



GE FONG GO-205-II

**PRECISION SWISS-TURN
GANG TYPE CNC LATHE
走心櫛式CNC精密車床**



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

Best-seller

Precision Swiss-turn gang tool type **CNC lathe**

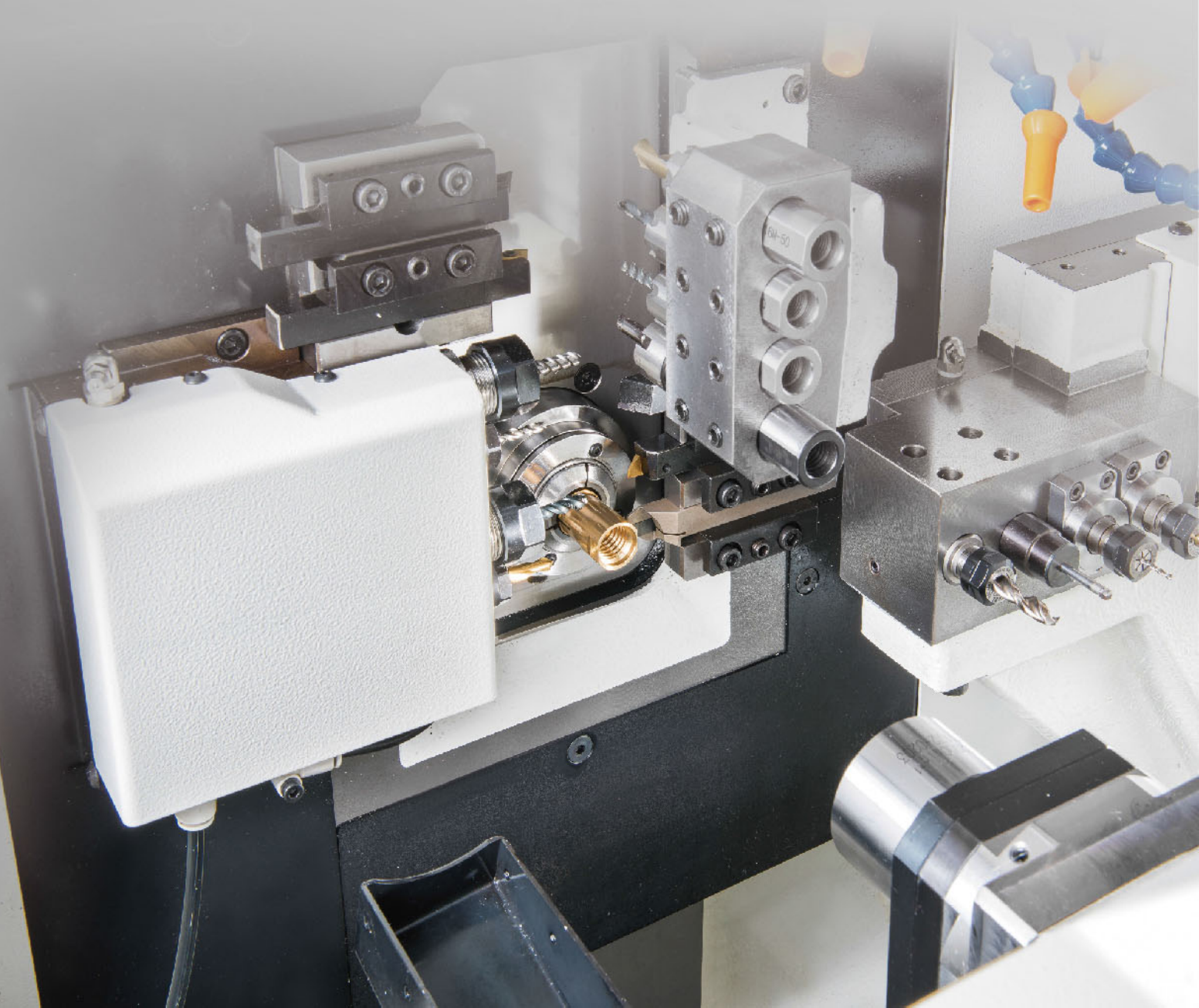
最暢銷 走心櫛式精密**CNC**車床

GO-205-II

多功能、加工時間更短、價格更能負擔得起、高精度、高剛性

Best-seller Precision Swiss-turn gang type CNC lathe GO-205-II

More functions, shorter cycle time, more affordable, high precision,
high rigidity.



機器規格 Machine specifications

機型		MODEL	GO-205-II
加工最大能力 Machining capacity			
加工棒材外徑	Bar stock diameter		3~20 mm
副主軸可夾最大工作物外徑	Max. work chucking diameter at back spindle side		20 mm
最大加工長度	Max. machining length		170 mm (Direct motor - driven guide bushing 直接電動導套) 80 mm (Mechanical-drive guide bushing 機械驅動導套) 250 mm (Fixed guide bushing 固定式導套) 45 mm (Guide bushing-less 無導套)
主軸最大鑽孔徑 / 攻牙徑	Max. main spindle drilling / tapping diameter		ø10 mm / M10
背面主軸最大鑽孔徑	Max. back spindle drilling / tapping diameter		ø8 mm / M8
側面刀軸最大鑽孔徑 / 攻牙徑	Max. drilling / tapping dia. of cross tool spindle		ø6 mm / M5
側面刀座可裝最大圓鋸片外徑 / 數量	Max. mountable slitting saw dia. / Nos. at cross tool post		ø30 mm × 2
背面刀軸最大鑽孔徑 / 攻牙徑	Max. drilling / tapping diameter of back tool spindle		ø6 mm / M5
機械能力 Machine capacity			
轉速 Speed	正面主軸	Main spindle	200~10,000 min ⁻¹ (※1)
	副主軸	Back spindle	200~12,000 min ⁻¹ (※2)
	側面刀轉軸	Cross tool spindle	200~5,000 min ⁻¹
	背面刀轉軸	Back tool spindle	5,000 min ⁻¹
刀具總數 Tool numbers: 21	外徑車刀 (左邊)	OD turn tool (left)	2
	外徑車刀 (右邊)	OD turn tool (right)	3
	正面固定內徑刀	Face fixed ID tool	4
	背面固定內徑刀	Back fixed ID tool	4 (裝設在正/背面共用之內徑刀座上 mounted at face / back ID tool post)+2 (裝設在獨立背面刀座 mounted at independent back tool post)
	側面動力刀	Cross live tool	4
	背面動力刀	Back live tool	2
刀具尺寸 Tool size			
外徑車刀柄	OD turn tool shank		12 x 12 x 85 mm
擴孔刀柄 (正/背面共用刀座, 背面刀座用)	Boring tool shank (for face / back, back tool post)		ø20 mm
側面動力刀夾頭	Chuck for cross live tools		ER11 x 2 / ER16 x 2
背面動力刀夾頭	Chuck for back live tools		ER11 x 2
快速定位	Rapid traverse		30 m / min (X: 24 m / min)
控制軸數	Controlled axes		5 (X1、Y1、Z1、X2、Z2)
馬達 Motors			
主軸馬達	Main spindle motor		2.2 / 3.7 KW (連續Rated / 15分min.)
副主軸馬達	Back spindle motor		1.5 / 2.2 KW (連續Rated / 5分min.)
X1、Y1、Z1、X2、Z2軸馬達	Axis motor		0.5 KW
側面刀軸馬達	Cross tool spindle motor		0.5 KW
背面刀軸馬達	Back tool spindle motor		0.5 KW
切削冷卻液泵馬達	Coolant pump motor		0.75 KW
潤滑油泵馬達	Lubrication pump motor		11W(0.011 KW)
主軸冷卻油泵馬達	Spindle cooling oil pump motor		0.19 KW
其它 Others			
淨重	Net weight		1,700 Kg
設備容量	Equipment capacity		11 KVA
電源需求	Power source required		≥9 KVA
空氣壓力	Air pressure		≥0.4 MPa (4Kg / cm ²)
空氣量	Air flow		≥30 NL / min
切削冷卻液箱容量	Cutting coolant tank capacity		115L
機器尺寸 長×寬×高	Machine size: L×W×H		1,640 × 1,080 × 1,700 mm

※1：使用機械式驅動旋轉導套時，常用主軸轉速為 6,000 min⁻¹，最高限制為8,000 min⁻¹。

※2：若裝設有成品工件前方排出裝置時，轉數不可超過 10,000 min⁻¹。

※3：本公司享有規格變更之權利，入不另行通知。

※1：Normal / limited main spindle speed is 6,000 / 8,000 min⁻¹ when mechanical-drive rotary guide bushing is used.

※2：Speed should be limited to 10,000 min⁻¹ when front work discharge unit is mounted.

※3：All specifications are subject to change without notice in advance.

標準附屬品及軟體

- 刀尖高度補償用軟體
- 刀具壽命管理
- 主軸筒夾套筒 (供圓棒材加工用)
- 背面主軸筒夾套筒 (供圓棒材加工用)
- 安全門裝置
- 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
- 正 / 背面共用內徑刀座
- 4軸側面刀裝置 (※1)
- 背面刀座 (2支固定刀, 2支動力刀) (※2)
- 切削冷卻液噴嘴
- 3-層警示燈組
- 工作燈
- 冷卻液泵浦 (1HP)
- 接料器
- 送料機介面
- RS232介面
- 固定式導套
- 無導套式加工配備
- 主軸剎車裝置 (僅適合有C1軸時用)
- 副主軸剎車裝置 (僅適合有C2軸時用)
- 副主軸前方工件排出

選配附屬品

- 機械驅動式旋轉導套
- 馬達直接驅動式旋轉導套
- 油冷卻器 (切削液溫控用)
- 油霧分離器
- 高壓出水裝置
- 成品輸送裝置
- 副主軸後方工件排出
- 排屑機及切屑車

- 異形材用正主軸筒夾套筒 (供機械驅動旋轉導套用)
- 異形材用正主軸筒夾套筒 (供無導套式用)
- 異形材用副主軸筒夾套筒 (供異形材用)
- 刀具設定用塊規
- 棒材減震用小孔徑主軸套管 (Ø6~17, 1 mm 間隔)
- 單頭ER11鑽夾座 (Ø20柄, 正/背或背面內徑刀座用)
- 單頭ER16鑽夾座 (Ø20柄, 正/背或背面內徑刀座用)
- 雙頭ER11鑽夾座 (Ø20柄, 正/背面內徑刀座用)
- 雙頭ER11/ER16鑽夾座 (Ø20柄, 正/背面內徑刀座用)
- 送料機
- 切削區內工作燈

Standard accessories & software

- Software for tool-tip height compensation
- Tool life management
- Main spindle collet sleeve (for round bar machining)
- Back spindle collet sleeve (for round bar machining)
- Safety door
- Coolant flow switch
- Spindle cooling unit
- Standard tools
- Slide fixing blocks (for transit)
- Automatic power shut-off
- Face / back ID tool post
- 4-spindle cross tool attachment (※1)
- Back tool post (with 2 fixed tools, 2 live tools) (※2)
- Cutting coolant nozzles
- 3-tiered warning lamp set
- Work light
- Coolant pump (1HP)
- Work catcher
- Bar feeder interface
- RS232 interface
- Fixed guide bushing

- Guide bushing-less kit
- Spindle brake (available only for machine with C1 axis)
- Back spindle brake (available only for machine with C2 axis)
- Front work discharge (from back spindle)

Optional accessories

- Mechanical-drive rotary guide bushing
- Motor direct-drive rotary guide bushing
- Oil cooler (for coolant temperature control)
- Oil mist separator
- High pressure coolant system
- Work conveyor
- Rear work discharge (from back spindle)
- Chip conveyor and chips cart
- Main spindle collet sleeve for non-rounded bar (for mechanical-drive rotary guide bushing)
- Main spindle collet sleeve for non-rounded bar (for guide bushing-less type)
- Main spindle collet sleeve for non-rounded bar
- Tool setting block gauge
- Small-bore spindle sleeve for reducing bar vibration (Ø6~17, 1 mm increment)
- ER11 drill collet holder (Ø20-shank, for face/back, or back ID tool post)
- ER16 drill collet holder (Ø20-shank, for face/back or back ID tool post)
- Double-headed ER11 drill collet holder (Ø20-shank, for face/back ID tool post)
- Double-headed ER11/ER16 drill collet holder (Ø20-shank, for face/back ID tool post)
- Bar feeder
- Tooling zone work light

※1: 必須同時選配主軸剎車裝置 (1° 或 15° 分度) 或 C1 軸。

※2: 必須同時選配副主軸剎車裝置 (1° 或 15° 分度) 或 C2 軸。

※1: Either main spindle brake (1° or 15° indexing) or C1 axis is also required.

※2: Either back spindle brake (1° or 15° indexing) or C2 axis is also required.



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Agent:

Exactly simultaneous tooling at main spindle side and back spindle side

正面、背面加工可確實同時進行

- 因另有個別之背面刀座，及副主軸能左右移動(X2、Z2)，所以主軸側(S1)及副主軸側(S2)之加工，確實能各別獨立進行，無須等待主軸加工完畢後再進行背面加工，可大幅降低加工時間。
- With separate back tool post, and back spindle cross traveling (X2, Z2), tooling at back spindle side (S2) can be performed at the same time while tooling at main spindle side is under way, without need to wait for each other, reducing cycle time greatly.



特點 Features

- Z1與Z2軸之同步移動，可作R切斷等。
- 馬達直接驅動旋轉導套，供高速及精密加工。
- 最高轉速: 10,000 min⁻¹ 最大加工長度: 170 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。
- ※ 不適合使用水溶性切削冷卻液。
- 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。
- 備有4軸側面刀裝置，可供Y軸複合加工，如側面鑽孔、攻牙、上下銑削等。
- 單頭或雙頭鑽夾座可裝設在Ø20通孔之內徑刀座上，供正面、背面內徑加工。
- 高剛性鑄造床身，吸收高速旋轉和快速定位時產生之振動。

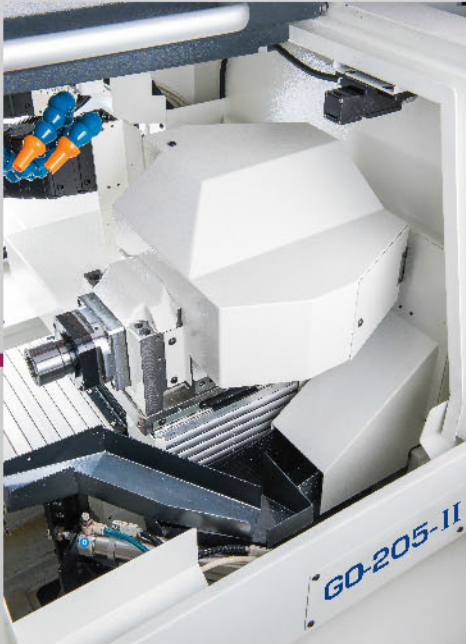
- With synchronization function of Z1 and Z2 axes, possible to do R cut-off, etc.
- Direct motor-drive rotary guide bushing, available for high-speed and accurate machining.
- Max. speed: 10,000 min⁻¹ Max. machining length : 170 mm.
- Geometry accuracy, dimension accuracy and surface roughness are much improved, with less noise even at high speed.
- ※ Not suitable for water-soluble cutting coolant.
- 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.
- 4-spindle cross tool attachment can be mounted, available for Y-axis complex tooling, such as cross drilling, tapping, up-down milling, etc.
- Single or double-headed drill collet holder can be mounted at Ø20-through bore ID tool post , available for face, back ID working.
- High rigid cast machine bed, absorbing the vibration caused by high speed rotation and rapid traverse.

21-tool capacity 21支刀具

- 外徑用9支、正面內徑用4支、背面內徑用8支，供一次完成之多樣加工。
- Nine tools for OD, four tools for face ID working and eight tools for back ID working make it possible to complete a wide variety of tooling jobs at one time.

Built-in main and back spindle motors increases tooling accuracy. 內藏式之主軸馬達及副主軸馬達， 提高加工精度

- 提高兩主軸同步旋轉時轉速、相位角之精確性。
- Increased accuracy of speed and phase angle while both spindles synchronize.



副主軸 Back spindle

· 更高之精度

- 加強了主軸側刀座及進給軸滑板導引之剛性度，確保不受切削負荷之變化而影響加工精度。
- 根據熱物理學原理，主/副主軸頭及X軸(X1, X2)採水平配置，可降低熱變位至最小。

· 縮短加工閒置時間

- 最大快速定位速度 32 m / min。
- 刀具間隔 28 mm，減少換刀時間。
- 最快速控制方法，大幅減少閒置時間。
 - 雙系統編寫程式、同時讀入運行。
 - 配備 X2 軸、獨立背面刀座，主軸側及副主軸側加工可重疊進行。
 - 高速循環加工。
 - M、T 碼、進給指令等皆可在同一單節指令。
- 直接 C 軸分度定位。
選配 C 軸時，主軸分度定位時，不必先回參考零點，可縮短分度定位時間。
- 快速螺紋切削功能，減短螺紋切削時間。

- 大容量鐵屑盤，可供長時間加工運轉。且加工中，也可取出成品、去除鐵屑。

· 提高操作容易度

- 操作盤靠近切削加工區域，且操作盤可旋轉，方便同時檢查螢幕程式及刀具移動等。
- 切削加工區域安全門採上推全開式設計，方便刀具設定。
- 採容易耙出之鐵屑排出口設計。
- 切削冷卻油箱流入口加裝接屑箱，方便清掃。
- 標準配備有供操作簡單化用之錡峯公司自製軟體，如刀具壽命管理、刀具干涉檢查、選配單元(如工件輸送帶等)啟用/不啟用設定等。

- 鏡像功能，方便有對向刀具之機器之程式編寫用，如機器 GO-205-II。且內建有錡峯公司自製對向刀具呼叫軟體，因此呼叫刀具時，不必另外指令鏡像 G 碼(G69、G68)，可避免疏忽時造成刀具碰撞。

· Higher precision

- Rigidity of both the tool posts at main spindle side and the feed axis slide guide are upped, so tooling accuracy is not influenced by cutting load variation.
- Based on thermal physics, the main / back headstocks, and X axes (X1, X2) are all installed horizontally, reducing the heat-induced deformation to a minimum.

· Reduced tooling idle time

- Rapid traverse : Max. 32 m / min (X: 24 m / min).
- Tool span is only 28 mm, greatly reducing tool change time.
- Maximum high-speed control, reducing idle time.
 - Double control system, programs can be specified at main and back spindle side separately, and they are read and processed at the same time.
 - With X2 axis and independent back tool post, simultaneous tooling at main and back spindle side can be done.
 - High-speed cycle tooling
 - M and T codes, axis feed can be specified at the same single block.
- Direct C-axis indexing.
If with C-axis (option), when spindle indexing is done, it stops at indexed position directly, without need to return to reference point, reducing spindle indexing time.
- High-speed thread cutting function, reducing thread cutting time.

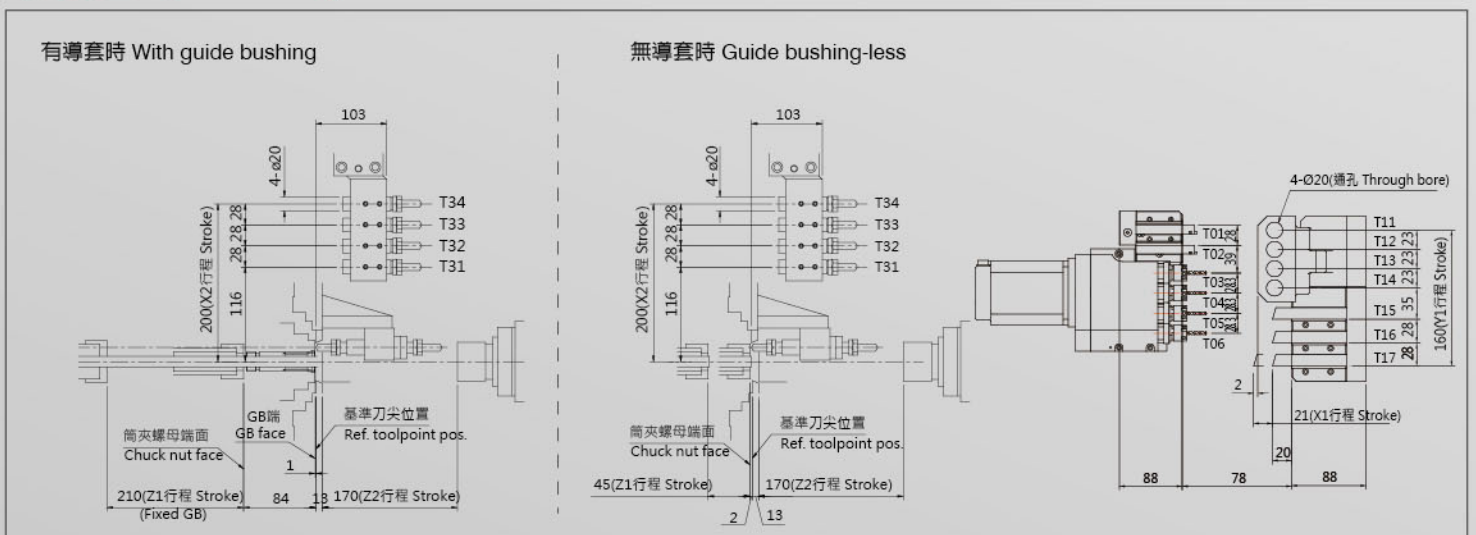
- Large chips pan, good for long-time operation. Also, possible for taking out the products and removing the chips during machine operation.

· Friendly, easy operation

- Operation panel is closer to cutting zone, which also can be rotated, convenient for seeing the program on monitor and tool movement, etc.
- Lift-to-full open safety door for cutting zone room, convenient for tool setup.
- Easy-to-rake out chips discharge port design.
- Chips pan is put on coolant circulation inlet, convenient for cleaning.
- GE FONG-made software is provided as standard accessory for easier operation such as tool life management, tool interference check, options (as work conveyor, etc.) ON/OFF setting, etc.

- Mirror image function is convenient for programming for machines with opposed tool slide as GO-205-II. Also, "mirror image ON" (G68) is built in the GE FONG-made opposed tool calling software, so without need to specify G68 or G69 with the tool called, preventing tool crash due to programming miss.

切削區域 Tooling zone



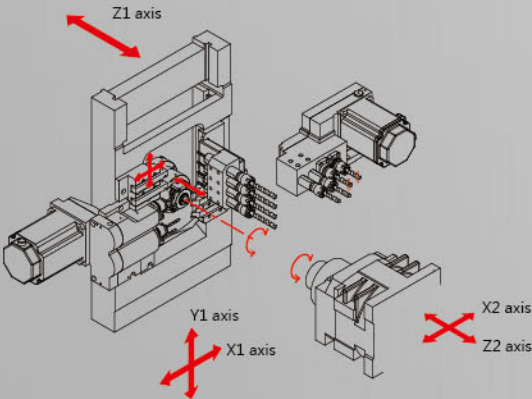
標準NC規格 Standard NC specification

機型	MODEL	GO-205-II
控制軸數	No. of controlled axes	5 (X1, Z1, Y1, X2, Z2)
主軸同步 (轉速及相角)	Spindles synchronized (speed & phase angle)	S1 - S2 (主軸-副主軸Main spindle -Back spindle)
控制軸同步	Axes synchronized	Z1 - Z2
控制軸混合控制	Axis composite control	Z1 - Z2
控制軸同動	Axes simultaneously controlled	最多4軸 / 每一路徑 Max. 4 axes / each path
最小輸入增量	Least input increment	0.001mm(X軸直徑指令 Diametrical designation for X axes)
最大可程式數字	Max. programmable dimension	± 8位數字 digits
快速進給速率	Rapid traverse rate	30米 / 分m / min (X1: 24米 / 分m / min)
主軸 / 進給百分比	Spindle / Feed rate override	0 ~150%, 10% 增量 increments
絕對/增量指令	Absolute / incremental command	X, Z, Y: 絕對 Absolute / U, W, V: 增量 Incremental
刀具補正組數	Tool offset pairs	±6位數字 digits / 64組 pairs
顯示器	Display unit	10.4"彩色液晶顯示 color LCD

其他NC功能 Other NC function

機型	MODEL	GO-205-II
主軸側C軸	C axis at main spindle side	標準 standard
副主軸側C軸	C axis at back spindle side	標準 standard
側面刀軸剛性攻牙	Cross tool spindle rigid tapping	標準 standard
螺紋切削、同步切削	Threading、synchronous cutting	標準 standard
連續螺紋切削	Continuous thread cutting	標準 standard
手輪進給	Manual handle feed	標準 standard
記憶卡輸入 / 輸出介面	Memory card I/O interface	標準 standard
RS232C 介面	RS232C interface	標準 standard
背後編輯	Background editing	標準 standard
加工時間及工件數顯示	Run time and parts count display	標準 standard
客戶巨集程式	Custom macro	標準 standard
固定表面速度控制	Constant surface speed control	標準 standard
主軸同步控制	Spindle synchronous control	標準 standard
控制軸同步控制	Axis synchronous control	標準 standard
刀具形狀 / 磨損補正	Tool geometry / wear offset	標準 standard
可程式資料輸入	Programmable data input	標準 standard
倒角 / 轉角	R Chamfering / corner R	標準 standard
刀鼻半徑補正	Tool nose radius compensation	標準 standard
HRV控制	HRV control	標準 standard
複合重複加工循環	Multiple repetitive cycle	標準 standard
擴張加工程式編輯	Extended part program editing	標準 standard
英制 / 公制切換	Inch / metric conversion	標準 standard
圖紙尺寸直接編輯程式	Direct drawing dimension programming	標準 standard
鑽孔固定循環	Canned cycles for drilling	標準 standard
剛性攻牙 (主軸、副主軸)	Rigid tapping (Main / back spindle)	標準 standard
手輪回退	Manual handle retrace	標準 standard

標準機器刀座架構 Standard machine tool post layout



外觀圖 External view

