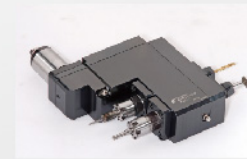


右邊側面刀座用刀具轉軸 (選配)
Optional tool spindles for right cross tool post



End-working tool spindle
端面刀具轉軸



Bevel drilling head
斜孔鑽



Thread whirling head
旋風刀頭

背面刀座 (附刀具驅動)
T31~T34 用刀具 (選配)

Optional tools for T31~34 of back tool post (with tool drive)



Back deep hole drilling tool holder
背面深孔鑽頭座



Back OD tool holder
背面外徑刀座



Back cross tool spindle
背面側面刀具轉軸



Adaptor for fixed tool
固定刀轉座

機器規格 Machine specifications

機型	MODEL	G-206
加工最大能力 machining capacity		
正主軸 Main spindle	加工棒材 Bar stock diameter	ø3~20 mm
	最大加工長度 Max. machining length	210 mm (Motor direct - drive guide bushing馬達直接驅動導套) 250 mm (Fixed type guide bushing固定式導套) 80 mm (Mechanical-drive guide bushing機械驅動導套) 45 mm (Guide bushing-less 無導套)
	鑽孔 Drilling	ø10 mm
	攻牙 Tapping	M8
背主軸 Back	深鑽孔 Deep hole drilling	ø8 mm
	最大工作物夾持外徑 Max. work chucking diameter	ø20 mm
動力刀具軸 Live tool spindle	鑽孔 Drilling	ø8 mm
	攻牙 Tapping	M6
	鑽孔/攻牙 (左邊側面刀) Drilling / tapping (Left cross tool)	ø6 mm / M5
	鑽孔/攻牙 (右邊側面刀) Drilling / tapping (Right cross tool)	ø8 mm / M6
最大鑽孔片/副齒溝刀徑 Max. slitting saw / slotting cutter dia.	鑽孔/攻牙 (背面刀) Drilling / tapping (Back tool)	ø6 mm / M5
	最大鑽孔片/副齒溝刀徑 Max. slitting saw / slotting cutter dia.	ø30 mm (T01)

轉速 Speed		
正主軸 Main spindle		200~12,000 min ⁻¹
背主軸 Back spindle		200~12,000 min ⁻¹
旋轉導套 Rotary guide bushing		200~12,000 min ⁻¹ (Motor direct - drive馬達直接驅動) 200~8,000 min ⁻¹ (Mechanical-drive 機械驅動)
刀具轉軸 Tool spindle		200~8,000 min ⁻¹
控制軸數(包括Cs軸) Controllable axes(including Cs axes)		8 axes (軸)
快速位移 (m/min 米 / 分) Rapid traverse		30m / min (X : 24m / min)
外徑刀柄 OD tool shank		12 x 12 x 100 mm
刀位/最大可裝刀數 Tool positions / Max. mountable tools		28/39
馬達 Motors		
正主軸 Main spindle		2.2 / 3.7 KW (Cont. / 15 min 連續 / 15分鐘)
背主軸 Back spindle		1.5 / 2.2 KW (Cont. / 5 min 連續 / 5分鐘)
刀具轉軸 Tool spindle		0.75 KW
左邊側面刀 Left cross tool		1.0 KW
右邊側面刀 Right cross tool		1.0 KW
背面刀 Back tool		1 KW
旋轉導套 Rotary guide bushing		0.75 / 1.1 KW(Cont. / 15min連續 / 15分鐘)
X1 - X2 - Z1 - Z2 - Y2精 X1 - X2 - Z1 - Z2 - Y2 axes		0.5 KW
Y1軸 Y1 axis		0.75 KW
冷卻泵 Coolant pump		0.75 KW
潤滑泵油 Lubricating pump		0.011 KW

軸行程 Axis travel		
X1		124 mm
Y1		280 mm
Z1 (Fixed guide bushing 固定導套)		290 mm
X2		340 mm
Y2		60 mm
Z2		300 mm

電源及其他等 Power, etc		
重量 Weight		3,700 Kg
電源要求 Power source requirement		14.3 KVA
壓縮空氣要求 Compressed air requirement		≥ 4 Kg / cm ²
壓縮空氣消耗量 Air consumption		40 NL / min
寬 x 深 x 高 Width x depth x height		2,300 x 1,400 x 2,000 mm

本公司享有規格變更之權利。恕不另行通知。 * All specifications are subject to change without prior notice.

標準NC規格 Standard NC specification

機型	MODEL	G-206
控制器 Controller		FANUC 32-B
控制軸數 No. of controlled axes		8 (X1,Z1,Y1,C1,X2,Z2,Y2,C2)
主軸同步(轉速及相角) Spindle synchronous control (speed & phase angle)		S1-S2 (Main spindle - Back spindle 正主軸-背主軸)
控制軸同步 Axis synchronous control		Z1-Z2, C1-C2
控制軸可動 Axes simultaneously controlled		Max. 4 axes / each path (最多4軸 / 每一路徑)
軸混合控制 Axis composite control		X1-X2, Z1-Z2
最大可程式數字 Max. programmable dimension		± 8 digits / 位數字
快速進給速率 Rapid traverse rate		32 m / min (X1, Y1, Y2: 24 m / min) 米 / 分
主軸 / 進給百分比 Spindle / Feed rate override		0 ~ 150%, 10% increments / 0 ~ 150%, 10%增量
刀具補正軸數 (S1+S2) Tool offset pairs (S1+S2)		± 6 digits 200 pairs / ± 6位數字 200組
顯示器 Display unit		10.4" color LCD / 10.4"彩色液晶顯示
程式記憶容量 Part program storage length		512 Kbyte (equivalent to 640 m tape for each path system)
可儲存程式數量 Programs stored		1,000

標準配件

- 正主軸套筒 (供圓棒材加工用)
- 背主軸套筒 (供圓棒材加工用)
- 門鎖鎖開關 (切削側鎖門 / 主軸鎖門)
- 冷卻液流量開關
- 主軸冷卻裝置
- 標準工具
- 滑板固定具 (搬運時用)

- 自動切斷電源
- 背面主軸噴氣
- 側面動力刀噴氣
- 冷卻液泵浦 (1HP)
- 機內工作燈
- 手輪
- 3-層警示燈組

- 異形材用正主軸套筒(供異形棒材加工用) (機械驅動旋轉導套用)
- 正主軸套筒(供異形棒材加工用) (無導套式用)
- 背主軸套筒(供異形棒材加工用)
- 棒材減震用小孔徑主軸套管(ø 6~17, 1 mm 間隔)
- 16x16刀柄用外徑刀座
- 送料機
- 排屑機及切屑車
- 雙燈器

Standard Accessories

- Main spindle sleeve (for round bar machining)
- Back spindle sleeve (for round bar machining)
- Door interlock (Tooling zone side door / Main spindle side door)
- Coolant flow switch
- Spindle cooling unit
- Standard tools
- Slide fixing blocks (for transit)
- Automatic power shut-off
- Back spindle air purge
- Cross live drill air purge
- Coolant pump (1HP)
- Internal work light
- Manual pulse generator
- 3-tiered warning lamp set
- Work catcher
- Work conveyor
- Bar feeder interface
- RS232 interface
- Fixed guide bushing
- Motor direct - drive rotary guide bushing
- Guide bushing -less kit
- Main spindle brake (0.001" increments)
- Back spindle brake (0.001" increments)
- Cross tool spindle (2 pcs)
- Back tool spindle (4 pcs)
- Front discharge from back spindle

選擇配件

導套系統

- 機械驅動式旋轉導套

主軸分度用選擇配件

- 正主軸15°分度插銷鎖定
- 背主軸15°分度插銷鎖定
- 背主軸4軸(4支)
- 由背面主軸前方排出裝置

右邊T11, T19側面刀用配件

- 雙孔雙頭側面刀具轉軸 (筒夾: S1側ER16, S2側ER11)
- 雙孔雙頭斜孔鑽 (角度可調整, 筒夾: S1側ER16, S2側ER11)
- 旋風裝置
- Motor direct - drive rotary guide bushing
- Guide bushing -less kit
- Main spindle brake (0.001" increments)
- Back spindle brake (0.001" increments)
- Cross tool spindle (2 pcs)
- Back tool spindle (4 pcs)
- Front discharge from back spindle

固定內徑刀座用ER16筒夾座

- 筒夾座(ø 22柄, 供T15~T19, T45~T49用)
- 雙頭筒夾座(ø 22柄, 供T15~T19, T45~T49用)
- 可調整式雙頭筒夾座(ø 22柄, 供T15~T19, T45~T49用)
- ER16筒夾座(ø 20柄, 供T35~T38, T91, T92用)
- 浮動牙夾用ER16筒夾座(ø 20/22柄)

Optional Accessories

- Guide bushing system
- Mechanical-drive rotary guide bushing

注意 Caution:不可使用水溶性冷卻液 Water-soluble coolant is prohibited



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GE FONG MACHINERY CO., LTD.

1000, 07, 2016



GE FONG G-206

PRECISION SWISS-TURN GANG TYPE CNC LATHE 走心筒式CNC精密車床



錡峯機械股份有限公司
GE FONG MACHINERY CO., LTD.

GE-FONG
Precision Swiss-turn gang tool type CNC lathe

錡峯公司 走心筒式CNC精密車床

G-206

集時代之所有需求於單一機器、多功能、低成本/性能比
是各種複雜工件批次或大量生產之最佳選擇!

All needs of the times are included and integrated into one machine.
Multi-functional, low cost / performance ratio.
Best choice for batch or mass production of various complicated parts.



Independent and simultaneous machining of main spindle side / back spindle side

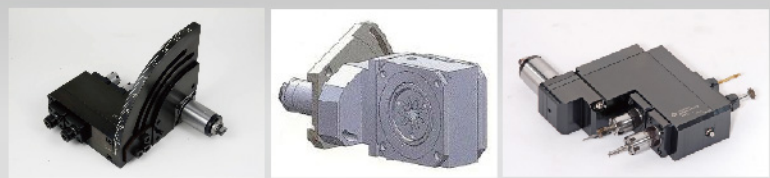
正面、背面加工可獨立且同時進行

G-206

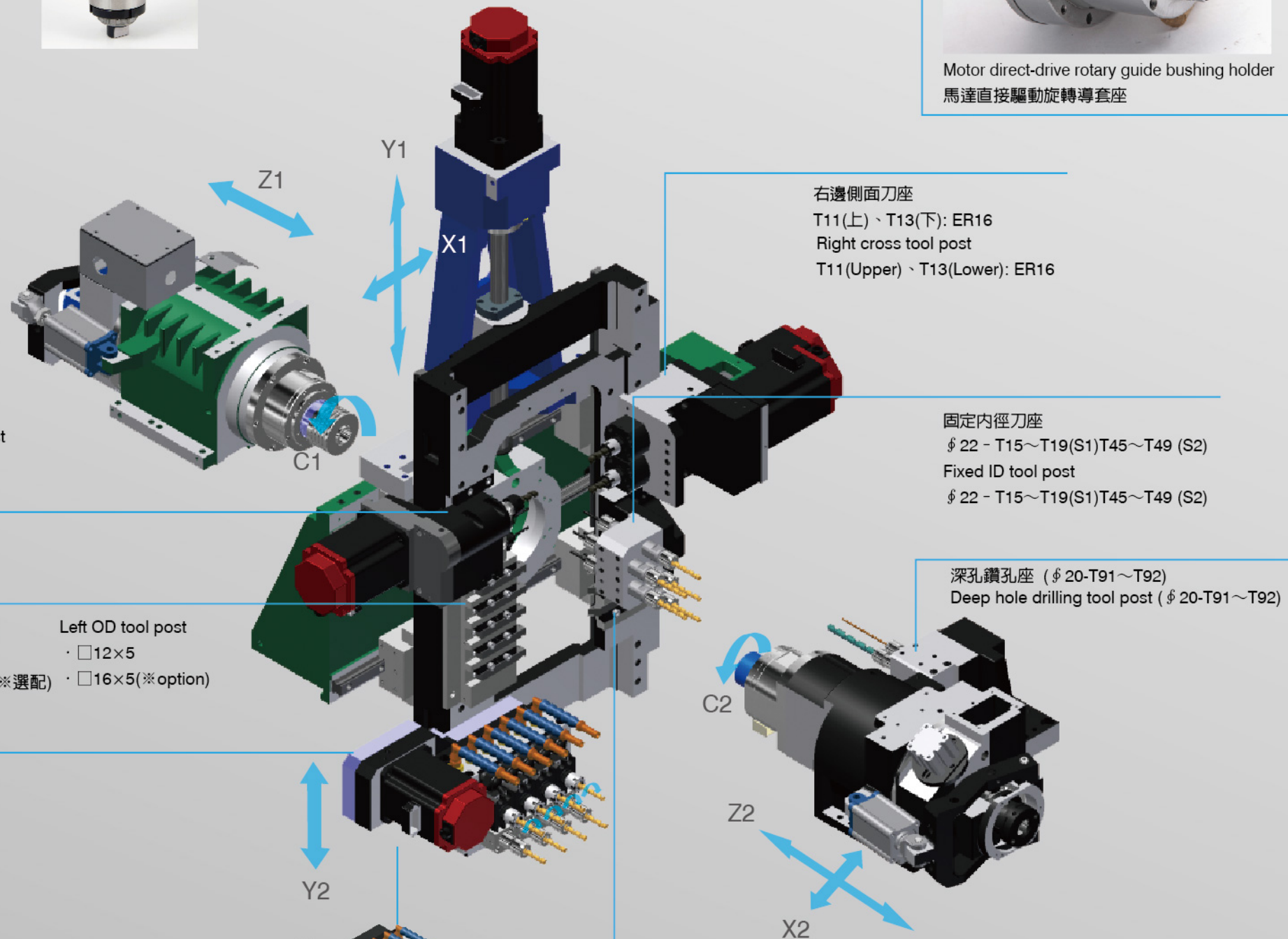
※側面刀具轉軸(2只)
※Cross tool spindle
(Standard 2pcs)



※選配刀具轉軸(T11、T13用)
※Op. tool spindles for T11、T13



Motor direct-drive rotary guide bushing holder
馬達直接驅動旋轉導套座



右邊側面刀座
T11(上)、T13(下): ER16
Right cross tool post
T11(Upper)、T13(Lower): ER16

固定內徑刀座
φ 22 - T15~T19(S1)T45~T49 (S2)
Fixed ID tool post
φ 22 - T15~T19(S1)T45~T49 (S2)

深孔鑽孔座 (φ 20-T91~T92)
Deep hole drilling tool post (φ 20-T91~T92)

左邊側面刀座
Left cross tool post
T01: ER16
T02、T03: ER11

左外徑刀座 Left OD tool post
□ 12×5 □ 12×5
□ 16×5(※選配) □ 16×5(※option)

※選配
有 8 支動力刀之背面刀座
T31~T34(φ 35-ER16), T35~T38(φ 22-ER16)
※Option
8 live tools for back tool post
T31~T34(φ 35-ER16), T35~T38(φ 22-ER16)

右外徑刀座 Right OD tool post
□ 12×3 □ 12×3
□ 16×3(※選配) □ 16×3(※option)

※背面刀具轉軸(4只)
※Back tool spindle(Standard 4pcs)



※選配刀具轉軸(T31~T34用)
※Op. tool spindles for T31~T34

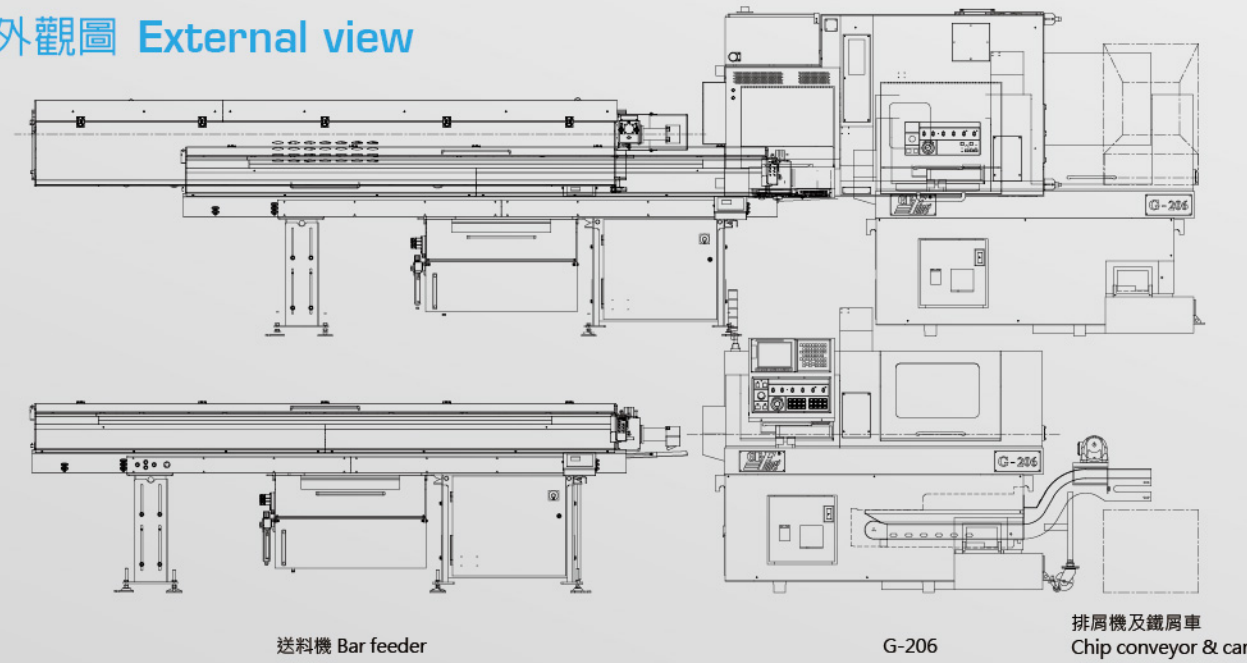


背面刀座 Back tool post
動力(上) Live(Upper)
T31~T34(φ 35-ER16) T31~T34(φ 35-ER16)
固定(下) Fixed(Lower)
T35~T38(φ 20) T35~T38(φ 20)

G-206 刀具容量 Tool capacity

Number of tool positions 刀位總數: 28
Number of mountable tools 可裝刀具總數
Maximum 39, depending upon actual tool mounting layout and optional tooling parts
最多39, 依實際刀具安裝配置及選配加工用附件而定
OD tool 外徑刀(T04~T08, T21~T23): 8 (T04~T08, T21~T23)
Face fixed ID tool 正面固定式內徑刀: 5 (T15~T19)
Face deep-hole drilling tool 正面深孔鑽頭: 2 (T91, T92)
Back fixed ID tool 背面固定式內徑刀: 4~9 (T35~T38, T45~T49)
Cross live tool 側面動力刀: 5 (T01~T03, T11, T13)
Face live tool 正面動力刀: 0~4 (T11, T13), depending upon that if cross tool spindles on T11, T13 are interchanged with double-face end-working tool spindles or not 依T11, T13之側面刀具轉軸是否改裝雙頭端面刀具轉軸而定。
Back live tool 背面動力刀: 4~8 (T31~T34, T11, T13), see "Face live tool" for description 參照 "正面動力刀" 說明。

外觀圖 External view



送料機 Bar feeder

G-206

排屑機及鐵屑車 Chip conveyor & cart



Double-face ER16 drill collet holders
(optional, φ 22-shank, for T15~T19、T45~T49)
雙頭ER16 鑽夾座
(選配, φ 22柄, T15~T19、T45~T49用)

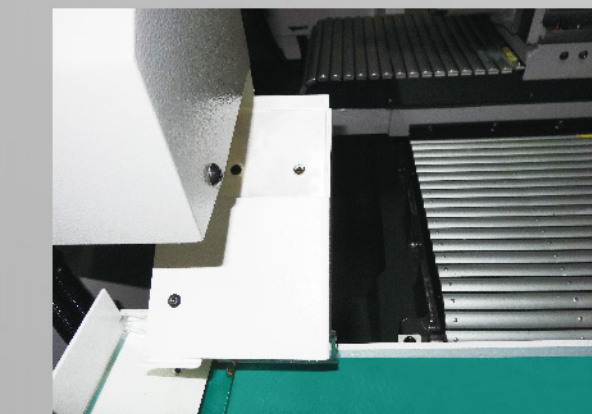


Floating tap ER16 collet holder
(optional, φ 20/22-shank, for T15~T19、T45~T49, T35~T38, T91、T92)
浮動牙攻用ER16筒夾座
(選配, φ 20/22柄 T15~T19、T45~T49, T35~T38, T91、T92 用)

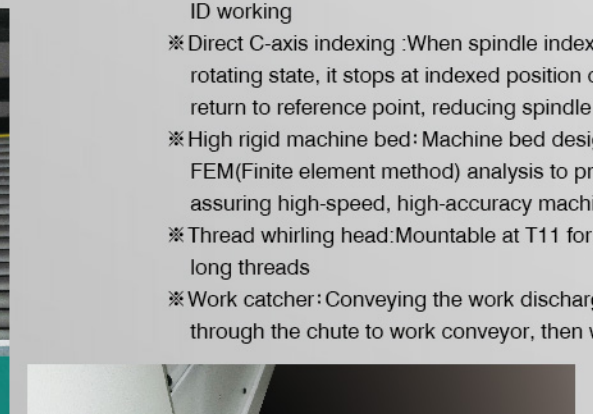
ER16 drill collet holder
(optional, φ 20/22-shank, for T15~T19、T45~T49, T35~T38, T91、T92)
ER16鑽夾座
(選配, φ 20/22柄 T15~T19、T45~T49, T35~T38, T91、T92 用)

特點 Features

- ※模組化加工: 依據加工之工件需要, 可自由地做各式不同刀具轉軸、內徑刀座、外徑刀座等之多種組合。
- ※因有獨立之背面刀座及背主軸能左右移動, 所以正主軸側(S1)及背主軸側(S2)之加工, 確實能各別獨立進行, 無須互相等待, 可大幅降低加工時間。
- ※附Y軸之背面刀座。
 - 4支動力刀(T31~T34), 4支固定刀(T35~T38)。
 - 背側面刀具轉軸(如下所示): 供背面切溝、側面鑽孔、攻牙或銑削等, 視使用刀具而定。每間隔1刀位裝1支, 總共可裝2支背側面刀具轉軸。
 - 背面刀具轉軸: 供背面銑削、偏心鑽孔、攻牙等。
 - 刀具轉軸是採用彈夾式設計, 可與其他不同刀具轉軸, 或固定刀轉換座互換, 可提供更多之刀具配置選擇。
- ※側面刀T11, T13之刀具轉軸採用彈夾式設計, 依工件加工需求, 不同之刀具轉軸可彼此互換, 方便做最理想的刀具規劃配置。
- ※馬達直接驅動旋轉導套, 供高速及精密加工。
 - 最高轉速: 12,000 min⁻¹ · 最大加工長度: 210 mm
 - 大幅改善外形精度、尺寸精度及表面光滑度, 且即使在高轉速下, 也可減少噪音。
- ※根據工件長度可選用有導套式或無導套式加工無導套式加工時, 不須使用研磨棒材, 可使用冷抽棒材, 且可減少殘材長度。
- ※背面主軸旁, 另設有正面深孔鑽孔座, 最大鑽深可達100 mm。
- ※單頭或雙頭鑽夾座可裝設在φ 22孔徑5刀位之固定內徑刀座上, 供正面或正/背面內徑加工。
- ※直接C軸分度定位: 主軸旋轉中, 執行主軸分度定位時, 主軸直接停止在所指令之分度位置, 不必先回參考零點, 可縮短分度定位時間。
- ※高剛性床身: 利用FEM(有限元素法)解析, 輔助機身設計以製造高剛性機身, 確保高速、高精度加工。
- ※螺紋銑削旋風刀頭: 可裝於T11刀位供攻釘或長螺紋加工用。
- ※接料器: 將背主軸排出的工件經由斜槽回收至輸送帶, 再送至工件桶。



接料器
Work catcher



工件輸送帶
Work conveyor

- ※ Modular tooling: Free arrangement of different tool spindles, ID tool holders and OD turning tool holders according to tooling requirements of the parts to be produced.
- ※ With separate back tool post and cross traveling of back spindle, exactly simultaneous machining at main spindle side(S1) and back spindle side(S2) can be achieved without need to wait with each other, reducing cycle time much.
- ※ With Y-axis for back tool post
 - 4 live tools(T31~T34) and 4 fixed tools(T35~T38)
 - Back cross tool spindle(as the picture shown below): Available for back slitting、cross drilling、tapping or milling, depending upon cutting tool in use. Total 2 back cross tool spindles can be mounted with one tool position between.
 - Back tool spindle: Available for back milling、off-center drilling、tapping, etc.
 - Cartridge type tool spindle design for T31~T34, available for interchange with other different tool spindle or adaptor for fixed tool, more choices for tooling layout design
- ※ Cartridge type tool spindle design for cross tool T11, T13 Available for interchange with other different tool spindles, convenient for optimum tooling layout design according to the parts to be produced.
- ※ Direct motor-drive rotary guide bushing, available for high-speed and accurate machining
 - Max. speed: 12,000 min⁻¹ · Max. machining length: 210 mm
 - Geometry accuracy、dimension accuracy and surface roughness are much improved, with less noise even at high speed.
- ※ Guide bushing type or guide bushing-less type is selectable according to length of the parts to be produced Guide bushing-less type does not require ground bar stocks, suitable for cold drawn bar machining also, reducing the remaining bar length.
- ※ Additional face deep hole drilling post is attached beside the back spindle. Max. drilling depth can be up to 100 mm.
- ※ Single-face or double-face drill collet holder can be mounted at φ 22-bore 5-position fixed ID tool post, available for face or both face/back ID working
- ※ Direct C-axis indexing :When spindle indexing is done from spindle rotating state, it stops at indexed position directly, without need to return to reference point, reducing spindle indexing time.
- ※ High rigid machine bed: Machine bed design was supported by FEM(Finite element method) analysis to produce high-rigidity machine, assuring high-speed, high-accuracy machining.
- ※ Thread whirling head: Mountable at T11 for processing bone screws or long threads
- ※ Work catcher: Conveying the work discharged from back spindle through the chute to work conveyor, then work container