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 Brazzoli S.R.L

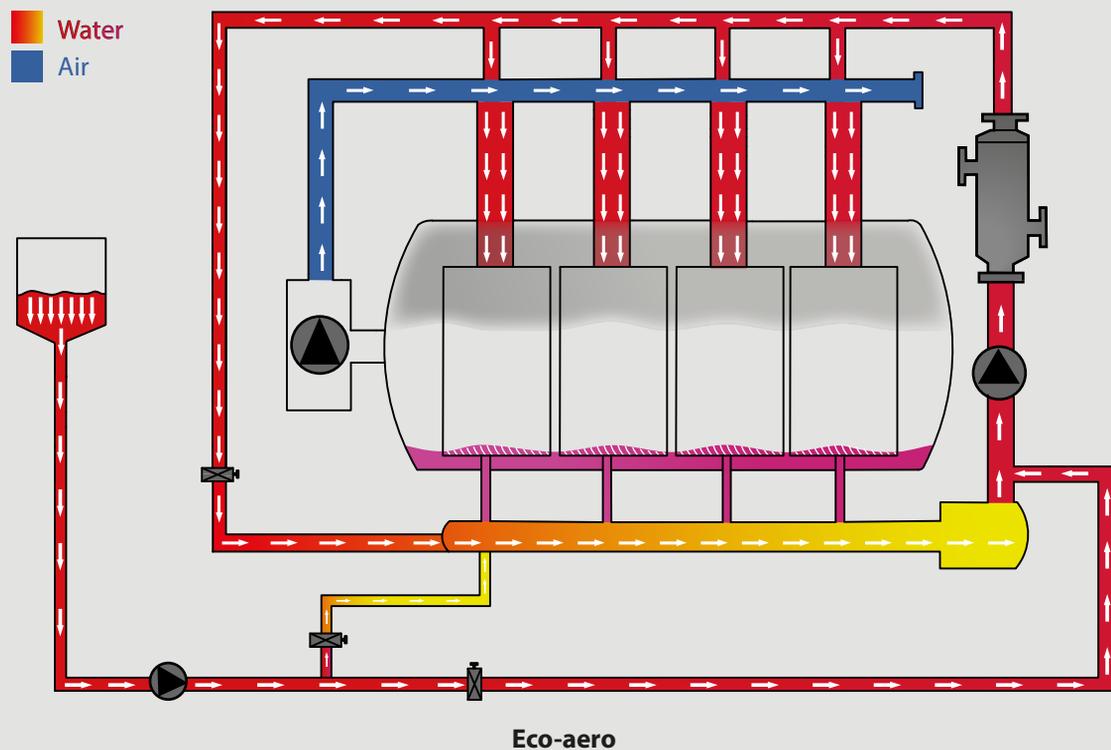
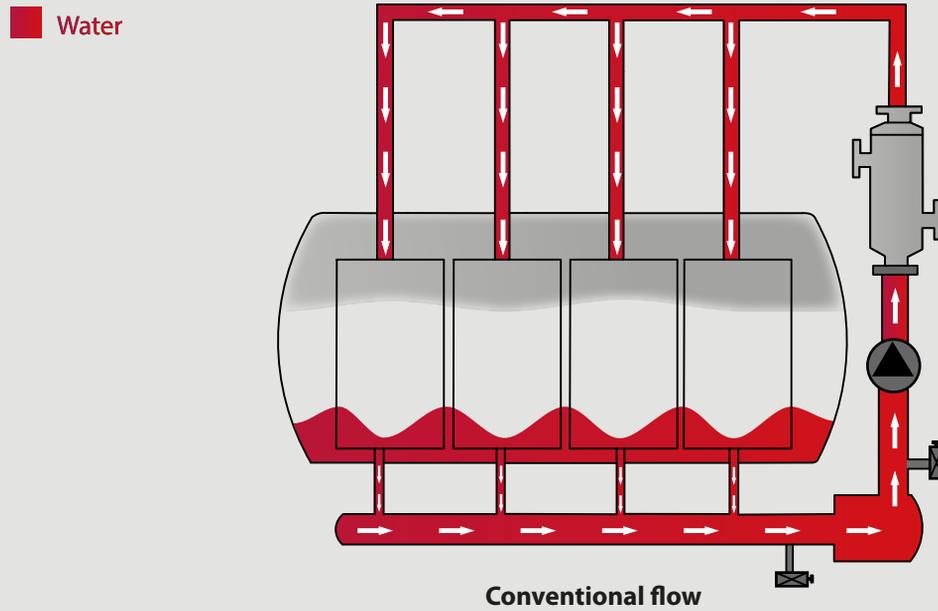
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Eco-aero - EN - 03-2023

eco-aero





- The movement of the fabric is provided by means of air flow created by a frequency controlled air fan.
- Fabric is conveyed to the nozzle section by the guidance of the inner reel. Max inner reel speed is 600 m/min.
- The nozzles spray liquor into the air flow to create mixture of air and water. The pressure at the nozzles is continuously monitored by pressure transmitters.
- Excellent fabric distribution thanks to the speed-adjustable plaiter system.
- Fabric moves frictionlessly by means of PTFE in fabric basket surface.
- The fabric is in continuous motion from loading to unloading.
- The flow is controlled during the whole process by a electromagnetic flowmeter.
- The tension on the fabric during its movement is very low as the fabric does not contact the dye liquor.
- Due to the low liquor ratio, stock tank is not required and also filling/discharging times are shorter.



BRAZZOLI[®]
THE DYEING MACHINES MANUFACTURER

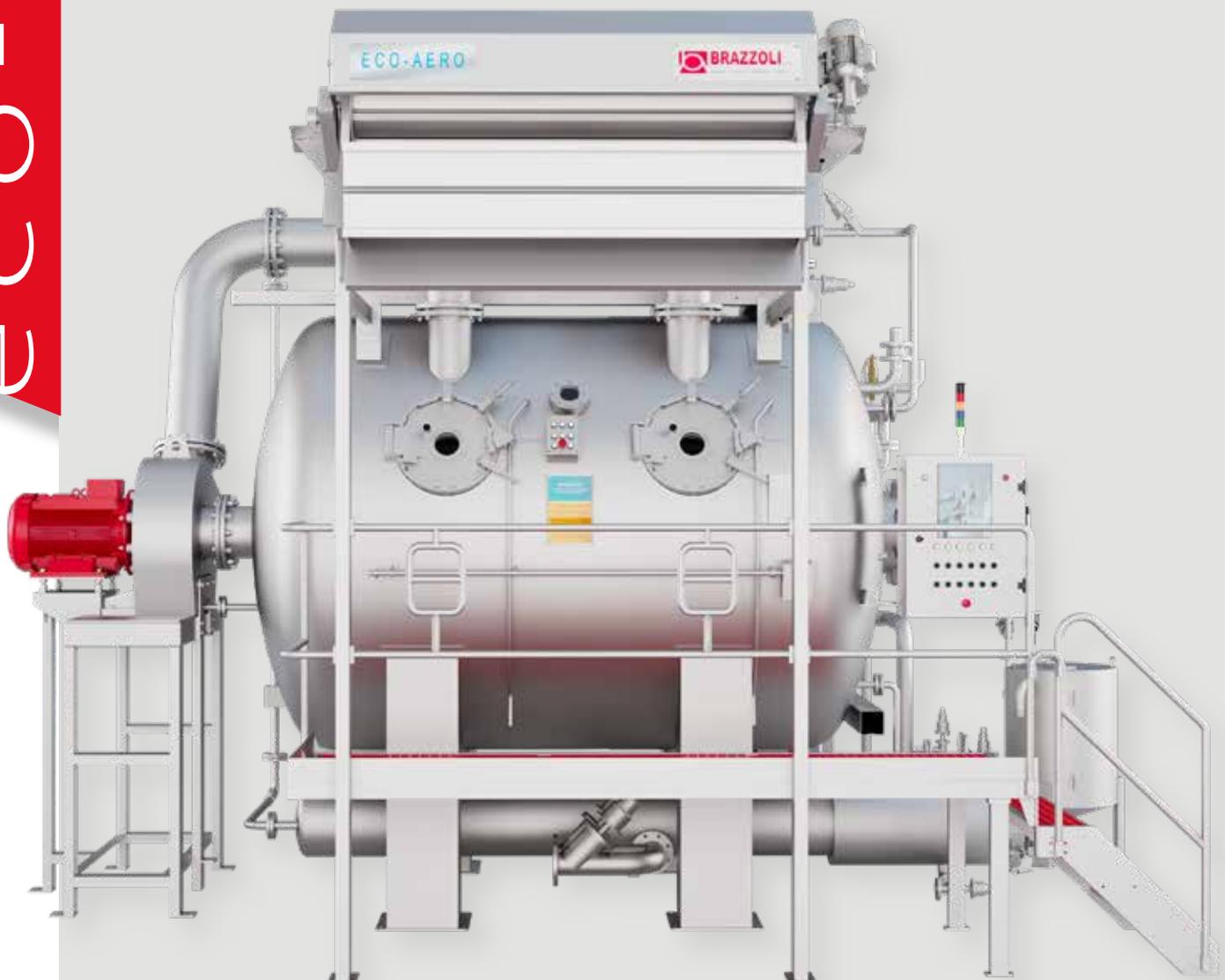
eco-aero

ANOTHER STEP FORWARD IN THE FUTURE

Eco-aero is the machine designed for dyeing processes of woven and knitted fabrics.

Thanks to its special design nozzles that provides a perfect mixture of air and water, Eco-aero reduces water consumptions and increases the quality of dyeing at the same time.

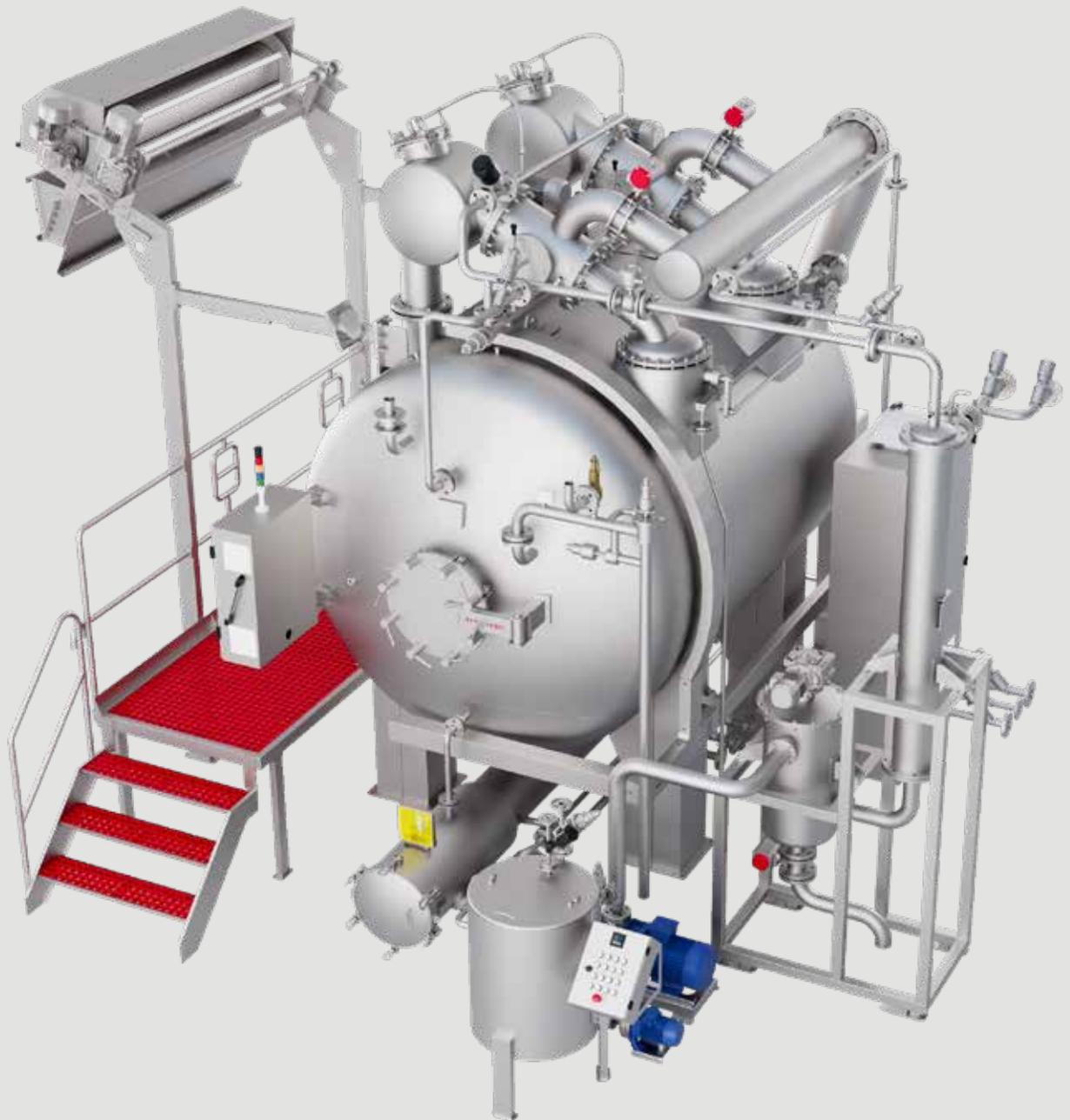
It's suitable for woven and knitted fabrics of 50 to 500 grams per square meter.



- Lower water consumption than conventional machines.
- Savings in the consumption of salt and auxiliary chemicals because of low liquor ratio.
- Less steam consumption due to being heated less water during process.
- Excellent penetration of dyes and chemicals into the fabric surface.
- High precision dosing of dye and chemical with proportional valve.
- Ability to make dosing during the washing process.
- Low power consumption thanks to current-control fan driving.
- Washing process with fresh water at maximum efficiency by FWS.
- Fabrics with high elastane content can be dyed in open width form.

SALT AND CHEMICALS SAVINGS

Eco-aero provides savings in the consumption of salt and auxiliary chemicals thanks to its low liquor ratio.



Salt Consumption Comparison

	Long Tube Machine	Conventional Machine	Eco-aero
Fabric Amount	750 kg	750 kg	750 kg
Liquor Ratio	1:10	1:5	1:4
Liquor Amount	7.500 l	3.750 l	3.000 l
Salt Concentration	100 g/l	100 g/l	60 g/l
Salt Amount	750 kg	375 kg	180 kg
Salt Savings by Eco-Aero	76%	52%	

Chemical Consumption Comparison

	Long Tube Machine	Conventional Machine	Eco-aero
Fabric Amount	750 kg	750 kg	750 kg
Liquor Ratio	1:10	1:5	1:4
Liquor Amount	7.500 l	3.750 l	3.000 l
Chemical Concentration	2 g/l	2 g/l	2 g/l
Chemical Amount	15 kg	7,5 kg	6 kg
Chemical Savings by Eco-Aero	60%	20%	

» PLAITER

Inverter controlled plaiter system, thanks to its movement, fills 100% of the basket and positions the fabric evenly, resulting in optimum utilization of the production capacity.

» NOZZLE

Nozzle system that allows water to mix with air and penetrate the fabric perfectly.

» UNLOADING REEL AND PLATFORM

It makes fabric unloading operation easier.

» WASHING SYSTEM (FWS)

Electromagnetic flowmeter controlled washing system with fresh water.

» FABRIC BASKET

It's in a form providing maximum loading capacity. Fabric moves frictionless by means of PTFE in fabric basket surface.

» SELF-CLEANING FILTER

Self-cleaning filter cleans itself during the cycle and the residuals from the cleaning system are conveyed directly into the drains system.

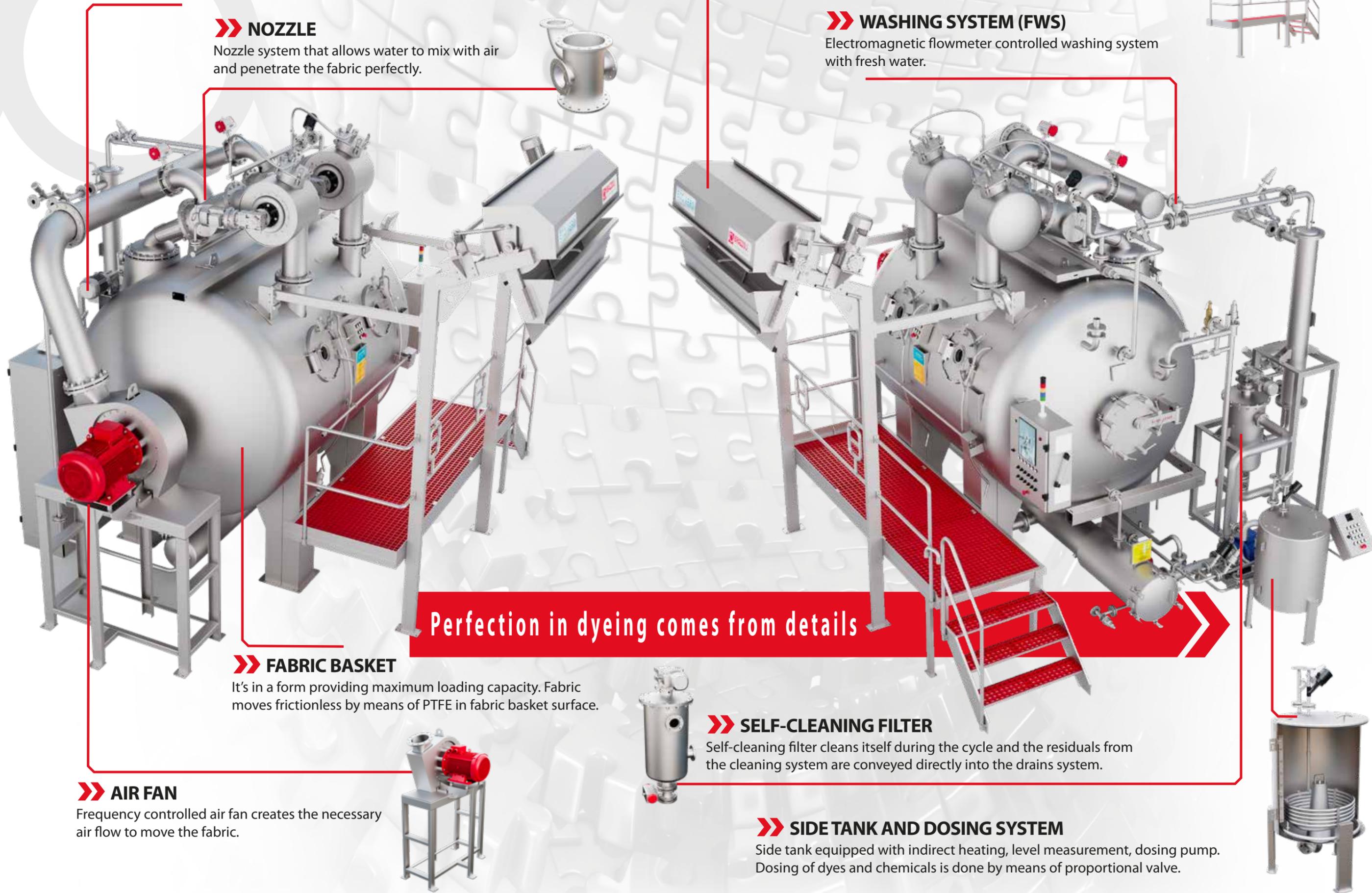
» AIR FAN

Frequency controlled air fan creates the necessary air flow to move the fabric.

» SIDE TANK AND DOSING SYSTEM

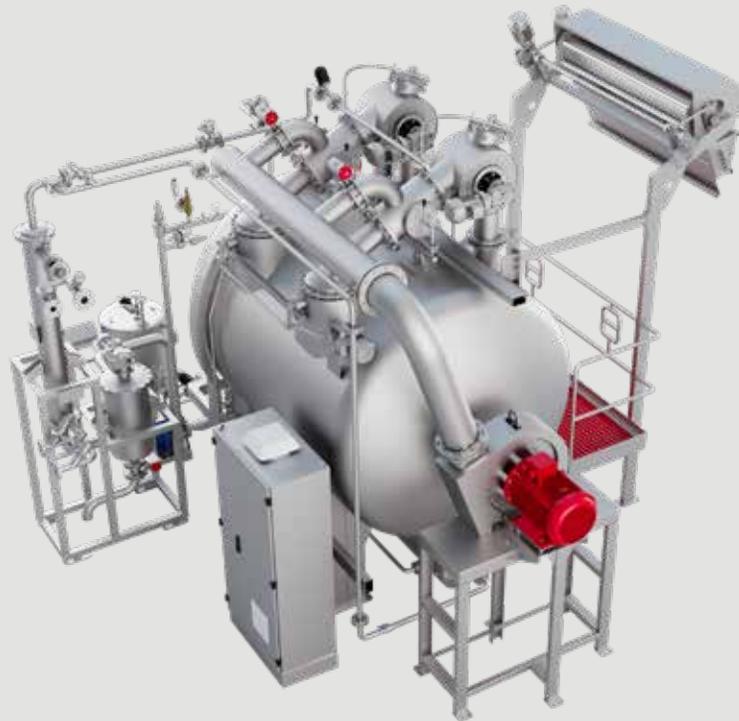
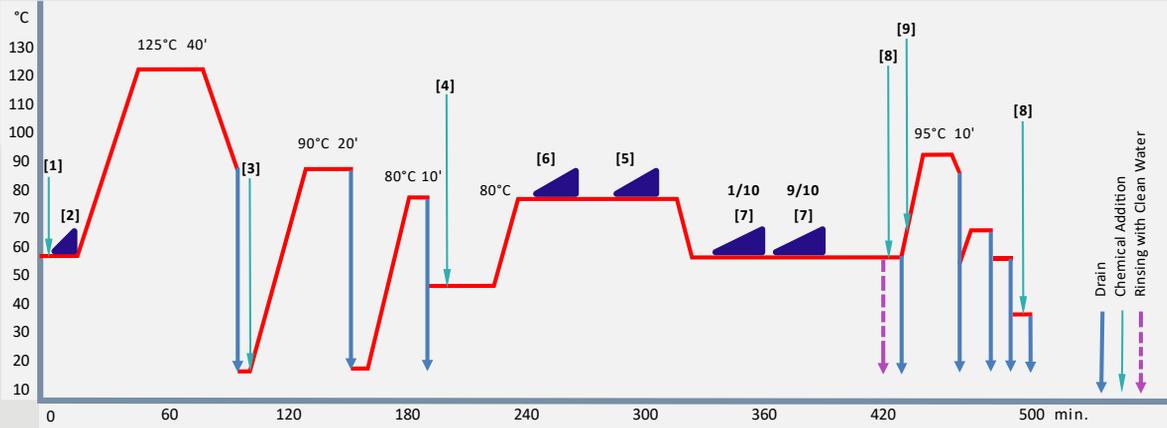
Side tank equipped with indirect heating, level measurement, dosing pump. Dosing of dyes and chemicals is done by means of proportional valve.

Perfection in dyeing comes from details



FABRIC AND DYEING FEATURES		MACHINE DATA AND SETTINGS	
Fabric Type	50% Pes +50% Modal + 20 D. Elastane Interlock Knitting	Machine Capacity	600 kg [3x200 kg/chamber]
Gsm	260 g/m ²	Air Blower Power [kW] - Set Value %	75 kW - 90%
Width	160 cm	Circ. Pump Power [kW] - Set Value %	11 kW - 90%
Weight [g/m]	416 g/m	Nozzle Diameter [mm]	110 mm
Tubular or Open Width	Open Width	Nozzle Pressure [bar]	3 bar
Fabric Amount [kg]	600 kg	Total Water Flow for Nozzle[l/min]	240 l/min
Fabric Amount [m]	1.440 m	Winch Speed [m/min]	315 m/min
Fabric Elongation [%]	20%	Cycle Time [sec]	110 sec
Fabric Amount Per Winch	580 m		
Dyeing Process	Disperse Dyeing + Reactive Dyeing	PROCESS RESULTS	
Colour	Dark Green	Total Bath	9
Dyestuff Amount	0,26% + 1,4 %	Total Water Consumption [l]	11.200 l
Salt Type and Amount	NaCl 40 g/l	Water Consumption [l/kg]	18 l/kg
Alkali Type and Amount	Sodium Carbonate : 15 g/l	Total Steam Consumption [kg]	1.140 kg
		Steam Consumption [kg/kg]	1,9 kg/kg
		Total Power Consumption [kW]	530 kW
		Power Consumption [kW/kg]	0,88 kW/kg
		Final Liquor Ratio	1:2

- [1] Disp. Eg. Agents ph:4,5 [4] Chemicals for Dye [7] Sodium Carbonate ph:10,5-11,2
 [2] Disperse Dyes [5] Salt [8] Neutralization ph:4,5-5
 [3] Acid Reduction [6] Reactive Dyes [9] Soaping Chemical



Basis knit cotton 100% - reactive process | Fabric absorption 200%

	Light shades	Middle shades	Dark shades
Water (l/kg)	9/13	13/19	19/27
Steam (kg of steam/kg of fabric)	1.1	1.7	2.1
Power (kW/kg)	0.60	0.85	0.93
Process time (h:min) (including loading and unloading)	4:20	4:40	5:00

Final Liquor Ratio : 1.2 liters + absorption

*the above mentioned values may vary depending on the type of fabric and process