

# Automated Inspection & Intelligent Material Handling for Bread

**MONTROSE**  
TECHNOLOGIES INC.

www.montrose-tech.com

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.



MT-18 Loaf Inspection System

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	Product rejection	0-100% fully under plant control	Worst Fault Pareto
	Poor slope symmetry	Customer complaints		Reporting
		Handling problems (jamming at the slicer/bagger)		Dashboard
Color Analysis (Top and Bottom)	Under/over- baked Visible Debris	Consumer Complaints	0-100% fully under plant control	Worst Fault Pareto
	Too light Too dark	Product rejection		Reporting
	Foreign material Too much/little topping Split Width	Topping giveaway		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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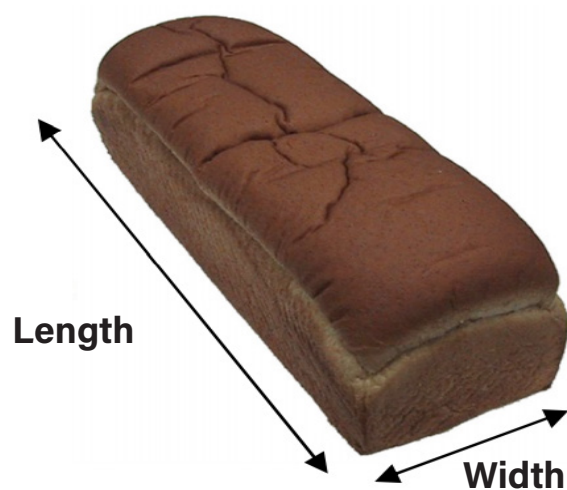
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## Height Analysis



**Profile height calculations** are based on hundreds of individual height values gathered on every product, which leads to a measurement accuracy of  $\pm 0.5\text{mm}$ . **Mean Height** is another common measurement applied to bread.

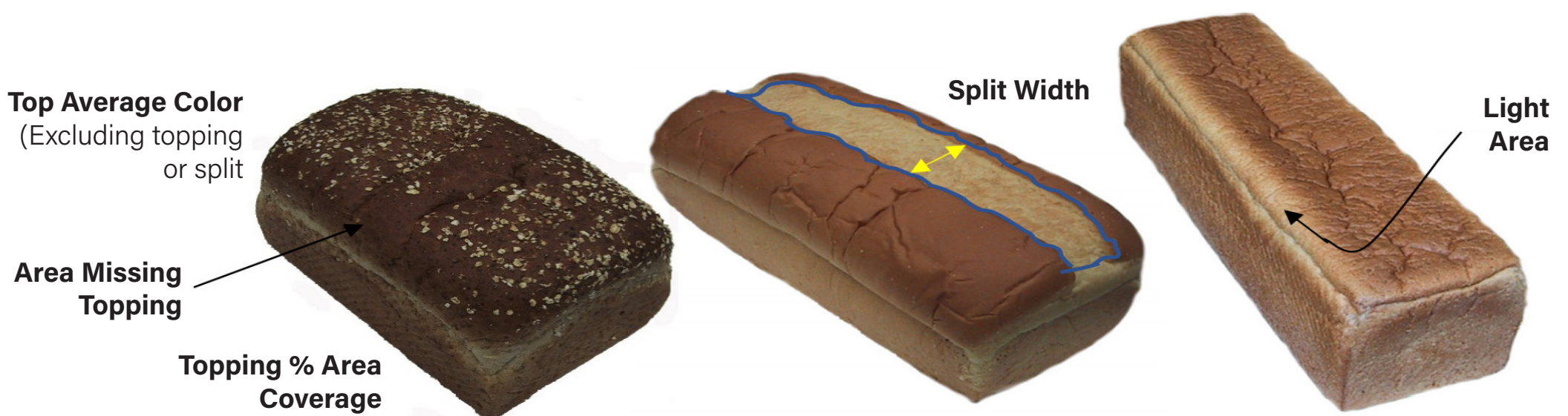
## 2D Analysis



**Two dimensional calculations** are based on an accurately defined perimeter, which is imaged by both overhead cameras.

2-D measurement accuracy is  $\pm 0.5\text{mm}$ . **Surface Area** and **Volume** are other common dimensional measurements applied to bread loaves.

## 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.**