new

TOUCH

6 TOUCH

MARIO CROSTA

SINCE 1925

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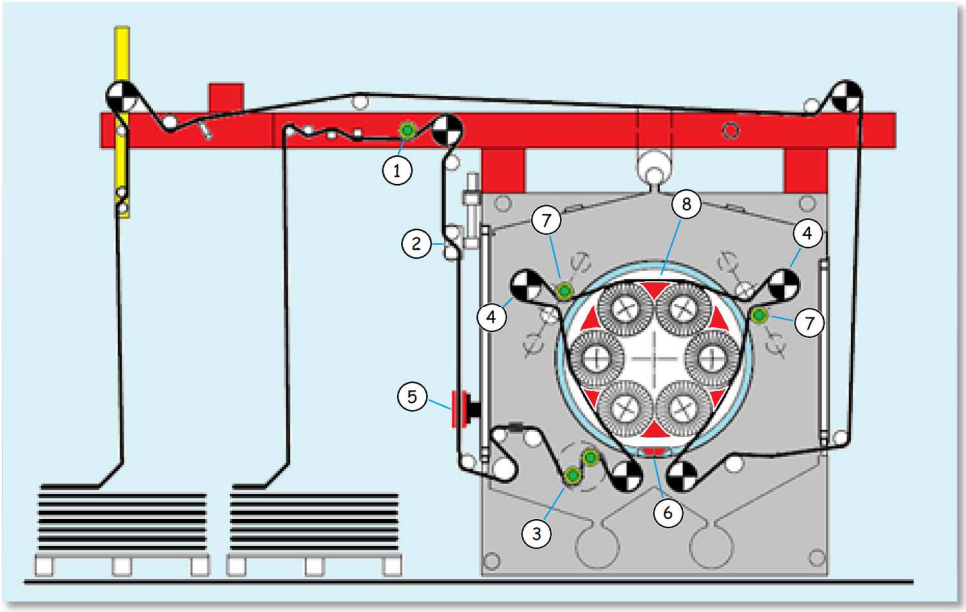
LAYOUT



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REINFORCED STRENGTH STEEL SIDE SHOULDERS

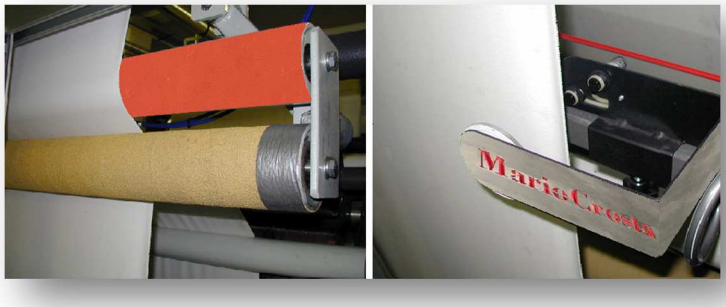
The side shoulders are made of reinforced strength carbon steel, to lower the total weight of the machine, but at the same time, granting solidity and mechanical resistance to vibrations, due to special designed ribs.

UPPER MOTORIZED SPREADER AT ENTRY

1 In order to help the knit fabric to be immediately spread soon after being taken from the trolley, a first motorized spreader has been placed in the entry position.

FABRIC ALIGNING (CENTRING) DEVICE

2 With oscillating rollers, electro-pneumatically driven, complete with proper pipeline, sensor feeler and control system.



DOUBLE SPREADER 360° ADJUSTABLE

3 Driven by inverter, fitted just before the draft cylinder in front of the brushing drum and composed of two spreading scroll rolls with spiral stainless steel wires. Aim of this device is to scroll out the selvedges and the creases on the two fabric edges before entering the drum and keep them flattened. By adjusting the touch screen display, the spreading cylinders can rotate 360° with different contact with the fabric, and they can turn at variable revolving speed.

DETACHING DEVICES ALONG THE DRUM

4 Two additional draft cylinders are fitted alongside the drum, in order to manage and control the fabric tension all along the length thru the drum.
This device gives the highest flexibility in terms of sueding/brushing action.

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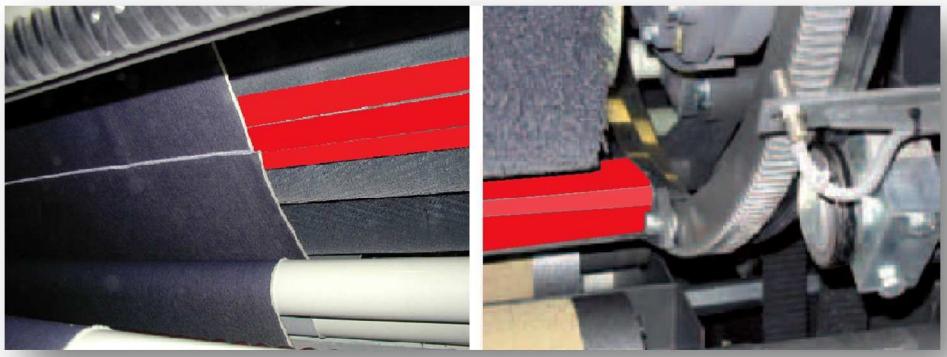
ADDITIONAL PLIER UNCURLERS

5 Our brand new uncurling devices are put just in front of the machine.
The pliers reduce the rolling-up of elastic fabric edges, and help to limit the typical selvedges issue by keeping them more open and flat.

Patented Seam Saving Device SEAM JUMPER®

6 When the feeler (sensor) detects a seam, of any kind, both side by side and overlapped, the cusp turns around the drum.
By means of an impulse counter, the feeler activates the detachment device, which moves between the drum and the fabric, lifting and picking up the seam, detaching it from the brushes all the way around the drum; then the device stops in the "rest" position, waiting for the next seam and repeating the same operation.
The dual purpose of this device is to prevent the seam from being damaged and to reduce at the same time the fabric scraps, which is the part of non-brushed fabric near the seam.
The unprocessed part is therefore reduced to about 20 cm + 20 cm, compared to the brushing machine of any other brand which must discard about 4 meters.



ADDITIONAL COUPLE OF MOTORIZED SPREADERS

7 With electric motor, fitted around the drum near the two detaching draft cylinders to open the selvedge of the fabric during the process.

SHAPED CUSP PLATES ON DRUM

8 Painted steel cusps mounted around the drum, between the 6 brushes, to keep the fabric flat during the process.

They can be easily moved inwards and outwards, in order to better adapt to the diameter of the brushes.

The cusps also allow to reduce the need to use excessive tension, and therefore reduce the possibility of producing vertical lines.

ETC® (Electronic Torque Control)

The tension control, through torque feedback, allows the reading of motor load absorption thanks to the inverter signals, through an amperometric transformer. This data is sent to the PLC, which reacts back onto the motor itself to change its speed to the desired one.

This is a fine tuning of motor speeds, based on the previously set tension.

Not all the machines of our range of production are equipped with the ETC, but provided under request.

Like all the machine settings, the ETC electronic control setup can be saved in the PLC memory (through the HMI display) and kept in backup on the special mass memory inserted in the CPU.

TRANSMISSION BELTS

The use of high performance tooth-belts ensures a smooth and continuous transmission of power traction from the motors to the cylinders, in order to guarantee a continuous raising force.

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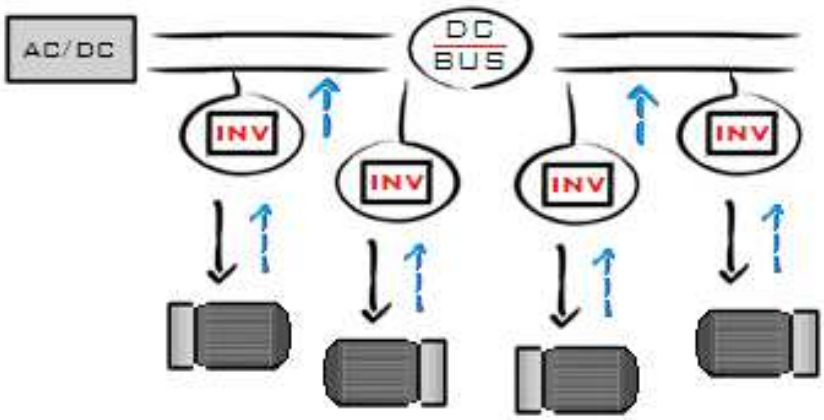
PREVENTIVE MAINTENANCE AND ALARMS

The aim of the preventive maintenance function is to remind the operators some actions of scheduled maintenance according to the working hours of the machine.
When the operator starts the motor line, the PLC will recall the scheduled maintenance page, and alert about the needed maintenance to be done.
The PLC also carries out a constant control of all the sensors and safety devices of the machine.
When a device or an emergency interferes (mushroom buttons, ropes, open guards, lack of compressed air ...) the machine is stopped and placed in Emergency Mode.
The display will show a page, which traces the cause of the emergency.

ESS• (Energy Saving System)

As per Mario Crosta's highest standards of attention to energy consumption, the machine presents the ESS electronic configuration, which allows a huge energy saving percentage.
The machine uses the DC-BUS connection, which converts the energy on first stage and provides Inverters with DC current: this gives a first benefit of saving all the electronic devices from spikes and disturbs, and secondly balances the energy absorption, by diverting the unused energy to other inverters and motors in need.



PURPOSE

The purpose of the this newborn machine is to combine the advantages of our brushing machine with fixed brushes in vertical form (LISA 4 Knit) with the improvements studied and developed in recent years in the field of knitwear.
All the upgrades have been designed to minimize the rolling of the selvedges, to help the machine in the management of tensions and therefore in the cancellation of vertical lines, and to grant an enormous increase in energy savings, as a result of the most modern electronic techniques.

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SUEDING FACTS

Machine cost (€)		4 vert. Y	6 drum	LISA 4	TOUCH	
number of machines	n.	1	1	1	1	
cost per machine	€	95.000	125.000	90.000	105.000	
seam jumper®			n/a		10.000	
Amortization time	years	10	10	10	10	
Cost per Year	€	9.500	12.500	9.000	11.500	
cost per meter / per Kg						
speed	mt/min	**20**	**18**	**25**	**18**	
time per year	days	345	345	345	345	
hours per day	hours	22	22	22	22	
efficiency (10-20%)	%	90%	90%	90%	90%	
seam efficiency	mt	0,6	4,0	0,4	0,4	
production/year per machine	mt/year	8.148.017	7.082.381	10.205.514	7.347.970	
cost per mt	**€/mt**	**0,0012**	**0,0018**	**0,0009**	**0,0016**	
production/year per machine	kg/year	2.444.405	2.124.714	3.061.654	2.204.391	
cost per kg	**€/kg**	**0,0039**	**0,0059**	**0,0029**	**0,0052**	
Power Cost €/kg						
Machine Installed Power	kW/h	37	62	37	62	
efficiency (70-90-70%) in consumption	%	90%	90%	70%	70%	> DC-BUS
Real Power consumption per machine	kW/h	33,3	55,8	25,9	43,4	
energy cost	€	0,070	0,070	0,070	0,070	
cost per mt	**€/mt**	**0,0034**	**0,0056**	**0,0023**	**0,0045**	
cost per kg	**€/kg**	**0,0113**	**0,0186**	**0,0077**	**0,0149**	
Labor cost						
monthly salary	€	200	200	200	200	
cost per mt	**€/mt**	**0,0003**	**0,0003**	**0,0002**	**0,0003**	
production per hour	kg/h	324	292	405	292	
cost per kg	**€/kg**	**0,0009**	**0,0010**	**0,0007**	**0,0010**	
Maintenance						
Brush/grinding change	€	8.148	10.624	7.654	8.266	
If Change every 6/8.000.000 mt						
cost per mt	**€/mt**	**0,0010**	**0,0015**	**0,0008**	**0,0011**	
cost per kg	**€/kg**	**0,0033**	**0,0050**	**0,0025**	**0,0038**	
PRODUCTIVITY	**kg**	**2.444.405**	**2.124.714**	**3.061.654**	**2.204.391**	
PROCESS COST	**€/kg**	**0,0194**	**0,0305**	**0,0139**	**0,0249**	
SELLING VALUE	**€/kg**	**0,1500**	**0,1500**	**0,1500**	**0,1500**	
MARGIN	**€/kg**	**0,1306**	**0,1195**	**0,1361**	**0,1251**