durst

Optromat CL

Optromat – system and technology combined – for exacting enlargement. Its vertical structure simplifies working methods and saves space.

Highend Enlargement Technology

Large sizes in small space
Taking up as little as 2.5 sqm, the Optromat CL exposes enlargements of up to 100×100 cm from transperencies colour, or BW negatives. Using a roll paper easel the high quality Optromat CL becomes a high speed automatic enlarger for repeat print runs.

If you process photographs of high quality, you cannot accept any compromises in your enlargement technique.

The Optromat CL is a new professional enlarger for the most exacting production of pictures from film sizes up to 25×25 cm /10×10". The Closed Loop System with a light source of 2000 W, motorised filter adjustment and extremely sensitive response produces a projection excelling in highlight performance, homogeneous colour mixing and uniform illumination, with various mixing boxes.

Time-consuming tasks are carried out automatically by computerised exposure control and the high resolution electronic autofocus and autosizing system for projection adjustments, which can be quickly and exactly repeated. The Optromat CL is safe and easy to handle. Should the user supply a wrong command or use a component in an incorrect way, the Optromat CL will immediately inform him of his mistake. Changes are quick and easy. All exposure data can be stored. By simply pushing buttons the Optromat CL is adjusted to stored projection values.

The Optromat CL is part of the Durst PIDAM lab system (Picture Data Management). As with the other enlarger models of the PIDAM series (Optimo CL, Optopia CL, HL 2501 AF), exposure data can be exchanged with a central data bank via the efficient PIDAM data net. Computerised data management makes for continuous order monitoring from order entry to job completition. PIDAM provides a new level of quality control, production planning and data storage.

Everyone from the experienced technician to the youngest apprentice can comfortably work with the Optromat CL.

1
Lighting system
The 2000 W halogen lamp is easily accessible and can therefore quickly be replaced.

2
Filter mechanism
Motorised filter change, density diaphragm to control light intensity up to 60 D (2 f/stops). Additional quick-change motorised white-light filters. Dichroic yellow, magenta and cyan filters controlled by stepper motors and precision cam plates to be set in steps of 0.005 D within a range of 0 to 130 D. Built-in supplementary filter with additional filtration of 15 M and 45 Y.

3
Mixing boxes
Double-mirror boxes, for format-matched even illumination and homogeneous colour mixing, fade-free. Easy, quick-change mechanism. Built-in box metering and box coding for the Closed Loop System.

4
Laraneg film carrier
Light-proof film carrier box, adjustable film carrier with changeable register bar. Format-matched masking inserts.

5
Shutter
Built-in, 6-bar central electronic shutter for lenses of 50 mm to 300 mm. Extremely brief aperture times for constant results, even with exposure times below 1 sec.

6
Lens holder
Lens holder and extension tubes with quick locking and easy change without uncontrolled jamming.

7
Baseboard and support arm
Motorised baseboard (100×130 cm). Detachable support arm to accommodate roll paper easels.

8
Motorised enlarger height adjustment

D.C. motor driven backlash-free and rapid adjustment of the enlarger head and the baseboard up and down movement.

9
Cooling system

Twin fan low-vibration cooling system with dust filter for lamphouse, mixing box and film carrier.

10
Autofocus/ Autosizing

Autosizing print length measurement. Encoder for coordinated vertical adjustment with opto-electronic multi-point scan (less than 1/100 mm). Scale range from 50% (150 mm) to 3200% (50 mm).

11
Control panel/ console

Illuminated display, built-in data printer, panel illumination. Mounted on a swivel arm. No untidy cable. Console and drawer to store accessories. Remote control for convenient fine adjustment.

12
Power unit

Short circuit proof power unit with cooling fans and voltage stabiliser. Conveniently housed in a console drawer. Diagnostic functions. Heavy-duty boards swing rapidly in and out for printed circuit service access.

Functions

Operational control
Mixing boxes identified by a coding. "Come down" function of enlarger head permits easy film changing while the operator is seated. Alarm indicates when operating margins are exceeded or when an error occurs. Diagnostic service programme.

System programming with user prompts
Programming of autofocus exposure data for photographic material, balancing of various configurations. On-line densitometer provides direct balance entry.

Autosizing and autofocus
Can be programmed for all common lenses up to 300 mm. Can store up to 10 different lenses. The autofocus can be matched to any change of the projection plan by the motorised adjustment of the baseboard or via the PV (positive variator) programme when the baseboard is not in use. Image plans of 3 more film carriers can be stored. The NV (negative variator) compensates for image plan shifts, e.g. when projected by the film carrier. Numerical input of linear or percentage magnifications, or by entering both negative and print sizes in 1/10 mm or inches increments. Precise stepless size adjustment while automatically maintaining sharp focus and display of the magnification factor. Manual adjustment using the keyboard.

Exposure control
Built-in timer with a range from 0.8 to 999.9 sec. Automatic reciprocity failure compensation for varying magnification and exposures. 20 paper data memories, each for the three different process types positive, negative and BW. Process drift correction using channels allocated to the process types.

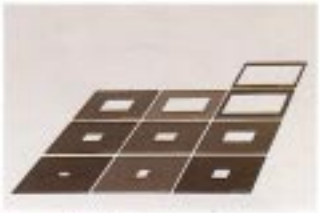
Electronic filter control
Stepless numerical filter and density control by direct input of cc values within the range of 0–130 cc for filters and 0–60 cc for density diaphragms. The Closed Loop System automatically compensates for colour or density fluctuations during the exposure. Colour corrections are automatically density compensated. If mixing boxes are changed an adjustment is made to compensate for variations in light output.

Translator
Built-in translator function for direct input of VCNA (Video Colour Negative Analyser) exposure values. Filter values and exposure times are set automatically. The programme takes into consideration process type, process drift, paper balance values, and changes in lens and mixing box combinations.

Job memory
100 battery-powered channels to store all printing data. Tracing facility for 8-digit order numbers.

System interfaces
Interfaces for roll paper easels, Optodens (reflection densitometer), barcode reader and network outlet for Lab Data Management (PIDAM network) for the transfer of all printing data.

Accessories

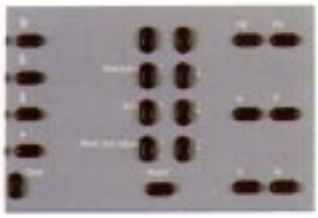


Format masks
Standard outfit:
for film sizes from 24×36 mm to 20×25 cm/10×10" to be used with Laraneg film carrier (to be fitted below the glass of the film carrier).
Optional:
Trinomask
Format masks for film sizes from 24×36 mm to 13×18 cm/5×7". The masks are equipped with spring loaded guide pins. Due to that an anti-Newton glass can be used instead of the upper mask.
Laratrino
Reduction insert for Trinomask format masks.

Mixing boxes
Standard outfit:
Mixing box 205 (20×25 cm/8×10")
Mixing box 450 (4×5")
Mixing box 69 (6×9 cm/2.25×3.5").
Optional:
Mixing box 100 (25×25 cm/10×10")
Mixing box 138 (13×18 cm/5×7")
Mixing box 35 (24×36 mm).

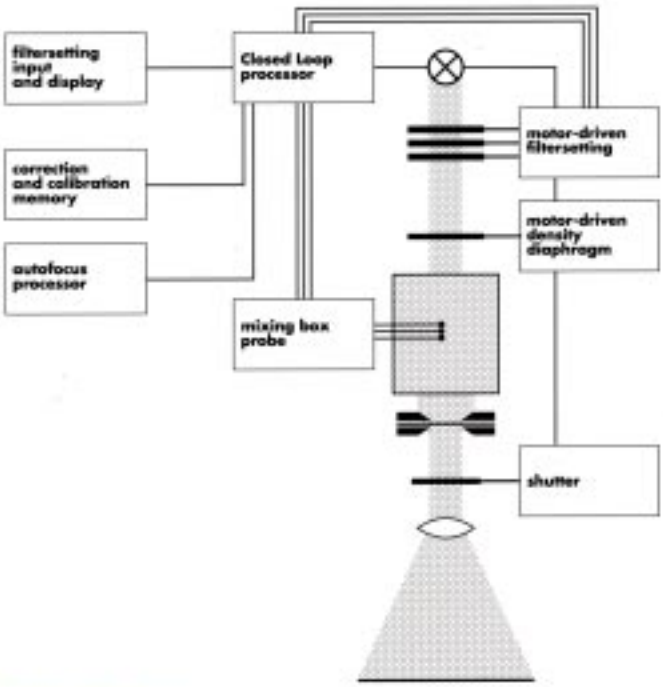
Optional film carriers and accessories
Laraneg AF
Homaskset
Negaroll 205
Special aerial film carrier with feed and take-up spools for roll film of up to 240 mm/9" width (e.g. negatives for aerial photography).

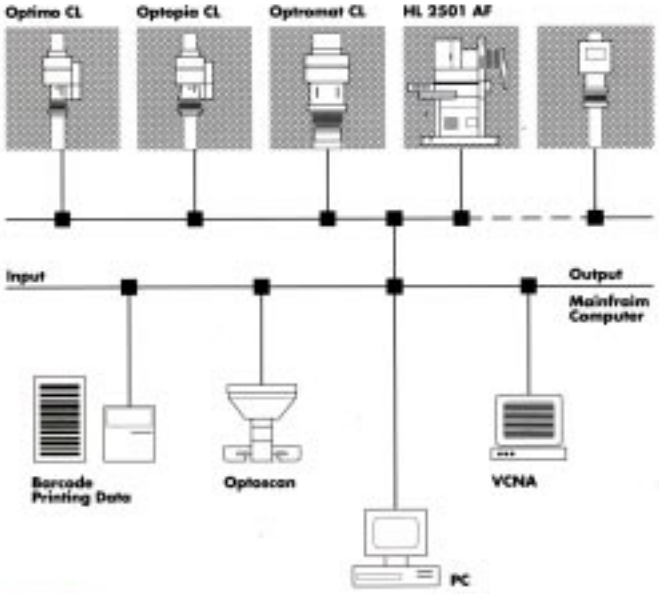
Features



Autosizing and autofocus

The projection is focused by three computer-controlled precision motors. Digital encoders ensure absolute control over fine adjustments. If the lens position is changed the line grid of a glass scale is measured within an accuracy of 1/100 mm using opto-electrical multi-point scanning. Any lens can be focused throughout its range, it takes about 5 minutes to program the autofocus system for each lens.





Closed Loop System

With a 2000 W light source the Closed Loop System ensures constant light intensity and homogeneous colour mixing during exposure, correcting automatically for changes in lamp output. Narrow banded light sensors read the blue, green and red components of the coloured light in the mixing box. A micro processor compares the reading with the programmed exposure values during the exposure and controls the light intensity using the density diaphragm. This control also compensates for fluctuations in colour temperature and compensates for density after filter adjustments. The illumination characteristics of the format-matched mixing boxes and the differing transmission of the lenses are adjusted automatically. The electronic shutter ensures exact exposure times between 0.8 and 999 sec.

PIDAM

With the new illumination and control system incorporated into Optromat CL, exposure data can be exchanged with other PIDAM series enlargers (Optimo CL, Optopia CL, HL 2501 AF). Data can be exchanged using bar codes or on-line through a network (PIDAM net). During job planning the negatives are scanned with Optoscan, a film scanning system or analysed on a video analyser and VCNA values are subsequently integrated with projection data. The Lab Data Management programme handles the transfer and the management of all printing data. The Optoscan scanning system can also be directly linked to Optromat CL.

Easy handling

The control panel is laid out so that keys can be instantly recognised and selected. Important keys are highlighted by a lamp. A large illuminated display indicates all the important magnification data. The illumination of the keyboard can be adjusted.

Printing and memory data can be printed by the built-in data printer. A remote control is part of the standard outfit, used to set magnification and initiate the exposure.

Technical Data

Colour head

Light source:	halogen lamp 2000 W/120 V
Lamp life:	approx. 200 h
Separate glass-reflector life:	approx. 1000 h
Twin fan cooling system for lamphouse and mixing box with thermal overload cutout	

Closed Loop

Spectral colour readings in mixing box, automatic compensation of colour temperature fluctuations.	
Max. deviation when changing lamp or reflector:	+/-0.015 D at gamma 1
Cold-warm-drift:	+/-0.01 D for Y-M-C
Repeatability:	+/-0.008 D for Y-M-C

Filters

Dichroic yellow, magenta and cyan filters, computer-controlled motorised adjustment	
Max. filter density:	195 CC values (= D 1.3)
Density diaphragm:	90 CC values (= D 0.6)
Electronically controlled shutter built into lens carrier	
Range of exposure time:	0.8-999.9 sec.

Light output

Mixing box	Lens	Aperture/scale	Luminous flux
Box 35	50 mm	8/5	48 lux
Box 69	105 mm	8/5	21 lux
Box 450	150 mm	8/5	16 lux
Box 138	240 mm	8/5	12 lux
Box 205	300 mm	8/5	5.4 lux

Measures of drawing in mm.
The latest technical developments are continuously being incorporated into Durst products. Illustrations and descriptions are therefore subject to modification.

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Optical unit

Film sizes:	24×36 mm up to 25,4×25,4cm /10×10" 50 – 300 mm
Lens focal lengths:	
Magnification factors (linear) on the baseboard with different focal lengths:	
*lowest position of baseboard	

	max*	min
50 mm	32×	6,9×
80 mm	19×	3,3×
105 mm	14,4×	2×
150 mm	9,4×	0,5×
240 mm	5×	0,5×
300 mm	3,6×	0,65×

Outlets for

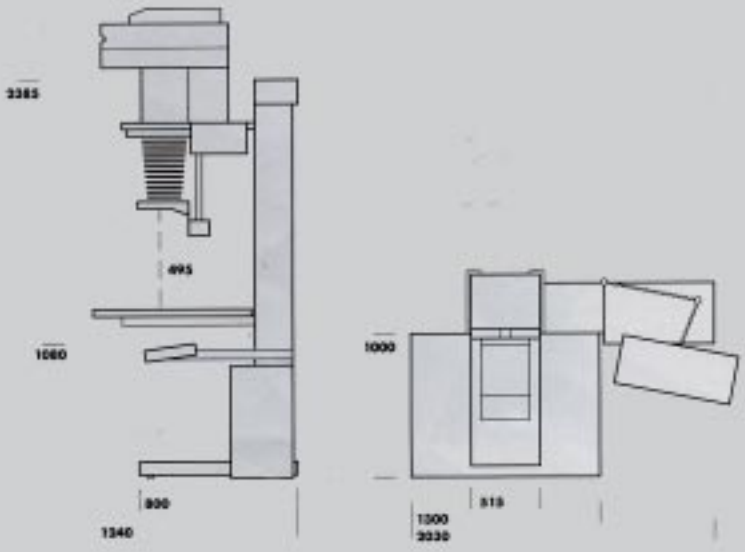
Roll paper easel
Remote control
On-line reflection densitometer
RS 232-interface for bar code reader or on-line Optoscan analyser
RS 232-interface for PIDAM net outlet
Built-in data printer

Power unit

Supply voltage:	100/110/220/240V, 50-60 Hz
Stabilisation:	-15%/+10% accurate within +/-1%
Power consumption:	approx. 3000 W
Fan-cooled transformer	
1 additional mains outlet	

Recommended operating conditions

Temperature:	+10° up to 30° C
Relative humidity:	5% – 95%



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