



# Gamma 60/61 Gamma 70/71 Direct Digital Ceramic Decoration Systems

The Durst Gamma is the world's first industrial-scale inkjet printer using specially formulated, pigmented ceramic inks to digitally decorate ceramic floor and wall tiles, offering significant economic benefits as well as superior design advantages over traditional systems.



Compare to the limitations of conventional tile decoration techniques and other digital systems on the market, this new, no-touch, digital printing technology offers unlimited image variations, no setup costs thus eliminating the need to print minimum quantities, far superior image quality, definition and dynamic range. It prints onto the same glazes used with conventional screen printing systems (does not require special glazes to create the color), the inks are not sensitive to environmental conditions, thus allowing a stable production, the same inks can be used to decorate wall and floor tiles obtaining a large color gamut and high densities and with just 4 colors all colors and shades are produced.

Durst is holding various patents on this new, innovative technology.

## 4 Models of your Choice

### Gamma 60

Top of the line, full color version for tile sizes up to 50 x 120 cm (20 x 48 in.)

### Gamma 61

Economical 3-color version for tile sizes up to 50 x 120 cm (20 x 48 in.), with the possibility to fully upgrade it to the full color Gamma 60 version.

### Gamma 70

Top of the line, full color version for tile sizes up to 60 x 120 cm (24 x 48 in.)

### Gamma 71

Economical 3-color version for tile sizes up to 60 x 120 cm (24 x 48 in.), with the possibility to fully upgrade it to the full color Gamma 70 version.

## The Benefits

- Ultimate design flexibility (image & text)
- Drastically reduced setup time and costs
- Economical printing of short runs – mass customisation
- Lower production costs
- Reduced inventory and storage space
- Higher margins

## The Technology

### Gamma-Patented Synchronized Inline Printing Engine

Durst has a longterm experience in developing and manufacturing industrial-scale large format inkjet printers for the graphic, packaging and industrial market, using heavy duty industrial piezoelectric inkjet print heads.

For the Durst Gamma, Durst has developed a special, patented single pass non-impact inkjet printing technology, consisting of four (CMYK) full width inkjet printing arrays, fully synchronized with the production process.



## The CMYK Printing Process

The Durst non-impact CMYK inkjet printing technology uses droplets of ink jetted from the small apertures (nozzles) to a specified position on the tile to create an image. During printing the four colors—cyan, magenta, yellow and black, abbreviated as CMYK—are automatically combined in various ways to create virtually any color required in one step.



### Same glazes as for conventional printing

The specially formulated pigmented ceramic inkjet inks for the Gamma work with the same glazes used with conventional screen printing equipments and do not require special glazes to create the color, such as other digital systems, in addition they are not influenced by the environmental conditions (temperature, humidity, etc.) of the production process.

### Ink Supply

The Durst Gamma features large main ink supply tanks with a user-friendly ink refill system.

### Tile Transport System

On the Gamma the tiles are transported on conveyor belt. The transport system is designed for easy integration of the Gamma into an existing production line. It features continuous speed adjustment and quick stop and start functions. On the printer entrance a precise autocentering tile guiding system assures perfect image/tile registration.

### Software

Proprietary, patented Durst user software designed for the needs of the ceramic tile industry and built on the successful Durst software used in over 1000 Durst Lambda – high resolution digital laser imagers and in more than 500 Rho's – large format industrial scale inkjet printers since 1994. It features on-the-fly, full random printing for unlimited number of different tiles from given designs, concept printing, register printing, sophisticated color management control and many other interesting features.

## The Advantages

For decorating tiles, the manufacturing companies desire faster turnaround time, smaller runs and more flexibility in the decorating process to minimize inventories and maximize cash flow. The Durst Gamma Direct Digital Ceramic Decoration System offers the following advantages:



### Ultimate Design Variation & Flexibility (Patented Durst Random Design Printing Technology).

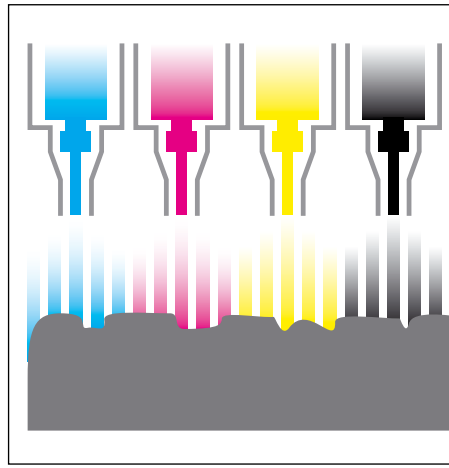
With this technology endless different tiles can be created, using several designs at the same time and to obtain each tile to be different. It allows to develop new products and to offer new customized solutions. New design samples can also be created much faster and at lower costs. Unique custom designs and concepts are now possible.





### 100 % Edge-to-Edge Decoration

With the Durst Gamma the entire top surface of the tile is printed, right to the very edge where the mould falls. No more need to use colored glaze body to minimize the effect of "white edges" known from traditional decoration systems.



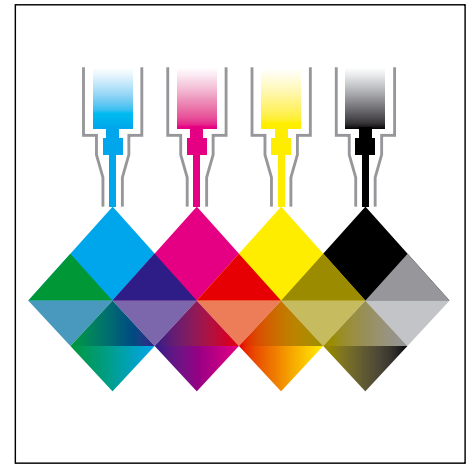
### Full Relief Decoration

When decorating uneven tiles (with medium & strong reliefs), it assures perfect definition of all parts. Since the decoration of high and low reliefs are decorated simultaneously, it ensures designs with greater continuity and more realism.

### On Demand Printing & Trials

Since with this technology there is no physical setup and color change needed, the printing quantity or square meters have no influence to the production cost and setup-time. To facilitate on-demand printing, the Gamma features very fast production changeover and new model start-up (it is sufficient to change the printing file) in addition to no down time between jobs.

This assures also shorter production time from creation to final decorated tile.



### Higher Print Quality and Richer Colors

Extraordinary definition in terms of details, colors, dynamic range and decorations, obtaining tiles with a more natural look. Delivers superior printing quality to conventional techniques. Integrated color management system to match the colors of the design originals.

### Reduced ink Management & Storage costs

Since the digital system automatically creates all required colors and tonal shades with just 4 colors, it eliminates all activities relating to preparation, management, control and storage of colors, fixatives, solvents, etc., and obviates the need for printing drums and screens. The process is also ultimately more flexible, because the quantity of ink always corresponds perfectly to the production requirements, thus reducing stock.

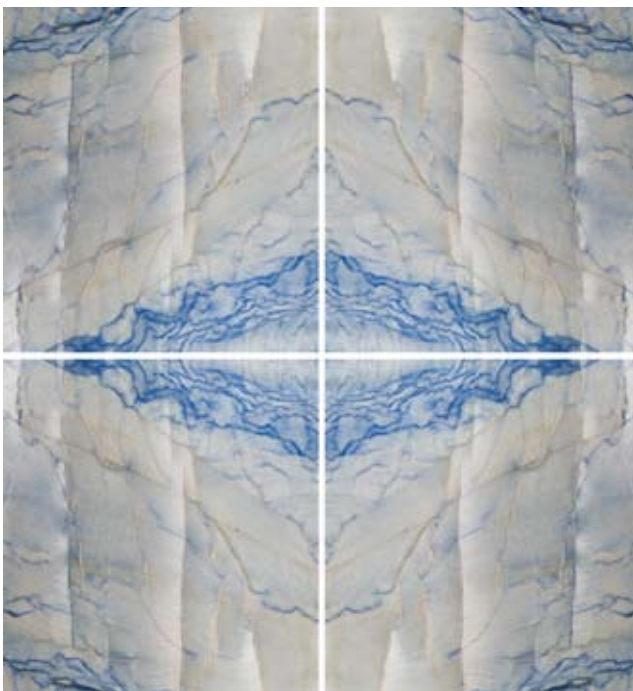
### Easy Operation – Remote Diagnostics

The Gamma features a user guided touch-screen operation and remote access diagnostics and servicing via network.

### No Special Glazes Required – Stable Production

The system uses pigmented, ceramic CMYK inks to print onto the same glazes as used for traditional decoration systems. The colors are not influenced by the environmental conditions of the production processes.

### "Open Book" Natural Stone Imitations



# Technical Data

## General Specifications

**Power Supply:**  
230/400 V AC 3-phase

**Configuration:**  
System can be configured for right or left hand operation.

**Dimensions (L x W x H)**  
**Gamma 60/61:** 509 x 230 x 270 cm  
(200 x 91 x 107 in.)  
**Gamma 70/71:** 577 x 230 x 285 cm  
(227 x 91 x 112 in.)

**Weight**  
**Gamma 60/61:** Approx. 4000 kg (8800 lb)  
**Gamma 70/71:** Approx. 4500 kg (9900 lb)

**Safety Standards:**  
complies with currently valid guidelines

## Printing Specifications

**Printing System:**  
Patented Durst Synchronized Inline Printing System (SIPS)

**Resolution:**  
200 - 924 dpi

**Colors:**  
**Gamma 60/61:** 4 colors CMYK  
**Gamma 70/71:** 3 colors at your choice

**Inks:**  
Special, Patented Pigmented Ceramic Inks for decorating floor and wall tiles, as well as third fire applications.

**Ink Supply:**  
Ink supply system designed for continuous, non-stop operation with user-friendly refill system.

**Software:**  
Proprietary and patented 64 Bit LINUX based Durst Gamma software with intuitive workflow and sophisticated, powerful job preparation and print controls for fast and easy operation.

**Native File Format:**  
CMYK-TIFF

**Image Processing:**  
Patented Durst Print Engine with on-the-fly image processing and random image variation control with multiple choices for ultimate tile variability and very fast operation

**Printing Speed: (Belt Speed)**  
• 1 - 64 m/min. (1 - 210 ft/min.)  
• 1 - 32 m/min. (1 - 105 ft/min.)  
at maximum resolution of 924 dpi

## Tile Specifications

**Tile Type:**  
• Wall and floor tiles (ceramic and porcelain tiles) in form of Green tile bodies (monocottura - fired once) and fired bisque (bicottura - fired twice)  
• Ceramic border tiles - Listello (terzo fuoco - third fire)

**Tile Width (un-fired)**  
**Gamma 60/61:** 10 - 56.9 cm (3.9 - 22.4 in.)  
**Gamma 70/71:** 10 - 71.5 cm (3.9 - 28 in.)

**Tile Length (un-fired)**  
**Gamma 60/61:** 10 - 130 cm (3.9 - 51.2 in.)  
**Gamma 70/71:** 10 - 135 cm (3.9 - 53 in.)

**Tile Thickness:**  
5 to 20 mm (0.2 - 0.8 in.)  
Greater thickness on special request

## Environmental Requirements

**Temperature Range:**  
+5°C to +40°C (+41°F to 104°F)

**Relative Humidity:**  
25-80 % non condensing



**Durst Phototechnik  
AG**  
**Industrial Printing Division**  
Vittorio-Veneto-Straße 59  
I-39042 Brixen, Italy  
Telefon +39/0472 81 01 11  
Telefax +39/0472 83 09 80  
www.durst-online.com  
info@durst.it

Copyright © 1994- 2006 Durst Phototechnik AG, Brixen/Italy  
All Rights Reserved - Patents and Patents Pending for Soft- and Hardware  
Durst, Durst Gamma, Durst Rho, Durst Lambda, Durst Epsilon and Durst Autocutter are trademarks of Durst Phototechnik AG. All other trademarks or registered trademarks are the property of their respective owners. Descriptions, illustrations and specifications subject to change without notice.

© Durst Phototechnik AG, 09/2008  
IX22005