Department of consumer and corporate affairs / Ministère de la consommation et des corporations

STANDARDS BRANCH - DIRECTION DES NORMES

# NOTICE OF APPROVAL G-34-1

OTTAWA June 27, 1969

## ROCKWELL ROTO-SEAL POSITIVE DISPLACEMENT GAS METERS

This approval supersedes Circular S-GA.293, dated May 28, 1964 and Circular G-34, dated April 19, 1968

### Apparatus

| | Model R-3 | Model R-5 | Model R-8 | Model R-11 |
|---|---|---|---|---|
| Rated capacity, cu. ft. per hour | 3,000 | 5,000 | 8,000 | 11,000 |
| Volume per rev. of meter, cu. ft. | 0.0400 | 0.0400 | 0.125 | 0.125 |
| Volume per rev. of output shaft, cu. ft. | 10 | 10 | 100 | 100 |
| Maximum working pressure, psi. | 125, 250, 575, 720, 1440 | 125 | 125,720, 1,440 | 125 |
| Meter connections | 2" Flanges | 3" Flanges | 3" Flanges | 4" Flanges |

| Model | Pressure Rating, psi | Body Material | Flange Rating |
|---|---|---|---|
| R-3 | 125, 250 | Cast Iron | 125 and 250 C. I. |
| R-3 | 575 | Ductile Iron | ASA 300 |
| R-3,R-8 | 720 | Cast Steel | ASA 300 |
| R-3,R-8 | 1,440 | Cast Steel | ASA 600 |
| R-5,R-8,R-11 | 125 | Cast Iron | 125 C.I. |

The "End Bells" of all meters with pressure rating of 125 and 250 psi are made of aluminum. Higher pressure meters have end bells of the same material as body.

### Description

The Roto Seal gas meter measures volume by a rotary movement of two vanes in an annular channel.

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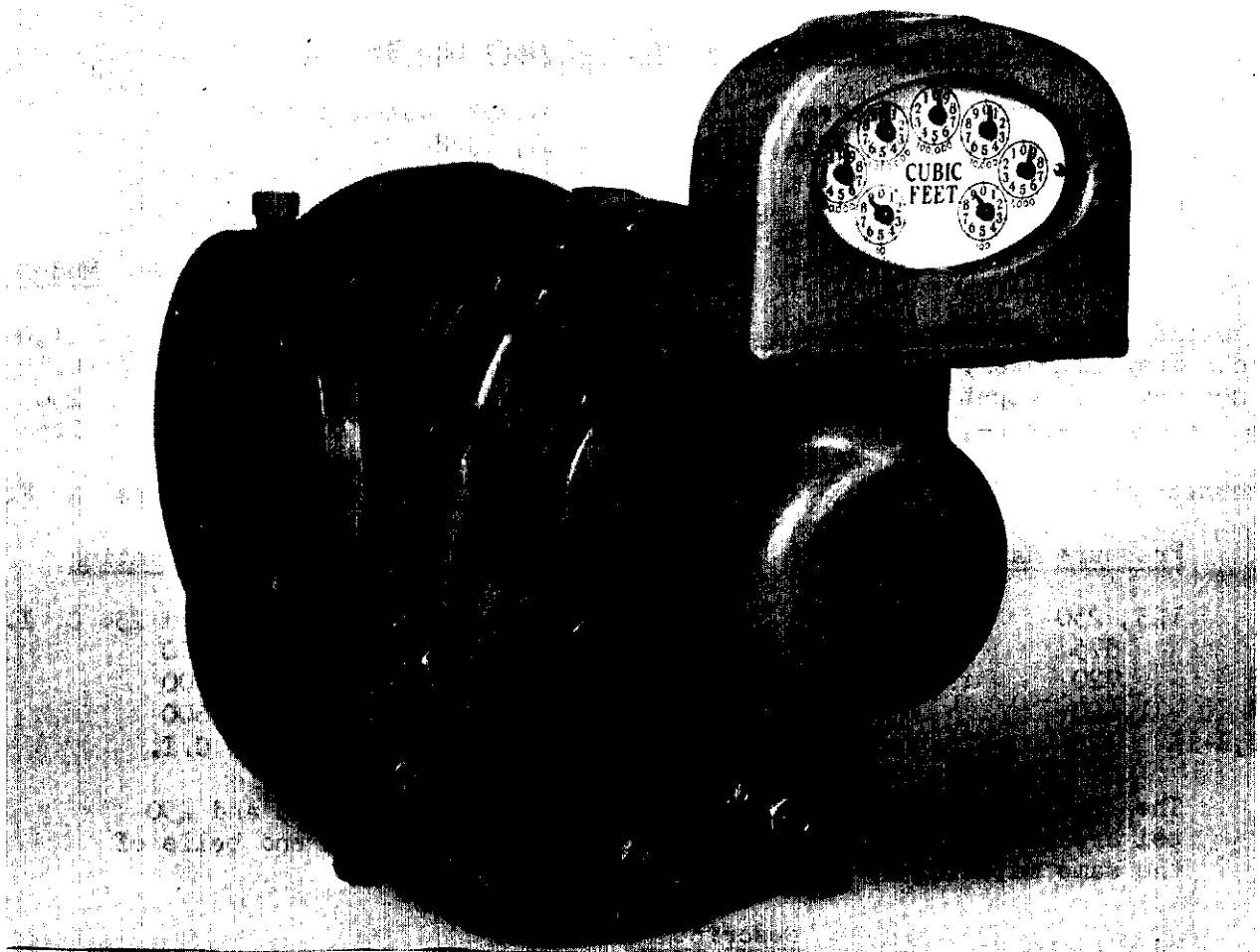


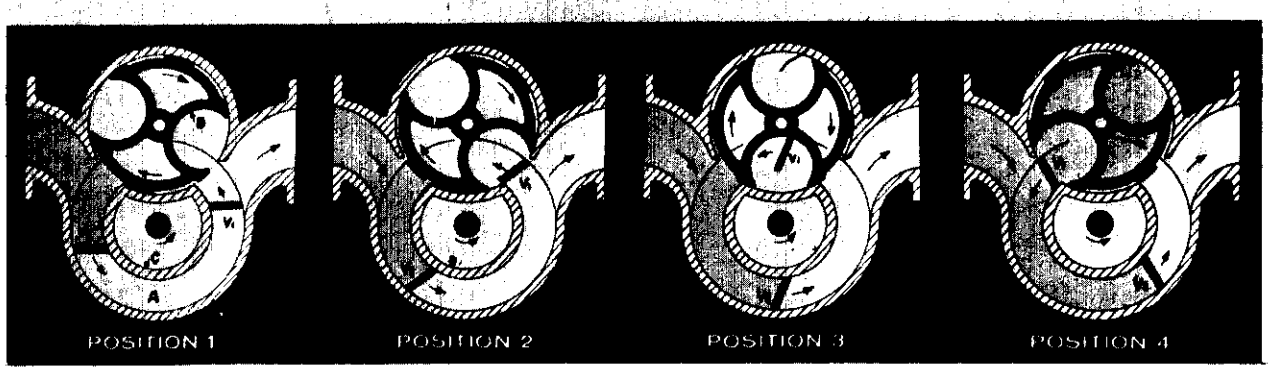

It contains the following basic assemblies: (1) A machined meter case which contains the basic measuring mechanism consisting of (a) the main rotor with two vanes, the idler rotor, and the timing gears attached to one end plate, and (b) the central stationary member and the magnetic register drive assembly attached to the other end plate. (2) Two end bell assemblies, one of these carrying a magnetic follower and associated gear train to the meter index or volume correcting device. Both end bells serve as oil sumps for splash lubrication.

The main rotor shaft carries an oil slinger at each end. An oil sight gauge is provided in each end bell so that correct oil level may be maintained for both horizontal and vertical mounting of the meter.

Exploded view of the meter on the back of this circular shows the meter in detail with end plate assemblies separated from the meter body.

The operation of the meter is explained by the 4-position diagram shown in this circular. The gas flows through an annular channel 'A' from the meter inlet to the outlet. Two vanes, $V_1$ and $V_2$, attached to the main rotor, are turned through this annular space 'A' around a central stationary member 'C' by the gas flow. The vanes, acting like pistons, divide the flow into volumetric segments and, after passing the meter outlet port, move into a wide recess in the rotary abutment of the idler gate 'B' and remain there during their return to the meter inlet. This idler gate rotor prevents gas from by-passing the measuring channel 'A'. The revolutions of the measuring mechanism are transferred to the meter output shaft by a magnetic coupling and suitable gear train assembly. A shear pin is provided in the index shaft dog. It is made of soft brass wire 0.032 inches diameter and will shear by the torque transmitted through the magnetic coupling.

The Roto Seal meter may be installed in a horizontal or vertical pipe line, and when in the latter position the flow must be down through the meter. The piping should be arranged to prevent strains on the meter when direct support is not provided. On installation where flow rates may periodically exceed the rated capacity of the meter the manufacturer suggests inclusion of an orifice of proper size on the downstream of the meter to limit the maximum flow. The meter is not intended for measurement of flow rates lower than 5 percent of the rated capacity at existing flow conditions.

The Roto Seal meter measures gas at line conditions and when these fluctuate and billing refers to other than line conditions, suitable and approved volume correcting devices shall be used to account for changes in volume caused by temperature, pressure and supercompressibility of gas. The temperature probe for the volume correcing device may be placed on the

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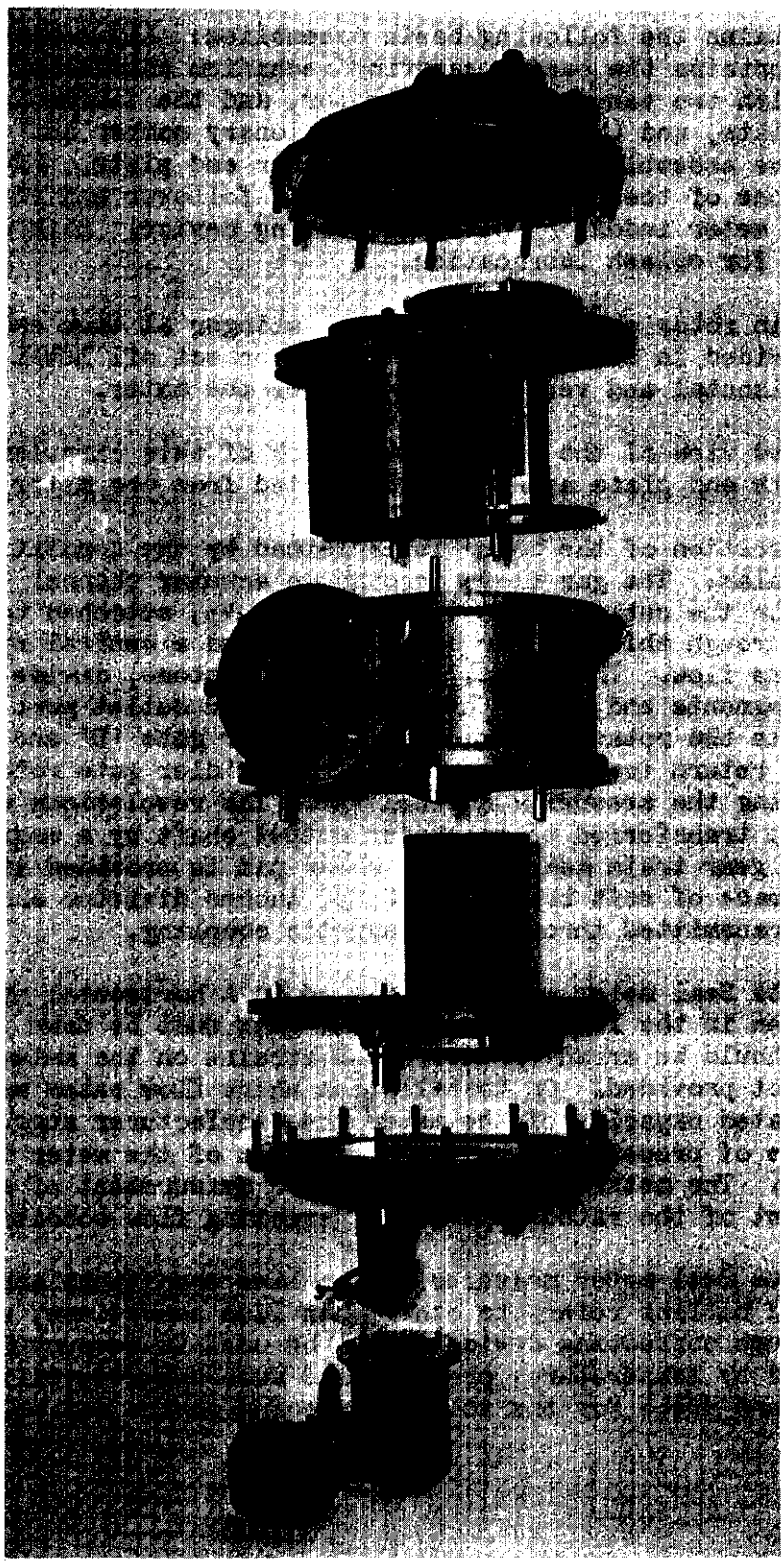

downstream or upstream side of the meter but the pressure tap must be taken from the upstream side.

Meter nameplate shall include the following information:

(i) Maker's name
(ii) Meter serial number
(iii) Type or Model Designation
(iv) Rated capacity of the meter, cu. ft/hr.
(v) Meter maximum working pressure, psig.

Approval granted to: Rockwell Manufacturing Company of Canada Ltd.,
Guelph,
Ontario.

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