Industrial Automation

Rail Product Overview

Breakthrough engineering for a better world

Contents

Breakthrough engineering for a better world

We create solutions for our customers which enable smarter, safer, more productive and sustainable factories, production lines and warehouse operations. Our pneumatic and electric motion systems help machine builders and end users around the world automate and optimise manufacturing and warehousing processes.

We have partnered with customers in industrial automation for over a century, applying our experience and innovation to create lasting value for their businesses. Our solutions support critical industries such as automotive, food and beverage, pharmaceuticals and even the space industry. We support the automation of precision manufacturing, product assembly, testing and packaging.

We use the latest digital technologies in our automation products and constantly innovate in close partnership with our customers. By applying our deep expertise, we can solve their toughest automation challenges, today and tomorrow. Through increased productivity, efficiency and safety, our customers can serve their own customers better, creating sustainable competitive advantage and delivering growth.

Our world-class product portfolio includes IMI Norgren, IMI Bimba, and IMI Bahr.

Breakthrough Engineering you can count on.

NOTE: *Due to our policy of continuous development, we reserve the right to change specifications without prior notice.*

Delivering expertise, solutions and value to the rail sector

For over 45 years, we have delivered robust, reliable and bespoke solutions to the rail sector.

Our products continue to give millions of miles of reliable service across the world's most challenging environments, from the cold of Northern China and Eastern Europe to Australian outback heat.

With a true understanding of the daily issues faced by rail operators and original equipment manufacturers, we design for the precise needs of the rail industry, at:

- Temperatures ranging from -40°C (-40°F) to +80°C (+176°F)
- Voltage tolerances of +/- 30%
- EN 61373 category 1 class A and B vibration resistance
- EN45545-2 Fire and Smoke

We talk extensively to maintenance professionals and work closely with rail engineers to ask the questions they ask. That means we can offer customised, practical solutions to the metro, intercity, high-speed, freight and permanent-way rail industries, covering:

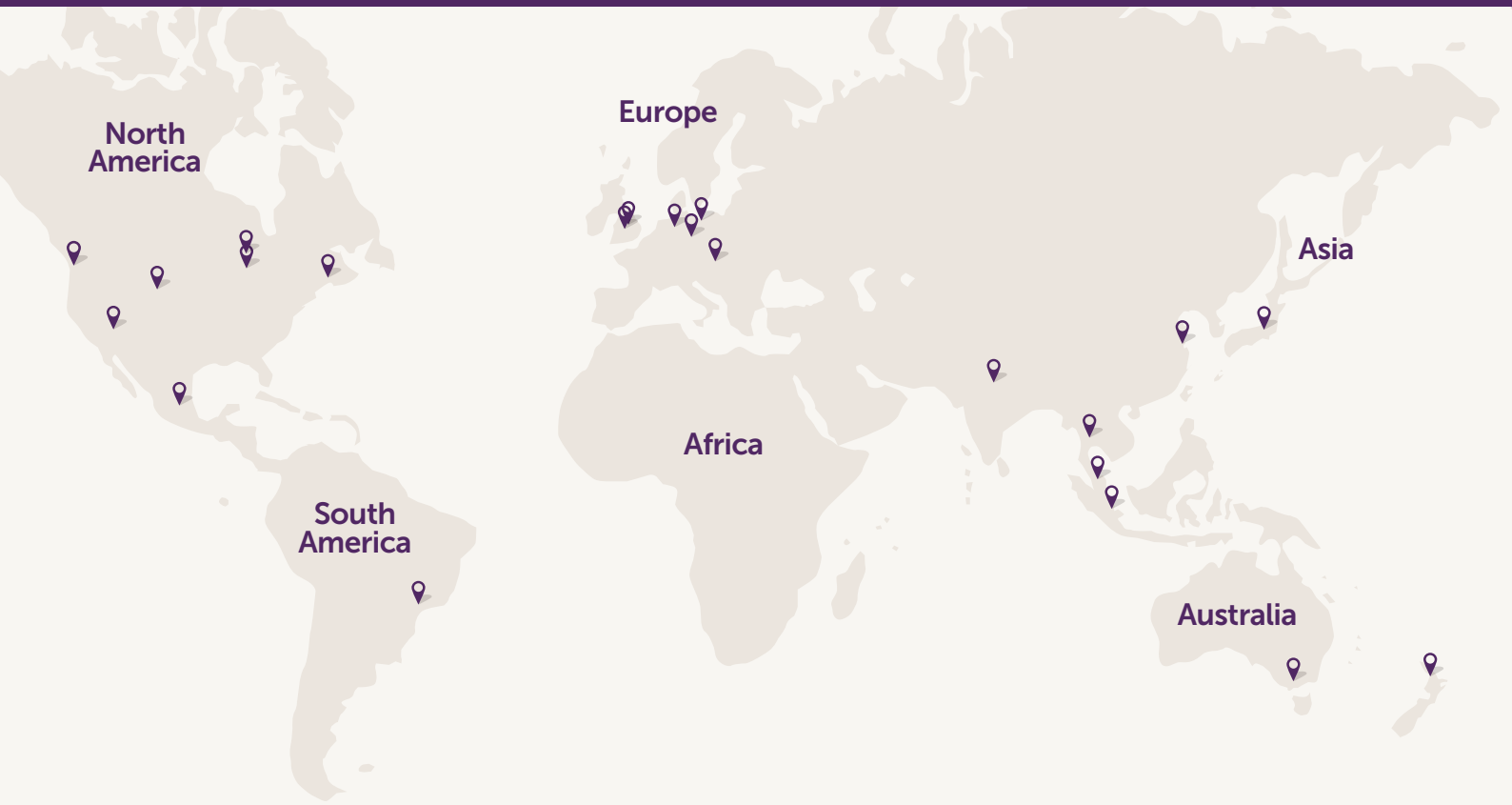
- Air preparation equipment
- Brake sub-systems and components
- Coupling control systems
- Door and step control systems
- Pantograph control systems
- Water control systems
- Freight control and actuation
- Suspension control equipment

By listening and responding to your specific challenges, we help you make significant improvements and savings in terms of cost of ownership, energy efficiency, reduced maintenance and more.

Global support

We help you achieve your goals by working with you as a partner, not just a supplier. Our dedicated rail team is connected worldwide to ensure close, continuous support no matter what the size and extent of your organisation. We have the reach and capability to work alongside you on complex, global projects or to simply offer local spare part supply.

Across manufacturing, sales, innovation centres and offices



Global testing and validation

We work closely with our customers to achieve tailored solutions. During development and testing, the focus is placed on designing products that can withstand anticipated loads and consistently perform their tasks. It is this thorough and detailed testing and validation in accordance with the relevant standards that reduces early failure of components. In addition, a comprehensive valuation under realistic conditions helps avoid high consequential costs caused by failures of components in the end application.

Complete product testing and valuation is done in our stateof-the-art testing centres.

The laboratories have an extensive range of test equipment, operated by a neutral expert team working independently of the development departments. Their experience and expertise enables quick implementation of tests, the design of test programs tailored to the needs of real applications and operating conditions in the various sectors, and a guarantee of the neutrality and accuracy of test results.

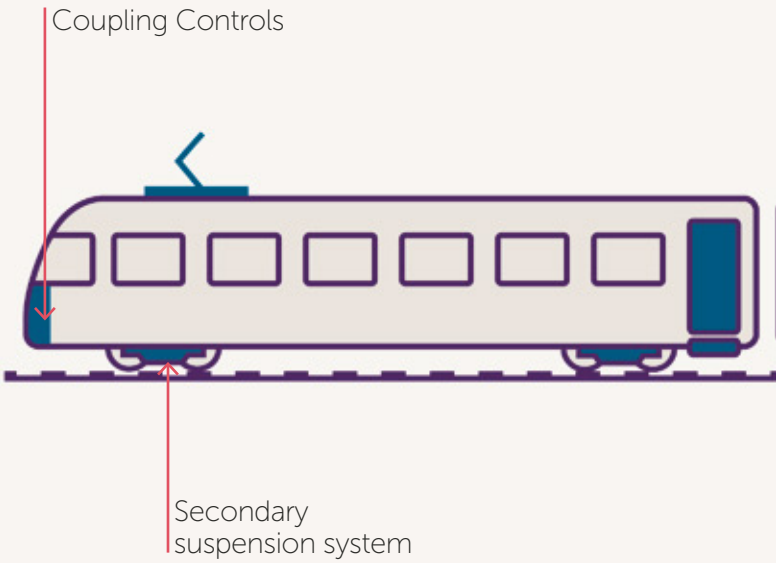
We have extensive experience in the field of environmental simulation, with a focus on climate, temperature, thermal shock, corrosion, vibration and mechanical shock.

Prototyping and material laboratories are additional, important resources that contribute to our targeted and rapid product development.

- Flow measurement ranges: 0.05 l/h to 4000 m^3/h
- Test pressures: Up to 1000 bar
- Volumetric flows: Up to >900 m3/h
- Temperatures: -80°C to +220°C
- Frequency: 5 – 3000 Hz
- Max. Acceleration: Up to 100 g
- CFD capability (Computational Fluid Dynamics)
- Specific tests we undertake for the rail sector include:
  - EN45545-2
  - EN 50155
  - EN 50121-3-2
  - DIN 5510-2
  - EN 61373
  - NFPA 130
  - EN 60068
  - EN ISO 9223

Urban transportation solutions

Decades of insight into the challenging conditions faced by rail operators in and around the cities of the world, mean the solutions we offer answer your pressing, practical need for more reliability, better performance and efficiency, and lower cost of ownership.



Auto coupling controls and actuators

Secondary suspensión control

Pressure regulators and foot pumps for pantographs

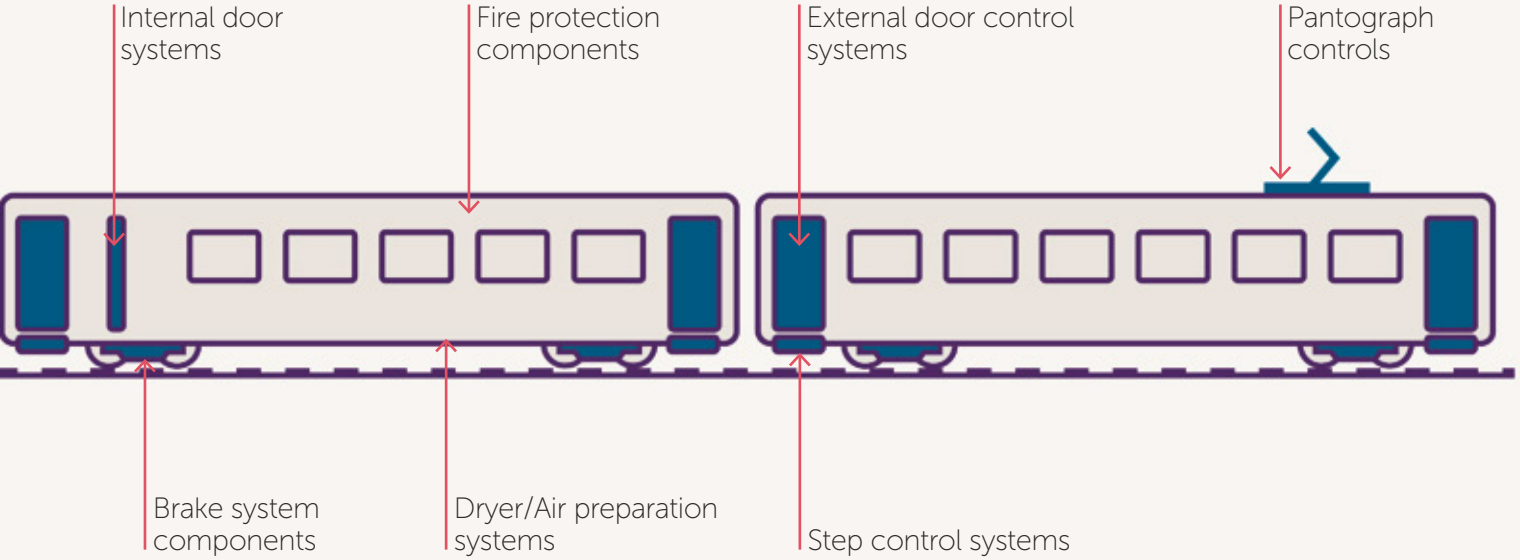
Pantograph controls and actuators

Brake system valves

Fire & smoke retardant Nylon tubing for ancillary applications

Light weight reusable compression fittings for rigid piping

Pressure Switch and regualtors



External and internal door actuation & control systems

Compressed air filters and dryers

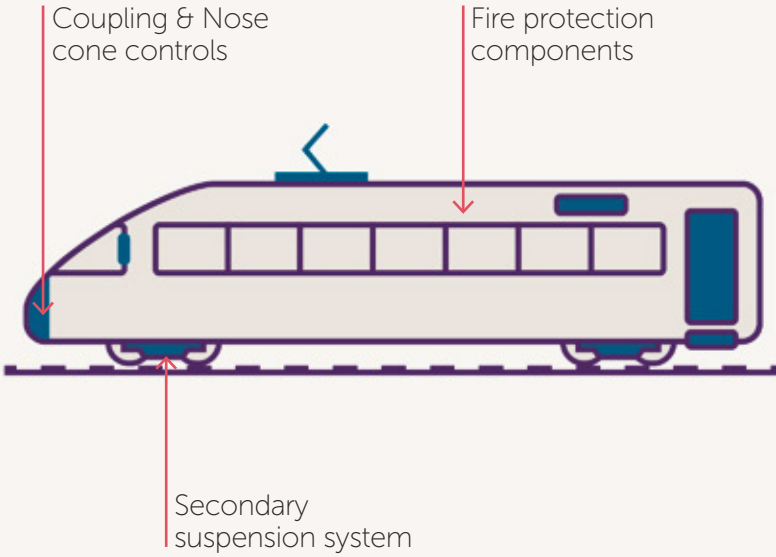
Brass push-in fittings for ancillary applications

Horn control valves

Isolation and drain valves

Regional & high-speed transportation solutions

All our rail products are designed to perform dependably in environmental and operational extremes meaning less revenue lost from downtime due to maintenance.



Auto coupling controls and actuators

Secondary suspensión control

Pressure regulators and foot pumps for pantographs

Pantograph controls and actuators

Brake system valves

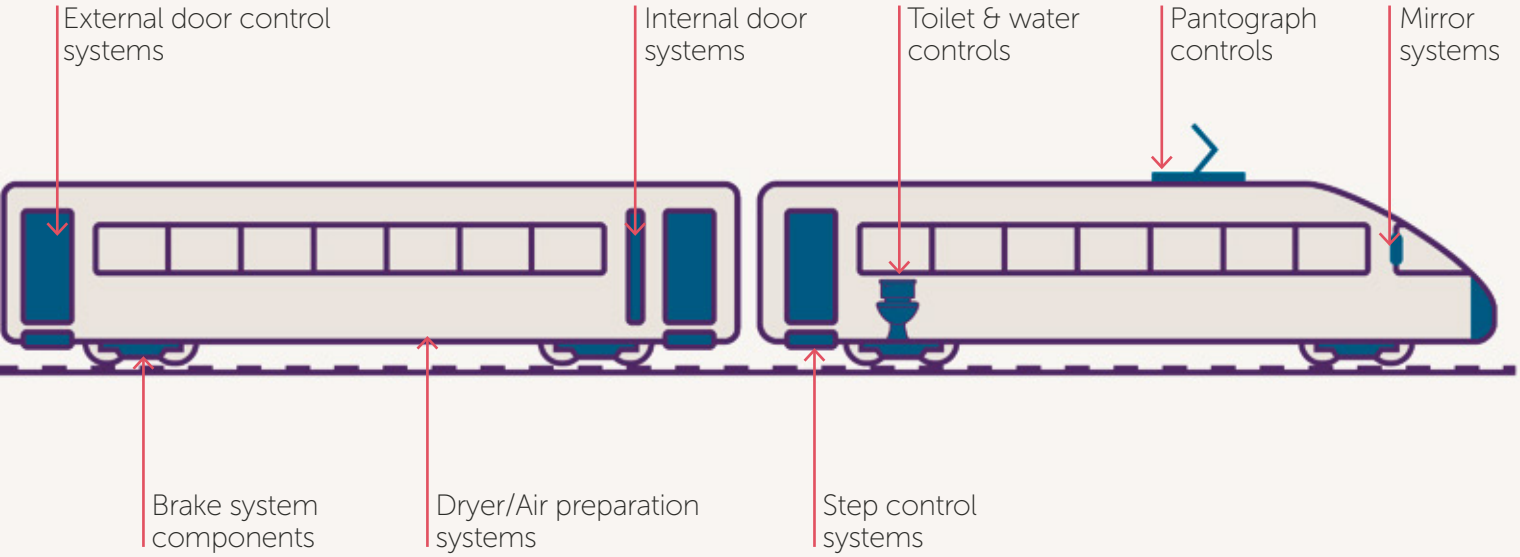
Fire & smoke retardant Nylon tubing for ancillary applications

HVAC Pressure Protection Controls And Actuators

Light weight reusable compression fittings for rigid piping

Pressure Switch and regualtors

Horn control valves



External and internal door actuation & control systems

Toilet and water control systems

Pneumatic Step Systems

Mirror Control Systems

Points control - Actuators & Control

Isolation and drain valves

Sanding system components

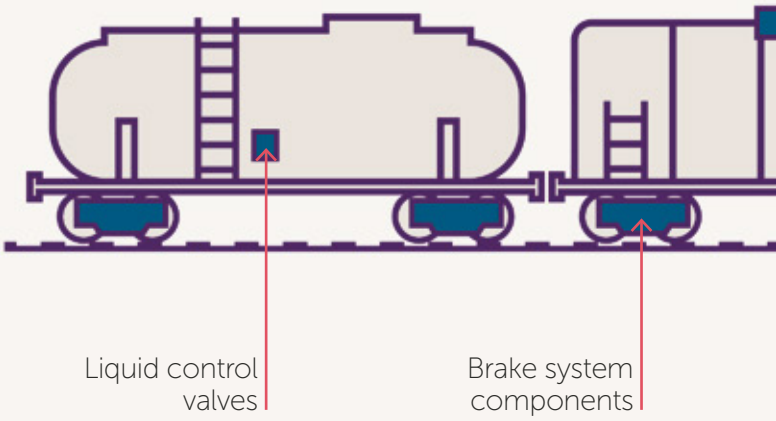
Minimum Pressure Valves

Auto coupling controls and actuators

Brass push-in fittings for ancillary applications

Freight transportation solutions

Working in partnership with customers means we can produce bespoke designs to suit your individual challenge – the solution you get is always right for you.



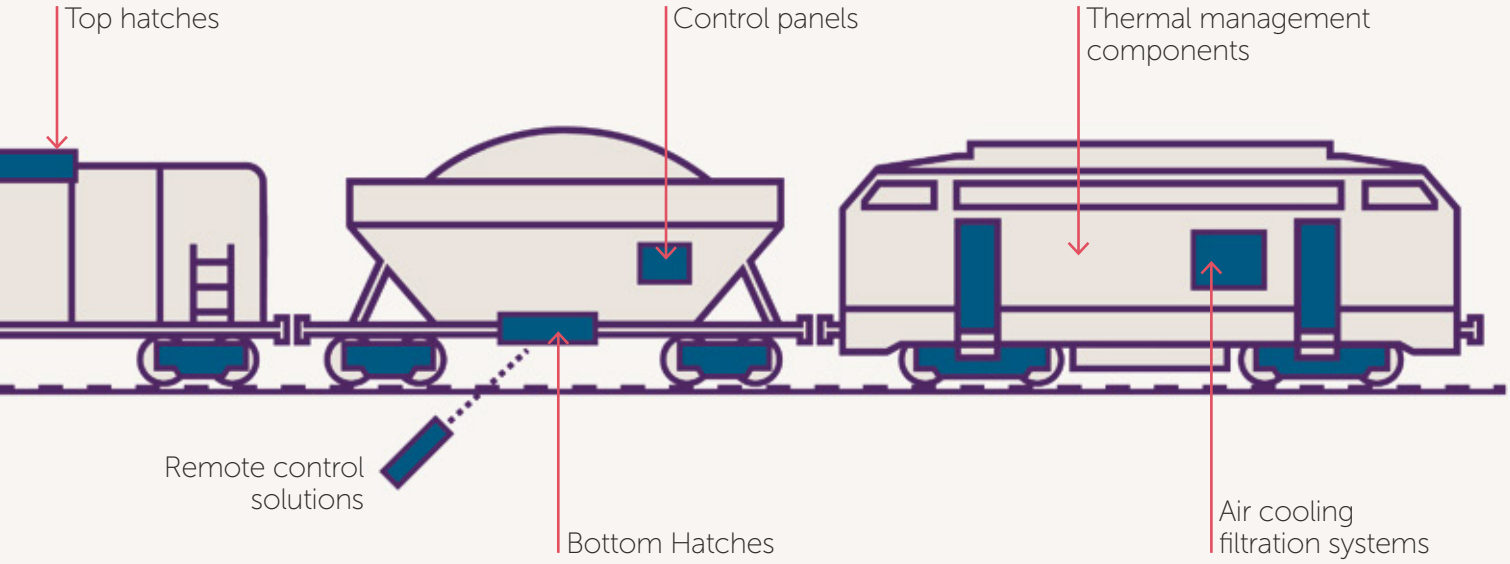
Manual and remote control systems for bottom discharge door systems and top hatches

Pressure switches and regulators for ECP brake systems and remote control discharge systems

Light weight reusable compression fittings for rigid piping

Customised actuators for bottom discharge door systems and top hatches

Brake system valves



Solenoid valves

Brass push-in fittings & nylon tubing for ancillary

Isolation and drain valves

Remote systems

Filters and y strainers

Main air supply

AMT Rail Dryers

Compressed air dryers with patented AMT technology.

Our revolutionary air dryers offer outstanding levels of performance and reliability – a step change in the use of compressed air applications in the rail sector.

With a life span of up to 30 years, and a service life of up to 10 years (30,000 hours) without maintenance – significantly more than even the best performing alternatives – our patented Adsorbent Media Tube (AMT) dryer marks a significant advance over both desiccant and membrane systems, effectively taking their best features while eliminating the flaws.

Vibration resistant and suitable for both horizontal and vertical installation, the result is a 'fit and forget' product which dries better than any current solution. This improves reliability, reduces unplanned downtime and helps drive down the cost of ownership.

Twin AMT system

Patented technology for improved performance

- Service life of up to 30,000 hours (10 years)
- Compact and flexible design, horizontally or vertically mounted
- Typical dew point suppression of 40ºC
- Superior moisture uptake
- High energy efficiency
- Unaffected by saturation
- Faster regeneration
- Resistant to vibration
- No by-products produced

Conventional dryer media

AMT dryer media

Multi stage filtration

5 micron

40 micron

Coalescing filter element

Main air supply

Filtration systems

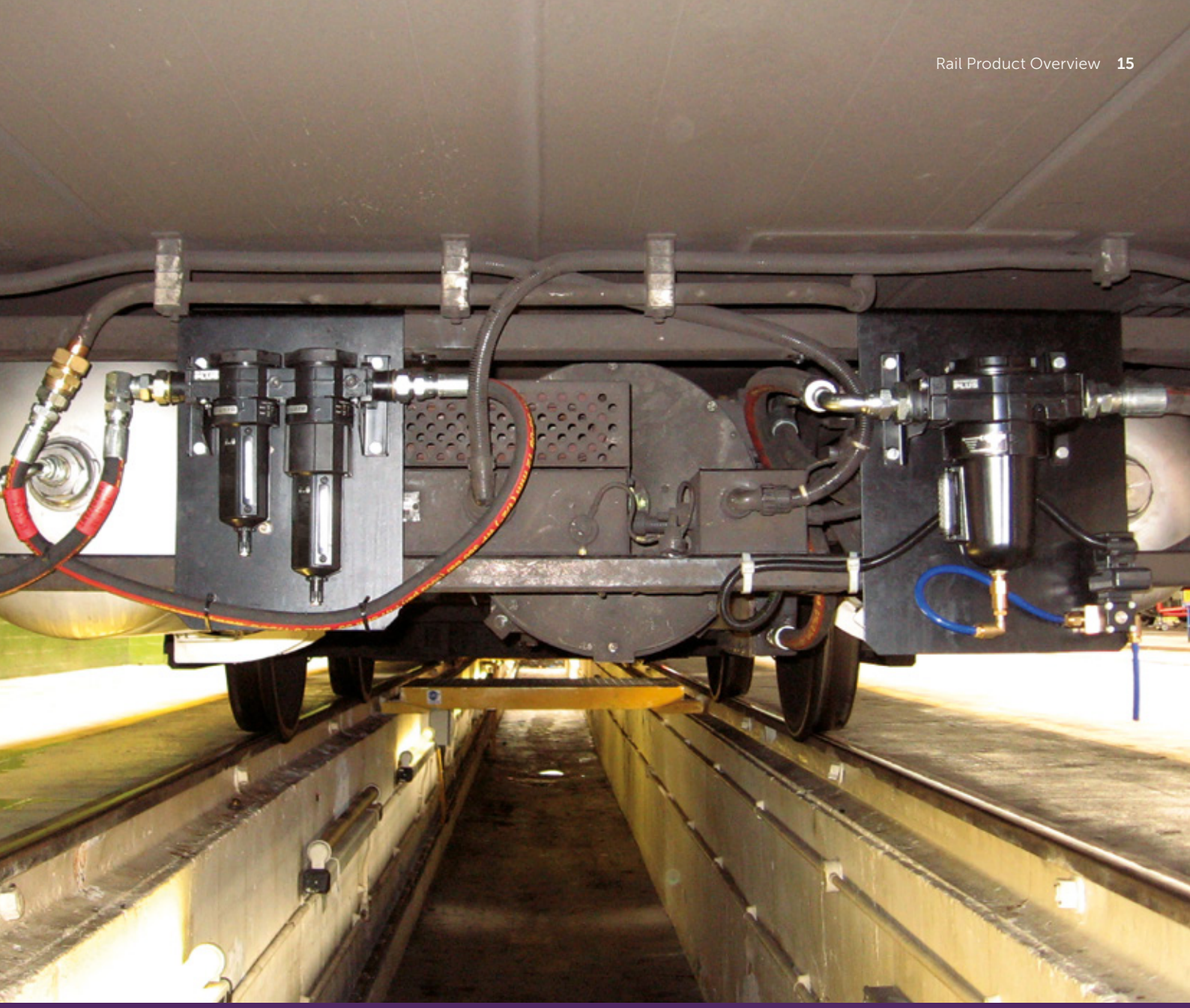
Robust and reliable air preparation equipment.

As the inventor of the automatic airline lubricator in 1927, we have a deep insight into the air preparation problems facing many industries, especially rail.

Engine-driven air compressors used on rail vehicles are known to pass significant amounts of oil and carbon deposits into compressed air systems.

Our multi-stage filtration system – now fitted to vehicles throughout the world – has resulted in significant improvements in particulate and oil removal, leading to better durability and reliability, and significant savings for operators on installation and maintenance costs.

- Excellent filtration performance ensures reliability of downstream components and systems
- Modular system
- Pre-assembled package minimises installation time
- Optional visual or electric service life indicator
- Manual or automatic drains for filters and condensate tanks. Automatic units can be electrically or pilot operated.
- 40 micron and 5 micron filters for bulk water and solid particulate removal
- Coalescing filter for oil/water aerosol removal and sub micron particulate removal
- Carbon filter for oil vapour removal. Oil and particles removed from downstream – ISO 8573-1
- Easy installation and maintenance
- Cost effective over the full lifecycle



Rolling stock owners have encountered major reliability problems with their vehicles due to the engine driven compressor constantly passing oil further down the vehicle to the sub systems.

●● Oil-free compressed air for auxiliary rail systems, brakes and door equipment ●●

The large amounts of oil, carbon and water produced by the engine-driven compressor enter the vehicle system, causing failures that affect a train's reliability and safety.
This reliability problem has a major impact on running costs due to increased maintenance and vehicle system failures, which can range from £25 to £1,000 per minute in out-of-service costs.

In response, our UK Technical Team, together with a Rail Approval institution, developed a four-stage filtration system to remove the oil and water being carried to the vehicle sub systems.
This system has been proven to be successful and the customer has asked for it to be incorporated into its fleet of 660 vehicles.
We exceeded customer expectations by offering a bespoke solution that met budgetary costs, as well as delivering a short installation time, which resulted in vehicle trials commencing sooner.
The 'oil carry over' solution gives the customer true added value, with extended lifecycle costs, and a payback on investment within one year.

Main air supply

Drain valves

We offer fully pneumatic or electrical operated drain valves to remove condensate from compressed air systems.

Electrically actuated valves

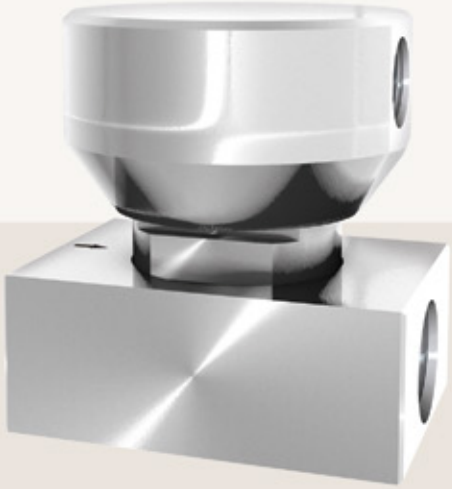
Technical Specification

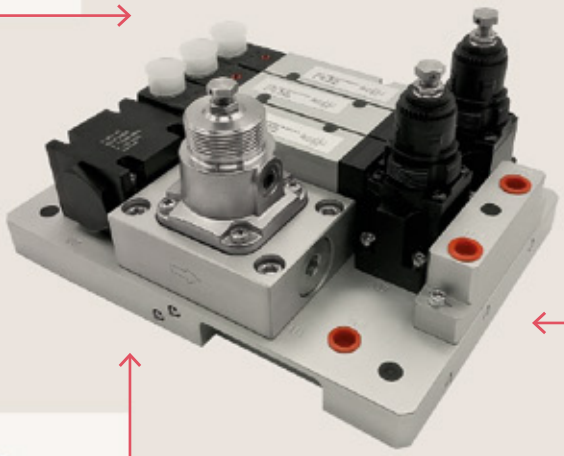
- Operating Pressure 0 to 10 bar (0 to 145 psi)
- Medium: Compressed air, water and non aggressive viscous liquids
- Wide temperature range from -40˚C to +70˚C
- Shock and vibration tested to EN 61373, Category 2
- Fire and smoke compliance to EN 45545-2 and NF F16-101
- Available in all common rail voltages

Pneumatic actuated valves

Technical Specification

- Operating Pressure 0 to 12 bar (0 to 174 psi)
- Medium: Compressed air lubricated or non-lubricated, water
- Wide temperature range from -40˚C to +70˚C
- Port size: G1/4
- Shock and vibration tested to EN 61373, Category 2
- Fire and smoke compliance to EN 45545-2





Manifold systems

Our purpose built manifold solutions are fully rail approved and can be used in many applications where a compact solution is required.

- Compact and modular control systems
- Purpose built customer manifolds
- Rail validated components
- Global sales and technical support

Flanged Mounted Products

We have a large selection of flanged/interface mounted products that can be integrated into an original or new customer solution. These products all meet the required rail approvals.

- Compact and modular components
- Fully rail validated
- Global sales and technical support

Pantograph control

Pneumatic pantograph control systems.

With high-speed trains becoming faster, pantograph systems are expected be more responsive to height variations.

We design and manufacture pneumatic systems that control pantographs accurately which retract quickly and reliably from the overhead power cables when required.

- Actuation and control solutions for raising and lowering the pantograph
- Precision regulation or proportional pressure valves used to achieve constant contact
- Use of valves, pressure switches, filters and regulators for control panels
- Compact and modular control solutions
- Ability to work in both high and low temperatures (-40°C to +80°C)
- Tested for 400km/h trains to withstand external elements and constant shock and vibration
- Optional "Auto Drop Down (ADD)" and "Over-reach" control functions
- 1000 hours salt spray validated

Product Highlights:

- Integrated manifold
- Compact and modular
- Precision regulation

Find out more
www.imiplc.com/industrial-automation

High flow precision regulator for pantograph systems

Pantograph systems are expected to work harder as train manufacturers continue to develop faster trains. If the pantograph is detached from the wire, arcing can occur, reducing the life of the wire and carbon strip.

Our LR27H high flow precision regulator is a fast response, high flow precision regulator, which enables the pantograph to respond to the height variations on electric overhead lines.

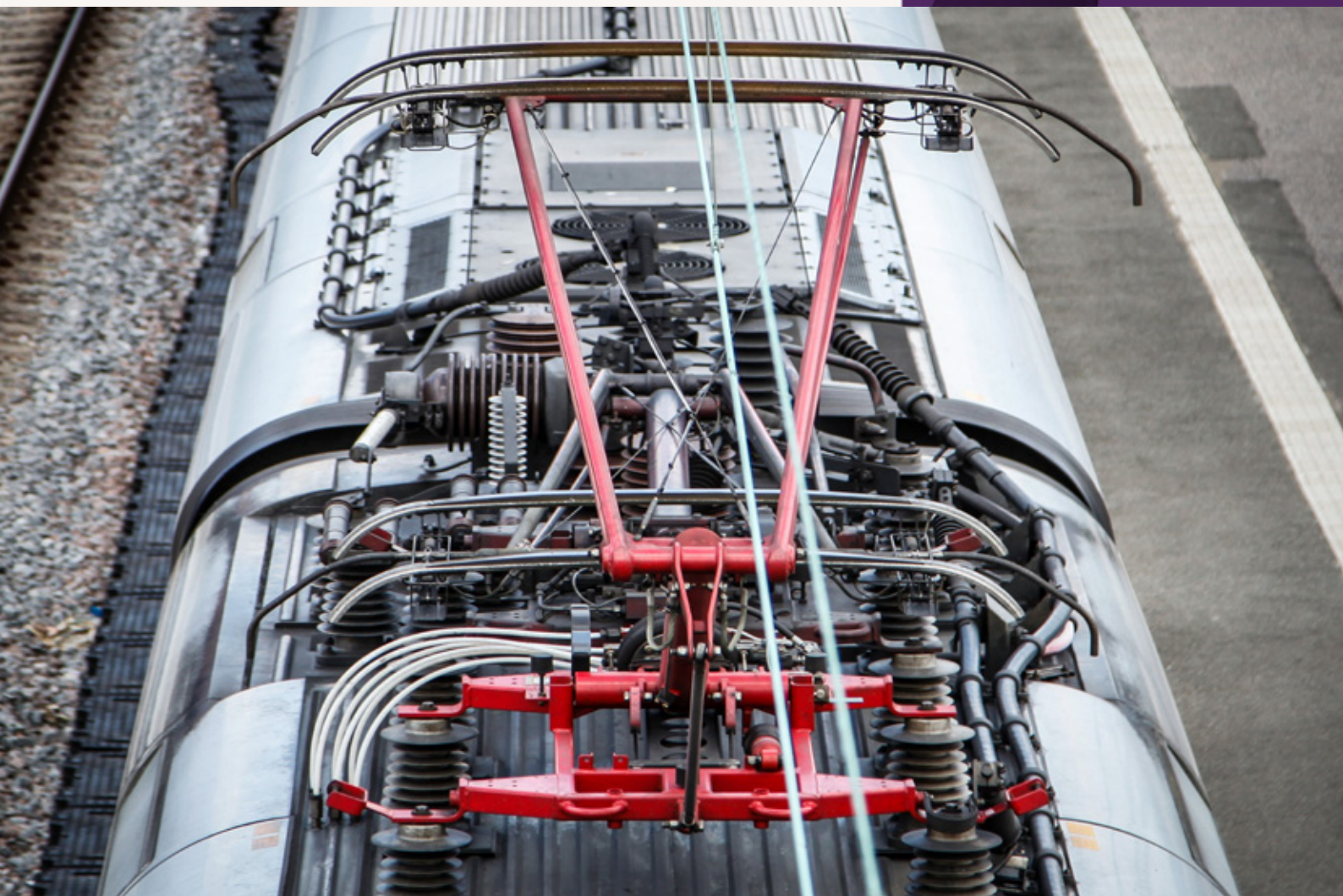
The pressure regulator is the heart of the pantograph system, as it regulates and maintains the force of the carbon strip onto the overhead wires.

As the wires are mounted between supports, the pantograph needs to extend and retract with the height variations of the wires. The faster the train, the faster the reaction time needed.

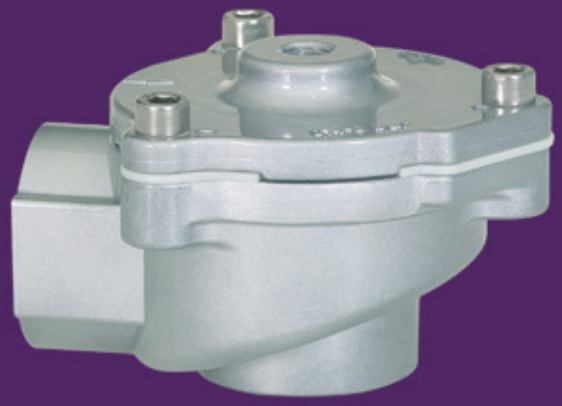
It provides unrivalled performance, with a rapid, quiet and stable operation, in a temperature range of -40°C to +80°C.

Product Highlights:

- Quick response
- Precise adjustment
- Various interfaces
- Low hysteresis



Auto drop down valve (ADD)



The IMI Norgren ADD valve offers quick release for pantographs to help to avoid expensive damage to the system.

Product Highlights

- Compact design
- Lightweight and corrosion resistant anodised aluminium
- Moulded TPE diaphragm with no spring for added reliability
- High flow rate
- Global sales and technical support

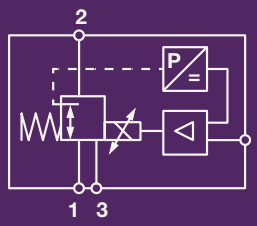
Technical Specification

- Operating Pressure: 0.4 to 8 bar (5.8 to 101.5 psi)
- Port sizes : G3/4, G1, G1½, G2, G2½, G3, ¾ NPT, 1 NPT, 1½ NPT, 2 NPT, 2 ½ NPT)
- Wide temperature range: -40ºC to +85ºCº
- Shock & Vibration EN 61373, Category 1, class A and B

Proportional control

Our proportional control products can be used in a wide range of applications including sanding control, pantograph control, suspension control and many more where a pressure can be accurately adjusted using a 4-20mA or 0-10v input signal.

- Closed-loop proportional pressure control valve
- High flow
- Excellent performance characteristics
- Fast response time
- Adjustable gain and pressure range
- Low power consumption
- Feedback signal
- Manifold mountable
- Temperature range: -40°C to +80°C
- Shock and vibration tested to EN61373
- 24VDC
- 4-20mA or 0-10v input signal
- High life due to glandless spool technology
- Global sales and technical support
- 1000 hrs salt spray validated
- Rail EMC compliant
- EN45545-2



HVAC Damper controls

Our range of damper actuators close the inlet vent rapdly on high speed trains whenever they pass another train or enter a tunnel to prevent the pressure shock wave discomfort to passengers.

- Compact shape (actutator/valve-unit)
- Quick response
- Voltages available: 24 and 110VC
- Voltage range+/-30%
- Solid stage end switch
- Temperature Range: -40ºC to +70ºC
- High lifetime sealing technology

Brake control components

Our range of brake system control components have been developed specifically to meet the high standards required for braking systems.

- Control valves, 15mm and 32mm
- Pressure switches
- Filters & Strainers
- Regulators
- Minimum Pressure Valves
- Pressure transducers
- Rail approved ball valves – with or without feedback switches, latching or non-latching
- Subbase products

Product Highlights:

- Robust designs
- Rail validation
- Fast reliable operation
- Temperatures ranging from -40ºC to +80ºC
- Low leakage rates
- High quality & consistency
- +/- 30% voltage tolerances
- Bespoke & modular solutions

Couplings and nose cones

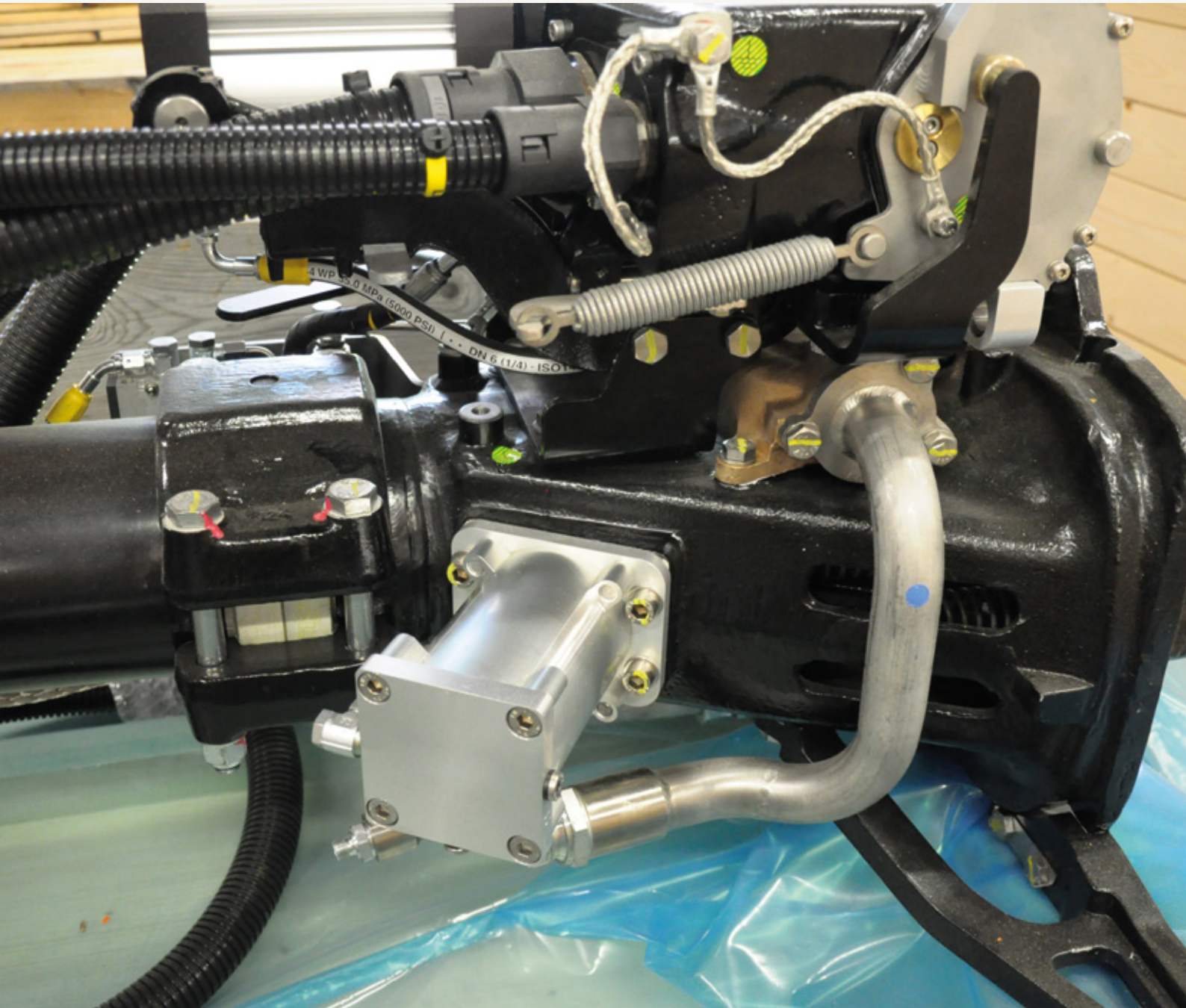
Our special cylinders and customised control systems for carriage coupling/uncoupling are specifically designed to deliver reliable performance, reduce complexity and size, and meet low temperature needs.

Pneumatic components in nose cones

- Opening and closing actuators
- Special locking actuators including integrated switches and one electrical connector
- Valves or modular control unit including filtration, pressure regulation and manual valves

Pneumatic components on couplings

- Control manifolds and actuation for locking/unlocking function
- Valve control and motion of the electric head
- Valve control of telescopic coupler shank



●● Nose cone/coupling manifold reduces complexity and size, and meets low temperature requirements ●●

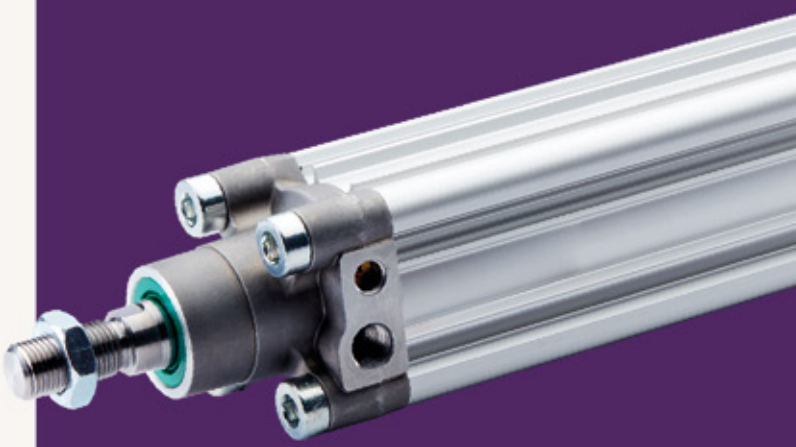
The nose cones of high-speed trains must open for coupling or decoupling. A global designer and manufacturer of coupling systems wanted to reduce the complexity of the pneumatic circuits and the number of components required to open the nose cone.

They wanted an integrated pneumatic system that was modular, compact and effective at low temperatures.

We designed a new locking cylinder to move the doors of the nose cover. We combined existing valves, and other proven components on a custom base plate, to create a single manifold assembly that controls the entire nose cone coupling system - no need to source multiple components from various suppliers.

The compact pneumatic platform can be configured to fit into any nose cone design, with the easy-to-install integrated unit eliminating extra wiring and tubing to make installation faster.

This pneumatic assembly operates at -40ºC, meeting a key high-speed rail requirement, and allowing the OEM to standardise offerings across the globe.



Sanding systems

Our sanding control system solutions help to improve traction during bad weather conditions over long steep gradients.

- Compact and modular control systems
- Bespoke customer manifolds
- Supplied solutions to major global customers
- Rail validated components
- Global Sales and Technical support

Secondary suspension control

Rail suspension systems are a notoriously harsh environment. Our innovative valve technology, boasting exceptional reliability and safety credentials, is resilient to extreme temperatures and designed for easy installation and maintenance.

Levelling Valve VRSS1000 Series

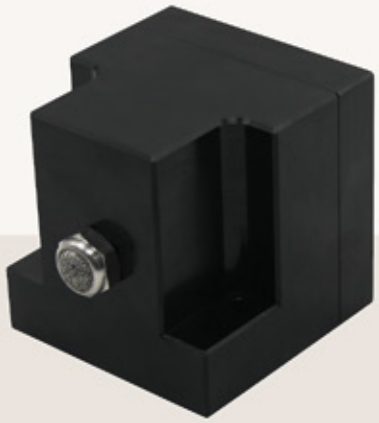
- Robust and reliable operation
- Customised lever design
- Customised mounting options
- Lightweight aluminium anodized body
- Available thread types G, Rc, NPT & Metric
- Working temperature -40°C to +80°C
- Fire & smoke compliant to EN 45545-2 and NF F16-101
- Corrosion resistant to ISO 9227 1000hrs salt spray
- Compliant to EN14817 (Railway applications, suspension components)

Double Check Valve VRSS2000 Series

- Robust and reliable operation
- Single or double check valve function
- Pressure sensor feedback option
- Pressure test points option
- Lightweight aluminium anodized body
- Available thread types G, Rc &, NPT
- Working temperature -40°C to +65°C
- Fire & smoke compliant to EN 45545-2 and NF F16-101
- Corrosion resistant to ISO 9227 1000hrs salt spray
- Compliant to EN14817 (Railway applications, suspension components)

Average Load Valve VRSS3000

- Robust and reliable operation
- Lightweight compact design
- Wide operating pressure 1 to 10 bar
- Available thread types G, Rc, NPT & interface
- Working temperature -25°C to +60°C
- Shock and vibration to IEC 61373-1999, Category 2
- Fire & smoke compliant to EN 45545-2
- Corrosion resistant to ISO 9227 1000hrs salt spray
- Compliant to EN14817 (Railway applications, suspension components, Air-spring control components)

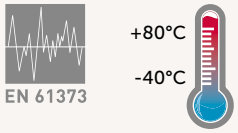


Circuit breaker control

Our range of Circuit Breaker products have been developed specifically for use with circuit breakers on electric rail vehicles. There are many different applications depending on vehicle, including vacuum & air blast circuit breakers and motor contactor valves. All these systems require a special valve and cylinder to engage and disengage the electrical connectors.

- Provide a direct acting, fast response solenoid valve with high reliability and safety
- Proven IMI Norgren technology and suitable for use down to -40°C
- Customiseable mountings for fixing holes and air connections

Wide temperature range	-40°C ... +80°C
Shock and vibration tested	EN 61373, Category 1 class A and B
Protection class	IP65
Operating pressure	0 ... 10 bar (0 ... 145 psi)
Voltage	24, 36, 72, 110 vdc
Fire & smoke compliant	EN 45545-2



LPDA/18200/M Cylinder

- High performance, stability and reliability
- Double acting profile cylinders
- Cylinders and mountings conform to ISO 15552
- Stainless steel as standard
- Cylinder diameters from 32 to 125 mm

VR24Z Solenoid Valves

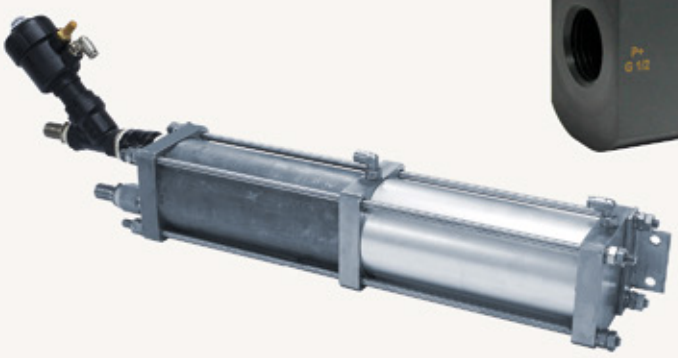
- Provide a direct acting, fast response solenoid valve with high reliability and safety
- Customisable mountings for fixing holes and air connections
- Add-on manual override option
- Global sales and technical support

Toilet and water control systems

Our range of toilet and water control products have been designed to reduce air consumption and limit water consumption.

- Robust products
- Rail compliant standards
- Corrosion resistant
- Bespoke solutions
- Global Sales and Technical support

Water Pressurisation System



Toilet vacuum pump

Water control

Door control systems

Customised door actuation and control.

We have delivered innovation and performance to the rail door market since 1987.
We currently have over 18,500 interior door systems, and more than 24,500 exterior door actuation and control systems, installed on rail cars all over the world - from Siemens Desiro and ICE fleets to Shanghai's Transrapid Maglev train.

Quality assurance you can rely on:

- Wide temperature range -40°C to +80°C
- Environment humidity: 95%
- System life time: >30 years
- Shock and Vibration: EN 61373
- Fire and smoke: DIN 5510, NF F16-101, EN 45545
- Voltage: 24 to 110 VDC +/- 30%
- Door closing time: 4 sec
- Door opening time: 2 sec
- EN 50121-3-2
- IEC 61508
- EN 14752
- EN 50125-1
- EN 50155
- EN 50126
- EN 50128
- EN 50129
- EN 60529
- TSI/PRM

External door systems

- Special pneumatic control systems
- Safe, reliable and secure operation
- Interlocking and feedback drive systems
- Extended cushioning and increased side load stability
- Entrapment protection
- Many years of proven reliability and safety in Metro, EMU and HST applications globally

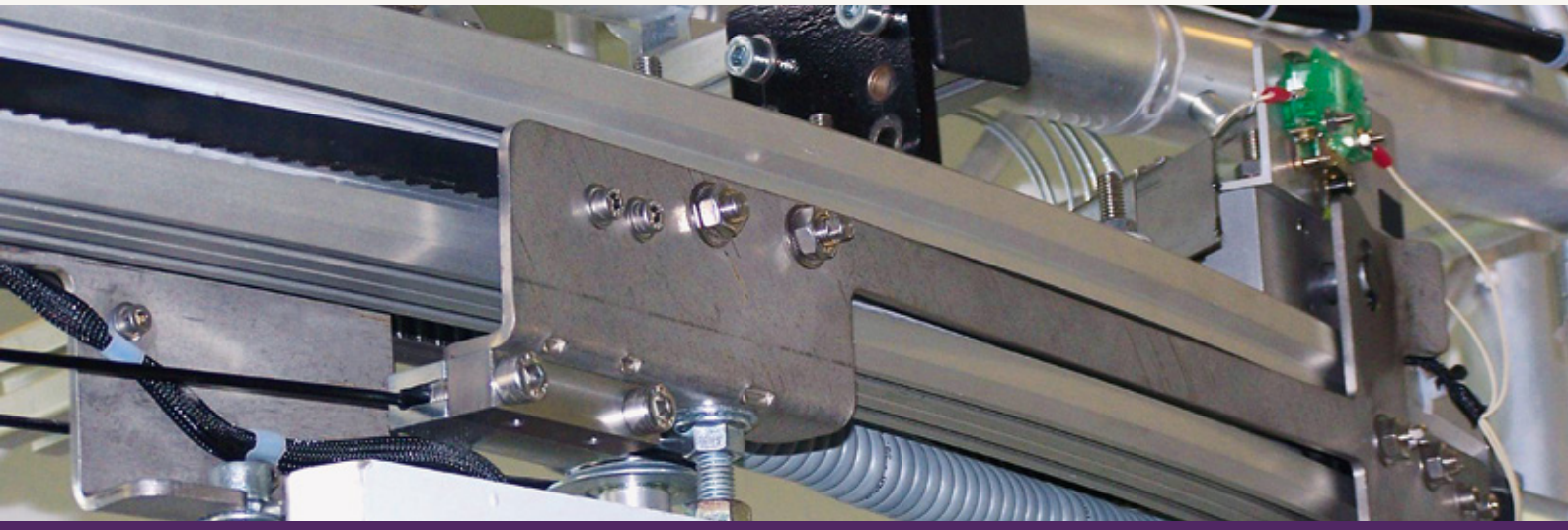
A national train operating company needed to modernise their existing toilet door solution to ensure they complied with PRM TSI 2008/164/EC legislation regarding disabled access.

We developed an innovative curved actuation solution that provided synchronised, telescopic door operation, either electrically or pneumatically.

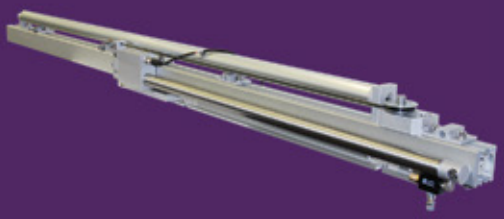
The solution incorporated a locking system and emergency access override, and complied with all standard rail door specifications including obstacle detection.

The result was an increased aperture when the doors were opened, allowing for better wheelchair access, with push-button operation making it easier for disabled passengers.

The application-specific solution fully met the needs of the customer, and ensured compliance with all current and future legislation regarding disabled access.



●● Curved door system helps operating company conform to legislation ●●



Internal door systems

- Special manual, pneumatic & electric actuation, with integrated control system
- Safe, reliable and secure operation
- Interlocking and feedback drive systems
- Fire and smoke compliant
- Entrapment prevention
- Smooth, quiet design, with variable speed drive
- Solutions for new and existing train carriages to reliably fit into the same space as the previous design

Curved door systems

- Electric and pneumatic curved actuator system
- Curved guiding profile
- Maximises limited space with telescopic, synchronised opening
- Field serviceable design
- Locking system and emergency access override
- Robust guiding, low maintenance costs and easy replacement
- Meets TSI PRM 2008/164/EC legislative requirements for disabled access

Door control valve systems

- Modular valve assemblies
- Easy replacement of existing systems
- Quick installation and maintenance
- Reduction in downtime
- Custom designs to suit specifications

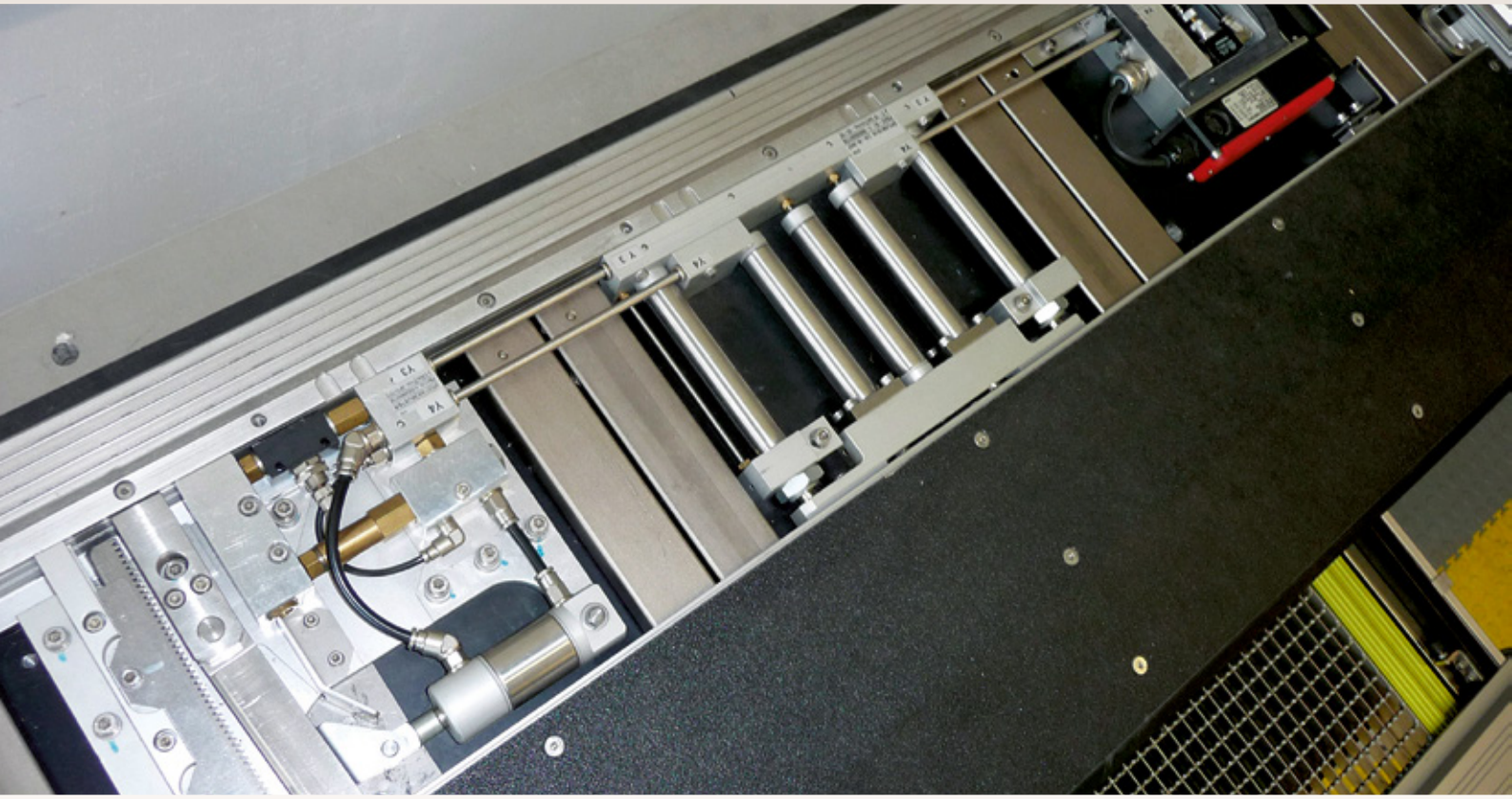
Step control systems

Retractable step control

Retractable step control

We provide door step actuation systems for the world's leading companies. Our customised solutions, based on sliding and rotary actuation, ensure complete reliability, durability and safety.

- Door step actuation for Mainline and High Speed trains
- Special pneumatic cylinder
- Slide and rotary actuation options catered for
- Compact, robust construction
- Optional integrated interlocking function
- Resistant to harsh environments
- Integrated with train framework



Sliding step system greatly reduces safety risk on underground trains

An underground train operator faced the problem of an excessive gap between the train door and platform, which created a safety risk for passengers. What's more, the gap between the doors and platform was not consistent, and varied between stations.

The customer therefore required a variable step, which would fit the gap at any station. The solution also needed to fit within a very restricted space beneath the existing door system.

Our engineers developed a range of cushioned, telescopic cylinders that could be mounted below the existing door system. By applying a set pressure, this cylinder system would fill the gap between train and platform regardless of the gap width.

Due to the strict envelope size, our solution used only 50% of the space of a traditional step system. It included all the required standard safety features, such as obstacle detection, and was able to be fully integrated into the existing door control system.

This solution exactly matched the specific needs of the customer and provided a more reliable – and far safer – door step system for train passengers.

Mirror control

We have supplied the global rail sector with complete rear view mirror and control systems for more than 10 years.

Fitted to both sides of a train, and used to allow the driver to check movement of passengers in the train station, the mirror retracts to the train body for protection once the train reaches a speed of 20kph.

Pneumatically operated mirror

- Fully adjustable and can be fixed in any position
- Smooth slow opening and closing movement
- Rail temperature and vibration tested
- Bespoke solution to suit individual needs
- Complete system, including the mirror and controls

Pneumatic/electric operated mirror

- Pneumatic and electrically retractable mirror, operated from driver's dashboard
- Complete solutions including mirror assembly with mechanism, pneumatic/electric actuation and control

Mirror control positioning

- Special pneumatic actuator and controls
- Force resistance at high speed
- External speed and cushion adjustment
- Fully integrated design
- Wide temperature range
- Highly reliable operation

Freight systems

We provide standard and customised products that are purpose-built to perform in heavy duty freight applications, delivering years of reliable operation in the harshest environments.

Designed for the automated control of freight top hatch and bottom doors, our pioneering solutions provide safe, efficient filling and unloading. They provide ease of use and welcome flexibility for your rail operation, as well as helping lower the total cost of ownership.

Wagon discharge automation systems

- Special pneumatic/electric actuation and control systems
- Safe, reliable and secure operation
- Interlocking and feedback drive systems
- Extended cushioning and increased side load stability
- Entrapment protection
- Many years of proven reliability and safety in Metro, EMU and HST applications globally

Latching cylinders

- Able to positively lock a cylinder in the 'in stroke' and 'out stroke' position
- Safely and securely hold loads in place in the event of air pressure loss or failure
- Manual override to allow manual operation if compressed air not available
- Require only a si ngle control valve to fulfil all functions
- Reduced components circuitry, installation time and weight
- Easy to install and maintain
- Suitable for applications including freight wagon top hatch and discharge doors, 'clawlock' points control, pneumatic step control

Locomotives

- Hydrogen fuel cell components
- Shutter cylinders for temperature control
- Pressure switches
- AMT air dryers and filters
- Regulators
- Horn valves
- Sanding system controls


WARNING
CLOSE SHUT OFF COCK BEFORE OPENING DOORS MANUALLY
REFER OPERATING INSTRUCTIONS
Open N Close
Unlock
Lock
Open N Close

Freight wagons

Freight automated control

IMI Norgren control system solutions are designed for automated control of applications including wagon top hatch and discharge doors.

- Compact and modular control systems
- Bespoke customer manifolds
- Rail validated components
- Robust and reliable operation
- Low temperature range of -40˚C
- Shock and vibration tested to EN 61373, Category 1, class A and B
- Global Sales and Technical support

Freight testing equipment

AUTOSCAT is a single car air tester that can be simply carried by one person to the wagon that needs to be tested. It is connected to the wagon and an air supply, and simply by pressing the start button, the tests are carried out automatically while the operator performs visual checks.

The operator gets a visual indication of test passes or failures on the front of the unit. Once complete, the unit is connected to a PC, the data downloaded, and the information for each test displayed in an easy-to-read report. This allows better understanding and diagnosis of the recorded test information for each wagon.

- Reduce time taken to perform the overall operation
- Reduce downtime costs incurred
- Reduce human error
- Increase daily test output
- Reduce the size of the testing unit
- Increase portability
- Reduce manual handling
- Improve OH&S

●● Modular & mechanical heavy duty pressure switch ●●

Pressure detection

21D Pressure Switch

The IMI Norgren 21D electro mechanical all-fluid pressure switch has been designed to monitor pressure levels in a variety of rail system applications, such as rail vehicle brakes, pantographs, Compressor control, shoe gear, air suspension, horn operation and many others.

The 21D is manufactured from carefully selected high-performance materials, including gold plated or silver plated switch contacts, as well as hard wearing silicone for the diaphragm – to maximise performance and component life-span.

The 21D has an IP65 rating to EN 60529 to maintain the integrity of the system against contamination or damage from fluids and solids. It also offers a high number of switching cycles, with optimum accuracy and repeatability of +/- 3% of the final pressure value which is maintained over the whole life of the product.

The modular design allows for different mounting options and electrical interfaces as well as a wide choice of single pole and double pole switching logics. The micro switches used provide a long life, high accuracy and have been approved by UL/CSA.

Product Highlights

- High accuracy
- Minimal drift over lifetime (1,000,000 cycles)
- Robust design
- Ease of adjustment
- High technology production cell
- Designed specifically for Rail Sector
- On request:
  - Customised labelling
  - Customised part numbering and serial number control
  - Factory pre-setting
- Special adaptations
- Direct replacement for many existing switches
- Global sales and technical support

Technical Specification

- Temperature Range: -40°C to +70°C
- Pressure Range: 0.1 to 10 bar
- Min. switching pressure difference: 0.25 bar
- Max. switching pressure difference: 5 bar
- NO/NC switching logic
- Protection Class: IP65
- Repeatability; + 3% of final pressure
- Max. current draw: 3A at 24 VDC; 0.7A at 110 VDC
  (Higher current ratings on request depending on application)
- Min. current draw: 5mA at 5 VDC

LPGB60D & LPGB60S

The IMI Norgren LPGB60D & LPGB60S all fluid pressure sensor can be used in a variety of rail systems applications.

The LPGB60D & 60S are manufactured from carefully selected high performance materials, including a stainless steel housing.

The LPGB60D & 60S have an IP67/IP69K rating to DIN EN 60529 to maintain the integrity of the sensor against contamination or damage from fluids and solids.

- Robust sensor for hydraulic/fluid applications
- Small, space saving stainless steel construction
- Excellent long-term stability
- M12 electrical connection
- Global sales and technical support
- IO-Link output option (LPGB60D)
- 0 – 25 bar (Port size: G1/4)
- Wide temperature range -40°C ... +90°C (-40°F ... +194°F)
- Cold Test (DIN EN 60068-2-1:2008-01)
- Dry heat (DIN EN 60068-2-2:2008-05)
- Electromagnetic compatibility to DIN EN 61325-1
- Shock & Vibration IEC/EN 61373: 1999, Category 2
- Salt Spray testing 1000h (ISO 9227:2012-04)

Find out more
www.imiplc.com/industrial-automation

Rail fittings and tubing

Rigorously tested for shock and vibration, extreme temperatures and salt spray environments – and used extensively by the world's leading train builders and operators – Our fittings are proven in the field with over 30 years' unblemished service.

Able to replace traditional steel, stainless steel and brass compression fittings, our fittings and tubing are typically used for main compressed air lines, pantographs, couplings, HVAC, auxiliary systems, door controls and brakes.

Our brass and aluminium fittings come in a variety of shapes, such as straight, elbow, tee, stem adaptor and elbow connector. Special sizes and types are also available to meet your individual needs.

82 (A) and 83 (A) rail fittings

- Quick, simple installation with no special assembly tools or heat required – typical installation time saving: 20%
- For use in areas of vibration
- Low torque assembly settings
- Pre-assembled units
- Can be used again without damage to tube
- Copes with tube misalignment of +/-4º
- Wide range of sizes available from 6 mm to 42 mm and 1/8" to 1" nominal bore (larger sizes available on request)
- Different pipe material can be used such as stainless steel, brass, copper, aluminium, PU and nylon
- Fittings can be used with seam welded tubing
- Temperature: -45ºC to +200ºC (Standard seal is suitable for -45ºC to +150ºC, optional Viton for -30ºC to +200ºC)
- Testing and Approvals: PED 97/23/EC, Shock & vibration tested to EN 61373, salt spray tested to ISO 9227-06
- Corrosion resistant "AL2" alloy/brass/stainless

Product Highlights:

- Weight saving 61% compared to brass
- Corrosion resistant
- Shock and vibration tested

Pneufit fittings

- Suitable for flexible hose
- Suitable for door systems and auxiliary equipment
- Comprehensive range of shapes and sizes
- 4 mm to 14 mm / 1/8" to 1/2" tube diameters available
- Quick, reliable and safe connection
- Widely used in freight wagon applications

Push-on fittings

- Ideal for fluid and vacuum applications
- Comprehensive range of shapes and sizes
- 4 mm to 14 mm tube diameters available
- Reliable and safe connection

Fleetfit fittings

- Simple tube connection and disconnection – no tools required
- Ease of tube insertion in areas of restricted access
- Internal tube support as standard for greater safety
- DIN & SAE approved for commercial vehicles
- Heavy duty brass construction

Tubing

- Fire and smoke resistant nylon tubing
- Tube tested and conforming to the following standard:
  - DIN 5510
  - NF F 16-101
  - EN45545-2
- Suitable for use with our Fleetfit vehicle fittings

Isolating valves

Our specifically designed isolating valves are fully rail approved and can be used in many applications from mains air shut off on the bogie to isolating certain parts of the compressed air circuit.

This can help to ensure a safe working environment for any maintenance work carried out on the train.

- Designed specifically for the Rail Sector
- Leak tight design over wide temperature range
- Flange and In-line version
- Different handle options available
- Electrical monitoring options
- Robust design
- Easy to maintain
- DN7 – DN32
- IP65 Rated
- Comprehensive validation
- Global sales and technical support

US Standards

- IEEE 16:2004
- NFPA 130 - 2014 Edition
- 49 CFR 238.105
- MIL-STD-810G CHG-1

EU Standards

- NF F11-101:1994
- NF F11-806:1996
- NF F11-102:1996
- EN 60077-1:2002
- EN 61373:2010
- EN45545:2013
- EN50155:2007 which includes:
- EN60068-2-1
- EN60068-2-2
- EN60068-2-30
- EN61373:2010
- EN50121-3-2
- EN ISO 9227:2012

EN45545 Fire protection on railway vehicles

EN45545 defines a classification system that specifies requirements for fire behaviour of materials and products used in trains and became fully enforceable in Europe from June 2016.

We fully understand the importance of this European standard and we are continually working on making our product range compliant.

Actuators

We have a range of pneumatic actuators that are ideally suited to meet the unique challenges posed by rail applications.

ISOLine™ 15552 Cylinder

LPRA/802000/M, LRA/802000/M
Double acting cylinders
Ø 32 ... 320 mm

LRA/8000/M
Double acting cylinders
Ø 32 ... 200 mm

Heavy Duty Cylinders

RM/900/M
Heavy duty cylinders
Ø 1 1/4 ... 4"

LRM/900
Heavy duty cylinders
Ø 5 ... 14"

NFPA
Double acting cylinders
Ø 4 ... 8"

Other Actuators

LRM/55401/M
Double acting
roundline cylinders
Ø 32 ... 100 mm

M/31000
Air bellows,
single acting
Ø 8 ... 14 1/2 inch

Accessories

With a true understanding of the daily issues faced by rail operators and original equipment manufacturers, we design for the precise needs of the rail industry.

LT1000
Block form flow regulators (uni-directional)
1/4"

LT1100
Block form flow regulators (bi-directional)
1/8" & 1/4"

LT1000Z
Block form flow regulators (uni-directional)
Flange interface

LT1100Z
Block form flow regulators (bi-directional)
Flange interface

LT70
Quick exhaust valves
1/8" & 1/4"

LS/52x, LC/52x
Heavy duty non-return valves
1/4" ... 1"

LZ521, LZ523
Non-return valves
flange Interface

LT65
Shuttle valves
('OR' Logic Function)
1/8" & 1/4"

LT65Z
Shuttle valves
('OR' Logic Function)
Flange Interface

40600
Shuttle valve ('OR' Logic Function) G1/4, G 1/2, 1/4 NPT, 1/2 NPT

60 series
Ball valves
G1/8 ... G1

T10
Ball valves
G1/4 or interface version

VT20 ... 50
Ball valves
1/2" ... 1 1/4"
or interface version

T40
Sintered bronze silencers
M5, 1/8" ... 1"

MA & MB
Heavy duty silencers
1/8" ... 2"

M/1500
Exhaust filter
G1/8 ... G1

0613422, 0613423
Exhaust guard
1/4" & 1/2"

0310000
Strainer
G1/4 ... G2

74749-60, 74749-61
Pneumatic visual indicators
1/4

A1401-07
General purpose filter
Flange interface

Valves

We have a extensive range of valves aimed specifically at rail applications including brake systems and water management.

In-line and Manifold Valves

RXE & RXP (ISO*STAR)
5/2 & 5/3 glandless valves (solenoid and pilot actuated)
ISO 1, 2 & 3

VRW
2/2, 3/2 way solenoid poppet valves (directly actuated)
CNOMO Interface & G1/8 ported

Microsol
2/2 & 3/2 way solenoid valves (directly actuated)
Base mounted

VR61
3/2, 2 x 3/2, 5/2 & 5/3 directional control solenoid and pilot valves
1/4"

VR61Z
3/2, 5/2 & 5/3 directional control solenoid valves
Flange version

Prospector®
3/2 way pilot actuated poppet valves
1/2" ... 1"

Rail Prospector®
Solenoid pilot actuated poppet valves 2/2, 3/2
3/8" ... 1"
(BSPP/PTF)

Pilot/Manual/Mechanical Valves

SUPER X
3/2 & 5/2 pilot actuated spool valves
1/8" & 1/4"

SUPER X
3/2, 5/2 & 5/3 manually and mechanically actuated spool valves
1/8" & 1/4"

SLV/15293/A
3/2 heavy duty poppet valves
G1/4

Solenoid and Special Purpose Valves

VR96
3/2 way direct solenoid operated poppet valves
G1/4 or 1/4 NPT

VR98
3/2 way direct or indirect solenoid operated poppet valves
G1/2, 1/2 NPT

VR24
3/2 way direct solenoid operated poppet valves
G1/4, 1/4 NPT or flanged with NAMUR interface

VR24Z
3/2 way direct solenoid operated poppet valves
Special flange mounting option

NMPV
2/2 way minimum pressure valve
3/8", 1/2" & 3/4"
or interface version

82530
2/2 way valves (solenoid actuated diaphragm with forced lifting)
1/4" ... 1/2"

8499986
2/2 way seat valve
G1/4"

8251180
2/2 way seat valves
G3/8"

8253200
2/2 way diaphragm valves
G1/2"

8591099
2/2 way piston valves
G1"

8591127
2/2 way seat valves
G1/4

82900, 83300
2/2 way release exhaust valves (pilot actuated)
3/4" & 1"

VRSS1000
Mechanical levelling valve

VRSS2000
Double check valve

VRSS3000
Average load valve

Air Preparation

We have a range of robust and reliable air preparation equipment that is ideally suited to rail applications.

Dryers

WR2 - AMT Dryer
G1/2, G3/4 & G1

Filtration

Miniature series LF07
1/8" & 1/4"

Excelon® Quikclamp system LF72G, LF73G, LF74G
1/4" ... 3/4"

Olympian Plus plug-in system LF64G, LF68G/E
1/4" ... 1 1/2"

Excelon® Quikclamp system LF74H
1/2"& 3/4"

Olympian Plus plug-in system LF64H, LF68H
3/8" ... 1 1/2"

Miniature series LB07
1/8" & 1/4"

Excelon® Quikclamp system LB72G, LB73G, LB74G
1/4" ... 3/4"

Olympian Plus plug-In System LB64G,LB68G
1/4" ... 1 1/2"

84 series Filters LF84G
3/8" ... 3/4"

84 series Filters LF84C
3/8" ... 3/4"

84 series Filters LF84V
3/8" ... 3/4"

84 series Filters LB84G
3/8" ... 3/4"

Pressure Regulators

Miniature series LR07
1/8" & 1/4"

Excelon® Quikclamp system LR72G, LR73G, LR74G
1/4" ... 3/4"

Excelon® Sub Base LR72Z
1/4" ... 3/4"

Olympian Plus plug-in system LR64G, LR68G
1/4" ... 1 1/2"

SLA/15542
Compact interface mount regulator

LR27
G1/4

LR27H
G1/4, 1/4 NPT or interface version

L20AG
1/2" ... 1"

LVP50
G1/4, 1/4 NPT or manifold

LR84G
3/8" ... 3/4"

Relief Valves

Excelon® Quikclamp system LV72G, LV74G
1/4" ... 3/4"

1002
R1/4

Accessories

18-015-...
1/8" & 1/4"

Fittings & Tubing

Rigorously tested for shock and vibration, extreme temperatures and salt spray environments – and used extensively by the world's leading train builders and operators – Our fittings are proven in the field with over 30 years' unblemished service.

Fittings

82A series
Aluminium (light weight) compression fittings
Ø 6 ... 42 mm tuwbe size, BSPP & BSPT thread

83A series
Aluminium (light weight) compression fittings
Ø 1/8" ... 2" nominal pipe size, BSPP & BSPT thread

83A series
Aluminium (light weight) compression fittings
Ø 1/8" ... 2" nominal pipe size, NPT thread

82 series
Brass compression fittings
Ø 6 ... 42 mm tube size, BSPP & BSPT thread

83 series
Brass compression fittings
Ø 1/8" ... 2" nominal pipe size, BSPP & BSPT thread

83 series
Brass compression fittings
Ø 1/8" ... 2" nominal pipe size, NPT thread

Fleetfit
Commercial vehicle push-in fittings
Ø 6 ... 18 mm tube size

Fleetfit
Commercial vehicle push-in fittings
Ø 1/4" ... 3/4" tube size, BSP & NPT threads

Pneufit
Push-in fittings
Ø 4 ... 14 mm tube size, BSP threads

Pneufit
Push-in fittings
Ø 1/8" ... 1/2", Ø 4 ... 12 mm tube size, BSP & NPT threads

BSP & HOSE
M5, 1/8" ... 1"

Tubing

PA2
Nylon tube
Ø 3 ... 16 mm

PB
Nylon tube
Ø 1/8" ... 1/2"

LPA2, LPA3
Rail vehicle approved fire and smoke resistant nylon tube
Ø 6 ... 12 mm

LPA4, LPA5
Rail Vehicle Approved Nylon Tubing
Ø 6 ... 12 mm

Pressure Switches & Sensors

We have a range of pressure switches designed to meet the stringent requirements of the rail industry.

Electro-mechanical Pressure Switches

18D-LT x2
G1/4, 1/4 NPT, flange

21D
G1/4,1/4 NPT

Electronic Pressure Sensor

LPGB60S & LPGB60D
G1/4

Our Industrial Automation sector operates four global centres of technical excellence and a sales and service network in 50 countries, as well as manufacturing capability in Europe, Americas and Asia Pacific.

Supported by distributors worldwide.

For further information, scan this QR code or visit

www.imiplc.com/industrial-automation

Industrial Automation

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IMI Buschjost

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