

imageXpert[™]

AUTOMATIC CYLINDER SURFACE INSPECTION

- Fully automatic inspection
- Accommodates a range of part diameters and lengths
- Choice of imaging resolution
- High speed image capture and analysis
- Defect classification
- Automatic data reporting to support SPC

Application Examples

- Drum
- Fuser
- Cylinder
- OPC
- Sleeve
- PCR
- Roller
- Transfer
- Belt ...

imageXpert™

AUTOMATIC CYLINDER SURFACE INSPECTION

The ImageXpert cylinder surface inspection system is the ideal tool for 100% automatic inspection in production environments.

This turnkey system is a breakthrough for high-speed, automated inspection of cylindrical surfaces. As the cylinder is rotated, circumferential images of the surface are acquired. Defects are automatically detected and characterized by size and/or shape allowing for failure analysis, part dispositioning and real-time process control.

System configurations are available for both high-volume, high throughput production environments, and for low-volume applications such as R&D.

Technology

The ImageXpert cylinder surface inspection system relies on linescan camera technology for image capture. The 1-D CCD detector array at the heart of the camera requires motion in order to build the 2-D images necessary for defect analysis. Single, high magnification images of large areas can be captured without the need for multiple-image stitching. On cylindrical surfaces, the benefit of a single line of focus allows for image capture without distortion during cylinder rotation.

The cylinder inspection system combines sophisticated machine vision, motion control, and linescan camera technology with ImageXpert's powerful image processing and analysis, all accessed through a user-friendly GUI.

Configurations

The off-line system relies on a single camera and light source held stationary during image capture of one circumferential section of the cylinder. As the first image is analyzed, the next image is captured, maximizing efficiency. The camera and light source are then moved along the cylinder to the next location, enabling imaging of sequential sections of the surface. This process is repeated until the entire length of the part has been inspected.

The production unit (as shown below) uses multiple cameras to capture images of the entire surface simultaneously, allowing for complete inspection in one revolution. The number of cameras is determined by the resolution required and the resultant field of view (refer to operating parameters).

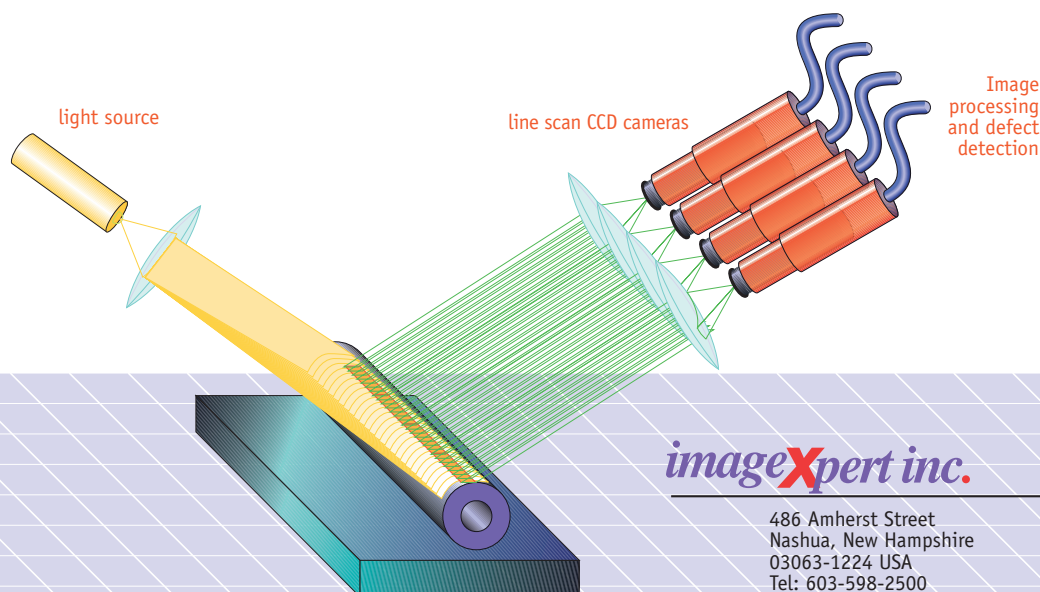
Range of Operating Parameters:

From a resolution of 5 microns/pixel
where

- max part diameter = 2" (50mm)
- max single image width = 20mm
- min defect diameter
 - characterize - 25 microns
 - detect - 10 microns

To a resolution of 50 microns/pixel
where

- max part diameter = 20" (500mm)
- max single image width = 200mm
- min defect diameter
 - characterize - 250 microns
 - detect - 100 microns



imageXpert inc.

486 Amherst Street
Nashua, New Hampshire
03063-1224 USA
Tel: 603-598-2500
fax: 603-598-2687
Email: info@imagexpert.com
www.imagexpert.com