BUSCHJOST®

Hydrogen Refuelling Stations

IMI

Breakthrough Engineering

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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, Bimba, Buschjost, FAS, Herion, Kloehn and Maxseal. Supplied either individually or combined into powerful customised solutions to meet customer needs.

Breakthrough engineering you can count on.

Hydrogen Refuelling Stations

Norgren offers an extensive range of high quality components and complete system solutions to tackle the biggest challenges currently facing hydrogen infrastructure development.

- Helping to reduce complexity
- Simplified assembly by reduction of parts and modular solutions
- Improving the safety, reliability and performance of fluid and process control sub-systems
- Reduction of fittings and therefore potential leakage points

Norgren has extensive expertise in hydrogen and high pressure products and solutions. The Norgren Hydrogen Portfolio includes a complete range of fluid and process control components specifically designed with hydrogen in mind. Suitable for storage, compression and dispensing applications, our products are designed to provide leading performance and maximum safety for pressures up to 1.050 bar.

Our market leading products combine to create an extensive range of proven valve and pressure control solutions including:

- Pressure Regulators (Spring, Dome, Proportional Pressure Reducers, Back Pressure Valves)
- Solenoid Operated Valves
- Manual Stop Valves
- Filters - Inline and Tee-Type
- Check Valves
- Safety and Relief Valves

High Pressure Solenoid Valve

Norgren has over 60 years of high-pressure application expertise and is dedicated to tackling the biggest challenges within the hydrogen industry. The latest development in our commitment to hydrogen, is our new high-pressure solenoid valve. Incorporating a servo operated piston and designed specifically with hydrogen refuelling in mind, our high pressure hydrogen valve is compact, reduces complexity by eliminating the need for pilot gas systems and is pre-cooling ready for fast fuelling applications at temperatures as low as -50°C.

In addition to offering high flow efficiency through high KV values, our innovative design and material selection offers significant improvements in the reliability and safety of your station.

Tackling hydrogen embrittlement and ensuring system safety through innovative design (Patent pending).

Series 83830/83840
High pressure solenoid valve
DN 8 & DN 13 with
integrated check-valve

High pressure
solenoid valve
DN 8 & DN 13

High pressure solenoid valve DN 8 + DN 13
83830 (1.050 bar) / 83840 (550 bar)

- Maximum inlet pressure: 1.050 bar
- Function: 2/2 normally closed
- No internal or external soft sealing
- Operating pressure range: 10 ... 1050 bar
- Burst pressure: 3.000+ bar
- Port size: 13/16-16 UNF and 3/4-14 NPS cone & thread for MP tubing
- Material: All fluid wetted, pressure retaining parts made from 316L / 1.4404
- Ambient temperature: –45 ... +55°C
- Minimum fluid temperature: –50°C (Pre-cooling ready)
- Voltage: 24 V d.c., 100% ED., IP66, 16 W
- Eliminates the need for pilot gas systems
- Ex: II 2G EX eb mbIIC T4 Gb; II 2D EX mb tbIIB T125°C Db
- PED: Article 4, chapter 3
- Optional: Integrated check-valve

Pressure Regulation

Norgren offers proven solutions for high pressure gas control on the outlet from the compressor, as well as in downstream pressure reduction applications such as in the dispenser. Our spring loaded pressure regulators (also called reducers or controllers) control the outlet pressure over a range of varying inlet pressures and flows with high levels of regulation accuracy.

With a robust, corrosion resistant, sealed spring housing design our regulators are built to last, offering product lifetime up to 35 years with stable pressure precision for up to 10 years without adjustment.

Series D479
High pressure
proportional regulator

Series J50
High pressure regulator

High Pressure Proportional Regulator D479

- Maximum inlet pressure: 1.050 bar
- Manual adjustment via via proportional dome 0 ... 4,5 bar / 0 ... 8 bar piloting pressure range
- Regulating pressure range: 0 ... 875 bar
- Material: stainless steel 316L
- Seat material: stainless steel/1.4401
- Ambient temperature: –45 ... +50°C, Media temperature: -40 ... +85°C, depending on the sealing material
- Port Size: 13/16-16 UNF cone & thread for MP tubing

High Pressure Regulator J50

- Maximum inlet pressure: 550 bar (aluminium), 750 bar (stainless steel)
- Manual adjustment via knob
- Maximum inlet pressure: 550 bar (aluminium), 750 bar (stainless steel).
- Regulating pressure range: 0 ... 275 bar (aluminium), 0 ... 550 bar (stainless steel)
- Body material: Aluminum/L 168.T6511, stainless steel 316/1.4401
- Seat material: stainless steel/1.4401
- Ambient temperature: –50... +150°C, depending on the sealing material.
- Port size: G3/8, NPT 3/8

System Safety

Thermally-Activated Pressure Relief Device (TPRD)

The proven Norgren high pressure sealing technology ensures that our TPRD is both internally and externally leak tight. Our eutectic technology ensures accuracy and precision of the setting temperature, unaffected by shock or vibration.

Safety Valve

Our safety valves are designed and tested in compliance with all relevant safety standards. To ensure your system is always protected our sealed-housing spring design prevents moisture and particle contamination, maintaing the stability and accuracy of our valves over their lifetime of up to 35 years.

System safety is of upmost importance for hydrogen refuelling applications. Our products are PED certified, designed and tested in compliance with all relevant safety standards.

Series X855 & X863
Thermally-Activated
Pressure Relief Device

Series S153
Safety valve

Thermally-Activated Pressure Relief Device Series X855 & X863

- Material: stainless steel 316L (Also available in aluminium)
- Maximum working pressure: 1.050 bar
- Inlet thread: 9/16-18 UNF
- Port size: 9/16-18 UNF cone & thread for MP tubing
- Outlet Thread: NPT 3/8
- Setpoint temperature: 129°C ± 3°C
- Trigger time at 600°C < 2 min.
- Overflow capacity: 547 kg/h (152 g/s) @ 875 bar of H_2
- Lifespan: 10 years
- Optional TPED Certification
- Standard: ISO 15500-13

Safety Valve Series S153

- Material: stainless steel 316L
- Port size: G3/8, NPT 3/8
- Maximum inlet pressure: 450 bar
- Adjustment range: 8 ... 450 bar
- Overflow capacity: 13 657 Nm^3/h @450 bar of H_2
- Ambient temperature range: –45 ... +150°C
- PED 2014.68.EU CAT IV

Filtration

Particle contamination at high pressures will reduce the service life of hydrogen control equipment and is unsuitable for fluid being dispensed for on-vehicle applications. Our filters provide protection against particle ingress and are suitable for use in high flow systems with a tolerance to high differential pressures.

Our robust, corrosion resistant design, stainless steel mesh material and low pressure drop, offers optimal contamination protection for pressure system components.

Series W11/W12
High pressure filter

MP line filter

High pressure filter Series W11/W12

- Maximum inlet pressure: 550 bar
- Material: stainless steel 316/1.4401
- Filtration accuracy: 5 µm ... 25 µm
- Ambient temperature: –50 ... +135°C depending on sealing material
- Port size: 3/4" NPT, 1" NPT, 13/16-16 UNF cone & thread for MP tubing
- Filter element easily removable for maintenance

High pressure filter MP line filter

- Material: stainless steel 316L
- Maximum inlet pressure: 1.050 bar
- Mesh size: 5 µm ... 25 µm
- Port size: 13/16-16 UNF, 9/16-18 UNF cone & thread for MP tubing
- Temperature range: -50 ... +85°C
- Filter element easily removable for maintenance

Complementary Components

Reliable non-return valves for critical conditions and shut-off valves for manual intervention into the process line. These components are applicable throughout any high pressure system.

Completing our One-Stop-Shop portfolio with complementary standard products for Hydrogen systems.

Series N10
In-line check-valve

MP manual valve

Series N10
In-line check-valve

- Maximim inlet pressure: 1.050 bar
- Crack pressure: 0,5 bar
- Port size: 13/16-16 UNF cone & thread for MP tubing
- Material: stainless steel 316L
- Seat material: PEEK
- Ambient temperature: -40 ... +85°C
- Media temperature: -40 ... +85°C

MP Manual valves
90° elbow & straight

- Maximim inlet pressure: 1.500 bar
- Port size: 7/16-20 UNF to 13/16-16 UNF cone & thread for MP tubing
- Material: stainless steel 316L
- Seat material: PTFE compound
- Ambient temperature: -50 ... +100°C
- Media Temperature: -60 ... +200°C

Custom Manifolds

Tailored to your individual application needs, we integrate our extensive portfolio of components into custom manifolds. Tapping into our experience with industry leaders, our engineers provide a unique service to simplify and optimise system layouts, enabling cost-effective series production.

High complexity in a simple package! Fewer leak points, smaller footprint, reduced piping, and simple mounting.

Configurations integrating ...

- 83830 & 83840 solenoid valves
- Instrumentation ports
- Filters 5µm – 25µm
- Manual valves
- Check-valves
- Regulators

For applications such as ...

- Refuelling dispensers
- Storage management
- Compressor manifolds
- Customised block & bleed
- ...

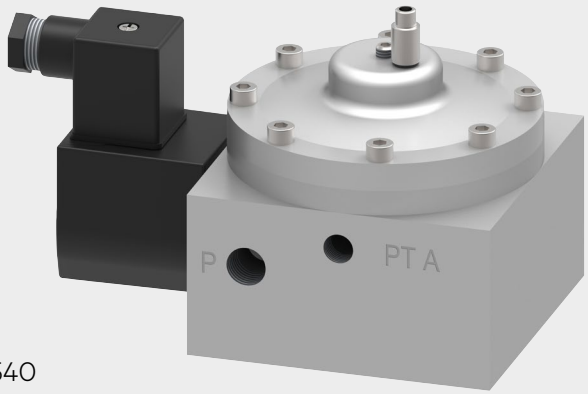
Auxiliary Products

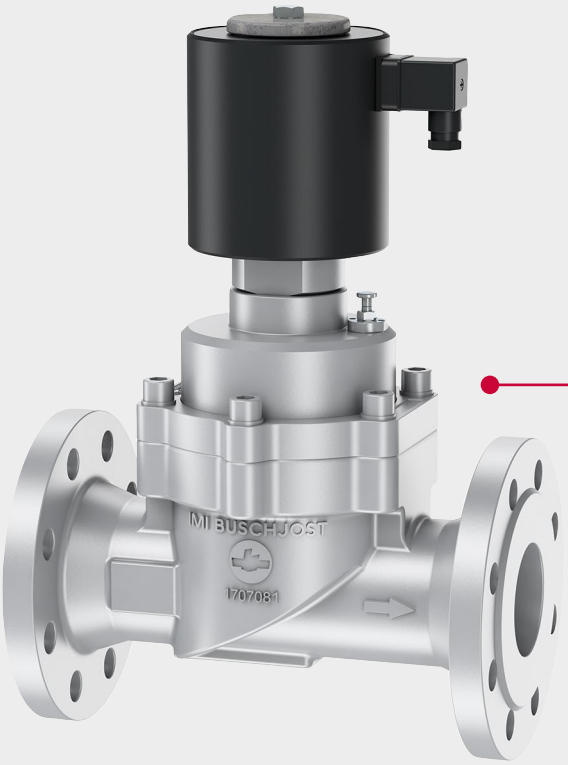
For coolant control and low-pressure hydrogen applications, our range of stainless steel 2-way valves offers top performance.

Complementary products

Recommended for use in coolant control and low-pressure hydrogen applications:

Low pressure regulator
8592121.9151.02400

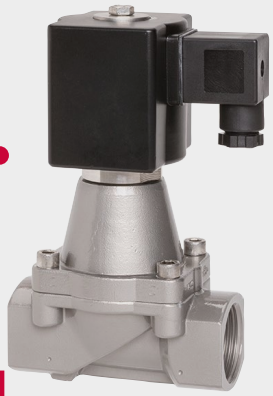




Series 86540

Series 84520

Series 86740



Series 82610

Need a clever, customisable way of combining individual components?

Contact our hydrogen experts to learn about our modular manifold solutions.

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