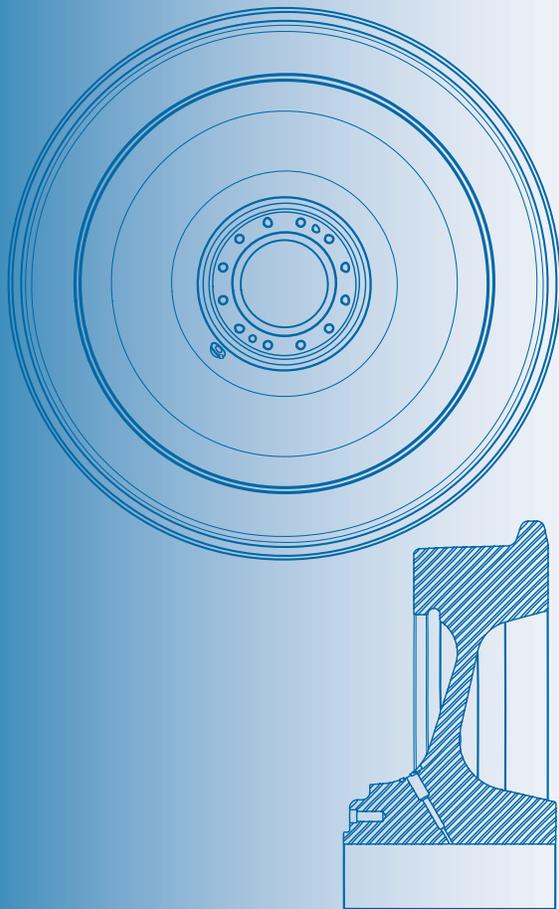


# Penn Solid Wheels for Rail Transportation

*Penn Machine Company is a major supplier of solid and resilient wheels. Included in our product line are solid wheels, the original PCC resilient and super resilient wheels, Penn Super Cushion wheels and Bochum 54, 84 and 2000 resilient wheels licensed by Bochumer Verein Verkehrstechnik.*



## Solid Wheel Features:

- Custom designed or built to your specifications
- Manufactured to AAR and APTA standards
- Tread diameters from 18" to 45"
- Wheel center bore available as finished or rough
- Manufactured and serviced in the U.S.A.

## Design/Construction Features:

For the rail transportation industry, Penn Machine is a major producer of solid wheels for the aftermarket or to OEM manufacturers. All Penn/Bochum solid wheels are custom designed for each application, or they are made to customer's drawings and specifications. All solid wheels are made from forged steel. Each solid wheel is precision machined over its entire outside surface to tight tolerances with the opening either rough or finished bored. Solid wheels can also be provided with a port to assist with hydraulic removal.



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## Penn Solid Wheels for Rail Transportation *(continued)*

### Engineering and Noise Absorption Advantages:

To offset the stresses and loads to which a solid wheel is subjected (forces between wheel and rail, temperatures as a result of braking, centrifugal forces, etc.) and to satisfy the requirements ensuing from technical codes, specifications and weight management, Penn Machine offers various solid wheel designs. For example, we manufacture stress-balanced, vibration-optimized, tangential-corrugated and arched shaped solid wheels. Solid wheel rims can also be toughened to meet customer requirements. For all new wheel designs, Penn Machine performs a Finite Element Analysis (FEA) for stresses and loads.

Over the years, Penn Machine has been very involved in developing noise absorption technology for solid wheels. Our solid wheels can be designed and engineered with tuned axial noise absorbers that significantly reduce curve squeal and standard running noise.

Prior to shipping, Penn Machine inspects all solid wheels using an ultrasonic and magnetic particle inspection test. All solid wheels manufactured by Penn Machine meet AAR and APTA standards.



*Penn/Bochum solid wheel features axial absorbers for curve squeal noise absorption.*



**PENN MACHINE COMPANY**

Rail Transit Division  
310 Innovation Drive  
Blairsville, PA 15717 U.S.A.  
724-459-0302  
pmcsales@pennmach.com  
**pennmach.com**



A Marmon Group/Berkshire Hathaway Company