



# Installation, Operation, and Maintenance Manual

Pure-Flo

AOS, Adjustable Opening Stop



**ITT**

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# 1 Introduction and Safety

## 1.1 Safety message levels

### Definitions

Safety message level	Indication
 <b>DANGER:</b>	A hazardous situation which, if not avoided, will result in death or serious injury
 <b>WARNING:</b>	A hazardous situation which, if not avoided, could result in death or serious injury
 <b>CAUTION:</b>	A hazardous situation which, if not avoided, could result in minor or moderate injury
 <b>ELECTRICAL HAZARD:</b>	The possibility of electrical risks if instructions are not followed in a proper manner
<b>NOTICE:</b>	<ul style="list-style-type: none"> <li>• A potential situation which, if not avoided, could result in an undesirable result or state</li> <li>• A practice not related to personal injury</li> </ul>

## 1.2 User health and safety

### General precautions

This product is designed and manufactured using good workmanship and materials, and meets all applicable industry standards. This product should be used only as recommended by ITT.



### **WARNING:**

- Misapplication of the valve can result in injury or property damage. Select valves and valve components of the proper materials and make sure that they are consistent with your specific performance requirements. Incorrect application of this product includes but is not limited to:
  - Exceeding the pressure or temperature rating
  - Failing to maintain this product according to the recommendations
  - Using this product to contain or control media that is incompatible with the materials of construction

### Qualifications and training

The personnel responsible for the assembly, operation, inspection, and maintenance of the valve must be appropriately qualified. The operating company must do the following tasks:

- Define the responsibilities and competency of all personnel handling this equipment.
- Provide instruction and training.

- Ensure that the contents of the operating instructions have been fully understood by the personnel.

Instruction and training can be carried out by either ITT or the reseller of the valve by order of the operating company



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**WARNING:**

California Proposition 65 Cancer <http://www.P65Warnings.ca.gov>. Plastics in product contain Glass Wool Fibers, known to the State of California to cause cancer. Wash hands after handling.

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**Non-compliance risks**

Failure to comply with all safety precautions can result in the following conditions:

- Death or serious injury due to electrical, mechanical, and chemical influences
- Environmental damage due to the leakage of dangerous materials
- Product damage
- Property damage
- Loss of all claims for damages

**Operational safety precautions**

Be aware of these safety precautions when operating this product:

- Do not leave hot or cold components of the product unsecured against contact if they are a source of danger.
- Do not remove the contact guard for moving parts when the product is in operation. Never operate the product without the contact guard installed.
- Do not hang items from the product. Any accessories must be firmly or permanently attached.
- Do not use the product as a step or hand hold.
- Do not paint over the identification tag, warnings, notices, or other identification marks associated with the product.

**Maintenance safety precautions**

Be aware of these safety precautions when performing maintenance on this product:

- You must decontaminate the product if it has been exposed to harmful substances such as caustic chemicals.

**Use of unauthorized parts**

Reconstruction or modification of the product is only permissible after consultation with ITT. Genuine spare parts and accessories authorized by ITT serve to maintain safety. Use of non-genuine ITT parts can annul liability of the manufacturer for the consequences. ITT parts are not to be used in conjunction with products not supplied by ITT as this improper use can annul all liability for the consequences.

**Unacceptable modes of operation**

The operational reliability of this product is only guaranteed when it is used as designated. The operating limits given on the identification tag and in the data sheet may not be exceeded under any circumstances. If the identification tag is missing or worn, contact ITT for specific instructions.

# Introduction

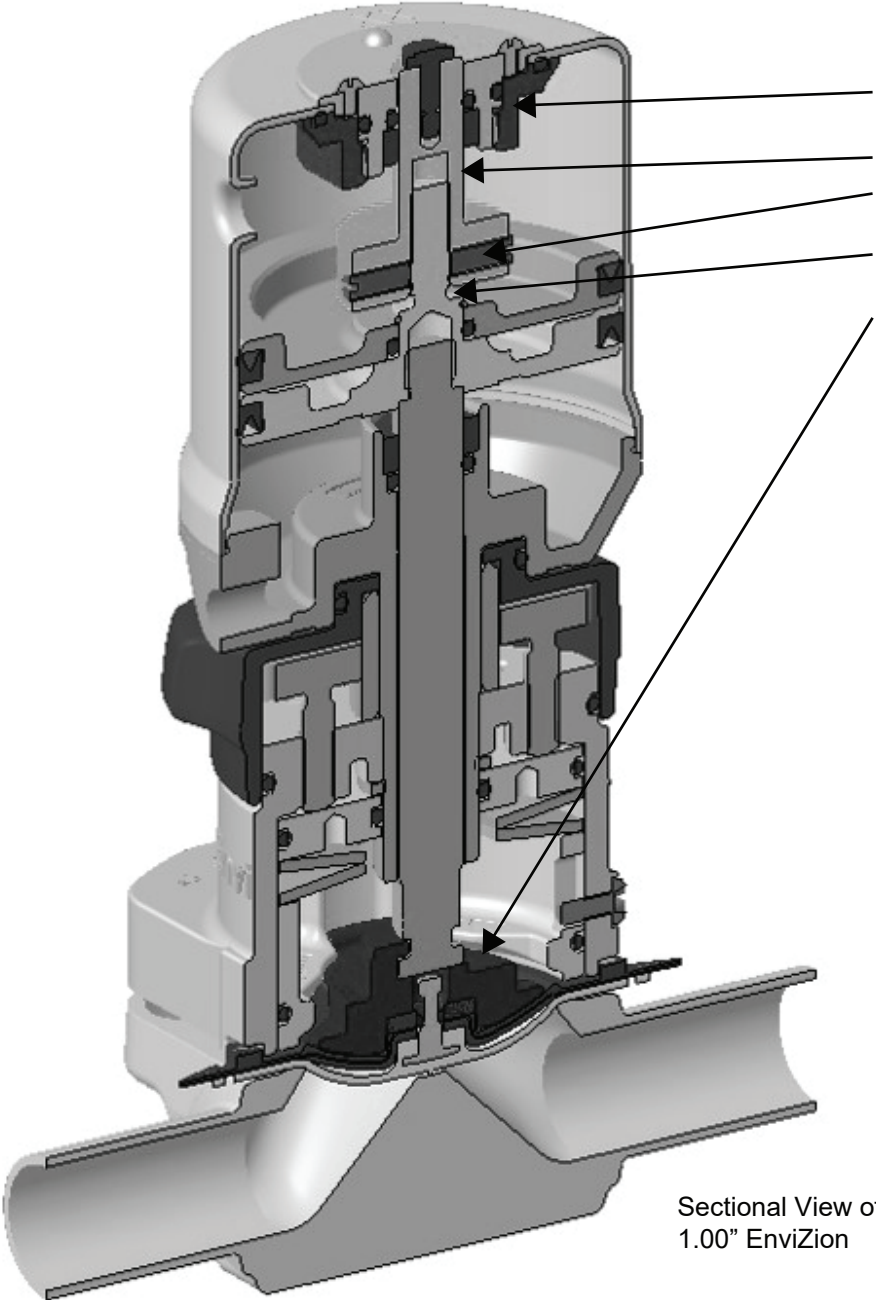
The Adjustable Opening Stop, AOS, is a valuable option for customers who desire restricted flow control through the valve in the open position. This option is available in all sizes of Pure-Flo valves including BioviZion, Bio-Pure, Bio-Tek, EnviZion & Advantage products.



This instruction also gives insight on how the mechanical feature works, making use of this tool more intuitive to the customer. When used properly, the AOS is a simple and easy way to adjust the open flow rate.

# AOS Components

The Adjustable Opening Stop restricts the open valve flow rate using relative positioning of the following components:



- Hard Stop at top of Actuator Cover
- AOS Spindle Assembly  
- Spring Plungers (2)
- Threaded Piston Engagement
- Compressor

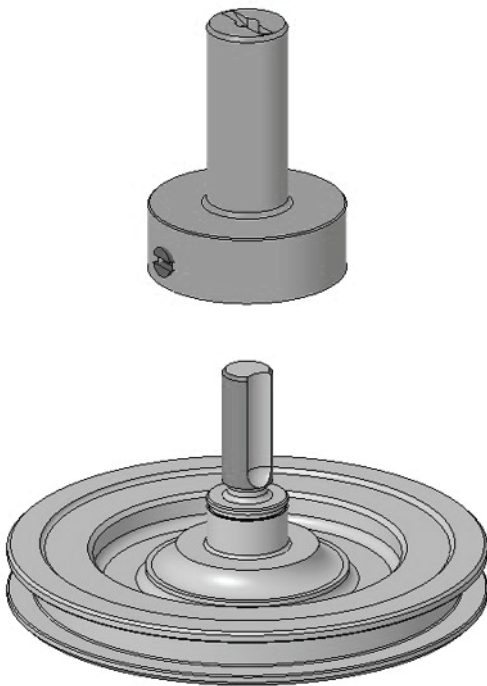
Sectional View of  
1.00" EnviZion

# AOS Indexing

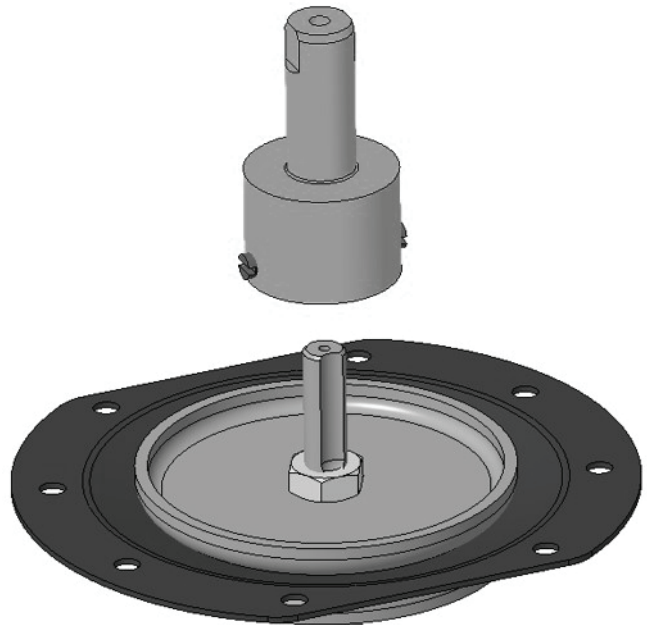
The AOS Spindle Assembly is rotated using either

- 1) Large flat screwdriver in the spindle slot
- 2) Wrench on side flats

The AOS Spindle Assembly contains 2 opposing spring pins that engage with a groove in the Threaded Piston at every  $\frac{1}{2}$  turn. This engagement stabilizes the selected open setting. This “detent” holds the rotated position, yet can be overcome with modest additional torque.



1) Sample of Slotted Spindle, 1.00" EnviZion



2) Sample of Wrench Flats on Spindle, 1.00" Advantage

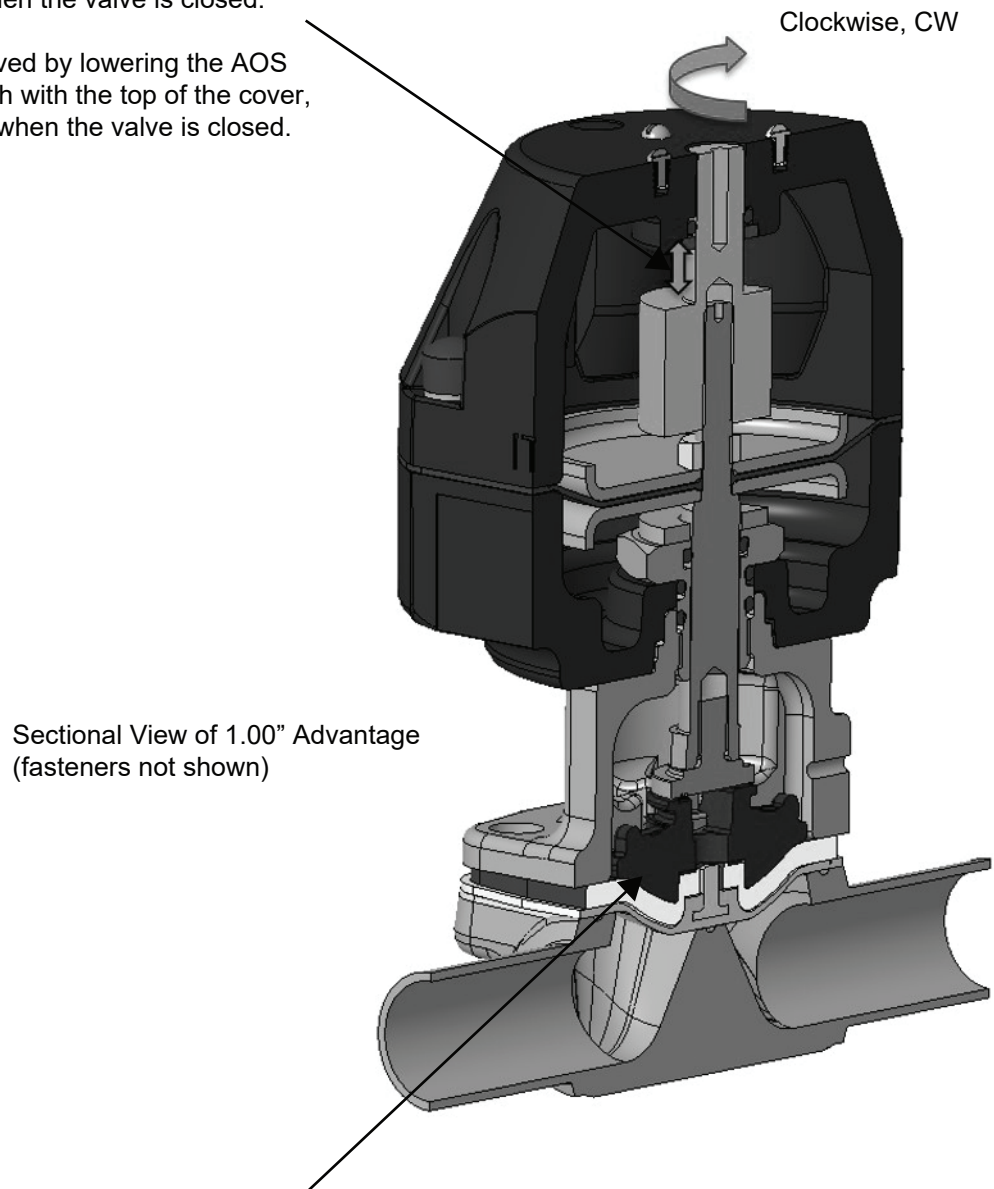
The operator will feel the added light resistance of the spring pin engagement “detent” at every  $\frac{1}{2}$  turn indexed position.



# AOS Positioning for Maximum Flow

The amount of valve stroke is set by the gap between the AOS ledge and the hard stop when the valve is closed.

Maximum full open flow is achieved by lowering the AOS until the indicating spindle is flush with the top of the cover, or as close to flush as possible, when the valve is closed.



The valve must be near the Closed position when Adjusting the Opening Stop, AOS. Slight opening may be required to engage the spindle flats with a wrench.



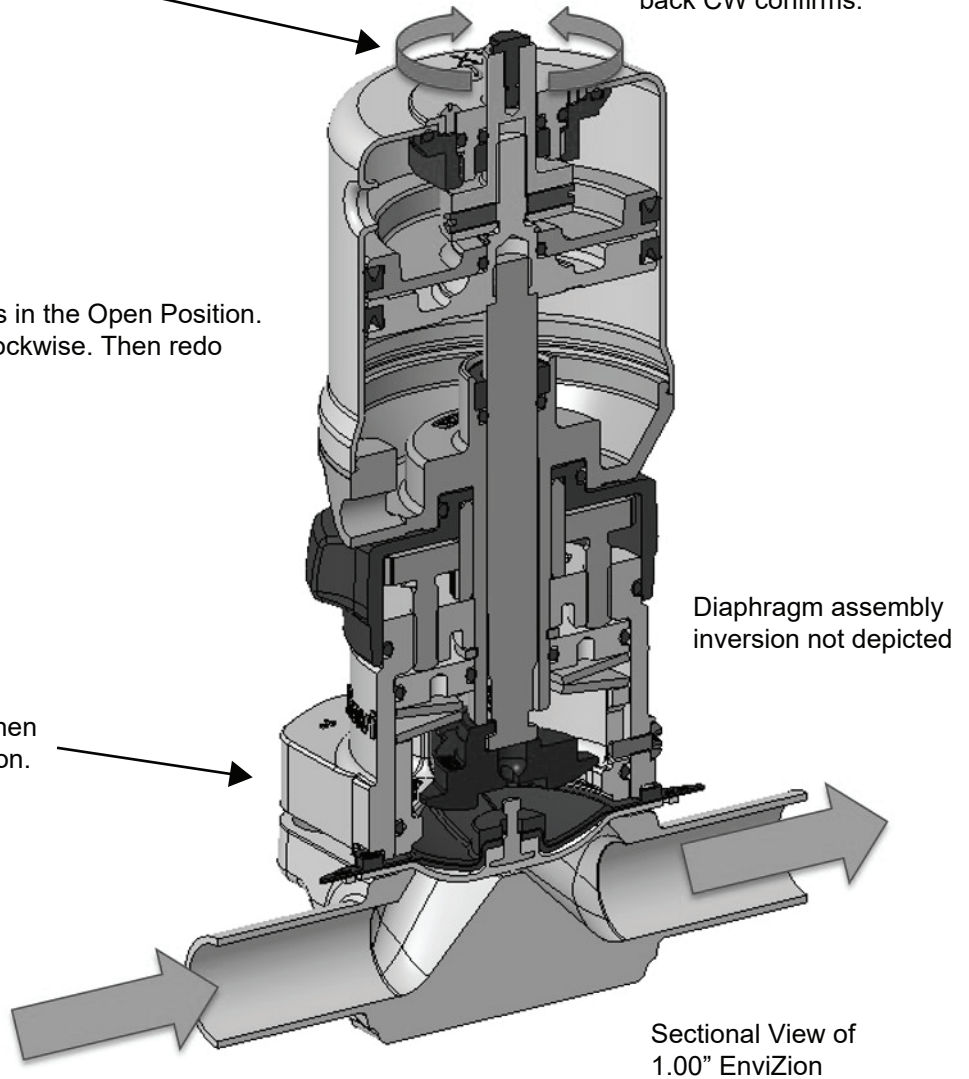
# Confirmation of Maximum Flow Position

Confirmation that the AOS is not reducing maximum flow is made if the AOS can be Easily indexed counter clockwise, ½ turn CCW and back ½ turn CW, when the valve is Open, indicating that the AOS ledge is not engaged with the hard stop.

Easy ½ turn CCW & back CW confirms.

Do not force the AOS to turn when valve is in the Open Position. First Close the valve and turn the AOS Clockwise. Then redo confirmation.

The valve must be in the Open position when confirming the Maximum Flow AOS Position.



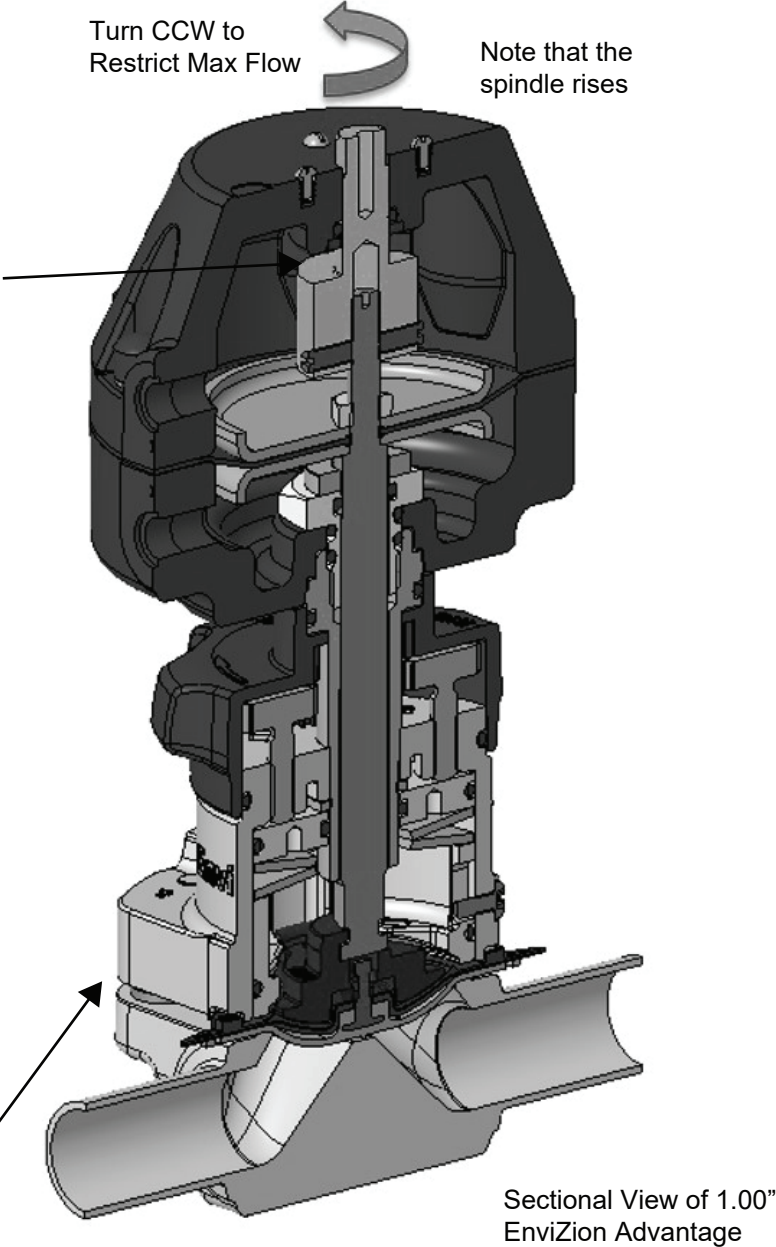
# AOS Positioning for Restricted Flow

Do not adjust the AOS when valve is in the Open Position.

To restrict flow of the open position, the AOS assembly is rotated CCW when the valve is at or near closed.

The spindle rises as turned CCW, reducing the gap which controls the stroke. Leaving the spindle at a detent position will hold the setting.

Excess height of the spindle when the valve is closed is an indication of how much the open flow will be restricted by the AOS.



The valve must be near the Closed position when Adjusting the Opening Stop, AOS. Slight opening may be required to engage the spindle flats with a wrench.

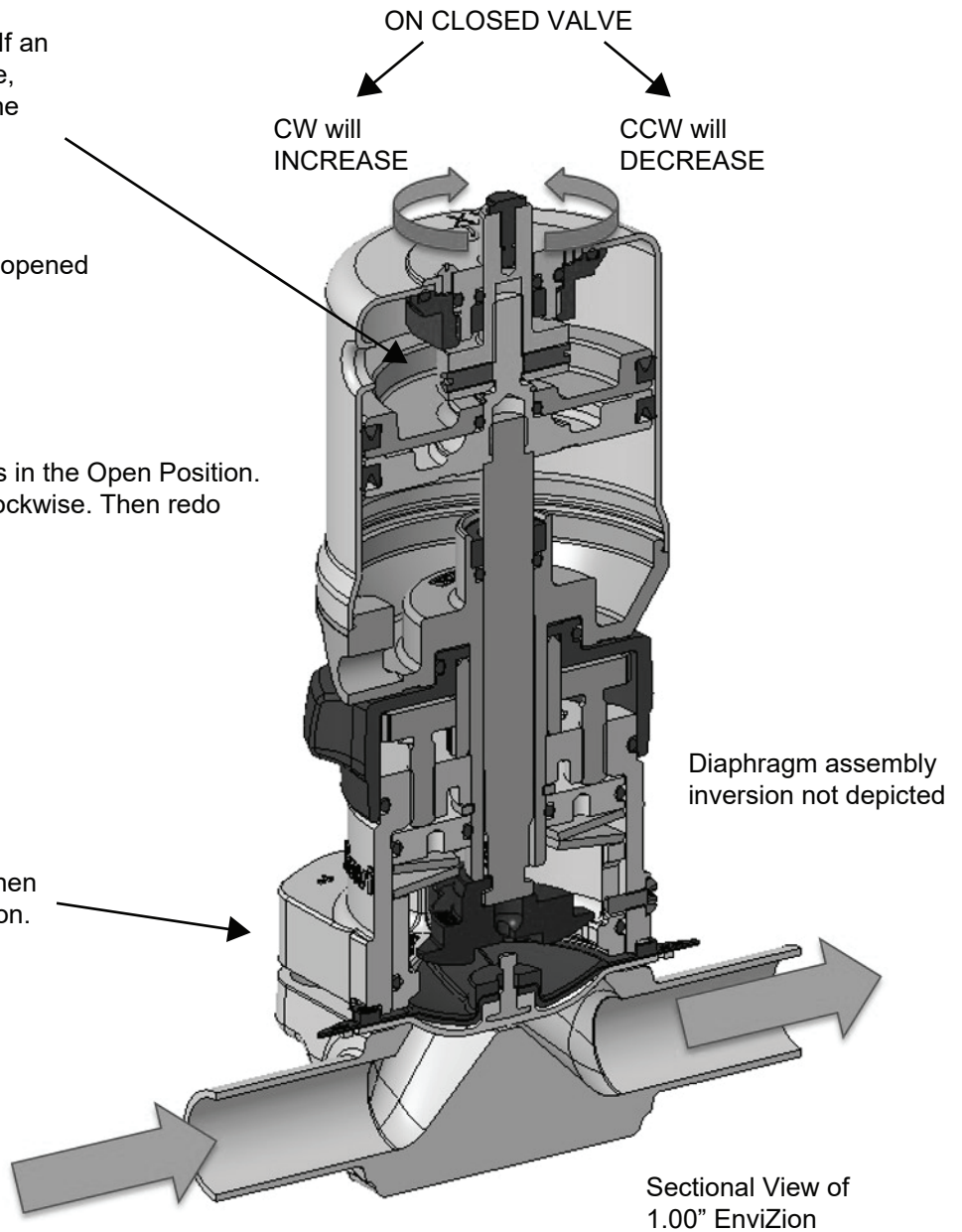
# Confirmation of Desired Flow

Confirm desired flow with the valve open. If an adjustment is required, first close the valve, and then adjust the AOS position as per the previous page.

- CW will Increase opened valve flow
- CCW will Decrease opened valve flow
- Redo Confirmation of desired flow when opened

Do not force the AOS to turn when valve is in the Open Position. First Close the valve and turn the AOS Clockwise. Then redo confirmation.

The valve must be in the Open position when confirming the Maximum Flow AOS Position.



# AOS Instruction Review

- 1) **Only adjust AOS when valve is at or near Closed**
- 2) Verification that AOS is not engaged (Max Open Flow)
  - Spindle is near flush with valve top when Closed.
  - Spindle can be rotated with ease in valve Open position
- 3) Adjust AOS to desired flow restriction using spindle detent
  - Detent engages @ every 180 degrees
  - Rotate Indicating Spindle with large Flathead Screwdriver for slotted spindle or Wrench for spindle with flats.
  - CCW restricts Open valve flow (spindle rises)
  - CW increases Open valve flow (spindle lowers)
- 4) Confirm desired flow when valve is Open
- 5) If required, Close or nearly Close valve to readjust
- 6) **Never force the AOS Rotation**





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