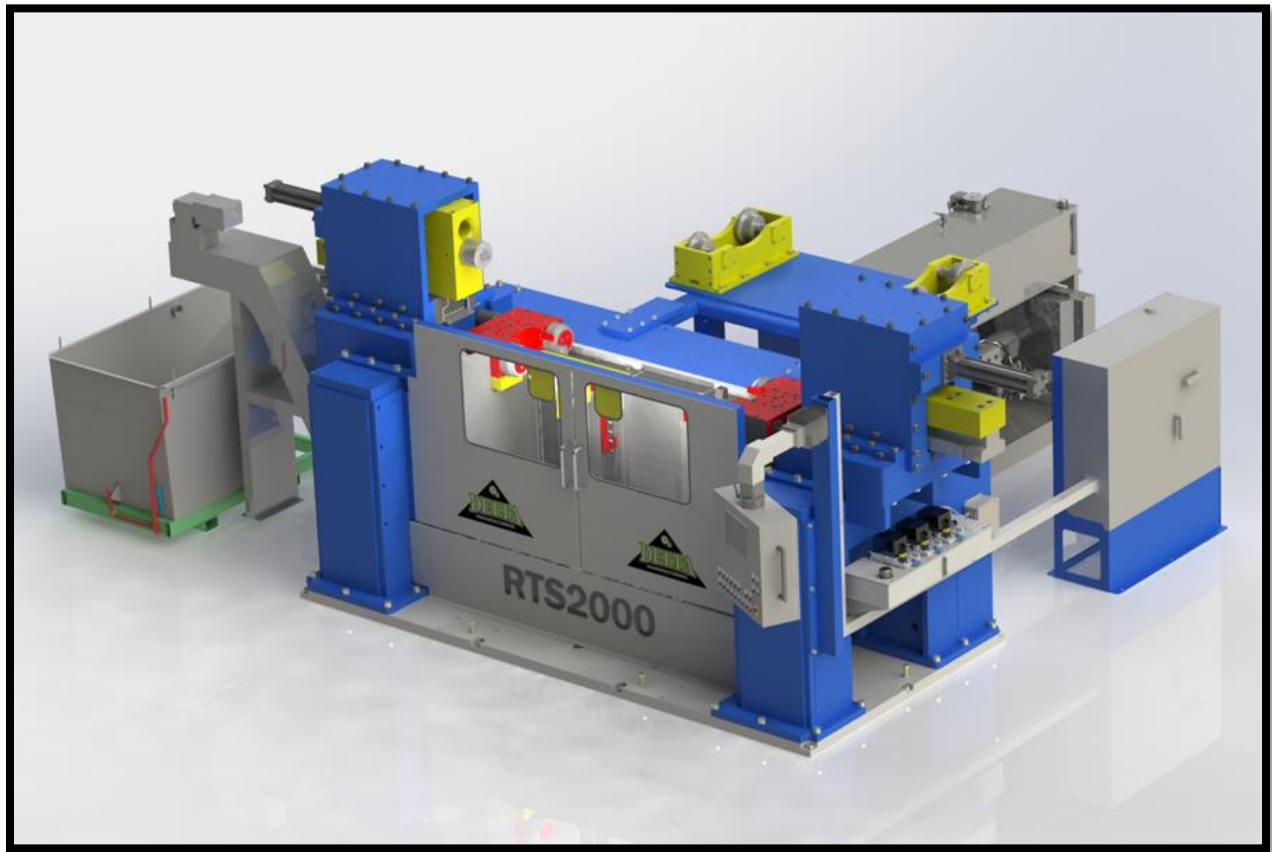


RTS2000A

ABOVE-FLOOR WHEEL LATHE

Machine Specifications



Delta Manufacturing

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MACHINE OPERATION SPECIFICATIONS:

Machine Function

- Simultaneous machining of the worn wheel sets by re-profiling the wheels according to the measured wear and turning the profile to a nominal diameter. Eliminating flat spots, high flanges, tread hollows etc.
- The RTS2000A turns the wheels without needing to strip the wheel's sets from the bogie.
- Single axles can also be turned on this system.

Machine Performance

- Axle/truck held in place by using a hold down arm assembly either on the trucks frame or on the journal box.
- Lateral movement arms prevent side-to-side movement.
- Rotation of the wheel set is achieved by utilizing (2) 480 Volt, 200 HP Rated, NEMA 1, AC Power Drives.
- Fanuc controls for operating the system and for the re-profiling process.

Machine Operations

- Hold Down Arms:
 - Arms make contact on the top of the journal box or the truck frame, depending on the customer's truck specifications.
- Lateral Movement Stops:
 - Clamps or rollers make contact on the wheel or frame to prevent side to side movement, depending on the customer's truck specifications.

TECHNICAL OPERATION SPECIFICATIONS:

- AC Power Supply:
 - (2) 480 Volt, 200 HP Rated, NEMA 1, AC Power Drives.

- Idler Rollers:
 - Rollers make contact on the wheel tread.
 - There are a total of (4) idler rollers.
 - Idler rollers have a built in taper to match the wheel profile taper.
 - Idler rollers are also used for auto-centering and lifting the wheel sets.
 - The areas in which the rollers make contact on the wheels prevent any flats from developing on the wheels.

- Lifting:
 - The lifting assembly is attached to the base of the idler rollers.
 - Move along a vertical box way assembly that is automatically oiled.
 - Move up / down using a hydraulic cylinder.

- Lathes:
 - 2 heavy duty lathes for re-profiling the wheel.
 - The lathes are independent of each other but run simultaneously to re-profile both wheels at the same time.
 - Each lathe uses 1 large tool containing 2 inserts.
 - The lathes are automatically oiled.
 - Each lathe consists of 1 X-axis slide (left/right) and 1 Y-axis slide (up/down).

- Controls / Software:
 - Fanuc controls are used for operating the system in conjunction with an automated measuring wheel device.
 - The Measuring/Control system indicates the minimum material removal needed to bring back to specification the diameters 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 will come preloaded with the customer's profile; more can be added if requested.



TECHNICAL OPERATION SPECIFICATIONS (CONTINUED):

- Hydraulic Controls
 - Display with push button controls.
 - Hold Down Arms: In / Out
 - Lateral Stops: In / Out
 - Lifting: Up / Down
 - Emergency Stop
- CNC Lathe Controls
 - Fanuc Controls
 - Touch Screen
 - Full operational keyboard
 - Handheld i Pendant
 - Emergency Stop
- Automatic Tool Stopping:
 - 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 returns the lathe to its home position.
- Hydraulic Unit:
 - Feeds oil to all the hydraulic cylinders and/or hydraulic motors on the system.
 - Heat exchanger.
 - Oil filtration system.
 - Reservoir tank.
- Lubrication:
 - All lubrication points controlled by injectors to feed the exact amount of oil needed.
 - Injectors controlled using automatic oilers set with timers.
 - A centralized automatic lubrication system provides adequate lubrication to all moving components including both lathes.

MACHINING TOLERANCES:

- Maximum diameter difference of two wheels on one axle: 0.1 mm (0.004") for solid wheels in good condition
- Maximum diameter difference of four wheels on two axles: 0.3 mm (0.012") for solid wheels in good condition
- Radial run-out measured at the taping line: 0.1 mm (0.004") for solid wheels in good condition
- Axial run-out: 0.3 mm (0.012 inch)
- Profile conformity: 0.2 mm (0.008 inch) for solid wheels in good condition
- Surface finish, profile machining: $R_a < 12 \mu m$
- Surface finish inner and outer wheel faces: $R_a < 25 \mu m$
- Axle deflection during machining operations, when restrained by hold-down forces, not to exceed 0.254 mm (0.010")
- Cutting force (if axle load is sufficient) 23kN (5,170lbs)



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GENERAL INFORMATION:

- Minimum of 12" of reinforced concrete at the base of the machine recommended.
- Wheel Size: Diameter 20" – 45"
- Wheel Profile: Includes profile program per customer's specifications.
- Maximum Axle Load: 90,000lbs
- Wheel types:
 - Monobloc wheel
 - Resilient wheel
- This machine is suitable for re-profiling the following:
 - Free wheel sets
 - Truck disassembled from the vehicle



POWER REQUIREMENTS

Lathe Controls:

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

Machine Controls:

- 150amp, 460vac, 3 Phase, 50/60hz
 - AC Drives
 - Hydraulic Pump Motor
 - Hydraulic Cooling Fan Motor
 - Conveyor Motor
 - Control Power



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ASSEMBLY SPECIFICATIONS:

Machine Size (not including chip conveyor):

- Length: 156"
- Width: 130"
- Height: 66"
- Weight: Approximately 20,000 LBS.

Left and Right Hold Down Assemblies:

- Ability to adjust to accommodate customer requirements.

Left and Right Lathes:

- Adjustable Cutting Feed: 0 – 6.00" IPM
- Rapid Travel: 20" IPM
- Depth of Cut: 0.001 – 0.437" (0.0254mm – 11.0998mm)
- Average Cutting Time: 1 – 2 Hours per axle
- Max. X-Axis Travel: 11" overall
- Max. Y-Axis Travel: 8 1/2" overall
- Fanuc Motors

Measuring Device:

- Complete Integrated Measuring System

Paint Scheme:

- Stationary Components:
 - Macropoxy Safety Blue B58T604 (Tinted to SW4086)
 - Macropoxy Black B58B600 (Package color)
- Moving Components:
 - Macropoxy Safety Yellow B58Y600 (Package Color)
- Lathe Components:
 - Macropoxy Black B28B600 (Package Color)
 - Macropoxy Gray B58W610 (Tinted to SW7664)

CHIP CONVEYOR

- Twin Belt Width Options: 3" to 24" -- as required
- Drive: Heavy duty motor and speed reducer size depending on belt speed and load
- Frame: Formed steel, stationary or portable/ 1.5" Pitch uses 12 Gage, 2.5" Pitch uses 11 Gage
- Bearings: Grease sealed, self-aligning ball bearings
- Safety Options: conveyor now use current overload sensor with Jam Manager™ program as default safety device

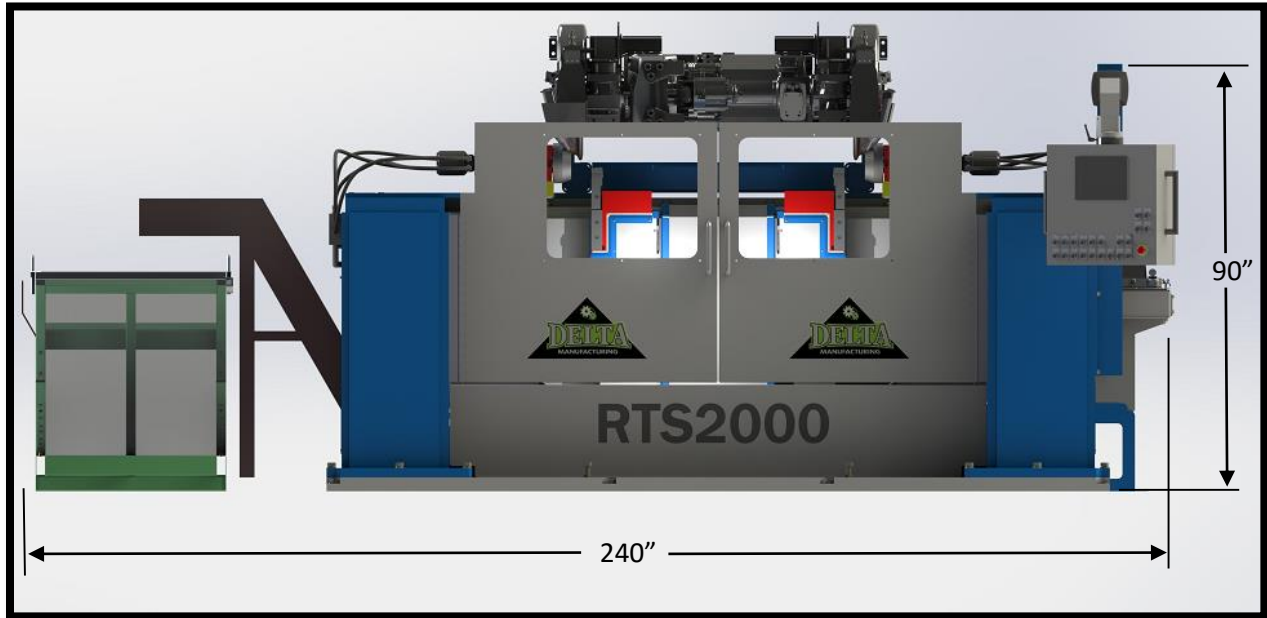




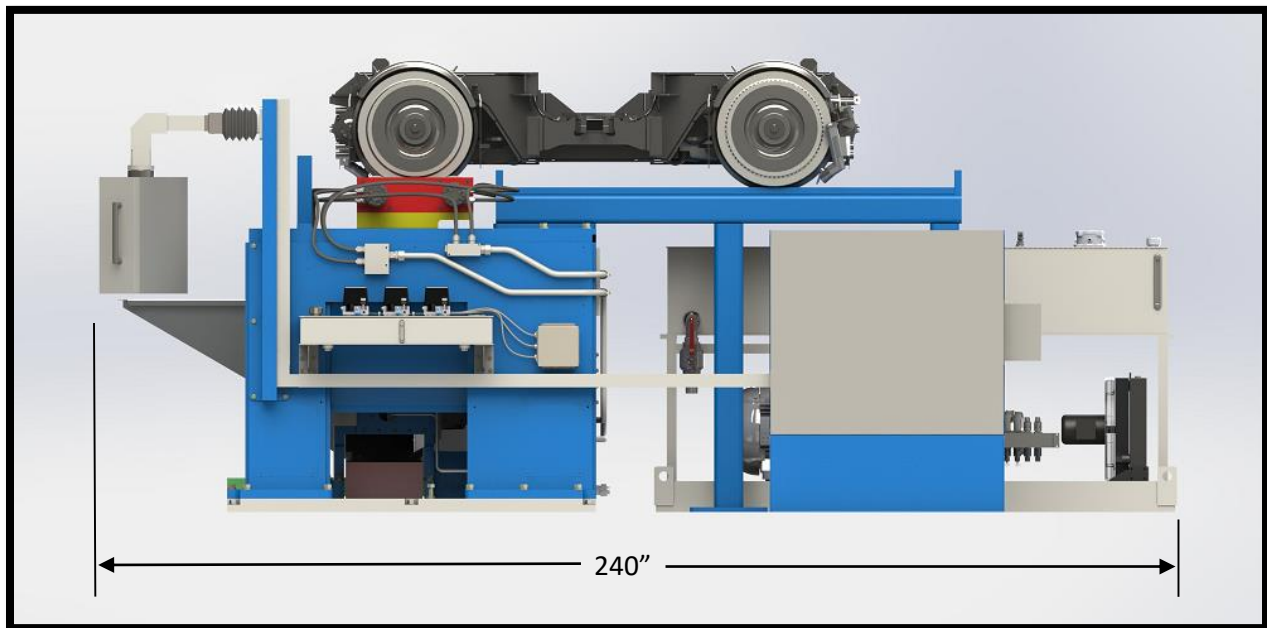
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System Front View



System Side View



System Top View

