



One complete solution. Endless applications.

Your digital glass printing success starts with the right partner.



Architecture



Automotive



Appliances

Inspired by You

The World's Leading Glass Color Solutions Provider



Ferro (NYSE: FOE) is a **leading global supplier** of technology-based functional coatings and color solutions. It supplies functional coatings for glass, metal, ceramic and other substrates and **color solutions** in the form of specialty pigments and colorants.

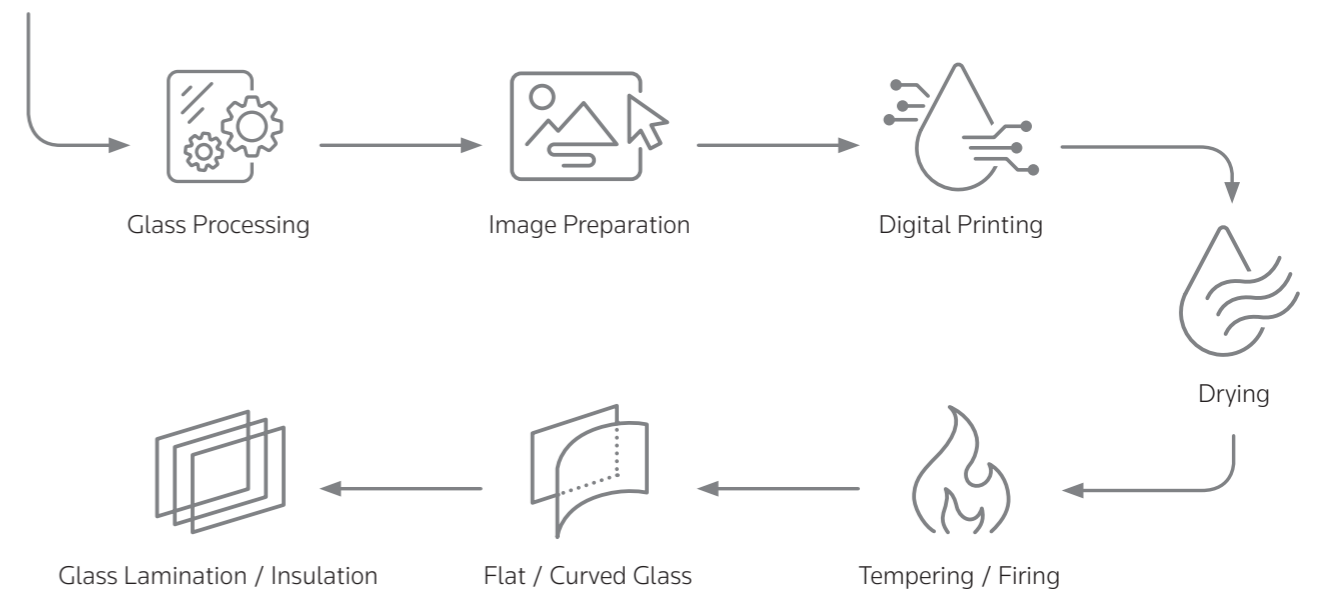
Thousands of manufacturers in the building and construction, automotive, electronics, industrial products, household furnishings and appliances markets rely on Ferro products and technologies. Ferro leads the world in supplying proven and **innovative solutions** to glass production segments, including automotive, architecture, appliance, container glass, and dinnerware.



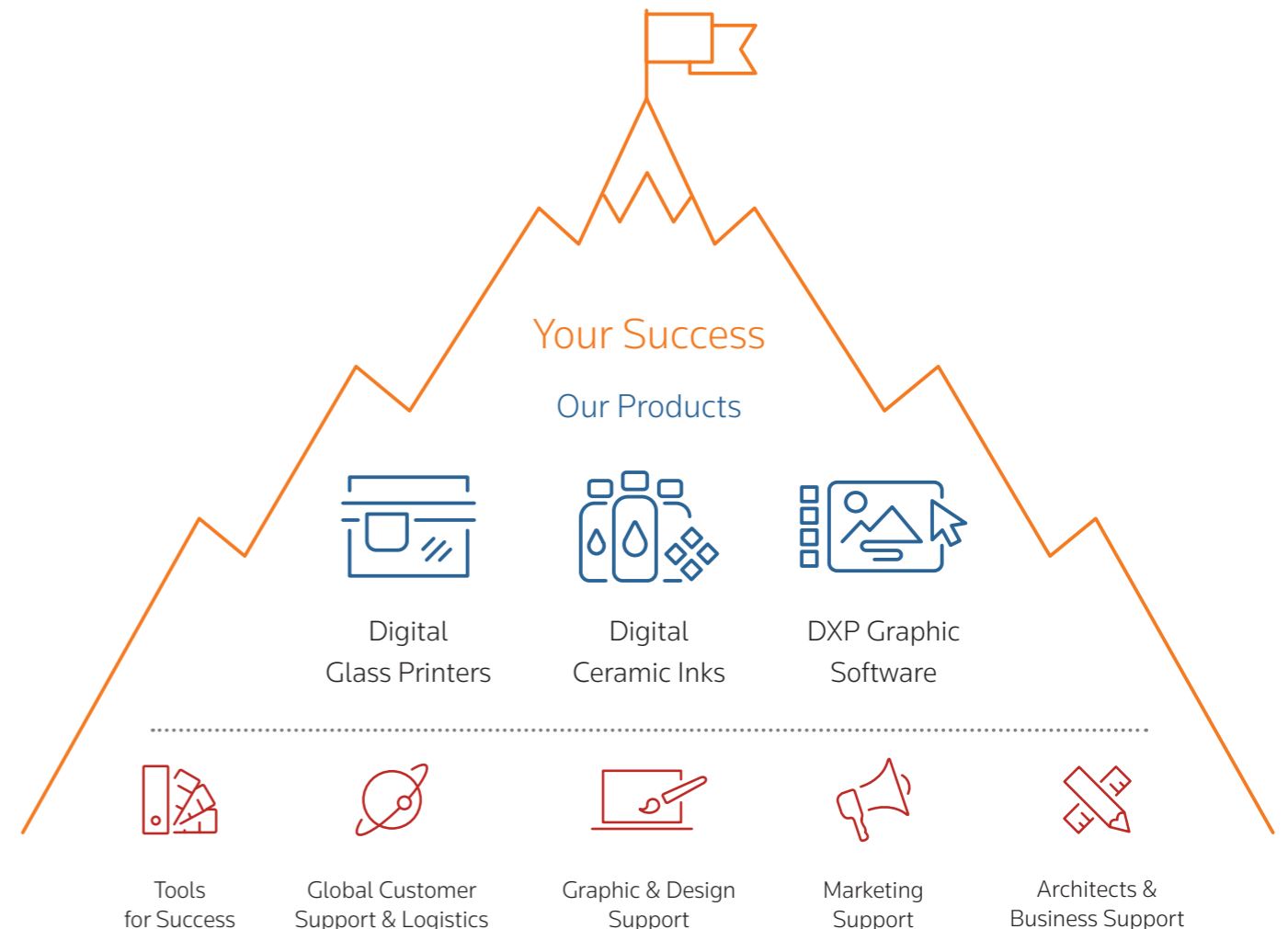
Dip-Tech, a Ferro company, is the pioneer and leading provider of **digital ceramic glass printing** solutions. With state-of-the-art glass printers and unique vivid and durable ceramic inks, it **delivers serial production** productivity and quality solutions for architecture, interior design, industrial applications, home appliances and automotive glass.

Dip-Tech's extensive business support empowers glass processors to **do more business** with their Dip-Tech systems.

Dip-Tech Digital Glass Printing Process



Ferro and Dip-Tech have over a decade of experience in digital glass printing. With our digital printers, inks, software and state-of-the-art technologies we provide cutting-edge solutions for architecture, interior design, automotive and appliances.



Dip-Tech NEraD Series

Outstandingly heavy-duty digital glass printer for serial production.
Leads in production speed, quality, flexibility & efficiency.



NEW!

- Glass scanner
- Multi-tasking glass handling system
- Automatic load system
- Metallic ink solution
- Industry 4.0 compliance for smart manufacturing

Speed and quality

- Gradual wide brush and high jetting frequency
- High-power dual technology drop-fixation system
- Variable drop size – High image quality and application flexibility
- Highly accurate, bi-directional printing

Flow and flexibility

- Fully automated, inline industrial solution
- 12 ink channels with fast color changeover
- Minimal machine setup required to print different applications, due to 12 ink channels
- Simplified workflow, with NExT user interface

Efficiency

- Fully automatic maintenance system
- Automated ink recirculation in the printhead
- Fast, automatic ink changeover process
- Integrated dryer eliminates the need for an extra line and process

Key Specifications

	Dip-Tech NEraD150	Dip-Tech NEraD300	Dip-Tech NEraD460	Dip-Tech NEraD Plus
Maximum glass size	Width: 2800-3300 mm, 110-130 in Length: 2600-18,000 mm, 102-720 in			
Minimum glass size	400 x 400 / 800 x 800 mm* 16 x 16 / 32 x 32 in*			
Jetting power - Million Drops Per Second	150 MDPS	300 MDPS	460 MDPS	610 MDPS
Printing resolution	Up to 1410 DPI			
Drop size	10pl / variable drop size			
Number of ink channels	6	12	12	12
Glass thickness	2 - 19 mm 0.1 - 0.75 in			
Inks	Dip-Tech SPECTRUM Inks, Dip-Tech Extra Durable S1 Inks, Dip-Tech Digital Conductive Ink, Dip-Tech Precious Metal Inks			
Empowered drop-fixation	Included			
Software	DXP4 Advanced (includes RIP, Pattern Generator, CMiX)			
Inline pass through conveyor	Included			
Image format	All popular graphic formats, including PDF, PS, EPS, Tiff, BMP, JPEG			
Ambient temperature	18-25°C / 64-77°F			
Power input	3 X 16A / 3 X 125A			
Overall dimensions L x W x H	4 meters: 5850 x 6480 x 1600 mm, 230 x 255 x 63 in 6 meters: 8100 x 6480 x 1600 mm, 319 x 255 x 63 in			

* The machine can accommodate smaller size glass panels by using a carrying glass or adapting plate.

Maximum Throughput per Application*



Single-color dots & lines
Up to 1000 sqm/hr
Up to 10,760 sqft/hr



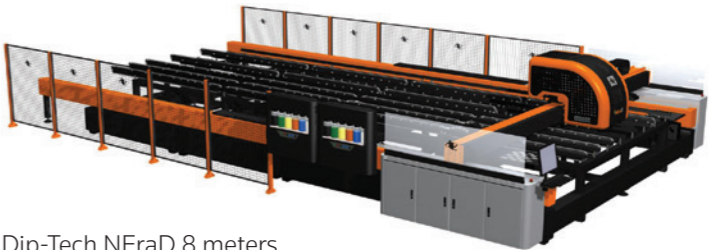
Black frames
Up to 380 sqm/hr
Up to 4090 sqft/hr



Photorealistic images
Up to 135 sqm/hr
Up to 1450 sqft/hr

* Indicative throughput (depends on: number of MDPS, ink wet layer thickness, glass/print size, color configuration, graphic design and complexity, and printing quality mode) speeds are measured at 3300 x 1000 mm glass size.

Available for Different Glass Lengths, from 2.6 to 18 Meters



Dip-Tech NEraD 8 meters

Production Flexibility

Endless color configurations and fast, economical, and automatic color changeover.



Dip-Tech GPI Series

Premium results – Simple and quick.
Ideal for seamless delivery of high-quality projects.



Quality and speed

- Exceptionally vivid and opaque printing
- Up to 200 million drops per second (MDPS)
- 6-8 color channels
- Dual-technology Drop-Fixation system
- Variable drop size – High image quality and productivity for all applications
- Automated ink recirculation in the printhead

Seamless workflow

- Simplified workflow, with NExT user interface
- Modular, flexible-size solution
- Inline dryer – eliminates the need for an extra line and process
- Fully automatic maintenance system

Key Specifications

	Dip-Tech GPI150	Dip-Tech GPI200
Maximum glass size	2400 x 1400 mm, 95x55 in 2400x2400 mm, 95x95 in 2400x4000 mm, 95x157 in 2400x6000 mm, 95x236 in	
Minimum glass size	800 x 800 mm* 32 x 32 in*	
Jetting power - Million Drops Per Second	150 MDPS	200 MDPS
Printing resolution	Up to 1410 DPI	
Drop size	10pl / variable drop size	
Number of ink channels	6	8
Glass thickness	2 - 19 mm 0.1 - 0.75 in	
Inks	Dip-Tech SPECTRUM Inks, Dip-Tech Extra Durable S1 Inks, Dip-Tech Slip-Resistance Ink	
Drop-Fix	Included	
Software	DXP3 Advanced (includes RIP, Pattern Generator, Color Atlas)	
Image format	All popular graphic formats, including PDF, PS, EPS, Tiff, BMP, JPEG	
Ambient temperature	18-25°C / 64-77°F	
Power input	3 X 16A	
Overall dimensions L x W x H	3260 x 5095 x 1652 mm 5460 x 5095 x 1652 mm 9860 x 5095 x 1652 mm 14260 x 5095 x 1652 mm 129 x 200 x 65 in 215 x 200 x 65 in 390 x 200 x 65 in 562 x 200 x 65 in	

Maximum Throughput
per Application*



Single-color dots & lines
Up to 130 sqm/hr
Up to 1230 sqft/hr



Black frames
Up to 75 sqm/hr
Up to 800 sqft/hr



Photorealistic images
Up to 35 sqm/hr
Up to 375 sqft/hr

* Indicative throughput (depends on: number of MDPS, ink wet layer thickness, glass/print size, color configuration, graphic design and complexity, and printing quality mode) speeds are measured at 3300 x 1000 mm glass size.

Available for Different Glass Lengths,
from 1.4 to 6 Meters



Dip-Tech GPI 4M

Production Flexibility

Various color configurations, economical and simple color changeover.



A World of Colors

Ferro and Dip-Tech Digital Ceramic Inks are developed by our chemistry experts, working together with world-leading academic institutions. They have been proven outdoors in thousands of projects around the globe and on millions of automotive glass panels for over 12 years.

Combined with Dip-Tech software, the inks were developed to add functionality to glass applications, such as solar control and light diffusion.

Dip-Tech Ink Advantages:

- According GHS regulation - Dip-Tech inks are not classified as health hazards. Recognized and trusted by architects worldwide for quality and durability
- Widest gamut, with the most vivid and vibrant tones
- Ultra-high opacity – Reduces ink consumption with no compromise on optical density
- Suitable for a wide range of firing temperatures
- Environmental sustainability - Lead-free and cadmium-free



Description	Industry Standard
Weathering resistance	ISO-11341 (ISO-16474)
Acid resistance	ASTM C 724-91, ASTM 777-04
Alcohol resistance	UNE-EN 15200
Scratch resistance	AS 3894.4, EN 438-2, ISO 4586-2
Glass bend strength	BS EN 1288-5
Stain resistance	UNE-EN 15200
Slip resistance surface	ASTM E 303, ANSI A137.1, EN1341
Durability of laminated glass	EN ISO 12543-4

Compatibility with Industrial Products	Supplier and Brand
Lamination industry products – Tested with pummel test, bake test, boil test	Kuraray: TROSIFOL® PVB & SentryGlas®
Architecture adhesives and sealants industry products	SIKA: Sikasil®, Dow Corning: 993®
Structural glazing tape	3M: VHB™ B23F, G23F, W20F

Dip-Tech Architecture Inks



Core Inks

SPECTRUM Series

- High-performance, with long-lasting durability and built-in gloss
- Seven core colors – Blue, green, white, orange, red, black, yellow
- Numerous shades and colors based on digital mix and pre-mixed colors



Premium Inks

Precious Metal Inks

- Adds colors with an extra shine for the perfect metallic effect
- Ideal for premium and customized products, creative designs and patterns
- Available in gold and white gold



Special Functionality Inks

Extra Durable S1 Series

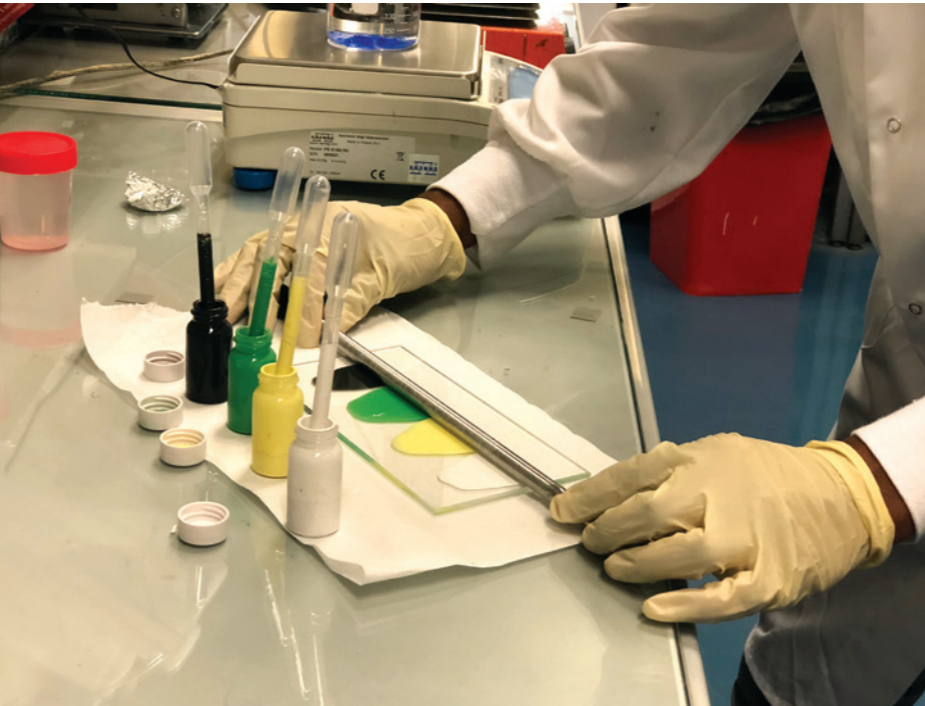
- High chemical, scratch, and environmental resistance
- Reduced glare and reflection
- Compliance with architecture industry standards and requirements

Slip-Resistance Ink

- Excellent mechanical, environmental, UV, and chemical performance
- Complies with industry standards for anti-slip coatings
- Enables varied levels of anti-slip, based on any design

Anti-Stick Ink

- Enables the printed glass to be fired using press bending processes
- Ideal for large glass panels that are bent into sharp angles and undergo low-temperature firing processes
- Available in any color, both for side 2 and side 1

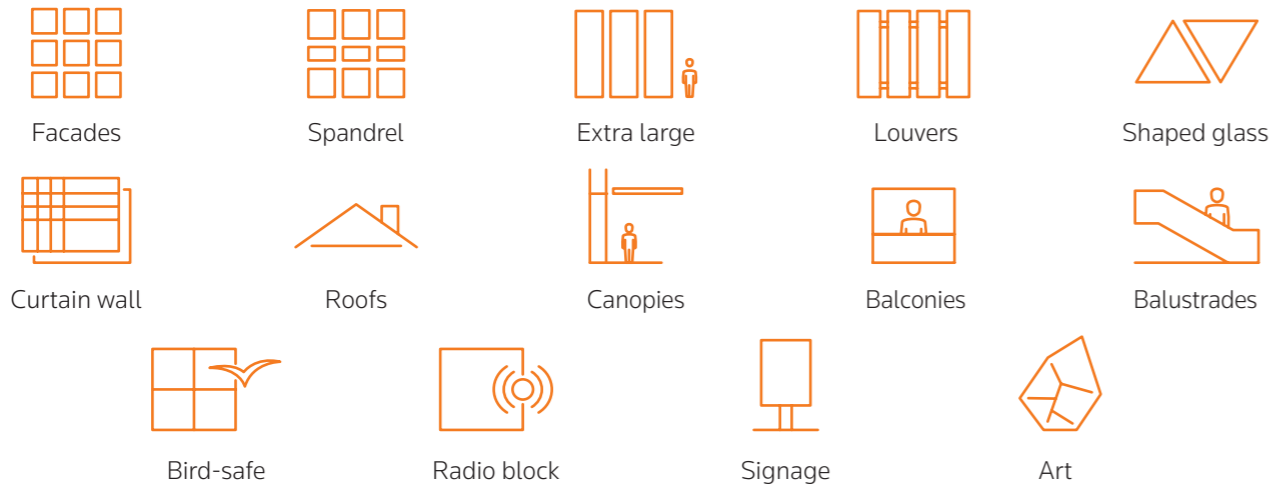


Architecture Applications

The world’s top architects express their vision with Dip-Tech

By overcoming the traditional restrictions of architectural glass printing and decoration methods, Dip-Tech has inspired thousands of architects and designers to explore new avenues of creativity for modern and sustainable designs that meet the highest standards for durability, quality, and functionality.

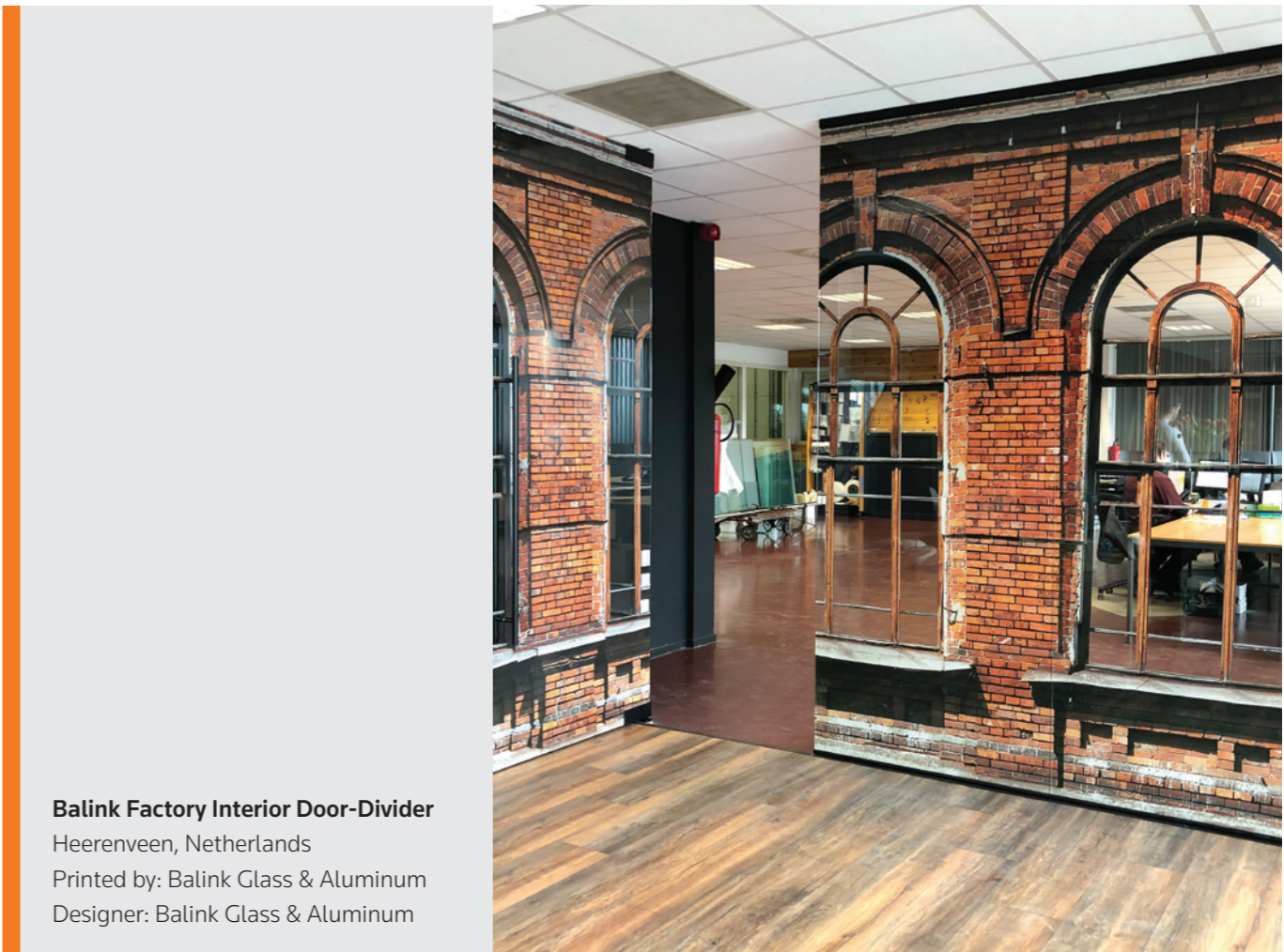
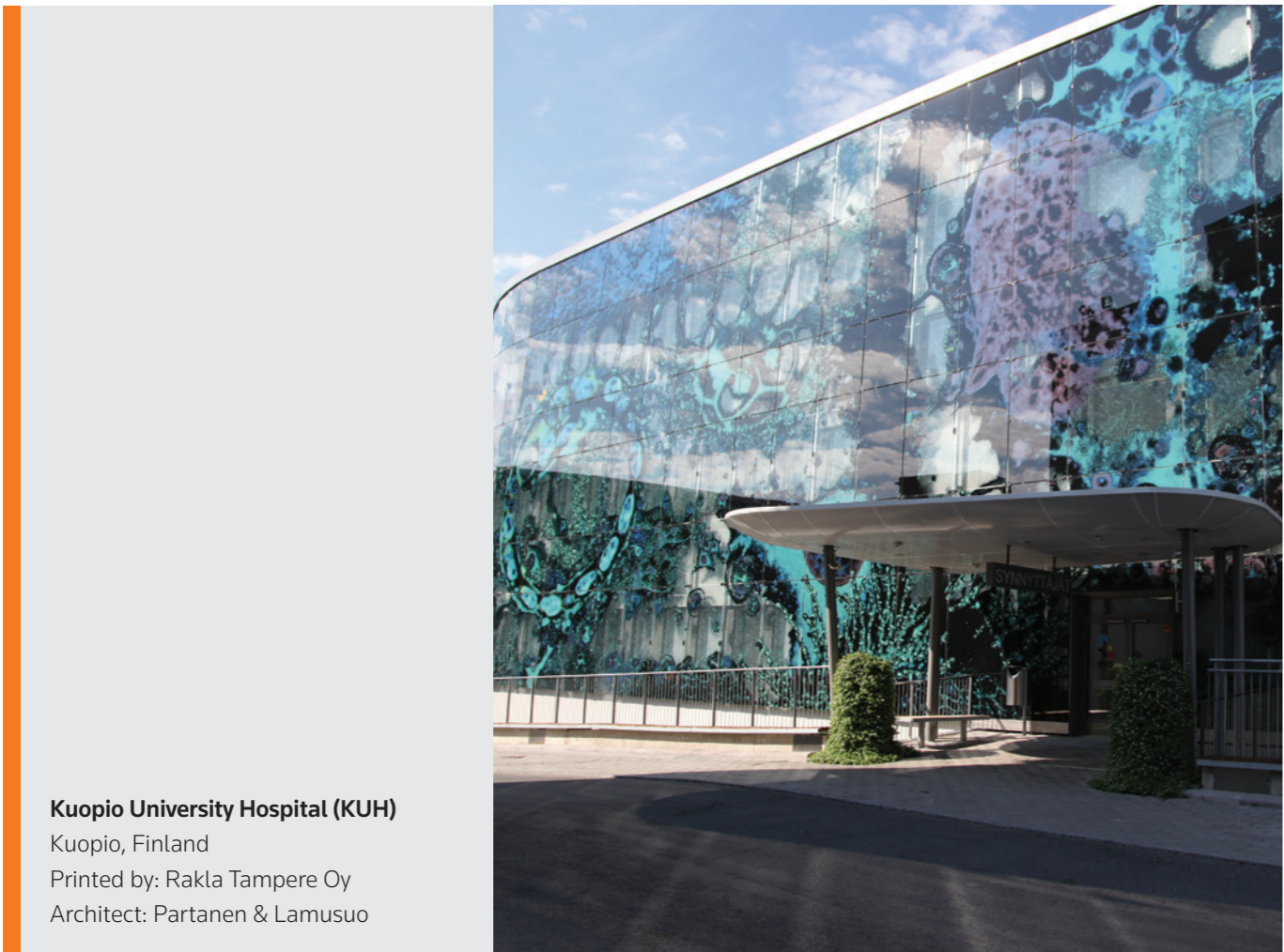
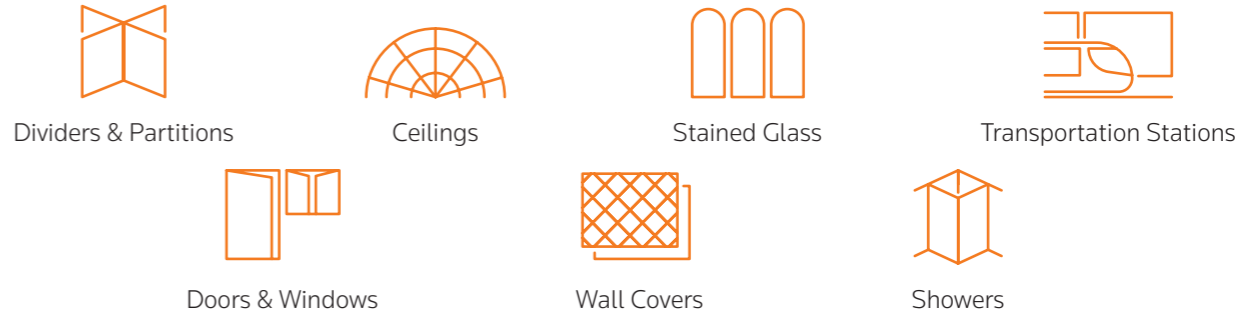
Thousands of Dip-Tech printed projects are the work of world-leading architects who have established outstanding landmarks and won prestigious awards.



Interior Applications

Exceptionally vibrant tones created with a wide color gamut

Dip-Tech technology takes glass design for interior surfaces and applications to the next level of creativity, beauty and durability. It adds enormous value to commercial and residential interior glass applications – for dividers, partitions, doors, windows, shower glass, table tops, and more. In addition, artists choose Dip-Tech printed glass for art and cultural installations. With Dip-Tech, the design options are endless!



Your Success. Our Passion.

Dip-Tech 360° unique support for the architecture market.
Significant contribution to fast return on investment.

Marketing Support

Build your digital printing business faster

Dip-Tech's Marketing Support Team provides training, ready-to-use marketing tools, best practices and know-how to enhance your business ramp-up.



Catalogs



Website & Online



Video Marketing



Success Stories



Newsletters & Media



Events



Showroom

Architects Support

Global cooperation with architects that benefits your business

The Dip-Tech architects team presents Dip-Tech to thousands of architects every year, introduces Dip-Tech customers to projects and architects in their region, trains you on how to work with architects and supports your marketing activities with architects.



Online Webinars



Project Consultation



Events & Seminars



Joint Visits to Architects

Graphics and Design Support

Become a master of design for digitally printed glass

The Dip-Tech graphics and design support team works with you to enhance your ability to win projects in your market and deliver beautiful, high-quality printed glass solutions to your customers.



Color Matching Support



Remote Project Support



Online Training Sessions



E-Learning Center



Onsite Graphic Training

Always with You

The World's Leading Glass Color Solutions Provider

Ferro and Dip-Tech's wide global network ensures close customer care and service. Worldwide service and logistics offices enhance stock availability, reduce lead time, and make it easy to get service in local language and working hours.



International Customer Support (ICS)

Dip-Tech is experienced in supporting customers in more than 60 countries through more than a dozen regional technical support locations. We offer a 24/7 service call center and interactive support and training anytime, anywhere.



Post-Sale Services & System Upgrades

Dip-Tech does its utmost to make new capabilities, features, inks, designs, and tools available to the widest install base possible, to ensure that customers can keep up with the latest developments even many years after the printer was installed.



Regional Ink Supply Hubs

Over 30 global customer logistics centers support Dip-Tech customers locally, providing optimized and efficient service, stock availability and short delivery time.

Tools for Your Success



The Projects Book

A stunning collection of glass projects printed worldwide by Dip-Tech technology. This gorgeous book includes glass drawing details, facades layouts, diagrams, and pictures of international projects. Customized for your company, the Projects Book is a powerful way to make your digital print capabilities more attractive to architects and more accessible to them than ever.



Redefining Interior Surfaces

A designed glass surface collection that brings together global trends in materials, interior and home decoration, new design elements and inspiration.



Dip-Tech Customer Online Resource Center

Provides customers with web access to a variety of tools, such as designs, samples, interactive tutorials, technical procedures, interactive spare parts catalog, ink shipment information, and much more.



Dip-Energy Printed Glass Performance Calculator

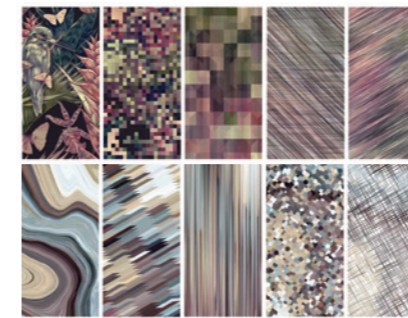
A software tool that allows evaluation of the printed glass performance. Parameters such as heat gain and shading coefficient can be analyzed before printing the actual glass. This ensures the printed image supports energy saving and shading performance.

Digital Design by Dip-Tech



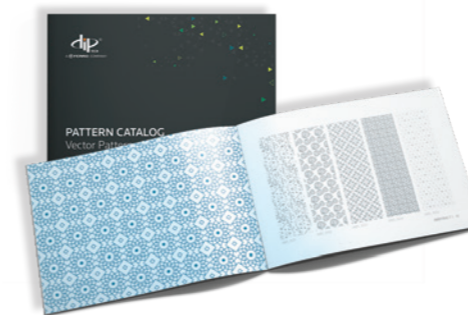
Digital Design e-Shop

Offers customers more than 500 ready-to-print files designed specifically for glass applications, including high-resolution files for over-sized glass installations, and special selections for marble and stone.



Pixel Blaster

An easy-to-use RIP (Raster Image Processor) tool that allows users to convert any image into new and colorful design variations within seconds. Dip-Tech's RIP enables the user to simulate the final appearance and color tone of any given image before printing. No design skills needed.



Dip-Tech Pattern Catalog

Offers a wide variety of patterns, with endless design possibilities and combinations of different themes aligned with architecture and interior design trends.



Dip-CMiX Communicate Colors before Printing Glass

A standard of ceramic pre-mix color guide, similar to RAL and Pantone color guides, that provides a rich set of easily attained colors. The swatch book enables effective communication of printed glass colors with architects and designers.

Dip-Tech NEraV Series

A complete, fully automated, serial production solution.
For digital printing of automotive and special transportation glass.



Productivity

- Fast cycle time for both large and small size glass panels
- Integrated automatic indexing system for non symmetric glass
- Cost-effective production of large printed batches
- Short cycle time combined with high printing quality

Dedicated Technology

- Gradual wide brush and high jetting frequency
- Variable drop size – High image quality and application flexibility
- High-power dual technology Drop-Fixation system

Efficiency

- Fully automatic maintenance system
- Automated ink recirculation in the printhead
- Fast, automatic ink changeover process
- Simplified workflow, with NExT user interface
- Generates automotive frames and rasters

Key Specifications

	Dip-Tech NEraV300	Dip-Tech NEraV460	Dip-Tech NEraV Plus
Maximum glass size	3300 x 2600 mm 130 x 102 in*		
Minimum glass size	400 x 400 mm* 16 x 16 in*		
Jetting power - Million Drops Per Second	300 MDPS	460 MDPS	610 MDPS
Printing resolution	Up to 1410 DPI		
Drop size	10pl / variable drop size		
# of channels	6-12		
Glass thickness	2.5 - 19 mm 0.1 - 0.75 in		
Inks	Automotive Black Ink, 14 801 – Digital Black Ink 72H, 14 802 - Digital Anti-Stick Ink, SP 8001 – Digital Conductive Ink		
Empowered Drop-Fixation	Included		
Software	Dip-Tech Expert Package, NExT, Automotive Raster Generator		
Inline pass through conveyor	Included		
Image format	All popular graphic formats, including PDF, PS, EPS, Tiff, BMP, JPEG		
Ambient temperature	18-25°C / 64-77°F		
Power input	3 X 16A		
Overall dimensions L x W x H	4500 x 6480 x 1600 mm 178 x 255 x 63 in		

* The machine can accommodate smaller size glass panels by using a carrying glass or adapting plate.

Maximum Throughput per Application*



Single-color dots & lines
Up to 1000 sqm/hr
Up to 10760 sqft/hr



Black frames
Up to 380 sqm/hr
Up to 4090 sqft/hr



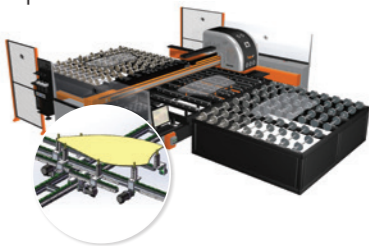
Single-color fine details & logos
Up to 120 sqm/hr
Up to 1290 sqft/hr

* Indicative throughput (depends on: number of MDPS, ink wet layer thickness, glass/print size, color configuration, graphic design and complexity, and printing quality mode) speeds are measured at 3300 x 1000 mm glass size.

Dynamic Index System

The Dip-Tech NEraV is the first-ever digital glass printer designed for the unique demands of the automotive industry. It includes an inline automatic indexing system that is able to automatically index and register shaped glass, with no manual operation required.

- Designed for complex non symmetric shapes
- Fast, user-friendly setup



Production Flexibility

Color configurations, with fast, economical and automatic color changeover.

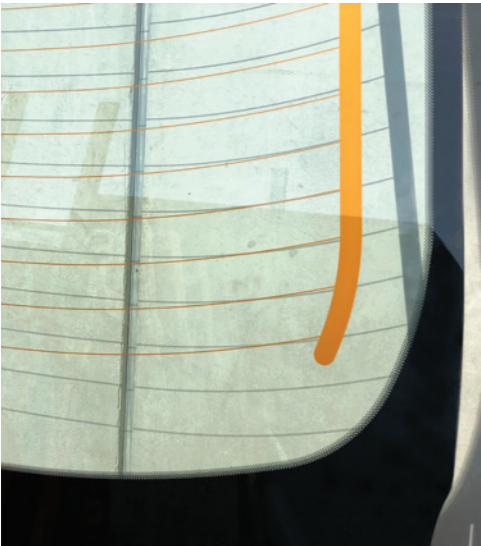


Ferro Digital Automotive Inks

Custom-made digital inks for the automotive and special transportation market

Ferro digital automotive inks were designed exclusively for use with Dip-Tech automotive printers. Ferro inks meet the strictest standards of the automotive industry, with high chemical resistance, optical density and dark black shades.

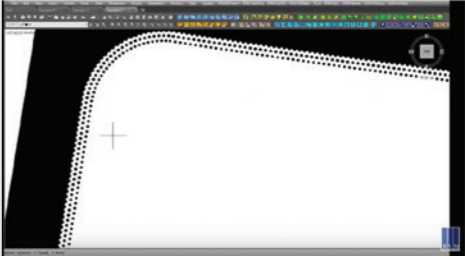
Automotive Black Ink	<ul style="list-style-type: none"> Formulated specifically for the automotive industry treatment process Suited for bending, lamination and tempering, wide firing temperature range Providing UV resistance for automotive applications
Dip-Tech Total Black Ink	<ul style="list-style-type: none"> Chemical resistance – Durable for 72 hours in sulphur acid attacks at 80°C Wide firing range High opacity and maximum blackness of color
Digital Anti-Stick Ink	<ul style="list-style-type: none"> Designed for complex curving operations and special firing profiles Suitable for press bending Formulated to fit variety of Dip-Tech inks
Digital Conductive Ink	<ul style="list-style-type: none"> Suitable for numerous automotive and transportation applications, including: defrosters, camera, wiper and radar demisters, fine lines, bus bars, conductive lines Excellent sheet resistance complies with industry standards Complies with coated glass requirements Compatible with lamination, tempering and firing Heavy-metal free



Automotive Raster Master

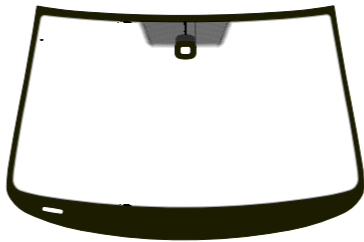
An innovative Dip-Tech tool that assists to create gradient raster patterns for automotive/transportation black frames.

- Can automatically create raster grids to all frame designs
- Provides seamless raster arrangement in corners, curves and special fill areas in the CAD
- Replaces tedious corrections and completions of rasters in current process
- Interfaces with AutoCAD



Recommended Applications

Millions of Dip-Tech printed automotive and transportation glass panels are already in use in a wide range of vehicles around the world.



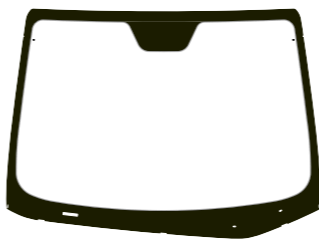
Automotive Replacement Glass



Agricultural , Construction & Specialty Vehicles



Bulletproof & Protective Vehicles Glass



Rail Transport



RV & Buses



Marine Glazing & Yacht Interiors

Dip-Tech VEra Printer for Appliances Glass

A powerful, high-performing machine, Dip-Tech VEra can produce multi-color printed appliances glass at speeds comparable to screen printing.



Key Specifications





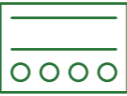



	Dip-Tech VEra 103	Dip-Tech VEra 106
Maximum glass size	300 X 1000 mm / 11.81 X 39.37 in	600 X 1000 mm / 23.62 X 39.37 in
Minimum glass size	100 X 450 mm	
Cycle time	Up to 12 seconds in-out cycle time, 6-color high definition printing for 300 X 600 mm / 11.81 X 23.62 in glass	Up to 12 seconds in-out cycle time, 6-color high definition printing for 600 X 600 mm / 23.62 X 23.62 in glass
Jetting engine	Automatic ink recirculation, variable drop size, multi-color - <i>ULTRA-FIX</i> single pass array	
Number of color channels	6	
Glass thickness	3 - 20 mm / 0.157 X 0.787 in	
Inks	Ferro Ultra-FIX digital ceramic inks series for appliances	
Image format	All popular graphic formats: PDF, PS, EPS, TIFF, BMG, JPEG	
Ambient temperature	18-25°C / 64-77°F	
Power input	3 X 63A	
Overall dimensions L x W x H	5400 x 4700 x 2600 mm / 212.6 X 185 X 102.3 in	

Designed to integrate in appliance glass production lines

Fully Industrial and Automated Built-In Glass Transport and Registration System

- Full production line compliance and line commonality
 - Fast and high accuracy index system
 - User-friendly and intuitive interface
- Designed from scratch for appliances glass processing factories
 - Short cycle time for multi-color applications
 - Ultra-FIX technology – For maximum color fixation
 - Automatic ink recirculation in the printhead
 - Variable drop size – For high image quality
 - Automatic maintenance

Exceptionally versatile, this new solution is suited for a wide range of home appliances, including:

 Baking ovens	 Cooktops	 Microwaves	 Oven doors
 Switch panels	 Gas cookers	 Refrigerators	 Retail glass displays

Appliances Inks

Opening a world of colors with Ferro *ULTRA-FIX* digital ceramic inks

Ferro, the leading global supplier of functional coatings and color solutions, has long held a strong market share in the appliances domain, including an extensive portfolio of high-performing porcelain enamels for metals, and ceramic color enamels for glass.

The new *ULTRA-FIX* digital inks were developed based on this proven expertise and in line with Dip-Tech's state-of-the-art patented technology, to provide a full digital print solution for the appliances market.

Available in:



6 basic colors, intermixable to achieve a wide and vivid range



Compatible RAL and Pantone shades



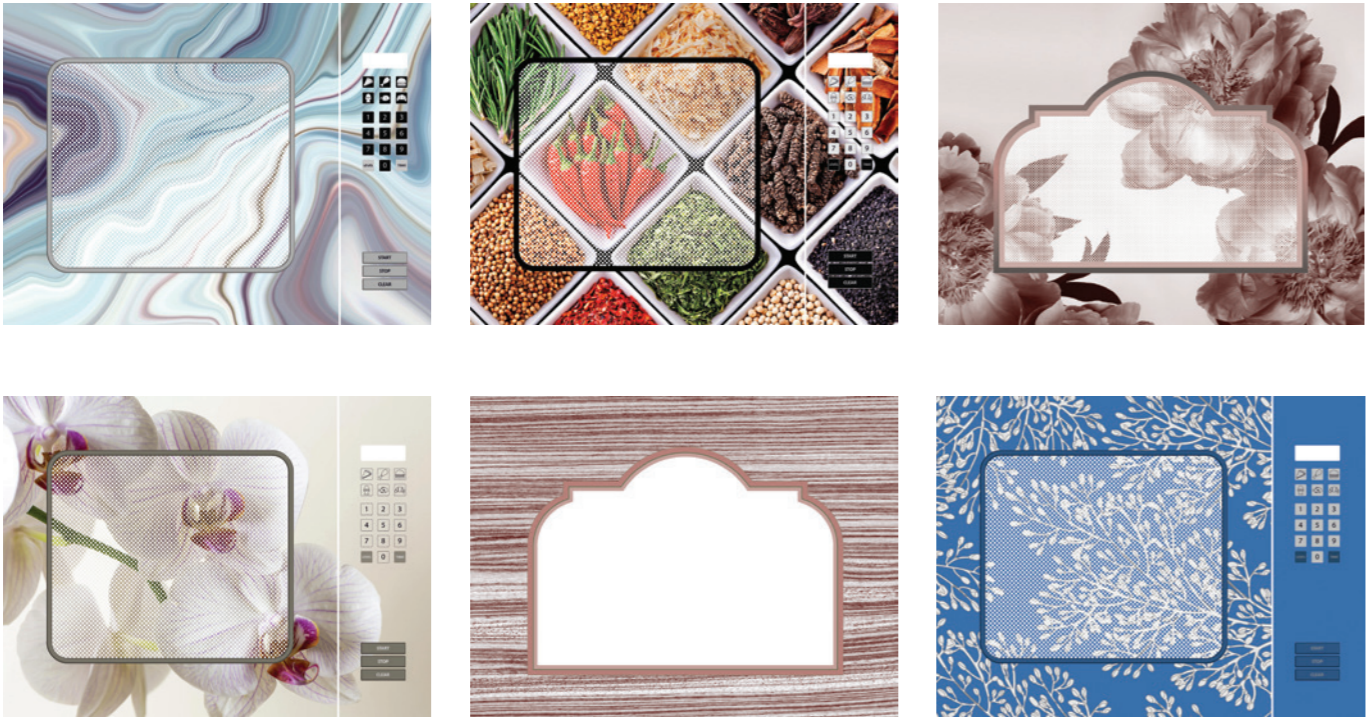
Compliant with industry standards and regulations



High chemical, heat and environmental resistance

Pre-Mix Color Guide

Dip-CMiX is a pre-mix color guide, similar to RAL and Pantone color guides. It enables glass processors to demonstrate to product designers the end color results they will see in Dip-Tech VERA printed glass, before printing a single pane.



10 Reasons to Choose Dip-Tech

True Partnership



Ferro & Dip-Tech – Your Powerful Partner for Success

Inks, printers, software, all developed, manufactured and supported by Ferro and Dip-Tech experts



Global Presence

As the industry leader in glass color solutions, we are always close to you



360° Support and Service

Technical, graphics, marketing, demand-generation support, with worldwide service and logistics



DDD – Digital Design by Dip-Tech

Wide range of tools for success in the architecture market

Best-In-Class Technologies and Products



Market-Leading Productivity

With unmatched throughput, automated handling and user-friendliness



Top-Performing Solutions for Each Market Segment

Full solutions for architecture, automotive and appliances



Proven Worldwide

Thousands of Dip-Tech architectural glass installations, millions of automotive glass panes



Patented, dedicated technology for the appliances market

Multi-color glass printing at maximum speed and quality – replacing traditional technologies



Automated Maintenance

Fully automated, requires minimal intervention and ensures maximum reliability



Outstanding ease of use

With intuitive operating software, editing tools and automated processes



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