

AKIRA - SEIKI®

Mass Production Machinery Line Up



Headquarter



1st Factory

AKIRA - SEIKI®
PRECISION CNC MACHINE TOOLS

Headquarter

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AKIRA-SEIKI®
**Always keeps moving
 to advance your future
 success.**

With more than 25 years solid profession in machine tool technology, Akira Seiki expands marketing development from USA to the international.

In the past, we built reliable machineries to process customers' success in USA where is keen competition. Now, we broaden our mission to progress your competition wherever you are.

AKIRA SEIKI Chairman

Alan Kludjian

Al Kludjian



▲ Research and Development

▲ Assembly

▼ Spindle Technology

▲ Quality Control

▼ well-managed inventory



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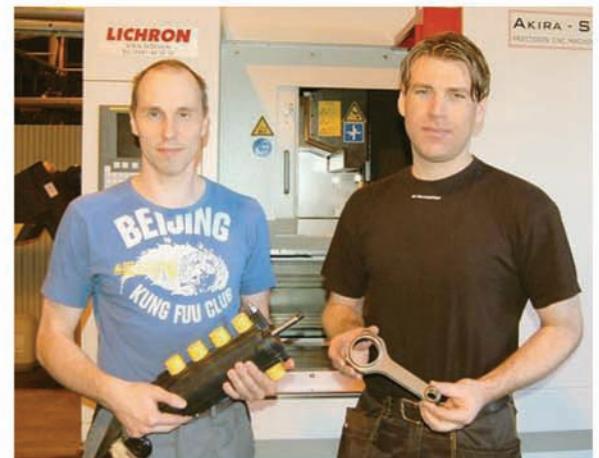


Customer's Recommendation

Quoted from website of Lichion Sweden, the primary agent of AKIRA SEIKI

Auto Verdi in Sweden has **mechanical knowledge, technical development** and the highest level of precision machinery available. After many years of **supporting top European engine builders with connecting rods and other engine parts**, they developed their own **dry sump oil pump for racing cars** 1995.

Auto Verdi has made investment in a fast vertical machining centre from **Akira-Seiki APC model**. Machine model is a 2-pallet swingtype with **very good specification**. Auto Verdi has chosen some special options, for example: **Coolant through spindle 120 bar**.



Akira Seiki Product Guide

		Spindle	Axial Feedrate	Max Axial Acceleration	Single Pallet	Twin Pallet	Multi-Axis
Vertical Model	PC460/PC700	12000rpm, BT30	60/60/60 mm/min	1.2G	✓		
	RMV500T	15000-22000rpm, HSK40	60/60/96 mm/min	1.6-2.0G	✓		
	RMV500APC	15000-22000rpm, HSK40	60/60/96 mm/min	1.6-2.0G		✓	
	RMV700APC	12000-15000rpm, HSK63	48/60/96 mm/min	1.2-1.5G		✓	
	RMV160RT	15000-22000rpm, HSK40	60/60/96 mm/min	1.6-2.0G			✓
	RMV250RT	12000-15000rpm, HSK63	48/60/96 mm/min	1.2-1.5G			✓
Horizontal Model	RMH250APC	22000rpm, HSK40	60/60/96 mm/min	1.6-2.0G		✓	
	RMH350APC	15000rpm, HSK63	60/48/96 mm/min	1.2-1.5G		✓	

Master Piece for Massive Production

Save Cycle Time = Save Profit



RMV500APC

Saving Total Cycle

Minimum non-cutting time

Max. Spindle Speed **22000rpm** (option)

Max. rigid tapping **8000rpm**

(option, refer to tool application.)

Max. rapid traverse **96 m/min**

Max. acceleration **1.6~2.0G**

Fastest tool change T to T time **0.7 sec.**

Pallet change time **1.5 sec./180 degree**

Related model: **RMV700APC**



Quick Tapping Cycle

(basic demonstration by 121 holes)

Machine Model : RMV500APC / RMV500T

Workpiece material : Aluminum (A5052)

Tapping Speed : **4000 rpm**

Tool Used : **M6-1 Tap**

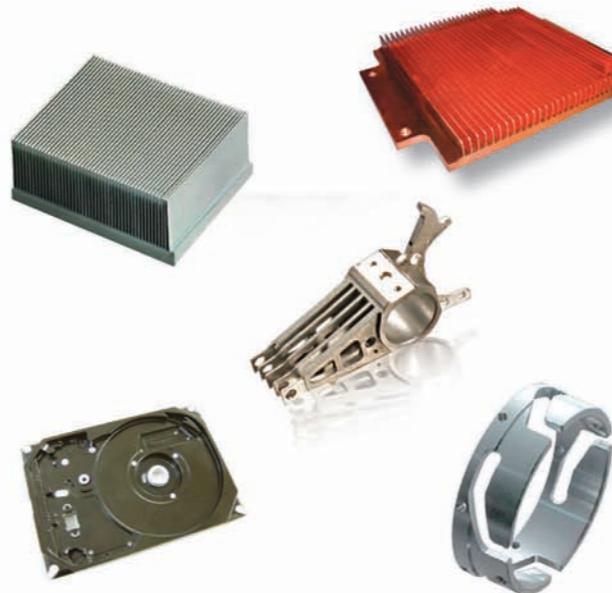
Effective thread : 12mm

Machining time for 1 hole : **0.92 sec/hole**
(Tapping motion only)

*Above cutting data related to Akira Seiki's own internal tooling application. Please check further information with your local distributor.

Target Jobs

► IT Components



Mobile Phone Case

Heat Sink

HD Reader

Hard Disc Seat

Optical Parts

CD/DVD Panel

► Automotive Parts



Cylinder Cover

Engine Body

Brake Master Cylinder

Cam Cover

Engine Housing

Motor Cap

► Light Alloy Formed Part



Pneumatic Valve

Bicycle Parts

Sewing Machine Parts

Hydraulic Throttle

Pneumatic Tool Housing

Remote Helix Parts

► Special Material



Carbon Fiber

Magnesium Casting

Titanium Engraving

I/T Parts

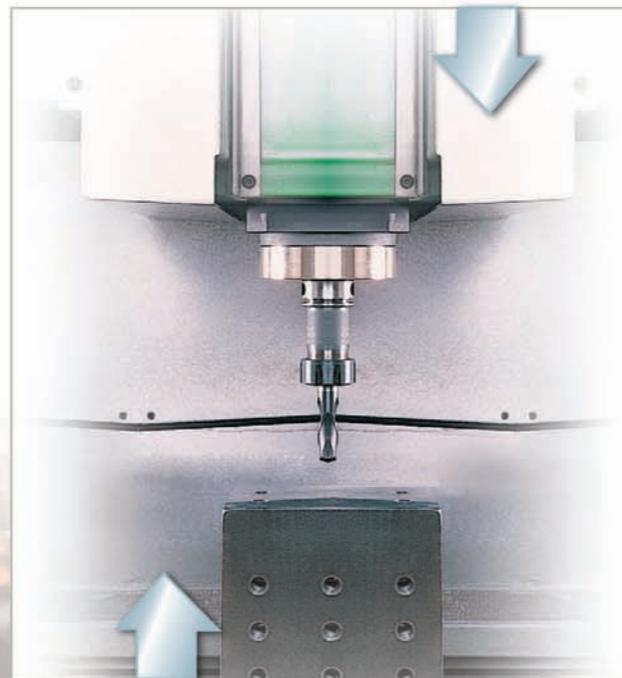
Watch Case

Medical Device

Axial Feed, Fastest Accelerations as F1 racing



- RMV series patented relative movement technology enables **highest acceleration 1.6-2.0G** (RMV500T / RMV500APC / RMV160RT) for each tooling spindle and job feeding, to act the **perfect axial feedrate 96m/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!**

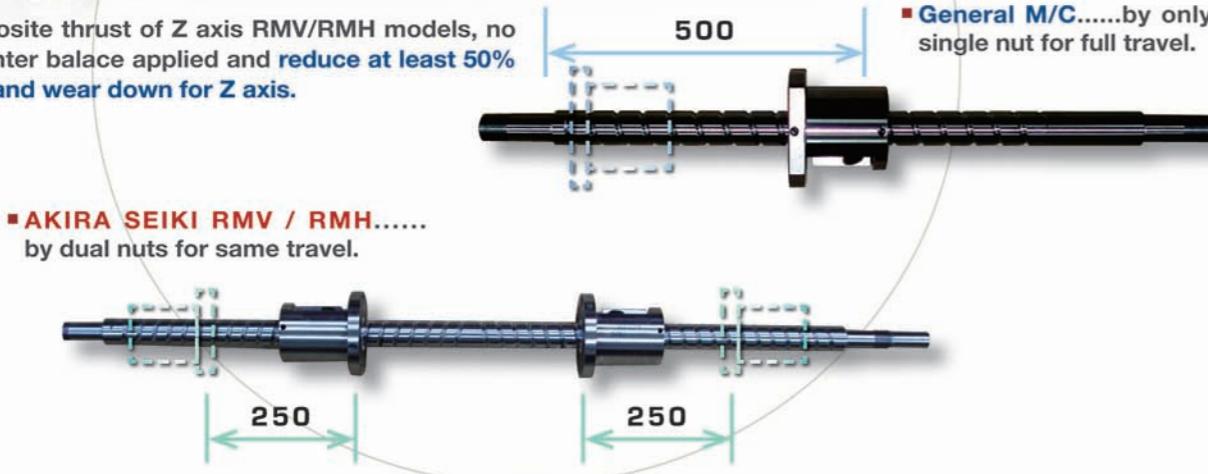


Low Service Expense & Consuming Effective



- 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/RMH models, no any counter balance applied and **reduce at least 50% loading and wear down for Z axis**.

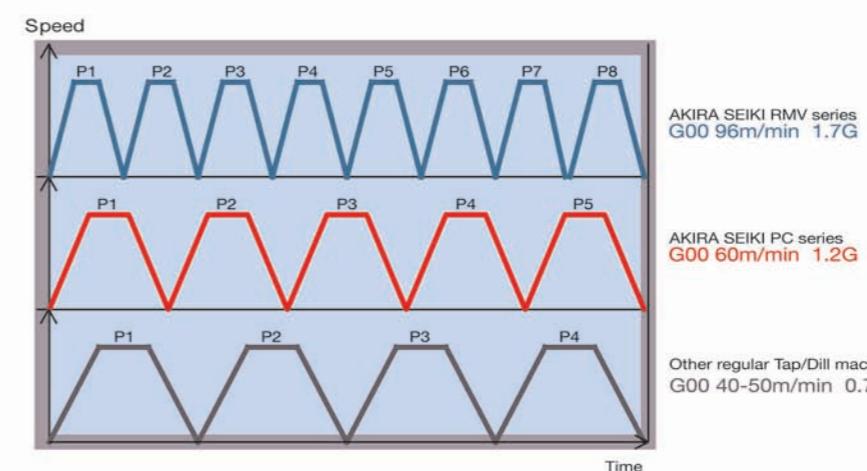


* Please check availability with your local distributor

Shortest Cycle Time, Utmost Efficiency



- The **least non-cutting time** is primary issue for **massive production**, Akira Seiki create the superior production machines line up to save most productivity and accumulate most profit for customers.



- By equal cycle time, Akira Seiki production machinery achieve at least **25%~200% higher efficiency** for more processing sections!

Core Technology Only Available by Akira Seiki



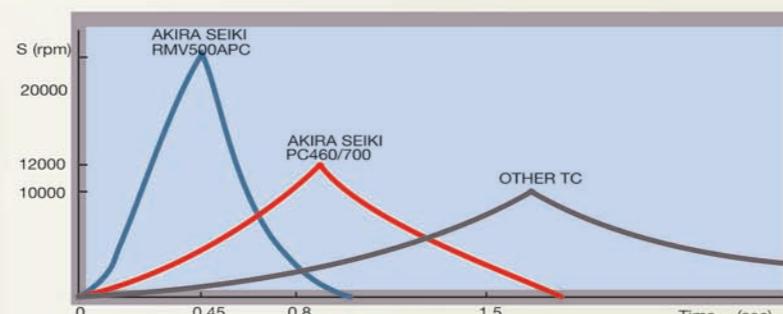
Akira Seiki integrate the **technical patents in the internationals** with **practical application** approved by international famous I/T manufacturers to save the best processing efficiency and **benefit customers!**

Superior Well Balance High Speed Spindle

Akira Seiki Expert High Efficiency Spindle

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

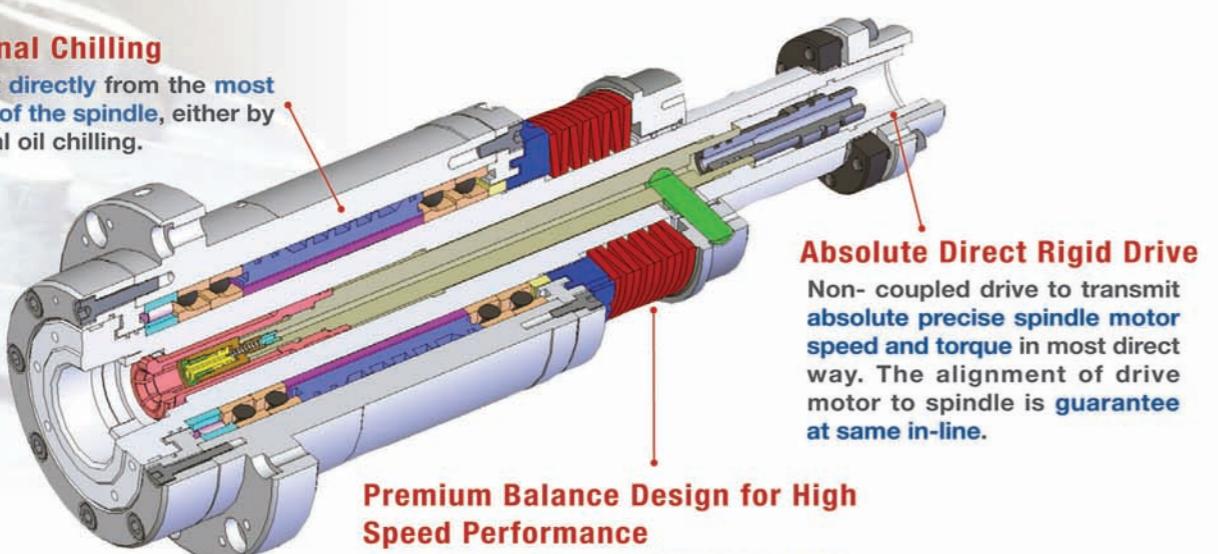
Super low inertia main motor to achieve spindle speed **from 0 to max speed 22000rpm within 0.45 seconds.** (only available features for (RMV500T / RMV500APC / RMV160RT)



All Akira Seiki spindle design and motor integrations are built to reach high acceleration and **excellent balance** to act small diameter processing and smooth "Ra" surface.

Core Internal Chilling

Release heat directly from the **most core section of the spindle**, either by air or optional oil chilling.

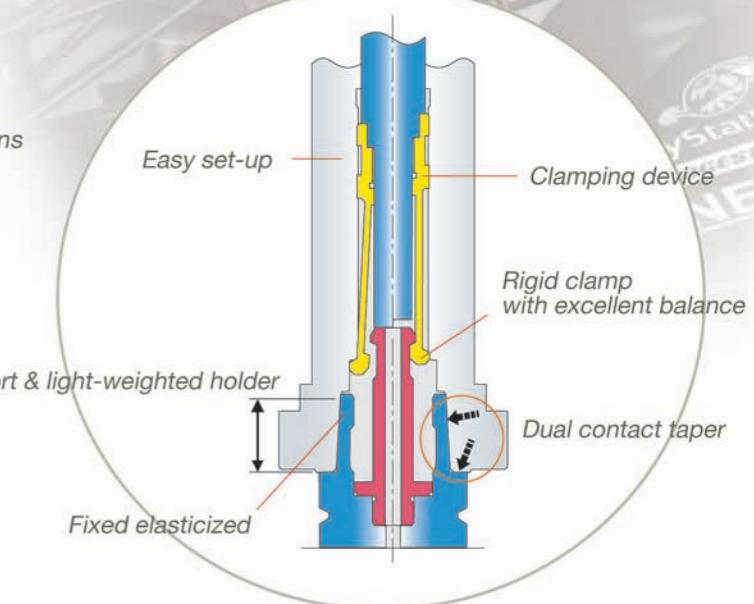
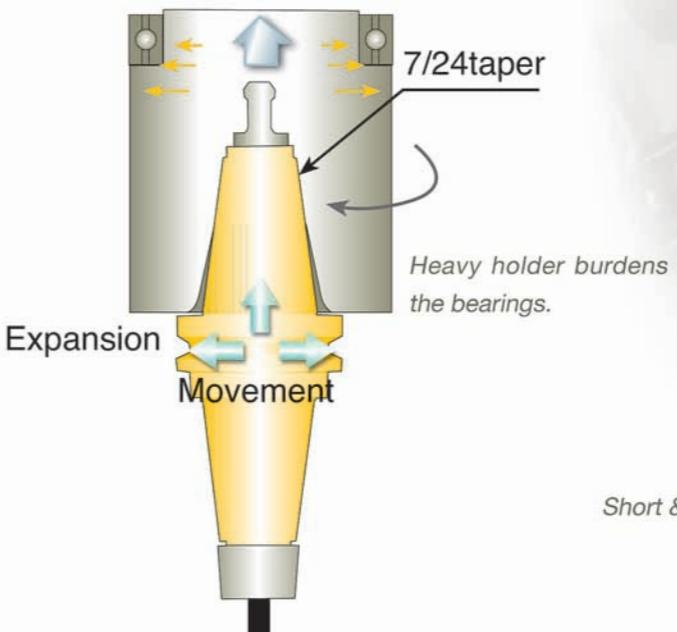


Premium Balance Design for High Speed Performance

Enlarged springs to **enforce clamp force** for the tool holder. Springs with outer-mounted design execute **higher precision for spindle cartridge**, also reduce springs quantity to shorten the length of complete spindle unit to **act excellent balance for high speed**.

* Please check availability with your local distributor

- ▼ Unstable balance of BT system in high speed.



Least Investment for Highest Level Technology

Economic Expense to Apply The Best High Speed Tooling System.

- To activate the advantage of HSK tooling system in most **significant economy**, HSK **excellent dynamic balance** while high speed cutting.
- Akira Seiki patents concepts **popularize** the perfect tooling system in the most economic solution. Save most maintenance cost of conventional expended clamp system.

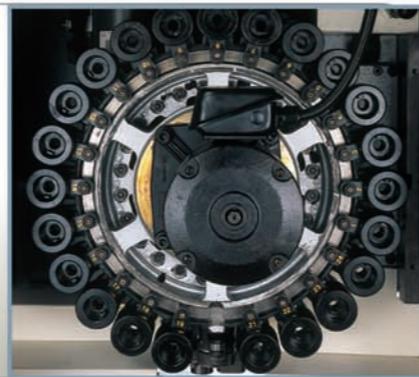


* Please check availability with your domestic distributor.

Reliable Tool Change

Quick Tool Selection

- **Servo drive tool magazine** (for RMV500T / RMV500APC / RMV160RT) for quickest and most precise tool select.
- **Electrical precise clamp** for ATC brake ensures precise tool change in short temple (for RMV series).
- Isolated tool magazine with **full cover** (for RMV series) prevent chips entering tool pot.



Opposite Tool Change



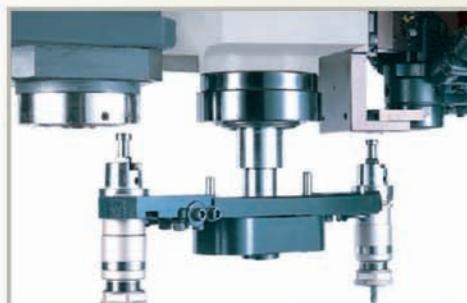
other PC

- **Tool Capacity**
70% up
- **Tool Select Time**
300% quicker for diagonal tool



AKIRA SEIKI model
RMV500T / RMV500APC / RMV160RT

Fast Tool Change



- High speed tool changer has tool to tool change time of **0.7** second and chip to chip of 2.1 seconds. More than **1.5** million reliable & practical operation ATC **tests** had been done.

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.

Accurate Pallet Change

Unique Pallet Changer

- **High precision curvic coupling** is applied for the precised positioning of pallet that is usually standard only in high end machines.
- Optimum **chip proof system and detect system (patented)** ensure accuracy stability of pallet postisioning.
- No hydraulic components are used for pallet clamp / unclamp that reduced additional maintenance cost.



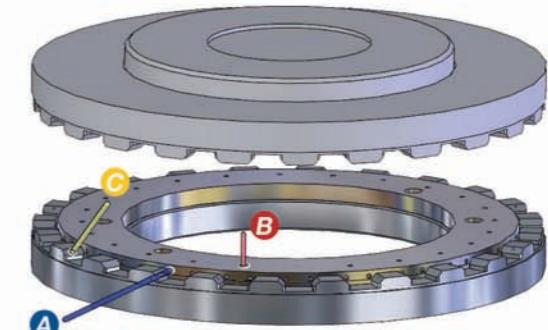
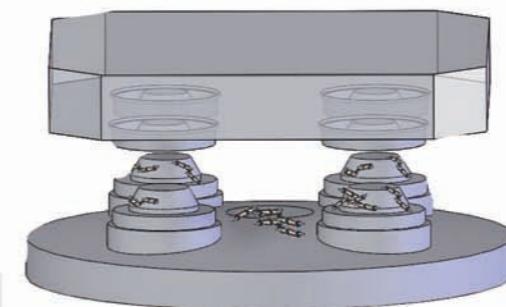
More Precision for Pallet Positioning



Total 24 coupling teeth for **48 contact datums** to the ensured pallet location in **highest positioning accuracy**!

Double chip-proof! Advanced chip proof for each contact datum and optimum chip detection ensure the **repeatability pallet positioning at 0.003mm**.

Optimum Chip Proof and Immediate Detect



A air (blue) : 48-tunnels strong air blow to clear coupling taper.
B air (red) : 24-tunnels strong air blow as further chip proof.
C air (yellow) : 8-tunnels for coupling contact seal detect.

Akira Seiki RMV-APC pallet locating

Akira Seiki RMV-APC **smart chip-proof** design create **double protection** for high volume machining stability. Gap between locating contact tapers and **free from chip accumulations**. The active strong air blow and immediate detect absolutely ensure minimum chip-stuck concern.



Multi- Axial Application

RMV160RT

Saving Total Cycle Minimum non-cutting time

Max. Spindle Speed **22000rpm (OPT.)**

Rapid Traverse(X/Y/Z) **60/60/96**

Axial Acceleration **1.6 ~2.0G**

B Axis Rapid Traverse **75 rpm**

C Axis Rapid Traverse **100 rpm**

T to T time **0.6 sec.**

Related Model: **RMV250RT**

One Catch-up

Saving More Accuracy

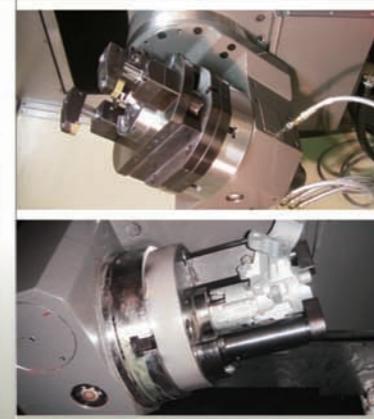
Table indexing angle

B axis

+30°/-120°

C axis

360°



High efficient tilting rotary table **completes all the processing in one catch-up**. Advance optimum machine tool for multi-faces productive jobs with **high accuracy** required. Very easy and **free-interference** for various fixture application.

* Please check availability with your local distributor



Innovation of Rotary Table

Faster and More Accurate Rotary Gear Cam



■ 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

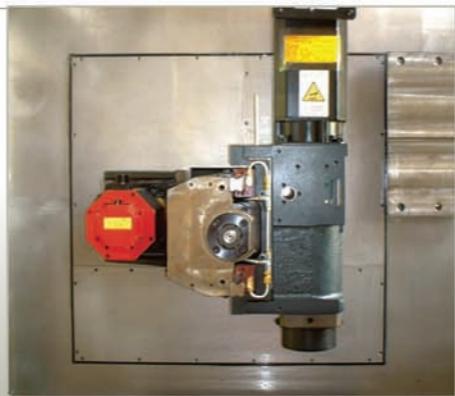
No.	Item	Akira Seiki RMV-RT B/C Axis Transmission	Conventional B/C Axis Transmission
1	Illustration		
3	Contact status	Rolling contact	Slide contact
4	Material of the contact part	HRC60 Bearing steel	HB90 Phosphor bronze
5	Preload	Yes	NO
6	Transmission efficiency	★★★★★, excellent	★★, slow
7	Backlash	0 backlash	Necessary for rub stroke
8	Indexing accuracy	Under 15 sec.	20 sec. (when new produce)
9	High speed possibility	★★★★★, excellent	★★, slow
10	Thermal	Low	High
11	Rigidity	High	Low
12	Durability	★★★★★, excellent	★★★ regular maintenance is necessary
13	Backlash adjustment	Unnecessary	Necessary

* Check with your local distributor for allowable working space.

Convenient Operation and Maintenance

No Cover Break-down

- X,Y and Z axes are **completely isolated from chips** by the unique design of RMV models. High quality one piece sliding cover is used on X and Z axis. This prevents breakdowns due to telescopic cover damage caused by high rapid traverse.



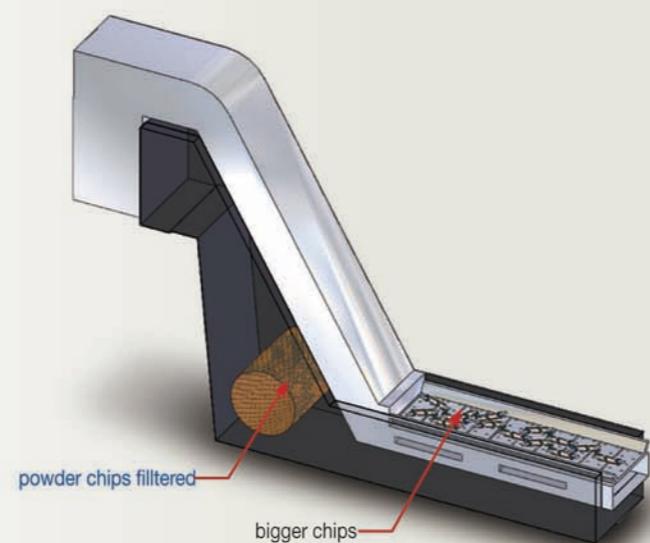
Attentive to Operator's Easy Set Up

Ergonomics

- By Akira Seiki RMV-APC pallet change machine, the easy tooling set up is convenient, either from front door or side door.

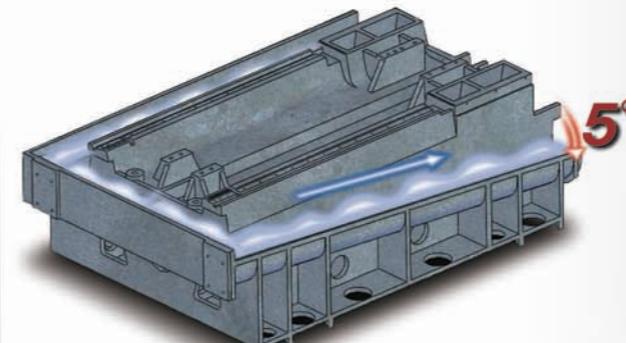


- **Double-level filter** is available option to isolate medium and tiny chips, to maintain good coolant condition.



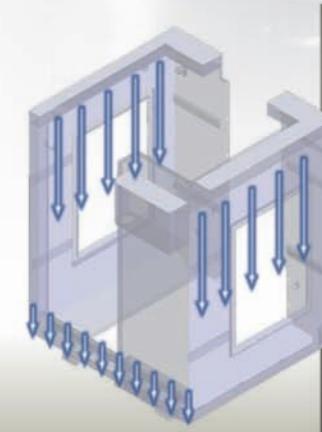
Chip Removing

- Hinge type chip conveyor provides the **most efficient chip removal jobs** and **best chip-free coolant effect for massive production**.
- The chip **disposal height 1200mm** allows the space for **1 gallon (4.6L) trolley** for **saving clear-up time** (1200mm disposal height available for SL30-SL300 models).



Chip disposal

- To meet the high production of aluminum parts, powerful chip flush together with large volume of coolant tank is provided as standard.



Convenient Operation

- **Swivel control cabinet** and **fine operation ergonomic design**. Optimum height from floor 1600mm for operation and 1500mm for vision line.



Flexibility Application

- **Small floor space** to add robot system.
- **Quick Mould Change System**.
- **NC rotary tables** on twin pallet.

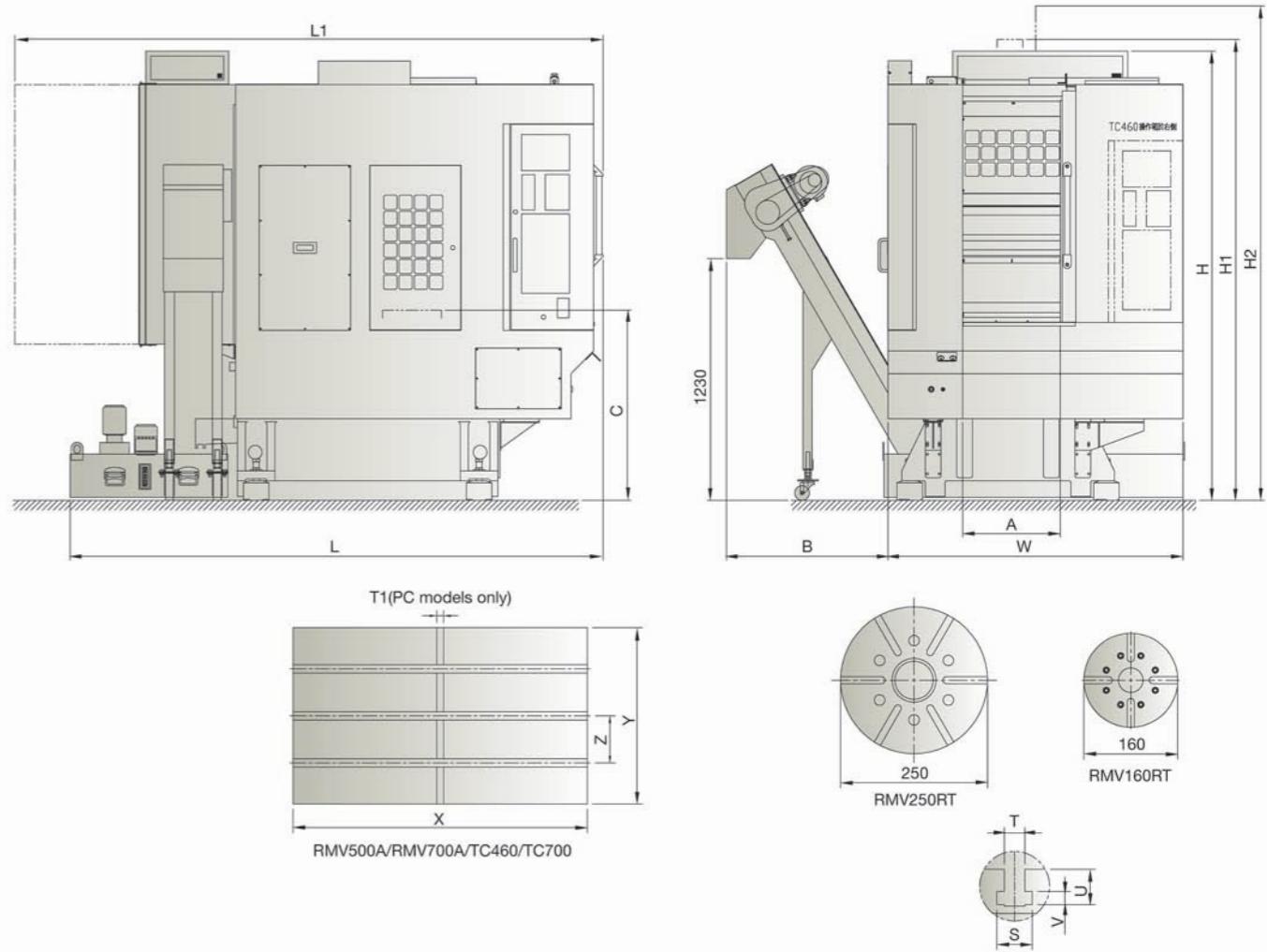
* Please check availability with your local distributor

Machine Configurations & Options

● = standard machine configuration
☆ = available option

	Production Single Pallet	Production Twin Pallet Change	Production Multi- faces		
Spindle Option	PC460 / PC700	RMV500 APC RMV500T (single pallet)	RMV700 APC	RMV160RT	RMV250RT
HSK40A taper		●		●	
BT-30 taper	●	☆		☆	
HSK63A taper			●		●
BT-40 taper			☆		☆
Axis Motion Guides	Production Single Pallet	Production Twin Pallet Change	Production Multi- faces		
Patented relative movement at Z axis for rapid 96m/min		●	●	●	●
Convenient Feature and Option	Production Single Pallet	Production Twin Pallet Change	Production Multi- faces		
Basic air spindle chilling	●	●	●	●	●
Spindle oil chilling		☆	☆	☆	☆
Coolant through spindle	☆	☆	☆	☆	☆
Oil spray coolant for dry cut	☆	☆	☆	☆	☆
Servo tool magazine	☆	●		●	
Water shower for full guarding	☆				
Chain type chip conveyor	☆	☆	☆	☆	☆
Scrape type chip conveyor	☆	☆	☆	☆	☆
Top cover	☆	●	●	●	●
Pneumatic auto door	☆	☆	☆	☆	☆
Oil mist collector	☆	☆	☆	☆	☆
tool length / diameter measurement	☆	☆	☆	☆	☆
part measurement	☆	☆	☆	☆	☆
CE regulation	☆	☆	☆	☆	☆
NC & Software Features	Production Single Pallet	Production Twin Pallet Change	Production Multi- faces		
Colorful LCD display	●	●	●	●	●
DNC link	●	●	●	●	●
Ethernet interface	☆	☆	☆	☆	☆
Remote PMG	●	●	●	●	●

Measurement



Unit (mm / inch)

	PC460	PC700	RMV500T	RMV500APC	RMV700APC	RMV160RT	RMV250RT
W	1200 / 47.2	1800 / 70.9	1600 / 63.0	1500 / 59.1	1900 / 74.8	1600 / 63.0	1900 / 74.8
L	2285 / 89.9	2285 / 89.9	2322 / 91.4	2777 / 109.3	3144 / 123.7	2322 / 91.4	2677 / 105.3
H	2200 / 86.6	2200 / 86.6	2285 / 90.0	2285 / 90.0	2525 / 99.4	2285 / 90.0	2400 / 94.5
L1	2550 / 100.4	2550 / 100.4	2880 / 113.4	2990 / 117.7	3350 / 131.9	2500 / 98.4	2880 / 113.4
H1	2280 / 89.8	2280 / 89.8	2345 / 92.3	2345 / 92.3	2725 / 107.3	2285 / 90.0	2560 / 100.8
H2	2340 / 92.1	2340 / 92.1	2515 / 99.0	2515 / 99.0	2900 / 114.2	2410 / 94.9	2750 / 108.3
A	650 / 25.6	720 / 28.3	670 / 26.4	495 / 19.5	690 / 27.2	515 / 20.3	670 / 26.4
B	900 / 35.4	600 / 23.6	740 / 29.1	820 / 32.3	740 / 29.1	740 / 29.1	740 / 29.1
C	870 / 34.3	870 / 34.3	900 / 35.4	970 / 38.2	950 / 37.4	840 / 33.1	900 / 35.4
S	23 / 0.9	23 / 0.9	24 / 0.9	24 / 0.9	30 / 1.2	19 / 0.7	21 / 0.8
T	14 / 0.6	14 / 0.6	14 / 0.6	14 / 0.6	18 / 0.7	12 / 0.5	12 / 0.5
U	19 / 0.7	19 / 0.7	24 / 0.9	24 / 0.9	30 / 1.2	20 / 0.8	18.5 / 0.7
V	9 / 0.4	9 / 0.4	9 / 0.4	9 / 0.4	12 / 0.5	8 / 0.3	9 / 0.4
T1	12 / 0.5	12 / 0.5	N/A	N/A	N/A	N/A	N/A
X	520 / 20.5	760 / 29.9	600 / 23.6	500 / 19.7	700 / 27.6	N/A	N/A
Y	320 / 12.6	320 / 12.6	300 / 11.8	300 / 11.8	400 / 15.7	N/A	N/A
Z	100 / 3.9	100 / 3.9	80 / 3.1	80 / 3.1	125 / 4.9	N/A	N/A

* All specification subject to change without notice.

* All specification subject to change without notice.

Machine Specification

	PC460	PC700	RMV500T	RMV500APC	RMV700APC	RMV160RT	RMV250RT	RMH250APC	RMH350APC
CONTROL SYSTEM	AKIRA Mi645 (Fanuc code compatible)								
Travel									
X-axis Travel	mm/inch	460 / 18.11	700 / 27.56	500 / 19.69	500 / 19.69	700 / 27.56	380 / 14.96	500 / 19.69	350 / 13.78
Y-axis Travel	mm/inch	320 / 12.6	320 / 12.6	300 / 11.81	300 / 11.81	400 / 15.75	160 / 6.30	250 / 9.84	350 / 13.78
Z-axis Travel	mm/inch	300 / 11.81	300 / 11.81	280 / 11.02	280 / 11.02	400 / 15.75	380 / 14.96	400 / 15.75	350 / 13.78
Spindle nose to table surface	mm/inch	180 - 480 / 7 - 18.9	180 - 480 / 7 - 18.9	150 - 430 / 5.9 - 16.9	150 - 430 / 5.9 - 16.9	200 - 600 / 7.87 - 23.62	100-480 / 3.9-18.9	125 - 525 / 4.92 - 20.67	100 - 450 / 3.94 - 17.7
TABLE / PALLET									
Table Size (LxW)	mm/inch	520 x 320 / 20.47 x 12.6	760 x 320 / 29.92 x 12.6	600 x 300 / 23.4 x 11.81	500 x 300 / 19.69 x 11.81	700 x 400 / 27.56 x 15.75	Ø160	Ø250	250 x 250 / 9.84 x 9.84
C Axis Rotation	°	NA	NA	NA	NA	NA	360 °	360 °	NA
B Axis Swing	°	NA	NA	NA	NA	NA	+30/-120 °	+30/-120 °	360 °
Max. Loading Capacity	kgs/lbs	250 / 551	350 / 772	100 / 220	100 / 220	160 / 353	30 / 66	60 / 132	200 / 441
SPINDLE SYSTEM									
Spindle Motor Output(Peak)	HP	6	6	10	10	15	10	15	10
Spindle Speed	rpm	12,000 (STD) 24,000 (OPT)	12,000 (STD) 24,000 (OPT)	15,000 (STD) 22,000 (OPT)	15,000 (STD) 22,000 (OPT)	12,000 (STD)	15,000 (STD) 22,000 (OPT)	12,000 (STD)	22,000
Spindle taper		BT-30	BT-30	HSK-40A BT-30 (available)	HSK-40A BT-30 (available)	HSK-63A BT-40 (available)	HSK-40A BT-40 (available)	HSK-63A BT-40 (available)	HSK40 BT40 (available)
Method of Spindle Coolant		air chilling	air chilling						
FEED									
Rapid Rate of X/Y/Z	M/min	60 / 60 / 60	60 / 60 / 60	60 / 60 / 96	60 / 60 / 96	48 / 60 / 96	60 / 60 / 96	48 / 60 / 96	60 / 60 / 96
	ipm	2362 / 2362 / 2362	2362 / 2362 / 2362	2362 / 2362 / 3779	2362 / 2362 / 3779	1890 / 2362 / 3779	2362 / 2362 / 3779	1890 / 2362 / 3779	2362 / 2362 / 3779
Acceleration X/Y/Z	G	1.2 / 1.2 / 1.0	1.2 / 1.2 / 1.0	1.2 / 1.2 / 1.6	1.2 / 1.2 / 1.6	1.0 / 1.0 / 1.2	1.2 / 1.2 / 1.6	1.2 / 1.2 / 1.6	1.0 / 1.0 / 1.2
ACCURACY									
Positioning (+/-)	mm/inch	0.006 / 0.0002	0.006 / 0.0002	0.006 / 0.0002	0.006 / 0.0002	0.006 / 0.0002	0.006 / 0.0002	0.006 / 0.0002	0.006 / 0.0002
Repeatability (+/-)	mm/inch	0.003 / 0.00018	0.003 / 0.00018	0.003 / 0.00018	0.003 / 0.00018	0.003 / 0.00018	0.003 / 0.00018	0.003 / 0.00018	0.003 / 0.00018
ATC									
Tool storage capacity		14T	14T	24+1T	24+1T	24+1T	24+1T	40+1T	40+1T 60+1T (OPT)
Max. Tool Diameter	mm/inch	50 / 1.97	50 / 1.97	50 / 1.97	50 / 1.97	75 / 2.95	50 / 1.97	75 / 2.95	50 / 1.97
Max. Length	mm/inch	160 / 6.30	160 / 6.30	175 / 6.89	175 / 6.89	200 / 7.87	175 / 6.89	200 / 7.87	250 / 9.84
Max. Weight	kgs/lbs	3 / 7	3 / 7	2.5 / 6	2.5 / 6	4.5 / 10	2.5 / 6	4.5 / 10	2.5 / 6
Change time	sec	T-T:1.4 C-C: 2.3	T-T:1.4 C-C: 2.3	T-T:0.7 C-C: 2.1	T-T:0.7 C-C: 2.1	T-T : 1.2 C-C : 2.9	T-T : 0.7 C-C : 2.9	T-T : 1.2 C-C : 2.9	T-T : 1.2 C-C : 2.9
GENERAL									
Coolant tank capacity	Liters/gal	100 / 26.40	100 / 26.42	160 / 42.27	160 / 42.27	160 / 42.27	160 / 42.27	300 / 79.3	300 / 79.3
Power Requirement	KVA	10	10	11	11	25	12	26	12
Air Pressure Requirement	kgs / cm²	6	6	6	6	6	6	6	6
Floor Space(W X L)	mm/inch	1200 x 2285 / 47.2 x 90	1800 x 2285 / 70.9 x 90	1600 x 2322 / 63 x 91.4	1500 x 2777 / 59 x 109.3	1900 x 3144 / 74.8 x 123.8	1600 x 2322 / 63 x 91.4	1900 x 2677 / 74.8 x 105.4	1500 x 3200 / 59.1 x 126
Weight	kgs/lbs	2000 / 4409	2400 / 5291	4000 / 8818	4200 / 9259	5600 / 12346	4000 / 8818	5000 / 11023	5500 / 12125
Note: 1 year limited warranty *All specification subject to change without notice. *Rated HP is peak. Accuracy quoted at 68 °. On 8" steel reinforced concrete. *See Akira Seiki technical bulletin for additional details.									

* All specification subject to change without notice.



Performa Production
PC series
Cost Effect Single Pallet
2 models



Classic Production
RMV-APC series
Twin Pallet Change
2 models



Multi-faces Production
RMV-RT series
5 - axis Processing
2 models



Superior Massive
Production RMH series
Horizontal Twin Pallet
2 models