

Dye-Rite™

FOR INDIGO ROPE & SHEET DYE RANGES

INDICATING CONTROLLER
MODEL 1604e



A COMBO

FOR
MOISTURE, pH, REDOX,
TEMPERATURES,
ROLL PRESSURES,
CHEMICAL FLOW RATES,
STRETCH, SPEED
AND MORE

OPTIMIZE SHADE UNIFORMITY!

First, get control of moisture without changing speed.

Do it by controlling final dry can temperatures according to a unique PID formula that avoids the need for making speed changes to control moisture.

Then, get control of the wash, scour, rinse, dye box, and size box temperatures.

Next, get the indigo, hydro, sulfur, and recirculation chemical feed rates in control.

Get delivery speeds and stretch/shrinkage in dye zones and after sizing. Also, make accumulated length measurements.

Closely monitor pH and ORP, also nip and squeeze roll pressures.



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-GENERAL INFORMATION-

One look at the Strandberg **Dye-Rite** and you are amazed at what this little controller can do on Indigo Rope and Sheet Dye Ranges.

Of course, it has 24 channels of measurement and control capability, and that is a lot for a controller of this size and cost.

Moisture is precisely controlled by regulation of steam pressure on the last group of dry cans all the way through sizing. Use short or full-span moisture sensing rolls with Type 1035 Moisture-to-Computer Interface.

PID-based control of dry can, wash, rinse, scour-box, size box and dye-box temperatures is an important part of the 1604e's work. Temperature control is inexpensive and very valuable. Use a Type 5669 Temperature Sensor for set-point control of these temperatures.

For delivery speed in meters or yards per minute and stretch to the nearest hundredth percent at the size boxes, use Shaft-driven Speed Sensor, Type FM-90-200. Don't worry about getting ratios exact. The 1604e can take care of a wide range of revolutions to surface speeds with very high precision.

Use Magnetic Flowmeter, Type 6304, to accurately monitor chemical feed rates, including indigo, hygro, sulfur, and recirculation. Use Control Motor, Type CM-92, with manual push-button station and adjustable limits to control pump speeds.

A big plus for the **Dye-Rite** is its Flow-through Sensor, Type 6970, to accurately monitor pH and ORP. This sensor includes a pump that keeps the sensor clean with minimal maintenance. A less-expensive option is the Immersion pH-ORP Sensor, Type 6972/6973.

Nip and squeeze roll pressure variations are sources of wet pickup inconsistency. Use Pressure Sensor, Type DT-240, with Pneumatic Controller, Type 5676, and take advantage of the PID-based nip and squeeze roll pressure algorithm in the **Dye-Rite** Combo to keep wet pickup on target.

The future offers many sensors for improved quality control for indigo rope and sheet dye ranges. The 1604e Combo has the reserve capacity to keep you up to date for many years to come.

-SPECIFICATIONS-

Power Requirements	115/230 volts a-c
Weights and Dimensions	12.0 lb (5.5 kg), 12.5" (318mm) high, 10.9" (277mm) wide, and 6.25" (159mm) deep
Sensors	Moisture (% dry basis) <i>by electrical conductivity</i> Temperature (°F or °C) <i>by electrical resistance</i> Speed (YPM or MPM) <i>by length-gated optical encoder</i> Stretch (0.01% steps) <i>by length-gated optical encoder</i> Tension (lb or kg) <i>by strain gauge</i> Liquid flow (gal or liters/min) <i>by magnetic flowmeter</i> pH/ORP (0-14/0-1,400 mv d-c) <i>by flow-through cell</i> Roll pressure (lb or kg) <i>by pneumatic gauge</i>
Housing	Fiber-glass NEMA-4X with hinged cover for use in wet processing areas
Control	Step corrections and PID, set points and tolerances in tenth and hundredth percent and tenths, hundredths and thousandths of units
Control Motor	Type CM-92, for increase/decrease regulation of chemical feed pumps
Pneumatic Controller	Type 5676, including electro- pneumatic transducer (I/P) with input of 4-20 mA d-c and adjustable output range 0-100 psig, including manual bypass with regulator and gauge
Display	Liquid crystal, 4.8 x 3.5" (120 x 90mm)
Outputs	0-10 volts and 4-20 mA d-c for recorders, etc., RS-232 for printers and other serial devices, and RS-485 for networking



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