elsteam HUMIDIFIERS

Droplets of performance

Isothermal and adiabatic humidification solutions for air handling systems, in-room and industrial processes

EN

About us

Elsteam S.r.l., originally founded as “Elettrica”, began business supplying air conditioning systems. It quickly made a name for itself on the market, thanks to its highly efficient and functional products for humidity control.

In 1982 engineer Claudio Cattaneo bought the company, changing its name to Elsteam S.r.l.. It specialised in manufacturing humidifiers which, thanks to the expertise and innovative approach of the new owner, built a reputation for themselves in the sector as distinctive, original products.

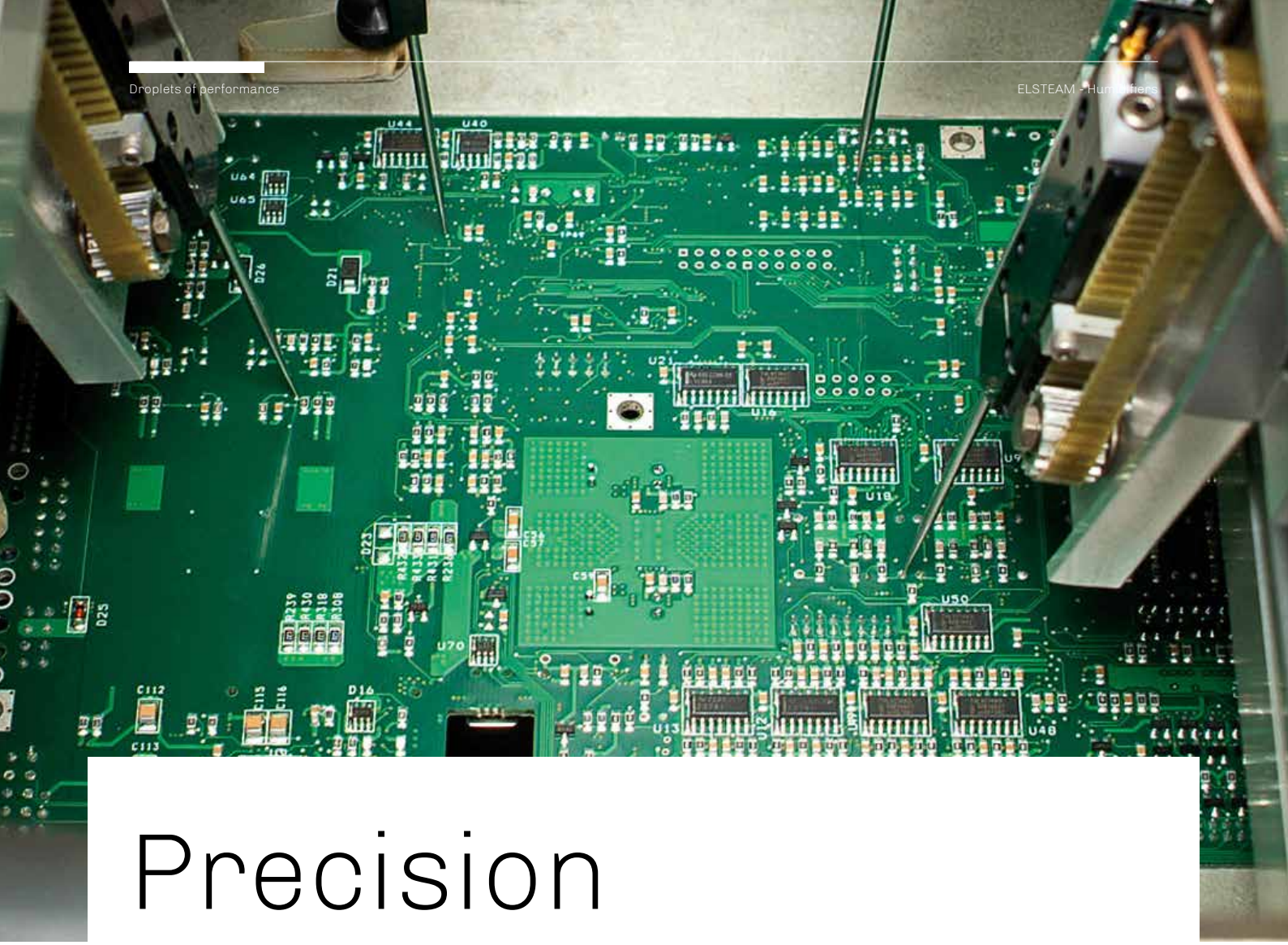
Thanks to the validity of the company’s products, acknowledged by a series of awards from the Scientific Committee of MCE (chaired by Milan Polytechnic), Elsteam continued to grow and soon began supplying the leading Italian manufacturers of air handling units

(AHU). The business continued to expand until the need to give fresh impetus to its products and develop a more widespread sales network led the company to look for an industry partner to share its future growth.

Original but simplified products, cost-effectiveness and an efficient after sales service have been the philosophy that has driven the development of Elsteam humidifiers.

EVCO S.p.A., a leading manufacturer of electronic controllers, shares the same philosophy as Elsteam and in 2020 decided to purchase the company to give added value to its future products, thanks to its specialised knowledge of electronics and the possible synergies with its own product portfolio.

It kept the Elsteam name, together with all its staff and, with them, the knowledge and experience they had built up over the years. The intention was to invest further in staff and resources to take this success story to the next stage.



Precision technology

Elsteam humidifiers have onboard electronic devices with a microprocessor, so users can monitor the level of humidity detected by the dedicated sensors and check it is within the setpoint. They can also control the production and distribution of steam or mist to ensure optimal humidity levels. These features help deliver more efficient humidification.
With control algorithms which guarantee precision regulation and high energy and water efficiency, EVCO controllers for humidification applications offer many benefits: they have an attractive design, are easy to use and clean, ensuring maximum hygiene. The remote and/or built-in user interfaces on the humidifiers are supplied standard or on request and have IP65 front protection, capacitive touch keys or a full touch-screen display with intuitive procedures which ensure a pleasant user experience. EVCO controllers have different connectivity options, allowing the humidifiers to be integrated with remote management and monitoring systems and offering IoT potential.
Modulating technology provided by an inverter, developed by EVCO to manage asynchronous motors like the ones used in high-pressure humidifiers, also ensures efficient performance.

EPcolor

3.5'' TFT full touch-screen colour graphic display with high connectivity

- Communications protocol MODBUS RTU® master/slave
- TFT touch-screen colour graphic display
- Power supply 24 Vac/12... 30 Vdc
- Data-logger
- RS-485, CAN and USB ports
- Alarm buzzer
- Clock
- IP65 front protection

EV3

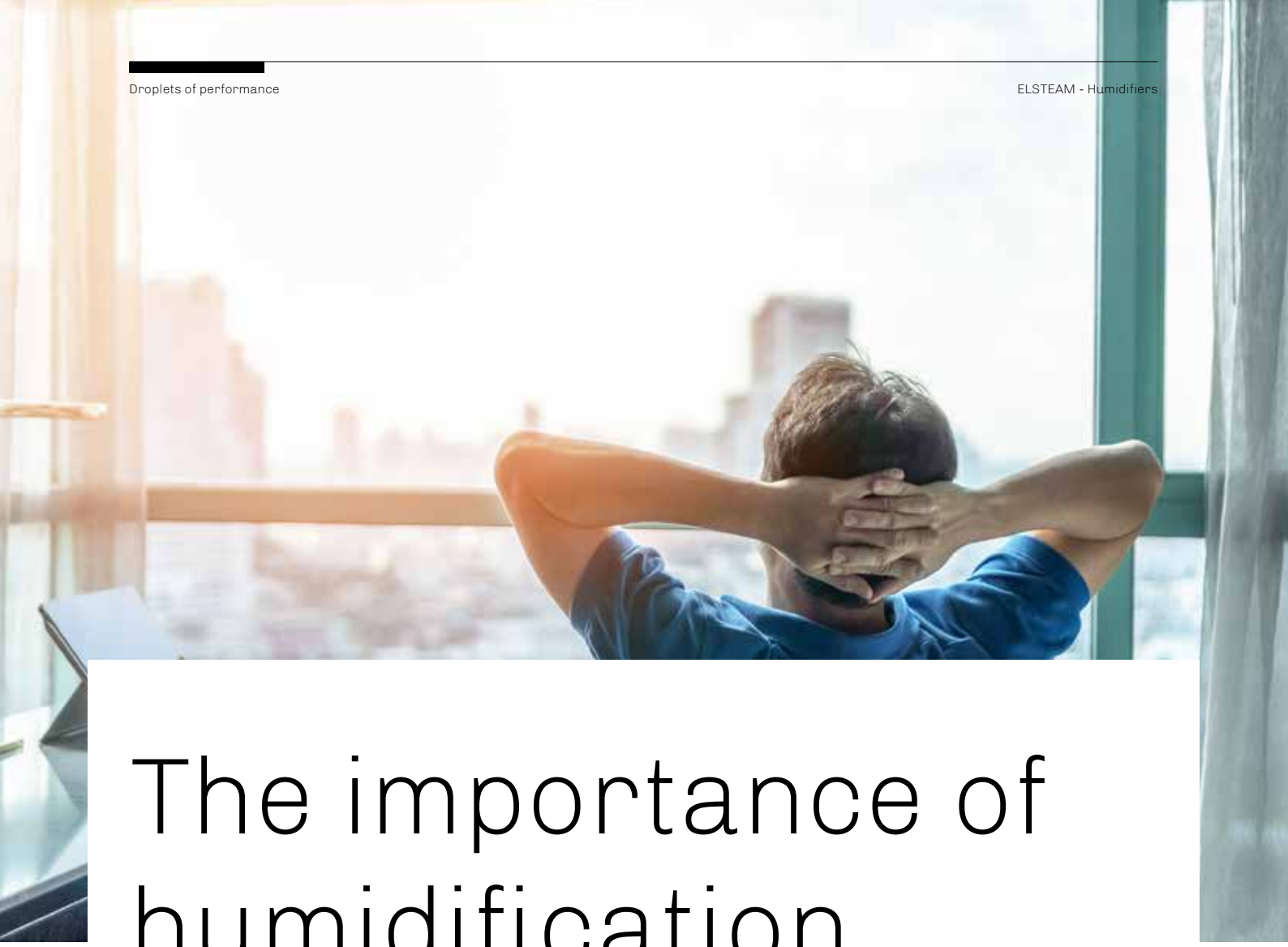
Extra-small remote user interface with two-line LED display and 4 capacitive keys

- Two-line LED display
- Power supply 24 Vdc
- INTRABUS or RS-485 ports
- Alarm buzzer
- IP65 front protection

COMPACT

Inverter for asynchronous motors rated 0.75 - 2.3 kW

- Control through RS-485 serial port, from analogue and digital input or from FM input
- Cooling via heat sink and forced ventilation
- Protections against over/undervoltage and over-current/load/temperature
- Parameters for customisation
- Safe Start function
- Built-in EMC filters compliant with EN 61800-3-2004 in class C2



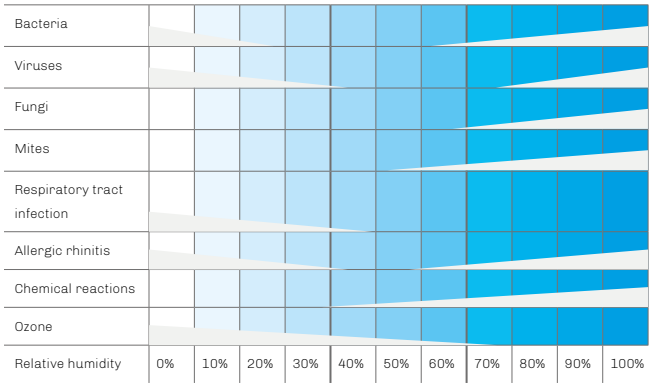
The importance of humidification

Optimal humidity for comfort and health

Scientific studies show that maintaining the correct level of humidity in a room contributes to our personal wellbeing, reducing tiredness and irritation of the skin and mucous membranes; it also helps prevent flu, allergies or respiratory tract infections, as it limits the proliferation of bacteria, viruses and other biological contaminants.
Controlling the amount of moisture in the air is vital in hospitals, where optimal temperature and humidity conditions help improve worker efficiency and patient wellbeing, as well as ensuring electrical medical devices and machinery work properly.

Scofield/Sterling diagram

The diagram shows the impact relative humidity in a room can have on our comfort and health.
Risks posed by unwanted microorganisms and the appearance of specific pathological symptoms are minimal when relative humidity remains within the ideal range of 40-60%.



Optimal humidity for producing and preserving

In any industrial environment, maintaining the right temperature and humidity levels is vital in order to optimise processes and obtain quality products. As a general rule, correctly controlled humidity reduces the build-up of static electricity, lowers the temperature of machinery and creates less dust.
In the textile industry, the right degree of humidity helps fabrics maintain their elasticity and reduces the risk of tearing and breakage; in the printing sector it prevents dimensional changes in paper; in the food industry it is essential for greenhouse cultivation, production and transformation processes (proofing, aging, fermentation, curing, etc.), as well as storing, preserving and displaying food because it keeps it fresh and healthy and slows down weight loss.

Places like data centres also need to control the humidity in their environments to prevent electrostatic discharge and other unpleasant electrical issues, just as works of art, musical instruments and wooden furniture can deteriorate when the air is too dry.

T/RH in the industrial sector

In certain production sectors, it is important to work within optimal temperature and humidity ranges. The maximum and minimum levels below are given purely as an indication, as each sector has different types of processes which require different temperature and hygrometric parameters.

Food

0-40 °C
40-85%

Chemical-pharmaceutical

20-25 °C
20-70%

Textile

20-27 °C
50-80%

Leather

10-23 °C
55-95%

Paper

15-25 °C
40-65%

Wood

18-30 °C
40-60%

Printing

20-24 °C
50-60%

Film making

20-25 °C
40-70%

How humidification works

Steam humidification

With isothermal humidification, water is heated to boiling point to produce steam. The steam is generated electrically and then introduced directly into the room through blowers or into an air handling unit (AHU).

Isothermal Humidifiers

- Immersed electrode humidifiers
- Heater humidifiers

Benefits

- They ensure maximum hygiene because the high temperature of the steam eliminates contaminants
- The production of humidity is closely controlled, thanks to the efficiency of the steam humidification and greater control accuracy
- They are ideal for installing in AHUs as they only need a small mixing chamber

Spray humidification

Adiabatic humidification is when water is atomised through friction with the air. Water is reduced to tiny particles (aerosols) which go from the solid state to the gaseous state using ambient heat. Evaporation speed is inversely proportional to the diameter of the droplet produced and directly proportional to the speed it is introduced into the air.

Adiabatic Humidifiers

- Pressurised water humidifiers
- Ultrasonic humidifiers

Benefits

- They are energy efficient because water is not heated and the process uses the heat in the air
- Regular maintenance costs are reduced when demineralised water is used, as this prevents the build-up of limescale
- They help keep the environment cool, as heat is removed from the air by evaporation

Where humidification is needed

Residential and commercial environments

Our comfort and health depend not only on temperature but on optimal humidity too: when the humidity level is too low, skin and mucous membranes can become dry, allergies and respiratory tract infections are more likely to develop, bacteria and viruses can proliferate, we feel tired and our concentration can be adversely affected.

Fan coils and CMV units

When a room is heated with a convection heating system, the air can often become very dry and filled with suspended dust particles. Using a compact humidifier which is easy to maintain, hygienic and preferably energy-efficient, such as an ultrasonic humidifier, is highly recommended.

Hospitals, clean rooms, operating theatres and laboratories

Isothermal humidifiers are suitable for use in sterile environments, as steam produced by boiling water eliminates most contaminants. The control accuracy of these humidifiers also ensures compliance with strict regulations in force in healthcare facilities.

Turkish baths, fitness centres, beauty salons

Isothermal humidifiers are used widely throughout the wellness sector, thanks to the beneficial toning and relaxing effects steam has on the respiratory system, blood circulation and the skin, ridding it of toxins and impurities.

Museums, art galleries, churches and archives

Fluctuations in temperature and relative humidity can cause variations in the size and surface conditions of many works of art and precious objects in wood or paper, leading to their deterioration.

Data centres

Correct humidification in data centres (as defined by the ASHRAE 170-2008 and ETSI EN 300 019-1-3 standards) is important not only to ensure energy efficiency but also because humidified air helps prevent short circuits which can damage the sensitive electronic equipment.

Greenhouses, botanical gardens and farms

Misting systems, whose cold mist cools and humidifies at the same time, help maintain a constant and optimal microclimate which increases productivity and minimises water and energy consumption in greenhouses. They are also an efficient, cost-effective solution in barns to reduce heat stress which can have a negative effect on animal welfare and, as a result, on the farm's productivity.

Textile industry

Keeping air humidity within the parameters required for each particular product improves the quality of the fabric, process efficiency and productivity, as the yarns are more elastic, less prone to tearing and produce less lint. The fabrics lose considerably less weight and static electricity, which attracts dust, is eliminated so machine performance is enhanced.

Paper and printing industry

Paper is extremely sensitive to moisture in the air and, when it is being processed, humidity levels must be controlled very carefully to prevent it becoming distorted or torn, as this has repercussions on the subsequent stages in the process. In the printing industry, when humidity levels are low, errors can occur during printing due to paper distortion, sheets of paper can stick together due to a build-up of dust and static electricity on the machinery can cause serious issues.

Biomedical industry

Components for medical use in engineering plastics are manufactured in a protected atmosphere where temperature and humidity levels are kept constant to prevent any variations in quality and size and to ensure long life and efficiency for the machinery, reducing friction and electrostatic charge.

Food industry

During industrial production of flour, pasta and baked goods, the temperature in the atmosphere tends to rise, causing the ingredients, whose water content is dependent on humidity, to quickly lose water, with repercussions on their weight and quality. To lower the temperature and, at the same time, humidify large food production departments, cold steam generated by an adiabatic humidification system, specially designed to ensure hygienic conditions during production, is the ideal, cost-effective solution.

Bakeries

Process humidification is a vital part of the bread making industry, particularly during proofing and baking. Optimal temperature and humidity levels improve the quality of the baked goods, making the dough more elastic and giving it a perfectly golden crust in the oven. Steam humidification also ensures compliance with food safety standards.

Food processing

When curing meats and maturing cheeses, humidification is key to obtaining a high-quality end product: when curing meats, humidity makes up for loss of moisture, while when aging cheeses it prevents the surface from cracking.

Non-refrigerated display counters and cases for fresh produce

When fresh produce like fruit and vegetables is displayed in non-refrigerated display counters and cases, it is healthier, fresher and more visually appealing, thanks to adiabatic humidification which cools by drawing heat from the surrounding air.

Electronic and automotive industry

When painting bodywork in the automotive industry and manufacturing electronic parts, product quality issues caused by electrostatic charge are easily solved with the right humidity.

Zephyr

Immersed
electrode humidifiers

Versatile

Compact stand-alone unit suitable for many applications

Energy efficiency

Boilers, linear distributors and steam blowers available with reduced thermal transmittance

Saves water

The operation algorithm ensures only the amount of steam required is produced, optimising water consumption

Accurate

The new operation algorithm, together with a wide variety of boilers, ensures precision control, irrespective of the characteristics of the water

Washable boiler

20,000 hours of operation*

5 times less plastic at end of life

** This figure refers to the durability of the engineering plastic over time, when the right type of water is used and maintenance carried out correctly*

The overflow system protects against boiler overpressure and its value can be modified on request with an optional kit

Boiler circuit and polymeric parts of the linear steam distributors are in self-extinguishing material

Pump-driven draining system which breaks the limescale deposit into small pieces for easy ejection

No mechanical obstructions on the steam side and drain side

Automatic boiler cleaning system

Mechanical parts designed to simplify use and maintenance

Protection against water escaping on the steam side

Connection for RS-485 protocol for remote control in MODBUS mode

Ideal for the following applications

Residential and commercial environments

Turkish baths, fitness centres, beauty centres

Museums, art galleries, churches and archives

Bakeries

Data centres

Extruded linear distributor with reduced thermal transmittance

The surface in non-porous, waterproof engineering plastic prevents bacterial proliferation and complies with Method A and Method C of ISO846. It withstands sudden changes in temperature and chemicals, thus making it easy to sterilise.

Stainless steel linear distributor

Stainless steel is a very hygienic material as it is corrosion resistant and its surface is compact and non-porous, making removing bacteria during cleaning and sterilisation easier.

Steam blower for room

This steam blower, which delivers steam directly into the room, is made of engineering plastic which prevents bacterial contamination and withstands chemical attack. Thanks to its thermal insulation, it is also energy efficient. The blower can be fitted directly onto the humidifier or placed in the room, according to the manufacturer's instructions, using a special mobile support.

Wellness Series

- Can manage 3 different fragrances
- Controls fan for steam inlet and extraction
- Cubicle light management
- Cubicle sanitation management
- Pre-heating function for rapid steam production
- Humidity is programmed in time bands or set manually with a timer

OEM Series

- Solution with support and boiler available in different sizes + electronic controller and current transformer (both to be ordered separately)
- The space-saving design is ideal for proofers, ovens, CMV units and precision or close control air conditioners in data centres
- A highly adaptable solution, as OEMs can configure their own humidity production capacity and power supply voltage
- Electronic controller with an open frame board which can be housed in the electrical panel

EHKT models and technical features

EHKT	003M2	005M2	003T4	003T5	005T4	005T5	010T4	010T5	015T4	015T5
STEAM PRODUCTION										
Production capacity [kg/h]	3	5	3		5		10		15	
Maximum pressure [mm H_2O/Pa/bar]	165/1650/0.0165									
Pipe connection external diameter [mm]	38									
STEAM DISTRIBUTION										
Number of linear distributors that can be connected [n]	1									
Number of steam blowers that can be connected [n]	1									
ELECTRICAL PROPERTIES										
Power consumption [kW]	2.2	3.75	2.2		3.75		7.5		11.3	
Power supply [Vac, Hz]	230, 50/60		400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60
Phases [n]	1	1	3		3		3		3	
Current per phase [A]	9.6	16.3	3.2	2.8	5.4	4.7	10.8	9.4	16.3	14.2
WATER PROPERTIES										
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used									
Inlet water conductivity [µS*cm]	70...1250									
Inlet water hardness [°f]	5...50									
Inlet water pressure [MPa/bar]	0.2...1/2...10									
Minimum instantaneous flow rate of inlet water [l/min]	1.2						2.2			
Inlet water connection	M 3/4" GAS									
Water drain external dimensions [mm]	40									
GENERAL CHARACTERISTICS										
Dimensions [mm]	412x766x248									
Operating conditions [°C, RH]	1...40, max. 80% non-condensing									
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing									
Degree of protection	IP20									
REGULATION										
Type of controller	Built-in with simplified EV3 user interface									
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA									
CONNECTIVITY										
RS-485 MODBUS	Built-in									

The list of accessories is available on our website www.elsteam.it

EHKT models and technical features

EHKT	020T4	020T5	030T4	030T5	040T4	040T5	060T4	060T5
STEAM PRODUCTION								
Production capacity [kg/h]	20		30		40		60	
Maximum pressure [mm H_2O/Pa/bar]	200/2000/0.020							
Pipe connection external diameter [mm]	38							
STEAM DISTRIBUTION								
Number of linear distributors that can be connected [n]	1						2	
Number of steam blowers that can be connected [n]	2				-			
ELECTRICAL PROPERTIES								
Power consumption [kW]	15		22.5		30		45	
Power supply [Vac, Hz]	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60
Phases [n]	3	3	3	3	3	3	3	3
Current per phase [A]	21.7	18.8	32.5	28.2	43.3	37.7	65	56.5
WATER PROPERTIES								
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used							
Inlet water conductivity [µS*cm]	70...1250							
Inlet water hardness [°f]	5...50							
Inlet water pressure [MPa/bar]	0.2...1/2...10							
Minimum instantaneous flow rate of inlet water [l/min]	3.5						2x3.5	
Inlet water connection	M 3/4" GAS							
Water drain external dimensions [mm]	40							
GENERAL CHARACTERISTICS								
Dimensions [mm]	522x893x380						928x900x375	
Operating conditions [°C, RH]	1...40, max. 80% non-condensing							
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing							
Degree of protection	IP20							
REGULATION								
Type of controller	Built-in with simplified EV3 user interface							
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA							
CONNECTIVITY								
RS-485 MODBUS	Built-in							

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EHKX models and technical features

EHKX	003M2	005M2	003T4	003T5	005T4	005T5	010T4	010T5	015T4	015T5
STEAM PRODUCTION										
Production capacity [kg/h]	3	5	3		5		10		15	
Maximum pressure [mm H_2O/Pa/bar]	165/1650/0.0165									
Pipe connection external diameter [mm]	38									
STEAM DISTRIBUTION										
Number of linear distributors that can be connected [n]	1									
Number of steam blowers that can be connected [n]	1									
ELECTRICAL PROPERTIES										
Power consumption [kW]	2.2	3.75	2.2		3.75		7.5		11.3	
Power supply [Vac, Hz]	230, 50/60		400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60
Phases [n]	1		3							
Current per phase [A]	9.6	16.3	3.2	2.8	5.4	4.7	10.8	9.4	16.3	14.2
WATER PROPERTIES										
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used									
Inlet water conductivity [µS*cm]	70...1250									
Inlet water hardness [°f]	5...50									
Inlet water pressure [MPa/bar]	0.2...1/2...10									
Minimum instantaneous flow rate of inlet water [l/min]	1.2						2.2			
Inlet water connection	M 3/4" GAS									
Water drain external dimensions [mm]	40									
GENERAL CHARACTERISTICS										
Dimensions [mm]	412x766x248									
Operating conditions [°C, RH]	1...40, max. 80% non-condensing									
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing									
Degree of protection	IP20									
REGULATION										
Type of controller	Built-in with advanced EPcolor user interface									
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA									
CONNECTIVITY										
RS-485 MODBUS	Built-in									

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EHKX models and technical features

EHKX	020T4	020T5	030T4	030T5	040T4	040T5	060T4	060T5	080T4	080T5	100T4	100T5
STEAM PRODUCTION												
Production capacity [kg/h]	20		30		40		60		80		100	
Maximum pressure [mm H_2O/Pa/bar]	200/2000/0.020											
Pipe connection external diameter [mm]	38											
STEAM DISTRIBUTION												
Number of linear distributors that can be connected [n]	1						2					
Number of steam blowers that can be connected [n]	2				-							
ELECTRICAL PROPERTIES												
Power consumption [kW]	15		22.5		30		45		60		75	
Power supply [Vac, Hz]	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60
Phases [n]	3											
Current per phase [A]	21.7	18.8	32.5	28.2	43.3	37.7	65	56.5	86.6	75.3	108.3	94.1
WATER PROPERTIES												
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used											
Inlet water conductivity [µS*cm]	70...1250											
Inlet water hardness [°f]	5...50											
Inlet water pressure [MPa/bar]	0.2...1/2...10											
Minimum instantaneous flow rate of inlet water [l/min]	3.5						2x3.5					
Inlet water connection	M 3/4" GAS											
Water drain external dimensions [mm]	40											
GENERAL CHARACTERISTICS												
Dimensions [mm]	522x893x380						928x900x375					
Operating conditions [°C, RH]	1...40, max. 80% non-condensing											
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing											
Degree of protection	IP20											
REGULATION												
Type of controller	Built-in with advanced EPcolor user interface											
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA											
CONNECTIVITY												
RS-485 MODBUS	Built-in											

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EHKW models and technical features

EHKW	005M2	005T4	010T4	015T4
STEAM PRODUCTION				
Production capacity [kg/h]	5	5	10	15
Maximum pressure [mm H_2O/Pa/bar]	165/1650/0.0165			
Pipe connection external diameter [mm]	38			
STEAM DISTRIBUTION				
Number of linear distributors that can be connected [n]	1			
Number of steam blowers that can be connected [n]	1			
ELECTRICAL PROPERTIES				
Power consumption [kW]	3.75	3.75	7.5	11.3
Power supply [Vac, Hz]	230, 50/60	400, 50/60	400, 50/60	400, 50/60
Phases [n]	1	3		
Current per phase [A]	16.3	5.4	10.8	16.3
WATER PROPERTIES				
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used			
Inlet water conductivity [µS*cm]	70...1250			
Inlet water hardness [°f]	5...50			
Inlet water pressure [MPa/bar]	0.2...1/2...10			
Minimum instantaneous flow rate of inlet water [l/min]	1.2		2.2	
Inlet water connection	M 3/4" GAS			
Water drain external dimensions [mm]	40			
GENERAL CHARACTERISTICS				
Dimensions [mm]	412x766x248			
Operating conditions [°C, RH]	1...40, max. 80% non-condensing			
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing			
Degree of protection	IP20			
REGULATION				
Type of controller	Built-in with advanced EPcolor user interface			
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA			
CONNECTIVITY				
RS-485 MODBUS	Built-in			

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EHKW models and technical features

EHKX	020T4	030T4	040T4
STEAM PRODUCTION			
Production capacity [kg/h]	20	30	40
Maximum pressure [mm H_2O/Pa/bar]	200/2000/0.020		
Pipe connection external diameter [mm]	38		
STEAM DISTRIBUTION			
Number of linear distributors that can be connected [n]	1		
Number of steam blowers that can be connected [n]	2		-
ELECTRICAL PROPERTIES			
Power consumption [kW]	15	22.5	30
Power supply [Vac, Hz]	400, 50/60		
Phases [n]	3		
Current per phase [A]	21.7	32.5	43.3
WATER PROPERTIES			
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used		
Inlet water conductivity [µS*cm]	70...1250		
Inlet water hardness [°f]	5...50		
Inlet water pressure [MPa/bar]	0.2...1/2...10		
Minimum instantaneous flow rate of inlet water [l/min]	2.2		
Inlet water connection	M 3/4" GAS		
Water drain external dimensions [mm]	40		
GENERAL CHARACTERISTICS			
Dimensions [mm]	522x893x380		
Operating conditions [°C, RH]	1...40, max. 80% non-condensing		
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing		
Degree of protection	IP20		
REGULATION			
Type of controller	Built-in with advanced EPcolor user interface		
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA		
CONNECTIVITY			
RS-485 MODBUS	Built-in		

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EHKO models and technical features

EHKO	002M0XS	003M0S	003T0XS	005M0M
STEAM PRODUCTION				
Production capacity [kg/h]	2	3	3	5
Maximum pressure [mm H_2O/Pa/bar]	50/500/0.005			
Pipe connection external diameter [mm]	38			
STEAM DISTRIBUTION				
Number of linear distributors that can be connected [n]	1			
ELECTRICAL PROPERTIES				
Power consumption [kW]	1.5	2.2	2.2	3.75
Power supply [Vac, Hz]	230, 50/60	230, 50/60	400/460 (configurable), 50/60	230, 50/60
Phases [n]	1	1	3	1
WATER PROPERTIES				
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used			
Inlet water conductivity [µS*cm]	70...1250			
Inlet water hardness [°f]	5...50			
Inlet water pressure [MPa/bar]	0.2...1/2...10			
Minimum instantaneous flow rate of inlet water [l/min]	1.2			2.2
Inlet water connection	M 3/4" GAS			
Water drain external dimensions [mm]	32			
GENERAL CHARACTERISTICS				
Dimensions [mm]	205x440x220	205x500x220	205x440x220	205x560x220
Operating conditions [°C, RH]	1...40, max. 80% non-condensing			
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing			
Degree of protection	IP00			

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EHKO models and technical features

EHKO	008T0S	015T0M	040T0L
STEAM PRODUCTION			
Production capacity [kg/h]	5 or 8 (configurable)	10 or 15 (configurable)	20, 30 or 40 (configurable)
Maximum pressure [mm H_2O/Pa/bar]	50/500/0.005		60/600/0.006
Pipe connection external diameter [mm]	38		
STEAM DISTRIBUTION			
Number of linear distributors that can be connected [n]	1		
ELECTRICAL PROPERTIES			
Power consumption [kW]	3.5 or 8	7.5 or 11.3	15, 22.5 or 30
Power supply [Vac, Hz]	400/460 (configurable), 50/60		
Phases [n]	3		
WATER PROPERTIES			
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used		
Inlet water conductivity [µS*cm]	70...1250		
Inlet water hardness [°f]	5...50		
Inlet water pressure [MPa/bar]	0.2...1/2...10		
Minimum instantaneous flow rate of inlet water [l/min]	2.2		3.5
Inlet water connection	M 3/4" GAS		
Water drain external dimensions [mm]	32		40
GENERAL CHARACTERISTICS			
Dimensions [mm]	205x500x220	205x560x220	335x670x320
Operating conditions [°C, RH]	1...40, max. 80% non-condensing		
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing		
Degree of protection	IP00		

The list of accessories is available on our website www.elsteam.it

VEH

Immersed electrode humidifiers for air handling units (UTA)

Flexibility

Various sizes available, so it adapts easily to the size of the air handling unit

Maximum efficiency

- Hydraulic unit in AHU
- No loss of load
- No condensate in the steam distribution systems
- Helps heat the room

Germ-free steam

Self-extinguishing engineering plastic which prevents bacterial proliferation

Installed directly in an AHU

No need for an electronics compartment or distribution piping

Choose the most suitable version for your AHU

Models are available with 4 or 7 electrodes of different depths and steam production capacity that goes from 10 to 100 kg/h, making the VEH series easy to adapt to the size of the AHU.

A range of accessories is available to customise the size and accessibility of the hydraulic unit.

- Tank in self-extinguishing engineering plastic and in compliance with Method A and Method C of ISO 846
- Automatic draining system with 40 mm diameter
- Protects against flooding in the AHU
- Microprocessor controller with LED user interface
- Connection for RS-485 protocol for remote control in MODBUS mode
- Mechanical parts designed to simplify use and maintenance

Ideal for the following applications

Hospitals and clean rooms

Data centres

Residential and commercial environments

Separate plumbing and control

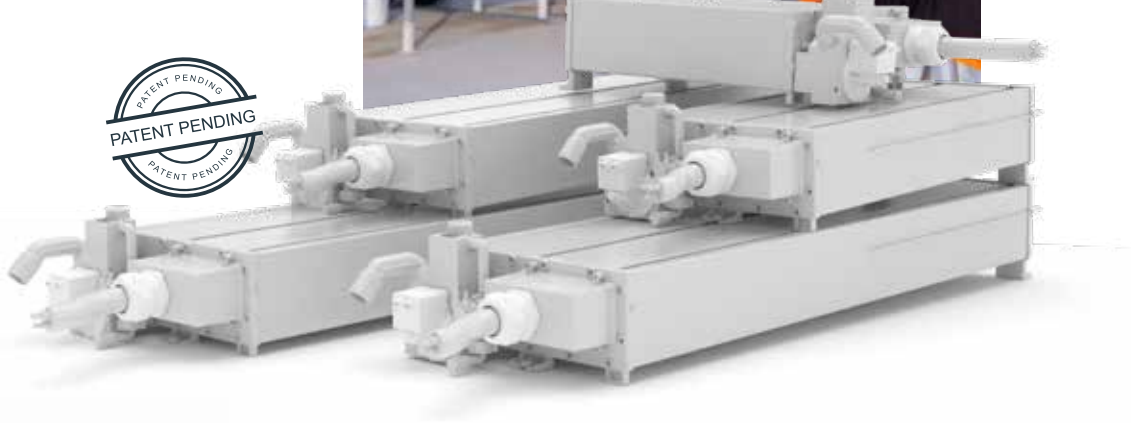
The standout feature of the VEH series is that each model is made up of two separate units: a hydraulic unit in self-extinguishing engineering plastic which is ISO 846 certified (it is installed directly in the AHU, it has no distribution piping for optimal steam release and helps heat the room) and an electrical control unit with IP65 protection which requires no electronics compartment.

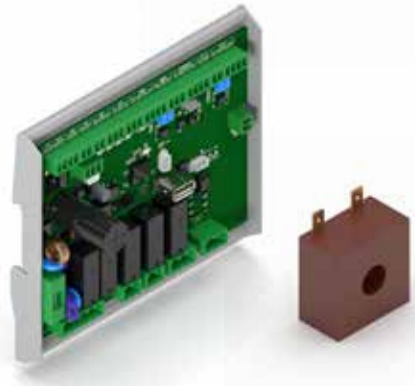
Positioning enhances efficiency

Placing VEH humidifiers inside air handling units means energy savings: not only does the 100 °C steam help with heating, it is also produced exactly where it is needed, preventing the formation of condensate and the loss of load due to back pressure, which can occur when steam is conveyed from its point of production to its place of distribution. And when AHUs are installed outdoors, placing the humidifier inside means no protective casing is needed for it.

OEM Series

- Modular solution for AHU manufacturers consisting of 1 or 2 boilers which can be combined to reach the desired production capacity
- Independent configuration of power supply voltage
- Freedom for the OEM to define the electrical layout

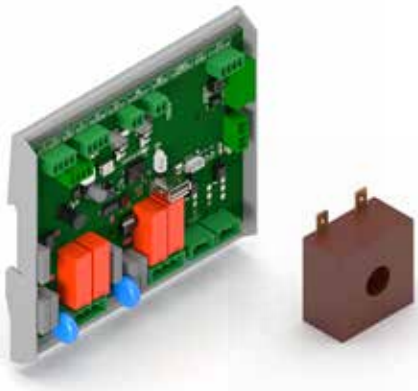




EHHKT and 0103349007

Electronic controller and current transformer

- Controller kit with an open frame board which can be housed in the AHU electrical panel
- Suitable for all boiler sizes
- To be ordered separately



EHHKX and 0103349007

Expansion board and current transformer to control an additional hydraulic unit

EHKD models and technical features

EHKD	010 T4XS	010 T5XS	020 T4S	020 T5S	020 T4XS	020 T5XS	030 T4M	030 T5M	030 T4S	030 T5S
STEAM PRODUCTION										
Production capacity [kg/h]	10		20				30			
ELECTRICAL PROPERTIES										
Power consumption [kW]	7.5		15				22.5			
Power supply [Vac, Hz]	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60
Phases [n]	3									
Current per phase [A]	10,8	9,4	21,7	18,8	22	18,8	32,5	28,2	32	28,2
WATER PROPERTIES										
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used									
Inlet water conductivity [µS*cm]	75...1250									
Inlet water hardness [°f]	5...50									
Inlet water pressure [MPa/bar]	0,02...1/0,2...10									
Minimum instantaneous flow rate of inlet water [l/min]	3,5									
Inlet water connection	M 3/4" GAS									
Water drain external diameter [mm]	40									
GENERAL CHARACTERISTICS										
Control unit dimensions [mm]	350x500x210									
Hydraulic unit dimensions [mm]	330x167									
Depth 4 electrodes [mm]	635		785		/		985		/	
Depth 7 electrodes [mm]	/		/		635		/		785	
Weight [kg]	15		16,5		16,5		18,5		18,5	
Operating conditions [°C, RH]	1...40, max. 80% non-condensing									
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing									
Level of protection of control unit	IP65									
Level of protection of hydraulic unit	IPX0									
REGULATION										
Type of controller	Built-in									
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA									
CONNECTIVITY										
RS-485 MODBUS	Built-in									

The list of accessories is available on our website www.elsteam.it

EHKD models and technical features

EHKD	040 T4L	040 T5L	040 T4S	040 T5S	060 T4XL	060 T5XL	060 T4M	060 T5M	080 T4L	080 T5L	100 T4XL	100 T5XL
STEAM PRODUCTION												
Production capacity [kg/h]	40				60				80		100	
ELECTRICAL PROPERTIES												
Power consumption [kW]	30				45				60		75	
Power supply [Vac, Hz]	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60	400, 50/60	460, 50/60
Phases [n]	3											
Current per phase [A]	43,3	37,7	40	37,7	65	56,5	65	56,5	87	75,3	108,2	94,1
WATER PROPERTIES												
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used											
Inlet water conductivity [µS*cm]	75...1250											
Inlet water hardness [°f]	5...50											
Inlet water pressure [MPa/bar]	0,02...1/0,2...10											
Minimum instantaneous flow rate of inlet water [l/min]	5,5		3,5		5,5		3,5		5,5			
Inlet water connection	M 3/4" GAS											
Water drain external diameter [mm]	40											
GENERAL CHARACTERISTICS												
Control unit dimensions [mm]	350x500x210											
Hydraulic unit dimensions [mm]	330x167											
Depth 4 electrodes [mm]	1185		/		1385		/		/		/	
Depth 7 electrodes [mm]	/		785		/		985		1185		1385	
Weight [kg]	21,5		21,5		25		24,5		27,5		30	
Operating conditions [°C, RH]	1... 40, max. 80% non-condensing											
Storage conditions [°C, RH]	-10... 70, max. 95% non-condensing											
Level of protection of control unit	IP65											
Level of protection of hydraulic unit	IPX0											
REGULATION												
Type of controller	Built-in											
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA											
CONNECTIVITY												
RS-485 MODBUS	Built-in											

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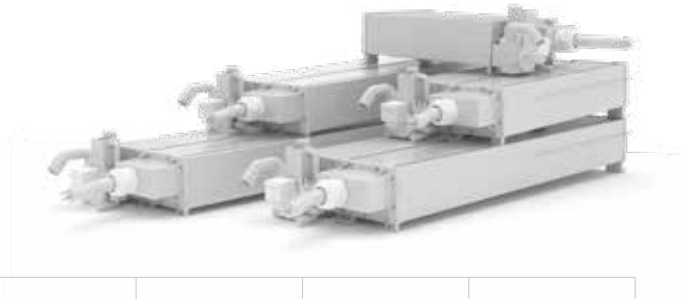
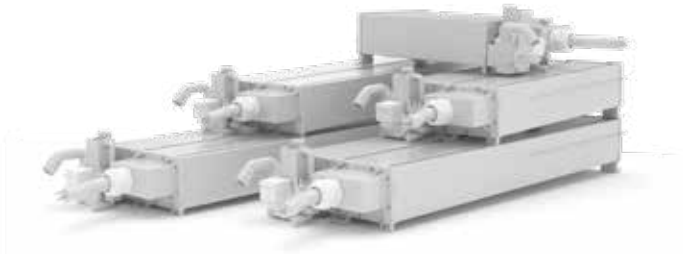
EHKOD models and technical features



EHKOD	010T0XS	020T0S	020T0XS	030T0M	030T0S
STEAM PRODUCTION					
Production capacity [kg/h]	10	20		30	
ELECTRICAL PROPERTIES					
Power consumption [kW]	7.5	15		22.5	
Power supply [Vac, Hz]	400/460 (configurable), 50/60				
Phases [n]	3				
WATER PROPERTIES					
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used				
Inlet water conductivity [µS*cm]	75...1250				
Inlet water hardness [°f]	5...50				
Inlet water pressure [MPa/bar]	0.02...1/0.2...10				
Minimum instantaneous flow rate of inlet water [l/min]	3.5				
Inlet water connection	M 3/4" GAS				
Water drain external diameter [mm]	40				
GENERAL CHARACTERISTICS					
Hydraulic unit dimensions [mm]	330x167				
Depth 4 electrodes [mm]	635	785	/	985	/
Depth 7 electrodes [mm]	/	/	635	/	785
Weight hydraulic unit [kg]	8.5	10	10	12	12
Operating conditions [°C, RH]	1...40, max. 80% non-condensing				
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing				
Level of protection of hydraulic unit	IPX0				
REGULATION					
Type of controller	Built-in				
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA				
CONNECTIVITY					
RS-485 MODBUS	Built-in				

The list of accessories is available on our website www.elsteam.it

EHKOD models and technical features



EHKOD	040T0L	040T0S	060T0XL	060T0M	080T0L	100T0XL
STEAM PRODUCTION						
Production capacity [kg/h]	40		60		80	100
ELECTRICAL PROPERTIES						
Power consumption [kW]	30		45		60	75
Power supply [Vac, Hz]	400/460 (configurable), 50/60					
Phases [n]	3					
WATER PROPERTIES						
Inlet water quality	Complies with microbiological standards for drinking water established by regulations in force where installed. Partially demineralised water may be used					
Inlet water conductivity [µS*cm]	75...1250					
Inlet water hardness [°f]	5...50					
Inlet water pressure [MPa/bar]	0.02...1/0.2...10					
Minimum instantaneous flow rate of inlet water [l/min]	5.5	3.5	5.5	3.5	5.5	
Inlet water connection	M 3/4" GAS					
Water drain external diameter [mm]	40					
GENERAL CHARACTERISTICS						
Hydraulic unit dimensions [mm]	330x167					
Depth 4 electrodes [mm]	1185	/	1385	/	/	/
Depth 7 electrodes [mm]	/	785	/	985	1185	1385
Weight hydraulic unit [kg]	15	15	17.5	17	19.5	21.5
Operating conditions [°C, RH]	1...40, max. 80% non-condensing					
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing					
Level of protection of hydraulic unit	IPX0					
REGULATION						
Type of controller	Built-in					
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA					
CONNECTIVITY						
RS-485 MODBUS	Built-in					

The list of accessories is available on our website www.elsteam.it

Mistral

Compact, low capacity ultrasonic humidifier

ISO 846:2019 Method A - Method C

Minimum footprint

Compact unit for small spaces which produces up to 1.0 kg/h

Energy saving

Energy-efficient adiabatic humidifier

Silent operation

Thanks to advanced ultrasound technology and fan modulation

Optimisation

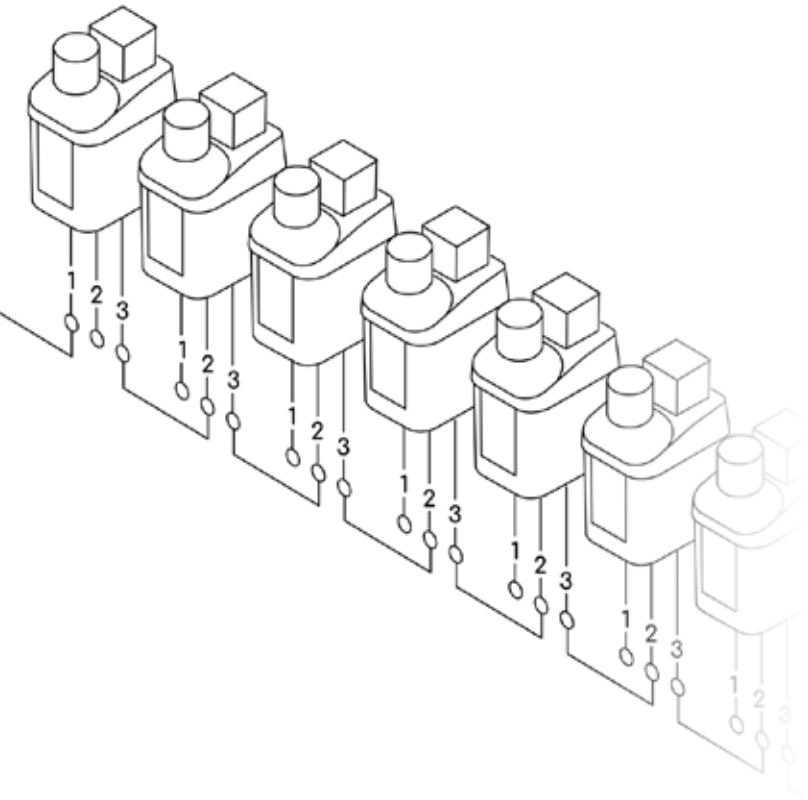
Constant, efficient production and master/slave function for multiple units

Connectivity

Connection for RS-485 protocol for remote control in MODBUS mode

Remote viewing and diagnostics

Optional user interfaces, LED or TFT touch-screen display and master-slave functions.



Master/slave function

This function allows users to expand production capacity or centrally control several humidifiers using a single humidity probe. With one simplified connection, it is possible to operate a large number of units at the same time and in the same mode.
The optional remote user interface (EVJ) allows users to connect multiple humidifiers in an advanced master/slave configuration; the humidifiers work sequentially on a rotational basis, so maintenance can be performed on individual units without interrupting humidification.

- Automatic draining system, stops bacteria proliferating
- Protection against no inlet water
- Significantly less maintenance required when EHRO012 is installed - reverse osmosis water demineralisation system
- Built-in controller with LED user interface and capacitive touch keys
- Can be connected to humidity probes for proportional control
- Tank in self-extinguishing engineering plastic and in compliance with Method A and Method C of ISO 846

Ideal for the following applications

Fan coils

Air renewal units

Refrigerated units and cold rooms

Cigar humidors and display cases

Wine cellars and bottle coolers

Compact technology for indoor use or T/RH preservation

Wine cellars and bottle coolers

Air renewal units

Cigar humidors and display cases

Refrigerated units and cold rooms

Fan coils

EHUC models and technical features

EHUC	001M2
STEAM PRODUCTION	
Production capacity [kg/h]	1.0
ELECTRICAL PROPERTIES	
Power consumption [W]	110
Power supply [Vac, Hz]	100...230, 50/60 (power switching)
WATER PROPERTIES	
Inlet water quality	Demineralised/drinking water
Inlet water conductivity [µS*cm]	0...1250
Inlet water hardness [°f]	0...50 °f
Inlet water pressure [MPa/bar]	0.02...1/0.2...10
Inlet water connection	John Guest 8mm
GENERAL CHARACTERISTICS	
Dimensions [mm]	107.4x262.7x148
Weight [kg]	1.7
Operating conditions [°C, RH]	1...40, max. 90% non-condensing
Storage conditions [°C, RH]	-10...70, max. 95% non-condensing
Degree of protection	IP20
REGULATION	
Type of controller	built-in
Command signal	ON-OFF, proportional 0-10 V, transducer 4...20 mA
CONNECTIVITY	
RS-485 MODBUS	Built-in

The list of accessories is available on our website www.elsteam.it

EHPN

High pressure humidifiers

Energy saving

Energy-efficient adiabatic humidifier

Distribution

Rack with configurable number of nozzles

Minimal maintenance

Works with demineralised water

Germ-free

Guaranteed by VDI6022-1 certification

Variable speed management

Equipped with an EVCO inverter installed in the electrical compartment and physically separated from the hydraulic unit

Versatile use

The humidifiers in the EHPN series deliver steam into the room using a customisable distribution system, or directly into an AHU, using distribution racks with a configurable number of branches and nozzles. Several AHUs can be served by a single humidifier by connecting the hydraulic unit to multiple distribution racks. Each rack has its own controller connected to the AHU humidity sensor. Depending on the production requirement of each rack, the precision control of the hydraulic unit keeps the pressure of the fluid constant (8 MPa), producing mist with a particle size of around 15 µm, irrespective of the number of nozzles.

- Humidity distributed into an AHU or the room
- Number of nozzles customisable (4 l/h or 8 l/h)
- Constant 8MPa (80 bar) pressure irrespective of number of nozzles
- Tiny particles produced (~ 15 µm)
- Stainless steel pumping system
- EVCO controller with an EPcolor interface on the hydraulic unit and an EVCO controller with an EV3 interface on the distribution rack
- Pump control with instant viewing of operational parameters

Ideal for the following applications

Residential and commercial environments

Textile and paper industry

Food industry

Biomedical industry

Greenhouses, botanical gardens and farms

Electronic and automotive industry

EHPN models and technical features

EHPN	060M2DW	120M2DW	180M2DW	240M2DW	300M2DW
SPRAY PRODUCTION					
Production capacity [kg/h]	60	120	180	240	300
Maximum pressure [MPa/bar]	8/80	8/80	8/80	8/80	8/80
SPRAY DISTRIBUTION					
Maximum number of nozzles (4 l/h) [n]	15	30	44	60	74
Maximum number of nozzles (8 l/h) [n]	7	15	22	30	37
ELECTRICAL PROPERTIES					
Power consumption [kW]	1.5				
Power supply [Vac, Hz]	230, 50/60				
Phases [n]	1				
WATER PROPERTIES					
Inlet water quality	Complies with microbiological standards for drinking water established by German standard (TrinkwV) and demineralised (completely or partially) water from drinking water. A VDI 6022 non return valve must be installed if non-demineralised water is used				
Inlet water conductivity [µS*cm]	0...100				
Inlet water hardness [°f]	0...5				
Inlet water pressure [MPa/bar]	0.02...14/0.2...10				
Inlet water connection	M 3/4" GAS				
Water drain external dimensions	M 1/4" GAS				
GENERAL CHARACTERISTICS					
Dimensions main unit [mm]	515x600x335				
Weight main unit [kg]	50				
Operating conditions [°C, RH]	1... 40, max. 80% non-condensing				
Storage conditions [°C, RH]	10... 70, max. 95% non-condensing				
Main unit protection	IP20				
Distribution rack protection	IP40				
REGULATION					
Type of controller	Built-in with advanced EPcolor user interface on the main unit and simplified EV3 user interface on the distribution rack				
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA				
CONNECTIVITY					
RS-485 MODBUS	Built-in				

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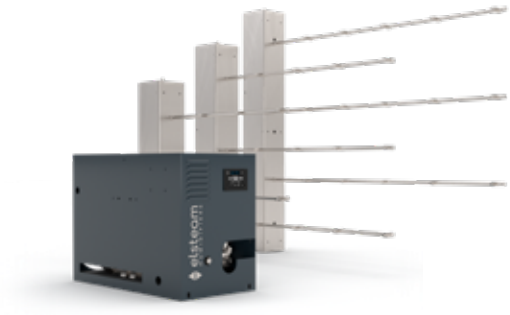
EHPN models and technical features



EHPN	420M2DW	540M2DW	660M2DW	840M2DW
SPRAY PRODUCTION				
Production capacity [kg/h]	420	540	660	840
Maximum pressure [MPa/bar]	8/80	8/80	8/80	8/80
SPRAY DISTRIBUTION				
Maximum number of nozzles (4 l/h) [n]	104	134	164	210
Maximum number of nozzles (8 l/h) [n]	52	67	82	105
ELECTRICAL PROPERTIES				
Power consumption [kW]	1.5	2.2		
Power supply [Vac, Hz]	230, 50/60			
Phases [n]	1			
WATER PROPERTIES				
Inlet water quality	Complies with microbiological standards for drinking water established by German standard (TrinkwV) and demineralised (completely or partially) water from drinking water. A VDI 6022 non return valve must be installed if non-demineralised water is used			
Inlet water conductivity [µS*cm]	0...100			
Inlet water hardness [°f]	0...5			
Inlet water pressure [MPa/bar]	0.02...14/0.2...10			
Inlet water connection	M 3/4" GAS			
Water drain external dimensions	M 1/4" GAS			
GENERAL CHARACTERISTICS				
Dimensions main unit [mm]	515x600x335			
Weight main unit [kg]	50			
Operating conditions [°C, RH]	1...40, max. 80% non-condensing			
Storage conditions [°C, RH]	10...70, max. 95% non-condensing			
Main unit protection	IP20			
Distribution rack protection	IP40			
REGULATION				
Type of controller	Built-in with advanced EPcolor user interface on the main unit and simplified EV3 user interface on the distribution rack			
Command signal	ON-OFF, proportional 0...10 V, transducer 0...10 V/4...20 mA			
CONNECTIVITY				
RS-485 MODBUS	Built-in			

The list of accessories is available on our website www.elsteam.it

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