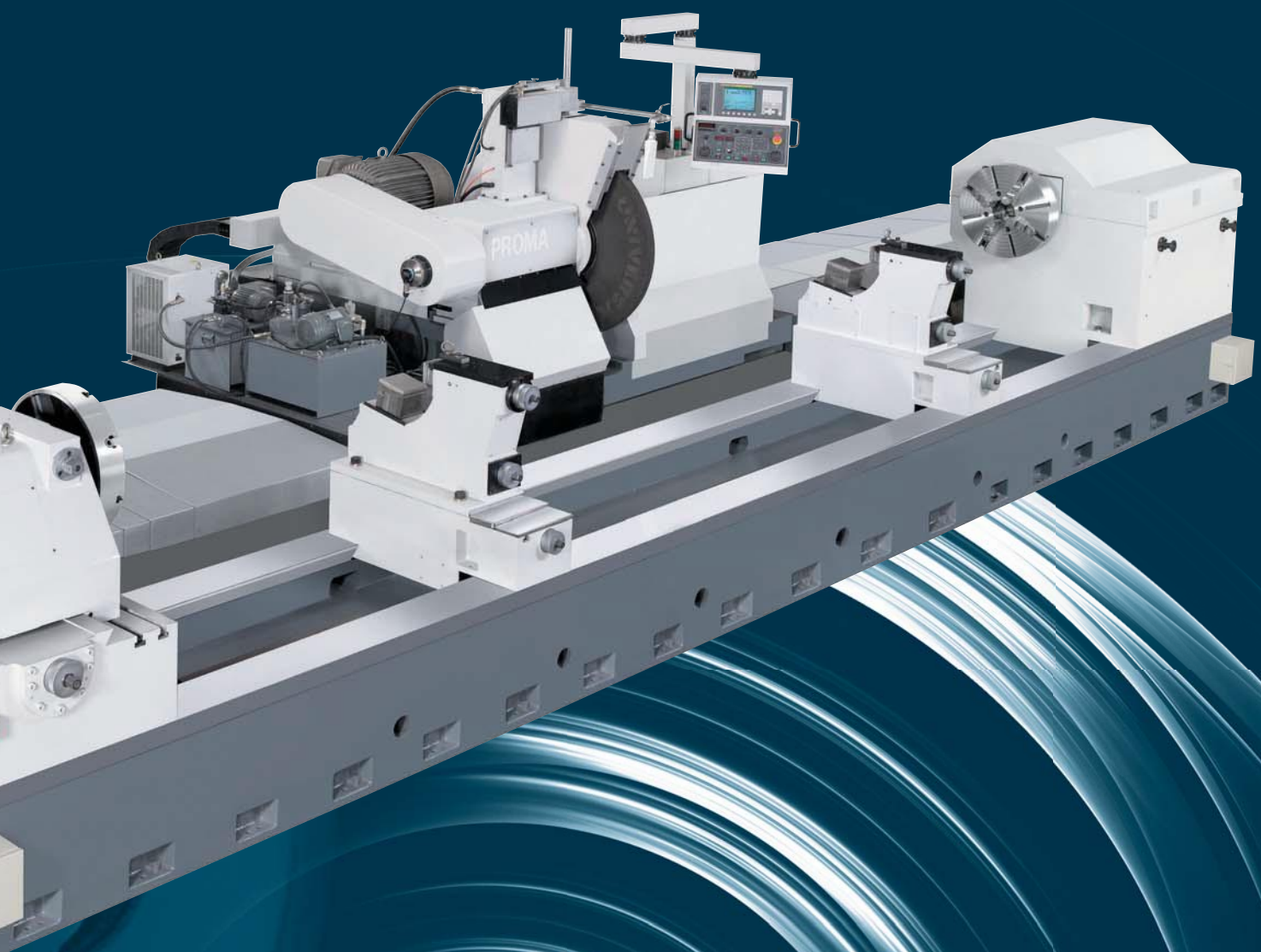
Proma Grinding Machine

PROMA

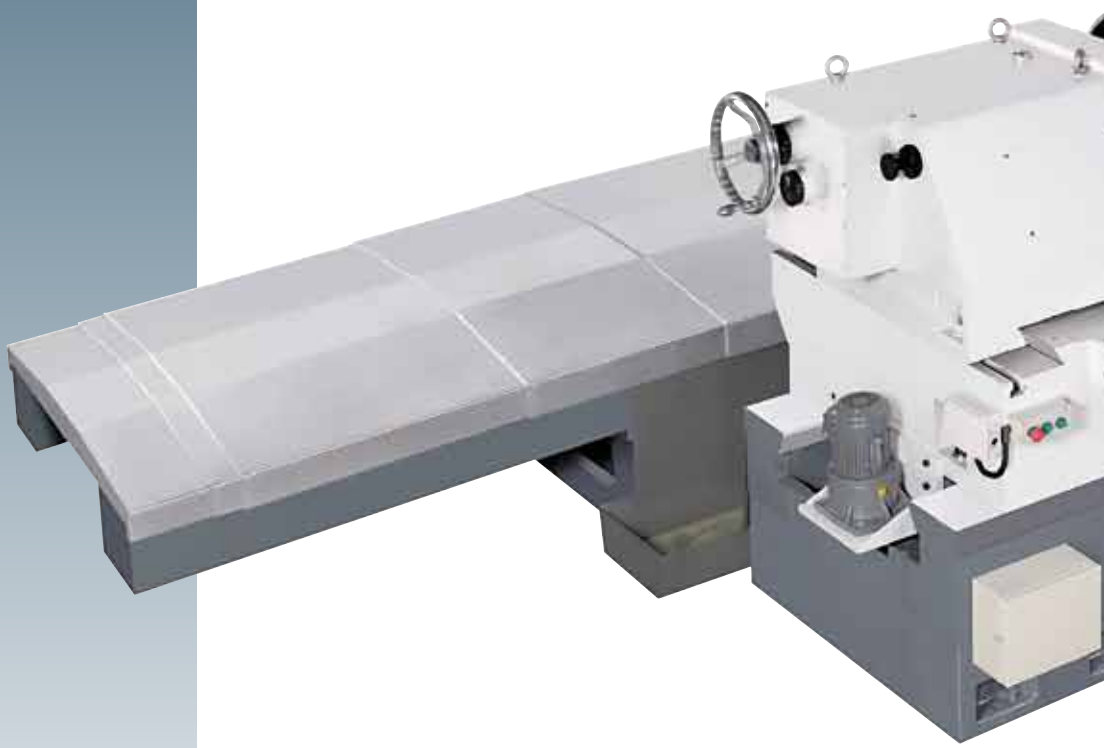


PROMA CNC ROLL GRINDER

H t·y·p·e

CNC Roll Grinder
外圓軋輥磨床

Distance between c.c.: 5M, 6M, 7M, 8M, 10M, 12M
Swing over table : Ø1300, Ø1600, Ø2000mm



CNC Roll Grinder

H

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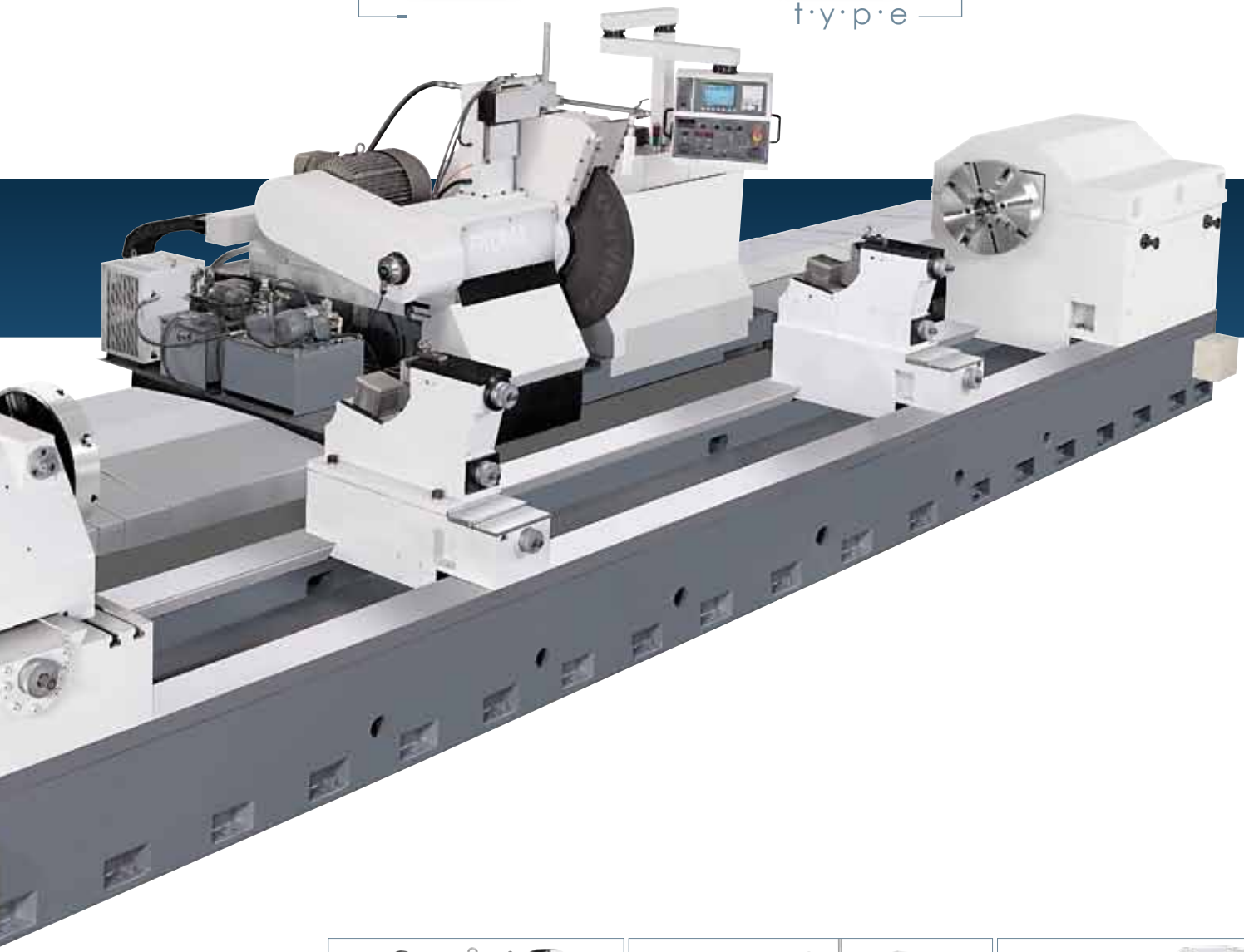
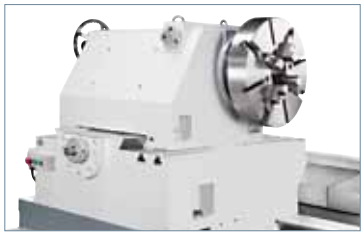
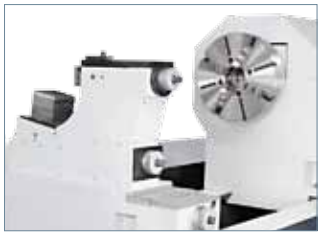
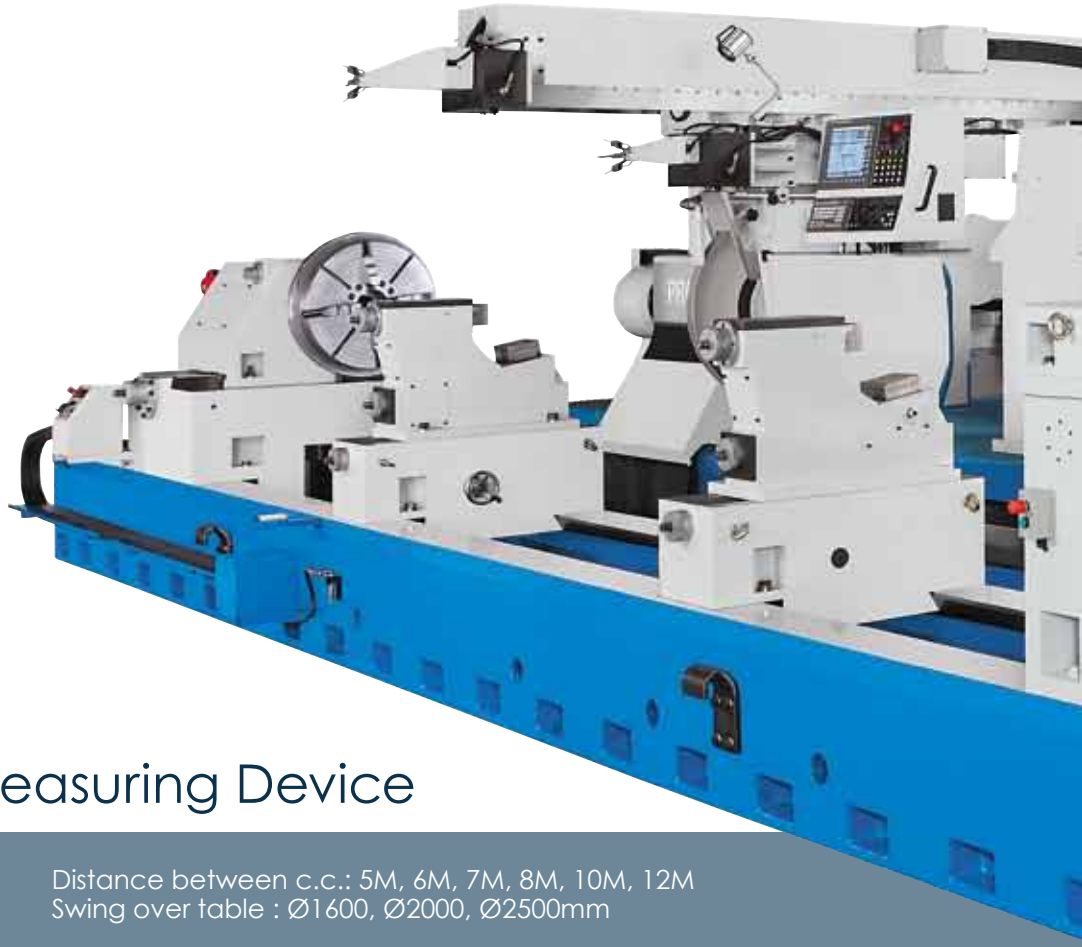








H t·y·p·e

Eguiped With Measuring Device

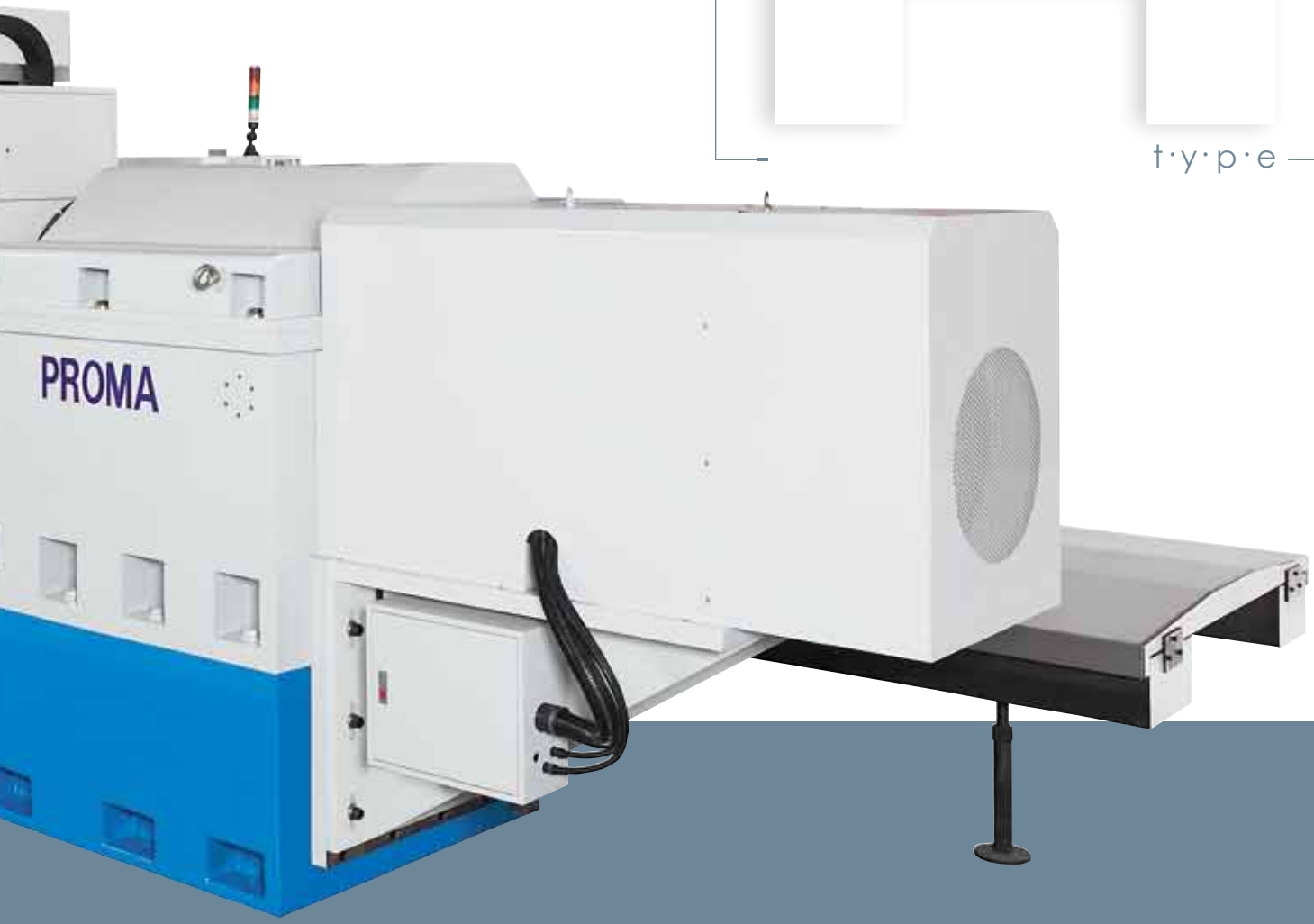
CNC Roll Grinder
外圓軋輥磨床

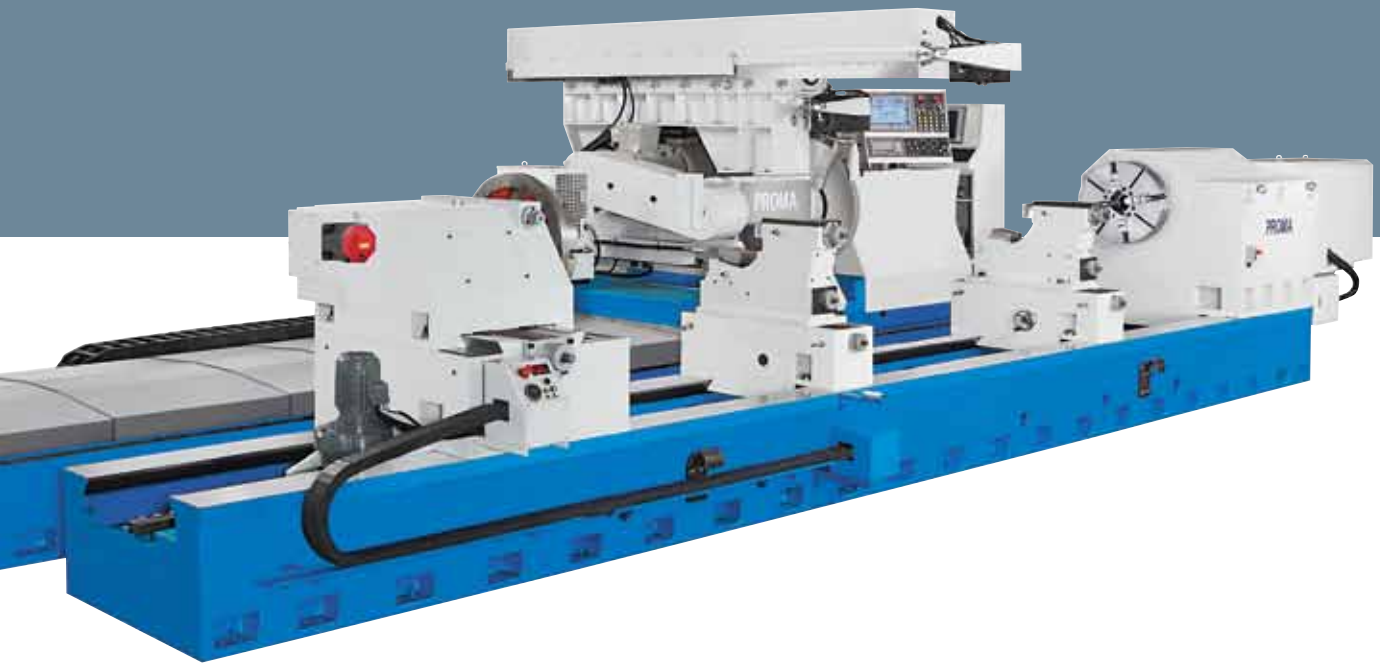
Distance between c.c.: 5M, 6M, 7M, 8M, 10M, 12M
Swing over table : Ø1600, Ø2000, Ø2500mm

Eguiped With Measuring Device

H

t·y·p·e





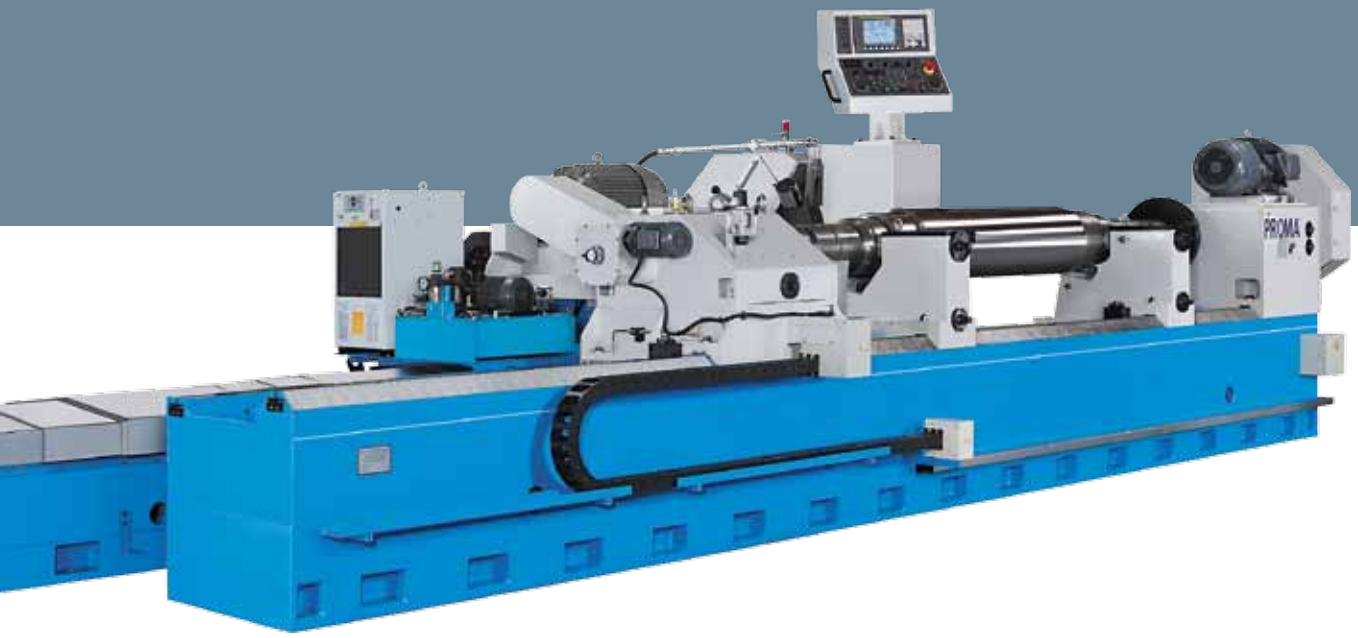
H t·y·p·e

CNC Roll Grinder
外圓軋輥磨床

Distance between c.c.: 5M, 6M, 7M, 8M, 10M, 12M
Swing over table : Ø850, Ø1300mm

H

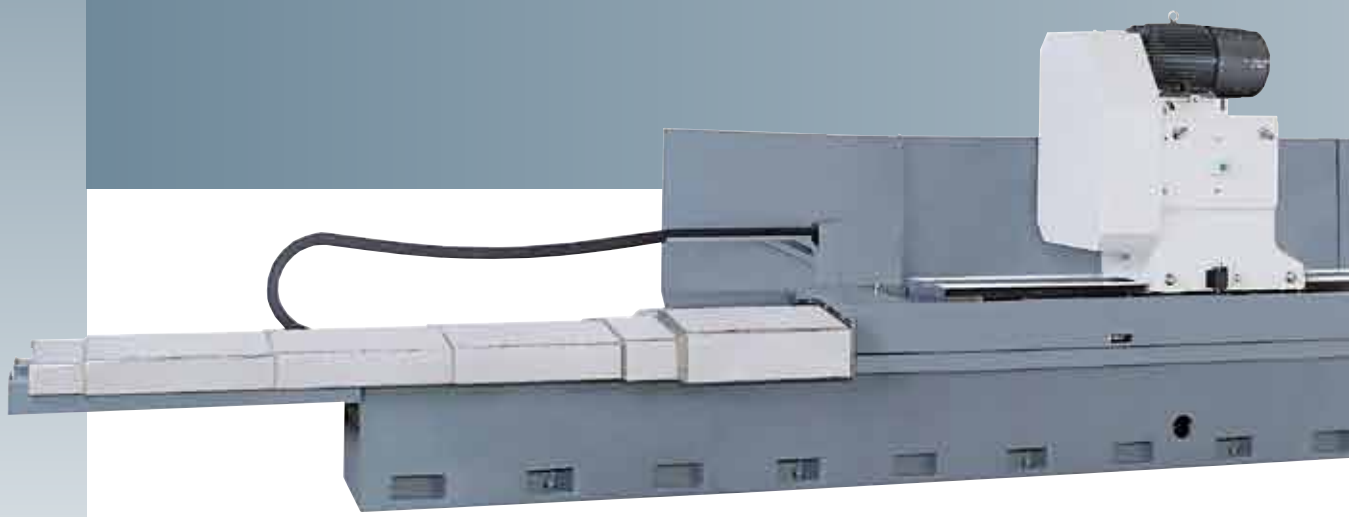
t·y·p·e



L t·y·p·e

CNC Cylindrical Roll Grinder
外圓軋輥磨床

Distance between c.c.: 3M, 4M, 5M,6M
Swing over table: Ø 1000mm ,Ø 850mm

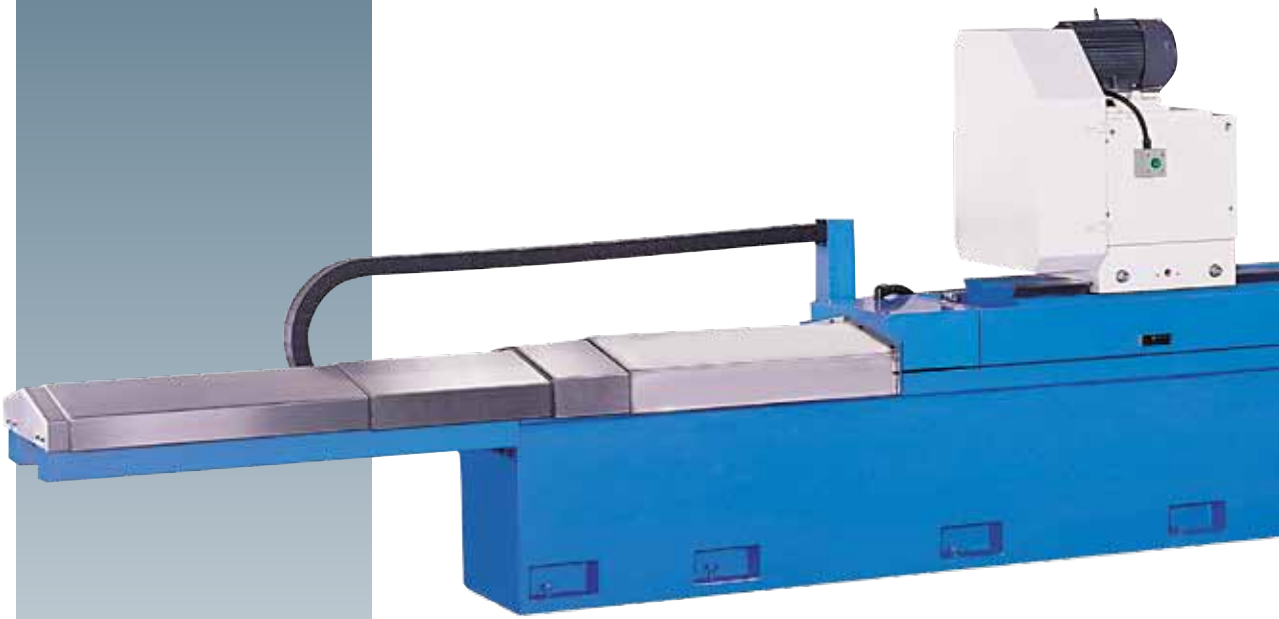


CNC CYLINDRICAL ROLL GRINDER

M t·y·p·e

CNC Cylindrical Roll Grinder
外圓軋輥磨床

M60/40L-C2
Distance between c.c.: 3M, 4M, 5M, 6M
Swing over table: Ø 600mm



CNC Cylindrical Roll Grinder

M

t·y·p·e

S t.y.p.e

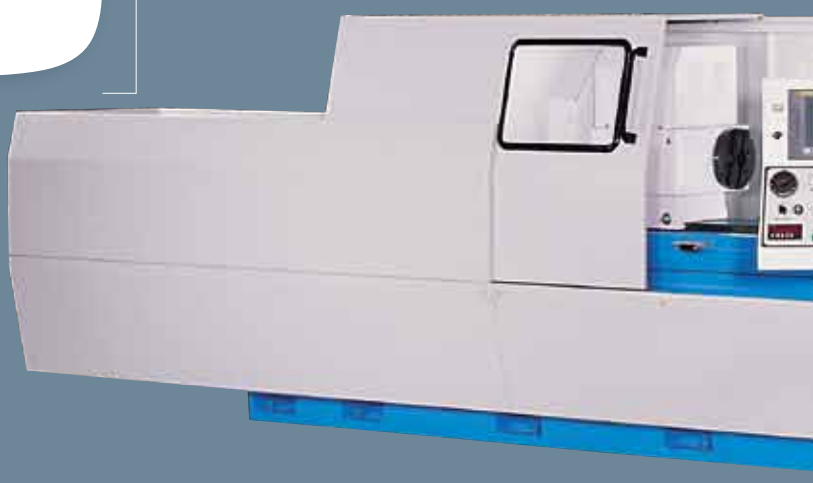
CNC Cylindrical Roll Grinder
外圓軋輥磨床

S40/30L-C2
Distance between c.c.: 1.5M, 2M, 3M, 4M
Swing over table: Ø 400mm

CNC Cylindrical Roll Grinder

SC

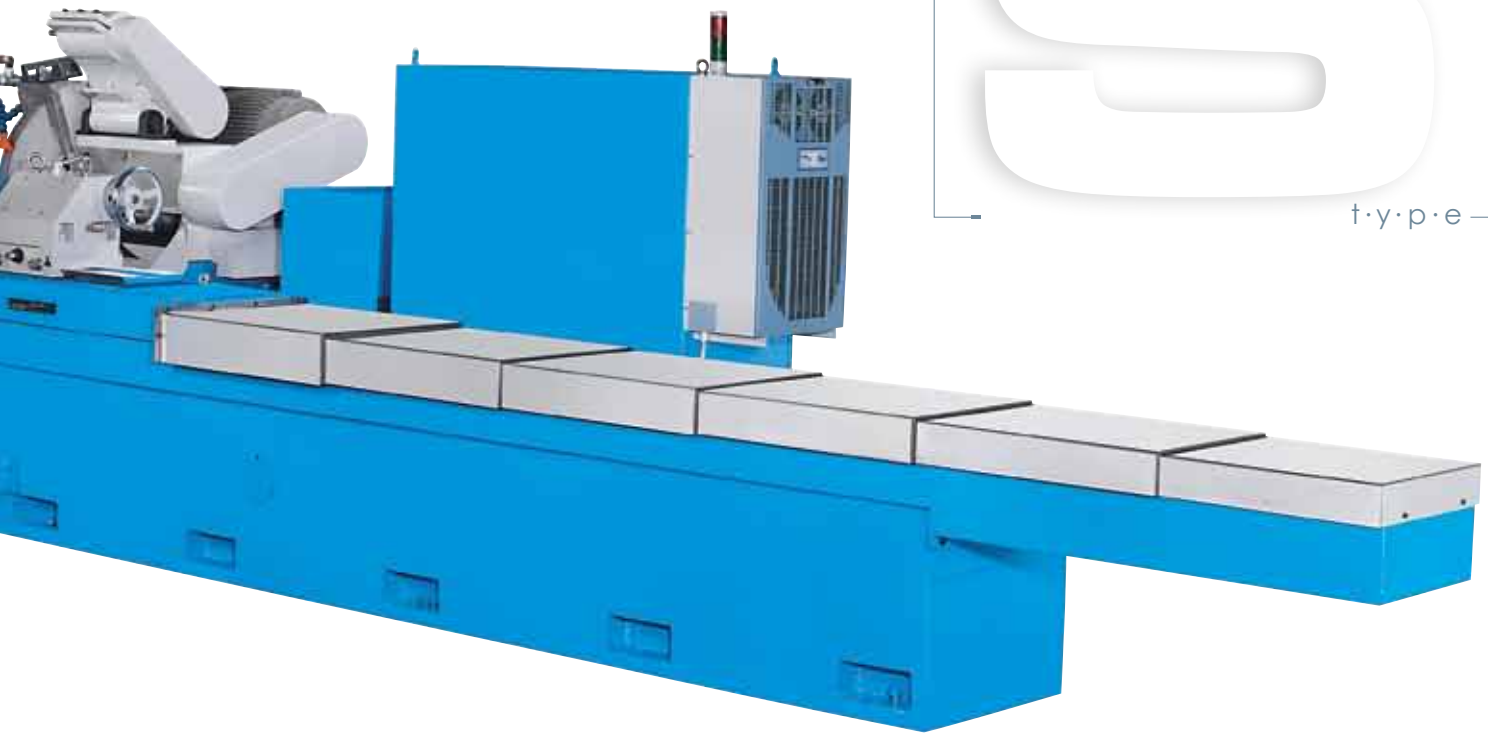
t·y·p·e



CNC Cylindrical Roll Grinder

S

t·y·p·e



SC

t · y · p · e

CNC Cylindrical Roll Grinder

機械特性 FEATURES

工作臺 Table machine base and carriage

底座與工作臺均以 FC25 ~ FC30 鑄造一體成型經過 200 度退火 48 小時自然冷卻消除內部應力，再經加工研磨得到穩定精密的機械底座。 床座依照電腦輔助分析，設計米式肋結構來加強整體結構之剛性。
工作臺採用動靜壓複合循環系統潤滑，能承受不平均之壓力，呈現穩定平順潤滑效果，使組件間的磨擦損耗降至最低，同時降低床台高度並加寬工作台寬度，提高穩定與強度，在研磨時可得到均勻的輥筒表面精度。

The table/headstock, machine base, and carriage are all made of high strength FC-30 – FC-35 castings. The guideways are constantly being lubricated by a hydrodynamic hydrostatic lubrication system to reduce drag between components and improve part finish.

尾座 TAILSTOCK

係由上，下座兩部份所構成，砂輪修整裝置設計在尾座本體上可修整砂輪正面及側面，依程式設定之直線，斜線或曲線形狀。可由尾座上半部之橫向調整來完成軋輥對心校正，尾座於床台上之縱向移動由馬達軀動，並附有平面空氣軸承設計，輔助移動以減少磨擦力降低磨耗。大直徑尾座套筒經中週波熱處理 (亦可選配附四爪夾頭的旋轉式尾座), 表層度硬鉻精密研磨而製成不摩耗耐荷重。

Tailstock re-positioning is made easy thru the use of an air assist devise mounted on the bottom of the tailstock. Work piece alignment is done via tailstock adjustment. The diamond wheel dresser is mounted on side of the tailstock for easy access. An optional revolving 4-jaw chuck tailstock is available for extremely heavy work pieces.

尾座 Tailstock

旋轉尾座
Revolution Tailstock (option)

砂輪頭 WHEELHEAD

砂輪頭裝置於進刀座 (x 軸) 上，砂輪心軸係由鎳鉻鉬合金鋼經調質，熱處理動態平衡及精密研磨而製成，以動靜壓複合系統軸承支撐，心軸靜止時由靜壓壓力支撐，動壓油膜在心軸運轉時產生剛性油膜，提供穩定之切削壓力配合間接傳動之皮帶輪讓心軸於皮帶拉緊時，無位移產生令研磨加工過程可採用固定的加工參數，心軸運轉前則由油壓單元提供足夠之壓力油，並由壓力開關偵側油壓達到設定壓力後才啓動運轉，當砂輪軸停止前，壓力油仍供應至完全停止為止，降低砂輪心軸摩耗，砂輪心軸穩定運行於油膜上。

The wheelhead spindle is designed with hydrodynamic bearing and is made of Ni-CR-Mo alloy for superior strength and maximum grinding finish. The wheelhead and carriage are lubricated by a hydrodynamic hydrostatic lubrication system. The spindle and spindle motor utilize an indirect design to avoid strain on the motor.

砂輪頭 Wheel Head

Wheel Head Chiller

主軸頭座 HEADSTOCK

電腦輔助分析，具高承載性能，不易產生共振。 主軸頭結構剛強穩固，非旋轉式構造更提升整體載重剛性。 主軸軸心是由精密滾柱軸承裝配而成經由時規皮帶驅動，進而達到精準無顫動之傳動。 S40 / M60 分成可旋轉式與非旋轉式兩種，L85 型採旋轉式，以頂針及牽轉具或四爪夾頭來帶動工件。

Headstock RPM is infinitely variable thru use of a frequency motor. Re-positioning is made easy thru the use of an air assist devise mounted on the bottom of the wheelhead. A spring driven trip dog is used to insure smooth start up and rotation of the workpiece. S40 & M60 models use live and dead centers. The L85 uses a rotating center.

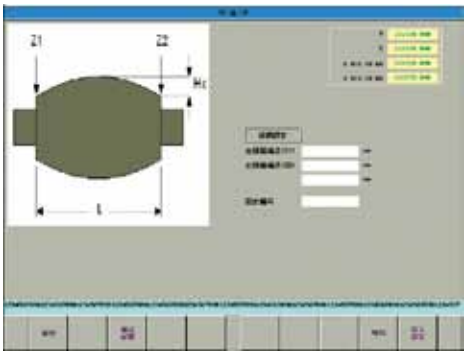
主軸頭
Headstock

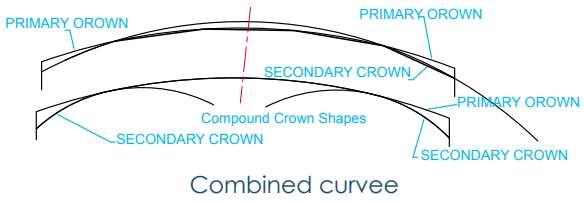
CNC 控制器
CNC-controller

CNC 控制系統 CNC-CONTROLLED SYSTEM

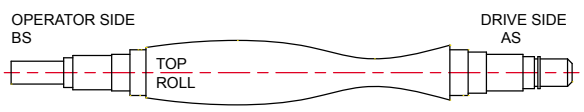
本系列機種採用日本發那科控制系統，既精準且易於學習操作，操作者可以自己所須經由程式指令，指定軋輥中凸高度及長度，並可由電腦精準算出砂輪連續進刀之路徑，完成精確且光滑之中凸表面；也可將程式儲存建檔以便日後重複使用。依工作需要可擴充曲線種類，如 Sine 曲線、Cosine 曲線、CVC 曲線、combine 曲線及經驗值曲線 ... 等，其擴充力強。並備有專用研磨工序聚集指令，使用於各種外圓、錐面和端面等之精磨及零火花研磨。 電腦主控系統內含 PLC 可程式控制單元，易於維護。

The FANUC CNC-controller is applied to develop the roll grinding process automatically. The system is configured with a humanized operation panel for user Which made the grinding operation became easy and precision. All the operator need to do just call a cutting program from memory to performed the grinding sequentially. The crown grinding is also easy to get which include base arc curve SINE curve COSINE curve CVC curve and combined arc curve. The camber values was assigned by the program. The system have integrated a net function for output & input Of the data of the cutting & the parameter of machine or maintenance.

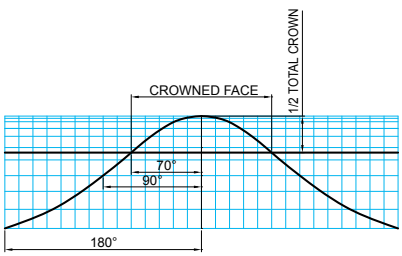




Combined curvee



Cvc curve



Sine curve

標準規格表 STANDARD SPECIFICATION

項　目 ITEM	機 種 MODLE		TYPE											
			S40				M60				L85		L100	
工作能力 Working capacity	最大旋徑 Max. swing over table	mm	Ø400				Ø600				Ø850		Ø1000	
	兩頂心間最大距離 Max. distance between c.c.	M	1.5M	2M	3M	4M	3M	4M	5M	6M	3M	4M	5M	6M
	工件最大重量 Max. weight of workpiece	Kg	1500				4000				6000			
	全新砂輪時工件最大直徑 Max. O.D. ground	mm	Ø400				Ø600				Ø850		Ø1000	
	可研磨工件直徑範圍 Rang of grinding dia.	mm	Ø5-Ø400				Ø15-Ø600				Ø20-Ø850		Ø20-Ø1000	
砂輪頭及橫向進刀 (X 軸) Wheelhead & Carriage(X axis)	砂輪規格 (外徑 x 寬 x 內徑) Wheel size(O. D. x Width x Bore)	mm	Ø500xØ152.4x50				Ø910xØ304.8x75							
	砂輪主軸潤滑系統 Type of lubricating system	-	動靜壓複合式 Hydrostatic & dynamic system											
	砂輪主軸轉速 Rotating speed of wheel	R.P.M	300-1800				300-1200							
	砂輪最大進給速度 Max. cross feed rate	mm/ min	1000mm/min				2000mm/min							
	砂輪頭每脈波進給量 Cross feed per pulse	mm/p	0.001mm											
工作台 (Z 軸) Table (Z axis)	工作台行程 (Z 軸) Travel of table or head (Z axis)	mm	頂心距 +200mm Center Distance+8"											
	工作台進給速度 Travel speed of table	mm/ min	25-3000mm/min				25-6000mm/min							
	導軌潤滑系統 Type of lubricating systekm	-	動靜壓複合式 Hydrostatic &dynamic system											
主軸頭 & 尾座 Workhead & Tailstock	工作主軸轉速 Rotation speed of work head	R.P.M	10-100				8-80				6-60			
	頂心規格 Size of center	-	MT#5				MT#6							
	尾座移動速度 Moving speed of tailstock	mm/ min	手動											
	尾座套筒行程 Stroke of quill	mm	50mm				80mm							
馬達功率 Power rating	砂輪軸馬達 Grind wheel motor	HP	15HP				20HP				30HP			
	主軸用馬達 Workhead motor	HP	5HP(3HPX6P)				7.5HP(5HPX6P)				10HP(7.5HPX6P)			
	工作台橫移用馬達 (Z 軸) Table traverse motor (Z axis)	HP	12NM				22NM				30 NM			
	尾座橫移用馬達 Tailstock move motor	HP	NON											
	砂輪進給用馬達 (X 軸) Cross feed motor (X axis)	HP	8NM				12NM							
	潤滑系統 Lubricating system	HP	2HP											
	冷卻系統 coolant system	-	280Liter				360Liter		420Liter		420Liter			

本公司可依須要變更上列規格，恕不另行通知。All specifications are subject to change without notice.

STANDARD SPECIFICATION 標準規格表

項　目 ITEM	機 種 MODLE		TYPE		
			H130	H160	H200
工作能力 Working capacity	最大旋徑 Max. swing over table	mm	Ø1300	Ø1600	Ø2000
	兩頂心間最大距離 Max. distance between c.c.	M	4,5,6,7,8	5,6,7,8,10,12	6,7,8,10,12
	工件最大重量 (扶架) Max. weight with supports	Kg	15000	30000	40000
	全新砂輪時工件最大直徑 Max. O.D. ground	mm	Ø1300	Ø1600	Ø2000
	可研磨工件直徑範圍 Rang of grinding dia.	mm	80-1300	180-1600	250-2000
	最大中凸隆起量 (直徑) Max. dia of crown	mm	依程式 By program		
砂輪頭及橫向進刀 (X 軸) Wheelhead & Carriage(X axis)	砂輪規格 (外徑 x 內徑 x 寬) Wheel size(O. D. x Width x Bore)	mm	Ø910 xØ304.8 x 80		
	砂輪主軸潤滑系統 Type of lubricating system	-	動靜壓複合式 Hydrostatic & dynamic system		
	砂輪主軸轉速 Rotating speed of wheel	R.P.M	300-1200		
	砂輪最大進給速度 Max. cross feed rate	mm/ min	3000mm/min		
	砂輪頭每脈波進給量 Cross feed per pulse	mm/p	0.001		
工作台 (Z 軸) Table (Z axis)	工作台行程 (Z 軸) Travel of table or head (Z axis)	mm	頂心距 +200mm Center Distance+8"		
	工作台進給速度 Travel speed of table	mm/ min	25-6000mm/min		
	導軌潤滑系統 Type of lubricating systekm	-	動靜壓複合式 Hydrostatic &dynamic system		
中心架 Support	支承直徑範圍 Roll neck diameter range	mm	90- 400 (350-600 option)	90- 400 (350- 700 option)	
主軸頭 & 尾座 Workhead & Tailstock	工作主軸轉速 Rotation speed of work head	R.P.M	6-50	3-30	
	頂心規格 Size of center	-	PT#100		
	尾座移動速度 Moving speed of tailstock	mm/ min	2000		
	尾座套筒行程 Stroke of quill	mm	200mm		
馬達功率 Power rating	砂輪軸馬達 Grind wheel motor	HP	50HP(40HPX6P)	75HP(60HPX6P)	
	主軸用馬達 Workhead motor	HP	40HP(30HPX6P)	50HP(40HPX6P)	75HP(60HPX6P)
	工作台橫移用馬達 (Z 軸) Table traverse motor (Z axis)	HP	22NM	30NM	30 NM
	尾座橫移用馬達 Tailstock move motor	HP	1HPX6P		
	砂輪進給用馬達 (X 軸) Cross feed motor (X axis)	HP	12NM		
	潤滑系統冷卻 Lubricating system	HP	2HP		
	冷卻系統 Coolant system	L	2000Liter X 2HP		

本公司可依須要變更上列規格，恕不另行通知。All specifications are subject to change without notice.

標準規格表 STANDARD SPECIFICATION

標準附件 Standard Accessories

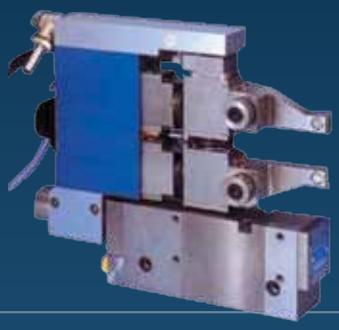
項目 Item	名稱 Description	單位 Unit	數量 Pcs
1	標準砂輪 Grinding Wheel	Pcs	1
2	砂輪法蘭 Flange	Set	2
3	砂輪修正器 Dresser	Set	1
4	法蘭拆卸器 Flange puller	Set	1
5	調整量錶 Gage	Set	1
6	防水板 Splash Guard	Set	1
7	磁性及紙帶過濾機 Paper Filter & Magnetic separator	Set	1
8	MT#5 或 MT6 頂針 Center(MT#5 or MT#6 or PT#100)	Set	1
9	手工具 Tool Box	Set	1
10	中心扶架 2 point steady rest support	Set	2
11	鈑金式防塵護蓋 Sheet-Metal Covers	Pcs	1
12	靜態砂輪平衡儀 & 平衡棒 Static Grinding wheel balance device and arbor	Set	1

特別附件 Optional Accessories

項目 Item	名稱 Description	單位 Unit	數量 Pcs
1	重型中心扶架 Heavy duty 2 point steady rest support	Pcs	
2	頂心研磨裝置 Center grinding device	Pcs	
3	工件牽轉具 carrier	Pcs	
4	萬向接頭 Universal joint	Pcs	
5	四爪單動夾頭 4-Jaws chuck	Pcs	
6	活動頂針 Live center	Set	
7	備用砂輪法蘭 Spare flange	Set	
8	備用砂輪 Spare grinding wheel	Set	
9	轉軸式尾座 Rotating spindle type tailstock	Set	
10	手提式砂輪動平衡校正儀 Portable Balancer	Pcs	
11	自動砂輪動平衡系統 Auto balancing system	Set	
12	軋輥卡式量表規 Roll caliper	Set	
13	集塵裝置 (乾磨式) Dust collector	Set	
14	光學尺 Linear Encoder	Pcs	
15	軋輥特殊曲線加工程式 Special curve grinding program	Set	

磁性及紙帶過濾機
Filter

砂輪法蘭 & 靜態砂輪平衡儀 & 平衡棒
Flange & balance device and arbor



線上量測裝置
OD sizing device

GRINDING MACHINE

CNC ROLL GRINDER

頂心研磨裝置
Center grinding Device

軋輥卡式量表規
Roll caliper

自動砂輪動平衡系統
On-line balanced system

萬向接頭
Universal joint

重型中心扶架
Heavy duty 2 points steady rest support

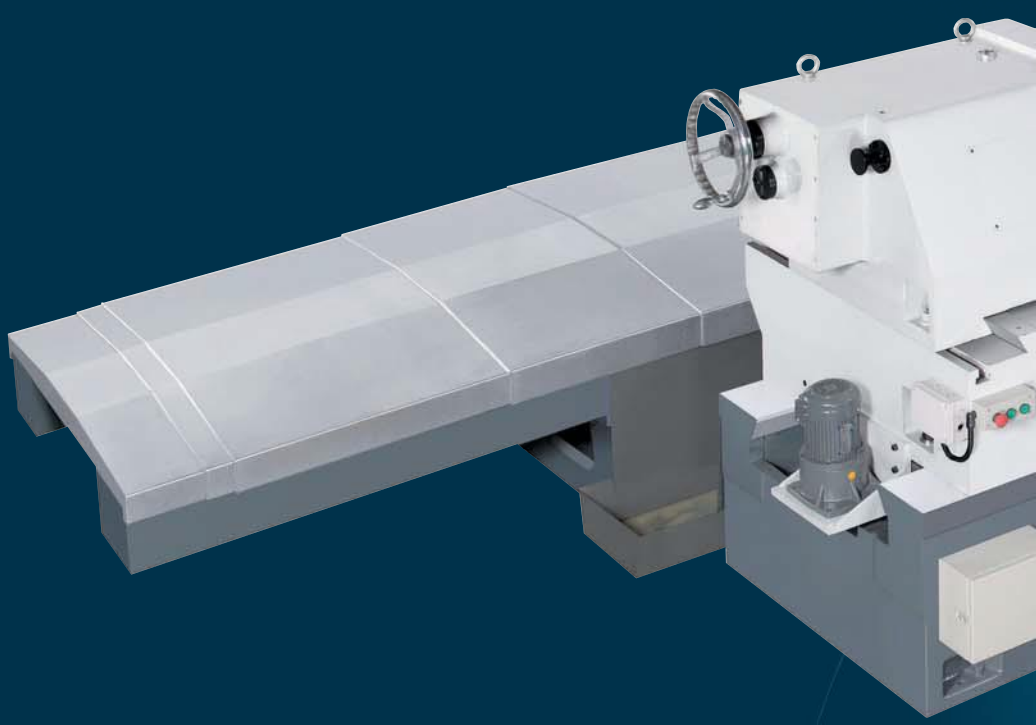
中心扶架
2 Points steady rest support

側面修整座
Face & angular dressor

Design By TOP-DESIGN www.top-design.com.tw

PROMA

正泰機械有限公司



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