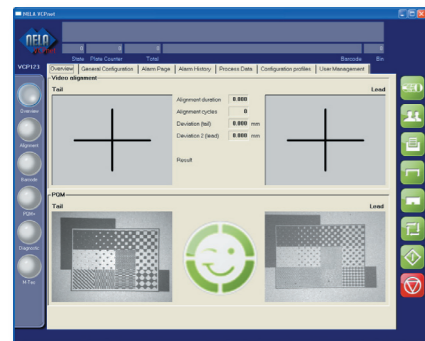




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NELAPlate Quality Management



Main page:

On the main page, the results of video alignment (if installed) and of NELAPQM⁺-measurements are displayed. The camera shots of the current measurement are also shown.



Overview:

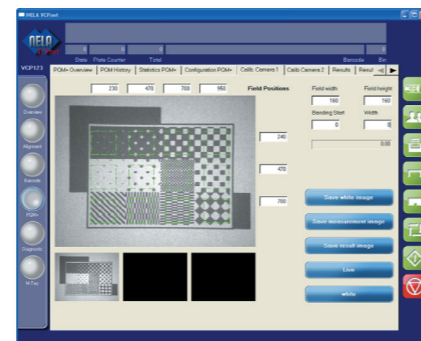
The overview page shows the CTP-curves for each measuring patch, and below them the histograms for the laser energy. On the right side of the screen, the user can see from the individual quality results if a single measurement has delivered an error.

From there he can conclude which one of the components involved in the plate making process may have a quality issue.



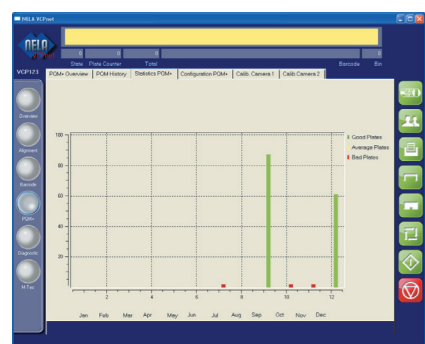
Configuration:

On this page, the individual parameters and tolerances can be defined.



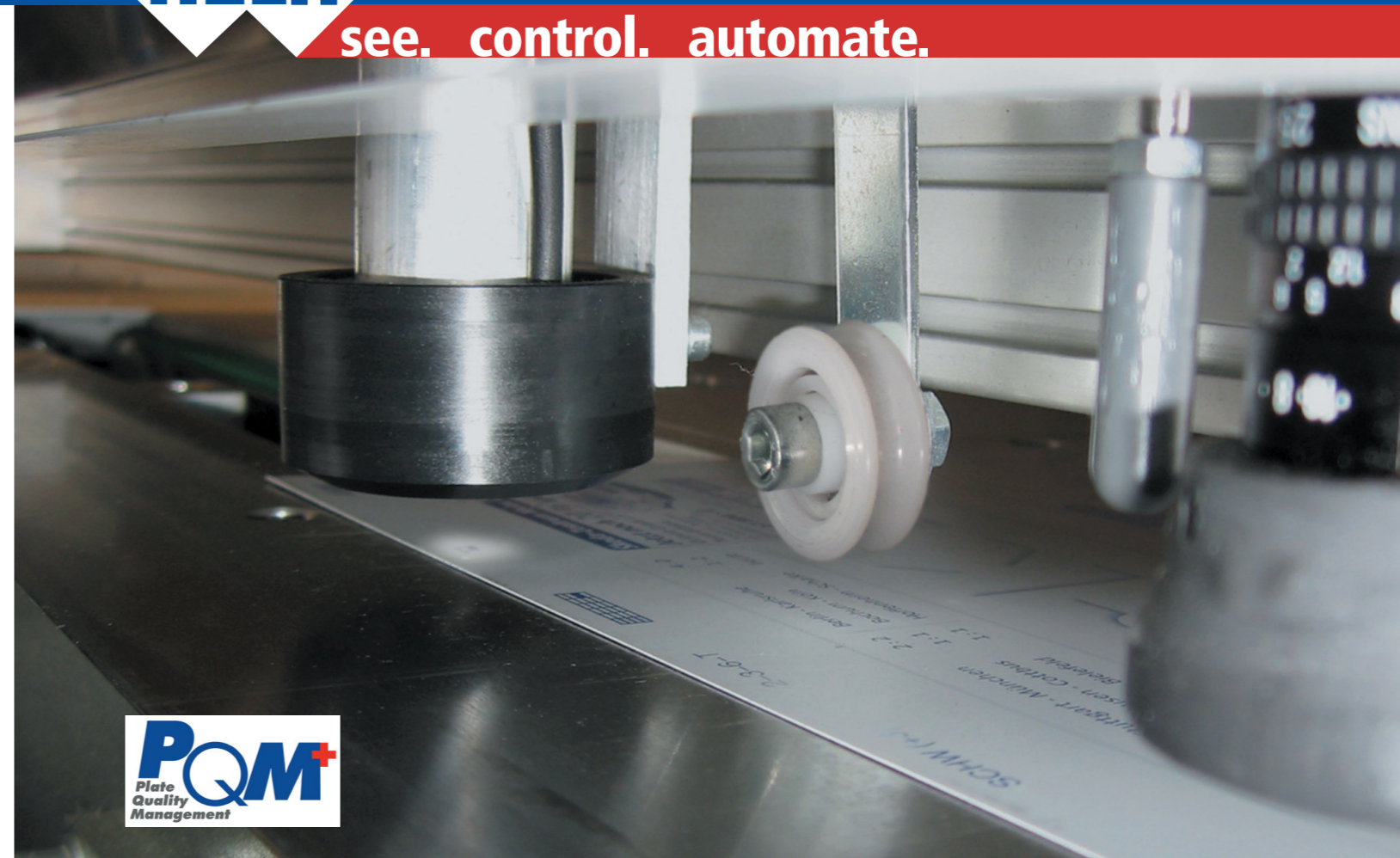
Calibration of the cameras:

The exact position of the individual measuring fields within the measuring patch is defined on the calibration page. White balance and calibration of the camera optics are required to guarantee reliable and consistent results.



Statistics:

This view shows the measurement results of the last 12 months. "good" plates are green, "acceptable" plates are yellow, and "bad" plates are shown in red.



NELAPlate Quality Management

The NELAPQM⁺- measuring system for highest quality standards in printing plate production.

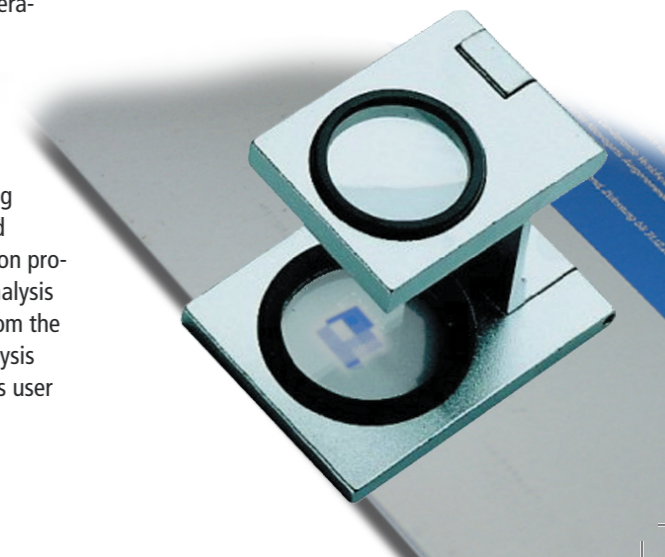
In times of total automation of printing plate production, constant monitoring of the quality of all imaged plates is essential in order to avoid bad surprises at the start of print. Prior to punching and bending, printing plates must be imaged and processed. A number of factors during these processes may influence the quality of the imaged plates.

Although many processes in the production of imaged plates have been digitalized there are still many analogue factors that have great influence on the quality of the image. Fluctuating laser energy, variations of the laser focus, the developer chemistry, or the sensitivity of the plate material – all of these parameters may cause variations in the image quality, which makes manual control necessary at this stage.

Typically, imaged plates are taken from the process cycle in certain intervals and the image quality is manually measured. It is the goal of NELAPQM⁺ to automate and to standardize this stochastic measuring method. The fully automatic monitoring system

profits from the fact that the characteristics of the dots in imaged areas of the plate alter when process parameters change – alterations, which can only be seen under the microscope. These alterations can be identified by analyzing a specific measuring patch, which must be imaged on each plate.

Measuring occurs fully automatic during punching and bending of the plate, and without interrupting the plate production process. An especially developed image analysis software is used to analyse the data from the measuring patch. The result of the analysis is shown directly on the punch/bender's user interface.



NELA - Who we are:

The NELA group, consisting of NELA Brüder Neumeister GmbH, NELA USA and NELA Asia, forms one of the largest manufacturer of high-quality optical control devices for industrial applications, process control and automation. NELA Register systems include inline punch-bending machines, both for newspaper and commercial printing and plate automation and transportation systems. With more than 1400 installations around the world, NELA is among market and technology leaders. As a leader in our industry in Europe, we are also represented on the markets of North and South America and Asia / Oceania. At our headquarters in Lahr/Germany 200 employees manufacture state-of-the-art precision equipment in modern and spacious production facilities.



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Variations of certain parameters in the plate production process often are the reason for inferior plate quality that may not be detected at first glance and, therefore, lead to interruptions in the production process. Delayed production and quality issues are major causes for declining profits.



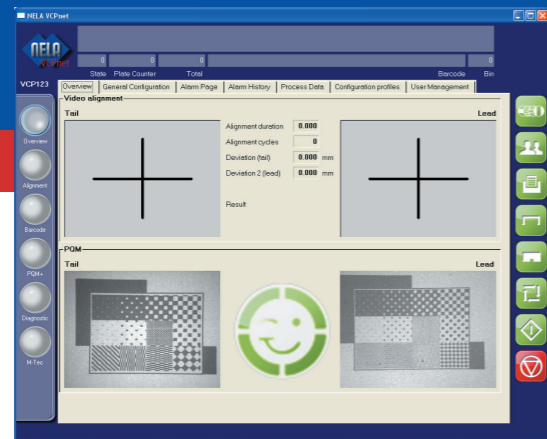
NELA has developed the fully automatic plate quality monitoring system **NELAPQM+**, which automatically analyses each and every imaged printing plate and immediately shows the result on the operator interface. Even from across the room one can see on the screen when a plate was out of tolerance.

In addition to saving all measured quality data for each plate, limits can be defined for all parameters; an alert signal is emitted when limits are over- or underrun. Next to specific hard- and software for image processing, the **NELAPQM+** system requires a CCD precision camera with a microscope object lens.

Function

A small measuring patch with 18 different measuring fields must be imaged on the non-print area of each printing plate. A high-resolution camera with microscope optics registers the patch, which is then analyzed in the PC. Depending on individual customer configurations, the measuring results may be used within the workflow. Data may either just be saved on the PC, or they may be transferred to various other components of the workflow. Alert messages may also be sent as a text message to a mobile phone, or an HTML page can be automatically updated. Automatic quality monitoring thus helps to set pre-press staff free for other duties.

The plate imaging process can be constantly monitored, even during night shifts. When a problem occurs, an alert is emitted and – if necessary – the production can be stopped automatically.



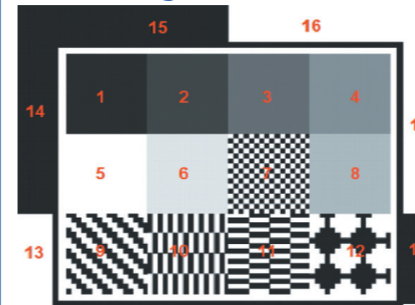
Parameters that are analyzed

- Calculation of screen percentage
- Calculation of grey values
- Analysis of homogeneity of background (fogging)
- Analysis of pixel edges
- Determination of screen ruling, screen angle, and type of screen
- Comparison of specific data with customer's MIS system

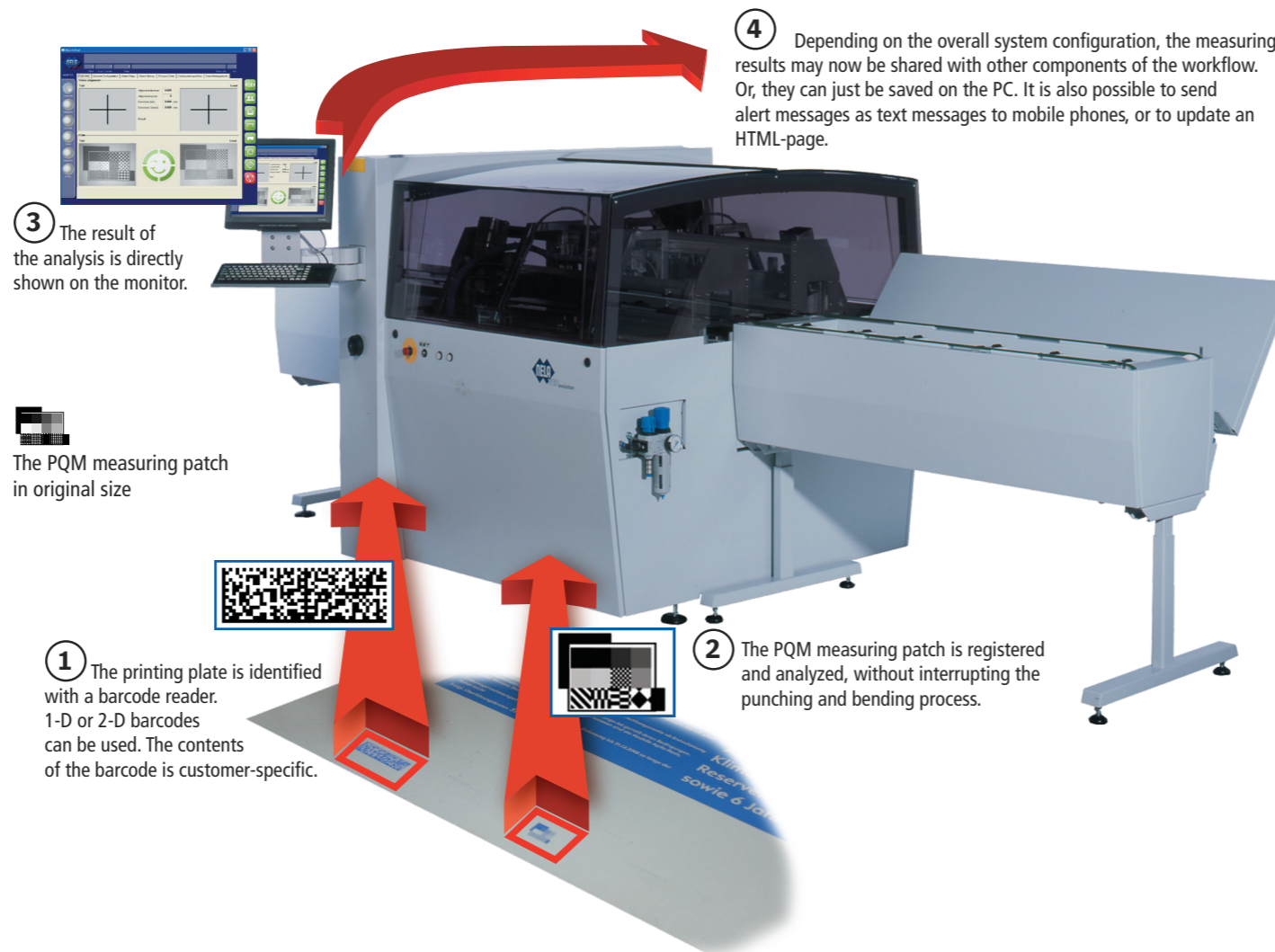
Product features

- Variations in the CtP-process, which may be the cause of quality deficiencies, will be recognized at a very early stage
- Configuration of different exposure head lines, and automatic recognition of selected configuration via barcode identification
- Optical or acoustic alert in case of error, and/or sending of e-mail or text message
- Analysis and display of an error
- All relevant measuring results are saved for quality documentation purposes
- Remote support with access to all measuring images and results

The Wedge:



Area 1:	raster	98 %
Area 2:	raster	90 %
Area 3:	raster	70 %
Area 4:	raster	50 %
Area 5:	raster	2 %
Area 6:	raster	10 %
Area 7:	checkerboard pattern	1 x 1 px
Area 8:	raster	30 %
Area 9:	lines diagonal	5 x 2 px
Area 10:	lines	5 x 1 px
Area 11:	lines	5 x 1 px
Area 12:	checkerboard pattern	4 x 4 px
Area 13-18:	Surface areas for fogging- and background analysis	



Options of Integration



Integration in punch/bender

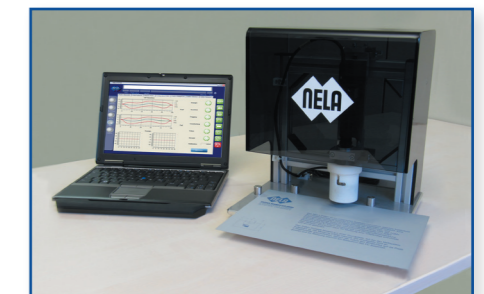
This option is for new installations but can also be retrofitted into existing punch/benders. The **NELAPQM+** system is integrated in the punch/bender (above). Measuring occurs fully automatic, during processing of the plate.

Stand-alone system

This option is for manual measurement of printing plates (below). The measuring device is delivered with a software package for installation on an existing PC.

Integration in roller conveyor

This option is for system configurations without punch/bender, or when several exposure lines are bundled together. The **NELAPQM+** system is installed on a roller conveyor within the transport system (above). All plates are automatically stopped, positioned, measured, and sent on again.



NELAPQM+ - the solution for all quality issues

Surveillance of all quality-relevant criteria in the quality circle

- RIP-settings
- exposure unit
- printing plate
- plate processor

- Detection of deviation to standard defined by UGRA/FOGRA
- detection of process fluctuation
- Identification of optimal settings

Advantages of NELAPQM+

- Quality monitoring of daily production
- fast and reliable information
- proven quality
- measuring results as quality check after installation
- reduced testing during imaging

Results by using NELAPQM+

- stable, standardized quality according to IFRA standard
- reduced operator intervention after installation
- cost reduction
- documented quality of plate production

Optimizing potentials with NELAPQM+

- Standardization of all workflow parameters
- Designation of optimized exposure characteristics

This means for you

- Professionalism
- competency
- safety