

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 100x100 cm from transparencies, 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 25x25 cm / 10x10". The Closed Loop System with a light source of 2000 W, motorised filter adjustment and extremely sensitive response produces a projection excelling in high-light 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 auto-sizing 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 completion. 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 (100x130 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 key-board.

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

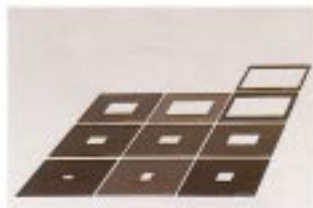
Interfaces for roll paper easels, Optodens (reflection densitometer), barcode reader and network outlet for Lab Data Management (PIDAM network) for the transfer of all printing data.

Accessories



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).



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.



Optional film carriers and accessories

Laraneg AF

Homaskset

Negaroll 205

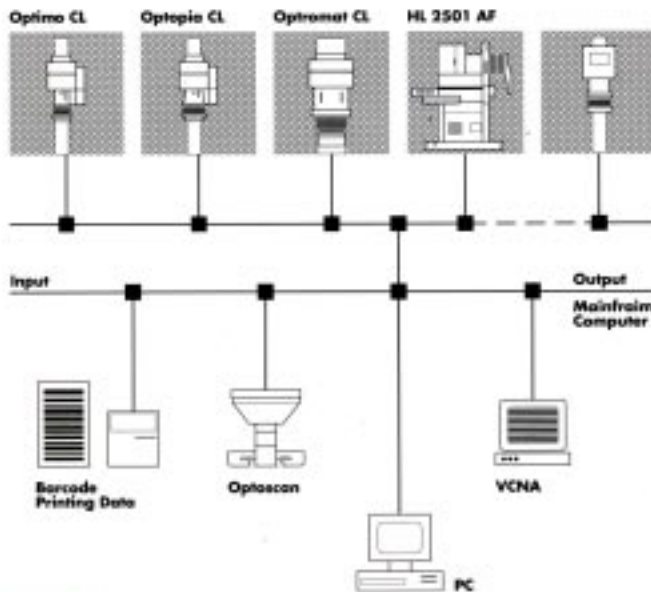
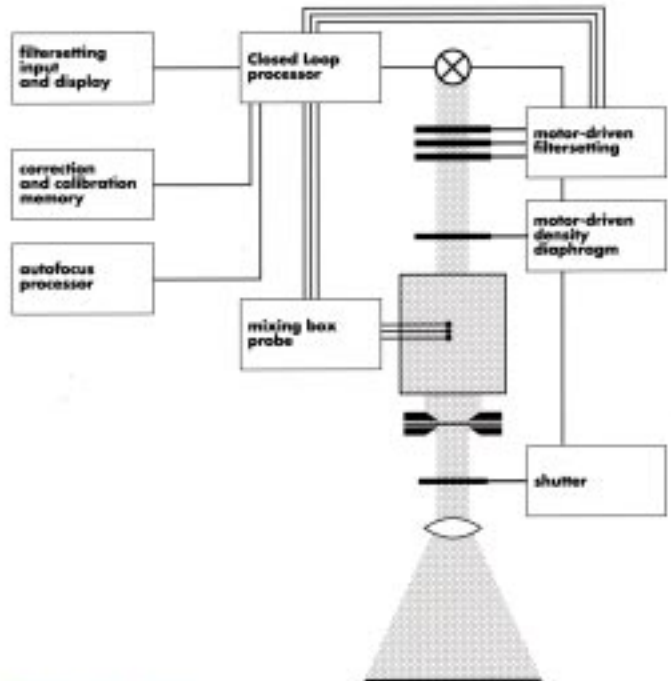
Special aerial film carrier with feed and take-up spools for roll film of up to 240 mm/9" width (e.g. negatives for aerial photography).

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.



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, HL2501 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.

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 den-

sity 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.



Easy handling

The control panel is laid out so that the 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:
Lamp life:
Separate glass-reflector life:
Twin fan cooling system for
lamphouse and mixing box with
thermal overload cutout

halogen lamp 2000W/120V
approx. 200 h
approx. 1000 h

Closed Loop

Spectral colour readings in
mixing box, automatic compen-
sation of colour temperature
fluctuations.

Max. deviation when changing
lamp or reflector:
Cold-warm-drift:
Repeatability:

+/-0.015 D at gamma 1
+/-0.01 D for Y-M-C
+/-0.008 D for Y-M-C

Filters

Dichroic yellow, magenta and
cyan filters, computer-con-
trolled motorised adjustment
Max. filter density:
Density diaphragm:
Electronically controlled shutter
built into lens carrier
Range of exposure time:

195 CC values (= D 1.3)
90 CC values (= D 0.6)
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 deve-
lopments are continuously
being incorporated into
Durst products.
Illustrations and descrip-
tions are therefore subject
to modification.

090015

Optical unit

Film sizes:

24x36 mm
up to 25,4x25,4cm /10x10"
50 - 300 mm

Lens focal lengths:
Magnification factors (linear)
on the baseboard with
different focal lengths:
*lowest position of baseboard

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

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:
Stabilisation:

100/110/220/240V, 50-60 Hz
- 15%/+10%
accurate within +/- 1%
approx. 3000 W

Power consumption:
Fan-cooled transformer
1 additional mains outlet

Recommended operating conditions

Temperature:
Relative humidity:

+10° up to 30° C
5% - 95%

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