APPLICATION NOTE

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Humidity Measurement in Dyeing and Discharge Processes

Industry: Chemical
Product: Zirconia Humidity Analyzer

Introduction

There are various methods for continuous fabric dyeing as well as dye fixing. When dye is directly applied, steaming (heat treatment) is required. At present the pad-steam method is widely used for continuous dyeing. To ensure stable product quality, the humidity in the steamer is kept at a constant level. The ZR402G/HS Direct In Situ Zirconia High Temperature Humidity Analyzer provides excellent maintainability as it does not require the use of a sampling system, and ensures stable measurement in high temperature environments. It has been well received in the marketplace and is widely used in humidity control applications.

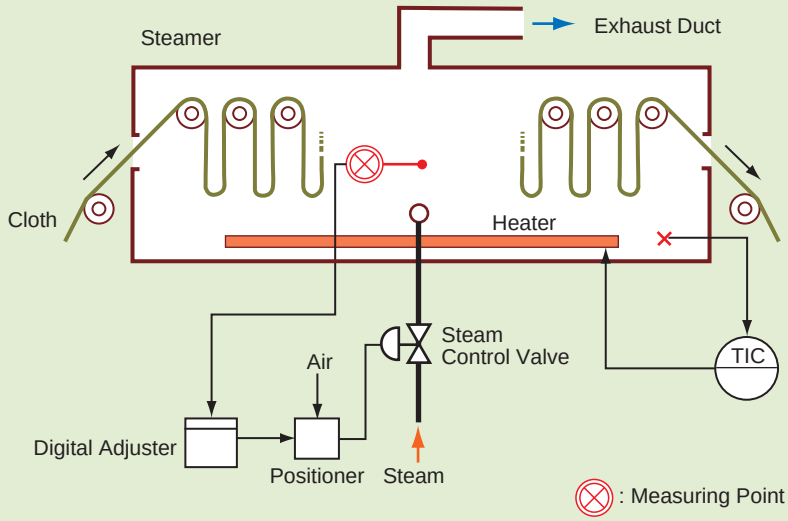
Expected Benefits

- Maintains the quality of the discharge process
- Ensures stable, continuous humidity measurement
- Reduces operating costs

Process Overview

The pad-steam dyeing process uses vat, reactive, acid, disperse, and other types of dyes, and includes padding, drying, fixing, washing, and re-drying steps. After padding, the fabrics are forwarded to a steamer where the dye is fixed under conditions of constant temperature and humidity.

Humidity Measurement in a Steamer



YOKOGAWA

Solution Details

Field Data

Process conditions

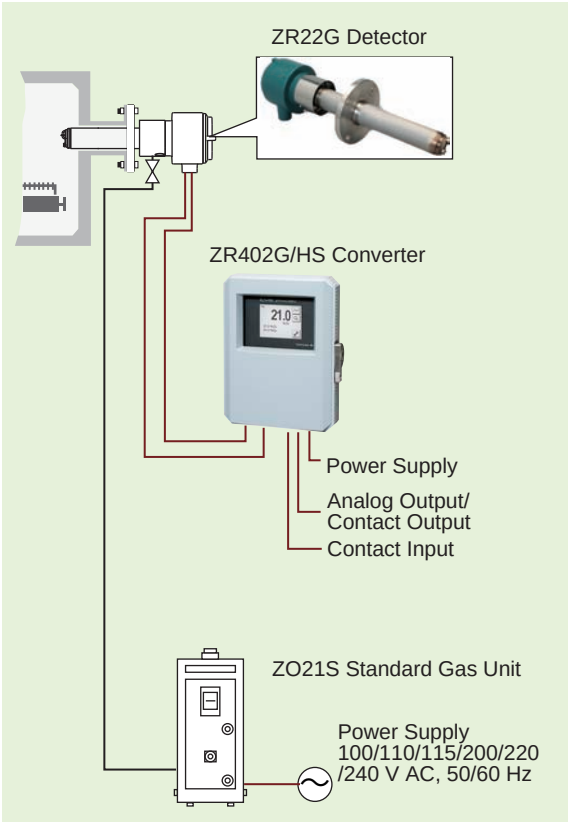
Measurement point: Steamer side
Sample gas component: Steam: 90 to 100%; air: remaining
Temperature: 70 to 110 °C
Pressure: 10 to 30 kPa
Dust: Non

Measurement system

Detector:
ZR22G-❑❑❑-S-H-C-R-❑-E-A/SV
Converter:
ZR402G-❑-E-E-A/HS/❑
Standard gas unit:
ZO21S-❑-E*A

Utilities

Power supply: rated voltage: 100 to 240 V AC
operating voltage range: 85 to 264 V AC
rated frequency: 50/60 Hz
operating frequency range: 45 to 66 Hz
Power consumption: approx. 100 VA (300 VA max.)



Notes

- It is best to install the detector vertically with the probe head pointing downward, but it can also be installed at any angle between 0° and 90° (horizontal installation shown right) with respect to the vertical.

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