



經驗傳承 · 技術創新

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五軸車銑復合加工機
5-axis Multitasking Machine



五軸車銑復合加工機

5-axis Multitasking Machine

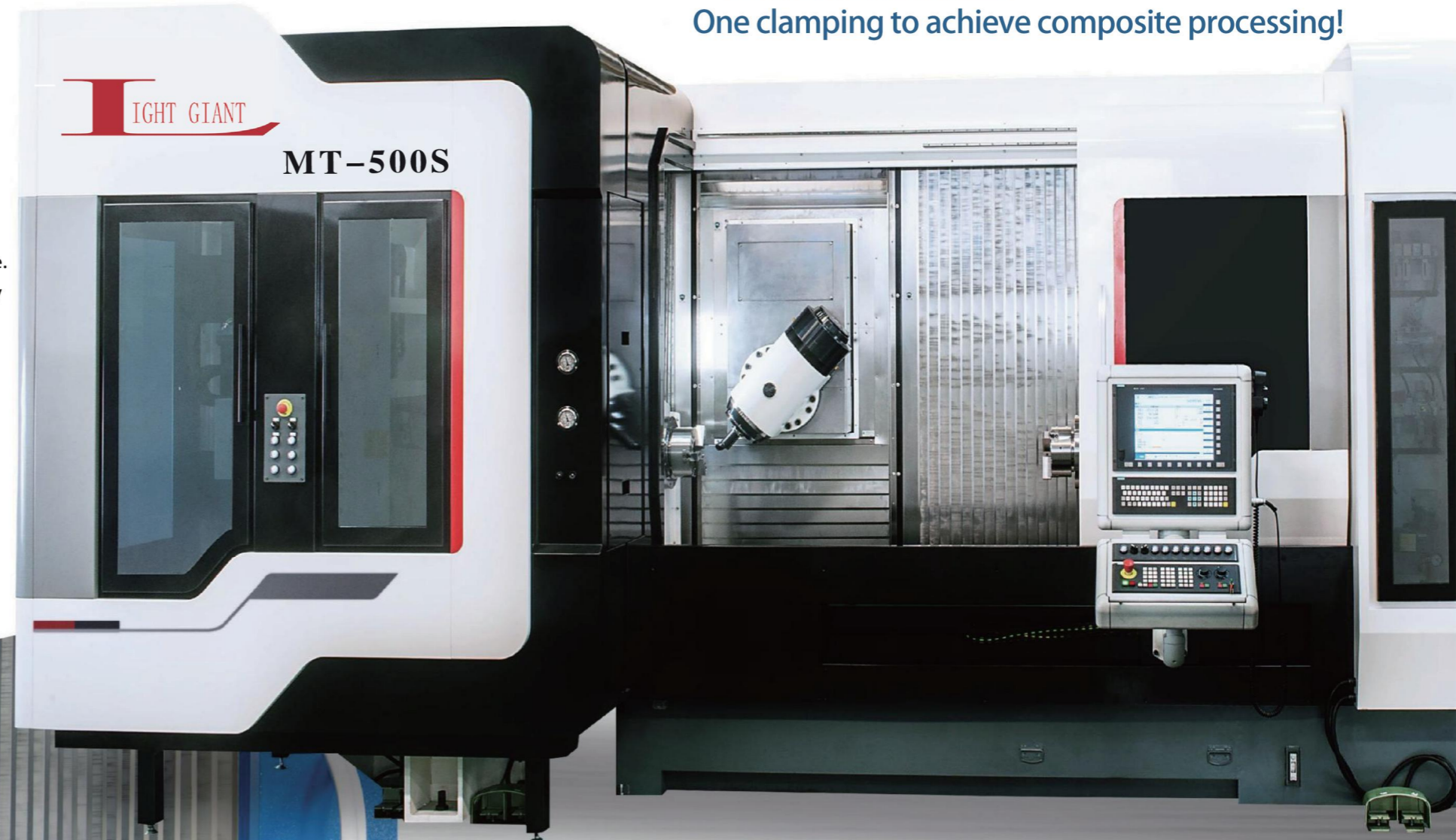
能實現1次裝夾，完成車、銑、鑽、攻、磨等6面完整多工序加工，針對工業4.0彈性制造、智能加工所需最佳設備
Capable of achieving one clamping, completing six complete surfaces including turning, milling, drilling, tapping, and grinding
Process processing, targeting the best requirements for Industry 4.0 elastic manufacturing and intelligent processing equipment

LIGHT GIANT MT系列復合加工機具備5軸同動車銑擺頭，選配下刀塔可雙主軸
同步車削控制，多樣化模組適用高複雜性工件

The LIGHT GIANT MT series composite machining machine is equipped with a 5-axis synchronous turning and milling swing head, and can be equipped with a lower turret and dual spindle
Synchronous turning control, diversified modules suitable for high complexity workpieces

- 机床设计以最大灵活性实现复杂加工
Machine tool design achieves complex machining with maximum flexibility
- 双车主轴最高转速达5000rpm,可精车出高光表面，采内藏式马达搭配德制绝对式光学尺确保最佳的定位精度
The maximum rotation speed of the dual spindle reaches 5000rpm, which can precisely turn the high gloss surface. Equipped with a built-in motor and a German made absolute optical ruler, it ensures the best positioning accuracy
- 双车主轴可高速对接工件完成2端面加工
Dual spindle can achieve high-speed docking of workpieces and complete 2 end face machining
- B轴可旋转-30至210度(最小分度0.001度)
B-axis can rotate -30 to 210 degrees (minimum division 0.001 degrees)
- 标准刀库36把刀(HSK-T63/HSK-A63)，可选配72把刀
Standard tool library with 36 knives (HSK-T63/HSK-A63), optional with 72 knives
- 选配刀塔6把刀可于主轴中心下方运行X/Z轴车削
Optional turret with 6 tools can run X/Z-axis turning below the center of the spindle
- 全C轴轮廓控制(最小分度0.001度)
Full C-axis contour control (minimum division 0.001 degrees)

一次裝夾實現復合加工!
One clamping to achieve composite processing!



超乎預期!創造更多利潤!
一次完成複雜性加工任務
Beyond expectations! Create more profits!
Complete complex machining tasks in one go

- 五轴车铣加工机可以节省可观的成本，使复杂性加工任务结合自2台车床和1台铣床可减少50%以上加工时间，并节省装夹工时
一次性同步完成复杂零件加工可有效减化多次装夹，停机时间，有效降低单位成本
 - 结合于单点工钻制程可以降低加工失误，提高生产良率，并消除生产线料件存放和移线问题，有效节省产线空间
- Five axis turning and milling machines can save considerable costs and combine complex machining tasks from 2
Two lathes and one milling machine can reduce processing time by more than 50% and save clamping time
Simultaneous processing of complex parts at once can effectively reduce multiple clamping and downtime, with
Reduce unit costs effectively
Combining with single point drilling process can reduce machining errors, improve production yield, and eliminate production
The storage and relocation of wire components effectively saves production line space

加大工件範圍

Increase the range of workpieces

MT-500S

8" 夾頭
主軸孔徑

8" chuck
Spindle aperture **Ø76mm**

10" 夾頭
主軸孔徑

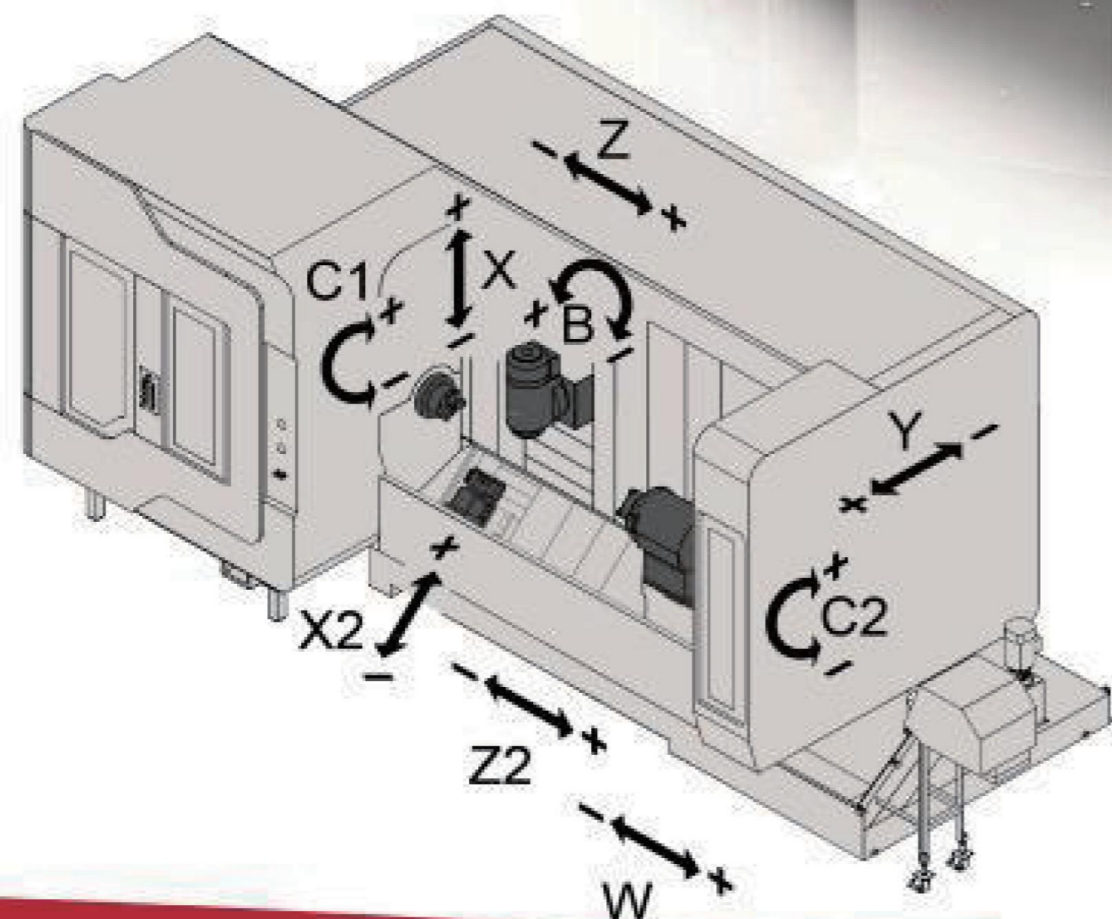
10" chuck
Spindle aperture **Ø91mm**

最大通孔棒材
Maximum through-hole bar material

Ø65x1569mm

Ø75x1569mm

最大切削長度
Maximum cutting length **1519mm**



5轴刀尖跟随精度量测 R-test capture

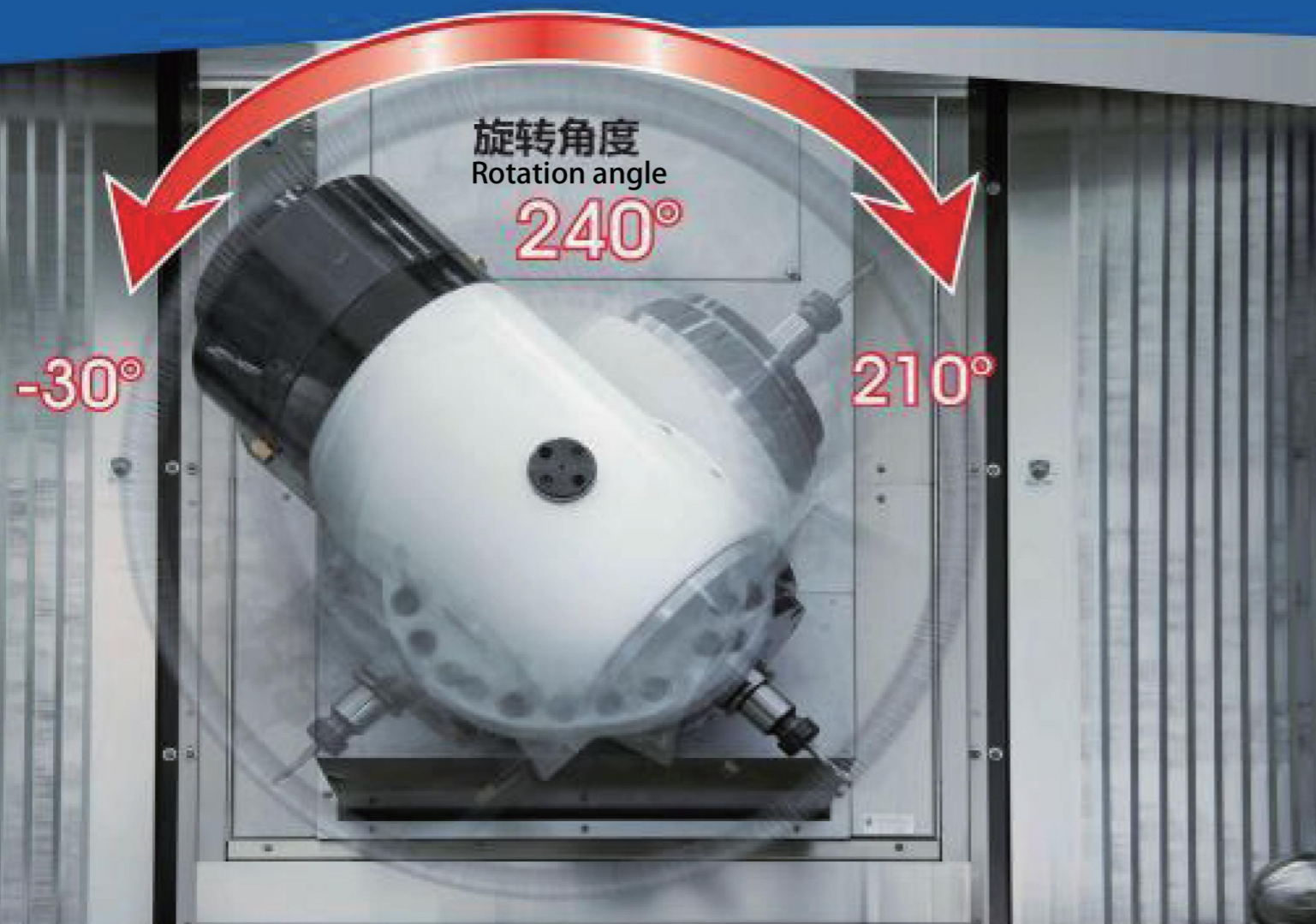
通过精密量测以确保最优化的3D表面精度和重复性
Ensure optimal 3D surface accuracy and repeatability through precision measurement



強效的車銑能力

Strong turning and milling capabilities

車主軸 Car spindle	B軸銑頭 B-axis milling head	下刀塔 Lower blade tower
D 65 mm	12,000rpm	6位刀
5,000mpm	30 KW(100%) , 160 Nm	0.4s换刀时间
15/20 KW.349 Nm	HSK-T63/HSK-A63	X2-轴230 mm
选配OPT:	X-轴 615mm	Z2-轴1388mm
D 75 mm	Y-轴 250mm	X2/Z2位移速度30/18m/min
4,000rpm	Z-轴 1077mm(1585mm optional)	中心架 Center frame
18.5 KW	X/Y/Z位移速度50/40/50m/min	夹持范围12-152mm



旋转角度
Rotation angle
240°

-30°

210°

B轴特性

- 滚子凸輪分割，達到無背隙、高轉速，低溫升特點
- 油壓式剎車，剎車扭力達2400Nm，提供最牢固的加工特性
- 採用德制絕對式光學尺，提供最佳的定位精度
- 旋轉角度達240度，提供高廣度加工範圍

B-axis characteristics

- Roller cam segmentation, achieving no backlash, high speed, and low temperature rise characteristics
- Hydraulic brake, with a braking torque of 2400Nm, providing the strongest machining characteristics
- Adopting German made absolute optical ruler to provide the best positioning accuracy
- Rotational angle up to 240 degrees, providing a wide processing range

人性化操作箱設計

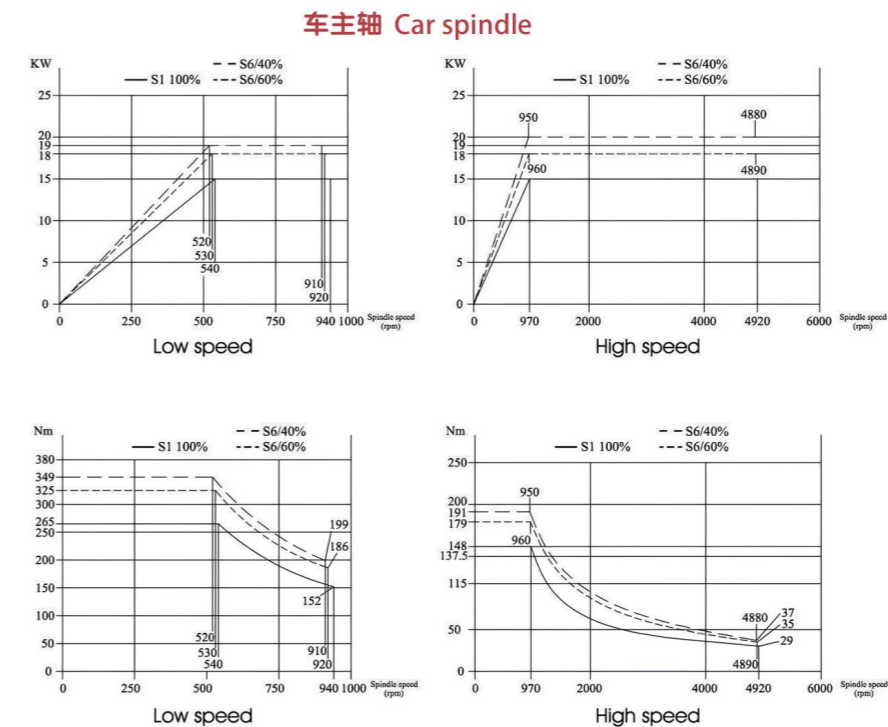
- 活動式操作箱可廣角旋轉和左右移動，提供給操作者最佳之使用位置，便于掌控加工狀況，容易進行工件裝實，以及程式編輯或切削測試等便利性操作

Humanized operation box design

- The movable operation box can rotate at a wide angle and move left and right, lifting Provide operators with the best usage location for easy control Work condition, easy to carry out workpiece installation and programming Convenient operations such as editing or cutting tests



主軸扭力圖 Spindle torque diagram



搭載德制高端5軸控制器，具備5軸聯動、高速高精，刀具中心控制、3D刀具補償，旋轉軸中心自動量測與補正，雙車主軸同步、3D防碰撞等強大功能
Equipped with a German made high-end 5-axis controller, equipped with 5-axis linkage, high-speed and high-precision, tool center control, and 3D cutting tools Compensation, automatic measurement and correction of rotation axis center, dual spindle synchronization, 3D collision prevention and other powerful functions

西門子控制器功能 Siemens controller functions

最大可控制轴数(同动)	Maximum number of controllable axes	5-轴	4-轴	程式编辑	Program Editing	5-轴	4-轴
西门子840Dsl 5"彩显	Siemens 840Dsl 5" color display	●	●	程式记忆容量3MB (可扩充)	Program memory capacity 3MB (expandable)	●	●
西门子B28Dsl 10.4"彩显	Siemens B28Dsl 10.4" color display	●	●	程式编辑	Program Editing	●	●
最大可控制轴数	Maximum number of controllable axes	32	12	程式号码搜寻	Program Number Search	●	●
输入指令	Input instructions			位置搜寻	Location search	●	●
最小输入单位X-0.0005mm;	Minimum input unit X-0.0005	●	●	程式支援	Program support		
Y,Z,W:0.001mm,8,C,U 0.001	Y, Z, W: 0.001mm, 8, C, U 0.001	●	●	高速高精度CYCLE832	High speed and high precision CYCLE832	●	●
最大命令输入值	Maximum command input value	●	●	回转功能CYCLEB00	Rotary function CYCLEB00	●	●
+/-999999.999mm	+/-999999.999mm	●	●	五轴转换 TRAORI	Five axis conversion TRAORI	●	X
程式输入	Program input			极坐标转换TRANSMIT	Polar coordinate transformation	●	●
暂停G04 G04	Pause G04 G04	●	●	柱面转换 TRACYL	Cylindrical conversion TRACYL	●	●
每转进给/每分钟进给G98	Feed per revolution /feed per minute	●	●	倾料轴转换TRANNG	Pouring axis conversion TRANNG	●	●
螺旋切削	Spiral cutting	●	●	巨集指令	Macro instruction	●	●
手轮进给0.001/0.01/0.1mm	Handwheel feed 0.001/0.01/0.1mm	●	●	3D刀具补偿	3D tool compensation	●	X
自动加减速	Automatic acceleration and deceleration	●	●	巨集指令扩张变数	Macro instruction expansion variable	●	●
快速进给率0-120%	Rapid feed rate 0-120%	●	●	双车主轴同步	Dual owner auxiliary synchronization	●	●
切削进给率0-120%	Cutting feed rate 0-120%	●	●	W轴扭力控制	W-axis torque control	●	●



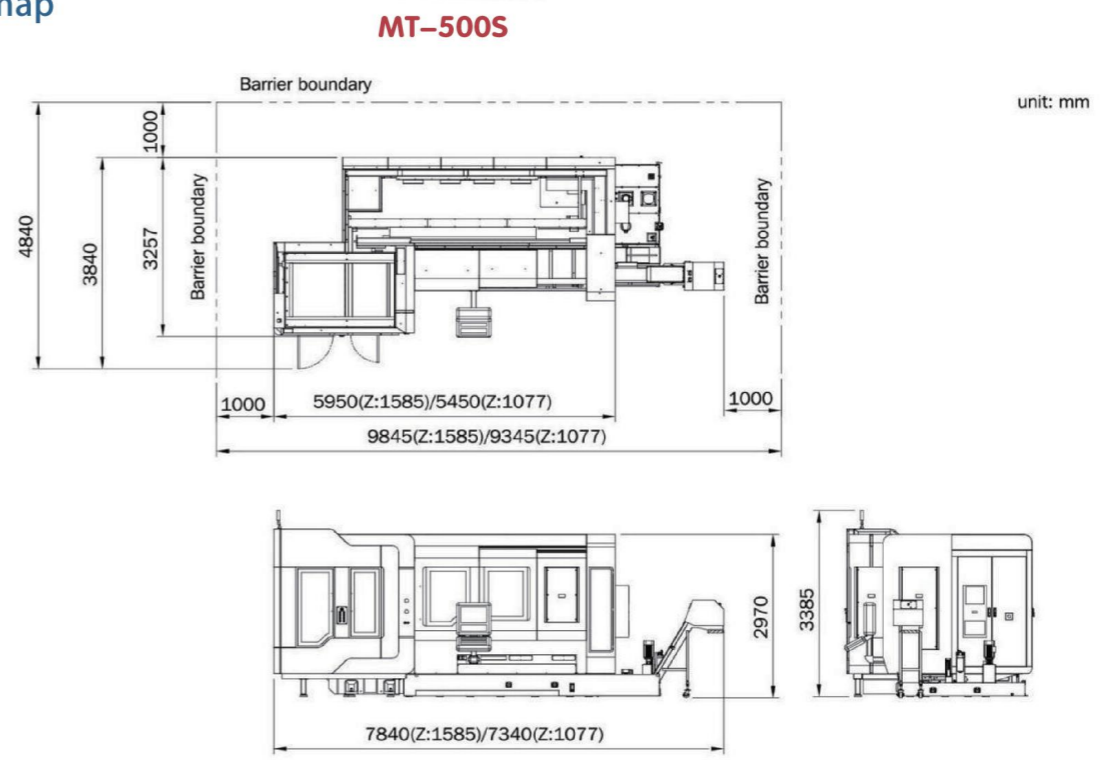


刀庫 Tool magazine

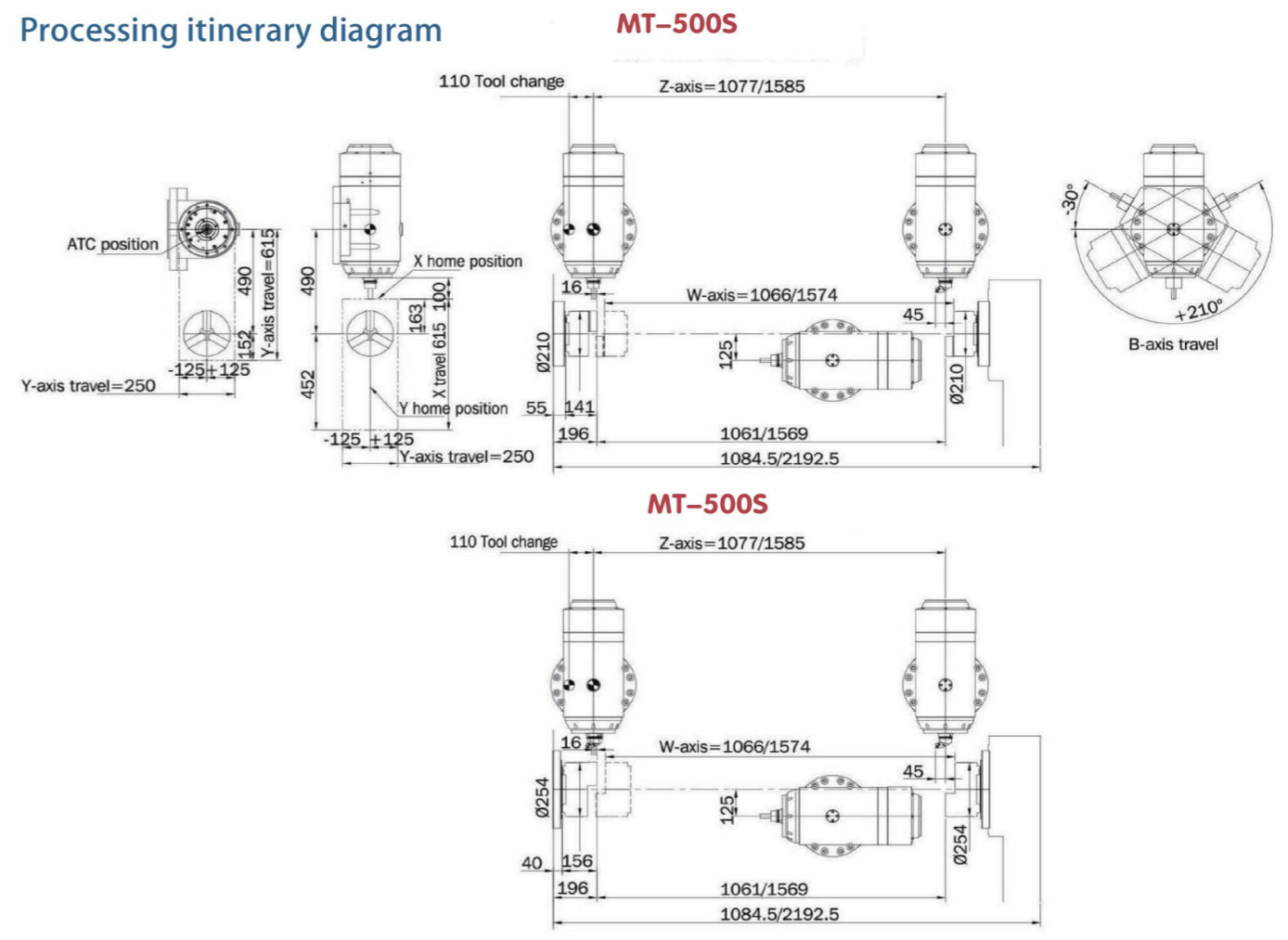
- 36或72位刀的刀库提供大量刀仓可减少工件装夹成本
36 or 72 bit tool libraries provide a large number of tool libraries to reduce workpiece clamping costs
- 时间有效提高生产力
Time effectively improves productivity
- 前置式刀库方便操作者可简易人工换刀
Front mounted tool magazine facilitates operators to easily change tools manually
- 可夹持HSK-A63铣刀与HSK-T63车刀
Can clamp HSK-A63 milling cutter and HSK-T63 turning tool
- 选配72位刀为双列式设计
Optional 72 position knife with dual row design



占地圖 Occupy the map



加工行程圖 Processing itinerary diagram



規格表 Specifications

機型 Model		單位 Unit	MT-500	MT-500S	MT-500ST	MT-600	MT-600S	MT-600ST	
切削範圍 Capacity unit	最大旋徑 Max. swing	mm	658			658			
	最大切削直徑 Max. cutting diameter	mm	658			658			
	最大棒材通孔徑 Max. bar diameter of cut	mm	65			75			
	最大切削長度 Max. cutting length	mm	1011/1519		1519	1011/1519		1519	
行程 Travel	X軸行程 X-axis travel	mm	615			615			
	Y軸行程 Y-axis travel	mm	250			250			
	Z軸行程 Z-axis travel	mm	1077/1585		1585	1077/1585		1585	
	W軸行程 W-axis travel	mm	1025/1562	1026/1574	1574	1025/1562	1026/1574	1574	
	B軸角度 B-axis swiveling	deg	-30-210			-30-210			
	X2軸行程 X2-axis travel	mm	-			230	-		230
	Z2軸行程 Z2-axis travel	mm	-			1388	-		1388
	快速進給率 Rapid Traverse Rate	X軸 X-axis	M/min	50			50		
Y軸 Y-axis		M/min	40			40			
Z軸 Z-axis		M/min	50			50			
W軸 W-axis		M/min	30			30			
X2軸 X2-axis		M/min	-			30	-		30
Z2軸 Z2-axis		M/min	-			18	-		18
第一車主軸 First Spindle		主軸鼻端型式 Spindle nose type		A2-6			A2-8		
	夾頭尺寸 Chuck size	inch	8			10			
	最大轉速 Max. speed	rpm	5000			4000			
	主軸孔徑 Spindle hole	mm	76			91			
	夾持外徑範圍 Clamping range of outer diameter	mm	20-210			37-254			
	最小分度 Least indexing degree	deg	0.001			0.001			
	主軸電機功率(額定) Spindle motor power (Rating)	kw	15			18.5			
第二車主軸 Second Spindle	主軸鼻端形式 Spindle nose type		-	A2-6		-	A2-8		
	夾頭尺寸 Chuck size	inch	-	8		-	10		
	最大轉速 Max. speed	rpm	-	5000		-	4000		
	主軸孔徑 Spindle hole	mm	-	76		-	91		
	夾持外徑範圍 Clamping range of outer diameter	mm	-	20-210		-	37-254		
	最小分度 Least indexing degree	deg	-	0.001		-	0.001		
	主軸電機功率(額定) Spindle motor power (Rating)	kw	-	15		-	18.5		
銑主軸 Turning Mill Complex Spindle	最高轉速 Max. speed	rpm	12000			12000			
	最高扭矩 Max. torque	Nm	160			160			
	主軸電機功率(額定) Spindle motor power(rating)	kw	30			30			
	刀柄型式 Tool shank type		HSK-T63/HSK-A63			HSK-T63/HSK-A63			
旋轉B軸 Swiveling B-axis	最高轉速 Max. speed	rpm	33			33			
	剎車扭矩 Braking torque	Nm	2400			2400			
	減速比 Speed reduction ratio		1:90			1:90			
	最小分度 Least indexing degree	deg	0.001			0.001			
刀庫 ATC & Tool Magazin	刀具容量 Tool loading capacity of magazine	PCS	36/72(OP)			36/72(OP)			
	換刀時間(刀對刀) Tool change time (knife to knife)	sec	5(T-T)			5(T-T)			
	最大刀徑 Max. tool dia.	mm	90/140			90/140			
	最大刀長 Max. tool length	mm	350			350			
	最大刀重 Max. tool length weight	kg	8			8			
下刀塔 Lower Turret	刀具容量 Tool positions	PCS	-	6		-	6		
	最大車削(直徑) Max. turning diameter	mm	-	420		-	420		
	換刀時間(刀對刀) Tool change time	sec	-	0.4(T-T)		-	0.4(T-T)		
	重複精度 Repeatability	mm	-	0.003		-	0.003		
其他說明 Other Specifications	電源容量 Power capacity	KVA	150			150			
	空壓源(最小需求) Air pressure required (Min.)	kg/cm2	6			6			
	水箱容量 Water tank capacity	Liter	400/560		550	400/560		550	
	機械淨重 Net weight of machine	kg	13500/16000		16000	13500/16000		16000	
	機械占地尺寸(長X寬X高) Machine dimensions	mm	5450*3260*3385		5950*3260*3385	5450*3260*3385		5950*3260*3385	

■ 以上內容如有更新，恕不另行通知
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標準配置STD:

- 全密封護罩 Fully enclosed cover
- 集中自動潤滑系統 Centralized automatic lubrication system
- 主軸吹氣 Spindle blowing
- 主軸油冷裝置 Spindle oil cooling device
- 滾珠絲杆油冷裝置 Ball screw oil cooling device
- 中空冷卻滾珠絲杆 Hollow cooling ball screw
- 煉板式排屑輸送機和推車桶 Plate type chip conveyor and cart bucket
- 日光灯 Fluorescent lamp
- 三色指示燈 Three color indicator light
- 腳踏開關(刀具/夾頭) Foot switch (tool/chuck)
- 活動式手輪 Mobile handwheel
- RS-232界面 RS-232 interface
- 電器箱空調冷氣機 Electrical box air conditioning unit
- 冷卻系統 Cooling system
- 沖屑裝置 Chip flushing device
- 主軸氣幕 Spindle air curtain
- 刀庫36位刀(刀臂式) 36 position knife in the magazine (arm type)
- 3爪中空夾頭 3-jaw hollow chuck
- 軟爪 Soft claws
- 無線電接收器 Radio receiver
- 基準球規 Reference ball gauge
- 可程式尾座 Programmable tailstock
- 第二車主軸 Second spindle
- 下刀塔6位刀 Lower turret 6-position cutter

可選配置OPT:

- 硬爪 Hard claw
- 數列式刀庫72位刀 Series type tool magazine with 72 positions of knives
- 主軸中心出水 Spindle center water outlet
- 水槍 Water gun
- 氣槍 Air gun
- 光學尺 Optical ruler
- 自動刀具量測 Automatic tool measurement
- 自動工件量測RMP600 Automatic workpiece measurement RMP600
- 中心架 Center frame
- CE歐規電器 CE European standard electrical appliances
- 變壓器 transformer
- 工業機器人 industrial robot