



**SPARQ Series**

## Bridge Type Machining Center



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MADE IN TAIWAN

CE ISO 9001

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### Heavy Duty in Every way!

#### SPARQ Series

True Value for Heavy Cutting

For heavy duty machining with maximum accuracy, the MAXMILL SPARQ series provides the perfect solutions. Rugged construction throughout assures the best rigidity and stability for years of deformation-free operations.

### Bridge-type Machining Center

Look to the Maxmill **SPARQ series** for better results in heavy and precision cutting

#### Applicable Industries:

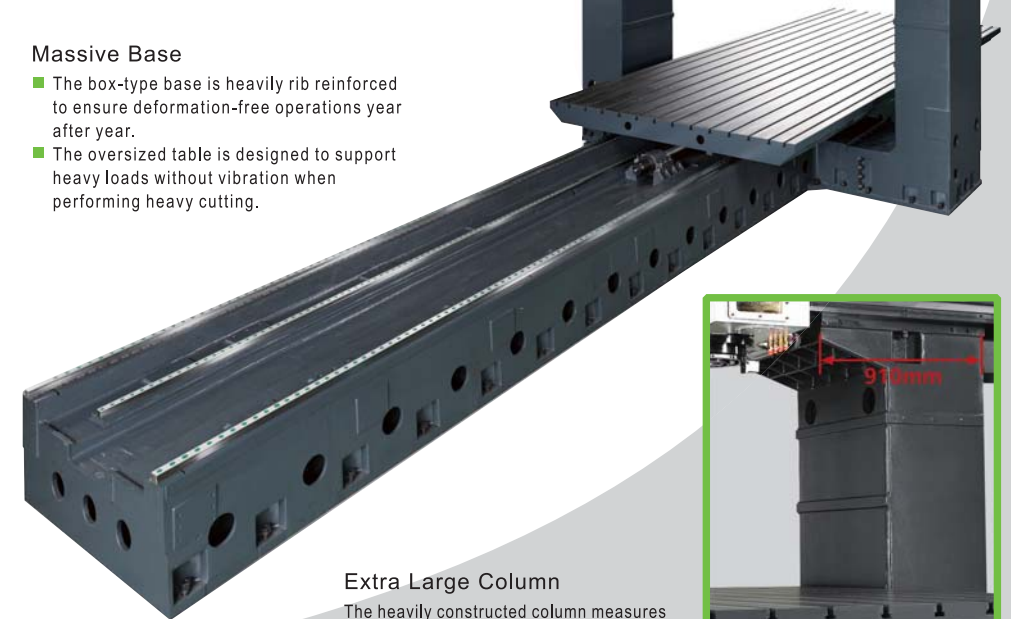
- Automobile forming dies
- Plastic injection molds
- Machine parts machining
- Aerospace parts machining
- Agriculture parts machining

- The major parts are manufactured from cast iron, special rib reinforced, annealed and stress relieved to assure outstanding stability.
- The entire machine structure has been analyzed and designed by PRO-E and CAD for superior rigidity and accuracy.
- Ladder type beam construction features maximum stability for spindle head.
- Massive base combined with oversized table supports heavy loads stable.
- Heavily constructed columns with greater joint surface.
- Linear guide ways (roller type) on X, Y axis.
- Box ways on Z-axis.
- High precision pre-loaded linear ways feature low frictional co-efficiency, low stick-slip and high thrust force sensitivity, ensuring dynamic movement accuracy.



#### Massive Base

- The box-type base is heavily rib reinforced to ensure deformation-free operations year after year.
- The oversized table is designed to support heavy loads without vibration when performing heavy cutting.



#### Extra Large Column

The heavily constructed column measures 1,000 x 550mm. The column is a box-type construction combined with greater joint surface (910mm), featuring optimal structural rigidity.



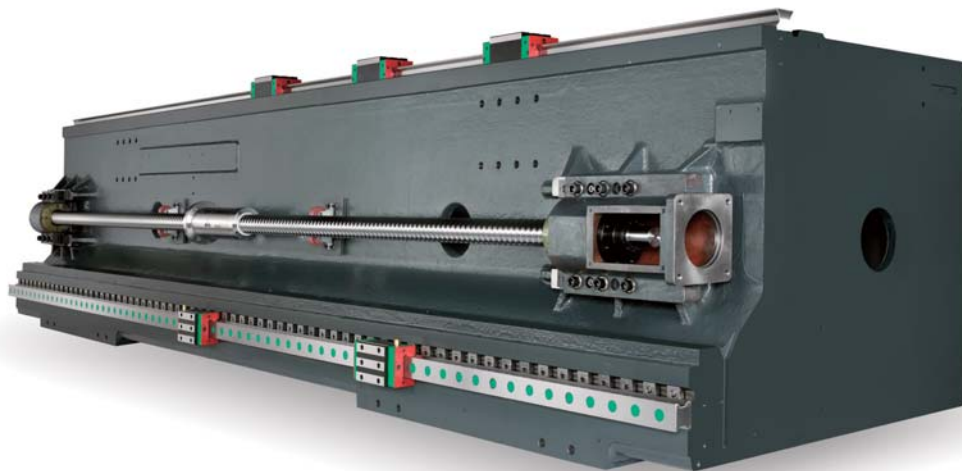


### Three Linear Ways on X-axis (Door width: 3,000mm)

- Unlike two linear ways on competitive models, the MAXMILL SPARQ series is specially designed with 3 linear ways on X-axis. This provides firm support for heavy loads.
- Additional center-supported ball screw on X-axis. The X-axis ball screw is firmly supported by an additional support at the center, fully eliminating deflection of the ball screw.

### Perfectly Designed 90° Support Mechanism

- The upper and lower linear ways on the beam are a perfect 90° design to resist varied pressure, pulling force and shearing force.
- 3 blocks on upper linear way, and 2 blocks on lower linear way exhibit outstanding stability.



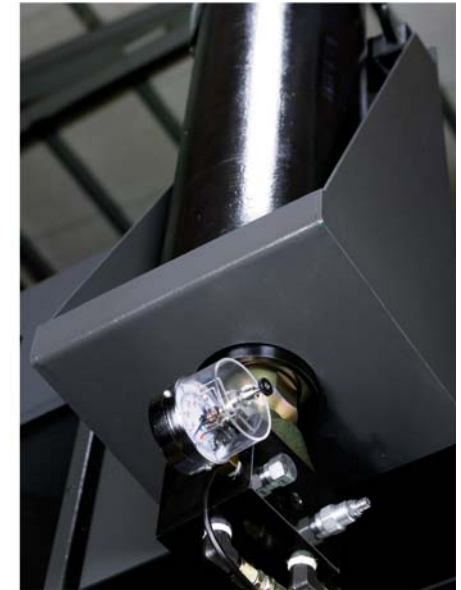
### Ladder Type Beam Construction

- The Y-axis linear ways are mounted on a ladder-construction beam. The layout assures maximum stability for the spindle head during heavy cutting.
- Extra wide span between two linear ways exhibits outstanding stability of cutting.



### Roller Type Slide Blocks

- The heavy duty roller type slide blocks (183 x 140mm) are mounted at every 500mm distance under the table. These special slide blocks improve uniformity of lead distribution and cutting accuracy.



### Nitrogen Gas Accumulator

- A nitrogen gas accumulator is equipped on the hydraulic system to upgrade the feed motion stability and smoothness on Z-axis.

### Ball Screw Support Lubrication

- Lubrication oil distributor is provided for lubricating the ball screw support.
- There is 1 set of lubrication oil distributor for 3-4 meters model, 2 sets for 5, 6 meter models.



### Coolant Through Ball Screw

A cooling system is applied for cooling the ball screw and bearing on X-axis. This avoids thermal deformation on the ball screw even under heavy loads, while ensuring high positioning accuracy.



### Specially Designed Nut Tightening

The nuts for all ball screws are tightening by gibs. This special design prevents nuts from experiencing displacement or deformation caused by collision impact loading.



### Close-loop Positioning Control

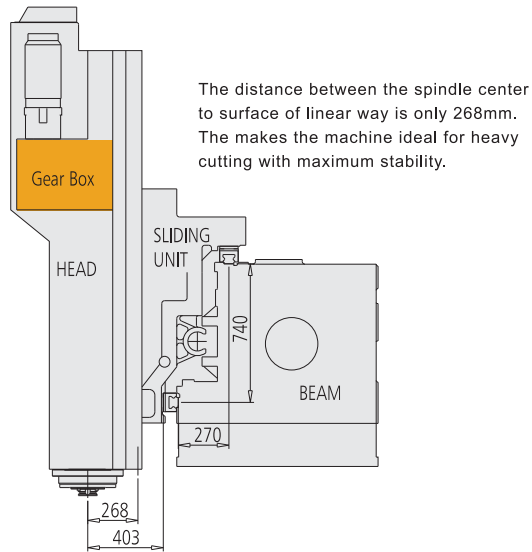
The X, Z-axis positioning feedbacks are controlled by encoder to eliminate positioning error.





### Standard Spindle

- The advanced spindle system is transmitted through a gearbox, located at the top of the head stock.
- The head design provides wider cutting capacity with less interference.
- Recommended when equipped with extra heads.
- 6,000 rpm spindle speed.



### High Precision Gear Head

- The gearbox provides two ranges of speeds. The high speed range is ideal for high speed cutting with fine surface finish.
- The low speed range provides high torque output and is ideal for heavy cutting.
- The gears are imported from Japan Hamada and precision ground to class "0" of JIS standards. The use of high precision gears assures extra smooth and quiet running.



### Forced Cooling and Automatic Lubrication

- The forced cooling to spindle, bearings and gears ensures constant temperature running.
- Automatic lubrication to gears ensures smooth running and high accuracy cutting.

### Side-mount Chain Type Magazine



### 32 Tools (Standard) 40 / 60 Tools (optional)

- The arms design ensures tool change efficiency.
- The side-mount magazine combined with auto door prevents tools from being contaminated by chips or coolant.
- The magazine BT-50 tool shank for standard.
- Fast tool change can be accomplished in only 8 seconds.



### Two Hydraulic Cylinders for Counter-balance

The Z-axis feed is counter-balanced by two hydraulic cylinders. A nitrogen gas accumulator is equipped on the hydraulic system to upgrade the feed motion stability and smoothness on Z-axis.



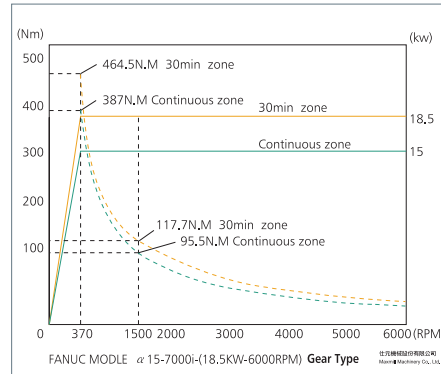
### Pendant Control Box

The pendant control box can be swivelled and raised and lowered to any position. This provides added convenience of operational control.

BT#50 Standard Spindle

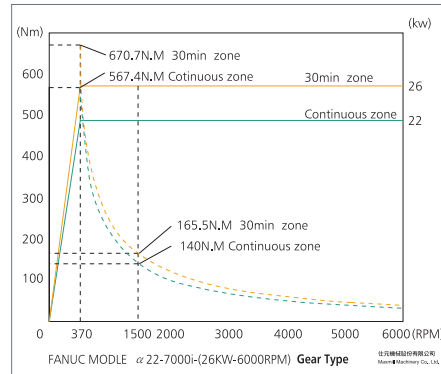


**Gear Box's Torque Diagram**



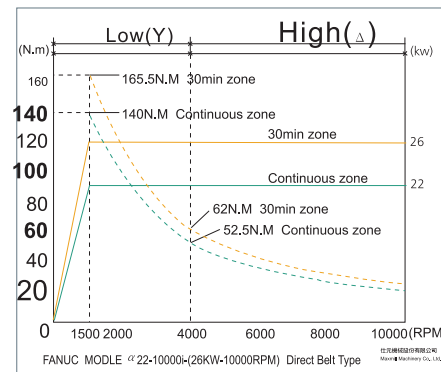
FANUC MODLE α 15-7000i-(18.5KW-6000RPM)

BT#50 Long Type Spindle (Optional)



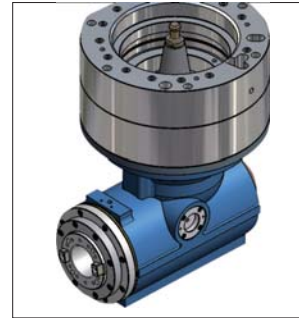
FANUC MODLE α 22-7000i-(26KW-6000RPM)

BT#50 Direct Driven Spindle (Optional)  
10,000rpm



FANUC MODLE α 22-10000i-(26KW-10000RPM)

**Optional Heads:**



**Manual 90 Degree Milling Head 3,500rpm**

**Option:**

- Hydraulic Clamped + Manual Rotation (1°)
- Hydraulic Clamped + Automatic Rotation (5°)
- Auto Tool Clamped / Unclamping



**350mm / 500mm Extended Head with Auto Tool Clamping / Unclamping 3,500rpm**

**Option:**

- Hydraulic Clamped



**Manual Universal Milling Head 1,200rpm**

**Various CNC Controllers**



MITUBISHI M80/M830S



FANUC 0i-MF /31i-MB



SIEMENS 828D/840D



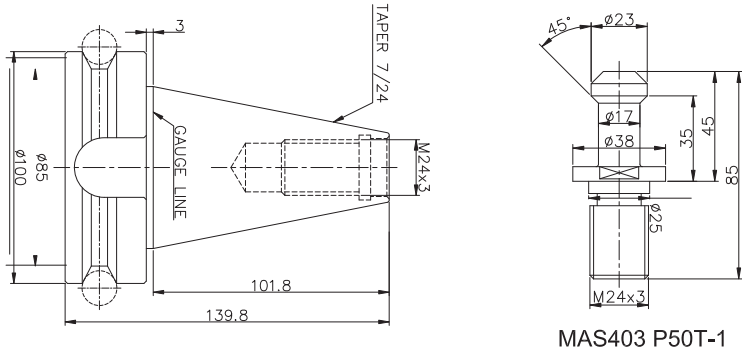
FAGOR CNC8060



HEIDENHAIN TNC-620/TNC640

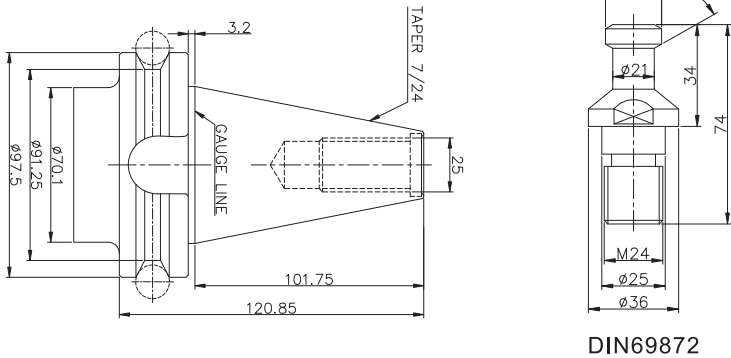
### Tools

#### BT-50



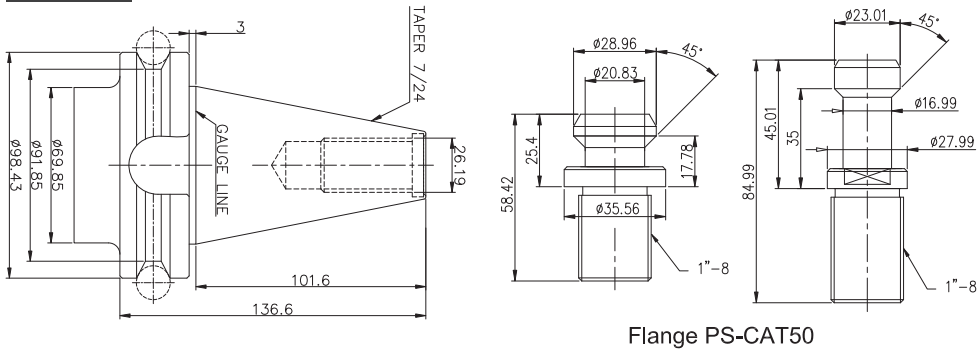
MAS403 P50T-1

#### DIN-50



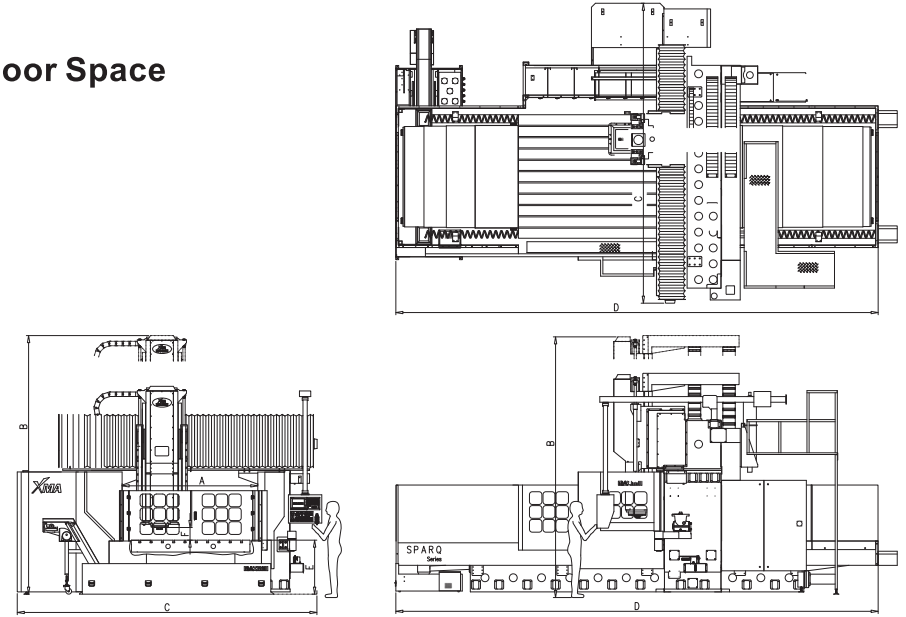
DIN69872

#### CAT-50



Flange PS-CAT50

### Floor Space



### SPARQ Specifications:

SPARQ series	Z-axis travel	Unit:mm(inch)					
		A Between Two Columns	B M / C Height	C Width	D M / C Length	E Table to Ground	F Spindle to Table Top
BMC-3224	920 (36.2)	2,350 (92.5)	4,600 (181.1)	5,240 (206.3)	8,470 (333.5)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-3227	920 (36.2)	2,650 (104.3)	4,600 (181.1)	5,540 (218.1)	8,470 (333.5)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-3230	920 (36.2)	2,950 (106.1)	4,600 (181.1)	5,840 (229.9)	10,470 (412.2)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-3233	920 (36.2)	3,250 (128.0)	4,600 (181.1)	6,140 (241.7)	10,470 (412.2)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-4224	920 (36.2)	2,350 (92.5)	4,600 (181.1)	5,240 (206.3)	12,470 (491.0)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-4227	920 (36.2)	2,650 (104.3)	4,600 (181.1)	5,540 (218.1)	12,470 (491.0)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-4230	920 (36.2)	2,950 (106.1)	4,600 (181.1)	5,840 (229.9)	12,470 (491.0)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-4233	920 (36.2)	3,250 (128.0)	4,600 (181.1)	6,140 (241.7)	12,470 (491.0)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-5224	920 (36.2)	2,350 (92.5)	4,600 (181.1)	5,240 (206.3)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-5227	920 (36.2)	2,650 (104.3)	4,600 (181.1)	5,540 (218.1)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-5230	920 (36.2)	2,950 (106.1)	4,600 (181.1)	5,840 (229.9)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-5233	920 (36.2)	3,250 (128.0)	4,600 (181.1)	6,140 (241.7)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-6224	920 (36.2)	2,350 (92.5)	4,600 (181.1)	5,240 (206.3)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-6227	920 (36.2)	2,650 (104.3)	4,600 (181.1)	5,540 (218.1)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-6230	920 (36.2)	2,950 (106.1)	4,600 (181.1)	5,840 (229.9)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				
BMC-6233	920 (36.2)	3,250 (128.0)	4,600 (181.1)	6,140 (241.7)	14,470 (569.7)	955 (37.6)	200 (7.9)
	1,100 (43.3)		5,210 (205.1)				



Machine Specifications: (X,Y-axes: Linear Way ; Z-axis: Box Way)

Model	Unit	BMC-3224	BMC-4224	BMC-5224	BMC-6224	BMC-3227	BMC-4227	BMC-5227	BMC-6227	BMC-3230	BMC-4230	BMC-5230	BMC-6230	BMC-3233	BMC-4233	BMC-5233	BMC-6233		
TRAVEL	X axis	mm(inch)	3,200(126.0)	4,200(165.4)	5,200(204.7)	6,200(244.1)	3,200(126.0)	4,200(165.4)	5,200(204.7)	6,200(244.1)	3,200(126.0)	4,200(165.4)	5,200(204.7)	6,200(244.1)	3,200(126.0)	4,200(165.4)	5,200(204.7)	6,200(244.1)	
	Y axis	mm(inch)	2,700(106.3)	2,700(106.3)	2,700(106.3)	2,700(106.3)	3,000(118.2)	3,000(118.2)	3,000(118.2)	3,000(118.2)	3,300(130.0)	3,300(130.0)	3,300(130.0)	3,300(130.0)	3,600(141.8)	3,600(141.8)	3,600(141.8)	3,600(141.8)	
	Z axis	mm(inch)	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	920(36.2) 1,100(43.3)opt.	
	Spindle nose to table	mm(inch)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)	200~1,120 (200~1,300) 7.9~44.1 (7.9~51.2)
	Distance between spindle center to bridge	mm(inch)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	
	Distance between columns	mm(inch)	2,350(92.5)	2,350(92.5)	2,350(92.5)	2,350(92.5)	2,650(104.4)	2,650(104.4)	2,650(104.4)	2,650(104.4)	2,950(116.2)	2,950(116.2)	2,950(116.2)	2,950(116.2)	3,250(128.0)	3,250(128.0)	3,250(128.0)	3,250(128.0)	
TABLE	Working area	mm(inch)	3,200 x 2,100 (126.0 x 82.7)	4,200 x 2,100 (165.4 x 82.7)	5,200 x 2,100 (204.7 x 82.7)	6,200 x 2,100 (244.1 x 82.7)	3,200 x 2,400 (126.0 x 94.5)	4,200 x 2,400 (165.4 x 94.5)	5,200 x 2,400 (204.7 x 94.5)	6,200 x 2,400 (244.1 x 94.5)	3,200 x 2,700 (126.0 x 106.3)	4,200 x 2,700 (165.4 x 106.3)	5,200 x 2,700 (204.7 x 106.3)	6,200 x 2,700 (244.1 x 106.3)	3,200 x 2,700 (126.0 x 106.3)	4,200 x 2,700 (165.4 x 106.3)	5,200 x 2,700 (204.7 x 106.3)	6,200 x 2,700 (244.1 x 106.3)	
	Max. loading	kg	15,000	17,000	20,000	22,000	16,000	18,000	21,000	23,000	17,000	19,000	22,000	24,000	17,000	19,000	22,000	24,000	
	T-Slots (No. x Width x Pitch)	mm(inch)	10 x 22 x 200 (10 x 0.8 x 7.9)	10 x 22 x 200 (10 x 0.8 x 7.9)	10 x 22 x 200 (10 x 0.8 x 7.9)	10 x 22 x 200 (10 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	
SPINDLE	Tool shank	—	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50		
	Spindle speed	rpm	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000	50~6,000		
	Spindle motor max. rating	kw	18.5(26 opt.)	26	26	26	18.5(26 opt.)	26	26	26	18.5(26 opt.)	26	26	18.5(26 opt.)	26	26	26		
	Axis motor max. rating	kw	7/7/7	9/7/7	9/7/7	9/7/7	7/7/7	9/7/7	9/7/7	9/7/7	7/7/7	9/7/7	9/7/7	9/7/7	7/7/7	9/7/7	9/7/7	9/7/7	
FEED RATES	Rapid on X / Y / Z axis	m/min	15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	12 / 12 / 12	15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	12 / 12 / 12	15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	12 / 12 / 12		
	Max. cutting feedrate	m/min	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
TOOL MAGAZINE	Tool storage capacity	pcs	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)	32(40 / 60 opt.)		
	Type of tool	type	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50		
	Max. tool diameter	mm(inch)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)	127(5.0)		
	Max. tool weight	kg	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15		
	Max. tool length	mm(inch)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	300(11.8)	
	Tool to tool (change time)	sec.	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
ACCURACY	Positioning	VDI 3341	mm(inch) P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	P 0.05(0.0020)	P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	P 0.05(0.0020)	P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	P 0.05(0.0020)	P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	P 0.05(0.0020)	
	Repeatability	VDI 3341	mm(inch) Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	Ps 0.035(0.0014)	Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	Ps 0.035(0.0014)	Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	Ps 0.035(0.0014)	Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	Ps 0.035(0.0014)	
DIMENSION	Machine weight (Net)	kg	38,000	42,000	47,000	51,500	39,500	43,500	48,500	53,500	41,000	45,000	50,000	55,000	42,000	49,000	53,000	58,000	
	Power source required	KVA	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
	Floor space	L	mm(inch)	8,470(333.5)	10,470(412.2)	12,470(490.9)	14,470(569.7)	8,470(333.5)	10,470(412.2)	12,470(490.9)	14,470(569.7)	8,470(333.5)	10,470(412.2)	12,470(490.9)	14,470(569.7)	8,470(333.5)	10,470(412.2)	12,470(490.9)	14,470(569.7)
		W	mm(inch)	5,240(206.3)	5,240(206.3)	5,240(206.3)	5,240(206.3)	5,540(218.2)	5,540(218.2)	5,540(218.2)	5,540(218.2)	5,840(230.0)	5,840(230.0)	5,840(230.0)	5,840(230.0)	6,140(241.8)	6,140(241.8)	6,140(241.8)	6,140(241.8)
		H	mm(inch)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)	4,600(181.2)
	Air source required	kg/cm <sup>2</sup>	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	6 up	
Shipment advice	—	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise		

※All specifications are subject to change without prior notice. Machine colors shown in this catalog are for reference only. Correct colors are dependent on the actual machine.

STANDARD ACCESSORIES

- Fanuc 0i-MF controller
- Spindle 6,000 rpm(gear) / BT-50
- Automatic lubricating system
- Cycling lubricating oil collector for 3 axes
- Twin screw and one link chip conveyor with chip bucket
- Foot switch for tool clamping / unclamping
- Heat exchanger for electric cabinet
- 32 tools chain-type tool change

- Spindle oil cooler
- Full splash guard (no roof)
- Spindle air blast system (M code)
- X & Y linear guideway (roller type)
- Z axis box way
- Ball screw cooling system (X-axis)
- Foundation bolt kits
- LED light
- RS-232 interface (10 meters) / RJ45 (M/F)
- Oil skimmer
- Operational and maintenance manual
- Ladder for maintenance (5M, 6M only)
- Twin hydraulic counter weight cylinders
- Transformer (M/F)

※(M/F)=(Mitsubishi/Fanuc controller)

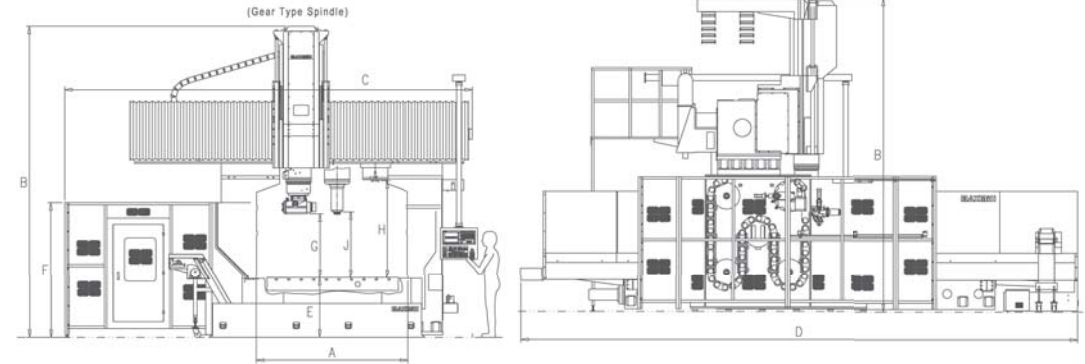
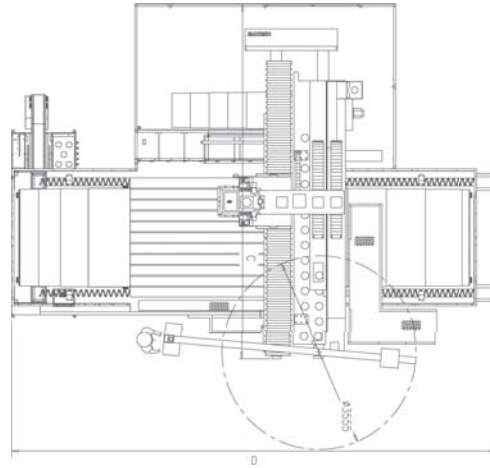
OPTIONAL ACCESSORIES:

- Controller (Heidenhain, Seimens, Mitsubishi)
- Direct Drive Spindle 8,000 / 10,000 rpm (for Linear Guide Way Only)(Linear way)
- 30/35HP spindle motor upgrade
- Z axis travel up to 1100mm
- Heighten column by 200 mm
- ATC (40, 60 tools)
- X-axis Linear guide roller type (Schneeberger)
- Y-axis linear guide roller type (Schneeberger)
- Z-axis Linear guide way
- Ball screw cooling system (Y / Z axis)
- Ladder for maintenance (OPT. for 3M, 4M)
- Manual 90 degree head
- Manual universal head
- Manual extended head with clamping / unclamping tool
- Coolant through spindle(CTS)
- Linear scales (X/Y/Z axis)
- CNC rotary table & tail stock
- Auto Workpiece Measurement Device
- Auto tool length measurement Device

# SPARQ-5F

Rugged and Robust Structure

*The Very Basis of Ultimate Accuracy*



Finest Movement | Heavy-duty Cutting | Maximum Machining Space

## SPARQ Series 5-face Machining Center Dimensions

Unit:mm(inch)

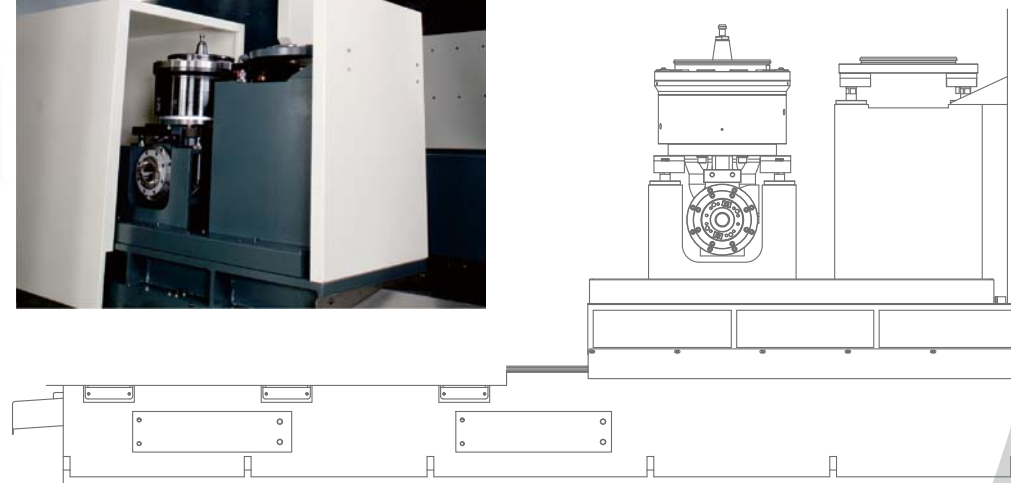
SPARQ Series	Z-axis Travel	A Between Two Columns	B M/C Height	C Width	D M/C Length	E Table to Ground	F Height	G Bottom of 90° Angular Head to Table (Horizontal)	H Spindle to Table Top (Vertical)	J 500mm Extended Head Spindle to Table Top (Vertical)																	
BMC-5F-3224	1,100 (43.3)	2,350 (92.5)	5,510 (216.9)	6,765 (266.3)	8,470 (333.5)	955 (37.6)	2,160 (85.0)	95~1,195 (3.7~47.0)	500~1,600 (19.7~63.0)	-200~900 (-7.9~35.4)																	
BMC-5F-3227		2,650 (104.3)		7,065 (278.1)																							
BMC-5F-3230		2,950 (116.1)		7,365 (289.9)																							
BMC-5F-3233		3,250 (128.0)		7,665 (301.7)																							
BMC-5F-4224		2,350 (92.5)		5,510 (216.9)	6,765 (266.3)						10,470 (412.2)	955 (37.6)	2,160 (85.0)	95~1,195 (3.7~47.0)	500~1,600 (19.7~63.0)	-200~900 (-7.9~35.4)											
BMC-5F-4227		2,650 (104.3)			7,065 (278.1)																						
BMC-5F-4230		2,950 (116.1)			7,365 (289.9)																						
BMC-5F-4233		3,250 (128.0)			7,665 (301.7)																						
BMC-5F-5224		2,350 (92.5)			5,510 (216.9)						6,765 (266.3)						12,470 (490.9)	955 (37.6)	2,160 (85.0)	95~1,195 (3.7~47.0)	500~1,600 (19.7~63.0)	-200~900 (-7.9~35.4)					
BMC-5F-5227		2,650 (104.3)									7,065 (278.1)																
BMC-5F-5230		2,950 (116.1)									7,365 (289.9)																
BMC-5F-5233		3,250 (128.0)									7,665 (301.7)																
BMC-5F-6224		2,350 (92.5)		5,510 (216.9)							6,765 (266.3)						14,470 (569.7)						955 (37.6)	2,160 (85.0)	95~1,195 (3.7~47.0)	500~1,600 (19.7~63.0)	-200~900 (-7.9~35.4)
BMC-5F-6227		2,650 (104.3)									7,065 (278.1)																
BMC-5F-6230		2,950 (116.1)									7,365 (289.9)																
BMC-5F-6233		3,250 (128.0)									7,665 (301.7)																



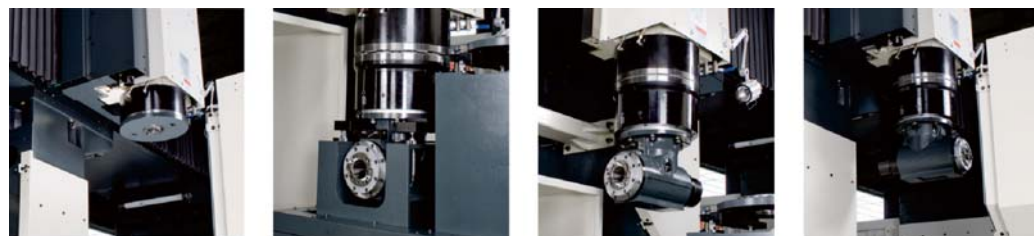
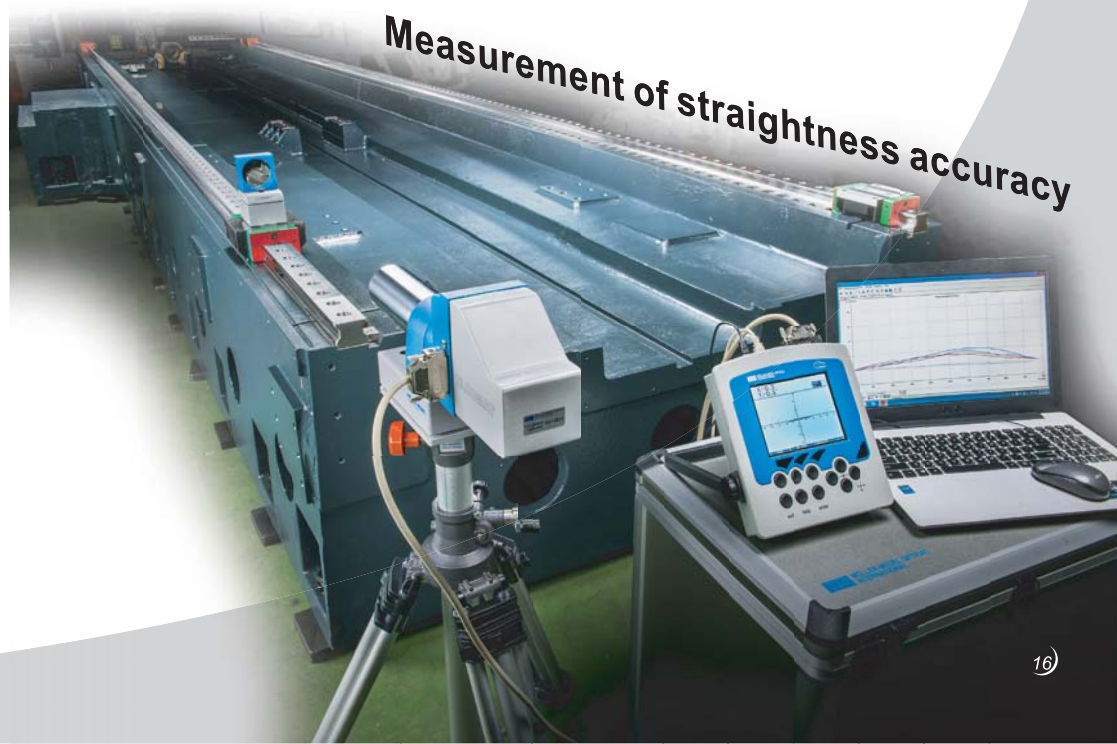
\*\*\* The content size by the standard specification definition, specially heighten column, please inquiry separately.



### The Stock Case for the Attachment Head



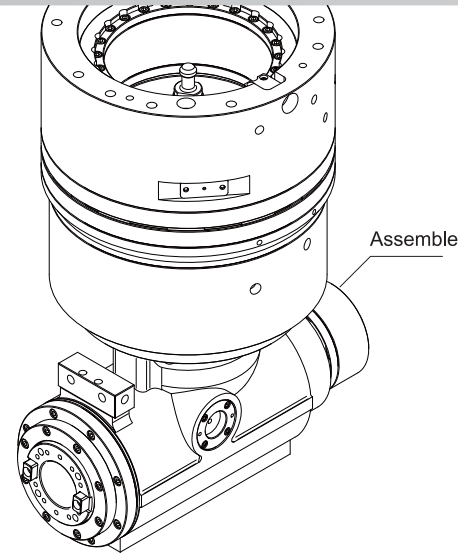
### Measurement of straightness accuracy



The stock case can be flexibly designed and customized made.  
A sophisticated design eliminates any unexpected damage to the attachment head.



The cutting performance of Maxmill ultra rigid angle head performs like no other



Disassemble

### Maxmill Boosts Your Competitive Edge Maxmill – Auto Exchange Head (5-face Machining Center)

- Precision gear-type clutch. Indexing accuracy  $\pm 3$  seconds, repeatability 1 second
- 3,500rpm spindle with horizontal head provides high cutting efficiency.
- The precision gear-type clutch of 280mm large external diameter features high rigidity. Such design provides stable angular position and deformation-free operation for heavy cutting tasks.
- The internal rotation face of the horizontal head is coated with PTFE material. Such design requires less rotation torque and extends sliding face lifetime.
- The horizontal head is equipped with large-sized clamping jaws. Larger contact faces feature well-dispersed stress and high parts stability.
- Obvious grease inlet can also be used as oil window for maintenance.
- Built-in oil and cutting coolant circuits enhance connection efficiency and features neat design in appearance.
- The horizontal spindle head incorporates tool clamping mechanism as one-piece structure, which saves space and time.
- A level surface at the exterior of the horizontal head is parallel to the spindle. This is a handy design for calibrations and accuracy inspection.

Measurement of geometric accuracy





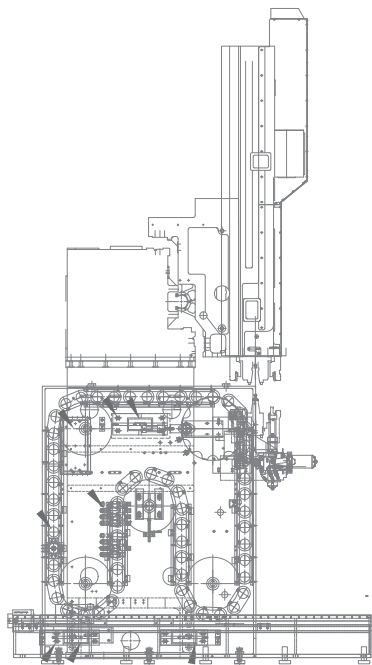
### Maxmill - Tool Magazine (5-face Machining Center)

Item	Specifications			
	Tool Holder	ATC Arm	Solenoid Valve Voltage	Color
Arm-type Magazine #50 x 60T	BT-50	BT-50	DC24V	NA
	CAT-50	CAT-50	DC24V	NA
	DIN-50	DIN-50	DC24V	NA

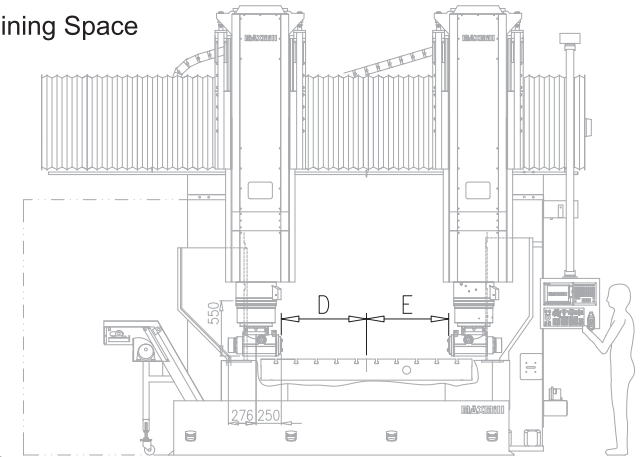
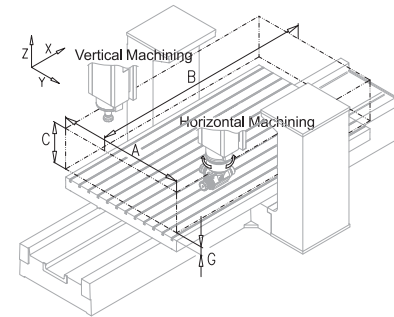
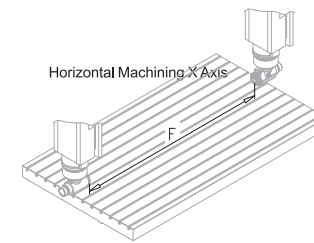


#### Accessories

- Vertical/Horizontal ATC
- Hydraulic motor
- Maximum tool length 400mm
- Tool weight imbalance 80kg
- Manual tool unclamping
- Foundation bolts
- Foot switch



### SPARQ Series 5 Face Machine-Maximum Machining Space



#### NOTE:

The working area will be changed according to the choice accessories different. The related matters concerned please contact the sales personal of Maxmill. The heighten of vertical working area calculates by spindle nose to table. The working heighten will be reduced according to the using tool length. D & E: Table center to spindle nose. If inquiry tavel is big than D & E, please contact our sales person firstly. Horizontal machining (for X axial): Working area is between both spindle noses.

SPARQ Series	Vertical Working Area			Horizontal Working Area										
	A	B	C	C	D	E	F	G						
BMC-5F-3224	2,350(92.5)	3,200(126.0)	500~1600 (19.6~62.9)	160~1,202 (6.3~47.3)	1,050(41.3)	1,250(49.2)	2,700(106.3)	160 (6.3)						
BMC-5F-3227	2,650(104.3)				1,200(47.2)	1,400(55.1)								
BMC-5F-3230	2,950(116.1)				1,350(53.1)	1,550(61.0)								
BMC-5F-3233	3,250(128.0)				1,500(59.1)	1,700(66.9)								
BMC-5F-4224	2,350(92.5)	4,200(165.4)			500~1600 (19.6~62.9)	160~1,202 (6.3~47.3)	1,050(41.3)		1,250(49.2)	3,700(145.7)	160 (6.3)			
BMC-5F-4227	2,650(104.3)						1,200(47.2)		1,400(55.1)					
BMC-5F-4230	2,950(116.1)						1,350(53.1)		1,550(61.0)					
BMC-5F-4233	3,250(128.0)						1,500(59.1)		1,700(66.9)					
BMC-5F-5224	2,350(92.5)	5,200(204.7)					500~1600 (19.6~62.9)		160~1,202 (6.3~47.3)	1,050(41.3)		1,250(49.2)	4,700(185.0)	160 (6.3)
BMC-5F-5227	2,650(104.3)									1,200(47.2)		1,400(55.1)		
BMC-5F-5230	2,950(116.1)									1,350(53.1)		1,550(61.0)		
BMC-5F-5233	3,250(128.0)									1,500(59.1)		1,700(66.9)		
BMC-5F-6224	2,350(92.5)	6,200(244.1)	500~1600 (19.6~62.9)	160~1,202 (6.3~47.3)				1,050(41.3)		1,250(49.2)		5,700(224.4)	160 (6.3)	
BMC-5F-6227	2,650(104.3)							1,200(47.2)		1,400(55.1)				
BMC-5F-6230	2,950(116.1)							1,350(53.1)		1,550(61.0)				
BMC-5F-6233	3,250(128.0)							1,500(59.1)		1,700(66.9)				



**5-face Machining Center Specifications**

Model	Unit	BMC-5F-3224	BMC-5F-4224	BMC-5F-5224	BMC-5F-6224	BMC-5F-3227	BMC-5F-4227	BMC-5F-5227	BMC-5F-6227	BMC-5F-3230	BMC-5F-4230	BMC-5F-5230	BMC-5F-6230	BMC-5F-3233	BMC-5F-4233	BMC-5F-5233	BMC-5F-6233
TRAVEL	X x Y x Z axis	mm (inch) 3,200 x 2,700 x 1,100 (126.0 x 106.3 x 43.3)	4,200 x 2,700 x 1,100 (165.4 x 106.3 x 43.3)	5,200 x 2,700 x 1,100 (204.7 x 106.3 x 43.3)	6,200 x 2,700 x 1,100 (244.1 x 106.3 x 43.3)	3,200 x 3,000 x 1,100 (126.0 x 118.2 x 43.3)	4,200 x 3,000 x 1,100 (165.4 x 118.2 x 43.3)	5,200 x 3,000 x 1,100 (204.7 x 118.2 x 43.3)	6,200 x 3,000 x 1,100 (244.1 x 118.2 x 43.3)	3,200 x 3,300 x 1,100 (126.0 x 130.0 x 43.3)	4,200 x 3,300 x 1,100 (165.4 x 130.0 x 43.3)	5,200 x 3,300 x 1,100 (204.7 x 130.0 x 43.3)	6,200 x 3,300 x 1,100 (244.1 x 130.0 x 43.3)	3,200 x 3,600 x 1,100 (126.0 x 141.8 x 43.3)	4,200 x 3,600 x 1,100 (165.4 x 141.8 x 43.3)	5,200 x 3,600 x 1,100 (204.7 x 141.8 x 43.3)	6,200 x 3,600 x 1,100 (244.1 x 141.8 x 43.3)
	Spindle nose to table (Horizontal)	mm (inch) 160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)	160-1202 (6.3-47.3)
	Spindle nose to table (Vertical)	mm (inch) 500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)	500-1,600 (19.7-63.0)
	Distance between spindle center to bridge	mm (inch) 475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)	475(18.7)
	Distance between columns	mm (inch) 2,350(92.5)	2,350(92.5)	2,350(92.5)	2,350(92.5)	2,650(104.4)	2,650(104.4)	2,650(104.4)	2,650(104.4)	2,950(116.2)	2,950(116.2)	2,950(116.2)	2,950(116.2)	2,950(116.2)	3,250(128.0)	3,250(128.0)	3,250(128.0)
TABLE	Working area	mm (inch) 3,200 x 2,100 (126.0 x 82.7)	4,200 x 2,100 (165.4 x 82.7)	5,200 x 2,100 (204.7 x 82.7)	6,200 x 2,100 (244.1 x 82.7)	3,200 x 2,400 (126.0 x 94.5)	4,200 x 2,400 (165.4 x 94.5)	5,200 x 2,400 (204.7 x 94.5)	6,200 x 2,400 (244.1 x 94.5)	3,200 x 2,700 (126.0 x 106.3)	4,200 x 2,700 (165.4 x 106.3)	5,200 x 2,700 (204.7 x 106.3)	6,200 x 2,700 (244.1 x 106.3)	3,200 x 2,700 (126.0 x 106.3)	4,200 x 2,700 (165.4 x 106.3)	5,200 x 2,700 (204.7 x 106.3)	6,200 x 2,700 (244.1 x 106.3)
	Max. loading	kg 15,000	17,000	20,000	22,000	16,000	18,000	21,000	23,000	17,000	19,000	22,000	24,000	17,000	19,000	22,000	24,000
	T-Slots (No. x Width x Pitch)	mm (inch) 10 x 22 x 200 (10 x 0.8 x 7.9)	10 x 22 x 200 (10 x 0.8 x 7.9)	10 x 22 x 200 (10 x 0.8 x 7.9)	10 x 22 x 200 (10 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	12 x 22 x 200 (12 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)	14 x 22 x 200 (14 x 0.8 x 7.9)
SPINDLE	Tool shank	-	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	
	Spindle speed	rpm 50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	50-6,000	
	Spindle motor max. rating	kw 18.5(26 opt.)	26	26	26	18.5(26 opt.)	26	26	26	18.5(26 opt.)	26	26	26	18.5(26 opt.)	26	26	
	Axis motor max. rating	kw 7 / 7 / 7	9 / 7 / 7	9 / 7 / 7	9 / 7 / 7	7 / 7 / 7	9 / 7 / 7	9 / 7 / 7	9 / 7 / 7	7 / 7 / 7	9 / 7 / 7	9 / 7 / 7	9 / 7 / 7	9 / 7 / 7	7 / 7 / 7	9 / 7 / 7	
FEED RATES	Rapid on X/Y/Z axis	m/min 15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	12 / 12 / 12	15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	12 / 12 / 12	15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	12 / 12 / 12	15 / 12 / 12	12 / 12 / 12	12 / 12 / 12	
	Max. cutting feedrate	m/min 1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	1-6,000	
TOOL MAGAZINE	Tool storage capacity	pcs 60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	60(80 / 100 / 120 opt.)	
	Type of tool	type BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	BT-50	
	Max. tool diameter	mm (inch) 125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	125(4.9) / 250(9.8)	
	Max. tool weight	kg 25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
	Max. tool length	mm (inch) 400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	400(15.7)	
	Tool change speed (ATC only)	sec. 12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
ACCURACY	Positioning VDI 3341	mm (inch) P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	P 0.05(0.0020)	P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	P 0.05(0.0020)	P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	P 0.05(0.0020)	P 0.025(0.0010)	P 0.03(0.0012)	P 0.04(0.0015)	
	Repeatability VDI 3341	mm (inch) Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	Ps 0.035(0.0014)	Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	Ps 0.035(0.0014)	Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	Ps 0.035(0.0014)	Ps 0.02(0.0008)	Ps 0.025(0.0010)	Ps 0.03(0.0012)	
DIMENSION	Machine weight (Net)	kg 38,000 / 40,000	42,000 / 44,000	47,000 / 49,000	51,500 / 53,500	39,500 / 41,500	43,500 / 45,500	48,500 / 50,500	53,500 / 55,500	41,000 / 43,000	45,000 / 47,000	50,000 / 52,000	55,000 / 57,000	41,000 / 43,000	45,000 / 47,000	50,000 / 52,000	
	Power source required (KVA)	KVA 50	50	50	50	50	50	50	50	50	50	50	50	50	50		
	Floor space (L x W x H)	mm (inch) 8,470 x 6,765 x 5,510 (333.5 x 266.3 x 216.9)	10,470 x 6,765 x 5,510 (412.2 x 266.3 x 216.9)	12,470 x 6,765 x 5,510 (490.9 x 266.3 x 216.9)	14,470 x 6,765 x 5,510 (569.7 x 266.3 x 216.9)	8,470 x 7,085 x 5,510 (333.5 x 278.1 x 216.9)	10,470 x 7,085 x 5,510 (412.2 x 278.1 x 216.9)	12,470 x 7,085 x 5,510 (490.9 x 278.1 x 216.9)	14,470 x 7,085 x 5,510 (569.7 x 278.1 x 216.9)	8,470 x 7,365 x 5,510 (333.5 x 289.9 x 216.9)	10,470 x 7,365 x 5,510 (412.2 x 289.9 x 216.9)	12,470 x 7,365 x 5,510 (490.9 x 289.9 x 216.9)	14,470 x 7,365 x 5,510 (569.7 x 289.9 x 216.9)	8,470 x 7,665 x 5,510 (333.5 x 301.7 x 216.9)	10,470 x 7,665 x 5,510 (412.2 x 301.7 x 216.9)	12,470 x 7,665 x 5,510 (490.9 x 301.7 x 216.9)	14,470 x 7,665 x 5,510 (569.7 x 301.7 x 216.9)
	Air source required	kg/cm <sup>2</sup> 6	6	6	6	6	6	6	6	6	6	6	6	6	6		
Shipment advice	-	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise	Will advise		

**STANDARD ACCESSORIES :**

- Fanuc Oi-MF
- Spindle 6,000 rpm(gear) / BT-50
- Automatic lubricating system
- Automatic lubricating oil collector for 3 axes
- Spindle and gear transmission / temperature control
- Twin screw and one link chip conveyor with bucket
- Heat exchanger for electric cabinet
- Heat exchanger for electric cabinet
- Foot switch for tool clamping / unclamping

- V/H 60 Tools arm-type tool change
- Spindle oil cooler
- Full splash guard
- Air blow for chip (M code)
- X / Y linear guideway (roller type)
- Ball screw cooling system (X-axis)
- Coolant gun & air socket
- Foundation bolt kit
- Removable manual & pulse generator (MPG)

- Work light
- Rigid tapping
- Coolant system and tank
- Operation cycle finish and alarm lights
- RS-232 interface / RJ 45
- Tool box
- Oil skimmer
- Maintenance and operational manual
- Twin hydraulic counter weight cylinders
- Ladder for Maintenance

**OPTIONAL ACCESSORIES :**

- Controller (HEINDENHAIN, SEIMENS, MITSUBISHI)
- V/H 80 / 100 / 120 tools chain-type tool change
- 30 / 35HP spindle motor upgrade (FANUC; 32XX series only)
- Ball screw cooling system (Y / Z axis)
- Ladder for Maintenance
- X / Y-axis linear guide roller type (Schneeberger)

- Auto tool length measurement
- Auto workpiece measurement system
- Coolant through spindle
- Linear scales (HEINDENHAIN / FAGOR)
- CNC rotary table & tail stock
- The stock case for horizontal head can be customized made.