Frequently Asked Questions

What is the difference between your Accessory Valves and others I already use?

Vektek Accessory Valves are sized for the normal flows and conditions present in hydraulic clamping systems. They are not intended for use in general industrial equipment as they are specifically intended for clamping. Maximum intended flow rate on any Vektek Accessory Valve is 1.5 gpm (unless otherwise noted). Excessive flows may cause damage or erratic behavior. General industrial products are intended for use in large flow applications (typically 2 gpm +). These general industrial products do not normally work well in clamping systems.

What is the function of a pressure limiting valve? Relative to a Pressure Relief Valve?

Pressure Relief Valves limit the pressure that can pass through the valve. When they reach their preset pressure, they close off to prevent further increase in downstream pressure.

Pressure Relief Valves (PRVs) are intended to guard against excess pressure. When a circuit builds beyond the setting of a PRV, it opens and excess pressure is relieved from the system. If a relief valve is set below the pressure switch adjustment of a pump, the pump will kick on and off frequently. Incorrect adjustment of a Pressure Relief Valve can cause expensive damage to your pump.

Explain why I might select one filter over another.

Vektek offers three styles of filter. The first type is In-line Filter (available in 10 or 25 micron filtration), designed and sized to be used in-line where fine filtration is desired to help protect devices (restricted to a maximum flow rate of 3 gpm) making this unit particularly flexible in meeting your design criteria. You can also mount these filters directly into the device ports of sensitive valves and components to guard against contamination.

The second style is the Basic Filter which is also available in 10 and 25-micron filter ratings. These filters catch small debris and are intended for high contamination systems. The larger filtering surface allows this unit to accept up to 7 gpm and handle larger quantities of chip contamination before maintenance. The frequency of maintenance is determined by the amount of contamination present in your system. Simple flushing will often improve the flow through these filters when performance becomes obviously limited.

Our third type of filter element is an In-line Screen Mesh. This filter is intended to catch the big chips (180 micron rating). At fixture assembly, it is easy to forget to clean the I.D. (inside diameter) of the tubing before introducing oil to the plumbing. Tubing and manifold passages may contain chips, dirt, cobwebs, tape or paper. These contaminants will break loose and lodge in a valve resulting in valve failure. By using these “chip catchers” you can reduce expense and make your system more dependable.

What is the difference between your ball valve and the “screw down” valves I can buy locally?

Our shut-off Ball Valves close a circuit and maintain that seal until rotated and pressure is released later. They are intended for applications that will not allow for leakage or are repetitive. They change from closed to full open with 1/4 turn of the handle.

Excess flow voids warranty.

Standard Features

Common Features:
Sequence, Pressure Relief, Pressure Limiting and Pressure Reducing Valves

- Material: All cartridge components are steel or stainless steel, operating parts are hardened.
- Operating Media: Conventional, petroleum based, premium quality hydraulic fluid such as VektorFlo® Model No. 65-0010-01.
- Recommended Filtration: 25 Micron (NOM) / 40 Micron (ABS) (minimum).
- Adjustments: Turning adjustment screw clockwise (when viewed from adjustment end of cartridge) increases pressure setting on all valve styles.

NOTE: Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves unless otherwise indicated.
Accessory Valves

Flow Control

Precision In-Line Flow Control

- Micro metering adjustment of master system with 1/64 inch pitch needle valve.
- Protect sensitive components from excessive flow.
- System control.
- Flow controls used as meter-in devices in clamping systems to prevent damage.
- Flows up to 3 gal/min at 5,000 psi maximum pressure.
- Check valve for reverse free flow.
- Available in SAE 4 or SAE 6 port sizes.
- Stainless steel inner valve construction.
- Fluorocarbon seals are standard.
- Locking adjustment knob.

In-Line Flow Control

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A Port Size</th>
<th>A Port X Depth</th>
<th>B Port</th>
<th>B Port X Depth</th>
<th>C Port</th>
<th>C Port X Depth</th>
<th>E Port</th>
<th>E Port X Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-2000-05</td>
<td>SAE 4</td>
<td>.73</td>
<td>.437</td>
<td>.36</td>
<td>.36</td>
<td>.48</td>
<td></td>
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</tr>
<tr>
<td>70-2001-11</td>
<td>SAE 6</td>
<td>.74</td>
<td>.625</td>
<td>.37</td>
<td>.69</td>
<td>.69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In-Port Flow Control

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Port Size</th>
<th>A Port</th>
<th>B Port</th>
<th>C Port</th>
<th>D Port</th>
<th>E Port</th>
<th>F Port</th>
<th>G Port</th>
<th>H Port</th>
<th>J Port</th>
<th>K Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-2037-70</td>
<td>SAE 2</td>
<td>.272</td>
<td>.480</td>
<td>.360</td>
<td>.082</td>
<td>.682</td>
<td>5/16-24 UNF</td>
<td>.320</td>
<td>.219</td>
<td>.350</td>
<td>.219</td>
</tr>
<tr>
<td>70-2037-71 &amp; 70-4437-1X</td>
<td>SAE 4</td>
<td>.392</td>
<td>.580</td>
<td>.490</td>
<td>.101</td>
<td>.750</td>
<td>7/16-20 UNF</td>
<td>.400</td>
<td>.281</td>
<td>.488</td>
<td>.313</td>
</tr>
<tr>
<td>70-2037-72 &amp; 70-4437-2X</td>
<td>SAE 4</td>
<td>.392</td>
<td>.750</td>
<td>.490</td>
<td>.101</td>
<td>.750</td>
<td>7/16-20 UNF</td>
<td>.400</td>
<td>.281</td>
<td>.658</td>
<td>.313</td>
</tr>
</tbody>
</table>

Precision In-Port Flow Control

- Use with Single or Double Acting clamps.
- Meter-In flow control with reverse free flow check valve.
- Smallest high-pressure flow control valve on the market.
- Prevent component cam damage from unexpected or accidental surges in flow rate.
- Adjusting screw is positively retained and will not come out under pressure.
- Flow control requires the use of manifold mount ports.

Consult the double acting work support, the swing clamp or link clamp specifications page for the valve that is appropriate for your application.

NOTE: Maximum system flow rate is 1.5 gpm (346.5 cu. in./minute) for all VektorFlo® special function valves unless otherwise noted.

In-Port Flow Control Cavity Dimensions

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
</tr>
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<tbody>
<tr>
<td>70-2037-70</td>
<td>SAE 2</td>
<td>.272</td>
<td>.480</td>
<td>.360</td>
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<td>.682</td>
<td>5/16-24 UNF</td>
<td>.320</td>
<td>.219</td>
<td>.350</td>
<td>.219</td>
</tr>
<tr>
<td>70-2037-71 &amp; 70-4437-1X</td>
<td>SAE 4</td>
<td>.392</td>
<td>.580</td>
<td>.490</td>
<td>.101</td>
<td>.750</td>
<td>7/16-20 UNF</td>
<td>.400</td>
<td>.281</td>
<td>.488</td>
<td>.313</td>
</tr>
<tr>
<td>70-2037-72 &amp; 70-4437-2X</td>
<td>SAE 4</td>
<td>.392</td>
<td>.750</td>
<td>.490</td>
<td>.101</td>
<td>.750</td>
<td>7/16-20 UNF</td>
<td>.400</td>
<td>.281</td>
<td>.658</td>
<td>.313</td>
</tr>
</tbody>
</table>
**Shutoff Valve**

- Ball valve designed for positive shutoff operation.
- Handle is easily moved, even under maximum pressure.
- Straight handle available order Part No. 00-1070-00.

Precision, steel components and molded spherical seats provide a positive seal to isolate your fixture. Use with hydraulic junction manifolds in Section I for secure fixture mounting.

**NOTE:** Maximum system flow rate is 1.5 gpm (346.5 cu. in./minute) for all VektorFlo® special function valves unless otherwise noted.

Excess flow voids warranty.

**“A” Pilot Operated Check Valve**

- Sealed pilot piston eliminates cross circuit leakage.
- 5:1 Ratio of Pilot to Check pressure for release.
- Filters on each port location.
- Unclamp device sequencer, provides a way to sequence single circuit unclamp timing.
- Requires a “B” pilot to open “A” line check valve (requires a double acting control valve to operate single acting systems)
- Stainless steel inner valve construction.
- Maximum operating pressure 5,000 psi

**NOTE:** Field repair requires a special Check Valve Installation Tool. Please order Model No. 65-6000-00.
Pilot Operated Check Valve

- Cartridge and Manifold Mount versions.
- Sealed pilot piston eliminates cross circuit leakage.
- 5:1 Ratio of Pilot to Check pressure for release.
- Unclamp device sequencer manages single circuit unclamp timing.
- Flows up to 1.5 gal/min at 5,000 psi maximum pressure.

Assembly Dimensions

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Mounting Style</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-3311-13</td>
<td>Manifold/SAE</td>
<td>2.00</td>
<td>1.63</td>
<td>1.00</td>
<td>1.66</td>
<td>1.56</td>
<td>.34</td>
<td>SAE 6</td>
<td>SAE 2 Plug</td>
<td>1.06</td>
<td>1.13</td>
<td>.28</td>
<td>.44</td>
</tr>
<tr>
<td>70-3317-70</td>
<td>Manifold Only</td>
<td>1.75</td>
<td>1.50</td>
<td>.88</td>
<td>1.53</td>
<td>1.44</td>
<td>.22</td>
<td>N/A</td>
<td>N/A</td>
<td>.94</td>
<td>N/A</td>
<td>.28</td>
<td>.44</td>
</tr>
</tbody>
</table>

For proper sealing, mating surface must be flat to 0.003 in. with a maximum 63 µ in. Rₚ surface finish.
Accessory Valves

Pilot Operated Check Valve

PO Cartridge

Model No.
70-3337-71

VEKTEK CARTRIDGE MOUNT PILOT OPERATED CHECK VALVE

CAVITY DIMENSIONS*

* STANDARD PORT CAVITY.
VEKTEK TOOLING AVAILABLE

M20 X 1.5-6H THREAD
.500 MFT FROM BOTTOM OF .813 BORE

.732 ± .002
1.779

.860 ± .001
.020

.833 ± .003

.813 ± .001
.857

.688 ± .001
2.084 ± .005

.002

.531 MAX

.960 X 90° PILOT PORT

.020

.271 MIN

.693 MAX

1.076 MIN

1.764 MAX

8.06

7.63

4.37

65-3300-02
STEP DRILL

65-3300-03
STEP REAMER

65-3022-01
TAP M20x1.5

© Vektek, April 2019
NOTE: Pressure applied to the “A” inlet port flows to the “A” outlet port and unlocks check on the “B” side allowing pressure on “B” to return to tank. Pressure applied to “B” inlet flows to “B” outlet and unlocks check on “A” side allowing pressure on “A” to return to tank.

Field repair requires a special Check Valve Installation Tool. Please order Model No. 65-6000-00.

**Check Valves**
Permits flow in one direction only. Can not be adjusted for reverse flow.

**In-Line Check Valve Dimensions**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-3400-01</td>
<td>2.17</td>
<td>0.75</td>
<td>SAE 4</td>
</tr>
<tr>
<td>70-3400-06</td>
<td>2.60</td>
<td>1.00</td>
<td>SAE 6</td>
</tr>
</tbody>
</table>

**“A-B” Check Valve**
- Sealed pilot piston eliminates cross circuit leakage.
- 5:1 Ratio of Pilot to Check pressure for release.
- Filters on each port location.
- Manifold mounted.
- BHC™ body and stainless steel internal components for corrosion protection.

**“A-B” Check Valve**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>70-3311-12</th>
</tr>
</thead>
</table>

For proper sealing, mating surface must be flat within 0.003 in. with a maximum 63 µ in. Rₜₐₜ surface finish.

**NOTE:** Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves.

Excess flow voids warranty.

**DO3 Stack “P” Check Valve**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>70-3425-00</th>
</tr>
</thead>
</table>

**NOTE:** Pressure applied to the “A” inlet port flows to the “A” outlet port and unlocks check on the “B” side allowing pressure on “B” to return to tank. Pressure applied to “B” inlet flows to “B” outlet and unlocks check on “A” side allowing pressure on “A” to return to tank.

Field repair requires a special Check Valve Installation Tool. Please order Model No. 65-6000-00.
Accessory Valves

Unclamp Delay Valve

Time delays pressure release in a critical circuit while unclamping

- Adjust the delay to control unclamp timing in single-acting devices. May be used with single or double-acting clamping systems.
- Eliminate workpiece movement, caused by residual pressure when unclamping over a work support.
- Normally open valve (with crossover plate) allows free fluid flow through the valve during clamping, delays release timing during unclamping.
- Conveniently mounts between the Vektek Sequence Valve and the fixture manifold (for sequenced operation downstream) or can be ported with fittings and tubing.
- Stainless steel internal components for superior corrosion resistance.

Operation: The VektorFlo® Unclamp Delay Valve operates as a normally open element in a hydraulic clamping system. Low pressure fluid flows freely through the valve to downstream devices. As pressure in the system builds, the mechanical pilot piston moves away from the check valve allowing it to close. Full system pressure is reached and flow in the system stops. If pressure leaks off in downstream devices, the check valve will re-open and replenish pressure. During unclamping, inlet pressure falls with main system pressure but downstream pressure is held constant by the check valve.

<table>
<thead>
<tr>
<th>Model No.*</th>
<th>Pressure Range**</th>
<th>Time Delay Preset***</th>
<th>Filtration Included</th>
<th>Max Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-4310-00</td>
<td>500 to 5,000 psi</td>
<td>3 to 7 seconds</td>
<td>Using ISO 32 Fluid</td>
<td>25 Micron All Ports</td>
</tr>
</tbody>
</table>

For proper sealing, mating surface must be flat to 0.003 in. with a maximum 63 μ in. Rₐ surface finish.

4 Mounting Options

1. **Use as Standalone Valve Externally Plumbed**
2. **Externally Plumbed Paired to Sequence Valve**
3. **Use as Standalone Valve Mounted to Fixture Using Crossover Plate**
4. **Use in New or Existing Applications Under Sequence Valve Mounted to Fixture**

U.S. Patent No. 9,683,669

Crossover plate, 93-1977-00, needed when using as a standalone manifold mount valve.

Duration of time delay may vary depending on the viscosity of oil in the application. If longer delays are required (up to 20 sec.), contact Vektek Customer Support for assistance.
In The Port Sequence Valves

NEW! In The Port Sequence Valves

- Installs directly into device port, requires manifold feed.
- Works with Top Flange, Bottom Flange Swing Clamps, Link Clamps and New High Capacity Work Supports.
- Controls timing of individual devices on your fixture.
- Each valve can be individually adjusted from the factory preset.
- True sequencing design allows full system pressure downstream of valve after opening.
- Maintains pressure upstream while device actuates.
- Three pressure ranges available with adjustability within each range.
- Can be added after the fixture is built to assure proper sequencing. Requires manifold mounted device.
- Use with single or double acting clamps; in clamp port, unclamp port, or both.
- Internal reverse free flow check valve allows for faster return.
- Accessories available; Pressure pre-set block, in-line adapter block and manifold mount block.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Factory Preset Pressure (psi)</th>
<th>Set Pressure Range</th>
<th>Port Size</th>
<th>Port Depth A</th>
<th>Port Depth B</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-4437-10</td>
<td>750</td>
<td>300-875</td>
<td>SAE 4 X 0.58</td>
<td>1.07</td>
<td>.77</td>
</tr>
<tr>
<td>70-4437-11</td>
<td>1,500</td>
<td>500-2,500</td>
<td>SAE 4 X 0.58</td>
<td>1.07</td>
<td>.77</td>
</tr>
<tr>
<td>70-4437-12</td>
<td>3,000</td>
<td>2,000-4,000</td>
<td>SAE 4 X 0.58</td>
<td>1.22</td>
<td>.92</td>
</tr>
<tr>
<td>70-4437-20</td>
<td>750</td>
<td>300-875</td>
<td>SAE 4 X 0.75</td>
<td>1.07</td>
<td>.77</td>
</tr>
<tr>
<td>70-4437-21</td>
<td>1,500</td>
<td>500-2,500</td>
<td>SAE 4 X 0.75</td>
<td>1.07</td>
<td>.77</td>
</tr>
<tr>
<td>70-4437-22</td>
<td>3,000</td>
<td>2,000-4,000</td>
<td>SAE 4 X 0.75</td>
<td>1.22</td>
<td>.92</td>
</tr>
</tbody>
</table>

*Number of sequences within each range depends on number of devices, pump flow and operating pressure.

NOTE: Max flow not to exceed the individual device rating or 1.0 gpm whichever is lower. Maximum inlet pressure for in-port sequence valves is 5,000 psi, excess voids warranty. Consult the double acting work support, high capacity work support, the swing clamp or link clamp specifications page for the valve that is appropriate for your application.

Benefits of In The Port Sequencing and design time:

- Fewer drilled circuit passages in your fixture, saving cost.
- Individual tuning of device timing, saving frustration.
- Can be added after design and build to most flange mount manifold swing clamps and link clamps, saving the day.
Accessory Valves

Port Dimensions, Accessories

IN THE PORT VALVE CAVITY DIMENSIONS

Cavity Dimensions

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-2037-70</td>
<td>SAE 2</td>
<td>.272</td>
<td>.480</td>
<td>.360</td>
<td>.082</td>
<td>.682</td>
<td>5/16-24 UNF</td>
<td>.320</td>
<td>.219</td>
<td>.350</td>
<td>.219</td>
</tr>
<tr>
<td>70-2037-71 &amp; 70-4437-1X</td>
<td>SAE 4</td>
<td>.392</td>
<td>.580</td>
<td>.490</td>
<td>.101</td>
<td>.750</td>
<td>7/16-20 UNF</td>
<td>.400</td>
<td>.281</td>
<td>.488</td>
<td>.313</td>
</tr>
<tr>
<td>70-2037-72 &amp; 70-4437-2X</td>
<td>SAE 4</td>
<td>.392</td>
<td>.750</td>
<td>.490</td>
<td>.101</td>
<td>.750</td>
<td>7/16-20 UNF</td>
<td>.400</td>
<td>.281</td>
<td>.658</td>
<td>.313</td>
</tr>
</tbody>
</table>

NOTE: Max flow not to exceed the individual device rating or 1.0 gpm whichever is lower.

In The Port Sequence Valve Pressure Pre-Set Block

In the Port Sequence Valve In-Line Adapter Block

In the Port Sequence Valve Manifold Mount Block

www.vektek.com 800-992-0236 © Vektek, April 2019
Sequence Valve

- Control the timing of fixture devices.
- Specialized construction resists corrosion which can cause other styles to “misfire”.
- Direct acting poppet style construction.
- Manifold mountable.
- Cartridge may be installed directly into your manifold.
- Two-port design eliminates need for third fluid line to drain bypass flow (internal leakage) back to system reservoir.
- True sequence design allows full system pressure downstream of valve after opening.
- Recommended Filtration: 25 Micron (NOM) / 40 Micron (ABS) (minimum).

Operation: The VektorFlo® sequence valve operates as a pressure sensitive, normally closed element in a clamping system. When fluid first enters the system at low pressure, the valve is closed, blocking the flow of fluid to devices downstream. After devices in the other branches of the system have moved into position, the pressure begins to increase. The increasing pressure overcomes the spring force holding the valve closed, forcing the poppet off its seat and allowing fluid flow through the valve. After all devices have positioned and clamped, the downstream pressure increases to equal upstream pressure. Pressure throughout the system will increase to the maximum setting on the hydraulic power supply. When unclamping, as pressure falls, force from the adjustment spring pushes the poppet back onto its seat. Fluid trapped in the downstream circuit flows back through the check seat to return to the power unit reservoir.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Set Pressure Range</th>
<th>A</th>
<th>B</th>
<th>Max Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-4400-01</td>
<td>300 to 900 psi</td>
<td>4.7</td>
<td>2.37</td>
<td>3.0 gpm</td>
</tr>
<tr>
<td>70-4400-02</td>
<td>750 to 5,000 psi</td>
<td>4.1</td>
<td>1.75</td>
<td>1.5 gpm</td>
</tr>
</tbody>
</table>

*Maximum Inlet Pressure for sequence valve is 5,000 psi, excess voids warranty.

NOTE: When using multiple sequence valves.
For pressure set range 300 to 900 psi a 100 psi spread between pressures is recommended.
For pressure set range 750 to 9000 psi a 500 psi spread between pressures is recommended.

For proper sealing, mating surface must be flat to 0.003 in. with a maximum 63 µ in. Rₐ surface finish.
Sequence Valve Cartridge

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Set Pressure Range</th>
<th>A</th>
<th>B</th>
<th>Max Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-4430-01</td>
<td>300 to 900 psi</td>
<td>3.8</td>
<td>2.37</td>
<td>3.0 gpm</td>
</tr>
<tr>
<td>70-4430-02</td>
<td>750 to 5,000 psi</td>
<td>3.2</td>
<td>1.75</td>
<td>1.5 gpm</td>
</tr>
</tbody>
</table>

* Maximum Inlet Pressure for sequence valve is 5,000 psi, excess voids warranty.

Sequence Valve Cartridge Cavity

NOTE: If a sequence valve is no longer needed, use 30-6011-20 plug, to cap cavity for free fluid pass through.

Multi-Step Carbide Cavity
Contour Tool with Tap Kit

<table>
<thead>
<tr>
<th>Model No.</th>
<th>62-7040-00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reamer and M20 x 1.5 tap</td>
</tr>
</tbody>
</table>
Efficient Space Saving Combination Sequence/PRV Block

- Control both timing and pressure with this dual purpose combination block.
- Common inlet port feeds both sequence and reducing valves.
- 3 (SAE 2) manifold ports: Inlet, Sequenced and Sequenced + Reduced Pressure.
- 6 (SAE 4) ports: 2 x Inlet, 2 x Sequenced and 2 Sequenced + Reduced Pressure.
- Use with single or double acting devices.
- Block includes standard Sequence and PRV cartridges.
- Direct acting poppet style valve construction.
- Sequence Pressure adjustment range: 750 psi to 5,000 psi, PRV adjustment range: 750 to 4,500 psi.
- Enough space is provided on the block to accommodate a Gauge for setup or trouble shooting.
- Recommended Filtration: 25 Micron (NOM) / 40 Micron (ABS) (minimum).

**Efficient Space Saving Combination Sequence/PRV Block**

- **Common inlet port feeds both sequence and reducing valves.**
- **3 (SAE 2) manifold ports: Inlet, Sequenced and Sequenced + Reduced Pressure.**
- **6 (SAE 4) ports: 2 x Inlet, 2 x Sequenced and 2 Sequenced + Reduced Pressure.**
- **Use with single or double acting devices.**
- **Block includes standard Sequence and PRV cartridges.**
- **Direct acting poppet style valve construction.**
- **Sequence Pressure adjustment range: 750 psi to 5,000 psi, PRV adjustment range: 750 to 4,500 psi.**
- **Enough space is provided on the block to accommodate a Gauge for setup or trouble shooting.**
- **Recommended Filtration: 25 Micron (NOM) / 40 Micron (ABS) (minimum).**

**Combination SEQ/PRV**

<table>
<thead>
<tr>
<th>Assembly Model No.</th>
<th>Sequence Valve Model No.</th>
<th>Sequence Valve Set Pressure Range</th>
<th>PRV Model No.</th>
<th>PRV Set Pressure Range</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-9410-00</td>
<td>70-4430-02</td>
<td>750 - 5,000 psi</td>
<td>70-5437-70</td>
<td>750 - 4,500 psi</td>
<td>4.6</td>
<td>6.2</td>
</tr>
<tr>
<td>70-9410-01</td>
<td>70-4430-02</td>
<td>750 - 5,000 psi</td>
<td>70-5437-71</td>
<td>150 - 900 psi**</td>
<td>4.6</td>
<td>6.9</td>
</tr>
<tr>
<td>70-9410-02</td>
<td>70-4430-01</td>
<td>300 - 900 psi</td>
<td>70-5437-70</td>
<td>750 - 4,500 psi</td>
<td>5.2</td>
<td>6.2</td>
</tr>
<tr>
<td>70-9410-03</td>
<td>70-4430-01</td>
<td>300 - 900 psi</td>
<td>70-5437-71</td>
<td>150 - 900 psi**</td>
<td>5.2</td>
<td>6.9</td>
</tr>
</tbody>
</table>

* SAE 2 Ports are counterbored for O-Rings that are used in manifold mounting applications. Ø 0.09/0.15 feed holes.

** NOTE:** Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves, unless noted.

Excess flow voids warranty.
Pressure Reducing Valve

- Control pressure to individual devices.
- For use in double or single acting systems.
- Direct acting, poppet style, adjustable, cartridge construction.
- Cartridge may be installed directly into your manifold.
- Model 70-5410-10 set the pressure range from 750 to 4500 psi. Repeatability ± 7%
- Model 70-5410-01 set the pressure range from 150 to 900 psi. Repeatability ± 10%
- Maximum inlet pressure 5,000 psi.
- Pressure Reducing Cartridge is interchangeable with the Pressure Limiting Cartridge in the same mounting cavity.
- Two-port design eliminates need for third fluid line to drain bypass flow (internal leakage) back to system reservoir.
- Recommended Filtration: 25 Micron (NOM) /40 Micron (ABS) (minimum).

Operation: The Pressure Reducing Valve (PRV) is a Normally Open (N/O) pressure control device. The valve remains open and fluid flows freely to downstream devices (from the valve to devices) until the pressure in the valve reaches the pressure (adjustable) set-point. At the set-point pressure, the valve closes blocking further flow and pressure rise to the downstream devices. If there is a sufficient down stream pressure loss (from the valve to devices), the PRV will re-open, allowing flow to pass through the valve until the pressure again reaches the valve set-point.

### Pressure Reducing Valve

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Inlet Pressure*</th>
<th>Set Pressure Range</th>
<th>Repeatability</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-5410-10</td>
<td>5,000 psi</td>
<td>750 to 4,500 psi</td>
<td>± 7%</td>
<td>5.8</td>
</tr>
<tr>
<td>70-5410-01</td>
<td>&lt; 3,000 psi</td>
<td>150 to 900 psi</td>
<td>± 10%</td>
<td>6.5</td>
</tr>
</tbody>
</table>

*Maximum Inlet Pressure for PRV is 5,000 psi

NOTE: Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves, unless noted.

Excess flow voids warranty.

For proper sealing, mating surface must be flat within 0.003 in. with a maximum 63 µ in. Rα surface finish.

The graph shows the repeat range based on set pressure.

The graphs show the pressure drop through a PRV and manifold mount block.
Pressure Reducing Valve Control Block

PRV Control Blocks

- Control pressure independently on both the clamp and unclamp side of the fixture regardless of pump pressure setting.
- Eliminate the wait for full system pressure to finish cycling workholding components.
- For use in double or single acting systems.
- DO3 Mounting, use on pump stack or as a remote mounted valve.
- Recommended Filtration: 25 Micron (NOM) / 40 Micron (ABS) (minimum).

Single PRV Control Block

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Inlet Pressure*</th>
<th>Set Pressure Range</th>
<th>Repeat A</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-8425-51</td>
<td>5,000 psi</td>
<td>750 to 4,500 psi</td>
<td>± 7%</td>
</tr>
<tr>
<td>70-8425-52</td>
<td>&lt; 3,000 psi</td>
<td>150 to 900 psi</td>
<td>± 10%</td>
</tr>
<tr>
<td></td>
<td>&gt; 3,000 psi</td>
<td>300 to 900 psi</td>
<td></td>
</tr>
</tbody>
</table>

*Maximum Inlet Pressure for PRV is 5,000 psi

Dual PRV Control Block

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Inlet Pressure*</th>
<th>Set Pressure Range</th>
<th>Repeat A</th>
<th>Repeat B</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-8425-50</td>
<td>5,000 psi</td>
<td>750 to 4,500 psi</td>
<td>± 7%</td>
<td>11.024</td>
</tr>
<tr>
<td>70-8425-53</td>
<td>&lt; 3,000 psi</td>
<td>150 to 900 psi</td>
<td>± 10%</td>
<td>12.367</td>
</tr>
<tr>
<td></td>
<td>&gt; 3,000 psi</td>
<td>300 to 900 psi</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Maximum Inlet Pressure for PRV is 5,000 psi

NOTE: Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves, unless noted.

Excess flow voids warranty.
Pressure Reducing Cartridge

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Inlet Pressure*</th>
<th>Set Pressure Range</th>
<th>Repeatability</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-5437-70</td>
<td>5,000 psi</td>
<td>750 - 4,500 psi</td>
<td>± 7%</td>
<td>5.0</td>
<td>3.25</td>
</tr>
<tr>
<td>70-5437-71</td>
<td>&lt;3,000 psi</td>
<td>150 - 900 psi</td>
<td>± 10%</td>
<td>5.7</td>
<td>3.96</td>
</tr>
<tr>
<td></td>
<td>&gt;3,000 psi</td>
<td>300 - 900 psi</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Maximum Inlet Pressure for PRV is 5,000 psi

Pressure Limiting Cartridges

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Pressure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-5430-08</td>
<td>Pressure Limit 750-2,500</td>
</tr>
<tr>
<td>70-5430-07</td>
<td>Pressure Limit 1,000-3,500</td>
</tr>
<tr>
<td>70-5430-06</td>
<td>Pressure Limit 1,500-5,000</td>
</tr>
</tbody>
</table>

Pressure Limiting Cartridge and Pressure Reducing Cartridge use the same mounting cavity.

NOTE: If a PRV/PLV is no longer needed, use standard SAE#10 plug, 30-6011-99, to cap cavity for free fluid pass through.
Pressure Limiting Valve

- Recommended for use in single acting systems only.
- Direct acting, poppet style, adjustable, cartridge type construction.
- Cartridge may be installed directly into your manifold.
- All pressure limiting valve configurations are designed to operate with up to 5,000 psi on the inlet (P) port.
- Seal Material: Internal seals are nylon.
- Internal adjustment discourages tampering with pressure adjustment setting.
- Two-port design eliminates need for third fluid line to drain bypass flow (internal leakage) back to system reservoir.
- Recommended Filtration: 25 Micron (NOM) / 40 Micron (ABS) (minimum).

Operation: The Pressure Limiting Valve (PLV) is a Normally Open (N/O) pressure control device. The valve remains open and fluid flows freely to downstream devices (from the valve to devices) until the pressure in the valve reaches the pressure (adjustable) set-point. At set-point pressure the valve closes, blocking further flow and pressure rise to the downstream devices. The internal valve seal prevents fluid flow through the valve in either direction until the inlet pressure (power source to the valve) is reduced to near zero.

NOTE: Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves unless otherwise noted.

Excess flow voids warranty.

Pressure Limiting Valve

Pressure Limiting Valve

Recommended for use in single acting systems only.
Direct acting, poppet style, adjustable, cartridge type construction.
Cartridge may be installed directly into your manifold.
All pressure limiting valve configurations are designed to operate with up to 5,000 psi on the inlet (P) port.
Seal Material: Internal seals are nylon.
Internal adjustment discourages tampering with pressure adjustment setting.
Two-port design eliminates need for third fluid line to drain bypass flow (internal leakage) back to system reservoir.
Recommended Filtration: 25 Micron (NOM) / 40 Micron (ABS) (minimum).

Operation: The Pressure Limiting Valve (PLV) is a Normally Open (N/O) pressure control device. The valve remains open and fluid flows freely to downstream devices (from the valve to devices) until the pressure in the valve reaches the pressure (adjustable) set-point. At set-point pressure the valve closes, blocking further flow and pressure rise to the downstream devices. The internal valve seal prevents fluid flow through the valve in either direction until the inlet pressure (power source to the valve) is reduced to near zero.

NOTE: Maximum system flow rate is 1.5 gpm (346.5 cu. in. per minute) for all VektorFlo® special function valves unless otherwise noted.

Excess flow voids warranty.
Non-Powered Waterproof Pressure Switch

- No power required.
- Ideal when you need to add a pressure switch to a remote location as on a machining pallet fixture.
- Switch tested to over 1,000,000 cycle lifetime.
- New sealed collar and micro-switch design guard against leaks; making this switch ideal for use in wet environments.
- Pressure adjustment 750 to 5,000 psi.
- Electrical Rating
  - 1 amp @ 28 VDC resistive
  - 5 amp @ 125/250 VAC
- Reset deadband: approximately 5% of the set pressure.
- Sealed switch for operation in high moisture environments. (Complies with IP 67)

Powered LED Display Electronic Pressure Switch

- Large 4 digit LED pressure display.
- Requires power (15-32 VDC).
- Programmable deadband.
- Easy 3-Button programmable electronic pressure switch.
- 2 digital switching outputs, 500 mA Rating, PNP only.
- Single analog output, 0-10 V or 4-20 mA.
- Set pressure range of 0-6,000 psi.
- Programmable reset pressure for each output.
- Suitable for rapid cycling applications.
- Display & electronic connection: rotatable by 320°
Standard Pressure Gauges
- Liquid filled gauges with analog readouts.
- Available in 1,500 to 10,000 psi.
- Conform to ANSI standard B40.1 Grade B.
- SAE 4 male connection.
- Safety Glass Window.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Pressure Range</th>
<th>Bezel Diameter (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>72-2121-37</td>
<td>0 to 1,000 psi</td>
<td>2.7</td>
</tr>
<tr>
<td>72-2121-46</td>
<td>0 to 3,000 psi</td>
<td>2.7</td>
</tr>
<tr>
<td>72-2121-52</td>
<td>0 to 5,000 psi</td>
<td>2.7</td>
</tr>
<tr>
<td>72-2121-62</td>
<td>0 to 10,000 psi</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Back Mount Pressure Gauges
- Liquid filled gauges with analog readouts.
- Available in 1,500, 5,000, 6,000 and 10,000 psi.
- Conform to ANSI standard B40.1 Grade B.
- SAE 4 male connection.
- Safety Glass Window.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Pressure Range</th>
<th>Bezel Diameter A (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>72-1221-39</td>
<td>0 to 1,500 psi</td>
<td>1.66</td>
</tr>
<tr>
<td>72-3221-55</td>
<td>0 to 6,000 psi</td>
<td>1.66</td>
</tr>
<tr>
<td>72-2121-55</td>
<td>0 to 5,000 psi</td>
<td>2.7</td>
</tr>
<tr>
<td>72-2121-65</td>
<td>0 to 10,000 psi</td>
<td>2.7</td>
</tr>
</tbody>
</table>

To extend the life of Pressure Gauges, run your system at no more than 75% of the gauge scale.

NEW! Protect Your Low Pressure Devices running within a High Pressure System
- Valve cartridge will open to bleed off excess pressure in the event of over-pressurization.
- Screw in valve cartridge adds an extra element of assurance in systems where you must use a pressure sensitive device.
- SAE 4 male connection.
- Valve cartridge has a tamper proof plug.
- A set point of approximately 20% higher than system pressure is recommended.
- Leak-free operation before and after reset condition.
- The only valve cartridge designed to bleed off excess pressure and re-seat at approximately 80% of set point.

<table>
<thead>
<tr>
<th>Model No</th>
<th>Set Point</th>
<th>A (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-6336-71-03</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-04</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-05</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-06</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-07</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-08</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-09</td>
<td>900</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-10</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-11</td>
<td>1,100</td>
<td>1.77</td>
</tr>
<tr>
<td>70-6336-71-12</td>
<td>1,200</td>
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</tr>
<tr>
<td>70-6336-71-13</td>
<td>1,300</td>
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</tr>
<tr>
<td>70-6336-71-14</td>
<td>1,400</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-15</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>70-6336-71-16</td>
<td>1,750</td>
<td></td>
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<tr>
<td>70-6336-72-20</td>
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<td>70-6336-72-23</td>
<td>2,250</td>
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<tr>
<td>70-6336-72-25</td>
<td>2,500</td>
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<tr>
<td>70-6336-70-45</td>
<td>4,500</td>
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<tr>
<td>70-6336-70-50</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>70-6336-70-55</td>
<td>5,500</td>
<td></td>
</tr>
<tr>
<td>70-6336-70-60</td>
<td>6,000</td>
<td></td>
</tr>
</tbody>
</table>

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Confirm Clamp Stroke Position Pneumatically

The pneumatic confirmation valve confirms the stage of loading before or after clamping. It is adaptable to multiple devices including: swing clamps, link clamps, cylinders and supports.

Avoid machine crashes by confirming specific actions before you cycle your machine. It is designed to be used in both coolant and dry environments and is easily mounted either vertically or horizontally. Confirmation at its finest!

- Easily fine tune your fixture choosing between set and differential pressure.
- Confirm signal is based on restricting air flow when testing function is present.
- Over-travel sensing will reopen if a device depresses plunger beyond the valve limit.
- Use Pneumatic Confirmation Valve with almost any clamping device.
- Assists in detecting missing or incorrectly loaded parts.
- Remote venting recommended in coolant applications.
- Feedback to machine automations and robotics through the pressure switch.
- 1/8 tube - M3 Connector

Part No. P3-0370-20, Order separately.

Application Setup:
Adjust actuator 0.025 ± 0.020 above valve body with clamp positioned at the bottom of clamping stroke. This will avoid valve and actuator damage if clamp over travels.

Confirm Clamp Stroke Position Pneumatically

Pneumatic Confirmation Valve

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Max Air Pressure (psi)</th>
<th>Operating Pressure Range (psi)</th>
<th>Air Flow Rate (SCFM)</th>
<th>Differential Pressure @20 psi System Pressure</th>
<th>Pressure @70 psi System Pressure</th>
<th>Plunger Stroke (in)</th>
<th>Spring Force (lbf.)</th>
<th>Feed Port Nominal Diameter (in.)</th>
<th>Port Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-4085-00</td>
<td>Over-Travel Sensing</td>
<td>145</td>
<td>10-70</td>
<td>0.354 - 0.706</td>
<td>Min. 12</td>
<td>Min. 45</td>
<td>0.40 Max</td>
<td>1.5 - 3</td>
<td>0.079</td>
<td>Manifold and M3</td>
</tr>
<tr>
<td>50-4085-01</td>
<td>Standard</td>
<td>145</td>
<td>10-70</td>
<td>0.354 - 0.706</td>
<td>Min. 12</td>
<td>Min. 45</td>
<td>0.40 Max</td>
<td>1.5 - 3</td>
<td>0.079</td>
<td>Manifold and M3</td>
</tr>
</tbody>
</table>

*Pressure drop when one or more valves open. All valves must be closed for pressure confirmation. Plumb multiple valves in parallel.

More detail on recommended layout can be found in Section B.

Monitoring By Pneumatic Pressure Switch Recommended Circuit Layout

Air Sensing Control Kit 50-8240-00

Air Supply

Air Pressure Sensor Switch

Gauge

Flow Control Valve

Max. 8 Valves

ILS504087 REV B

Application Setup:
Adjust actuator 0.025 ± 0.020 above valve body with clamp positioned at the bottom of clamping stroke. This will avoid valve and actuator damage if clamp over travels.

Confirm Clamp Stroke Position Pneumatically

Pneumatic Confirmation Valve

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Max Air Pressure (psi)</th>
<th>Operating Pressure Range (psi)</th>
<th>Air Flow Rate (SCFM)</th>
<th>Differential Pressure @20 psi System Pressure</th>
<th>Pressure @70 psi System Pressure</th>
<th>Plunger Stroke (in)</th>
<th>Spring Force (lbf.)</th>
<th>Feed Port Nominal Diameter (in.)</th>
<th>Port Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-40X5-00</td>
<td>Over Travel Sensing</td>
<td>145</td>
<td>10-70</td>
<td>0.354 - 0.706</td>
<td>Min. 12</td>
<td>Min. 45</td>
<td>0.40 Max</td>
<td>1.5 - 3</td>
<td>0.079</td>
<td>Manifold and M3</td>
</tr>
<tr>
<td>50-40X5-01</td>
<td>Standard</td>
<td>145</td>
<td>10-70</td>
<td>0.354 - 0.706</td>
<td>Min. 12</td>
<td>Min. 45</td>
<td>0.40 Max</td>
<td>1.5 - 3</td>
<td>0.079</td>
<td>Manifold and M3</td>
</tr>
</tbody>
</table>

* Pressure drop when one or more valves open. All valves must be closed for pressure confirmation. Plumb multiple valves in parallel.

More detail on recommended layout can be found in Section B.
# Pneumatic Confirmation Valve Cartridge

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Max Air Pressure (psi)</th>
<th>Operating Pressure Range (psi)</th>
<th>Air Flow Rate (SCFM)</th>
<th>Differential Pressure 20 psi @ System Pressure</th>
<th>Plunger Stroke (in)</th>
<th>Spring Force (lbf)</th>
<th>Nominal Diameter (in)</th>
<th>Port Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-4095-00</td>
<td>Over-Travel Sensing</td>
<td>145</td>
<td>10-70</td>
<td>0.354 - 0.706</td>
<td>Min. 12</td>
<td>0.40 Max</td>
<td>1.5 - 3</td>
<td>0.079</td>
<td>Manifold and M3</td>
</tr>
<tr>
<td>50-4095-01</td>
<td>Standard</td>
<td>145</td>
<td>10-70</td>
<td>0.354 - 0.706</td>
<td>Min. 12</td>
<td>0.40 Max</td>
<td>1.5 - 3</td>
<td>0.079</td>
<td>Manifold and M3</td>
</tr>
</tbody>
</table>

*Pressure drop when one or more valves open. All valves must be closed for pressure confirmation. Plumb multiple valves in parallel.*
NEW! **Air Sensing Control Kit for Pneumatic Confirmation Systems**

- Adjustable air pressure and flow gives you the ability to monitor most confirmation valves, part present or clamp position systems.
- Easy electronic pressure switch adjustment with 2 PNP* digital set points and 1 analog output to meet your specific needs.
- Can be used with Pallet Decouplers, Pneumatic Confirmation Valves, Part Present Sensing Work Supports or self-made part location orifices.
- Ready-to-use kit with everything you need to feed back a confirmation signal of your choice!

---

### Air Sensing Control Kit

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Max Air Pressure (psi)</th>
<th>Operating Pressure Range (psi)</th>
<th>Max Air Flow Rate (SCFM)</th>
<th>Filtration Element (micron)</th>
<th>Power Supply (VDC)</th>
<th>Power Consumption (mA)</th>
<th>2 Digital Contacts</th>
<th>1 Analog Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-8240-00</td>
<td>200</td>
<td>0-25</td>
<td>12</td>
<td>5</td>
<td>15-32</td>
<td>50</td>
<td>N/O or N/C</td>
<td>0-10V or 4-20 mA</td>
</tr>
</tbody>
</table>

* For NPN applications order signal converter cable 27-84200-00.