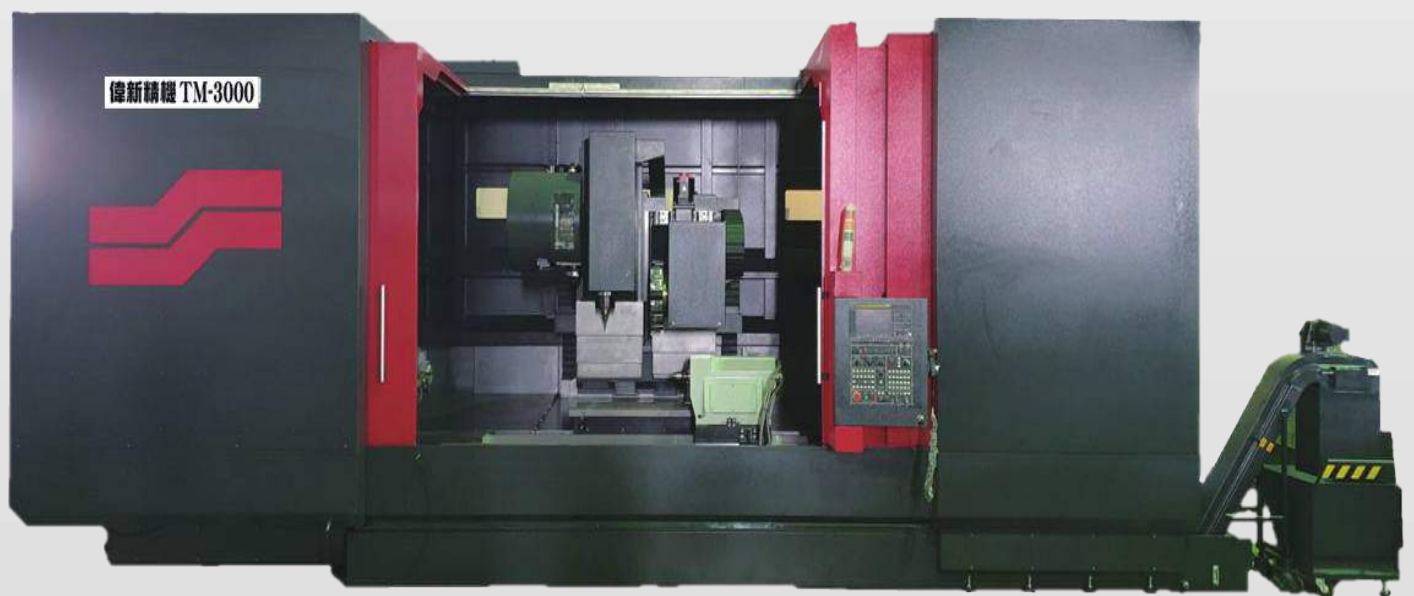


# TM系列智慧7軸CNC車銑磨複合加工機

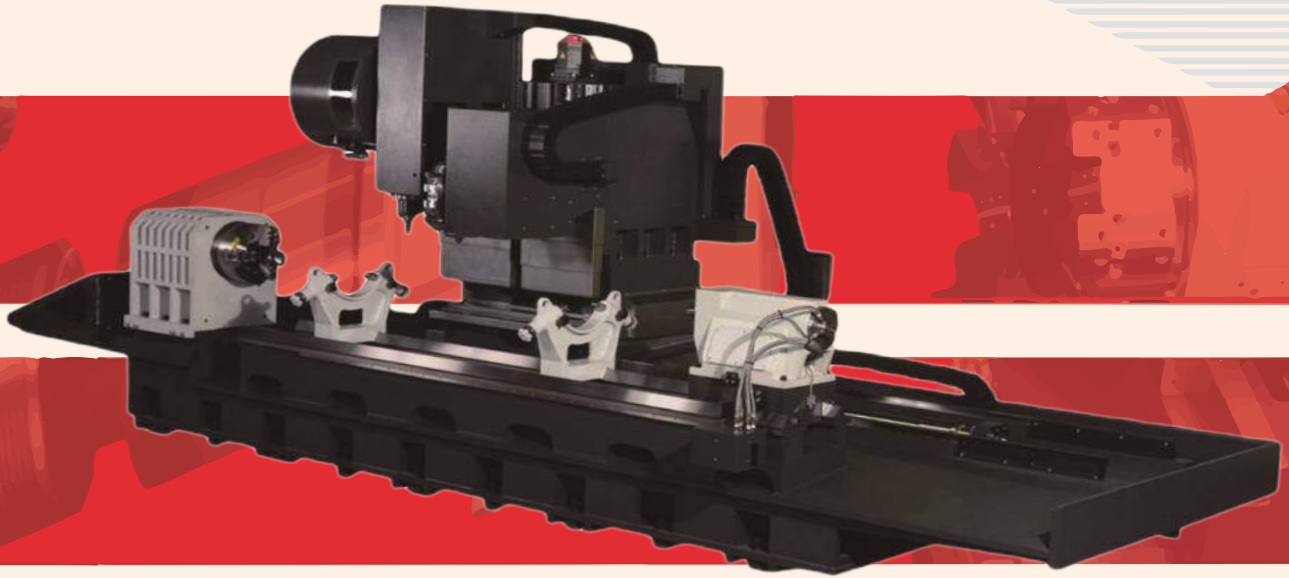
TM series intelligence 7 axis CNC turning milling and grinding complex machining center

TM-2000/3000/4000/5000/6000/7000/8000/9000/10000



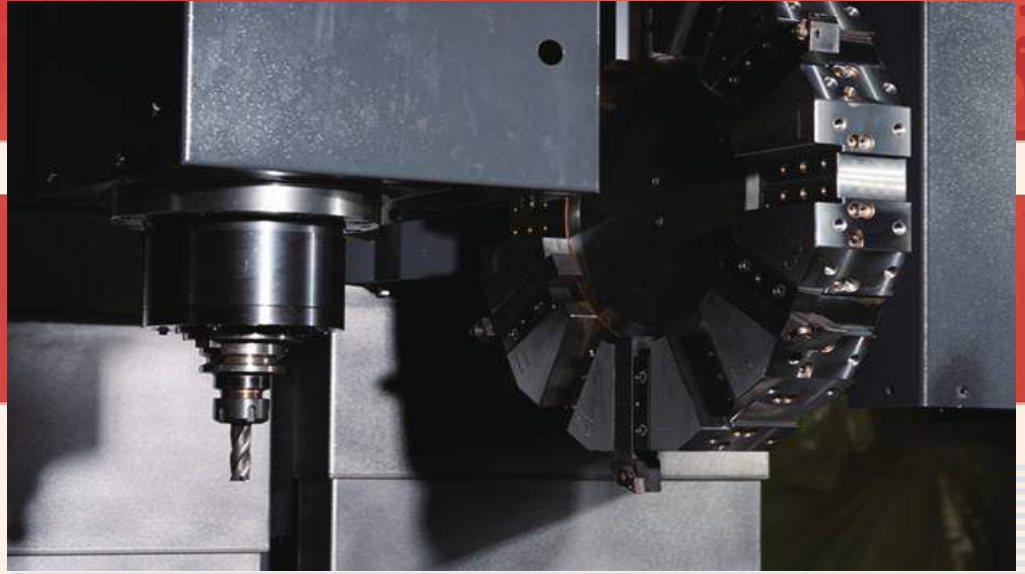
 WELLSYN<sup>®</sup> 偉新精機股份有限公司

# TMM



## 機械特性

- 穩固的機身結構。  
Stable machine structure
- 同時多工：可在同一台機器上進行車削、銑削及磨削加工。  
Multitasking: turning, milling and grinding on the same machine
- 最大加工長度/最大銑削距離：可達 2000mm 至 10000mm。  
Maximum turning/milling length: 2000mm to 10000mm
- 最大加工徑：800mm。Maximum milling dia. 800mm
- 標準車削刀數為 12 刀；銑削刀數可達 24 刀以上。  
Standardized 12 tools for turning tasks; up to (additionally more than) 24 optional tools for milling tasks available.
- 動柱型立式CNC加工中心機。TM series is a Vertical Machining Center with the moving column.



### 為加工業者帶來新的金屬加工方案

複合機可以發揮超過一台CNC車床及一台CNC加工中心機的投資效果。

It brings a new metal process solution to the users.

The TM series complex machine can exert better investment effect than one CNC lathe and one CNC machining center.

時間: 工序減少，生產時間縮短

成本: 治具費用減少，生產設備減少，並可節省人工搬運費用。

精度: 減少移動工件時產生的累積公差，提高加工精度

Time: reducing process to shorten cycle time.

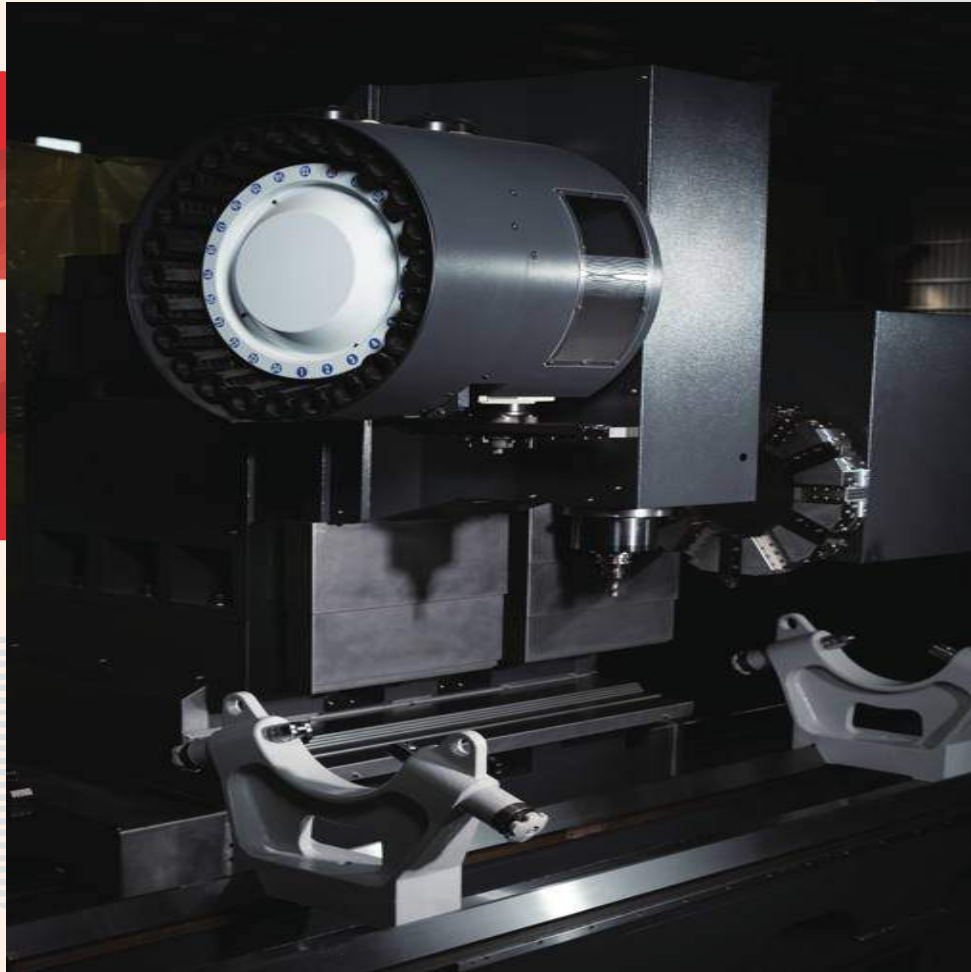
Cost: Reducing jigs and equipment costs, and lowering labor cost of moving the workpiece.

Accuracy: Reducing cumulative tolerance during moving the workpiece to improve the accuracy.

### 比較表 Comparison sheet

	設備數量 Equipment	金額 Amount	人力 Labor	工序 Process	切削工具 Tools	夾治具 Jig	半成品存放區域 Semi product on storage area
車銑磨分開的加工線 Separated turning, milling, and grinding	3台份 3 machines	3台份 3 machines	3人 3 people	4道 4 processes	3台份 3 sets	1台份 1set	1台份 1set
TM系列的加工線 TM series	1台份 1 machines	1台份 1 machines	1人 1 person	3道 3 processes	1台份 1 set	不需 None	不需 None

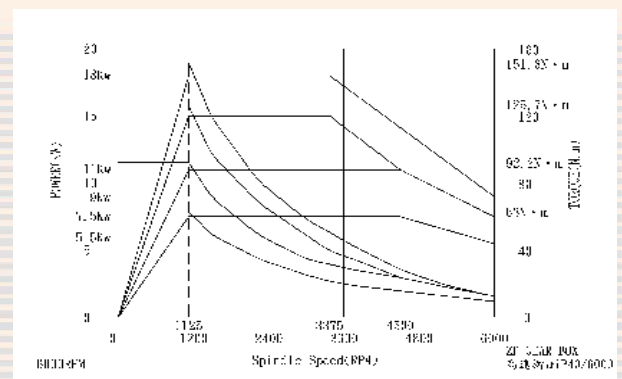
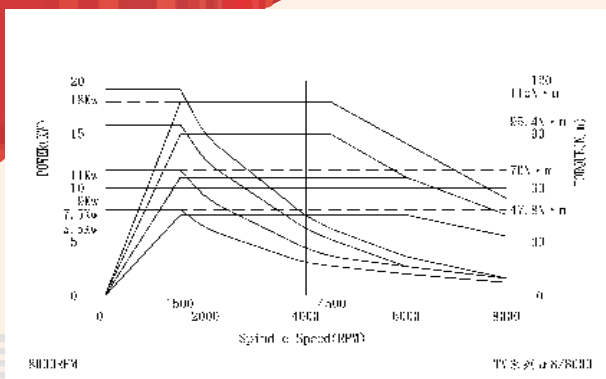
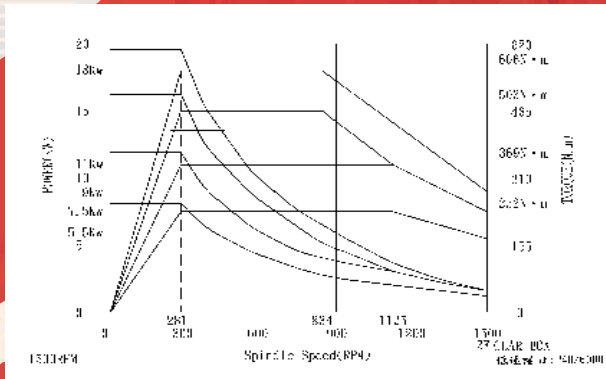
# TM



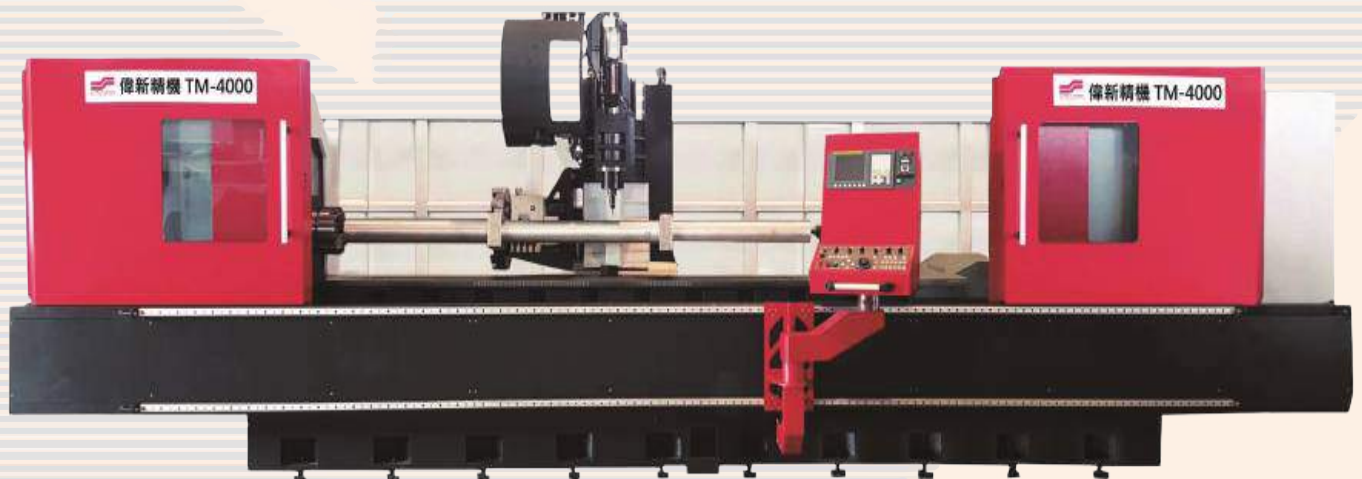
TM可為您降低投資成本 The TM series can reduce your investment

- 機器設備投資成本 Investment cost on the machine tools
- 機器占地面積 Floor area
- 人力成本 Labor cost
- 夾治具成本 Jig cost
- 電力成本 Electricity cost
- 工件上下成本 Cost of loading and unloading the workpieces
- 加工時間 Process time
- 搬運成本 Cost of moving the workpieces

## 扭力曲線圖



## 半罩外型圖



## 軸向定義 Definition of Axis

C軸 C axis  
車削主軸 Turning spindle

A軸 A axis  
銑削軸 Milling axis

X軸 X axis  
車削軸 Turning axis

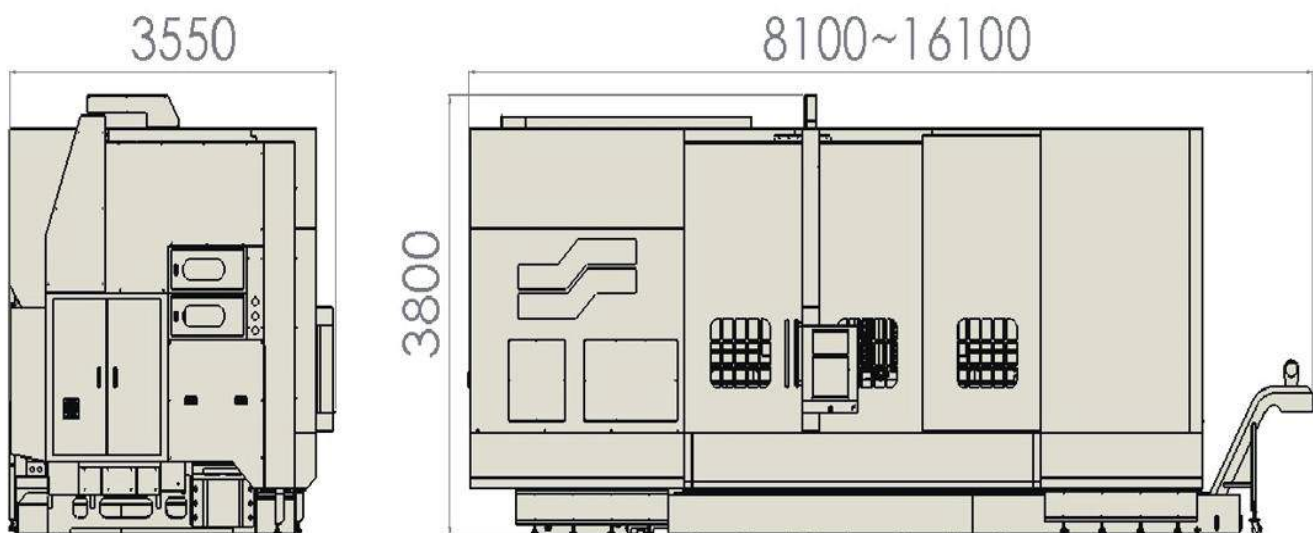
Y軸 Y axis  
銑削軸 Milling axis

Z軸 Z axis  
車削/銑削軸 Turning / milling axis

B軸 B axis (選配/option)  
銑削搖擺頭 Swing milling head

亦可選配90度刀頭，加上砂輪片即可成CNC外圓磨床  
It can be a CNC OD grinder when being equipped with a 90 degree milling head and a grinder.

## 外觀尺寸圖 Dimension diagram:



# TM系列智慧7軸CNC車銑磨複合加工機

TM series intelligence 7 axis CNC turning milling and grinding complex machining center

TM-2000/3000/4000/5000/6000/7000/8000/9000/10000



TM系列智慧7軸CNC車銑磨複合加工機為高精準度CNC複合車床，可在同一機器上進行不同種類的金屬加工，並省下遊走於車床與銑床間反覆上下料的人力與時間成本。TM-系列提供完整的車削與銑削加工能力，更秉持著以最低成本達到最大產量的理念發揚其複合加工能力，是您進行金屬加工的最佳方案。

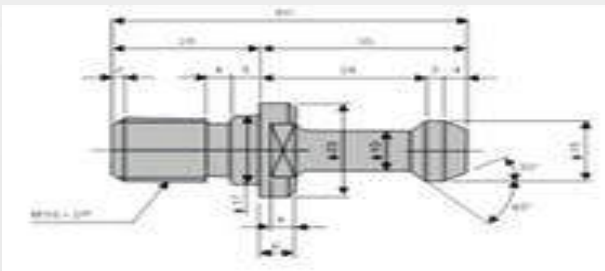
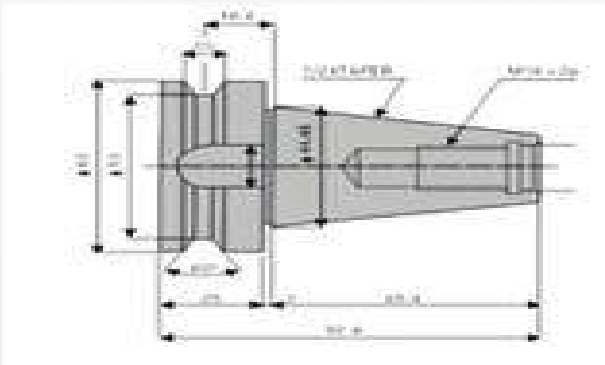
TM series intelligence 7 axis CNC turning milling and grinding complex machining center performs different tasks on just one machine. With TM-Series, you will no longer need to waste the time and labor to keep loading and unloading materials between a lathe and a machining center. The TM-Series provides excellent turning and milling with high rigidity and high accuracy, which will be your new alternative for metalworking.

TM-系列已在多國成功申請專利，更多專利申請中TM-Series has patents registered in the following countries:

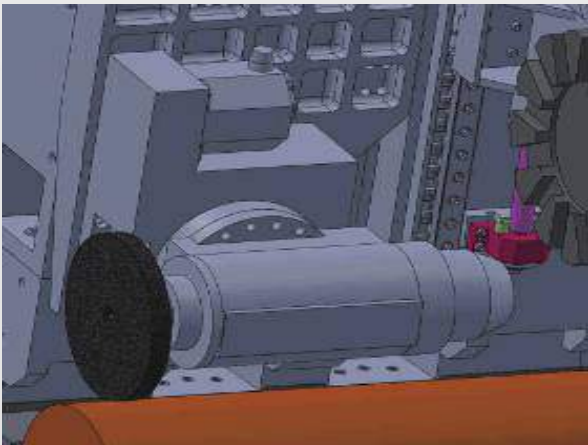
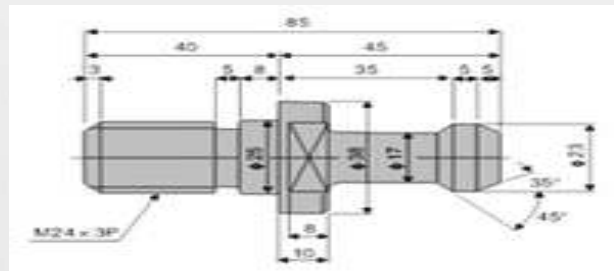
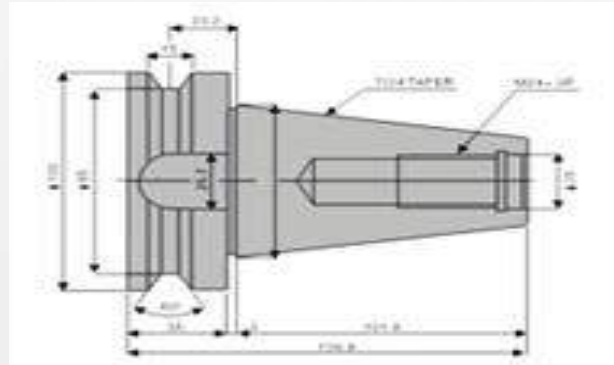
- China (中國大陸) 7953385
- Taiwan (台灣) M515440 / M561592
- German (德國) 202019100382
- Thailand (泰國) 17401
- Japan (日本) 3221049
- Turkey (土耳其) TR201805532Y
- Russia (俄羅斯) 183733

In alphabetical order(依英文字母排序)

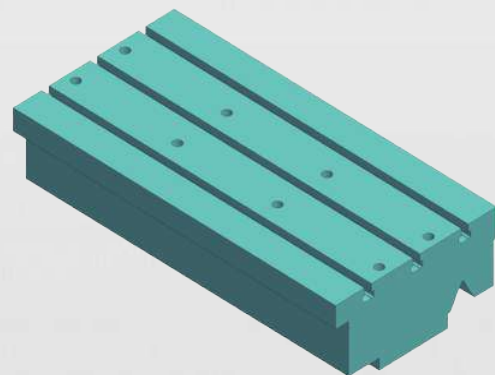
### BT-40



### BT-50



可選用銑削用工作(長1000mm X 寬450mm)  
 刀具選用砂輪片即成為簡易外圓磨床



選配工作台，此機可獨立當作CNC加工中心機使用  
 This machine can be a CNC machining center when being equipped with the working table(s) as option.

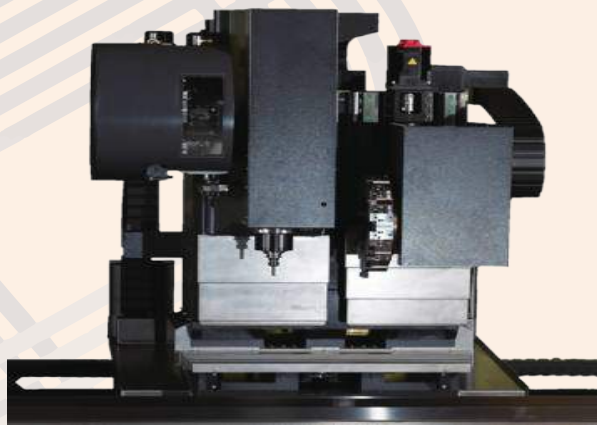


加裝90度刀頭及砂輪片，可成CNC外圓磨床  
 It can be a CNC OD grinder when being equipped with a 90 degree milling head and a grinder.



獨特軟體設計(M84/M85)

# 聰明的設計 絕佳操作性



可獨立當CNC巨型車床或CNC加工中心機  
It can be a CNC heavy duty lathe or a  
CNC machining center independently.



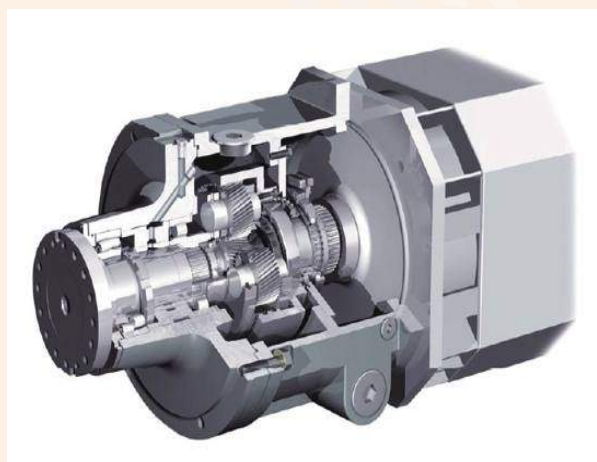
操作箱移動自如，便於操作調整  
Movable operation box for easy  
operation and adjustment.



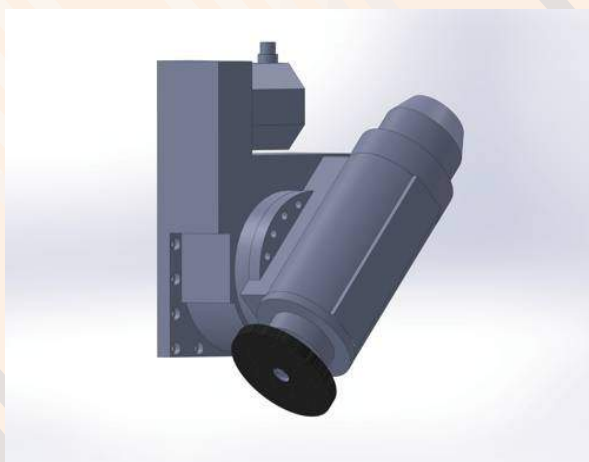
C軸搭載15”夾頭，可選配18”夾頭  
The C axis is equipped with a 15” chuck and  
can be changed to 18” as an option.



可選配旋轉中心架  
The rotary steady rest is an option.



可選配ZF齒輪箱  
The ZF gear box is an option.



可選配B軸  
The B axis is an option.

# 機械規格表

TM-系列 車銑複合加工機規格表 TM series Turning and milling machine specifications			
項目/型號 Item/Type No.			TM-2000~10000
行程 Travel	X軸 X axis	mm	840
	Z軸 Z axis	mm	2400~10400
	C軸 C axis	deg	360
	A軸 A axis	mm	530
	Y軸 Y axis	mm	450(±225)
	B軸 B axis	deg	±110
加工範圍 Capacity	X軸 X axis	mm	ø800
	Z軸 Z axis	mm	2000~10000
	C軸 C axis	deg	360
	A軸 A axis	mm	530
	Y軸 Y axis	mm	450(±225)
	B軸 B axis	deg	±110
軸向馬達 Axis Motor	X軸 X axis	HP(KW)	3.6(2.7),αiS12
	Z軸 Z axis	HP(KW)	7.3 (5.5), αiS30
	C軸 C axis	HP(KW)	25/29.5/35 (18.5/22/26) , αip40/6000
	A軸 A axis	HP(KW)	3.6 (2.7),αiS12
	Y軸 Y axis	HP(KW)	6.0 (4.5),αiS22
	B軸 B axis	HP(KW)	3.6 (2.7),αiS12
快速位移 Rapid Traverse	X軸 X axis	m/min	24
	Z軸 Z axis	m/min	24/12/12/12/12/12/12/12
	C軸 C axis	m/min	3
	A軸 A axis	m/min	24
	Y軸 Y axis	m/min	24
	B軸 B axis	m/min	3
車削主軸 Turning Spindle	主軸鼻端 Spindle nose	type	A2-11
	夾頭尺寸 Chuck size	inch	15" (opt: 18")
	主軸馬達(連續/30分鐘定格/S3 25%) Spindle motor power(cont./30min.rated/S3 25%)	HP(KW)	25/29.5/35 (18.5/22/26) , αip40/6000
	主軸轉速 Max. spindle speed	rpm	1500(opt:2400)
	主軸鼻端	type	BT-40 (opt: BT-50)
銑削主軸 Milling Spindle	主軸馬達(連續/30分鐘定格/S3 25%) Spindle motor power(cont./30min.rated/S3 25%)	HP(KW)	10/14.7/20.1 (7.5/11/15) , αil8-8000
	主軸轉速 Max. spindle speed	rpm	8000 (opt: 6000/10000/12000)
	主軸鼻端	type	HSK-63T
磨削主軸	主軸馬達(連續/30分鐘定格/S3 25%) Spindle motor power(cont./30min.rated/S3 25%)	HP(KW)	14.7/29.5(11/22)
	主軸轉速 Max. spindle speed	rpm	12000
	主軸鼻端	type	HSK-63T
刀塔 Turret	刀塔刀數 NO.of tools	pcs	12
	刀把尺寸 Shank size	mm	25
刀庫 Tool Magazine	刀庫刀數 Tools capacity	pcs	24(opt:32)
	最大刀長 Max. tool length	mm	150
	刀具規格	type	BT-40 (opt: BT-50)
	最大刀具重量	KG	8
	最大刀具直徑	mm	80
尾座 Tailstock	尾座直徑 Quill diameter	mm	185
	心軸行程 Quill stroke	mm	120
	心軸錐度 Quill taper	type	MT-6
占地面積 Dimension	8100~16,100x3550x3800 mm(機身+排屑機) (6800mm機身)(1500mm排屑機)		
機台重量 Machine Weight	21,000~35,000KG		
水箱容量	950L		
總電載	40KVA		
控制器	FANUC Oi-TF		
由於本型錄不斷精進改良，本型錄所示之機械規格，本公司保有變更之權利，恕不另行通知。 Specifications are subject to change without further notice.			

# 機械附件表

●標準配件standard ★選配附件option

項目		
油壓刀塔 12刀位Hydraulic Turret 12Tools	●	自動門Auto Door ★
手動式油壓尾座Manual Hydraulic Tailstock	●	自動刀長量測Auto Tool Length Measurement ★
鐵屑輸送帶Chip Conveyor	●	穩壓器 (50KVA)Stabilizer (50KVA) ★
鐵屑車Chip Cart	●	夾爪吹氣裝置Jaw Blow System ★
半罩式外罩鍍金Half Enclosure Guard	●	20Bar 高壓噴水20Bar Coolant Pump ★
油水分離機Oil Skimmer	●	BT-40 銑削主軸10000RPM (皮帶式)BT-40 Milling Spindle 10000RPM (Belt Type) ★
安全門鎖Safety Door Lock	●	BT-40 銑削主軸12000RPM (皮帶式)BT-40 Milling Spindle 6000RPM (Belt Type) ★
夾爪開/關確認位置Chuck Check System	●	BT-40 銑削主軸 12000RPM (直結式)BT-40 Milling Spindle 12000RPM (Direct Drive Type) ★
銑削主軸 8000RPM Milling Spindle 8000RPM	●	BT-40 銑削主軸6000RPM (皮帶+ZF齒輪箱)BT-40 Milling Spindle 6000RPM (Belt Type + ZF Gear Box) ★
15"中實油壓夾頭15" Hydraulic Close Center Chuck	●	BT-50 主軸 6000RPM (皮帶式)BT-50 Spindle 6000RPM (Belt Type) ★
活動式頂針 MT6 x1PC Live Center MT6 x 1PC	●	BT-50 主軸 8000RPM (皮帶式)BT-50 Spindle 8000RPM (Belt Type) ★
銑削主軸油冷機Milling Spindle Oil Cooler	●	BT-50 銑削主軸 6000RPM (皮帶式+ZF齒輪箱)BT-50 Milling Spindle 6000RPM (Belt Type + ZF Gear Box) ★
外徑刀端面固定塊 x 12PCS O.D. Tool Chamfer x 12PCS	●	萬向銑頭 BT-40 (φ2~16刀具用)Universal Angle Head BT-40 for φ2~16 Tools ★
冷氣型熱交換器Heat Exchanger	●	萬向銑頭 BT-40 (φ3~20刀具用)Universal Angle Head BT-40 for φ3~20 Tools ★
傑興高壓切削水馬達 SBK1-36/36 STAIRS Pump SBK1-36/36	●	萬向銑頭 BT-50 (φ2~16刀具用)Universal Angle Head BT-50 for φ2~16 Tools ★
集中潤滑單元Centralized Lubrication Unit	●	萬向銑頭 BT-50 (φ3~20刀具用)Universal Angle Head BT-50 for φ3~20 Tools ★
工具箱Tool Box	●	B軸B Axis ★
手動脈波產生器(可移式MPG)Manual Pulse Generator	●	銑削工作台 (L1000 X W500)Milling Table 1000mmL x 500mmW ★
三色警示燈含蜂鳴器Alarm Light with Buzzer	●	旋轉尾座Rotary tailstock ★
FANUC手冊 FANUC Manual	●	油霧回收機 1.5KW Oil Mist Collector 1.5KW ★
三菱控制器Mitsubishi controller	●	四軸光學尺4 axis linear encoder ★
15"硬爪15" Hard Jaw	★	內徑刀座ID Tool Holder ★
15"中空油壓夾頭15" Hollow Hydraulic Chuck	★	車削用ZF齒輪箱 (2K300)ZF Gear Box (2K300) turning ★
15" 中空油壓缸15" Hollow Cylinder	★	端面刀座墊塊Face tool holder block ★
18"硬爪18" Hard Jaw	★	端面刀座Face tool holder ★
18"中空油壓夾頭18" Hollow Hydraulic Chuck	★	φ40-φ25、32 快速刀套φ40-φ25, 32 Quick-change Drill Socket ★
18" 中空油壓缸18" Hollow Cylinder	★	φ40-φ8~32 刀具套筒φ40-φ32 Drill Socket ★
18"中實油壓夾頭18" Hydraulic Close Center Chuck	★	伺服刀塔Servo Turret ★
18" 中實油壓缸18" Close Center Cylinder	★	全罩式外罩鍍金Full Enclosure Guard ★
旋轉中心架 (夾持範圍:φ180-φ700, φ65 心軸)Rotary steady rest (Holding Range φ180-φ700, φ65 Support Collar)		★

# TM系列智慧7軸

# CNC車銑磨複合加工機



## 偉新精機股份有限公司

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