

MARKET survey

05/2018

Preform inspection

As part of a holistic approach to quality control in preform production PETplanet Insider showcases for the second time an overview of preform inspection systems.

Even the smallest faults in PET preforms have a significant impact in bottle production and bottle quality. In the most severe cases, faulty preforms can even lead to malfunctions in the blow moulder. With ever increasing outputs in the blow moulding systems, perfect preforms

are indispensable. This is where preform inspection systems come in: preform inspection systems check the preform's quality and reject faulty preforms immediately from the production line. Thus preform inspection becomes an essential part of process quality control. These are the participants:

Intravis GmbH, Torus Technology Group, Sacmi Imola S.C., IMD Ltd. and Pressco Technology Inc. and Agr International

- Resins & additives
- Preform machinery
- Preform production
- Preform inspection**
- SBM 2-stage
- Compressors
- Filling equipment & filling inspection
- Caps & closures and inspection
- Palletising & shrink film machinery
- Recycling

Although the publishers have made every effort to ensure that the information in this market survey is up to date, no claims are made regarding completeness or accuracy.

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Preform Inspection Systems	PreWatcher 4	PreWatcher III	Sample-PreWatcher	ColorWatcher Integrated	LayerWatcher
Inspection speed	Up to 100.000 objects/hour	Up to 72,000 objects/hour	Up to 1,200 objects/hour	8 preforms within 0.25s	Up to 144 objects/hour
Inspected parameters:					
Geometry / Body	Contamination, length, diameter, shape, short shots, gate length, unmelted material, bubbles, oil & water marks, burn spots	Contamination, length, diameter, shape, short shots, gate length, unmelted material, bubbles, oil & water marks, burn spots	Contamination, length, diameter, shape, short shots, gate length, unmelted material, bubbles, oil & water marks, burn spots, wall thickness, inner wall damage, core shift		Presence of barrier layers, thickness of barrier layers, position of barrier layers, structure of barrier layers, position of barrier leading edge, position of barrier trailing edge
Thread area	Contamination, thread dimensions, defects at the neck support ring, flash	Contamination, thread dimensions, defects at the neck support ring, flash	Contamination, thread dimensions, defects at the neck support ring, flash		
Mouth / Sealing surface	Diameter, ovality, flash, scratches and notches on the sealing surface, defects at neck support ring	Diameter, ovality, flash, scratches and notches on the sealing surface	Diameter, ovality, flash, scratches and notches on the sealing surface, inner mouth wall inspection		
Gate / Dome	Contamination, grooves, holes, cracks, crystallisation	Contamination, grooves, holes, cracks, crystallisation	Contamination, grooves, holes, cracks, crystallisation		
Colour	Colour and intensity deviations (ΔL^* , Δa^* , Δb^*), presence of UV blocker, barrier, nylon blocker and IR absorber (reheater)	Colour and intensity deviations (ΔL^* , Δa^* , Δb^*), presence of UV blocker, barrier, nylon blocker and IR absorber (reheater)	Colour and intensity deviations (ΔL^* , Δa^* , Δb^*), presence of UV blocker, barrier, nylon blocker and of IR absorber (reheater)	Colour and intensity deviations (ΔL^* , Δa^* , Δb^*), presence of UV blocker, barrier, nylon blocker and of IR absorber, (reheater) detection of trend of colour deviations	
Cavity number	Cavity number reading, cavity related statistics, preform sorting according to cavity number	Cavity number reading, cavity related statistics, preform sorting according to cavity number	Cavity number reading, cavity related statistics, preform sorting according to cavity number, enables collection of reference samples	Cavity related statistics	Cavity related statistics
Further criteria	Sorting possibility due to several reject stations		Stress test with polarised light, high precision weight measurement, high precision dimension measurement	Early warning stage, fast reaction time because inspection results available parallel to preform cooling	Visualisation of barrier layers in 3D images
Measurement of absence or presence of barrier material	Yes	Yes	Yes	Yes	Yes
Layer thickness & position measurement at distinctive points	Yes	No	No	No	Yes
Layer thickness & position measurement at the complete body by scanning	No	No	No	No	Yes
Features:					
Installation: Stand-alone	Yes	Yes	Yes	No	Yes
Installation: Inline	Yes, but optimised for offline	Yes, optimised for inline	Yes, sampling	Yes, integrated into injection moulding machine	Yes, sampling
Side camera for cavity recognition	Yes	Yes	Yes	No	Yes
Method: destructive / non destructive	Non destructive	Non destructive	Non destructive	Non destructive	Non destructive
Data base connection	Yes	Yes	Yes	Yes	Yes