



DIAMETER GAUGING AT



At Kongsberg Automotive Raufoss brass rings used in couplings are manufactured in various dimensions. KA Raufoss relies on high quality and large volumes with 100% inspection.

For more than 3 years two ScorpionVision powered vision systems have been operating 24/7 rejecting non-conforming items.

High quality telecentric optics is vital in the solution. Further armored with ScorpionVision lens calibration and high-precision calibration grids accuracy and repetability is at a premium.

Subpixel resolution is also achieved with ScorpionVision's *LineFinder™* tool.

Images are acquired differently in the two systems. In system 1 a PLC HW triggers the camera when a product arrives on a rotating disc of glass. In system 2 a PLC signals a digital IO line when the product is positioned in an inspection fixture. In both systems digital IO is used to signal pass/fail.

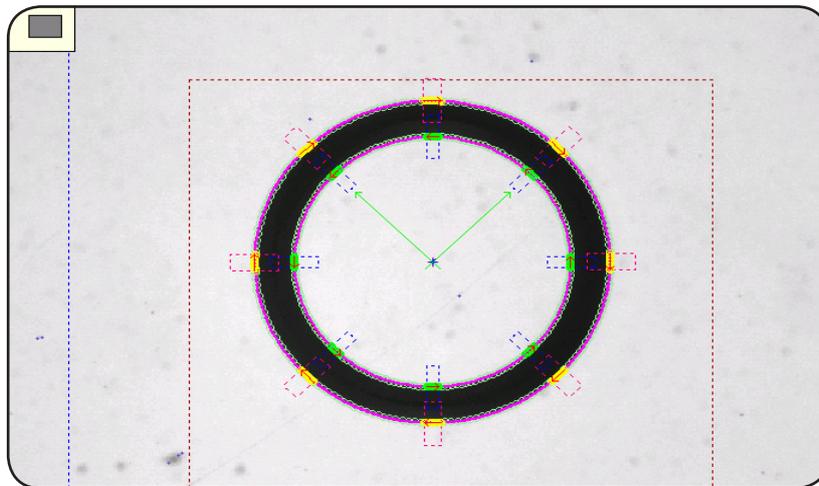
A Custom ActiveX implements all product configuration, CPK/CMK computations and master routines for master calibration.

"premium accuracy and repeatability delivered on-time"

- Kjell Øverjordet,
QA responsible at KA.

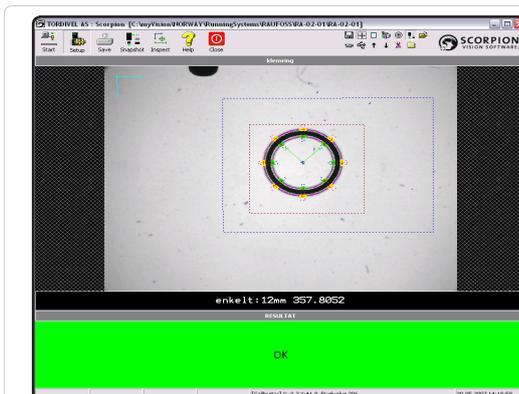
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WHY IT WORKS

The center of the ring is found, and a MoveReference tool is positioned as a reference. The reference has two LineFinder pairs attached, for finding the inner and outer diameters. The reference is rotated in 45° increments, producing 4 distinct measurements of the inner and outer diameter.



High precision diameter gauging:

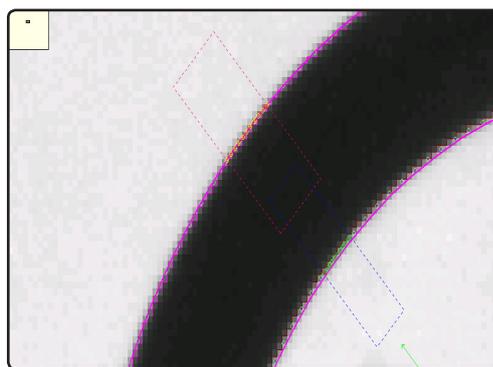
- telecentric optics
- quality calibration
- master calibration
- subpixel edge detection

Quality control:

- cp/cm and cpk/cmK

Product variants:

- one solution for all diameters
- easy to set tolerances



SPECIFICATION OVERVIEW

PARAMETER	
Resolution	60 µm
Processing time	<200ms pr product
Number of product variants	Unlimited (configurable)

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PolygonMatch™ is a trademark of Tordivel AS.