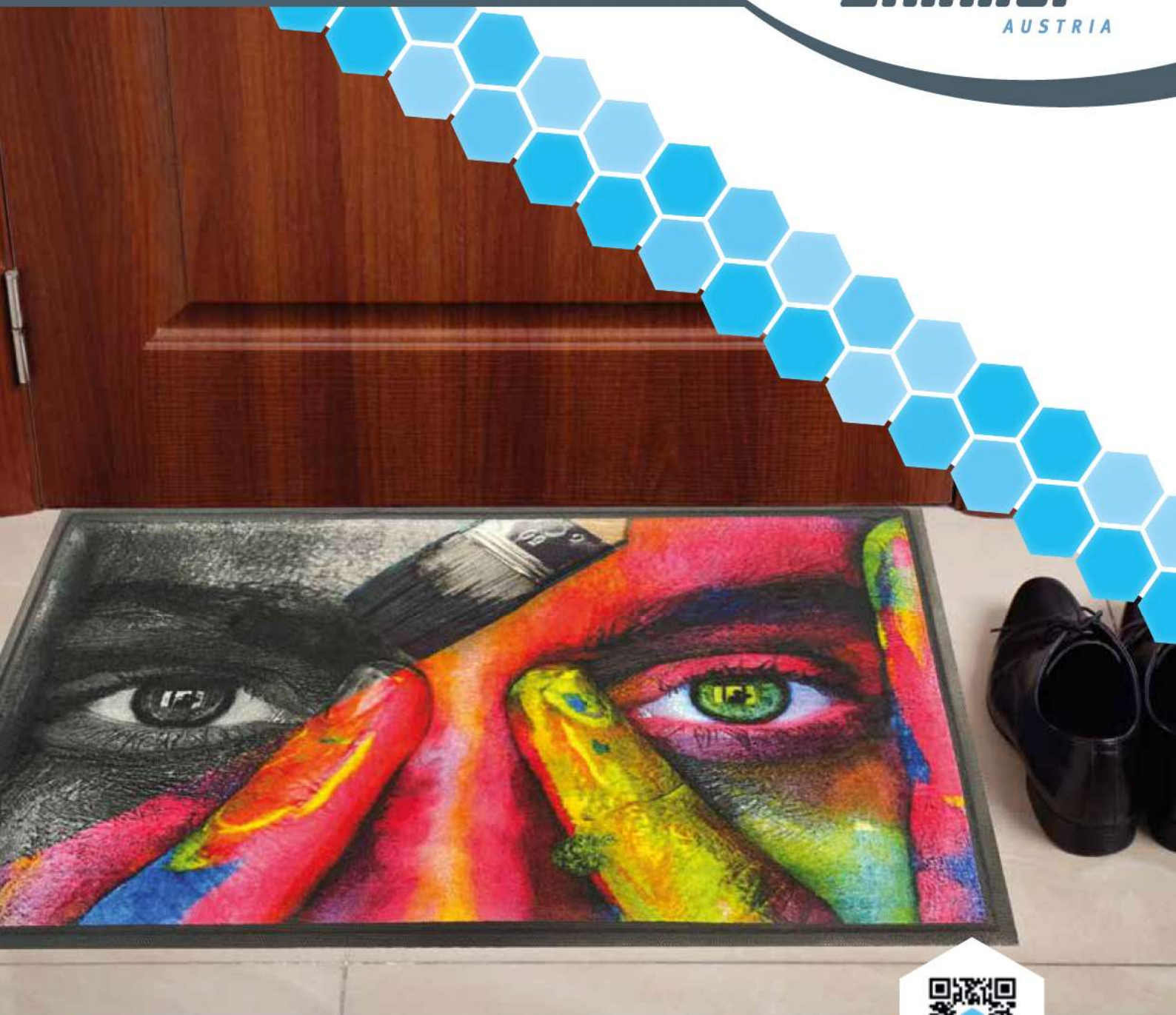


MACHINERY MANUFACTURER

**Zimmer**  
AUSTRIA



PIONEERING INNOVATIONS  
150 YEARS



# COLARIS mat printing

DIGITAL PRINTING SYSTEMS

 08/2024

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# highlights

- personalized mats from white blanks
- ready for webshop integration
- dual ink system for PA and CDPET mats available
- camera based mat detection & design centering
- sustainable mat production – reduced water and energy consumption
- low labor requirement

# concept

ZIMMER AUSTRIA is the world market leader for digital carpet printing technology, and has a long history in building machinery for the mat printing industry. Today almost all mats are printed with CHROMOJET or COLARIS technology from ZIMMER AUSTRIA.

The time has come to introduce the next level of mat printing technology, combining camera recognition systems, up-to-date inkjet printing technology and direct webshop connection.

The aim is to provide a mat print line with highest flexibility and productivity using ZIMMER'S leading COLARIS inkjet technology. To speed up delivery time we think that printing on prepared to print white mats, in combination with a webshop will be the solution for the future.

- Orders will be placed via webshops and arrive directly to the printer where the mats are placed manually onto the COLARIS conveyor belt.
- About 10 minutes later the printed mat is unloaded from the conveyor belt and the design recognition system will assign the mat to the respective order.
- The mat will be packed with delivery papers and handed over to the logistic partner.

## ADVANTAGES OF PRINTING WHITE MATS:



short delivery time is essential for webshop success



blank mats in various qualities and sizes minimize the required inventory



white mats can be produced everywhere in the world – cost saving due to less waste and more efficient manufacturing



printing is the final process step – no danger to spoil mats during cutting, back coating, trimming, ...



special sizes may be cut out from rolls or larger mats – but will not have borders



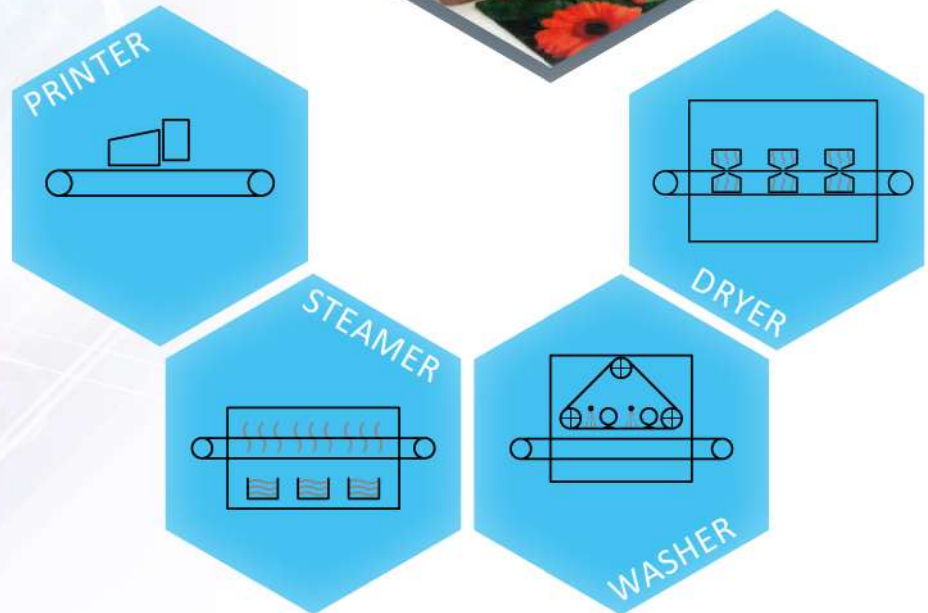
## WEBSHOP SOLUTION

Web2Print is our answer for your market response needs.

Only a few parameters are needed to process an order, which include: order number, design name and location of the print data, mat quality, mat size, number of mats to be printed. These data can be submitted by a CSV file.

This concept is perfect to serve various webshops simultaneously. Customers can choose from a selection of designs or upload their own designs for printing. Special sizes and shapes can be cut out from runners or bigger mats. Our solution provides highest productivity within a fully automated workflow.

# road to success



# mat detection & design centering



## THE KEY FOR MAT PRINTING BUSINESS

Readymade mats have substantial tolerances and may vary in length, width, and the border might also be slightly different. To cope with all these variables, we have developed a camera system which has all required functionalities.

## MAT POSITION DETECTION

- Various mat sizes can be placed individually on the printer
- A camera system detects exact position and size of each mat
- Computer attributes designs on order to a respective mat size
- Matching design is ripped on the fly and provides print data exactly as per mat placed on the printer
- Printing is carried out by COLARIS printer with utmost accuracy
- Personalized mats with high-definition print result and vibrant colors are guaranteed

## SOFTWARE FEATURES



01

### DESIGN CENTERING

to make sure that the design will be centered on the mat.

### SCALING

to make sure that the design will be scaled exactly to the actual mat size.



02

### TRIMMING

to cover the pile at the edges we use an 'overprint' function. This trimming function makes sure that the overprint follows the outline of the pile - very useful if mats with irregular shapes or outlines must be printed. Overprint can be adjusted from -10 to +10 mm.



03

### RIP ON THE FLY

to process all these variables in real time we are processing all color and design information in real time and rip the data during printing.

The ICC profile is generated by neoStampa® RIP from Inedit, Spain.

# design recognition system



For technical reasons there is no way to attach a barcode, sticker or any other identification method on the mat. Up to now it was only possible to identify printed mats and rugs manually / visually by comparing the digital design with the actual image on the mat.

The design recognition system detects the design and looks through the database where orders, designs and other relevant data are stored. It takes few seconds to connect the product with the order.

After the order is complete the mats are ready for packing, and all related shipping documents can be printed out, or generated and sent by e-mail.



# business environment

## WHAT IS NEEDED TO START A COLARIS MAT PRINTING BUSINESS?

- a building to host the print line, to store white mats, include space for packaging and shipping. Between 500 and 1,000 sqm will be needed for a full professional mat printing service
- white mats in several sizes and eventually in 2 qualities – in total about 20,000 sqm to start
- steam supply – about 300 kg/hour
- electricity – about 150kVA
- compressed air – 6-8 bar
- exhaust piping from steamer and dryer

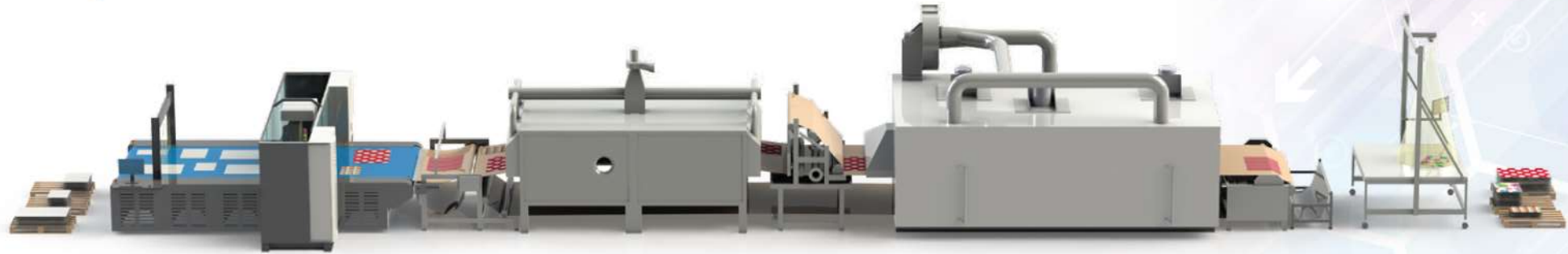
## REQUIRED JOB FUNCTIONS TO RUN A COLARIS MAT PRINT LINE

- manager to run the business
- IT to support the webshop
- customer support to answer questions, add new products, process orders not placed via the webshop
- bookkeeping to handle all financial issues
- technician/technologist

## INFRASTRUCTURAL REQUIREMENTS:

- steam generator, electrical / air / water supply
- handling equipment like forklift
- office and IT equipment
- warehouse
- raw material (unprinted mats)
- packaging material, labels, ...

# mat print line



MAT DETECTION & DESIGN CENTERING

PRINTER

STEAMER

WASHER

DRYER

DESIGN RECOGNITION SYSTEM

## COLARIS PRINTER COL.24-2200-12X2LA

COLARIS is a high-tech printing system using renowned FUJIFILM Dimatix Starfire™ GS 1024 piezo print heads. The printer can be set-up in various configurations:



### SINGLE OR DUAL INK CONFIGURATION

Acid ink for polyamide; cationic ink for CDPET (cationic dyeable polyester) or both inks in one set-up



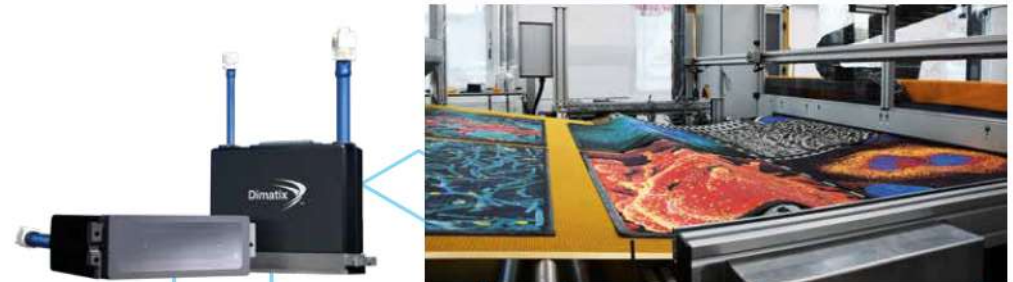
### NUMBER OF BASE COLORS

ZIMMER AUSTRIA recommends:  
for polyamide: 5 base colors + 2 penetration booster inks (dilutents)  
for CDPET: 5 base colors + 2 penetration booster inks  
for substrate combinations: 5 acid inks + 5 cationic inks + 2 dilutents



### PRODUCTION CAPACITY

The print capacity depends mainly on the printer configuration and the mat sizes. A typical output will range from 60 to 80 sqm per hour.



# machine components





# fiber

THE FIBER SELECTION DEPENDS ON THE FINAL APPLICATION.

## POLYAMIDE

is the most common fiber in the mat industry. Easy to print using acid, metal complex or reactive dyes, mechanically robust and available worldwide.

For industrial and commercial matting polyamide is recommended.



## CATIONIC POLYESTER

is the new trend fiber, very easy to print using cationic dyes, deep and brilliant colors, stain proof, easy drying and excellent wash fastness.

For residential and promotion mats cationic polyester is an excellent alternative.



# ink

THE INK SELECTION DEPENDS ON FIBER AND FINAL APPLICATION.

Depending on fiber selection and final application – ink (dye) selection is essential for a good production result. Different fastness requirements must be considered (light, wash, weather fastness). Normally high brilliancy results in reduced light fastness.



## CATIONIC INK

for excellent brilliancy and high wash fastness, moderate light fastness, easy to process and no, or moderate washing after printing is needed.



## ACID AND METAL COMPLEX INK (DYE)

are used for polyamide, good light and wash fastness.

# mat back coating

## Important requirements and functions:

A mat should not slip on the floor, not stain, not smell, have a certain weight, should be flexible at low temperature, easy to process, wash resistant, give a good tuft-lock, environmentally friendly, should have the potential to be recycled and finally it should be inexpensive.

There is no perfect back coating - each type of back coating has its strong and weak points.

### PVC

PVC has a long history in the mat industry. Inexpensive, mats with and without borders, pretty inflexible, stiff when it is cold, slippery. Mainly used for residential and semi-commercial mats.

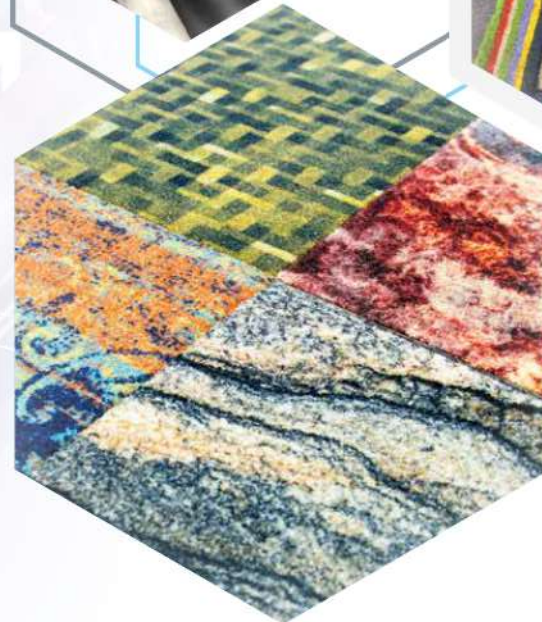
### Rubber

NBR Rubber backing is used for high-end and commercial mats. Very flexible, washable, long lasting, expensive, difficult to process. Mainly used for commercial and laundry mats in combination with polyamide (Nylon) face fiber.

### TPE (TPR)

TPE (thermoplastic elastomers) refers to materials that combine the properties of rubber with those of thermoplastics. TPE is soft like rubber, but can be plastically deformed when heat is applied, which enables processing by injection molding and extrusion.

TPE is a very popular back coating material, easy to process, very flexible, not slippery, moderate in cost, but it is applied by extrusion and therefore borders are not possible.



## Other products:

Carpet tiles are becoming more and more popular and can be printed as well.

Mats and rugs out of coco, sisal, hemp can be printed with cationic ink.

**COLARIS**



**MACHINERY  
MANUFACTURER**



**chromoJET**



**DIGITAL PRINTING  
SYSTEMS**



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