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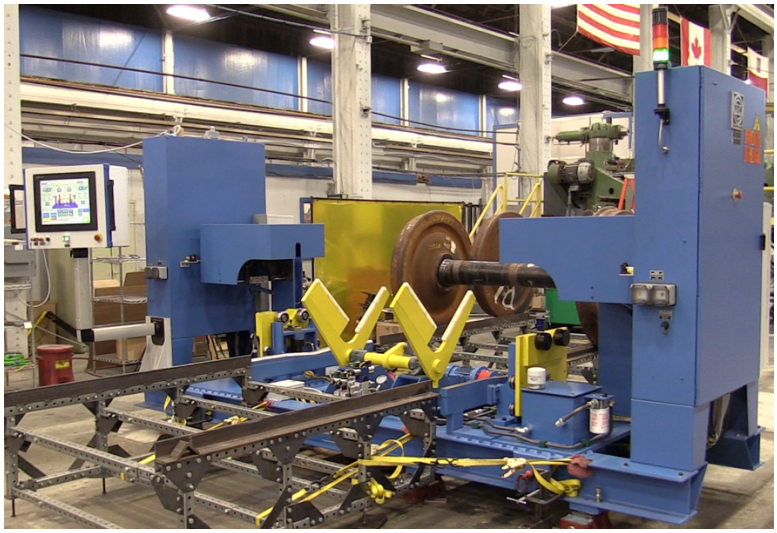
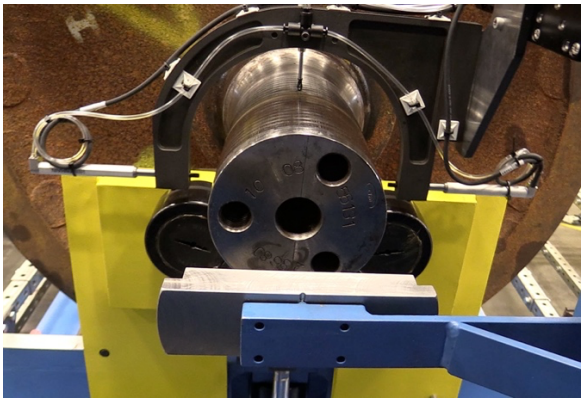
# Simmons WSM-430 Outboard Bearing Journal Measurement System Data Sheet



The **Simmons WSM-430 Outboard Bearing Journal Measurement System** is a metrology machine that automatically inspects the outboard bearing journals of used railroad wheel sets to determine if they are reusable, if the axle should be discarded, or if axle repair is possible. The WSM-430 measures bearing journal diameter and taper, upset ends of a bearing journal, profile deviation, and bent axle condition. Measurements are stored in a local database at the machine or can be networked to transfer the data to a remote server. If interfaced with a facility supervision system, those measurements can be used to automatically route the wheel set for maintenance.

Wheel sets are delivered to the WSM-430 via shop rails. Once captured, hydraulically operated lifts on each end of the machine pick up the axle on the bearing journals and raise it into measuring position. The horizontal axis on each side of the machine is extended to place the profile measurement gauge on the dust guard in order to measure the bearing journal profile. The profile can be measured in up to four locations around the circumference of the bearing journal. The wheel set is then rotated continuously while the diameters and runout are measured in two or more locations. The measurement results for both wheels will be displayed on local HMI and saved to the database. The control system will then determine what subsequent operations are required.



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www.nsh-usa.com
+1 (518) 462-5431

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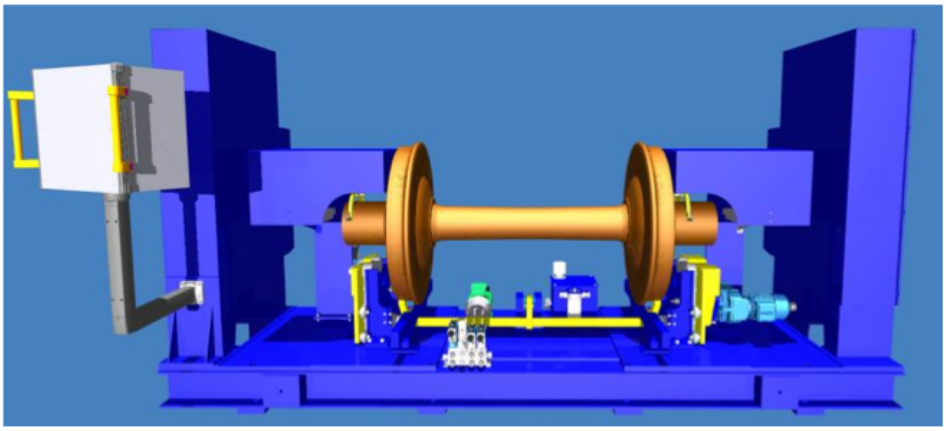

Machine Dimensions

| | | |
|---|---|---|
| Length | 166.5 in. | 4230 mm |
| Width (With Panel) | 90.3 in. | 2292 mm |
| Height | 82.8 in. | 2102 mm |
| Weight | 8000 lbs. | 3629 kg |

General Specifications

| | | |
|---|---|---|
| Cycle Time | 4 minutes | |
| Journal Diameter Measurement Repeatability | +/- 0.0001 in. | +/- 0.0025 mm |
| Journal Fillet Profile Deviation Measurement Repeatability | +/- 0.001 in. | +/- 0.025 mm |

Utility Requirements

| | | |
|---|---|---|
| Electrical Power | 14.6 kW | |
| Compressed Air | 15 scfm @ 80 psi | 425 slpm @ 5.5 bar |

Wheel Set Dimensions

| | | |
|---|---|---|
| Maximum Wheel Diameter | 38 in. | 965 mm |
| Minimum Wheel Diameter | 28 in. | 711 mm |
| Maximum Axle Length (With No End Caps) | 90 in. | 2286 mm |
| Minimum Axle Length | 85 in. | 2159 mm |
| Maximum Bearing Journal Diameter | 7.086 in. | 180 mm |
| Minimum Bearing Journal Diameter | 5.118 in. | 130 mm |
| Maximum “U” Dimension | 70 in. | 1778 mm |
| Maximum Weight | 4000 lbs. | 1820 kg |

*Updated November 17, 2021*

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