GENERAL DESCRIPTION

For today’s gas utility, the rotary’s primary application is to fill the flow gap between the diaphragm meter and the turbine meter. Like the diaphragm meter, the rotary meter measures gas with compartments that alternately fill and empty.

The rotary meter is suitable for measuring most types of clean common gases. It is NOT intended for handling liquids, acetylene or sewage gas, and its operation/accuracy can be affected by excessive deposits of dirt or other foreign materials carried in the gas stream.

The basic type of rotary meter utilizes two opposite rotating two-lobe impellers. Internally there are no contacting parts in the measurement chamber. As adjusted from the factory, there is usually no wear as long as the meter is kept clean, leveled, and the bearings are properly lubricated.

INSTALLATION

When installing a rotary meter, it can be easy to overlook details that may hinder meter performance and maintenance. Usual emphasis is put on a clean gas flow through the meter by use of filtration and proper inlet and outlet piping. There are some DO’S AND DON’TS that should always be considered when designing a rotary meter set.

- Refrain from using excessive amounts of pipe dope on inlet piping to the rotary meter.
- Check for excess dirt, scale and weld splatters in the pipeline.
- Install an in-line pipe screen filter upstream from the meter to keep debris (i.e., stones, tap shavings, scale, and weld beads) from entering and causing damage to the meter.
- If selecting full-port valves for the inlet and outlet piping, always use ball valves that require no, or minimal lubrication to achieve tight shut-off.
- AMCO recommends if possible, installing a straight run of pipe without restrictions (i.e., valves, regulators, etc.) for a distance of six pipe diameters on either side of the meter. This optimum set design will prevent a reduction in meter accuracy resulting from a turbulent gas stream.
- Bypass piping can effectively reduce time spent on differential testing and maintenance.
- Adequate service (working) clearance around the meter should be maintained to allow easy access for reading the meter indexes.
- The meter should never be installed so that it is lower than the discharge pipe runs. This would allow the meter to become a sump for condensate and other foreign material.

UNCRATING

NOTE: If outer package shows evidence of damage through mishandling in transit, Notify the shipper and immediately perform a careful inspection of the meter. File a claim with the shipper if damage is indicated and also notify your local AMCO sales office.

1. Carefully open the shipping container at the top seam. When cutting the top seam be careful not to cut too deeply into the area where the meter and accessories are lodged.
2. Open up the two top flaps and bend outward.
3. Remove the lubrication kit, instruction manual, and magnetic wand if the meter is equipped with the temperature compensator.
4. Remove the center and end cardboard dividers.
5. Carefully grasp the meter by the center of the body and lift upward. (see Figure 1)

CAUTION: If the meter is equipped with a temperature compensator module, DO NOT LIFT THE METER BY THE COMPENSATOR MODULE ON THE END.

MOUNTING AND LEVELING

• Proper support is necessary for any gas meter installation. If properly designed it provides stability and a sound base to eliminate vibration to the meter.

• A rotary meter can be installed horizontally facilitating the change out of an old meter set; however the preferred installation is top inlet in a vertical pipeline.

• A rotary meter should be installed close to 100% level at all times. Deviation from level should not be more than \( \pm 1/16" \) per foot in all directional planes.

CHECK & START-UP OPERATION

The following steps should be utilized to insure a trouble-free start-up of the AMCO RPM Series Rotary Meters.

1. Remove the meter from the shipping carton and inspect for damage that may have occurred during transit. See previous section, Uncrating the Meter procedure.

2. Set the meter on the bottom of the over-turned shipping carton and remove the protective caps from both flange openings.

CAUTION: Do not let dirt, debris, etc., enter flange openings!

3. Lightly blow into the inlet of the meter. This slight air pressure should cause the impellers to rotate freely and come to a stop slowly.

4. Verify that the mating flanges or optional flanges for the meter plus the correct distance (FL) are as close to level; within 1/16" per foot in all directions. The correct bolt sizes for the RPM series meters are 5/8-11 x 1-1/2" Hex Head. All bolts should be installed with flat washers. Tighten bolts evenly. Do not over torque (max. 80 ft.-lbs.)

5. Remove the center pipe plug on the rear gear cover and verify the impellers still turn freely.

6. Fill unit with correct amount of oil. See "LUBRICATION".

7. Turn the gas supply on SLOWLY at approximately 1 second per 10 psig maximum.

CAUTION: Should the installation be subject to extreme "INSTANT ON" loads, the meter should be protected from overspeeding by a restricting flow orifice plate.

8. Leak test the meter and all connections.

LUBRICATION

To fill unit with oil see yellow instruction tag (#44677P460) on meter.

INITIAL START-UP

CAUTION: Do not lift the meter by the Temperature Compensator. Physical damage to the RPM Temperature Compensator or removal of the cover by unauthorized personnel may affect the intrinsically safe electrical design and operational integrity of the unit. If either is observed, the unit should be taken out of service and notify the factory.

TEMPERATURE COMPENSATOR (If Equipped)

As long as battery power remains connected, the RPM Temperature Compensator will record and update the display data on an incremental volume basis.

DISPLAY MODE

The Temperature Compensator constantly displays the Corrected Volume by default. To activate additional screens within the Display Mode, remove the blue cap from the American Meter Magnetic Wand.

Momentarily swipe the magnetic end of the red wand past the solid target to the right of the display (Fig. 2). This will activate the second informational display screen or the Uncorrected Volume.

The screens will appear in sequential order as long as the wand is swiped within 15 seconds or less. If more than 15 seconds elapses before the wand is swiped past the target, the display screen will return to the default Corrected Volume screen.

If the display is blank, check for proper battery connection or a dead battery. Refer to the Battery Replacement section of this manual for instructions.

DISPLAY TEST MODE

To Place the Temperature Compensator unit in the Display Test Mode, momentarily swipe the magnetic end of the red wand past the open target (Fig. 3) to the left of the display. This will start the display test. Subsequent passes of the wand past the open target to the left within a 15 second period will toggle through the remaining (5) five screens.

BATTERY REPLACEMENT

WARNING: Verify that the location is non-hazardous before opening the battery compartment. Failure to comply may result in serious personal injury.

Remove the battery compartment cap by unscrewing it.

CAUTION: Incorrect alignment, forcing of battery connectors, or pinching of wires, may cause irreparable damage.

Remove the old battery from the battery compartment (Fig.4). Press down on the male battery connector release tab with your thumb and pull the
Carefully plug the new male battery connector into the female T/C connector (Fig 5). The connectors should slide together and latch into place when properly aligned.

Place the battery into its compartment with connectors toward the top. Then carefully push the lead wires and connectors into the compartment, assuring they are below the lip and clear of the cover threads. Thread the cover back onto the battery compartment and hand tighten.

Check the rotary meter drive output for binds, i.e., ratcheting movement, no registration.

Check the instrument drive for binds.

Check the temperature compensator for accuracy, digital display, battery life remaining, and low battery warnings.

Clock the meter for passage of predetermined volume of gas by using the dial on the register with the stop watch.

Differential pressure test @ 20%, 50% and 80% using a accurate test gauge.

PROBLEM PROBABLE CAUSE SUGGESTED ACTION

**METER**

Excessive vibration: Build-up of foreign material on impellers Clean by flushing replacement of parts

Misalignment Level Meter

Worn Bearings Replace/return to meter shop

Worn Gears Replace/return to meter shop

Impellers contacting body Rotate manually to verify free spin. Remove obstructions.

High Differential Heavyweight/too much oil? Check level and condition

Dirt deposits on impellers Remove dirt by flushing

Impellers out of time Retime impellers. Remove and return to shop for disassembly

Impellers contacting body Rotate manually to verify free spin

Low Registration Upstream or bypass leak Check all valves for leakage

Non Registration Drive pin has sheared to accessory unit Check for sheared pin

Bind in the accessory unit Start and stop meter; if counter or instrument does not operate, there is accessory failure.

Obstruction associated piping Remove obstructions to rotation or flow. Remove meter and flush as necessary.

**Temperature Compensator**

Low Battery (LB) Alarm will not clear Low Battery Change Battery

Probe Alarm (PF) Alarm will not clear Probe is defective Change Probe Contact Factory

Dispose of used batteries in a safe and environmentally responsible manner. Refer to your company’s disposal procedures or for Lithium battery disposal call 1 (800) 575-2191 for return instructions if purchased from American Meter Co.
About Elster Group

Elster Group is the world’s leading manufacturer and supplier of highly accurate, high quality, integrated metering and utilization solutions to the gas, electricity and water industries. In addition, through its subsidiary Ipsen International, it is the leading global manufacturer of high level thermo-chemical treatment equipment.

The group has over 8,500 staff, operations in 38 countries and serves over 115 markets around the world. Elster’s high quality products and systems reflect the wealth of knowledge and experience gained from over 170 years of dedication to measuring precious resources and energy.

ISO 9001: 2000

Elster American Meter
2221 Industrial Road
Nebraska City, NE 68410
USA

T +1 402 873 8200
F +1 402 873 7616

www.elster-americanmeter.com

© 2008 Elster American Meter. All rights reserved

Information contained herein is subject to change without notice. Product specifications may change. Contact your Elster American Meter representative for the most current product information. Printed in the United States.

EAM-II5750 2-EN-P - January 2008
Supersedes IM 5750