HygroMatik®

member of CAREL group · CAREL

With flexibility and system

Electrode and heater type steam humidifiers

FlexLine

For industry, commerce, culture and leisure

HygroMatik since 1970
MORE THAN
50 YEARS
Quality and Innovation

The HygroMatik FlexLine as a modular system

HIGH FLEXIBILITY IN AWARD-WINNING QUALITY

CUSTOM-MADE
FOR EVERY
AREA OF APPLICATION

The basic FlexLine model is the basis for all other configuration options. Thanks to its individual extension capability the FlexLine can be adapted to the requirements of different areas of application:

- Optimisation of the indoor climate in industrial, commercial, cultural and leisure facilities

- Autonomous control and stabilisation of air humidity in ventilation systems for industry and processes

FLEXIBILITY
PAYS DIVIDENDS

The HygroMatik FlexLine represents a modern generation of steam humidifiers which consists of a basic model that can be expanded to create an individual humidification solution suitable for all requirements.

Advantages:

- Ease of installation by means of individual pre-configuration ex factory

- Expansion options for retrofitting
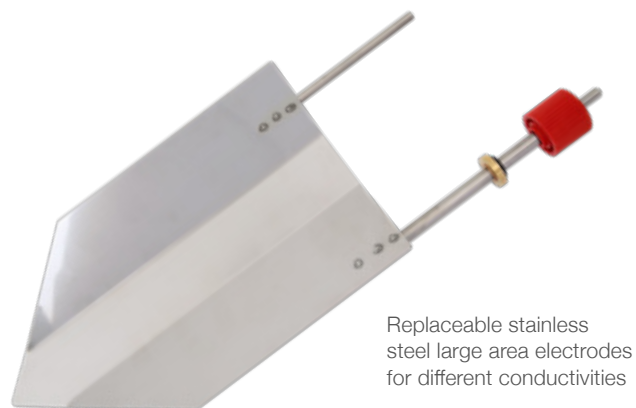
- You only invest in the functions you really need

In order to make this flexibility available to you quickly, we have developed a modular system. This was awarded in three categories and the FlexLine received the **Plus X Award.**

The HygroMatik FlexLine as a modular system

PERFECTLY CUSTOMISED, OPTIMALLY EQUIPPED

MANIFOLD OPTIONS FOR
A HUMIDIFICATION SOLUTION THAT FITS PERFECTLY

Even the basic version of our FlexLine series is characterised by solid basic functions, long operating times and a long service life. But every installation is different, and so every project places unique requirements on the humidification solution. As an option, all FlexLine units can be customised at the factory **with over 100 additional function combinations** to meet the needs of the installation environment. Most FlexLine options can also be retrofitted or activated later. This means that you only invest in the humidifier version that you actually need. In addition, various protection and security functions can be installed and activated, e.g.
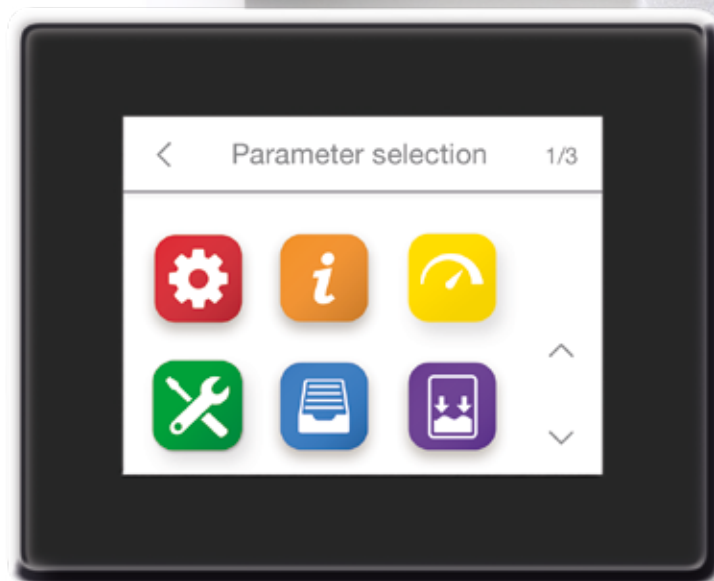
- HyFlush (cylinder flushing device)
- HyCool (integrated waste water cooling)
- Stub line flushing

- Communication via BACnet / Modbus
- Safety release on 12V / 24V / 230V
- Electrode version with demineralised water

This means that your system is optimally protected around the clock and you have less maintenance work. If needed, all options can be retrofitted. We are always pleased to provide advice.

OPTIMUM HUMIDIFICATION
USING THE BEST METHODS

FlexLine is available as an electrode as well as a heater element humidifier – depending on your water quality and the required degree of control accuracy.

Replaceable stainless steel large area electrodes for different conductivities

Resistor type heater elements in highly corrosion-resistant alloy

INTELLIGENT PROTECTION

MAXIMUM FLEXIBLE

MAXIMUM HYGIENE

LONG LIFE

COST SAVING

SUSTAINABLE

ALWAYS THE CORRECT
HUMIDIFICATION PERFORMANCE

Equip HygroMatik FlexLine with the power you need for optimum humidification. Performance classes with steam output from 3 kg/h to 130 kg/h are selectable in 6 housing sizes. In addition, individual performance adjustments can be programmed both at the factory and on site.

Benefit from extensive functions

POWERFUL, SMART AND EFFICIENT

SMART CONTROL – POWERFUL AND QUICK RESPONSE

The control and regulation technology of FlexLine units provides extensive possibilities that are simple and easy to operate.

- **Numerous control and reporting functions** can be assigned to up to 11 relays depending on the unit
- Freely programmable, overload-protected **digital input**
    - » Load shedding: power limitation in the event of network overload or emergency power operation
    - » Blow-down on external request for specific operating conditions
    - » Stand-by mode: pre-heating by remote activation for a quick response time
- **Integrated communication** protocol: Modbus RTU or BACnet

EXCELLENT EASE OF OPERATION

All HygroMatik FlexLine units are equipped with a capacitive 3.5" touch display. Operation and programming are selected via a flat and intuitive menu structure analogous to modern smartphone logic. In addition to this, subsequent software updates are quickly and easily possible via USB flash drive.

- At a glance comprehensible pictographs provide information on the operating condition
- Simple and fast navigation
- Information and system messages displayed as plain text
- Readout of service messages with date and time
- Integrated real-time clock

COMPREHENSIVE SERVICE FUNCTIONS

We have equipped the HygroMatik FlexLine with intelligent service functions for operational safety. These provide a high level of safety, reliability, control and comfort.

- **Reliable:** Preventive maintenance through permanent monitoring and intelligent evaluation of operating parameters can avoid unplanned downtimes
- **Convenient:** Detailed messages enable deviations to be identified and rectified more quickly
- **Simple:** The diagnostic mode can be started directly via the touch display without commissioning the unit completely
- **Flexible:** Service intervals can be calculated by the unit according to time as well as the amount of steam produced

Optimised unit performance for efficient utilisation

HIGHLY EFFICIENT,
EASY TO MAINTAIN

DEVELOPED FOR LONG LIFE

As with all our products, the HygroMatik FlexLine has been developed for an especially long life. The units feature technologies that not only reduce the amount of maintenance required, but also the wear of components. In addition, they are highly efficient with energy and resources.

- **Adjustable power limitation** from 25 - 100%

- **Adjustable load shedding** to temporarily adapt operation to the respective load conditions

- **Long-term continuous operation:** A robust base material provides our reusable cylinders with high temperature resistance and dimensional stability

- The **split cylinder** is easy to open and can be cleaned without using chemicals

- **Extremely durable:** All FlexLine cabinets are manufactured in corrosion-resistant stainless steel; the powder coating of the housing increases the lifespan and offers optimum work safety

- **Robust blowdown pump** for removing scale deposits to ensure long operating life cycles and minimal maintenance

- Highest safety standard for electrode steam humidifiers due to integrated **mechanical circuit breaker and mechanical safety temperature limiter** for heater type steam humidifiers

- Heater type steam humidifier with **capacitive proportional water level sensor** without wearing parts

All in the green zone

Robust and durable cabinet

Reusable steam cylinders

Long and flexible service intervals

High resource efficiency

Innovative configuration for individual applications

FLEXLINE FL-TPRO
PRECISE AND DURABLE

FLEXLINE FLH-TPRO
PRECISION IN PERFECTION

The HygroMatik **FlexLine FLH-TPRO** units are the solution for all applications in which constant humidification values are decisive for quality, for example the humidification of demanding production processes. Other common applications are test benches which require exact and constant reproducible ambient conditions for valid results.
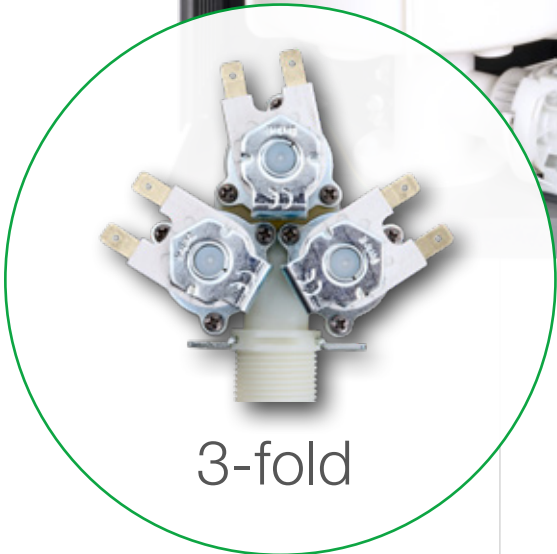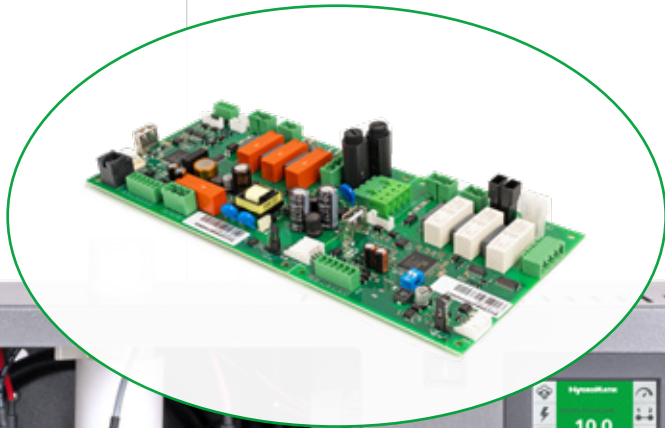
The FlexLine FLH-TPRO offers all the advantages of FlexLine heater type steam humidifiers and supplements them with **increased control accuracy of up to +/- 1%.** To achieve this, the FlexLine FLH-TPRO is operated exclusively with fully demineralised water and therefore runs almost **maintenance-free and without interruption.**

The **3-fold solenoid valve** is responsible for the control accuracy of the precision control which ensures continuous and steady feeding of the water into the cylinder without interruption. The unit is also equipped with an **additional expansion board.**

Another important feature is the additional analogue input for connecting a **second humidity sensor.**
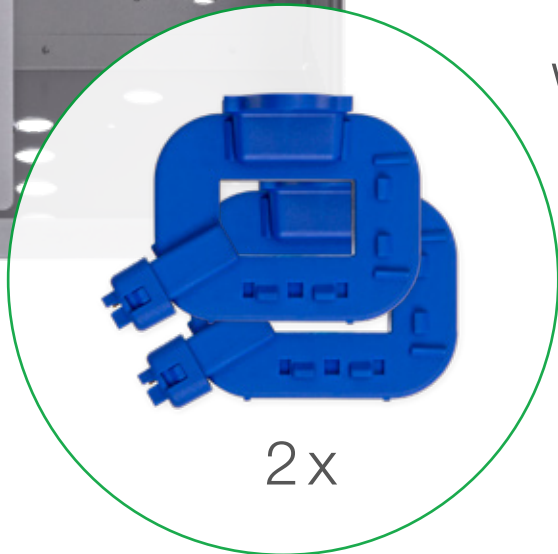
This enables **sliding maximum limitation.** This means that the steam output adapts smoothly to the maximum value and interruptions caused by switching off steam production are avoided.

Image FlexLine FLE-TPRO

3-fold

Solenoid valve

2 x

Ring transducer

FLEXLINE FLE-TPRO
LARGE PERFORMANCE RANGE - PRECISELY CONTROLLABLE

The **FlexLine FLE-TPRO** devices enable a wider range of steam output control. This makes the FlexLine FLE-TPRO particularly suitable for use in **test laboratories and simulation systems.**

The second ring transducer and the additional expansion board are responsible for the control accuracy of the precision control. The smallest electrically controllable output of the FlexLine humidifier is halved, thus **doubling the control accuracy** of the humidifier.

Larger humidifiers with 6 electrodes receive a controllable power reduction to reduce the surface load of the electrodes at low performance below 15% and at the same time double the control accuracy and the time between filling cycles.

The FlexLine FLE-TPRO can also be equipped with the "Operation with demineralised water" option. This FlexLine option uses a patented process to add the optimum amount of normal tap water to demineralised water, which ensures the conductivity required for stable operation. At the same time, however, the loss of hardness formers is reduced to a minimum, which enables a significantly longer operating time between maintenance.

With clear advantages

- Lower investment costs than when using heating elements
- Lower operating costs due to less wear and tear
- Lower maintenance costs and longer maintenance intervals
- Longer service life

A higher humidification performance is possible by connecting units together.

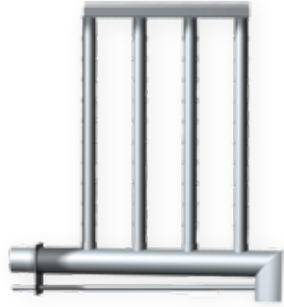| Type	FLE05	FLE10	FLE15	FLE20	FLE25	FLE30	FLE40	FLE50	FLE65	FLE80	FLE100	FLE130
Steam output [kg/h]	4.8-5.2	9.5-10.4	14.3-15.6	19.0-20.8	24.0-26.0	28.5-31.2	38.2-41.7	47.8-52.2	62.0-67.5	76.4-83.4	95.5-104.4	124.0-135.0
Electrical connection [1]	380-415V / 3Ph / N / 50-60Hz					380-415V / 3Ph / N / 50-60Hz						
Rated power [kW]	3.6-3.9	7.1-7.8	10.7-11.7	14.3-15.6	18.0-19.5	21.4-23.4	28.6-31.3	35.9-39.2	46.3-50.6	2 x 28.6-31.3	2 x 35.8-39.1	2 x 46.3-50.6
Nominal current [A]	5.4	10.8	16.2	21.7	27.1	32.5	43.3	54.1	70.4	2 x 43.3	2 x 54.1	2 x 70.4
Fuse [A] [2]	3 x 10	3 x 16	3 x 20	3 x 32		3 x 40	3 x 50	3 x 63	3 x 80	2 x 3 x 50	2 x 3 x 63	2 x 3 x 80
Number of steam cylinder	1					1					2	
Control	FlexLine mainboard with capacitive 3.5" touch colour display					FlexLine mainboard with capacitive 3.5" touch colour display						
Internal control voltage [3]	220-240V / N / 2.5A					220-240V / N / 2.5A						
Steam hose connection [mm]	1 x 25		1 x 40			1 x 40	2 x 40 [4]	2 x 40		4 x 40 [4]	4 x 40	
Max. filling capacity [l]	5		13			21		36		42	71	
Empty weight [kg]	16		22		23	26		34		66	75	
Operating weight [kg]	21		36		37	47		70		108	147	
Dimensions WxHxD [mm] [5]	460 x 535 x 320		540 x 695 x 320			580 x 750 x 355		640 x 785 x 420		1130 x 750 x 420	1170 x 785 x 420	
Water connection	Tap water of varying qualities, 1 to 10 bar, for 3/4" external threat					Tap water of varying qualities, 1 to 10 bar, for 3/4" external threat						
Drain water connection	Connection Ø 1 1/4"					Connection Ø 1 1/4"					2 x Connection Ø 1 1/4"	

FlexLine FLE-TPRO (electrodes) technical data

A higher humidification performance is possible by connecting units together.

Type	FLE15-TPRO	FLE20-TPRO	FLE25-TPRO	FLE30-TPRO	FLE40-TPRO	FLE50-TPRO	FLE65-TPRO
Steam output [kg/h]	15	20	25	30	40	50	65
Electrical connection [1]	400V / 3Ph / N / 50-60Hz						
Rated power [kW]	11.2	15.0	18.8	22.5	30.0	37.5	48.8
Nominal current [A]	16.2	21.7	27.1	32.5	43.3	54.1	70.4
Fuse [A] [2]	3 x 20	3 x 32		3 x 40	3 x 50	3 x 63	3 x 80
Number of steam cylinder	1						
Control	FlexLine mainboard **Process** with capacitive 3.5" touch colour display						
Internal control voltage [3]	220-240V / N / 2.5A						
Steam hose connection [mm]	1 x 25	1 x 40		2 x 40 [4]		2 x 40	
Max. filling capacity [l]	13		21		36		
Empty weight [kg]	22		23	26		33	34
Operating weight [kg]	36		37	47		69	70
Dimensions WxHxD [mm] [5]	540 x 695 x 320		580 x 750 x 355		640 x 785 x 420		
Water connection	Tap water of varying qualities, 1 to 10 bar, for 3/4" external threat						
Drain water connection	Connection Ø 1 1/4"						

From our accessories range

Standard steam manifold

Multiple steam manifold

We reserve the right to make technical changes.

[1] Other voltages upon request.

[2] 13/28% above nominal power consumption after full blowdown. Observe actuation characteristics of automatic circuit-breakers. If necessary, select the next highest circuit-breaker level.

[3] Separate control voltage upon request.

[4] Incl. Y-piece DN40.

[5] Outer dimensions of width and depth. Height incl. drain connection.

FlexLine heaters technical data

A higher humidification performance is possible by connecting units together.

Type	FLH03	FLH06	FLH09	FLH15	FLH25	FLH30	FLH40	FLH50	FLH60	FLH80	FLH100
Steam output [kg/h]	2.7-3.3	5.5-6.5	8.2-9.8	13.7-16.4	22.7-27.1	27.4-32.7	36.5-43.5	45.5-54.3	54.8-65.4	73.0-87.0	91.0-108.6
Electrical connection (1)	220-240V / 1Ph / N / 50-60Hz		380-415V / 3Ph / N / 50-60Hz						380-415V / 3Ph / N / 50-60Hz		
Rated power [kW]	2.1-2.4	4.1-4.9	6.2-7.3	10.3-12.3	17.1-20.3	20.6-24.5	27.3-32.6	34.1-40.7	2 x 20.6-24.5	2 x 27.3-32.6	2 x 34.1-40.7
Nominal current [A]	9.4-10.2	18.7-20.4	10.7-11.7	16.0-17.5	25.9-28.3	31.3-34.1	41.5-45.4	51.8-56.6	2 x 31.2-34.1	2 x 41.5-45.4	2 x 51.8-56.6
Fuse [A]	1 x 16	1 x 25	3 x 16	3 x 20	3 x 32	3 x 35	3 x 50	3 x 63	2 x 3 x 35	2 x 3 x 50	2 x 3 x 63
Number of steam cylinder	1					1			2		
Control	FlexLine mainboard with capacitive 3.5" touch colour display					FlexLine mainboard with capacitive 3.5" touch colour display					
Internal control voltage (3)	220-240V / N / 2.5A					220-240V / N / 2.5A					
Steam hose connection [mm]	1 x 25				1 x 40	1 x 40 (4)	2 x 40		2 x 40 (4)	4 x 40	
Max. filling capacity [l]	5			14	14	36			71		
Empty weight [kg]	18			25	25	37			80		
Operating weight [kg]	24			40	40	74			152		
Dimensions WxHxD [mm] (5)	460 x 535 x 320			540 x 695 x 320	540 x 695 x 320	640 x 785 x 420			1170 x 785 x 420		
Water connection	Fully demineralised water / cleaned condensate / partially softened water tap water of varying qualities, 1 to 10 bar, for 3/4" external thread					Fully demineralised water / cleaned condensate / partially softened water tap water of varying qualities, 1 to 10 bar, for 3/4" external thread					
Drain water connection	Connection Ø 1 1/4"					Connection Ø 1 1/4"			2 x Connection Ø 1 1/4"		

FlexLine FLH-TPRO (heater) technical data

A higher humidification performance is possible by connecting units together.

Type	FLH03-TPRO	FLH06-TPRO	FLH09-TPRO	FLH15-TPRO	FLH25-TPRO	FLH30-TPRO	FLH40-TPRO	FLH50-TPRO
Steam output [kg/h]	3	6	9	15	25	30	40	50
Electrical connection (1)	230V / 1Ph / N / 50-60Hz	400V / 3Ph / N / 50-60Hz						
Rated power [kW]	2.3	4.5	6.8	11.4	18.9	22.8	30.3	37.8
Nominal current [A]	9.8	19.6	11.3	16.9	27.3	32.9	43.7	54.6
Fuse [A]	1 x 16	1 x 25	3 x 16	3 x 20	3 x 32	3 x 35	3 x 50	3 x 63
Number of steam cylinder	1							
Control	FlexLine mainboard **Process** with capacitive 3.5" touch colour display							
Internal control voltage (3)	220-240V / N / 2.5A							
Steam hose connection [mm]	1 x 25				1 x 40	1 x 40 (4)	2 x 40	
Max. filling capacity [l]	5			14		36		
Empty weight [kg]	17			25		36	37	
Operating weight [kg]	22			40		73	74	
Dimensions WxHxD [mm] (5)	460 x 535 x 320			540 x 695 x 320		640 x 785 x 420		
Water connection	Fully demineralised water / cleaned condensate / partially softened water 1 to 10 bar, for 3/4" external thread							
Drain water connection	Connection Ø 1 1/4"							

Comparison of equipment and options

	FlexLine **heater**	FlexLine **FLH-TPRO**
Control accuracy (6)	Up to +/- 2 %	Up to +/- 1 %
Water quality	Fully demineralised water, cleaned condensate, partially softened water, tap water of different qualities	Fully demineralised water
SuperFlush	Integrated	Not necessary
Solenoid valve	1-fold to 3-fold	2-fold to 5-fold
Digital inputs (standard)	1	2
Analogue inputs (standard)	1	2
Optional relay functions	Up to 11	Up to 8

We reserve the right to make technical changes.

(1) Other voltages upon request.

(2) 13/28% above nominal power consumption after full blowdown. Observe actuation characteristics of automatic circuit-breakers. If necessary, select the next highest circuit-breaker level.

(3) Separate control voltage upon request.

(4) Incl. Y-piece DN40.

(5) Outer dimensions of width and depth. Height incl. drain connection.

(6) Is achieved after 2-3 x absorption distance.

Our service for 100% customer satisfaction

- Long availability of replacement parts

- Technical hotline +49 4193 895-293
  or hotline@hygromatik.com

- HygroMatik distributes in more than 45 countries

- Operating manuals, planning data and information
  on workshop events available online at
  www.hygromatik.com

HYGROMATIK®

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