



Machine Vision Inspection of Food Packaging

*We increase performance by automating and digitizing
inspection processes through leading vision technology*



TRIVISION
Vision beyond imagination

Meet Stringent Requirements by Using **Leading Vision Technology**

Food manufacturers face increasingly stringent requirements. Consumers and retailers demand excellence in foods products and packaging, laws and regulations require correct critical food safety markings and attention towards reducing waste in the production processes is more important than ever.



These demands pose a challenging environment for food manufacturers as they naturally also must strive to achieve growth and efficiency goals simultaneously.

TriVision vision systems are developed to perform reliable, efficient quality control in food packaging lines and facilitate production optimization. This allows manufacturers to achieve important objectives:



Ensure quality

Reliable, accurate 100 % inspection ensures product quality and food safety by rejecting all products with unacceptable errors.



Document quality

Reliable vision data allows complete documentation of all inspections - to meet and exceed any retailer demands.



Optimize production

Increase efficiency and reduce waste, downtime and through efficient automated inspection, monitoring and intelligent use of vision data.



Increase sustainability

Become more sustainable through reduced food loss, waste and environmental impact achieved by optimization features.

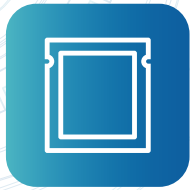


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**ORGANIC
CHEESE SLICES**

200 g



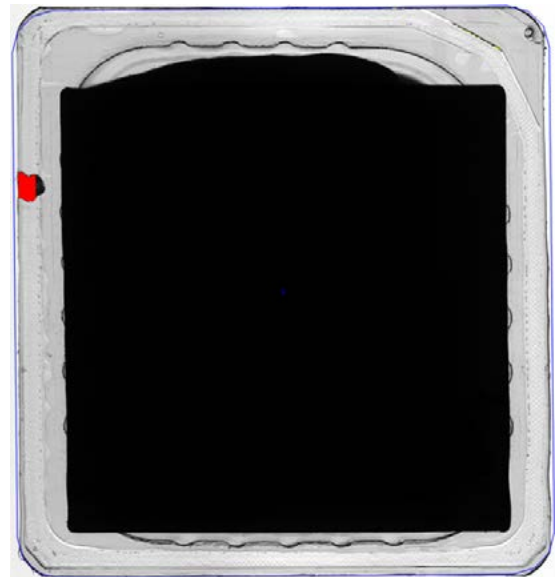
Seal Inspection

Intact package seals are crucial for preserving product quality and optimal shelf life of packed food products.

The sealing process can be compromised by e.g. food contaminations, incorrect adjustments of heating stations or folded foil during the process.

TriVision's seal inspection solutions inspects package seals to validate that the seal area of all approved packages are:

- ✓ Free of food contamination
- ✓ Free of welding errors
- ✓ Free of foil folds
- ✓ Present and intact





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**ORGANIC
CHEESE SLICES**

200 g



Label and Artwork Inspection

To protect consumers from food hazards, meet regulatory requirements and ensure appealing packaging, labelling and artwork needs to be correct and in perfect shape.

Label and artwork errors typically occur if the applied labels or printed plastic foils are incorrect, damaged, misplaced, tilted or wrinkled - or missing.

By checking the artwork, text and graphic, e.g. on packages' labels, TriVision systems ensure that all approved packages' labels or printed artwork are:

- ✓ Correct
- ✓ Complete and intact
- ✓ Legible
- ✓ Correctly positioned and not wrinkled





..... 1.9 g
..... 0.9 g
..... 0.9 g
..... 27 g
..... 1.5 g
I køleskab ved
pakket i beskyttende
ket: 60 dage før
før". Bedst
mærkning.
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Barcode Inspection

Having correct and readable barcodes is a necessary prerequisite in order to do business efficiently. Barcodes support commercial processes such as inventory management, track & tracing and product handling from production to supermarket checkouts.

Our systems inspect different types of barcodes on labels and different packaging material, and handles both static barcodes and barcodes embedded with variable data.

The barcode inspection ensures that all approved product barcodes are:

- ✓ Correct
- ✓ Readable
- ✓ Positioned correctly



bevaring i køleskab ved
højst +5 °C
transportere i køleskab
datoen for "Bedst før" - Bedst
før: Uåbnet: Se datomærkning
Åbnet: 8-10 dage i køleskab ved
højst +5 °C.



Produceret i Danmark for
Netto, netto.dk
Bedst før:



28.03.2020

1346



Print Inspection

Correct and visible date markings such as packed date and expiry date keep spoiled food off the shelves and ensure compliance with laws and regulations.

When date markings are printed directly on packaging or labels, incorrect printer settings, nozzle issues or other printer issues may cause incorrect, unreadable or misplaced prints.

TriVision's print inspection method causes no false ejections while reliably ensuring that all printed information:

- ✓ is correct and legible
- ✓ is correctly positioned
- ✓ contains the correct expiry date according to ERP system data
- ✓ contains the correct packed date







VisioPointer®

A complete solution for the most thorough inspection

VisioPointer® enables food manufacturers to perform thorough inspection of packaging with a wide range of inspection types.

Camera setups above and below the system's built-in conveyor allow inspection of package seals, labels and artwork, barcode and printed information on all sides of packages.

VisioPointer® is the perfect solution for inspecting and validating seals of e.g. thermoformed packages and sealed tray packaging before leaving the factory.

By detecting and rejecting all products with seal errors, VisioPointer® ensures the quality and shelf life of packed food products that reach the supermarkets' shelves.

VisioPointer® Inspection Types



Seal
Inspection



Label & Artwork
Inspection



Barcode
Inspection



Print
Inspection



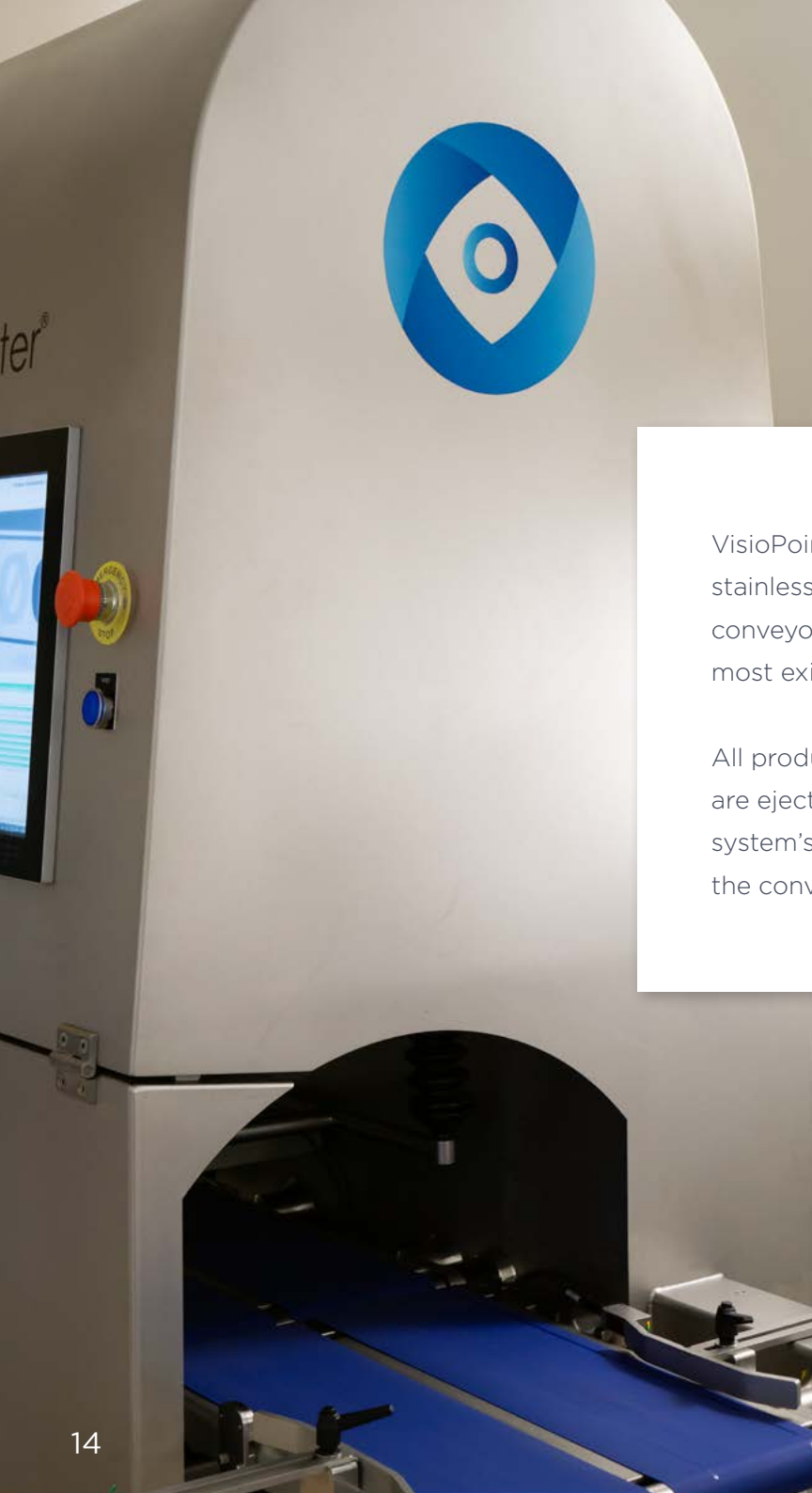
Top Inspection



Side Inspection



Bottom Inspection



VisioPointer® is a stand-alone unit produced in stainless steel. Its compact design and built-in conveyor allows simple implementation into most existing production lines.

All products containing unacceptable errors are ejected from the production line by the system's built-in ejector, which is mounted on the conveyor.



VisioPointer® is operated using an integrated panel with touchscreen. The operating software and interface are developed by TriVision to be intuitive and user-friendly for operators.

The interface facilitates an effective overview of the production performance, allowing operators to monitor errors, trends and make quick adjustments to optimize and reduce waste and downtime.

VisioCompact®

A complete, compact vision solution

The balance between a comprehensive vision solution and a compact unit is struck perfectly in the design of VisioCompact®.

VisioCompact® makes a complete, efficient solution for packaging inspection with built-in operator panel, conveyor, ejector and multiple camera setups for thorough inspection.

As a complete solution with low footprint, VisioCompact® is the ideal solution for manufacturers facing space issues and the need for thorough inspection of the food labelling.





VisioCompact® Inspection Types



Label & Artwork
Inspection



Barcode
Inspection



Print
Inspection



Top Inspection



Side Inspection



Bottom Inspection

To fit perfectly to specific inspection requirements and into any production line, VisioCompact® comes in different configurations.

For minimal use of footprint, VisioCompact is equipped with two short conveyors for the shortest conveyor configuration.

One or both of the short conveyors can be replaced with long conveyors if an ejection mechanism, camera for side inspection or extended conveyor is needed.

SmartInspector®

Advanced vision inspection in its simplest fashion

SmartInspector® is a plug & play vision system that utilizes advanced vision technology for the most essential inspection types.

As a compact and minimalistic unit, SmartInspector® is simple to install and can be integrated into most production lines.

Designed to be installed on existing conveyor of different widths with brackets, the main unit is scaled and adapted to fit any conveyor perfectly.

SmartInspector® is operated from its built-in touch screen panel and uses TriVision's intuitive software & interface.





SmartInspector® Inspection Types



Label & Artwork
Inspection



Barcode
Inspection



Print
Inspection



Top Inspection



Side Inspection

SmartInspector® is equipped with one camera and light setup above conveyor level as standard. This configuration enables inspection of labels and artwork, barcodes and print from top.

An extra camera and light setup can be added inside the unit to perform the same inspections on sides of packages.

Inline-Inspector®

A tailored, yet standardized solution for packaging machines

Inline-Inspector® is the perfect solution for ensuring quality of thermformed packaging made of thin foil and for saving valuable footprint in production facilities.

To inspect this type of packaging, the inspection needs to happen before the punching process.

TriVision's efficient vision inspection is implemented on packaging machines with Inline-Inspector's gantry, which contains the camera and light setup. The gantry is customized to fit the lanes and width of the packaging machine.





Inline-Inspector® Inspection Types



Seal
Inspection



Label & Artwork
Inspection



Barcode
Inspection



Print
Inspection



Top Inspection



Bottom Inspection

For inspection of labels, print and barcodes placed on the packaging's bottom side, an additional camera and light setup are built into the packaging machine below conveyor level.

The system is then operated from a separate cabinet with a built-in industrial PC and touchscreen, which uses TriVision's software & intuitive interface.

A Range of Plug-and-Play Solutions

TriVision's standardized Plug-and-Play solutions for packaging inspection are all based on the same leading technology and software.

With vision systems of different designs and inspection types, TriVision offers solutions for different inspection requirements and production lines.

VISION SYSTEMS	 SEAL INSPECTION	 SEAL PRESENCE	 LABEL
SmartInspector® 	-	-	
VisioCompact® 	-	-	
VisioPointer® 			
Inline-Inspector® 			



LABEL 360°	BARCODE	BARCODE 360°	PRINT	PRINT ON FOIL	TOP INSPECTION	SIDE INSPECTION	BOTTOM INSPECTION	PUNCHING SYMMETRY
✓	✓	✓	✓	✓	✓	✓	-	-
✓	✓	✓	✓	✓	✓	✓	✓	-
✓	✓	✓	✓	✓	✓	✓	✓	✓
-	✓	-	✓	-	✓	-	✓	-

Vision-based Production Intelligence

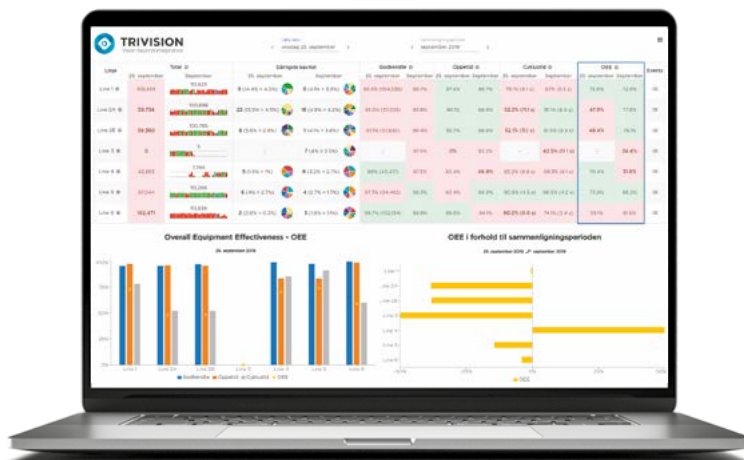
TriVision systems not only serve as quality control systems, but also as optimization tools for food manufacturers by utilizing inspection data intelligently.

Operators and site management can easily utilize the data generated by the system. Its Production Optimization Module presents elaborate real-time production data in a simple, efficient way, enabling operators to quickly identify issues and make changes to minimize food loss, waste and downtime.

Inspection data is also utilized in TriVision's data analytics and documentation software - TriVision Production Intelligence.

It provides extensive production statistics for site management to gain valuable insights and discover production trends, carry out optimization initiatives and improve OEE.





The extensive production statistics can be accessed via TriVision's Production Intelligence platform. Settings allow production reports to be sent out with any frequency, containing any relevant statistics such as OEE, uptime, rejected products, error types, cavity error distribution and more.



Service and Support for **Maximum Uptime**

The TriVision support team helps our customers worldwide by ensuring that their TriVision systems run smoothly all year round. We keep our customers' systems in top condition to minimize maintenance downtime.



TriVision offers different service level agreements to meet our customers different requirements for support.

We maximize our customers' performance by providing:

- ✓ Software upgrades and daily backups
- ✓ Service checks
- ✓ Quick remote support
- ✓ On-site service



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