

嘉士達精機有限公司
KASUGA SEIKI

B 龍門加工中心機
SERIES CNC DOUBLE COLUMN
MACHINING CENTER



嘉士達精機有限公司
KASUGA SEIKI LTD.

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HISTORY MEETS INTERNATIONAL APPEAL

Founded in 1949, Japan KASUGA has over 60 years of history. KASUGA machines have been renowned in Japan, Asia, Europe and the United States with an international recognition. In particular, KASUGA is well known in the mold-making industry in both Japan and Taiwan. Regarding the parts manufacturing industry in the U.S., there are over 800 KASUGA machines in operation, including 3-axis large-sized vertical/horizontal machining centers and 4-axis/5-axis large-sized machining centers. With an aim to meet the increasing market demands, KASUGA established KASUGA SEIKI LTD. in Taiwan in 2012. KASUGA's wide range of products includes CNC drilling tapping centers, vertical high speed machining centers and 5-axis machining centers.



悠久的公司歷史 是贏得客戶讚賞的最佳見證!

創立於1949年的日本KASUGA公司，成立迄今已有60多年的歷史。KASUGA品牌之機器在日本、亞洲、歐美頗負盛名，深獲國際客戶的肯定。特別是在日本及台灣的模具業界，更是家喻戶曉。在美國的零組件製造業，已有超過800台KASUGA機器在運作，涵蓋大型三軸立式/臥式加工中心機及四軸/五軸大型加工中心機。為了因應市場的需求，KASUGA於2012年在台灣成立了KASUGA SEIKI LTD.(嘉士達精機有限公司)。機種系列包括: CNC鑽孔攻牙中心機、立式高速加工中心機以及五軸加工中心機。

COST-EFFECTIVE MACHINING SOLUTION

Designed with cutting capacity, efficiency and accuracy in mind, KASUGA B series CNC double column machining centers provide a cost-effective machining solution for large workpieces.

KASUGA's Modern Manufacturing Plant

KASUGA machines' reputation starts from meticulous Japanese design and Japan's rigorous quality control level combined with Taiwan's excellent manufacturing technique. These enable us to build high performance machines that customers have come to expect.



KASUGA機器之榮耀始自於日本的嚴謹設計，日式的嚴格品質控管，配合台灣優良的製造技術，精心打造出徹底滿足客戶需求之機器。

MACHINE FEATURES

- Range of table travel (X axis): 2200~6200 mm.
- Box type structural parts feature high rigidity.
- Step-shaped cross beam effectively improves dynamic stability.
- X, Y-axis linear way and Z-axis box way design enhances machining speed and heavy cutting stability.
- The spindle head is designed with gear transmission, providing great torque output for heavy cutting.
- BT 50, 4000 / 6000 r.p.m. gear-drive spindle.
- Z axis is counter-balanced by hydraulic cylinders.

機器特性

- 工作台行程(X軸): 2200-6200 mm。
- 機器主結構件為箱形結構，剛性佳。
- 階梯式橫樑，提升動態穩定性。
- X, Y軸線軌，Z軸硬軌設計。兼顧加工速度與重切削穩定性。
- 主軸頭採用齒輪傳動，輸出扭力大，適合重切削。
- BT50, 4000 / 6000 r.p.m. 齒輪式主軸。
- Z軸油壓缸配重平衡。

ROBUST MACHINE STRUCTURE

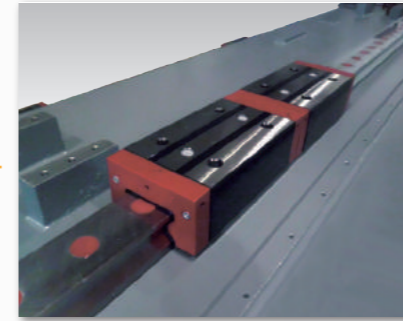
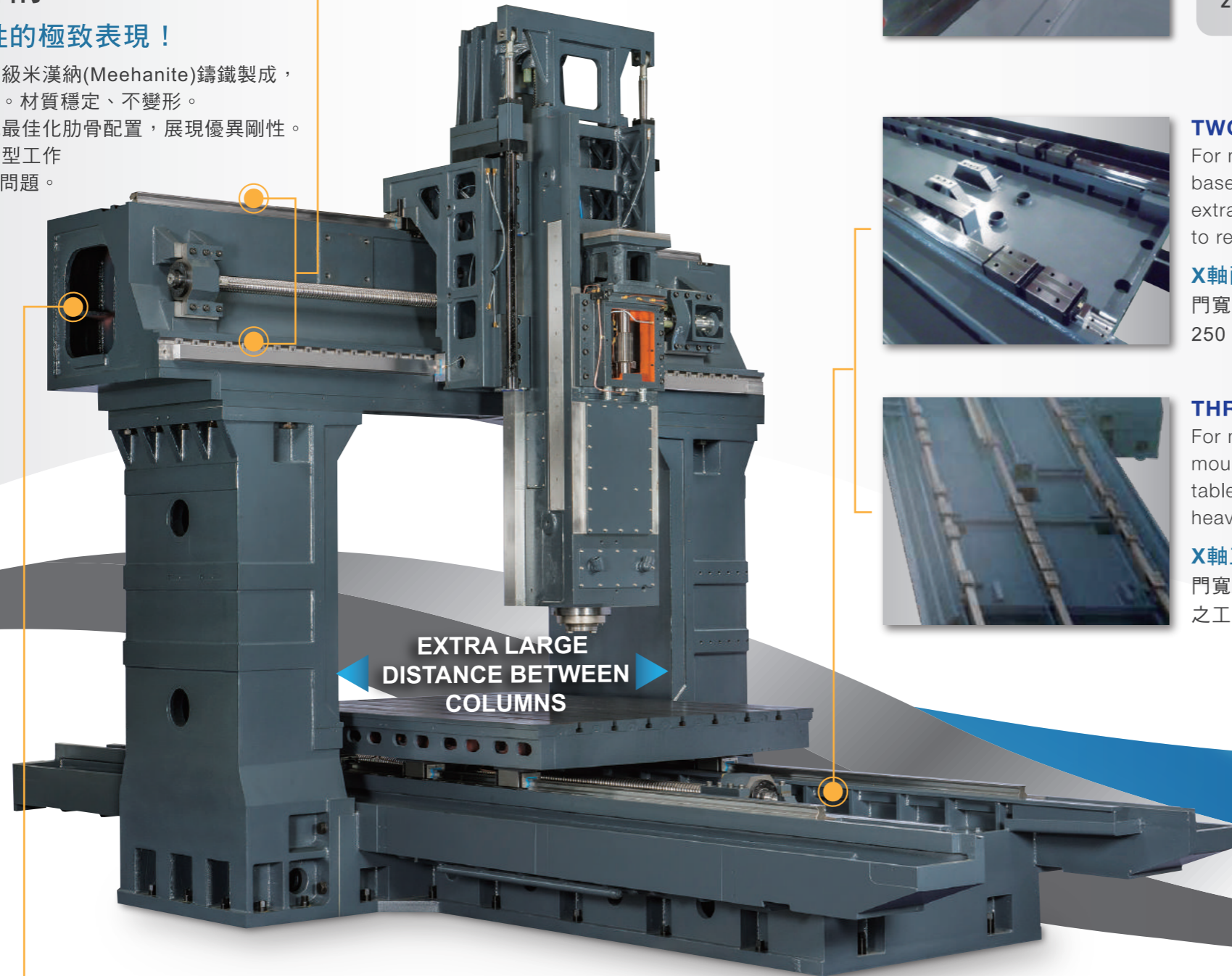
Heavy Cutting Resistance! The Ultimate Of Stability!

- Structural parts of the machine are manufactured from high quality Meehanite cast iron, tempered and stress relieved to ensure material stability without any deformation.
- Massive box type structural parts in combination with optimal rib deployment for outstanding rigidity.
- The robust machine structure provides a solid support for large workpiece without any deformation problem.

穩重的機體結構

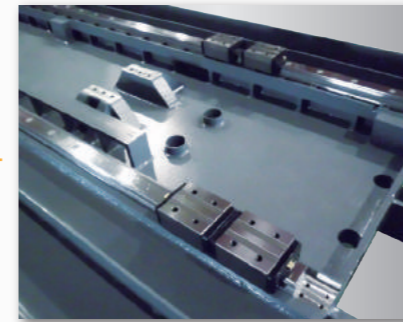
耐重切削！穩定性的極致表現！

- 機器結構鑄件完全採用高級米漢納(Meehanite)鑄鐵製成，再經回火及應力消除處理。材質穩定、不變形。
- 穩重的箱形結構鑄件搭配最佳化肋骨配置，展現優異剛性。
- 穩重的機械結構，提供大型工作之穩定支撐，無機體變形問題。



ROLLER TYPE OR BALL TYPE LINEAR WAYS 高效率滾柱型或滾珠型線性滑軌

MODEL 機型	B2212 / B3212	B2217 / B2617 / B3217	B2221 / B3221 / B4221 / B5221 / B3226 B4226 / B5226 / B4228 / B5228 / B6228
X axis	Ball type linear 滾珠式線軌	Roller type linear 滾柱式線軌	Ball type linear 滾珠式線軌
Y axis	Ball type linear (2 block) 滾珠式線軌 (2滑塊)	Roller type linear (2 block) M65 滾柱式線軌 (2滑塊) M65	Roller type linear (3 block) M65 滾柱式線軌 (3滑塊) M65
Z axis	Box way (2 block) 硬軌 (2滑塊)	Box way (2 block) 硬軌 (2滑塊)	Box way (3 block) 硬軌 (3滑塊)



TWO LINEAR WAYS ON X AXIS

For models with 2100 / 2600 mm distance between columns, the machine base will be mounted with two 65mm ball type linear ways. This combines with extra thick table (250 mm) and two-layer rib reinforcement, allowing the machine to resist heavy load without any deformation problem.

X軸兩線軌 (適用門寬2100 / 2600 mm機型)

門寬2100 / 2600 mm之機型底座配置2支65 mm之滾珠型線性滑軌。配合250 mm超厚之工作台，並以雙層肋骨強化結構，可承受重負荷，無變形問題。



THREE LINEAR WAYS ON X AXIS

For models with 2800 mm distance between columns, the machine base will be mounted with three 65mm ball type linear ways. This combines with extra thick table (320mm) and two-layer rib reinforcement, allowing the machine to resist heavy load without any deformation problem.

X軸三線軌 (適用門寬2800 mm機型)

門寬2800 mm之機型底座配置3支65 mm之滾珠型線性滑軌。配合320 mm超厚之工作台，並以雙層肋骨強化結構，可承受重負荷，無變形問題。

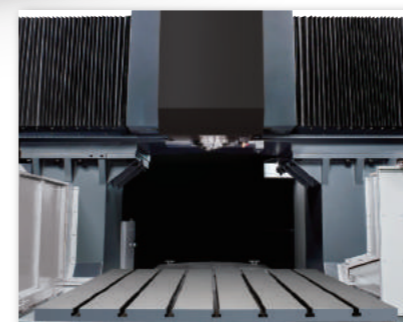


STEP TYPE CROSS BEAM FOR HIGHER CUTTING STABILITY

The cross beam has a step type construction, on which two heavy duty linear guide ways are mounted. One is mounted on the top of the cross beam and the other one is on the side. Such linear way deployment provides a better support effect for the spindle head and improves cutting stability.

階梯式橫樑-提升加工穩定性

階梯式的橫樑結構設計，配置2支耐重負荷之滾柱型線性滑軌。1支在橫樑上面，另1支在橫樑前面，提供主軸頭更佳的支撐效果，且有助於切削穩定性的提升。

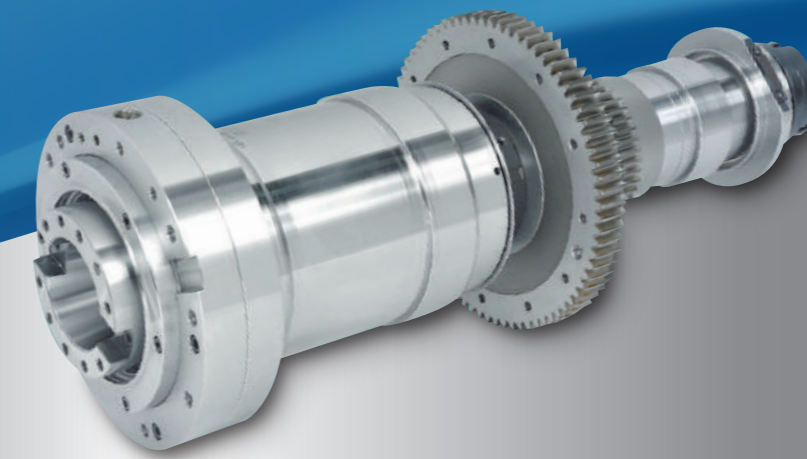
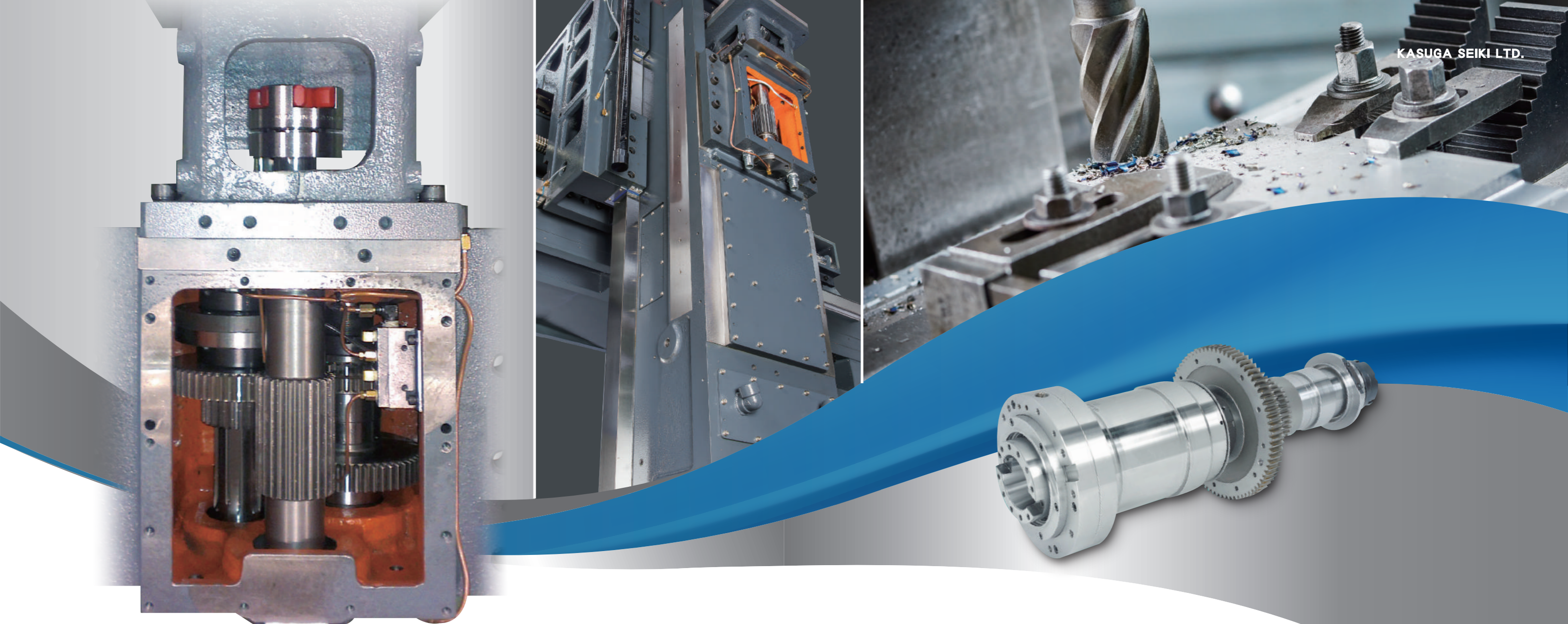


SPACIOUS INTERNAL SPACE DESIGNED FOR LARGE WORKPIECE

By featuring spacious internal space and extra large distance between columns in combination with large X-axis travel, KASUGA B series of machines is your best choice in large workpiece machining.

寬闊的機器內部空間設計-適合大型工件

嘉士達B系列機器，擁有寬闊的內部空間，超大的門寬設計及X軸行程，是大型工件加工之最佳選擇。



POWERFUL GEARBOX

High Torque Output! Smooth Running!

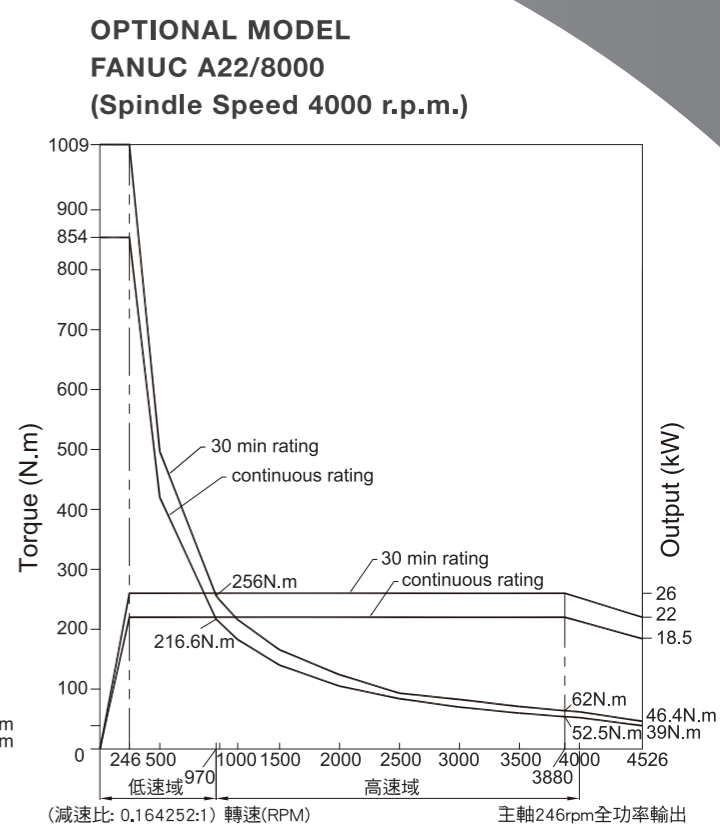
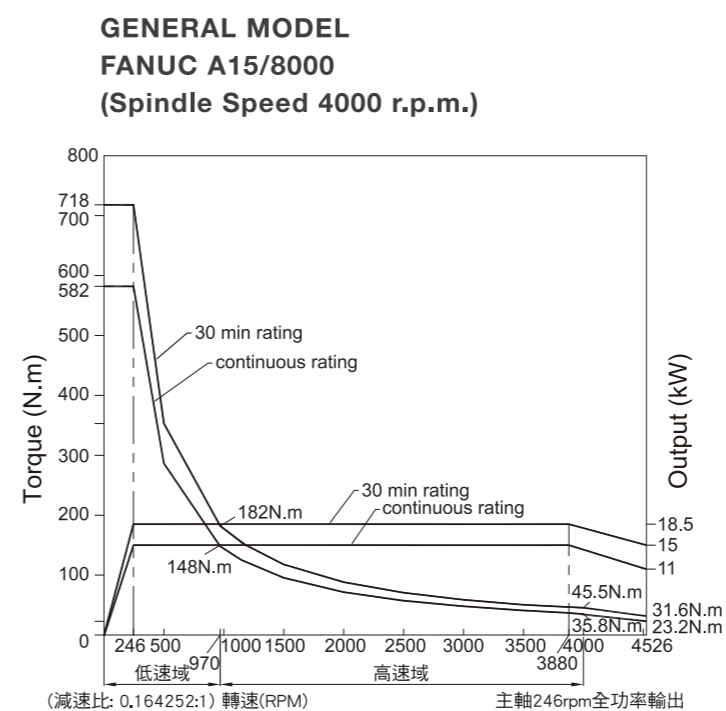
- The Ø100 mm spindle is transmitted through a powerful gearbox with a maximum spindle speed reaching 6000 r.p.m. Driven by an α 22 motor, the spindle provides a torque of 755 N-m, making the machine perfect for high speed machining and heavy cutting operations.
- Can be equipped with a 4000 r.p.m. spindle, providing great torque output of 1132 N-m for increasing heavy cutting capacity.

強力齒輪箱 高輸出扭力！運轉順暢！

- Ø100 mm主軸 經由強力齒輪箱傳動，最高主軸轉速可達6,000 r.p.m.。採用α 22馬達驅動，具有755N-m的扭力，適合高速加工及重切削作業。
- 也可使用4,000 r.p.m.轉速之主軸，可輸出1132N-m之大扭力，以提升重切削能力。

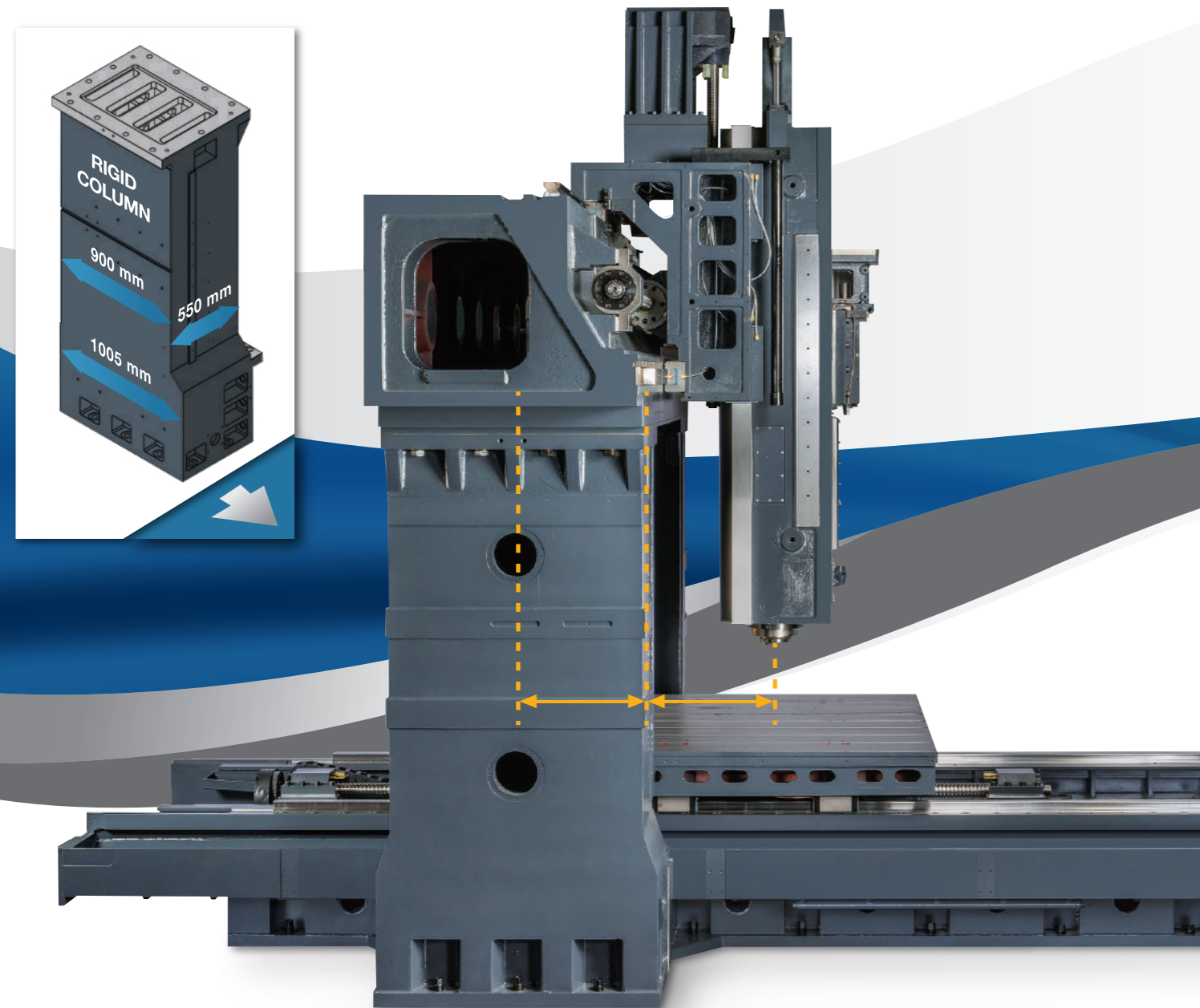
Spindle Speed / Torque Diagram

主軸轉速 / 扭力曲線圖



BUILT TO DELIVER FAST STABLE CUTTING PERFORMANCE

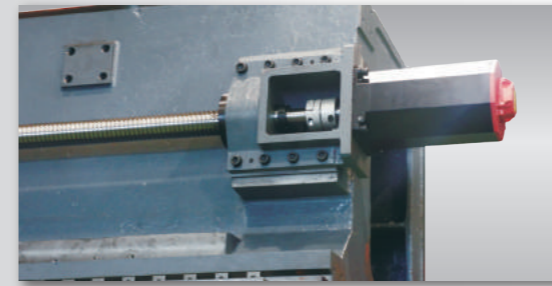
快速 穩定的切削性能結構設計



The Special Placement Of Y Axis Close To Column Design Ensure Outstanding Stability.

Y軸重心內移設計 展現更加的穩定性

Cuts Time! Cuts Costs! 節省時間！節省成本！

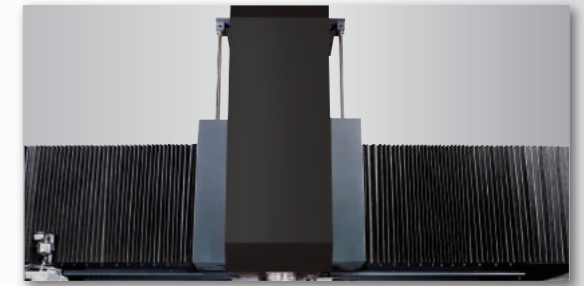


DIRECTLY COUPLED BALL SCREW ON Y AXIS

The Y-axis ball screw is directly driven by a servo motor through a coupling to eliminate backlash, resulting in improved transmission accuracy.

Y軸滾珠螺桿直結傳動

Y軸滾珠螺桿採用伺服馬達，經由聯軸器直接驅動，以消除背隙問題，進而達到更高的傳動精密度。

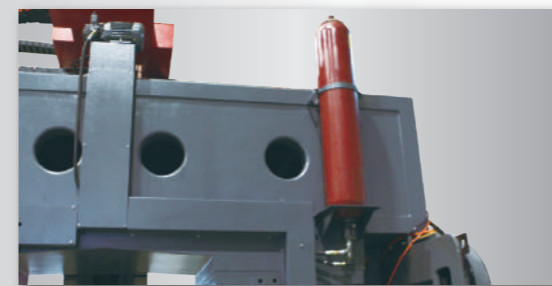


HYDRAULIC COUNTER-BALANCE ON Z AXIS

Z-axis vertical movement is counter-balanced through two hydraulic cylinders, featuring sensitive motion response. As a result, smooth Z-axis movement can be ensured.

Z軸油壓缸配重平衡

Z軸上下移動採用2支油壓缸配重平衡，動作反應靈敏，可確保Z軸移動之穩定性。



ACCUMULATOR

The hydraulic system is equipped with an accumulator, which provides a protection for the hydraulic circuit by absorbing the pulsation in the circuit. It also enables more stable and smoother movement on Z axis.

蓄壓器

油壓系統附有蓄壓器，可吸收油壓回路之脈動，有效保護油壓回路，並可使Z軸上下移動更平穩、更順暢。



CHIP AUGERS

The machine base is equipped with one chip auger on each side (Left & right). The chip augers deliver chips generated during machining to chip plated, which saves time in manual chip removal, while keeping the machine clean at all times.

螺旋除屑器

機器底座之左、右兩邊各裝置一組螺旋除屑器，可將加工中所產生的切屑輸送至集屑盤。可節省人員清除切屑之麻煩，並隨時保持機內之清潔。

Optional 選配



SEMI-AUTOMATIC 90° MILLING HEAD

半自動90°銑頭



MANUAL 90° MILLING HEAD

手動90°銑頭



MANUAL UNIVERSAL MILLING HEAD

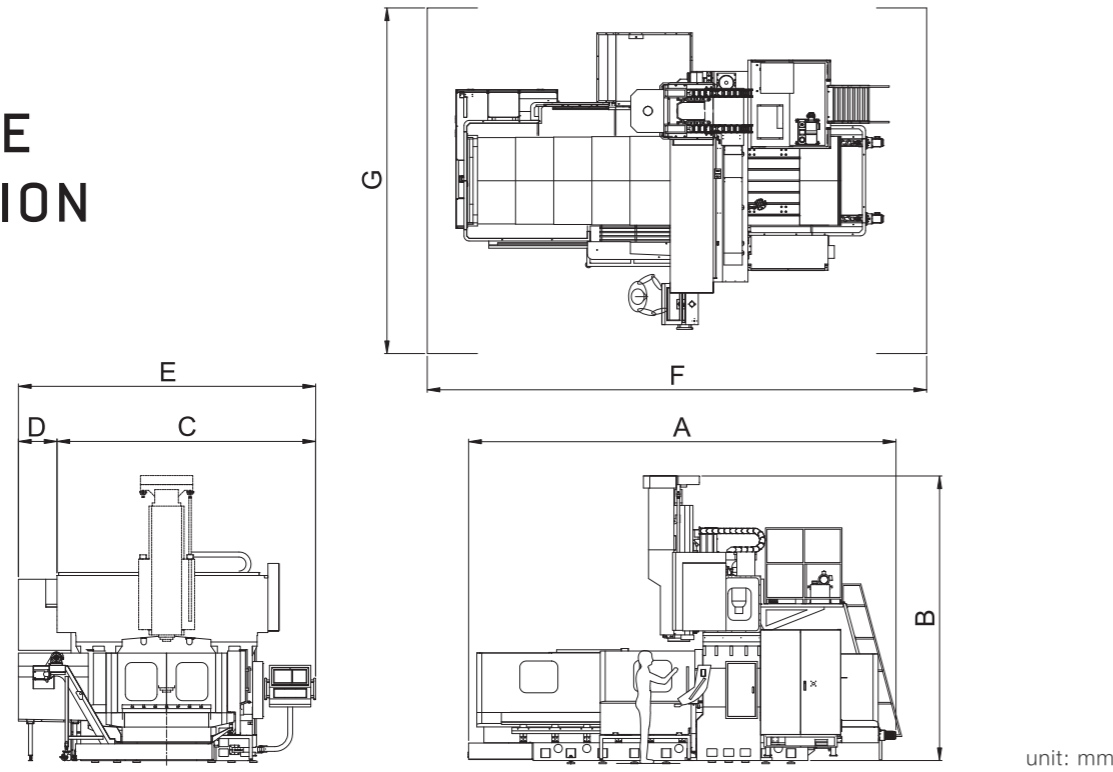
手動萬能銑頭



MANUAL EXTENDED MILLING HEAD

手動延伸銑頭

MACHINE DIMENSION 機器尺寸



MODEL	A	B	C	D	E	F	G
B2212	6280	3750	3070	730	3800	8280	6000
B3212	8280	3750	3070	730	3800	10280	6000
B2217	6285	4750	3675	600	4275	8285	6275
B2617	8285	4750	3675	600	4275	10285	6275
B3217	10285	4750	3675	600	4275	12285	6275
B2221	6280	4550	4580	570	5150	8280	7150
B3221	8280	4550	4580	570	5150	10280	7150
B4221	10280	4550	4580	570	5150	12880	7150
B5221	12280	4550	4580	570	5150	14280	7150
B3226	8280	4550	5080	570	5650	10280	7650
B4226	10280	4550	5080	570	5650	12880	7650
B5226	12280	4550	5080	570	5650	14280	7650
B4228	11000	4700	5420	420	5840	13000	7840
B5228	13000	4700	5420	420	5840	15000	7840
B6228	15000	4700	5420	420	5840	17000	7840

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B2212 / B3212 / B2217 / B2617 / B3217

STANDARD ACCESSORIES

- Splash guard
- Cutting coolant system
- Automatic lubrication system
- Spindle air blast system
- Work lamp
- Alarm lamp for abnormal situations
- 3 color operation status lamp
- Leveling bolts & pads
- Chip auger
- Toolbox with spanner & wrenches
- M.P.G.
- Machine inspection lists
- Operation manuals
- Controller manuals and circuit diagram
- Auto power off
- RS-232 terminal interface
- Spindle oil cooler
- Hydraulic system
- Heat exchanger for electrical cabinet
- Air gun

OPTIONAL ACCESSORIES

- 8000 r.p.m. direct drive spindle (35 HP) (only for Fanuc or Mitsubishi)
- 12000 r.p.m. or 15000 r.p.m. direct drive spindle BT-40 (only for Fanuc or Mitsubishi)
- X, Y, Z axes linear scale system
- ATC: 24, 32, 40, 60 tools
- Contact type tool length measurement system (TS-27R)
- CNC rotary table
- Coolant through spindle
- Oil feed holder
- Oil mist device
- Air conditioner for electrical cabinet
- Chain type chip conveyor
- Water gun

MACHINE SPECIFICATIONS 機器規格

MODEL 型號		UNIT 單位	B2212	B3212	B2217	B2617	B3217	
TABLE	Table size	台面尺寸	mm	2000 x 1100	3000 x 1100	2000 x 1500	2400 x 1500	3000 x 1500
	T slot	工作台 T型槽	mm	22				
	Maximum load	最大荷重	tons	3.5	4.5	6	7	9
TRAVEL	X axis	X軸行程	mm	2200	3200	2200	2600	3200
	Y axis	Y軸行程	mm	1200		1700		
	Z axis	Z軸行程	mm	760		1000 (1200)		
SPINDLE	Spindle servo motor (Cont./30 min.)	主軸馬達 (連續30分鐘)	KW	11/15 (22/26)		15/18.5 (22/26)		
	Spindle speed (Gear type)	主軸轉速 (齒輪式)	r.p.m.	6000		4000 (6000)		
	Taper	主軸錐度		7/24 taper 錐度, BT 50				
DISTANCE	Between two columns	門寬	mm	1300		1800		
	Spindle nose to table surface	主軸鼻端至工作台面距離	mm	200~960		200~1200 (200~1400)		
FEED RATE	X/Y/Z rapid feed rate	X/Y/Z快速進給	m/min	20 / 20 / 15		15 / 15 / 12		
	Minimum setting	進給速率 最小輸入單位	mm/min	0.001				
	X/Y/Z cutting feed rate	X/Y/Z切削進給	m/min	8				
ATC	No. of tools	刀庫容量	pieces	0 (24 / 32 / 40)				
	Tool change time	換時間(約)(刀對刀)	sec.	8 (Arm type 刀臂式)				
	Max. tool diameter/length	裝置 最大刀具(直徑/長度)	mm	Ø125 / 200 (Without adjacent tool 無相鄰刀) / Length 長度 350				
	Max. tool weight	最大刀具重量	kg	15				
COOLANT & LUBRICATION	Coolant tank volume	冷卻液箱容積	L	240		450		
	Hydraulic tank volume	液壓油箱容積	L	70				
	Lubrication tank volume	潤滑油箱容積	L	8				
MISCELLANEOUS	Power required	電力需求	KVA	40		50		
	Pressurized air	空氣壓力	kg/cm ²	7				
	Hydraulic required	油壓壓力	kg/cm ²	70				
	Machine weight	機械淨重	tons	17	21	22	23	25
	Controller	控制系統	10.4"	FANUC 0i-MF (FANUC 31i-MB) M80-4A (M830) SIEMENS, HEIDENHAIN				

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B2212 / B3212 / B2217 / B2617 / B3217

標準配備

- 工作台鍍金護罩
- 切削液單元
- 自動潤滑系統
- 主軸吹氣裝置
- 工作照明燈
- 機械異常警示燈
- 三色警示燈
- 基礎墊塊與水平調整螺絲
- 螺旋除屑器
- 機械調整工具一組
- 手輪控制盒
- 精度檢查表
- 機械維護操作手冊
- 控制器操作手冊及電路圖
- 自動斷電裝置
- RS-232介面
- 主軸油冷機
- 油壓單元
- 電氣箱熱交換器裝置
- 氣槍

選購配備

- 8000 r.p.m.直結式主軸(35 HP) (限Fanuc或Mitsubishi)
- 12000 r.p.m.或15000 r.p.m.直結式主軸BT-40 (限Fanuc或Mitsubishi)
- X, Y, Z軸光學尺回饋檢出系統
- 自動換刀系統 (24/32/40/60把刀)
- 接觸式刀具長度量測裝置 (TS-27R)
- CNC旋轉工作台
- 主軸中心出水
- 油路刀柄裝置
- 切削液自動氣霧裝置
- 電氣箱冷氣機
- 鏈板式排屑機
- 水槍

MACHINE SPECIFICATIONS 機器規格

MODEL 型號		UNIT 單位	B2221	B3221	B4221	B5221	B3226	B4226	B5226	B4228	B5228	B6228			
TABLE	Table size	台面尺寸	mm	2000 x 1800	3000 x 1800	4000 x 1800	5000 x 1800	3000 x 2200	4000 x 2200	5000 x 2200	4000 x 2500	5000 x 2500	6000 x 2500		
	T slot	T型槽	mm	22											
	Maximum load	最大荷重	tons	8	10	12	15	12	14	18	14	18	22		
TRAVEL	X axis	X軸行程	mm	2200	3200	4200	5200	3200	4200	5200	4200	5200	6200		
	Y axis	Y軸行程	mm	2100	2100	2100	2100	2600	2600	2600	3200	3200	3200		
	Z axis	Z軸行程	mm	800 (1000, 1200)											
SPINDLE	Spindle servo motor (Cont./30 min.)	主軸馬達 (連續30分鐘)	KW	15/18.5 (22/26)											
	Spindle speed	主軸轉速	r.p.m.	4000 (6000)											
	Taper	主軸錐度		7/24 Taper 錐度, BT 50											
DISTANCE	Between two columns	門寬	mm	2100	2100	2100	2100	2600	2600	2600	2800	2800	2800		
	Spindle nose to table surface	主軸鼻端至工作台面距離	mm	200~1000 (200~1200, 200~1400)											
FEED RATE	X/Y/Z rapid feed rate	X/Y/Z快速進給	m/min	12 / 12 / 10						10 / 12 / 10		12 / 12 / 10		10 / 12 / 10	
	Minimum setting	最小輸入單位	mm/min	0.001											
	X/Y/Z cutting feed rate	X/Y/Z切削進給	m/min	5											
ATC	No. of tools	刀庫容量	pieces	0 (24 / 32 / 40 / 60)											
	Tool change time	換時間(約)(刀對刀)	sec.	8 (Arm type 刀臂式)											
	Max. tool diameter/length	最大刀具(直徑/長度)	mm	Ø125 / 200 (Without adjacent tool 無相鄰刀) / Length 長度 350											
	Max. tool weight	最大刀具重量	kg	18											
COOLANT & LUBRICATION	Coolant tank volume	冷卻液箱容積	L	640	640	640	640	640	680	750	700	700	700		
	Hydraulic tank volume	液壓油箱容積	L	80											
	Lubrication tank volume	潤滑油箱容積	L	8											
MISCELLANEOUS	Power required	電力需求	KVA	50											
	Pressurized air	空氣壓力	kg/cm ²	7											
	Hydraulic required	油壓壓力	kg/cm ²	70											
	Machine weight	機械淨重	tons	27	31	35	38.5	38.5	43	49	48	54	60		
Controller	控制系統	10.4"	FANUC Oi-MF (FANUC 31i-MB), M80-4A (M830), SIEMENS, HEIDENHAIN												

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STANDARD ACCESSORIES

- Splash guard
- Cutting coolant system
- Automatic lubrication system
- Spindle air blast system
- Work lamp
- Alarm lamp for abnormal situations
- 3 color operation status lamp
- Leveling bolts & pads
- Chip auger
- Toolbox with spanner & wrenches
- M.P.G.

- Machine inspection lists
- Operation manuals
- Controller manuals and circuit diagram
- Auto power off
- RS-232 terminal interface
- Spindle oil cooler
- Hydraulic system
- Heat exchanger for electrical cabinet
- Air gun

OPTIONAL ACCESSORIES

- Auxiliary work table
- NC rotary table
- ATC: 24, 32, 40, 60 tools
- Contact type tool length measurement system (TS-27R)
- Workpiece measurement system (OPM60)
- Various milling heads are available
- Linear scales
- Coolant through spindle
- Oil feed holder
- Oil mist device
- Programmable coolant nozzle
- Air conditioner for electrical cabinet
- Auto heat compensation
- Z axis linear guideway and high speed spindle (8000 r.p.m. or BT-40 12000 / 13000 r.p.m.)
- Z axis square slideway
- Water gun
- Chain type chip conveyor

標準配備

- 工作台鍍金護罩
- 切削液單元
- 自動潤滑系統
- 主軸吹氣裝置
- 工作照明燈
- 機械異常警示燈
- 三色警示燈
- 基礎墊塊與水平調整螺栓
- 螺旋除屑器
- 機械調整工具一組
- 手輪控制盒

- 精度檢查表
- 機械維護操作手冊
- 控制器操作手冊及電路圖
- 自動斷電裝置
- RS-232介面
- 主軸油冷機
- 油壓單元
- 電氣箱熱交換器裝置
- 氣槍

選購配備

- 輔助工作台
- NC旋轉工作台
- 自動換刀系統 (24/32/40/60把刀)
- 接觸式刀具長度量測裝置 (TS-27R)
- 工件量測裝置(OPM60)
- 其他附加銑頭
- 光學尺回饋檢出系統
- 水槍
- 鏈板式排屑機
- 主軸中心出水
- 油路刀柄裝置
- 切削液自動氣霧裝置
- 切削液噴霧搖控裝置
- 電氣箱冷氣機
- 熱變位補償功能
- Z軸線軌加直結高速主軸 (8000r.p.m. 或BT-40, 12000 / 15000 r.p.m.)
- Z軸四方滑枕