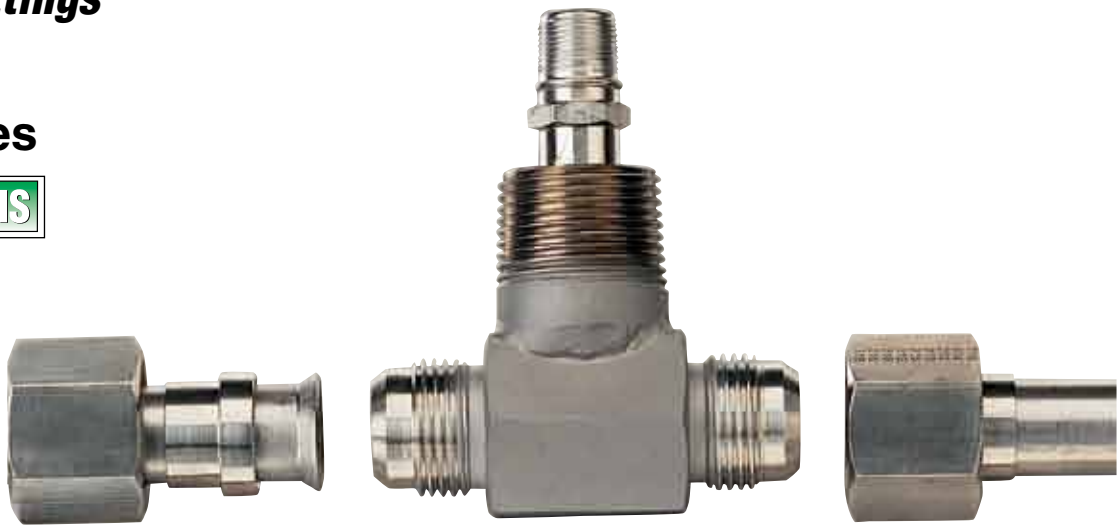
ECONOMICAL BALL BEARING TURBINE FLOWMETERS

With 37° Flare Fittings

FTB-200 Series

- ±0.5% of Reading Accuracy
- Ball Bearing Design for Economy
- Deflector Cones Stabilize Low Mass Rotor for Increased Bearing Life



FTB-201, turbine only. Mating 2-wire connector included (not shown) Shown smaller than actual size.

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OMEGA's FTB-200 Series turbine meters have male flared-end fittings for easy connections. They are built to meet the performance requirements of MS33656, though they do not carry a military specification. These units come with a mating 2-wire connector and can be supplied with the integrally mounted signal conditioner to provide 4 to 20 mA, 0 to 5V, and factored pulse outputs.

Proper application of a turbine flowmeter requires that there be a suitable piping section both downstream and upstream of the meter if it is to achieve optimum accuracy. Whereas an inlet straight pipe run of 10 pipe diameters and an outlet straight pipe run of 5 pipe diameters provide the necessary flow conditioning in general, some applications require an upstream flow straightener. Such applications include custody transfer. A flow straightener consists of a section of piping which contains a suitably dimensioned and positioned thin walled tube cluster to eliminate fluid swirl. (See drawing on next page: Typical turbine meter installation).

Installation kits with the required up and downstream straight pipe lengths for proper turbine operation are available. Installation kits for turbine meters with 37° flare end fittings consist of two lengths of stainless steel tubing cut to a length appropriate for the upstream and downstream straight pipe runs and flared at one end. Mating sleeves and nuts are included. The kits can be conveniently butt-welded into the piping system. Flow straightening sections may be provided with the installation kit. Kits are available in tubing sizes from ½ to 2½".
See accessories chart on next page.

These turbine meters are intended for clean fluid service only; where there is any doubt concerning possible particulate impurities in the process fluid, strainers are recommended. A strainer/filter may be required to reduce the potential hazard of fouling or damage that can be caused by foreign matter. Pipe rouge, the extremely fine rust which develops on the inside of some piping, is a serious problem for turbine meters, due to the difficulty in filtering out these particles.

Consult the OMEGA Flow Engineering Department for applications that may entail pipe rouge. Minimum requirements for the FTB-200 Series turbine meters are, see chart below.

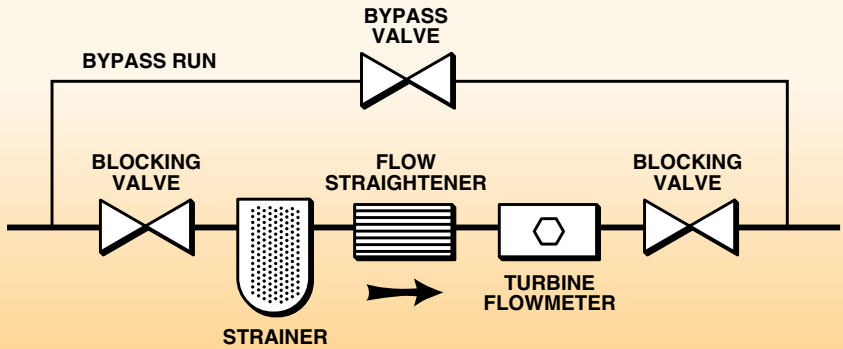
In addition, when using these units for fluids with viscosities other than 1 centistoke special calibrations and universal viscosity curves are available—consult OMEGA'S Flow Engineering Department.

SPECIFICATIONS

Accuracy: ±0.5% of reading
Repeatability: ±0.1% of reading
Temperature Range:
-268 to 232°C (-450 to 450°F)
Maximum Intermittent Overrange:
150% of maximum range
Materials of Construction:
Body: 304 SS
Rotor: 17-4 PH SS
Bearings: 440C SS
Installation Kits: 340 SS,
1.7 mm (0.065") thick
Electrical: Two-wire connector included
Maximum Pressure Drop:
0.34 bar (5 psi)

Meter Size	Mesh Size	Maximum Particle Size (inches)
¼ to ½"	100	0.0055
⅝ to 1¼"	70	0.008
1½ to 2½"	40	0.015

Typical turbine meter installation



To Order

Model No.	37° Flare Fitting	Linear Range Water (GPM)	Maximum Operating Pressure (psi)	Length mm (inch)	Nominal K Factors	Weight kg (lb)
FTB-201	¾-16 UNF-3A	0.35-3.5	5000	62 (2.45)	13,000	0.4 (1)
FTB-202	¾-16 UNF-3A	0.75-7.5	5000	62 (2.45)	10,000	0.4 (1)
FTB-203	¾-16 UNF-3A	1.25-9.5	5000	62 (2.45)	6000	0.4 (1)
FTB-204	⅞-14 UNF-3A	1.75-16	5000	70 (2.75)	4100	0.4 (1)
FTB-205	1 1/16-12 UNF-3A	2.5-29	5000	83 (3.25)	2200	0.4 (1)
FTB-206	15/16-12 UNF-3A	4-60	3500	89 (3.50)	640	0.9 (2)
FTB-207	1⅝-12 UNF-3A	6-93	3000	99 (3.88)	410	0.9 (2)
FTB-208	1⅞-12 UNF-3A	8-130	2250	111 (4.38)	230	1.4 (3)
FTB-209	2½-12 UNF-3A	15-225	1750	121 (4.75)	120	1.8 (4)

FTB-200 Series turbine with signal conditioner scaled and installed, choose system part number from the list below and replace the asterisk with the required signal conditioner part number from the list below.

Turbine System Model No.	Signal Conditioner Model No.	Signal Conditioner Description
SYS/FTB-201/(*)	—	—
SYS/FTB-202/(*)	**FLSC-34**	4 to 20 mA and Unscaled Pulse*
SYS/FTB-203/(*)	**FLSC-35B**	0 to 5 Vdc and Unscaled Pulse*
SYS/FTB-204/(*)	**FLSC-51B**	Scaled Squarewave Pulse (50 ms duration)*
SYS/FTB-205/(*)	**FLSC-C1-LIQ**	Loop powered signal conditioner, 4 to 20 mA*
SYS/FTB-206/(*)	**FLSC-C3-LIQ**	DC powered signal conditioner, 4 to 20 mA*
SYS/FTB-207/(*)	**FLSC-C3-AL-LIQ**	DC powered signal conditioner, 4 to 20 mA with alarm*
SYS/FTB-208/(*)	—	—
SYS/FTB-209/(*)	—	—

Comes complete with 10-point NIST calibration certificate for 1 cSt (for water) and operator's manual.
NIST certification is for turbine meters, signal conditioners do not come with a NIST traceable certificate.
** For details on the signal conditioners, visit us online.*
***Ordering Examples: SYS/FTB-202/FLSC-C1-LIQ,** scaled and assembled system includes 0.75 to 7.5 GPM range turbine flow meter and loop powered signal conditioner with 4 to 20 mA output.*
***SYS/FTB-206/FLSC-C3-AL-LIQ,** scaled and assembled system includes 4 to 60 GPM range turbine flowmeter and DC powered signal conditioner with 4 to 20 mA output and alarm.*

Accessories

Model No.	Description	Inlet Length mm (inch)	Outlet Length mm (inch)
FTB-K3	**Flare kit (2 pieces) for FTB-201, 202, 203**	254 (10")	127 (5")
FTB-K4	**Flare kit (2 pieces) for FTB-204**	254 (10")	127 (5")
FTB-K5	**Flare kit (2 pieces) for FTB-205**	254 (10")	127 (5")
FTB-K6	**Flare kit (2 pieces) for FTB-206**	254 (10")	127 (5")
FTB-K7	**Flare kit (2 pieces) for FTB-207**	356 (14")	152 (6")
FTB-K8	**Flare kit (2 pieces) for FTB-208**	432 (17")	203 (8")
FTB-K9	**Flare kit (2 pieces) for FTB-209**	533 (21")	229 (9")