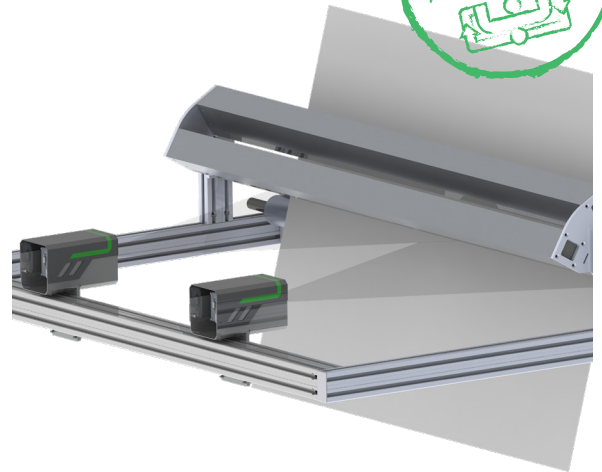




EYES

Customizable High performance

EYES is a vision system for in-line quality control of continuous materials. The system can scan 100% of the surface, detecting and classifying every type of defect. Eyes provides comprehensive defect mapping for each roll, allowing you to maintain complete control over your production. It is ideal for production lines exceeding 300 m/min speed and defect resolutions below 250 μm , down to 3 μm .



PROCESSES & MATERIALS

Eyes analyzes various processes like extrusion, coating, and laminating across a range of materials such as plastic, paper, glass, metal, rubber, and membranes. These materials exhibit diverse optical properties from transparency to opacity and glossiness. Lighting configurations are tailored to these properties and the specific defect types being detected.

PRINCIPLES OF OPERATION

HARDWARE MODULARITY

Multiple camera configurations are available depending on the size of the defects to be detected and the production speed. Thanks to the high resolution of the cameras and the computing power of the latest generation processors, EYES can detect defects down to 3 μm , imperceptible to the human eye, and can scan films travelling at speeds of up to 1200 m/min.

In standard applications, a single backlight illuminator suffices to detect all common film defects.

Two additional types of illuminators for specific needs: Incident illuminator is essential for dark material and thick film production.

Reflection illuminator is useful for detecting coating defects.

HMI & REPORT

EYES features an intuitive HMI for real-time visualization of the inspection process, including advanced 2D mapping for defect analysis.

It automatically catalogs defects and provides statistical analysis, enabling detailed inspection reports aligned with industry standards for enhanced productivity and waste reduction.

FRAME SETUP

The complete system, comprising cameras, optics, and illuminators, is mounted on a frame spanning the production line. For blown film lines, two distinct configurations are available, typically positioned just before the winders:

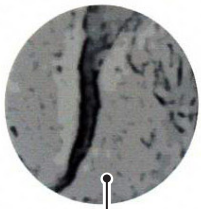
The standard Twin Configuration enables a single image processor to conduct inspections on two reels simultaneously within a unified frame.

The newest and innovative Winder Embedded Configuration, fully integrates the camera optical path embedded in the mezzanine floor, uses an intermediate bar equipped with a specialized reflecting mirror solving the problem of the very short path from blow film separation to the winders.

INDUSTRY 4.0 & IoT

All SYNCRO machines are ready to be integrated with third party supervisory controls and ERP systems using the latest generation of OPC-UA protocols as standard.

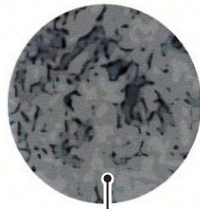
DETECTABLE DEFECTS



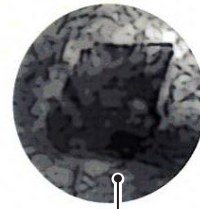
Fiber lump



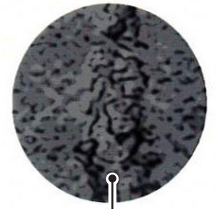
Hole



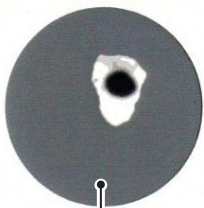
Unevenness b/w



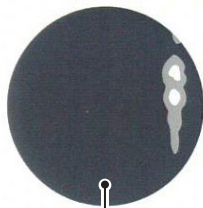
Puff ball



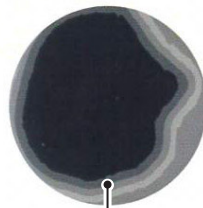
Roping



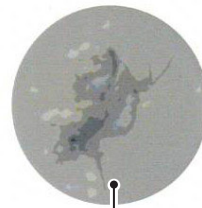
Fish Eye



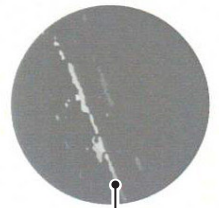
Bright gels



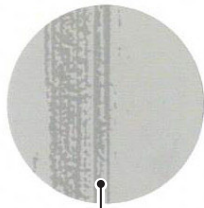
Paraffine



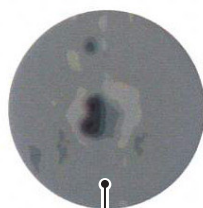
Insect



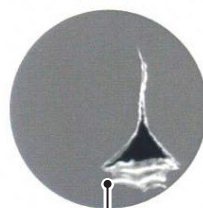
Scratches



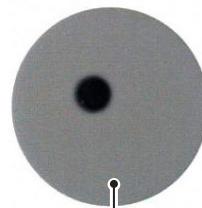
Die line



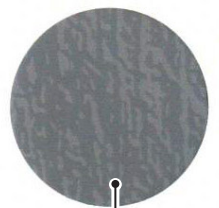
Bubble



Holes



Particle



Wrinkle

Defect Dimensions	Max Speed		Net Film Width				
	Single lighting	Double lighting	500 mm	1000 mm	1500 mm	2000 mm	2500 mm
25 µm	30 m/min	15 m/min	# 3 x EYES-16K-LE	# 5 x EYES-16K-LE	# 8 x EYES-16K-LE	# 10 x EYES-16K-LE	# 13 x EYES-16K-LE
	200 m/min	100 m/min	# 3 x EYES-16K-HE	# 5 x EYES-16K-HE	# 8 x EYES-16K-HE	# 10 x EYES-16K-HE	# 13 x EYES-16K-HE
50 µm	60 m/min	30 m/min	# 2 x EYES-16K-LE	# 3 x EYES-16K-LE	# 4 x EYES-16K-LE	# 5 x EYES-16K-LE	# 7 x EYES-16K-LE
	400 m/min	200 m/min	# 2 x EYES-16K-HE	# 3 x EYES-16K-HE	# 4 x EYES-16K-HE	# 5 x EYES-16K-HE	# 7 x EYES-16K-HE
100 µm	120 m/min	60 m/min	# 1 x EYES-16K-LE	# 2 x EYES-16K-LE	# 2 x EYES-16K-LE	# 3 x EYES-16K-LE	# 4 x EYES-16K-LE
	800 m/min	400 m/min	# 1 x EYES-16K-HE	# 2 x EYES-16K-HE	# 2 x EYES-16K-HE	# 3 x EYES-16K-HE	# 4 x EYES-16K-HE
200 µm	400 m/min	200 m/min	# 1 x EYES-08K-LE	# 2 x EYES-08K-LE	# 2 x EYES-08K-LE	# 3 x EYES-08K-LE	# 4 x EYES-08K-LE
	>1000 m/min	>500 m/min	# 1 x EYES-08K-HE	# 2 x EYES-08K-HE	# 2 x EYES-08K-HE	# 3 x EYES-08K-HE	# 4 x EYES-08K-HE
300 µm	200 m/min	100 m/min	# 1 x EYES-04K-LE	# 2 x EYES-04K-LE	# 3 x EYES-04K-LE	# 4 x EYES-04K-LE	# 5 x EYES-04K-LE
	700 m/min	350 m/min	# 1 x EYES-04K-ME	# 2 x EYES-04K-ME	# 3 x EYES-04K-ME	# 4 x EYES-04K-ME	# 5 x EYES-04K-ME
	>1000 m/min	>500 m/min	# 1 x EYES-08K-HE	# 2 x EYES-08K-HE	# 2 x EYES-08K-HE	# 2 x EYES-08K-HE	# 3 x EYES-08K-HE
500 µm	700 m/min	350 m/min	# 1 x EYES-02K-LE	# 2 x EYES-02K-LE	# 3 x EYES-02K-LE	# 4 x EYES-02K-LE	# 5 x EYES-02K-LE
	>1000 m/min	>500 m/min	# 1 x EYES-04K-HE	# 2 x EYES-04K-HE	# 2 x EYES-04K-HE	# 2 x EYES-04K-HE	# 3 x EYES-04K-HE