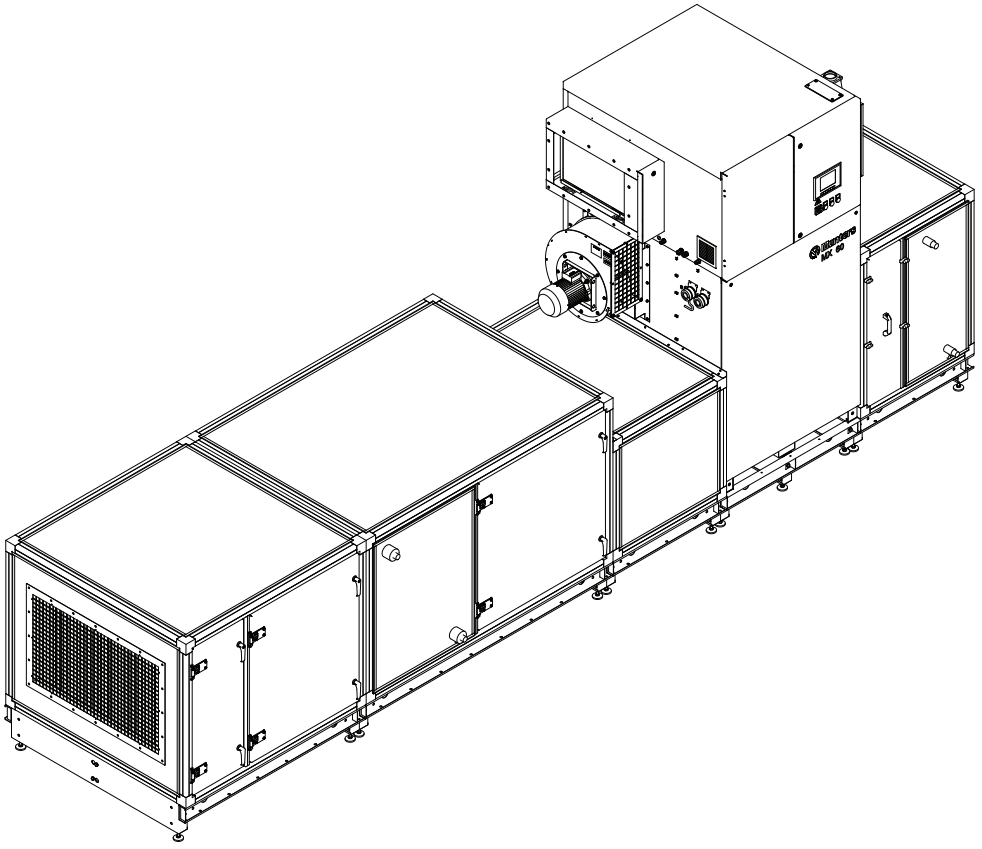
Original instructions

Operating manual

MX² Plus



Dehumidification system

TEN-MX2P-B1505

Munters

Table of contents

1 Introduction

1.1 Definition

The Dehumidification system described in this manual is hereafter referred to as the "unit".

1.2 About this manual

This operating manual contains important safety information, a product description and maintenance instructions for the delivered unit.

Read all relevant parts of this manual before operating or performing any work on the unit. Observance of this information will help you to avoid danger, to minimise repair cost and downtime, and to increase the reliability and the service life of the unit.

This manual should be stored in a permanent location close to the unit.

This manual does not describe in full all the maintenance work required to guarantee the longevity and reliability of this type of equipment. Always contact Munters for service and repairs, to ensure safe and long lasting operation of the unit.

Installation instructions can be found in the corresponding supplement.

The contents of this manual can be changed without prior notice.

Send any comments regarding this manual to:

Munters Europe AB
Technical Documentation
P.O. Box 1150
SE- 164 26 KISTA Sweden
e-mail: t-doc@munters.se

1.3 Warnings

Information about dangers are in this manual indicated by the common hazard symbol:

WARNING!

Indicates a possible hazard that can result in severe personal injury or death.

CAUTION!

Indicates a possible hazard that can result in damage to the unit or other property, or cause environmental damage.

NOTE! *Highlights supplementary information for optimal use of the unit.*

1.4 Warranty

The warranty is based on the terms of sale and delivery of Munters. The warranty is not valid if repairs or modifications are carried out without the written agreement of Munters, or if the unit does not operate under the conditions agreed with Munters. Damages resulting from negligence, poor maintenance or failure to comply with the recommendations will not be covered by the warranty.

It is a condition of the warranty that the unit for the full warranty period is serviced and maintained by a qualified Munters engineer or Munters approved engineer. Access to specific and calibrated test equipment is necessary. The service and maintenance must be documented for the warranty to be valid.

The warranty is limited to a free exchange of parts or components which have failed as a result of defects in materials or workmanship.

Commissioning/Start-up inspection "S" by Munters is mandatory to validate the full warranty.

Always contact Munters for service or repair. Operating faults can occur if the unit is maintained insufficiently or incorrectly.

1.5 Inspection of delivery

- Inspect the delivery and compare with the delivery note, order confirmation or other delivery documentation. Make sure that everything is included and nothing is damaged.
- Contact Munters immediately if the delivery is not complete or damaged in order to avoid installation delays.
- Remove all packaging material from the unit, and make sure that no damage has occurred during transportation.
- Any visible damage must be reported in writing to Munters within 3 days and prior to installation of the unit.
- Dispose of the packaging material according to local regulations.

1.6 Marking

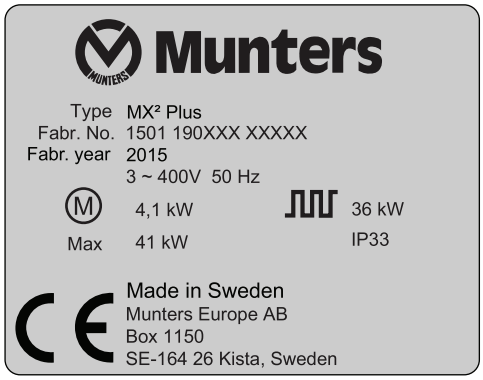


Figure 1.1 Example of identification plate content

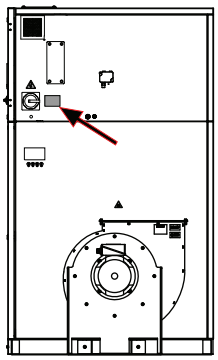


Figure 1.2 Identification plate position

1.7 Technical specifications

The technical specifications for the unit can be found in the corresponding section of the manual.

1.8 Unintended use

- The unit is not intended for outdoor installation.
- The unit is not intended for use in classified areas where explosion safety compliant equipment is required.
- The unit must not be installed near any heat generating devices that can cause damage to the equipment.
- The unit is not intended for treating air polluted with solvents, dust or other aggressive, corrosive or abrasive particles.

2 Safety

2.1 Intended use

The unit delivered by Munters must only be used for the treatment of air. This includes filtering, heating, cooling, humidifying, dehumidifying and transporting air. Munters explicitly rules out any other use.

The unit is designed to meet the safety requirements, directives and standards listed in the EU Declaration of Conformity.

No modification of the unit is allowed without prior approval by Munters. Attachment or installation of additional devices is only allowed after written agreement by Munters.

The conditions of operation specified in the technical specifications must be observed absolutely.

Any other use of the equipment can cause personal injury and damage to the unit and other property.

2.2 Safe installation, operation and maintenance

Great effort has been placed on the design and manufacture of the unit, to comply with applicable safety aspects for this type of equipment.

The information in this manual includes suggestions for best working practice and shall in no way take precedence over individual responsibilities or local regulations.

During operation and other work with a machine it is always the responsibility of the individual to consider:

- The safety of all persons concerned.
- The safety of the unit and other property.
- The protection of the environment.

Always carry out risk assessments before doing any work on the unit.

WARNING!

- The unit must not be splashed with or immersed in water.

- The unit must never be connected to a voltage or frequency other than that for which it was designed. Refer to the identification plate. Line voltage that is too high can cause an electrical shock hazard and damage to the unit.

- Do not insert fingers or any objects into the air vents.

- All electrical installations must be carried out by a qualified electrician and in accordance with local regulations.

- The dehumidifier can restart automatically after a power cut. Always set and lock the main power switch in the OFF position before carrying out any service work.

- Use only approved lifting equipment to prevent personal injury and damage to the equipment.

- Always contact Munters for service or repair.

WARNING!

Installation, adjustments, maintenance and repairs must only be carried out by qualified personnel who are aware of the risks involved when working with equipment operating with high electrical voltage and high machine temperatures.

WARNING!

Commissioning and initial start-up of the unit must be carried out by authorized personnel only.

WARNING!

The unit contains rotating fans and other moving parts.

Keep hands away from fan blades at all times while unit is on. DO NOT service unit until the fan has completely stopped.

Always set and lock the main power switch in the OFF position before carrying out any service work.

To prevent personal injury, the unit must be run with all panel doors closed and all removable panels and protective grids properly in place.

Fans and other moving parts can start automatically and without warning.

WARNING!

Cleaning agents, cooling media, oil and grease are substances that are dangerous to personal health and to the environment. They must not be allowed to drain away into the soil or the public sanitary system. The disposal of such substances must be effected in accordance with local and national law and regulations.

CAUTION!

Service and maintenance work should only be carried out by qualified and trained personnel. Operating faults can occur if the unit is maintained insufficiently or incorrectly.

2.3 Residual risks

In order to avoid the possible dangers in operating or maintaining the unit, necessary protections have been foreseen. However, there are still some residual risks that all personnel working with the unit must be aware of:

The handling of fluids in refrigerating, heating or cooling circuits can be dangerous. Please study the information relevant for each type of fluid to avoid dangers.

Hot or cold surfaces can cause injuries. Before intervening, wait until temperatures become normal or use protective clothing.

Sharp steel edges on boxes or coils can cause cuts. Use protective gloves, particularly during disassembly or assembly.

When working with or near fans, be aware that remaining air flow through the unit can cause spontaneous rotation of the fans and thereby causing personal injury.

Doors for overpressure compartments can be equipped with additional safety locks against accidental opening. Make sure that such locks are closed before starting the unit.

When working with filters or in a dusty area: To protect the user from dust, wear a suitable CE marked face mask selected and fitted in accordance with the applicable safety standards.

Use hearing protection according to applicable safety standards when working in a noisy environment to avoid hearing impairment.

Dampers open and close automatically. Keep hands clear of the dampers when they are moving.

2.4 Warning signs

The following warning signs can be present on the unit, to warn the users of residual risks which can cause serious injury or death. Make sure that all personnel working with or near the unit are aware of the meaning of each sign.

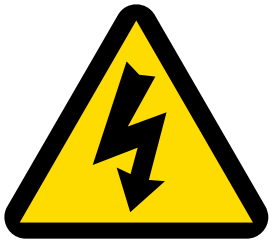


Figure 2.1 Risk of personal injury due to electric shock.

Figure 2.2 Hot air flow or surface.

Figure 2.3 Unit starts automatically.

Figure 2.4 Pinch hazard.

2.5 Quick stop

The unit can in an emergency be stopped using the main power switch, see section *5.1, Main power switch*.

CAUTION!

Only use the main power switch to stop the unit in the case of an emergency. The normal shutdown sequence will not be followed. The fans stop and the heater can be very hot, which can result in damage to the heater and other components close to it.

3 System design and function

3.1 Main function

The Munters Plus unit is designed to control the air quality in archives, laboratories, clean rooms or other applications with high demands on climate.

All units are always delivered with a dehumidifier. Other components such as cooling and heating coils, humidifiers or supply fans are delivered depending on the individual system specification.

The system is set up and operated from the operator panel. Wall sensors or duct sensors measure the temperature and humidity of the process air. The control system and electrical safety functions for all the components are placed in the electrical panel.

All components are regulated proportionately and configured to achieve optimal capacity and energy use efficiency. The electric heater in the dehumidifier has thyristor control and the electric heaters for tempering the air are pulse controlled. The supply air fan runs continually to ensure precise climate control. Regulation can be time controlled on a weekly, monthly and stipulated full-day basis as well as winter/summer periods with specific operational temperature and humidity settings. Several possibilities exist for connecting to building management systems for controlling and monitoring the functions. Contact your nearest Munters representative for more information on automatic systems or bus connections.

3.2 System design

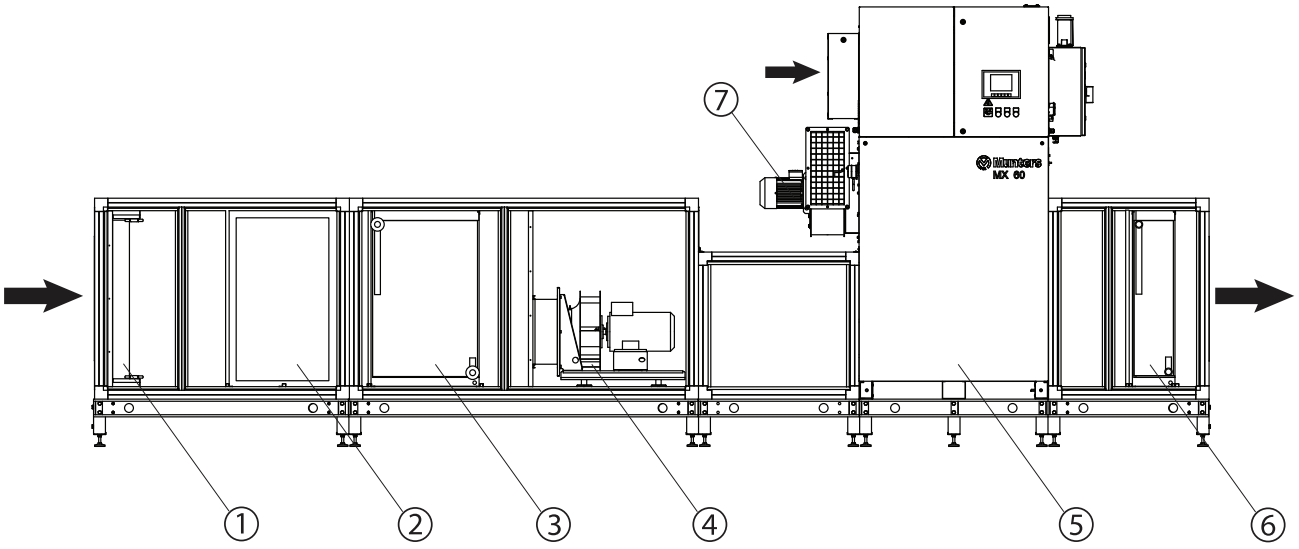


*Figure 3.1 MX² Plus system design example**

1. Filter
2. Pre-heating coil
3. Pre-cooling coil
4. Supply fan
5. Dehumidifier
6. Post-cooling coil
7. Reactivation fan

*Individual systems are built to specification, and can be different from this example.

3.3 Pre- and post-treatment

Pre- and post-treatment of the process air can be performed by the following functional components:

- Inlet dampers to enable isolation of the unit from the air flow. The dampers are installed on the outside of the unit.
- A mixing box allowing mixing fresh air with recirculation air.
- Heating coil: The coil can be electric or use hot water as heating medium. In the case of hot water, the coil must be connected to an external heating medium supply.
- Cooling coil: The coil uses chilled water, possibly mixed with glycol. The coil must be connected to an external medium supply.
- Humidification by evaporation or steam injection in order to achieve the process air quality specification during dry ambient conditions. See the humidifier supplement.
- Filters for various air quality specifications. Filters can be equipped with pressure drop sensors to enable "blocked filter" alarm.
- A supply fan to achieve the external pressure requirement.

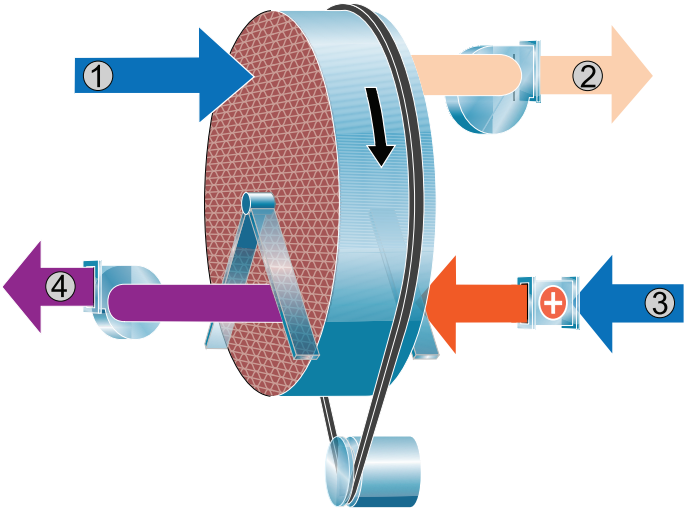
4 Main components description

NOTE! *Some components are optional, and individual systems are built to specification.*

NOTE! *All component pictures are examples, and may not correspond to individual units.*

4.1 Dehumidifier

4.1.1 Principle of operation



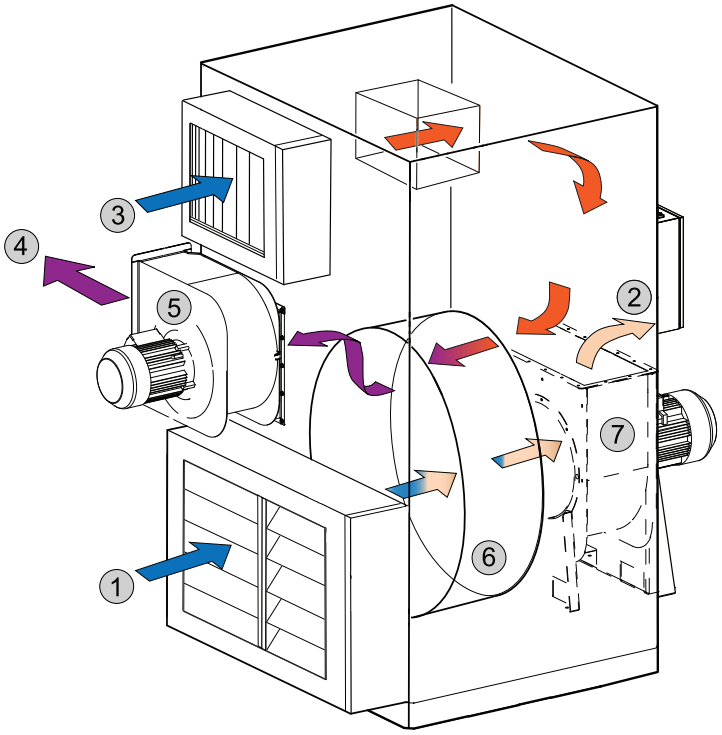
1. Process air
2. Dry air
3. Reactivation air
4. Wet air

Figure 4.1 Rotor principle

The desiccant rotor is the adsorption dehumidifying component in the unit. The rotor structure is comprised of a large number of small air channels.

The desiccant rotor is made of a composite material that is highly effective in attracting and retaining water vapour. The rotor is divided in two zones. The airflow to be dehumidified, **process air,** passes through the largest zone of the rotor and then leaves the rotor as **dry air.** Since the rotor rotates slowly, the incoming air always meets a dry zone on the rotor, thus creating a continuous dehumidification process.

The airflow that is used to dry the rotor, **reactivation air**, is heated. The reactivation air passes through the rotor in the opposite direction to the process air and leaves the rotor as **wet air** (warm, moist air). This principle enables the dehumidifier to work effectively, even at freezing temperatures.



1. Process air
2. Dry air
3. Reactivation air
4. Wet air
5. Reactivation fan
6. Rotor
7. Process fan

Figure 4.2 Airflow overview

4.1.2 Dehumidifier components

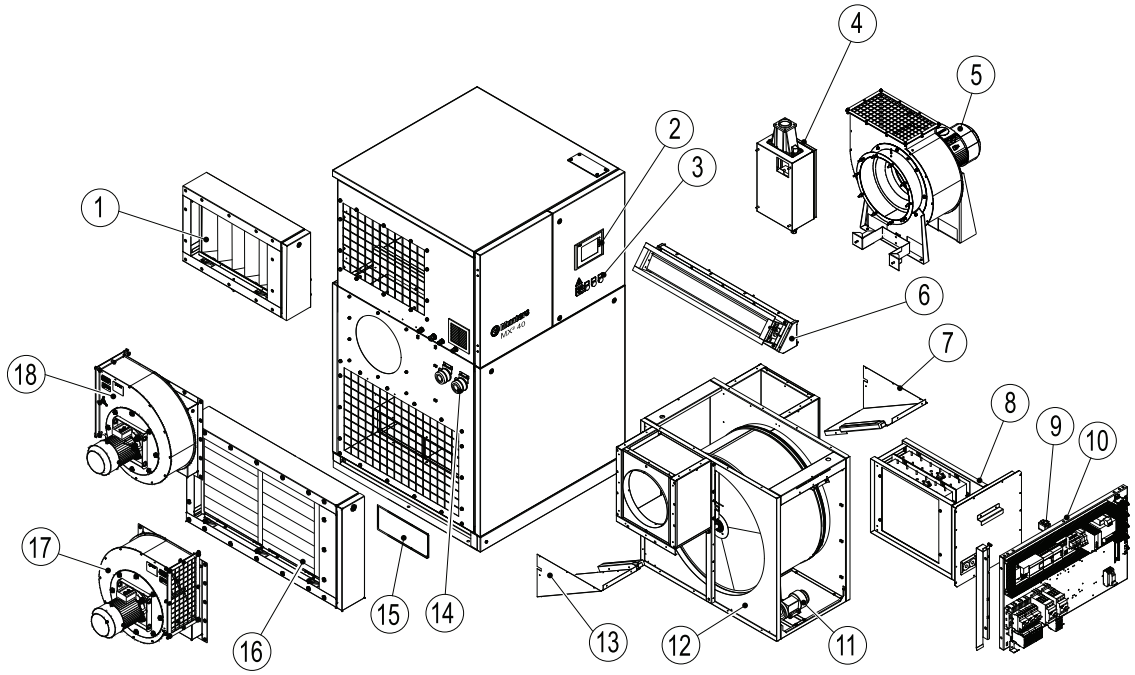


Figure 4.3 Main components (electric version shown)

1. Filter, reactivation air
2. Control system display
3. Operator panel
4. Power supply infeed box
5. Process fan (w/o post-treatment)
6. Duct, bypass damper [1)]
7. Duct, purge, right [1)]
8. Reactivation heater
9. Safety thermostat (HTCO)
10. Electrical panel
11. Drive motor, rotor
12. Rotor cassette
13. Duct, purge, left [1)]
14. Filter guard
15. Plate, bypass
16. Filter, process air
17. Reactivation fan (left) [2)]
18. Reactivation fan

[1)] Option

[2)] Only used for reversed assemblies

4.1.3 Pressure test points

The built-in pressure test points are used for measuring pressure drop across the rotor during basic installation work and inspection of the rotor condition.

For airflow adjustment, refer to the Installation instructions.

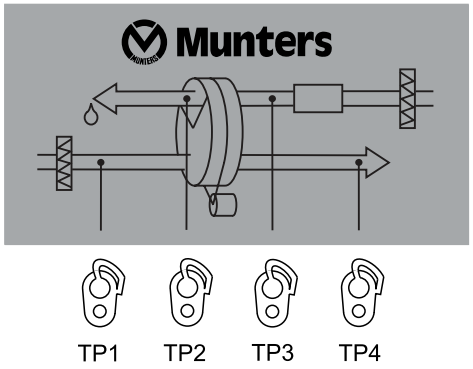


Figure 4.4 Pressure test points

TP1.	Process air	TP1–TP4.	Differential pressure, process air
TP2.	Wet air	TP2–TP3.	Differential pressure, reactivation air
TP3.	Reactivation air		
TP4.	Dry air		

4.1.4 High temperature cut-out

The dehumidifier is equipped with safety thermostats (HTCO) which prevent it from being overheated and damaged if the reactivation air becomes too hot.

The thermostat sensing bulb is located in the reactivation air duct and measures the temperature in front of the rotor. If the reactivation air temperature exceeds the thermostat setting, the reactivation heater is switched off and the alarm message "React Heater HTCO" is shown on the control panel display.

After an alarm, the safety thermostat must be reset by pressing the button on the thermostat housing. See *Figure 4.5* for how to access the thermostat housing.

In the case of electrical reactivation, reset also the circuit breakers for the heater on the electrical panel.

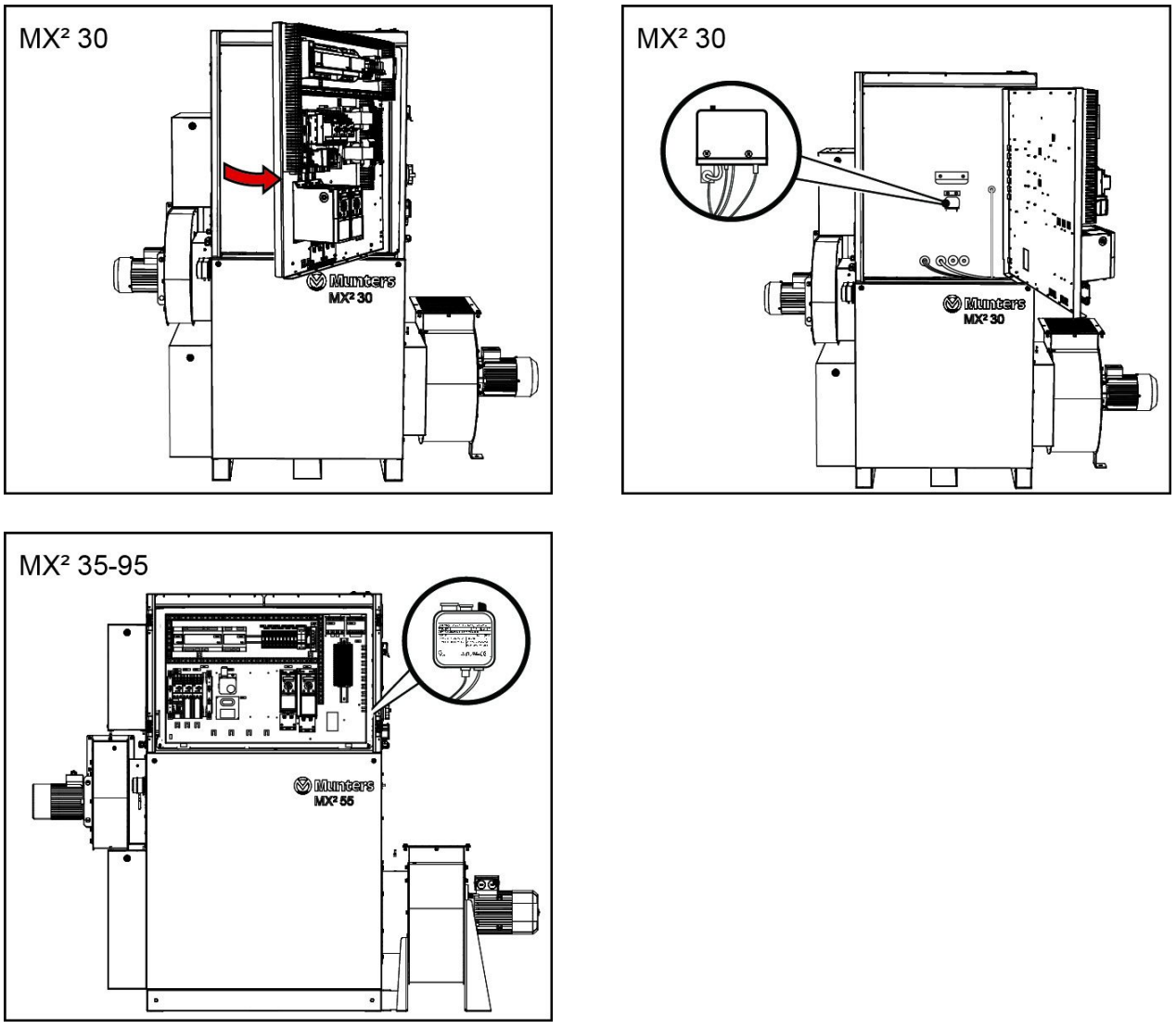


Figure 4.5 Location of thermostat housing

4.1.5 Bypass damper

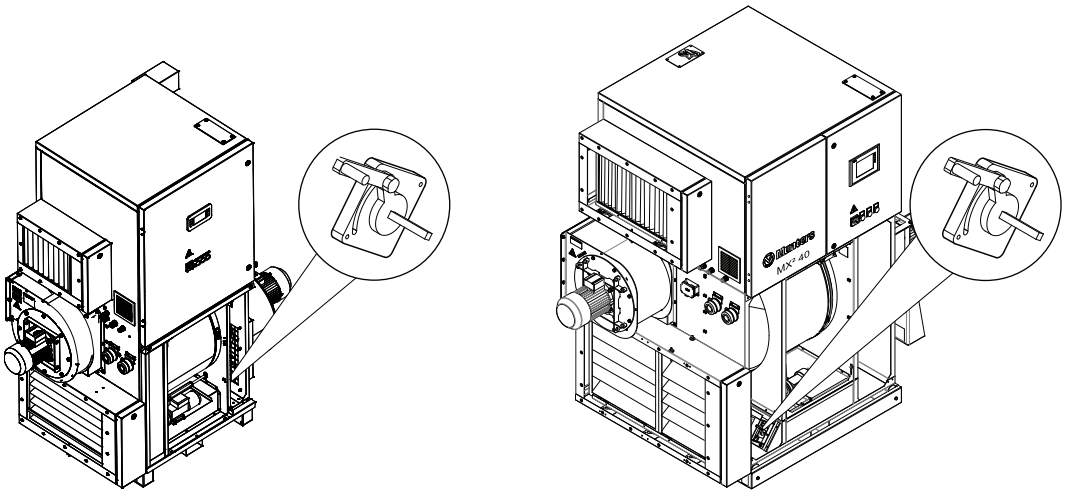
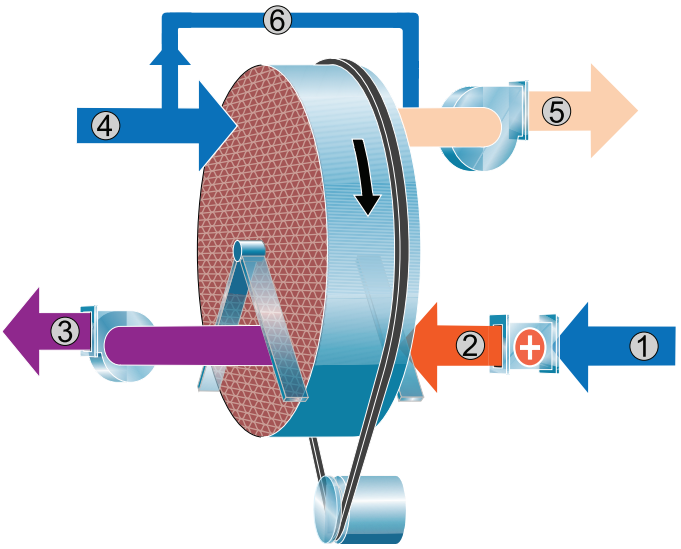


Figure 4.6 Handle for bypass damper

An installed bypass damper kit allows a fixed airflow to be used when the process airflow exceeds the maximum rotor flow capacity. The bypass function consists of an adjustable damper positioned in the bypass airflow channel. The bypass airflow channel is integrated with the unit and passes under the rotor.

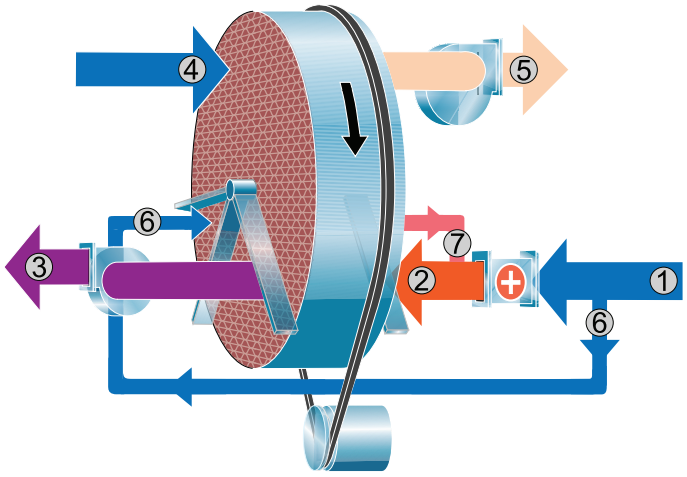
NOTE! *The bypass damper should only be adjusted by specially trained personnel.*



1. Reactivation air
2. Heated reactivation air
3. Wet air
4. Process air
5. Dry air
6. Bypassed process air

Figure 4.7 Bypass principle

4.1.6 Energy Recovery Purge and Energy Efficiency Purge



1. Reactivation air
2. Heated reactivation air
3. Wet air
4. Process air
5. Dry air
6. Purge air
7. Warm purge air

Figure 4.8 Principle for Energy Recovery Purge and Energy Efficiency Purge

Energy Recovery Purge (ERP) and Energy Efficiency Purge (EEP) are two energy saving solutions that recycles heat from the rotor, after the reactivation section in the rotational direction of the rotor. A minor part of the reactivation airflow is bypassed to the warm sector of the rotor, before the airflow enters the reactivation heater. The airflow is heated up by the rotor and then mixed with the reactivation airflow, after the reactivation heater. The recycled heat from the rotor increases the efficiency and reduces the energy consumption.
Compared to a standard unit, ERP will give the same dehumidification capacity with reduced reactivation heater energy. With EEP, the reactivation heater energy is the same as in a standard unit, while the dehumidification capacity is increased.

The purge airflow duct on MX² 35–95 is located inside the unit and the purge airflow (ERP, EEP) cannot be adjusted.

The purge airflow duct on MX² 30 is installed on the rear side of the unit. The purge airflow (ERP, EEP) can be adjusted with a damper installed on the duct.

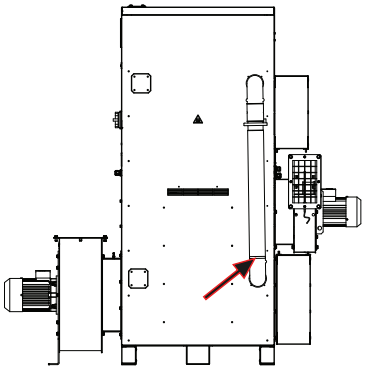


Figure 4.9 MX² 30 purge airflow duct

4.2 Water coils

4.2.1 Product description

The unit can have water coils for cooling and heating. The cooling or heating is only regulated if the supply air fan is running.

CAUTION!

If there is a risk of freezing when untreated outside air is used, a frost protection monitor sensor must be fitted. The coils in the unit can be seriously damaged if this is not done.

All units with hot water coils are always delivered with an insertion sensor and outlet for an insertion sensor. The header is provided with a plugged outlet for venting and draining. If there is a risk of freezing, the sensor must be fitted and connected according to the wiring diagram for the unit. There can be a risk of freezing if the process air is taken directly from outside.

If the water in a coil freezes this could cause serious damage. A frozen coil must almost always be replaced. The warranty is no longer valid even if the cracks are not visible.

CAUTION!

Hot and cold water supply lines must only be designed and executed by qualified personnel taking into account the respective relevant local regulations.

4.2.2 Coil maintenance

WARNING!

Coil fins have sharp edges. Always wear protective gloves when working with coils.

Check for signs of corrosion on surfaces with flanges. Clean and repair if necessary.

If applicable, remove the droplet separator.
Inspect the inlet surface (towards the cooling coil). If dirty, rinse with warm water.

Air in the piping reduces the capacity of the coil. Vent off the air via the air nipple on the highest horizontal part of the header.

In the case of a long operation stop or when the temperature is below freezing point, empty the water out of the coil. Do this via the nipple on the lowest horizontal part of the header. Note that some coils cannot be drained.

CAUTION!

Do not attempt to clean the water coils mechanically.

NOTE! *In the case of damage, contact Munters Service. Do not attempt to carry out repairs.*

1. The coils should be checked at least once a year, and cleaned if required.
2. Some of the dust which passes through the filters comes to rest on the coil cells. This layer of dust affects the air flow and reduces the rate of exchange leading to decreased unit efficiency.
3. The coils should therefore be kept clean. Cleaning can be done by using a vacuum cleaner, low pressure compressed air or low pressure water and a soft brush. Do not forget to clean the unit internally after the coil cleaning. Never use a high pressure cleaner, this will damage the coil fins.

4. Furthermore, in the case of cooling coils, clean the drip tray and siphon for the condensation water once per year. Note that siphons need to be refilled with water after the winter season.

4.3 Direct expansion refrigeration

Applies to units with DX refrigeration.

A detailed description of the DX cooling function and the corresponding components is found in the DX Supplement.

Important information for the operator of the DX refrigeration system is found in the DX Supplement.

The mandatory *Commissioning and Service Logbook* is also available in the DX Supplement.

WARNING!

Strict legal requirements apply for the operation of DX cooling systems containing fluorinated greenhouse gases. Read more in the DX Supplement.

4.4 Electric heater

All electric heaters have minimally two high temperature cut-outs, an automatic resetting function and can be manually reset. The high temperature cut-out can be reset on the cover of all the electric heaters.

The electric heater power is produced on a time basis using pulse-pause technology. When heat is required the inbuilt regulation equipment signals for full power (pulse) for a set time, depending on the heat requirement. If the heat requirement increases, the pulse time increases and the pause time decreases. When the heat requirement is reduced, the pulse time decreases and the pause time increases.

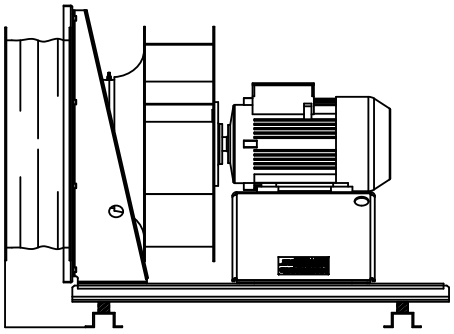
4.5 Humidifier

Humidifiers are used as needed to achieve the process air quality specification.

Units can be equipped with either an evaporative humidifier or a steam humidifier.

For more information about humidifiers if applicable, see the relevant documentation under the section *Other components*.

4.6 Supply fan



The unit is equipped with a plug type supply fan. The fan is driven by an electric motor which is controlled by a frequency converter. This makes it possible to adjust the air pressure and air flow from the operator panel to achieve the external pressure requirement.

For specific information about the fan, see the OEM manual under the section *Other components*.

4.7 Filters

4.7.1 Filter types

Figure 4.10 Bag filter

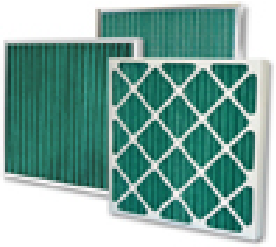


Figure 4.11 Panel filters

4.7.2 Filter maintenance

WARNING!

There is a fire hazard, or risk of unit malfunction, if filters are maintained insufficiently or incorrectly.

WARNING!

When replacing the filters or working in a dusty area: To protect the user from dust, wear a suitable CE marked face mask selected and fitted in accordance with the applicable safety standards.

The filters require regular replacement. The frequency depends on the amount of dust in the air and the operating conditions.

Blocked filters can reduce the air flow in the unit. Incorrect air flow will reduce the capacity and the energy efficiency of the unit.

Check the degree of dirt accumulation by measuring the differential pressure or by inspecting the filters visually.

A filter monitor will activate an alarm if the pressure drop across the filter is too great.

The permitted pressure drop setpoint is set by Munters at the factory. If the filter classifications are changed, adjust the setpoint to suit the new filter.

Replace the filters when:

- Final pressure drop is reached.
- There is a filter alarm.
- The filter is damaged and air is passing without filtration.

Clean the filter section, check that there is no dirt beyond the filter.

Make sure that the frames are sealed and if necessary replace the seals.

Replace the filter and check its tightness.

4.8 Dampers

Dampers are used to open and close the inlet and the outlet of the unit, as well as optionally for controlling bypass and recirculation.

WARNING!

Keep hands clear of the dampers when they are moving. Risk of personal injury.

Openings with dampers should preferably be covered by ducts.

Any unducted air dampers should be fitted with a protective grille (not included in the delivery from Munters) to prevent injury from the damper blade movement.

Damper maintenance

Clean and check the operation of the dampers, the gearing and bearings.

The blades can be cleaned with water or compressed air.

Check the position in respect of the indications "OPEN" and "CLOSED".

If the dampers do not move freely, lubricate the gearing and bearings with silicone oil.

5 Operation

5.1 Main power switch

Figure 5.1 Main power switch

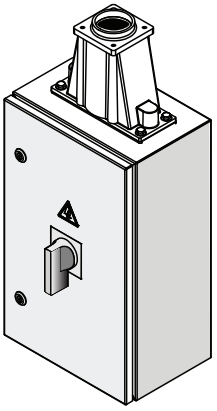


Figure 5.2 Main power switch, alternative type

CAUTION!

Only use the main power switch to stop the unit in the case of an emergency. The normal shutdown sequence will not be followed. The fans stop and the heater can be very hot, which can result in damage to the heater and other components close to it.

5.2 Control system

For more information about the control system, parameters and settings, see the control system section.

For external communication there is an Ethernet connection on the outside of the cabinet.

5.3 HMI connection

The connector for the HMI (Human Machine Interface) is located on the controller, see *Figure 5.3* .

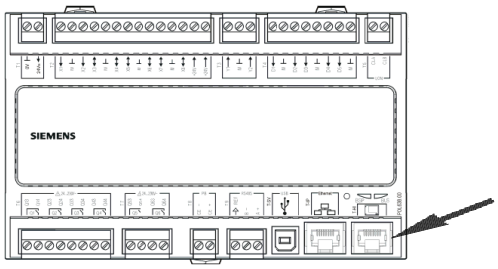


Figure 5.3 HMI connection

5.4 Operator panel

The unit is controlled and monitored using the operator panel located on the front of the unit. In special cases the operator panel can be placed in a separate cabinet.

The operator panel contains the mode switch, indicator lights for operation and the control system panel.

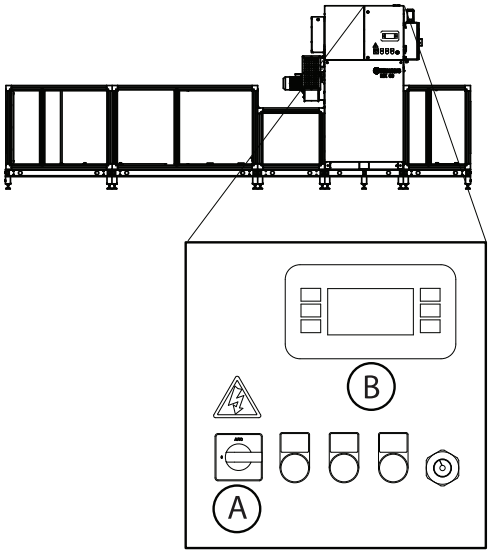


Figure 5.4 Operator panel

A - Mode switch	
B - Control system panel	
White lamp (RUN)	Lights when one of the fans is running.
Red lamp (ALARM)	Illuminates with a steady glow when an alarm has been triggered.
Yellow lamp (SERVICE)	Lights when a filter change is required, or when the dehumidifier has reached the number of operating hours or the date at which maintenance should be carried out.

5.5 Start the unit

The unit is stopped and started using the mode switch, see *Figure 5.4* .

- **0**: The unit is switched off.
- **AUTO**: The supply air fan runs continuously. All functions in the unit are controlled in proportion to the existing need.

1. Make sure that all supplies of electricity and hot/cold water are on and functional.
2. Set the main power switch to **1** (On).
3. Set the mode switch on the operation panel to **AUTO**.

5.6 Stop the unit

When the unit is stopped all the functions in it are stopped apart from freeze monitoring.

To stop the unit, set the mode switch on the operation panel to **0**.

CAUTION!

In order to dissipate any residual heat, the fans and the drive motor continue to run (after the unit is switched off) until the temperature falls below 50 °C. Do not turn off the main power before the fans have come to a complete stop.

Close the cold/hot water shut-off valves for the cooling and heating coil(s).

5.7 Quick stop

The unit can in an emergency be stopped using the main power switch, see section *5.1, Main power switch*.

CAUTION!

Only use the main power switch to stop the unit in the case of an emergency. The normal shutdown sequence will not be followed. The fans stop and the heater can be very hot, which can result in damage to the heater and other components close to it.

6 Service and maintenance

6.1 Safety

Figure 6.1 Risk of electric shock

Figure 6.2 Lock against reconnection

WARNING!

Installation, adjustments, maintenance and repairs must only be carried out by qualified personnel who are aware of the risks involved when working with equipment operating with high electrical voltage and high machine temperatures.

WARNING!

Before doing any service or maintenance work on the unit make sure that all electrical equipment is disconnected from the power supply, and secured against reconnection.

WARNING!

Remove hand wheels from water and steam supply valves, or otherwise lock off reopening on a component that is isolated to prevent inadvertent reopening. Alternatively, place a notice on the valve indicating that it is closed for a reason.

WARNING!

The unit contains rotating fans and other moving parts.

Keep hands away from fan blades at all times while unit is on. DO NOT service unit until the fan has completely stopped.

Always set and lock the main power switch in the OFF position before carrying out any service work.

To prevent personal injury, the unit must be run with all panel doors closed and all removable panels and protective grids properly in place.

WARNING!

Cleaning agents, cooling media, oil and grease are substances that are dangerous to personal health and to the environment. They must not be allowed to drain away into the soil or the public sewer system. The disposal of such substances must be effected in accordance with local and national law and regulations.

WARNING!

Any external electrical equipment, for example a portable lamp, must be connected to an earth fault breaker.

NOTE! *A portable lamp is required when carrying out service work inside the unit.*

6.2 General

Most air treatment units require the same type of maintenance. The following paragraphs explain the necessary basic rules.

Service and maintenance interval lengths are primarily determined by operating conditions and the environment in which the unit is installed. For example, if the process air contains a lot of dust, preventative maintenance should be carried out at shorter intervals. The same also applies if the unit works intensively.

The service levels for a standard service and maintenance programme are described in section *6.3, Service options*.

The control system is equipped with a service indicator. It is programmed at commissioning to give a service alarm after an estimated number of operating hours, or on the preset date for the next service.

6.3 Service options

In addition to commissioning of the unit there are four service options (A - D) as standard.

S. Commissioning/start-up.

A. Inspection and if necessary change of filter. General function check.

B. In addition to A, safety check and capacity, temperature and humidity regulation measurements.

C. In addition to B, preventive replacement of some components after 3 years of operation.

D. In addition to C, preventive replacement of some components after 6 years of operation.

NOTE! *Always contact Munters for service or repair. Operating faults can occur if the unit is maintained insufficiently or incorrectly.*

NOTE! *Commissioning/Start-up inspection "S" by Munters is mandatory to validate the full warranty.*

Munters service engineers have special equipment and rapid spare parts access to handle service on all Munters products. All test equipment used by our personnel to ensure proper system balancing is certified for accuracy.

Munters Service can offer a service plan adapted to suit the conditions of a specific installation. See contact addresses on the back page of this manual.

6.4 Extended warranty

Munters offers an extended warranty to the standard terms when the Customer signs a service contract with Munters. Details are available on request.

6.5 Cleaning

Use only a pH-neutral soapy water solution and a soft sponge for cleaning of the unit casing.

When cleaning the inside, avoid contact with the rotor and wipe the surfaces dry.

Use a vacuum cleaner with a brush head for the rotor. Contact Munters for instructions if vacuum cleaning is not sufficient.

6.6 Maintenance schedule

Type of service	Alternative	S	A	B	A	B	A	C
	Running time (hours)	0	4000	8000	12000	16000	20000	24000
	Period (months)	0	6	12	18	24	30	36
Inspect filters, replace filter if necessary, function check		X	X	X	X	X	X	X
Measure unit performance, inspect rotor		X		X		X		X
Preventive inspection including safety check. Inspect and clean boxes, door locks and seals, flexible connections, dampers with actuators and drain systems		X		X		X		X
Inspect/clean heating and cooling coils and droplet separators, verify water flow and purge coils				X		X		X
Inspect fans (impellers, motors, bearings) and replace as needed								X
Inspect rotor seals and replace as needed								X
Electrical and control system function check		X		X		X		X
Calibrate equipment and sensors for humidity control and check tuning of PID controllers		X		X		X		X
Calibrate equipment and sensors, do a function check on valves for temperature control and check tuning of PID controllers		X		X		X		X
Specific maintenance on humidifier*		X		X		X		X
Specific maintenance on gas heater**		X		X		X		X
*See the corresponding supplement if applicable **See the gas reactivation installation instructions if applicable								

Table 6.1 Service and maintenance plan (0 - 24 000 hours)

NOTE! *Commissioning/Start-up inspection "S" by Munters is mandatory to validate the full warranty.*

NOTE! *Service work should be performed at indicated operating hours or calendar time, whichever is reached first.*

NOTE! *The desiccant rotor will not be replaced preventively, capacity monitoring will indicate rotor replacement.*

Type of service	Alternative	A	B	A	B	A	D
	Running time (hours)	28000	32000	36000	40000	44000	48000
	Period (months)	42	48	54	60	66	72
Inspect filters, replace filter if necessary, function check		X	X	X	X	X	X
Measure unit performance, inspect rotor			X		X		X
Preventive inspection including safety check. Inspect and clean boxes, door locks and seals, flexible connections, dampers with actuators and drain systems			X		X		X
Inspect/clean heating and cooling coils and droplet separators, verify water flow and purge coils			X		X		X
Inspect fans (impellers, motors, bearings) and replace as needed							X
Inspect rotor seals and replace as needed							X
Electrical and control system function check			X		X		X
Calibrate equipment and sensors for humidity control and check tuning of PID controllers			X		X		X
Calibrate equipment and sensors, do a function check on valves for temperature control and check tuning of PID controllers			X		X		X
Specific maintenance on humidifier*			X		X		X
Specific maintenance on gas heater**			X		X		X
*See the corresponding supplement if applicable **See the gas reactivation installation instructions if applicable							

Table 6.2 Service and maintenance plan (28 000 - 48 000 hours)

NOTE! *Maintenance schedule restarts again after maintenance type D.*

6.7 Preventive replacements

The following components should be replaced preventively at the indicated intervals:

Component	After 3 years	After 6 years
Replace HTCO Thermostats	X	X
Replace drive belt and belt connector	X	X
Replace rotor drive motor		X

7 Scrapping and disposal

The unit must be scrapped in accordance with applicable legal requirements and regulations. Contact your local authorities.

If the rotor or filters have been exposed to chemicals that are dangerous to the environment the risk must be assessed. The chemicals can accumulate in the material. Take the necessary precautions to comply with applicable local legal requirements and regulations.

The rotor material is not combustible, and should be deposited like glass fibre materials.

WARNING!

If the rotor is to be cut in pieces, wear a suitable CE marked face mask selected and fitted in accordance with the applicable safety standards to protect from the dust.

8 Contact Munters

AUSTRIA	Munters GmbH Air Treatment Zweigniederlassung Wien	Eduard-Kittenberger-Gasse 56, Obj. 6 A-1235 Wien	Tel: +43 1 616 4298–92 51 luftentfeuchtung@munters.at www.munters.at
BELGIUM	Munters Belgium nv Air Treatment	Blarenberglaan 21c B-2800 Mechelen	Tel: +3215285611 service@muntersbelgium.be www.muntersbelgium.be
CZECH REPUBLIC	Munters CZ, organizacni slozka Air Treatment	Slevacská 2368/68 CZ-615 00 BRNO	Tel: +420 775 569 657 info@munters-odvlhcovani.cz www.munters-odvlhcovani.cz
DENMARK	Munters A/S Air Treatment	Ryttermarken 4 DK-3520 Farum	Tel: +4544953355 info@munters.dk www.munters.dk
FINLAND	Munters Finland Oy Kuivaajamyynti	Hakamäenkuja 3 FI-01510 VANTAA	Tel: +358 207 768 230 laitemyynti@munters.fi www.munters.fi
FRANCE	Munters France SAS Air Treatment	106, Boulevard Héloise F-95815 Argenteuil Cedex	Tel: +33 1 34 11 57 57 dh@munters.fr www.munters.fr
GERMANY	Munters GmbH Air Treatment-Zentrale	Hans-Duncker-Str. 8 D-21035 Hamburg	Tel: +49 (0) 40 879 690 - 0 mgd@munters.de www.munters.de
ITALY	Munters Italy S.p.A Air Treatment	Strada Piani 2 I-18027Chiusavecchia IM	Tel: +39 0183 521377 marketing@munters.it www.munters.it
NETHERLANDS	Munters Vochtbeheersing	Energieweg 69 NL-2404 HE Alphen a/d Rijn	Tel: +31 172 43 32 31 vochtbeheersing@munters.nl www.munters.nl
POLAND	Munters Sp. z o.o. Oddzial w Polsce Air Treatment	ul. Swietojanska 55/11 81-391 Gdynia	Tel.: + 48 58 305 35 17 dh@munters.pl www.munters.com.pl
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