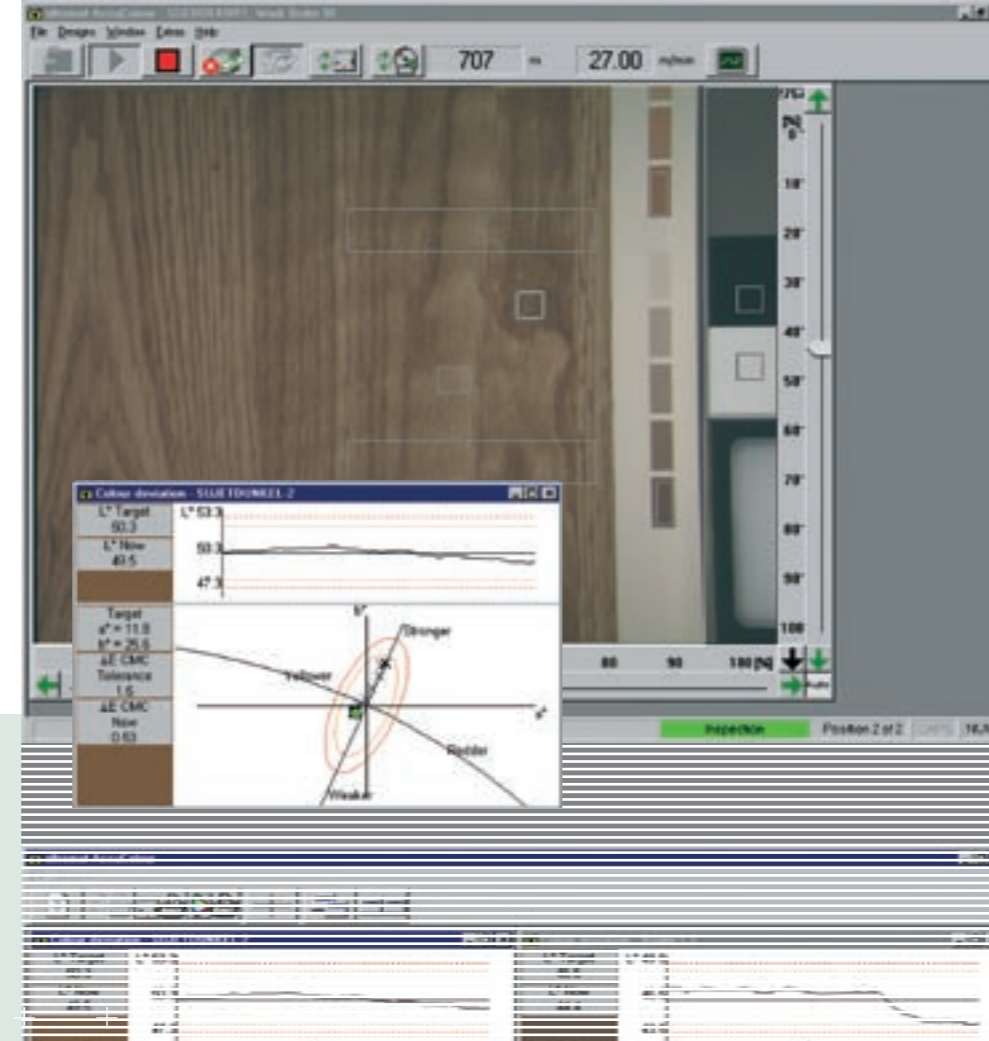


accucolour™

Color Assurance



accucolour™

COLOR ASSURANCE

Maintaining consistent and repeatable color during a job is still one of the most difficult tasks of printing plants. This applies all the more for high speed reel printing and the problems of the visual control.

accucolour™ – that is inline color measurement in real time. Process, special colors, half tones and vignettes are measured precisely and without contact using imaging technology.

Throughout a printing job color measurements are automatically taken up to 50 defined positions of a stored image. Clear displays of the individual measurements along with a trend analysis makes it easy for the operator to monitor color performance and if necessary make the appropriate corrections.

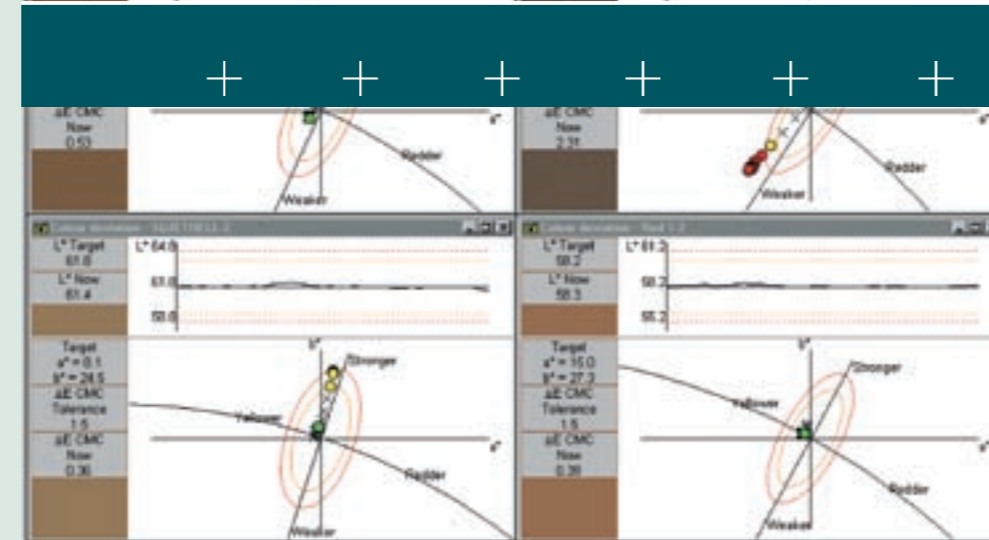
- _ CONSISTENT HIGH COLOR QUALITY
- _ CLEAR CORRECTIVE ACTIONS
- _ LESS WASTE AND TIME
- _ LESS COMPLAINTS
- _ RELIABLE



eltromat – since 1960 we have developed and produced control equipment to optimize printing processes. We are an innovative partner of machine manufacturers and printers. Our products are installed in many printing companies that have high demands regarding efficiency and quality.

eltromat products are applicable to offset, as well as flexo, rotogravure and screen printing processes. A modular concept allows installations of drive systems, viewing systems, into register, colour control and complete inspection systems. Upgrades are easy and great value.

Customer references are available upon request.



| | | | | | | | | | | |
|---|---|---|---|---|---|---|-------|----------|--------|-------------|
| + | + | + | + | + | + | → | drive | register | vision | colour |
| | | | | | | | | | | accucolour™ |

high_speed

The performance and reliability of our systems is based on various high speed individual processors.

high_modular

Our modular technology offers open interfaces to **eltromat_register** and **eltromat_colour**, and enables an easy up-grading or exchange of hardware and software.

high_touch

touch_screen and *touch_frame* allow to handle and operate our system easy and fast.

accucolour™ is patented for **eltromat**.

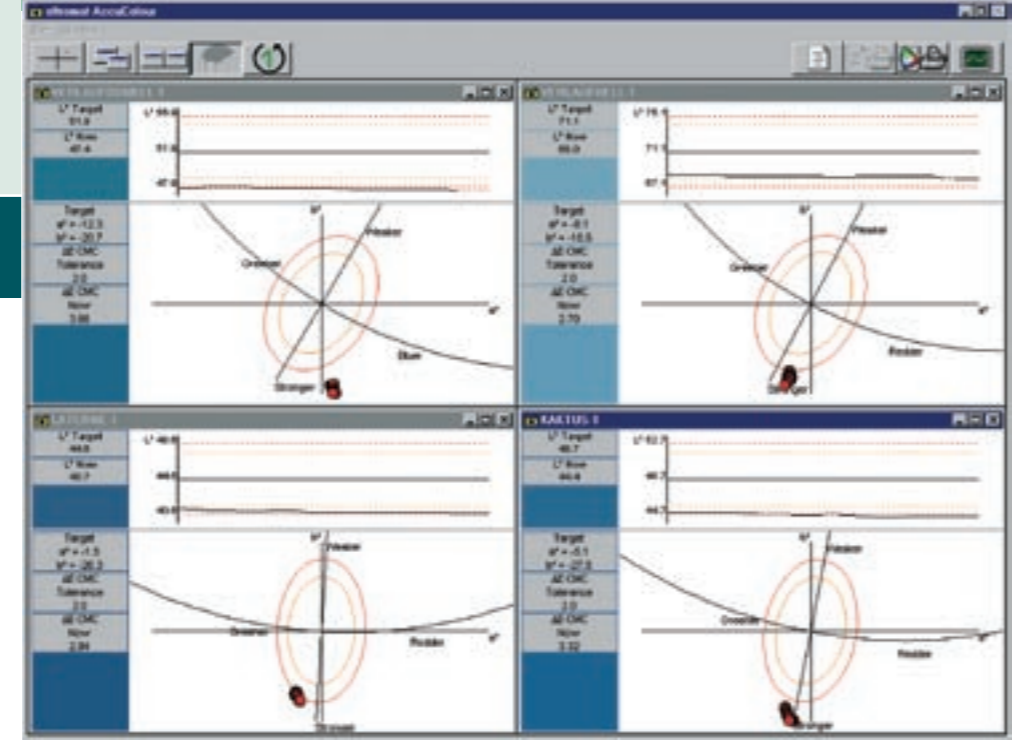
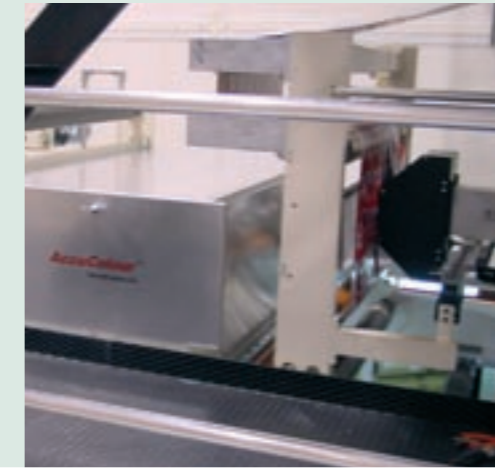
GENERAL COLOR CONTROL CONCEPT

In a very short time reference images are recorded and stored for critical print areas. **accucolour™** continuously compares these reference positions with the current production values during the job. This automated process helps ensure consistent color quality throughout the job.

The patented camera control for **accucolour™** uses a combination of image processing and color metric algorithms resulting in an extremely high accuracy and color stability.

accucolour™ is able to display color differences which are marginally perceived by the human eye.

Color trend recognition
The occurrence of slow and sneaking color drift will be recognized before waste appears.



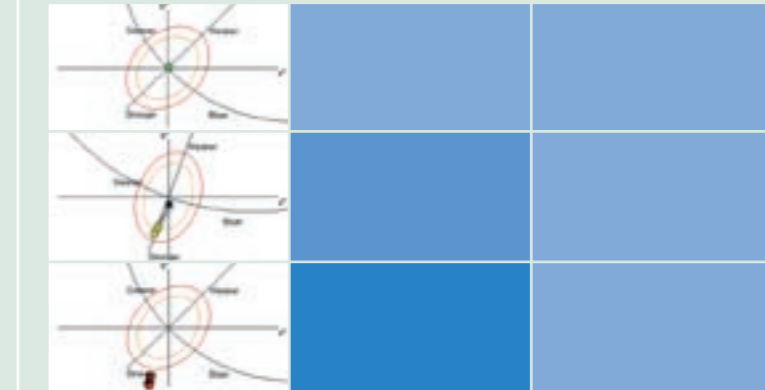
accucolour™ has a modular architecture

A CCD-camera with adaptive image memory is controlled via a specialized camera control and the **accucolour™**-software.

High performance industrial PCs are used for the analysis of the color measurements combined with an especially configured image processing module.

The images are stored by a high resolution professional quality RGB video camera. Extremely powerful Xenon strobes operate with a high degree of efficiency for optimal illumination and providing an excellent fidelity to the original color values.

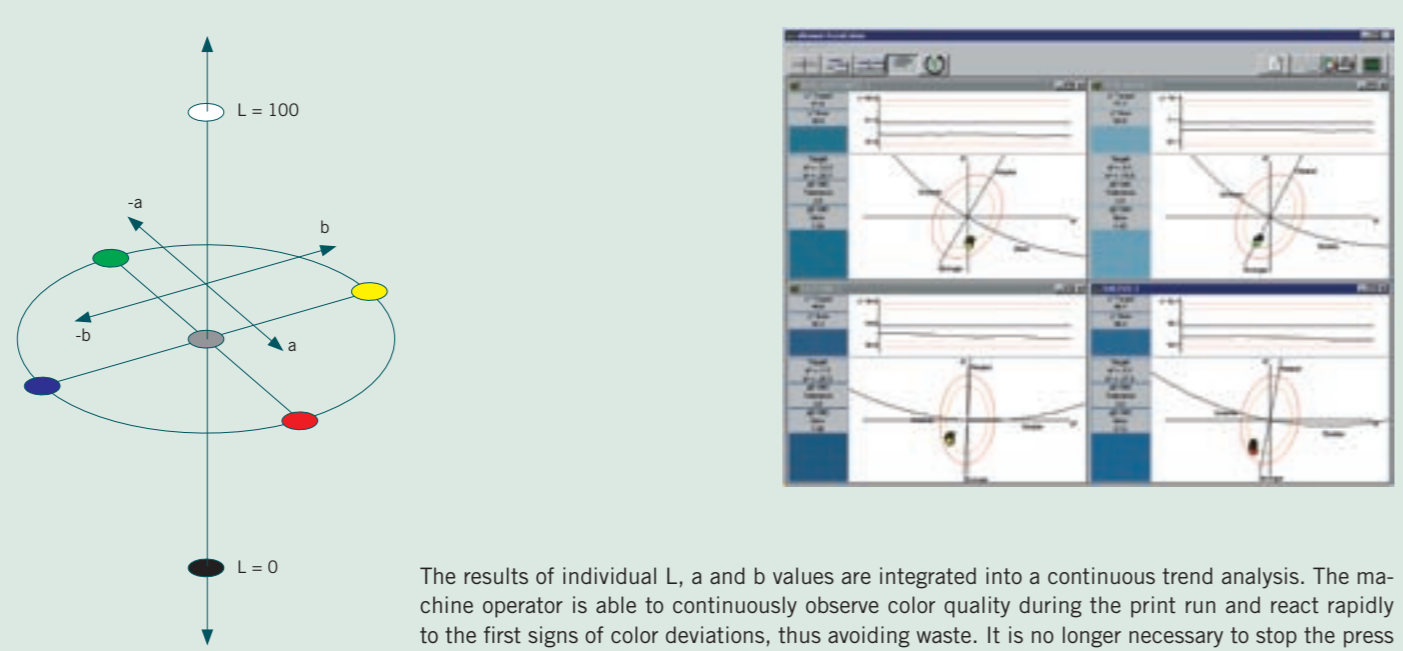
Special illumination systems eliminate shadowy images on transparent and translucent substrates and random reflections on metalized and highly reflective surfaces.



CUTTING EDGE TECHNOLOGY

accucolour™ evaluates and stores permanently the color values for statistic analysis and process control purposes.

The reference images recorded for a printing job are used as the reference for repeat jobs assuring color consistency.



The results of individual L, a and b values are integrated into a continuous trend analysis. The machine operator is able to continuously observe color quality during the print run and react rapidly to the first signs of color deviations, thus avoiding waste. It is no longer necessary to stop the press for color control as accucolour™ continuously measures and alerts the operator to color changes during the press run.

Reliable color

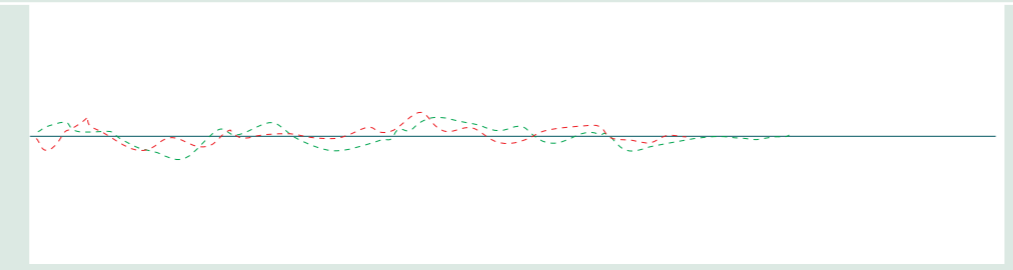
Quality log reports provide a complete history of color accuracy and variations for a given print job.

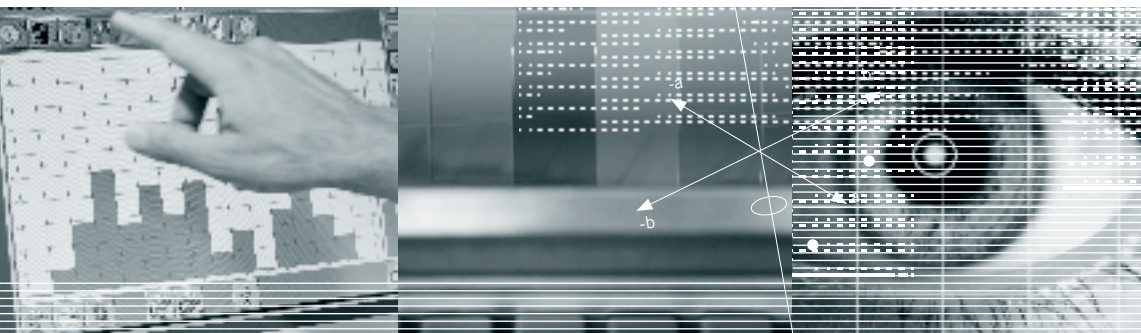
Reasons for accucolour™ ?

- accucolour™ is state of the art patented technology
- accucolour™ guarantees consistent color quality for repeat jobs
- accucolour™ reduces time and waste particularly during make ready for repeat jobs
- accucolour™ allows increase of production speed through color assurance
- accucolour™ helps to avoid customer claims and production stops

When color variations inevitably occur during a job (ink variations, tension and elasticity variations, etc.) these areas will be recognized by accucolour™ and recorded, so that they can be easily found later on.

| | |
|---------------------------|--|
| accucolour™ | 1 camera incl. illumination device 2 TFT monitors 1 keyboard with trackball |
| application | gravure printing flexo printing offset printing screen printing |
| camera | 3-chip, high resolution 16:1 zoom optic |
| strobes | special illumination for color measurement at web speeds up to 1.000 m/min |
| monitor | 19" TFT |
| image presentation | live-image color diagrams |
| job memory | variable |
| drive | precision guiding high speed positioning |
| service | remote diagnoses by modem |
| interfaces | ethernet |





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