

NUFLO™

Specialty Turbine Flowmeters

When the toughest oilfield conditions stand between you and a successful job, you can count on Cameron to deliver products that are equally tough. Long-lasting protection from corrosion. Resistance to abrasives. Special designs for taking on heavy solids, or for metering products like nitrogen or carbon dioxide. Our line of specialty meters has it all.

Cameron's reputation for manufacturing some of the most durable and dependable flowmeters on the market was not built on product alone, however. Cameron also stands behind its products with a staff of professionals who have the expertise to guide every customer to the meter that is best for his specific application.

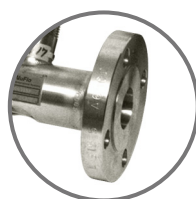
Our specialty turbines are custom-manufactured with various materials and rotor designs for optimizing performance and durability. Most designs are available for use with a variety of end connections: threaded, grooved, flanged, EZ-IN® and WECO® union. Meters are also available for Autoclave®, Grayloc®, and Techlok® end connections in some sizes.

Consider the options:

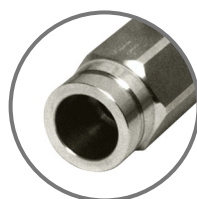
- **Low restriction.** Designed with half the number of blades found in a standard turbine meter, these meters provide a highly effective alternative for fluids with high solids content such as cement slurries.
- **High temperature.** The brazed rotor in these meters equips them for dependable service at temperatures above 250°F.
- **Corrosive service.** These meters provide added protection against rotor slippage and/or corrosion and are available with a brazed rotor, a nickel-plated rotor, or rotor with a binderless carbide shaft.
- **Abrasion protection.** A liquid nitride process is used to harden the surface of these internals for added protection against abrasives.
- **Ball bearing.** Ball bearings support the rotor in this design, which is ideal for measuring non-lubricating liquids such as liquid nitrogen, liquid carbon dioxide, and gasoline.



EZ-IN



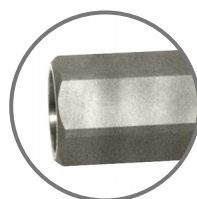
FLANGED



GROOVED



THREADED



INTERNAL THREADS



WECO UNION

Meter Kits

For added flexibility, Cameron offers the ability to convert a standard NuFlo turbine meter into a specialty meter simply by inserting new internals. Specialty meter kits are available in a wide range of meter sizes and types and are easily installed.

High-Pressure Meters

When line pressure pushes the limits of a standard liquid turbine rating, consider Cameron's high-pressure meters, available in three end connection styles: NPT threaded, WECO® 1502 union, and Autoclave® threaded. Meter sizes vary; contact Cameron for availability.

NPT Threaded Meters	rated to 10,000 psi
WECO® 1502 Union Meters	rated to 15,000 psi
Autoclave® Threaded Meters	rated to 20,000 psi

Linear Flow Range ^(1, 2, 3)

Flowmeter Size ⁽³⁾	Flow Range				Nominal ⁽²⁾ Calibration Factor		Maximum Output Frequency	ΔP at Maximum Flow ⁽²⁾	
	mm	GPM	m ³ /HR	BPD	Pulses Gallon	Pulses x 1000/m ³	Pulses/Sec	psi	kPa
3/8	10	0.3 - 3	0.068 - 0.68	10 - 100	22000	(5812)	1100	4.0	28
1/2	13	0.75 - 7.5	0.17 - 1.70	25 - 250	14500	(3830)	1815	12.0	83
3/4	19	2 - 15	0.45 - 3.41	68 - 515	2950	(780)	740	18.0	124
7/8	22	3 - 30	0.68 - 6.81	100 - 1000	2350	(621)	1175	20.0	138
1	25	5 - 50	1.14 - 11.36	170 - 1700	900	(238)	750	20.0	138
1-1/2	38	15 - 180	3.41 - 40.88	515 - 6000	325	(86)	975	16.0	110
2	51	40 - 400	9.09 - 90.85	1300 - 13000	55	(14.5)	365	22.0	152
3	76	80 - 800	18.16 - 181.66	2750 - 27500	57	(15.2)	760	20.0	138
4	102	100 - 1200	22.71 - 272.55	3400 - 41000	30	(7.9)	600	10.0	69
6	152	250 - 2500	56.78 - 567.82	8600 - 86000	7	(1.8)	290	10.0	6
8	203	350 - 3500	79.49 - 794.94	12000 - 120000	3	(.8)	175	6.0	41

1. The linear flow range of liquids with non-lubricating characteristics is limited to the upper 60% of rating.

2. Based on water.

3. Consult Cameron's Measurement Systems division for engineering assistance with applications involving liquids of viscosities greater than 5 centistokes on 3/8-in. through 3/4-in. meters.

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® EZ-IN is a registered trademark of Cameron International Corporation.

® WECO is a registered trademark of FMC Technologies, Inc.

® Grayloc is a registered trademark of Oceaneering Int., Inc.

® Techlok is a registered trademark of Vector International Limited, Techlok Limited.

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