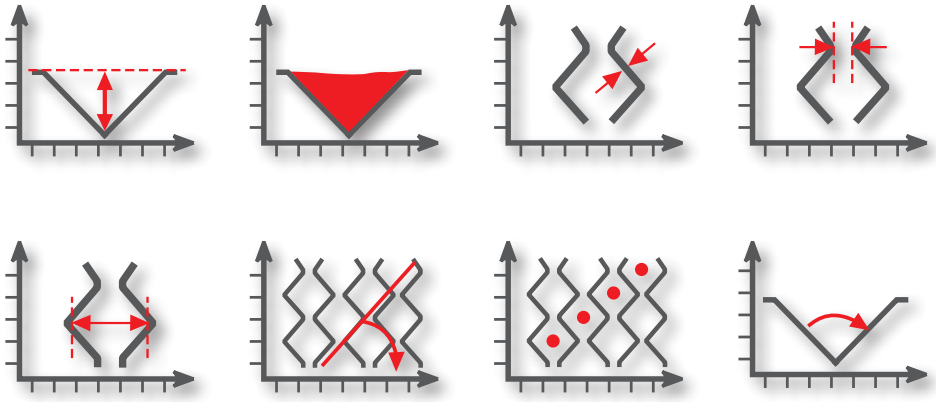
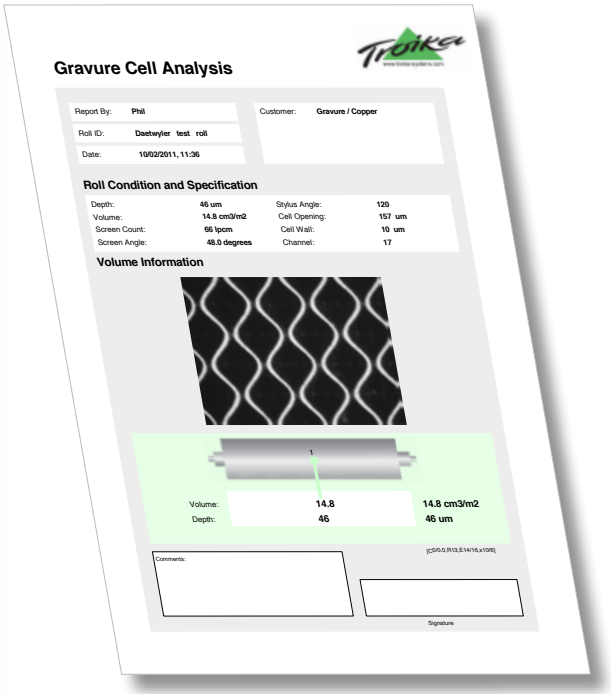
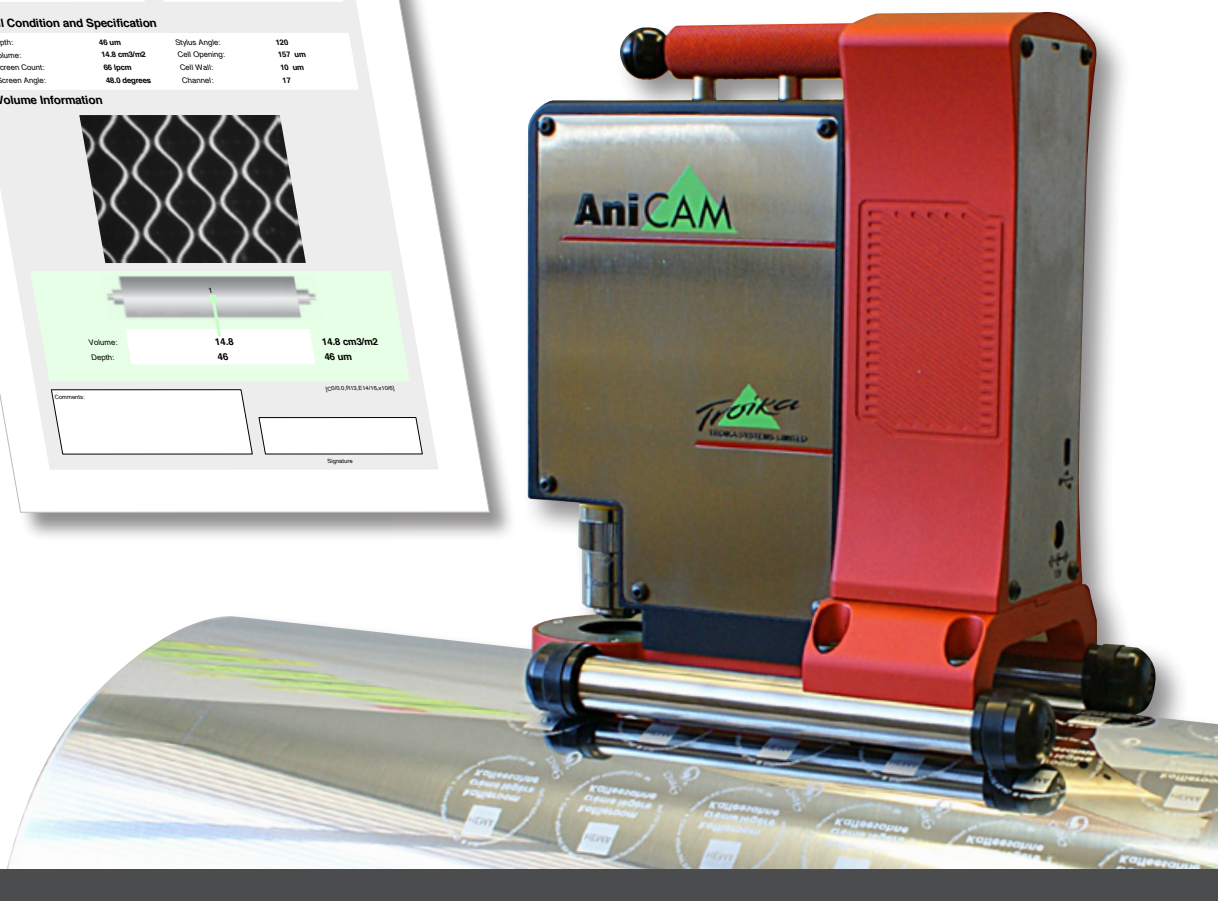
TROIKA SYSTEMS LIMITED

# Gravure QC Application

For Volume, Depth and measurement of Gravure Cells






AniCAM Quality Control Applications

## Why Gravure Cylinder Quality Control?

The Gravure Cell Analysis option for the AniCAM was developed for gravure printers where Quality Control of their gravure cylinders is desired. In particular for inhouse recording of new roll data, roll condition during use, and to enable financial planning for refurbishing or replacement.

### Engravers

During the manufacturing process measuring of the actual opening, depth and volume on copper and subsequently chrome cells is becoming more important for quality control purposes.

When engraving with styluses it is important to know their characteristics, including diamond shape and the way they are mounted in the holders. These variations can give considerably different real volume measurements which cannot be known when making theoretical calculations. Knowing the actual volume measurements can help in establishing better gamma print curves and consequently less press set up time.

The difference in cell depth and volume before and after chroming can be quite considerable, which can be clearly seen when comparing the scanned copper and chromed visual information and numeric data. Establishing the differences can lead to improved chroming and reduced production issues.

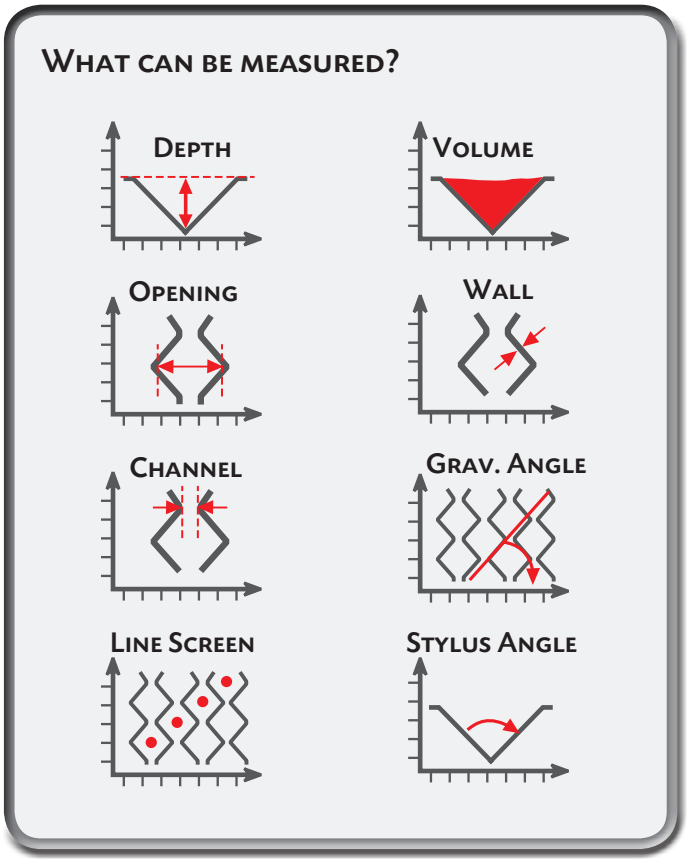
### Printers

Using the Gravure QC application with the AniCAM 3D scanning microscope can help to establish the quantity of ink required for a job.

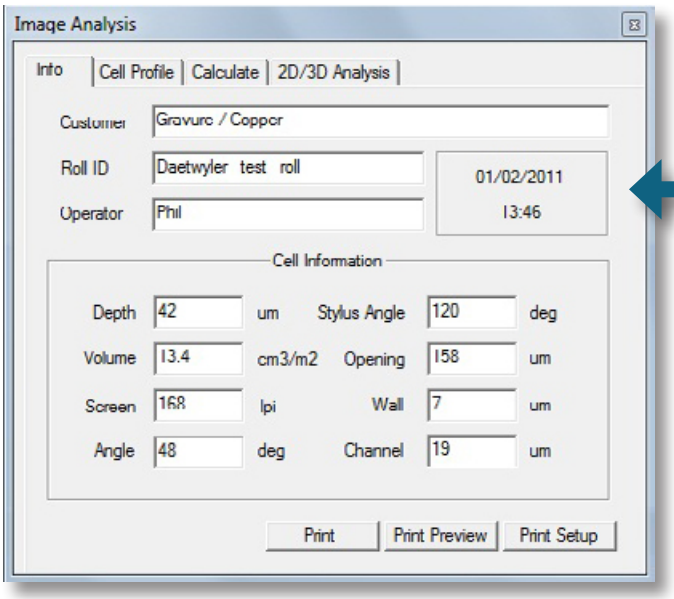
The quality of refurbished or replaced cylinders can be compared to the original, important when establishing the characteristics for the print gamma.

Cleaning of the cylinders and knowing that they have been properly cleaned and do not hold ink or varnish residue can save many hours of press set up time.

- Light & portable in a strong carry case
- No warm up – use immediately
- Approximately 1 minute per scan and analysis
- View for plugged or damaged cells
- Image export for emailing issues to suppliers
- Export data to excel or other database management systems



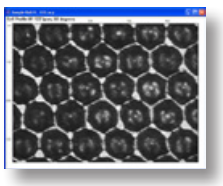

*Data ready for Saving, Printing or Exporting*



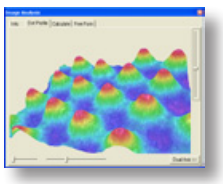

## Gravure QC Options (from Q2 2011)

Stylus angle measurement: Simple stylus mount and software to check the angle and condition of the stylus. The hardware mount supports OHIO, HELL and MDC styluses. The software allows the visual representation of the stylus for condition and to measure the angle to ±0.1 degree.

## Additional QC Applications



***Anilox Analysis*** for 2D and 3D measurement of Anilox rolls (volume, depth, wall width, opening, screen count, angle, distances etc.).

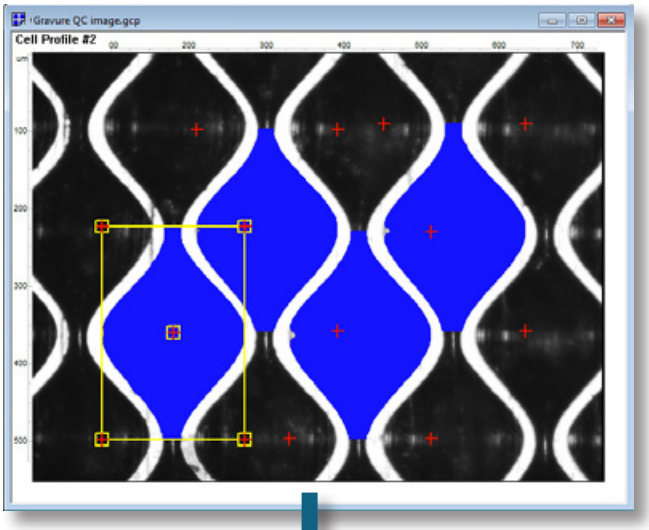


***FlexoPlate Analysis*** for 2D and 3D measurement of flexo plates and sleeves (dot hight, percentage, screen count, profile, angle, distances etc.).

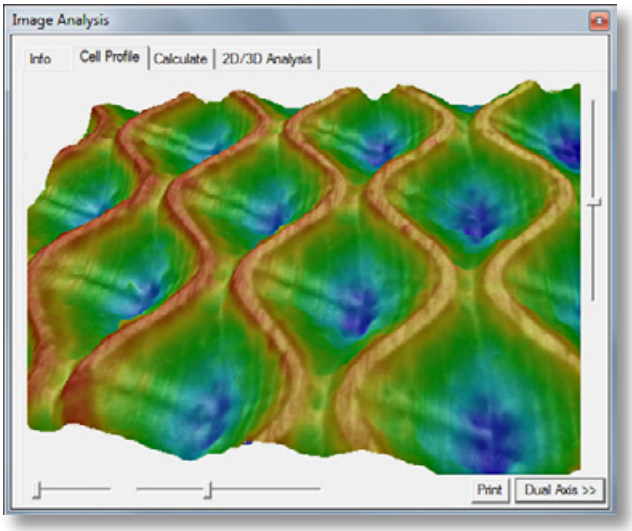
## Easy to use and portable Scanning Microscope

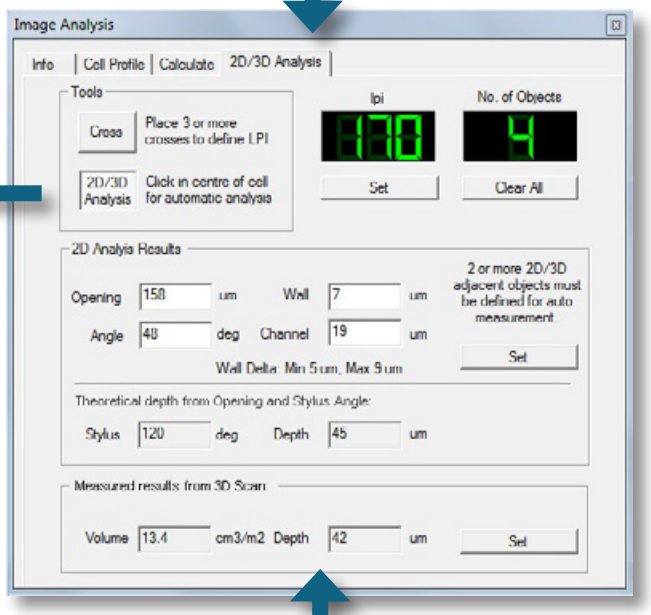
The AniCAM 3D Scanning Microscope is a very professional instrument, it's operation is really simple: To take a reading simply place the portable camera system on top of your gravure cylinder, select the appropriate setup and click the ***Cell Profile button***. The image will then be transferred to the 2D/3D Analysis window, in which you select three or more cell areas – simply by clicking on the cells. The readings are then transferred to an Info section, where you enter the customer name, cylinder-ID and operator name. The system generates a report which can be printed or the data can be exported to a database or spreadsheet program for further analysis, such as your own reporting method for gravure cylinder wear analysis.

***Simply double-clicking 3 or more adjacent cell areas generates all readings***

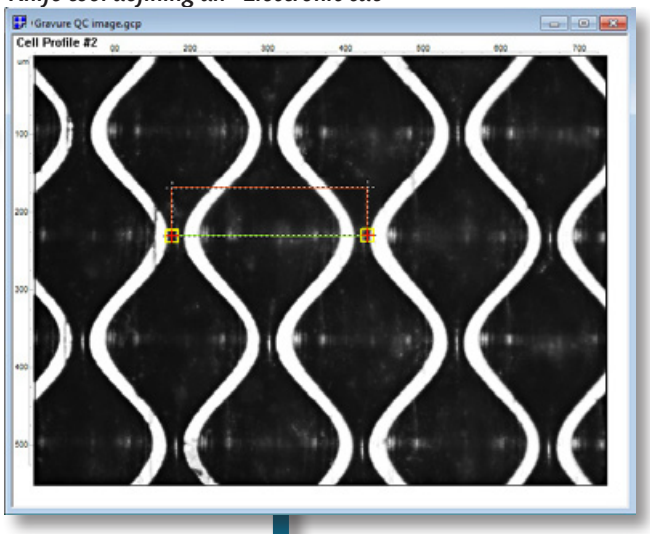



***Rotatable 3D View for visual inspection***

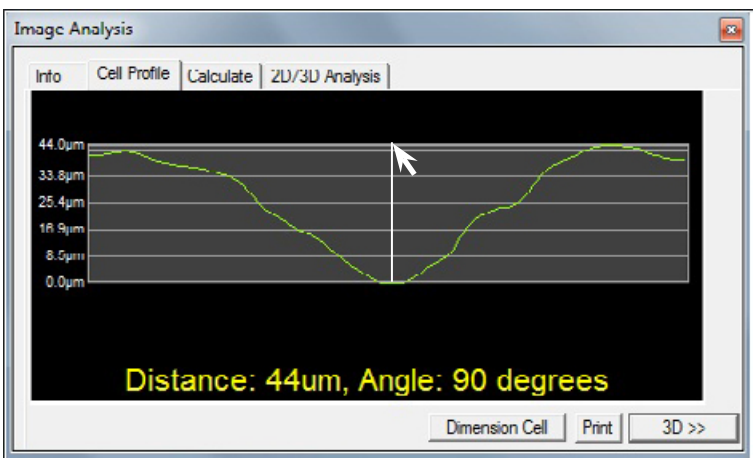



***Knife tool defining an "Electronic cut"***




***„Electronic Cut" Cell Profiling, Depth and Stylus calculation***




### *Displayed information – in seconds*

- Screen Count
- Opening
- Wall (also max and min walls)
- Engraving angle
- channel

***Theoretical depth:***

Calculated from Opening and Stylus angle

***Actual depth and volume:***

Calculated from 3D scan

## PRODUCT SPECIFICATIONS

| ▼ Media |
|---|
| Chrome and Copper Gravure Cylinders (20 - 200 lpcm \| 50 - 500 lpi) |
| Minimum roll/cylinder diameter: 2.5" / 63 mm |
| **▼ Cell Evaluation** |
| Vvolume calculation in $cm^3/m^2$ or BCM |
| Measurements:<br>• Cell Volume • Cell depth • Cell screen count • Cell opening<br>• Cell wall width • Cell angle • Channel width • Engraving angle |
| Geometric measurements |
| Averaged readings over ***n*** sections across the roll |
| **▼ Image Analysis** |
| Images are taken by the camera and transferred via USB to the PC.<br>The image analysis and calculations are done by the dedicated ***Gravure QC Application*** Troika PC software. |
| Software based Vibration detection and suppression (4 levels) |
| Digital Zoom range 1:1 up to 6:1 |
| **▼ Variance of Readings** |
| Volume readings:<br>typically better than ± 2% @ $12cm^3/m^2$ \| 8 BCM |
| **▼ Data archiving** |
| .gcp format (incl. 2D/3D info); JPEG and BMP (bitmap export) |
| **▼ Light Source** |
| 1 co-axial and 2 x 9 radial white light LEDs (SW-controlled) |

## OPTIONS

| ▼ Software Options |
|---|
| Special Reports (i.e. Comparison Report for before/after cleaning readings) |
| Additional QC Applications *(see separate brochures)*:<br>**FlexoPlate/Sleeve Analysis** and **Anilox Analysis** |
| **▼ Calibration / Maintenance / Service** |
| X/Y Calibration plate |
| Z-Axis Calibration tool \| Annual Online-Calibration + Certification (Q2 2011) |
| Annual Service Contract \| GTM Online Training and Support |
| **▼ Hardware Options** |
| Battery pack (Available end of Q1 2011) |

## TECHNICAL SPECIFICATIONS – ANICAM

| ▼ Electronics |
|---|
| Mono CMOS camera with 640 x 480 pixel resolution. |
| USB-2 Control via PC |
| External ac power supply |
| **▼ Lenses** |
| Three lenses (x04, x10 and x20) |
| **▼ Dimensions** |
| AniCAM: 15,5 x 9,5 x 19 cm (W x D x H) |
| AniCAM Case: 37 x 30 x 17.5 cm (W x D x H) |
| **▼ Weight** |
| AniCAM: 2.20 kg / 5.0 lbs |
| AniCAM with Case: 5 kg / 11.0 lbs |
| **▼ Environmental conditions** |
| Temperature: 16° - 32° C / 60° - 90° F |
| Humidity: 40% - 60%, non-condensing |
| **▼ Minimum PC-requirements** |
| Intel or AMD processor, 2+ GHz, 2+ GB RAM, 1024 x 768,<br>24-bit Display, USB 2.0, 60+ GB hard disk space |
| **▼ Operating Systems** |
| Windows XP / VISTA / Windows 7 |
| **▼ Warranty** |
| 12 months return to base. Software upgrades FOC for 12 months. |



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