



humiSteam

UE*

The vast range of humiSteam immersed electrode humidifiers include units producing from 1.5 to 130 kg/h of steam, for civil environments, offices, hospitals, industrial facilities, steam baths, etc., designed both for installation in ducts and for direct humidification in the room.

Compared to the previous SD2000 range, completely replaced by humiSteam, this model offers significant advantages both in terms of performance, with a wider range of modulation and a more efficient antifoam system, and economics, with larger and longer lasting cylinders and an excellent quality/price ratio.

humiSteam works on mains water with a conductivity between 125 and 1250 $\mu\text{s}/\text{cm}$, and its control software automatically adjusts operation according to the characteristics of the water, so as to achieve the best compromise between energy savings and cylinder life.

Specifically, the new 65 kg/h (single cylinder) and 90 and 130 kg/h (twin cylinder) models feature new cylinders with a longer operating life and more compact outside dimensions than competing models.

Another plus of the humiSteam range is the 9 kg/h model with single-phase power supply, ideal for use as a steam generator in steam baths, where three-phase power

supply is usually not available. As well as the traditional "P" and "H" humiSteam, a top-of-the-line model has been created with "X" controller, with capacities from 1.5 to 130 kg/h (the 90 and 130 kg/h models only have the "X" controller). The "X" controller has the same functions as the "H" controller, however is based on pCO technology, with all the related advantages: these include the easy-to-read graphic display, the possibility to connect to control networks (e.g., LON[®], Modbus[®], BACnet[™]), and the management of daily and weekly time bands. The "X" line has also given rise to the humiSteam with "W" controller, featuring software dedicated to the management of steam baths.

humiSteam "W" for steam baths

The humiSteam "W" models are fitted with the new controller based on pCO technology, featuring software dedicated to the management of steam baths and a cylinder suitable for this type of application. As well as all the advantages of the "X" humidifiers (above all simplicity for the user, with the graphic display), these models include time bands for automatic operation (daily and weekly) that can be combined with different user-defined temperature set points. In this way, for example, the user can specify that from 8 a.m. to 12 noon the temperature of the steam bath must be 45 °C, and then

reduce it to 30 °C between 12 noon and 6 p.m., all automatically. The humiSteam "W" can also manage up to 3 different essences, 2 fans, and run a "sanitation" cycle".

Advantages:

- AFS system (Anti Foaming System): prevents the release of droplets together with the steam;
- large cylinders with galvanised electrodes and anti-scale filter on the bottom, for longer maintenance free operation. Openable and fireproof cylinders are also available;
- steam production with continuous modulation from 20% to the max. flow-rate (from 10% for the models with cylinders);
- built-in conductivity sensor and control software to optimise energy efficiency and operating life, with constant performance over the life of the cylinder;
- choice between 4 control types: "P" (proportional or ON/OFF from external controller and LED display), "H" (modulating with built-in controller and simple alphanumeric display), "X" (with all the features of the "H" controller but based on pHC technology, derived from the pCO controllers, with all the resulting advantages, such as connection to control networks, and with an easy-to-read graphic display), "W" (similar to the "X" controller, but dedicated to steam baths);
- the "X" and "H" models can manage a second "limit" probe, to avoid any condensate in the air duct, and support all operating modes: ON/OFF, proportional to an external signal, with relative humidity probe and limit probe, and with simple temperature control for steam baths and similar applications.



Controllers

The humiSteam series humidifiers are available with 4 different types of control unit:

- type “P” (from 1.5 to 65 kg/h): managed by a humidistat or an external controller;
- type “H” (from 1.5 to 65 kg/h): built-in controller for stand-alone applications or dependent on external controller;
- type “X” (entire range): as for the “H” models but based on pH technology, derived from the pCO, with all the consequent advantages;
- type “W”: as for the “X” models, but designed for steam baths.

All models are fitted with a remote enabling input and an alarm relay.

Type P controller: ON/OFF or proportional

Steam production is controlled by an external signal:

- ON/OFF mode: a simple contact (for example, a humidistat) provides the on/off signal for steam production;
- proportional mode: the humidifier produces a quantity of steam that is directly proportional to the 0 to 10 V signal generated by the external controller, always between 20% and 100% of maximum capacity.

The type “P” humidifiers have a simple 3 LED display that shows the normal operating conditions and any diagnostic information.

Type H controller: modulating with built-in controller

The type “H” humiSteam humidifiers are fitted with a built-in controller plus

display and keypad for programming and managing operation. The following operating modes can be selected at any time:

- ON/OFF from external humidistat;
- Proportional to an external signal;
- Modulating based on the set point and the reading from an external humidity probe;
- Modulating based on the set point, the reading from an external humidity probe and from a limit probe in the duct;
- Modulating based on the set point and the reading from a temperature probe (e.g. steam baths).

The steam flow-rate is modulated continuously from 20% to 100% of the maximum (10% to 100% in the 90 and 130 kg/h models), except for in ON/OFF mode, where steam production is all-or-nothing. The type “H” humiSteam humidifiers accept the following external signals, selected on the keypad: voltage-free contact, i.e. humidistat, 0 to 1 V, 0 to 10 V, 2 to 10 V, 0 to 20 mA, 4 to 20 mA.

Type X controller: modulating with built-in controller and graphic display

The type “X” humiSteam humidifiers have same control algorithms as the “H” humidifiers, plus the advantages of pH technology (pCO):

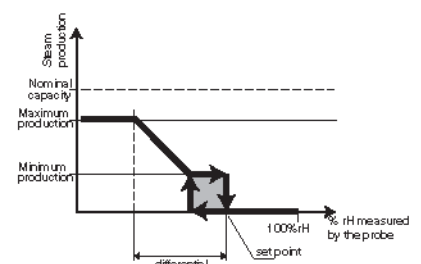
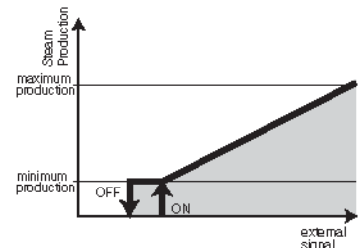
- simplicity for the user thanks to the graphic display with clear messages and icons;
- definition of daily and weekly time bands;
- connectivity via various types of LAN (e.g.: Modbus®, BACnet™, LON®);

- ON/OFF from the keypad;
- alarm log management;
- remote diagnostics via GSM (optional).

Type W controller: same as the type X model, but for steam baths

The type “W” humiSteam humidifiers derive from the type “X” models (see above), however are designed for steam baths. As well as the advantages listed above, these models also feature:

- definition of daily and weekly time bands;
- definition of different temperature set points for the different time bands;
- management of essences (3) and a “sanitation” cycle;
- management of fans (inside and exhaust) and the light.



humiSteam table

Model	UE001*	UE003*	UE005*	UE008*	UE009*	
general characteristics	Rated steam production (kg/h)	1,5	3	5	8	9
	Power input (kW)	1.12	2.25	3.75	6.00	6.75
	Power supply	•	•	•	•	•
	• 200, 208 or 230 Vac (+10 to -15%), 50/60 Hz single-phase					
	• 200, 208, 230, 400, 460, 575 Vac (+10 to -15%), 50/60 Hz three-phase (*)					
	• 400, 460, 575 Vac (+10 to -15%), 50/60 Hz, three-phase					
	Steam connection (mm)	Ø 22/30	Ø 22/30	Ø 30	Ø 30	Ø 30
	Steam pressure (Pa)	0 to 2000	0 to 2000	0 to 1600	0 to 1600	0 to 1700
	No. of boiler	1				
	Operating conditions	1T40 °C, 10 to 90% r.H. non-condensing				
Storage conditions	-10T70 °C, 5 to 95% r.H. non-condensing					
Index of protection	IP20					
water fill	Connection	3/4" G male				
	Temperature limits (°C)	1T40				
	Water pressure limits (MPa-bar)	0.1 to 0.8 - 1 to 8				
	Instant flow-rate (l/m)	0.6				
	Total hardness (°fH)	15 to 40				
	Conductivity limits (µS/cm)	125 to 1250				
water discharge	Connection	Ø 40				
	Temperature (°C)	≤100				
	Instant flow-rate (l/m)	5				
weight and dimensions	Humidifier dimensions (mm)	365x275x620	365x275x620	365x275x620	365x275x620	365x275x710
	Weight (empty) (kg)	13.5	13.5	13.5	13.5	17
	Packaging dimensions (mm)	520x380x730	520x380x730	520x380x730	520x380x730	520x410x870
	Weight of packaged humidifier (kg)	16	16	16	16	20
ventilated steam distributor	No. of ventilated steam distributor	1	1	1	1	1
	Type	VSDU0A*	VSDU0A*	VSDU0A*	VSDU0A*	VSDU0A*
	Power supply (Vac)	24	24	24	24	24
	Rated power (W)	37	37	37	37	37
	Rated air flow (m³/h)	192	192	192	192	192
Network	Network connection	UEH*: RS485, Modbus® (with optional Gateway) UEX* and UEW*: RS485, Modbus®, BACnet™, LON®, RS232 + GSM (optional)				
	Controller	UEX*/UEW*/UEH*/UEP*				

UE010*	UE015*	UE025*	UE035*	UE045*	UE065*	UE090*	UE130*
10	15	25	35	45	65	90	130
7.50	11.25	18.75	26.25	33.75	48.75	67.50	97.50
*	*	*	*	*	*	*	*
Ø 30	Ø 30	Ø 40	Ø 40	Ø 40	Ø 2x40	Ø 2x40	Ø 4x40
0 to 1700	0 to 1700	0 to 2300	0 to 2300	0 to 2300	0 to 2300	0 to 2300	0 to 2300
1	1	1	1	1	1	2	2
1T40 °C, 10 to 90% r.H. non-condensing							
-10T70 °C, 5 to 95% r.H. non-condensing							
IP20							

3/4" G male							
1T40							
0,1 to 0,8 - 1 to 8							
1,2	1,2	4	4	4	7	14	14
15 to 40							
125 to 1250							

Ø 40							
≤100							
5	5	22.5	22.5	22.5	22.5	45	45

365x275x710	365x275x710	555x360x890	555x360x890	555x360x890	650x455x945	1150x465x890	1150x465x890
17	17	34	34	34	44	70	74
520x410x870	520x410x870	680x460x1090	680x460x1090	680x460x1090	820x520x1070	1210x505x1020	1210x505x1020
20	20	39	39	39	51	77	81

1	1	1	1	1	2	2	3
VSDU0A*	VSDU0A*	VRDXL*	VRDXL*	VRDXL*	VRDXL*	VRDXL*	VRDXL*
24	24	230	230	230	230	230	230
37	37	35	35	35	35	35	35
192	192	650	650	650	650	650	650

UEH*: RS485, Modbus® (with optional Gateway)
 UEX* and UEW*: RS485, Modbus®, BACnet™, LON®, RS232 + GSM (optional)

UEX*/UEW*/UEH*/UEP*	UEX*
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The range of humiSteam cylinders

All the CAREL immersed electrode humidifiers feature sophisticated control software that automatically adapts the operating parameters to the characteristics of the water; nonetheless, the optimum balance between cylinder life, variation of steam production and speed of response depending on the type of water and the power supply can only be achieved by changing the shape and the position of the electrodes. For this reason, the CAREL immersed electrode humidifiers today feature the widest choice of cylinders, with specific electrodes for water with conductivity between 125 $\mu\text{S}/\text{cm}$ and 1250 $\mu\text{S}/\text{cm}$, for capacities between 1 and 65 kg/h, and for power supply voltages between 208 V and 575 V.

This extraordinary range of cylinders is the result of years of research and tens of thousands of hours of tests in the CAREL Humidification Laboratory under the widest possible range of uses. This ensures the right solution in every circumstance.

All the humiSteam cylinders feature large galvanised electrodes, positioned inside the cylinder so as to optimise duration and constant performance over the working life of the cylinder.

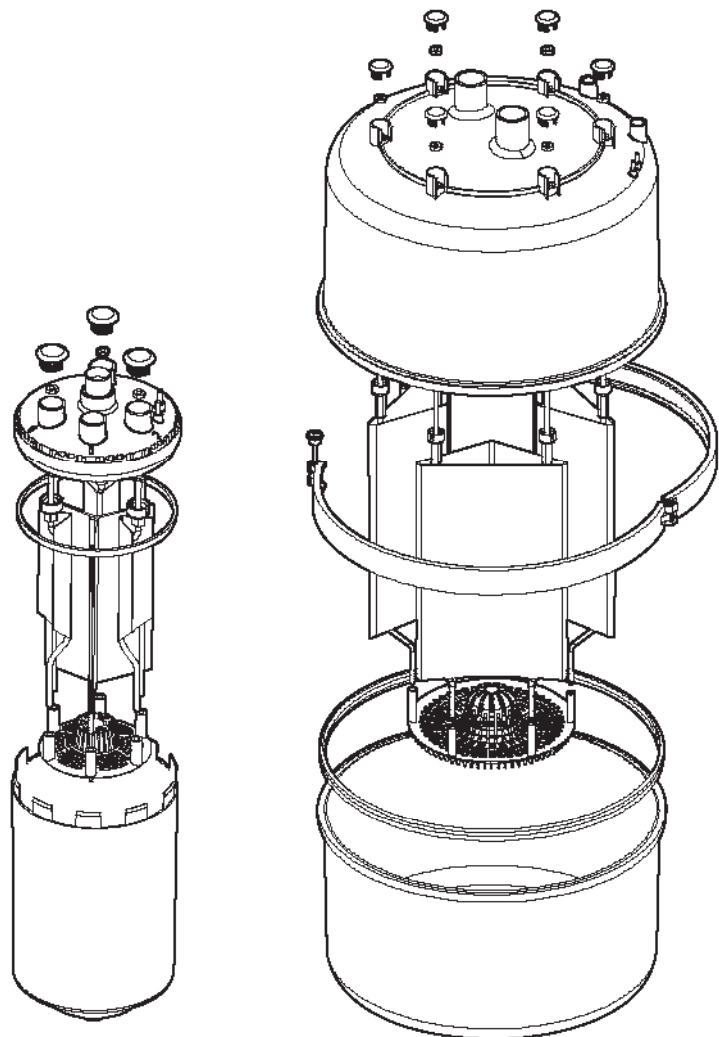
In addition, significant attention has been paid to operation on water with more critical characteristics, to reduce the phenomenon of arcing.

All cylinders are also fitted with filters to avoid the formation of lime scale in the base, preventing the blockage of the drain.

Openable cylinders

The new humidifiers can be fitted with "disposable" cylinders made from flame-retardant plastic, class HB according to UL94, or alternatively openable and therefore cleanable cylinders, made from class V0 flame-retardant plastic (UL94 standard).

The openable cylinders feature quick click-on closing, with a rubber gasket to ensure perfect water-tight seal between the two parts of the cylinder.



Disposable cylinders (HB according to UL 94)

humiSteam three-phase 400 V (from 380 to 415 V)

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
3	BL0T1A00H1	BL0T1C00H1	BL0T1D00H1
5, 8	BL0T2B00H0	BL0T2C00H0	BL0T2D00H0
10, 15	BL0T3B00H0	BL0T3C00H0	BL0T3D00H0
25, 35	BL0T4C00H0	BL0T4D00H0 (*)	
45, 90 (2x)	BL0T4B00H0	BL0T4C00H0 (*)	
65, 130 (2x)	BL0T5B00H0	BL0T5C00H0	

humiSteam single-phase 230 V (from 220 to 240 V)

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
1, 3 compact	BLOSRE00H1	BLOSRF00H1	
1, 3	BLOS1E00H1	BLOS1F00H1	
5	BLOS2E00H0	BLOS2F00H0	
9	BLOS3E00H0	BLOS3F00H0	

humiSteam three-phase 208 and 230 V

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
1, 3	BL0T1A00H1	BL0T1B00H1	
5, 8	BL0T2A00H0	BL0T2B00H0	
10, 15	BL0T3A00H0	BL0T3B00H0	
25	BL0T4B00H0	BL0T4C00H0 (*)	
35		BL0T4B00H0 (*)	
45		BL0T5A00H0 (*)	

humiSteam single-phase 208 V

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
1, 3 compact	BLOSRE00H1	BLOSRF00H1	
1, 3	BLOS1E00H1	BLOS1F00H1	
5	BLOS2E00H0	BLOS2F00H0	
9	BLOS3E00H0	BLOS3F00H0	

humiSteam three-phase 460 V

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
3	BL0T1C00H1	BL0T1D00H1	
5, 8	BL0T2C00H0	BL0T2D00H0	
10, 15	BL0T3C00H0	BL0T3D00H0	
25		BL0T4D00H0 (*)	
35, 45, 90 (2x)	BL0T4C00H0	BL0T4D00H0 (*)	
65, 130 (2x)	BL0T5C00H0	BL0T5D00H0	

humiSteam three-phase 575 V

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
1, 3	BL0T1C00H1	BL0T1D00H1	
5, 8	BL0T2C00H0	BL0T2D00H0	
10, 15	BL0T3C00H0	BL0T3D00H0	
25, 35, 45, 90 (2x)		BL0T4D00H0 (*)	
65, 130 (2x)		BL0T5D00H0	

Openable cylinders (V0 according to UL 94) (**)

humiSteam three-phase 400 V (from 380 to 415 V)

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
5, 8	BLCT2B00W0	BLCT2C00W0	BLCT2D00W0
10, 15	BLCT3B00W0	BLCT3C00W0	BLCT3D00W0
25, 35	BLCT4C00W0	BLCT4D00W0	
45, 90 (2x)	BLCT4B00W0	BLCT4C00W0	
65, 130 (2x)	BLCT5B00W0	BLCT5C00W0	

humiSteam single-phase 230 V (from 220 to 240 V)

Capacity kg/h	Water conductivity		
	Low	Medium	High
	125/350 µS/cm	350/750 µS/cm	750/1250 µS/cm
5	BLCS2E00W0	BLCS2F00W0	
9	BLCS3E00W0	BLCS3F00W0	

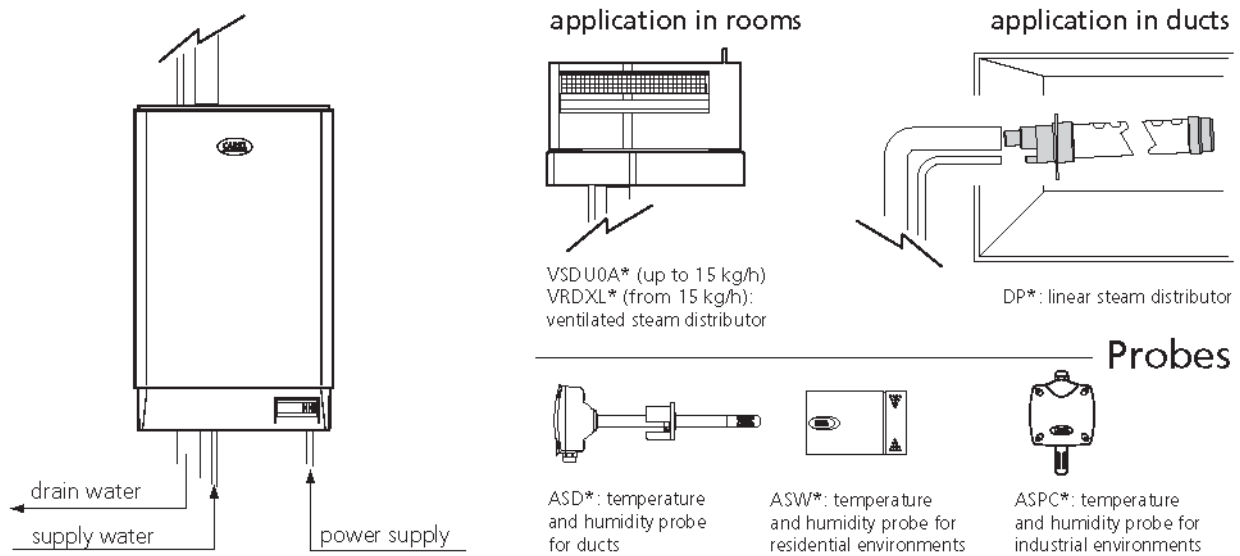
Note: the codes in bold are factory-fitted as standard.

Important

(*) models UE 25, 35, 45 kg/h with serial numbers before 501,000 use the BL0T400H0 cylinder, with 30 mm diameter steam outlets still available.

(**) as well as the voltages shown here, openable cylinders are available for: 208 V single-phase, 230 V three-phase, 460 V three-phase and 575 V three-phase.

OVERVIEW DRAWING



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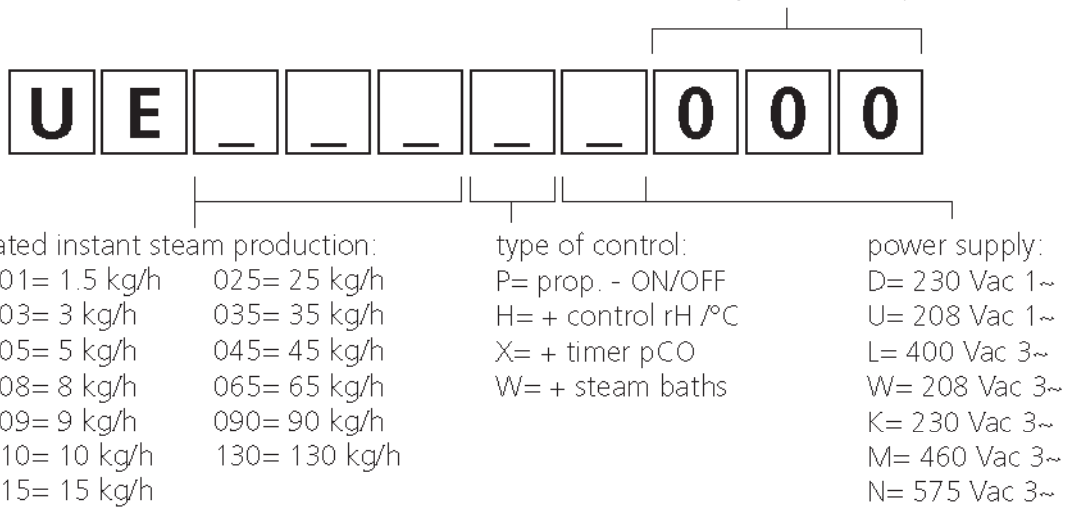


Table of humiSteam controllers

Model	UEP*	UEH*	UEX* and UEW*
Inputs	0 to 10 Vdc	0 to 1 Vdc; 0 to 10 Vdc; 2 to 10 Vdc; 0 to 20 mA; 4 to 20 mA	0 to 1 Vdc; 0 to 10 Vdc; 2 to 10 Vdc; 0 to 20 mA; 4 to 20 mA; 0 to 135 Ω; NTC 135 Ω to 1 kΩ
Input impedance	15 kΩ	60 kΩ (with 0 to 1 Vdc; 0 to 10 Vdc; 2 to 10 Vdc signal); 50 Ω (with 0 to 20 mA; 4 to 20 mA signal)	min. 20 kΩ (with 0 to 1 Vdc; 0 to 10 Vdc; 2 to 10 Vdc signal); 100 Ω (with 0 to 20 mA; 4 to 20 mA signal)
Alarm relay	250 Vac, 5 (2) A	250 Vac, 8 (2) A	250 Vac, 8 (2) A
Communication	-	RS485, Modbus® (with optional Gateway)	RS485, Modbus®; BACnet™; LON®
Power to active probes	-	24 Vdc (24 Vac rectified) Imax 250 mA; 12 Vdc Imax 50 mA	15 Vdc, max 100 mA protected
Remote input enabled		voltage-free contact; max resistance 50 Ω; Vmax 24 Vdc; Imax 5 mA	voltage-free contact; Vmax 20 Vdc; Imax 6 mA