PRO-SMH

WE INCREASE YOUR PROFIT

WARP PREPARATION

PRO-SIZING

sizing machine

encolado

Schlichtmaschi

haşıl makinası

sizing machine

haşıl makinası

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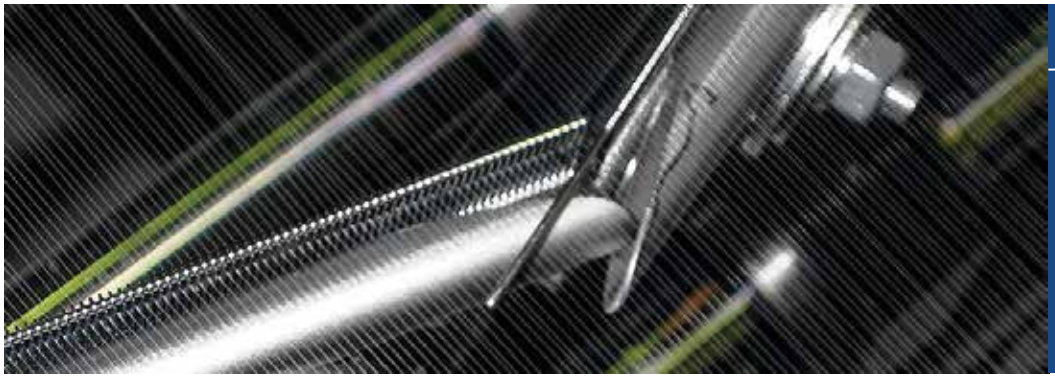
l´encollage

German technology

HISTORICAL BEGINNING OF TEXTILE SIZING MACHINE

The technique of sizing a warp was mechanised during the nineteenth century when William Radcliffe and his assistant Thomas Johnson invented the sizing machine. The purpose of introducing size, which is either a starchy substance for cotton or gelatinous mixture for woollen fibre, is to reduce the chances of threads fraying and breaking due to the friction of the weaving process. The size stiffens the thread and helps the fibres lie closely together. Many recipes for size can be found in textile manufacturing books. The recipes include flour, sago, china clay, types of soap, fats and some chemicals. Before mechanisation, the sizing process was a time consuming task. The weaver painted the size onto the warp as it lay on the loom, then fanned it dry before weaving the cloth. The sizing machine improved the process by sizing a warp before putting it into the loom. The warp threads are first wound onto a large beam, which is then placed at one end of the sizing machine. Then the warp is drawn off the beam and passes through a bath of boiling size, between sets of rollers and cooled, dried and rewound onto another beam. It is then ready to be woven.



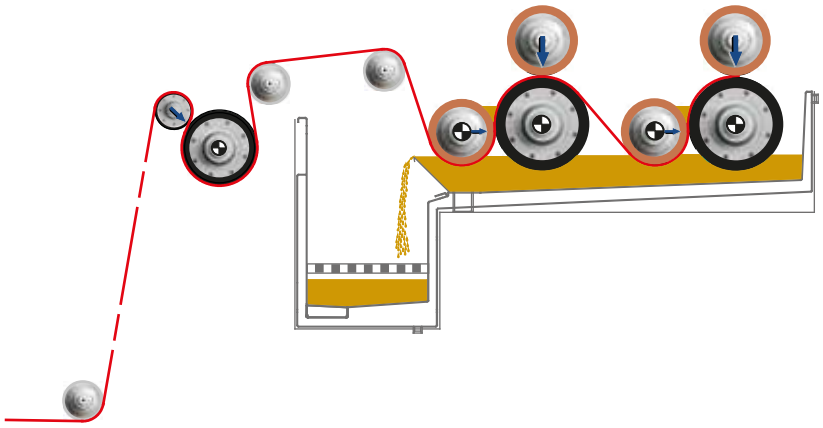
WARP SIZING PROCESS

The weaving process requires the warp yarn to be strong, smooth and elastic or extensible to a certain degree. To achieve these properties on the warp yarns, a protective coating of a polymeric film forming agent (size) is applied to the warp yarns prior to weaving. This process is called sizing or slashing. After the fabric is woven, the size materials will be removed from the fabric during the finishing process which is called desizing.

The main purposes of warp sizing are

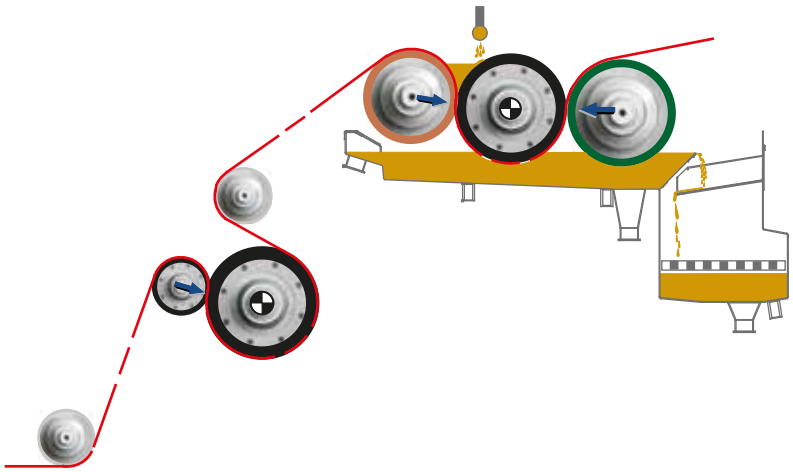
- to increase the strength of the yarns
- to reduce the yarn hairness that would cause problems in the weaving process
- to increase the abrasion resistance of the yarn against other yarns and various weaving machine elements
- to reduce fluff and fly during the weaving process for high speed weaving machines

VARIOUS SIZE BOXES FOR ALL REQUIREMENTS



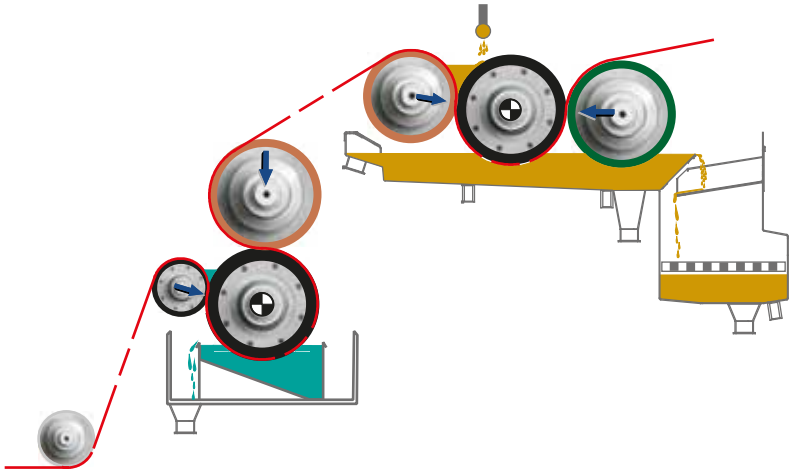
WARP PREPARATION

TYPE **PS-D**



WARP PREPARATION

TYPE **PS-N**



WARP PREPARATION

TYPE **PS-W**

CONVENTIONAL SIZING BOX TYPE PS-D

The sizing box PS-D is a sizing installation for the sizing processes of staple fibers. The size box is designed for the applications of dress shirt fabrics, mattresses and bedding, bathroom and cleaning textiles, terry towelling and suit fabrics. Due to the fact, that the sizing box is equipped with 2 dipping passages and 2 squeezing units even very heavy and dense yarns can be treated easyly. Acording to the purpose up to 2 units can be installed behind each other,

WARP PREPARATION

TYPE **PS-D**

WARP PREPARATION

TYPE **PS-D**

The sizing trough PS-D is the key to increase the weaving efficiency by guaranteeing a constant sizing at optimal pick-up rate. To enable a perfect guidance of the yarnwithin the wet zone the warp is kept in permanent contact with the rollers to prevent migration or crossing of single threads. Big sized rollers in combination with the sophisticated drivesystem of the entire range ensuring a constant yarn tension and gentle transport throughout the entire machine. Constant pressure over the full warp width is given thanks to the even-pressure roller. Low-friction pressurisation via direct-acting pressure cylinders. No undersizing even in the event of a rapid stop.

The powerful rotary pump with high circulation rate guarantees a permanent and fast chance of the sizing agent. Due to the special design of the trough with low content it is possible to keep the temperature constant, mainly by just using the indirect heating system.

Main product features of the unit are

- bounded warp guidance
- for all types of threads
- for low and high warp densities
- 2 times wetting & 2 times squeezing
- constant let-off tension beam creel
- sizing control via liquor consumption measurement
- constant sizing result
- constant pressure over the full warp width thanks to even pressure roller

NEW HORIZONTAL SIZING BOX TYPE PS-N & PS-W

The sizing box PS-N is a universal sizing installation for conventional dry-in-wet sizing processes of staple fibers. The size box is designed for the applications of dress shirt fabrics, mattresses and bedding, bathroom and cleaning textiles, terry towelling and suit fabrics.

WARP PREPARATION

TYPE **PS-N**

Main product features of the unit are

- compact execution
- small number of rollers
- bounded warp guidance
- for all types of threads
- for low and high warp densities
- 2 times wetting & 2 times squeezing
- constant let-off tension beam creel
- easy and intuitive software PROCON-S®

WARP PREPARATION

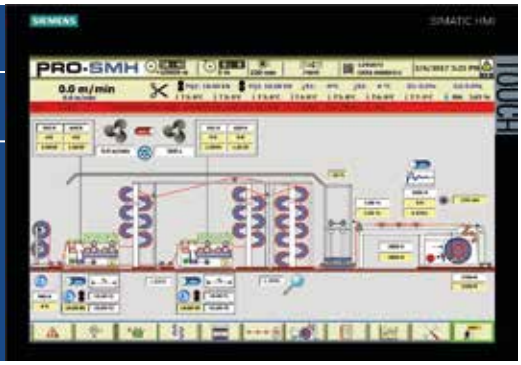
TYPE **PS-W**

Customer benefits

- linear design of all the rollers
- the warp is always guided and clamped in the wetting zone
- size tank fitted with lowering system
- easy inspection of the sizing filters
- low maintenance required
- high coverage factor
- surface and core sizing possibility

WARP PREPARATION

TYPE **PRO I-SOFT**



WET-ON-WET SIZING BOX TYPE PS-W

The sizing box PS-W is based on the conventional size box type PS-N for wet-on-wet sizing processes of staple fibers. The size box is designed for the applications of dress shirt fabrics, mattresses and bedding, bathroom and cleaning textiles, terry towelling and suit fabrics.

WARP PREPARATION
TYPE **PS-W**

The wet-in-wet technology makes it possible to treat rough and fine yarns as well as coloured yarn of different materials due to a specially suited way of running between feeding liquor and squeezing pressure selected. By a volume-constant dosage in connection with an intermediate buffer situated in the circuit it is possible to keep the bath concentration constant (from the first to thelast meter) and to automate, display and control all the possible running conditions.

WARP PREPARATION
TYPE **PS-W**

Main product features of the unit are

- compact execution
- small number of rollers
- bounded warp guidance
- for all types of threads

Possibilities of application:

- staple fibre sizing "conventional"
- staple fibre sizing "wet-In-wet"
- full-warp-filament yarn sizing "conventional"
- full-warp-filament yarn sizing "wet-In-wet"
- staple fibre and filament, "dyeing and sizing"

WARP PREPARATION
SURFACE SIZING
WITH **PS-W**

WET-ON-WET SIZING BOX TYPE PS-W

Running conditions resulting and controlled during wet-on-wettechnique are

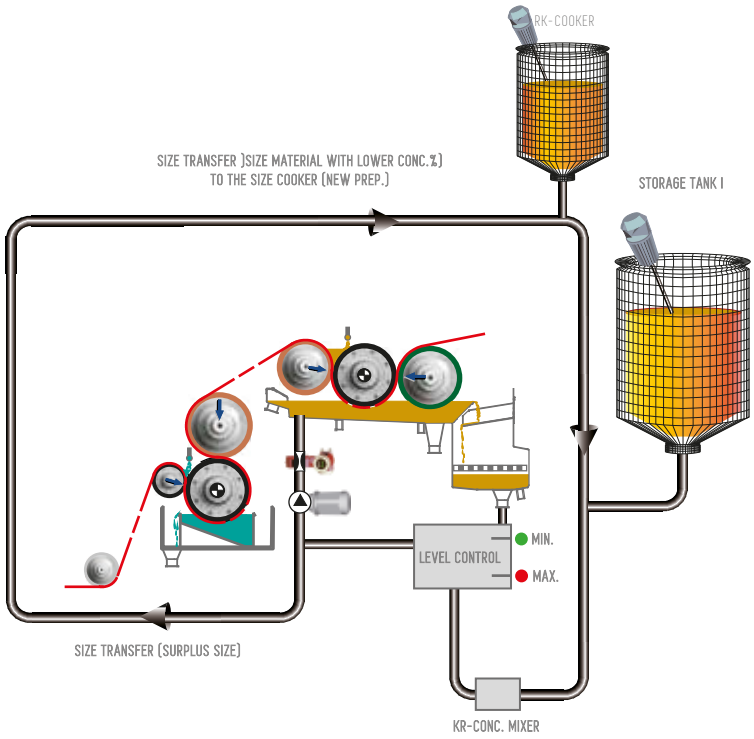
- water absorption is not supplied to the size bath, which means that the bath concentration is kept constantly by a normal dosing feeding device.
- water absorption is only slightly supplied and exchanged, a change of bath concentration does only very slowly occur. By means of a volume constant dosage (with increasing stock vat concentration) a steady bath concentration is adjusted – considering a constant size level.
- water absorption is high, there is more water supplied to the size bath than size, which means that the bath level increases and a size overflow occurs. By use of an intermediate buffer and a volume constant dosage the

  - size bath concentration is kept steady
  - level is controlled by the intermediate buffer
  - surplus size is again supplied to the cooking process

In order to ensure a proper size film formation and size adhering, a specific working pressure (middle scope of squeezing pressure) has to be adjusted. In collaboration with the PROCON-S® measuring and control unit an optimized reproducible sizing of the thread is guaranteed.

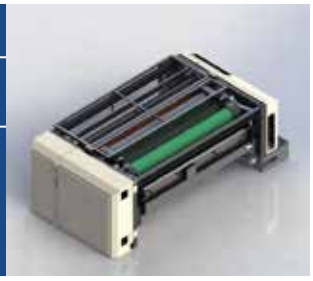
WARP PREPARATION

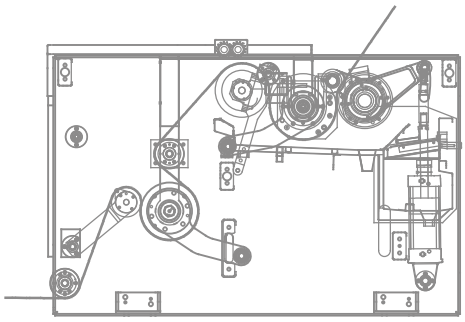
TYPE **PS-W**



WARP PREPARATION

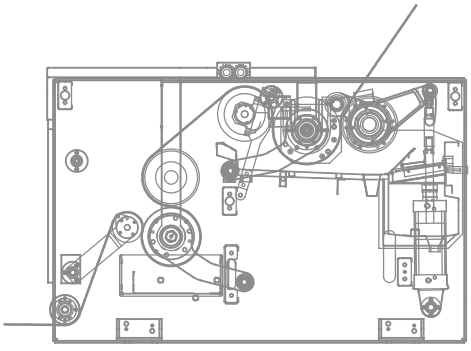
TYPE **PS-N**





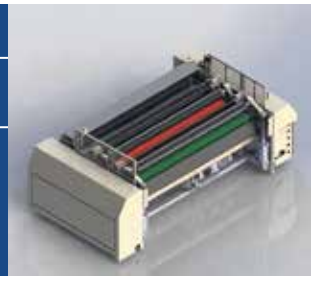
WARP PREPARATION

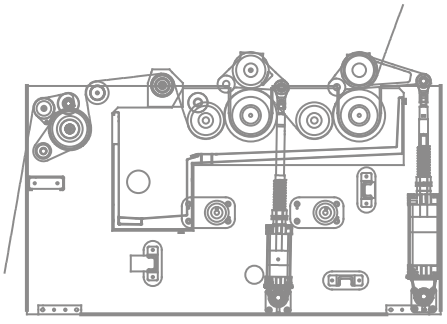
TYPE **PS-W**



WARP PREPARATION

TYPE **PS-D**





PRO-Z DRYER CONCEPTS

PRO-SMH offers different dryer configurations for every kind of application. Dependent on the speed and yarn coverage of the sizing-range, the pre and main dryer differs in the number of heating drums and drive concept.

WARP PREPARATION

DRYER TYPE **PS-Z M**

WARP PREPARATION

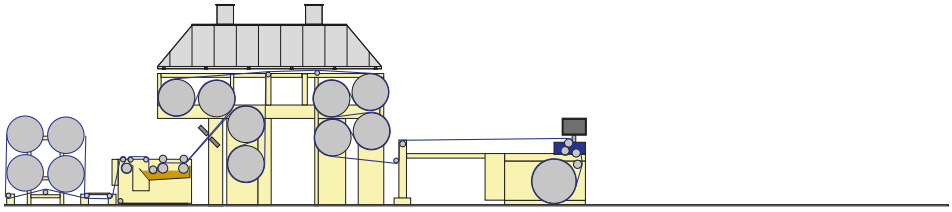
DRYER TYPE **PS-Z U**

- short distances in the wet sections
- perfect warp guidance
- low tension and low stretch losses
- automatic temperature reduction at range-stop to prevent overdrying of the warps
- compact, modular drying system

Machine speed	125m/min
Working width	1,800–2,400mm
Beam diameter	900–1,250mm
Number of size boxes	1–2
Number of drying cans	4–28

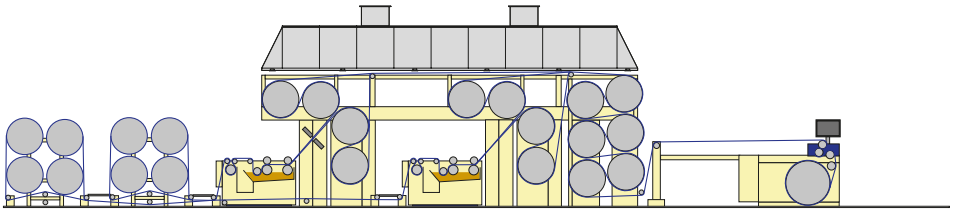
WARP PREPARATION

DRYER TYPE **PS-ZM**



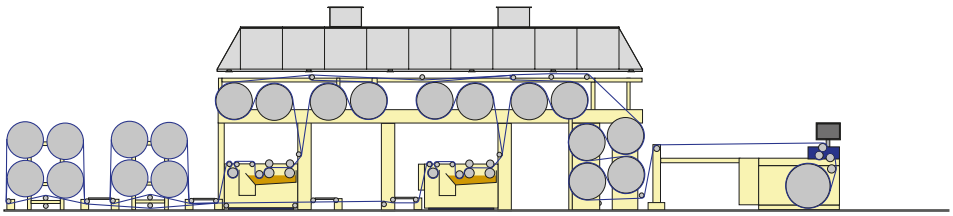
WARP PREPARATION

DRYER TYPE **PS-ZM**



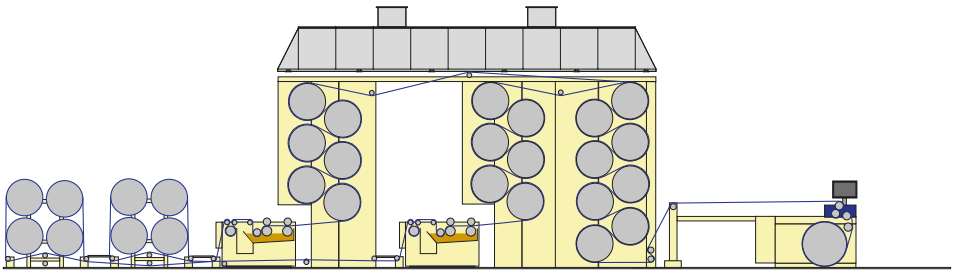
WARP PREPARATION

DRYER TYPE **PS-ZU**



WARP PREPARATION

DRYER TYPE **PS-ZS**



HEADSTOCK PT

According to the beam diameter (1000, 1100 or 1250mm), the headstock PT-10, PT-11 or PT-12 is used at the entry of the sizing-range.

All important parameters are shown on the Touchscreen and can be adjusted accordingly directly via the Touchscreen, for example winding tension, beam diameter, pressing forces and beam length. Frequency controlled A/C motors guarantee an aboslute even and homogenous warp rum without elongiation.

WARP PREPARATION

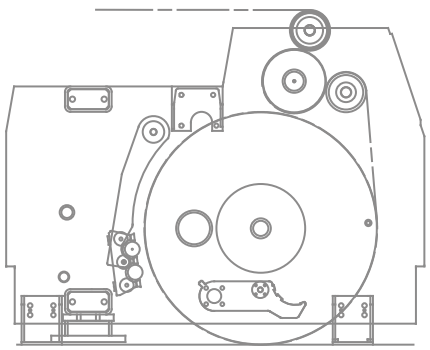
TYPE **PT-10**

WARP PREPARATION

TYPE **PT-11**

WARP PREPARATION

TYPE **PT-11**



Machine speed	0,5-125m/min
Workingwidth	800- 4.600mm
Beam diameter	800-1.250mm
Number of size boxes	1-2
Number of drying cans	4-24

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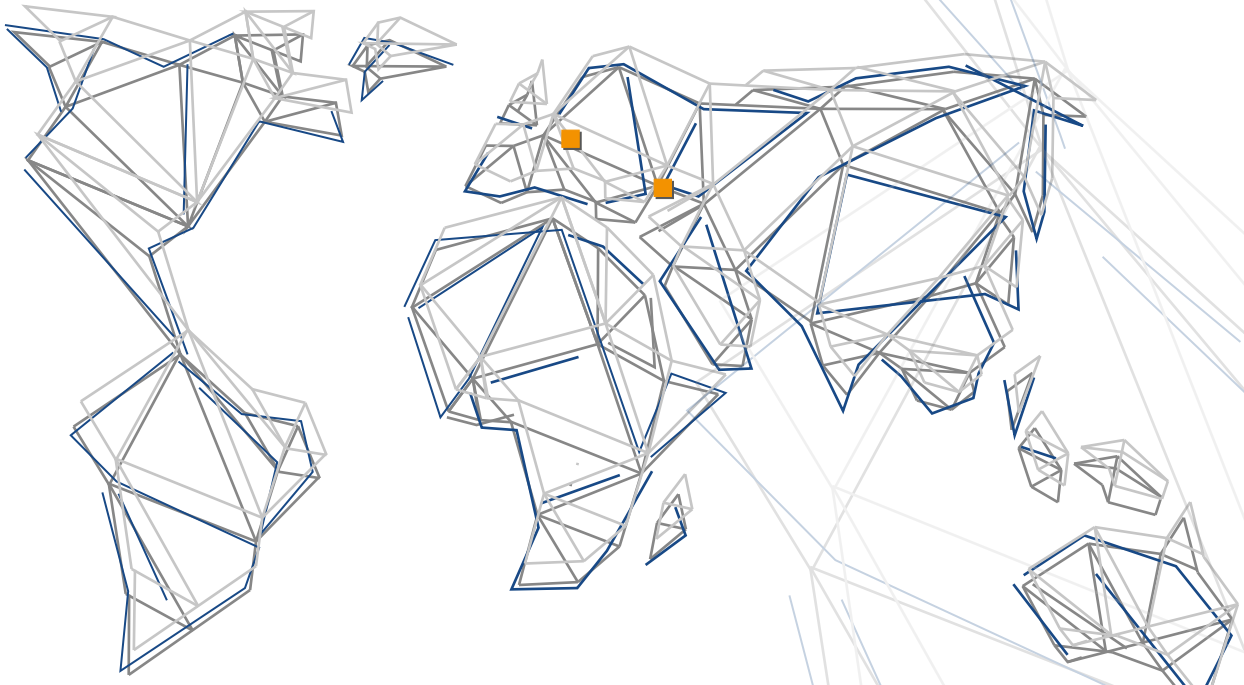

PRO-SMH MAKINA PAZ. SAN. LTD. STİ. YAZLIK YENİ MAH. D 130 KARAYOLU CAD. NO 87 41650 GÖLCÜK/KOCAELI-TR T 0090.262.343.30.90 F 0090.262.343.30.90 INFO@PTSERVICE.COM.TR WWW.PROSMH.COM

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