

General specifications	Printing system: Patented Durst flatbed system with Quadro® Array technology for the finest quality and the highest speed.
Dimensions: Width: 716 cm (282 in.) Length of Rho 1000 print engine: 230 cm (91 in.) Height: 258 cm (102 in.)	Resolution: 600 dpi
Weight: Approx. 7.500 kg (16.600 lb)	Colours: CMYK Optional: Light Cyan and Light Magenta. Process Colour Addition (PCA) either orange and green or orange and violet.
Safety standards: Complies with current valid guidelines.	Inks: UV-curable pigment inks for interior and exterior applications.
	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 disposed in collapsed condition, thus avoiding pollution to the machine and the environment.
	Software/RIP: Durst Rho Linux software for very fast processing with minimum storage capacity on the hard disk. External Caldera RIP Server (GrandRip+)
	Productivity (on full with at continuous production): <ul style="list-style-type: none">• Rho 1000: up to 500 sqm/hour (5400 sq.ft./hour)• Rho 1000L: up to 380 sqm/hour (4100 sq.ft./hour)

Media specifications
Media types: Wide range of uncoated and coated materials – also textured surfaces such as open faced corrugated
Maximum printing width: 250 cm (8 ft.)
Maximum printing length: Only restricted by media length
Maximum thickness: Standard: 40 mm (1.58 in.)
Maximum media weight on belt: Standard: up to 50 kg (110 lb)
Smallest sheet size: DIN-A3 – 29.7 × 42 cm (12 × 17 in.)
Registration of materials: Materials are registered at the leading edge by means of fibre optic sensors or alternatively by mechanical front stops. An encoder measures the transport sequences, ensuring utmost precision in image alignment.
Location requirements
Space requirement: Min. 10 × 8 m (33 × 26 ft.)
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

Rho 1000

Continuous inkjet production system

For paper, carton and corrugated applications



The Rho 1000 is ideally suited for integration into existing production systems and is capable of achieving a production output of up to 500 m² per hour, without interruption, around the clock, whilst ensuring optimum quality. The continuous production system has, at its core, the highest precision media transport mechanism available which, unlike table systems, features a unique continuous vacuum belt.

Purpose built systems
In addition to its exceptionally high output, the Rho 1000 offers a level of flexibility unique in its class, anything from one-offs to high production is available without loss of productivity. Now Durst offers even more variants for the Rho 1000, these include a roll to sheet system, which handles a jumbo roll of paper and produces over 160 sheets per hour cut to 120 x 250cm using an integral cutter. Also there is a version for industrial printing of displays on carton and corrugated cardboard which features the automatic feed of sheets, integrated varnishing and automated storage. At a production speed of over 150 sheets per hour, this machine will achieve a standard of quality equal to that of laminated offset printing.

At the heart of these printing systems is the Rho 1000 UV printer, which can be reconfigured into a different production system, if the business demand changes from one type of printed product to another.

The most versatile high speed production inkjet printer now has even more options.

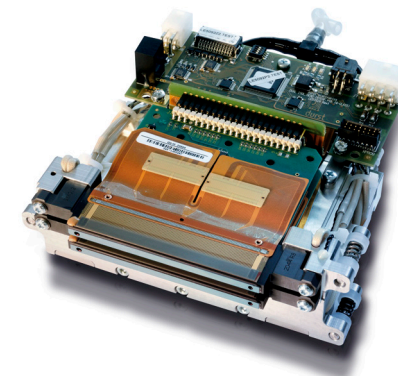


Durst. The industrial inkjet specialist

Since 1936 Durst has been responsible for pioneering better and faster methods of large format image reproduction. The company started with analogue photo technology and later moved into digital photo laser imaging. It was one of the first to develop large format inkjet printing, initially for the graphic arts market and, most recently, it successfully extended the technology to different industrial inkjet applications. Today, we see ourselves as an industrial inkjet specialist. Our new research building in Lienz, Austria, is evidence of our commitment to both the science of inkjet printing and our pursuit of new applications for inkjet printing.

Our machines have the ability to change existing markets and provide our customers with new business opportunities. We also make it our duty to ensure sustainable development, providing machines that are kinder to the environment and use much less ink and energy. We are concerned with minimising storage and wastage by providing the ability to print on demand across many different applications and industries.

By optimising the performance of our printers through both physical and chemical sciences, we succeed in providing our customers with a competitive and profitable edge. That is why we believe that Durst is: "The industrial inkjet specialist."

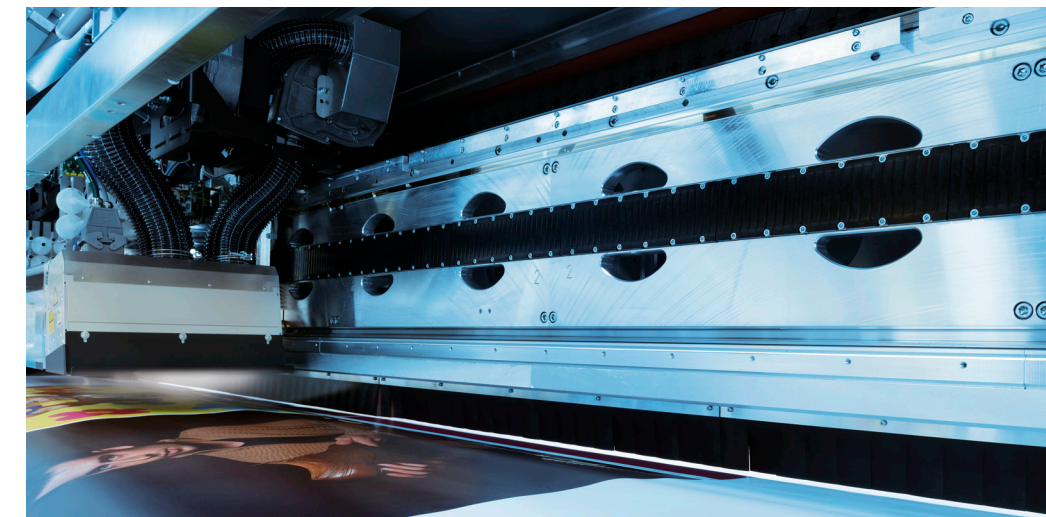


Durst Quadro Array printhead technology

The Rho 1000 series of printers have the latest Durst Quadro Array 30M printheads, which have 1024 nozzles per array and, in the case of the Rho 1000, over 65,000 inkjet nozzles in total, for high productivity and uncompromised quality. The temperature of the ink is precisely controlled via the ink feeding system. The drop straightness, with a deviation of only 1.5 μ , provides an even higher image quality. This provides pin sharp text as small as 4 pt. and banding-free full colour images, without „smoothing" caused by overlapping the printing of ink drops. The nozzle plate is now constructed of silicon oxide and MEMS production technology and anisotropic etching for greater robustness and accuracy.

Durst Technology

The materials used in manufacture of all Durst large format inkjet printers are of the highest quality which results in consistent high performance and the most reliable machines in the market. This ensures 24/7 production and minimum downtime.



Magnetic linear drive

The carriage transport is by advanced magnetic linear drive. This further ensures consistently accurate printing. Precision built by Durst for greater accuracy and reliability, the shaft on which the printhead travels is accurate to within 2 μ tolerance.

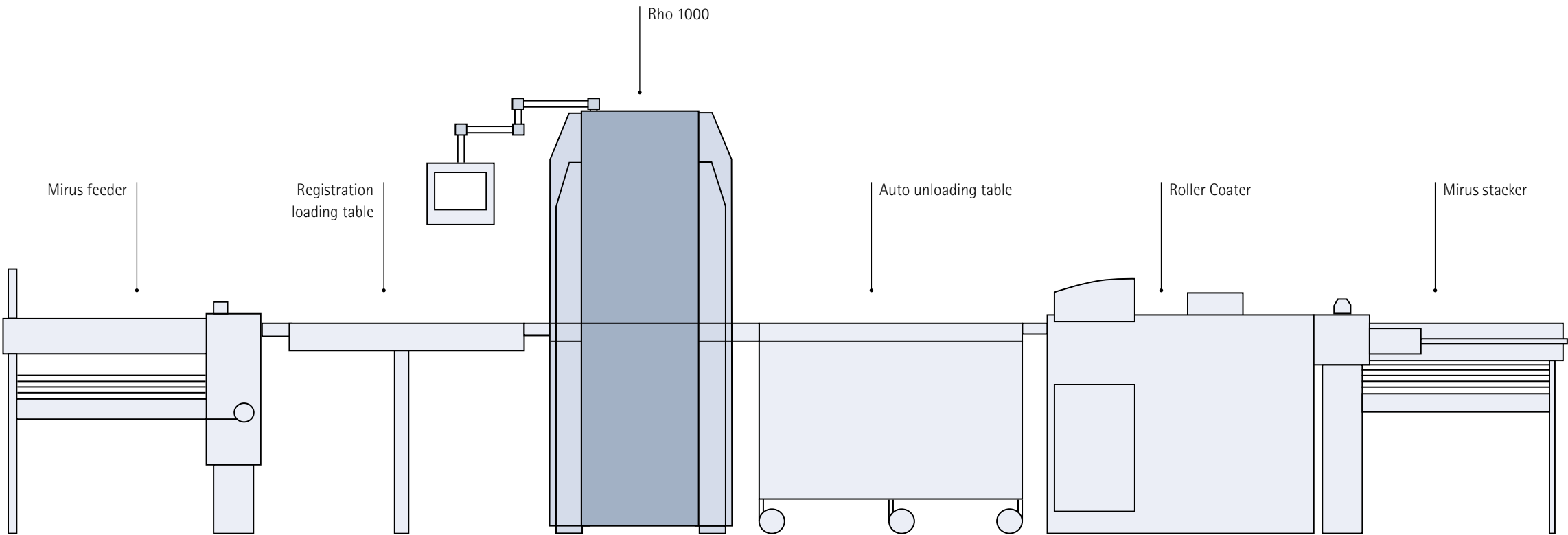
Durst Rho Inks

Durst Rho inks offer perfect adhesion to the widest range of media. Their high level of pigmentation provides excellent coverage and cost efficiency as a result of requiring less ink per square metre. All Rho UV inks are free of VOCs and low odour.

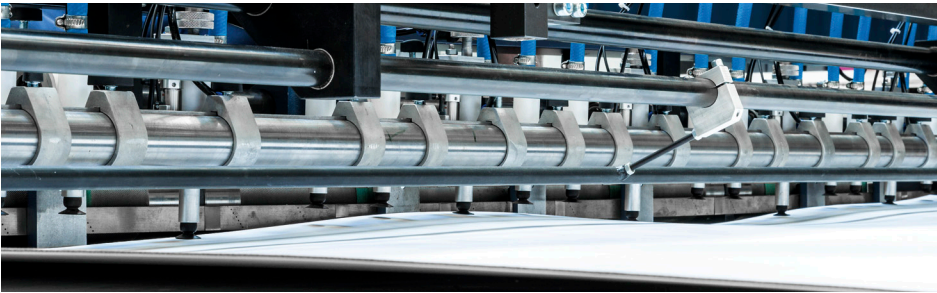
Rho 1000 carton and corrugated display system

The purpose built version of the Rho 1000 for printing on corrugated board, forms part of a complete production system.

There are special features for the reliable loading of corrugated material, high speed printing of multiple boards and an integral coating system for the enhancement and protection of the printed material. Finally there is an automated stacker, which can handle multiple stacks and present them ready for dispatch on pallets.



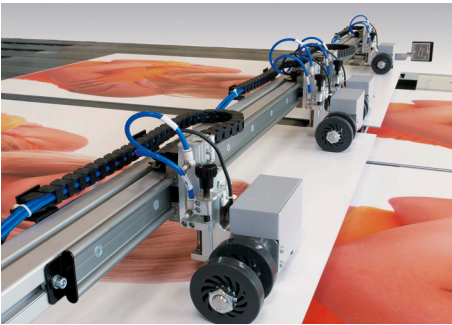
Rho 1000
The Rho 1000 is a continuous UV board printer which is ideally suited for integration into existing production systems. Durst's top model guarantees an impressive maximum output of up to 500 m²/hour without interruption, around the clock, while ensuring optimum quality. The reliable transport of corrugated boards during the printing process is achieved through special edge holders and an extra strong vacuum provided by vacuum chambers that are adjusted according to the media size. It will also print cut marks onto the corrugated board for finishing on a digital cutter.



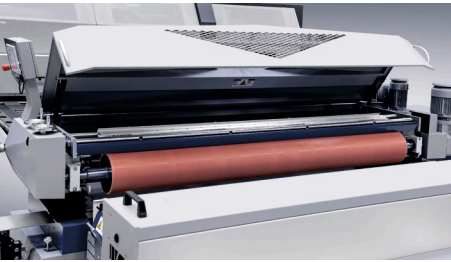
Mirus feeder
The Mirus feeder allows for loading of stacks up to a weight of 1500 kg on pallets from three sides and two parallel stacks can be loaded at the same time (left and right registration). The feeder is capable of handling media up to 5 mm thickness and a bent of up to 20 mm. The special vacuum caps will even handle uneven sheets when the stack has a distinct curve.



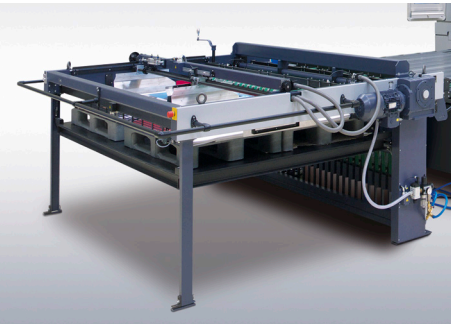
Registration table
The corrugated board is loaded directly onto the table. Mechanical 2 point pin registration ensures exact media registration in xy direction. Pulleys move the board to the left or right so that it is flush with the edge. The precise registration of the media enables parallel printing of multiple boards.



Auto unloading table
Vacuum belts advance the media to the integrated roller coater or directly to a tray or stacker, which takes up the sheets. Printing from stack to stack and directly loaded onto a pallet completes the automated process.



Roller Coater
Application of UV based lacquers for the protection and the enhancement of large format digital prints. Liquid coating of flexible and rigid materials is possible with a thickness between 0.1 and 70 mm. The stable machine design ensures a high quality lacquer application on work pieces with a width of up to 250 cm. The UV lacquers protect the corrugated sheets and provide the required level of gloss to attract attention to the finished POP displays. The consistent coating results are the basis to offer guarantees on the durability to the end user.



Mirus stacker
The stacker will also handle two parallel stacks at the same time. There is an integrated alignment feature for the stacks (x and y direction) and the sheets can be loaded directly onto pallets.

Rho 1000 Roll to Sheet system

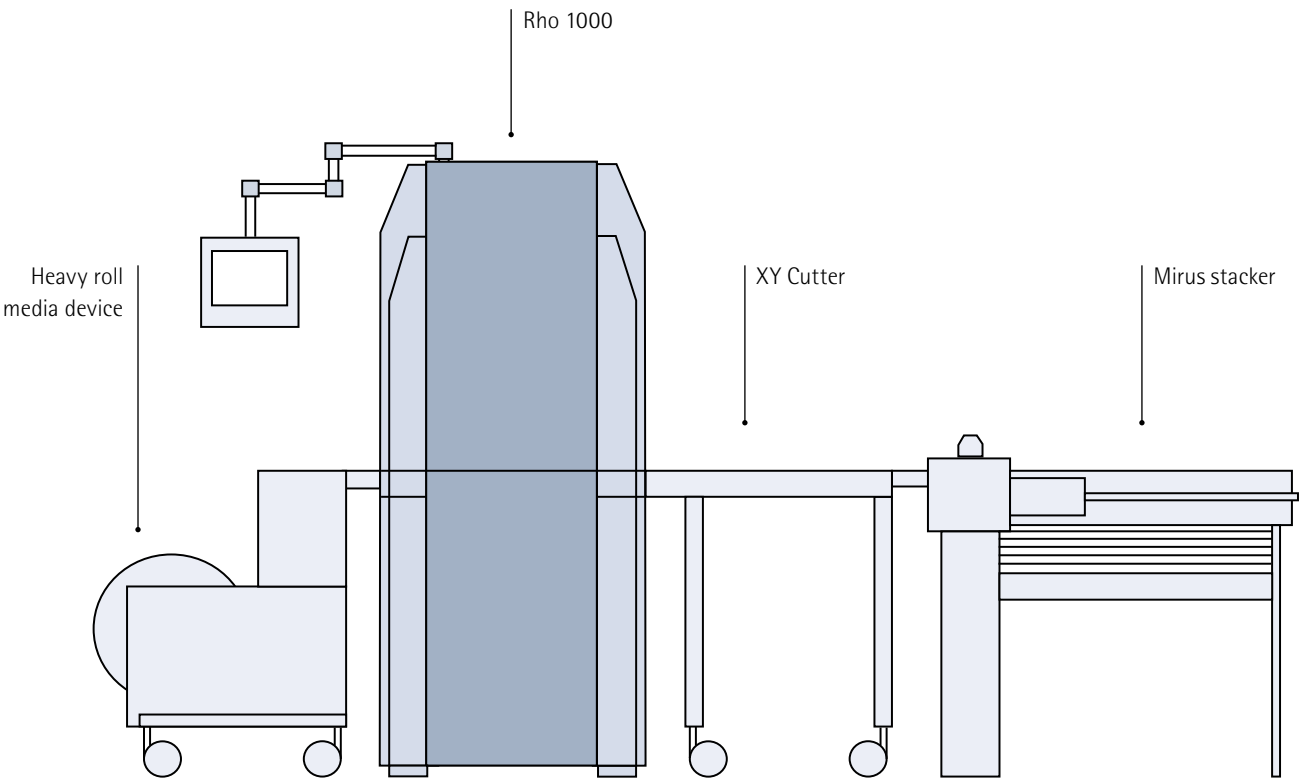
Prints from a 250 cm wide jumbo roll and cuts to the required poster size using an integrated cutter

The roll to sheet system features the labour saving convenience and productivity of being able to load large rolls of paper and, without pauses in the printing cycle, receive finished sheets cut to size and ready for dispatch.

Rho 1000
The Rho 1000 is a continuous UV board printer which is ideally suited for integration into existing production systems. Durst's top model guarantees an impressive maximum output of up to 500 m²/hour without interruption, around the clock, while ensuring optimum quality. It will also print cut marks onto the media for finishing with the integrated xy cutter. The Rho 1000 can be reconfigured into a different production system, if the business demand changes from one type of printed product to another.



Heavy roll media device
The solution to high speed long run roll to roll printing, it consists of a winding tool and is equipped with two dancer rollers. It will handle rolls up to a diameter of 60 cm and a maximum roll weight of 600 kg.



XY Cutter
This cutter can handle numerous types of media with a maximum thickness of 0.8mm. Even if the prints are not parallel to the web edge, or the roll is not wound straight, the cutter will follow the image without any due to automatic scanning of the cut marks.



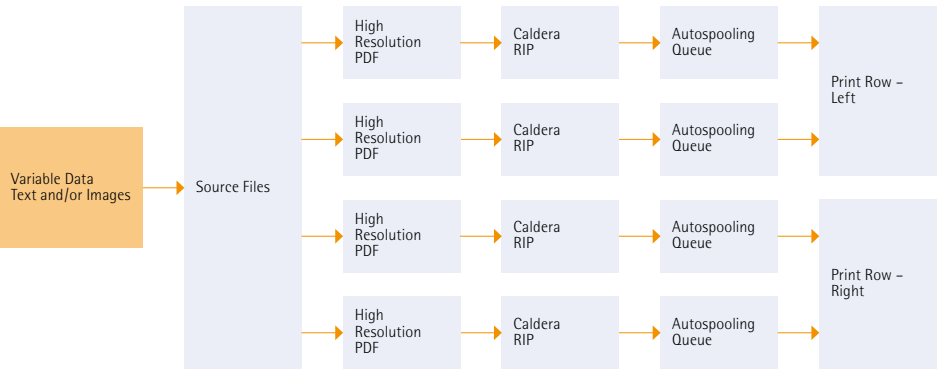
Mirus stacker
The stacker will also handle multiple parallel stacks at the same time. There is an integrated alignment feature for the stacks (x and y direction) and the sheets can be loaded directly onto pallets.

Features and options

The Rho 1000 ensures the reliable transport of corrugated boards during the printing process through the use of special edge holders and an extra strong vacuum provided by stronger vacuum pumps and vacuum chambers that are adjusted according to the media size. Together with the full automation option, this guarantees highest efficiency and high output. The Rho is built to Durst's exacting standards of manufacture, which means that it is ideal for use in the production process, by providing outstanding reliability and durability, low maintenance and minimal downtime.

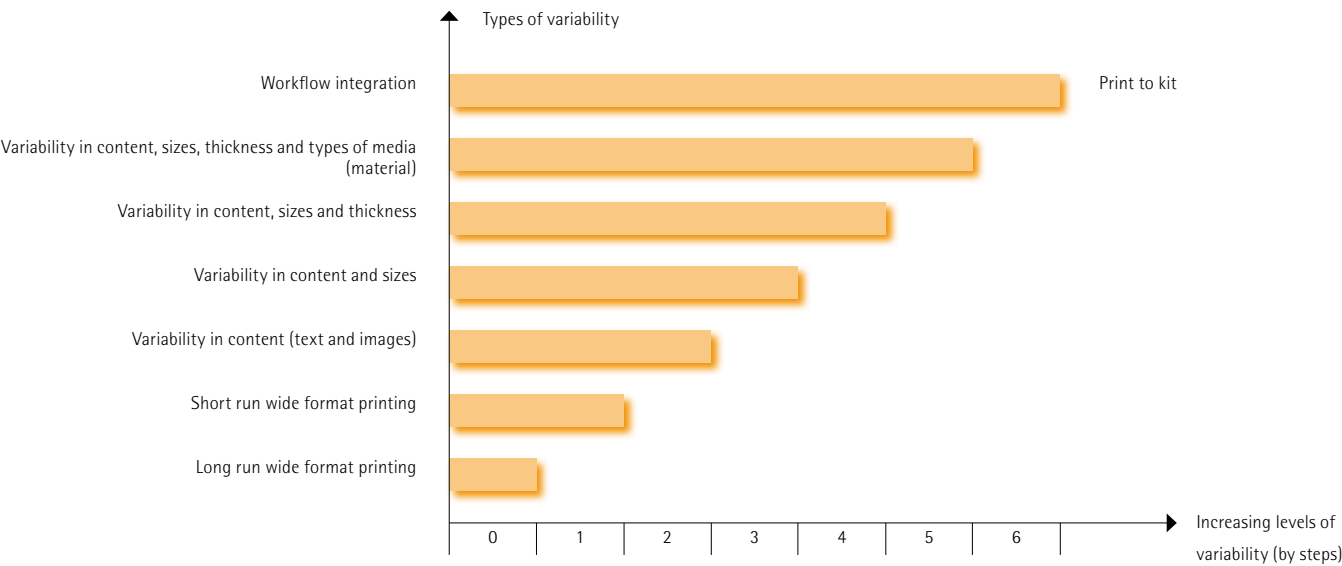
Variable Data Printing (VDP) and job workflow optimisation

Durst leads the way with the optimisation of job workflow. The Rho 1000 supports the new PDF/VT file format, offering the combination of high level graphic design features with VPD. Adoption of the ISO 16612-2 standard for the Caldera rip enables the processing of optimised multipage PDF files and the output is multiple ripped files which are then transferred to the spooler of the Rho. This also enables parallel printing, if required.



Print to kit

The Rho 1000, with its unique flexibility and productivity is the ideal solution for Print to Kit, which goes even further than variable date printing for the automatic handling of date changes during the printing process. It includes changes of the type of media, even from rigid to roll, and its size and thickness without detriment to productivity. It means that a print run of just one is practical, therefore finishing a complex job for one customer on the same machine is both effective and cost efficient. The overall benefit is that the Rho 1000 is capable of high volume, profitable printing 24/7 whilst printing different sizes and media and changing from roll to roll to flatbed operation. As previously described, the Rho 1000 is designed to integrate into a continuous production system and will thus provide a complete high production large format printing plant that is capable of handling complex print orders in one operation.



Rho 1000 ink options

Rho Paper and Board Ink

The dedicated Paper and Board Ink is designed for paper and corrugated board applications. It is an economical solution for manufacturers of corrugated displays and other paper applications. The ink is designed to have the highest performance on coated papers as well as on highly absorbent papers such as Kraft and Test liner. It is fast curing to prevent ink migration into the substrate. Also, there is no set off at stacking or manual handling.

The paper and board ink is environmentally friendly, it contains no harmful VOCs, odourless and it is non toxic. It is recyclable on corrugated and de-inkable on graphical papers.

Rho ink colour options

Different ink options are offered on the Rho 1000 series these include:

- Special light colours (Lm and Lc) for even finer colour graduations and perfect skin tones
- Process Colour Addition (PCA). Either orange and green or orange and violet, extend the colour gamut and provide perfect rendition of even difficult corporate colours

Rho varnish option

Durst offers an integrated roller coater as part of the complete automated print production system. The roller coater applies UV based lacquers for the protection and the enhancement of large format digital prints on rigid or flexible material. The UV lacquers offer protection and provide the required level of gloss to attract attention to the finished printed material. The consistent coating results are the basis to offer guarantees on the durability to the end user.

Environmental features of Durst Rho inks

Recyclability

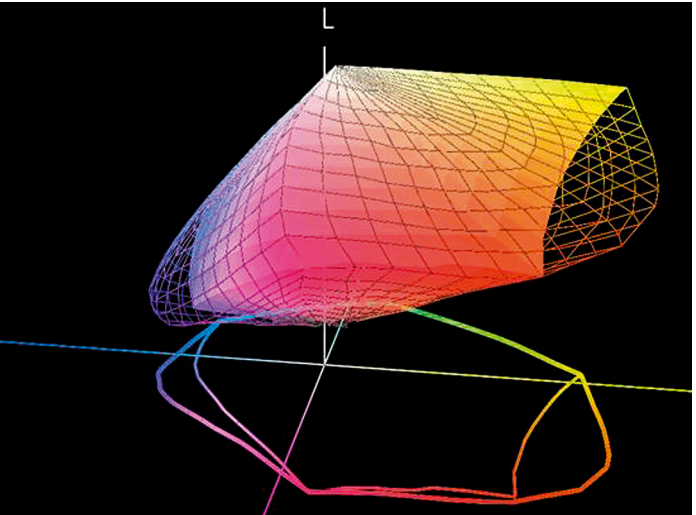
The UV curing inks dry by exposure to UV light and this reduces the drying energy needed compared to having thermal driers which is of environmental benefit. Additionally compared to solvent based inks and even many water based inks which also contain organic solvents, high quality UV curing inks, such as the Rho Paper and Board ink, liberate no VOC's during the drying process.

The recyclability of the printed board is an important aspect in today's environment awareness and UV curing printed output maintains a high level of recyclability, since, during the pulping process, the ink, which effectively forms a surface "plastic" layer, is easily liberated from the fibres and then removed. This is in contrast to some water based dye-ink systems which permanently stain the fibres and degrade the recycled fibre quality.

Health and safety

Questions are sometimes raised about the health and safety aspects of UV curing inks but, in practice, they are easily handled with routine industrial hygiene practices and once printed and cured present no health and safety issues. Historically, some UV curing inks have had a characteristic odour, but with the new generation of products this is very low and, in the case of the Rho inks, they have no residual odour, which further benefits the user by broadening the applications they can access. Furthermore, Durst Rho inks are entirely free of VOC's.

There are some specific applications where caution is needed about the use of UV curing inks. For instance they would not be recommended for any application where direct food contact is anticipated. This is because migration of trace quantities of the ink may take place. Whilst this is so low that it represents no hazard (a few parts in a billion), it nevertheless is not recommended.



Additional process colours extend the colour gamut.

Using the Rho 1000 Corrugated

Corrugated companies using the Rho have come to appreciate many unique benefits



Users of the Rho 1000 have come to appreciate the flexibility and productivity of the machine and the following information has been supplied by their practical experiences with particular reference to variable data printing (VDP) and printing to kit. However the arguments for using VDP and printing to kit also strongly apply to high volume industrial wide format production printing. This is borne out by the fact that the average run length per job printed with UV inkjet has increased dramatically over the last ten years.

Durst customers have made their own comparisons between analogue printing processes and the Rho 1000. They have found that the Rho 1000, in many instances, proved to be not only faster in production, but also better in terms of cost, i.e. press preparation. Furthermore, the Rho also provided the advantage of allowing viable data printing and even printing to kit whilst still maintaining its high level of productivity.

Variable Data Printing. Combining digital print with analogue printing.
A typical example of using the Rho's variable data printing ability was by a Durst Rho 1000 user for an automotive customer in France which required several thousand outdoor displays. The customer wanted to change the number plate on the car according to the department and/or city where the display would be located. The image of the car and background was printed using screen print and the 'variable' data was added in a second shift on the Durst Rho 1000. With the Rho 1000's automated printing line, incorporating its media feeder and stacker, it could be integrated to interface with an existing screen printing production line.

Print to kit
A German print production house believes that the Rho 1000 is the only machine on the market that can truly print a whole mixed job in individual units successfully and cost efficiently. This can represent a major advantage when required to respond very rapidly for supplying advertising kits to individual branches of a large retail chain. Different data, sizes, thicknesses and media can all be handled in one production process and with the Rho 1000.



Print on demand and late stage customisation
A family run packaging company now in its third generation has worked in the carton and corrugated packaging industry since the outset. It believes that the Rho provides the answer to the ever increasing demands placed on it in terms of delivery and volume. The company CEO said: "We no longer have to carry a large stock of printed material waiting for finishing and dispatch to various retail outlets, for example. We can respond even faster by printing the complete job direct onto the corrugated boards, successfully eliminating the lamination process and after that the boards are finished digitally using our automated cutter. This not only eliminates holding large volumes of printed stock, but also allows for customisation of the individual items."

Unattended printing and high environmental standards
A Japanese company founded about 30 years ago and since then has used flexo printing and die cutting technology to produce corrugated packaging. A major area of the business is in providing large format transport packaging. Much of the time the Rho is left to work unattended. This allows the operator time to also control the digital finishing. Furthermore, many of the company's customers have adopted strict environmental standards for their suppliers. For that reason it was essential that the Durst Paper and Board Ink is completely free from traces of heavy metals or VOCs.

Fast turnaround
Another German company, which has been in the carton and corrugated packaging market for six decades, believes that the high quality digital print and productivity of the Rho allows them to react much faster and with more flexibly. A company spokesman said: "Today, displays need to be produced much faster, prototypes and short runs need to have the same quality and appearance as offset printed long runs. 5 prototypes today, tomorrow 200 displays in different language versions, would have hardly been possible with traditional printing and converting technology. We believe that this is the way forward for a successful future".

