ANODIZING THICKNESS CONTROL WITH HAKO L

HAKO L station can control anodized parts of :

Any Shape

- Measure curvatures down to R=1mm
- No calibration on an uncoated (blank) part is required to measure a specific shape: a unique calibration is used for all parts and shapes

Any Size

- Measure parts down to a size of 1mm
- Measure on screw threads, in curved areas, on very small cylinders

In Any Area

- Scan any area on your part with the 3-axis system

With very high R&R

- Being contactless, the measurement allows to measure with a great repeatability and reproducibility

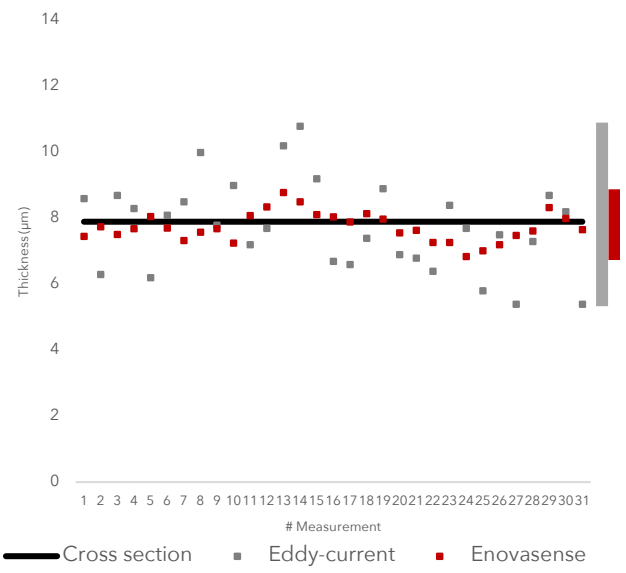
See the full measurement process at https://vimeo.com/361235380

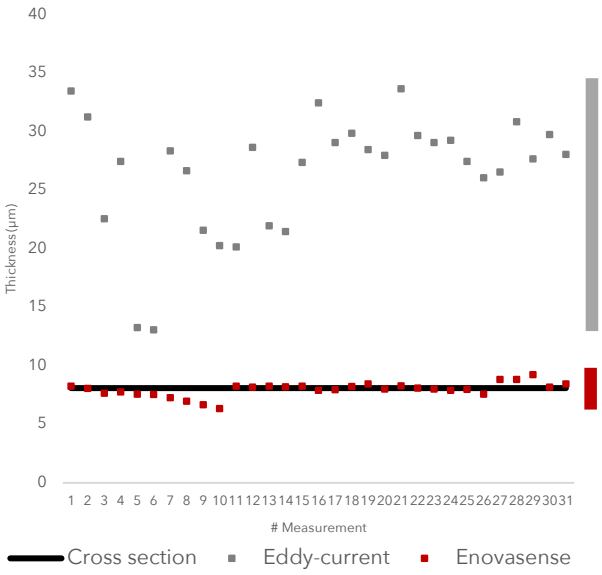
Any Shape

The Enovasense technology allows to use a unique calibration for any par shape down to a curvature of R = 1mm. No blank part is required to calibrate the device on a specific shape before measuring.

Quality improvement	Cost savings
✓ No error linked to the use of the wrong blank part ✓ Measure parts that were impossible to measure	✓ Reduce labor time lost to recalibrate on each part shape

Hereunder we measured two areas of identical thickness (controlled by cross section at 8,1 µm) on this part: The flat area on top and the curved area on the side.





µm	Cross section	Eddy current	Enovasense
Average	7,9	7,8	7,7
Standard deviation	Destructive reference	1,4	0,4

µm	Cross section	Eddy current	Enovasense
Average	8,1	26,6	8,0
Standard deviation	Destructive reference	5,1	0,6

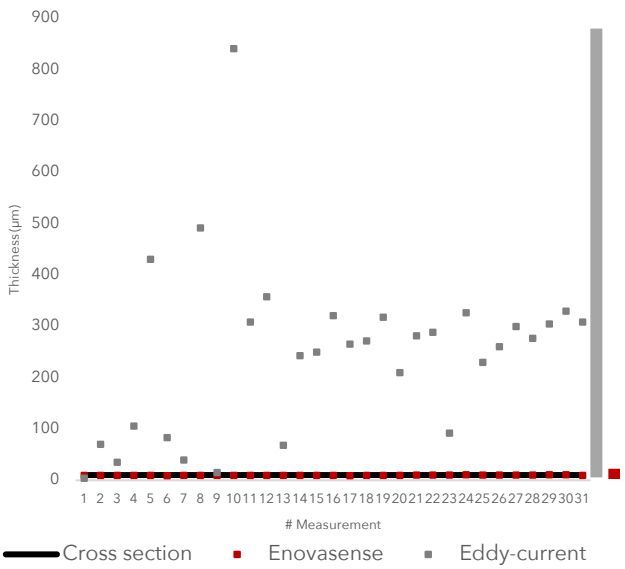
The Eddy current device was calibrated on the blank part, on the flat surface and the measurement made on both areas.

Any Size

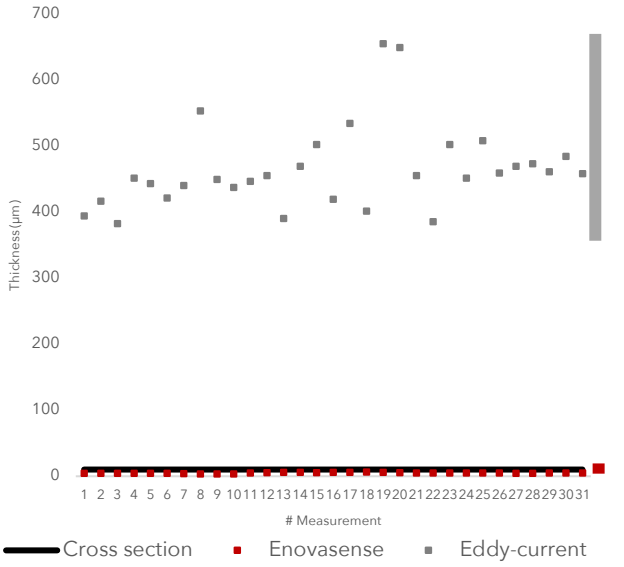
The Enovasense HAKO L control station for aluminum anodizing features a 700µm diameter laser spot allowing to measure in very small areas. Parts and zones that were up to now unreachable with common contact probes can now be measured very precisely.

Quality improvement	Cost savings
✓ Ability to measure parts that were not measurable before : up to 100% control possible ✓ Ability to control parts in the most sensitive and functional zones (threads, holes…)	✓ Reduce the costs of destructive measurements in that zones

Hereunder we measured two small parts: a screw thread and a mechanical part with small holes.



µm	Cross section	Eddy current	Enovasense
Average	10,2	249,6	10,2
Standard deviation	Destructive reference	167,2	0,5



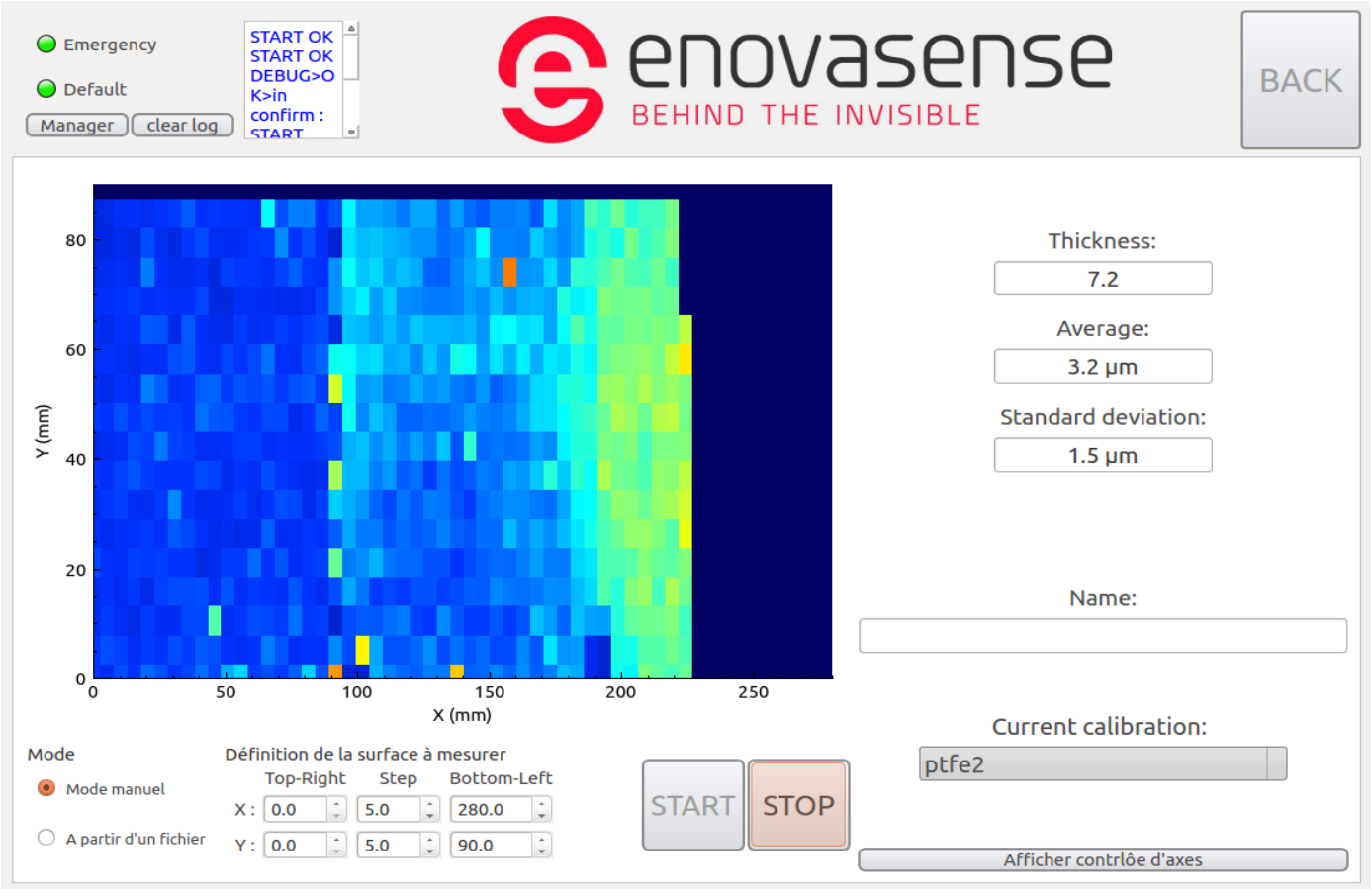
µm	Cross section	Eddy current	Enovasense
Average	4,7	465,9	5,0
Standard deviation	Destructive reference	64,6	0,7

In Any Area

Additionally to traditional 1-point measurement, the Enovasense HAKO L control station for aluminum anodizing features a 3-axis system allowing to scan complex parts on their whole surface for advanced analysis. It allows to have a fast and clear feedback on the repartition and homogeneity of the anodizing thickness on 1 or several selected parts.

Quality improvement
✓ Ability to better understand the repartition of anodizing thickness on a single part and improve the process ✓ Ability to quickly control several selected parts in one program

Hereunder is a view of the software during the measurement of 3 anodized parts taken at 3 different positions in the anodizing bath and showing clear variations of the thickness depending on their position in the bath.



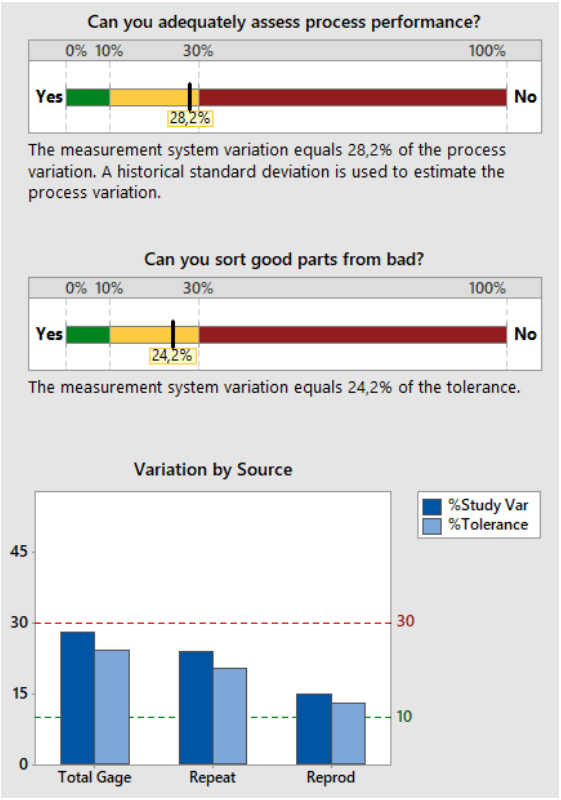
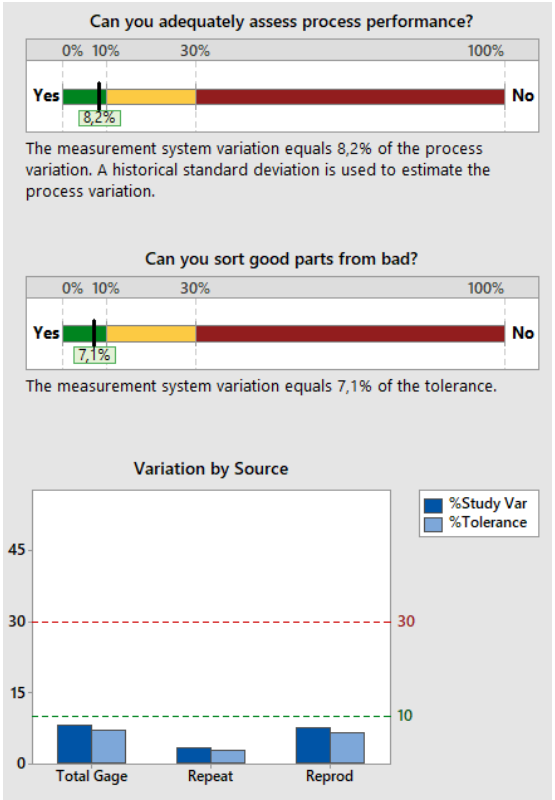
That kind of interpretations takes very few minutes and can allow to fine tune the process parameters in order to reduce the variability of the production and improve global quality.

With very high R&R

With its noncontact and automated laser probe, the Enovasense HAKO L control station for aluminum anodizing reaches high measurement repeatability and reproducibility levels. In comparison with contact manual probes where the way the operator applies the contact, the Enovasense probe is independent of the way it is applied.

Quality improvement
✓ Remove the operator impact : the measurement is reproductible in all conditions, time and locations ✓ Reduce conformity classification errors

Hereunder we proceed to an R&R gage on 2 parts with 3 operators with the classical Eddy current contact probe and the Enovasense Hako L system :

Eddy current	Enovasense
	

Performances values given in this document are typical values obtained with this device but can vary from one application to another. For a diagnosis of those performances on specific samples, please contact Enovasense.

Contacts

Germany
POLYTEC GMBH
Peter Schullerer
p.schullerer@polytec.de
+49 7243 604-3700
Polytec-Platz 1-7
76337 Waldbronn
Germany

Japan
OPTOSCIENCE
Michihiro Morita
morita@optoscience.com
+81 3-3356-1064
Naitocho Bldg.. 1. Naitocho.
Shinjuku-ku. Tokyo 160-0014
Japan

United States
TED
Tony Sansavera
tonys@tedndt.com
+1 313-686-7875
1370 Piedmont
Troy. Michigan 48083-1917
United States

ENOVASENSE
Geoffrey Bruno
geoffrey.bruno@enovasense.com
+33 1 46 70 93 96
10 rue du Général de Gaulle
94110 Arcueil
France

enovasense
BEHIND THE INVISIBLE

www.enovasense.com

ENOVASENSE SAS
10 rue du Général de Gaulle 94110 Arcueil FRANCE
Phone : (+33) 1 46 70 93 96. Mail : contact@enovasense.com
VAT N° FR 28 791516578. SIRET N° 791 516 578 00022 CRETEIL