

Semiconductor Industry Solutions

Precision Fluid &
Motion Control

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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.

Precision Control in Semiconductor Manufacturing Process

We are aware of the importance of stability and reliability to the entire semiconductor manufacturing process. We offer a wide range of products that can be used in each process. These products are capable of handling and controlling medias with various chemical types and temperatures and can maintain their precision performance and repeatability even during long working hours or under certain working conditions. (e.g., high temperature, hygienic environment, etc.)

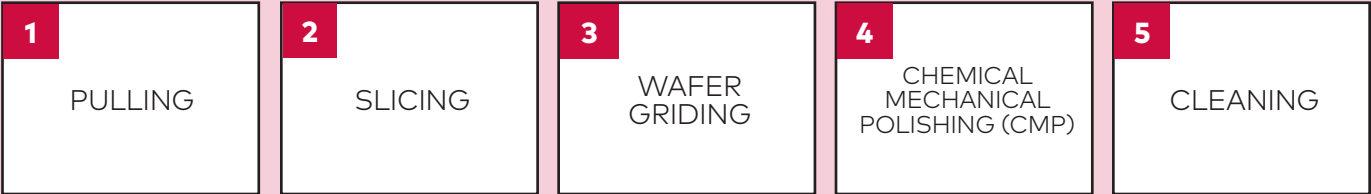
We provide products with high precision and outstanding performance, and we assist customers in developing future markets together based on comprehending their unique engineering and technical challenges.



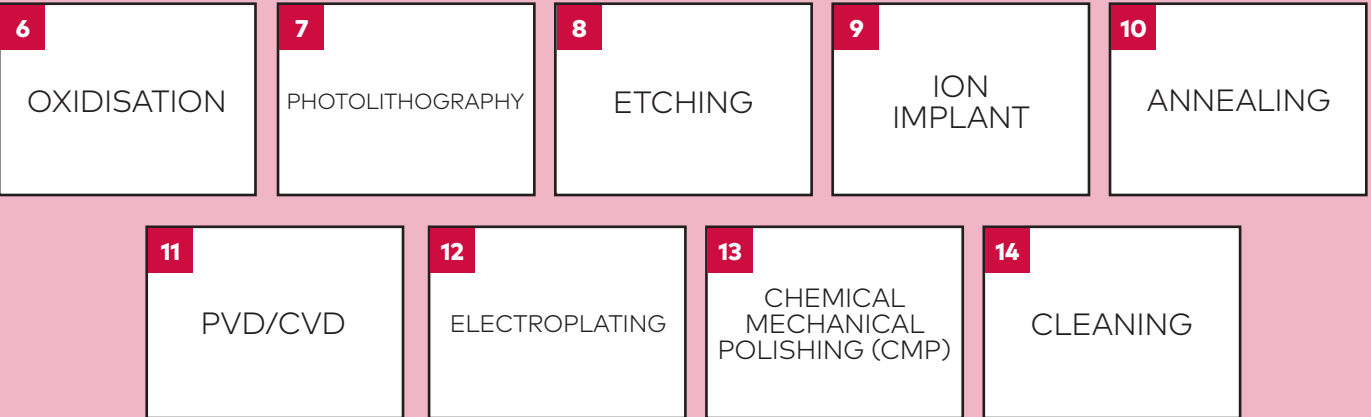
**Breakthrough
Engineering
for a Better World**

Precision Control in Semiconductor Manufacturing Process

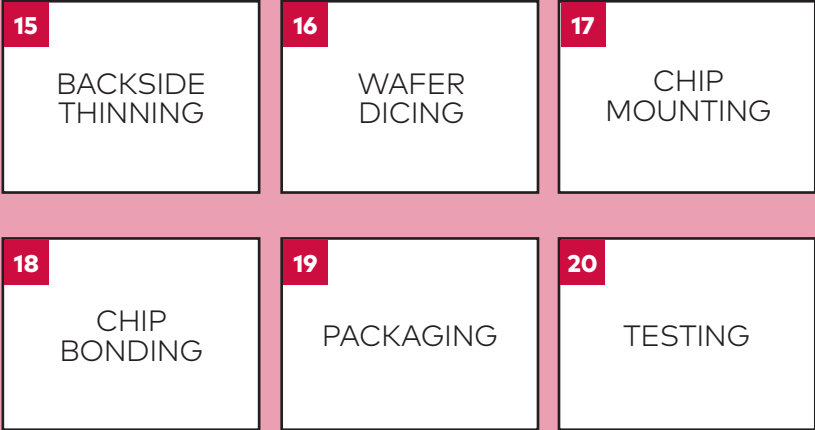
Wafer Fabrication



Front End Process



Back End Process



Others

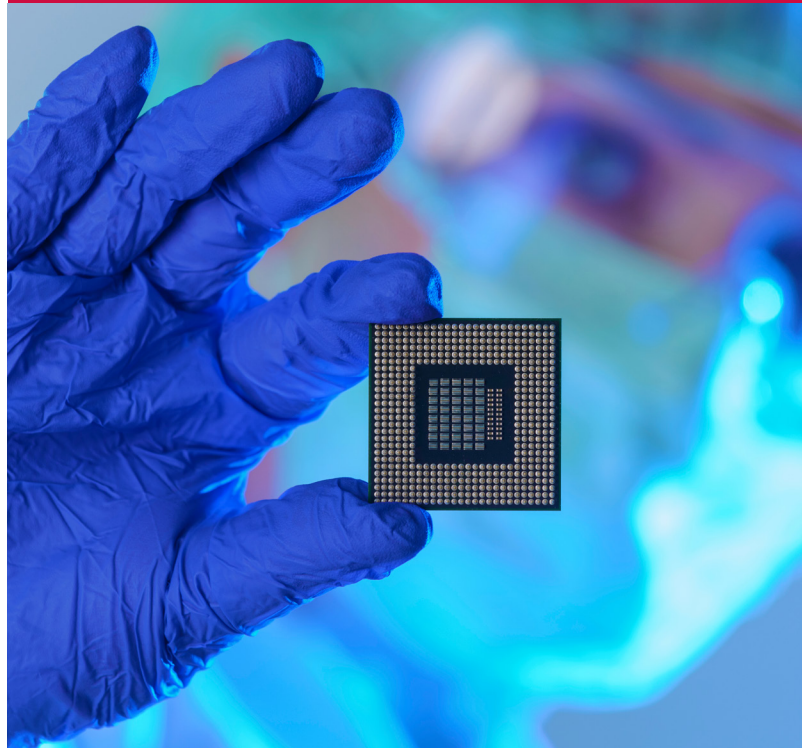
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ESG

22

ELECTRONIC
GAS

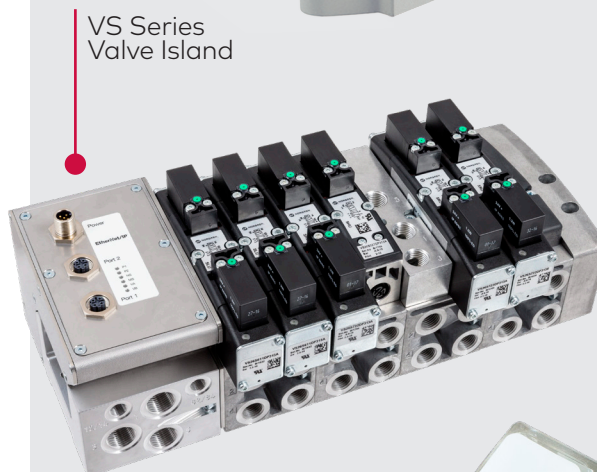
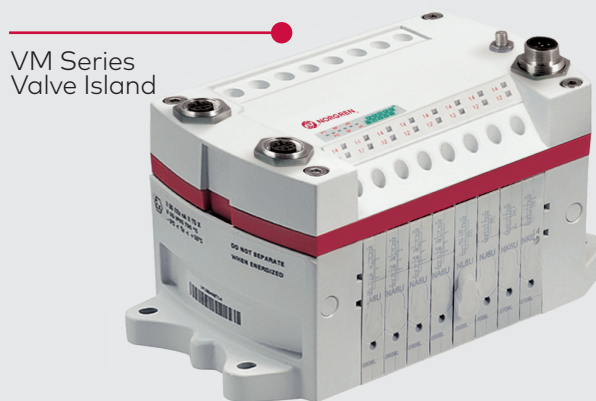
Precise fluid & motion
control are critical across
the entire semiconductor
manufacturing process,
and we have a wide
product range to help.



Norgren Solutions & Capabilities for Semiconductor Manufacturing Process

Valve Islands

- » Compact and light weight. Neat solution reducing leakage and human errors
- » Multipole, Fieldbus, Industrial Ethernet and IO-Link options available
- » Highly customisable, easy to configure using online configurator



Mass Flow Controller

- » Excellent precision and accuracy in controlling various gases
- » Wide dynamic range
- » Compact size, reduced footprint



Miniature Proportional Valves

- » Wide range to choose from covering wide flow range and size
- » Market-leading performance proven in various analytical instrument and life science applications



FAS 8 mm CHIPPROP
Miniature proportional valve



FAS 16 mm FLATPROP
Direct acting proportional valve



FAS 16 mm FASPROP
Low flow proportional valve



FAS 6.5 mm FLEXISOL
Direct acting 2-way & 3-way valves



FAS 15 mm MICROSOL
Direct acting solenoid valve



FAS 10 mm PICOSOL
Direct acting solenoid valve



FAS 8 mm CHIPSOL
Direct acting solenoid valve

On/Off Valve & Media Separated Valve

- » Wide range to choose from covering wide flow range and size
- » Long life cycle
- » Aggressive & sensitive media capable
- » 50% less internal volume than alternative valves in same size class
- » Low power consumption

Proportional Pressure Control Valve

- » IP65 protection
- » Reliable, rugged, open loop control
- » Successful application in semiconductor equipment helping customer avoiding any vibrations from impacting the wafer in photolithography process



VP10 Proportional Pressure Control Valve

Diaphragm Valve

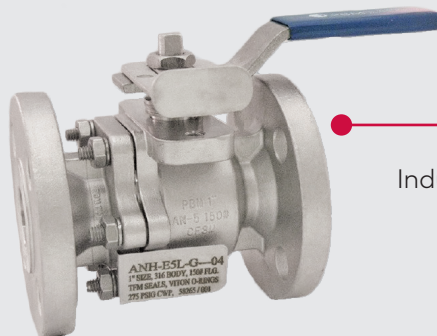
- » Diaphragm made of alloy with excellent corrosion-resistance performance
- » Standard flow coefficient (Kv), customizable
- » Full immersion capability up to 200°C
- » Suitable for ultrahigh-purity applications



82560 2/2-way Diaphragm Valve

Ball Valve

- » Suitable for CMP process to control corrosive slurry
- » Rated for full vacuum
- » Unique Adjust-O-Seal feature allowing in-line valve adjustment to compensate for normal wear on valve seats
- » Two-piece "split body" design
- » Upstream and downstream bubble-tight sealing capability allowing valve body cleaning, purging and draining



IMI PBM Industrial ANSI Ball Valve

Fittings

- » Wide options available in terms of material, size, shape

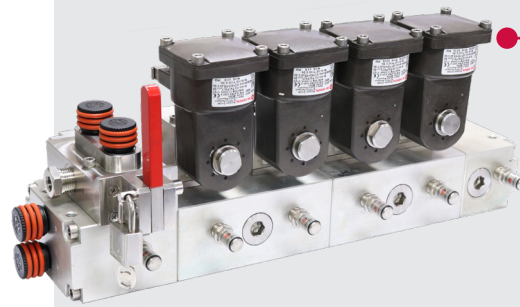


Pneufit C composite fittings

Pneufit S Stainless Steel push in fittings

Redundancy Valve Manifold (RVM)

- » Suitable for controlling and ensuring continuous supply of electronic gases into semiconductor manufacturing process
- » Smart redundancy valve manifold system offering safety and/or availability based on requirement
- » Integrated design offering neat solution with reduced leakage and human errors, easy to troubleshoot
- » Wide options available with various certification



V85 Redundant Valve Manifold

V83 Redundant Valve Manifold



Air Preparation

- » Highly customisable with filter, regulator, lubricator
- » Wide options available in terms of material, size, flow rate, pressure range
- » AMT dryer with core technology on Absorbent Media Tube (AMT) to effectively remove water droplets from gas supply into semiconductor manufacturing processes without need to filter post-dryer dust



Excelon® Plus

B38P High flow filter/regulator



AMT Dryer



Actuators

- » Pneumatic and electric actuators
- » Compatible with other valve and air preparation components to form customized solutions to solve specific problems

Norgren ELION Electric Actuators

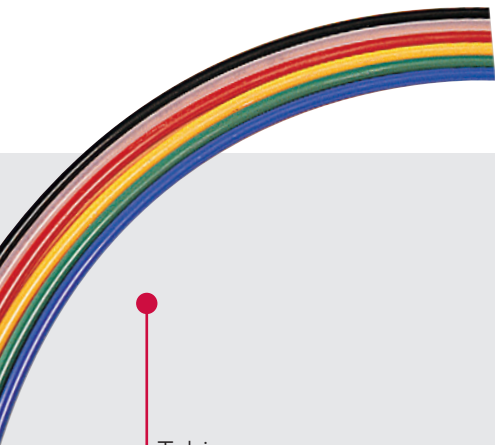


ISOLine™ Standard Cylinders



Find out more
norgren.com

Auxiliary Products



Tubings



34D & 54D
Pressure
Switch



Cadent™ 3
Syringe Pump

ICO3S Solenoid
Valve



Custom Solutions

- » We are capable of designing and manufacturing customised solutions to suit your needs and help our customers solve problems and achieve goals
- » Integrated manifold solutions, fluidic systems, control panels, skids, IIOT smart diagnostic solutions



Control Cabinets

- » Individually designed for your application
- » Simplifies installation and commissioning
- » Maintenance friendly with enhanced safety and security
- » Ideal for arduous environments
- » Suitable for ATEX applications



Control Panels

- » Pre-assembled control solutions
- » Reduced design and logistics costs
- » Reduces inventory holding
- » Ready to install

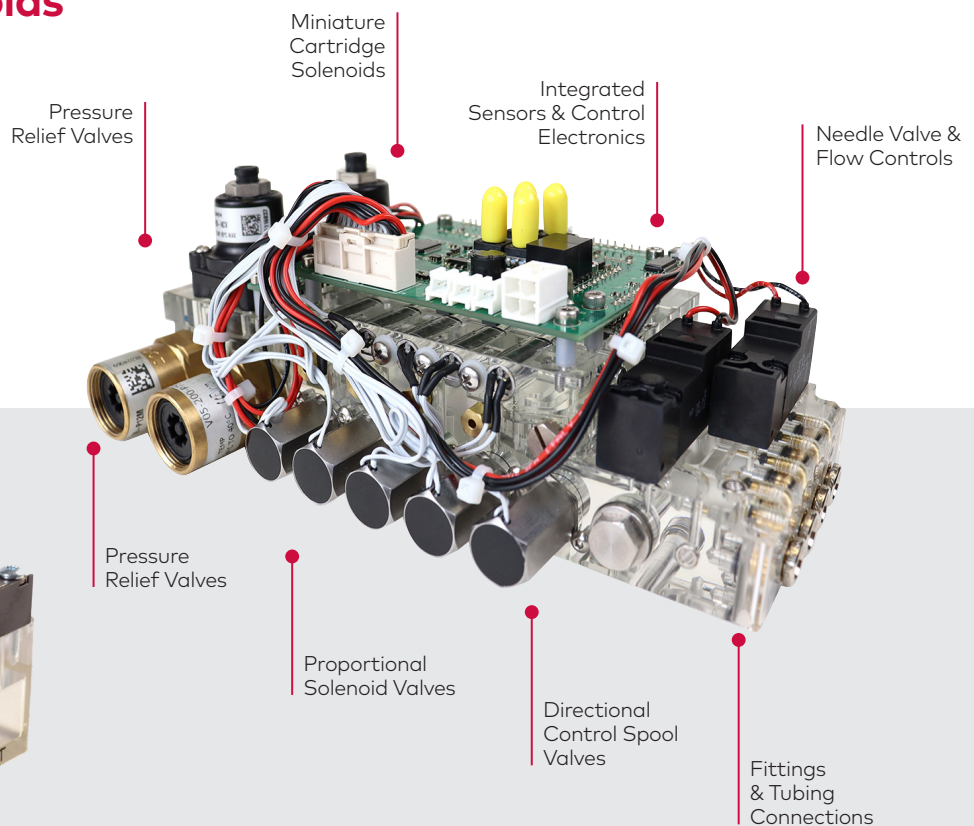
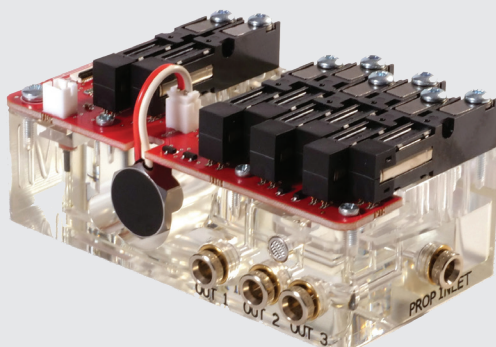


IIOT Smart Diagnostic Solution - Pascal Series K

Pascal Series K Leak Finder performs diagnostic tests at the equipment site, and transforms simple data into an effective equipment health program, providing a deeper understanding of system performance.

Custom Fluidic Manifolds

Norgren's manifolds are constructed incorporating the **latest technologies and production techniques** and available in a variety of materials. Whether you need a simple machined manifold or a fully integrated fluidic circuit in a multi-layer manifold, Norgren's team of experienced engineers and technicians design and build a manifold specific to your unique application requirements.



Success Stories

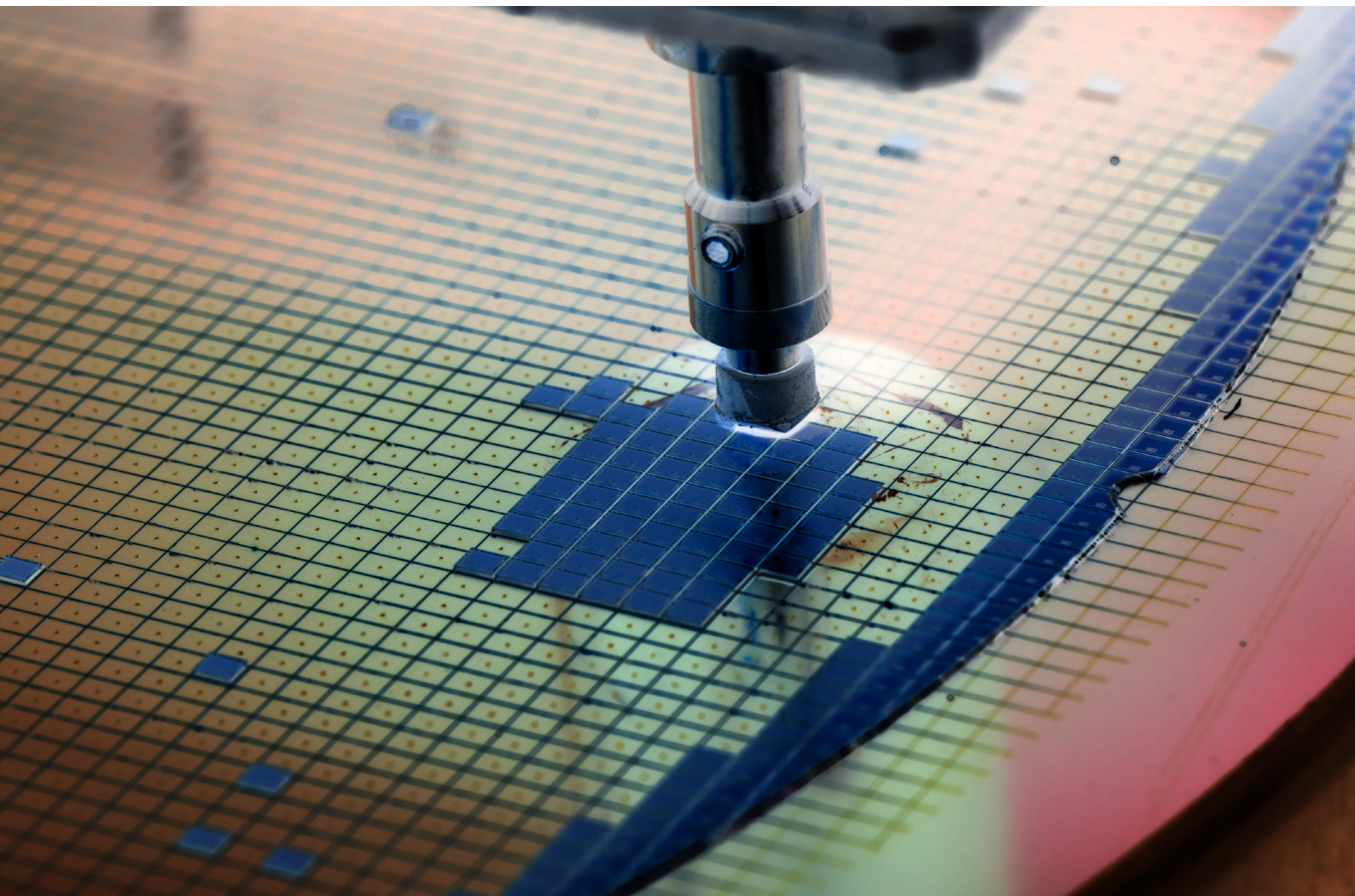
[Case Study #1]

Integrated Flow Control Manifold for Photolithography Process

- » Photolithography is one of the most essential steps in semiconductor manufacturing process.
- » Patterns are optically imaged onto a silicon wafer using a high-energy UV laser focused on microscopic droplets of molten tin to produce a plasma.
- » This process is done within a vacuum to eliminate all potential airborne contaminants

Norgren offers an integrated flow control manifold solution which is helping to flow purge gas through vacuum pumps to remove hazardous gases/by-products from the vacuum pump after each lithography cycle

Thousands of Norgren solutions are being supplied to world-leading semiconductor OEMs globally every month! Norgren team offers great technical and customer service to our customers ensure stable supply during uncertain times

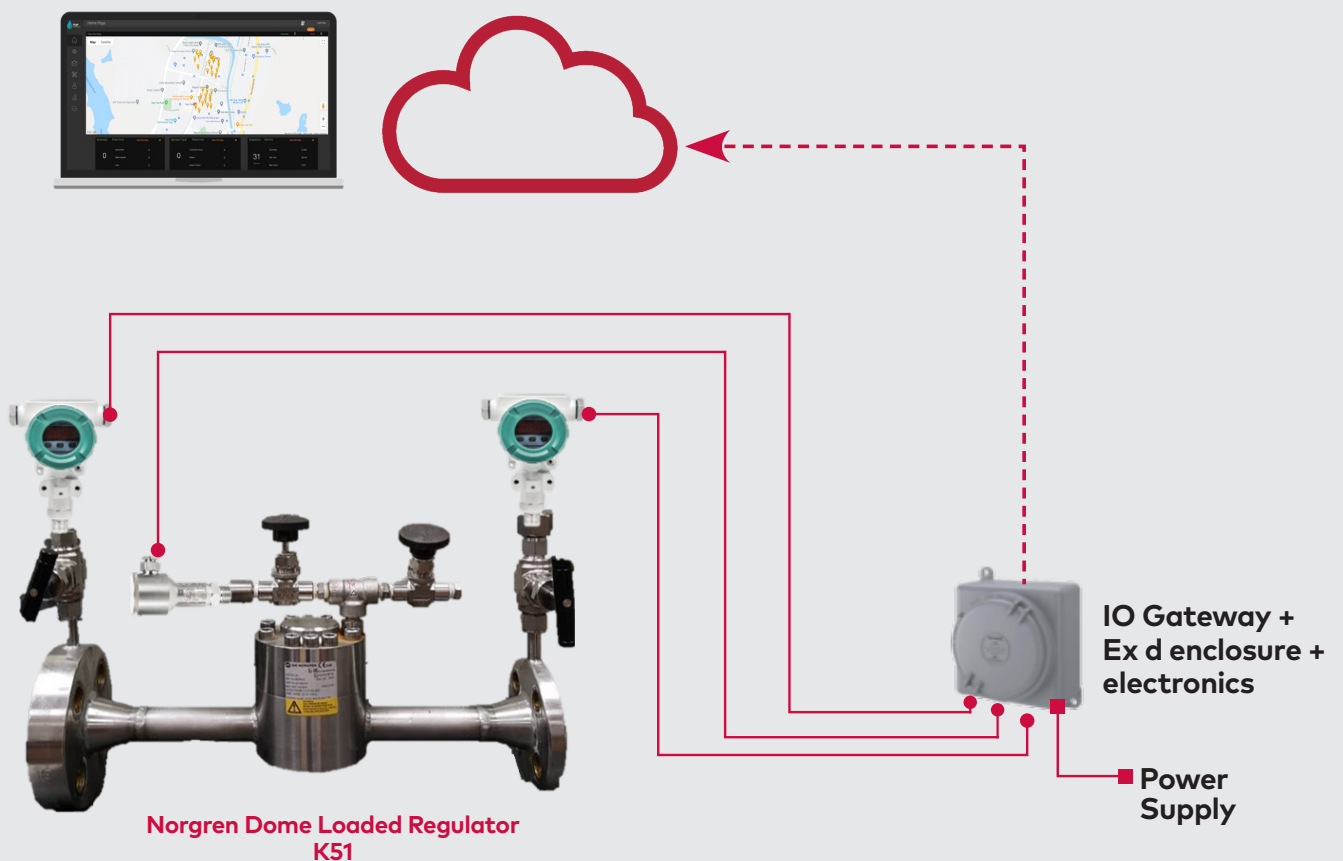


[Case Study #2]

Electronic Gas Control Solution

- » Electronic gas is widely used in many semiconductor manufacturing processes
- » Stable and Uninterrupted electronic gas supply is essential for continuous semiconductor manufacturing process. Disruption in gas supply could lead to unplanned line stop which may result in significant loss in production yield
- » Some electronic gases are rare, expensive and/or hazardous, therefore minimum leakage is essential for chip manufacturer to save cost and for health and safety

Norgren works closely with market-leading gas suppliers and chip manufacturers and offers customised solutions to ensure stable gas flow and smart solutions to detect leakages with IIOT solution.



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



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Incorporating



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