

GCO - Gob Cutting Observation

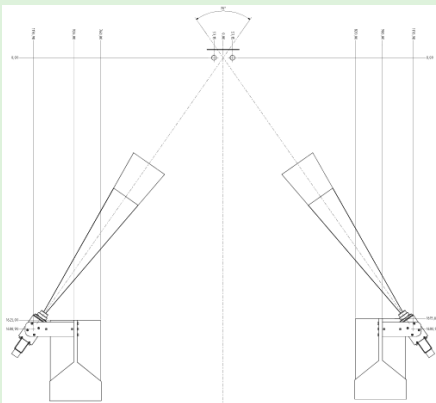
Gob monitoring and automatic weight control



The **GCO** system

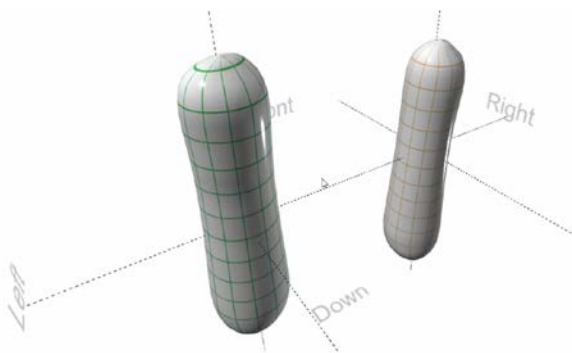
- Gob weight
- Gob shape and other parameters
- Spatial position of the gob
- Shape of the beginning and the end of the gob
- Gob trend development
- Automatic weight control
- **Closed Loop**

2 cameras in stereo vision setup



- "Real 3D vision" through a large view angle
- Monitoring "around the gob"
- High resolution
- Robust implementation
- Water or air cooling
- Protection against contamination of the optical inlet
- Large distance from the gob
- Flexible positioning of the cameras (different distances and angles)

Imaging processing and 3D-model to determine important parameters

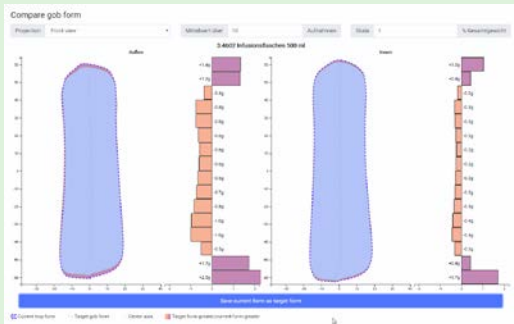


- High speed image acquisition
- Gob in free fall
- Recognition of the gob outline via two viewing angles
- Transformation onto 3D coordinate system
- Generation of a 3D gob model

Observable parameters

- Length
- Diameter
- Spatial position
- Bending of the gob
- Gob volume
- Gob weight as per gob volume

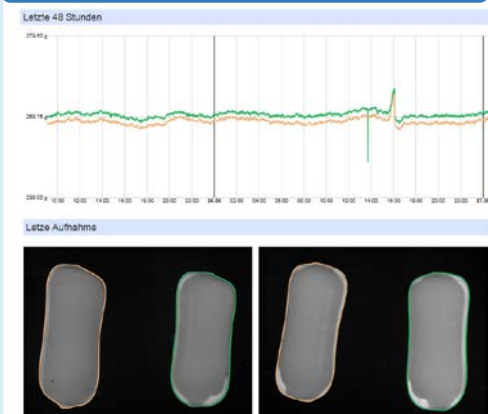
Comparison weight measurement GCO / manual weight measurement



Monitoring

- Monitoring of critical parameters
- Comparison with stored ideal shape
- Detection of deviations
- Automated generation of warnings and malfunction messages
- Quality assurance and traceability

Software with long term storage of the measured weight data



Highlights of the software

- Server publishes image data and measurement values via web interface
- Data are accessible via desktop or mobile device (tablet, iPad, etc.)
- Fast display and updating
- Continuous volume measurement of 100% of the cut gobs
- Monitoring of geometry limit values
- Weight monitoring and regulation for all processes including blow-blow where PPC is not usable
- Monitoring of the gob shape and trend analysis