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Sur-Flo Quiksert (Ez-in) Turbine Flow Meter

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SUR-FLO
METERS & CONTROLS LTD.

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.

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.

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.

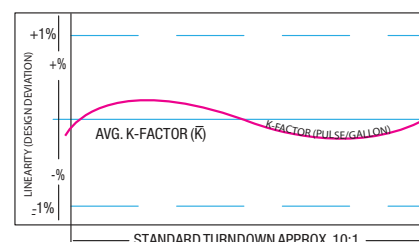
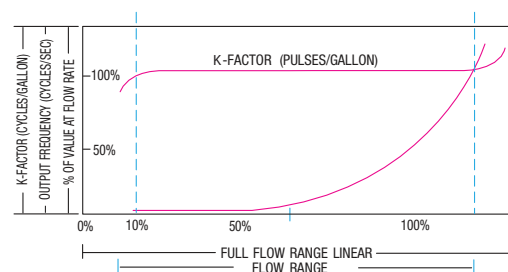


K-FACTOR

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.



Product Data Sheet

SPECIFICATIONS

Materials of Construction	Body and internal wetted parts	316L stainless steel
	Bearings	Tungsten carbide
	Turbine	CD4MCU stainless steel
	Shaft	Tungsten carbide
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	
Pressure Rating	See pressure rating table below	
Operating Temperature	-150...350° F (-101...177° C) standard Temperatures to 450° F (232° C) with high-temp pickup, consult factory for details	
End Connections	Wafer-style ASME/ANSI B16.5-1996	
Approvals	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

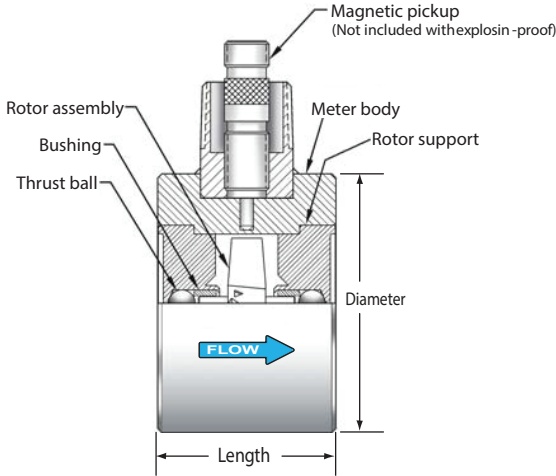
METER AND REPAIR KITS

Part Number*	Meter Bore Size × Line Size (in.)	Flow Ranges			Strainer Mesh	Approx. K-Factor pulses/US gal	Max. Pressure Drop (psi)	Dimensions Dia. × length (in.)	Repair Kit Part Number
		gpm	bpd	m ³ /d					
BS131-038	3/8 × 1	0.6...3	20...100	3.3...16	60	18,000	3.75	2 × 4	BS253-102
BS131-050	1/2 × 1	0.75...7.5	25...250	4.1...41	60	13,000	6.5	2 × 4	BS253-105
BS131-075	3/4 × 1	2...15	68...515	10.9...81.75	60	3300	18	2 × 4	BS253-108
BS131-088	7/8 × 1	3...30	100...1000	16...160	60	3100	20	2 × 4	BS253-109
BS131-100	1 × 1	5...50	170...1700	27.25...272.5	60	870	20	2 × 4	BS253-112
BS132-050	1/2 × 2	0.75...7.5	25...250	4.1...41	60	13,000	12	3.62 × 2.5	BS253-205
BS132-075	3/4 × 2	2...15	68...515	10.9...81.75	60	3300	18	3.62 × 2.5	BS253-208
BS132-088	7/8 × 2	3...30	100...1000	16...160	60	3100	20	3.62 × 2.5	BS253-209
BS132-100	1 × 2	5...50	170...1700	27.25...272.5	40	870	20	3.62 × 2.5	BS253-212
BS132-150	1-1/2 × 2	15...180	515...6000	82...981	20	330	16	3.62 × 2.5	BS253-216
BS132-200	2 × 2	40...400	1300...13,000	218...2180	20	52	9	3.62 × 2.5	BS253-220
BS132-250	2 × 3	40...400	1300...13,000	218...2180	20	52	10	3.62 × 4.25	BS253-220
BS133-300	3 × 3	60...600	2100...21,000	327...3270	10	57	10	5 × 4.25	BS253-330
BS133-380	3 × 3	80...800	2750...27,500	430...4300	10	57	10	5 × 4.25	BS253-330
BS134-400	4 × 4	100...1200	3400...41,000	545...6540	10	29	10	6.18 × 5	BS253-440
BS136-600	6 × 6	200...2500	6800...86,000	1,090...13,626	4	7	10	8.5 × 5.75	BS253-660
BS138-800	8 × 8	350...3500	12,000...120,000	1,363...19,076	4	3	10	10.62 × 6.25	BS253-880
BS139-900	10 × 10	500...5000	17,000...171,000	2,725...27,252	4	1.6	10	12.75 × 6.75	BS253-990

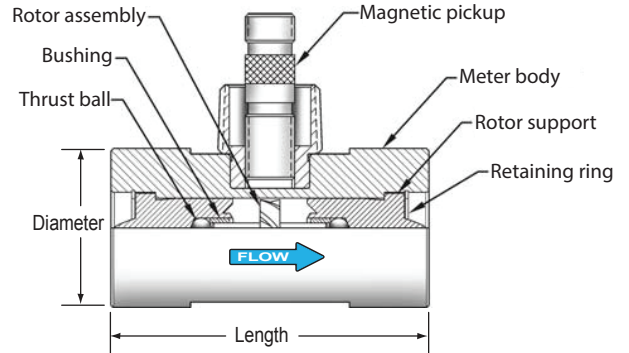
* Part number includes turbine meter and standard magnetic pickup. For other pickup options, see "Pickup Options" on page 3. For larger sizes, consult factory. Note: Insert a "C" before dash for turbine meters with explosion proof rating. No pickup included. Example: BS131C-100

DIAGRAMS

Models BE132-050...BE139-900



Models BE131-038...BE131-100




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)	BS253-1HK-150	BS253-1HK-300	BS253-1HK-600	BS253-1HK-900
2 in. (50.8 mm)	BS253-2HK-150	BS253-2HK-300	BS253-2HK-600	BS253-2HK-900
3 in. (76.2 mm)	BS253-3HK-150	BS253-3HK-300	BS253-3HK-600	BS253-3HK-900
4 in. (101.6)	BS253-4HK-150	BS253-4HK-300	BS253-4HK-600	BS253-4HK-900
6 in. (152.4 mm)	BS253-6HK-150	B2553-6HK-300	BS253-6HK-600	BS253-6HK-900
8 in. (203.2 mm)	BS253-8HK-150	BS253-8HK-300	BS253-8HK-600	BS253-8HK-900
10 in. (254.0 mm)	BS253-9HK-150	BS253-9HK-300	BS253-9HK-600	BS253-9HK-900

PICKUP OPTIONS

Part Number	Magnetic Pickup	Temperature Range
BS111109	Standard	-150...330° F (-101...165° C)
BS220111	High temperature	-450...450° F (-26...232° C)
BS220210	With preamplifier	-40...250° F (-40...121° C)
BS220243	Intrinsically safe, FM rated	-40...250° F (-40...21° C)
BS111126	ATE)  II 1G; EEx ia IIC T5	-58...248° F (-50...120° C)