

English

Durst *HL 2501 AF* Closed Loop System



... a sophisticated horizontal enlarger

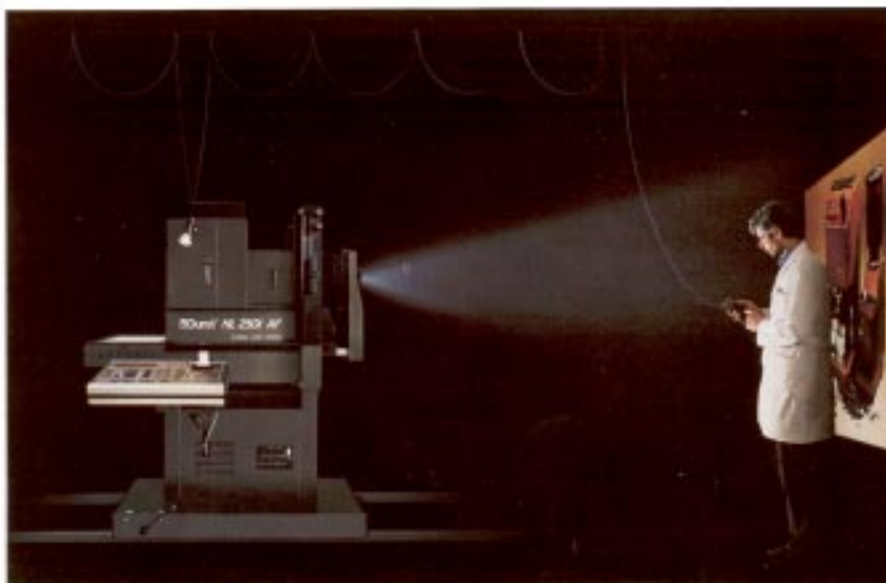
Durst's supremely practical HL 2501 AF horizontal enlarger proves that sophisticated technology need not be complicated to use.



With its step-by-step instructions, programmed into the fully electronic control panel, its automatic time-saving and easy-to-use functions and other convenience features this unit will meet the most demanding requirements for a long time to come.

Scope of application

The HL 2501 AF is primarily designed for giant enlargements, to meet today's increasing demand for exhibition prints. However, it equally easily produces smaller prints, too.



Description of functions

Microcomputer control

Extremely high light

intensity with a single light source (one preheated 2000W tungsten-halogen lamp).

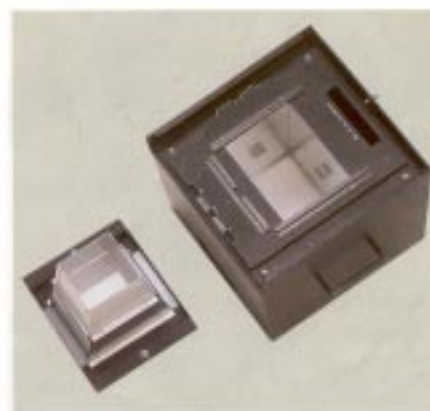
With the interchangeable double mixing boxes, matched to all film sizes from 24x36 mm to 25x25 cm (10x10 in.) the HL 2501 AF yields an exceptionally high light output - for the mixing boxes concentrate all of the light onto the film size in use. This ensures even illumination of the film area as well as optimum colour mixing.

Even at high magnifications these mirror mixing boxes allow relatively short exposure times especially useful when making test strips.

The mirror boxes also avoid contrast losses and retain their colour quality (without yellowing) over their whole service life.

One hundred memory

channels (0-99) for printing data such as filter and density values, apertures, exposure times, magnifications, film plane variator settings (when handling internegatives), image plane variator settings, lens and paper channels.



Increase of light output with the light mixing box corresponding to the film size in use compared to the largest mixing box

Film size	Light mixing box HOBOX 100 25 x 25 cm	Mixing box corresponding to film size			Note
		Code	Increase of light in %*	Increase of light in f-stops*	
24 x 36 mm	100 %	HOBOX 35	1.050	3 1/2	
6 x 6 cm	100 %	HOBOX 69	510	2 1/2	
6 x 9 cm	100 %	HOBOX 69	510	2 1/2	
4 x 5"	100 %	HOBOX 450	370	2	
		HOBOX 126	735	2 1/2	strip light mixing box
		HOBOX 138	280	1 1/2	
13 x 18 cm	100 %	HOBOX 186	600	2 1/2	strip light mixing box
		HOBOX 205	124	1/2	
20 x 25 cm	100 %	HOBOX 256	240	1 1/2	strip light mixing box

* Indicative values

Description of functions

Built-in output printer

to print out the printing and memory data listed above, plus an order number.

Input of filter and density settings

via:

- A numeric keypad. This directly enters or changes any value.
- A colour correction key. This key is depressed until the required value appears in the digital display. With the "Rapid" key this permits fast adjustment.

Motor driven movement

(at two speeds) of:

- The whole enlarger
- The lens stage
- The negative carrier

Code system (see description of the unit)

Programmed instructions with prompts for quick and straightforward programming and operation.

Highly user-friendly construction

- Built-in diagnostic program for fast and simple trouble shooting with notes on remedies.
- Centrally mounted swing-out circuit boards and control units with built-in power sockets for soldering irons, lamps etc.

Focus variator

Stepless paper plane adjustment over a 100mm range - e.g. to allow for roll paper magazine or vacuum easel.

Automatic magnification and focus settings

Offers the following input alternatives:

- Input of linear magnification (e.g. 1.8 x).
- Input of negative format and required print size. This automatically displays the corresponding magnification.
- Input of percentage magnification.

With the appropriate layout keys you can further adjust an automatically selected magnification (again at two speeds) without loss of image sharpness.

This layout function permits precise matching of originals to a predetermined size by stepless magnification change. The image stays perfectly sharp during this adjustment.



Description of functions

Automatic reciprocity failure correction for colour and density (X. Comp.)

A built-in two-point or three-point (depending on the rail length) paper slope correction automatically compensates for the exposure increase needed by high magnifications.

You can thus make exposure tests at a lower magnification – with shorter exposures and covering larger print areas. This system has 10 memory channels (CP) and thus permits individual programming for various materials (prints, transparencies etc.). This allows the rapid and cost-effective handling of orders involving different magnifications.

Built-in density diaphragm

to maintain a constant optimum aperture or exposure time with film originals of varying density. Also permits automatic density correction on entering a corrective filter setting.

Highly convenient handling

with choice of left-hand or right-hand operation.

Special rail system: The enlarger runs on three rollers, automatically compensating for uneven floors.

Closed Loop System

Three sensors ① built into the lower mixing box measure the blue, green and red components of the projected light beam and feed their signal outputs into a microcomputer ②. This then matches the settings of the three dichroic filters ③ (cyan, yellow and magenta) to the programmed calibration values. This ensures constant filter settings and compensates for alternative mixing boxes and for lamp ④ aging.

① Density diaphragm; ② shutter; ③ servo motors; ④ & ⑤ light mixing boxes.

After every startup the unit runs an automatic light balance sequence and zeroing of the autofocus system.

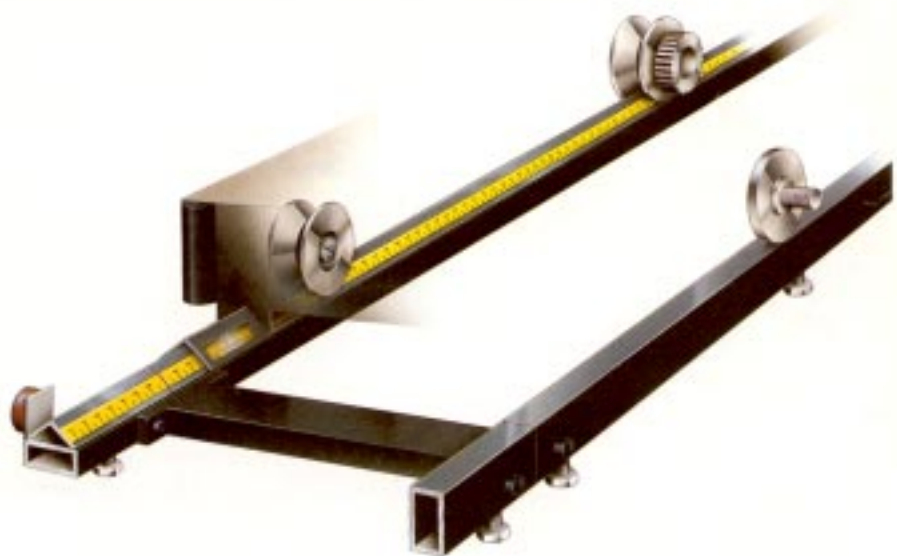
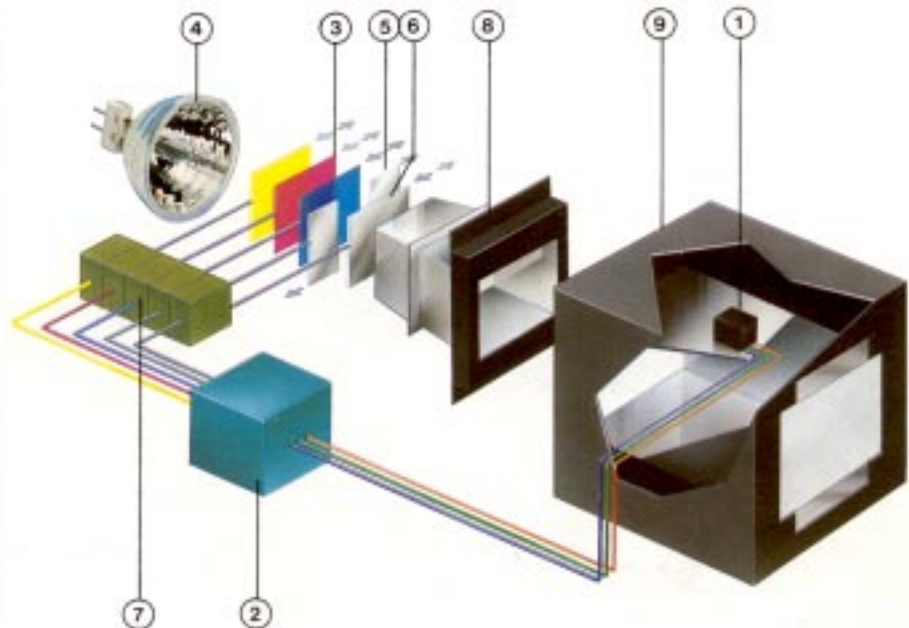
This system is important for economical production of strip exposures and reorders.

Video colour negative analyser (VCNA) values can also be entered directly without having to adapt them to selected magnifications of exposure times (i.e., they need no reciprocity correction).

Can be modified to take magnetic edge reader and memory systems.

Built-in exposure timer

(range 0.1 to 999 sec) with simultaneous display on the negative stage.



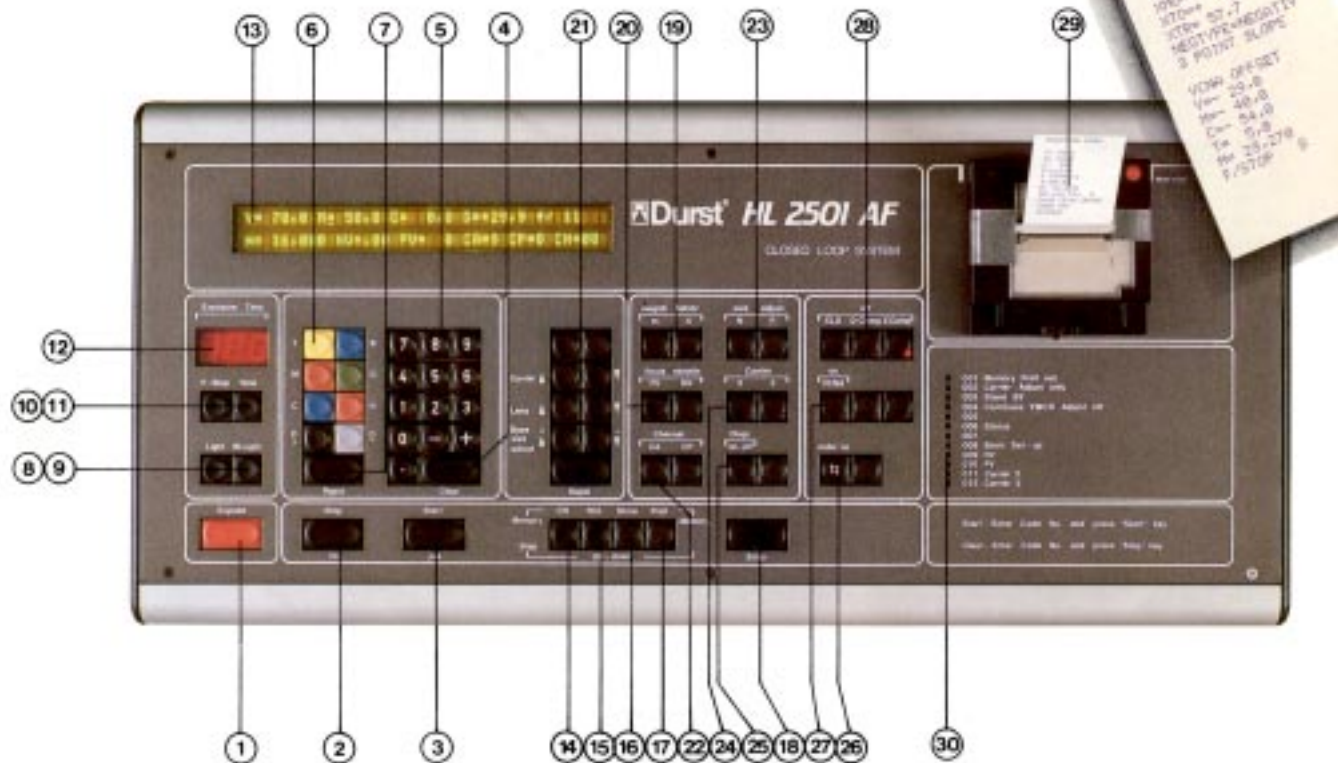
The exposure countdown is thus visible from the projection surface – useful for shading and dodging work.

Voltage stabiliser with $\pm 1\%$ control accuracy included as standard.

The design of the HL 2501 AF provides for upgrading the central control by linking to a personal computer.

Selector keys allow simultaneous use of three different film carriers (automatic programmable compensation for different image plane locations). This eliminates time-wasting film insertion when handling different orders at the same time.

Unit description



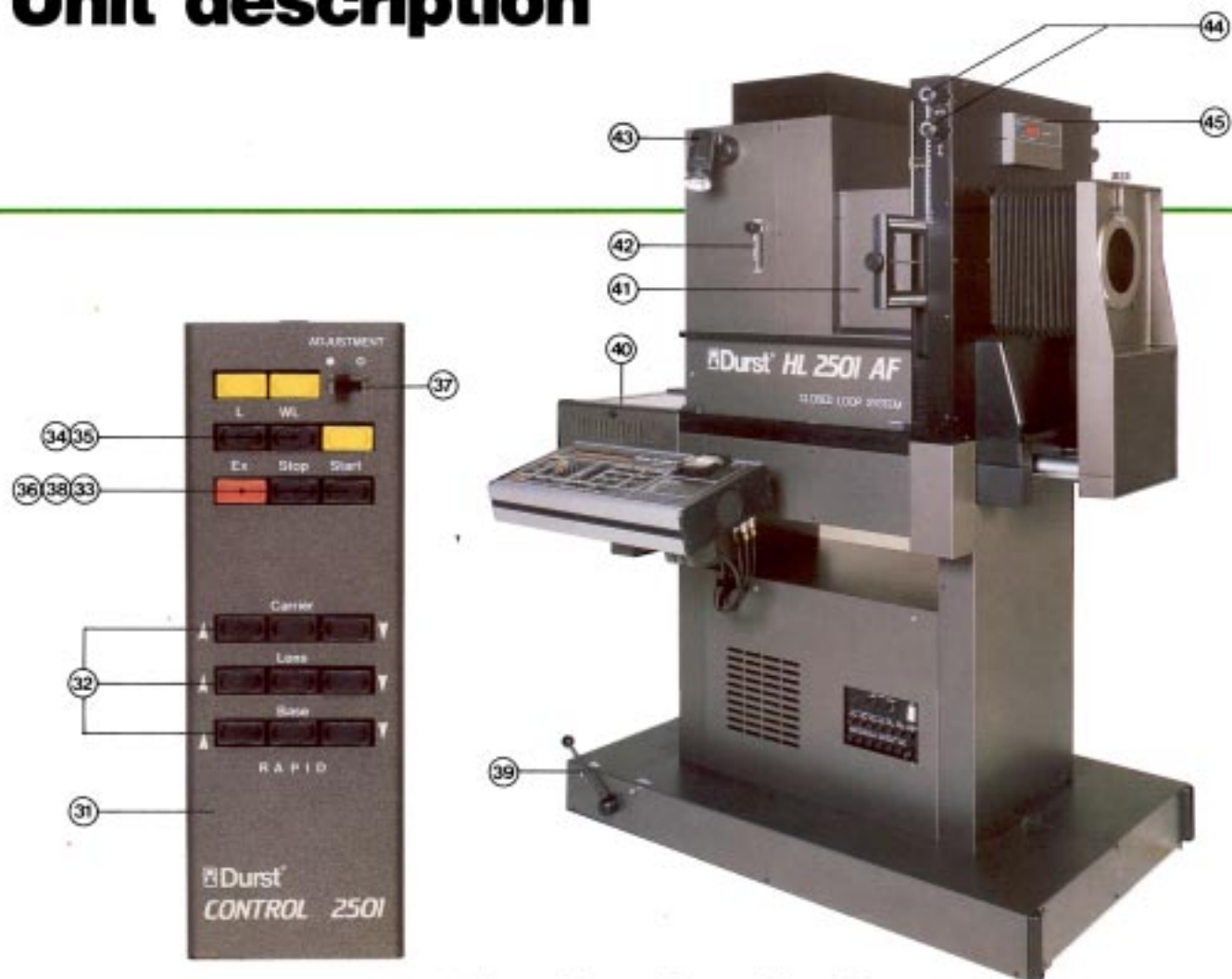
- 1) EXPOSE: Triggers an exposure
- 2) STOP/NO
- 3) START/YES
- 4) CLEAR: Clears an incorrect input
- 5) Numeric keypad
- 6) Pairs of control keys for plus/minus correction of Yellow/Blue, Magenta/Green, Cyan/Red, plus/minus density settings
- 7) RAPID: Rapid filter and density adjustment
- 8) LIGHT: On/off switch for enlarger lamp
- 9) WLIGHT: White-light setting (swings filters aside)
- 10) F-STOP: Lens aperture input
- 11) TIME: Exposure time input
- 12) Exposure time display
- 13) Alphanumeric display
- 14) CH: Choosing a memory channel
- 15) RCL: Recalling a memory channel
- 16) STORE: Storing a channel
- 17) PRINT: Print out all data
- 18) ENTER
- 19) M: (Magnification) Input of required magnification
%: (Percentage factor) Input of percentage magnification
- 20) PV: (Positive variator) Adjustment of projected image plane
NV: (Negative variator) Adjustment of negative image plane

- 21) Pair of keys for moving the whole enlarger, lens stage and film stage
RAPID: Rapid adjustment of whole enlarger, lens stage and film stage
- 22) CA: Lens channel (10 channels: 0-9)
CP: Paper channel (10 channels: 0-9)
- 23) Negative size input (format length N)
Required print size input (format length P)
- 24) Simultaneous use of two further negative carriers
- 25) DISPLAY ON/OFF: Switches the control panel display on and off
- 26) ORDER NO.: Prints out order No. (0-9999)
- 27) VCNA ON: Video colour negative analyser
- 28) CLS: Switches off closed loop system
D.COMP: Switches off automatic density compensation for correction of display filter setting
X.COMP: Switches off automatic reciprocity compensation
- 29) Data output printer
- 30) CODE SYSTEM
- 001 Memory print out - Prints out all memory values
- 002 Carrier adjust only - Locks out all operations

- 003 Stand by
- 004 Continuous YMCD adjust off - Locks out only stepless YMCD filter and density adjustment to avoid errors through inadvertent contact with keys
- 008 Status - Permits direct input of programming settings
- 008 Basic setup - Activates programming instructions
- 009 NV - Negative variator input
- 010 PV - Positive variator input
- 011 Carrier 2 - Programs a second film carrier
- 012 Carrier 3 - Programs a third film carrier



Unit description



Technical data

Remote control with the following functions:

- 31) Remote control
- 32) Two-speed movement of whole enlarger, lens stage and negative carrier
- 33) Triggering of focusing sequence
- 34) Enlarger lamp on/off
- 35) White light setting
- 36) Expose
- 37) On/off switch to operate enlarger movements
- 38) STOP

A 10m (33ft) cable links the remote control unit with the HL 2501 AF.

- 39) Locking lever
- 40) Light table
- 41) Mixing box
- 42) Supplementary filter
- 43) Illumination
- 44) Masking strips
- 45) Exposure time display with adjustable intensity

Weight: 260kg (573lb)
Filters: Dichroic yellow, magenta and cyan

Memory lineup:
a) Lenses (focal lengths): 10 channels (0-9)
b) Paper emulsions : 10 channels (0-9)
c) Main memory : 100 channels (0-99)
d) Negative carriers : 3 channels

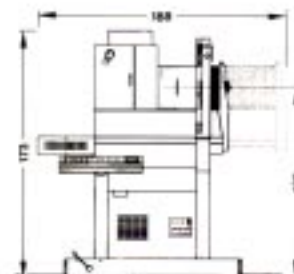
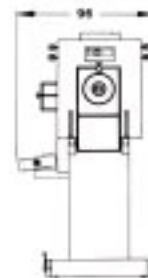
Filtration range : 0-130 in densitometric steps
Density diaphragm : 0-60 in densitometric steps

Supplementary filters: 45 yellow + 15 magenta

Light source : 2000W, 230V tungsten-halogen lamp with separate diathermic reflector
Mains supply : 220 & 240V, 50-60Hz
Power consumption : Approx. 3000W
Stabilisation range : + 10%, - 15%

Rails:
Length per section : 2m (79in.) (2 sections included in standard outfit)

Width (centre to centre) : 62cm (24.4in.)
Height : 4cm (1.6in.)



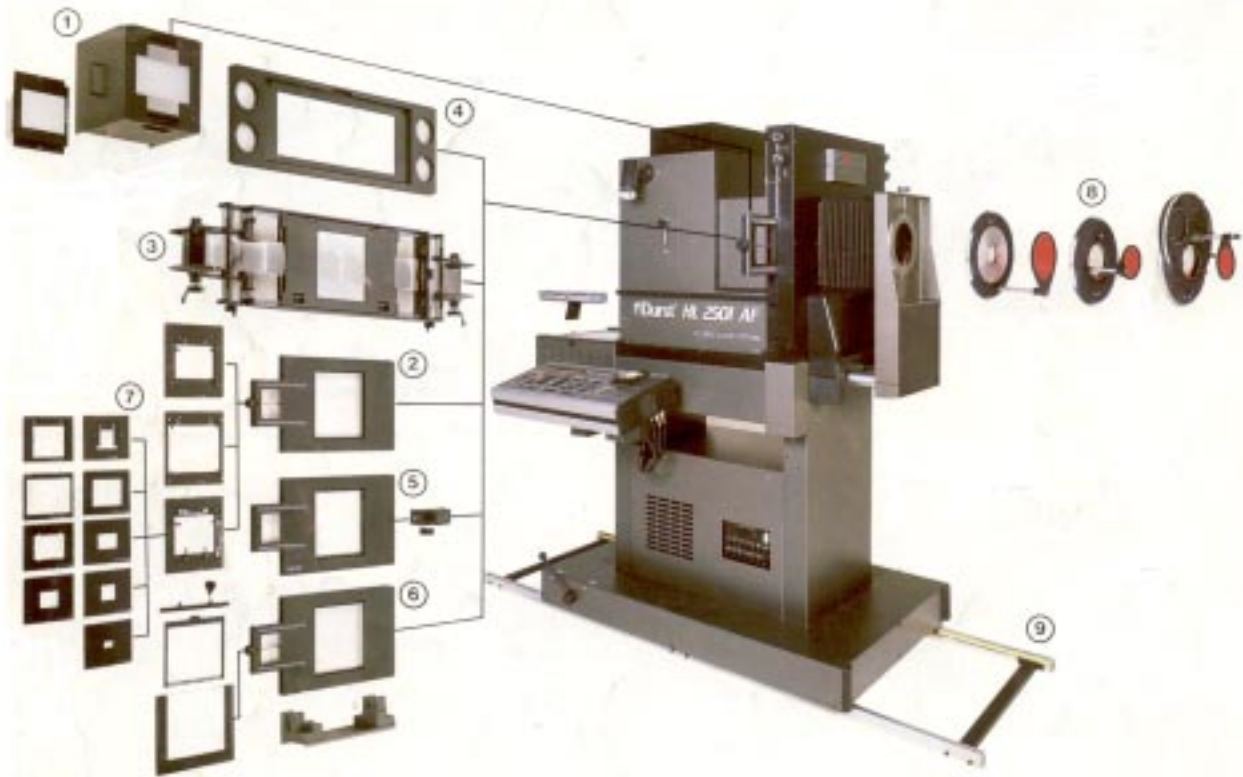
Accessory range

- 1- HOBOX 100, 138 and 35 mixing boxes with built-in metering sensor
- 1- HOBOX 186 and 126 mixing boxes with built-in metering sensor for strip exposures
- 1- HOBOX S mixing boxes for all other DIN and ASA formats (specially made to order)
- 2- Additional HONEG AF standard negative carrier for film sizes up to 25x25 cm (10x10 in.)
- 3- HONEGROLL AF rollfilm carrier to take rollfilm widths from 35 mm to 25 cm (10 in.) and lengths up to 150 m (500 ft)

- 4- Special HONEG 2464 AF 25x64 cm (10x25 in.) negative carrier to take three 25x25 cm (10x10 in.) or 360° panorama films
- 5- HONEG MICRO AF register negative carrier for composing
- 6- LIQUIDGATE 2500 AF liquid cell negative carrier for handling scratched films
- 7- Format masks with register system
- 8- VAPLA, UNIPLA and TRIPLA lens boards to take one (VAPLA, UNIPLA) or three (TRIPLA) lenses
- 9- Extra HORAIL rail unit (2 m or 79 in. long)

Supplied with outfit

- HOBOX 205, 450 and 69 mixing boxes (one each) for 20x25 cm (8x10 in.), 10x12.7 cm (4x5 in.) and 6x9 cm (2¼x3¼ in.) films
- One HOBOX 256 mixing box for 20x12 cm (8x4¾ in.) strip exposures
- Two COLAMP 2000 tungsten halogen lamps - 2000W, 230V (includes one spare)
- One diathermic reflector
- One HOTUB lens holder for 50 mm to 150 mm lenses
- One HOMASKSET set of 10 format masks for all common film sizes from 24x36 mm to 20x25 cm (8x10 in.)



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Durst
Phototechnik GmbH
P.O. Box 223
39042 Bressanone / Italy



DURST-PRO-USA, Inc.
1600 NE 25th Avenue
Hillsboro, Oregon 97124
USA

Phone 503 846 1492
Fax 503 640 1878

Email: durst-pro-usa@msn.com
www.durst-pro-usa.com

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