

內藏式 Built In Motor



M3-LMSN

#30內藏式高速主軸
最高轉速24,000~30,000rpm
#30 Built-in motor high speed spindle
Max. speed : 24,000~30,000rpm

高速加工、高精度、高效率，模具及高品質加工。

馬達內藏式主軸為高速加工之主流，在噪音及振動有極佳之特性，生產階段進行頻譜量測，以確保運轉特性及組裝品質，達到最高之迴轉精度，以模組化為思考，務求產品最佳之穩定性、壽命及維修成本。

High Speed, High Precision, High Efficiency, High Quality, and Die / Mold Machining

Designed for high speed machining, our built-in motor spindle produces little noise and vibration. At each production stage, the frequency and amplitude response are measured to guarantee operational stability and quality of assembly and to achieve the highest precision under dynamic conditions. Each manufactured spindle goes through computer analysis to ensure optimum stability, long operational life, and low maintenance costs.

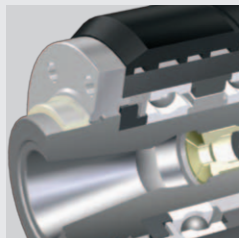


a. 甩水環專利設計

全系列標配甩水環專利設計，於高速切削時，減低切削液濺入迷宮區域。

Water-Repellant Ring (Patented)

For this spindle type, every spindle has a water-repellant ring to effectively repel any cutting fluids away from the spindle to prevent anything from splashing into the labyrinth area during high speed cutting.

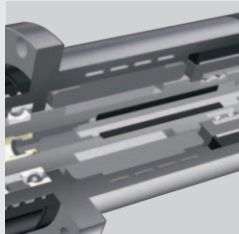


b. 多道次嚴密迷宮，標配迷宮吹氣

多道次嚴密迷宮，同時標配迷宮吹氣，高速運轉時切削油霧不會侵入軸承。

Labyrinth Design with Air Seal

During high speed operation, positive air pressure coming out from the labyrinth prevents any contamination from entering into the spindle.



c. 高效能之冷卻循環通道

冷卻循環通道經嚴密設計，可有效帶走線圈及軸承熱量，減低溫升熱變形精度誤差。

Highly Efficient Helical Cooling Channel

The compactly designed helical cooling channels effectively dissipate heat from the stator coil and bearings to reduce the effects of thermal deformation on precision.



d. 止轉四瓣爪導環

專利設計四瓣爪導環，主軸加速減速時，不會有異音及動平衡變化情形。

Anti-Rotating Gripper Guide Ring (Patented)

During acceleration and deceleration of the spindle, the patented gripper guide ring design eliminates any unusual noises and vibration of dynamic balance.



隔環等精密內部零件全檢

隔環等精密內部零件全檢，確保各支主軸品質一致。

Inspection of Precision of Every Spacer

Every spacer is inspected for precision to assure unanimous quality of every spindle.



PCB型不銹鋼製造

PCB型不銹鋼製造，可使用水冷機，適無塵室使用。

PCB Model Type Made With Stainless Steel

Suitable for clean room operation, the PCB model type is made with stainless steel to allow the use of a water cooling system.



H6-RMSC M4-RMSC

#40, HSK63內藏式高速主軸
最高轉速15,000~20,000rpm
#40, HSK63 Built-in motor high speed spindle
Max. speed : 15,000~20,000rpm



M4-HMSC

#40內藏式高扭力主軸
最高轉速15,000~18,000rpm
#40 Built-in motor high torque spindle
Max. speed : 15,000~18,000rpm



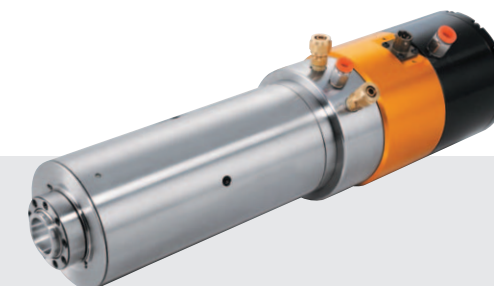
E16-QMS

ER16雕刻主軸
最高轉速24,000rpm~30,000rpm
ER16 engraving machine spindle
Max. speed : 24,000rpm~30,000rpm



PCBR

高速循邊切割及雕刻主軸
最高轉速60,000rpm
High speed routing and engraving spindle
Max. speed : 60,000rpm



M2-QMS

#20內藏式高速主軸
最高轉速24,000~40,000rpm
#20 Built-in motor high speed spindle
Max. speed : 24,000~40,000rpm



M25-GMS

#25雕刻機主軸
最高轉速24,000~30,000rpm
#25 Engraving machine spindle
Max. speed : 24,000~30,000rpm



重要關鍵零件硬度試驗

重要關鍵零件硬度試驗，減少熱處理不良造成零件損壞。

Hardness Test of Critical Parts

After heat treatment, the critical parts undergo a hardness test to ensure they have the correct hardness in order to reduce their risk of damage during operation.



三平面動平衡

高速軸，以三平面進行動平衡校正，提升振動性能。

3-Plane Dynamic Balancing

To effectively decrease vibration, we conduct dynamic balancing calibration at 3 different planes.



高線圈絕緣等級檢測

線圈進行高絕緣檢測，確保電控穩定驅動特性及線圈壽命。

Test of Isolation Grade of Stator Coil

Testing the isolation grade of the stator coil ensures stable electronic drive control and long operational life.

內藏式雕銑及M/C主軸 Built-In Motor Engraving M/C Spindle

法蘭板型 Flange Type

型號 MODEL NO.	刀具 TOOL HOLDER	規格 (SPECIFICATION)							備註 Note
		最高轉速 Max. Speed (rpm)	軸承數目 No. of Bearings	環形噴水 (SC)	編碼器 Encoder (pulse/rev)	功率 Power (KW)	前軸承直徑 Diameter of Front Bearing (mm)	套筒外徑 Outer Diameter of Housing (mm)	
M25-GMS-FG	ISO25	24000 30000	4		(OP)	3.7KW	Ø30	Ø100	油壓換刀 hydraulic tool exchanging
M3-LMSN	BBT30 BT30 ISO30	24000 30000	4		(OP)	8.2KW (OP 10KW) (OP 14KW)	Ø40	Ø120	
H4-LMSN	HSK40E	24000 30000	4		(OP)	8.2KW (OP 10KW) (OP 14KW)	Ø40	Ø120	
H5-TMSN	HSK50E	20000 24000	4	(OP)	(OP)	15KW (OP 8.2KW) (OP 10KW)	Ø45	Ø140	
M4-AMSC	BT40 DIN40 CAT40	15000 18000 20000	4	(ST)	1024	14KW	Ø65	Ø170	
H6-AMSC	HSK63A								
M4-JMRC	BT40 DIN40 CAT40	12000 15000	5	(OP)	1024	11.5KW (OP 18KW)	Ø65	Ø150	
M4-RMSC	BT40 DIN40 CAT40	15000 18000 20000	4		1024	18KW (OP 15KW)	Ø65	Ø150	
H6-RMSC	HSK63A								
M4-HMSC	BT40 DIN40 CAT40	15000 18000 20000	4	(OP)	1024	18KW (OP 11.5KW) (OP 25KW)	Ø65	Ø210	
H6-HMSC	HSK63A								
M5-KMS	BT50 DIN50 CAT50	6000 8000	3	(OP)	(OP)	35KW (OP 16KW)	Ø100	Ø240	氣壓換刀 pneumatic tool exchanging cylinder
H10-KMS	HSK100A								
M2-FMSA	ISO20	24000 30000	4		(OP)	2KW	Ø30	Ø100	
M25-GMSA-FG	ISO25								
H3-GMSA-FG	HSK32E	24000	4		(OP)	3.7KW	Ø30	Ø100	
M3-LMSNA	BBT30 BT30 ISO30	20000	4		(OP)	8.2KW (OP 10KW) (OP 14KW)	Ø40	Ø120	
H4-LMSNA	HSK40E								

無法蘭板型 Clamped Type

型號 MODEL NO.	刀具 TOOL HOLDER	規格 (SPECIFICATION)					前軸承直徑 Diameter of Front Bearing (mm)	套筒外徑 Outer Diameter of Housing (mm)	備註 Note
		最高轉速 Max. Speed (rpm)	軸承數目 No. of Bearings	環形噴水 (SC)	編碼器 Encoder (pulse/rev)	功率 Power (KW)			
PCBR	62筒夾collet	60000	4			1.2KW	Ø17	Ø62	氣壓換刀 pneumatic tool exchanging cylinder
E16-QMS	ER16筒夾collet	24000 30000	4			1.5KW	Ø30	Ø80	
E20-QMS	ER20筒夾collet								
M2-QMS	ISO20	24000 30000 36000	4		(OP)	2KW	Ø30	Ø80	氣壓換刀 pneumatic tool exchanging cylinder
M25-GMS	ISO25	24000 30000	4		(OP)	3.7KW	Ø30	Ø100	油壓換刀 hydraulic tool exchanging
M25-GMSA									氣壓換刀 pneumatic tool exchanging cylinder

ST：標準Standard OP：可選配Option

註1：內藏式主軸皆為四瓣爪拉刀。
註2：客戶可指定特定廠牌轉子及定子。
註3：以上為標準功率，可聯繫選用其他功率規格。
註4：以上未標註氣壓換刀者為油壓式換刀，可搭配增壓缸進行換刀。

Note 1. Built-in spindles have pull stud type gripper unless specified.
Note 2. Customers can specify the particular brand of rotor and stator.
Note 3. Customers can provide power specifications, other than the ones stated above.
Note 4. Unspecified above, some of the flange/clamped type spindle models above can utilize a pneumatic tool exchanging cylinder instead of a hydro-pneumatic tool exchanging cylinder.

內藏式外觀尺寸表 Table of Outer Dimensions of Built-In Spindle

Built In Motor (圖一)
Built-In Motor (Diagram 1)

