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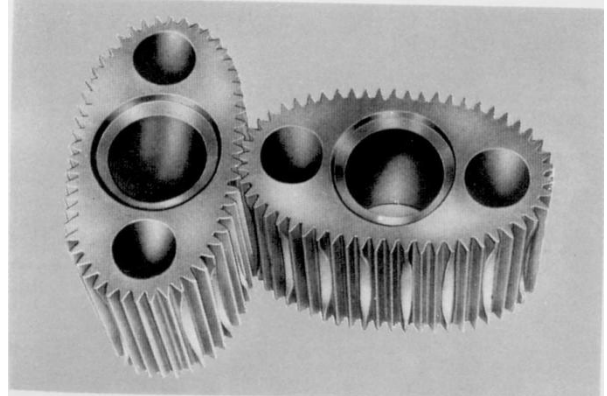
ROGF Gear Flowmeter

Reliant Instruments Inc.

27943 Starlight Harbor Lane Fulshear, TX 77441, UBA

ROGF Gear Flowmeter

- ▶ High accuracy
- ▶ Simple, durable construction
- ▶ Low maintenance requirements
- ▶ Module design
- ▶ Choice of materials of construction
- ▶ Virtually pocketless design
- ▶ Virtually immune to viscosity changes



GENERAL

ROVGF Series Oval Flowmeters are mechanical, positive displacement meters designed for use in the Chemical Processing, Industrial, Food and Beverage, and Hydrocarbon processing industries. Utilizing precision matched oval gears for exact liquid measurement, these highly accurate meters are virtually unaffected by changes in viscosity and maintain precision accuracy even when handling low viscosity products at low flow rates.

ROVGF Series Oval meters are supplied in a module design which uses both a top and bottom flange in place of the closed-end body configuration found on previous models.

This module design meets or exceeds all of the design and performance specifications of the traditional oval while offering several distinct advantages.

The Module Design:

- ◆ Allows service access from either side of the measuring chamber
- ◆ Provides access without interrupting electrical or mechanical connections to auxiliary equipment
- ◆ Allows easy access for visual inspection
- ◆ Improves the service life of the meter body

In addition to service features, the module design offers:

- ◆ A clean compact design
- ◆ Contoured flow paths for smooth liquid transitions
- ◆ Complete interchangeability with existing units
- ◆ Gear sets that are completely interchangeable

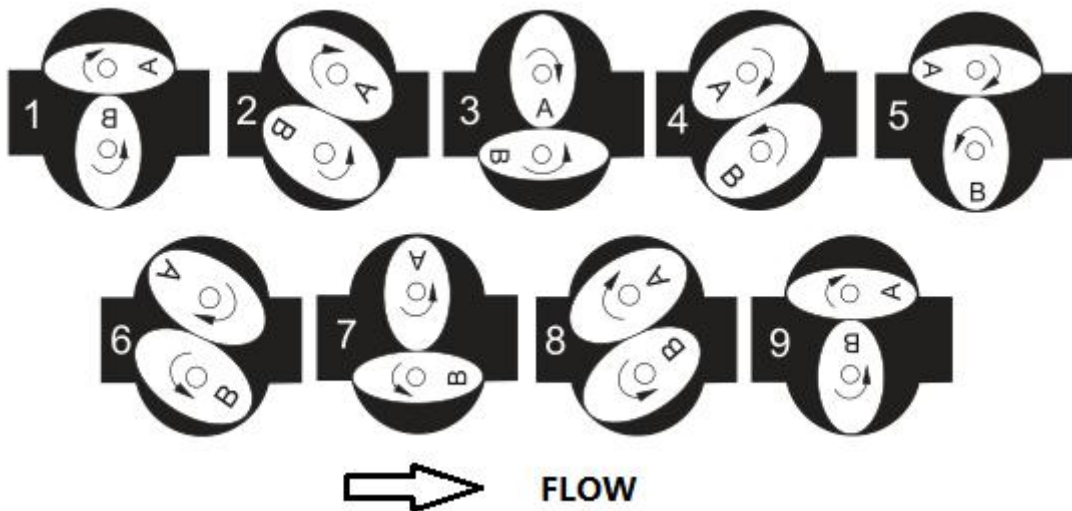
PRINCIPLE

The Oval Flowmeter accurately measures liquid flow by using a slight pressure differential to rotate a pair of oval gears. The meshed gears seal the inlet from the outlet flow developing the pressure differential. When in the orientation as shown in Position 1, Figure 1, Gear A receives torque from the pressure difference, Gear B torsional forces cancel, and Gear A drives Gear B as depicted in Position 2. When Gear A rotates to the position as shown in number 3, it loses torque, but Gear B obtains torque and drives Gear A. This alternate driving action provides smooth rotation of almost constant torque without dead spots. Positions 4, 5, 6, 7, 8 and 9 illustrate this principle through a complete cycle bringing Gear A back to its original orientation as shown in Position 1.

As the gears rotate they trap precise quantities of liquid in the crescent shaped gaps or measuring chambers. The total quantity of flow for one rotation of the pair of oval gears is four times that of the rotational speed of the gears.

Because the amount of slippage between the oval gears and the measuring chamber wall is minimal, the meter is essentially unaffected by changes in viscosity and lubricity of the liquids.

An output shaft is rotated in direct proportion to the oval gears by means of a powerful magnetic coupling. The output shaft drives a gear train that provides meter registration in engineering units of gallons, liters, pounds, etc.



FLOW RANGE

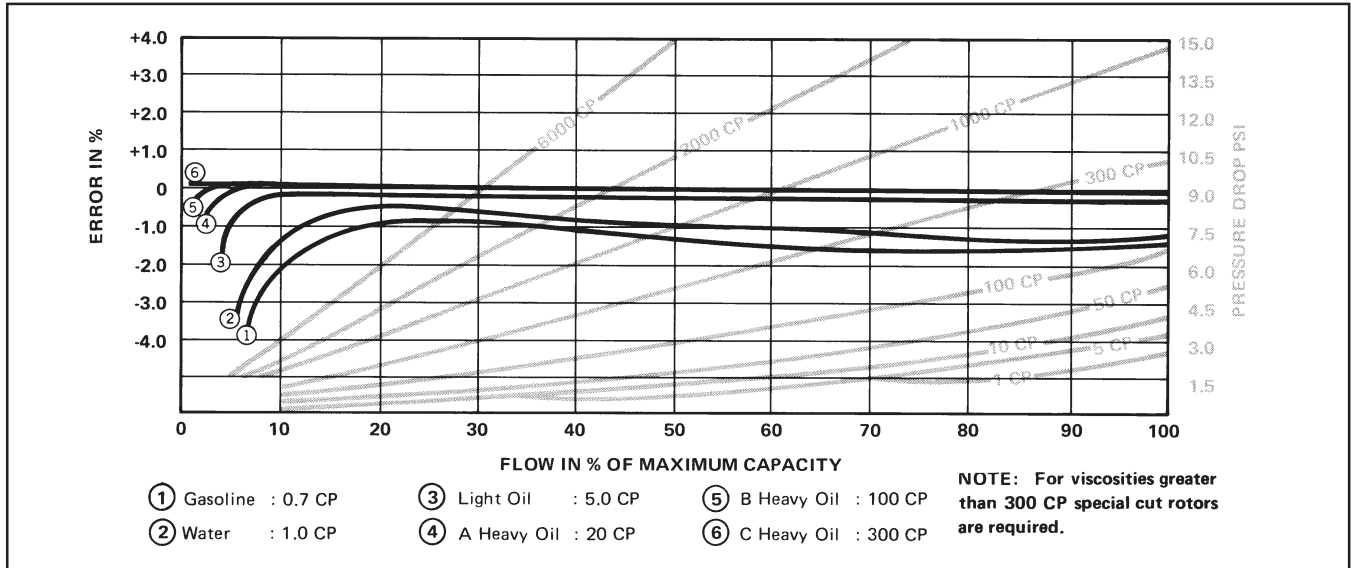
Unit: m³/h

DN	Viscosity (mPa. s)								
	<0.3	0.3~0.8	0.8~2		2~200		200~1000		1000~2000
10		0.2-0.5		0.08-0.5	0.08-0.5	0.05-0.5	0.06-0.3	0.03-0.3	0.03-0.2
15		0.75-1.		0.3-1.5	0.3-1.5	0.15-1.5	0.2-1.0	0.1-1.05	0.07-0.75
20		1.5-3	1-3	0.5-3	0.5-3	0.3-3	0.4-2.1	0.2-2.1	0.15-1.5
25	4-6	3-6	2-6	1-6	1-6	0.6-6	0.8-4.2	0.4-4.2	0.3-3
40	9-15	7.5-15	5-15	2.5-15	2.5-15	1.5-15	2.1-10.5	1.0-10.5	0.7-7.5
50	10-24	8-24	8-24	4.8-24	4.8-24	2.4-24	2.4-16.8	1.6-16.8	1.2-12
65	27-40	20-40	15-40	8-40	8-40	4-40	5.6-28	2.8-28	2-20
80	40-60	30-60	20-60	12-60	12-60	6-60	8.4-42	4.2-42	3-30
100	67-100	50-100	34-100	20-100	20-100	10-100	14-70	6-70	5-50
150	127-190	95-190	64-190	38-190	38-190	19-190	26.6-133	13.3-133	9.5-95
200	227-340	170-340	114-340	56-340	56-340	34-340	47.6-238	23.8-238	17-170
Accuracy	0.5%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.5%

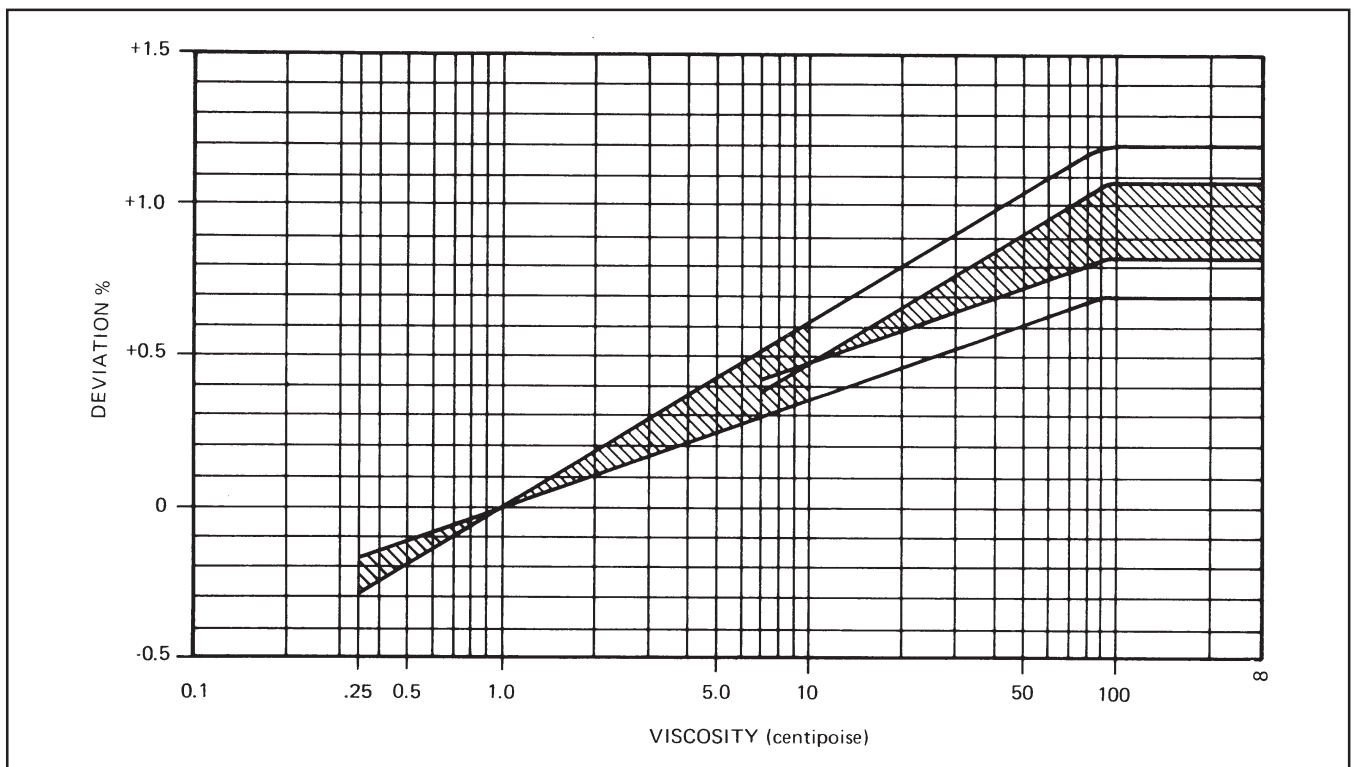
Applications

- ▶ Printing ink measurement
- ▶ Resin/glue/silica gel measurement
- ▶ Hydraulic oil/lubricating oil/ grease measurement
- ▶ Cooling liquid measurement Solvent measurement
- ▶ Fuel oil measurement
- ▶ Polyurethane measurement
- ▶ Braking fluid measurement
- ▶ Cylinder position measurement

Characteristic Accuracy and Pressure Drop Curves

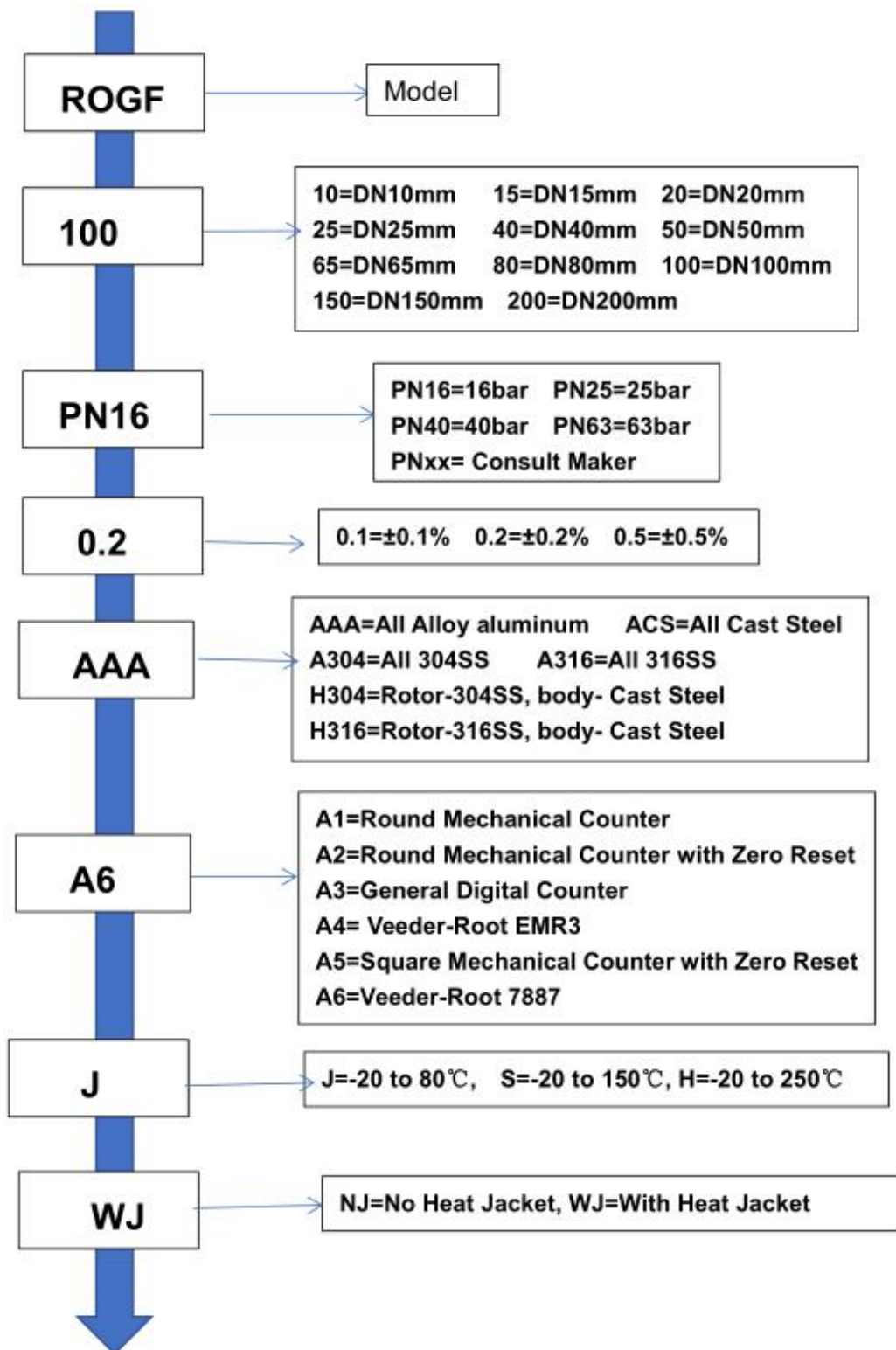


Accuracy vs. Viscosity - Oval Flowmeters with Class "A" Clearances



Order Code

Example: ROGF-50-PN16-0.2-A316SS-A6-J

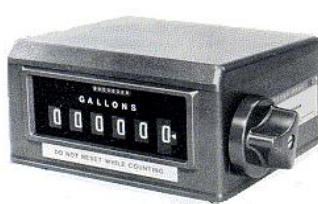



ORDERING INFORMATION



In order to process an order, the following information must be supplied in addition to complete model number (Refer to Ordering Information and Model Code):

1. Product to be metered
2. Product viscosity
3. Product temperature range
4. Rate of flow
5. Operating pressure
6. Units of Registration
7. Accessories and optional features

Registration Accessories

<p>Veeder Root 7886/7</p>	<p>Veeder Root EMR3</p>
	

Electronic Evaluation Units

<p>MST300 - Ratemeter, totalizer</p>	<p>MST200 - Ratemeter, batcher, totalizer</p>
	
<p>Case dimensions 72 x 36 x 97 mm</p>	<p>Case dimensions 96 x 48 x 100 mm</p>
<p>6-digit LED display</p>	<p>6-digit LED display</p>
<p>Flow meter/totalizer</p>	<p>Flow meter/totalizer/batcher</p>
<p>Flow rate/total flow display</p>	<p>Flow rate/total flow display</p>
<p>1 pulse input</p>	<p>1 pulse counting input + 3 control inputs</p>



ROGF Oval Gear Flowmeter

Rev. ROGD.V5.0

Doc. ID: RNT20191103



1 relay (or OC) output	0/2 or 4 Relay / OC outputs
Power supply output 24V DC	Analog output optional
RS-485 / Modbus RTU	Power supply output 24V DC
	RS-485 / Modbus RTU

MST100 - Ratemeter, totalizer	MST400 - Ratemeter, batcher, totalizer
	
Protection class IP67	Max. 72 inputs with the flow/temperature/pressure/level
Case dimensions 110 x 80 x 67mm	Optional outputs with 24 analog outputs/72 SSR outputs
6-digit LED display	Data recording and display
Flow meter/totalizer/batcher	Case dimensions 144X144X100
Flow rate/total flow display	Communication interfaces: RS-485/Modbus RTU, USB, Earthnet 10MB, enhanced ACM version
1 pulse counting input + 3 control inputs	5.7", TFT color graphic display with Touch-panel, 320X240 pixels
0/2 or 4 REL / OC outputs	Recording speed: from 0.1s up to 24h, resolution 0.1s
Analog output optional	Memory capacity: 1.5 GB
Power supply output 24V DC	Free configuration software
RS-485 / Modbus RTU	

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