

# TURRET

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## Exclusive product features

### 獨家刀塔產品特色

#### 全系列伺服刀塔皆內建三片齒與撞機跳脫T型塊

- 採用特殊設計高剛性三片齒，能提升鎖緊精度與切削剛性。
- 無論刀塔正反轉都能表現超高精度的定位、夾持力及穩定性。
- T型溝槽內建撞機跳脫T型塊，可緩衝撞車時產生的撞擊力，有效保護刀塔本體。
- 撞車發生時，不須特殊工具或專業技術人員，使用者即可自行更換或調整T型塊，迅速重現刀塔精度。
- 大幅提升維修效率，更能降低售服成本及停機時間。

#### Exclusive product features

- All turrets feature a 3-piece coupling and collision-escape T-slot.
- The 3-piece coupling ensures superior clamping precision and cutting rigidity.
- The collision-escape T-slot absorbs impact during crashes, safeguarding the turret body.
- In the event of a crash, the T-slot can be quickly replaced or adjusted, restoring turret accuracy with minimal downtime.



售服雲端化 Cloud Service

服務不受限，隨時可從雲端搜尋故障排除SOP。  
Unlimited online support with troubleshooting SOPs at: [www.GPMcnc.com](http://www.GPMcnc.com)

#### 高壓出水方案 High pressure coolant

出水壓力 Coolant pressure	440	436	434	435
25 bar	標準 Standard			
70 bar	選配 Optional			
100 bar	Size 20/25/32	Size 20/25/32	Size 20/25	-

## 技術參數 Technical data

下表技術參數適用 440, 434, 435, 436 全系列GPM 自有品牌伺服刀塔  
Applicable to 440, 434, 435, 436 series

項目 Item	單位 unit	尺寸與規格 Size & Specifications				
		12	16	20	25	32
機型規格 Turret housing	size	12	16	20	25	32
刀塔中心高 NH NH of turret housing	mm	63	80	100	125	160
鎖緊時容許切向力 Admissible tangential load (turret locked)	kNm	0.8	1.8	3.6	7.2	7.2
容許轉動慣量 Admissible mass moment of inertia of tools	kgm <sup>2</sup>	1.2	2.5	5	12	40
容許加工過程的不平衡度 Admissible out of balance (load moment) due to tooling	Nm	16	32	63	125	200
轉位馬達齒輪比 Gear ratio of indexing motor	i	45	54	72	90	216
分度時間 30° (未含油壓鬆夾作動時間) Rotate tool disc (Hydraulic unclamp/clamp time not included.)	sec	0.10-0.110	0.13-0.15	0.16-0.19	0.21-0.25	0.27-0.31
定位精度 Positioning accuracy	arcsec	±4"				
重複定位精度 Repeating accuracy	arcsec	±1.6"				
最大負載重量 (刀盤+刀座) Max load (tool disc + tool holder)	kg	40	80	160	250	400
切削液壓力 Coolant pressure 標準 Standard 中等壓力 Medium pressure 高壓 High pressure	bar	5 - 25 (過濾精度 filter grade ≤ 100 μm) 25 - 70 (過濾精度 filter grade ≤ 50 μm) 70-150 (過濾精度 filter grade ≤ 25 μm)				
工作壓力 Operating hydraulic pressure	bar	50±5				
刀塔鬆開/鎖緊所需油量 Fluid absorption volume turret unlock/lock	cm <sup>3</sup>	15	30	45	65	114

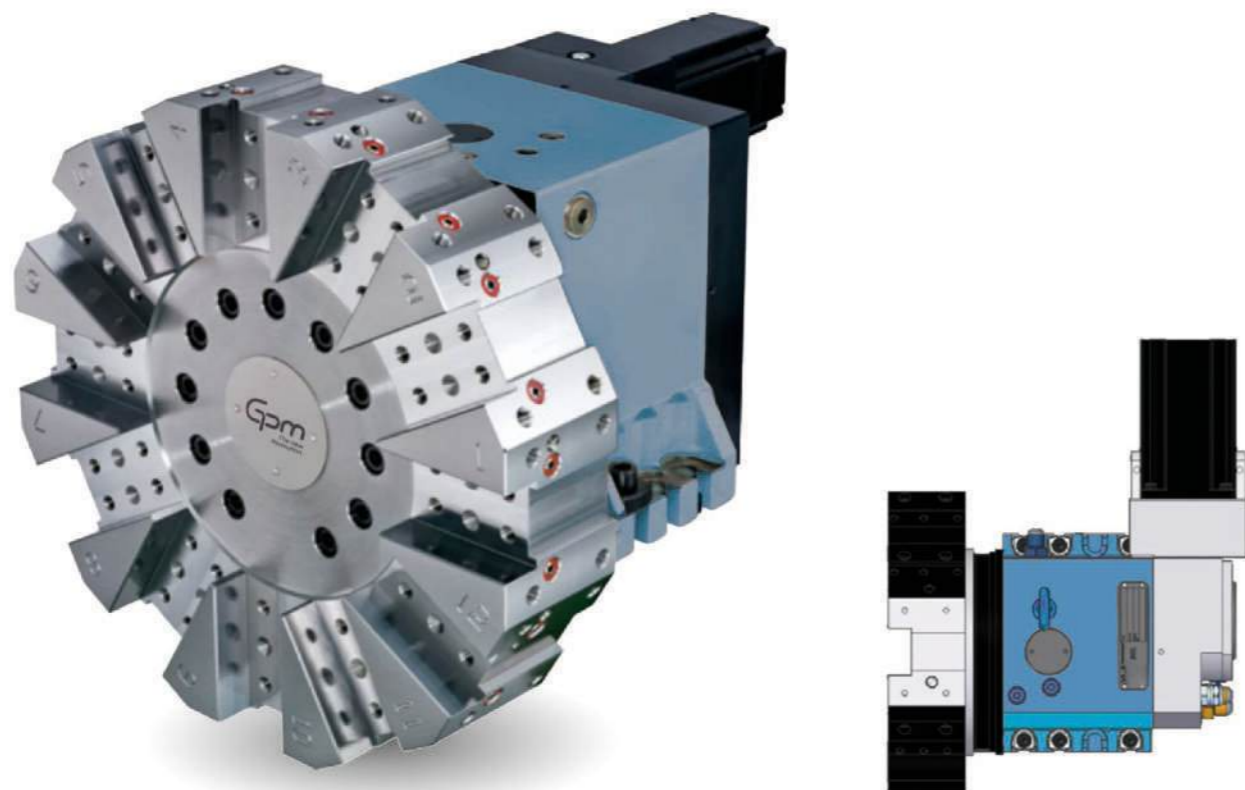
#### 可配置之轉位馬達 Recommended indexing motor

馬達型號 (防水等級IP67以上) Item	J 質量	最高轉速	30°分度時間(不含加速減速) swiveling time- without acceleration and braking				
			12	16	20	25	32
motor type (IP67 or better)	kgm <sup>2</sup>	max rpm	12	16	20	25	32
Delta-E3-CP0807(EK801) 標配 standard	0.000113	6000	0.06	0.07	0.09	0.11	0.27
Siemens 1FK7042	0.0003	4500	0.05	0.06	0.08	0.1	0.24
Siemens 1FK7043 HD	0.0001	6000	0.04	0.05	0.06	0.08	0.18
Fanuc α2/5000 - β2/5000 - β4/4000	0.0003	4000	0.05	0.06	0.08	0.1	0.24

#### 切削能力表 Cutting performance (non-binding reference values)

工件材質: ST60 Workpiece material: ST60

Series	Size							
	10	12	16	20	25	32		
Disk-type tool turret								
Drilling HSS spiral drill		d x s mmxmm /U	8 x 0.12	12 x 0.14	14 x 0.16	16 x 0.20	20 x 0.25	32 x 0.20
Drilling HM short hole drill		d x s mmxmm /U	12 x 0.05	15 x 0.08	16 x 0.10	20 x 0.12	24 x 0.16	32 x 0.16
Thread-drilling		d x P mmxmm /U	M 8 x 1	M 8 x 1.25 M 16 x 1	M 10 x 1.5 M 24 x 1	M 14 x 2 M 20 x 1.5	M 18 x 2.5 M 36 x 1.5	M 20 x 2.5 M 42 x 2
Keyway axes cutting Finger milling		a x e x s mmxmm /U	1 x 5 x 45	12x8x45	16x12x40	20x12x40	22x25x40	30x20x40
Keyway cutting Disc cutting		a x e x s mmxmm /U	-	-	D = 50 8x8x45	D = 63 10x10x40	D = 80 18x18x40	D = 100 20x20x40



快速互換  
Quick interchangeable

特色:

- 刀盤具互換性, 使用者可依不同需求選擇不同的刀盤, 當需求改變時只需更換刀盤不需要更換刀塔本體, 可有效降低庫存, 使用上更具彈性。
- 因應小型機床內部空間, 刀塔轉位馬達轉90度設計, 有效節省近40%長度。

Features:

- 440 series turrets may be mounted with slot type, VDI or BMT interface tool disc; Highly interchangeable and effectively reduce inventory pressure.
- Designed for small machines with limited space; nearly 40% of turret overall length is reduced when indexing motor turns 90 degree.

刀座  
Tool Holder

H 塘孔刀座組  
Boring tool holder



F 端面刀座組  
Facing tool holder



上 & 下 壓板組  
Clamping wedges



套筒  
Sleeve



標準配置  
Standard Configuration

機種 Type	規格 Specifications
440.212	440.212/SW220/8T/W3
440.216	440.216/SW270/8T/W3
	440.216/SW316/12T/W3
	440.216/SW330/8T/W3
440.220	440.220/SW380/8T/W3
	440.220/SW410/12T/W3
440.225	440.225/SW420/12T/W3
440.232	440.232/SW520/12T/W3



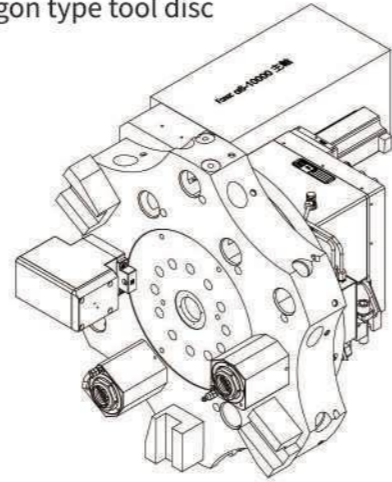
刀塔選型  
Turret Product info



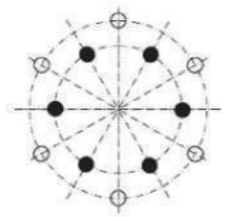
刀座型錄  
Tool Holder

## 436 VDI軸向動力刀塔 VDI Axial Mount Driven Turret

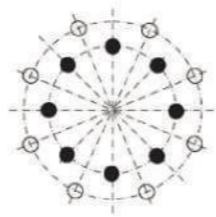
多邊形刀盤  
Polygon type tool disc



- 內圈安裝動力刀座      ○ 外圈安裝固定刀座
- Position with tool drive      ○ Position w/o tool drive



12刀 - 雙PCD  
12Pos. - 2 graduated circles



16刀 - 雙PCD  
16Pos. - 2 graduated circles

### 特色:

- 436/VDI軸向動力刀塔與動力刀座採DIN5480系統；通過動力刀系統的耦合齒與動力刀座的定位環以達到雙重定位。
- DIN5480傳動：可減少花鍵齒的磨耗、降低噪音、增加速度與延長零件壽命。
- 亦可視加工需求搭載多邊形刀盤（軸、徑向皆可安裝刀座）或雙PCD刀盤。

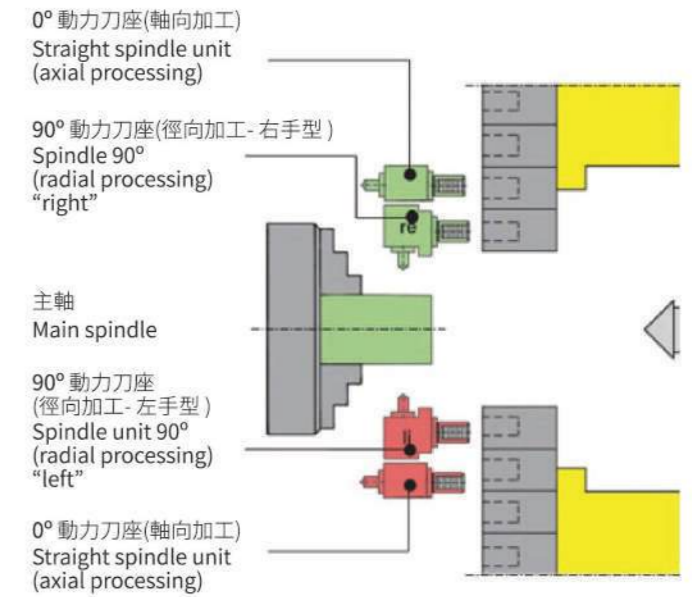
### Features:

- 436/VDI axial mount driven turret and driven tool holder adopt DIN5480 system; dual positioning is achieved through coupling of tool drive system and the indexing ring of driven tool holder.
- DIN5480 transmission: may reduce teeth damage, reduce noise, increase speed and extend parts life.
- Depending on processing demands, polygonal tool disc or dual PCD tool disc may be used on 436/VDI turret.

### 436動力刀塔齒輪箱性能參數 Technical data of gear box

項目 Item	尺寸與規格 Size & Specifications				
機型規格 Type	12	16	20	25	32
刀具介面 Interface (VDI)	25/30	30/40	30/40	50	60
<b>齒輪箱特性 Gearbox performance data</b>					
容許驅動功率 Admissible drive ratio Padm (KW)	6	8	10	12.5	16
容許驅動扭矩 Admissible torque Madm (Nm)	20	32	63	100	160
容許轉速 Admissible rpm nadm (rpm)	6000	5000	4000	4000	3200
傳動比 Gear ratio (i=n1/n2)	1.0	1.0	1.0	1.0	1.0/1.5
<b>建議配置的動力馬達(IP67) Recommended tool drive motor (IP67)</b>					
Siemens伺服馬達 Servo motor Type 1FK7..	..063	..084	..086	..103/ ..105	..108 1PH8107
Fanuc伺服馬達 α Servo motor	8/4000 is	12/4000 is	22/4000 is	40/4000 is	on request
Fanuc主軸馬達 α Spindle motor	1.5	2	3	6	8

### 軸向VDI刀盤-加工方向 Tooling for axial mount



### 標準配置 Standard Configuration

機種 Type	規格 Specifications
436.212	436.212/8T/PCD200/VDI25/W3
	436.212/12T/PCD270/VDI30/W3
436.216	436.216/12T/PCD270/VDI30/W3
	436.216/12T/PCD300/VDI30/W3
436.220	436.216/12T/PCD340/VDI40/W3
	436.220/12T/PCD340/VDI30/W3
436.220	436.220/12T/PCD340/VDI40/W3
	436.220/12T/PCD370/VDI40/W3
436.225	436.225/12T/PCD420/VDI40/W3
	436.225/12T/PCD420/VDI50/W3
436.232	436.232/8T&12T/PCD447/VDI60/W3
	436.232/8T&12T/PCD460/VDI60/W3

### 刀座 Tool Holder

B2系列 Type		0度動力刀座 Driven tool holder-0 Degree	
B3系列 Type		90度動力刀座 Driven tool holder-90 Degree	
C2系列 Type		90度後縮動力刀座 Offset driven tool holder-90 Degree	
C3系列 Type		ER筒夾 Collet chuck	
搪孔刀座 Boring tool holder E2系列 type		套筒 Sleeve	

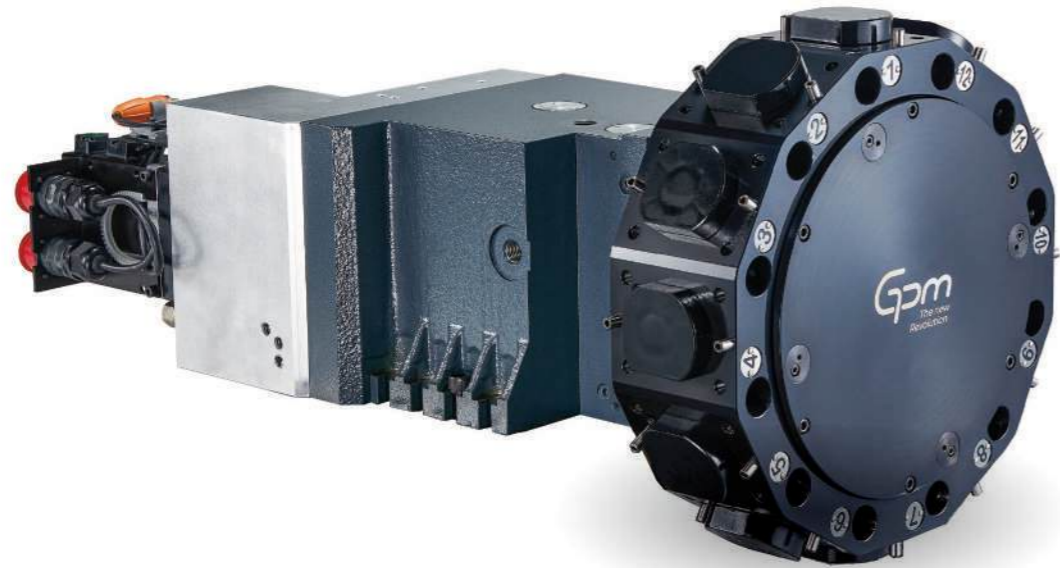


刀塔選型  
Turret Product info



刀座型錄  
Tool Holder

435 VDI徑向動力刀塔  
435/VDI Radial Mount Driven Turret



特色:

- 435/VDI 徑向動力刀塔與動力刀座採DIN5480系統; 通過動力刀系統的耦合齒與動力刀座的定位環以達到雙重定位。
- DIN5480傳動: 可減少花鍵齒的磨耗、降低噪音、增加速度與延長零件壽命。

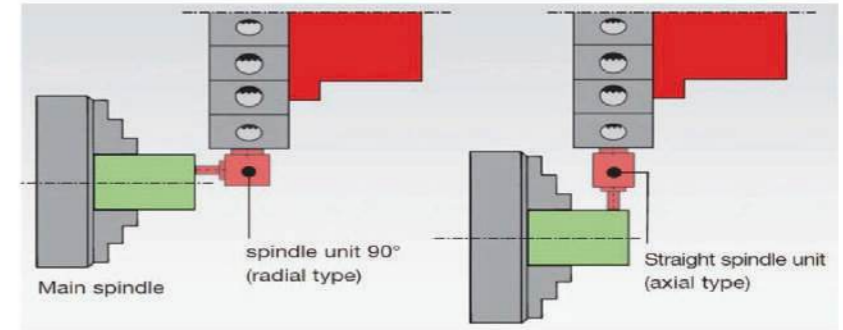
Features:

- 435/VDI radial mount driven turret and driven tool holder adopt DIN5480 system; dual positioning is achieved through coupling of tool drive system and the indexing ring of driven tool holder.
- DIN5480 transmission: may reduce teeth damage, reduce noise, increase speed and extend parts life.

標準配置  
Standard Configuration

機種 Type	規格 Specifications
435.216	435.216/12T/SW270/VDI30/W3
	435.216/12T/SW340/VDI30/W3
435.220	435.220/12T/SW320/VDI40/W3
	435.220/12T/SW380/VDI40/W3

徑向VDI刀盤-加工方向  
Tooling for radial mount



435動力刀塔齒輪箱性能參數  
Technical data of gear box

項目 Item	尺寸與規格 Size & Specifications	
機型規格 Type	16	20
刀具介面 Interface	VDI30	VDI40
齒輪箱特性 Gearbox performance data		
容許驅動功率 Admissible drive ratio P <sub>adm</sub> (Kw)	8	20
容許驅動扭矩 Admissible torque M <sub>adm</sub> (Nm)	32	63
容許轉速 Admissible rpm n <sub>adm</sub> (rpm)	5000	4000
傳動比 Gear ratio (i=n <sub>1</sub> /n <sub>2</sub> )	1.0	1.0
建議配置的動力馬達(IP67) Recommended tool drive motor (IP67)		
Siemens伺服馬達 servo motor Type 1FK7..	..084	..086
Fanuc伺服馬達 α servo motor	12/4000 is	22/4000 is
Fanuc主軸馬達 α Spindle motor	2	3

刀座  
Tool Holder

B2系列 Type		0度動力刀座 Driven tool holder- 0 Degree	
B3系列 Type		90度動力刀座 Driven tool holder- 90 Degree	
C2系列 Type		90度後縮動力刀座 Offset driven tool holder-90 Degree	
C3系列 Type		ER筒夾 Collet chuck	
搪孔刀座 Boring tool holder E2系列 type		套筒 Sleeve	

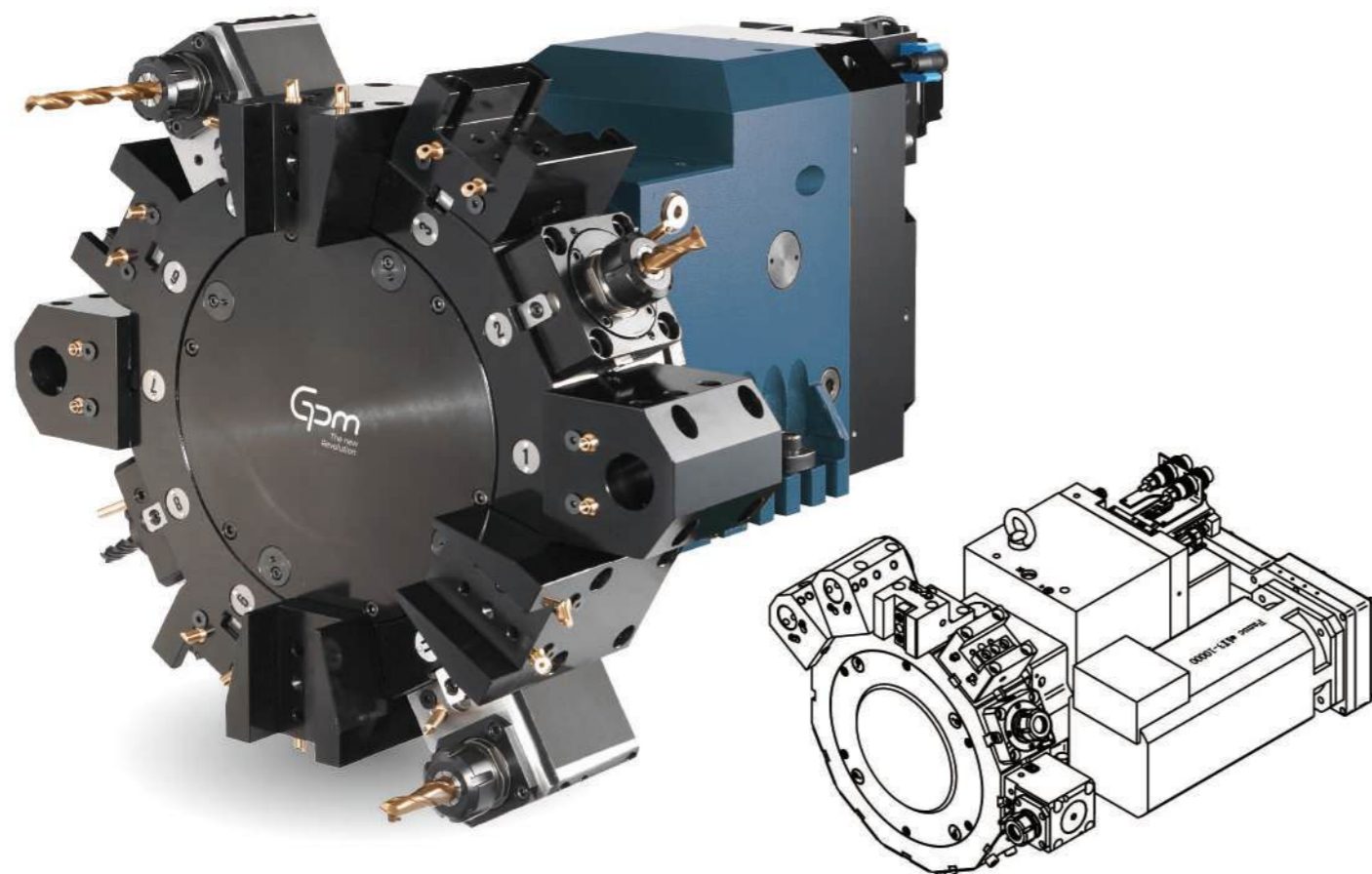


刀塔選型  
Turret Product info



刀座型錄  
Tool Holder

434 BMT徑向動力刀塔  
434/BMT Radial Mount Driven Turret



動力刀馬達 - U型連結  
Tool drive motor - U-shape connection

特色:

- 刀塔本體形狀多樣化 (如 LF, BF, HL, HB, MF 等), 滿足不同機床內部設計結構與空間。
- BMT :採用Doosan 介面, 適合重切削
- 動力刀馬達可U型安裝, 節省安裝空間

Features:

- Multiple housing shapes available, such as LF, BF HL, HB, MF ..etc to suit different machine design.
- BMT (Doosan) interface, suitable for heavy cutting.
- Tool drive motor may be mounted in U-shape, installation space is saved.

刀座  
Tool Holder

外徑刀座 C  
Turning tool holder



外徑刀座 C  
Turning tool holder



搪孔刀座 B  
Boring tool holder



端面刀座F  
Facing tool holder



切斷刀座  
Cutting holder



0度動力刀座  
Driven tool holder-0  
Degree



90度動力刀座  
Driven tool holder-90  
Degree



標準配置  
Standard Configuration

機種 Type	規格 Specifications
434.016	434.016/NH80/BMT45/SW290/W3
	434.016/NH100/BMT55/SW330/W3
434.020	434.020/NH100/BMT45/SW290/W3
	434.020/NH125/BMT45/SW340/W3
	434.020/NH140/BMT45/SW340/W3
	434.020/NH125/BMT45/SW390/16T/W3
	434.020/NH100/BMT55/SW330/W3
	434.020/NH125/BMT55/SW330/W3
	434.020/NH140/BMT55/SW330/W3
434.025	434.020/NH100/BMT65/SW380/W3
	434.020/NH140/BMT65/SW380/W3
	434.020/NH125/BMT65/SW380/W3
	434.025/NH150/BMT75/SW430/W3
434.032	434.025/NH180/BMT75/SW430/W3
	434.032/NH200/BMT85/SW530/W3

434動力刀塔齒輪頭性能參數  
Technical data of gear head

項目 Item	尺寸與規格 Size & Specifications			
機型規格 Type	16	20	25	32
刀具介面 Interface (BMT)	45/55	45/55/65	75	85
齒輪頭特性 Gear head performance data				
容許驅動功率 Admissible drive rating P <sub>adm</sub> (Kw)	8	10	12.5	16
容許驅動扭矩 Admissible torque M <sub>adm</sub> (Nm)	32	63	100	180
容許轉速 Admissible rpm n <sub>adm</sub> (rpm)	6000	6000	4000	4000
傳動比 Gear ratio	1.0	1.0	1.0	1.0
建議配置的動力馬達(IP67) Recommended tool drive motor (IP67)				
Siemens伺服馬達 servo motor Type 1FK7..	..084	..086	..105	..108
Fanuc伺服馬達 α servo motor	12/6000 is	22/4000 is	40/4000 is	50/3000
Fanuc主軸馬達 α Spindle motor	2	3	6/8	15 HVi



刀塔選型  
Turret Product info



刀座型錄  
Tool Holder

# 434.4.. BMT 升級版動力刀塔

## 434.4xx BMT Premier Line Driven Turret



### 產品優勢:

- 高速長時運轉
- 降低熱變形
- 提高刀座負載量

### 產品特色:

- 動力刀轉速6000rpm 以內, 可連續加工運轉 24小時
- 動力刀轉速8000rpm, 連續運轉30mins, 刀盤熱位移量<10μm, 溫度<65°C
- 刀座負載量提高100%
- 高壓出水: 70~150bar  
PT-100 高精度溫度感測器

註: 上述轉速適用本體尺寸16及20

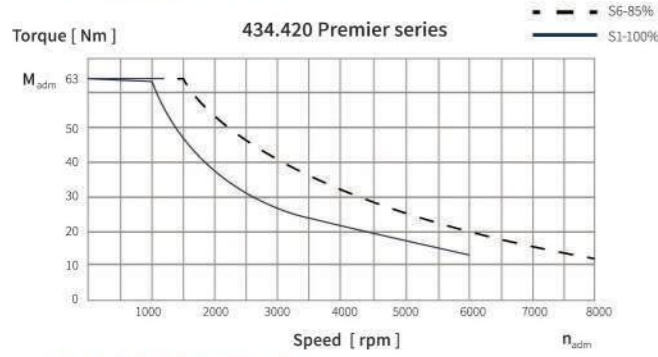
### Advantages:

- High speed and long time operation
- Reducing thermal deformation
- Increasing tool holder loading capacity

### Features:

- Tool drive speed < 6000rpm : 24hrs continuous operation allowed
- Tool drive speed at 8000rpm : continuous operation for 30mins : thermal displacement of tool disc <10μm, temperature < 65°C
- Tool holder loading capacity : increase 100%
- High pressure coolant : 70~150bar  
PT-100 high precision temperature sensor

Note : The speed mentioned above is for turret size 16, 20.



註: S1: 可連續24小時運轉

S6 (85%): 以運轉週期為30分鐘為例, 運轉25分鐘後, 需停歇5分鐘

Note : S1 : 24hours continuous operation allowed  
S6 (85%) : If DC (duty cycle) is 30mins, run 25mins, and rest 5 mins.

軸承溫度感測  
Bearing temperature  
sensor PT100



2D 動畫

# 734 BMT 徑向內藏式動力刀塔

## 734 BMT Radial Mount DD turret

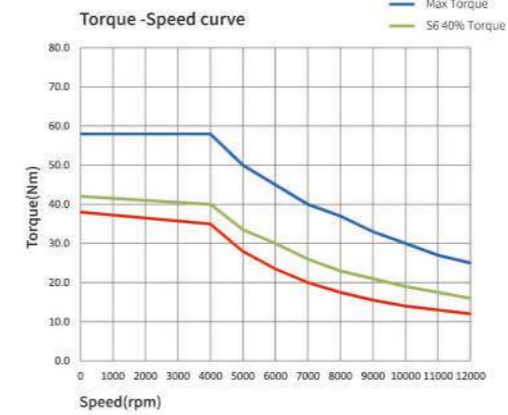


### 產品特色:

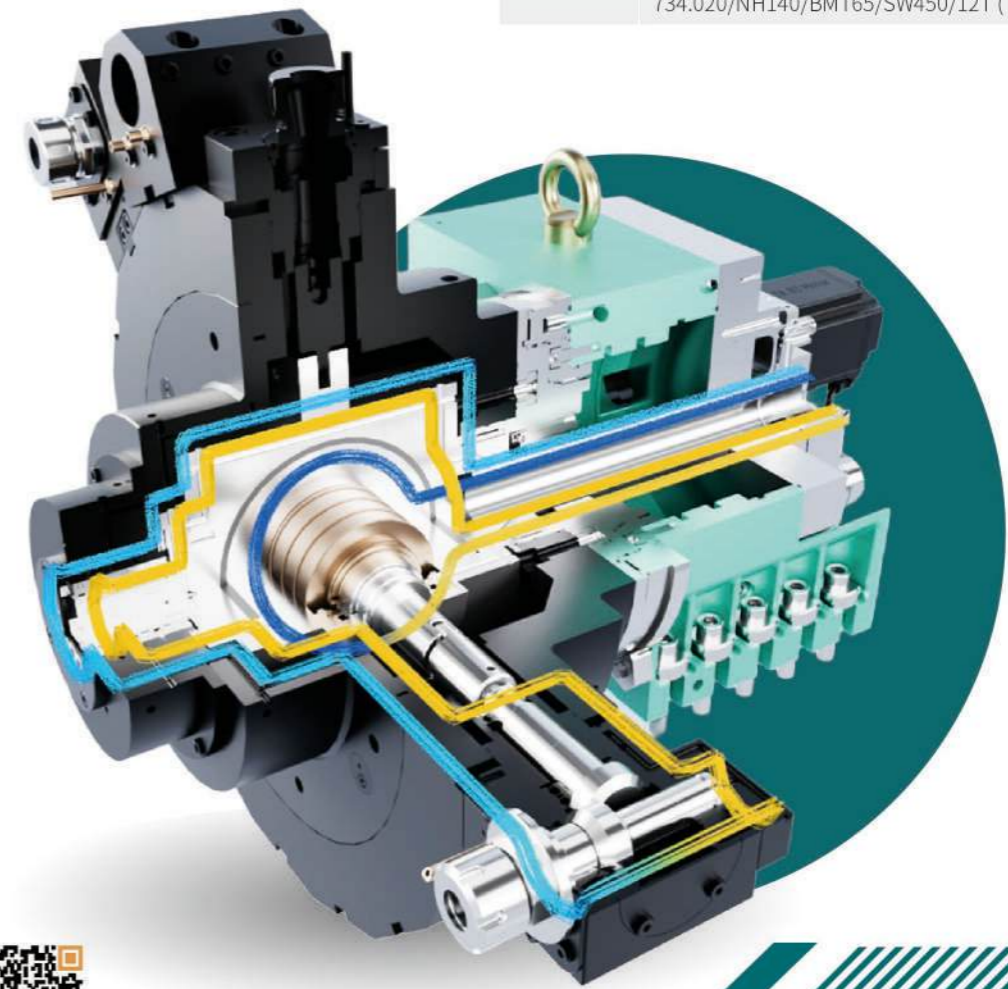
- 內藏式馬達設計, 節省安裝空間25~50%
- 轉速高達 12,000 rpm
- 扭力高達45 Nm(torque line)
- 出水壓力達 70 bar(標準)
- 適用 BMT 介面
- 特殊本體設計, 可背向加工
- 特殊冷卻系統, 可連續加工
- 極靜作業

### Features:

- Built-in motor design, saves 25~50% installation space
- Speed up to 12,000rpm (size 20)
- Torque up to 45Nm (torque line)
- High coolant pressure 70bar (standard)
- Suitable for BMT interfaces
- Special housing design for back machining
- Special cooling design for continuous motion processing
- Quiet running



機種 Type	規格 Specifications
734.016	734.016/NH80/BMT45/SW340/12T
	734.016/NH80/BMT55/SW380/12T
734.020	734.020/NH140/BMT55/SW410/12T (Speed line)
	734.020/NH140/BMT55/SW430/12T (Speed line)
	734.020/NH140/BMT55/SW430/12T (Torque line)
	734.020/NH140/BMT65/SW430/12T (Speed line)
	734.020/NH140/BMT65/SW450/12T (Torque line)



3D 動畫

494 Y軸動力刀塔  
494 Driven turret with Y-axis



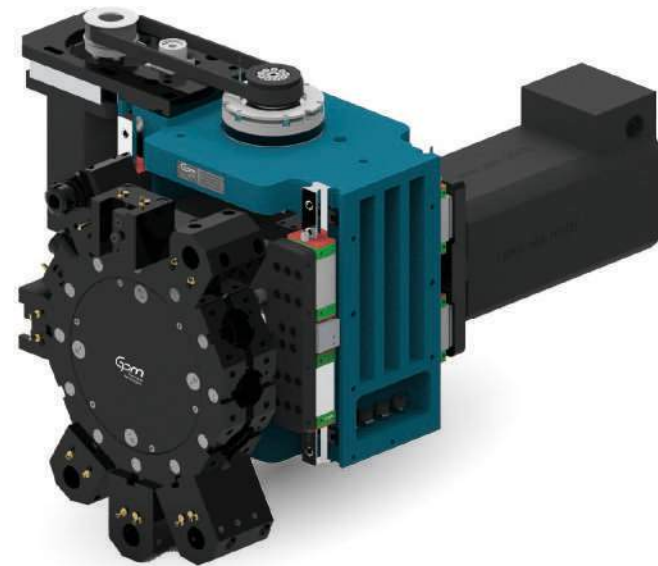
中置式：

- 滾柱線軌及一螺桿
  - 干涉小, 節省30%配置空間
  - 應用面: 可配置斜床身, 擺脫傳統外掛式Y軸重量限制
  - Y軸行程 ±50mm
- 494/BMT45、55、65 徑向Y軸動力刀塔

- 實際車刀切削表現:
- 工件材質: S45C
- Size 16: 車削深度: 4mm
- Size 20: 車削深度: 5mm

Central mount type:

- Roller type linear guideway center mounted screw design.
  - Interference is reduced by about 30%.
  - Suitable for high-complex processing.
  - Y-axis travel ±50mm
- 494/BMT45、55、65 radial mount Driven Turret with Y-axis
- Cutting performance:
  - Material of workpiece: S45C
  - Size 16: Turning cut depth: 4mm
  - Size 20: Turning cut depth: 5mm

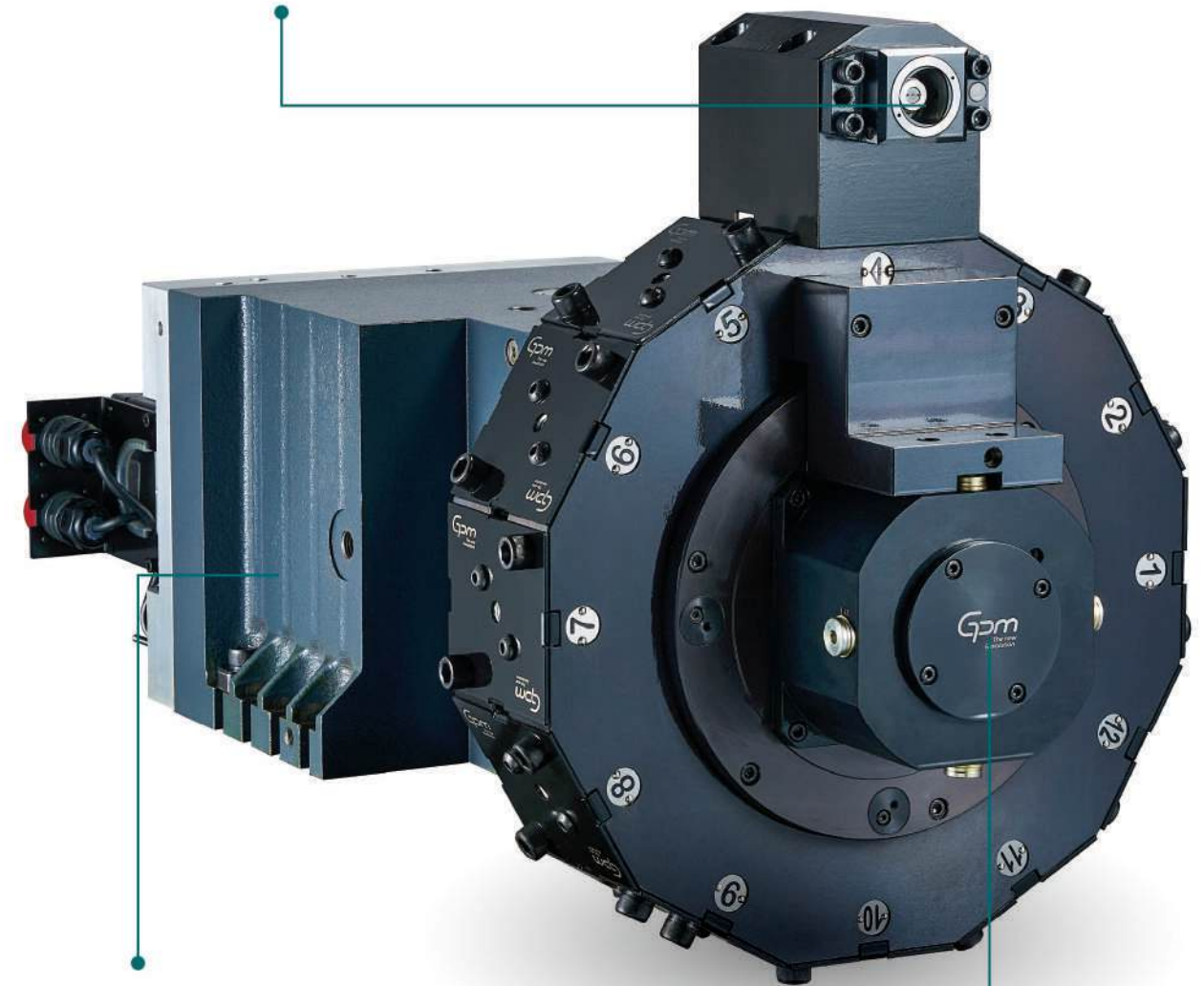


434.5.. BMT動力刀塔-ATC功能  
434.5.. BMT driven turret with ATC function

- 提供內置式與外置式油壓驅動自動換刀, 滿足不同加工需求
- Provides both internal and external hydraulic automatic tool-change mechanisms to accommodate diverse machine designs and applications.

刀座搭配 PSC 自動換刀系統

Tool holder equipped with PSC automatic clamping unit - Achieving auto tool change by hydraulic clamp & unclamp



刀塔內部5油路- 油壓放鬆、油壓夾緊、切削液、吹氣清潔、氣密檢知

5 channels for hydraulic clamp, unclamp, coolant, air blast and probe contact

旋轉接頭機構  
Rotary distributor



- PSC 手動換刀; 利用六角板手即可快速換刀
- 軸徑向可依客戶需求混搭
- PSC manual tool change system enables fast, effortless tool replacement with a simple hex wrench.
- Axial and radial mounting options can be freely combined to meet specific application requirements.

特色:

- PSC 的三角多邊形錐度面設計提供卓越的扭矩傳遞與夾持剛性，確保換刀後的重覆定位精度可達2μm，大幅提升加工穩定性與精度。
- 模組化設計讓 PSC 能夠快速更換刀具，減少停機時間，適合高混合、小批量生產，提高機台稼動率與整體生產效能。
- 適用於車削、銑削、鑽削等多種加工方式，並可搭配CNC車床、加工中心、複合加工機，讓生產更具靈活性與成本效益。

Features:

- Polygonal taper surface of PSC system ensures superior rigidity, which translates to higher precision in machining operations. Repeating accuracy 2μm.
- Balanced, concentric, self-centering features and modular design enable quick and automated tool change and boosts productivity.
- Applicable to various machining purposes.

標準配置  
Standard Configuration

機種 Type	規格 Specifications
440.216	440.216/PCD270/8T/C4
440.220	440.220/PCD370/12T/C5
440.225	440.225/PCD420/12T/C6
440.232	440.232/PCD460/12T/C8

外徑刀座  
Turning Tool holder



PSC	Shank	Specs
C4	16	B1 -C4x16
	20	B1 -C4x20
C5	20	B1 -C5x20
	25	B1 -C5x25
C6	25	B1 -C6x25
	32	B1 -C6x32
C8	32	B1 -C8x32

端面刀座  
Facing Tool holder



PSC	Shank	Specs
C4	16	C1 -C4x16
	20	C1 -C4x20
C5	20	C1 -C5x20
	25	C1 -C5x25
C6	25	C1 -C6x25
	32	C1 -C6x32
C8	32	C1 -C8x32

側固式刀桿  
Side Lock Holder



PSC	孔徑 φmm	Specs
C4	20	E1 -C4x20
	25	E1 -C4x25
C5	40	E1 -C5x40
C6	50	E1 -C6x50
C8	60	E1 -C8x60

筒夾式刀桿  
ER Collet Chuck



PSC	ER
C4	ER25
C5	ER32
C6	ER40
C8	ER50

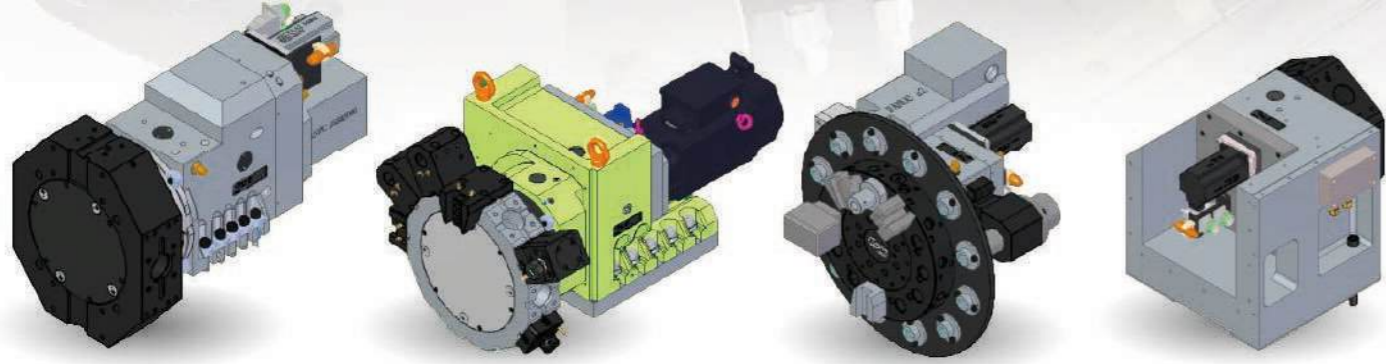


### ODM / OEM 客製化設計能力

- 可配合機床設計, 提供客製化解決方案, 如 特殊刀塔本體、刀盤、刀座等。
- 因應自動化生產需求, 刀塔可另外搭載如夾爪、中心架及其他特殊需求等。

### Customized ability

- Customized designs to suit different demands of machines, such as special turret housing, tool disc and tool holder..etc.
- Turret may be redesigned to integrate gripper, steady rest, ..etc for automated manufacturing.



油壓中心架  
Hydraulic Steady Rest

款式 Model	型號 Type	夾持範圍 Clamping diameter
標準油壓 Standard type	TSC-2	8-102mm
	TSC-3	12-152mm
	TSC-3.1	20-165mm
	TSC-4	30-245mm
超緊湊 Super-compact type	TSC-5	45-310mm
	TCX-6.1	250-685mm
精密油壓 Precision type	SCR-3	12-152mm
	SCR-4	30-245mm
	SCR-5	45-310mm
側置油缸 Lateral cylinder type	SCR-B3	12-152mm
	SCR-B4	30-245mm
	SCR-B5	45-310mm



### 其他特殊刀座 Other Special Tool Holder

軸向偏心動力刀座  
Axial drilling and milling head offset



側銑動力刀座  
Side milling cutter



萬向動力刀座  
Universal live tool holder



VDI測試棒  
Testing mandrel



滾齒動力刀座  
Gear hobbing unit



BMT測試棒  
Testing mandrel



插槽動力刀座  
Broaching unit



單點車銑座  
Milling head



### 提供各型式歐美及日系介面刀座 Various Tool Holder Interfaces Available



刀座型錄  
Tool Holder





特品國際

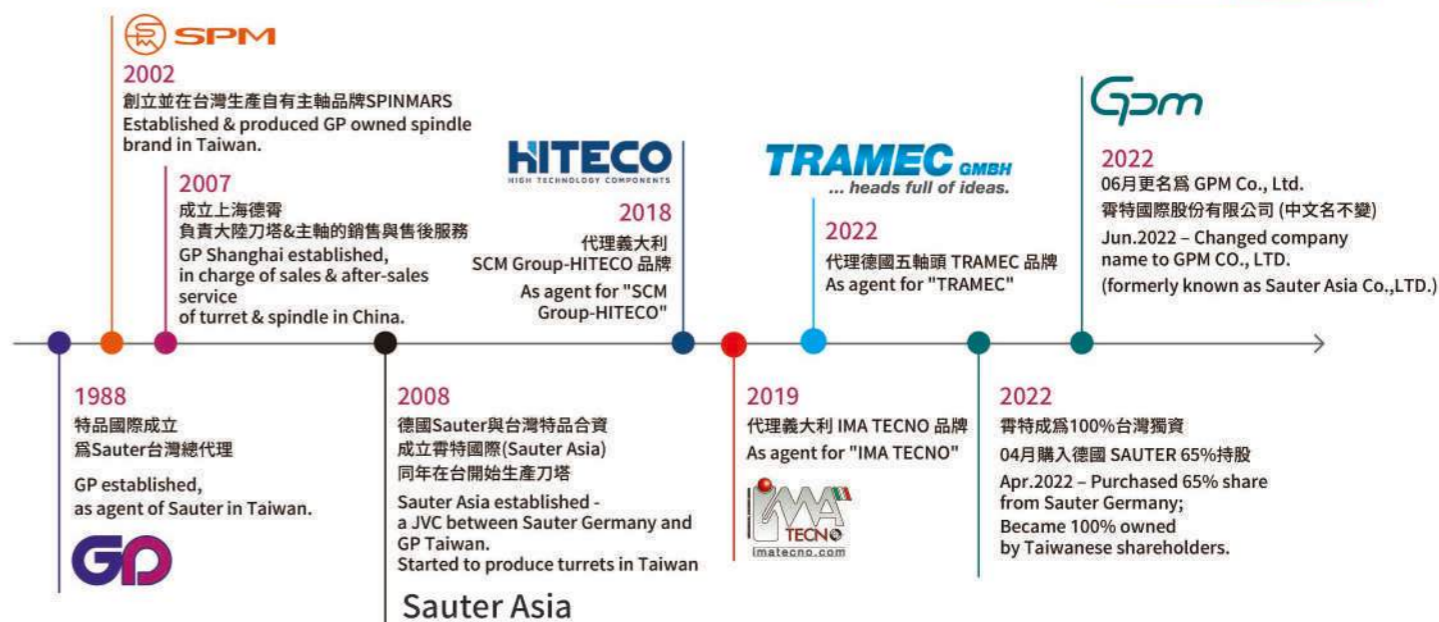


上海德霄



霄特國際

集團沿革  
Group Milestone



集團致力於機床關鍵零組件 - 刀塔、刀座、主軸 等鑽研。以智能設計、專業技術、創新服務為基礎，以客戶需求為導向，客製化ODM, OEM服務，提升機床產業的全球競爭力與機床特殊性，成為全球機床業之關鍵零組件技術領導者及首選合作夥伴。

為落實ESG(環境保護、社會責任、公司治理)理念，廠區安裝節電設備，同時與協力廠商一同尋找並開發新原料。透過製程優化以降低或避免因製造過程對環境造成之任何負面影響。

Satisfying customer demands is our guideline. Intelligent design, professional technology and innovative services are our fundamentals. We are dedicated to providing world-class products and customized ODM, OEM solutions, to become the global leader in key components of machine tool industry, and to be the No. 1 preferred partner of machine tool builders around the world.

In order to implement the concept of ESG (environmental protection, social responsibility, corporate governance). The factory installs energy-saving equipment and works with third parties to find and develop new raw materials. Reduce or avoid any negative impact on the environment caused by the manufacturing process through process optimization.



特品 GP



霄特 GPM



德霄 GP Int'l

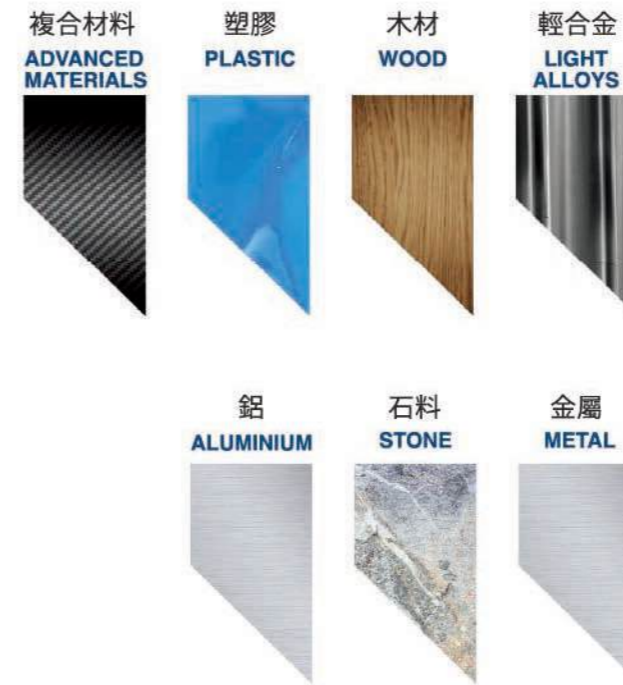
Linktree /



TILT 系列



ORBITAL 系列

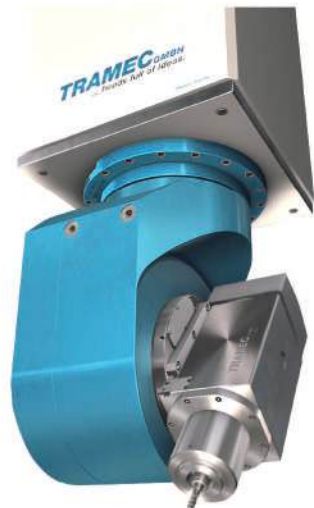


技術規格 TECHNICAL SPECIFICATIONS	TILT G		TILT G PLUS		TILT M		ORBITAL M	
	A軸 A AXIS	C軸 C AXIS	A軸 A AXIS	C軸 C AXIS	A軸 A AXIS	C軸 C AXIS	A軸 A AXIS	C軸 C AXIS
軸電機 Axis motor	Direct drive	Direct drive	Direct drive	Direct drive	Direct drive	Direct drive	Direct drive	Direct drive
額定扭矩 Rated torque	504 Nm	533 Nm	504 Nm	787 Nm	830 Nm	787 Nm	560 Nm	787 Nm
最大扭矩 Peak torque	1000 Nm	935 Nm	1000 Nm	1560 Nm	1472 Nm	1560 Nm	1030 Nm	1560 Nm
最大轉速 Max axes speed	30000°/'		30000°/'		30000°/'		30000°/'	
軸編碼器 Measuring system	增量式編碼器 Incremental encoder		增量式編碼器 Incremental encoder		增量式編碼器 Incremental encoder		增量式編碼器 Incremental encoder	
定位精度 Accuracy of graduation	±2,5 arcsec	±3,0 arcsec	±2,5 arcsec	±2 arcsec	±2 arcsec	±2 arcsec	±3,8 arcsec	±2 arcsec
煞車類型 Type of clamping	液壓 Hydraulic		液壓 Hydraulic		液壓 Hydraulic		氣壓 Pneumatic	液壓 Hydraulic
煞車扭矩 Clamping torque	3000 Nm	3000 Nm	3000 Nm	4000 Nm	4000 Nm	4000 Nm	3720 Nm	4000 Nm
最大軸旋轉 Max axis rotation	±120°	±360°	±120°	±360°	±110°	±360°	±185°	±360°
C軸安裝配合直徑 Head fitting diameter	Ø 310		Ø 335		Ø 335		Ø 335	
主軸直徑 Spindle fitting diameter	Ø 180		Ø 180		Ø 210 (Ø 180)		Ø 210 (Ø 180)	
重量 Weight	500 kg		650 kg		800 kg		650 kg	

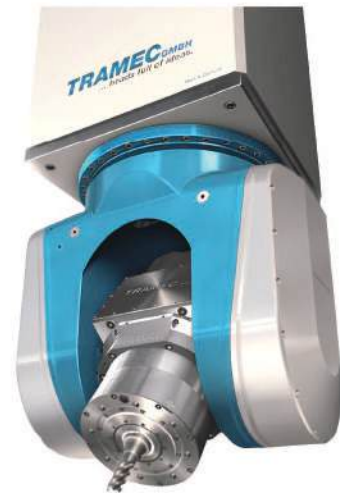
主軸 Spindle						
主軸型號 Product	MX-2 42/12 24	MX-2 42/6 24	MX-2 41/4.5 24	MX-2 38/3 12	MX-2 47/3 12	MX-2 60/3 12
主軸外徑 Ø Spindle outer diameter	180	180	180	210	210	210
油氣潤滑 Oil-air lubrication	28000	24000	24000	15000	15000	15000
出力(Kw) Power S1	42	42	41	38	47	60
出力(Kw) Power S6	48	48	47	43	54	69
扭力(Nm) Torque S1	34	67	87	120	150	191
扭力(Nm) Torque S6	39	76	100	137	172	220
主軸冷卻方式 Spindle cooling method	水冷 Water	水冷 Water	水冷 Water	水冷 Water	水冷 Water	水冷 Water
刀把型式 Clamping type	HSK 63A	HSK 63A	HSK 63A	HSK 100A	HSK 100A	HSK 100A
軸承溫度感測器 Bearing temperature sensor	標配	標配	標配	標配	標配	標配
主軸重量KG Spindle weight	70	70	70	110	110	110



AC 16



AC 8M



AC 16		
C軸最大旋轉角度 =視連接結構而定 C-axis swivel range (max.) =Dependent on connection construction		+/-360°
C軸最大速度 C-AXIS SPEED (max.)	+/s	360
C軸最大加速度 C-AXIS ACCELERATION (max.)	+/s <sup>2</sup>	600
C軸夾緊扭矩(無壓/增壓) C-AXIS CLAMPING TORQUE (Pressureless / With boost)	Nm	456/820
C軸扭矩 C-AXIS TORQUE	Nm	350
C軸測量系統精度 C-AXIS MEASURING SYSTEM ACCURACY	-	+/-3.3
A軸最大旋轉角度 A-AXIS SWIVEL RANGE (max.)	-	+/-110°
A軸最大速度 A-AXIS SPEED (max.)	+/s	360
A軸最大加速度 A-AXIS ACCELERATION (max.)	+/s <sup>2</sup>	600
A軸夾緊扭矩 (無壓 / 增壓) A-AXIS CLAMPING TORQUE ( Pressureless / With boost )	Nm	456 /820
A軸扭矩 A-AXIS TORQUE	Nm	350
A軸測量系統精度 A-AXIS MEASURING SYSTEM ACCURACY	-	+/-3.3
不含主軸的重量 WEIGHT WITHOUT SPINDLE (APPROX....)	Kg	220
主軸最大直徑 : Ø 170 MAX. SPINDLE : Ø 170		

AC 8M					
C軸 C-AXIS			A軸 A-AXIS		
採用 GGG50 鑄鐵安裝法蘭的外殼。 Housing with mounting flange in GGG50 cast iron. 軸承, 油脂潤滑 (軸向/徑向) 圓柱滾子軸承。 Axis bearing, grease lubricated (axial/radial) cylindrical roller bearing.					
C軸旋轉角度 C- AXIS ROTATION ANGLE (max.)		+/-360°	A軸旋轉角度 A- AXIS ROTATION ANGLE (max.)		+/-110°
C軸轉速 C- AXIS ROTATION SPEED (max. S1)	°/s	300	A軸轉速 A- AXIS ROTATION SPEED (max. S1)	°/s	300
C軸加速度 C- AXIS ACCELERATION (max.)	°/s <sup>2</sup>	800	A軸加速度 A- AXIS ACCELERATION(max.)	°/s <sup>2</sup>	800
C軸額定扭矩 C- AXIS NOMINAL TORQUE	Nm	1500	A軸額定扭矩 A- AXIS NOMINAL TORQUE	Nm	1500
C軸峰值扭矩 C- AXIS PEAK TORQUE	Nm	2000	A軸峰值扭矩 A- AXIS PEAK TORQUE	Nm	2000
C軸保持扭矩 C- AXIS HOLD UP TORQUE	Nm	1000	A軸保持扭矩 A- AXIS HOLD UP TORQUE	Nm	1000
C軸夾緊扭矩 C- AXIS CLAMPING TORQUE		6000	A軸夾緊扭矩 A- AXIS CLAMPING TORQUE		6000
C軸精度 C- AXIS MEASURING SYSTEM ACCURACY		+/-3.2"	A軸精度 A- AXIS MEASURING SYSTEM ACCURACY		+/-3.2"
C軸夾緊類型 C- AXIS CLAMPING TYPE	液壓夾緊, 彈簧鬆開 clamped by hydraulic, unclamping by spring		A軸夾緊類型 A- AXIS CLAMPING TYPE	液壓夾緊, 彈簧鬆開 clamped by hydraulic, unclamping by spring	

搭載永磁馬達, 體型小巧  
 Equipped with permanent-magnet motor, compact design (HSK-T63 : 450mm)

軸承溫度監控  
 Temperature Compensation  
 心軸一體式設計  
 Unibody spindle design

前後雙軸承冷卻, 精度再升級  
 Dual Bearing Cooling for Enhanced Precision

最高轉速/Max speed: 12,000 rpm  
 最大扭矩/Max torque: 120 Nm

採用3顆軸承, 剛性再進化  
 Equipped with Three Bearings for Enhanced Rigidity

三片齒在放鬆或夾緊狀態皆可換刀  
 Independent channel for tool release unit and 3-piece coupling. This unique system supports tool changes under both clamp and unclamp status.

多種刀具系統選擇  
 Multiple tool system available (HSK T40/63/100,PSC C4/C6/C8)

選配: 熱伸長、振動感測器  
 Optional add-ons: thermal and vibration sensors.

SM 150



SM 230



產品型號 Product Model	SM 80	SM100	SM120	SM150	SM 170	SM 210	SM 230
主軸外徑 Spindle outer diameter	Ø 80	Ø 100	Ø 120	Ø 150	Ø 170	Ø 210	Ø 230
最高轉速 rpm Max Speed	油脂潤滑 Grease lubrication	40000	30000	30000	20000	18000	16000
	油氣潤滑 Oil-air lubrication	-	-	40000	24000	24000	24000
主軸電壓 Spindle Voltage	220	220	220/380	380	380	380	380
出力(Kw) Power S1	2.2	3	6.4/10	15	20	21	25
出力(Kw) Power S6	2.5	3.6	7.2/12	18	22.5	23.5	29
扭力(Nm) Torque S1	0.72	1.5	3.4/5.5	14.8	32.9	101	83.2
扭力(Nm) Torque S6	0.82	1.8	4.1/6.6	17.6	38.5	114	99.3
主軸冷卻方式 Spindle cooling method	油冷 Oil	水冷 Water	水冷 Water	水冷 Water	水冷 Water	水冷 Water	水冷 Water
刀把型式 Clamping type	ER16	ISO25/HSK E40	BT30/HSK E40	BT40/HSK A63	HSK A63	HSK A63	HSK A63
軸承溫度感測器 Bearing temperature sensor	Yes	Yes	Yes	Yes	Yes	Yes	Yes
編碼器 Encoder	-	-	選配 Optional	Yes	Yes	Yes	Yes
旋轉接頭 Rotary joint	-	-	選配 Optional	選配 Optional	選配 Optional	選配 Optional	選配 Optional
主軸長度MM Spindle length	220	385	451	541	592	718	654
主軸重量KG Spindle weight	6	14	23	45	60	120	138



外徑 Outer diameter	S1出力 (Kw) Power	S1扭力 (Nm) Torque	最高轉速(rpm) Max Speed	潤滑 Lubrication	刀桿 Clamping type
Ø 120	10.4	9	24000	油脂	HSK T40
Ø 190	47	150	12000	油脂	HSK T100
Ø 210	25	83.2	15000	油脂	HSK T63
Ø 230	42	200	12000	油氣	HSK T100
Ø 240	36.5	89	12000	油脂	HSK T63/C6



## 銑削主軸 Milling Spindle

SMI 180



SMI 190



- 適用於五軸頭和航太加工產業
- 如下三款主軸皆配有軸承溫度感測器、編碼器及旋轉接頭
- Supports both automatic and manual tool changing to meet various machining needs.
- All three spindle models are equipped with bearing temperature sensor (PT-100), an encoder, and a rotary joint.

產品型號 Product Model	主軸外徑 Spindle outer diameter	最高轉速rpm Max Speed		主軸電壓 Spindle Voltage	出力(Kw) Power S1	出力(Kw) Power S6	扭力(Nm) Torque S1	扭力(Nm) Torque S6	主軸冷卻方式 Spindle cooling method	刀把型式 Clamping type	主軸長度 MM Spindle length	主軸重量 KG Spindle weight
		油脂潤滑 Grease lubrication	油氣潤滑 Oil-air lubrication									
SMI180	Ø180	-	24K	420	43	50	68	80	水冷	HSK A63	522	73
SMI190	Ø190	-	13K	380	47	53	150	169	水冷	HSK A100	592.5	93
SM230	Ø230	-	12K	380	42	47	201	227	水冷	HSK A100	679	150



## 研磨主軸 Grinding Spindle

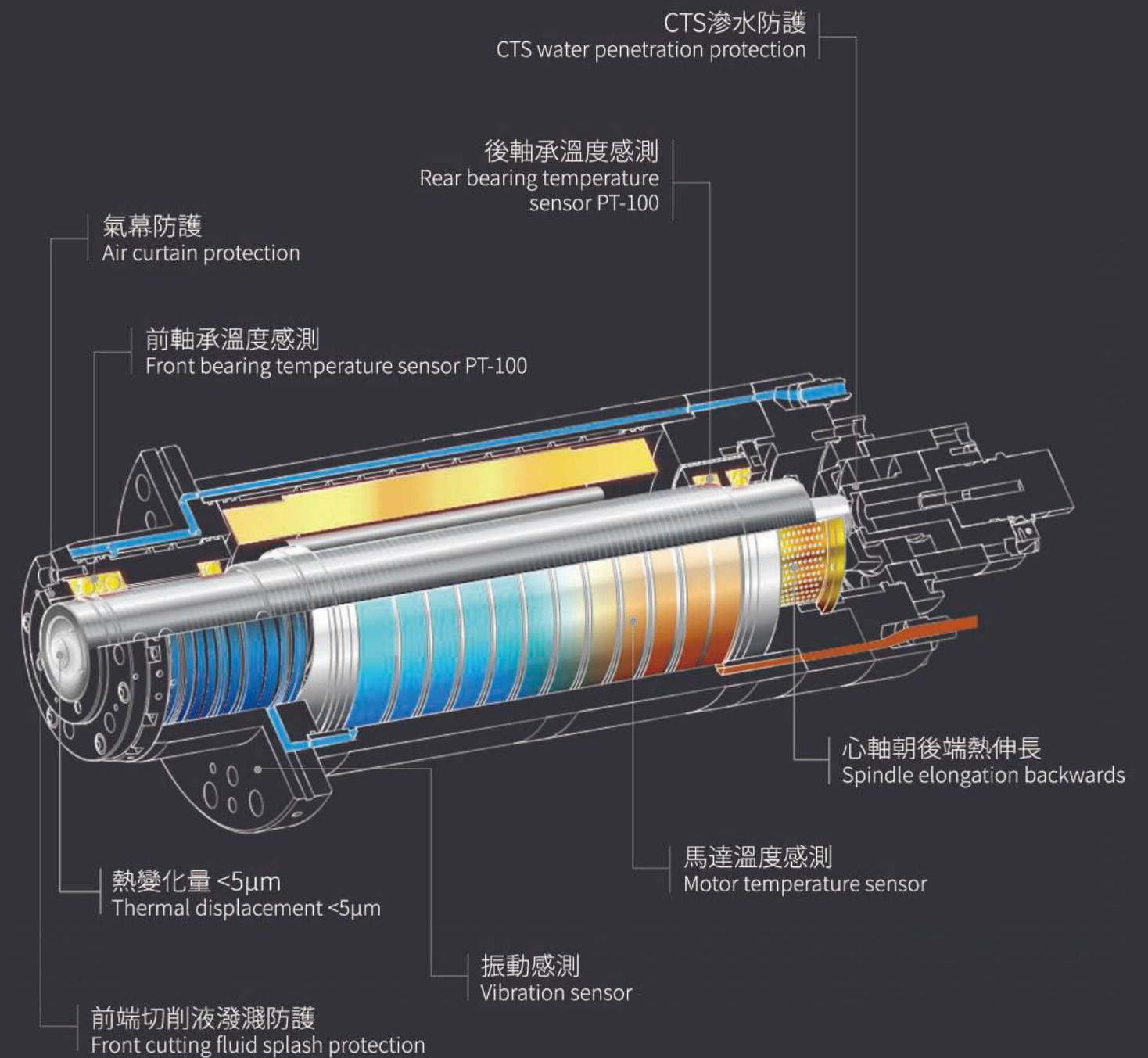


產品型號 Product Model	SMG58	SMG120	SMG150	SMG215	SMG230
主軸外徑 Spindle outer diameter	Ø 58	Ø 120	Ø 150	Ø 215	Ø 230
最高轉速 rpm Max Speed	油脂潤滑 Grease lubrication	20000	30000	10000	10000
	油氣潤滑 Oil-air lubrication	-	40000	-	-
主軸電壓 Spindle Voltage	220	220	380	380	380
出力(Kw) Power S1	0.48	10	5.5	24	26
出力(Kw) Power S6	0.52	12	6.3	28	30
扭力(Nm) Torque S1	0.229	5.5	19.5	38.2	124
扭力(Nm) Torque S6	0.251	6.5	22.6	44.8	148
主軸冷卻方式 Spindle cooling method	氣冷 Air	水冷 Water	油冷 Oil	油冷 Oil	水冷 Water
刀把型式 Clamping type	Ø20	M22*P1.5	HSK E50	HSK E50	HSK A100
軸承溫度感測器 Bearing temperature sensor	-	Yes	Yes	Yes	Yes
主軸長度MM Spindle length	208	340	498	687	793
主軸重量KG Spindle weight	3	20	41	105	177



## CONTENTS

P1-2	主軸特點 Spindle Features
P3-4	SPM / 研磨 / 銑削 主軸 Grinding / Milling Spindle
P5-6	SPM / 銑削 / 銑車 主軸 Milling / Mill-Turn Spindle
P7	TRAMEC / 單/雙臂 旋轉頭 Single / Double Arms Milling Head
P8	B軸搖擺頭 Turn-Mill head Motor spindle + B-axis DD table
P9-10	HITECO / 提供機床廠的生產解決方案 Provide Production Solutions for Machine Tool Manufactures
P19-20	公司發展歷程 Company Profile



2D 動畫



# SPINDLE

[www.gpm-asia.com](http://www.gpm-asia.com)