



MULTIPASS STENTER FRAME



For Textile Processing Machines

Yamuna Machine Works Ltd.

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PARTNERING 
FOR INNOVATION

engineering

innovative engineering

Engineering (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.

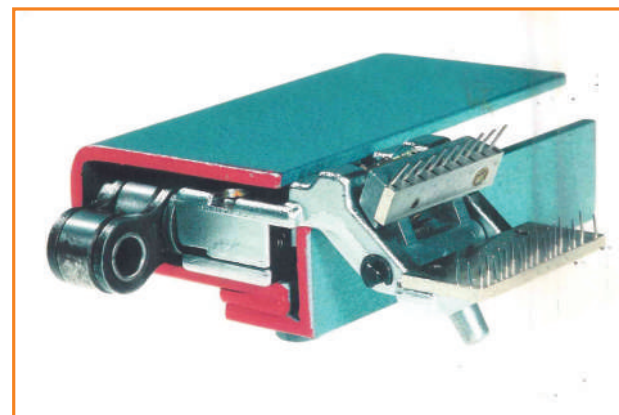
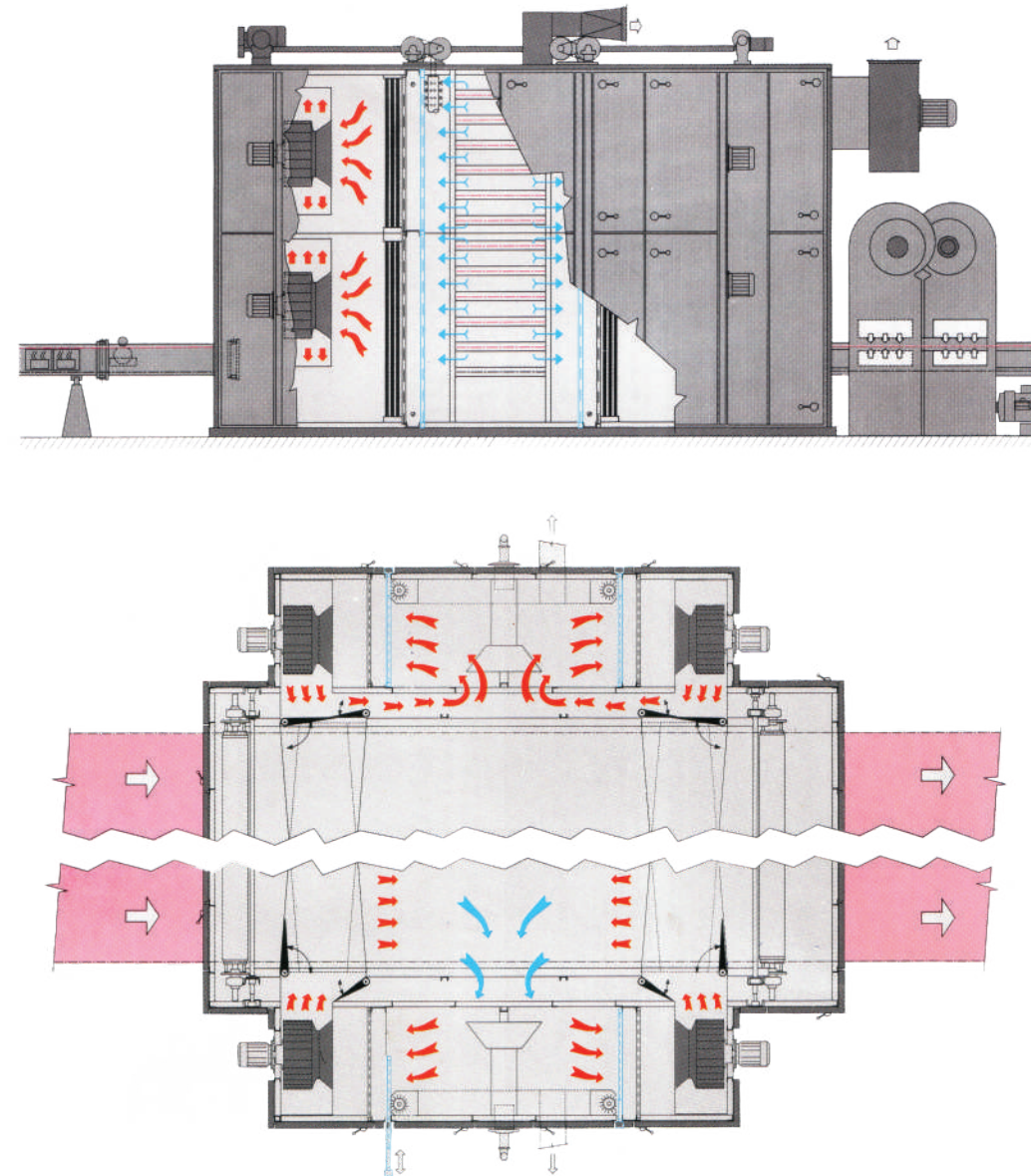
TEAM YAMUNA... BEST IN CLASS

Here is a team of talented professionals who bring to the drawing board not just their expertise, but wisdom distilled from years of experience. Where commitment to quality and time frames is dictated not merely by the clauses in the contract, but an intense self-desire to be the best in class. No job is too small and no project too big, simply because there's almost a meditative scientific approach to work. Here, success isn't defined by the bottom line in the balance sheet but measured by the respect and goodwill earned over 25+ years!

A GLOBAL RING TO OUR ENGINEERING !

As India takes giant strides towards becoming an industrial powerhouse, it's defining moment for Yamuna. The Company is perfectly poised to explore and expand beyond geographical boundaries and organically progress in the world stage. Multinational textiles engineering companies and fashion labels will only be eager to collaborate with an Indian partner who brings a global ring to engineering!





Main advantage of ALEA Multipass Stenter frame versus Single Pass Stenter frame in Knits Processing:

1) SHORTER LENGTH: The total length of our Multipass Stenter is 24 meters only (including Padder and Weft Straighter) that is the same length of a very small single pass 2 chamber Stenter. If compared with the standard 10 chamber Stenter frame, ALEA is 24 meters shorter.

2) HIGH DRYING PRODUCTION: Our Multipass Stenter, in its length of only 24 m (=79 feet), delivers the same production of 12 chamber single pass Stenter. This very high production is achieved in a 30 meters shorter space (98 feet shorter). This highly efficient result is obtained thanks to a very high fabric capacity (70 m of fabric = 230 feet) in the hot chamber.

3) HIGH HEAT SETTING PRODUCTION: As heat setting process greatly depends on dwelling time, our Multipass Stenter is a match winner against any single pass Stenter, in other words our machine, thanks to its 70 meters fabric capacity, runs at double speed if compared to any 12 chamber single pass Stenter, capable of maximum 36 meters capacity. This high production surplus may be used to reduce the heat setting temperature or to increase the dwelling time, resulting in a higher dimensional stability of the fabric.

4) IMPROVED FEEL AND STABILITY OF FABRIC: The high fabric capacity of the thermal chamber (70 meters = 230 feet) allows to dry the fabric gently and smoothly, avoiding the shock drying, which occurs in a single pass Stenter.

5) LOW ELECTRIC ENERGY CONSUMPTION: The absorbed electric power of fans is 70 KW only. A standard 10 chambers single pass Stenter has double electric consumption.

6) LOW HEAT DISSIPATION: The Multipass Stenter frame has an external surface that is 1/3 of a 12 chamber single pass Stenter and consequently heat dissipation in the room is greatly reduced.

7) AUTOMATIC AIR FILTERS CLEANING SYSTEM: Given our Stenter's very high drying and heat setting production capacity, any stop for air filter's cleaning would represent a significant economic loss. Vice versa, our system allows air filters cleaning without stopping or slowing down the Stenter another additional advantage of this system is that our Stenter works full time at 100% efficiency thanks to its filters that are always clean.



MECHANICAL SPEED	Up to 100 m/min
HEATING SYSTEM	Gas or Thermo Oil or Steam
MAXIMUM OPERATION TEMP.	220°C
DRIVE SYSTEMS	All by inverter controlled motors
SELVEDGE CONTROL	Proportional, dual mode, oil driven
FABRIC TWIN OVERFEED	Main overfeed capacity - 10% + 80%
CHAIN	Vertical with pins & locks on each fabric carrier
CHAIN LUBRICATION	Automatic

OVERFEEDING SYSTEM

The main overfeeding system allows overfeeding from -10% to + 80% if compared with chain's speed. This positive result (+80%) is possible only thanks to our pins with safety locking system that eliminate the de pinning danger. Another independently driven roll is mounted below the operator's platform, able to give +/-10% overfeed as against the main overfeed roll, in a way to compensate for all stretch induced by upstream equipment like padder, weft straightener and associated compensators. Right and left selvedge tension can be independently adjusted just before pinning fabric on chain.

GUMMING DEVICE FOR SELVEDGES

2 nylon wheels and a tank for gum are provided at each side of entry.

STEAMING DEVICE FOR SELVEDGES

This device is positioned at entry side and can blow steam from underneath to the fabric. Purpose of above is to give a better feel to the fabric and to make easier setting the width before entering the drying chamber.

BELTS SUPPORTING THE FABRIC

As entry side is quite long (6 M) and fabric is not yet supported by ventilation, 2 belts support the fabric in order to minimize any deformation caused by wet fabric's weight

ENTRY WITH SWIVEL ARMS

6.0 meters long swivel arms, with an exclusive design two hinge system for to minimizing the selvedge deformation, driven by 2 high pressure oil cylinders able to quickly respond to the inputs given by two, dual mode reading, proportional selvedge feeler by Erhardt & Leimer.

VERTICAL CHAIN WITH PINS AND SAFETY PIN LOCKERS

Our own design vertical chain with pins and locks on each fabric carrier, mounted on ball bearing to enhance the durability of the chain-rail assembly and reduce the power requirement

on the inverter controlled chain motor; the chain carries very easy to detach fabric carriers and is automatically lubricated. Chain's tension is a pneumatically adjusted.

HEATING CHAMBER

2 INDEPENDENT AIR TEMPERATURE REGULATIONS

Temperature can be independently adjusted in each group of layers. In case of drying only, lower layers are set at higher temperature than upper layers, where fabric is closer to final drying.

In case, of drying + heat setting, in lower layers temperature is set lower in order to dry fabric, and upper layers' s temperature is set at higher temperature (usually 180°) in order to heat set the fabric. After the end of each pass, fabric is supported by big diameter stainless steel cylinders. They are telescopic type (3 tubes) in order to shorten or lengthen the width, according to fabric's width.

To the aim not to over dry the fabric when stenter stops, hot air is automatically by passed in a separate chamber, still keeping ventilators and burners at the pre-set speed and temperature.

Hot air is automatically blown to fabric as soon as stenter starts again. By means of butterfly flaps is possible as well to blow independently more or less air to each of the two fabric's sides.

Above can be useful in case of fabric with different treatment requirements on the 2 sides.

HEATING SYSTEM

Heating is achieved by means of thermo oil heated, steam or gas. Each burner or heat exchanger is connected with a ventilator in order to achieve the best drying or heat setting uniformity on all fabric's width. Gas burners are equipped by all safety devices like minimum/maximum gas pressure and flame presence detected by photocell.

DOORS AND PANELS

The stenter is equipped with many doors for easy access inside for cleaning and maintenance operation.

MOIST AIR EXHAUST SYSTEM

The chamber is equipped with suitable ventilators that extract the moist air in right/left side of chamber and in upper/lower layers as well. In this way there is an even moist air extraction and in a result a better drying uniformity.

AUTOMATIC AIR FILTERS CLEANING SYSTEM

This system allows to clean filters while the stenter is running. Filters are automatically brushed and lint is sucked and collected in bags. Consequently, no need to stop frequently the stenter. That gives higher production, better fabric's quality and saving in man labor.

Just pressing the button every hour by the operator, one by one the four frames of the filters come out from the sides and the filter's surface is automatically brushed by a vertical brush. At the same type the lint is sucked by a ventilator and conveyed to the collecting bags.

EQUIPMENT AT EXIT SIDE

FABRIC COOLING SYSTEM

An air knife cooling system is positioned just after fabric gets out of the drying chamber. Purpose of above is to avoid heat accumulation in plaited or batched fabric, resulting in difficulty in following operations.

When heat setting, cooling system is a must because the warm to cold shock greatly helps in setting both width and straightened wefts.

PLAITER AND BATCHER

At exit fabric is accumulated in trolley, plaited in 1 M. width

ELECTRIC SWITCHBOARD AND CONTROL UNIT WITH TOUCH SCREEN MONITOR

Alea-YAMUNA centralized control unit, completed with touch screen monitor, mounted at the stenter entry, carrying all instruments for to monitoring the machine running parameters (temperature, working width, chain speed, overfeed, air volume etc) against the corresponding set-points and to checking all stenter systems (like air-fans, exhaust blowers, position of throttle valves and by-pass valves, fabric humidity controls and exhaust controls).

AUTOMATIC FABRIC FINAL MOISTURE ADJUSTING SYSTEM

It is a fabric moisture measuring by means of 3 contact rolls that is placed at exit of stenter. Operator can choose and set the final moisture requested by fabric. Stenter's speed is automatically adjusted in order to achieve the requested moisture. On the screen is shown the final obtained residual moisture at right, centre and left side.

HEAT SETTING AUTOMATIC SYSTEM

It consists of pyrometer sensors, placed in the upper layers, that greatly helps the heat setting operation. Sensors detects the point at which fabric's temperature ceases to rise, that means fabric is bone dry. Here is where dwell time processes and consequent heat setting begins. The sensors detect fabrics temperature and control stenter's speed according to the dwell time requested by fabric

FULL PROGRAMMING SYSTEM

Customer can select many programs on the monitor, giving a name or a number to each one. Each program is the result of a research that customer has to make on the various requirements of all fabric styles. Once customer has found the most suitable parameter for a certain type of fabric, he just has to record all of them in the programming system. Next time when he will have to dry same fabric, he just has to select the name given to this fabric and stenter automatically sets the following parameters:

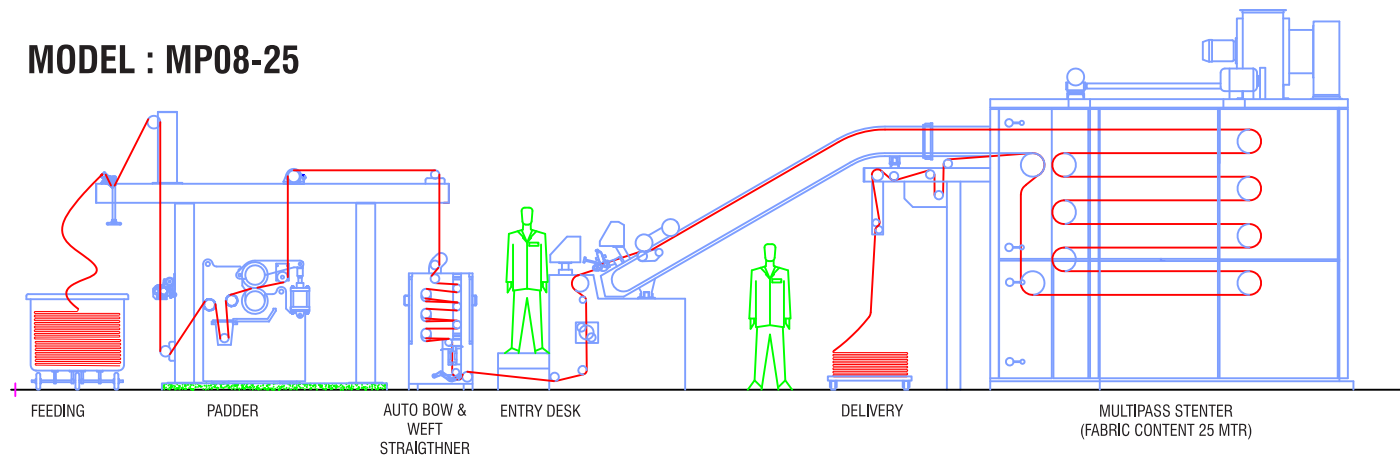
- speed
- overfeeding 1
- overfeeding 2
- temperature
- fan's speed

Of course operator can enter at any time, already set program, according to different requirements of this fabric. Later the system will ask to operator if is worth to save the modifications or to store them as a new program.

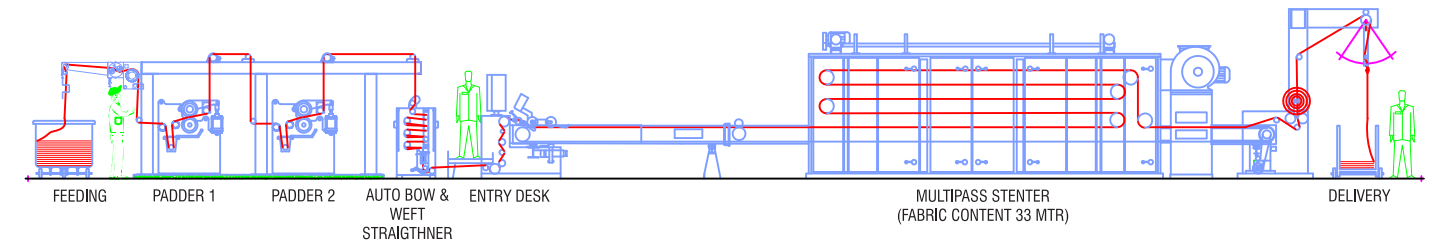
VIDEO SYSTEM at entry and exit side for checking both sides of stenter by the 2 operators.

REMOTE CONTROL of stenter frame via Modem System. Just connecting a phone line, we can control and correct many electric and electronic problems from our office.

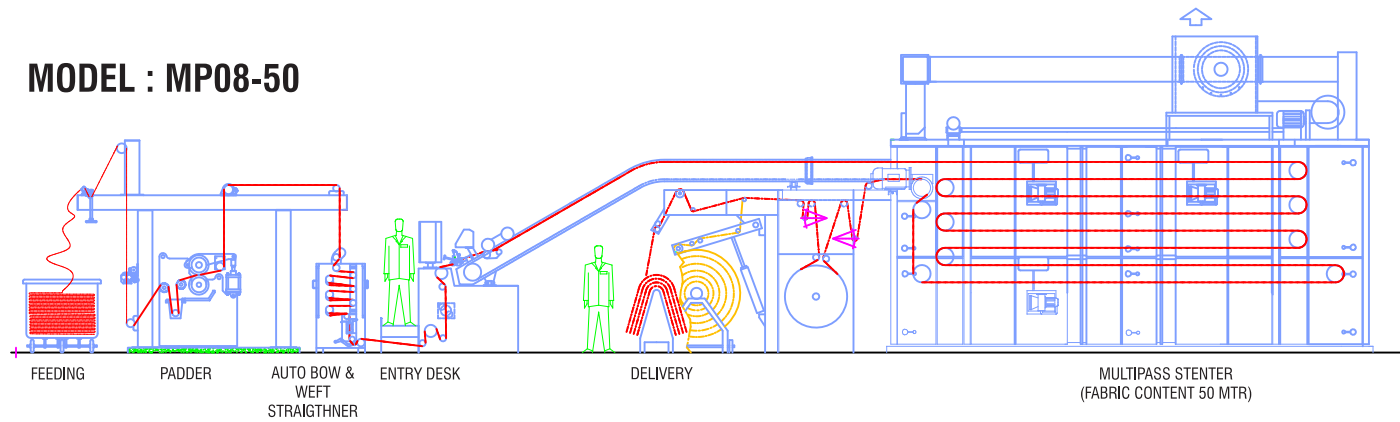
MODEL : MP08-25



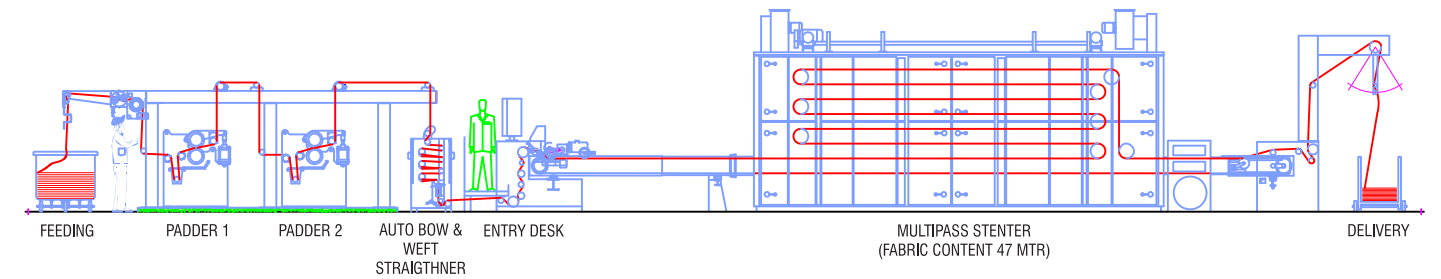
MODEL : MP05-33



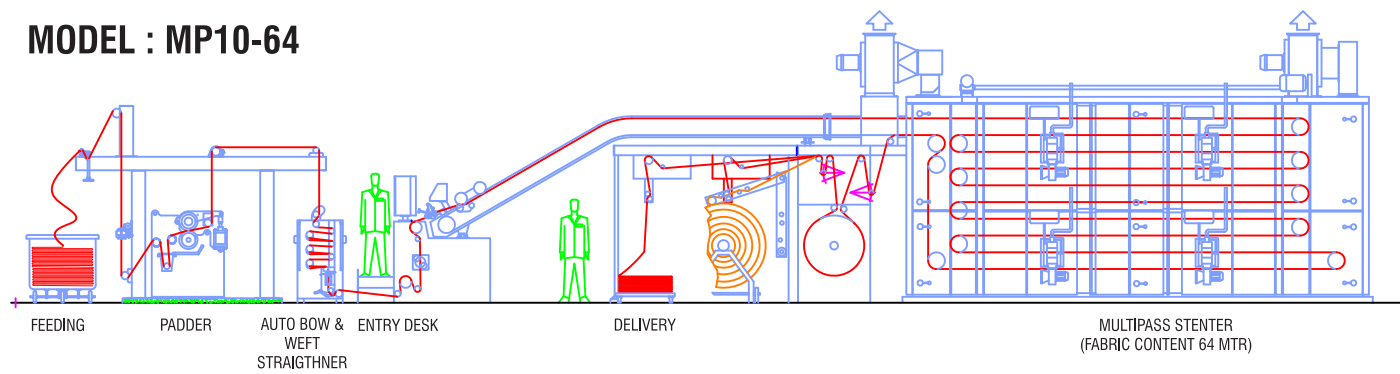
MODEL : MP08-50



MODEL : MP07-47



MODEL : MP10-64



MODEL : MP11-70

