

Gloss

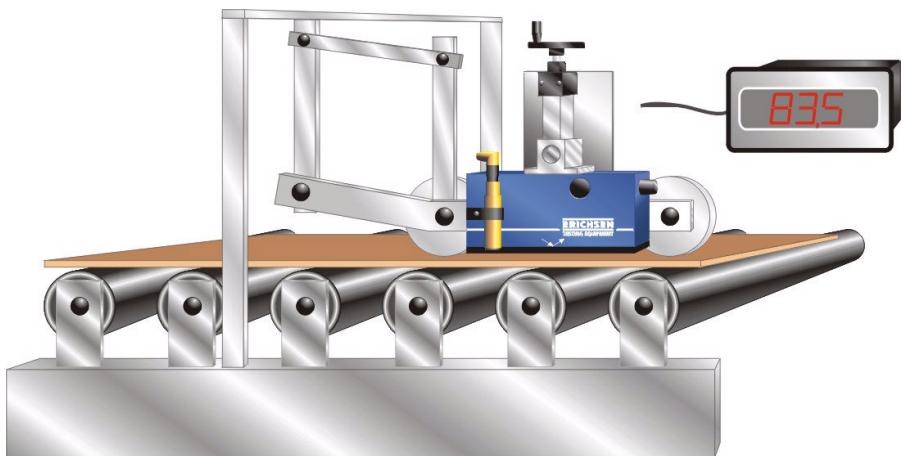
one of the prime quality factors when assessing products.

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

Mirror gloss approx. 70 - 100 gloss units	<i>Ideally smooth surfaces present a mirror gloss which is assigned a gloss rating of approx. 70 to 100 gloss units.</i>
Medium gloss approx. 30 - 70 gloss units	<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>
Matte approx. 0 - 30 gloss units	<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:

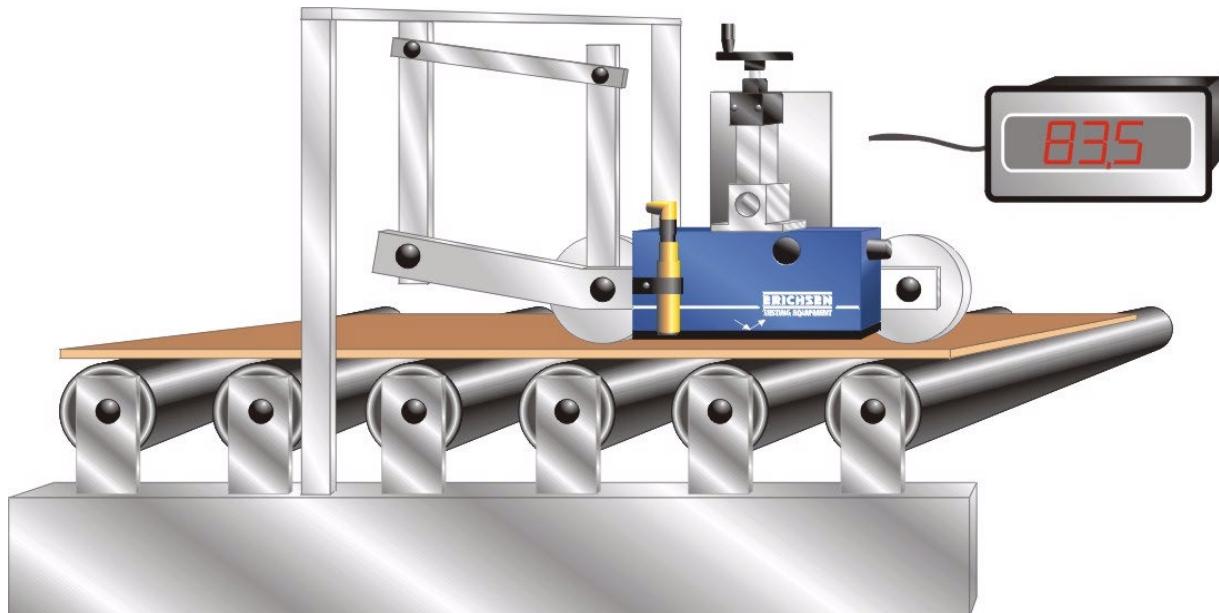
- **GLOSSMASTER ONLINE 507-60° (basic version)**, comprising:
measuring head, measuring distance 10 mm, incl. sensor for scanning the test surface
- Mounting adapter
- Supply and display unit with HMI touch panel
- Reference input for min./max. gloss values and average value display
- Alarm lamp signals 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:

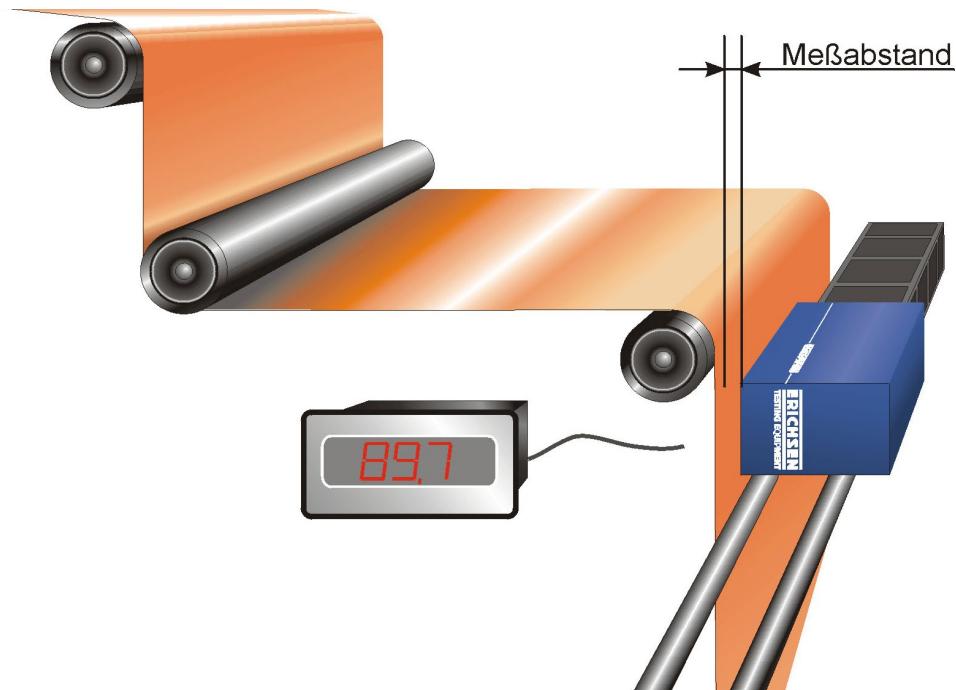
- **GLOSSMASTER ONLINE 507-60° / AutoCal**, comprising:
measuring head 60°/AutoCal with automatic calibration, measuring distance 10 mm
- LED with 5000 K
- Supply and display unit with HMI touch panel
- Reference input for min./max. gloss values and average value display
- RS232C interface
- External 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° Basic Version	GLOSSMASTER ONLINE 507-60° / AutoCal autom. calibration	GLOSSMASTER ONLINE Customized Version (optional)
Order No.	01990131	02040131	
Gloss Measuring Heads			
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
Supply, Control and Display Unit			
With HMI touch panel 365 x 391 x 161 mm (L×W×H)	×		05510132
for connecting several measuring heads			on request
Gloss Measuring Heads / AutoCal			
Measuring head 20°/AutoCal 420×170×110 mm (L×W×H)			05520132
Measuring head 60°/AutoCal 420×170×110 mm (L×W×H)		×	05540132
Supply and Display Units (for version with automatic calibration)			
With HMI touch panel 365 x 391 x 161 mm (L×W×H)		×	05550132
for connecting several (AutoCal-) measuring heads			on request
			
Supply and Display Unit	Measuring head 60° AutoCal	Measuring head 60°	Zero standard (C) High-gloss standard (A)

Accessories (the following choice of accessories is available for the above versions)

Mounting for measuring head:	
Mounting adapter, 100 mm travel	070013841
Data Processing	
Analogue output 4 - 20 mA	05290132
Analogue output 10 V	05300132
RS 232C Interface	05310132

Automation Components

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 **X** 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, Nordfolk
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)