DESCRIPTION
The Brooks-Fractional Parity Turbine Flowmeter line exemplifies all the proven and known advanced techniques in the Art of Measurement by the Turbine Principle. The meter’s clean lines and simple configuration of components assure higher flow rates, extended flow range and sustained performance capability. The Parity Turbine Flowmeter is designed for use within the guidelines of API Standard; Chapter 5.3, formerly Standard 2534, (The Measurement of Liquid Hydrocarbons by Turbine Meter Systems), and the test procedures of API Standard; Chapter 4, (Prover Systems).

DESIGN FEATURES
• Output linear with flow rate
• Rangeability of 10 to 1
• Explosion proof amplifier housing
• Superior accuracy and repeatability
• Compact design
• Tungsten Carbide Bearing - no lubrication required
• Variety of readout instruments available

PRINCIPLE OF OPERATION
Fractional Parity Turbine Meters are volumetric flow measuring and transmitting devices that produce output signals directly proportional to the rate of flow of the liquid product being measured. The primary output is a high resolution signal that is amplified and shaped by an integral amplifier mounted directly on the meter. This wave pulse can be fed directly to totalizing counters, digital readout devices or control equipment. The Parity Meter can accommodate up to two primary signals.

APPLICATIONS
A small, economical meter, the Fractional Parity Turbine Meter is engineered for a wide range of applications and can be used on fuel metering systems, chemical and petroleum products, and other industrial applications requiring low cost and accurate flow measurement. It is also available for use on corrosive liquids.

SPECIFICATIONS
WARNING: Do not operate this instrument in excess of the specifications listed below.

Capacities
Refer to Table 1.

Ratings
Pressure: ANSI Pressure - Temperature rating corresponding to flanges used
Temperature — Standard: -100°F to 500°F (-73°C to 260°C); Optional: Consult factory
Low Temperature Pick-off: -450°F to 100°F (-232°C to 38°C)
High Temperature Pick-off: 0°F to 600°F (-18°C to 316°C)

Performance (Meter)
Accuracy: ± 0.25% (3/4" - 2-1/2" meters); ± 0.5% (1/2" meter only)
Repeatability: 0.04% total
Pick-Off Output: 15 to 20 mV at minimum flow; 2 to 3 Vac at maximum flow
Flow Range: 10 to 1
Linearity: ± 0.25% (3/4" - 2-1/2" meters); ± 0.5% (1/2" meters) of flow rate, on viscosity between 0.3 and 3.0 Centistokes
Performance (Pre-amplifier)
Power Required: 6-28 Vdc at 20 mA minimum
Input Sensitivity: 5 mv Peak-to-Peak at 5 Hz
Frequency Range: 4 to 8000 Hz
Output Signal: 0 to 5 volts pulsating d-c TTL Logic Signal. Transmitting Range up to 3,000 feet (914 meters) with Belden 8770 type cable terminated into minimum 4.7K ohm load
Temperature: -30°F to 180°F (-34°C to 82°C)

Materials of Construction
Housing: 303 Stainless Steel (MS Tubing and NPT Models); 304 Stainless Steel (Flanged Models)
Rotor Support: 316 Stainless Steel
Rotor: Standard; 17 - 4 PH Stainless Steel
Bearings: Tungsten Carbide
Shaft: Tungsten Carbide
Thrust Washer: Tungsten Carbide

Dimensions
Refer to Figures 5 through 7.

Connections
Mechanical: Flowmeters from 1/2” to 2” sizes are available with MS tubing or NPT threaded connections up to 3000 psi (20,670 kPa) maximum.
Flowmeters from 1/2” to 2-1/2” sizes are available with ANSI B16.5 R.F. Flanges. Standard: 150 lb. -600 lb.; Optional: 900 lb.
Electrical: Standard Meter to be equipped with one reluctance type (1/2” through 2-1/2” meters) pick-off providing a minimum of 15-20 mV low level a-c sine wave signal to an integrally mounted preamplifier.
Pre-Amp Output: 0 - 5V Pulsating dc TTL logic signal
Optional: One additional pick-off and pre-amp mounted 90 electrical degrees out of phase from standard pick-off (except 1/2” meter).
Optional: Delete pre-amp, meter supplied only with pick-off.

Approximate Shipping Weights and Volume
Refer to Table 2.
Figure 3 Schematic Arrangement of Turbine Meters and Readout Instruments

Figure 4 Characteristic Curves

Figure 5 Dimensions - MS-33656 Tubing (For certified dimension prints, contact factory)

Figure 6 Dimensions - NPT Threads (For certified dimension prints, contact factory)
Table 2 Approximate Shipping Weights and Volume

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<tr>
<th>Meter Size</th>
<th>Approximate Shipping Weight</th>
<th>Approximate Shipping Volume</th>
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<tr>
<td></td>
<td>Pounds</td>
<td>Kilos</td>
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<tr>
<td>1/2” MS</td>
<td>3</td>
<td>1.36</td>
</tr>
<tr>
<td>1/2” NPT</td>
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<td>2-1/2” 600 lb.</td>
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ORDERING INFORMATION

When ordering, please specify:
1. Model Number and Size
2. Connections
3. Materials of Construction
4. Complete Flow Metering Data:
   Type of Fluid
   Maximum, Minimum, Normal Flows
   Temperature, Pressure
   Viscosity, Specific Gravity
   Maximum Allowable Pressure Drop
5. Accuracy Required
6. Special Requirements, if any
7. Type of Associated Read-Out Equipment
8. Mounting Position

HVG-10M-12/88 Specifications Subject to Change Without Notice

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