

# HYUNDAI-KIA MACHINE

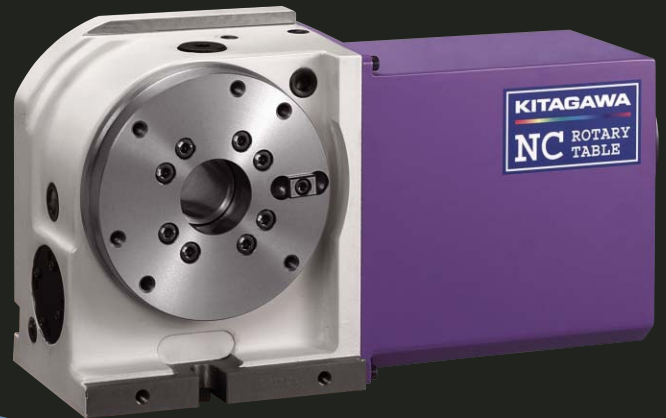
## Tapping Center

CNO. S2RW-2

— Special Purpose —

# NC ROTARY TABLE

MR120/160/200/250  
MRM120/160/200/250  
TT101/140  
TW182



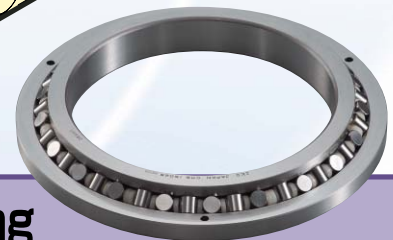
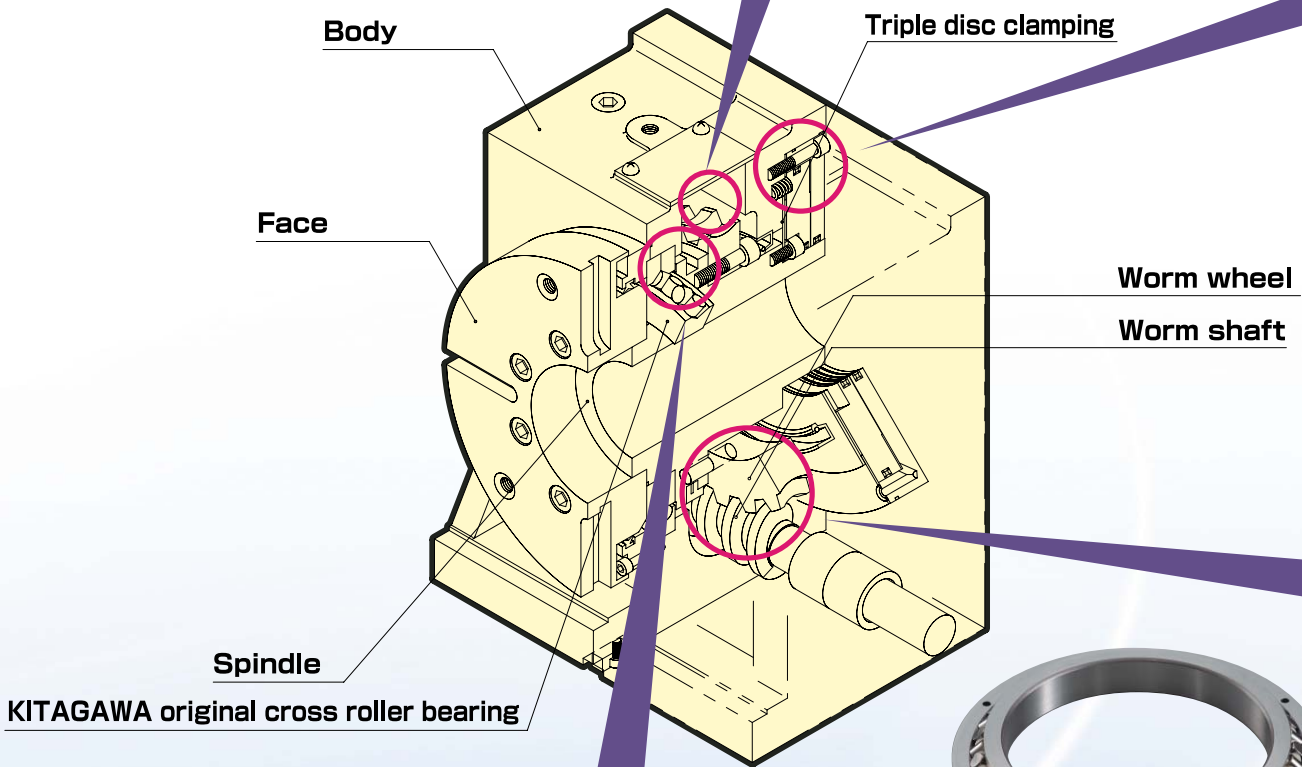
**KITAGAWA**  
YOUR COMPLETE WORKHOLDING SOLUTION



High clamping torque, high accuracy and high rigidity. Certain technology produces KITAGAWA NC rotary tables.

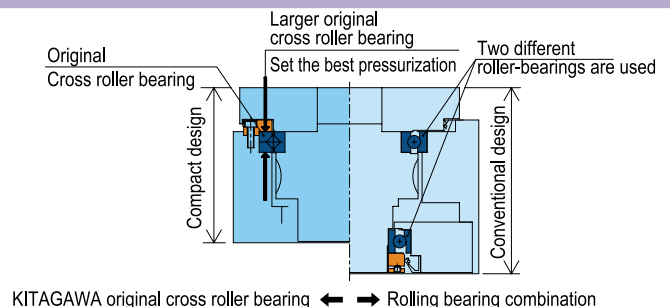
## Original metal for the wearless worm wheel

Original metal that contains hard intermetallic compounds significantly improves wearless of the worm wheel compared with conventional model.



## KITAGAWA original cross roller bearing

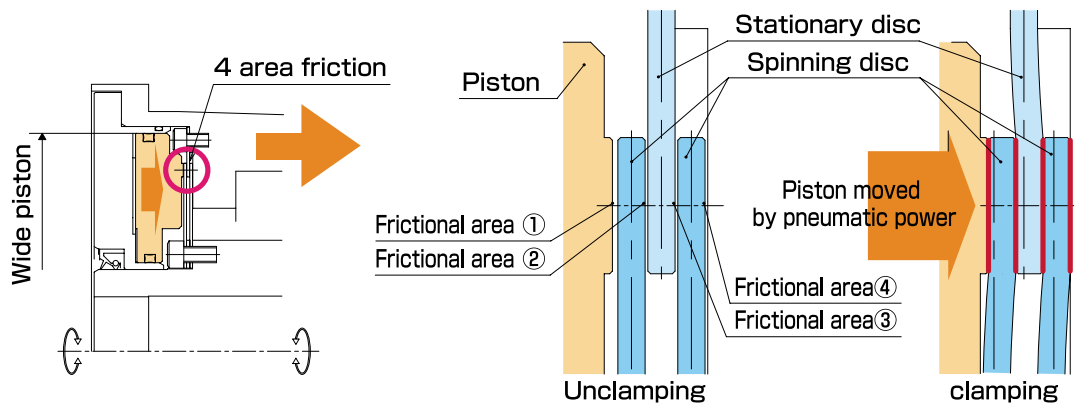
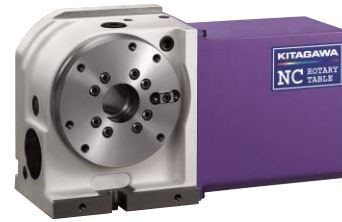
KITAGAWA original cross roller bearing holds up the main shaft. Construction of the original bearing has high rigidity compared with conventional ones, and the original bearing allows designing the body smaller and thinner. As over 20-year-experience using the original bearing, the best pressurization is set, then that makes high accuracy and high rigidity.



## High clamping brake system

### ● Triple disc brake system

Four area friction by triple disc brake system enables the clamping torque much higher like the hydraulic brake by pneumatic power, and also wide piston is efficient for clamping.

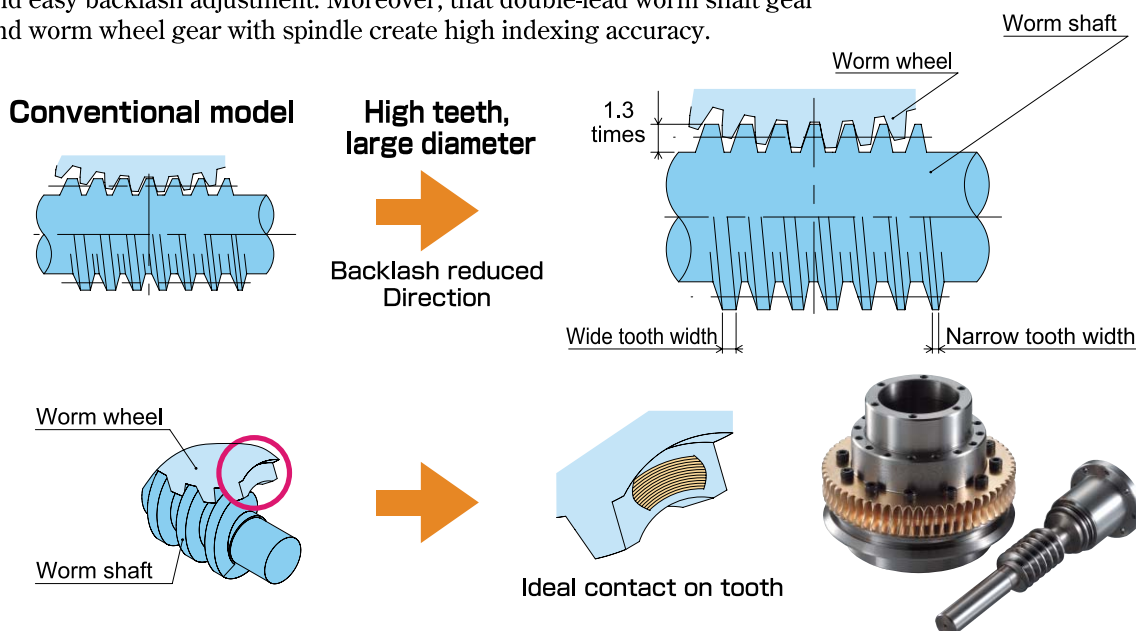


## High gear teeth, large diameter design with great strength and rigidity

Processing load reduced, High accuracy and wearless have been realized by High gear teeth on worm gear and large diameter worm wheel that reduced the pressure on the teeth surfaces.

### Double-lead Worm gear

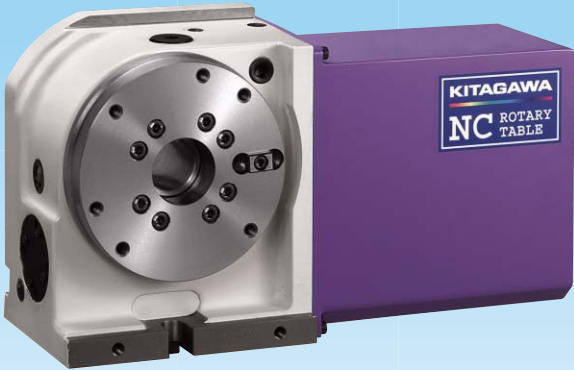
Double-lead worm shaft gear ideal contact between the worm shaft tooth and the worm wheel one, and easy backlash adjustment. Moreover, that double-lead worm shaft gear and worm wheel gear with spindle create high indexing accuracy.





## ■ Features

NC rotary table **MR series**



A new clamp system functions at the best-in-class performance for powerful clamp, high speed rotation, high accuracy and compact design.

NC tilting rotary table Model **TT101**



This model functions at the best-in-class performance for compact, lightest weight, high speed, and high rigidity.

NC tilting rotary table Model **TT140**



Compact design, High speed and Large tilting angle for small M/C.

NC tilting rotary table Model **TT182**



Compact designed tilting series features five-face machining.

## ■ Specification table for NC rotary table

Type	MR120RAF□□	MR160RAF□□	MR200RAF□□	MR250RAF□□
Supplied motor type FANUC	$\alpha$ iF2/5000	$\alpha$ iF2/5000	$\alpha$ iF4/4000	$\alpha$ iF4/4000
Table dia. (mm)	$\phi$ 128	$\phi$ 165	$\phi$ 202	$\phi$ 250
Spindle through hole diameter (mm)	$\phi$ 32.5	$\phi$ 40	$\phi$ 45	$\phi$ 70
Center height (mm)	120	140	140	180
Clamp method	Pneumatic			
Clamp torque (N·m) In pneumatic 0.5MPa.	150	310	350	600
Gear ratio	1/60	1/72	1/90	1/90
Max. spindle speed (for min <sup>-1</sup> ) Motor 3000min <sup>-1</sup> .	50	41.6	33.3	33.3
Allowable work inertia kgm <sup>2</sup> (kgf·cm·sec <sup>2</sup> )	0.22 (2.2)	0.51 (5.2)	1.00 (10.2)	1.95 (19.9)
Indexing accuracy	±10sec			
Repeatability	±2sec			
Mass of product (kg)	28	40	49	85

## ■ Specification table for NC tilting rotary table

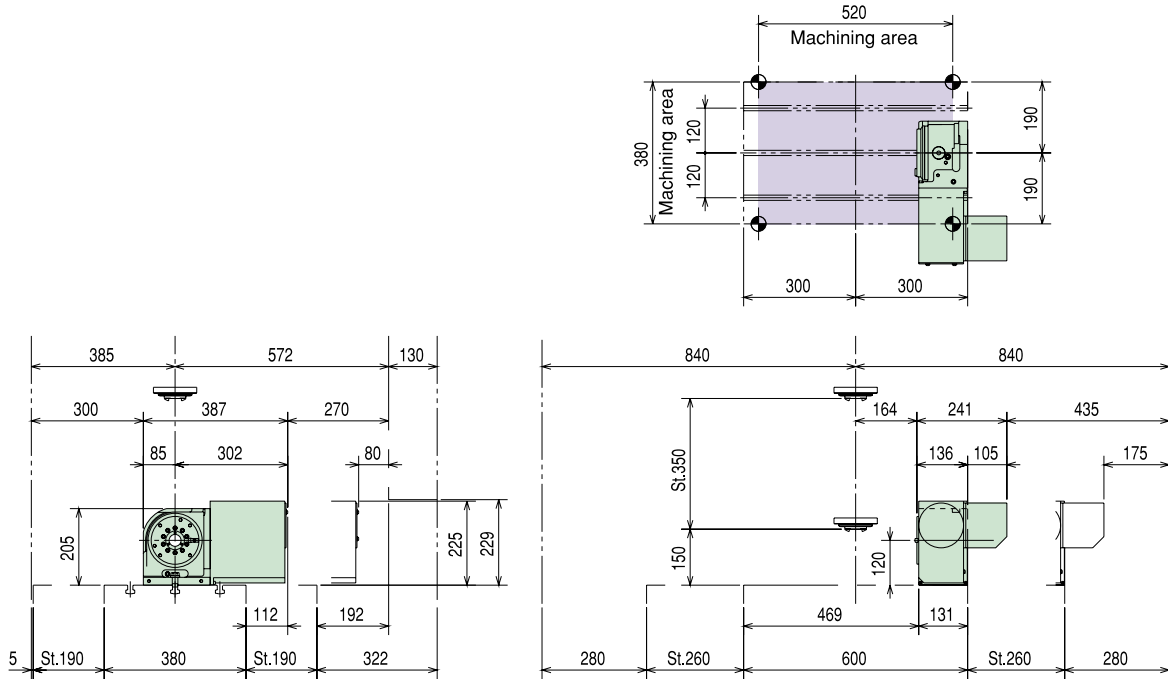
Type	TT101AFF□□		TT140AF-□□	
	Rotating axis	Tilting axis	Rotating axis	Tilting axis
Supplied motor type FANUC	$\alpha$ iF1/5000	$\alpha$ iF2/5000	$\alpha$ iF2/5000	
Table dia. (mm)	$\phi$ 110		$\phi$ 140	
Spindle through hole diameter (mm)	$\phi$ 32		$\phi$ 32	
Center height in vertical use (mm)	140		200	
Clamp method	Pneumatic		Pneumatic	
Clamp torque (N·m) In pneumatic 0.5MPa.	180	300	280	500
Gear ratio	1/72	1/120	1/72	1/180
Max. spindle speed (for min <sup>-1</sup> ) Motor 3000min <sup>-1</sup> .	41.6	25	41.6	16.6
Allowable work inertia kgm <sup>2</sup> (kgf·cm·sec <sup>2</sup> )	0.05 (0.5)		0.12 (1.2)	
Indexing accuracy	±15sec	±30sec	±15sec	±30sec
Repeatability	±2sec		±4sec	
Mass of product (kg)	65		150	

## ■ Specification table for NC tilting rotary table

Type	TW182BF□□	
	Rotating axis	Tilting axis
Supplied motor type FANUC	$\alpha$ iF2/5000	
Table dia. (mm)	$\phi$ 180	
Spindle through hole diameter (mm)	$\phi$ 40	
Center height in vertical use (mm)	180	
Clamp method	Air-Hydraulic/Hydraulic	
Clamp torque (N·m) In pneumatic 0.5MPa./Hydraulic 3.5MPa.	450	800
Gear ratio	1/90	1/180
Max. spindle speed (for min <sup>-1</sup> ) Motor 3000min <sup>-1</sup> .	33.3	16.6
Allowable work inertia kgm <sup>2</sup> (kgf·cm·sec <sup>2</sup> )	0.25 (2.5)	
Indexing accuracy	±10sec	±30sec
Repeatability	±2sec	
Mass of product (kg)	170	

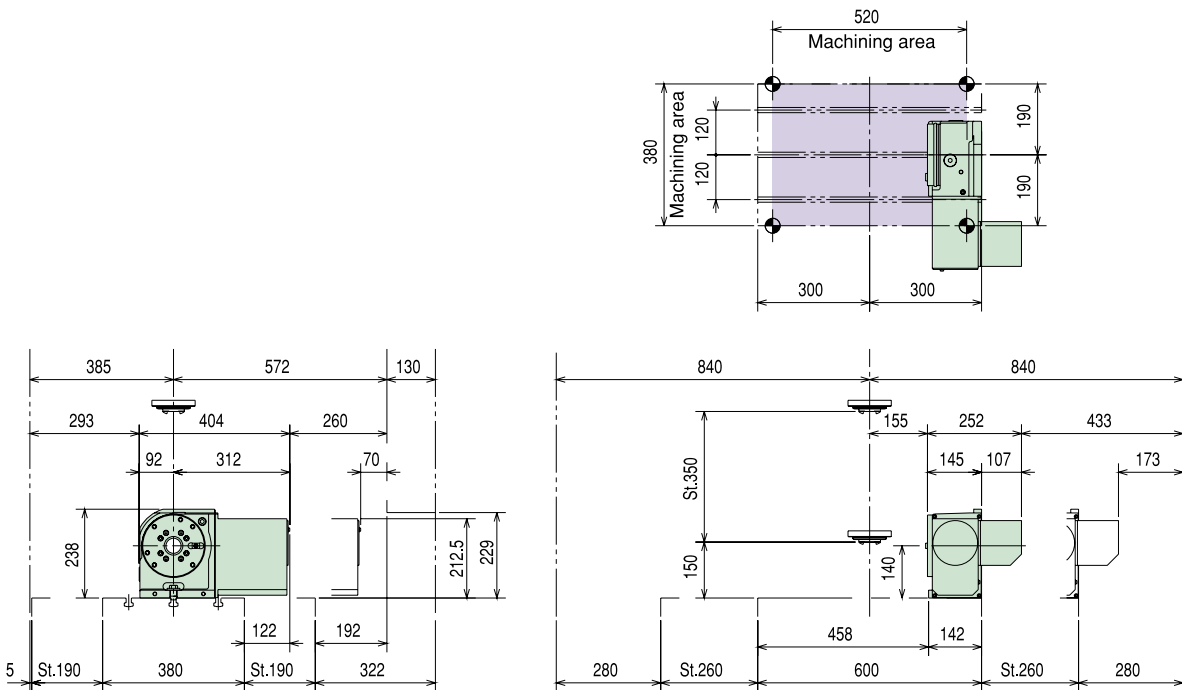


**MR120RAF**



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

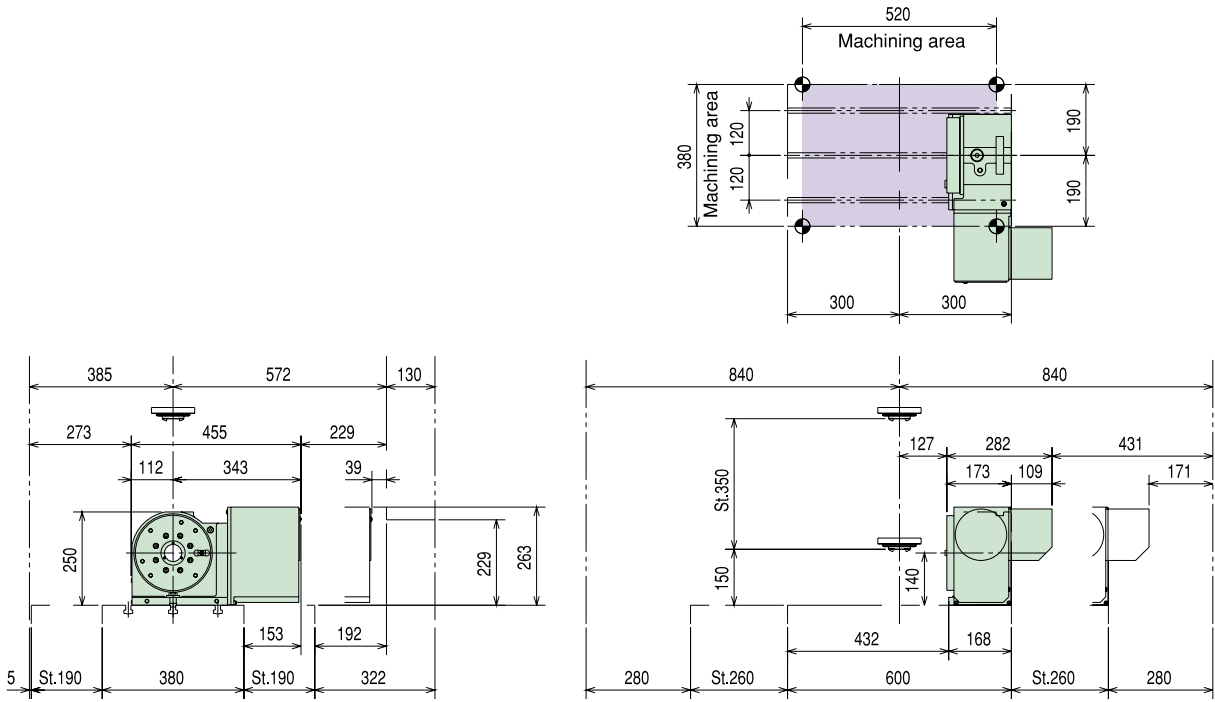
**MR160RAF**



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

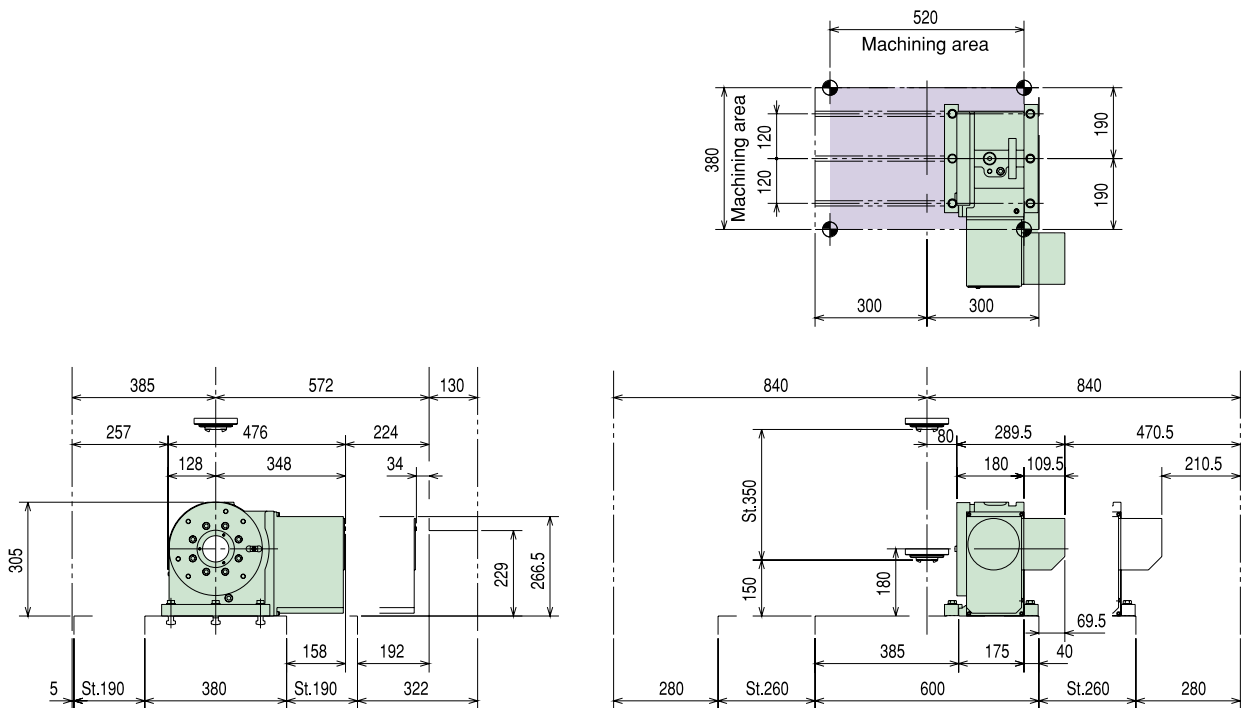
VX380T MR200R/250R Mounting drawings

MR200RAF □ □



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

MR250RAF □ □



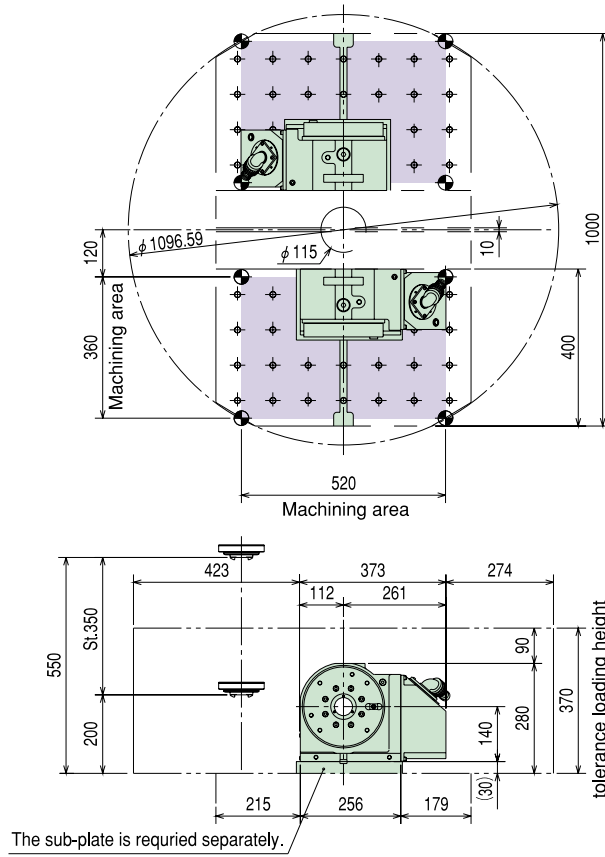
For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.





VX380TD MRM200R/250R Mounting drawings

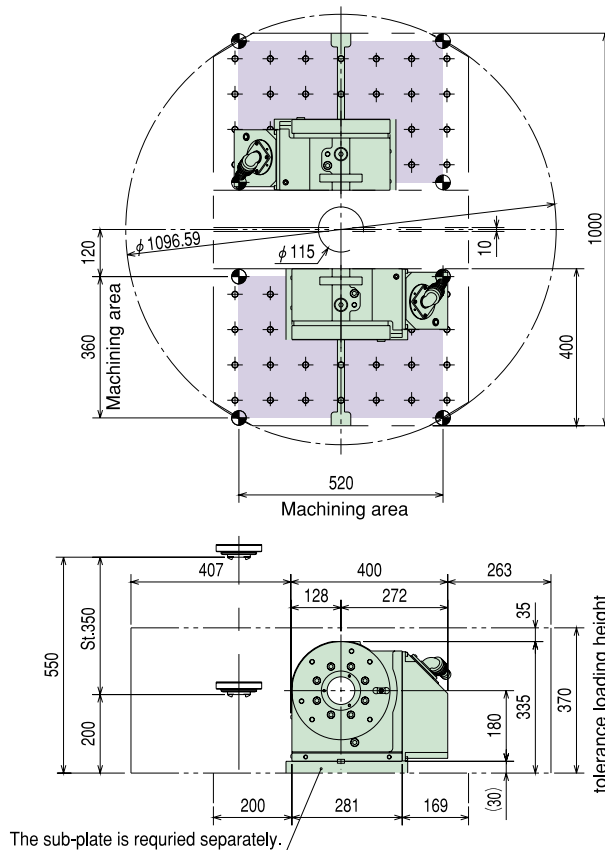
MRM200R



In case of two-pallet type, only controller specification is applied to the rotary table.

For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

MRM250R

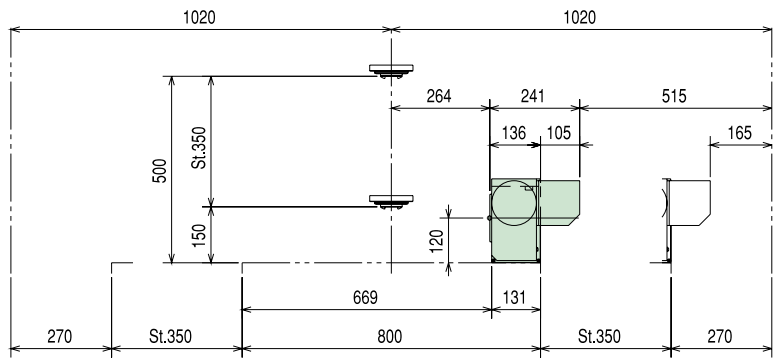
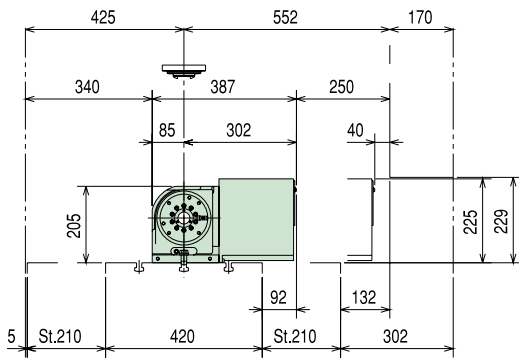
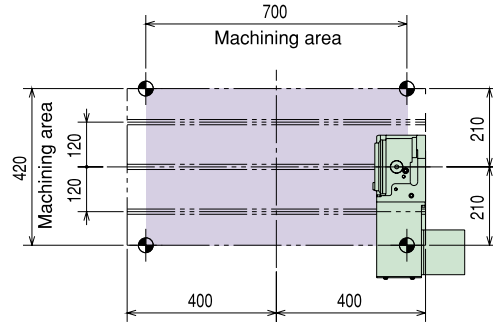


In case of two-pallet type, only controller specification is applied to the rotary table.

For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

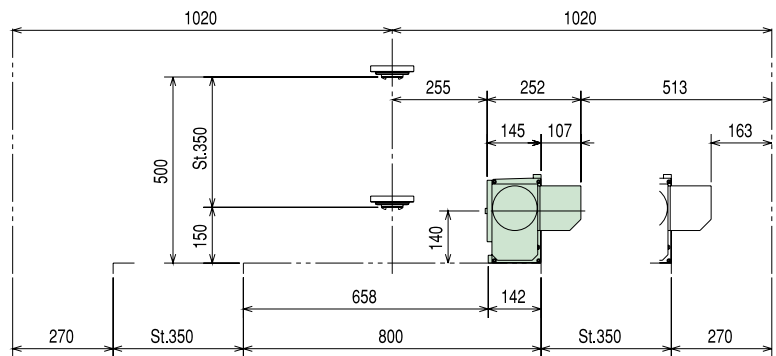
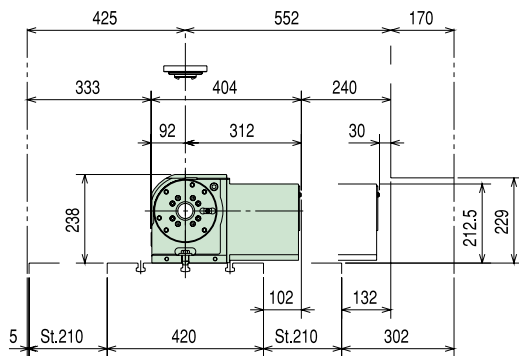
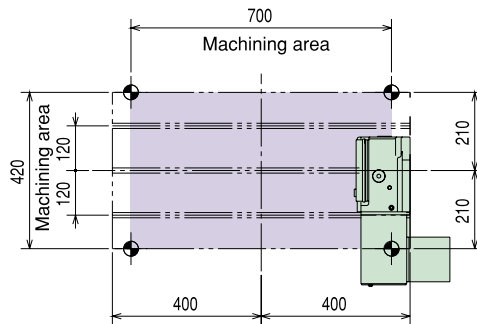


**MR120RAF**



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

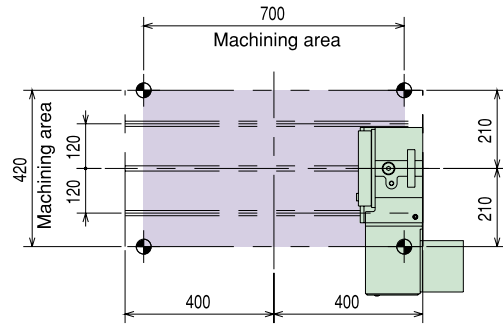
**MR160RAF**



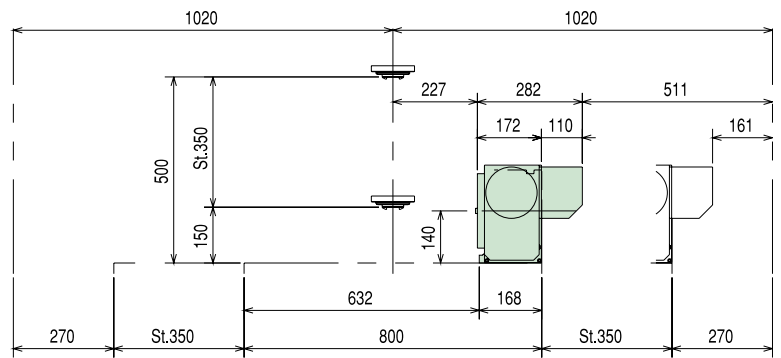
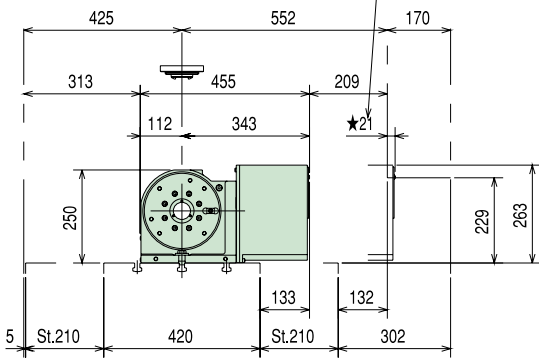
For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

VX420T MR200R/250R Mounting drawings

MR200RAF

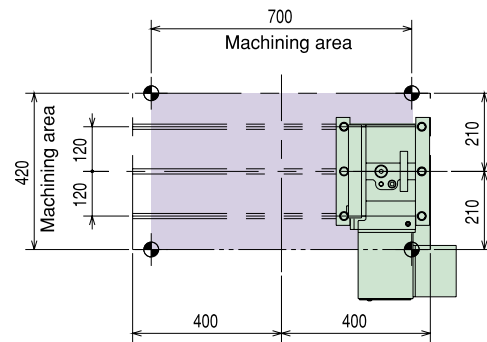


Stroke limit by 21mm is required.

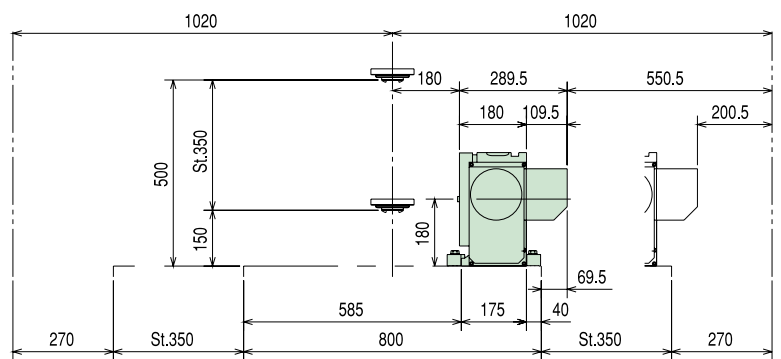
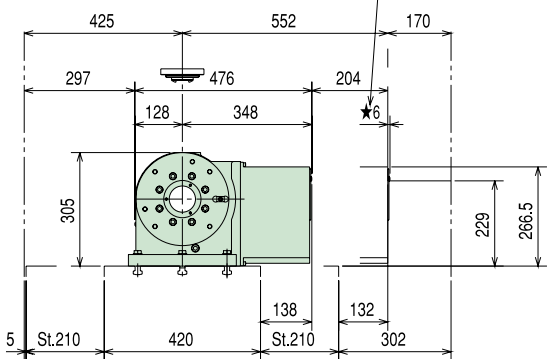


For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

MR250RAF



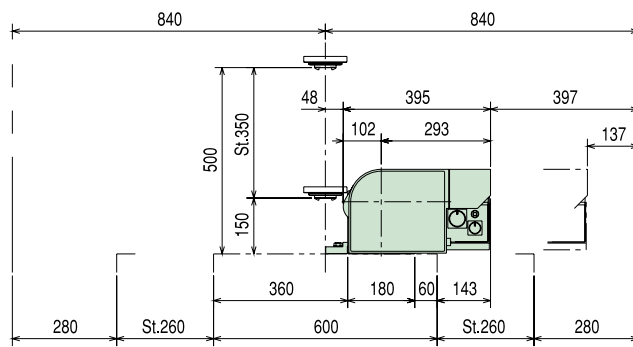
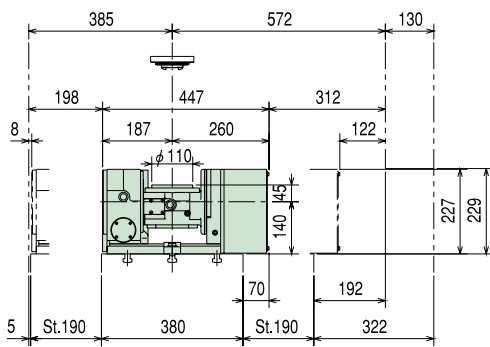
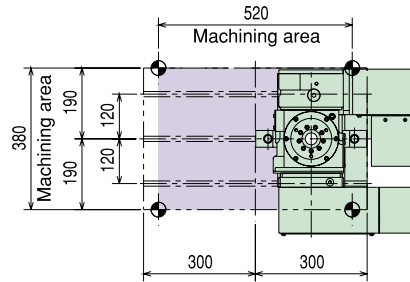
Stroke limit by 6mm is required.



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

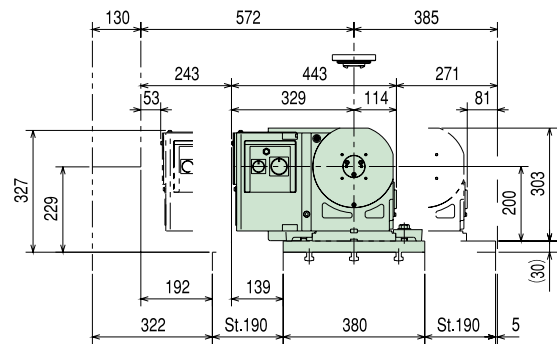
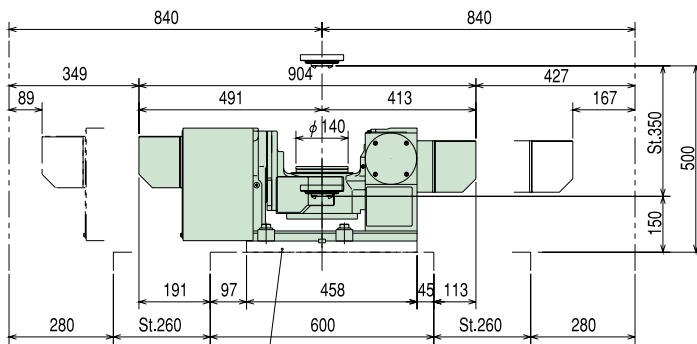
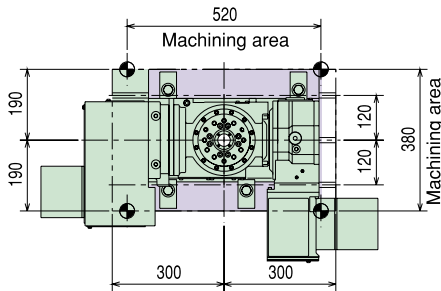


**TT101AFF**



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

**TT140AF**

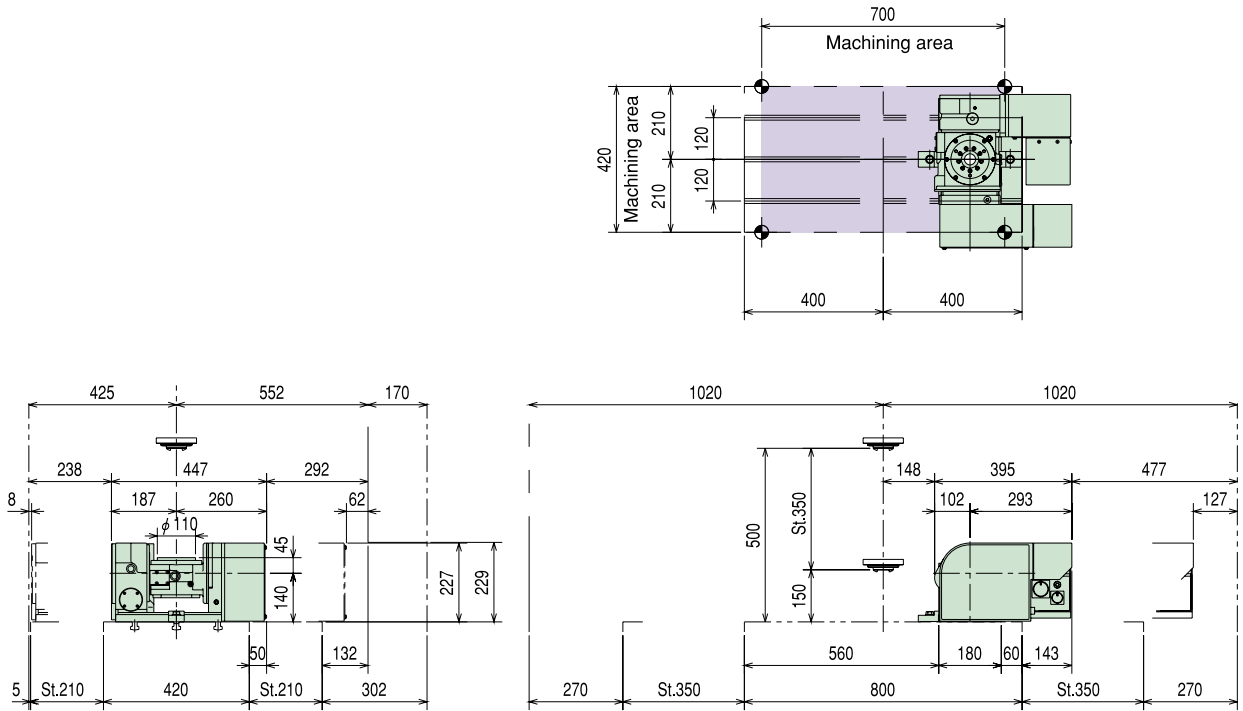


The sub-plate is required separately.

For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

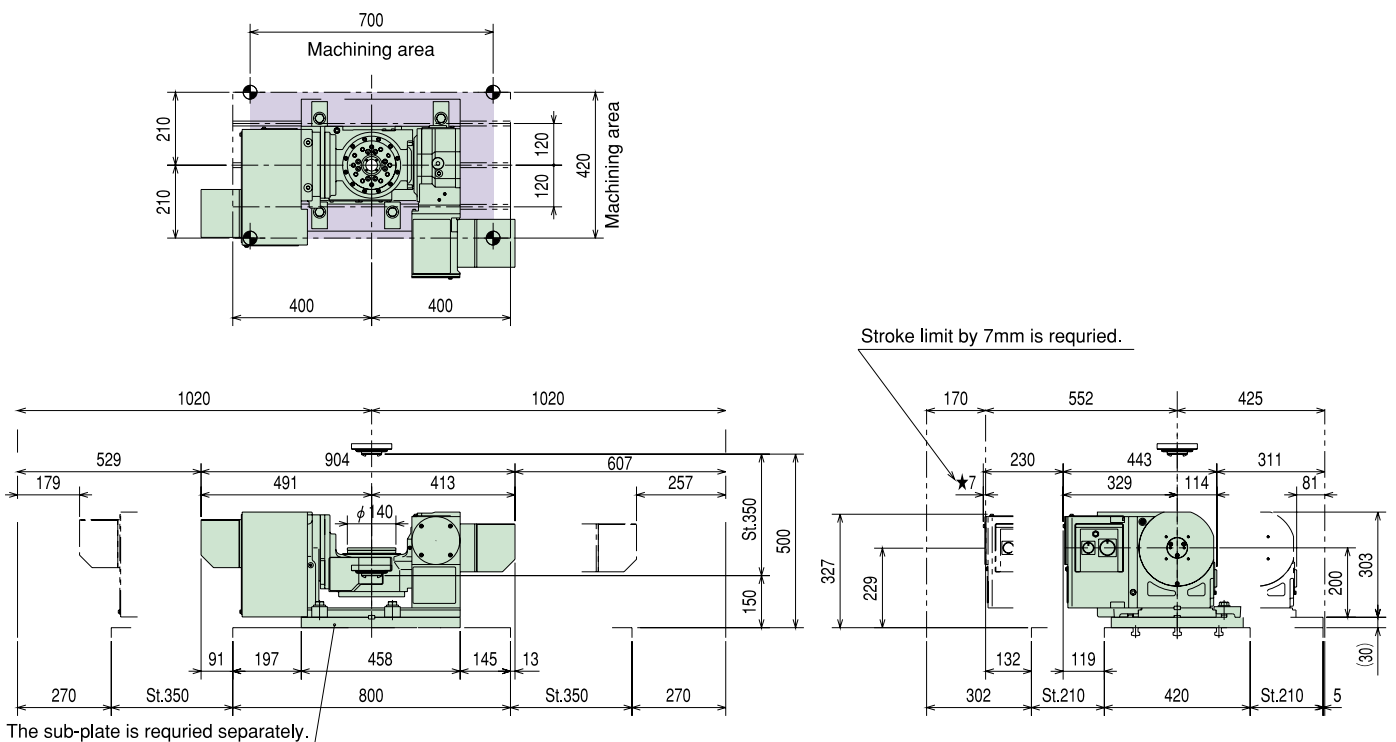
VX420T TT101/140 Mounting drawings

TT101AFF



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

TT140AF

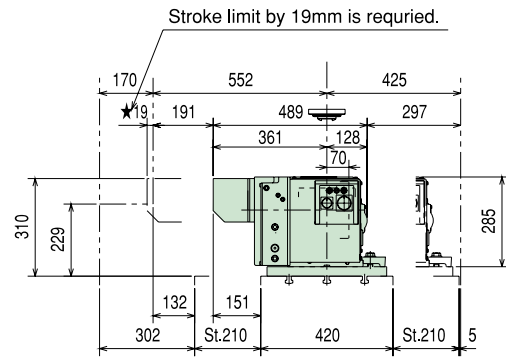
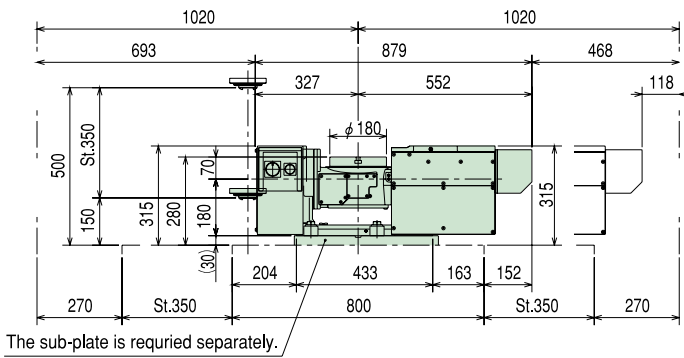
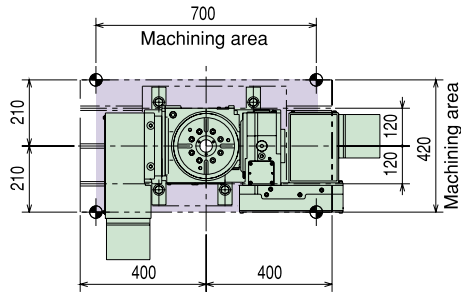


For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

**VX420T TW182 Mounting drawings**



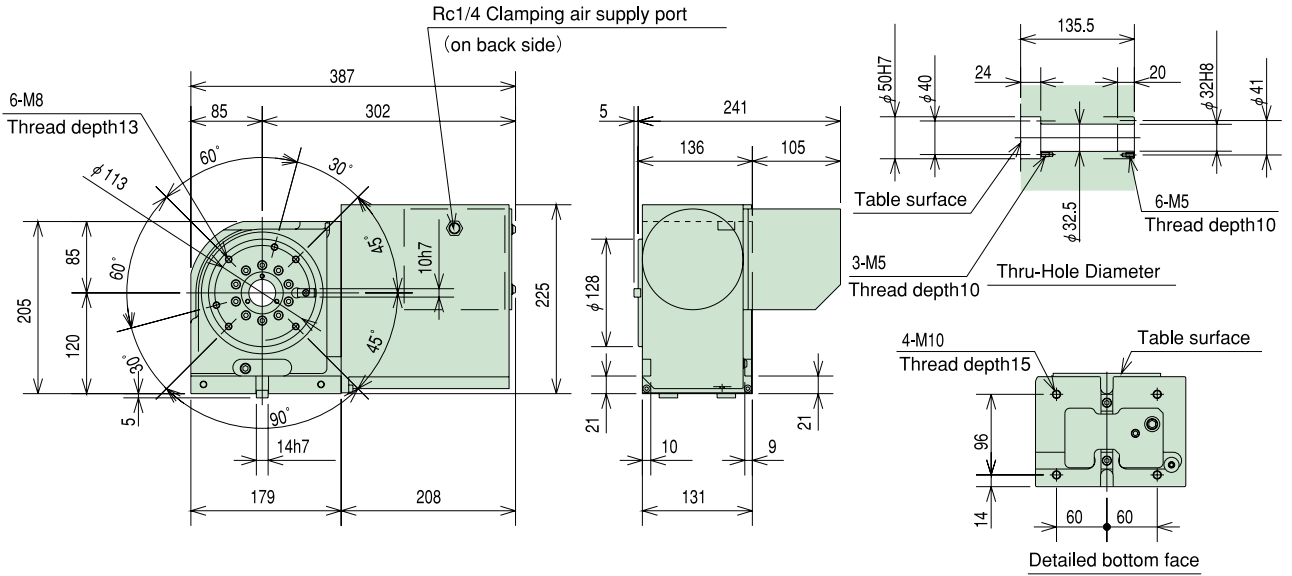
**TW182BF**



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

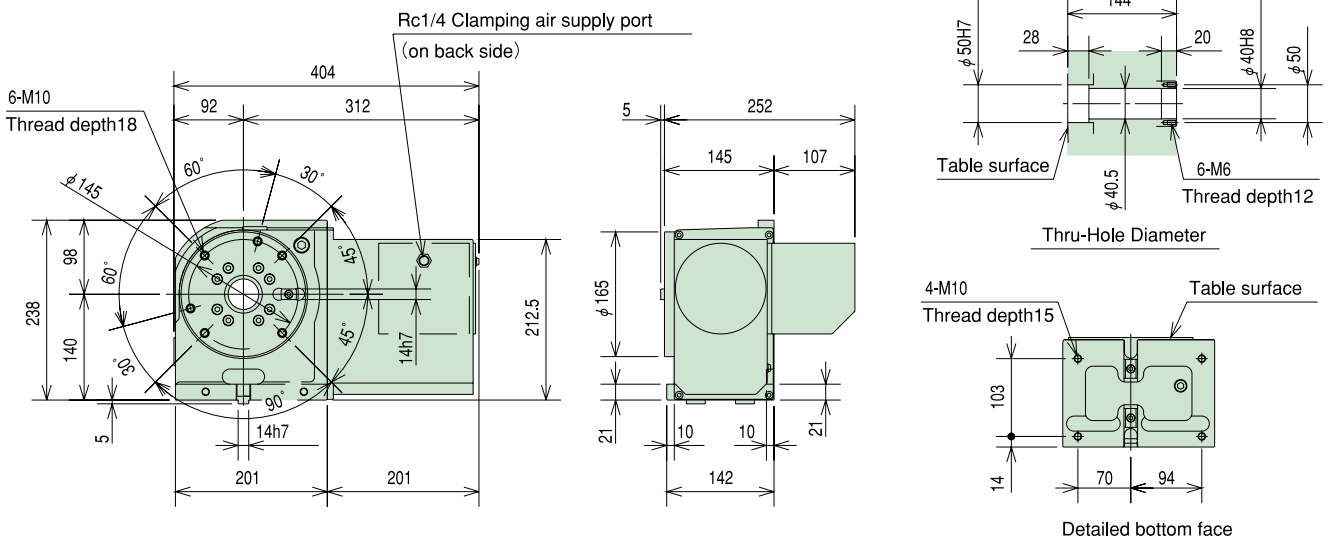
VX380T/420T Series MR120/160 Outline drawings

MR120RAF □ □



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

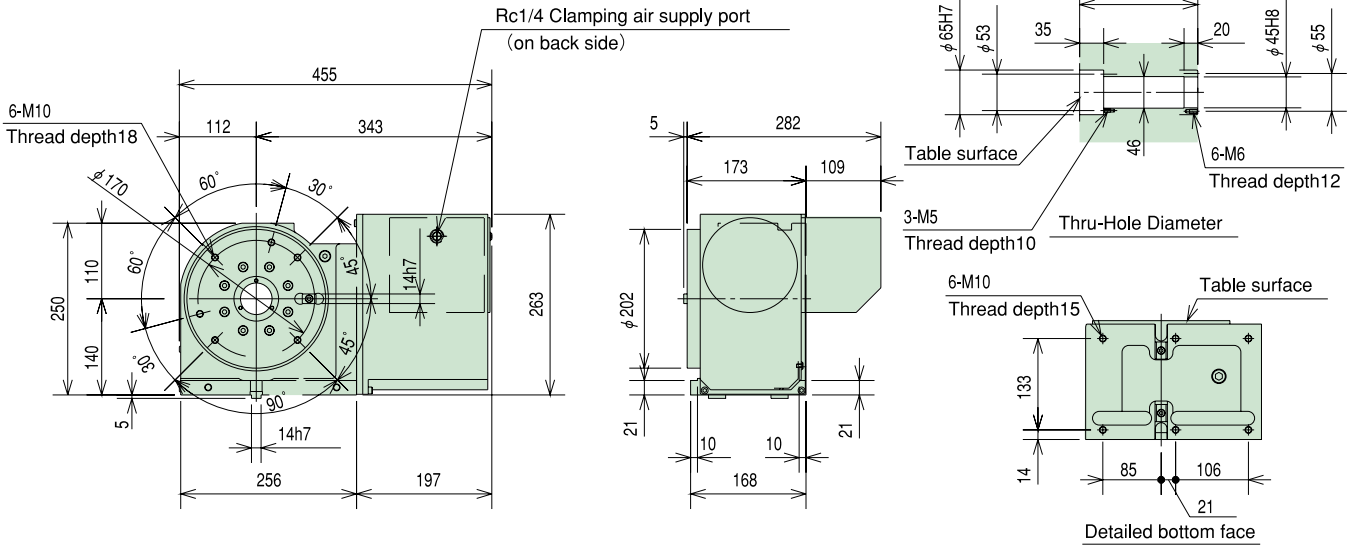
MR160RAF □ □



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

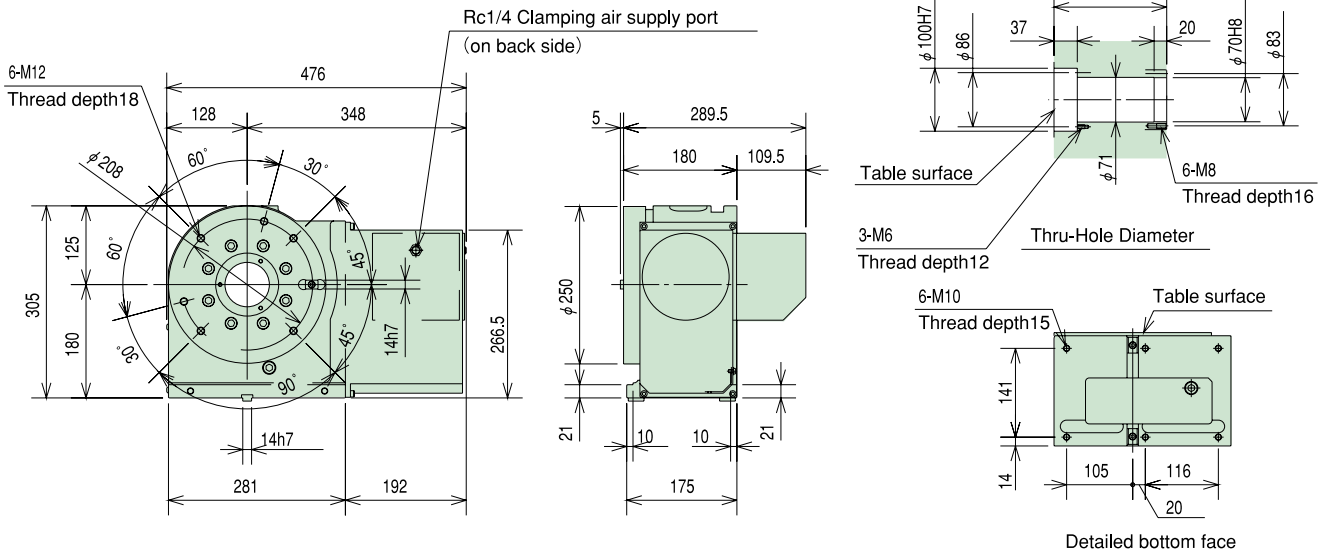


**MR200RAF**



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

**MR250RAF**

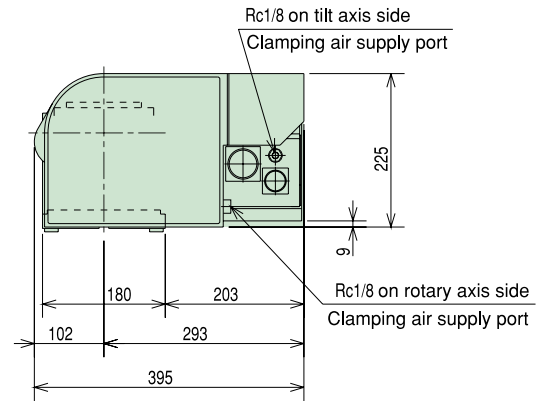
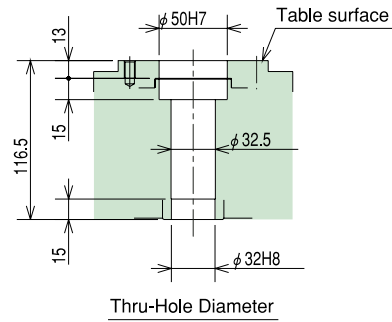
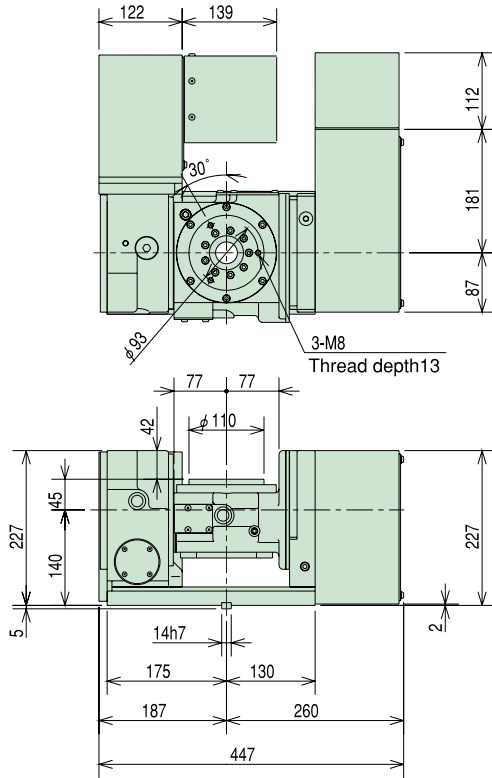


For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.



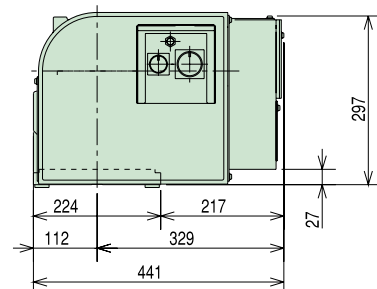
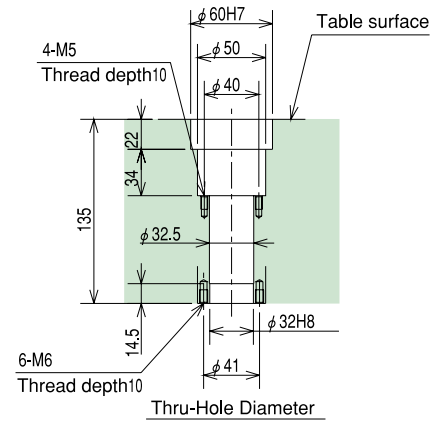
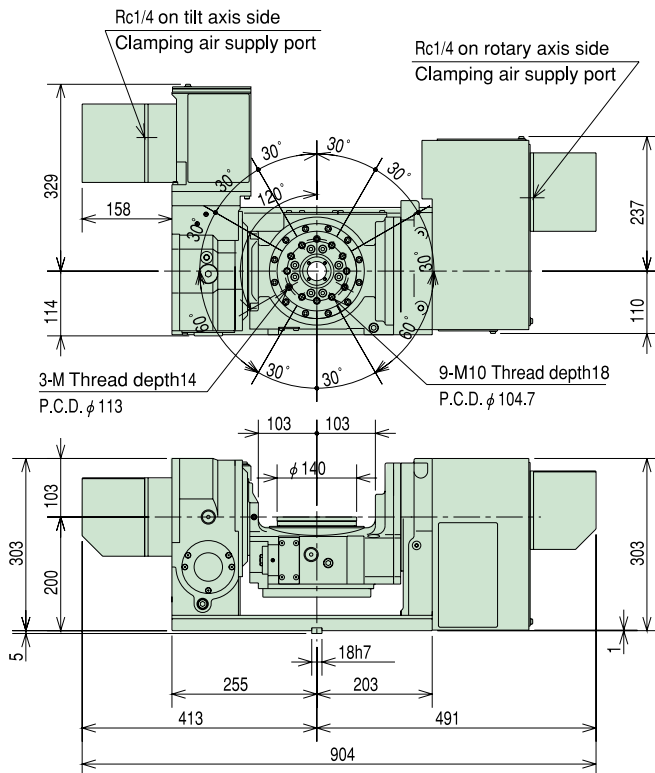
VX380T/420T Series TT101/140 Outline drawings

TT101AFF



For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

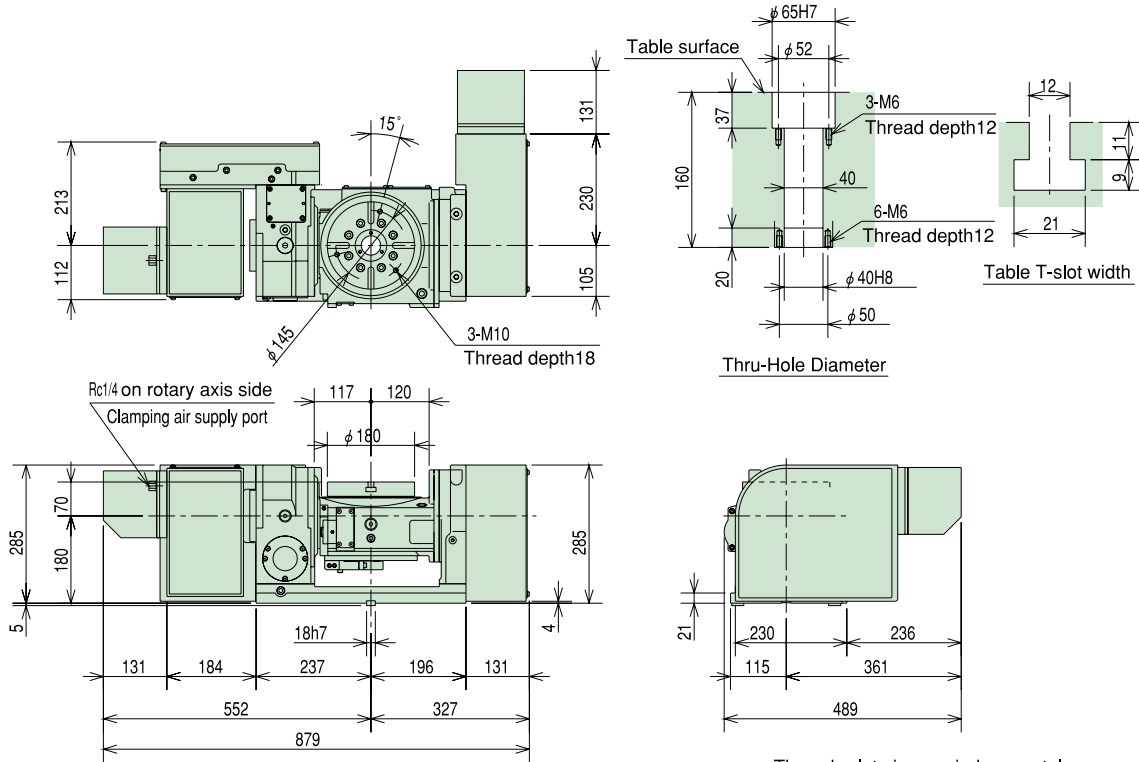
TT140AF



The sub-plate is required separately.  
For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.

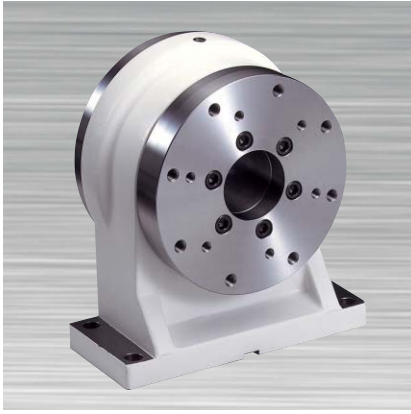


**TW182BF**



The sub-plate is required separately.

For the HIGH COLUMN, contact HYUNDAI-KIA MACHINE.



APPLICATION

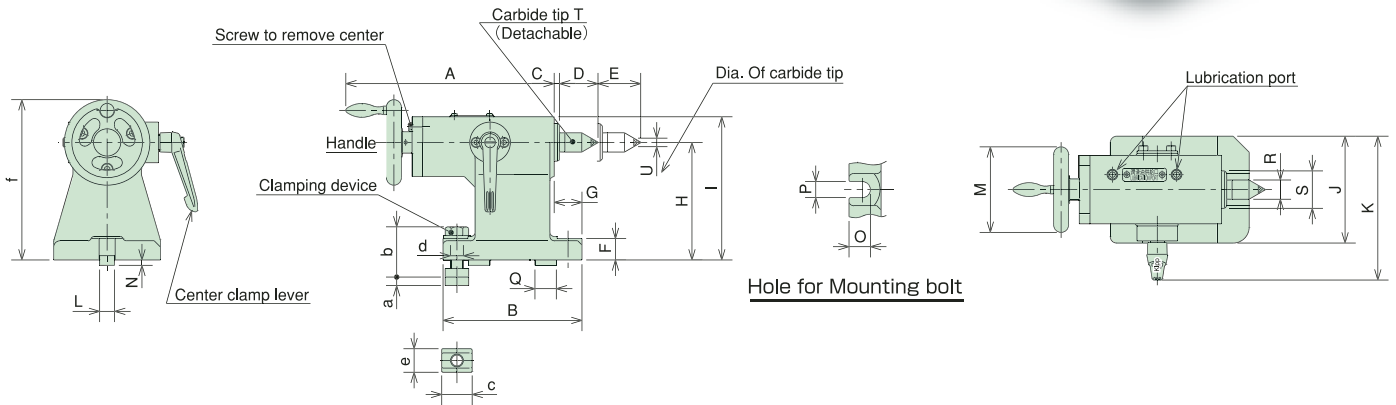
KITAGAWA

Easily exchangeable quill-type center installed.

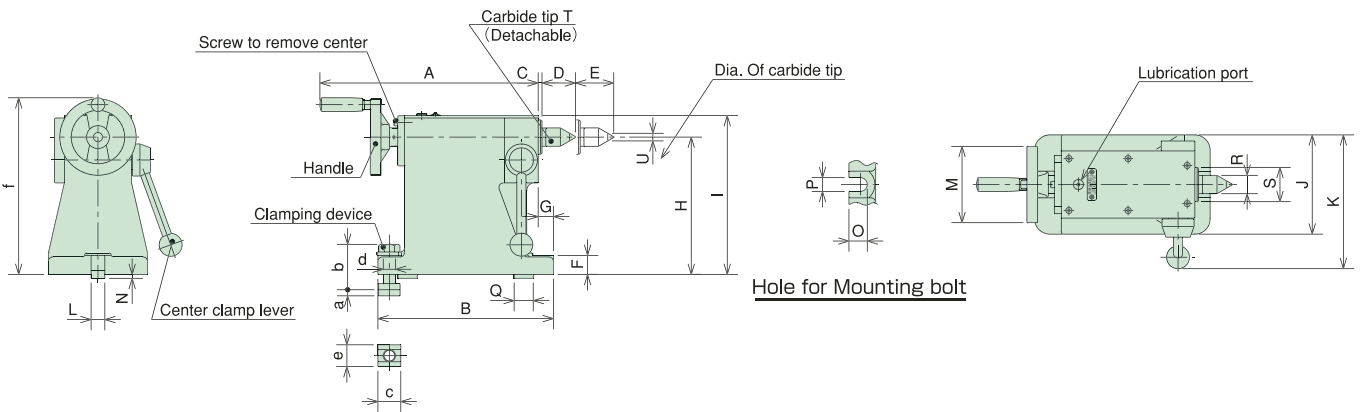
# Tailstock

[Manual]

## ■ Dimensions for MR120/MR160



## ■ Dimensions for MR/TS



## ■ Dimensions

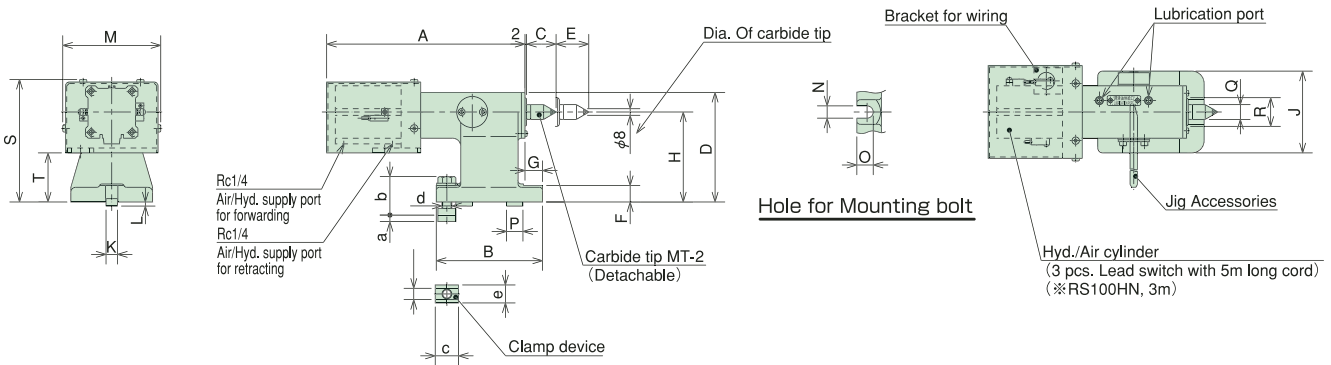
Model	Dimensions		A	B	C	D	E max.	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	a	b	c	d	e	f	Mass of Product (kg)
MR120RN	185	130	5	36	30	20	26	120	144	100	135	14h7	80	5	20	15	20	18	35	MT-2	φ 8	8.6	47	28.5	12	22	160	9		
MR160RN	185	140	5	36	30	25	31	140	164	120	145	18h7	80	5	24.5	19	25	18	35	MT-2	φ 8	11	58	30	16	28.5	180	10		
MR200RN	286	230	5	44	50	25	20	140	169.5	120	163	18h7	100	5	24.5	19	25	24.1	45	MT-3	φ10	11	59.5	30	16	28.5	190	16		
MR250RN	286	230	5	44	50	25	20	180	209.5	130	176	18h7	100	5	24.5	19	25	24.1	45	MT-3	φ10	11	59.5	30	16	28.5	230	20		

Cylinder with stroke confirmation installed.

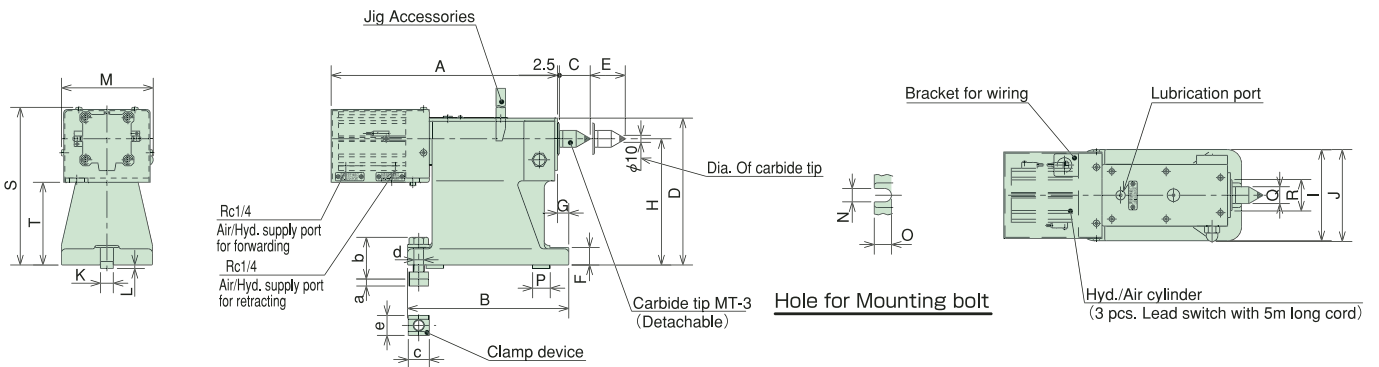
# Air/Hydraulic Tailstock



## ■ Dimensions for MR120/MR160



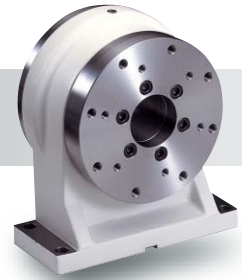
## ■ Dimensions for MR/TS



## ■ Dimensions

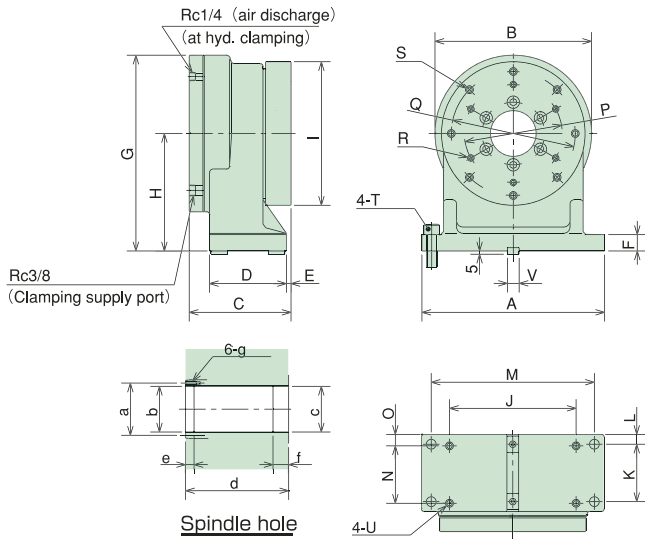
Model	Dimensions																				Mass of Product (kg)					
	A	B	C	D	E max.	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		a	b	c	d	e
MR120A (H) N	236	130	36	144	30	20	21.5	120	—	100	14h7	5	120	15	20	20	φ18	φ35	160	70	8.6	47	28.5	12	22	11
MR160A (H) N	236	140	36	164	30	25	26.5	140	—	120	18h7	5	120	19	24.5	25	φ18	φ35	180	90	11	58	30	16	28.5	12
TS160A (H) N	323	220	44	149.5	50	20	11	120	110	123	18h7	5	130	19	22.5	25	φ24.1	φ45	165	58	11	54.5	30	16	28.5	16
TS200A (H) N	323	230	44	169.5	50	25	16	140	120	126	18h7	5	130	19	24.5	25	φ24.1	φ45	185	78	11	59.5	30	16	28.5	20
MR250A (H) N TS250A (H) N	323	230	44	209.5	50	25	16	180	130	131	18h7	5	130	19	24.5	25	φ24.1	φ45	225	118	11	59.5	30	16	28.5	24

Heavy duty tailstock with Disk clamping

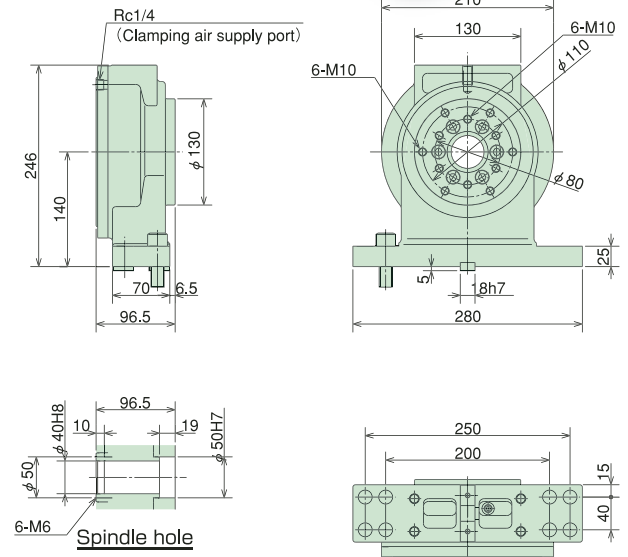


# Tail Spindle

## TSR121A (H)、TSR180A (H)



## TSR142A



## Specifications

Model	Center height (mm)	Spindle hole (mm)	Clamping torque N·m (kgf·m)		Mass of product (kg)
			Air pressure 0.6MPa (6kgf/cm <sup>2</sup> )	Hyd.pressure 3.5MPa (35kgf/cm <sup>2</sup> )	
TSR121A (H)	120	φ40	100 (10.2)	600 (61.2)	23
TSR180A (H)	180	φ70	150 (15.3)	900 (91.8)	53
TSR142A	140	φ40	450	900	21

## Dimensions

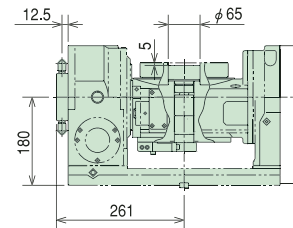
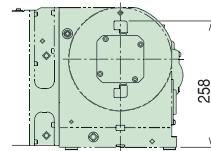
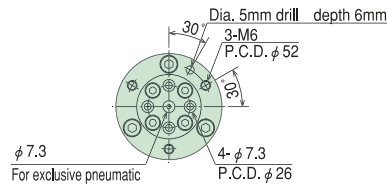
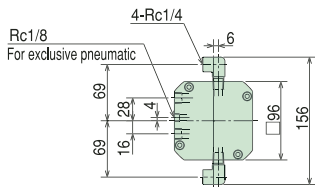
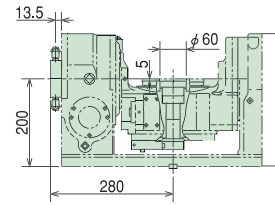
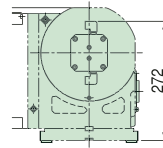
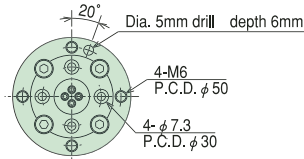
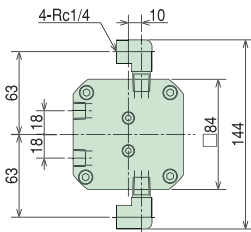
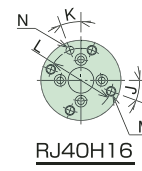
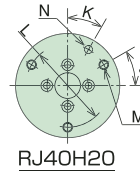
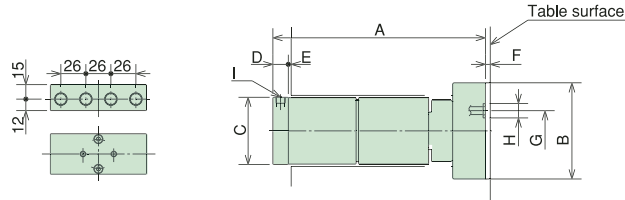
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	a	b	c	d	e	f	g
TSR121A(H)	230	185	124	95	4	20	212.5	120	φ150	130	65	15	200	65	17.5	—	φ130	—	12-M 8	M16X45	M12	18h7	φ50	φ40H8	φ40H7	122	10	20	M6
TSR180A(H)	280	240	156	118	7	25	300	180	φ220	194	88	15	250	88	17.5	φ150	φ190	6-M10	8-M12	M16X50	M12	18h7	φ80	φ70H8	φ70H7	155	10	24	M6

Pneumatic or hydraulic pressure can be provided from the rear of the NC Rotary table to the fixture.



# Rotary Joint

## RJ



**RJ40FTT182**

## Specifications

Model	Number of the port	NC Rotary Table
RJ40H16Q	4	MR160
RJ40H20Q	4	MR200
RJ40H16E	4	THX160
RJ40H20E	4	THX200
RJ32TT140	4	TT140
RJ40FTT182	5 (Exclusive air for only 1-port)	TT182

## Dimensions

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
RJ40H16Q	169	φ50 <sup>-0.03/-0.05</sup>	42x100	27	1	4	φ26	4-φ7.3	4-Rc1/4	23°	23°	φ40	4-M6	Dia. 5mm drill depth 6mm
RJ40H20Q	196	φ65 <sup>-0.03/-0.05</sup>	42x100	27	0	4	φ26	4-φ7.3	4-Rc1/4	30°	30°	φ53	3-M6	Dia. 5mm drill depth 6mm
RJ40H16E	168	φ50 <sup>-0.03/-0.05</sup>	42x100	27	0.5	4	φ26	4-φ7.3	4-Rc1/4	20°	20°	φ40	4-M6	Dia. 5mm drill depth 6mm
RJ40H20E	199	φ75 <sup>-0.03/-0.05</sup>	42x100	27	0.5	4.5	φ26	4-φ7.3	4-Rc1/4	30°	30°	φ52	3-M6	Dia. 5mm drill depth 6mm

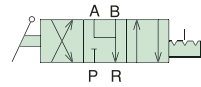
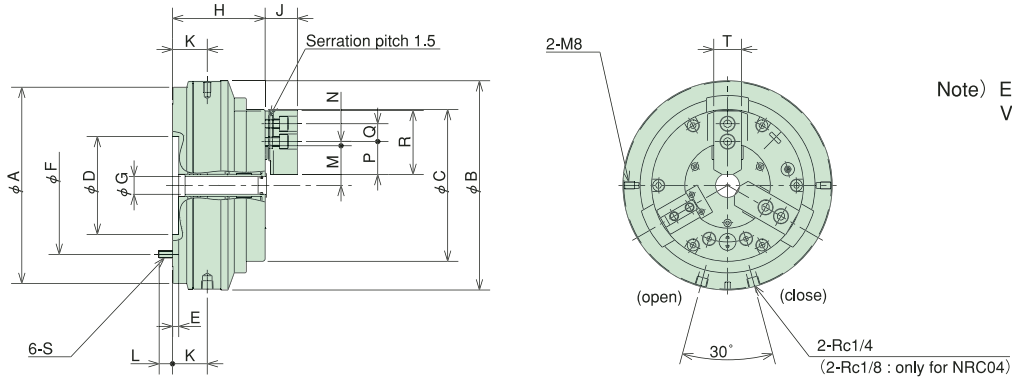
Pneumatic Cylinder is built in the chuck body. Easy to fit on even Back motor type NC table.

# Rotary Chuck

[Exclusive air-operated chuck] NRC04, NRC06, NRC08, NRC10



## NRC



## Specifications

Model	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. Min.	Max. rotation (min <sup>-1</sup> )	Rotary torque (N·m)	Mass of Product (kg) (With Standard Soft Jaw)
NRC04	15	5.2	2.5	0.7	SB04B1	110 10	100	9.8	10
NRC06	15	5.2	7	0.7	SB06B1	165 23	72	9.8	22
NRC08	15	6.3	10.8	0.7	SB08B1	210 30	60	9.8	27.7

## Dimensions

Model	A	B	C	DH7	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

## Chuck mounting method

Chuck model	NRC04			NRC06			NRC08		
NC rotary table model	MR120	MR160	MR200	MR160	MR200	MR250	MR250	MR250	MR250
Mounting	Back Plate adaptation								
Mounting reference									



# DATA accuracy specification • performance lists

## MR series

(Unit:mm)

No.	Inspection Item	Allowance	1	2	3	4	5	6・7
1	Straightness of table top face	0.020 at full length						
2	Parallelism of upper face of table and mounting face of horizontal unit	0.020 at 150mm						
3	Parallelism of rotary center of table and mounting face of vertical unit	0.020 at 150mm						
4	Run out of upper face during table rotation	0.020						
5	Deflection of spindle center hole	0.010						
6	Parallelism of rotation center of table and base guide block center	0.020 at 150mm						
7	Offset (deviation) of rotation center of table and base guide block center	0.020						

## TT series

(Unit:mm)

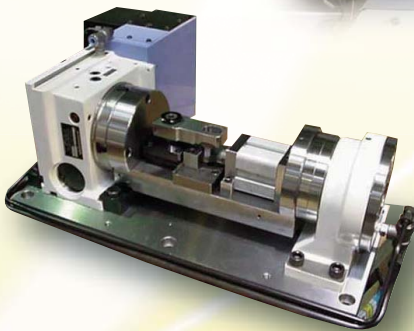
No.	Inspection Item	Allowance	1	2	3	4	5	6
1	Straightness of table top face	0.010 at full length						
2	Parallelism between table top face and base bottom face in tilt axis direction	0.020 at full length						
3	Swinging of top face during table rotation	0.015						
4	Swinging of spindle center hole	0.010						
5	Parallelism between tilt axis center line and base bottom face	0.020 at full length						
6	Parallelism between table top face and guide block	0.020 at full length						



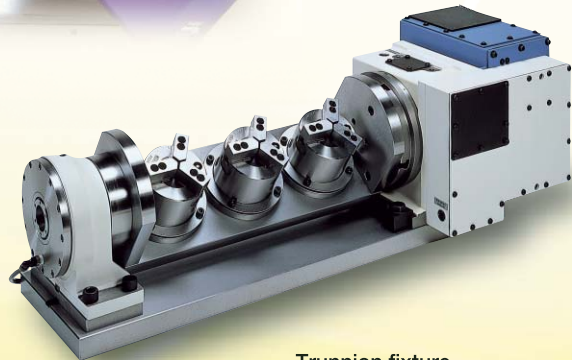
## Sample Applications



NC Rotary Table on HYUNDAI-KIA MACHINE



Trunnion fixture



Trunnion fixture  
(Pneumatic Chuck mounted)



# KITAGAWA Global Network



## America Contact

**KITAGAWA - NORTHTECH INC.** <http://www.kitagawa.com/>  
301 E. Commerce Dr, Schaumburg, IL, 60173 USA TEL +1 847-310-8787 FAX +1 847-310-9484

**TECNARA TOOLING SYSTEMS, INC.** <http://www.tecnaratools.com/>  
12535 McCann Dr, Santa Fe Springs, California 90670 USA TEL +1 562-941-2000 FAX +1 562-946-0506

## Europe Contact

**KITAGAWA EUROPE LTD.** <http://www.kitagawaeurope.com/>  
Unit 1 The Headlands, Downton, Salisbury, Wiltshire SP5 3JJ, United Kingdom TEL +44 1725-514000 FAX +44 1725-514001

**KITAGAWA EUROPE LTD. Germany Office** <http://www.kitagawaeurope.de/>  
Reeserstrasse 13, 40474, Dusseldorf Germany TEL +49 211-550294-0 FAX +49 211-55029479

**KITAGAWA EUROPE LTD. Czech Office**  
TEL +49 172-9378380 FAX +420 281-960-254

**KITAGAWA EUROPE LTD. Poland Office**  
TEL +48 607-39-8855 FAX +48 32-749-5918

## Asia Contact

**KITAGAWA INDIA PVT LTD.**  
Regus Connaught Place, Level 2, Connaught Place, Bund Garden Road, Pune, 411001, India TEL +91 20-4014-7554 FAX +91 20-4014-7576

**KITAGAWA (THAILAND) CO.,LTD. Bangkok Office**  
9th FL, Home Place Office Building, 283/43 Sukhumvit  
55Rd. (Thonglor 13), Klongton-Nua, Wattana, Bangkok 10110, Thailand TEL +66 2-712-7479 FAX +66 2-712-7481

**KITAGAWA IRON WORKS CO.,LTD. Singapore Representative Office**  
#02-01 One Fullerton, 1 Fullerton Road, Singapore 049213 TEL +65 6838-4318 FAX +65 6408-3935

**KITAGAWA IRON WORKS CO.,LTD. Shanghai Representative Office**  
Room1315 13F Building B, Far East International Plaza, No.317 Xian Xia Road, Chang Ning, Shanghai, 200051 China TEL +86 21-6295-5772 FAX +86 21-6295-5792

**DEAMARK LIMITED** <http://www.deamark.com.tw/>  
No. 6, Lane 5, Lin Sen North Road, Taipei, Taiwan TEL +886 2-2393-1221 FAX +886 2-2395-1231

**KITAGAWA KOREA AGENT CO.,LTD.** <http://www.kitagawa.co.kr/>  
803 Ho, B-Dong, Woolim Lion's Valley,  
371-28 Gasan-Dong, Gumcheon-Cu, Seoul, Korea TEL +82 2-2026-2222 FAX +82 2-2026-2113

## Oceania Contact

**DIMAC TOOLING PTY.LTD.** <http://www.dimac.com.au/>  
61-65 Geddes Street, Mulgrave, Victoria, 3170 Australia TEL +61 3-9561-6155 FAX +61 3-9561-6705

**KITAGAWA**  
YOUR COMPLETE WORKHOLDING SOLUTION

<http://www.mta.kiw.co.jp/>

**KITAGAWA IRON WORKS CO., LTD.** – Machine Tools and Accessories Division –  
77-1 Motomachi, Fuchu-shi, Hiroshima-pref. 726-8610 TEL +81 847-40-0526 FAX +81 847-45-8911

- Specifications and outside appearance are subject to change without notice due to ongoing research and development.
- The color of the actual product may be different from the catalog's due to printing matters.
- Catalog contents as of 2008.8
- The products herein are controlled under Japanese Foreign Exchange and Foreign Trade Control Act. In the event of importing and/or exporting the products, you are obliged to consult KITAGAWA as well as your government for the related regulation prior to any transaction.

Printed in Japan 1,000