

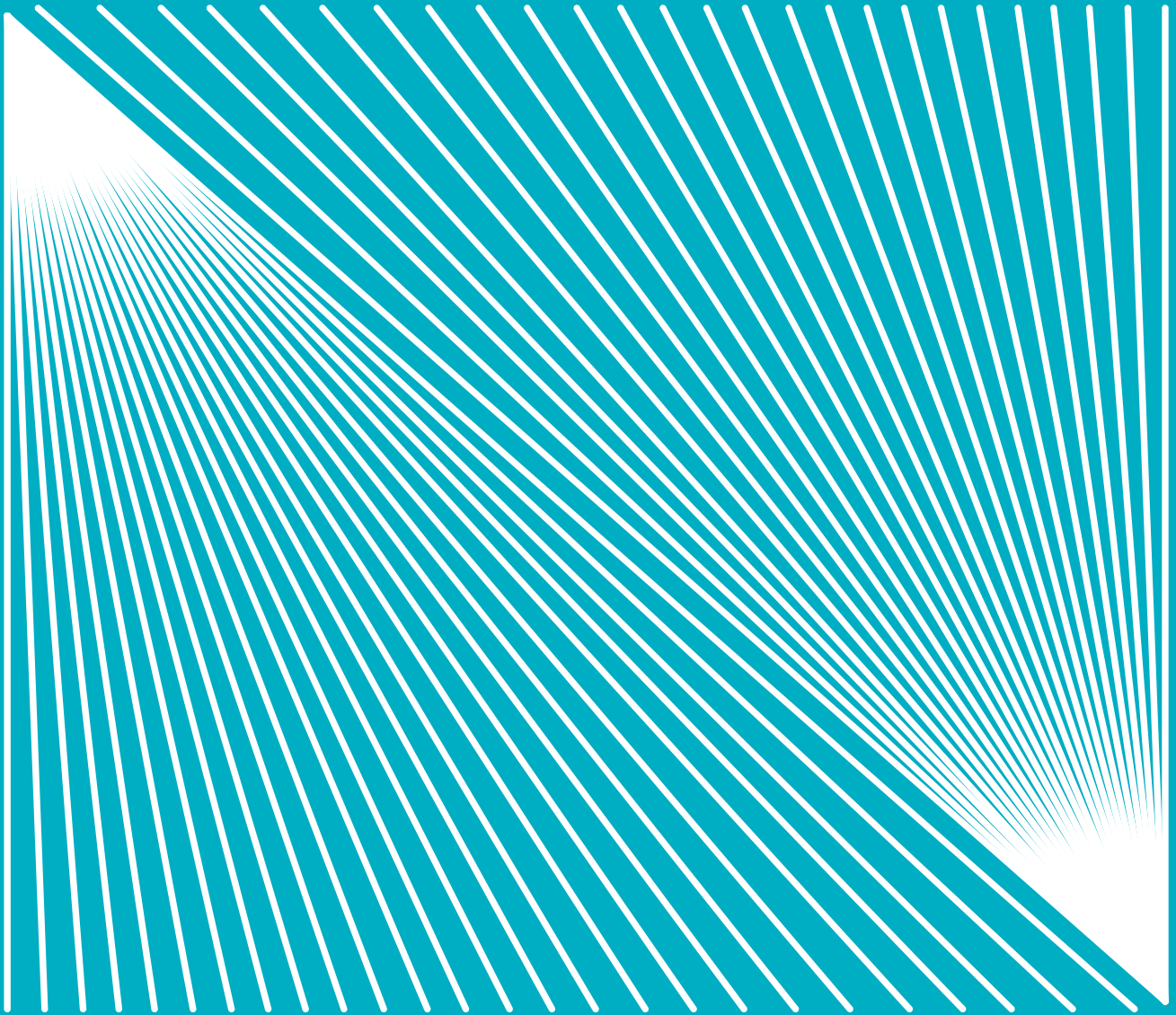


VERTICAL MACHINING CENTER

| SV/SVM SERIES

| VMC/VMM SERIES

| CV/CVM DV/DVM SERIES



*Pursue excellent quality
to achieve high performance*



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
SHEN, KUO-JUNG (DAVID SHEN)

Lin, Yen Huey

KAO FONG MACHINERY CO., LTD.
Chairman
LIN, YEN-HUEY



CONTENTS

- 01 President's Words
- 02 Contents
- 03 Spindle/Assembly
- 04 Tool Magazine/Cutting Performance
- 05 Customized Calculator Software Features
- 07 Spindle Power/Torque Diagram
- 09 SCV/SCVM Series
- 11 SV/SVM CV/CVM DV/DVM Series
- 13 CV/CVM DV/DVM Series
- 15 SV/SVM CV/CVM DV/DVM Series Table Size and Machine Layouts
- 17 SV/SVM CV/CVM Series Specification
- 19 CV/CVM Series Specification
- 21 DV/DVM Series Specification
- 23 VMC/VMM Series
- 25 VMC/VMM Series Table Size and Machine Layouts
- 27 VMC / VMM Series Specification
- 29 SV/SVM CV/CVM Series Accessories
- 31 VMC/VMM Series Accessories
- 33 CV-U/A CVM-U/A Series
- 37 CV-W/CVM-W Series
- 39 Tool Shank & Pull Stud Specification
- 41 Future



Kao Fong Machinery Co. Ltd.



Vertical Machining Center Production Line



Horizontal & Double Column Machining Center Production Line

SPINDLE

POWERFUL / HIGH SPEED AND PRECISION



/ #40

- GEAR HEAD SPINDLE 6,000 rpm
- BELT HEAD SPINDLE 10,000 rpm
- DIRECT-DRIVEN SPINDLE 12,000 rpm
- DIRECT-DRIVEN SPINDLE 15,000 rpm



/ #50

- GEAR HEAD SPINDLE 6,000 rpm
- DIRECT-DRIVEN SPINDLE 10,000 rpm
- DIRECT-DRIVEN SPINDLE 12,000 rpm

TOOL MAGAZINE

FAST AND RELIABLE ATC UNIT

/ TOOL 24



/ TOOL 30



/ TOOL 32



/ TOOL 60



/ AUTO TOOL CHANGER

TOOL CHANGE TIME:
BT-40 2.0 SEC. / BT-50 2.8 SEC. (T to T)
/ TOOL CAPACITY
STANDARD: 24 / OPTION: 20, 30, 32, 40, 60

ASSEMBLY



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



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



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



• World class spindle bearings.



• Scraping-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.

CUTTING PERFORMANCE



/ FACE MILLING	/ DRILLING	/ TAPPING	/ TAPPING
Workpiece Material S45C(SAE 1045)	S45C(SAE 1045)	S45C(SAE 1045)	S45C(SAE 1045)
Tool Used Ø80mm face mill	Ø50mm insert drill	M42x4.5P tap	M2x0.4P tap
Spindle Speed 700rpm	1,500rpm	200rpm	2,400rpm
Cutting Speed 2,000mm / min	180mm/min	900mm/min	960mm/min
Depth/Width of Cut 4mm / 70mm	-	-	-
Metal Removal Rate 560cm ³ / min	353cm ³ / min	-	-

Spindle spec: #50 Gear Head 6000rpm, Motor Fanuc a15/8000i(15/18.5kW)

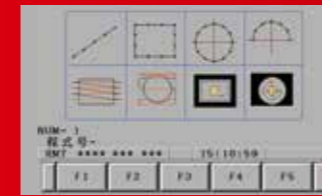
CUSTOMIZED CALCULATOR SOFTWARE FEATURES (OPTION)



MULTI-FUNCTION STATE DISPLAY

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

G-MENU



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

CALCULATING FUNCTION



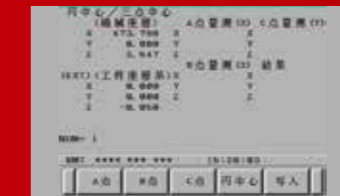
- Calculating function provided customers with fast calculation and completion of the workpiece coordinate corrections and setting.

CENTER OF RECTANGLE FUNCTION



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

CENTER OF CIRCLE FUNCTION



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

TOOL LENGTH MEASUREMENT AND SETTING



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

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.

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.

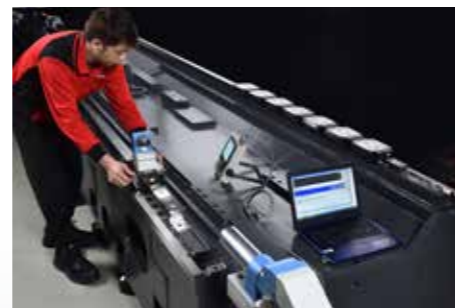
RIGOROUS TESTS AND INSPECTION, GUARANTEED QUALITY CONTROL UPON KEY COMPONENTS



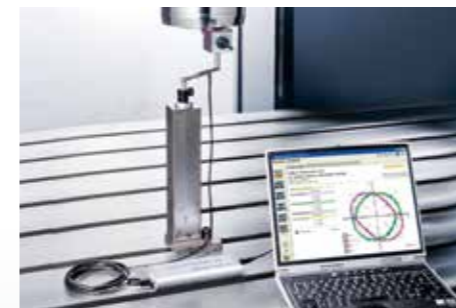
/ 3D PROBE SYSTEM QUALITY ASSURANCE (CMM)



/ LASER INSPECTION



/ 3D CIRCULAR BALL MILLING



/ BALL BAR INSPECTION

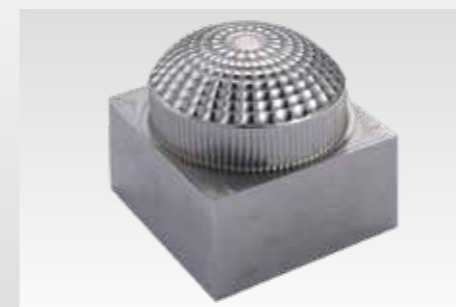
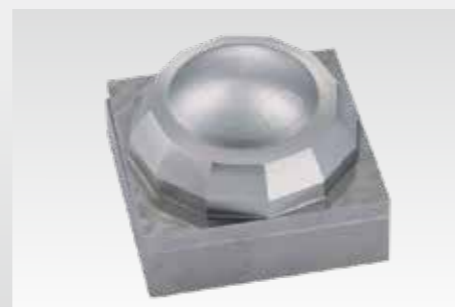


/ VIBRATION TEST



/ RIGIDITY TEST

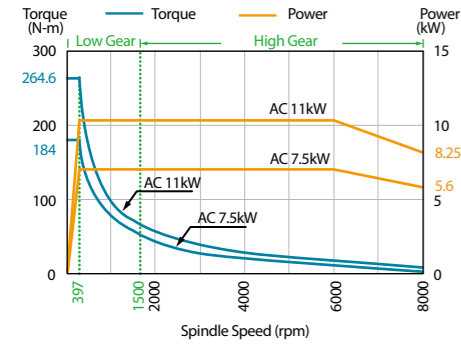
MACHINING PRODUCTS



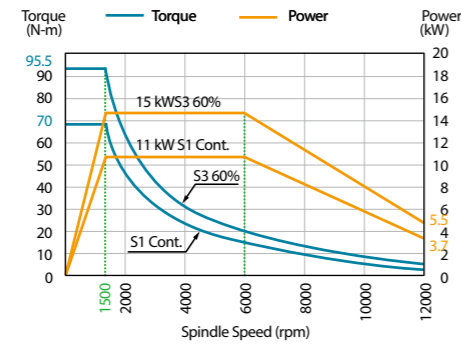
VERTICAL MACHINING CENTER

SPINDLE POWER-TORQUE DIAGRAM

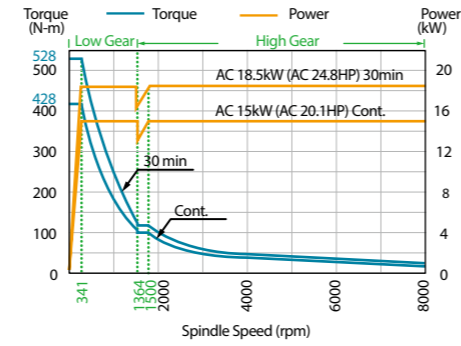
/ FANUC a8/8000i
(GEAR HEAD, #40)



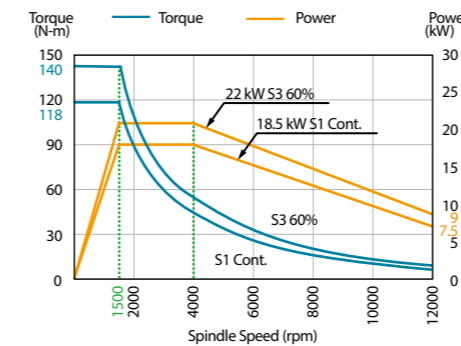
/ FANUC a12/12000i
(DIRECT-DRIVEN)



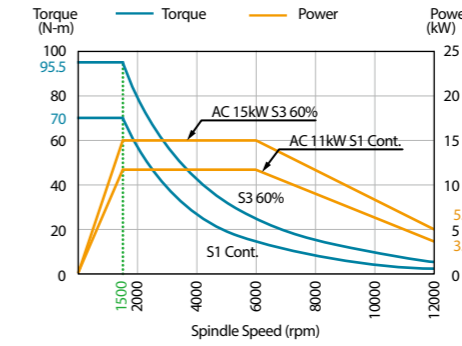
/ FANUC a15/8000i
(GEAR HEAD, #50)



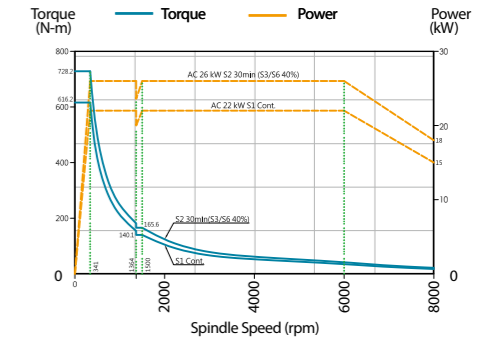
/ FANUC a18/12000i
(DIRECT-DRIVEN)



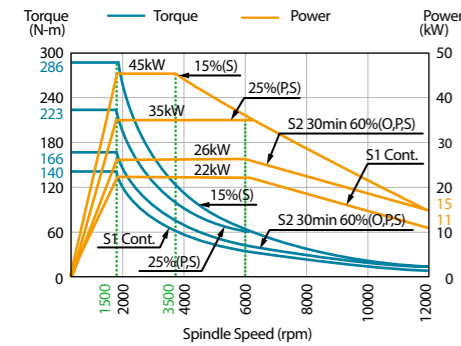
/ FANUC aT12/12000i
(DIRECT-DRIVEN)



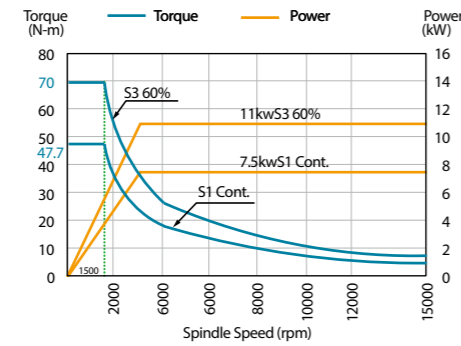
/ FANUC ail 22/8000
(GEAR HEAD, #50)



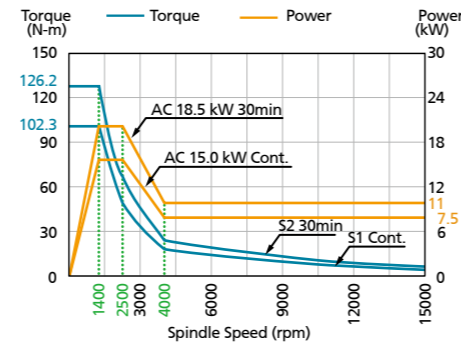
/ FANUC a22/12000i
(DIRECT-DRIVEN)



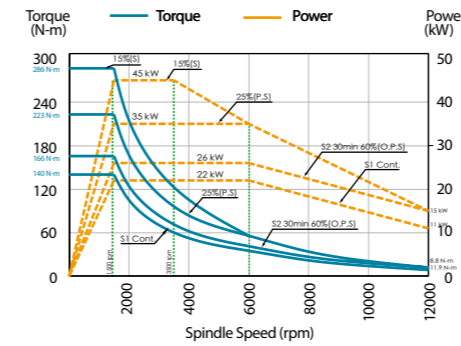
/ FANUC aT8/15000i
(DIRECT-DRIVEN)



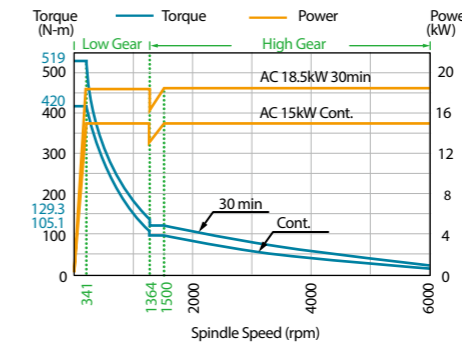
/ FANUC aT15/15000i
(DIRECT-DRIVEN)



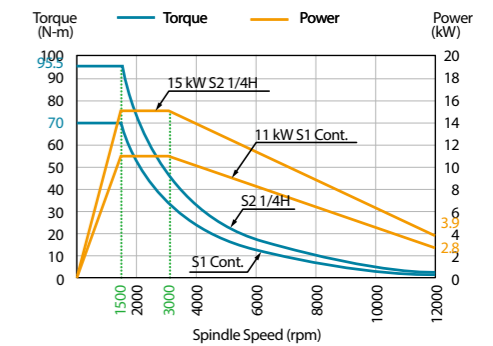
/ FANUC ail T22/12000-B
(DIRECT-DRIVEN)



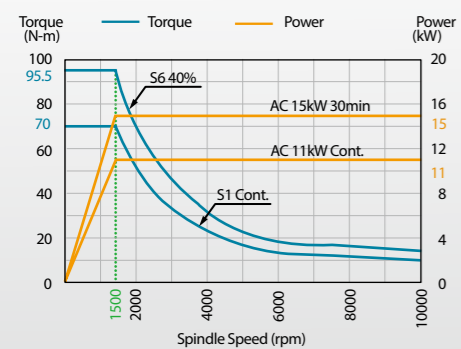
/ MITSUBISHI
SJ-D18.5/80-01-C 6000rpm
(GEAR HEAD)



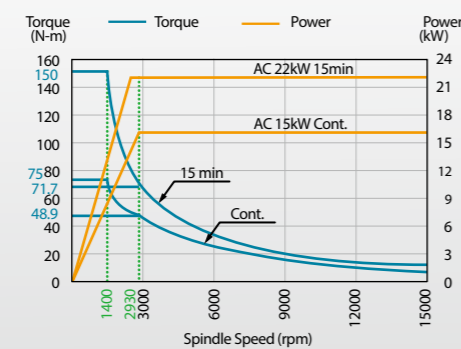
/ MITSUBISHI
SJ-DG11/120-14T 12000rpm
(DIRECT-DRIVEN)



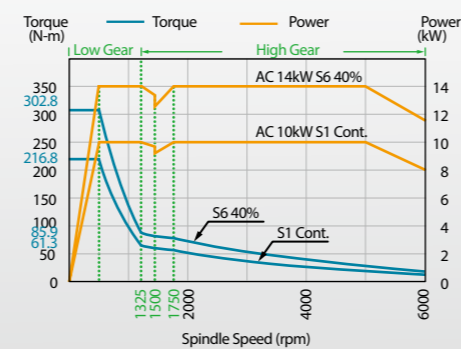
/ MITSUBISHI
SJ-V22-06ZT 10000rpm
(DIRECT-DRIVEN)



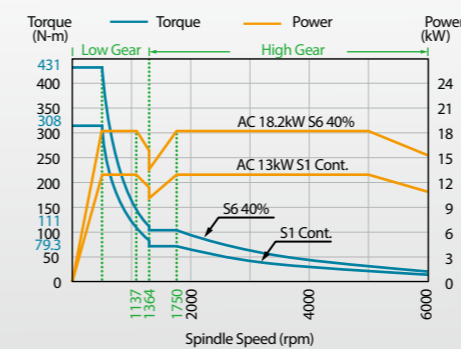
/ MITSUBISHI
SJ-VKS30-16FZT-S05 15000rpm
(DIRECT-DRIVEN)



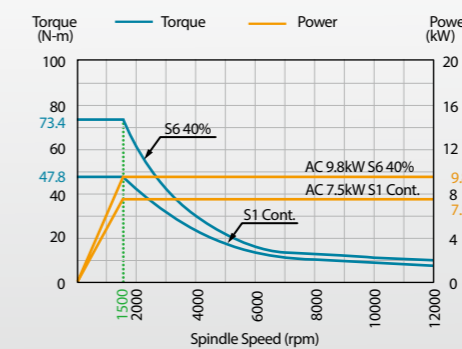
/ SIEMENS
1PH8107 6000rpm
(GEAR HEAD, #40)



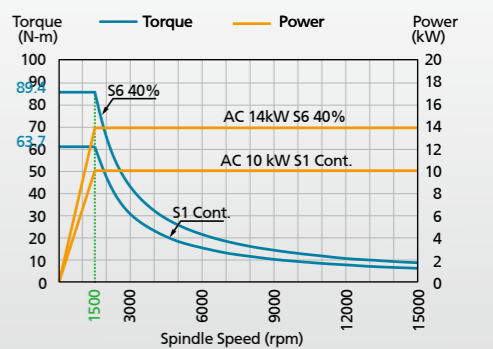
/ SIEMENS
1PH8131 6000rpm
(GEAR HEAD, #50)



/ HEIDENHAIN
QAN200L 12000rpm
(DIRECT-DRIVEN)



/ HEIDENHAIN
QAN200UH 15000rpm
(DIRECT-DRIVEN)



SCV/SCVM SERIES

VERTICAL MACHINING CENTER / CNC

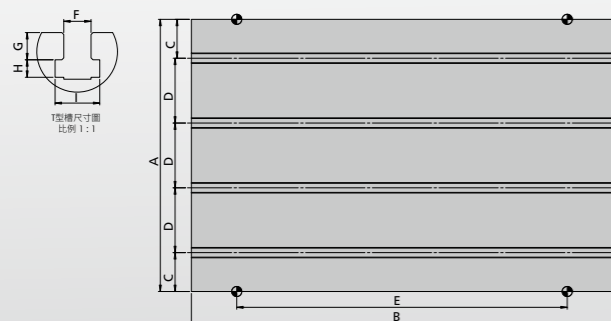
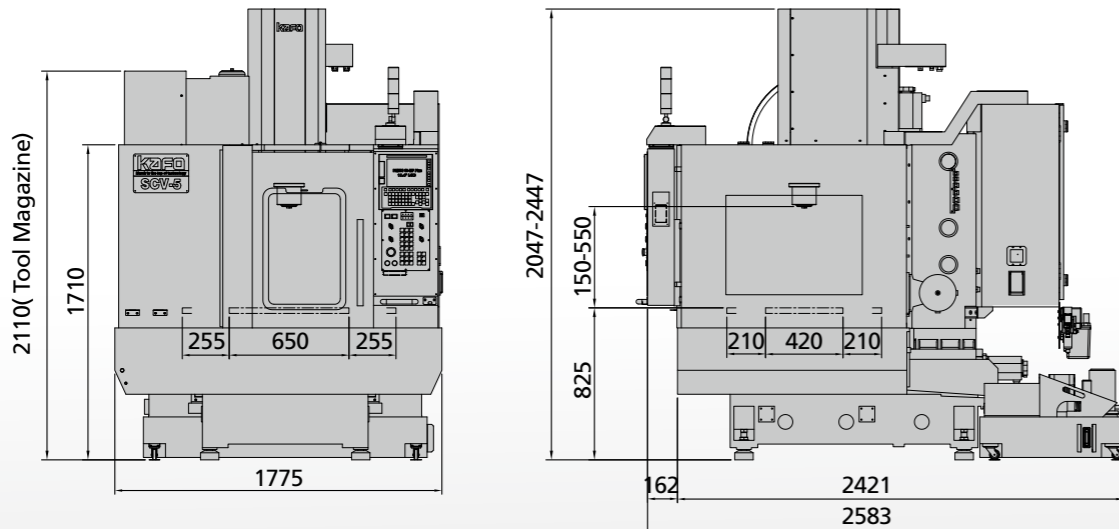
SCV-5 SERIES FEATURES

/ SCV-5

- Product is positioned in high-speed machining field. Mainly being used in small amount proofing and large volume testing, especially in electronic industry, such as semiconductor manufacturers. To accomplish highly machining rate, SCV-5 rapid travel rate is set as standard 48/48/48 m/min(OP 48/48/32 m/min). Standard tool to tool change time 1.8 sec. Adopting BT30 direct-driven spindle, standard 12000rpm (OP 20000/24000rpm built-in type)
- XY Axis adopts #25 roller type linear guideway and Ø25 ball screw, Z axis adopts #30 roller type linear guideway and Ø32 ball screw. Featuring low inertia ratio, high acceleration rate, high accuracy. With these outstanding performance and high acceleration rate spindle, SCV-5 can accomplish low cycle time and high turnovers.
- SCV-5 delivers high accuracy and efficiency, optimizing tapping efficiency and cutting surface.
- Adopting rear chip removal design and water tank with chip storing notch, massive chip waste is stored in the notch. In addition, covering two outlets with filter bags allow water tank to remain unsoiled. Otherwise, optional specifications, lift-up chip conveyor(chain type) or screw type chip conveyor, offer water tank and coolant long lasting usage time.
- Five main casting structure the machine with optimal analyze and strengthened design, delivering high cutting performance and machining stability.



TABLE SIZE AND MACHINE LAYOUT



SCV TABLE SIZE

MODEL	A	B	C	D	E	F	G	H	I
SCV-5	420	650	60	100	510	14	14	9	23

unit : mm

SPECIFICATION

MODEL	SCV-5/SCVM-5		
Travel			
X-axis	mm	510	
Y-axis	mm	420	
Z-axis	mm	400(530)	
Guide Way (X/Y/Z)	type	30mm 3-Axis Ball-Type Linear Guideway	
Distance From Spindle Nose To Table Surface	mm	150~550(150~680)	
Distance From Spindle Center To The Track Surface Of Z-axis	mm	507(472)	
Table			
Table Dimension	mm	650x420	
Max. Loading Capacity	kg	300	
T-Slots (number*width*pitch)	no x mm	4x14x100	
Spindle			
Spindle Speed (ST)	rpm	BT-30 Direct-Driven 12000	
Spindle Speed (OP)	rpm	BT-30 Built-in 20000/24000 BT-40 Direct-Driven 12000, BT-40 Built-in 20000/24000	
Spindle Taper	type	#30(#40)	
Spindle Bearing Bore Diameter	mm	Ø50 (Ø60)	
Feed			
Rapid Travel Rate (X/Y/Z)	m/min	48/48/48	
Cutting Rate	m/min	20	
Manual JOG Feed Rate	m/min	4(20 steps)	
ATC			
Tool Shank Type	type	MAS BT-30(MAS BT-40)	
Pull Stud	type	MAS BT-30/P30-T-1(MAS BT-40/P40-T-1)	
Auto Tool Change System		Arm Type	
Magazine Capacity (ST)	tools	BT-30 20T	
Magazine Capacity (OP)	tools	BT-40 24T	
Max. Tool Diameter (with adjacent tool)	mm	Ø65(Ø75)	
Max. Tool Diameter (without adjacent tool)	mm	Ø130(Ø150)	
Max. Tool Length	mm	200	
Max. Tool Weight	kg	3(7)	
Tool Change Time (tool to tool)	sec	1.5(2)	
Tool Change Time (time to time)	sec	2.5(3)	
Motor (FANUC)			
Spindle Motor (cont./30min) (ST)	kW	3.5/5.5	
Feed Motor (X/Y/Z)	kW	2.7/2.7/4.5	
Coolant Motor	kW	0.75	
Power Supply			
Power Supply	kVA	15	
Compressed Air Supply	MPa, l/min	0.6, 500	
Coolant Tank Capacity	L	205	
Controller		Fanuc OiMF Plus	
External Dimension			
Width	mm	1775	
Length	mm	2583	
Height	mm	2447	
Net Weight	kg	3000	
Accuracy By Laser (following values were tested in the temperature-controlled room)			
ISO 10791 Accuracy	Positioning	mm	0.006
	Repeatability	mm	0.004
JIS 6338 Accuracy	Positioning (within 300mm)	mm	±0.003
	Repeatability (within 300mm)	mm	±0.002
Packing For Export			40' HQ

- The specification is for reference only. KAFO remains the right to modify machine specification, design or property and without prior notice.
- The positioning accuracy inspection is only allowed to execute in KAFO's factory, may not provide inspection at other time after leaving.

ACCESSORIES

● : Standard Specification ○ : Optional Specification
★ : Consulting Required - : Inadaptable

SPECIFICATION / MODEL	SCV-5 SCVM-5
Spindle	
BT-30 Direct-Driven 12000rpm (3.5/5.5kw)	●
BT-30 Direct-Driven 12000rpm (5.5/7.5kw)	○
BT-30 Built-in 20000/24000rpm (5.5/7.5kw)	○
BT-40 Direct-Driven 12000rpm (5.5/7.5kw)	○
BT-40 Built-in 20000/24000rpm (5.5/7.5kw)	○
Tool Magazine	
Magazine Capacity	BT-30, 30 Tools (Cam Type) ● BT-40, 24 Tools (Cam Type) ○
Tool	
Tool Shank	MAS BT-30 ● MAS BT-40 ○ CAT-40 ○ DIN-40 ○
Pull Stud	MAS BT-30 / P30-T-1 ● MAS BT-40 / P40-T-1 ○
Coolant	
Coolant System	●
Coolant Through Spindle	○
Coolant Through Tool And Tool Holder	○
Oil Skimmer	○
Oil-Mist Coolant System	○
Chip Flush Coolant System	●
Coolant Gun	○
Chip Disposal System	
Lift-up Chip Conveyor(Chain Type)	○
Lift-up Chip Conveyor(Scrape Type)	○
Air Blast Function For Workpiece (M07)	●
Spindle Air Blast	○
Oil-Mist Collection System	○
Measurement System	
Tool Length Measurement	○
Workpiece Measurement	○
Operation Support	
Auto Power Off (M30)	●
Automatic Door	○
Manual Pulse Generator (MPG)	●
High Accuracy Control	
Linear Scales (axis X/Y/Z)	×
Safety System	
Full Enclosure	●
Air Pressure Detection System	○
Others	
Interior Lighting Lamp (Fluorescent Lamp*1)	○
Work Light & Tri-Color Status Light	●
Leveling Bolts & Pads	○
Tool Box	○
4th Axis Interface	○
Rotary Table 4th Axis	○
Air Conditioner Unit For Electric Cabinet	○
KAFO Customized Calculator Software Function	○
Z-axis Riser	×
Z-axis Travel Extend	○

- The temperature of machine installing environment must be 5-40 degrees, the surrounding temperature difference should be within 4 degrees, 0.67 degrees per hour, under 4 degrees within 6 hours.
- As for more details, please refer to operating manual or contact with KAFO sales.

SV/SVM CV/CVM DV/DVM SERIES

VERTICAL MACHINING CENTER / CNC

CV/DV SERIES FEATURES

- CV/DV series was designed for the high-efficiency processing demand industrial of models from KAO FONG machinery, most suitable for mass components production of Vehicle parts, 3C and IT industry processing, also applicable to all kinds of precision molds production and processing.



/ ROLLER-TYPE LINEAR GUIDEWAY



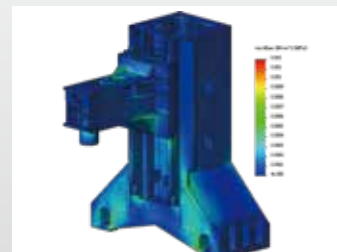
/ BALLSCREW COOLANT SYSTEM



/ DIRECT DRIVEN WITH AXES SERVER MOTOR



/ Z-AXIS WITHOUT COUNTER WEIGHT BLOCKS



/ STRESS ANALYZE OF CASTING

/ CV-8



/ CV-9A



FEATUERS

- CV-9A is a C-type machining center with #40 taper and Auto Pallet Changer system (APC) as standard.
- It is high precision and high efficiency for machining parts, mainly used for mass production of Automotive Industry, Electronics Industry and Aerospace Industry.

/ SV-1000



/ CV-14



CV-14/CV-16 FEATUERS

- Y axis with 1400mm distance between guideways.
- 3 axes adopt 45mm type precise roller linear guides, provides superior rigidity, heavy-loading capacity, low friction and excellent performance.
- The machine bed, column, spindle head, cross slides and table are all analyzed and optimized by FEM tests. This design assures high stability and cutting rigid performance, and choosing of center cooling system through ballscrews can reduce the thermal compensation and enhance the accuracy.

/ CV-12A



/ CV-16



OPTION: #50

- CV-14AH
- CV-16AH

CV/CVM DV/DVM SERIES VERTICAL MACHINING CENTER

/ DV-9A



/ DV-11A



/ DV-12C



- DV-9/DV-11 Back row optional.

CV/DV-168 FEATUERS



• CV-168



• DV-168



• CV/DV-168

- Linear guide way of X-axis is 45mm, Y-axis/Z-axis are 55mm, or Z-axis with box way. This type can adopt the #50 Direct-Driven or Built-in type 10,000rpm spindle.

- Y-axis with 4 large spans linear guide way design, and all of them are 55mm roller linear guides. The travel enlarge to 850mm, which can satisfy the processing demand of mold & die industry and also provide the excellent cutting performance.

/ DV-1370



/ DV-168

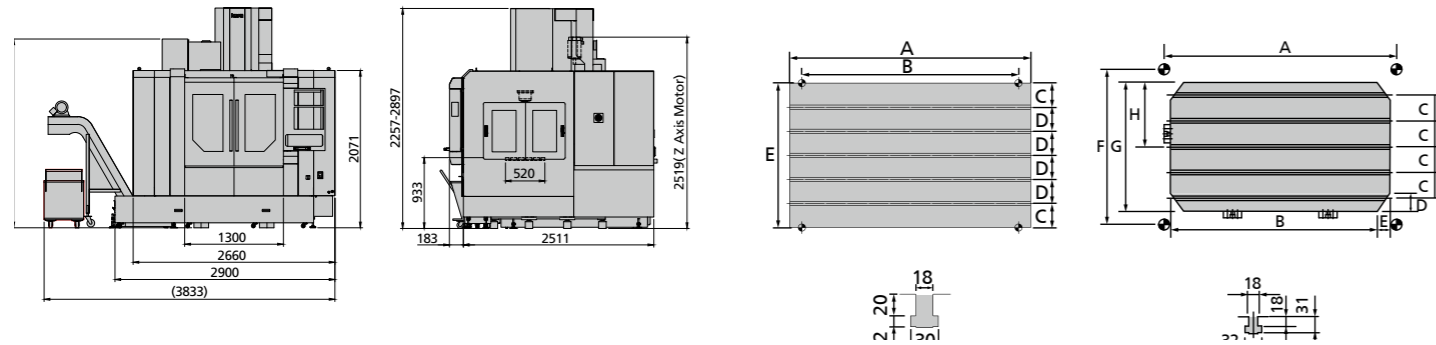


SV/SVM CV/CVM DV/DVM SERIES VERTICAL MACHINING CENTER

TABLE SIZE AND MACHINE LAYOUT

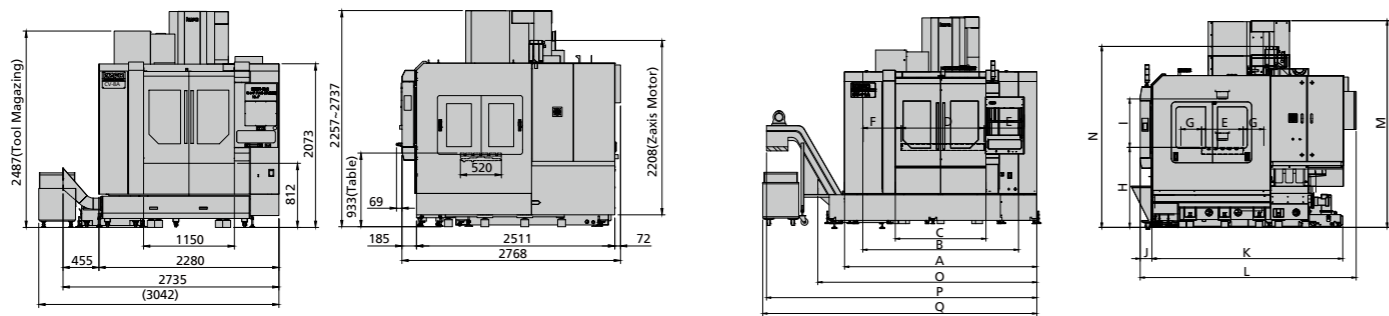
/ SV-1000

/ SV CV/DV WORKING TABLE DIMENSION



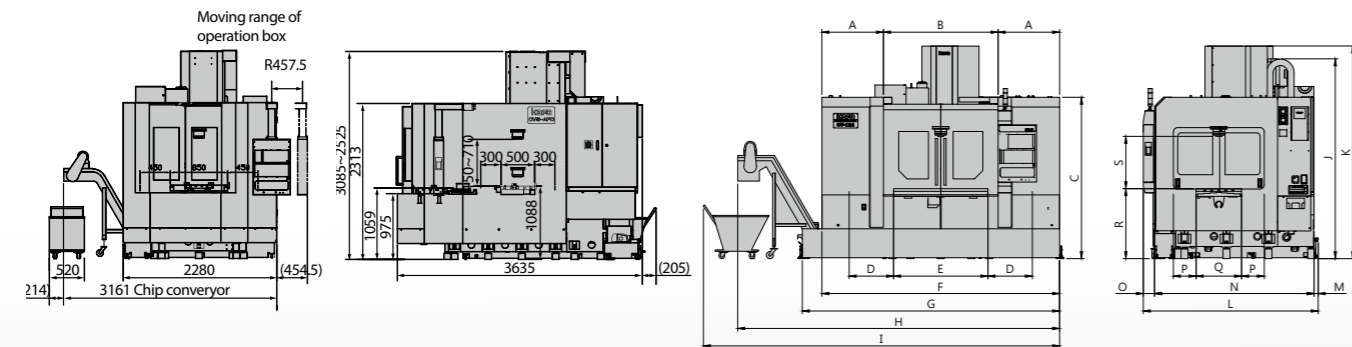
/ CV-8

/ CV/DV-9/11



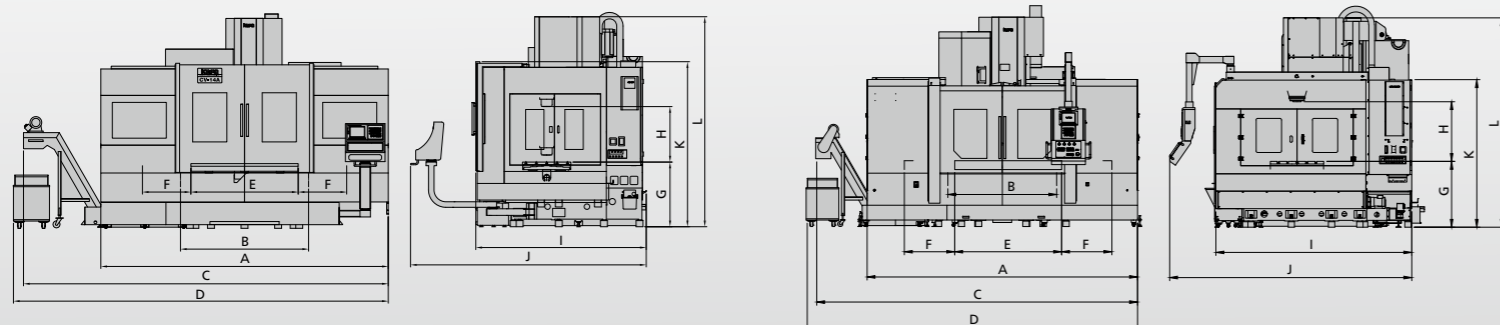
/ CV-9 APC

/ CV/DV-12



/ CV-14/16

/ CV/DV-168



unit : mm

TABLE SIZE					
	A	B	C	D	E
SV-1000	1150	1020	60		520
CV-8	1000	860		100	
CV/DV-9	1000	900	100		600
CV/DV-11	1200	1100			650
CV/DV-12	1350	1270	125		700
CV-14	1550	1400		150	
CV-16	1750	1600	50		850
CV/DV-168	1700	1600			

TABLE SIZE								
	A	B	C	D	E	F	G	H
CV-9 APC	900	850	100	70	50	600	500	250

/ CV/DV-9/11

unit : mm

MACHINE LAYOUT																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
CV-9A/B																		
DV-9A/B	-	2280	1150	1000		450									2615	2904	3668	3731
DV-9C					600		300	980	100-700	182	2745	3121	2390-2990					
CV-11A/B																		
DV-11A/B	2780	2250	1310	1200		550									2615	3165	3906	3961
DV-11C/CH																		

/ CV/DV-12

unit : mm

MACHINE LAYOUT																			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
CV-12A/B											2400-3050								
CV-12AH											2445-3095								
DV-12A/B	880	1640	2315	635	1350	3400	3680	4605	5095	2865	2400-3050	2502	60	2282	160	325	650	988	750
DV-12C											2200-2850								
DV-12AH											2445-3095								
DV-12CH											2200-2850								

/ CV-14/16, CV/DV-168

unit : mm

MACHINE LAYOUT												
	A	B	C	D	E	F	G	H	I	J	K	L
CV-14A/B	3686	1652	4820	4930	1550	700						2584-3030
CV-14AH							933	100-800	2460	3405	2380	2833-3072
CV-16A/B	4152	1850	5270	5380	1750							2584-3030
CV-16AH						800						2833-3072
CV/DV-168	4300	1730	5105	5225	1700		1047	950	3115	3850	2340	2530-3330

SV/SVM CV/CVM SERIES VERTICAL MACHINING CENTER

SPECIFICATION

Max. Tool Diameter (without adjacent tool) #40 (Cam Type) = Ø125

CV (CVM)-12AH is with #50 spindle taper

MODEL		SV-1000 SVM-1000	CV-8 CVM-8	CV-9A CVM-9A	CV-9B CVM-9B	CV-11A CVM-11A	CV-11B CVM-11B	CV-12A(*CV-12AH) CVM-12A(*CVM-12AH)	CV-12B CVM-12B
Travel									
X-axis	mm	1020	860	900		1100		1270	
Y-axis	mm	520				600		650	
Z-axis	mm	640	480(640)		600		650		
Guide Way(X/Y/Z)	type	35mm Ball-Type Linear Guide Way(Roller-Type)				45mm Roller-Type Linear Guide Way			
Distance From Spindle Nose To Table Surface	mm	100~740		100~580		100~700		100~750	
Distance From Spindle Center To The Track Surface Of Z-axis	mm	580(550)				669(610)		740(675)	
Table									
Table Dimension	mm	1150x520		1000x520		1000x600		1200x600	
Max. Loading Capacity	kg	600		500		650		800	
T-Slots(number x width x pitch)	no x mm	5x18mmx100mm				5x18mmx100mm			
Spindle									
Spindle Speed(ST)	rpm	Belt Head 8000		Direct-Driven 10000		Direct-Driven 10000	Belt Head 8000	Direct-Driven 10000	Belt Head 8000
Spindle Speed(OP)	rpm	Belt Head 10000 / Direct-Driven 10000 / 12000 / 15000		Belt Head 8K/ Direct-Driven 12000 / 15000		12000/15000	10000	12000/15000	10000
Spindle Taper	type	#40				#40		#40(*#50)	
Spindle Bearing Bore Diameter	mm	Ø70				Ø70		Ø70(*Ø90)	
Feed									
Rapid Travel Rate(X/Y/Z)	m/min	36/36/36(*48/48/48)		48/48/48		36/36/36	48/48/48	36/36/36	48/48/48(*ST: 48/48/24, OP: 36/36/24)
Cutting Rate	m/min	10						10	
Manual JOG Feed Rate	m/min	4(20 steps)						4(20 steps)	
ATC									
Tool Shank Type	type	MAS BT-40 (*CAT-40/*DIN-40)				MAS BT-40 (*CAT-40/*DIN-40)		MAS BT-40(*CAT-40/*DIN-40) MAS BT-50(*CAT-50/*DIN-50)	
Pull Stud	type	MAS BT-40/P40-T-1 (*CAT-40/*DIN-40)				MAS BT-40/P40-T-1 (*CAT-40/*DIN-40)		MAS BT-40/P40-T-1(*CAT-40/*DIN-40) MAS BT-50/P50-T-1(*CAT-50/*DIN-50)	
Auto Tool Change System		SVM Series do not support ATC		CVM Series do not support ATC		CVM Series do not support ATC			
Magazine Capacity(ST)	tools	24(Cam Type)						24(Cam Type)	
Magazine Capacity(OP)	tools	30(Cam Type)		N/A		30/32/40(Cam Type)		30/32/40(Cam Type)(*30 Cam Type)	
Max. Tool Diameter(with adjacent tool)	mm	Ø75				Ø75		Ø75(*Ø108)	
Max. Tool Diameter(without adjacent tool)	mm	Ø150				Ø150(*Ø125)		Ø150(*Ø216)	
Max. Tool Length	mm	300						300	
Max. Tool Weight	kg	7				7		7(*15)	
Tool Change Time(tool to tool)	sec	2				2		2(*2.8)	
Tool Change Time(time to time)	sec	4.4				4.5		4.5(*6)	
Motor (FANUC)									
Spindle Motor(cont./30min) (ST)	kW	7.5/11				7.5/11		7.5/11 (*15/18.5)	
Spindle Motor(cont./30min) (OP)	kW	11/15, 15/18.5				11/15, 15/18.5		11/15, 15/18.5 (*22/26)	
Feed Motor(X/Y/Z)	kW	3/3/4						3/4/7	
Coolant Motor	kW	0.75						0.75	
Power Supply									
Power Supply	kVA	20		15				20	
Compressed Air Supply	MPa, l/min	0.6, 500						0.6, 500	
Coolant Tank Capacity	L	365		300		420		520	
Controller		FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN				FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN			
External Dimension									
Width	mm	3833		3042		3731		3961	
Length	mm	3002		2800		3121		2505	
Height	mm	2897		2900		2990		3050(*3095)	
Net Weight	kg	5500		5500		6750/6400		6950/6600	
Accuracy By Laser (following values were tested in the temperature-controlled room)									
ISO 10791 Accuracy	Positioning	mm		0.012				0.012	
	Repeatability	mm		0.009		0.009		0.010	
JIS 6338 Accuracy	Positioning (within 300mm)	mm		±0.004				±0.004	
	Repeatability (within 300mm)	mm		±0.002				±0.002	
Packing For Export		40' HQ						40' HQ	

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

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

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

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

CV/CVM SERIES VERTICAL MACHINING CENTER

SPECIFICATION

Max. Tool Diameter (without adjacent tool) #40 (Cam Type) = Ø125 | CV (CVM)-14/16AH is with #50 spindle taper

MODEL		CV-14A(*CV-14AH) CVM-14A(*CVM-14AH)	CV-14B CVM-14B	CV-16A(*CV-16AH) CVM-16A(*CVM-16AH)	CV-16B CVM-16B	CV-168 CVM-168	CV-9A APC	CV-9B APC
Travel								
X-axis	mm	1400		1600		1600		900
Y-axis	mm	700		700		850		600
Z-axis	mm	700		700		800		600
Guide Way(X/Y/Z)	type	45mm Roller-Type Linear Guide Way			45mm Roller-Type Linear Guide Way		X: 45mm, Y/Z: 55mm Roller-Type Linear Guide Way	
Distance From Spindle Nose To Table Surface	mm	100-800		100-800		150-950		110-710
Distance From Spindle Center To The Track Surface Of Z-axis	mm	809(740)		809(740)		940(875.5)		669(610)
Table								
Table Dimension	mm	1550x700		1750x700		1700x850		850x500(*2)
Max. Loading Capacity	kg	1000		1000		1500		300(*2)
T-Slots(number x width x pitch)	no x mm	5x18mmx150mm		5x18mmx150mm		5x18mmx150mm		5x18mmx100mm
Spindle								
Spindle Speed(ST)	rpm	Direct-Driven 10000		Belt Head 8000		Direct-Driven 10000		Belt Head 8000
Spindle Speed(OP)	rpm	12000/15000(*N/A)		10000		12000/15000(*N/A)		10000
Spindle Taper	type	#40(*#50)		#40		#40		#50
Spindle Bearing Bore Diameter	mm	Ø70(*Ø90)		Ø70		Ø70		Ø90
Feed								
Rapid Travel Rate(X/Y/Z)	m/min	40/40/36 (*ST: 40/40/24, OP: 36/36/24)		36/36/30		40/40/36 (*ST: 40/40/24, OP: 36/36/24)		36/36/30
Cutting Rate	m/min	10		10		10		10
Manual JOG Feed Rate	m/min	4(20 steps)		4(20 steps)		4(20 steps)		4(20 steps)
ATC								
Tool Shank Type	type	MAS BT-40(*CAT-40/*DIN-40) MAS BT-50(*CAT-50/*DIN-50)		MAS BT-40(*CAT-40/*DIN-40) MAS BT-50(*CAT-50/*DIN-50)		MAS BT-40(*CAT-40/*DIN-40) MAS BT-50(*CAT-50/*DIN-50)		MAS BT-50(*CAT-50/*DIN-50)
Pull Stud	type	MAS BT-40/P40-T-1(*CAT-40/*DIN-40) MAS BT-50/P50-T-1(*CAT-50/*DIN-50)		MAS BT-40/P40-T-1(*CAT-40/*DIN-40) MAS BT-50/P50-T-1(*CAT-50/*DIN-50)		MAS BT-40/P40-T-1(*CAT-40/*DIN-40) MAS BT-50/P50-T-1(*CAT-50/*DIN-50)		MAS BT-50/P50-T-1(*CAT-50/*DIN-50)
Auto Tool Change System		CVM Series do not support ATC			CVM Series do not support ATC			
Magazine Capacity(ST)	tools	24(Cam Type)		24(Cam Type)		24(Cam Type)		24(Cam Type)
Magazine Capacity(OP)	tools	30/32/40(Cam Type)(*30 Cam Type)		30/32/40(Cam Type)		30/32/40(Cam Type)(*30 Cam Type)		30/32/40(Cam Type)
Max. Tool Diameter(with adjacent tool)	mm	Ø75(*Ø108)		Ø75		Ø75(*Ø108)		Ø75
Max. Tool Diameter(without adjacent tool)	mm	Ø150(*Ø216)		Ø150(*Ø125)		Ø150(*Ø216)		Ø150(*Ø125)
Max. Tool Length	mm	300		300		300		300
Max. Tool Weight	kg	7(*15)		7		7(*15)		7
Tool Change Time(tool to tool)	sec	2(*2.8)		2		2(*2.8)		2
Tool Change Time(time to time)	sec	5(*6)		5		5(*6)		5
Motor (FANUC)								
Spindle Motor(cont./30min)(ST)	kW	7.5/11(*15/18.5)		7.5/11		7.5/11(*15/18.5)		7.5/11
Spindle Motor(cont./30min)(OP)	kW	11/15, 15/18.5(*22/26)		11/15, 15/18.5		11/15, 15/18.5(*22/26)		11/15, 15/18.5
Feed Motor(X/Y/Z)	kW	4/4/7		4/4/7		4/4/7		4/4/7
Coolant Motor	kW	0.75		0.75		0.75		0.75
Power Supply								
Power Supply	kVA	35		35		35		20
Compressed Air Supply	MPa, l/min	0.6, 500		0.6, 500		0.6, 500		0.6, 500
Coolant Tank Capacity	L	496.5		496.5		496.5		420
Controller		FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN			FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN			
External Dimension								
Width	mm	4930		5380		5380		5255
Length	mm	3405		3405		3405		3850
Height	mm	3030(*3072)		3030		3030(*3072)		3840
Net Weight	kg	9540/9190(*9740/9040)		9540/9190		10540/10190(*10740/10040)		3330
Accuracy By Laser (following values were tested in the temperature-controlled room)								
ISO 10791 Accuracy	Positioning	0.012		0.014		0.014		0.012
	Repeatability	0.010		0.012		0.012		0.009
JIS 6338 Accuracy	Positioning (within 300mm)	±0.004		±0.004		±0.004		±0.004
	Repeatability (within 300mm)	±0.002		±0.002		±0.002		±0.002
Packing For Export		40' HQ		40' HQ		40' HQ		40' HQ

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

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

3. The temperature of machine installing environment must be 5-40 degrees, the surrounding temperature difference should be within 4 degrees, 0.67 degrees per hour, under 4 degrees within 6 hours.

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

DV/DVM SERIES VERTICAL MACHINING CENTER

SPECIFICATION

Max. Tool Diameter (without adjacent tool) #40 (Cam Type) = Ø125

DV (DVM)-11CH/ DV(DVM)-12AH/CH is with #50 spindle taper

MODEL	DV-9A DVM-9A	DV-9B DVM-9B	DV-9C DVM-9C	DV-11A DVM-11A	DV-11B DVM-11B	DV-11C(*DV-11CH) DVM-11C(*DVM-11CH)	DV-12A(*DV-12AH) DVM-12A(*DVM-12AH)	DV-12B DVM-12B	DV-12C(*DV-12CH) DVM-12C(*DVM-12CH)	DV-1370 DVM-1370	DV-168 DVM-168	
Travel												
X-axis	mm	900		1100		1100		1270		1400	1600	
Y-axis	mm		600			600		650		700	850	
Z-axis	mm		600			600		650		700	800	
Guide Way(X/Y/Z)	type	X/Y: 45mm Roller-Type Linear Guide Way, Z: Box Way					X/Y: 45mm Roller-Type Linear Guide Way, Z: Box Way			X: 45mm Roller-Type, Y: 55mm Roller-Type, Z: Box Way		
Distance From Spindle Nose To Table Surface	mm		100~700			100~700		100~750		200~900	150~950	
Distance From Spindle Center To The Track Surface Of Z-axis	mm		650(620)			650(620)		725(695)		750(705)	905(875.5)	
Table												
Table Dimension	mm	1000x600		1200x600		1200x600		1350x650		1550x700	1700x850	
Max. Loading Capacity	kg	650		800		800		1000		1500		
T-Slots(number x width x pitch)	no x mm	5x18mmx100mm					5x18mmx100mm			5x18mmx150mm		
Spindle												
Spindle Speed(ST)	rpm	Direct-Driven 10000	Belt Head 8000	Gear Head 6000	Direct-Driven 10000	Belt Head 8000	Gear Head 6000	Direct-Driven 10000	Belt Head 8000	Gear Head 6000		
Spindle Speed(OP)	rpm	12000/15000	10000	7000/8000	12000/15000	10000	7000(8000#40)	12000/15000(*N/A)	10000	7000(8000#40)	Gear Head 7000/8000, Direct-Driven10000	
Spindle Taper	type	#40					#40(*#50)			#40	#40(*#50)	#50
Spindle Bearing Bore Diameter	mm	Ø70		Ø75	Ø70		Ø75(*Ø85)	Ø75(*Ø90)	Ø70	Ø75(*Ø85)		
Feed												
Rapid Travel Rate(X/Y/Z)	m/min	48/48/24	36/36/24		48/48/24	36/36/24	36/36/24	48/48/24(*ST: 48/48/24, OP: 36/36/24)	36/36/24		30/30/20	
Cutting Rate	m/min	10					10					
Manual JOG Feed Rate	m/min	4(20 steps)					4(20 steps)					
ATC												
Tool Shank Type	type	MAS BT-40(*CAT-40/*DIN-40)					MAS BT-40(*CAT-40/*DIN-40) MAS BT-50(*CAT-50/*DIN-50)		MAS BT-40 (*CAT-40/*DIN-40)	MAS BT-40(*CAT-40/*DIN-40) MAS BT-50(*CAT-50/*DIN-50)		MAS BT-50 (*CAT-50/*DIN-50)
Pull Stud	type	MAS BT-40/P40-T-1(*CAT-40/*DIN-40)					MAS BT-40/P40-T-1(*CAT-40/*DIN-40) MAS BT-50/P50-T-1(*CAT-50/*DIN-50)		MAS BT-40/P40-T-1 (*CAT-40/*DIN-40)	MAS BT-40/P40-T-1(*CAT-40/*DIN-40) MAS BT-50/P50-T-1(*CAT-50/*DIN-50)		MAS BT-50/P50-T-1 (*CAT-50/*DIN-50)
Auto Tool Change System		DVM Series do not support ATC					DVM Series do not support ATC					
Magazine Capacity(ST)	tools	24 (Cam Type)					24(Cam Type)					
Magazine Capacity(OP)	tools	30/32/40(Cam Type)					30/32/40(Cam Type)(*N/A)		30/32/40(Cam Type)(*30 Cam Type)		30/40(Cam Type)	
Max. Tool Diameter(with adjacent tool)	mm	Ø75					Ø75(*Ø108)		Ø75	Ø75(*Ø108)		Ø108(*Ø125)
Max. Tool Diameter(without adjacent tool)	mm	Ø150(*Ø125)					Ø150(*Ø216)		Ø150	Ø150(*Ø216)		Ø216(*Ø250)
Max. Tool Length	mm	300					300					
Max. Tool Weight	kg	7					7 (*15)		7	7 (*15)		15
Tool Change Time(tool to tool)	sec	2					2(2.8)		2	2(2.8)		2.8
Tool Change Time(time to time)	sec	4.5					4.5 (*6)		4.5	4.5 (*6)		6
Motor (FANUC)												
Spindle Motor(cont./30min)(ST)	kW	7.5/11					7.5/11(*15/18.5)					15/18.5
Spindle Motor(cont./30min)(OP)	kW	11/15	11/15	15/18.5	11/15	11/15,15/18.5 (*22/26)		11/15,15/18.5	11/15,15/18.5(*22/26)		22/26	
Feed Motor(X/Y/Z)	kW	3/4/3					3/4/3		3/4/7		4/4/7	
Coolant Motor	kW	0.75					0.75					
Power Supply												
Power Supply	kVA	20					20					35
Compressed Air Supply	MPa, l/min	0.6, 500					0.6, 500					
Coolant Tank Capacity	L	420					420		520		620	700
Controller		FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN					FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN					
External Dimension												
Width	mm	3731		3961		3961		5090		4926	5255	
Length	mm	3121					3121					
Height	mm	2990					2990		3050 (*3095)	3050	2850	3334
Net Weight	kg	7750/7400		7850/7500		7950/7600		8050/7700(*8350/7650)	8600/8250(*8850/8500)	8600/8250	8600/8250(*8850/8500)	12000
Accuracy By Laser (following values were tested in the temperature-controlled room)												
ISO 10791 Accuracy	Positioning	mm					0.012					0.014
	Repeatability	mm					0.009					0.010
JIS 6338 Accuracy	Positioning(within 300mm)	mm					±0.004					±0.004
	Repeatability(within 300mm)	mm					±0.002					±0.002
Packing For Export		40' HQ					40' HQ					20' FR

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

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

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

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

VMC/VMM SERIES

VERTICAL MACHINING CENTER / CNC

SUPERIOR STRUCTURE DESIGN

- Ultra-wide A-shaped Column Design
- Full support Base Design
- Ultra-wide Y-axis Design
- Best Supporting BESSEL Point Design
- One-Piece Coolant Collect Frame Design
- 3 axis Direct Coupled Servo Motors
- 3 axis Pretensioned Ball Screws
- Large Size Heavy Duty Working Table
- Robust Cast Iron Headstock
- Built-in Screw Type Chip Conveyor

/ VMC-116A



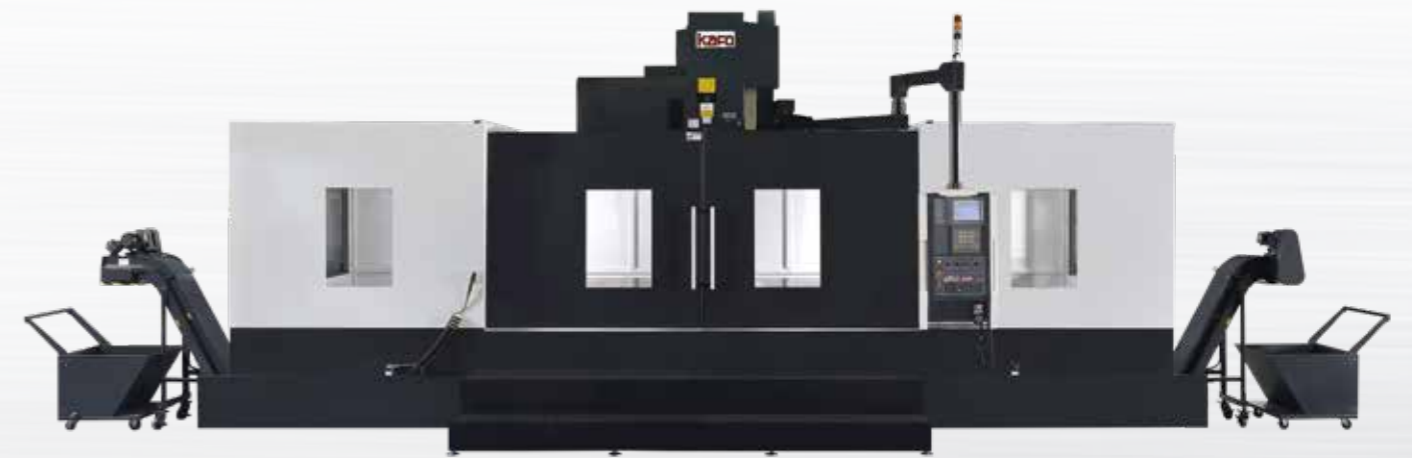
/ VMC-1688



/ VMC-126B



/ VMC-3100



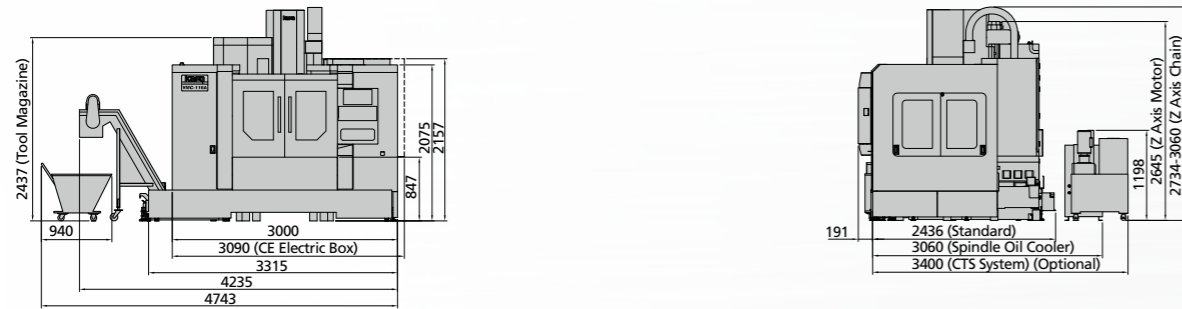
/ VMC-1370



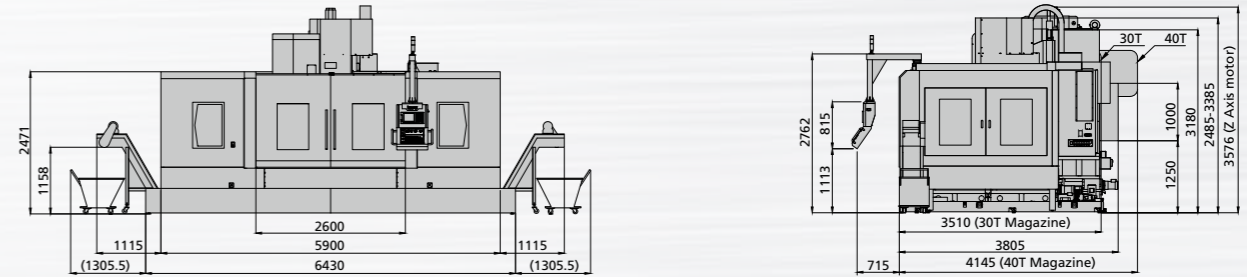
VMC/VMM SERIES VERTICAL MACHINING CENTER

TABLE SIZE AND MACHINE LAYOUT

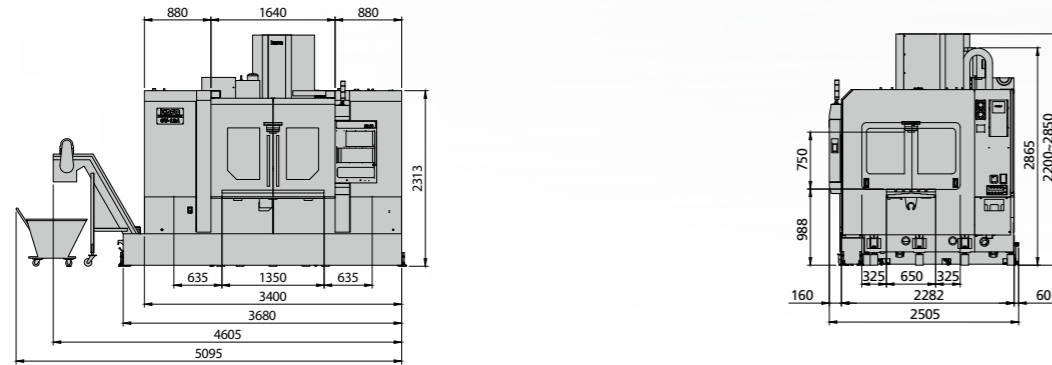
/ VMC-116A/B



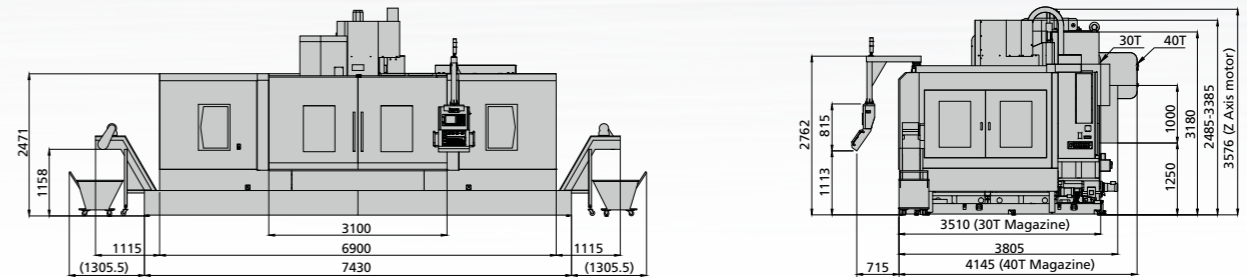
/ VMC-2100



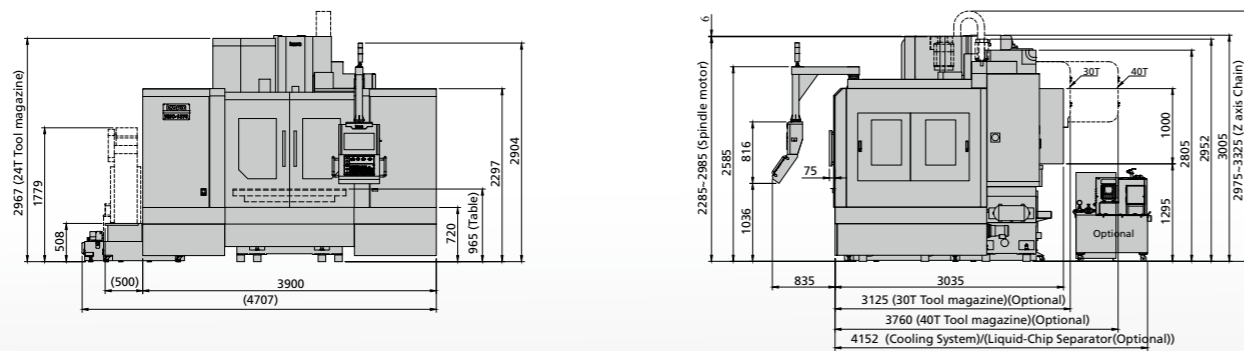
/ VMC-126A/B



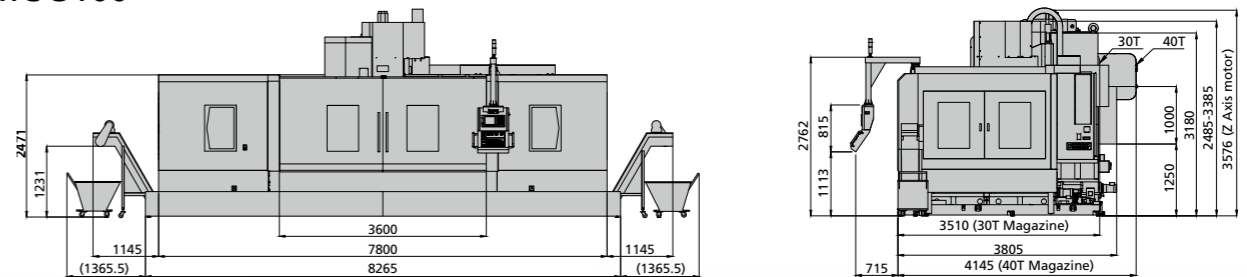
/ VMC-2600



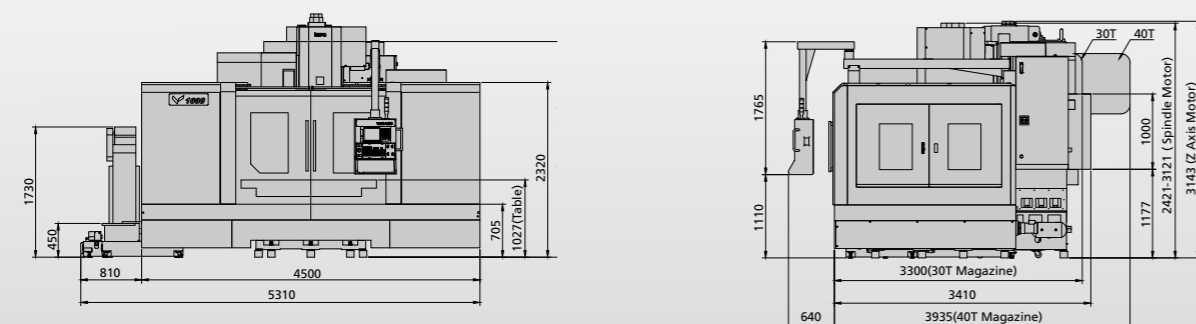
/ VMC-1370



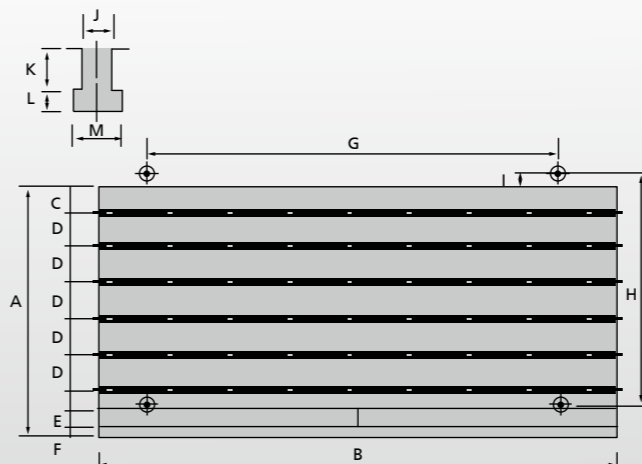
/ VMC-3100



/ VMC-1688



VMC TABLE VIEW



VMC TABLE SIZE

Model \ Item	A	B	C	D	E	F	G	H	I	J	K	L	M
VMM/VC-116A/B	600	1250	50				1100	600	-				
VMM/VC-126A/B	650	1350	75				1150	650	-	18	24	12	30
VMM/VC-1370	700	1500	100				1300	700	-				
VMM/VC-1688	950	1800	65		45	25	1600	880	-				
VMM/VC-2100		2100					1900						
VMM/VC-2600	1000	2600	50	150	-	-	2400	1000	-	22	29	16	37
VMM/VC-3100		3100					2900						

VMC/VMM SERIES VERTICAL MACHINING CENTER

SPECIFICATION

MODEL		VMC-116A VMM-116A	VMC-116B VMM-116B	VMC-126A VMM-126A	VMC-126B VMM-126B	VMC-1370 VMM-1370	VMC-1688 VMM-1688	VMC-2100 VMM-2100	VMC-2600 VMM-2600	VMC-3100 VMM-3100	
Travel											
X-axis	mm	1100		1270		1400	1600	2100	2600	3100	
Y-axis	mm	600		650		700	880		1020		
Z-axis	mm	635		650		700			900/1070		
Guide Way(X/Y/Z)	type		Box Way					Box Way			
Distance From Spindle Nose To Table Surface	mm	100-735		100-750		200-900			100-1000/100-1170		
Distance From Spindle Center To The Track Surface Of Z-axis	mm	650(620)		725(695)		750(705)	935(897)		1070(1010)		
Table											
Table Dimension	mm	1250 x 600		1350 x 650		1500 x 700	1800 x 950	2100 x 1000	2600 x 1000	3100 x 1000	
Max. Loading Capacity	kg		1200			1500	2500	3000		4000	
T-Slots(number x width x pitch)	no x mm		5x18mmx125mm			5x18mmx125mm		7x22mmx125mm			
Spindle											
Spindle Speed(ST)	rpm	Gear Head 6000				Gear Head 6000					
Spindle Speed(OP)	rpm	Gear Head 7000/8000 Direct-Driven 10000/12000 Belt Head 8000/10000	Gear Head 7000/8000	Gear Head 7000/8000 Direct-Driven 10000/12000 Belt Head 8000/10000	Gear Head 7000/8000 Direct-Driven 10000	Gear Head 4000/7000/8000 Direct-Driven 10000			Gear Head 7000/8000 Direct-Driven 10000		
Spindle Taper	type	#40	#50	#40	#50				#50		
Spindle Bearing Bore Diameter	mm	Ø70(Belt Head/Direct-Driven)Ø75(Gear Head)	Ø85	Ø70(Belt Head/Direct-Driven)Ø75(Gear Head)	Ø85(Gear Head) Ø90(Direct-Driven)				Ø90		
Feed											
Rapid Travel Rate(X/Y/Z)	m/min	24/24/20				24/24/20	20/20/15	10/10/10			
Cutting Rate	m/min	10				10	7				
Manual JOG Feed Rate	m/min	4(20steps)				4(20steps)					
ATC											
Tool Shank Type	type	MAS BT-40 (*CAT-40/*DIN-40)	MAS BT-50 (*CAT-50/*DIN-50)	MAS BT-40 (*CAT-40/*DIN-40)	MAS BT-50 (*CAT-50/*DIN-50)	MAS BT-50(*CAT-50/*DIN-50)					
Pull Stud	type	MAS BT-40/P40-T-1 (*CAT-40/*DIN-40)	MAS BT-50/P50-T-1 (*CAT-50/*DIN-50)	MAS BT-40/P40-T-1 (*CAT-40/*DIN-40)	MAS BT-50/P50-T-1 (*CAT-50/*DIN-50)	MAS BT-50/P50-T-1(*CAT-50/*DIN-50)					
Auto Tool Change System		VMM Series do not support ATC				VMM Series do not support ATC					
Magazine Capacity(ST)	tools	24(Cam Type)				24(Cam Type)					
Magazine Capacity(OP)	tools	*30/*32/*40(Cam Type)	*30	*30/*32(Cam Type)		*30/*40(Cam Type)			*30/*40/*60(Cam Type)		
Max. Tool Diameter(with adjacent tool)	mm	Ø75	Ø108	Ø75	Ø108				Ø105		
Max. Tool Diameter(without adjacent tool)	mm	Ø150	Ø216	Ø150	Ø216				Ø210		
Max. Tool Length	mm	300				300					
Max. Tool Weight	kg	7	15	7	15				15		
Tool Change Time(tool to tool)	sec	2	2.8	2	2.8				2.8		
Tool Change Time(time to time)	sec	5.8	6	4.5	6				6		
Motor (FANUC)											
Spindle Motor(cont./30min)(ST)	kW	7.5/11	15/18.5	7.5/11	15/18.5				15/18.5		
Feed Motor(X/Y/Z)	kW	3.0/3.0/4.0		3.0/4.0/7.0		4.0/4.0/7.0			7.0/(7.0/7.0)/7.0		
Coolant Motor	kW	0.75		0.75*2					0.75		
Power Supply											
Power Supply	kVA	20				35			55		
Compressed Air Supply	MPa, l/min	0.6, 500							0.6, 500		
Coolant Tank Capacity	L	443		520		420	420	770			
Controller		FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN				FANUC / MITSUBISHI / SIEMENS / HEIDENHAIN					
External Dimension											
Width	mm	4743		5095		4707	5310	9041		10996	
Length	mm	2436		2505		3870	4050			4520	
Height	mm	3060		2850	3095	3325	3143			3576/3746	
Net Weight	kg	8250/8600		8500/8850		12700/13500	16200/17000	20500/21000		22000/22500	
Accuracy By Laser (following values were tested in the temperature-controlled room)											
ISO 10791 Accuracy	Positioning	mm		0.012		0.012	0.014	0.022		0.025	
	Repeatability	mm		0.010		0.010	0.012	0.017		0.020	
JIS 6338 Accuracy	Positioning(within 300mm)	mm		±0.005		±0.005			±0.008		
	Repeatability(within 300mm)	mm		±0.002		±0.003			±0.005		
Packing For Export		40' HQ				20' F/R			20' F/R+40' H/Q		

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

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

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

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

ACCESSORIES

● : Standard Specification ○ : Optional Specification ★ : Consulting Required - : Inadaptable

SPECIFICATION / MODEL	VMC-116A VMM-116A	VMC-116B VMM-116B	VMC-126A VMM-126A	VMC-126B VMM-126B	VMC-1370 VMM-1370	VMC-1688 VMM-1688	VMC-2100 VMM-2100	VMC-2600 VMM-2600	VMC-3100 VMM-3100
Spindle									
BT-40 Belt Head 8000/10000 rpm (7.5/11kW)	○		○						
BT-40 Direct-Driven 10000/12000 rpm (11/15kW, 15/18.5kW)		-		-	-	-	-	-	-
BT-40 Gear Head 6000 rpm (7.5/11kW)	●		●						
BT-40 Gear Head 7000/8000 rpm (7.5/11kW)	○		○						
BT-40 Gear Head 6000/7000/8000 rpm (15/18.5kW)		●		●	●	●	●	●	●
BT-50 Gear Head 6000 rpm (15/18.5kW)		○		○	○	○	○	○	○
BT-50 Gear Head 7000 rpm (15/18.5kW)									
BT-50 Gear Head 6000/7000 rpm (22/26kW)	-		-	○	○	○	○	○	○
BT-50 Direct-Driven 10000 rpm (15/18.5kW)		-		-					
BT-50 Direct-Driven 10000 rpm (22/26kW)									
Tool Magazine									
Magazine Capacity									
24 Tools (Cam Type)	●	●	●	●	●	●	●	●	●
30 Tools (Cam Type)		○		○	○	○	○	○	○
32 Tools (Cam Type)	○		○		○	○	○	○	○
40 Tools (Cam Type)		-		-	○	○	○	○	○
60 Tools (Cam Type)	-		-	-	-	○	○	○	○
Tool									
Tool Shank									
MAS BT-40	●		●						
CAT-40	○	-	○	-	-	-	-	-	-
DIN-40									
MAS BT-50		●		●	●	●	●	●	●
CAT-50	-	○	-	○	○	○	○	○	○
DIN-50									
Pull Stud									
MAS BT-40/P40-T-1	●		●						
MAS BT-50/P50-T-1	-	●	-	●	●	●	●	●	●
Coolant									
Coolant System	●	●	●	●	●	●	●	●	●
Coolant Through Spindle	○	○	○	○	○	○	○	○	○
Coolant Through Tool And Tool Holder									
Oil Skimmer	●	●	●	●	●	●	○	○	○
Oil-Mist Coolant System	○	○	○	○	○	○			
Chip Flush Coolant System			●	●					
Coolant Gun	●	●		●	●	●	●	●	●
Chip Disposal System									
Lift-up Chip Conveyor (Chain Type)	○	○	○	○	○	○	○	○	○
Lift-up Chip Conveyor (Scrape Type)									
Screw Type Chip Conveyor (front of base)	●	●			●				
Screw Type Chip Conveyor (behind of table)									
Screw Type Chip Conveyor (on either sides and center of base)	-	-				●			
Air Blast Function For Workpiece (M07)	●	●	●	●	●		●	●	●
Spindle Air Blast									
Oil-Mist Collection System	○	○	○	○	○	○	○	○	○
Measurement System									
Tool Length Measurement	○	○	○	○	○	○	○	○	○
Workpiece Measurement									
Operation Support									
Auto Power Off (M30)	●	●	●	●	●	●	●	●	●
Automatic Door	★	★	★	★	★	★	★	★	★
Manual Pulse Generator (MPG)	●	●	●	●	●	●	●	●	●
High Accuracy Control									
Liner Scales (axis X/Y/Z)	○	○	○	○	○	○	○	○	○
Safety System									
Full Enclosure	●	●	●	●	●	●	●	●	●
L Type Splash Guard					○	○			
Splash Guard For Table	-	-	-	-	-	-	-	-	-
Air Pressure Detection System	●	●	●	●	●	●	●	●	●
Others									
Interior Lighting Lamp (Fluorescent Lamp*1)									
Work Light & Tri-Color Status Light	●	●	●	●	●	●	●	●	●
Leveling Bolts & Pads									
Tool Box									
4th Axis Interface									
Rotary Table 4th Axis	○	○	○	○	○	○	○	○	○
Air Conditioner Unit For Electric Cabinet									
KAFO Customized Calculator Software Function									
Z-axis Riser	★	★	★	★	★	★	○	○	○
Z-axis Travel Extend		○		○	-	○		○	
		(Z-axis 785mm)		(Z-axis 850mm)		(Z-axis 900mm)		(Z-axis 1070mm)	

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

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

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

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

CV-400U/A ; CVM-400U/A

CV-U/A CVM-U/A SERIES

VERTICAL MACHINING CENTER/ CNC

CV-U/A CVM-U/A SERIES FEATURES

U:3+2 axis(5 Face machining)
A:5 Axis Simultaneous Machining

/ CV-400U

- Widely used in vehicle, aerospace, biomedical industry. With automated arm, the workpiece can be machined in one time, maximizing the quality of machining accuracy and minimizing the preliminary time of machining.



MACHINE STRUCTURAL DESIGN

- Strengthened structural design accomplish high dynamic rigidity performance while high-speed cutting.
- All series adopt high rigidity and precision roller type linear guideway, large diameter ball screw with coolant system, enhancing rigidity, speed stability, and durability.
- Symmetrical design machine base equips 8 leveling pads, each offers three-points support, enhancing machine's stability.

A/C AXIS ROTARY TABLE

- A/C axis rotary table offers 4+1 axis fixed angle 5 face machining, satisfying various machining requirements and complicated workpiece.
- High efficiency and deep tooth module dual-lead worm gear transmission.
- Air compressed brake mechanism, with booster cylinder device, provide the clamping stability like what oil pressure clamping does, but space-efficient and environment-friendly.
- Optional working table dimension (X*Y): 530*320mm



Optional addition working table supports longer parts/ molding machining process



HIGH PRECISION FEEDING DESIGN

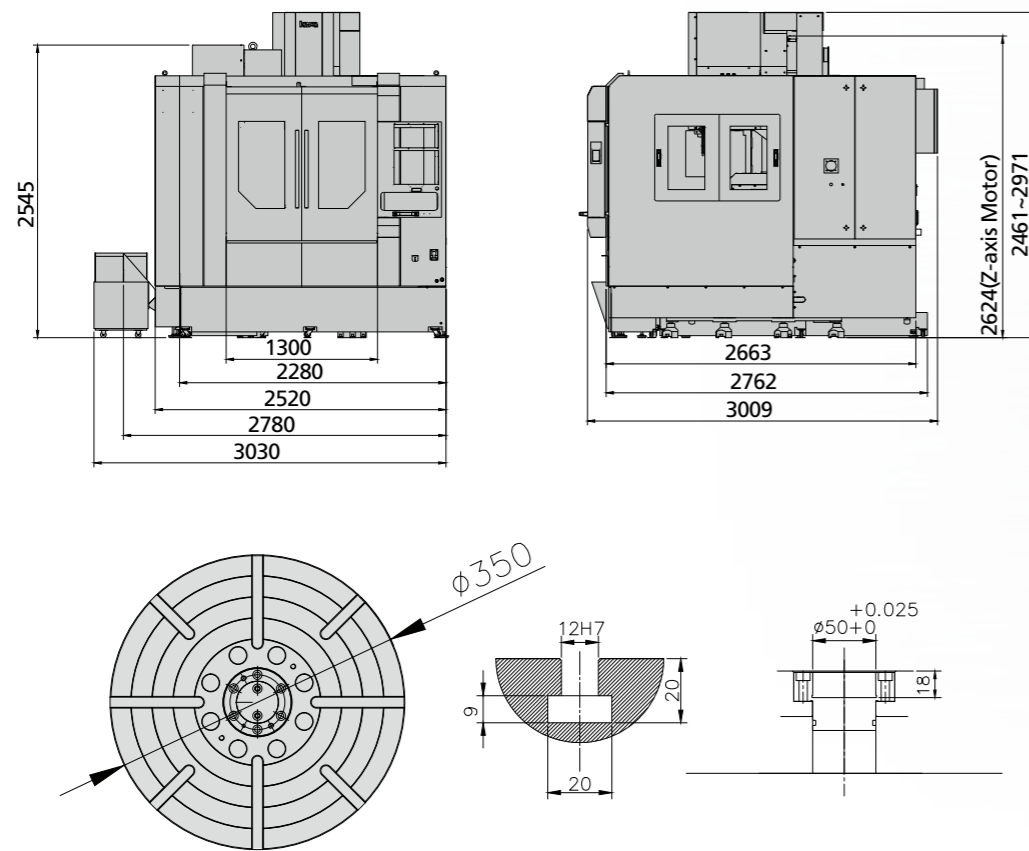
- 3 Axes precise ball screw driven by direct-driven motor.
- Tilt axis and rotary axis coordinate with linear scale, ensure optimized positioning and repeat accuracy.

Precision accuracy	Positioning accuracy	Repeat Accuracy
Three-axis(X/Y/Z)	0.009mm	0.006mm
Tilt axis(A-axis)	60(20)sec	8(4)sec
Rotary axis(C-axis)	20(10)sec	6(4)sec

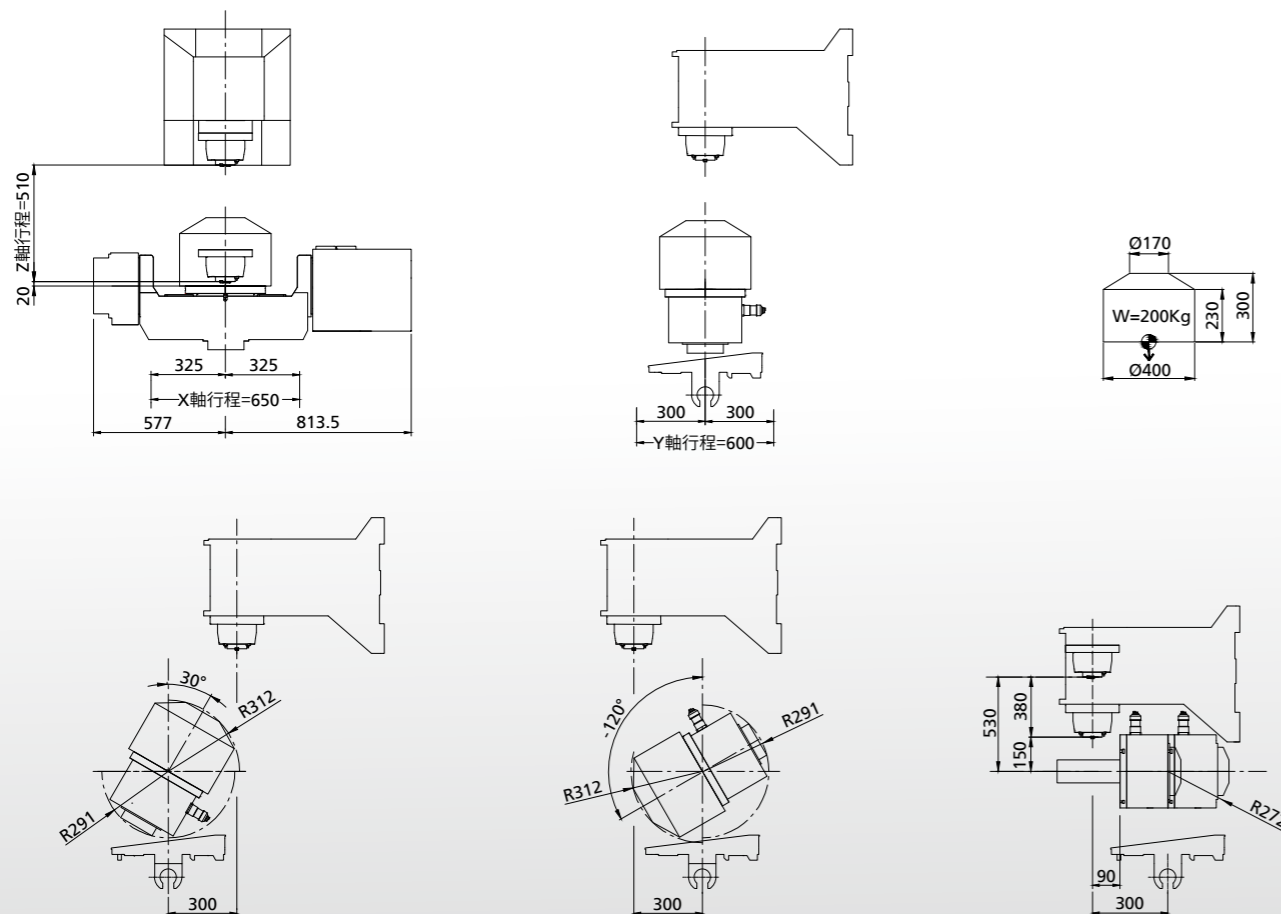
Remark: () value is with close loop encoder



TABLE SIZE AND MACHINE LAYOUT



TRAVEL SIMULATION DRAWING



SPECIFICATION

MODEL	CV-400U/A CVM-400U/A		
Travel			
X-axis	mm	650	
Y-axis	mm	600	
Z-axis	mm	510	
A-axis Tilting Range	degree	+30° ~ -120°	
C-axis Tilting Range	degree	360 (cont.)	
BC Axis Spin Rate	rpm	25/25	
Guide Way (X/Y/Z)	type	X-axis:35mm,Y/Z-axis:45mm, Roller Type Linear Guide Way	
Distance From Spindle Nose To Table Surface	mm	20-530	
Distance From Spindle Center To The Track Surface Of Z-axis	mm	641(614)	
Table			
Table Dimension	mm	Ø350	
Max. Loading Capacity	kg	200(19Kg-m)	
Max. Workpiece Size	mm	Ø400xH300	
T-Slots (number*width*pitch)	no x mm	12H7X4	
Spindle			
Spindle Speed (ST)	rpm	Direct Driven 12000	
Spindle Speed (OP)	rpm	Direct Driven 15K / Built-in 20K	
Spindle Taper	type	#40	
Spindle Bearing Bore Diameter	mm	Ø70	
Feed			
Rapid Travel Rate (X/Y/Z)	m/min	36/36/36	
Cutting Rate	m/min	1-10	
Manual JOG Feed Rate	m/min	4(20steps)	
ATC			
Tool Shank Type	type	MAS BBT-40	
Pull Stud	type	MAS BBT-40/P40-T-2	
Auto Tool Change System		Arm-Type	
Magazine Capacity (ST)	tools	24 (Cam Type)	
Magazine Capacity (OP)	tools	30/32/40T	
Max. Tool Diameter (with adjacent tool)	mm	Ø75	
Max. Tool Diameter (without adjacent tool)	mm	Ø125	
Max. Tool Length	mm	280	
Max. Tool Weight	kg	7	
Tool Change Time (tool to tool)	sec	2	
Tool Change Time (time to time)	sec	5	
Motor (FANUC)			
Spindle Motor (cont./30min) (ST)	kW	7.5/11	
Feed Motor (X/Y/Z)	kW	4.0 / 4.0 / 7.0	
A/C Axis Motor	kW	3/1.4	
Coolant Motor	kW	0.75x2	
Power Supply			
Power Supply	kVA	35	
Compressed Air Supply	MPa, l/min	0.6 · 500	
Coolant Tank Capacity	L	420	
Controller		Fanuc/ Mitsubishi/ Seimens/ Heidenhain	
External Dimension			
Width	mm	3030	
Length	mm	3009	
Height	mm	2971	
Net Weight	kg	6200	
Accuracy By Laser (following values were tested in the temperature-controlled room)			
ISO 10791	Positioning	mm	0.009
Accuracy	Repeatability	mm	0.006
JIS 6338	Positioning (within 300mm)	mm	±0.004
Accuracy	Repeatability (within 300mm)	mm	±0.002
Packing For Export			40'HQ

ACCESSORIES

● : Standard Specification ○ : Optional Specification
★ : Consulting Required - : Inadaptable

SPECIFICATION / MODEL	CV-400U/A CVM-400U/A
Spindle	
BT-40 Direct Driven 12000rpm (7.5/11kw)	●
BT-40 Direct Driven 15000rpm (11/15kw)	○
BT-40 Direct Driven 12000/15000rpm (11/15kw)	○
BT-40 Built-in 20000rpm (25/29kw)	○
Tool Magazine	
Magazine Capacity	24 Tools (Cam Type) ● 32 Tools (Cam Type) ○ 40 Tools (Cam Type) ○
Tool	
Tool shank	MAS BT-40 ● CAT-40 ○ DIN-40 ○
Pull Stud	MAS BT-40 / P40-T-1 ●
Coolant	
Coolant System	●
Coolant Through Spindle	○
Coolant Through Tool And Tool Holder	○
Oil Skimmer	○
Oil-Mist Coolant System	○
Chip Flush Coolant System	○
Coolant Gun	●
Chip Disposal System	
Lift-up Chip Conveyor(Chain Type)	○
Lift-up Chip Conveyor(Scrape Type)	○
Screw Type Chip Conveyor (front of base)	○
Air Blast Function For Workpiece (M07)	●
Spindle Air Blast	○
Oil-Mist Collection System	○
Measurement System	
Tool Length Measurement	○
Workpiece Measurement	○
Operation Support	
Auto Power Off (M30)	●
Automatic Door	○
Manual Pulse Generator (MPG)	●
High Accuracy Control	
Linear Scales (axis X/Y/Z)	○
Linear Scales (axis A/C)	○
Pitch Compensation System	○
Safety System	
Full Enclosure	●
Air Pressure Detection System	○
Others	
Interior Lighting Lamp (Fluorescent Lamp*1)	○
Work Light & Tri-Color Status Light	○
Leveling Bolts & Pads	●
Tool Box	○
Spindle Oil Cooler	○
4th Axis Interface	○
Rotary Table 4th Axis	○
Air Conditioner Unit For Electric Cabinet	○
KAFO Customized Calculator Software Function	○
Hydraulic Unit	○
Z-axis Riser	○

- The specification is for reference only. KAFO remains the right to modify machine specification, design or property and without prior notice.
- The positioning accuracy inspection is only allowed to execute in KAFO's factory, may not provide inspection at other time after leaving.
- The temperature of machine installing environment must be 5-40 degrees, the surrounding temperature difference should be within 4 degrees, 0.67 degrees per hour, under 4 degrees within 6 hours.
- As for more details, please refer to operating manual or contact with KAFO sales.

CV-W/CVM-W SERIES

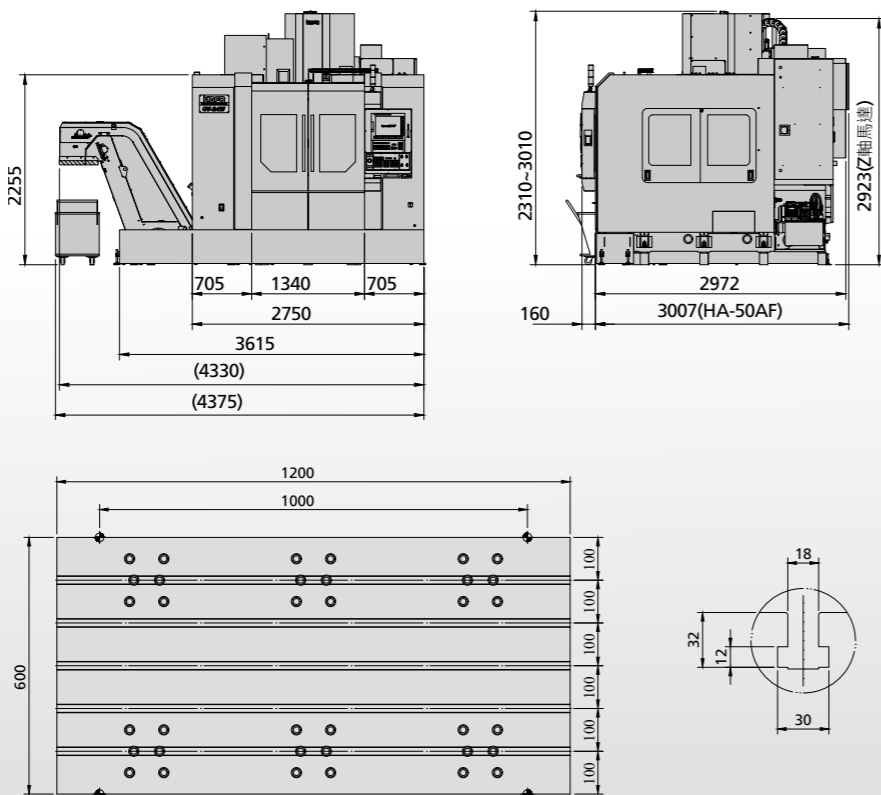
VERTICAL MACHINING CENTER / CNC

CV-24W SERIES FEATURES / CV-24W

- Product is positioned in small amount proofing and large volume vehicle rims manufacturing. To accomplish high machining rate, rapid travel rate is set as three-axis 36/36/32m/min (OP 48/48/32m/min). Tool to tool change time is standard 2.3sec (OP 1.5sec), adopting BT40 direct-driven spindle with standard 12000rpm (OP 15000rpm, Oil mist)
- Three-axis adopts 45mm roller type linear guideway. Y axis equips 6 supporting blocks, offering optimized rigidity, heavy loading, low friction, and long durability.
- Targeting at vehicle rims curved surface machining, C2 level high precision ball screw and direct-driven 15000rpm oil mist spindle deliver outstanding performance towards machining efficiency, surface roughness, and surface brightness.
- Adopting front rapid chip removal design, optional lift-up chip conveyor(scrape type), allow huge amount of tiny chips being removed effectively. Offering water tank and coolant long lasting usage time.
- Five main casting structure the machine with optimal analyze and strengthened design, delivering high cutting performance and machining stability.



TABLE SIZE AND MACHINE LAYOUT



CV TABLE VIEW

SPECIFICATION

MODEL	CV-24W CVM-24W		
Travel			
X-axis	mm	1000	
Y-axis	mm	730	
Z-axis	mm	700	
Guide Way (X/Y/Z)	type	45mm, Roller Type Linear Guide Way	
Distance From Spindle Nose To Table Surface	mm	300~1000	
Distance From Spindle Center To The Track Surface Of Z-axis	mm	790	
Table			
Table Dimension	mm	1200x600	
Max. Loading Capacity	kgs	1000	
T-Slots (number*width*pitch)	no x mm	5x18mmx100mm	
Spindle			
Spindle Speed (ST)	rpm	Direct Driven 10000	
Spindle Speed (OP)	rpm	Direct Driven 12000/15000 / Built-in 20000	
Spindle Taper	type	#40	
Spindle Bearing Bore Diameter	mm	Ø70	
Feed			
Rapid Travel Rate (X/Y/Z)	m/min	36/36/32 (48/48/32)	
Cutting Rate	m/min	10	
Manual JOG Feed Rate	m/min	4(20 段)	
ATC			
Tool Shank Type	type	MAS BT-40 (CAT-40/DIN-40)	
Pull Stud	type	MAS BT-40/P40-T-1 (CAT-40/DIN-40)	
Auto Tool Change System		Arm-Type	
Magazine Capacity (ST)	tools	24 (Cam Type)	
Magazine Capacity (OP)	tools	30/32/40	
Max. Tool Diameter (with adjacent tool)	mm	Ø75	
Max. Tool Diameter (without adjacent tool)	mm	Ø150	
Max. Tool Length	mm	300	
Max. Tool Weight	kg	7	
Tool Change Time (tool to tool)	sec	2	
Tool Change Time (time to time)	sec	4.5	
Motor (FANUC)			
Spindle Motor (cont./30min) (ST)	kW	7.5/11	
Feed Motor (X/Y/Z)	kW	7/7/7	
Coolant Motor	kW	0.75	
Power Supply			
Power Supply	kVA	35	
Compressed Air Supply	MPa, l/min	0.6 · 500	
Coolant Tank Capacity	L	500	
Controller		Fanuc/ Mitsubishi/ Seimens/ Heidenhain	
External Dimension			
Width	mm	4375	
Length	mm	3360	
Height	mm	3010	
Net Weight	kg	8000	
Accuracy By Laser (following values were tested in the temperature-controlled room)			
ISO 10791 Accuracy	Positioning	mm	0.012
	Repeatability	mm	0.01
JIS 6338 Accuracy	Positioning (within 300mm)	mm	±0.004
	Repeatability (within 300mm)	mm	±0.002
Packing For Export			20'FR

- The specification is for reference only. KAFO remains the right to modify machine specification, design or property and without prior notice.
- The positioning accuracy inspection is only allowed to execute in KAFO's factory, may not provide inspection at other time after leaving.
- The temperature of machine installing environment must be 5~40 degrees, the surrounding temperature difference should be within 4 degrees, 0.67 degrees per hour, under 4 degrees within 6 hours.
- As for more details, please refer to operating manual or contact with KAFO sales.

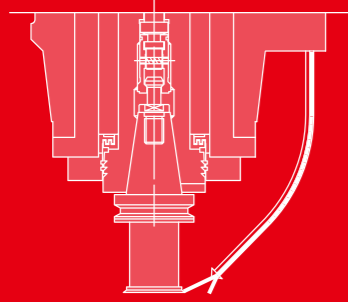
ACCESSORIES

● : Standard Specification ○ : Optional Specification
★ : Consulting Required - : Inadaptable

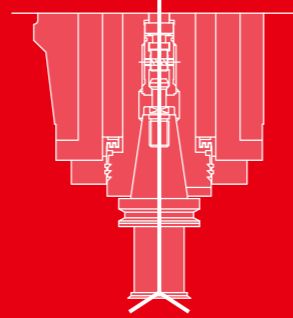
SPECIFICATION / MODEL	CV-24W CVM-24W
Spindle	
BT-40 Belt Head 8000/10000rpm (7.5/11kw)	-
BT-40 Belt Head 8000/10000rpm (11/15kw , 15/18.5kw)	-
BT-40 Direct-Driven 10000/12000rpm (7.5/11kw)	●
BT-40 Direct-Driven 10000/12000rpm (11/15kw , 15/18.5kw)	○
BT-40 Gear Head 6000rpm (7.5/11kw)	-
BT-40 Gear Head 7000/8000rpm (7.5/11kw)	-
BT-40 Gear Head 6000/7000/8000rpm (15/18.5kw)	-
BT-50 Gear Head 6000rpm (15/18.5kw)	-
BT-50 Gear Head 7000/8000rpm (15/18.5kw)	-
BT-50 Gear Head 6000/7000/8000rpm (22/26kw)	-
BT-50 Direct-Driven 10000rpm (15/18.5kw)	-
BT-50 Direct-Driven 10000rpm (22/26kw)	-
Tool Magazine	
Magazine Capacity	24 Tools (Cam Type) ● 30 Tools (Cam Type) ○ 32 Tools (Cam Type) ○ 40 Tools (Cam Type) - 60 Tools (Cam Type) -
Tool	
Tool Shank	MAS BT-40 ● CAT-40 ○ DIN-40 ○ MAS BT-50 - CAT-50 - DIN-50 -
Pull Stud	MAS BT-40 / P40-T-1 ● MAS BT-50 / P50-T-1 -
Coolant	
Coolant System	●
Coolant Through Spindle	○
Coolant Through Tool And Tool Holder	○
Oil Skimmer	●
Oil-Mist Coolant System	○
Chip Flush Coolant System	●
Coolant Gun	●
Chip Disposal System	
Lift-up Chip Conveyor(Chain Type)	○
Lift-up Chip Conveyor(Scrape Type)	○
Screw Type Chip Conveyor (front of base)	-
Screw Type Chip Conveyor (behind of table)	-
Screw Type Chip Conveyor (on either sides of base)	-
Air Blast Function For Workpiece (M07)	●
Spindle Air Blast	○
Oil-Mist Collection System	○
Measurement System	
Tool Length Measurement	○
Workpiece Measurement	○
Operation Support	
Auto Power Off (M30)	●
Automatic Door	○
Manual Pulse Generator (MPG)	●
High Accuracy Control	
Linear Scales (axis X/Y/Z)	○
Safety System	
Full Enclosure	●
L Type Splash Guard	-
Splash Guard For Table	-
Air Pressure Detection System	-
Others	
Interior Lighting Lamp (Fluorescent Lamp*1)	●
Work Light & Tri-Color Status Light	●
Leveling Bolts & Pads	●
Tool Box	○
4th Axis Interface	○
Rotary Table 4th Axis	○
Air Conditioner Unit For Electric Cabinet	○
KAFO Customized Calculator Software Function	○
Z-axis Riser	-
Z-axis Travel Extend	-

TOOL SHANK & PULL STUD SPEC

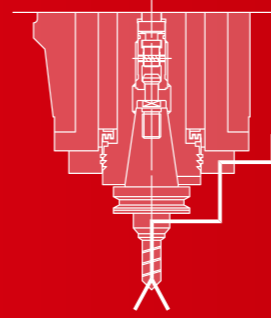
/ STANDARD COOLANT NUZZLE



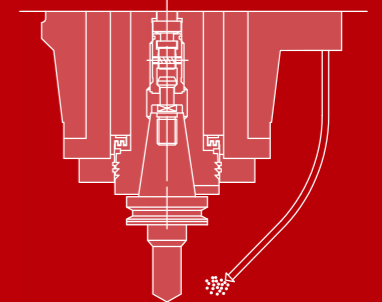
/ SPECIAL TYPE COOLANT THROUGH SPINDLE



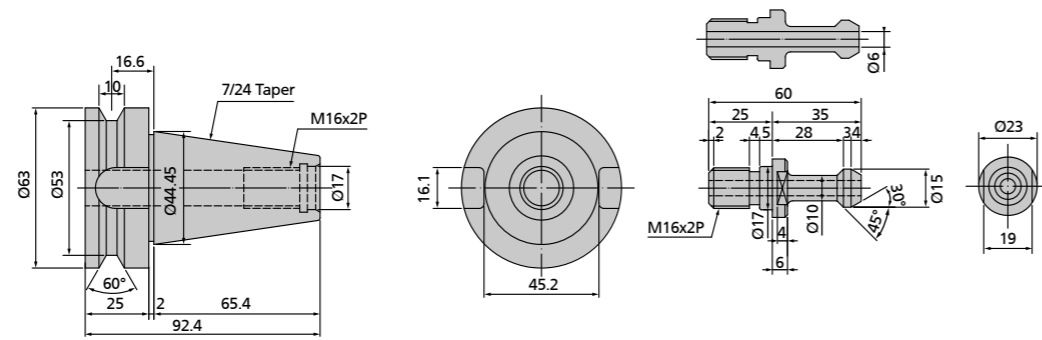
/ SPECIAL TYPE COOLANT THROUGH TOOL AND TOOL HOLDER



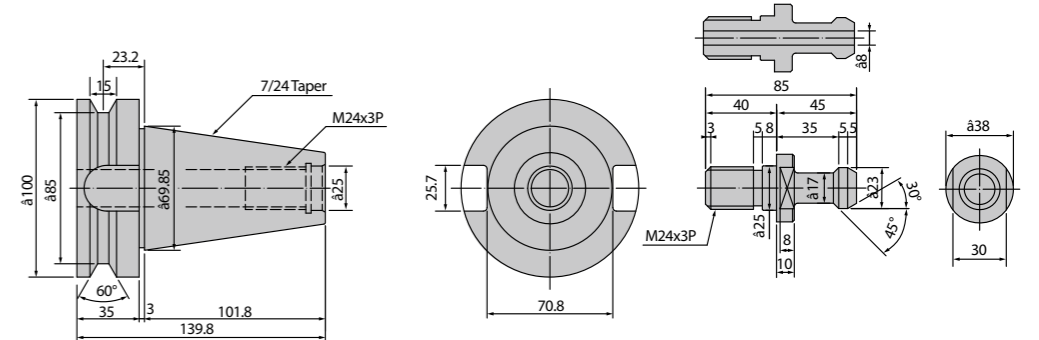
/ SPECIAL TYPE OIL-MIST COOLANT SYSTEM



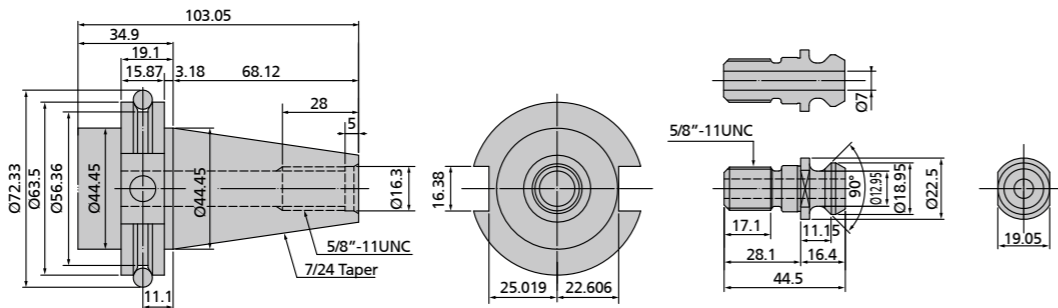
/ MAS BT-40+ MAS P40T Tooling Dim. (CTS)



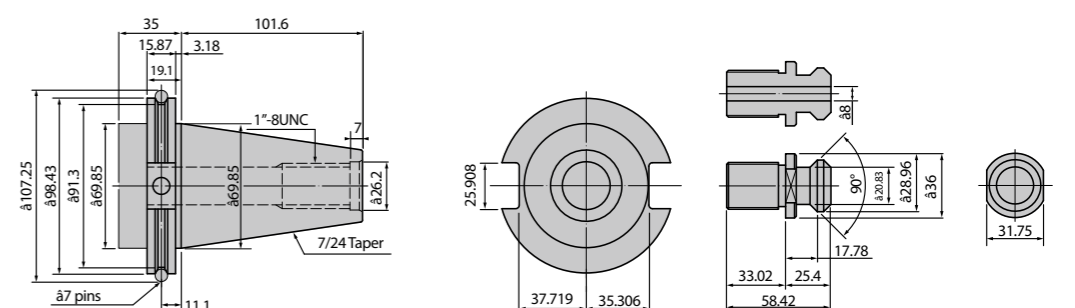
/ MAS BT-50+ MAS P50T Tooling Dim. (CTS)



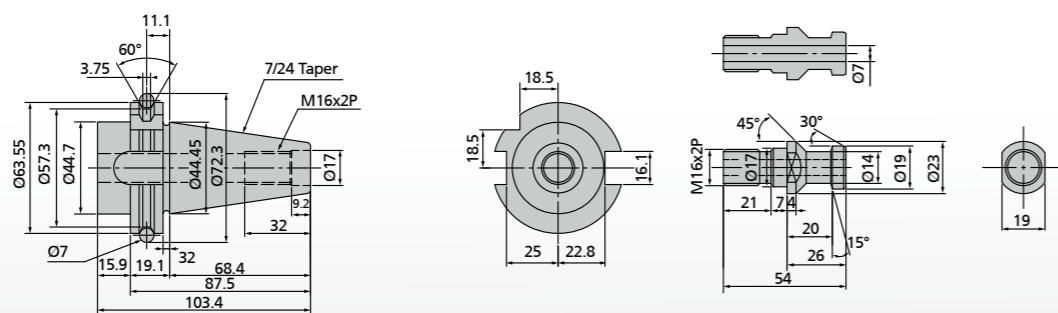
/ V-Flange CAT-40+ V-Flange CAT-40 Tooling Dim. (CTS)



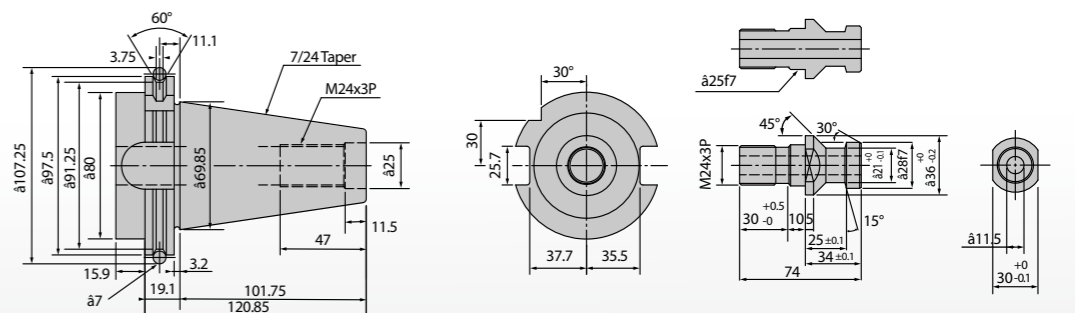
/ V-Flange CAT-50+ V-Flange CAT-50 Tooling Dim. (CTS)



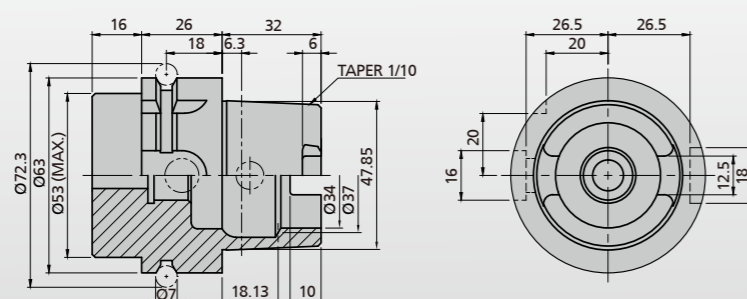
/ DIN69871(#40) + DIN69872-B(#40) Tooling Dim. (CTS)



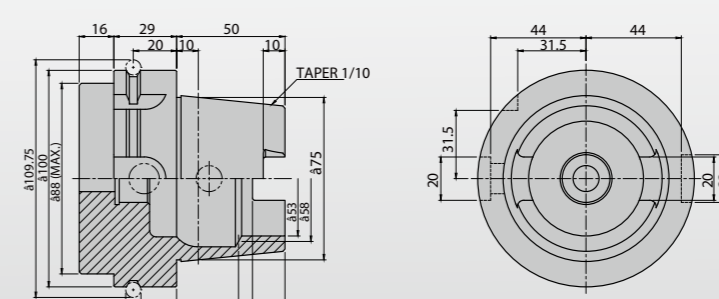
/ DIN69871A(#50)+ DIN69872-A(#50) Tooling Dim. (CTS)



/ HSK 63A (ISO-12164-1) (CTS)



/ HSK 100A (ISO-12164-1)(CTS)



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
- Agent : Taipei, Taoyuan, Tainan, Kaohsiung
- Mainland China
- Worldwide



Global Marketing Information

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



Vision



Hearing



Smell



Taste



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.



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: February, 2023