Technical Information

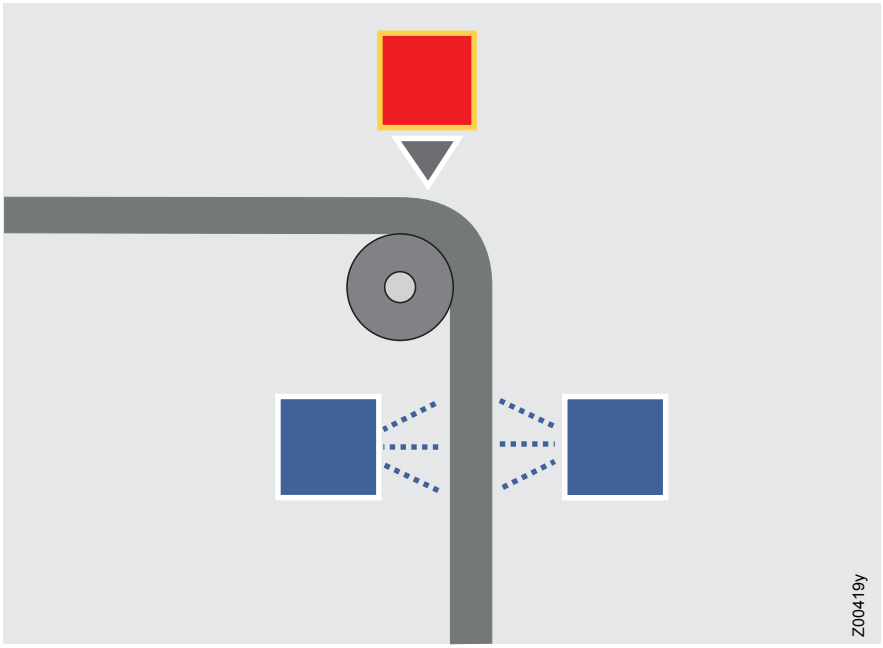
In the past, Eltex Remoistening systems have guaranteed high quality printed products mainly on fast-running and wide machines.

The DIGIMOISTER 1500 ensures high-quality products in all digital printing machines. Using a new nozzle concept, both lighter and heavier grammages can be remoistened at all web speeds with ultimate precision and homogeneity. The pneumatic atomizing nozzles of the newest generation are capable of applying smallest water quantities without developing waste water.

The modular structure of the nozzle bar allows the DIGIMOISTER 1500 to remoisten paper webs in widths of as much as 1.5 meters.

The benefits:

- better quality of the printed product
- enhanced productive efficiency through easier finishing of the paper
- small dimensions
- easy operation
- compact design



DIGIMOISTER 1500
Electrostatic Remoistening

TI-en-9035-1708

electrostatic innovations

System Description

DIGIMOISTER 1500 Electrostatic Remoistening by Eltex

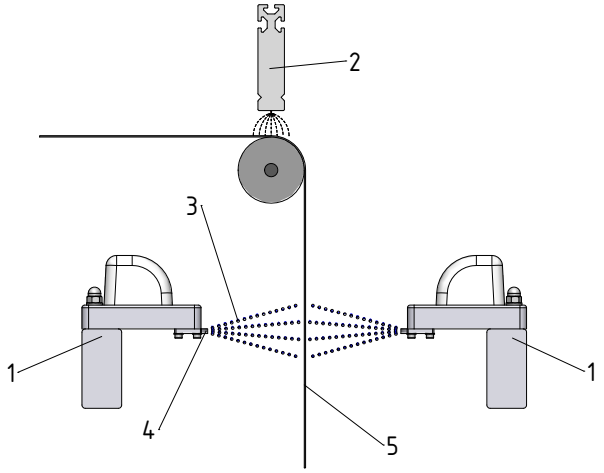
After the printing process inks are dried with hot air or infrared radiation. In general, this process lowers the water content of the paper, sometimes to such an extent that the paper dries out completely. This can cause severe problems in finishing. Electrostatic remoistening raises the water content of the paper back to the original (and necessary) value.

The benefits of the system:

- easier processing and handling of perfect-bound products with cross-grain or long-grain pages
- no waves caused by gluing
- no fiber breakage
- optimum paper run characteristics in the finishing
- no inner sheets dropping out from stitched products
- excellent flatness in open sheet delivery
- mixing products of different printing methods
- fewer tension waves
- no moisture waves

Function

Essentially, the core element of the DIGIMOISTER 1500 Electrostatic Remoistening System by Eltex is a linear array of pneumatic atomizing nozzles arranged in opposition to each other. A charging bar arranged at the tangential point to the grounded web guide roller charges the paper web before remoistening. The high voltage field which is generated aligns the microscopic water droplets and accelerates these in the direction of the paper web. They hit the paper web running in-between the nozzles as microscopic, atomized aerosols. As a result of their properties and the high voltage field, these aerosols are capable of passing through the laminar and the turbulent air boundary layer above the paper and to penetrate into the fiber structure of the paper. The water quantity delivered is absorbed fully by the printing substrate. This allows the water content of the paper to be adjusted and controlled with ultimate accuracy and with reproducible effect. The outcome - trouble-free paper finishing.



Functional principale

Function principle

1 Nozzle bar
2 Charging bar
3 Aerosol path
4 Pneumatic atomizing nozzles
5 Paper web

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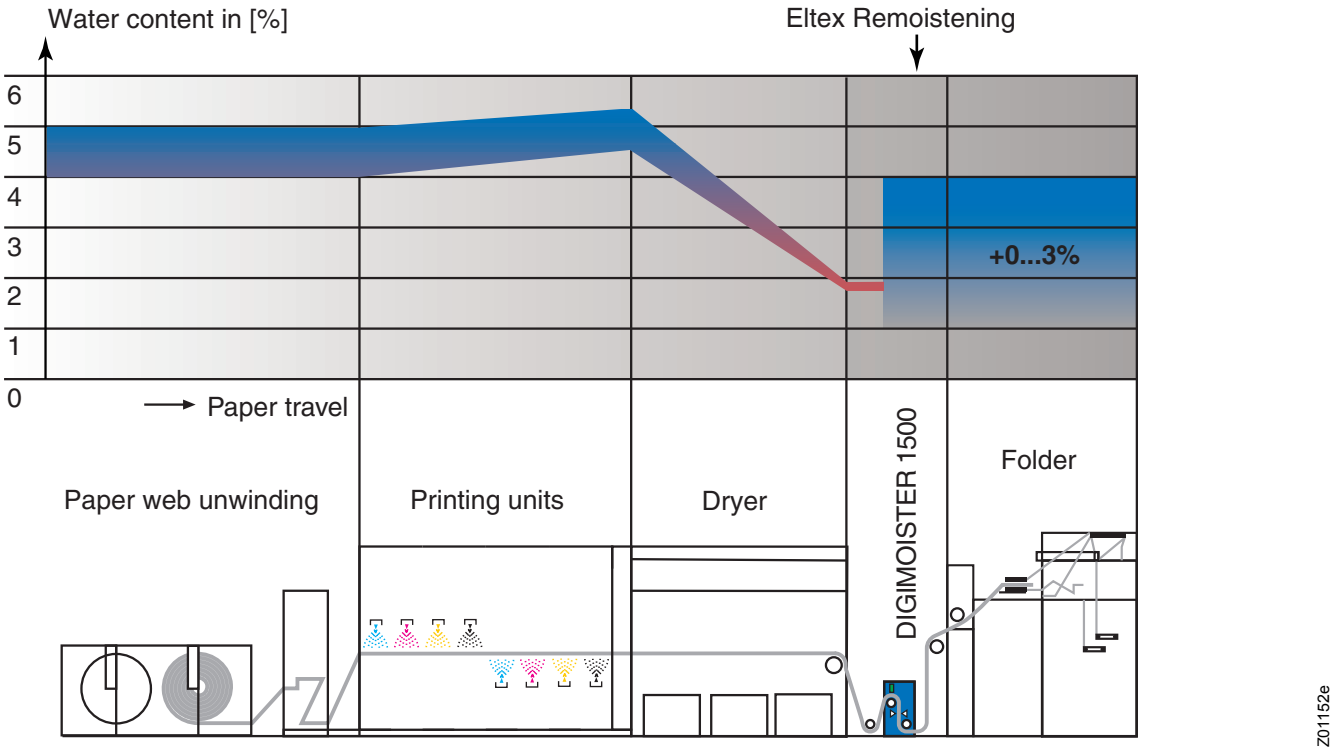
Water content of the paper

Most papers used in digital printing are delivered with a water content of between 4 and 5%. During printing, this percentage tends to increase by about half a percent. The subsequent drying step lowers the water content, sometimes desiccating the paper completely. When setting the water quantity for remoistening, the paper grade and the grammage must be taken into account. The system notes all the data through the appropriate setpoint settings. The DIGIMOISTER 1500 allows even the smallest water quantities to be metered exactly. The result: ultimate flatness and perfect product finish. Without the typical troublesome side-effects usually found in digital printing.



Water content of the paper during printing on a digital printing machine

Water consistency

To ensure that the water is atomized properly and that aerosols are formed, it is necessary to use a water quality according to the specifications for the DIGIMOISTER 1500 system. This is required for the operational efficiency of the nozzles.

High voltage field

The reliable Eltex charging bar is used to generate the high voltage field. The shockless bar guarantees the optimum field build-up and field distribution.

The actual high voltage is generated by an Eltex high voltage generator. With its new connection concept and by monitoring important functions (high voltage cascade, calibration, short circuit current, voltage and current limitation), the generator provides ultimate standards of safety.

Operation

The system is operated and controlled via a touch screen. Key symbols with unique function assignments guide the operator safely through the menu items. Only the operating symbols actually required at the time are displayed on the screen.

Installation site

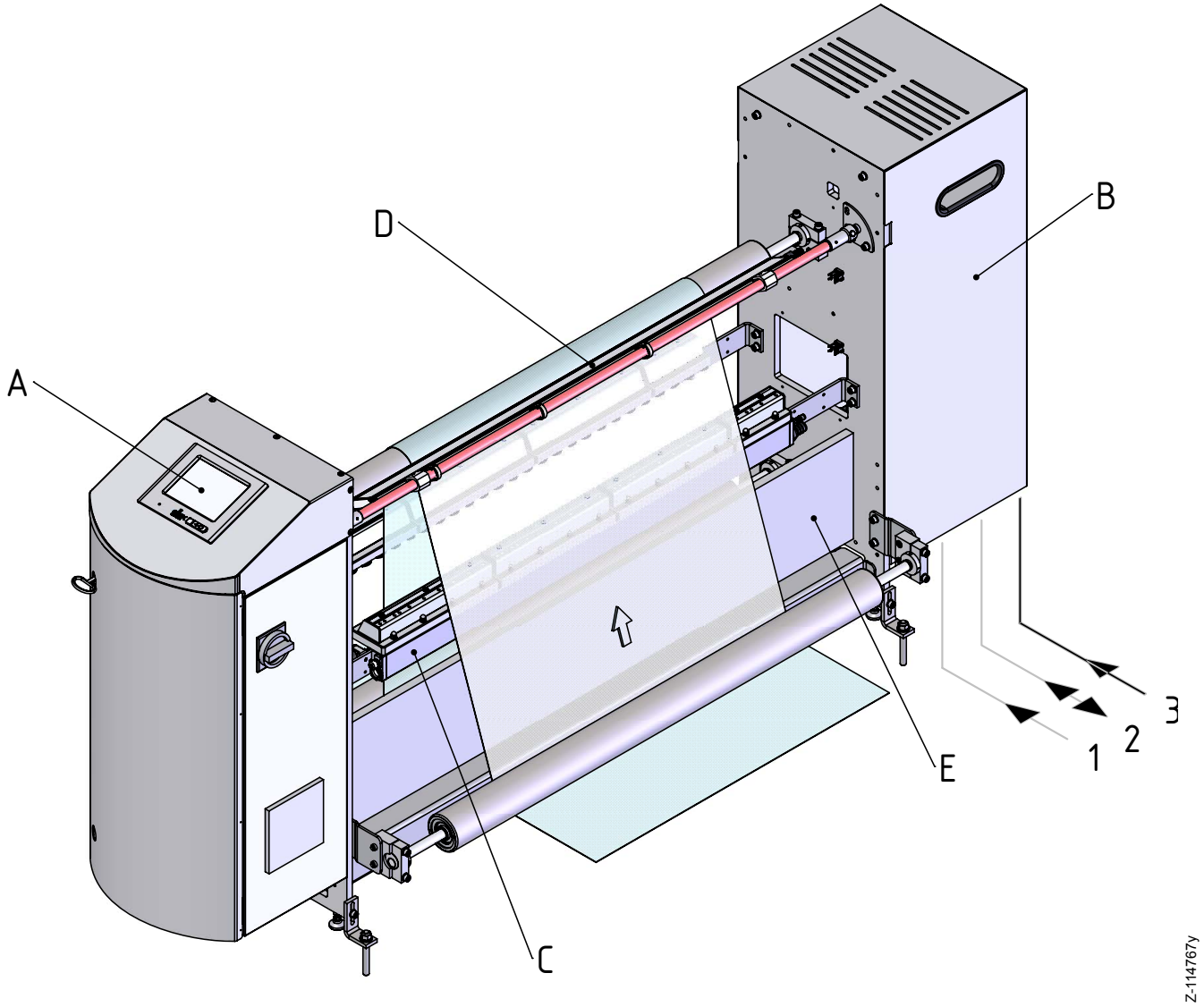
The preferred installation site of the DM1500 remoistening unit is after the dryer in direction of the folder / finishing resp. the rewinder.

System components

The system essentially consists of three major elements:

- **Remote control and control cabinet**
  The remote control includes an TFT monitor with touch screen functions and is installed above the control cabinet mounted on the operater side.
  The control cabinet comprises all for the control necessary electrical components (power supply and switchgear units, fuses).
- **Base frame**
  The base frame includes the components such as guide rollers, charging bars and nozzle bar.
- **Supply unit**
  The supply unit is installed on the rear of the unit and includes the high voltage generator, the side channel condenser and the water supply with quantity controller.
  The pneumatic atomizing nozzles are supplied with the required water volume via the water flow controller and the air condenser.

System Structure

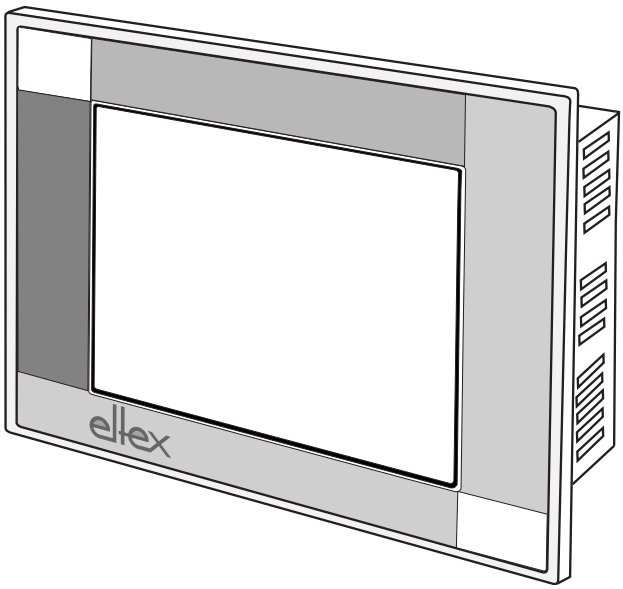


A Remote Control
B Supply unit
C Nozzle bar
D Charging bar
E Base frame

1 Mains lead to the supply unit
2 Customer interface to the control cabinet
3 Water connection

Remote control ESC2

Static Control ESC2/EEW built-in version



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Remote control ESC2/EEW

The Static Control Type ESC2/EEW is positioned above the control cabinet mounted on the operater side.

The system is operated via touch screen remote control, allowing the operator to make all necessary adjustments and settings. The system settings are read out at the remote control.

The display shows the operator the status, the proper function and any malfunctions of the system. By touching the symbols on the screen, the system or its individual components can be enabled / disabled or specific items of information can be accessed.

The following three minimum input entries must be made prior to operation:

- Setpoint of the water quantity in percent or grams per square meter. This value is either taken from a table or from empirical values obtained from a certain paper grade
- Paper web width (activates the required nozzle profile)
- Web position (center or off-center)

The required water quantity is automatically controlled depending on machine speed. The remoistening variable is "water in percent or grams per square meter of paper surface", irrespective of ink coverage and the speed of the paper web. The precise limitation and alignment of the high voltage field ensures that each water droplet reaches the paper. The water quantity provided is fully absorbed by the paper.

Technical specifications ESC2/EEW (built-in version 6.5")

Supply voltage	24 V DC; supplied by Eltex control cabinet
Power input	max. 20 W at 24 V DC
Ambient operating temperature	0...+40°C (+32...+104°F)
Storage temperature	–20...+60 °C (–4...+140°F)
Ambient humidity	80 % rh max., non-dewing
Enclosure	zinc-plated sheet steel plating
Protection class	front IP65, computer unit IP20
Dimensions	assembly recess opening: 175 x 149 mm (W x H) enclosure: 172 x 146.6 x 61.6 mm (W x H x D) front panel: 201.2 x 168 x 6 mm (W x H x D)
Weight	approx. 1.6 kg
Operation	TFT Touch Screen resistiv; screen diagonal 6.5"

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Control cabinet and supply unit

The entire range of control elements of the system (power supply and switchgear units, fuses) is installed in the control cabinet. The control cabinet is mounted on the operater side; the supply unit is installed on the drive side of the remoistening unit and includes the following components:

- water flow controller for stepless water quantity control
- high voltage generator
- water supply with stop valve, pressure reducer and water filter for supplying the nozzles
- side channel condenser.

Power supply data and safety engineering

Supply voltage	3 x 400 V / 50 Hz (3 x 480 V / 60 Hz); 3 kVA fuses: 16 A, (15 A USA) The terminal has a terminal cross section of 4 mm².	
Ambient operating temperature	+5…+40 °C (+41…+104 °F)	
Ambient humidity	max. 80%, r.h., non-dewing	
Dimensions	1025 - 1665 mm x 1070 mm x 405 mm (W x H x D)	
Signals from printing press	enabling	Incl. contact Machine Stop and Speed >1 m/s. Enabling must be activated only if no machine stop command has been given and the minimum speed is >1 m/s. Max. contact load 24 V / 500 mA
	For installations on digital printing machines with a maximum production speed of ≤ 1 m/s, the contact must be closed at a speed greater than 3 m/min.	
Signals to the printing press	operation	Contact closes when the remoistening system starts operating. Max. contact load 24 V / 1 A
	fault	Faults activate a changeover contact which is analysable. Max. contact load 24 V / 1 A
	master switch ON	Contact closes when the master switch is switched on. Max. contact load 24 V / 1 A
Water	water quality	solved ions < 0,8 millimol / l (equal to 4°dH) Use of fully desalinated water (VE- or demineralised water) from an osmosis system
	conductivity	max. 20 µS/cm at 25°C
	pH	6.5...7.5
	operating pressure	4 bar (+/-1,0)
	filtered	80 µm
	water temperature	+5...+25°C (+40...+77°F)
	water consumption	max. 50 l/h at 1.0 meter web width max. 75 l/h at 1.5 meters web width
	water supply	G 1/2" connection

Eltex Unternehmen und Vertretungen

Die aktuellen Adressen aller Eltex Vertretungen finden Sie im Internet unter www.eltex.com

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