MONTROSE TECHNOLOGIES INC.

Automated Inspection & Intelligent Material Handling for Bread

Montrose inspection and handling systems provide a complete inspection, rejection, and handling solution created just for bread manufacturing lines. Receive comprehensive statistical analysis of variability while removing human involvement from inspection, rejection, and weighing.

A high speed, turnkey system that allows you to:

1. Assure quality on a 100% monitoring basis.
2. Remove individual defective and non-conforming product from the line.
3. Monitor process statistics to pinpoint causes of waste.
4. Rapidly recognize a positive ROI by improving quality, reducing waste, and automating production - in previously labor-intensive areas.

Solution Components	SnapQC	FocalPoint	MT Series
3D & True Color Inspection	✓	✓	✓
Bottom Color Inspection	✓		✓
Automated Rejection			✓
Weight	✓		✓
Statistical Analysis and Reporting	✓	✓	✓
NEMA 4X		✓	✓
Sanitary Design	✓	✓	✓

> Isolate and Eliminate Sources of Waste

Automated inspection provides real-time and historical information on fault, and out-of-spec conditions, allowing you to isolate the issues causing the most waste by shift, product, line, and plant. The measurement results will also make it easier to reach consistent quality when developing new products or when formulation changes are made.

Analysis Type	Example Faults	Impact on Customer or Plant	Rejection Capability	Statistical Analysis
Geometrical Analysis	Too tall or short Doubles Poor slope symmetry	Product rejection Customer complaints Handling problems, such as jamming at the slicer / bagger	0 - 100% fully under plant control	Worst Fault Pareto Reporting Dashboard
Color Analysis (Top and Bottom)	Under- or over-baked Visible debris Too light Too dark Foreign material Too much topping Too little topping Split Width	Consumer complaints Product rejection Topping giveaway	0 - 100% fully under plant control	Worst Fault Pareto Reporting Dashboard

> Measure, Analyze, Reject

The **MT Series inspection system** may incorporate an in-line checkweigher, that allows for integrated data collection and a shared point of individual loaf rejection. The **FocalPoint system** may be located on the line immediately after the depanner for to provide immediate real-time measurement data.

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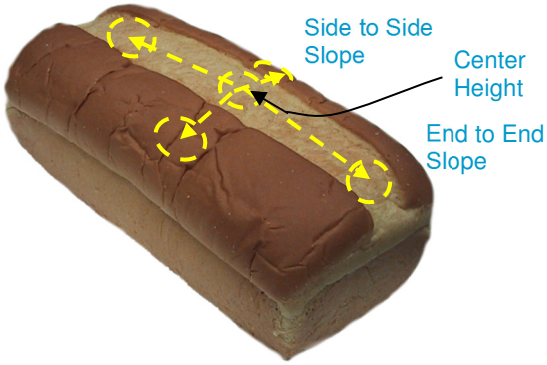
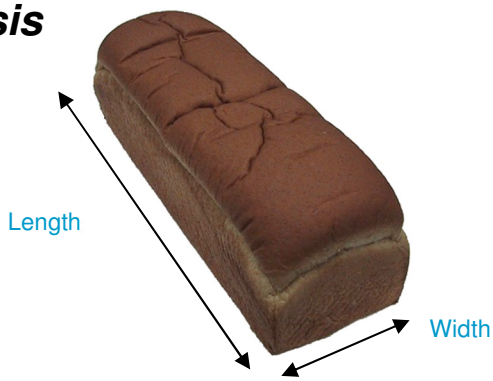
> Common Height Analysis



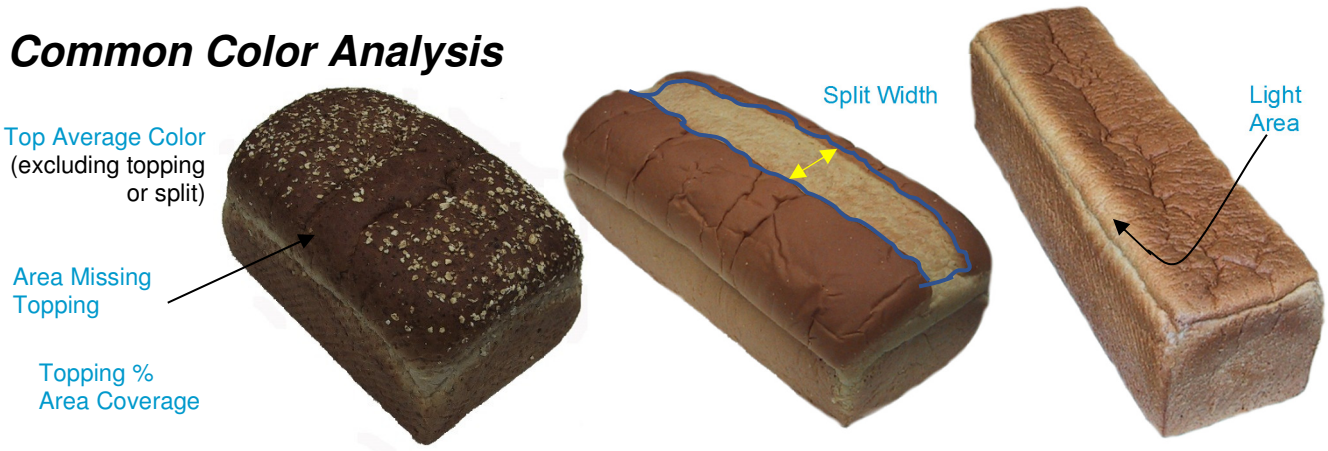
Profile height calculations are based on hundreds of individual height values gathered on every product, which leads to a measurement accuracy of ±0.5mm. Mean Height is another common measurement applied to bagels.

> Common 2-D Analysis



Two dimensional calculations are based on an accurately defined perimeter, which is imaged by both overhead cameras. 2-D measurement accuracy is ±0.5mm. Surface Area and Volume are other common dimensional measurements applied to bread loaves.

> Common Color Analysis



True color calculations, on both the top and bottom surface of the product, are measured in various units such as L*a*b* and BCU. Bottom color and Dark Area are other common color measurement applied to bread loaves

Only common examples have been pictured. There are many standard measurements that can be used, individually or combined within formulae, to qualify your product. **All visible product characteristics and faults can be quantified.**

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