RRF Nutating Disc Flowmeter

RRF NUTATING DISC FLOW METER

SECTIONAL VIEW

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Application:
- An accurate volumetric control of industrial liquids is an economic necessity in view of the high value of these products. The design and material of volumetric meters must be adapted to the particular operating condition and the properties of the measured liquids.
- RRF Nutating Disc P.D. meter meet all these requirements. They are used for Petroleum fuel such as: Furnace Oil, Light Diesel Oil, High Speed Diesel, Kerosene etc. and final liquids such as Solvents, Acids, Dispersions, Paint, Molasses, and Tar Hot Water etc.
- RRF meters, available in size ½ “ to 6” covering capacities from 5 to 12,000 litres per hour, viscosity rating upto 12,000 CpS provide for liquids from water and Carbon Tetra Chloride to thick Molasses and Road Tar. It is Suitable for operating pressures upto 50 kgs/cm2 and temperatures upto 2040C.
- RRF liquid meters are used for a multitude of metering and control purpose e.g. loading/unloading of tankers and lorries, determine costs, finding out efficiency of equipment etc.
- With change in materials of construction, the meter can be used for measurement of any clean liquid, whether corrosive or non-corrosive.

Design & Operation:
- The meter design is based on internationally proven positive displacement nutating disc isolates a fixed volume of liquid and the motion is transmitted to the totaliser through sturdy in construction and operating. Hence these meters are used for heavy duty industrial applications. Since the disk has a rolling actions, it causes a very low head loss in the flow of the liquid. Hence these meters can easily work on gravity head or on suction side and delivery of the pump.

Major Features:
- High accuracy and repeatability with low pressure drop.
- Materials of construction changeable to suit the measured liquid.
- Large metering range for varying viscosities – suitable for high viscosities.
- Easy dismantling and cleaning without removing the meter from the pipe work.
Electronic Remote Control System:
RRF Nutating Disc meters can be connected to Electronic remote control system operation

Advantages:
1. Accurate measurement of consumption of fuel oil helps you to control fuel consumption and the cost. Pilferage is detected, you save oil result is considerable saving. In fact the meter pays for itself many times over in such savings.

2. It helps you to know whether your boiler, furnace etc., are working to desired efficiency or not. Poor efficiency is detected. You can take proper action and get better output.

3. Measurement by dip stick is very approximate. It is subject to lot of human error. There is no record. RRF meters give you very accurate record with no scope to make error.

4. If you are mixing several liquids like solvents etc., RRF meter enables you to mix right quantity of liquids, ensuring economic use. It helps you avoid wastage. It helps you to get better quality product with right mixing of different liquids.

5. RRF flow meter helps you save money, avoid wastage and improve efficiency. It is a good investment which pays rich dividend in a short time.

Accuracy:
• Standard meters +\(\pm\) 2%
• Special meters* +\(\pm\) 0.5%
• Repeatability +\(\pm\) 0.2%
*For Constant viscosity & restricted flow rates application

Temperature:

<table>
<thead>
<tr>
<th>Model N.B.</th>
<th>Non Corrosive oils &amp; fuel oils viscosity in CPS</th>
<th>Hot &amp; Cold water</th>
<th>Corrosive Liquids</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 LL 1/2&quot;-12 mm</td>
<td>30-50</td>
<td>15-75</td>
<td>N.A.</td>
</tr>
<tr>
<td>100 L 1/2&quot;-12 mm</td>
<td>50-150</td>
<td>30-100</td>
<td>50-150</td>
</tr>
<tr>
<td>100 1/2&quot;-12 mm</td>
<td>150 to 1000</td>
<td>150 to 1000</td>
<td>150-1000</td>
</tr>
<tr>
<td>150 3/4&quot;-20 mm</td>
<td>250 to 1500</td>
<td>150 to 1500</td>
<td>250-1500</td>
</tr>
<tr>
<td>200 1&quot;-25mm</td>
<td>400 to 4000</td>
<td>500 to 5000</td>
<td>400-4000</td>
</tr>
<tr>
<td>250 1 1/2&quot;-37 mm</td>
<td>600 to 6000</td>
<td>700 to 7000</td>
<td>600-6000</td>
</tr>
<tr>
<td>300 2&quot;-50 mm</td>
<td>1000 to 9000</td>
<td>1000 to 10000</td>
<td>1000-9000</td>
</tr>
<tr>
<td>400 3&quot;-75 mm</td>
<td>5000 to 20,000</td>
<td>8000 to 30,000</td>
<td>5000-20,000</td>
</tr>
</tbody>
</table>

Continuous flow capacity of the meter is about 70% of the maximum flow rating. This is only a general guide. Actual flow range can be modified for optimum use of the meter. Flow range represent safe operating rates for maximum accuracy (± 2 %) and life with moderate pressure loss. Flow ranges based on viscosity are approximations only.
Pressure:
Standard meters 5kg/cm²
Special meters up to 50kgs/cm²

DIMENSIONS & WEIGHT

<table>
<thead>
<tr>
<th>MODEL</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1(mm)</td>
<td>114</td>
<td>140</td>
<td>215</td>
<td>265</td>
<td>305</td>
<td>394</td>
</tr>
<tr>
<td>L2(mm)</td>
<td>177</td>
<td>246</td>
<td>295</td>
<td>338</td>
<td>385</td>
<td>520</td>
</tr>
<tr>
<td>H (mm)</td>
<td>196</td>
<td>205</td>
<td>235</td>
<td>265</td>
<td>306</td>
<td>368</td>
</tr>
<tr>
<td>Wt.(kg)</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>24</td>
<td>33</td>
<td>80</td>
</tr>
</tbody>
</table>

Material of Construction:

a. For Standard (Non Corrosive) application for wetted Components i.e. Components coming in contact with liquid to be measured:

<table>
<thead>
<tr>
<th>Name of the components</th>
<th>Material Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casting (Top &amp; Bottom)</td>
<td>Cast Iron</td>
</tr>
<tr>
<td>Chamber (Top &amp; Bottom)</td>
<td>Brass</td>
</tr>
<tr>
<td>Nutating Disc</td>
<td>Aluminium/Graphite</td>
</tr>
<tr>
<td>Diaphragm</td>
<td>Brass</td>
</tr>
<tr>
<td>Gear Train</td>
<td>Brass</td>
</tr>
<tr>
<td>Register Cover</td>
<td>Aluminium (Non Wetted Part)</td>
</tr>
<tr>
<td>Gland</td>
<td>Brass</td>
</tr>
<tr>
<td>Calibration Gear</td>
<td>Aluminium (Non Wetted Part)</td>
</tr>
</tbody>
</table>

All pins (pivots) and spindles are of stainless steel

b. For cold water application i.e. water below 45 °C materials of construction as standard meter except Nutating Disc. Which of Ebonite

c. For hot water application i.e. water above 45 °C to 100 °C only nutating is made of Brass. All other material is same as standard meter

d. For corrosive application nutating disc is made from Teflon / SS 316 and other components are made of stainless steel – 316/304.

Guarantee:

- All RRF Meters are made of the finest materials and workmanship for a period of one year * from date of shipment. Parts to replace those in which a defect may develop within such period will be supplied without charge piece for piece, upon return of such defective parts to the manufacture or upon proof of such defect.
- for non corrosive oils and fuel oils only. The guarantee period for Hot and Cold water, non lubricating liquids and corrosive liquid will be one year or 1000 hours of actual use whichever is earlier.
- in the interest development specification are subject to change without notice.
Quotation / Ordering Information

Name
E-mail
Telephone
Liquid to be Metered
Instantaneous rate of Flow (In litres per hour): Minimum, maximum, Normal
Temperature of the Liquid (°C)
Viscosity (at °C) in CpS
Pipe Line Diameter (Normal Bore)
Source of Pressure
If Pump used, meter desired on delivery or suction side discharge capacity of the pump
If Gravity Fed, head available
Daily consumption of liquid through the meter
short description of the application for which the meter is used and meter installation diagram