



# SIMARK CONTROLS

## LIQUID TURBINE FLOW METERS



Simark Controls offers a complete line of turbine flow meters that are available with ranges from .3 GPM to 5500 GPM covering a wide range of measurement applications. Simark Controls' turbine flow meters are manufactured to the highest quality standards and are available with a wide range of end connections compatible with many applications. Applications include oilfield waterflood, production, well servicing, pipelines, mining, chemicals, food and beverage industry and most other liquid applications.

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## LIQUID TURBINE FLOW METERS

Standard Material Specifications		Performance Specifications									
Flowmeter Body	316 S.S.	Accuracy	±1% of reading. Note 3/8" ± 2%								
Support Vanes	316 S.S.	Repeatability	±0.1% of indicated flow throughout the linear flow range								
Rotor	CD4MCu	<table border="1"> <thead> <tr> <th colspan="2">Temperature Range (Magnetic Pickup)</th> </tr> </thead> <tbody> <tr> <td>Standard</td> <td>- 150° F to + 250° F</td> </tr> <tr> <td>High</td> <td>- 450° F to + 450° F</td> </tr> <tr> <td colspan="2">Note: Special Magnetic Pickups are available upon request.</td> </tr> </tbody> </table>		Temperature Range (Magnetic Pickup)		Standard	- 150° F to + 250° F	High	- 450° F to + 450° F	Note: Special Magnetic Pickups are available upon request.	
Temperature Range (Magnetic Pickup)											
Standard	- 150° F to + 250° F										
High	- 450° F to + 450° F										
Note: Special Magnetic Pickups are available upon request.											
Sleeve Bearings	Tungsten Carbide										
Shaft	Tungsten Carbide										
Thrust Ball	Ceramic										
Note: Other materials are available upon request and for special applications.											

Turbine Flow Meters Linear Flow Range							
Size							Max Output
Inch	MM	GPM	BPD	LPM	M <sup>3</sup> /D	Pulses P/Gal	Frequency Pulses P/Sec
3/8	10	.3 – 3	10 – 100	1.14 – 11.36	1.6 – 16	22000	1100
½	13	.75 – 7.5	25 – 250	2.84 – 28.39	4 – 40	14500	1815
¾	19	2 – 15	68 – 515	7.57 – 56.78	11 – 80	2950	740
7/8	22	3 – 30	100 – 1000	11.36 – 113.56	16 – 160	2350	1175
1	25	5 – 50	170 – 1700	18.93 – 189.27	27 – 270	900	750
1 ½	38	15 – 180	515 – 6000	56.78 – 681.35	80 – 1100	325	975
2	51	40 – 400	1300 – 13000	151 – 1514	210 – 2100	55	365
3	76	60 – 600	2100 – 21000	227 – 2271	320 – 3200	57	570
4	102	100 – 1200	3400 – 41000	380 – 4542	545 – 6541	30	600
6	152	200 – 2500	6800 – 86000	757 – 9464	1090 – 13628	7	290
8	203	350 – 3500	12000 – 120000	1325 – 13250	1907 – 19078	3	175
10	550	550 – 5500	19000 – 180000	1892 – 18926	2725 – 27255	1.6	147
Notes: 1. Linear flow ranges are based on water. 2. The Linear flow range of liquids with non-lubricating characteristics is limited to the upper 60% of rating.							

### NACE MR01-75

All Simark Controls Turbine Flow Meters are suitable for use in sour service applications. All meters are built in compliance to NACE MR01-75 (NACE traceability available on pressure containing components upon request).

### Meter Size Selection

Flow meter size selection should be based on the instantaneous flow rate of the line into which the meter will be mounted. Meter size selection is not to be based on normal pipe size. Refer to the linear flow range chart for meter size selection.

### Installation

The meter should be installed with the arrow on the meter body corresponding to flow direction of the line.

A 10-diameter length of straight unrestricted pipe must be upstream and a 5-diameter length of straight unrestricted pipe must be downstream of the flow meter. Both pipe sections should be the same nominal pipe size as the flow meter's end connection.

Throttling / control valves should be located downstream of the flow meter.



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**Between Flange Turbine Flow Meters:**  
 Simark Controls Series BF Turbine Flow Meters are available from 3/8” to 8” in the following configurations:

Flow Meter Size x End Connection Size (inches)	Face to Face Dimensions (inches)
3/8” x 1”	4”
1/2” x 1”	4”
3/4” x 1”	4”
3/4” x 2”	2.5”
7/8” x 1”	4”
7/8” x 2”	2.5”
1” x 1”	4”
1” x 2”	2.5”
1 1/2” x 2”	2.5”
2” x 2”	2.5”
3” x 3”	4.25”
4” x 4”	5”
6” x 6”	5.75”
8” x 8”	6.25”

*All Simark Controls Series BF Meters are available for use with ANSI 150# to 1500# RF flanges with pressure ratings from 275 to 3600 psi.*

**Threaded Flow Meters:**  
 Simark Controls Threaded Turbine Flow Meters are available from 3/8” to 4” in the following configurations:

Flow Meter Size x End Connection Size	Body Style	Working Pressure	
		PSI	MPa
3/8” x 1” MNPT	Hex	7500	51.71
1/2” x 1” MNPT	Hex	7500	51.71
3/4” x 1” MNPT	Hex	7500	51.71
3/4” x 2” MNPT	Round	5000	34.48
7/8” x 1” MNPT	Hex	5000	34.48
7/8” x 2” MNPT	Round	5000	34.48
1” x 1” MNPT	Hex	5000	34.48
1” x 2” MNPT	Round	5000	34.48
1.5” x 1.5” MNPT	Round	5000	34.48
1.5” x 2” MNPT	Round	5000	34.48
2” x 2” FMNPT	Round	5000	34.48
3” x 3” FMNPT	Round	3000	20.68
4” x 4” FMNPT	Round	3000	20.68

**Flanged Flow Meters:**

Simark Flanged Turbine Flow Meters are available with raised face (RF) and ring-type joint (RTJ) ANSI B16.5 rated flanges made of carbon steel, 304SS or 316SS. Operating pressure will be determined by the ANSI flange series and ratings. Flanged meters are available with the following ratings ANSI 150#, 300#, 600#, 900# and 1500# in the following flow meter sizes 1”, 1.5”, 2”, 3”, 4”, 6”, 8” and 10”.

**Grooved Connections:**

Flow meters with grooved end connections are available in 3/8” through 8”.

**Cast Body Flow Meters:**

Simark Controls Cast Body Turbine Flow Meters are available in a 1” x 1” MNPT size and provide a cost effective measurement solution. The Simark Cast Body Turbine Flow Meter body conforms to ASTM A351/743/744-CF3M and is rated for 5000 psi working pressure. The Cast Body Meter has the same accuracy and repeatability as all other Simark Controls Turbine Flow Meters.



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## ROTOR AND VANE KITS



Simark Controls offers a broad line of Turbine Flow Meter Rotor and Vane Kits designed for Simark Turbine Flow Meters. The Simark Rotor and Vane Kits are also compatible for use with many other popular manufactures' Turbine Flow Meters. Please contact Simark Controls to verify compatibility with your existing meters. The kits are available for flow ranges of .3 to 5500 GPM. Simark kits fit meter sizes of .375" to 10".

Simark Controls repair kits are manufactured to the highest quality standards. The repair kits are manufactured of 316SS and CD4MCu for the rotors. Bearings are tungsten carbide and ceramic. The kits are calibrated in pulses per US gallon for each kit. The kits may be used in a wide range of applications including: oilfield waterflood, production, well servicing, pipelines, mining, chemicals, food and beverage industry and most other liquid applications.

Performance Specifications	
Accuracy	±1% of reading. Note 3/8" ± 2%
Repeatability	±0.1% of indicated flow throughout the linear flow range

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