

Munters MLPlus



Energy efficient desiccant dehumidification system with integrated pre- and post treatment

# Highly flexible and compact climate control system

## Build up by standard modules

The ML Plus concept is a compact standardised standalone dehumidification system with incorporated temperature and humidity control.

Our ML Plus-system can be configured with booster fan, humidifier, pre- and post coolers and heaters according to your requirements.

The ML Plus system is build up in elements, assembled and tested at our factory - ready for immediate start up on site.



## Small footprint - easy installation

By standardising it has been possible to minimize the foot print measurements.

This enables a simple integration of ML Plus into most moisture sensitive production processes.

ML Plus can be delivered with air flows from 180 m<sup>3</sup>/h up to 1400 m<sup>3</sup>/h.

The system is quick and easy to connect to existing pipes and ducts.

## ML Plus Benefits

- **Highly flexible system - pre-engineered modules to be combined**
- **Modulated control of react.heater secures minimized energy consumption**
- **High quality casing meeting hygienic demands**
- **Compact design – single, common base frame - small foot print - easy to locate**
- **Easy installation - plug&play**
- **Fits to standard ductworks**
- **Easy service access**





# ML Plus - for archives and sensitive processing

## Controlling humidity the Munters way

Since Carl Munters developed the first desiccant wheel dehumidifier approx. 60 years back, the principle has developed into the most energy efficient technique for creating humidity controlled environments.

Our ML Plus is a refined unit, based on our famous working horse the ML-unit, of which thousands have been installed worldwide.

Thanks to the high dehumidification capacity and flexibility ML Plus is perfect for use in different parts of moisture sensitive processes or wherever there is a need for controlled humidity.



### •Process Industry

For sensitive production processes the ML Plus system offers an energy saving climate control in only one unit - creating optimal production climate around the year.

### •Archives

Storing valuable artifacts or documents means high demand on humidity control. As our ML Plus System offers both humidification and dehumidification in one and the same unit, the system will ensure perfectly controlled humidity and temperature conditions



# ML Plus - The flexible Process Applications system



## When very dry air/low humidity is required

- Coating
- Packing
- Filling
- Capsuling
- Cleanrooms, labs



## A flexible standard system

Short delivery and start-up time thanks to a superior pre-design of 20 standard set-ups to 9 different airflows. Easy to install and thanks to the pre-programmed control, only specific customer related parameters need to be changed.

## Hygienious design

ML Plus is a part of Munters' HYGENIUS™ desiccant product range. It is easy accessible, easy to clean and meets the most demanding requirements on hygiene.

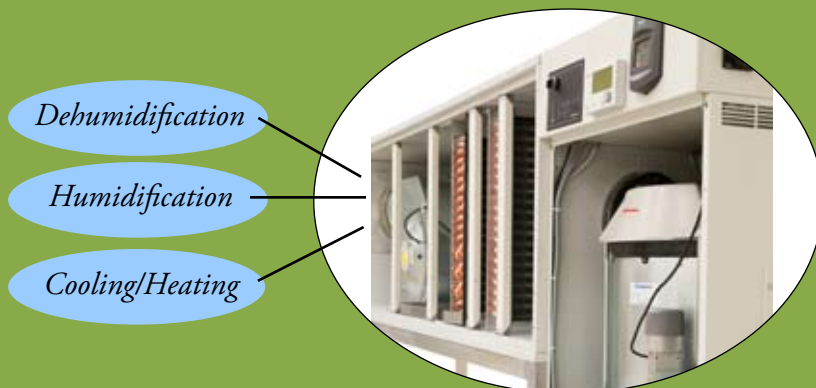
- Smooth surfaces, Large inspection doors
- Integrated drip pan and excellent drainage system
- Stainless Steel as option
- Clean room filter media as option

## Pre- and postcoolers

for demanding process applications where low humidity is a must.



## The intelligent MLPlus climate system saves both money and energy:



### *Your benefits:*

- » *Constant climate saves energy*
- » *Smaller foot print compared to separate units*
- » *Single point supplier*
- » *Only one CE mark*
- » *Only one After Sales partner*

# ML Plus - The flexible Archive Applications system

## Complete climate solution - only one supplier

Ideal, strictly controlled climate around the year for:

- Archives
- Storage
- Multiple preservation applications



## Advanced controls:

- First class temperature and humidity control
- Energy saving thyristor control of heater
- Frequency converter for fans
- Bacnet/ModBus modules as options



## ML Plus system controls:

- Humidification
- Cooling
- Heating
- Dehumidification

Hereby creating a more even climate which also saves energy and costs.

## Flexible humidification options:

- Evaporative
- Steam

Munters' unique Glasdek media for reliable humidification.



## Outstanding rotor capacity

Based on the desiccant rotor technology - originally patented by Munters - our ML Plus systems provides high moisture absorbing capacity year after year.

*Energy recovery sector for enhanced performance*



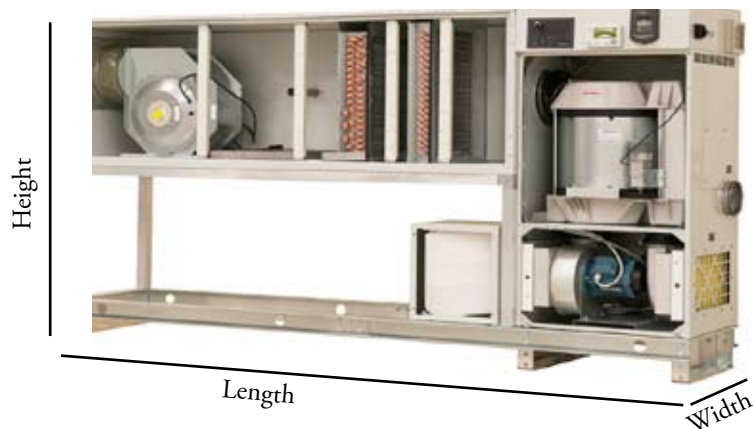


# ML Plus - one of many variants

Set up	4	5	6a	6b	6c	6d	6e	6f	7a	7b	8a	8b	9a	9b	9c	9d	10a	10b	10c	10d
Frost protection (Electrical)	-	-	-	-	-	X	-	X	-	X	-	-	-	-	-	-	-	-	-	-
Frost protection (Hot water)	-	-	-	-	X	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-
Prefilter G4/F7 (panel + bag)	X	-	X	X	X	X	X	X	G4	G4	-	-	-	-	-	-	-	-	-	-
Precooler incl.mist eliminator	X	-	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-
Post cooler	-	X	X	X	X	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X
Post heater (Electrical)	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-	X	-	X	-	X
Post heater (Hot water)	-	-	-	-	-	-	-	-	-	-	X	-	X	-	X	-	X	-	X	-
Evaporative humidifier	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	X	X	-	-
Steam humidifier	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	X	X
Freq. controlled Booster fan	-	-	-	X	-	-	X	X	-	-	-	-	-	-	-	-	X	X	X	X

## All this included in the delivery:

- actuator,
- valve (3way)
- temperature sensor for cooler
- frostprotection sensor
- regulator
- display
- wall or duct humidity sensor.



Length x height x width (millimeters)

Set Up	ML180 / MLT 350	ML270	ML420/ MLT800	ML690/ MLT 1400	ML1100/ 1350
4	1935x1200x495	1935x1250x545	2140x1550x595	2140x1650x595	2140x1750x595
5	1315x1200x495	1315x1250x545	1520x1550x595	1520x1650x595	1520x1750x595
6A	1915x1200x495	1915x1250x545	2180x1550x595	2180x1650x595	2280x1750x595
6B	1915x1200x495	1915x1250x545	2180x1550x595	2180x1650x595	2280x1750x595
6C	1915x1200x495	1915x1250x545	2180x1550x595	2180x1650x595	2280x1750x595
6D	2215x1200x695	2215x1250x745	2480x1550x795	2480x1650x795	2580x1750x795
6E	1915x1200x495	1915x1250x545	2180x1550x595	2180x1650x595	2280x1750x595
6F	2215x1200x695	2215x1250x745	2480x1550x795	2480x1650x795	2580x1750x795
7A	2205x1200x495	2205x1250x545	2410x1550x595	2410x1650x595	2410x1750x595
7B	2455x1200x695	2455x1250x745	2660x1550x795	2660x1650x795	2660x1750x795
8A	1565x1200x495	1565x1250x545	1770x1550x595	1770x1650x595	1770x1750x595
8B	1815x1200x695	1815x1250x745	2020x1550x795	2020x1650x795	2020x1750x795
9A	2065x1200x495	2065x1250x545	2270x1550x595	2270x1650x595	2270x1750x595
9B	2315x1200x695	2315x1250x745	2520x1550x795	2520x1650x795	2520x1750x795
9C	2065x1200x495	2065x1250x545	2270x1550x595	2270x1650x595	2270x1750x595
9D	2315x1200x695	2315x1250x745	2520x1550x795	2520x1650x795	2520x1750x795
10A	2660x1200x495	2660x1250x545	2920x1550x595	2920x1650x595	2990x1750x595
10B	2905x1200x695	2905x1250x745	3170x1550x795	3170x1650x795	3240x1750x795
10C	2660x1200x495	2660x1250x545	2920x1550x595	2920x1650x595	2990x1750x595
10D	2905x1200x695	2905x1250x745	3170x1550x795	3170x1650x795	3240x1750x795

# ML Plus - References



## Faster coating of pills

At Jemo-pharm's facilities in Denmark nutritional supplements are being produced under strict GMP regulations.

To enable coating of garlic pills, high demands are set to both temperature and relative humidity. A Munters ML Plus-system provides air at +20°C/20 %RH around the year, cutting appr. 2/3 off the coating time.

The ML Plus -system is configured with both pre- and postcooling to meet the high demands on the production climate.

## Protecting artifacts

In Växjö, Sweden, a collection of irreplaceable books and documents of the world famous botanist Carl von Linné is stored.

2 basement rooms are protected like a safe and contains books and original drawings that has to be preserved at strict conditions to avoid further deterioration.

Around the year a ML Plus-system provides conditioned air to these rooms, securing that the fragile documents can be safely kept for future studies by scientists from around the globe.

## Fulfilling FDA requirements

The Quality Dept. at Polypeptide continuously perform strictly controlled weighing procedures of products.

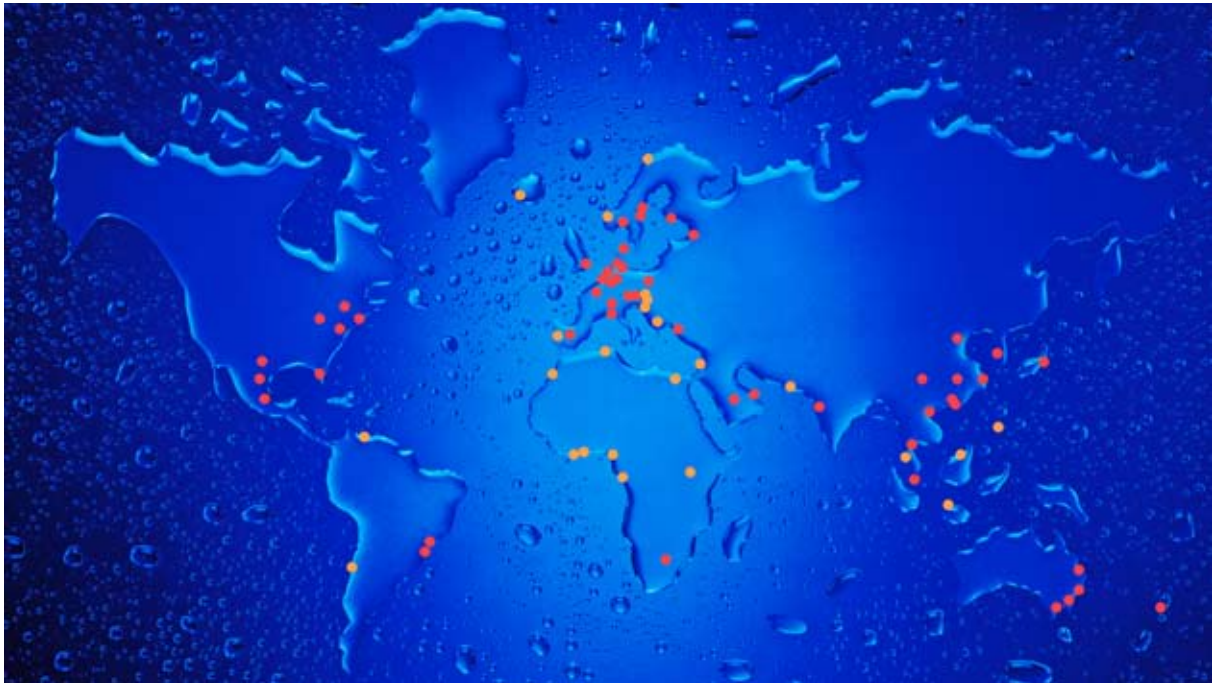
To fulfill the requirements from FDA the climate conditions in the weighing room has to be similar to those in the production area.

Munters ML Plus precisely controls the climate at 20°C/25% RH, enabling hygienic and safe test weighing around the year - performed by an elegant all-in-one unit with a small foot print.

**Coating  
time reduced  
by 2/3**

**Meets with  
official climate  
recommen-  
dations**

**Fulfills  
strict FDA  
require-  
ments**



## An international name, where the customer comes first

Munters has offices in 30 countries, 4,000 employees and more than 300 branches around the world. We are global leaders in energy efficient air treatment for comfort, process and environmental protection.

Munters shares ideas within its international network, giving the Group an outstanding reputation as a reliable, fast-acting and customer-orientated expert in air conditioning.

Munters philosophy of customer satisfaction is central to our decision-making. When developing and manufacturing our systems, we see happy customers as our number one target. And this is what our employees strive to ensure every day.

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