



NEXT-GEN STEAMER

INTELLIGENT ENERGY USAGE

MAXIMUM COLOR BRILLIANCE

SIMPLY EXCELLENT FINISHING RESULTS

# MODUS.E

ENERGY EFFICIENT LOOP STEAMER

MADE IN AUSTRIA



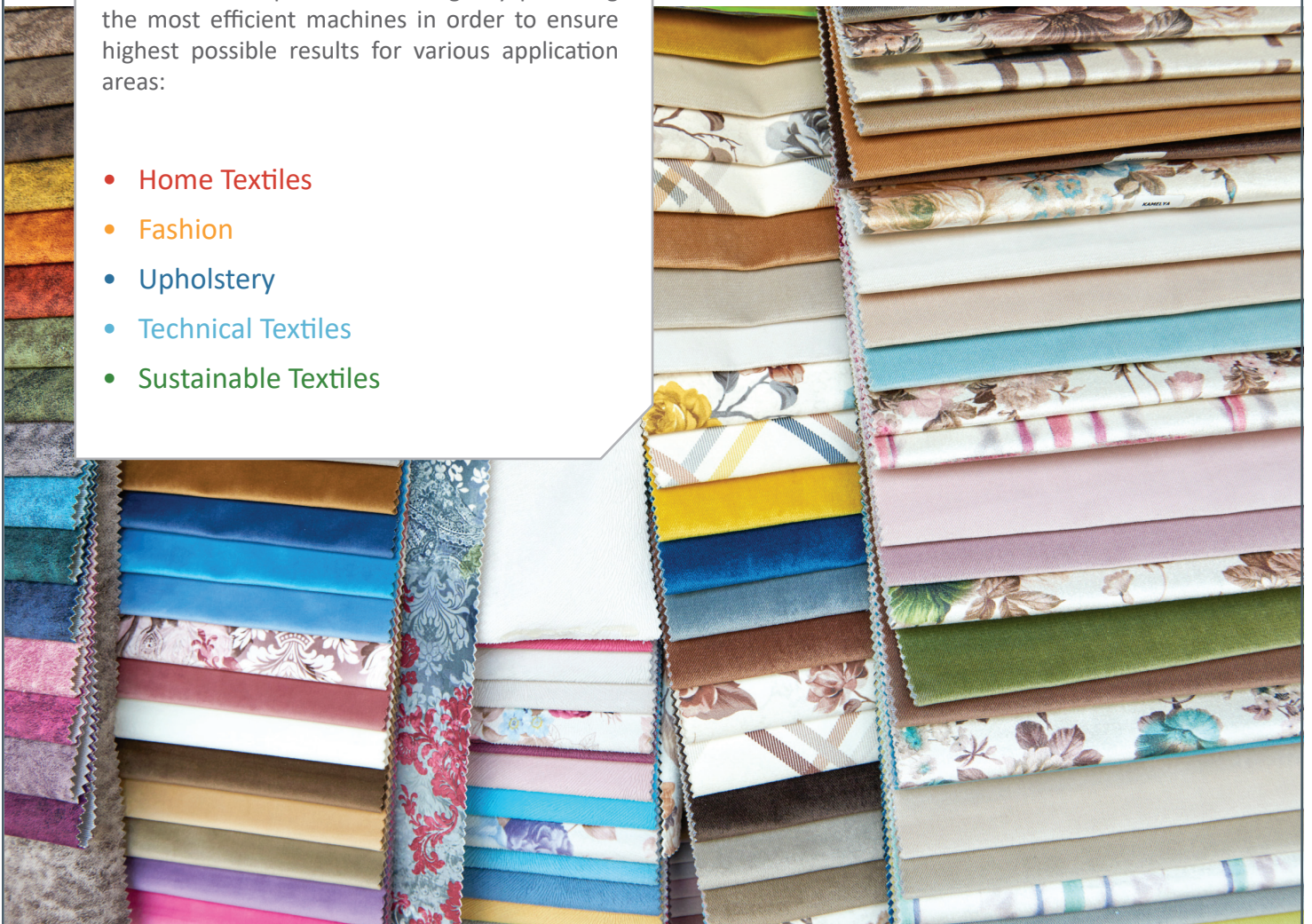
## DRIVEN BY PERFECTION

Driven by perfection and committed to our credo – **First in Quality & First in Service** – the machine manufacturer **ZIMMER AUSTRIA** has become the benchmark for dependable high-class machines in the textile printing industry. We have shaped the market with **pioneering innovations and revolutionary technologies**.

In our century of digitalisation, industry 4.0 and rising environmental challenges, **ZIMMER AUSTRIA** has the required know-how, the global business partner network and the profound technologies to cope with the market needs of **cost-effectiveness, quality, flexibility and sustainability**.

With the **knowledge of over 140 years** ZIMMER is constantly endeavouring to enhance our customer's competitive advantage by providing the most efficient machines in order to ensure highest possible results for various application areas:

- Home Textiles
- Fashion
- Upholstery
- Technical Textiles
- Sustainable Textiles





## THE NEW EFFICIENT LOOP STEAMER



### MODUS.E - key features

- Latest technology
- Stable mechanic design
- For all steamer applications: saturated steam, superheated steam, hot air polymerizing
- Working width 2000 - 3400 mm
- Number of zones 1 - 4
- Cloth capacity 60 - 440 m
- High quality materials
- High energy efficient
- Maximum color brilliance

The **ZIMMER AUSTRIA** loop steamer type **MODUS.E** is designed to be used for color fixation on traditional screen printed fabrics as well as on digital printed goods. Depending on customer needs the steamer can be modularly arranged in order to obtain excellent color yield while using a minimum of energy.



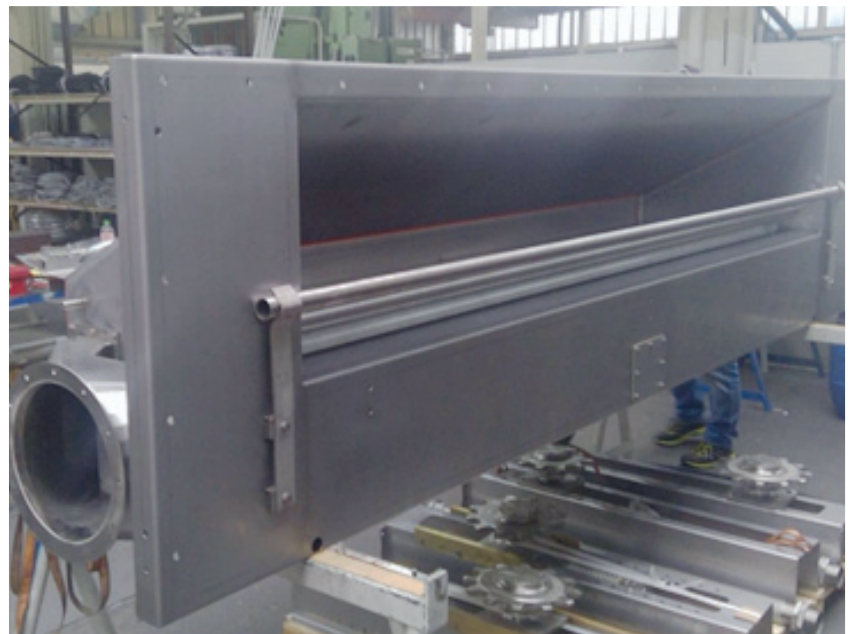
# MODUS.E





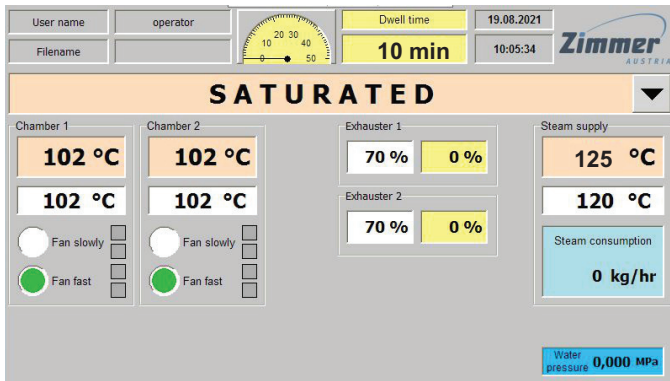
## THE NEW EFFICIENT LOOP STEAMER MADE IN AUSTRIA

Being present in the textile industry for many decades, Zimmer delivered the first loop steamer to Switzerland in 1998. This first steamer is still in production which proves the robust and high-end quality for which the name **ZIMMER AUSTRIA** is standing for! Zimmer follows the philosophy to control the full product life cycle from design, manufacturing, assembly, start up and service all in house. All processes are located in **Klagenfurt | Austria** with a first level supply chain within a distance of 100 km. That makes it easy to integrate a profound quality control system combined with a continuous improvement process. A close contact to our customers allows to commit ourselves for adaptations of special customer needs and to quickly react on changes in the textile industry.



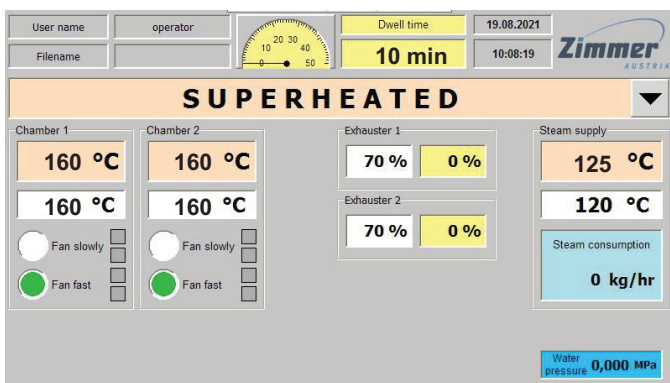
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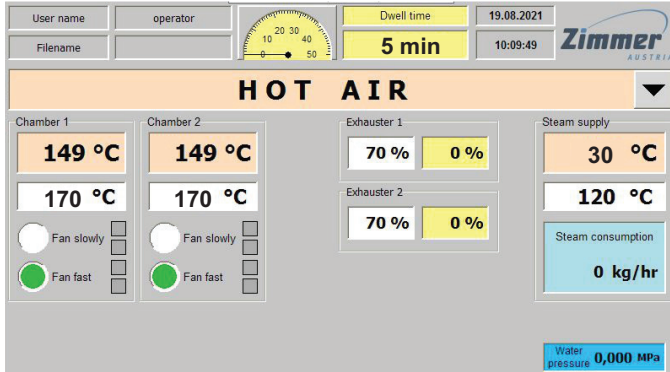
### Saturated Steam

Mainly used when rapid heat increase of the fabric is needed. **ZIMMER AUSTRIA** provides a system that ensures instant contact of the fabric to a high amount of perfectly saturated steam in order to gain the required temperature and dampness in a minimum of time at perfect uniform distribution.



### Superheated Steam

Mainly used to fix the dyes on synthetic fibers and mixtures of synthetic with natural fibers. The design of the fabric inlet ensures a quick heat increase of the fabric. The specific required fixation temperature can be comfortably adjusted on the touch screen.



### Hot Air

Mainly used for pigment dyes and disperse on certain kind of fibers with hot air temperatures up to 190 °C. The operator mode can be simply switched on the HMI without any modification on the steamer.

## Operation features

Besides the normal operation modes mentioned below the **ZIMMER AUSTRIA** steamer provides the possibility to drive the loop forming system backwards in case of a lost loop. This is a very unique and useful operation mode for the case that a loop will get lost which will just be found at **ZIMMER AUSTRIA**.

PASSAGE WITHOUT LOOPS	Passage of web without loop building
FEEDING WITH LOOPS	Operation with loop building, fabric exit with clock operation
NORMAL MODE	Operation with loop building, according to all settings
PULLING OUT + INFEEED	Empty the steamer at exit. A stretched forerunner will be installed
PULLING OUT	Empty the steamer at exit
PULLING OUT AT INFEEED	Empty the steamer at infeed



## Heating system

In order to heat up either steam or hot air to a predefined temperature the steamer can be equipped with the following heating methods:

- **Thermal oil heat**
- **Indirect gas heating**  
(flue gas will not get inside the treatment atmosphere)
- **Steam heating**

Each steaming chamber is equipped with 2 heating units. Each heating unit is combined with a recirculation system for getting most accurate and uniform temperature and humidification distribution within the whole steaming chamber. That respectively results in minimization of steam consumption and also a minimization of required urea in the fabric pretreatment.

## Loop formation system

The newly redesigned loop formation system guarantees a perfectly uniform and quick pre-humidification for excellent color yield. An innovative design of a preheated steam injection nozzle bar brings a high amount of dry saturated steam for heating up and humidifying the fabric in the most effective way. That effects the necessary amount of urea to be reduced to a minimum. At the same time the new design of the nozzle bar makes sure to avoid any condensation drops on the fabric.

Especially for digital fabrics the loop length can be adjusted to a smaller value for generating a more stable loop formation and less unwanted contacts of the printed sides of the fabric.

## Rod transportation system

The transport rods are fixed to the continuously moving chain. So there is no risk of getting stuck while taking the rods in and out of a warehouse of the sticks. In case that the rod distance would be need to be enlarged, every second rod can be easily taken out manually. This is sometimes realized for delicate digital prints in order to avoid contacts to the fabric loops. Together with a harmonized motion sequence which keeps the fabric loops calmly moving forward any unwanted color repetition or smearing effects are avoided.

## Steam conditioning system

The fabric treatment medium (steam/air) is continuously recirculated by means of circulation fans. The speed of the fans can be stepless adjusted to the customer's needs. Especially for delicate digital prints a lower speed might be required to keep flow turbulences at a possibly low level. The temperature of the medium is permanently controlled and being precisely adjusted by means of a combined steam and water injection system.

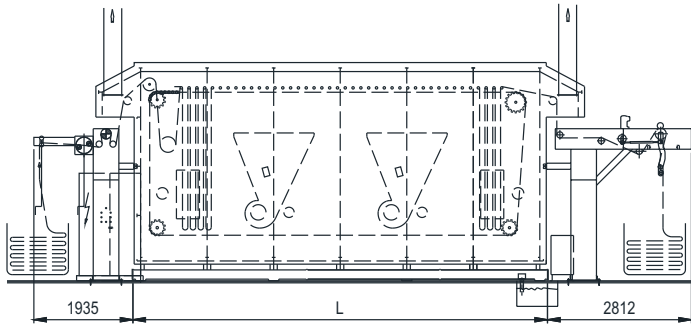
## Oxygen control system

Some dyes to need a defined amount of oxygen in the treatment atmosphere for perfect color yield. The correct amount of oxygen can either be manually controlled by a pneumatic air valve. Optionally the steamer can also be equipped with a sensor to measure the actual oxygen content inside the steamer chamber.



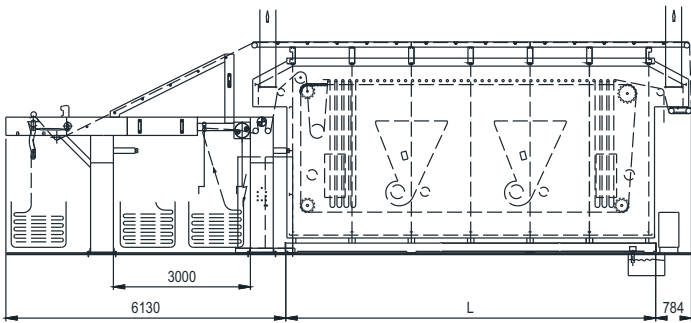
### Fabric outlet system

Depending on customer's need the fabric outlet system can be installed either on the same side as the fabric inlet or at the opposite side.



#### On opposite sides

This is the standard configuration.

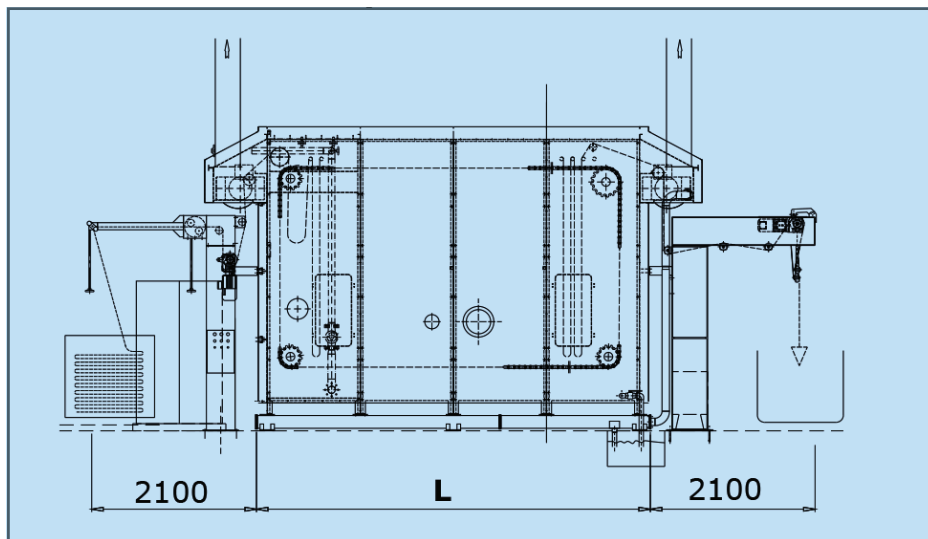


#### On same side

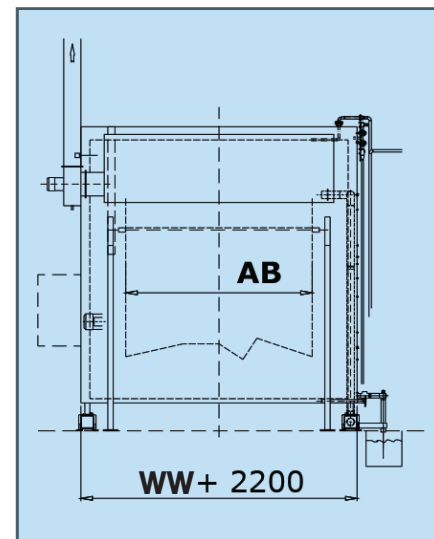
For certain stable fabrics this design brings the advantage to cool down the fabric due to the longer transport from steamer outlet to plaiter of winder. This method will not be possible for elastic fabrics.





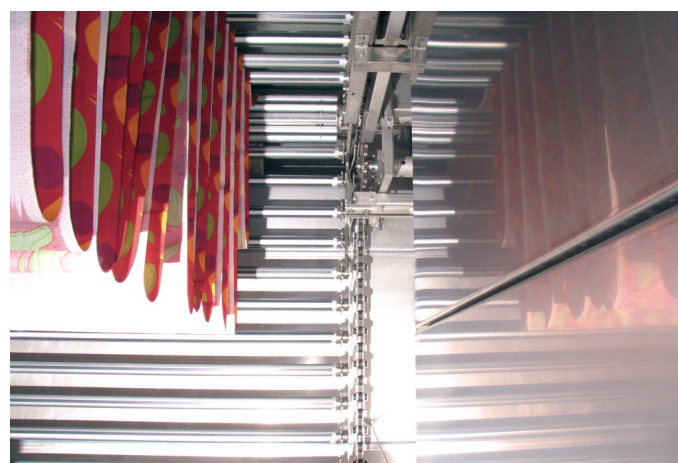
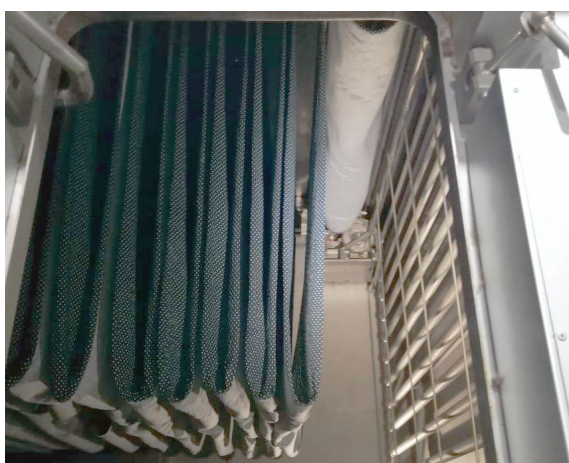


Modus - side view



Modus - front view

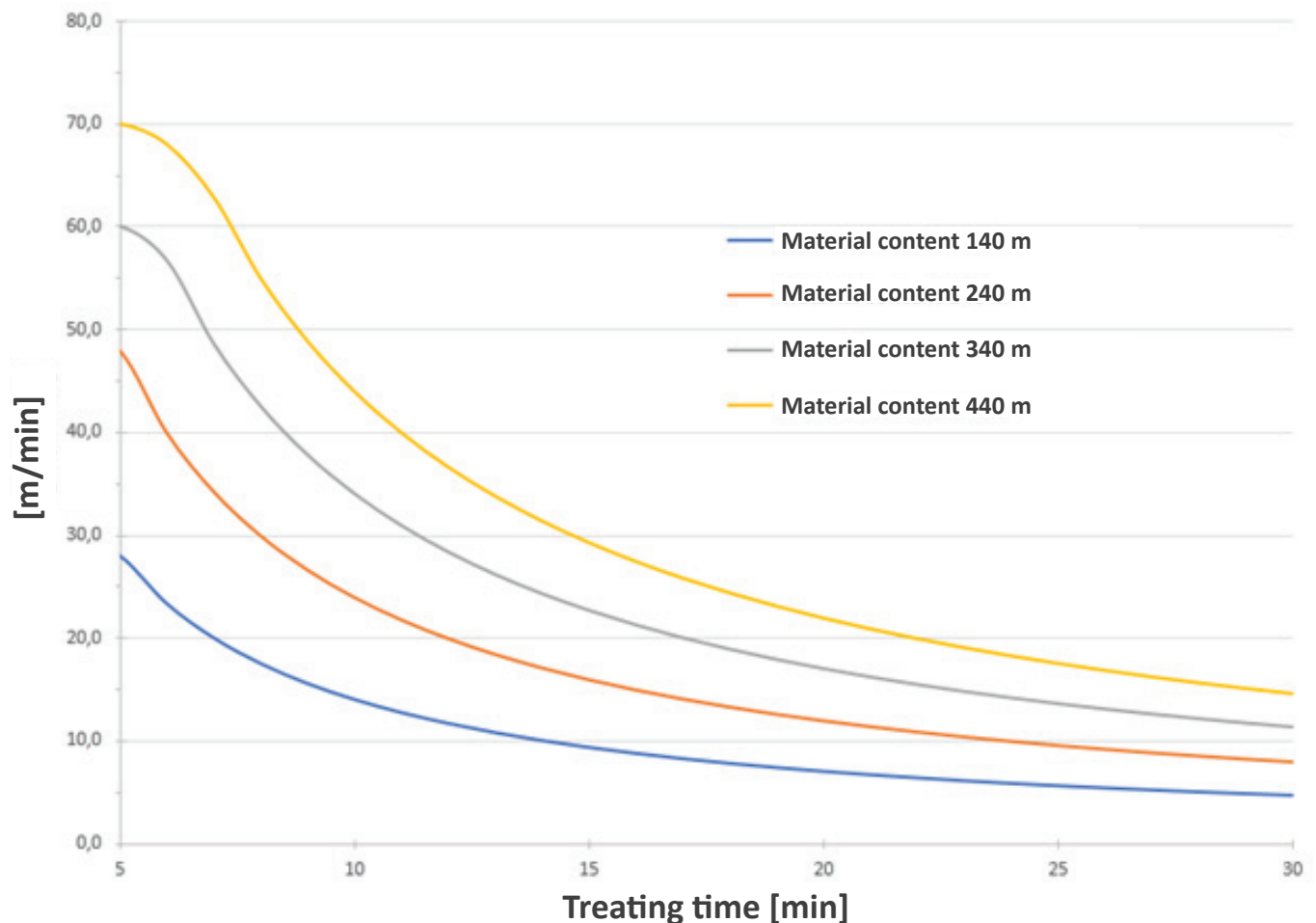
<b>Working Width (WW)</b>	mm	2000, 2600, 3000, 3400					
<b>Fixation Time</b>	min	5 - 40					
<b>Loop Length</b>	mm	500-1800			800-2800		
<b>Superheating Capacity</b>	kW	approx. 140 kW per zone					
<b>Numbers of Zones</b>		1	1	1	2	3	4
<b>Cloth Capacity</b>	m	60	80	140	240	340	440
<b>Length (L)</b>	mm	4200	5500	5500	8000	10500	13000
<b>Max. Mechanical Speed</b>	m/min	25	25	30	50	60	70
<b>Average Steam Consumption</b>	kg/h	200-400	200-400	400-600	500-1000	700-1300	800-1400
<b>Electrical Installation</b>	kW	40	40	40	53	65	77



### Applica on examples

Fibres	Dyestuff	Steaming Modus	Temperature	Treating Time
Cottonviscose	Reactive Vat- Judanthene	Saturated	102°C - 104°C	10 - 12 min.
	Pigment	Hot Air	160°C	5 - 6 min.
Nylon	Acid	Saturated	102°C - 103°C	20 - 30 min.
Polyester	Disperse	Superheated	170°C	10 - 12 min.
Silk / Wool	Acid	Saturated	102°C - 104°C	15 - 30 min.

### Productivity





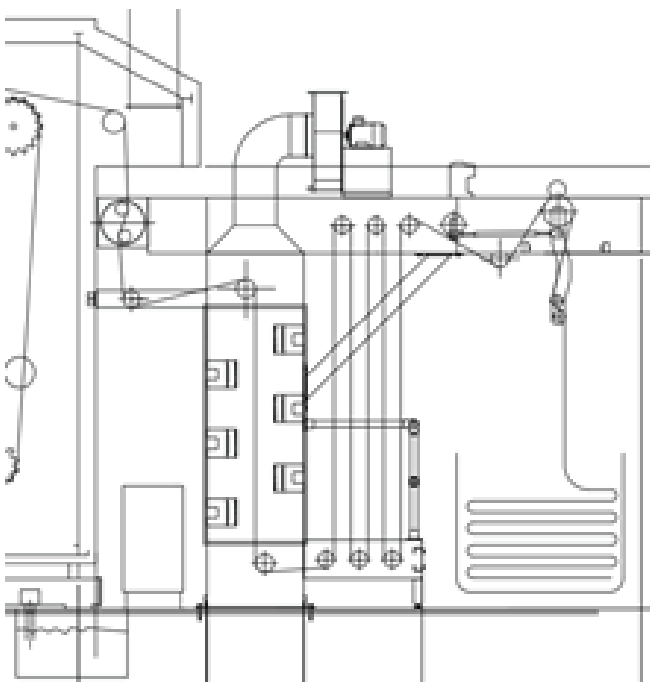


## OPTIONAL UPGRADING SYSTEMS

### Fabric heating / cooling

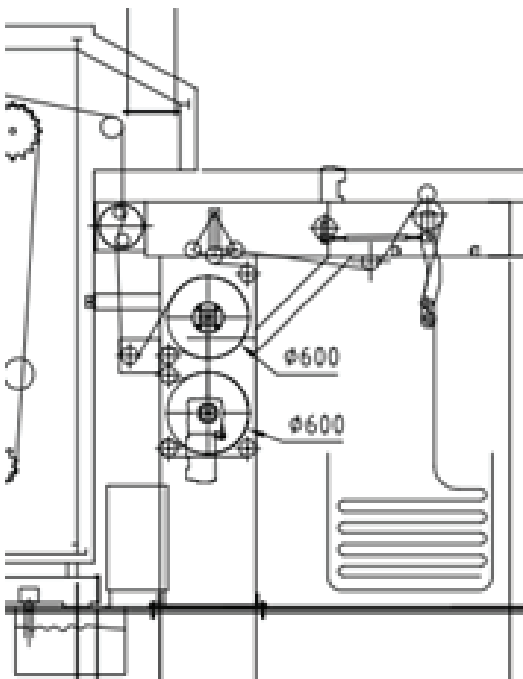
Especially for digital prints a heating system might be installed in order to dry the residual humidity on the fabric in order to prevent marks or stains.

If required different cooling systems (conveyor rolls, active cooling rollers,...) can be provided customized to the production needs.



### Heating / Cooling

A heating system based on infrared elements could be installed right after the steamer exit. A combination of redirection rollers might be integrated for cooling the fabric before plating or rewinding.



### Heating / Cooling

Depending on the required process either cooling or heating drums can be added into the fabric outlet system. Also combinations with cooling passages like indicated in the drawing above can be offered following specific customer needs.

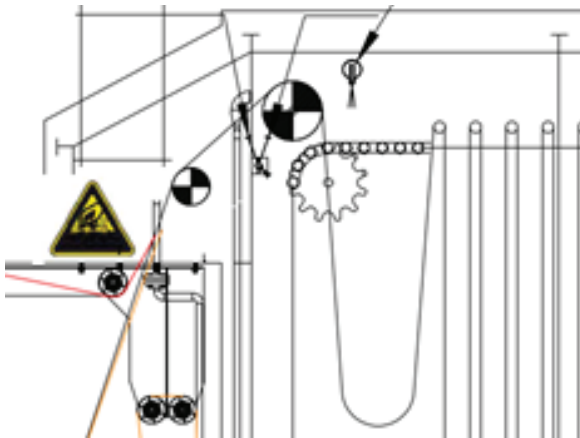


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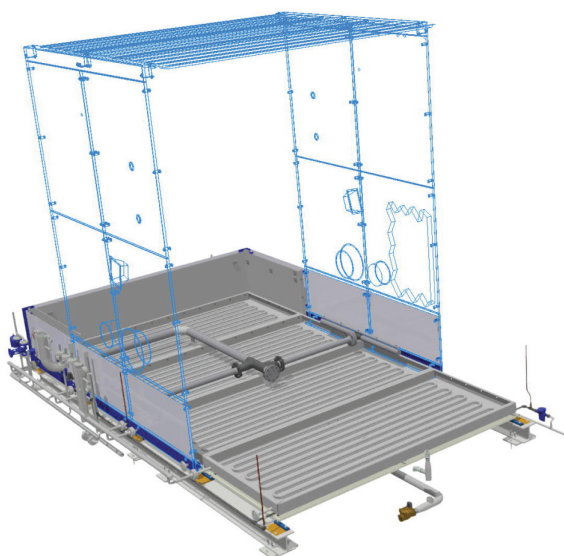
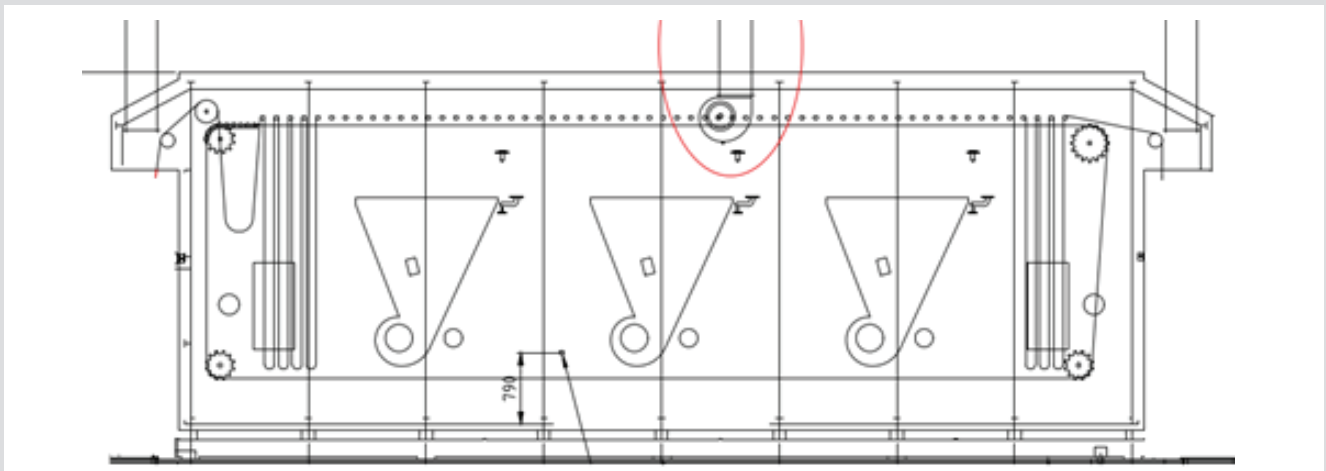


### Conveyor rod cleaning system



### Rapid vapor extraction system

An additional exhaust fan system allows the steam to be rapidly extracted and therefore allowing the operator to enter the steamer within a short period of waiting time.



### Integrated steam generation

Steam will be generated inside the steamer using an integrated heating system and a “boiling water atmosphere”. This system generates the most uniform temperature and steam condition distribution within the treatment area.



## FROM IDEA TO INNOVATION - APPLICATION CENTRE KLAGENFURT

From Idea to Innovation - at our **TECHNOLOGY.APPLICATION CENTRE** in Klagenfurt we provide you with comprehensive support and advice from the initial idea right up to your production printing- or coating line as well as the development of new applications.

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PIONEERING INNOVATIONS FOR MORE THAN 140 YEARS



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