KMC-RF

KAO MING SCIENTIFIC AND TECHNOLOGICAL GIANT OF THE MOST HUMANE INTENTION !

KAO MING MACHINERY INDUSTRIAL CO., LTD

KM KAO MING
ONE MORE STEP TO EXCELLENCE

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Night activities of the owl even in the dark can accurately capture the prey.

In Japan, the owl's pronunciation which is HUKUROU extends out the meanings of not hard- working, not old, and flourishing, which are the symbol of "all wisdom".

Owls are with silent feathers when wing, sharp eyes without missing little shimmer, ears which can distinguish the prey position and claws can make prey killed in a moment and other characteristics. These characteristics are other birds they do not have.

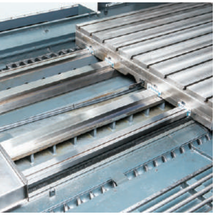
Kao Ming has excellent team, the ultimate quality and efficient production capacity. Master every aspect from each detail. Control strictly and adhere the quality requirements to make sure each machine is high-speed, high-precision and superior quality. Facing the environment advancing as time goes by, Kao Ming can see the target in the dark to fly toward the ultimate road!

KMC-RF *SERIES*

High Rigidity Double-Column Machining Center

1. All 3 axes travels are fully supported by boxway hereby ensuring the rigidity and stability.
2. 3 axes have larger travel range; extraordinarily Z-axis stroke is 1100mm(43.3").
3. A properly preloaded and pretension, large diameter ballscrew is used for three axes. X-axis has a hollow ballscrew with oil cooled and is equipped with a special design to cool the ballscrew bearings by air for getting the better positioning accuracy.
4. The superior, hardened and ground double guide way constructed bed is designed for a distance between columns of under 82"(2100mm). For big parts machining will need heavy loading capacity, so our "D" model up (distance between two columns 90.55"(2300mm)), machine base has four box way to support – a slide and rolling combined design; center box way for main support is hardened and ground, with Turcite-B which have strong absorb ability can keep dynamic rigidity during heavy cutting, and 2 sides box way the same as center only have extra roller-type recirculating bearing to strengthen support.
5. Linear guideways are designed for a distance of x-axis of over 314.9"(8000mm), center linear guideways for main support, and 2 sides box way the same as center only have extra roller-type recirculating bearing to strengthen support.
6. The bridge machine with Y-axis step design and strong rigidity structure.
7. All 3 axes utilize an external feedback pulse coder for positioning. The pulse coder is coupled to the opposite end of the ballscrew and feedback to servo system directly. This allows for high positioning accuracy.
8. The mounting brackets for the Y and Z axis ballscrews are integrated with the saddle and crossbeam casting to maximize the rigidity further.
9. Mechanical safety couplings are used where the drive motors adapt to the ballscrews. These devices greatly minimize damage that may occur during a collision or overload condition.
10. FEA has been adopted to check the deformation and vibration mode of the machine structure to ensure getting best rigidity and optimum design.
11. A ram-type casted spindle head with a cross section of 400x400mm ensures high rigidity and stability under heavy-duty cutting.
12. Unique design of high torque and high strength spindle head features that the spindle and motor are symmetrically put on the center line, and then reduces the thermal growth.
13. Coolant through spindle system (option) can clean chips from high speed cutting and restrain heat.
14. Horizontal spindle has high-precision hardened and ground spiral bevel gears that can reduce shock and noises effectively to ensure running stability.
15. 2-station AAC(Automatic Attachment Changer) is standard; V-head/H-head change and ATC(V/H) change.
16. Automatic universal head, 30-degree angle head, extension head are optionally available for versatile applications.
17. ATC system is driven with hydraulic indexing motor and dual arm is driven with hydraulic swing motor. This answers tool change speed and stability.
18. With optional FANUC Data server, AICC Ⅱ and Hi-speed processor to achieve Hi-speed and Hi-accuracy Die/Mold machining.
19. Available for mass data pre-processing (look ahead) system.

Breakthrough Creation
And Perfect Appearance

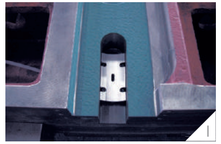


Four guideway high rigidity structure

For big parts machining will need heavy loading capacity, distance between two columns of over 90.55"(2300mm) , machine base has four box way to support – a slide and rolling combined design, center box way for main support is hardened and ground, with Turcite-B which have strong absorb ability can keep dynamic rigidity during heavy cutting, and 2 sides box way the same as center only have extra roller-type recirculating bearing to strengthen support. This design can less loading during movement and get more tolerance, And table's 2 end-front and rear of sliding surface also have roller-type recirculating bearing for precisely adjust the geometry accuracy to use. To assembly with recirculating bearing, hardness of box way surface must be more than HRC58°. Therefore we make box way tightened on the casting base or welded on the fabricated base.

Double box way construction

The heavy duty, ground double guide way constructed bed is designed for a distance between columns of under 82"(2100mm), hardened and ground with Turcite-B which have strong absorb ability can keep dynamic rigidity during heavy cutting, box way construction is of Meehanite cast iron and is designed and inspected by FEA (Finite Element Analysis) to ensure excellent rigidity, suitable for both high speed and heavy duty cutting for many years.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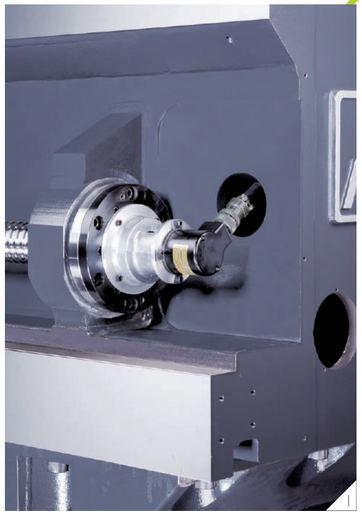
| 1 | Sliding Face Scraping
| 2 | Roller-type recirculating bearing
| 3 | Thanks to the design of enlarging the dimensions of the column-down,following reinforced foundation make the machine more stable.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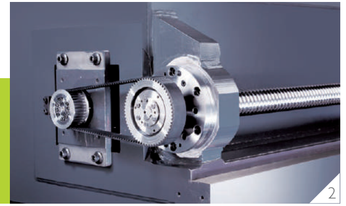
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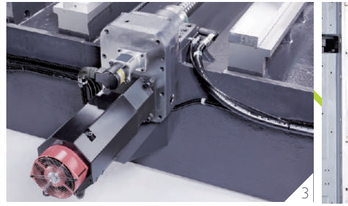
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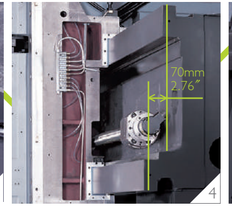

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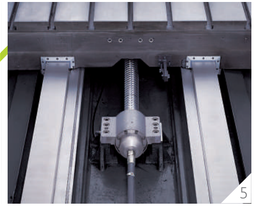
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| 1 | Integral Ballscrew Mounting Brackets

The ballscrews are supported by a double anchor system, which greatly improves the rigidity of the axis by minimizing vibration during feeding. The mounting brackets for the Y and Z-axis ballscrews are integrated with the saddle and crossbeam castings to maximize the rigidity further.

| 2 | Axis Safety Protection

Safety couplings are used where the drive motors adapt to the ballscrews. These devices greatly minimize damage that may occur during a collision or overload condition.

| 3 | External Axis Position Feedback

All 3 axes utilize an external feedback pulse coder for positioning. For machine models over 3000, the ballscrew is driven by a motor and gear box for added strength to the axis feed system. The external position feedback pulse coder is coupled directly to the opposite end of the ballscrew. This allows for high positioning accuracy to be maintained by measuring the true rotation of the ballscrew.

| 4 | Y-Axis Step Design

The Y-axis utilizes a superior design whereby the lower slideway is offset a full 2.76"(70mm) from the upper slideway. This greatly enhances the rigidity of the headstock by bringing the center of gravity back into the upper support which rests a top the massive columns. This design provides an extremely stable foundation for the spindle head to travel on further enhancing the machines performance when doing heavy cutting.

| 5 | Inner Cooled Ballscrew

A properly preloaded and pretension, large diameter ballscrew with a double re-circulating ball nut is used for each axis throughout the entire machine series. For the machine models KMC-2000~KMC-5000 with the longer X-axis travels, a hollow state-of-the-art ballscrew is used. Cooled oil continuously flows through the center of the ballscrew. The temperature of the oil is cooled, circulating through an external heat exchanger. This greatly enhances the machine's performance and accuracy by practically eliminating thermal growth of the axis especially when using the full traverse. Both support ends of the X-axis ballscrew are equipped with a special design to cool the bearings by air. This superior design is unique to Kao Ming.

| 6 - 9 |

PRECISE SCRAPING

In order to ensure the machine accuracy to achieve the highest standards, scrapping technique is the key. The mutual precision relationship between each structure, including perpendicularity, parallelism, flatness and other geometric accuracy, relies on experienced and professional scraping technicians carved step by step. The contact rate of each scraping point per unit is the highest standard for precision machines. During scraping process, sophisticated inspection instruments are applied for calibrating the machine's geometric accuracy to the best condition.


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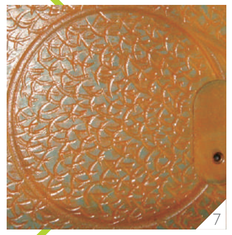
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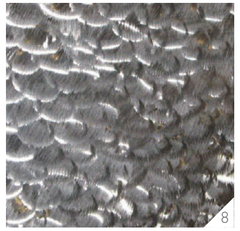
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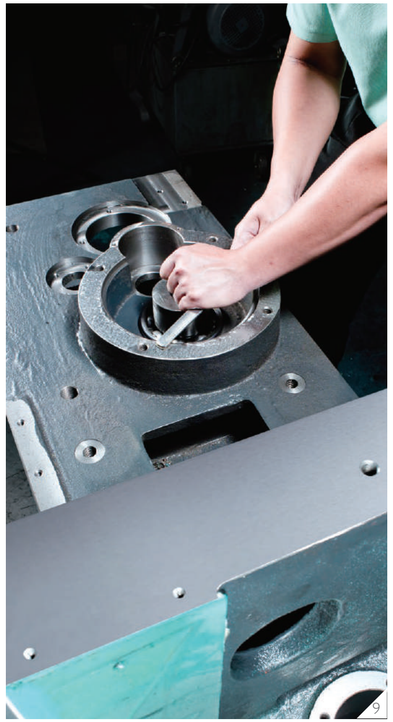
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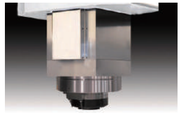
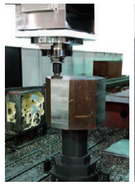
HEAVY-DUTY CUTTING


400 x 400 RAM

BEST LAYOUT OF SPINDLE SYSTEM

One piece with square shape headstock.
Unique design of spindle head features that the spindle and motor are symmetrically put on the center line, and then reduces the thermal growth.

V-HEAD CUTTING EXAMPLE



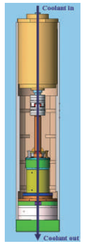
V-HEAD CUTTING EXAMPLE

(TEST IN THE BEST ENVIRONMENT)

Face mill cutter (mm)	ø125
Work material	S45C
Spindle speed (rpm)	400
Cutting width (mm)	100
Cutting depth (mm)	7
Feedrate (mm/min)	1000
Cutting capacity (cm^3/min)	700

IDD SPINDLE IN-LINE DESIGN

Spindle and spindle motor are arranged in the connection of an IDD (Isolated Direct Drive) system. This arrangement can reduce the heat transfer , and increase the performance of the machine.



Powerful 30 / 35HP spindle motor is adopted to make the spindle have maximum output torque 653Nm and maximum speed 6000rpm / *8000rpm.

IN-LINE design for 2-speed gear spindle head is optionally available. This system can make the coolant flow straightly through motor, reducer,spindle and attached head.

COOLANT THROUGH SPINDLE SYSTEM

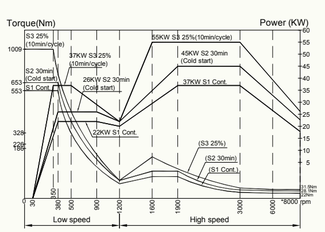
The optional, coolant through the spindle feature utilizes a complete pump/filtration system, rather than a single auxiliary pump as commonly used by our competition. This system is equipped with a large 600L capacity reservoir, high pressure pump, and duplex filter unit, with a choice of various output pressures.

Coolant Through Spindle System

	Medium pressure		High pressure	
Pressure	20bar(284psi)	40bar(568psi)	70bar(994psi)	
Quantity	30L/min (7.92gal/min)	30L/min (7.92gal/min)	30L/min (7.92gal/min)	

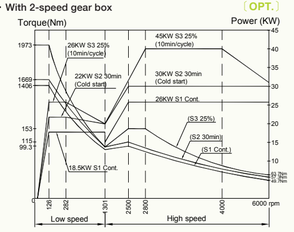
Spindle Output And Torque

KMC-RF Spindle Output & Torque Diagram(6000/*8000rpm)



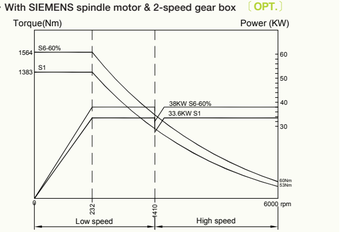
KMC-RF Spindle Output & Torque Diagram(6000rpm)

・With 2-speed gear box 〔OPT.〕



KMC-RF Spindle Output & Torque Diagram(6000rpm)

・With SIEMENS spindle motor & 2-speed gear box 〔OPT.〕

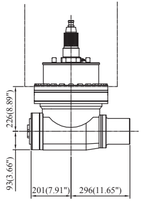


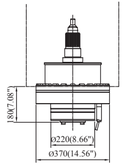
AUTOMATIC TOOL CHANGER

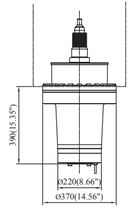


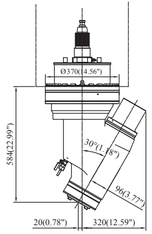


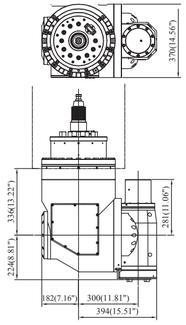
	Horizontal Head	Vertical Head	Extension Head	30-Degree Angle Head	Automatic Universal Head
Max. Speed	3500 rpm	6000 / *8000 rpm	4000 rpm	3500 rpm	3500 rpm
Max. Power	18.5 / 22 kw	22 / 25 kw	22 / 26 kw	18.5 / 22 kw	25 kw
Application	Powerful vertical cutting	powerful horizontal cutting	Narrow deep machining	Deep vertical wall machining	Inclined plane machining











Horizontal Head

Horizontal head can be indexed to 4 positions in 90° increments. It is indexed by the shortest path. For complex workpieces, indexing to 72 positions in 5° increments is optionally available.

Horizontal head employed high-precision hardened and ground spiral bevel gears that could reduce shocks and noises effectively to ensure running stability.

Extension Head

Narrow deep machining.

30-Degree Angle Head

Deep vertical wall machining and die/mold machining.

Automatic Attachment Changer

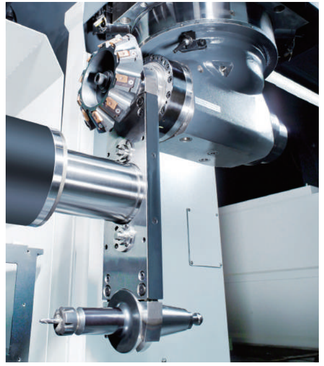
Using high hardness gear rack and pinion for the transmission mechanism can reach to high stability and good durability.

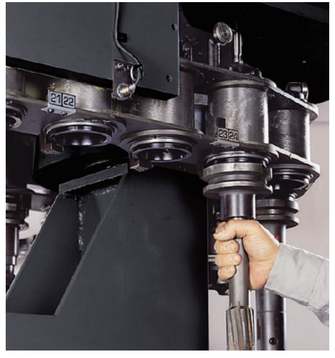
Using servo motor as the power source can reach high positioning accuracy, small vibration and does not affect the machine processing accuracy

The slides of head is supported by the whole stroke, providing reliable rigidity for the head change.

2-position AAC (Automatic Attachment Changer) is designed for improving productivity.

Angular attachment and vertical head cap are put in AAC magazine which has upper and lower seat and moves back and forth - separately or together. The unique design of AAC magazine can be allowed to extend more stations for application.



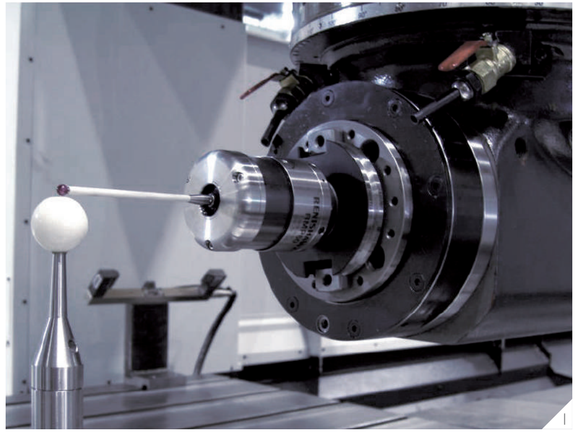


Powerful, High speed ATC

The standard tool magazine is equipped with 30 tool capacity, and can be upgraded to a 40, 50, 60, or 90 tool capacity. The unique double-arm tool change design, powered by a durable, high speed motor, greatly reduces tool change time to less than 6 sec.(T to T). the tool change storage and retrieval system is accomplished by a high quality, high performance, bi-directional hydraulic index motor which further enhances the ATC.

Convenient tool loading system.

Tool loading and unloading can be performed at either the spindle or tool storage magazine A foot pedal is provided at both locations allowing for easy handling of even larger tools.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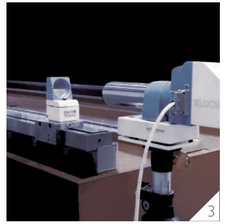
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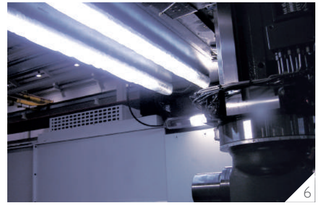
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| 1 | Kinematic Measurement
| 2 | Rigidity Test
| 3 | Straightness Measurement
| 4 | Geometric Accuracy Inspection
| 5.6 | Lighting Measurement

CNC SCREEN MACHINE REMOTE DIAGNOSIS FUNCTION (Optional)

Our company can confirm the machine through the IP address of PC when machine is breakdown. We will shift directly the user's screen from the far-end, and the controller can provide the connection of software to send "NC program", "PLC program" ,"Machine parameter" ,and " Cutting tool data table", etc. It can not only diagnose, operate, and detect data, but also rivise data to subscriber's premises from the far-end. This function ONLY uses through the PC (with network), it can NOT operate in MDI pattern.


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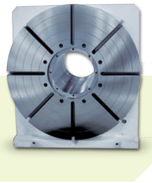
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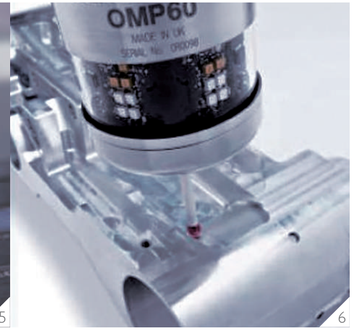

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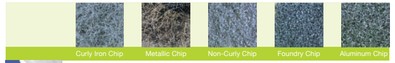
Standard Accessories

| 1 | Electrical cabinet cooling system.
| 2 | Spindle cooling system.

Optional Accessories

| 3 | Link-type chip conveyor
| 4 | NC rotary table
| 5 | Automatic tool length measuring system
| 6 | Automatic touch probe centering system

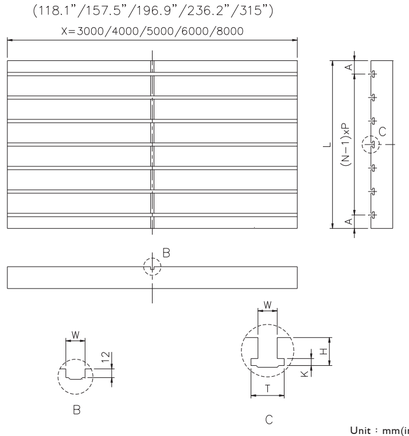
How to select a suitable conveyor according to different types of chips



Steelbelt Chip Conveyor

Scraper type Chip Conveyor (Suitable for dry Chips under 60mm)

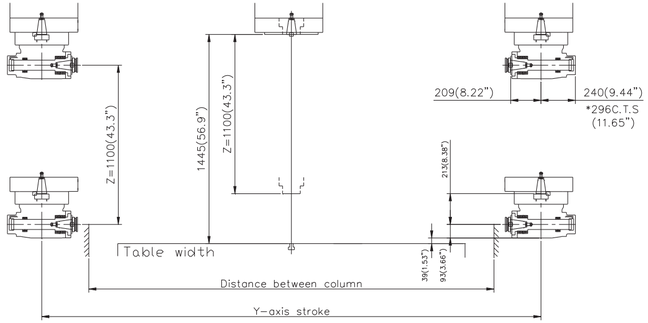
RF Series Table Dimensions



Unit : mm(inch)

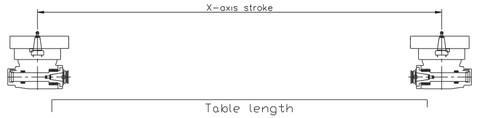
Distance between columns	1800 (70.8")	2100 (82.6")	2300 (90.5")	2500 (98.4")	2800 (110.2")	3200 (125.9")	3600 (141.7")
L	1650(64.9")	2000(78.7")	2400(94.5")	2600(102.4")	3000(118.1")		
A	145(5.7")	80(3.1")	100(3.9")	100(3.9")	100(3.9")		
N	9	9	11	13	15		
P	170(6.6")	230(9.0")	220(8.67")	200(78.7")	200(78.7")		
W	22H8(0.86")	24H8(0.94")	24H8(0.94")	28H8(1.1")	28H8(1.1")		
T	37 +1/0 (1.45")	42 +1/0 (1.65")	42 +1/0 (1.65")	46 +1/0 (1.81")	46 +1/0 (1.81")		
H	38(1.49")	42(1.65")	42(1.65")	52(2.04")	52(2.04")		
K	16 +1/0 (0.62")	18 +1/0 (0.71")	18 +1/0 (0.71")	20 +1/0 (0.78")	20 +1/0 (0.78")		

RF Series Machining Range



Unit : mm(inch)

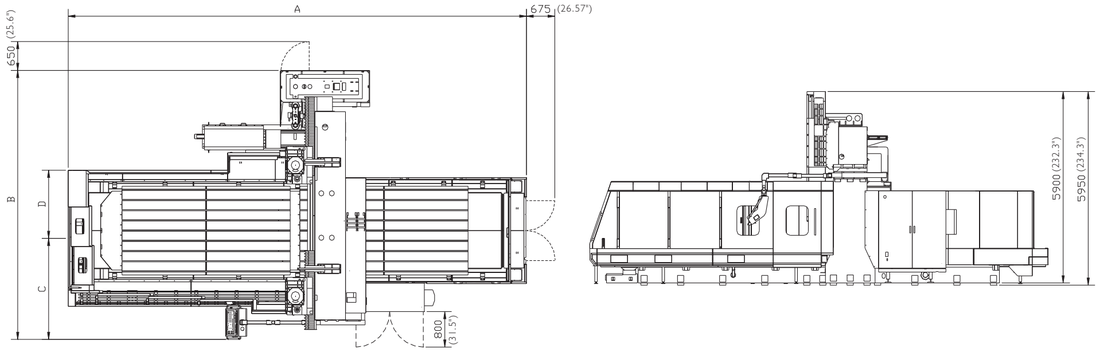
Distance between columns	1800(70.9")	2100(82.6")	2300(90.6")	2500(98.4")	2800(110.2")	3200(125.9")	3600(141.7")
Y-axis stroke	2450(96.5")	2750(108.3")	2950(116.1")	3150(124")	3450(135.8")	3850(151.6")	4250(167.3")



Unit : mm(inch)

Table Length	3000(118.1")	4000(157.4")	5000(196.8")	6000(236.2")	8000(314.9")
X-axis stroke	3230(127.2")	4230(166.5")	5230(205.9")	6230(245.3")	8230(324")

RF Series FLOOR SPACE



Unit : mm(inch)

	318 RF	321 RF	323 RF	325 RF	328 RF	332 RF	418 RF	421 RF	423 RF	425 RF	428 RF	432 RF	436 RF	518 RF	521 RF	523 RF	525 RF	528 RF	532 RF	536 RF	618 RF	621 RF	623 RF	625 RF	628 RF	632 RF	636 RF	818 RF	821 RF	823 RF	825 RF	828 RF	832 RF	836 RF
A	8900(350.6")						10900(429.3")							12900(508.1")							14900(586.9")							18900(744.5")						
B	5562 (219.1")	5862 (230.9")	6062 (238.8")	6262 (246.7")	7260 (285.8")	7675 (302.1")	5562 (219.1")	5832 (230.9")	6062 (238.8")	6262 (246.7")	7260 (285.8")	7675 (302.1")	8095 (318.7")	5562 (219.1")	5862 (230.9")	6062 (238.8")	6262 (246.7")	7260 (285.8")	7675 (302.1")	8095 (318.7")	5562 (219.1")	5862 (230.9")	6062 (238.8")	6262 (246.7")	7260 (285.8")	7675 (302.1")	8095 (318.7")	5562 (219.1")	5862 (230.9")	6062 (238.8")	6262 (246.7")	7260 (285.8")	7675 (302.1")	8095 (318.7")
C	2030 (79.9")	2180 (85.8")	2280 (89.8")	2380 (93.7")	3220 (126.7")	3635 (143.1")	2030 (79.9")	2180 (85.8")	2280 (89.8")	2380 (93.7")	3220 (126.7")	3635 (143.1")	4055 (159.6")	2030 (79.9")	2180 (85.8")	2280 (89.8")	2380 (93.7")	3220 (126.7")	3635 (143.1")	4055 (159.6")	2030 (79.9")	2180 (85.8")	2280 (89.8")	2380 (93.7")	3220 (126.7")	3635 (143.1")	4055 (159.6")	2030 (79.9")	2180 (85.8")	2280 (89.8")	2380 (93.7")	3220 (126.7")	3635 (143.1")	4055 (159.6")
D	1285 (50.6")	1435 (56.5")	1535 (60.4")	1635 (64.3")	1775 (69.9")	1975 (77.76")	1285 (50.6")	1435 (56.5")	1535 (60.4")	1635 (64.3")	1775 (69.9")	1975 (77.76")	2175 (85.6")	1285 (50.6")	1435 (56.5")	1535 (60.4")	1635 (64.3")	1775 (69.9")	1975 (77.76")	2175 (85.6")	1285 (50.6")	1435 (56.5")	1535 (60.4")	1635 (64.3")	1775 (69.9")	1975 (77.76")	2175 (85.6")	1285 (50.6")	1435 (56.5")	1535 (60.4")	1635 (64.3")	1775 (69.9")	1975 (77.76")	2175 (85.6")

	ITEM	KMC-318RF	KMC-321RF	KMC-323RF	KMC-325RF	KMC-328RF	KMC-332RF	KMC-418RF	KMC-421RF	KMC-423RF	KMC-425RF	KMC-428RF	KMC-432RF	KMC-436RF	KMC-518RF	KMC-521RF	KMC-523RF	KMC-525RF	KMC-528RF	KMC-532RF	KMC-536RF
Travels	Distance between columns	1800(70.9")	2100(82.7")	2300(90.6")	2500(98.4")	2800(110.2")	3200(126")	1800(70.9")	2100(82.7")	2300(90.6")	2500(98.4")	2800(110.2")	3200(126")	3600(141.7")	1800(70.9")	2100(82.7")	2300(90.6")	2500(98.4")	2800(110.2")	3200(126")	3600(114.7")
	X-axis(table longitudinal)	3230(127.2")						4230(166.5")							5230(205.9")						
	Y-axis(spindle lateral)	2450(96.5")	2750(108.3")	2950(116.1")	3150(124")	3450(135.8")	3850(151.6")	2450(96.5")	2750(108.3")	2950(116.1")	3150(124")	3450(135.8")	3850(151.6")	4250(167.3")	2450(96.5")	2750(108.3")	2950(116.1")	3150(124")	3450(135.8")	3850(151.6")	4250(167.3")
	Z-axis(spindle vertical)	1100(43.3")													1100(43.3")						
	Distance from table surface to spindle nose	346-1446(13.6"-56.9")													346-1446(13.6"-56.9")						
	Distance from table surface to horizontal spindle center	300-1400(11.8"-55.1")													300-1400(11.8-55.1")						
Table	Table working surface	1650X3000 (65"x118.1")	1650X3000 (65"x118.1")	2000X3000 (78.7x118.1")	2000X3000 (78.7x118.1")	2400X3000 (94.5"x118.1")	2600X3000 (102.4"x118.1")	1650X4000 (65"x157.5")	1650X4000 (65"x157.5")	2000X4000 (78.7"x157.5")	2000X4000 (78.7"x157.5")	2400X4000 (94.5"x157.5")	2600X4000 (102.4"x157.5")	3000X4000 (118.1"x157.5")	1650X5000 (65"x196.9")	1650X5000 (65"X196.9")	2000X5000 (78.7"x196.9")	2000X5000 (78.7"x196.9")	2400X5000 (94.5"x196.9"")	2600X5000 (102.4"x196.9")	3000X5000 (118.1"x196.9")
	Max.table load	11000 kg (24200 lb)	12000 kg (26400 lb)	15000/*20000 kg (33000/*44000 lb)				13000 kg (28600 lb)	14000 kg (30800 lb)	16000/*20000 kg (35200/*44000 lb)					15000 kg (33000 lb)		18000/*22000 kg (39600 lb/*48400 lb)				
Spindle	Spindle speed Vertical	6000(*8000)rpm													6000(*8000)rpm						
	Spindle speed Horizontal	3500rpm													3500rpm						
	No. of spindle speed	IDD													IDD						
	Spindle taper	ISO 50													ISO 50						
	Spindle motor(cont./30min)	AC 22/26/37KW(30/35/50HP)													AC 22/26/37KW(30/35/50HP)						
	Max. spindle torque	553/653/1009Nm													553/653/1009Nm						
Feed rate	Rapid traverse(X.Y.Z) (m/min)	(12,12,10)	(12,12,10)	(12,12,10)	(12,12,10)	(12,12,10)	(12,10,10)	(10,12,10)	(10,12,10)	(10,12,10)	(10,12,10)	(10,12,10)	(10,10,10)	(10,8,10)	(8,12,10)	(8,12,10)	(8,12,10)	(8,12,10)	(8,12,10)	(8,10,10)	(8,8,10)
	Rapid traverse(X.Y.Z) (ipm)	(472,472,393)	(472,472,393)	(472,472,393)	(472,472,393)	(472,472,393)	(472,393,393)	(393,472,393)	(393,472,393)	(393,472,393)	(393,472,393)	(393,472,393)	(393,393,393)	(393,315,393)	(315,472,393)	(315,472,393)	(315,472,393)	(315,472,393)	(315,472,393)	(315,393,393)	(315,315,393)
	Cutting feed rate	1-8000 mm/min(0.1-313.7 ipm)						1-8000 mm/min(0.1-313.7 ipm)						1-5000 mm/min (0.1-197ipm)	1-5000 mm/min(0.1-197ipm)						
Automatic tool changer(V/H)	Tool shank shape	MAS403-BT50													MAS403-BT50						
	Pull stud	MAS-P50T-I													MAS-P50T-I						
	Tool magazine capacity	30(*40,*50,*60,*90)													30(*40,*50,*60,*90)						
	Max. tool diameter (without adjacent tools)	Ø130, ((Ø200/7.87")) [Ø5.7", ((Ø7.87"))]													Ø130(5.12"), ((Ø200/7.87")) [Ø5.7", ((Ø7.87"))]						
	Max. tool length	350(13.8") / 300(11.8")													350(13.8") / 300(11.8")						
	Max. tool weight	20kg(41 lb) / 15kg(33 lb)													20kg(41 lb) / 15kg(33 lb)						
Power sources	Electrical power supply	70 KVA(*80KVA)													70 KVA(*80KVA)						
	Compressed air supply	5-7 kg/cm^2 (71-99.4 psi)													5-7 kg/cm^2 (71-99.4 psi)						
Accuracy	Positioning accuracy	±0.005/300, ±0.015/Full Travel													±0.005/300, ±0.015/Full Travel						
	Repeataability	±0.003(±0.0001")													±0.003(±0.0001")						
Anguiar attachment	Indexing	90° x4(*5° x72)													90° x4(*5° x72)						
	Index repeatability	±3 sec													±3 sec						
Machine size	Machine hight	5900(232.3")													5900(232.3")						
	Floor space(LxW)	8900x5562 (350.6"x219.1")	8900x5862 (350.6"x230.9")	8900x6062 (350.6"x238.8")	8900x6262 (350.6"x246.7")	8900x7260 (350.6"x285.8")	8900x7675 (350.6"x302.2")	10900x5562 (429.3"x219.1")	10900x5862 (429.3"x230.9")	10900x6062 (429.3"x238.8")	10900x6262 (429.3"x246.7")	10900x7260 (429.3"x285.8")	10900x7675 (429.3"x302.2")	10900x8095 (429.3"x318.7")	12900x5562 (508.1"X219.1")	12900x5862 (508.1"x230.9")	12900x6062 (508.1"x238.8")	12900x6262 (508.1"x246.7")	12900x7260 (508.1"x285.8")	12900x7675 (508.1"x302.2")	12900x8095 (508.1"x318.7")
Machine net weight(kg)		32500 (71600 lb)	34500 (76100 lb)	40500 (90000 lb)	41500 (92000 lb)	42500 (94000 lb)	44050 (97200 lb)	38500 (85000 lb)	39500 (87100 lb)	45500 (101000 lb)	46500 (103000 lb)	47500 (105000 lb)	48800 (108000 lb)	55000 (122000 lb)	42500 (94000 lb)	43500 (96000 lb)	52500 (116000 lb)	53500 (119000 lb)	54500 (121000 lb)	56000 (124000 lb)	60500 (134000 lb)
CNC controller		FANUC 0i(*31i)series, *HEIDENHAIN, *SIEMENS																			

*Option Design and specifications are subject to change without notice. (( ))Max. tool diameter(without adjacent tools) IDD : Inline Direct-Drive

Unit : mm

	ITEM		KMC-618RF	KMC-621RF	KMC-623RF	KMC-625RF	KMC-628RF	KMC-632RF	KMC-636RF	KMC-818RF	KMC-821RF	KMC-823RF	KMC-825RF	KMC-828RF	KMC-832RF	KMC-836RF
Travels	Distance between columns		1800 (70.9")	2100(82.7")	2300(90.6")	2500(98.4")	2800(110.2")	3200(126")	3600(141.7")	1800(70.9")	2100(82.7")	2300(90.6")	2500(98.4")	2800(110.2")	3200(126")	3600(141.7")
	X-axis(table longitudinal)		6230(245.3")							8230(324")						
	Y-axis(spindle lateral)		2450(96.5")	2750(108.3")	2950(116.1")	3150(124")	3450(135.8")	3850(151.6")	4250(167.3")	2450(96.5")	2750(108.3")	2950(116.1")	3150(124")	3450(135.8")	3850(151.6")	4250(167.3")
	Z-axis(spindle vertical)		1100(43.3")							1100(43.3")						
	Distance from table surface to spindle nose		346-1446(13.6-56.9")							346-1446(13.6-56.9")						
	Distance from table surface to horizontal spindle center		300-1400(11.8-55.1")							300-1400(11.8-55.1")						
Table	Table working surface		1650X6000 (65"x236.2")	1650X6000 (65"x236.2")	2000X6000 (78.7"x236.2")	2000X6000 (78.7"x236.2")	2400X6000 (94.5"x236.8")	2600X6000 (102.4"x236.2")	3000X6000 (118.1"x236.2")	1650X8000 (65"x315")	1650X8000 (65"x315")	2000X8000 (78.7"x315")	2000X8000 (78.7"x315")	2400X8000 (94.5"x315")	2600X8000 (102.4"x315")	3000X8000 (118.1x315")
	Max.table load		16000 kg (35200 lb)	16000 kg (35200 lb)	20000/*25000 kg (44000 lb/*55000 lb)					18000 kg (39600 lb)	18000 kg (39600 lb)	22000/*28000 kg (48400 lb/*61600 lb)				
Spindle	Spindle speed	Vertical	6000(*8000)rpm							6000(*8000)rpm						
		Horizontal	3500rpm							3500rpm						
	No. of spindle speed		IDD							IDD						
	Spindle taper		ISO 50							ISO 50						
	Spindle motor(cont./30min)		AC 22/26/37KW(30/35/50HP)							AC 22/26/37KW(30/35/50HP)						
	Max. spindle torque		553/653/1009Nm							553/653/1009Nm						
Feed rate	Rapid traverse(X.Y.Z)	(m/min)	(7,12,10)	(7,12,10)	(7,12,10)	(7,12,10)	(7,12,10)	(7,10,10)	(7,8,10)	(7,12,10)	(7,12,10)	(7,12,10)	(7,12,10)	(7,12,10)	(7,10,10)	(7,8,10)
		(ipm)	(276,472,393)	(276,472,393)	(276,472,393)	(276,472,393)	(276,472,393)	(276,393,393)	(276,315,393)	(276,472,393)	(276,472,393)	(276,472,393)	(276,472,393)	(276,472,393)	(276,393,393)	(276,315,393)
	Cutting feed rate		1-5000 mm/min(0.1-197ipm)							1-5000 mm/min(0.1-197ipm)						
Automatic tool changer(V/H)	Tool shank shape		MAS403-BT50							MAS403-BT50						
	Pull stud		MAS-P50T-1							MAS-P50T-1						
	Tool magazine capacity		30(*40,*50,*60,*90)							30(*40,*50,*60,*90)						
	Max. tool diameter (without adjacent tools)		Ø130, ((Ø200/7.87")) [Ø5.7", ((Ø7.87"))]							Ø130(5.12"), ((Ø200/7.87")) [Ø5.7", ((Ø7.87"))]						
	Max. tool length		350(13.8") / 300(11.8")							350(13.8") / 300(11.8")						
	Max. tool weight		20kg(41 lb) / 15kg(33 lb)							20kg(41 lb) / 15kg(33 lb)						
Power sources	Electrical power supply		70 KVA(*80KVA)							70 KVA(*80KVA)						
	Compressed air supply		5-7 kg/cm^2 (71-99.4 psi)							5-7 kg/cm^2 (71-99.4 psi)						
Accuracy	Positioning accuracy		±0.005/300, ±0.02/Full Travel							±0.005/300, ±0.02/Full Travel						
	Repeataability		±0.003(±0.0001")							±0.003(±0.0001")						
Anguiar attachment	Indexing		90° x4(*5° x72)							90° x4(*5° x72)						
	Index repeatability		±3 sec							±3 sec						
Machine size	Machine hight		5900(232.3")							5900(232.3")						
	Floor space(LxW)		14900x5562 (586.9"x219.1")	14900x5862 (586.9"x230.9")	14900x6062 (586.9"x238.8")	14900x6262 (586.9"x246.9")	14900x7260 (586.9"x285.8")	14900x7675 (586.9"x302.2")	14900x8095 (586.9"x318.7")	18900x5562 (744.5"x219.1)	18900x5862 (744.5"x230.9)	18900x6062 (744.5"x238.8)	18900x6262 (744.5"x246.9")	18900x7260 (744.5"x285.8")	18900x7675 (744.5"x302.2")	18900x8095 (744.5"x318.7")
Machine net weight(kg)			47500 (105000 lb)	48500 (107000 lb)	57500 (127000 lb)	58500 (130000 lb)	59500 (132000 lb)	62500 (138000 lb)	66500 (147000 lb)	61000 (135000 lb)	63000 (139000 lb)	70500 (156000 lb)	72000 (159000 lb)	74000 (164000 lb)	78000 (172000 lb)	84000 (186000 lb)
CNC controller			FANUC 0i(*31i)series, *HEIDENHAIN, *SIEMENS													

*Option Design and specifications are subject to change without notice. (( ))Max. tool diameter(without adjacent tools) IDD : Inline Direct-Drive

Standard Accessories

1	Coolant Equipment
2	Centralized Automatic Lubrication System
3	Rigid Tapping
4	Splash Guard
5	Adjusting Tools and Box (1set)
6	Manual and Electrical Drawing (1 set)
7	Leveling and Foundation Fittings
8	Work Light
9	Spindle Cooling System (Chiller Unit)
10	Alarm Lamp
11	Air Blast
12	Automatic Power Off
13	Operation Finish Lamp
14	Screw-type Chip Conveyor
15	Transformer (Except 220v)
16	Inner Cooled Ballscrew
17	Slideway Covers
18	Magazine Safety Guard
19	Electrical Cabinet Light
20	Manual Tool Change and Foot Switch
21	Reinforced Foot-Stand at Both Table-End
22	Electrical Cabinet Cooling System(Air Conditioner)
23	Vertical and horizontal attachment head

Optional Accessories

1	Link-type Chip Conveyor
2	Mist Coolant Unit
3	NC Rotary Table
4	CAT50, DIN50 , ISO50 , HSK-A 100 tool shank
5	Oil-hole Drills Interface
6	Linear Scale Feedback System
7	Automatic Tool Length Measuring system
8	Automatic Touch Probe Centering system
9	Coolant Through Spindle System (A.B Type)
10	KMTCS thermal compensation system
11	Large Capacity Coolant Tank
12	Fully Enclosed Splash Guard
13	Coolant Purifying System
14	Coolant Cooling System
15	Hydraulic Cooling System
16	Peper(belt) Filter System
17	Oil Skimmer System
18	Specified Sub Table, T-slot, Machine Color
19	Extra Load Capacity
20	Anchoring Alignment System
21	Three to seven Stations AAC Magazine
22	Electrical Cabinet Cooling System(up to 45°C capacity)
23	Manual Angle Head
24	30 degree Angle Head
25	Automatic Universal Head