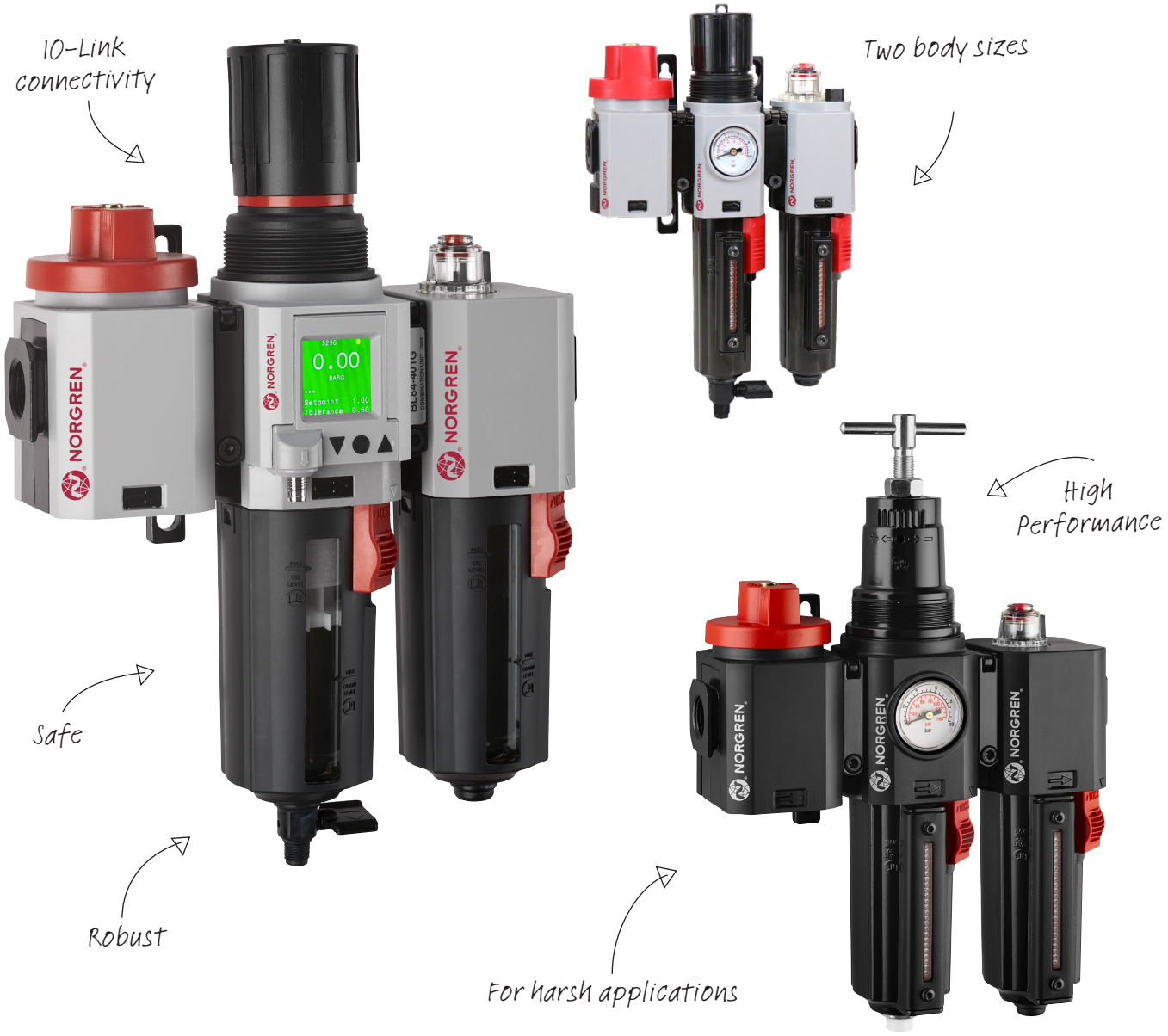
NORGREN

# Excelon® Plus
## Modular Air Preparation for All Industrial Applications




IO-Link

IMI

Breakthrough Engineering

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# Breakthrough Engineering for a Better World

## Norgren is part of global engineering organization 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 customized solutions to meet customer needs.

## Breakthrough engineering you can count on.

# Air Preparation

Find out more
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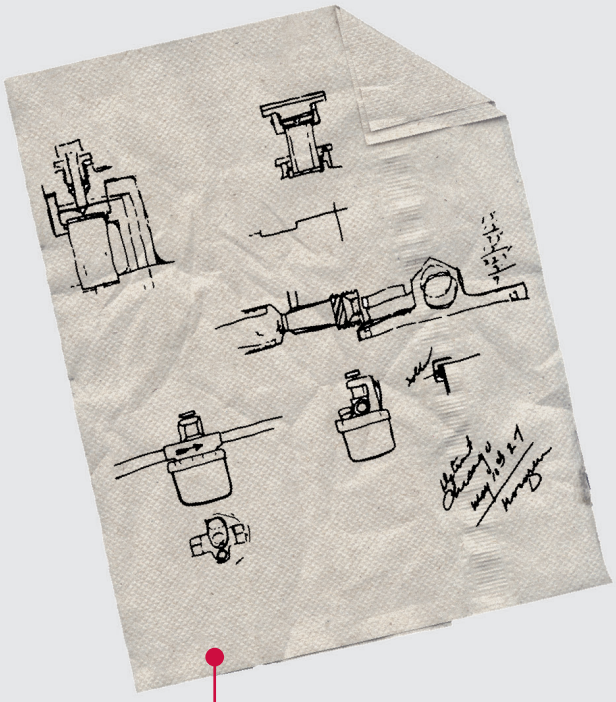
**Compressed air is used in almost every industry, from building cars to opening bus doors, from food processing to mining and shipbuilding. Excelon® and Olympian® air preparation have been providing clean controlled compressed air to these industries and more for over 40 years.**

In 1925, when Carl Norgren invented the automatic airline lubricator, he effectively began the practice of air preparation - delivering air of the right quality to a pneumatic device to enable that device to run at it's optimum efficiency for the longest possible time, keeping life costs to a minimum.

We have continued developing world class air preparation products ever since. Today, Norgren air preparation products are used globally, and are founded on a best-in-class reputation based on quality, reliability & robustness.

IO-Link is revolutionizing Industrial Automation by offering a standardized and seamless communication interface for all IO-Link devices, with simple installation and a complete range of diagnostics functionality. Our air preparation equipment is offering Industry 4.0 connectivity via IO-Link, and allows for remote set-up and visibility of application performance data for improved monitoring – making it an ideal option for machine builders looking to invest in digitally future-proofing their systems.



Automatic airline lubricator invented in 1925

Carl Norgren

# Compressed Air Systems

## Compressed air is a safe and reliable source of energy provided it is used and treated correctly.

Compressed air is often wrongly assumed to be a cheap or even 'free' source of power. At point of use, compressed air is approximately the same cost as natural gas, that's why it's vital to install the correct equipment to condition and control the air supply.

## Safety

As soon as air is pressurized it has the potential to cause damage to equipment or personnel, so controlling that pressure using shut off valves and regulators, which can be fixed and locked is paramount.

Containing the air in the reservoirs for air treatment also needs to be done safely. Correct assembly of the filters and lubricators after service is also paramount as a loose bowl can be very dangerous even at the lowest pressures.

Safety should always be the first consideration when designing compressed air systems.

## Cost reduction

A well designed air preparation assembly ensures costs are optimized by:

- Keeping leaks to a minimum
- Including isolation valves for rarely used parts of a system
- Correct use of pressure regulators - only use the pressure needed for the job
- Using appropriate levels of filtration – over filtering costs money!
- Simplifying circuits - reducing pressure losses
- Correctly sizing air preparation – reducing pressure losses

## Maximizing Up-time

Correct application of lubricators ensures the system runs efficiently for longer. Correct application of oil can extend the life of an actuator by up to 5 times, however they need to be specified correctly and regularly maintained.

Filters need to have effective draining systems and need to be maintained regularly to ensure downstream air is free from contamination. Excess liquid water is the biggest cause of failure in systems which do not have large plant dryers. Most bulk water as well as coarse particles can be removed with a general purpose filter. However these filters need to be maintained regularly and have effective condensate drain mechanisms to ensure downstream air remains free from contamination.

Correctly specified, well maintained air preparation is essential to the effective operation of any compressed air system. Whether a large factory air supply, or a small high speed processing machine air preparation equipment are the tools to make it safe, optimize the running costs and keep the machines running.


# Introducing Excelon® Plus

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

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.

- Three filter variants
- Two regulator variants
- Two lubricator variants
- Combination units - standard & IO-Link connected
- Several valve options (Manual, dump, soft start dump)

## General Specifications

- Two body sizes: 82 series and 84 series
- Port sizes 1/4", 3/8", 1/2" or 3/4"
- Thread type PTF or ISO G
- Fluid: Compressed air
- Maximum inlet pressure:
  - Guarded polycarbonate bowl 145 psi (10 bar)
  - Metal bowl 290 psi (20 bar) (247 psi [17 bar] for 1/4" range)
- Maximum temperature:
  - Polycarbonate bowl 140° F (60°C)
  - Metal bowl 149° F (65°C)
- All internal and external surfaces are protected with an electrophoretic paint coating providing excellent corrosion and chip resistant protection

IO-Link

## Tamper proof options built in

- Padlock features on both shut-off valves and regulator
- Guarantees safe isolation of machines

## Rotating Safety Shut-off Valve

- Quarter turn easy to operate full flow device
- Easy to isolate system with no reduction in performance


## Flush mounted integrated digital or analog gauge

- Less vulnerable to damage
- IO-Link connectivity

## No compromise on Robustness

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

## Double safety lock on bowl

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

## 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 required[1]

## Air Purity Filtration Classes to ISO8573

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

## Compact size and optimized weight

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

[1] The nearest market equivalent is 40mm


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 % (84 Series) and >95 % (82 Series).

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 are available with lightweight polycarbonate bowls with guards for in bowl visibility, or alternatively with full metal bowls incorporating unique prismatic liquid level indicators for more challenging applications.

All bowls 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 a ¼ turn "Q" manual drain or the new lever assisted fast acting float type auto drain which minimizes air wastage during operation.


Filter maintenance system

Only 25mm clearance required to remove filter element


## 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 color, 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 vapor removal)

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

Our carbon filters are offered with guarded polycarbonate bowls and metal bowls, and include the in bowl cartridge removal and double safety lock. These filters do not include drains as vapor 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 oil vapor removal to class 0 according to ISO 8573-1.


# Regulation

## General purpose regulator

With primary pressure up to 300 psi (20 bar) Excelon® Plus regulators offer outlet pressure ranges - 60 psi (4 bar), 150 psi (10 bar) and 250 psi (17 bar).

The non-rising adjustment knob shows a red band whilst pressure is being adjusted. This disappears once the desired pressure is reached and the knob is pushed down into the fixed position. This action also reveals a padlock hole allowing the regulator to be locked very simply and cost effectively.

The 250 psi version has a metal bonnet and a T bar adjustment. This is necessary to ensure easy operation and accurate pressure control at these higher pressures.

Both versions are supplied with an integrated pressure gauge as standard. 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 ('B' unit) combines all the features of the general purpose filters and regulators including built in padlock feature, in bowl filtration cartridge removal and bowl double safety lock.

# Pressure Monitoring

## Pressure Regulators and Filter-regulators with integrated digital pressure switch and gauge

Both general purpose regulators and filter-regulators are available with optional integrated digital pressure switch and gauge. Offering Industry 4.0 connectivity via IO-Link, the digital gauge allows for remote set-up and visibility of application performance data for improved monitoring – making it an ideal option for machine builders looking to invest in digitally future-proofing their systems.

### Electronic monitoring of secondary pressure

- IO-Link capability allows remote set-up and application performance data for improved monitoring
  - Pressure sensor calibration can be adjusted via IO-Link for offset and span correction
  - Built-in diagnostics, self-testing and fault reporting of gauge status offers intelligence for monitoring and measurement
  - Pressure transducer output
  - Operating temperature and supply voltage are transmitted as 'process variables' once per second
- 1.44" full color graphic display. Excellent Visual Management.
  - Green - At or above pressure setting
  - Amber - System Fault
  - Red - Secondary pressure is below setting
- Parameter Adjustment via front screen Buttons or Accessed Via IO-Link
- Configurable switching output
- Adjustable settings:
  - Setpoint
  - Tolerance
  - Hysteresis
  - Pressure Units
  - Temperature Units
  - Screen Orientation
  - Digital Output Type (NPN, PNP, Push-Pull)
  - Digital Output State (Normally High, Normally Low)
- Install as a standard digital pressure switch or a pressure transducer with IO-Link

IO-Link

Programmable color display

Robust

Simple Set-up

Fully Integrated Design

IO-Link

# Lubrication

## Micro-fog® lubricators

The Excelon® Plus Micro-fog® lubricator has a unique micro mist fog generator built in to the unit creating very fine mist particles – less than 2 micron. These particles are suspended in the air line and can travel very long distances and lubricate very complex air pathways. They allow very fine control, ensuring that the systems are not over lubricated – a common problem with intricate pneumatic circuits, and are perfect for small rapidly moving applications.

This Micro-fog® technology is the best in the industry after more than thirty years.

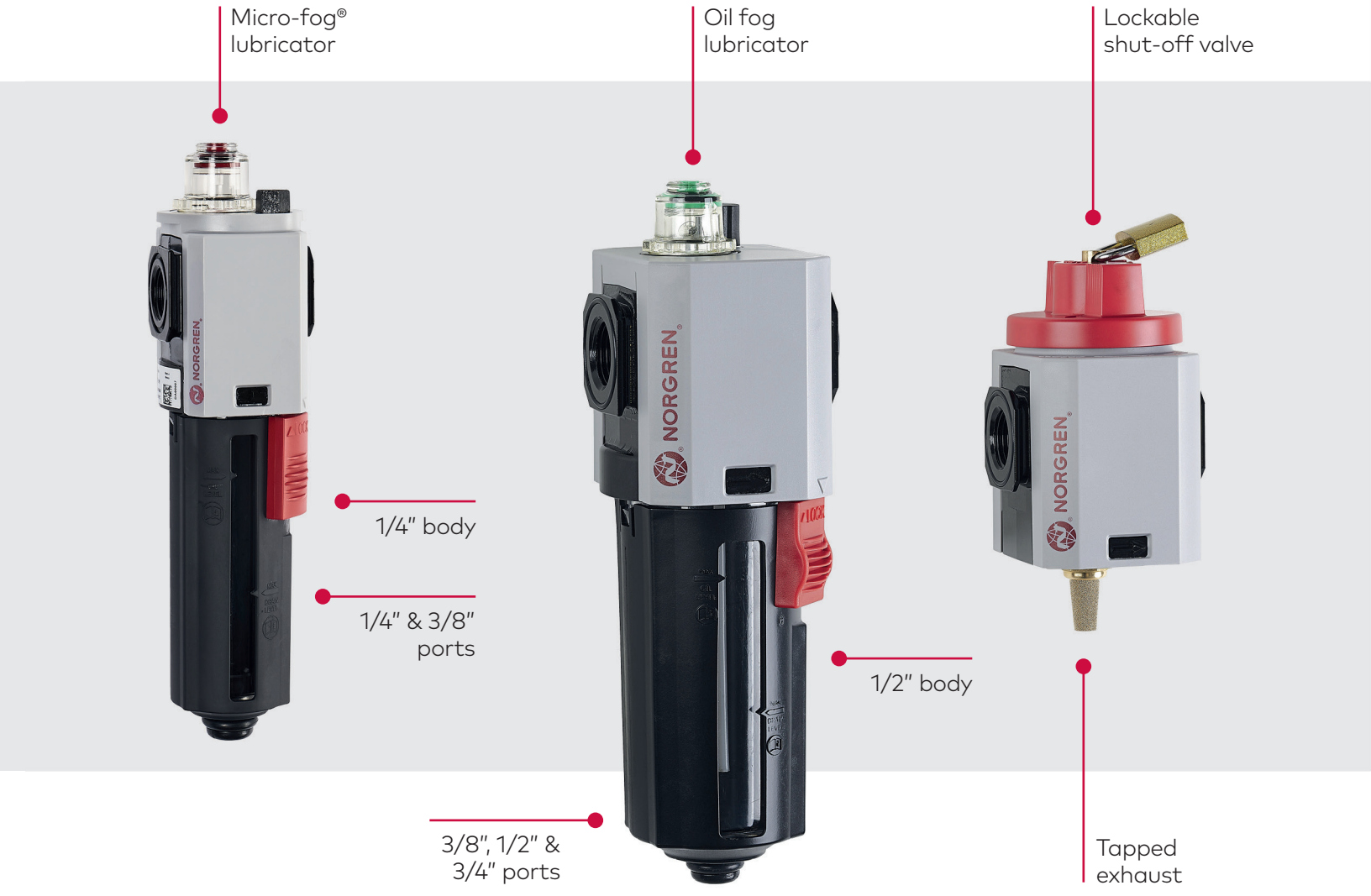
## Oil fog lubricators

The Excelon® Plus oil fog lubricator generates a fairly coarse mist - around 100 micron. This lubricator is most commonly used in heavy actuation applications and is best used close to the area requiring lubrication. One benefit of this type of lubricator is that it does allow for the oil reservoir to be filled whilst the system is running.

Both Micro-fog® and oil fog lubricators are offered with guarded polycarbonate or full metal bowls, the prismatic sight glass and the double lock safety feature. Bowls for lubricators do not offer any drain feature.

## Shut off valves

The Excelon® Plus lockable shut-off valve is available in a 3/2 configuration with threaded exhaust and red knob. It is a full flow rotating ball valve and the restricted ¼ inch exhaust port is threaded to allow fitting of a noise reducing silencer or pipe away exhaust air. The valve has a 'pop up' padlock feature allowing the valve to be locked in the closed position for safety.




# Control Valve

**Adding to the comprehensive range of manual control valves, the electrically operated control valves are available in two functions and two body sizes, four port sizes and three voltages. Ideal for every application, their use can assist machine designers in complying with the European Machineries Directive.**

Soft start dump valves allow downstream pressure to gradually increase on initial start up, before fully opening to deliver line pressure. The dump function allows the system to be exhausted quickly when required, particularly in the event of a power failure or emergency stop.

## Technical Specifications

- Port size 1/4", 3/8", 1/2" and 3/4" (PTF / ISO G)
- Two valve function options
  - 3/2 Dump
  - 3/2 Soft Start Dump
- Optional connectors: DIN plug, M12, Flying lead or LEG, all to IP65 standards
- 15mm solenoid. Flat pin layout to DIN43650 Form C (8mm), 2 pin & earth
- Available in 24V DC, 110V AC and 220V AC
- Exhaust flow capacity (cv) ranges from > 1.27 to > 5.6 depending on option

## Product Highlights:

- Increased flow performance
- Lighter and smaller
- In-line or modular installation with Excelon® and Excelon® Plus range (Stand alone or can sit within FRL set on your machine)
- Variable Snap Adjustment on Soft Start option
- Low wattage
- High flow dump facility (Fast Exhausting)

# Auxiliary Products

## Pressure sensing block and 54D pressure switch

The modular Quikclamp system includes a pressure sensing block which enables pilot or auxiliary signals feeding other parts of the pneumatic circuit.

The block can be used to provide an additional port for remote sensing or to directly mount a pressure switch such as the Norgren 54D.

The 54D electronic pressure switch can be adapted to fit Excelon® Plus. Available with three pressure ranges from vacuum to 232 psi, it is Industry 4.0 Ready, with Digital, Analogue and IO-Link outputs. There is a differential pressure option, two pneumatic inputs, and M8 x 4 pin electrical connection. This switch is lightweight, robust and ideally suited to robotic applications.

## 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 IMI Norgren 18D pressure switch. This is an electro mechanical switch and is widely used in the Industrial Automation market.

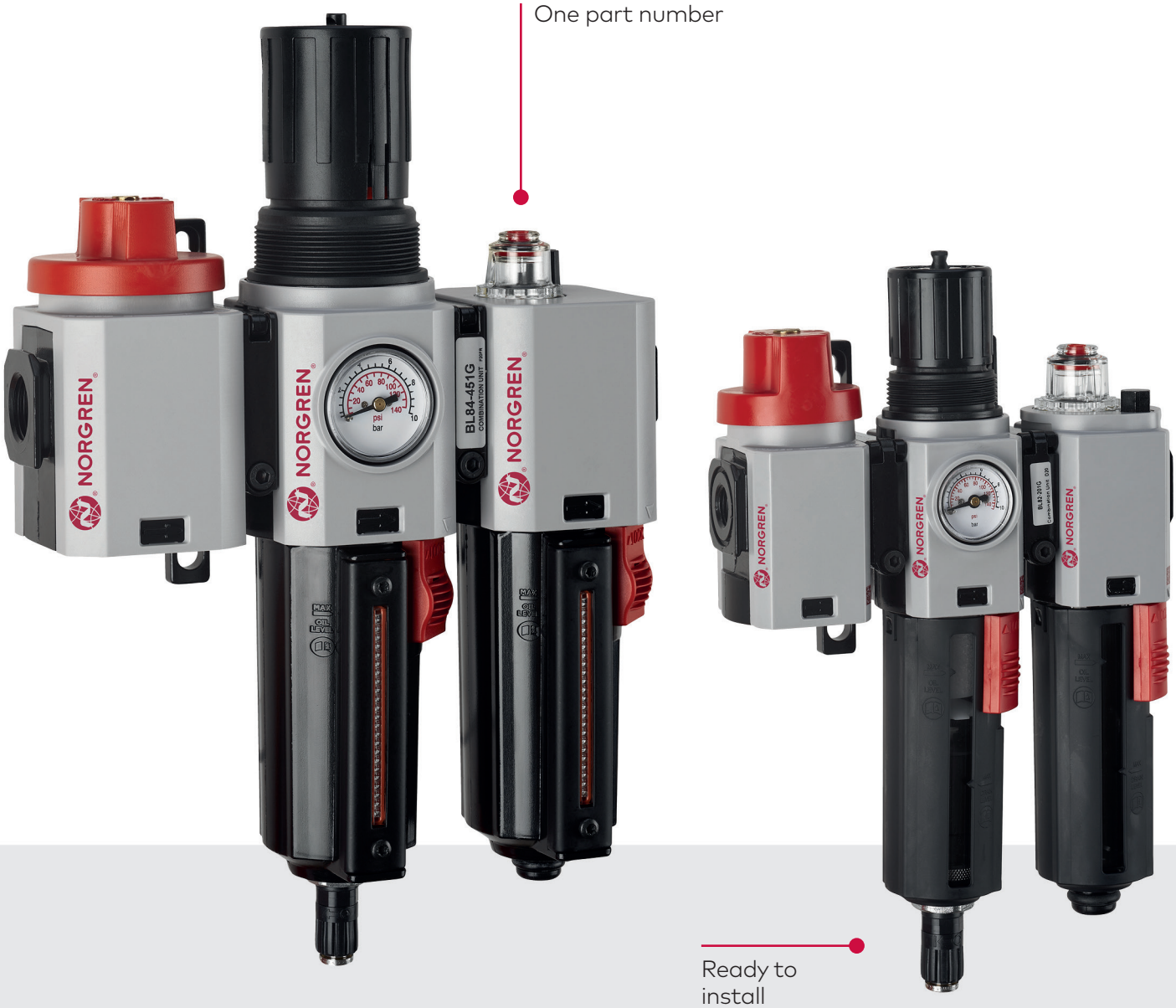
The 18D micro switch is suitable for high cycling applications and can be used in intrinsically safe environments. It is IP 65 rated.

## 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. Available in two body sizes, 1/4" and 1/2".

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


Ready to install




Find out more
**norgren.com**

# Standard Combination Units

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

Standard options are available or you can configure to your specific requirements online.

## Online Configurator

- Live visualization of your configuration
- Download your configuration in your native CAD format. We support 60+ native CAD formats including AutoCAD, SolidWorks, Pro/Engineer, NX and Catia.
- Save your configurations for a later date and view your history anytime
- Order your configuration instantly online

# TR Series for harsh environments and extended temperatures

Available in 1/2" (84 Series) body size, the Excelon® Plus TR Series is suitable for applications in harsh environments or extended temperatures. The L variants are approved for S & V Cat 2 Rail applications, and the H variant is approved for extreme temperatures from -40°F to +176°F (-40°C to +80°C).

EN 61373

+176°F (+80°C)
-40°F (-40°C)

## Available variants

» **Filter** LF84, HF84 - General Purpose, Coalescing, Vapor removal filters
  - Metal Bowl only
  - Drain mechanisms as per standard Olympian 64 Series

» **Regulator** LR84, HR84
  - 4, 10 & 17 Bar spring options
  - Relieving and Non-Relieving options
  - Metal Bonnet

» **Filter-regulator** LB84, HB84
  - 4, 10 & 17 Bar spring options
  - Metal Bonnet
  - Metal Bowl only
  - Drain mechanisms as per standard Olympian 64 Series

» **Lubricator** HL84 only
  - Metal Bowl only

» **Shut-off valve** HT84 only


Relieving and non-relieving regulator options with a choice of 3 spring ranges

Metal bonnet with T-Bar Adjustment

HL84 with Micro-fog®(M) or Oil-fog options as per standard 64/74/84 series

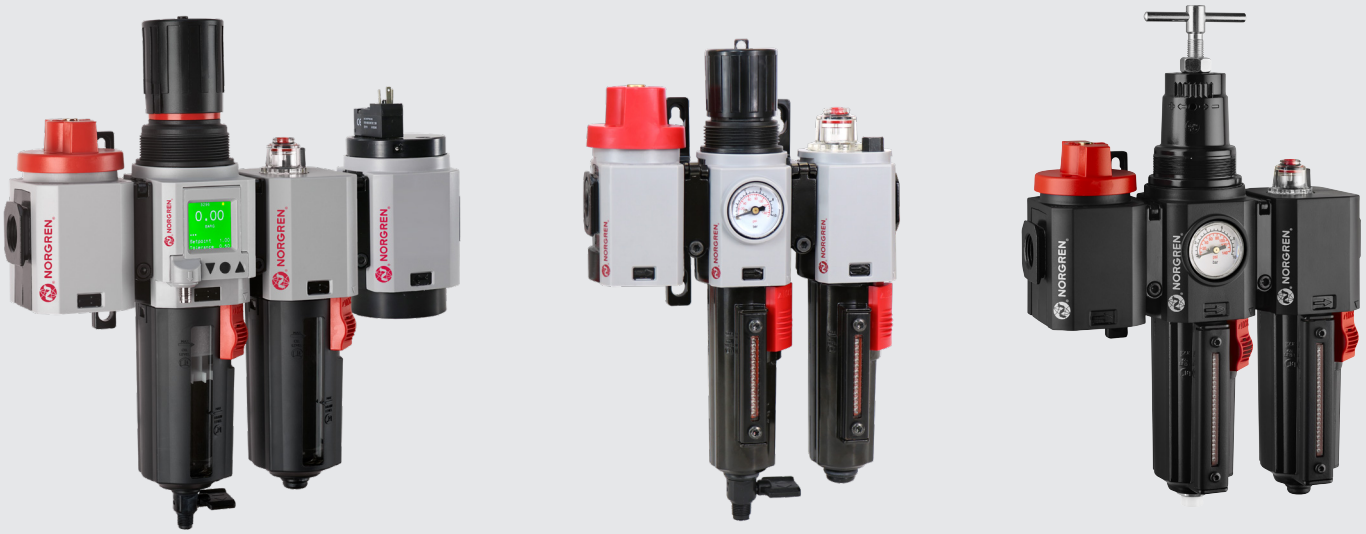
High impact resistance cover material

Lockable exhausting full flow ball valve

Metal bowl with or without sight glass

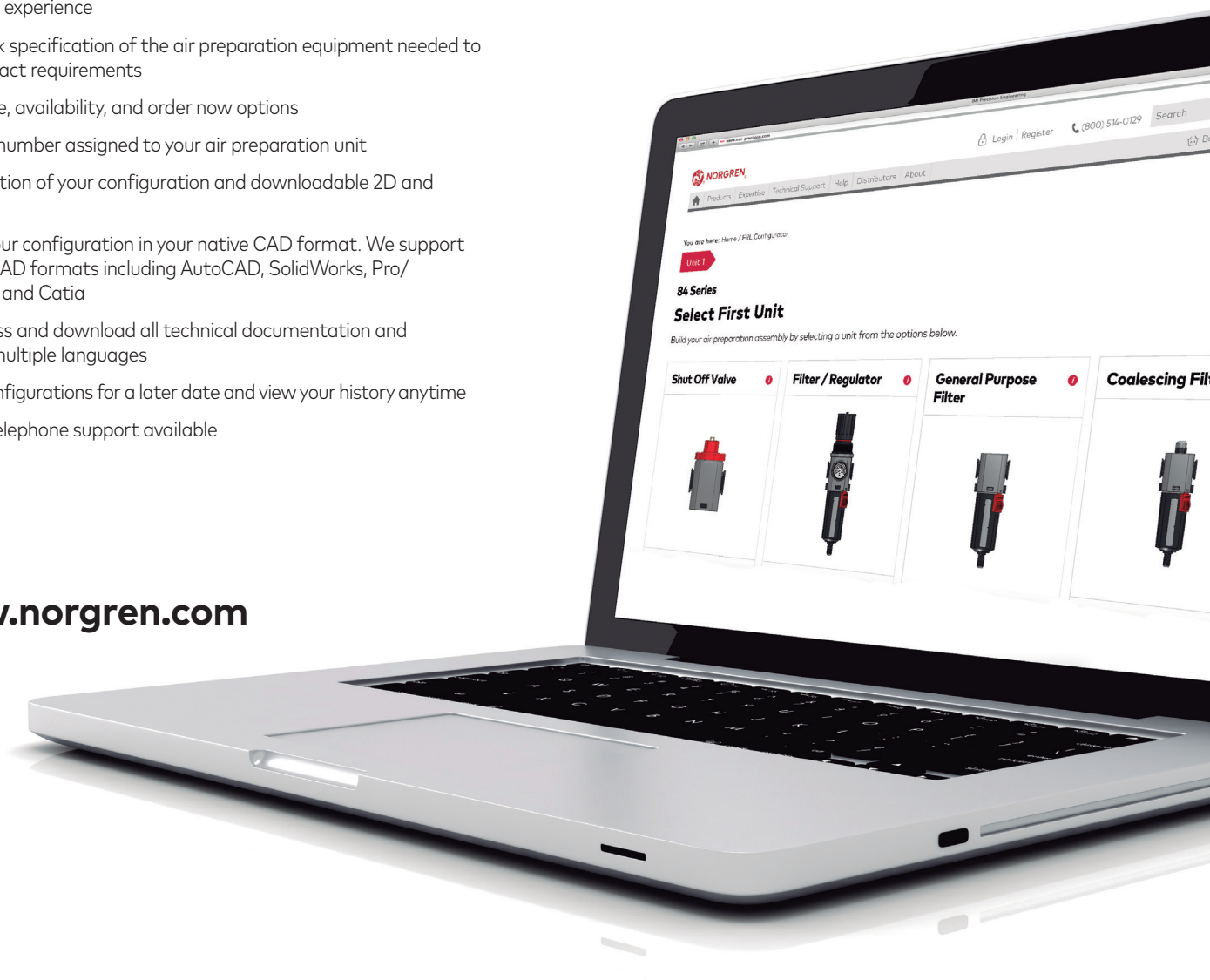
Reliable 3000 series Auto-Drain

Find out more
**norgren.com**



# Air Preparation Configurator

- Intuitive, flexible, and easy-to-use
- Flexible step-by-step process that is easy to navigate for any user regardless of experience
- Enables quick specification of the air preparation equipment needed to meet your exact requirements
- Provides price, availability, and order now options
- Unique part number assigned to your air preparation unit
- Live visualization of your configuration and downloadable 2D and 3D CAD files
- Download your configuration in your native CAD format. We support 60+ native CAD formats including AutoCAD, SolidWorks, Pro/Engineer, NX and Catia
- Easy to access and download all technical documentation and available in multiple languages
- Save your configurations for a later date and view your history anytime
- Online and telephone support available

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