

Turbine Flowmeters Overview



Titan's own turbine flowmeter range is all based on the Pelton wheel technique. This well proven method is the ideal way of measuring low rates of flow of low viscosity liquids. Our comprehensive ranges of radial flow turbine meters offer a selection of products for many differing types of application. Some are suitable for chemical plant others, for the semi-conductor industry and others are ideal for drink dispense or beer monitoring equipment. All have rugged bearings and excellent repeatability. The choice of fitting type reflects the function of the meter, some have simple hose barbs and others may be fitted with custom designed process connections to suit an OEM installation.



SELECTION CHART

Meters in range	Min flow L/min	Max flow L/min	Accuracy range	Detector type	Body material	Pipe fitting
800 Series Turbine Flowmeter 6	0.05	15	±1.0%/±2.0% FSD	Hall	PVDF or polyprop	8 & 12mm hose barb
900 Series Turbine Flowmeter 6	0.05	15	±1.0%/±2.0% FSD	Hall	PVDF or 316 St.St.	1/4" BSP female
1000 Series Turbine Flowmeter 7	0.05	30	±1.0%/±2.0% FSD	Hall	PVDF or 316 St.St.	1/2" BSP female
FT2 Optical Effect Turbine Flowmeter 9	0.02	160	±1.0%/±1.5% FSD	Optical	PPS	Various
FT2 Hall Effect Turbine Flowmeter 9	0.05	160	±1.0%/±2.0% FSD	Hall	PPS	Various
Insertion Turbine Flowmeter 40-900mm	-	-	-	-	316 stainless steel	1 1/2" BSPT or NPT
Low Power 800 Series Turbine 6	0.05	15	-	-	PVDF	8mm hose tails
NSF Approved Turbine Flowmeter 6	0.05	15	-	-	PVDF	8mm & 12mm hose
NSF Approved Beverage Flowmeter 1	0.6	10	-	Hall	PVDF	3/8" John Guest

Ordering codes

Detector Type
22 = Hall effect
Electrical connections
0 = Rubber grommet
P = 4 pin socket
N = IP67 gland
Flow range L/min
004
016
045
065
010
030
060
100
160
Seal Material
V = Viton®
N = Nitrile
E = EPDM
K = Kalrez
Fitting Size
25 = 1/4" BSP
50 = 1/2" BSP
75 = 3/4" BSP
10 = 1" BSP
8H = 8mm hose
OH = 13mm hose
Fitting Material
B = Brass
S = 316 St St
C = PVC (60°C max)
P = PVDF
Special Code
S = OEM customer

e.g. **220-100-V-10-B** is a flowmeter with a flow range of 6.0 to 100 L/min, Viton™ seal and 1" BSP brass fittings with a standard 6 point traceable water calibration.

Model	Oil flow			Water flow			'K' factor
	Min	Max	Accuracy	Min	Max	Accuracy	Pulses/L
OG1	0.01	1	0.75% FSD	0.1	1	1.00% FSD	2050
OG2	0.03	4	0.75% FSD	0.15	4	1.00% FSD	1100
OG3	0.05	10	1%	0.5	10	0.50% FSD	440
OG4	0.25	50	0.50%	2.5	50	1.00%	115
OG5	0.50	100	0.50%	4	100	0.75%	78
OG6	2	200	0.50%	10	200	1.00%	21
OG7	5	500	0.50%	20	500	1.00%	15

Titan Turbine Flow Meters & Sensors

Classic turbine flow meters simply use Propeller type turbines in a closed circular conduit. The turbine is mounted on low friction bearings and its rotation is detected through the chamber wall by one of a variety of detector types. These meters have excellent linearity in larger sizes but as the pipe bore reduces the efficiency of the meter also reduces. The bearing properties become even more important as the drive torque is greatly reduced relative to the bearing drag, this results in a lower linearity device in small sizes. Our small turbines use a radial flow principle sometimes referred to as "Pelton wheels". This is not strictly true as a Pelton wheel is designed with reaction cups to remove power from a water jet and our devices are designed to have a rotational speed that is linear to fluid throughput.

For the smaller sizes a jet of fluid is directed at a turbine that is mounted on robust low friction sapphire bearings. The geometry of the turbine and the fluid chamber ensures that the rotational speed of the rotor is proportional to the flow rate through the device. The use of this radial arrangement allows more energy to be imparted into the turbine so the bearing drag is far less important. Furthermore; because more energy is available the bearings themselves can be a lot stronger so increasing the life of the flowmeter. For larger flows some of the fluid can bypass the turbine chamber, which then behaves as a "shunt" to the metered fluid, accuracy is still maintained and the output remains linear.

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