

標準配件 Standard Accessories

砂輪與砂輪法蘭	1 組
砂輪修整座(工作臺固定式)	1 組 (X-35標配)
砂輪修整座(尾座固定式)	1 組 (X-25標配)
頂針	2 支
冷卻系統	1 組
油壓系統	1 組
工作燈	1 組
工具及工具箱	1 組
全罩式板金	1 組
砂輪吊架裝置	1 組 (X-35標配)
砂輪變頻器	1 組
X軸光學尺	1 組

Standard Accessories

Grinding wheel and flange	1 set
Diamond tool holder( work table mounted type)	1 set (for X-35)
Diamond tool holder (tailstock mounted type)	1 set (for X-25)
Carbide tipped work centers	2 pcs
Coolant tank	1 set
Hydraulic system	1 set
Work lamp	1 set
Tool kits and tool box	1 set
Fully splash cover	1 set
Jib crane for loading / unloading grinding wheel	1 set (for X-35)
G.W. Inverter	1 set
Linear scale (for X axis)	1 set

選擇配件

凸輪式帶動環 (6只/組)	外徑量測裝置
兩端支持座 (2只/組)	油霧回收機
兩點支持座	油壓尾座
可調式手動三爪夾頭	Z軸光學尺
可調式手動四爪夾頭	備用砂輪 / 砂輪法蘭
磁鐵紙帶過濾機	氣壓尾座
自動砂輪平衡裝置	鑽石滾輪修整機構(工作主軸固定式)
平衡台及棒	鑽石滾輪修整機構(尾座固定式)
端面量測裝置	音頻防撞裝置

Optional Accessories

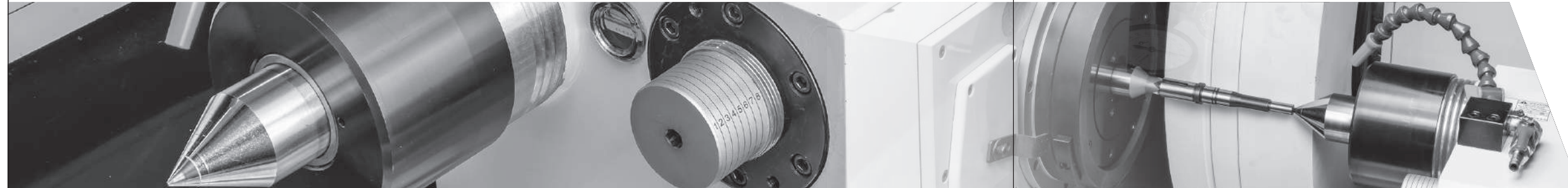
Cam locked driving dogs	Auto. in-process gauge
Work holder (2pcs/set)	Oil mist collector
2-point steady rest	Hydraulic tailstock
Adjustable 3-Jaw scroll chuck	Linear scale (for Z axis)
Adjustable 4-jaw scroll chuck	Spare G.W. / G.W. flange
Magnetic with paper filter	Air pressure tailstock
Wheel balancing stand and arbor	Diamond roller dresser (Work spindle mounted type)
Auto. grinding wheel balancer	Diamond roller dresser (Tailstock mounted type)
Touch probe gauge	Gap control

表粗比較表

Roughness of surface comparison form

	Ra μm	CLA μ"	Rt μm	Rz μm	RMS μm	RMS μ"	France	England SUIZE	Russia Raμm
▽14	0.008	0.32	0.08	0.04	0.009	0.30			
	0.010	0.40	0.10	0.05	0.011	0.40			
	0.012	0.50	0.12	0.06	0.013	0.50			
	0.016	0.63	0.16	0.08	0.018	0.70			
	0.020	0.80	0.20	0.10	0.022	0.90	9	N1	▽13
	0.025	1	0.25	0.12	0.027	1.10			
	0.030	1.20	0.30	0.15	0.033	1.30			
	0.032	1.25							
	0.040	1.60	0.40	0.20	0.044	1.80	10	N2	▽12
	0.050	2	0.50	0.25	0.055	2.20			
▽11	0.060	2.40	0.60	0.30	0.066	2.65			
	0.063	2.50	0.63	0.32	0.073	2.87			
	0.080	3.2	0.80	0.40	0.088	3.50	11	N3	▽11
	0.090	3.6			0.10	4.20			
	0.10	4	0.90	0.50	0.11	4.40			
	0.125	5	1.05	0.60	0.137	5.40			
	0.14	5.60							
	0.16	6.30	1.30	0.85	0.177	7	12	N4	▽10
	0.18	7.20			0.20	8			
	0.20	8	1.60	1	0.22	8.80			
▽9	0.25	10	2	1.20	0.27	10.80			
	0.30	12	2.50	1.60	0.33	13.20			
	0.32	12.50			0.35	14	13	N5	▽9
	0.35	14							
	0.40	16	3	2	0.44	17.60			
	0.45	18	3.50	2.25	0.50	20			
	0.50	20	4	2.50	0.55	22			
	0.63	25	5	3	0.73	28.70	14	N6	▽8
	0.80	32			0.88	35			
	▽7	1	40						
1.25		50	10	6	1.37	54.60			
1.50		60							
1.60		63			1.77	69.70			
1.80		72							
2		80			2.20	88			
2.50		100	15	10	2.70	108	16	N8	▽6
3.2		125			3.55	140			
4		160			4.40	176			
5		200	30	20	5.50	220	17	N9	▽5
▽6	6	240							
	6.30	250			7.30	287			
	8	320			8.8	350			
	10	400	50	40	11	440	18	N10	▽4
	12.5	500			13.7	546			
	16	630			17.7	697			
	20	800	100	80	22	880	19	N11	▽3
	25	1000			27	1080			
	32	1250							
	40	1600	200	160	44	1760	20	N12	▽2
▽1	50	2000							
	63	2500							
	80	3200	400	320	88	3500			▽1
	100	4000							

1μm = 0.001mm=39.37μ" 1μ"0.000,001=0.0254μm



# X-series

十字滑台式數控外圓磨床

## CROSS-SLIDER TYPE NC / CNC CYLINDRICAL GRINDING MACHINE



www.topking-tech.com



金格科技股份有限公司

TOP KING TECHNOLOGY CO., LTD.

41280 台灣台中市大里區工業9路49號

No.49, Gongye 9th Rd., Dail Dist., Taichung City 412 Taiwan.

T.886-4-24932121 F.886-4-24963131

TOPKING



# X-Series

十字滑台式數控外圓磨床

## CROSS-SLIDER TYPE CNC CYLINDRICAL GRINDING MACHINE

金格科技X系列數控外圓磨床，X軸與Z軸採用十字形滑台設計，有效的縮小佔地面積與軸向行程，高剛性床身搭配重型主軸以及尾座，大幅提高工件承載荷重力。操作系統搭載高性能的CNC控制系統內建圖形對話式(GUI)操作介面，設定簡易、研磨加工應用廣泛，為客戶提供最適切的加工方案。

TOPKING CNC Cylindrical Grinding Machine - X series with exclusive cross-slider design for X axis and Z axis. Machine covers small mounting area. Get the utmost out of your working space. Equip with heavy duty type work-spindle and tailstock, increase workpiece loading capability. The CNC controller embedded high performance control system and graphical user operation interface for variable grinding jobs to offer the best grinding solution to our customer.

### X-3550

工作台旋徑 Swivel over table:  $\varnothing 270\text{mm}$   
 兩頂心間距: Distance between centers: 500mm  
 最大研磨外徑 Max. grinding dia.:  $\varnothing 350\text{mm}$   
 CNC 控制 CNC control  
 全罩式板金 Fully splash cover

### X-25 SE

工作台旋徑 Swivel over table:  $\varnothing 270\text{mm}$   
 兩頂心間距: Distance between centers: 200mm  
 最大研磨外徑 Max. grinding dia.:  $\varnothing 250\text{mm}$   
 最大研磨長度 Max. grinding length: 150mm  
 NC 控制 NC control  
 全罩式板金 Fully splash cover



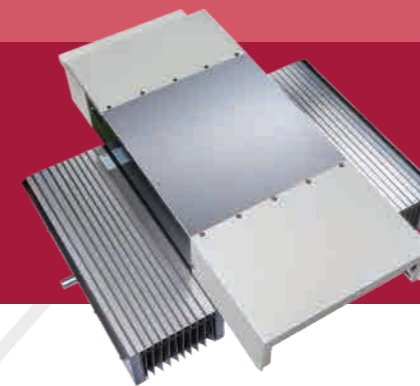
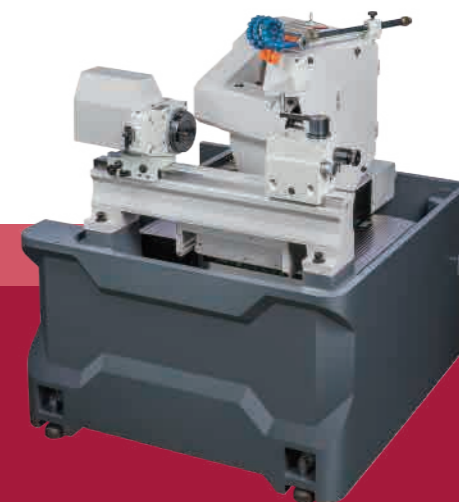
www.topking-tech.com

### 機體

- 機體採用高米漢納(Meehanite)鑄鐵製成，經燒焯處理及時效處理再加工，材質穩定性佳。
- 滑軌經高週波硬化處理、精密研磨；機體材質穩定，配合內部筋骨結構強化設計，無變形之慮，品質經得起考驗。
- 本機的結構不同於以往的輕量結構的設計理念，大幅提升機體及結構剛性，達到更加穩固的訴求，滑軌採用更厚實的1V1平的設計結構，在研磨時提供最佳的精度及穩定性。

### Machine Base

- High rigidity machine base made of Meehanite cast iron through annealing and aging treatment.
- Slideway though high-frequency hardening and precision grinding process. Machine base with stable material and strengthen construction for deformation-free and outstanding wear resistance.
- The machine's structure is different from the light weight design philosophy in the past; it substantially consolidates the rigidity of body and parts structure, takes being more stable as the appeal, and adopts thick and solid sliding seat mechanism, slide way 1 V 1 flat structure providing the best precision and stability of moving when doing grinding.



### 工作臺

工作台始終固定於底座上，搭配X軸與Z軸十字滑台設計，提升加工速度與穩定性。

### Work Table

The work table is bolted permanently to the machine. With cross-slide design to reduce travel. It could increase working speed and accuracy stability.

### 十字滑台設計

X軸與Z軸結構採用十字滑台形式設計，縮小佔地面積。兩軸使用全密閉伸縮護罩，完整的保護傳動結構，杜絕研磨屑與冷卻液的汙染。

### Cross-Slider Design

X axis and Z axis is design as cross-slider to reduce machine space. Two axes cover by enclosed telescopic covers. To avoid the drive assembly be damaged by grinding dust or coolant liquid underneath the telescopic covers.

## 高剛性滑軌設計

根據加工性質的不同，採用不同的設計方式：

- X-25系列兩軸採用精密線軌搭配滾珠螺桿設計，為小型工件提供輕快的進給模式
- X-35系列兩軸採用高剛性硬軌搭配大徑級滾珠螺桿，提升荷重性能與砂輪軸座移動穩定性。

### High Rigidity Slidway

**The table slidway and the wheel head slidway are design according its grinding processing property.**

- The two axes slidway of X-25 is drive by linear guideway and precision ball screw. Increase the axes infeed speed. Application for small and light components.
- The two axes slidway of X-35 series is box way slider cooperate with major diameter ball screw. Increase grinding wheel head moving stability.



## 砂輪頭座機構

- 培林式主軸，採用精密及軸承，使用壽命長，更換、維修、保養相較容易。
- 砂輪主軸採用SNCM-220高級合金鋼材，經正常化、調質、滲碳熱處理、深冷處理等多重處理。再作精密研磨與鏡面處理，表面硬度達HRC62°以上。保證不變形、耐磨耗、永保高精度。

### Wheel Head Construction

- High precision bearing for wheel spindle.
- The grinding wheel spindle is precision machined from high quality alloy steel SNCM-220, normalized, tempered, carburized and sub-zero treated, precision ground and mirror-effect treated. Hardness reaches to over HRC 62°. No deformation, maximum wear resistance and lifetime accuracy are assured.

## 砂輪更換吊架 (X-35系列標配)

X-35系列標配砂輪吊架與機身結合，並包覆於鍍金內，不佔空間，使更換砂輪不受工作場地、設備影響，能更安全、更簡易的進行更換作業。

### G.W. Loading and Unloading Jib Crane (Standard for X-35 Series)

X-35 equip with grinding wheel loading and unloading jib crane. The jib crane base mounted on machine body and cover by splash cover. Changing grinding wheel without effected.



## 高剛性工作主軸及尾座

- 工作主軸台與尾座針對重型工件設計，結構剛性強，提升了整體載重量，主軸台採用伺服馬達驅動，可依需求無段變速調整。
- 尾座可選用油壓式與止擋裝置操作便利。
- 工作主軸及尾座皆附有平面氣壓設計方便位移，減少摩擦加強使用壽命。
- 主軸及尾座裝有針對頂針與頂針孔接觸面的冷卻裝置，降低頂針與頂針孔接觸面摩擦發熱所產生的變形。

### Rigid Work-head And Tailstock

- Work-head and tailstock specially designed for heavy duty work, high rigidity structure, increase overall loading capacity. Work-head is driven by servo motor with step-less variable speed change.
- Hydraulic tailstock (OPT) with support for easy operation.
- Work-head and tailstock both with air pressure moving design. Easy for moving and increase using life.
- Centers with coolant system, to avoid center hole contact surface heat and deformation.



## 全罩板金

- 標配全罩式板金，提供最安全的加工環境。

### Standard Fully Splash Cover

Fully splash cover as standard accessory. Provide the safest working environment.

## 工作臺固定式修整機構(X-35標配):

- 修整機構固定於工作檯側，降低因調整迴旋工作台角度須重新校正修整點所造成的誤差，提高效率。(X-35標配)
- 多樣化的修整機構，可依工件需求選擇。

### Diamond tool holder mounted on work table (Standard type for X-35):

- Dressing device mounted on work table side. Could reduce the dressing position calibration frequency and increase the dressing accuracy.
- Various diamond tool holder types could be chosen according work request.



CNC操作系統

CNC Operation System

人性化操作環境

- 內建先進的CNC控制系統搭配圖形對話式的操作界面，操作者可藉著圖形的導引，將複雜的工件分成數個研磨工序，以數值化的方式簡化研磨及修整的工序編輯，不需另外進行複雜的程式編寫(G碼、M碼)，提供最便捷的操作環境。
- 內建多樣化的研磨及修整方式，可數值化編輯外徑、內徑(選配)、端面、成型的研磨及修整工序。
- 彈性的程式設定方式，可依操作者習慣或工件需求切換為編寫G碼、M碼的程式編輯模式或是GUI編輯模式。
- 人性化的操作面板設計，配置多項快捷鍵及緊急停止按鍵，使操作更安全、更簡便。
- 可搭配各式自動量測裝置，提升加工品質及效率。

User Friendly Operation

- High performances CNC control system with GUI. The operator could input the grinding & dressing value follow the graphical description step by step for a complicated workpiece. The work process could turn to steps into the controller.
- Do not need to edit complex program as G CODE, M CODE as usual, provided the most convenient operation environment.
- GUI operation system equipped with variable work modes such as OD, ID, END-FACE and PROFILE for grinding & dressing applied for different work jobs. It could input the grinding & dressing value by numeralization way.
- Not only GUI mode but also CNC mode for operation could be chosen by operator.
- Install several shortcuts for practical function and emergency stop button on operation panel. Increase operational safety and convenience. Variable automatically measuring device could be chosen. Increase work quality and efficiency



簡易式圖形對話式操作系統 (兩軸NC控制 - SE 版本)

- 採用金格研發最新版的圖形對話式操作介面，提供操作者最便捷最簡易最安全的操作環境。
- 不同於以往的CNC程式編輯，數值化編程設定，可自動執行研磨循環、修整循環、補正等指令。
- 可單鍵記憶機械原點、研磨、修整座標。
- 多樣化的研磨、修整方式，可以工件需求選擇。

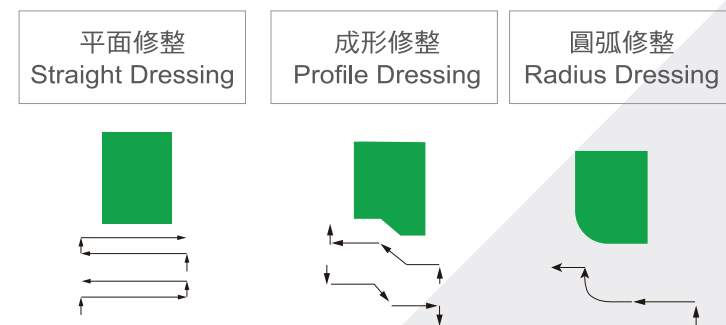
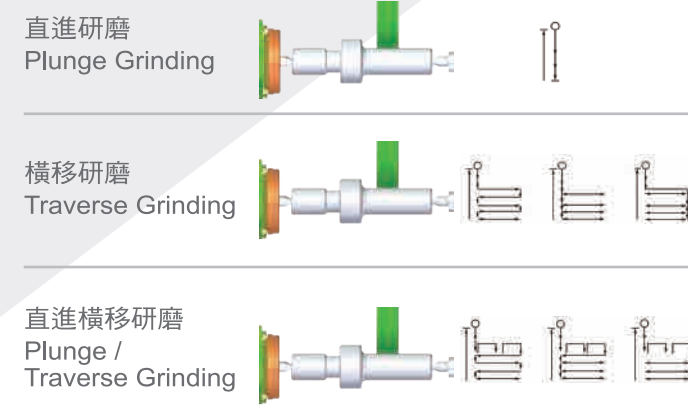
Special Edition Graphical User Interface (Two Axis NC Control - Model SE)

- TOP KING's latest graphical user operate interface. Provide the most convenient, easiest and safest operate environment.
- Different with CNC program edition, GUI system use digital program setting way. Automatically achieve grinding, dressing and compensation cycle by one key.
- Input grinding, dressing, compensation coordinate by one key.
- Various grinding and dressing method could be chosen according work request.



研磨循環模式 Grinding Cycle

砂輪修整循環模式 Wheel Dressing Cycle



機器規格 Machine Specification

型號 MODEL		X-25SE	X-3550SE	X-35100SE	X-25	X-3550	X-35100
能力 Capability	工作台最大旋徑 Max. Swing Over Table	Ø270 mm	Ø370 mm	Ø370 mm	Ø270 mm	Ø370 mm	Ø370 mm
	兩頂心間最大距離 Max. Distance Between Center	200 mm	500 mm	1000 mm	200 mm	500 mm	1000 mm
	最大研磨長度 Max. Grinding Length	150 mm	500 mm	1000 mm	150 mm	500 mm	1000 mm
	最大研磨直徑 Max. Grinding Diameter	Ø250 mm	Ø350 mm	Ø350 mm	Ø250 mm	Ø350 mm	Ø350 mm
	兩頂心間最大承受重量 Max. Load Held Between Centers	5 kg	200 kg	200 kg	5 kg	200 kg	200 kg
砂輪 Grinding Wheel	外徑X寬度X內徑 O.D x Width x I.D	Ø510 x 50 x Ø127 mm	Ø610 x 50 x Ø254 mm	Ø610 x 50 x Ø254 mm	Ø510 x 50 x Ø127 mm	Ø610 x 50 x Ø254 mm	Ø610 x 50 x Ø254 mm
	最大寬度(選配) Max. Wheel Width (Optional)	~75mm	~150mm	~150mm	~75mm	~150mm	~150mm
	週速度 Linear velocity	2700 M/Min	2700 M/Min	2700 M/Min	2700 M/Min	2700 M/Min	2700 M/Min
	X軸全移動距離 X-axis Movability Distance	210 mm	300 mm	300 mm	210 mm	300 mm	300 mm
	X軸快速移動速度 X-axis Rapid Feedrate Speed	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min
行程 Travel	X軸自動進給速度 X-axis Auto. Feeding Speed	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min
	X軸最小設定值 X-axis Min. Deeding Setting Value	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm
	Z軸全移動距離 Z-axis Movability Distance	260 mm	750 mm	1350 mm	260 mm	750 mm	1350 mm
	Z軸快速移動速度 Z-axis Rapid Feedrate Speed	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min
	Z軸自動進給速度 Z-axis Auto. Feeding Speed	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min	0.001~2000 mm/Min
工作主軸頭 Working Spindle	旋轉角度 Swivel Angle	-30°~+90° deg	固定式 Fixed	固定式 Fixed	-30°~+90° deg	固定式 Fixed	固定式 Fixed
	頂針錐度 Center	MT. 3	MT. 5	MT. 5	MT. 3	MT. 5	MT. 5
	主軸轉速 Spindle Speed	10-300 rpm	10-300 rpm	10-300 rpm	10-300 rpm	10-300 rpm	10-300 rpm
工作台 Worktable	迴旋角度 Swiveling angle	-1 ~10	0 ~3	0 ~2	-1 ~10	0 ~3	0 ~2
	頂針錐度 Center	MT. No. 3	MT. No. 5	MT. No. 5	MT. No. 3	MT. No. 5	MT. No. 5
	中心頂針移動方式 Center Moving	手動Manual	手動Manual	手動Manual	手動Manual	手動Manual	手動Manual
尾座 Tail stock	尾座軸移動距離 Tailstock Stroke	25 mm	50 mm	50 mm	25 mm	50 mm	50 mm
	潤滑油壓馬達 Lubrication Hydraulic Motor	NIL	0.075 kw	0.075 kw	NIL	0.075 kw	0.075 kw
	冷卻液泵 Cutting Coolant Pump	0.18 kw	0.37kw	0.37 kw	0.18 kw	0.37 kw	0.37 kw
控制系統 Control System	標準控制系統 Standard Control System	PLC	PLC	PLC	三菱CNC Mitsubishi CNC	三菱CNC Mitsubishi CNC	三菱CNC Mitsubishi CNC
	砂輪馬達 Grinding Wheel Spindle	5.5 kw	11 kw	11 kw	5.5 kw	11 kw	11 kw
	工作主軸 Working Spindle(伺服馬達 Servo Motor)	0.85 kw	2.9 kw	2.9kw	0.85 kw	2.9	2.9 kw
	砂輪軸座進給 Wheelhead Feed (伺服馬達 Servo Motor)	1.5 kw	3.5 kw	3.5 kw	1.5 kw	3.5 kw	3.5 kw
馬達 Drive Motors	工作台進給 Table Feed (伺服馬達 Servo Motor)	1.5 kw	3.5 kw	3.5 kw	1.5 kw	3.5 kw	3.5 kw
	潤滑油壓馬達 Lubrication Hydraulic Motor	NIL	0.075 kw	0.075 kw	NIL	0.075 kw	0.075 kw
	冷卻液泵 Cutting Coolant Pump	0.18 kw	0.37kw	0.37 kw	0.18 kw	0.37 kw	0.37 kw
	潤滑油箱(軌道) Lubrication Tank (Guideway)	0.7L (LUBE 自動潤滑/ LUBE grease)	15L	15L	0.7L (LUBE 自動潤滑/ LUBE grease)	15L	15L
容器容量 Tank Volume	動力油箱(選配) Lubrication Tank (Optional)	18L	18L	18L	18L	18L	18L
	標準水箱 Coolant Tank	107L	160L	160L	107L	160L	160L
	機器中心高 Machine center height	地面起至頂針中心 From Grond to Center Tip	1150 mm	1130 mm	1130 mm	1150 mm	1130 mm
機台重量 Machine weight	淨重 Net Weight	3300Kg	8000Kg	8700Kg	3300Kg	8000Kg	8700Kg

★所述機台規格與尺寸，本公司保留變動權力，不另通知。  
The mentioned specifications & dimensions are subject to change without notice.