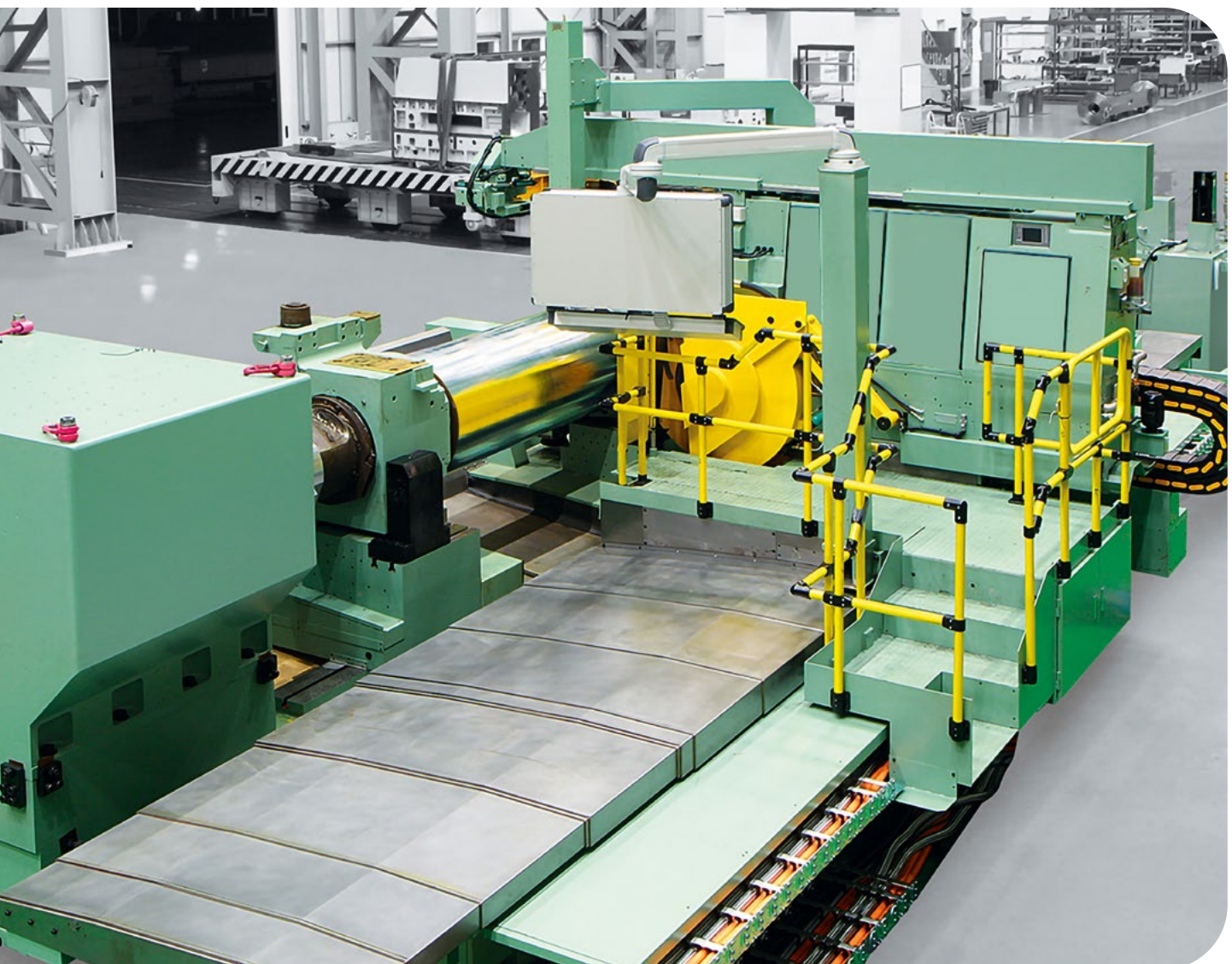


# CNC ROLL GRINDER

CNC Roll Grinder has a perfect combination of the up-to-date design, advanced high technology and fully skilled SANGNIM MSP's engineering. This machine consists of bed, headstock, tailstock, wheel head, measuring device, steady rest, accessories and CNC control system.







CNC ROLL GRINDER

# Applications

This machine has been designed for various kinds of rolls in the industries like below.

SANGNIM MSP Co., Ltd. 生产的轧辊磨床可以将各个领域的轧辊磨削至最佳品质。

## Steel Mill Industry 钢铁领域

- Roll for heavy plate 厚板卷
- Roll for hot rolled strip 热轧卷
- Roll for cold rolled strip 冷轧卷



## Aluminum & Other Industry 铝领域

- Aluminum plate and sheet 铝板和铝箔
- Stainless steel plate 不锈钢板
- Non-ferrous metal plate 不锈钢板



## Paper Industry 造纸领域

- Roll for paper sheet 纸卷
- Roll for toilet paper 卫生纸卷

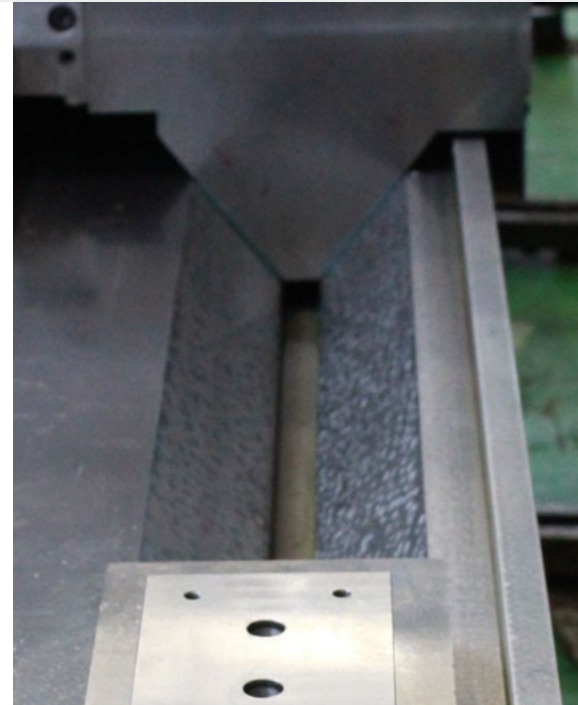
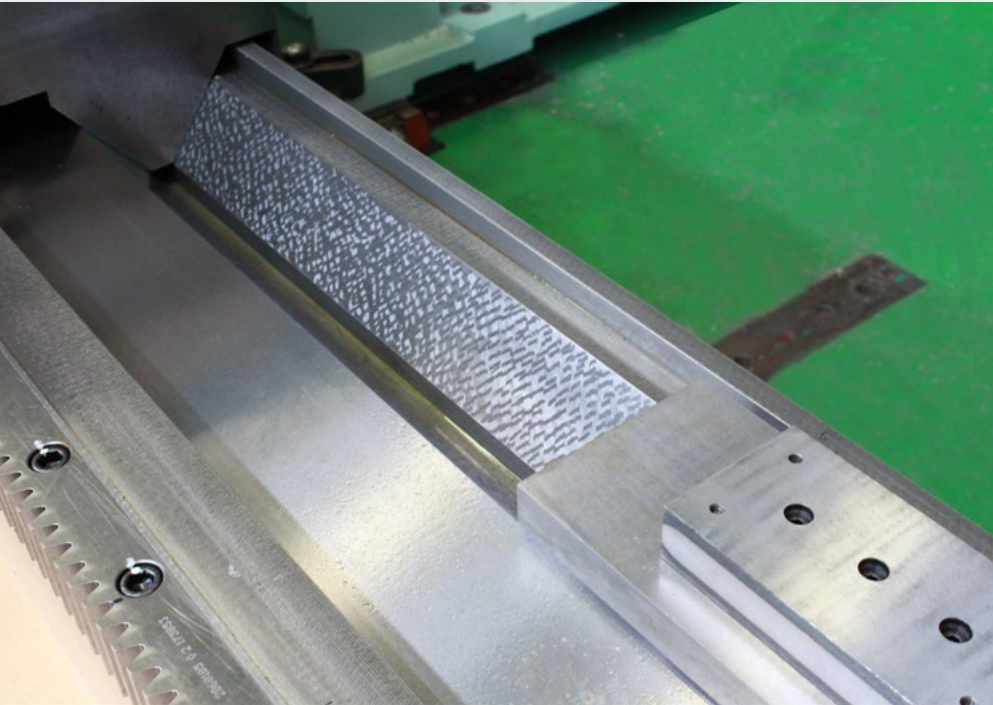


CNC ROLL GRINDER

# Features

## V-Groove

- Best system for grinding accuracy
  - Continuously keeping center line
  - Minimization of the thermal deformation
  - Application of 76° degree at V-groove for no swimming effect in heavyweight
  - Application of scraping work to the major slide ways
- 轧辊磨削精度的最佳系统
  - 持续稳定中心线
  - 最大限度地减少热变形
  - 采用76°角的V型槽，即使在重载条件下也不会出现晃动现象。
  - 主要导轨面进行刮削处理



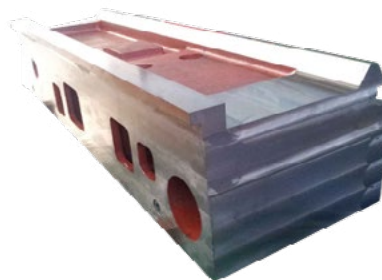
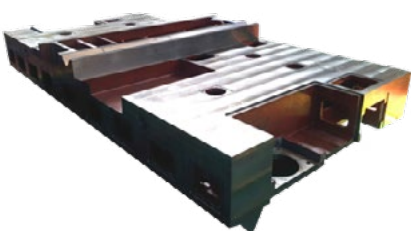
## Cast Iron Structure

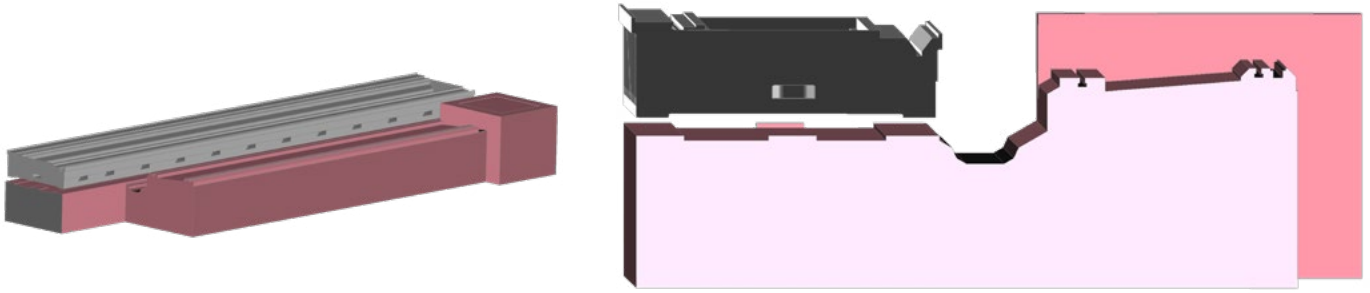
The main parts such as carriage, bed, tailstock and headstock are made of cast iron.

- Rigid structure
- High dimensional accuracy of the products

拖板、床身、尾座、主轴箱等主要部件均采用铸件制造。

- 高刚性
- 保持产品的高精度



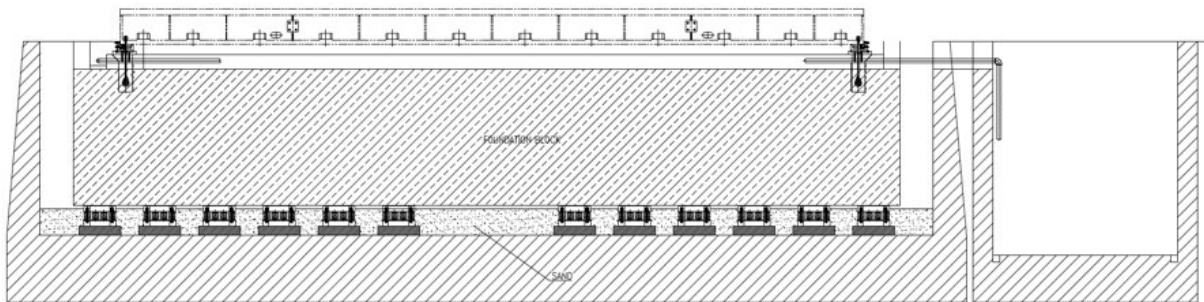


## Monolith Bed

The existing mechanical foundation method combining concrete blocks and springs required excessive foundation construction costs from the customer. With the introduction of new technology, we simplify the machine foundation by replacing the existing concrete block type machine foundation and supply Monolith Bed with even better physical properties.

现有的机械基础方法结合了混凝土块和弹簧，需要客户承担过高的基础建设成本。通过引进新技术，我们简化了机器基础，更换了现有的混凝土块式机器基础，并提供了物理性能更好的混凝土床身。

- Reduced cost compared to concrete block type foundation
- Excellent vibration absorption effect
- No thermal deformation under normal conditions due to high heat capacity and thermal stability
- 与传统混凝土块式基础相比可节省成本
- 优良的吸振效果
- 高热容量和热稳定性，正常情况下不发生热变形



## Spring Foundation

If a customer wants to reuse an existing machine foundation or wants a concrete block type foundation, we provide a concrete block type machine foundation design through appropriate design.

如果客户想重复使用现有的机器基础或想要混凝土块式基础，我们通过适当的设计提供混凝土块式机器基础设计





## CNC ROLL GRINDER

## Features

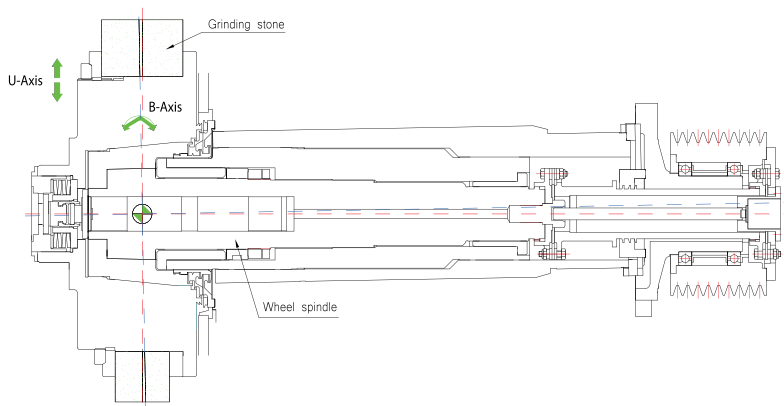
## Grinding Wheel

Our grinding wheel has a special design for efficient grinding of the roll, and it has special moving axis B and U. That axis brings high grinding ability and cost reduction.

- Special design of B & U-axis
- Precise approach control from wheel to roll surface
- Application of disc coupling for prevention of vibration

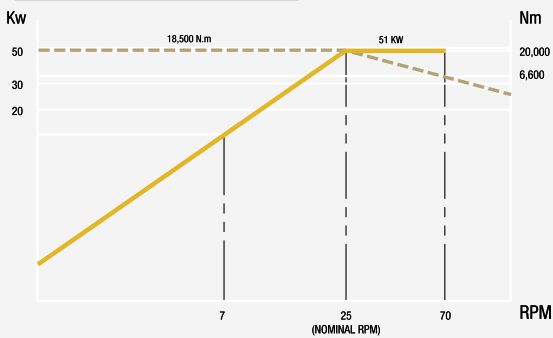
SANGNIM MSP Co., Ltd.开发的抛光主轴是为了方便轧辊磨削而设计的，具有特殊的移动轴、B轴和U轴。该轴具有高磨削性能并节省成本。

- SANGNIM MSP Co., Ltd.特殊的B&U轴设计
- 从磨石到轧辊面的精确访问控制
- 采用盘式联轴器防止振动

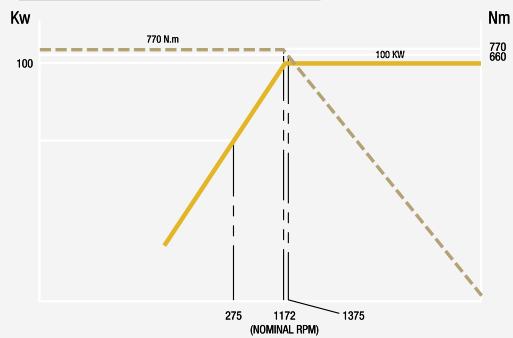


## Torque Diagram

+ Faceplate of Work Roll Grinder



+ Wheel Head of Work Roll Grinder





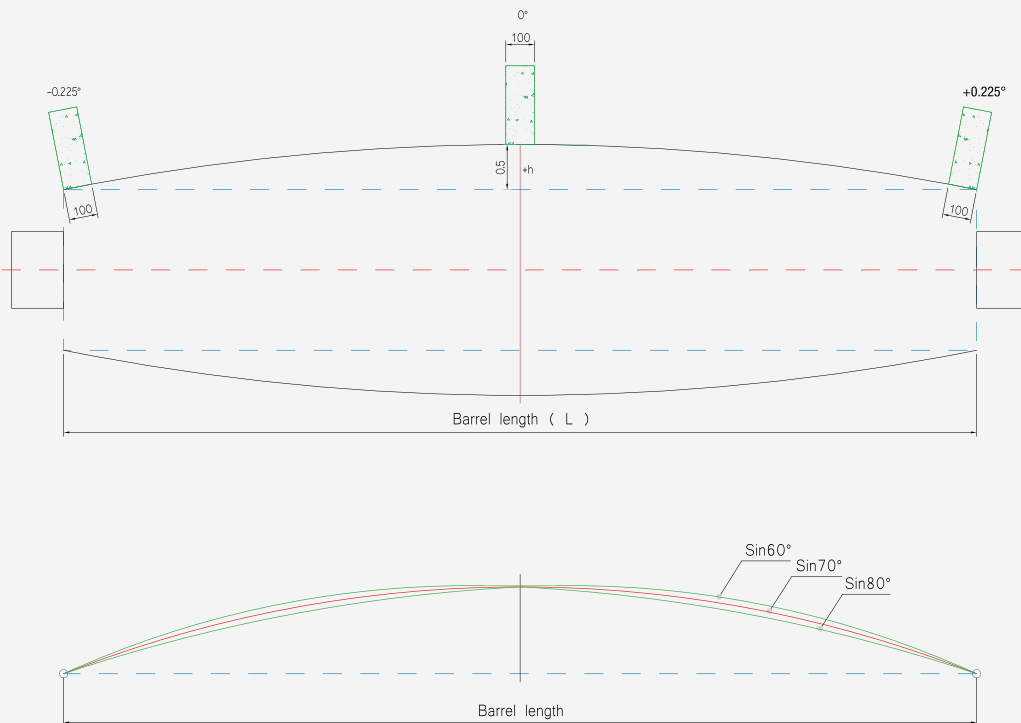
## B&U-axis

- Working at the center line of the grinding wheel
- High rigid structure
- Application of the hydrostatic guiding system
- 40% time reduction in comparison with other makers in case of CVC roll grinding
- 20% reduction of the wheel wear

- 在磨石的中心线上操作
- 高刚性结构
- 应用油压导向系统
- 如果采用CVC 轧辊磨削，与其他制造商相比，加工时间减少40%
- 磨石磨损减少 20%



## Curve Shape



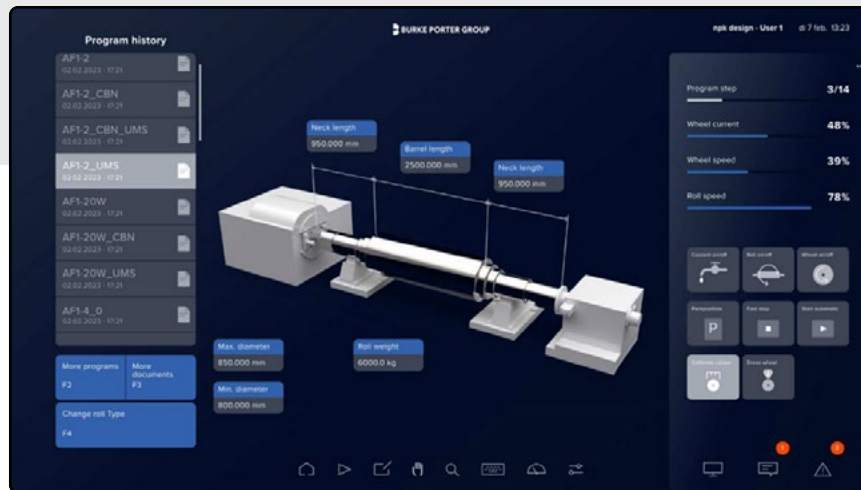
## CNC ROLL GRINDER

## Features

## GPC - Grind Process Control

Our roll grinders are equipped with GPC, a control program exclusively for roll grinders from Kleinknecht, Germany. Experience the best program for grinding based on Siemens, with a modern design of HMI, touch operation and familiar and easy operation functions like those of common home appliances or car control systems.

SANGNIM的轧辊抛光机配备了GPC，这是德国Kleinknecht的轧辊抛光机专用的控制程序。该程序采用现代化的人机界面（HMI）设计、触摸操作以及像普通家用电器或汽车控制系统一样熟悉且简单的操作，可以体验到西门子的最佳抛光程序。



## HMI - Home screen

Overview and direct access to last roll grind protocols  
辊磨削作业概述

- Check grinding data and measured curves
- Fast access to all programs and grinding data, individual folder structure like Windows
- 检查磨削数据和测量曲线
- 快速访问所有程序和磨削数据，像Windows 一样的单独文件夹结构

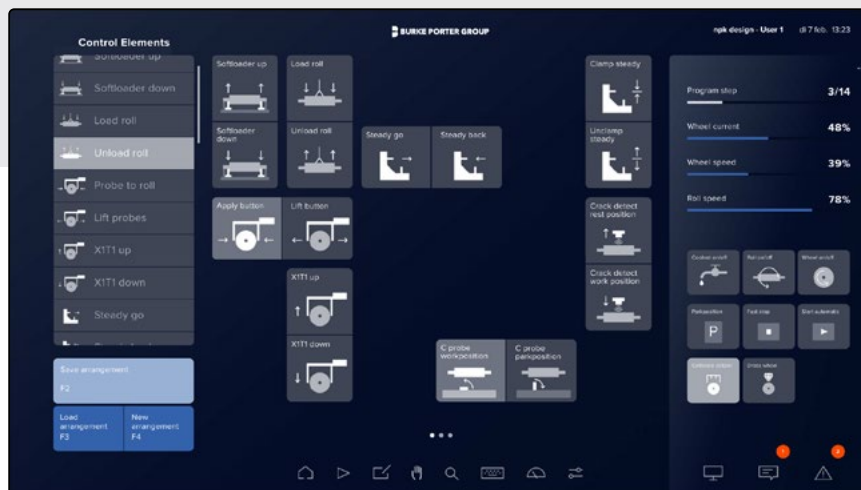
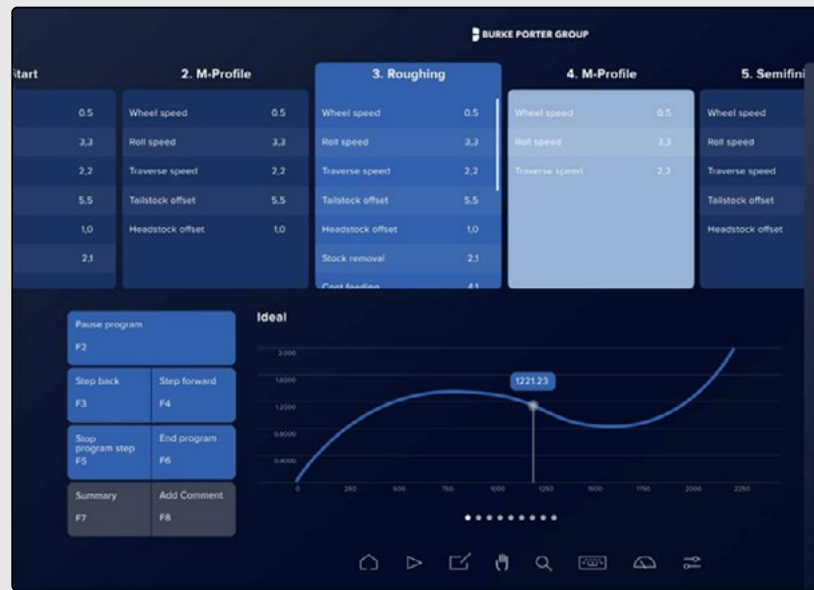
Overview of inserted roll and basic roll data  
已装配辊数据概述

- Dashboard for direct controls and information about current grinder status
- Hint to messages and warnings by red color notifications
- 仪器屏幕提供有关当前抛光状态的直接控制和信息
- 提供红色警报、消息和警告的解决方案



## HMI - Automatic Operation Mode

- Representation of the grinding steps as a horizontal sequence.
- Visual highlighting of the active and the following step.
- Navigation and control by shortcut keys or moving by hand.
- Direct access to the most important parameters.
- Swapping through different types of curves (measured, deviation, Roll inspection results, current fluctuation, ...)
- 以水平顺序表示磨削步骤。
- 直观地突出显示正在抛光的步骤以及接下来的步骤。
- 可以使用快捷键或触摸来搜索和控制。
- 直接访问重要参数。
- 显示各类曲线（测量值、偏差、轧辊检测结果、电流波动等）



## HMI - Manual / Jog Operation Mode

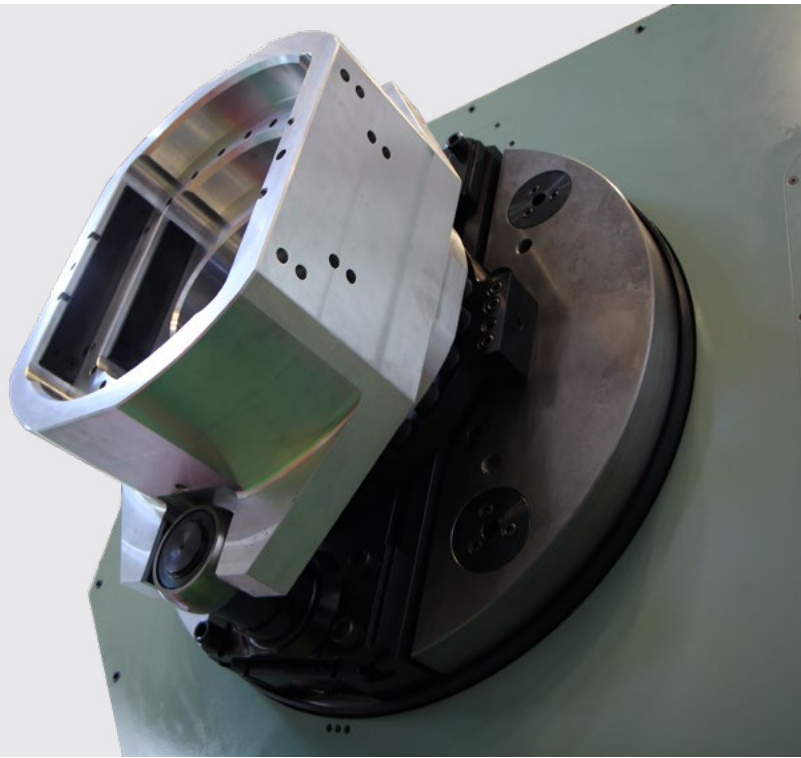
- Each operator can create his own configuration of this page (several existing pages are indicated by the dots) - Known procedure from consumer electronics
- Function can be dragged and dropped from a library onto a position and fixes itself in the grid - The library is only displayed during configuration
- The function is displayed via text and simple unique pictograms
- 每个操作员都可以在此页面创建自己的配置。(用点标示多个现有页面) - 像普通电子设备一样方便地工作。
- 可以将要素拖放到资料集中的特定位置，并在文本框中自动修改。仅在配置中显示资料集合。
- 通过文本和简单、独特的象形图来体现功能。

## CNC ROLL GRINDER

# Features

## Driving Dog

- Optimized design for quick roll setting
- By applying step shape, various types of rolls can be set quickly without changing aluminum housing.
- 快速安装轧辊的优化设计
- 通过采用与客户轧辊结构相匹配的阶梯形状，可以快速准备不同形状的轧辊进行抛光，而无需更换铝车床。



## Steady / Chock Rest

We supply various steady rests and chock rests in hot & cold rolling mill abiding by customer's needs on the basis of the accumulated steady rest manufacture know-how.

### + For Cold Rolling Mill

- Steady rest for high precise grinding in cold rolling mill
- Hydrostatic, Hydrodynamics
- 适合高精度磨削冷轧钢跟刀架



基于制造大量跟刀架获得的专业知识，我们提供适合客户的热轧钢和冷轧钢跟刀架以及托架。

### + For Hot Rolling Mill

- Chock rest for quick grinding in hot rolling mill
- 适合快速重切削的热轧钢托架



## Measuring Device

- Application of Heidenhain measuring system
- Measuring device and carriage are integrated as one body for compact structure
- Minimization of temperature influence and deformation despite long-term use, maintenance of high accuracy.
- 应用海德汉检测系统
- 结构紧凑，带有集成的轧辊检测装置和托架
- 即使长期使用后因低温影响或变形仍能保持高精度



## Measuring Caliber

- Depending on the customer's preference, a measuring caliber from WMG can be installed as an option.
- 可以根据客户的喜好，选择安装德国WMG的轧辊检测装置。



## CNC ROLL GRINDER

# Retrofit & Modernization

## 机械改造和现代化

The original machine foundation can be maintained, greatly improving the machine's efficiency, output and product quality, and contributing to carbon neutrality as the basic machine castings are still used.

保留了原有的机器基础，显著提高了机器的效率、生产率和产品质量，并通过使用相同的基本机器铸件为碳中和做出了贡献。



+ Before

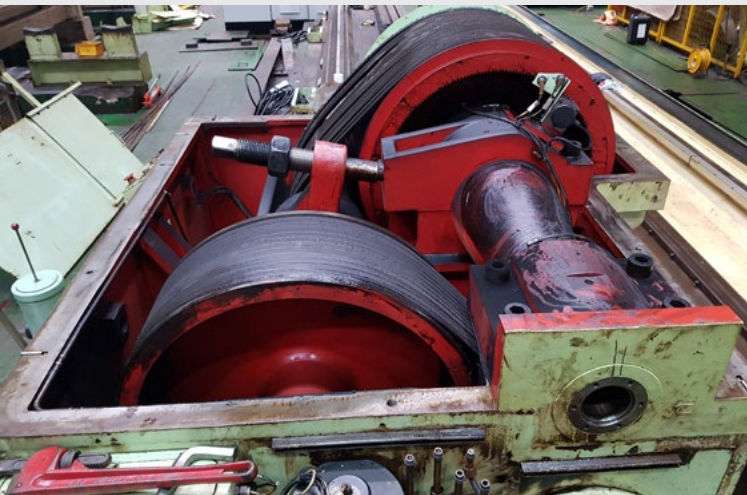


+ After

### Retrofit & Modernization suggested by Sangnim:

SANGNIM进行机器改造和现代化作业，如下所示。

- Complete overhaul and replacement of all mechanical, electrical and hydraulic systems
- Completely new SIEMENS electrical system with modern AC motors/servomotors and measuring devices
- Special accessories tailored to each grinding task.
- 全面检修和更换机械、电气和液压系统
- 配有最新电机/伺服电机和测量设备的新型西门电气系统
- 提供针对每项磨削任务量身定制的特殊配件



### Retrofit & Modernization is possible for the machine manufacturers below

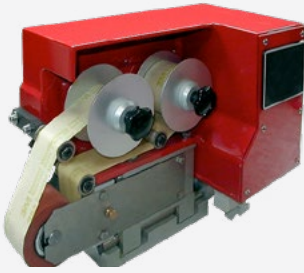
我们可以为机器制造商进行改造和现代化作业，例如：

- Herkules
- Waldrich Siegen
- Toshiba (Shibaura)
- Pomini
- Georg
- Others

## Accessories

We supply lots of customized accessories for various customers to perform efficient machine operation and machining.

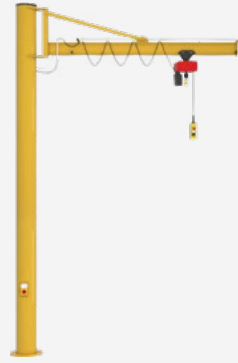
我们提供各种适合客户的配件，以实现高效的设备操作和加工。



+ Superfinishing attachment



+ Roughness measuring device



+ Jib crane



+ Auto balancer

## Automatic Wheel Changer

- Special design for easy replacement of grinding wheel
- Safe and quick replacement of grinding wheel with hydraulic system
- 便于更换磨石的特殊设计
- 采用液压系统安全、快速地更换磨石

## ECT/UT

- Equipment for detecting roll crack
- Optimized design without interference part abiding by customer's various roll types
- 轧辊缺陷检测设备
- 根据客户的各种轧制条件，提供消除干扰的最佳设计



## Specification 技术规格

	Specification 技术规格	SRW (Work Roll)
Working range 工作范围	Distance between centers(A) 工件长度	6,000 mm (263 in.)
	Center height 中心高度	1,100 mm (43 in.)
	Range of roll diameter(B) 轧辊直径范围	Ø 446 ~ 1,100mm (18 ~ 43 in.)
	Roll weight in steady rest 轧辊最大重量	30 tons (66,000 lbs)
Headstock 主轴箱	Headstock motor power 电机功率	51 kW (69 Hp)
	Speed range of faceplate 面板转速	7 ~ 70 rpm
	Torque at faceplate 面板扭矩	16,000 Nm (11,800 lbft)
Tailstock 尾座	Quill stroke 套筒行程	150 mm (5.9 in.)
Grinding wheel 砂轮	Grinding wheel motor 砂轮马达	100 kW (136 Hp)
	Grinding wheel spindle 砂轮转速	275 ~ 1,375 rpm
	Bore 孔	508mm (20 in.) / 304.8mm (12 in.)
Feed rate 进给速度	Z-axis Z轴	6 ~ 6,000 mm/min (0.2 ~ 236 in./min)
	X-axis X轴	1 ~ 1,000 mm/min (0.04 ~ 39 in./min)
	U-axis U轴	50 mm/min (2 in./min)
Measuring 测量	Diameter range 直径范围	400 ~ 1,100 mm (16 ~ 43 in.)
Control system 控制系统		Siemens
Measuring system 检测系统		Heidenhain / Fagor 海德汉 / 法格

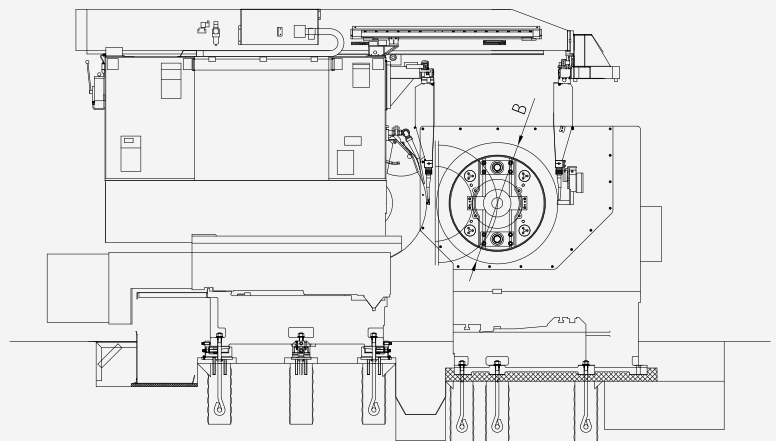
※ Sangnim can also produce roll grinders with specifications other than those listed above.  
我们还生产上述尺寸以外的轧辊磨床。

## Basic Accessories

- Standard steady rest
- Roll driver
- Roll measuring unit
- X & Z-axis telescopic cover
- Work light
- Patrol ramp [red, green, yellow]
- Leveling block & anchor bolt

## Optional Accessories

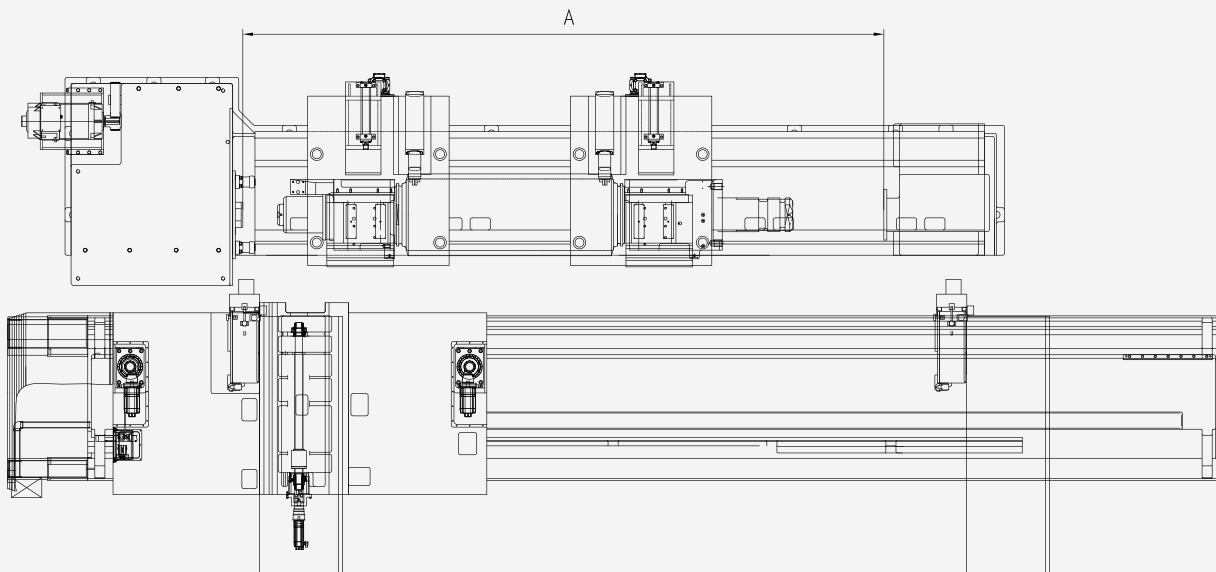
- Crack detector [ECT/UT]
- Slewing crane
- U 1-axis function
- Chock tilting device
- Coolant unit and filtering system
- Roughness measuring device
- B-axis function
- Drying & oiling unit





# Specification 技术规格

Specification 技术规格		SRB (Backup Roll)
Working range 工作范围	Distance between centers(A) 工件长度	6,000 mm (263 in.)
	Center height 中心高度	1,100 mm (43 in.)
	Range of roll diameter(B) 轧辊直径范围	Ø 446 ~ 1,100mm (18 ~ 43 in.)
	Roll weight in steady rest 轧辊最大重量	60 tons (132,000 lbs)
Headstock 主轴箱	Headstock motor power 电机功率	51 kW (69 Hp)
	Speed range of faceplate 面板转速	7 ~ 70 rpm
	Torque at faceplate 面板扭矩	19,000 Nm (14,000 lbft)
Tailstock 尾座	Quill stroke 套筒行程	150 mm (5.9 in.)
Grinding wheel 砂轮	Grinding wheel motor 砂轮马达	100 kW (136 Hp)
	Grinding wheel spindle 砂轮转速	275 ~ 1,375 rpm
	Bore 孔	508mm (20 in.) / 304.8mm (12 in.)
Feed rate 进给速度	Z-axis Z轴	6 ~ 6,000 mm/min (0.2 ~ 236 in./min)
	X-axis X轴	1 ~ 1,000 mm/min (0.04 ~ 39 in./min)
	U-axis U轴	50 mm/min (2 in./min)
Measuring 测量	Diameter range 直径范围	400 ~ 1,100 mm (16 ~ 43 in.)
Control system 控制系统		Siemens
Measuring system 检测系统		Heidenhain / Fagor 海德汉 / 法格





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Scan QR code and visit our website.  
[www.sangnim.com](http://www.sangnim.com)



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