

## Gloss

one of the prime quality factors when assessing products.

## ONLINE GLOSS MEASURING TECHNOLOGY WITH SYSTEM

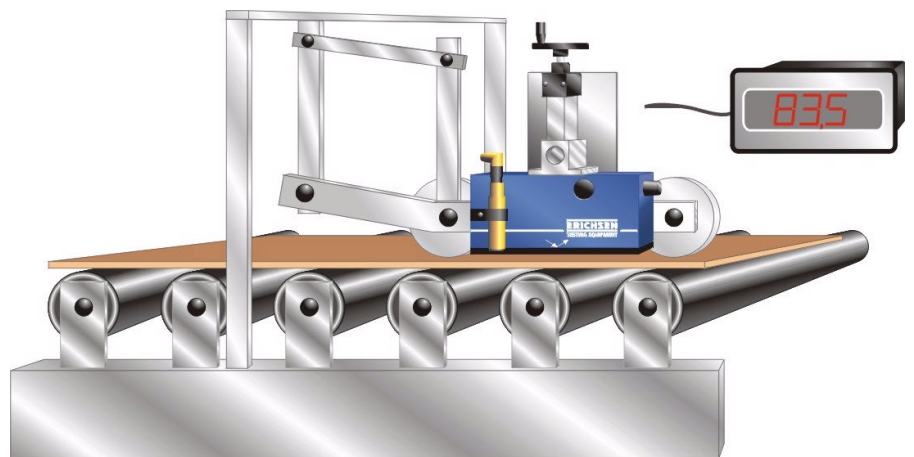
### ONLINE-Gloss Measurement

contributes significantly towards *raising the quality standard* and *lowering costs* in the production of high-quality surfaces

### ONLINE-

### Gloss Measuring System

the gloss characteristics of products can be measured and evaluated – *during the production process*



testing equipment for quality management

**ERICHSEN**  
since 1910

### Technical Description

#### ONLINE

objective gloss control in conformance with the relevant standards

## Introduction

More than ever before, the consistent quality of surfaces is of major importance in the manufacture and processing of surface-coated materials such as e.g. paper, plastics, metal or wooden surfaces. In almost all industrial sectors it is essential to guarantee a uniform, defined surface structure.

*Processing errors, changes of supplier and material fluctuations* can cause alterations to the gloss which frequently give rise to complaints or even to the material being rejected during quality control. Especially in recent times an accurate and objective method of assessing gloss has gained new significance as a result of increasing customer demands.

## Gloss

In addition to the colour, the appearance of a lacquered surface is characterized to a great extent by its gloss. Gloss is a visual impression which is strongly influenced by the type of illumination used. Direct lighting intensifies the gloss effect, diffused illumination tends to reduce it. The height of the gloss is determined by the surface structure of the lacquer film itself. There are also numerous subjective factors which need to be taken into account when approaching the difficult task of measuring gloss.

***The causes of gloss on a lacquer film:*** When a light beam falls upon a coating film at a defined angle of incidence, most of it will penetrate the coating. A portion of the light is reflected, some of it is scattered and the rest is absorbed.

## Gloss types and their cause

<b><i>Mirror gloss</i></b> <i>approx. 70 - 100 gloss units</i>	<i>Ideally smooth surfaces present a mirror gloss which is assigned a gloss rating of approx. 70 to 100 gloss units.</i>
<b><i>Medium gloss</i></b> <i>approx. 30 - 70 gloss units</i>	<i>In this case most of the scattered light originates near the reflected light beam, i.e. a sort of "dispersion cone" forms with the direction of reflection as its axis.</i>
<b><i>Matte</i></b> <i>approx. 0 - 30 gloss units</i>	<i>Very diffuse scattering of the light beam with low reflection is equivalent to the absence of gloss, i.e. the lacquer appears to be "matte".</i>

# Practical examples of ONLINE gloss measurement

## 1. In a factory for laminated parquet

### Equipment:

**GLOSSMASTER ONLINE 507-60° (basic version)**, comprising:

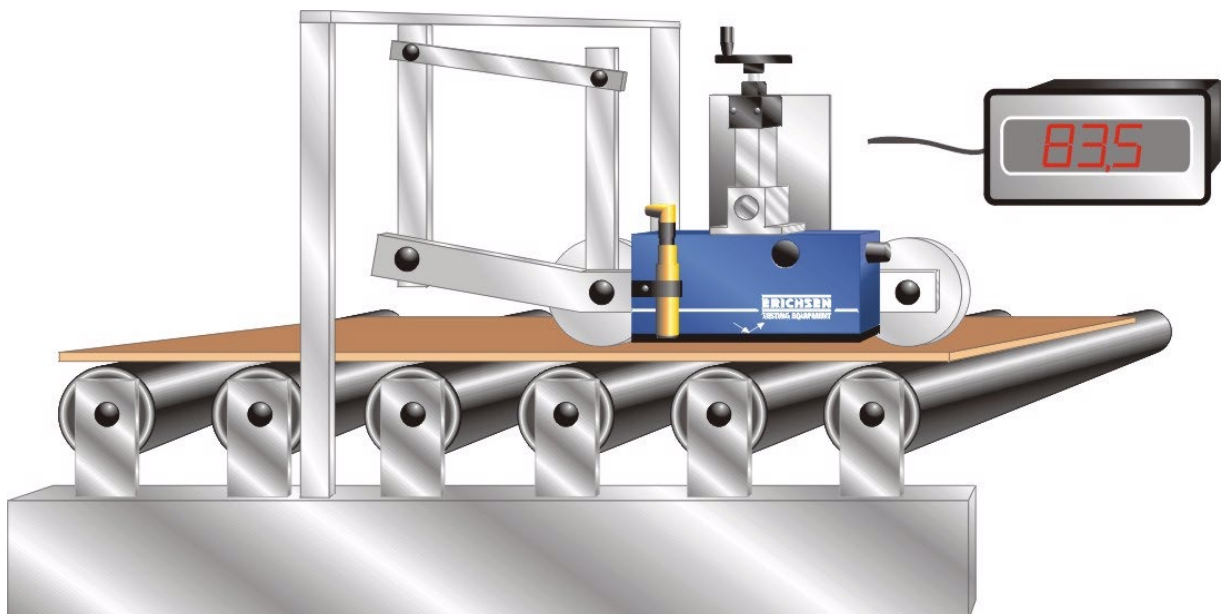
- Measuring head, measuring distance 10 mm, incl. sensor for scanning the test surface
- Mounting adapter
- Supply and display unit with HMI touch panel
- Reference input for min./max. gloss values and average value display
- Alarm lamp signals if the limit values are exceeded
- Time lag of 0 - 3 s to prevent minor deviations from actuating the signal

### Application:

The measuring head of the GLOSSMASTER 507-60° ONLINE is installed in the production line directly after the UV drying unit. The gloss measurement controls the quantity of coating applied. If the gloss value is exceeded an external alarm is activated. ONLINE gloss measurement is the final step prior to packing and palletizing.

### Advantages of the equipment:

- Without ONLINE gloss measurement, individual samples must be taken from the production line and measured and evaluated using a laboratory gloss testing device.
- Savings due to avoidance of faulty batches and the resulting coating and material costs. Potential reworking costs are also avoided.



## 2. In a factory for plastic foils (PE film)

### Equipment:

**GLOSSMASTER ONLINE 507-60°/ AutoCal**, comprising:

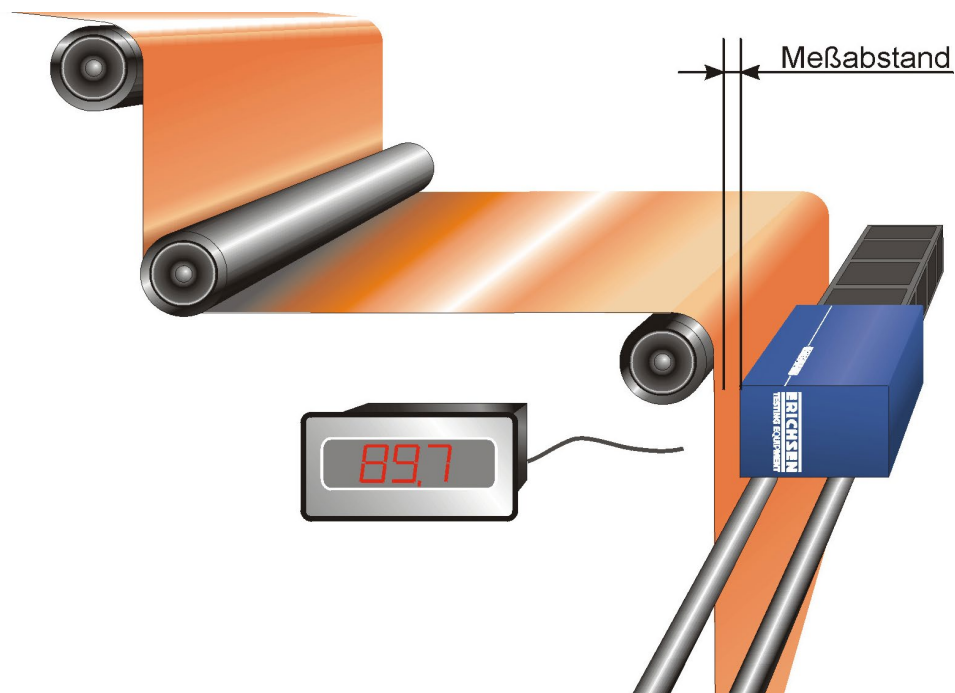
- Measuring head 60°/AutoCal with automatic calibration, measuring distance 10 mm
- LED with 5000 K
- Supply and display unit with HMI touch panel
- Reference input for min./max. gloss values and average value display
- RS232C interface
- External LED display screen
- The external gloss value display was incorporated into the control box for the production line at customer's request
- Device for attachment to a traverse (provided by customer)

### Application:

The measuring head of the GLOSSMASTER ONLINE 507-60°/AutoCal is located in the processing line after an extruding unit for manufacturing plastic films. The surface characteristics of the foils are automatically determined by the ONLINE gloss measuring device. The foil is subsequently rolled to a coil and packed.

### Advantages of the equipment:

- Without ONLINE gloss measurement a specimen would have to be cut out of the processed strip and subsequently measured and evaluated using a laboratory gloss testing device.
- Saves time and material expenditure and also large quantities of waste materials.



(Messabstand: Measuring distance)

### 3. In a galvanizing shop

#### Equipment:

**GLOSSMASTER ONLINE 507-60°** (basic version) comprising:

- Measuring head 60°, measuring distance 10 mm incl. sensor for scanning the test surface
- Supply and display unit with HMI touch panel
- Distance piece for maintaining the measuring distance
- Analogue output

#### Application:

The galvanizing plant produces sheet zinc which is used, e.g., as material for gutters. During the manufacturing sequence the material runs through a pickling plant. The GLOSSMASTER measurement provides information about the outcome of the pickling process, making it possible to determine and adjust the pickling time accordingly. An ONLINE colour measurement is also conducted during the same manufacturing sequence. Based on the components of the colour measurement the composition and concentration of the pickling bath can be monitored and regulated.

#### Advantages of the equipment:

- The pickling process is regulated on the basis of the gloss and standard colour values.
- Without ONLINE gloss measurements controls must be conducted by way of extensive and costly single measurements.
- Saves large quantities of material and/or high reworking costs resulting from faulty batches.
- Avoidance of scrap as a result of timely identification of errors.

#### Special features of ONLINE gloss measurements


- Non-contact, continuous gloss measurements during production, coating or refining operations for in-process or quality controls
- Automatic calibration as an optional feature
- Alarm signal when the prescribed min./max. tolerances are exceeded
- Choice of possible gloss measurement geometries: 20° or 60°

#### Standard Configuration and Accessories

- **GLOSSMASTER ONLINE 507-60° (basic version)**, LED with 5000 K, with supply and display unit with HMI touch panel
- **GLOSSMASTER ONLINE 507-60° / Auto-Cal (automatic calibration)**, LED with 5000 K, with supply and display unit with HMI touch panel
- **Optional accessories**, e.g. for *mounting the measuring head*, *processing data* or further *automation components* are included in the table on the next page.
- Combination of choice of components to meet customizing requirements possible. See table on the following page.

## Features, Technical Data and Order Information

Models	GLOSSMASTER ONLINE 507-60° Baisc Version	GLOSSMASTER ONLINE 507-60° / AutoCal autom. calibration	GLOSSMASTER ONLINE Customized Version (optional)
Order No.	01990131	02040131	
<b>Gloss Measuring Heads</b>			
Measuring head with 20° geometry 160×55×110 mm (L×W×H)			05460132
Measuring head with 60° geometry 205×55×85 mm (L×W×H)	×		05480132
<b>Supply, Control and Display Unit</b>			
With HMI touch panel 365 x 391 x 161 mm (L×W×H)	×		05510132
for connecting several measuring heads			on request
<b>Gloss Measuring Heads / AutoCal</b>			
Measuring head 20°/AutoCal 420×170×110 mm (L×W×H)			05520132
Measuring head 60°/AutoCal 420×170×110 mm (L×W×H)		×	05540132
<b>Supply and Display Units (<i>for version with automatic calibration</i>)</b>			
With HMI touch panel 365 x 391 x 161 mm (L×W×H)		×	05550132
for connecting several (AutoCal-) measuring heads			on request
 <p><b>Supply and Display Unit</b></p>	 <p><b>Measuring head 60° AutoCal</b></p>	 <p><b>Measuring head 60°</b></p>	 <p><b>Zero standard (C) High-gloss standard (A)</b></p>

<b>Accessories</b> <i>(the following choice of accessories is available for the above versions)</i>	
Mounting for measuring head:	
Mounting adapter, 100 mm travel	070013841
<b>Data Processing</b>	
Analogue output 4 - 20 mA	05290132
Analogue output 10 V	05300132
RS 232C Interface	05310132
<b>Automation Components</b>	
Automatic identification of distance between 2 specimens:	
- by optical sensor	05330132
- by capacitive sensor	05340132
External LED display screen	05350132
	
Min/Max specification and average	05360132
Guide rolls for spacing	05370132

(The fields marked with ✕ refer to ONLINE standard versions)

# ERICHSEN GLOSSMASTER ONLINE

## ***List of References***

### **Germany**

Bausch AG, Buttenwiesen  
BP Chemicals Plastec, Nordhorn  
BP Chemicals, Wasserburg  
Coesfelder Holzwerke GmbH & Co. KG, Coesfeld  
Holzwerk O. Trehürne, Südlohn  
HT-Troplast AG, Troisdorf (ehem. Dynamit Nobel)  
Kurz Leonard GmbH Co. KG, Fürth  
Letron, Aschaffenburg  
Meister-Leisten Schulte GmbH, Rüthen  
Perstorp Unidor, Bürstadt  
Rheinzink GmbH, Datteln  
VAW, Grevenbroich  
Windmöller & Hölscher, Lengerich  
WKP Württembergische Kunststoffplatten GmbH, Unterensingen

### **Application**

***Furniture foils***  
***Plastic foils***  
***Plastic foils***  
***Laminated parquet***  
***Laminated parquet***  
***Plastic foils***  
***Plastic surface finishes***  
***Furniture foils***  
***Laminated parquet***  
***Furniture foils***  
***Metal surface finishes***  
***Metal surface finishes***  
***Plastic foils***  
***Plastic surface finishes***

### **Brazil**

Degussa Brasil LtdR. Cep.

### **England**

Camvac, Thetford, Norfolk  
DRG Paper & Board, Keynsham Mills, Keynsham, Bristol  
(SAPPI European Paper Mills)  
Pilkington Glass, Doncaster, South Yorkshire

### **France**

Papeteries de Guyenne, Thiviers  
UGINE S.A., Gueugnon

### **Israel**

ETZ Lavud Ltd., Petach-Tikva

### **The Netherlands**

LAMETT INDUSTRIES, Almelo

### **Norway**

Norske Skog Flooring, Lyngdal (ehem. Fibo Trespo)