Hydrogen Refuelling Stations

High flow capabilities of up to 120 g/s

Highly reliable up to 1050 bar

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

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).

High pressure solenoid valve DN 8 + DN 13

Series 83830/83840

High pressure solenoid valve DN 13

High pressure solenoid valve DN 8

High pressure solenoid valve DN 8 + DN 13

83830/83840

» Maximum inlet pressure: 1050 bar
» Function: 2/2 normally closed
» No internal or external soft sealing
» Operating pressure range
  DN 8: 10 ... 1050 bar
  DN 13: 10 ... 450 bar (1050 bar coming soon)
» Burst pressure: 3000+ bar
» Port size: 13/16-16 UN and 3/4-14 NPS
» 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 mbIIIC T4 Gb; II 2D EX mb tblIB T125°C Db
» PED: Article 4, chapter 3
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.

**High Pressure Regulator**

**D973**
- Maximum inlet pressure: 1000 bar
- Manual adjustment via knob
- Regulating pressure range: 0 ... 700 bar
- Material: stainless steel 316L
- Seat material: stainless steel/1.4401
- Ambient temperature: –45 ... +150°C, depending on the sealing material
- Port Size: G3/8, SFX 3/8" OD

**J50**
- Maximum inlet pressure: 550 bar (aluminium), 750 bar (stainless steel)
- Manual adjustment via knob
- Regulating pressure range: 0 ... 275 bar (aluminium), 0 ... 550 bar (stainless steel)
- Body material: Aluminium/L168.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, maintaining 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 Thermally-Activated Pressure Relief Device
- Material: stainless steel 316L (Also available in aluminium)
- Maximum working pressure: 875 bar
- Inlet thread: 9/16” UNF - 18 Filet
- 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 H₂
- Lifespan: 10 years
- Optional TPED Certification
- Standard: ISO 15500-13

Series S153 Safety Valve
- 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 Nm³/h @450 bar of H₂
- 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
- Maximum inlet pressure: 550 bar
- Material: stainless steel 316/1.4401
- Filtration accuracy: 5 μm
- Ambient temperature: –50 ... +135°C depending on sealing material
- Port size: 13/16-16 UN, NPT 3/4, NPT 1
- Filter element easily removable for maintenance

Series F581
High pressure filter
- Material: stainless steel 316/1.4401
- Max. pressure: 1050 bar
- Mesh size: 5 μm
- Port size: 13/16-16UN
- Temp. range: –20 ... +99°C
- Stainless steel clothed type cartridge design
- PED 2018.68.UE Cat I
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:

- Series 86540
- Series 84520
- Series 86740
- Low pressure regulator
  8592121.9151.02400
- Series 86540
- Series 82610

Need a clever, customisable way of combining individual components?
Contact our hydrogen experts to learn about our modular manifold solutions.
Breakthrough Engineering for a Better World
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.

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

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