Creating advantage for our rail customers
Norgren has a proven track record in creating competitive advantage for customers in the rail industry. We work harder to understand our rail customers’ business and technical needs to give them smarter engineering solutions.

Anticipating the future
As world traffic volumes are increasing rapidly, our future has become uncertain without huge investments in rail-based transportation. This is why Norgren is prepared for short, medium and long-term expansion of the global rail industry and anticipates a growing need for innovative rail engineering.

Engineering solutions
We apply our dedicated rail knowledge and expertise to develop better solutions. We do this by listening to our customers and working together closely with them to provide engineering solutions with added value.
Reliability, safety and profitable life cycle costs
With more than 25 years of rail industry experience, we fully understand our customers’ needs. Our comprehensive range of high quality, standard products, combined into customised solutions, are focused on reliability, safety and profitable life cycle costs for our customers within the metro, intercity, freight and permanent way rail industries.

We call it ENGINEERING ADVANTAGE
Our work with many leading global companies in the rail sector and related industries means that we are able to speak our customers’ language, and can bring specialised experience and knowledge to bear on new challenges and applications. Whatever the application, Norgren is committed to helping customers achieve better results by developing differentiated and customised solutions that meet their needs exactly.

Global strength...
Norgren is present in 75 countries employing more than 6,000 people worldwide. With technical teams based in Europe, Asia and the Americas we have the ability to harness our global resources to match our customers’ operations in order to cope successfully with the most demanding of international projects.

...and financial stability
We are part of the major international engineering group IMI (turnover in 2005: £ 1,578 m). IMI is a dynamic worldwide company delivering innovative solutions to leading global customers in the fluid control and retail dispense markets.

www.norgren.com/rail
It has become clear that high-speed railway systems are the most intelligent, environmentally friendly and cost-effective ways of moving people between urban populations.

That is why Norgren has an experienced team of rail engineers ready to make a real difference for customers around the globe.
Toilet flushing systems
Norgren develops innovative, modular vacuum flushed toilet systems. Easily connected, environmentally friendly and using minimal water when flushing. This enables our customers to market a more cost-effective product with improved performance.

Door step cylinders
Norgren provides door step actuation systems for some of the world’s leading companies. Providing many bespoke solutions based on sliding and swinging actuation; solutions developed by Norgren are of the highest quality to ensure complete reliability, robustness and safety.

Uncoupling cylinders
Norgren’s new uncoupling systems improve the performance of the train’s uncoupling cylinder significantly. Having been awarded full certification by train operators this reflects the confidence these safety conscious companies have in Norgren.

Internal door control systems
Norgren develops engineered solutions for new and existing train carriages. From fresh new concepts to doors required to reliably fit into the same space as the previous design, Norgren consistently delivers the perfect package. With strong after-sales support and replacement parts readily available, Norgren is an ideal partner.

Pantograph control systems
Norgren designs, manufactures and delivers pneumatic systems that attach to the pantograph and retract it from making contact with the overhead power cables when required. Norgren’s solutions enable the pantograph to be withdrawn from the overhead power cables quickly and reliably. Norgren’s solutions are small enough to fit within the existing footprint of the pantograph giving customers a cost-effective design.

Braking systems
For 18 years, leading rail industry companies have been choosing Norgren’s braking systems. Norgren is recognised for its high performance solenoid valves for brake actuation, pressure monitoring components and special manifold assemblies. Norgren provides systems that have been engineered to conform to the highest quality and safety requirements, adding real value for our customers.
Global urbanisation has accelerated to a point where the most important challenge facing metro suppliers and city planners is how to increase mass transport capacities.

Faced with this reality Norgren is dedicated to working harder to create innovative solutions with real added value in terms of speed, efficiency and comfort to the world’s most ambitious companies.

**Door systems**

Norgren is the world’s largest supplier of interior door systems, offering a wide range of solutions to meet a variety of customer needs and carriage specifications. All Norgren’s door systems easily surpass the 30 minute fire barrier requirement, and do not allow passenger entrapment. They are reliable, safe and competitive, using a range of proven Norgren pneumatic products that are easy to maintain and replace.

**Door control valve assemblies**

Norgren provides modular valve systems for global train door manufacturers. Our solutions are modular in design in order to ensure that the replacement of existing systems is swift. Norgren continues to engineer solutions that meet design requirements thus ensuring quick installation and reduction in downtime.
Moving goods by rail has become more profitable thanks to technological advances, market restructuring and more competitive regulatory frameworks.

Norgren’s engineers have extensive experience in creating products and services for freight customers that are unrivalled in reliability, safety and life-cycle competitiveness.

**Iron ore wagon door operation systems**

The requirements of iron ore freight wagon builders demand door operation systems that are tough and long lasting. A maximum product discharge from the wagons as quickly as possible combined with minimal product ‘hang-up’ is critical. Faced with these challenges, Norgren’s design team engineer solutions which include specially fabricated steel rear mounting on a 980 cylinder and a special valve system allowing door operation from either side of the wagon using just one spring return valve. Solutions provided by Norgren exceed expectations by enabling a 99.9% product discharge from the wagon in less than six seconds.

**State of the art grain wagons**

Norgren supports the development of innovative grain wagons through close partnership and full understanding of the demanding applications. Having been awarded sole pneumatic supplier status with several customers clearly demonstrates Norgren’s determination to engineer a real competitive advantage for our customers. This provides real cost savings on maintenance and reliability over the entire life of the wagons.
Global rail vehicle owners and operators demand continuous improvement in the reliability and safety throughout the operational life of their trains. Critical to performance are vehicle air systems that can be affected by poor quality air.

Norgren has developed dedicated filtration solutions to meet and exceed customers’ varying expectations and requirements for reliability and safety.

**Critical vehicle air systems**

Control valves employed in brakes and door systems, couplers, suspension or auxiliary systems are susceptible to poor air quality, with contamination by oil, water or particulate. This may lead to improper actuation or even failure to operate. Their incorrect actuation may result in brakes not being fully or correctly applied whilst the vehicle is in motion. It may also lead to incorrect coupling, an uncomfortable journey for passengers and complete vehicle failure.

Any of these undesirable actions can have great financial implications for operators, dissatisfaction for customers and major safety concerns for both.

**Air filtration equipment**

Norgren is one of the largest suppliers of rail vehicle filtration equipment in the world. This helps to overcome the demanding requirements of continued safety and operating reliability. Critical systems where control valves are employed can have filtration systems configured to meet the increasing operational problems experienced with the air supply as vehicles age. Where more extreme conditions exist, standard equipment can be customised by design modifications to exactly match the given flow, pressure and temperature demands. In this way, filtration systems can be provided that are not only fit for function but reliable, robust and designed with minimum pressure drop thus achieving energy efficiency as well as optimised running costs and compressor loading.

**Dedicated filtration solutions**

Norgren can draw upon its experience in diverse industries to produce air filtration systems. Air can be conditioned to meet each application’s requirement across all of the different elements of a complete system. Norgren air filtration systems deliver air quality thus allowing equipment in critical areas of rail vehicles to operate reliably throughout their working lives. Manufacturing many on board ancillary systems and components gives Norgren an unrivalled understanding of their needs and limitations regarding air quality. Norgren has the ability to match the filtration system with the needs of the valves and cylinders. If parts of the system prove particularly difficult to protect with correct filtration, the wide Norgren range of valves and cylinders can often be relied upon to overcome these difficulties.

**Engineering solutions**

Norgren’s engineers develop complete product packages including modular 3-stage 68 series filter assemblies with special membrane dryers, heavy duty check valves, brass Y-strainers, Buschjost diaphragm and Webber solenoid valves and drains to meet special voltage requirements. Norgren continues to exceed expectations by offering fully customised solutions.
01 **HEAVY DUTY Y STRAINERS**  
Protect equipment against clogging and breakdown. Improve operational reliability.

02 **CUSTOMISED DOOR ACTUATOR SYSTEMS**  
Customisable length, compact design, integrated valves and electronic circuitry: Quiet, smooth actuation and low maintenance.

03 **METRIC FITTINGS**  
For use in areas of vibration, Pre-assembled units with no assembly tools or heat required. Can be remade and thinner tube can be used. Will cope with some tube misalignment.

04 **CLIMATE CONTROL**  
Norgren’s extensive range of solenoid valves including direct & indirect acting as well as 3/2, 4/2, 5/2 & 5/3 configurations.

05 **NORGREN 18D FLUID PRESSURE SWITCH - LOW TEMPERATURE VERSION**  
The 18D pressure switch in a low temperature version is ideal for indoor and outdoor fluid applications that require a wide operating temperature range.

The 18D LT is suitable for pneumatic applications with operating pressures from -1 bar to 16 bar. Suitable for neutral, gaseous and liquid fluids that are non-combustible the units are ideal for mobile applications. Various fluid connections are available (G, NPT, flange) and features micro switches approved by UL and CSA.
A healthy permanent way is the basis of a safe and predictable rail transportation system. This makes a first class design and the innovative engineering of long lasting solutions critically important.

Norgren’s engineering teams are ready for this challenge. Norgren provides solutions that are reliable, can resist a harsh environment over time and improve our customers’ competitiveness.

**Retarder cylinders**
Norgren’s engineers work closely together with a specialist seal manufacturer to develop a seal resistant to any build up of ice on the piston rod as well as protracted acid rain. Retarder cylinders provided by Norgren prove to be effective and durable.

**Pneumatic points motor controls**
Norgren provides innovative pneumatic control solutions for track and point systems. Our solutions exceed expectations by providing compact designs based on ISO Star valves, Webber valves, pressure switches, associated isolation valves and Pneufit fittings. Custom solutions, close customer partnerships and Norgren technical engineering excellence delivers world leading designs.
Norgren has a wide range of standard products that our global design teams integrate with 25 years Rail experience and real understanding of our customers’ needs. This provides the optimum engineering solution focused on safety, reliability and life-cycle costs.

» VALVES
Increased installation efficiency, durability, competitive pricing and aesthetic appearance. Our high flows coupled with compact, robust designs provide a good range of mounting and electrical connector options.

» FITTINGS
Connection types include Push-in, Composite, Compression, BSP Pipe and Hose Fittings.

» PRESSURE SWITCHES
Norgren offers a comprehensive range of pressure switches for pneumatic, hydraulic and fluid applications. Suitable for applications such as monitoring of braking system pressure.

» AIRLINE EQUIPMENT
Norgren’s range of airline equipment provides high flow combined with minimum pressure losses. This delivers the accuracy you have come to expect from Norgren. Norgren air preparation products are backed by a 2-year unconditional warranty.

» ACTUATORS
Norgren offers an extensive range of actuators including custom door actuators, ISO/VDMA, rotaries, heavy-duty and roundline cylinders.