

# **KENCO ENGINEERING COMPANY**

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## **INSTALLATION PROCEDURES FOR THE MAGNA-SITE (THE MAGNETIC LEVEL GAUGE FROM KENCO)**

### **OPERATING PRINCIPLE**

The Kenco Magna-Site is a magnetic liquid level gauge used to determine the volume of liquid within a vessel. Because the Magna-Site eliminates the need for glass, high-pressure applications and hazardous locations are protected from the danger of a chemical spill due to glass failure.

The Kenco Magna-Site utilizes 3 major components: the gauge housing chamber, the magnetic float, and the magnetic flag assembly.

The Gauge Housing Chamber is mounted adjacent to the side of the tank vessel. It is constructed to withstand the same temperatures and pressures as the tank itself. It is equipped with the appropriate tank mounting connections for easy installation and to allow equalization of liquid level in tank and gauge.

Inside the Gauge Housing Chamber is the magnetic float, which contains radially positioned magnets to provide a 360 degree magnetic flux field. Each float is internally weighted based on the liquid's specific gravity so that the liquid level in the gauge coincides with the location of the magnets inside the float.

Attached to the Gauge Housing Chamber is the magnetic flag assembly. This is the visual means of liquid level indication for the Kenco Magna-Site. The assembly is made up of a series of bi-colored fluorescent flags. As the magnetic float rises and falls with the liquid level in the gauge housing chamber, a magnet embedded in each flag reacts to the 360 degree magnetic flux of the float. This repelling magnetic force causes each flag to rotate 180 degrees. The flags below the magnetic flux of the float will flip to fluorescent green, while those flags above the float level will remain white.

## **INSTALLATION PROCEDURES**

Your Kenco Magna-Site is packed in separate pieces for protection during shipment but is easy to assemble for successful operation by following the guidelines discussed in the manual. Upon unpacking, please inspect all components to ensure parts are free from damage. Check the Kenco nameplate mounted on the lower end of the Gauge Housing Chamber to verify that the specifications of the Magna-Site are correct for the operating conditions. Contact either your local distributor or Kenco should you encounter any problems or have any questions.

The following instructions specify to first install the Gauge Housing Chamber to the process tank, then to install the float inside the Magna-Site. However, some installations do not provide enough clearance between the chamber and the ground; therefore, the float must be installed before mounting the Gauge Housing Chamber. In this case, careful handling of the Magna-Site is required during installation in order to prevent the float from slamming end-to-end within the chamber.

### **Attaching the Gauge Housing Chamber to the Process Tank:**

Attach the Gauge Housing Chamber to the process tank, making up all connections loosely. (Flange gaskets, bolts and nuts are to be supplied by the customer.) Tighten only after all connections and fasteners are in position.

**Note:** Isolation valves are recommended between the Magna-Site and the tank process connections. This allows maintenance and inspection activities to take place without draining the process tank.

### **Assembling the Magna-Site:**

**Step 1:** Carefully install the float, *top end first*, through the open flange at the bottom of the Gauge Housing Chamber. Be sure the "TOP" label on the float is pointed toward the top of the chamber.

**Note:** It is recommended that valves be installed in both the upper and lower vent ports in the Gauge Housing Chamber. Having these valves in place will provide means for de-pressurizing and draining the chamber if needed.

**Step 2:** Enclose the float inside the Gauge Housing Chamber by attaching the flange cover plate with the bolts and nuts provided. Use an anti-seize lubricant on the threads as a safeguard to prevent galling. Be sure the flange gasket is positioned to seal properly before tightening bolts and nuts.

**Note: Proper bolting procedures should be followed, including correct torquing patterns and values. Before putting the Magna-Site into service, verify that the Gauge Housing Chamber is sealed with no openings to the atmosphere.**

**Putting the Magna-Site into Service:**

**After verifying that the Gauge Housing Chamber is sealed with no openings to the atmosphere, open (*slowly*) the upper process tank connection to the Gauge Housing Chamber before opening (*slowly*) the lower connection. By opening the upper connection first, the float is held down while the pressure is equalized between the process tank and the Magna-Site. If the lower connection is opened first, the float is more likely to be launched upward, possibly damaging the float and housing.**

**Once the upper and lower connections are opened, inspect to verify that the system is sealed (no leaks) and that the fluid level flags are operational. The installation is now complete.**