MONTROSE
TECHNOLOGIES INC.

**Automated Inspection &
Intelligent Material Handling for**
Tortillas

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

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
2D & 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 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. No mechanical changes are required to measure tortillas of any size and of any color, including specialty flavors like tomato and spinach.

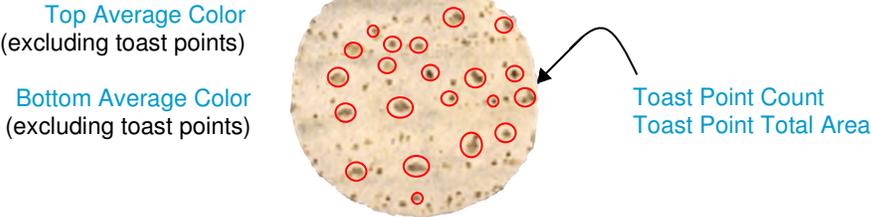| Analysis Type	Example Faults	Impact on Customer or Plant	Rejection Capability	Statistical Analysis
Geometrical Analysis	Diameter large Diameter small Out of round Folds Rough edge Doubles	Product rejection Customer complaints Handling problems, such as jamming at counter-stacker	0 - 100% fully under plant control	Worst fault Pareto Reporting Dashboard Track values and faults by lane
Color Analysis (Top and Bottom)	Holes Toast marks too dark Too few toast marks Under cooked area Foreign material	Consumer complaints Product rejection Food safety Safely reject product - plant personnel no longer reach across wide moving belt	0 - 100% fully under plant control	Worst fault Pareto Reporting Dashboard Track values and faults by lane

> *Measure, Reject, Adjust, Interact*

The **MT Series inspection system** is typically installed after the cooler to inspect tortillas for any defect, including folds that occur in the serpentine cooler. As well, the system removes tortillas that would cause jam-ups in the counter-stacker. At the same time, all measurement statistics are displayed and recorded for each individual lane, which allows operators to adjust the pressure of a specific press. Specific inputs may be used to reject tortillas in a specific lane during counter-stacker/packaging maintenance.

> *Common 2-D Analysis*
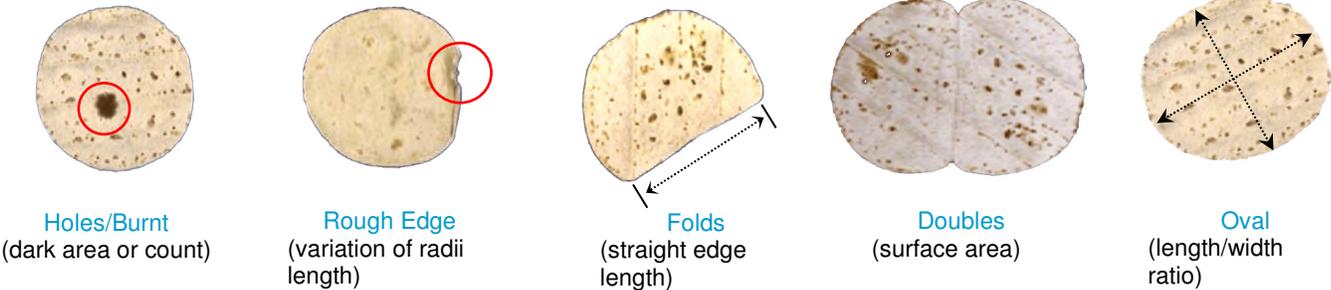
Maximum Diameter

Minimum Diameter
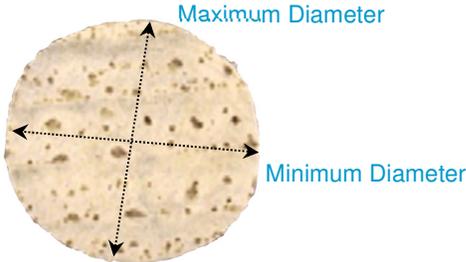
Two dimensional calculations are based on an accurately defined perimeter, which is imaged by the overhead camera. 2-D measurement accuracy is ±0.5mm. Mean Diameter is another common measurement applied to tortillas.

> *Common Color Analysis*

Top Average Color
(excluding toast points)

Bottom Average Color
(excluding toast points)

Toast Point Count
Toast Point Total Area

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.

> *Common Fault Analysis*

Holes/Burnt	Rough Edge	Folds	Doubles	Oval
(dark area or count)	(variation of radii length)	(straight edge length)	(surface area)	(length/width ratio)

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.**