

FlexLine Plus and Process steam humidifiers





Precision and process humidification in a modular system

- High control accuracy of up to +/- 2% RH
- Uninterruptible steam production with demineralised water
- Hygienic humidification with mineral-free steam
- Absolutely reliable through high-quality components
- Steam cylinders made of corrosion-resistant stainless steel





Many options for individual configuration

The respective basic model of the FlexLine is the basis for all other configuration options. Thanks to their individual equipment, Munters FlexLine Plus and Process can be adjusted to the requirements of various industrial and process control applications and equipped with a wide range of options so that they optimally meet every project requirement. These options can also be retrofitted as needed.

Example option:

- HyCool (integrated waste water cooling)
- Extended reporting functions



Highest quality and precision through controlled air humidity

A stable and controlled room climate is indispensable for many production processes. Fluctuations in air humidity and especially excessively dry air have a massive influence on the raw materials used, on their processing capabilities and thus ultimately also on the quality of the end products.

Munters FlexLine Plus and Process heater steam humidifiers have been developed especially for the use in precision and process humidification, in sensitive areas of industrial production as well as for the stabilisation of the relative air humidity in laboratories and research facilities.

Advantages for the operator:

- Precise control and reliable stabilisation of air humidity in the ambient and room air
- Increased process efficiency by reducing errors and failures
- Increased productivity and product quality
- Protection against dangerous electrostatic discharges
- Healthy and pleasant working environment for employees



Maximum flexibility that pays for itself

As part of the FlexLine series, a new generation of steam humidifiers, the units can be flexibly expanded from a basic model with appropriate options. Every humidifier can thus be optimally adapted to the individual requirements of a project.

Advantages for project planning:

- Reduction of installation complexity by means of individual pre-configuration ex factory
- Optimum connection to the building management system
- Optionally Modbus or BacNet
- Retrofittable with optional expansion options
- You only invest in the functions you really need



The optimal humidification performance

Equip the Munters FlexLine Plus and Process with the power you need for optimum humidification performance. There are seven output classes from 5 to 50 kg/h steam output in one unit size to choose from. In addition, individual performance adjustments can be programmed both at the factory and on site. Higher humidification performance is achieved by connecting units together.

The robust stainless steel cylinders – high quality and hygienically clean

In some application areas, such as hospitals or other medical areas, stainless steel cylinders are sometimes preferred. The stainless steel cylinders of Munters FlexLine Plus and Process generate hygienic, mineral-free steam and are designed accordingly for these applications.

- The stainless steel split cylinders can be opened easily and cleaned without chemicals
- The robust heater mounting allows a simple and fast installation and removal of the heating elements
- Available in two cylinder sizes with volumes attuned to the humidification capacity



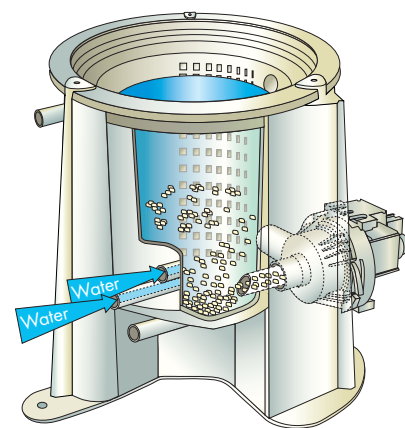
Compact and low-maintenance

When operated with softened or tap water, the minerals and salts contained in the water precipitate. These deposits are stirred up by the integrated rinsing and lime collection system during partial blowdown and can be removed by the powerful blowdown pump. The amount of particles accumulated in the strainer is thus significantly reduced.

- Robust removable strainer allows easy removal of hardeners
- The combined rinsing and lime collection system is integrated in the unit and ensures compact dimensions for Munters FlexLine Plus and Process
- Plug connections, cylinder clamping ring and steam hose adapter enable fast and easy maintenance



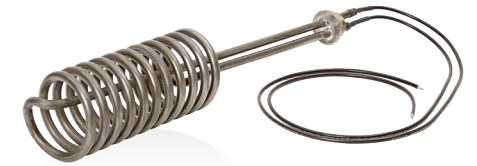
Large cylinder (FLP30 - FLP50)



Integrated rinsing and lime collection system

Durable and safe

Munters FlexLine Plus and Process heat the water with the aid of one, three or six resistance heaters in the stainless steel cylinder according to the immersion heater principle. The heaters are made of highly corrosion-resistant Incoloy 825 (chrome-nickel-molybdenum alloy) and therefore extremely durable. The mechanical overheating protection of the heaters together with the electronic proportional level control provides double protection.



Resistor type heater elements in highly corrosion-resistant alloy

Robust and efficient

Munters FlexLine Plus and Process have been developed, like all our products, for particularly long operating times. The units are characterised by technologies that, in addition to the maintenance effort, minimise the wear of unit components and use energy and resources in a highly efficient manner.

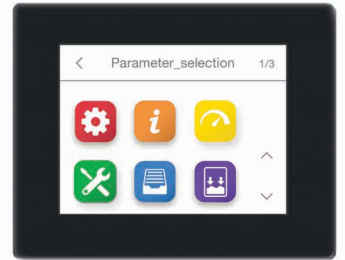
- Extremely durable: All FlexLine cabinets and cylinders are made of corrosion-resistant stainless steel; the powder coating of the cabinet further increases the durability and offers optimum occupational safety
- Heater steam humidifier with robust, contactless and therefore wearfree level control
- Robust blowdown pump for removing hardeners to ensure long operating life cycles and low maintenance requirement
- Adjustable load shedding between 25 and 100% for temporary or permanent adjustment of the operation to the respective load conditions



Robust blowdown pump

Excellent ease of operation

All Munters FlexLine Plus and Process units are equipped with a capacitive 3.5" touch display. Operation and programming is made 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 stick.



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

Intelligent and responsive

The improved control and regulation technology of Munters FlexLine Plus and Process units offers extensive possibilities with equally simple and comfortable operation.



- Multi-unit operation management caters for optimum allocation and capacity utilisation when operating multiple units and safeguards the air humidity even when a unit is being serviced
- Numerous control and signalling functions can be assigned up to ten relays depending on the unit
- Up to two freely programmable, overload-protected digital inputs
- Integrated communication protocol Modbus RTU or BACnet

All in the green zone

- Robust and durable cabinet
- Reusable steam cylinders
- Long and flexible service intervals
- High resource efficiency





Safety and service

We have equipped the Munters FlexLine Plus and Process units with intelligent service functions and innovative features for operational safety. These offer a new level of safety, reliability, overview and comfort.

- Diagnosis mode can be actuated directly via the touch display without having to start the whole unit
- Service messages easily selectable
- Service intervals are calculated and released by the unit according to the amount of steam produced
- Smart controlled status messages avoid damage and expensive service operations
- Detailed messages enable deviations to be identified and rectified sooner

The FlexLine Process: maximum control accuracy and precision

The Munters FlexLine Process 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.

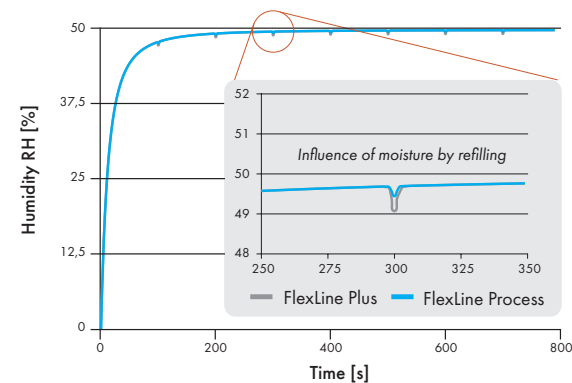
The Munters FlexLine Process offers all the advantages of FlexLine Plus and supplements them with increased control accuracy of up to $\pm 0.5\%$ RH. To achieve this, the FlexLine Process is operated exclusively with fully demineralised water and therefore runs almost maintenance-free and without interruption.

The 4-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.

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.

FlexLine Plus and Process in a direct comparison

Moisture profile in operation with purified water*



*Measuring point directly after 2.5 x humidification distance.

Comparison of equipment and options

Type	FlexLine Plus	FlexLine Process
Control accuracy	Up to $\pm 1\%$ RH	Up to $\pm 0.5\%$ RH
Water quality	Fully demineralised water, cleaned condensate, partially softened water, tap water of different qualities	Fully demineralised water
SuperFlush	Integrated	Not necessary
Solenoid valve	2-fold or 3-fold	4-fold
Digital inputs (standard)	1	2
Analogue inputs (standard)	1	2
Optional relay functions	Up to 10	Up to 7



4-fold solenoid valve of the FlexLine Process



Our service for 100% customer satisfaction

- Installation support & assembly supervision
- Startup services & guaranteed performance
- Upgrades, reconditioning / Repairs
- Spare parts

Technical data

FlexLine Plus

A higher humidification performance is possible by connecting units together.

Type	FLP05	FLP08	FLP15	FLP25	FLP30	FLP40	FLP50
Steam output [kg/h]	4.6-5.5	7.6-9.0	13.7-16.4	22.7-27.1	27.4-32.7	36.5-43.5	45.5-54.3
Electrical connection ⁽¹⁾	380-415V / 3Ph / 50-60Hz			380-415V / 3Ph / 50-60Hz			
Rated power [kW]	3.4-4.1	5.7-6.8	10.3-12.3	17.1-20.3	20.6-24.5	27.3-32.6	34.1-40.7
Nominal current [A]	9.0-9.9	15.0-16.3	15.6-17.1	25.9-28.3	31.2-34.1	41.5-45.4	51.8-56.6
Fuse [A]	3 x 16	3 x 20		3 x 32	3 x 35	3 x 50	3 x 63
Number of steam cylinder	1			1			
Control	FlexLine mainboard with capacitive 3.5" touch colour display			FlexLine mainboard with capacitive 3.5" touch colour display			
Separate control voltage ⁽³⁾	220-240V / N / 2.5A			220-240V / N / 2.5A			
Steam hose connection [mm]	1 x 40 ⁽⁶⁾			1 x 40	1 x 40 ⁽⁴⁾	2 x 40	
Empty weight [kg]	32		35	35		41	
Max. filling capacity [l]	15			30			
Operating weight [kg]	47		50	50		71	
Dimensions WxHxD [mm] ⁽⁵⁾	650 x 855 x 380			650 x 855 x 380			
Water connection	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"						

FlexLine Process

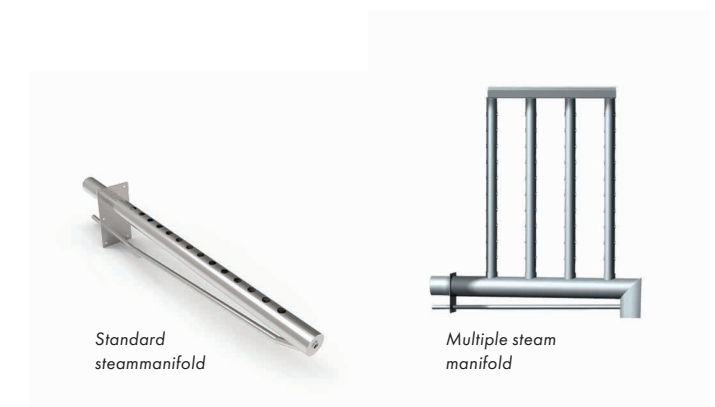
A higher humidification performance is possible by connecting units together.

Type	FLP05-TPRO	FLP08-TPRO	FLP15-TPRO	FLP25-TPRO	FLP30-TPRO	FLP40-TPRO	FLP50-TPRO
Steam output [kg/h]	4.6-5.5	7.6-9.0	13.7-16.4	22.7-27.1	27.4-32.7	36.5-43.5	45.5-54.3
Electrical connection ⁽¹⁾	380-415V / 3Ph / 50-60Hz						
Rated power [kW]	3.4-4.1	5.7-6.8	10.3-12.3	17.1-20.3	20.6-24.5	27.3-32.6	34.1-40.7
Nominal current [A]	9.0-9.9	15.0-16.3	15.6-17.1	25.9-28.3	31.2-34.1	41.5-45.4	51.8-56.6
Fuse [A]	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 with capacitive 3.5" touch colour display						
Separate control voltage ⁽³⁾	220-240V / N / 2.5A						
Steam hose connection [mm]	1 x 40 ⁽⁶⁾			1 x 40	1 x 40 ⁽⁴⁾	2 x 40	
Empty weight [kg]	32			35		41	
Max. filling capacity [l]	15			30			
Operating weight [kg]	47		50			71	
Dimensions WxHxD [mm] ⁽⁵⁾	650 x 855 x 380						
Water connection	Fully demineralised water, 1 to 10 bar, for 3/4" external thread						
Drain water connection	Connection Ø 1 1/4"						

Accessories

We reserve the right to make technical changes.

- ⁽¹⁾ Other voltages upon request.
- ⁽³⁾ Internal control voltage upon request.
- ⁽⁴⁾ Incl. Y-piece DN40.
- ⁽⁵⁾ Outer dimensions of width and depth. Height incl. drain connection.
- ⁽⁶⁾ Reducer DN40/DN25 included.



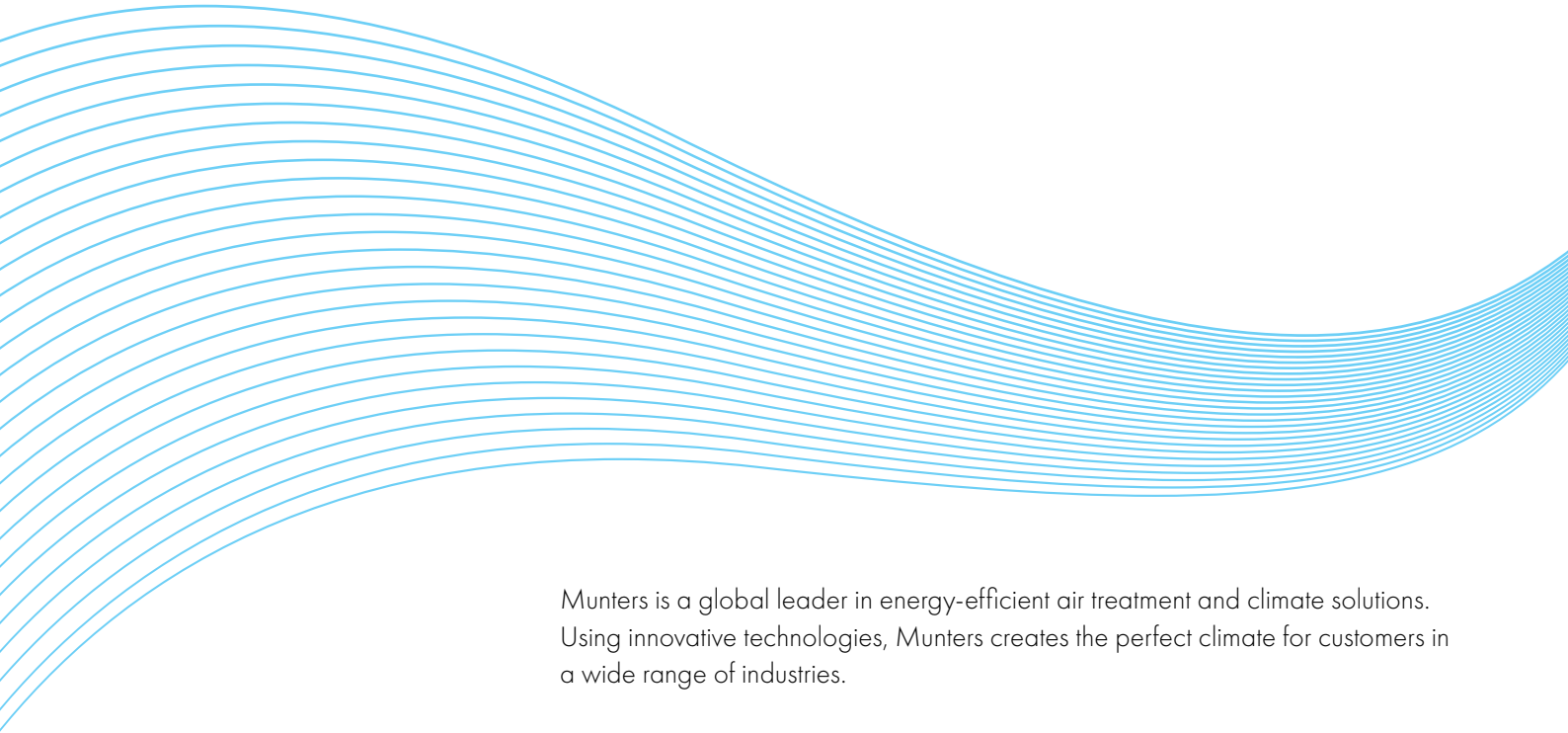


Munters Services With you all the way!

We are dedicated to providing the most reliable, efficient and innovative products, but we know that service is just as important. That is why we offer Global Services, which ensures you benefit from our expertise wherever you are in the world.

Our range of services includes:

- A global network of Munters Service Engineers
- Comprehensive commissioning service
- Training and competence development
- Preventive maintenance and spare parts
- Munters Remote Assist: online service solution when on-site visits are difficult
- And much more...



Munters is a global leader in energy-efficient air treatment and climate solutions. Using innovative technologies, Munters creates the perfect climate for customers in a wide range of industries.

Munters has been defining the future of air treatment since 1955. Today, around 3,350 employees carry out manufacturing and sales in more than 30 countries.

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