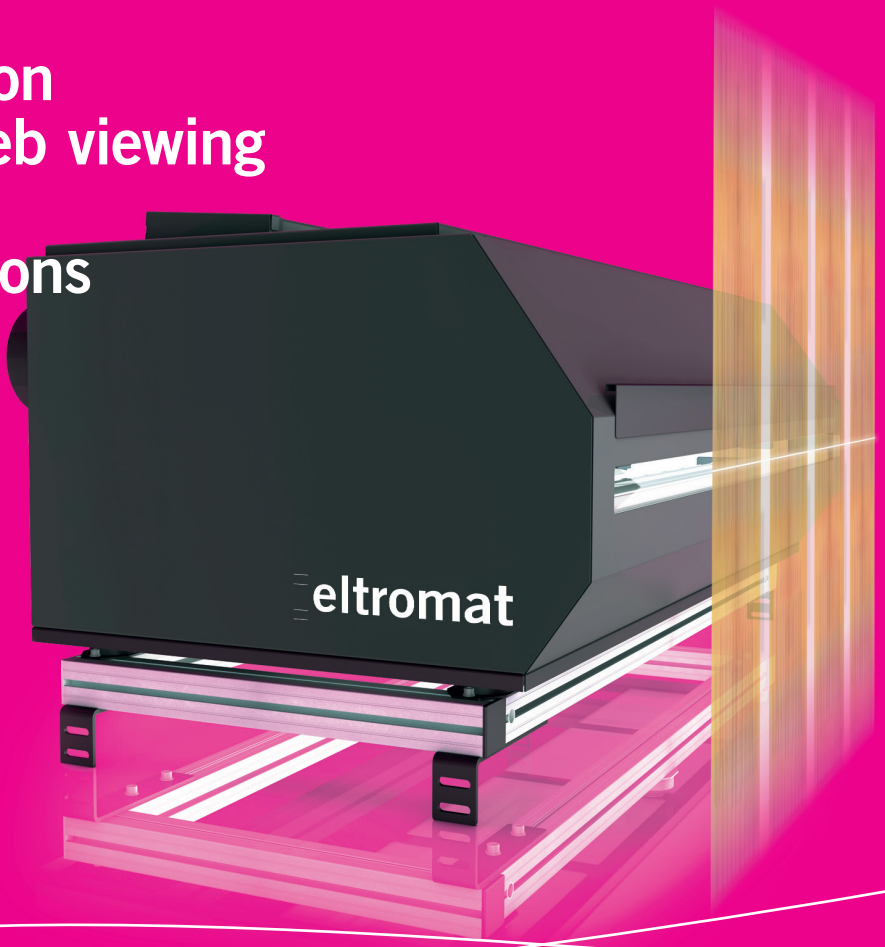
100% print inspection
including 100% web viewing
combined with individual workflow solutions



twin_check

100% print inspection and
digital web monitoring

vision digital
register colour

eltromat
tradition meets innovation

Simply better!

twin_check combines uncompromising 100% print quality inspection with first-class web monitoring of the complete print format and is mainly used in packaging printing such as flexible packaging, liquid packaging, cigarette packs.

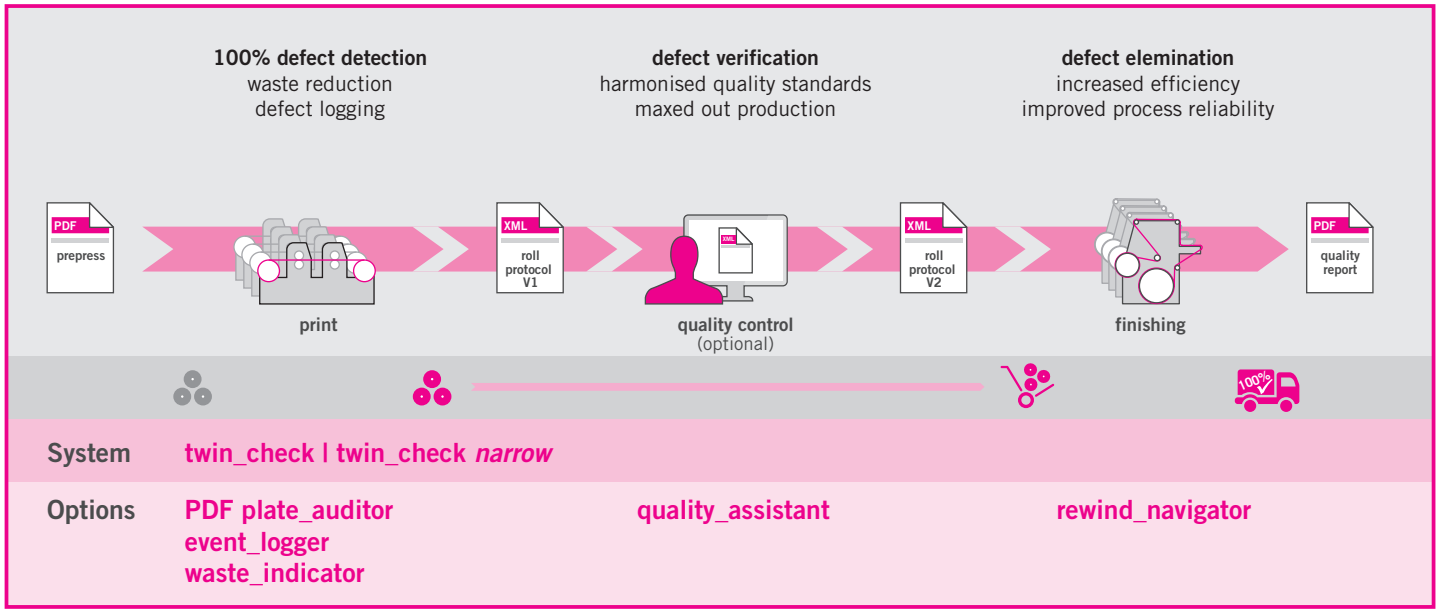
When used on a printing press, **twin_check** can help to reduce paper waste significantly by correcting the occurring causes of errors immediately. In addition, it provides the basis for defect tracking with the aim to deliver 100% error-free print. Alternatively **twin_check** can be deployed on rewinders for error detection. So you gain a competitive edge as more and more brand owners expect it of their suppliers!

Shortly after the quick and easy set-up of the **twin_check** for the next print job, the web monitoring function provides a crystal clear image of the complete print format. The operator can simply zoom in to see every detail. So machine set-up becomes as easy as 1-2-3!

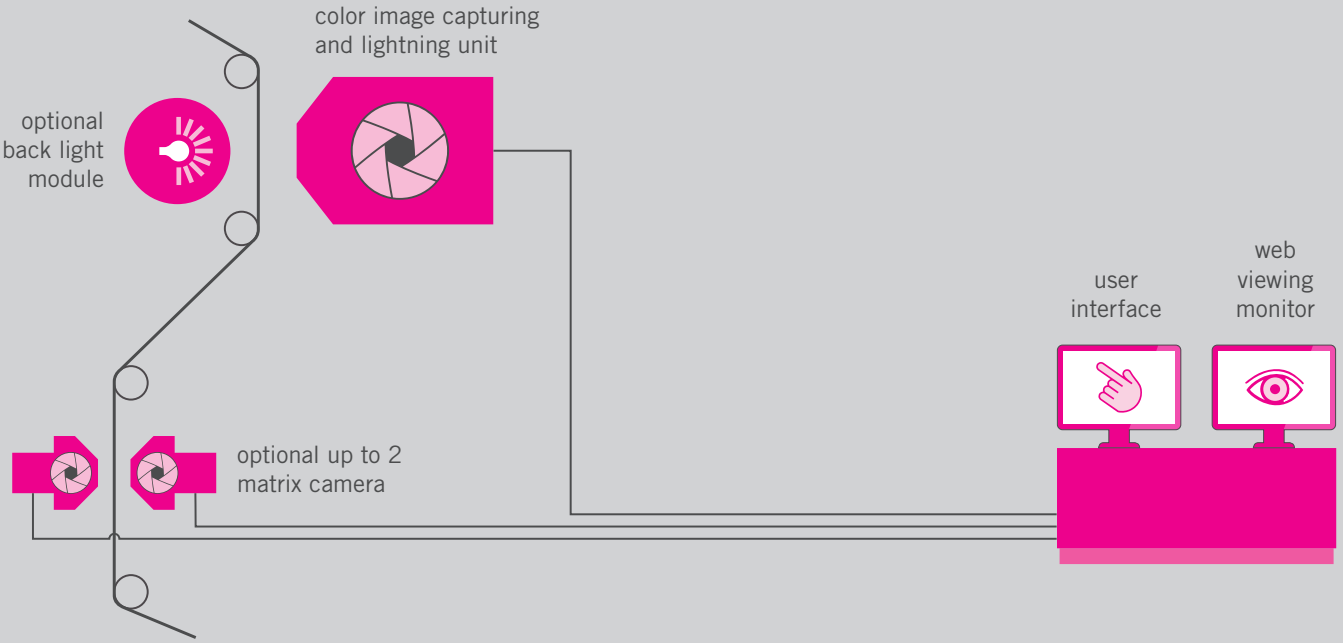
As soon as production starts, the print inspection detects even smallest defects. Thanks to an intuitive and easy set-up, you decide which defects should be indicated. The operator can immediately decide what to do without being distracted by false alarms. As a matter of course, these defects can be logged for a further 100% print quality workflow.

Conclusion: **twin_check** enables you to provide prints of 100% quality – independent of different levels of qualification of your staff in the respective shifts. Your customers are satisfied, discounts and claims caused by quality issues are things of the past and you will find it no trouble to win new customers. And at the same time, you radically cut costs due to waste reductions, while improving your processes. So **twin_check** pays off in no time at all!

Workflow solutions for your 100% print quality



System overview

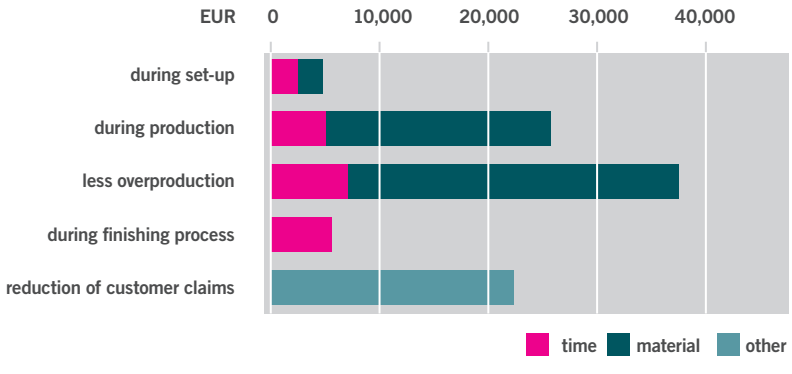


Return on investment

Practical example | Flexo printing press for printing of flexible packaging

Production basis data		
1	Jobs per year	474
2	Average job length	29,000 m
3	Average web width	1,200 mm
4	Average production speed	300 m/min
5	Material costs	2.4 EUR/kg
6	Material weight	0.04 kg/m²
7	Average time until a important print defect is detected without 100% inspection	40 seconds
8	Average important print defects per job	2
9	Average set-up speed	50 m/min
10	Average machine cost	400 EUR/hour

Cost savings 95,000 EUR per year.



Basic functions

Quick operation thanks to easy and intuitive menu navigation

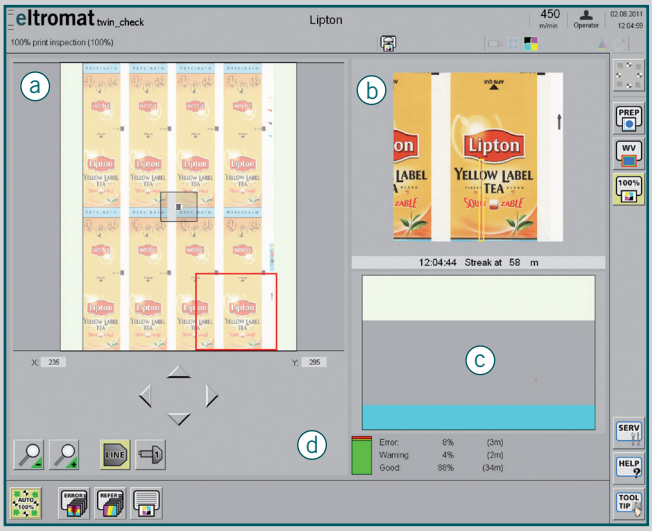
twin_check and all functions are centrally operated via touch screen. Due to the intuitive user interface it takes only two or three clicks to get to the desired result. Setting up a new job is finished in less than 30 seconds.

High-speed image capture for perfect results

The system can be used for web widths up to 2,800 mm (110 inch) and machine speeds up to 800 m/min (2,600 ft/min) due to state-of-the-art high performance colour line chip cameras. The collected data are the basis for web monitoring function as well as print inspection.

YouTube

Watch our video on www.youtube.com to get a first impression of the easy operation [search term: eltromat twin_check]!



Main screen with print format preview (a), last defect image (b), roll map (c) and statistics (d)

User interface defect catalogue with classified defects and further details (a) and enlarged display of the selected defect image (b)

100% print inspection – for a more efficient printing process

Inspection of all materials

The high-power LED illumination is designed for the inspection of all opaque printing materials. The system can be equipped with additional illumination units for the inspection of transparent or reflective material.

High-performance defect detection reliably finds any print defect

Our high-performance image processing algorithms detect defects from gray scale value tolerance of 3% and an allowable indication of 0.05 mm² (0.000075 inch²) – even before they cause any waste.

Flexible sensitivity masks put an end to false alarms

Annoying false alarms are a thing of the past now. Intuitive masking functions allow the inspection of any print job or print image area with different sensitivities. Particularly critical areas are inspected in a particularly critical manner; while insignificant areas can be ignored.

Defect analysis with intelligent defect classification

twin_check detects the most varied types of defects, such as partial missing print, nip-off edges, anilox roll defects, changes in colouring or nonrecurring splashes. Most importantly, it differentiates between process related and sporadic defects. Defects occurring sporadically can be simply suppressed, if necessary. This unique, print defect specific classification supports the operator efficiently regarding defect analysis.

Clearly structured defect displays make fast decisions possible

The inspection results are displayed in a roll map on the main screen according to the position on the print format and defect class. Each relevant defect is clearly documented in the defect catalogue with a maximum of three images: the first defect image, the image with the largest defect and the last defect image. These clear displays, combined with the easy handling, encourage the operator to make a fast and money-saving decision before countless feet of waste are produced.

100% web monitoring – and you have everything under control

Your set-up is under control due to live print format preview

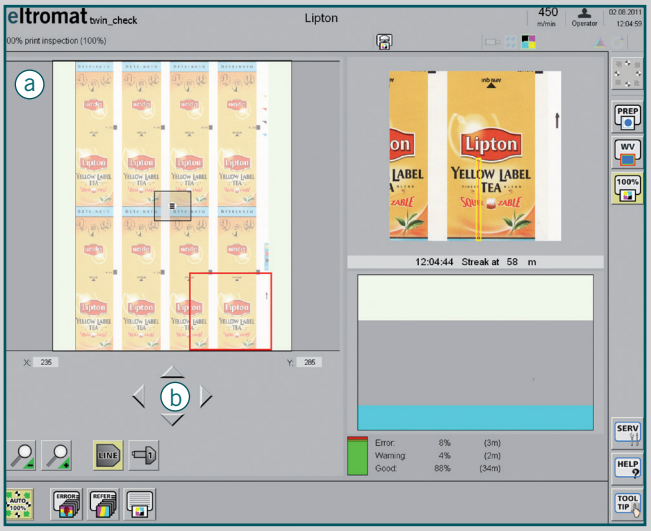
The live image of the complete print format will be displayed on the user interface immediately after starting the press. Especially in the set-up stage this is important for orientation and control. To see more details the operator is able to zoom, in high-resolution, by touching the screen. Sharp colours and a crystal clear image contribute to easy and certain decision-making. An additional matrix camera can be easily controlled in the same way.

Separate live view screen – don't miss anything

The live image is permanently shown on a second TFT screen – even with inspection mode activated. So the operator always keeps track of what is being printed on the press.

Convenient video functions make it easier to reduce waste

Whether the operator wants to see the current live image simultaneously with a saved reference print on the split screen, or alternately, different details of the complete print format in scan mode – either is possible. Deviations in production are always detected within sufficient time. Reliability of the production process will be increased and waste is eliminated



Screen with print format preview (a), easy positioning of the image section on the live monitor by touch in the print format preview or by fine positioning (b)

Picture-in-picture display on the live view screen

Modular options – for even more efficiency

Workflow solutions for 100% print quality

PDF_plate_auditor prevents faulty production

With the **PDF plate_auditor**, the pre-press PDF can be compared to the printing image of the machine. Already during the set-up phase, the special structural comparison not only reveals defects of the printing plate/cylinder, but also wrong languages or contents. This allows you to reduce unnecessary and expensive waste to a minimum.

event_logger provides a protocol without gaps

For each roll produced, the **event_logger** starts an XML file and captures all detected defects related to the lane by recording the defect class, running metre and the defect image together with the corresponding reference image. The protocol in the interchangeable XML format allows an efficient and complete elimination of waste in post processing and can be printed out in a clearly structured form or transferred to different applications for statistic analyses.

waste_indicator delivers accurate defect signals

Regardless if a system to tag waste is activated in your printing press, if a material discharge is initiated or if another process is to be informed with regard to waste, the **waste_indicator** reliably assumes this task. An accurate 24 V signal is provided for the whole web or alternatively for up to 12 lanes separately.

quality_assistant harmonises quality standards

Not every defect which you would like to recognise during the printing process automatically causes waste. In order to get the maximum out of any production, the **quality_assistant** allows you to quickly and efficiently evaluate the quality of your product according to harmonised quality criteria. This optional step can be carried out either at a central workplace or directly at the rewinder.

rewind_navigator increases finishing efficiency

Based on the roll protocol, the **rewind_navigator** triggers your rewinder in a way that the defects to be eliminated are placed precisely at the slice table. Until the next defect, the rewinder can continue operating at maximum speed and thus saves precious time.

Traversable HD cameras for additional functions

Up to two matrix cameras with optical zoom can be integrated into the **twin_check** to zoom in to dot level. Furthermore, this option enables the integration of further modules:

Absolute colour measurement inco_check for maximum colour consistency

The absolute inline colour measurement **inco_check** combines the speed advantages of of an inline measurement with the precision of the spectral colour measurement. In addition to the display of the absolute colour values (L*a*b*C*H*), trend analysis can be visualized on the monitor and at the same time defects are logged.

Barcode verification _bc to avoid reading problems

Minor deviations are reliably detected with the **_bc module**, which helps to avoid reading problems later on. The use of intelligent software enables the inspection of common types of 1D and 2D data codes and offers the highest possible level of reliability for the packaging and label print.

Semi-automatic register control regi_touch without marks

The operator can use the time that the press is idling to adjust register deviations via the touch screen – entirely without register marks. As soon as the machine starts, all adjustments will be implemented automatically and resulting set-up waste will be considerably reduced.

Inline colour measurement _icm to maintain colour constancy

The **_icm module** emits the colour variations compared to the standard colour values defined at the start of production for freely selectable measuring points. Single measuring values and trend analysis are visualized on the monitor and errors are logged at the same time. Tolerance deviations are displayed in two levels.

Remote maintenance module

With the aid of the remote maintenance module, the system can be inspected simply and quickly via remote diagnosis.

Technical data

System performance

Max. web speed	800 m/min (2,600 ft/min)
Max. web width	2,800 mm (110 inch)
Material	paper, film, aluminum, (opaque, transparent, reflective)
Ambient temperature	0° – 35 °C (32 – 95 °F)
Min. flaw size	0.05 mm² (0.0000075 inch²) with 3% gray scale value tolerance

Camera

Type	color line chip camera
Number	1 – 4
Resolution	4096 pixel

Illumination unit

Type	high power LED
Number	1 – 3 for opaque, transparent and reflective material

HMI screen

Type	19“ TFT touch screen
Resolution	1280 x 1024 pixel
Signal input	DVI

Live view monitor

Type	19“ TFT
Resolution	1280 x 1024 pixel
Signal input	DVI

Supply voltage

Power supply	115 / 230V AC / 50-60 Hz
Rated current	depends on application

Inputs

Function	reel change
Power supply	24 V DC
Input current	7 mA

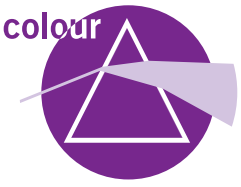
Outputs

Function	alarm signal (error, warning, ok)
Power supply	24 V DC
Max. output current	100 mA per output, short-circuit proof

Innovations for your success!

Seeing what is important
_100% print inspection
_Web viewing
_Quality workflow

Quickly in register
_Register control
_Sensor for low-contrast colours and varnishes



Fine colour matching
_Spectral colour measurement
_Densitometric ink setting

Individualised quality
_Print defect detection
_Inspection of variable data
_Register control

eltromat
tradition meets innovation

eltromat GmbH
Herforder Strasse 249-251
33818 Leopoldshoehe
Germany

T +49 5208 987-600
F +49 5208 987-649
info@eltromat.de
www.eltromat.de

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