INSERTION FLOWMETER

Rockwin Series 5000 Insertion Turbine Flow meters are designed for applications where installation and removal of the meter from the pipeline without interruption to flow- together with economy of cost, are more important than the extreme accuracy of measurement. They are ideally suited for use in large pipelines where the cost of inline meters would be prohibitive. These meters can be installed and removed through a suitable valve while the flow line continues to remain under pressure. They offer wide range ability 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.

INSERTION STEM & TURBINE ROTOR ASSEMBLY

Rockwin insertion turbine flow meters can be fitted with a number of different and interchangeable turbine rotor assemblies, thus permitting a specific measurement application to be addressed more precisely. All models of turbine rotor assemblies are interchangeable with different insertion stem assemblies. A fluid seal and scraper ring is fitted in the seal housing, which meets most installation requirements in oil, gas and general industrial operations. The stem passes through the seal arrangement which is held either by a collect lock and is manually inserted for low pressure, or is retained by a lead screw assembly for insertion at high pressure.

ASSOCIATED ELECTRONICS

A comprehensive range of electronic signal conditioning and readout instruments is available for use in conjunction with turbine flow meters. These electronic devices include Flow rate monitors, Flow totalisers, various Flow computers, Switching devices and Signal conditioning electronics for local and remote transmission of the output. Readout equipment may be located upto 50 meters from the turbine flow meter. When a pre-amplifier is used, the readout unit may be located upto 3000 meters depending upon the resistance of cable used.

INSTALLATION

Rockwin Insertion flow meters are intended to be installed on large diameter pipes through a 3" tee piece, with or without a ball valve. In either case a minimum clearance of 3" is required to accept the measuring head. Rockwin Insertion meters can be used in pipe sizes from 4" onwards. When used in conjunction with a ball valve, the measuring head retracts fully into the insertion assembly housing, so that the meter can be removed for service without any interruption to fluid flow.

MODEL SELECTION

Table - I (Insertion stem assembly)

Model No.	Type	Flange Rating	Maximum Pressure	Stem Length (mm)
511-	Collect Clamp-Plain Stem	ANSI 150RF	19 Bars	559
512-	Collect 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 - II (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 ranges	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

SPECIFICATIONS

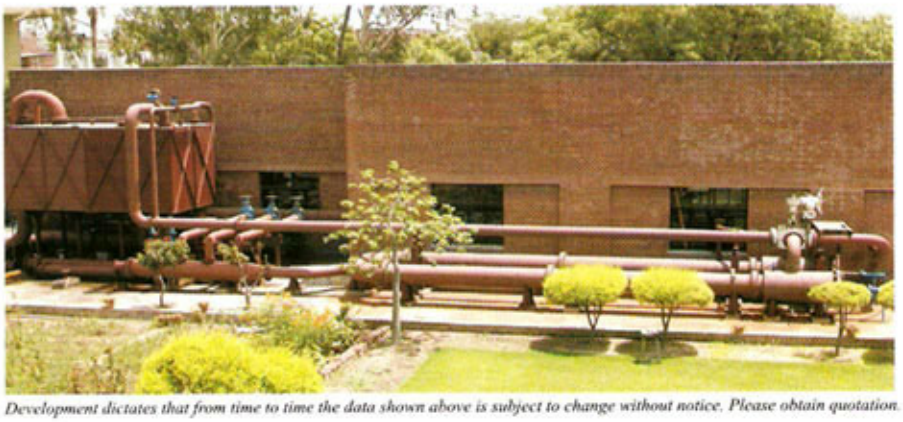
Temperature Range	-20°C to +150°C Standard
Linearity	± 2% of reading over linear range at low viscosities of 5 cst or less
Repeatability	± 0.2% (95% confidence level)
Pick-up output voltage	Typically 100 mV peak - to peak at 1.0 M/Sec. (3.23 Ft/Sec)
Electrical connections	Terminal block housed in conduit box. Various conduit boxes are available for weatherproof, flameproof or hazardous applications or intrinsically safe versions.

MATERIALS

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

CALIBRATION FACILITY

Rockwin Hydraulic Calibration Laboratory is based on 500 mm and 100 mm positive displacement Prover loops designed and operated as per API MOMS. The maximum flow capacity is 3200 cubic meter per hour. The provers have a repeatability better than ± 0.003%. The provers are independently certified and are traceable to National standards. The Gas calibration facility is based on Transfer standards and can currently handle flow upto 2500 cubic meter per hour.



Development dictates that from time to time the data shown above is subject to change without notice. Please obtain quotation.

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