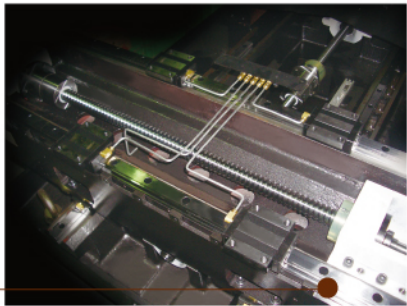


MATERIAL 用料

High quality transmission components feature reliability and durability
採用高品質傳動元件，大幅提升機器之可靠度及使用壽命



Metal lubrication lines in difficult accessing area
關鍵運動磨合區域採用高級金屬油管，有效供應潤滑油到內部滑道面



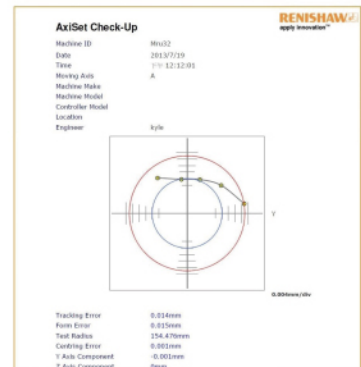
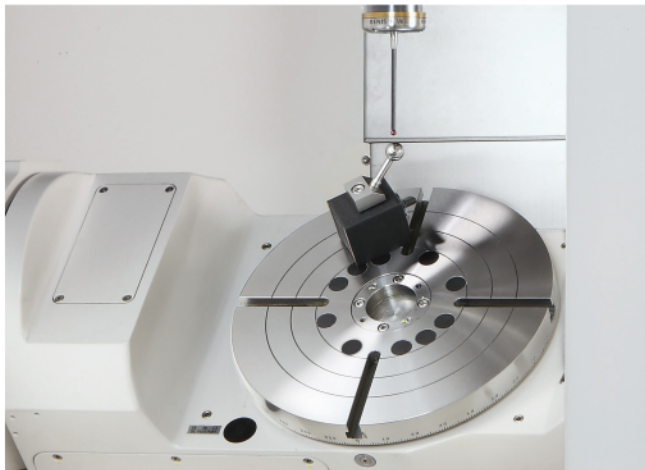
Stainless at wash down covers and guarding apron
底座沖屑板及前護裙採用不鏽鋼材質

WORKMANSHIP 工藝



Carefully scraping on critical connection surfaces
重要結合面部位都需經過嚴密的鏟花處理

Strict geometrical tolerance, both in straightness and squareness
不論在真直度、直角度或其他等，都有嚴格的幾何精度控管



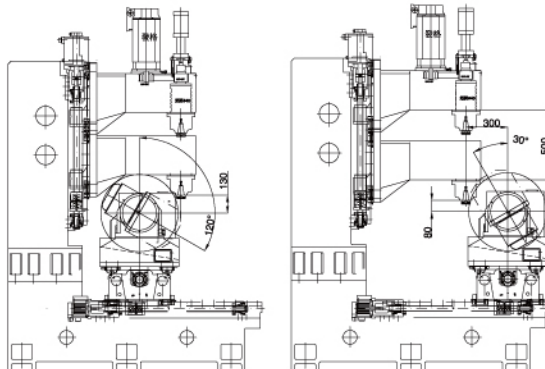
Accuracy of indexing of rotary axes checked and compensated
旋轉軸精度測量並補償

MACHINE SPECIFICATIONS 機器規格

MODEL 項目	UNIT 單位	MRU-32	MRU-60*
Travel 行程	X axis	mm 700	900
	Y axis	mm 600	825
	Z axis	mm 500	500
	Spindle nose to table 主軸鼻端至工作台面	mm 80-580	130-630
Spindle 主軸	Type 型式	BT-40, belt 皮帶式	BT-40, belt 皮帶式
	Max. Speed 最高轉速	rpm 12,000	12,000
	Bearing I.D. 軸承內徑	mm 70	70
	Center to Z cover 主軸中心線至Z軸護罩	mm 630	630
	Motor 馬達	Fanuc 15/18.5 (cont/30min) QAN260M 15/20 (S1/S6-60%)	
Axes 三軸	Rapid Feed X/Y/Z 快速移動速度	m/min 30/30/20	36/36/36
	Cutting Feed X/Y/Z 切削速度	m/min 10	10
	Rails X/Y/Z 滑軌	Roller Rails-35 滾柱	Roller Rails-45 滾柱
	Ballscrew X/Y/Z 螺桿	Φ40x10, C3	Φ40x10, C3
	Motor torque X/Y/Z 馬達扭力	Nm α 12/12/22 QSY 155B/155B/155D	α 12/12/22 QSY 155C/155B/155D
	Positioning accuracy 定位精度	+/- 5	+/- 5
	Repeatability 重複性	+/- 4	+/- 4
	Brand & model 品牌與型號	Detron GF-255H	Detron GF-500H
	Work size 可容工件尺寸	mm Φ320	Ø600
	C axis travel C軸行程	deg 360	360
Rotary Table 旋轉工作台	A axis travel A軸行程	deg -120/+30	-110/+30
	Max. load (0°) 最大荷重	kg 100	450
	Max. load (-90°) 最大荷重	kg 75	300
	Motor torque C/A	4/8	22/30
	Type 型式	Arm 刀臂式	Arm 刀臂式
	Tool stations 容納刀數	40	50
ATC & Magazine 換刀機構與刀庫	Max. Tool diameter 最大刀徑	mm 90	90
	Max. Tool length 最大刀長	mm 200	200
Controller 控制器		Fanuc 0iMD α (4+1) Heidenhain TNC620	
Dimensions 機器尺寸	LxWxH 長x寬x高	cm 240x220x250	240x220x250
Weight 機器重	kg	6,500	7,200

Design and specifications are subject to change without prior notice.
設計如有變更，恕不另行通知。

WORKING RANGE INTERFERENCE DIAGRAM 工作範圍干涉圖



SYNTAK ENTERPRISE, INC.
心特股份有限公司

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E-mail: syntak.tw@msa.hinet.net

SYNTAK ENTERPRISE, INC.

STANDARD ACCESSORIES

標準配備

- Full guarding 全密閉式钣金
- Telescopic way cover 滑道伸縮護蓋
- Stainless covers at accessing and wash down 不鏽鋼護蓋及钣金內側沖屑裝置
- Top cover 上蓋钣金
- Chip washdown 沖屑裝置
- Air ballast 主軸內孔清潔吹氣
- Automatic lubrication 自動潤滑裝置
- Heat exchanger for electrical cabinet 電氣箱熱交換器
- Work lamp 工作燈
- Alarm lamp 警示燈
- Coolant system 切削液系統
- Automatic power off 自動斷電
- Rs-232 interface RS-232介面
- MPG 手輪
- Rigid tapping 剛性攻牙

OPTIONAL ACCESSORIES

可選配備

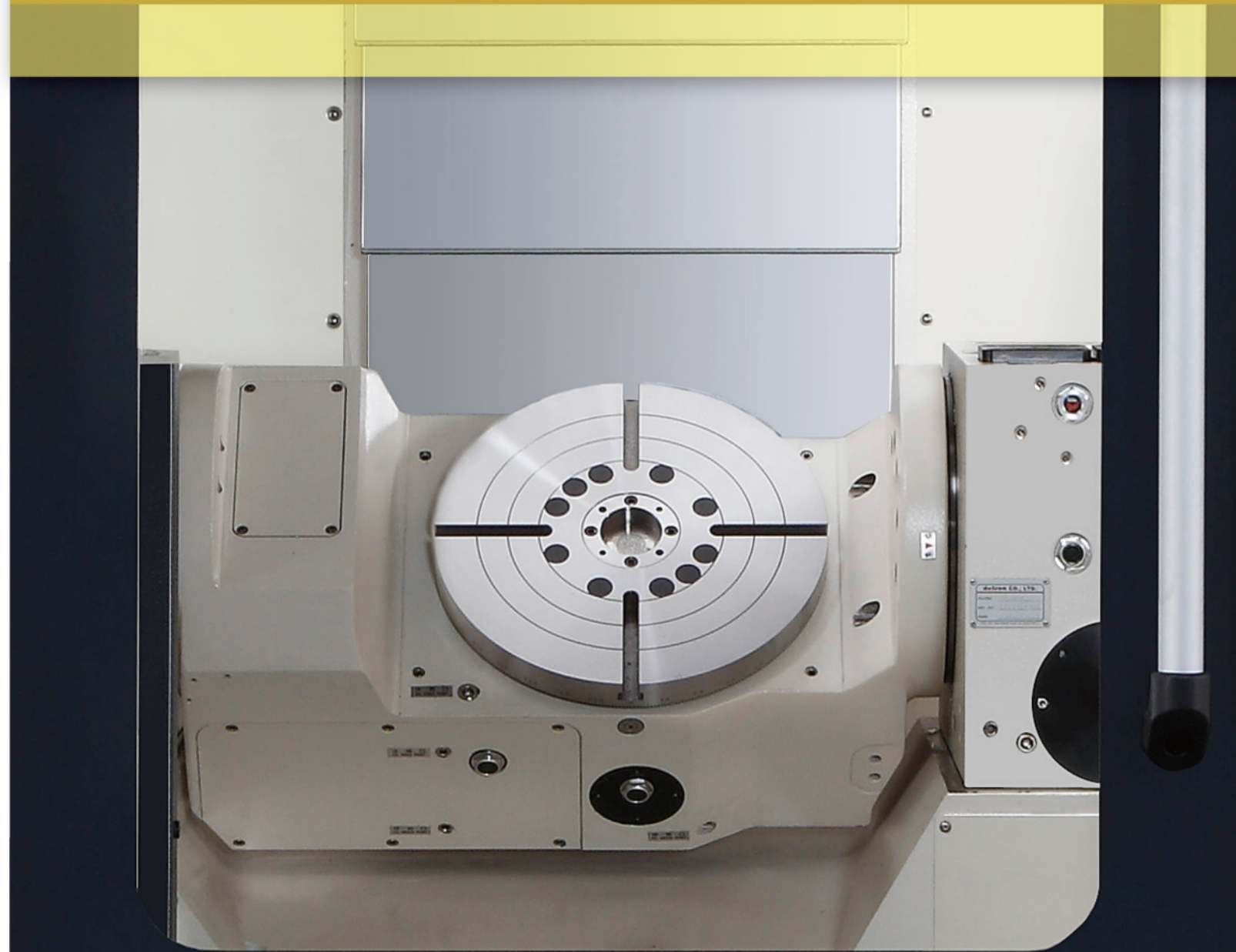
* 工廠內安裝
Mounted in factory

- Chip auger 螺旋捲屑機
- Chip conveyor 鐵屑輸送機
- Coolant through spindle 20 bar* 20 Bar主軸中心出油
- CE marking CE規格
- Transformer 變壓器
- Spindle coolant ring 主軸環狀沖屑
- Oil skimmer 油水分離機
- Coolant mist collector 油霧收集機

5-AXIS VERTICAL MACHINING CENTER

MRU

series
五軸綜合加工機 MRU 系列



15492-5001 10.13.CE

ALL ASPECTS MACHINING CAPABILITIES

全方位加工能力

SYNTAK ENTERPRISE, INC.

The Combination of Efficiency and Accuracy
Optimal Price-Performance Ratio
效率與精密度的結合 最佳之性價比

- 5-Axis or 5-Face Machining
五軸或多面加工
- Complicated Parts can be machined in one setup.
複雜工件一次夾持完成
- Compact Structure, High Accuracy.
結構精實，精度高
- Ergonomic Design
人機工學設計



Syntak 5-axis machining center MRU Series is for producing high accuracy components. The integrated 4th and 5th rotary table allows complicated or multiple faces parts to be machined in just one setup. In addition, with the unique dual lead worm shaft and the hydraulic braking system, the rotary table features high power transmission rate, which meets all technical demand for heavy duty cutting. The MRU 5-axis machining centers are widely applied in various industries, such as aerospace, medical components, automobile or motorbike parts, optical equipment and consumer electronics. The machine is the best investment for its high price-performance ratio.

心特MRU五軸綜合加工機系列是專為高精密及複雜工件之加工而設計，一體成型之第四第五軸分度盤，能在一次夾持的狀況下一次完成。並且，分度盤採用獨特高齒深雙導程蝸桿，動力傳達效率高，搭配油壓煞車設計，符合重切削所需之條件。MRU五軸綜合加工機廣泛應用於各精密加工行業，如航太零件、醫療器材、汽機車零件、光學儀器、消費電子產業等，是性價比最高的生產設備。

HIGH RIGIDITY FOR HIGH EFFICIENT MACHINING

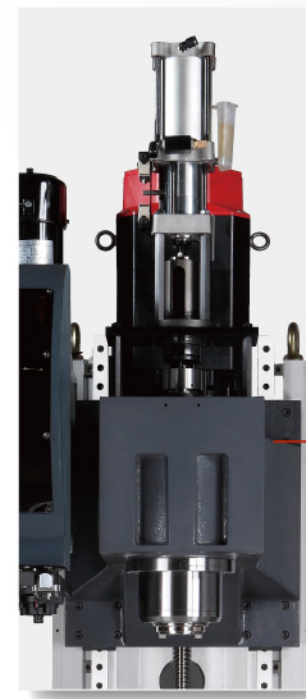
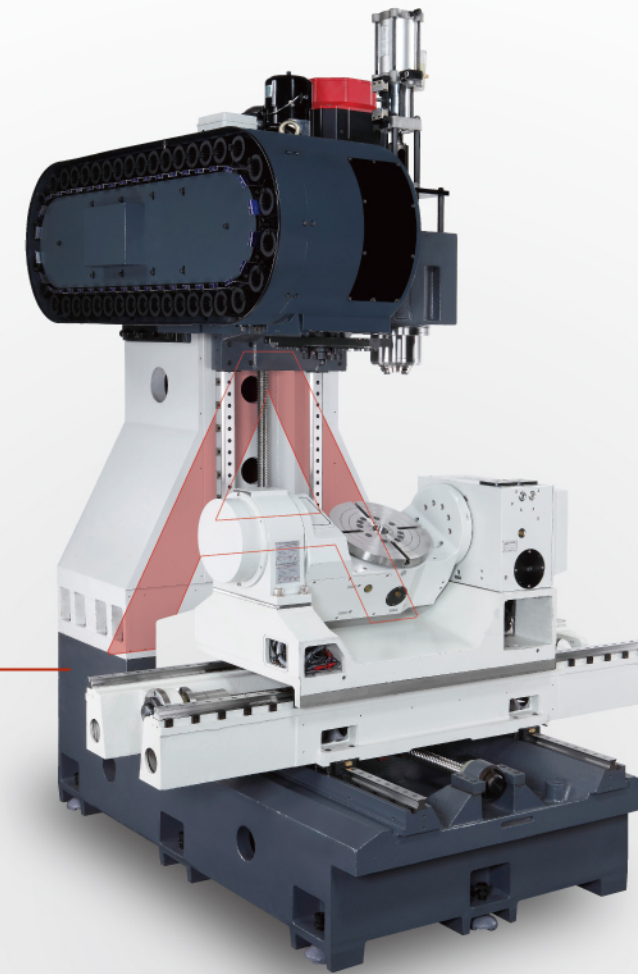
高剛性結構 高效率加工

The First Class Syntak Craftsmanship
頂級精緻工藝 展現最佳機械結構

The machine main structure is made of Meehanite cast iron, which is stress relieved with annealing processes. In addition, the aging process makes the metallic stability even higher, without deformation problem.

機器主體結構採用米漢納鑄鐵，鑄件經過退火處理，消除內應力，並且置於自然環境中時效處理，鑄件材質穩定度高、不扭曲變形。

“A” shaped column design for
maximum damping coefficient
機身底部加寬“A”字型設計

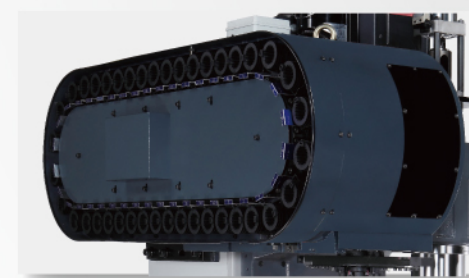


Symmetric Head Stock Design
頭部對稱式設計

For optimal cutting stability and the best work piece surface finish, the head stock of spindle adopts symmetric design. Under long time machining process, the temperature of head stock transmits evenly, minimizing the thermal deformation.

High Speed 40-tools magazine
40把刀高速自動換刀刀庫

To match the machining versatility of 5-axis machining center, the MRU Series machines are standard with Arm type automatic tool changer with magazine capacity of 40 tools. 為搭配五軸加工機之多樣化加工性能，MRU全系列機種標準配備40把刀之刀臂式刀庫。



MAXIMUM PROFITABILITY by DUAL-AXIS ROTARY TABLE

雙軸分度盤 創造最高獲利率



The Dual-axis rotary table on Syntak MRU Series machine features C axis 0.001° indexing resolution and wide tilting range of A axis (-120° to +30°), suitable for various complex surface or multiple face machining.

心特MRU綜合加工機系列之五軸分度盤，旋轉軸C軸之分割精度為0.001°，搭配廣角度之傾斜軸A軸 (-120° to +30°)，適用於各類複雜曲面或多面之加工。

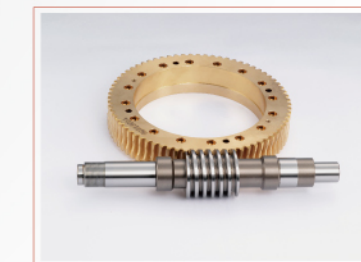


Design of High Structural Rigidity / 高剛性結構設計

- The rotary table employs an oversized large radius and axial pre-loaded bearing, capable of supporting heavy cutting load from both horizontal and vertical directions, which ensures long term accuracy of and stability of the dual-axis rotary table. 採用超大型徑軸向預壓軸承設計，能承受水平及垂直兩方面重切削負荷，更能確保分度盤在長期使用下保持平滑順暢並且精確地轉動。

Hydraulic Braking Mechanism / 油壓鎖緊系統

- The braking system is a whole-circle hydraulic braking shoes mechanism; the center shaft of the rotary table is simultaneously held via a 360° braking ring, offering a solid structure for heavy cutting without chattering or vibration. 採用全圓周環抱油壓鎖緊系統，以油壓360°全圓周鎖緊煞車將整個圓盤同步鎖緊，確保於重切削時不會打滑或震顫。



Unique Dual Lead Worm and Shaft / 獨特高齒深雙導程蝸桿

- The engaging depth between teeth is 1/3 further than the regular design, which effectively spreads out the engaging force to larger contact area evenly, featuring high transmission efficiency and low engagement worn out, suitable for heavy duty cutting. 比一般接觸齒深比多了1/3，接觸齒及接觸面積比較大，有效分散面壓力、傳動扭力大，傳達效率高且磨耗極小，因此齒合率提高，適合重切削。
- The thread of dual lead worm shaft varies from small to big in one direction, after a long period of operation, the gear gap between worm and shaft can be easily eliminated simply by adjusting the shaft position horizontally, the accuracy can be regained. 雙導程蝸桿之螺紋為由小而大的漸進式螺紋，當長久使用造成蝸桿及蝸輪間產生間隙時，只要將蝸桿朝軸方向橫移（軸向調整齒隙），就可調整齒隙，再次提高精度。