

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

**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. Equally feed in-spec english muffins into each of the packaging lanes.
5. Automatically buffer in the case of bottlenecks.
6. Rapidly recognize a positive ROI by improving quality, reducing waste, and automating production - in previously labor-intensive areas.



Solution Components	SnapQC	FocalPoint	MT Series	AutoLaner
3D & True Color Inspection	✓	✓	✓	
Bottom Color Inspection	✓		✓	
Automated Rejection			✓	
Laning for Entrance to Packaging				✓
In-line Accumulation / Buffering			✓	✓
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 large or small	Product rejection	0 - 100% fully under plant control	Worst Fault Pareto	
	Too tall or short				
	Ovality	Customer complaints			Reporting
	Doubles				Dashboard
	Poor symmetry	Handling problems, such as jamming at the slicer / bagger			
Color Analysis (Top and Bottom)	Tails				
	Under- or over-baked	Consumer complaints	0 - 100% fully under plant control	Worst Fault Pareto	
	Visible debris				
	Too light	Product rejection			Reporting
	Too dark				Dashboard
Foreign material	Oven feedback				

### > Measure, Reject, Buffer, Lane

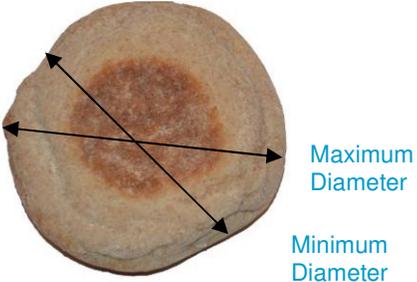
Many english muffin production lines have the product in single file and conveyed at high speeds. The **Montrose inspection system** measures precisely and rejects individual faulty products accurately, on conveyors moving at 300+ft/min. Conveyor speeds may be adjusted automatically to buffer in the case of bottlenecks downstream.

> **Common Height Analysis**



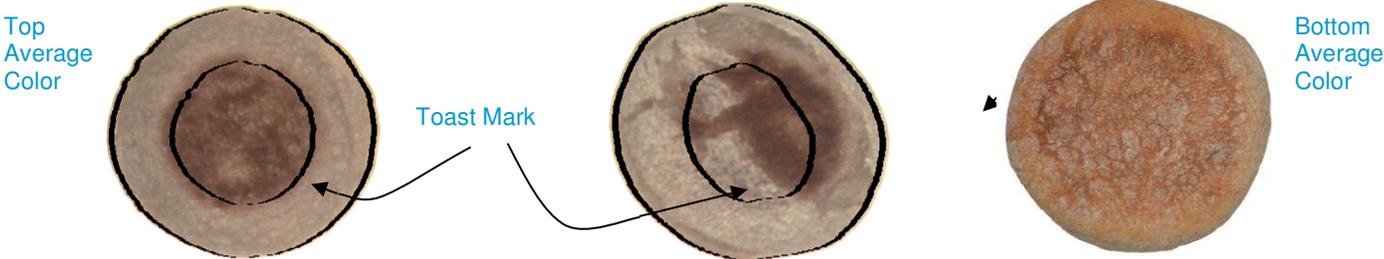
**Profile height calculations** are based on hundreds of individual height values gathered on every product, which leads to a measurement accuracy of  $\pm 0.5\text{mm}$ . **Mean Height** is another common measurement applied to english muffins.

> **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  $\pm 0.5\text{mm}$ . **Mean Diameter**, **Roundness**, **Surface Area**, and **Volume** are other common measurements applied to english muffins.

> **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. The top toast mark may be quantified specifically for size, location, and color, with respect to the whole surface or the central region alone.

> **Common Fault Analysis**



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.**