

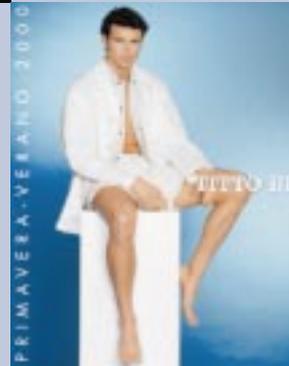
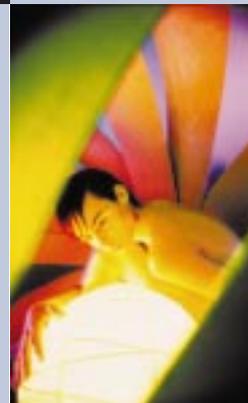


durst

Lambda 130 Plus
Lambda 131 Plus
Lambda 131
Lambda Pi 50

Large Format Digital Laser Imagers

The evolution in imaging to unsurpassed large-format quality: from images, graphics and text direct on to conventional photo-material via a file.



4 Models to meet your Requirements

Lambda 130 Plus

The Lambda 130 is the top of the line version featuring a 5-position paper for the unexposed media (paper, backlit, clear film, flex media) or different media widths or surfaces from 50.8 cm (20 in.) up to 127 cm (50 in.).

This allows very fast access to the required media without the need to physically load and unload it. You can handle mixed orders or calibrate a new emulsion without slowing down or interrupting production. The requested media is menu-selected from the computer (Autoload-Function) and the turret will automatically move into the right position and start with the exposure with almost no media waste.

Lambda 131/Lambda 131 Plus

The Durst Lambda 131 Large Format Digital Laser Imager offers exactly the same features as the Lambda 130 with the only difference of a single position instead of the 5-position paper turret. It is fully upgradeable to a Durst Lambda 130 with 5-position paper turret.

Lambda 131 Plus features a two times higher linear imaging speed at 200 ppi compare to Lambda 131 (60 cm/24 in. per min. instead of 30 cm/12 in. per min.).

Lambda Pi 50

The budget-priced Durst Lambda Pi 50 offers exactly the same features as the Lambda 130 with the only differences being a single position instead of the 5-position paper turret, a take-up tray instead of an automatic take-up unit and a lower power green laser; it also uses a slightly lower powered computer. The only limitations to the Lambda Pi 50 are the maximum print length of 14 m (46 ft) and that it can print to RA 4 media only. It is fully upgradeable to a Durst Lambda 131 with a fully automatic paper take-up system and powerful green laser to expose any media or to a Lambda 130 with a 5-position paper turret.

Lambda RS

Version for Direct Digital Remote Sensing

All Durst Lambda versions can be factory-adjusted to meet the exacting standards of the Geomatics community.

The Durst Lambda RS Imaging Technology for Remote Sensing, Aerial Photography and Cartography offers the highest sizing and geometric precision of plus or minus 0.03 %, corresponding to plus or minus 0.4 mm (millimeter) over a writing area of 127 x 127 cm (50 x 50 in.).

The unique and patented Durst Lambda continuous roll to roll single beam, 3-laser (RGB) exposure system offers total size flexibility and achieves an image quality which is superior to all large format printers - photographic, inkjet and electrostatic. The Durst Lambda exposes digital information (raster pixel) directly to conventional photographic media at full continuous tone with a linear writing speed of up to 60 cm (24 in.) per minute with the choice of two resolutions of 200 and 400 ppi (equal to an apparent resolution of 4000 dpi). The Lambda produces images with the highest possible resolution (68 billion colors) and with a radiometric repeatability of 0.025 D per color.

Automatic paper take-up device.

Roll paper in the widths from 50.8 cm (20 in.) to 127 cm (50 in.). Print sizes exceeding the max. paper-width are automatically divided-up and exposed in strips.



5-position paper turret for unexposed materials to allow a quick access to various media.

Patented Durst Lambda continuous roll to roll single beam, 3-laser (RGB) exposure system.

Powerful Compaq (DEC-Alpha) workstation with Compaq Tru64 (Digital UNIX) operating system (64 bit) and integrated high performance PostScript-RIP by Durst Dice America (400 MB in approx. 1 minute with automatic CMYK to RGB conversion).



The Durst Lambda can print all files created with standard application programs, such as QuarkXPress, Adobe Pagemaker, Macromedia Freehand, Adobe Illustrator, Photoshop, etc. Already existing files for offset-printing (advertisement, etc.) can be printed to any size on the Durst Lambda without modification.

The Key Features

Direct digital printing with unsurpassed image and text quality

Durst Lambda 130 Series combine the advantages of classical silver halide photography with the potential of the latest laser and digital technology, without an intermediate film stage - and without the compromises of CMYK output. This new technology offers superior color saturation and fidelity, better image quality, more details and sharper type than other alternatives (customer statement). It also provides a number of advantages over conventional enlargements, including improved image quality with no image distortion and no loss of image sharpness, perfect edge to edge sharpness and evenness, a reduction in time spent handling images, and a decrease in the cost of materials.

The Durst Lambda 130 Series operate with a full 36-bit RGB color space (68 billion colors) to ensure excellent control over the light source and to produce faithful color reproductions.

Sharp images, text and graphics with exceptional details at full contrast

The Durst Lambda Digital Imaging Technology ensures a constant pixel size and intensity over the entire image. The patented Durst continuous roll to roll laser exposing system ensures no parasite light during the exposure for perfect image white and highest contrast range.

Apparent resolution up to 4000 dpi

The Durst Lambda 130 series feature a dual, autoswitchable resolution of 200 and 400 full continuous tone pixels per inch (ppi) with on-the-fly pixel interpolation. The 400 ppi full continuous-tone resolution of the Durst Lambda 130 Series is comparable with a resolution of 4000 dpi of printers with half-tone dots.

High output speed

Exposes all media with the same high linear speed of up to 60 cm (24 in.) per minute. Compared with other digital systems the Lambda is "remarkably faster" (approx. 40 prints 100 x 130 cm/40 x 50 in. per hour).

Print production without size limitations

Thanks to the patented, continuous roll to roll exposure system with perfect edge to edge sharpness and evenness, the Durst Lambda 130 Series (with the exception of the Lambda Pi 50, which can print up to 14 m/46 ft) have no print size limitations it can virtually generate any print size from icons to large murals (with auto- and custom panelling functions). One seamless print can be as long as one entire 127 cm (50 in.) roll (50 m/164 ft). Print sizes exceeding the max. paper width are automatically divided-up and exposed in sections. Operator can select how oversized panels are split. The desired overlap is adjustable. This allows you offer new print sizes, create new and exiting products and to enter new market segments.

On-the-fly image corrections and pixel interpolation

All image sizing and image corrections, such as color, density, contrast, sharpening as well as cropping is done on-the-fly without any additional computing time.

Sharp images, text and graphics with exceptional details at full contrast

The digital imaging technology ensures a constant pixel size and intensity over the entire image. The patented Durst continuous roll to roll laser exposing system ensures no parasite light during the exposure for perfect image white and highest contrast range.

All in one

The unique size flexibility does no longer require to split the orders because of different print sizes. With the Durst Lambda you can handle all print sizes for one order with the same device with perfect color and density match and reduced production costs.

Fully automatic take-up system

With almost no media waste.

Large customer base and high customer satisfaction

With over 600 units sold worldwide (as per End of April 2001), the Durst Lambda has the highest install base of all large format digital photo printers. In addition, more than 80 customers have multiple units up to 5 Lambda in the same location and lab chains have up to 20 Lambda running successfully, which confirms the high customer satisfaction.

Durst Lambda has become quickly a new industry standard for high-end large format printing. It has rapidly gained a reputation for high productivity and flexibility, producing the finest quality of small and large format reflective and backlit prints from digital files.



Multiple applications

The Durst Lambda Large Format Digital Laser Imagers are successfully used in many different imaging applications, such as:

- Large format reflective and backlit printing in any size for point of purchase displays, tradeshow graphics, etc.
- Silk Screen Printers
- Reprographics (Blue Printers)
- Satellite and aerial photography (Remote Sensing to Lambda RS)
- Mapping (cartographic applications)
- Digital printing in portrait/social, wedding and photofinishing labs
- Litho and Printing Industry
- Minilabs
- Printing large quantities of small print sizes
- Producing large volume backlit prints for vending and gaming machines
- Graphics Arts Trade Shops (Pre-press)
- Etc.

Simple Operation

A clearly designed and easy-to-use industry leading interface guarantees truly simple operation. Operators can easily be trained in a few hours. See enclosed data sheet for latest software features and technical data.



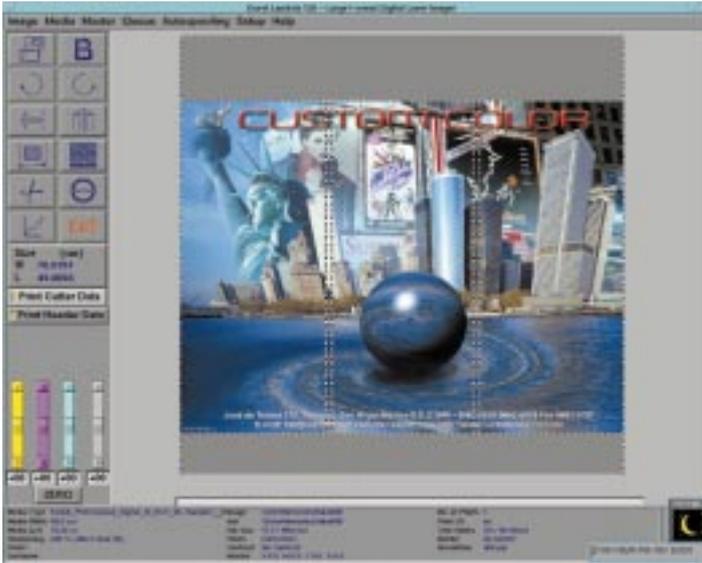
Automated Print Finishing with Patented Durst Autocutter 62 XY

This new standalone device from Durst features a fully automated, unattended cutting of the prints and print combinations generated with the Durst Lambda imagers. The Durst Autocutter XY will drastically increase the productivity of large print runs, especially when doing smaller sizes and will make the Lambda an even more important and profitable production tool.

The Durst Lambda automatically prints the Durst Autocutter Barcode Information (Patents Pending) for fully automated, unattended cutting of print sizes up to 250 cm (100 in.) long with the Durst Autocutter XY and features an automatic bleed function (Auto-Cloning or Auto-Sizing) to avoid any additional or different work preparation prior to sending the files to the Lambda for printing. This makes the entire workflow even faster and eliminates the risk of making mistakes.



Flexibility and Productivity



Paneling/Tiling Feature

Print sizes exceeding the maximum paper width are automatically divided into strips and exposed with cut marks. This automatic tiling includes the following options:

- division to match paper width
- all the panels with the same width
- direct input of a required panel width (custom panel width)
- direct input of a required panel length

The exact panel setting can then be modified as needed by the user. The required overlap can be set.



On-the fly interpolation

The image files loaded on the hard disk are automatically scaled (enlarged or reduced by interpolation) according to the print size selected and without the need to create a second file according to the output size from the smallest print size up to giant enlargements without reciprocity failure.

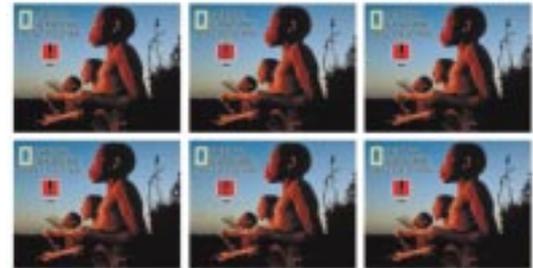


Image cropping

Any part of the image can be crop-enlarged without postprocessing. A special interpolation procedure recalculates and generates the pixels involved, and so substantially enhances the image quality in comparison to conventional enlargements.

Fast and economical printing of large quantity jobs with small print sizes

With the „Multiple Print Function“, print runs are automatically duplicated (cloned) on-the-fly and printed side by side for fast operation, minimum disk space and optimal use of large paper widths.

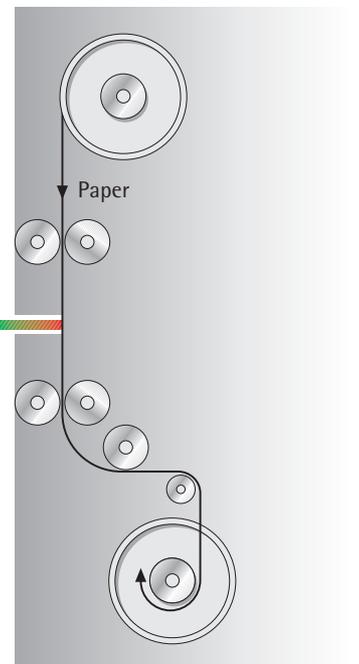
Mixed orders of different images and print sizes can be printed the Durst „Autonesting Function“ (Patents Pending), which automatically prints different files and different print sizes side by side including panels which will fit side by side. Beside the easy, fast and fully automated operation, the Durst Autonesting cuts down the waste dramatically and is a great time saver.

Single-beam, three-colour (RGB) laser imager system

The digital image information controls the blue, green and red colours of the three lasers, which are merged into one beam. This single beam simultaneously exposes all three layers (yellow, magenta and cyan) on the photo-material, and so produces the latent image in one pass.

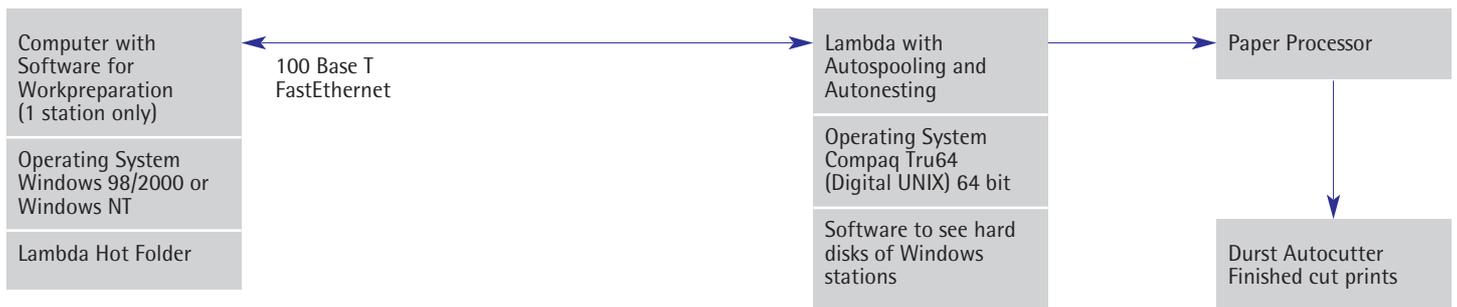


No reciprocity failure
The Durst Lambda gets rid of the familiar problem of reciprocity failure when the magnification and exposure time are changed. Since the exposure time and the distance between the laser light source and the paper are always the same, regardless of the material and magnification, the reciprocity effect does not occur.

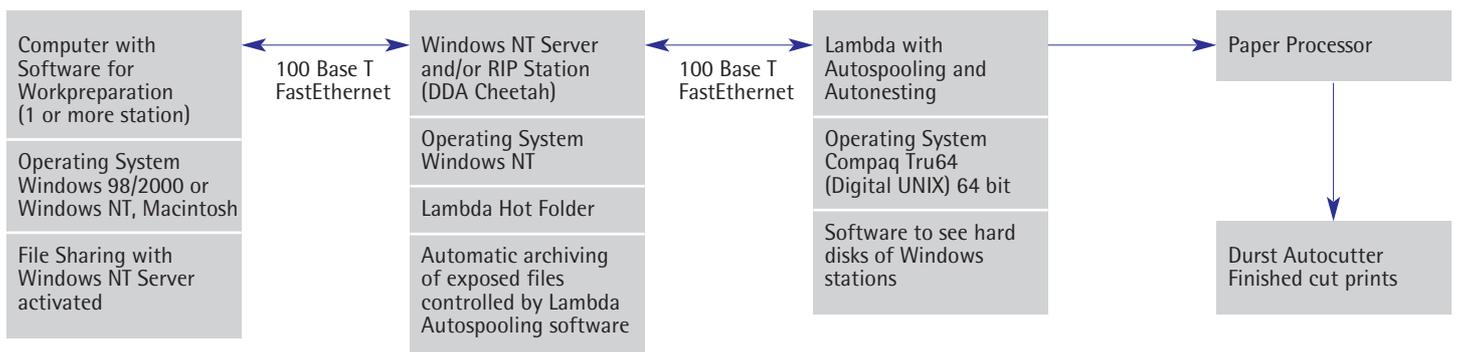


Lambda Autospooling System Workflow

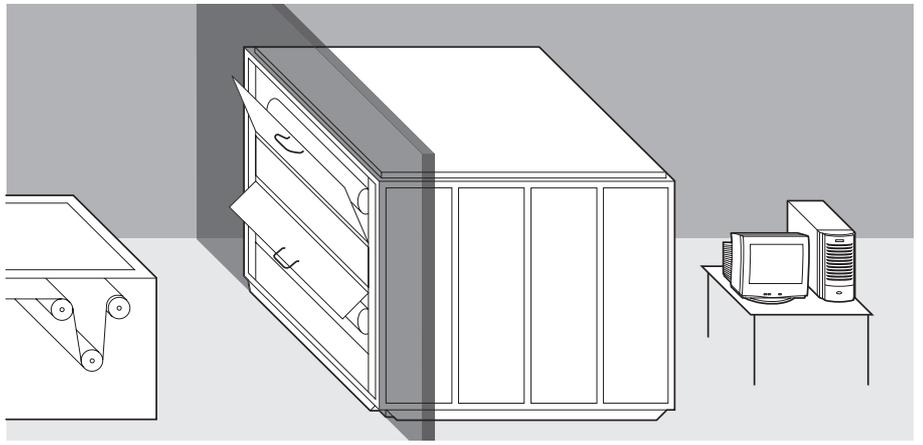
Minimum Configuration



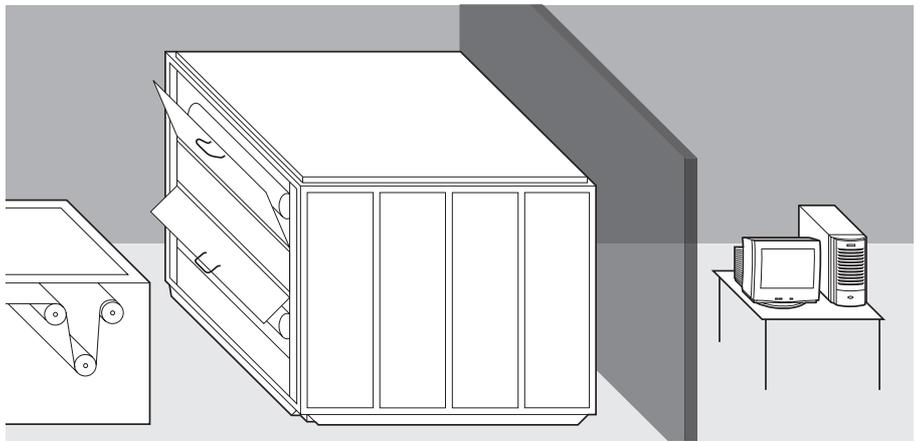
Server Configuration (recommended)



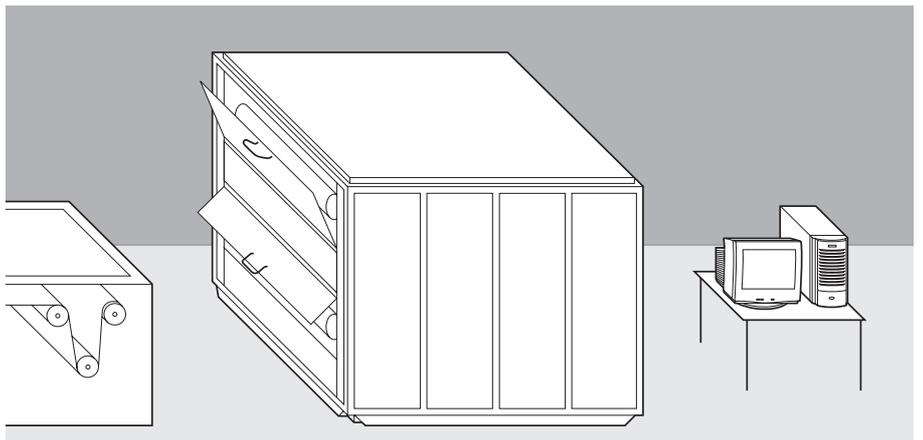
Installation Options



- 1** Imager mounted through the wall (Lambda wall-mount: optional), imager and computer in the daylight room and loading gate in the darkroom.

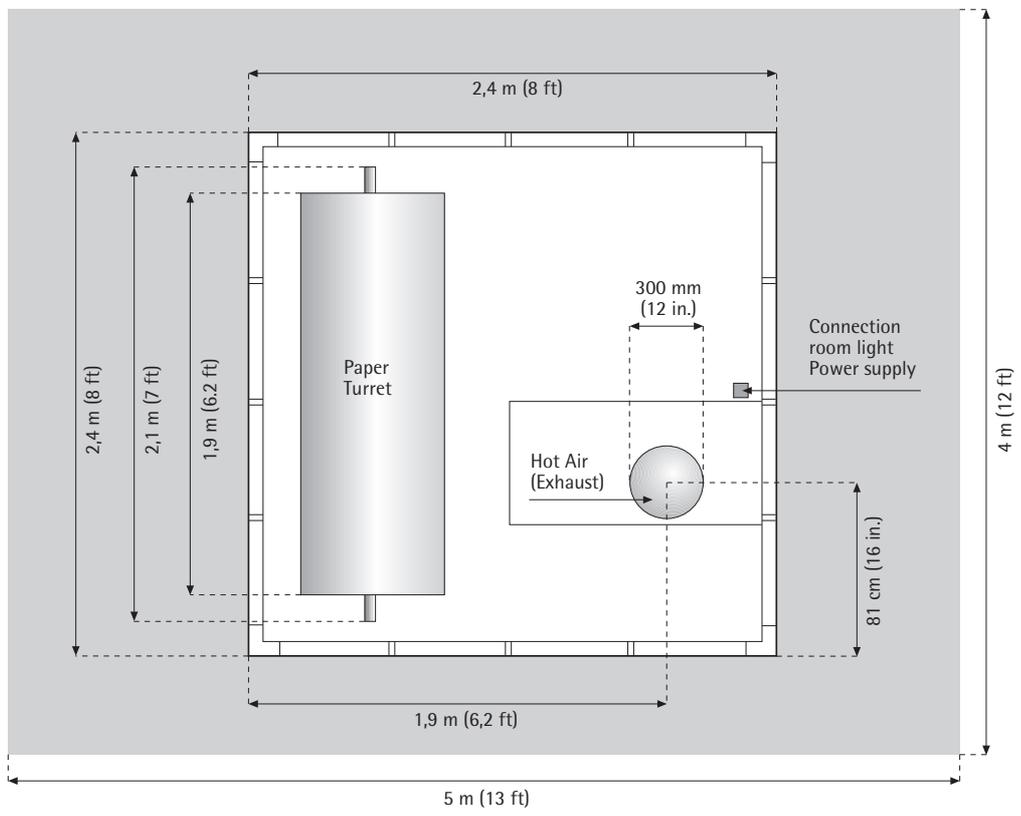


- 2** Imager in the darkroom (room A) and computer in the daylight room (room B).



- 3** Imager and computer in the same room.

Service and
Access Room



Durst Lambda RS
Imaging Technology
for Remote Sensing,
Aerial Photography
and Cartography



Software Key Features

On-the-fly Image Processing

Proprietary UNIX-based Durst user software with patented on-the-fly image processing for very fast and reliable production with minimum hard disk usage (on-the-fly pixel interpolation/scaling, color, density, contrast, saturation and sharpening corrections, color to black and white conversion, cropping, etc.). This feature completely eliminates the need to create additional printing files and therefore drastically reduces the overall printing time providing very fast operation with minimum hard disk usage. In addition, it allows to print any size print at maximum resolution and does not require re-ripping of the file in case of changes are applied.

Due to this unique feature the Durst Lambda offers an unmatched real net productivity of up to 45 sq.m/hr. or 500 sq.ft./hr.

Easy and fast media calibration

The Durst Lambda features an extremely easy-to-use calibration system with a digital test image. Even with extreme deviations a new paper type can be calibrated in approximately three passes. Operation is limited to just three steps:

1. Exposure of the test print
2. Reading of the test print with the optional on-line densitometer (automatically)
3. Automatic calculation of the corrections (new calibration values) by the system.

Master channel

The paper channel calibration values can be quickly adjusted to any chemical drifts via the master channel.

Efficient print queue manager

The Durst Lambda has a queue feature for efficient and fast operation. This allows the operator to prepare and automatically expose the jobs. All the queued jobs can be automatically sorted by paper width and type. The image file placed last in the queue always comes first. The remaining length is calculated and displayed for each single job, taking the previous jobs into account.

Dual, autoswitchable resolution of 200 and 400 ppi

Durst Lambda features a dual, autoswitchable resolution of 200 and 400 continuous tone pixels per inch (ppi) with on-the-fly pixel interpolation. The 400 ppi continuous-tone resolution of the Durst Lambda is comparable with a resolution of 4000 dpi of printers with half-tone dots.

Autonesting

For optimum media use and fast printing this feature allows to automatically print different files and different print sizes side by side

Batch processing

For very fast operation of documents with multiple pages or print runs.

Multiple Printing

Print runs are automatically and on-the-fly duplicated (cloned) and printed side by side for fast operation, minimum disk space and optimal use of large paper widths.

Autospooling

With the Autospooling software for ASCII files, the Lambda will automatically pick-up the files from any network-connected Windows 95/98, NT/XP or UNIX computer (via hot folder), automatically apply the preset corrections, scale the files, insert logos, create units, arrange packages, nest the prints for optimum paper use and print the files in the requested quantity with the Durst Autocutter Barcode Information for fully automated, unattended cutting with the Durst Autocutter XY.

In combination with the optional Durst Preparation Station, it is possible to control one or multiple printers from a central location to streamline the workflow and enhance productivity.

Color Management System

Integrated Color Management System with Kodak CMS Engine for the Durst UNIX Printer Software. The CMS features an automatic and independent color conversion of PostScript, EPS, PDF, TIFF, TIFF/LZW, BMP and JPEG files (through "Load from Disk") by using independent ICC Profiles. The Profiles can be generated with any of the ICC compliant software packages available for Mac and Windows computers. This new CMS software will also read ICC profiles embedded in the file for automatic operation. The integrated VectorPro Software module features an automatic and independent color conversion of Pantone-specified colors in PostScript files during the ripping process.

MGE i-cut Software (optional)

The MGE i-cut software module for an Automatic Workflow in conjunction with the Zünd MGE i-cut cutting system for fully automated cutting of mounted Lambda prints on rigid media. The Durst Printer Software will automatically create the reference points on the image for single, multiple or also nested prints. This will save much time and labour costs on the file preparation for a given job and you will be able to print, process, and finish-cut all your images printed on the Lambda with a minimal amount of manual labor.

The Durst Lambda ASCII file solution offers the following advantages:

- Total flexibility for each file in terms of print size, package, color and density correction, contrast and saturation corrections, etc.
- Automatic image scaling: depending on the selected print size, the Durst Autospooling software will automatically scale the files to fit.
- Only one hot folder necessary, as the resolution is listed in the ASCII file
- Files are no longer copied into the hot folder. Instead of that, the ASCII file contains the complete image path where the file is located (can be any network-connected Win or UNIX station) and the Lambda will automatically pick it up from there for printing, but the original file will always stay there. This allows a very fast operation and reduces copying and network traffic.
- All files you scan or capture with a digital camera can immediately be stored on the final archival computer/hard disk/RAID, etc.
- Allows you to automatically add logos, signatures, texts or graphics on 6 selectable locations (Photos with logo of photographer, Christmas cards, greeting cards for other occasions, image with special borders, anything you can create with Photoshop, Illustrator, etc and saved as TIFF).

Powerful HP Workstation (Alpha-Risc-Processor)

Loaded with HP Tru64 (Digital UNIX) operating system (64 bit) and Lambda software with integrated high performance PostScript-RIP by Durst Dice America (400 MB in approx. 1 minute with automatic CMYK to RGB conversion).

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General specifications

Power Supply:

208 V AC $\pm 10\%$, 3 phase, 60 Cycles, or
230/400 V AC $\pm 10\%$, 3 phase +N, 50 Cycles

Power Consumption:

Max. 6000 VA/10 Ampere per phase

Lambda Pi50:

max. 3500 VA/5 Ampere per phase

Dimensions:

Width: approx. 240 cm (95 in.)

Length: approx. 240 cm (95 in.)

Height: Lambda 130 Plus approx. 194 cm
(77 in.)

Height: Lambda 131/Plus, Lambda Pi 50
approx. 180 cm (71 in.)

Weight:

Lambda 130 Plus: approx. 1500 kg (3.300 lb.)

Lambda 131/Plus: approx. 1400 kg (3080 lb.)

Lambda Pi 50: approx. 1300 kg (2900 lb.)

Space requirement:

approx. 4 x 5 m (13 x 16 ft.)

Laserclass: Laserclass I

Safety and Standard Specifications:

CE, GS, UL, CSA

Image Processor

Image Computer:

Lambda (alle Modelle): HP UNIX-Workstation
with Alpha-RISC Processor

RAM:

Lambda (all versions): 512 MByte,
internally expandable to 4 GB

Hard Disk Lambda 130/131

2 x 18 GByte 15 Krpm (hot swap)

1 x 36 GByte 10 Krpm System HD

Hard Disk Lambda Pi50

2 x 36 GByte 10 Krpm

Drives: CD-ROM, Floppy disk

Operating system:

HP Tru64 (Digital UNIX 64 Bit)

Monitor:

21" Color monitor

Graphic adapter: HX 8 bit, 256 colors

Network Protocol:

TCP/IP, NFS (Network file system)

Interfaces:

- Ultrawide-SCSI
- 100 Base T Fast Ethernet automatically
switchable to 10 M bit
- DEC 423 (modem)
- RS 232 (for densitometer)

Imaging Specifications

Exposure system:

patented continuous roll-to-roll, single
beam, three color (RGB) laser full continuous
tone exposure system.

File Formats:

- Grayscale CMYK and RGB-TIFF, TIFF/LZW,
BMP and JPEG
- PostScript Level 2 and 3 (PS, single or
multipage, including CMYK, RGB and
Grayscale images) Type 1 fonts only)
- PDF (single or multipage)
- RGB-PPM Raw format

Colors:

16.7 million possible colors
(input 24 bit/Internal 36 bit)

Addressable Levels:

256 levels each RGB

Resolution:

dual resolution of 200 and 400 pixels per
inch (switchable) (Continuous tone) with
on-the-fly pixel interpolation
(4000 dpi apparent resolution)

RIP:

Cheetah by Durst Dice America (DDA)

Linear output speed:

- 200 ppi
Lambda 130 Plus/Lambda 131 Plus
approx. 60 cm (24 in.) per minute, equal to
approx. 40 prints 100 x 130 cm (40 x 50 in.)
per hour.

- 200 ppi
Lambda 131/Lambda Pi 50
approx. 30 cm (12 in.) per minute, equal to
approx. 20 prints 100 x 130 cm (40 x 50 in.)
per hour.

- 400 ppi
approx. 30 cm (12 in.) per minute, for all
paper widths up to 81.2 cm (32 in.) approx.
21 cm (8 in.) per minute for all paper widths
larger than 81.2 cm (32 in.).

Laser:

Red, green, blue

Paper transport

Feeding Device:

Lambda 130 Plus:

5-position paper turret

Lambda 131/Plus, Lambda Pi 50:

Single-position paper feed

loading level: approx. 140 cm (55 in.)

Take-up Device:

Lambda 130 Plus, Lambda 131/Plus:

Automatic take-up device with automatic
paper loading and built-in automatic paper
cutter

Lambda Pi 50:

Take-up tray for paper lengths up to 14 m
(46 ft) with paper axle and core for
manually winding-up the media. Built-in
automatic paper cutter.

Paper width and lengths:

Width	Length
127.0 cm (50 in.)	50 m (164 ft)
110.0 cm (43 in.)	50 m (164 ft)
106.7 cm (42 in.)	50 m (164 ft)
105.0 cm (41 in.)	50 m (164 ft)
101.6 cm (40 in.)	50 m (164 ft)
81.2 cm (32 in.)	50 m (164 ft)
76.2 cm (30 in.)	50 m (164 ft)
70.0 cm (27,5 in)	50 m (164 ft)
50.8 cm (20 in.)	83 m (275 ft)

Minimum Print Length:

1 cm (0.4 in)

Minimum Paper Advance:

30 cm (12 in.), including exposed area

Max. Paper Waste:

20 cm (8 in.) at the beginning of the media
roll

Environmental requirements

Max. Altitude:

2.400 m (8.000 ft) above sea level

Temperature range:

+ 15°C to 30 °C
(+59 °F to 86 °F)

Relative humidity:

25-80 %

Heat Load to Room:

approx. 350 m3/hour
(approx 55 °C/11 °F/3200 K cal)

durst

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