



SOLUTIONS FOR > **NARROW WEB**



TOTAL QUALITY CONTROL AT 360°



**grafikontrol**  
INSPIRED BY TECHNOLOGY



## TQC360, A NEW CONCEPT FOR DEFECT-FREE PRODUCTION AND WORKFLOW MANAGEMENT

TQC-360° is the newest modular platform for Grafikontrol's products. It has been developed to give printers a complete solution for quality assurance. With the TQC-360° concept, Grafikontrol offers a full range of quality control to the printing and converting industry through production, application, processes and services. Our "all around" approach to the customer combines high performing products and excellent service.

The TQC-360° products integrate into any web application. Customers benefit from the modular design which allows them to start with the features they need and upgrade at any time.

The components that make up the TQC-360° line can satisfy any customer need. They can operate separately or together through a single operator interface if desired. Tailor made solutions can be designed to fit non-standard applications.

### INSPIRED BY TECHNOLOGY

Grafikontrol has been recognized as worldwide leading manufacturer of high performance equipment for the graphic industry for more than 45 years. We marry the best of high-tech components with the essence of Italian engineering to manufacture best of industry products with a heart "Made in Italy".



#### PRODUCTS

- WEB VIEWING
- 100% INSPECTION
- IN-LINE SPECTRAL COLOR MEASUREMENT
- WORKFLOW & WASTE TRACKING
- REGISTER CONTROLS

#### SERVICES

- REMOTE CONNECTION & ASSISTANCE
- LOCAL SERVICE
- ANNUAL SERVICE CONTRACTS
- 15 YEARS SPARE PARTS AVAILABILITY

#### PROCESS

- GRAVURE
- FLEXO
- OFFSET
- DIGITAL



## > 100% PRINT INSPECTION FOR NARROW WEB PRESSES. THE GUARANTEE FOR TOTAL QUALITY CONTROL



In roll-to-roll labels printing the demand for defect free product and tight regulations obligate printers to equip their presses with systems that can guarantee a total quality control. This avoids embarrassing situations with your customers that can result in costly reprints or monetary credits.

LYNEX-S is a 100% print inspection developed by Grafikontrol to assure the total quality control during the printing process. The continuous inspection of the entire print repeat, with programmable sensitivities, allows the automatic detection of all print or substrate defects and a real time evaluation of the production. The system provides this data in roll maps and generates production reports for subsequent analysis and workflow use. The immediate warning, when a flaw is detected, guarantees the elimination of defective material which optimizes your process and avoids claims. The modular architecture, combined with powerful hardware and dedicated algorithms for image processing, make the LYNEX-S a flexible and easy to use instrument for inspection on gravure, flexo, offset and digital presses. It can be expanded with the addition of numerous options such as: semi or automatic register, color monitoring, bar code verification, print elongation, waste tracking. It is possible to set quality standards based on customer needs and specifications. LYNEX-S can operate as stand-alone module in multiple processes, as a print or substrate inspection device, or in combination with the MATRIX.

## SYSTEM CONFIGURATION

**HIGH SPEED LINEAR CAMERAS** : LYNEX-S combines one or more 4K-pixel RGB linear cameras for an accurate real time inspection of the entire web width at production speeds exceeding 1000 m/min with clear discrimination of defect by size and type. The information from the cameras is processed through powerful hardware to provide accurate and reliable image inspection. More linear cameras can be added to increase the defect sensitivity for the detection of defects down to 0.05 mm.

DIGITAL ZOOM



**REAL TIME FULL PRINT REPEAT DISPLAY** : LYNEX-S provides as standard the real time display of the entire print repeat. Grafikontrol's dedicated image processor displays the live image at EVERY REPEAT as a full web viewer on a 32" or 55" UHD monitor. The operator can analyze the print conditions on the whole web and immediately intervene as needed. When a defect is detected the relative position is highlighted on the screen.

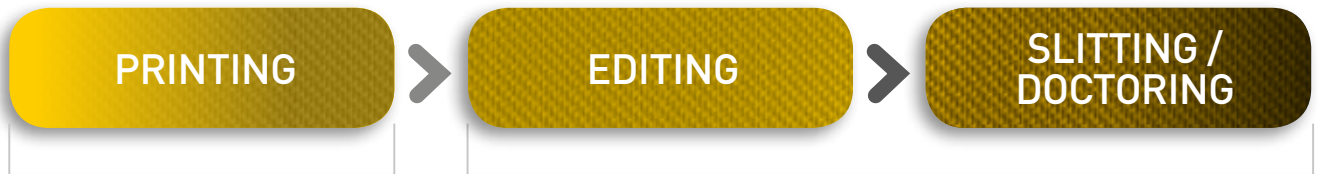
**MODERN MULTITASKING USER INTERFACE** : "Easy and efficient" are the best terms to describe the new LYNEX-S operator interface. Press operators will not struggle to learn how to use the system functions. The gestures and actions are the same common ones used in smartphones and tablets. LYNEX-S is operated through a standard 23" HD 16:9 multi-touch screen. Operators can navigate from screen to screen by just touching or sliding the image.

**DEFECT TAGGING, REMOVAL AND WASTE MANAGEMENT** : LYNEX-S provides two levels of waste management depending on customer requirement.

- WASTE TAGGING is the basic solution which automatically marks the waste portion on the substrate during the printing. The system provides a trigger output that can be used for any marking method selected by the customer such as flagging, spray nozzle, or inkjet.



- WASTE TRACKING is the advanced method to track the defects from printing to finishing (rewinding, slitting or doctoring). The hardware and software combination allows to link the processes by transferring the data acquired during the inspection (roll maps) to the finishing machines. Based on data from the press the connection provides automatic stop of the finishing machines on the defect location for its removal. The editing station, supplied with this module, provides remote access to the roll map data allowing the cancel/confirm of the defects so the machines can run at full speed and stop on real defects only.



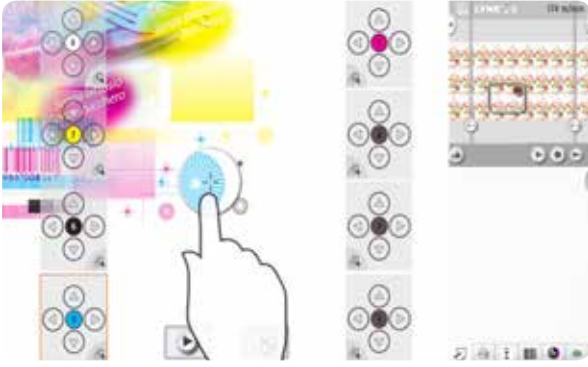
LYNEX-S

WASTE MANAGEMENT

## > SYSTEM FUNCTIONS



- |   |                                |   |                      |    |                          |
|---|--------------------------------|---|----------------------|----|--------------------------|
| 1 | PRODUCTION DATA                | 5 | ROLL MAP             | 9  | INK SPOTS                |
| 2 | PRINT REPEAT MONITORING        | 6 | HAZING               | 10 | INSECTS/FOREIGN MATERIAL |
| 3 | BARCODE VERIFICATION AND GRADE | 7 | COLOR DEVIATION      | 11 | COLOR MISSING/DRYING     |
| 4 | Δ-COLOR MONITORING             | 8 | DOCTOR BLADE/STREAKS | 12 | SENSITIVITY SETTING      |



INTERACTIVE REGISTER© (CLICK&DRAG)



DEFECTS GALLERY AND DEFECT DETAIL

## DIGITAL ZOOM

- 6X digital zoom allows the operator to digitally zoom on certain details over the entire print repeat by using the full print repeat monitor. Simply touching the zone to enlarge the system will display the image on a dedicated area of the monitor. As optional, a dedicated screen can be added to perform this function.

## GALLERY OF DEFECTS

- The chronological sequence of the defects and a scrolling function provide easy evaluation of the process. By a single touch each defect is displayed with the master image.

## DIFFERENT SENSIVITY LEVELS

- The operator can define the sensitivity for each classification of defect according to the job specification.

## MASKING

- Undesired defects which cannot be removed from the printing, can be completely masked to avoid constant alarms.

## SENSITIVITY BY ZONE

- Normally the system works with sensitivity levels set for the entire print repeat, this special software allows the operator to select up to 24 zones (of various sizes) which can have different sensitivities for each type of defect.

## INTERACTIVE REGISTER©

- Is a revolutionary function to perform pre-registration without dedicated marks. The function is mainly used during a job start-up with the press stopped, thus producing minimum waste. This software allows the operator to interact with the image displayed on the screen. A snapshot is taken from the printed image which contains all the colors to be corrected. As a reference, the operator can use the plate alignment marks which are available for every individual color.

## AUTOMATIC REGISTER

- The system uses 1mm diameter marks to perform the pre-register and running register. The mark sequence is placed in a 6mm by 50mm print clearance (8 color job).



STATISTICAL PRODUCTION DATA



Δ-COLOR MONITORING

JOB REPORT & STATISTICS

- For the total traceability of waste the system produces a defect map for each printed roll showing in chronological order the defect, its coordinates and a visual image for the reviewer. In the label printing process Lynex-S provides real time graphics showing the number of printed labels: inspected, not inspected, out of tolerance. The real time information allows the press operator to print the correct number of labels.

PDF/LIVE MASTER COMPARISON

- This software, used during a job make-ready, allows an easy and quick comparison of the live printing with the relative PDF pre-press file to check for any differences. The in-line comparison is of big help when printing different text languages or to detect faulty engravings.

Δ-COLOR MONITORING

- It performs continuous comparison between the standard CIE L\*a\*b\* values, acquired during printing, with those approved and mastered at the beginning of production. Through the live print repeat tab displayed on the multi-touch screen the operator can easily select up to 24 points of measurement to monitor the color trend. The ΔE values are continuously updated and visualized.

PRINT REPEAT MONITORING

- This feature is highly important when you are printing extensible substrates and the length repetition of the product must be accurately controlled to avoid rejections during the post-press processes. The operator can set different tolerances according to type of substrate and product specifications. An alarm is activated when the print length exceeds the tolerance.

BARCODE VERIFICATION

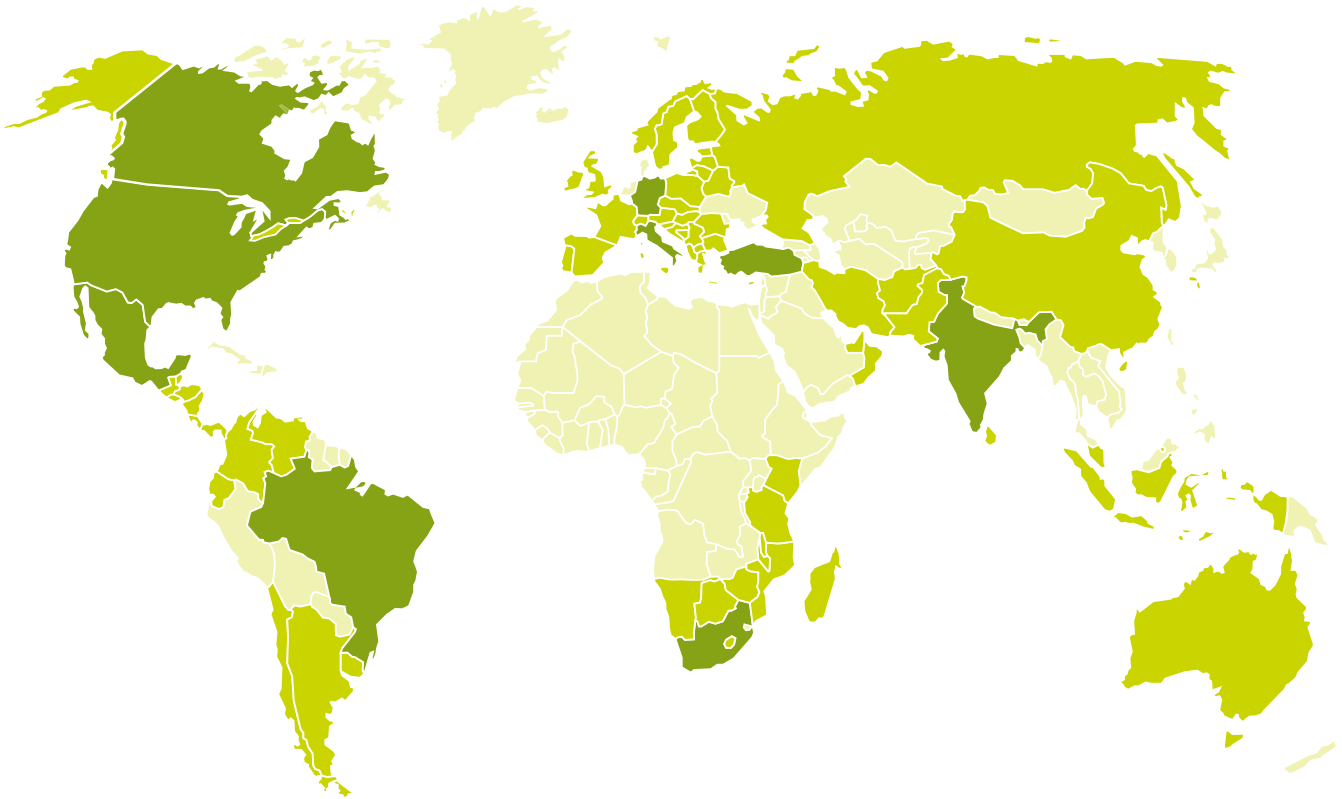
- This function is distinguished by its ease of use. It simultaneously finds and verifies all the barcodes within the image (both 1D and 2D). The software automatically adapts itself to the code's direction, size and type and indicates if the code is out of tolerance from the reference. The software grades the barcodes according to ISO 15416 and ISO 15420 specifications. This function requires that the LYNEX-S is supplied with a resolution of  $\leq 0.08$  mm/pixel.



TECHNICAL DATA AVAILABLE ON THE WEBSITE



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 SALES AGENCIES

 SALES AGENCIES  
AND LOCAL SERVICE

[WWW.GRAFIKONTROL.IT](http://WWW.GRAFIKONTROL.IT)



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