

DYEMANSION TECHNOLOGY & PORTFOLIO



CONTENTS

INTRO · · · · · · · · · · · · · · · · · · ·	••
About DyeMansion	5
Our Vision	6
Completing the AM value chain	8
Factory of the Future	10
PRINT-TO-PRODUCT WORKFLOW	12
CLEANING	
Powershot C PolyShot Cleaning	14
SURFACING	
Powershot S PolyShot Surfacing	16
Powerfuse S VaporFuse Surfacing	18
	20
CLEANING & SURFACING (2 IN 1)	~~
Powershot Performance Series	22
COLORING	24
	24
	28
	30
Color Matching	32
CERTIFICATIONS ·····	33
DYEMANSION SERVICES ·····	34
360° Digital Services	34
Benchmark & Application Centers	36
Technical Service	38
TECHNICAL WHITEPAPERS ······	39
INDUSTRIES ·····	41
PARTNER PLATFORM	42
GET STARTED & CONTACTS ·····	46



WE TURN 3D-PRINTED RAW PARTS INTO HIGH VALUE PRODUCTS

DyeMansion is the global leader in connected post-processing workflows for industrial polymer 3D-printing that turn 3D-printed raw parts into high-value products. From perfect fit eyewear to personalized car interiors, our technology makes 3D-printed products become a part of our everyday life.

ABOUT DYEMANSION

Starting in 2015 with the first industrial coloring solution for powder bed fusion parts, we extended our portfolio with advanced part cleaning and surfacing solutions for a wider range of 3D-printing technologies in the field of plastics.

Today, our Print-to-Product workflow combines industry-leading hardware with the widest range of color options on the market. Our Industry 4.0 ready systems can be integrated seamlessly into your production. The ability to provide a flexible solution for both small batches and high volumes makes us a trusted partner for your future factories. Through close collaboration with our customers across all industries, our technology and expertise continuously grows with the market.

Reduced cost per part, unmatched quality, and high sustainability are core values that drive each and every innovation we develop. In addition to these principles, finding the right finish for every application is what drives us.







OUR VISION



ENABLING THE ERA OF DIGITAL MANUFACTURING -WHERE 3D-PRINTED PRODUCTS BECOME PART OF OUR EVERYDAY LIFE

We will live in a world with superior products which are tailored to the consumer needs and are manufactured and delivered in a sustainable way.

Driving the industrialization of Additive Manufacturing by developing cutting edge technology, partnering with the best companies in the world to set up the production lines of tomorrow.



COMPLETING THE AM VALUE CHAIN

DyeMansion delivers the finishing touch

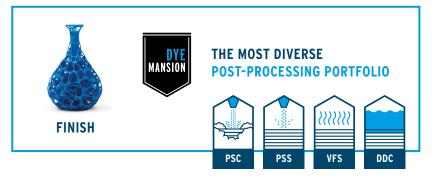
Additive Manufacturing has the potential to challenge conventional manufacturing technologies & revolutionize the future.



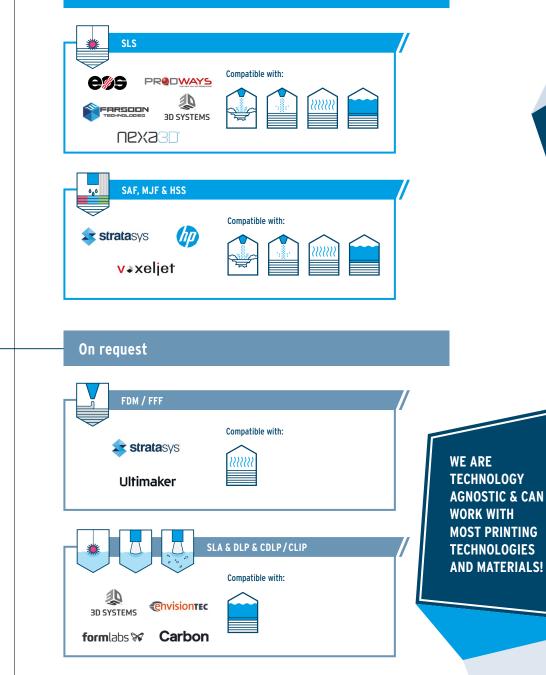
DESIGN



That's where DyeMansion comes into place.

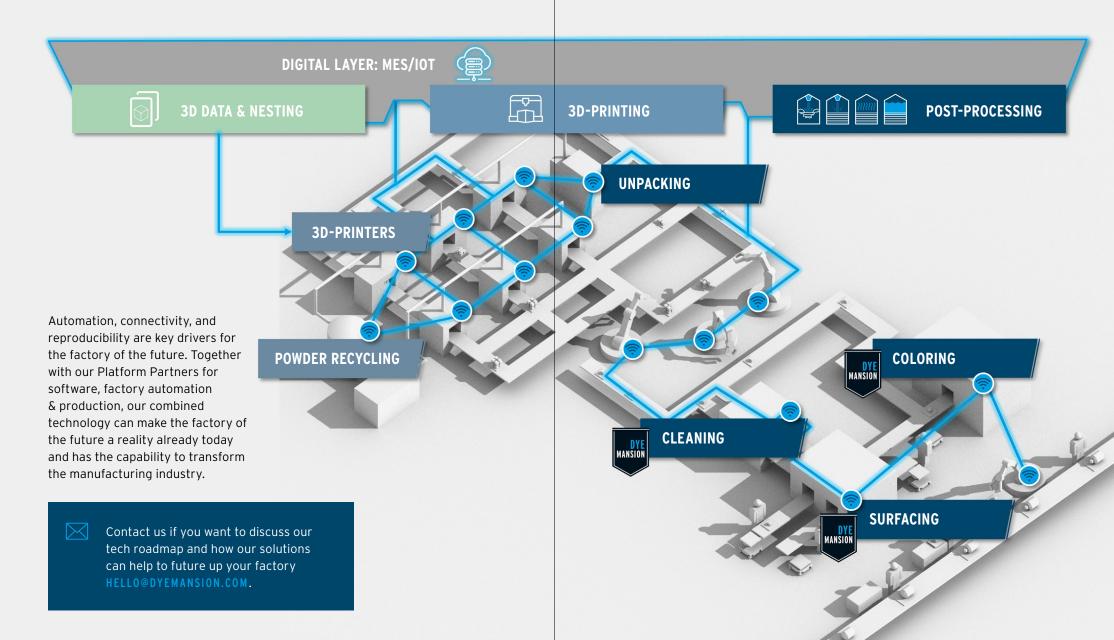


Focus on Powder Bed Fusion technologies



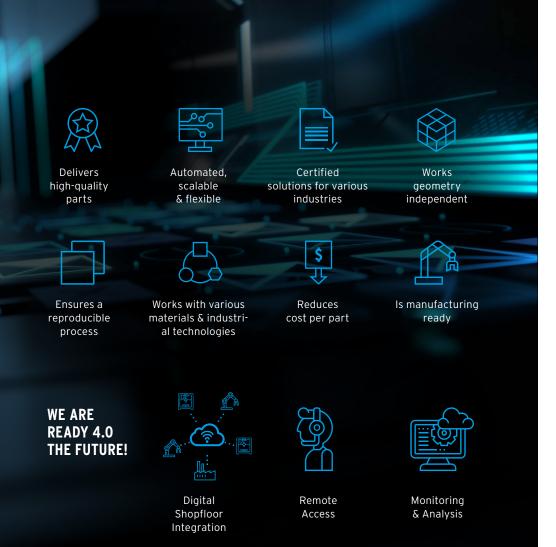
FACTORY OF THE FUTURE

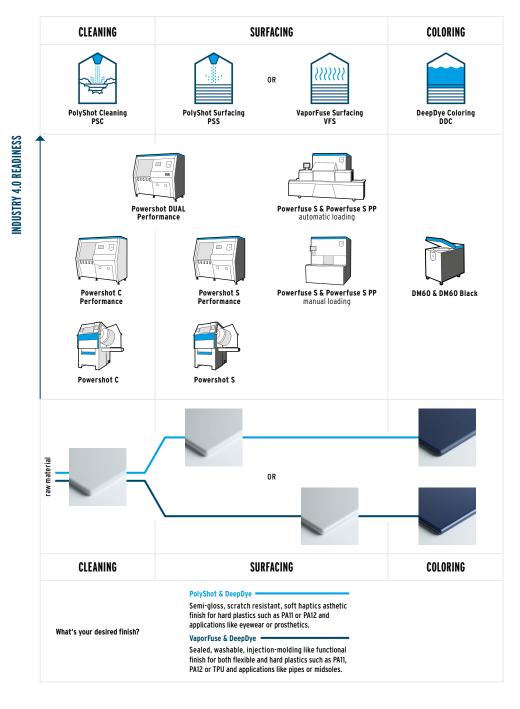
Future up your factory and realize the production lines of tomorrow



THE DYEMANSION PRINT-TO-PRODUCT WORKFLOW

A manufacturing ready end-to-end solution





DYEMANSION POWERSHOT C

The industry standard for easy and efficient part cleaning



PolyShot Cleaning (PSC) Cleaning process with proprietary plastic media as well as industry standard glass blasting media.

TECHNICAL DATA

PERFORMANCE Capacity per run

System

DIMENSIONS (L x W x H)

Up to 3/4 EOS P396, 1x HP Jet Fusion 4200/5200 or close to 1.5x full-sized Stratasys H350 build jobs

1700mm x 1310mm x 2030mm

66.9inch x 51.6inch x 79.9inch

Cycle time: 3-10 minutes

WEIGHT System 490kg | 1080lb POWER SUPPLY 1kW Minimum: 1.4m³/min at 2.2bar COMPRESSED AIR CONSUMPTION Maximum: 1.8m³/min at 5bar

Automated depowdering boosts your production capacity

With our proprietary PolyShot Cleaning (PSC) a mid-sized build job can be cleaned in only ten minutes or less. The time you need for part cleaning and the personnel in your production can be significantly reduced. This boosts your effectiveness and efficiency. By investing in automated part cleaning with the Powershot C, up to four manual blasting systems can be easily replaced. PolyShot Cleaning is compatible with all common powder-bed technologies and delivers residue-free parts for brilliant colors.

Gentle part treatment thanks to smart hardware features

The blasting cabinet of our Powershot C is equipped with a rotary basket and is manufactured from stainless steel. Different blasting nozzles and an ionization unit ensure reproducible results. Couple this with a basket with a soft and replaceable lining protecting the parts from damage during the process. Two simultaneously working blasting nozzles are positioned perpendicular to the rotating basket and the contained parts. The cyclone cleans the blasting media constantly. This configuration guarantees an efficient powder removal.

Advanced operator convenience with enhanced ergonomics and process control

Experience a new level of process control with a touchscreen and integrated controlpanel. The Powershot C is being operated through a userfriendly interface and pre-installed programs can be started. Individual programs can be configured and saved easily, enabling a fast adaption to your application. With a user-centric design everything can be easily accessed and operated safely. Continuous monitoring allows an efficient and reproducible process.



White raw material



Grev raw material

"The Powershot C system allows us to reduce processing times in blasting by up to 80%. The surface finish it provides is also much more consistent than parts blasted by hand."



Frederick Wray, Senior Product Engineer

DYEMANSION POWERSHOT S

The leading blasting system for end-use parts with a superior finish



PolyShot Surfacing (PSS)

PERFORMANCE

System

Capacity per run

TECHNICAL DATA

Up to 3/4 EOS P396, 1x HP Jet Fusion 4200/5200 or close to 1.5x full-sized Stratasys H350 build jobs

Cvcle time: 10-15 minutes

DIMENSIONS (L x W x H) 1700mm x 1310mm x 2030mm 66.9inch x 51.6inch x 79.9inch

WEIGHT System 480kg | 1058lb POWER SUPPLY 1kW COMPRESSED AIR CONSUMPTION Minimum: 1,8m³/min at 5bar Maximum: 2.5m³/min at 7bar

The most efficient surfacing technology to achieve end-use parts

Our proprietary PolyShot Surfacing (PSS) is nonabrasive and works perfectly for hard plastics like PA12 or PA11 across all geometries. Shooting beads accelerated with compressed air equalizes the peaks and lows of the surface, achieving a more homogenous part quality. With a cycle time of only 10 minutes and a capacity of a mid-sized build job per run, the Powershot S works very cost-effectively. Unlike timeconsuming abrasive methods like tumbling, PolyShot Surfacing increases your productivity and part quality significantly.

Semi-gloss surfaces with ideal properties: The foundation for superior coloring results

We believe PolyShot Surfacing to be the main basis for maximizing coloring results. The Powershot S delivers unique semi-gloss looks and pleasant haptics for almost every 3D-printed end-use product. Being heavily used since 2016 in various industries, it set totally new quality standards due to enabling the results of improved scratch resistance and homogenous finishes. This is particularly important for further processing steps, like our DeepDye Coloring.

Advanced operator convenience with enhanced ergonomics and process control

Experience a new level of process control with a touchscreen and integrated controlpanel. The Powershot S is being operated through a userfriendly interface and pre-installed programs can be started. Individual programs can be configured and saved easily, enabling a fast adaption to your application. With a user-centric design everything can be easily accessed and operated safely. Continuous monitoring allows an efficient and reproducible process.

BENEFITS AT A GLANCE





SCRATCH RESISTANCE



SEMI GLOSS



HIGHLIGHTED TEXTURES

DYEMANSION POWERFUSE S

The green vapor polishing solution for highly industrial manufacturing & surface improvements beyond aesthetics



Unbeatable cost per part for high-volume production

Unbeatable cost per part at full production capacity due to high degree of automation and closed loop circulation with integrated solvent recovery. The Powerfuse S is Industry 4.0 ready. Running fully automated 24/7, offering traceability and connectivity via our IoT offering.

Best in class results delivering high-quality surfaces with improved properties

VaporFuse Surfacing (VFS) delivers injection molding-like parts, reducing surface roughness by up to 70%. Parts are sealed, water repellent, and achieve washable surfaces that inhibit bacteria growth. Increased mechanical properties benefit delicate structures and soft materials. Achieve an elongation at break increase by up to 200% depending on your material. The Powerfuse S can smooth inner channels which is unique in the industry and key for pipes or tubes.

The only green vapor polishing technology on the market - non-toxic solvent

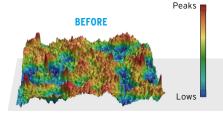
The non-toxic VaporFuse VF47 EcoFluid is safe to use (no PFAS, no CMR and no vPvM/ PMT). Operating the Powerfuse S does not require protective clothing against chemical hazards. No additional equipment or reconstruction of installation site needed. Vapor polished parts treated with the Powerfuse S can be used for consumer. medical or food & beverage applications.



White raw material



Grey raw material



LIGHT / BALANCED / STRONG



Surface roughness measurement with a 3D profilometer | EOS PA 2200

DYEMANSION POWERFUSE S PP

The first ever green vapor polishing solution to smooth 3D-printed PP



This technology enables endless application possibilities for the use of polypropylene in Additive Manufacturing industries such as automotive, medical & chemical tech, consumer goods & prototyping. The sustainable VaporFuse VF44 EcoFluid PP is 100% bio-based and readily biodegradable as well as non-toxic: no PFAS, no CMR, no PvM/PMT.





Polypropylene parts finished with DyeMansion's VaporFuse Surfacing technology

✓ Best in class results delivering high-guality surfaces with improved properties

✓ Unbeatable cost per part for high-volume production



VAPORFUSE SURFACING

Put to the test

VaporFuse Surfacing not only provides applications with an aesthetic appearance. It also significantly improves some part properties, which enables completely new applications:



DYEMANSION PERFORMANCE SERIES

Next level blasting systems purpose built for the factory of the future & high-volume production with Additive Manufacturing



TECHNICAL DATA

PERFORMANCE

Capacity per run

Effective volume of multi belt Effective dimensions of multi belt (L x W x H)

DIMENSIONS (L x W x H)

System

Recomended space requirement in operation

POWER

Supply Requirements

COMPRESSED AIR CONSUMPTION

Up to 1x EOS P396, 1.5x HP Jet Fusion 4200/5200 or 3x full-sized Stratasys H350 build iobs 55 liters | 14.5 gal 409mm x 800mm x 325mm 12.2 inch x 31.5 inch x 12.8 inch

1630mm x 2205mm x 2097mm 64.2inch x 86.8inch x 82.6inch 2530mm x 2900mm x 2600mm 99.6inch x 114.2inch x 98.4inch

From 1.2kW up to 2.0kW 400V, 50Hz, 16A

Minimum: 1,4m³/min at 2.2bar | 49cfm at 32psi Maximum: 1,8m³/min at 5bar | 64cfm at 73psi

Boost your production performance: Maximum efficiency with the smallest workspace

The Powershot Performance Series is designed for the most demanding applications within AM. The first system with a wide multi belt has an effective process volume of 55 liters and can handle 10kg of parts. While being able to process a full-sized build job, the Powershot Performance series has the smallest workspace requirements on the market. The blasting media sieving and separation unit leads to a lower consumable consumption and results in a reduction of costs. With a short cycle time and a capacity of a full-sized build job per run, the Powershot Performance series is more efficient than any other system available. Complemented by both our proprietary Cleaning & Surfacing processes these systems are designed for high volume production.

Ready to form the factory of the future - now

Our Powershot Performance series blends right into the factory of the future with state-of-the-art automation technology from Siemens. Integrated into your digital shopfloor with ERP/MES connectivity and standardized communication protocols like OPC-UA. Monitor and analyze all data surrounding the state and condition of the systems for performance & process optimization (with standardized IIoT messaging protocols like MQTT). Via a secure & certified VPN connection the systems can be accessed remotely for maintenance and troubleshooting to increase system uptime. This ultimately results in an unmatched performance of your production lines.

Setting the stage for automation in Additive Manufacturing

All three versions of the Powershot Performance Series provide an intuitive user-friendly interface with optional userlevels. Pre-installed programs with specifically developed process parameters can be controlled. Your individual process parameters can be configured and saved easily, enabling a fast adaption to each specific application. Automatic part handling such as automatic unloading of your processed parts supports the integration into the DyeMansion Print-to-Product Workflow and the compete Additive Manufacturing chain. The design of the system allows for upcoming extension features for automatic loading.

Increase up to

EFFICIENCY

1) CLEANING ······ (2) SURFACII

3 COLORING

DYEMANSION DM60

The leading coloring solution for industrial Additive Manufacturing



COMPRESSED AIR CONSUMPTION

compressed air

< 1,5 m³ per run, dry and oil-free

Limitless color choices: From standardized data base to tailor-made recipes

Our innovative DeepDye Coloring (DDC) technology offers unlimited color choices. As a DM60 user you benefit from the largest color database. In addition to over 170 RAL and standardized colors, which are ready-to-use without additional development costs and waiting times, our color matching also offers the possibility of creating individual tones for you – from corporate colors to seasonal trend colors and individual skin tones. The fully automatic cleaning program of the DM60 allows a flexible use and a fast color change.

Exact color formulas for a reproducible and traceable process globally available

For a long time, dyeing 3D-printed plastics was a manual, uncontrollable process. We take care of this process and offer a global supply of exact color recipes down to the microgram. This enables an industrial process that could not be easier for the user and can be reproduced any time. The power lies in our color cartridges, which we manufacture depending on base material, finish and desired color. Based on the volume of your parts, we deliver cartridges in four different sizes. These are equipped with an RFID chip that transfers all process parameters QM ready to the DM6O.

ISO-certified colors for end-use applications across all industries

The demands for 3D-printed products are constantly increasing. Our ISO-certified colors make us a trusted technology partner for biocompatible eyewear or medical orthoses as well as for light and heat resistant automotive interiors. With our extended Colors^x line, we are responding to industry specific requirements and are always looking forward to new input for the further development of our DeepDye Coloring (DDC) technology. BEFORE



AFTER

White raw material



Grey raw material

"We knew that our products would only become marketable when it became possible to apply colors which appeal to our customers. With the DM60 coloring system and their color development, DyeMansion presented us with a real solution to that."

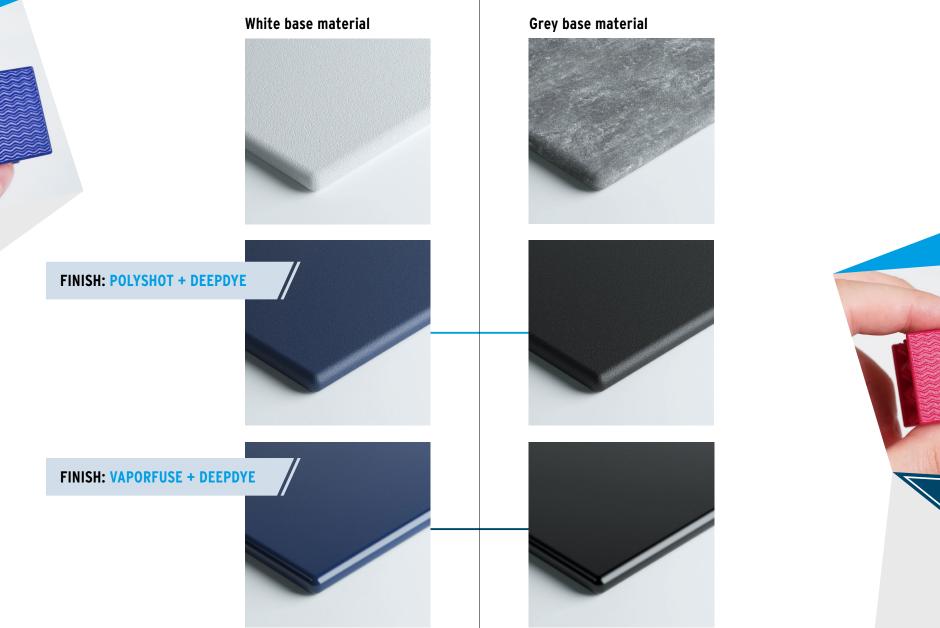
9ötti

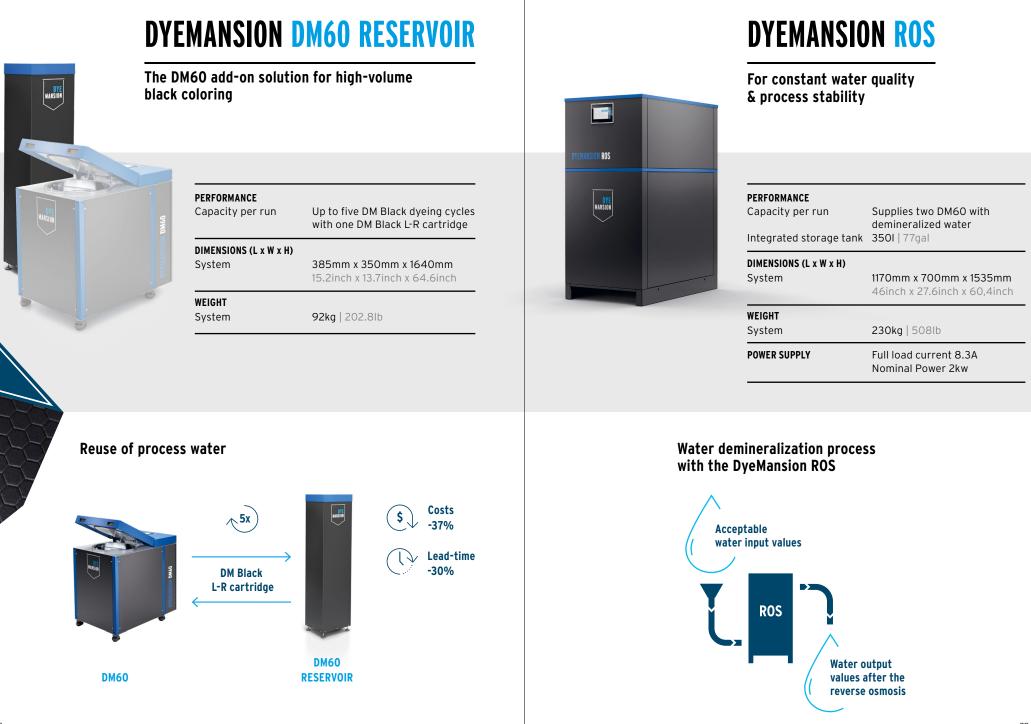
Sven Götti, CEO

> FIND YOUR FINISH > See next page

FIND YOUR FINISH

Aesthetic overview





OUR COLORS BRING PRODUCTS TO LIFE

From standardized data base to tailor-made recipes

Discover the greatest color database for 3D-printed parts on the market. Using DyeMansion technology, you are able to color your parts reproducible in almost any color of choice and turn them into high-value, colorful products.



DyeMansion Standard Colors

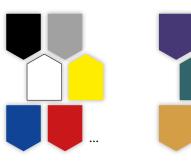
GREY RAW MATERIAL

Yield PA 11

Developed for HP 3D HR

PA 12 & Stratasys High

WHITE RAW MATERIAL Developed for EOS PA 2200

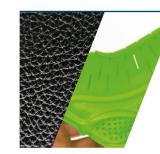




Color Systems

170 RAL colors are available, Pantone TPG and other systems on request.





Colors^x

Our extended color lines are the answer to the specific needs of different industries.

AUTOMOTIVE^x COLORS:

Improved light and heat resistance for car interior parts.

NEON^x COLORS:

and Vivid neon colors e for stunning lifestyle parts. applications.





Colors of Choice

Tailor-made corporate & custom colors with no limit, developed individually with our inhouse Color Matching.



Didn't find the right color? Try Color Matching! See page 32



Have a look at our Infosheet Color Database for a FULL COLOR OVERVIEW.

COLORS OF CHOICE COLOR MATCHING

With our color matching you can design 3D-printed parts in your corporate color or any color of choice you like. From replicating the exact color of an injection molded part to the development of special color shades that match skin tones - there are no limitations.



R

What we need to know for a successful color matching:

1. What's your color wish?

2. How can you share a reference of your color?

3. What's your printing technology, material & surface treatment?









For more information, visit our **WEBSITE**.



Watch our VIDEO Color matching explained.

CERTIFIED SOLUTIONS FOR HIGH-END MANUFACTURING

Our technologies & processes meet the requirements of the most diverse industries. From quality management to the certification of our colors and processes, we are committed to providing reliable solutions for high-end manufacturing.

Biocompatibility

Skin Irritation

Food Safety

tact articles.

Scratch Resistance

Cvtotoxicitv ✓ according to ISO Guidelines ISO 10993-1.

ISO 10993-5 & ISO 10993-12

ISO 10993-23 & ISO 10993-12

✓ according to ISO Guidelines ISO 10993-1.

The VaporFuse VF47 Eco Fluid solvent used

to the Commission Regulation (EU) No.

10/2011 (lastly amended by Regulation (EU) No 202/2014), Regulation (EG) No.

1935/2004 and §§ 30, 31 of the German

Food and Consumer Good Act LFGB.

approved for food contact according to

FDA's 21 C.F.R for 3D-printed food-con-

in the VaporFuse Surfacing process is

✓ approved for food contact according



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COLOR FASTNESS

- ✓ Rubbing
- according ISO 105-X12
- ✓ Washing
- according ISO 105-CO6 ✓ Bleaching
- according ISO 105-N01 ✓ Perspiration
- according ISO 105-E04

LIGHT & HEAT RESISTANCE

✓ according ISO 105-B06

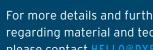
Statements

- ✓ REACH Statement (Registration, Evaluation, Authorisation of Chemicals)
- RoHS Statement (Restriction of Certain Hazardous Substances)



Quality Management

according to ISO 9001:2015



according to PV 3952 (2019-03)

For more details and further information regarding material and technology please contact HELLO@DYEMANSION.COM.



INTRODUCING DYEMANSION 360° DIGITAL SERV ICES

Your central point for all digital services at DyeMansion: More efficiency, machine availability and profitability of your Print-to-Product workflows

DyeMansion Workflow Center

Monitor your Print-to-Product workflow - anywhere & anytime

- ✓ User-friendly: Cloud-based monitoring solution with historical and real-time data for a traceable, quality-assured and more efficient production
- ✓ Instant updates: Immediate overview of the current status of your DyeMansion post-processing machines regardless of time and place
- Easy & accessible: All your DyeMansion machines presented in an intuitive and cloud-based monitoring system

DyeMansion Data Connect

Your direct connection to the machine with a standardized OPC UA interface for easy data exchange with your systems

- Simplified integration: Enables easy and secure integration of your Print-to-Product workflow into your digital factory environment
- Complete data set: Provides deeper insights into your DyeMansion machines through a complete set of data.
- High compatibility & flexibility: Enables open integration with your network's MES/ERP systems. Allows selection of the level of detail required for machine-related data

Easy integration into industry leading production solutions via standardized OPC-UA interface

SIEMENS





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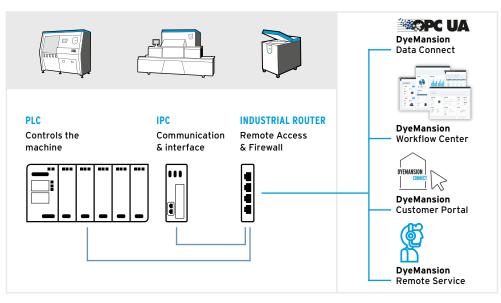


DyeMansion Remote Service

Resource-efficient & fast support for your DyeMansion machines through our service technicians

- Maximum uptime: Increase the availability of your equipment through direct troubleshooting via secure remote access
- More efficient collaboration: Ensure targeted support for your staff from trained DyeMansion service technicians
- Reduced resources: Save valuable resources with fast and efficient remote service

VISUALIZATION CONTROL CABINET

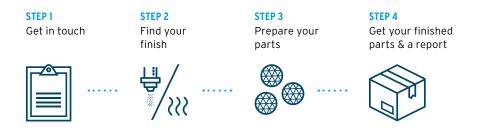


OUR BENCHMARK & APPLICATION CENTERS

In our Benchmark & Application Centers in Munich and Austin, our experts help you find the right finish for your needs.

Benchmarking

You are not familiar with our technology yet and want to try it? We will find the right finish for you. Try our finishing touch on your own parts - do a live benchmark in our Benchmark & Application Centers or send us your raw parts.



On-Demand Finishing

Your 3D-printed parts need a finishing touch? We can step in for you and offer our finishing solutions as a service. For high-volume part production including finishing, we recommend getting in touch with one of our various service bureaus via our global Production Partner Platform.





Application Consulting

Are you looking to exploit the full potential of AM for your product ramp up? Our Application Engineers are on your side. Adapt all processes to a new material, find the right finish for your application, document and measure the surface and color quality, quality management.

Our Application Consultants support you every step of the way and help you bring your application from a napkin sketch to a final product. It can be tailored according to your specific application and together we can discover how best to combine your technologies with our Print-to-Product workflow.





Project

Color Matching

You have an individual color wish for your parts? We can match your wish and develop the color you need for your material and finish. Corporate colors, skin tones, Pantone colors and more.

FIND OUT MORE > at page 30 to 32

TECHNICAL SERVICE

We have you covered through the whole product lifecycle



INSTALLATION

No matter if remote or on site, our Technical Service team will install your DyeMansion machine quickly & efficiently.



Do you have an issue with one of our products? We have you covered. Our Technical Service team is here to find the right solution. From identifying the issue to performing troubleshooting and repairs - remotely or on site.



Regular maintenance of your machines is serious business! Why? This helps reduce unexpected downtime and ensures the quality standard you want for your parts. You should maintain all your systems

once a year.



TECHNICAL ENABLEMENT FOR RESELLERS

We provide Technical Enablement training and coaching for our certified resellers, to ensure that they are also capable of providing the best possible service for their customers.

GET MORE TECH INSIGHTS WITH OUR WHITEPAPERS



COLORING



Manual pot dyeing vs. industrial deepdye coloring for powder bed fusion parts



Automotive Colors^x Meeting light & heat resistance standards for automotive interior parts



Dyeing of MJF parts First ever vibrant colors for grey HP Multi Jet Fusion parts



Dyeing of SAF parts Printed on Stratasys H350 Series 3D printers



AT HOME IN EVERY INDUSTRY

DyeMansion enables AM applications



CONSUMER GOODS & LIFESTYLE

"Our products only became marketable when it became possible to apply the colors that appealed to the consumers."

Sven Götti CEO, Götti Switzerland





HEALTHCARE & MEDICAL

"The Cytotoxicity and Skin Irritation certificates of the DyeMansion colors are helping us a lot to get our exomotion hand one CE-certified."

Dominik Hepp CEO & Co-Founder, HKK Bionics





PRODUCTION & INDUSTRY

"With the DyeMansion Print-to-Product workflow we can finally produce competitive applications in series. The reproducible and flexible process allows us to make changes to design and functions of our applications quickly."

Konstantin Brunnbauer VP Production, ProGlove

PROGLOVE JABIL ...



MOBILITY, TRANSPORT & LOGISTICS

"With DyeMansion's expertise we were able to develop a specific and reproducible Daimler Buses color shape for interior parts."

Daniel Kluth Category Buyer 3D-printing, Daimler Buses





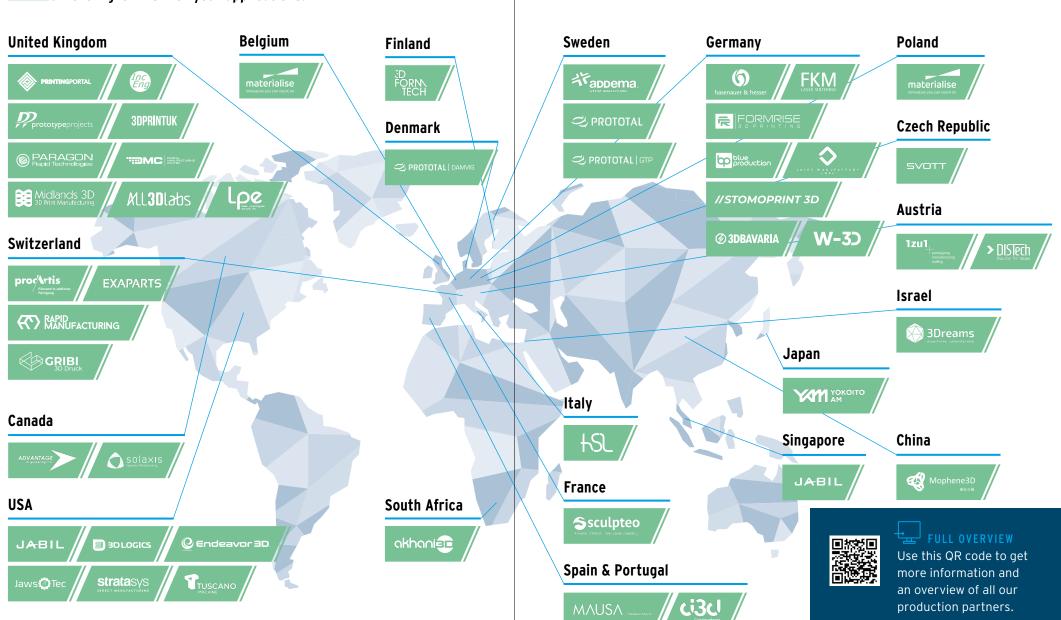
SERVICE PROVIDERS & CONTRACT MANUFACTURERS

Overview page 42/43



DYEMANSION PARTNER PLATFORM

Our production partners help you to find the right finish for your applications.



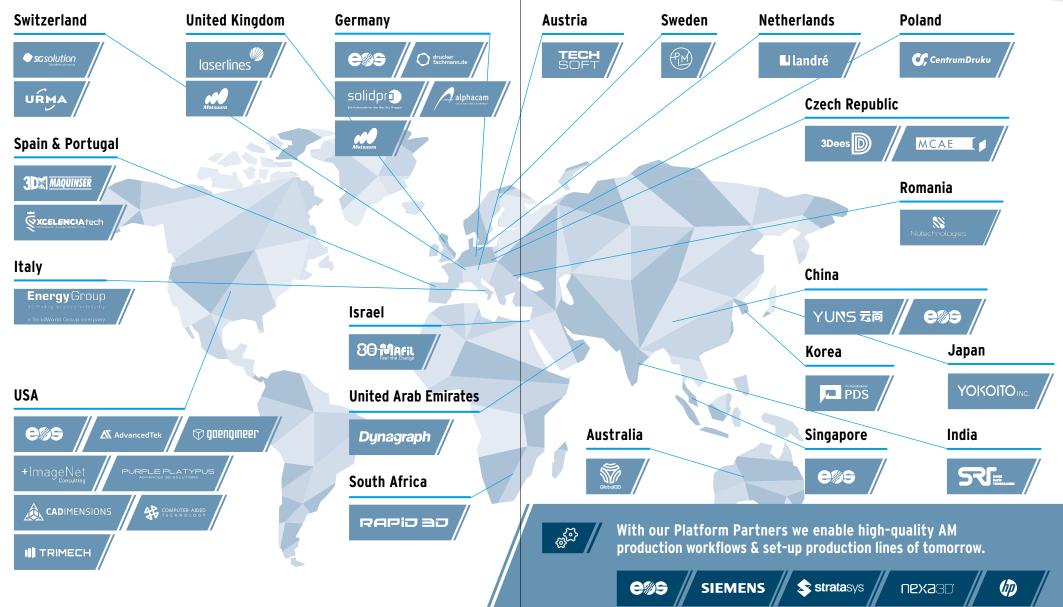
DYEMANSION PARTNER PLATFORM

Our Sales Partners help you expand your current offer with high-end post-processing equipment.



FULL OVI Use this QR cc and an overvie

七료의 FULL OVERVIEW Use this QR code to get more information and an overview of all our sales partners.



BECOME OUR PARTNER

Alliances are the basis to transform the manufacturing industry together! Join the largest industrial post-processing platform for Additive Manufacturing worldwide and become our partner.

TRYMANSION

Start with a free benchmark

Not familiar with DyeMansion technology yet? Try our finishing options and colors on your on parts and participate in TryMansion. We are offering live benchmarks in our facilities as well as the processing of your samples through our On-Demand Finishing. Together with your finished parts, you will get a benchmark detailed report.

SPEAK WITH US

DyeMansion GmbH

Robert-Koch-Strasse 1 82152 Planegg-Munich Germany

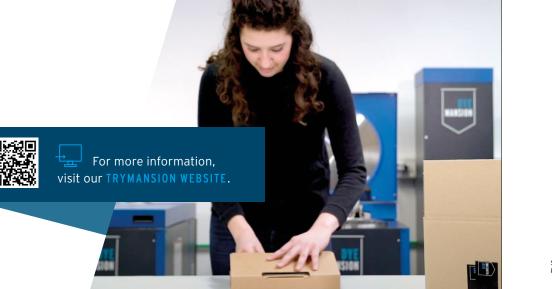
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Status 10/2022. Technical data subject to change without notice. Please request latest technical data from team DyeMansion. Photos: Götti, Proglove, Pohlig, Under Armour, Freshfiber, BMW Group, Boltenstern, Gottinger, HKK Bionics



