

## Roll Grinding Machine Series

SHIBAURA MACHINE's roll grinding machine series can be used for the grinding of many different types of roll that are employed in hot and cold strip mills for ferrous and non-ferrous metals, paper-making machinery, printing presses, plastic-film-processing lines, etc.

Roll grinding machines from SHIBAURA MACHINE have captured a market share of over 90% in Japan and a large number of units have also been exported to many overseas countries. The original designs of our machines that are based on our long experience in the manufacture of roll grinders as well as their high performance and reliability have provided complete satisfaction to users throughout the world.

Model	Maximum diameter and weight of rolls to be ground	Usage (Example)
<b>KT-200C</b>	210mm×200kg	<ul style="list-style-type: none"> <li>● Sendzimir mill work rolls</li> <li>● Leveller rolls</li> </ul>
<b>KT-400C</b>	410mm×1 000kg	<ul style="list-style-type: none"> <li>● Sendzimir mill work rolls</li> <li>● Leveller rolls</li> <li>● Rolls for making plastic film</li> <li>● Printing press cylinders</li> </ul>
<b>KT-600C</b>	610mm×3 000kg	<ul style="list-style-type: none"> <li>● Brass, copper or aluminum mill rolls</li> <li>● Leveller rolls</li> <li>● Rolls for making plastic film</li> <li>● Printing press cylinders</li> </ul>
<b>KWA-800D</b>	800mm×10 000kg	<ul style="list-style-type: none"> <li>● Cold and hot strip mill work roll</li> </ul>
<b>KWA-1000D</b>	1 000mm×25 000kg	<ul style="list-style-type: none"> <li>● Hot strip mill work roll</li> <li>● Rolls for making plastic film</li> </ul>
<b>KWA-1200D</b>	1 200mm×25 000kg	<ul style="list-style-type: none"> <li>● Hot and cold strip mill back-up rolls</li> <li>● Paper mill rolls</li> <li>● Reverse mill rolls</li> <li>● Plate mill rolls</li> </ul>
<b>KWA-1400D</b>	1 400mm×40 000kg	
<b>KWA-1600D</b>	1 600mm×80 000kg	
<b>KWA-1800D</b>	1 800mm×125 000kg	<ul style="list-style-type: none"> <li>● Plate mill back-up rolls</li> <li>● Paper mill rolls</li> </ul>
<b>KWA-2000D</b>	2 000mm×125 000kg	
<b>KWA-2200D</b>	2 200mm×180 000kg	
<b>KWA-2400D</b>	2 400mm×180 000kg	<ul style="list-style-type: none"> <li>● Hot strip mill back-up rolls</li> </ul>
<b>KWH-1600D</b>	1 600mm×80 000kg	

### ISO 9001



GOTEMBA plant

#### SHIBAURA MACHINE CO., LTD.

**TOKYO MAIN BRANCH**  
2-2, Uchisaiwaicho 2-Chome, Chiyoda-ku, Tokyo 100-8503, Japan  
TEL:+81-3-3509-0271 FAX:+81-3-3509-0335

#### SHIBAURA MACHINE CO., AMERICA

Chicago Head Office  
755 Greenleaf Avenue, Elk Grove Village, IL 60007, U.S.A.  
TEL:847-709-7199 FAX:847-593-9741

#### Canada Branch

6 Shields Court, Suite 101, Markham, Ontario L3R 4S1, CANADA  
TEL:905-479-9111 FAX:905-479-8339

#### SHIBAURA MACHINE UK LTD.

66 Burners Lane, Kiln Farm, Milton Keynes MK11 3HD  
UNITED KINGDOM  
TEL:+44-(0)1908-562327 FAX:+44-(0)1908-562348

#### SHIBAURA MACHINE SINGAPORE PTE. LTD.

Head Office  
123 Pioneer Road, Singapore 639596, SINGAPORE  
TEL:68611455 FAX:68612023

#### TOSHIBA MACHINE [THAILAND] CO., LTD.

127/28 Panjathanee Tower, 23rd Floor, Nonthree Road, Khwaeng Chong Nonthree, Khet Yannawa, Bangkok 10120, THAILAND  
TEL:02-681-0158 FAX:02-681-0162

#### TOSHIBA MACHINE [VIETNAM] CO., LTD.

2nd, VIT Tower, No.519, Kim Ma Street,  
Ba Dinh District, Hanoi, VIETNAM  
TEL:024-2220-8700,8701 FAX:024-2220-8702

#### TOSHIBA MACHINE (CHENNAI) PRIVATE LIMITED

No. 65 (P.O. Box No. 5), Chennai-Bangalore Highway, Chembarambakkam,  
Poonamallee Taluk, Thiruvallur, Chennai-600123, Tamil Nadu, INDIA  
TEL:044-2681-2000 FAX:044-2681-0303

#### SHIBAURA MACHINE TAIWAN CO., LTD.

No.62, Lane 188, Jui-Kuang Road, Nei-Hu District, Taipei, TAIWAN  
TEL:02-2659-6558 FAX:02-2659-6381

#### SHANGHAI TOSHIBA MACHINE CO., LTD.

Head Office  
4788, Jin Du Road, Xinzhuang Industry Zone, Shanghai, 201108  
PEOPLE'S REPUBLIC OF CHINA  
TEL:021-5442-0606 FAX:021-5866-2450

\* We reserve the right to change any of specifications in this catalog without notice in order to effect improvements.

KWA series

## Shibaura Machine

# KWA series

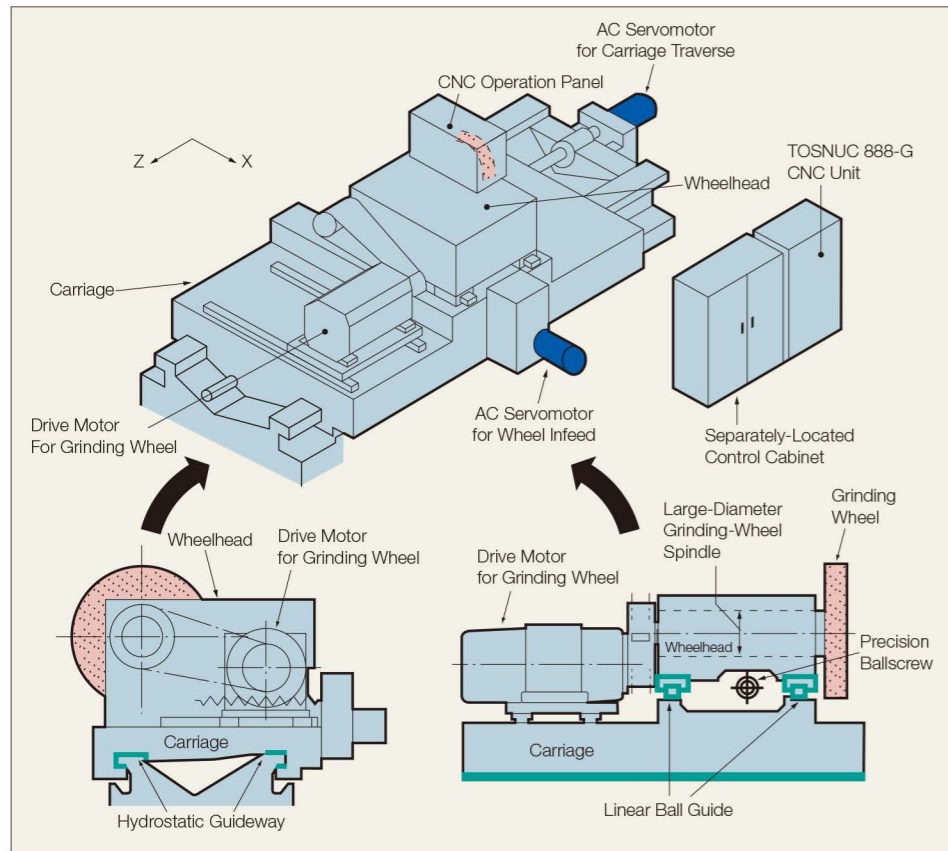
Wheel-Transpose-Type CNC Roll Grinding Machine





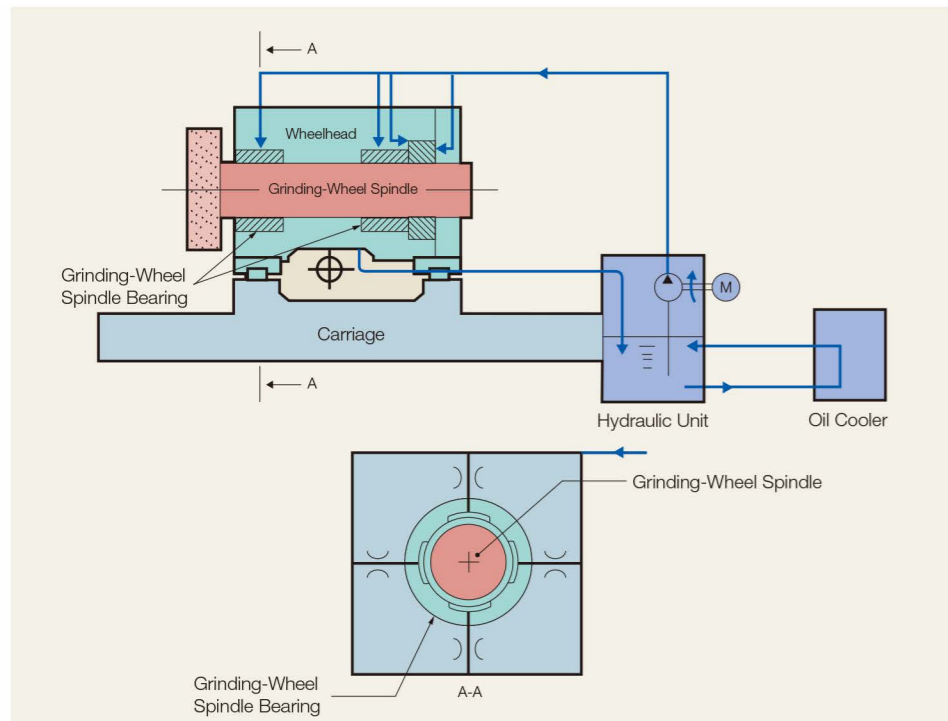
# Wheel Traverse Type CNC Roll Grinding Machine

## Heavy-duty Grinding Capability and High-Quality Surface Finish because of . . . . .



### Direct-Infeed-Mechanism with 0.005 $\mu$ m resolution for Wheelhead infeed

- The provision of a pre-loaded precision ballscrew for the wheelhead infeed mechanism provides excellent accuracy even for the fine movements needed for cambering operations. And as pre-loaded linear ball guideways are employed, feed mechanism provides smooth movement as well as high rigidity. These structures ensure satisfactory endurance for heavy-duty grinding.
- Opposed type hydrostatic guideways have also been provided for the carriage in order to assure the smooth and accurate carriage traverse.

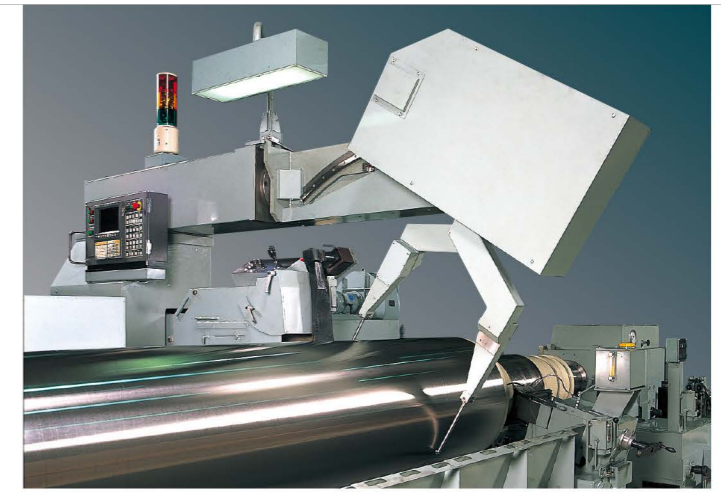


### Grinding Wheel Spindle with Hydrostatic Bearing

- The hydrostatic bearings that support the grinding wheel spindle handling heavy loads and provide a strength and adaptability when subjected to speed changes that cannot be matched by ordinary bearings. Stabilized finish-grinding operations under demanding work assignments are guaranteed.
- The efficient cooling of the hydrostatic oil is performed by an automatic oil-temperature controller that serves to prevent the deterioration of the hydrostatic oil as well as thermal deformations within the bearings and the wheelhead.

### Automatic Roll Measuring Device

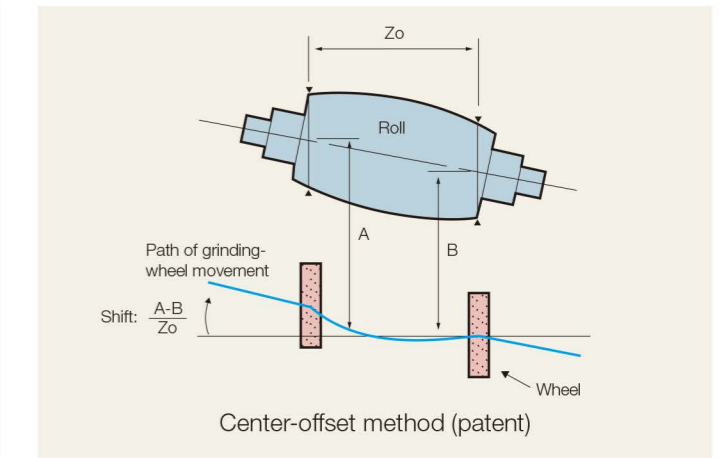
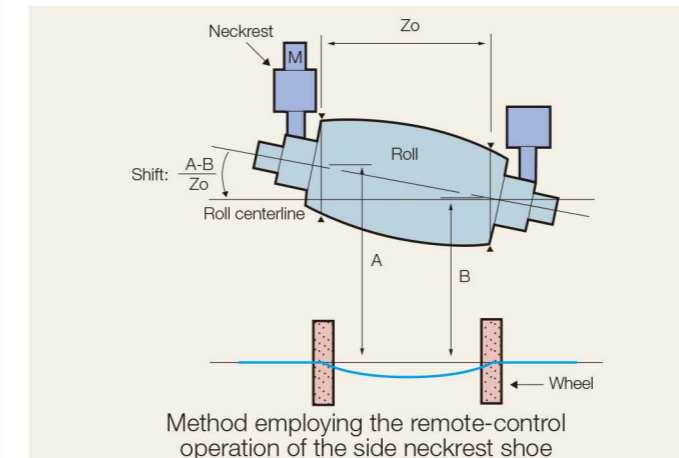
This device executes measurements by holding the roll with two sensors. The diameter and profile of roll as well as roundness, etc., can be accurately measured automatically. The measuring can be done while an operation is in progress since the sensors and the wheel are located at same position in relation to the longitudinal direction of the roll.



The measured data can be copied on paper by using the plotter. And it is provided that the measured data can be employed to the automatic roll alignment function.

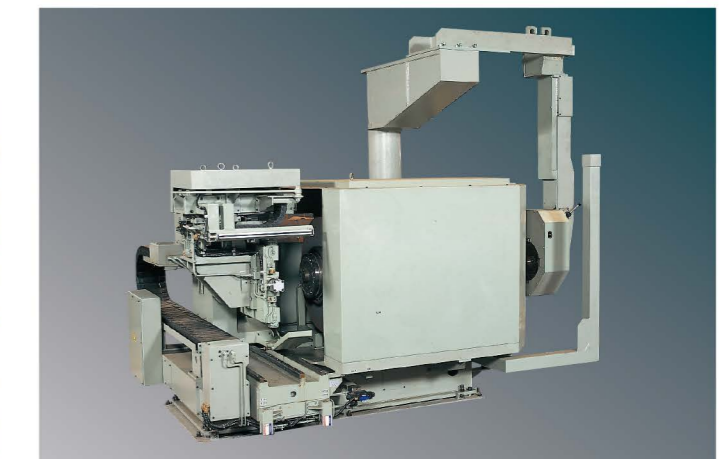
### Automatic Roll Alignment

The measurement of the diameter at both ends of a roll determines the difference of the coordinates at the center of the roll. The roll-alignment function automatically compensates for the difference and aligns the roll by aligning the path of the grinding wheel in its longitudinal direction to the centerline of the roll. This alignment can be carried out by either one of two methods. One method employs the side neckrest shoe to move the roll and the other involves a center offset operation that matches the path of the wheel to the roll's centerline without moving the roll itself.



### Automatic Grinding Wheel Changing Device (patent)

This device executes the change of a grinding wheel automatically, including automatic opening/closing of the grinding wheel cover and automatic taking shelter of the coolant nozzle. Four (4) grinding wheels are pre-located in the magazine which is installed on the foundation. When the grinding wheel is changed, the carriage is traversed to the grinding wheel magazine position on the longitudinal direction of the roll and the changing operation is executed automatically.





# Specifications

Machine Specifications		Model	KWA-800D	KWA-1000D	KWA-1200D	KWA-1400D	KWA-1600D	KWA-1800D
CAPACITY	Maximum grindable diameter	mm	800	1 000	1 200	1 400	1 600	1 800
	Maximum crown and concavity on diameter	mm	10	10	10	10	10	10
	Maximum weight between centers	kg	10 000	25 000	25 000	40 000	80 000	125 000
	Distance between roll and wheel centers	mm	400~1 010	450~1 010	450~1 110	450~1 210	500~1 310	500~1 410
HEADSTOCK	Speed of work (continuous)	min <sup>-1</sup>	4~80	4~70	4~70	3~60	3~45	2~30
	Roll starting torque	N·m	5 400 (550kgf·m)	12 700 (1 300kgf·m)	12 700 (1 300kgf·m)	35 200 (3 600kgf·m)	60 000 (6 200kgf·m)	98 000 (10 000kgf·m)
NECKREST	Supportable journal diameter	mm	510	615	615	800	800	1 000
CARRIAGE	Traverse speed of wheel (continuous)	mm/min	10~10 000 (Note1)	10~10 000 (Note1)	10~10 000 (Note1)	10~10 000 (Note1)	10~10 000 (Note1)	10~10 000 (Note1)
	Infeed speed of wheel (continuous)	mm/min	0.01~1 600	0.01~1 600	0.01~1 600	0.01~1 600	0.01~1 600	0.01~1 600
	Grinding wheel speed	min <sup>-1</sup>	500~1 500	500~1 500	500~1 500	500~1 500	500~1 500	500~1 500
	Wheel size (diameter × width × bore)	mm	915 (Max.1 065) × 100 × 304.8	915 (Max.1 065) × 100 × 304.8	915 (Max.1 065) × 100 × 304.8	915 (Max.1 065) × 100 × 304.8	915 (Max.1 065) × 100 × 304.8	915 (Max.1 065) × 100 × 304.8
ELECTRICAL EQUIP.	Wheel-drive motor	kW	AC35, 56, 110	AC35, 56, 110	AC35, 56, 110	AC35, 56, 110	AC35, 56, 110	AC35, 56, 110
	Roll-drive motor	kW	AC15/11	AC30/22	AC30/22	AC45/37	AC55/45	AC75
Dimensions MENSIONS WEIGHT	Distance between centers	mm	3 000~16 000	3 000~16 000	3 000~16 000	3 000~16 000	3 000~16 000	3 000~16 000
	Overall length	mm	11 200~24 900	11 200~24 900	11 200~24 900	11 700~25 400	12 200~25 900	13 600~26 700
	Maximum width	mm	5 000	5 400	5 500	6 000	7 000	7 500
	Net weight	kg	33 600~62 200	59 700~102 600	59 700~102 600	77 000~125 000	85 000~133 000	127 900~182 900

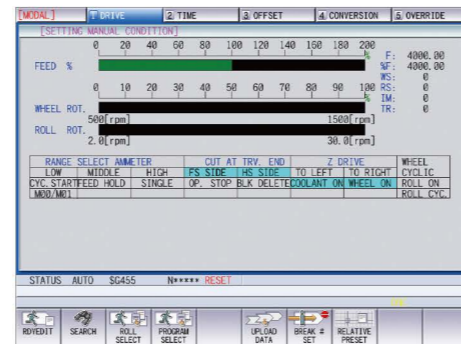
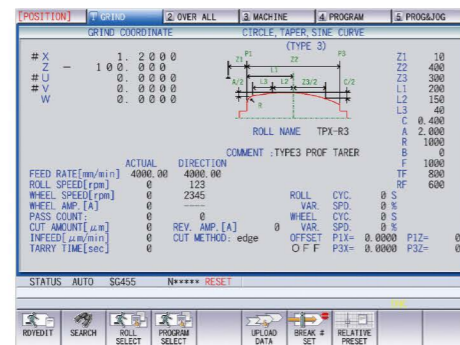
Note1 : If the distance between centers is longer than 12.5 m, max. speed is limited to 5 000 mm/min.  
 2 : The machines, which max. roll dia. is larger than 1 800 mm, can be manufactured at customer request.

## CNC System-TOSNUC PX100G

The TOSNUC PX100G CNC System has been specifically developed by SHIBAURA MACHINE to incorporate special functions that facilitate roll-grinding operations. Various functions have been patterned since the system was designed with the No. 1 priority being placed on ease of operation. The troublesome programming procedures normally associated with conventional NC functions have been eliminated. Convenient features include the graphic display of the shape of the roll on the LCD monitor, interactive-type calling of the required

configuration, and control of the grinding-wheel movements by simply inputting the essential dimensions from the keyboard.

The System has also been designed to allow the machines to be operated manually in the same way as non-CNC grinders when desired. And it is also easy to interrupt an automatic operation to carry out a manual procedure whenever necessary. This is the one of the TOSNUC PX100G's features.



## Automatic-Grinding Package

Automatic-grinding functions are available in optional packages as shown in the right table.

Level 1 contains menu for basic automatic-grinding operations, level 2 for automatic roll-measuring equipment, level 3 menu for fully automatic grinding and level 4 menu for level 3 plus data transfer system.

Automatic function	Automatic grinding			
	Level 1	Level 2	Level 3	Level 4
Wheel quick approach			●	●
Wheel touching	●	●	●	●
Wheel infeed to designated amperage when traversing starts	●	●	●	●
Infeed to designated wheel-motor amperage	●	●	●	●
Adaptive control	●	●	●	●
Short stroking (for initial grinding of collar section)	●	●	●	●
Roll-diameter measurement		●	●	●
Automatic roll alignment			●	●
Wheel surface-speed control			●	●
Data transfer system				●