

# Installation Instructions



## GENERAL

Sporlan See-All® Moisture & Liquid Indicators may be installed anywhere in the liquid line. When located between the Catch-All® Filter-Drier and the expansion device, bubbles indicate a shortage of refrigerant **or** a restriction in the liquid line such as a plugged drier. **Change the drier when the color is in the caution or wet range.** When received, the indicator may not indicate dry. This in no way affects operation or calibration of the indicator. **The action of the indicator element is completely reversible and will change color whenever the moisture content of the system changes.**

The indicating element may change color rapidly on some installations, while others may take much longer. In new systems or systems where the drier has been replaced, the indicator will start changing color almost immediately. However, it is recommended that the equipment **operate for 12 hours**, to allow the system to reach equilibrium, before deciding if the drier should be changed.

The drying of the system should be continued until the indicating element stays **Dark Green**.

The moisture change level of the refrigerant in Parts Per Million (PPM) for the various See-All Moisture Indicator colors is shown below.

## BRAZING INSTRUCTIONS

See-All Moisture & Liquid Indicators with 1/4" through 1-1/8" ODF connections are ready for brazing as received. Avoid overheating the body since extreme heat could damage the glass joint.

If a wet rag is used it should be wrapped around the fittings and bottom of the body, but not around the top of the See-All body. In this way, any moisture inside the See-All will not condense on the cool glass surface and wash away the color indicator material.

The **indicator cartridge** must be removed from the SA-211, SA-213 and SA-217 (1-3/8", 1-5/8" and 2-1/8" line sizes) See-All indicators before brazing into the liquid line. It is shipped hand tight.

All See-All indicators with sweat fittings are suitable for use with the **commonly used** brazing alloys including silver solder, Sil-Fos, Phos-copper or Sta-Brite.

## BRAZING TECHNIQUE

1. Fittings are clean, pure copper, and ready to braze as received.
2. During brazing, bleed an inert gas (dry nitrogen or CO<sub>2</sub>) through the tubing and See-All.
3. Use a torch that is large enough to rapidly heat the line size being used.
4. Direct the flame away from the See-All body.
5. Perform brazing as rapidly as possible.

## FLARING TECHNIQUE

1. Deburr tubing before flaring.
2. Use a drop of oil on the cone of the flaring tool.

## MOISTURE CONTENT PPM

See-All Shows	Refrigerant								
	22		134a		404A & 507		407C & 407F		410A
	Liquid Line Temperature (°F)								
	75°	100°	75°	100°	75°	100°	75°	75°	
<b>Green DRY</b>	Below 30	<b>Below 45</b>	Below 50	<b>Below 80</b>	Below 15	<b>Below 30</b>	Below 120	Below 75	
<b>Chartreuse CAUTION</b>	30-90	<b>45-130</b>	50-200	<b>80-225</b>	15-90	<b>30-140</b>	120-180	75-150	
<b>Yellow WET</b>	Above 90	<b>Above 130</b>	Above 200	<b>Above 225</b>	Above 90	<b>Above 140</b>	Above 280	Above 150	

FOR USE ON REFRIGERATION and/or AIR CONDITIONING SYSTEMS ONLY

- Place drops of refrigerant oil on the front and back surface of the flare before drawing the nut tight. This allows flare and fitting to mate smoothly.
- It is especially important to use oil on joints where both the male and female fittings are plated steel. The oil will prevent galling.**

## APPLICATION SUGGESTIONS

The Sporlan See•All Moisture & Liquid Indicator should not be used on systems containing **methyl alcohol** or similar liquid dehydrating agents unless an oversize Catch-All Filter-Drier has been installed previously to remove these additives. Certain colored liquid leak detectors in a system may permanently discolor the moisture indicating element.

On systems containing an **excessive amount of water**, from a broken condenser or water chiller, do not install the See•All indicator until the Catch-All Filter-Drier or the replaceable cores are changed several times to reduce the initial high moisture content. Liquid water will dissolve and wash away the color indicator material resulting in a light yellow or white color. This type of damage is permanent - the See•All will no longer change color. If the indicator paper is damaged, it's preferable to change the See•All.

When the See•All is soldered in a **difficult location**, it may be desirable to change only the indicator. This can be done with the fused glass models manufactured since 1984. Sporlan kit K-SA-4 consists of a new slotted cylinder and indicator assembly. These parts can be replaced by removing the plug opposite to the glass. See Figure A.

The recommended clean-up procedure **after a hermetic motor burnout** is described completely in Bulletin 40-10. A See•All should be installed after

the clean-up procedure is nearly complete (when the Catch-All Filter-Drier is being replaced).

Do not use See•All indicators at temperatures below -50°F.

## BYPASS INSTALLATION

The See•All Moisture & Liquid Indicator may be installed in a bypass to the main liquid line - and must be installed in this manner on lines larger than 2-1/8" OD.

## BYPASS INSTALLATION KITS

Bypass Installation Kits are available from your Sporlan Wholesaler. While satisfactory liquid and moisture indication will generally be obtained in any position, preferred methods of installation are shown in Figures B and C.

All Sporlan See•All indicators are suitable for use with the halocarbon refrigerants, including, 22, 134a, 404A, 407C, 407F, 410A, and 507. Listed through UL for the USA and Canada, and has a working pressure (MRP) of 650 psig (44.8 bar) or (4482 kPa.).

