Norgren Rail Sector
Application overview
Rail

» Customised solutions for customers within the Metro, Inter-city, Freight, High-speed and Permanent way rail industries for over 25 years

» Extensive range of products which are reliable, proven and safe

» Products ranging from actuators to pressure switches, airline equipment to valves, fittings to modular bespoke solutions for industry leaders

» Six technology leaders drive innovative new developments for air main, brakes, couplers, doors, pantographs and toilet applications
What is Railine?

Rail demands are different from other types of industrial applications. Rail applications typically require:

- Temperature ranges from –40°C to +80°C
- High resistance to shock and vibration
- Voltage tolerances of +/-30%
- Very high degree of safety and reliability

Railine offers a range of products which meet these requirements (see: http://www.norgren.com/rail)
Actuators

- Available to NFPA, ISO6431, VDMA24562 and FNE49-003-1 standards
- Extensive range of standard and customised mountings available
- Wide range of seal options for high life and extreme temperature variations
- High performance, stability and reliability
- Heavy duty and customer specific actuator designs
Solenoid valves

» Extensive range of sizes and porting available
» Resistant to voltage fluctuations, eg +/-30%
» Resistant to extreme temperature fluctuations
» Direct actuated poppet and indirect actuated spool versions
» High cycle life, fast response, low leakage
» 2/2, 3/2, 5/2 and 5/3 functions
» Shock & Vibration tested to EN 61373
Fluid control valves

» Large range of porting options
» Suitable for high and low temperatures
» Normally Closed or Normally Open function
» Pressure range up to 40 bar
» Suitable for neutral, aggressive and contaminated fluids
Filters

» Port size from 1/8” to 2 1/2”
» Optional service life indicators
» Modular construction for fast installation and simple servicing
» Coalescing elements for high efficiency particle and oil removal
» Heavy duty, large capacity metal bowls
» Heavy duty, high flow filter elements
Regulators

» Balanced valve design for optimum pressure control
» Modular construction for fast installation and simple servicing
» Precision regulators for accurate and consistent pressure control
» High relief flow ensures quick response to changing conditions
» Pilot operated regulators for high flow requirements
Flow control valves

» Size M5 to 1”
» Standard & heavy duty models
» Uni-directional & Bi-directional models available
» High flow rates
» Choice of seal & body materials
Non return valves

» Simple, reliable design
» Low cracking pressure
» Choice of body & seal materials
» High flow rates
» Options for –40°C up to +150°C
Ball valves

» Wide range of types including 3-way, exhausting & lockable versions
» High flow & high pressure
» Variety of body & seal materials
» Wide range of sizes
Fittings

» Norgren solution
  » Comprehensive range of fittings for rail vehicles
  » -45°C to +200°C
  » High vibration resistance
  » Pre assembled units
  » Can be remade
  » Can be used with thinner section tube (0.8mm) reducing weight and cost, and greater flow rates
  » Available in brass or light weight corrosion resistant alloy for copper, brass & stainless tubing
Pneumatics for Railway Vehicles
(Main areas pneumatics are applied on modern trains)

- Windscreen Wipers
- Retractable Mirrors
- Brakes
- De-coupling Gear
- Ventilation Control
- Toilet Door Operation
- Retractable Mirrors
- Drinks Dispense
- Pantograph Retractions
- Windscreen Wipers
- Drinks Dispense
- Control Cabinets
- Seat Adjustment
- Internal Door Operation
- External Door Operation
- Door Step Control
- Body Tilting System
- Brakes
- Shoe Gear
- Water Preparation

NORGREN
Coupling system

» Norgren solution
  » Special pneumatic cylinder / valve systems

  » Special compact cylinders with integrated valve, position sensing and speed controls designed to save space, weight and installation time
  » Heavy duty limit sensing valves
  » Compact, light weight, modular valve manifold solutions
  » Heavy duty fittings and filters
Braking system components

- Norgren solution
  - Special solenoid valves, regulators and special pressure switches
  - Compact Solenoid valves with +/-30% voltage tolerance and surge suppression for fluctuating power supplies
  - Pressure switch vibration resistance to 15g
  - -40°C ~ +85°C temperature range
  - Rapid response time and long life
  - High repeatability & accuracy
Toilet control

» Norgren solution
  » Modular system consisting of special valves, actuators & regulators and integrated electro-pneumatic control system
  » Ultra low water consumption
  » Optional integrated diagnostics
  » Customized control systems & “Plug and Play” designs
  » Optional system monitoring, feedback and isolation
Retractable mirror control

» Norgren solution
  » Special pneumatic actuator and controls
  » Force resistant at high speed
  » External speed & cushion adjustment
  » Fully integrated design
  » Wide temperature range
  » Highly reliable operation
External door systems

» Norgren solution
  » Special pneumatic rodless cylinder with integrated control system for external plug and sliding door
  » Safe, reliable and secure operation
  » Interlocking and feedback drive systems
  » Extended cushioning and increased side load stability
  » Entrapment protection
Internal door systems

» Norgren solution
  » Special pneumatic & electric rodless cylinder with integrated control system
  » Safe, reliable and secure operation
  » Interlocking and feedback drive systems
  » Fire resistant to BS 6583 Cat 1B
  » Entrapment prevention
  » Smooth, quiet design with variable speed drive
Retractable step control

» Norgren solution
  » Special pneumatic cylinders
  » Slide and swing operation options integrated with train framework
  » Compact, robust construction
  » Optional integrated interlocking function
  » Resistant to harsh environments
Water control

» Norgren solution
  » Customised valves and control system
  » Modular, space saving design
  » Can be integrated with other systems
  » Eliminates need for electric pumps and float / pressure switches
  » Reduces pipework and need for additional water storage tanks
  » Simple, reliable design
Retarder cylinders

» Norgren solution
  » Special pneumatic actuators
  » -40°C to +80°C temperature range
  » High side load resistance from oversized rod and heavy duty bearing
  » Special seal materials to withstand harsh environments
  » Stainless steel piston for corrosion resistance
  » Robust construction