



Cretaprint®

Inkjet Printing Ecosystem for  
for Ceramic Decoration

Digital inkjet decoration  
for ceramic tile





# The only digital inkjet ecosystem



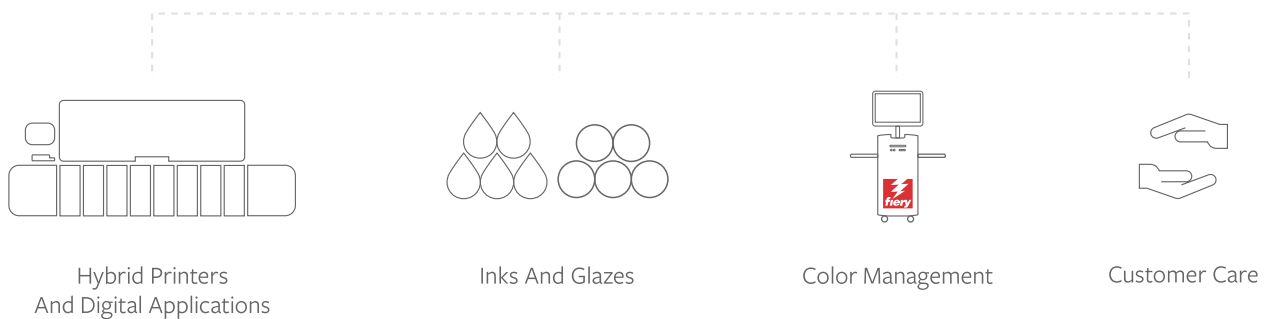
EFI™ is the only company able to offer the ceramic industry a complete solution designed and adjusted for the specific needs of the industry and focused on efficiency and productivity. We offer a range of tile printers, ceramic inks, color management software, and a complete service program to help you increase productivity and quality and meet environmental requirements.

# A reliable and future-proof solution for tile decoration

- The only hybrid inkjet printers for ceramics that can work with water-based inks as well as current eco-solvent inks
- Digital glazing and digital application of effects
- A unique set of water-friendly ceramic inks and glaze
- EFI Fiery® proServer for ceramics: The world's first color management software for tile decoration
- A configurable service program that includes technical assistance, preventive maintenance, ceramic design, and ink plans

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## HYBRID CERAMIC ECOSYSTEM



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EFI Cretaprint offers an end-to-end solution for maximum performance. With operational, technical, and environmental advantages, our solutions are:

- Robust and very easy to operate
  - Connected with applications that allow the printers to communicate with the rest of the plant and other tools to advance Industry 4.0.
  - Sustainable – our hybrid concept is a greener decoration technology thanks to reduced emissions and waste
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# Printers

Get the modularity and versatility that have always been EFI hallmarks, together with the advanced technology and robustness of EFI Cretaprint® ceramic printers – all in one sustainable package.



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## Hybrid technology

EFI Cretaprint printers achieve high levels of performance using water-friendly inks and eco-solvent based inks with our improved ink delivery system. They also have cleaning technology and electronics to efficiently control humidity and prevent sedimentation.

**Invest in a non-obsolete technology:** A cleaning protocol and a quick software update will allow you to move to water-based technology at the time you decide.

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## Superb printing technology

Cretaprint Hybrid printers, based on the 5th generation of Cretaprint printers, achieve major improvements in printing technology:

- **Mechanics:** High precision plate for real plug and play that assures better printhead alignment and the avoidance of future adjustments
- **Ink delivery system:** Refined system that is even more efficient and ready to work with high-productivity and high-discharge printheads, and includes total recirculation, zero sediments, and total temperature control needed to achieve high performance
- **New software and electronics:** Constant bidirectional communication with printhead enables automatic alignment

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## Easy to operate

The multi-language and touch screen user interface makes operation much more intuitive with direct access to main functions, printing bars and transport system, and the alarm status is always on screen.

Our 5th-generation software supports many user applications, such as:

- TAS for automatic tone adjustment
- SCADA application for Industry 4.0
- Fine tuning for density balancing
- EFI Go to monitor your printers from mobile devices
- Nozzle out for clogged nozzle compensation
- ID printing for master tiles and traceability

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## Advancing in Industry 4.0

EFI Cretaprint printers include features designed to help the implementation of the Smart Factory:

### Communication 4.0

The application included in the EFI Cretaprint printer software provides interfaces with a standard Modbus protocol to allow third party SCADAs and PLCs access to printer parameters, such as machine status, models printed on each line, tile characteristics, ink levels, printed feet, and alarms. Choose this option when configuring the printer at any time or when upgrading.

### EFI IQ

EFI IQ is a suite of cloud applications that will help you make data-driven decisions so you can improve ROI, minimize cost, maximize profit, and boost revenue.

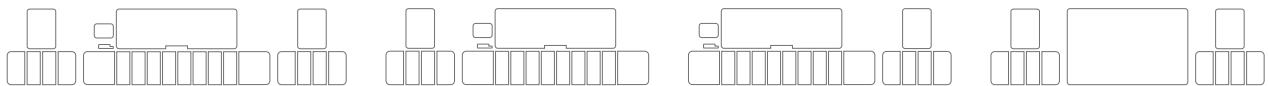
- Visualize key production data and the current status of your printers in near real time from IQ Dashboard
  - Capture and transform print production data into actionable analytics to drive business improvement with EFI Insight Stay connected with your print devices from your iOS or Android mobile devices with EFI Go
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# EFI Cretaprint Shield



EFI Cretaprint offers satellite printers for digital glazing and other applications for full digital ceramic decoration.

Intelligent combination of digital production lines, including the linkage of multiple printers. Synchronously identify the digital mold and digital glaze printer and carry out the alignment printing.



Each EFI Cretaprint Shield has two bars each 57 inches in width.

## TECHNICAL DATA

PRINTHEADS							
Printhead type *	Seiko RC 1536	Seiko RC 1536 • L	e • D5	e • Q5	e • G5	Dimatix SG 1024 MC	Dimatix SG 1024 LC
Printhead width	4.26 in (108.3 mm)	4.26 in (108.3 mm)	4.26 in (108.3 mm)	4.26 in (108.3 mm)	4.26 in (108.3 mm)	2.55 in (64.96mm)	2.55 in (64.96mm)
Number of nozzles	1536	1536	1536	1536	1536	1024	1024
Native resolution (dpi)	360	360	360	360	360	400	400
Drop size (pL)	13 - 98	25 - 225	23 - 100	13 - 100	25 - 225	30 - 80	80 - 200
Grayscale levels	Up to 8	Up to 10	Up to 5	Up to 8	Up to 11	Up to 4	Up to 4
Firing frequency (kHz)	10,2 - 28	Up to 37	Up to 41	Up to 37	Up to 41	Up to 30	Up to 20
gr/m <sup>2</sup>	Up to 45	Up to 80	Up to 55	Up to 45	Up to 80	Up to 43.2	Up to 72



## TECHNICAL DATA

MACHINE SPECIFICATIONS	C5	D5	M5	N5	P5	SHIELD
Max. printing width	27.95 in (710 mm)	27.95 in (710 mm)	44.80 in (1138 mm)	44.80 in (1138 mm)	56.69 in (1440 mm)	56.69 in (1440 mm)
Number of inks	Up to 8	Up to 12	Up to 8	Up to 12	Up to 8	Up to 2
Print direction	Right / Left					
Min. tile thickness	From 0.12 in (3 mm)					
Max. tile thickness	1.18 in (30 mm)			2.36 in (60 mm)		
Print speed	Up to 196.85 ft/min (60 m/min)					
Centering printing precision	0.012 in (<0.3 mm)					
MACHINE ASSEMBLY	C5	D5	M5	N5	P5	SHIELD
External power supply	Variable (380/400/440/480V)					
Max. power consumption (8 colors)	18 KVA	24 KVA	24 KVA	34 KVA	44 KVA	18 KVA
Electrical phases	3F+GND					
Power connection frequency	50/60 Hz					
Pneumatic connection	Line 1: 73-123 psi (5-8.5 bar)			Line 2: 102-123 psi (7-8.5 bar)		
Cabin recommended temperature	72-79 °F (22-26 °C)					
UPS included	Yes					
DIMENSIONS PRINTER	C5	D5	M5	N5	P5	SHIELD
Width	5.41 ft (1650 mm)	5.41 ft (1650 mm)	6.89 ft (2100 mm)	6.89 ft (2100 mm)	7.28 ft (2220 mm)	7.54 ft (2298 mm)
Height	6.40 ft (1950 mm)	6.73 ft (2050 mm)	6.73 ft (2050 mm)	7.45 ft (2270 mm)	7.38 ft (2250 mm)	7.07 ft (2155 mm)
Length	13.12 ft (4000 mm)	16.40 ft (5000 mm)	16.08 ft (4900 mm)	20.01 ft (6100 mm)	20.51 ft (6250 mm)	10.53 ft (3210 mm)
DIMENSIONS CABIN	C5	D5	M5	N5	P5	SHIELD
Width	12.14 ft (3700 mm)	12.14 ft (3700 mm)	15.42 ft (4700 mm)	15.42 ft (4700 mm)	21.33 ft (6500 mm)	21.33 ft (6500 mm)
Height	9.19 ft (2800 mm)	9.19 ft (2800 mm)	9.19 ft (2800 mm)	10.83 ft (3300 mm)	10.83 ft (3300 mm)	10.83 ft (3300 mm)
Length	18.04 ft (5500 mm)	18.04 ft (5500 mm)	21.33 ft (6500 mm)	25.26 ft (7700 mm)	26.25 ft (8000 mm)	18.04 ft (5500 mm)

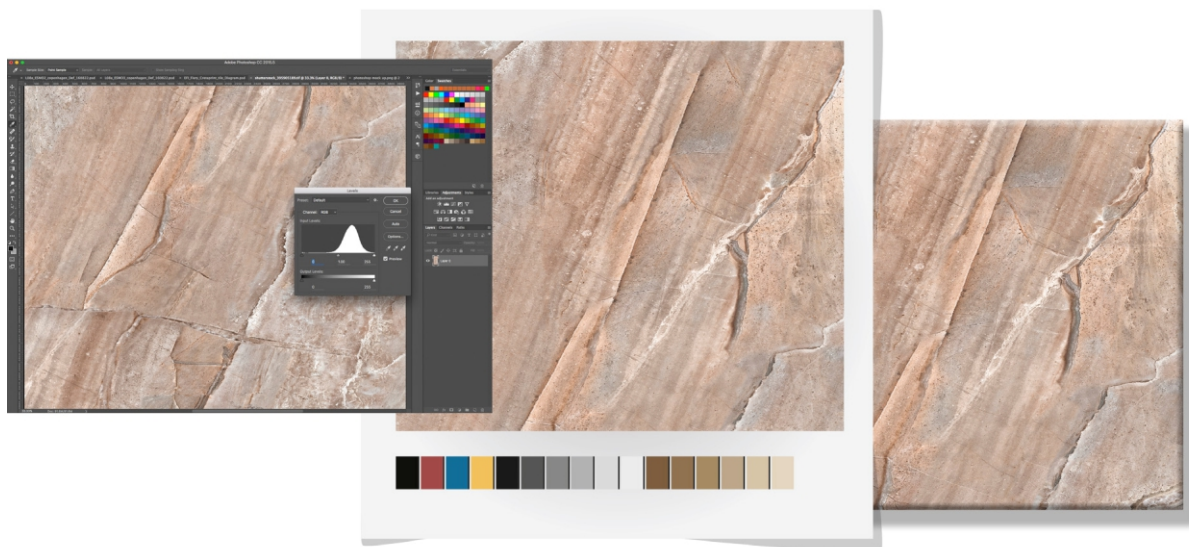
SOFTWARE	
Image file type	TIFF and RPF
Rendering time	VARIABLE
Image loading time	1 - 15 s
Image changing time during production	1 s
Parallel RIPing and printing	Yes
Number of images per model	100
Print an image without stopping	Yes
Cretavision: tile printing Angle intelligent recognition and correction system	Optional
Cretavision: relief recognition system	Optional
Double tile printing	Optional

Printer in development, specifications subject to change without notice.

# EFI Fiery proServer for ceramics (\*) *Optional*



The EFI Fiery proServer pioneered color management for digital ceramic printing and includes powerful tools to control the tile decoration process, helping to make a smooth transition to water-friendly technology and ink savings.

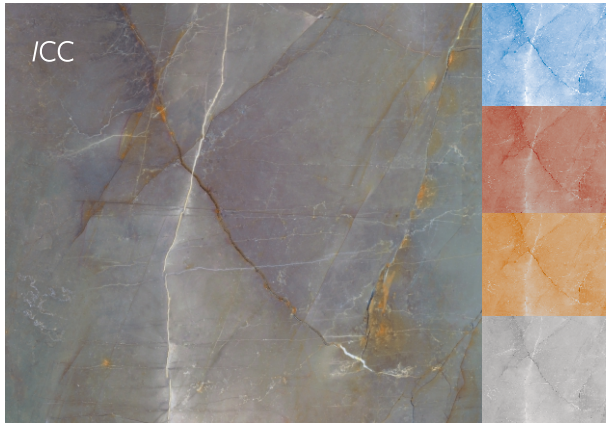


## Accelerate tile design development

Reliable inkjet proofing reduces new product development time and reduces associated costs.

Fiery proServer's client / server architecture allows an unlimited number of operators to perform accurate on-screen design edits from any location. Adobe® Photoshop® editing is directly accessed through the client interface. EFI's exclusive Fiery Image Editor tool for EFI Cretacolor inks allows the accurate editing of final multi-channel separations, allowing on-screen changes to be made accurately and easily right up until production.





## Ink consumption reduction

EFI's innovative ColorWise separation technology is engineered specifically for digital ceramic tile decoration to produce sharper and more detailed output versus conventional ICC color management methods. This efficient technology also uses less ink versus ICC color management production, resulting in cost savings of up to 30% when combined with the use of EFI Cretacolor inks, with no loss of color accuracy, gamut, or definition.

With the Smart Ink Saving tool, users can configure real ink prices and produce total cost savings of up to 40% while finding the perfect balance between color and cost for each individual design.

Ink set, printer, glaze, or kiln differences can be compensated with conversion tools, guaranteeing accurate results no matter where production happens. This will result in faster turnaround times to meet tight deadlines and optimized ink consumption.



## Specialized ceramic decoration functionalities

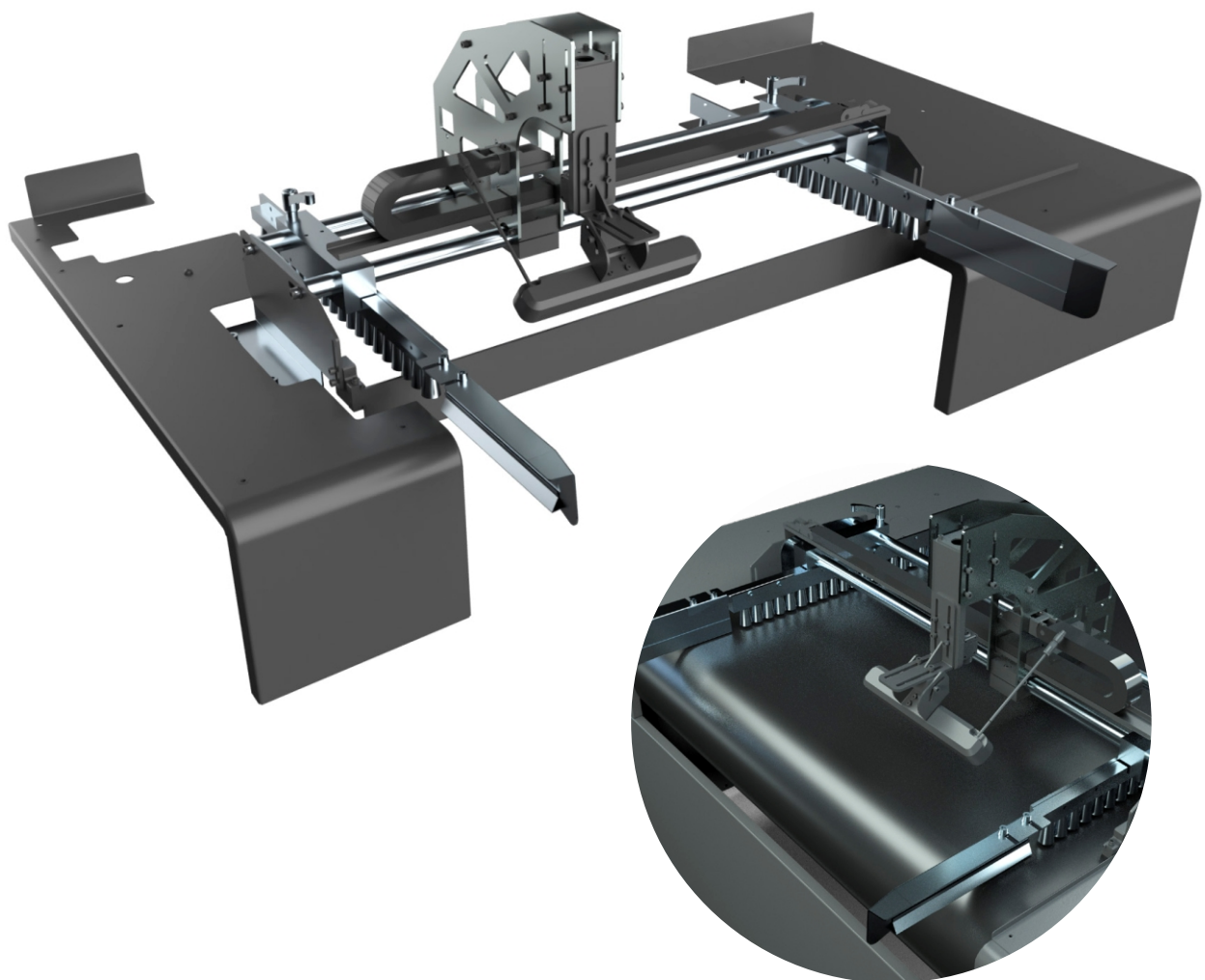
Special effect layers can be automatically calculated from design files for use with reactive, gloss, matte, or luster inks.

# Cretafit (\*) *Optional*

## Artificial vision system to adjust the printing position to the tile.

Cretafit detects the position of the tile in the transport at the entrance of the machine. This information is used to perfectly adjust the design or image to the position of the tile. All this is done on the fly, with no stops, no waiting, and no rendering time.

With Cretafit and the full potential of EFI™ Cretaprint® electronics and software, automation is maximised and the precision of the mechanical guidance of the digital printer is improved.





## Cretafit guarantees centering of the image on the tile and it is ideal for:

- Designs that need perfect matching on the tile
- Tiles that cannot be easily guided in a standard way
- Avoiding printing on the outside of the tile, soiling the conveyor belt
- Reducing handling of “fragile” slim tiles

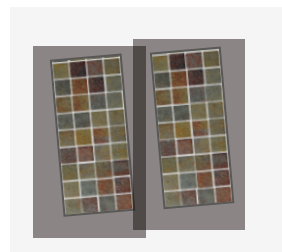
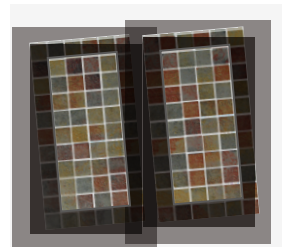


The artificial vision camera included in Cretafit detects the position of each moving tile on the conveyor belt at the printer entrance.

The position is transmitted to the printer software which performs the translation and rotation adjustment of the graphic before printing it on top of any single tile piece.

Cretafit can be installed on any of EFI Cretaprint's 5th generation printers (C5, D5, M5, N5 and P5), as well as on Cretaprint Shield printers for the application of digital glazes and ceramic effects.

With the perfect centering of the graphic on top of the tile to avoid overprinting, ink waste is reduced, the belt system remains clean and, above all, non-quality costs are improved. That is, there are less defective tiles to be discarded.



## CretaVision (\*) *Optional*

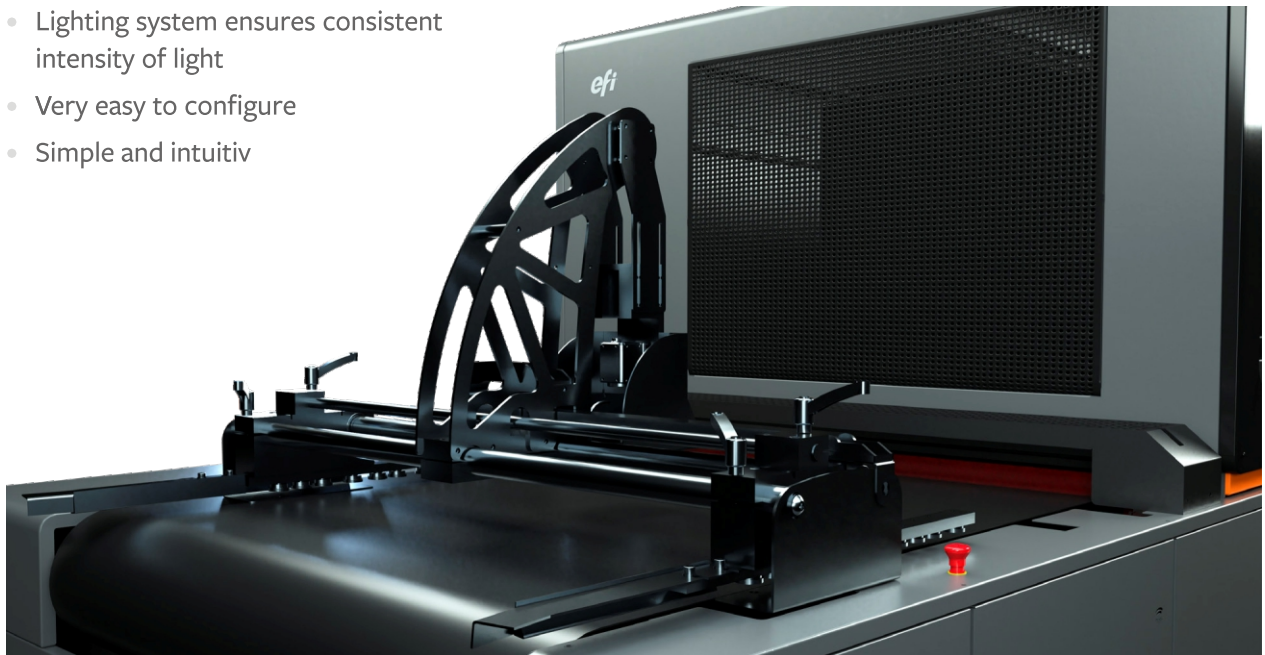
EFI™ Cretavision 2.0 is an optional accessory for EFI's Cretaprint ceramic printers that allows associating different designs to different reliefs in a set of tiles.

### EFI Cretavision printing mode

Incorporated artificial vision hardware installed at the printer entry point allows the system to recognise and identify tile reliefs that will be printed with different designs. This means that it is able to perfectly fit a particular design within the tile's relief, regardless of the order in which the tiles are printed.

### Cretavision main features

- Compact camera with embedded high performance processor
- All calculations are made within the camera itself so there is no need for any external resources for this operation
- Internal RAM for storing backup
- High processing speed of 300 milliseconds
- It can handle up to 20 different reliefs
- Lighting system ensures consistent intensity of light
- Very easy to configure
- Simple and intuitiv



*The EFI Cretavision 2.0 compact camera in place*



## Requirements

- Cretavision 2.0 is available for platform 4 and 5 EFI Cretaprint printers
- Cabin lighting must be maintained at a constant intensity
- Relief depth greater than 1,5 mm

## Media handling

- Minimum size of the tile: 200 x 200 mm
- Gap between tiles: 10 mm
- Number of patterns: 20
- Compatibility with DTP: Yes; 2 cameras needed



*The EFI Cretavision 2.0 compact camera in place*

## Environmental considerations

It is recommended not to install Cretavision under the following conditions:

- Wetness, dust or poor ventilation
- Places where the system is exposed to direct sunlight or increases in temperature
- Places where there may be rammable or corrosive gases
- Places where the system is exposed to strong vibrations or impacts
- Places where the system is exposed to splashing water, oils or chemicals
- Places that are a source of static electricity



*Example of the type of tiles where EFI Cretavision can be helpful*

DPI is committed to develop the industrial-grade digital inkjet printer, by virtue of the elite entrepreneurial team who have been deeply involved in the digital printing industry for many years. EFI authorizes DPI as the global operator of EFI Cretaprint in the field of ceramic building materials, visit [www.dpitech.cn](http://www.dpitech.cn) for details.



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We develop breakthrough technologies for the manufacturing of signage, packaging, textiles, ceramic tiles, building materials and personalized documents, with a wide range of printers, inks, digital front ends, and a comprehensive business and production workflow suite that transforms and streamlines the entire production process, increasing your competitiveness and boosting productivity. For more information on EFI Cretaprint products or to speak to an EFI Cretaprint specialist directly, please call +34 964 340 264, email [cretaprintsales@efi.com](mailto:cretaprintsales@efi.com) or visit [www.efi.com](http://www.efi.com)



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