

This document applies to all ROOTS CL38 regulators.



**Warning** Follow your company's standard operating procedures regarding the use of personal protection equipment (PPE). Adhere to guidelines issued by your company in addition to those contained in this document when installing or repairing natural gas regulators.

This product, as of the date of manufacture, is designed and tested to conform to all governmental and industry safety standards as they may apply to the manufacturer. The purchaser/user of this product must comply with all fire control, building codes, and other safety regulations governing the application, installation, operation, and general use of this regulator to avoid leaking gas hazards resulting from improper installation, startup or use of this product.

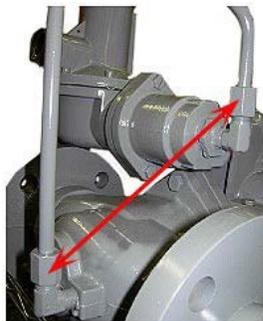
To ensure safe and efficient operation of this product, ROOTS strongly recommends installation by a qualified professional.

## Recommended Tools and Materials

Tool Description	Part Number	Part Description	Part Number
2 1/4" thin-wall orifice wrench-socket	799027	Orifice	As required
Torque Wrench	N/A	Valve body gasket	765655
Loading ring position tool	799081	O-ring	
		Valve Seat	765211
		Loading ring	761771

### *To change the orifice*

1. Disconnect the control line. Loosen the two ferrules in an alternating fashion.



2. Locate the two bolts holding the diaphragm case to the valve body. Remove the bolts using a 7/16-inch socket.



3. Carefully pull the diaphragm case away from the valve body. Inspect the valve seat, valve body and valve body gasket for any debris, damage, or deterioration. Replace the valve body gasket.
4. Note the loading ring's position. The loading ring must be replaced in the same position unless you are changing the outlet pressure significantly. Use a marker to note the position of the loading ring's notch on the valve body (see the following image).



5. Place your thumbs in the neck of loading ring. Gently open the loading ring and remove.



6. Remove the orifice using a 2 1/4-inch thin-wall socket wrench.
7. The O-ring (see image below) creates a seal for the orifice. Apply Lubriplate lubricant (or equivalent) on the O-ring and slide the O-ring over the orifice threads.



- Apply pipe thread sealant (Rector Seal #5) on the orifice threads. Begin threading the orifice by hand. Use the ratchet to finish tightening. Torque to 300 inch-pounds. Do not over-tighten the orifice.

**Warning** Over tightening the orifice can cause irreparable damage. Torque to 600 inch-pounds.

- Replace the loading ring to its original position. Verify the orifice retention beads seat against the orifice (see the following Loading Ring Position table).



- Reattach the diaphragm case to the valve body. Tighten the bolts in an alternating fashion; tighten each bolt one-half way. Torque both screws to 100 inch-pounds.
- Slowly pressurize the system. Verify the regulator locks up and regulates properly.

### Loading Ring Position Table

Inlet Pressure	Outlet Pressure	Setting
Various	1 PSIG and above	0 degrees
Various	1 PSIG and less	25 degrees

#### ROOTS Regulators

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ROOTS Regulators Changing a Regulator Orifice in CL38 Models  
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