Watson McDaniel

428 Jones Boulevard
Limerick Airport Business Center
Pottstown, PA 19464

Phone: (610)495-5131
Fax: (610)495-5134
www.watsonmcdaniel.com

O-Series & OSS-Series

PRESSURE REGULATOR INSTALLATION & MAINTENANCE INSTRUCTIONS

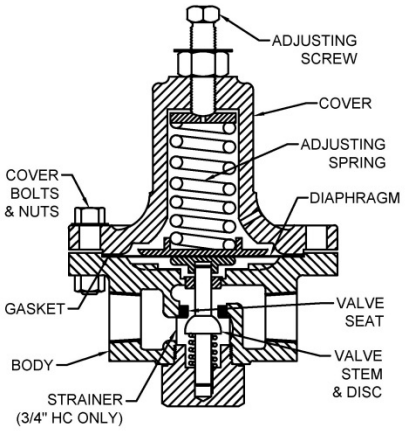
INSTRUCTION PART NO. 2220700 CR-3879 REVISION A

How It Works

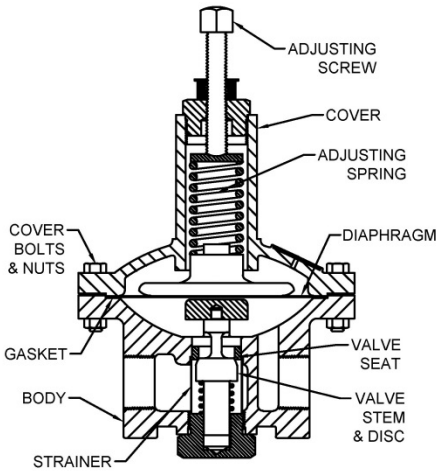
The O-Series pressure regulating valve is a direct operated valve that is adjusted by turning the adjusting screw to either increase or decrease compression on the adjusting spring. Driving the adjusting screw down into the valve will increase the adjusting spring force, which will increase the downstream pressure. Backing the adjusting screw out of the valve will decrease the adjusting spring force, decreasing downstream pressure.

The O-Series valve is an unbalanced valve; therefore it will not self-adjust to changes in inlet conditions. Additionally, the valve will not adjust to any downstream isolation valve closure or process shut-off, which may cause the downstream pressure to increase and eventually become equal to the upstream pressure.

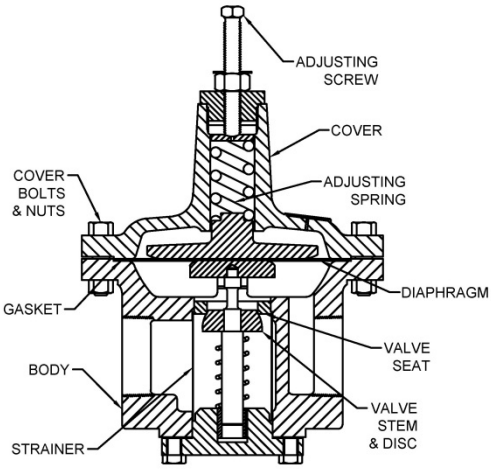
Pressure-Temperature Ratings	
PMO	250 PSIG
TMO	Sat. Steam Temp.
PMA	250 PSIG @ 450°F
TMA	450°F @ 250 PSIG
Min Inlet Pressure	15 PSIG
Max Differential Pressure	125 PSIG
Min Differential Pressure	15 PSIG



3/8" - 3/4"



1" - 1-1/4"



1-1/2" - 2"

Typical Applications

The O-Series and OSS-Series direct-operated pressure regulators incorporate a simple design that does not require an external sensing line. The simple and compact design makes this valve a suitable choice for general pressure reduction applications including small heaters, humidifiers, small process equipment usage, as well as other general low-to-moderate flow applications.

The OSS-Series Regulator with stainless steel body and trim make this valve applicable for potable water service along with applications where enhanced corrosion resistance is favored.

Each Watson McDaniel Company Product is warranted against defects in material and workmanship for one year from date of shipment. This warranty extends to the first retail purchaser only. All defective material must be returned to the person from whom you purchased the Product, transportation prepaid, free of any liens or encumbrances, and if found to be defective will be repaired free of charge or replaced, at the warrantor's or seller's option. If the material is replaced, any replacement will be invoiced in the usual manner and after inspection of alleged defective material an adjustment will be made for depreciation caused by purchaser's use. In no event will Watson McDaniel Company be liable to do more than refund the original contract price. Incidental and consequential damages are excluded, whether under this warranty or otherwise. All implied warranties, including warranties of merchantability and fitness for a particular purpose, are disclaimed and excluded.

INSTALLATION

It is recommended to install a steam trap and strainer upstream of the valve. This will ensure proper protection of the valve and increase the service life.

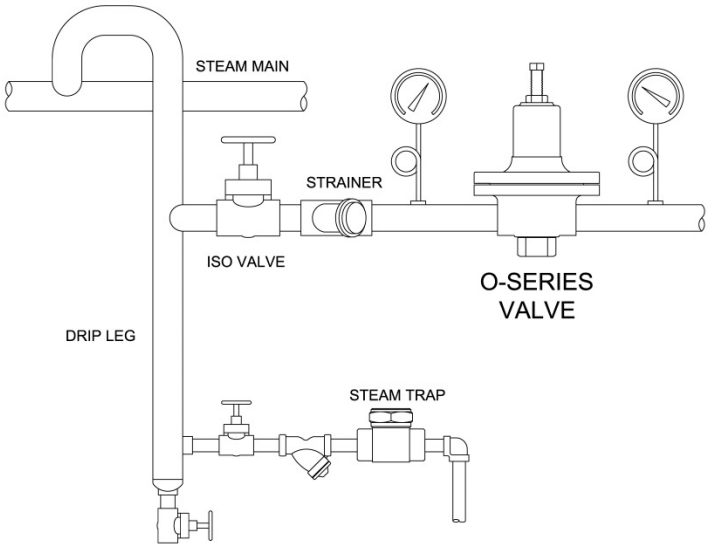
When using valve on steam service, install regulator in horizontal pipe only. WARNING: Vertically installed unit can be erratic and prematurely wear.

Loosen the lock nut on the adjusting screw, then back the adjusting screw out of the valve enough to release all the tension on the adjusting spring.

Turn on pressure to the valve slowly.

Begin to turn adjusting screw down into the valve to begin to open the valve slightly. Once the valve is slightly open, leave in this manner long enough to fill downstream piping.

Turn down adjusting screw in small intervals until the desired downstream pressure is achieved. Tighten lock nut on adjusting screw.



Typical Installation

Materials		
	O-Series	**OSS-Series**
Body	Cast Iron	Stainless Steel CF8M
Cover	Cast Iron	Stainless Steel CF8M
Cover Screws	Steel, Gr 5, Zinc Plated	Steel, Gr 5, Zinc Plated
Cover Nuts	Steel, Gr 5, Zinc Plated	Steel, Gr 5, Zinc Plated
Adjusting Screw	AISI 302 S.S.	AISI 302 S.S.
Adjusting Spring	AISI 302 S.S.	AISI 302 S.S.
Valve Seat	Hardened 420 S.S.	Hardened 420 S.S.
Valve Stem & Disc	Hardened 420 S.S.	Hardened 420 S.S.
Strainer Screen (3/4" HC, 1" - 2")	AISI 303 S.S.	AISI 303 S.S.
Diaphragm	Phosphor Bronze (Steam Only)	Stainless Steel (Steam Only)
	Viton (Liquid, Air Only)	Viton (Liquid, Air Only)
Gasket	Garlock 3400 (Bronze Diaphragm)	Garlock 3400 (S.S. Diaphragm)

MAINTENANCE

Unsatisfactory regulation can be attributed to dirt, debris, etc. either blocking the internal strainer or building up on the valve disc or seat. This may cause the regulator to overshoot the desired downstream pressure. Poor regulation or undershooting may also be a result of a failed diaphragm. A typical indication that the diaphragm has failed would be process fluid leaking out of the weep hole located on the cover of the regulator.

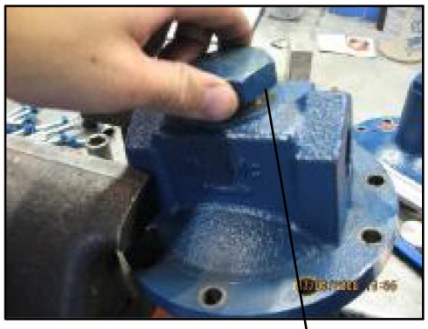
Before any service is done on the valve, make sure all pressure has been relieved from the system.
For maintenance on the valve stem and disc and strainer (if applicable to unit), unscrew the bottom plug of the regulator to remove the strainer screen along with the valve stem and disc from the body of the regulator. Inspect and clean of any dirt or debris. After cleaning, the valve disc and seat should be lapped together using a fine lapping compound. Avoid excessive lapping as this may cut ridges on the disc and makes tight seating impossible.

For maintenance on the diaphragm, unscrew the cover bolts and nuts and remove cover. Insect the diaphragm for any deformation or tears. Replace if necessary.

For disassembly instructions, see pictures on following page.

CLEANING STRAINER

(3/4" HC & 1" – 2" Models)



Remove lower plug.

Remove and clean strainer screen.

Blow debris from body and reassemble.

REMOVE VALVE FROM LINE AND DISSASEMBLE

Remove valve from line.

Remove cover bolts.

Remove cover.

Remove, inspect & clean parts.

Remove gasket.
(Metal diaphragms only)

Inspect and clean diaphragms.

Clean gasket surfaces.

Remove lower plug.

Remove spring & disc. Clean and lap disc to seat.

Remove, inspect and clean strainer.

Reassemble valve using new gaskets.