

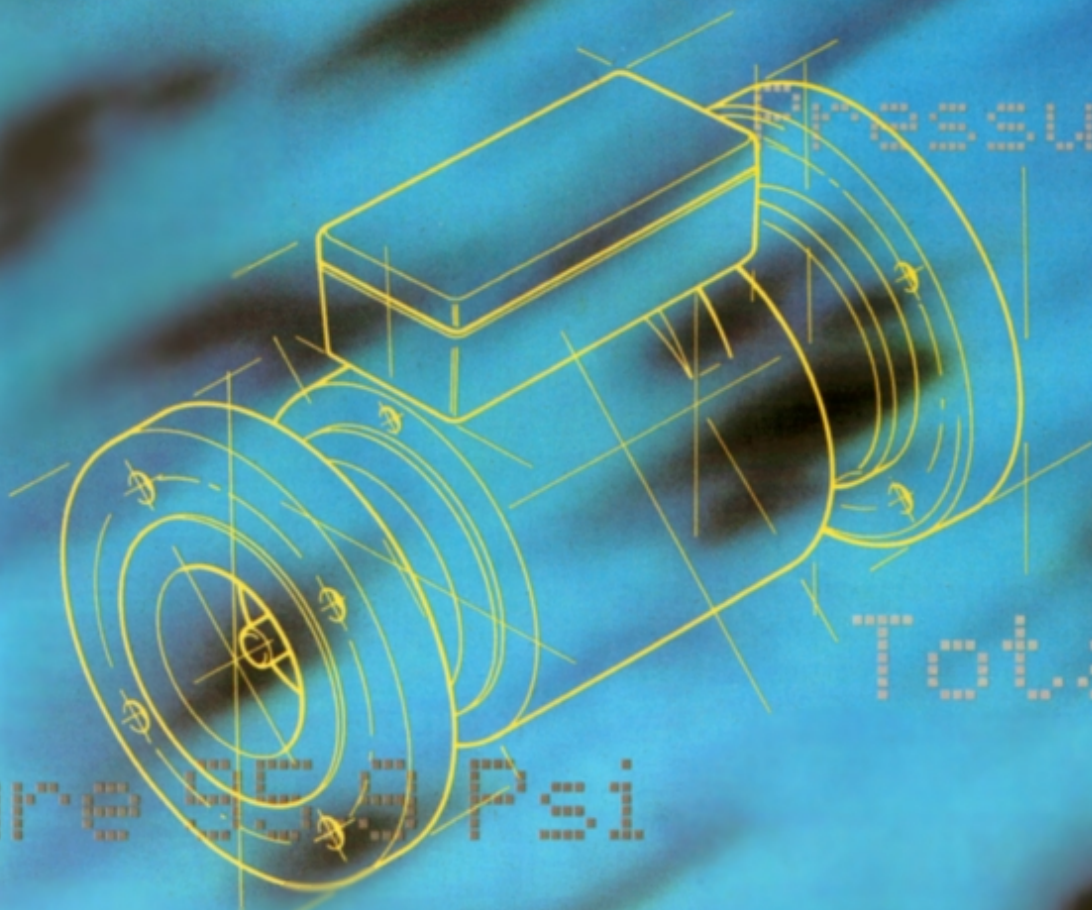
series 2000

Electronic 'Smart' Flowmeter

Mass 0.25Kg/m

Flow 704.07 L/m

Pressure 0.20 bar



Total 2530

Weight 1.51

Density 0.95

Ajax



F. Bamford (Instruments) Ltd.

Temperature 22°C

series 2000

The 'smart' Flowmeter with the ability to read Flow, Pressure and Temperature in one unit.

Principles of Operation

The CMS 2000 series flowmeter is a spring loaded variable orifice type flowmeter with two options available, differential pressure and "Hall Effect" sensor type.

Differential Pressure Type

A variable annulus is created by the linear movement of a plunger acting against a resistance spring within a female cone. The change in flow rate produces a variation in differential pressure across the flowmeter which is proportional to the flowrate.

Hall Effect Sensor Type

The principle is the same as the differential pressure with the difference being the plunger contains a magnet, the position of which is sensed by a "Hall Effect" device. The flowrate is proportional to the movement of the plunger so giving an output proportional to the flowrate.

Signal Conditioning and Processing

With either type the signals from the sensors are fed through a custom designed signal conditioning board. This board features a powerful micro-processor and sufficient ROM/RAM to perform the necessary conditioning, calculations and linearisations quickly and efficiently. The board has flexible output options including 4-20mA and RS 485 allowing up to 30 flowmeters to be connected to a computer on a single 4 wire loop. Other industry standard protocols are available allowing connection to most systems.

Display

A matching display is available for stand-alone applications or local reading when the flowmeters are connected to a remote computer. The display is very user friendly and features user set metric or imperial units, alarms and total reset; all features are held in battery backed memory.

Features

- High accuracy +/- 1%
- Repeatability +/- 0.2%
- 100:1 turndown ratio
- Wide temperature range - 263°C to 450°C
- High pressure -400 Bar G
- Individual calibration
- Pressure / Temperature compensation
- RS 485/232 communication
- Low maintenance
- Compact installation 6D upstream/3D downstream
- Programmable density compensation
- Intrinsically safe versions available

Applications

Steam, liquids and gas measurement

Energy management

Boiler efficiency monitoring

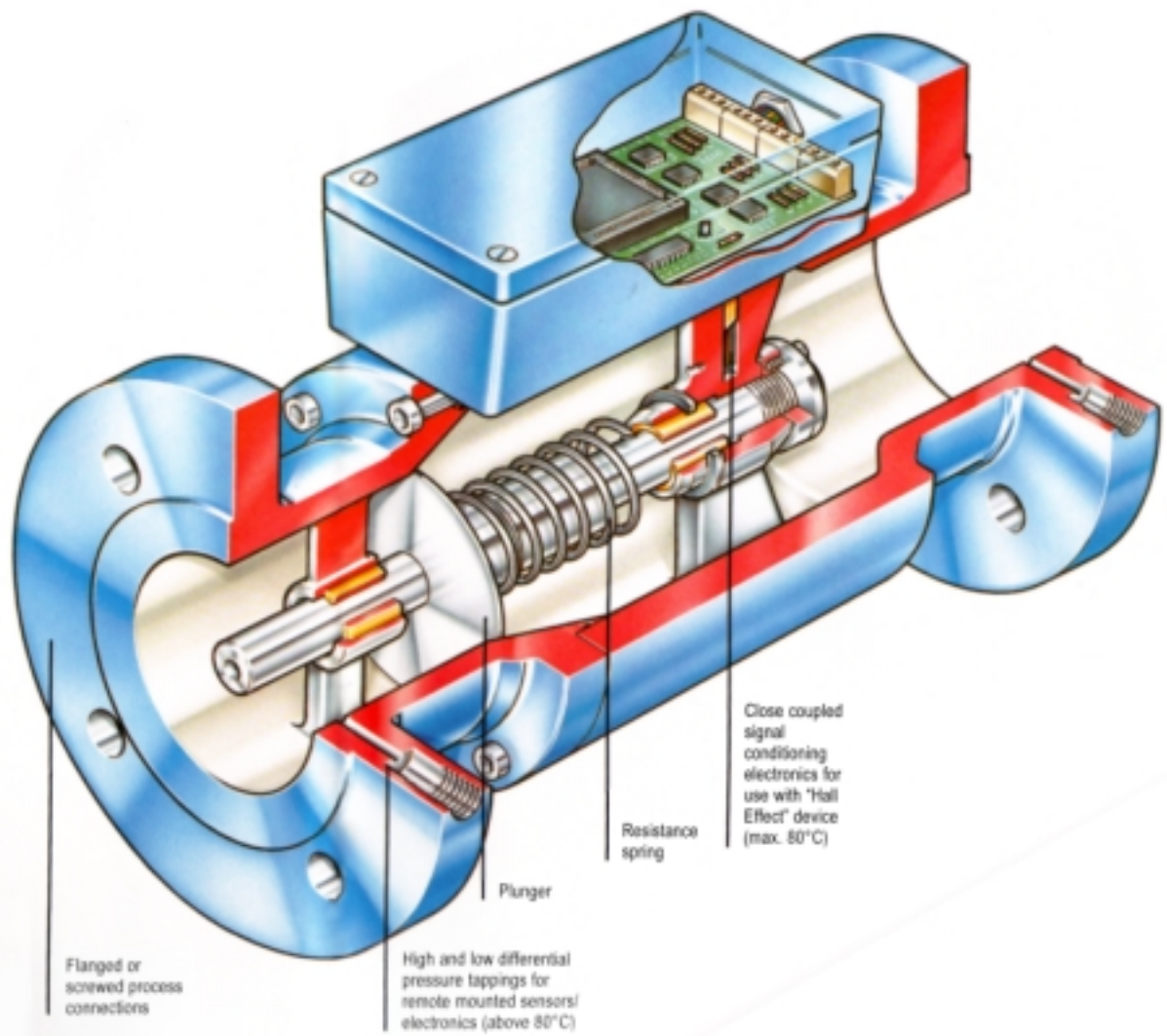
Compressor test rigs

Heavy fuel oil systems

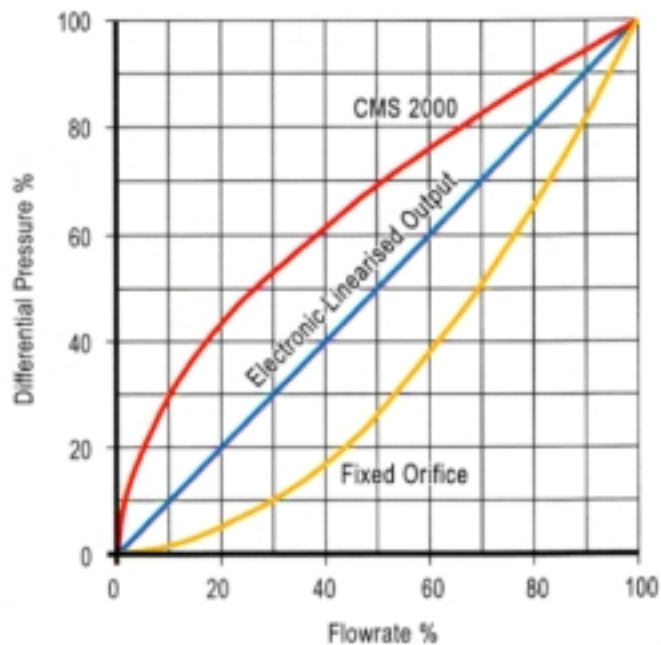
Cryogenic applications

Hydraulic engineering

Water management



Characteristics of CMS 2000 flowmeter showing the benefits of magnified output at low flow rates



Certificate No. FM 13215

The Bamford Group

History

The Business originated in 1903 when the founder Frederick Bamford commenced manufacture of small marine engines together with shafting and propellers. His first engine was installed in his own boat, the "AJAX", from which the company trade name was obtained.



While the main company concentrates on the supply of marine propellers and shafting, the good relationships with the major marine diesel engine builders has led to the formation of F. Bamford (Instruments) Ltd. who have been manufacturing flow, pressure and temperature instruments since 1947. Although developed for the protection of large diesel engines, the switches are used in every aspect of plant and equipment control and monitoring with versions available certified for use in mining and petro-chemical industries. Being developed for use in engine rooms, the instruments are very strong and heavily built and they have gained an excellent reputation for reliability and long life.

With the advent of the sophisticated computerised plant surveillance and control systems the company has developed a range of very rugged pressure and temperature transducers and the flowmeter continues this long tradition of heavy-duty and reliable instruments designed specifically for the harshest environments.



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