Dresser Meters & Instruments

CAUTION: THE METER END COVER IS PRESSURIZED.
Bleed off the line pressure before removing the oil fill or drain plug from the meter.

**Receiving, Handling And Storage**

Although of very rugged construction, reasonable care should be given during handling and storage.

At time of delivery
1. Check the packing list to account for all items received.
2. Inspect each item for damage.
3. Record any visible damage or shortages on the delivery record.
   - File a claim with the carrier.
   - Notify your Roots Meter supplier immediately.

**IMPORTANT NOTES**
- Do not attempt repairs or adjustments, as doing so may be a basis for voiding all claims for warranty.
- Do not add oil to the two meter end cover oil reservoirs until after the meter has been permanently installed and is ready for service. The Series 3 Accessory Units do not require lubrication.

**Introduction – Use And Limitations**

Meters of standard construction are not directly suitable for handling acetylene, biogas or sewage gas. Specially constructed meters made of materials directly compatible with these and other gases are available. Please contact your Roots Meter supplier for details and to request publication TS:SSM.

**Meter Installation – Piping Configurations**

Line mounted Dresser Natural Gas Solutions (NGS) meters may be installed in either a Top Inlet (vertical) or a Side Inlet (horizontal) configuration. The preferred or recommended installation is top inlet in a vertical pipeline with gas flow downward.

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**Trouble Shooting Checklist**

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Item</th>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Flow</td>
<td>1</td>
<td>Obstruction in piping meter</td>
<td>Check pipe and valve to assure an open flow path. Check for impeller rotation. Refer to Step #5 “Placing meter in line.”</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Index or RPM wheel does not return.</td>
<td>No gas flow. Open valve or remove obstruction per item 1.</td>
</tr>
<tr>
<td>High Differential</td>
<td>3</td>
<td>Build-up of deposits in measuring chamber.</td>
<td>Flush meter.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Worn bearings or gears.</td>
<td>Replace or Return to our Product Service Department.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>High oil level or heavy oil</td>
<td>Check oil level and cleanliness.</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Impellers rubbing cylinder or headplates, or meter out of time</td>
<td>Rotate impellers manually to check for binding or rubbing. Remove obstructions and/or time the meter. Check the meter level.</td>
</tr>
<tr>
<td>Vibration/Noise</td>
<td>7</td>
<td>Piping misalignment or strain.</td>
<td>Remove piping strain. Level meter.</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Impellers rubbing</td>
<td>See items #4 &amp; #6.</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Contaminants in measuring chamber</td>
<td>See item #3.</td>
</tr>
</tbody>
</table>
Proper torque is required to effectively seal the piping/meter flanges. The maximum recommended torques are provided in Table 1 below.

### Table 1 – Recommended Flange Bolt Torques

<table>
<thead>
<tr>
<th>Meter Size</th>
<th>Bolt Diameter</th>
<th>Lubricated</th>
<th>Non-Lubricated (not recommended for reference only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8C175-16M175</td>
<td>5/8”</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>23M232</td>
<td>5/8”</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>23M175 – 56M175</td>
<td>3/4”</td>
<td>104</td>
<td>115</td>
</tr>
<tr>
<td>1M300</td>
<td>3/4”</td>
<td>104</td>
<td>115</td>
</tr>
<tr>
<td>3M300</td>
<td>5/8”</td>
<td>55</td>
<td>60</td>
</tr>
</tbody>
</table>

Tighten flange bolts evenly in a cross-pattern to specified torque values. An additional recommendation is to install the meter in a side loop with a bypass adjacent to the main line. Piping should be solid and properly aligned. Eliminate piping strains on the meter body.

### Meter Pressure Rating

Refer to the meter nameplate for the maximum allowable operating pressure (MAOP). A meter should not be installed where line pressure can exceed the meter MAOP.

#### Placing Meter In Line

1. Before installing a meter:
   - Follow recommended company procedures when venting to atmosphere.
   - Make sure the measuring chamber is clean and dry, that no objects or contaminants are present, and the impellers turn freely. Refer to IOM:B3.

2. Meter Orientation:
   - Connect meter inlet to the gas supply side of the line, insuring the gas flow will be in the same direction as the arrow on the meter body nameplate (i.e. arrow pointing downward for Top Inlet or horizontally for Side Inlet.)
   - In a correct installation, both meter oil level gauges are parallel to the ground.

3. Install the meter without piping strain to prevent a binding of the impellers. Use pipe supports as required. Level all 8C-56M line mount Series B3 meters to within 1/16” per running foot (5mm/m), side-to-side and front-to-back.

#### Meter Start-Up

**IMPORTANT:** Slowly pressurize the meter at 5 psig/second (35 kPa/second) maximum when pressurizing. Rapid pressurization can cause an over-speed condition which may damage the meter. Resulting damage is not covered by warranty.

4. **DANGER:** The meter must **NOT** be under pressure for this procedure.
   - After the meter is installed, remove the socket head plug in the timing gear end cover using an Allen wrench. Depending on meter type, insert an Allen driver into the socket head gear clamp and slowly turn the impellers clockwise, checking for free rotation. If binding is present, do not attempt to disengage the impellers. Replace the plug after verifying free impeller rotation.

5. There are two oil reservoirs in the Dresser NGS Series B meter basic body. Oil is shipped with each new meter in a quantity sufficient to fill the reservoirs in either a Top Inlet or a Side Inlet configuration.
   - Remove the pipe plugs in the meter end covers.
   - Slowly add oil to each cover reservoir until the oil level is to the center of the sight glass. **DO NOT OVERFILL.**

#### Inspection And Maintenance – Lubrication

No scheduled lubrication maintenance is required.

Meter oil change frequency will depend upon the gas being measured. Change oil when the color darkens or when the level increases. Under favorable conditions, these periods may be from 3 to 5 years, or longer.