正紡興業有限公司

RITEX MACHINERY

排氣濕度控制系統

Exhaust humidity control system

布表面溫度偵測系統

Fabric surface temperature detecting system

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RITEX MACHINERY

排氣濕度控制記錄系統　型號：RHU

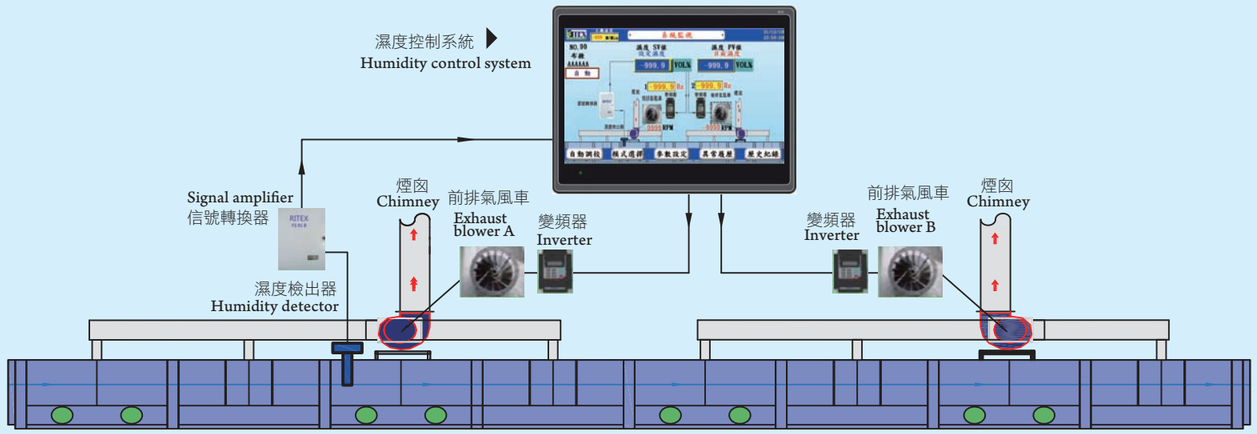
排氣濕度控制應用於烘乾設備概念

定型機或烘乾機的排氣熱能可分為顯熱及潛熱，其中顯熱(E1)為空氣熱能量，潛熱(E2)為水分相變化(汽化)所需的熱能，若排氣之潛熱越高就代表烘乾熱利用效能越高，相對的排氣濕度值就越高；排氣濕度控制系統，乃利用偵測排氣中的含水率來控制排氣量，一樣的烘乾能力條件下，排氣濕度值越高，總排氣量越低，能耗越節省，提高烘乾熱利用效率，達到最佳化熱能源使用效率。

Exhaust humidity control and recording system　Model: RHU

Application concept of exhaust humidity control in dryer

Exhausting heat of stenter or dryer can be defined into sensible heat and latent heat, in which the sensible heat (E1) is the amount of heat energy of air and the latent heat (E2) is the heat energy needed from phase transition of water (vaporization). Therefore, if the latent heat of exhaust is higher, the moisture content of exhaust and the heat usage is higher. The exhaust humidity control system is to adjust the exhausting air volume by detecting the moisture content rate of exhaust to enhance the heat efficiency and reach the optimum heat energy application. In same drying condition, the higher moisture content rate of exhaust, the lower the total exhaust volume, which means more energy saving.



排氣濕度控制系統特色

- PLC+HMI控制系統，可記錄排氣濕度、排氣風車轉速、定型機主速等操作條件，提高熱能源效率，降低單位織物所需要的能源用量。
- 排氣上下限設計及自動判斷停機設計，有效節約能源使用。
- 自動/手動模式，便於系統校正或其他特殊應用。
- 開放運轉條件，可整合至ERP系統記錄分析。

Features of exhaust humidity control system

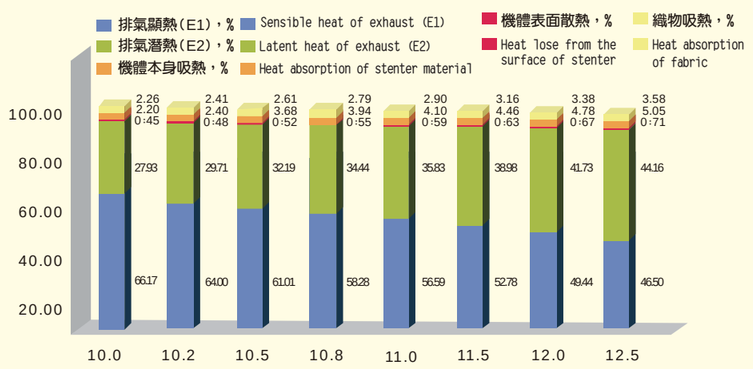
- PLC+HMI control system with recording function, which can simultaneously record the operating conditions of exhaust humidity, exhaust blower rotary speed, and stenter main speed to enhance the heat energy efficiency and lower the energy usage needed from the unit fabric.
- Maximum and minimum exhaust limit design and auto emergency stop function can efficiently save the energy consumption.
- Auto/manual mode selection, easy for system alignment and other special application.
- Operating conditions can be integrated to ERP system for recording and analyzing.

排氣濕度偵測器

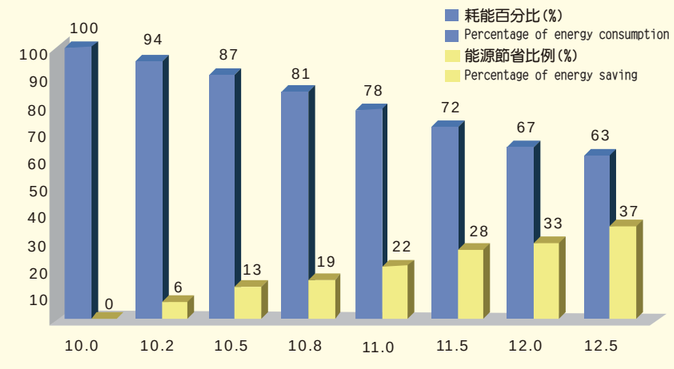
- 適用範圍：濕度感測元件偵測範圍　0~30% 或 0~250，0~500，0~1000g/Kg。
- 使用温度：溼度偵測器可承受最高温度為600℃。
- 適用製程：適用於定型機或烘乾機等烘乾排氣製程，亦可應用於控制濕度的反應製程。
- 安裝位置：安裝定型機烘箱乾燥蒸發反應區域或排氣風管處，偵測濕度變化以控制最佳排氣量，節約能源。

Exhaust humidity detector

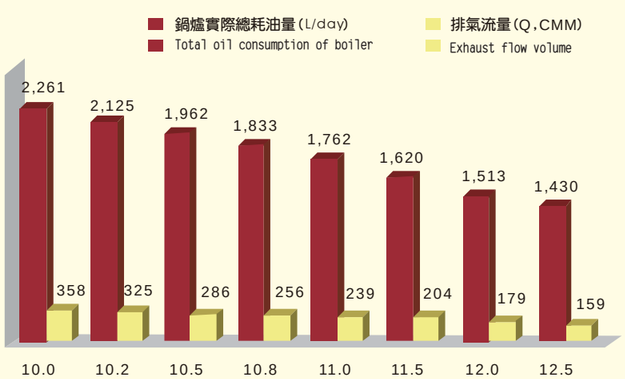
- Measuring range: 0~30% or 0~250, 0~500, 0~1000g/Kg.
- Operating temperature: highest temperature tolerance 600°C
- Suitable process: for the exhaust drying process of stenter or dryer, or humidity reaction controlling.
- Mounting location: at the exhausting duct or evaporation drying section of stenter drying oven, to detect the humidity variation for optimum exhausting volume control and energy saving.



不同濕度值之耗能分布圖
Heat consumption of different exhaust humidity



不同排氣濕度的節能比例圖表　(以排氣濕度10%為基準)
Energy saving of different exhaust humidity　(based on 10% exhaust humidity)



相同蒸發量，不同濕度之排氣量及耗油量關係圖
Relation of exhaust amount and oil consumption in different humidity (based on same evaporation)

RITEX MACHINERY

布表面溫度偵測定型控制系統 型號：RFTD

功能說明：

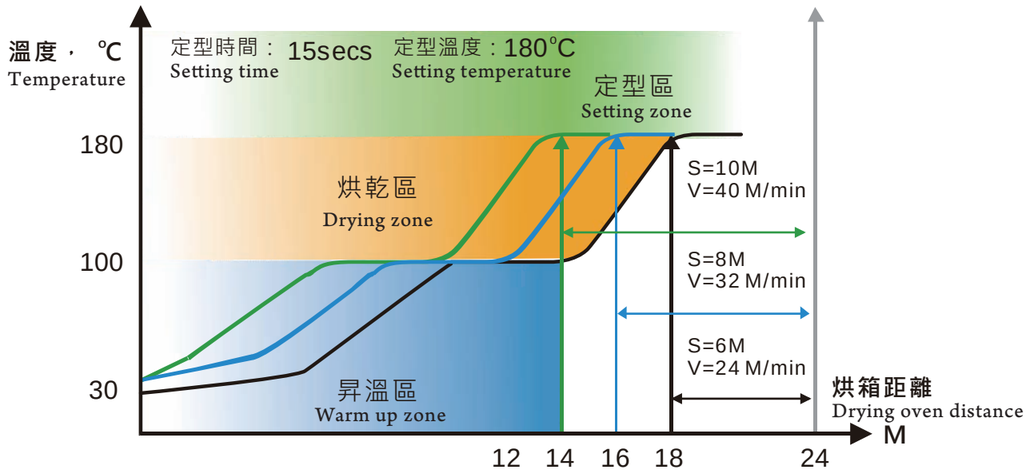
織物定型(長織)，乃利用一定時間一定的溫度反應，將布匹尺寸穩定，達到穩定幅寬及碼重之目的；藉由定型機烘箱織物表面之溫度即時偵測與定型速度自動/手動調整達到最佳生產速率，確保最大生產效益。

Fabric surface temperature detecting and control system Model: RFTD

Functions:

The fabric setting (filament) is to use certain temperature reaction for a certain time, then to set the fabric size in stable and reach fixed fabric width and weight. The optimum production speed can be reached and the maximum production efficiency can be achieved by the instant detection of surface temperature of the fabric inside the stenter drying oven and stenter speed auto/manual adjustment.

定型溫昇概念示意曲線圖
Temperature curve of drying oven



布表面溫度偵測定型控制系統特色

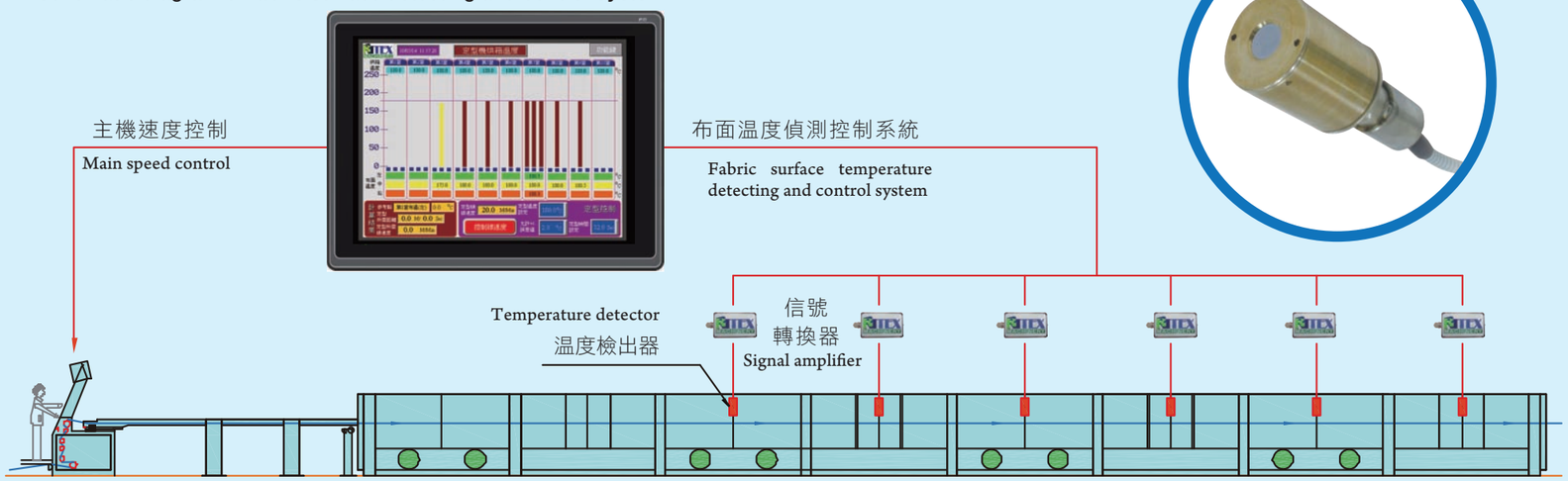
- PLC+HMI控制系統，可記錄烘箱溫度，主機速度，布面溫度，定型時間等操作條件，方便異常診斷管理，提升織物定型品質，同時可最佳化調適生產速度，提升生產效率。
- 定型速度、定型時間及定型距離自動計算，提供加速或減速訊號，再依手動\自動模式運轉。
- 左中右的表面溫度偵測設計，做為橫向品質檢測依據，可應用於織物色差或定型穩定判斷、不織布反應均勻性、紙類或其他黏合反應。
- 出布表面溫度檢測亦可做為烘乾效能指標。
- 可切換自動/手動模式，便於系統校正或其他特殊應用。
- 開放運轉條件，可整合至ERP系統記錄分析。

Features of fabric surface temperature detecting and control system

- PLC+HMI control system with recording function which can simultaneously record the operating conditions of drying oven temperature, main machine speed, fabric surface temperature, and setting time, etc. Easy for abnormal diagnosis to improve the fiber setting quality, and also adjust the production speed in the best way and enhance production efficiency at the same time.
- Stenter speed, setting time, and setting distance can be auto calculated to provide the acceleration or deceleration signal, then operates by auto/manual mode.
- Left/middle/right surface temperature detecting design can be the basis of transverse quality control, also can apply for fabric color difference or setting stability diagnosis, heat reaction uniformity of non-woven fabric, paper or other laminate reaction.
- Fabric surface temperature detecting at exit section can also be the target of drying efficiency.
- Auto/manual mode selection, easy for system alignment or other special application.
- Operating conditions can be integrated to ERP system for recording and analyzing.

RFTD-6 定型機布溫偵測定型控制系統示意圖

Schematic diagram of fabric surface detecting and control system



非接觸式温度感測元件

- 量測方式：非接觸式表面溫度偵測器
- 適用溫度：0~250℃
- 量測精度：<2%
- 適用設備：定型機或其他溫度反應製程
- 安裝位置：定型機烘箱內部，一般安裝在第3, 4, 5, 6(八室烘箱)。
- 安裝數量：至少要有4組(6室烘箱以上)溫度偵測器

Non-contact temperature detecting element

- Measuring method: non-contact fabric surface temperature sensor
- Temperature range: 0~250°C
- Measuring accuracy:< 2%
- Applicable facilities: stenter or other temperature reaction process
- Mounting location: at the interior of stenter drying oven, generally installed at the 3rd, 4th, 5th, 6th chamber of stenter. (8-chamber stenter)
- Mounting quantity: at least 4 sets (over 6-chamber drying oven) temperature sensor.

蒸箱濕度控制記錄系統　型號：ROU

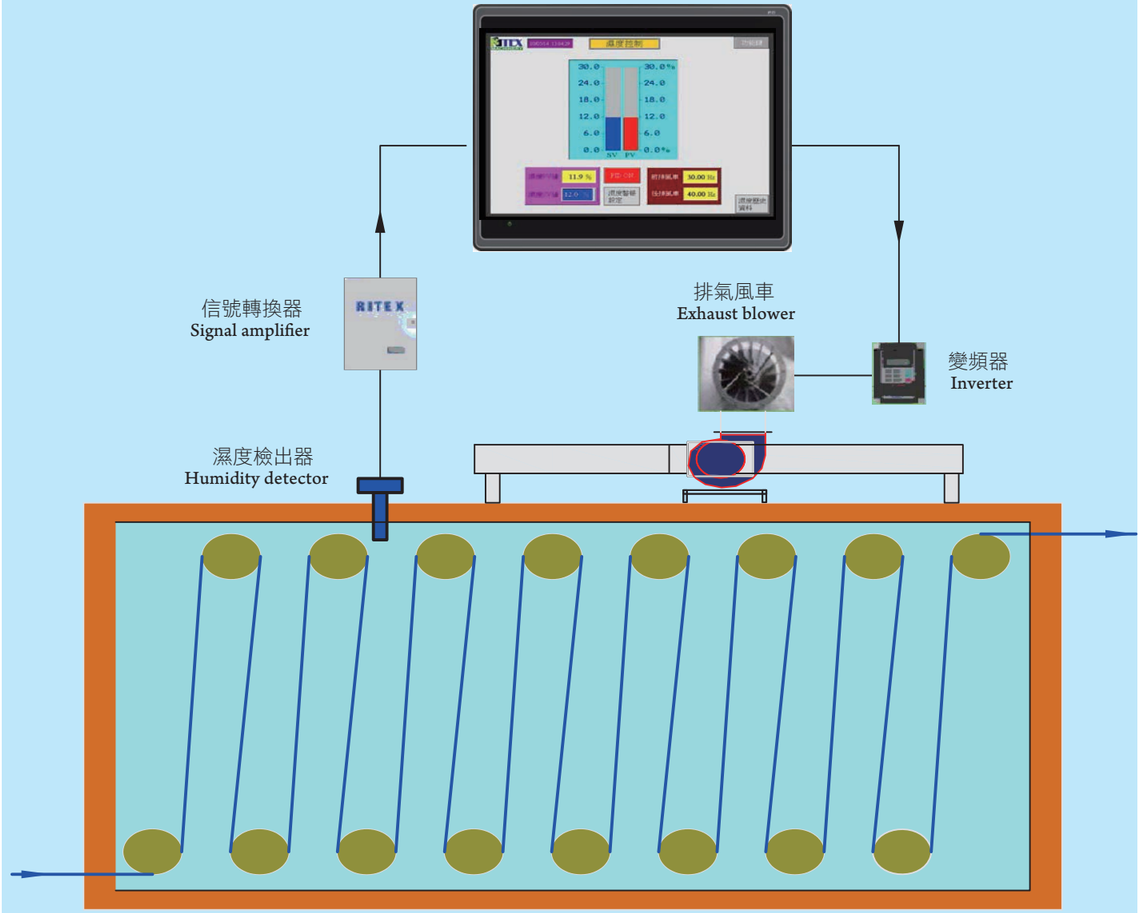
蒸箱濕度控制應用於烘乾設備概念

印花反應製程需使用蒸染機(Steamer)，利用熱與濕度控制使布匹發色反應，相對濕度控制非常重要，可藉由濕度偵測器即時了解蒸箱內的濕度值，進而控制蒸箱相對濕度值，確保發色品質穩定。

濕度偵測器

- 適用範圍：濕度感測元件偵測範圍RH 0~100%。
- 使用温度：溼度偵測器可承受最高温度為600℃。
- 適用製程：控制濕度的反應製程。
- 安裝位置：安裝於蒸發反應區域，偵測濕度變化並控制蒸箱溼度值，節約能源。

濕度控制系統
Humidity control system



Humidity control and recording system of steamer　Model: ROU

Application concept of humidity control system in steamer

Printing process needs steamer for color development by the control of heat and humidity, therefore the relative humidity control is crucial. The humidity value inside the steamer can be instantly learnt by the humidity sensor, and then control the relative humidity value of steamer to ensure the stable quality of color development.

Humidity detector

- Measuring range: RH 0~100%.
- Operating temperature: highest temperature tolerance 600°C
- Suitable process: humidity control process.
- Mounting location: at the steaming area, to detect the humidity variation and control the humidity value of steamer for energy saving.

蒸箱濕度控制系統特色

- PLC+HMI控制系統，可記錄蒸箱濕度、排氣風車轉速、蒸染機主速等操作條件，提高熱能源效率，降低單位織物所需要的能源用量。
- 排氣上下限設計及自動判斷停機設計，有效節約能源使用。
- 自動/手動模式，便於系統校正或其他特殊應用。
- 開放運轉條件，可整合至ERP系統記錄分析。

Features of humidity control system of steamer

- PLC+HMI control system with recording function which can simultaneously record the operating conditions of exhaust humidity, exhaust blower rotary speed, and steamer main speed to enhance the heat energy efficiency and lower the energy usage needed from the unit fabric.
- Maximum and minimum exhaust limit design and auto emergency stop function can efficiently save the energy consumption.
- Auto/manual mode selection, easy for system alignment and other special application.
- Operating conditions can be integrated to ERP system for recording and analyzing.