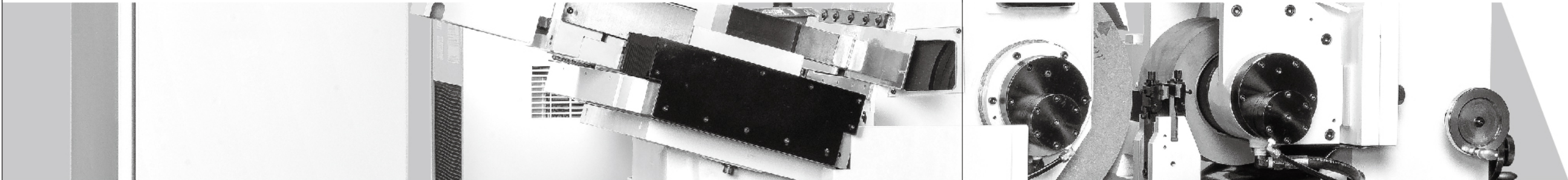


表粗比較表
Roughness of surface cmparison form

	Ra μm	CLA μ"	Rt μm	Rz μm	RMS μm	RMS μ"	France	England SUIZE	Russia Rajum
	0.008	0.32	0.08	0.04	0.009	0.30	9	N1	▽14
	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			▽13
	0.020	0.80	0.20	0.10	0.022	0.90			
	0.025	1	0.25	0.12	0.027	1.10	10	N2	▽12
	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			
	0.050	2	0.50	0.25	0.055	2.20			
	0.060	2.40	0.60	0.30	0.066	2.65	11	N3	▽11
	0.063	2.50	0.63	0.32	0.073	2.87			
	0.080	3.2	0.80	0.40	0.088	3.50			
	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	12	N4	▽10
	0.14	5.60							
	0.16	6.30	1.30	0.85	0.177	7			
	0.18	7.20			0.20	8			
	0.20	8	1.60	1	0.22	8.80			
	0.25	10	2	1.20	0.27	10.80	13	N5	▽9
	0.30	12	2.50	1.60	0.33	13.20			
	0.32	12.50			0.35	14			
	0.35	14							
	0.40	16	3	2	0.44	17.60			
	0.45	18	3.50	2.25	0.50	20	14	N6	▽8
	0.50	20	4	2.50	0.55	22			
	0.63	25	5	3	0.73	28.70			
	0.80	32			0.88	35			
	1	40							
	1.25	50	10	6	1.37	54.60	15	N7	▽7
	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			
	6	240							
	6.30	250			7.30	287	17	N9	▽5
	8	320			8.8	350			
	10	400	50	40	11	440			
	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			
	50	2000							
	63	2500					20	N12	▽2
	80	3200	400	320	88	3500			
	100	4000							

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



H-series

高速靜壓無心磨床

HIGH SPEED HYDROSTATIC
CENTERLESS GRINDING MACHINE



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TOPKING

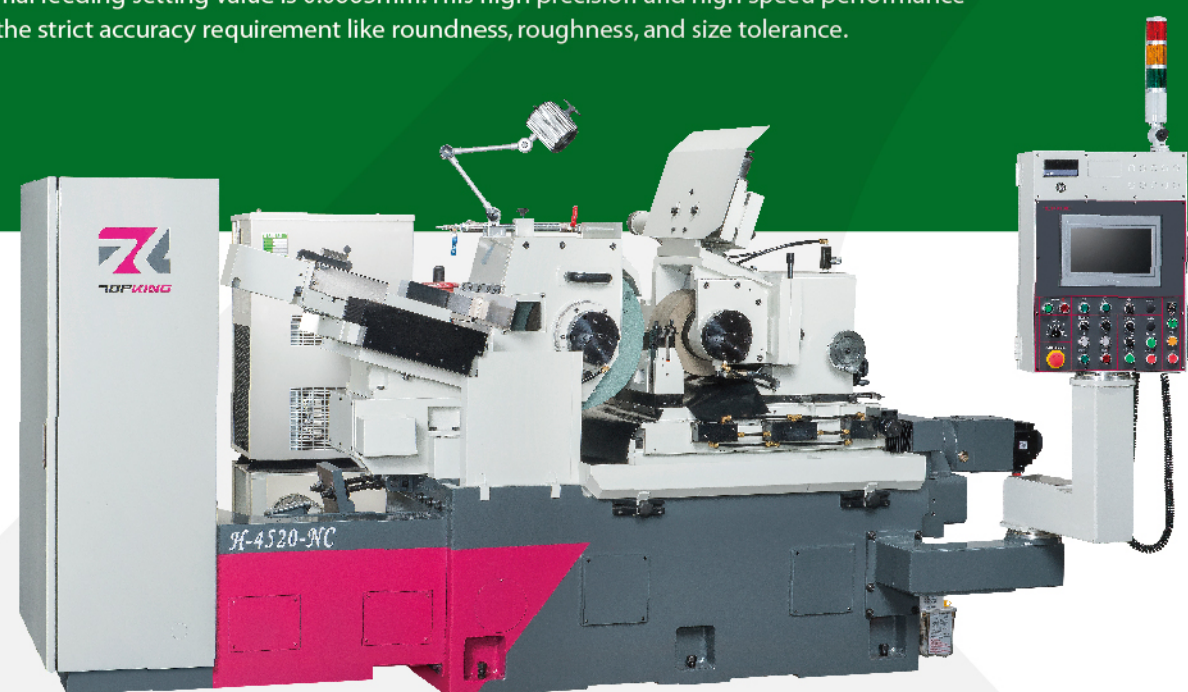
H-Series

HIGH SPEED HYDROSTATIC CENTERLESS GRINDING MACHINE

金格科技靜壓無心磨床(H系列)傳達了金格最新的設計理念，其砂輪主軸、調整輪主軸以及下滑軌(進刀軸)皆採用精密的液靜壓結構，最小進給量可設定0.0005mm，微量進給可滿足客戶對於工件圓度、表面粗糙度以及加工尺寸等精度要求。

The H series is shown TOPKING design idea for centerless grinder. It equipped with precision hydrostatic bearing for both wheel spindles and the R.W. lower slider (infeed axis) is hydrostatic guideway construction.

The minimal feeding setting value is 0.0005mm. This high precision and high speed performance is satisfy the strict accuracy requirement like roundness, roughness, and size tolerance.



www.topking-tech.com

採用靜壓主軸及靜壓滑軌的優勢

- 無金屬間磨耗，提升機器的使用壽命
- 低金屬摩擦，加工時溫升低、不易變形，提升加工穩定性及工件精度。
- 高壓油膜包覆主軸周圍，適合高速旋轉。
- 高精度應用及恆定的旋轉，確保迴轉精度。

Advantage for Hydrostatic Bearing and Slider - slideway.

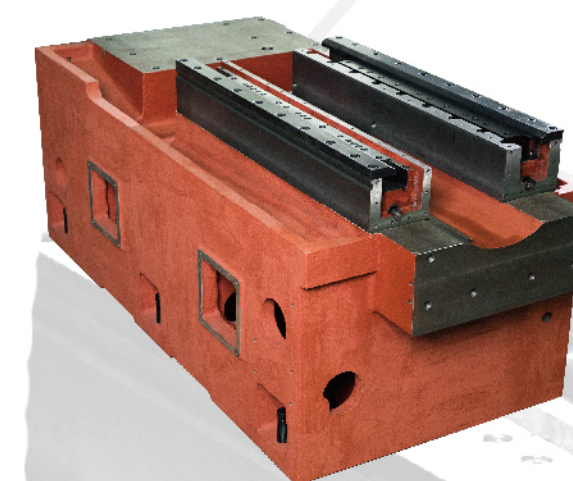
- No abrasion between metal to metal. To increase machines use life.
- Extremely low friction. Keep stable oil temperature during work to keep accuracy.
- High stiffness oil film covering spindle surrounding, suitable for high speed rotation.
- Precise apply and constant rotating to keep the rotating accuracy.

機體

高剛性的機體結構，機體採用米漢娜鑄鐵製成，經燒焯處理及時效處理後再加工。滑軌經過高週波硬化處理、精密研磨，機體材質穩定，無變形之疑慮，耐磨耗性優異。

Machine Base

The machine structure is manufactured from high quality Meehanite cast iron, heat treated and stress relieved before machining. Slider is high frequency hardened and precision ground. Maximum material stability for deformation-free and outstanding wear resistance.



油溫冷卻系統

油溫冷卻系統搭配油溫冷卻機，有效的維持油溫恆溫，防止主軸因油溫的變化而影響加工精度。

Oil Coolant System

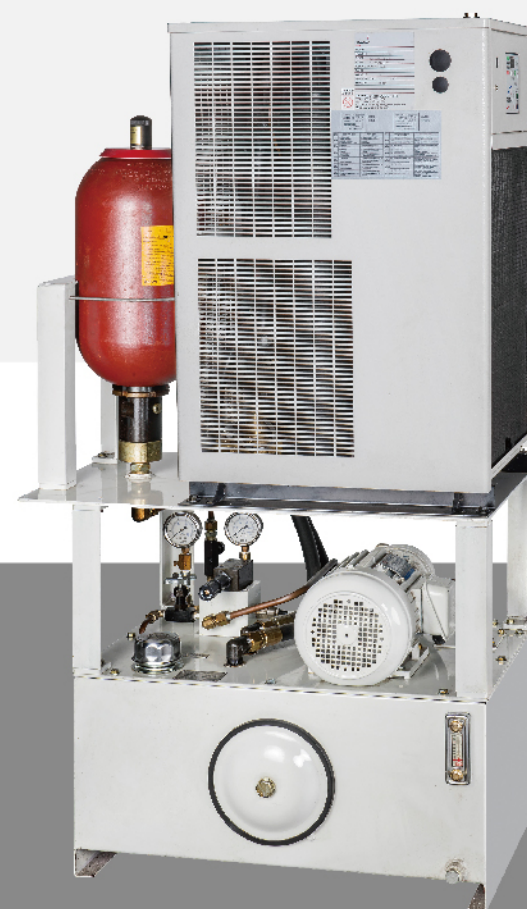
Oil coolant system equipped with oil cooler for keeping the hydrostatic oil in constant temperature, to avoid the unstable oil temperature influence grinding accuracy.

蓄壓保護裝置

標準配置液壓皮囊式蓄壓器，作為機器在非預期的狀況下斷電時的緊急應變支援，當因斷電造成的壓力下降，蓄壓器的特殊結構能促使靜壓油回流至主軸的靜壓系統中，避免主軸在高速運轉的狀態下因斷電導致靜壓油膜瞬間喪失而造成的損壞。

Accumulator for Emergency Operation

Each machine has equipped with bladder accumulator as standard. This accumulator is for emergency operation when machine power unexpected blackouts. Its special design forces the stored hydrostatic oil reflux into hydrostatic system for the spindle. To avoid the spindles damage caused by emergency blackouts and the hydrostatic pressure loss before spindles stop.

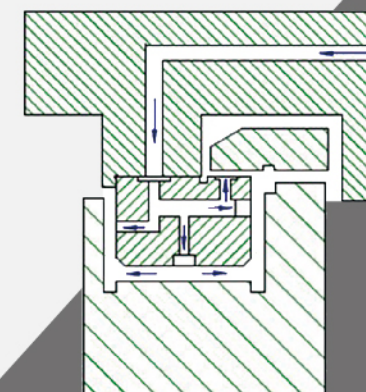


砂輪修整結構

砂輪修整座的下滑滑道為下凹鳩尾槽設計，配合超大滑道面，大幅提升砂輪修整時的穩定性。

Stable Grinding Wheel Dressing Unit

The lower slideways of the grinding wheel dressing unit is of a concave dovetail structure. This combines with extra-large sideway for greatly upgrading the stability of the grinding wheel unit.

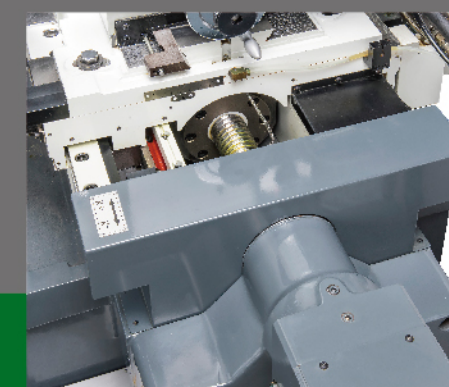


靜壓進刀滑軌

- 下滑台採用精密型自動潤滑靜壓結構，滑動順暢、快速，進刀精準，使加工更穩定。
- 下滑軌(進刀軸)採用伺服馬達控制，搭配諧和式減速機，其結構特性降低背隙產生、增加扭力，提升加工效率及穩定加工品質。
- 微調式進刀裝置，手動最小進刀量0.001mm，另可由數值控制設定最小進刀量0.0005mm，滿足各種工件精度要求。

Hydrostatic Guideway Construction

- R.W. lower slider (infeed axis) is hydrostatic guideway construction design. This provides various features such as extremely smooth and fast movement, high precision feeding accuracy and stable grinding accuracy.
- The feeding axis is control by servo motor cooperate with Harmonic drive. The advantage is reduce backlash, increase torque for high precision grinding work.
- Manual micro. feed adjustment unit is 0.001mm and cooperate with numerical control to satisfy high accuracy request for all work task.

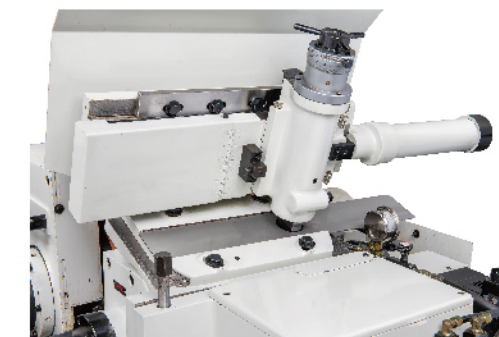


砂輪與調整輪修整裝置

- 採用特殊合金鑄鐵製成，經燒焯處理，耐磨耗。
- 油壓驅動前後修整座，亦可搭配伺服馬達，做成型修整。
- 修整速度無段變速調整。
- 調整輪之修整座，可依工件需求角度做調整，確保工件圓筒精度。

Wheel Dressing Device for G.W. & R.W.

- Dresser structure is manufactured from alloy cast iron and is heat treated for wear resistance.
- Hydraulically operated dressing motion.
- Variable dressing speed.
- Dresser stand for regulating wheel can be adjusted to suit workpiece requirement, assuring high cylindrical accuracy.



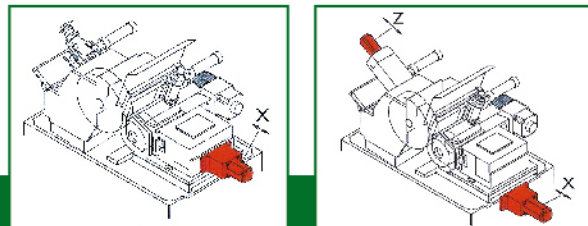


NC系列

- 作業系統搭配圖形對話式操作介面導引設定，不須另外編輯加工程式，提供最便捷的操作環境。
- 人機介面配合彩色觸控螢幕，操作畫面嵌入進退刀調整快捷鍵，可快速調整加工尺寸。

NC Series

- The control system with teach-in Graphical User Interface (GUI) without program editing, provide the most convenient operate environment.
- HMI with touch screen, user interface embed shortcut keys for micro-feeding adjustment. It's easy to adjust the grinding size.



軸向組合-NC系列適用

- 一軸控制: X軸:調整輪下滑板自動進刀
- 二軸控制: Z軸: Z 軸:砂輪自動修整(垂直軸) 及 X 軸:調整輪下滑板自動進刀

Axial Combination – NC Series

- One axis: X axis: Regulating wheel lower slide auto. in-feed control.
- Two axes: Z axis: Grinding wheel auto. dressing (Vertical) and X axis: Regulating wheel lower slide auto. in-feed

CNC系列

- 最新的數控伺服科技。
- 程式編輯運用靈活，符合各式加工需求。
- 人性化操作面板設計，配置多項快捷鍵及緊急停止按鈕，使操作更安全、更簡易。
- 彈性的套裝軟體可配合各式的自動送收料系統(選配)。
- 控制系統可選擇 三菱/發那科/西門子。

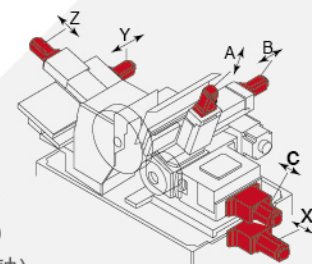
CNC Series

- Latest CNC technology. Clever program edit for various kinds component grinding application.
- Install several shortcuts for practical function and emergency stop button on operation panel. Improve working safety and efficiency.
- Flexible software for cooperating with various auto. loading and unloading system (OPT-Individual design).
- Mitsubishi / Fanuc / Siemens system are available.



CNC系列適用

- Z 軸:砂輪自動修整(垂直軸)
- Y 軸:砂輪自動修整(水平軸)
- A 軸:調整輪自動修整(垂直軸)
- B 軸:調整輪自動修整(縱向軸)
- C 軸:調整輪上滑板自動進刀
- X 軸:調整輪下滑板自動進刀



Axial Combination – CNC Series

- Z axis: Grinding wheel auto. dressing (Vertical)
- Y axis: Grinding wheel auto. dressing (horizontal)
- A axis: Regulating wheel auto. dressing (vertical)
- B axis: Regulating wheel auto. dressing (horizontal)
- C axis: Regulating wheel upper slide auto. in-feed
- X axis: Regulating wheel lower slide auto. in-feed

規格 SPEC.		H-4515	H-4520
研磨範圍 Grinding Capacity	工作物直徑 Standard grinding range (Dia.)	Ø1~Ø75 mm	Ø1~Ø75 mm
	停止式最大長度 Max Infeed Length	150 mm	205 mm
砂輪 Grinding Wheel	砂輪尺寸 Grinding wheel size (O.D. x width x I.D.)	Ø455 x 150 x Ø228.6	Ø455 x 205 x Ø228.6
	砂輪線速度 Grinding Wheel Linear Velocity	2700 m/min	2700 m/min
調整輪 Regulating Wheel	調整輪尺寸 Regulating wheel size (O.D. x width x I.D.)	Ø255 x 150 x Ø127	Ø255 x 205 x Ø127
	調整輪轉速 Regulating wheel speed	10 ~ 300 R.P.M. (無段Variable)	10 ~ 300 R.P.M. (無段Variable)
	調整輪傾斜角度 Regulating wheel tilt angle	+5° ~ -3°	+5° ~ -3°
	調整輪旋轉角度 Regulating wheel swivel angle	±5°	±5°
手輪 Handwheel Graduation	上滑軌進刀手輪 Upper slide feed graduation	每轉 4 mm/rev. 每刻劃0.05mm/graduation	每轉 4 mm/rev. 每刻劃0.05mm/graduation
	上滑軌微調手輪 Upper slide micro-feed graduation	每轉 0.08 mm/rev. 每刻劃0.001mm/graduation	每轉 0.08 mm/rev. 每刻劃0.001mm/graduation
	修整進刀手輪 Trimming device graduation	每轉 2 mm/rev. 每刻劃0.01mm/graduation	每轉 2 mm/rev. 每刻劃0.01mm/graduation
	下滑台最小寸動進給 X-axis Min. Input Increment	0.0005 mm (伺服馬達控制 Servo Motor)	0.0005 mm (伺服馬達控制 Servo Motor)
驅動馬達 Drive Motors	砂輪馬達 Grinding Wheel Motor	7.5KW x 4P	7.5KW x 4P
	調輪馬達 Regulating Wheel Motor	3.5 kw 伺服馬達 Servo Motor	3.5 kw 伺服馬達 Servo Motor
	油壓泵浦馬達 Hydraulic Pump Motor	1.5 kw	1.5 kw
	冷卻液馬達 Cutting Coolant Pump Motor	0.18 kw	0.18 kw
機器尺寸 Machine Dimensions	長x寬x高 L x W x H	2460 x 1340 x 1650 mm	2460 x 1340 x 1650 mm

標準配件

- 調整輪&法蘭
- 砂輪&法蘭
- 停止式刀架&支持刀片
- 通過式刀架&支持刀片
- 標準電控單元
- 油壓單元(含:油溫冷卻機)
- 冷卻液系統
- 鑽石修刀
- 工作燈
- 工具箱&工具

Standard Accessories

- Regulating Wheel And Flange
- Grinding Wheel And Flange
- Infeed Work Rest And Carbide Blade
- Thrufeed Work Rest And Carbide Blade
- Standard Electric Equipment
- Oil Tank(Incl. Oil Cooler)
- Standard Coolant System
- Diamond Tools
- Work Lamp
- Tool Box And Kits

選擇配件

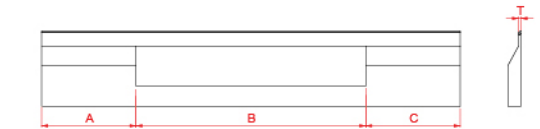
- 平衡台&棒
- 油壓上下起落架
- 油壓送料裝置(停止式)
- 通過式自動送料機
- 通過式自動送料機(切齒式)
- 通過式自動收料機
- 長棒支持架(手動V type)
- 成型模板&支持刀片
- 電磁除屑機
- 紙帶過濾機
- 水力分離機
- 停止式自動送收料
- 震動盤自動送料(通過式)
- 鑽石滾輪修整裝置

Optional Accessories

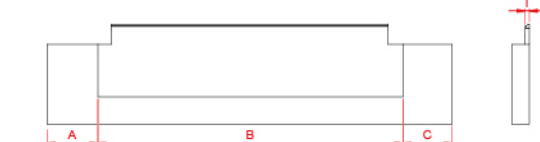
- Wheel Balancing Stand Arbor
- Hydraulic Feeder For Infeed (Up And Down)
- Hydraulic Work Ejector (Infeed Grinding)
- Automatic Loading Attachment(Thrufeed Grinding)
- Automatic Feeder (Thrufeed Grinding)
- Automatic Unloading Attachment (Thrufeed Grinding)
- V Type Supporter For Long Bar Grinding
- Profile Grinding Attachment
- Magnetic Coolant Separator
- Paper Filter
- Hydrocyclone Coolant Separator
- Auto. Loading And Unloading Attachment (Infeed Grinding)
- Vibratory Feeder (Thrufeed Grinding)
- Diamond Roller Dressing Device

標準刀片規格 Standard Blade Specification

通過式刀片 Thru-feed Blade			
	A	B	C
H-4515	80mm	170mm	80mm
H-4520	92.5mm	225mm	92.5mm



停止式刀片 In-feed Blade			
	A	B	C
H-4515	37mm	170mm	37mm
H-4520	37.5mm	226mm	36.5mm



※ 刀片長度會依工件長度改變
The blade length vary with work component length.

通過／停止式 刀片選擇 Carbide Blade Selection for Thru / In-feed

工件外徑 Workpiece Dia.	刀片厚度 (T) Carbid Blade Thickness (T)
Φ1 mm	0.6 mm
Φ2 mm	1.3 mm
Φ3 mm	1.8 mm
Φ4 mm	2.5 mm
Φ5 mm	3 mm
Φ6 mm	4 mm
Φ7 mm	5 mm
Φ8 mm	6 mm
Φ9 mm	7 mm
Φ10 mm	8 mm
Φ12~Φ15 mm	10 mm
Φ15~Φ50 mm	12.8 mm

客製化規劃 Individual Design

為各式工件規劃專屬自動送收料系統
Indivdual Design for Loading and Unloading System

