

RTS2000H

ABOVE-FLOOR WHEEL LATHE

MACHINE SPECIFICATIONS



Delta Wheel Truing Solutions

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3rd Edition



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GENERAL INFORMATION

Machine Function

- Simultaneous machining of worn wheel sets by re-profiling the wheels to required specifications and turning the profile to a nominal diameter by eliminating flat spots, high flanges, tread hollows etc.
- Turns single wheelsets of railway vehicles
- Load complete bogies without needing to remove wheelsets from bogie.
- Hold downs designed to customers wheelset requirements.

Wheelset Data

- Rail Size: Built to customer's specifications.
- Rail Gage: Narrow to broad.
- Wheel Profile: Easy access to multiple preloaded profiles.
- Wheel types:
 - Monobloc wheel
 - Resilient wheel
- This machine is suitable for re-profiling the following:
 - Wheelsets installed on the bogie.
 - Wheelsets with bearings disassembled from the bogie.

Machine Performance

- Axle/truck held in place by utilizing live centers or hold down arm assemblies either on the trucks frame, on external journal box or wheelset axle bearing.
- 2 lateral guide rollers maintain the axial position of the wheelset during the machining process.
- Rotation of the wheelset is achieved by utilizing 4 hydraulic motors.
- Harden and ground friction drive rollers stabilize, auto-center and lift the wheelset.
- Capable of being converted to an Underfloor Wheel Lathe.
- RTS1000 Underfloor and RTS2000 Abovefloor parts are interchangeable.
- Moveable from location to location with minimal conversion.
- Short Lead/Delivery time of 26-36 weeks.
- Available remote access for diagnostics.



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Cutting Capacities

	S.A.E.	METRIC
Maximum axle load	120,000 lbs.	54431 kg
Min Wheel Diameter	20 in	508 mm
Max Wheel Diameter	54 in	1371.6 mm
Max Depth of Cut	.250 in	6.35 mm
Operating Speed	20 rpm	20 rpm

Travels

X Axis	11 in	279.4 mm
Y Axis	7-1/2 in	190.5 mm

Feedrates

X Axis	0 – 6.000 ipm	0 – 152.4 mm/min
Y Axis	0 – 6.000 ipm	0 – 152.4 mm/min

Rapid Motion

X Axis	30 ipm	762 mm/min
Y Axis	30 ipm	762 mm/min

Axis Motors

Max Torque X Axis	708 lbf	5933 Nm
Max Torque Y Axis	708 lbf	5933 Nm
Cutting Force	5929.6 lbs.	26.37617 kN

Drive Motors

Low Speed High Torque Motors	37.5 hp	27.96 kW
Cont. Speed	315 rpm	315 rpm
Speed	380 rpm	380 rpm
Cont. Torque	1660 ft-lbf 315 rpm	1660 Nm-lbf 315 rpm
Driver Roller Diameter	7.750 in	196.85 mm

Footprint

Main Base	76 x 156 in	1930.4 x 3962.4 mm
Weight: Approximately	60,000 lbs.	27,215.542 kg
Machine Size	Contact Delta Wheel Truing Solutions	

Power Requirements

Fused Power Disconnect, 300amp 460vac 3 Ph 50/60hz
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MACHINE SPECIFICATIONS (continued)

Hydraulic Power Unit Specifications	S.A.E.	METRIC
Horsepower	150 hp	110 kW
Reservoir	250 gallons	946 liters
Piston Pump with Compensator	200CC	181 lpm
Piston Pump with Standard Cut-off	28CC	32.176 lpm
Max Torque	437 ft-lbf 1780 rpm	592 Nm-lbf 1780 rpm

MACHINE ACCURACY

Machining of Profile

Diameter Deviation between Both Wheels on One Axle	.0039 in	.1 mm
Radial Run Out of Wheel	.0039 in	.1 mm
Axial Run Out of Wheel	.0059 in	.15 mm
Accuracy of Wheel Profile	.0078 in	.2 mm
Surface Finish	500 Ra in	12.5 Ra mm

PAINT SCHEME

Stationary Components

PPG AUE100 #905689 A Code Safety Blue

Moving Components

PPG AUE100 #911740 A Code Safety Red

Electrical & Hydraulic Components

PPG AUE100A/S1 #920710 A Code Competitive Gray

Miscellaneous Components

PPG AUE100 #900 A Code Safety Black



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TECHNICAL OPERATION SPECIFICATIONS

Machine Operations

- Hold Down Arms / Live Centers:
 - The arms make contact on the top of the journal box, truck frame or bearing on wheelset, depending on the customer's truck/wheelset specifications.
 - Slides move along an automatically oiled horizontal box way assembly.
 - Slides move in/out utilizing a hydraulic cylinder.
 - Live Centers move in/out utilizing a hydraulic cylinder.
- Lateral Movement Stops:
 - Rollers make contact on the back side of the wheel.
 - There is a total of 2 idle wheels which are auto centering.
 - Hydraulic cylinders keep constant pressure between the rollers and wheel.
- Friction Drive Rollers:
 - 4 hydraulically driven friction drive rollers.
 - Rollers contact on the wheel tread.
 - The friction drive rollers are tapered to match the wheel profile.
 - The areas in which the rollers make contact on the wheel prevent any flats from developing on the wheel.
- Lifting:
 - The lifting assembly is attached to the base of the friction drives.
 - Moves along an automatically oiled vertical box way assembly.
 - Moves up/down utilizing a hydraulic cylinder.
- Lathes:
 - 2 Heavy Duty lathes with hardened and ground dovetails & ways.
 - Lathes are independent of each other but work together to re-profile both wheels at the same time.
 - Each lathe utilizes 1 toolholder containing 2 inserts.
 - Automatic oil lubricated dovetails and ways.
 - Each lathe consists of 1 X axis slide (left/right) & 1 Y axis slide (up/down).



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TECHNICAL OPERATION SPECIFICATIONS (continued)

Control Operations

- Controls / Software:
 - Fanuc controls are used for operating the system in conjunction with an automated measuring wheel device.
 - Indicates the minimum material removal required to meet specifications of the diameters and profiles of the wheels of each single wheel set, four wheels of a single bogie as well as all the bogies of the entire vehicle.
 - Both the software and the measuring device work together in calculating all information about that wheel including measurement, operator, truck number, location, date etc. All this information can be saved and exported. The controls come preloaded with the customers profile. Additional profiles can be added upon request.

- Automatic Tool Stop & Retract:
 - The cutting tool automatically stops during the cutting process if power is lost to prevent damage to the system or wheel.
 - The lathe controls have a tool retract button to retract the tool from the cutting process any time it is pressed. This sends the lathe to its machine home position. This feature is used for rotating or replacing the insert on the tool holder during the cutting process. Once insert is rotated or replaced, press start, and lathe resumes to the exact position where it was retracted.

- Hydraulic:
 - Display with push button controls
 - Hold Down Arms: In / Out
 - Lateral Stops: In / Out
 - Lifting: Up / Down
 - Friction Drives: On / Off
 - Friction Drive RPM: Increase / Decrease

- CNC Lathe Control:
 - Fanuc Hand-held Remote Control
 - Touch Screen
 - Full operational keyboard
 - Emergency Stop



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TECHNICAL OPERATION SPECIFICATIONS (continued)

Systems Operations

- Hydraulic Unit:
 - Feeds fluid to all the hydraulic cylinders and motors on the system.
 - Heat exchanger keeps fluid at recommended temperature.
 - Fluid filtration & monitoring system.
 - 250-gallon reservoir tank with low level warning and shutdown.

- Lubrication:
 - All lubrication points are controlled by injectors to feed the exact amount of oil needed.
 - Injectors are controlled using automatic oilers set with timers.
 - Centralized automatic lubrication system provides adequate lubrication to all moving components including both lathes dovetails & ways.

- CNC / Controller Console
 - Max Power Rating: 50amp, 460vac, 3 Phase, 50/60hz

COMPONENTS

- Hydraulics
 - Hydraulic Pump Unit
 - Hydraulic Cooling Radiator & Fan Motor
 - Hydraulic Cylinders
 - Hydraulic Drives

- Hold Downs
 - Hold Down Arm Assemblies
 - Removable Adapter Plates
 - Accommodates proper holding position for multiple bogies & axles
 - Ability to adjust to customer requirements

- Lifting Device
 - Axle Stabilizers & Centers
 - Lateral Movement Control
 - Ability to adjust to customer requirements



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COMPONENTS (continued)

- Lathes
 - Hardened and Ground Dovetails & Ways
 - Fanuc Motors
 - Apex Gearboxes
 - Rockford Ball Screws
 - Average Cutting Time: 30 Minutes “per average worn wheelset”

- Standard Chip Conveyor
 - 14-7/8” width x 88-3/8” height x 174” length conveyor
 - 2-1/2” Pitch Piano Hinged Steel Belt Conveyor
 - Formed 10 Gauge Steel
 - 1/2 HP 1750 RPM TEFC 460 V 3 PH 60 Hz Motor
 - Machinery Gray 20-1014

Quality Policy

Delta Wheel Truing Solutions commits to customer satisfaction by controlling our environment through quality processes, and continual improvement of **man, materials, machines, methods and measurements**, resulting in excellent customer service.

NOTE: Improvements are a continuous process, machine specifications and technical details above may change due to updated form, fit and function.