



T-series

簡易式2軸NC外圓磨床

TWO AXES NC CYLINDRICAL GRINDING MACHINE



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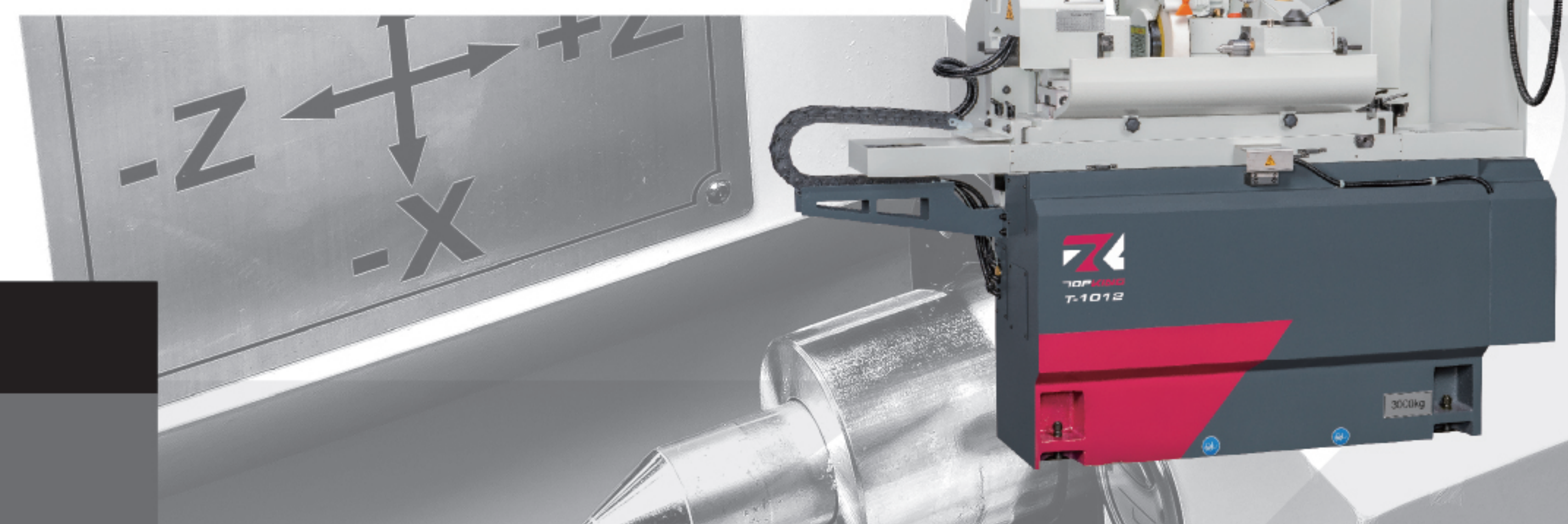
TOPKING

TK251201

T-series

簡易式2軸NC外圓磨床

TWO AXES NC CYLINDRICAL GRINDING MACHINE



T-1012

工作台最大旋徑	Swivel Over Table	: Ø270 mm
兩頂心間最大距離	Distance Between Center	: 300 mm
最大研磨直徑	Max. Grinding Dia.	: Ø250 mm
砂輪	Grinding Wheel	: Ø355 x 38~50 x Ø127 mm



T-1224 / T-1624

工作台最大旋徑	Swivel Over Table	: Ø320 / Ø420 mm
兩頂心間最大距離	Distance Between Center	: 600 mm
最大研磨直徑	Max. Grinding Dia.	: Ø300 / Ø400 mm
砂輪	Grinding Wheel	: Ø405 x 50 x Ø127 mm
選購配件	Optional Accessories	: 半罩滑門式防濺鍍金 Semi-Splash Guard

T系列是一款適合多段差工件研磨的簡易型數控外圓磨床。X軸及Z軸皆採用滾珠螺桿搭配伺服馬達驅動，排除傳統數控磨床複雜的程式編輯，使用高性能控制系統搭配圖形對話式操作介面，操作簡單、易學習，提供操作者最便捷的操作環境。

TOPKING Cylindrical Grinder – T series is suitable for step grinding. The X and Z axes are driven by NC servo motors with ball screws. Eliminate the complicated program editing of traditional CNC control systems. The T-Series is equipped with a high-performance control system with GUI. Provide the most convenient operating environment for the operator.



T-1240 / T-1640

工作台最大旋徑	Swivel Over Table	: Ø320 / Ø420 mm
兩頂心間最大距離	Distance Between Center	: 1000 mm
最大研磨直徑	Max. Grinding Dia.	: Ø300 / Ø400 mm
砂輪	Grinding Wheel	: Ø405 x 50 x Ø127 mm
選購配件	Optional Accessories	: 半罩滑門式防濺鍍金 Semi-Splash Guard



T-1020

工作台最大旋徑	Swivel Over Table	: Ø270 mm
兩頂心間最大距離	Distance Between Center	: 500 mm
最大研磨直徑	Max. Grinding Dia.	: Ø250 mm
砂輪	Grinding Wheel	: Ø355 x 38~50 x Ø127 mm
選購配件	Optional Accessories	: 全罩式鍍金 Fully Splash Guard



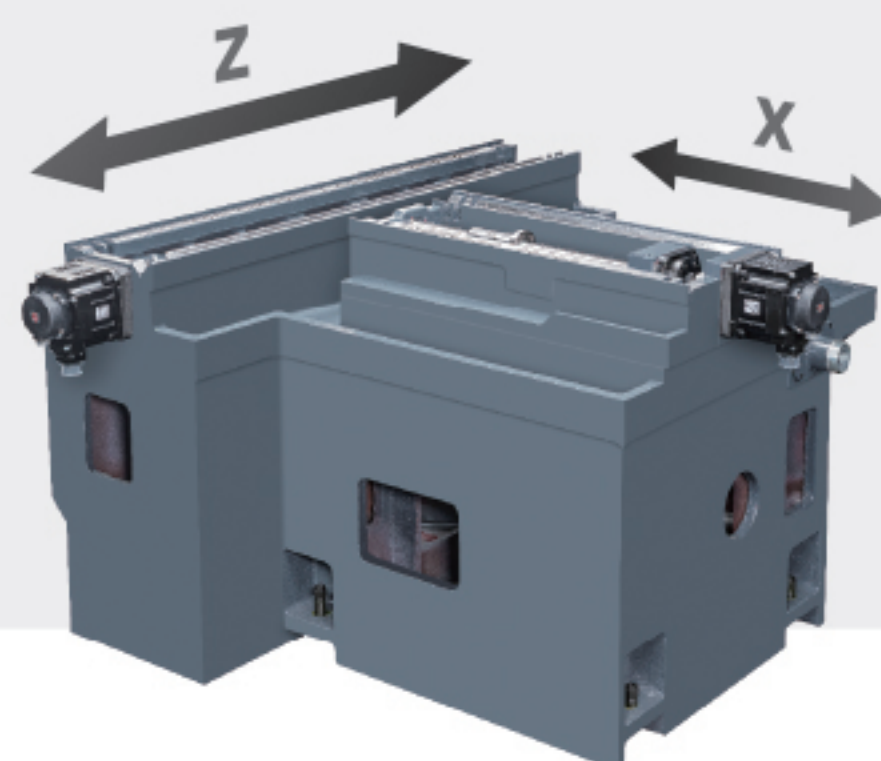
T-1260 / T-1660

工作台最大旋徑	Swivel Over Table	: Ø320 / Ø420 mm
兩頂心間最大距離	Distance Between Center	: 1500 mm
最大研磨直徑	Max. Grinding Dia.	: Ø300 / Ø400 mm
砂輪	Grinding Wheel	: Ø405 x 50 x Ø127 mm
選購配件	Optional Accessories	: 全罩式鍍金 Fully Splash Guard 油壓尾座 Hydraulic Tailstock

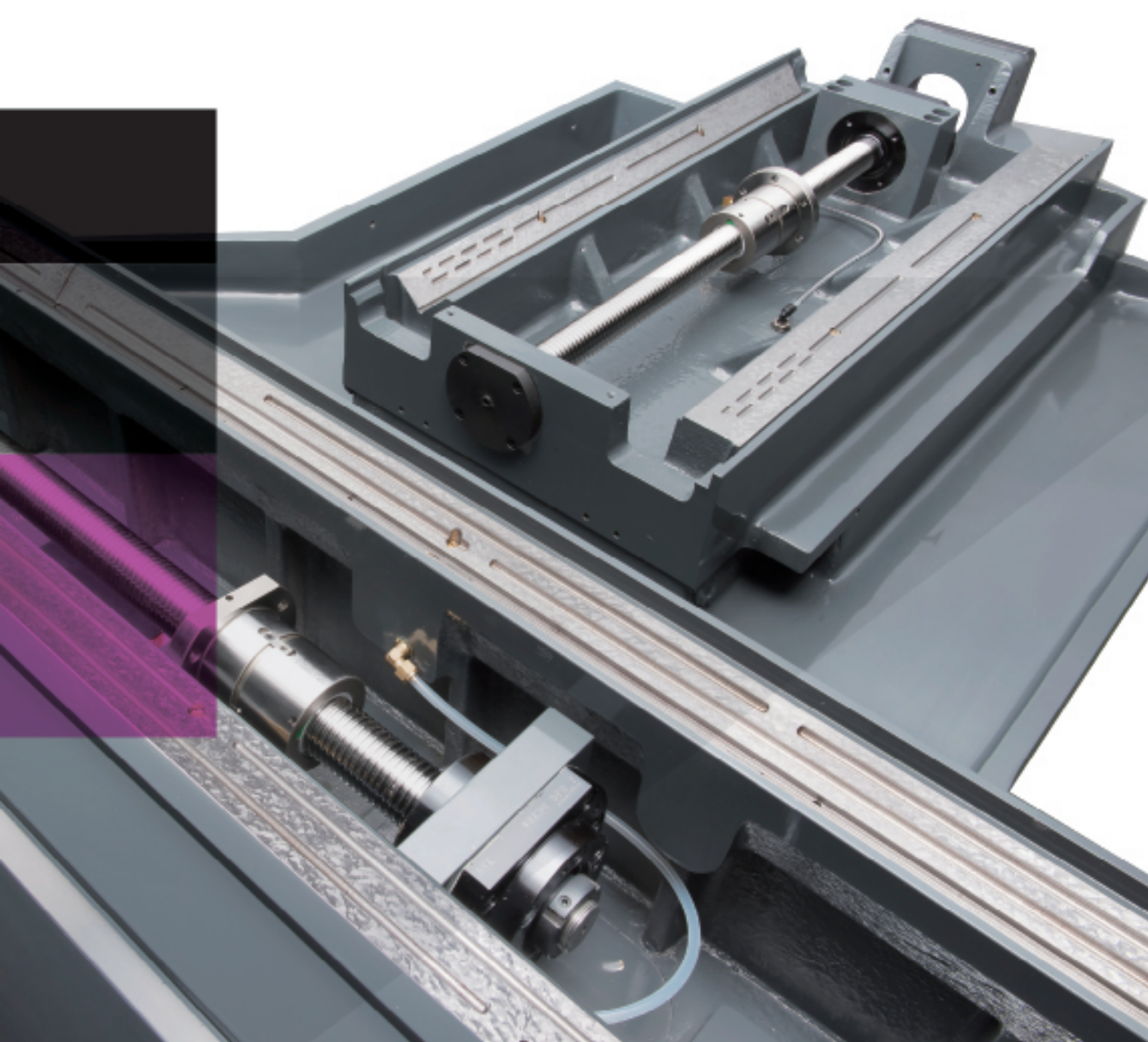
高剛性機體 Rigid Machine Base

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的剛性，達到更加穩固的訴求，滑台採用更厚實的1V1平的設計結構，及潤滑油系統採用靜壓原理，在研磨時提供最佳的精度及穩定性。

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 1V 1flat structure, and lubrication system designed by the hydrostatic principle providing the best precision and stability of moving when doing grinding.



獨特靜壓自動潤滑系統 Hydrostatic Lubrication System



工作台與砂輪座滑動面，採用先進的靜壓自動潤滑系統。大幅提升潤滑動順暢性，進刀精準，加工精度高。

通過獨特的靜壓自動潤滑系統，工作台與砂輪座的滑動面潤滑性能得到了顯著提升，呈現出卓越的研磨平穩度。此外，操作的順暢度經過優化後，進而夠實現更高精度的進刀，確保加工的準確性。

The slideways of the table and the wheel head are lubricated by an advanced automatic hydrostatic lubrication system.

The lubrication performance of the worktable and the wheelhead has been significantly enhanced, showcasing exceptional grinding smoothness. Moreover, with the optimized operational fluidity, it becomes possible to achieve higher precision in the feed rate, ensuring the accuracy of the machining process.

砂輪頭座機構 Wheel Head

砂輪主軸採用SNCM-220高級合金鋼材，經正常化、調質、滲炭熱處理、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。

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.



圖形對話式操作系統 High Performance Graphical User Interface



- 採用金格研發最新版的圖形對話式操作介面(GUI)，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，可依工件需求選擇。

- TOPKING's latest graphic dialogue user operation interface(GUI) provides the operator with the most convenient, simplest and safest operating environment.
- Different from the previous program editing, the numerical programming setting can automatically execute the grinding cycle, dressing cycle, correction and other commands.
- It can memorize the coordinates of mechanical origin, grinding, dressing, compensation with one key.
- Various grinding and dressing methods can be selected according to the needs of the work, could be chosen according to work request.

工作主軸和尾座 Workhead and Tailstock

- 工作主軸採用精密級軸承，展現最佳的穩定性。
- 主軸台採用伺服馬達驅動，可依需求無段變速調整。
- 主軸台採用固定式工作主軸，增加精度穩定性
- 尾座潤滑採用油浴式潤滑系統，隨時確保尾座的高精度
- 潤滑系統有附油量檢視計，方便操作者檢視油量。

- The work spindle utilizes precision-grade bearings, showcasing optimal stability.
- The workhead is driven by a servo motor, enabling continuous and infinitely variable speed adjustments based on demand.
- The workhead features a fixed-type work spindle, enhancing accuracy and stability.
- The tailstock lubrication adopts an oil-bath lubrication system, ensuring consistent high precision of the tailstock at all times.
- The lubrication system is equipped with an oil gauge for convenient monitoring of oil quantity by operators.



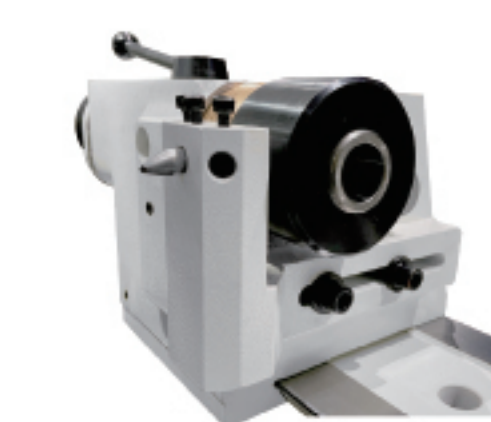
修整機構 Diamond Tool Holder

- T-1012 / T-1020 標配滑台固定式修整座，固定於Z軸滑台上，降低因調整工作台角度後反覆修整對刀動作而造成的誤差。
- T-12 / T-16 系列標配尾座固定式修整座。
- 另有多樣化的修整機構，可供工件需求選擇。

- T-1012 / T-1020 standard equipped slider-fixed dressing device, fixed on the Z-axis slider, reduces the frequency of calibration due to repeated dressing movements after adjusting the worktable angle, thereby enhancing dressing accuracy.
- The T-12 / T-16 series standard dressing device is mounted on the tailstock.
- Various diamond tool holder types could be chosen according to work request.

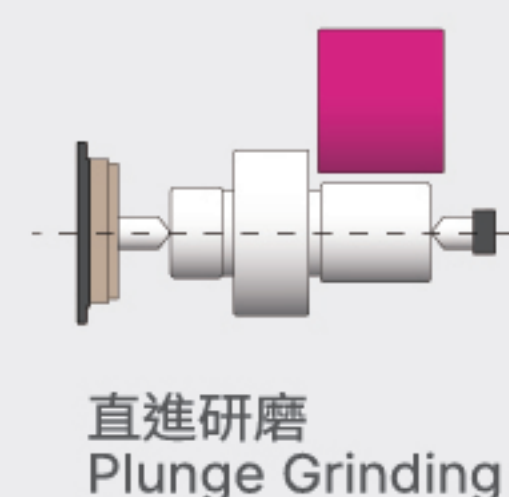


滑台固定式修整座
Slider Mounted Type
Dressing Device

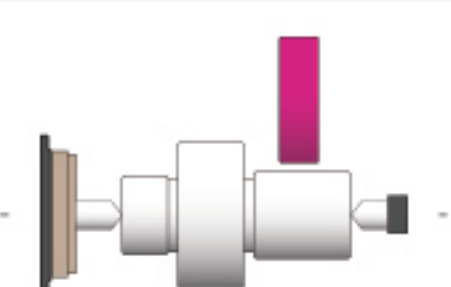


尾座固定式修整座
Tailstock Mounted Type
Dressing Device

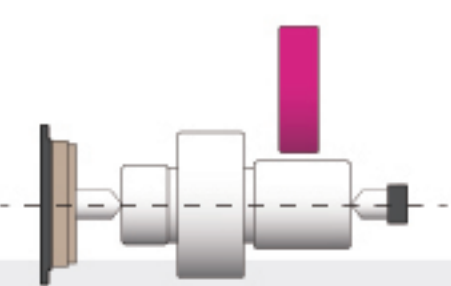
研磨循環模式 Grinding Cycle



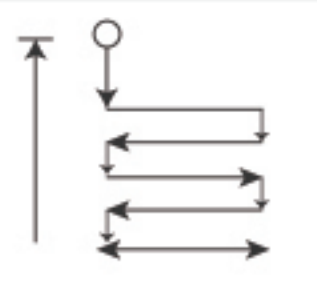
直進研磨
Plunge Grinding



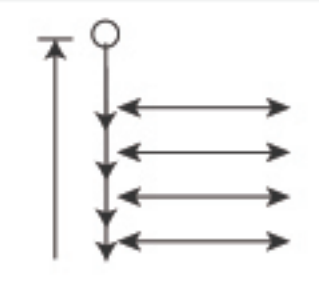
橫移研磨
Traverse Grinding



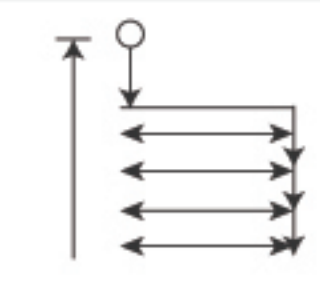
直進 / 橫移研磨
Plunge / Traverse Grinding



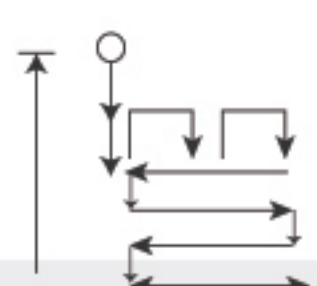
兩端階梯進刀
Two sides feed



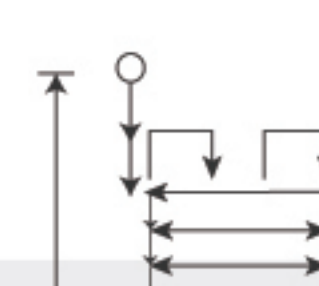
左邊進刀
Left-hand side feed



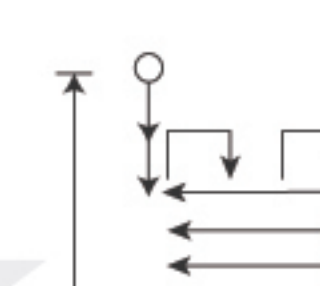
右邊進刀
Right-hand side feed



兩端階梯進刀
Two sides feed

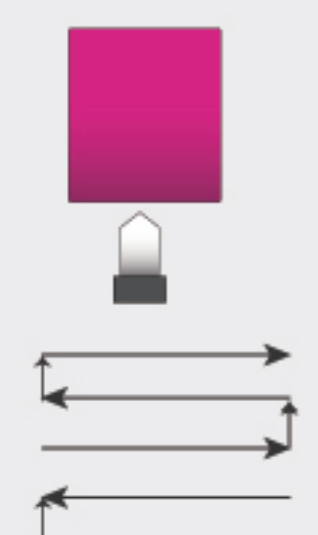


左邊進刀
Left-hand side feed

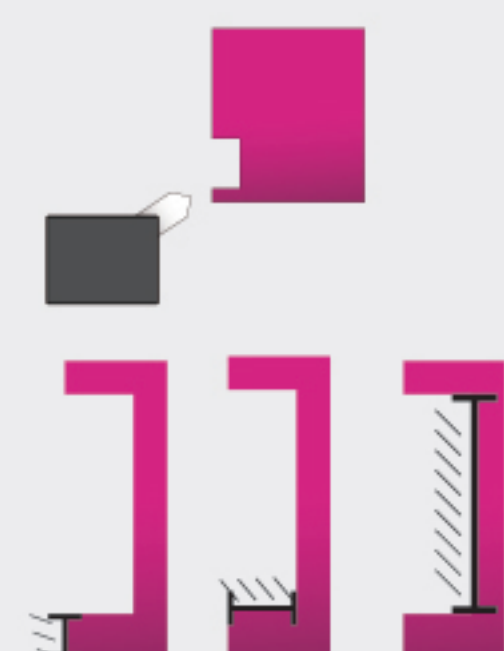


右邊進刀
Right-hand side feed

砂輪修整循環模式 Wheel Dressing Cycle



平面修整
Straight Dressing



側端面修整
End Face Dressing



直進研磨
Plunge Grinding

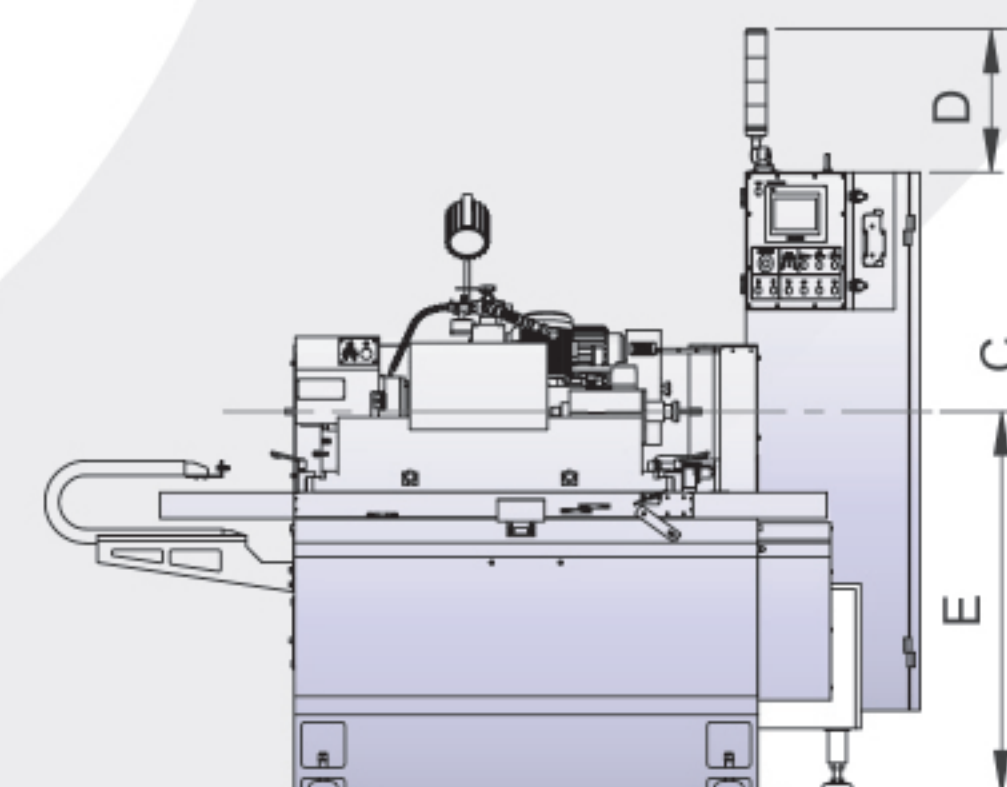


橫移研磨
Traverse

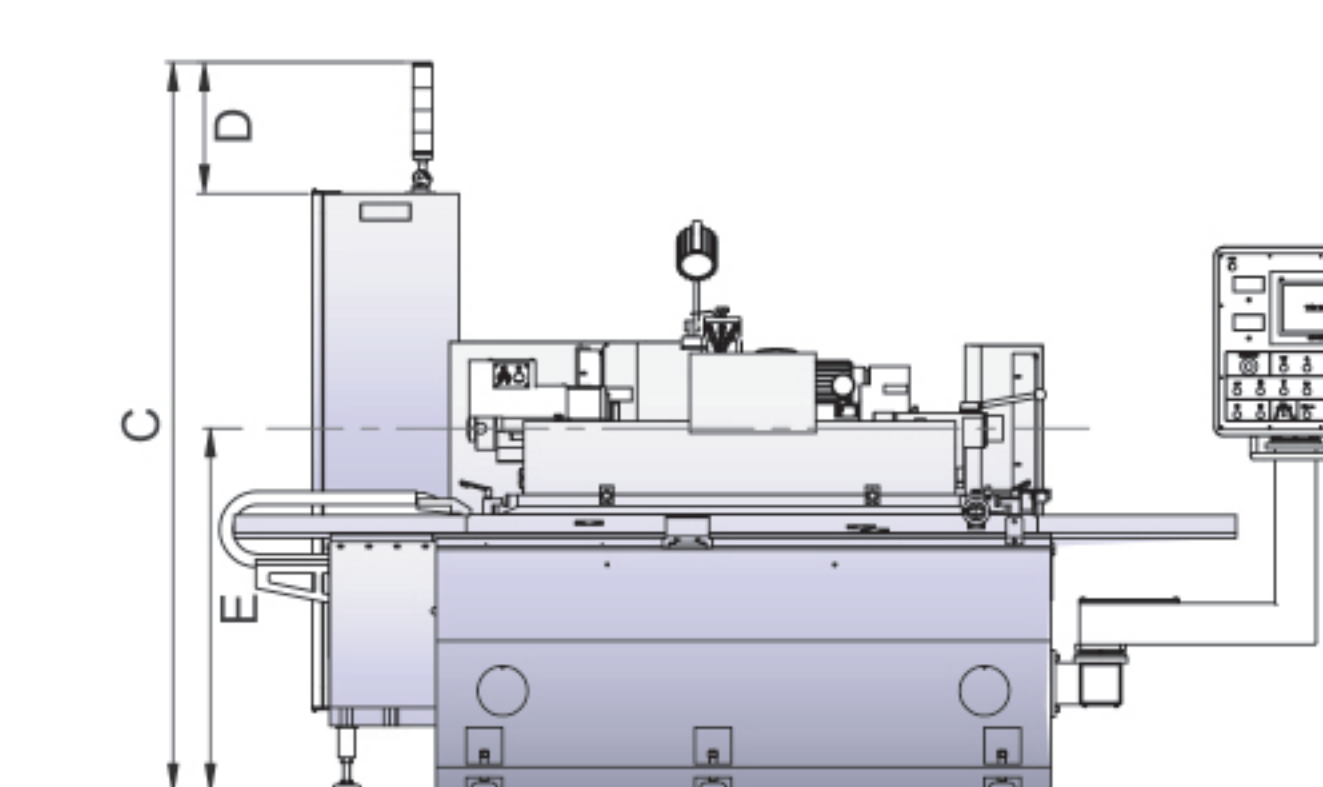


砂輪平面修整
Straight Dressing for G.W.

佔地面積 Floor Space



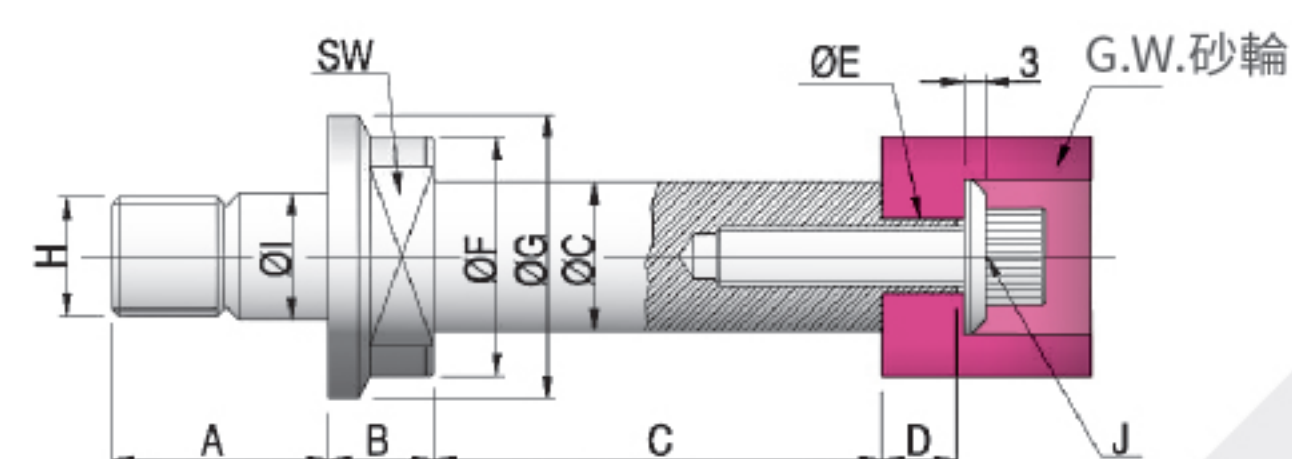
型號 Model: T-10



型號 Model: T-12 / T-16

內徑研磨砂輪主軸 INTERNAL GRINDING SPINDLE

- 研磨孔徑與長度比例為1:3
- 研磨長度最長不超過150mm
- The ration of grinding hole diameter to length is 1:3
- The max. grinding length is 150mm



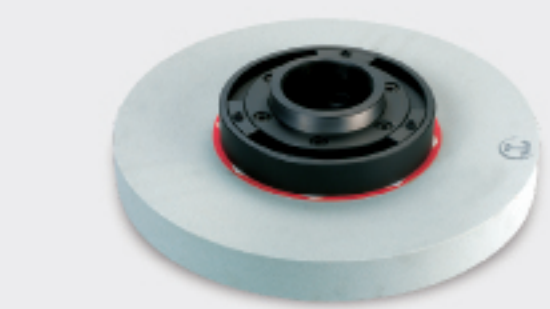
適用孔徑 Grinding Dia.	油脂式 Grease type	A	B	C	D	E	F	G	H	I	J	SW
Ø65 ~ Ø150	8,000rpm	42	16	Ø40×100 Ø40×85 Ø40×55	12	Ø12	Ø50	Ø58	M26×2P	Ø28	M8×1.25P	41
Ø40 ~ Ø80	10,000rpm	29	14	Ø30×90 Ø25×70 Ø20×60	10	Ø10	Ø32	Ø38	M16×1.5P	Ø17	M8×1.25P	24
Ø35 ~ Ø70	15,000rpm	29	14	Ø30×90 Ø25×70 Ø20×60	10	Ø10	Ø32	Ø38	M16×1.5P	Ø17	M8×1.25P	24
Ø24 ~ Ø40	20,000rpm	28	11	Ø24×80 Ø20×60 Ø16×40	8	Ø8	Ø26	Ø32	M14×1.5P	Ø15	M6×1.0P	19
Ø15 ~ Ø25	30,000rpm	21	9	Ø16×40 Ø13×30 Ø10×25	6	Ø6	Ø21	Ø26	M10×1.5P	Ø10.5	M4×0.7P	17
Ø12 ~ Ø16	40,000rpm	20	8	Ø12×35 Ø10×30 Ø8×25	x	x	Ø18	Ø23	M8×1.25P	Ø8.5	M4×0.7P	14
Ø9 ~ Ø13	50,000rpm	18	7	Ø8×30 Ø7×25 Ø6×20	x	x	Ø15	Ø20	M7×1P	Ø7.5	M4×0.7P	11

MODEL	A	B	C	D	E	F	G	H	I
T-1012	3250mm	2100mm	2113mm	396mm	1057mm	1390mm	1361mm	550mm	850mm
T-1020	3540mm	2100mm	2113mm	396mm	1057mm	1390mm	1361mm	550mm	850mm
T-12(16)24	3775mm	2264mm	2197mm	396mm	1095(1145)mm	1520mm	1870mm	550mm	850mm
T-12(16)40	4170mm	2485mm	2197mm	396mm	1095(1145)mm	1800mm	1902mm	550mm	850mm
T-12(16)60	5860mm	2500mm	2200mm	396mm	1095(1145)mm	2246mm	2280mm	550mm	850mm
T-12(16)80	7285mm	2500mm	2200mm	396mm	1095(1145)mm	2246mm	2280mm	550mm	850mm

			T-1012	T-1020	T-12(16)24	T-12(16)40	T-12(16)60	T-12(16)80
能力 CAPABILITY	工作台最大旋徑	Swing Over	Ø270 mm	Ø270 mm	Ø320 / Ø420 mm	Ø320 / Ø420 mm	Ø320 / Ø420 mm	Ø320 / Ø420 mm
	兩頂心間最大距離	Distance Between Centers	300 mm	500 mm	600 mm	1000 mm	1500 mm	2000 mm
	最大研磨直徑	Max. Grinding Diameter	Ø250 mm	Ø250 mm	Ø300 / Ø400 mm	Ø300 / Ø400 mm	Ø300 / Ø400 mm	Ø300 / Ø400 mm
	最大研磨長度	Max. Grinding Length	300 mm	500 mm	600 mm	1000 mm	1500 mm	2000 mm
	兩頂心間最大承受重量	Max. Load Held Between Centers	60 kg	60 kg	100 / 150 kg	100 / 150 kg	100 / 150 kg	100 / 150 kg
	中心高 (工作台面至頂針中心)	Center Height (from table to center tip)	135 mm	135 mm	160 / 210 mm	160 / 210 mm	160 / 210 mm	160 / 210 mm
砂輪 GRINDING WHEEL	尺寸 (外徑 x 寬度 x 內徑)	Size (O.D. x width x I.D.)	Ø355 × 38 ~ 50 x Ø127 mm	Ø355 × 38 ~ 50 x Ø127 mm	Ø405 × 50 x Ø127 mm	Ø405 × 50 x Ø127 mm	Ø405 × 50 x Ø127 mm	Ø405 × 50 x Ø127 mm
	線速度	Linear Velocity	33 m/sec	33 m/sec	33 m/sec	33 m/sec	33 m/sec	33 m/sec
工作台 WORKTABLE	旋轉角度	Swiveling Angle	-0° ~ +12°	-0° ~ +12°	-2° ~ +10°	-3° ~ +8°	-3° ~ +8°	-1° ~ +7°
工作主軸頭 WORKHEAD	工作台最大旋徑	Swiveling Angle	-30° ~ +90°	-30° ~ +90°	-30° ~ +90°	-30° ~ +90°	-30° ~ +90°	-30° ~ +90°
	頂針斜度	Center Tapper	MT. No. 3 (opt.: MT. No. 4)	MT. No. 3 (opt.: MT. No. 4)	MT. No. 4	MT. No. 4	MT. No. 4	MT. No. 4
	主軸轉速	Spindle Speed	10 ~ 300 rpm	10 ~ 300 rpm	10 ~ 300 rpm	10 ~ 300 rpm	10 ~ 300 rpm	10 ~ 300 rpm
	工作主軸負荷(含夾具)	Max. Load of Spindle (tool holder included)	15 kg (max. length: 150 mm)	15 kg (max. length: 150 mm)	35 kg (max. length: 150 mm)	35 kg (max. length: 150 mm)	35 kg (max. length: 150 mm)	35 kg (max. length: 150 mm)
尾座 TAILSTOCK	頂針斜度	Center Tapper	MT. No. 3 (opt.: MT. No. 4)	MT. No. 3 (opt.: MT. No. 4)	MT. No. 4	MT. No. 4	MT. No. 4	MT. No. 4
	中心頂針移動方式	Center Moving	Manual Type	Manual Type	Manual Type	Manual Type	Manual Type	Manual Type
	尾座軸移動距離	Tailstock Stroke	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm
X 軸行程 X-AXIS TRAVEL	最大移動距離	Max. Travel	220 mm	220 mm	250 mm	250 mm	250 mm	250 mm
	快速移動速度	Rapid Feedrate Speed	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min
	自動切入速度	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
	最小設定值	Min. Feeding Setting	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm
Z 軸行程 Z-AXIS TRAVEL	最大移動距離	Max. Travel	560 mm	760 mm	830 mm	1315 mm	1265 mm	2540 mm
	快速移動速度	Rapid Feedrate Speed	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min	6000 mm/Min
	自動切入速度	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
	最小設定值	Min. Feeding Setting	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm
馬達 DRIVE MOTORS	砂輪主軸	Grinding Wheel Spindle	3.75 kW	3.75 kW	3.75 kW (5.5kW)	3.75 kW (5.5kW)	3.75 kW (5.5kW)	3.75 kW (5.5kW)
	工作主軸	Workhead Spindle Motor	0.85 kW (AC servo motor)	0.85 kW (AC servo motor)	0.85 / 1.3 kW (AC servo motor)	1.3 kW (AC servo motor)	1.8 kW (AC servo motor)	1.8 kW (AC servo motor)
	X軸-砂輪軸座進給	Wheelhead Feed X-axis	1.0 kW (AC servo motor)	1.0 kW (AC servo)	1.5 kW (AC servo motor)	1.5 kW (AC servo motor)	1.5 kW (AC servo motor)	1.5 kW (AC servo motor)
	Z軸-工作台進給	Table Feed Z-axis	1.0 kW (AC servo motor)	1.0 kW (AC servo)	1.5 kW (AC servo motor)	1.5 kW (AC servo motor)	3.5 kW (AC servo motor)	3.5 kW (AC servo motor)
	潤滑油泵浦	Lubrication Oil Pump	0.075 kW	0.075 kW	0.075 kW	0.37 kW	0.37kW	0.37 kW
	砂輪軸潤滑泵浦	Wheel Spindle Lubrication Oil Pump	0.18 kW	0.18 kW	0.18 kW	0.18 kW	0.18 kW	0.18 kW
	研削液泵浦	Coolant Pump	0.18 kW	0.18 kW	0.18 kW	0.18 kW	0.18 kW	0.18 kW
容量 TANK CAPACITIES	砂輪軸潤滑油箱	Wheel Spindle Lubrication Oil Tank	14 L	14 L	18 L	18 L	18 L	18 L
	潤滑油箱	Lubrication Oil Tank	15 L	15 L	22 L	22 L	22 L	22 L
機器 MACHINE	尺寸 (長 x 寬 x 高)	Dimension (L x W x H)	2420 × 1540 × 2112 mm	2770 × 1630 × 2112 mm	3490 × 1869 × 2200 mm	3995 × 2440 × 2200mm	6178 × 2910 × 2310 mm	7285 × 2923 × 2082 mm
	淨重	Net Weight	2600 kg	3000 kg	2600 / 2800 kg	3200 / 3400 kg	4100 / 4300 kg	6000 / 6200 kg
	中心高(地面起至頂針中心)	Center Height (from fround to center tip)	1057 mm	1057 mm	1095 / 1145 mm	1095 / 1145 mm	1095 / 1145 mm	1095 / 1145 mm

★ 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.

標準配件 Standard Accessories



砂輪及砂輪法蘭 x 1組
Grinding Wheel with
Wheel Flange x 1 set



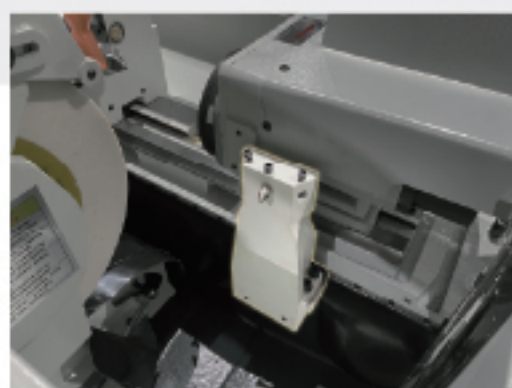
頂針 x 2 支
Carbide Tipped Work
Centers x 2 pcs



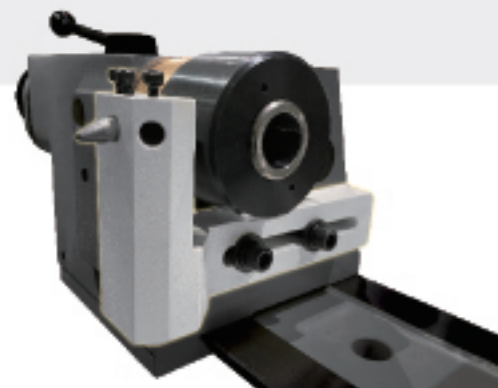
工作燈 x 1組
Workp Lamp x 1 set



工具箱 x 1組
Kits and Tool
Box x 1 set



滑台固定式修整座 x 1組
(OGC-10 系列標配)
Diamond Tool Holder
(slider-mounted type) x 1 set
(std. acc. for OGC-10 series)



尾座固定式修整座 x 1組
(OGC-12 & OGC-16 系列標配)
Diamond Tool Holder
(tailstock-mounted type) x 1
set (std. acc. for OGC-12 &
OGC-16 series)



潤滑油箱 x 1組
Lubrication Unit x 1 set



冷卻水箱 x 1 組
Coolant Tank x 1 set

選購配件 Optional Accessories



內徑研磨裝置
Internal Grinding
Attachment



凸輪式帶動環 (6只/組)
Cam Locked Driving Dogs
(6 pcs/set)



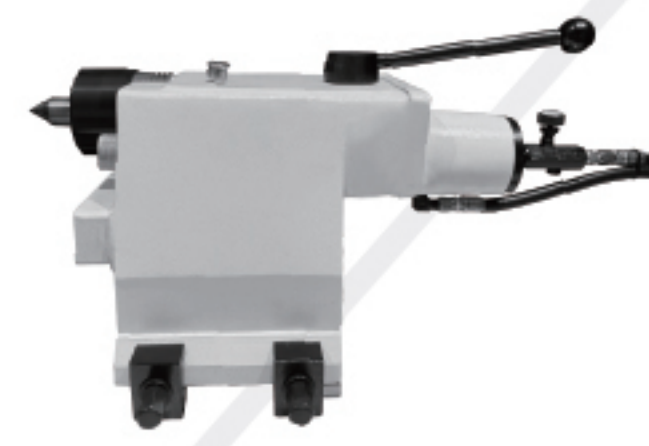
兩端支持座 (2只/組)
Work Holders (2 pcs/set)



兩點支持座
2-Point Steady Rest



空壓尾座(僅適用T-10系列)
Air Cylinder Tailstock (only
for T-10 series)



油壓尾座(含腳踏開關)
Hydraulic Tailstock
with foot switch



三點式中心架
3-Point Steady Rest



三爪夾頭
3-jaw Chuck



四爪夾頭
4-jaw Chuck



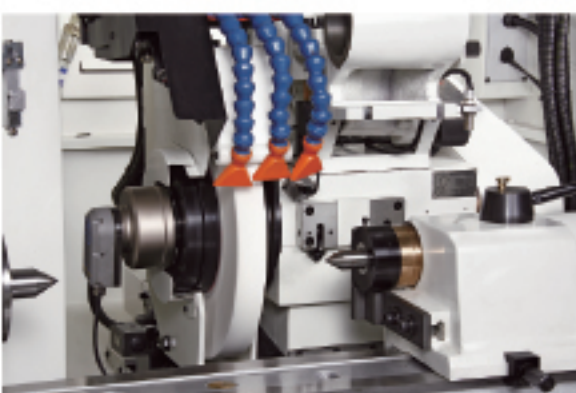
平衡台及平衡棒
Wheel Balancing Stand



全罩式鈹金
Fully Splash Guard



備用砂輪與法蘭
Spare Grinding Wheel and
Flange



砂輪動平衡裝置
Auto. Grinding Wheel
Balancer



端面量測 & 音頻防撞裝置
Touch Probe Gauge & Gap
Control



外徑自動量測
Auto. In-Process Gauge



滾輪式修整機構
Roller Dresser



磁鐵紙袋過濾裝置
Magnetic with Paper Filter



油霧收集裝置
Oil Mist Collector

表粗比較表
Roughness of surface cmparison form

	Ra μm	CLA μ"	Rt μm	Rz μm	RMS μm	RMS μ"	France	England SUIZE	Russia Rajm
▽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	9	N1	▽13
	0.020	0.80	0.20	0.10	0.022	0.90			
	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					10	N2	▽12
	0.040	1.60	0.40	0.20	0.044	1.80			
	0.050	2	0.50	0.25	0.055	2.20			
▽13	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			
▽12	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	14	N6	▽8
	0.63	25	5	3	0.73	28.70			
	0.80	32			0.88	35			
	1	40							
▽11	1.25	50	10	6	1.37	54.60			
	1.50	60					15	N7	▽7
	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	240							
▽10	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
	50	2000							
▽9	63	2500							
	80	3200	400	320	88	3500			
	100	4000							

1μm = 0.001mm=39.37μ" 1μ"=0.000.001=0.0254μm