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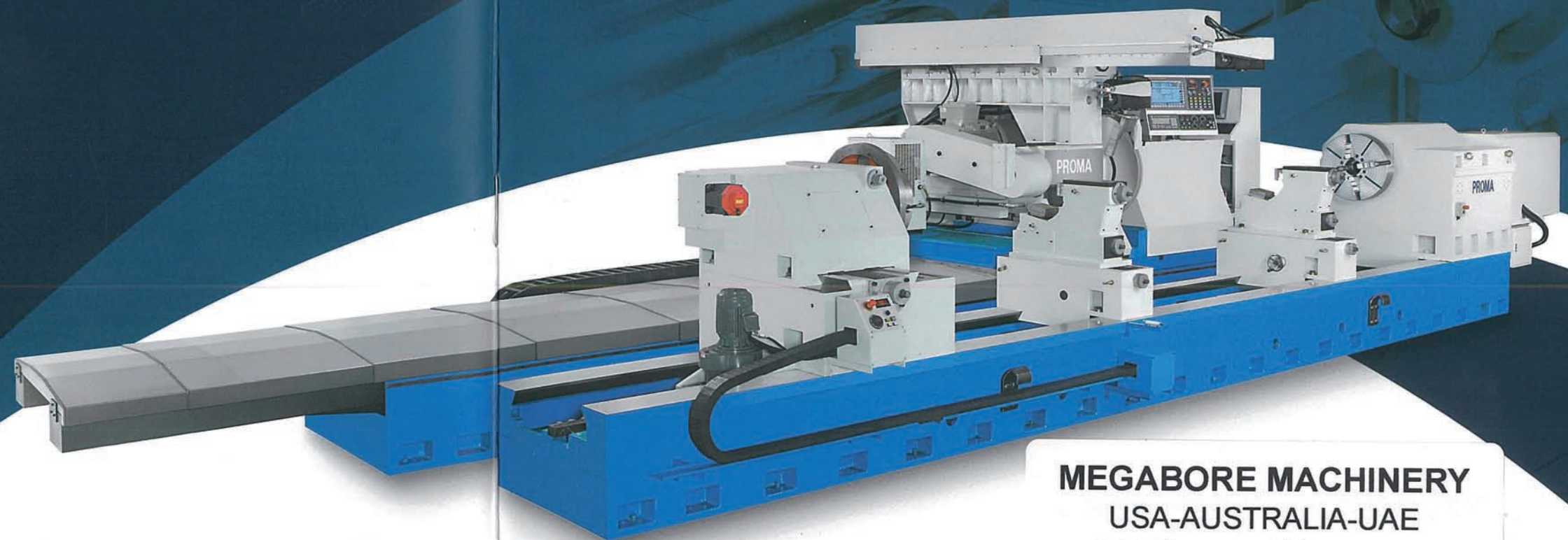


www.megaboremachinery.com

PROMA

CNC ROLL GRINDER
CNC CYLINDRICAL GRINDER

Built for Precision Grinding on Large Rolls



MEGABORE MACHINERY
USA-AUSTRALIA-UAE
megaboremachinery.com

PROMA ROLL GRINDER

正泰軋輥磨床 國內外業界一致推崇

專業設計製造CNC大型軋輥磨床、CNC外圓磨床的正泰機械有限公司，創立以來以科技先鋒自許，憑著公司內部之技術團均擁有豐富的磨床技術歷煉。正泰磨床在品質、精度及性能可靠度的卓越表現，使正泰磨床在數年間就擁有相當的市場占有率，並包括國內外著名客戶，例如：中鋼、永豐餘造紙及世界知名法國航太集團-Safran集團。在在證明正泰磨床技術，已可通過客戶的最嚴格考驗。

RESPECTED BY DOMESTIC AND FOREIGN INDUSTRIES

PROMA Machinery Co., Ltd. specializes in design and manufacturing of a wide range of large type CNC roll grinders. Based on our highly experienced technical team in grinder technology. PROMA has been dedicated to being a technology pioneer since the company was established. With outstanding quality, accuracy and performance dependability, PROMA grinders have established a considerable market share in just a few years. Our customers also include some renowned domestic and foreign companies, such as China Steel Corporation, Yong Feng Yu Paper Manufacturing Group and the world-famous French Aerospace Group - Safran Group. All these facts provide proof that PROMA grinders are able to pass the most rigorous tests from customers.



PROMA GRINDING MACHINE

適用行業 APPLICABLE INDUSTRIES

造紙業
PAPER MAKING
INDUSTRY

人造皮革
ARTIFICIAL
LEATHER

鋼鐵業
STEEL INDUSTRY

塑膠射出成型機
PLASTIC INJECTION
MOLDING MACHINE

膠膜
FILM

航太工業
AEROSPACE
INDUSTRY

發電廠
POWER PLANT



優異的研磨精度

OUTSTANDING GRINDING ACCURACY

工件 WORKPIECE

軋輥外徑	Roll outside diameter	Ø400 mm
軋輥長度	Roll length	5m
軋輥材質	Roll material	鋼材HRC 52° Steel HRC 52°

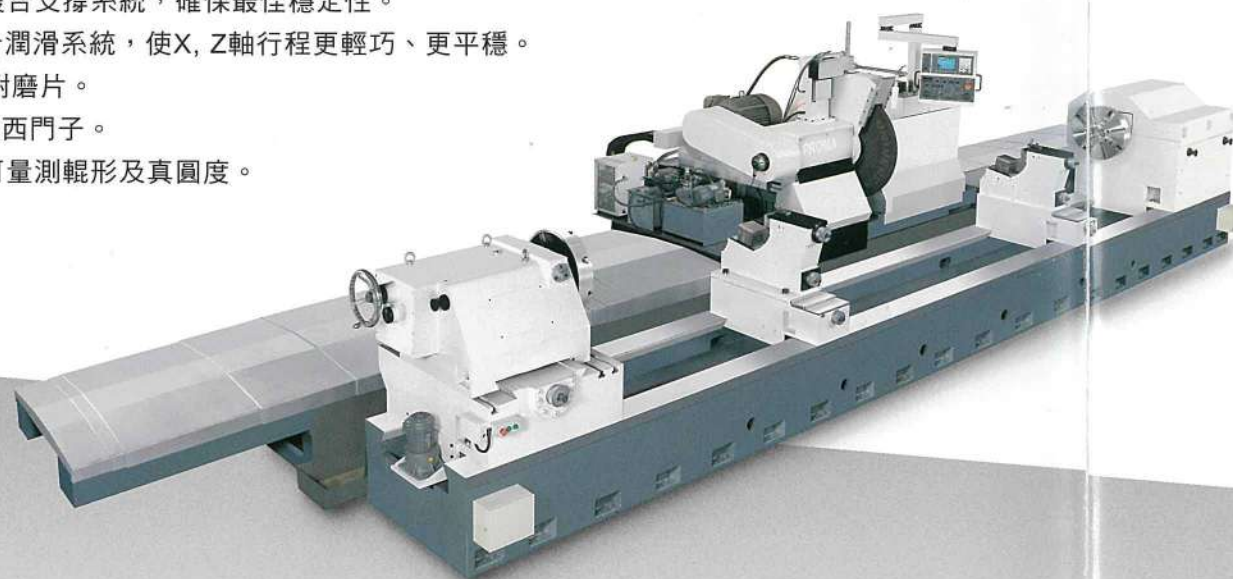
研磨精度 GRINDING ACCURACY

真圓度	Circularity	3µm 以內	within 3µm
真直度	Straightness	5µm	
表面精度	Surface roughness	Ra0.1 以下	Under Ra0.1

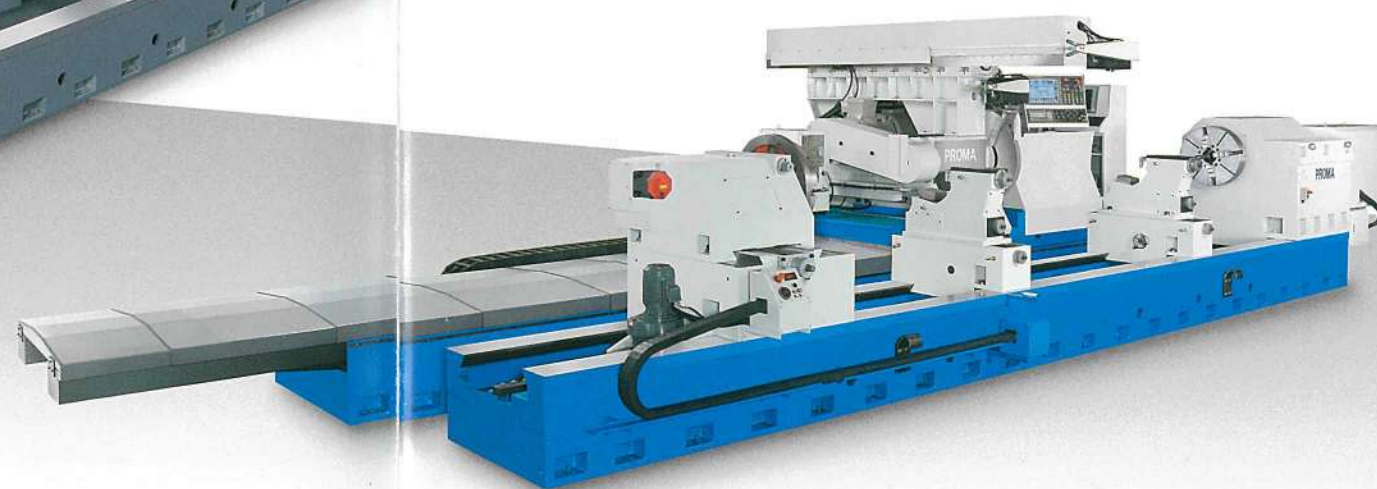
H Type

CNC 外圓軋磨床 CNC ROLL GRINDER

- 最大工作台上旋徑: Ø400, Ø850, Ø1300, Ø1600, Ø2000 mm。
- 兩頂心間最大距離: 5 m, 6 m, 7 m, 8 m, 10 m, 12 m。
- 最大工件重量: 40噸。超過40噸可客製化。
- 砂輪頭移動式。
- 砂輪主軸軸承採用動靜壓複合支撐系統，確保最佳穩定性。
- X, Z軸滑道採用動靜壓複合潤滑系統，使X, Z軸行程更輕巧、更平穩。
- X, Z軸滑道貼附Turcite-B耐磨片。
- CNC控制器選擇: 發那科或西門子。
- 線上自動外徑量測裝置，可量測軋形及真圓度。



- Max. swing over table: Ø400, Ø850, Ø1300, Ø1600, Ø2000 mm.
- Max. distance between centers: 5 m, 6 m, 7 m, 8 m, 10 m, 12 m.
- Max. weight of workpiece: 40 tons. Weight over 40 tons is available.
- Traveling wheelhead type.
- The wheelhead spindle is supported by a hydrodynamic hydrostatic complex system, ensuring an optional stability.
- X, Z-axis slideways are lubricated by a hydrodynamic hydrostatic complex lubrication system, making X, Z-axis movement smoother and more stable.
- X, Z-axis slideways are coated with Turcite-B wear-resistance media.
- Choice of CNC controllers: Fanuc or Siemens.
- Automatic outside diameter measuring device on machine provides measurement for roll shape and circularity.



HS Type

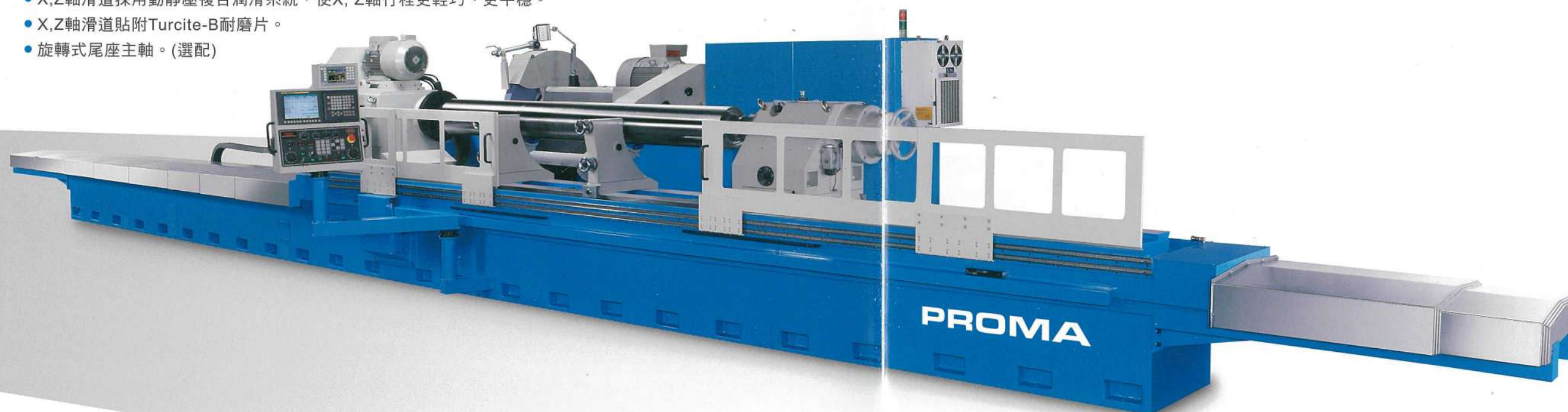
研磨拋光複合機 MULTI PURPOSE FOR GRINDING AND SUPER FINISH SURFACE



L Type

CNC 外圓軋磨床 CNC CYLINDRICAL ROLL GRINDER

- 最大工作台上旋徑: Ø850, Ø1000, Ø1200 mm。
- 兩頂心間最大距離: 2 m, 3 m, 4 m, 5 m, 6 m。
- 最大工件重量: 6噸。
- 工作台移動式。
- 砂輪主軸軸承採用動靜壓複合支撐系統，確保最佳穩定性。
- X,Z軸滑道採用動靜壓複合潤滑系統，使X, Z軸行程更輕巧、更平穩。
- X,Z軸滑道貼附Turcite-B耐磨片。
- 旋轉式尾座主軸。(選配)



- Max. swing over table: Ø850, Ø1000, Ø1200 mm.
- Max. distance between centers: 2 m, 3 m, 4 m, 5 m, 6 m.
- Max. weight of workpiece: 6 tons.
- Traveling table type.
- The wheelhead spindle is supported by a hydrodynamic hydrostatic complex system, ensuring an optional stability.
- X, Z-axis slideways are lubricated by a hydrodynamic hydrostatic complex lubrication system, making X, Z-axis movement smoother and more stable.
- X, Z-axis slideways are coated with Turcite-B wear-resistance media.
- Rotating tailstock spindle. (Optional)



- 內徑研磨裝置。(選配)
- 研磨深度可達800 mm。
- Internal grinding device. (Optional)
- Grinding depth reaches 800 mm.

M Type

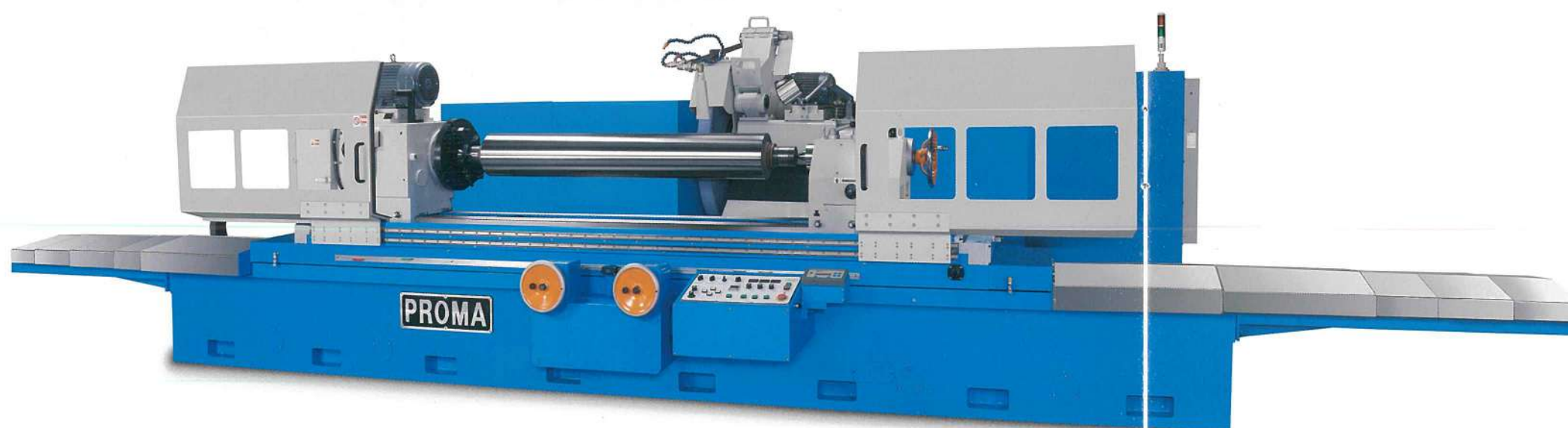
CNC 外圓軋磨床 / 傳統外圓軋磨床 CNC CYLINDRICAL ROLL GRINDER TRADITIONAL CYLINDRICAL ROLL GRINDER

- 最大工作台上旋徑: Ø600 mm。
- 兩頂心間最大距離: 3 m, 4 m, 5 m, 6 m。
- 最大工件重量: 3噸。
- 工作台移動式。
- 砂輪主軸軸承採用動靜壓複合支撐系統，確保最佳穩定性。
- X, Z軸滑道採用動靜壓複合潤滑系統，使X, Z軸行程更輕巧、更平穩。
- X, Z軸滑道貼附Turcite-B耐磨片。
- 旋轉式尾座主軸。(選配)



CNC 外圓軋磨床
CNC CYLINDRICAL ROLL GRINDER

- Max. swing over table: Ø600 mm.
- Max. distance between centers: 3 m, 4 m, 5 m, 6 m.
- Max. weight of workpiece: 3 tons.
- Traveling table type.
- The wheelhead spindle is supported by a hydrodynamic hydrostatic complex system, ensuring an optional stability.
- X, Z-axis slideways are lubricated by a hydrodynamic hydrostatic complex lubrication system, making X, Z-axis movement smoother and more stable.
- X, Z-axis slideways are coated with Turcite-B wear-resistance media.
- Rotating tailstock spindle. (Optional)



傳統外圓軋磨床
TRADITIONAL CYLINDRICAL ROLL GRINDER

S Type

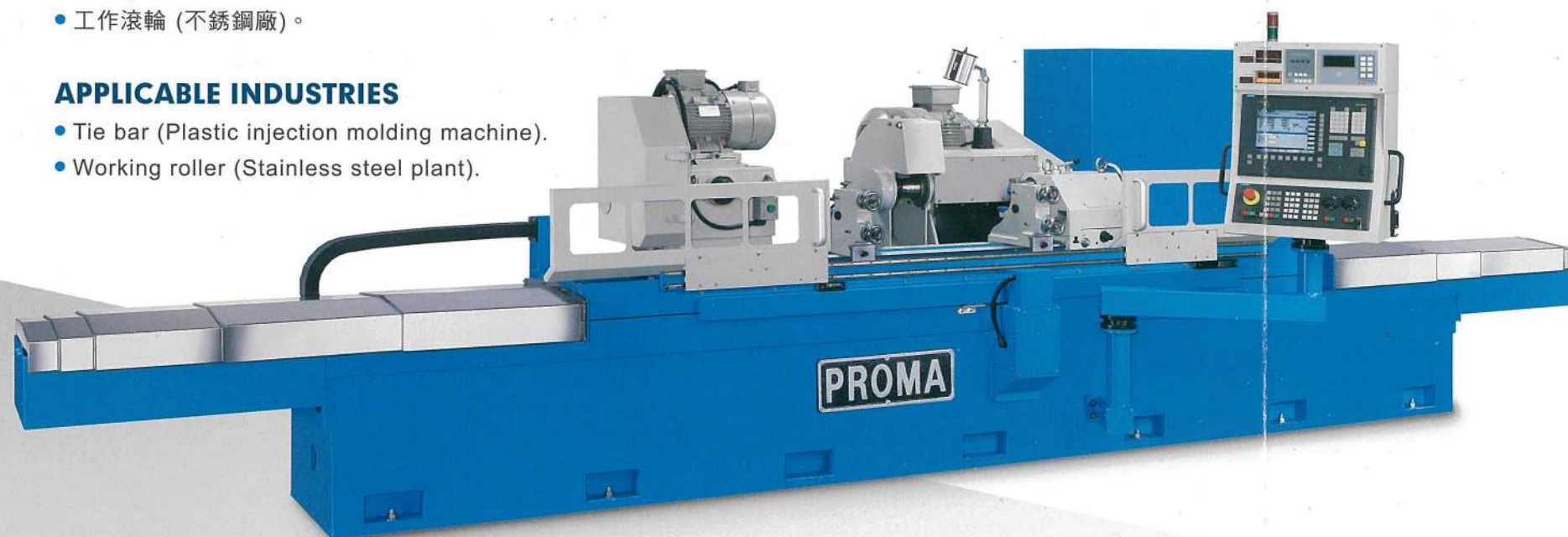
CNC 外圓軋磨床 CNC CYLINDRICAL ROLL GRINDER

應用行業

- 哥林柱 (塑膠射出成型機)。
- 工作滾輪 (不銹鋼廠)。

APPLICABLE INDUSTRIES

- Tie bar (Plastic injection molding machine).
- Working roller (Stainless steel plant).



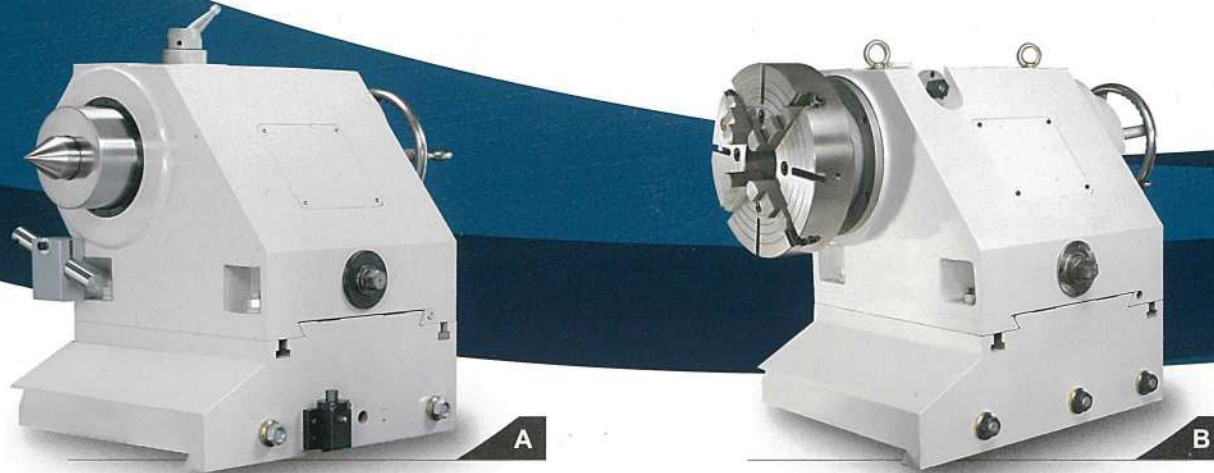
- 最大工作台上旋徑: Ø400 mm。
- 兩頂心間最大距離: 1.5 m, 2 m, 3 m, 4 m。
- 最大工件重量: 1.5噸。
- 工作台移動式。
- 砂輪主軸軸承採用動靜壓複合支撐系統，確保最佳穩定性。
- X, Z軸滑道採用動靜壓複合潤滑系統，使X, Z軸行程更輕巧、更平穩。
- X, Z軸滑道貼附Turcite-B耐磨片。

- Max. swing over table: Ø400 mm.
- Max. distance between centers: 1.5 m, 2 m, 3 m, 4 m
- Max. weight of workpiece: 1.5 tons.
- Traveling table type.
- The wheelhead spindle is supported by a hydrodynamic hydrostatic complex system, ensuring an optional stability.
- X, Z-axis slideways are lubricated by a hydrodynamic hydrostatic complex lubrication system, making X, Z-axis movement smoother and more stable.
- X, Z-axis slideways are coated with Turcite-B wear-resistance media.

S Type

- 內徑研磨裝置 (選配)。
- 研磨深度可達600 mm。
- Internal grinding device (Optional).
- Grinding depth reaches 600 mm.



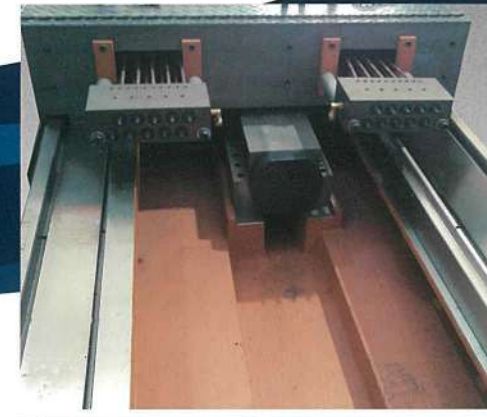


A 尾座 TAILSTOCK

- **砂輪修整器**
砂輪修整器安裝在尾座本體上，可修整砂輪正面及側面。
- **軋輥對心校正**
尾座是由上、下本體所組成。依據程式所設定之直線、斜線或曲線，可利用尾座之上半部之橫向調整作軋輥之對心校正。
- **尾座移動馬達驅動**
尾座於床台上之縱向移動採馬達驅動，配合平面空氣軸承輔助移動，以減少摩擦力及降低磨耗。
- **超大尾座套筒**
超大直徑尾座套筒，經中週波熱處理。表面鍍硬鉻，再經精密研磨。具有耐磨耗、荷重能力大等特色。
- **WHEEL DRESSER**
The wheel dresser is mounted on the tailstock allowing for dressing the front and side of a grinding wheel.
- **ROLL CENTER ALIGNMENT**
The tailstock consists of two parts. According to the straight line, skew line or curve set by programs, the operators may conduct roll center alignment by adjusting the upper part of the tailstock.
- **TAILSTOCK MOVEMENT DRIVEN BY MOTOR**
The tailstock moving along the bed (longitudinal) is driven by a motor, which combined with air bearing for moving assistance to reduce friction and wear.
- **OVERSIZED TAILSTOCK QUILL**
The oversized tailstock quill is subject to intermediate frequency heat treatment. Quill surface is hard chrome plated and precision ground, featuring wear-resistance and great loading capacity.

B 旋轉式尾座 ROTATING SPINDLE OF TAILSTOCK (L, M型選配) (Optional for L, M types)

- 旋轉式尾座附四爪夾頭為選配。
- The rotating spindle of tailstock equipped with a four-jaw chuck is optional.



C 工作台 TABLE

- **高級材質**
工作台採用FC25~FC30鑄鐵一體鑄造成型，再經過600°退火及48小時自然冷卻以消除工作台之內應力。
- **動靜壓潤滑系統**
工作台採用動靜壓複合循環潤滑系統，可承受不平均之壓力，穩定順暢的潤滑效果，使零組件間的磨耗降至最低程度。
- **優異穩定性**
降低床台高度，並加寬工作台寬度，以提升穩定性與結構強度，確保均勻的軋筒表面精度。
- **HIGH QUALITY MATERIAL**
The table is one-piece fabricated by high quality cast iron (FC25~FC30), tempered by 600° and naturally cooled for 48 hours to relieve internal stress of the table.
- **HYDRODYNAMIC HYDROSTATIC COMPLEX LUBRICATION SYSTEM**
The table employs a hydrodynamic hydrostatic complex lubrication system, allowing the table to resist uneven loads. The stable and smooth lubrication effect reduces friction and wear between parts to a minimum.
- **EXCELLENT STABILITY**
The lower bed height combined with increased table width provide an increase in stability and structural strength, resulting in even roll surface finish.

D 底座 BASE

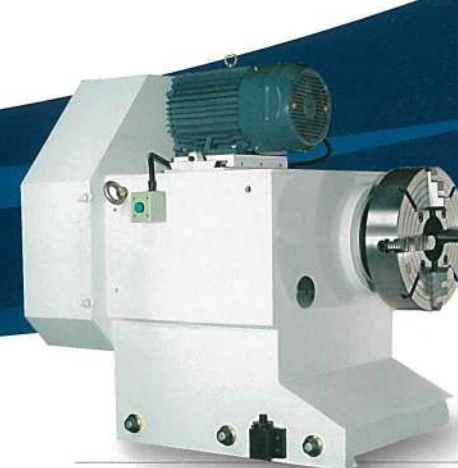
- **穩重的底座**
 - 底座採用FC25~FC30鑄鐵一體鑄造成型，再經過600°退火及48小時自然冷卻以消除工作台之內應力。
 - 底座結構設計經電腦輔助分析，配合米字形肋骨強化，徹底表露非凡的結構剛性。
- **MASSIVE BASE**
 - The base is one-piece fabricated by high quality cast iron (FC25~FC30), tempered by 600° and naturally cooled for 48 hours to relieve internal stress of the base.
 - The design of base structure is subject to computer-assisted analysis in combination with radical shaped rib reinforcement that fully exhibits outstanding structural rigidity.



E

E 砂輪頭 WHEELHEAD

- **砂輪頭**
砂輪頭安裝於進刀座(X軸)。
- **精密砂輪主軸**
砂輪主軸採用鎳鉻鉬合金鋼製成，經調質處理、熱處理、動平衡校正及精密研磨。
- **動靜壓複合軸承**
砂輪主軸採用動靜壓複合軸承支撐。砂輪主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，提供穩定的切削壓力。
- **砂輪主軸運轉於油膜上**
砂輪主軸運轉前，油壓系統會供應足夠壓力之液壓油。當壓力開關偵測到油壓壓力已到達設定值時，砂輪主軸才會啟動運轉。砂輪主軸停止前，液壓油仍持續供應至砂輪主軸完全停止為止，以避免砂輪主軸之磨耗。
- **WHEEL HEAD**
The wheel head is mounted on the carriage (X-axis).
- **HIGH PRECISION WHEEL SPINDLE**
The wheel spindle is manufactured from Nickel Chromolybdenum alloy steel, tempered, heat-treated, dynamically balanced and precision ground.
- **HYDRODYNAMIC HYDROSTATIC COMPLEX BEARING**
The wheel spindle is supported by hydrodynamic, hydrostatic complex bearings. When the wheel spindle stops, it is supported by hydrostatic pressure. While the wheel spindle is running, the hydrodynamic oil film will create rigid oil film providing a stable cutting pressure.
- **WHEEL SPINDLE RUNS ON OIL FILM**
Before the wheel spindle starts running, the hydraulic system will supply sufficient pressure of hydraulic oil. Once the pressure switch detects the hydraulic pressure has reached the setting value, the wheel spindle will start running. Before the grinding wheel stops, hydraulic oil will continue to supply until the wheel spindle comes to a complete stop. This may prevent the wheel spindle from wearing.



F

F 主軸頭座 HEADSTOCK

- **高剛性主軸頭座**
 - 主軸頭座結構設計，經由電腦輔助分析，具有高承载力，且不易產生共振。
 - 主軸頭結構高剛性。非迴轉式設計，有助於提升荷重剛性。
 - 工作主軸採用精密滾柱軸承，並經由時規皮帶傳動，展現精密無振顫之運轉特性。
- **工件驅動方式**
 - S40 / M60: 有旋轉式及非旋轉式。
 - L85: 旋轉式設計。以頂針配合牽轉具或四爪夾頭驅動工件。
- **HIGHLY RIGID HEADSTOCK**
 - The headstock structure design is subject to a computer-assisted analysis to achieve high leading capacity while reducing resonance to a minimum.
 - The headstock with maximum structural rigidity is a non-swiveling design that aids in loading rigidity.
 - The work spindle runs in high precision roller bearings and is transmitted through timing belts, exhibiting precise and chatter-free running.
- **WORKPIECE ROTATION DRIVE METHODS:**
 - S40/M60: Rotating and non-rotating methods.
 - L85: Rotating type. Using a center combined with a driving dog or a 4-jaw chuck to drive the work piece.



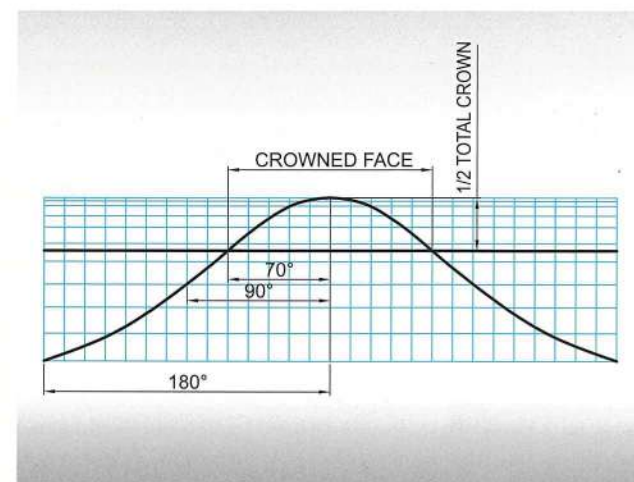
G

G CNC控制器 CONTROLLER

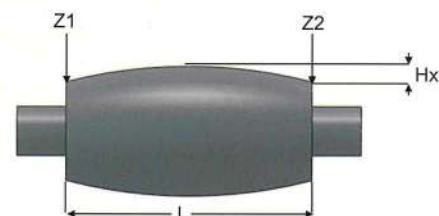
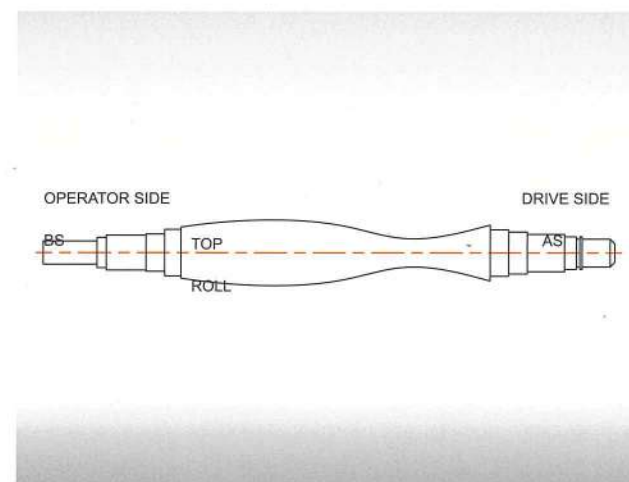
- **CNC控制器**
此系列機種採用日本發那科及西門子 CNC控制器，既精準且易於學習操作。
- **外圓、錐面、端面研磨**
備有研磨工序巨集指令，可應用於各種外圓、錐面及端面之精磨及火花研磨。
- **PLC控制**
電腦主控系統內含PLC可程式控制單元，易於維護。
- **CNC CONTROLLER**
The series of machine is equipped with Japan FANUC and Germany Siemens CNC controller, featuring high precision and is easy to learn.
- **CYLINDRICAL, TAPERED SURFACE & END FACE GRINDING**
The controller provides macro commands for grinding process, which is applicable for finish and spark-out grinding on cylinder, tapered surface and end face.
- **PLC CONTROL**
The main control system integrates a PLC control, making maintenance easy.

標準 / 選購配備 STANDARD / OPTIONAL ACCESSORIES

SINE曲線&COSIN曲線



CVC曲線



● 電腦計算砂輪路徑

對於軋輥之中凸研磨，操作者可利用程式指令，指定軋輥中凸高度及長度。並可由電腦精準算出砂輪之進刀路徑，達到高精度、精緻之軋輥中凸研磨效果。

● 程式儲存

可將程式建檔儲存，以便日後重複使用。

● 曲線擴充 隨心所欲

多種研磨曲線可選擇，例如：Sine曲線、Cosin曲線、CVC曲線、經驗值曲線等。

● COMPUTER CALCULATION FOR WHEEL PATH

In crown grinding on roll, the operator may use program commands to specify the crown height and length. The computer will calculate the feed path of the grinding wheel, and a high accuracy, fine finish crown grinding effect on roll can be achieved.

● PROGRAM SAVING

Creating a file for saving programs for repetitive use in the future.

● EXPANSIVE CURVE TYPES

Various curve types are available to select, including sine curve, cosine curve CVC curve and experienced value curve.

鏡面拋光裝置 Super finishing device



線上量測裝置
Inprocess
measuring



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



頂心研磨裝置
Center grinding device



側面修整座
Face & angular dresser



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



中心扶架
2 points steady rest support

標準配備

- 標準砂輪
- 砂輪法蘭
- 砂輪修正器
- 法蘭拆卸器
- 調整量錶
- 防水板
- 磁性及紙帶過濾機
- MT#5或MT6頂針
- 手工具
- 中心扶架
- 鉸金式防塵護蓋
- 靜態砂輪平衡儀及平衡棒

選購配備

- 重型中心扶架
- 頂心研磨裝置
- 工件牽轉具
- 萬向接頭
- 四爪單動夾頭
- 活動頂針
- 備用砂輪法蘭
- 備用砂輪
- 轉軸式尾座
- 手提式砂輪動平衡校正儀
- 自動砂輪動平衡系統
- 軋輥卡式量表規
- 集塵裝置 (乾磨式)
- 光學尺
- 軋輥特殊曲線加工程式

STANDARD ACCESSORIES

- Grinding wheel
- Flange
- Dresser
- Flange puller
- Gage
- Splash guard
- Filter
- Center (MT#5 or MT#6 or PT#100)
- Tool box
- Support
- Sheet-metal covers
- Device and arbor

OPTIONAL ACCESSORIES

- Heavy duty support
- Center grinding device
- Carrier
- Universal joint
- 4-jaws chuck
- Live center
- Spare flange
- Spare grinding wheel
- Rotating spindle type tailstock
- Portable balancer
- Auto balancing system
- Roll caliper
- Dust collector
- Linear encoder
- Grinding program