SERIES 5000

INSERTION TURBINE FLOWMETER

DATA SHEET

The Series 5000 Insertion Turbine Flowmeter is designed for applications where installation and removal of the meter from the pipeline without interruption to flow, is more important than extreme accuracy of measurement.

They are ideal for large pipelines where the cost of inline meters would be prohibitive. These low cost flowmeters can be installed and removed through a suitable valve while the flow line continues to remain under pressure and provide wide rangeability and improved linearity.

Principle of Operation

As fluid flows through the turbine assembly it causes the blades of a freely supported rotor to turn at a speed directly proportional to the flow velocity. A pick-up assembly fitted into the insertion stem immediately above the rotor, detects the passage of each blade and generates a sinusoidal voltage, the frequency of which is proportional to the flow rate. This signal may then be used in conjunction with local or remote signal conditioning electronics.

SERIES 5000 FEATURES

- **Simple to install and remove**
- **A lower cost alternative for larger pipelines**
- **Can be fitted with different / interchangeable rotor assemblies**
- **Meets most installation requirements for oil, gas and general industrial operations**
- **Available with a comprehensive range of electronic signal conditioning and readout instruments**
- **Readout equipment can be located up to 50 metres from the flowmeter, or up to 3000 metres, when a pre-amplifier is used**
- **Ideal for pipeline diameters from 4" upwards**
- **When used in conjunction with a ball valve, measuring head retracts fully into the housing so can be removed without interrupting fluid flow**

Technical Specification >

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SERIES 5000

Technical Specification

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Materials

Turbine rotor	Stainless Steel - ANSI 430
Sleeve bearings	Tungsten Carbide shaft Stellite sleeve
Ball bearings	Stainless Steel - ANSI 440C
Insertion stem	Stainless Steel - ANSI 316
Collet clamp	Stainless Steel - ANSI 316
Screw Jack assembly	Carbon Steel Nickel plated
Seal housing flange	Carbon Steel

Specifications

Temperature Range	-20ºC to +150ºC Standard
Linearity	± 2% of reading over linear range at low viscosities of 5 cst or less
Repeatability	± 0.2% (95% confidence level)
Pick-up output voltage	Typically 100 mV peak - to peak at 1.0 M/Sec. (3.23 Ft/Sec)
Electrical connections	Terminal block housed in conduit box. Pre-amplifier for flameproof or Intrinsically safe applications in hazardous areas.

MODEL SELECTION

Table 1 (Insertion stem assembly)

Model No	Type	Flange Rating	Max Pressure	Stem Length
511	Collet Clamp - Plain Stem	ANSI 150RF	19 Bars	559
512	Collet Clamp - Plain Stem	ANSI 150RF	19 Bars	991
521	Screw Jack - Plain Stem	ANSI 150RF	19 Bars	686
522	Screw Jack - Plain Stem	ANSI 150RF	19 Bars	1092
523	Screw Jack - Plain Stem	ANSI 600RF	99 Bars	686
524	Screw Jack - Plain Stem	ANSI 600RF	99 Bars	1092
525	Screw Jack - Plain Stem	ANSI 900RF	149 Bars	686
526	Screw Jack - Plain Stem	ANSI 900RF	149 Bars	1092
527	Screw Jack - Plain Stem	ANSI 1500RF	200 Bars	686
527	Screw Jack - Plain Stem	ANSI 1500RF	200 Bars	1092

Table 2 (Turbine Rotor assembly)

Model No	Applications	Linear Range (M/Sec)
1	General liquid use - no filtration required	1 to 12
2	For use in clean liquid with lubricating properties	0.6 to 12
3	High pressure gas (over 10 bars)	2 to 30
4	High velocity, high pressure gas	4 to 45
5	General liquid use over low velocity range	0.3 to 5
6	Low pressure gas, low velocity range	0.6 to 6
7	Low pressure gas, medium velocity ranges	1.2 to 12
8	Low pressure gas, high velocity ranges	3 to 30
9	Low pressure gas, very high velocity ranges	5 to 50

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