RIME FLUID SYSTEMS

Blancett® Turbine Flow Meters

Turbine Flow Meter

Gas QuikSert®

DESCRIPTION

The Gas QuikSert turbine flow meter provides long service life by offering a durable construction design composed of stainless steel and tungsten carbide shaft and bearings. The unique wafer style design allows for quick installation and easily fits between two flanges. Gas QuikSert is fully compatible with all Blancett flow monitors, K-factor scalers, and intelligent converters. The Gas QuikSert is compatible with most instruments, PLCs and computers.

FEATURES AND BENEFITS

- Consistent, reliable gas flow measurement.
- Wafer mounting configuration for limited space requirements.
- Light weight, balanced rotor provides instantaneous response to changes in flow.
- No mating flange design allows for quick and easy install.
- Superior material of construction for high performance in aggressive environments.

INSTALLATION

The flow meter must be installed with the flow indication arrow, etched on the exterior of the meter body, aligned with the correct direction of flow. The preferred mounting orientation is to have the meter installed in horizontal piping, with the pickup facing upward. However, the meter will function in any position. 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

If a turbine is damaged and it becomes necessary to service the meter, repairs are easily accomplished in the field using slide-in replacement cartridges.

Cartridge replacement kits come complete with the turbine cartridge and two retaining rings.

PART NUMBER INFORMATION

1Part Number	Bore Size	End Connections	Max PSI	Flow Ranges		Strainer Mesh	Approx. K-factor Pulses/ft³ (Pulses/m³)	Meter Weight (lb)	End to End Length	3Repair Kit	Hardware Kit
				2ACFM	MCFD						
B142-20L	2 in.	#150 Flange	2220 PSIG	7...70	10...100	60	365 (12,900)	—	1.8 in.	B142-20L-KIT	B142-20-150KIT
B142-20M	2 in.	#150 Flange	2220 PSIG	14...210	20...300	60	190 (6710)	—	1.8 in.	B142-20M-KIT	
B142-20H	2 in.	#150 Flange	2220 PSIG	35...350	50...500	60	85 (3000)	—	1.8 in.	B142-20H-KIT	

1 Does not include magnetic pickup. Order Blancett B111113 Low Drag Pickup
2 At 0 psig (0 bar) and 60° F (15.6° C)
3 Compatible with Cameron/NuFlo 2 in. wafer gas meter

Product Data Sheet

OPERATING PRINCIPLE

Gas moving through the turbine flow meter causes the rotor to turn at a speed proportional to the flow rate. The rotor blade cuts the magnetic field that surrounds the magnetic pickup, which in turn generates a frequency output signal that is directly proportional to the volumetric flow rate (see *Figure 1*). The signal is used to represent flow rate and/or totalization of a gas passing through the turbine flow meter and is always expressed as the number of electric pulses that the meter produces per cubic foot. This value, called the K-factor, is constant over each flow meter's range and is unique to the meter.

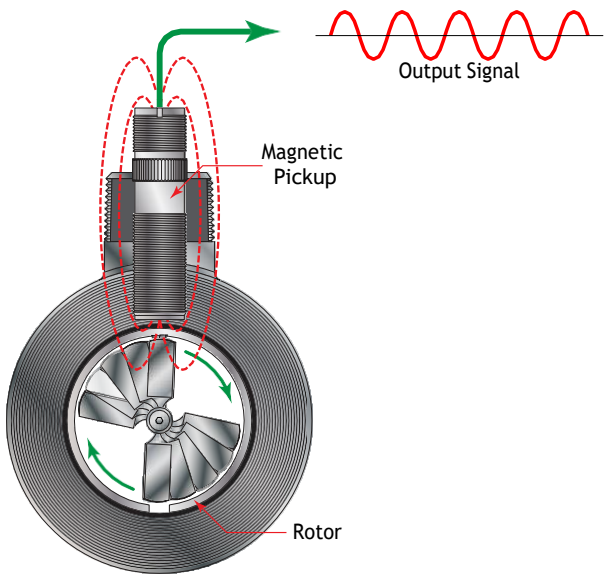


Figure 1: B142 turbine flow meter

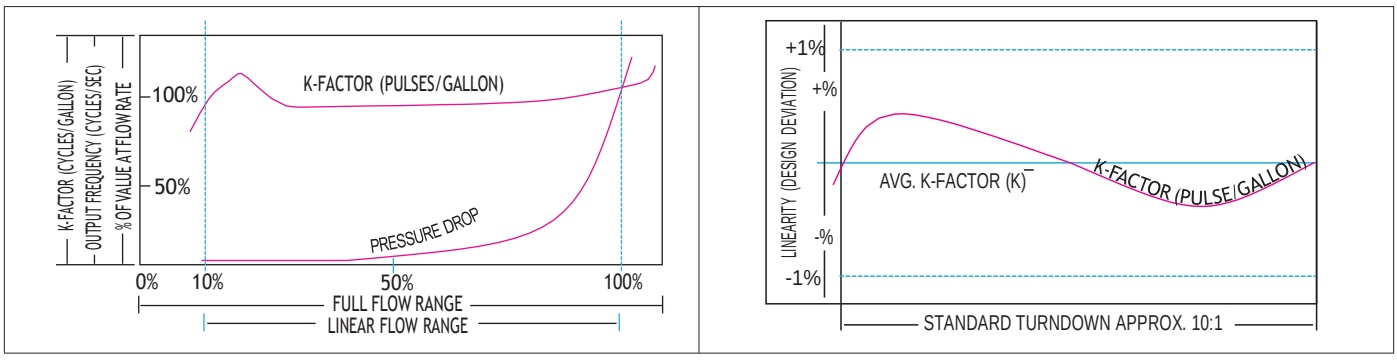
K-FACTOR

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.

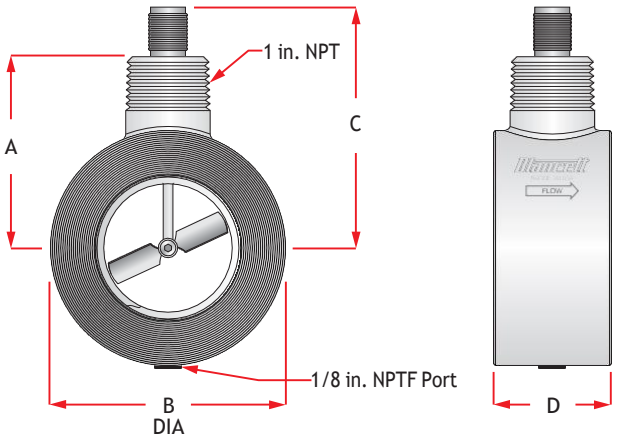
Typical K-factor Curve (Pulse per US Gallon)



SPECIFICATIONS

Materials of Construction	**Body**	316/316L stainless steel
	Rotor	410 stainless steel
	Bearings	Tungsten carbide
	Rotor Shaft	Tungsten carbide
	Rotor Support	—
	Set Screws - Pressure Port Plug	316 stainless steel
	Bearing Mounts	304 stainless steel
Operating Temperature	-40...330° F (-40...165° C)	
Pressure Rating	Vacuum to 2220 psig (15.3 MPa) max.	
End Connections	#150 Flange	
Turndown Ratio	—	
Accuracy	**Linearity**	±2% of reading over the specified measuring range (see *"Part Number Information"*)
	System Uncertainty	±1% of reading when integrated with a properly configured Blancett flow monitor or signal conditioner
Repeatability	±0.5% of reading	
Calibration	—	
Pickup	Not included. Order Blancett B111113 low drag P.U.	
Certification	**Intrinsically Safe**	Class I Division 1 Groups C, D [Entity Parameters Vmax = 10V, Imax = 3 mA, Ci = 0 µF and Li = 1.65 H with Blancett B111113 magnetic pickup installed] for US and Canada. Complies with UL 913 and CSA 22.2 No. 157-92
	Explosion-Proof	Class I Division 1 Groups C, D. complies with UL1203 and CSA C22.2 No. 30-M1986
	Single Seal	Complies with ANSI/ISA 12.27.01-2003
Installation	Mounts between two 2 in. ANSI raised face flanges, ideally sized for 2 in. schedule 40 or 80 pipe; horizontal or vertical orientation	
Pressure Loss	3 in. of water column (7.5 mbar) max. (dry air)	
Output Signal	100 mVpp minimum (with Blancett B111113 magnetic pickup installed)	
Nominal K-Factor	See *"Part Number Information"*	

DIMENSIONS



A	B Diameter	C	D End to End
2.95 in. (74.90 mm)	3.61 in. (92.00 mm)	3.12 in. (79.20 mm)	1.80 in. (45.70 mm)