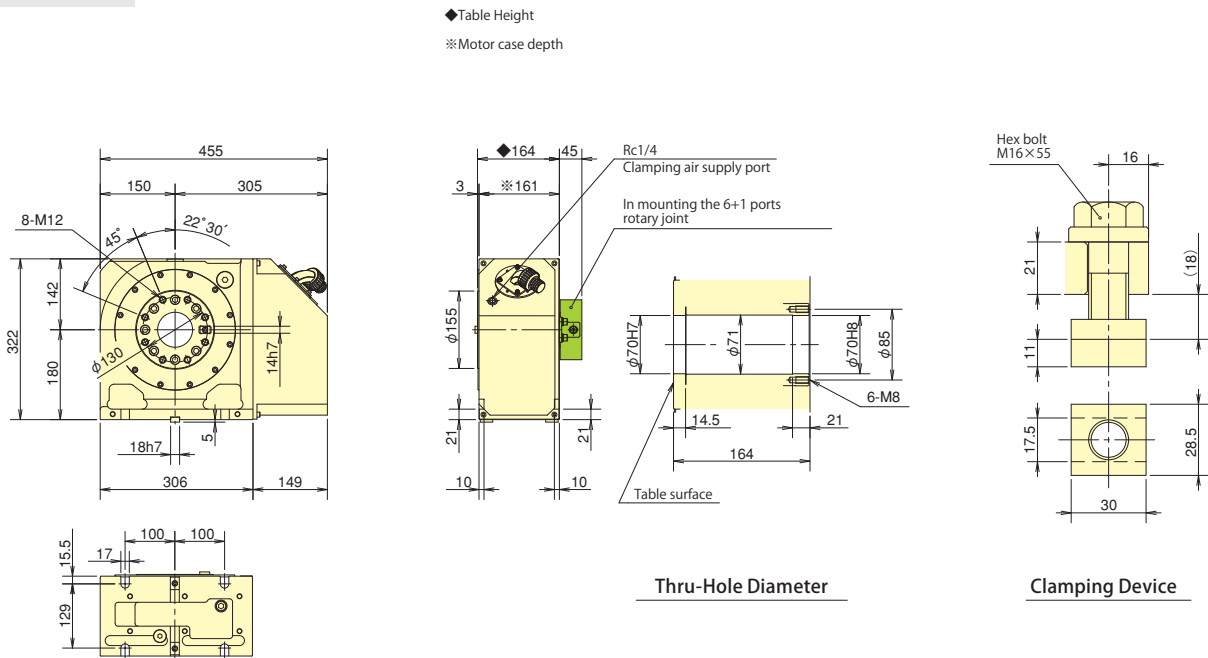
**additional axis specifications**

**M signal specifications**

**■ Dimensions [additional axis specifications]**
**MK200R(L)**

**MK250R(L)**


**■ Dimensions [M signal specifications]**

**MK200R(L)**



**MK250R(L)**







Strong & compact NC Rotary Table

**MK series** MK350

MK

## Best-in-class powerful clamping torque and abundant options

- Powerful clamping torque and high cutting torque, Selectable reduction ratio and servo motor
  - Chip flow improved and easy installation and removal
  - Wide selection of rotary joints and 3 types of face plates
- \*CE correspondence



MK350

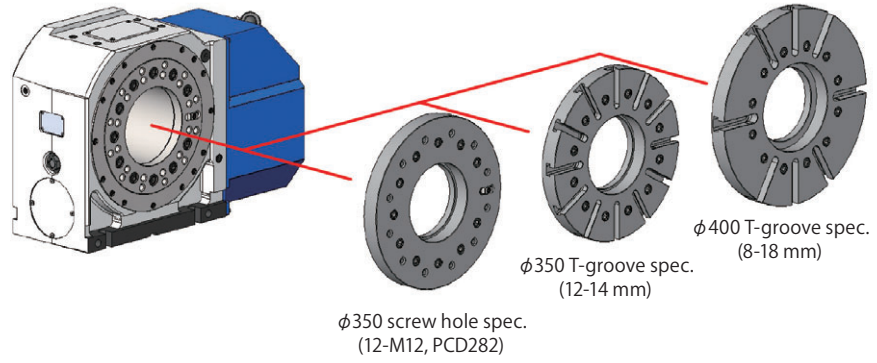
### Specifications

Model		MK350			
Right-handed type		MK350M		MK350R	
Left-handed type		MK350H		MK350L	
Table dia. (mm)		φ 275			
Face plate (Option)		φ 350 screw hole spec., φ 350 T-groove spec., φ 400 T-groove spec.			
Centre hole dia. (mm)		φ 160H7			
Through hole dia. (mm)		φ 160			
Centre height (mm)		225			
Clamping method		Hydraulic			
Clamping torque (at hydraulic 3.5MPa) (N·m)		6000			
Kitagawa controller (QUINTE) spec.					
Total reduction ratio		1/90		1/120	
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.0018		0.00082	
Max. rotation speed (min <sup>-1</sup> )		22.2 (at motor 2000 min <sup>-1</sup> )		16.6 (at motor 2000 min <sup>-1</sup> )	
Mass of product (kg)		200		185	
4th axis spec.					
Total reduction ratio		1/90		1/120	
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.0017	0.0018	0.00081	0.0014
Servo motor (Fanuc spec.)		α iF 8/3000-B	α iF 12/4000-B	α iF 8/3000-B	α iF 12/4000-B
Max. rotation speed (min <sup>-1</sup> )		33.3 (at motor 3000 min <sup>-1</sup> )		25.0 (at motor 3000 min <sup>-1</sup> )	
Mass of product (kg)		185	200	185	220
Common specifications					
Manual tailstock (as an option · P97 reference)		MR320RN			
Tail spindle (as an option · P101 reference)		TSR181A (H) 45			
Rotary joint (as an option · P103 reference)		Hydraulic/Pneumatic 16-port + multi-purpose hole			
Allowable work inertia (kg · m <sup>2</sup> )		7.66			
Indexing accuracy (sec)		20			
Repeatability (sec)		4			
Allowable mass of workpiece	Horizontal installation (kg)	500			
	Vertical installation (kg)	250			
Allowable load	F (kN)	38			
	F×L (N·m)	2700			
	F×L (N·m)	6000			
Allowable cutting torque (Worm gear strength)	T (N·m)	1400			

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC rotary tables. 2. Solenoid valve is not incorporated in case of hydraulic clamp method. Consequently, customer shall prepare it. 3. Neither cable nor hose is fitted between NC rotary table and machining centre. 4. Rotary joint is fixed to jig side.

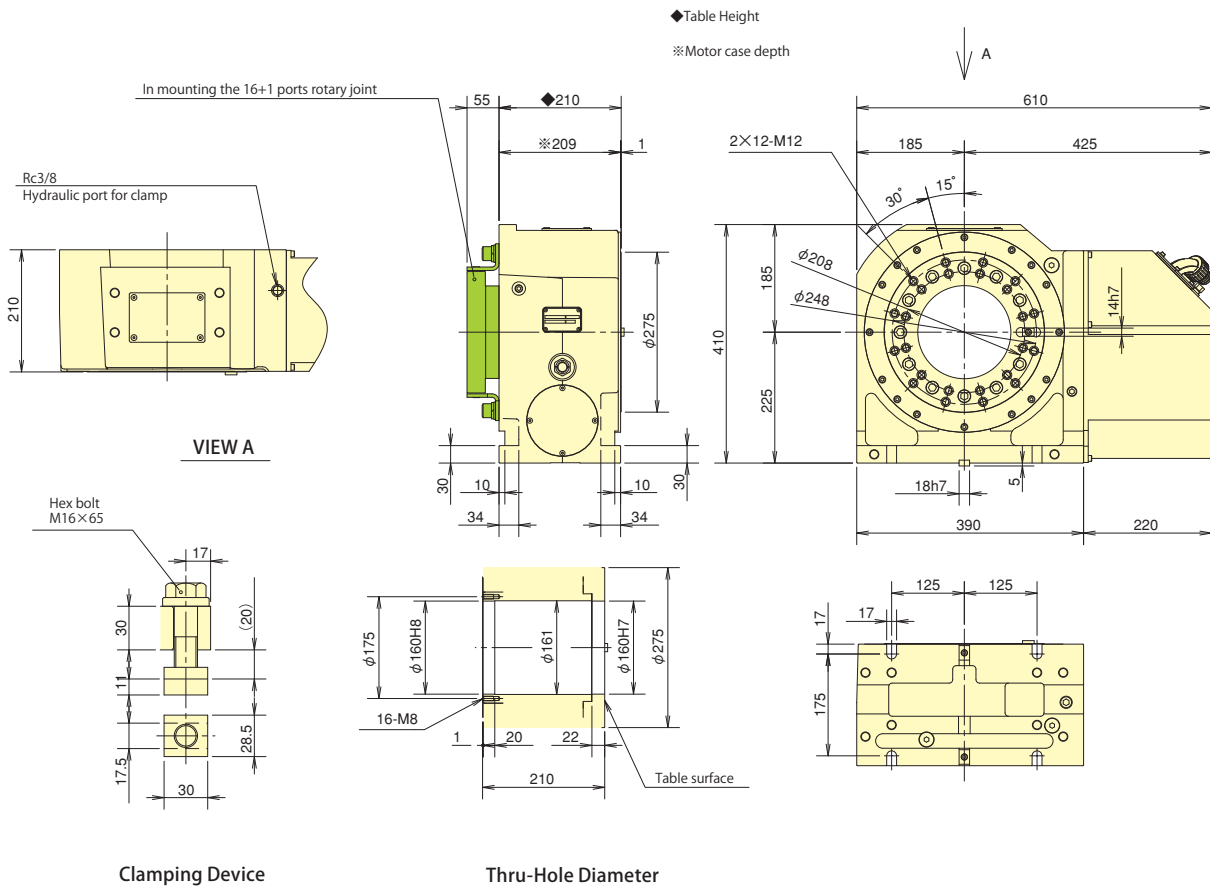


Face plate (option)



■Dimensions [M signal specifications]

MK350R(L)





**NC ROTARY TABLE**

## Ultra Compact NC Rotary table

# CK(R) series

CK160 • CKR160  
CK200 • CKR200

※1 CKR160/CKR200 : All ports are available for both pneumatic and hydraulic, not available for Coolant.







## Ultra compact body Smallest-footprint NC Rotary Table

- Suitable for using with trunnion jig
  - Block-less rotary joint ※1
  - Suitable for small-footprint machines
- \*CE correspondence



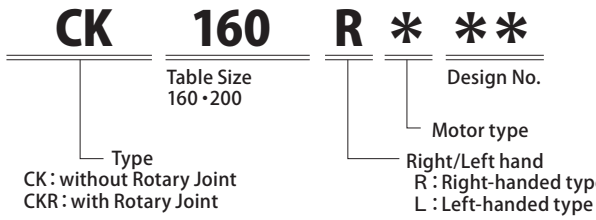
CK160R

### Specifications

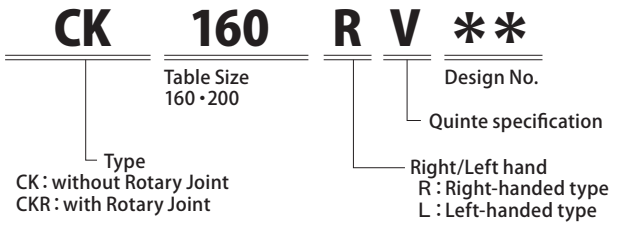
Model		CK160	CKR160	CK200	CKR200
Right-handed type		○	○	○	○
Left-handed type		○	○	○	○
Table dia (mm)		φ114	φ114	φ130	φ130
Centre hole dia (mm)		φ65H7	φ65H7	φ65H7	φ65H7
Through hole dia (mm)		φ65	—	φ65	—
Centre height (mm)		140	140	150	150
Clamping method		Pneumatic	Pneumatic	Pneumatic	Pneumatic
Clamping torque (at pneumatic 0.5MPa) (N·m)		340	340	400	400
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00009	0.00009	0.00017	0.00017
Servomotor (for FANUC specification)		αiF 2/5000-B	αiF 2/5000-B	αiF 2/5000-B	αiF 2/5000-B
Total reduction ratio		1/72	1/72	1/120	1/120
Max. rotation speed	FANUC specification (min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	41.6	25	25
	M signal specification (min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	41.6	25	25
Allowable work inertia (kg·m <sup>2</sup> )		0.51	0.51	1.00	1.00
Indexing accuracy (sec)		20	20	20	20
Repeatability (sec)		4	4	4	4
Mass of product (kg)		40	41	47	49
Tail spindle (as an option-P101 reference)		MSRC140/TSRC140 MSR142A/TSR142A	MSRC140/TSRC140 MSR142A/TSR142A	MSRC150 TSRC150	MSRC150 TSRC150
Rotary joint (Maximum operating pressure 7Mpa)		—	Hydraulic/ ※2 Pneumatic 7-port	—	Hydraulic/ ※2 Pneumatic 8-port
Allowable mass of workpiece	Horizontal installation (kg) 	160			
	Vertical installation (kg) 	80			
Allowable load (When clamped to table)	F (kN) 	10			
	F×L (N·m) 	600			
	F×L (N·m) 	340		400	
Allowable cutting torque (Worm gear strength)	T (N·m) 	220			

Note) 1. The switch for pressure checking is incorporated to all series except TC / DM/ LR series. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Rotary joint is fixed to jig side. 5. Each product mass is determined by a Kitagawa M signal spec.

**additional axis specifications**

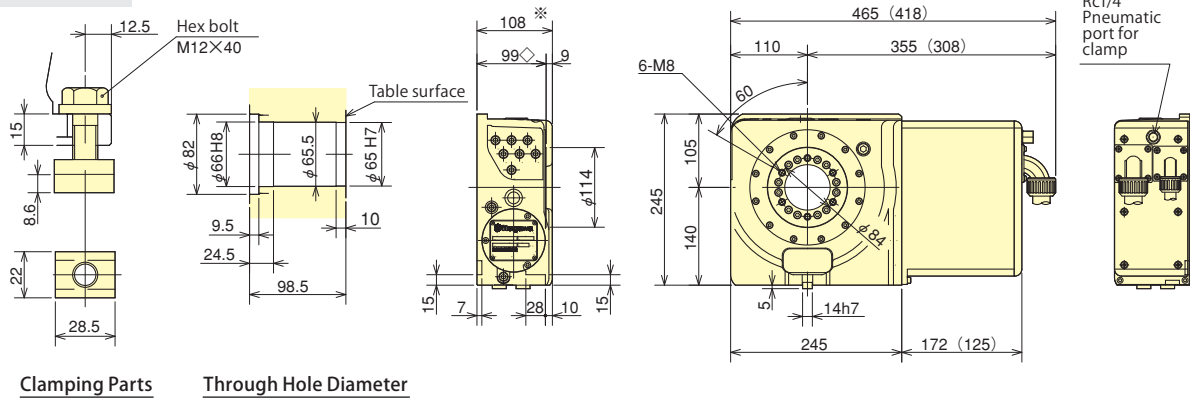


**M signal specifications**



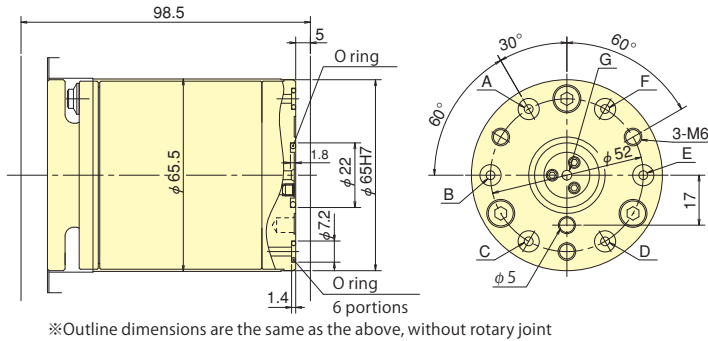
**■Dimensions**

**CK160 [without Rotary Joint]** ◇Table Height ※Motor case depth

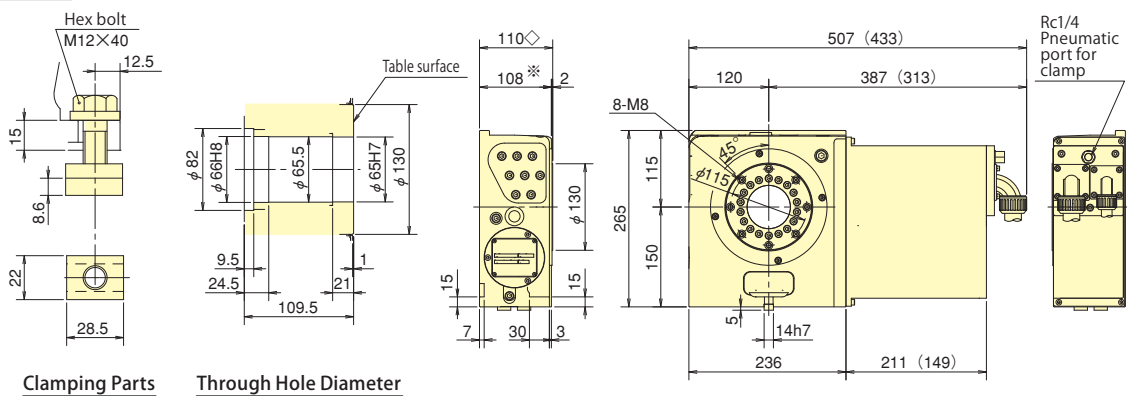


**CKR160 [with Rotary Joint]**

The detail of rotary joint jig mounting face.

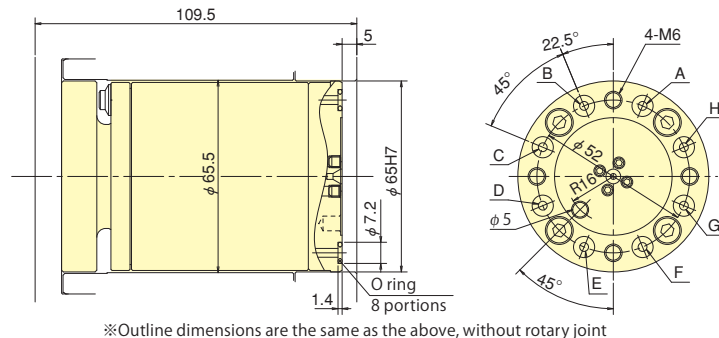


**CK200 [without Rotary Joint]** ◇Table Height ※Motor case depth



**CKR200 [with Rotary Joint]**

The detail of rotary joint jig mounting face.



※The above outline dimensions are shown with FANUC motor specifications. Those dimensions may vary from motor to motor that is mounted.  
 ※The number in ( ) shows the dimension for Kitagawa own controller 「Quinte」 spec.

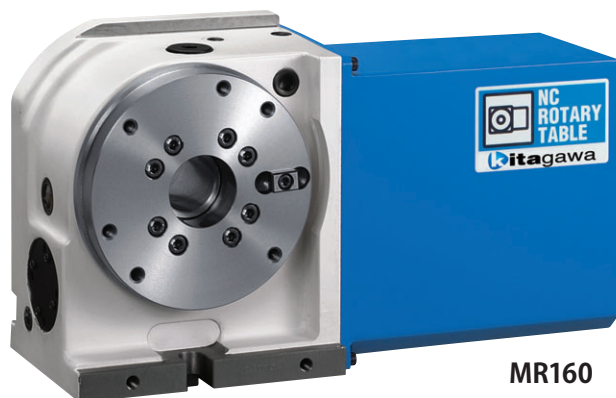


NC Rotary Table

**MR series** MR120 • MR160 • MR200

## Industry standard compact rotary table

- Minimum size in its class
  - Pneumatic spec
  - Powerful pneumatic clamping torque by triple disk Clamping system
  - High speed rotation
  - High accuracy
  - Rotary Joint built in as option
  - Ideal for compact machining centres
- \*CE correspondence



MR160

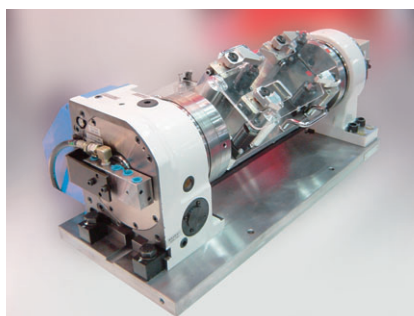


MR160R  
(With Kitagawa own controller)



MR160L  
(Rotary Joint built in as option)

### Sample Application



▲ Various trunnion systems available.  
(See P99).



▲ Table with T-slot can also be offered.



▲ Only Kitagawa can offer this combination of  
NC Rotary Table and chuck

additional axis specifications				M signal specifications			
<b>MR</b>	<b>160</b>	<b>L</b>	<b>A * **</b>	<b>MR</b>	<b>160</b>	<b>R</b>	<b>A V **</b>
Type	Table Size 120 · 160 · 200		Design No.	Type	Table Size 120 · 160 · 200		Design No.
		Right/Left hand R : Right-handed type L : Left-handed type	Motor type Clamping method Only Pneumatic			Right/Left hand R : Right-handed type L : Left-handed type	Clamping method Only Pneumatic Quinte specification

## Specifications

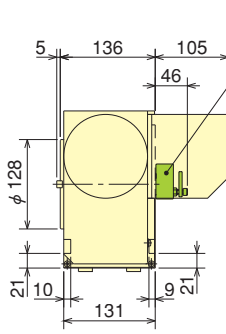
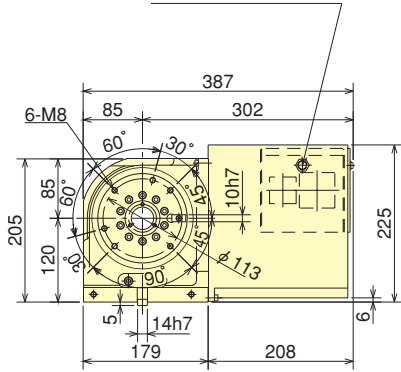
Model		MR120	MR160	MR200
Right-handed type		○	○	○
Left-handed type		○	○	○
Table dia (mm)		φ128	φ165	φ202
Centre hole dia (mm)		φ50H7	φ50H7	φ65H7
Through hole dia (mm)		φ32	φ40	φ45
Centre height (mm)		120	140	140
Clamping method		Pneumatic	Pneumatic	Pneumatic
Clamping torque (at pneumatic 0.5MPa) (N·m)		150	310	350
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00004	0.00008	0.00017
Servomotor (for FANUC specification)		αiF 2/5000-B	αiF 2/5000-B	αiF 4/5000-B
Total reduction ratio		1/60	1/72	1/90
Max. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	50	41.6	33.3
	M signal specification(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	50	41.6	33.3
Allowable work inertia (kg·m <sup>2</sup> )		0.22	0.51	1.00
Indexing accuracy (sec)		20	20	20
Repeatability (sec)		4	4	4
Mass of product (kg)		33	41	61
Manual tailstock (as an option-P97 reference)		MR120RN	MR160RN	MR200RN
Tail spindle (as an option-P101 reference)		TSR121A	MSR142A/TSR142A	MSR142A/TSR142A
Rotary joint (as an option-P103 reference)		RJ32-12Q04 Hydraulic/Pneumatic 3-port	RJ40H16Q Hydraulic/Pneumatic 4-port	RJ40H20Q02 Hydraulic/Pneumatic 4-port
Allowable mass of workpiece	Horizontal installation (kg)	120	160	200
	Vertical installation (kg)	60	80	100
Allowable load (When clamped to table)	F (kN)	8	10	17
	F×L (N·m)	350	600	1100
	F×L (N·m)	150	310	350
Allowable cutting torque (Worm gear strength)	T (N·m)	180	220	270

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. In the port part on the table surface jig side of a rotary joint, MR120 or 200 is fixed to the rotary table side and MR160 to jig side. 5. Each product mass is determined by a Kitagawa M signal spec.

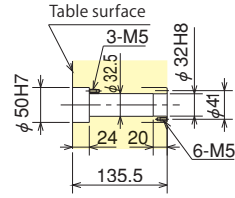
## ■ Dimensions [additional axis specifications]

### MR120R (L)

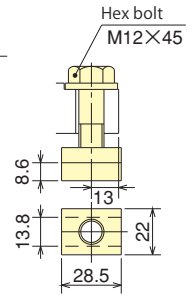
Rc1/4  
Pneumatic port for clamp  
(on back side)



In mounting the standard rotary joint



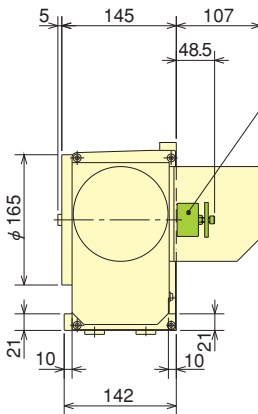
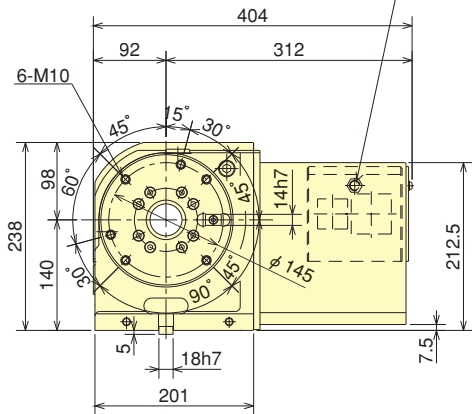
Through Hole Diameter



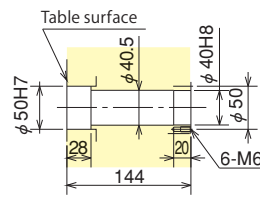
Clamping Parts

### MR160R (L)

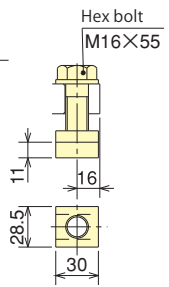
Rc1/4  
Pneumatic port for clamp  
(on back side)



In mounting the standard rotary joint



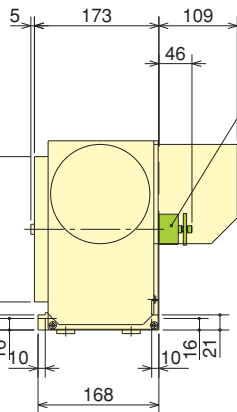
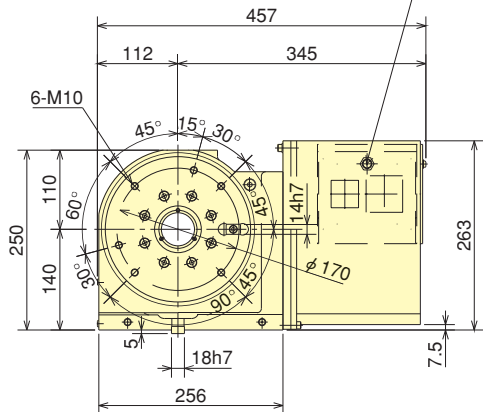
Through Hole Diameter



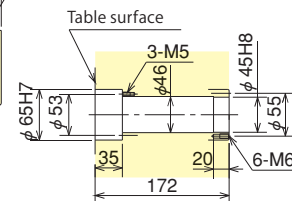
Clamping Parts

### MR200R (L)

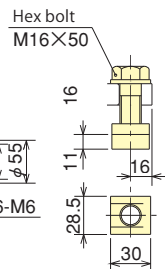
Rc1/4  
Pneumatic port for clamp  
(on back side)



In mounting the standard rotary joint



Through Hole Diameter



Clamping Parts

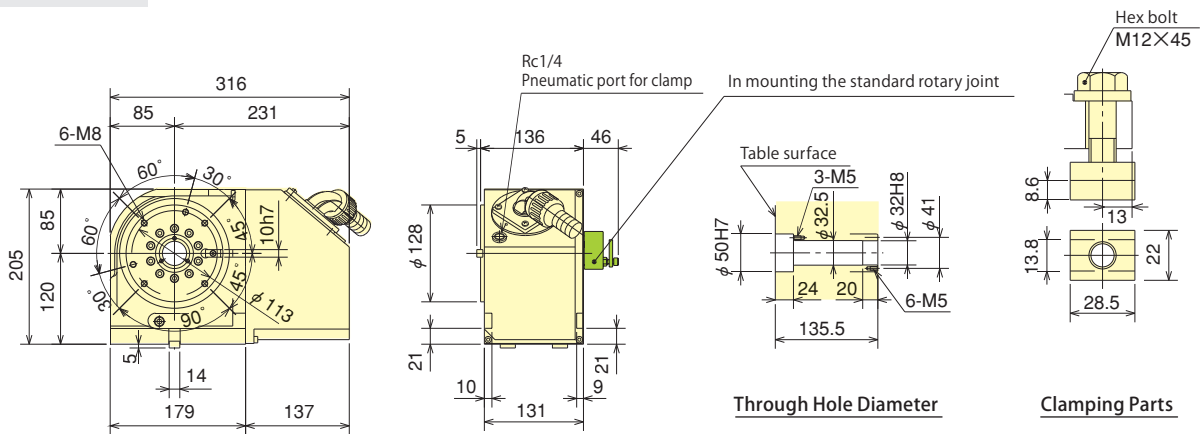
※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted. R is a right hand spec. and L is a left hand spec.



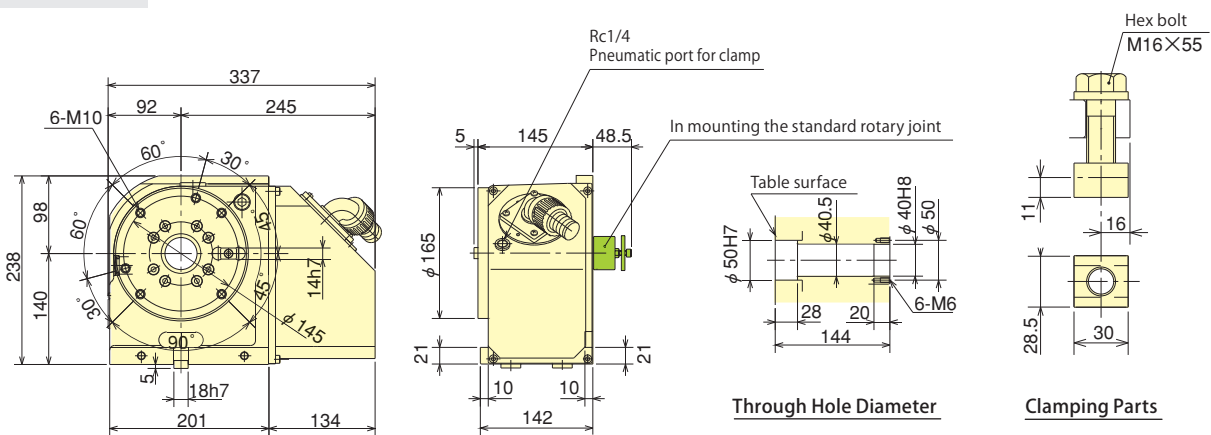
\*The dimensions may vary from motor to motor that is mounted.

### ■Dimensions [M signal specifications]

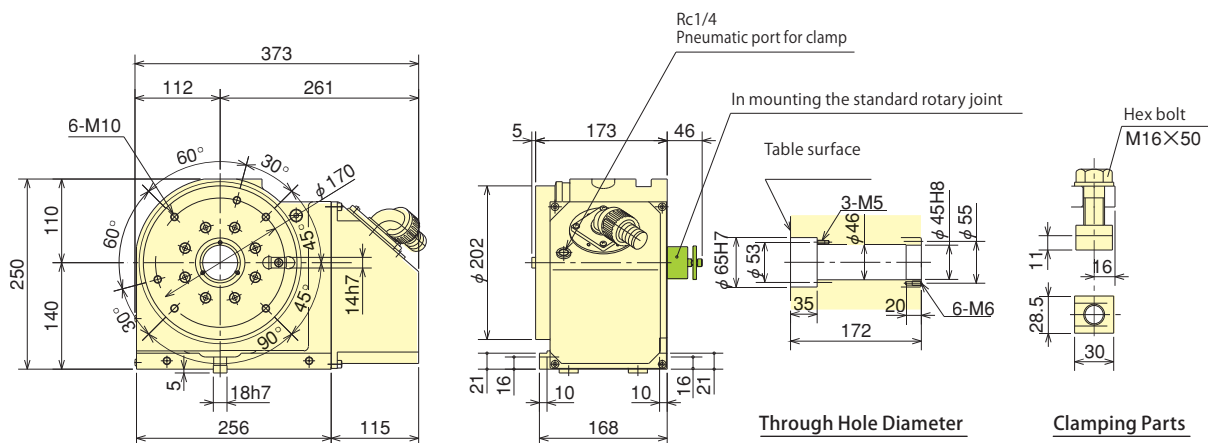
#### MR120R(L)



#### MR160R(L)



#### MR200R(L)



※R is a right hand spec. and L is a left hand spec.



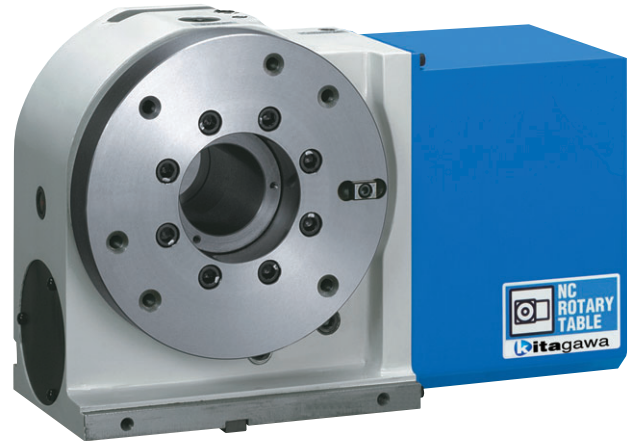
**NC ROTARY TABLE**

**NC Rotary Table**

**MR series** MR250 • MR320

## Industry standard compact rotary table

- Compact design
- Pneumatic spec
- Powerful pneumatic clamping torque by triple disk clamping system
- High speed rotation
- High accuracy
- Rotary Joint built in as option
- \*CE correspondence

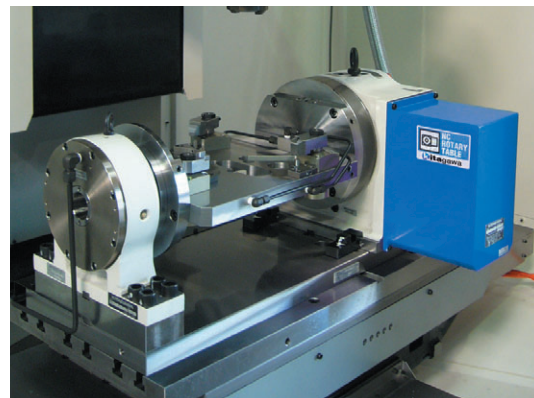
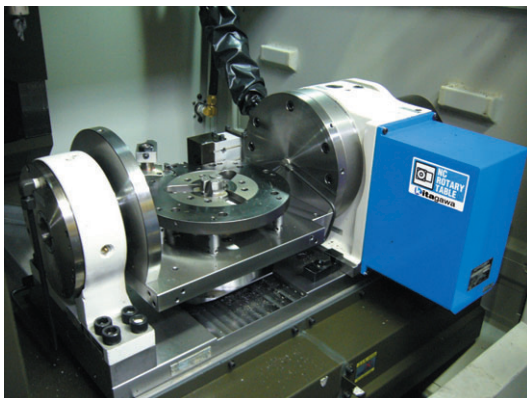


**MR250**



**MR250R(L)V**  
(With Kitagawa own controller)







### Sample Application



▲Specialist trunnion systems allow for multi surface or simultaneous machining.

additional axis specifications				M signal specifications			
<b>MR</b>	<b>250</b>	<b>L</b>	<b>A * **</b>	<b>MR</b>	<b>250</b>	<b>R</b>	<b>A V **</b>
Type	Table Size 250・320		Design No.	Type	Table Size 250・320		Design No.
		Right/Left hand R : Right-handed type L : Left-handed type	Motor type Clamping method Only Pneumatic			R : Right-handed type L : Left-handed type	Quinte specification Clamping method Only Pneumatic

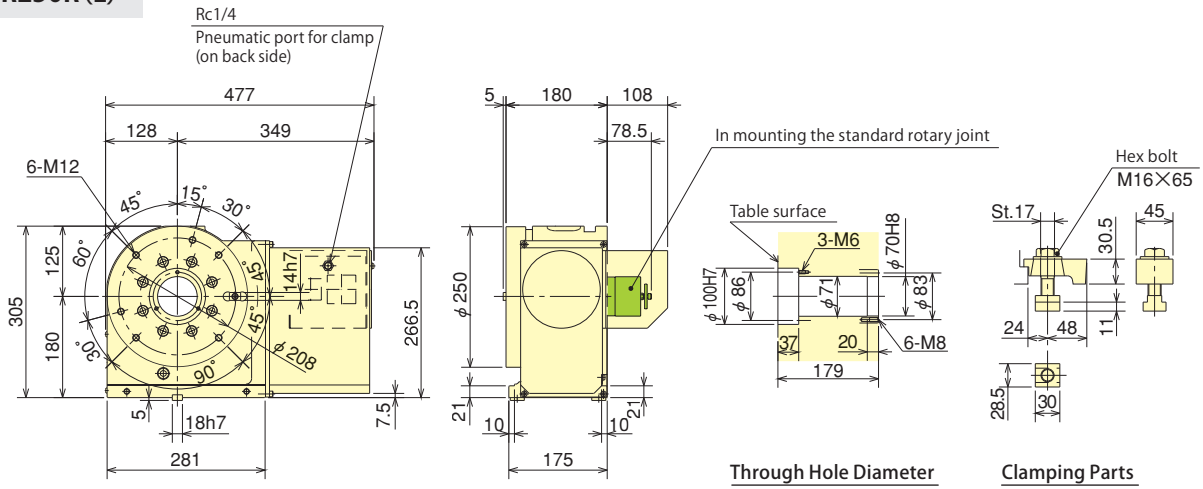
### Specifications

Model		MR250	MR320
Right-handed type		○	○
Left-handed type		○	○
Table dia (mm)		φ250	φ320
Centre hole dia (mm)		φ100H7	φ130H7
Through hole dia (mm)		φ70	φ105
Centre height (mm)		180	225
Clamping method		Pneumatic	Pneumatic
Clamping torque (at pneumatic 0.5MPa) (N·m)		600	1200
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00031	0.00031
Servomotor (for FANUC specification)		αiF 4/5000-B	αiF 8/3000-B
Total reduction ratio		1/90	1/120
Max. rotation speed	FANUC specification (min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3	25
	M signal specification	33.3 (3000min <sup>-1</sup> )	16.6 (2000min <sup>-1</sup> )
Allowable work inertia (kg·m <sup>2</sup> )		1.95	4.49
Indexing accuracy (sec)		20	20
Repeatability (sec)		4	4
Mass of product (kg)		85	135
Manual tailstock (as an option-P97 reference)		MR250RN	MR320RN
Tail spindle (as an option-P101 reference)		MSR181A/TSR181A	TSR181A45
Rotary joint (as an option-P103 reference)		RJ70H25Q02 Hydraulic/Pneumatic 6-port	RJ70H32Q01 Hydraulic/Pneumatic 6-port
Allowable mass of workpiece	Horizontal installation  (kg)	250	350
	Vertical installation  (kg)	125	180
Allowable load (When clamped to table)	F (kN) 	21	25
	F×L (N·m) 	1600	2400
	F×L (N·m) 	600	1200
Allowable cutting torque (Worm gear strength)	T (N·m) 	480	800

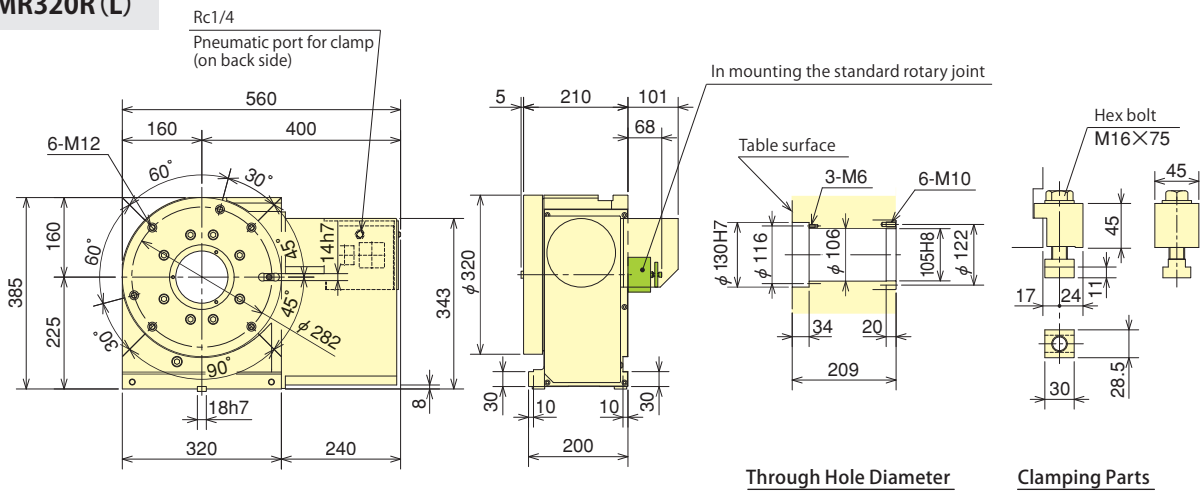
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. In the port part on the table surface jig side of a rotary joint, MR120 or 320 is fixed to the rotary table side. 5. Each product mass is determined by a Kitagawa M signal spec.

## ■Dimensions [additional axis specifications]

### MR250R (L)



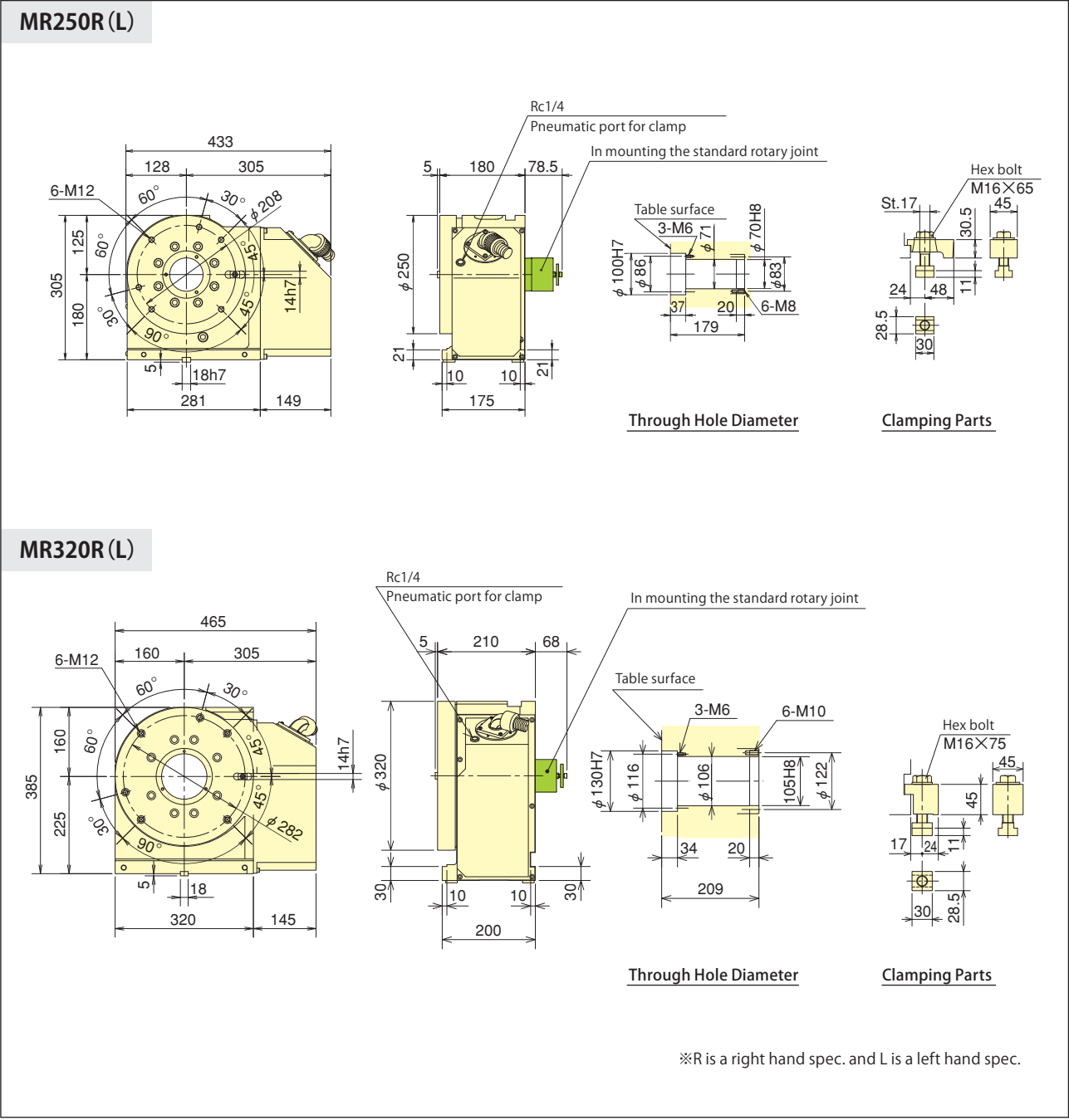
### MR320R (L)



※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted. R is a right hand spec. and L is a left hand spec.

\*The dimensions may vary from motor to motor that is mounted.

**■Dimensions [M signal specifications]**





# NC Rotary Table for Vertical or Horizontal M/C

## MRT200







Top mounted motor position allows optimal stroke for Y-axis

- Less interference
  - High cost-performance
  - Compact design with pneumatic clamping system
- \*CE correspondence



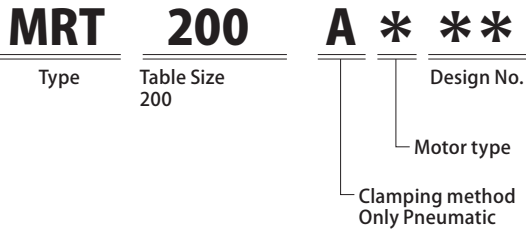
MRT200

### Specifications

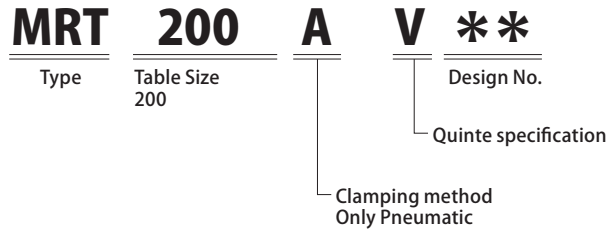
Model		MRT200
Table dia (mm)		φ 202
Centre hole dia (mm)		φ 65H7
Through hole dia (mm)		φ 45
Centre height (mm)		140
Clamping method		Pneumatic
Clamping torque (at pneumatic 0.5MPa) (N·m)		350
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00017
Servomotor (for FANUC specification)		αiF 4/5000-B
Total reduction ratio		1/90
Max. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3
	M signal specification(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3
Allowable work inertia (kg·m <sup>2</sup> )		1.00 (2.00) <sup>Note6</sup>
Indexing accuracy (sec)		20
Repeatability (sec)		4
Mass of product (kg)		70
Manual tailstock (as an option-P97 reference)		MR200RN
Tail spindle (as an option-P101 reference)		MSR142A/TSR142A
Rotary joint (as an option-P103 reference)		RJ40H20Q02 Hydraulic/Pneumatic 4-port
Allowable mass of workpiece	Horizontal installation (kg) 	—
	Vertical installation (kg) 	100 (200) <sup>Note6</sup>
Allowable load (When clamped to table)	F (kN) 	17
	F×L (N·m) 	1100
	F×L (N·m) 	350
Allowable cutting torque (Worm gear strength)	T (N·m) 	270

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. In the port part on the table surface jig side of a rotary joint is fixed to the rotary table side. 5. Each product mass is determined by a Kitagawa M signal spec. 6. The value in ( ) is for using TS and TSR.

**additional axis specifications**

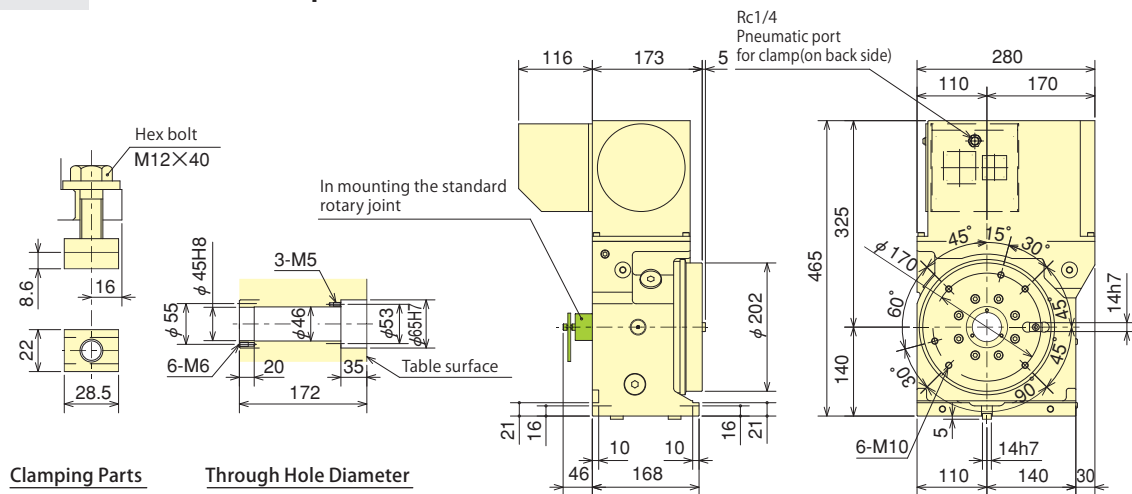


**M signal specifications**



**■ Dimensions**

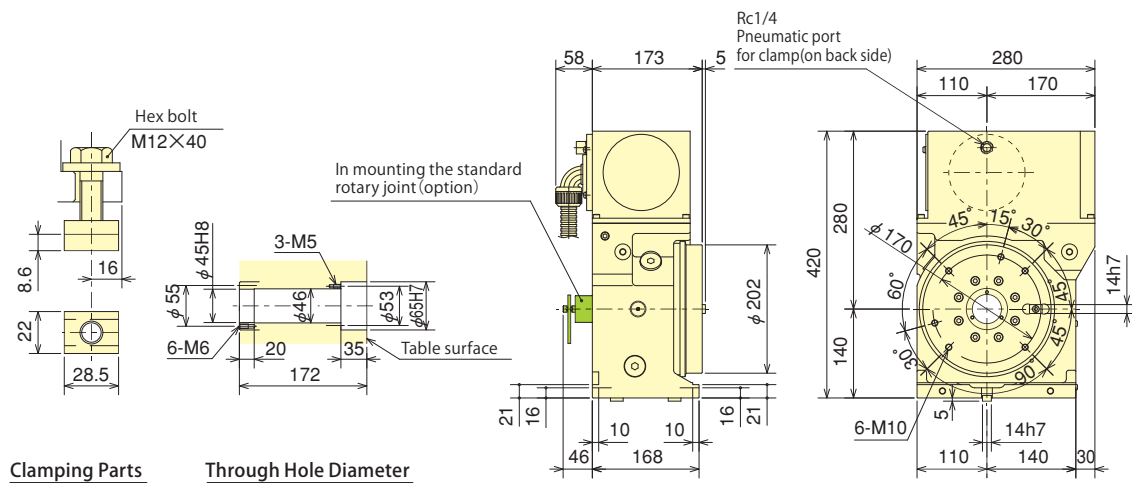
**MRT200 [additional axis specifications]**



\*The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.

**MRT200 [M signal specifications]**

\*The dimensions may vary from motor to motor that is mounted.





# High Clamping Torque NC Rotary Table

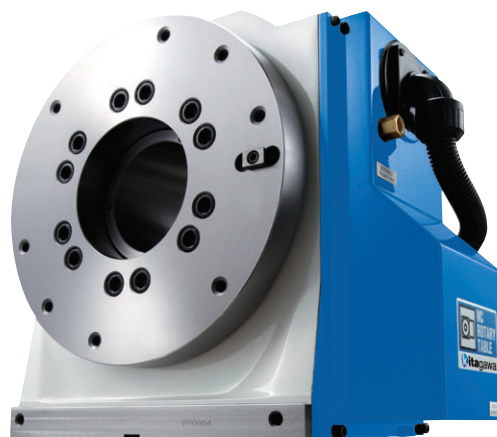
## GT series GT200 • GT250 • GT320

### NC Rotary Table suitable for heavy cutting

\*CE correspondence



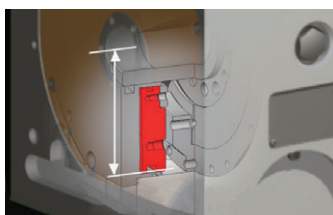
GT200



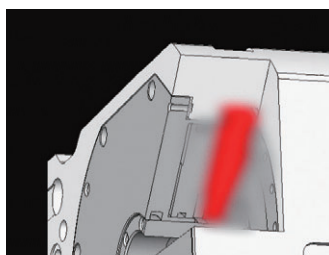
GT320

### Features

#### High Clamping Torque



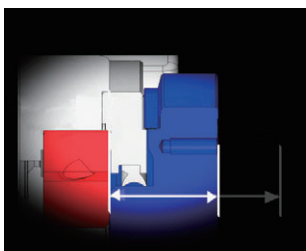
Piston designed at a maximum



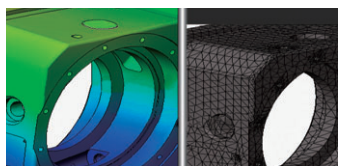
New Clamping Mechanism (PAT5216471)

Increased clamping torque is achieved by increased piston area and new clamping mechanism.

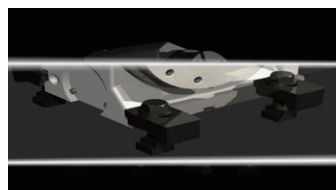
#### High rigidity



Moment loading reduced



Perfect design



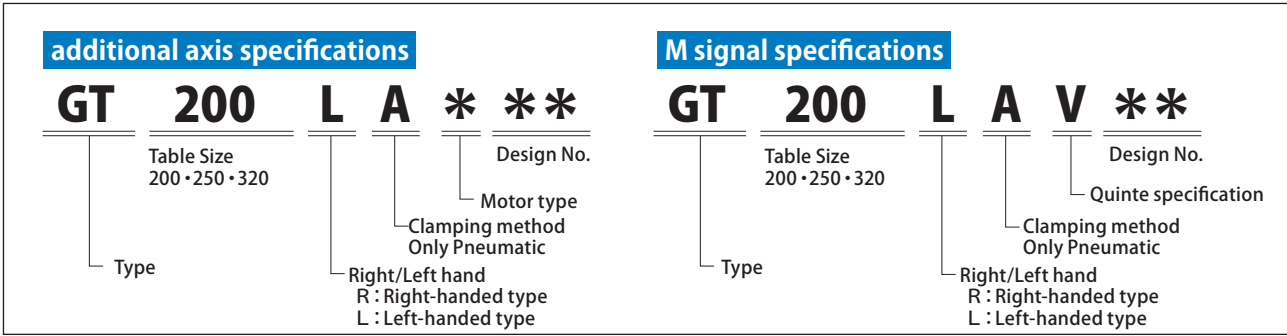
Best Clamping

Rigid Body Design allows heavy cutting.  
Improved Brake Piston design reduces distortion.







#### High speed

High clamping Torque allows increased machining speed.  
Improved clamping speed reduces cycle time.





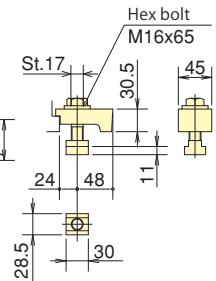
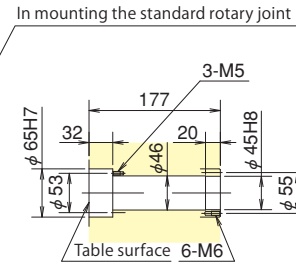
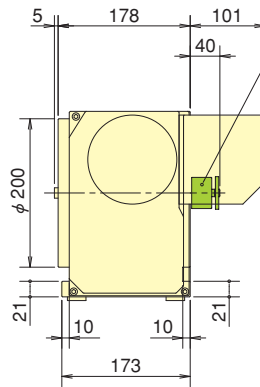
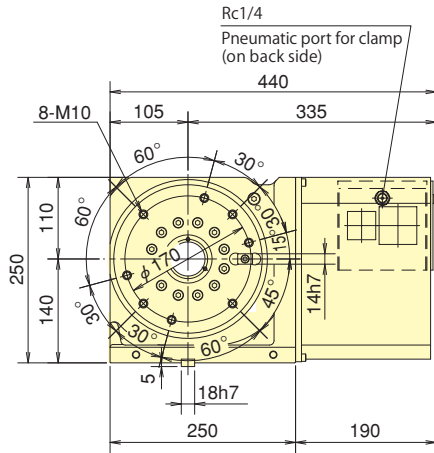
## Specifications

Model		GT200	GT250	GT320
Right-handed type		○	○	○
Left-handed type		○	○	○
Table dia (mm)		φ200	φ250	φ320
Centre hole dia (mm)		φ65H7	φ100H7	φ130H7
Through hole dia (mm)		φ45	φ70	φ105
Centre height (mm)		140	180	225
Clamping method		Pneumatic	Pneumatic	Pneumatic
Clamping torque (at pneumatic 0.5MPa) (N·m)		820	1600	2800
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00023	0.00036	0.00039
Servomotor (for FANUC specification)		αiF 4/5000-B	αiF 4/5000-B	αiF 8/3000-B
Total reduction ratio		1/72	1/90	1/120
Max. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	33.3	25
	M signal specification(min <sup>-1</sup> )	41.6 (at motor 3000min <sup>-1</sup> )	33.3 (at motor 3000min <sup>-1</sup> )	16.6 (at motor 2000min <sup>-1</sup> )
Allowable work inertia (kg·m <sup>2</sup> )		1.00	1.95	4.49
Indexing accuracy (sec)		20	20	20
Repeatability (sec)		4	4	4
Mass of product (kg)		64	87	145
Manual tailstock (as an option-P97 reference)		MR200RN	MR250RN	MR320RN
Tail spindle (as an option-P101 reference)		MSR142A/TSR142A	MSR181A/TSR181A	TSR181A45
Rotary joint (as an option-P103 reference)		RJ40H20J01 Hydraulic/Pneumatic 4-port	RJ70H25J01 Hydraulic/Pneumatic 6-port	RJ70H32J01 Hydraulic/Pneumatic 6-port
Allowable mass of workpiece	Horizontal installation (kg) 	200	250	350
	Vertical installation (kg) 	100	125	180
Allowable load (When clamped to table)	F (kN) 	17	21	26
	F×L (N·m) 	1100	1600	2500
	F×L (N·m) 	820	1600	2800
Allowable cutting torque (Worm gear strength)	T (N·m) 	310	480	800

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. In the port part on the table surface jig side of a rotary joint is fixed to the rotary table side. 5. Each product mass is determined by a Kitagawa M signal spec.

## ■ Dimensions [additional axis specifications]

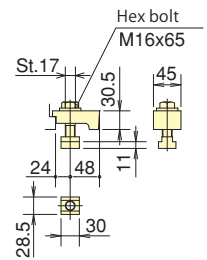
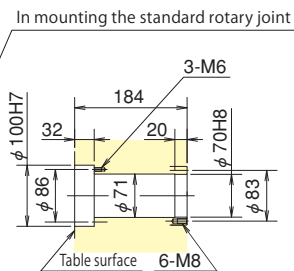
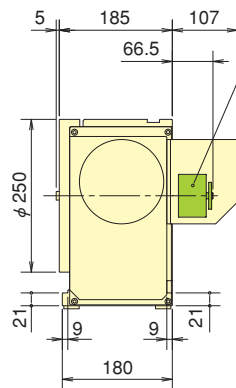
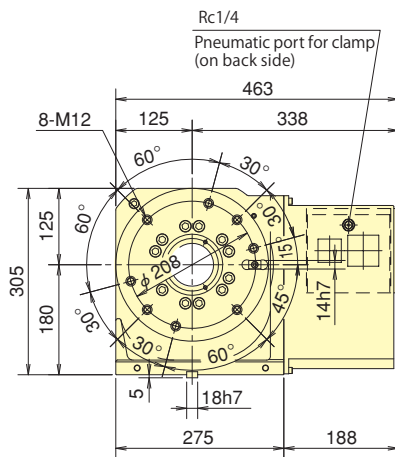
### GT200R (L)



Through Hole Diameter

Clamping Parts

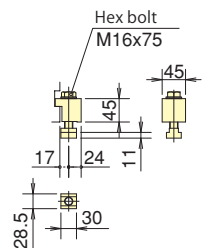
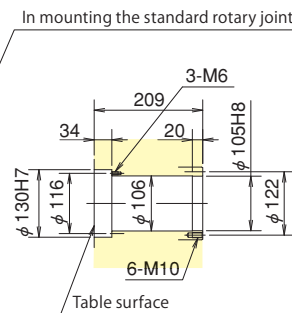
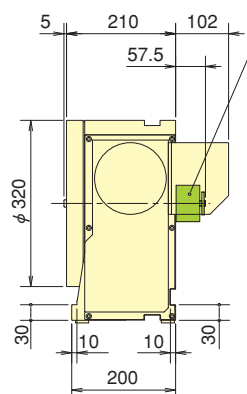
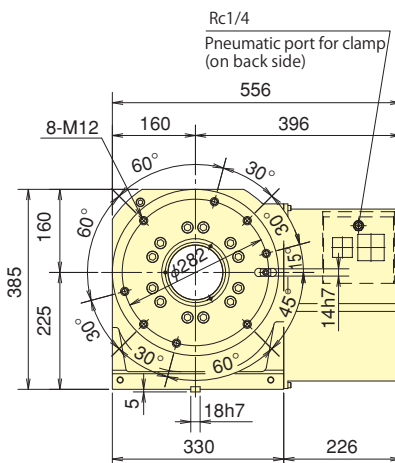
### GT250R (L)



Through Hole Diameter

Clamping Parts

### GT320R (L)



Through Hole Diameter

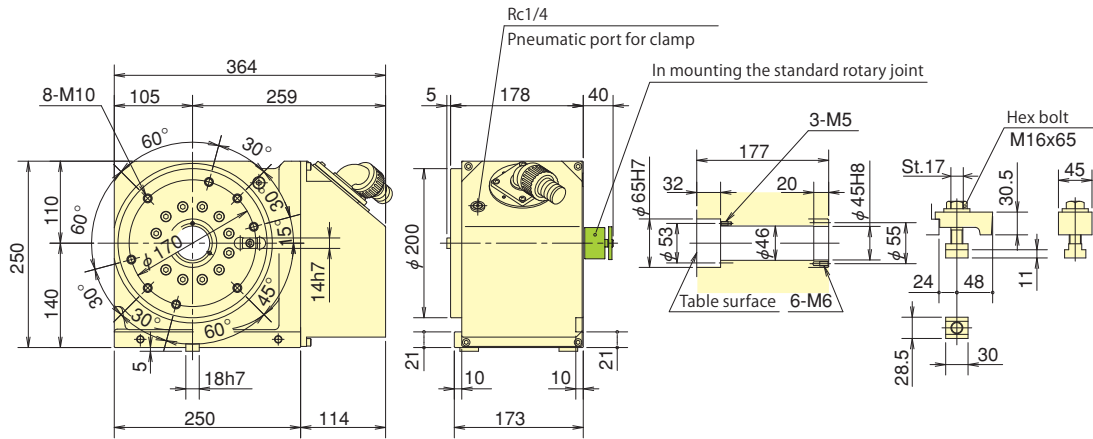
Clamping Parts

※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted. R is a right hand spec. and L is a left hand spec.

\*The dimensions may vary from motor to motor that is mounted.

### ■Dimensions [M signal specifications]

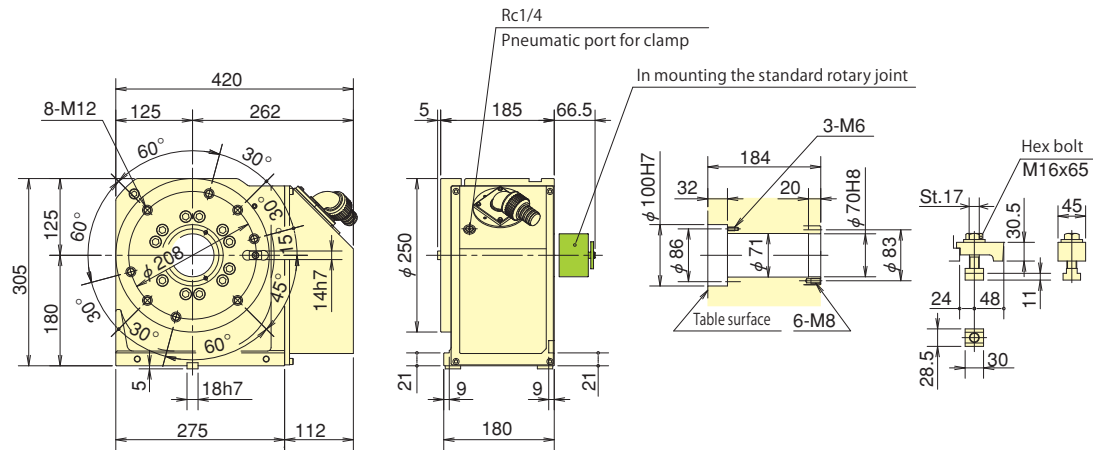
#### GT200R (L)



Through Hole Diameter

Clamping Parts

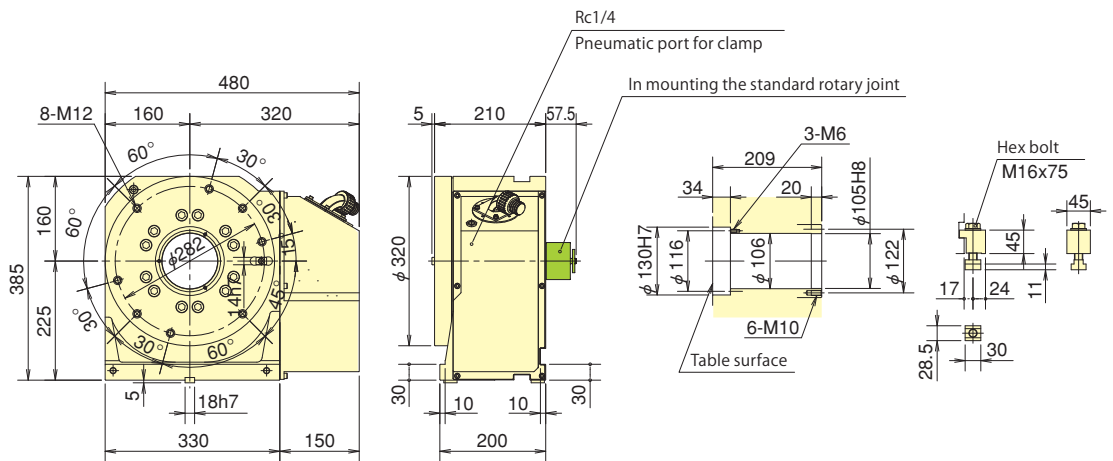
#### GT250R (L)



Through Hole Diameter

Clamping Parts

#### GT320R (L)



Through Hole Diameter

Clamping Parts

※R is a right hand spec. and L is a left hand spec.



# High Performance NC Rotary Table

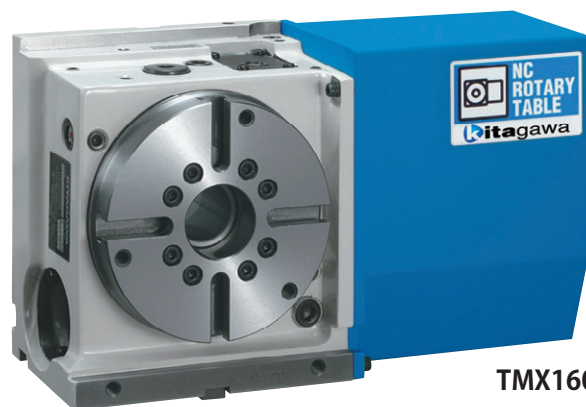
– Side motor mounted, Vertical or Horizontal Usage –

## TMX series

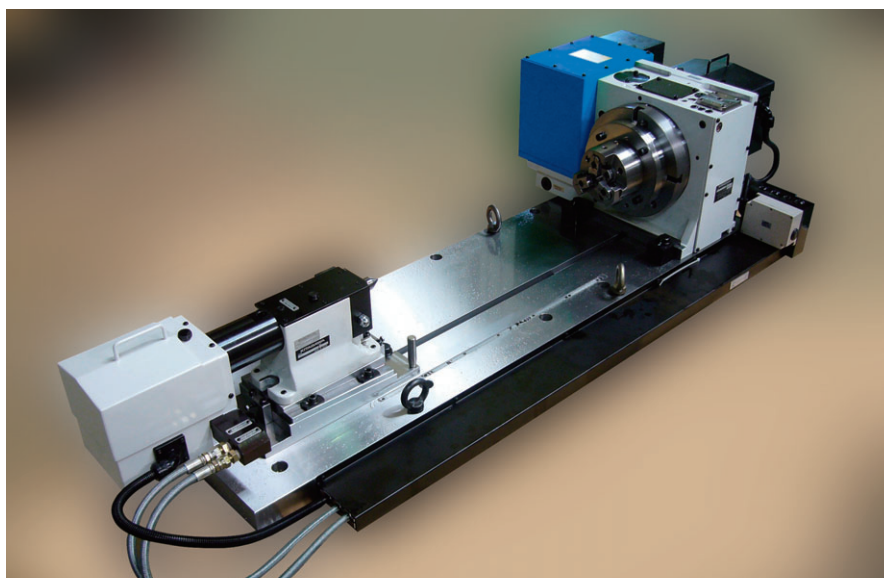
TMX160 • TMX200 • TMX250  
THX160 • THX200

## High performance range with high rigidity for heavy cutting

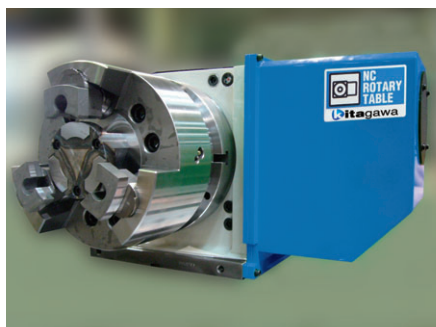
- High rigidity for heavy cutting
  - High accuracy
  - Built-in air-hydraulic booster provides high clamping torque (comparable to hydraulic) from a standard air supply
  - air-hydraulic booster or direct hydraulic clamping options available
  - Rotary joint options available
  - Can be used vertically and horizontally
  - Rotary scale can be fitted to further increase accuracy at additional axis specifications
- \*CE correspondence



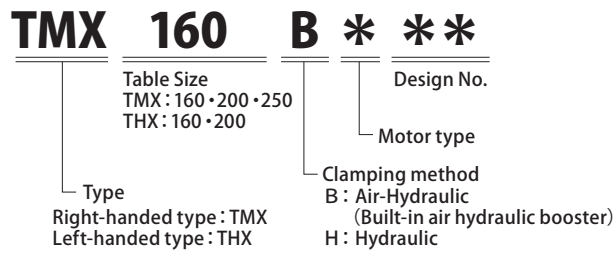
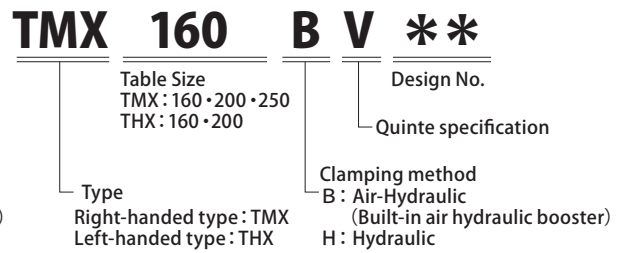
### Sample Application









▲Combine with tailstocks on P97 and 99 to suit machining of long work pieces.



▲Only Kitagawa can offer this combination of NC Rotary Table and chuck

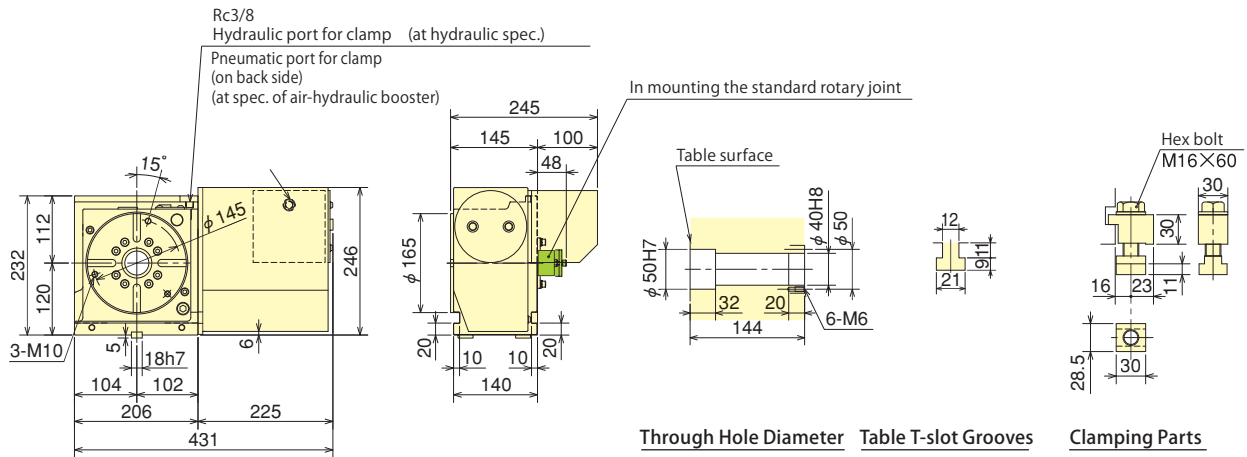
**additional axis specifications**

**M signal specifications**

**Specifications**

Model		TMX160	TMX200	TMX250
Right-handed type		○	○	○
Left-handed type		○	○	×
Table dia (mm)		φ165	φ200	φ250
Centre hole dia (mm)		φ50H7	φ75H7	φ105H7
Through hole dia (mm)		φ40	φ52	φ78
Centre height (mm)		120	140	180
Clamping method		Air-Hydraulic/Hydraulic	Air-Hydraulic/Hydraulic	Air-Hydraulic/Hydraulic
Clamping torque (at pneumatic 0.5MPa/hydraulic 3.5MPa) (N·m)		450	600	1100
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00012	0.00032	0.00056
Servomotor (for FANUC specification)		αiF 2/5000-B	αiF 4/5000-B	αiF 4/5000-B
Total reduction ratio		1/72	1/90	1/90
Max. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	33.3	33.3
	M signal specification(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	33.3	33.3
Allowable work inertia (kg·m <sup>2</sup> )		0.51	1.00	1.95
Indexing accuracy (sec)		20	20	20
Repeatability (sec)		4	4	4
Mass of product (kg)		56	71	101
Manual tailstock (as an option-P97 reference)		TS160RN	TS200RN	TS250RN
Tail spindle (as an option-P101 reference)		TSR121A	TSR142A(H)	TSR181A(H)
Rotary joint (as an option-P103 reference)		RJ40H16D01 Hydraulic/Pneumatic 4-port	RJ40H20D03 Hydraulic/Pneumatic 4-port	RJ70H25D05 Hydraulic/Pneumatic 6-port
Allowable mass of workpiece	Horizontal installation (kg) 	160	200	250
	Vertical installation (kg) 	80	100	125
Allowable load (When clamped to table)	F (kN) 	10	17	21
	F×L (N·m) 	600	1100	1600
	F×L (N·m) 	450	600	1100
Allowable cutting torque (Worm gear strength)	T (N·m) 	240	310	730

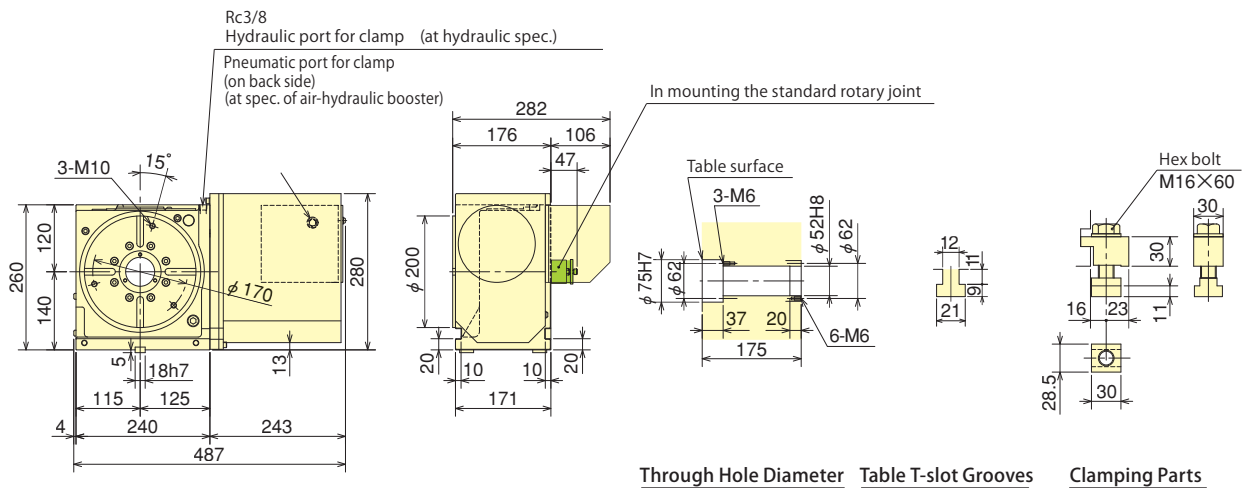
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. In case of air-hydro. clamp specification, the solenoid valve for table clamp is incorporated. 3. Solenoid valve is not incorporated in case of hydraulic clamp spec. Consequently, customer shall prepare it. 4. Neither cable nor hose is fitted between NC rotary table and machine tool... 5. In the port side on a table surface jig side of a rotary joint, TMX200 or 250 is fixed to the rotary table side, and TMX160 to jig side. 6. Each product mass is determined by a Kitagawa M signal spec.

## ■Dimensions [additional axis specifications]

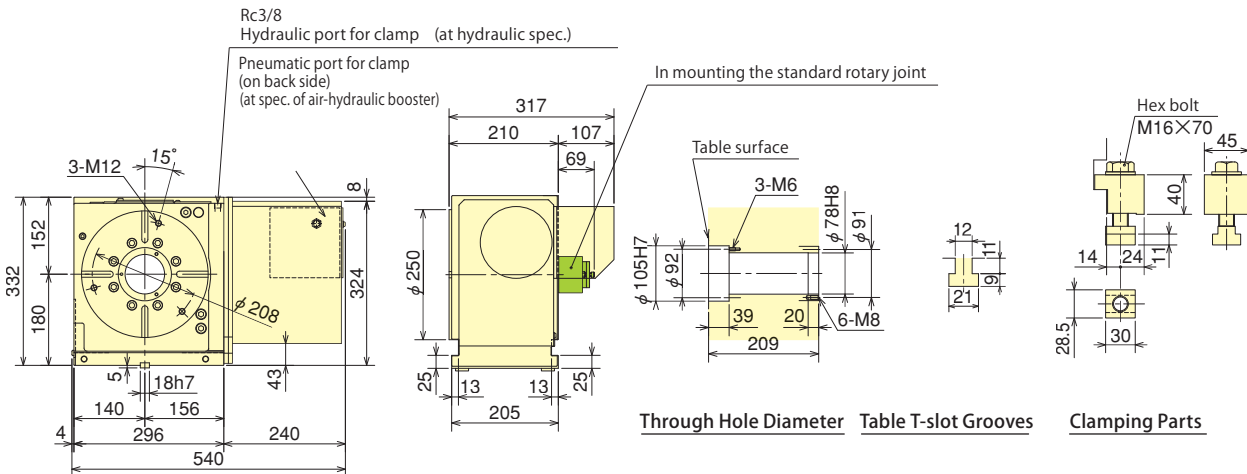
### TMX160 (THX)



### TMX200 (THX)



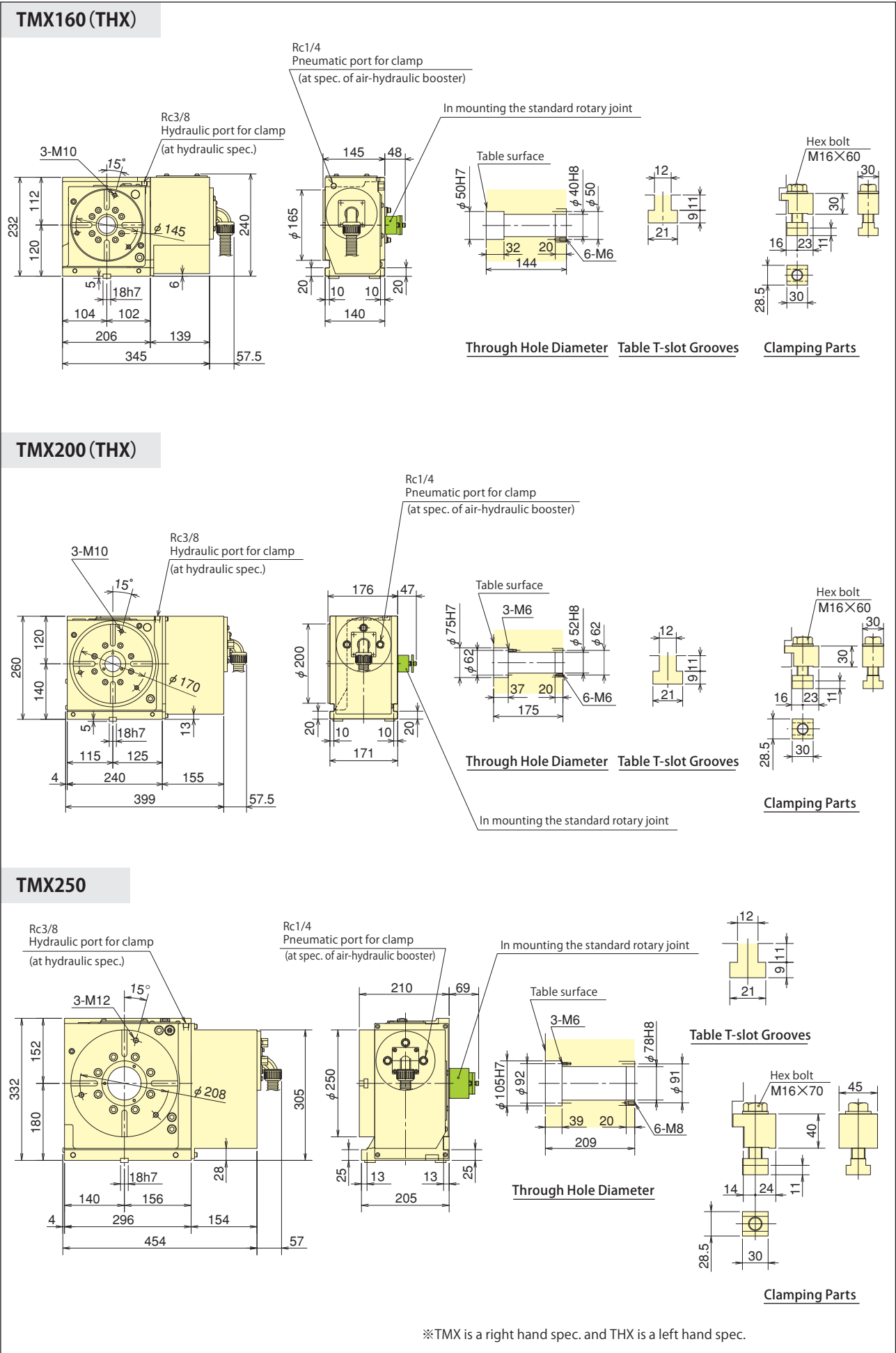
### TMX250



※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted. TMX is a right hand spec. and THX is a left hand spec.

\*The dimensions may vary from motor to motor that is mounted.

### ■Dimensions [M signal specifications]



※TMX is a right hand spec. and THX is a left hand spec.



# High Performance NC Rotary Table

—Side motor mounted, Vertical or Horizontal Usage—

## TR series

TRX320 • TR400 • TR500 • TR630  
TLX250 • TLX320 • TL400

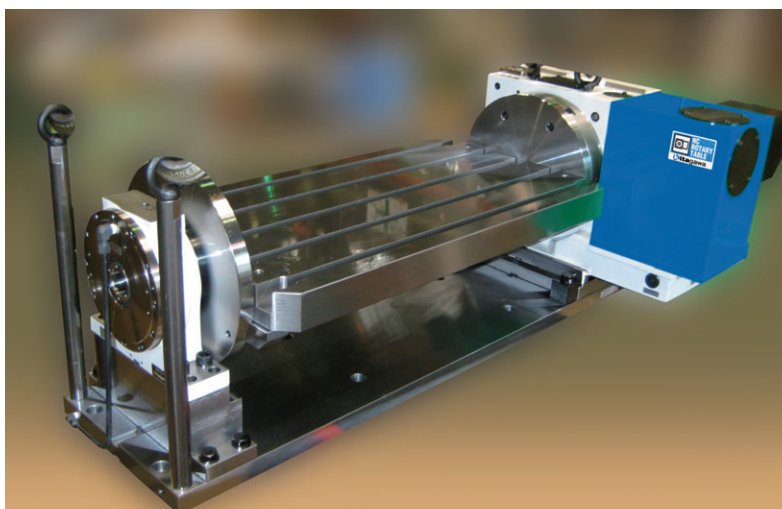
### High performance range for machining large work pieces

- High rigidity for heavy cutting
  - Air-hydraulic booster or direct hydraulic clamping options available
  - High accuracy
  - Hydraulic clamping torque obtained by pneumatic pressure via air hydraulic booster. (TRX,TLX)
  - Rotary joint options available
  - Vertically and horizontally installed type
  - Large through hole
  - Vertically mounted motor
  - Rotary scale can be fitted to further increase accuracy at additional axis specifications
- \*CE correspondence

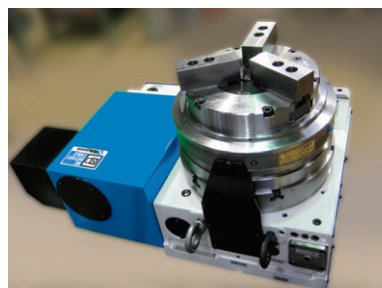
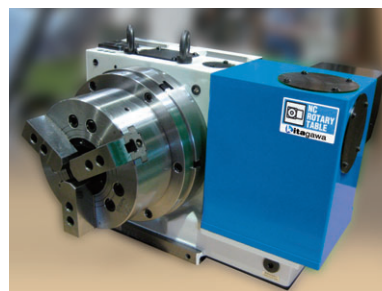


TRX320

### Sample Application



▲ Reduce cost by multifaceted processing and multi-processing simultaneously at the trunnion specification.



▲ Can be used vertically and horizontally. Left and right hand versions available to suit machining area.

#### additional axis specifications

**TRX 320 H \* \*\***

Table Size  
TRX : 320  
TLX : 250 • 320

Type  
Right-handed type : TRX  
Left-handed type : TLX

Design No.  
Motor type

Clamping method  
B : Air-Hydraulic  
(Built-in air hydraulic booster)  
H : Hydraulic

**TR 400 H 2 \* \*\***

Table Size  
TR : 400 • 500 • 630  
TL : 400

Type  
Right-handed type : TR  
Left-handed type : TL

Design No.  
Motor type

Gear Ratio  
2 : 1/180

Clamping method  
B : Air-Hydraulic  
(external air hydraulic booster)  
H : Hydraulic

#### M signal specifications

**TRX 320 H V \*\***

Table Size  
TRX : 320  
TLX : 250 • 320

Type  
Right-handed type : TRX  
Left-handed type : TLX

Design No.  
Quinte specification

Clamping method  
B : Air-Hydraulic  
(Built-in air hydraulic booster)  
H : Hydraulic

**TR 400 H V \*\***

Table Size  
TR : 400 • 500 • 630  
TL : 400







Type  
Right-handed type : TR  
Left-handed type : TL

Design No.  
Quinte specification

Clamping method  
B : Air-Hydraulic  
(external air hydraulic booster)  
H : Hydraulic

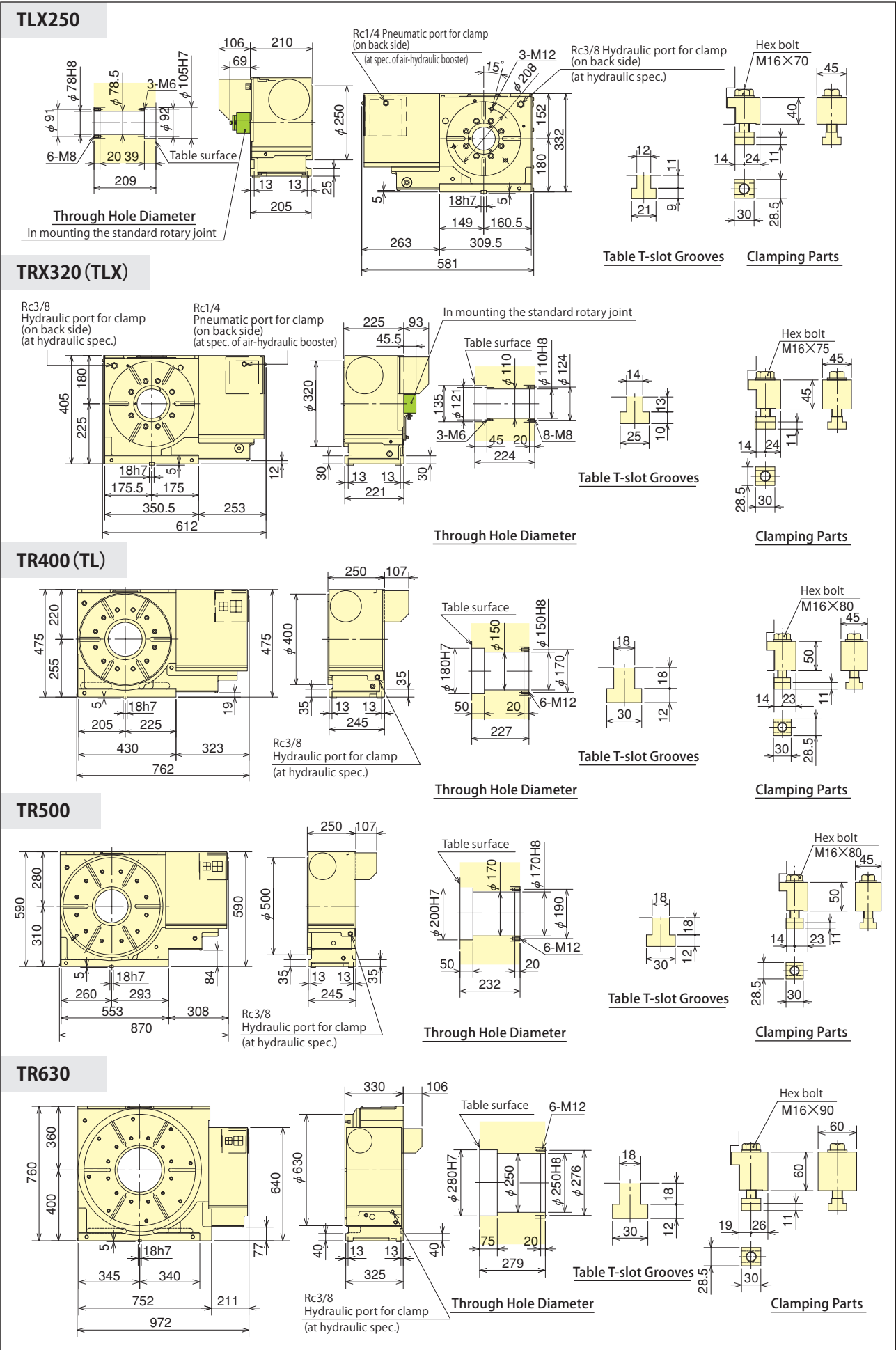


## ■ Specifications

Model		TLX250	TRX320(TLX)	TR400	TR500	TR630
Right-handed type		×	○	○	○	○
Left-handed type		○	○	○	○	×
Table dia (mm)		φ250	φ320	φ400	φ500	φ630
Centre hole dia (mm)		φ105H7	φ135H7	φ180H7	φ200H7	φ280H7
Through hole dia (mm)		φ78	φ110	φ150	φ170	φ250
Centre height (mm)		180	225	255	310	400
Clamping method		Air-Hydraulic/ Hydraulic	Air-Hydraulic/ Hydraulic	Air-Hydraulic/ Hydraulic	Air-Hydraulic/ Hydraulic	Air-Hydraulic/ Hydraulic
Clamping torque (Pneumatic TRX-TLX 0.5MPa、TR-TL 0.45MPa/Hydraulic 3.5MPa) (N·m)		1100	2600	2500	3200	4000
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00073	0.00085	0.0028	0.0028	0.0064
Servomotor (for FANUC specification)		αiF 4/5000-B	αiF 8/3000-B	αiF 12/4000-B	αiF 12/4000-B	αiF 22/3000-B
Total reduction ratio(Decel. Ratio in M signal)		1/90	1/120 (1/180)	1/180	1/180	1/180
Max. rotation speed	FANUC specification(min <sup>-1</sup> )	33.3 (at motor 3000min <sup>-1</sup> )	25 (at motor 3000min <sup>-1</sup> )	11.1 (at motor 2000min <sup>-1</sup> )	11.1 (at motor 2000min <sup>-1</sup> )	11.1 (at motor 2000min <sup>-1</sup> )
	M signal specification(min <sup>-1</sup> )	33.3 (at motor 3000min <sup>-1</sup> )	16.6 (at motor 3000min <sup>-1</sup> )	11.1 (at motor 2000min <sup>-1</sup> )	11.1 (at motor 2000min <sup>-1</sup> )	8.3 (at motor 1500min <sup>-1</sup> )
Allowable work inertia (kg·m <sup>2</sup> )		1.95	4.48	10.00	18.73	49.62
Indexing accuracy (sec)		20	20	20	20	20
Repeatability (sec)		4	4	4	4	4
Mass of product (kg)		142	181	350	550	900
Manual tailstock (as an option-P97 reference)		TS250RN	TS320RN	TS400RN	TS500RN	TS630RN
Tail spindle (as an option-P101 reference)		TSR181A(H)	TSR181(H)45	Order production	Order production	Order production
Rotary joint (as an option-P103 reference)		RJ70H25D05 Hydraulic/ Pneumatic 6-port	RJ70H32K02 Hydraulic/ Pneumatic 6-port	Order production	Order production	Order production
Allowable mass of workpiece	Horizontal installation (kg) 	250	350	500	600	1000
	Vertical installation (kg) 	125	180	250	300	400
Allowable load (When clamped to table)	F (kN) 	21	26	32	50	70
	F×L (N·m) 	1600	2500	5000	8000	10000
	F×L (N·m) 	1100	2600	2500	3200	4000
Allowable cutting torque (Worm gear strength)	T (N·m) 	730	1000	1700	2600	5000

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. In case of air-hyd. clamp specification, the solenoid valve for table clamp is incorporated. 3. Solenoid valve is not incorporated in case of hydraulic clamp method. Consequently, customer shall prepare it. 4. Neither cable nor hose is fitted between NC rotary table and machine tool... 5. In the port part on the table surface jig side of a rotary joint, TRX320 is fixed to the rotary table side, 6. Contact to Kitagawa about rotary joint and tail spindle of 400-size or more. 7. Each product mass is determined by a Kitagawa M signal spec.

### ■ Dimensions [additional axis specifications]



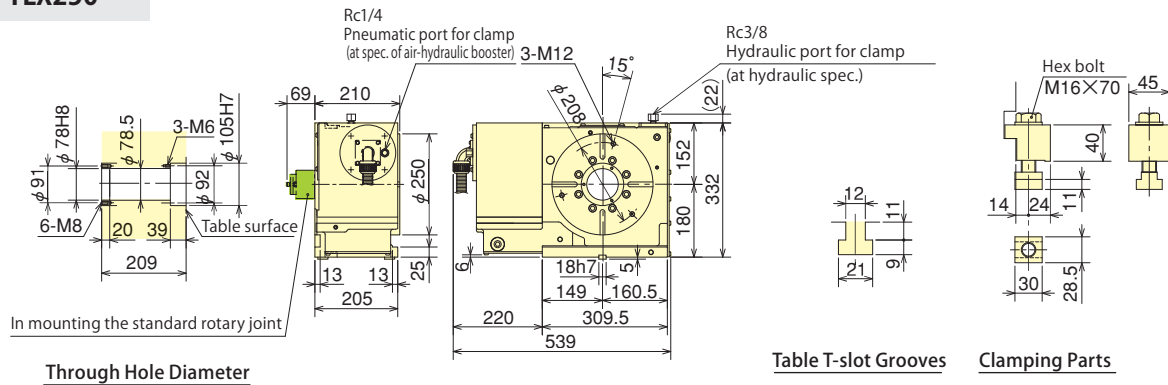
TR

※ The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted. TR・TRX is a right hand spec. and TL・TLX is a left hand spec.

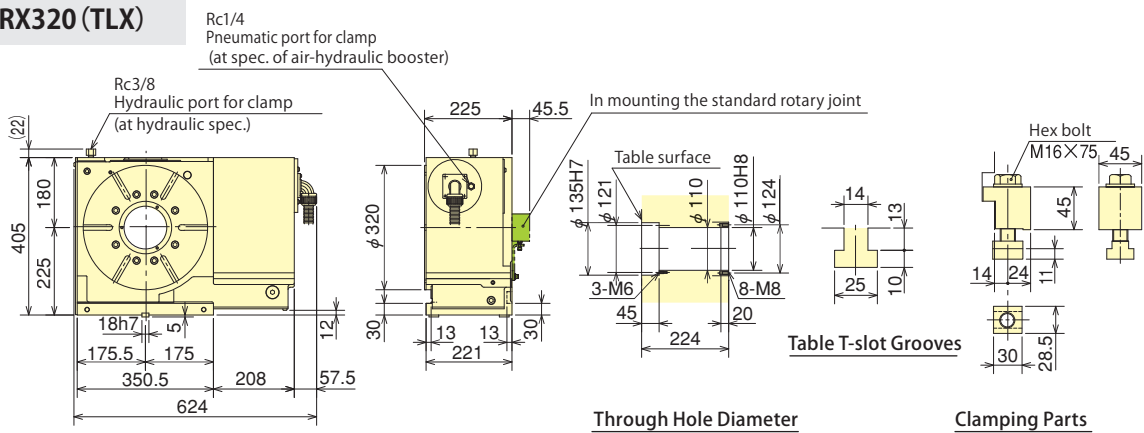
\*The dimensions may vary from motor to motor that is mounted.

## ■Dimensions [M signal specifications]

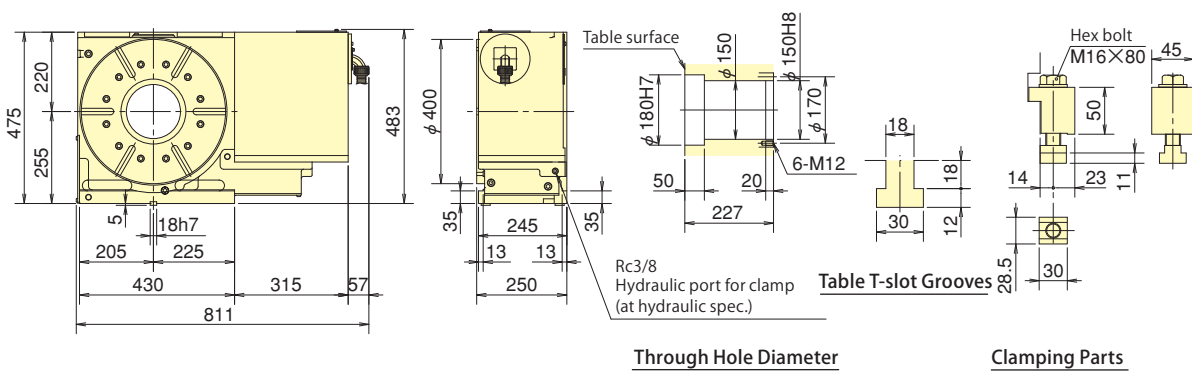
### TLX250



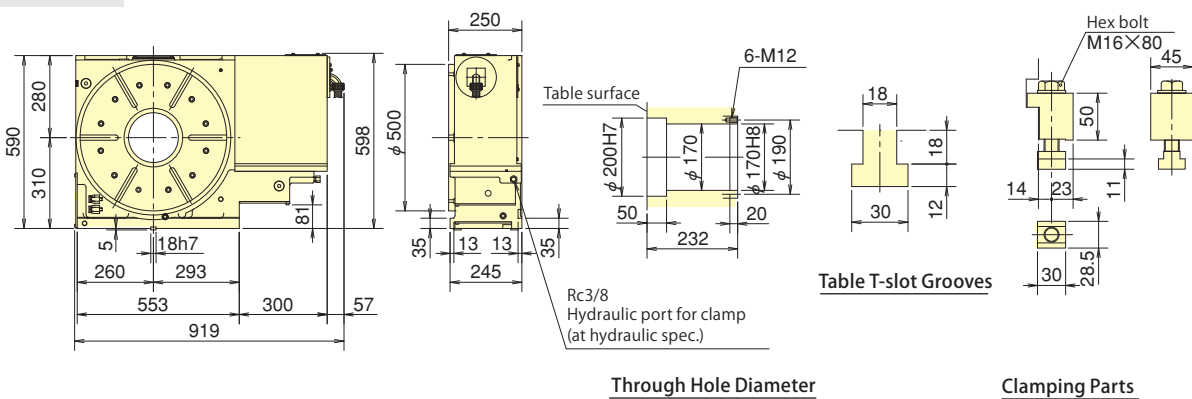
### TRX320 (TLX)



### TR400 (TL)



### TR500



※TR・TRX is a right hand spec. and TL・TLX is a left hand spec.

※Contact to Kitagawa on TR630 with Kitagawa own controller. Kitagawa about M signal spec. of 630-size.

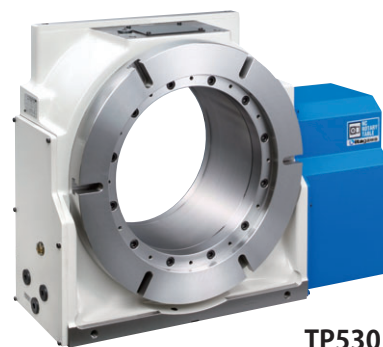


# Mega Thru-Hole NC Rotary Table

## TP series






### Suitable for machining large workpieces

- Suitable for machining large workpieces such as oil pipes
  - High accuracy heavy duty machining
  - Low weight and compact design
- \*CE correspondence



TP530

### Specifications

Model		TP430	TP530
Right-handed type		○	○
Left-handed type		Order production	Order production
Table dia (mm)		φ 430	φ 530
Centre hole dia (mm)		φ 300H7	φ 400H7
Through hole dia (mm)		φ 275	φ 345
Centre height (mm)		280	310
Clamping method		Air-Hydraulic/Hydraulic	Air-Hydraulic/Hydraulic
Clamping torque (at pneumatic 0.45MPa/hydraulic3.5MPa) (N·m)		4000	6100
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.0025	0.0025
Servomotor (for FANUC specification)		αiF12/3000-B	αiF12/4000-B
Total reduction ratio	additional axis specifications	1/120	1/180
	M signal	1/120	1/180
Max. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 2000min <sup>-1</sup> )	16.6	11.1
	M signal specification(min <sup>-1</sup> )	16.6 (at motor 2000min <sup>-1</sup> )	8.33 (at motor 1500min <sup>-1</sup> )
Allowable work inertia (kg·m <sup>2</sup> )		5.78	12.29
Indexing accuracy (sec)		20	20
Repeatability (sec)		4	4
Mass of product (kg)		276	350
Manual tailstock (as an option·P97 reference)		—	TS500RN
Tail spindle (Option)		Order production	Order production
Rotary joint(Option)		Order production	Order production
Allowable mass of workpiece	Vertical installation (kg) 	250	350
Allowable load (When clamped to table)	F (kN) 	32	50
	F×L (N·m) 	4500	8000
	F×L (N·m) 	4000	6100
Allowable cutting torque (Worm gear strength)	T (N·m) 	1895	2600

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC rotary tables. 2. In case of air-hyd. Clamp specification, the solenoid valve for table clamp is incorporated. 3. Solenoid valve is not incorporated in case of hydraulic clamp method. Consequently, customer shall prepare it. 4. Neither cable nor hose is fitted between NC rotary table and machine tool. 5. Contact to Kitagawa about rotary joint and tail spindle. 6. Each product mass is determined by Kitagawa M signal spec.

**additional axis specifications**

**TP 430 R \* \* \*\***

Type Table Size 430 · 530 Design No.  
 Motor type  
 Clamping method  
 B : Air-Hydraulic (external air hydraulic booster)  
 H : Hydraulic  
 Right/Left hand  
 R : Right-handed type  
 L : Left-handed type

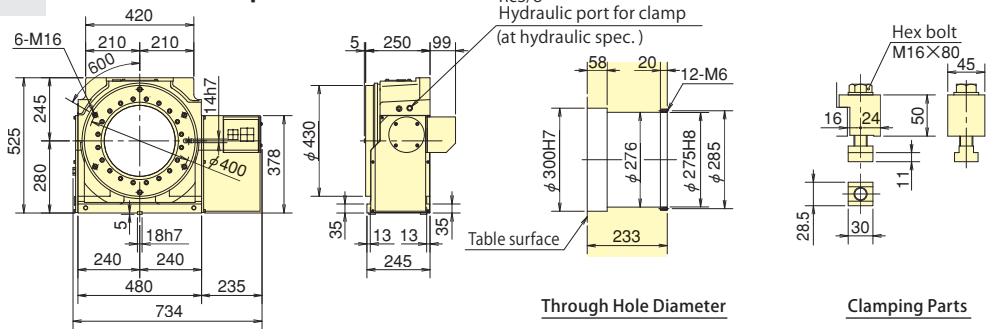
**M signal specifications**

**TP 430 R H V \*\***

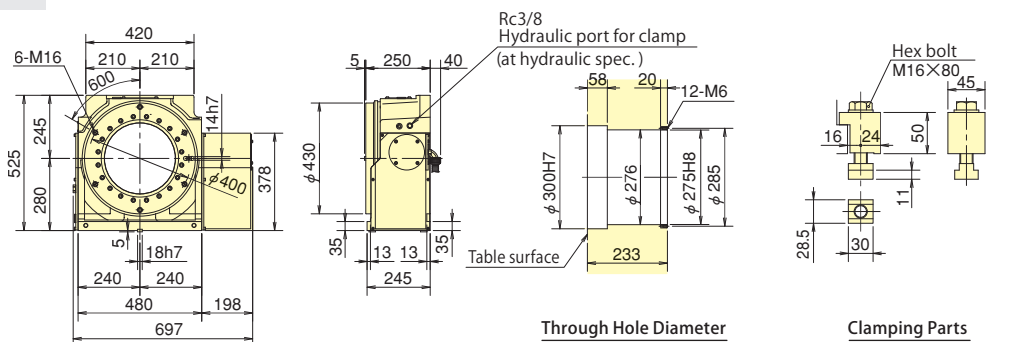
Type Table Size 430 · 530 Design No.  
 Quinte specification  
 Clamping method  
 B : Air-Hydraulic (external air hydraulic booster)  
 H : Hydraulic  
 Right/Left hand  
 R : Right-handed type  
 L : Left-handed type

**■Dimensions**

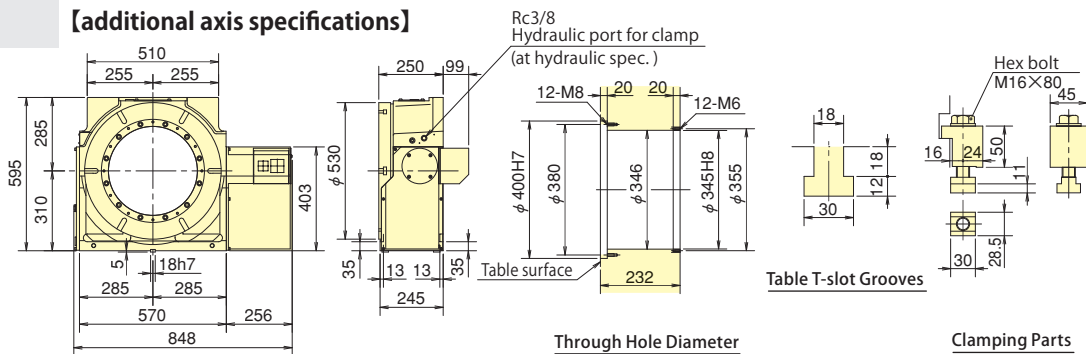
**TP430 [additional axis specifications]**



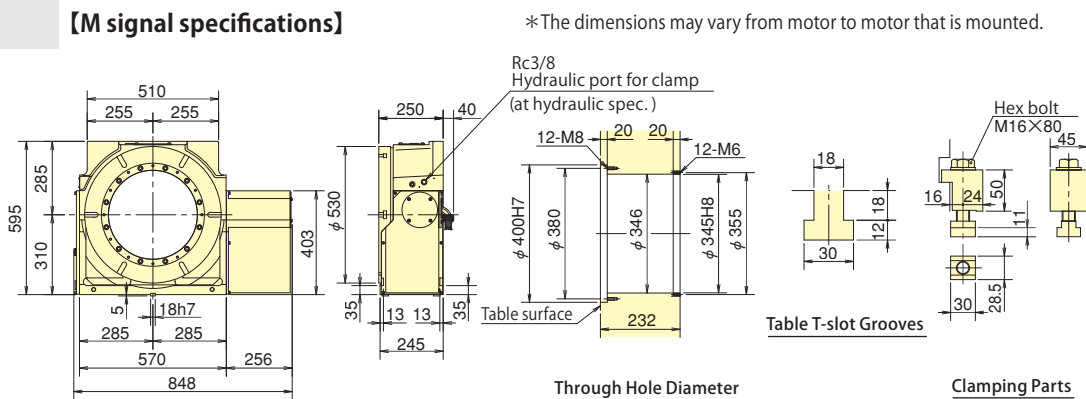
**TP430 [M signal specifications]**



**TP530 [additional axis specifications]**



**TP530 [M signal specifications]**



TP



## High Performance NC Rotary Table – Back side mounted motor

# TBX series

TBX160 • TBX200  
TBX250 • TBX320

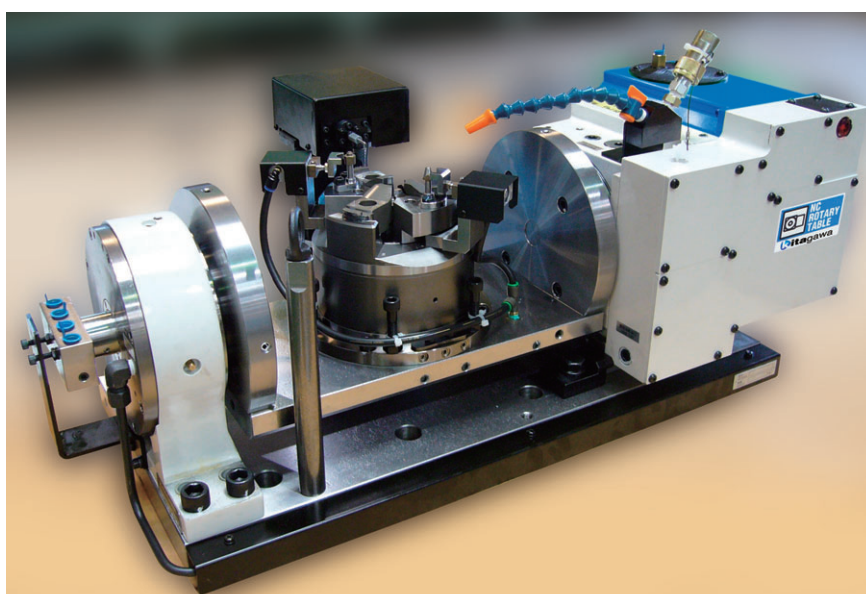
### High performance range with back mounted motor to reduce interference with machining area

- High rigidity for heavy cutting
  - High accuracy
  - Back side mounted motor type to reduce interference with machining area  
Space saving
  - Built-in air-hydraulic booster provides high clamping torque (comparable to hydraulic) from a standard air supply
  - Air-hydraulic booster or direct hydraulic clamping options available
- \*CE correspondence



TBX320

#### Sample Application



▲Space saving design reduces footprint size.







**additional axis specifications**

<b>TBX</b>	<b>160</b>	<b>B</b>	<b>*</b>	<b>*</b>	<b>*</b>
Type	Table Size 160 · 200 · 250 320	Design No.			
		Motor type			
		Clamping method B : Air-Hydraulic (Built-in air hydraulic booster) H : Hydraulic			

**M signal specifications**

<b>TBX</b>	<b>160</b>	<b>B</b>	<b>V</b>	<b>*</b>	<b>*</b>
Type	Table Size 160 · 200 · 250 320	Design No.			
		Quinte specification			
		Clamping method B : Air-Hydraulic (Built-in air hydraulic booster) H : Hydraulic			

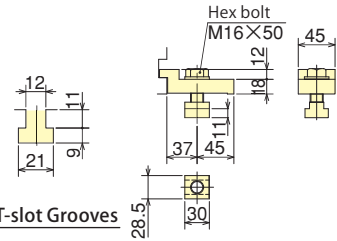
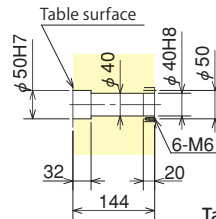
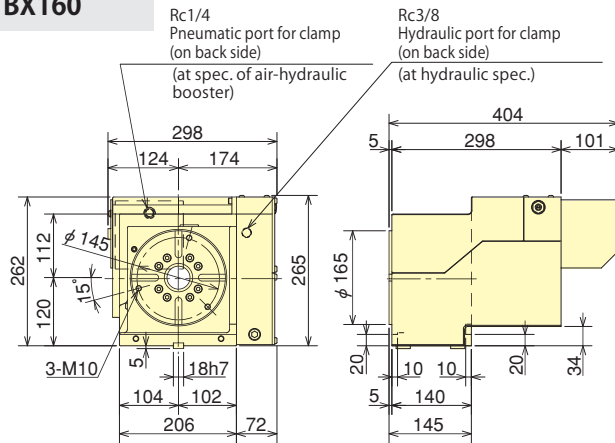
**Specifications**

Model		TBX160	TBX200	TBX250	TBX320
Table dia (mm)		φ165	φ200	φ250	φ320
Centre hole dia (mm)		φ50H7	φ75H7	φ105H7	φ135H7
Through hole dia (mm)		φ40	φ52	φ78	φ110
Centre height (mm)		120	140	180	225
Clamping method		Air-Hydraulic/Hydraulic	Air-Hydraulic/Hydraulic	Air-Hydraulic/Hydraulic	Air-Hydraulic/Hydraulic
Clamping torque (at pneumatic 0.5MPa/hydraulic 3.5MPa) (N·m)		450	600	1100	2600
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.00032	0.00087	0.00112	0.00147
Servomotor (for FANUC specification)		αiF 2/5000-B	αiF 4/5000-B	αiF 4/5000-B	αiF 8/3000-B
Total reduction ratio (Decel. Ratio in M signal)		1/72	1/90	1/90	1/120 (1/180)
Max. rotation speed	FANUC specification (min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	33.3	33.3	25
	M signal specification (min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	33.3	33.3	16.6
Allowable work inertia (kg·m <sup>2</sup> )		0.26 (0.52) <sup>Note6</sup>	0.50 (1.00) <sup>Note6</sup>	0.98 (1.96) <sup>Note6</sup>	2.24 (4.48) <sup>Note6</sup>
Indexing accuracy (sec)		20	20	20	20
Repeatability (sec)		4	4	4	4
Mass of product (kg)		66	74	135	220
Manual tailstock (as an option-P97 reference)		TS160RN	TS200RN	TS250RN	TS320RN
Tail spindle (as an option-P101 reference)		TSR121A	TSR142A(H)	TSR181A(H)	TSR181(H)45
Allowable mass of workpiece	Horizontal installation (kg) 	—	—	—	—
	Vertical installation (kg) 	80 (160) <sup>Note6</sup>	100 (200) <sup>Note6</sup>	125 (250) <sup>Note6</sup>	180 (360) <sup>Note6</sup>
Allowable load (When clamped to table)	F (kN) 	10	17	21	26
	F×L (N·m) 	600	1100	1600	2500
	F×L (N·m) 	450	600	1100	2600
Allowable cutting torque (Worm gear strength)	T (N·m) 	240	310	730	1000

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. In case of air + hyd. clamp specification, the solenoid valve for table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Solenoid valve is not incorporated in case of hydraulic clamp method. Consequently, customer shall prepare it. 5. Each product mass is determined by a Kitagawa M signal spec. 6. The value in ( ) is for using TS and TSR.

## ■ Dimensions [additional axis specifications]

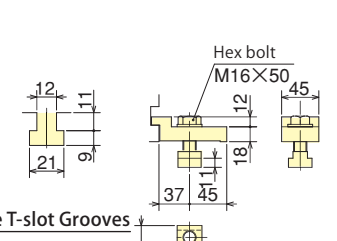
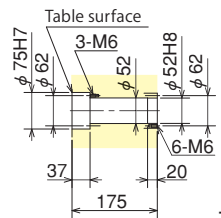
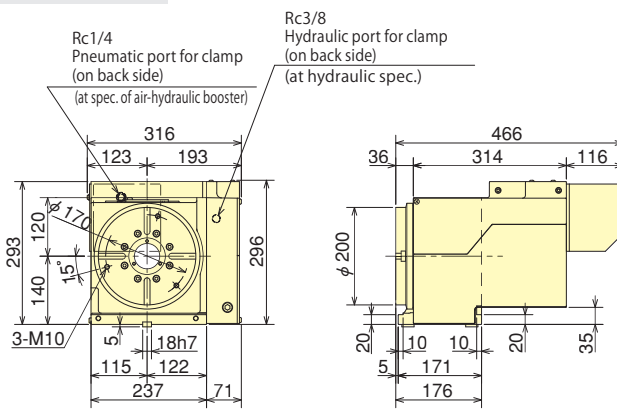
### TBX160



Through Hole Diameter

Clamping Parts

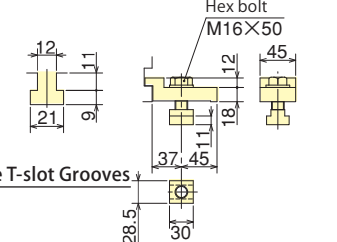
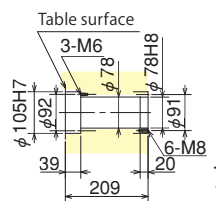
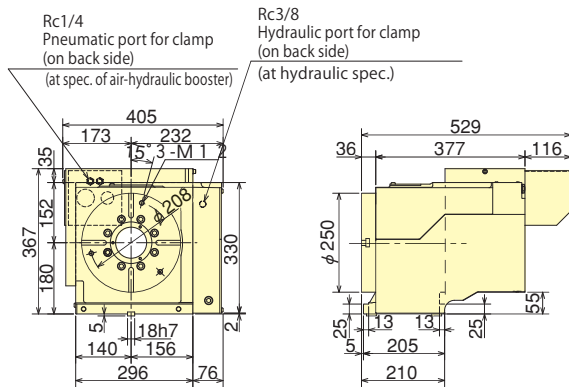
### TBX200



Through Hole Diameter

Clamping Parts

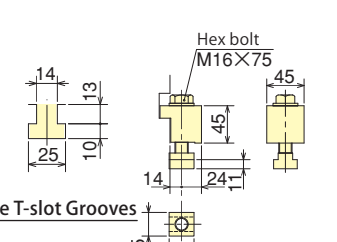
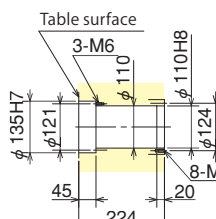
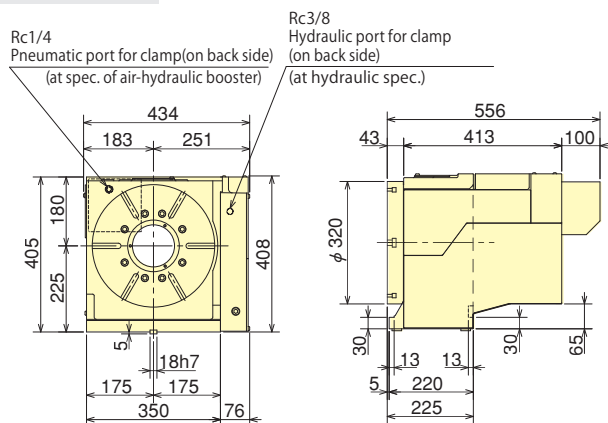
### TBX250



Through Hole Diameter

Clamping Parts

### TBX320



Through Hole Diameter

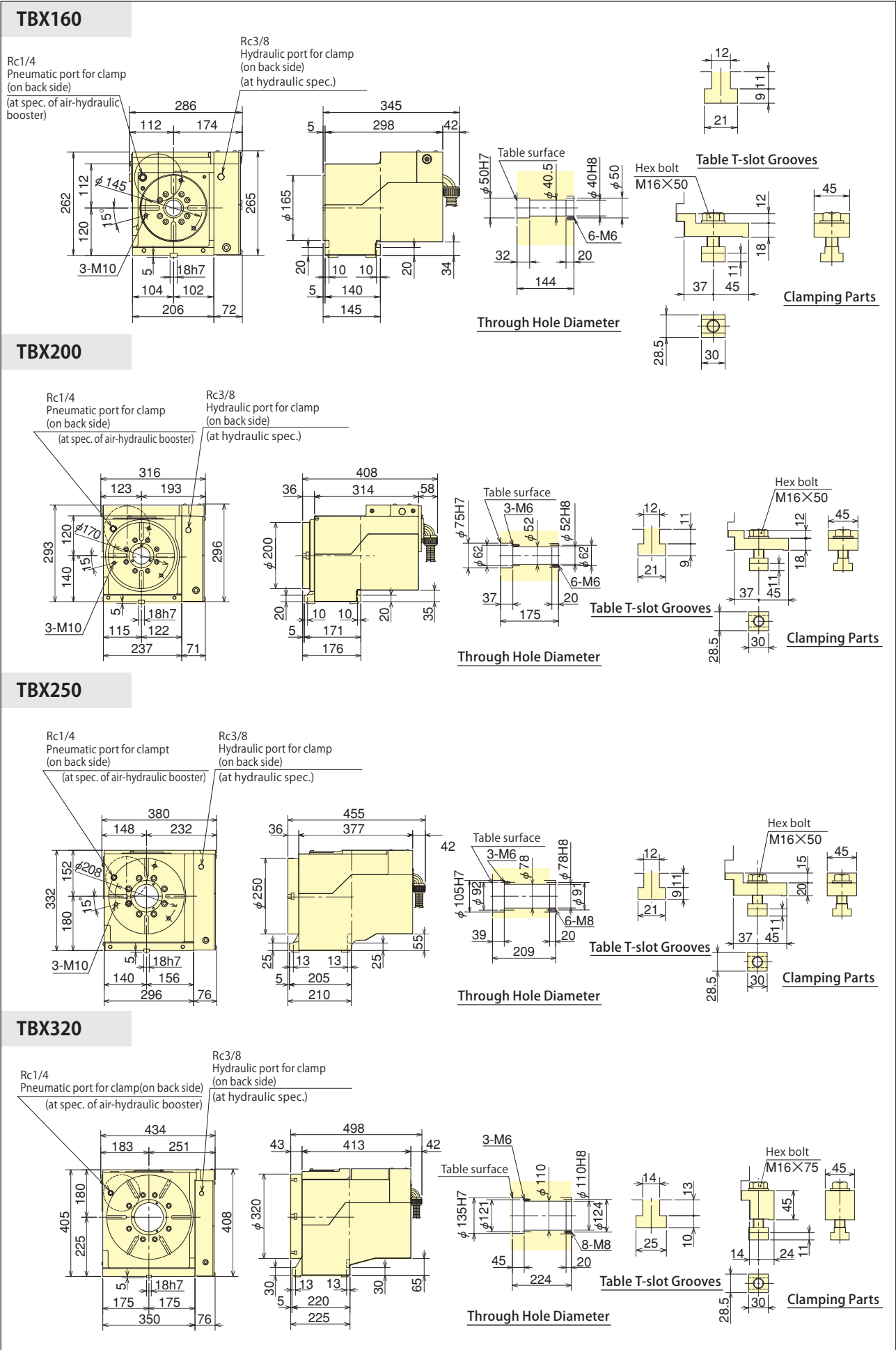
Clamping Parts

※The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.



\*The dimensions may vary from motor to motor that is mounted.

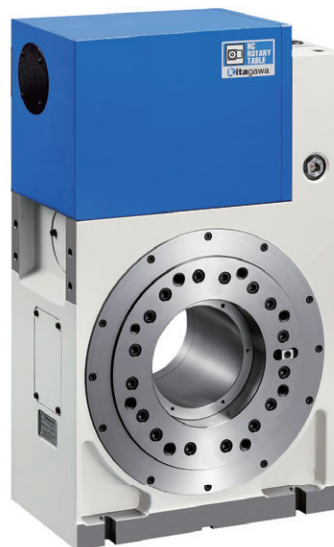
### ■Dimensions [M signal specifications]





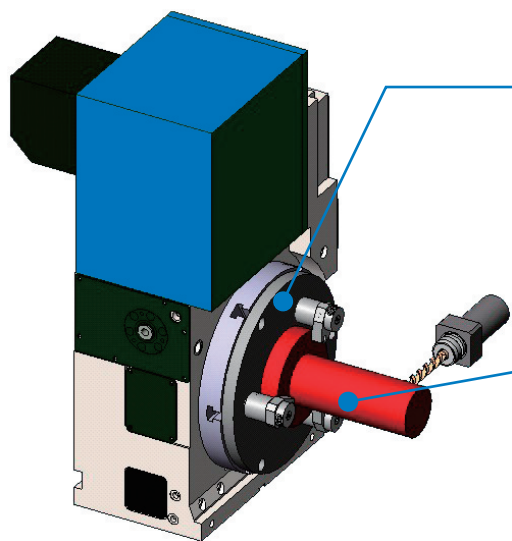
## High performance range suitable for 5th axis machining on horizontal machining centres

- High rigidity for heavy cutting
  - High accuracy
  - Suitable for horizontal 5th axis machining  
Top mounted motor position widens the cutting area
  - The largest clamping torque in its class  
7000Nm at 3.5MPa hydraulic(TUS400)
  - Abundant options
    - Various rotary joints
    - Rotary encoder, rotary scale
- \*CE対応品 CE correspondence



TUS400

### Machining time shortened by high rigidity



- **High rigidity**  
Original Kitagawa cross roller bearing provides high rigidity and allows for high cutting speeds.

- **Large through hole**  
Suitable for machining long work pieces.

#### additional axis specifications

**TUX 200 B \* \*\***

Type Table Size Design No.

200 • 250 • 320

Motor type

Clamping method  
B : Air-Hydraulic  
(Built-in air hydraulic booster)  
H : Hydraulic

#### M signal specifications

**TUX 200 B V \*\***

Type Table Size Design No.

200 • 250 • 320

Quinte specification

Clamping method  
B : Air-Hydraulic  
(Built-in air hydraulic booster)  
H : Hydraulic

**TUS 400 H \* \*\***

Type Table Size Design No.

400

Motor type

Clamping method  
H : Hydraulic  
B : Air-hydraulic  
(External air hydraulic booster)

**TUS 400 H V \*\***







Type Table Size Design No.

400

Quinte specification

Clamping method  
H : Hydraulic  
B : Air-hydraulic  
(External air hydraulic booster)

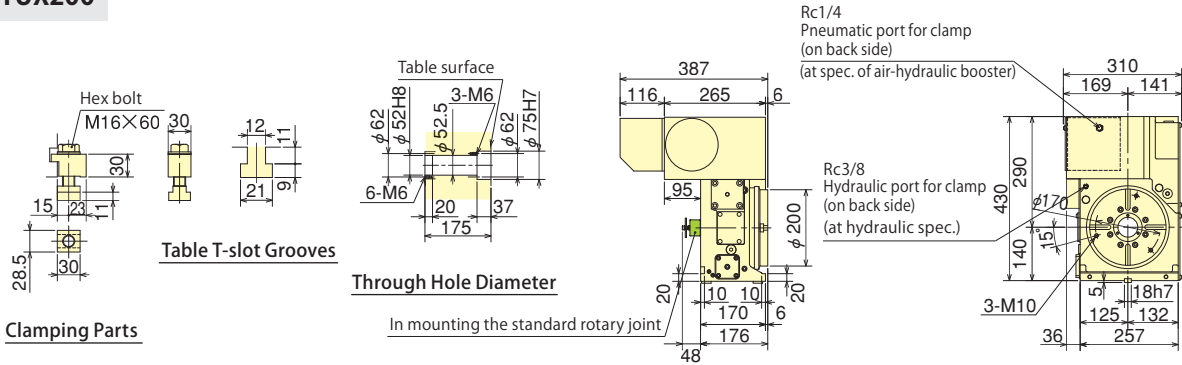
## ■ Specifications

Model		TUX200	TUX250	TUX320	TUS400
Table dia. (mm)		φ 200	φ 250	φ 320	φ 320
Face plate (Option)		—	—	—	φ 400 T-groove spec.
Centre hole dia. (mm)		φ 75H7	φ 105H7	φ 135H7	φ 190H7
Through hole dia. (mm)		φ 52	φ 78	φ 110	φ 154
Centre height (mm)		140	180	225	255
Clamping method		Air-hydraulic/Hydraulic	Air-hydraulic/Hydraulic	Air-hydraulic/Hydraulic	Air-hydraulic/Hydraulic
Clamping torque (N/m) (at Pneumatic 0.5MPa (TUX) , 0.45MPa (TUS) , or hydraulic 3.5MPa)		600	1100	2600	7000
Motor axis reduced inertia (kg · m <sup>2</sup> )		0.00055	0.00068	0.001	0.0065
Servo motor (Fanuc spec.)		α iF 4/5000-B	α iF 4/5000-B	α iF 8/3000-B	α iF 12/4000-B α iF 22/3000-B
Total reduction ratio		1/90	1/90	1/120	1/90
Max. rotation speed (min <sup>-1</sup> )	FANUC specification	33.3 (at motor 3000 min <sup>-1</sup> )	33.3 (at motor 3000 min <sup>-1</sup> )	25 (at motor 3000 min <sup>-1</sup> )	22.2 (at motor 2000 min <sup>-1</sup> )
	M signal specification	33.3 (at motor 3000 min <sup>-1</sup> )	33.3 (at motor 3000 min <sup>-1</sup> )	25 (at motor 3000 min <sup>-1</sup> )	22.2 (at motor 2000 min <sup>-1</sup> )
Allowable work inertia (kg · m <sup>2</sup> )		0.50(1.00) <sup>Note7</sup>	0.98(1.96) <sup>Note7</sup>	2.24(4.48) <sup>Note7</sup>	5.00(10.00) <sup>Note7</sup>
Indexing accuracy (sec)		20	20	20	20
Repeatability (sec)		4	4	4	4
Mass of product (kg)		87	142	200	300
Manual tailstock (as an option · P97 reference)		TS200RN	TS250RN	TS320RN	TS400RN
Tail spindle (as an option · P101 reference)		TSR142A (H)	TSR181A (H)	TSR181A (H) 45	Order production
Rotary joint (as an option · P103 reference)		Hydraulic/ pneumatic 4-port	Hydraulic/ pneumatic 6-port	Hydraulic/ pneumatic 6-port	Hydraulic/pneumatic 12-port +multi-purpose hole
Allowable mass of workpiece	Horizontal installation (kg) 	—	—	—	—
	Vertical installation (kg) 	100(200) <sup>Note7</sup>	125(250) <sup>Note7</sup>	180(360) <sup>Note7</sup>	250(500) <sup>Note7</sup>
Allowable load	F (kN) 	17	21	26	40
	F x L (N · m) 	1100	1600	2500	6000
	F x L (N · m) 	600	1100	2600	7000
Allowable cutting torque (Worm gear strength)	T (N·m) 	310	730	1000	1700

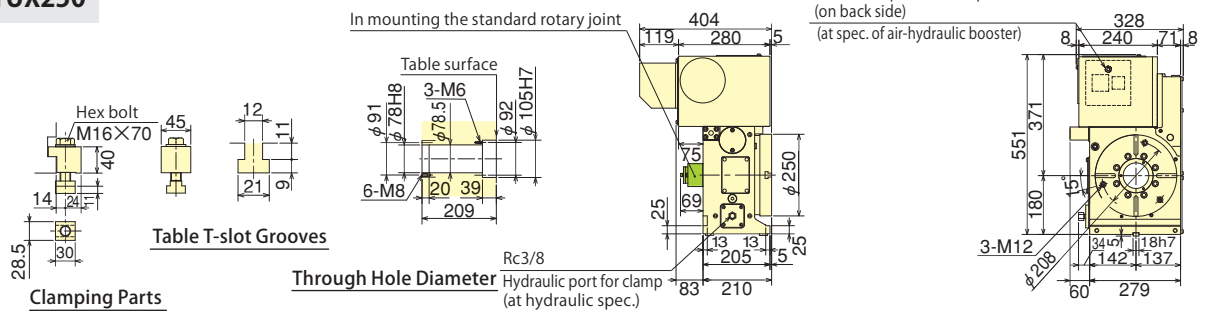
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC rotary tables. 2. In case of air-hydraulic pressure clamp specification, the solenoid valve for table clamp is incorporated. 3. Solenoid valve(s) is (are) not incorporated in case of hydraulic clamp method. Consequently, customer shall prepare it. 4. Neither cable nor hose is fitted between NC rotary table and machining centre. 5. The rotary joint is fixed to rotary table side for TUX and is fixed to jig side for TUS. 6. Each product mass is determined by a Kitagawa M signal spec. 7. The value in ( ) is for using TS and TSR.

## ■Dimensions [additional axis specifications]

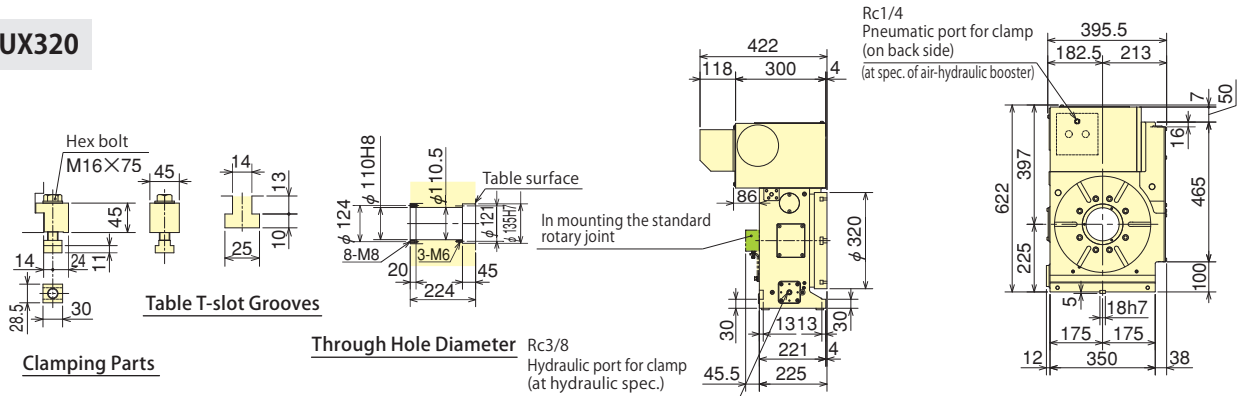
### TUX200



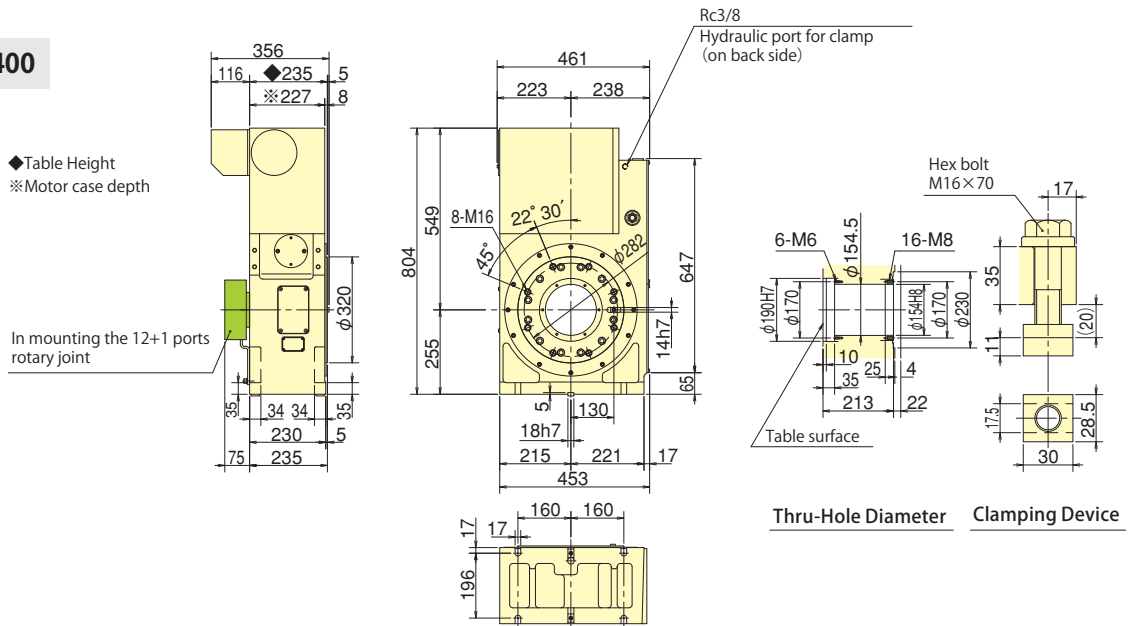
### TUX250



### TUX320



### TUS400

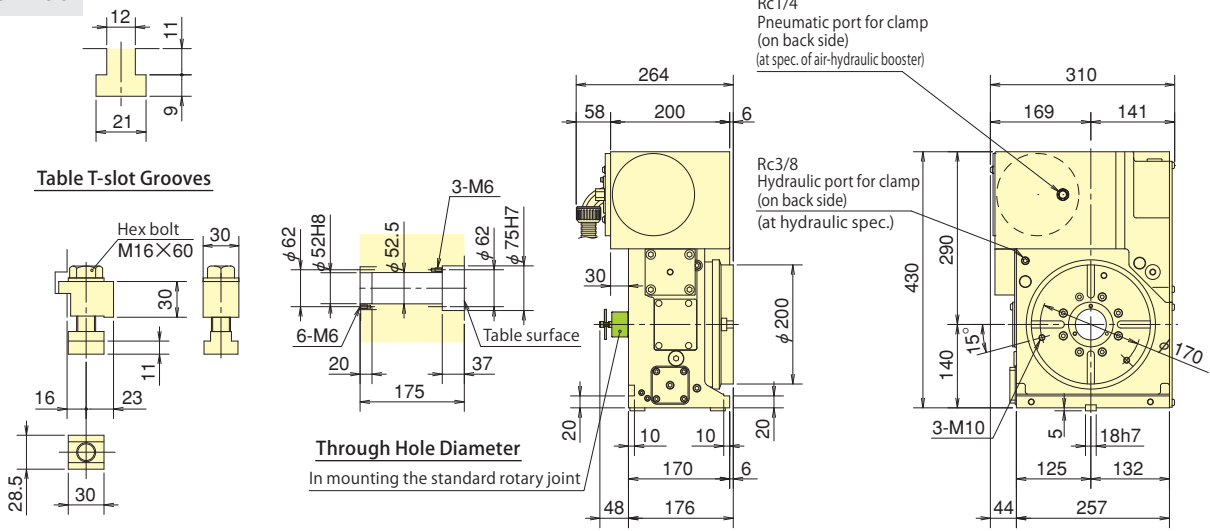


※The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.

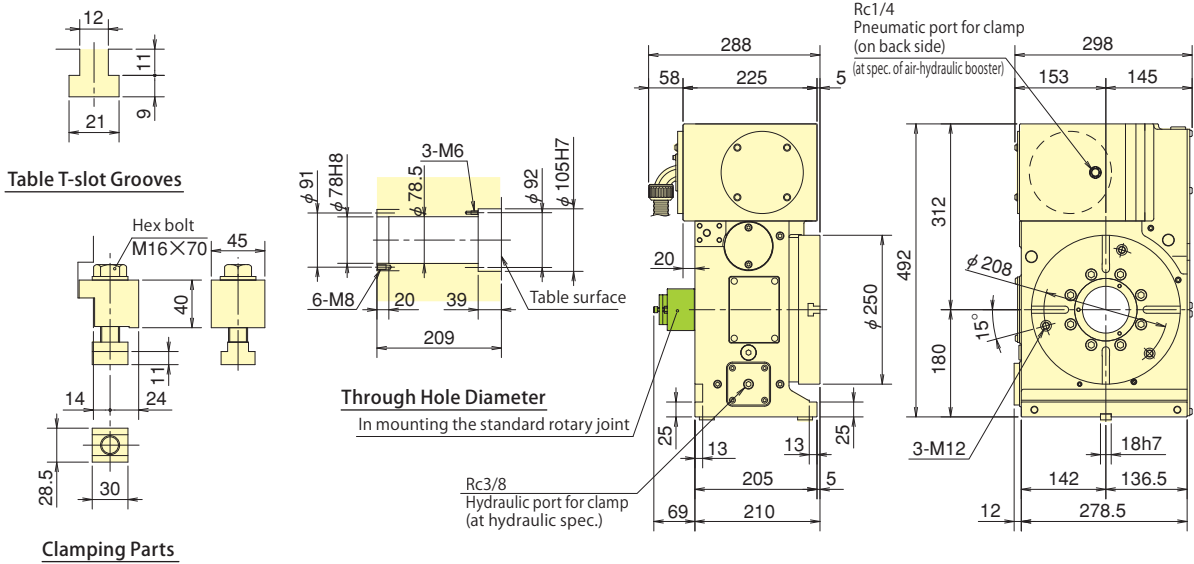
\*The dimensions may vary from motor to motor that is mounted.

### ■Dimensions [M signal specifications]

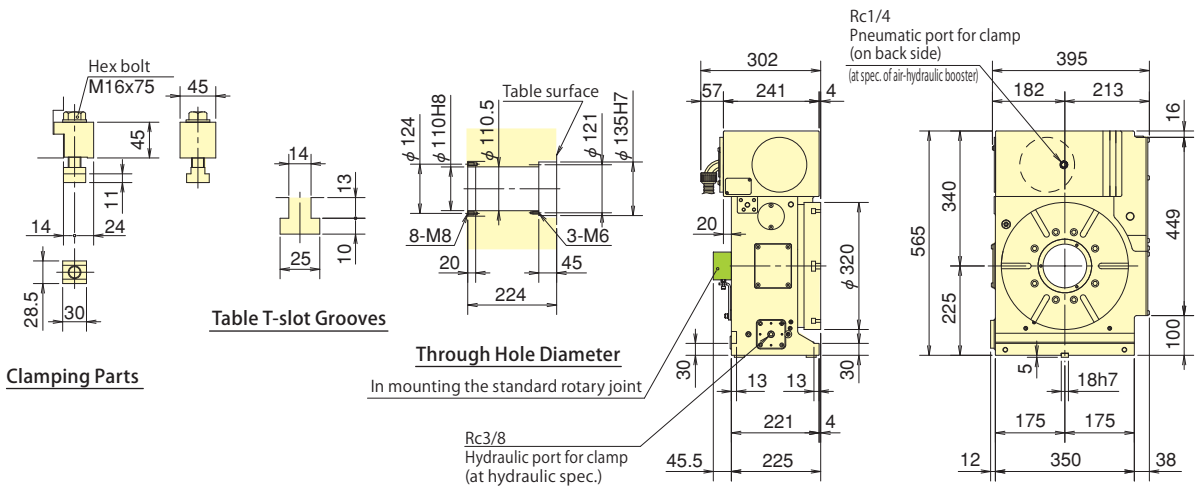
#### TUX200



#### TUX250



#### TUX320





## Multiple Spindle NC Rotary Table

**TM series** TM2100 • TM3100 • TM2160 • TM3160  
TH2100 • TH3100 • TH2160 • TH3160

### Multiple spindle range for multiple work piece machining Reduces set up time and increases productivity

- Mono-block body & compact design
  - Ideal for tapping machines with high speed rotation
  - Working time reduced
  - Multiple spindle for simultaneous work piece machining
- \*CE correspondence



#### Sample Application



▲Work holding device combining NC Rotary Table and Chuck.

### additional axis specifications

※Table Size 100 can be used for only pneumatic type.

**TM 2 160 H \* \*\***

Type	Table Size 100・160	Design No.
TM: Right-handed type TH: Left hand type	Number of tables 2・3	Motor type A : Pneumatic B : Air-Hydraulic (External air hydraulic booster) H : Hydraulic

### M signal specifications

※Table Size 100 can be used for only pneumatic type.

**TM 2 160 H V \*\***

Type	Table Size 100・160	Design No.
TM: Right-handed type TH: Left hand type	Number of tables 2・3	Quinte specification A : Pneumatic B : Air-Hydraulic (External air hydraulic booster) H : Hydraulic

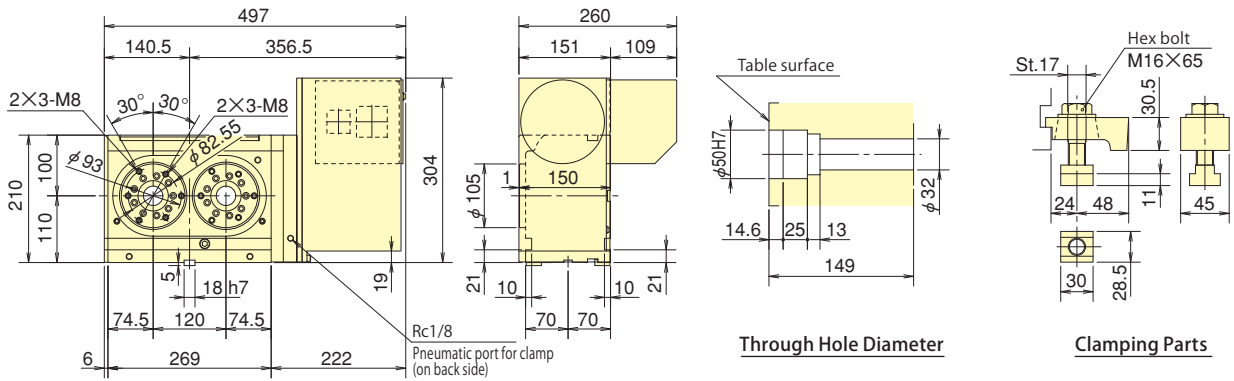
## Specifications

Model		TM2100	TM3100	TM2160	TM3160
Right-handed type		○	○	○	○
Left-handed type		○	○	○	○
Table dia (mm)		φ105	φ105	φ165	φ165
Centre hole dia (mm)		φ50H7	φ50H7	φ50H7	φ50H7
Through hole dia (mm)		φ32	φ32	φ40	φ40
Centre height (mm)		110	110	140	140
Clamping method		Pneumatic	Pneumatic	Pneumatic/Air-Hydraulic/ Hydraulic	Pneumatic/Air-Hydraulic/ Hydraulic
Clamping torque(N·m)	Pneumatic 0.5MPa	117	117	176	176
	air-Hydraulic 0.45MPa Hydraulic 3.5MPa	—	—	400	400
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.000353	0.000475	0.000145	0.000188
Servomotor (for FANUC specification)		αiF 4/5000-B	αiF 4/5000-B	αiF 4/5000-B	αiF 4/5000-B
Total reduction ratio(Decel. Ratio in M signal)		1/36	1/36 (1/60) <sup>Note7</sup>	1/90	1/90 (1/120)
Max. rotation speed	FANUC specification(min <sup>-1</sup> )	83.3 (at motor 3000min <sup>-1</sup> )	69.4 (at motor 2500min <sup>-1</sup> )	33.3 (at motor 3000min <sup>-1</sup> )	33.3 (at motor 3000min <sup>-1</sup> )
	M signal specification(min <sup>-1</sup> )	83.3 (at motor 3000min <sup>-1</sup> )	50 (at motor 3000min <sup>-1</sup> )	33.3 (at motor 3000min <sup>-1</sup> )	16.6 (at motor 2000min <sup>-1</sup> )
Allowable work inertia (kg·m <sup>2</sup> )		0.054	0.054	0.51	0.51
Indexing accuracy (sec)		60	60	30	30
Repeatability (sec)		5	5	4	4
Mass of product (kg)		85	100	100	150
Manual tailstock (as an option-P98 reference)		TS2100RN	TS3100RN	TS2160RN	TS3160RN
Allowable mass of workpiece	Horizontal installation (kg)	60	60	160	160
	Vertical installation (kg)	30	30	80	80
Allowable load (When clamped to table)	F (kN)	6	6	10	10
	F×L (N·m)	200	200	600	600
	F×L (N·m)	117	117	176(Pneumatic) 400(Air-Hydraulic)	176(Pneumatic) 400(Air-Hydraulic)
Allowable cutting torque (Worm gear strength)	T (N·m)	180	180	300	300

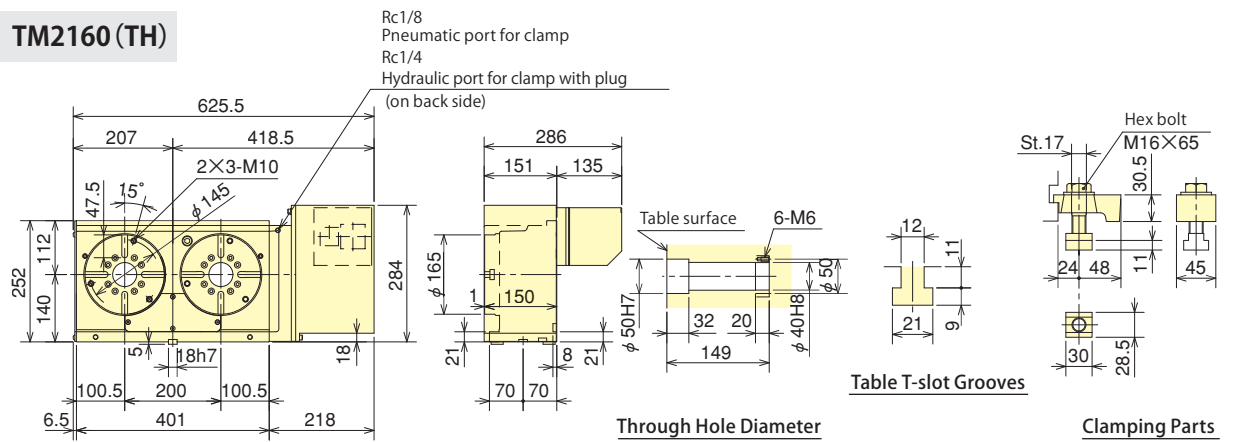
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. In case of air/air-hydraulic clamp specifications, the solenoid valve(s) for table clamp is (are) incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Solenoid valve is not incorporated in case of hydraulic clamp method. Consequently, customer shall prepare it. 5. Each product mass is determined by a Kitagawa M signal spec. 6. Contact to Kitagawa about rotary joint and tail spindle. 7. In case of additional axis specification of Brother, the gear ratio will be 1/60.

### ■Dimensions [additional axis specifications]

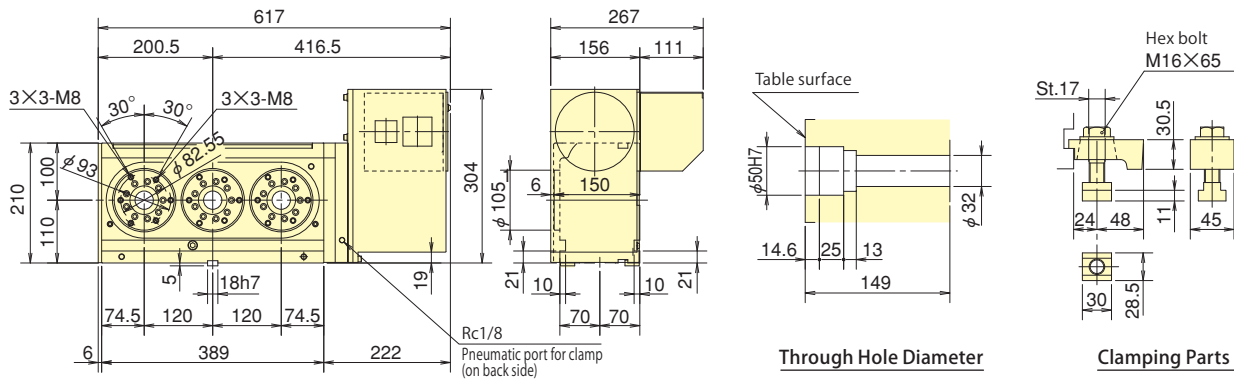
#### TM2100 (TH)



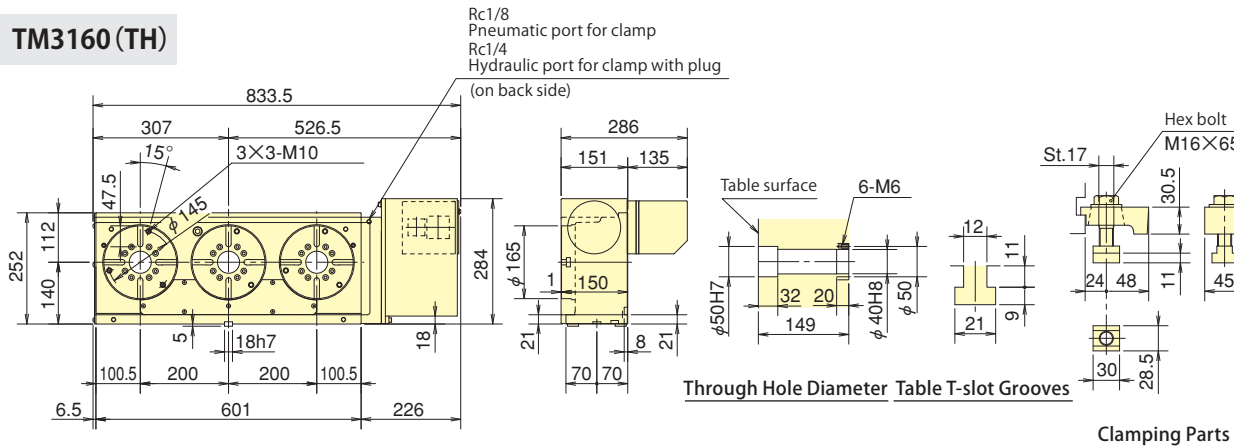
#### TM2160 (TH)



#### TM3100 (TH)



#### TM3160 (TH)



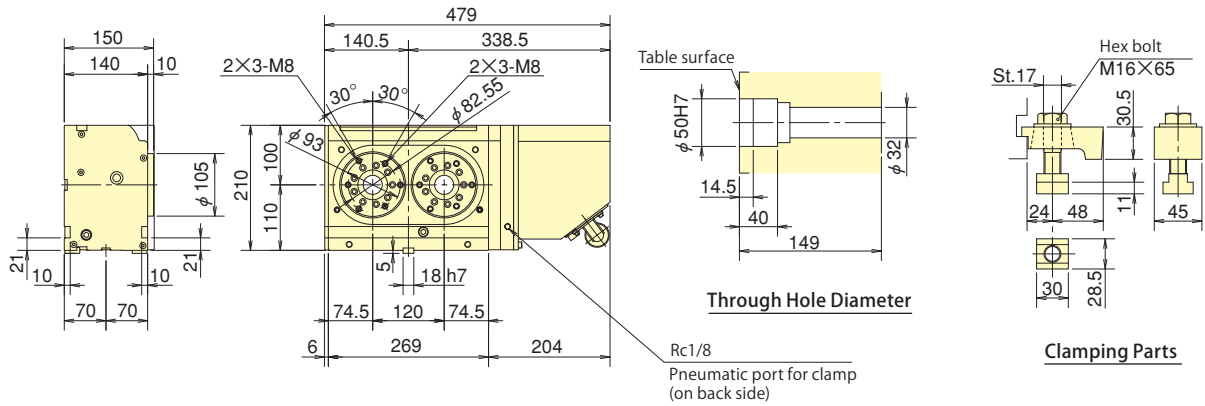
※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted. TM is a right hand spec. and TH is a left hand spec.



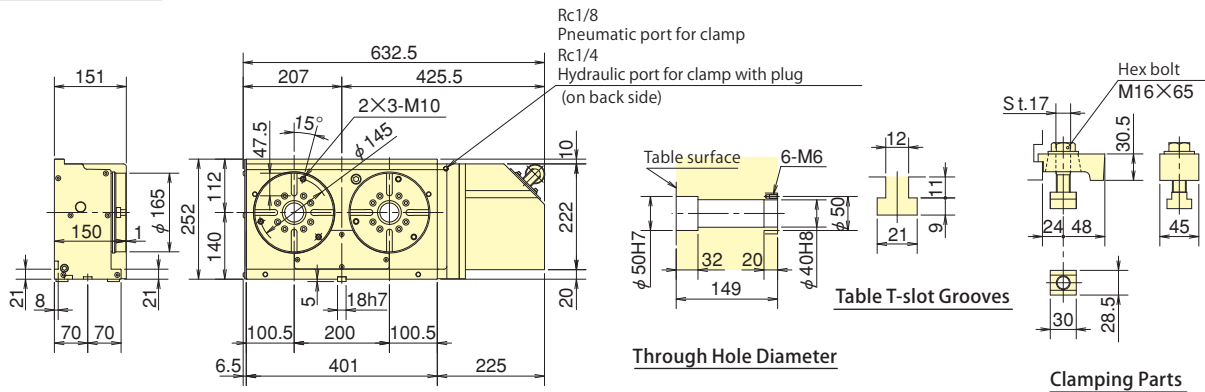
\*The dimensions may vary from motor to motor that is mounted.

### ■Dimensions [M signal specifications]

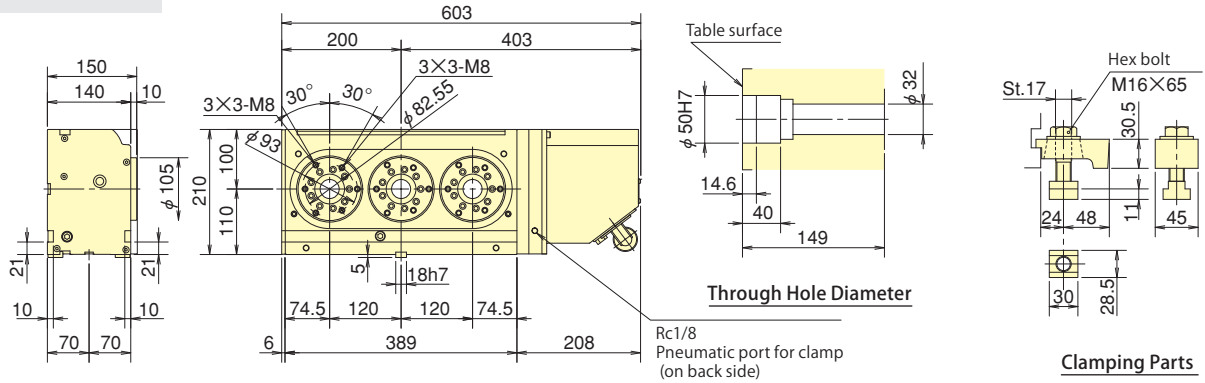
#### TM2100 (TH)



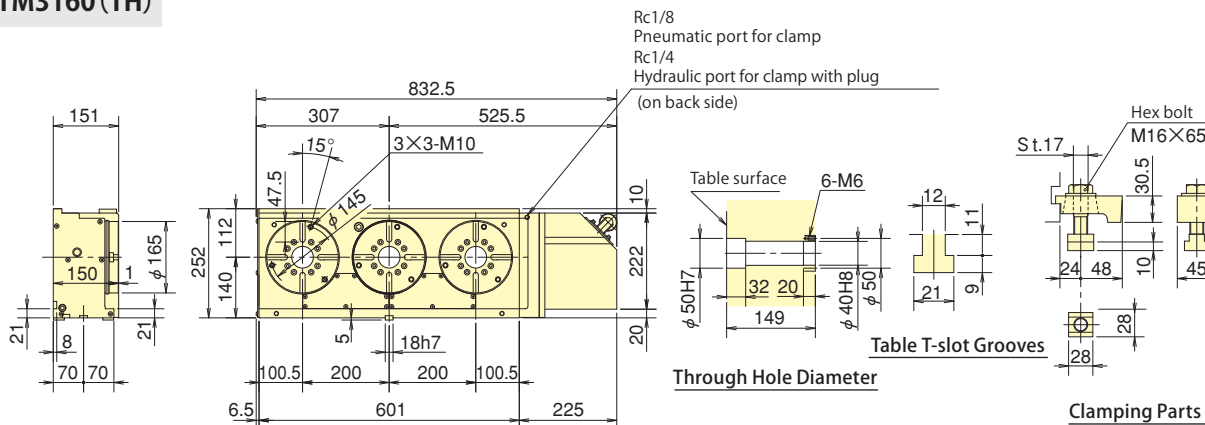
#### TM2160 (TH)



#### TM3100 (TH)



#### TM3160 (TH)



※TM is a right hand spec. and TH is a left hand spec.



## Compact Type NC Tilting Rotary Table

# TT101·TW120

※TW is Straight tilting table

## Compact tilting range to suit 5 axis machining on small work pieces

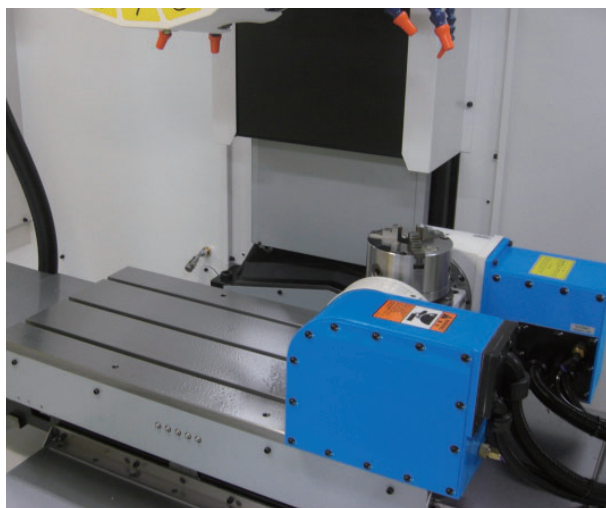
- Minimum size in its class
  - Light weight
  - High rigidity
  - High speed rotation
  - Rotary Joint built in as option
  - Cylinder mountable
  - Pneumatic clamping specification
  - Ideal design for compact machining centres
- ※CE correspondence



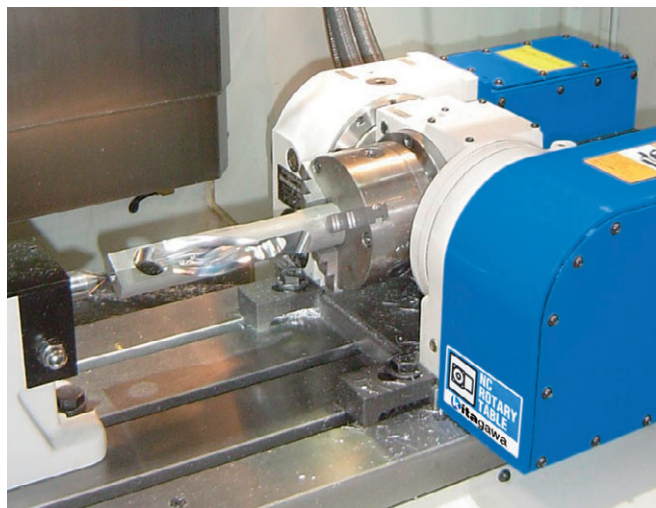
TT101

※In specification with the foreign trade control ordinance, permission of the ministry of economy, trade and industry is required when exporting twin axis products overseas.

### Sample Application










▲Only Kitagawa can offer this combination of NC Rotary Table and chuck



▲Combine with tailstock on P97, 99 to suit machining of long work pieces.

additional axis specifications				M signal specifications			
<b>TT</b>	<b>101</b>	<b>A</b>	<b>* * *</b>	<b>TT</b>	<b>101</b>	<b>A</b>	<b>V * *</b>
Table Size TT : 101 TW : 120		Design No.		Table Size TT : 101 TW : 120		Design No.	
Type		Tilting axis motor type		Type		Quinte specification	
TT : STD type TW : Tilting straight type (only 120 size)		Rotary axis motor type		TT : STD type TW : Tilting straight type (only 120 size)		Clamping method Only Pneumatic	
		Clamping method Only Pneumatic				Clamping method Only Pneumatic	

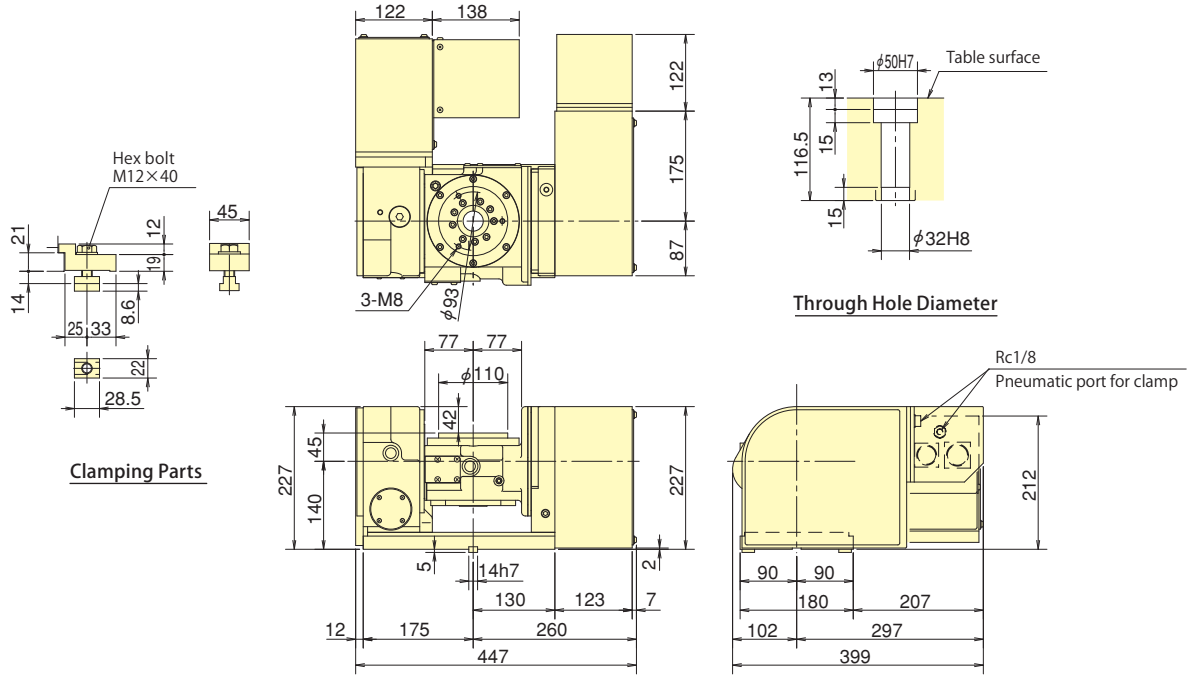
## Specifications

Model		TT101	TW120	
Tilting angle range		-20° ~ +120°	-20° ~ +110°	
Table dia (mm)		φ110	φ125	
Centre hole dia (mm)		φ50H7	φ60H7	
Through hole dia (mm)		φ32	φ32	
Centre height (mm)		140	150	
Clamping method		Pneumatic	Pneumatic	
Clamping torque(N-m) (In pneumatic 0.5MPa) (N-m)	Rotating axis	180	120	
	Tilting axis	300	200	
Motor axis reduced inertia(kg · m <sup>2</sup> )	Rotating axis	0.000082	0.000072	
	Tilting axis	0.000081	0.000034	
Servomotor (for FANUC specification)		Rotating axis αiF 1/5000-B Tilting axis αiF 2/5000-B	αiF 2/5000-B	
Total reduction ratio	Rotating axis	1/72	1/90	
	Tilting axis	1/120	1/180	
Max. rotation speed	FANUC specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	33.3
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	25	16.6
	M signal specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6	33.3
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	25	16.6
Allowable work inertia(kg·m <sup>2</sup> )		0.05	0.06	
Indexing accuracy (sec)	Rotating axis	30	30	
	Tilting axis	60	60	
Repeatability (sec)		4	4	
Mass of product (kg)		73	105	
Rotary joint (Option-P103 reference)		RJ32-10T05 Hydraulic/Pneumatic 3-port	RJ32-12T08 Hydraulic/Pneumatic 3-port	
Allowable mass of workpiece	at horizontal (kg)	 35	35	
	at tilted (kg)	 20	20	
Allowable load (When clamped to table)	F (kN)	 4	4	
	F×L (N-m)	 300	200	
	F×L (N-m)	 180	120	
Allowable cutting torque (Worm gear strength)	T(N-m)	 160	190	
Moment of tilting weight capacity	W×L (kgf · m)	 7	10	

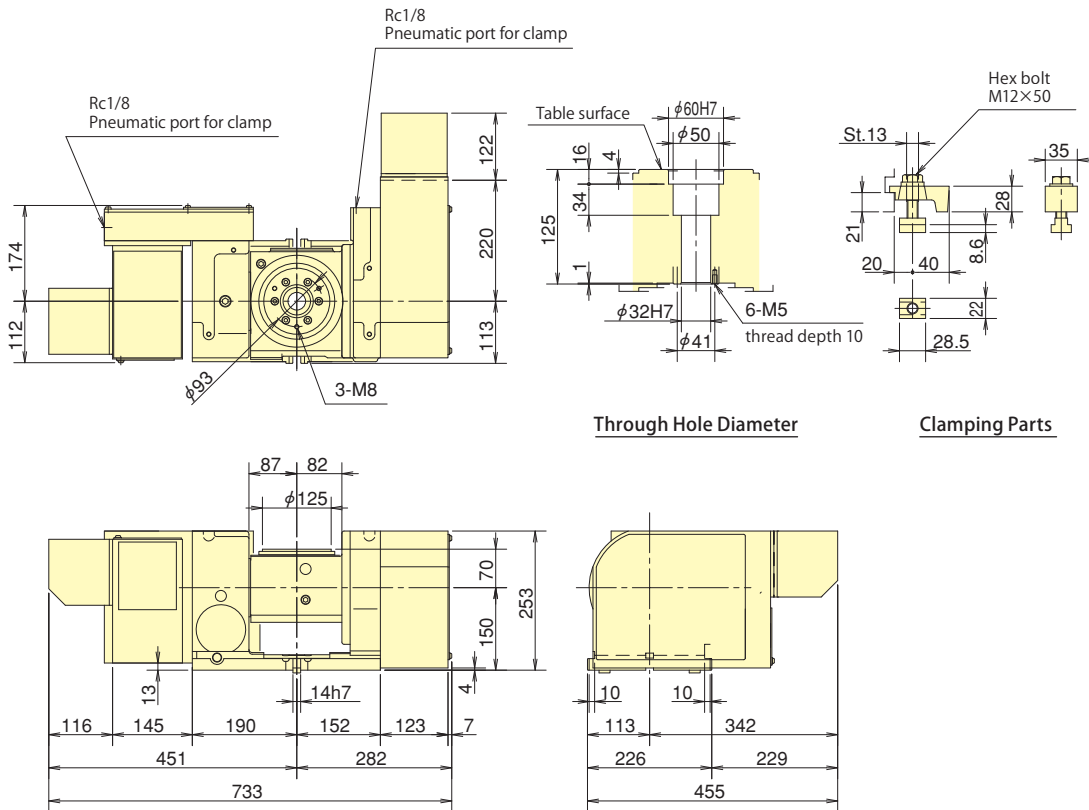
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Each product mass is determined by a Kitagawa M signal spec. 5. Contact to Kitagawa about rotary joint.

## ■Dimensions [additional axis specifications]

### TT101



### TW120



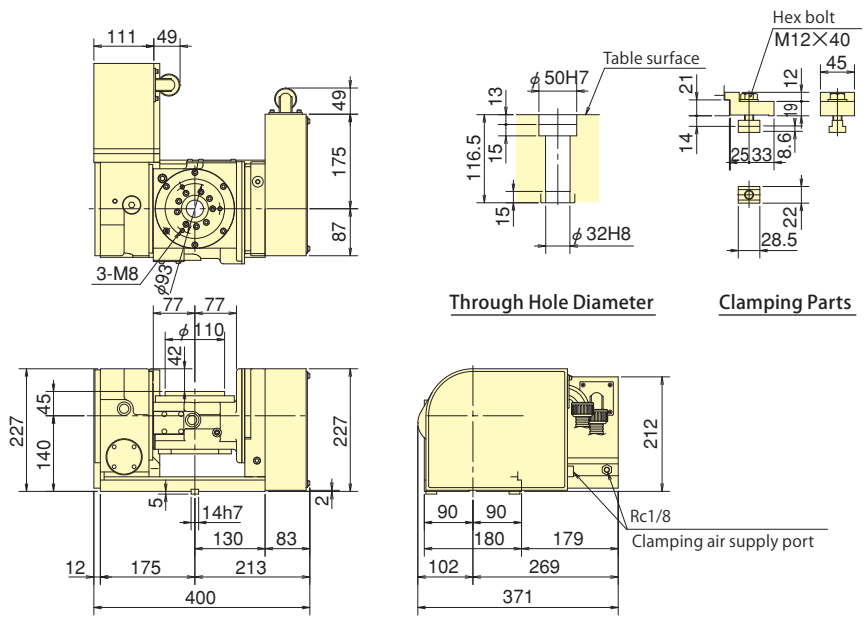
### TW120

※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted.

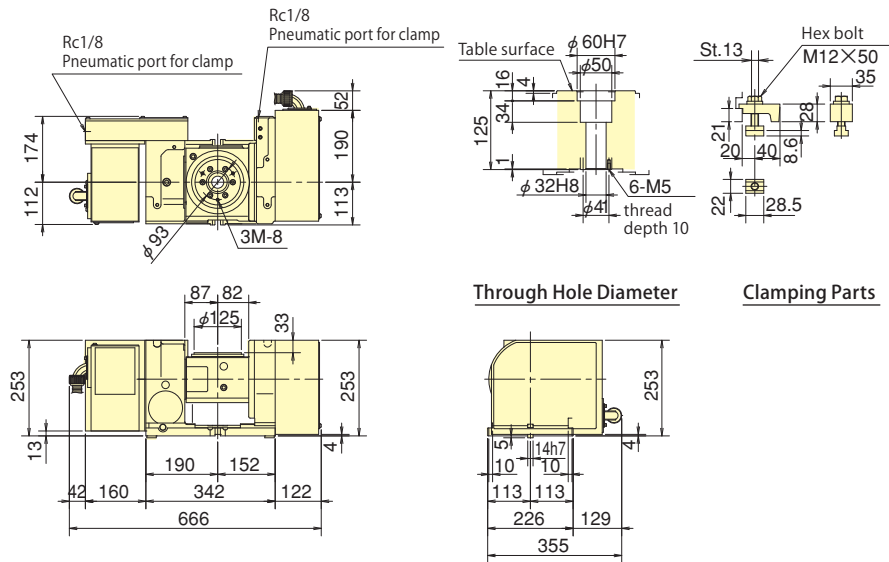
\*The dimensions may vary from motor to motor that is mounted.

■Dimensions [M signal specifications]

TT101



TW120





## Low centre line tilting NC Rotary Table

# TT140

### Tilting type to suit 5 axis machining with decreased input on the Z axis

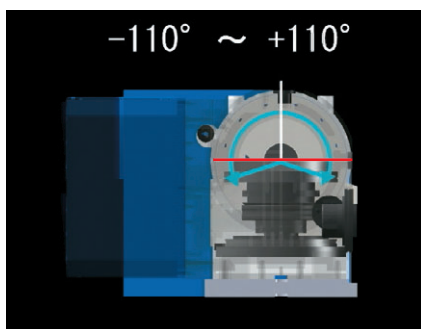
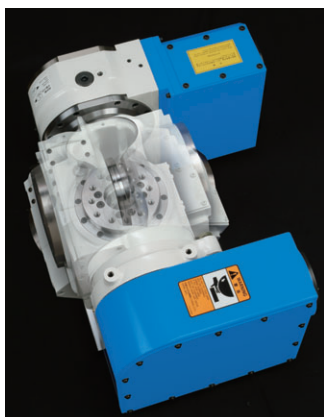
- Wide machining area and tilting axis index  $220^{\circ}$  ( $\pm 110^{\circ}$ )
- Compact and high speed Ideal for use on small machining centres
- Highest clamping torque in its class
- Built in rotary joint (option) allows simple and secure jig piping
- Table surface on tilt axis centre line
- Pneumatic clamping mechanism
- \*CE correspondence



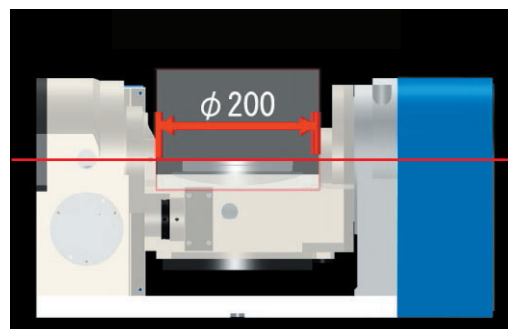
TT140

※In specification with the foreign trade control ordinance, permission of the ministry of economy, trade and industry is required when exporting twin axis products overseas.

#### Wide Machining Area



● Tilting axis index  $220^{\circ}$

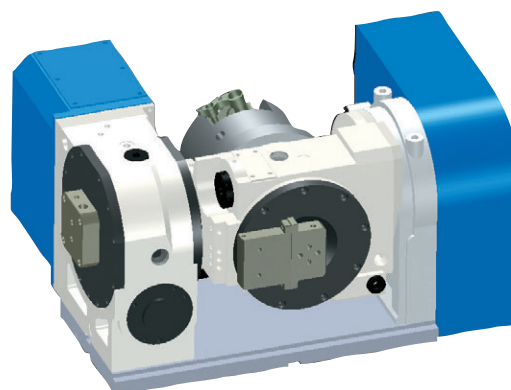


● Max. dia.  $\phi 200$ mm of loadable work

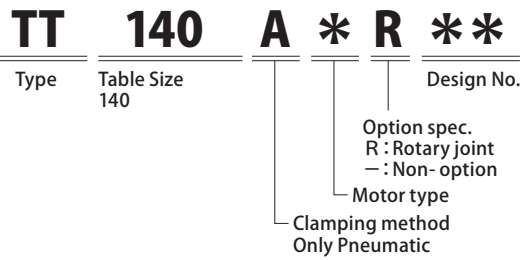
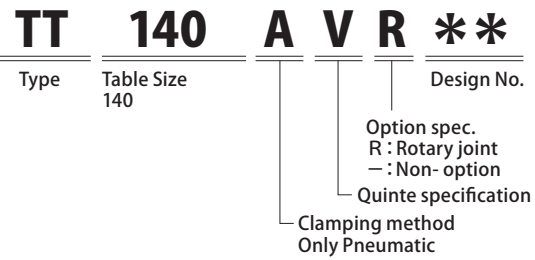
#### Complete built-in rotary joint (option)



Simplified  
Pipework



● Simplified pipework with complete built-in rotary joint (option)

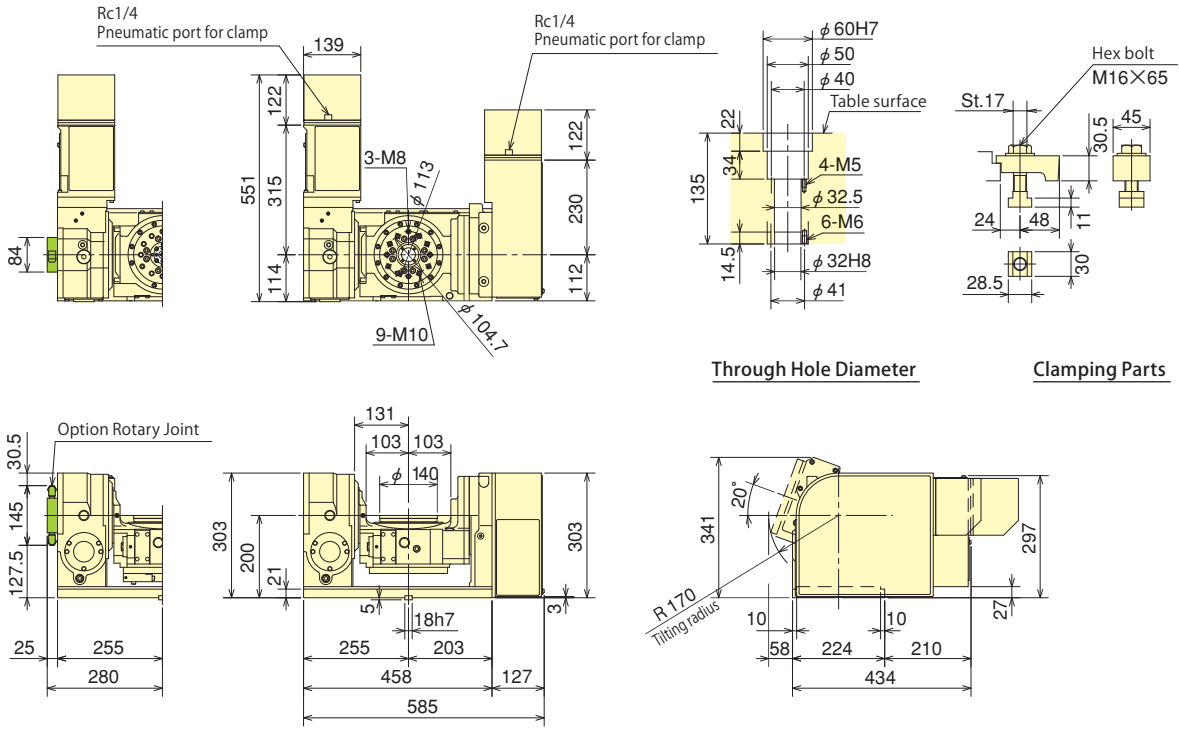
**additional axis specifications**

**M signal specifications**

**Specifications**

Model		TT140	
Tilting angle range		-110° ~ +110°	
Table dia (mm)		φ140	
Centre hole dia (mm)		φ60H7	
Through hole dia (mm)		φ32	
Centre height (mm)		200	
Clamping method		Pneumatic	
Clamping torque (at pneumatic 0.5MPa) (N·m)	Rotating axis	280	
	Tilting axis	500	
Motor axis reduced inertia(kg·m <sup>2</sup> )	Rotating axis	0.000269	
	Tilting axis	0.000288	
Servomotor (for FANUC specification)		αiF 2/5000-B	
Total reduction ratio	Rotating axis	1/72	
	Tilting axis	1/180	
Max. rotation speed	FANUC specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
	M signal specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
Allowable work inertia(kg·m <sup>2</sup> )		0.12	
Indexing accuracy (sec)	Rotating axis	30	
	Tilting axis	60	
Repeatability (sec)		4	
Mass of product (kg)		158	
Buit-in rotary joint (Option-P103 reference)		RJ32TT140 Hydraulic/Pneumatic 4-port	
Allowable mass of workpiece	at horizontal (kg)		50
	at tilted (kg)		30
Allowable load (When clamped to table)	F (kN)		4
	F×L (N·m)		500
	F×L (N·m)		280
Allowable cutting torque (Worm gear strength)	T (N·m)		190
Moment of tilting weight capacity	W×L (kgf·m)		11

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Each product mass is determined by a Kitagawa M signal spec.

## ■Dimensions [additional axis specifications]

### TT140

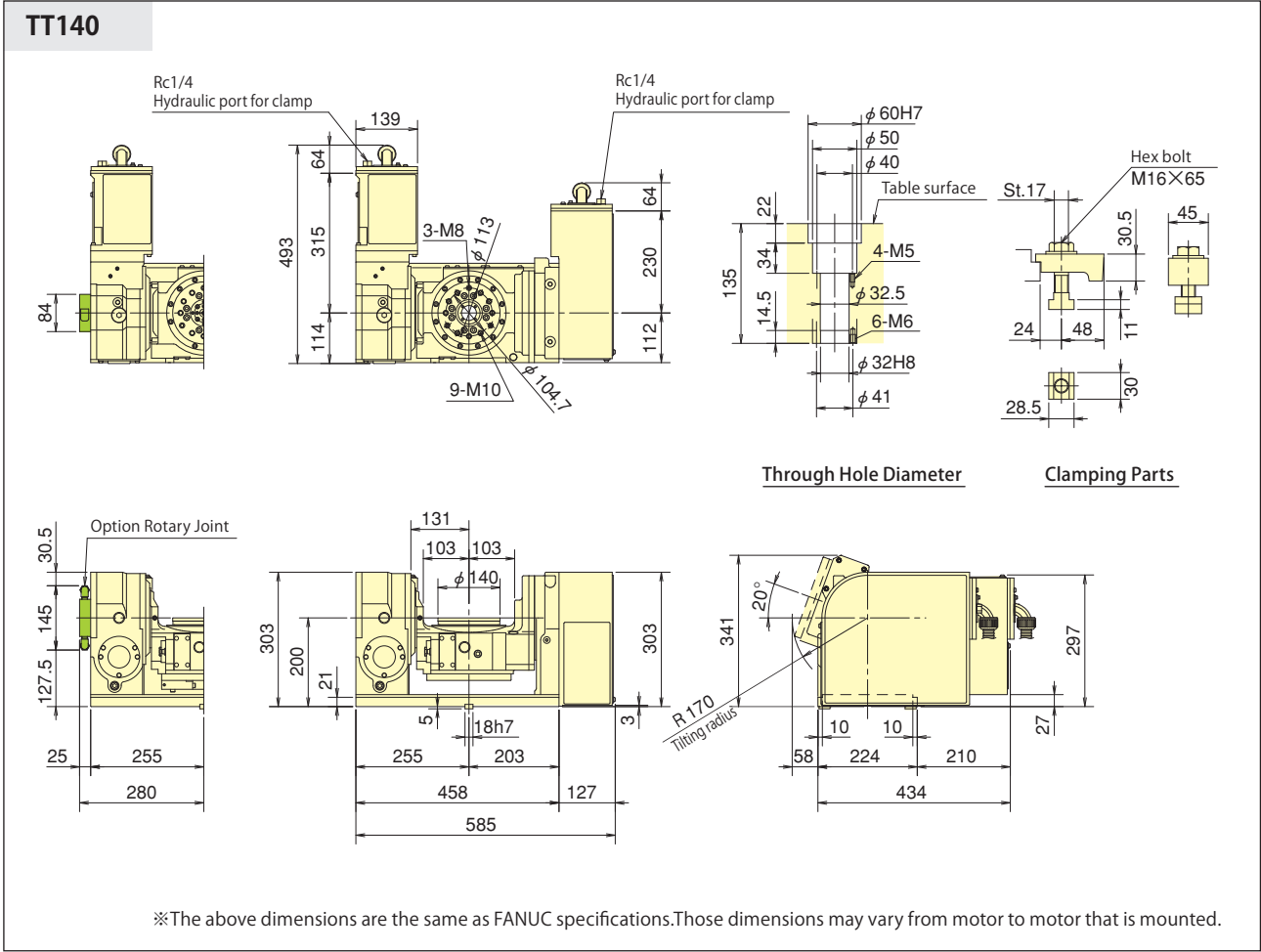


※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted.



\*The dimensions may vary from motor to motor that is mounted.

■Dimensions [M signal specifications]





## Tilting NC Rotary Table

# TT150

**High stiffness and High clamp torque of main spindle !**

**Compact designed body with minimized total height keeps less high-column of machine.**

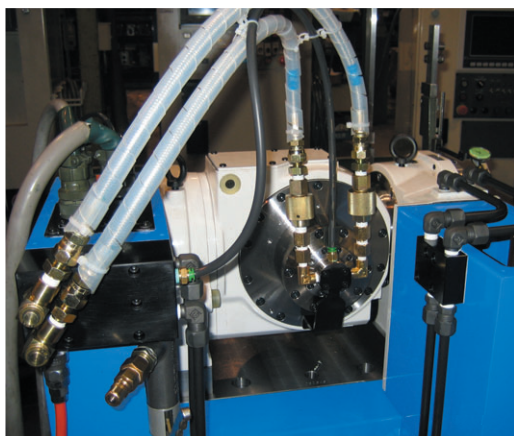
- Suitable for No.30 machining centers  
(\*High-column specification may be required to suit a variety of machine models.)
- High clamping torque
- Complete built-in rotary joint (option)  
\*CE correspondence



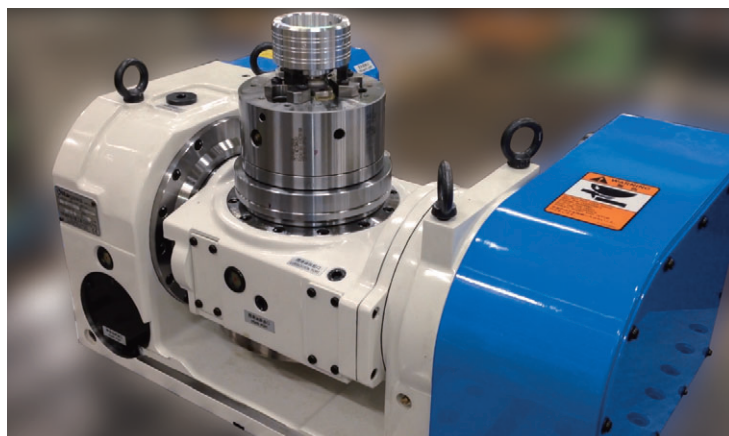
TT150

※In specification with the foreign trade control ordinance, permission of the ministry of economy, trade and industry is required when exporting twin axis products overseas.

### Complete built-in rotary joint (option)

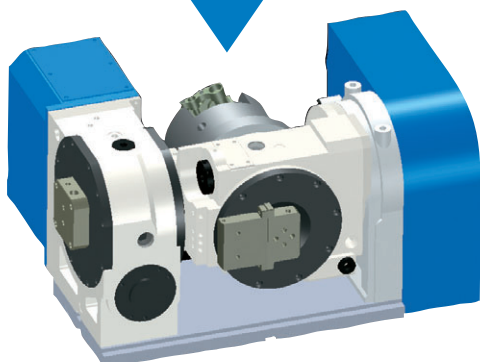


### Sample Application

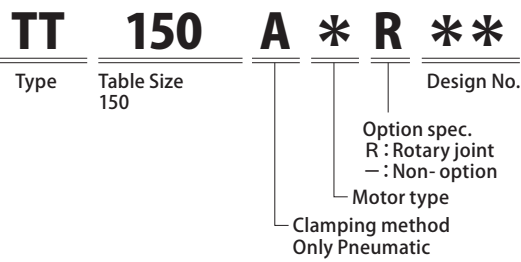
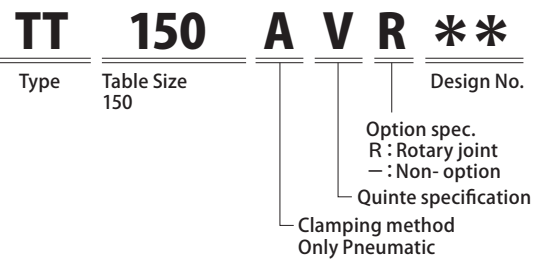









▲Only Kitagawa can offer this combination of NC Rotary Table and chuck

**Simplified  
Pipework**



- Simplified pipework with complete built-in rotary joint (option)

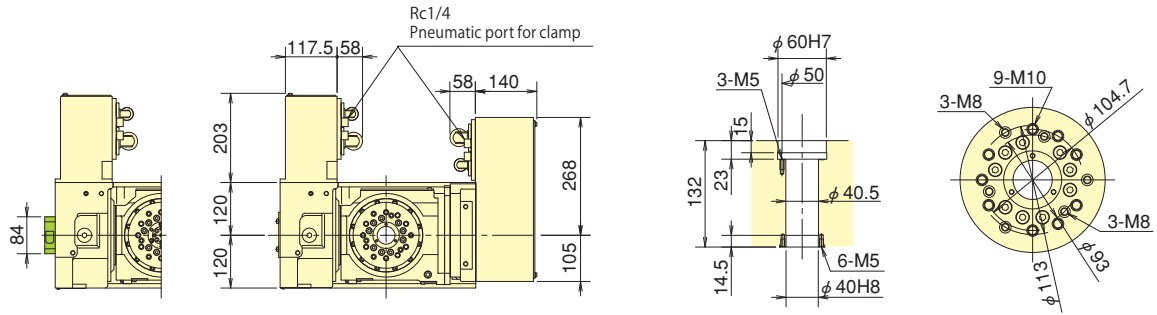
**additional axis specifications**

**M signal specifications**

**Specifications**

Model		TT150	
Tilting angle range		-20° ~ +110°	
Table dia (mm)		φ150	
Centre hole dia (mm)		φ60H7	
Through hole dia (mm)		φ40	
Centre height (mm)		150	
Clamping method		Pneumatic	
Clamping torque (at pneumatic 0.5MPa) (N·m)	Rotating axis	350	
	Tilting axis	550	
Motor axis reduced inertia(kg·m <sup>2</sup> )	Rotating axis	0.000242	
	Tilting axis	0.000132	
Servomotor (for FANUC specification)		αiF 2/5000-B	
Total reduction ratio	Rotating axis	1/72	
	Tilting axis	1/180	
Max. rotation speed	for FANUC specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
	for M signal specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
Allowable work inertia(kg·m <sup>2</sup> )		0.14	
Indexing accuracy (sec)	Rotating axis	30	
	Tilting axis	60	
Repeatability (sec)		4	
Mass of product (kg)		141	
Buit-in rotary joint (as an option-P103 reference)		RJ40FTT150 Hydraulic/Pneumatic 4-port + Exclusive Pneumatic 1-port of air	
Allowable mass of workpiece	at horizontal (kg)	 50	
	at tilted (kg)	 30	
Allowable load (When clamped to table)	F (kN)	 4	
	F×L (N·m)	 550	
	F×L (N·m)	 350	
Allowable cutting torque (Worm gear strength)	T (N·m)	 190	
Moment of tilting weight capacity	W×L (kgf·m)	 11	

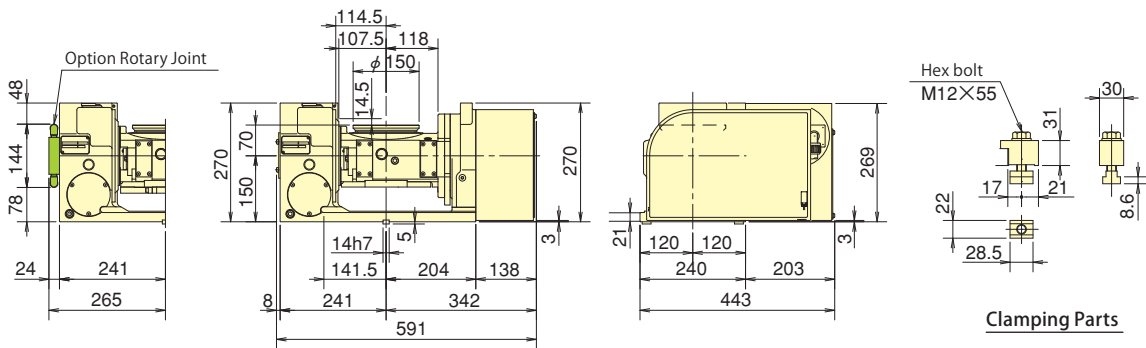
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Each product mass is determined by a Kitagawa M signal spec.

## ■Dimensions [additional axis specifications]

### TT150



Through Hole Diameter Detailed table hole



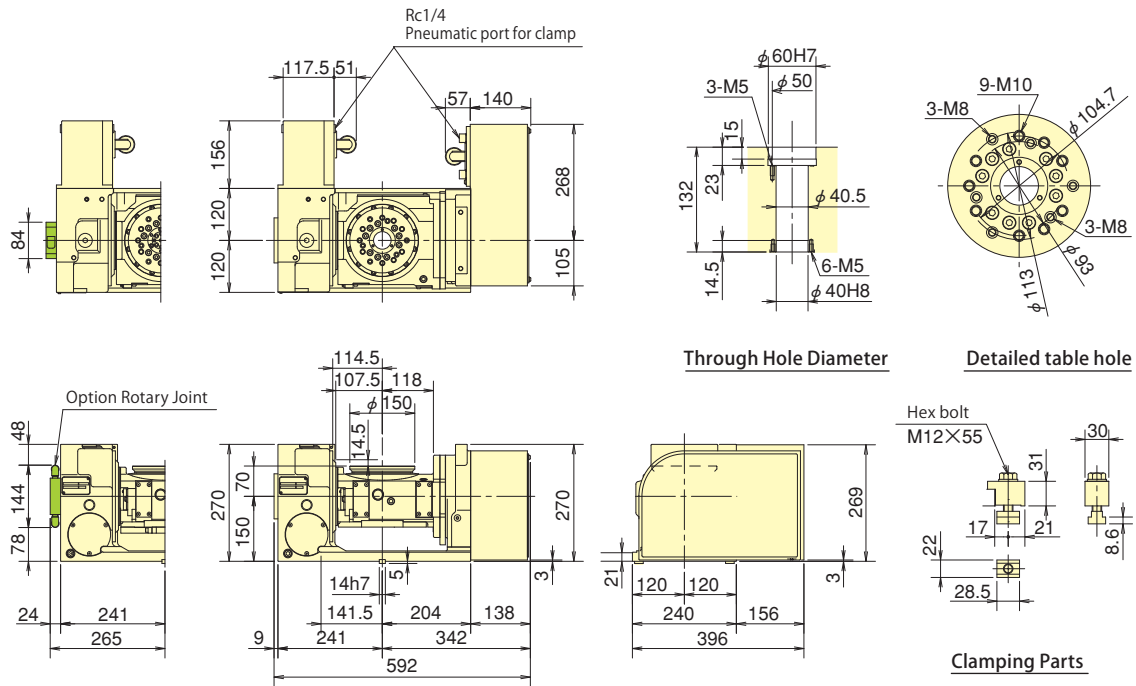
Clamping Parts

※The above dimensions are the same as FANUC specifications. Those dimensions may vary from motor to motor that is mounted.

\*The dimensions may vary from motor to motor that is mounted.

■Dimensions [Kitagawa's control device Quinte specification]

TT150





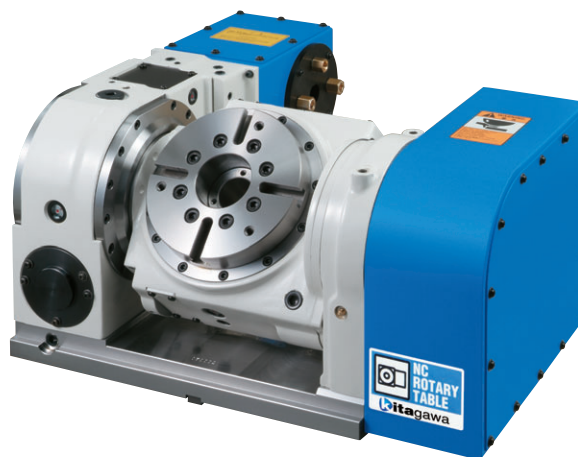
# NC Tilting Rotary Table

# TT182·TW182

※TW is the side motor type tilting table

## High stability tilting table to suit 5 axis machining

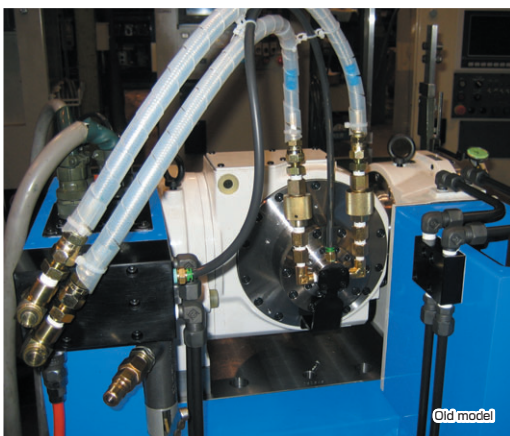
- Built in air hydraulic boosters deliver high clamping torque on both axes
  - Compact design
  - High speed rotation
  - High rigidity
  - Built-in rotary joint (option) allows simple and secure jig piping
  - Air-hydraulic booster or direct hydraulic clamping options available
- ※CE correspondence



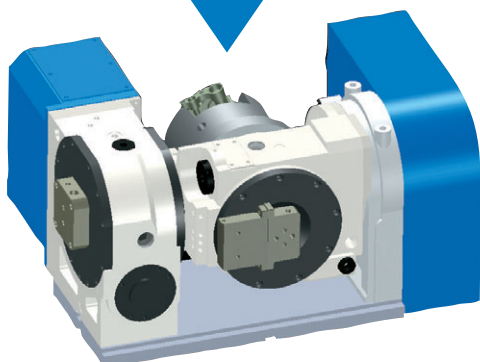
TT182

※In specification with the foreign trade control ordinance, permission of the ministry of economy, trade and industry is required when exporting twin axis products overseas.

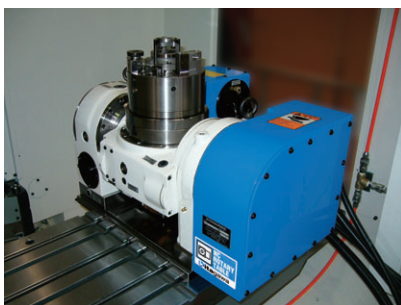
### Complete built-in rotary joint (option)



**Simplified  
Pipework**



### Sample Application



- Provided for high accuracy 5-axis machining.



- Only Kitagawa can offer this combination of NC Rotary Table and chuck

- Simplified pipework with complete built-in rotary joint (option)



**additional axis specifications**
**TT 182 B \* R \*\***

**TT** : Type  
 TT : STD type  
 TW : Tilting straight type  
**182** : Table Size  
 182  
**B** : Clamping method  
 B : Air-Hydraulic  
 (Built-in air hydraulic booster)  
 H : Hydraulic  
**R** : Option spec.  
 R : Rotary joint  
 C : Outer cylinder  
 - : Non- option  
**\*\*** : Design No.

**M signal specifications**
**TT 182 B V R \*\***

**TT** : Type  
 TT : STD type  
 TW : Tilting straight type  
**182** : Table Size  
 182  
**B** : Clamping method  
 B : Air-Hydraulic  
 (Built-in air hydraulic booster)  
 H : Hydraulic  
**V** : Quinte specification  
**R** : Option spec.  
 R : Rotary joint  
 C : Outer cylinder  
 - : Non- option  
**\*\*** : Design No.

**Specifications**

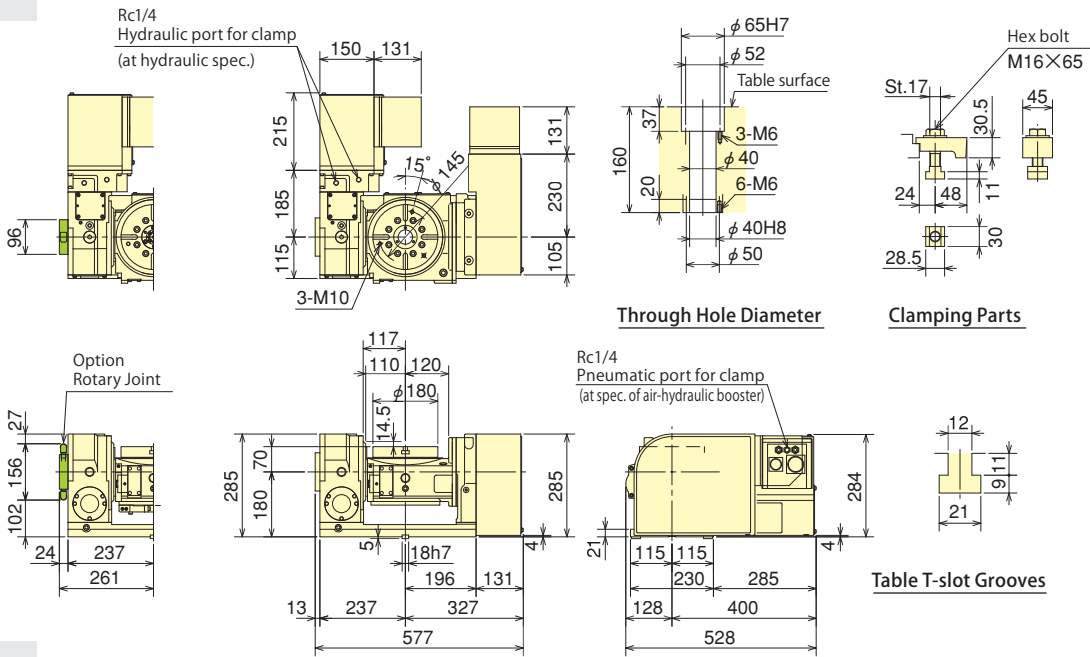
Model		TT182/TW182
Tilting angle range		-35° ~ +110°
Table dia (mm)		φ180
Centre hole dia (mm)		φ65H7
Through hole dia (mm)		φ40
Centre height (mm)		180
Clamping method		Air-Hydraulic/Hydraulic
Clamping torque (at pneumatic 0.5MPa/hydraulic 3.5MPa) (N·m)	Rotating axis	450
	Tilting axis	800
Motor axis reduced inertia(kg·m <sup>2</sup> )	Rotating axis	0.000242
	Tilting axis	0.000135
Servomotor (for FANUC specification)		αiF 2/5000-B
Total reduction ratio	Rotating axis	1/90
	Tilting axis	1/180
Max. rotation speed	for FANUC specification	
	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3
	Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
	for M signal specification	
Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3	
Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6	
Allowable work inertia(kg·m <sup>2</sup> )		0.25
Indexing accuracy (sec)	Rotating axis	20
	Tilting axis	60
Repeatability (sec)		4
Mass of product TT/TW (kg)		163/178
Built-in rotary joint (Option-P103 reference)		RJ40FTT182
Pneumatic outer cylinder(Option-P65, 66 reference)		Hydraulic/Pneumatic 4-port + Exclusive Pneumatic 1-port of air NY1312T18B
Hydraulic outer cylinder(Option-P65, 66 reference)		NY0912T18A
Allowable mass of workpiece	at horizontal (kg)	60
	at tilted (kg)	40
Allowable load (When clamped to table)	F (kN)	5
	F×L (N·m)	800
	F×L (N·m)	450
Allowable cutting torque (Worm gear strength)	T(N·m)	250
Moment of tilting weight capacity	W×L (kgf·m)	12

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. In case of air + hyd. clamp specification, the solenoid valve for table clamp is incorporated. 3. In a hyd. clamp spec., the solenoid valve is not incorporated. Consequently, customer shall prepare it. 4. Neither cable nor hose is fitted between NC rotary table and machine tool. 5. Each product mass is determined by a Kitagawa M signal spec.

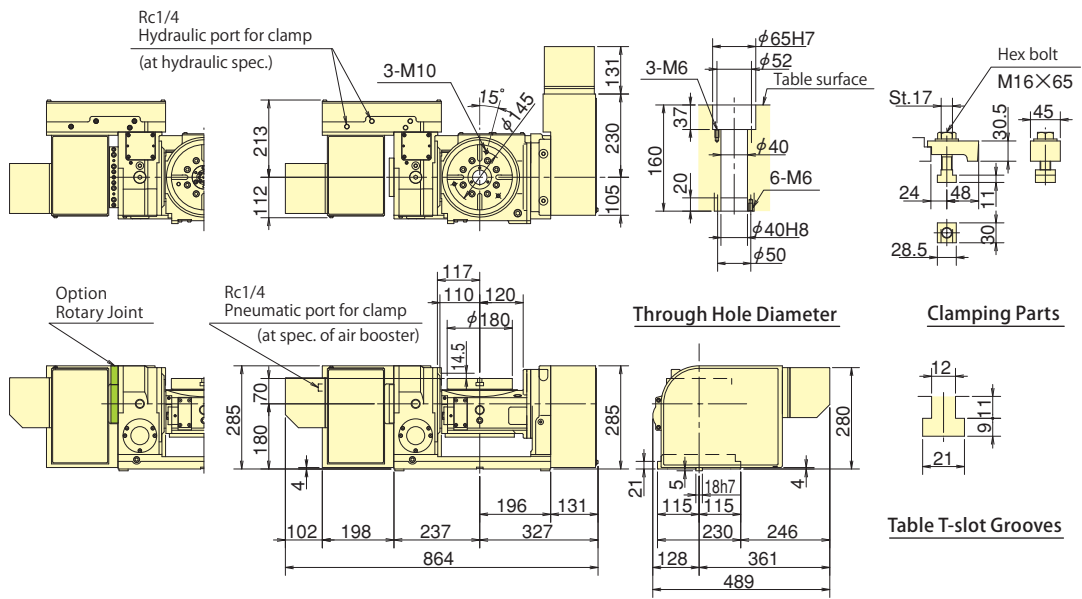
# TT182·TW182

## ■Dimensions [additional axis specifications]

### TT182



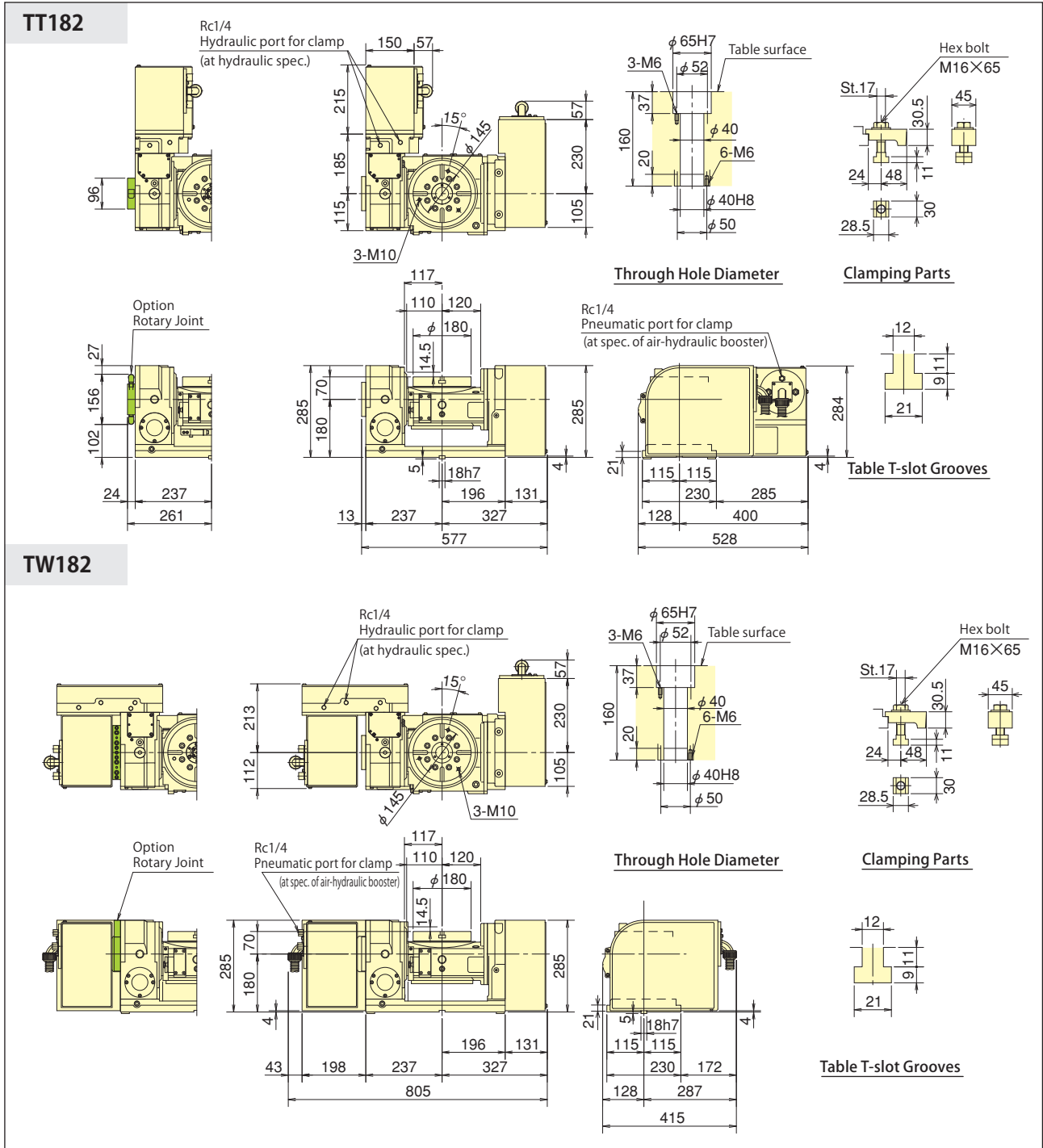
### TW182





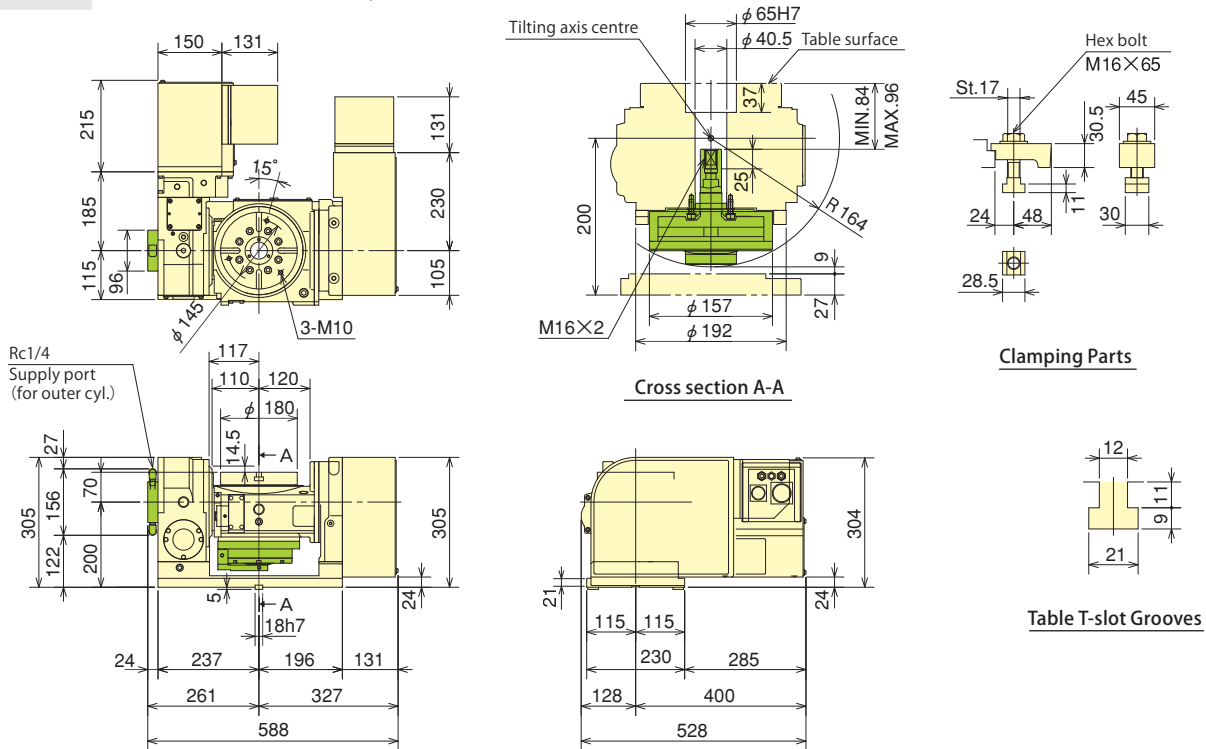
\*The dimensions may vary from motor to motor that is mounted.

### ■Dimensions [M signal specifications]



## ■Dimensions [additional axis specifications]

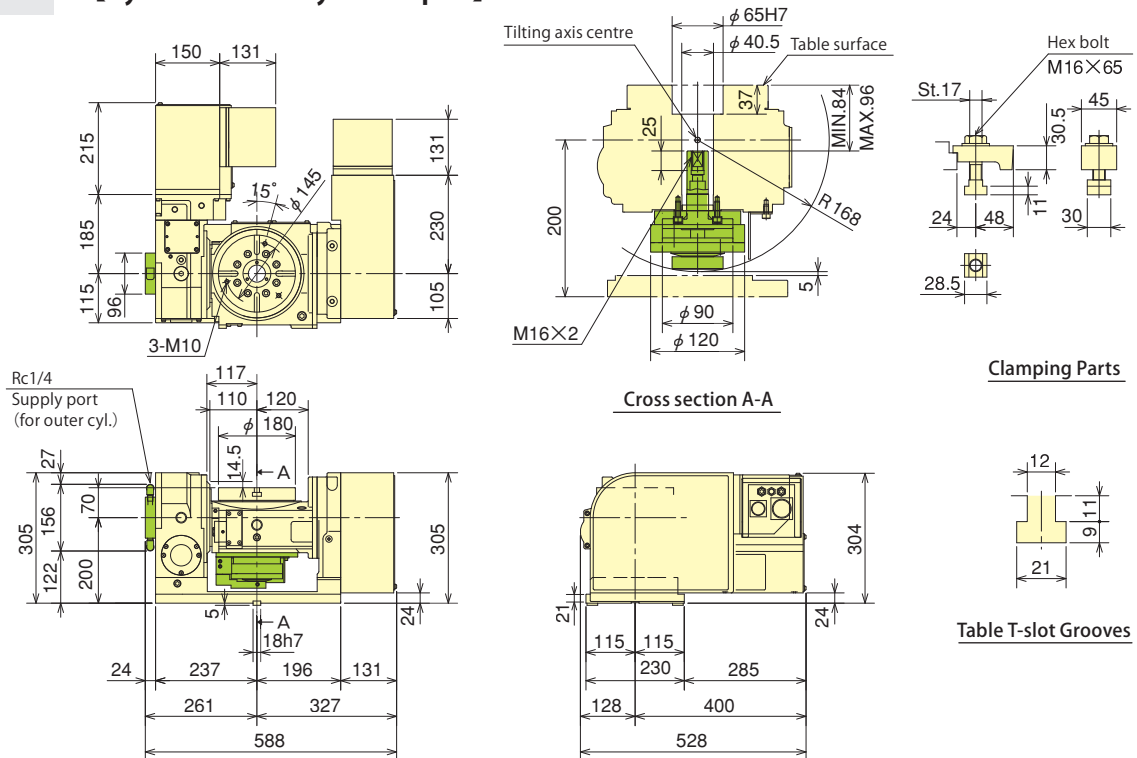
### TT182 [Pneumatic outer cylinder spec.]



### ■Pneumatic outer cylinder spec.

Cylinder	Number of ports	inner dia. of cyl. (mm)	Piston stroke (mm)	Piston thrust (kN)				Max. allowable air pressure (MPa)	Mass (kg)
				Air pressure 0.5MPa		Air pressure 1.0MPa			
				Push	Pull	Push	Pull		
NY1312T18B	Air: 3-port	135	12	4.9	4.7	9.8	9.4	1.0	9.0

### TT182 [Hydraulic outer cylinder spec.]



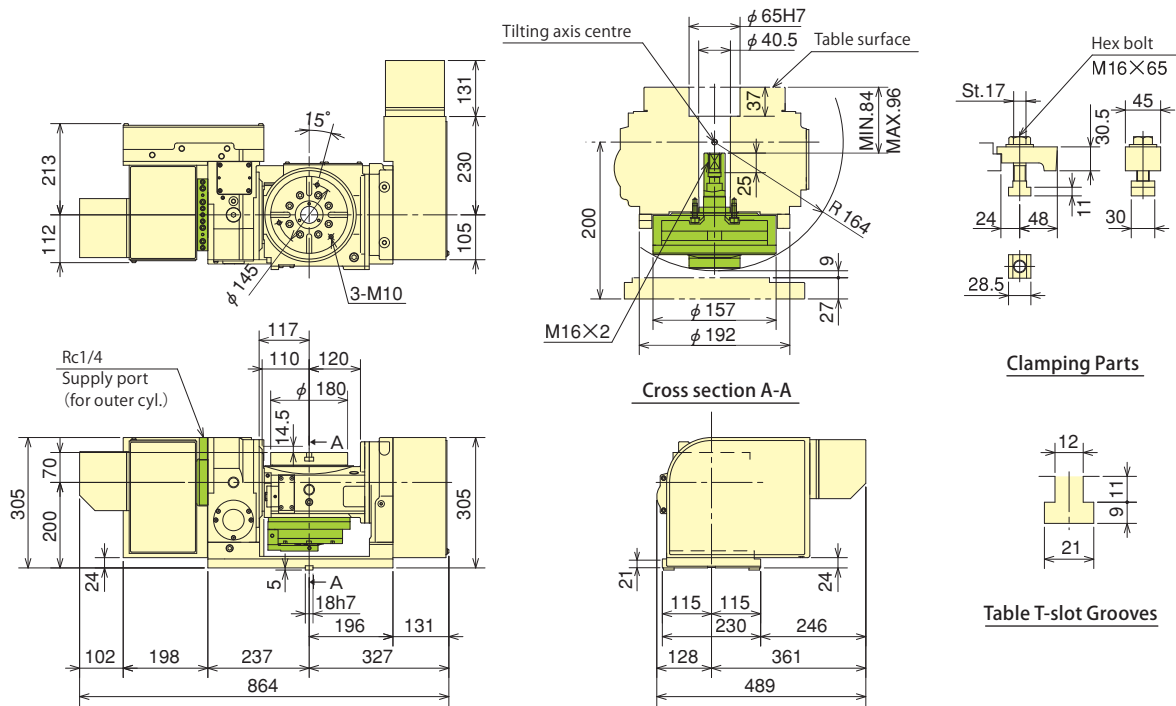
### ■Hydraulic outer cylinder spec.

Cylinder	Number of ports	inner dia. of cyl. (mm)	Piston stroke (mm)	Piston thrust (kN)		Max. allowable hyd. pressure (MPa)	Mass (kg)
				Hydraulic pressure 3.5MPa			
				Push	Pull		
NY0912T18A	Hyd.: 2-port+ Air: 1-port	90	12	18.2	17.1	3.5	7.7

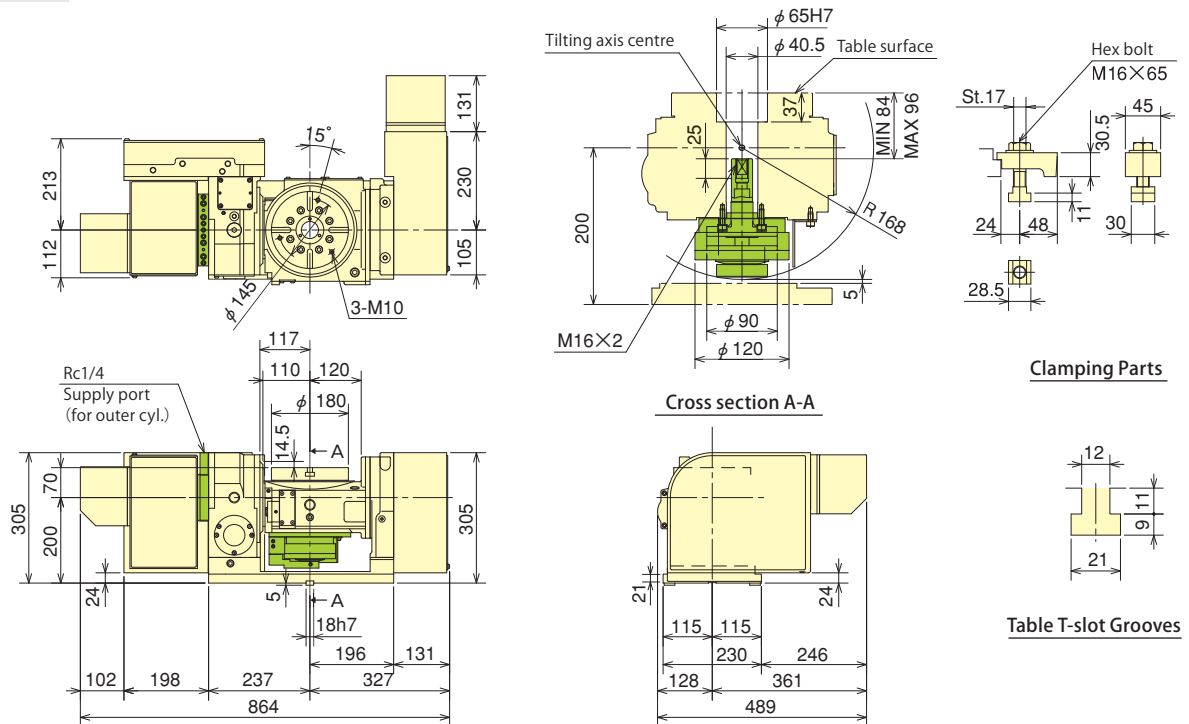
※ 1. The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.  
2. In outer cylinder mounting spec., centre height varies to 200 from 180.

■Dimensions [additional axis specifications]

**TW182 [Pneumatic outer cylinder spec.]**



**TW182 [Hydraulic outer cylinder spec.]**



※ 1.The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.  
 2. In outer cylinder mounting spec., centre height varies to 200 from 180.





**NC ROTARY TABLE**

**Tilting NC Rotary Table**

**TT200**








**High clamping torque and Compact design  
Flagship model of Kitagawa tilting rotary table**



- High clamping torque in its class by air-hydro and double disk clamp system
  - Suitable for No.30 machining centers (200mm high column) without stroke limitation
  - Built-in rotary joint (hydraulic 4P/ pneumatic 1P) available as option
- \*CE correspondence

※In specification with the foreign trade control ordinance, permission of the ministry of economy, trade and industry is required when exporting twin axis products overseas.

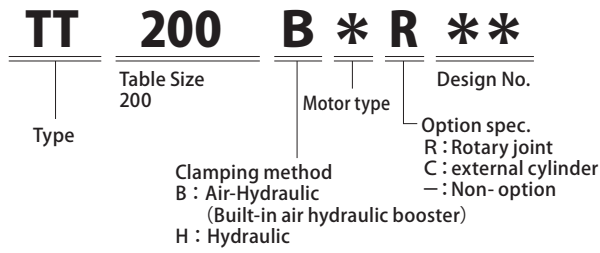
**Specifications**

Model		TT200	
Tilting angle range		-35° ~ +110°	
Table dia (mm)		φ200	
Centre hole dia (mm)		φ65H7	
Through hole dia (mm)		φ40	
Centre height (mm)		180	
Clamping method		Air-Hydraulic/Hydraulic	
Clamping torque (at pneumatic 0.5MPa) (N·m)	Rotating axis	600	
	Tilting axis	1200	
Motor axis reduced inertia(kg·m <sup>2</sup> )	Rotating axis	0.000225	
	Tilting axis	0.000125	
Servomotor (for FANUC specification)		αiF 2/5000-B	
Total reduction ratio	Rotating axis	1/90	
	Tilting axis	1/180	
Max. rotation speed	for FANUC specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
	for M signal specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
Allowable work inertia(kg·m <sup>2</sup> )		0.3	
Indexing accuracy (sec)	Rotating axis	20	
	Tilting axis	60	
Repeatability (sec)		4	
Mass of product (kg)		170	
Built-in rotary joint (Option-P103 reference)		RJ40FTT200 Hydraulic/Pneumatic 4-port + Exclusive Pneumatic 1-port	
Allowable mass of workpiece	at horizontal (kg)	 60	
	at tilted (kg)	 40	
Allowable load (When clamped to table)	F (kN)	 5	
	F×L (N·m)	 1200	
	F×L (N·m)	 600	
Allowable cutting torque (Worm gear strength)	T (N·m)	 250	
Moment of tilting weight capacity	W×L (kgf·m)	 12	

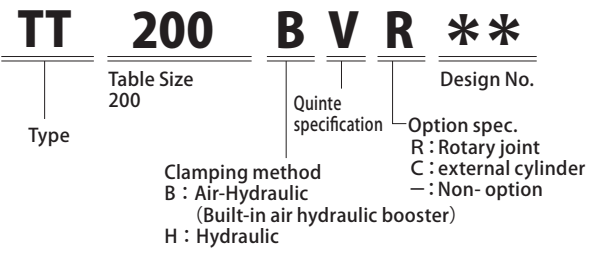
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. In case of air + hyd. clamp specification, the solenoid valve for table clamp is incorporated. 3. In a hyd. clamp spec., the solenoid valve is not incorporated. Consequently, customer shall prepare it. 4. Neither cable nor hose is fitted between NC rotary table and machine tool... 5. Each product mass is determined by a Kitagawa M signal spec.



**additional axis specifications**

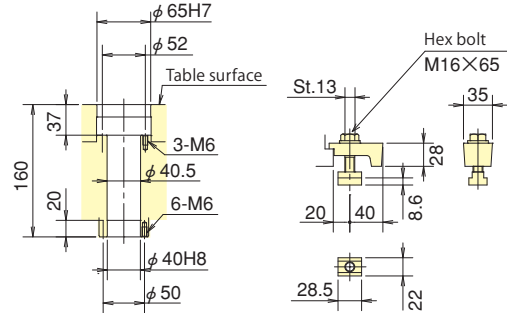
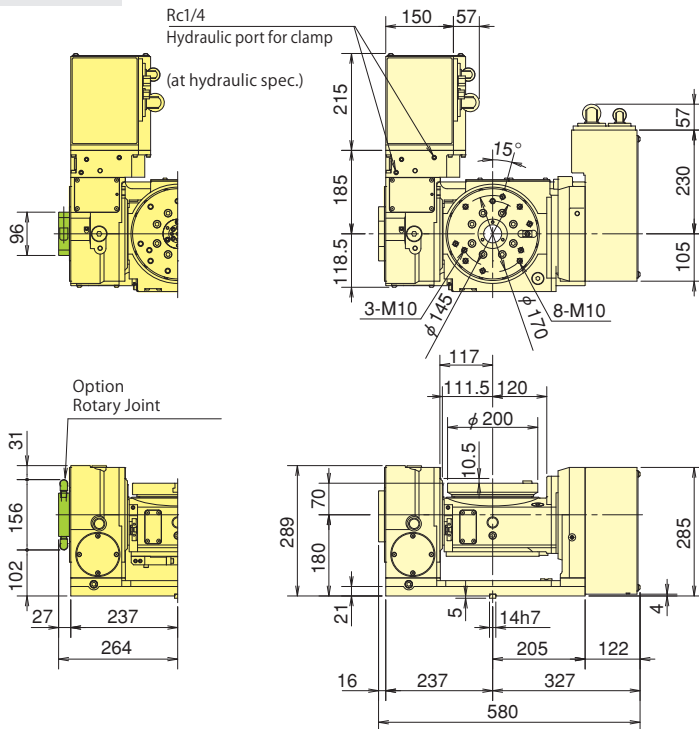


**M signal specifications**



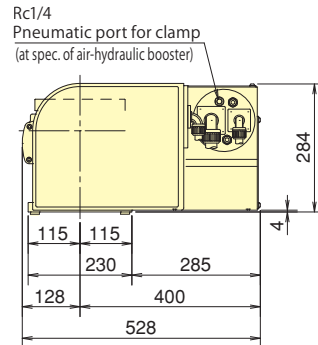
**■ Dimensions**

**TT200 [additional axis specifications]**



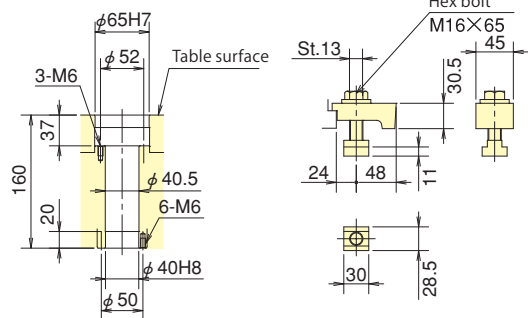
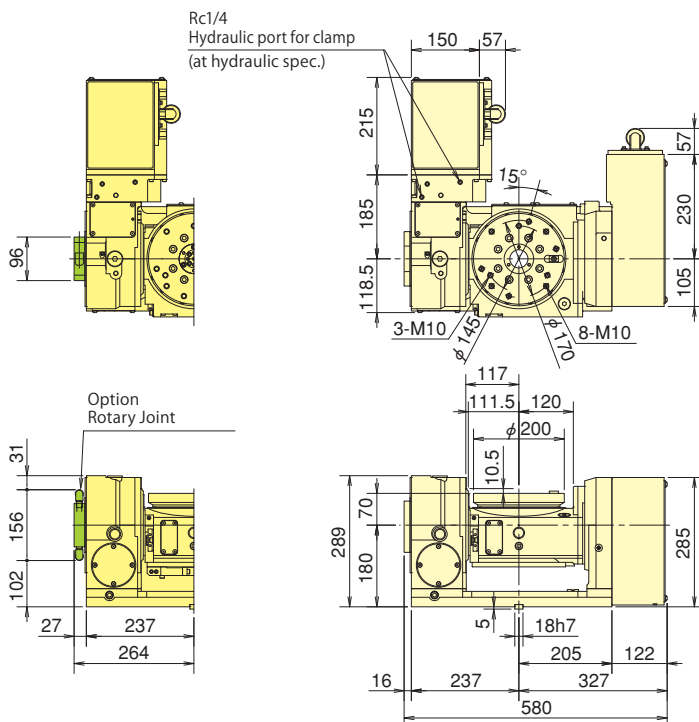
**Through Hole Diameter**

**Clamping Parts**



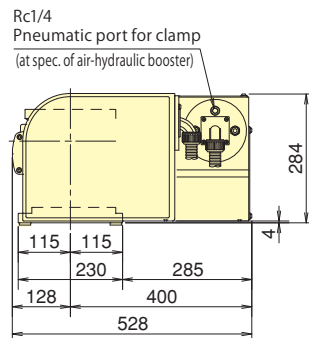
\*Those dimensions may vary from motor to motor that is mounted.

**TT200 [M signal specifications]** \*The dimensions may vary from motor to motor that is mounted.



**Through Hole Diameter**

**Clamping Parts**





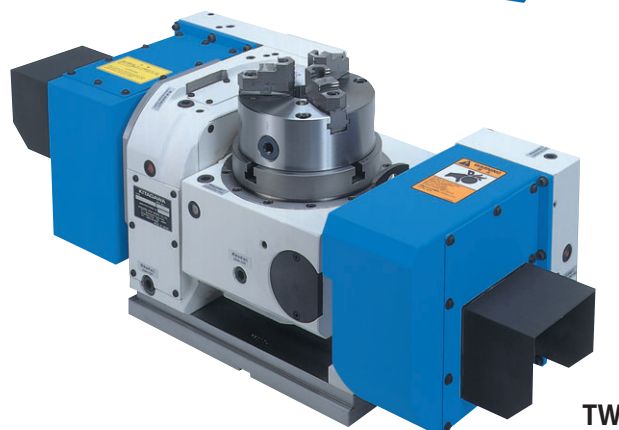
## Tilting NC Rotary Table

# TT251/TW251 • TT321/TW321

※TW is Straight tilting table

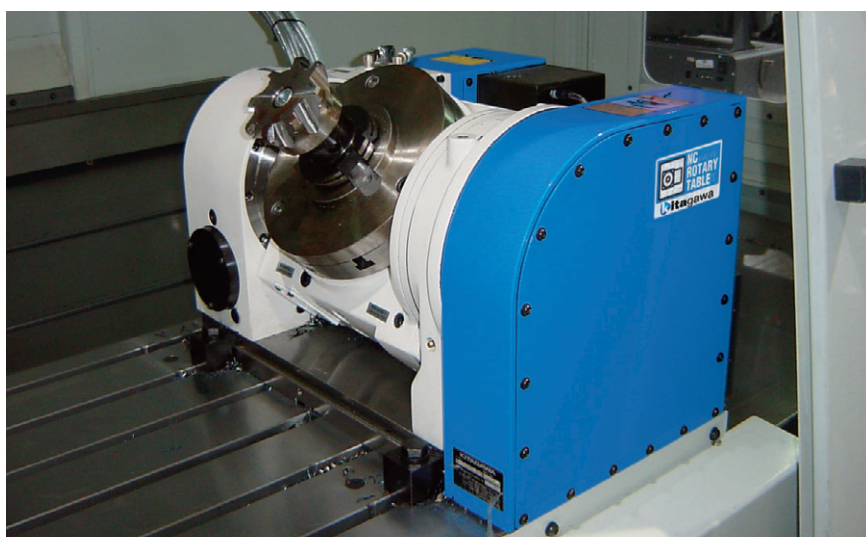
## High rigidity tilting tables to suit 5 axis machining centers on large work pieces with heavy cutting

- Minimum size in its class
  - High rigidity for heavy cutting
  - High accuracy
  - Rotary Joint built in as option
  - Cylinder mountable
  - Air-hyd. booster or direct hydraulic clamping options available
  - Integrated air-hydraulic booster (option) provides high clamping torque (comparable to hydraulic) from a standard air supply
- \*CE correspondence



※In specification with the foreign trade control ordinance, permission of the ministry of economy, trade and industry is required when exporting twin axis products overseas.








### Sample Application



▲ Allows the complex machining of large work pieces.

additional axis specifications				M signal specifications			
<b>TT</b>	<b>251</b>	<b>B</b>	<b>* * *</b>	<b>TT</b>	<b>251</b>	<b>H V</b>	<b>* *</b>
Type	Table Size 251・321	Clamping method	Design No.	Type	Table Size 251・321	Clamping method	Design No.
TT: STD type TW: Tilting straight type		B: External air hydraulic booster H: Hydraulic	Tilting axis motor type	TT: STD type TW: Tilting straight type		B: External air hydraulic booster H: Hydraulic	Quinte specification
			Rotary axis motor type				

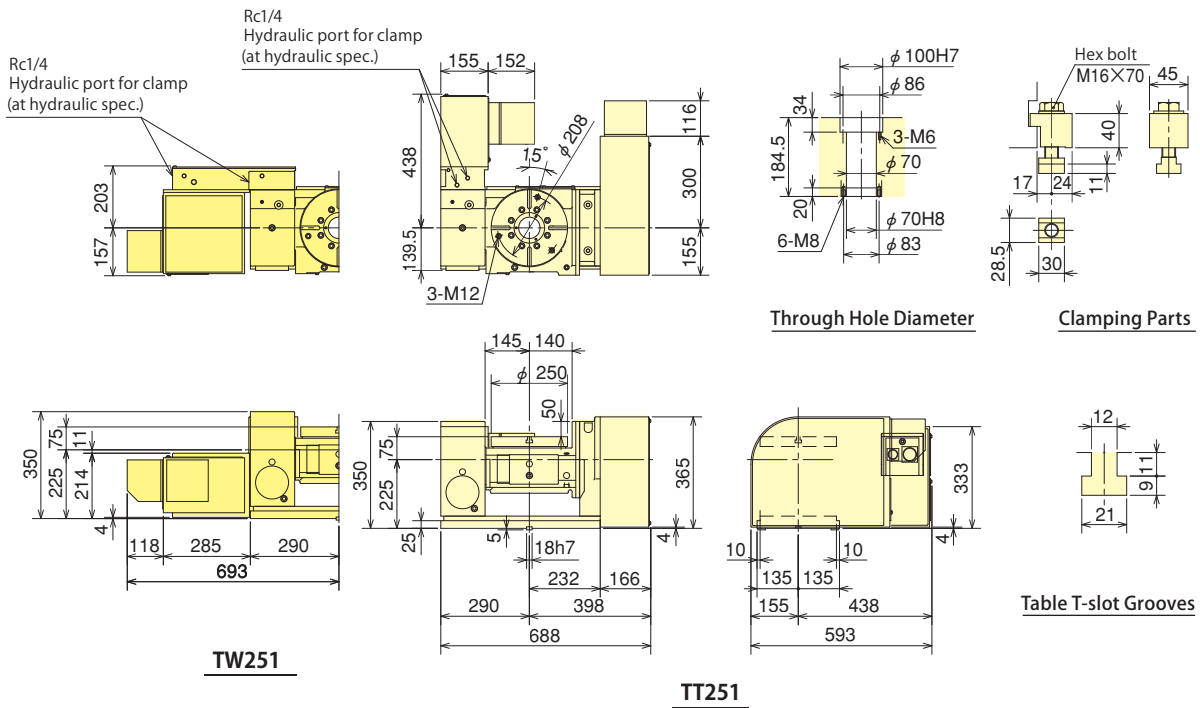
## Specifications

Model		TT251/TW251	TT321/TW321	
Tilting angle range		-35° ~ +110°	-35° ~ +110°	
Table dia (mm)		φ250	φ320	
Centre hole dia (mm)		φ100H7	φ135H7	
Through hole dia (mm)		φ70	φ110	
Centre height (mm)		225	255	
Clamping method		Air-Hydraulic/Hydraulic	Air-Hydraulic/Hydraulic	
Clamping torque (at pneumatic 0.45MPa/hydraulic 3.5MPa)(N·m)	Rotating axis	900	2600	
	Tilting axis	1200	2600	
Motor axis reduced inertia(kg·m <sup>2</sup> )	Rotating axis	0.00070	0.00083	
	Tilting axis	0.00054	0.00046	
Servomotor (for FANUC specification)		αiF 4/5000-B	αiF 8/3000-B	
Total reduction ratio	for FANUC specification	Rotating axis	1/90	1/120
		Tilting axis	1/180	1/360
	for M signal specification	Rotating axis	1/90	1/180
		Tilting axis	1/180	1/360
Max. rotation speed	for FANUC specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3	25
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6	8.3
	for M signal specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3	16.6
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6	8.3
Allowable work inertia(kg·m <sup>2</sup> )		0.78	1.92	
Indexing accuracy (sec)	Rotating axis	20	20	
	Tilting axis	45	45	
Repeatability (sec)		4	4	
TT/TW Mass of product (kg)		260/270	350/360	
Rotary joint (Option-P103 reference)		RJ70H25T02 Hydraulic/Pneumatic 6-port	RJ70H32T06 Hydraulic/Pneumatic 6-port	
Allowable mass of workpiece	at horizontal (kg)	 100	150	
	at tilted (kg)	 60	100	
Allowable load (When clamped to table)	F (kN)	 12	16	
	F×L (N·m)	 1200	2600	
	F×L (N·m)	 900	2600	
Allowable cutting torque (Worm gear strength)	T (N·m)	 600	1000	
Moment of tilting weight capacity	W×L (kgf·m)	 26	75	

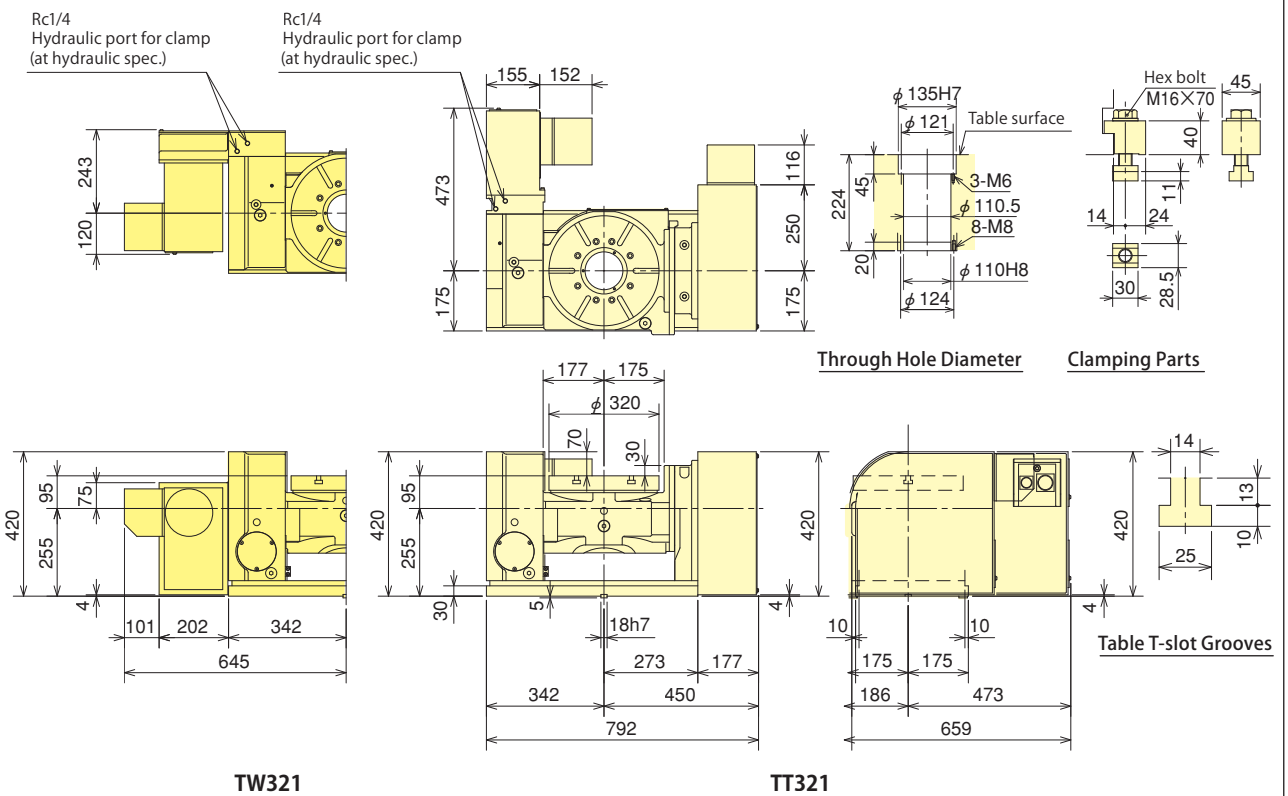
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. In case of hydraulic clamp specification, the solenoid valve for the table clamp not incorporated. Consequently, customer shall prepare it. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Each product mass is determined by a Kitagawa M signal spec.

## ■Dimensions [additional axis specifications]

### TT251 (TW)



### TT321 (TW)



※The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.



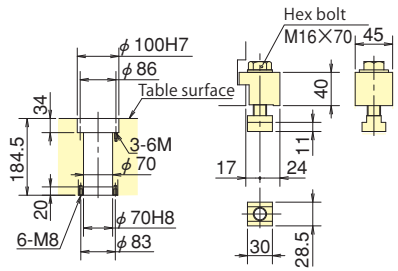
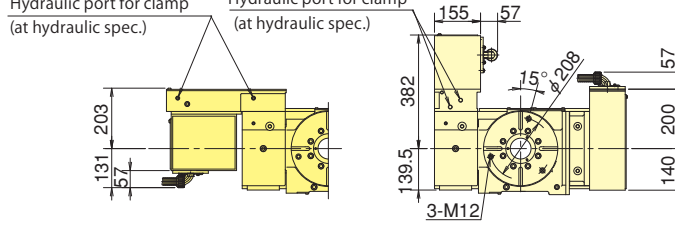
\*The dimensions may vary from motor to motor that is mounted.

■Dimensions [M signal specifications]

TT251 (TW)

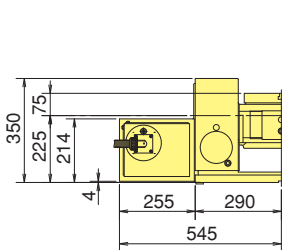
Rc1/4 Hydraulic port for clamp (at hydraulic spec.)

Rc1/4 Hydraulic port for clamp (at hydraulic spec.)

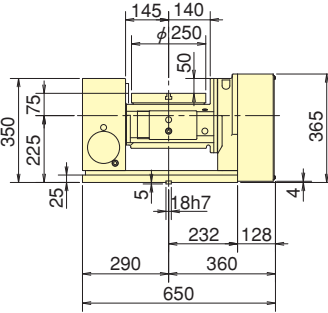


Through Hole Diameter

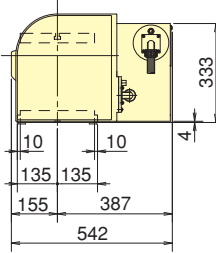
Clamping Parts



TW251



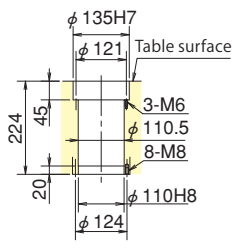
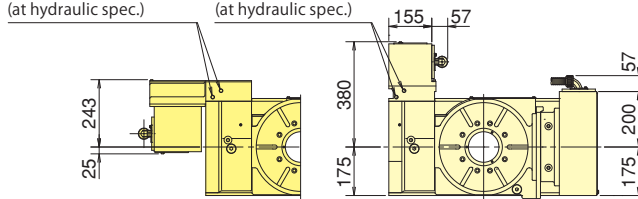
TT251



TT321 (TW)

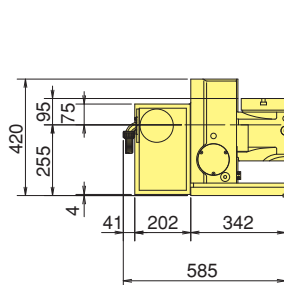
Rc1/4 Hydraulic port for clamp (at hydraulic spec.)

Rc1/4 Hydraulic port for clamp (at hydraulic spec.)

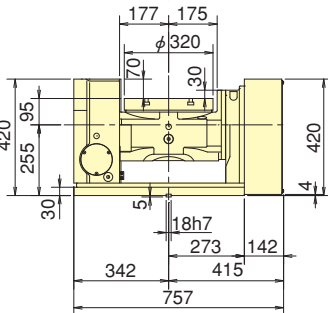


Through Hole Diameter

Clamping Parts



TW321



TT321

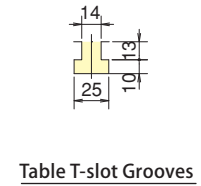
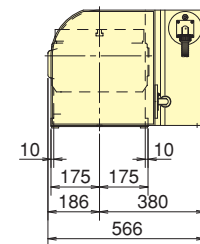


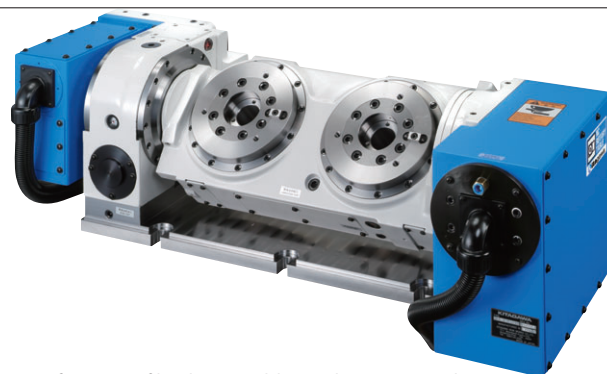
Table T-slot Grooves





## High performance twin spindle tilting table








- Mountable to a compact M/C
- Smallest width in its class 999mm
- Built-in rotary joint (option) allows simple and secure jig piping
- High clamping torque
- \*CE correspondence



※In the specifications of both two additional axes, since this product is applied to (8) of item 6 of a separate list No.1 of the Foreign Trade Control Ordinance, when exporting it overseas, the permission of the Ministry of Economy, Trade and Industry is required.

**TW2180**

### Specifications

Model		TW2180	
Tilting angle range		-110° ~ +110°	
Table dia (mm)		φ180	
Centre hole dia (mm)		φ65H7	
Through hole dia (mm)		φ40	
Distance between axes (mm)		250	
Centre height at right angle on table face (mm)		200	
Clamping method		Rotating axis	Pneumatic
		Tilting axis	Air-Hydraulic
Clamping torque (at pneumatic 0.5MPa)(N·m)		Rotating axis	400
		Tilting axis	800
Motor axis reduced inertia(kg·m <sup>2</sup> )		Rotating axis	0.000383
		Tilting axis	0.00035
Servomotor (for FANUC specification)		αiF 2/5000-B	
Total reduction ratio		Rotating axis	1/90
		Tilting axis	1/180
Max. rotation speed	FANUC specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
	M signal specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	33.3
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	16.6
Allowable work inertia(kg·m <sup>2</sup> )		0.12	
Indexing accuracy (sec)		Rotating axis	30
		Tilting axis	60
Repeatability (sec)		4	
Mass of product (kg)		247	
Built-in rotary joint (as an option)		RJ40TW2180 Rotation per axis Hydraulic/ Pneumatic 2-port + Exclusive Pneumatic 3-port	
Allowable mass of workpiece	at horizontal (kg)		Rotation per axis 30
	at tilted (kg)		Rotation per axis 30
Allowable load (When clamped to table)	F (kN)		Rotation per axis 5
	F×L (N·m)		Rotation per axis 800
	F×L (N·m)		Rotation per axis 400
Allowable cutting torque (Worm gear strength)	T (N·m)		Rotation per axis 250
Moment of tilting weight capacity	W×L (kgf·m)		6

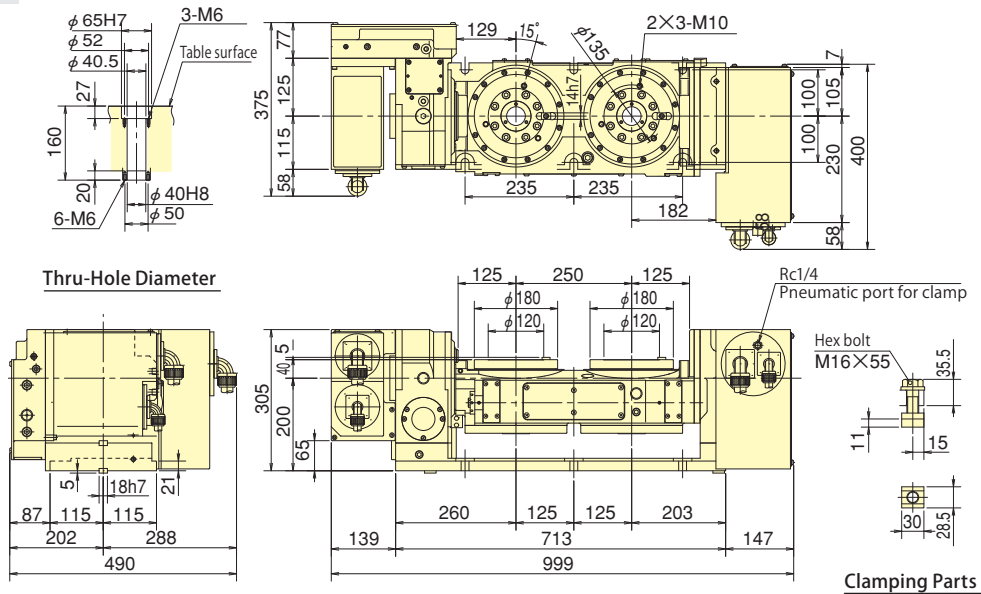
Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. Solenoid valve(s) is (are) incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Each product mass is determined by a Kitagawa M signal spec. 5. In case of additional axis spec., the position and type of supply port may be changed. Contact to Kitagawa on it separately.

# TW 2 180 B R F \*

Type	Table Size	Design No.
Number of tables 2		Motor type (Double axes; same maker) Controller type V : Quinte specification
		Option spec. R : Rotary Joint - : Non-option
		Clamping method B : Tilting axis Air-Hydraulic Rotating axis Only Pneumatic

## Dimensions

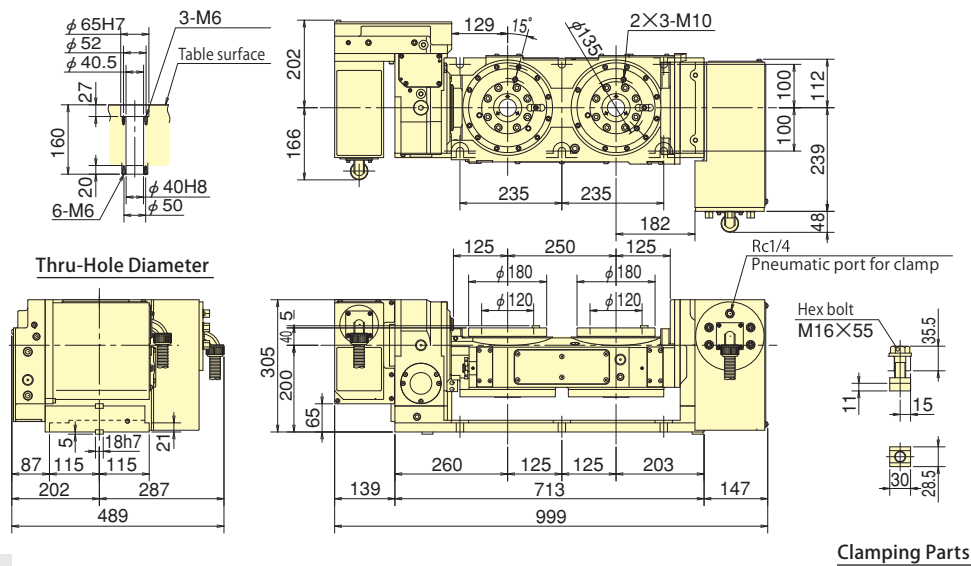
### TW2180 [additional axis specifications]



※Those dimensions may vary from motor to motor that is mounted. Confer with Kitagawa about clamping devices.

### TW2180 [M signal specifications]

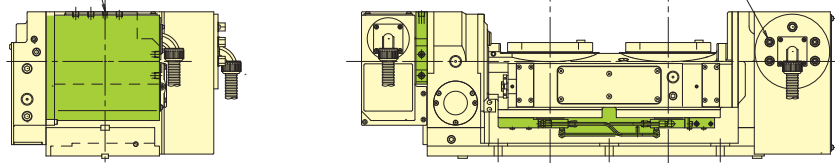
\*The dimensions may vary from motor to motor that is mounted.



### TW2180 [M signal specifications] [with Rotary Joint]

Option : Supply port for rotary joint

Option : Supply port for rotary joint





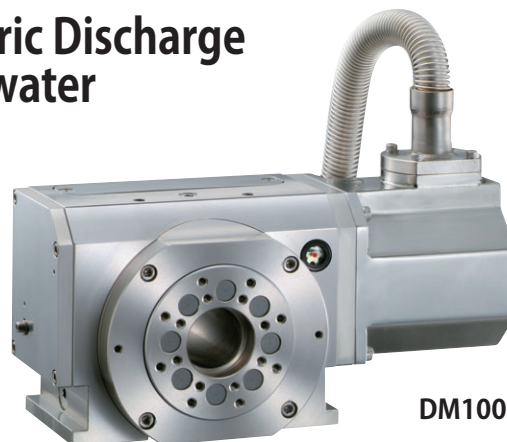
**NC ROTARY TABLE**

# Exclusive NC Rotary Table for Wire Cutting Electric Discharge Machinery **DM100·DME100**

※DME100 : with Encoder type


## Exclusive table for Wire Cutting Electric Discharge M/C Reliable Performance for use in water

- Light weight • Compact
  - Stainless Steel construction and special seals prevent rust and ensure waterproofing
  - Large through hole for long work pieces (DM100)
  - High accuracy and function
  - Special purpose vertical use
  - Patented in Japan (No. 4354773)
- \*CE correspondence

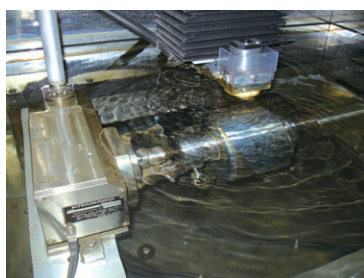


**DM100**

### ■ Specifications

Model		DM100	DME100
Table dia (mm)		φ100	φ100
Centre hole dia (mm)		φ45H7	φ45H7
Through hole dia (mm)		φ40	φ26/φ36
Centre height (mm)		65	65
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.000054	0.000054
Servomotor (for FANUC specification)		βM0.5/4000-B / βiS0.5/6000-B	βM0.5/4000-B / βiS0.5/6000-B
Total reduction ratio		1/120	1/120
Max. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 360min <sup>-1</sup> )	3.0	3.0
	M signal specification(min <sup>-1</sup> /at motor 360min <sup>-1</sup> )	3.0	—
Min. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 0.33min <sup>-1</sup> )	0.00275	0.00275
	M signal specification(min <sup>-1</sup> /at motor 3.6min <sup>-1</sup> )	0.03	—
Allowable work inertia (kg·m <sup>2</sup> )		0.025 (0.05) <sup>Note</sup>	0.025 (0.05) <sup>Note</sup>
Indexing accuracy (sec)		30	16
Repeatability (sec)		5	4
Mass of product (kg)		20	25
Manual tailstock(option)		DM100RN01	DM100RN01
Allowable mass of workpiece	Vertical installation (kg) 	20	20
Max. Machine current (A)		20以下 20 or less	20以下 20 or less
Protection grade		IP68(submerged 0.5m)However, piping opening part is excluded.	IP68(submerged 0.5m)However, piping opening part is excluded.

### Sample Application



▲Rust and waterproof for safe use in water.

(Note)

- There is no clamping method. The described fully-closed spec. Is with Fanuc absolute αiCZ sensor A860-2164-T411.
- Product mass of DM100 is determined by M signal spec.
- Product mass of DME100 is determined by a FANUC spec.
- DME100 is available only for additional axis spec, not for M signal spec.
- The value in ( ) is for using TS and TSR.

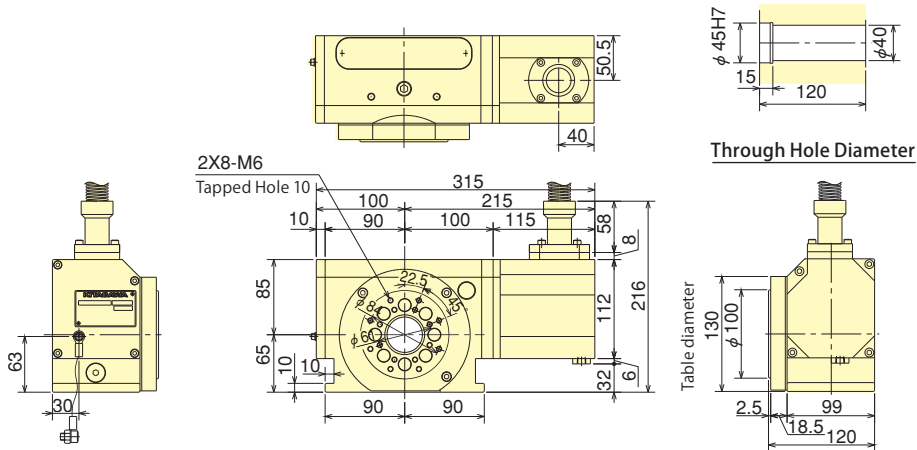
**additional axis specifications**

**M signal specifications**

<b>DM</b>	<b>100</b>	<b>R</b>	<b>*</b>	<b>**</b>	<b>DM</b>	<b>100</b>	<b>R</b>	<b>V</b>	<b>**</b>		
Type		Table Size		Design No.		Type		Table Size		Design No.	
DM: Standard		100		R: Only Right-handed type		DM: Standard		100		R: Only Right-handed type	
DME: with Encoder type				Motor type		DME: with Encoder type				Quinte specification	

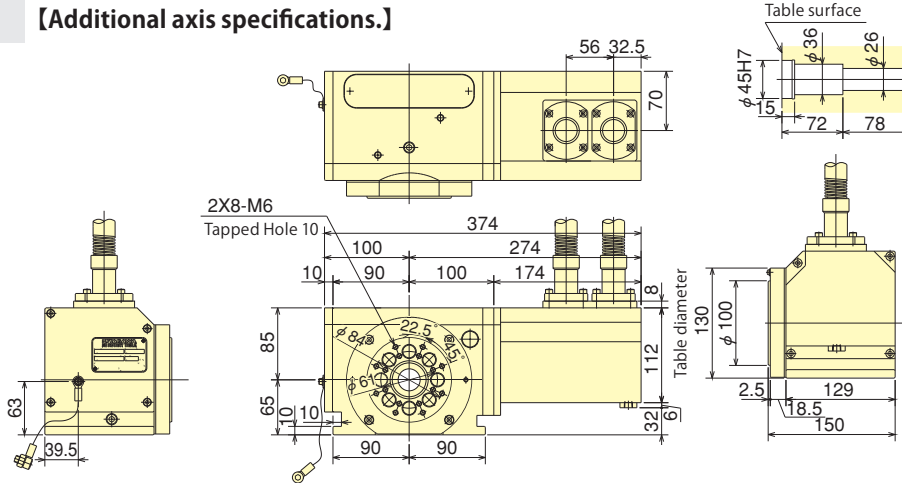
**■ Dimensions** \*The dimensions may vary from motor to motor that is mounted.

**DM100 [Additional axis specifications.] [M signal specifications]**



\*The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.

**DME100 [Additional axis specifications.]**

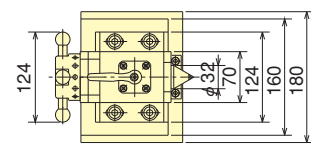
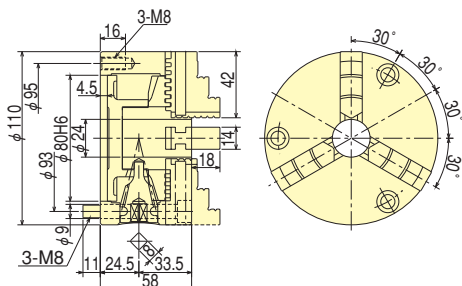


\*The above dimensions are the same as FANUC spec. Those dimensions may vary from motor to motor that is mounted.

**※Dimension of scroll chuck SC-4D** ※Rustproof casing, cover and pinion.

**※Dimension of manual tailstock DM100RN01**

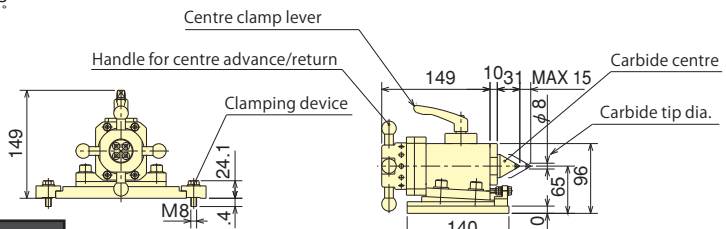
※Rust proof and waterproof. Long work pieces can be supported securely.



**■ Specifications**

Max. allowable handle torque	Max. static gripping force	Max. allowable speed
44.1 (N·m)	12 (kN)	100 (min <sup>-1</sup> )

Mass	Moment of inertia	Gripping diameter(mm)	
		Outside gripping	Inside gripping
3.1 (kg)	0.004 (kg·m <sup>2</sup> )	φ 3~φ 95	φ 29~φ 84



Product mass 11kg



## Quick Indexing NC Rotary Table

# RK201 (with built-in mechanical brake)







**Roller gear & cam mechanism**  
**90° Indexing time: 0.31sec. (Servo-on-holding)**



RK201LA

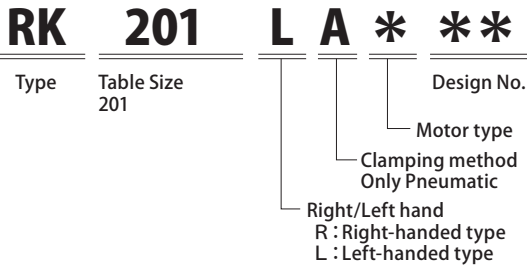
- Quick Indexing
- Non Backlash
- Low maintenance
- \*CE correspondence

### Specifications

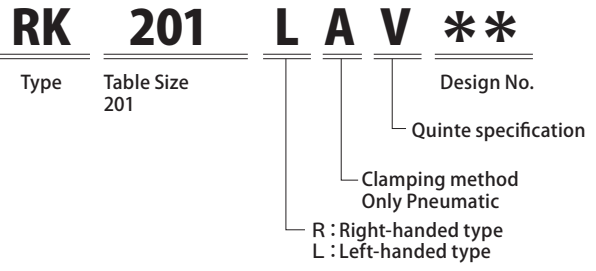
Model		RK201	
Right-handed type		○	
Left-handed type		○	
Table dia (mm)		φ134	
Centre hole dia (mm)		φ80	
Through hole dia (mm)		φ70	
Centre height (mm)		150	
Clamping method		Pneumatic	
Clamping torque(at pneumatic 0.5MPa)(N·m)		Note2) 340	
Max. instantaneous holding torque (N·m)		Note1) (240)	
Max. continuous holding torque (N·m)		Note1) (108)	
Motor axis reduced inertia (kg·m <sup>2</sup> )		0.000507	
Servomotor (for FANUC specification)		Note5) αis8/4000	
Total reduction ratio	4th axis/M signal	1/20	
Max. rotation speed	FANUC specification(min <sup>-1</sup> /at motor 2000min <sup>-1</sup> )	100	
	M signal specification(min <sup>-1</sup> /at motor 2000min <sup>-1</sup> )	100	
Allowable work inertia (kg·m <sup>2</sup> )		0.6	
Indexing accuracy (sec)		20	
Repeatability (sec)		4	
Mass of product (kg)		68	
Manual tailstock (as an option)		TS160RN**	
Tail spindle (as an option)		MSRC150/TSRC150	
Rotary joint (as an option)		RJ70Y20Z03 Hydraulic/Pneumatic 8-port	
Allowable mass of workpiece	Horizontal installation (kg) 	120	
	Vertical installation (kg) 	60	
Allowable load	F (kN) 	11	
	F×L (N·m) 	950	
	F×L (N·m) 	Note1) 108 (Servo-on-holding)	340 (Clamping mechanism)
Allowable cutting torque (Roller gear & cam strength)	T (N·m) 	573	

Note 1. The holding torque limits and allowable load (N·m) above are with Kitagawa's control device Quinte. In case of with additional axis spec. the limits vary per motor used. 2. To shorten the cycle time using RK201, not using the clamping mechanism is recommended. For this case, clamping torque changes to the number at the continuous holding torque. 3. There is no mechanical brake for RK201. Please hold the position by the motor torque when the rotating axis is stopping. 4. RK201 cannot hold the position when the power is turned off or the servo alarm is occurred. There is a possibility that the rotating axis revolve when the power is turned on or restart. 5. When installing RK201 on Fanuc Robodrill, motor is αiF8/3000-B and specifications are different. 6. All rotary tables (except TC, DM and LR) have pressure switches.

**additional axis specifications**

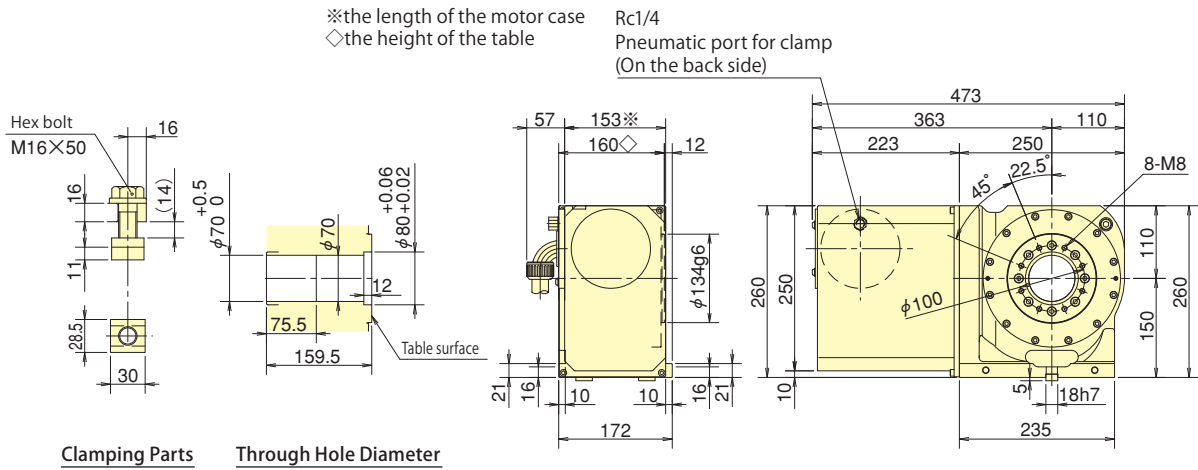


**M signal specifications**

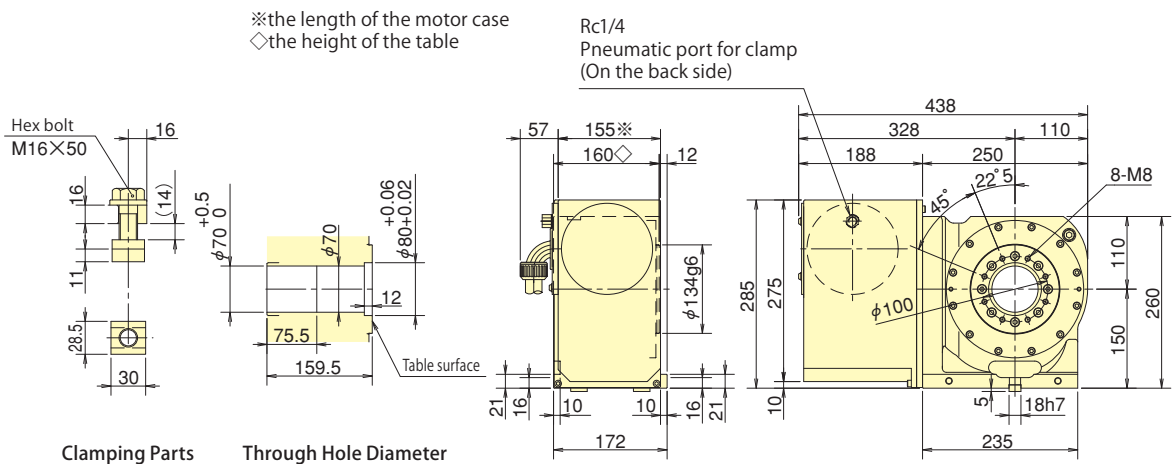


**■ Dimensions**

**RK201 [additional axis specifications]**



**RK201 [M signal specifications]**





# Low maintenance NC tilting Rotary Table

## RKT180

### Optimum solution for the automotive industry Roller Gear and Cam mechanism

- Optimum solution for No.30 compact machining centre
  - Complete built-in Rotary Joint available (Hyd. 5 ports • Pneumatic 1 port)
  - Low maintenance achieved.
- \*CE correspondence



RKT180

※In specification with the foreign trade control ordinance, permission of the ministry of economy, trade and industry is required when exporting twin axis products overseas.

#### additional axis specifications

<b>RKT</b>	<b>180</b>	<b>*</b>	<b>R</b>	<b>**</b>
Type	Table Size 180		Motor type	Design No. Option spec. R : Rotary Joint C : external cylinder - : Non-option

Note) Only pneumatic spec. available for RKT180.

#### M signal specifications

<b>RKT</b>	<b>180</b>	<b>V</b>	<b>R</b>	<b>**</b>
Type	Table Size 180		Quinte specification	Design No. Option spec. R : Rotary Joint C : external cylinder - : Non-option

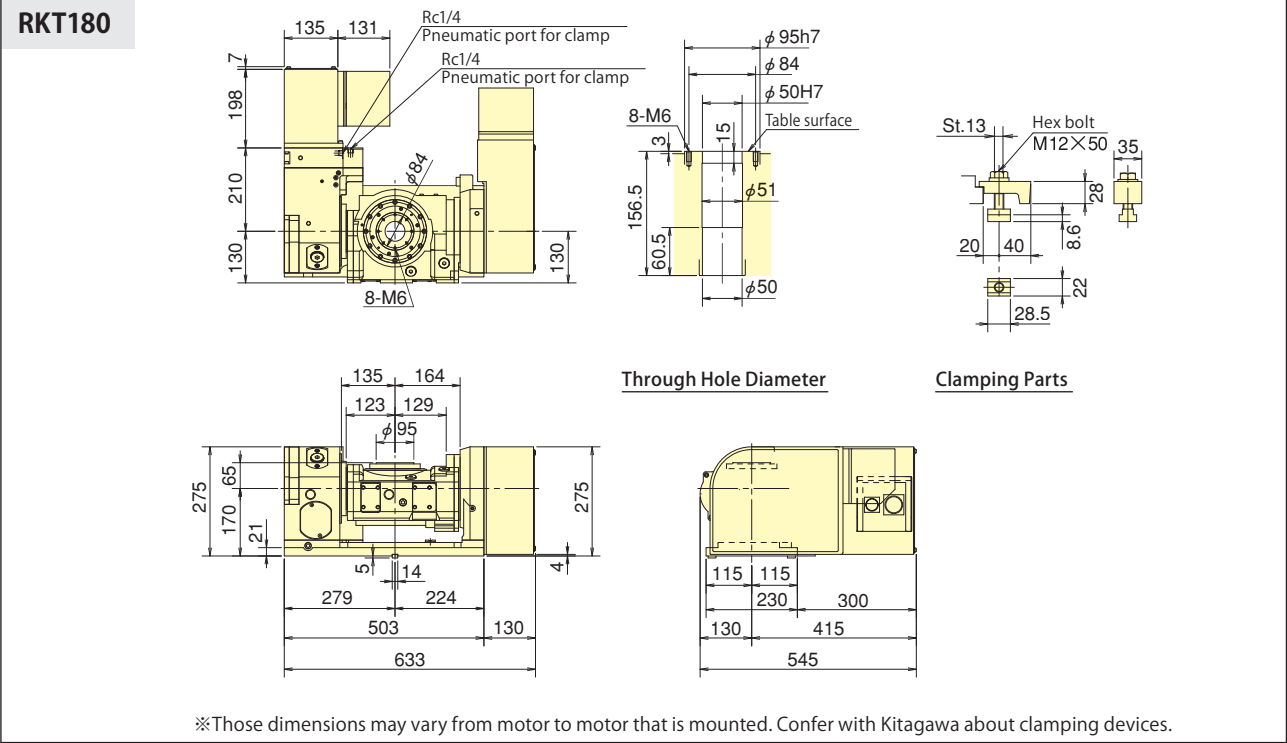
### Specifications

Model		RKT180	
Tilting angle range		-35° ~ +110°	
Table dia (mm)		φ95	
Centre hole dia (mm)		φ50H7	
Through hole dia (mm)		φ50	
Centre height (mm)		170	
Clamping method		Pneumatic	
Clamping torque (at pneumatic 0.5MPa)(N·m)	Rotating axis	350	
	Tilting axis	550	
Motor axis reduced inertia(kg·m <sup>2</sup> )	Rotating axis	0.000239	
	Tilting axis	0.000425	
Servomotor (for FANUC specification)		αisF2/5000-B	
Total reduction ratio	Rotating axis	1/72	
	Tilting axis	1/120	
Max. rotation speed	FANUC specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	25
	M signal specification	Rotating axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	41.6
		Tilting axis(min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	25
Allowable work inertia (kg·m <sup>2</sup> )		0.25	
Indexing accuracy (sec)	Rotating axis	20	
	Tilting axis	20	
Repeatability (sec)	Rotating axis	8	
	Tilting axis	4	
Mass of product (kg)		193	
Built-in rotary joint (Option-P103 reference)		RJ50RKT180 Hydraulic/Pneumatic 5-port + Exclusive Pneumatic 1-port	
Allowable mass of workpiece	at horizontal (kg)		60
	at tilted (kg)		40
Allowable load (When clamped to table)	F (kN)		7.8
	F×L (N·m)		550
	F×L (N·m)		350
Allowable cutting torque (Roller gear & cam strength)	T (N·m)		262
Moment of tilting weight capacity	W×L (kgf·m)		36

Note) 1. The switch for pressure checking is incorporated to all series except TC/DM/LR of NC tables. 2. The solenoid valve for the table clamp is incorporated. 3. Neither cable nor hose is fitted between NC rotary table and machine tool. 4. Each product mass is determined by a Kitagawa M signal spec.

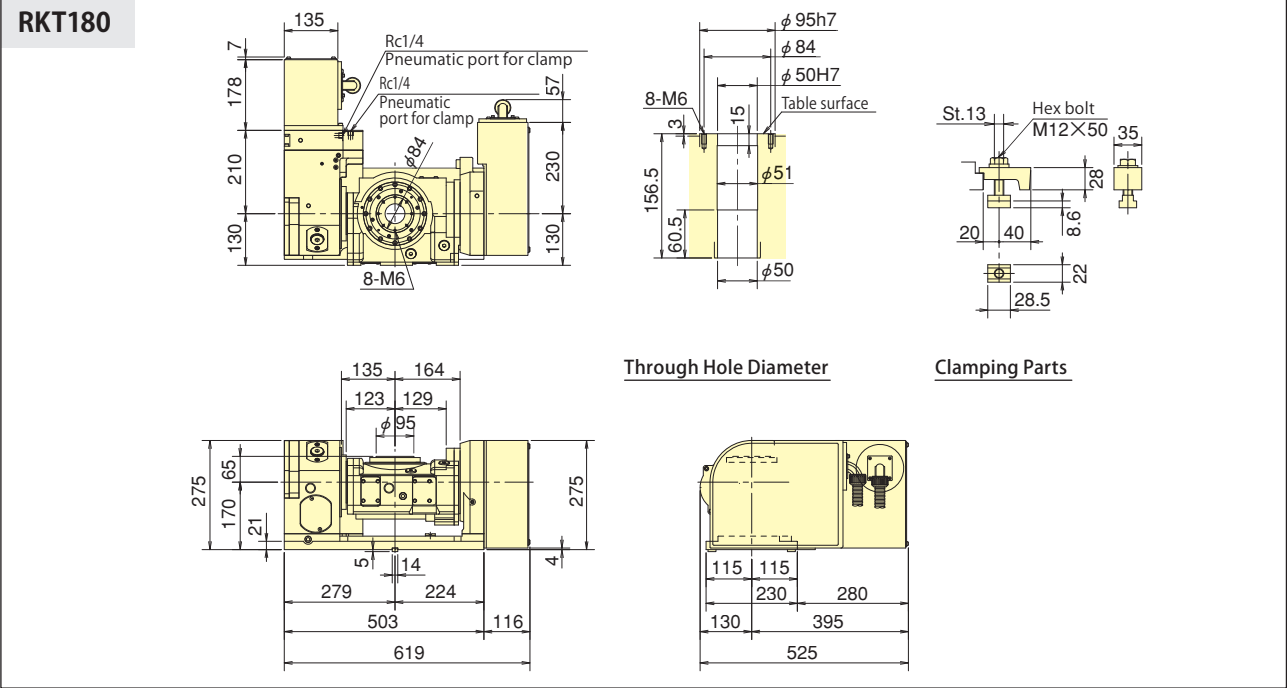


■Dimensions [additional axis specifications]



■Dimensions [M signal specifications]

\*The dimensions may vary from motor to motor that is mounted.



RKT



**NC ROTARY TABLE**

**High Speed NC Rotary Table**

**RS100**

## High Speed Table for Machining Small Work Pieces

- With exclusive controller
- Simple design
- Light weight/compact
- Max. speed 83.3min<sup>-1</sup>
- \*CE correspondence



RS100

### ■ Kitagawa own controller

Model	RS100
Right-handed type	○
Left-handed type	○
Table dia (mm)	φ 105
Centre hole dia (mm)	φ 50H7
Through hole dia (mm)	φ 32
Centre height (mm)	110
Clamping method	Pneumatic
Clamping torque (N·m) (at pneumatic 0.5MPa)	80
Total reduction ratio	1/36
Max. rotation speed (min <sup>-1</sup> /at motor 3000min <sup>-1</sup> )	83.3
Allowable work inertia (kg·m <sup>2</sup> )	0.054
Indexing accuracy (sec)	50
Repeatability (sec)	10
Mass of product (kg)	23
Manual tailstock (as an option · P97 reference)	RS100RN

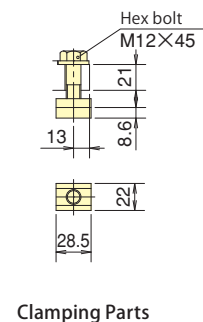
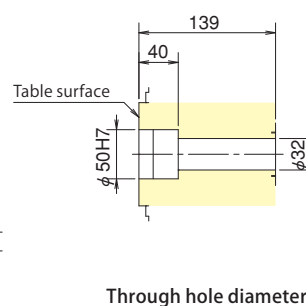
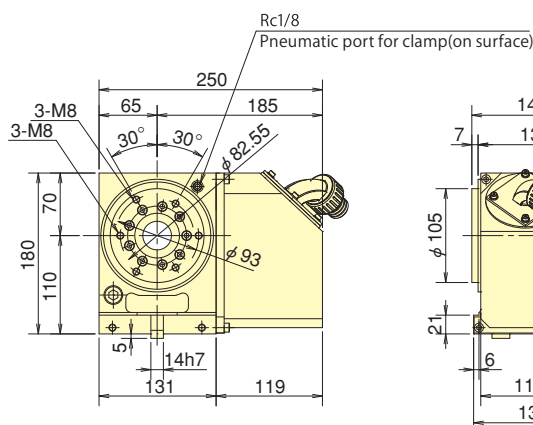
Model	RS100	
Allowable mass of workpiece	Horizontal installation (kg)	60
	Vertical installation (kg)	30
Allowable load (When clamped to table)	F (kN)	6
	F×L (N·m)	200
	F×L (N·m)	82
Allowable cutting torque	T (N·m)	40

Note) This model is for only M signal spec., and it is not provided for additional axis specifications.

### ■ Dimensions

#### RS100R (L) [M signal specifications]

\*The dimensions may vary from motor to motor that is mounted.



※The notation "R" means right-handed type ; "L" means left-handed type.



NC Rotary Table

# TC100

## 5C Collet Manual specification



TC100

### TC100 Specifications

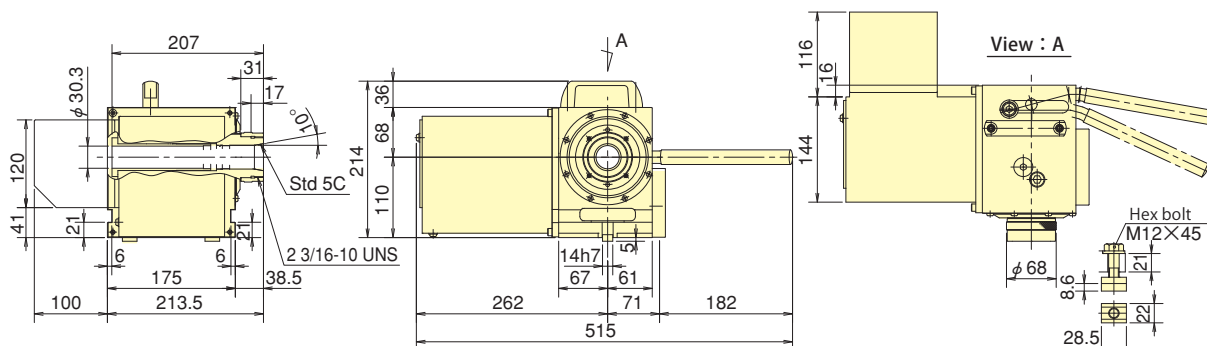
Model	Spindle	Centre height (mm)	Spindle hole (mm)	Collet Thrust force (kN)	Total reduction ratio	Allowable mass of workpiece (kg)	
						Vertical	Horizontal
TC100	5C Collet chuck adaptation	110	φ 30.3	4.8	1/36	30	60

Model	Allowable work inertia (kg · m <sup>2</sup> )	Max. rotation speed (min <sup>-1</sup> )	Indexing accuracy (sec)	Repeatability (sec)	Mass of product (kg)
TC100	0.054	83.3	45	5	24

※Max. rotation speed is subject to 3000 min<sup>-1</sup> of a motor.

### Dimensions

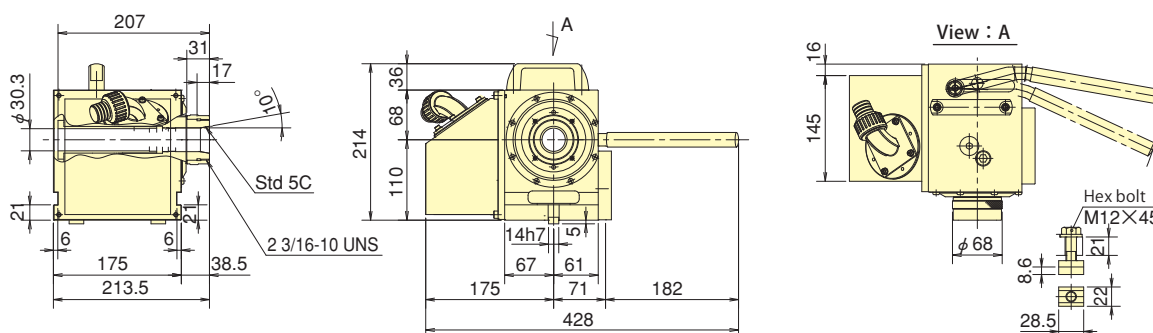
#### TC100 [additional axis specifications]



Clamping Parts

#### TCM100 [M signal specifications]

\*The dimensions may vary from motor to motor that is mounted.



Clamping Parts



### **[Features]**

- Color LCD enables to show various information**  
 As well as current position, the high resolution color LCD can show the running program, motor information and more.
- Easy to input a program**  
 In editing program, interactive display screen prevents easy mistakes.
- Reduce indexing time**  
 Adopting EtherCAT enables high speed communication and shortens the time of indexing.
- Easy to manage programs**  
 Input/output programs and parameters can be managed by MMC (Multi Media Card) that is on the market.

■ **Two types of panels with different operational feeling**

Touch panel type that follows up soft operation and quick operation.  
Click emboss panel type (CS) that offers a sense of security with a firm click feeling.

■ **Select motors in accordance to a use or environment**

There are many variations of motors, and a motor suitable for a particular machining condition can be selected.

**[Selectable motor list]**

Quinte		Single Axis	Double Axis	Powered
Model		QTC100/QTC100CS	QTC200/QTC200CS	QTC300
Matching motor	200W	○	○	—
	400W	○	○	—
	750W	○	○	—
	1000W	○	○	—
	1200W	○	○	—
	1800W	—	—	○
	2000W	—	—	○
	3500W	—	—	○

■ **To use extension I/O enables a variety of usage**

To use extension I/O option enables to select programs and to output WZRN position and M signal from machines.

■ **Manual pulse generator is available**

Manual pulse generator is available to all models as option.

■ **Compatible with a remote control function**

Remote control function by serial communication with machine is available as an option.  
Operation confirmed CNC manufacturer and machine manufacturer.  
FANUC CORPORATION, Mitsubishi Electric Corporation, Okuma Corporation,  
Yamazaki Mazak Corporation, BROTHER INDUSTRIES, LTD.

■ **Conforming to CE and KC standard**

As well as EMC Directive, all models conform to KC mark.

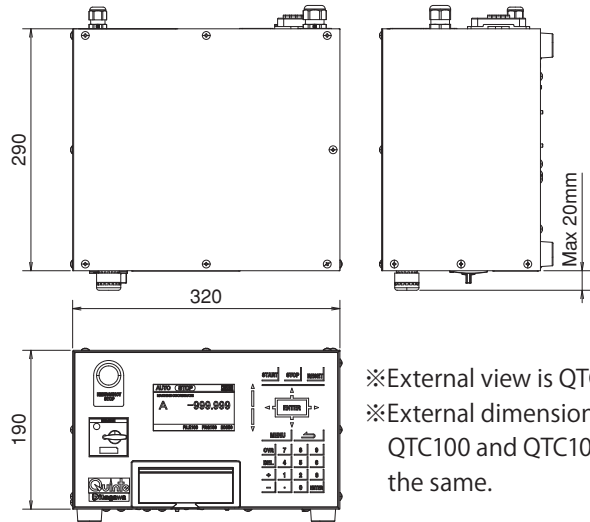
■ **Compatible with absolute encoder 【Custom support】**

Batteries are unnecessary with the adoption of a battery-less absolute encoder<sup>※1</sup>. Coordinates never deviate even with reconnection after removal of cables for Quinte and the rotary table.

※1 Quinte battery is used for the system. However, since power consumption is very small, battery replacement is unnecessary.

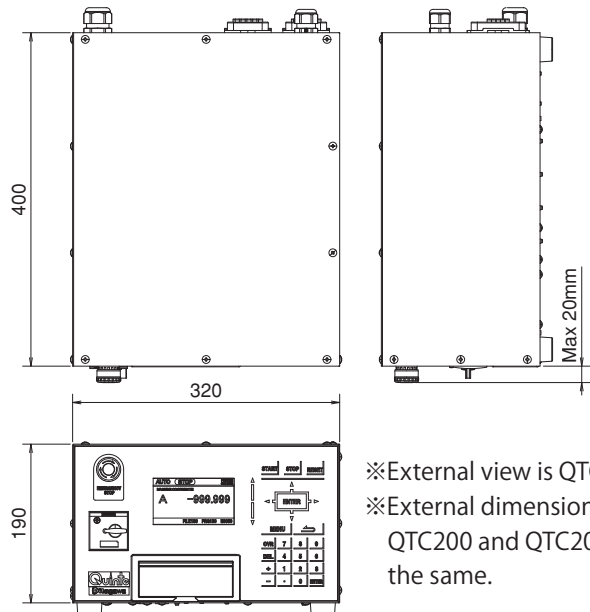
## Outside view / Dimensions

### ■ QTC100 / QTC100CS



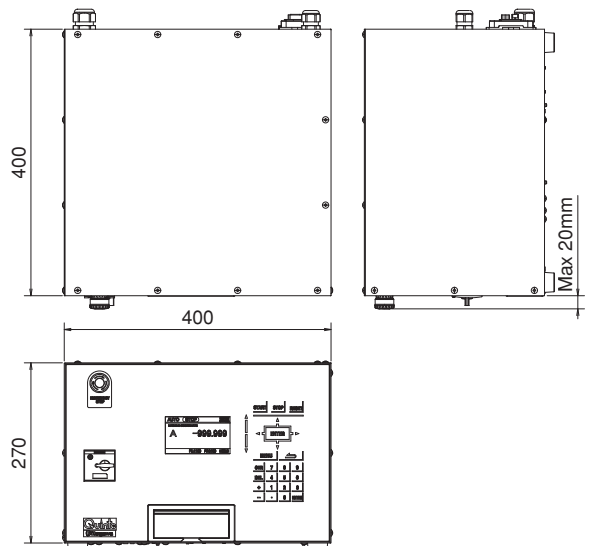
※External view is QTC100.  
 ※External dimensions of the QTC100 and QTC100CS are the same.

### ■ QTC200 / QTC200CS



※External view is QTC200.  
 ※External dimensions of the QTC200 and QTC200CS are the same.

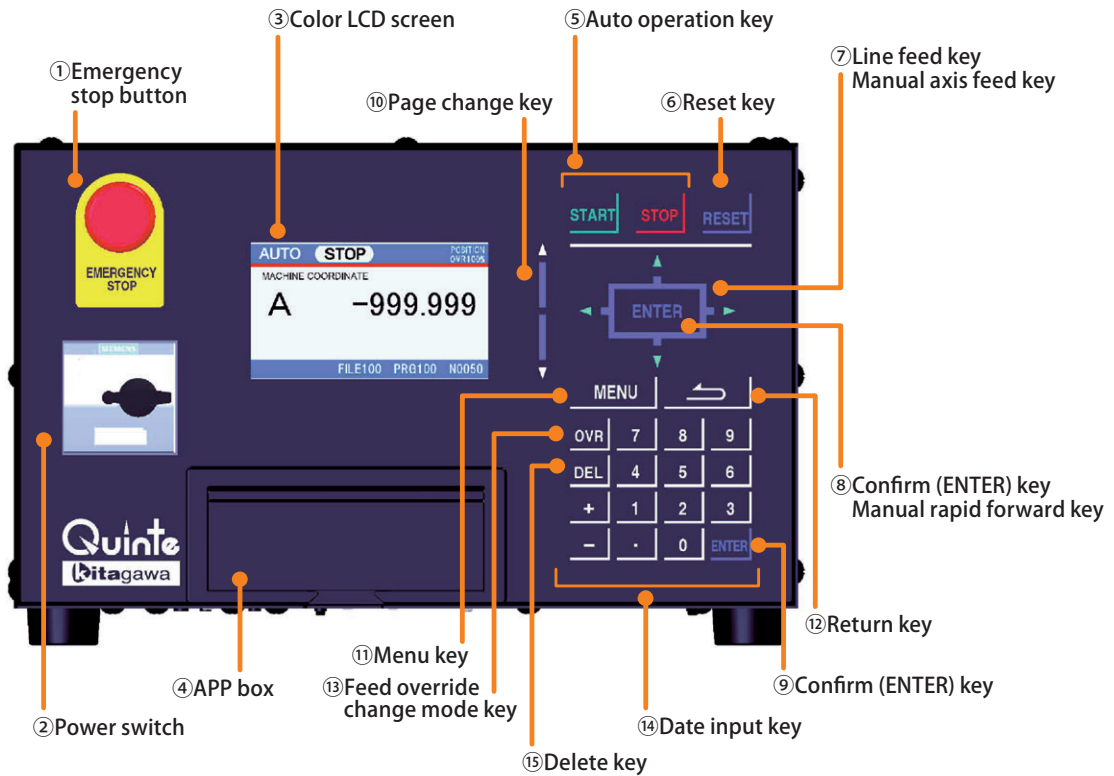
### ■ QTC300



# Quinte Specification

Item	Quinte		
	Single Axis	Double Axis	Powered
	QTC100 / QTC100CS	QTC200 / QTC200CS	QTC300
Controlled axes	1 axis	2 axes	1 axis
Servo Motor	AC servo motor with absolute detector		
Setting Unit	0.001° / 0.0001° (Can be changed by parameters) : 0.001°		
Controlled unit	0.0001°		
Max. setting angle	9999 rotation +360° ±999.999°		
Equal partition	0~9999 partition (divisible to sector)		
Program capacity	Max.program No. 999, Max.2000 blocks per program (depending on program capacity)		
Command method	Absolute / incremental methods(selectable G90/G91)		
Zero position return	Machine zero return and Workpiece zero return(commandable by external input)		
Manual feed	Rapid traverse, slow speed feed, step feed		
EM Stop	Emergency stop button or forced servo stop by the external interlock input+master stop		
	Two pairs of EM stop wires output signal available		
Halt	Halt of rotary table by key input or external SP input		
Feedrate override	Settable to 1-200% (Can be notched to 1-100%)		
Preparatory function (G code)	Dwell, Lead Cutting, Buffer function, Clamp presence, Deviation check function, Interlock start, continuous start, Machine zero return, Workpiece zero return, Repeating function, Loop jump function, Absolute/Incremental, Fin signal control command		
Sub-program function	Enable at M98 command		
Uni-directional approach	Even if rotary direction is changed, positioning from uni-direction is available		
Software limit function	Software limit can be set from machine zero position to prevent interference with the machine by mounting jigs or workpiece.		
Over travel stop function	The hard limit mode can control the rotary range of rotary table		
Backlash compensation	The backlash compensation of rotary table can be set.		
Remote control function	The rotary table is operated by transferring program data for the machine and starting the transferred program.		
Auto notch filter function	Notch filter is automatically detected and can be set up to four stages to suppress machine vibration.		
Alarm function	In case of Error detected, alarm No. and alarm message are automatically displayed. 100 Alarms history log are displayed		
Angle display	Machine coordinate, Work coordinate, Relative coordinate Remained shift, Overall coordinate		
Comment display function	Comments can be added to program data files and programs, and can be displayed on the screen.		
Input power	Single / 3 phases AC200-230V±10% 50/60Hz (Std. 3 phases)		
Power requirement(A)	30	30×2	100
Dimensions(mm)	320(W)×190(H)×290(D)	320(W)×190(H)×400(D)	400(W)×270(H)×400(D)
Mass of product(kg)	10.0	13.0	19.0
Environment	Use temperature : 0 ~ 45°C    Store temperature : -10°C ~ 60°C Use humidity : 20~80% Rh or less (dew condensation, freezing not to be found) Vibration proof : 0.5G or less    Shock resistant : 1G or less Ambient atmosphere : to pollution level 3 (However, do not wet directly with water or oil)		
Display	TFT color liquid crystal 480x272 dot		
External I/O signal	(Input) Start, Stop, External EMG Stop1, External EMG Stop2 (Output) Block completed, EMG Stop output signal1, EMG Stop output signal2, Alarm output signal(B-contact)		
Multiple choice I/O signal (Option)	(Input : 6) Ext Workpiece zero return request 1, Ext Workpiece zero return request 2, Ext Machine zero return request 1, Ext Machine zero return request 2, Ext Program select 1-5, Ext Program set, Ext Auto operation function, Ext reset, Over travel, M Fin signal 1-6 (Output : 6) Workpiece zero return completed 1, Workpiece zero return completed 2, Machine zero return completed 1, Machine zero return completed 2, Workpiece zero return position confirmation 1, Workpiece zero return position confirmation 2, Machine zero return position confirmation 1, Machine zero return position confirmation 2, Alarm signal output(A-contact), AUTO mode selected, External program select completed, External program No. output 1-6, M signal output1-6 ※Can be used from the above signals by parameter layout.		
MMC Slot	Programs and parameters can be uploaded or downloaded by memory card		

## Quinte front surface



**① Emergency stop button**

Stop the table during operation in an emergency.

**② Power switch**

Turn ON/OFF controller power.

**③ Color LCD screen**

Display current position, programs, parameters and more.

**④ APP box**

Battery and MMC slot are in the APP box.

**⑤ Auto operation key**

The key to start and stop the program.

**⑥ Reset key**

Reset programs and alarms.

**⑦ Line feed key/Manual axis feed key**

The key is for cursor movement and for jog feed operation in manual mode.

**⑧ Confirm (ENTER) key/Manual rapid forward key**

Determine and confirm things that have been selected and perform a Manual rapid forward by sliding from the manual axis feed key in the manual mode.

**⑨ Confirm (ENTER)key**

Determine and confirm input for each part, popup etc., in various ways.

**⑩ Page change key**

The key to change the page.

**⑪ Menu key**

Display menu window.

**⑫ Return key**

Return to the previous screen

**⑬ Feed override change mode key**

Adjust the feed speed.

**⑭ Date input key**

Input program and data.

**⑮ Delete key**

Delete one letter of numerical values input such as program or parameter.



## LCD EXAMPLES

AUTO STOP		POS RT OVR 100%
WORKPIECE		
A	-111.111	CLAMP A <input type="radio"/>
B	987.654	UNCLAMP A <input checked="" type="radio"/>
		SOLENOID A <input checked="" type="radio"/>
PRG100 (FILE010)		
N0050		
G 91		
A	-999.999	CLAMP B <input type="radio"/>
B	-999.999	UNCLAMP B <input checked="" type="radio"/>
F	999.999	SOLENOID B <input checked="" type="radio"/>
M	98 P 1000	+OVER TRAVEL <input checked="" type="radio"/>
		-OVER TRAVEL <input checked="" type="radio"/>

### 【Screen for Auto mode】

Monitoring the present coordinate (machining coordinate), programming and condition of the Rotary table in real-time.

MANU STOP		POSITION OVR 100%
WORKPIECE COORDINATE		
A	-999.999	
B	45.123	
7:ORIGIN-A    9:ORIGIN-B    JOG OPERATION		
4:WZERO-A    6:WZERO-B    ◀/▶/ENTER: A-axis		
1:MZERO-A    3:MZERO-B    ▲/▼/ENTER: B-axis		

### 【Present coordinate screen at manual mode】

Enlarged to show present coordinate  
At the bottom of the screen, the wizard for origin return and Jog operation are displayed.

PRG RESET		PRG EDIT OVR 100%
PRG001 (FILE001)		
N0010		
G 91 A-999.999 B-999.999		
F 999.999 D9999 M98 P999 L999		
PROGRAM EDIT		
N 0010	D	<input type="text"/>
G	C	<input type="text"/>
A	M	<input type="text"/>
B	P	<input type="text"/>
F	L	<input type="text"/>
		<input type="button" value="Overwrite"/>
		<input type="button" value="Insert"/>
		<input type="button" value="Cancel"/>

### 【Program edit screen】

Reducing the mistakes and shortening the programming time are expected through inserting the section corresponding to the code

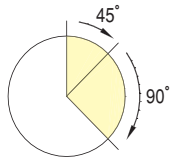
ALM RESET		ALM HISTORY OVR 100%
ALM No	AXIS	DATE
SV020	<A>	2012-07-09T08:25
SV020	<B>	2012-07-09T08:25
SY005		2012-06-25T13:40
SY022	<B>	2012-06-12T10:38
SY045	<A>	2012-05-30T19:20
SY071	<A>	2012-05-29T23:15
SY071	<A>	2012-05-29T23:01
SY071	<A>	2012-05-29T22:05
SY071	<A>	2012-05-29T21:45

### 【Alarm history screen】

This screen displays history of the past 100 alarms.

## PROGRAM EXAMPLES

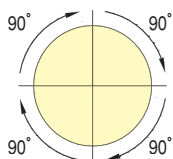
### ANGLE INDEX



```
N0000 A 45.000 F0
      Index angle Rapid traverse
N0001 A90.000 M30
      Jump destination
```

Rotates 45° at rapid traverse and returns to N0000 after rotating 90°

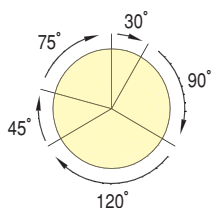
### EQUIPARTITION



```
N0000 A360.000 F0 D4 M30
      Partition angle Divided partition
```

Rotates with circle of 360° divided into 4-partition (every 90) at rapid traverse and returns to N0000 after operating 4 times.

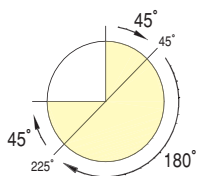
### UNEQUAL PARTITION



```
N0000 A 30.000 F0
N0001 A 90.000
N0002 A 120.000
N0003 A 45.000
N0004 A 75.000 F5.000 M30
              Feed rate
```

Rotates 45° at rapid traverse, 90°, 120°, 45° and 75° at federate 5.000min<sup>-1</sup> before returning to N0000.

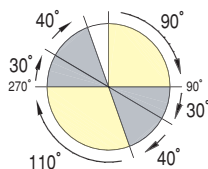
### ABSOLUTE / INCREMENTAL



```
N0000 G90 A45.000 F0
      ABS command Index position
N0001 A225.000
      Index position
N0002 G91 A45.000
      INC command Partition angle
```

Rotates 45° at rapid traverse under absolute mode, Rotates 225°. Rotates 45° under incremental mode.

### SUBPROGRAM



```
PRG001
N0000 A90.000 F0
      Subprogram repeating times
      M98 P002 L1
      Subprogram command Subprogram jump destination

N0001 G90 A270.000 M98 P003 L1

PRG002
N0000 G91 A30.000
N0001 A40.000 M99
      Subprogram end

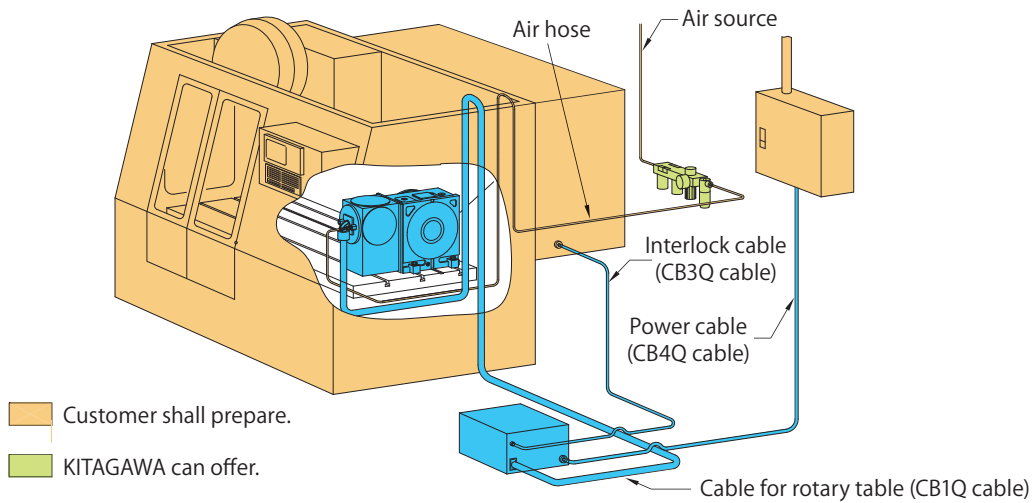
PRG003
N0000 G91 A30.000
N0001 A40.000 M99
```

Program No.1  
Rotates 90° at rapid traverse and jumps to PRG002  
Rotates 270° at rapid traverse under absolute mode and jumps to PRG003

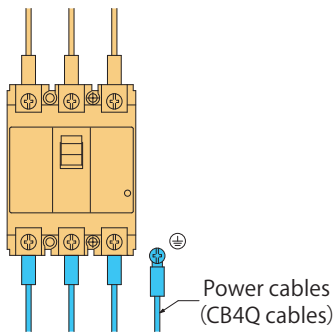
Program No.2  
Rotates 30° under incremental mode  
Rotates 40° and returns to original subprogram command point

Program No.3  
Rotates 30° under incremental mode  
Rotates 40° and returns to original subprogram command point

# Connection



## Power Supply



Supply power to controller.  
Customer shall prepare exclusive circuit breaker.  
Specifications of circuit breaker are as follows:

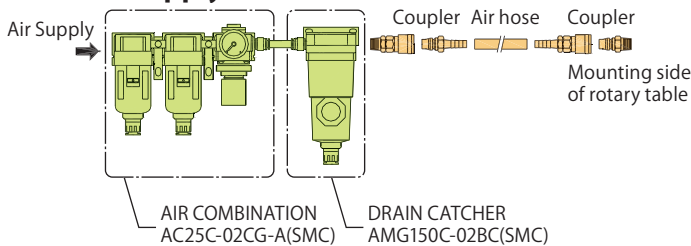
Type	Capacity
QTC100/QTC100CS	10A
QTC200/QTC200CS	15A
QTC300	20A

Connect an earth wire of Class D (Class No. 3). Moreover, when the earth leakage breaker is used, it is recommended to use the breaker for which sensitivity current is 100mA or more, an operation time is 0.1 second or more, or a high frequency measure is taken in order to prevent the motor from the malfunction caused by a motor's high frequency.

## Connection for external interlock

When the rotary table is interlocked with the external equipment, it is need to be controlled with M signals from the external equipment.  
The external equipment must be equipped with the connection (terminal board) for M signal OUTPUT, M signal completed INPUT etc., by machine maker.

## Air Supply

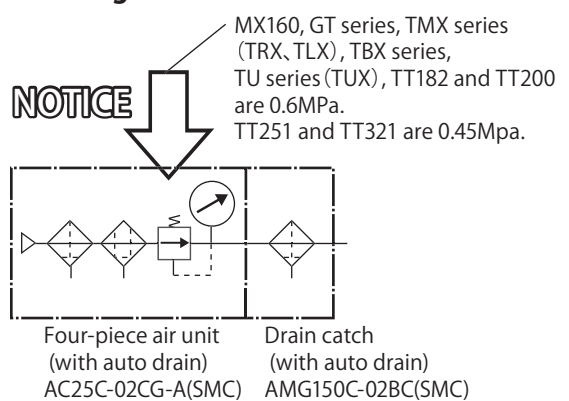


The rotary table is clamped by air.  
Therefore, please prepare the following components.

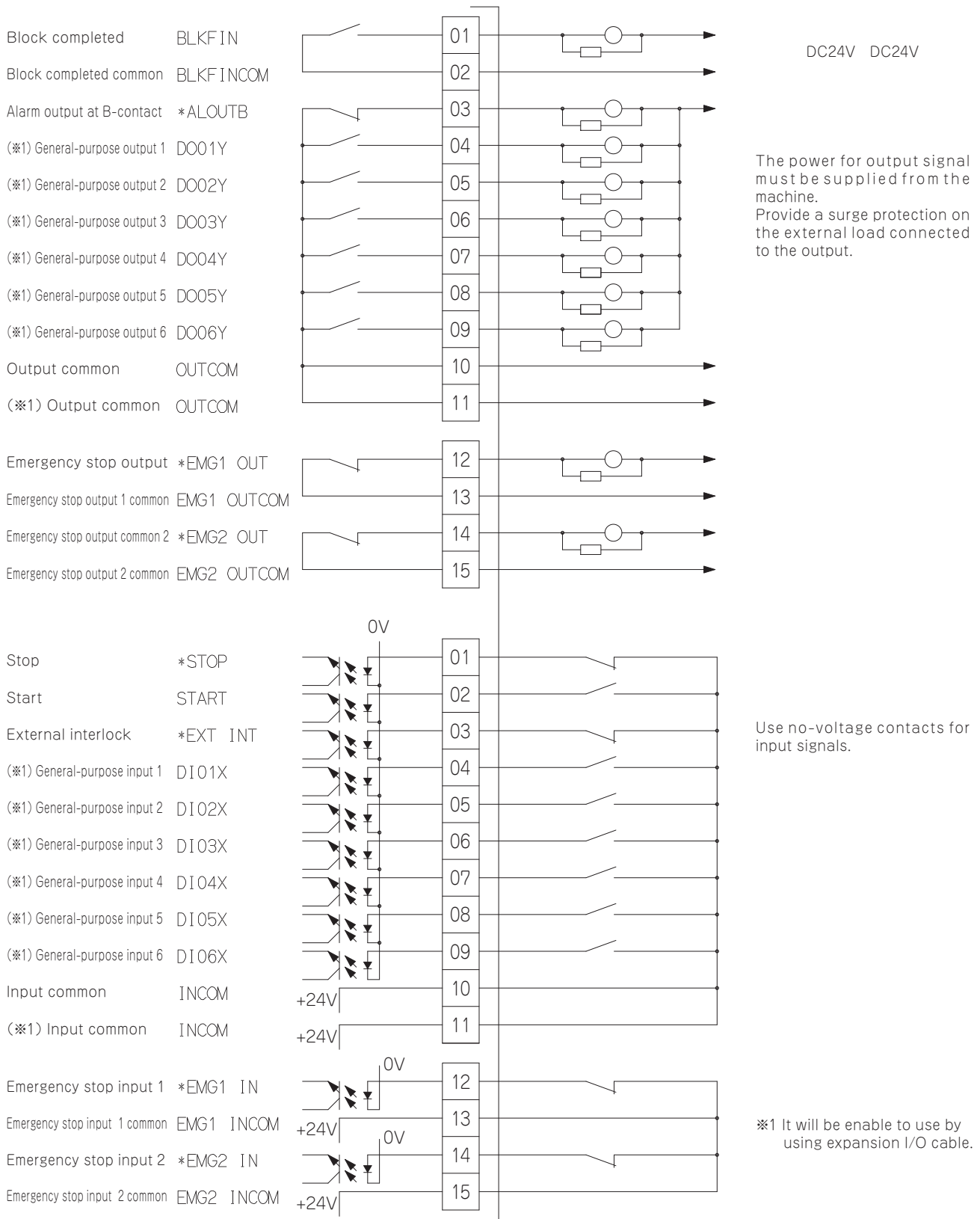
- Air combination
- Drain unit
- Air hoses or air tubes (incombustibility)
- Couplers for connection

※Air-Unit should have the specification with Auto drain port

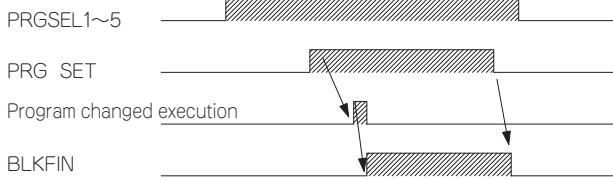
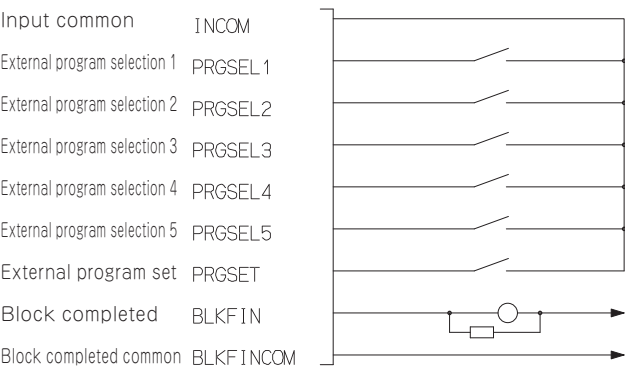
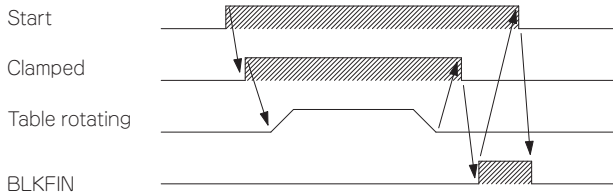
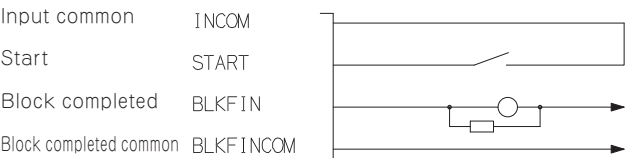
## Air Diagram



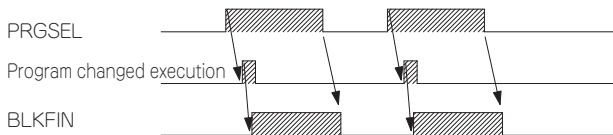
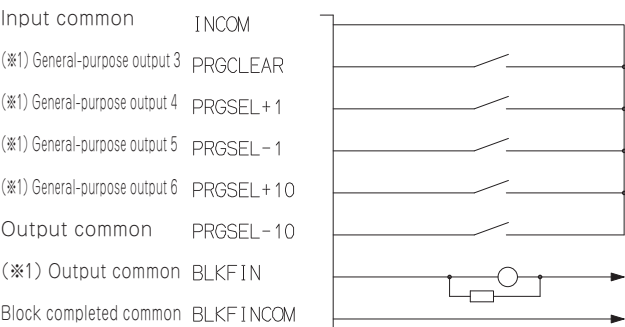
## Mutual Connection diagram



# Machine Connection Diagram (Example)



※The program available on binary mode are PRG001 through PRG31. PRGSEL PRGSEL



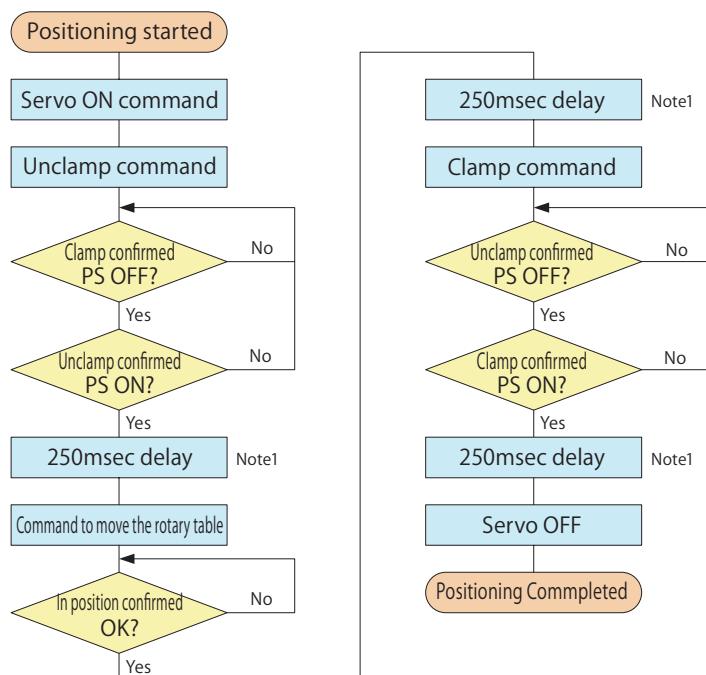
※The channels available on M-signal mode are PRG001 through PRG999.

※For external program selection, extension I/O option is required.

## Control Flow-Chart

It is in principle recommended for Kitagawa's NC rotary table control to turn the servo OFF while clamping.

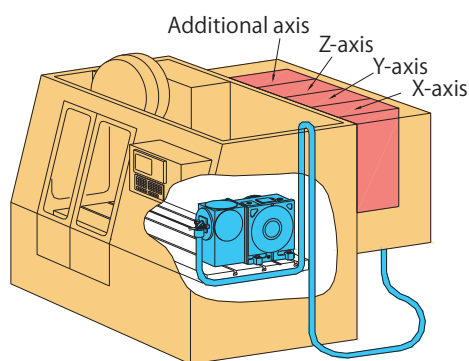
### Semi-/Full-Closed Loop



Note1) The delay timing here is a recommended value. It may differ with different parameters or specifications.

## Methods for Controlling NC Rotary Table

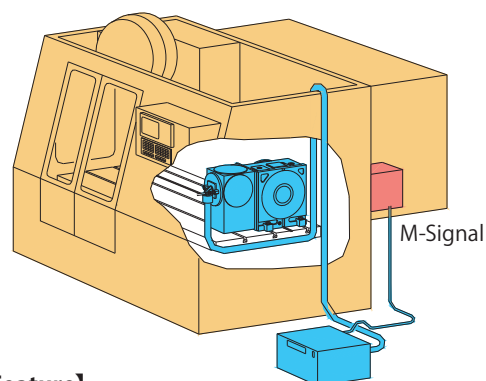
### Additional-Axis Method



#### [Feature]

- ◆ NC Rotary Table is controlled as the NC Axis of the machine.
- ◆ Interpolation machining is possible with X-, Y- and Z-axis of the machine.
- ◆ Program can be controlled on the machine.

### M-Signal Method



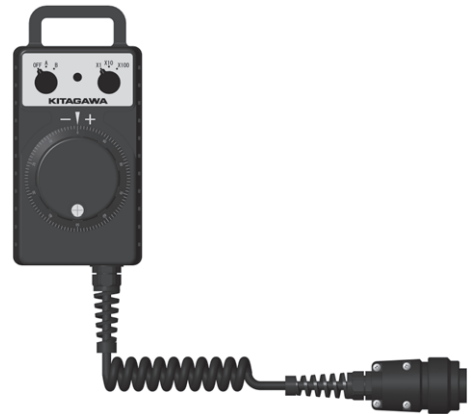
#### [Feature]

- ◆ NC Rotary Table is controlled by a separate controller, and not as the NC Axis of the machine.
- ◆ NC Rotary Table can be fitted with machine with no compatibility for an additional axis, as long as M-signal is available.
- ◆ NC Rotary Table can easily be transferred to another machine.

## Quinte Series OPTION

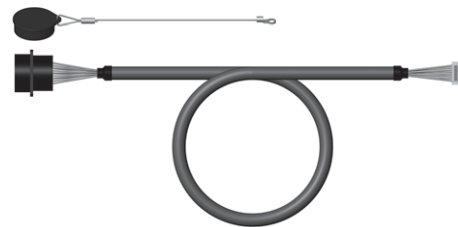
### ■ Manual Pulse Generator (Holder attached)

This pulse generator can operate the table at  $0.1^\circ$ ,  $0.01^\circ$  and  $0.001^\circ$ , and it adjusts jig easily. The QTC200 series can support with one hand-operated pulse generator by an axis select.



### ■ Manual pulse generator internal cable [HC1-IC-Q]

A relay cable for the inside of the Quinte panel is necessary for use of the manual pulse generator. A dust cap and 4 installation screws are included with the HC1-IC-Q.



### ■ Extended I/O cable (5m)

With the Expansion I/O cable, extended functions like External program selection, M signal output and more are enabled.

- ※For the enable signals, refer to multiple choice I/O signal on the Quinte Specification page.
- ※Cable length can be changed.



### ■ Remote control function cable (5m)

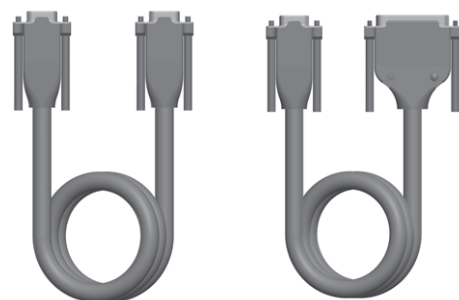
#### ○ RS232C Cable [RSCB0909/RSCB0925]

In order to use the remote control function, a RS232C Cable (for use between machines) is required.

RSCB0925 is 9-25 pin, and RSCB0909 is 9-9 pin.

Please select according to the shape of the RS232C port on the machine side.

- ※Cable length can be selected from 2m/3m/5m.



[RSCB0909]

[RSCB0925]

#### ○ Remote relay cable [RC2-IC-Q]

In order to use the remote control function, a relay cable for inside the Quinte panel is required. A dust cap and 4 installation screws are included with the RC2-IC-Q.



## Quinte Series OPTION

### ■ For Kitagawa own controller Quinte series Manual Operation Pendant

#### 【Features】

- Enables to operate NC rotary table with watching its movement closer  
Easy holding style with one hand expands operating range  
Light weight cable allows high-accessibility to fixtures
- OEL display  
The light-emitting character with a high contrast ratio achieves high visibility even in a dark place or machine.
- Smooth touch operating key switches  
Achieve smooth operability without moving part in the operation part and key layout by function.
- Water and dust resistance  
Ensure water and dust resistance by the protection grade IP54.
- Easy installation by a strong magnet  
Able to be temporarily placed on vertical surface without sudden fall off.
- Able to be additionally installed to Quinte  
MOP is available with Quinte by installing a dedicated cable to Quinte and updating the F / W of Quinte.



#### ■ Dimensions



#### ■ Specifications

##### ● Display specifications

Display device	OEL display
Display type	Character display
Display resolution	20 characters × 4 lines

##### ● Operating specifications

Operating type	Capacitance switch, mutual capacitance type
Enable switch	2 positions
Buzzer	Frequency:3520Hz Sound pressure:0~75dB(10 steps)

##### ● Environmental specifications

Operating temperature range	0~45°C
Operating humidity range	Less than 20~80%RH(no condensation)

##### ● Structure specifications

Cable length	3m
Protection structure	IP54(Except cable connector part)
Mass	450g (Except cable)

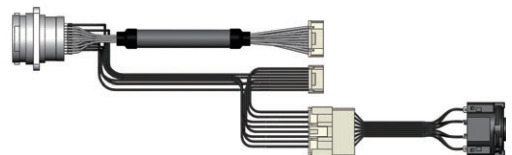
#### ■ Option

##### ● MOP internal cable [MOP-IC]

When using MOP, a relay cable to the inside Quinte panel must be prepared.  
4 screws are supplied with MOP-IC for installation.

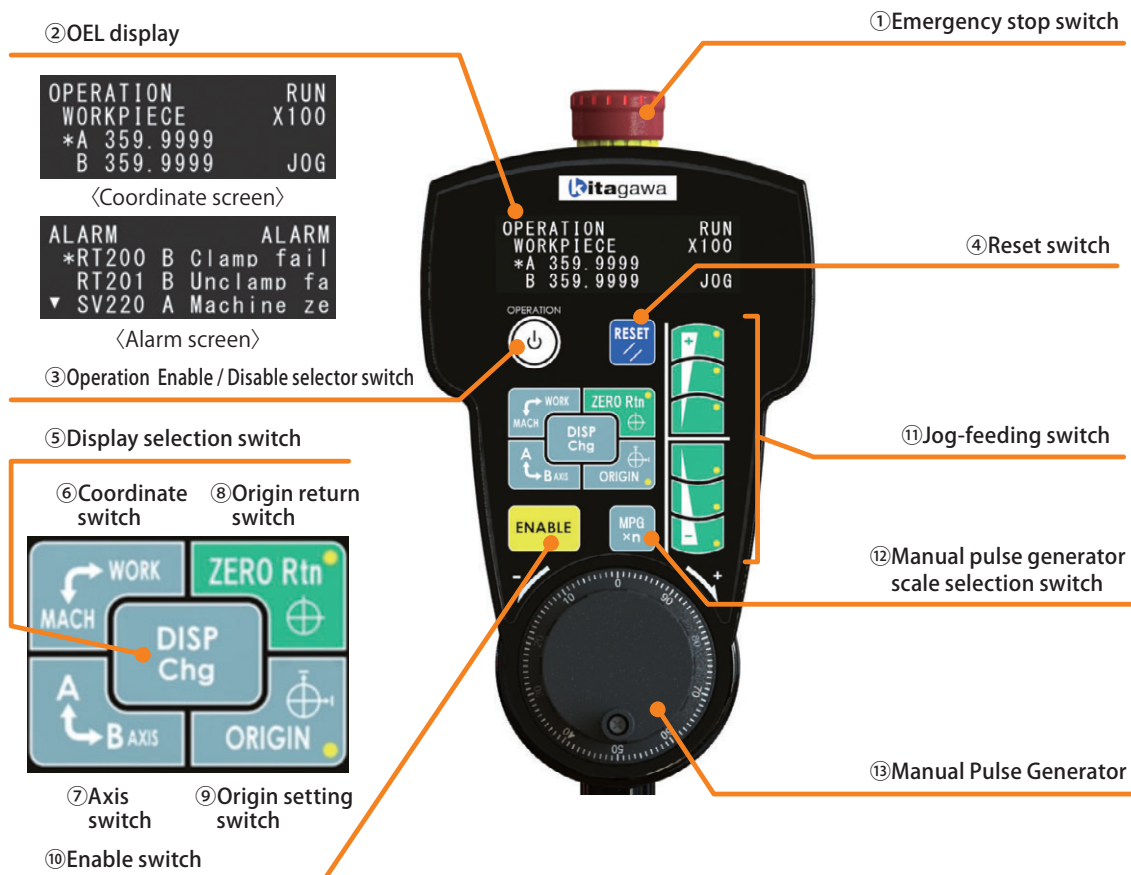
##### ● MOP Dummy Connector [MOP-DCN]

Connector for short-circuiting an emergency stop circuit when not connected to MOP.  
In case using one MOP to plural Quinte units, MOP-DCN is needed for Quinte which is not connected to MOP.  
MOP-DCN is needed to cancel the emergency stop.





## Manual operation pendant features



### ① Emergency stop switch

Emergency stop for NC rotary table in operation.

### ② OEL display

Display coordinate system, coordinate data and operation state.

### ③ Operation Enable / Disable selector switch

Prevent unintended erroneous operations by selecting the Enable / Disable of the MOP operation.

### ④ Reset switch

Reset the alarm.

### ⑤ Display selection switch

Switch the coordinate screen and alarm screen.

### ⑥ Coordinate switch

Switch machine coordinate and work coordinate.

### ⑦ Axis switch

In case using MOP for QTC200 series, switch axis operating (axis A/B)

### ⑧ Origin return switch

Return to original position. ※1

### ⑨ Origin setting switch

Set the origin. ※1

### ⑩ Enable switch

This switch will allow the operation such as JOG, returning to zero position, and origin setting which unintended changes might lead to dangerous. ※2

### ⑪ Jog-feeding switch

JOG operation of the NC rotary table.

Select 3 levels of the rotating speed.

While operating reset switch and jog-feeding switch at the same time, the buzzer volume can be adjusted.

### ⑫ Manual pulse generator scale selection switch

Select the pulse magnification.

### ⑬ Manual Pulse Generator

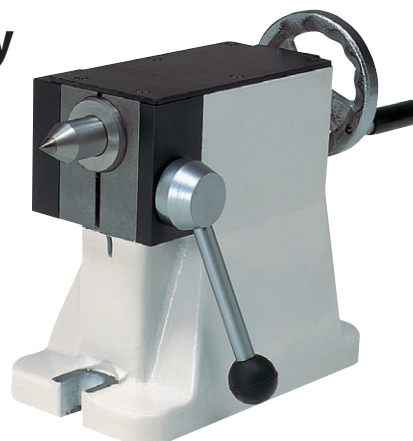
Generate pulse for operating NC rotary table.

※1 This switch is for the axis and coordinate systems which selected at ⑥ and ⑦.

※2 Simultaneously operated with keys which have the yellow ● marks on the right side.

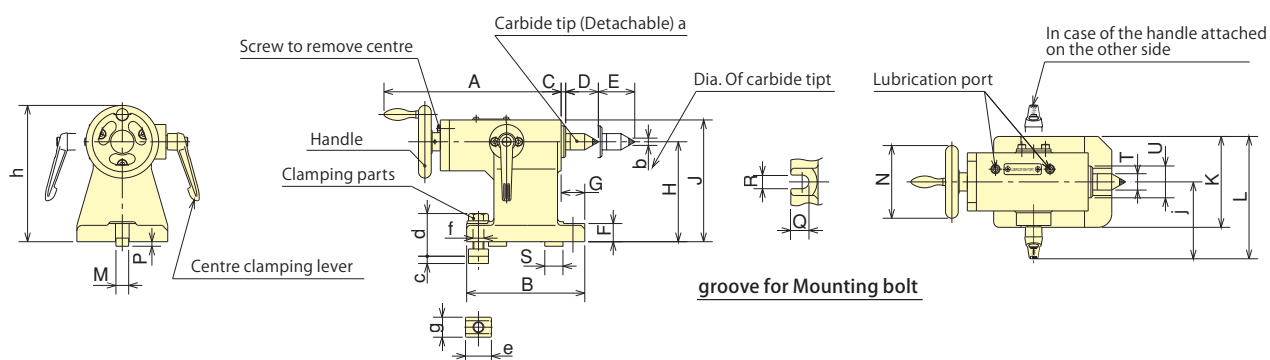
### Supports long work pieces securely

- Removable carbide centre
- Clamp handle can be installed on left or right side
- Notch type clamp handle (only for RS160, MR120, MR160 series)

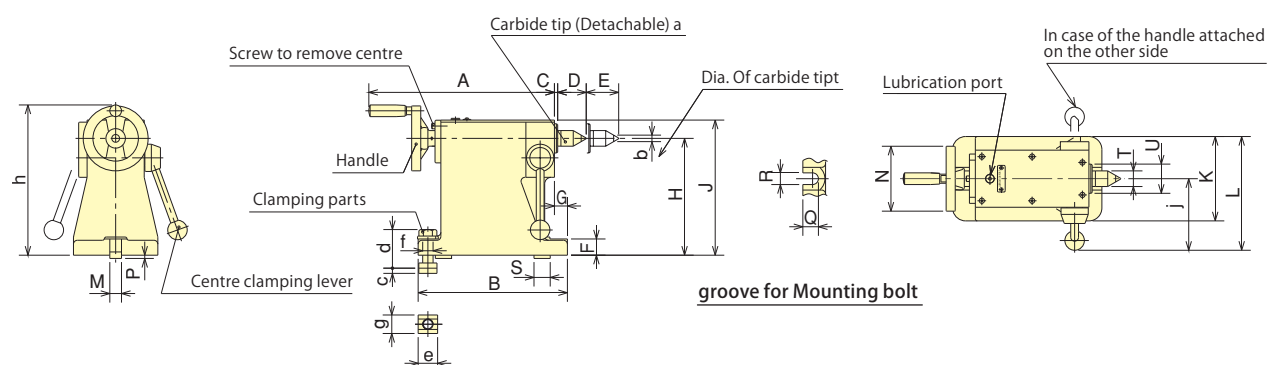


### ■ Dimensions

#### RS100/MR120/MR160 Dimensions



#### MR/TS Dimensions



### ■ Dimensions of manual tailstock

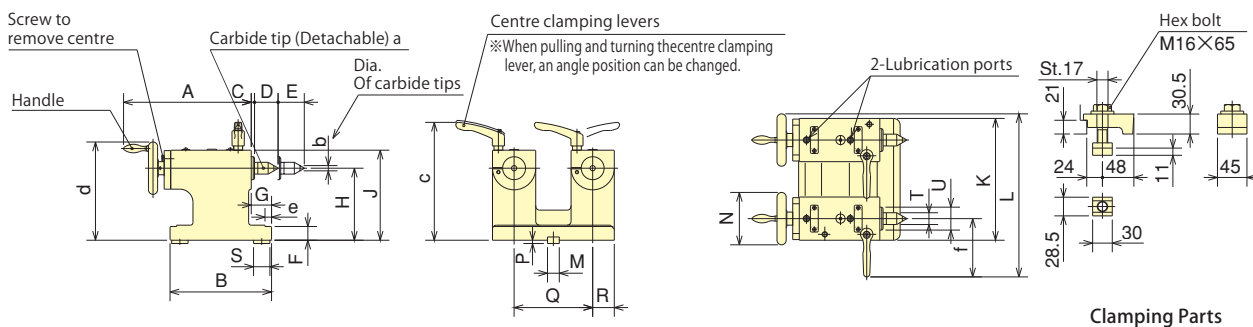
Model	Dimensions																				Mass of product (kg)								
	A	B	C	D	E Max.	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	a		b	c	d	e	f	g	h	j
RS100RN	195	130	5	36	40	20	26	110	134	100	135.5	14h7	φ80	5	20	15	20	φ18	φ35	MT-2	φ8	8.6	47	28.5	M12	22	150	85.5	8
MR120RN	185	130	5	36	30	20	26	120	144	100	135.5	14h7	φ80	5	20	15	20	φ18	φ35	MT-2	φ8	8.6	47	28.5	M12	22	160	85.5	9
MR160RN	185	140	5	36	30	25	31	140	164	120	145.5	18h7	φ80	5	24.5	19	25	φ18	φ35	MT-2	φ8	11	58	30	M16	28.5	180	85.5	10
TS160RN	286	220	5	44	50	20	15	120	149.5	110	160	18h7	φ100	5	22	19	25	φ24.1	φ45	MT-3	φ10	11	54.5	30	M16	28.5	170	103	12
MR200RN TS200RN	286	230	5	44	50	25	20	140	169.5	120	163	18h7	φ100	5	24.5	19	25	φ24.1	φ45	MT-3	φ10	11	59.5	30	M16	28.5	190	103	16
MR250RN TS250RN	286	230	5	44	50	25	20	180	209.5	130	176	18h7	φ100	5	24.5	19	25	φ24.1	φ45	MT-3	φ10	11	59.5	30	M16	28.5	230	111	20
MR320RN TS320RN	286	230	5	44	50	25	20	225	254.5	150	186	18h7	φ100	5	24.5	19	25	φ24.1	φ45	MT-3	φ10	11	59.5	30	M16	28.5	275	111	24
TS400RN	401	320	3	52.4	70	35	17	255	305	210	261	18h7	φ140	5	28.5	19	25	φ31.6	φ65	MT-4	φ14	11	69.5	30	M16	28.5	325	156	67
TS500RN	401	320	3	52.4	70	35	17	310	360	210	261	18h7	φ140	5	28.5	19	25	φ31.6	φ65	MT-4	φ14	11	69.5	30	M16	28.5	380	156	80
TS630RN	461	330	5	70	80	40	15	400	455	260	317	18h7	φ160	5	32.5	19	25	φ44.7	φ80	MT-5	φ18	11	94.5	30	M16	28.5	480	187	100

## Supports long work pieces securely

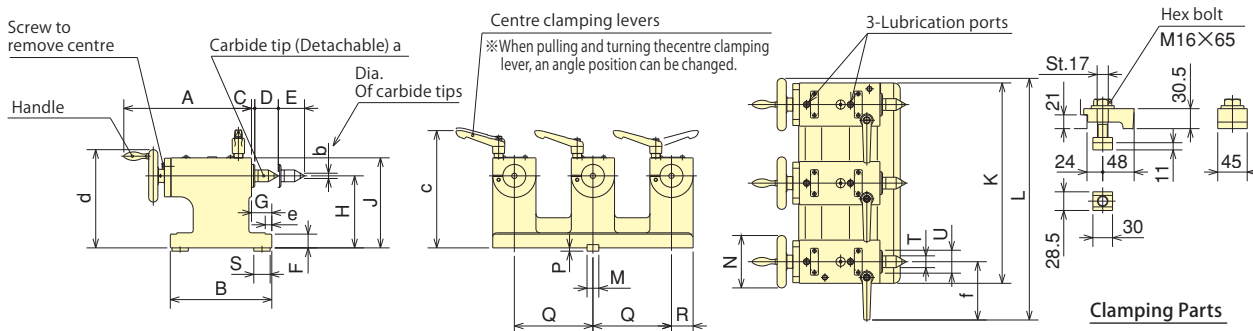
- Removable carbide centre
- Clamp handle can be installed on left or right side
- Notch type clamp handle

### Dimensions

#### TS2100/TS2160 Dimensions



#### TS3100/TS3160 Dimensions



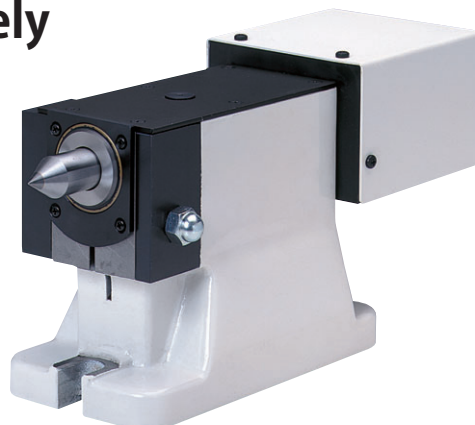
### Multi Spindles Dimensions

Model	Dimensions																				Mass of product (kg)					
	A	B	C	D	E Max.	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	a		b	c	d	e	f
TS2100RN	195	155	5	36	40	21	31	110	138	186	249	18h7	φ80	5	120	33	25	φ18	φ35	MT-2	φ8	180	150	10	89	17
TS2160RN	195	155	5	36	40	21	31	140	168	266	329	18h7	φ80	5	200	33	25	φ18	φ35	MT-2	φ8	210	180	10	89	20
TS3100RN	195	155	5	36	40	21	31	110	138	306	369	18h7	φ80	5	120	33	25	φ18	φ35	MT-2	φ8	180	150	10	89	32
TS3160RN	195	155	5	36	40	21	31	140	168	466	529	18h7	φ80	5	200	33	25	φ18	φ35	MT-2	φ8	210	180	10	89	39

TS

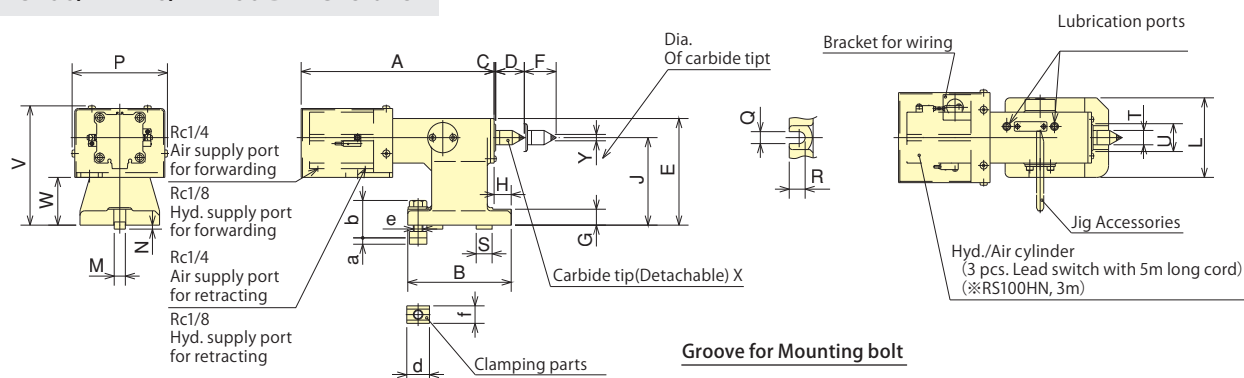
## Supports long work pieces securely

- Stroke confirmation on cylinder
- Removable carbide centre
- Easily exchangeable quill-type centre
- Equipped with a proximity switch for position confirmation

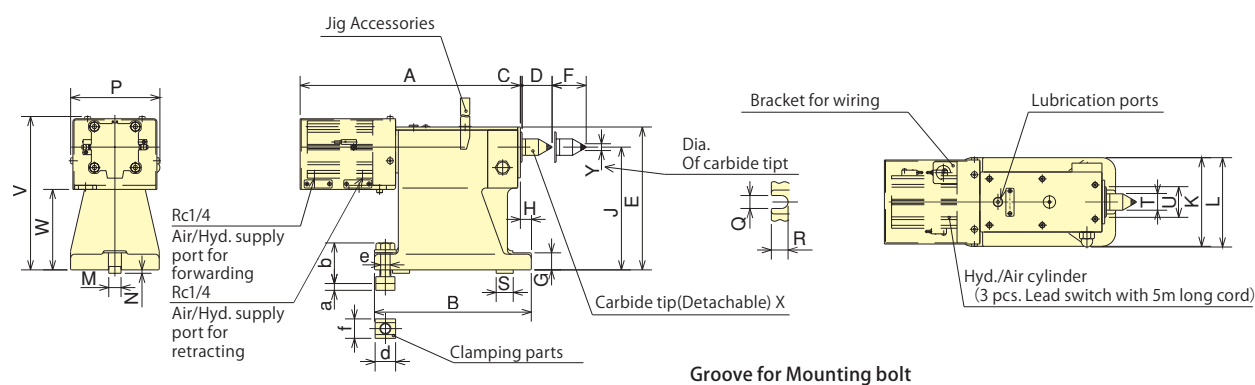


### Dimensions

#### RS100/MR120/MR160 Dimensions



#### MR/TS Dimensions



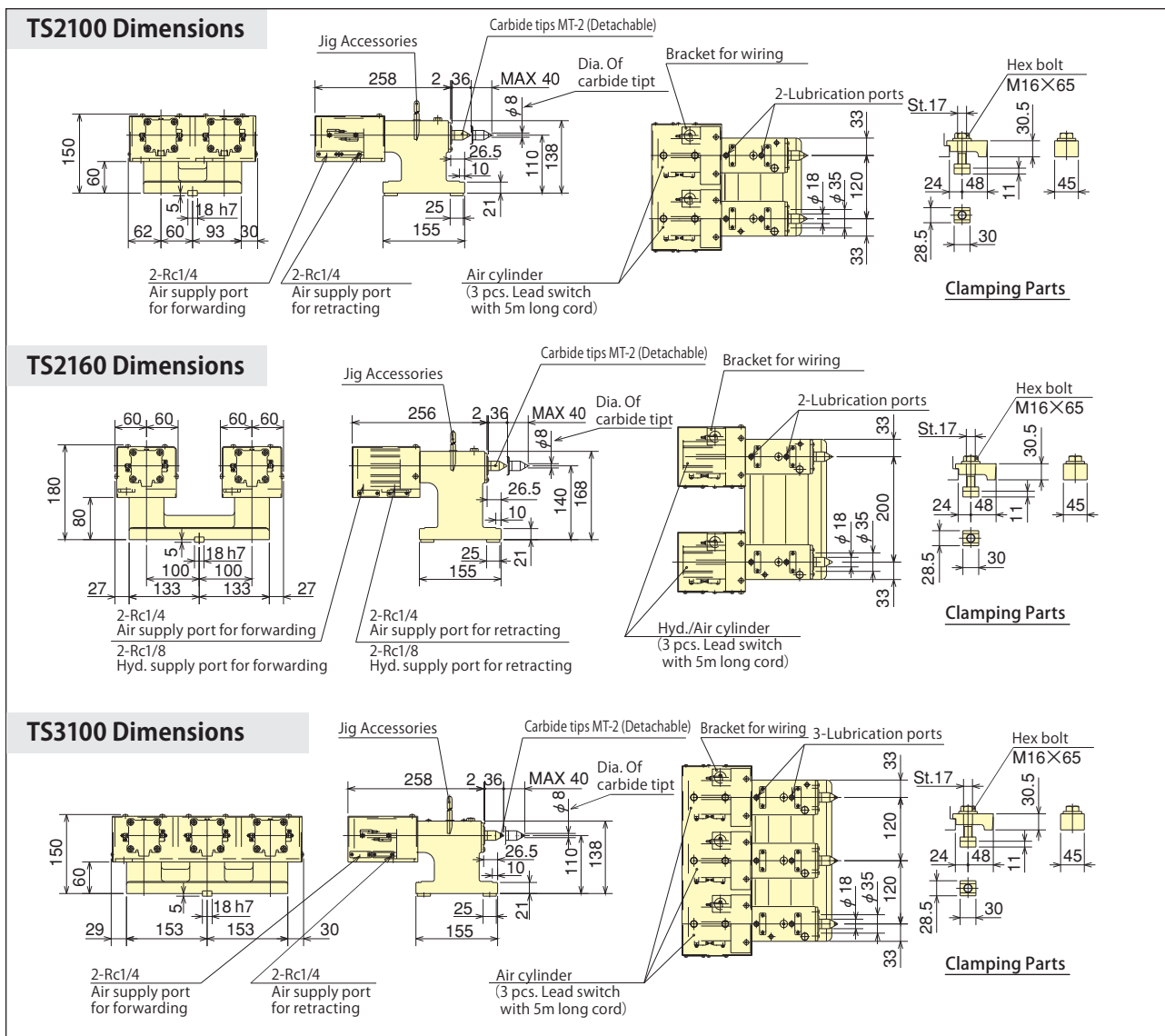
### Dimensions

Model	Dimensions																			Centre trust [Pneu.] (kN)	Centre trust [Hyd.] (kN)	Mass of product (kg)									
	A	B	C	D	E	F Max.	G	H	J	K	L	M	N	P	Q	R	S	T	U				V	W	X	Y	a	b	d	e	f
RS100AN	256	130	2	36	134	40	20	21.5	110	—	100	14h7	5	120	15	20	20	φ18	φ35	150	60	MT-2	φ 8	8.6	47	28.5	M12	22	0.98	—	10
MR120A(H)/N	236	130	2	36	144	30	20	21.5	120	—	100	14h7	5	120	15	20	20	φ18	φ35	160	57	MT-2	φ 8	8.6	47	28.5	M12	22	0.98	1.71	11
MR160A(H)/N	236	140	2	36	164	30	25	26.5	140	—	120	18h7	5	120	19	24.5	25	φ18	φ35	180	77	MT-2	φ 8	11	58	30	M16	28.5	0.98	1.71	12
TS160A(H)/N	323	220	2.5	44	149.5	50	20	11	120	110	123	18h7	5	130	19	22.5	25	φ24.1	φ45	165	58	MT-3	φ10	11	54.5	30	M16	28.5	1.55	2.80	16
MR200A(H)/N TS200A(H)/N	323	230	2.5	44	169.5	50	25	16	140	120	126	18h7	5	130	19	24.5	25	φ24.1	φ45	185	78	MT-3	φ10	11	59.5	30	M16	28.5	1.55	2.80	20
MR250A(H)/N TS250A(H)/N	323	230	2.5	44	209.5	50	25	16	180	130	131	18h7	5	130	19	24.5	25	φ24.1	φ45	225	118	MT-3	φ10	11	59.5	30	M16	28.5	1.55	2.80	24
MR320A(H)/N TS320A(H)/N	323	230	2.5	44	254.5	50	25	16	225	150	—	18h7	5	130	19	24.5	25	φ24.1	φ45	270	160	MT-3	φ10	11	59.5	30	M16	28.5	1.55	2.80	28
TS400HN	458	320	3	52.4	305	70	35	17	255	210	—	18h7	5	165	19	28.5	25	φ31.6	φ65	323	186	MT-4	φ14	11	69.5	30	M16	28.5	—	5.50	71
TS500HN	458	320	3	52.4	360	70	35	17	310	210	—	18h7	5	165	19	28.5	25	φ31.6	φ65	378	241	MT-4	φ14	11	69.5	30	M16	28.5	—	5.50	84

## Supports long work pieces securely

- Stroke confirmation on cylinder
- Removable carbide centre
- Easily exchangeable quil-type centre
- Equipped with a proximity switch for position confirmation

### ■ Dimensions



### ■ Multi Spindles Dimensions

Dimensions	Centre trust [Pneu] (kN)	Centre trust [Hyd.] (kN)	Mass of product (kg)
Model			
TS2100AN	0.98	—	22
TS2160A(H)N	0.98	1.71	25
TS3100A	0.98	—	32



Tail Spindle

# TSR (C) • MSR (C) series

Support for index machining of large work and trunnion assemblies

- Clamping mechanism spec. (Heavy duty tailspindle with Disk clamping)
- Non clamping mechanism spec.
- Suitable for supporting many types of jig



TSR142A

## Specifications [clamping mechanism specification]

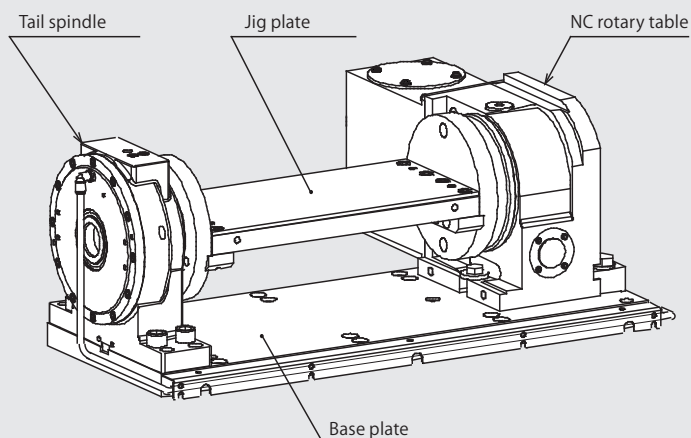
Model	Centre height (mm)	Spindle hole (mm)	Clamping torque (N·m)		Mass of product (Kg)	Rotary joint (as an option)
			Pneumatic pressure 0.5MPa	Hydraulic pressure 3.5MPa		
TSR121A	120	φ 40	310	—	18	RJ40H12W04 / 4port
TSRC140/MSRC140	140	φ 40	400	—	19.5	RJ40H14W09 / 4port
TSR142A (H) /MSR142A	140	φ 40	450	600	21	RJ40F14W02 / 4port
TSRC150/MSRC150	150	φ 40	400	—	20.5	RJ40H14W09 / 4port
TSR181A (H) /MSR181A	180	φ 70	600	1000	47	RJ40H18W05 / 4port

Note) Neither Pressure Switch, for clamp and unclamp, nor Solenoid Valve are attached.

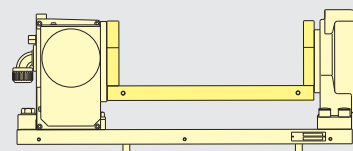
## Reference Trunnion jig plate (cradle)

Plate assembly to connect NC rotary table and tail spindle thus allowing greater variety of work pieces to be machined.

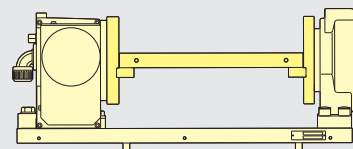
※Order Production. In case of considering trunnion systems, please contact our sales representative.



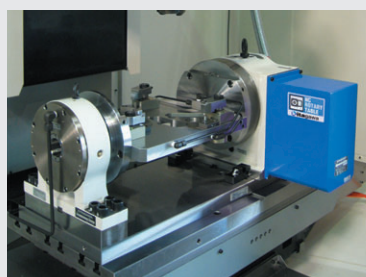
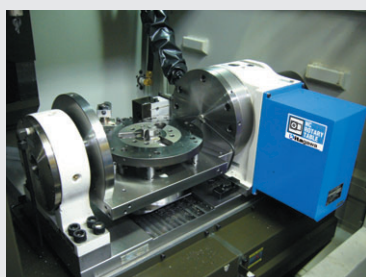
### Offset Tyoe



### Centre Type



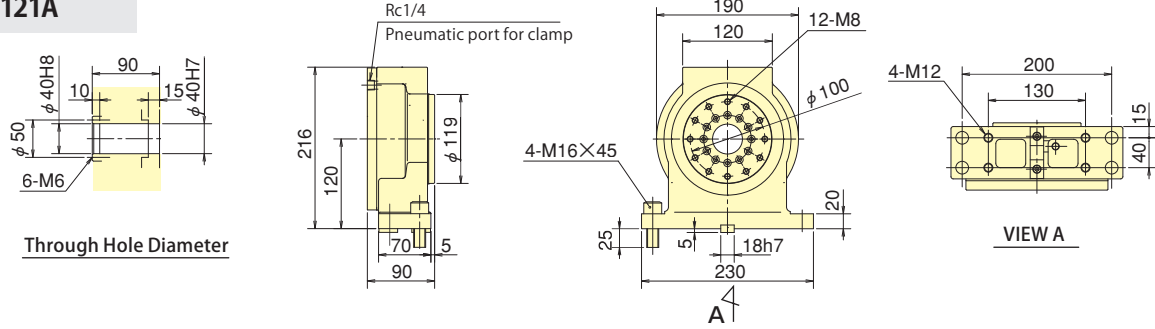
## Sample Application



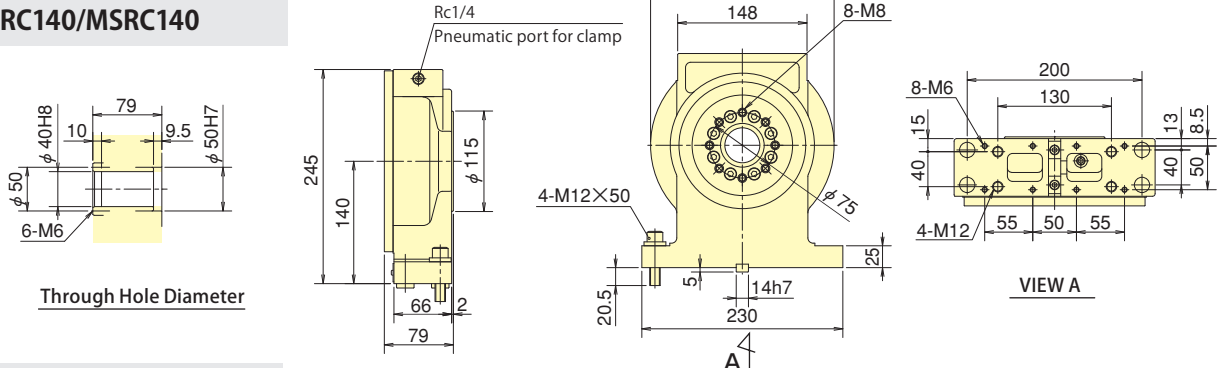
◀ Specialist trunnion systems allow for multi surface or simultaneous machining.

### ■Dimensions [clamping mechanism specification]

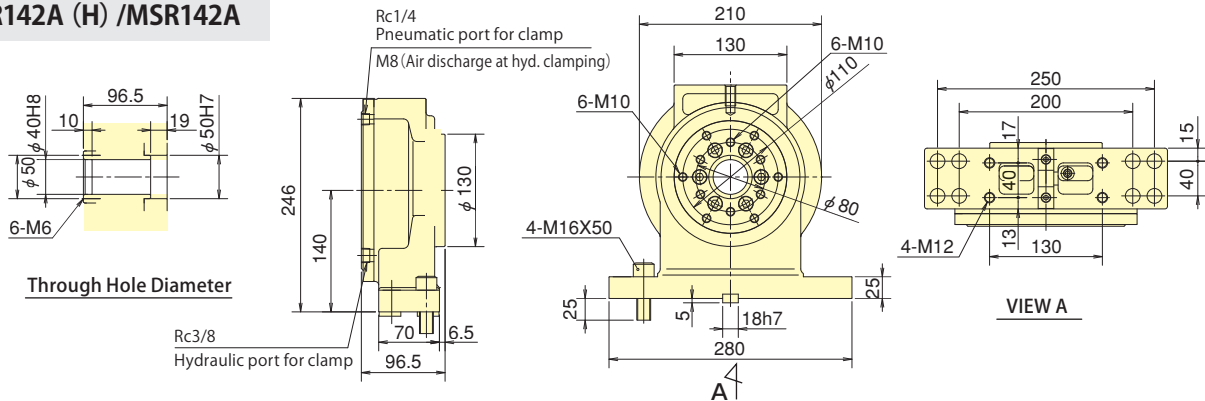
#### TSR121A



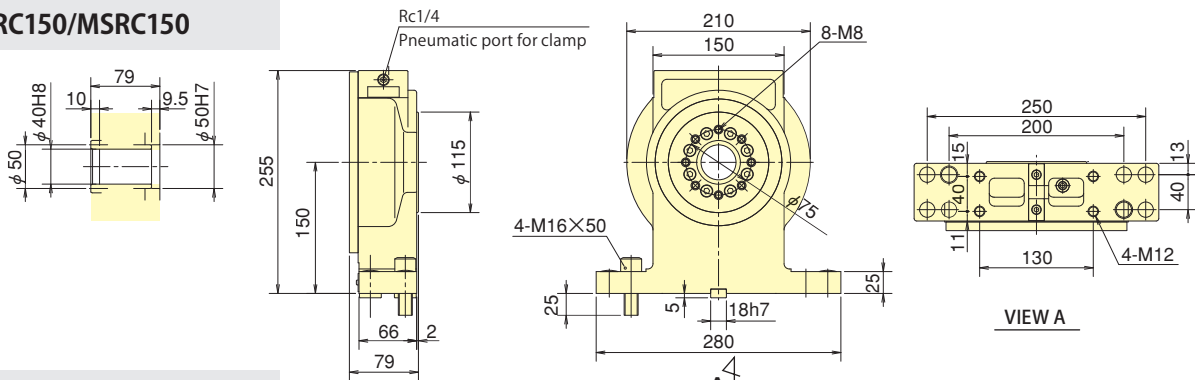
#### TSRC140/MSRC140



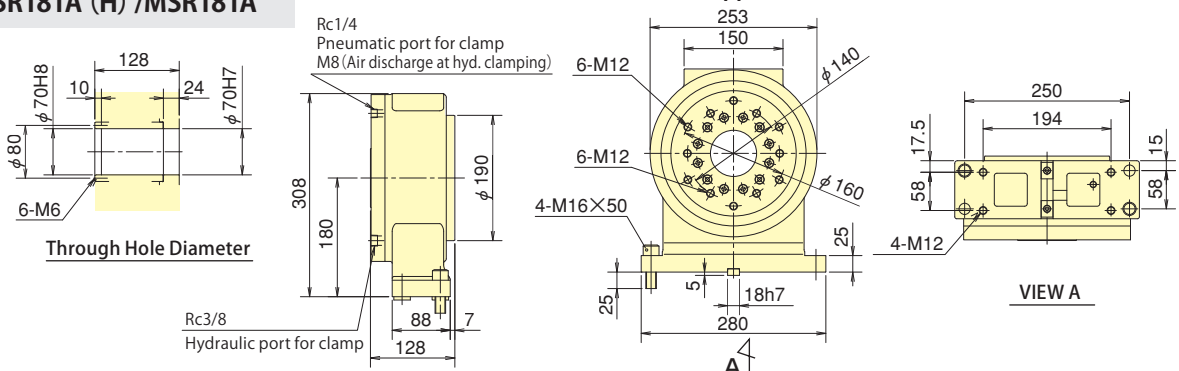
#### TSR142A (H) /MSR142A



#### TSRC150/MSRC150

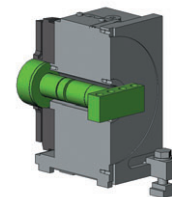
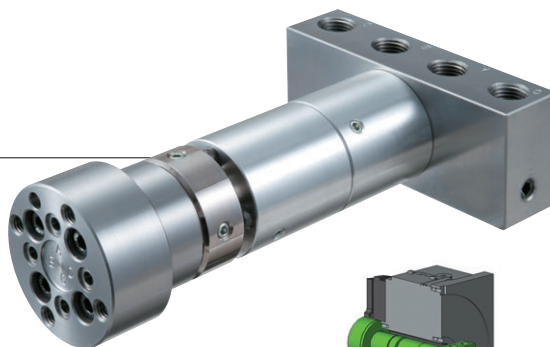
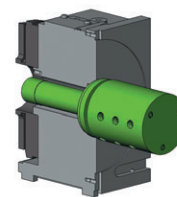


#### TSR181A (H) /MSR181A



※The specifications and dimensions are different from previous model TSR180A (H). (Please refer to the tail spindle page of the website for the detail.)

- Built in rotary joint reduces supply block projection
- External rotary joint allows many ports
- Provides pneumatic or hydraulic pressure from the rear of the rotary table to a fixture


**Built-in rotary joint**

**External rotary joint**
**Applicable machine type and the specifications**

Model	Size	Number of ports	Rated input pressure (MPa)			
			Built-in type		External type	
			Hydraulic	Pneumatic	Hydraulic	Pneumatic
MK	200	4	7	0.7	25	1
		4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
		6	25	1	25	1
	250	6+1 <sup>Note 2)</sup>	7	0.7	—	—
		4	7	0.7	25	1
		4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
	350	6	25	1	25	1
		6+1 <sup>Note 2)</sup>	7	0.7	—	—
		6	7	0.7	—	—
		6+1 <sup>Note 2)</sup>	7	0.7	—	—
		8	7	0.7	—	—
		10+1 <sup>Note 2)</sup>	25	1	—	—
MR	120	6	7	0.7	—	—
		6+1 <sup>Note 2)</sup>	7	0.7	—	—
	160	3	3	0.7	—	—
		4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
	200	6	—	—	7	0.7
		4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
250	6	7	0.7	—	—	
	8	7	0.7	7	0.7	
320	6	7	0.7	—	—	
	8	7	0.7	—	—	
MRT	200	4	7	0.7	—	—
CKR	160	7	7	0.7	—	—
GT	200	8	7	0.7	—	—
		4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
	250	6	—	—	7	0.7
		6	7	0.7	—	—
		8	7	0.7	—	—
320	6	7	0.7	—	—	
	8	7	0.7	—	—	
	8	7	0.7	—	—	
TMX	160	4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
		6	—	—	7	0.7
	200	4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
6		—	—	7	0.7	
TUX	200	6	7	0.7	—	—
		4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
	320	6	7	0.7	—	—
8		7	0.7	—	—	
TUS	400	6	7	0.7	—	—
		6+1 <sup>Note 2)</sup>	7	0.7	—	—
		8	7	0.7	—	—
		10+1 <sup>Note 2)</sup>	25	1	—	—
		12+1 <sup>Note 2)</sup>	7	1	—	—
TRX	320	6	7	0.7	—	—
		10	7	0.7	—	—
TT/TW	101	3	3	0.7	—	—
	120	3	3	0.7	—	—
	140	4	7	0.7	—	—
	150	4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
	182	4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
	200	4 (+1) <sup>Note 1)</sup>	7	0.7	—	—
	251	6	7	0.7	—	—
	321	6	7	0.7	—	—
RK	201	8	7	0.7	—	—
RKT	180	5 (+1) <sup>Note 1)</sup>	7	0.7	—	—

Note 1) (+1) ports are exclusive for pneumatic pressure.

Note 2) +1 ports of MK series and TUS400 are the  $\Phi 12.5$  multi-purpose holes. Please utilize it as pneumatic or hydraulic port, coolant, cable duct for work seating detection sensor, etc. Please tell the sales representative of the purpose of the multi-purpose hole when making enquiry.

Note 3) Not fitted for RS100, TC, DM, or TBX160. For tables of TBX200 size or larger, TR400 or larger and TP series, confer with Kitagawa separately.

Note 4) Ports other than multi-purpose hole are exclusively for pneumatic and hydraulic and they cannot be used for coolant.

Note 5) In case of using different fluids in adjacent ports, a leakage can be occurred. Please consult us in advance when a leakage is a problem in the seating confirmation.

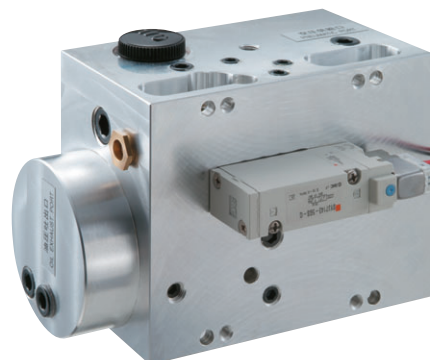




# Air-Hydraulic Booster

## AB series AB10T • AB25T • AB50T

- External mounted Air-Hydraulic Booster
- A unit changing pneumatic pressure to hydraulic pressure
- High clamping force is produced using a standard air supply

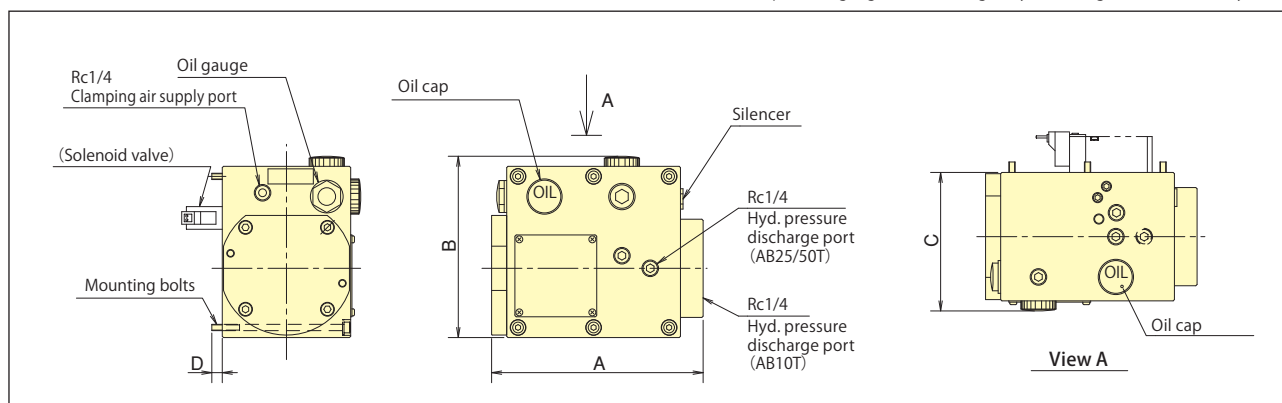


### Specifications

Specifications	Pneumatic Pressure (MPa)	Multiplication ratio	Hydraulic pressure (theoretically boosted) (MPa)	Recommended oil	Mass of product	Applicable unit
Model						
AB10T	0.4~0.5	1 : 7.5	3~3.75	Turbin oil #32	Approx. 3 kg	—
AB25T	0.4~0.45	1 : 8	3.2~3.6		Approx. 5 kg	TT 251,321
AB50T					Approx. 6 kg	TR/TU 400、500、630

### Dimensions

Note) Oil cap and oil gauge can be changed by mounting status of NC rotary table.



※Solenoid is not included. Consult to arranged solenoid appropriate to each specification.

### Dimensions

(Unit : mm)

Model	A	B	C	D	Mounting blots
AB10T	164	109.5	86	5	4-M5
AB25T	168	144	110	8	6-M5
AB50T	251	144	110	8	6-M5

### Hydraulic pump unit

[specifications]

- Service pressure : 3.4MPa (35kgf/cm<sup>2</sup>)
- Adjustable pressure range : 1.5~6.9MPa (15~70kgf/cm<sup>2</sup>)
- Power source : AC3φ 200/220V 50/60Hz

### Pull-stud type

Pull studs can be used to position and fix jigs or work pieces easily. For more information, contact Kitagawa.

## HUP 07 3 - D \*\*

Type

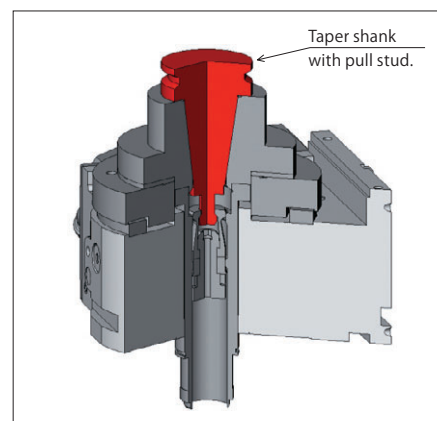
Serial number

Number of blocks

Solenoid Voltage

D : DC  
A : AC

Tank capacity  
07 : 7ℓ  
10 : 10ℓ





**CHUCK**

Scroll Chuck

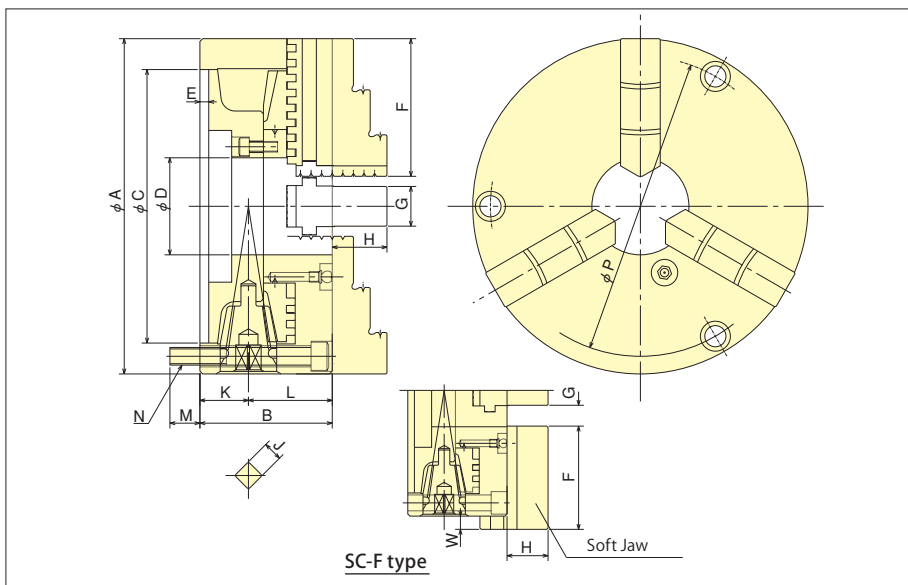
**SC·JN series**

**Only Kitagawa can offer a complete NC Rotary Table and workholding solution**

※SC-N, JN-N : CE correspondence.



**■Dimensions**



**■Dimensions**

(Unit : mm)

①	②	③	A	B	C (H6)	D	E	F	G	H			J	K	L	M	N	P	W Max.	W Min.
										①	②	③								
SC-3-106	-	-	85	45	60	16	3.5	35	11	15	-	-	7	17	28	12	3-M6	71	1.5	-7
SC-4-105	SC-4F-112	SC-4N	110	58	80	24	4.5	42	14	18	18	18	8	24.5	33.5	11	3-M8	93	2.5	-12
SC-5-107	SC-5F-113	-	130	60	100	32	4.5	50	16	20	20	-	8	22.5	37.5	13.6	3-M8	113	3.5	-14.5
JN06-101	JN06T102	JN06TN	165	65	130	45	5	66	20.5	27	39	39	10	24	41	17	3-M10	145	-	-
JN07-101	JN07T102	JN07TN	190	75	155	55	5	78	22.5	31	42	42	11	27.5	47.5	17	3-M10	170	-	-
JN09-101	JN09T102	JN09TN	232	84	190	70	6	88	26.5	33	50	50	12	29.5	54.5	19	3-M12	208	-	-
JN10-101	JN10T102	JN10TN	273	86	230	85	6	98	26.5	37	54	54	12	31.5	54.5	18.5	3-M12	248	-	-
JN12-101	JN12T102	JN12TN	310	96	260	96	7	113	30.5	44	56	56	14	31.5	64.5	18.5	3-M12	282	-	-
SC-14-103	-	-	355	110	300	100	7	132	35	52	-	-	15	38	72	27	6-M14	328	-	-
SC-16-113	-	-	405	120	345	110	8	146	40	58	-	-	15	43.5	76.5	27	6-M14	375	-	-

**■Specifications**

※Gripping dia./gripping range is with standard hard jaws.

①	②	③	Max. Gripping Force (kN)	Net Weight with Soft top jaw (kg)	Moment of inertia (kg·m <sup>2</sup> )	Gripping range		Handle torque (N·m)
						Outer dia φ (mm)	Inner dia φ (mm)	
SC-3-106	-	-	9	1.5	0.001	2~70	24~64	29.4
SC-4-105	SC-4F-112	SC-4N	12	3.1	0.004	3~95	29~84	44.1
SC-5-107	SC-5F-113	-	15	4.4	0.009	3~110	33~100	63.7
JN06-101	-	-	31	8.4	0.030	3~160	48~150	88.3
-	JN06T102	JN06TN				3~160	55~150	
JN07-101	-	-	31	12.2	0.060	4~180	56~170	107.9
-	JN07T102	JN07TN				4~180	62~170	
JN09-101	-	-	37	21.2	0.160	5~220	62~210	147.0
-	JN09T102	JN09TN				5~220	70~210	
JN10-101	-	-	46	28	0.253	5~260	70~250	176.5
-	JN10T102	JN10TN				5~260	80~250	
JN12-101	-	-	55	41	0.588	10~300	86~290	206.0
-	JN12T102	JN12TN				10~300	90~290	
SC-14-103	-	-	40.5	54	0.950	25~315	107~290	225.6
SC-16-113	-	-	45	74	1.725	25~360	113~340	245.0

Note) 1. ①SC type and JN type, each one set of mono internal jaws and mono external jaws are attached as standard with. Soft jaws cannot be used.

2. ②SC-F type, each one set of internal jaws, external jaws and soft jaws are attached as standard.

3. When the soft jaws are used for SC-F type, use the chuck of lower specification.

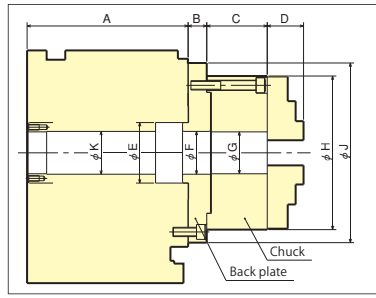
4. JN-T(N) type, each one set of two piece hard jaws and two piece soft jaws are attached as standard.

5. ③SC-N type and JN-N type are chucks applying to CE certificate.

6. Gripping range is limited depending on the NC rotary table to mount.

7. Gripping dia./gripping range of the JN-T type and JN-TN type with soft jaws are the same as with hard jaws.

■ Scroll chuck fitting dimensional drawing



■ Scroll chuck fitting dimensions

(Unit : mm)

Rotary Table Model	①	②	③	A	B	C	D			φE	φF	φG	φH	φJ	φK		
							①	②	③								
MK	200	JN07-101	JN07T102	JN07TN	155	15	75	31	42	42	65	55	55	190	190	71	
		JN06-101	JN06T102	JN06TN	155	15	65	27	39	39	65	55	45	165	165	71	
	250	JN10-101	JN10T102	JN10TN	164	20	86	37	54	54	70	61	85	273	273	71	
		JN09-101	JN09T102	JN09TN	164	20	84	33	50	50	70	61	70	232	232	71	
	350	JN07-101	JN07T102	JN07TN	164	20	75	31	42	42	70	61	55	190	190	71	
		JN09-101	JN09T102	JN09TN	210	—	84	33	50	50	160	71	70	232	—	161	
RS	100	SC-3-106	—	—	140	15	45	15	—	—	50	30	16	85	105	32	
		SC-4-105	SC-4F-112	SC-4N		—	58	18	18	18		25	24	110	—		
MR	120	SC-4-105	SC-4F-112	SC-4N	136	17	58	18	18	18	50	26	24	110	135	32.5	
		SC-5-107	SC-5F-113	—		—	60	20	20	—		34	32	130	—		
	160	JN06-101	JN06T102	JN06TN	145	14	65	27	39	39	50	34	45	165	165	40.5	
		JN07-101	JN07T102	JN07TN		19	60	20	20	—		40	32	130	165		
	200	JN06-101	JN06T102	JN06TN	173	—	65	27	39	39	65	40	45	165	—	46	
		JN07-101	JN07T102	JN07TN		20	75	31	42	42		41	55	190	190		
	250	JN06-101	JN06T102	JN06TN	180	21	65	27	39	39	100	46	45	165	235	71	
		JN07-101	JN07T102	JN07TN		21	75	31	42	42		56	55	190	236		
		JN09-101	JN09T102	JN09TN		—	84	33	50	50		71	70	232	—		
		JN10-101	JN10T102	JN10TN		20	86	37	54	54		85	85	273	273		
	320	JN12-101	JN12T102	JN12TN	210	21	96	44	56	56	130	90	96	310	310	106	
		JN09-101	JN09T102	JN09TN		25	84	33	50	50		120	70	232	320		
GT	200	JN10-101	JN10T102	JN10TN	178	25	86	37	54	54	65	85	85	273	320	46	
		JN12-101	JN12T102	JN12TN		—	96	44	56	56		98	96	310	—		
	250	JN06-101	JN06T102	JN06TN	185	20	65	27	39	39	100	46	45	165	193	71	
		JN07-101	JN07T102	JN07TN		—	75	31	42	42		56	55	190	236		
		JN09-101	JN09T102	JN09TN		21	65	27	39	39		71	70	232	—		
		JN10-101	JN10T102	JN10TN		20	86	37	54	54		85	85	273	273		
	320	JN12-101	JN12T102	JN12TN	210	21	96	44	56	56	130	90	96	310	310	106	
		JN09-101	JN09T102	JN09TN		25	84	33	50	50		120	70	232	320		
	TMX THX TRX TLX TBX TUX	160	JN10-101	JN10T102	JN10TN	145	25	86	37	54	54	50	85	85	273	320	40
			JN12-101	JN12T102	JN12TN		—	96	44	56	56		98	96	310	—	
		200	JN06-101	JN06T102	JN06TN	176	—	65	27	39	39	75	40	45	165	—	52
			JN07-101	JN07T102	JN07TN		20	65	27	39	39		52	45	165	193	
250		JN09-101	JN09T102	JN09TN	210	15	84	33	50	50	105	65	70	232	230	78	
		JN06-101	JN06T102	JN06TN		21	65	27	39	39		56	45	165	236		
		JN07-101	JN07T102	JN07TN		21	75	31	42	42		56	55	190	236		
		JN09-101	JN09T102	JN09TN		—	84	33	50	50		71	70	232	—		
320		JN10-101	JN10T102	JN10TN	225	20	86	37	54	54	135	95	85	273	273	110.5	
		JN12-101	JN12T102	JN12TN		—	86	37	54	54		98	85	273	—		
400		JN09-101	JN09T102	JN09TN	235	—	84	33	50	50	190	110	70	232	—	154	
		JN10-101	JN10T102	JN10TN		—	86	37	54	54		98	96	310	320		
	JN12-101	JN12T102	JN12TN	—		96	44	56	56	98		96	310	320			
	SC-14-103	—	—	33		110	52	—	—	100		100	355	355			
TR TL	400	JN10-101	JN10T102	JN10TN	250	23	86	37	54	54	180	86	85	273	314	150	
		JN12-101	JN12T102	JN12TN		—	96	44	56	56		98	96	310	—		
	500	SC-14-103	—	—	250	—	110	52	—	—	200	100	100	355	—	170.5	
		JN12-101	JN12T102	JN12TN		20	96	44	56	56		96	96	310	352		
630	SC-14-103	—	—	330	—	110	52	—	—	280	150	100	355	—	250		
	JN12-101	JN12T102	JN12TN		27	96	44	56	56		100	96	310	416			
SC-16-113	—	—	36	120	58	—	—	260	110	405	422	—	—				

Note) Consult our company about an order except the above combination.

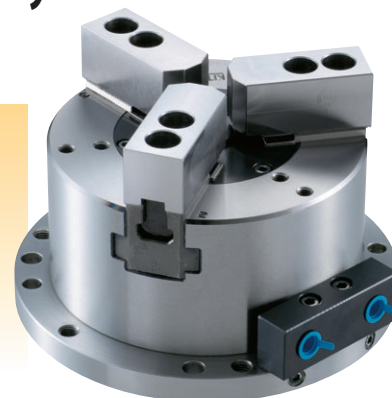


**WORK GRIPPER**

# Work Gripper AS series

## Only Kitagawa can offer a complete NC Rotary Table and workholding solution

- Small and lightweight design, with inbuilt air cylinder
  - Easy mounting by air piping
  - Hollow structure optimal for bar work-piece and air blow
  - Standard Soft Jaw for Power Chuck is used
  - Lock valve unit ensures constant and regular gripping force in all machining conditions
- \*CE correspondence

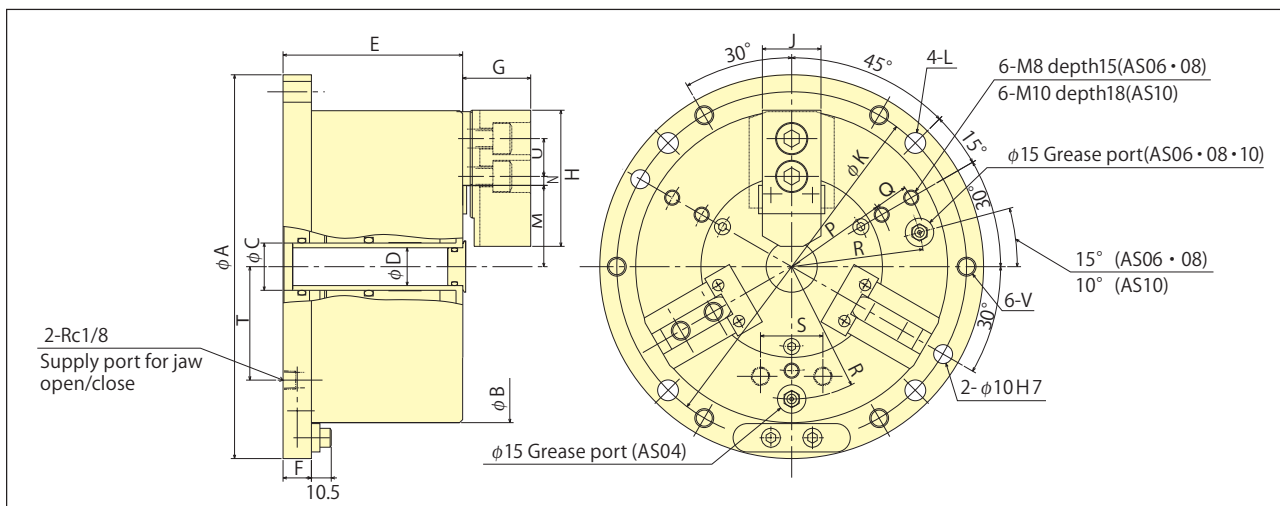


### Specifications

(Unit : mm)

Model	Specifications	Jaw stroke (in dia.)	Gripping force [pneumatic 0.6MPa] (kN)	Mass of product (kg)	Max. pneumatic service pressure (MPa)	Applicable soft jaws	Gripping Dia		Moment of inertia (kg · m <sup>2</sup> )
							Max.	Min.	
AS04		5.2	7.5	7.3	0.7	SJ04B1	110	10	0.014
AS06		5.2	21	16	0.7	SJ06B1	165	23	0.078
AS08		6.3	33	27.7	0.7	SJ08B1	210	30	0.180
AS10		6.3	48	42.5	0.7	SJ10A1	254	50	0.315

### Dimensions

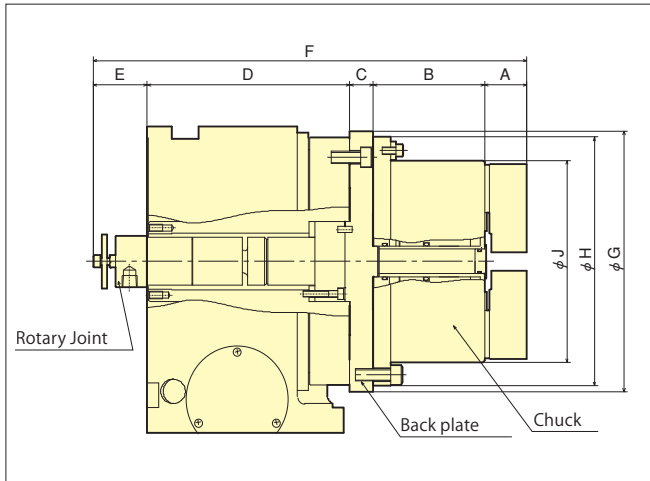


### Dimensions

(Unit : mm)

Model	Dimensions	A	B	C	D	E	F	G	H	J	K	L	MMax.	MMin.	NMax.	NMin.	P	Q	R	S	T	U	V
		AS04	148	110	20H7	-	90	15	27	55	23	130	9	25.5	22.9	9.75	6.75	-	-	43	33	34	14
AS06	203	165	25H7	20	95	15	36	72	31	185	11	44.5	41.9	9.25	4.75	55	18	70	33	60	20	M10	
AS08	248	210	36H7	30	106	15	42	95	35	230	11	53	49.85	14.75	8.75	68	25	90	33	80	25	M10	
AS10	300	254	50H7	43	110	16	46	110	40	280	13	66	62.85	16	8.5	85	30	110	33	95	30	M12	

### Work gripper fitting dimensions



### Work gripper fitting dimensions

(Unit : mm)

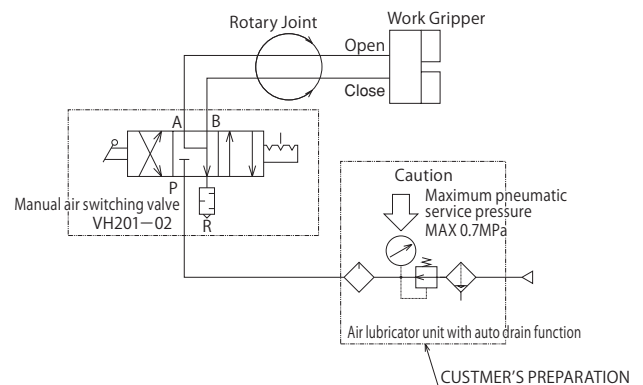
Rotary Table Model	Chuck Model	A	B	C	D	E	F	φ G	φ H	φ J		
MK	200	AS06	36	95	21	155	34	341	203	203	165	
	250	AS06	36	95	21	164	45	361	203	203	165	
		AS08	42	106	21	164	45	378	248	248	210	
	350	AS10	46	110	25	210	69	460	300	300	254	
MR	120	AS04	27	90	20	136	46	319	148	148	110	
		AS06	36	95	20			333	203	200	165	
	160	AS04	27	90	20	145	47	329	165	148	110	
		AS06	36	95	20			343	203	203	165	
		200	AS06	36	95	20	173	46	370	203	203	165
	250	AS06	36	95	25	180	78.5	414.5	230	203	165	
AS08		42	106	25	431.5			250	248	210		
	320	AS10	46	110	25	210	69	460	320	300	254	
GT	200	AS06	36	95	20	178	40	369	203	203	165	
	250	AS06	36	95	25	185	66.5	407.5	230	203	165	
		AS08	42	106	25			424.5	250	248	210	
	320	AS10	46	110	25	210	57.5	448.5	320	300	254	
TMX	160	AS04	27	90	20	145	48	330	148	148	110	
THX		AS06	36	95	20			344	203	203	165	
TRX	200	AS06	36	95	20	176	47	374	203	203	165	
TLX	250	AS06	36	95	25	210	69	435	250	203	165	
TBX		AS08	42	106	25			452	250	248	210	
TUX	320	AS10	46	110	25	220	45.5	451.5	300	300	254	

Note) Consult our company about an order except the above combination.

### Option

Manual air switching valve (made to order)

# VH201-02



Maximum allowable pressure	1MPa
Operating degree	90°
Connecting bore size	Rc $\frac{1}{4}$



**CHUCK**

# High Precision, Ultra-large Through-hole, High-speed Power Chuck BR series

Gripping accuracy of 0.01mm T.I.R. or less immediately after jaw forming.\*

\*CE correspondence



## Dimensions

\*Blank draw nut equipped.

Model	A	B	C (H6)	D	E	F	G max.	G min.	H max.	H min.	J	K	L	M	N max.
BR06	170	81	140	104.8	3-M10	53	11	-1	12	0	17.5	20	66	89.7	M60x2
BR08	210	91	170	133.4	3-M12	66	14.5	-1.5	16	0	20	30	81	111.6	M75x2
BR10	254	100	220	171.4	3-M16	81	8.5	-10.5	19	0	25	45	97	150	M90x2
BR12	315	108	300	235	3-M20	106	8	-15	23	0	28	50	124	166.7	M115x2

Model	P	Q	R	S max.	S min.	T max.	T min.	U	V	W	X	Y	Z	A1	A2
BR06	33.2	72	20	21.25	9.25	36.05	33.3	31	2	12	16	5	M6x11	116	90°
BR08	39.2	95	25	23.75	11.75	45.5	41.8	35	2	14	17	5	M6x11	150	45°
BR10	43.2	110	30	32.25	11.25	54	49.6	40	2	16	22	5	M8x15	190	75°
BR12	52	111	30	45.75	12.75	68.8	63.5	50	2.8	21	29	6	M10x16	260	75°

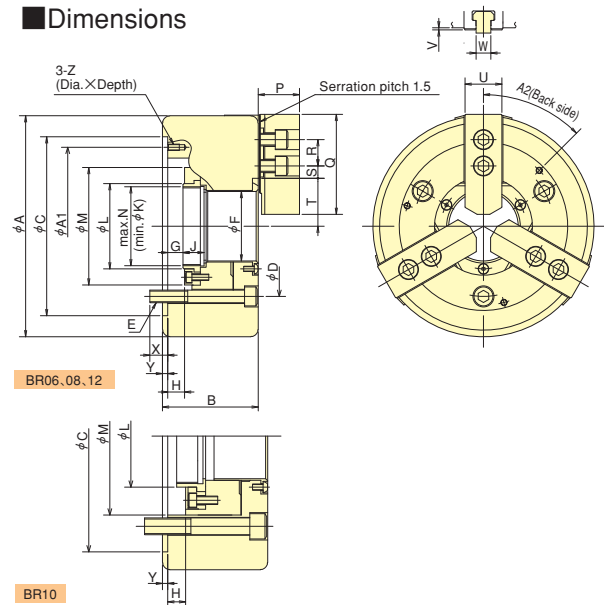
## Specifications

\*Gripping dia./ Gripping range is with standard jaws.

Model	Thru-Hole mm	Gripping range mm		Jaw Stroke(diameter) mm	Plunger Stroke mm	Max. Speed min <sup>-1</sup>	Max. Draw Bar Pull Force kN(kgf)
		Max.	Min.				
BR06	53	170	16	5.5	12	6000	23(2345)
BR08	66	210	22	7.4	16	5000	35(3569)
BR10	81	254	31	8.8	19	4500	49(4997)
BR12	106	315	44	10.6	23	3500	60(6118)

Model	Max. Gripping Force kN(kgf)	Dynamic gripping force at max. speed kN(kgf)	Net Weight kg	Moment of inertia kg·m <sup>2</sup>	Matching Soft top jaw
BR06	58.5( 5965)	22.5(2294)	12.8	0.052	SJ06B1
BR08	90( 9177)	36(3671)	22.2	0.14	SJ08B1
BR10	123(12543)	44(4487)	35.8	0.32	SJ10B1
BR12	156(15907)	53(5404)	57.0	0.80	SJ12N1

## Dimensions



**ROTARY CYLINDER**

# Compact Style Hydraulic Cylinder with Closed Centre M series

\*CE correspondence

## Dimensions

(Unit : mm)

Model	C (h7)	D	E	F	G (H8)	H	J	K	L	M
M1120HC21D	145	128	42	30	22	M20	30	15	135	125
M1221HC21D	168	145	44	32	22	M20	30	15	138	128
M1330HC21D	168	150	51	36	26	M24	35	15	144	134

Model	N	P Max.	P Min.	Q Max.	Q Min.	R	S	T	U
M1120HC21D	14	60	40	72	52	26	159.2	M8	14
M1221HC21D	14	60	39	75	54	27	182.2	M10	17
M1330HC21D	18	60	30	79	49	37	182.2	M10	17

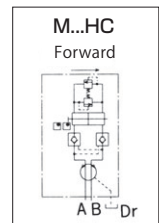
## Specifications

Model	Piston thrust force		Total leakage (L/min)	Mass of product (kg)	Moment of inertia (kg·m <sup>2</sup> )
	Pushing(kN)	Pulling(kN)			
M1120HC21D	28	27	1.2	8.2	0.016
M1221HC21D	39	38	1.2	10.2	0.028
M1330HC21D	47	45	1.2	10.3	0.029

- Note) 1. Piston thrust force : maximum hydraulic service pressure of 3.5MPa on M1120HC, 4.0MPa on M1221HC, and 4.0MPa on M1330HC.  
 2. Leakage : Pressure 3.0MPa and oil temperature 50°C.  
 3. Proximity switch : Model BES M12MI-PSC20B-BV02(manufactured by Balluff) DC24V 200mA PNP  
 4. Route the pipe so that the back pressure into the drain hose will be 10 kPa or less. When the cylinder without external drain is required, contact with KITAGAWA.  
 5. When using on devices other than a NC table, be sure of the specifications described on Kitagawa's catalogues for chucks and cylinders.

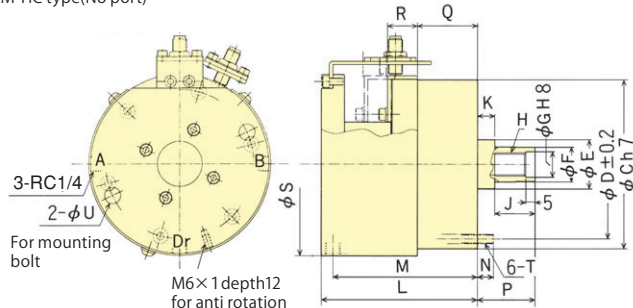


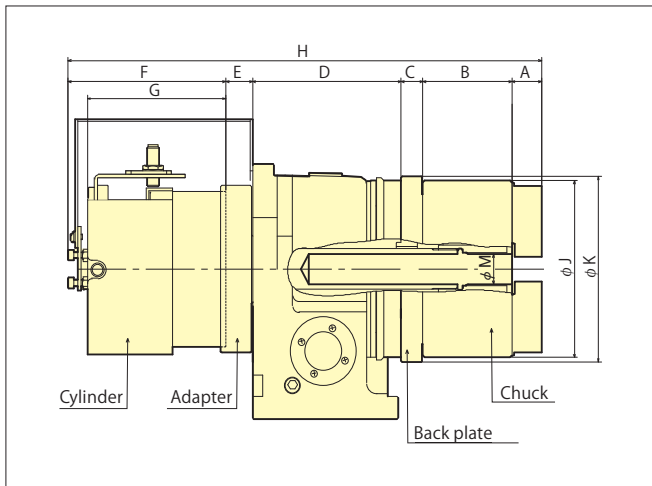
The proximity switch is optional. Determine the appropriate type according to the controller type and dimension drawing.



## Dimensions

M-HC type(No port)



**Fitting dimension drawing for power chuck BR series, cylinder M series**

**Fitting dimensions for power chuck BR series, cylinder M series**

(Unit : mm)

Rotary Table Model	Chuck Model	cylinder Model	A	B	C	D	E	F	G	H	φ J	φ K	φ M	Pressure (MPa)	
MK	200	BR06	M1120HC21D	33	81	20	155	4	157	135	450	170	170	53	3.01
	200	BR08	M1221HC21D	39	91	15	155	4	160	138	464	170	210	66	3.70
	250	BR08	M1221HC21D	39	91	20	164	17	161	138	492	170	210	66	3.70
	250	BR10	M1330HC21D	43	100	19	164	20	155	144	501	254	220	81	4.0
	350	BR10	M1330HC21D	43	100	26	210	44	149	144	572	254	275	81	4.0
	350	BR12	M1330HC21D	52	108	25	210	44	149	144	588	315	300	100	4.0
MR	160	BR06	M1120HC21D	33	81	21	145	27	154	135	461	165	170	53	3.01
	200	BR06	M1120HC21D	33	81	21	173	27	154	135	489	170	190	53	3.01
	250	BR06	M1120HC21D	33	91	19	180	17	154	135	484	170	230	53	3.01
GT	320	BR10	M1330HC21D	43	100	19	210	20	155	144	547	254	304	81	4.0
	200	BR06	M1120HC21D	33	81	20	178	26	154	135	492	170	194	53	3.01
	250	BR08	M1221HC21D	39	81	20	185	26	158	138	519	210	232	66	3.70
T*X	320	BR10	M1330HC21D	43	100	20	210	28	148	144	549	254	306	81	4.0
	160	BR06	M1120HC21D	33	81	16	145	27	154	135	456	140	170	53	3.01
	200	BR06	M1120HC21D	33	81	22	176	26	159	135	497	170	170	53	3.01
	200	BR08	M1221HC21D	39	91	17	176	26	157	138	506	170	210	66	3.70
	250	BR06	M1120HC21D	33	81	22	210	17	159	135	522	170	183	53	3.01
	250	BR08	M1221HC21D	39	91	22	210	17	157	138	536	210	210	66	3.70
	250	BR10	M1330HC21D	43	100	22	210	21	151	144	547	254	254	81	4.0
320	BR10	M1330HC21D	43	100	25	225	20	156	144	569	254	260	81	4.0	

Note) Consult our company about an order except the above combination.



**CHUCK**

## Closed Centre Power Chuck

# N series

Only Kitagawa can offer a complete NC Rotary Table and workholding solution

\*CE correspondence

### ■ Dimensions

(Unit : mm)

Model	A	B	C (HG)	F	H	J	K	L	M	N Max.	N Min.	O Max.
N-05	135	55	80	7	100	-	3-M8	14	19	30.4	27.2	11.25
N-06	165	74	140	5	104.8	21	6-M10	14	20	37.8	33.55	13.75
N-08	210	85	170	5	133.4	25	6-M12	20	25	46.3	41.9	22.25
N-10	254	89	220	5	171.4	34	6-M16	18	30	51.1	46.7	30.75
N-12	304	106	220	6	171.4	34	6-M16	18	30	61	55.75	48.75

Model	O Min.	P Max.	P Min.	Q	R	S	T	U	V	W	X	Y	Z
N-05	6.75	9	-6	23	10	35	M12×1.75	3	28	29	62	-	-
N-06	7.75	101.5	81.5	31	12	36	M16×20	4	34	35	72	M6×10	116
N-08	11.75	127	106	35	14	36	M20×25	5	38	42	95	M6×12	150
N-10	11.25	158	133	40	16	36	M20×25	5	45	46	110	M8×15	190
N-12	12.75	163	133	50	18	36	M20×25	5	50	54	129	M8×15	190

※Fitting of N-05 at 120° pitch-3

### ■ Specifications

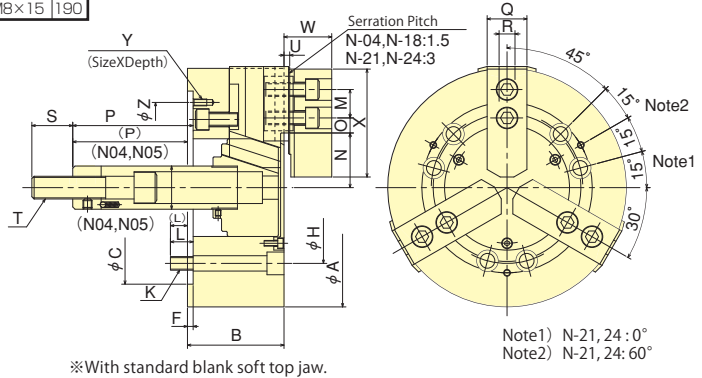
(Unit : mm)

Model	Jaw stroke (diameter)	Plunger Stroke	Gripping Dia.		Max Draw Bar Pull Force (kN)	Max Gripping Force (kN)
			Max.	Min.		
N-05	6.4	15	135	16	8.2	25.2
N-06	8.5	20	165	19	18	52.5
N-08	8.8	21	210	23	25	75
N-10	8.8	25	254	24	29	108
N-12	10.5	30	304	26	41	156

Model	Net Weight with Soft top jaw (kg)	Moment of inertia (kg·m <sup>2</sup> )	Matching Hardtop jaw	Matching Soft top jaw
N-05	6.2	0.015	HB05C1	SJ05B1
N-06	13	0.045	HB06B1	SJ06B1
N-08	25	0.138	HB08A1	SJ08B1
N-10	37	0.300	HB10A1	SJ10B1
N-12	57.3	0.725	HB12B1	SB12A1



### ■ Dimensions



※With standard blank soft top jaw.



**ROTARY CYLINDER**

## Compact Style Hydraulic Cylinder with Closed Centre

# M series

\*CE correspondence

### ■ Dimensions

(Unit : mm)

Model	C (H7)	D	E	F	G (H8)	H	J	K	L	M
M1120HC21D	145	128	42	30	22	M20	30	15	135	125
M1221HC21D	168	145	44	32	22	M20	30	15	138	128
M1330HC21D	168	150	51	36	26	M24	35	15	144	134

Model	N	P Max.	P Min.	Q Max.	Q Min.	R	S	T	U
M1120HC21D	14	60	40	72	52	26	159.2	M8	14
M1221HC21D	14	60	39	75	54	27	182.2	M10	17
M1330HC21D	18	60	30	79	49	37	182.2	M10	17

### ■ Specifications

Model	Piston thrust force		Total leakage (l/min)	Mass of product (kg)	Moment of inertia (kg·m <sup>2</sup> )
	Pushing (kN)	Pulling (kN)			
M1120HC21D	28	27	1.2	8.2	0.016
M1221HC21D	39	38	1.2	10.2	0.028
M1330HC21D	47	45	1.2	10.3	0.029

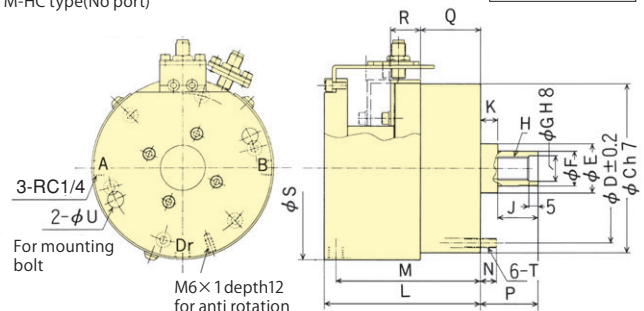
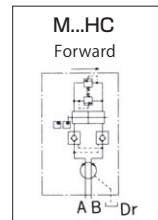
- Note) 1. Piston thrust force : maximum hydraulic service pressure of 3.5MPa on M1120HC, 4.0MPa on M1221HC, and 4.0MPa on M1330HC.  
 2. Leakage : Pressure 3.0MPa and oil temperature 50°C.  
 3. Proximity switch : Model BES M12MI-PSC20B-BV02(manufactured by Balluff) DC24V 200mA PNP  
 4. Route the pipe so that the back pressure into the drain hose will be 10 kPa or less. When the cylinder without external drain is required, contact with KITAGAWA.  
 5. When using on devices other than a NC table, be sure of the specifications described on Kitagawa's catalogues for chucks and cylinders.



The proximity switch is optional. Determine the appropriate type according to the controller type and dimension drawing.

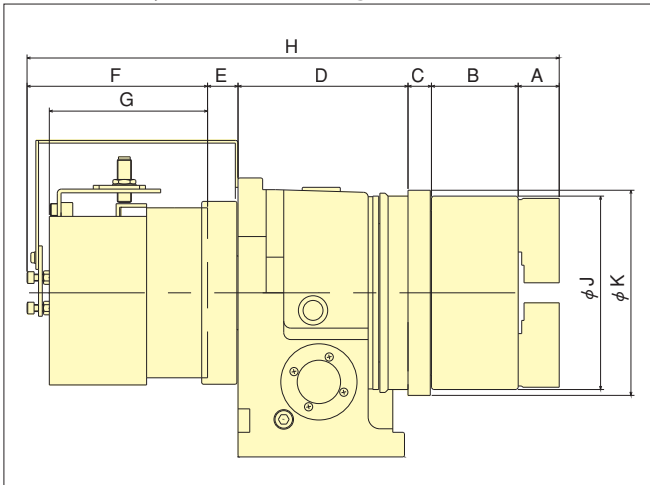
### ■ Dimensions

M-HC type (No port)





**■ N series power chuck,  
M series cylinder mounting dimensional**



**■ N series power chuck, M series cylinder mounting dimensional list**

(Unit : mm)

Rotary Table Model	Chuck Model	cylinder Model	A	B	C	D	E	F	G	H	φ J	φ K	Pressure (MPa)	
MK	200	N-06	M1120HC21D	35	74	20	155	4	157	135	445	165	165	2.42
	250	N-06	M1120HC21D	35	74	20	164	18	158	135	469	165	165	2.42
	350	N-10	M1330HC21D	46	89	26	210	44	149	144	564	254	275	2.67
		N-12	M1330HC21D	54	106	25	210	44	149	144	588	304	275	3.67
		N-15	M1935HC	61	114	25	210	51	197	164	658	381	300	3.49
MR	160	N-05	M1120HC21D	29	55	21	145	27	154	135	431	135	165	1.24
		N-06	M1120HC21D	35	74	21					456	165	165	2.42
	200	N-06	M1120HC21D	35	74	21	173	27	154	135	484	165	193	2.42
	320	N-10	M1330HC21D	46	89	19	210	20	155	144	539	254	304	2.67
GT	200	N-06	M1120HC21D	35	74	21	178	27	154	135	489	165	193	2.42
	250	N-06	M1120HC21D	35	74	19	185	17	154	135	484	165	230	2.42
	320	N-10	M1330HC21D	46	89	19	210	20	155	144	539	254	304	2.67
T*X	160	N-05	M1120HC21D	29	55	21	145	27	154	135	431	135	140	1.24
		N-06	M1120HC21D	35	74	16					451	140	165	2.42
	200	N-06	M1120HC21D	35	74	22	176	26	159	135	492	165	165	2.42
		N-08	M1221HC21D	42	85	17		26	157	138	503	170	210	2.72
	250	N-06	M1120HC21D	35	74	22	210	17	159	135	517	165	183	2.42
		N-08	M1221HC21D	42	85	22		17	157	138	533	210	210	2.72
		N-10	M1330HC21D	46	89	22		21	151	144	539	254	254	2.67
	320	N-10	M1330HC21D	46	89	19	225	20	151	144	550	254	308	2.67
N-12		M1330HC21D	54	106	25	34		151	144	581	304	304	3.67	

Note) Consult our company about an order except the above combination.



**CHUCK**

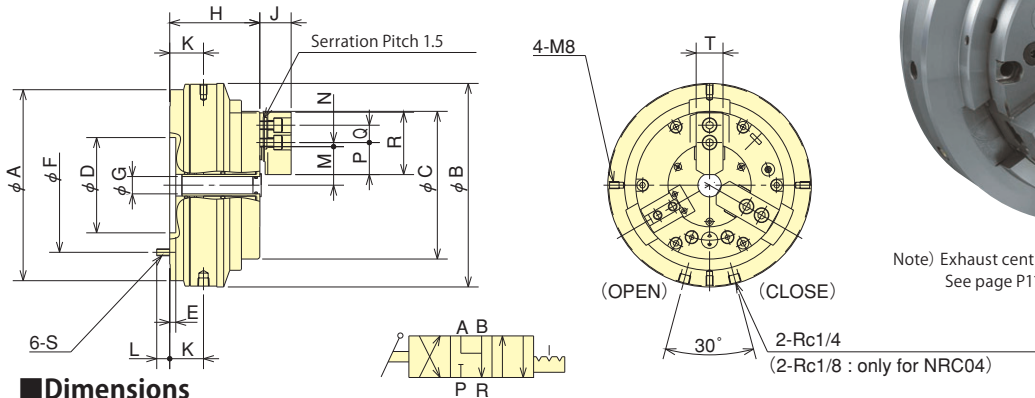
## Rotary Chuck

# NRC series

**Only Kitagawa can offer a complete NC Rotary Table and workholding solution**

- Exclusive air-operated chuck
- Integrated pneumatic cylinder Can easily be fitted to TBX range of tables

### Dimensions



Note) Exhaust centre Solenoid Valve to be used.  
See page P114.

### Dimensions

(Unit : mm)

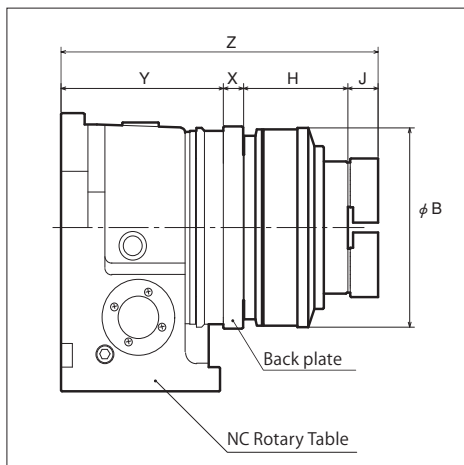
Dimensions	A	B	C	D (H7)	E	F	G	H	J	K	L	M max.	M min.	N max.	N min.	P	Q	R	S	T
NRC04	157	170	113	80	6	100	—	93	27	33	14	25.5	22.9	9.75	6.75	28	14	55	M6	23
NRC06	220.5	235	170.5	110	7	155	20	104	36	39	15	44.5	41.9	9.25	4.75	37	20	72	M8	31
NRC08	266	280	216	110	8	200	30	117	42	41.5	17	53	49.85	14.75	8.75	46	25	95	M8	35
NRC10	303	305	253	140	8	235	43	120	46	41.5	21	66	62.85	19	8.5	50	30	110	M10	40

### Specifications

Specifications	Plunger Stroke (mm)	Jaw stroke (in Dia.) (mm)	Gripping force per Jaw kN Air pressure at 0.6MPa	Max. air pressure (MPa)	Matching soft top jaw	Gripping Dia. (mm)		Max. rotation (min <sup>-1</sup> )	Rotary torque (N · m)	Mass of Product (kg) (With Standard Soft Jaw)
						Max.	Min.			
NRC04	15	5.2	2.5	0.7	SJ04B1	110	10	100	9.8	10
NRC06	15	5.2	7	0.7	SJ06B1	165	23	72	9.8	22
NRC08	15	6.3	10.8	0.7	SJ08B1	210	30	60	9.8	27.7
NRC10	15	6.3	16	0.7	SJ10A1	254	50	53	9.8	42.5

### Rotary Chuck Fitting Dimensions

(Unit : mm)



- Note : Consult our company in following cases.
1. Anti-rotation bracket mounting position required.
  2. NRC chuck interferes with Clamping Device.
  3. When the chuck is mounted on horizontal position, Chuck face is upward, please consult with Kitagawa.
  4. Another combination.

Rotary Table Model	Chuck Model	B	H	J	X	Y	Z	
MK	200	NRC06	235	104	36	20	155	315
	250	NRC06	235	104	36	20	164	324
		NRC08	280	117	42	21	164	344
RS	350	NRC10	315	120	46	25	210	401
	100	NRC04	170	93	27	15	140	275
MR	120	NRC04	170	93	27	18	136	274
	160	NRC04	170	93	27	18	145	283
		NRC06	235	104	36	20		305
	200	NRC04	170	93	27	20	173	313
		NRC06	235	104	36	20		333
	250	NRC06	235	104	36	20	180	340
NRC08		280	117	42	21	360		
320	NRC10	315	120	46	22	210	398	
	GT	200	NRC04	170	93	27	178	318
NRC06			235	104	36	20		338
250		NRC06	235	104	36	20	185	345
		NRC08	280	117	42	21		365
T*X	320	NRC10	315	120	46	22	210	398
	160	NRC04	170	93	27	145	283	
		NRC06	235	104	36		20	305
	200	NRC04	170	93	27	176	316	
		NRC06	235	104	36		20	336
250	NRC06	235	104	36	20	210	370	
	NRC08	280	117	42	21		390	
320	NRC10	315	120	46	22	225	413	

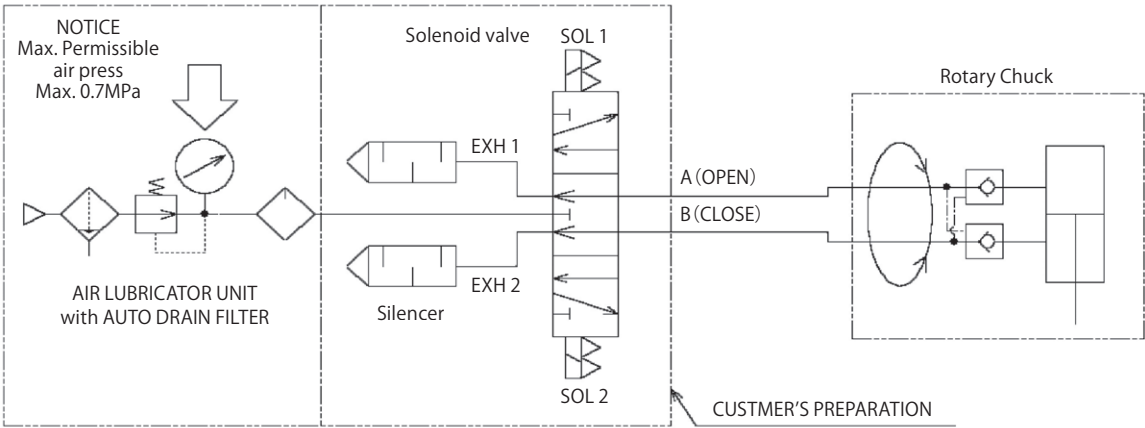
## Piping and operation details for NRC chuck

The specified solenoid must have 4 positions and 3 directions with a centre exhaust. After the solenoid valve has been switched and the chuck jaws opened or closed the solenoid valve must return to the centre, neutral position. Jaw movement occurs immediately after the solenoid is switched however, it will take a short amount of time before full gripping force is achieved. The amount of time required can be checked by fitting a pressure gauge to the chuck surface. For normal operation the pressure gauge can be removed and the required amount of time set as a dwell in the machine program. The solenoid valve must always be returned to the neutral position when the part has been gripped or removed. The NC Rotary Table should only be indexed when the solenoid valve is in the neutral position.



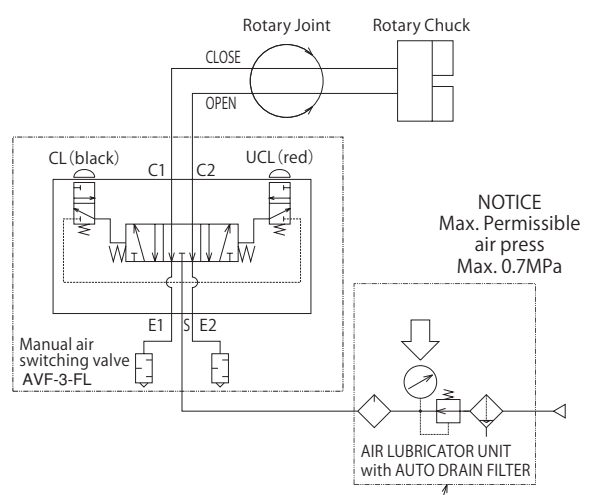
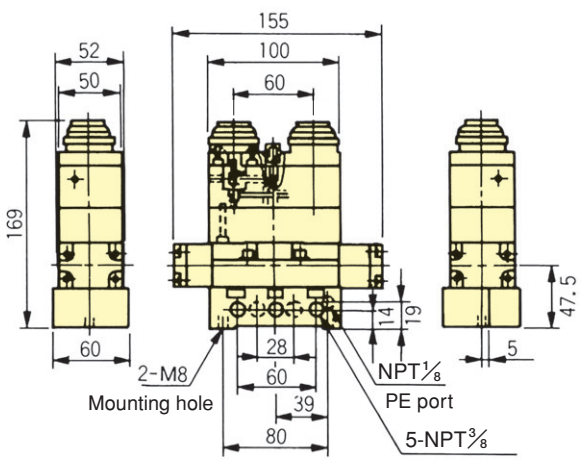
CHUCK

(NRC08 is installed on TMX250)



**AIR DIAGRAM**

■ Manual air switching valve AVF-3-FL (Order Production)



**AIR DIAGRAM**

Light weight compact push button valve designed exclusively to simplify pipe layout for NRC chuck operation.

Service pressure	0~1MPa
Withstanding pressure	1.5MPa
Push button controlling force	4kg
Connecting bore size	NPT <sup>3</sup> / <sub>8</sub>

Note) An adaptor plug is required to have Rc connecting bore.



**CHUCK**

# Chuck Combinations



TT101 fitted with SC-4-105

## Recommended Combinations

Model	Chuck type	Scroll chuck	Power chuck	Work gripper	Rotary chuck
RS100		SC-4-105 SC-4F-112 SC-4N		AS04	NRC04
TM2100 TM3100		SC-4-105 SC-4F-112 SC-4N			
MR120		SC-5-107 SC-5F-113		AS04	NRC04
CK160		JN06-101 JN06T102 JN06TN			NRC06
CKR160				AS06	
MR160 MX160 TMX160 TM2160 TM3160		JN06-101 JN06T102 JN06TN	N-06 B-206	AS06	NRC06
RK201		JN07-101 JN07T102 JN07TN		AS06	NRC06
CK200		JN07-101 JN07T102 JN07TN			NRC06
CKR200				AS06	
MK200		JN07-101 JN07T102 JN07TN	N-06 B-206 BR06	AS06	NRC06
MR200 GT200 TMX200 TUX200		JN07-101 JN07T102 JN07TN	N-06 B-206	AS06	NRC06
MK250		JN09-101 JN09T102 JN09TN	N-10 B-210 BR10	AS08	NRC06 NRC08
MR250 GT250 TMX250 TUX250		JN09-101 JN09T102 JN09TN	N-10 B-210	AS08	NRC06 NRC08
MR320 GT320 TRX320 TUX320		JN12-101 JN12T102 JN12TN	N-12	AS10	NRC10
MK350		JN12-101 JNT102 JN12TN	BR12 N-12 N-15	AS10	NRC10
TR400 TUS400		SC-14-103	N-15		
TR500		SC-14-103	N-15		
TR630		SC-16-113	N-18		
TBX160		JN06-101 JN06T102 JN06TN			NRC06
TBX200		JN07-101 JN07T102 JN07TN			NRC06
TBX250		JN09-101 JN09T102 JN09TN			NRC06 NRC08
TBX320		JN12-101 JN12T102			NRC10
TT101 TW120 TT140 TT150 RKT180		SC-4-105 SC-4F-112 SC-4N		AS04	NRC04
TT182 TW182 TT200		JN06-101 JN06T102 JN06TN		AS04	NRC06
TT251 TW251		JN09-101 JN09T102 JN09TN		AS08	NRC06
TT321 TW321		JN12-101 JN12T102 JN12TN		AS10	NRC10

Note 1) Please refer to P105~P114. Please ask about other combinations. Note 2) Position the rotary table upright when mounting a power chuck



# Combinations of NC Rotary Table and Servo motor

DATA

Model	Motor maker	FANUC AC	Mitsubishi AC	Yaskawa AC	Okuma AC	Sanyo AC	SIEMENS AC
MR120		$\alpha$ iF 2/5000-B	HF75S HG75S	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	1FK7040-2AK71
MR160		$\alpha$ iF 2/5000-B	HF75T HG75T	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	1FK7040-2AK71
CK160 CK200		$\alpha$ iF 2/5000-B	HF75S HG75S	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	—
MX160		—	—	SGMAH-08A4A6S SGMAS-08A2A6S	—	R2AA08075FXPHV R2AA08075FXREVM6-N	—
RK201		Note4) $\alpha$ iS 8/4000-B	HG154 HF154	SGMSV-30A3A2S SGMSV-09A3A2S SGMSV-13A3A2S	BL-MT80M	R2AA13120BXP4PM R2AA13180HXRAMM-N	—
MK200		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMAH-08A4A6S SGMAH-05A2A3S SGMAH-08A2A6S	BL-MT40M	R2AAB8100HXPHV R2AAB8100HXREVM-N	1FK7042-2AF71
MR200 MRT200 GT200		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMAH-08A4A6S SGMAH-05A2A3S SGMAH-08A2A6S	BL-MT40M	R2AA08075FXPHV R2AA08075FXREVM6-N R2AAB8100HXPHV R2AAB8100HXREVM-N	1FK7042-2AF71
MK250		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMAH-15A4A6S SGMAH-09A2A3S	BL-MT40M	R2AAB8100HXPHV R2AAB8100HXREVM-N	1FK7042-2AF71
MR250 GT250		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MT40M	R2AAB8100HXPHV R2AAB8100HXREVM-N	1FK7042-2AF71
MR320 GT320		$\alpha$ iF 8/3000-B	HF104T HG104T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MT80M	R2AA13120BXP4PM R2AA13180HXRAMM-N	1FK7063-2AF71
TMX160 TBX160		$\alpha$ iF 2/5000-B	HF75T HG75T	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME25M	R2AA08075FXPHV R2AA08075FXREVM6-N	—
TMX200 TBX200 TUX200		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMAH-08A4A6S SGMGH-05A2A3S SGMAS-08A2A6S	BL-MT40M	R2AA08075FXPHV R2AA08075FXREVM6-N	1FK7060-2AF71
TMX250 TBX250 TUX250		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MT80M	R2AAB8100HXPHV R2AAB8100HXREVM-N	1FK7060-2AF71
TRX320 TBX320 TUX320		$\alpha$ iF 8/3000-B	HF104T HG104T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MT80M	R2AA13120BXP4PM R2AA13180HXRAMM-N	1FK7063-2AF71
MK350		$\alpha$ iF8/3000-B $\alpha$ iF12/4000-B	HF104T HG104T HF204S HG204S	—	BL-MT80M BL-MT100M	R2AA13120BXP4PM R2AA13180HXRAMM-N R2AA18350*	1FK7063-2AF71 1FK7083-5AF71
TM2100 TM3100 TM2160 TM3160		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMAH-08A4A6S SGMGH-05A2A3S SGMAS-08A2A6S	BL-MT40M	R2AAB8100HXPHV R2AAB8100HXREVM-N	—
TT101	Rotary Axis	$\alpha$ iF 1/5000-B	HF75S HG75S	SGMAS-04A2A6S SGMPH-04A4A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	1FK7032-2AK71
	Tilt Axis	$\alpha$ iF 2/5000-B	HF75S HG75S	SGMAS-08A2A6S SGMAH-08A4A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	1FK7034-2AK71
TW120 TT140 TT150		$\alpha$ iF 2/5000-B	HF75T HG75T	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	—
TT182 TW182 TT200 RKT180		$\alpha$ iF 2/5000-B	HF75T HG75T	SGMAH-08A4A6S SGMAS-08A2A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	1FK7040-2AK71
TT251 TW251		$\alpha$ iF 4/5000-B	HF104T HG104T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MT40M	R2AAB8100HXPHV R2AAB8100HXREVM-N	1FK7060-2AF71
TT321 TW321		$\alpha$ iF 8/3000-B	HF104T HG104T	SGMPH-15A4A6S SGMGH-09A2A3S	BL-MT80M	R2AAB8100HXPHV R2AAB8100HXREVM-N	—
TW2180		$\alpha$ iF 2/5000-B $\alpha$ iS 4/5000-B	HF75T HG75T	SGMAS-08A2A6S SGMAH-08A4A6S	BL-ME24M	R2AA08075FXPHV R2AA08075FXREVM6-N	—
TR400 TR500 TP430 TP530		$\alpha$ iF 12/4000-B	HF204S HG204S	SGMGH-20A2A2S	BL-MT100M	—	1FK7083-5AF71
LR401 TR630		$\alpha$ iF 22/3000-B	HF354S HG354S	SGMGH-30A2A2S	—	—	—
DM100		$\beta$ iS 0.5/6000	HG-KR23JK	SGMAS-02A2A6S	—	—	—
DME100		$\beta$ iS 0.5/6000	HF-KP43JW04-S6	—	—	—	—

Note) 1. Some motor types have difference in specifications such as the maximum rotation and the outline dimensions. 2.   for the NC rotary tables listed on blue-shaded columns, standard fitting is with a servo motor with a straight shaft (without a keyway). 3. In case of the motor is not indicated in the above combination table, contact with KITAGAWA. 4. When installing RK200 on Fanuc Robodrill, motor is  $\alpha$ iF8/3000-B and specifications are different.



# High-Precision Table with Scale

## High indexing accuracy by mounting rotary scale at additional axis spec.

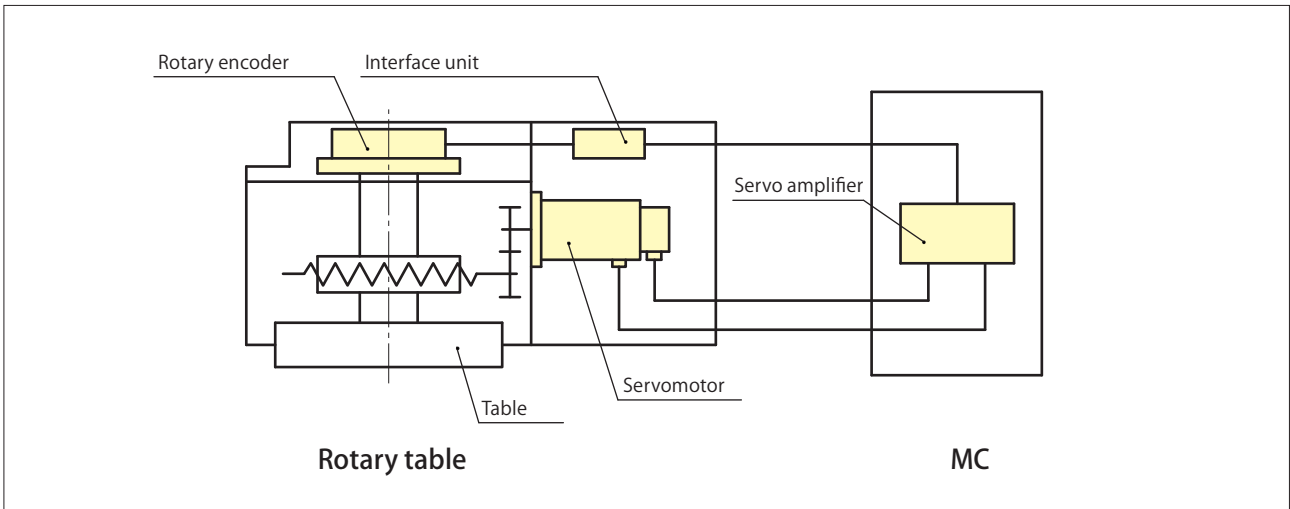
Full closed loop control becomes possible by mounting a commercial rotary scale to the NC rotary table. Highly precise indexing becomes possible by detecting the rotary angle of the table directly.

### ■ Fitted (○) Not Fitted (×) List

NC table model		Rotary encoder (Heidenhain)	MP scale (NIDEC Machine Tool)
MK200、250、350		○	○
MR120、160、200、250、320 CK(R)160、200 RK201		×	×
GT200、250、320		○	○
TMX160、200、250		○	○
THX160、200		○	○
TBX160、200、250、320 TP430		×	×
TUX200、250、320 TUS400		○	○
TLX250、320		○	○
TRX320		○	○
TR400、500、630 TP530		○	○
TT101	Rotary axis	×	×
	Tilting axis	※	※
TT150	Rotary axis	※	×
	Tilting axis	○	○
TT140、182、251、321	Rotary axis	○	※
	Tilting axis	○	○
TT200	Rotary axis	×	×
	Tilting axis	○	○
TW120	Rotary axis	○	×
	Tilting axis	×	×
TW182、251、321	Rotary axis	○	○
	Tilting axis	×	×
TW2180、RKT180	Rotary axis	×	×
	Tilting axis	×	×

Note) 1. Inquire for accuracy details. 2. Consult our company about the mounting of ※column.  
3. Fitting a rotary scale may affect dimensions and specifications. Please consult for the details. 4. Not fitted for ones with Kitagawa controller QUINTE series.

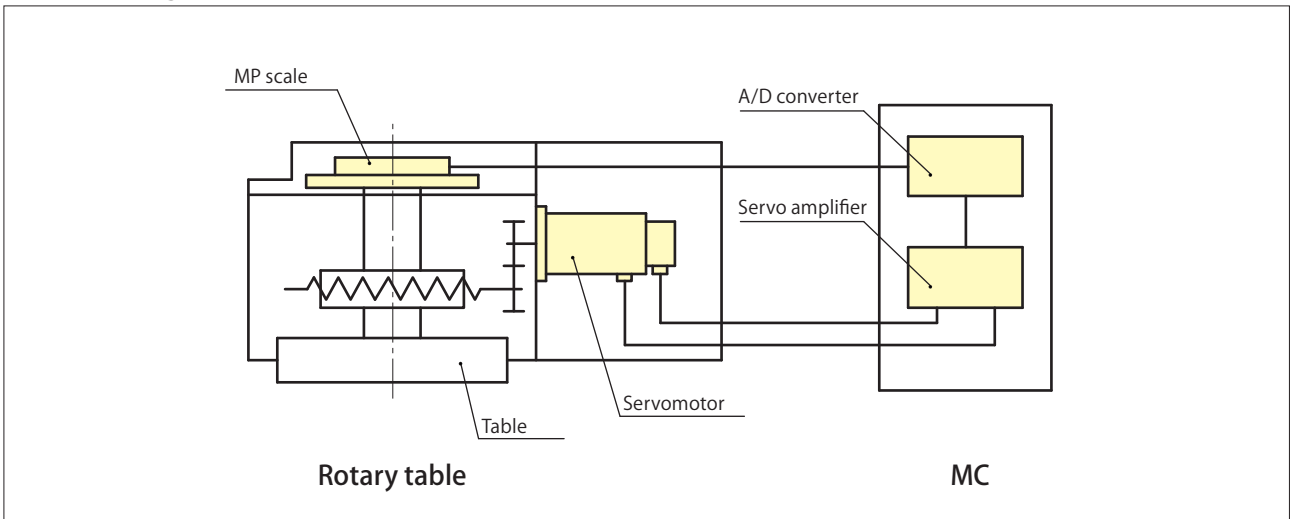
### Table configuration with Heidenhain rotary encoder



Rotary encoder	RON785	RON886	RCN8390F	RCN8590F
Interface unit	IBV102	IBV102	—	—
Recommended measuring pitch	0.0001°	0.00005°	0.0001°	0.00005°
Position value	—	—	27bit ABS	27bit ABS

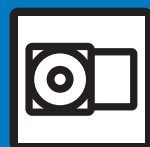
- Note)
1. RCN8390F and RCN8590F are compatible to FANUC serial interface. Consult for compatibilities with other NC devices.
  2. The above recommended measuring pitches are of Heidenhain catalogue values.
  3. Consult for fitting other than the above mentioned Rotary encoder.

### Table configuration with NIDEK Machine Tool MP scale



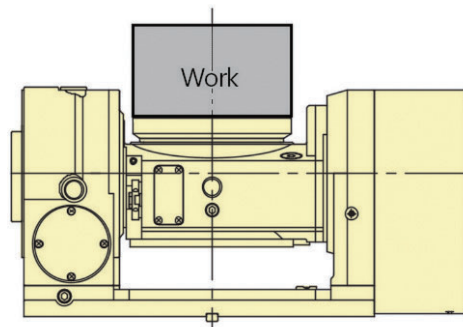
MP scale	MPI 736B	MPI 1272B
Recommended resolution	0.0001°	0.00005°
A/D converter	ADB-20J10	

- Note)
1. Using the A/D converter ADB-20J60 allows accommodation for serial interface.
  2. The above recommended resolutions are of NIDEK Machine Tool catalogue values.
  3. A pre-amplifier is required for MPR series.
  4. Consult when using non-standard preamplifier for MPR series.
  5. Consult for fitting other than the above mentioned MP scales.



**NC ROTARY TABLE**

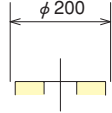
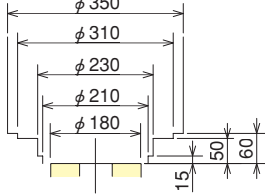
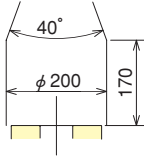
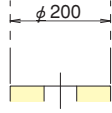
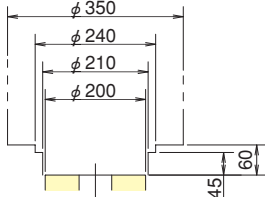
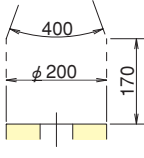
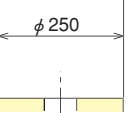
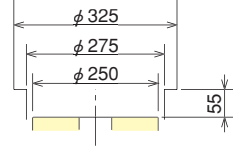
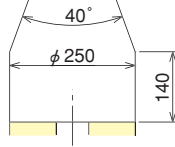
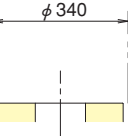
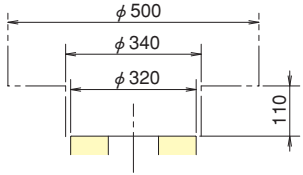
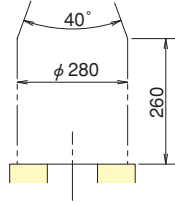
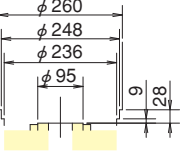
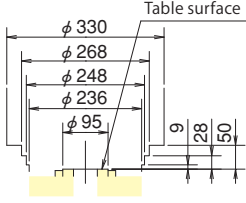
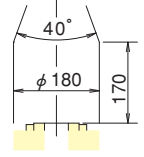
# NC Tilting rotary table • Work loadable area



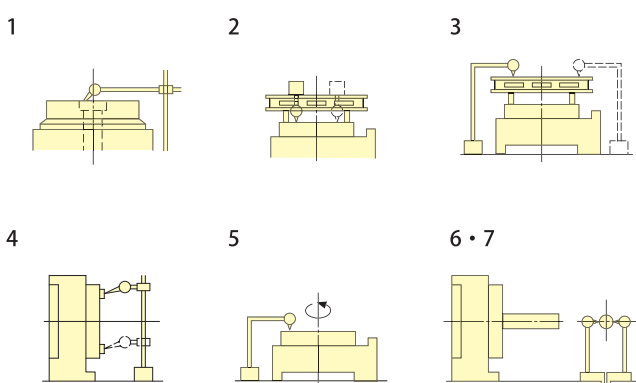
**DATA**

Model	Work loadable area		
TT101			
	-20° ~ 0°	0° (Horizontal) ~ 90° (Vertical)	+90° ~ +120°
TW120			
	-20° ~ 0°	0° (Horizontal) ~ 90° (Vertical)	+90° ~ +110°
TT140			
	-110° ~ 0°	0° (Horizontal) ~ 90° (Vertical)	90° ~ 110°
TT150			
	-20° ~ 0°	0° (Horizontal) ~ 90° (Vertical)	+90° ~ +110°

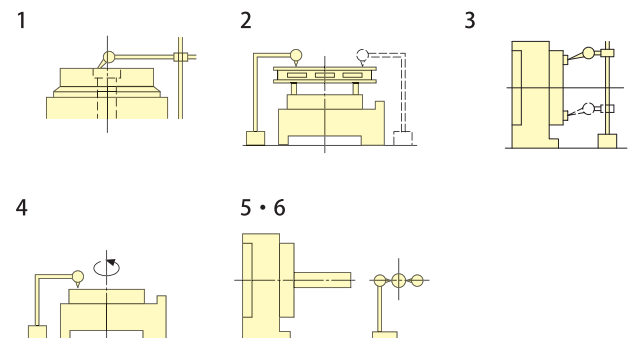


Model	Work loadable area		
<b>TT182</b> <b>TW182</b>			
	$-35^{\circ} \sim 0^{\circ}$	$0^{\circ}$ (Horizontal) $\sim 90^{\circ}$ (Vertical)	$+90^{\circ} \sim +110^{\circ}$
<b>TT200</b>			
	$-35^{\circ} \sim 0^{\circ}$	$0^{\circ}$ (Horizontal) $\sim 90^{\circ}$ (Vertical)	$+90^{\circ} \sim +110^{\circ}$
<b>TT251</b> <b>TW251</b>			
	$-35^{\circ} \sim 0^{\circ}$	$0^{\circ}$ (Horizontal) $\sim 90^{\circ}$ (Vertical)	$+90^{\circ} \sim +110^{\circ}$
<b>TT321</b> <b>TW321</b>			
	$-35^{\circ} \sim 0^{\circ}$	$0^{\circ}$ (Horizontal) $\sim 90^{\circ}$ (Vertical)	$90^{\circ} \sim 110^{\circ}$
<b>RKT180</b>			
	$-35^{\circ} \sim 0^{\circ}$	$0^{\circ}$ (Horizontal) $\sim 90^{\circ}$ (Vertical)	$+90^{\circ} \sim +110^{\circ}$

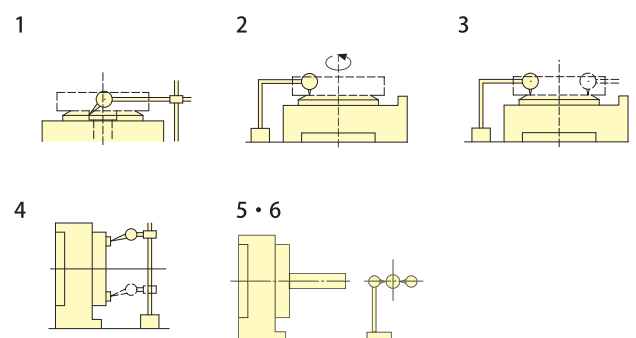
**■ MK • MR • MX • GT series** (Unit : mm)

No.	Inspection Item	Allowance	Diagram		
1	Concentricity of Center Hole	0.010	1	2	3
2	Flatness of Table Face (Center Slightly Lower)	0.020 at Dia			
3	Parallelism between Table Face and Reference plane for Horizontal installation	0.020 at 150			
4	Perpendicularity between Table Face and Reference plane for Vertical installation	0.020 at Dia			
5	Run-out of Table Face	0.020			
6	Parallelism between Rotary axis and Reference plane for Vertical installation of Guide Blocks	0.020 at 150			
7	Deviation between Rotary axis and of Guide Blocks central axis	0.030			

**■ CK series** (Unit : mm)

No.	Inspection Item	Allowance	Diagram		
1	Concentricity of Center Hole	0.010	1	2	3
2	Parallelism between Table Face and Reference plane for Horizontal installation	0.020 at 150			
3	Perpendicularity between Table Face and Reference plane for Vertical installation	0.020 at 150			
4	Run-out of Table Face	0.020			
5	Parallelism between Rotary axis and Reference plane for Vertical installation of Guide Blocks	0.020 at 150			
6	Deviation between Rotary axis and of Guide Blocks central axis	0.030			

**■ RK series** (Unit : mm)

No.	Inspection Item	Allowance	Diagram		
1	Concentricity of Center Hole	0.010	1	2	3
2	Run-out of Table Face	0.020			
3	Parallelism between Table Face and Reference plane for Horizontal installation	0.020			
4	Perpendicularity between Table Face and Reference plane for Vertical installation	0.020 at 200			
5	Parallelism between Rotary axis and Reference plane for Vertical installation of Guide Blocks	0.020 at 200			
6	Deviation between Rotary axis and of Guide Blocks central axis	0.030			

■ **TMX • TR • TP series** (Unit : mm)

No.	Inspection Item	Allowance	Diagram		
1	Concentricity of Center Hole	0.010	1	2	3
2	Flatness of Table Face (Center Slightly Lower)	0.010 at 300			
3	Parallelism between Table Face and Reference plane for Horizontal installation	0.020 at 300			
4	Perpendicularity between Table Face and Reference plane for Vertical installation	0.020 at 300			
5	Run-out of Table Face	0.010			
6	Parallelism between Rotary axis and Reference plane for Vertical installation of Guide Blocks	0.020 at 300			
7	Deviation between Rotary axis and of Guide Blocks central axis	0.020			

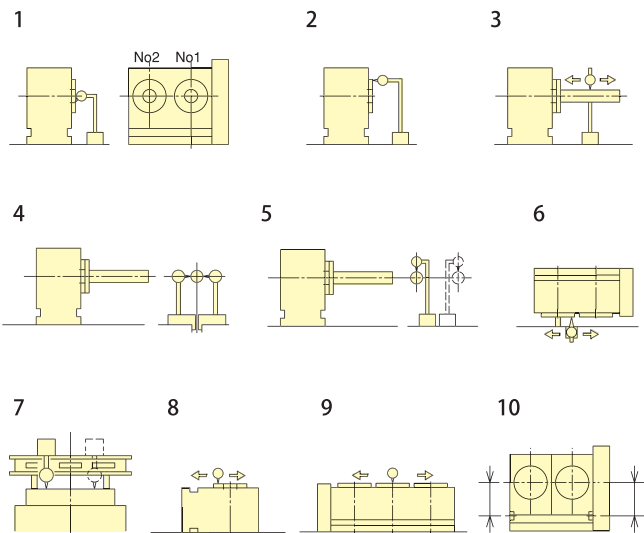
■ **TT • RKT series** (Unit : mm)

No.	Inspection Item	Allowance	Diagram			
1	Concentricity of Center Hole	0.010	1	2	3	4
2	Run-out of Table Face	0.015				
3	Flatness of Table Face (Center Slightly Lower)	0.010 at Dia				
4	Parallelism between Table Face and Base(Tilting Axis Direction)	0.020 at Dia				
5	Parallelism between Center of Tilting Axis and Base (Tilted at 90° and 0°)	0.020 at Dia				
6	Perpendicularity between Table Face and Guide Blocks	0.020 at Dia				
7	Parallelism between Rotary axis and Guide Blocks	0.020 at 300				

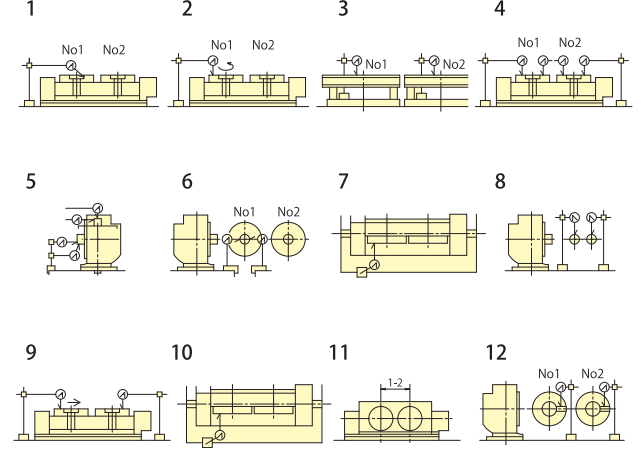
■ **RS100** (Unit : mm)

No.	Inspection Item	Allowance	Diagram	
1	Concentricity of Center Hole	0.010	1	2
2	Run-out of Table Face	0.020	3	
3	Parallelism between Table Face and Reference plane for Horizontal installation	0.020 at 150		
4	Parallelism between Center of Rotation and Reference plane for Vertical installation	0.020 at 150		
5	Parallelism between Rotary axis and Reference plane for Vertical installation of Guide Blocks	0.020 at 150	5	

## Multiple spindle TM series (Unit : mm)

No.	Inspection Item	Allowance	
1	Concentricity of Center Hole	0.010	
2	Run-out of Table Face	0.010	
3	Parallelism between Center of Rotation and Reference plane for Vertical installation	0.020	
4	Parallelism between Rotary axis and Reference plane for Vertical installation of Guide Blocks	0.020 at 150	
5	Difference of Center Height	0.020	
6	Difference between Guide Blocks and each Table Surface	0.030	
7	Flatness of Table Face (Center Slightly Lower)	0.010	
8	Parallelism between Table Face and Reference plane for Horizontal installation	0.010	
9	Difference of height between each Table Face and Reference plane for Horizontal installation	0.020	
10	Difference between each Spindle Center and Reference plane for Horizontal installation of Guide Blocks	0.020	

## TW2180 (Unit : mm)

No.	Inspection Item	Allowance	
1	Concentricity of Center Hole	0.010	
2	Run-out of Table Face	0.015	
3	Flatness of Table Face (Center Slightly Lower)	0.010 at Dia	
4	Parallelism between Table Face and Base (Tilting Axis Direction)	0.020 at Dia	
5	Parallelism between Center of Tilting Axis and Base (Tilted at 90° and 0°)	0.020 at Dia	
6	Perpendicularity between Rotary axis and Guide Blocks	0.020 at Dia	
7	Parallelism between Table Face and Guide Blocks	0.020 at Dia	
8	Difference of Center Height	0.020	
9	Difference of height between each Table Face and Base	0.020	
10	Difference between Guide Blocks and each Table Surface	0.020	
11	Distance of Center between Each Spindle	0.020 at 250	
12	Difference between each Datum Groove and Table	0.020	

# Glossary

## Vertical installation • Horizontal installation

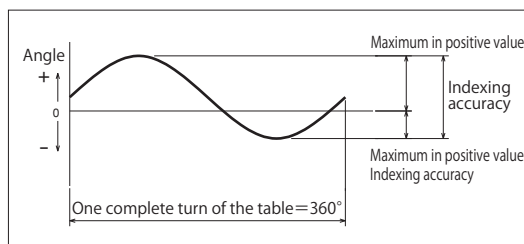
A vertical NC table is installed with the table surface perpendicular to the table surface of the machining centre, where as a horizontal one is installed flat with the NC table surface parallel to the machining centre table.

## Right-handed type • Left-handed type

Facing to the table surface of the vertically installed NC rotary table, if the motor case is seen on the right hand side, it is "right-handed;" and if on the left hand side, it is "left-handed."

## Indexing accuracy

The angle of difference between the 0 position after one complete 360° turn of the table. Indexing accuracy is a sum of the max and min values.



## Repeatability

The maximum difference between several measurements after indexing in clockwise direction from the datum point 0°.

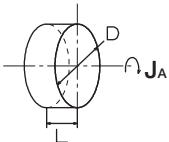
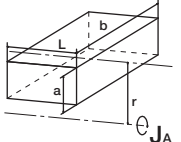
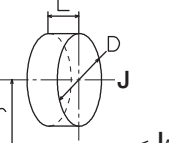
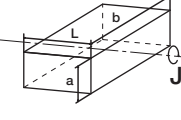
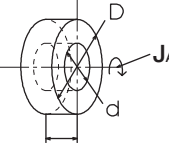
## Clamping torque

Breaking force of clamping mechanism when rotational torque is applied externally to the table. As the condition, the catalog value is used for the supply pressure and does not include self-locking by the worm gear.

## Allowable mass of workpiece

It is the maximum mass allowed on the table surface where the work is assumed to be a cylindrical castiron body of a diameter equal to the table surface.

## Formulas to determine moment of inertia

	D : Major diameter of the round-bar [m] L : Length of the round-bar [m] $\rho$ : Density [kg/m <sup>3</sup> ] M : Mass of the round-bar [kg] JA : Moment of inertia [kgm <sup>2</sup> ]	$M = \frac{\pi D^2}{4} \times L \rho$ $J_A = \frac{M D^2}{8}$		a : Side length [m] b : Side length [m] L : Side length [m] $\rho$ : Density [kg/m <sup>3</sup> ] r : Turning radius [m] JA : Moment of inertia [kgm <sup>2</sup> ]	$M = abL \rho$ $J_A = \frac{1}{12} M (a^2 + b^2 + 12r^2)$
	D : Major diameter of the round-bar [m] L : Length of the round-bar [m] r : Turning radius [m] $\rho$ : Density [kg/m <sup>3</sup> ] M : Mass of the round-bar [kg] JA : Moment of inertia of the round-bar at the centre A [kgm <sup>2</sup> ] J : Moment of inertia [kgm <sup>2</sup> ]	$M = \frac{\pi D^2}{4} \times L \rho$ $J = \frac{M D^2}{8}$ $J_A = J + M \cdot r^2$		a : Side length [m] b : Side length [m] L : Side length [m] $\rho$ : Density [kg/m <sup>3</sup> ] JA : Moment of inertia [kgm <sup>2</sup> ]	$M = abL \rho$ $J_A = \frac{1}{12} M (a^2 + b^2)$
	D : Outer diameter of the cylinder [m] d : Bore diameter of the cylinder [m] L : Length of the round-bar [m] $\rho$ : Density [kg/m <sup>3</sup> ] M : Mass of the cylinder [kg] JA : Moment of inertia [kgm <sup>2</sup> ]	$M = \left( \frac{\pi D^2}{4} \times L \rho \right) - \left( \frac{\pi d^2}{4} \times L \rho \right)$ $J_A = \frac{1}{8} M (D^2 + d^2)$	<b>Densities of various materials Dynamic velocity (<math>\rho</math>)</b> Iron $7.85 \times 10^3 \text{ kg/m}^3$ Cast iron $7.35 \times 10^3 \text{ kg/m}^3$ Aluminum $2.7 \times 10^3 \text{ kg/m}^3$ Copper $8.94 \times 10^3 \text{ kg/m}^3$ Brass $8.5 \times 10^3 \text{ kg/m}^3$		



# Glossary

## Allowable load (axial load, circumferential load, moment load)

Load allowable onto the table surface; categorized by the following:

(Axial load): load exerted perpendicularly onto the table surface.

(Circumferential load): load exerted onto the outer edge of the table surface in the parallel direction; agrees with the clamping torque.

(Moment load): Load exerted onto the table surface in parallel direction.

## Allowable cutting torque

Load allowed during lead cutting with the NC rotary table turning; it is the load-resistant torque of the worm wheel when the table is rotating at a speed of  $1 \text{ min}^{-1}$ .

## Work inertia

Load exerted in the circumferential direction; degrees with the clamping torque.

## Allowable work inertia

The maximum work inertia allowed on the NC rotary table.

## Triple disk brake system

Pneumatic mechanism used to generate high clamping torque equivalent to that of hydraulic clamping. Three disk plates cause frictions on four surfaces.

## Air hydro booster

Amplifies pneumatic pressure to produce equivalent hydraulic pressure when built in a NC table it generates a clamping torque equivalent to that by direct hydraulic clamping.

## Air purge

Air injected into the motor case to prevent condensation, and thus to protect electric devices.

## Relief valve

Discharges pressure build up inside the rotary table body as a result of deteriorated seals, thus avoiding damage to the break and motor.

## Trunnion jig plate (cradle)

Plate assembly to connect NC rotary table and tail spindle thus allowing greater variety of work pieces to be machined.

## Warranty and indemnity

Products are warranted for one year after delivery. Use only genuine Kitagawa parts, including consumables. Kitagawa Iron Works assumes no responsibilities for any defects or accidents caused by non genuine parts or operation of products outside the recommended operating conditions. The warranties become invalid when any part other than Kitagawa's genuine part was used.

## When planning to export or to take the product out of Japan

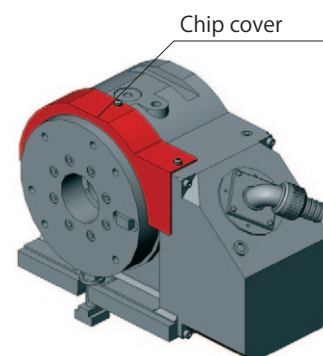
The products listed on this catalogue are subject to controls under "Export Trade Control Ordinance" and "Foreign Exchange Ordinance" by "Foreign Exchange and Foreign Trade Law." Consult in advance for any requirement of an approval by the Minister of Economy, Trade and Industry for export.

## Using with grinding machine ※Order production

Use with grinding machine can damage the face plate seals and is not warranted.

## Chip cover optional

Chip covers are available to protect face plate seals in situations where chips directly hit the seal, or are easily trapped in a jig.



## Air supply

In some environments, condensation may occur inside the motor case. Our rotary tables are equipped with air purge to prevent electrical defects and corrosion caused by such condensation. The air supplied to the rotary table for air purge must be clean air of P105 or of the specification on the air circuit diagram. Where moisture may be contained in the supplied air, provide a dryer to remove the moisture. Any defect or accident caused by using air not complying with specifications will not be warranted.

## NC control while using a table clamp

Refer to the control flow chart on P93.

## Direction of cable outlet

Standard cable outlet is provided on the back or the lateral side of the motor case. Consult for having cable outlet on any other position.

