

# KAFO

## DOUBLE COLUMN MACHINING CENTER

| B/BMC SERIES | RVM/RV SERIES | RVM5A/RV5A SERIES  
| KRV SERIES



Vision

Hearing

Smell

Touch

Heart

The design idea of KAFO new catalogues is providing comprehensive six senses performance, including Vision, Hearing, Smell, Touch, Taste, and Heart.

**Vision: Visual Design Master creates designs covering all aspects**

We create innovative designs covering every aspect to develop perfect machines.

**Hearing: Hear your needs from every corner of the world**

We hear and comprehend customers' needs actively from every corner of the world, and we practice thoroughly to exceed customers' expectations.

**Smell: Smell the market demand and offer well-thought-out plans**

We have superior market insights and perfect strategic ability to be the strong support of customers.

**Touch: Pursue excellent quality to achieve high performance**

We focus on the enhancement of top core technologies and capabilities, and develop solidly to achieve excellent quality.

**Taste: Taste good service by our professional and efficient team**

We provide efficient, professional, and comprehensive services, and establish permanent and deep relationships with customers.

**Heart: Feel our Heart that always sticks to perfection**

We manage business with all our heart, and stick to perfection, to create maximum benefits for customers.

# KAFO



Kao Fong Machinery Co., Ltd.

No.16, Keya Rd., Daya Dist., Taichung City 428323, Taiwan

TEL : +886-4-25662116

FAX : +886-4-25671001

E-Mail : kafo@kafo.com.tw

www.kafo.com.tw

Version : March, 2021



*Taste good service  
by our professional and efficient team*

www.kafo.com.tw



Over fifty years, KAFO has become the leading brand in Die & Molds field and Machining field based on its solid foundation of superior technology. "Steady Research & Development, Quality Control, Accumulate Experience" exceed customers' expectations and think globally, act locally.

We provide you comprehensive six senses performance, including Vision, Hearing, Smell, Touch, Taste, and Heart. As a visual design master, we create innovative designs covering all aspects. We understand and meet customers' needs from every corner of the world. Additionally, we smell the market demand and offer well-thought-out plans. Through strict quality control, we pursue excellent quality to achieve high and steady performance. Moreover, our professional team offer efficient 24/7 service which is worth experiencing. Operating with our Heart, we always stick to perfection. By means of accumulating experience, intensifying the know-how, focusing on the upgrading core competency of technology, and continuously improving the manufacturing process, KAFO realizes the commitment to customers for best quality products and also being rated as the benchmark of the industry.

*David Shen*

KAO FONG MACHINERY CO., LTD.  
President & CEO  
SHEN, KUO-JUNG (DAVID SHEN)



## CONTENTS

01	President's Words	29	Automatic Head
02	Contents	31	RVM/RV Series Specification
03	Assembly	37	RVM/RV Series S&O List
03	Quality Assurance	37	RVM/RV Series Features
05	Features	39	KRV Series
15	B/BMC Series	41	KRV Series Specification
17	B/BMC Series Specification	41	KRV Series Features
22	B/BMC Series S&O List	43	RVM5A/RV5A Series
23	B/BMC Series Features	45	RVM5A/RV5A Series Features
25	RVM/RV Series	47	RVM5A/RV5A Series Specification
		48	RVM5A/RV5A Series S&O List
		49	Future



Kao Fong Machinery Co. Ltd.



Vertical Machining Center Production Line



Horizontal & Double Column Machining Center Production Line

# ASSEMBLY



- Assembly KAFO gear box and head unit in clean room.



- World class spindle bearings.



- Spindle assembly and adjustment in clean room with constant temperature and humidity.



- Spindle, gear box, and spindle motor balance test.



- Scrapping-The difference from other brand, with the KAFO line of Machining Centers, every component surface is finished by hand-scraping for a proper fit, ensuring that the machine itself is geometrically correct and long lasting. The hand-scraping process is labor intensive and must be performed by skilled craftsman who are trained in the technique. Machine components must be placed then removed up to 5 times to confirm that the machine base in both level and square.

# QUALITY ASSURANCE

RIGOROUS TESTS AND INSPECTION,  
GUARANTEED QUALITY CONTROL UPON KEY COMPONENTS



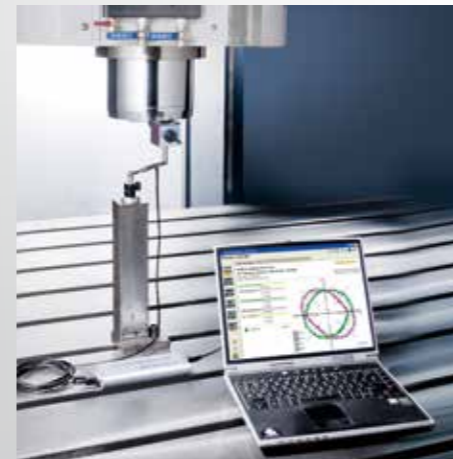
**/ 3D PROBE SYSTEM  
QUALITY ASSURANCE  
(CMM)**



**/ LASER INSPECTION**



**/ 3D CIRCULAR BALL  
MILLING**



**/ BALL BAR INSPECTION**



**/ VIBRATION TEST**

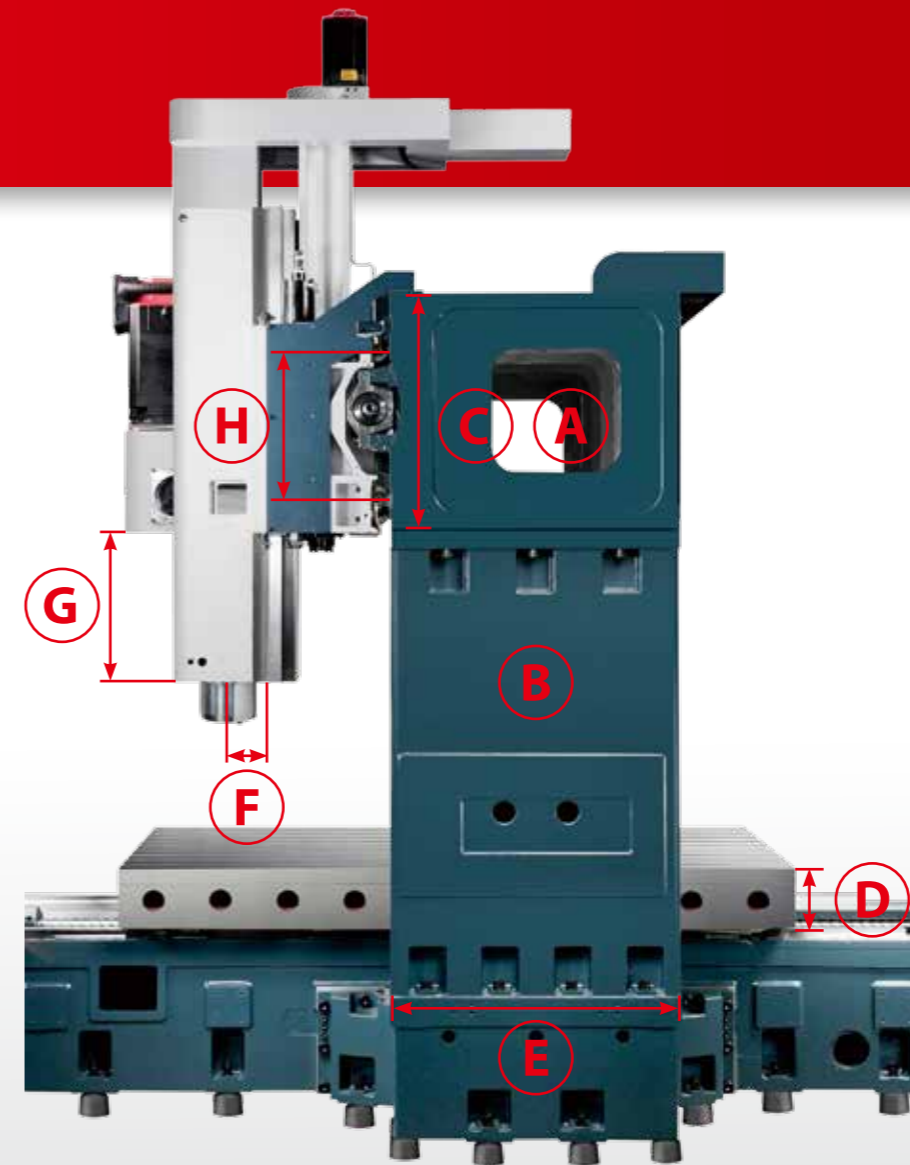
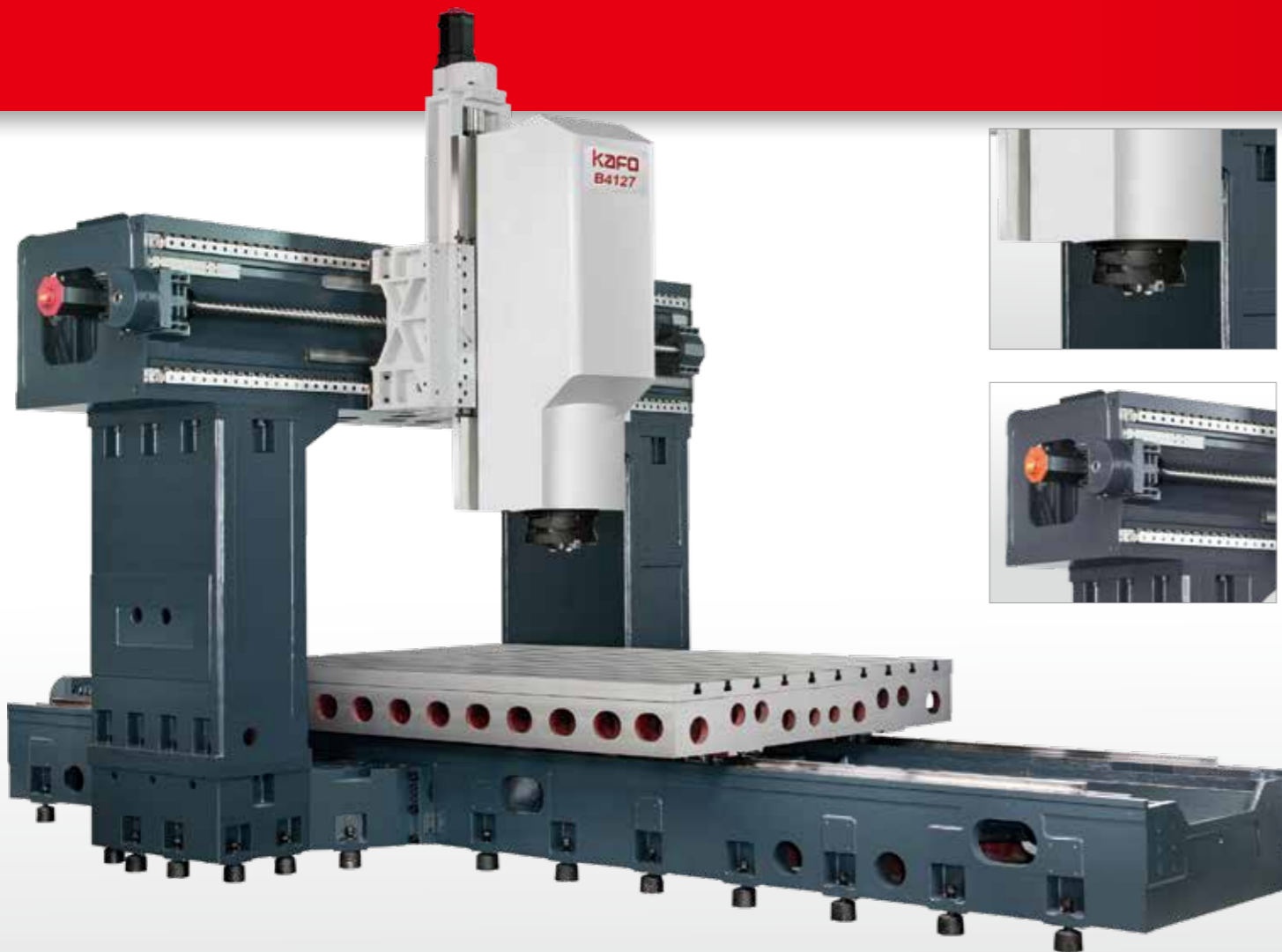


**/ RIGIDITY TEST**

# DOUBLE COLUMN MACHINING CENTER

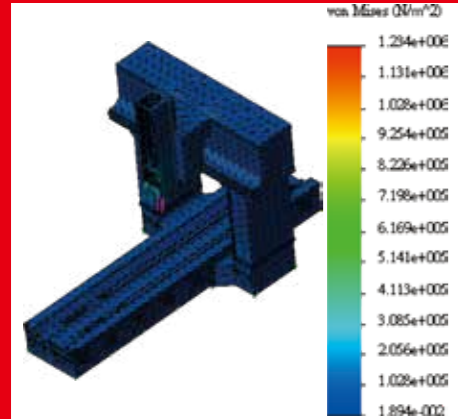
## NEW GENERATION DESIGNED, PROVIDING BEST RIGIDITY STRUCTURE

- Extended beam cross-section A
- Widest column available in the market B
- Largest spindle head support C
- Thickest working table D
- Biggest contact area for column support E
- Minimum distance from spindle center to boxway F
- Short transmission shaft
- Long distance between guideways H
- Hydraulic counter balance system for Z-axis
- Roller linear guideways from NSK/THK ( Japan ) or INA ( Germany )
- Highest quality Meehanite casting
- Hermo-symmetric box design base with high static and dynamic stiffness
- Minimum floor space layout due to rigid bed design



- A:** Extended beam cross-section
- B:** Widest column
- C:** Largest spindle head support
- D:** Thickest working table
- E:** Biggest contact area for column support
- F:** Minimum distance from spindle center to boxway
- G:** Short transmission shaft
- H:** Long distance between guideways

# HIGH RIGIDITY STRUCTURE, HIGH POSITIONING ACCURACY



## SUPERIOR BODY STRUCTURE

- The machine bed, column, spindle head, cross slides and table are all analyzed and optimized by FEM tests. This design assures high stability and rigidity of the machine, thus making it suitable for heavy-duty machining of all kinds of material.



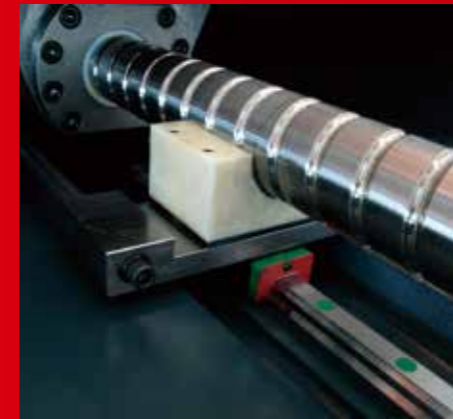
## GEAR BOX OF THE THREE AXES

- Three axes feed mechanism employs gear transmission and precise ballscrew with precision class P4 angular contact ball bearings. Gears, ground in accordance with Din level 5, provides good transmission efficiency and also gives the advantages of great transmission torque at low speed and excellent dynamic response at high speed.



## MINIMUM SPINDLE DISTANCE

- The distance between spindle centers to Z-axis slideway surface is 150mm. Spindle center is located at the center of headstock which eases the thermal expansion caused by increased temperature of spindle; therefore raises the resistance of the body structure when cutting providing higher machining accuracy and stability.



## BALL SCREW COOLING SYSTEM

- Each axis is driven by a large diameter, high precision ground, pre-loaded and double anchored ballscrew providing high accuracy, fast rapid federates and maximum feed thrust. Models with travel over 3m are equipped with cooling system through ballscrew on X-axis to alleviate thermal expansion, resulting in higher positioning accuracy. Models with travel over 4 m possess supporting way for X-axis to solve the problems of overhanging and vibration.



## SAFE AND STABLE TOOL MAGAZINE

- Modularized tool magazine offering protection and conveniences. Standard capacity is 30 tools. Optionally also offer customers 40, 60, 90 and 120 tools to choose from.



## PRECISE ROLLER TYPE LINEAR GUIDE WAYS

- Feeding systems of X and Y axes adopt the roller type linear guideways which feature the heavy load resistance, rapid dynamic response and low friction coefficient ( 0.003 ~ 0.005 ). With independent loop hydraulic balanced system, it could react and save at least 50% energy consumption.

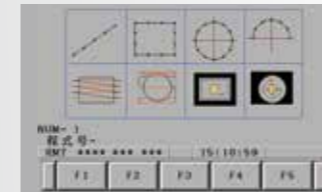


## CUSTOMIZED CALCULATOR SOFTWARE FEATURES ( OPTION )

### MULTI-FUNCTION STATE DISPLAY

- Spindle/Axis Load
- Tools State Display
- Controller Running Timer
- Feed Rate State
- Spindle Speed State
- Coordinate State
- Workpieces Counter
- Date/Time State
- Machining Time State
- Soft-Key Function

### G-MENU



- The G-menu function, easy-processing module for customer.

### CENTER OF RECTANGLE FUNCTION



- Measured rectangular workpiece four-point and calculate the rectangular center of the workpiece coordinates and tilt angle.

### TOOL LENGTH MEASUREMENT AND SETTING



- Manually setting tool length and compensating numbers. After finishing the measurement, it could change to next tool.

### INTELLIGENT ATC SYSTEM MANAGEMENT



- Displaying of the tool number, tool pot number and preparation tool number can be pre-set the tool type in the form.

### CALCULATING FUNCTION



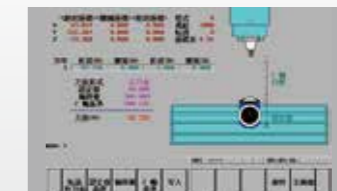
- Calculating function provided customers with fast calculation and completion of the workpiece coordinate corrections and setting.

### CENTER OF CIRCLE FUNCTION



- Provide customers with three points to find the center of the circle, user-friendly setting mode.

### TOOL LENGTH MEASUREMENT AND SETTING



- Manually setting tool length and compensating numbers. After finishing the measurement, it could change to next tool.

### INTELLIGENT ATC SYSTEM MANAGEMENT



- Check and set of user-friendly tool storage, and display the program number, feed rate and spindle speed, allowing users to catch processing states.

## HIGH SPEED AND PRECISION SPINDLE DESIGN

- Using new generation 8000rpm direct driven spindle with high speed, high precision, high performance spindle motor, available high-quality rigid tapping. Without noise, backlash and vibration problems, standard accessories with spindle oil coolant system to control thermal displacement then getting the best accuracy.

Using Ø100mm ceramic bearing with the spindle, after long time machining the vibration and thermal displacement could be controlled very well for keeping good tolerance of the dimension and accuracy of the shape.



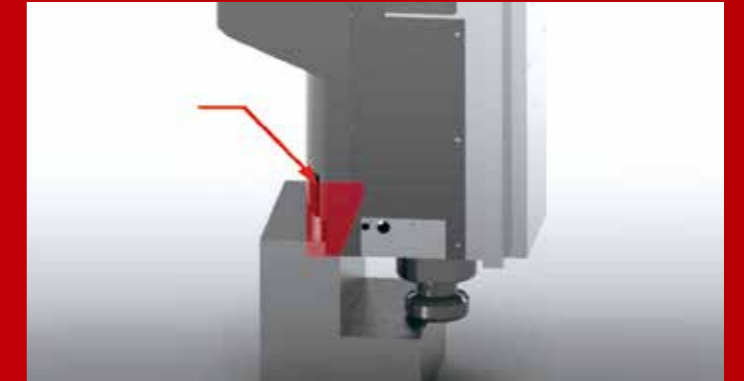
## HIGH TORQUE & LOW NOISE GEAR BOX DESIGN

- Gear spindle with 6000rpm: superior power, high speed and accurate precision. Ceramic ball bearing of ID Ø100 is able to achieve high torque of 728N-m while the spindle speed is 341rpm, which is good for heavy duty cutting.

Two-speed gear box consist of DIN level 5 gears, well-performing bearings and oil cooling systems to minimize thermal expansion. Every set of gear box is inspected by the vibration and run-in tests to ensure each gear shifting smoothly and stably, meanwhile achieving G1 level of vibration testing.



- KAFO adopting long nose spindle, suitable for die & mold and specific parts cavities avoids interference during processing. It is able to mount all kind of angular milling head ( option )



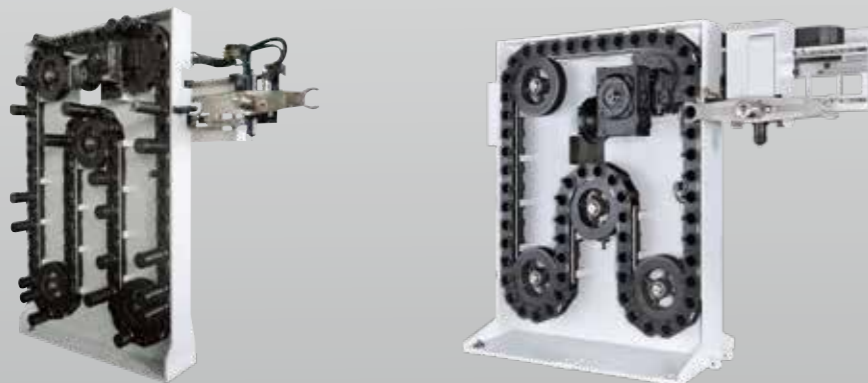
- Other Manufacturer

## DOUBLE COLUMN TOOL MAGAZINE

**/ BMC TOOL MAGAZINE : STANDARD 30 TOOLS. OPTION 40 TOOLS AND 60 TOOLS**



**/ RV TOOL MAGAZINE : STANDARD 60 TOOLS. OPTION 40, 90, 120 TOOLS**



	BMC	RV
Spindle	Gear 4,000RPM Gear 6,000RPM Direct-Driven 10,000RPM	Gear 4,000RPM Gear 6,000RPM Built-in 8,000RPM (180LL)
ATC Magazine	<ul style="list-style-type: none"> <li>Vertical Magazine 30/40/60T (Vertical Automatically Tool Change)</li> </ul>	<ul style="list-style-type: none"> <li>Vertical Magazine 30/40/60T (Vertical Automatically Tool Change / 90° Milling Head) Automatically Head Change Manually Tool Change</li> <li>Vertical &amp; horizontal Magazine 40/60/90/120T (Vertical &amp; Horizontal Automatically Tool Change/ 90° Milling Head-) Automatically Head Change Automatically Tool Change</li> </ul>
Travel	Y-Axis Travel Extend or Z-Axis Travel Extend	
Attached Head	<ul style="list-style-type: none"> <li>Manual 90° Milling Head / Universal / Extension Head-Manually Head Change Manually Tool Change</li> </ul>	<ul style="list-style-type: none"> <li>Universal Head (Automatic)</li> <li>90° Milling Head (Automatic)</li> </ul>
Head storage Exchanging System (OP)	X	<ul style="list-style-type: none"> <li>Milling head storage (90° / Universal / Extension / Speed-Up Type Extension Head)</li> </ul>

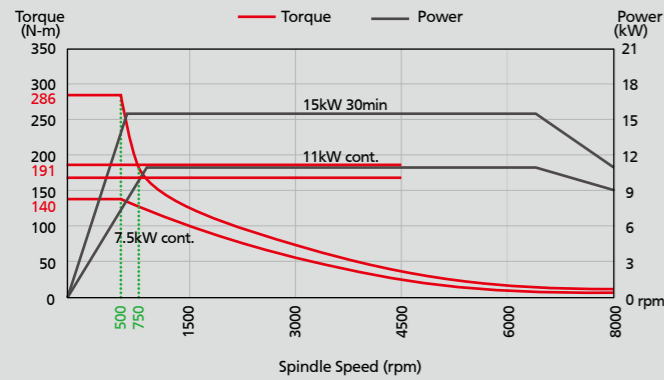


# NEW GENERATION SPINDLE DESIGNED WITH POWERFUL MACHINING ABILITY

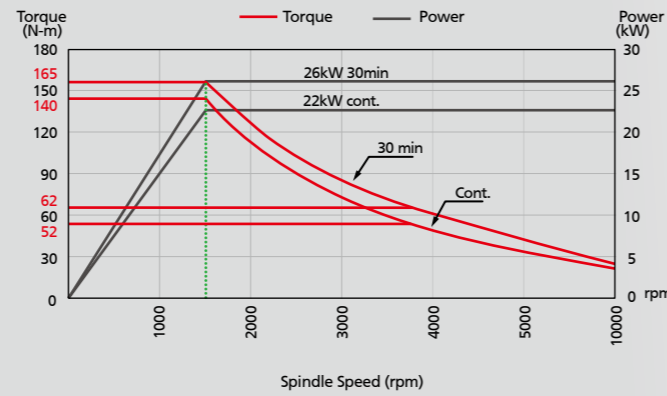
## / HIGH RIGIDITY, HIGH TORQUE, HIGH SPEED, LOW VIBRATION LOW NOISE, LOW THERMAL DISPLACEMENT

- Upgrading the output torque of gear head spindle ( which is 10% bigger than other manufacturer )
  - Upgrading the main bearing diameter of gear head spindle to 100mm ( which is 10mm above than other manufacturer )
  - Strong motor 22/26kW ( 35HP ) is driven by two step gear box, spindle speed 6000rpm and powerful torque to 728N-m, which is most suitable for heavy cutting.
- Also available with roller type bearing spindle 4000rpm could be used in much heavier cutting.

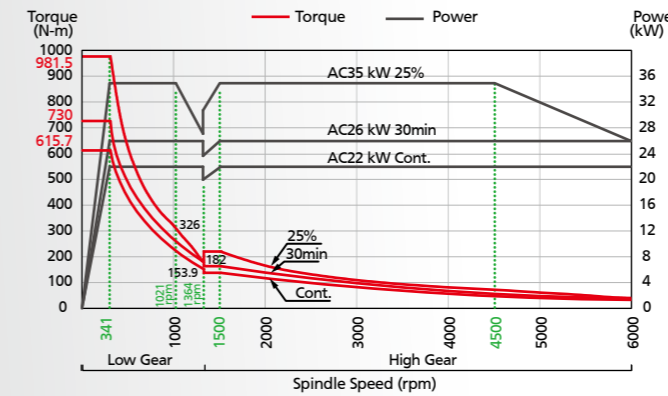
**/ BT50 DIRECT-DRIVEN 8000 RPM (FANUC αP221/8000)**



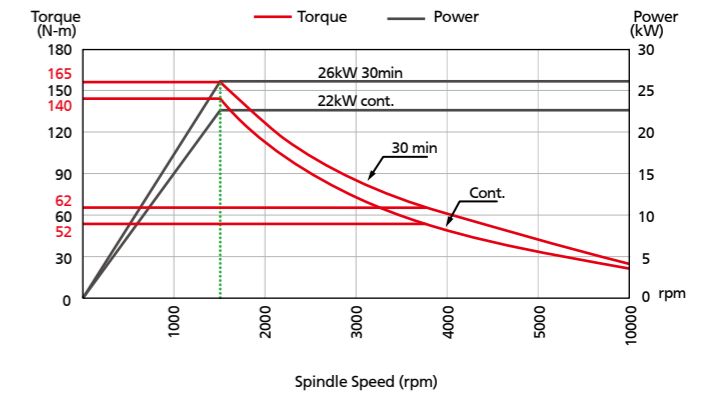
**/ BT50 DIRECT-DRIVEN 10000 RPM (FANUC α221/10000)**



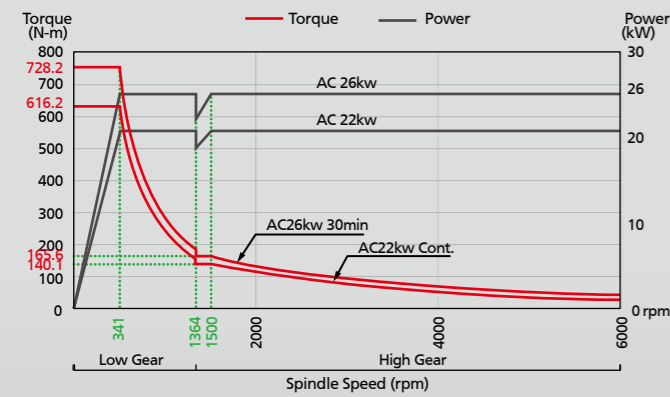
**/ BT50 GEAR HEAD 6000 RPM (MITSUBISHI SJ-D26-80-01-C)**



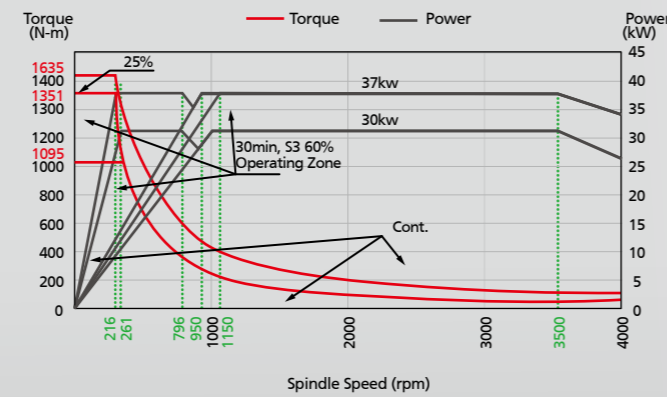
**/ BT50 DIRECT-DRIVEN 10000 RPM (MITSUBISHI SJ-VK30-21ZT)**



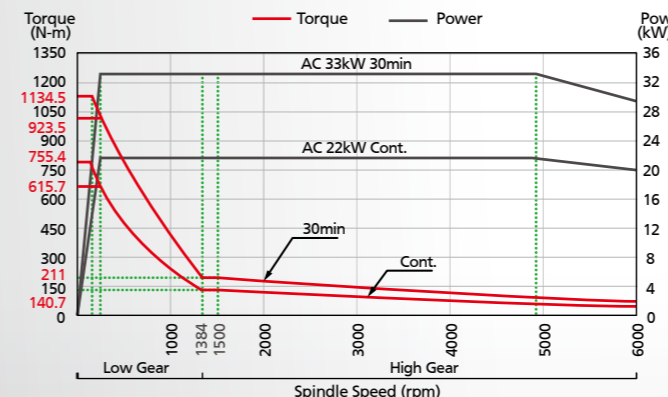
**/ BT50 GEAR HEAD 6000 RPM (FANUC α221/8000)**



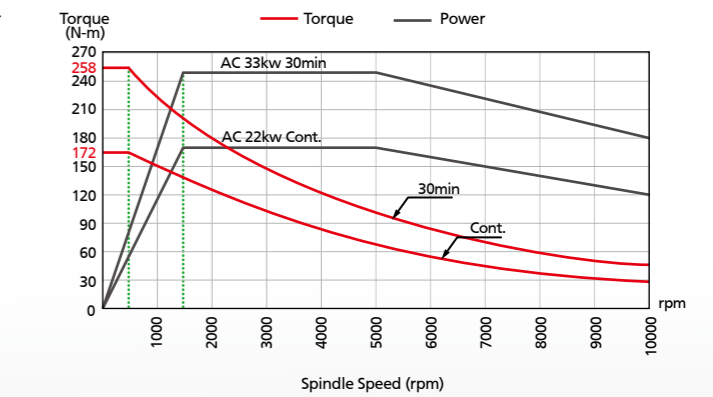
**/ BT50 GEAR HEAD 4000 RPM (FANUC α30/7000)**



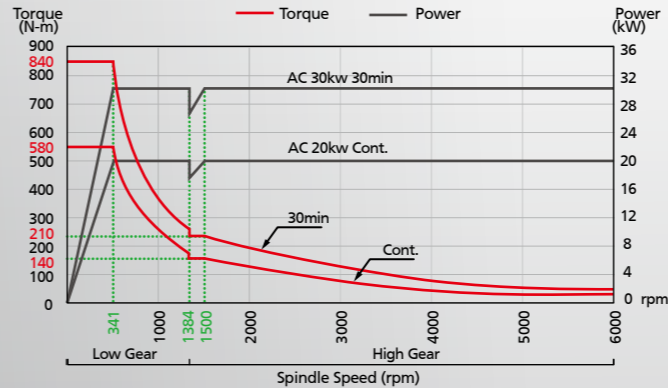
**/ BT50 GEAR HEAD 6000 RPM (SIEMENS 1PH8137-1CA1)**



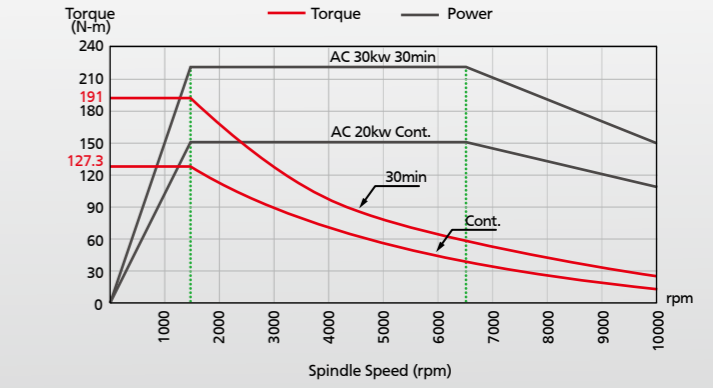
**/ BT50 DIRECT-DRIVEN 10000 RPM (SIEMENS 1PH8137-OLA1)**



**/ BT50 GEAR HEAD 6000 RPM (HEIDENHAIN QAN260L)**



**/ BT50 DIRECT-DRIVEN 10000 RPM (HEIDENHAIN QAN260L)**



# ATTACHED MILLING HEAD DESIGN

## / MANUAL 90° ANGLE MILLING HEAD



## / MANUAL UNIVERSAL HEAD



## / MANUAL EXTENSION HEAD



## / MANUAL ANGLE MILLING HEAD CHANGING UNIT ( OPT. )

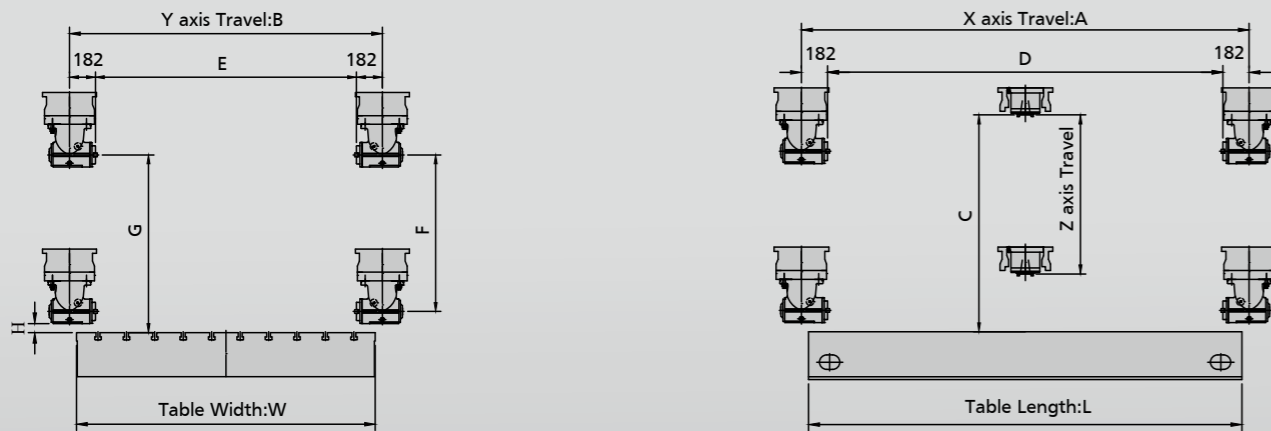
- Manual head change.
- Manual angle milling head can change tool by foot pedal.
- Angle milling head has unclamped hydraulic cylinder, tool can be changed at any position.
- Unique and simple head changing unit doesn't occupy working space.
- Head changing unit has enclosure guards to protect against dirt and chips.
- The structure is firm, compact, safe, reliable, and durable.



## / CHANGE AND INDEXING MECHANISM OF MILLING HEAD

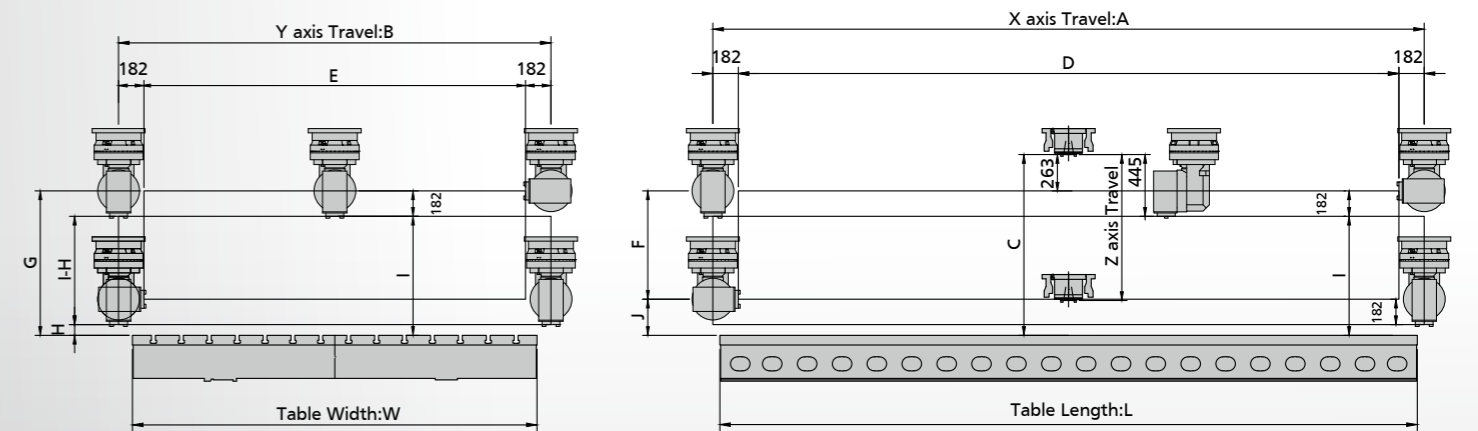
ITEM	TYPE	HEAD CHANGE	MILLING HEAD INDEXING	CLAMPING	ANGLE
	All Manual	Manual	Manual	Manual / Bolts	Any Angle

## / MANUAL 90° ANGLE HEAD MACHINING RANGE



Z AXIS TRAVEL	COLUMN H	A	B	C	D	E	F	G	H
900	1710	X axis travel	Y axis travel	1100	X axis travel-364	Y axis travel-364	700	847	63
1100	1910	X axis travel	Y axis travel	1300	X axis travel-364	Y axis travel-364	900	1047	63
1300	2110	X axis travel	Y axis travel	1500	X axis travel-364	Y axis travel-364	1100	1247	63

## / MANUAL UNIVERSAL HEAD MACHINING RANGE



Z AXIS TRAVEL	COLUMN H	A	B	C	D	E	F	G	H	I	J
900	1710	X axis travel	Y axis travel	1100	X axis travel-364	Y axis travel-364	455	837	200	655	382
1100	1910	X axis travel	Y axis travel	1300	X axis travel-364	Y axis travel-364	655	1037	200	855	382
1100	1910 + 200	X axis travel	Y axis travel	1500	X axis travel-364	Y axis travel-364	855	1237	200	1055	382
1100	2110 + 200	X axis travel	Y axis travel	1700	X axis travel-364	Y axis travel-364	1055	1437	200	1255	382
1300	2110	X axis travel	Y axis travel	1500	X axis travel-364	Y axis travel-364	855	1237	200	1055	382



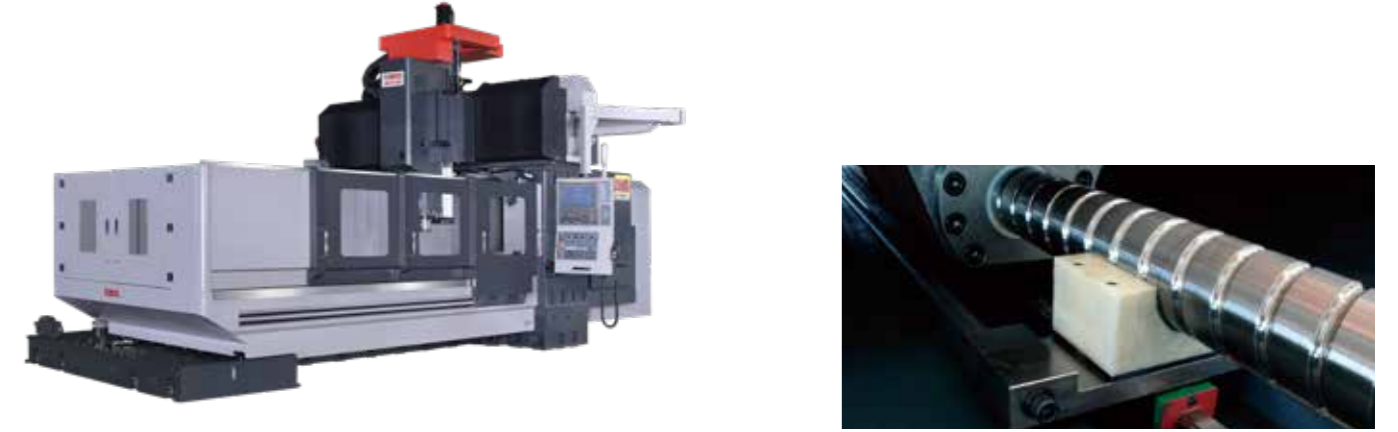
# B/BMC SERIES

## DOUBLE COLUMN MACHINING CENTER

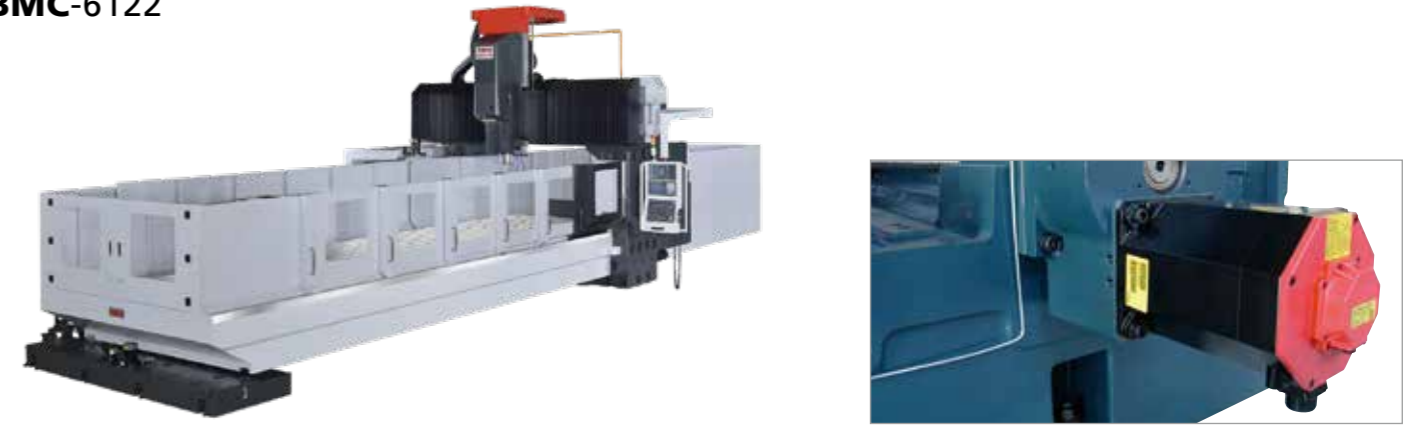
/ BMC-4122



/ B-3116



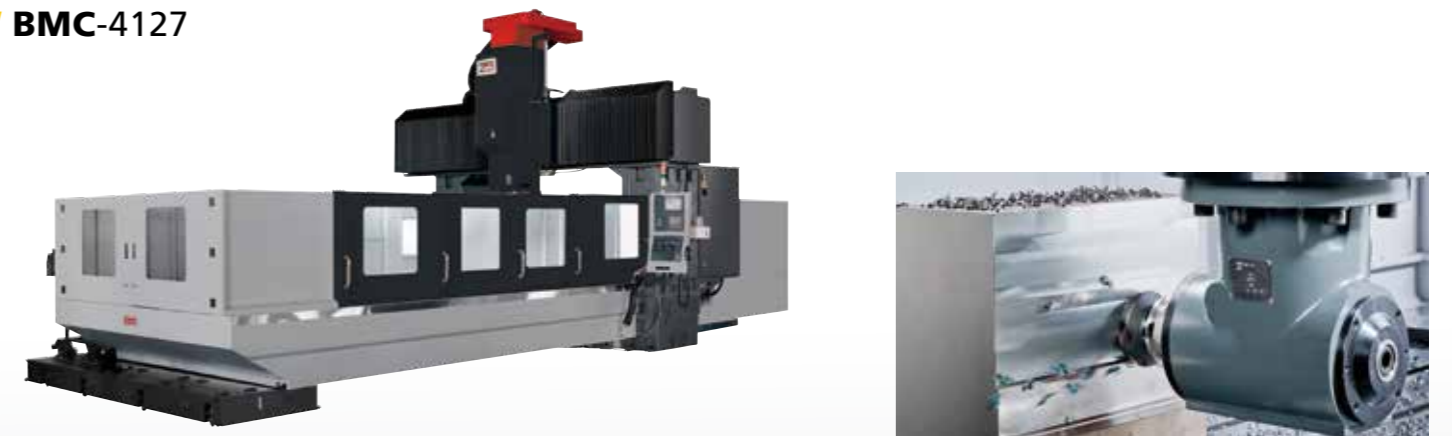
/ BMC-6122



/ BMC-2012



/ BMC-4127



/ B-2616



/ BMC-5131



# B/BMC SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

MODEL		B-2012A/ BMC-2012 (#40 DIRECT-DRIVEN)	B-2012/ BMC-2012 (#50 GEAR/DIRECT-DRIVEN)	B-3012A/ BMC-3012 (#40 DIRECT-DRIVEN)	B-3012/ BMC-3012 (#50 GEAR/DIRECT-DRIVEN)	B-2015/ BMC-2015/	B-3015/ BMC-3015/	B-2616/ BMC-2616/	B-3116/ BMC-3116/	B-4116/ BMC-4116/	B-5116/ BMC-5116/	B-6116/ BMC-6116/	B-2622/ BMC-2622/	B-3122/ BMC-3122/	B-4122/ BMC-4122/		
<b>Travel</b>																	
X-axis	mm	2100		3100		2100	3100	2600	3100	4100	5100	6100	2600	3100	4100		
Y-axis	mm	1200				1500				1600				2200			
Z-axis	mm	800 (OP1000)															
Distance From Spindle Nose To Table Surface	mm	170-970 (OP170-1170)	220-1020 (OP220-1220)	170-970 (OP170-1170)	220-1020 (OP220-1220)	220~1020 (OP220-1220)				200~1100 (OP 200-1300)							
Distance between two columns	mm	1350				1650				1700				2300			
<b>Table</b>																	
Table Dimension (X)	mm	2000		3000		2000	3000	2500	3000	4000	5000	6000	2500	3000	4000		
Table Dimension (Y)	mm	1100				1400				1500				2100			
T-slots (Size x Number x Pitch)	mm	22 x 7 x 160															
Max. Loading Capacity	kg	4000		5000		6000	7000	9000	11000	14000	17000	20000	11000	14000	17000		
<b>Spindle</b>																	
Spindle Motor Output (Continuous/30mins)	kW	15/18.5				15/18.5 (OP 22/26)				22/26 (OP 30/37)							
Spindle Speed (Gear)	rpm	-		ST 6000 / OP 4000		-				ST 6000 / OP 4000				ST 6000 / OP 4000			
Spindle Speed (Direct-driven)(Optional)	rpm	ST 8000 / OP 10000 / OP 12000		OP 8000 / OP 10000		ST 8000 / OP 10000 / OP 12000				OP 8000 / OP 10000				OP 8000 / OP 10000			
Spindle Taper		BT40		BT50		BT40				BT50				BT50			
Spindle Bearing Bore Diameter	Ømm	70		100		70				100				100			
<b>Feed</b>																	
Rapid Travel Rate (X/Y/Z)	m/min	20/20/15				24/24/15				20/24/15	15/20/15	10/20/15	20/20/15	20/20/15	20/20/15	15/20/15	
Cutting Feed Rate	mm/min	10000				10000											
Feed Motor	kW	4.0/4.0/4.0				4.0/4.0/4.0				7.0/4.0/4.0	6.0/4.0/4.0	7.0/4.0/4.0	6.0/4.0/4.0				
<b>Accuracy</b>																	
Positioning Accuracy (JIS 6338)	mm	±0.01				±0.01											
Positioning Accuracy (ISO 8636)	mm	0.020	0.025	0.025	0.020	0.025	0.022	0.025	0.030	0.040	0.050	0.022	0.025	0.030			
Repeatability Accuracy (JIS 6338)	mm	±0.003				±0.003											
Repeatability Accuracy (ISO 8636)	mm	0.015	0.02	0.02	0.015	0.02	0.017	0.02	0.025	0.03	0.035	0.017	0.02	0.025			
<b>ATC System</b>																	
Tool Magazine Capacity		32(*40)	30(*40/60)	32(*40)	30(*40/60)	30(*40/60)											
Tool Diameter (with adjacent tools)	Ømm	Ø75	Ø125	Ø75	Ø125	Ø125											
Max. Tool Diameter (without adjacent tools)	Ømm	Ø127	Ø215	Ø127	Ø215	Ø215											
Max. Tool Length	mm	300	400	300	400	400											
Max. Tool Weight	kg	7	20	7	20	20											
Tool Shank Type		BT40/CAT40	BT50/CAT50	BT40/CAT40	BT50/CAT50	BT50/CAT50											
Pull Stud		P40T-1	P50T-1	P40T-1	P50T-1	P50T-1											
<b>Others</b>																	
Guideway of X/Y/Z Axis	X,Y-axis: Roller Linear Guideway				Roller Linear Guideway / Roller Linear Guideway / Box Way				Roller Linear Guideway / Roller Linear Guideway / Box Way								
		Z-axis: Roller Linear Guideway	Z-axis: Box Way (Roller Linear Guideway)	Z-axis: Roller Linear Guideway	Z-axis: Box Way (Roller Linear Guideway)												
Power Supply	kVA	35				35				45							
Net Weight (B/BMC)	kg	18000/20500		22500/25000		19000/21500	24000/26500	29000/31500	31000/33500	35000/37500	39000/41500	43000/45500	31500/34000	33500/36000	37500/40000		
Gross Weight (B/BMC)	kg	21000/23500		25500/28000		22000/24500	27000/29500	32000/34500	34000/36500	38500/41000	42000/44500	47000/49500	35000/37500	37000/39500	41500/44000		
Length x Width x Height	mm	6040x4230x4340		8040x4230x4340		6040x4530x4260	8040x4530x4260	7790x3590/4100x4570	8840x3590/4100x4570	10750x3590/4100x4570	12660x3590/4100x4570	14570x3590/4100x4570	7540x5100/5400x4570	8540x5100/5400x4570	10750x5100/5400x4570		

PS.: 1. The positioning accuracy inspection is only allowed to execute in KAFO's factory, may not provide inspection at other time after leaving.

2. The temperature of machine installing environment must be around 5~40°C, the surrounding temperature difference should be within 4°C, 0.67°C per hour, under 4°C within 6 hours.

3. As for more details, please refer to operating manual or contact with KAFO sales.

4. The specification is for reference only. KAFO remains the right to modify machine specification, design or property and without prior notice.

# B/BMC SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

MODEL		B-5122/ BMC-5122	B-6122/ BMC-6122	B-8122 /BMC-8122	B-10122/ BMC-10122	B-3127/ BMC-3127	B-4127/ BMC-4127	B-5127/ BMC-5127	B-6127/ BMC-6127	B-8127/ BMC-8127	B-10127/ BMC-10127	B-4131/ BMC-4131	B-5131/ BMC-5131	B-6131/ BMC-6131	
<b>Travel</b>															
X-axis	mm	5100	6100	8100	10100	3100	4100	5100	6100	8100	10100	4100	5100	6100	
Y-axis	mm	2200				2700				2700				3100 (OP 4000)	
Z-axis	mm	ST 900 (OP 1100)										ST 900 (OP 1100)			
Distance From Spindle Nose To Table Surface	mm	200~1100 (OP 200~1300)										200~1100 (OP 200~1300)			
Distance between two columns	mm	2300				2800				2800				3200 (OP 3550)	
<b>Table</b>															
Table Dimension (X)	mm	5000	6000	8000	10000	3000	4000	5000	6000	8000	10000	4000	5000	6000	
Table Dimension (Y)	mm	2100				2600				2600				2900	
T-slots (Size x Number x Pitch)	mm	28x10x200				28x13x200				28x13x200				28x14x200	
Max. Loading Capacity	kg	20000	23000	26000	29000	15000	18000	20000	23000	26000	29000	18000	20000	23000	
<b>Spindle</b>															
Spindle Motor Output (Continuous/30mins)	kW	22/26 (OP 30/37)										22/26 (OP 30/37)			
Spindle Speed (Gear)	rpm	ST 6000 / OP 4000										ST 6000 / OP 4000			
Spindle Speed (Direct-driven)(Optional)	rpm	OP 8000 / OP 10000										OP 8000 / OP 10000			
Spindle Taper		BT50										BT50			
Spindle Bearing Bore Diameter	Ømm	100										100			
<b>Feed</b>															
Rapid Travel Rate (X/Y/Z)	m/min	15/20/15	10/20/15	10/15/15	8/15/15	20/20/15	15/20/15	12/20/15	10/20/15	8/20/15		15/20/15	12/20/15	10/20/15	
Cutting Feed Rate	mm/min	10000 / 8000										10000 / 8000			
Feed Motor	kW	6.0/4.0/4.0				7.0/4.0/4.0		6.0/4.0/4.0		6.0/4.0/4.0					
<b>Accuracy</b>															
Positioning Accuracy (JIS 6338)	mm	±0.015										±0.015			
Positioning Accuracy (ISO 8636)	mm	0.040	0.050	0.055	0.065	0.025	0.030	0.040	0.050	0.055	0.065	0.030	0.040	0.050	
Repeatability Accuracy (JIS 6338)	mm	±0.003										±0.003			
Repeatability Accuracy (ISO 8636)	mm	0.030	0.035	0.040	0.020	0.025	0.030	0.035	0.040	0.025	0.030	0.035	0.030	0.035	
<b>ATC System</b>															
Tool Magazine Capacity		30(40/60)										30(40/60)			
Tool Diameter (with adjacent tools)	Ømm	Ø125										Ø125			
Max. Tool Diameter (without adjacent tools)	Ømm	Ø215										Ø215			
Max. Tool Length	mm	400										400			
Max. Tool Weight	kg	20										20			
Tool Shank Type		BT50/CAT50										BT50/CAT50			
Pull Stud		P50T-1										P50T-1			
<b>Others</b>															
Guideway of X/Y/Z Axis		Roller linear guideway / Roller linear guideway / Box Way										Roller linear guideway / Roller linear guideway / Box Way			
Power Supply	kVA	45										45			
Net Weight (B/BMC)	kg	41500/44000	45500/49000	53500/57000	61500/65000	36500/39000	43000/45500	48200/50700	55500/58000	67500/70000	51000/53500	55000/57500	57000/59500	63000/65500	
Gross Weight (B/BMC)	kg	45500/48000	49500/52000	57500/60000	65500/68000	40500/43000	47000/49500	52200/54700	59500/62000	71500/74000	55000/57500	83500/86000	61000/63500	67000/69500	
Length x Width x Height	mm	12750x5100/ 5400x4570	14800x5100/ 5400x4570	18740x5100/ 5400x4570	22740x5100/ 5400x4570	8540x5600/ 5900x4570	10800x5600/ 5900x4570	12900x5600/ 5900x4570	14800x5600/ 5900x4570	18900x5600/ 5900x4570	22900x5600/ 5900x4570	10800x6100/ 6400x4570	12900x6100/ 6400x4570	14900x6100/ 6400x4570	

PS.: 1. The positioning accuracy inspection is only allowed to execute in KAFO's factory, may not provide inspection at other time after leaving.

2. The temperature of machine installing environment must be around 5~40°C, the surrounding temperature difference should be within 4°C, 0.67°C per hour, under 4°C within 6 hours.

3. As for more details, please refer to operating manual or contact with KAFO sales.

4. The specification is for reference only. KAFO remains the right to modify machine specification, design or property and without prior notice.

# B/BMC SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

MODEL		B-8131/ BMC-8131	B-10131/ BMC-10131	B-4140/ BMC-4140	B-5140/ BMC-5140	B-6140/ BMC-6140	B-8140/ BMC-8140	B-10140/ BMC-10140
<b>Travel</b>								
X-axis	mm	8100	10100	4100	5100	6100	8100	10100
Y-axis	mm	3100(OP 4000)			4000			
Z-axis	mm	ST 900 (OP 1100)						
Distance From Spindle Nose To Table Surface	mm	200~1100 (OP 200~1300)						
Distance between two columns	mm	3200(OP 3550)			3750			
<b>Table</b>								
Table Dimension (X)	mm	8000	10000	4000	5000	6000	8000	10000
Table Dimension (Y)	mm	2900			3200 (OP 3500)			
T-slots (Size x Number x Pitch)	mm	28x14x200			28x15x200 (OP 28x17x200)			
Max. Loading Capacity	kg	26000	29000	18000	20000	23000	26000	29000
<b>Spindle</b>								
Spindle Motor Output (Continuous/30mins)	kW	22/26 (OP 30/37)						
Spindle Speed (Gear)	rpm	ST 6000 / OP 4000						
Spindle Speed (Direct-driven)(Optional)	rpm	OP 8000 / OP 10000						
Spindle Taper		BT50						
Spindle Bearing Bore Diameter	Ømm	100						
<b>Feed</b>								
Rapid Travel Rate (X/Y/Z)	m/min	8/15/15	8/15/15	15/15/15	12/15/15	10/15/15	8/15/15	
Cutting Feed Rate	mm/min	10000 / 8000						
Feed Motor	kW	6.0/4.0/4.0						
<b>Accuracy</b>								
Positioning Accuracy (JIS 6338)	mm	±0.015						
Positioning Accuracy (ISO 8636)	mm	0.055	0.065	0.03	0.04	0.050	0.055	0.065
Repeatability Accuracy (JIS 6338)	mm	±0.003						
Repeatability Accuracy (ISO 8636)	mm	0.035	0.040	0.025	0.030	0.035	0.040	
<b>ATC System</b>								
Tool Magazine Capacity		30(40/60)						
Tool Diameter (with adjacent tools)	Ømm	Ø125						
Max. Tool Diameter (without adjacent tools)	Ømm	Ø215						
Max. Tool Length	mm	400						
Max. Tool Weight	kg	20						
Tool Shank Type		BT50/CAT50						
Pull Stud		P50T-1						
<b>Others</b>								
Guideway of X/Y/Z Axis		Roller linear guideway / Roller linear guideway / Box Way						
Power Supply	kVA	45						
Net Weight (B/BMC)	kg	75000/77500	87000/89500	62000/65000	68500/71500	75000/78000	88000/91000	101000/104000
Gross Weight (B/BMC)	kg	79000/81500	91000/93500	68000/71000	74500/77500	81000/84000	94000/97000	107000/110000
Length x Width x Height	mm	18900x6100/ 6400x4570	22900x6100/ 6400x4570	10800x7000/ 7500x5050	12900x7000/ 7500x5050	14900x7000/ 7500x5050	18900x7000/ 7500x5050	22900x7000/ 7500x5050

## STANDARD & OPTIONAL LIST

● : Standard Specification ○ : Optional Specification - : Inadaptable

SPECIFICATION/MODEL	B/BMC 2012-3012 (DBC 1350MM)	B/BMC 2015-3015 (DBC 1650MM)	B/BMC 2616-6116 (DBC 1700MM)	B/BMC 2622-10122 (DBC 2300MM)	B/BMC 3127-10127 (DBC 2800MM)	B/BMC 4131-10131 (DBC 3200MM)	B/BMC 4140-10140 (DBC 3750MM)
BT-50 Spindle Taper+MAS Pull Stud	●	●	●	●	●	●	●
DIN50 Spindle Taper	○	○	○	○	○	○	○
CAT50 Spindle Taper+ANSI Pull Stud	○	○	○	○	○	○	○
Gear Head 4000rpm(30/37kW)	-	-	-	-	-	-	-
Gear Head 6000rpm(22/26kW)	○	○	●	●	●	●	●
Gear Head 8000rpm(22/26kW)	○	○	○	○	○	○	○
Rise 220mm	○	○	-	-	-	-	-
Z-Axis Rise 200mm/400mm	-	-	○	○	○	○	○
Centralized Lubrication System	●	●	●	●	●	●	●
Four Pieces Splash Guard	○	○	○	○	○	○	○
Semi Enclosure (without Top Cover)	●	●	●	●	●	●	●
Full Enclosure (with Top Cover)	○	○	○	○	○	○	○
Folding Operation Gate							
Coolant System (with Pump and Tank)	●	●	●	●	●	●	●
Dual Spiral and Lift-up Chip Conveyor with Bucket							
ATC30 Tools Magazine	●	●	●	●	●	●	●
ATC40 Tools Magazine	○	○	○	○	○	○	○
ATC60 Tools Magazine							
Rigid Tapping Function							
Foot Pedal For Manual Tool Release							
Movable MPG Handwheel							
Working Light							
Tri-Color Status Light	●	●	●	●	●	●	●
RS232 Interface							
Spray Gun For Cleaning							
Leveling Bolts and Pads							
Maintenance and Operating Manuals							
Linear Scales (X/Y/Z Axis)							
Coolant Through Tool and Tool Holder							
Coolant Through Spindle (with 20 Bar Pump)							
90° Milling Head (Manual Changing/Indexing)	○	○					
Universal Milling Head (Manual Changing/Indexing)							
90° Indexing			○	○	○	○	○
Extension Milling Head							
Head Storing Swivel Shelf							
Counterweight Arm-type	-	-					
Operating Control Box							
Foot Rest							
Automatic Tool Length Measurement	○	○					
Automatic Workpiece Measurement							
FANUC 0iMF PLUS Controller (10.4"LCD)	●	●	●	●	●	●	●
FANUC 31i Controller (15"LCD)							
MITSUBISHI Controller							
Heidenhain Controller	○	○	○	○	○	○	○
CNC Rotary Table							

P.S.: 1. The positioning accuracy inspection is only allowed to execute in KAFO's factory, may not provide inspection at other time after leaving.

2. The temperature of machine installing environment must be around 5~40°C, the surrounding temperature difference should be within 4°C, 0.67°C per hour, under 4°C within 6 hours.

3. As for more details, please refer to operating manual or contact with KAFO sales.

4. The specification is for reference only. KAFO remains the right to modify machine specification, design or property and without prior notice.



# RVM/RV SERIES

## DOUBLE COLUMN MACHINING CENTER

GREATER 5-FACE MACHINING PERFORMANCE COULD BE SATISFIED CUSTOMER'S MULTI-PROCESSING REQUIREMENTS

- This series with special designed, with the strongest structure, greater rigidity body, using the vertical and horizontal head and tools, automatic exchange, take high rigidity gear box vertical and horizontal spindle, heavy cutting, processing high efficiency, precision machining parts with good quality and accuracy.

After setting the workpiece, 5-face could be automatic completion of the processing. This product is especially suitable for the manufacture of large 5-face precision components, is the perfect partner of your processing.

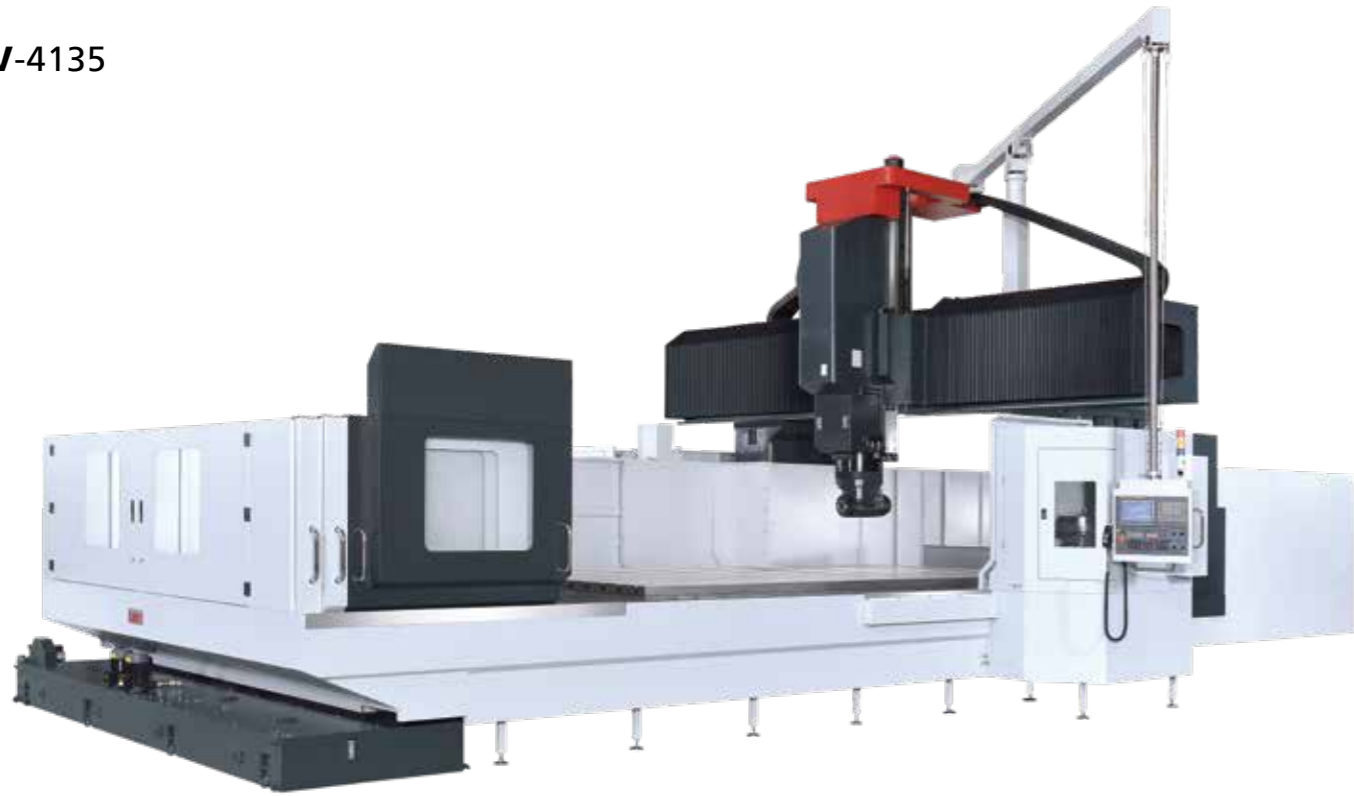
### OPTIONAL MILLING HEAD BY REQUEST

- 90° Head / Universal Head / Extension Head / Extended 90° Head type Extension Head



# RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

/ RV-4135



/ RV-3135



/ RV-4140



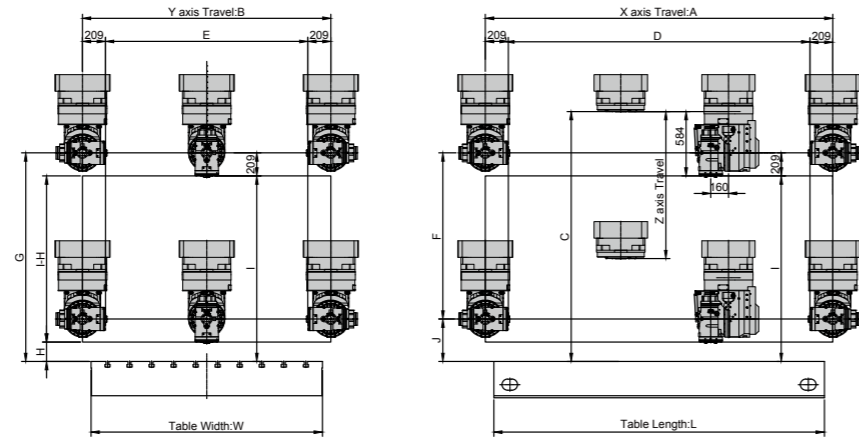
## RVM/RV SERIES : SIMPLE AND CONVENIENT HEAD CHANGING UNIT

- Optional automatic head change.
- Optional auto tool changer ( max.Ø215mm, length 400mm ).
- Angle milling head has unclamped hydraulic cylinder, tool can be changed at any position.
- Unique and simple head changing unit doesn't occupy working space.
- Head changing unit has enclosure guards to protect against dirt and chips.



# RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

## / AUTOMATIC A/C AXES UNIVERSAL HEAD



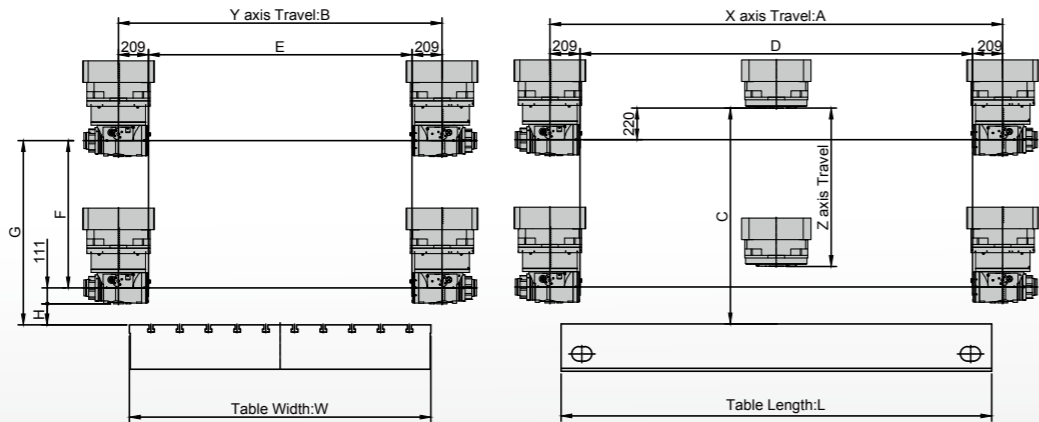
ITEM / SPEC	AUTOMATIC A/C AXES UNIVERSAL HEAD
Indexing	Curvic Coupling (5°, 2.5°, 1°)
Angle Travel	C axis 0°-355° / A axis ±110°
A/C-Axis Rotating / Change Head & Tool	Auto
Spindle HP	25 kW
Transfer Torque (Max.)	750 Nm
Spindle Taper	BBT50

ITEM / SPEC	AUTOMATIC A/C AXES UNIVERSAL HEAD
Spindle Speed	3500 rpm
Tool Clamping Force	1900-2100kg
Lubrication	Oil-Mist for Gears / Grease for Bearings
Outer Dimensions L x W x H	572 x 455 x 780
Total Weight	561kg (Incl. Interface)

Unit : mm

Z TRAVEL	COLUMN H	A	B	C	D	E	F	G	H	I	J
1100	1910	X Travel	Y Travel	1300	X Travel-418	Y Travel-418	516	925	200	716	409
1300	2110	X Travel	Y Travel	1500	X Travel-418	Y Travel-418	716	1125	200	916	409

## / AUTOMATIC 90° ANGLE HEAD



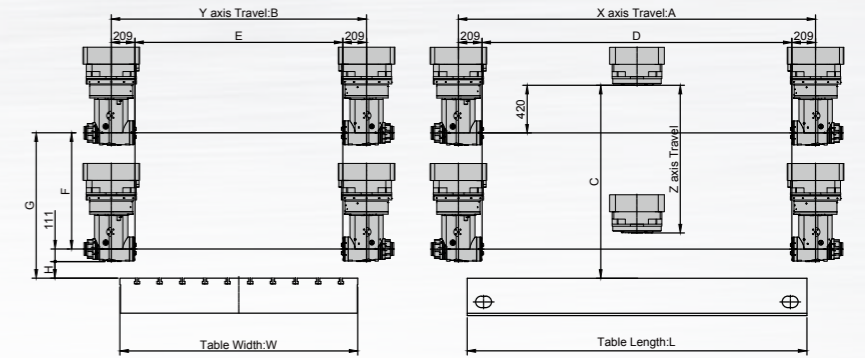
ITEM / SPEC	AUTOMATIC 90° ANGLE HEAD
Indexing	Curvic Coupling (5°, 2.5°, 1°)
Angle Travel	C axis 0°-360°
A/C-Axis Rotating / Change Head & Tool	Auto
Spindle HP	25 kW
Transfer Torque (Max.)	750 Nm
Spindle Taper	BBT50

ITEM / SPEC	AUTOMATIC 90° ANGLE HEAD
Spindle Speed	3500 rpm
Tool Clamping Force	1900-2100kg
Lubrication	Oil-Mist
Outer Dimensions L x W x H	485 x 455 x 516
Total Weight	358kg

Unit : mm

Z TRAVEL	COLUMN H	A	B	C	D	E	F	G	H
1100	1910	X Travel	Y Travel	1300	X Travel-418	Y Travel-418	919	1080	50
1300	2110	X Travel	Y Travel	1500	X Travel-418	Y Travel-418	1119	1280	50

## / AUTOMATIC EXTENDED 90° ANGLE HEAD



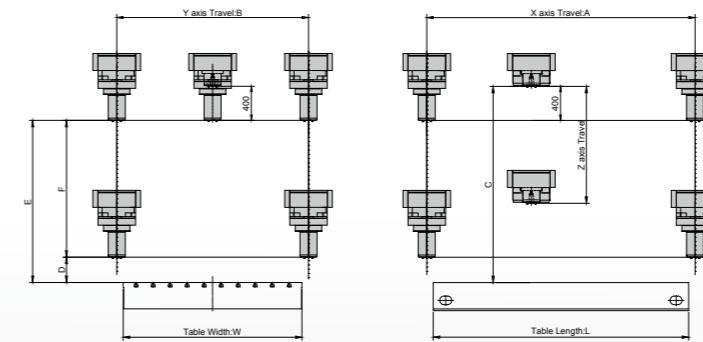
ITEM / SPEC	AUTOMATIC EXTENDED 90° ANGLE HEAD
Indexing	Curvic Coupling (5°, 2.5°, 1°)
Angle Travel	C axis 0°-360°
A/C-Axis Rotating / Change Head & Tool	Auto
Spindle HP	25 kW
Transfer Torque (Max.)	750 Nm
Spindle Taper	BBT50

ITEM / SPEC	AUTOMATIC EXTENDED 90° ANGLE HEAD
Spindle Speed	3500 rpm
Tool Clamping Force	1900-2100kg
Lubrication	Oil-Mist
Outer Dimensions L x W x H	485 x 455 x 716
Total Weight	418kg

Unit : mm

Z TRAVEL	COLUMN H	A	B	C	D	E	F	G	H
1100	1910	X Travel	Y Travel	1300	X Travel-418	Y Travel-418	719	880	50
1300	2110	X Travel	Y Travel	1500	X Travel-418	Y Travel-418	919	1080	50

## / AUTOMATIC EXTENSION HEAD 400

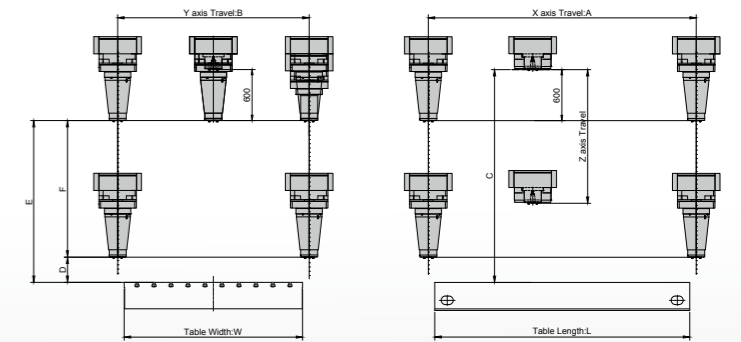


ITEM / SPEC	AUTOMATIC EXTENDED 90° ANGLE HEAD
Head Lock	Auto
Spindle HP	25kW
Transfer Torque (Max.)	750Nm
Spindle Taper	BBT50
Spindle Speed	3000rpm
Tool Clamping Force	1900-2100kg
Lubrication	Grease
Outer Dimensions L x W x H	473 x 455 x 596
Total Weight	289kg

Unit : mm

Z TRAVEL	COLUMN H	A	B	C	D	E	F
1100	1910	X Travel	Y Travel	1300	200	900	700
1300	2110	X Travel	Y Travel	1500	200	1100	900

## / AUTOMATIC EXTENSION HEAD 600



ITEM / SPEC	AUTOMATIC EXTENDED 90° ANGLE HEAD
Head Lock	Auto
Spindle HP	25kW
Transfer Torque (Max.)	750Nm
Spindle Taper	BBT50
Spindle Speed	3000rpm
Tool Clamping Force	1900-2100kg
Lubrication	Grease
Outer Dimensions L x W x H	473 x 455 x 796
Total Weight	367kg

Unit : mm

Z TRAVEL	COLUMN H	A	B	C	D	E	F
1100	1910	X Travel	Y Travel	1300	200	700	500
1300	2110	X Travel	Y Travel	1500	200	900	700



# RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

MODEL		RVM-2622 RV-2622	RVM-3122 RV-3122	RVM-4122 RV-4122	RVM-5122 RV-5122	RVM-6122 RV-6122	RVM-2627 RV-2627	RVM-3127 RV-3127	RVM-4127 RV-4127	RVM-5127 RV-5127	RVM-6127 RV-6127	RVM-8127 RV-8127	RVM-10127 RV-10127	
<b>Travel</b>														
X-axis	mm	2600	3100	4100	5100	6100	2600	3100	4100	5100	6100	8100	10100	
Y-axis	mm	2200					2700							
Z-axis	mm	1100 / OP1300					1100 / OP1300							
Distance From Spindle Nose To Table Surface	mm	200-1300 / OP200-1500					200-1300 / OP200-1500							
Distance between two columns	mm	1700					2300							
<b>Table</b>														
Table Dimension (X)	mm	2500	3000	4000	5000	6000	2500	3000	4000	5000	6000	8000	10000	
Table Dimension (Y)	mm	1500					2100							
T-slots (Size x Number x Pitch)	mm	22x9x160					28x10x200							
Max. Loading Capacity	kg	9000	11000	14000	17000	20000	11000	14000	17000	20000	23000	26000	29000	
<b>Spindle</b>														
Spindle Motor Output (Continuous/30mins)	kW	22/26 (OP 30/37)					22/26 (OP 30/37)							
Spindle Speed (Gear)	rpm	6000					6000							
Spindle Speed (Gear)(Optional)	rpm	4000					4000							
Spindle Taper		BT-50					BT-50							
Spindle Bearing Bore Diameter	Ømm	100					100							
<b>Feed</b>														
Rapid Travel Rate (X/Y/Z)	m/min	24/24/15	20/24/15	15/20/15	10/20/15	20 / 20 / 15	15 / 20 / 15	10/20/15	8/20/15					
Cutting Feed Rate	mm/min	10000					10000							
Feed Motor	kW	7.0/4.0/4.0	6.0/4.0/4.0	7.0 / 4.0 / 4.0	6.0 / 4.0 / 4.0									
<b>Accuracy</b>														
Positioning Accuracy (JIS 6338)	mm	±0.01					±0.01			±0.015				
Positioning Accuracy (ISO 8636)	mm	0.022	0.025	0.03	0.04	0.05	0.022	0.025	0.03	0.04	0.05	0.055	0.065	
Repeatability Accuracy (JIS 6338)	mm	±0.003					±0.003							
Repeatability Accuracy (ISO 8636)	mm	0.017	0.02	0.025	0.03	0.035	0.017	0.02	0.025	0.03	0.035	0.035	0.04	
<b>ATC System</b>														
Tool Magazine Capacity		60(40/90/120)					60(40/90/120)							
Tool Diameter (with adjacent tools)	Ømm	Ø125					Ø125							
Max. Tool Diameter (without adjacent tools)	Ømm	Ø250					Ø250							
Max. Tool Length	mm	450					450							
Max. Tool Weight	kg	20					20							
Tool Shank Type		BT50/CAT50					BT50/CAT50							
Pull Stud		P50T-1					P50T-1							
<b>Others</b>														
Guideway of X/Y/Z Axis		Roller linear guideway / Roller linear guideway / Box Way					Roller linear guideway / Roller linear guideway / Box Way							
Power Supply	kVA	45					45							
Net Weight (RVM/RV)	kg	32000/35000	34000/37000	38000/41000	42000/45000	49500/52500	36000/39000	38000/41000	42000/45000	46000/49000	53500/56500	68500/71500	83500/86500	
Gross Weight (RVM/RV)	kg	35500/38500	37500/40500	42000/45000	46000/49000	54000/57000	40000/43000	42000/45000	46000/49000	50000/53000	59500/62500	76500/79500	93500/96500	
Length x Width x Height	mm	7790x5070/ 6223x5050	8660x5070/ 6223x5050	10750x5070/ 6223x5050	12850x5070/ 6223x5050	14950x5070/ 6223x5050	7540x5640/ 6920x5350	8740x5640/ 6920x5350	10680x5640/ 6920x5350	12680x5640/ 6920x5350	15082x5640/ 6920x5350	18858x5640/ 6920x5350	23960x5640/ 6920x5350	

RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

# RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

MODEL		RVM-3135 RV-3135	RVM-4135 RV-4135	RVM-5135 RV-5135	RVM-6135 RV-6135	RVM-8135 RV-8135	RVM-10135 RV-10135
<b>Travel</b>							
X-axis	mm	3100	4100	5100	6100	8100	10100
Y-axis	mm		3500			3500	
Z-axis	mm		1100/ OP1300			1100/ OP1300	
Distance From Spindle Nose To Table Surface	mm		200~1300			200~1300	
Distance between two columns	mm		2700			2700	
<b>Table</b>							
Table Dimension (X)	mm	3000	4000	5000	6000	8000	10000
Table Dimension (Y)	mm		2100			2100	
T-slots (Size x Number x Pitch)	mm		28x10x200			28x10x200	
Max. Loading Capacity	kg	14000	17000	20000	23000	26000	29000
<b>Spindle</b>							
Spindle Motor Output (Continuous/30mins)	kW		22/26 (OP 30/37)			22/26 (OP 30/37)	
Spindle Speed (Gear)	rpm		6000			6000	
Spindle Speed (Gear)(Optional)	rpm		4000			4000	
Spindle Taper			#50			#50	
Spindle Bearing Bore Diameter	Ømm		100			100	
<b>Feed</b>							
Rapid Travel Rate (X/Y/Z)	m/min	20/20/15		15/20/15	10/20/15	10/15/15	8/15/15
Cutting Feed Rate	mm/min		10			10	
Feed Motor	kW	7.0/4.0/4.0		6.0/4.0/4.0		6.0/4.0/4.0	
<b>Accuracy</b>							
Positioning Accuracy (JIS 6338)	mm		±0.015			±0.015	
Positioning Accuracy (ISO 8636)	mm	0.025	0.030	0.04	0.05	0.055	0.065
Repeatability Accuracy (JIS 6338)	mm		±0.003			±0.003	
Repeatability Accuracy (ISO 8636)	mm	0.02	0.025	0.030	0.035	0.035	0.040
<b>ATC System</b>							
Tool Magazine Capacity			40/60/90/120			40/60/90/120	
Tool Diameter (with adjacent tools)	Ømm		Ø125			Ø125	
Max. Tool Diameter (without adjacent tools)	Ømm		Ø250			Ø250	
Max. Tool Length	mm		450			450	
Max. Tool Weight	kg		20			20	
Tool Shank Type			BT50/CAT50			BT50/CAT50	
Pull Stud			P50T-1			P50T-1	
<b>Others</b>							
Guideway of X/Y/Z Axis		Roller linear guideway / Roller linear guideway / Box Way			Roller linear guideway / Roller linear guideway / Box Way		
Power Supply	kVA		45			45	
Net Weight (RVM/RV)	kg	40000/43000	44000/47000	48000/51000	55500/58500	74000/77000	89000/92000
Gross Weight (RVM/RV)	kg	44000/47000	48000/51000	52000/55000	60500/63500	82000/85000	96000/99000
Length x Width x Height	mm	8650x6230/7500x5350	10650x6230/7500x5350	12650x6230/7500x5350	14650x6230/7500x5350	18650x6230/7500x5350	22650x6230/7500x5350

RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

# RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

MODEL		RVM-3140 RV-3140	RVM-4140 RV-4140	RVM-5140 RV-5140	RVM-6140 RV-6140	RVM-8140 RV-8140	RVM-10140 RV-10140	RVM-4142 RV-4142	RVM-5142 RV-5142	RVM-6142 RV-6142	RVM-8142 RV-8142	RVM-10142 RV-10142		
<b>Travel</b>														
X-axis	mm	3100	4100	5100	6100	8100	10100	4100	5100	6100	8100	10100		
Y-axis	mm	4000						4200						
Z-axis	mm	1100 / OP1300						1100 / OP1300						
Distance From Spindle Nose To Table Surface	mm	200~1300						200-1300 / OP200-1500						
Distance between two columns	mm	3200						3750						
<b>Table</b>														
Table Dimension (X)	mm	3000	4000	5000	6000	8000	10000	4000	5000	6000	8000	10000		
Table Dimension (Y)	mm	2600						3200/OP3500						
T-slots (Size x Number x Pitch)	mm	28x13x200						28x15x200 / OP28x17x200						
Max. Loading Capacity	kg	15000	18000	20000	23000	26000	29000	18000	20000	23000	26000	29000		
<b>Spindle</b>														
Spindle Motor Output (Continuous/30mins)	kW	22/26 (OP 30/37)						22/26 (OP 30/37)						
Spindle Speed (Gear)	rpm	6000						6000						
Spindle Speed (Gear)(Optional)	rpm	4000						4000						
Spindle Taper		#50						#50						
Spindle Bearing Bore Diameter	Ømm	100						100						
<b>Feed</b>														
Rapid Travel Rate (X/Y/Z)	m/min	20/20/15	15/20/15	12/20/15	10/20/15	8/15/15		15/15/15	12/15/15		10/15/15	8/15/15		
Cutting Feed Rate	mm/min	10000 / 8000						10000 / 8000						
Feed Motor	kW	7.0/4.0/4.0	6.0/4.0/4.0						6.0/4.0/4.0					
<b>Accuracy</b>														
Positioning Accuracy (JIS 6338)	mm	±0.015						±0.015						
Positioning Accuracy (ISO 8636)	mm	0.025	0.030	0.040	0.050	0.055	0.065	0.03	0.04	0.05	0.055	0.065		
Repeatability Accuracy (JIS 6338)	mm	±0.003						±0.003						
Repeatability Accuracy (ISO 8636)	mm	0.020	0.025	0.030	0.035	0.035	0.040	0.025	0.03	0.035	0.035	0.04		
<b>ATC System</b>														
Tool Magazine Capacity		30/40/60	40/60/90/120						40/60/90/120					
Tool Diameter (with adjacent tools)	Ømm	Ø125						Ø125						
Max. Tool Diameter (without adjacent tools)	Ømm	Ø250						Ø250						
Max. Tool Length	mm	450						450						
Max. Tool Weight	kg	20						20						
Tool Shank Type		BT50/CAT50						BT50/CAT50						
Pull Stud		P50T-1						P50T-1						
<b>Others</b>														
Guideway of X/Y/Z Axis		Roller linear guideway / Roller linear guideway / Box Way						Roller linear guideway / Roller linear guideway / Box Way						
Power Supply	kVA	45						45						
Net Weight (RVM/RV)	kg	42000/45000	46000/49000	52000/55000	58000/61000	79000/82000	95000/98000	66500/69500	71500/74500	79500/82500	89500/92500	99500/102500		
Gross Weight (RVM/RV)	kg	48500/51500	50000/53000	56000/59000	62000/65000	87000/90000	101000/104000	72500/75500	77500/80500	85500/88500	95500/98500	103500/106500		
Length x Width x Height	mm	8600x6742/7460x5240	10650x6742/7460x5240	12670x6742/7460x5240	14670x6742/7460x5240	18670x6742/7460x5240	22670x6742/7460x5240	10800x6930/8070x5350	12800x6930/8070x5350	14800x6930/8070x5350	18800x6930/8070x5350	22800x6930/8070x5350		

RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

# RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

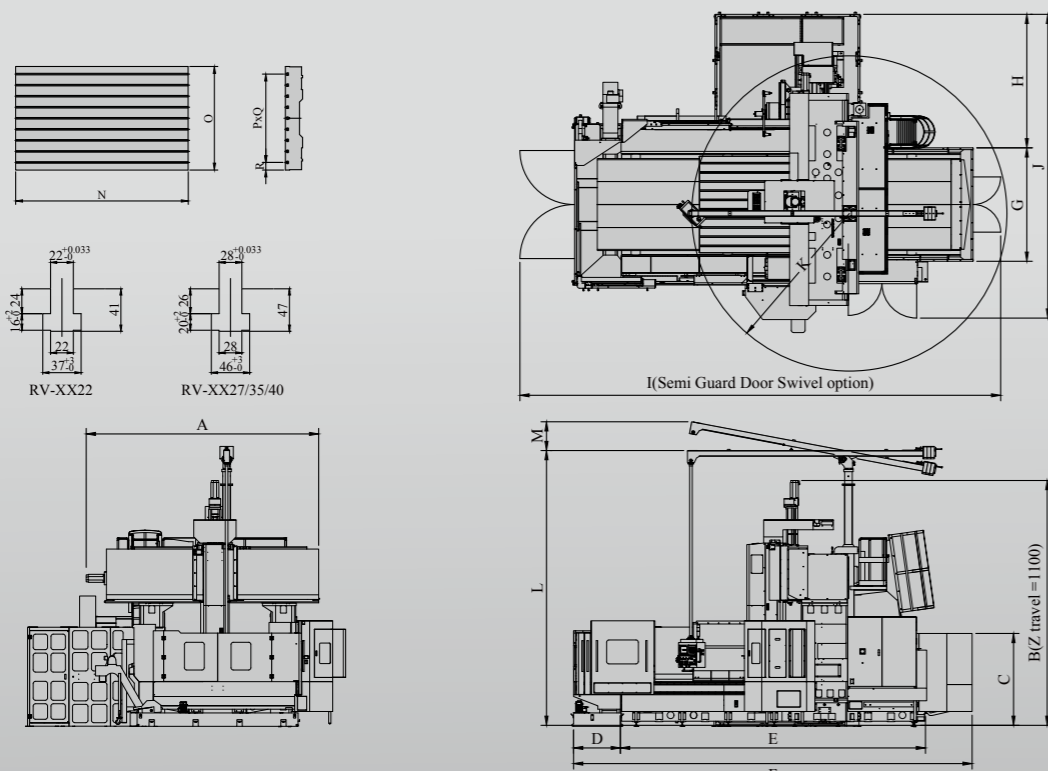
● : Standard Specification ○ : Optional Specification - : Inadaptable

SPECIFICATION/MODEL	RVM-2622-6122 RV-2622-6122 (DBC 1700 MM)	RVM-2627-10127 RV-2627-10127 (DBC 2300 MM)	RVM-3135-10135 RV-3135-10135 (DBC 2700 MM)	RVM-4140-10140 RV-4140-10140 (DBC 3200 MM)	RVM-4142-10142 RV-4142-10142 (DBC 3750 MM)
BT-50 Spindle Taper+MAS Pull Stud	●	●	●	●	●
DIN50 Spindle Taper					
CAT50 Spindle Taper+ANSI Pull Stud	○	○	○	○	○
Gear Head 4000rpm(30/37kW)					
Gear Head 6000rpm(22/26kW)	●	●	●	●	●
Gear Head 8000rpm(22/26kW)					
Z-Axis Rise 200mm/400mm	○	○	○	○	○
Centralized Lubrication System	●	●	●	●	●
Four Pieces Splash Guard	○	○	○	○	○
Semi Enclosure (without Top Cover)	●	●	●	●	●
Full Enclosure (with Top Cover)					
Folding Operation Gate	○	○	○	○	○
Coolant System (with Pump and Tank)					
Dual Spiral and Lift-up Chip Conveyor with Bucket	●	●	●	●	●
ATC40 Tools Magazine	○	○	○	○	○
ATC60 Tools Magazine	●	●	●	●	●
ATC90 Tools Magazine					
ATC120 Tools Magazine	○	○	○	○	○
Rigid Tapping Function					
Foot Pedal For Manual Tool Release					
Movable MPG Handwheel					
Working Light	●	●	●	●	●
Tri-Color Status Light					
RS232 Interface					
Spray Gun For Cleaning					

● : Standard Specification ○ : Optional Specification - : Inadaptable

SPECIFICATION/MODEL	RVM-2622-6122 RV-2622-6122 (DBC 1700 MM)	RVM-2627-10127 RV-2627-10127 (DBC 2300 MM)	RVM-3135-10135 RV-3135-10135 (DBC 2700 MM)	RVM-4140-10140 RV-4140-10140 (DBC 3200 MM)	RVM-4142-10142 RV-4142-10142 (DBC 3750 MM)
Leveling Bolts and Pads					
Manual and operate books	●	●	●	●	●
Linear Scales (X/Y/Z Axis)					
Coolant Through Tool and Tool Holder					
Coolant Through Spindle (20 Bar)					
90° Angle Milling Head (Auto Change/Indexing)					
Universal Milling Head (Manual Change/Indexing)	○	○	○	○	○
30° angle milling head (Manual Change/Indexing)					
Extension Milling Head					
Head Storing Swivel Shelf					
Arm-type Operating Control Box	●	●	●	●	●
Foot Rest					
Automatic Tool Length Measurement	○	○	○	○	○
Automatic Workpiece Measurement					
FANUC 0iMF PLUS Controller with 10.4"LCD Panel	●	●	●	●	●
FANUC 31i Controller with 15"LCD Panel	○	○	○	○	○
CNC Rotary Table					

## MACHINE LAYOUT & SPACE REQUEST



Unit : mm

### TABLE AND MACHINE LAYOUT

Model \ Item	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
RVM/RV-2622					5700	7800			9450					2500				
RVM/RV-3122					6700	8850			10500					3000				
RVM/RV-4122	4760		2060		8700	10850	1910	2800	12500	6420				4000	1500	160	8	110
RVM/RV-5122					10700	12850			14340					5000				
RVM/RV-6122					12700	14950			16440					6000				
RVM/RV-2627					5790	7540			9316					2500				
RVM/RV-3127					6890	8740			10516	7550				3000				
RVM/RV-4127					8890	10680			12456					4000				
RVM/RV-5127	5334		2046		10890	12680	2470	1835	14456					5000				
RVM/RV-6127					12890	15082			16858	8000				6000				
RVM/RV-8127					16890	18858			20634					8000				
RVM/RV-10127					20890	23960			25736					10000	2100		9	150
RVM/RV-3135					6620	8650			11420					3000				
RVM/RV-4135					8620	10860			13420					4000				
RVM/RV-5135	5950	4900		1030	10620	12910			15420					5000				
RVM/RV-6135					12620	14860			17780	7450	4000	5350	800	6000				
RVM/RV-8135					16620	18770			22090					8000				
RVM/RV-10135					20620	22770			26090					10000			200	
RVM/RV-3140					6620	8650		2800	10820					3000				
RVM/RV-4140					8620	10860			12820					4000				
RVM/RV-5140					10620	12910			14820					5000				
RVM/RV-6140	6260		2060		12620	14860		3420	16820	7800				6000	2600		12	100
RVM/RV-8140					16620	18770			20820					8000				
RVM/RV-10140					20620	22770			24820					10000				
RVM/RV-4142					8620	10800			14200					4000				
RVM/RV-5142					10620	12900			16200					5000				
RVM/RV-6142	6702				12620	14900		3960	18200	8590				6000	3200		14	200
RVM/RV-8142					16620	19600			22900					8000				
RVM/RV-10142					20620	22950			26250					10000				

RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

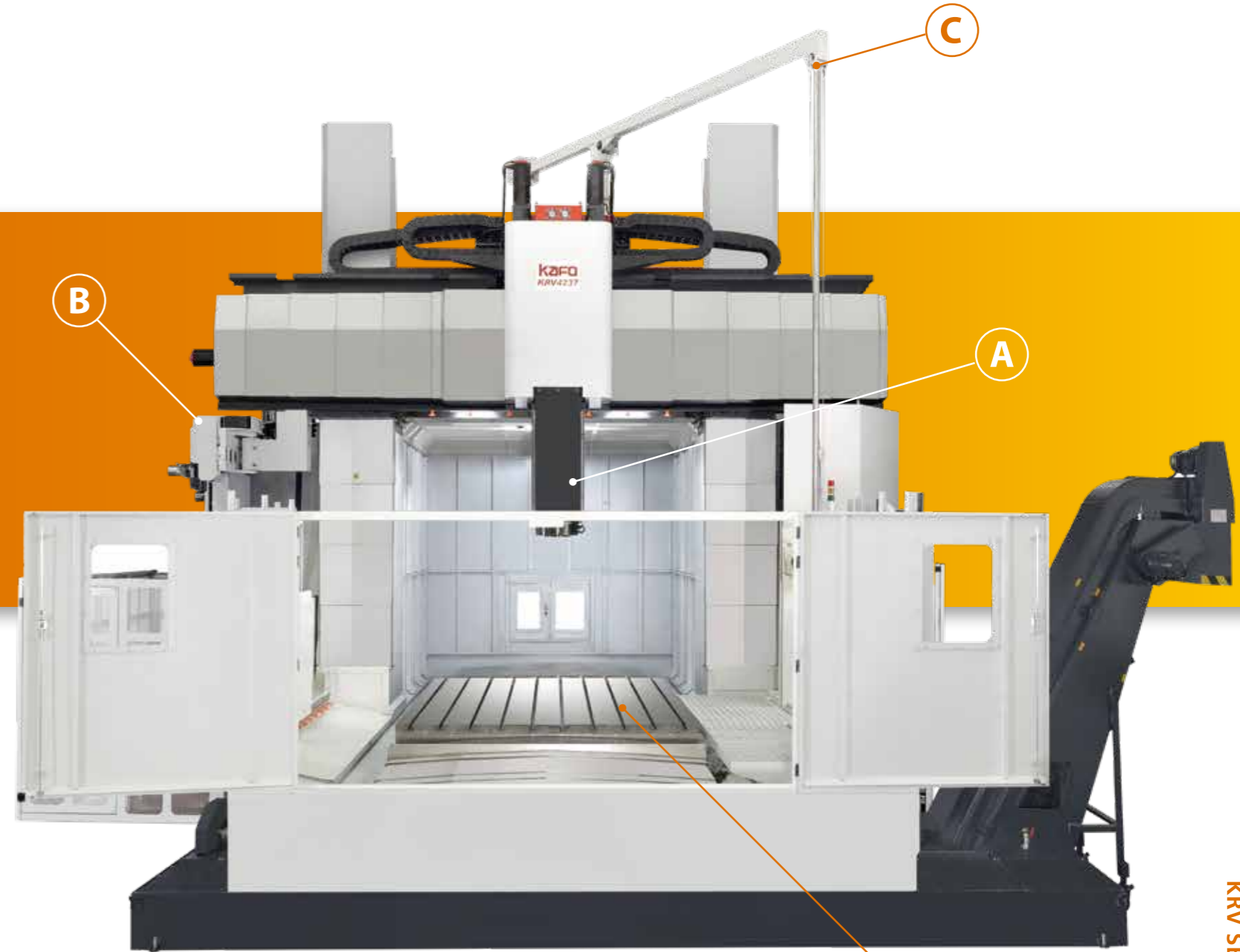
RVM/RV SERIES DOUBLE COLUMN MACHINING CENTER

# KRV SERIES

## DOUBLE COLUMN MACHINING CENTER

### FEATURES

- Three axes travel ( X:4200, Y:3700, Z:1100mm ) is bigger than other manufacturer.
- Three axes rapid speed with cooling system through ballscrew (X:20,Y20,Z:20m/min) : **FASTEST**
- W axis travel standard : 1000mm, option : 1700mm
- Horizontal Spindle Speed 4000rpm : **BEST**
- Attached head changer and head storage swivel shelf module could be chosen for saving space.
- Ballscrew supporting system
- X axis ballscrew nut cooling
- Adapting linear guideway in X,Y,Z and W



**A:** Automatic attached head change



**B:** Automatic vertical and horizontal ATC system

**C:** Arm type operating control box with weight balance system could be upraise or go down for the operator convenient operation ( option ).

**D:** X, Y and Z axes ballscrew with cooling system through ballscrew to alleviate thermal expansion, resulting in higher positioning accuracy.

Models with travel over 4m possess supporting way for X-axis to solve the problems of overhanging and vibration.



**/ FULL ENCLOSURE AUTOMATIC SLIDE DOOR (EXCLUSIVE)**



**/ ARM TYPE HEAD STORAGE**



**/ RACK & PINION STRUCTURE OF MILLING HEAD STORAGE**



**/ HEAD UNIT (Z-AXIS DOUBLE BALLSCREW TRANSMISSION)**



**/ TOOL CHANGE ARM AT ANY POAITION**



**/ BALLSCREW SUPPORT SYSTEM**

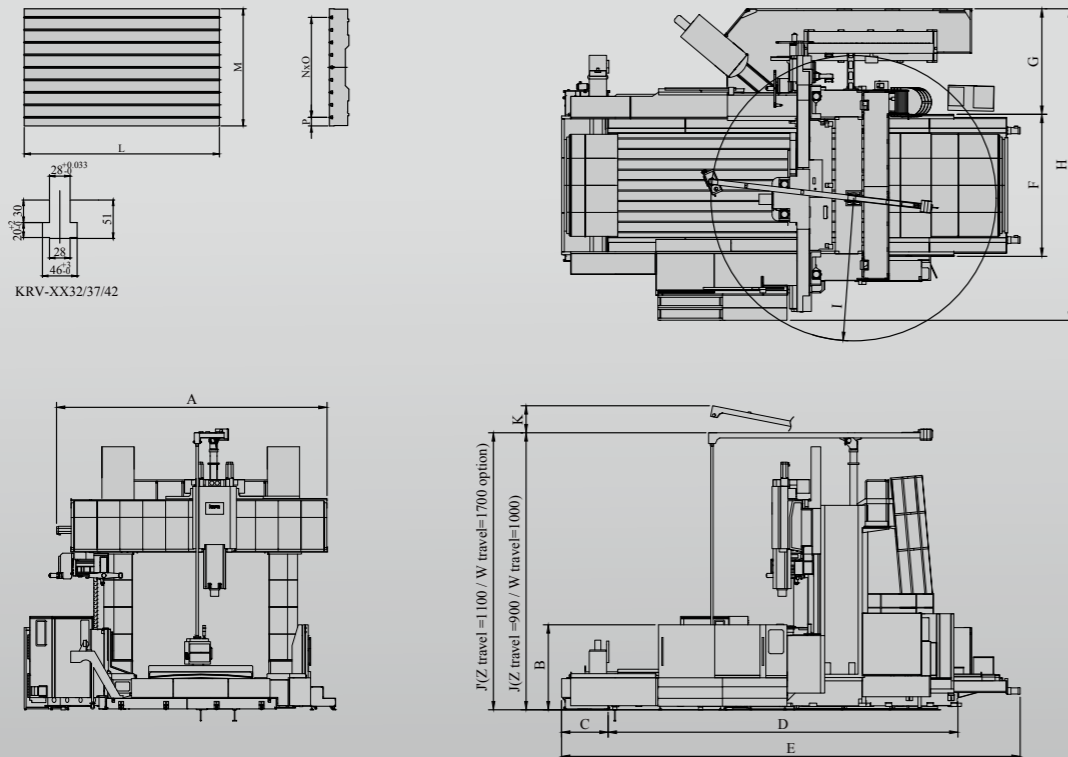
# KRV SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

MODEL		KRV-4232/5232/6232/ 8232/10232	KRV-4237/5237/6237/ 8237/10237	KRV-4242/5242/6242/ 8242/10242
<b>Travel</b>				
X-axis (Left and Right)	mm	4200/5200/6200/8200/10200		
Y-axis (Back and Front)	mm	3200	3700	4200
Z-axis (Up and Down)	mm	Standard 900 / Optional 1100		
W-axis (Up and Down) Crossrail	mm	Standard 1000 / Optional 1700		
Distance From Spindle Nose To Table Surface	mm	-150-1750/-150-2650		
Distance Between Two Columns	mm	2700	3200	3700
<b>Table</b>				
Table Dimension (X Direction)	mm	4000/5000/6000/8000/10000		
Table Dimension (Y Direction)	mm	2000	2500	3000
T-slots (Size x Number x Pitch)	mm	28x8x250	28x10x250	28x12x250
Max. Loading Capacity	tons	25/30/30/30/30		
<b>Spindle</b>				
Spindle Motor Output (Continuous/30mins)	kW	37/45		
Spindle Speed (Built-in grease) Standard	rpm	6000		
Spindle Speed (Built-in Oil-Air) Option	rpm	8000		
Spindle Taper		#50		
Spindle Bearing Bore Diameter	Ømm	100		
<b>Feed</b>				
Rapid Travel Rate X	m/min	20/20/20/10/10		
Rapid Travel Rate Y	m/min	20		
Rapid Travel Rate Z	m/min	20		
Rapid Travel Rate W	m/min	2.4		
Cutting Feed Rate (X/Y/Z)	mm/min	10000		
Cutting Feed Rate (W)	mm/min	2400		
Feed Motor	kW	X(6)/Y(7)/W(7x2)/Z(6x2)		

MODEL		KRV-4232/5232/6232/ 8232/10232	KRV-4237/5237/6237/ 8237/10237	KRV-4242/5242/6242/ 8242/10242
<b>Accuracy</b>				
Positioning Accuracy (JIS 6338)	mm	±0.015 Full Travel		
Positioning Accuracy (ISO 8636)	mm	0.03/0.04/0.05/0.07/0.09		
Repeatability Accuracy (JIS 6338)	mm	±0.003		
Repeatability Accuracy (ISO 8636)	mm	0.025/0.03/0.035/0.055/0.07		
<b>ATC System</b>				
Tool Magazine Capacity		40/60/90/120		
Tool Diameter (with adjacent tools)	Ømm	Ø125		
Max. Tool Diameter (without adjacent tools)	Ømm	Ø250		
Max. Tool Length	mm	450		
Max. Tool Weight	kg	20		
Tool Shank Type		BT50/CAT50		
Pull Stud		P50T-1		
<b>Others</b>				
Guideway of X/Y/Z/W Axis		Roller linear guideway / Roller linear guideway / Roller linear guideway / Roller linear guideway		
Power Supply	kVA	65		
Net Weight	ton	49/53/57/67/77	56/62/68/80/92	64/71/78/93/108
Floor space Requirement (WxH)	mm	6980x5850	7480x5850	7980x5850
Floor space Requirement (L)	mm	11350 / 13350 / 15350 / 19350 / 23350		

## MACHINE LAYOUT & SPACE REQUEST



Unit : mm

TABLE AND MACHINE LAYOUT

Model \ Item	A	B	C	D	E	F	G	H	I	J	J'	K	L	M	N	O	P
KRV-4232				8320	11350								4000				
KRV-5232				10320	13350								5000				
KRV-6232	6000			12330	15350	2910		6980					6000	2000		7	
KRV-8232				16330	19350								8000				
KRV-10232				20330	23350								10000				
KRV-4237				8320	11350								4000				
KRV-5237				10320	13350								5000				
KRV-6237	6500	2050	1160	12330	15350	3410	2535	7480	3425	5850	6750	560	6000	2500	250	9	125
KRV-8237				16330	19350								8000				
KRV-10237				20330	23350								10000				
KRV-4242				8320	11350								4000				
KRV-5242				10320	13350								5000				
KRV-6242	7000			12330	15350	3910		7980					6000	3000		11	
KRV-8242				16330	19350								8000				
KRV-10242				20330	23350								10000				

# RVM5A/RV5A SERIES

## DOUBLE COLUMN MACHINING CENTER

### RVM5A/RV5A FIXED DOUBLE-COLUMN SERIES

- The whole series with A/C axis specially for the workpiece designed with complex structure can reach high efficiency with 5-AXIS simultaneous machining.
- Symmetry design in whole machine to let cutting loading & thermal equilibrium balanced.
- RVM5A/RV5A adapts three axes with ballscrew cooling system can reduce the ballscrew thermal displacement, and raise the positioning accuracy and repeatability accuracy in each axis. Adapting Heidenhain linear scales and close loop control can enhance the accuracy efficiently.
- Z axis with dual-ballscrew design. The spindle and ballscrews mounted parallelly with the shortest throat depth can raise cutting rigidity. X axis adapts single ballscrew with twin servo motors controlled by electric technology of Master-Slave technology to offer stable torque output and enhance the dynamic rigidity and positioning accuracy of the machine. This helps finishing/high acceleration and deceleration machining perform perfectly.
- This Series adapts Siemens 840DSL or Heidenhain 640 which can exert good efficiency of 5-axis simultaneity.

### SPECIFICATION OF THIS MACHINE

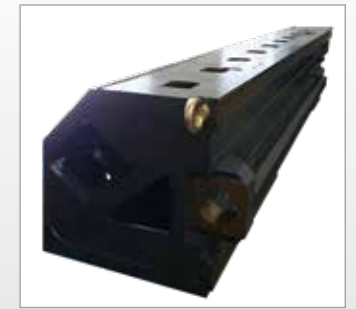
- Travel of X/Y/Z (X:3100, Y:3500, Z:1100mm)(OP:1300mm)  
Specially for machining the structure of Aerospace industry.
- Rapid of X/Y/Z (20 m/min, acceleration:0.15G)  
High dynamic performance



- Adapting Siemens or Heidenhain controller to exert 5-axis technology and overcome the application on complex surface machining



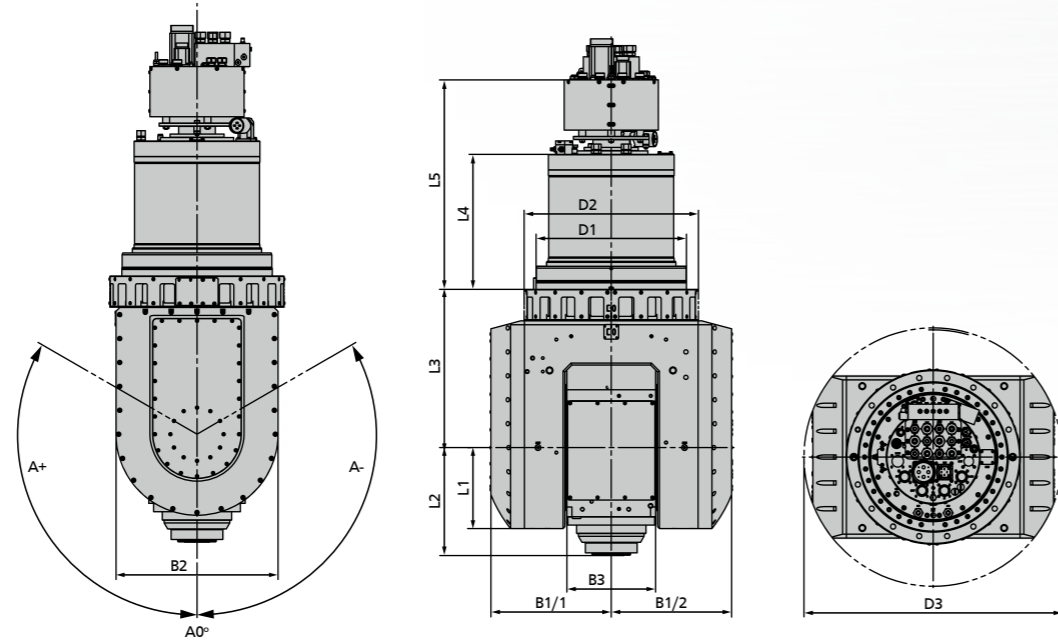
- High Precision (Positioning Accuracy  $\pm 5\mu\text{m}$ ) Kessler 2-axis Head



- Casting with topology design has the feature of light material but high rigidity

# RVM5A/RV5A SERIES DOUBLE COLUMN MACHINING CENTER

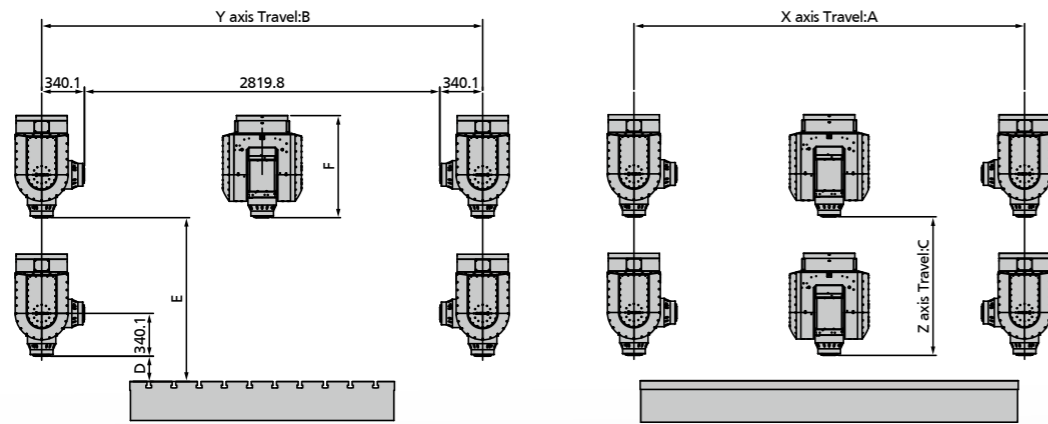
## / KESSLER SPECIFICATION & DIMENSION



Unit : mm

D1	D2	B1/1	B1/2	B2	B3	L1	L2	L3	L4	L5	D3
335	406	312	312	420	240	210	340	470	290	483	670

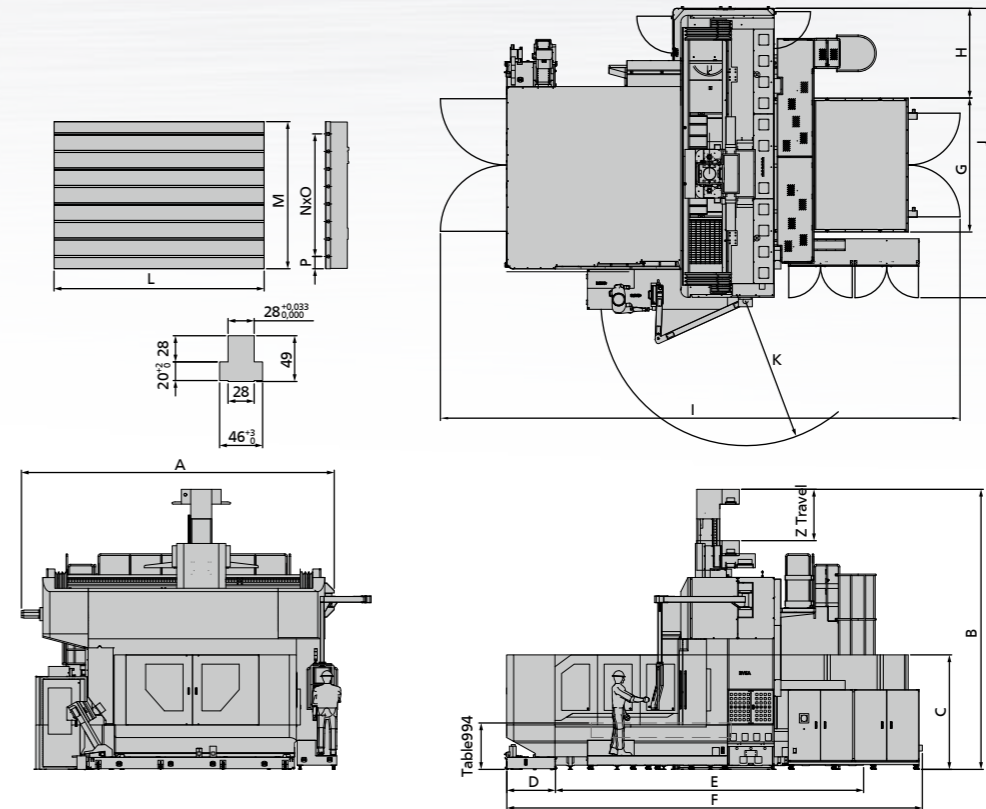
## / RV5A-3135 Z=1100 KESSLER HSK 100A 2-AXIS SPINDLE HEAD MACHINING RANGE



Unit : mm

HEIGHT OF COLUMN	A	B	C	D	E	F
2534	3100	3500	1100	200	1300	810.1

## MACHINE LAYOUT & SPACE REQUEST



Unit : mm

### TABLE AND MACHINE LAYOUT

Model \ Item	Z travel	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
RVM5A/RV5A-3135	1100	6700	6000	2460	1030	6600	9300	2870	1930	11200	6200	3100	3000	2100	250	7	175
RVM5A/RV5A-4135						8600	11300			13200			4000				
RVM5A/RV5A-5135						10600	13300			15200			5000				
RVM5A/RV5A-6135	1300	7040	6670	2460	1030	12600	15300	2920	2140	19200	7000	3220	6000	2100	250	7	175
RVM5A/RV5A-3135						6600	9550			11500			3000				
RVM5A/RV5A-4135						8600	11550			13500			4000				
RVM5A/RV5A-5135	1300	7040	6670	2460	1030	10600	13550	2920	2140	15500	7000	3220	5000	2100	250	7	175
RVM5A/RV5A-6135						12600	15550			17500			6000				

## DUAL AXES HEAD (A/C) SPECIFICATION

SMALL 2AK	A AXIS SWE 678.290	C AXIS SWE 029-678.292
Rated Torque	Nm 764	810
Max. Torque	Nm 1200	1100
Clamping Torque (P MAX)	Nm 2160	3025
Clamping Torque (P 0)	Nm 1200	1675
Clamping System	Pneumatic	Pneumatic
Swivelling Angle	° ±105	±200
Positioning Accuracy	η ±5	±3



# RVM5A/RV5A SERIES DOUBLE COLUMN MACHINING CENTER

## SPECIFICATION

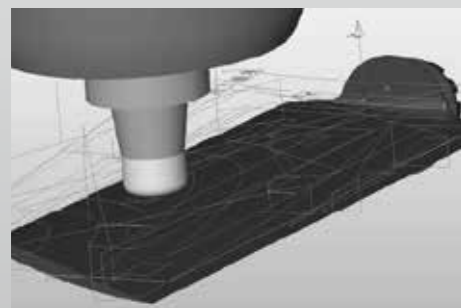
MODEL		RVM5A-3135 RV5A-3135	RVM5A-4135 RV5A-4135	RVM5A-5135 RV5A-5135	RVM5A-6135 RV5A-6135
<b>Travel</b>					
X-axis	mm	3100	4100	5100	6100
Y-axis	mm	3500			
Z-axis	mm	1100/1300			
Distance From Spindle Nose To Table Surface	mm	200~1300, 200~1500			
Distance between two columns	mm	2700			
<b>Table</b>					
Table Dimension (X)	mm	3000	4000	5000	6000
Table Dimension (Y)	mm	2100			
T-slots (Size x Number x Pitch)	mm	28x10x200			
Max. Loading Capacity	kg	13000	16000	20000	22000
<b>Spindle</b>					
Spindle motor output (S1/S6)	kW	(25/30-HSK-A100)			
Spindle torque (S1/S6)	Nw	(119/143-HSK-A100)			
Spindle taper		HSK-A100			
Spindle bearing bore diameter	Ømm	100			
Spindle speed	rpm	12000			
<b>Feed</b>					
Rapid Travel Rate (X/Y/Z)	m/min	20/20/20	15/20/20		10/20/20
Cutting Feed Rate	mm/min	10000			
Feed Motor	kW	Siemens:35.6/35.6/(5.24,5.24) Heidenhain:14/14(11,11)			
<b>Accuracy</b>					
Positioning Accuracy (JIS 6338)	mm	±0.015			
Positioning Accuracy (ISO 8636)	mm	0.025	0.03	0.04	0.05
Repeatability Accuracy (JIS 6338)	mm	±0.003			
Repeatability Accuracy (ISO 8636)	mm	0.02	0.025	0.030	0.035
<b>ATC System</b>					
Tool Magazine Capacity		30/40/60			
Tool Diameter (with adjacent tools)	Ømm	125			
Max. Tool Diameter (without adjacent tools)	Ømm	215			
Max. Tool Length	mm	400			
Max. Tool Weight	kg	20			
Tool Shank Type		HSK-A100			
<b>Others</b>					
Guideway of X/Y/Z Axis		Roller Linear Way / Roller Linear Way / Roller Linear Way			
Power Supply (MAX.)	kVA	300			
Net Weight (RVM5A/RV5A)	kg	39000	44000	49000	54000
Gross Weight (RVM5A/RV5A)	kg	44500	49500	54500	59500
Length x Width x Height	mm	9300x6960x6000	11300x6960x6000	13300x6960x6000	15300x6960x6000
Controller		Siemens 840D (HEIDENHAIN iTNC640)			

## STANDARD & OPTIONAL LIST

● : Standard Specification ○ : Optional Specification

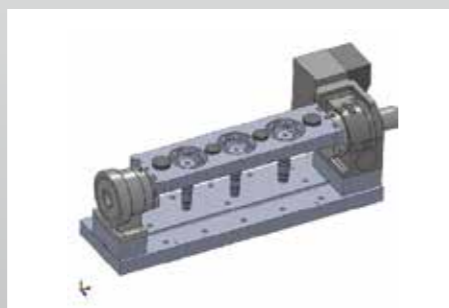
SPECIFICATION/MODEL	RVM5A-3135 RV5A-3135	RVM5A-4135 RV5A-4135	RVM5A-5135 RV5A-5135	RVM5A-6135 RV5A-6135
Kessler Small 2AK 2-axis Rotary System				
Centralized Lubrication System				
Semi Enclosure (without Top Cover) and Arm Type Operating Control Box (K Type)				
Head Side Punching System				
Dual Spiral and Lift-Up Chip Conveyor With Bucket				
Spindle Oil Chiller	●	●	●	●
Coolant Through Ballscrew For Three Axes				
Rigid Tapping Function				
Working Light				
Tri-Color Status Light				
Spray Gun For Cleaning				
Leveling Bolts and Pads				
Manual and Operate Books				
Full Enclosure (with Top Cover)				
Arm Type Operating Control Box (RV Type)				
Coolant Through Spindle (20 Bar)				
Scraper-Type Chip Conveyor	○	○	○	○
Linear Scales (X/Y/Z Axes)				
Foot Rest				
Automatic tool length measurement				
Automatic workpiece measurement				
CNC rotary table				
Z-axis riser 200mm/400mm				

## APPLICATION RESOURCE SERVICE



### CAD / CAM

- Our Products are compatible with a wide variety of CAD / CAM software



### FIXTURE PLANNING

- We assist customer to plan fixture to suit your workpiece



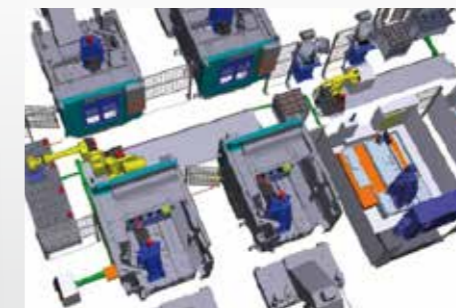
### TESTING WORKPIECE

- Benz Mold sample



### TOOLING

- We offer the best tools which suit your machining demands



### AUTOMATIC PRODUCTION LINE

- We propose customer for automation system



### TESTING WORKPIECE

- Cover Mold sample

# KAO FONG

## TURN-KEY PROJECT PLANNING-EXCELLENT PROCESS

- ▶ Meet customer's processing demand
- ▶ Achieve customer's required quantity production
- ▶ Carry out automation processing
- ▶ Flexibly used in various products

## PROFESSIONAL ENGINEERING TEAM

- ▶ Having the most state-of-the-art software and hardware provides customers with the proposal to increase the production efficiency.
- ▶ Improving the processing efficiency through the work analysis, construction method and application test.



## PERFECT MACHINE PLANNING AND INSEPARABLE TECHNICAL NETWORK GIVES BEST BENEFICIAL RESULT



### Worldwide After-sales Service

- By immediate service network to reach efficient service capability
- Through worldwide service to give supports to all customers
- With experienced and qualified technicians for routine maintenance



### Service Network

- Headquarter : Taichung City, Taiwan TEL : +886-4-25662116
- Office : Taipei City, Taiwan TEL : +886-2-22989800
- Office : Tainan City, Taiwan TEL : +886-6-2238661
- Agent : Taipei, Taoyuan, Tainan, Kaohsiung
- Mainland China
- Worldwide



### Global Marketing Information

[www.kafo.com.tw](http://www.kafo.com.tw)



### I-operation

#### Kao Fong Customized Calculator Software Features

- G-menu
- Calculating Function
- Center of Rectangle Function
- Center of Circle Function
- Tool length Measurement and Setting
- Intelligent ATC System Management



### TECHNICAL CENTER



Expert service and immediate response professional analysis in all cases

### CERTIFIED TECHNICIANS



Skillful technical service team provide professional training

### IN-STOCK SPARE PARTS AVAILABILITY



Full line service and maintenance parts clear parts management

**SERVICE CALL**  
**+886-4-25688599**  
**[www.kafo.com.tw](http://www.kafo.com.tw)**