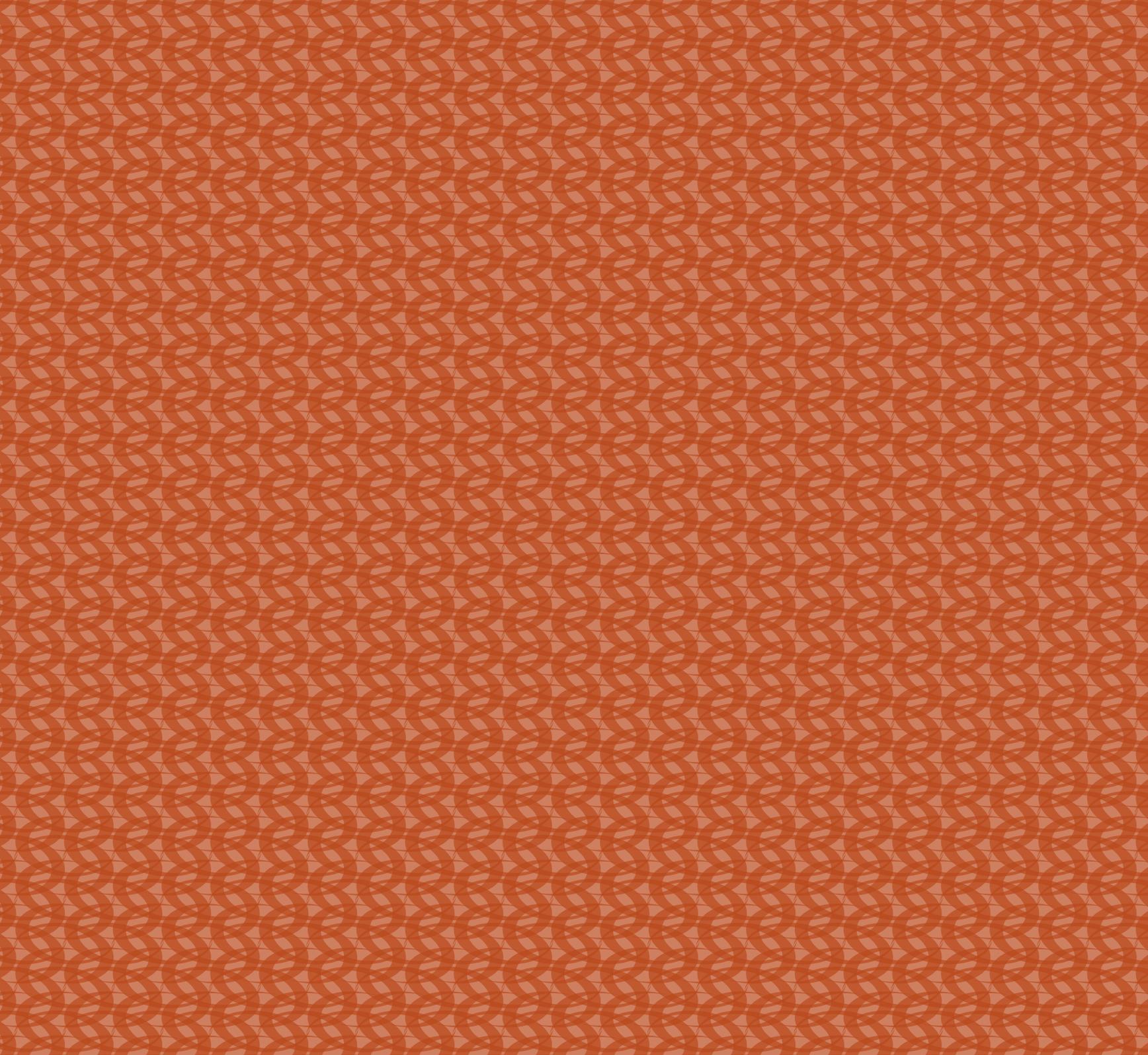


GEYSER

 **PENTEK**
TEXTILE MACHINERY

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TEXTILE MACHINERY

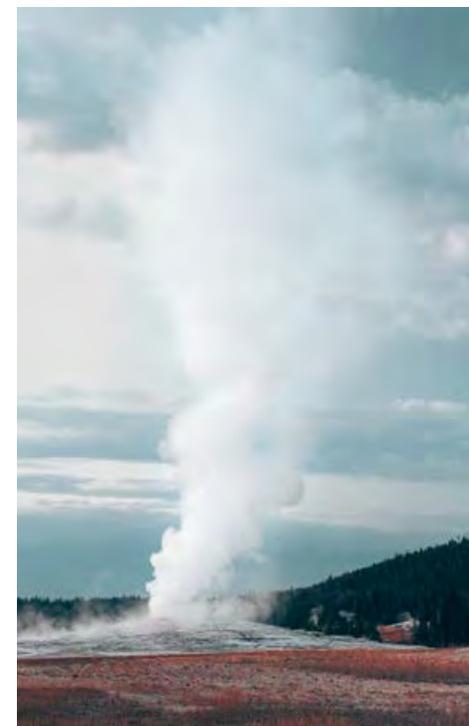
design by  **kromatica**



GEYSER

PENTEK
TEXTILE MACHINERY

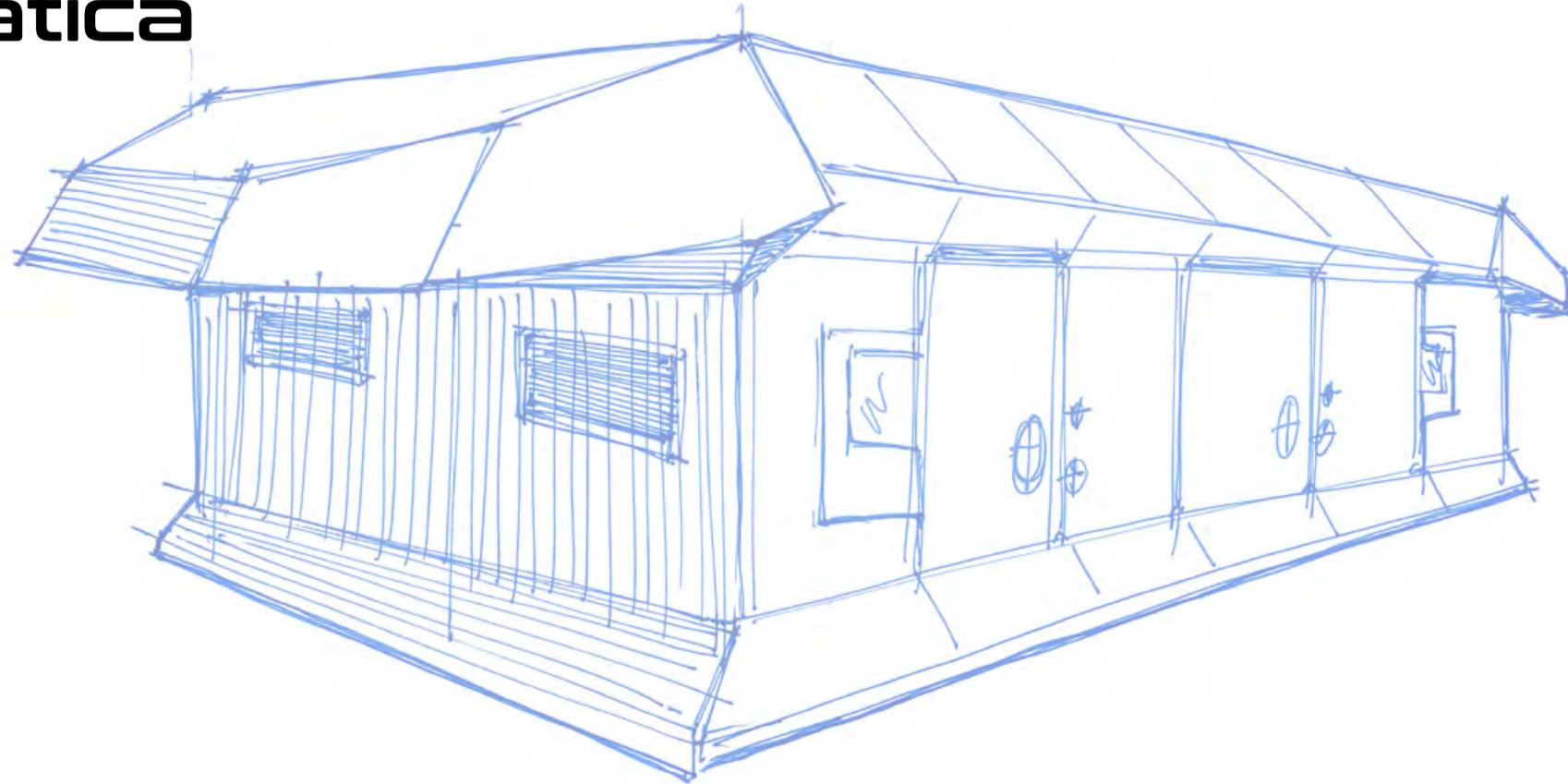
the power of steam



PAST TO FUTURE

Kromatica Textile Machinery srl is our sister company, controlled by Pentek, dedicated to design of textile equipments, focused on printed goods. Despite the recent establishment of the company, Kromatica partners are well known in the business of printing. They can count on more than 30 years' recognized experience in designing equipments dedicated to this field, particularly in the segment of continuous steamers and open width washing ranges.

 **kromatica**



EMANUELE CATTONI

Technical Director and Senior Technologist,
Since more than 30 years both in Italy and worldwide, develops solutions for finishing technologies applied to printed goods.



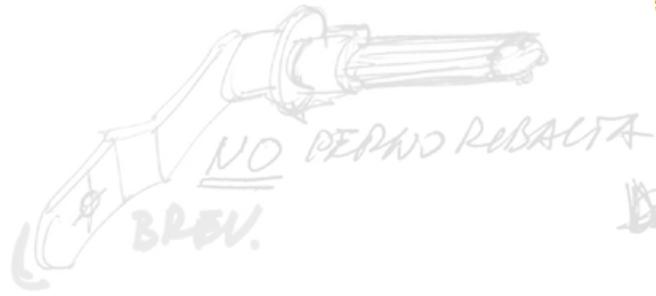
FABRIZIO BERETTA

Designer and after sales service
Since more than 30 years designs steaming equipment and technologies.

Thanks to the active contribution of the partners Emanuele Cattoni and Fabrizio Beretta, Kromatica aims to quickly become the new benchmark in the world of printing finishing. Their enormous experience in design, technical knowhow, process technology and international reputation led them to quickly complete a path of design and development of new products in the textile sector with immediate recognition and great chances for growth.



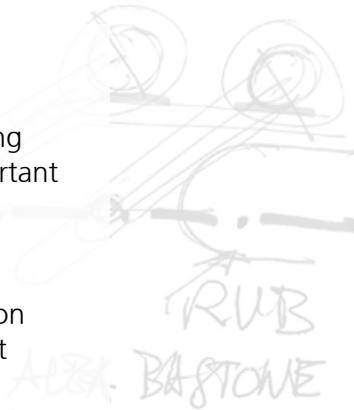
AR SU PISTE + DEVIATORE FISSO
GEYSER



ANGOLO > 90°

DEVIATORE FISSO

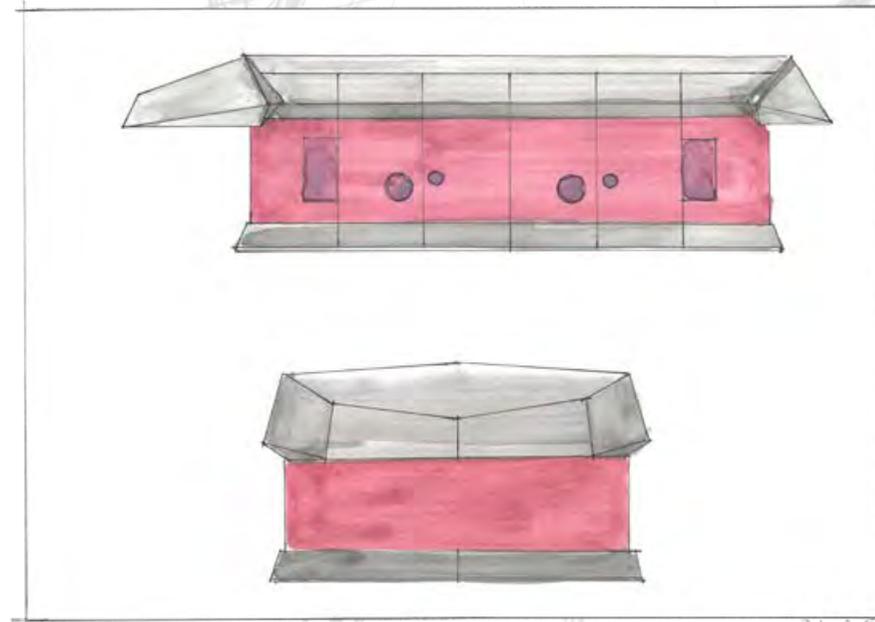
Kromatica has its roots in the Italian tradition of high-quality textile printing and finishing, maintaining a rock-solid tradition at its core, while embracing important innovations and updates. If reliability and a thoroughly tested design represents the foundation of Kromatica, the recent developments in the textile industry have brought a particular attention towards sustainability, user friendliness and precise cost control of operation. Through new design and wider flexibility we intend to offer an industrial tool, sensitive to the changes currently affecting the world of printing. The evident synergy with Pentek, already introduced in the same segment with rope form washing and tumble-dryers equipment, will enable the customer to count on a solid structure, studied to offer high performance tools, service and expertise.



PALESTRA ACCORDATA
 DISCEPA DOLCE

GUIDA

DILATRE



PAST TO FUTURE

Manufacturing is entirely carried out in the new state-of-the-art Pentek facility, with the usual care for service and flexibility. Structure of the company has been duly incremented in number and knowhow to cope with this ultimate exciting challenge. Thanks to this new integrated support, we're proud to serve the printing market with primary line of equipment with the proper balance between technical innovation and reliable design, within a sustainable process.

CATENA 152⁴ (76²)

APPoggio GUIDE

ROLLA FRENANTE



Our new plant located in Montemurlo (Prato)

GEYSER

THE STEAMING POWER TO THE NEXT LEVEL



GEYSER



Why Geyser?

GeySer is the result of a working team of engineers and technologists with more than 30 years of experience in the designing and manufacturing steam agers for the textile industry.

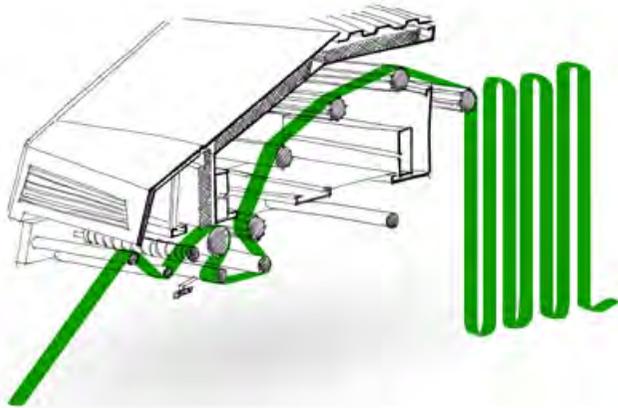
It is inspired by the Italian tradition of high-quality textile printing and finishing, maintaining a rock-solid tradition at its core, while embracing important innovations and updates.

GeySer is the definite answer for the discerning textile printing manufacturing company, aiming to set their products at a different level, escaping the pure price-battle competition and providing a textile product with excellent performances and sustainability in line with current market's requirements.

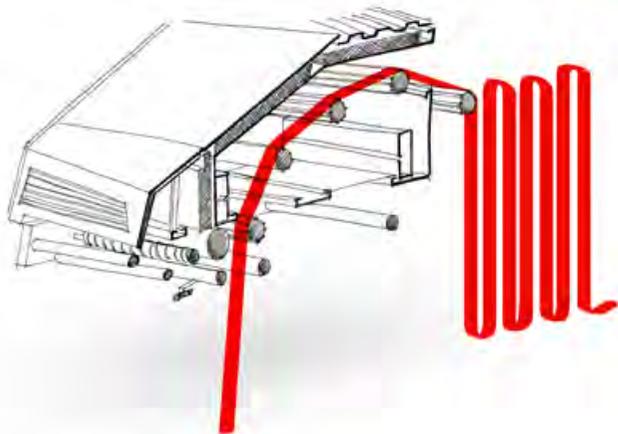
Suitable for all the types of steaming and curing applications currently available in the textile printing industry, GeySer already includes in the standard configuration the possibility to process traditionally printed or digitally printed fabrics.

The higher fabric content given by the new patented loop formation system, the improved air circulation fans and their placement within the various chambers, the fresh air inlet system, the innovative multiple entry are only some of the major factors for reaching and maintaining a constant temperature and steam quality during the entire process and provide the best possible color development.

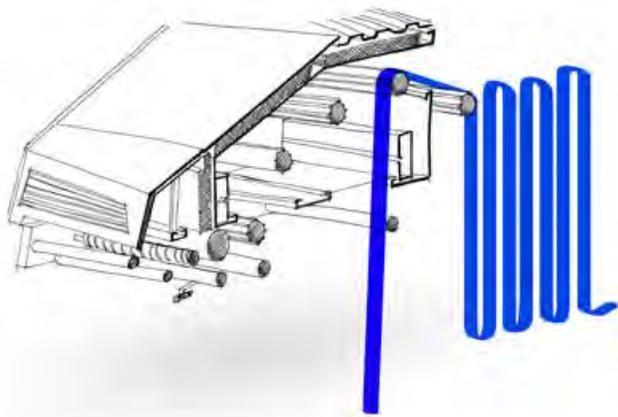
Savings in operation are not only related to the huge savings of steam itself, but are extended also to the process before and after the steaming step. From the lesser need to utilize urea in the printing paste during printing to the less water and chemical consumptions during washing after fabric steaming, whenever it applies.



Threading with effective traction power for heavy goods or from A-frame.



Smooth threading for sensitive digital goods or from small roll.



Threading for extra-light weights and stable goods.

MULTIPLE ENTRY HOOD

A new design entry aims to fix the growing demand for care of the goods (particularly for digital reactive knits).

Three possible fabric threading modes on entry system for digital, rotary prints, heavy goods and light goods, from A-frame, flat folded goods or rolled with paper.

A new designed entry hood has been studied for a longer exposure of the goods in open width to the first steam thermal shock (and related shrinkage) before the fold formation. A highly effective heating system has been implemented to prevent from condensations.

LENGTH OF THE FOLD

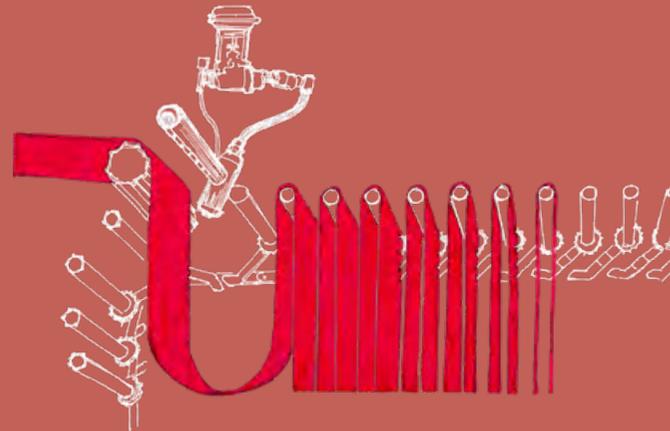
Maximum length of the fold is 240 cm. This enables a high content of fabrics and therefore high production speed.

The length of the fold can of course be set in percentage on this maximum value on the control panel and managed by PLC till a minimum of 100 cm, basing on the composition and nature of the goods and their printing type (reactive/disperse/acid/pigment) and mode (digital or conventional printing).

FOLD FORMATION

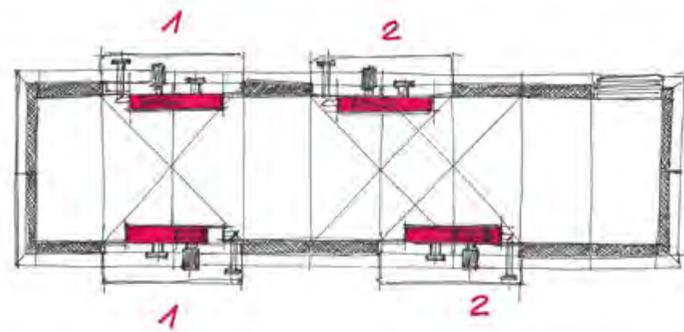
(international patent)

Geyser introduces a new designed system for the fold formation, which implies the lifting of the fold right after the feeding roller by the sticks in a clockwise motion, that is following the direction of the sticks. This design offers the great advantage of bringing the stick with the fabric almost at the same height of the main feeder, thus determining a natural fabric fall by gravity, without any slipping risk or dangerous oscillation of the folds, even with wider fold formation.



PULSE STEAM JET

Another novelty introduced by Geyser is a Steam Jet system - continuous or pulsed - which facilitates the formation of the first fold without creating noticeable oscillations. Depending on the weight and characteristics of the fabric, the function of the steam can be determined with a continuous jet of steam, or with intermittent and timed pulses or without any steam jet.



NEW MODULAR CONFIGURATION

The innovative modularity of the equipment ensures an excellent and uniform fabric exposure to steam in all configurations of Geyser. Two steaming modules are now available according to the unit content:

1. **Intensive steaming:** (260 cm module) with double steaming units, symmetrically placed one in front of the other for maximum steaming intensity. Designed for first steaming action.
2. **Extended steaming:** (390 cm module)
3. for bigger fabric content, composed by the same double steaming units, placed one in front of the other, but not symmetrically, in order to enable a uniform distribution of the steam. Indicated for bigger fabric content.

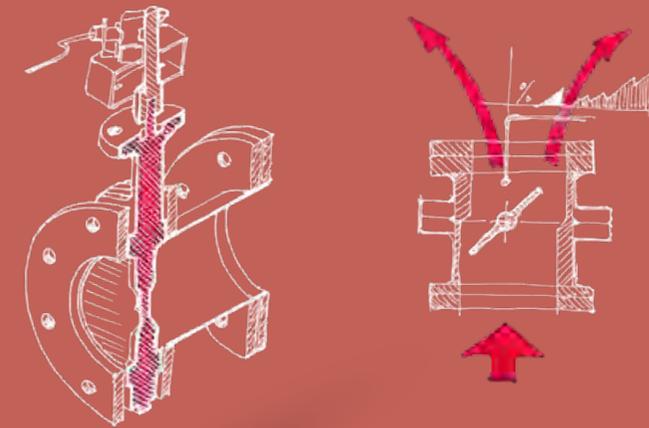
Ventilators will blow the steam from the top side of the chamber, through communicating ducts to ensure a constant uniformity of steam all over the whole content of fabrics.



EASIER MAINTENANCE

A specific attention has been posed on the operation and maintenance care, and particularly:

- A. The use of 15 cm fixed pitch among sticks with single chain enable maximum stability of the sticks and no synchro among multiple chains (23 cm pitch is anyway predisposed to be implemented mechanically).
- B. Two movable platform (one per each door), sliding along the machine enable to reach any side of the chamber for any maintenance operation. The two platform can be linked together to form a wider base, but during the process they are blocked on the two extremities of the steaming chamber (in and out) in correspondence to the entry doors.

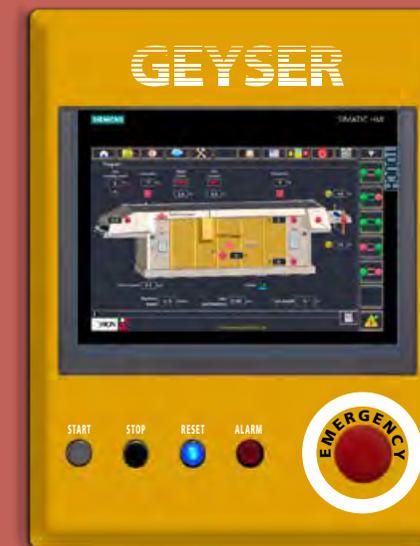


NEW FRESH AIR INTAKE

Fresh air intake is more and more required to fulfill the double task:

- A. Improve the color development in case of particular tone of colors (like cyan) which requires a higher oxidation value (particularly on digital printing dyestuff)
- B. Lower the temperature together with the atomized water to face the natural exothermic phenomenon of reactive dyestuffs.

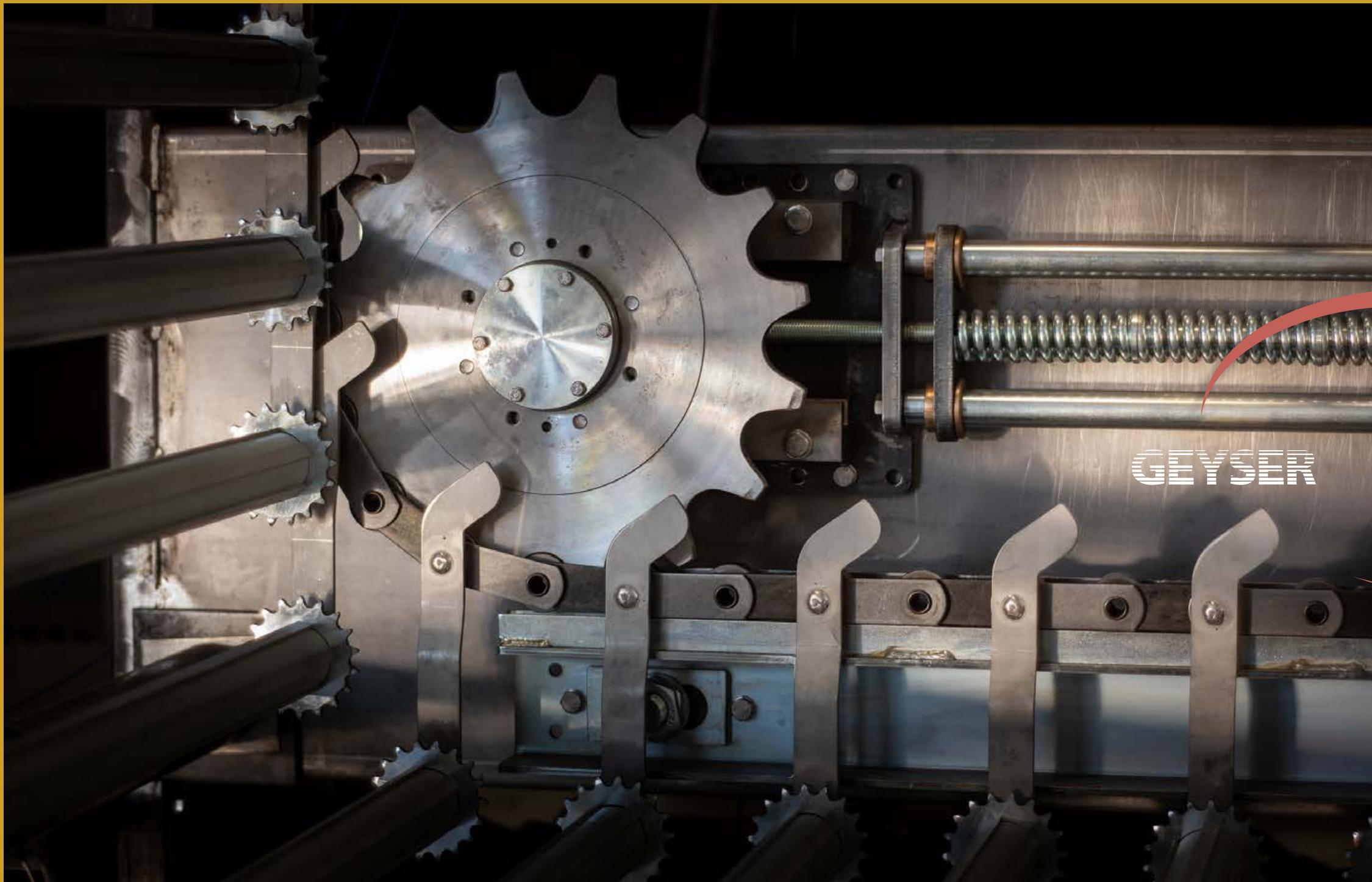
Fresh air can be thus digitally controlled through the touch screen panel, in percentage of the amount of steam flow.



INDUSTRY 4.0 KIT

Our SIEMENS PLC and touch screen system can provide real-time power consumption, steam (both direct for steaming and indirect for anti-condensation system) and gas consumption to provide a cost per process meter. These data can be interfaced with a station to remotely view the operation of the machine, including system efficiency, ordinary and extraordinary maintenance requests, complete with alarm lists. The machine is equipped with a LAN connection and remote monitoring for diagnostic operations and software updates.

Great care and attention has been paid to the mechanical heart inside the vaporization chamber, maintaining simplicity and durability as a basic criterion, thanks to a minimization of the incidence of maintenance.
At the same time, the key operating principles are preserved: chain for continuous and discontinuous pitch, new patented fold formation, continuous rotation of the sticks.





THERMAL INSULATION

The whole structure is suitably insulated with insulating panels, in painted metal and with very thick rock wool (density 80kg/m³). External finish in 12/10 mm thick painted sheet metal panels suitably reinforced to ensure the rock wool sealing. The panels are fixed to the structure by means of insulation columns. Double insulation of the roof by means of a double layer (210 mm) of rock wool. Unlike current market solutions, the system is equipped with insulation panels even in the basement to avoid heat loss and possible risks of condensation. This new insulation system enables clear savings in steam from 30% to 40%, within the same color performances, compared to the current market standards.



INNOVATIVE DESIGN

The equipment adopts a series of features and solutions with an innovative and practical design. All cables for wiring are conveniently allocated inside easily removable shaped sheet metal ducts (without the use of screws). These channels are also an aesthetic element, a linear and pleasing-to-the-eye pattern.



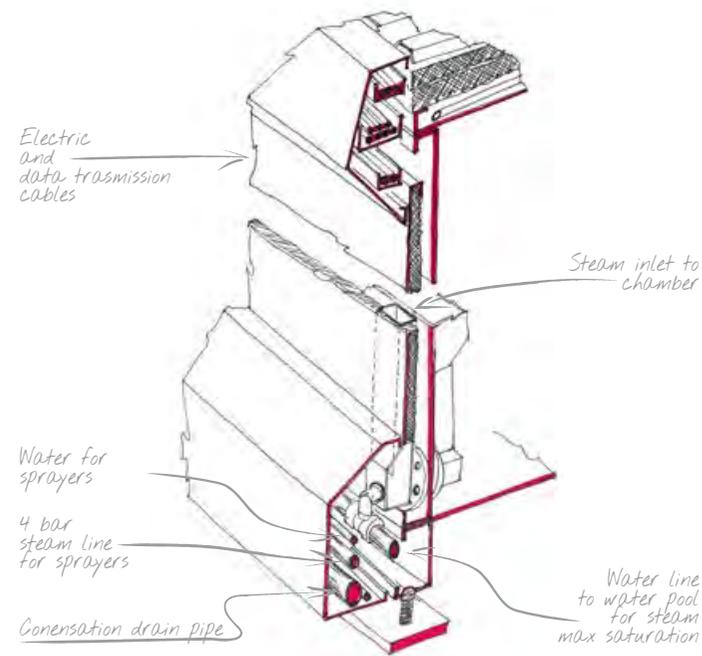
STRUCTURE AND STAINLESS STEEL

The whole structure is made of 4 mm thick AISI 441L stainless steel sheets. Unlike AISI 304, AISI 441L steel is very resistant to high temperatures and does not undergo deflections and cracking due to the changes from low and high temperature. Furthermore it is by far more resistant towards the corrosive action of chlorides or sulphides (possibly contained in the printed goods). Alternatively, upon request we can supply the structure in 304 or 316L stainless steel, of the same thickness. However, this solution is not recommended as it is more sensitive to possible corrosive actions of the process.



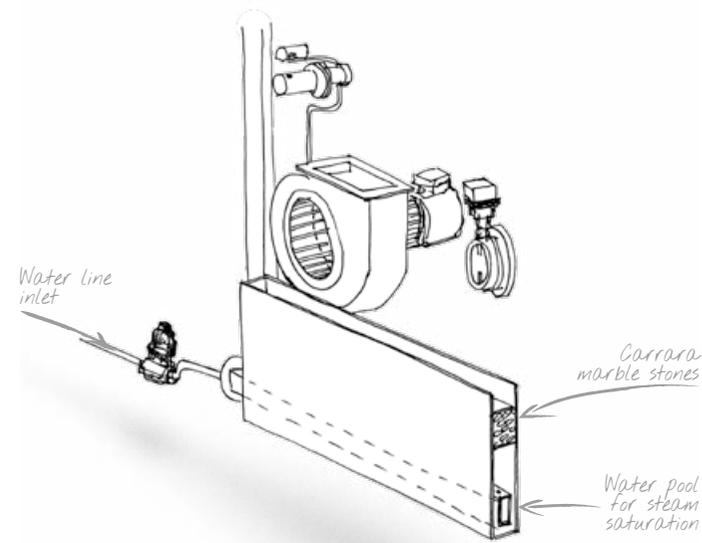
INSPECTION WINDOWS

Geyser is equipped with 6 inspection windows with double insulating glass and 4 light fixtures. Each window is equipped with a wipers operated by an external manual control to allow an ideal visibility inside the vaporization chamber for the inspection of the folds and to enable a more accurate process control.



HYDRAULIC AND THERMAL PIPINGS

All water, steam, diathermic oil and compressed air supply systems are conveniently hidden by easily removable protection frameworks to ensure a totally linear and clean appearance of the system. At the same time this solution enables an easy access for extraordinary maintenance operations.



STEAM SATURATION FLOW BOXES

One of the main secrets of Geysers' performance lies in the use of water flow-boxes for maximum steam saturation. The steam line is subjected to several variables that can alter the uniformity of the steam and its saturation level which has a direct consequence on the development of colors. Geysers provides the injection of line steam into special tanks fed by water in order to bring the steam to its maximum degree of saturation and process efficiency.



HEATING DEVICES CASING

As per steam, water pipings and the electrical cables, also the thermal systems (steam or diathermic oil heat exchangers or gas burners) are suitably protected by casings with an attractive design in order to avoid direct exposure by operators and protect the systems from dirt and environmental contamination.



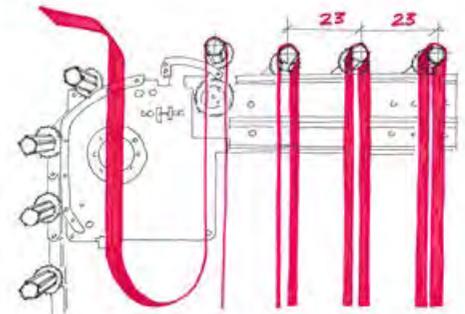
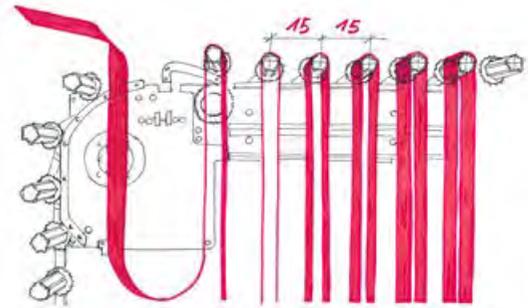
THE IDENTITY OF THE COLOR

The choice of the combination of colors makes the supply prestigious and immediately recognizable, a true trademark of Pentek's production, giving a fresh and innovative appearance in line with the technical solutions introduced. A special tag identifies Kromaticca's central contribution in designing this new equipment.

The whole system has been designed to offer advanced performances and to ease use and controls, but also the installation, maintenance and utilities (steam, water, gas or diathermic oil and electricity). The cables are supplied together with the machine and cut to size according to the designated position of the electrical panel. Nothing has been left to chance to offer a purchasing and commissioning experience with high standards of quality and satisfaction.

GEYSER





PITCH 15 OR 23

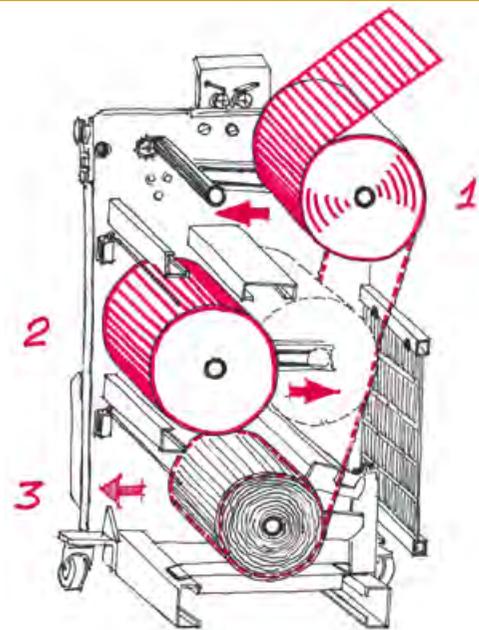
Geyser can be mechanically predisposed for pitch 15 (15 cm distance between sticks interaxle) and pitch 23 (23 cm distance between sticks interaxle). Even when supplied with pitch 23, Geyser can be equipped with additional sticks for a change at any time in pitch 15. Step 15 is an excellent compromise, offering guarantees of sufficient distance for most fabrics and processes.

The mechanical transition from step 15 to step 23 takes place by removing one stick every 3. Step 23 reduces the content by one third and therefore ensures in any case excellent production speeds. The absence of a double chain system and a stick storage area greatly reduces the operation risks and mechanical or maintenance problems.

UNWINDING ROLLS AND PAPER SEPARATION

For those who use digitally printed fabric in small rolls protected by paper, we are able to offer an auxiliary device that serves the dual purpose of:

- A. Storing more rolls to speed up the sewing operations and not have production downtime between one roll and the next.
- B. Separate the paper from the fabric and rewind it separately into a roll that can be easily removed.



1-Roll in production

2-Roll storage

3-Roll of recovered paper



STICK COVERING

The sticks can be supplied indifferently – upon customer choice - with **silicon** strips or **fiberglass** coating.

The **silicon** strips ensure greater grip when transporting and are recommended for knitted or slippery fabrics.

The **fiberglass** coating is recommended for very light and high value fabrics.

INFRARED HEATING ON EXIT

At the machine exit, an infrared heating system can be optionally provided to allow the fabric to be folded in total safety in the absence of residual moisture. Particularly suitable for digital reactive prints and / or knitted items that tend to retain the humidity absorbed in the steaming chamber.

The absence of direct contact between heat and fabric is a further guarantee for the printed product.



GENERAL SPECS:

Model		140	180	220	260	300	340	380	420	460	500
MAX fabric content	Step 15	132	173	214	255	296	336	377	418	459	500
	Step 23	88	115	142	170	200	224	251	278	306	333
Working width	mm	2200 x 2000 - 2600 x 2400 - 3600 x 3400									
Loop size	mm	Min 600 – Max 4800									
Machanical speed	m/min	40	50	60				70			
Dwell time	min	4-40	5-50		6-60			7-70			
Temperature	°C	102 – 185									
Noise level	dB	< 80									

LINE CONNECTIONS:

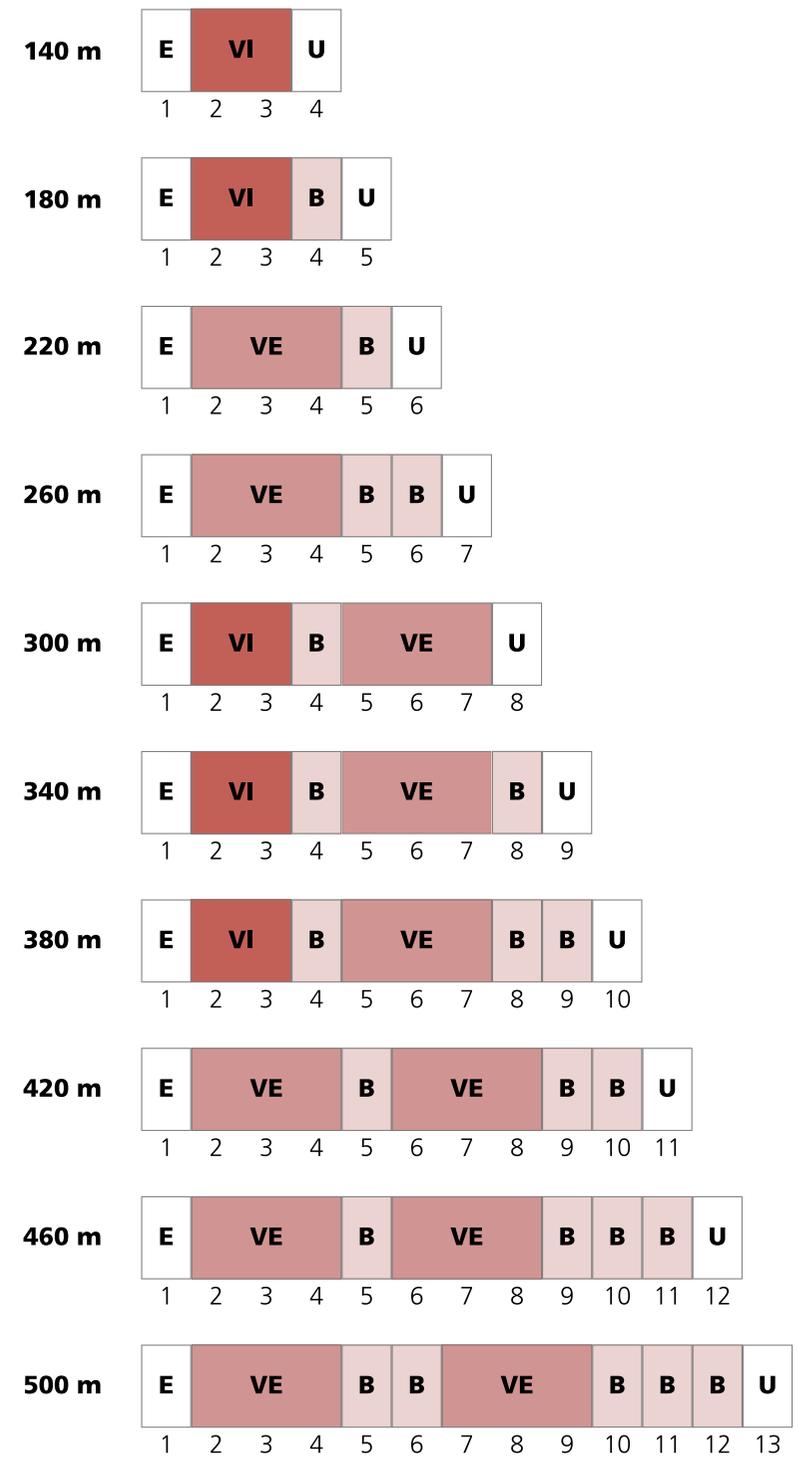
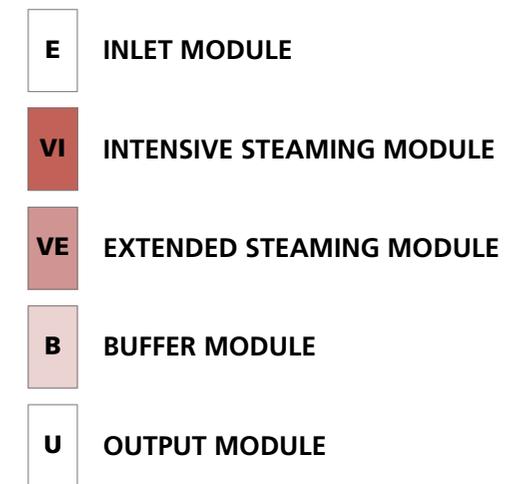
Utilities	Line Specs	140	180	220	260	300	340	380	420	460	500
Direct Steam (kg/h)	151° C 4 bar	300	400	500	500	600	650	700	750	800	850
		500	600	700	750	800	850	900	950	1000	1100
Thermal Oil	280° C 2-4 bar	160 kW (2 heat exchangers)				320 kW (4 heat exchangers)					
Natural Gas	150-200 mbar	180 kW (2 indirect burners)				360 kW (4 indirect burners)					
Electric Line	400-480 V 50-60 Hz	24 kW (up to 42kW with IR heating)				30 kW (up to 48kW with IR heating)					
Compressed Air	6 bar 1/2"	10-15 NI/h				15-20 NI/h					
Demineralized Water	2,5-3 bar 1/2"	80-100 l/h				100-125 l/h					

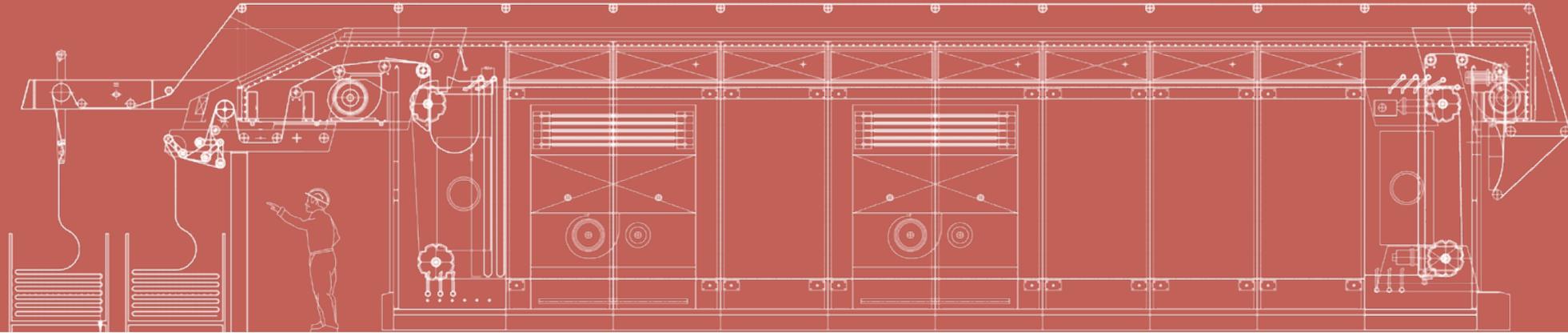
PRODUCTIVITY:

(below figures are purely indicative since speed depends upon composition, print coverage and specific nature of the goods)

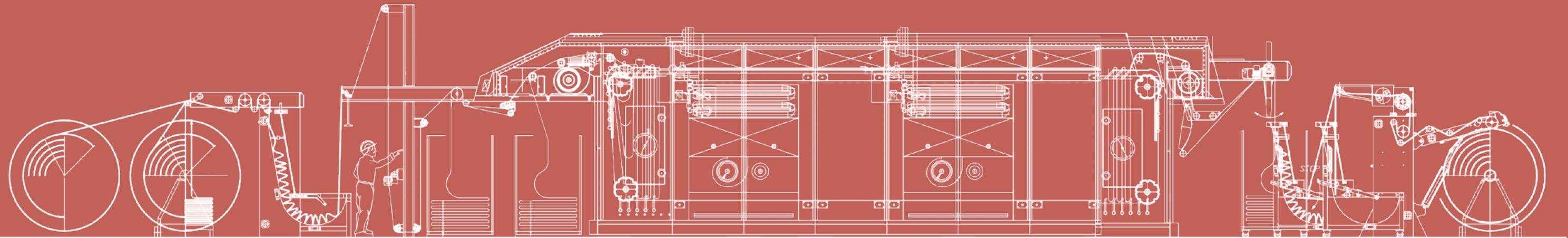
Process type	T°	Time	140	180	220	260	300	340	380	420	460	500
Reactive Prints (Step 15, max loop)	102° C	8 min	16	21	27	32	37	42	47	52	57	62
		12 min	11	14	18	21	24	28	31	35	38	41
Disperse Prints (Step 15, max loop)	180° C	8 min	16	21	27	32	37	42	47	52	57	62
		12 min	11	14	18	21	24	28	31	35	38	41
Acid Prints (Step 15, max loop)	102° C	30 min	4,4	5,7	7	8,5	10	11	13	14	15	16
		45 min	3	3,8	4,7	5,6	6,6	7,4	8,3	9,3	10	11
Pigment Prints (Step 15, max loop)	160° C	5-7 min	26	34	42	50	50	56	60	62	65	70

CONFIGURATIONS & MODULARITY:





GEYSER 380

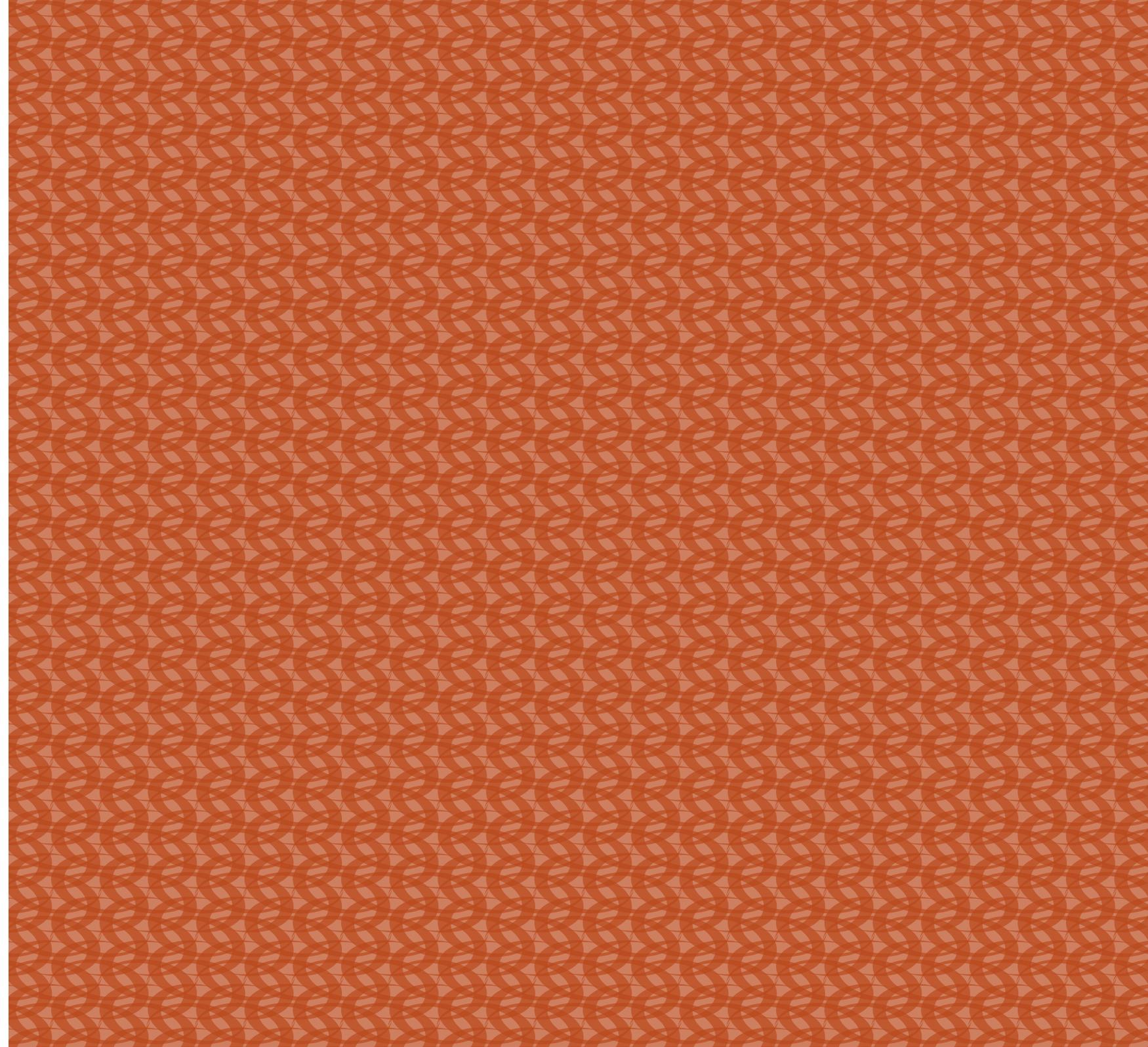


GEYSER 300



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