INGERSOLL RAND WHITE PAPER | FEBRUARY 2023

Compressed Air for Railroad Equipment

Ingersoll Rand®

What's Inside

Introduction

In today's eco-conscious world, where people are looking for more efficiency and energy conservation, compressed air has become a vital source of power. As nations work toward a fossil fuel-free future, numerous sectors, including the railway industry, are recognizing the benefits of compressed air. With compressed air powering a variety of functions, companies have been able to cut back on energy consumption and utilize power that is much more environmentally friendly.

Global Railroad Market Overview

The global railroad market size was valued at USD 295.80 billion in 2021 and is expected to expand at a compound annual growth rate (CAGR) of 4.4% from 2022 to 2030. The market is likely to grow thanks to continued investments in railway line projects and the expansion of railroad networks around the world. The demand for freight rolling stock is driven by fuel prices, whereas the demand for passenger rail rolling stock is fueled by frustration with traffic congestion, triggering the public's investment in regional rail transportation.

Compressed Air in the Railroad Industry

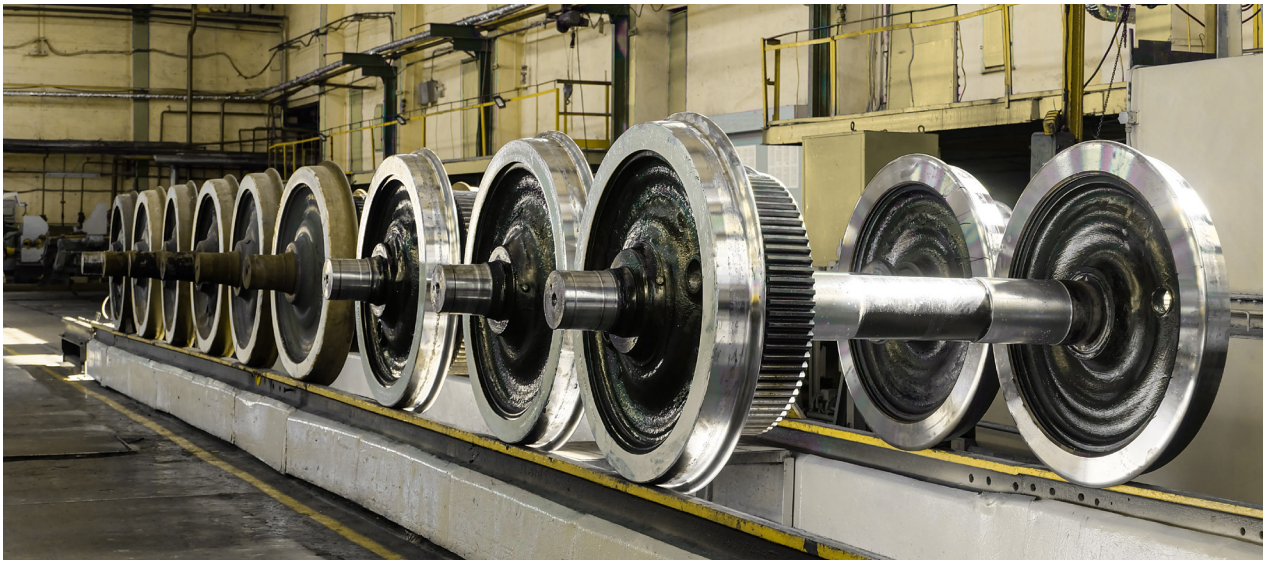
In the railroad industry, air compressors are used to run rolling stock along railway tracks and provide numerous functions that ensure the convenience and safety for passengers and crew. Today's railway industry is in many ways driven by air compressors, as modern locomotives are not only powered by pneumatic power but are built with it as well. Rolling stock assembly plants rely heavily on air compressors to power most of their tools.

Pneumatic Power Tools

Powering pneumatic equipment and tools is the most common application that uses an air compressor in the railroad industry. There are several different types of tools and equipment that rely on compressed air to operate. These include impact tools, air hammers, grease guns and speed saws. No matter which pneumatic tool you use, moisture is the enemy. It can lead to corrosion and premature wear. Using dry compressed air to power your equipment and tools helps to maintain pneumatic tool performance and preserve long life.

Metalwork

Metalworking in the railway industry comprises manufacturing locomotives and carriages as well as the whole railway infrastructure, including track systems, bridges or parts of railway stations. In these metalworking processes, a reliable air compressor system is the central power source—it's what keeps production moving quickly and efficiently. Metal processing and fabrication consume a lot of compressed air, ranging from clamping/unclamping spindles, running pneumatic tools and lasers to activating shear and puncher machines, power punch hole drills, cutback saws and more. Compressed air is a quick and easy way to cool machined metals and steel. Very dry air may be required based on the material used for the part and whether it is susceptible to rust or corrosion.



Mixing

When transporting material, such as cement or dairy products in rail tanks, it's important to promote fast and efficient tank mixing. This can be done with quick bursts of compressed air that are released at timed intervals through a series of pipes connected to the tank bottom. Compressed air is also used to maintain over-pressurization in the tanks to ensure product integrity and sterility.

Cutting

Cutting is one of the steps in the railroad equipment manufacturing process that requires quality dry and clean compressed air to prevent problems that may occur in the final product. Laser welding requires compressed air of up to 8 bar (116 psi) to keep any material particles and vapors away from causing damage. It is also used for laser cutting. It helps to flush the mirror channel and blow out the melt. It also cools down the surface and improves cutting quality.

Find a Partner You Can Trust

Ingersoll Rand has been working closely with railroad equipment manufacturers to provide robust and reliable solutions that apply to metalworking processes, like grinding, that can be contaminated with oil, sparks and dust found in a typical railroad industry environment.

Size Your Air Needs

Ingersoll Rand's compressed air solutions, designed for manufacturing plants, will keep your business operating at full swing. We offer a wide portfolio of innovative air products, services and solutions that enhance energy efficiency and productivity objectives.

Rotary Screw Compressors

Every component in our oil-flooded compressor system supports maximum reliability for increased productivity, longer equipment life, lower operating costs and higher profitability. Advanced airend and drive component designs provide world-class specific power and best-in-class air flow, resulting in reduced energy use. Our devices can withstand the rigors of continuous use and keep the equipment and machinery in your railroad manufacturing plant functioning without lengthy interruptions that cause unproductive downtime.

Nitrogen Gen N2

Some cutting processes require nitrogen gas – Ingersoll Rand's safe, reliable and energy efficient on-site nitrogen generators offer quality and reliability so that you can focus on maximizing the productivity of your operations. Our efficient designs generate nitrogen from freely available air, allowing you to forgo traditional nitrogen delivery to simplify your business processes. Combined with our line of ancillary products, you can get peace of mind knowing your entire nitrogen production process is backed by a trusted partner from start to finish.

Air Compressor Dryers

As moisture and other contaminants make operating compressed air applications very problematic, using air compressor dryers is necessary to overcome extreme conditions and prevent downtime. Our dryers are designed as a companion to enhance your entire air compressor system, not only by ensuring high-quality air, but also by improving productivity, efficiency and making the overall running of operations more manageable.

Helix™ Connected Platform

Developed to maximize uptime and peace of mind, the Helix™ Connected Platform from Ingersoll Rand gives you the power of real-time data monitoring for your compressed air system, making it the best solution for unmanned switching rail stations.

Protect Your Investment with Ongoing Preventive Maintenance

Original equipment manufacturer (OEM) parts are an operator's best choice to maintain maximum reliability and performance. Non-standard parts can expose equipment to unnecessary wear and tear that can lead to downtime and higher operating costs.

If you want to protect the investment of your equipment, make sure to invest in quality parts to keep it running. Ingersoll Rand has a complete offering of maintenance and OEM-quality compressor parts, including lubricants, maintenance kits, replacement parts, filtration and condensation management that is complimented by the expertise to keep your shop running.

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