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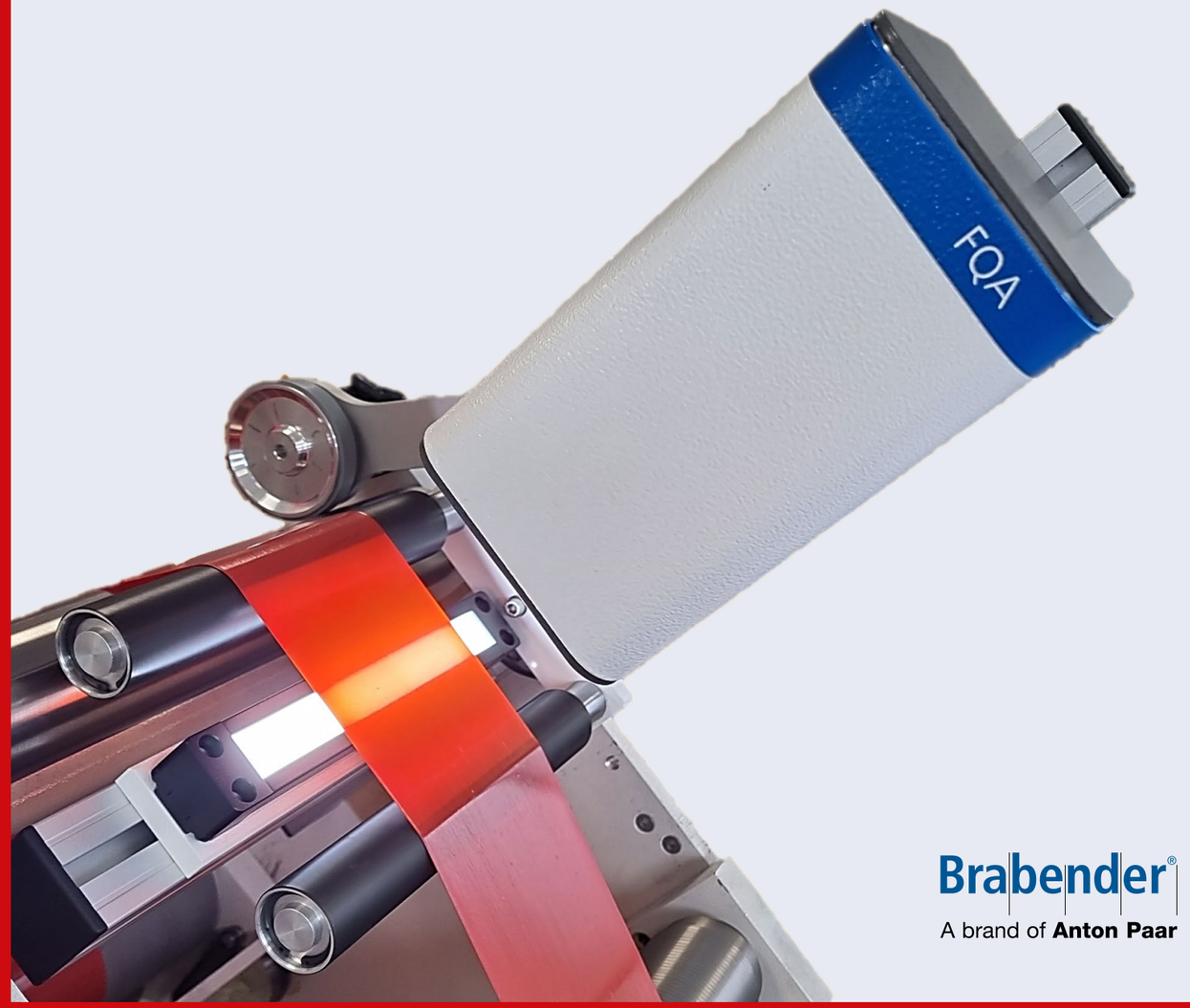
Film Quality Analyzer

Brabender: FQA



Brabender®
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Brabender® FQA

The Brabender FQA Film Quality Analyze enables continuous optical quality control of blown or cast films on a laboratory or production scale.

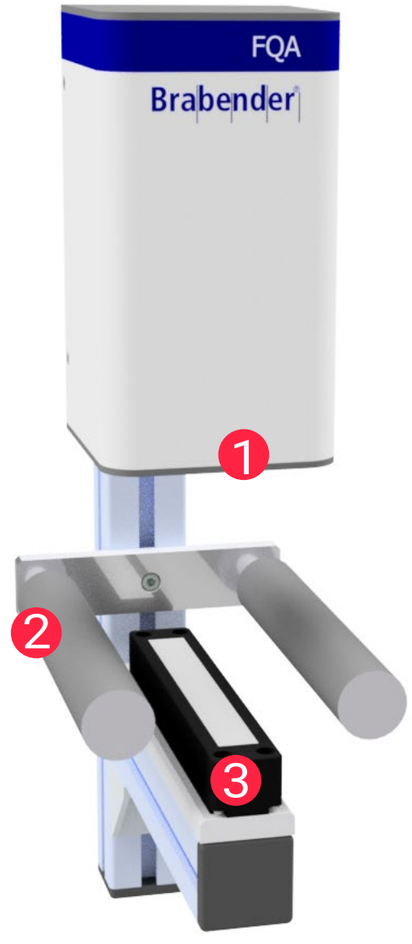
Each type of inhomogeneity shows a specific transparency image. Black specks, for example, have different transparency values than gels or fish eyes. Based on these different transparency images, typical gray value levels are defined for each type of inhomogeneity. The camera system recognizes the difference between the gray value of the homogeneous film background and that of inhomogeneities. From this, conclusions can be drawn about the influence of the inhomogeneities on the mechanical properties of the film, such as elongation, load or stability. The user-friendly evaluation software determines the type of imperfection by its gray value, measures length and width, calculates the area and a corresponding circle diameter, and assigns the imperfection to the appropriate size class. The influence of changes of the process parameters or the material formulation on the optical properties of the film becomes directly visible.

Combined film production and quality analysis

The FQA can be mounted on a Brabender blown film take-off unit, a Univex flat film take-off unit or an Auto-Grader. As downstream equipment to an extrusion line, this results in a complete film production line with fully automatic optical inline film quality analysis on a laboratory scale.

Technical Data

- Camera: 4096 pixel CCD line scan camera
- Cell size: 3,75 µm x 3,75 µm
- Processing area: 4096 (H) x 16384 (L)
- Minimum sampling time: 10.2 µs (97.7 kHz)
- Frame rate: 400 MHz 32 x
- Minimum detectable failure: 19.5 µm
- Inspection width: 80 mm



1. Camera system
2. Film guide rollers
3. LED light source

Highlights

- Automated optical inline analysis of extruded blown and cast films
- Specially suited for use in the development of new plastics and for quality assurance in the processing of films with recycled or biopolymer content
- High-resolution camera for detection of inhomogeneities and impurities
- Clear, optical and both qualitative and quantitative statistical evaluation of film purity
- Sizing and classification of agglomerates and pigment particles
- Compact control system (can be integrated into the control cabinet of the Brabender downstream equipment)

Software

The FQA is controlled via the browser-based Brabender MetaBridge software and is integrated into the extruder setup.

The following evaluations are possible:

- Precise identification of impurities and classification of these into up to 10 size classes.
- Failure density (e.g. gel spots/m^2)
- Continuous determination of a defined unique characteristic value for film quality (FQI)
- Histograms and trend curves

Further advantages:

- Automatic control of light intensity and adaptation to natural lighting conditions
- Automatic detection of the inspection area and edges
- Definition of tolerance values for quality control (e.g. max. number of black specks / m^2)
- Definition of criteria after which the measurement stops (time, area, length)