MECTRON DSQ-9000

Ammunition

Dimensional & Surface Inspection

Patent Pending

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MECTRON

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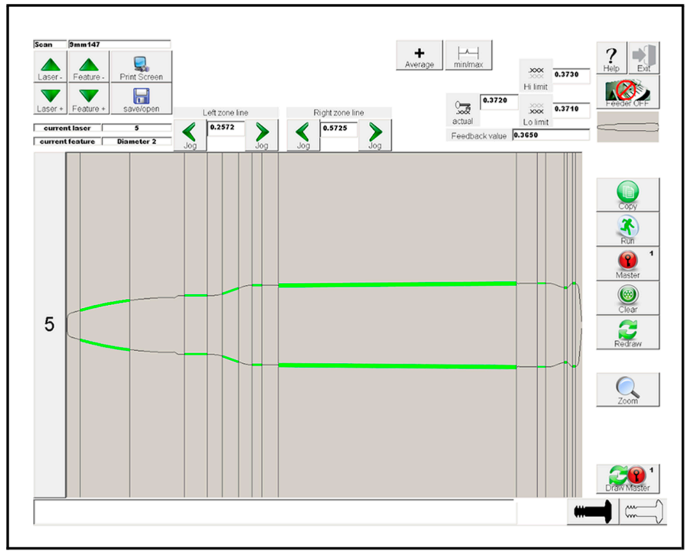
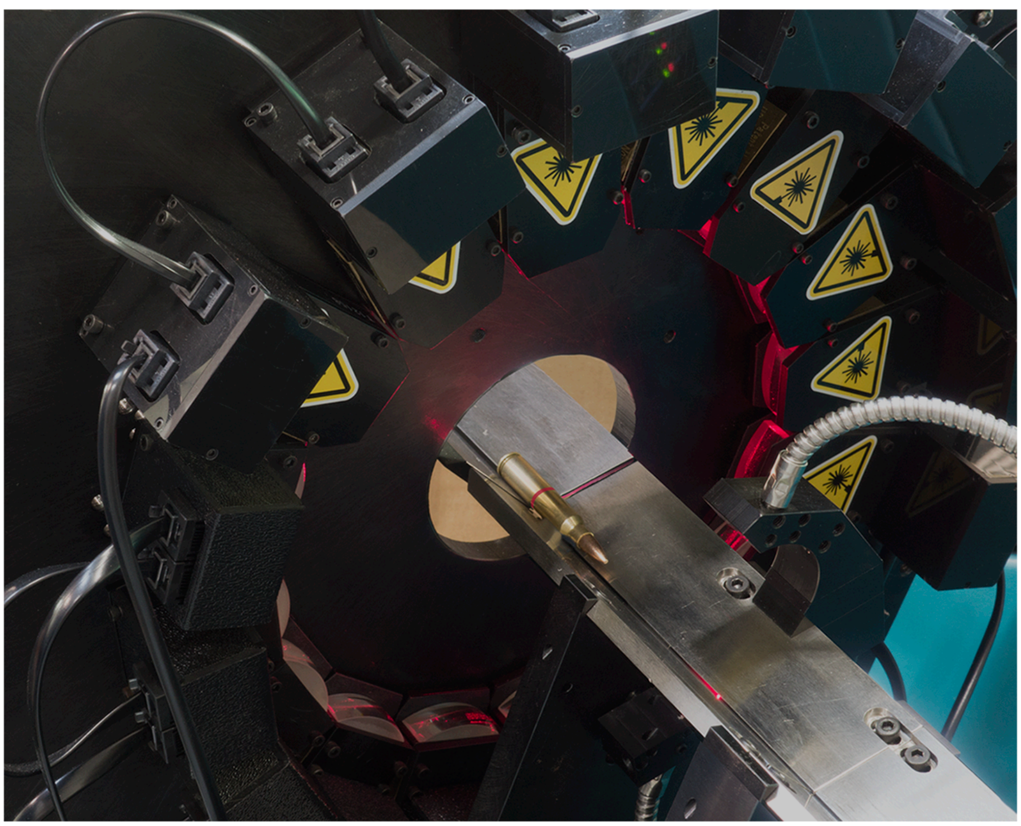
Dimensional Qualifier

- The laser array provides up to 16 points of inspection through 360° over the entire length of the part.
- Advanced software allows you to customize your part feature name to part print for each gauge zone.
- Touchscreen operation lets you quickly define or modify inspection instructions including tolerances and critical dimensions.
- Laser Length Analyzer provides measurement of feature lengths, stack-up, head height and overall lengths.
- Optional - Tilt Laser Array Plate will accommodate products with extreme cosine angles. Moving the laser perpendicular to the center line of the part allows for true measurements in both axes.



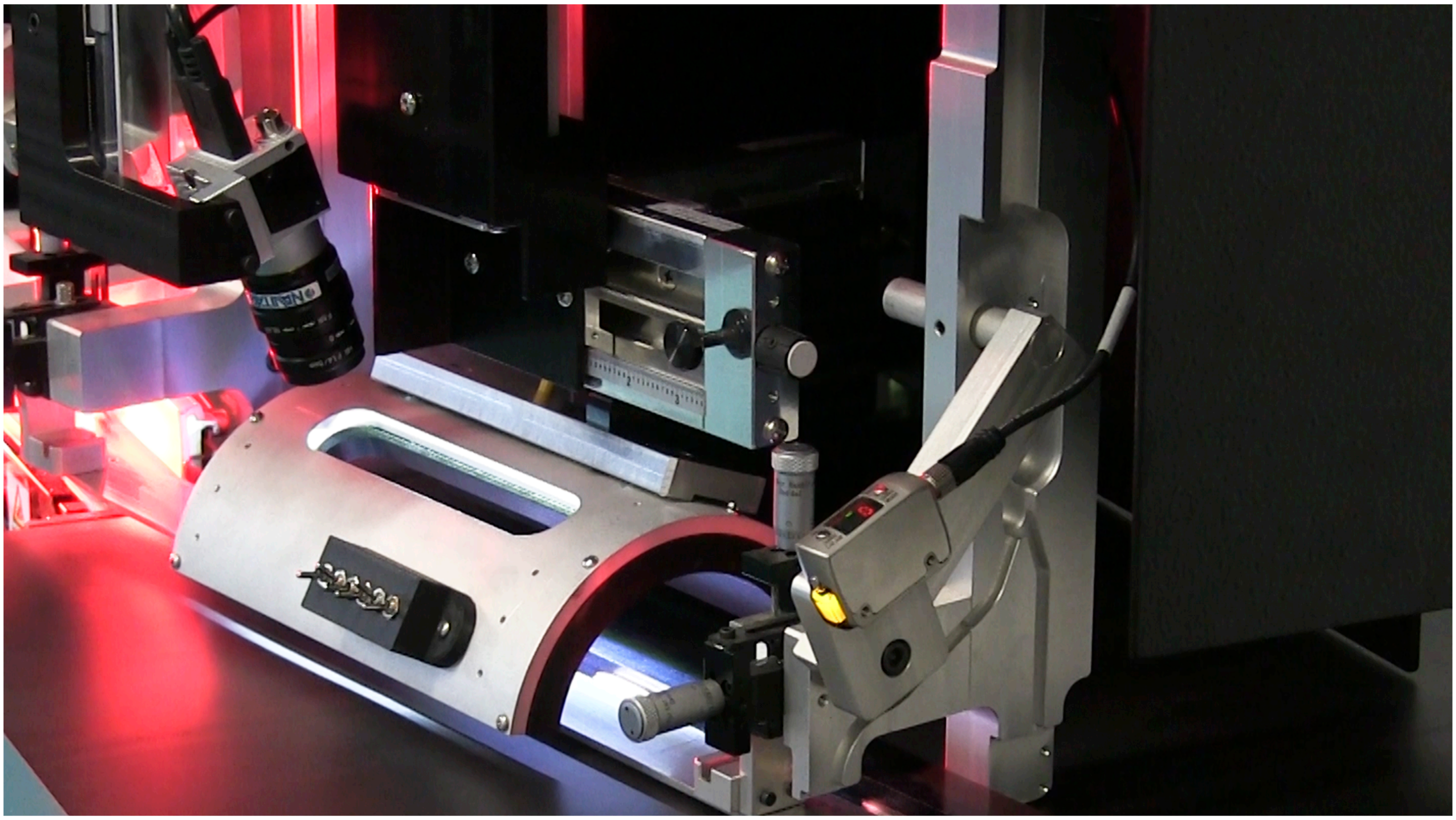
Simply pass a good part down the track to display the part outline on the instrument's touchscreen. Utilizing your part print, you can set up to 14 gauge zones to inspect the product. Each gauge zone can be custom labeled by the part print feature name. All setups can be saved by part number.



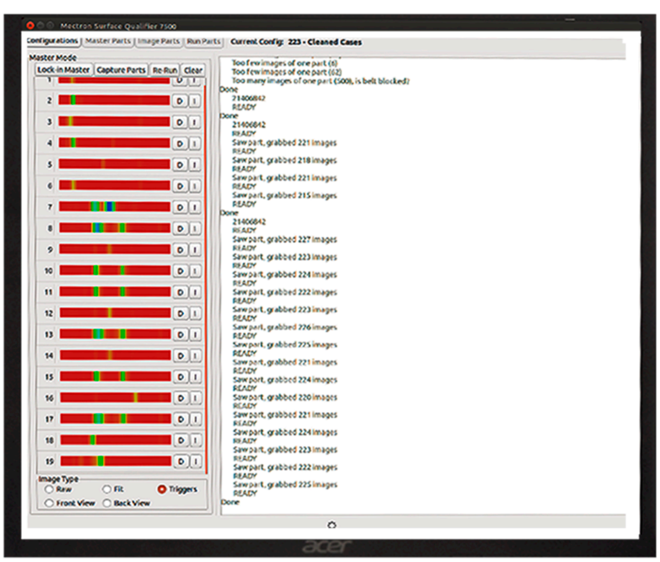
Mectron's patented radial array of laser light provides a distinct advantage with the part being inspected by multiple point occlusion. The degree of occluded light is directly related to the part's dimensions as it moves through the inspection points.

Patented

Surface Qualifier



Mectron's Surface Qualifier (SQ-7500) is a camera based system that utilizes statistical learning software developed by Mectron for inspection of cylindrical parts. A conveyor system is used to traverse the parts through the inspection area and simultaneously rotate the part for full coverage. Each part passes under the illumination tunnel where up to 400 images are captured per second. A GPU (Graphics processing unit), with over 2,000 cores, processes the 98,850 data points per image taken and is hundreds of times faster than the CPU. The GPU uses statistical learning software on the 400 images and 39 million data points per second to discern between the good and bad parts inspected.



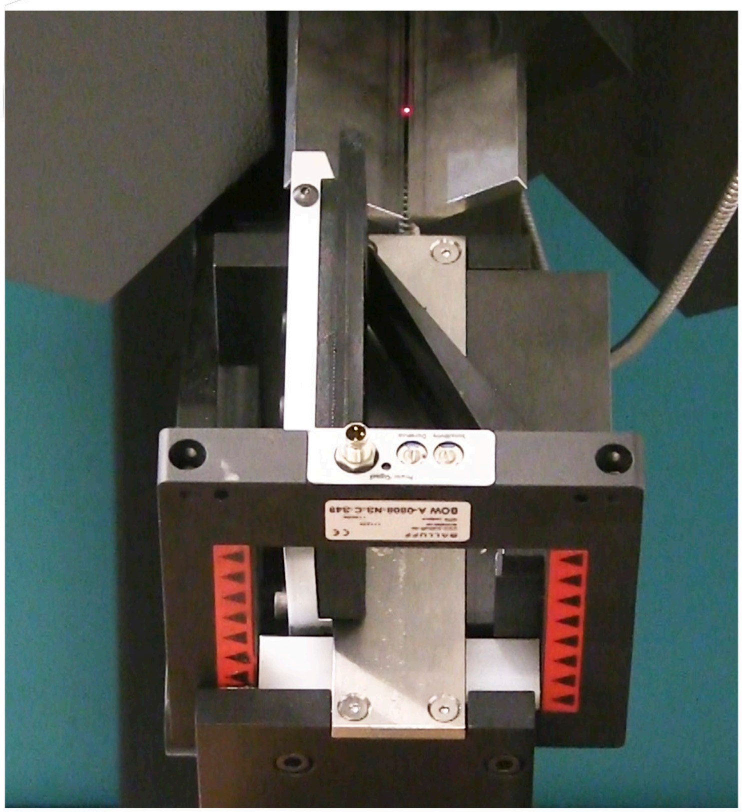
The system first runs good parts called a master set. Running the master set allows the system to collect data. The machine uses this data along with statistical learning techniques to make fast and highly accurate determinations about the parts. After the masters are set up, the software has further subjectivity in both setting an acceptance threshold and changing the method of inspection. The software allows the user to alter the formula for inspection in a user friendly and easy to understand format.

End Part Inspection

High-Resolution Camera Proprietary Software

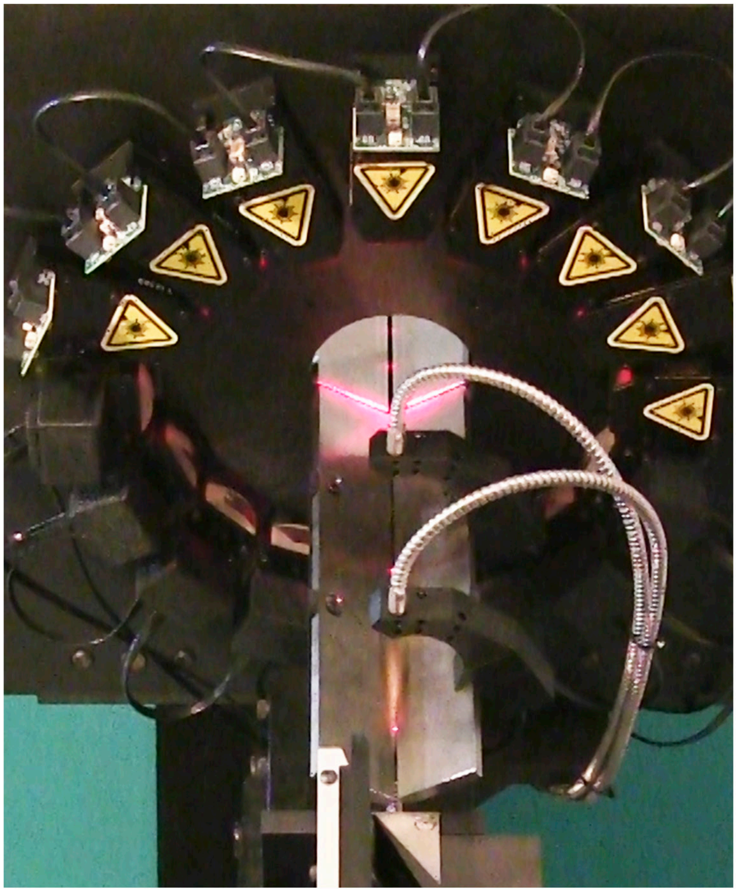
Head inspection is done using a high-resolution CCD camera with Mectron proprietary software. The software provides a variety of flexible tools to inspect features of the head such as flash hole, primer pocket and primer depth. The camera is triggered by an optic sensor and takes a picture of each part to ensure all defects are found. The customized lighting of the part allows all details to be
analyzed by the software quickly and accurately.

Fail Safe Gate



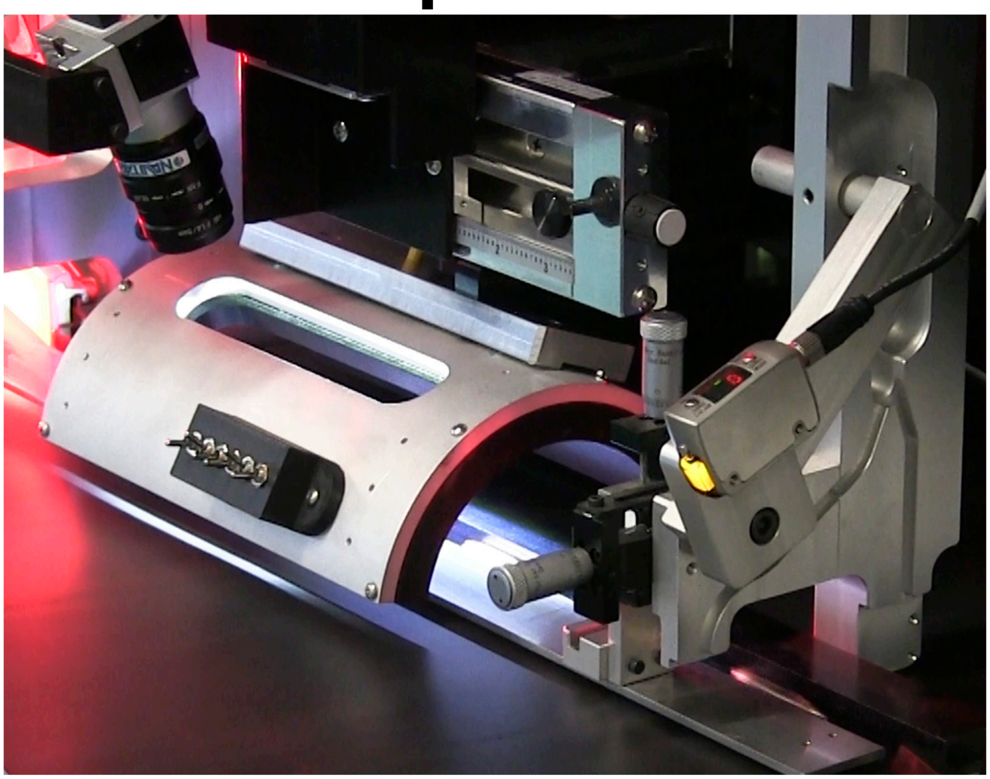
After each station has made a determination about the part, a solenoid driven lever gate is activated for good parts only. Positive acceptance allows for a fail-safe operation. An optical window after the gate gives an accurate count of the number of accepted parts. The gate can operate at over 300 parts per minute.

Dimensional Inspection Criteria



DIAMETERS	Mouth Body Head Shoulder Extractor Groove
LENGTH	Bullet Length Casing Length Cartridge Length Extractor Groove Width
CAMERA	Primer Cups Flash Hole Head Markings Head Stamp Inverted Primer Cocked Primer

Surface Inspection Criteria



- Dents
- Split Case
- Scratches
- Corroded
- Stained