**Press Information**

Optical inline measurement of thin layers

**MABRI.VISION:  
Non-destructive measurement of barrier layers in plastic packaging**

New measurement system helps achieve effective barrier with less material

**Aachen, Germany, 25 July 2022 Plastic packaging consists of different layers of material. The new MV.SENSE b1i optical system from MABRI.VISION now measures the thicknesses of these layers with substantially higher resolution. Even the thicknesses of thin barrier films can be measured with utmost precision. The outstanding measuring accuracy of the system helps users to enhance process security and cut the material costs of their production.**

The new MV.SENSE b1i inspection system measures the shape and wall thickness of transparent plastic packaging. Performed in the process line at production speed, these non-contact measurements enable 100-percent inline inspection of multi-layered packaging material.

Non-contact thickness measurement of barrier layers, such as EVOH (ethylene vinyl-alcohol copolymer), in food packaging is a very important application for the system. In this case, it measures both the total wall thickness of the packaging and the thickness of the barrier layer.

At measuring frequencies of up to 200 kHz, the system can provide 100 percent inline inspection in production lines. MABRI.VISION supplies different systems, ranging from units for one-dimensional spot measurements to 3D units that can scan large measuring fields at high frequencies of up to 200 Hz.

Dr. Nicolai Brill, one of the Managing Directors of MABRI.VISION GmbH, explains the motivation behind the development of the new sensor: “We have been noticing a growing trend towards ever thinner barrier layers in food packaging. As a reaction to this trend, we have developed a sensor that can measure layer thicknesses down to only a few µm. The sensor’s very high measuring accuracy not only makes it possible to measure the layer thicknesses with outstanding accuracy, but also to control that the layers are exactly as thick as needed. Thus, our customers can reduce the amount of material applied – and save valuable resources – while achieving the same barrier effect.”

The new system is based on the principle of low-coherence interferometry, which MABRI.VISION also employs on its MV.SENSE inspection platform, a platform several food producers have been using since 2015. Some pilot customers are already using the new sensor that operates at a distinctly higher resolution and is therefore able to cover a much wider product range than its predecessor.

MABRI.VISION has developed the new sensor not only for plastic packaging, but also for other products whose functionality depends on the quality of thin coatings. The new system can be used, for example, to measure coating thicknesses in blown film extrusion processes and of multi-layer flat foils used in food packaging as well as for medical products, such as transdermal plaster and coated medical tubing. It is also suitable for inspecting hoses produced in co-extrusion and multilayer extrusion processes and for composite materials.

**450 words**

#### Background information: The technology in detail

The MV.SENSE sensor platform operates on the principle of low-coherence interferometry, also called white-light interferometry. Infrared light is directed onto the item to be measured. The light reflected by the material interferes with a specific reference path. Values giving the absolute distance from the sensor are obtained as measuring results.

The MV.SENSE systems from MABRI.VISION generate tomographic cross-sectional images of one- or multi-layer products. Due to the high measuring rates of up to 200 kHz, the systems can measure the shape, total wall thickness and layer thickness in real time.

Connected via fiber-optic cables, the highly compact sensor units can be easily integrated into production lines, where they automatically perform reliable inline quality control.

In contrast to ultrasonic systems, low-coherence interferometry systems do not require a coupling agent. Moreover, as only infrared light of low intensity is used, no radiation protection measures have to be taken.

**Background information: 150 words**

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Figures and captions:

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| Fig. 1: MV.SENSE b1i measures the thicknesses of thin barrier layers with high precision.  File name: MabriVision\_Waschmittelflasche-Schichtdicke\_v3.jpg |  |
| Fig. 2: The new MV.SENSE b1i inspection system measures the shape and wall thicknesses of transparent plastic packaging at production speed in a contact-less process.  File name: MABRI.VISION\_MV.SENSE\_OCT\_Sensor\_prüft\_Flasche.jpg |  |
| Fig. 2b: The new MV.SENSE b1i inspection system measures the shape and wall thicknesses of transparent plastic packaging at production speed in a contact-less process.  File name: MABRI.VISION\_MV.SENSE\_OCT\_Sensor\_prüft\_Flasche\_2.jpg |  |
| Fig. 3: The measuring principle of MV.SENSE  File name: MABRI.VISION MV.SENSE\_2.png |  |

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**About MABRI.VISION**

MABRI.VISION GmbH was founded in 2015 by Dr. Ulrich Marx and Dr. Nicolai Brill. Based in the German city of Aachen, a renowned technology location, the company specializes in the development, manufacturing and supply of optical sensor units and turnkey inspection systems for offline and inline quality control in industrial production environments.

On the premises of the former Philips bulb factory, the currently 35 employees of the company are engaged in the development and production of innovative optical measuring systems.

MABRI.VISION supplies its products to customers in industries such as packaging technology, automotive, metals processing, electronics and medical engineering.