Automated Inspection & Intelligent Material Handling for Dough Products

MONTROSE TECHNOLOGIES INC.

www.montrose-tech.com

Montrose inspection and handling systems provide the only complete inspection, rejection, and handling solution created just for fresh dough 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. Accurately predict weight of individual product without in-line scale or manual handling.
5. Rapidly recognize a positive ROI by improving quality, reducing waste, and automating production - in previously labor-intensive areas.
6. Report accurate production and package volume to management and customers.

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

MT24 Dough Inspection System With Optional Bottom Color Imaging

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 lane, 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	Broken Too large	Product giveaway	0-100% fully under plant control	Worst Fault Pareto
	Too small Poor shape	Product rejection		Reporting
	Doubles Poor symetry	Food-service customer complaints and shorting through “doubles count”		Dashboard
	Too heavy/light			By lane
Color Analysis (Top and Bottom)	Visible Debris	Consumer Complaints	0-100% fully under plant control	Worst Fault Pareto
	Too light Too dark	Product rejection		Reporting
	Foreign material	Food-service customer complaints		Dashboard

Measure, Analyze, Reject

The MT Series inspection system uses 2-D and 3-D vision images to calculate volume accurately; unique formulae use the volume measurement to calculate the weight of each flat bottomed product. This method is proven to be accurate and repeatable.

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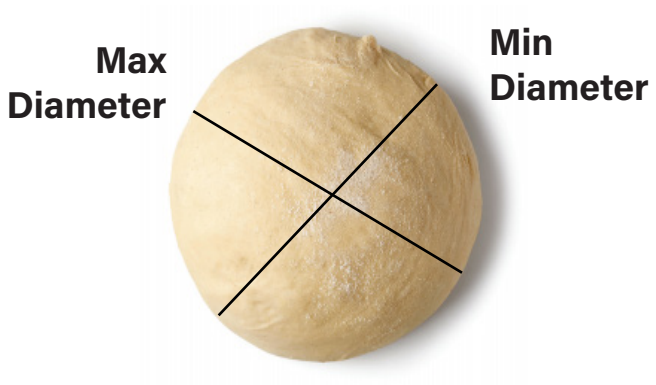
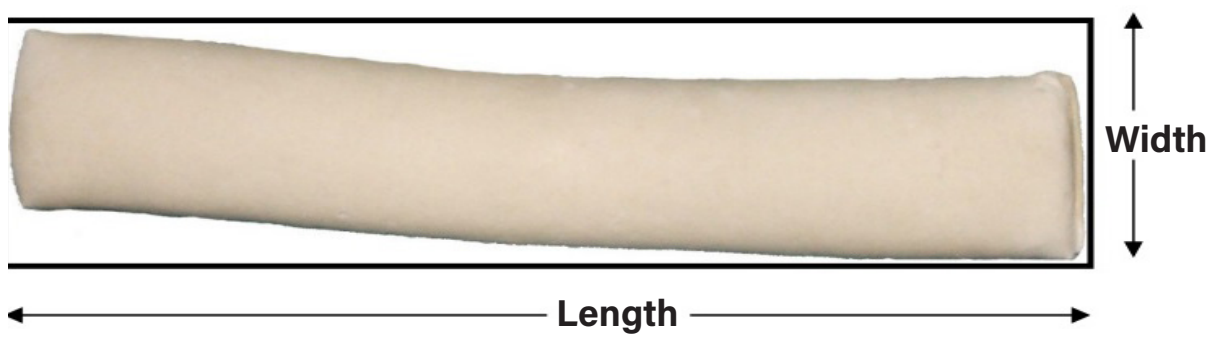
Height Analysis

Profile height calculations are based on hundreds of individual height values gathered on every product which leads to a measurement accuracy of ±0.5mm. **Mean Height** and **Flatness** are other common measurements applied to dough product.

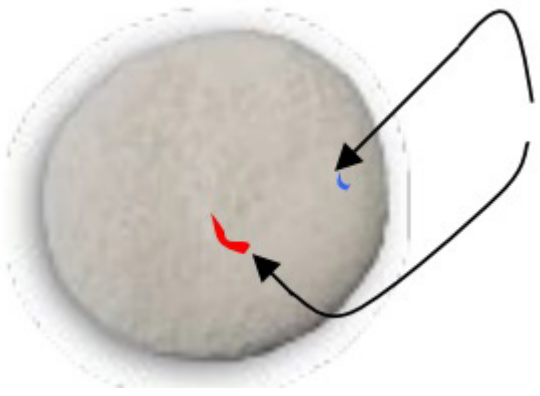
2D Analysis





Two dimensional calculations are based on an accurately defined perimeter, which is imaged by both cameras. 2-D measurement accuracy is ±0.5mm. **Mean Diameter**, **Roundness**, **Template Shape Matching**, **Surface Area**, and **Volume** are other common measurements applied to dough product.

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.

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.**