



TRADE AND COMMERCE
CANADA

SD-GA.119

STANDARDS DIVISION

OTTAWA, April 10, 1957.

TYPE APPROVAL

BRISTOL FLOWMETER, SERIES 500, WITH INDUSTRIAL
INSTRUMENT CORP., MODEL 700, BELLOWS DIFFERENTIAL UNIT

The apparatus specified and illustrated herein has been duly approved by the Standards Division under the provisions of the Gas Inspection Act, Chapter 129, R.S. 1952, and may be admitted to verification in Canada.

Apparatus Approved: Series 500 Recording Flowmeter, manufactured by the Bristol Company, Waterbury, Conn., U.S.A., incorporating a Model 700 Bellows Differential Unit manufactured by the Industrial Instrument Corp., Odessa, Texas. This composite instrument is distributed in Canada by the Bristol Company of Canada Limited, Toronto, Ontario.

Rating of Apparatus: Model 700 Bellows Differential Unit only.

Range (Differential) 20", 50", 100", 150", 200", 300", 400", 500" w.g.
with intermediate ranges permissible

Working Pressures 1000, 2500, 5000 p.s.i.

This differential unit may be associated with any approved Bristol device in an approved Bristol case. (See Circulars SD-GA-82, -83, -84, -85, -86, -101 for ratings and other details.)

Description: Operation of the Industrial Instrument Corp. Model 700 Differential Pressure Unit is based on the interaction of two opposed bellows attached to a machined center plate. All space enclosed by the two bellows is completely fluid filled. The low-pressure bellows shaft is connected by temperature compensating linkage to transmit bellows motion to I.I.C. Non-Freezing Bearing shaft. Pressures from the actuating source are introduced to both sides of the bellows system through either set of taps in the high- and low-pressure housings. When pressures on both high- and low-pressure bellows are equalized, the unit remains at zero. As differential pressure increases, the high-pressure bellows (1) tends to collapse, forcing fill fluid through the pulsation damper passage (3) around the over-range valves into the low-pressure bellows (2). This causes the low-pressure bellows (2) to expand and the attached shaft to move outward. Through linkage (4), linear motion of the shaft is translated into angular rotation of the I.I.C. Non-Freezing Bearing shaft. Movement of fluid from high-pressure into low-pressure bellows continues until the force created by the differential is equalled by the tension on the range springs and the spring force of the bellows proper. Bellows are of seamless type 316 stainless steel or monel. The unit is furnished with pulsation dampener, over-range protection and temperature compensation. Range springs may be changed to alter the range of the instrument.

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