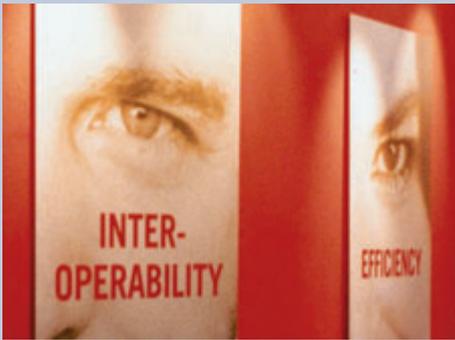


Rho – flatbed inkjet printer The revolution for screen printers



Rho – Durst's revolutionary flatbed inkjet printer opens up new business opportunities for screen printers. You can replace the screen or print in combination with the screen. At optimum prices!

Rho advantages...

Print unlimited

The Rho flatbed inkjet printer can print on the most diverse materials. Rolls and sheets. Up to a width of 160cm and a thickness of 4 cm (up to 205 cm and 7 cm respectively in the industrial model). For interior and exterior applications. Without subsequent lamination.



As important as the printer itself – the ink

The environmentally sound, unparalleled Rho ink has been tested by TÜV and classified as harmless to health. The UV-cured ink ensures optimum printing quality on all serviceable materials and excels with perfect adhesion, particularly with elastic media – naturally, also when these are uncoated.

The ink can be replenished in handy refill containers during printing. Without soiling the machine. Ink consumption can be set at the touch of a button.

Permanent weather tests in the laboratory, where the most diverse climatic conditions are simulated, ensure optimum durability.

This backed up by „durst proofed“ – a quality assurance system which applies not only for interior applications but also especially for exterior use.



One major benefit is that the automatic cleaning cycles (auto-maintenance cycles) can be set individually, thus ensuring optimum serviceability of the print heads without the necessity of manual intervention by the operator.

Print head guarantee as well as cost-effective print head repair or processing works can be stipulated in the ink agreement.

... more business opportunities for screen printers

More opportunities, more know-how, more and even more satisfied customers

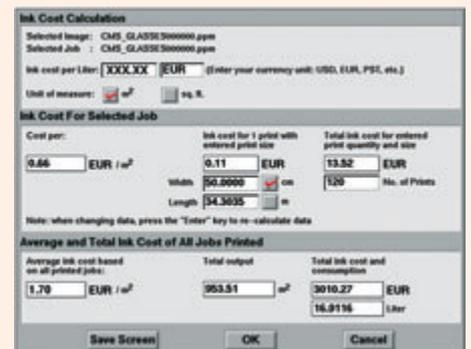
Even the most unusual customer requirements can be accommodated, whether in small or large batches – quality and cost-performance ratio are right: on textiles, cardboard, plastic, aluminium sheet, paper, wood or even stone!

Optimum print quality – clearly defined cost input – high reliability

In conjunction with Rho hard- and software, Rho ink ensures best image quality on all media.

Cost definition and drawing up of quotations are made considerably easier and back up calculations.

The print quality and automatic cleaning system ensure long service life and sustained quality. Reasons which also contributory to the optimum cost-performance ratio.



Ink Cost Calculation

Selected Inker: CMS_GLASSE300000 ppm
Selected Job : CMS_GLASSE300000 ppm

Ink cost per Liter: XXX.XX EUR (Enter your currency with USD, EUR, PSL, etc.)

Unit of measure: m² sq. ft.

Ink Cost For Selected Job

Cost per:	Ink cost for 1 print with entered print size	Total ink cost for entered print quantity and size
0.66 EUR / m ²	0.11 EUR	13.52 EUR

Width: 50.0000 cm
Length: 34.3635 m

Note: when changing data, press the "Enter" key to re-calculate data.

Average and Total Ink Cost of All Jobs Printed

Average ink cost based on all printed jobs:	Total output	Total ink cost and consumption
1.70 EUR / m ²	953.51 m ²	3010.27 EUR
		16.9116 liter

Buttons: Save Screen, OK, Cancel

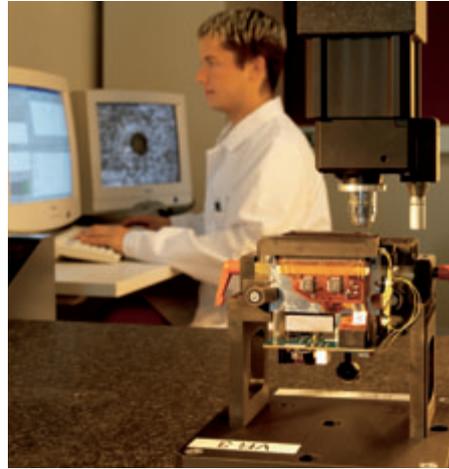
Rho advantages...

Image quality – Durst delivers

Rho printers excel with their unequalled four-colour quality attributable to a considerable degree to the know-how and screen layout evolved from the Lambda. Before installation, the print heads are subjected to Durst's unique quality control and adjustment process. Together with the specific alignment of the print heads, the microscopically optimised print head adjustment system and the special electronic modulation system ensure extreme printing precision on all printable materials.

As the sole manufacturer of flatbed printers, Durst offers the possibility of media calibration. The test strips are scanned in by means of a spectral photometer. The computer automatically determines the necessary correction for a uniform grey balance and stores this, thus

providing the prerequisite for constant colour reproduction, even on different media or media batches as well as with subsequent reprints.



New standards for RIP times and on-the-fly processing

Rho printers and their software lead the field with their extremely short data transfer times. A very important feature, as the throughput time of a job does not consist merely of print speed!



...bring more sales and profit

Quality assurance

With the Rho printer you enjoy absolute quality assurance from the first to the last print. An advantage reflected in the satisfaction of your customers and, together with the cost-effectiveness is almost a guarantee for success.

			
	DURST RHO 160	INCCA COLUMBIA	VUTEK PRESSYU 180EC
JOB 1 (150 X 170)			
RIP time + transmission to hardware	0:01:09	0:10:35	0:06:50
Printing time	0:07:12	0:02:54	0:16:14
RIP + printing time total	0:08:21	0:13:29	0:23:04



Time is money

With Rho orders are completed faster. Ripping, enlarging, rotating, cutouts – they can all be done on-the-fly and without the need to create a special print file. While the first line is being printed, the next ones are calculated ready for printing. This means that perfect quality can be produced even with the tightest delivery schedules and more capacity is available.

Rho advantages...

Combining screen and digital printing? No problem!

All materials (even transparent media such as glass, plexiglass or polycarbonate) are registered at the leading edge by means of a special light wave sensor. A special encoder with a precision of just a few μ measures the transport sequences, thus ensuring utmost precision in the image alignment. By inputting individually selectable margin widths the operator can locate the printed image precisely at any chosen position on the sheet.

The machine can be integrated easily in the existing machine park and thus be incorporated in the ongoing workflow and material flow.

Repeatability of jobs

Job data can be stored independent of the ripped file. Even in the event of a format conversion, these job files contain only the specific printing parameters and are only a few Kbytes and therefore impose a negligible load on the capacity of the hard disk.

One-man operation

Rho printers require only one person to set up the machine for printing: from loading the necessary data to removing the finished printed product. The printing operation itself can be carried out without supervision.



...develops stronger customer loyalty for screen printers

Printing with more individuality than ever before

Thanks to the unique system for registering the materials, the screen printer can combine screen and digital printing – very advantageous for jobs such as campaigns with individual impressions for specific regions or businesses as well as differing date and location addresses and for all jobs with variable information. Without time or manpower-consuming preparatory works and without interruption to the workflow or material flow.

Customer loyalty

Thanks to the easy storing of all printing parameter the customer can also be provided with identical prints even months later.



Low operational and staff costs

The low staff costs and the fully automatic printing process make a major contribution to the competitiveness of your company. As the Rho can be left to print unattended, items such as posters or banners can be printed overnight from roll to roll. The posters can then be finished the following morning.

Rho advantages...

The comprehensive Rho Advantage System

Rho printers can offer a wide range of additional functions and product characteristics to give the machine even more universal appeal:

- Feeder/stacker for automatic feed and removal of media;
- Marginless printing tool;
- Textile printing tool for textiles without base material;
(machine adapts automatically for both tools which only need to be inserted)
- Three-roll magazine for extremely fast material changeover;
- XY cutter for fully automatic cutting of flexible media;
- i-cut cutter plotting for automatic cutting of sheet materials;



- Batch processing for fast processing of varied jobs;
- Autonesting for economical exploitation of the material width;
- Autospooling for automatic, unmanned processing of orders;
- Multiple printing for series production jobs;
- Automatic mirror imaging function for the printing of the reverse faces of transparent materials such as glass or films.

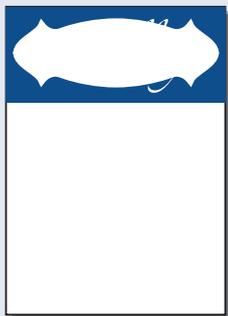
... provide a more secure future

More features with greater efficiency

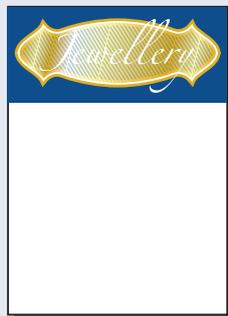
The many additional functions point to one thing in particular: savings in time and costs. Which is why the additional features and functions are also called the Rho Advantage System!

Thus the Rho can also be regarded as part of a complex workflow system. With upstream and downstream functions. Or also as a facility combinable with existing screen printing machines.

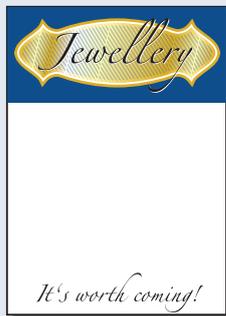
Screen printing



Standard spot colours



Special gold colour



Standard text



Rho



Individual prints for location and date



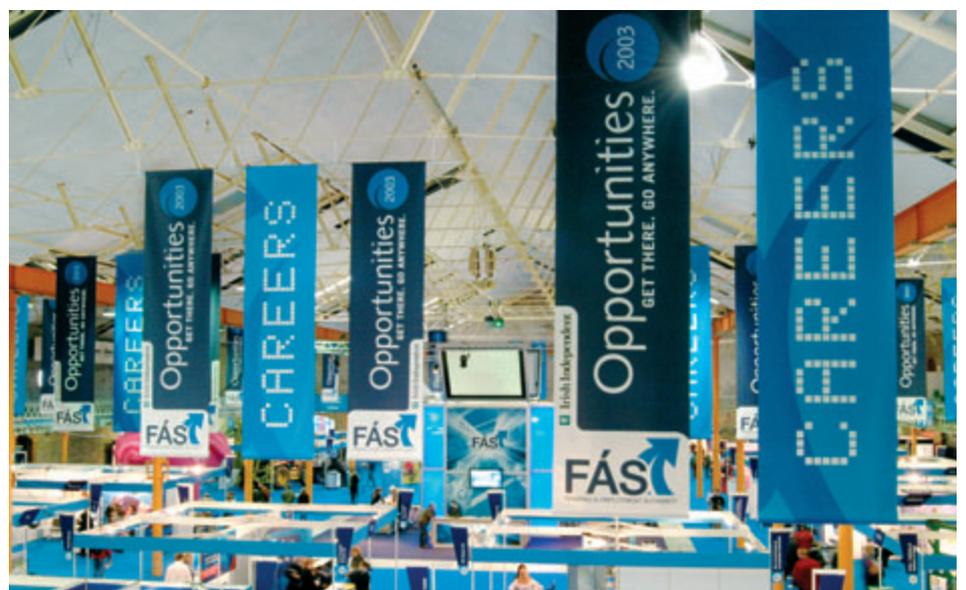
Individual image in CMYK

Best proof – Rho success in action

Practical examples



"A super machine, easy to understand, reliable and a certain investment in the future."

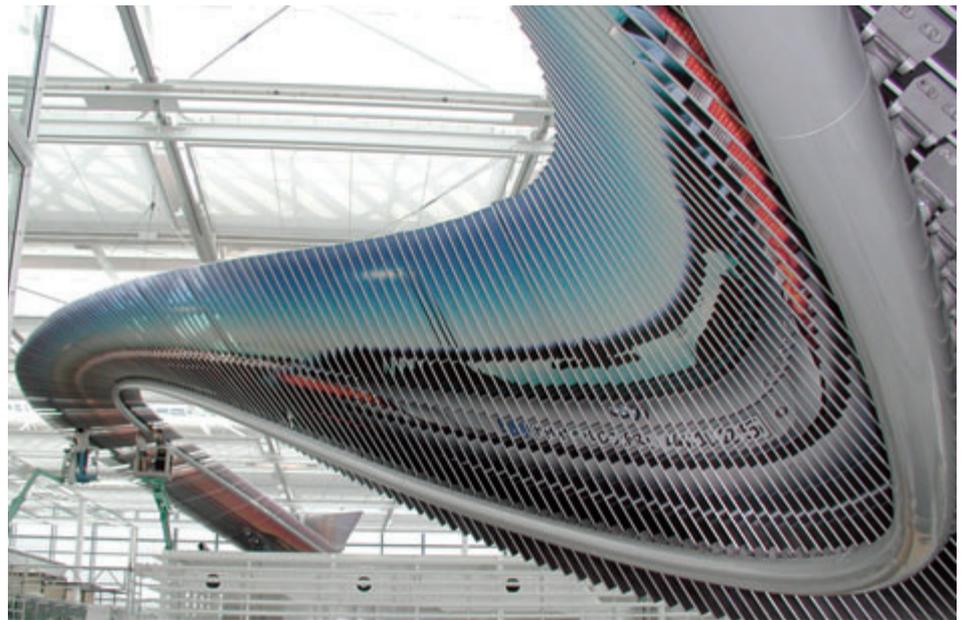


"The initial doubts of our screen printers soon disappeared."

Rho successes – also a question of versatility



"Plus 100% new customers
in no time at all."



"Customers are continuously amazed at
the range of materials we can print on
and at the prices."

"Since the Rho is here, our headaches have
gone."



Rho – the best investment you can make for your screen printing facility

The most flexible system of any flatbed printer

Flatbed inkjet printers are an investment in the future. So it is vitally important to make the right investment decision and find tailor-made solutions. Comparison will confirm this:

1. The acquisition of a Rho inkjet flatbed printer open up so many system opportunities with upstream and downstream installations to provide optimum order processing with minimum staffing and even fully automatic operation and utmost cost-effectiveness – upstream equipment such as feeders, Sigma scanners, prep-stations or downstream equipment such as : XY cutters, i-cut cutting plotters, stackers and finishing equipment.

2. The modular design of the Rho allows the system to grow, with the advantage that it can be subsequently adapted to new and varied demands to reflect business trends. This is particularly true of productivity, resolution and colours.



3. But Durst can also supply two entry-level flatbed printers suitable for quite specific requirements.

Rho 160

This is particularly suitable in situations such as photo laboratories or digital printers with widely varied customer requirements and there are often hourly material changes between paper, textiles or sheets and a speed of around 45 square metres per hour is sufficient. This machine is ideal as the Durst on-the-fly workflow solution is perfect for small series and one-offs with frequent changeover and the transition from roll to sheet or from paper to textiles only takes a few minutes. The outstanding print quality is supported by the extremely flexible ink which can be used for all materials.

Rho 205

With its eight printing heads, the 205/8 model is particularly suitable as a basis machine for flatbed printing which can be adapted modularly to business expansion and can also process roll goods. Reflecting the "growing with the system" philosophy, with higher productivity requirements the four-colour printing system especially suitable for screen printing can be augmented with additional modules as well as in respect of speed, additional colours and resolution.

For a detailed technical description, please refer to the attached technical data sheets!

Main software characteristics

Image processing in real time (on-the-fly)

The proprietary Durst user software with patented on-the-fly image processing provides for very fast and reliable production with minimal hard disk occupancy (on-the-fly pixel interpolation/scaling, colour, density, contrast, saturation and sharpness corrections, black-and-white printing, printing of several print orders, cutouts, etc.). On-the-fly image processing eliminates the need for additional print files, so that the overall printing time is significantly reduced and hard disk occupancy minimised. In addition, differing output sizes can be printed with maximum resolution without renewed ripping with alterations.

With this unique function the Durst Rho 160 sets a new standard in net productivity with up to 42.3 m²/h or 470 sq.ft./h.

Easy, fast media calibration

The Durst Rho 160 has a particularly fast, user-friendly calibration and linearisation system which uses a digital test image.

Efficient manager for the print waiting list

The Durst Rho 160's print waiting list manager enables the operator to prepare an extensive series of print orders and then allow these to be implemented automatically. All print orders in the waiting list can be arranged according to priorities and sorted according to media type and width. The remaining media lengths (rolls or sheets) are calculated automatically and displayed for each individual order, with the previous orders being taken into account.

Autonesting

For optimum material exploitation and particularly fast printing processes. This function permits automatic alignment of different files and formats for printing simultaneously.

Batch processing

For the fast processing of orders with several similar or different documents or pages.

Multiple printing

Minimum occupation of hard disk storage and optimum exploitation of large media widths. This function makes it possible to clone image series of the same motive automatically while printing on-the-fly and print them in parallel.

Autospooling

The Durst ASCII autospooling software enables the fully automatic and unsupervised handling of print orders with so-called hot folders. In conjunction with the optional Durst workstation (TBO) it is possible to control one or more printers from a central point, thus simplifying work processes and increasing productivity.

Color Management System

Integrated colour management system with Kodak colour matching system (CMS) for the Durst UNIX printer software. The CMS now has universal colour conversion of PostScript, EPS, PDF, TIFF, TIFF/LZW, BMP and JPEG files (by means of "load from disk") and also recognises already-embedded ICC profiles (ICC= International Colour Consortium). For optimisation of image quality and precise colour matching of the individual materials, ICC profiles can also be created externally on a MAC or PC with special CMS software. These ICC profiles can be loaded onto the Durst Lambda and used automatically on-the-fly by the system during exposure. The Durst CMS also has the integrated Praxisoft VectorPro software program for the automatic, independent conversion of Pantone colours into PostScript files during the RIP process.

MGE i-cut software (accessory)

The MGE i-cut software module for automatic workflow in conjunction with the Zünd cutter. Individual images exposed on the Durst Lambda, image series with the same motive, or images generated by autonesting which have already been laminated onto sheets can be cut fully automatically, while the Durst printer software generates reference points which are issued during exposure together with the image file on the photographic material. Thus time and production costs are kept to a minimum. No additional work steps are necessary for the file processing of the images to be cut.

User-defined gloss or matte finish

The new software has an intelligent printing function which choose between gloss and matte finish, whereby the same inks and ink quantities are required. This function can also be used to increase the max. density by up to approx. 1.8D, so colours appear more saturated and livelier. No other machine on the market to date with a function which offers these printing processes on request.

Matte printing

This printing process is always the best solution where reflections on the image must be avoided, such as with strong artificial lighting or with light reflection from windows.

Gloss printing

With this printing process the image receives a gloss finish; it gives the image more dynamics and permits a higher max. D value, for example for background illuminated images.

Faster unidirectional printing mode

This function increases printing speed in unidirectional printing mode by up to 50%.

Front-end workstation under UNIX for fast, reliable production

Powerful Compaq UNIX workstation with Dual Alpha-RISC processor, Compaq Tru64 (Digital UNIX) operating system (64 bit) with proprietary Durst user software, based on UNIX, offers on-the-fly image processing and integrated powerful PostScript Level 3 RIP from Durst Dice America (400 MB in approx. 1 min.).

General specifications

Power supply:

120/208 VAC \pm 10 %, 3 phase, 3 wi, 60 Hz, or
230/400 VAC \pm 10 %, 3 phase + N/50 Hz

Power consumption:

Maximum: 12 KVA; average: 7 KVA

Max. amperage per phase:

208 VAC: 32 amp
230/400 VAC: 17 amp

Dimensions:

- Width: approx. 464 cm (183 in.)
- Length: with flaps vertical: approx. 264 cm (104 in.); with flaps flat: approx. 440 cm (174 in.)
- Height: approx. 245 cm (97 in.) without extractor hood
- Minimum space height: 300 cm (118 in.)

Space requirement:

min. 6.5 x 6 m (22 x 20 ft.)

Weight: approx. 2000 kg (4400 lb)

Safety standards: CE, GS, UL, CSA

Printing specifications

Printing system:

Patented Durst flatbed system with piezo inkjet technology (drop-on-demand)

Resolution:

360 dpi (720 dpi apparent resolution)

Finish: no finish necessary

Colours: CMYK

Inks:

Special, powerful, UV-resistant pigment inks for interior and exterior applications
Solvent-free inks (without VOCs)

Ink supply:

Continuous ink supply with 10-litre ink reservoirs, refillable during operation for large print processes. Refill ink in 5-litre non-returnable containers, easy disposal in collapsed condition, avoiding pollution to the machine and the environment.

Print head maintenance:

Patented, automatic wet cleaning system

Software/RIP:

Durst Rho 160 UNIX software with on-the-fly image processing (scaling, pixel interpolation, dithering/screening, sharpness correction, trimming, panelling and further corrections) for very fast processing with minimum storage capacity occupation on the hard disk.

Integrated PostScript Level 3 RIP Dice America Cheetah (high performance: 400 MB in approx. 1 min.). The function range of the Rho 160 software reflects that of the Durst Lambda software, which is regarded as both user-friendly and the most powerful printer software on the market.

File formats:

- Grey levels CMYK and RGB TIFF, TIFF/LZW, BMP and JPEG
- PostScript Level 2 and 3 (PS, single or multipage documents, including CMYK, RGB and grey level images), only Type 1 typefaces
- PDF (single or multipage documents)
- RGB-PPM raw format

Productivity:

Poster quality: approx. 80 m² (850 sq ft.) per hour
Standard quality: approx. 42.3 m² (470 sq ft.) per hour
High quality: approx. 31 m² (340 sq ft.) per hour

Printing modes:

Colour, gloss/matte, black and white, "backlit"

Media specifications

Media types:

Wide range of uncoated and coated media for numerous applications (vinyl, paper, textiles, mesh material, sheets, corrugated sheets, etc.)

Maximum printing width:

158 cm (62 in.)

Maximum printing length:

Only restricted by medium length. Loading of medium rolls up to 750 m (2,460 ft) length possible (e.g. blueback paper).

Maximum medium thickness:

40 mm (1.58 in.)

Maximum sheet weight: 50 kg

Medium cutoff:

Approx. 50 cm (20 in.) at the leading edge with rolled media. No cutoff with sheets.

Smallest sheet size:

30 x 75 cm (12 x 30 in.) (width x length)

Processing of rigid materials:

- Continuous feed with automatic recognition
- Sensors check width, length and thickness of the material

Processing of flexible media:

- Roll-to-roll
- Roll-to-sheet with integrated cutter

Front-end workstation

Type:

HP UNIX workstation with Dual Alpha Risc processor

RAM:

512 MByte, internal upgrading to 4 GB possible

Hard disks:

- 18 GB Ultrawide SCSI HD (15,000 rpm) for UNIX operating system and Rho software
- 18+18 GB Ultrawide SCSI HDs (15,000 rpm) for images

Drives: CD-ROM and floppy disk drives

Operating system:

HP Tru64 UNIX (real 64-bit)

Monitor:

21-inch colour monitor

Network protocol:

TCP/IP, NFS (Network File System)

Interfaces:

- Ultrawide SCSI
- Ethernet AUI connection
- Equipped as standard with fast Ethernet network cards
 - 10/100 MBit
 - 10/100/1000 MBit
- RS 232

Location requirements

Maximum height:

2,400 m (8,000 ft) above sea level

Temperature range:

+15 °C to +30 °C (+59°F to 86°F)
non-condensing

Relative air humidity:

25 - 80%, non-condensing

General specifications

Power supply:

208 V AC \pm 10%, 3 phase, 3 wi, 60 Hz,
or
230/400 VAC \pm 10%, 3 phase + N/50 Hz

Power consumption:

Maximum 12 KVA
Average 7 KVA

Max. ampere per phase:

208 VAC: 32 amp
230/400 VAC: 20 amp

Dimensions:

Width: 475 cm (187 in.)
Length without roller tables: 195cm (77 in.)
Length with roller tables: 425 cm (167 in.)
Height: 175 cm (69 in.)

Space requirement:

min. 6.5 x 6 m (22 x 20 ft.)

Weight: approx. 2,200 kg (4,850 lb)

Safety standards:

complies with currently valid guidelines

Printing specifications

Printing system:

Patented Durst flatbed system with piezo inkjet technology (drop-on-demand)

Resolution: 360 dpi

Finish: no finish necessary

Colours: CMYK

Inks:

Special UV-cured pigment inks for interior and exterior applications. The inks are solvent-free (without VOCs)

Ink supply:

Integrated ink tanks with 10 litre capacity per ink, refillable during the printing process. The refill inks are in 5-litre, non-returnable containers, easily disposal in collapsed condition, thus avoiding pollution to the machine and the environment.

Print head maintenance:

Automatic splitting function to ensure reliability of the print heads. Manual print head cleaning

Software/RIP:

Durst Rho UNIX software with on-the-fly image processing (scaling, pixel interpolation, sharpness correction, cropping, panelling and further corrections) and on-the-fly dithering for very fast processing with minimum storage capacity occupation on the hard disk. Integrated Cheetah PostScript Level 3 RIP (400MB in approx. 1 min.)

File formats:

Grey levels CMYK, RGB and Lab TIFF Grey levels CMYK and RGB JPEG
Windows Bitmap (BMP)
PostScript Level 2 and 3, EPS (only Type 1 fonts)
PDF
RGB PPM raw format

Productivity:

Standard quality (Level 1): approx. 20 m² per hour
High quality (Level 2): approx. 15 m² per hour
Optimum quality (Level 3): approx. 10 m² per hour

Media specifications

Media types:

Wide range of uncoated and coated materials printable – also textured surfaces such as hard foam sheets, soft foam sheets, aluminium, acrylic glass, cardboard sheets, corrugated sheets, etc.

Maximum printing width: 205 cm (80 in.)

Maximum printing length:

Only restricted by medium length

Maximum thickness:

Standard: 40 mm (1.58 in.)
industrial model: 70 mm (2.75 in.)

Maximum sheet weight: 50 kg

Smallest sheet size:

A3 – 29.7 x 42 cm (12 in. x 17 in.)

Registration of materials:

Materials are registered at the leading edge by means of fibre optic sensors. An encoder measures the transport sequences, ensuring utmost precision in image alignment.

Front-end workstation

Type:

Compaq UNIX workstation with Alpha Risc processor

RAM:

512 MByte, internal upgrading to 4 GB possible

Hard disks:

36GB Ultra 2 wide SCSI 10,000 rpm 18+18GB
Ultra 2 wide SCSI 15,000 rpm

Drives: CD-ROM

Operating system:

HP Tru64 UNIX

Monitor: 19" colour monitor

Network protocol:

TCP/IP, NFS (Network File System)

Interfaces:

2 Ultra 2 wide SCSI adaptors for: 3 internal SCSI units and up to 7 external SCSI units

Location requirements

Maximum height:

2,400 m (8,000 ft) above sea level

Temperature range:

+15°C to +30°C (+59°F to 86°F)
non-condensing

Relative air humidity:

25 - 80%, non-condensing