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# KENCO MAGNA-SITE LEVEL GAUGE INSTALLATION PROCEDURES

## OPERATING PRINCIPLE

The Kenco Magna-Site is a magnetic liquid level gauge used to determine the volume of liquid in a tank. 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. It is constructed to withstand the same temperatures and pressures as the tank. It is equipped with the appropriate mounting connections for easy installation and to allow equalization of liquid level in the tank and gauge.

Inside the Gauge Housing Chamber is a Magnetic Float containing radially positioned magnets to provide a 360° magnetic flux field. Each float is internally weighted based on liquid specific gravity so the location of the magnets inside the float coincides with the liquid level in the gauge.

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 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° magnetic flux field of the float. The magnetic interaction between the float/flag magnets causes each flag to rotate 180°. The flags below the float magnetic flux field will flip to fluorescent green, while the flags above the float magnetic flux field will remain white. Other flag colors are available upon request.

## INSTALLATION PROCEDURES

The Kenco Magna-Site is packed in separate pieces for protection during shipment, but is easy to assemble and install for successful operation by following the recommended procedures. Upon unpacking, please inspect all components to ensure parts are free of any damage. Check the Kenco nameplate mounted on the lower end of the Magnetic Flag Assembly to confirm that the specifications of the Magna-Site are correct for the process tank operating conditions. Contact Kenco or your local distributor should you have any questions or problems.

The following instructions direct the installer to mount the Gauge Housing Chamber to the process tank first and then install the Magnetic Float inside the Gauge Housing Chamber. Some applications, however, do not have adequate space between the bottom of the Gauge Housing Chamber and the base of the tank to allow the float to be installed after mounting the Gauge Housing Chamber to the tank. In this case, the Magnetic Float must be installed before mounting the Gauge Housing Chamber. Careful handling is required during this type of installation to prevent Magnetic Float damage caused by slamming the float from end-to-end inside the Gauge Housing Chamber.

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

Tank mounting hardware (gaskets, bolts, nuts, etc.) to be supplied by customer. While attaching the Gauge Housing Chamber to the process tank, make up all connections loosely. Tighten only after all connections and fasteners are in position.

Note 1: To enhance the structural integrity of the Magna-Site, some Gauge Housing Chambers are equipped with mounting lug(s). Provisions must be made to ensure the use of mounting lug(s) when provided.

Note 2: Isolation valves are recommended between the Magna-Site and the tank to allow gauge maintenance and inspection without draining the process tank.

**Assembling the Magna-Site**

Step 1: Carefully install the Magnetic 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.

Step 2: Capture the Magnetic Float inside the Gauge Housing Chamber by attaching the float access flange using gasket and bolts/nuts provided. Use of anti-seize lubricant on the threads is recommended to prevent galling. Be sure the flange gasket is positioned to seal properly before tightening the bolts and nuts. Proper bolting procedures, including correct torquing patterns and values, should be followed. Before putting the Magna-Site into service, verify that the Gauge Housing Chamber is sealed with no openings to the atmosphere.

Note: If the Gauge Housing Chamber is equipped with vent/drain ports, installing valves is recommended to provide a means of de-pressurizing and draining the Magna-Site if needed.

**Putting the Magna-Site into Service**

After confirmation that the Gauge Housing Chamber is sealed with no openings to the atmosphere, slowly open the process tank upper connection to the Gauge Housing Chamber before slowly opening the lower connection. By slowly opening the upper connection first, the float is held down while the pressure equalizes between the process tank and the Gauge Housing Chamber. If the lower connection is opened first, the Magnetic Float could be launched upward and slammed into the upper end of the Gauge Housing Chamber and cause damage to the float.

Once the upper and lower connections are opened, inspect all connections for leaks and ensure that the Magnetic Flag Assembly is operational.

The installation is now complete and ready for years of service.