

# INLINE COLOR MEASUREMENT SYSTEM **COIL COATING**



 **x·rite**  
**PANTONE®**

# COLOR MEASUREMENT SYSTEM



## COLOR AS EXPECTED

### **Color is a primary quality criteria!**

A color deviation on products is recognized immediately by everybody. Based on this impression we judge in seconds whether we like something or not.

### **Color measurement in the laboratory:**

Necessary for doing incoming and final inspection but does not help the machine operator to control the coating process as the information comes too late.

### **Inline color control helps to:**

- ✓ Get real color information on time
- ✓ Control 100% of the production
- ✓ Release the workload of the operators
- ✓ Save measurement even in cross direction
- ✓ Create a report for each reel

# SPECIAL ADVANTAGES

## Ready for Industry 4.0

Changes in the production process are shown immediately. Operators take decisions based on facts not on "guesswork".

## Insensitive to production environment

Ambient light, normal fluttering of the web and dust have no influence on the measurement.

## Color Information in real time

Helps the operator to control the coating process and avoid off-spec color. Better quality will lead in better market acceptance.

# KEY TO SUCCESS INLINE COLOR MEASUREMENT



## Faster startup and quick changing times

The inline color measurement helps to get the information in time so that startup times will be reduced. This leads to higher production time.

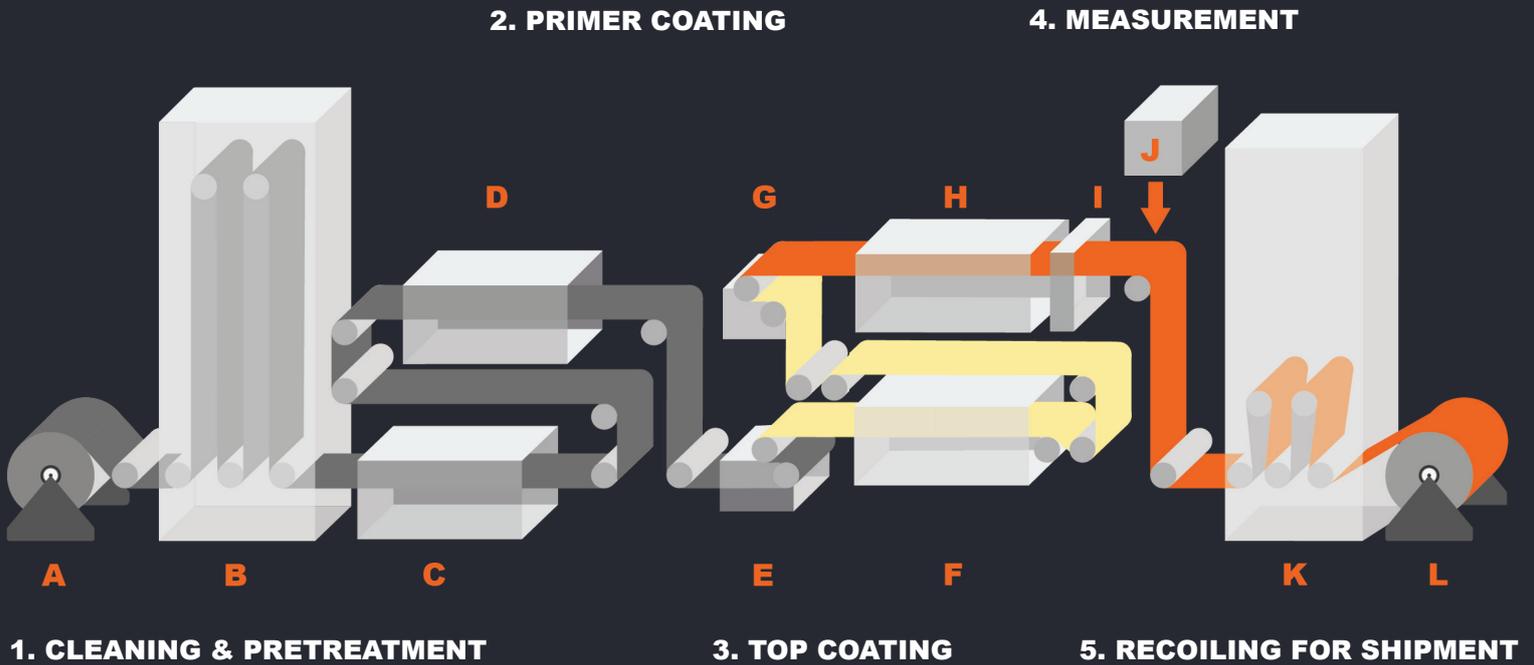
## Stand-alone or fully integrated

Works as a stand-alone system but can also be integrated in the DCS. With the integration the measurement starts fully automated, color values will be transferred to a quality control system.

## The right color: yesterday, today and tomorrow

The color being produced now must be the same from the last batch and the same color produced last year. Stable color measurement is needed!

# THE COATING MACHINE



- A Uncoiler
- B Entry accumulator
- C Cleaning
- D Pretreat
- E Prime coater
- F Prime oven
- G Finish coater
- H Finish oven
- I Water quench
- J Color and Gloss measurement
- K Exit accumulator
- L Recoiler



## ERX145



**MEASURES  
GEOMETRY  
DISTANCE  
SPOT**

**Color  
45°a:0°  
60 mm  
Ø30 mm**

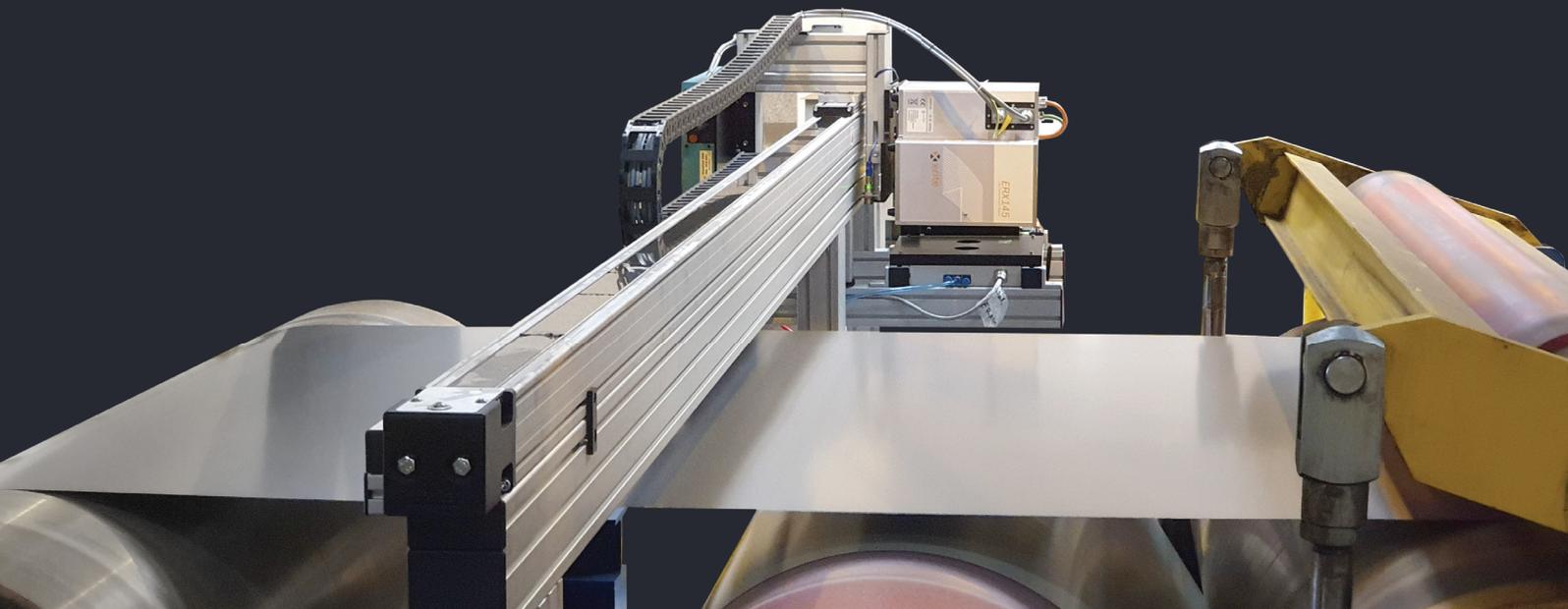
## GLOSSFLASH 6060



**MEASURES  
GEOMETRY  
DISTANCE  
SPOT**

**Gloss  
60°:60°  
54 mm  
17 x 26 mm<sup>2</sup>**

The **ERX145** and the **GlossFlash 6060** are the perfect combination for color quality control on the coating machine. Installed on a traversing beam they give reliable information about the color in cross direction. Running a coating machine becomes no longer a “guesswork”.



# SYSTEM OVERVIEW

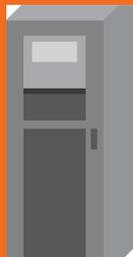
## External signals from the line

- ✓ Meter counter
- ✓ Machine stop
- ✓ Strip brake

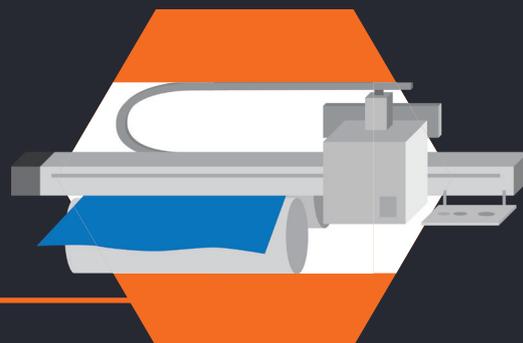
## Network connection

- ✓ Ethernet for external
- ✓ Jobs (TCP/IP or OPC)

## Electric Cabinet



## Coil Coating Machine



- ✓ Traversing beam
- ✓ ERX145 and / or GlossFlash 6060
- ✓ Sample measurement and calibration

## Monitor Color Kitchen



## Work place in the control room



## Laboratory System with Heating and Cooling table



## ERX145 in Production

- ✓ Precise color measurement in rough production environment
- ✓ Measurement of plain colors as well as embossed surfaces
- ✓ One flash gives stable measurement results
- ✓ 60 mm distance to avoid damages

## GlossFlash 6060

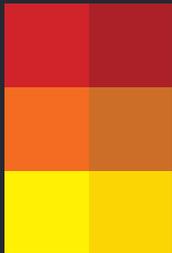
- ✓ Precise gloss measurement in rough production environment
- ✓ Together with color measurement it provides appearance information
- ✓ 54 mm distance to avoid damages

# THERMOCHROMISM

## PROBLEM

A sample changes its color when the temperature changes. This happens in particular with:

20° C 50° C



Red colors

Orange colors

Yellow colors



The temperature of the stripe on the machine is above room temperature and furthermore not constant. Thus, the color values measured on the coating machine must be recalculated to room temperature as this is the specification.

## SOLUTION

The special heating table in the laboratory measures standards at different temperatures and sends the standards to the inline measurement. With this information the measurements of the hot stripe are recalculated to room temperature.

Now the values from the laboratory and the coating machine can be compared, but also the production from last year, last week, today and tomorrow.

### ERX145 in Laboratory

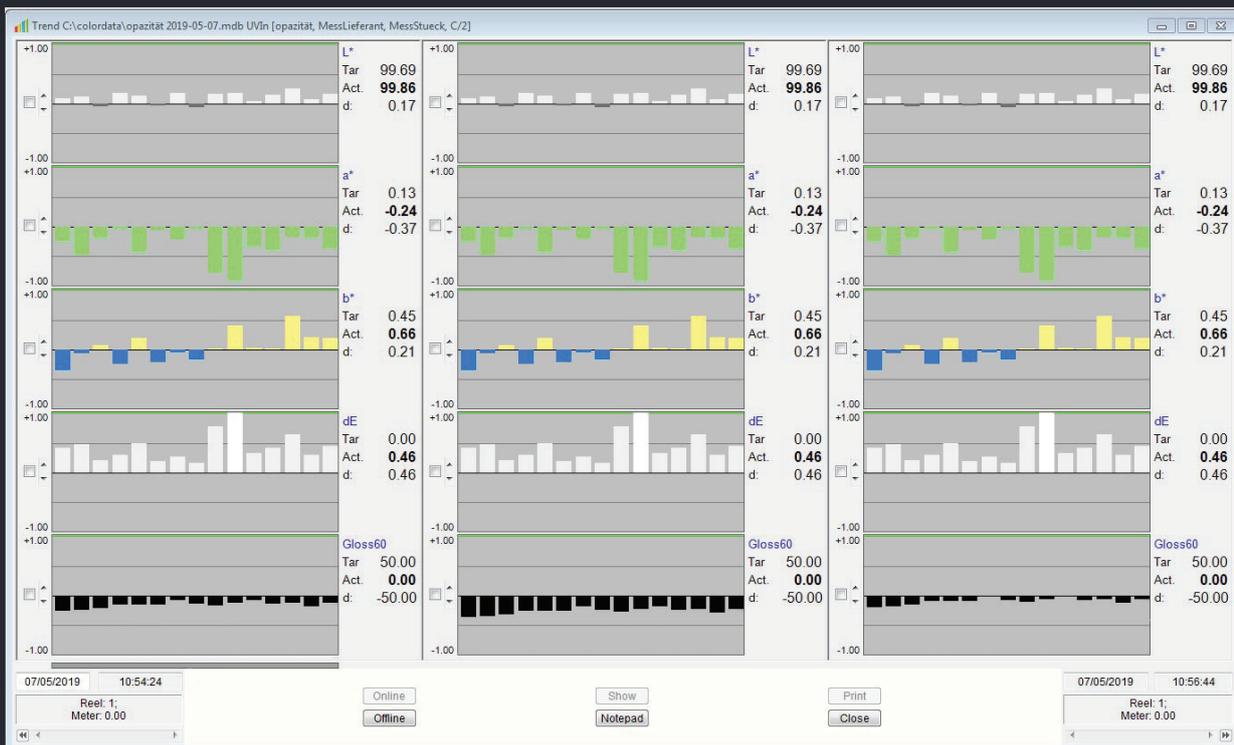
- ✓ Same instrument as on the production machine
- ✓ Measurement standards can be shared between all production machines
- ✓ Heating table for thermochromism control

### Color measurement at its best

- ✓ Excellent inter-instrument agreement
- ✓ Ambient light does not influence the measurement
- ✓ Insensitive to web speed and normal flutter
- ✓ Easy to service by service modules
- ✓ Excellent long term stability

# ESWin TREND MEASUREMENT

- ✓ Measurement in cross direction allows adjustment of coating nip rollers
- ✓ One program for measurement, display, data storage and traversing beam
- ✓ Typical measurement on left, middle and right position of the strip
- ✓ The ESWin Software is a modern Windows based Software
- ✓ Calculation of color values in 1 nm steps
- ✓ Easy to use, easy to read



## Turnkey Inline color measurement system

The turnkey systems are set up on the production machine within several hours. The start-up and training is done while the machine is producing. The completed system is handed over to the customer within few days.

## Precise spectral color measurement

The operator immediately sees color changes on the production machine and can take corrective action. This avoids off spec production and waste. Short start-up times, quicker transition times, less waste and better quality reduce the cost significantly.

## Automatic measurement and calibration

X-Rite's expertise in color and gloss measurement right in the process helps users get color right the first time and every time, which translates into better quality and reduced costs. Development and production in Germany, installation, and service worldwide.



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