DEPARTMENT OF

TRADE AND COMMERCE
CANADA

SD-GA.32

STANDARDS DIVISION

OTTAWA, March 18, 1953.

TYPE APPROVAL

ROCKWELL EMCO TYPE "T" EMCORECTOR

The apparatus specified and illustrated herein has been duly approved by the Standards Division under the provisions of the Gas Inspection Act, Chap.82, R.S. 1927, as amended, and may be admitted to verification in Canada.

Apparatus Approved: Type "T" Emcorector, manufactured by the Rockwell Manufacturing Company, Pittsburgh, Pa., and distributed in Canada by Peacock Brothers Limited, Montreal, P.Q.

Application: Measurement of manufactured, natural, or mixed gas at medium and high pressures.

Rating of Apparatus: Range of Pressure(p.s.i.):- 0-10, 0-20, 0-50, 0-100, 0-200, 0-500

Description: The Emcorector type "T" is a gauge which is mounted on a positive displacement meter and automatically corrects the cubic foot displacement for pressure and records the volume at some given base pressure. In addition, a graphic record is made of the static pressure and volume with respect to time. There are three models of Emcorector but the type "T" is the only one covered by this approval.

The type "T" uses a Rockwell chart drive to rotate the chart on which the pressure record is made. The chart drive may be of the 24-hour or combination 7-day & 24-hour variety. One pen records the static pressure. A second pen operates on the outer margin of the chart and is connected to the meter index so as to record the passing of each thousand or ten thousand cubic feet. This volume pen can be set to record increments of one thousand or ten thousand cubic feet. It can easily be changed in the field by changing the spring on the volume pen lever. The chart thus gives a record of pressure and volume against time and therefore can be used as a demand record to a certain extent. The first step in testing the accuracy of an Emcorector is to test the static pressure coil. This is done in the usual manner with a dead weight tester or a standard gauge. The second step is to test the integrator. Instructions for performing this are adequately laid out in "Instruction Manual for the Emcorector, Bulletin 1054", copies of which will be supplied to each office. An Emcorector hand-operated tester will be furnished upon request. In current production the type "T" is mounted in a rectangular case, as illustrated. Earlier models have a somewhat pear-shaped front elevation.

To find the volume that a given amount of gas under pressure would give when expanded to a base pressure, it is necessary to multiply the given volume by a factor known as a multiplier, which is merely a ratio expressing Boyle's Law and this multiplier is defined by:

$$\text{Multiplier} = \frac{\text{Atmospheric pressure + Gauge Pressure}}{\text{Atmospheric Pressure + Base Pressure}}$$

In calculating the multiplier, it is customary to use an average atmospheric pressure and disregard any variation in the atmospheric pressure that occurs from day to day. The base pressure is also an arbitrary gauge pressure, usually 4 or 8 ounces, but is fixed and constant for any given case. Tables have been published showing multipliers for various gauge pressures when reduced to the commonly accepted base and atmospheric pressures. The Emcorector automatically applies the above multiplier to the volume of gas measured by the meter, the multiplier changing with the amount of pressure. The lower counter which is driven from the meter reads the cubic feet of gas as measured by the meter. The upper counter which is driven from the lower counter through an arrangement of gears, cams and levers, records the volume of gas reduced to a base pressure. The difference of the top counter readings divided by its difference from the lower counter readings for a given period of time will give the average multiplier for that period. Due to the fact that natural gas deviates appreciably from Boyle's Law at pressures in excess of 50 p.s.i., special adjustment can be incorporated in the Emcorector operation if so desired. In such case the particular super-expansibility factors to be used must be specified.

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