

# Signature features and advanced engineering for premium chromatography performance

Chromatography systems manufactured by Artesyn®, a Repligen Company, integrate multiple proprietary hardware and flow path innovations to deliver significantly higher product yields and operational success. Systems seamlessly scale from 1/4" - 1" ID tubing. Connectivity supports all major column formats, including full compatibility with OPUS® Pre-packed Columns.

- Deliver optimal process yield with expert engineering
- Reduce hold-up volume with proprietary valve technology
- Increase productivity and reduce deviations with positive software user experience
- Scale from 1/4" - 1" for development and commercial applications
- Connect seamlessly with OPUS® Pre-packed Columns
- Facilitate operation and training efficiency with platform solutions



**ARTeSYN**® | A **REPLIGEN** COMPANY

## Innovative design and engineering increase yield and mitigate deviations

Feature	Benefit
Proprietary valve blocks	Minimize dead legs and hold-up volume (< 2D)
Over-molded connections	Reduce shear stress with constant bore ID, minimize leaks risk and process related impurities
Chromatography-specific valve manifolds	Maximize process yield with < 50% fill volume for precision gradient control
Filter-based air trap	Reduce hold-up volume with bubble trap alternative
Diaphragm pump	Lower shear stress, increase maximum pressure, reduced pulsation
Full OPUS® Pre-packed Column compatibility	Accelerate implementation with plug-and-play columns: 10 cm - 80 cm internal diameters

Revised 12/17/2021



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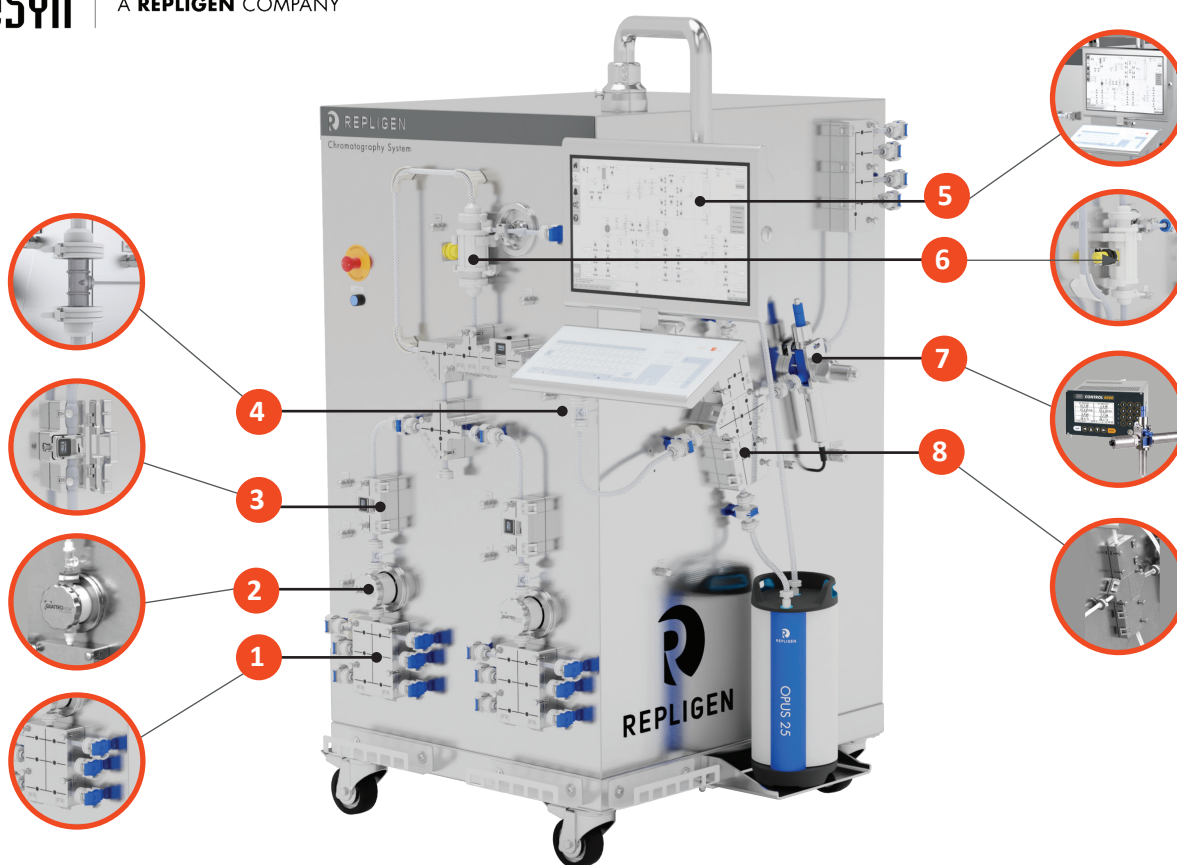
**REPLIGEN**  
INSPIRING ADVANCES IN BIOPROCESSING

# Improve yield and simplify operation

## with key hardware features

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### Components

1. Multi-valve block arrays
2. 4-chamber diaphragm pumps
3. Non-product contact ultrasonic flow meters
4. Single-use pressure sensors
5. HMI, touch screen and glass keyboard
6. Non-product contact liquid level switch
7. Multi-sensor OPTEK® converter (UV, pH, conductivity)
8. Column manifold

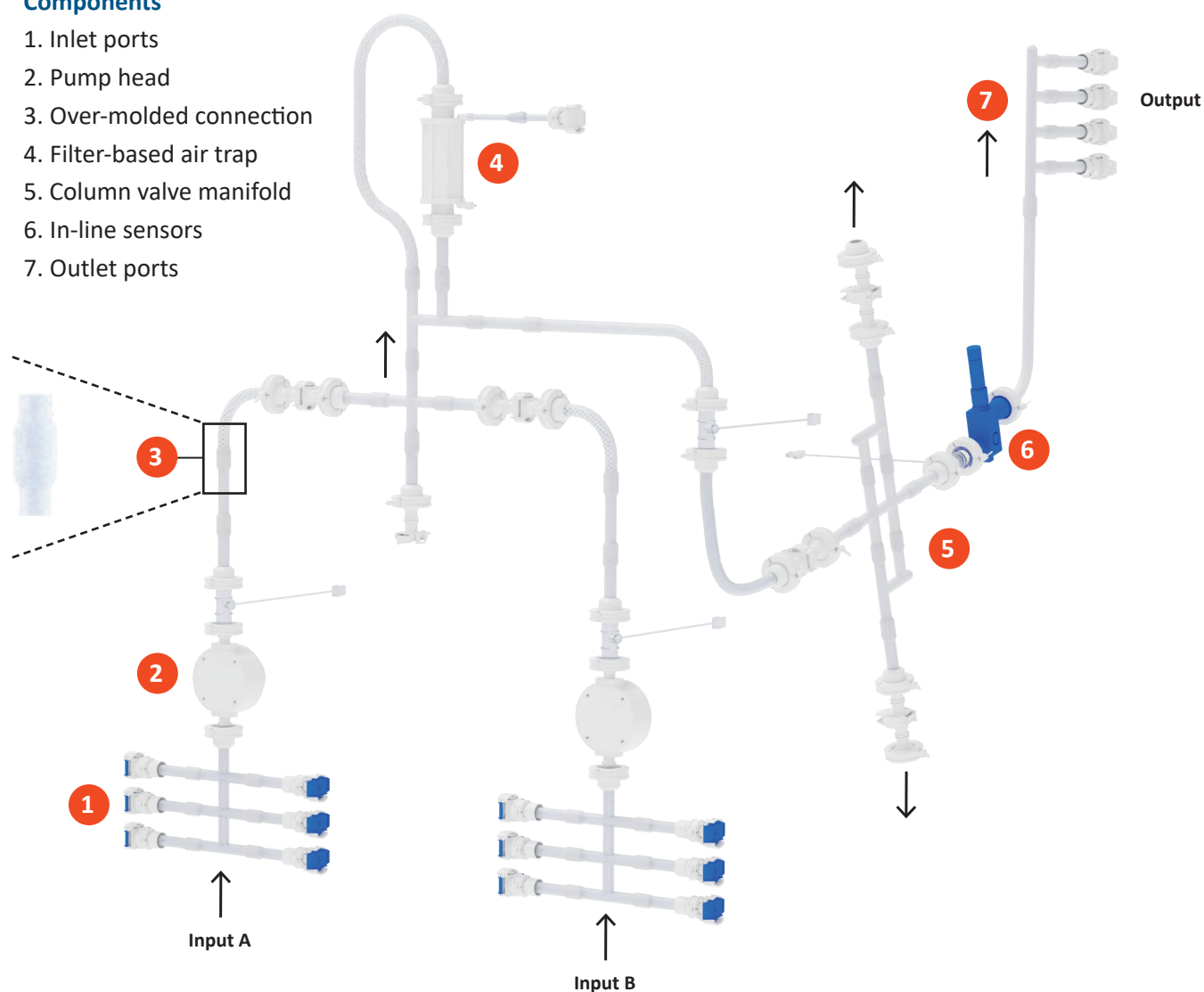
# Deliver high recovery, operational simplicity and superior connector strength with engineered flow paths

Chromatography flow paths integrate advanced fluid management technologies, including over-molded connections, pump heads, tubing, filters and sensors in a strong, nearly leak-free, closed and single-use device. Flow paths easily attach to the system to simplify operation and increase process efficiency.

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## Components

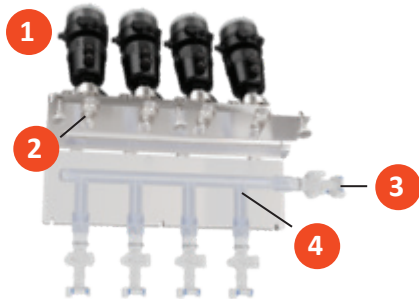
1. Inlet ports
2. Pump head
3. Over-molded connection
4. Filter-based air trap
5. Column valve manifold
6. In-line sensors
7. Outlet ports



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# Reduce hold up volume with synergistic valve and flow path technology

## Injection molded manifold and advanced valve block



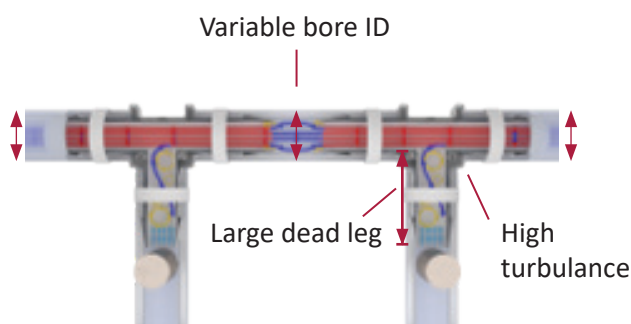
### Components

1. Pneumatic actuators
2. Manifold closure points
3. Overmolded joints with sterile connectors
4. Molded single-use flow path

Innovative valve blocks direct fluids through uniform ID, crevice-free flow paths, achieving extremely low turbulence. Multi TEE injection molded silicone inserts, combined with over-molded connections minimize footprint and enable optimum closure point placement which significantly reduces dead leg.

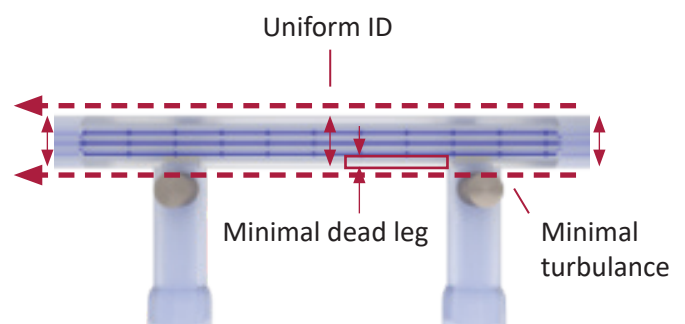
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### Traditional hose-barbed manifold



- Multiple ID variations promote turbulence
- Hose-barb connections foster leaks
- Large dead legs increase hold-up volume, turbulent flow
- Manifold batch to batch dimensional differences create process variations

### Artesyn<sup>®</sup> molded manifold



- Uniform, crevice free ID minimizes turbulence
- Over-molded connections reduce leaks
- Minimal dead leg improves drainability and reduces hold-up volume
- Injection molded flow paths enable batch to batch dimensional and process consistency

# Scale-up chromatography

Platform standardized chromatography systems scale from 1/4" to 1" flow path ID to support flow rates from 1 - 3000 LPH and OPUS® 8 - 80R Pre-packed Chromatography Columns. Consistent engineering design across the platform facilitates scale-up development studies and technical transfer.

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- Scale from 1/4" - 1" while maintaining system architecture and control platform
- Implement off the shelf systems for fast lead times



	1/4" System	1/2" System
System flow rate	1 - 180 L/h	6 - 1000 L/h
Column ID	8 - 25 cm	20 - 45 cm
		

## System specifications

Input voltage	110 - 240 VAC 50/60 Hz 1 $\Phi$ , 15A supply
Ingress protection	IP45, pump head IP25
Compressed air	5 - 6 bar, oil and particle free
<b>Environmental conditions</b>	
Operating temperature	2 - 50° C, Relative humidity 10 - 90% (Non-condensing)
Fluid temperature	2 - 40° C
Maximum operating pressure	4 bar
Compliance	UL and CE certified

