Manifolds
Small Footprint, Big Functionality

Pressure Relief Valves
Integrated Sensors & Control Electronics
Needle Valve & Flow Controls
Pressure Relief Valves
Miniature Cartridge Solenoids
Proportional Solenoid Valves
Directional Control Spool Valves
Fittings & Tubing Connections
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.

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.

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

Breakthrough engineering you can count on.
Providing Industries Fluid Control Solutions for over 45 years

Find out more norgren.com
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.

Exceptional Local Service
We’re a global business with extensive resources, but our focus is always local. Whether you’re being helped by a Key Account Manager or working directly with one of our design engineers, we will work with you and your team to determine the best solution for your challenge.

High Performance Products
With our extensive selection of products, we will be able to design a manifold solution that will deliver some or all of the following advantages.
» Reduce overall solution footprint and weight
» Eliminate potential leak paths
» Integrate multiple discrete components such as fittings, valves, pressure regulators, check valves, restrictors, filters, pressure and flow sensors
» Incorporate complex pneumatic and/or fluidic circuits directly into the manifold
» Allow for the maximum number of components on a given manifold face (high density of fluidic circuits)
» Consistently maintain the exact fluidic volume between discrete components
» Eliminates potential dead spaces within the manifold
» Improved reliability
» Complex multi-directional flow paths

Find out more
norgren.com
Multi-station Manifolds

**Multi-station Manifold Solutions**
- Customer selectable materials, ports, fittings and electrical connectors
- Proven designs
- Fast turnaround

Custom Integrated Manifolds

**Custom Machined Solutions**
- Improved reliability
- Simplified designs
- Reduced complexity
- Out of the box ready

Integrated Bonded Multi-layer Manifold Assemblies

**Custom Multi-layer Solutions**
- Simplified designs
- Reduced overall footprint
- High density fluid circuitry
- Integrated control components

Multi-stage CO2 Pressure Regulator
Standard Manifolds

Norgren’s standard manifolds are available in a number of materials and porting configurations. Opt for a multi-station manifold assembly with your choice of valve and we will do the rest.

Manifold for KIP Series Solenoid Valves
» For KIP Series 1, 2, 3, 6, 9
» Up to 16 stations*
» 2/2 and 3/2 valve operation
» Stainless steel, brass, aluminum and Delrin® polymer base material

Manifolds for Sub-base Mounted Solenoid Valves
» For FAS and Norgren Pneumadyne Series 10 and 15mm valves
» Up to 10 stations
» Anodized aluminium construction
» 2/2 and 3/2 Valves

*16 station manifold available with Series 1 and 2

Breakthrough Engineering for a Better World
Creating Your Custom Manifold

Create your custom manifold solution with the help of Norgren’s design engineers. Our engineers can design a custom fluidic solution for you from the ground up, or work directly with your engineering team to implement your design.

Contact Norgren for a design consultation today!

How to build your manifold

- Choose a material specific to your application requirements
- Determine ideal construction and bonding method for your design and material choice
- Select from Norgren’s full product suite of valves, regulators, fittings, switches, sensors, controls, and custom components
Material Options

Manifolds can be made from a variety of materials. Norgren can help you select the most suitable material for your application and media.

**Acrylic, PMMA**
Acrylic manifolds are commonly utilized because of their exceptional value, transparent optical qualities and consistent bonding properties.

**Polycarbonate**
Polycarbonate is tolerant to a greater temperature range and has better chemical compatibility than Acrylic.

**Tecadur®**
Tecadur is a durable transparent copolyester with chemical resistance to many acids, chlorine (bleach) and caustics.

**Ultem®**
Ultem manifolds are resistant to many chemicals and are able to withstand high temperatures.

**PEEK®**
PEEK® manifolds offer the highest heat and chemical resistance of any polymer based manifold.

**PVC, CPVC**
Machined PVC and CPVC manifolds can be NSF rated and are ideal for potable water applications.

**Other Plastics**
Drilled manifolds can be manufactured using any machinable plastics including Delrin®, Polyethylene, Teflon® etc.

**Metals**
Manifolds can be machined in stainless steel, aluminium and brass in a variety of formats.

**Special Materials**
Other materials can be machined on request.

Find out more at norgren.com
Construction and Bonding Methods

Norgren’s design team will help determine the optimal manifold solution for your application and pricepoint.

Multi-layer Bonded
Multi-layer manifolds are constructed by machining flow paths into individual layers and bonding them together. They offer precise and compact flow paths, and a much greater degree of design flexibility than cross drilled designs. Laminated manifolds are available in Acrylyc, Ultem®, Teflon®, and more.

Drilled
Cross drilled manifolds are machined from a single block and are available in a variety of material options. They offer excellent pressure and flow capacities, and can be machined to interface with a near infinite number of valves and components.

Bonding Technologies

Laser Bonding
Manifold layers are fused together utilizing a laser, preventing distortion of fluid channels.

Diffusion Bonding
Manifold layers are fused together utilizing pressure and heat.

Solvent Bonding
Manifold layers are fused together using a solvent that joins the faces together.
Complex Design - Superior Results

Advantages of Laser Bonding

Laser bonding technology has a direct impact on the quality and performance of multi-layer manifold technology. Laser bonding precisely bonds transparent polymers without deformation of flow paths. Manifolds can be designed with smaller and more complex fluidic circuits, creating design flexibility and expanding the capabilities of OEM equipment designs.

- **Round Tracks**
  Actual Size <1 mm

- **System Miniaturization**
  Reduce overall system footprint by allowing the miniaturization and integration of multiple circuits and functions in a compact manifold.

- **Repeatable Results**
  Laser bonding techniques offer repeatable bonding results for unrivaled quality.

- **Production Capabilities**
  Designs optimized for laser bonding can enter production faster and can be produced at higher volumes than manifold designs utilizing diffusion bonding.

- **Precision**
  Precision bonding allows for complex and compact flow paths without deformation.
Diffusion Bonding

When bonding materials in which laser bonding is not permissible, customers can opt for diffusion bonding. Diffusion bonding uses heat, pressure and time to bond materials at a molecular level. Diffusion bonding is ideal for materials with low laser transmission like Ultem® and PEEK®.

No Chemical Additives
Diffusion bonding creates a pure molecular bond without solvent or other chemicals.

Material Options
Diffusion bonding enables precision bonding of non-transparent materials.

Solvent Bonding

Acrylic and other polymer materials can be bonded by using solvents to soften and join layers together. Solvent bonding is effective for simple manifold designs with large features and in situations where slight variations of flow path are acceptable.

Large Design Features
Solvent bonding is able to accommodate large machined features.

Manufacturing Volume
Manifolds can be built in high volumes due to the simplicity of the solvent bonding process.
Build Your Integrated Sub System

Norgren’s manifolds enable component integration for a compact, clean, and manageable package.

These products represent some of the unlimited component possibilities.
**Fluid Control Products**
- High flow proportional controls
- Low watt digital solenoids
- 2/2 and 3/2 Media Separated Valves

**Fluid Preparations**
- Precision and manifold mount pressure regulation
- Oxygen compatible
- Filtration down to 0.01 micron

**Fitting and Accessories**
- Cartridge, threaded or coupling designs
- Easily connected
- Check and relief valves
Manufacturing Capabilities

Let Norgren build your integrated manifold solution utilizing our suite of high quality components and advanced manufacturing.

Find out more on norgren.com.

- In-house Machining and Bonding
- Clean Room Build Options
- Manifold Assembly & Testing
Customer Applications

Rail

Customer Challenge
» Low profile air horn control
» In-field adjustable

Our Solution
» Low profile for ceiling mounting
» Wide range operational range

Energy

Customer Challenge
» Simple to maintain system
» Meet certifications levels

Our Solution
» Serviceable design
» Fully certified components

Life Sciences

Customer Challenge
» Small envelope
» Ensure precise fluid dispense

Our Solution
» 12-channel syringe pump
» Simplified fluidic circuit

Industrial Automation

Customer Challenge
» Reduce leaks
» Centralized controls

Our Solution
» Reduced connections
» Reduced footprint

Commercial Vehicles

Customer Challenge
» Consolidate air accessories
» Handling discrete input/output

Our Solution
» Reduction of potential leaks
» Faster installations

Food & Beverage

Customer Challenge
» Small envelope
» Ensure precise fluid dispense

Our Solution
» Easy expandability
» Minimal lime scale for long life
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

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