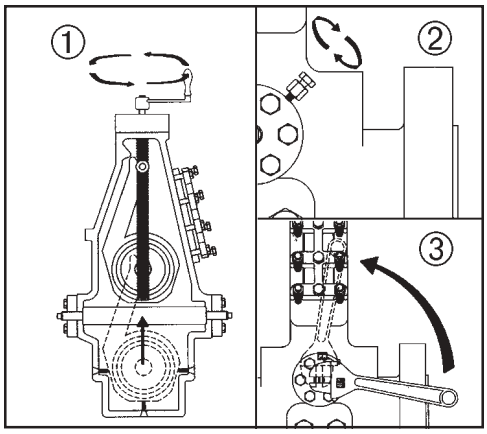
FMC EnergySystems
FMC Measurement Solutions

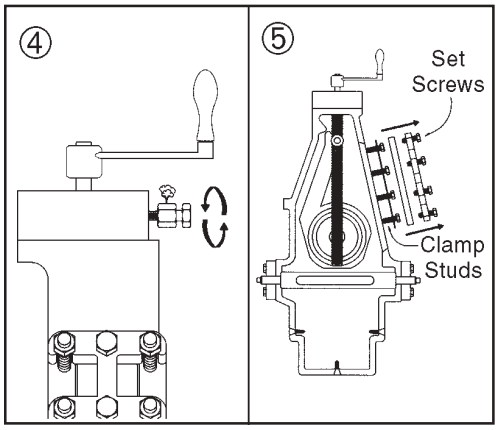
Dual Chamber with Dry Seal Plug Valve
MeasureMaster®
Operations Manual

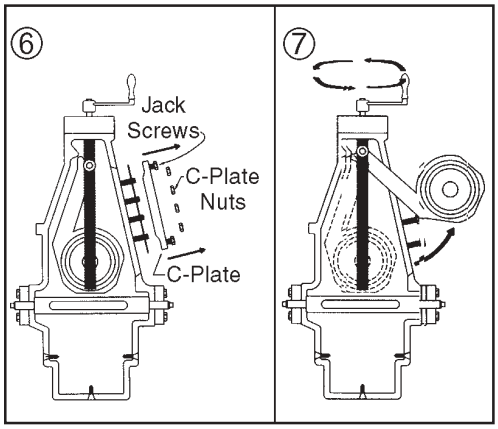
Issue/Rev. 0.1 (11/01) Bulletin MNOR001

MeasureMaster Dual Chamber Orifice Fitting

Contents







To Remove Orifice Plate

1. Rotate the elevator screw handle in a counter-clockwise direction until the carrier assembly is lifted into the upper chamber and comes to a full stop. ***(See illustration #1.) (Count number of turns as shown on name plate.)***

2. Check to make sure equalizer valve is closed by turning clockwise. ***(See illustration #2.)***

3. Turn plug valve stem 90° until it stops in the closed position. The plug valve stem should then be rotated a second time to the open and back into the closed position until it stops. ***Note:*** *Rotating the plug valve twice assures a good positive seal by the Dry-Plug O-ring seal, which isolates the top from the bottom chamber.* DO NOT FORCE PLUG VALVE TO EXCEED THIS ANGLE. ***(See illustration #3.)*** If plug valve will not turn, check to make sure the carrier is in the upper chamber by rotating the elevator screw handle counter-clockwise until it will go no further. Forcing plug valve with the carrier in the lower chamber will result in damage to the plug valve and carrier assembly.

4. Open the bleed valve enough to relieve the pressure in the upper chamber. ***(See illustration #4.)*** The bleed valve is distinguished by a small vent hole on its side, and on more recently manufactured fittings is located on the top cap. If pressure continues to discharge from the bleed valve vent hole, contact FMC Measurement Solutions Local Representative. Relieve the pressure in the upper chamber. ***Note:*** *The bleed valve should remain open to prevent pressure buildup.*

⚠ **CAUTION:** If this equipment is installed inside buildings or enclosures, for safety, FMC Measurement Solutions recommends this vent be piped outside to a safe area.

5. Loosen the cover plate clamp set screws (located in the middle of the clamp) and remove the cover plate clamp, cover plate, and cover plate O-ring/gasket. ***(See illustration #5.) Note:*** *Before the clamp bar is removed the cover plate should be jiggled with the cover plate still in position to verify that all pressure has been bled off from the top chamber. If no pressure is indicated then remove the clamp bar and cover plate.*

⚠ **CAUTION:** Do not alter the position of the nuts on the cover plate clamp studs. These are not used in the removal of the cover plate.

6. If a C-plate is used instead of cover plate; loosen the cover plate nuts and remove them. Use jack screws to help lift the C-plate. ***(See illustration #6.)*** Tighten all jack screws evenly to uniformly lift the C-plate.

7. Rotate the elevator screw further counter-clockwise until the carrier reaches the top of travel and swings through the front opening to stop in the extended position. ***(See illustration #7.)***

8. The seal ring may be removed, the orifice plate and seals inspected and/or replaced at this time.

To Replace Orifice Plate

1. Inspect O-rings and replace as necessary. Clean plate carrier assembly. Securely install the orifice plate and seal ring in the carrier. Make sure the orifice plate is properly seated and the seal ring is securely retained in the carrier. ***Note:*** *Lubricate all O-rings during assembly.*

2. Rotate the elevator screw handle clockwise until the carrier is flush with the opening in the top chamber. ***(See illustration #1.)*** Replace the cover plate, place the clamp bar over the cover plate and tighten the clamp bar screws evenly across the cover plate . ***(See illustration #2.)*** Rotate the elevator screw clockwise again until the carrier is located all the way in the top position. When the Dry-Seal Plug valve is re-opened the carrier may cut the Dry-Seal Plug valve O-ring if resting on Dry-Seal Plug.

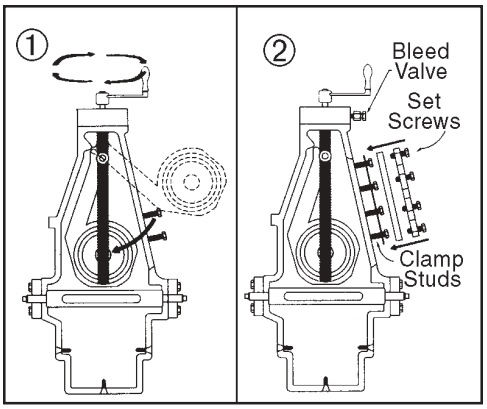
3. If C-plate is used instead of cover plate: replace O-ring/gasket with correct size and material recommended for the fitting. Install the O-ring/gasket, then install the C-plate. Make sure jack screws are withdrawn flush with surface, and tighten C-plate nuts. ***(See illustration #3.)*** Close bleed valve.

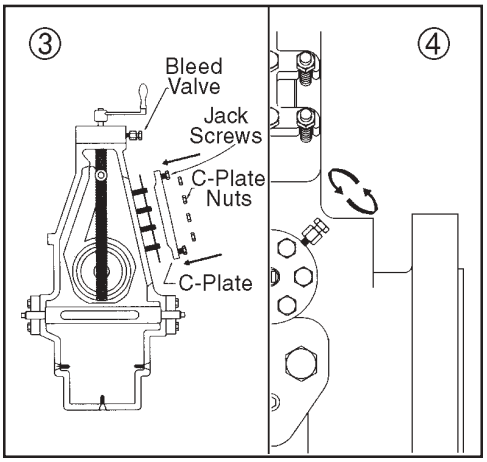
4. Operator then closes bleeder valve on the top chamber and opens equalizer valve located on the lower side of the lower chqmber of the fitting. ***(See illustration #4.)*** The operator should be able to tell when pressure has been equalized in the fitting when the elevator screw shaft rises at the top of the fitting. Close the equalizer valve.

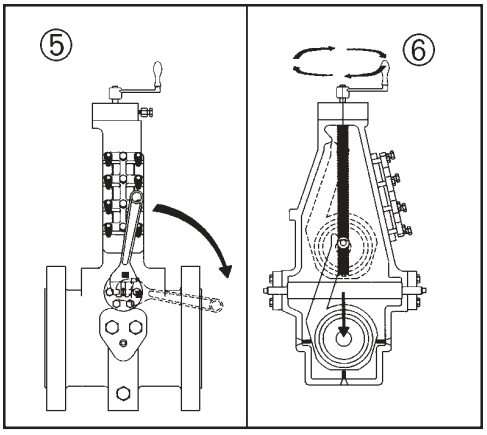
⚠ **CAUTION:** Do not attempt to rotate plug valve until upper chamber pressure is fully equalized.

5. Rotate the plug valve stem 90° until it stops. ***(See illustration #5.)***

6. Turn the elevator screw handle counter clockwise to a full stop. Then turn the elevator screw handle clockwise the required number of turns (indicated on the instruction plate located on the top cap) until the carrier stops and the orifice plate is centered. ***(See illustration #6.)*** The fitting is now ready to resume flow measurement. The crank handle is then lining up with the indication arrow on top of the fitting.







Bleed Valve Caution Tag

⚠ As a safety precaution, FMC Measurement Solutions recommends that the bleed valve be piped to a safe, outside area if this equipment is installed inside buildings or enclosures

Revisions included in MNOR001 Issue/Rev. 0.1 (11/01):

Page 2-3: Revised Removing and replacing orifice plate instructions.

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