OCS
Optical
Control
Systems
®

The solution for the polymer & petrochemical industries

Impurity | Contamination | Quality Control

R & D, QC, Lab & on-line application

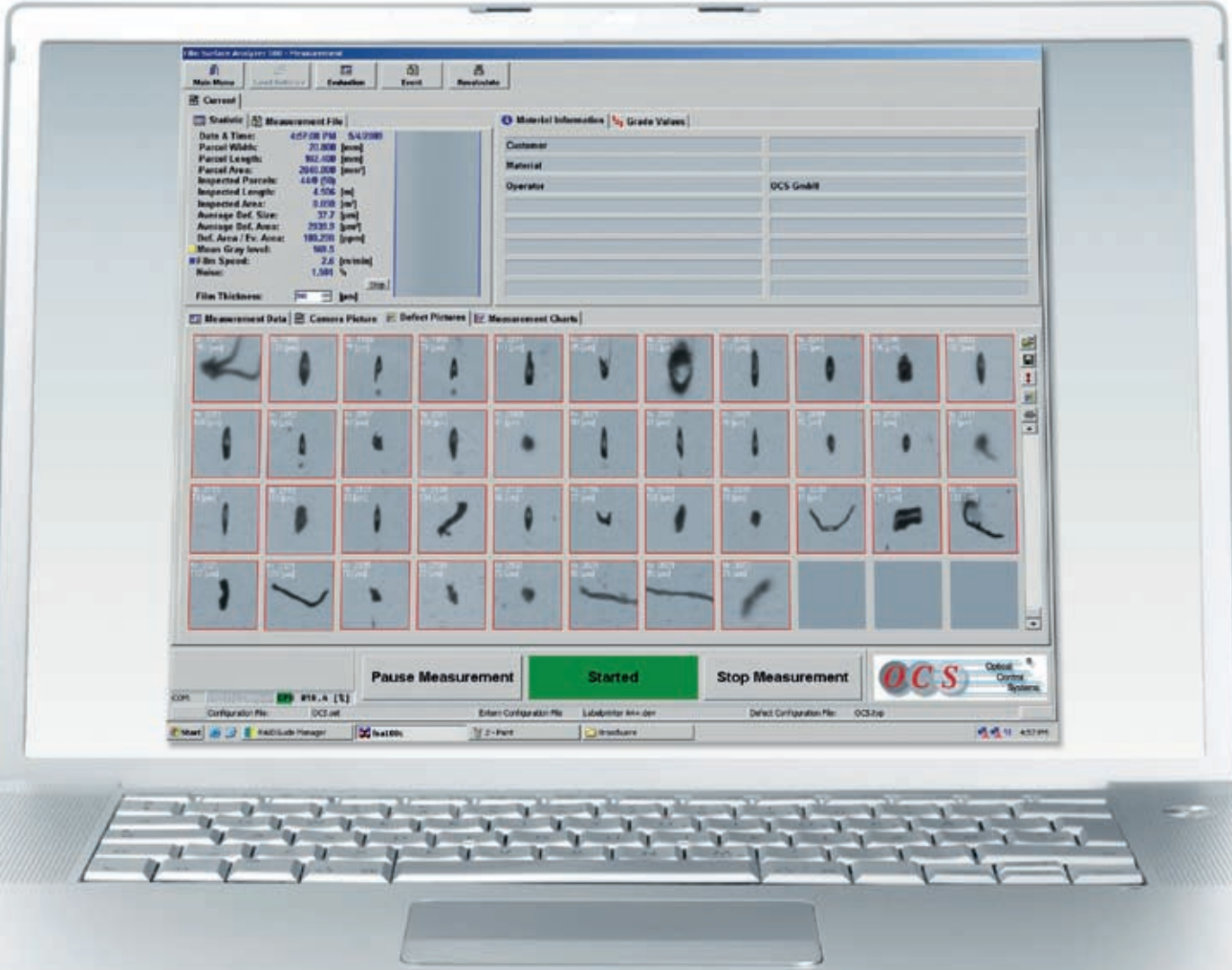The original by OCS

Film-Testing Systems
FSA100

FSA100 is a modular surface inspection system for use in laboratories and production. The film quality is assessed optoelectronically through the use of high resolution line cameras and the appropriate illumination technology. The measurement data are stored in an inspection report so that later analysis is possible at any time.

The modular concept permits the use of different camera and illumination constellations and can therefore be optimally used for transparent, opaque, dyed and nontransparent plastic films. Optimum adaptation in laboratory work and in encapsulated measuring stations is a major contribution towards quality control.

In addition to the mere recognition and classification of defects, the system can also be used for analysis, recording, archiving and documentation purposes. Every defect detected is transferred with the defect image to the measurement protocol together with its feature vector (position, size, shape, etc).

The system can be modified exactly to suit the respective.
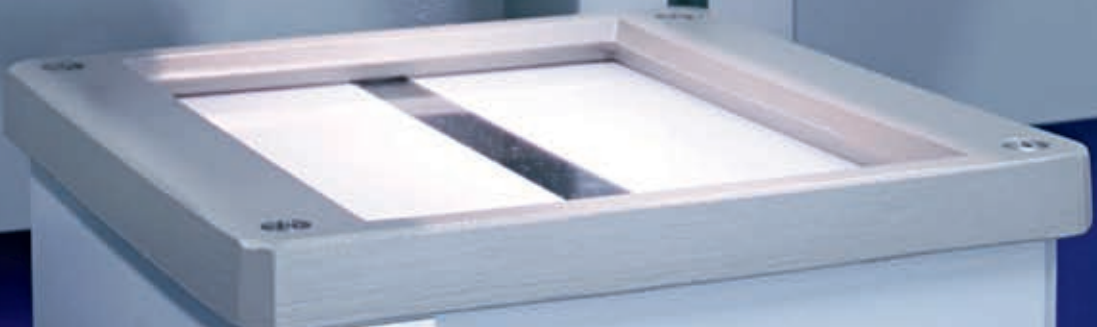
FTA100

FTA100 is a modular surface inspection system for use in laboratories and production. To detect impurities, the FTA100 uses an area scan camera with a special Xenon flash light.

The film quality is assessed optoelectronically through the use of high resolution line cameras and the appropriate illumination technology. The measurement data are stored in an inspection report so that later analysis is possible at any time. (Further description as the FSA100)

Performance Characteristics

- **Modular architecture**
  Simple possibility of adaptation
- **Operation**
  Menu-guided Windows desktop with individual window representation
- **Optimum lighting technology**
  Use of special lighting techniques (filters, diffusers) depending on the material to be inspected
- **Real-time defect analysis**
  Rapid evaluation and representation of the measurement results in various ways. Table with size classes, time history, mosaic view, grades graphics, etc.
- **Table view**
  Tabular display (absolute, per m, total defect area etc. and trend display) as a function of defect size and type
- **Mosaic view**
  Continuous display of the defects detected as real images (display of defect sections)
- **Time history**
  Graphic representation of the defect classes detected as a function of time, length or parcels

- **Easy teach-in classification**
  Defects are automatically classified by their features because of the use of intelligent fuzzy and neuronal network technology
- **3D defect analysis**
  High-performance software tool for improved image analysis
- **Transparency measurement**
  For transmittance measurements, online determination of the absolute and relative transparency values
- **Process synchronisation**
  Linking of the inspection system to external equipment, e.g. link to industrial data acquistion system or SAP
- **Interfaces for external equipment**
  APLAIRS, thickness measurement, gloss measurement, haze measurement, label printer, etc.
- **Open database**
  The protocol data can be converted into all common file formats (Access, Excel, etc.)
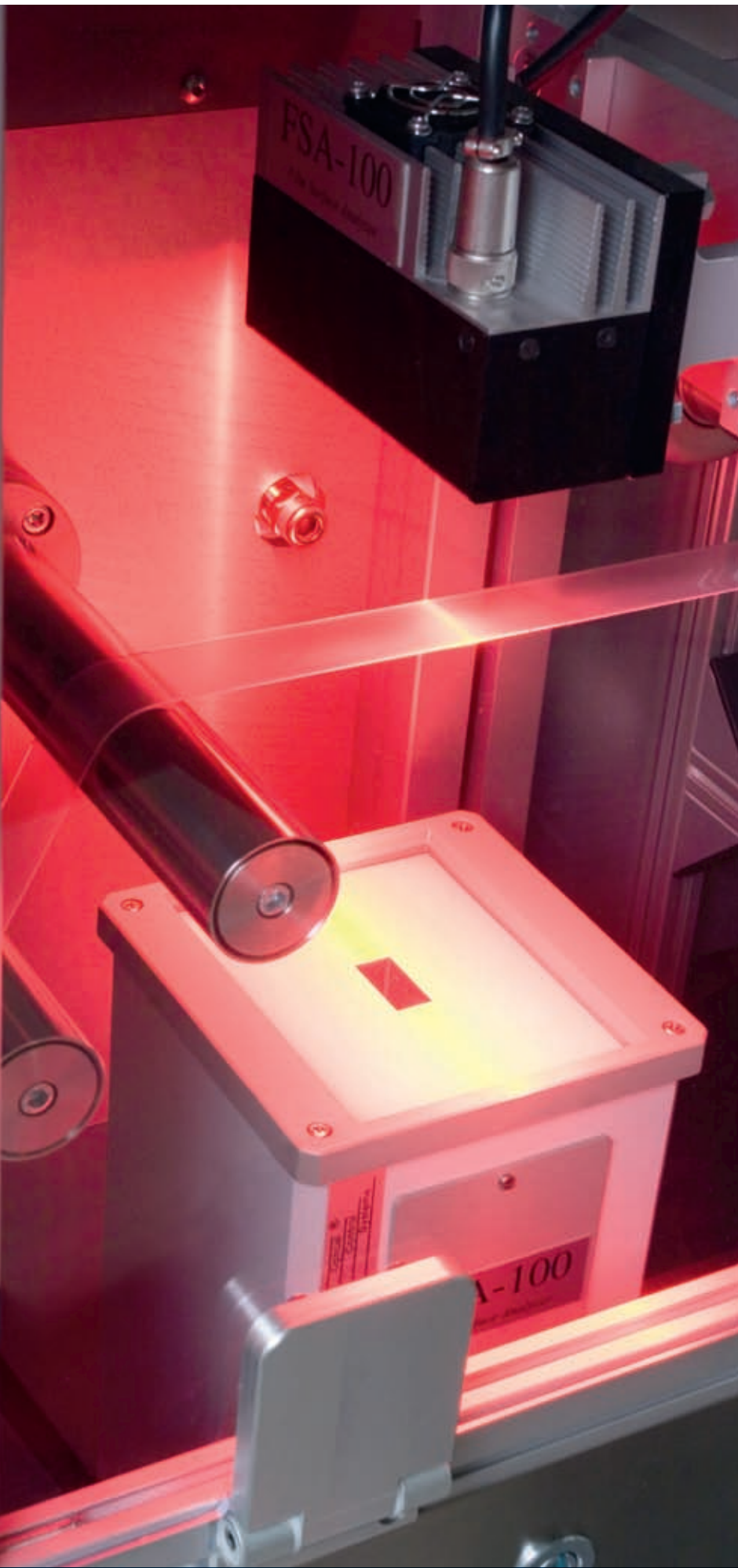
Technical Data FSA100

- **Camera**
  CCD line scan camera
  Resolution: from 5 μm
- **Inspection window**
  0 - 300 mm
- **Lighting**
  Special LED light, halogen light
- **Computer**
  Industrial Intel®Core™ 2 Duo
  Up-to-date-technology
- **Software**
  Operating system Windows XP Professional
  (latest technology)
  Special Image Processing
- **Physical interfaces**
  Ethernet 10/100/1000 M Base T, USB,
  RS 485, RS 232, digital & analogue I/O
- **Communication protocol**
  MODBUS RTU, MODBUS TCP/IP, OPC, SQL,
  Filetransfer, PROFIBUS
  Implementation to other Fieldbus-Systems
  possible
- **Remote control**
  CAT 5 Extender
  Max. 100 m
- **Size dimension**
  (l, w, h): 35 x 15 x 15 cm
  (per camera-/lighting unit)
  Weight approx. 10 kg
- **Power supply**
  230 V AC/115 V AC, 50/60 Hz
- **Temperature**
  10 - 40 °C

Technical alterations are subject to change
without prior notice

Technical Data FTA100

- Camera
  CCD area scan camera
  Resolution: from 20 µm
- Inspection window
  at 26 µm: 20 x 13,3 mm
  at 35 µm: 27 x 18 mm
- Lighting
  Special Xenon flash light
- Computer
  Industrial Intel®Core™ 2 Duo
  Up-to-date-technology
- Software
  Operating system Windows XP Professional
  (latest technology)
  Special Image Processing
- Physical interfaces
  Ethernet 10/100/1000 M Base T, USB,

  RS 485, RS 232, digital & analogue I/O
- Communication protocol
  MODBUS RTU, MODBUS TCP/IP, OPC, SQL,
  Filetransfer, PROFIBUS
  Implementation to other Fieldbus-Systems
  possible
- Remote control
  CAT 5 Extender
  Max. 100 m
- Size dimension
  (l, w, h): 28 x 11 x 10 cm
  (per camera-/lighting unit)
  Weight approx. 10 kg
- Power supply
  230 V AC/115 V AC, 50/60 Hz
- Temperature
  10 - 40 °C

Technical alterations are subject to change
without prior notice

Sample Testing System ST4

The Sample Testing System ST4 was designed as a bench unit for laboratories and R&D centres, delivering precise inspection of transparent, such as PE, PP, PS, PC, films, sheets or plates, as well as non-transparent surfaces, such as steel, paper, textiles etc.

The system examines the material for irregularities, contamination, gels, fish eyes, scratches, holes etc. with high resolution camera.

Two lighting techniques can be applied depending on the material. The transmission mode is used for transparent material whereas the reflection mode is applied for non-transparent material.

For the scanning process the testing material is fixed on a frame which automatically moves with highest precision between the lighting unit and the line camera in case of transparent material, or in front of the lighting unit and the camera in case of non-transparent material.

The ST4 testing system is a compact table unit. All components are well integrated and easy accessible for maintenance and replacement.
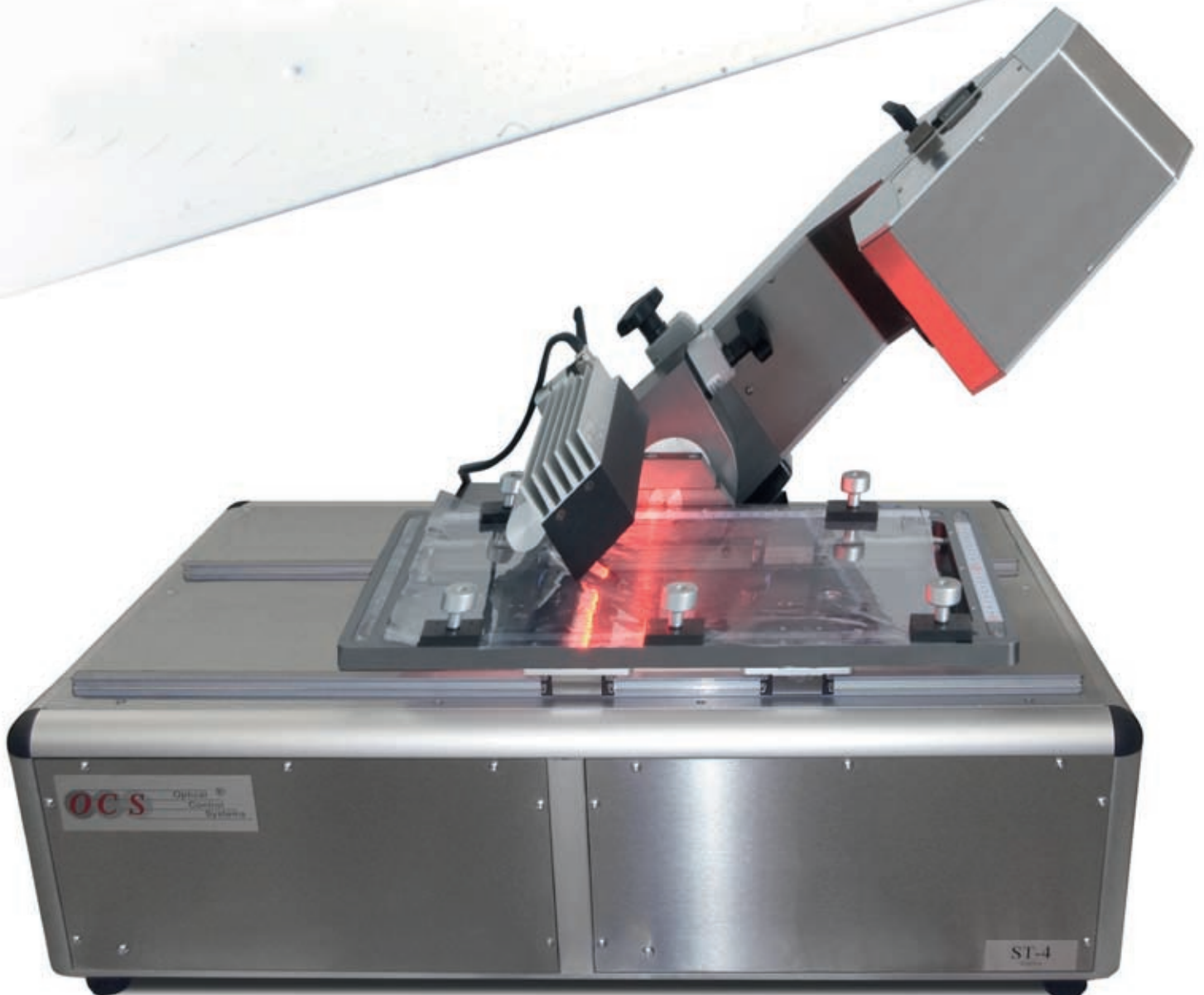
Technical Data

- **Camera**
  CCD line scan camera
  Resolution: from 5 μm
  Inspection width: 0,8 - 200 mm (adjustable)
  Inspection length: 0,8 - 400 mm (adjustable)
- **Lighting**
  Special LED line construction reflection,
  transmission or combined mode
  Lighting width: 250 mm (other on request)
- **Computer**
  Industrial®Core™ 2 Duo
  Up-to-date-technology
- **Software**
  Operating system Windows XP Professional
  (latest technology)
  Special Image Processing

- **Physical interfaces**
  Ethernet 10/100/1000 M Base T, RS 485,
  RS 232, digital & analogue I/O
- **Communication protocol**
  MODBUS RTU, MODBUS TCP/IP, OPC,
  PROFIBUS, Filetransfer
  Implementation to other Fieldbus-Systems
  possible
- **Power supply**
  220 V AC/110 V AC, 50/60 Hz
- **Size dimension**
  (l, w, h) 80 x 50 x 60 cm
  Weight approx. 50 kg
- **Temperature**
  10° - 35°

Technical alterations are subject to change
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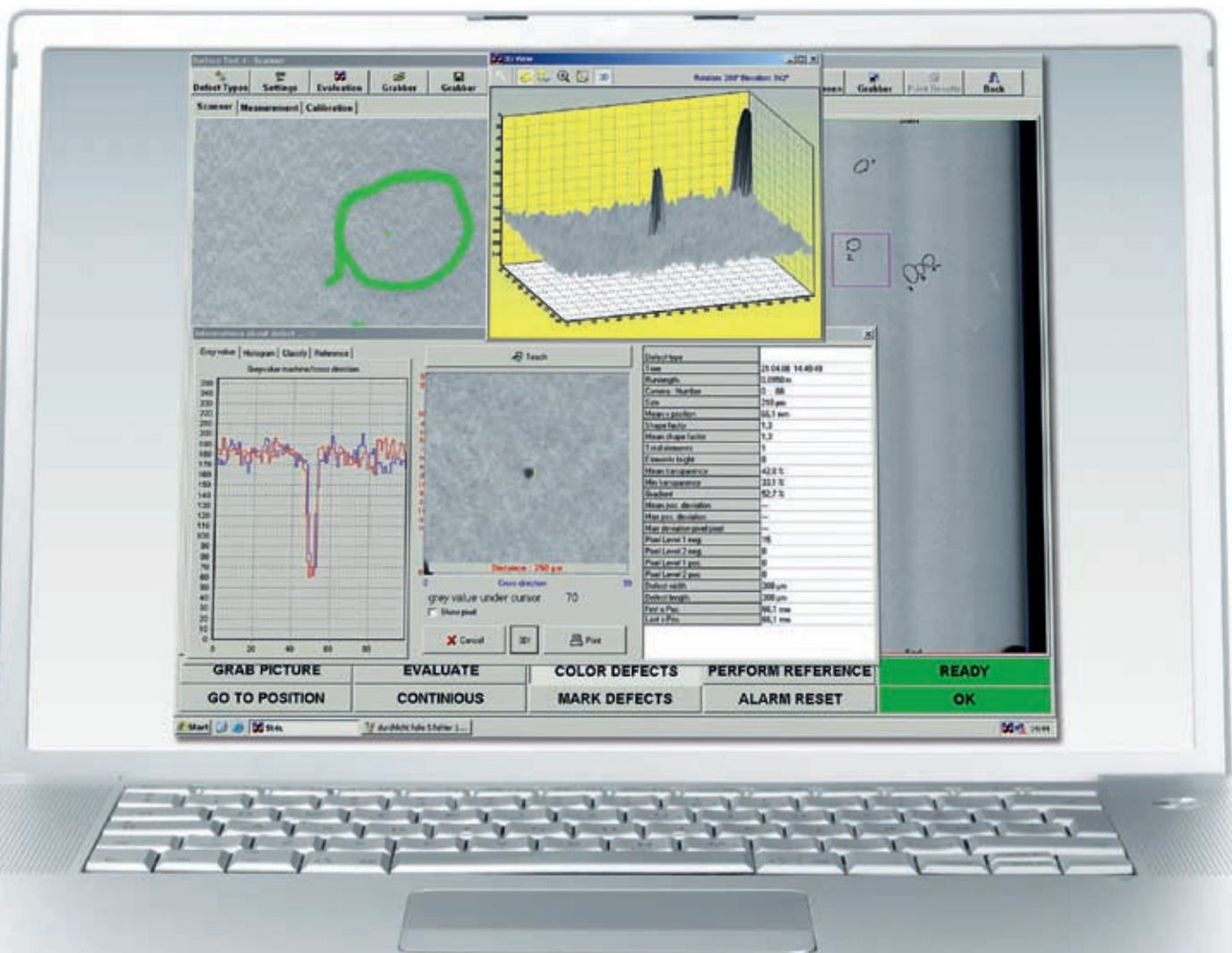
Software

The system software is user friendly, menu-driven, using the latest Windows version as operating system, e.g. XP Professional.

The scanned sample can be precisely analysed, classifying detected defects in different sizes and shapes, and counting all defects with an option for statistical evaluation per defined area (m2, ft2 etc.).

The software has a "teaching" function which allows the system to "remember" defined defect types.

Different tables, graphs and images can be reported and printed by the system.
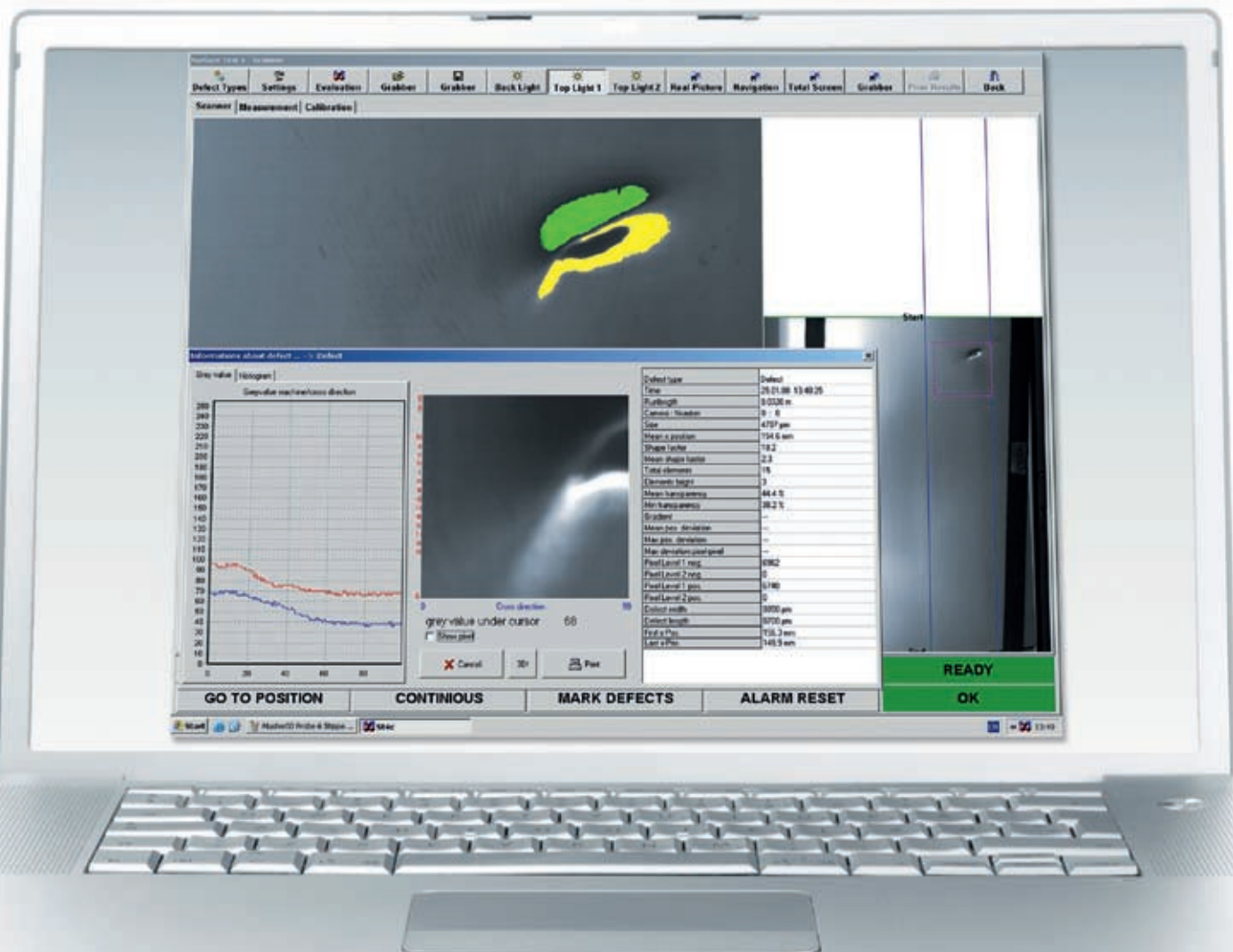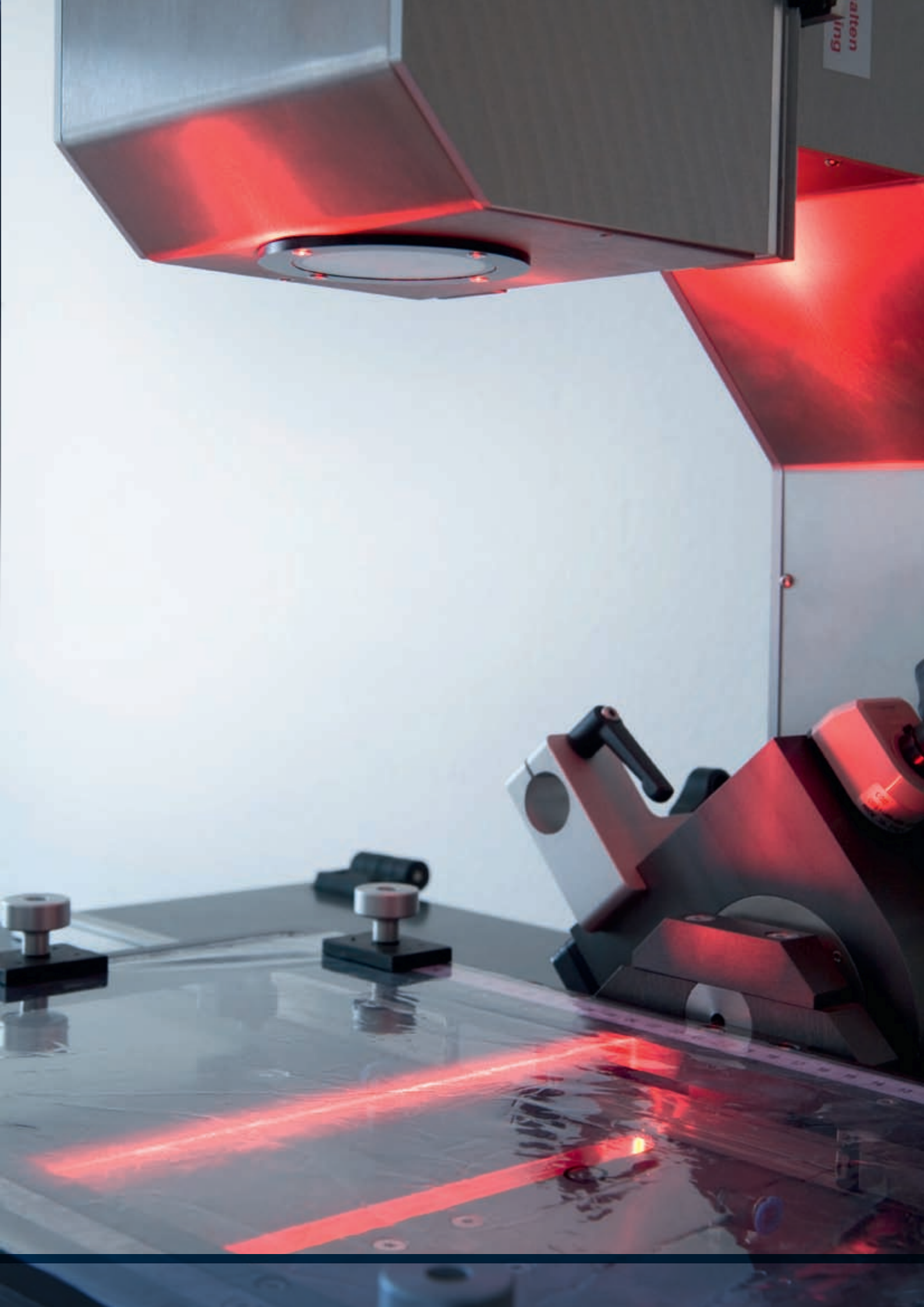
Multiple Plaque Analyzer MPA100

The MPA100 system is a small compact table unit consisting of a special high-resolution camera and a special lighting unit to detect impurities on the surface of several plaques. Transparent materials like Polypropylene, Polyethylene, Polycarbonate, glass, etc. can be examined as well as opaque materials like ABS, paper, metals or textiles. The MPA is suitable for laboratory use, R&D and QC. It is able to detect a multiplicity of current irregularities as holes, scratches or other surface contaminations. At first all of the detectable samples are fixed in a removable magazine (which includes up to 20 flat blanks) before a robot system takes one small plate automatically and places it in the measurement chamber. An area scan camera, which is connected to a high performance image-processing computer, takes pictures from the sample flat blank and the image evaluation software inspects the ionised air cleaned surface of it. The special shadow free lighting unit allows a high sensitive analysis of the surfaces.

Performance Characteristics

- **Magazine**
  One rotating and removable magazine for up to 20 plaques
- **Flat blank handling**
  To detect the top- and bottom side of the sample, a grappler with rotation function turns the small plates automatically
- **Flat blank cleaning**
  Ionised air cleans the samples before any detection, to prevent potential measurement nonconformities due to dust, etc.
- **Controls**
  Menu-controlled Windows interface and easy customisation
- **Real-time defect analysis**
  Rapid evaluation and representation of the measurement results in various table ways

- **Tables**
  Performance data schedule about all sample plaques, each plaque itself and both sides of every sample plaque
  Bar chart about all plaques, each plaque itself and both plaque sides of each sample
- **Defect visualisation**
  The defects on the top side as well as on the bottom side of every small plate are allegorised as defect images in a mosaic view
- **Open database**
  The protocol data can be converted into and stored in all common file formats (Word, Exel, etc.)
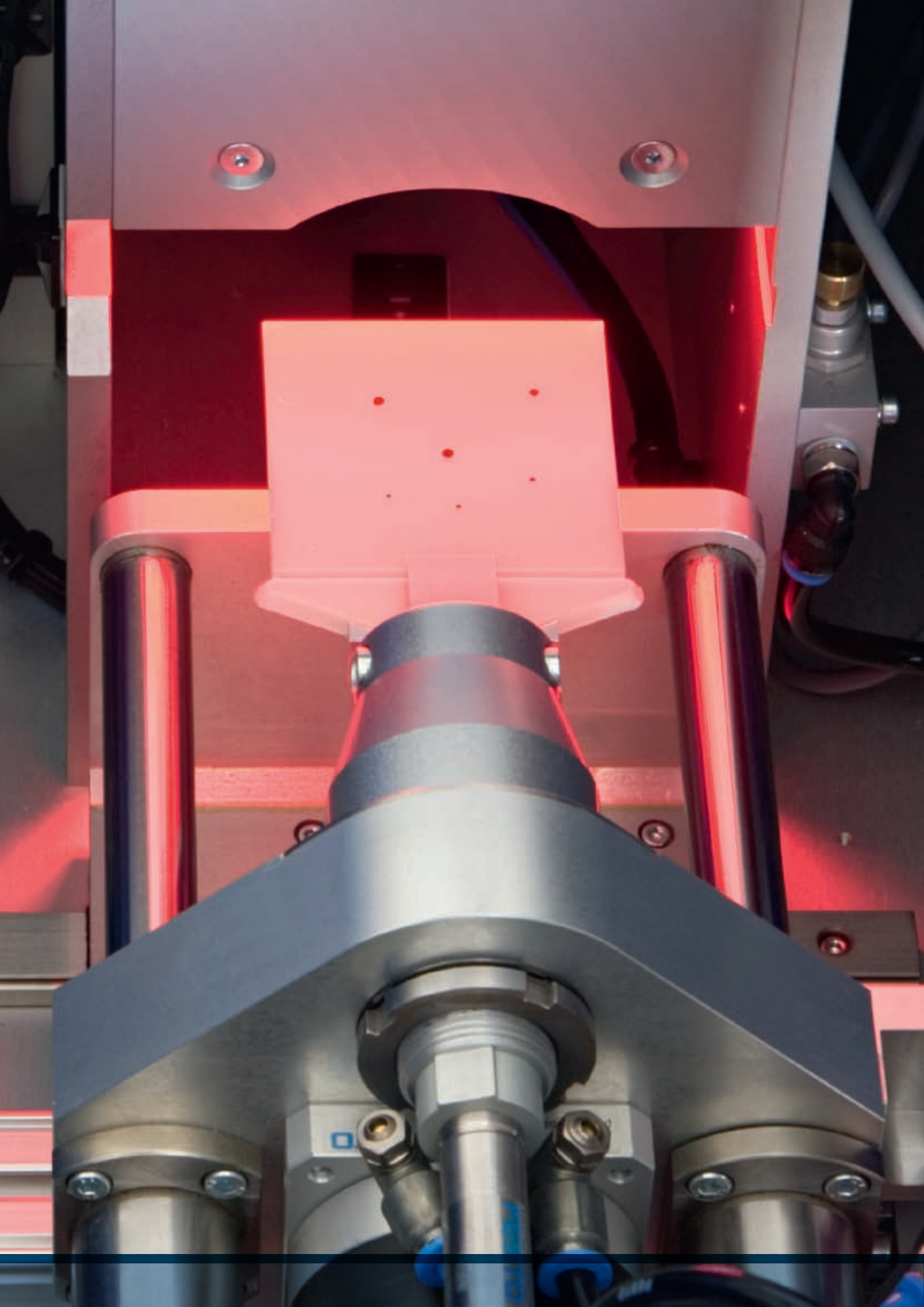
Technical Data

- **Camera**
  CCD area scan camera
  Resolution: from 24 µm
  (other on request)
  Inspection range: 36 x 24 mm
  (other on request)
- **Lighting**
  Special LED red flash light
  (reflection or transmission mode)
  Diffuse matrix lighting (optionally)
- **Computer**
  Industrial Intel®Core™2 Duo
  Up-to-date technology
- **Software**
  Operating system Windows XP Professional
  (latest technology)
  Special Image Processing
- **Physical interfaces**
  Ethernet 10/100/1000 M Base T, USB,
  RS 485, RS 232, digital & analogue I/O

- **Communication protocol**
  MODBUS RTU, MODBUS TCP/IP, OPC,
  SQL, Filetransfer, PROFIBUS
  Implementation to other Fieldbus-Systems
  possible
- **Remote control**
  CAT 5 Extender
  Max. 100 m
- **Size dimension**
  (l, w, h) 95 x 50 x 60 cm
  Weight approx. 60 kg
- **Power supply**
  230 V AC/110 V AC, 50/60 Hz, 16 A
- **Temperature**
  10 – 35° C

Technical alterations are subject to change
without prior notice

Liquid Analyzer LA20

The Liquid Analyzer with colour camera was developed to count and classify contaminations in transparent liquid substances. The system is capable to detect particles, fibres and other contaminations and classify them into different colour, size and shape classes.

The Liquid Analyzer consists of a lighting- and camera unit opposite to each other. The liquid is injected by a dosing pump through a flow cell in-between. The 3-CCD colour camera is connected to a high-performance image processing computer.

It is possible to analyse transparent liquid substances for particles above 10 µm. As the camera is installed opposite to the light source, additionally polarized light can be used for fibres detection.

The existing process interface can optionally be configured according to customer requirements. The system offers the possibility to make many individual adjustments which ensures an exact adaptation to special requirements. These can be stored on hard disk. Thus, an unlimited number of adjustments for many different kinds of material can be defined and stored so that changing from one mode of examination to another is considerably easy.

Technical Data

- **Camera**
  3-CCD-chip area scan camera
  Resolution: from 20 μm (other on request)
- **Lighting**
  Halogen lamp
  Power consumption: 150 W
  Infrared filter
  Assembly dust-protected
- **Pump**
  Flow rate: 30 μl/min - 2,7 l/min
- **Computer**
  Industrial Intel®Core™ 2 Duo
  Up-to-date technology
- **Software**
  Operating system Windows XP Professional
  (latest technology)
  Special Image Processing
- **Physical interfaces**
  Ethernet 10/100/1000 M Base T, USB,
  RS 485, RS 232, digital & analogue I/O

- **Communication protocol**
  MODBUS RTU, MODBUS TCP/IP, OPC, SQL,
  file transfer (customised), PROFIBUS
  Implementation to other Fieldbus-Systems
  possible
- **Remote control**
  Extender max. 100 m
  Service remote control
- **Size dimension**
  (l, w, h) 28 x 78 x 22 cm
  (per camera-/lighting unit)
  Weight approx. 30 kg
- **Power supply**
  230 V AC/115 V AC, 50/60 Hz
- **Temperature**
  10 – 40 °C
- **Instrument air: 2 bar**

Technical alterations are subject to change
without prior notice
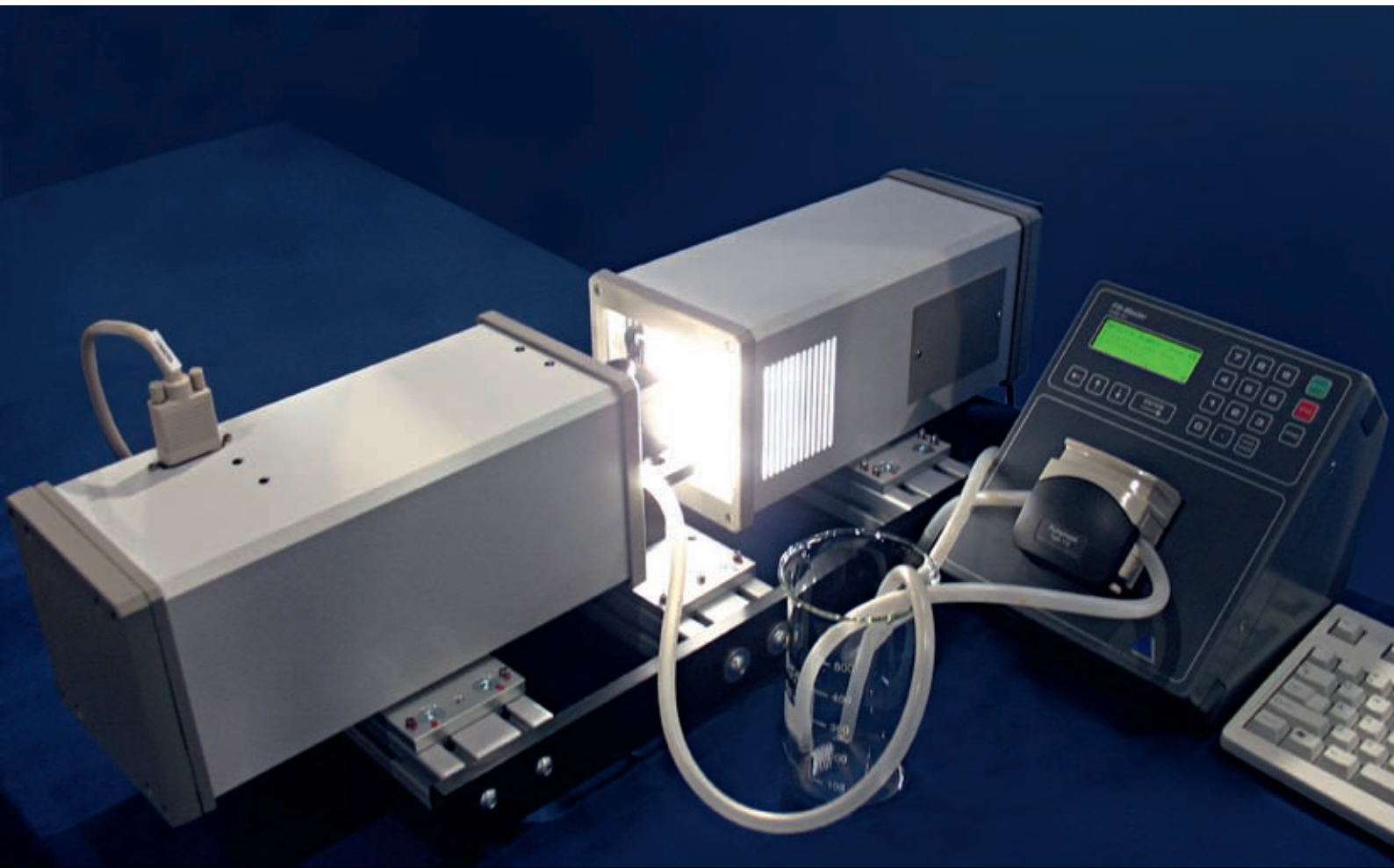
»Inspired synergy«

OCS

A mission statement

Our continued goal is to provide the polymer industry with quality control systems that are optimised with regard to production and purpose, and to offer complete solutions with solid and up-to-date technology at reasonable prices.
To achieve this we constantly improve our production expertise and technical knowledge, and widen our all-round understanding of functional requirements.

OCS is committed to provide quality products and services to its customers within the agreed delivery time.

OCS will continuously strive to improve quality, delivery and responsiveness for assuring customers satisfaction.

After widening its world-wide market share, it is a privilege to indicate OCS as one of the world`s leading manufacturers of high precise optical control systems, who provides the highest value products and services to its customers.
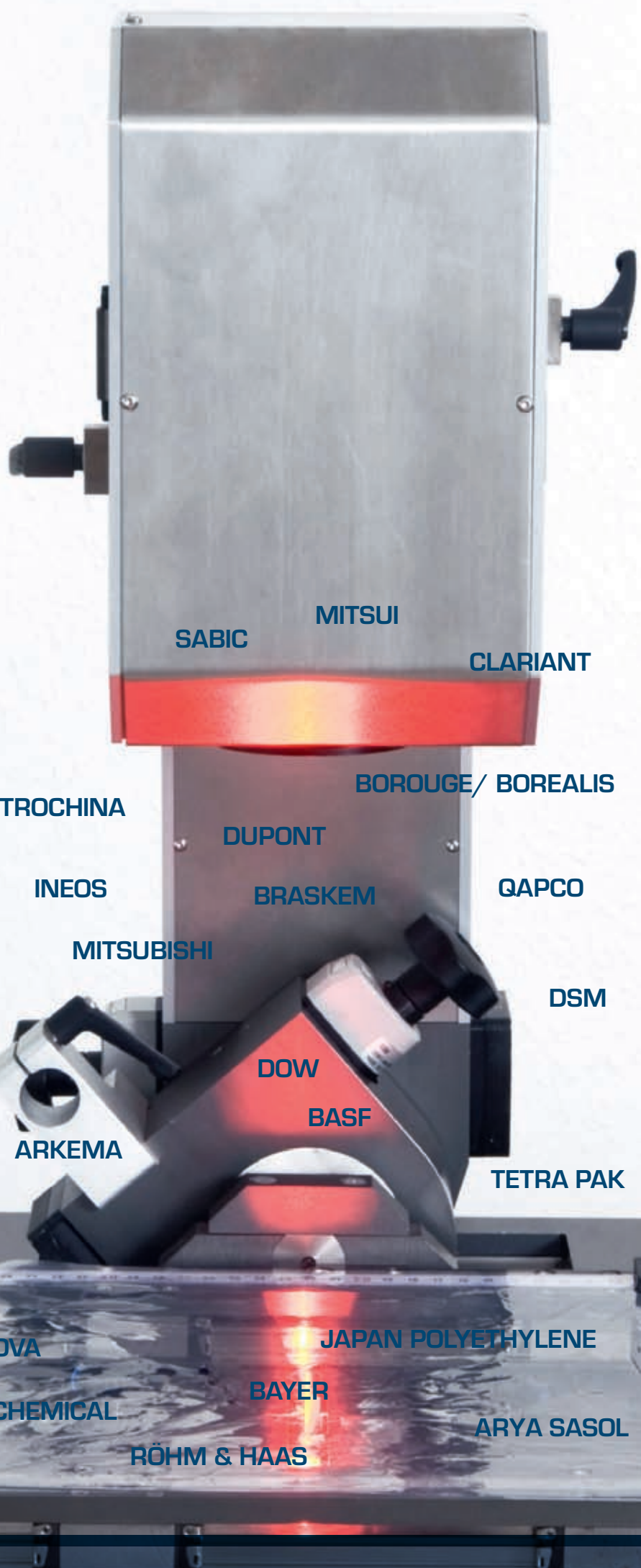
MITSUI

SABIC

CLARIANT

BOROUGE/ BOREALIS

PETROCHINA

DUPONT

INDIAN OIL   INEOS   BRASKEM   QAPCO

TOTAL   MITSUBISHI

DSM

NEXANS

REPSOL   DOW

BASF

LYONDELLBASELL

ARKEMA   TETRA PAK

EXXONMOBIL

SOLVAY

CABOT   NOVA   JAPAN POLYETHYLENE

BAYER

CHINA PETROCHEMICAL

GE PLASTICS   ARYA SASOL

RÖHM & HAAS

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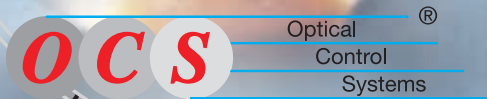
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