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Investor Day

Measurement and Automation Product Division

15th May 2014

Presented by Greg Nixon

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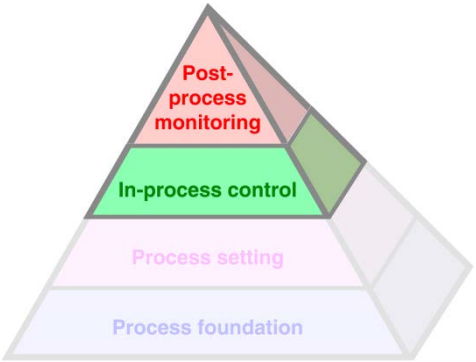
Customer needs

- Markets and drivers

  – Automotive, Aerospace, Consumer Electronics
  – A range of supplier tiers



  – Demonstration of traceability & compliance (especially to higher tiers)
  – Increase of throughput with minimal capital expenditure
  – Reduction of Total Cost of Ownership / investment to meet customer needs
  – Reduction of scrap

  – Lack of in-house metrology expertise = more willingness to look outside

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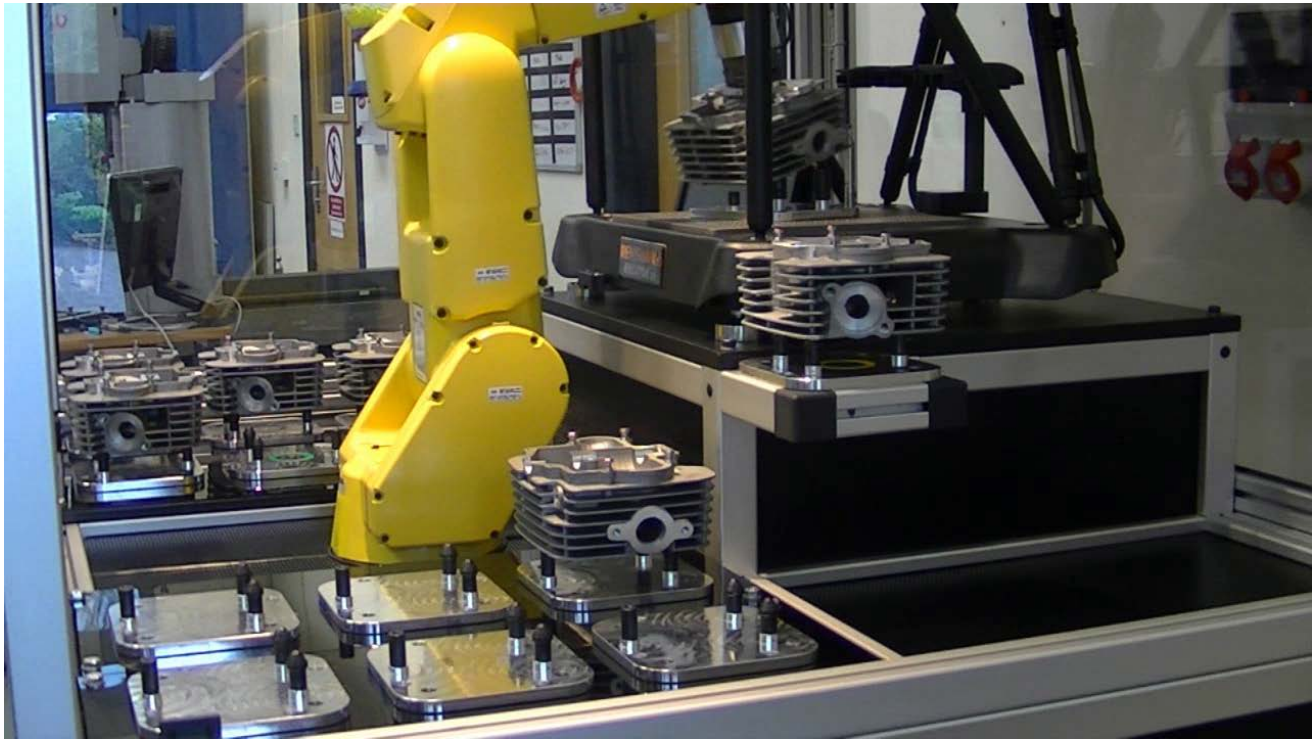
Engineering solutions – product and process



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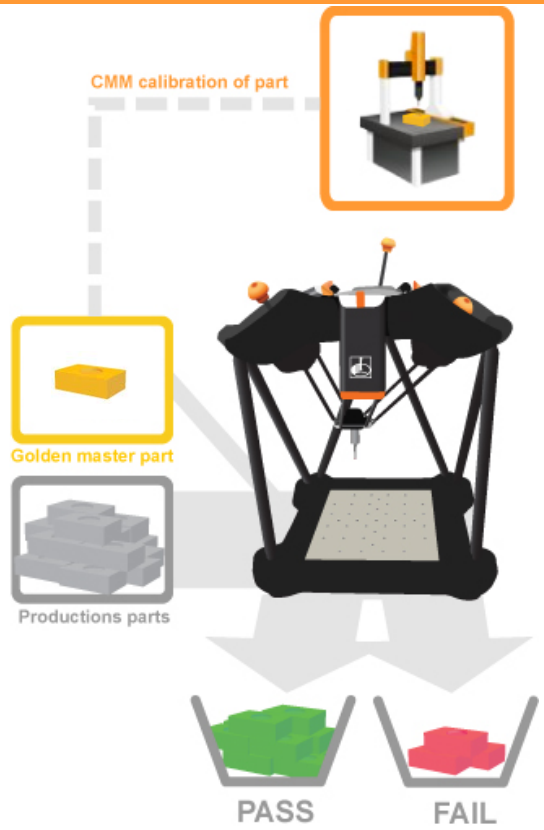
Engineering solutions – process

A unique approach to gauging (checking) parts

1. Calibrate the master part on any CMM
2. Measure the master part on Equator
3. Compare subsequent parts to the master part
4. Equator now measures relative to CAD nominals

Measurements certified by using calibrated master

Comparison uncertainty ± 0.002 mm or better



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Engineering solutions – hardware

- Contrasting custom gauges, traditional 3-axis CMMs and Equator

- EQ300 and EQ300 Extended Height
  - A comparator for medium to high volume gauging
  - Robust: proven on the shop-floor and thermally ‘insensitive’
  - Switch between multiple parts, re-program for design changes
  - Considerably lower cost than typical custom gauges

Controller

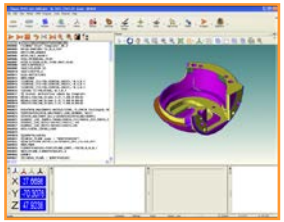
Joystick

Automation I/O unit

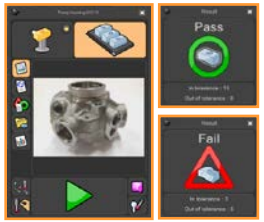
Engineering solutions – software

Manager & Server

Modus



Organiser



Process Monitor

Automation

- Simple programme select/run interface design for shop-floor operators
- From manual part loading, to fully-automated machining cells
- Easy interface to 3rd party software (AutoComp, SPC packages, etc.)

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Successful outcomes

Conroe Automation, USA

- ✓ “The turning cell paid for itself in 18 days”
- ✓ Traditional CMM slower; traditional custom gauge more costly and difficult to set up
- ✓ Automation for fully unmanned operation to increase throughput
- ✓ 100% inspection to ensure only correct parts are shipped
- ✓ Tool offset correction using Equator data

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Successful outcomes

Kishan Auto, India

- ✓ Increased throughput
- ✓ Reduced cost of gauge ownership
- ✓ Catering for a wide range of shop floor temperatures (19°C → 40°C)
- ✓ One Equator machine inspects multiple conrod variants
- ✓ Now able to offer 100% inspection & guarantee quality to their customers
- ✓ “Equator has taken us to another level”