



Blancett[®]
Turbine Flow Meters

Turbine Flow Meter

QuikSert[®]

DESCRIPTION

The QuikSert in-line turbine flow meter was developed for liquid applications where accuracy and dependability are needed. QuikSert's stainless steel body incorporates a helical turbine with tungsten carbide shaft and bearing. It provides an efficient, long service life and a cost-effective solution for your measurement requirements.

Simple in design and construction, QuikSert uses modified upstream and downstream flow straighteners for a high degree of flow accuracy. Its between-the-flange design eliminates the need for mating flanges, requiring less space in the flow line, lowering costs for easy, one-man installation.

The meter produces a sine-wave signal proportional to its volumetric flow rate. With optional Blancett electronics, QuikSert provides local flow rate and volume totalization and interfaces with most instruments, PLCs and computers.

FEATURES

- Accurate and repeatable flow measurement from 0.6...3 gpm (20...100 bpd) to 500...5000 gpm (17,000...171,000 bpd).
- Unique between-the-flange design eliminates need for mating flanges.
- Superior materials of construction for high performance in aggressive environments.
- Wafer-style mounting configurations for limited space requirements.
- Modified flow straighteners for enhanced fluid dynamics.



INSTALLATION

The QuikSert turbine meter is simple to install and service. The meter should be installed with the "flow direction" arrow aligned with the direction of the line flow. For optimum performance, the flow meter should be installed with a minimum of 10 diameters upstream straight pipe length and 5 diameters downstream straight pipe length.

REPAIR KITS

Factory calibrated repair kits are available for field service. A repair kit contains six screws, two rotor supports, one rotor assembly, and a K-factor tag. The rotor support assembly is retained in proper position within the meter body by the support screws. These screws allow for quick and easy disassembly and replacement of the meter's internal components. QuikSert repair kits are designed and manufactured for use with Blancett turbines and other flow meters of similar design; contact the factory for further details.



Badger Meter

TRB-DS-01381-EN-06 (September 2018)

Product Data Sheet

OPERATING PRINCIPLE

Fluid entering the meter first passes through an inlet flow straightener that reduces its turbulent flow pattern. Fluid then passes through the turbine, causing the turbine to rotate at a speed proportional to fluid velocity. As each turbine blade passes through the magnetic field generated by the meter's magnetic pickup, an AC voltage pulse is generated. These pulses provide an output frequency that is proportional to volumetric flow.

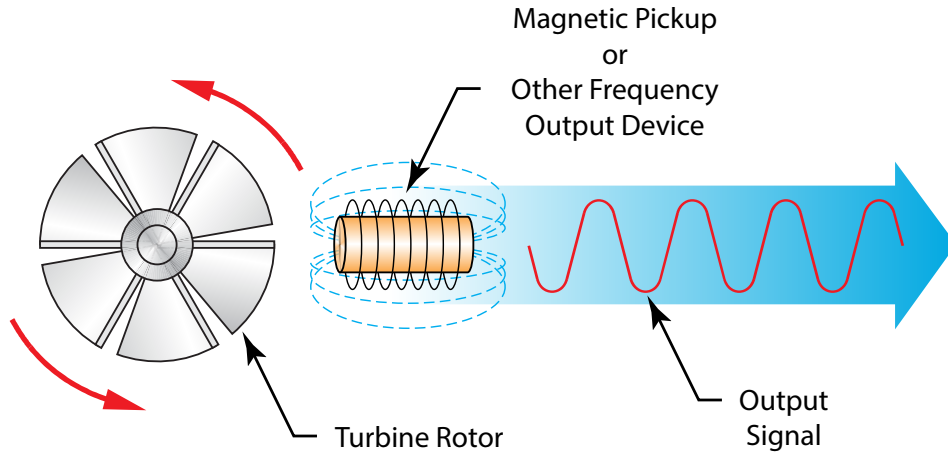


Figure 1: Schematic illustration of electric signal generated by rotor movement

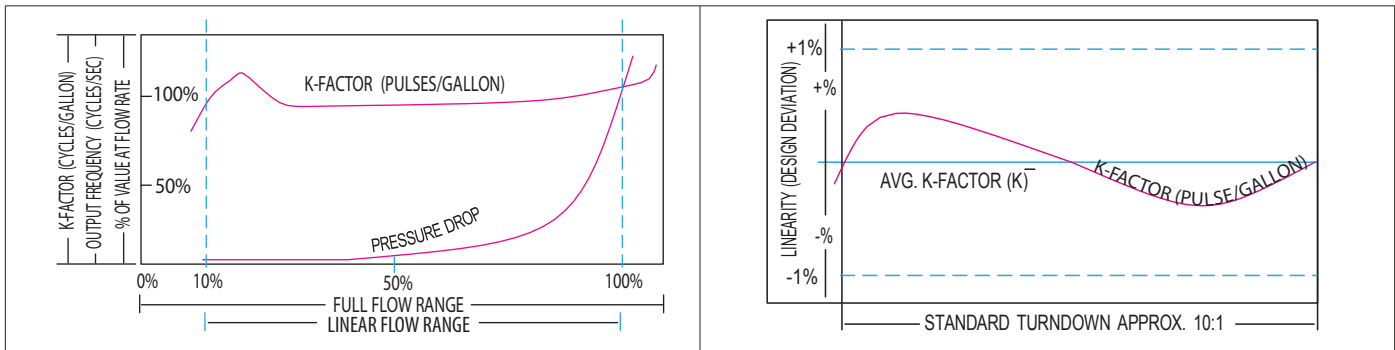
K-FACTOR

The K-factor represents the number of output pulses transmitted per gallon of fluid passing through the turbine meter. Each turbine has a unique K-factor. However, turbine meters are not functionally consistent throughout the full flow range of the meter.

There are several forms of friction inherent in turbine meters that slow down the rotational movement of the turbine rotor. These frictional forces include: magnetic drag, created by electromagnetic force of pickup transducers; mechanical drag, due to bearing friction; and viscous drag, produced by flowing fluid. See charts below.

As flow increases, the frictional forces are minimized and the free-wheeling motion of the turbine rotor becomes more linear (proportional to flow). The K-factor becomes relatively constant and linear throughout the balance of the linear flow range. This is approximately a 10:1 turndown ratio from the maximum flow rate down to the minimum flow rate.

Typical K-factor Curve (Pulse per US Gallon)



SPECIFICATIONS

Materials of Construction	Body	316L stainless steel
	Rotor	CD4MCU stainless steel
	Bearings	Tungsten carbide
	Rotor Shaft	Tungsten carbide
	Rotor Support	—
Operating Temperature	-150...350° F (-101...177° C) standard Temperatures to 450° F (232° C) with high-temp pickup, consult factory for details	
Pressure Rating	See pressure rating table below	
End Connections	Wafer-style ASME/ANSI B16.5-1996	
Turndown Ratio	—	
Accuracy	±1% of reading for 7/8 in. and larger meters ±1% of reading over the upper 70% of the measuring range for 3/8 in., 1/2 in. and 3/4 in. meters	
Repeatability	±0.1%	
Calibration	Water; NIST Traceable Calibration Certificate available, consult factory for details	
Pickup	B111109, B220111, B220210, B220243, B111126	
Certification	For Explosion proof models only: Class I Div 1 Groups C,D; Complies to UL 1203 and CSA 22.2 No. 30 Met Labs File No. E112860	

Pressure Rating

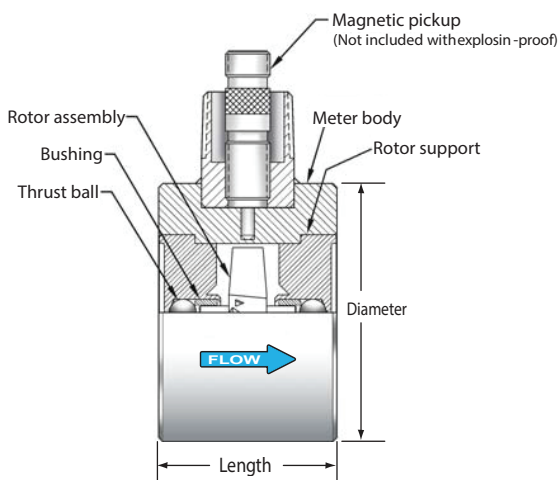
The pressure rating of the meter is dependent upon the class of ANSI flanges between which the meter is to be mounted. The pressure rating chart below is based on Carbon Steel at 100° F (37.8° C).

Flange Class (ANSI)	150	300	600	900
Working Pressure (psi)	285	740	1480	2220
Working Pressure (MPa)	1.97	5.10	10.20	15.31
* Test Pressure (psi)	427.5	1110	2220	3330
* Test Pressure (MPa)	2.95	7.65	15.31	22.98

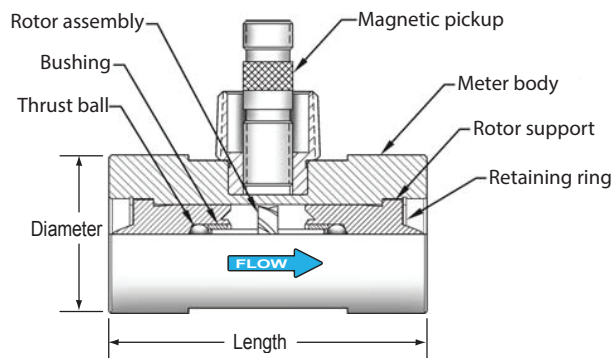
* Test pressure based on 1.5 safety factor

DIAGRAMS

Models B132-050...B139-900



Models B131-038...B131-100



PART NUMBER INFORMATION

Part Number	Meter Bore Size × Line Size (in.)	End Connections	Max. PSI	Flow Ranges			Strainer Mesh	Approx. K-Factor pulses/US gal	Weight	Max. Pressure Drop (psi)
				gpm (lpm)	bpd	m ³ /d				
B131-038	3/8 × 1	—	—	0.60...3.00 (2.27...11.36)	20...100	3.3...16	60	18,000	—	3.75
B131-050	1/2 × 1	—	—	0.75...7.50 (2.84...28.39)	25...250	4.1...41	60	13,000	—	6.5
B131-075	3/4 × 1	—	—	2.00...15.00 (7.57...56.78)	68...515	10.9...81.75	60	3300	—	18
B131-088	7/8 × 1	—	—	3.00...30.00 (11.36...113.56)	100...1000	16...160	60	3100	—	20
B131-100	1 × 1	—	—	5.00...50.00 (18.93...189.27)	170...1700	27.25...272.5	60	870	—	20
B132-050	1/2 × 2	—	—	0.75...7.50 (2.84...28.39)	25...250	4.1...41	60	13,000	—	12
B132-075	3/4 × 2	—	—	2.00...15.00 (7.57...56.78)	68...515	10.9...81.75	60	3300	—	18
B132-088	7/8 × 2	—	—	3.00...30.00 (11.36...113.56)	100...1000	16...160	60	3100	—	20
B132-100	1 × 2	—	—	5.00...50.00 (18.93...189.27)	170...1700	27.25...272.5	40	870	—	20
B132-150	1-1/2 × 2	—	—	15.00...180.00 (56.78...681.37)	515...6000	82...981	20	330	—	16
B132-200	2 × 2	—	—	40.00...400.00 (151.42...1514.16)	1300...13,000	218...2180	20	52	—	9
B132-250	2 × 3	—	—	40.00...400.00 (151.42...1514.16)	1300...13,000	218...2180	20	52	—	10
B133-300	3 × 3	—	—	60.00...600.00 (227.12...2271.25)	2100...21,000	327...3270	10	57	—	10
B133-380	3 × 3	—	—	80.00...800.00 (302.833...3028.33)	2750...27,500	430...4300	10	57	—	10
B134-400	4 × 4	—	—	100.00...1200.00 (378.54...4542.49)	3400...41,000	545...6540	10	29	—	10
B136-600	6 × 6	—	—	200.00...2500.00 (757.08...9463.53)	6800...86,000	1,090...13,626	4	7	—	10
B138-800	8 × 8	—	—	350.00...3500.00 (1324.89...13248.94)	12,000...120,000	1,363...19,076	4	3	—	10
B139-900	10 × 10	—	—	500.00...5000.00 (1892.71...18927.06)	17,000...171,000	2,725...27,252	4	1.6	—	10

¹ Part number includes turbine meter and standard magnetic pickup. For other pickup options, see "Pickup Options" on page 5. For larger sizes, consult factory. Note: Insert a "C" before dash for turbine meters with explosion proof rating. No pickup included. Example: B131C-100

NOTE: For PSI, see "Pressure Rating" on page 3.

DIMENSIONS TABLE


Part Number	Diameter	Length
B131-038 B131-050 B131-075 B131-088 B131-100	2	4
B132-050 B132-075 B132-088 B132-100 B132-150 B132-200	3.62	2.5
B132-250	3.62	4.25
B133-300 B133-380	5	4.25
B134-400	6.18	5
B136-600	8.5	5.75
B138-800	10.62	6.25
B139-900	12.75	6.75

INSTALLATION KITS

QuikSert Installation Kits are offered to make set up trouble-free and to ensure the proper fit. Each kit includes: studs, nuts, gaskets, and spacer rings. See table below for ordering information.

Size	150#	300#	600#	900#
1 in. (25.4 mm)	B253-1HK-150	B253-1HK-300	B253-1HK-600	B253-1HK-900
2 in. (50.8 mm)	B253-2HK-150	B253-2HK-300	B253-2HK-600	B253-2HK-900
3 in. (76.2 mm)	B253-3HK-150	B253-3HK-300	B253-3HK-600	B253-3HK-900
4 in. (101.6)	B253-4HK-150	B253-4HK-300	B253-4HK-600	B253-4HK-900
6 in. (152.4 mm)	B253-6HK-150	B253-6HK-300	B253-6HK-600	B253-6HK-900
8 in. (203.2 mm)	B253-8HK-150	B253-8HK-300	B253-8HK-600	B253-8HK-900
10 in. (254.0 mm)	B253-9HK-150	B253-9HK-300	B253-9HK-600	B253-9HK-900

PICKUP OPTIONS

Part Number	Magnetic Pickup	Temperature Range
B111109	Standard	-150...330° F (-101...165° C)
B220111	High temperature	-450...450° F (-26...232° C)
B220210	With preamplifier	-40...250° F (-40...121° C)
B220243	Intrinsically safe, FM rated	-40...250° F (-40...21° C)
B111126	ATEX  II 1G; EEx ia IIC T5	-58...248° F (-50...120° C)

REPAIR KITS

Part Number	Repair Kit Part Number
B131-038	B253-102
B131-050	B253-105
B131-075	B253-108
B131-088	B253-109
B131-100	B253-112
B132-050	B253-205
B132-075	B253-208
B132-088	B253-209
B132-100	B253-212
B132-150	B253-216
B132-200	B253-220
B132-250	B253-220
B133-300	B253-330
B133-380	B253-330
B134-400	B253-440
B136-600	B253-660
B138-800	B253-880
B139-900	B253-990

INTENTIONAL BLANK PAGE

Control. Manage. Optimize.

Blancett and QuikSert are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2018 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503
Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836
Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11