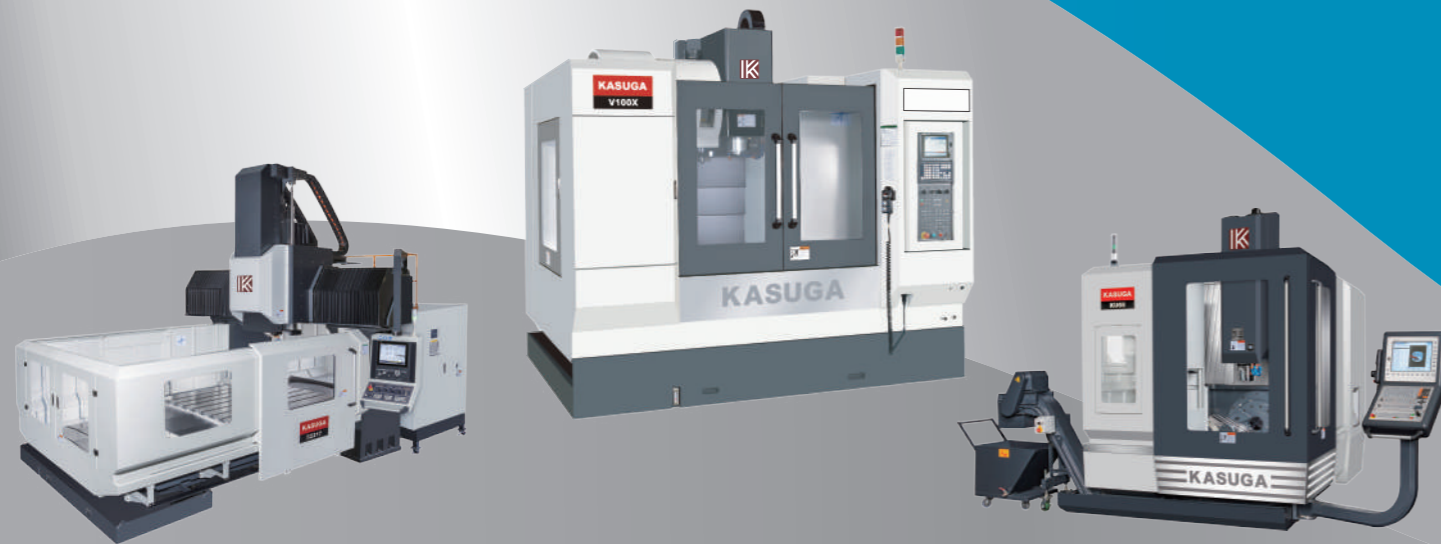


KASUGA



硬軌加工中心機
BOX WAY MACHINING CENTER



嘉士達精機有限公司
KASUGA SEIKI LTD.

台中市神岡區豐工三路7號

No.7, Fenggong 3rd Rd., Shengang Dist., Taichung City 429, Taiwan

TEL: +886-4-25286611 FAX: +886-4-25207171

<http://www.kasuga.com> E-mail: sales@kasuga.com

All We Build Is Quality

KASUGA Q SERIES

STATE-OF-THE-ART TECHNIQUE Heavy Duty! High Efficiency!

With the competitive edge of a combination of Japanese design and Taiwanese manufacturing the Q series box way machining center from KASUGA enhances ruggedness, rigidity and low vibration in structure design. In addition to the optimal machine structure, KASUGA Q series will exhibit its extraordinary capabilities especially in heavy cutting.

嘉士達Q系列 精湛技術呈現 重切削! 高效率!

融合日本設計與台灣製造優勢的嘉士達Q系列硬軌加工中心機，其整體結構設計以穩重、高剛性、低振動為強調重點。嘉士達Q系列機型除了擁有最佳化的機體結構，在重切削能力更凸顯其卓越非凡的實力。



MACHINE FEATURES

- The design of structural casting parts is subject to 3D dynamic simulation and finite element analysis, ensuring the optimal rigidity and machine accuracy.
- Box ways on three axes lead to outstanding stability in heavy cutting.
- Chip augers are equipped at both sides of base (OPT).
- Spindle speed 10,000 rpm (BT-40) / 6,000 rpm (BT-50).
- Controller: Oi-MF, M80, 828D.
- Fully enclosed splash guard.
- Ring type cutting coolant flushing system provides high efficiency cooling effect to the cutting tool and workpiece. (OPT.)

機器特性

- 機器結構鑄件設計，經由3D動態模擬及有限元素分析，確保最佳剛性及機器精度。
- 三軸全硬軌，重切削時具有優異穩定性。
- 底座兩邊配置除屑螺桿。(選配)
- 主軸轉速 10,000 r.p.m. (BT-40) / 6,000 r.p.m. (BT-50)。
- 控制器選擇: Oi-MF, M80, 828D。
- 全密閉式護罩。
- 主軸環噴功能，提供刀具與工件高效率的冷卻效果。(選配)

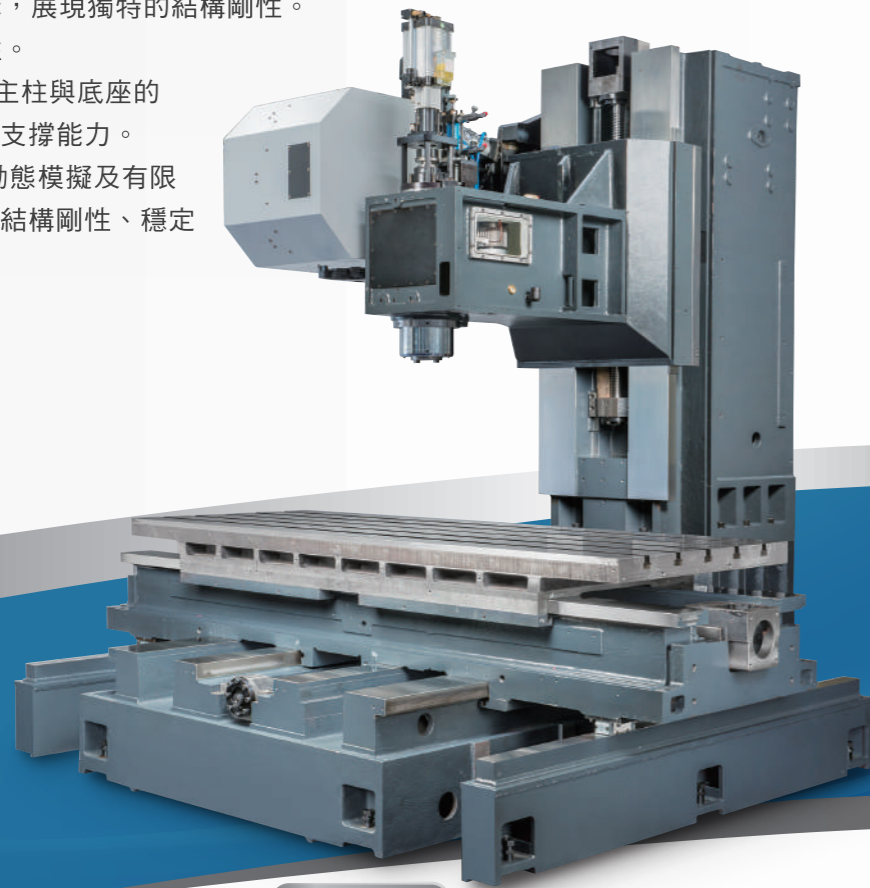
ROBUST MACHINE STRUCTURE

Heavy Cutting Resistance. Maximum Stability.

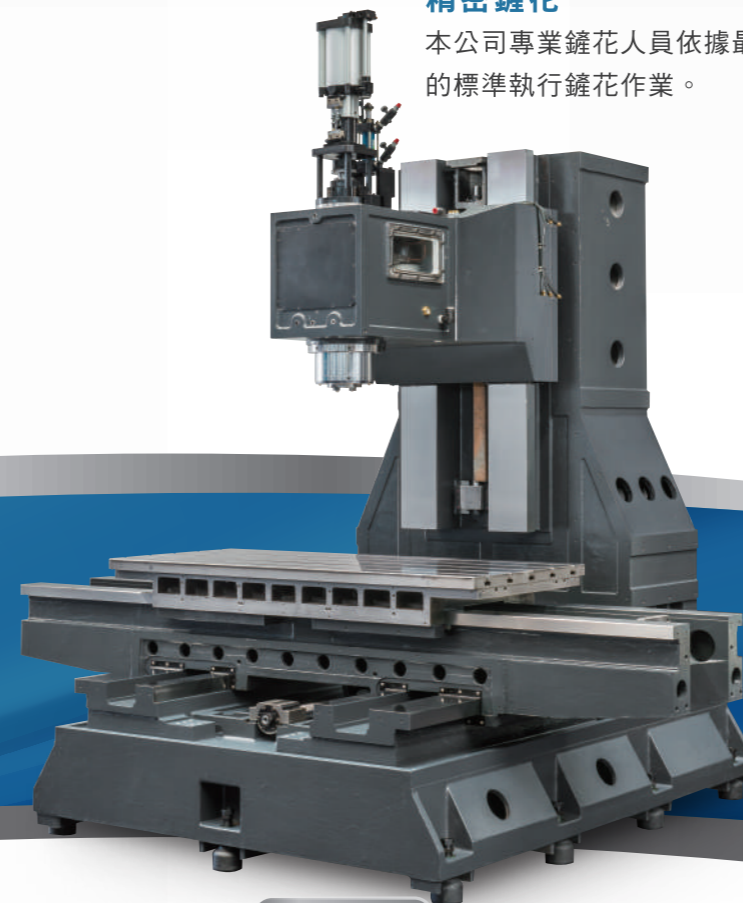
- Box ways on all X, Y, Z-axis make the machine ideal for heavy cutting.
- X, Y, Z-axis travels are fully supported without overhang problem.
- Oversized column and base structures provide a solid support.
- The base is a box type double-wall structure that exhibits exceptional rigidity of structure.
- The base features oil fluid separation.
- The large span between y-axis box ways in combination with extra wide mating surface between the column and the base provide a dramatic increase in supporting capacity.
- The machine structure design is subject to 3D dynamic simulation and finite element analysis, thus the best possible structural rigidity, stability and dynamic / static accuracy can be achieved.
- The table is a light-weight structure.

穩重的機體結構 耐重切削、穩定性優異

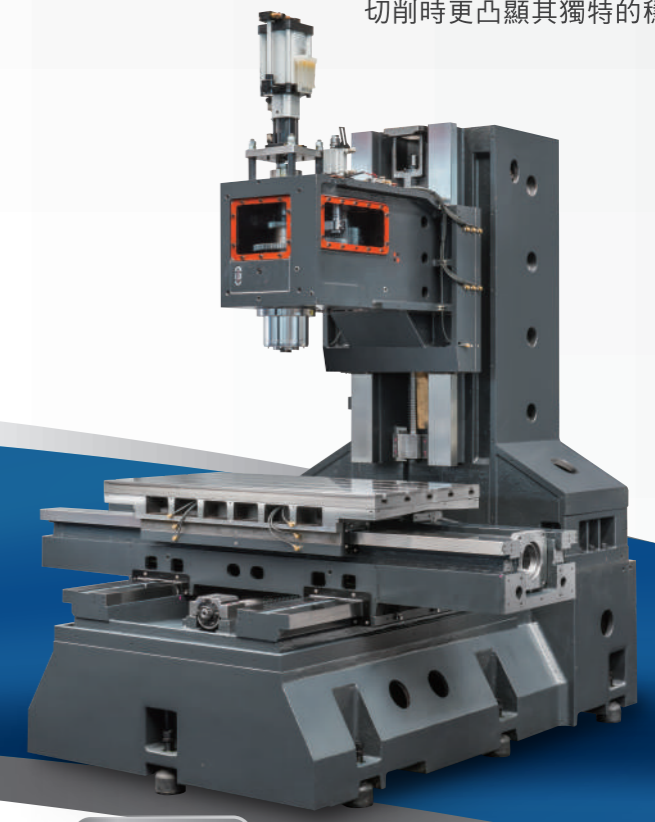
- X, Y, Z軸全硬軌設計，專為重切削而打造。
- X, Y, Z軸全行程支撐，無懸重問題。
- 超大立柱與底座結構，提供最穩固的支撐。
- 底座為箱形雙層壁結構，展現獨特的結構剛性。
- 底座具有油水分離特性。
- Y軸滑道跨距大，配合主柱與底座的結合面寬闊，大幅提升支撐能力。
- 機體結構設計，經3D動態模擬及有限元素分析，以達到最佳結構剛性、穩定性及動靜態精度。
- 工作台為輕量化設計。



Q200



Q140



Q100

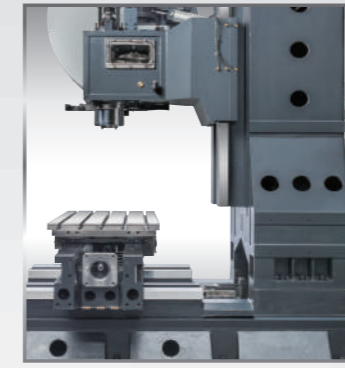


HIGH PRECISION HAND SCRAPING

Kasuga's highly skilled scraping technicians conduct scraping according to the rigorous standard.

精密鏟花

本公司專業鏟花人員依據最嚴格的標準執行鏟花作業。

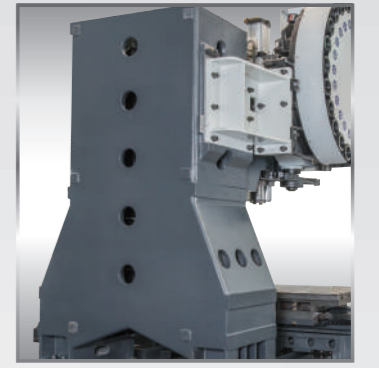


LARGE THROAT DEPTH

The increased throat depth size will help to increase machining capacity.

超大喉深

加大喉深尺寸，以提升機器之加工能力。

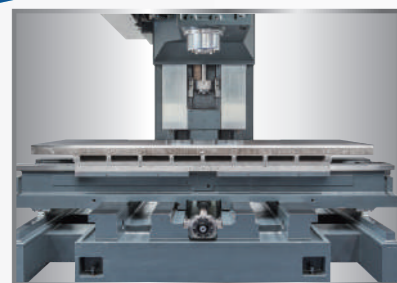


MASSIVE COLUMN

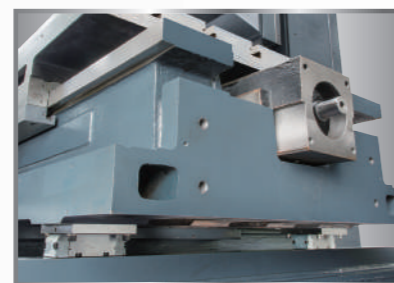
With the increased sizes on the column bottom, the machine will exhibit its unique stability especially when performing heavy cutting.

壯碩的立柱

立柱底部加大設計，使機器在重切削時更凸顯其獨特的穩定性。



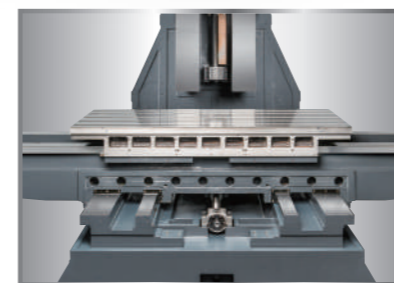
6 BOX WAYS ON BASE
底座6硬軌



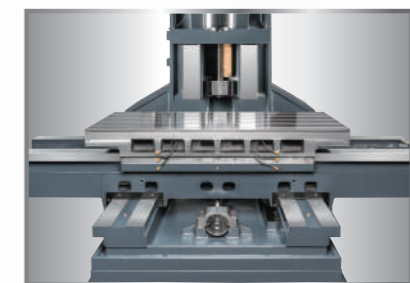
LINK CHAIN TYPE BEARING
履帶式軸承

There are two sets of link chain type bearings mounted at each side of the saddle, which may reduce transmission load on y-axis while making y-axis feed more smoothly.

鞍座左右兩端各附有2組履帶式軸承，可減少Y軸傳動負載，並且使Y軸進給更順暢。



4 BOX WAYS ON BASE
底座4硬軌



4 BOX WAYS ON BASE
底座4硬軌

POWERFUL GEAR-DRIVE SPINDLE HEAD

- The spindle head is ruggedly constructed to present excellent stability in heavy cutting.
- The gear-drive spindle head provides a wide range of speeds. The low speed range features great torque output, making the machine suitable for heavy cutting. The high speed range is ideal for high speed cutting, leading to high efficiency and fine finish on cutting surface.

強力齒輪式主軸頭

- 主軸頭結構高剛性，重切削時具有絕佳穩定性。
- 齒輪式主軸頭具有廣域的轉速範圍。低速擋具有大扭力輸出，適用於重切削。高速擋適合高速切削、高效率且加工面精緻。

BT-40 皮帶式主軸

8000~10000 r.p.m.
Belt type high speed spindle



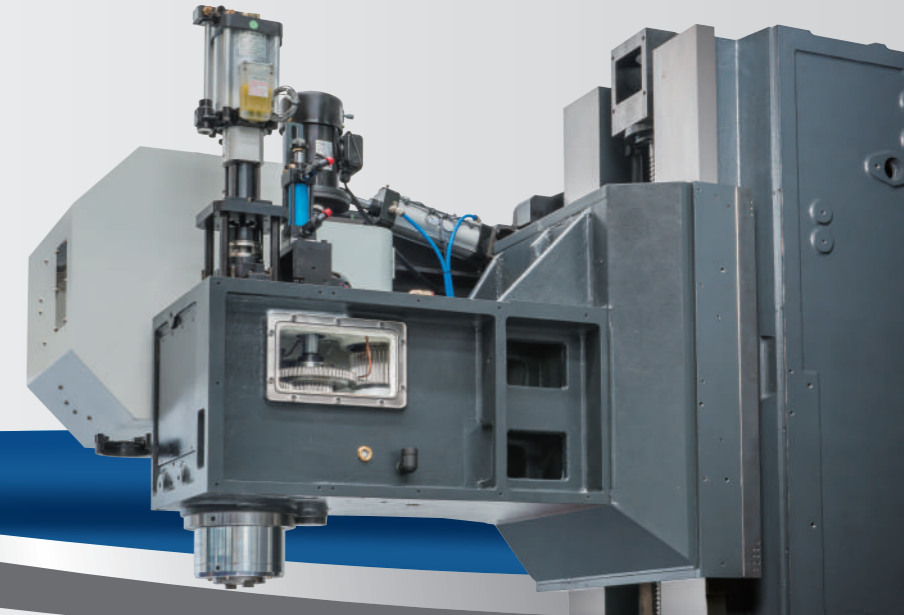
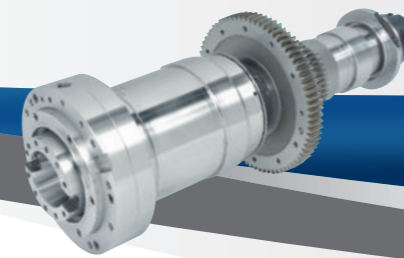
BT-50 皮帶式主軸

6000~8000 r.p.m.
Belt type high speed spindle



BT-50 齒輪式主軸

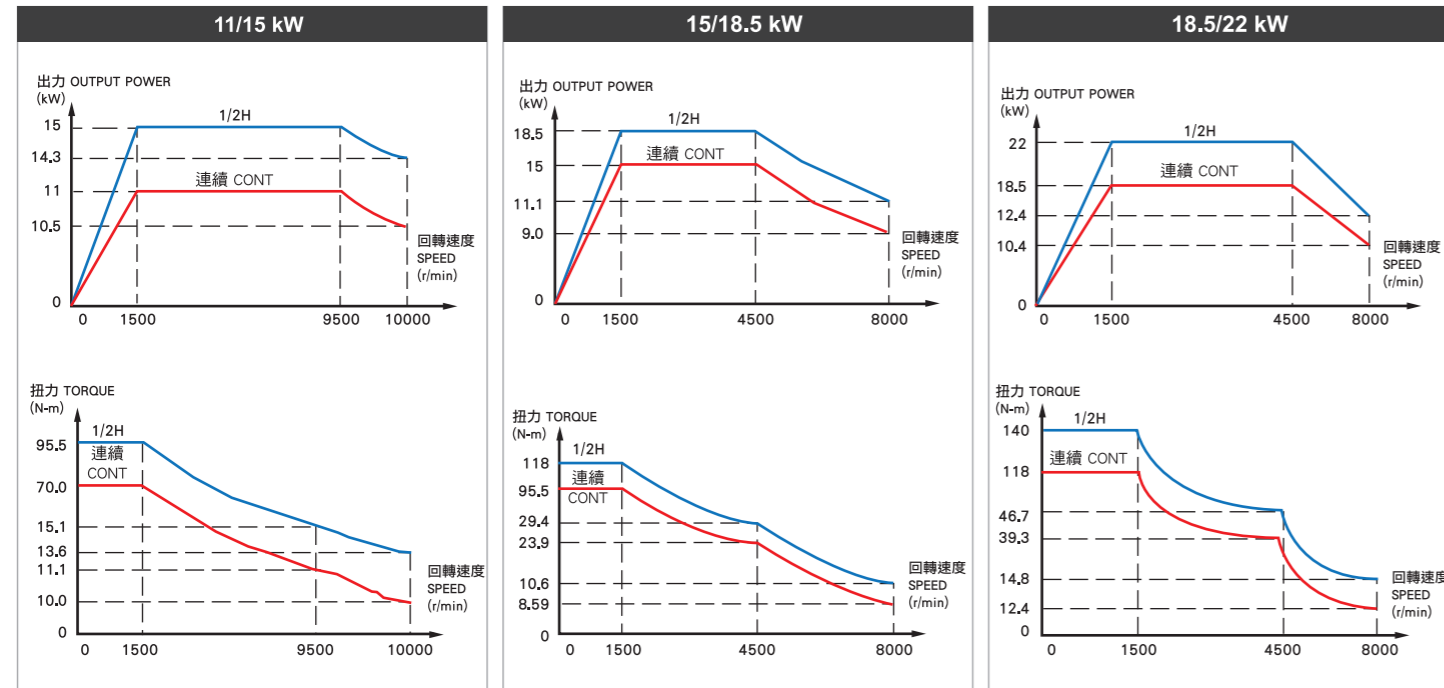
6000~8000 r.p.m.
Gear type high torque spindle



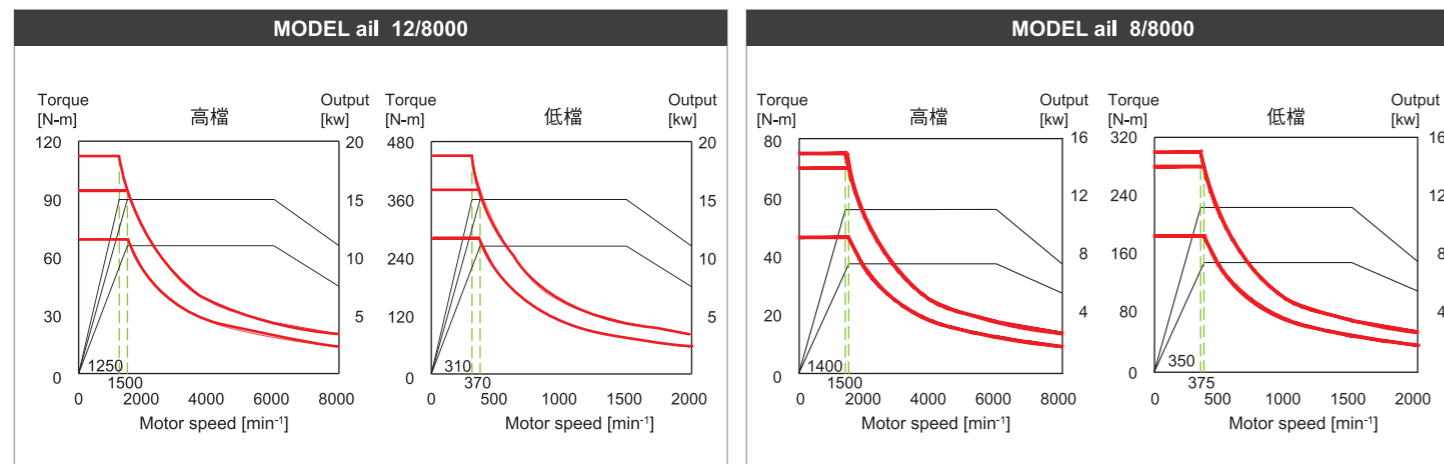
Spindle Speed / Torque Diagram

主軸轉速 / 扭力曲線圖

BELT TYPE



GEAR TYPE



UNIQUE DESIGNS BASED ON USER-FRIENDLY AND SAFETY

友善化設計 方便操作化設計 安全性設計



LARGER VIEWER'S WINDOW ON FRONT DOOR
前門及視窗大尺寸設計



SLOPE ON TELESCOPIC COVER FOR EASY CHIP FLOW
伸縮防屑蓋斜度設計



SWIVELABLE CONTROL BOX
旋轉式操作箱



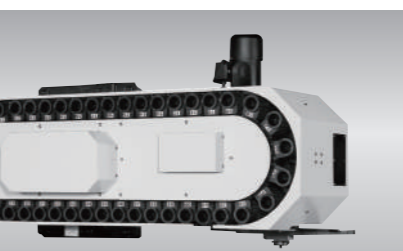
STEEP SLOPE SURFACE ON THE BASE FOR CHIP REMOVAL
底座大斜度排屑設計



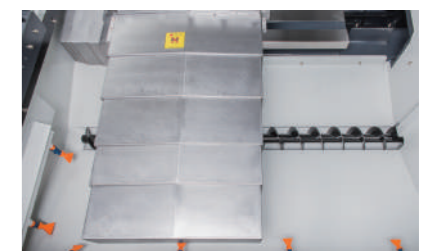
SECOND TOOL MAGAZINE LOCATED IN FRONT OF THE MACHINE
增加刀倉設計



24 TOOLS DRUM TYPE MAGAZINE
24刀圓盤式刀庫



40 TOOLS CHAIN TYPE MAGAZINE
40刀鏈條式刀庫



CHIP AUGER (OPT.)
除屑螺桿 (選配)

ACCURACY TEST

TQC are executed in every stage of production process from components to completed machine. All accuracy tests have been carried out by using professional measuring instruments under strict standard accepted world-wide, especially the laser positioning test and ball bar test.

精度檢測

嚴格執行品質驗證，從生產製程中到成品檢驗，每一台機器都經過檢驗儀器設備的檢測，尤其雷射定位精度檢測及循圓精度檢測，是確保整機品質的必要驗證

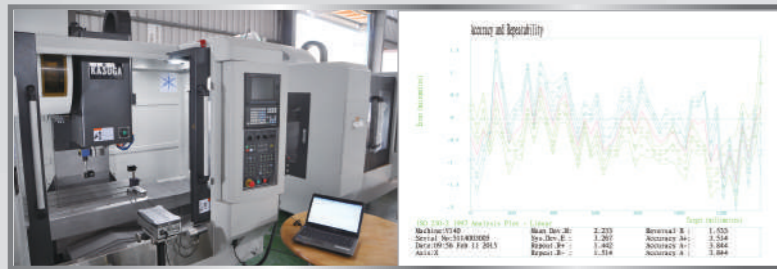


BALL BAR TESTING

A sophisticated ball bar tester is applied for inspecting servo accuracy, static and dynamic geometric errors.

循圓測試

採用先進循圓測試儀，以檢驗伺服精度以及動靜態幾何誤差。



LASER INSPECTION

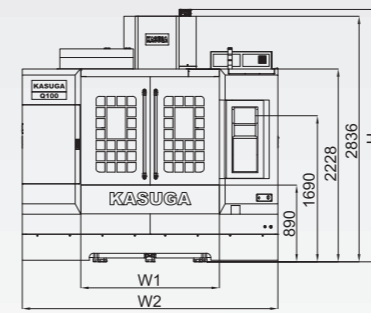
The high precision laser unit is applied for inspecting the geometric errors of machinery in axis movement. Inspection items include linear positioning accuracy, pitch error and backlash, etc.

雷射測試

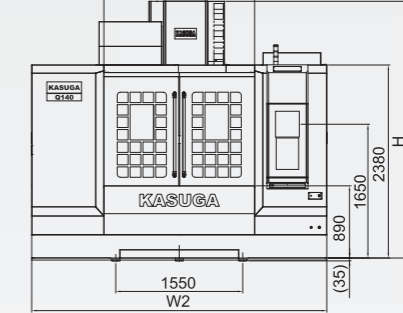
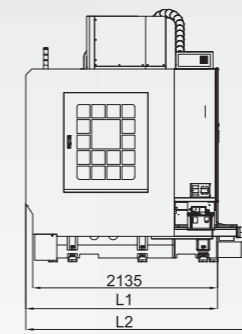
本機採用先進的雷射儀器，以檢驗機械軸向移動的幾何差。檢驗項目包括直線定位精度，螺桿節距誤差及背隙等。

MACHINE DIMENSIONS 機械尺寸圖

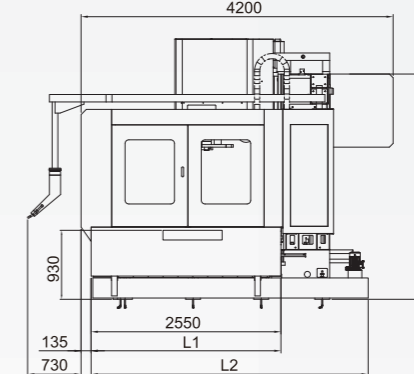
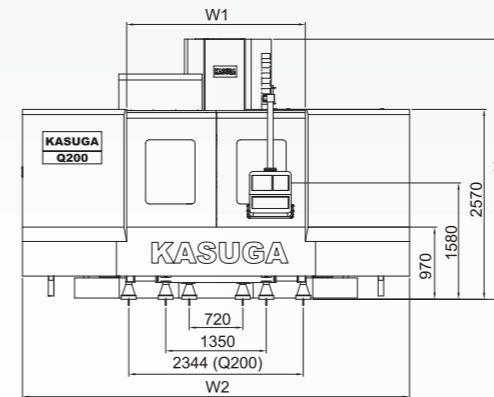
Q80 / Q100



Q120 / Q140



Q160 / Q200



機型 MODEL	W1	W2	L1	L2	H
Q80	1400	2750	2215	2700	2950
Q100	1600	2950	2215	2700	2950
Q120	1640	3400	2265	3090	3150
Q140	1840	3600	2265	3090	3150
Q160	2200	4600	2550	4030	3520
Q200	2400	5200	2550	4030	3520

CNC 控制器系統

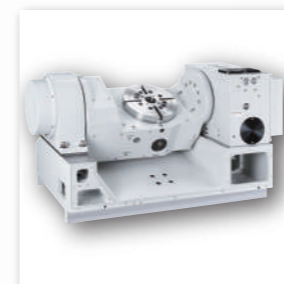
全新的控制系統，在高速、高精度及高性能的表現更優異。全新的伺服系統，在高速位移、高加速度及高效能的表現，更能發揮產能效益。機器的操作更簡便及友善人性化。

CNC CONTROL SYSTEM

Brand-new CNC control system with better performances in speed, accuracy, and reliability is used on our product. Updated servo mechanism is also in use not only for easy operation but also for the best efficiency.



OPTIONAL ACCESSORIES 選購配備



CNC ROTARY TABLE
CNC 旋轉工作台



SCREW TYPE CHIP CONVEYOR
螺旋式排屑機



CHAIN TYPE CHIP CONVEYOR
鏈條式排屑機



OIL MIST COLLECTOR
油霧回收機



WORKPIECE MEASUREMENT
工件量測裝置 (OMP60)



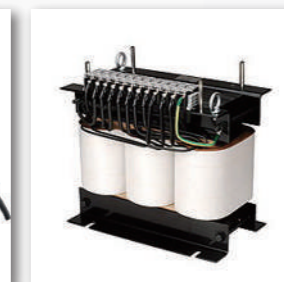
AIR CONDITION FOR ELECTRICAL CABINET
電氣箱冷氣機



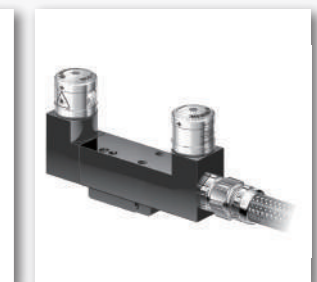
LINEAR SCALE
三軸光學尺



TOOL LENGTH MEASUREMENT
刀具長度量測 (TS27R)



MAIN POWER TRANSFORMER
主電源變壓器



LASER TOOL LENGTH MEASUREMENT
雷射刀具量測

MACHINE SPECIFICATIONS 機器規格

MODEL 型號		UNIT 單位	Q80	Q100	Q120	Q140	Q160	Q200	
TABLE	Table size	台面尺寸	mm	1050 x 600	1150 x 600	1300 x 650	1500 x 650	2015 x 925	2420 x 925
	Maximum load	最大荷重	kg	850	1000	1200	1400	2500	3000
	T-slot (Pitch x No. x W)	T型槽 (間距x數量x寬)	mm	18 x 5 x 125		18 x 5 x 125		24 x 5 x 160	
TRAVEL	X axis	X軸行程	mm	850	1050	1250	1450	1600	2050
	Y axis	Y軸行程	mm	610		660		865	865
	Z axis	Z軸行程	mm	610		660		815	
SPINDLE	Spindle taper	主軸錐度		BT-40		BT-50		BT-50	
	Spindle servo motor-cont./30 min. (Belt)	主軸馬達 (連續/30分鐘) (皮帶式)	kw	11 / 15		15 / 18.5		18.5 / 22	
	Spindle speed	主軸轉速	rpm	10000		6000		6000	
	Spindle servo motor-cont./30 min. (Gear)	主軸馬達 (連續/30分鐘) (齒輪式)	kw	7.5 / 11		11 / 15		11 / 15	
	Spindle speed	主軸轉速	rpm	8000		6000		6000	
DISTANCE	Spindle bearing (ID)	主軸軸承 (內徑)	mm	70(80)		90(100)		90(100)	
	Spindle nose to table surface	主軸鼻端至工作台面距離	mm	125~735		125~785		200~1015	
	Spindle center to column guideway	主軸中心至立柱軌道面距離	mm	680		700		1005	
	Table front edge to door	工作前端至門距離	mm	310		310		500	
FEED RATE	Floor to table without leveling pads	工作台面至地面距離 (無墊塊)	mm	900		900		925	
	X/Y/Z rapid feed rate	X/Y/Z快速進給	m/min	24 / 24 / 20		20 / 20 / 20		20 / 20 / 15	
	X/Y/Z axis ballscrew	X/Y/Z軸螺桿規格	mm	40 / 40 / 40		45 / 45 / 45		55 / 55 / 55	
	X/Y/Z cutting feed rate	X/Y/Z切削進給	m/min	10		10		10	
AUTO TOOL CHANGE	Minimum setting	最小輸入單位	mm	0.001		0.001		0.001	
	ATC - Arm type no. of tools	刀臂式刀庫容量		BT-40 / 24T		BT-50 / 24T		BT-50 / 40T	
	Tool change time (tool to tool)	換刀時間 (刀對刀)	sec	2.3		4		4	
	Max. Tool diameter / length	最大刀具 (直徑/長度)	mm	78 / 250		125 / 300		125 / 300	
	Max. Tool diameter no adjacent tool	最大刀具直徑 (無相鄰刀)	mm	120		250		250	
COOLANT & LUBRICATION	Max. Tool weight	最大刀具重量	kg	8		15		15	
	Coolant tank volume	冷卻水箱容量	L	200		350		500	550
MISCELLANEOUS	Lubrication tank volume	潤滑油箱容積	L	4		4		4	
	Power required	電力需求	KVA	30		40		50	
	Pressurized air	空氣壓力	kg/cm ²	5.5~7		5.5~7		5.5~7	
	Machine width / length	機械寬/長	mm	2750 x 2700	2950 x 2700	3400 x 3090	3600 x 3090	4600 x 4030	5200 x 4030
	Machine height	機械高度	mm	2950		3150		3520	
Machine weight	機械淨重	kg	6300	6500	9300	9900	15200	18000	
Controller	控制系統		Oi-MF / M80- / 828D						

• Specifications are subject to change without prior notice. 本公司保留機器規格變更之權利，恕不另行通知。

STANDARD ACCESSORIES

- Full enclosure splash guard
- Cutting coolant system
- Automatic lubrication system
- spindle air blast system
- Work lamp
- Alarm lamp for abnormal situations
- Indication lamp for dwell & end of job
- Heat exchanger for electric cabinet
- Toolbox with spanner & wrenches
- Water gun / air gun
- M.P.G.
- Machine inspection lists
- Operator manuals
- Controller manuals and circuit diagram
- Auto. power off
- RS-232 terminal interface
- Leveling bolts & pads
- Spindle oil cooler

標準配備

- 全罩式護罩鉸金
- 切削液裝置
- 自動潤滑裝置
- 主軸吹氣裝置
- 工作燈
- 異常狀況警示燈
- 暫停及工作結束指示燈
- 電氣箱熱交換器
- 工具箱附扳手
- 水槍/氣槍
- 移動式手輪
- 機器檢驗表
- 操作手冊
- 控制器手冊及電路圖
- 自動斷電功能
- RS232介面
- 基礎螺絲及墊塊
- 主軸油冷機

OPTIONAL ACCESSORIES

- Spindle taper CAT/DIN
- CNC rotary table
- Auto. tool length & diameter measurement (TS-27R)
- Work piece coordinate measuring (OMP60)
- Coolant through spindle
- Ring type cutting coolant system
- Disc type oil skimmer
- Air conditioner for electric cabinet
- Screw type chip conveyor
- Chain type chip conveyor
- Chip auger
- Oil-feed holder
- Oil mist device
- Auxiliary work table
- Linear scales

選購配備

- 主軸錐度 (CAT/DIN)
- CNC 旋轉工作台
- 自動刀長及刀徑量測裝置 (TS-27R)
- 工件座標量測裝置 (OMP60)
- 主軸中心出水裝置
- 主軸環狀噴水裝置
- 圓盤式油水分離機
- 電氣箱空調冷氣機
- 螺旋式排屑機
- 鏈條式排屑機
- 除屑螺桿
- 油路刀把
- 油霧回收裝置
- 輔助工作台
- 光學尺