

Humphrey's custom valve modules provide actuator control to divert product on a custom designed conveyor system.

- ① Common Inlet Supplies Both Stackable Valves
- ② Humphrey 3-way Valve Manifold
- ③ Humphrey 4-way Valve Manifold
- ④ Alternate 3-way Manifold Configuration
- ⑤ Integral Quick Exhaust for Faster Exhaust Cycle allowing increased conveyor speeds (not shown)

Multiple Custom Valve

Modules Reduced Costs and Improved Conveyor Performance



**MATERIALS
HANDLING**
SIC:3535

THE CUSTOMER'S PRODUCT

- The customer designs and manufactures a wide range of custom materials handling conveyor systems.
- Where products have to be redirected, a pneumatically powered transfer system engages to move the products onto an accumulation-type conveyor.

THE REQUIREMENTS

- Reduce the total cost of ownership.
- Enhance performance (response time) of air cylinder.
- Improve functionality.
- Reduce the dimensions of the valve module to allow smaller system footprint.

THE HUMPHREY ENGINEERED SOLUTION

- Created a common supply (inlet) to both the 3-way and 4-way valve manifolds.
- Integral QE quick exhaust provides faster exhaust cycle.
- The quick exhaust improves functionality by improving response time.
- Built-in Push-to-Connect fittings reduce assembly time.
- Odd shaped manifolds saved material costs, reduced size.
- Integral Manual Override and DIN electrical connectors.
- Two different 3-way manifold bodies with output ports at top/bottom.
- Different manifold bodies provide design flexibility and reduce space requirements.
- Reduced assembly time and parts inventory.
- Clean contemporary design that became proprietary to customer.

THE SOLUTION

Utilizing the Engineered Solutions approach where a Humphrey engineer works directly with the customer's engineering department, the team identified an opportunity to reduce costs and improve conveyor system performance.

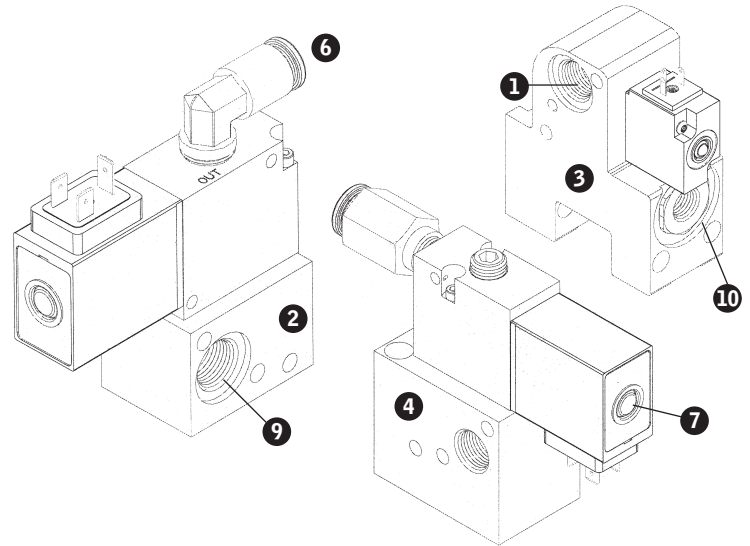
By designing a stacking valve manifold system with integral components and features the customer could eliminate the purchase and assembly costs associated with their existing inventory of individual parts. Plus, by designing two different styles of 3-way valve manifolds, the customer's engineering department could reduce to amount of space required for plumbing connections -- and thereby reduce the overall footprint of the conveyor system.

THE PROCESS

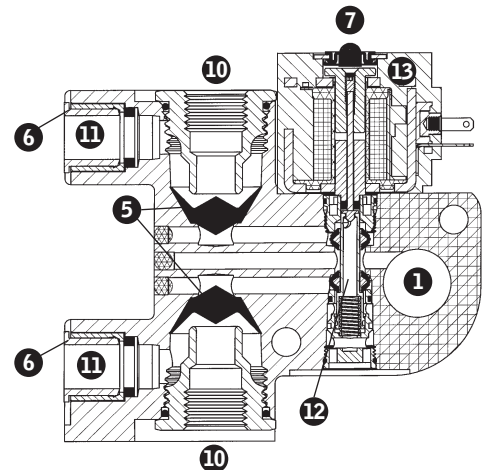
As always, the Humphrey Engineered Solutions team began with the customer's request to improve the functionality of their existing system -- in this case, improve the cycle time of the cylinder to allow increased conveyor speeds.

The first step was to create a smaller design that could be placed closer to the cylinder and build in a quick exhaust to allow improved response time. Part of decreasing the size of the package was taking previously separate components (fittings, wiring connectors, etc.) and integrating them into the manifold body. This also had the added benefit of reducing the customer's parts inventory and greatly reducing assembly labor costs.

The design of the manifold body provided a unique, contemporary look while reducing material costs. Instead of mounting individual valves, the 3-way and 4-way valves are stackable. The decision to create two different 3-way valve manifolds -- with different outlet port locations -- allowed the customer to minimize the amount of space required for plumbing. This enabled the customer to decrease the footprint of the conveyor system.



- 1 Common Inlet Supplies
Both Stackable Valves
- 2 Humphrey 3-way Valve Manifold
- 3 Humphrey 4-way Valve Manifold
- 4 Alternate 3-way Manifold Configuration
- 5 Integral Quick Exhaust for Faster Exhaust
Cycle allowing increased conveyor speeds
- 6 Push-to-Connect fittings
- 7 Manual Override
- 8 DIN connector with cable
- 9 In
- 10 Exhaust
- 11 Out
- 12 Reliable Humphrey 410 Diaphragm Poppet
Valve
- 13 Solenoid



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Humphrey Products Company • P.O. Box 2008 • Kalamazoo, MI 49003 USA • T.269.381.5500 • F.269.381.4113 • www.humphrey-products.com