

FLOW METERS

OVAL GEAR FLOW METERS

Principle of Oval Gear Flowmeter Operation

The oval gear flow meter is a kind of Positive Displacement Flow Meter. As the fluid being measured passes thru the meter, it rotates 2 oval gears in measuring cavity to displace a precise volume of fluid. A sensor detects the gear rotation to determine displaced volume and flow rate.

Fluid pressure rotates the oval gear, Figure 1. In position (a), the fluid exerts a clockwise driving force on gear A. there is no driving force on gear B. It is perpendicular to the flow so the fluid forces are balanced around the shaft. As the gear rotate to position (b), the fluid being to exert a force on gear B. At position (c), all the driving force is on the gear B. This alternating driving force provides a smooth rotation of almost constant torque.

The meter design minimizes the slippage between the gears and the measuring cavity wall. As a result, the oval meter is less affected than other designs by the liquid's viscosity and lubricity.

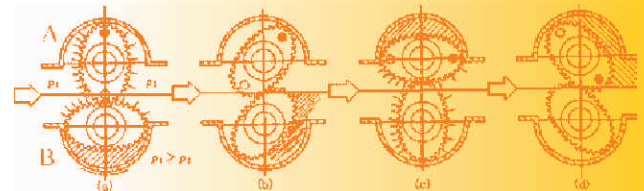


Figure 1: The Principle of Oval Gear Operation

Application

Oval gear flowmeter is mainly used for high value liquids such as oil, chemical etc. Main applications include unloading, transfer and consumption monitoring.

Oval Gear Flowmeter Features

- Only Two Moving Parts
- Higher Accuracy, 0.5% or 0.2%.
- Standard Viscosity up to 5,000 cP (Centipoises = mPa.s).
- Size of wide flow ranges 0.04-340 M3/h (18-37,396GPM).
- Wide range of working environment -20 ~ +280 o C



Body available Cast Iron, Cast Steel, and Stainless Steel.
With LC Display, Transmitter, MCU Flow process controller option.

Model No.	UC-A		UC-E			UC-B	
Body material	Cast Iron		Cast Steel			Stainless Steel	
Pressure (Mpa)	1.0	1.6	2.5	4.0	6.4	1.0	1.6
Liquid Temperature	-20 C ~ +100 C						
Flange	#150-300 PN ANSI						
Liquid Viscosity (Mpa-s)	0.3~2m Pa.s		2~8 mPa.s			8~200 mPa.s	
Flowmeter (m ³ /h)	DN 10mm	0.2~0.4	0.08~0.4	0.1~0.4	0.08~0.4	0.08~0.4	0.04~0.4
	DN 15mm	0.75~1.5	0.3~1.5	0.3~1.5	0.3~1.5	0.3~1.5	0.15~1.5
	DN 20mm	1~3	0.4~3	0.6~3	0.4~3	0.5~3	0.3~3
	DN 25mm	2~6	0.8~6	1.2~6	0.8~6	1~6	0.6~6
	DN 40mm	5~15	2~15	3~15	2~15	2.5~15	1.5~15
	DN 50mm	8~24	3~24	4.8~24	3~24	4~24	2.4~24
	DN 65mm	15~40	5~40	8~40	5~40	6~40	4~40
	DN 80mm	20~60	6~60	12~60	6~60	10~60	6~60
	DN 100mm	34~100	10~100	20~100	10~100	16~100	10~100
	DN 150mm	64~190	19~190	38~190	19~190	32~190	19~190
DN 200mm	114~340	34~340	68~340	34~340	56~340	34~340	
Accuracy	0.2%		0.5%			0.5%	

UC-x-T Series Higher Temperature Oval Gear Flow meter

Model No.	UC-TA			UC-TE			UC-TB		
Body material	Cast Iron			Cast Steel			Stainless Steel		
Pressure (Mpa)	1.0	1.6	2.5	4.0	6.4	1.0	1.6		
Liquid Viscosity	2 - 200 mPa_s								
Liquid Temperature	+100°C ~ +280°C								
Flange	#150			#300					
Accuracy	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	
Flow Range (m³/h)	DN 10mm	0.04-0.4	0.1-0.4	0.04-0.4	0.1-0.4	0.04-0.4	0.1-0.4	0.04-0.4	0.1-0.4
	DN 15mm	0.24-1.35	0.35-1.35	0.24-1.35	0.35-1.35	0.24-1.35	0.35-1.35	0.24-1.35	0.35-1.35
	DN 20mm	0.54-2.7	0.72-2.7	0.54-2.7	0.72-2.7	0.54-2.7	0.72-2.7	0.54-2.7	0.72-2.7
	DN 25mm	1.2-5.4	1.4-5.4	1.2-5.4	1.4-5.4	1.2-5.4	1.4-5.4	1.2-5.4	1.4-5.4
	DN 40mm	2.7-3.5	3.6-13.5	2.7-3.5	3.6-13.5	2.7-3.5	3.6-13.5	2.7-3.5	3.6-13.5
	DN 50mm	4.4-21.6	5.75-21.6	4.4-21.6	5.75-21.6	4.4-21.6	5.75-21.6	4.4-21.6	5.75-21.6
	DN 65mm	8.4-36	9.6-36	8.4-36	9.6-36	8.4-36	9.6-36	8.4-36	9.6-36
	DN 80mm	10.8-54	14.4-54	10.8-54	14.4-54	10.8-54	14.4-54	10.8-54	14.4-54
	DN 100mm	18-90	24-90	18-90	24-90	18-90	24-90	18-90	24-90
	DN 150mm	38-170	45.6-170	38-170	45.6-170	38-170	45.6-170	38-170	45.6-170
DN 200mm	34-340	68-340	34-340	68-340	34-340	68-340	34-340	68-340	

UC N Series Higher Viscosity Oval Gear Flowmeter

Model No.	UC-NA			UC-NE			UC-NB		
Body material	Cast Iron			Cast Steel			Stainless Steel		
Pressure (Mpa)	1.6			2.5	4.0	6.4	1.6		
Liquid Temperature	-10°C ~ +100°C								
Flange	#150			#300					
Liquid Viscosity (Mpa-s)	200-1,000		1,000-5,000	200~1,000		1,000~5,000	200~1,000		1,000~5,000
Flowmeter (m³/h)	DN 10mm	0.04-0.2	0.04-0.2	0.04-0.2	0.04-0.2	0.04-0.2	0.04-0.2	0.04-0.2	0.04-0.2
	DN 15mm	0.2-1.0	0.1-1.05	0.075-0.75	0.2-1.0	0.1-1.05	0.075-0.75	0.2-1.0	0.1-1.05
	DN 20mm	0.42-2.1	0.21-2.1	0.15-1.5	0.42-2.1	0.21-2.1	0.15-1.5	0.42-2.1	0.21-2.1
	DN 25mm	0.84-4.2	0.42-4.2	0.3-3	0.84-4.2	0.42-4.2	0.3-3	0.84-4.2	0.42-4.2
	DN 40mm	2.1-10.5	1.05-10.5	0.75-7.5	2.1-10.5	1.05-10.5	0.75-7.5	2.1-10.5	1.05-10.5
	DN 50mm	3.36-16.8	1.68-16.8	1.2-12	3.36-16.8	1.68-16.8	1.2-12	3.36-16.8	1.68-16.8
	DN 65mm	5.6-28	2.8-28	2-20	5.6-28	2.8-28	2-20	5.6-28	2.8-28
	DN 80mm	8.4-42	4.2-42	3-30	8.4-42	4.2-42	3-30	8.4-42	4.2-42
	DN 100mm	14-70	6.70	5-5	14-70	6.70	5-5	14-70	6.70
	DN 150mm	26.6-13.3	13.3-133	9.5-95	26.6-13.3	13.3-133	9.5-95	26.6-13.3	13.3-133
DN 200mm	47.6-23.8	23.8-238	17-170	47.6-23.8	23.8-238	17-170	47.6-23.8	23.8-238	
Accuracy	0.2%	0.5	0.5	0.2%	0.5	0.5	0.2%	0.5	0.5

We invite your inquires for flow meter for Oil, Water, gas, Air, Chemicals & Effluents:

FLOW METERS	
TYPE	APPLICATION
• Variable Area	• Water
• Turbine	• Air
• Positive Displacement	• Oil
• Electromagnetic	• Gas
• Ultrasonic	• Chemicals
• RPD	• Effluent
• Diaphragm	

For further details please contact:

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