When do I need to use Double-Acting over other Work Supports?

You will want to use Double Acting Work Supports whenever your application requires positive retraction of the work support plunger such as in automatic/unattended applications. The support plunger is retracted when hydraulic pressure reduction pulls back the shuttle cylinder. You will not be relying on a mechanical spring to return the plunger to its initial starting position.

Consider Double Acting Work Supports whenever your application requires extremely tight tolerances. When pressurized, the Double Acting Work Support sets the industry standard for minimizing elastic deformation and maximizing uniformity in clamping surface stability.

You will want to use Double Acting Work Supports in applications where the single acting fluid advanced work support might kick your part out of position when unclamp occurs. The hydraulic pressure on the sleeve gripping the plunger is maintained until the double-acting positioning piston retracts. An internal check valve opens to release the pressure on the sleeve. The plunger is released only after it has been pulled back from the workpiece. This “shuttle” action prevents “workpiece ejection” that might be experienced with single acting fluid advanced Work Supports.

Does the shuttle extend and stroke the full 0.50 inches every time?

Yes, the advance shuttle will travel a full stroke every time. However, it stops on an internal component allowing the inside sequencing to lock the work support plunger.

Where do I position my part so it is in the work support plunger “working zone”?

Position the part in the middle of the plunger stroke. The catalog chart lists a dimension that represents the fully extended length. For best performance, position your part at the fully extended shuttle stroke minus half of the plunger stroke.

I understand that this work support has two (2) strokes, a shuttle stroke and a work support stroke. Do these strokes add one upon the other resulting in a total stroke of 0.875 inches?

No, the support plunger stroke is contained within the piston shuttle stroke. Because the work support plunger is spring advanced, it is extended while the sleeve is unlocked. The shuttle strokes forward causing the extended plunger to contact the part and compress the spring. Finally, the internal sleeve locks the plunger in place.

I thought it was wrong to clamp over a column of fluid! How can I clamp over a work support that is inside a cylinder supported by hydraulic fluid?

While it is not the best option to clamp over a column of fluid, neither is it always wrong. Certain considerations must be addressed and adhered to when this is done. In this application, the work support is supported by the advance cylinder which is held firmly against a shoulder inside the body. This positioning is maintained by a 3:1 ratio of seating force verses the support force of the work support plunger. This advance/support ratio has shown to be the most stable combination and has the least elastic deformation compared to other units on the market.
Double Acting Work Supports

TuffGrip™ Work Support Features

- All Double Acting Work Supports styles are available in 2,750 lbs and 5,500 lbs capacities at 5,000 psi.
- Exclusive Vektek design eliminates part ejection of any workpiece and the need for ancillary part retention devices.
- Innovative design features a spring advanced work support within a double-acting shuttle cylinder.
- A wiper at the shuttle and at the plunger keep chips out and your work support running smoothly.
- Double Acting Work Supports sleeve design is 2.5 times thicker than other work support models on the market. This sleeve efficiently closes and uniformly grips the plunger making it superior in precision applications.
- BHC™ (Black Hard Coat) body, hardened chrome shuttle piston and stainless steel plunger promote long life in harsh machining environments. The Position Sensing option is an aluminum housing that is Black Anodized for corrosion resistance.

Double Acting Work Support Operation

**Advance:** Hydraulic pressure extends the shuttle cylinder to the full stroke position, moving the work support plunger to the part. The spring advanced plunger will contact the part during the shuttle extension applying only spring force. Internal sequencing occurs after the shuttle is fully extended allowing hydraulic pressure to lock the plunger inside the sleeve.

**Retract:** The sleeve maintains its locked condition while hydraulic pressure retracts the shuttle. On reaching the full retracted position, the sleeve unclamps and the plunger returns to its spring advance state at least 0.125 inches below the part (may be separated from the part by as much as 0.50 inches).
Double Acting Work Supports

Double Acting Top Flange

Double Acting Work Support

- Available in 2,750 and 5,500 lb capacity at 5,000 psi.
- Innovative design featuring a spring advanced work support integrated within a double acting shuttle cylinder.
- ToughGrip sleeve design is 2.5 times thicker than other work support models on the market. This sleeve efficiently closes and uniformly grips the plunger making it superior in precision applications.
- After the shuttle has retracted and the plunger been released to its spring advanced state, the plunger will clear the part by a minimum of 0.125 inches, eliminating ejection of a work piece.
- Top flange style body allows for hydraulic connection through face sealed o-rings or through SAE ports.
- Sealed design and two wipers keep chips and debris out so unit operates smoothly.
- BHC (Black Hard Coating) body, hard chrome plated shuttle piston and stainless steel plunger promote long life in harsh machining environments.
- Optional in-port flow control is a meter-in device with reverse free flow check valve.
- Optional in-port sequence valve is a sequencing device with reverse free flow check valve.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Support Capacity (lbs)</th>
<th>Contact Force (lbs)</th>
<th>Work Support Stroke (in)</th>
<th>Shuttle Stroke (in)</th>
<th>Body Dia.</th>
<th>Piston Area (sq. in.)</th>
<th>Oil Capacity (cu. in.)</th>
<th>Maximum Oil Flow Rate (cu. in./min)</th>
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</table>

*Support Capacities are listed at 5,000 PSI maximum operating pressure. Support capacities for other pressures must be determined by consulting capacity chart.

**In-port valves require the use of manifold mount ports.

Dimensions

<table>
<thead>
<tr>
<th>Model No.***</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>
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<td>1.56</td>
<td>3.13</td>
<td>1.56</td>
<td>1.28</td>
</tr>
</tbody>
</table>

* Plunger Stroke "B" is the available work zone of the plunger. The workpiece must be positioned inside this window.

** Shuttle Stroke "C" is the stroke the shuttle travels to position the work support plunger relative to the workpiece. The shuttle moves the full range of this stroke every cycle.

*** The difference between "C" and "B" (C-B) equals the minimum distance the plunger is below the part in the retracted position.

Note: If you would like to produce your own springs for these Work Supports see dimensions drawing on Page B-6.

Device Operation

Advance: Hydraulic pressure extends the shuttle cylinder to full stroke position, moving the work support plunger out to the part. The spring advanced plunger will contact the part during shuttle extension applying only spring force. Internal sequencing occurs after shuttle is fully extended and allows hydraulic pressure to lock plunger inside sleeve.

Retract: The sleeve maintains its locked condition on the plunger while hydraulic pressure retracts the shuttle. On reaching the retracted position, the sleeve unclamps and the plunger returns to its spring advanced state at least 0.125 inches below the part.
For proper sealing, mating surface must be flat within 0.003 in with a maximum 63 µin. Rₐ surface finish.

Custom Contact Bolt

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Capacity</th>
<th>O-Ring Part No.</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>39-0000-72</td>
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<td>0.312</td>
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<td>39-0000-72 (-015)</td>
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<td>39-0510-66</td>
<td>0.875</td>
<td>0.500</td>
<td>0.650</td>
<td>0.080</td>
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</tr>
<tr>
<td>10-0212-01</td>
<td>5500</td>
<td>39-0510-66 (-016)</td>
<td>0.875</td>
<td>0.500</td>
<td>0.650</td>
<td>0.080</td>
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</table>
Device Operation

The Return Position Sensor unit requires continuous and regulated air pressure. In the retracted position, air pressure will build in the system to the regulated set pressure. An air logic switch detects the “retracted” pressure condition and signals the controller that Work Supports have retracted. When the work support extends, the internal check opens and vents air from the device. The system air pressure falls to the “extended” preset pressure and an air logic switch resets. When the support retracts, the internal check closes and air pressure again builds to the regulated value. The air pressure switch detects “retracted” pressure and again signals the controller that the device is in the retracted position.

We are already using Double Acting Work Supports; why would we need to use the Return Position Sensor?

Extended Work Supports could cause a crash. Use the Return Position Sensor in any automated system where work support retraction is critical before the unload/load cycle begins. Monitor the position of Work Supports and confirm all is clear before unloading/loading the part.

Does the Return Position Sensor also tell me that the work support is extended and locked?

No, the Return Position Sensor only communicates that the Work Supports have retracted. Even though the pressure drops when the supports extend, it does not indicate that all the Work Supports have extended or are locked.

Can I add a Return Position Sensor to my existing double-acting work support?

No, adding the Return Position Sensor requires a specific body, a longer plunger and different contact spring. Adding the Return Position Sensor also increases the work support length from the mounting flange to the contact bolt. Please contact your Vektek Customer Support Specialist for more information.

How many Work Supports with Return Position Sensors can I put on one pneumatic circuit?

The maximum number of Return Position Sensors in one circuit is a function of the circuit design and pressure drop over the length of the circuit path. Vektek has tested ten devices plumbed in parallel with excellent results.

What if I want to run a different pneumatic pressure switch than what Vektek engineers recommend?

Any programmable pneumatic switch that interfaces with the machine tool logic can monitor air pressure in the Return Position Sensor circuit. Also see Air Sensing Control Kit 50-8240-00.

Is it okay to route my air through a rotary union?

Yes, size the rotary union so that there is a separate path for the air circuit.

Do I need a pneumatic pressure switch for each work support on my fixture?

No, connect all the Work Supports (that are on the same hydraulic circuit) with an air circuit feeding the Return Position Sensor to one pneumatic pressure switch.

What’s the difference between a double acting work support and one that has a Return Position Sensor?

Double Acting Work Supports are used when both work supports need to extend and retract. A Return Position Sensor is used when only one work support needs to retract. The Return Position Sensor is a sensor that detects when the work support has retracted. It is used in automated systems to confirm that the work support has retracted before the unload/load cycle begins.

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No, connect all the Work Supports (that are on the same hydraulic circuit) with an air circuit feeding the Return Position Sensor to one pneumatic pressure switch.
**Recommended Pneumatic Circuit Design**

- Use Vektek Air Sensing Control Kit (Model # 50-8240-00).
- Parallel circuit design with minimum of 0.125” inside diameter feed line size.
- Circuit design should be simple and free from flow restrictions that can cause excessive pressure drop.
- The maximum number of Return Position Sensors in one circuit is a function of the circuit design and pressure drop over the length of the circuit path. Vektek has tested 10 devices plumbed in parallel with excellent results.

**Recommended System Setup:**

- Set air pressure regulator to 12 psi when all Work Supports in the system are in the retracted position.
- Adjust and set air flow control so that air pressure falls to 3 psi when the work support at the furthest point of the pneumatic circuit is in the extended position and all other supports in the circuit are retracted.
- Set the air pressure sensor “Retract” switch point to 10 psi.
- Set the air pressure sensor “Extend” reset switch point to 5 psi.

**Custom Contact Spring**

<table>
<thead>
<tr>
<th>Work Support Series</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>OD</th>
<th>Wire Ø</th>
<th>Free Length</th>
<th>Rate (lbs/in)</th>
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<tr>
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<td>10-0208-01</td>
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<td>0.51</td>
<td>0.46</td>
<td>0.38</td>
<td>0.48</td>
<td>0.051</td>
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<td>9.3</td>
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<tr>
<td>10-0212-00</td>
<td>1.13</td>
<td>0.68</td>
<td>0.62</td>
<td>0.47</td>
<td>0.59</td>
<td>0.055</td>
<td>1.56</td>
<td>10.0</td>
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<td>10-0212-01</td>
<td>1.78</td>
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<td>0.62</td>
<td>0.47</td>
<td>0.60</td>
<td>0.059</td>
<td>2.5</td>
<td>9.6</td>
</tr>
</tbody>
</table>

**NOTE:** Vektek recommends only 17-7 stainless steel springs. Too light of custom spring force may not actuate the plunger, especially if a custom contact bolt is used. Too heavy of a custom spring may cause damage to the device’s internal components. Vektek cannot guarantee that custom springs will provide proper plunger actuation.
**Double Acting Work Supports**

**Position Sensing Top Flange**

**Return Position Sensing for D/A Top Flange Work Support**

- The TuffGrip Return Position Sensors use air pressure to communicate that the work support has retracted and that the fixture can be unloaded/loaded.
- Sensor monitors work support position to prevent crashes in automated systems.
- Fail safe design requires air pressure to build before sensing the retracted position.
- Dual wipers keep chips and debris from invading support.
- Pressure Relief Vent keeps unit sealed and free from foreign material.
- Air connection through face sealed o-ring of top flange body or externally plumbed through NPT ports on sensor housing.
- Top flange body style allows for hydraulic connection through face sealed o-rings or through SAE ports.
- Aluminum sensor housing is Black anodized for superior corrosion resistance.
- Optional in-port flow control is a meter-in device with reverse free flow check valve.
- Optional in-port sequence valve is a sequencing device with reverse free flow check valve.

<table>
<thead>
<tr>
<th>Model No.**</th>
<th>Support Capacity (lbs)*</th>
<th>Contact Force (lbs)</th>
<th>Work Support Stroke (in.)</th>
<th>Shuttle Stroke (in.)</th>
<th>Body Dia. (sq. in.)</th>
<th>Piston Area (cu. in.)</th>
<th>Oil Capacity (cu. in./min.)</th>
<th>Max Oil Flow Rate (cu. in./min.)</th>
<th>Port X Depth for Optional In-Port Valves***</th>
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</table>

* Support capacities are listed at 5,000 psi maximum operating pressure. Support capacities for other pressures must be determined by consulting the capacity graph at the start of Section B.
** Use Return Position Sensor to monitor retracted position only and not plunger advance or plunger lock.
*** In-Port valves requires the use of manifold mount ports.

**Device Operation**

The return position sensor unit requires continuous regulated air pressure. In the retracted position, air pressure will build in the system to the regulated set pressure. The air logic switch detects “retracted” pressure and signals that work supports have retracted. When the work support extends, the internal check is opened and air vents from the device. The system air pressure falls to the “extended” pressure and the air logic switch reverts. When the support is then retracted, the internal check is closed and air pressure again builds to regulated value. Air pressure switch detects “retracted” pressure and again signals device is in retracted position.

**Dimensions**

<table>
<thead>
<tr>
<th>Model No.***</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>
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<th>M</th>
<th>N</th>
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<td>1.56</td>
<td>1.28</td>
<td>3.12</td>
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</table>

* Plunger Stroke “B” is the available work zone of the plunger. The workpiece must be positioned inside this window to prevent part ejection.
** Shuttle Stroke “C” is the stroke the shuttle travels to position the work support plunger relative to the workpiece. The shuttle moves the full range of this stroke every cycle.
*** The difference between “C” and “B” (C-B) equals the minimum distance the plunger is below the workpiece in the retracted position.
**Double Acting Work Supports**

**Model No.**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</table>

**Cavity Mounting Dimensions**

- **Diameter A**: ±0.005
- **Diameter B**: ±0.005
- **Diameter D**: ±0.010
- **Diameter F**: ±0.010

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

**Note:** If you would like to produce your own springs for these Work Supports, see dimensions drawing on Page B-6

---

**Dimensions**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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**Cylinders,** actuated hydraulically both directions.

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Frequently Asked Questions

Why do I need to use Work Supports?

The basics of 3-2-1 of fixture building require that three points define one plane of part location. When machining, a part may require additional support beyond the three basic points of a plane. A floating location support (work support) is an easy solution. Install a work support anywhere a “screw jack” can be used. It adjusts faster without distortion and is not dependent on operator “feel.”

A work support will provide solid adjustable support for parts ranging from fragile circuit boards to massive airplane wing spars. They provide “automatic” adjustment and lock-up giving repeatable, predictable results without the risk of “forgetting” a clamp or the time of manually adjusted alternatives.

What is required to use Work Supports?

Work Supports will work in most applications where part distortion, chatter, ringing or poor surface finish conditions are present. They can eliminate or decrease most of the problems caused by part movement during machining. All you need is an application, space to insert the support, a power supply and plumbing. Work Supports improve part quality while reducing scrap and re-work. They are often used on fixtures where parts are manually clamped but require additional support.

After the work support plunger is advanced, hydraulic pressure is used to “squeeze” the sleeve against the plunger, “locking” it securely against the part. It then becomes a solid support holding the part with the capacity indicated on the appropriate graph for the work support type.

Can I use Work Supports without other hydraulic clamps?

Yes, hydraulic Work Supports are often used alongside manual clamps. Work Supports reduce dependence on “operator touch,” speed operations by locking multiple components with a single adjustment and speed load time dramatically even when used with manual clamps that secure the part. In fact, one of Vektek’s most effective applications was one where the part was bolted in place over a tower equipped with several Work Supports. They supported the inside of a case while the outside was being machined. Our Work Supports reduced the part loading time from over five hours to just under one hour in this application.

Explain the difference in the three advance types and why I might want to use one over the other?

Spring advance is typically used when the part is heavy enough to depress the spring-loaded plungers. This type of work support can be used in most applications.

Air advance is normally used when a part is very light, fragile, or when heavy contamination is present. Lightweight parts may require clamping before the supports can be advanced. Fine-tune the work support to touch the part lightly without distorting or seating it before the support locks. When heavy contamination (fines, heavy flood coolant or corrosives) is present, use of a full time “air spring” continuously purges the sleeve/plunger contact area to keep it clear.

Fluid advance is recommended to avoid the introduction of a second power medium or when the plunger must be retracted to allow for part loading. This is significant when pelleting fixtures where quick connectors must be connected to add an air control circuit to the fixture. Fluid advance supports should not be used if advance force control is required.

What is the “breather port” and can I plug it or use it for my hydraulic connection?

All Spring Advance Work Supports require the exchange of air to and from the atmosphere. Air Advance Work Supports have no breather, but use a continuous air pressure to advance the plunger into position. Fluid Advance Work Supports have an internally vented plunger that gives trapped air between the hydraulic advance piston and the support plunger a place to escape.

What type of part will typically need Work Supports? Are there any I should avoid?

Parts with thin webs, unusual shapes or unsupported structures that must be held within a plane are likely candidates for Work Supports. There are no parts to be avoided. Cast iron and aluminum parts produce large quantities of fines that can infiltrate cavities and reduce work support life (air advance should be considered for both).

What about deflection?

Deflection is a difficult topic to discuss relative to work supports. Let’s start with a support measured in its free state with “no load, not locked.” This will establish a “no load, no lock zero” point. When a support is pressurized, there is a small amount of growth. As it is loaded the support “deflects” back closer to the “no load, no lock zero.” As the support approaches full capacity it may deflect below the “no load, no lock zero” slightly. Other factors which may be more important include: the surface finish on the part where the work support contacts it, the shape and contact area of the end effector, the actual cutter or load force applied to the part and the repeatability from part to part or lot to lot. For this reason, Vektek has chosen to publish only repeatability data on our work supports.

Can I lay my work support on its side?

Normally yes, as long as you are not using a heavy end effector or unusually side loading your support, the physical orientation should not affect performance. If you have a question about a specific application, please give us a call.

I have an interrupted cut that is going to take place over the top of a work support. The forces involved are transmitted directly on the support. The cutter is a large milling cutter and the cut is interrupted because I am sawing through webs on a cast part. How do I size the work support for this application?

You are correct, the impact of the re-entry of the cutter teeth to the next web of your part will create an interruption and may cause an impact beyond the normal horsepower, depth of cut and tooth loading formulae. In this case, you should plan to allow no less than 2X more capacity than necessary on the work support. Impact loading from interrupted cuts can require increasing capacity beyond this safety measure, hence up to 5:1 times calculated force in the event of interrupted cuts may be appropriate. Keep in mind that if you are tapping with a ball-peen hammer the upsizing is less than if you are impact loading with a full striking blow, but often both create forces well beyond the size of the hammer.

Do I need to use a torque wrench and socket when installing cartridge Work Supports?

Yes, a torque wrench and a 6 point socket is required. If you use an open end, adjustable or box end wrench you increase the chances of damaging the hex, roundness of the support sleeve or damaging the seals causing leakage between the sleeve and body. Please use an appropriate socket, torque wrench and care when installing cartridge Work Supports.
**Standard Features**

- Highly repeatable; plus or minus 0.0002 inches.
- Standard Work Supports may be bolted up or down to mount directly on fixture plates. They may also be installed through a hole in the fixture and locked in place using retaining collars for easy adjustment.
- Standard SAE porting is located in the base of the support for easy access to both the clamp and vent ports (bronze filter installed before shipping).
- Design features insure VektorFlo® work supports last longer, stand up to harsh environments and abuse better than other models without these features.
- Proprietary wiper and seal designs reduce contamination and drag for longer lasting, better performing work supports.
- Special corrosion resistant plungers and sleeves reduce the tendency to stick.
- Special large diameter plungers and sleeves provide greater rigidity.
- Cartridge mount work supports available in all styles for installation into customer machined cavities.

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**Work Supports**

**Features and Capacity Graphs**

---

**Spring Advance**

- 1000 & 2500 lb.
- 7500 & 12500 lb.
- ILS100500 REV K

**Air Advance**

- 1000 & 2500 lb.
- 7500 & 12500 lb.
- ILS100600 REV L

**Fluid Advance**

- 1000 & 2500 lb.
- 4000 lb.
- ILS100700 REV P
NEW!

 Replace older models with higher capacity cartridges or complete with bases!

 Normally retracted plungers do not interfere with part loading. Advance them with hydraulic pressure, exerting only spring force to bring the plunger into contact with your part. Hydraulic pressure then automatically sequences, “freezing” the plunger properly against the part.

 - Available in 2000 or 4000 lb. capacity.
 - Order with base or cartridge only.
 - Ventless configuration and built-in wipers protect the plunger movement from chips and debris.
 - Up to 3.5X capacity of competitor’s version.
 - Uses Vektek’s BHC technology to guard against corrosion.
 - O-Ring face seal design makes machining cavities easier.

 Standard SAE porting and alternate O-Ring manifold face seal is located in the base of the support for bolt down installation. The base can be removed for direct cartridge mounting.

---

**Model No.**  **Direct Replacement for Older Model**  **Support Capacity (lbs)**  **Mounting Style***  **Contact Force (lbs)**  **Stroke (in.)**  **Base Dimensions (in.)**  **Retracted Height (in.)**  **Oil Capacity**

| 10-0706-10 | 10-0706-04 | 2000 | Cartridge SAE/Manifold | 1-6 | 0.25 | N/A | 0.90 X 1.31 X 1.75 | 2.14 | 0.05 |
| 10-0706-10 | 10-0706-05 | 4000 | Cartridge SAE/Manifold | 1-6 | 0.50 | N/A | 0.90 X 1.31 X 1.75 | 2.51 | 0.07 |
| 10-0706-10 | 10-0706-14 | 2000 | Cartridge SAE/Manifold | 3-10 | 0.25 | N/A | 1.25 X 1.50 X 2.31 | 2.85 | 0.20 |
| 10-0706-10 | 10-0706-16 | 4000 | Cartridge SAE/Manifold | 3-10 | 0.50 | N/A | 1.25 X 1.50 X 2.31 | 3.25 | 0.23 |

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* Support capacities are listed at 5,000 psi maximum pressure. Support capacities for other pressures are shown in the fluid advance High Capacity and Part Present Sensing load capacity chart.

** Restrict flow rate to a maximum of 130 cu. in./minute.

*** For cartridge mount models, see cavity dimensions drawings in this catalog section.

**** For complete dimensions, see fluid advance work supports (Section B)

See Standard Fluid Advance Work Supports for 3 Bolt Pattern Dimensions (section B)

---

NOTE: The maximum system back-pressure a fluid advance work support can overcome is 10 psi. Returning back-pressure greater than 10 psi may cause slow or failed retraction.
NEW!
World’s Smallest Work Supports!
Now up to 3X competitive capacity at 5,000 PSI!

Plungers stay retracted during part loading. Hydraulic pressure advances the plunger exerting only spring force as it makes contact with the part. Hydraulic pressure then automatically sequences, “freezing” the plunger, to properly support the part.

- Available in 1000, 2000, 4000 & 8000 lb. capacity.
- Order with base or cartridge only.
- Ventless configuration and built in wipes protect the plunger movement from chips and debris.
- Four bolt base is compatible with Vektek In-Port flow control and In-Port sequence valves.
- Uses Vektek’s BHC technology to guard against corrosion.
- O-ring face seal design makes machining cavities easier.

Standard SAE porting and alternate o-ring manifold face seal is located in the base of the support for bolt down installation. The base can be removed for direct cartridge mounting.

Fluid Advance Work Supports, hydraulic pressure pushes a spring which lifts plunger, hydraulic pressure locks in place.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Support Capacity (lbs)*</th>
<th>Mounting Style***</th>
<th>Contact Force (lbs)</th>
<th>Stroke (in.)</th>
<th>Base Dimensions (in.)</th>
<th>Retracted Height (in.)</th>
<th>Working Oil Capacity (cu. in.) **</th>
<th>Port X Depth for Optional In-Port Valves****</th>
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<td>1000 Cartridge SAE/Manifold</td>
<td>0.5-4</td>
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<td>N/A</td>
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<td>1.63</td>
<td>SAE 4 X 0.58</td>
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</tr>
<tr>
<td>10-0706-10</td>
<td>2000 Cartridge SAE/Manifold</td>
<td>1-6</td>
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<td>N/A</td>
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<td>8000 Cartridge SAE/Manifold</td>
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<td>4.63</td>
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</table>

* Support capacities are listed at 5,000 psi maximum pressure. Support capacities for other pressures are shown in the fluid advance High Capacity and Part Present Sensing load capacity chart.
** Restrict flow rate to a maximum of 130 cu. in./minute.
*** For cartridge mount models, see cavity dimensions drawings in this catalog section.
**** In-Port Valves require the use of manifold mount ports.

NOTE: The maximum system back-pressure a fluid advance work support can overcome is 10 psi. Returning back-pressure greater than 10 psi may cause slow or failed retraction.
Dimensions

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<th>J</th>
<th>K</th>
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<td>1.31</td>
<td>1.31</td>
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<td>1 1/4-16</td>
<td>3.50</td>
<td>0.25</td>
<td>1.44</td>
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<td>1.13</td>
<td>0.75</td>
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<tr>
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<td>1 3/4-16</td>
<td>4.63</td>
<td>0.63</td>
<td>2.22</td>
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<td>0.40</td>
<td>1.50</td>
<td>1.00</td>
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<th>S</th>
<th>T</th>
<th>V</th>
<th>W</th>
<th>X</th>
<th>Y</th>
<th>AA</th>
<th>AB</th>
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<td>1/4-20 X .14</td>
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<td>10-0806-20</td>
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<td>1.00</td>
<td>0.50</td>
<td>0.33</td>
<td>0.94</td>
<td>0.50</td>
<td>5/16-18 X .20</td>
<td>0.31</td>
<td>0.16</td>
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</tr>
<tr>
<td>10-0806-26</td>
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<td>1.25</td>
<td>0.63</td>
<td>0.22</td>
<td>0.38</td>
<td>1.19</td>
<td>0.62</td>
<td>7/16-14 X .25</td>
<td>0.34</td>
<td>0.31</td>
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<tr>
<td>10-0808-20</td>
<td>0.84</td>
<td>1.32</td>
<td>0.84</td>
<td>0.28</td>
<td>0.44</td>
<td>1.25</td>
<td>0.81</td>
<td>5/8-11 X .31</td>
<td>0.31</td>
<td>0.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-0808-26</td>
<td>1.00</td>
<td>1.50</td>
<td>1.00</td>
<td>0.36</td>
<td>1.13</td>
<td>1.00</td>
<td>0.31</td>
<td>1.31</td>
<td>1.31</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Fluid Advance

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Fluid Advance</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0704-10</td>
<td>10-0706-10</td>
</tr>
<tr>
<td>10-0706-10</td>
<td>10-0708-10</td>
</tr>
<tr>
<td>10-0804-10</td>
<td>10-0806-10</td>
</tr>
<tr>
<td>10-0806-20</td>
<td>10-0808-20</td>
</tr>
<tr>
<td>10-0808-26</td>
<td>10-0810-20</td>
</tr>
</tbody>
</table>

*Chart data for both High Capacity and Part Present Sensing models.
**Fluid Advance High Capacity Cartridge Cavity Check List**

- Confirm capacity of item selected.
- Confirm cavity drawing is appropriate for the model number used.
- Minimum depth specification represents the nominal depth of the standard Vektek base dimension.
- Note specified thread depth when cutting threads.
- When using a bottoming tap tool, modifications may be required.
- When hand tapping threads, perpendicularity is essential.

### Cartridge Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>M</th>
<th>V</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0704-10</td>
<td>3/4-16</td>
<td>1.63</td>
<td>0.25</td>
<td>1.32</td>
<td>0.13</td>
<td>0.21</td>
<td>0.69</td>
<td>0.38</td>
<td>0.11</td>
<td>0.68</td>
<td>0.28</td>
<td>1/4-20 X .14</td>
</tr>
<tr>
<td>10-0706-10</td>
<td>1-16</td>
<td>2.14</td>
<td>0.50</td>
<td>2.18</td>
<td>0.24</td>
<td>0.21</td>
<td>0.88</td>
<td>0.56</td>
<td>0.14</td>
<td>0.92</td>
<td>0.50</td>
<td>5/16-18 X .20</td>
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<tr>
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<td>2.85</td>
<td>0.50</td>
<td>2.67</td>
<td>0.33</td>
<td>0.36</td>
<td>1.13</td>
<td>0.75</td>
<td>0.19</td>
<td>1.17</td>
<td>0.62</td>
<td>7/16-14 X .25</td>
</tr>
<tr>
<td>10-0710-10</td>
<td>1 3/4-16</td>
<td>4.00</td>
<td>0.63</td>
<td>3.22</td>
<td>0.33</td>
<td>0.40</td>
<td>1.50</td>
<td>1.00</td>
<td>0.31</td>
<td>1.67</td>
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<td>5/8-11 X .31</td>
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### Cavity Dimensions

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Installation Torque</th>
</tr>
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<tr>
<td>10-0704-10</td>
<td>3/4-16</td>
<td>0.25</td>
<td>0.689</td>
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<td>0.77</td>
<td>0.125</td>
<td>0.078</td>
<td>20 ft-lb</td>
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<td>0.939</td>
<td>0.53</td>
<td>1.03</td>
<td>0.188</td>
<td>0.125</td>
<td>35 ft-lb</td>
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<td>1.28</td>
<td>0.188</td>
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<tr>
<td>10-0710-10</td>
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<td>1.78</td>
<td>0.250</td>
<td>0.297</td>
<td>100 ft-lb</td>
</tr>
</tbody>
</table>
Part Present Sensing, High Capacity, Fluid Advance

NEW!

Confirm part is present and contacted even on as-cast surfaces!

Plungers stay retracted during part loading while air flow travels through the work support. Hydraulic pressure advances the plunger exerting only spring force as it makes contact with the part. This closes the integral air valve to indicate part is present and contacted. Hydraulic pressure then automatically sequences, “freezing” the plunger.

- Available in 2,000, 4,000 and 8,000 lb. capacity.
- Order with four bolt base or cartridge only.
- Once support is locked, air sensing positively confirms both contact and part present.
- Use Vektek’s Air Sensing Control Kit 50-8240-00 for easy setup.
- Four bolt base is compatible with Vektek In-Port flow control and In-Port sequence valves.
- Uses Vektek’s BHC technology to guard against corrosion.
- O-Ring face seal design makes machining cavities easier.
- Max air operating pressure is 15 PSI.

Standard SAE porting and alternate O-Ring manifold face seal is located in the base of the support for bolt down installation. The base can be removed for direct cartridge mounting.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Support Capacity (lbs)*</th>
<th>Mounting Style***</th>
<th>Contact Force (lbs)</th>
<th>Stroke (in.)</th>
<th>Base Dimensions (in.)</th>
<th>Retracted Height (in.)</th>
<th>Oil Capacity (cu. in.)**</th>
<th>Port X Depth for Optional In-Port Valves****</th>
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<tbody>
<tr>
<td>10-0706-10-PS</td>
<td>2000</td>
<td>Cartridge</td>
<td>1-6</td>
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<td>0.05</td>
<td>N/A SAE 4 X 0.58</td>
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<tr>
<td>10-0706-16-PS</td>
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<td>Cartridge</td>
<td></td>
<td>0.50</td>
<td>N/A</td>
<td>2.78</td>
<td>0.07</td>
<td>N/A SAE 4 X 0.58</td>
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<tr>
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<td>Cartridge</td>
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<td>Cartridge</td>
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<tr>
<td>10-0708-10-PS</td>
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<td>4.19</td>
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</tr>
<tr>
<td>10-0808-26-PS</td>
<td></td>
<td>Cartridge</td>
<td></td>
<td></td>
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<td>N/A SAE 4 X 0.750</td>
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<td></td>
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<td>4.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Support capacities are listed at 5,000 psi maximum pressure. Support capacities for other pressures are shown in the Fluid Advance High Capacity and Part Present Sensing load capacity chart.
** Restrict flow rate to a maximum of 130 cu. in./minute.
*** For cartridge mount models, see cavity dimensions drawings in this catalog section.
**** In-Port Valves require the use of manifold mount ports.

NOTE: The maximum system back-pressure a fluid advance work support can overcome is 10 psi. Returning back-pressure greater than 10 psi may cause slow or failed retraction.
For proper sealing, mating surface must be flat within 0.003 in with a maximum 63 µ in. Rₐ surface finish.

### Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>
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<td>1.25</td>
<td>0.63</td>
<td>1.25</td>
<td>0.63</td>
</tr>
<tr>
<td>10-0810-20-PS</td>
<td>1 3/4-16</td>
<td>4.91</td>
<td>0.63</td>
<td>3.22</td>
<td>1.63</td>
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<th>W</th>
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<th>Y</th>
<th>AA</th>
<th>AB</th>
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<td>0.94</td>
<td>0.43</td>
<td>5/16-18 X .20</td>
<td>SAE 4</td>
<td>0.38</td>
<td>0.31</td>
<td>0.16</td>
<td>0.14</td>
<td>0.36</td>
<td>0.16</td>
<td>0.38</td>
<td></td>
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<tr>
<td>10-0808-20-PS</td>
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<td>7/16-14 X .25</td>
<td>1/8 NPT</td>
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<td>5/8-11 X .31</td>
<td>1/8 NPT</td>
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<td>0.41</td>
<td>0.36</td>
<td>0.19</td>
<td>0.19</td>
<td>0.36</td>
<td>0.41</td>
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</tbody>
</table>

### PART PRESENT SENSING WORK SUPPORT AIR FLOW

- **Workpiece**: POPPET CLOSED & AIR PRESSURE BUILDS
- **Work Support Advances**: WORK SUPPORT ADVANCES
- **Air Supply**: Air Pressure Regulator
- **Gauge**: Air Pressure Sensor Switch
- **Flow Control Valve**: For proper sealing, mating surface must be flat within 0.003 in with a maximum 63 µ in. Rₐ surface finish.
Fluid Advance Part Present Sensing Cartridge Mount Cavity Check List

- Confirm capacity of item selected.
- Note the sealing surface finish requirements.
- Minimum depth specification represents the nominal depth of the standard Vektek base dimension.
- Confirm cavity drawing is appropriate for the model number used.
- Note specified thread depth when cutting threads.
- When using a bottoming tap tool, modifications may be required.
- When hand tapping threads, perpendicularity is essential.

### Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>M</th>
<th>V</th>
<th>W</th>
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<tr>
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<td>0.56</td>
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<td>0.92</td>
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<td>0.50</td>
<td>2.18</td>
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<td>0.75</td>
<td>0.38</td>
<td>1.17</td>
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<tr>
<td>10-0710-10-PS</td>
<td>1-3/4-16</td>
<td>4.28</td>
<td>0.63</td>
<td>3.22</td>
<td>0.33</td>
<td>0.40</td>
<td>1.50</td>
<td>1.00</td>
<td>0.59</td>
<td>1.67</td>
<td>0.81</td>
<td>5/8-11 X .31</td>
</tr>
<tr>
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</tbody>
</table>

**PART PRESENT SENSING WORK SUPPORT AIR FLOW**

- Workpiece
- Poppet Closed & Air Pressure Builds
- Work Support Advances
- Oil Feed Hole
- Air Feed Hole

**OIL FEED HOLE**
Cavity Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>Installation Torque</th>
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<tbody>
<tr>
<td>10-0704-10</td>
<td>3/4-16</td>
<td>0.25</td>
<td>0.689</td>
<td>0.38</td>
<td>0.77</td>
<td>0.125</td>
<td>0.078</td>
<td>0.125</td>
<td>0.078</td>
<td>20 ft-lb</td>
</tr>
<tr>
<td>10-0706-10</td>
<td>1-16</td>
<td>0.34</td>
<td>0.939</td>
<td>0.53</td>
<td>1.03</td>
<td>0.188</td>
<td>0.125</td>
<td>0.078</td>
<td>0.125</td>
<td>0.078</td>
</tr>
<tr>
<td>10-0706-16</td>
<td>1 1/4-16</td>
<td>0.56</td>
<td>1.189</td>
<td>0.85</td>
<td>1.28</td>
<td>0.188</td>
<td>0.187</td>
<td>0.125</td>
<td>0.476</td>
<td>50 ft-lb</td>
</tr>
<tr>
<td>10-0710-10</td>
<td>1 3/4-16</td>
<td>0.69</td>
<td>1.689</td>
<td>1.00</td>
<td>1.78</td>
<td>0.250</td>
<td>0.297</td>
<td>0.188</td>
<td>0.688</td>
<td>100 ft-lb</td>
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</table>
Spring Advance Work Supports

For Supporting Most Parts

- Available in four capacities from 1,000 to 12,500 lbs, these units adapt to support fragile parts, heavy parts or “hog out” applications.
- When using the 3-2-1 locating principles, you often need additional support for a 4th, 5th or even more areas on your part. A work support will give you “floating” locators which won’t interfere with your 3, 2 or 1 locators. Clamp over your locators then lock the supports.
- Spring extended plungers maintain contact with the part during loading, exerting only spring force against the part. When hydraulic pressure is applied the plunger freezes without exerting any additional force on the part.

Proprietary wiper and seal designs reduce contamination and drag for longer lasting, better performing Work Supports.

Stainless steel plunger and sleeve assemblies help guard against corrosion in most machining environments.

Precision fit plunger/sleeve assemblies allow VektorFlo® Work Supports to begin to lock at lower pressures and build support faster.

If spring advance supports are to be used in flood coolant environments (consider air advance) attach tubing to the vent port and route to clean, dry air to keep coolant from being drawn in and becoming sticky on internal surfaces.

Standard SAE porting and alternate O-Ring manifold face seal is located in the base of the support for bolt down installation. The base can be removed for direct cartridge mounting.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Support Capacity* (lbs)</th>
<th>Mounting Style **</th>
<th>Contact Force (lbs)</th>
<th>Stroke (in.)</th>
<th>Base Dimensions (in.)</th>
<th>Extended Height (in.)</th>
<th>Oil Capacity (cu. in.)</th>
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<td>1,000</td>
<td>Cartridge SAE</td>
<td>1-2</td>
<td>N/A</td>
<td>0.85 x 1.25 x 1.75</td>
<td>1.87</td>
<td>0.05</td>
</tr>
<tr>
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<td>2,500</td>
<td>Cartridge SAE</td>
<td>2-6</td>
<td>N/A</td>
<td>0.91 x 1.50 x 2.31</td>
<td>2.78</td>
<td>0.13</td>
</tr>
<tr>
<td>10-0506-12</td>
<td>7,500</td>
<td>Manifold SAE</td>
<td>4-3</td>
<td>N/A</td>
<td>0.91 x 1.50 x 2.31</td>
<td>2.78</td>
<td>0.13</td>
</tr>
<tr>
<td>10-0509-06</td>
<td>12,500</td>
<td>SAE</td>
<td>9-18</td>
<td>1.00 x 2.50 x 3.00</td>
<td>4.38</td>
<td>0.81</td>
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</tr>
<tr>
<td>10-0509-07</td>
<td>20,000</td>
<td>SAE</td>
<td>11-16</td>
<td>1.25 x 3.50 x 3.81</td>
<td>5.25</td>
<td>1.79</td>
<td></td>
</tr>
</tbody>
</table>

* Support capacities are listed at 5,000 psi maximum operating pressure. Support capacities for other pressures must be determined by consulting the capacity graph on the next page.
** For cartridge mount models, see cavity dimensions on page B-22.

Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>
<th>N</th>
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<tbody>
<tr>
<td>10-0506-11</td>
<td>1-16</td>
<td>2.18</td>
<td>2.24</td>
<td>0.25</td>
<td>1.06</td>
<td>0.85</td>
<td>0.90</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 x 0.27</td>
<td>1.25</td>
<td>0.63</td>
</tr>
<tr>
<td>10-0506-12</td>
<td>1-16</td>
<td>2.18</td>
<td>2.24</td>
<td>0.25</td>
<td>1.06</td>
<td>0.85</td>
<td>0.90</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 x 0.27</td>
<td>1.25</td>
<td>0.63</td>
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<tr>
<td>10-0509-07</td>
<td>1-16</td>
<td>2.18</td>
<td>2.24</td>
<td>0.25</td>
<td>1.06</td>
<td>0.85</td>
<td>0.90</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 x 0.27</td>
<td>1.25</td>
<td>0.63</td>
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<tr>
<td>10-0509-08</td>
<td>1-16</td>
<td>2.18</td>
<td>2.24</td>
<td>0.25</td>
<td>1.06</td>
<td>0.85</td>
<td>0.90</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 x 0.27</td>
<td>1.25</td>
<td>0.63</td>
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<tr>
<td>10-0515-06</td>
<td>3-7</td>
<td>5.24</td>
<td>0.75</td>
<td>3.00</td>
<td>1.24</td>
<td>0.53</td>
<td>2.74</td>
<td>2.00</td>
<td>5/8-11 x 0.63</td>
<td>3.50</td>
<td>1.75</td>
<td>2.87</td>
<td>1.44</td>
</tr>
<tr>
<td>10-0520-07</td>
<td>4-16</td>
<td>6.96</td>
<td>0.82</td>
<td>3.97</td>
<td>1.99</td>
<td>0.80</td>
<td>N/A</td>
<td>2.85</td>
<td>3/4-16 x .87</td>
<td>4.75</td>
<td>2.38</td>
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<td>2.00</td>
</tr>
<tr>
<td>10-0529-10</td>
<td>4-16</td>
<td>6.96</td>
<td>0.82</td>
<td>3.97</td>
<td>1.99</td>
<td>0.80</td>
<td>N/A</td>
<td>2.85</td>
<td>3/4-16 x .87</td>
<td>4.75</td>
<td>2.38</td>
<td>4.00</td>
<td>2.00</td>
</tr>
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</table>
For proper sealing, mating surface must be flat within 0.003 in with a maximum 63 µ in. Rₐ surface finish.
Cavity Check List

- Confirm capacity of item selected.
- Note the sealing surface finish requirements.
- Minimum depth specification represents the nominal depth of the standard Vektek base dimension.
- Confirm cavity drawing is appropriate for the model number used.
- Note specified thread depth when cutting threads.
- When using a bottoming tap tool, modifications may be required.
- When hand tapping threads, perpendicularity is essential.
- The “fluid” passage is located on the outer diameter and “vent” passage is in the center.

Cartridge Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0506-10</td>
<td>1-16</td>
<td>1.87</td>
<td>0.25</td>
<td>1.59</td>
<td>0.27</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 X 0.27</td>
<td>0.92</td>
</tr>
<tr>
<td>10-0509-06</td>
<td>1 5/16-16</td>
<td>2.43</td>
<td>0.38</td>
<td>1.96</td>
<td>0.34</td>
<td>0.25</td>
<td>1.12</td>
<td>0.81</td>
<td>3/8-16 X 0.46</td>
<td>1.22</td>
</tr>
</tbody>
</table>

Work Supports

Spring Advance Cartridge

B-21
For Supporting Fragile Parts Or Use In Harsh Environments

- Available in four capacities from 1,000 to 12,500 lbs.
- For harsh environments (where contaminants such as aluminum or cast iron fines and corrosive or tacky coolants are present), we suggest running a constant “air-spring” to keep the plunger extended and the problem contaminants out. (You should observe air bubbles escaping around the plunger when used in this manner.)
- Normally retracted plungers provide additional clearance for part loading. Advance them with air pressure, exerting ONLY the force needed to “kiss” the part, then “freeze” the plunger in place hydraulically.
- Heavier end effectors may be used with air advance supports because of their additional air powered lifting/contact force.

Special large diameter plungers and sleeves provide greater rigidity.

Stainless steel plunger and sleeve assemblies help guard against corrosion in most machining environments.

Standard SAE porting and alternate O-Ring manifold face seal are located in the base of the support for bolt down installation. The base can be removed for direct cartridge mounting.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Support Capacity* (lbs)</th>
<th>Mounting Style ***</th>
<th>Hydraulic Connection</th>
<th>Contact Force** (lbs)</th>
<th>Stroke (in.)</th>
<th>Base Dimensions (in.)</th>
<th>Retracted Height (in.)</th>
<th>Oil Capacity (cu. in.)</th>
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</thead>
<tbody>
<tr>
<td>10-0606-10</td>
<td>1,000</td>
<td>Cartridge</td>
<td>Base</td>
<td>Cavity</td>
<td>4</td>
<td>.25</td>
<td>N/A</td>
<td>.05</td>
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<tr>
<td>10-0606-11</td>
<td>1,000</td>
<td>Base</td>
<td>SAE Ports</td>
<td>4</td>
<td>.25</td>
<td>.85 X 1.25 X 1.75</td>
<td>1.62</td>
<td>.12</td>
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<tr>
<td>10-0606-12</td>
<td>1,000</td>
<td>Base</td>
<td>SAE Ports</td>
<td>.90 X 1.31 X 1.75</td>
<td>.93</td>
<td>1.99</td>
<td>1.99</td>
<td>.13</td>
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<tr>
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<td>Cartridge</td>
<td>Cavity</td>
<td>8</td>
<td>.38</td>
<td>.91 X 1.50 X 2.31</td>
<td>2.06</td>
<td>.08</td>
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<td>2,500</td>
<td>Base</td>
<td>SAE Ports</td>
<td>.91 X 1.50 X 2.31</td>
<td>.91</td>
<td>2.40</td>
<td>2.40</td>
<td>.13</td>
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<tr>
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<td>.91 X 1.50 X 2.31</td>
<td>.91</td>
<td>2.40</td>
<td>2.40</td>
<td>.10</td>
</tr>
<tr>
<td>10-0615-06</td>
<td>7,500</td>
<td>Base</td>
<td>SAE Ports</td>
<td>20</td>
<td>.50</td>
<td>1.00 X 2.50 X 3.00</td>
<td>3.87</td>
<td>.81</td>
</tr>
<tr>
<td>10-0620-07</td>
<td>12,500</td>
<td>Base</td>
<td>SAE Ports</td>
<td>57</td>
<td>.75</td>
<td>1.25 X 3.50 X 3.81</td>
<td>4.50</td>
<td>1.79</td>
</tr>
<tr>
<td>10-0629-10</td>
<td>20,000</td>
<td>Base</td>
<td>SAE Ports</td>
<td>116</td>
<td>1.00</td>
<td>1.99 x 4.75 x 4.88</td>
<td>6.15</td>
<td>3.37</td>
</tr>
</tbody>
</table>

* Support capacities are listed at 5,000 psi maximum operating pressure. Support capacities for other pressures must be determined by consulting the capacity graph on the next page.
** The maximum air pressure for advancing the plunger is 25 psi. Order air regulator separately.
*** For cartridge mount models, see cavity dimensions on pages B-22.

### Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0606-11</td>
<td>1-16</td>
<td>1.93</td>
<td>1.99</td>
<td>0.25</td>
<td>1.06</td>
<td>0.85</td>
<td>0.90</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 X 0.29</td>
<td>1.25</td>
<td>1.31</td>
</tr>
<tr>
<td>10-0606-12</td>
<td>1-16</td>
<td>2.40</td>
<td>0.38</td>
<td>1.39</td>
<td>0.91</td>
<td>0.25</td>
<td>1.13</td>
<td>0.81</td>
<td>3/8-16 X 0.24</td>
<td>1.50</td>
<td>0.75</td>
<td>1.06</td>
<td>0.53</td>
</tr>
<tr>
<td>10-0609-07</td>
<td>5/16-16</td>
<td>1.93</td>
<td>1.99</td>
<td>0.25</td>
<td>1.06</td>
<td>0.85</td>
<td>0.90</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 X 0.29</td>
<td>1.25</td>
<td>1.31</td>
</tr>
<tr>
<td>10-0615-06</td>
<td>3-16</td>
<td>4.49</td>
<td>0.76</td>
<td>3.00</td>
<td>1.24</td>
<td>0.53</td>
<td>2.74</td>
<td>2.00</td>
<td>5/8-11 X 0.63</td>
<td>3.50</td>
<td>1.75</td>
<td>2.87</td>
<td>1.44</td>
</tr>
<tr>
<td>10-0620-07</td>
<td>4-1/4</td>
<td>6.15</td>
<td>1.00</td>
<td>3.97</td>
<td>1.99</td>
<td>0.80</td>
<td>N/A</td>
<td>2.85</td>
<td>3/4-16 X 0.87</td>
<td>4.75</td>
<td>2.38</td>
<td>4.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>

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800-992-0236 www.vektek.com
The maximum air pressure recommended for advancing the Air Advance Work Support plunger is 25 psi. Order air regulator (0 to 25 psi) to more precisely control plunger advance force.

Ask us about air valves to manually or electrically control your work supports.

For proper sealing, mating surface must be flat within 0.003 in with a maximum 63 µ in. R₆ surface finish.

Air Filter Regulator

<table>
<thead>
<tr>
<th>Model No.</th>
<th>PSI Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-0440-01</td>
<td>0.25 psi</td>
</tr>
</tbody>
</table>

The maximum air pressure recommended for advancing the Air Advance Work Support plunger is 25 psi. Order air regulator (0 to 25 psi) to more precisely control plunger advance force.

Ask us about air valves to manually or electrically control your work supports.

All dimensions are in inches.
Work Supports

Air Advance

**Cavity Check List ✓**

- Confirm capacity of item selected.
- Note the sealing surface finish requirements.
- Minimum depth specification represents the nominal depth of the standard Vektek base dimension.
- Confirm cavity drawing is appropriate for the model number used.
- Note specified thread depth when cutting threads.
- When using a bottoming tap tool, modifications may be required.
- When hand tapping threads, perpendicularity is essential.
- The 'fluid' passage is located on the outer diameter and 'vent' passage is in the center.

---

**Cartridge Dimensions**

<table>
<thead>
<tr>
<th>Model No.</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>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0606-10</td>
<td>1-16</td>
<td>1.62</td>
<td>0.25</td>
<td>1.59</td>
<td>0.27</td>
<td>0.21</td>
<td>0.87</td>
<td>0.63</td>
<td>5/16-18 X 0.29</td>
<td>0.95</td>
</tr>
<tr>
<td>10-0609-06</td>
<td>1 5/16-16</td>
<td>2.06</td>
<td>0.38</td>
<td>1.96</td>
<td>0.34</td>
<td>0.25</td>
<td>1.12</td>
<td>0.81</td>
<td>3/8-16 X 0.24</td>
<td>1.22</td>
</tr>
</tbody>
</table>
Spring and Air Advance Models

- 20,000 lbs Work Support Capacity.
- Available in Spring and Air Advance.
- Clamp over with confidence.
- Large castings, no problem.
- Handles extra cutting loads effectively and efficiently
- Single Acting.
- Air Advance unit is an excellent "air spring".
- Spring Advance extended plungers maintain contact with the part during loading, exerting only spring force against the part. When hydraulic pressure is applied the plunger freezes without exerting any additional force on the part.

Precision fit plunger/sleeve assemblies allow VektorFlo® Work Supports to begin to lock at lower pressures and build support faster.

Consider Air Advance in flood coolant environments.
Attach tubing to the vent port and route to clean dry air keeping coolant from being drawn in and becoming sticky on internal surfaces.

Special large diameter plungers and sleeves provide greater rigidity.

Stainless steel plunger and sleeve assemblies help guard against corrosion in most machining environments.

Standard SAE porting located in the base of the support for bolt down installation.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Support Capacity (lbs)*</th>
<th>Mounting Style</th>
<th>Hydraulic Connection</th>
<th>Contact Force (lbs)**</th>
<th>Stroke (in.)</th>
<th>Base Dimensions (in.)</th>
<th>Extended Height (in.)</th>
<th>Retracted Height (in.)</th>
<th>Oil Capacity (cu. in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0529-10</td>
<td>20,000</td>
<td>Base</td>
<td>SAE Ports</td>
<td>38.72</td>
<td>0.82</td>
<td>1.99 x 4.75 x 4.88</td>
<td>6.97</td>
<td>6.15</td>
<td>3.37</td>
</tr>
<tr>
<td>10-0629-10</td>
<td>20,000</td>
<td>Base</td>
<td>SAE Ports</td>
<td>116</td>
<td>1.00</td>
<td>1.99 x 4.75 x 4.88</td>
<td>7.15</td>
<td>6.15</td>
<td>3.37</td>
</tr>
</tbody>
</table>

Spring Advance Work Supports, spring lifts plunger, part weight depresses plunger, hydraulic pressure locks in place.

Air Advance Work Supports, air pressure lifts plunger against part; hydraulic pressure locks in place, spring retracts plunger

- Support capacities are listed at 5,000 psi maximum operating pressure. Support capacities for other pressures must be determined by consulting the capacity graph on the next page.
- The maximum air pressure recommended for advancing the Air Advance Work Support plunger is 25 psi. Order air regulator Model No. 50-0440-01 (0 to 25 psi) to more precisely control plunger advance force.

Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0529-10</td>
<td>4 1/4-16</td>
<td>6.96</td>
<td>0.82</td>
<td>3.97</td>
<td>1.99</td>
<td>0.80</td>
<td>0.39</td>
<td>2.85</td>
<td>3/4-16 X 0.87</td>
<td>4.75</td>
<td>2.38</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td>10-0629-10</td>
<td>4 1/4-16</td>
<td>6.15</td>
<td>1.00</td>
<td>3.97</td>
<td>1.99</td>
<td>0.80</td>
<td>0.39</td>
<td>2.85</td>
<td>3/4-16 X 0.87</td>
<td>4.75</td>
<td>2.38</td>
<td>4.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>
The maximum air pressure recommended for advancing the Air Advance Work Support plunger is 25 psi. Order air regulator (0 to 25 psi) to more precisely control plunger advance force.

Ask us about air valves to control your work supports either manually or electrically.

---

### Air Filter Regulator

<table>
<thead>
<tr>
<th>Model No</th>
<th>PSI Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-0440-01</td>
<td>0-25 psi</td>
</tr>
</tbody>
</table>

---

### Spring Advance Work Supports

- Spring lifts plunger, part weight depresses plunger, hydraulic pressure locks in place.
- Model No: 10-0529-10
- Pressure Port: X
- Breather Port: V
- Dimensions: 4 1/4-16
- Weight: 6.96 lbs
- P: 2.85
- Q: 3/4-16 X 0.87
- R: 4.75
- S: 2.38
- T: 4.00
- U: 4.00
- V: 0.87
- W: 2.38
- X: 4.00
- Y: 4.00
- Z: 0.87
- AA: 2.85
- AB: 3/4-16
- AC: 4.75

### Air Advance Work Supports

- Air pressure lifts plunger against part; hydraulic pressure locks in place, spring retracts plunger.
- Model No: 10-0629-10
- Pressure Port: X
- Air Port: V
- Dimensions: 4 1/4-16
- Weight: 6.15 lbs
- P: 2.85
- Q: 3/4-16 X 0.87
- R: 4.75
- S: 2.38
- T: 4.00
- U: 4.00
- V: 0.87
- W: 2.38
- X: 4.00
- Y: 4.00
- Z: 0.87
- AA: 2.85
- AB: 3/4-16
- AC: 4.75

---

**ILS100506 REV B**

---

**ILS100608 REV A**
Fluid Advance

- Available in: 1,000, 2,500 and 4,000 lbs.
- Normally retracted plungers do not interfere with part loading. Advance them with hydraulic pressure, exerting only spring force to bring the plunger into contact with your part. Hydraulic pressure then automatically sequences, “freezing” the plunger properly against the part.
- Ventless configuration and built in wiper keeps chips and debris out, reducing the chance of plunger/sleeve sticking or binding.
- Stainless steel plunger and sleeve assemblies help guard against corrosion in most machining environments.

Plunger and sleeve assemblies designed to help guard against corrosion in most machining environments.

Standard SAE porting and alternate O-Ring manifold face seal is located in the base of the support for bolt down installation. The base can be removed for direct cartridge mounting.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Support Capacity (lbs)</th>
<th>Mounting Style***</th>
<th>Contact Force** (lbs)</th>
<th>Stroke (in)</th>
<th>Base Dimensions (in.)</th>
<th>Retracted Height (in.)</th>
<th>Oil Capacity** (cu. in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0706-04</td>
<td>1,000</td>
<td>Cartridge</td>
<td>1 - 6</td>
<td>0.25</td>
<td>N/A</td>
<td>2.12</td>
<td>0.08</td>
</tr>
<tr>
<td>10-0706-14</td>
<td>1,400</td>
<td>Cartridge</td>
<td>1 - 6</td>
<td>0.50</td>
<td>0.90 X 1.31 X 1.75</td>
<td>2.51</td>
<td>0.16</td>
</tr>
<tr>
<td>10-0806-05</td>
<td>1,000</td>
<td>SAE/Manifold</td>
<td>1 - 6</td>
<td>0.25</td>
<td>0.50</td>
<td>2.51</td>
<td>0.16</td>
</tr>
<tr>
<td>10-0806-15</td>
<td>1,400</td>
<td>SAE/Manifold</td>
<td>1 - 6</td>
<td>0.50</td>
<td>0.90 X 1.31 X 1.75</td>
<td>2.51</td>
<td>0.16</td>
</tr>
<tr>
<td>10-0708-07</td>
<td>2,500</td>
<td>Cartridge</td>
<td>3 - 10</td>
<td>0.25</td>
<td>N/A</td>
<td>2.83</td>
<td>0.12</td>
</tr>
<tr>
<td>10-0708-17</td>
<td>3,000</td>
<td>Cartridge</td>
<td>3 - 10</td>
<td>0.50</td>
<td>1.25 X 1.50 X 2.31</td>
<td>3.25</td>
<td>0.19</td>
</tr>
<tr>
<td>10-0808-07</td>
<td>2,500</td>
<td>SAE/Manifold</td>
<td>3 - 10</td>
<td>0.25</td>
<td>0.50</td>
<td>3.75</td>
<td>0.21</td>
</tr>
<tr>
<td>10-0808-15</td>
<td>3,000</td>
<td>SAE/Manifold</td>
<td>3 - 10</td>
<td>0.50</td>
<td>1.25 X 1.50 X 2.31</td>
<td>3.75</td>
<td>0.21</td>
</tr>
<tr>
<td>10-0715-06</td>
<td>4,000</td>
<td>Cartridge</td>
<td>8 - 12</td>
<td>0.50</td>
<td>N/A</td>
<td>2.85</td>
<td>0.59</td>
</tr>
<tr>
<td>10-0715-06</td>
<td>4,000</td>
<td>Cartridge</td>
<td>8 - 12</td>
<td>0.50</td>
<td>0.99 X 2.88 X 3.19</td>
<td>3.25</td>
<td>0.65</td>
</tr>
</tbody>
</table>

* Support capacities are listed at 5,000 psi maximum operating pressure. Support capacities for other pressures must be determined by consulting the capacity graph on the next page.

** Restict flow rate to a maximum of 130 cu. in./minute.

*** For cartridge mount models, see cavity dimensions on page B-31.

NOTE: The maximum system backpressure a fluid advance work support can overcome is 10 psi. Returning backpressure greater than 10 psi may cause slow or failed retraction.

Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid Advance Supports, hydraulic pressure lifts spring which lifts plunger, hydraulic pressure locks.</td>
<td>1-16</td>
<td>2.51</td>
<td>0.25</td>
<td>1.17</td>
<td>0.90</td>
<td>0.21</td>
<td>0.88</td>
<td>0.62</td>
<td>0.14</td>
<td>1.31</td>
<td>0.66</td>
<td>0.90</td>
<td>0.45</td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>10-0806-05</td>
<td>1-16</td>
<td>2.51</td>
<td>0.25</td>
<td>1.17</td>
<td>0.90</td>
<td>0.21</td>
<td>0.88</td>
<td>0.62</td>
<td>0.14</td>
<td>1.31</td>
<td>0.66</td>
<td>0.90</td>
<td>0.45</td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>10-0806-15</td>
<td>2.01-16</td>
<td>3.01</td>
<td>0.50</td>
<td>1.67</td>
<td>0.90</td>
<td>0.21</td>
<td>0.88</td>
<td>0.62</td>
<td>0.14</td>
<td>1.31</td>
<td>0.66</td>
<td>0.90</td>
<td>0.45</td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>10-0808-07</td>
<td>1 1/4-16</td>
<td>3.25</td>
<td>0.25</td>
<td>1.35</td>
<td>1.25</td>
<td>0.36</td>
<td>1.13</td>
<td>0.81</td>
<td>0.19</td>
<td>1.50</td>
<td>0.75</td>
<td>1.06</td>
<td>0.53</td>
<td>2.31</td>
<td></td>
</tr>
<tr>
<td>10-0808-17</td>
<td>1 1/4-16</td>
<td>3.25</td>
<td>0.25</td>
<td>1.35</td>
<td>1.25</td>
<td>0.36</td>
<td>1.13</td>
<td>0.81</td>
<td>0.19</td>
<td>1.50</td>
<td>0.75</td>
<td>1.06</td>
<td>0.53</td>
<td>2.31</td>
<td></td>
</tr>
<tr>
<td>10-0815-06</td>
<td>2 1/4-16</td>
<td>3.25</td>
<td>0.50</td>
<td>1.57</td>
<td>0.99</td>
<td>0.50</td>
<td>2.00</td>
<td>1.50</td>
<td>0.19</td>
<td>2.88</td>
<td>1.44</td>
<td>2.06</td>
<td>1.03</td>
<td>3.19</td>
<td></td>
</tr>
</tbody>
</table>

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

Dimensions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0706-04</td>
<td>10-0706-14</td>
<td>10-0706-06</td>
<td>10-0706-17</td>
</tr>
<tr>
<td>10-0806-05</td>
<td>10-0806-15</td>
<td>10-0806-07</td>
<td>10-0806-17</td>
</tr>
</tbody>
</table>

Fluid Advance Supports, hydraulic pressure lifts spring which lifts plunger, hydraulic pressure locks.

| Q  | R  | S  | T  | V  | W        | X  | Y  | Z  | AA° | AB | AC | AD | AE |
|----|----|----|----|----|----------|----|----|----|-----|----|----|----|----|----|
| 0.69 | 1.20 | 0.51 | 0.22 | 0.50 | 5/16-18 X 0.20 3/8 -24 x 0.20 | SAE 2 | 0.33 | 0.38 | 7  | 0.38 | 0.69 | YES | N/A |
| 0.94 | 1.66 | 0.72 | 0.28 | 0.63 | 7/16-14 X 0.25 | SAE 4 | 0.43 | 0.38 | N/A | N/A | N/A | N/A | YES |
| 1.44 | 2.41 | 1.03 | 0.28 | 0.75 | 1/2-13 X 0.25 | SAE 4 | 0.63 | 0.38 | N/A | N/A | N/A | N/A | YES |

All dimensions are in inches.
Cavity Check List

- Confirm capacity of item selected.
- Note the sealing surface finish requirements.
- Minimum depth specification represents the nominal depth of the standard Vektek base dimension.
- Confirm cavity drawing is appropriate for the model number used.
- Note specified thread depth when cutting threads.
- When using a bottoming tap tool, modifications may be required.
- When hand tapping threads, perpendicularity is essential.

Cartridge Dimensions

<table>
<thead>
<tr>
<th>Model No.</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>M</th>
<th>V</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0706-04</td>
<td>1-16</td>
<td>2.12</td>
<td>0.25</td>
<td>1.68</td>
<td>0.24</td>
<td>0.21</td>
<td>0.88</td>
<td>0.62</td>
<td>0.14</td>
<td>0.92</td>
<td>0.50</td>
<td>5/16-18 X 0.20</td>
</tr>
<tr>
<td>10-0706-14</td>
<td>1-16</td>
<td>2.62</td>
<td>0.50</td>
<td>2.18</td>
<td>0.31</td>
<td>0.36</td>
<td>1.13</td>
<td>0.81</td>
<td>0.19</td>
<td>1.17</td>
<td>0.63</td>
<td>3/8-24 X 0.20</td>
</tr>
<tr>
<td>10-0708-07</td>
<td>1 1/4-16</td>
<td>2.83</td>
<td>0.25</td>
<td>2.17</td>
<td>0.31</td>
<td>0.36</td>
<td>1.13</td>
<td>0.81</td>
<td>0.19</td>
<td>1.17</td>
<td>0.63</td>
<td>7/16-14 X 0.25</td>
</tr>
<tr>
<td>10-0708-17</td>
<td>1 1/4-16</td>
<td>3.33</td>
<td>0.50</td>
<td>2.67</td>
<td>0.31</td>
<td>0.36</td>
<td>1.13</td>
<td>0.81</td>
<td>0.19</td>
<td>1.17</td>
<td>0.63</td>
<td>7/16-14 X 0.25</td>
</tr>
<tr>
<td>10-0715-06</td>
<td>2 1/4-16</td>
<td>2.85</td>
<td>0.50</td>
<td>2.16</td>
<td>0.19</td>
<td>0.50</td>
<td>2.00</td>
<td>1.50</td>
<td>0.19</td>
<td>2.16</td>
<td>0.75</td>
<td>1/2-13 X 0.25</td>
</tr>
</tbody>
</table>

GASKET, ON MODELS 10-0706-04, 10-0706-14, 10-0708-07, AND 10-0708-17 ONLY, WILL COMPRESS TO APPROXIMATELY .020 THICK WHEN INSTALLED.
Work Supports

Fluid Advance Cartridge Cavities

#1000 SINGLE ACTING FLUID ADVANCE
10-0706-04 & 10-0706-14
(TORQUE TO 30 FT.LBS.)

WORK SUPPORT CAVITY DIMENSIONS:
#1000 SINGLE ACTING FLUID ADVANCE
10-0706-04 & 10-0706-14
(TORQUE TO 30 FT.LBS.)

0.590 (MIN) DRILL THRU TO 0.188 HOLE (TYPE)

0.188 MAX. THRU TO FLUID PASSAGE ANYWHERE ON OR INSIDE A 0.50" RADIUS

0.590 MIN.

WORK SUPPORT CAVITY DIMENSIONS:
#4000 SINGLE ACTING FLUID ADVANCE
10-0715-06
(TORQUE TO 100 FT.LBS.)

0.150 ± 0.020 (THREAD DEPTH)

0.090 ± 0.016

0.150 ± 0.020 (TORQUE DEPTH)

0.090 ± 0.016

SEE DETAIL A

DETAIL A

Ø 0.78 (MIN) DRILL THRU TO 0.188 HOLE (TYPE)

Ø 0.78 ± 0.007 x 0.090 ± 0.016

THREAD 2 1/4-16 UN X .150 ± .020
WITH Ø 0.227 X 45° CHAMFER

0.210 ± 0.020 (THREAD DEPTH)

0.135 ± 0.016

0.210 (REF)

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0.210 (REF)
Work Supports

Fluid Advance Accessories

Fluid Advance Work Support Shields

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Work Support Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1-0707-01</td>
<td>10-0706-04 10-0706-05 10-0806-05 10-0806-15</td>
<td>0.66</td>
<td>0.50</td>
<td>0.30</td>
<td>1.04</td>
</tr>
<tr>
<td>B1-0708-01</td>
<td>10-0708-07 10-0708-17 10-0808-07 10-0808-17</td>
<td>0.85</td>
<td>0.84</td>
<td>0.43</td>
<td>1.38</td>
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<tr>
<td>B1-0715-01</td>
<td>10-0715-06 10-0815-06</td>
<td>0.92</td>
<td>1.00</td>
<td>0.58</td>
<td>2.36</td>
</tr>
</tbody>
</table>

For use with fluid advance Work Supports only

Feeder Caps Dimensions

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-9872-39</td>
<td>3/4-16 UN</td>
<td>.85</td>
<td>.38</td>
<td>1.00</td>
</tr>
<tr>
<td>30-9872-40</td>
<td>1-16 UN</td>
<td>1.00</td>
<td>.53</td>
<td>1.25</td>
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<tr>
<td>30-9872-43</td>
<td>1 1/4-16 UN</td>
<td>1.38</td>
<td>.85</td>
<td>1.50</td>
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<tr>
<td>30-9872-46</td>
<td>1 3/4-16 UN</td>
<td>1.47</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>30-9872-47</td>
<td>2 1/4-16 UN</td>
<td>.99</td>
<td>.59</td>
<td>2.50</td>
</tr>
</tbody>
</table>

For use with fluid advance Work Supports only

Machining Specifications for Work Supports mounted with a Feeder Cap or Lock Nut

<table>
<thead>
<tr>
<th>Work Support Capacity</th>
<th>B</th>
<th>C</th>
<th>Lock Nut</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 HC</td>
<td>3/4-16</td>
<td>1.16</td>
<td>N/A</td>
</tr>
<tr>
<td>1000/1400/2000 HC</td>
<td>1-16</td>
<td>1.44</td>
<td>N/A</td>
</tr>
<tr>
<td>2500/3000/4000 HC</td>
<td>1 1/4-16</td>
<td>1.73</td>
<td>64-0012-00</td>
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<tr>
<td>8000 HC</td>
<td>1 3/4-16</td>
<td>2.31</td>
<td>N/A</td>
</tr>
<tr>
<td>4000</td>
<td>2 1/4-16</td>
<td>2.89</td>
<td>64-0022-00</td>
</tr>
</tbody>
</table>
### Work Supports

**Self Produced Contact Bolt**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Capacity (lbs)</th>
<th>O-Ring Part No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-0704-10</td>
<td>1,000 (High Capacity)</td>
<td>39-0511-72</td>
<td>.297</td>
<td>.141</td>
<td>.187</td>
<td>.040</td>
<td>1/4-20 UNC-2A</td>
</tr>
<tr>
<td>10-0704-20</td>
<td>1,000 (High Capacity)</td>
<td>39-0510-59</td>
<td>.384</td>
<td>.197</td>
<td>.238</td>
<td>.047</td>
<td>5/16-18 UNC-2A</td>
</tr>
<tr>
<td>10-0706-14</td>
<td>1,000 (Standard Stroke)</td>
<td>39-0510-69</td>
<td>.450</td>
<td>.197</td>
<td>.302</td>
<td>.047</td>
<td>3/8-24 UNC-2A</td>
</tr>
<tr>
<td>10-0706-15</td>
<td>1,000 (High Capacity)</td>
<td>39-0510-59</td>
<td>.384</td>
<td>.197</td>
<td>.238</td>
<td>.047</td>
<td>5/16-18 UNC-2A</td>
</tr>
<tr>
<td>10-0706-20</td>
<td>2,000 (Long Stroke)</td>
<td>39-0510-59</td>
<td>.384</td>
<td>.197</td>
<td>.238</td>
<td>.047</td>
<td>5/16-18 UNC-2A</td>
</tr>
<tr>
<td>10-0708-17</td>
<td>3,000 (Long Stroke)</td>
<td>55-2500-05</td>
<td>.493</td>
<td>.250</td>
<td>.328</td>
<td>.070</td>
<td>7/16-14 UNC-2A</td>
</tr>
<tr>
<td>10-0706-20</td>
<td>4,000 (High Capacity)</td>
<td>55-2500-05</td>
<td>.493</td>
<td>.250</td>
<td>.328</td>
<td>.070</td>
<td>7/16-14 UNC-2A</td>
</tr>
<tr>
<td>10-0710-10</td>
<td>4,000 (High Capacity)</td>
<td>55-2500-05</td>
<td>.493</td>
<td>.250</td>
<td>.328</td>
<td>.070</td>
<td>7/16-14 UNC-2A</td>
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<tr>
<td>10-0715-06</td>
<td>8,000 (High Capacity)</td>
<td>39-0511-76</td>
<td>.681</td>
<td>.313</td>
<td>.508</td>
<td>.080</td>
<td>5/8-11 UNC-2A</td>
</tr>
</tbody>
</table>

**Self Produced Part Present Sensing Contact Bolt**

| Model No. | Retaining Ring No. | Adapter No. | O-Ring No. | Max Weight (lbs) | B | C | D | E | F | G | H | J | K | L |
|-----------|--------------------|-------------|------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 10-0708-10-PS | 23-0100-08 | 81-0608-01 | 55-2500-05 | .27 | .502 | .156 | .025 | .020 | .002 | .135 | .0015 | .015 | .015 | .600 |

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