Headquarter

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Production Line

1st Factory

No.5 Jingle E Rd., Nantun Dist., Taichung City
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Designed by 商積 影音行銷 2019.02

Decide with Confidence

www.akiraseiki.com

AKIRA-SEIKI®
PRECISION CNC MACHINE TOOLS

Production Machining Center

Production Machining Center

PC460
PC500
PC700
Cost-effective

RMV500APC
RMV700APC
For Light Chips
Non-Ferrous Metal
Composite Material

RMV160RT
RMV250RT
Multi-faces Production

Cost-effective!

High speed, High rigidity
Compact Floor Space

Spindle Max. Speed	12,000 rpm (STD) 24,000 rpm (OPT)
Rapid Feed	60 m/min
Max. Acceleration / Deceleration	1.2 G
Tapping Max. Speed	6,000 rpm / M2 (Depth: 6mm) It depends on the material and tools conditions
Tapping Retract	Max. 10 times

High Speed & Delicate 3D Cut
(Lamp mould)

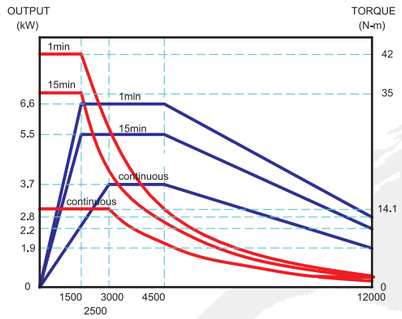
- **Material** — Mould steel 100 mm x 43 mm x 65 mm
- **Tool** — R3 Ball end mill
- **Spindle Speed** — 8,000 rpm / G01 2,000 mm/min

Spindle Feature

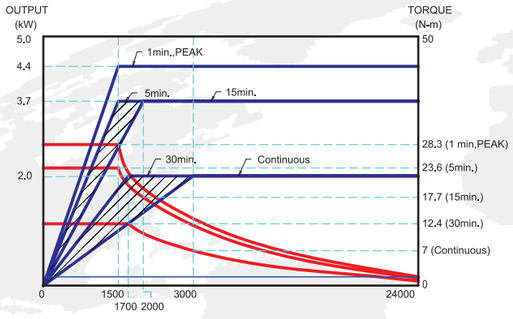
Direct drive spindle provides greater super-smooth cutting surface within high speed and high rigidity

Output & Torque

Spindle speed: 12,000rpm (STD)



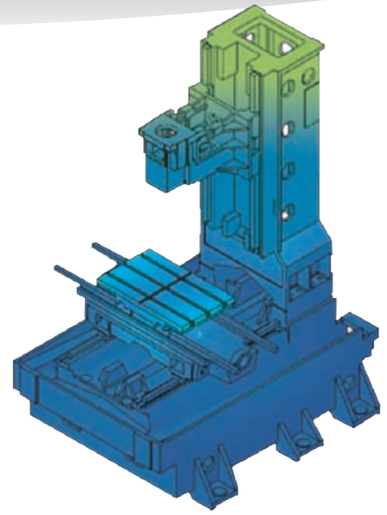
Spindle speed: 24,000rpm (OPT)

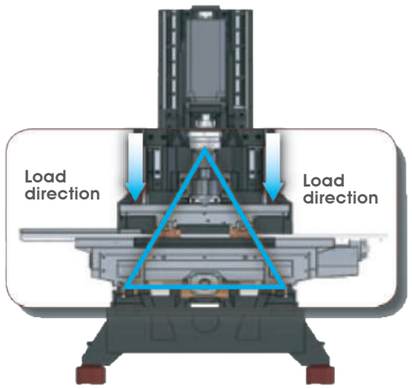


Rigid Physical Foundation

MEEHANITE®

MEEHANITE high quality casting iron assures permanent rigidity and accuracy. Physical rigidity are ensured for AKIRA-SEIKI strong in the primary design progress by advanced digital assay tool. All structural frames apply COSMOS system for analysis to optimize rigid mechanism foundation. Digital FEA (Finite Element Analysis) scientifically demonstrates rigid structure and approves excellent dynamic accuracy and vibration absorption while rapid cutting. The Certificate of MEEHANITE casting follows each AKIRA-SEIKI machine.



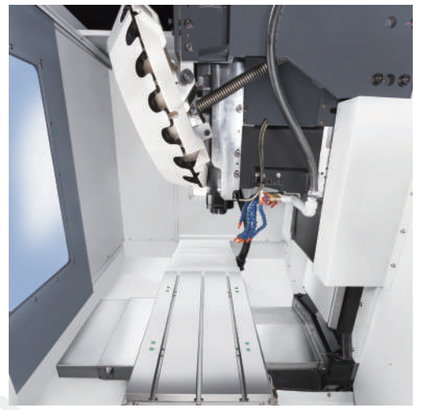


Steady Rigidity

The internal ribs of each key casting elements like base, column, head-cartridge and saddles are enforced for deformation-resistant and anti-dumping vibration. Golden triangular frame in optimum span of bed base and guide ways supports the superior acceleration and deceleration movement.

High Speed & Reliable Servo Magazine

Tool storage: BT-30 21T (STD)



▲ PC700

Flexible Working Area

Capable of fitting 4th axis rotary or fixture to satisfy different jobs requirement.

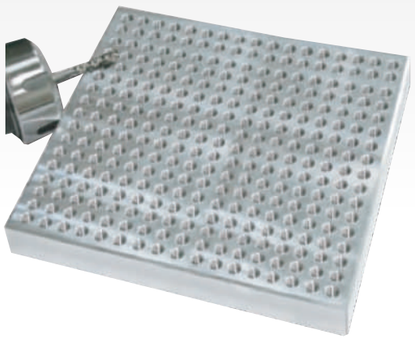
RMV500APC / RMV700APC

For Light Chips, Non-Ferrous Metal, Composite Material!

Compact floor space with twin pallet

Fast Twin Pallet, Saving Total Cycle

Spindle Max. Speed	24,000 rpm (OPT)
Max. Rigid Tapping	8,000 rpm (OPT)
Max. Rigid Traverse	72 m/min
Max. Acceleration	1.6~2.0 G
Fastest Tool Change T to T Time	0.7 sec. (T to T)
Pallet Change Time	1.5 sec. / 180°
Related Model	RMV500T / RMV500APC



Quick Tapping Cycle

Basic demonstration by 289 holes

Machine Model	RMV500T / RMV500APC
Material	Aluminum (AL6061A6)
Tapping Speed	4,000 rpm
Tool Used	M2 x 0.4P x Tap
Effective Thread	5 mm
Machining Time for 1 Hole	0.88 sec. / Hole (Tapping Motion Only)

Factory Production Process

Save Cycle Time = Save Profit

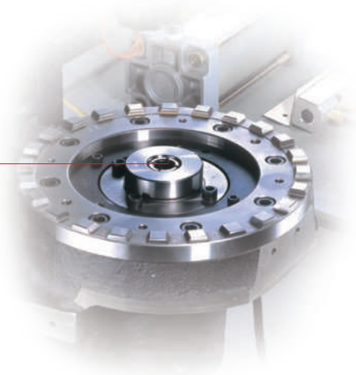
Previous Production Process		Fast Twin Pallet Production
	Nos. of Machines	
	Nos. of Programs	
	Tools	
20 sec.	Loading / Unloading	5 sec.
	Nos. of Operations	
Big	Floor Space	Small
High Cost High Maintenance Occupy Floor Space	Benefit	BEST Non-cutting Time Reduce Around 30% Save Loading / Unloading time Save Energy, Save Floor Space

RMV500APC / RMV700APC

Accurate Pallet Changer

More Precision For Pallet Positioning

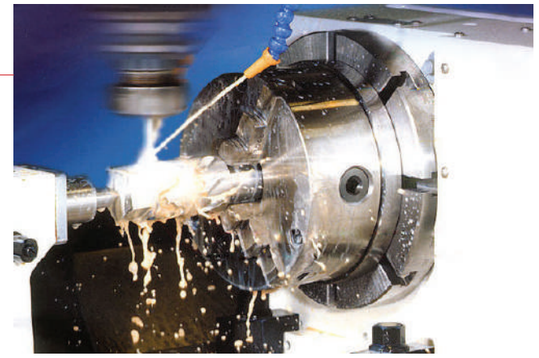
Big-scaled coupling teeth to the ensured pallet location in highest positioning accuracy. The repeatability pallet positioning at 1µm.



No hydraulic components are used for pallet clamp / unclamp that reduced additional maintenance cost.

◀ No hydraulic components!

Flexible application



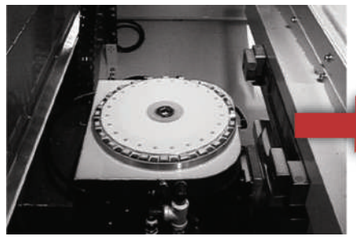
▲ Adding 4th-axis rotary tables on twin pallet and quick mould change system, especially for small-volume production of a wide range of different jobs with high accuracy required.

▲ EROWA Quick mould change system

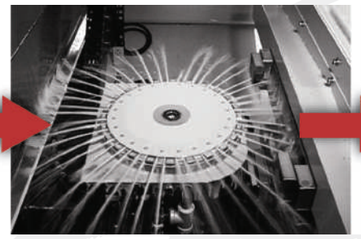
▲ Compact floor space to add robot system

Optimum Chip Proof and Immediate Detect! AKIRA A+ Guarder

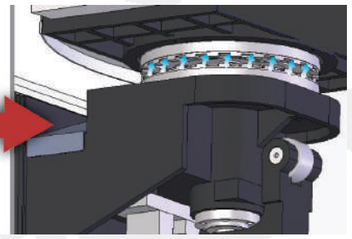
AKIRA-SEIKI RMV-APC models AKIRA A+ Guarder design double protection for high volume machining stability. Gap between-locating contact taper. The active strong pressure clean and immediate detect absolutely ensure light chip-stuck concern.



▲ Before Pallet Change



▲ High Pressure Clean



▲ Seal Detect

Fast Twin Pallet

▲ RMV500APC

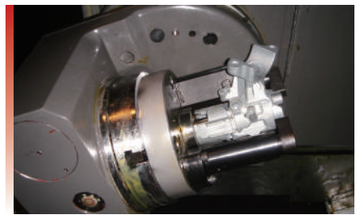
- Allows use rotary table for complex shapes and multi-side machining that boosts your productivity and reduces setups.
- Reduce chip build-up, surrounding the inner guarding for immediate chip moving away by chip flushing.

Multi-faces Production!

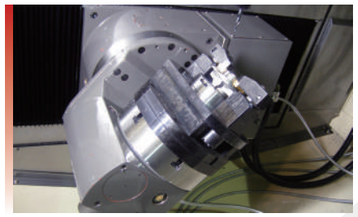
Efficiency, Availability, Optimal Chip Disposal

Related Model	RMV160RT	RMV250RT
Table Size of C-axis	Ø160mm	Ø250mm
Rapid Traverse	60,60,72 M/min	48,60,72 M/min
Spindle Max. Speed	15,000 rpm (STD) 24,000 rpm (OPT)	12,000 rpm (STD) 15,000 rpm (OPT)
B Axis Rapid Traverse	75 rpm	75 rpm
C Axis Rapid Traverse	100 rpm	100 rpm
Tool storage	24T	24T, 40T (OPT)

One Catch-up, Saving More Accuracy



High efficient tilting rotary table completes all the processing in one catch-up. Free-interference or various fixture application and easier.



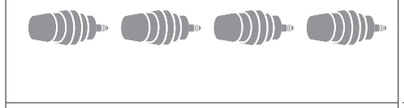
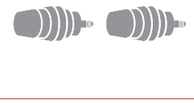
Advance optimum machine tool for multi-faces productive jobs with high accuracy required and save cost.

Table indexing angle
B-axis: +30° ~ +120° / 75rpm
C-axis: +360° / 100rpm

Factory Production Process

Automotive Parts

Multi-Faces Productive Jobs With High Accuracy & Efficiency.

Previous Production Process		Multi-faces Production
	Nos. of Machines	
	Tools	
	Nos. of Fixtures	
	Nos. of Operations	
Big	Floor Space	Small
High Cost High Maintenance Occupy Floor Space	Benefit	BEST Non-cutting Time Reduce Around 30% One Catch Up , Save More Accuracy Save Loading / Unloading Time Save Energy, Save Floor Space

RMV160RT / RMV250RT

Attentive to Operator's Easy to Set Up

Easy To Use And Maintain

Closest Approach

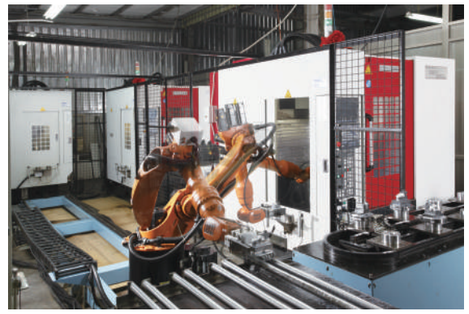
- Add robot system.
- Easy tooling set up is conrenient, either from front door or side door.

Convenient Control Operation

- Allow 0-100 degree rotate, easy for operation.

Optional Automation

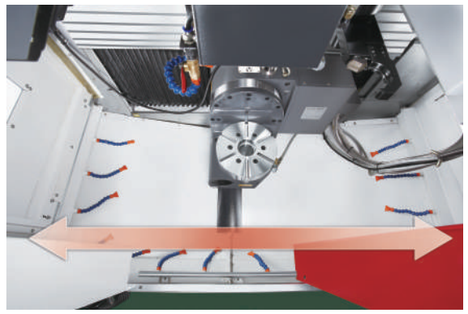
Best Factory management, Small footprint to add robot system.



Optimal Flexibility

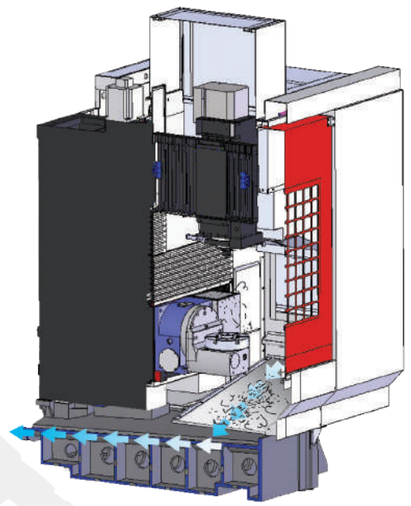
Flexible Working Area

Flexible fixture arrangement completes all the processing in one catch up, save cost and high efficiency.



No Cover Break-Down

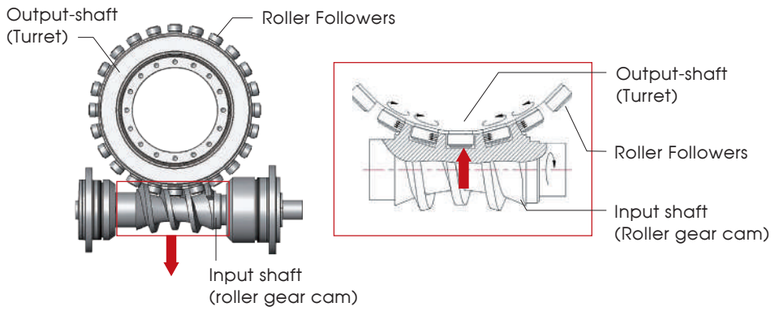
- X, Y and Z axes are completely isolated from chips by unique design of RMV models, high quality one piece sliding cover used on X and Z axes, this prevents breakdowns due to telescopic cover damage caused by high rapid traverse.
- Chips direct fall down, the tilting and wide drainage way at the base allow the effective chip flushed to the rear chip tray.
- Chip disposal within high pressure coolant system.
- Small footprint better than others on the market.



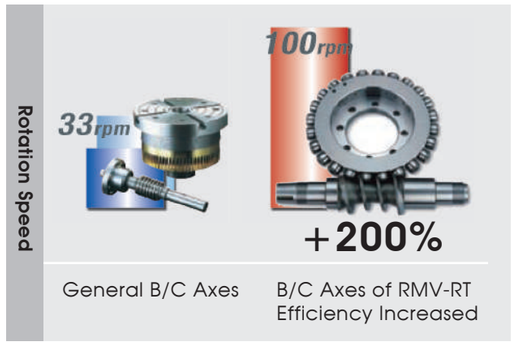
Innovation Of Rotary Table

Faster And More Accurate Rotary Gear Cam

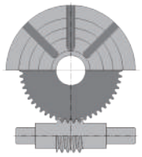
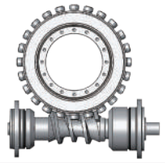
Zero-backlash Technology Delivers Unsurpassed Motion



- No more frictional drive of worm gear drive, the application of roller gear cam drive of rotary axes advance the higher indexing accuracy and efficiency for in best longevity.
- The cam follower hold the tapered ribs of the roller cam under well-preload to eliminate backlash. This mechanism ensures smooth indexing and rigid stops for precision machining operations.
- The eternal well contact of roller cams and cam followers work on principle in no wear out nor clearance adjustments needed. This means the original accuracy stays for longer periods without maintenance



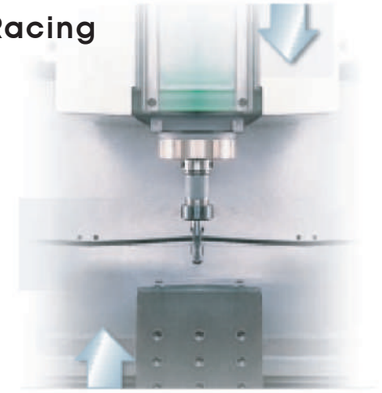
B/C Axis Transmission Character Comparison

	Item	Conventional Transmission	Roller CAM Driver ™
	Drive type		
1	Drive status	Slide contact	Rolling contact
2	Material of the contact part	Worm shaft: Hardening steel, HRC60 Warm gear: Phosphor bronze, HB90	Cam shaft: Hardening steel, HRC60 Cam followers: Bearing steel, HRC60
3	Preload	No	Yes
4	Transmission efficiency	★★★ Slow	★★★★★ Excellent
5	Backlash	Necessary for rub stroke	0 backlash
6	Indexing accuracy	20 sec. (When new produce)	Under 15 sec.
7	High speed possibility	★★ Slow	★★★★ Excellent
8	Thermal	High	Low
9	Rigidity	Low	High
10	Durability	★★★ Regular maintenance is necessary	★★★★★ Excellent
11	Backlash adjustment	Necessary	Unnecessary

Outstanding Technology

Axial Feed, Fastest Accelerations As F1 Racing

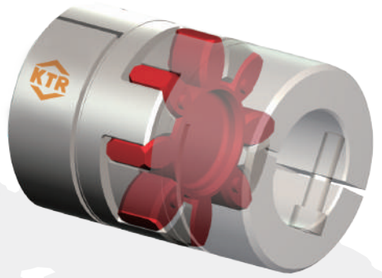
- RMV Series patented relative movement technology enables highest acceleration 1.6~2.0 G (RMV500T / RMV500APC / RMV160RT) for each tooling spindle and job feeding, to act the perfect axial feedrate 96 m/min (Z-axis) for chip-chip movement like F1 racing car performance.
- When reaching machining coordinate in the fastest cycle, the axial movement is absolutely free from mechanism inertia matter. The opposite feed force is counteracted and machine body stays stable as a rock.



Low Service Expense → Consuming Effective

- For the same travel as standard machine, AKIRA-SEIKI RMV series transmission travel only 50% of the distance. It therefore ensures 200% longevity of motion for components such as ballscrews and linear guideways.
- The opposite thrust of Z axis RMV models, no any counter balance applied and reduce at least 50% loading and wear down for Z-axis.

Feature Of Axial Movement



Enhance high speed cutting rigidity and 100% laser track and ball bar collaboration test to ensure geometry accuracy. For efficiency and durability, The axial ball bearing use SKF and NSK, the coupling use KTR.

Superior Well Balance High Speed Spindle

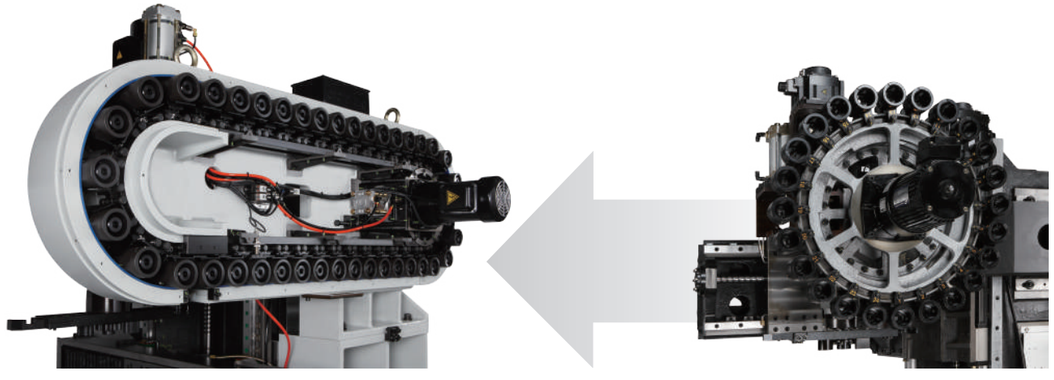
Absolute direct drive spindle prevents radial load of spindle bearings and results long bearing life, least noise and save efficient power transmission.

Super low inertia main motor to achieve spindle speed from 0 to max speed 24,000 rpm within 0.45 seconds.
(only available features for RMV500T / RMV500APC / RMV160RT)

Reliable Tool Change

Quick Tool Selection & Durability

Servo Drive Tool Magazine, Minimum Non-cutting Time



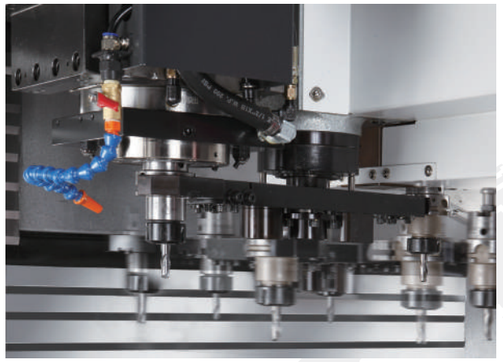
- For quickest and most precise tool select, Electrical precise clamp for ATC brake ensures precise tool change in short period.
- Tool magazine with full cover to prevent and reduce metal chips entering tool pots. (Only available for RMV series).
- Servo magazine 24T (STD) Servo magazine 40T (OPT) (Only available for RMV700APC / RMV250RT)

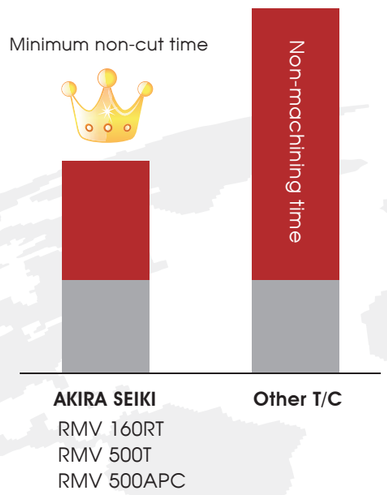
Easy Tool Set Up

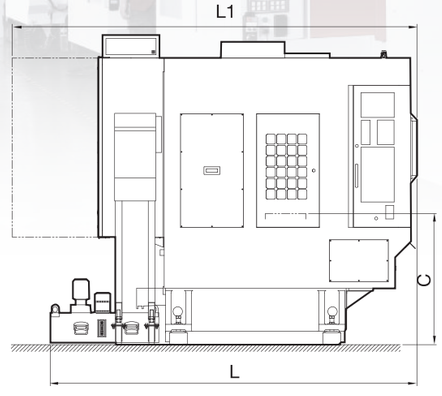
One - button features ease the often used functions instead of multi-steps procedure. Only by one-button command to complete tool offset, selecting tool, ATC home return, ATC restore and so on.

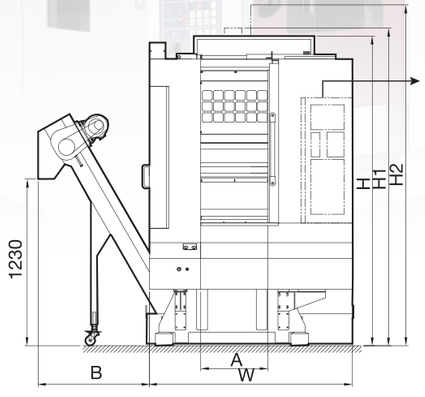
Fast Tool Change, Saving Total Cycle

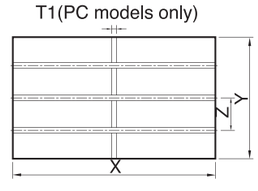
High speed tool changer has tool to tool change time of 0.7 second. More than 1.8 million reliable & practical operation ATC tests had been done.

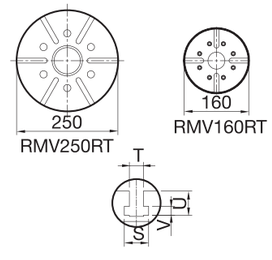












	PC460	PC500	PC700	RMV500T	RMV500APC	RMV700APC	RMV160RT	RMV250RT
W	1250	1560	2100	1600	1500	1900	1600	1900
L	2495	2530	2530	2322	2777	3144	2322	2677
H	2205	2120	2120	2285	2285	2525	2285	2395
L1	2535	2640	2640	2880	2990	3350	2500	2880
H1	2560	2620	2620	2345	2345	2725	2400	2750
H2	2565	2520	2520	2515	2515	2900	2410	2750
A	650	520	800	670	495	690	515	670
B	950	765	495	740	820	740	740	740
C	838	860	860	900	970	950	810	780
S	23	23	23	24	24	30	19	21
T	14	14	14	14	14	18	12	12
U	19	23	23	24	24	30	20	18.5
V	9	9	9	9	9	12	8	9
T1	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
X	520	650	850	600	500	700	N/A	N/A
Y	320	400	400	300	300	400	N/A	N/A
Z	100	125	125	80	80	125	N/A	N/A

H1: Height of motor or cable/tube H2: Height of top cover (STD)

Specification

		Tapping Center			Fast Twin Pallet			Multi-Face	
		PC460	PC500	PC700	RMV500T	RMV500APC	RMV700APC	RMV160RT	RMV250RT
CONTROL SYSTEM		AKIRA Mℓ845 / (FANUC G code compatible)			AKIRA Mℓ845 / (FANUC G code compatible)				
TRAVEL					**TRAVEL**				
X Axis Travel	mm/inch	460 / 18.11	500 / 19.69	700 / 27.56	500 / 19.69	500 / 19.69	700 / 27.56	380 / 14.96	500 / 19.69
Y Axis Travel	mm/inch	320 / 12.6	400 / 15.75	400 / 15.75	300 / 11.81	300 / 11.81	400 / 15.75	160 / 6.3	250 / 9.84
Z Axis Travel	mm/inch	300 / 11.81	330 / 12.99	330 / 12.99	280 / 11.02	280 / 11.02	400 / 15.75	380 / 14.96	400 / 15.75
Spindle nose to table surface	mm/inch	180~480 / 7.09~18.9	150~480 / 5.91~18.9	150~480 / 5.91~18.9	150~ 430 / 5.91~16.93	150~ 430 / 5.91~16.93	200~ 600 / 7.87~23.6	100 ~480 / 3.94~18.9	125~525 / 4.92~20.67
TABLE / PALLET					**TABLE**				
Table size (L x W)	mm/inch	520 x 320 / 20.47 x 12.6	650 x 400 / 25.59 x 15.75	850 x 400 / 33.46 x 15.75	600 x 300 / 23.62 x 11.81	500 x 300 / 19.69 x 11.81	700 x 400 / 27.56 x 15.75	Ø160	Ø250
C Axis Rotation	degree	-	-	-	-	-	-	360 °	360 °
B Axis Swing	degree	-	-	-	-	-	-	+30 / -120	+30 / -120
Max. Loading Capacity	kgs/lb	250 / 551.26	250 / 661.39	250 / 661.39	160 / 352.74	100 / 220.46	160 / 352.74	30 / 66.14	60 / 132.28
SPINDLE SYSTEM					**SPINDLE**				
Spindle Motor Output (Peak)	HP	9	9	9	6 (Acceleration: 20 HP)	6 (Acceleration: 20 HP)	12 (Acceleration: 15 HP)	6 (Acceleration: 20 HP)	12 (Acceleration: 15 HP)
Spindle Max. Speed	rpm	12,000 (STD) 24,000 (OPT)	12,000 (STD) 24,000 (OPT)	12,000 (STD) 24,000 (OPT)	15,000(STD) 24,000(OPT)	15,000(STD) 24,000(OPT)	12,000(STD) 15,000(OPT)	15,000(STD) 24,000(OPT)	12,000(STD) 15,000(OPT)
Spindle Taper	-	BT30	BT30	BT30	BT30 / HSK40A (OPT)	BT30 / HSK40A (OPT)	BT40 / HSK63 (OPT)	BT30 / HSK40A (OPT)	BT40 / HSK63 (OPT)
Method of Spindle Cooling	-	Air Cooling	Air Cooling	Air Cooling	Air Cooling	Air Cooling	Air Cooling	Air Cooling	Air Cooling
FEED					**FEED**				
Rapid feed X / Y / Z	M/min ipm	60 / 60 / 60 2362 / 2362 / 2362	60 / 60 / 60 2362 / 2362 / 2362	60 / 60 / 60 2362 / 2362 / 2362	60 / 60 / 72 2362 / 2362 / 2834	60 / 60 / 72 2362 / 2362 / 2834	48 / 60 / 72 1889 / 2362 / 2834	60 / 60 / 72 2362 / 2362 / 2834	48 / 60 / 72 1889 / 2362 / 2834
Cutting feed X / Y / Z	M/min ipm	10 / 10 / 10 394 / 394 / 394	10 / 10 / 10 394 / 394 / 394	10 / 10 / 10 394 / 394 / 394	10 / 10 / 10 394 / 394 / 394	10 / 10 / 10 394 / 394 / 394	10 / 10 / 10 394 / 394 / 394	10 / 10 / 10 394 / 394 / 394	10 / 10 / 10 394 / 394 / 394
ACCURACY					**ACCURACY**				
Positioning	mm/inch	0.01 / 0.00039	0.01 / 0.00039	0.01 / 0.00039	0.012 / 0.00047	0.012 / 0.00047	0.012 / 0.00047	0.012 / 0.00047	0.012 / 0.00047
Repeatability (+/-)	mm/inch	0.003 / 0.00012	0.003 / 0.00012	0.003 / 0.00012	0.005 / 0.0002	0.005 / 0.0002	0.005 / 0.0002	0.005 / 0.0002	0.005 / 0.0002
ATC					**ATC**				
Tool Storage	-	Servo 21T	Servo 21T	Servo 21T	Servo 24T+1	Servo 24T+1	Servo 24T+1 Servo 40T+1 (OPT)	Servo 24T+1	Servo 24T+1 Servo 40T+1 (OPT)
Max. Tool Diameter	mm/inch	80 / 3.15	80 / 3.15	80 / 3.15	50 / 1.97	50 / 1.97	75 / 2.95	50 / 1.97	75 / 2.95
Max. Tool Length	mm/inch	160 / 6.3	200 / 7.87	200 / 7.87	175 / 6.89	175 / 6.89	200 / 7.87	175 / 6.89	200 / 7.87
Max. Tool Weight	kgs/lbs	3 / 6.61	3 / 6.61	3 / 6.61	2.5 / 5.51	2.5 / 5.51	4.5 / 9.92	2.5 / 5.51	4.5 / 9.92
Tool Change Time	sec.	T-T:1.7 C-C: 2.0	T-T: 1.7 C-C: 2.0	T-T: 1.7 C-C: 2.0	T-T: 0.7 C-C: 1.9	T-T: 0.7 C-C: 1.9	T-T: 1.9 C-C: 3.4	T-T: 0.7 C-C: 1.9	T-T: 1.9 C-C: 3.4
GENERAL					**GENERAL**				
Coolant Tank Capacity	liter/gal	100 / 26.42	200 / 52.83	200 / 52.83	160 / 42.27	160 / 42.27	160 / 42.27	640 / 169	700 / 185
Power Requirement	KVA	10	10	10	10	10	25	10	25
Air Pressure Requirement	kgs/cm ^{2}	5	5	5	5	5	5	5	5
Floor Space (W x L)	mm/inch	1200 x 2300 / 47.24 x 90.55	1560 x 2530 / 61.42 x 99.61	2100 x 2530 / 82.68 x 99.61	1600 x 2322 / 62.99 x 91.42	1500 x 2777 / 59.06 x 109.33	1900 x 3144 / 74.8 x 123.78	1600 x 2322 / 62.99 x 91.42	1900 x 2677 / 74.8 x 105.39
Weight	kgs/lb	2000 / 4409.24	2300 / 5070.63	2500 / 5511.55	4000 / 8818.48	4200 / 9259.41	5600 / 12345.88	4000 / 8818.48	5000 / 11023.11