

FT3/50-1502 Industrial Turbine Flowmeter

The Flowquip FT3/50-1502 high-pressure industrial turbine flowmeter specifically designed for the oil and petrochemical industries

- ◆ **High quality robust design**
- ◆ **Heavy duty rotor and bearings**
- ◆ **Bi-directional flow capability**
- ◆ **Low pressure drop**
- ◆ **Fast-Fit replacement internals**
- ◆ **Pressures up to 1024 barg**
- ◆ **Temperatures up to 200o C.**
- ◆ **CE marked and PED compliant**
- ◆ **ATEX approved**
- ◆ **Designed and manufactured in the UK**



Application

The Flowquip FT3/50-1502 industrial turbine flowmeter has been specifically designed and manufactured to meet the exacting demands of the applications associated with the oil and petrochemical industries.

Principle of Operation

The FT3 is an electro-mechanical volumetric device. An important feature of the design is an extremely strong rotor construction utilising helical blades machined from solid, which is virtually indestructible. The variable inductance pickoff coil mounted on the flowmeter senses the passage of the rotor blades and emits a sine wave voltage pulse, the frequency of which is proportional to volumetric flowrate. This signal is either fed directly to an instrument to provide a local display or into a scaler/conditioner for transmitting to a remote location. Flowquip have a range of instrumentation to suit all needs.

Construction

The flowmeter body is machined from solid Alloy A286 which has a very high yield strength allowing the turbine to be used at extreme pressures. The rotor is machined from 431 stainless steel solid bar and has been specially designed with a reduced number of blades and shallow blade angle for liquids containing entrained solids. Heavy duty tungsten carbide bearings make mechanical failure from water-hammer or over-speeding much less likely. To ease maintenance the complete rotor cartridge assembly can be removed from the turbine body without the need for special tooling. The cartridge is held in place by the 1502

mating seal and removal of this seal allows the cartridge to slide out for cleaning or for on-site replacement with a new pre-calibrated rotor assembly.

Options

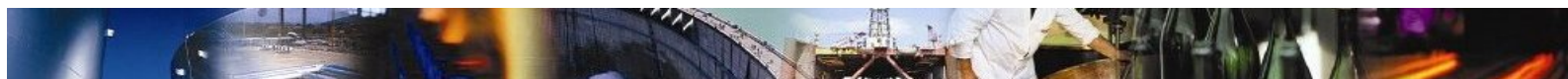
As standard the flowmeter is machined with one coil well fitted with standard coil. The options of high temperature and / or ATEX as well as two coils are available. The meter can also be fitted with the Model 202Di ATEX Approved flowrate indicator/totaliser. The 202Di can operate via its own internal battery packs or from an external power source and is housed in a specially designed stainless steel enclosure.

Calibration

All Flowquip FT3 turbines are individually calibrated with water and are traceable to national standards. A 5-point test certificate is issued for each meter showing the derived 'K' factor which is used to set secondary instrumentation. Turbines supplied with 202Di will be pre-configured with 'K' factor data to allow their immediate on-site use.

Installation

FT3 turbine flowmeters can be installed in horizontal or vertical pipelines. For bi-directional flow applications the meter should be installed with the direction arrow showing 'forward' flow. For best performance installation should be in a straight section of pipe of equal bore size to the flowmeter allowing at least 10 pipe diameters upstream and 5 pipe diameters downstream. All control valves should be installed downstream of the flowmeter. Intrinsically safe systems always require an IS pick-off coil.



Specification

Linearity:	±0.5% of reading throughout the linear range
Repeatability:	±0.1% of reading
Pressure Drop:	1.0 bar at max. flow
Max Working press.:	1035 barg (for Group 1 liquids) 500 barg (for Group 2 liquids)
Temperature Range:	Standard pickoff -30° C to +110° C ATEX pickoff -30° C to +110° C High temp -30° C to + 200° C High Temp ATEX -30° C to + 175° C
Body Connections:	2" 1502 Hammer Union female (external thread)
Flow Range:	100 to 1500 l/min
Max. Output Freq.:	550 Hz

Materials of Construction

Body:	Alloy A286
Rotor:	431 stainless steel
Sleeve bearings:	Tungsten carbide
Thrust ball:	Tungsten carbide
Rotor supports:	316 stainless steel
Cartridge:	316 stainless steel
Locating collet:	316 stainless steel
Standard 1502 seals:	FPM
Option	Nitrile
202Di Enclosure:	304 stainless steel
Mounting stem:	316 stainless steel
Duty rating:	Sweet service = 15000 psig / 120° C Sour service = 10000 psig / 200° C

The nominal K factor is based on water at 20° C. Each flowmeter is individually calibrated on water and will have a unique K factor.

Quality

All Flowquip flowmeters are manufactured to the highest standards. The quality system is independently audited by BSI and certified to ISO 9000. All flowmeters are fully PED compliant and CE marked where required. TUV are the external auditors for the Pressure Equipment Directive. Full material traceability is maintained and Material Certificates are supplied upon request. All FT3/50-1502 turbines are pressure tested to 22500 psig and the Test Certificate supplied as standard.

Specification subject to change without prior notice.

Dimensions

