

Dymension® Manifold Capabilities

*Complex fluid control in
minimized footprint*

Entegris offers a variety of manifold capabilities to maximize the efficiency of your fluid handling systems while providing low cost of ownership. Improve equipment performance by having multiple valves in one component with fewer connections, overall reduced size, and less internal volume. This simplified design eliminates tubing and fitting connections yet still allows for complex flow path and control.

We offer a modular approach to building manifolds with replaceable fittings and interchangeable valve actuators. This enables design flexibility and easy field repairs. Each manifold can be custom configured to fit into confined spaces. Our manifolds offer a variety of valves and port connections to accommodate most system requirements.

Design Capability

Our advanced design capabilities include various computational fluid dynamic simulations including:

- Flow performance to determine pressure drop and flow velocity
- Mixing analysis to determine mixing effectiveness
- Flush-out performance to analyze the rinsability of chemical flow paths
- Multiphase fluidics to quantify gas/liquid flow characteristics

We utilize these tools to optimize the fluid path design and to ensure the flow characteristics meet the specific application. Fluid dynamic simulation reduces the number of design/prototype iterations and enables faster manifold integration into OEM tool development projects.

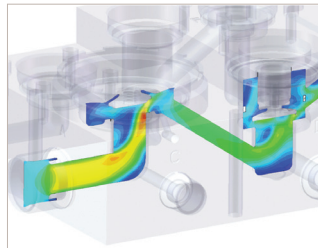


Figure 1. Fluid flow velocity analysis.

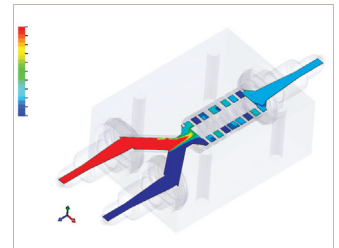


Figure 2. Chemical mixing analysis.

APPLICATIONS

The chemical inertness of the PTFE and PFA wetted components enables use of Dymension manifolds in most chemical and high-purity applications, including:

- Wet etch and clean
- CMP polishers where space is limited
- Other chemical handling equipment for solar, TFT/LCD, and biopharmaceutical markets

FEATURES & BENEFITS

Surface mounted valves	Increased equipment uptime <ul style="list-style-type: none"> • Repairable • Interchangeable valves
Low dead volume designs	Efficient chemical flush-out <ul style="list-style-type: none"> • Reduce internal volume
	Reduced cycle time <ul style="list-style-type: none"> • Reduce cross contamination
Complex flow path and control in a single component	Low cost of ownership (COO) <ul style="list-style-type: none"> • Smaller footprint • Fewer connecting points
Integrated mixing	Faster chemical mix response time <ul style="list-style-type: none"> • Reduces flow volume to mix point

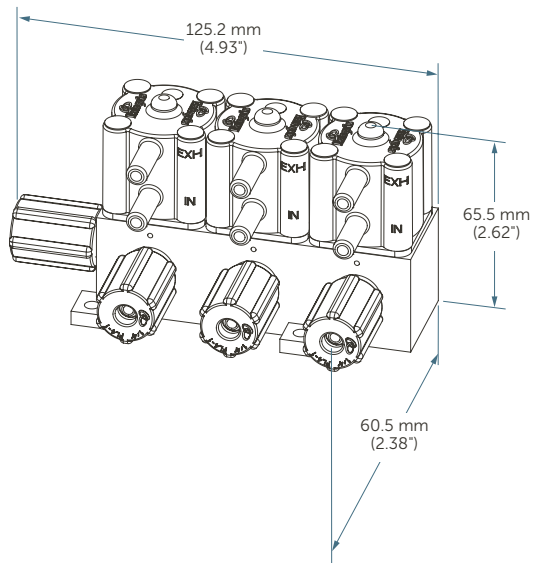
SPECIFICATIONS

Valve orifice	1/4" – 1"	
Actuators	Pneumatic normally open or normally closed with optional position sensing, multi-turn, toggle, quick rinse mixing, restricted actuation, 3-way, needle, suckback	
Fittings	PrimeLock®	1/4" – 1 1/4"
	Flaretek	1/4" – 1 1/4"
	Super 300 type Pillar®	1/4" – 1 1/4"
	Tube stub	1/4" – 1 1/4"
	Sanitary	1/4" – 2"
Integrated flow control and monitoring components	Check valves 1/4" – 1"	
	Fixed bypass orifice	
	Adjustable flowmeters and controllers	
	Pressure transducers	
	Integrated static mixing elements	
Media temperature	23° – 180°C (73° – 356°F)	
Media pressure	27" Hg vacuum to 552 kPa (80 psig)	
Flow	C _v up to 13.6	

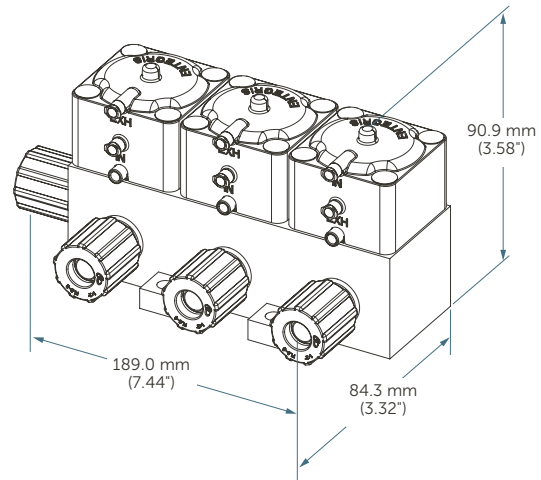
For detailed specifications on Entegris' line of valves, fittings, and sensing and control products, please visit www.entegris.com/products/fluidmanagement.

DIMENSIONS

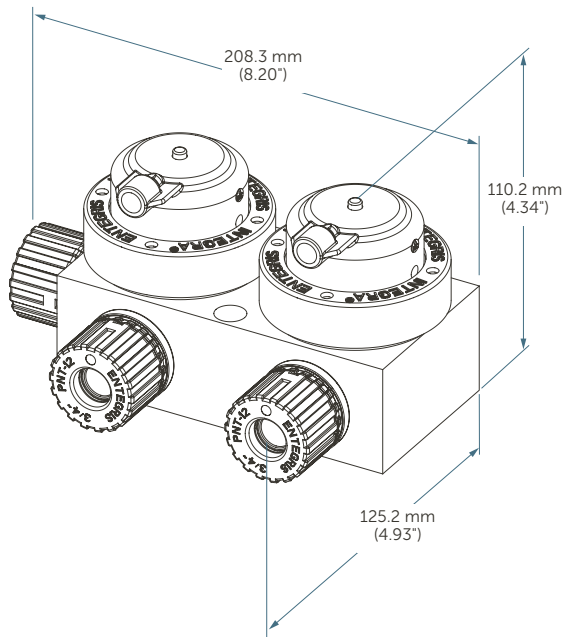
CR4 (¼") Valve Manifold



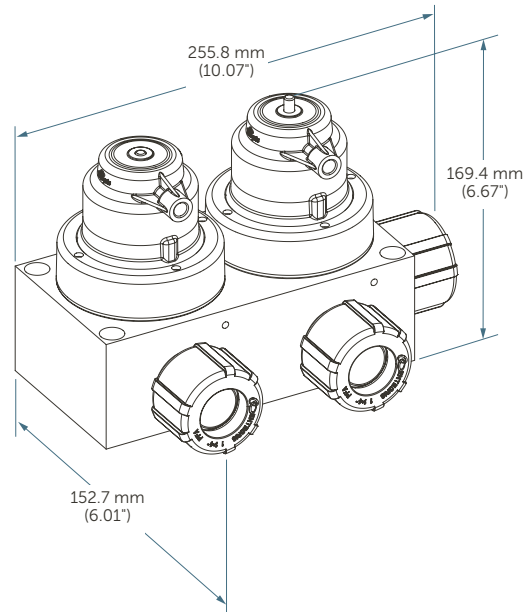
CR8 (½") Valve Manifold



DS12 (¾") Valve Manifold



DS16 (1") Valve Manifold



Chemical Dispense and Flush System

An equipment engineer needs to design the chemical dispense system shown in the schematic (Figure 3). Based on the schematic, the designer chooses discrete valve and fitting components (Figure 4).

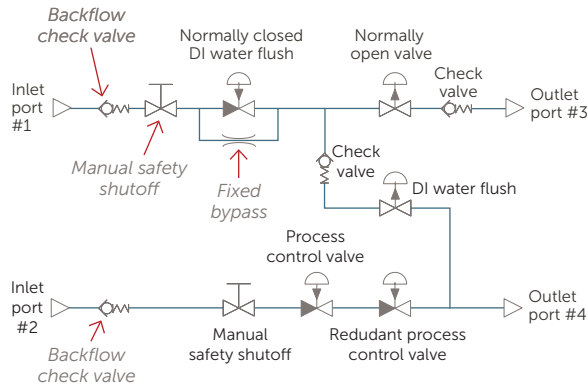


Figure 3. Chemical dispense system schematic.

Design and Prototype Process

Our manifold design and prototype process ensures that our manifold design achieves your application requirements quickly and meets short equipment design cycles. The design and prototype process includes the following steps:

- Defining system requirements and manifold schematic
- Performing fluid flow analysis if required
- Manifold price quote within 2 days of design freeze
- Manifold drawings sent to customer for approval within 2–5 days
- Quick-turn prototypes completed in 2 weeks or less from receipt of order

Subsequent orders for the OEM tool development stage can be processed through Entegris' Quick-Turn department. High-volume production orders will go through standard manufacturing and are subject to standard lead times.

Simply provide Entegris your application details and we will supply your manifold design.

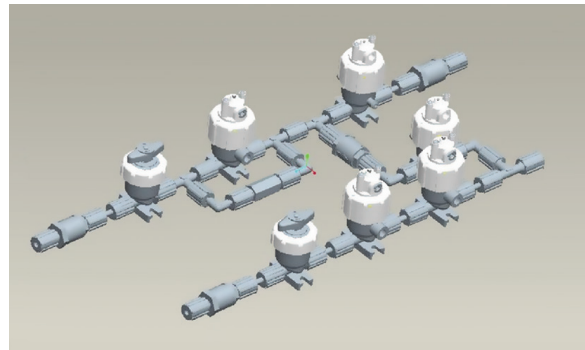


Figure 4. Traditional component solution.

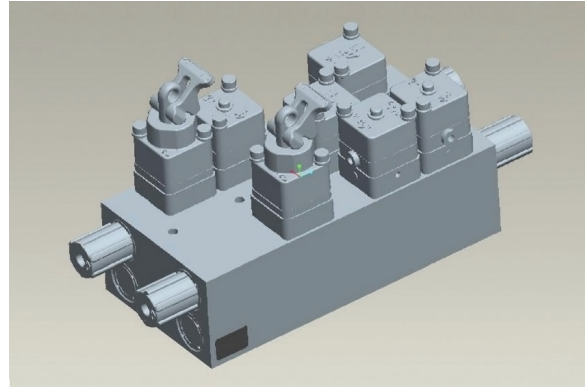


Figure 5. Dymension manifold solution.

This example of converting discrete components into an integrated manifold results in:

- 90% footprint reduction
- Fitting connections reduced from 31 to 4
- 75% decrease of internal fluid volume
- Shorter assembly time into equipment
- Fewer potential leak points
- Accessible valves for quick and easy repair

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the Contact Us link to find the customer service center nearest you.

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