WTL8200

Portable CNC Locomotive Wheel Lathe

MACHINE SPECIFICATIONS

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2nd Edition

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GENERAL INFORMATION

Basic Information

- Machine size:
  - Length: 43-3/4”
  - Width: 26-1/2”
  - Height: 11-3/8”
- Machine weight: 500 lbs.
- Shipping weight: 1900 lbs.

Machine Function

- Designed for portable maintenance of locomotive wheels.
- Machining of worn wheelsets by re-profiling the wheels to required specifications and turning the profile to a nominal diameter by eliminating flat spots, shelling, high flanges, tread hollows, etc.
- Turns the wheels of locomotives without the need to remove the wheelset from the bogie and the bogie itself from the vehicle.

Wheelset Data

- Wheel Profile: Installation of multiple programs into control per customer request & specification.
- Rail Gage: Narrow to broad.
- Wheel Size:
  - Minimum Diameter: 28”
  - Maximum Diameter: 45”

Traction Motor Power Requirements

- DC traction motors - Rotation of the wheel set is achieved by utilizing a DC power source (450 Amp minimum 100% duty cycle CV “constant voltage” welder) for adjusting the voltage to achieve 20 RPM at the wheel.
- AC traction motors - Rotation of the wheel set is achieved by utilizing an AC frequency drive for adjusting the Hertz to achieve 20 RPM at the wheel.

TECHNICAL OPERATION SPECIFICATIONS

Machine Operations

- Lathes:
  - Heavy Duty Portable Lathe with adjustable dovetails & ways.
  - Lathe utilizes 1 toolholder containing 1 insert.
  - Automatic oil lubricated dovetails and ways.
  - Each lathe consists of 1 X axis slide (left/right) & 1 Y axis slide (in/out).

Control Operations

- CNC Controls:
  - Fanuc hardware and software are used for operating the system.
  - CNC user friendly process.
  - Set-up and operation controlled with step by step color coded process

- CNC Lathe:
  - Fanuc handheld iPendant control
  - Touch screen
  - Full operational keyboard
  - Emergency Stop button.

- 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 control has a tool retract button to retract the tool from the cutting process any time it is pressed or during a preset servo overload. Which sends the lathe head automatically to its X & Y machine home position. This feature is used for indicating a dull cutting insert or 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.

TECHNICAL OPERATION SPECIFICATIONS (continued)

Systems Operations

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

- CNC / Controller Console
  - Max 20 Amp 208/240 Volt 1 Phase 50/60hz

LATHE PEFORMANCE

Lathe:

- Adjustable cutting feed: .000 to 6.00” inches per minute (Default feed .600 ipm)
- Rapid travel: 20” inches per minute
- Depth of cut: 0.000 to 0.060”
- Average cutting time: 2 to 4 hours per axle depending on condition.
- Maximum X axis travel: 13.250” overall
- Maximum Y axis travel: 5.500” overall
- 1”-5 ACME Lead Screws with protective covers.
- Fanuc Motors:
  - Maximum speed: 5,000 RPM
  - Constant torque
    1. 2(Nm)
- Apex Gearboxes Reducer:
  - Single stage
  - Ratio: 40:1
- Lube:
  - Bijur Automatic lubrication Oiler
  - Vactra #2 oil

MACHINE SPECIFICATIONS

Cutting Capacities	S.A.E.	METRIC
Max Axle Load	100,000 lbs.	45359.237 Kg
Min Wheel Diameter	28 in	711.2 mm
Max Wheel Diameter	45 in	1143 mm
Max Depth of Cut	.060 in	1.524 mm
Operating Speed	20 rpm	20 rpm

Travels

X Axis	13.250 in	336.55 mm
Y Axis	5.500 in	139.7 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	20 ipm	508 mm/min
Y Axis	20 ipm	508 mm/min

Axis Motors

Max Torque X Axis	177 lbf	20 Nm
Max Torque Y Axis	177 lbf	20 Nm

Footprint

Main Base	22W x 44L in	558.8 x 1117.6 mm
Machine Size	30W x 45L x 12H in	762 x 1143 x 305 mm
Control Size	17W x 24L x 28H in	432 x 610 x 711 mm
Weight: Approximately	500 lbs.	31,751.466 kg

Lathe Control Power Requirements

20 Amp 208/240 Volt 1 Phase 50/60hz

DC Power Supply Power Requirements

20 Amp 220/230 Volt 3 Phase 50/60hz

AC Frequency Drive Power Requirements

100 Amp 460/480 Volt 3 Phase 50/60hz

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

Lathe Components

PPG AUE100 #905689 A Code Safety Blue

Electrical Components

PPG AUE100A/S1 #920710 A Code Competitive Gray

Miscellaneous Components

PPG AUE100 #900 A Code Safety Black

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.