

## SeaVent<sup>®</sup> Relief Valves

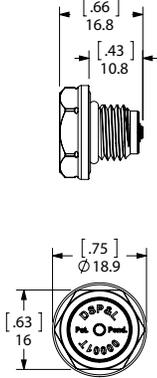
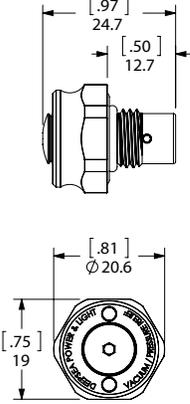
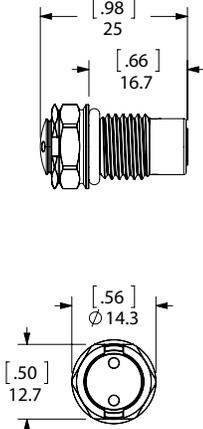
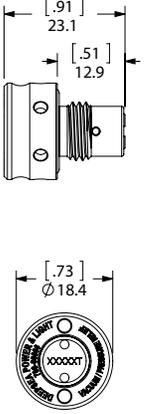
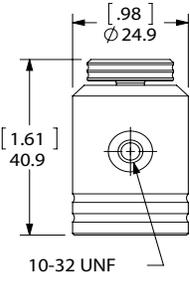
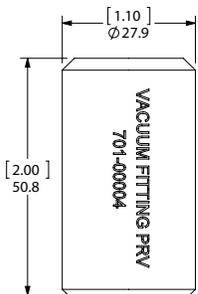
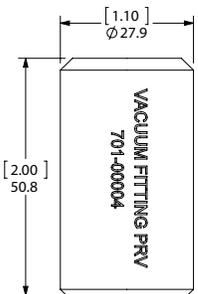
Multiple Options for Different Applications



### **WARNING!**

Read this Operator's Manual carefully before using this tool. Failure to understand and follow the contents of this manual may result in electrical shock, fire, and/or serious personal injury.

# Specification Overview

	Double Dual Seal	Single Dual Seal	Single Seal SAE	Single Seal Face
<b>Mechanical Specifications</b>				
<b>Material</b>	Titanium 6Al-4V PEEK	Titanium 6Al-4V Aluminum 6061 Stainless Steel 316 (passivated)	Stainless Steel 316 (passivated)	Titanium 6Al-4V Aluminum 6061 Stainless Steel 316 (passivated)
<b>Diameter</b>	18.9 mm [0.75 in.]	20.6 mm [0.81 in.]	14.3 mm [0.56 in.]	18.4 mm [0.73 in.]
<b>Length</b>	16.8 mm [0.66 in.]	24.7 mm [0.97 in.]	25 mm [0.98 in.]	23.1 mm [0.91 in.]
<b>Weight in Air</b>	8.3 g [0.29 oz]	14.1 g [0.49 oz.] (Titanium)	12.9 g [0.46 oz]	11.7 g [0.42 oz] (Titanium)
<b>Weight in Water</b>	6.1 g (Titanium)	11.0 g (Titanium)	10.6 g	9.6 g (Titanium)
<b>Threads</b>	7/16 - 20, with #4 J1926 Port	7/16 - 20, with #4 J1926 Port	7/16 - 20, with #4 J1926 Port	7/16" - 20
<b>Environmental Specifications</b>				
<b>Depth</b>	11,000 m (Ti) 6,000 m (PEEK)	11,000 m (Ti) 6,000 m (Al and SS)	6,000 m	11,000 m (Ti) 6,000 m (Al and SS)
<b>Temperature</b>	0° C to 40° C [32° F to 104° F]	0° C to 40° C [32° F to 104° F]	0° C to 40° C [32° F to 104° F]	0° C to 40° C [32° F to 104° F]
<b>Default Cracking Pressure</b>	10 psi ± 20%	10 psi ± 20%	25 psi ± 20%	10 psi ± 20%
<b>Cracking Pressure Range</b>	5 to 10 psi	Default: 5 to 15 psi Optional: 15 to 25 psi	Default: 15 to 25 psi Optional: 5 to 15 psi	5 to 15 psi
<b>[inch] mm</b>				
<b>Available Accessories</b>				
<b>Vacuum/Fill Attachment</b>	<b>Vacuum Attachment<sup>1</sup></b>	<b>N/A</b>	<b>Vacuum Attachment<sup>1</sup></b>	
				

<sup>1</sup> Requires ¼-NPT Threaded Male Adapter (Sold Separately)

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## Safety Symbol

**In this operator's manual and on the product, safety symbols are used to communicate important safety information. This section is provided to improve understanding of these symbols.**



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



**DANGER** indicates a hazardous situation which, if not avoided, could result in death or serious injury.



**WARNING** indicates a hazardous situation which, if not avoided, could result in damage to the product or bodily harm.



**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



**NOTICE** indicates information that relates to the protection of property.



This symbol means read the operator's manual carefully before using the equipment. The operator's manual contains important information on the safe and proper operation of the equipment.



This symbol means always wear safety glasses with side shields or goggles when handling or using this equipment to reduce the risk of eye injury.



This symbol indicates the risk of electrical shock.

## General Notes and Warnings

### **DANGER**

Make certain there is no loose debris (e.g., silica gel particles, metal shavings, battery chemicals, or other loose materials) that may clog the PRV and prevent it from venting excess pressure. This could result in a potentially hazardous over-pressurization condition.

### **CAUTION**

If your PRV has not recently been in operation, the initial cracking pressure may be slightly higher than the initial set value.

## Installation

1. For the **Single Seal Face** SeaVent PRV, drill and tap a 7/16–20 hole into housing, and ensure that there is a minimum 3/8 of an inch thread depth. The drilled and tapped hole must be perpendicular to sealing surface within +/- 1 degree. For **Single Seal SAE**, **Single Dual Seal** and **Double Dual Seal** SeaVent PRVs, refer to SAE J1926-1 (size #4) specifications for hole geometry.
2. Ensure that the O-rings are nick and dirt free before lubricating. Grease O-ring using DC-111 or DC-4 (or equivalent) silicone lubricant.

3. To thread in the different SeaVent PRVs:
  - a. **Single Seal Face**: tighten using the PRV Installation and Adjustment Tool or a 3/32" pin spanner wrench.
  - b. **Single Seal SAE**: tighten using a 9/16" wrench.
  - c. **Single Dual Seal**: tighten using a 3/4" wrench.
  - d. **Double Dual Seal**: tighten using a 16 mm wrench.

### **WARNING**

## Installation Warnings

- For Aluminum, Stainless Steel and Titanium PRVs, torque not to exceed **100 in/lbs**.
- For PEEK PRVs, torque not to exceed **20 in/lbs**.

## Cracking Pressure Adjustment

1. Tools used for adjustment:
  - a. **Single Seal Face** and **Single Seal SAE** SeaVent PRVs: use PRV Installation and Adjustment Tool.
  - b. **Single Dual Seal** and **Double Dual Seal** SeaVent PRVs: use 2 mm Allen Key.
2. Rotate the PRV valve stem counter-clockwise

to decrease cracking pressure and clockwise to increase cracking pressure.

3. If the valve stem is rotated too many turns in the counter-clockwise direction, the stem will disengage from the internal nut and need to be re-engaged by turning the stem in the clockwise direction.

## Vacuum Port Instructions (Single Seal Face and Single Dual Seal SeaVent PRVs)

1. Loosen the valve stem so it is set to crack at about 2 psi. Count the number of turns so you can return it to the set cracking pressure.
2. Snap on the optional vacuum fitting (DSPL P/N 701-0004) and draw the amount of vacuum desired.
3. Pull off the vacuum fitting. The valve will seat and seal from the spring force and outside pressure differential.
4. Tighten the valve stem back to the original cracking pressure. Be sure not to over-tighten the valve, or it will lock shut and not vent.

## Vacuum/Fill Port Instructions (Double Dual Seal SeaVent PRV)

1. Before use, refer to drawing number 701-001-601 for the SeaVent Vacuum/Fill adapter accessory parts diagram.
2. Prior to installing the Vacuum/Fill accessory, ensure that the outside surfaces of your SeaVent PRV are clean and free of debris.
3. Using a graphite pencil, make an alignment mark both on the valve plunger and valve body of the SeaVent PRV. This will help to ensure the set point is not inadvertently adjusted during the vacuum/fill procedure. (If you wish to remove the alignment mark off from plunger and body after completing your vacuum and/or fill procedure, be aware that the use of harsh chemicals or solvents is not recommended as they may damage the seals. Mild soapy water with a cotton tipped swab is the preferred method. Use caution to not adjust the valve plunger position.)
4. Install the vacuum/fill accessory by pushing it down over the body of the relief valve. The Vacuum/Fill accessory should nearly bottom on the housing which the relief valve is installed into. If it does not seat evenly, check to see that the

O-ring (2-018 N0674-70) is properly installed in the vacuum fitting (701-001-017).

5. Once seated, look through the translucent Vacuum Fitting (701-001-017) to ensure the Plunger Puller (701-001-018) tip is directly over the threaded hexagonal hole in the top of the SeaVent PRV. Once aligned, push down lightly on the plunger puller and turn it approximately 4 times clockwise. Doing so will engage the threads in the SeaVent PRVs plunger. DO NOT continue turning until tight, as this will result in altering the set point of your SeaVent PRV.
6. Once the Vacuum/Fill accessory is installed, open the SeaVent PRV by pulling up gently on the plunger puller (701-001-018) while holding the translucent body in place. It is important not to pull on the valve actuator without holding the body. A small amount of force, approximately 50-60 grams [2 ounces], will be enough to visibly lift the valve plunger. Excessive pulling of the Vacuum/Fill accessory may result in damage to the SeaVent PRV.
7. If you are using the 2-way valve accessory, refer to drawing number 701-001-601 for the valve state diagram.
8. To remove the Vacuum/Fill accessory, turn the Plunger Puller (701-001-018) counter-clockwise at least 5 times. Carefully pull up on the Vacuum Fitting. If there is any resistance, stop and ensure the Plunger Puller (701-001-018) has been fully unscrewed from the SeaVent PRV.
9. Once removed, verify the mark on the SeaVent pressure relief valve body and plunger are still aligned. If the valve was inadvertently adjusted, readjust it to the original position by using a 2 mm or 5/64" hex driver.

## RMA Procedure for Repair

For warranty and non-warranty repairs please contact DeepSea Power & Light for a RMA number prior to returning your item. Please have your Pressure Relief Valve serial number and any other pertinent information along with a description of the problem on hand when you call or included in a fax or e-mail.

When shipping your item, be sure that the freight is pre-paid (CODs will not be accepted) and that the RMA number is clearly printed on the outside of the box.

All shipments should be sent to the address below:

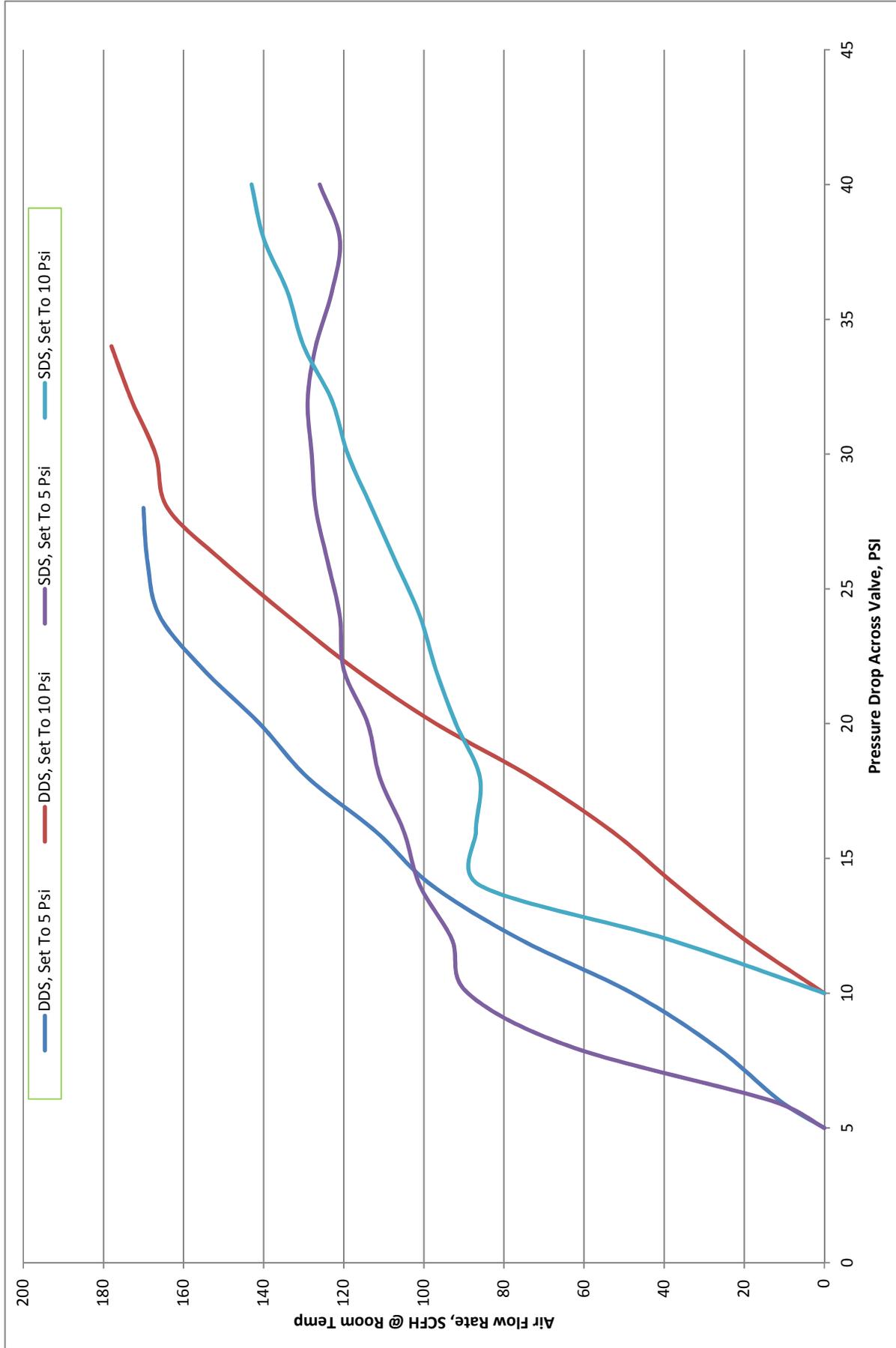
**DeepSea Power & Light**  
**Attn: RMA #####**  
**4033 Ruffin Road**  
**San Diego, CA 92123-1817**  
**U.S.A**  
**Tel: (858) 576-1261**  
**Fax: 858-576-0219**  
**Email: RMA@deepsea.com**

## **Limited Warranty**

Seller warrants that the goods (except internal electronic components) sold under this contract will be free from defect in material and workmanship for a period of one year from the date of shipment from the factory, if they have been properly used. Internal electronic components are warranted for 90 days from the date of shipment from the factory, if they have been properly used. This warranty will be limited to the repair or replacement of parts and the necessary labor and services required to repair the goods. IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY. This warranty is the exclusive and only warranty to pass with the goods under this contract. No agent, employee, or representative of the Seller has any authority to bind Seller to any information, representation, or warranty concerning the goods sold under this contract, and unless an affirmation, representation, or warranty made by an agent, employee, or representative is specifically included within this contract, it will not be enforceable by Buyer. If notice of defect is given to DeepSea Power & Light LLC within such 90 day or one year warranty period, the sole obligation of DeepSea Power & Light LLC shall be to furnish new or repaired parts free of charge in exchange for parts which have been proved defective and does not include any other costs such as the cost of removal of the defective part, installation, labor, or consequential damages of any kind, the exclusive remedy being to require DeepSea Power & Light LLC to furnish such new parts. Under no circumstances shall the Buyer be entitled to recover any incidental damages as that term is defined in Commercial Code §2715.

# Appendix A

Double Dual Seal and Single Dual Seal PSI Flow Rate Graph



# Appendix B

Vacuum/Fill Exploded View







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Printed in USA

Rev 12/02/2019

