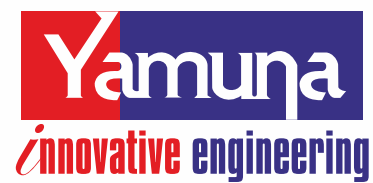


WORLDWIDE INSTALLATION



YAMUNA MACHINE WORKS LTD.


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Mumbai - 400 101, INDIA
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 www.yamunamachine.com



DENIMS

A SPECIAL RING TO OUR ENGINEERING,
FROM SINGEING TO FINISHING



INDEX

• Company Profile	03
• Product Range	04
• Process Route for Denim Processing	05
• Singeing Machine	06
• Continuous Desizing and Over Dyeing Range	07
• Mercerizing Range	09
• Finishing Range	11
• Stenter	15

COMPANY PROFILE

Ingeniería (Innovative engineering) is a customer-centric approach that enables Yamuna Machine Works to truly enrich and empower its customers in India and abroad with cutting-edge solutions. This unique brand of smart engineering had helped Yamuna build business and relationships on the very foundation of customer satisfaction. No wonder, Yamuna has carved a special niche for itself among the leading manufacturers for textile processing, finishing and allied industries.

DESIGN. DEVELOP. DELIVER

At Yamuna, we design, develop and deliver an extraordinary line-up of state-of-the-art textile machinery including Hot Air Stenters, Denim Finishing Range, Hydraulic Jiggers, Coating Lines, Singeing Machines, Polymerisers, Thermobonding Lines, Dye Pedders, Drying Range, Shrinking Range, Rope Scouring, Washing Range and Dipping Lines-all manufactured to global standards of excellence.

TECHNOLOGY THAT'S TESTED AND TRUSTED FOR 25+ YEARS

There's trust in every thread and our customers count on it! Some of the biggest brands in fashion fabrics, furnishing and industrial textiles emerge from the womb of Yamuna Machine Works, displaying in full glory their quality and character-be it the soft n smooth luxurious feel of chiffon, the angry ruggedness of denim, the rich texture of the carpet, the durability of the corduroy or the heavy-duty outdoor spirit of a canvas tent. With 25+ years of experience, Yamuna has developed a high level of sensibility to the special needs of customers and provides them with the right machine, at the right time and of course, the right pricing!

STATE-OF-THE-ART, STRAIGHT-FROM-THE-HEART

Yamuna's sprawling 10,000 sq mtr. modernised plant is located in the vibrant and energetic industrial town of Vapi (South Gujarat), just 170 km from Mumbai – the financial capital of India. But there's more to textile machinery than just mechanical, electrical and electronic components. The company has dynamic Design and R&D Team which is setting new benchmarks thanks to its inspired efforts to raise the bar of excellence.

Yamuna has its HO in Mumbai and a proactive sales and after-sales service network all over India. They are the real nuts and bolts who build the last mile bonding with our customers.



PRODUCT RANGE



PROCESS ROUTE FOR DENIM PROCESSING

DIFFERENT PROCESSES AND ITS EFFECT ON THE FABRIC

Singeing: Removes hairs / unwanted fibres from the surface of grey fabric. Process gives clean look to fabric.

De-sizing: Removes size from the warp yarn of grey fabric. Improves feel and drape of fabric. Makes fabric comfortable for apparel manufacturing. **Mercerising:** Gives fabric evenness and flat look. Removes impurities and improves softness, shine, cleanliness of fabric.

Heat setting / Stenter: Gives adequate dimensional stability to fabric especially weft way spandex fabrics. Combination of required temperature / heat to the speed gives comfort stretch in the fabric.

Finishing: Gives final stage stability to the fabric by imparting required shrinkage and skew. Makes fabric ready for apparel manufacturing.

Above process sequences are derived by taking different trials depending on the weave and construction of grey fabric against the required feel & finish of denim for garmenting.

Special sequences like over dyeing, coating and other finishes are also available.



SINGEING MACHINE

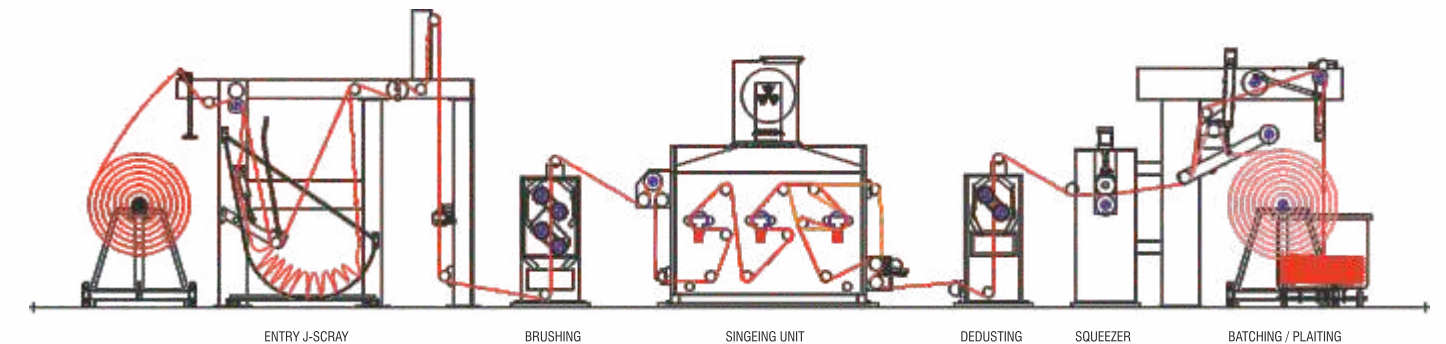
SINGEING MACHINE CONCEPT

Singeing improves the wear properties of textile by the REMOVAL OF PROTRUDING FIBRE ENDS.

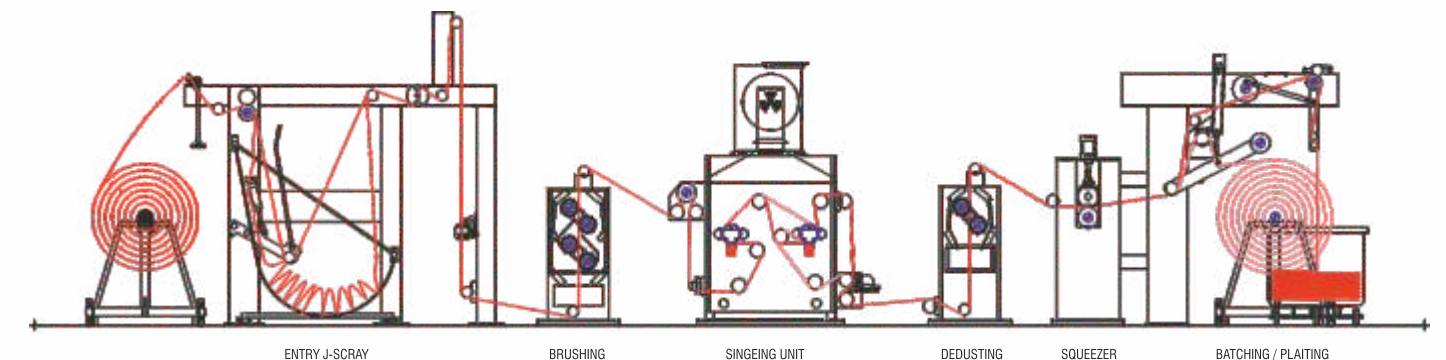
Importance of singeing machine is well defined as it is the first step in the processing of the grey fabric. Proper quality of singeing ensures and dictates the results of subsequent steps in wet processing.

OPTION FOR SINGEING MACHINE

- (1) Singeing Head from **BEJIMAC**, Belgium and entry, brushing, impregnation and batching from **YAMUNA**, India.
- (2) Burners, gas train and controllers from **BEJIMAC**, Belgium and machine manufactured by **YAMUNA** in India.



3 BURNER GAS SINGEING



SINGEING MACHINE



CONTINUOUS DESIZING AND OVER DYEING RANGE

CONTINUOUS DESIZING AND OVER DYEING RANGES

YAMUNA has manufactured with highest technology for CONTINUOUS PRE TREATMENT DESIZING AND OVER DYEING RANGES to solve the following purposes.

- To remove unwanted sizes like PVA to STARCH with the help of ENZYMES. A special applicator being used before tight stand steamer for development and high efficiency washing compartments to be followed.
- Suitable for various dyeing called REACTIVE, VAT, SULPHUR, DYES etc. with the help of technology of deflection control rollers gives even squeezing through out the width. After passing through steamer travels to the high efficiency washing compartments to be followed.

FEATURES

- Desizing chemicals applicator is designed with a longer dwell time (4mtr fabric traverse path). This allows enough time for application on the fabric especially for heavy weights.
- The applicator is provided with continuous dosing of chemicals by automatic level control system.
- Effective Dosing system gives accuracy to send require Dyes & Chemicals to the APPLICATOR.
- Indirect & direct steam heating with temperature control is provided and can be used on demand of the application and the process.
- Continuous rotary type filter is provided for keeping the liquor always clean during application.
- For Overdyeing, low liquor trough with single guide roll is provided to minimise the dye liquor wastage on changeover.
- Optionally, hydraulic deflection controll rollers are provided in the squeezing nip for uniform dye liquor application.
- J-BOX unit in entry and exit for continuous production
- Steam heated cylinders unit for drying purpose.

FEATURES OF DOSING

- STAINLESS STEEL construction of required dosing tanks.
- PLC controlling to get the require flow.
- Additional flow control system by ELECTRO MAGNETIC

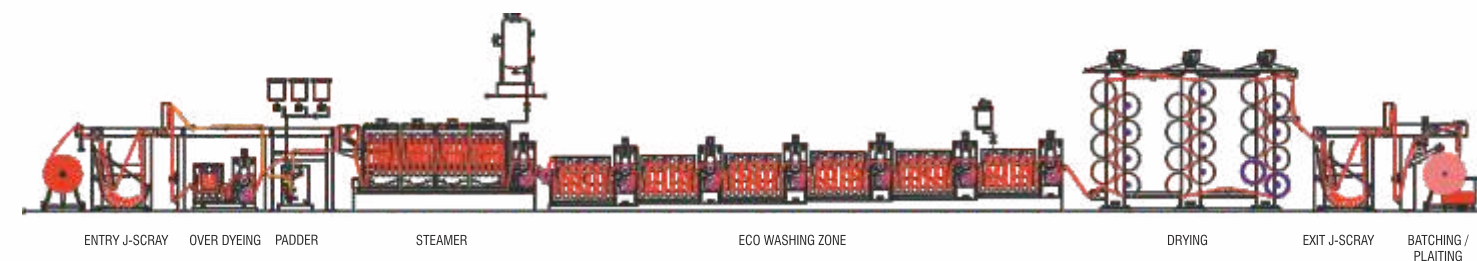
PROFITABLE ADVANTAGES

- Starch, Grease, Waxes and oil can remove without preswelling.
- Easy and fast penetration.
- Fine controlling for the process parameters.
- Combination of Temperature, Steam and Water treated with the fabric such a way to get better quality.
- Tensionless Traveling of the fabric.
- High Standard automation helps to achieve Less utility consumption.

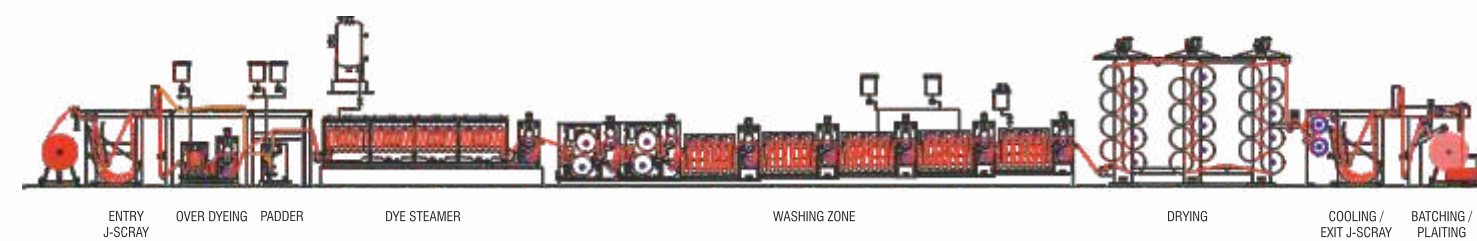


FEATURES OF STEAMER

- STAINLESS STEEL construction steamer, with additional EXTERNAL steam saturator. The steam feeding to the steamer is through the steam saturator which ensures uniform steam feeding and proper conditioning.
- Steam lock at entry - Steam heated lips at the entry of the steamer.
- Water lock at exit - Water lock at exit to avoid steam leakage along with the fabric moving out. Also avoids sudden cooling down
- Temperature upto 102 C.
- Heated roof to avoid condensation and dropping.
- Large glass doors with silicon sealing for easy threading and cleaning.
- Nip at exit of the steamer after fabric moves through the water lock. Squeezes the excess water as well as pulls the fabric for further feeding to washing boxes.
- First stack is equipped with TEFLON coated & remaining all S.S. rollers.
- 193 mm diameter of rollers.



PAD STEAM RANGE



PAD STEAM RANGE FOR LYCRA DENIM

MERCERIZING RANGE

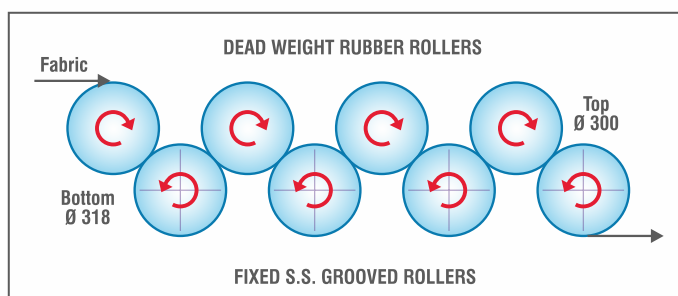
CONCEPT CHAINLESS MERCERIZING RANGE

Purposes of Mercerising is to give the dimensional stability to heavy or light quality of fabrics by passing for certain interval through the caustic zone called IMPREGNATOR, then STABILIZER and followed by intensive washing and drying.



USE OF ROLLER BED TECHNOLOGY IN IMPREGNATOR AND STABILIZER ZONE

- When fabric gets in contact with caustic, reaction starts immediately & fabric started losing its dimensional stability & started to shrink in length as well as width.
- During contact time in IMPREGNATOR & STABILIZER of 30 to 60 SEC, it is necessary that fabric keeps in continuous contact with the rollers instead of being contactless in open or free air. Then reaction of shrinkage is much faster.
- Due to roller bed there is not any chance of open or free air contact with fabric. It helps to avoid minimum shrinkage in the fabric & help to give better dimensional stability.



• MERCERIZING PROCESS

- Wet on Dry Mercerising

• CAUSTIC OPERATIONAL METHODS

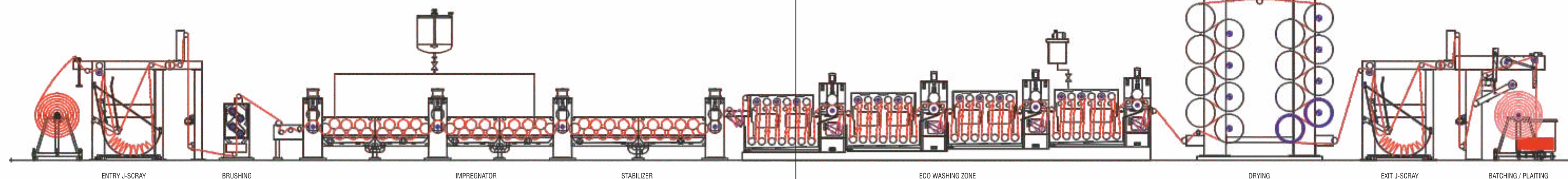
- Hot Mercerising - This method used for PIECE DYED fabric @ minimum temp 40 to maximum 60 degrees with high concentration of BAUME, depend on different qualities of fabrics.

PROFITABLE ADVANTAGES

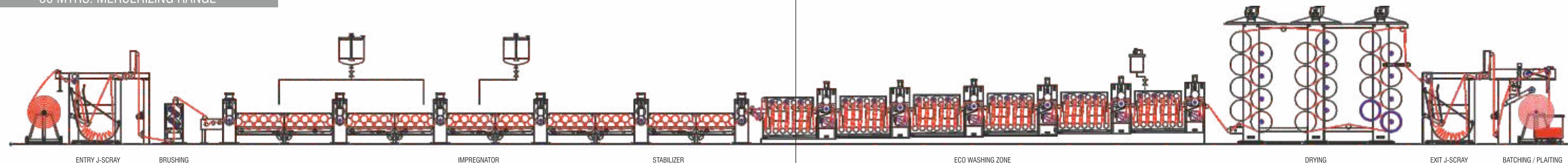
- IMPREGNATOR - BOMEN control by highly advanced technology to get require concentration to avoid unwanted CS in the fabric & excess wastage of caustic.
- STABILIZER - Controlled utilization of weak lye on the fabric by minimum addition of fresh water to get control on consumption of water.
- By above both the parameters very easy to minimise the operational cost of CAUSTIC, LYE, ACETIC ACID, WATER & STEAM.
- No reprocessing as not any chance of CS in the fabric.
- Better dimensional stability with improved LUSTURE.
- Require DYEING, PRINTING & FINISHING quality is easily achievable.

FEATURES OF MERCERIZING

- STAINLESS STEEL tank for impregnator and stabilizer.
- Bottom grooved stainless steel drums mounted on bearings, fixed position type with low caustic liquor tank.
- Dead weight top roller, rubber coated.
- Circulation pumps system with spray for uniform caustization.
- Impregnator and stabilizer rollers are smaller in diameter (300 mm diameter). This helps in better penetration of the caustic as the pressure rollers are at shorter fabric passage. Numbers of rollers are also more in this system, but in enhances the quality. Further, threading of the fabric is much easier and simpler with this design.
- Accurate BAUME control system, helps to get require BAUME in short time.
- High efficiency washing compartments.
- Heavy and light squeezers designed at necessary positions for smooth working and control on the machine.
- Entire system and operations controlled by advanced PLC Technology.
- Neutralisation zone controls ACETIC ACID automatically through PLC.



30 MTRS. MERCERIZING RANGE

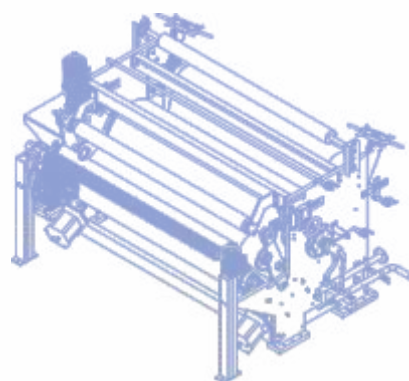
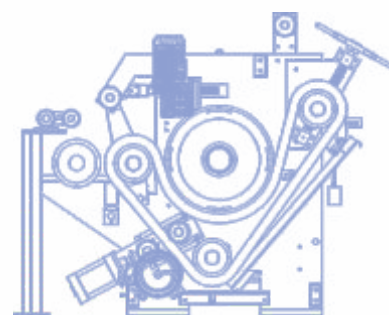


50 MTRS. MERCERIZING RANGE

FINISHING RANGE

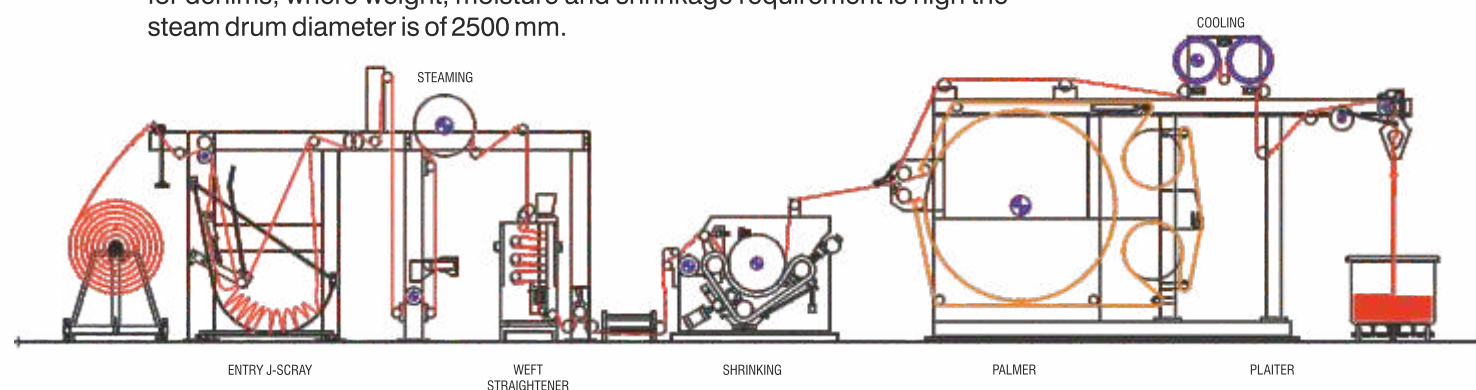
SHRINKING UNIT

- Main cylinder 610 mm dia from mirror polished.
- Directly coupled gearbox and motor for drive to main heating drum.
- SS Cladded roller, tension rollers and guide rollers 220 mm dia approx. cladded with stainless steel seamless Pipes machined and mirror polished.
- Pressure roll and tension rolls are motorised.
- Pneumatically operated pair of squeeze rollers provided.
- Two Number perforated pipes provided for external and internal cooling of rubber belt.
- One number grinding roll with suitable drive for grinding the rubber belt with stand and two Nos. jacks.
- One number endless rubber belt (ROLLINS / DUNLINE MAKE).
- Rotary joints are provided for steam inlet and outlet along with Teflon wire braided house pipes.



FELT CALENDER UNIT

- After shrinking, the fabric needs to be dried and give final finishing.
- For blended fabrics, light cottons, this is accomplished by drying over a steaming cylinder diameter of 1000 mm. The fabric is passed over this cylinder, with an endless non woven needle punched fabric felt.
- For 100 % cotton, where the moisture content is more for high shrinkage this is accomplished by larger steam heating drums of diameter 2000 mm.
- for denims, where weight, moisture and shrinkage requirement is high the steam drum diameter is of 2500 mm.

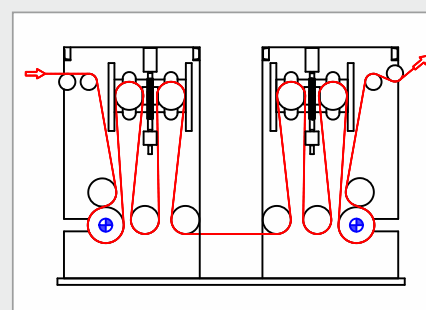


SHRINKING RANGE

FINISHING APPLICATIONS

SKEW CUM STRETCHING UNIT

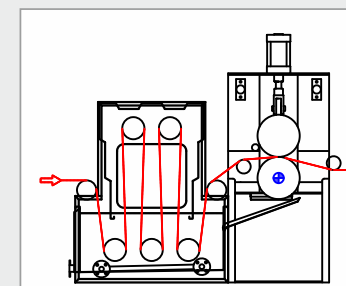
- Entry draw nip provided. One rubber coated roll & one ebonite coated roll with 15 H.P. motor and 5 NU gear box.
- All top and bottom roll - 200 mm dia made from heavy duty seamless pipes with S.S. cladded. Top roll moving by motorized mechanism with visual scale and limit switches.
- Exit draw nip - one rubber roll and one ebonite roll with 15 H.P. motor and 5 NU gear box. Both nip synchronized by Load cell system.



WET APPLICATOR

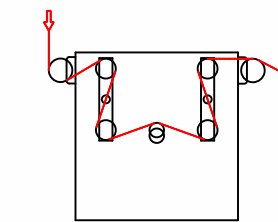
Chemical Padder for Wet Finishing Range

- Application of softeners, wetting agents and special finishing chemicals are done by a large dwell time applicator followed by squeezing.
- The applicator has fabric content of 4 mtrs and can be varied depending on special requirements. It is equipped with heating, circulation and continuous rotary filter along with auto dosing system.



SKEW UNIT for Wet Finishing Range

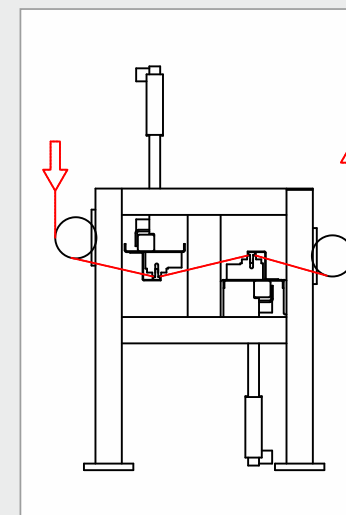
- Number of Skew Rolls: 4. SS 160 mm dia.
- SIX NOS.: Reduction Gear Box to position the skew rolls.
- ONE NO.: Motorised skew arrangement to change the skew.
- Online monitoring of actual skew attained by cameras with feedback system to skew unit for final correction.



• DRUM TYPE

Main Conveyor : Endless Rubber blanket.

Foam scrapper unit: Unit mounting on Rubber blanket with up & down mechanical adjustment frame for foam coating on fabric with auto reverse forward foam feeding unit. Main suction drum 600 mm dia with vacuum suction. Main vacuum pump 15 H.P. Vacuum below from drum to vacuum pump. Main motor gear box unit with top surface. Non woven fleece & PVC net complete unit synchronized by Load cell unit. Conveyor cleaning by positive drive brush roll.



• DIRECT APPLICATION TYPE

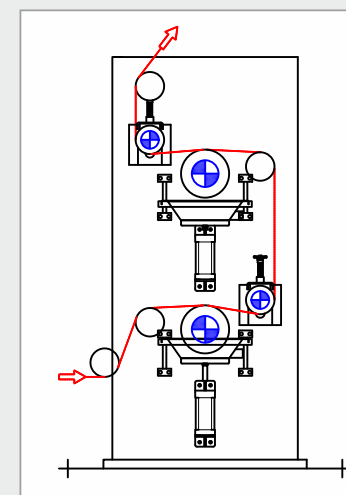
Main frame fabricated from S.S. square tube with top and bottom foam feeding device made from S.S. 316 quality with suitable connection.

Foam Generator: Air and chemical mixer with pipeline, tunnel type. Pneumatic pump controlled by VFD depending on the foaming requirement.

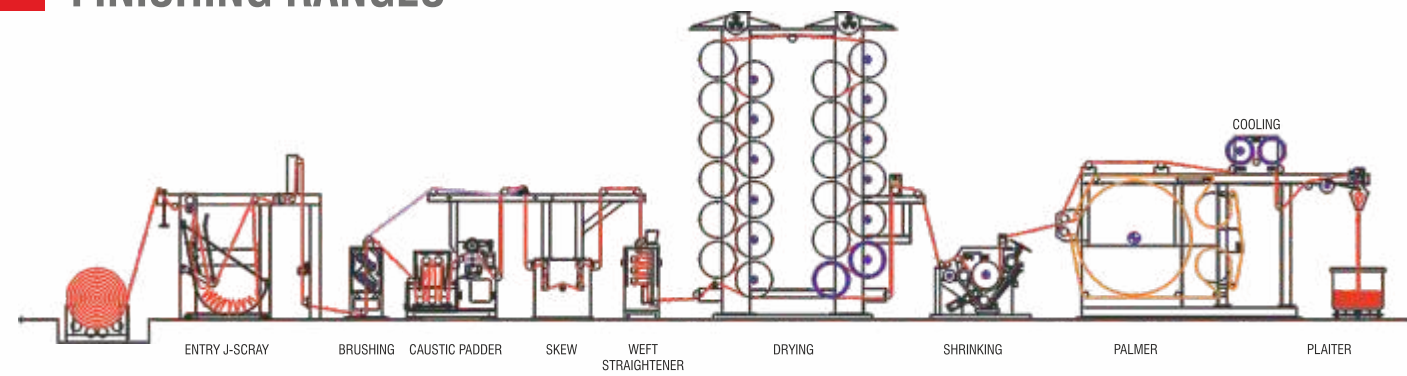
LOW LIQUOR APPLICATOR

It consists Complete closed type body of MS Frame with rigid Structure Lick coating arrangement structure suitable for coating on both side of fabric.

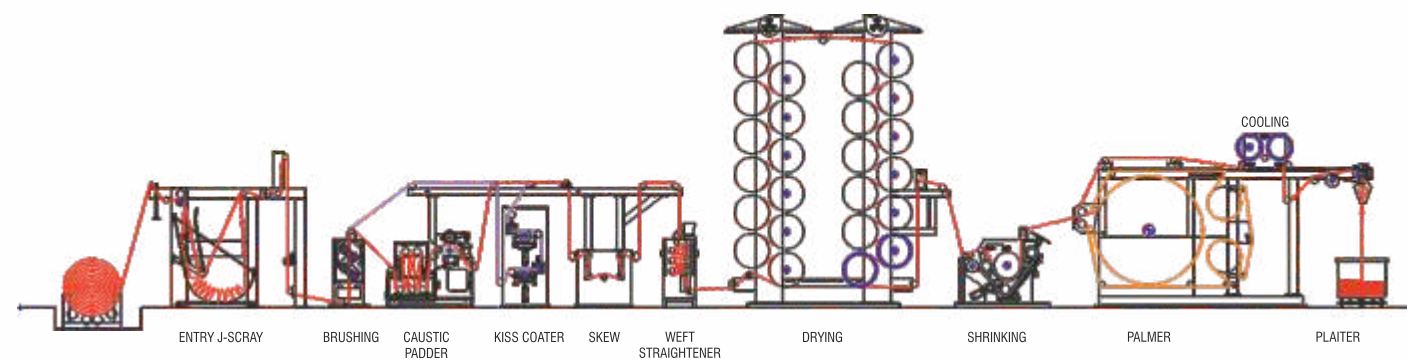
- Two nos - stainless steel tray to hold the paste to be applied with pneumatic Up & Down system.
- Two nos – Driven application roller. This roller will be dipped in the tray at bottom and in contact with the fabric on top. By rotating it picks up the paste and applies it on the bottom side of the fabric.
- One Set each – Fabric pressing system for maximum & minimum chemical add on fabric.
- Suitable guide rolls.



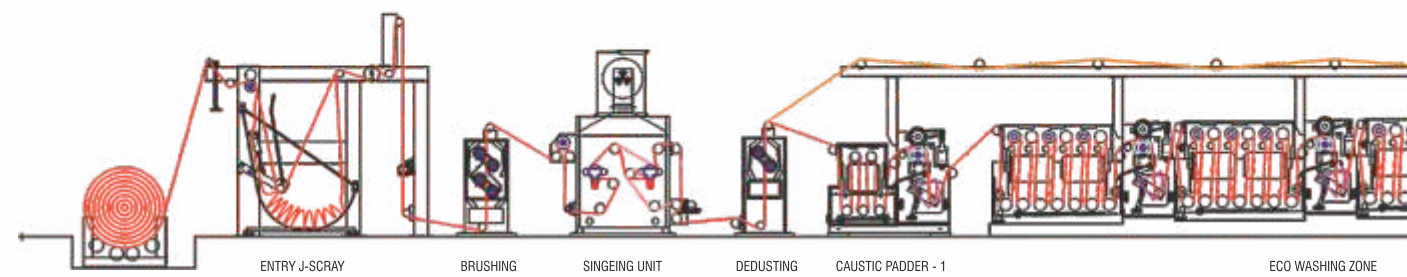
FINISHING RANGES



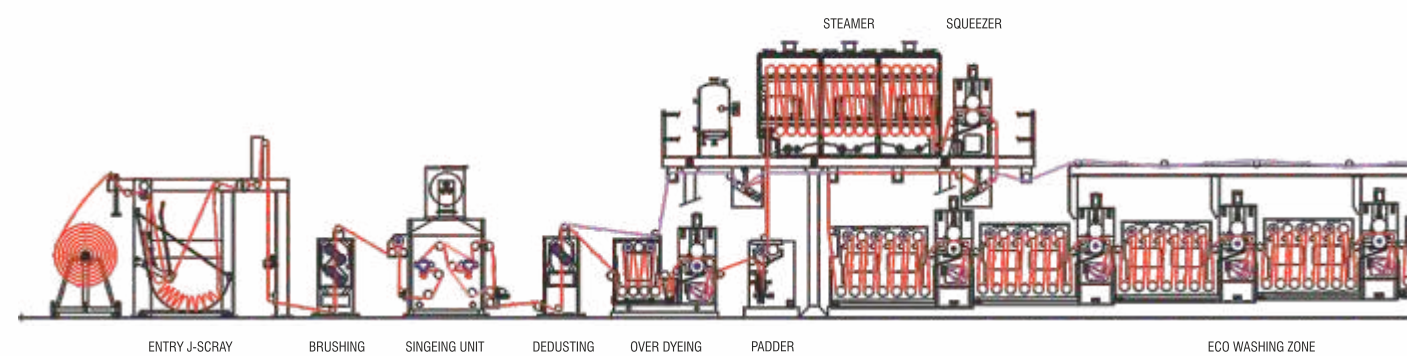
WET FINISHING RANGE



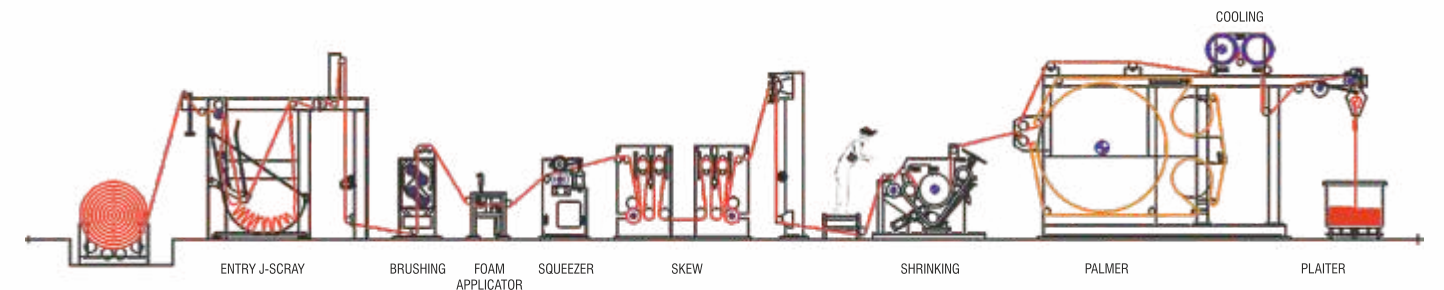
WET CUM KISS ROLL FINISHING RANGE



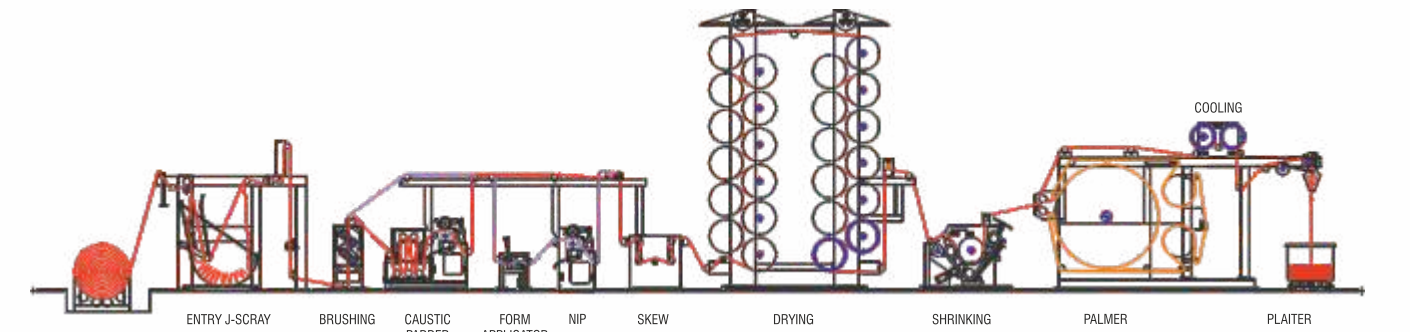
SINGEING + DESIZING + WET FINISHING PROCESS



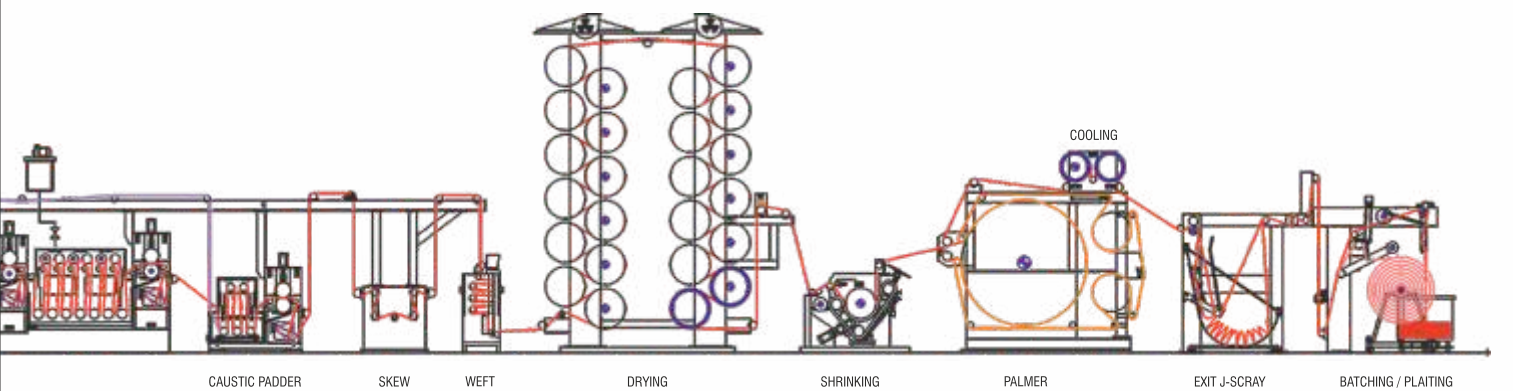
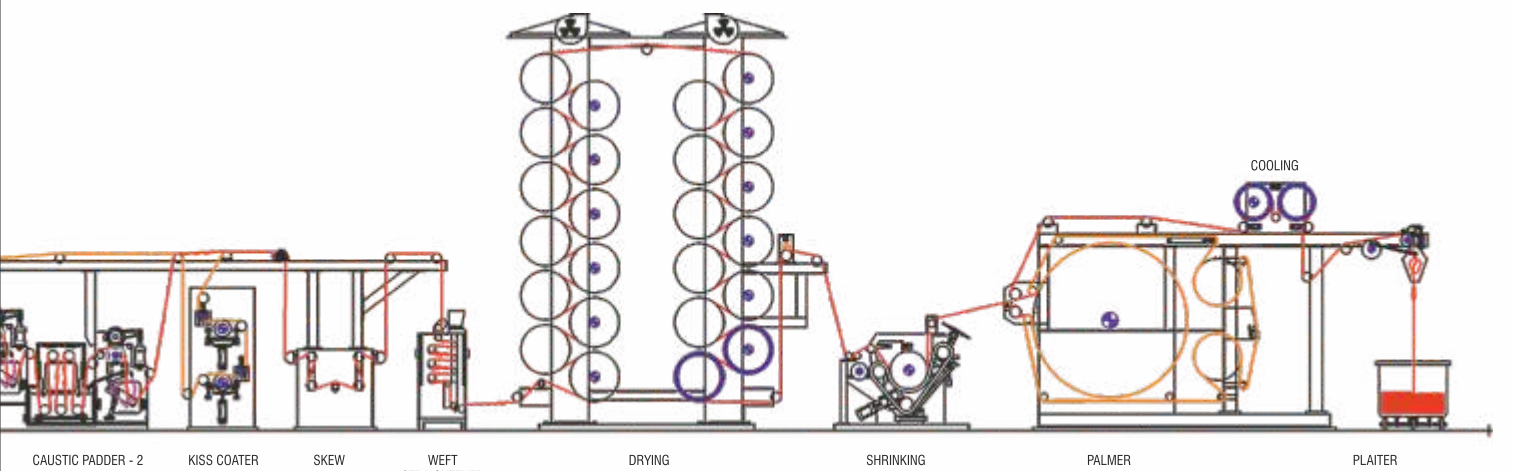
SINGEING + DESIZING + WET FINISHING WITH STEAMER



FOAM FINISHING RANGE



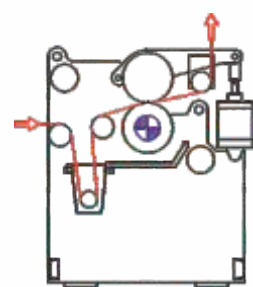
WET CUM FOAM FINISHING RANGE



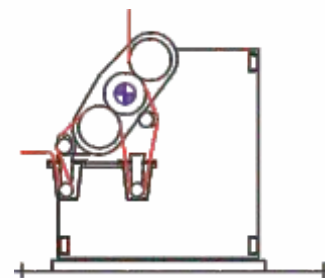
STENTER

FEEDING SECTION

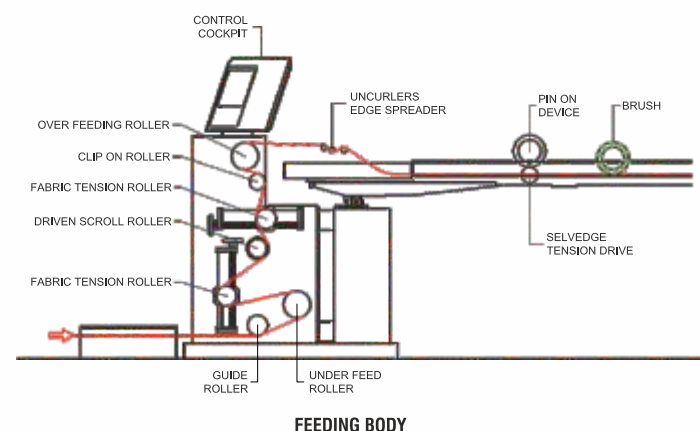
- Operate with variable linear pressure for top & bottom squeezing with R-E-R & R-R-R combination.
- Hydraulic deflection rollers for specialized squeezing purpose.
- Mechanical or Pneumatic arrangements for lowering & lifting of the tank with heating and cooling possibility of liquor trough.
- Bow or scroll rollers before entering in the padder.
- Shore hardness up to 100° are available.
- Maximum linear pressure: 500N/cm.
- Working width range 1200 mm - 4200 mm.
- Entire body frame from MS with SS cladding inside the wall.
- Rubber coated roll, assembled vertically 0 305 mm up to 2400 mm & 0 355 mm up to 4200 mm working width.
- Liquor circulation with auto level controlling.
- Compensating roller with pneumatic tension regulation & load cell control for different kind of fabrics.



2 BOWL PADDER



3 BOWL PADDER



FEEDING BODY

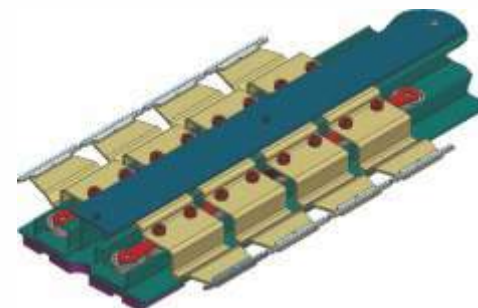
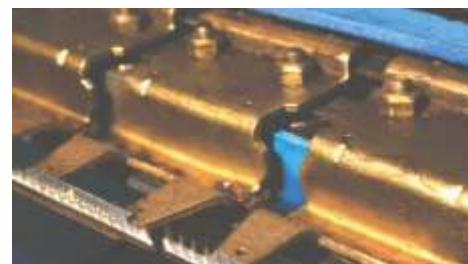
CHAIN AND CHAIN RAIL SYSTEM

Horizontal type fabric transport chain system are available depending on the fabric to be processed. Chain system is available with pin, clip or combination of pin and clip. Specially designed pin bars and clips ensure the safe handling of even most delicate fabrics. Heavy and longer pin bars are available for finishing thicker fabrics like carpets, canvas and blankets.

MODEL PREMIUM



- Rail & pin block from Alloy steel & clip block from aluminum with synthetic liner.
- Special design ball bearing type chain with automatic lubrication.



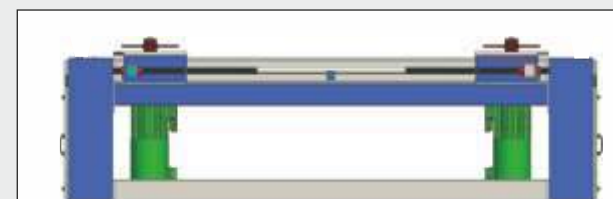
MODEL QUADRA



- Cast iron rail with aluminum pin & clip block with Bronze liner.
- Automatic lubrication system.



MAIN DRIVE SYSTEM



Individual drive for L.H.S. & R.H.S.

Two options are available - in standard version common drive to LHS and RHS chain, connected through shaft and bevel gears. Optionally individual drive to LHS & RHS with servo controlled system.

Exit of the machine can be with plaiting, big batching, surface batcher and center winder with non stop options of J Scray and Accumulator.

OPTIONS FOR COOLING

- A) Cooling zone with Air Circulation.
- B) Cooling zone with Chilled Water Circulation.



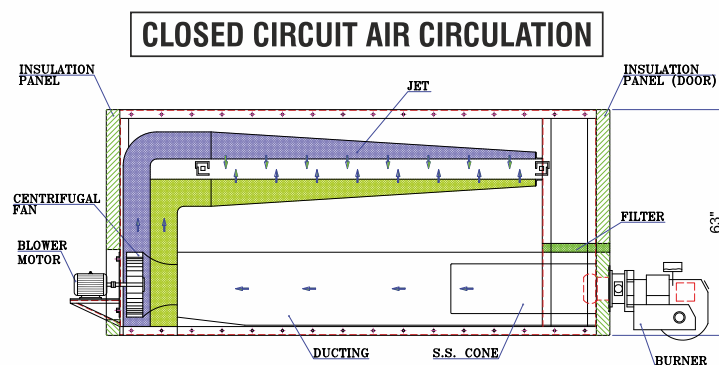
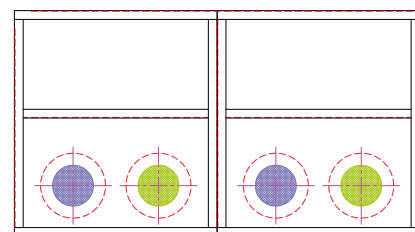
Common drive for L.H.S. & R.H.S.

AUTOMATION WITH INDUSTRIAL PC

Our QUADRA & PREMIUM models with complete automation comprises the following:

- Individual width control-gear motors with ENCODER control for width adjustment.
- AC frequency controlled drive for main Chain, Mangle, Underfeed / Overfeed, Selvedge RH and LH Tension, Exhaust, all blowers, Plaiter / Batcher.
- PLC with touch screen/Industrial PC to monitor and control the process parameters.
- Software / interface on latest communication technology.
- Temperature control of each zone by PLC.
- Air flow control for top/bottom nozzles from touch screen.
- Fabric temperature sensor and dwell time controller.
- Residual moisture controller.
- Exhaust humidity controller.
- Automatic overfeed and residual shrinkage controller.
- Individual login password for different levels.
- Recipe Management with production reports on required intervals.
- Easy Alarms & Fault findings through PC .
- Team viewer connection.
- Maintenance Schedule & Records.

CHAMBER DETAILS



INDEPENDENT AIR FLOW SYSTEM

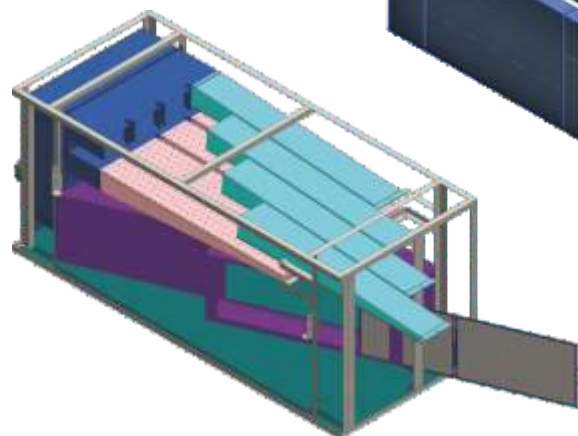
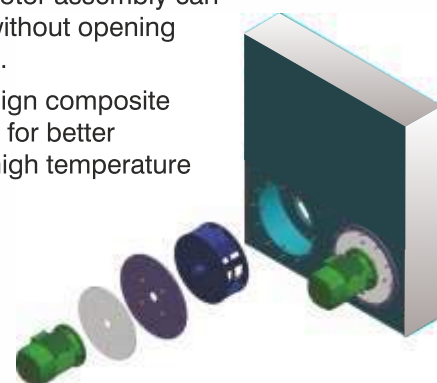
- Individual blowers for top & bottom jets.
- Air ratio between top and bottom jets can be controlled and adjusted easily at fingertip through touch screen at the central control unit.
- Special application for finishing TECHNICAL TEXTILES - If desired only top or bottom air can be used individually.

ENERGY SAVING

Energy savings and increased production up to 8% to 15% obtained through higher efficiency of fan system arrangement as well as unique chamber insulation performance of machine compared to the traditional machines.

EASY MAINTENANCE & OPERATION

- Entire blower motor assembly can remove easily without opening insulation panel.
- Specialized design composite insulation panel for better insulation and high temperature application.



EASY MAINTENANCE & OPERATION

- Easy removable individual fingers for cleaning purpose.
- Openable covers for individual fingers.

MULTIPLE FILTERS

- Online filter cleaning without stopping the machine.
- With option for one core and another fine filters net.



HEAT EXCHANGER MODULE OIL OR STEAM

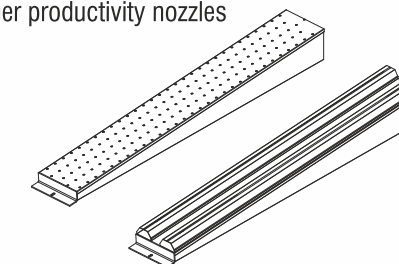
1500 mm long finned type radiator with multipass arrangement of FLOW.



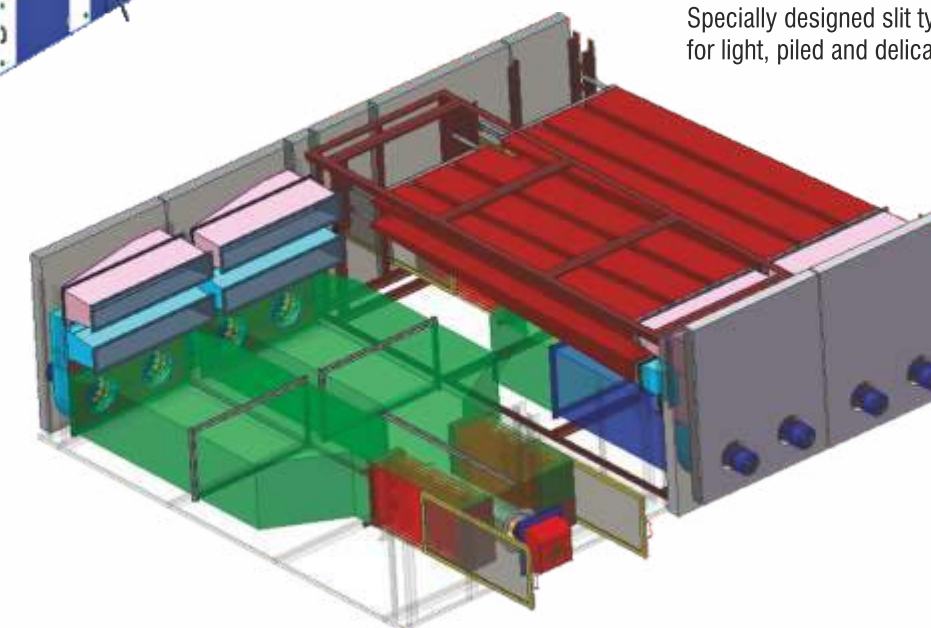
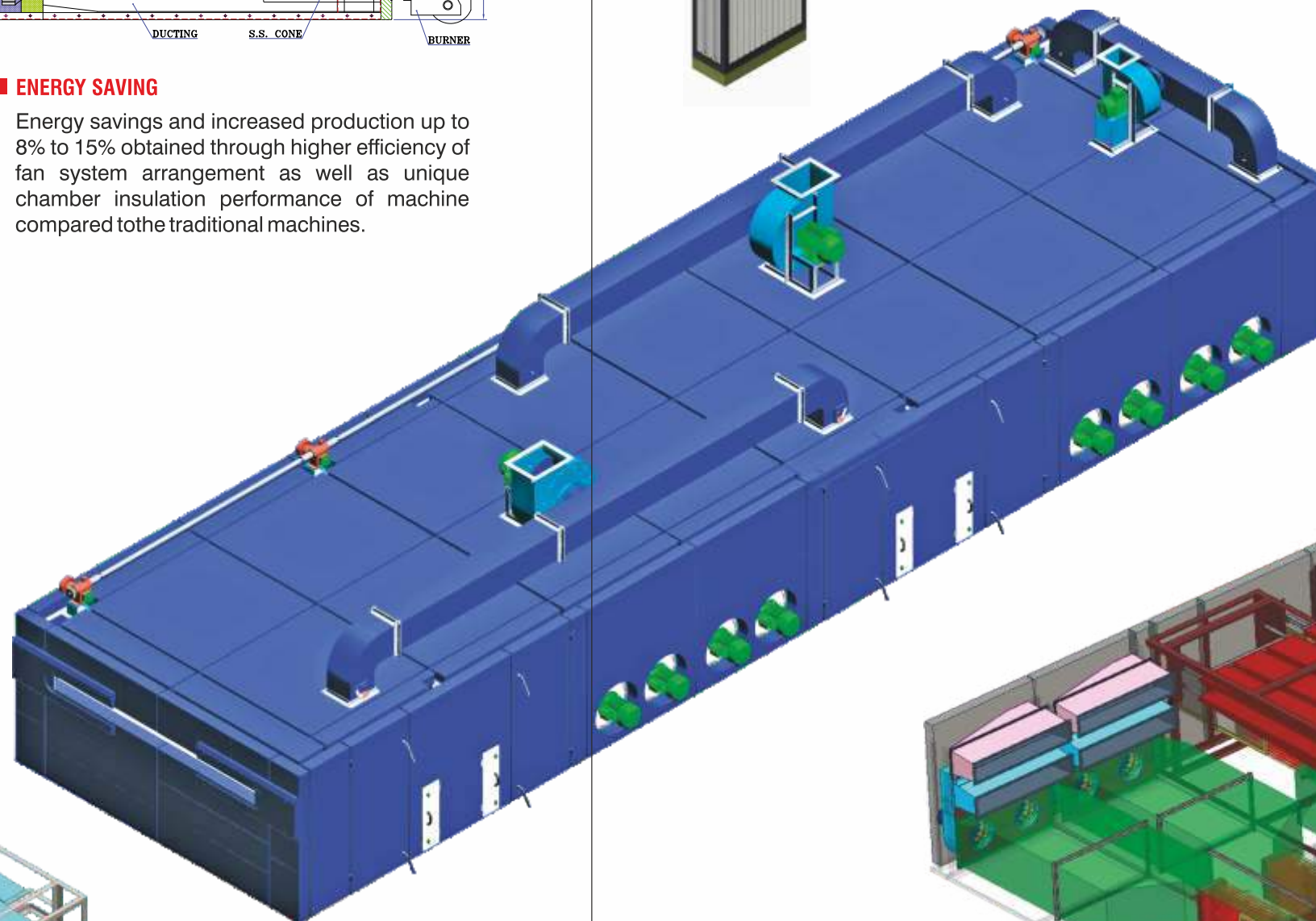
INDIVIDUAL WIDTH CONTROL

Maintenance free width adjustment motorized spindles with directly coupled geared motor with encoder

Higher velocity and Higher productivity nozzles



Specially designed slit type nozzles for light, piled and delicate fabric

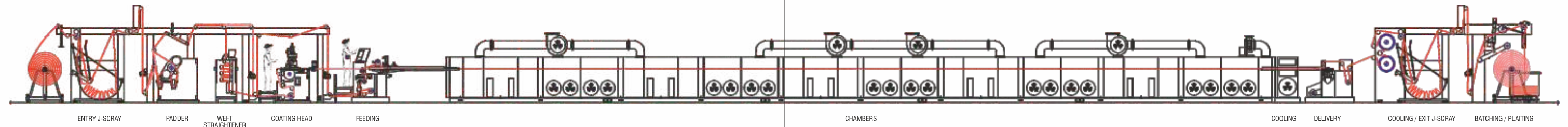


MULTIPLE HEATING PROVISION

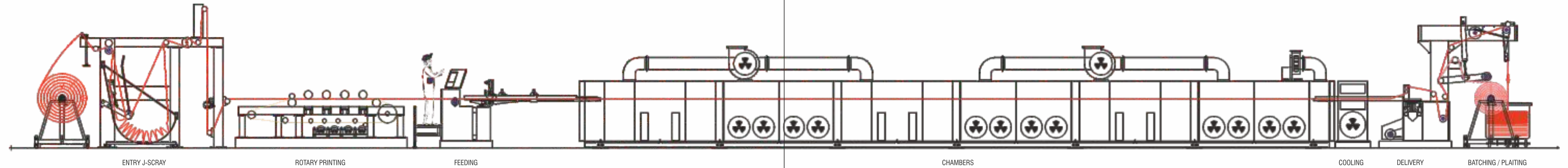
Variable Heating Media :

- Gas Heating- Modulating type GAS burners for better temperature control for heavy & light fabric.
- OIL Heating - Proportionate control through PLC for PNEUMATIC or MOTORIZED valves for accurate controlling.
- STEAM Heating - Heating with FINNED TUBES & condensate removal system.
- ELECTRICAL HEATING - Heating with VOLTAGE CONTROL.
- Dual Heating-combination of Steam and Gas heating system.

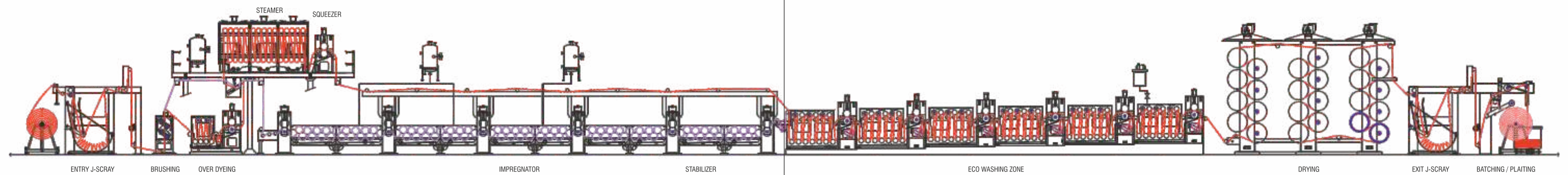
STENTER



STENTER FOR FINISHING PROCESS

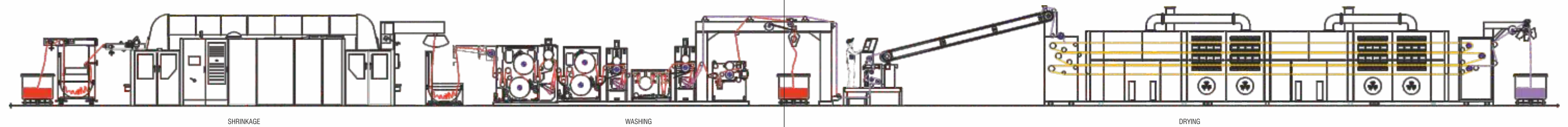


STENTER WITH ROTARY PRINTING & COATING LINE



DESIZING + MERCERIZING ONLINE PROCESS

KNITTED DENIM



FINISHING RANGE FOR KNITTED DENIM

COMPACTING MACHINE WITH RUBBER BELT UNIT

