



NORGREN

Rail
Incorporating

 **BUSCHJOST**

 **FAS**

 **HERION**

 **MAXSEAL**

Excelon® Plus

Modular Air Preparation for S & V Cat 2 Rail Applications



CONTENTS

Introduction	02
Air Preparation	03
Compressed Air Systems	04
Introducing Excelon® Plus	06
Filtration	08
Regulation	10
Pressure Monitoring	11
Lubrication	12
Control Valve	13
Auxiliary Products	14
Standard Combination Units	15

Breakthrough Engineering for a Better World

Norgren is part of global engineering organisation IMI plc. IMI is at the forefront of delivering the solutions we need in a changing world and is focused on **creating tremendous value by solving key industry problems in attractive markets and employing the best.**

Norgren has a proud history of creating innovative engineering solutions in precise motion control and fluid technology, and we collaborate with our customers across more than 50 countries in critical areas such as Factory Automation, Material Handling, Rail, Energy, Process Control, Life Science and Commercial Vehicles.

From improving speed, productivity, reliability and efficiency of equipment, to generating significant energy and cost savings, or lowering total cost of ownership across many industries, Norgren's high-quality solutions are designed to help customers pursue progress, achieve new goals and overcome problems.

With market-leading industry expertise, we offer the capability, resources, engineering intelligence and global support infrastructure to tackle the largest project demands.

Our world-class portfolio of fluid and motion control products include Norgren, Buschjost, FAS, Herion, Kloehn, Maxseal and Thompson Valves. Supplied either individually or combined into powerful customised solutions to meet customer needs.

Breakthrough engineering you can count on.

The importance of clean, dry compressed air in the rail industry

The safe, cost-effective and trouble-free operation of so many critical rail applications – such as braking systems, pneumatically operated doors, self-levelling air suspension, pantographs and the train's horn – depends on a reliable supply of clean, dry compressed air, free from moisture and contaminants.

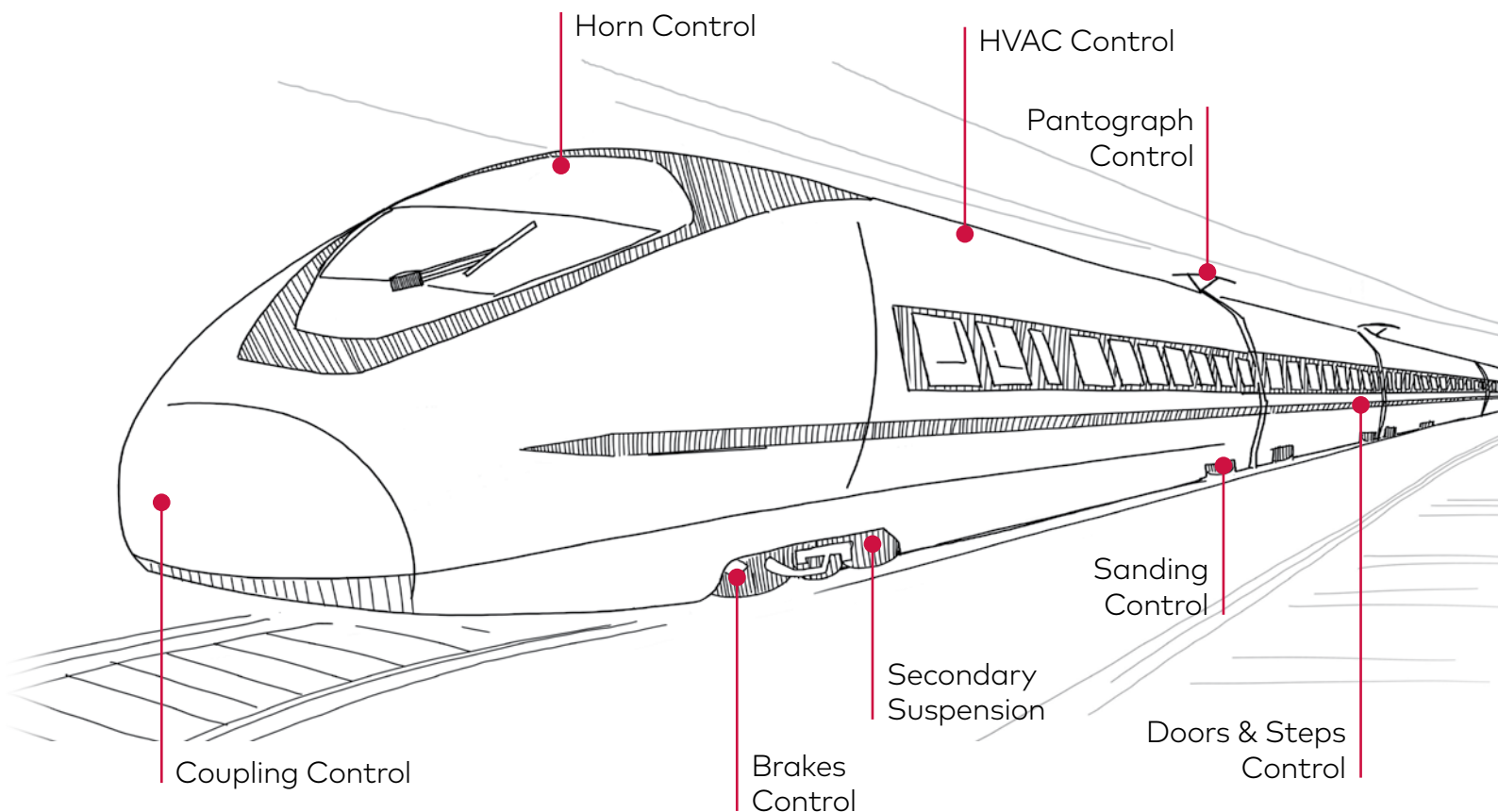
The challenge

Compressors, generally mounted underneath the body of the train, draw in large volumes of air from the surrounding atmosphere. This air typically contains water vapour and airborne contaminants.

As the air is compressed, vapour and contaminants are heated up and compacted. After subsequent cooling by an after-cooler, water vapour condenses within the air system to form liquid.

With oil-lubricated compressors, the lubricating oil degrades with the heat of compression and combines with the condensing liquid to form acid condensate of varying viscosities.

Dryers and filters are used to remove this wet and dirty 'liquid emulsion' before it reaches downstream applications, such as door and brake systems, where it can cause erosion, corrosion, reduced performance, costly maintenance and safety implications – all of which affect the quality of rail service.



Introducing Excelon® Plus For Rail

Excelon® Plus is the latest generation of Norgren Air Preparation equipment developed to meet the needs of today's rail customers. It offers exceptional performance, is compact and light-weight with no compromise on robustness.

Excelon® Plus has been designed with safety in mind, offering built in, tamper proof features and a unique double lock mechanism on the bowls. Maintenance of the unit is simplified with the new system where the element assembly is removed together with the bowl.

The innovative family of Excelon® Plus products can be used where both stand alone units or modular assemblies are required thanks to the slim line Quikclamp system. The one piece Quikclamp assembly with integrated brackets allows installation and removal of the units without breaking a pipe connection.

General Specifications

- » Port sizes 3/8", 1/2" or 3/4"
- » Thread type ISO G or NPT
- » Fluid: Compressed air
- » Maximum primary inlet pressure: 20 bar
- » Regulator spring options 4 & 10 bar
- » Temperature range: -40°C to + 80°C
- » Regulator with metal bonnets and T-Bar adjustment
- » Metal bowls on all filters
- » Salt spray tested to 500 hrs
- » Particles removal 5µm and 40µm
- » Shock & Vibration tested to BS: EN 61373 Cat. 1 A&B and Cat.2
- » Conforms to EN45545-2 Fire & Smoke grouping Rules (interior & exterior)
- » All internal and external surfaces are protected with an electrophoretic paint coating providing excellent corrosion and chip resistant protection
- » High impact resistant covers





Flush mounted integrated gauge

- Less vulnerable to damage

No compromise on Robustness

- Metal construction - where it matters most
- Quality synonymous with Norgren brand

Easy filter maintenance system

- Element is removed together with the bowl for faster and cleaner servicing
- Best in the market with only 25mm bowl clearance required¹

Double safety lock on bowl

- Bowl clip that clicks, plus safety detent when pressurised
- Impossible to remove the bowl when in use

Air Purity Filtration Classes to ISO8573

- Particles: Class 7,6,1 & 0
- Class 8 water extraction (Better than 95% @ 100% flow)

Compact size and optimised weight

- Maximises machine real estate
- Smaller and lighter than its predecessor

¹The nearest market equivalent is 40mm



Proven rail drains



Class 8 water extraction according to ISO 8573-1

Filtration

General Purpose Filters – (Water and particle removal)

The Excelon® Plus general purpose filter offers 5µm or 40µm particulate removal, with water extraction levels of >98 %.

Maintenance of these units is quick and easy, as the filtration cartridge remains inside the bowl when it is removed. The cartridge then simply unclips allowing for clean and efficient disposal, and replacement with a new cartridge.

This filter maintenance system also means that the clearance needed below the unit for maintenance is a maximum of 25 mm, reducing the space envelope needed on any machine.

Our general purpose filters come with full metal bowls for more challenging environments and applications, these also incorporate a unique double lock feature in the design.

The bowl has an easy to use release clip to enable the bowl to be removed. This large clip has an audible click feature once the bowl is reassembled, ensuring the bowl is in the correct position for use. A detent in the assembly also engages when the unit is pressurized ensuring that the bowl cannot be rotated whilst in use. This unique double lock feature makes Excelon® Plus the safest filter on the market.

Filters are offered with either an automatic drain, manual drain or a threaded connector to allow fitment of a drain valve.

Coalescing Filters – (Oil aerosol removal)

The Excelon® Plus Coalescing filter removes oil down to levels no greater than 0.01mg/m³ - 0.01 micron particulate removal. The pleated element design means this can be achieved in a compact envelope, whilst still keeping pressure drop to a minimum.

The Excelon® Plus coalescing filters have an integrated pressure drop indicator which changes colour, to indicate when service is needed.

The coalescing filters are offered with the same bowl and drain options as the general purpose filters, and also include in bowl cartridge removal and double safety lock.

Activated Carbon Filters – (Oil vapour removal)

The Excelon® Plus carbon filter ensures all traces of oil vapour (odour) are removed from the compressed air supply (0.003mg/m³ remaining oil).

Our carbon filters come with metal bowls and include the in bowl cartridge removal and double safety lock. These filters do not include drains as vapour contamination is retained in the carbon element.

When used together the coalescing and activated carbon filters ensure any compressed air system can be used for most critical Industrial Automation applications, and deliver air purity to class 0 according to ISO 8573-1

3/8", 1/2" &
3/4" ports



High Impact
resistant covers

Regulation

General purpose regulator

With primary pressure up to 10 bar (150 psig) Excelon® Plus regulators offer outlet pressure ranges - 4 bar (60 psig) and 10 bar (150 psig).

The robust adjustment knob means they can be used for underframe applications with confidence.

Optional integrated pressure gauge as standard with an option external gauge adaptor. This high visibility gauge fits inside the main body of the regulator, significantly reducing the risk of damage to the gauge, which has long been the most vulnerable part of the FRL assembly.

General purpose filter regulator

The Excelon® Plus Filter/regulator ('LB' unit) combines all the features of the general purpose filters and regulators including in bowl filtration cartridge removal and bowl double safety lock.



Auxiliary Products

Pressure sensing block and 18D pressure switch

The Excelon® Plus accessory range also includes a porting block which has a face for direct mounting of the Norgren 18D LT pressure switch.

This is an electro mechanical switch which is rail validated and is widely used in many rail applications.

Ready to install



Full Flow Porting Blocks

This porting block allows full flow to be diverted from the main system quickly and effectively. The block can be mounted in either rotation and is useful when only one part of the system requires high levels of filtration for example.

For full range of Excelon® Plus accessories see individual datasheets.



Standard Combination Units

- » Pre-assembled and ready to install
- » Everything you need for "best practice air preparation"
- » One part number

Download the products in your native CAD format.
We support 60+ native CAD formats including AutoCad, SolidWorks, Pro/Engineer, NX, Catia

One part number





Global Testing and Validation

The rail 84 series air preparation products have gone through a rigorous validation program to ensure they are suitable for the demanding conditions required for use on rail vehicles throughout the world.

Validation & Testing

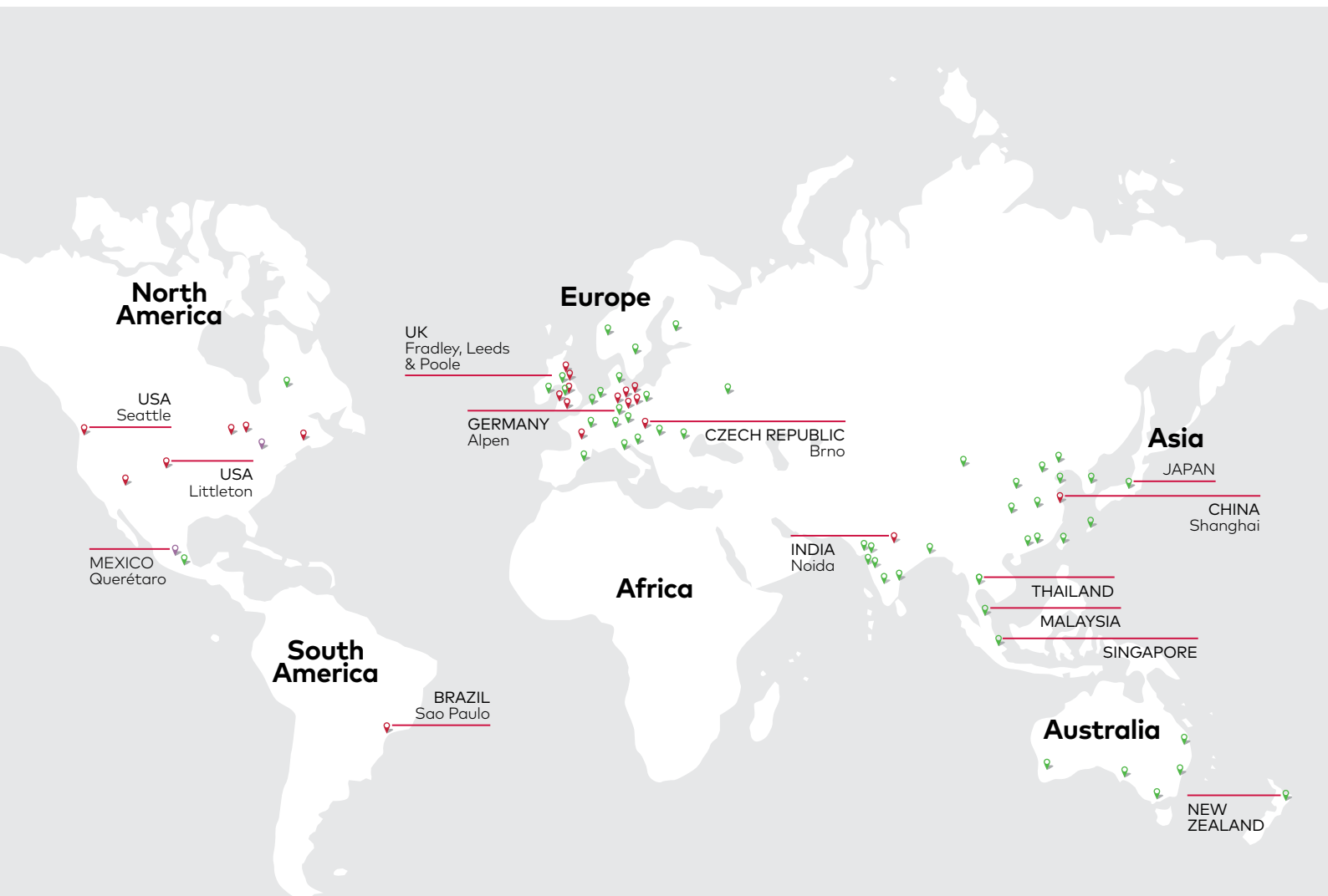
Standard	Description
BS EN 60085 PART 2	Thermal shock
BS EN 60068-2-1	Environmental testing - Part 2: Tests - Test A: Cold
BS EN 60068-2-2	Environmental testing - Part 2: Tests - Test B: Dry heat
BS EN 60068-2-30	Environmental testing - Part 2: Test Db and guidance: Damp heat cyclic (12 + 12 hour cycle)
ISO 9227	Corrosion tests in artificial atmospheres. Salt spray tests 500hrs
BS: EN 61373 CATEGORY 1A & B	Railway applications. Rolling stock equipment. Shock and vibration tests
BS: EN 61373 CATEGORY 2	Railway applications. Rolling stock equipment. Shock and vibration tests
EN45545-2	Railway applications – Fire protection on railway vehicles (In compliant to the grouping rules)
REACH	Registration, Evaluation, Authorisation & restriction of Chemicals
ROHS	Restriction of Hazardous Substances
WEEE	Waste Electrical and Electronic Equipment recycling

A local service in 50 countries

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.

Sales & Service in 50 countries

- 📍 Norgren sales, manufacturing and technical centres
- 📍 Norgren sales locations
- 📍 Norgren manufacturing locations



Norgren operates four global centres of technical excellence and a sales and service network in 50 countries, as well as manufacturing capability in Brazil, China, Czech Republic, Germany, India, Mexico UK and the USA.

For information on all Norgren companies visit

www.norgren.com

Supported by distributors worldwide.

For further information, scan this QR code or visit
www.norgren.com



Norgren, Buschjost, FAS, Herion, Kloehn, Maxseal and Thompson Valves are registered trademarks of Norgren companies.

Due to our policy of continuous development, Norgren reserve the right to change specifications without prior notice.

z9712BR en/03/21

Selected Images used under license from Shutterstock.com

Incorporating



IMI