

Compressed Air Line Downstream of a Dual Tower Regenerative Desiccant Dryer

All Moisture Analyzers

Application

Moisture is measured in a compressed air line located downstream of a regenerative desiccant dryer to ensure proper drying of the stream. The analyzer is used to switch drying towers as required and to sound an alarm when the moisture exceeds a maximum permissible level.

Problem

Excessive moisture in the air stream causes freezing of the outside gas lines and damage to the equipment or the process for which the air is being used. Freezing of air-actuated control valves caused by excessive moisture in the compressed air can easily lead to significant process problems and even unsafe process conditions. Excessive moisture in the compressed air can be an indication of improper functioning of the dryer.

Equipment

All of AMETEK's moisture analyzers are compatible with compressed air. The level of drying required and the physical configuration desired by the customer will narrow the choices.

Procedure

Sample gas is taken from the compressed air exiting the drying system and passed to the analyzer for analysis. If compressor oils are frequently found in the compressed air, a suitable filter should be used to remove the oil mist prior to the analyzer.

The output of the analyzer is typically used to monitor the performance of a dryer bed while it is on-line. Each dryer bed will typically exhibit a characteristic performance curve as it dries the incoming air and approaches saturation. These slight differences in performance can be used to detect operational problems that might otherwise go undetected. The

measurement of the moisture analyzer is used to signal the DCS as to most efficient time to switch the dryer beds.

How Previously Handled

In the past, the moisture content of the compressed air was either not monitored or was monitored with a simple humidity sensor. The dryer beds were switched on a preset time cycle, regardless of whether or not they still had remaining drying capacity.

Advantages

Continuous on-line analysis of a compressed-air drying system prevents damage caused by ice formation in the plant air systems and the resulting loss of production. In addition, the accurate moisture analysis provided by AMETEK's analyzers enable the most cost-efficient use of dryer systems by lowering the consumption of utilities and by increasing the life of the dryer and the desiccant.

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PROCESS INSTRUMENTS

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