



Performance

- Very low pressure drop and energy consumption
- Superb controllability typically down to $\pm 2.5\%$
- No risk of over-saturation
- High efficiency: 65%, 85% and 95%
- Includes GLASdek™ GX40, the non-combustible cooling media

Service and reliability

- Low maintenance requirements and running costs
- Can be cleaned in place to extend service life
- No water treatment required, with tolerance of pH levels 3-10
- Reinforced steel frame for easy installation and optimal reliability

Regulatory compliance

- Fire-rated according to UL®900, ULC-S111 Class 1
- Fire-rated according to EN13501-1, Class A1
- Certification VDI 6022
- GREENGUARD Gold certified



Munters FA6™

Evaporative humidifier and cooler
for optimal performance

Energy saving humidification and cooling

Munters FA6 units have been designed to offer the best evaporative cooling and humidification solution for a wide range of industrial applications.

At the heart of the solution is our unique, class leading GLASdek™ GX40 media, which is ceramic coated, highly efficient and fireproof.

The media is housed in reinforced steel, making the solution robust and easy to install.

The FA6 is a high performance, low operating cost solution which is available in a wide range of sizes designed for integration into air-handling systems within both residential and industrial buildings.



Munters FA6



Munters FA6™ – More than the sum of its parts

Munters FA6 is a modular cooling solution featuring our outstanding evaporative media within a unit built with efficiency and simplicity in mind.

The future of cooling and humidification

Many industries around the world rely on effective cooling and humidification, and Munters FA6 is the ideal solution. When it comes to climate control there are often compromises, whether that's cost, energy efficiency or performance, but the FA6 can offer optimal performance on all fronts.

Our GLASdek™ GX40 and GX60 media is the heart of the FA6 solution, and offers

outstanding performance combined with unmatched safety and hygiene. It's robust enough to be cleaned in place and works efficiently with untreated water which reduces operating costs. All of this is housed in a specially designed frame built to enhance performance while simplifying service and maintenance. FA6 is the optimal cooling and humidification solution, combining optimal performance, improved sustainability and low operating costs.

Optional enhancements

It's important that your cooling and humidification solution meets your specific needs. Munters offers a range of options to modify the FA6 to suit your requirements, including:

- Circulating UV light disinfection system
- Circulating and submersible systems
- Conductivity control
- Water level control (high/low/operating mode)
- Munters PLC control unit, including sequence of operation (SOO) with ModBus communication to BMS system as standard

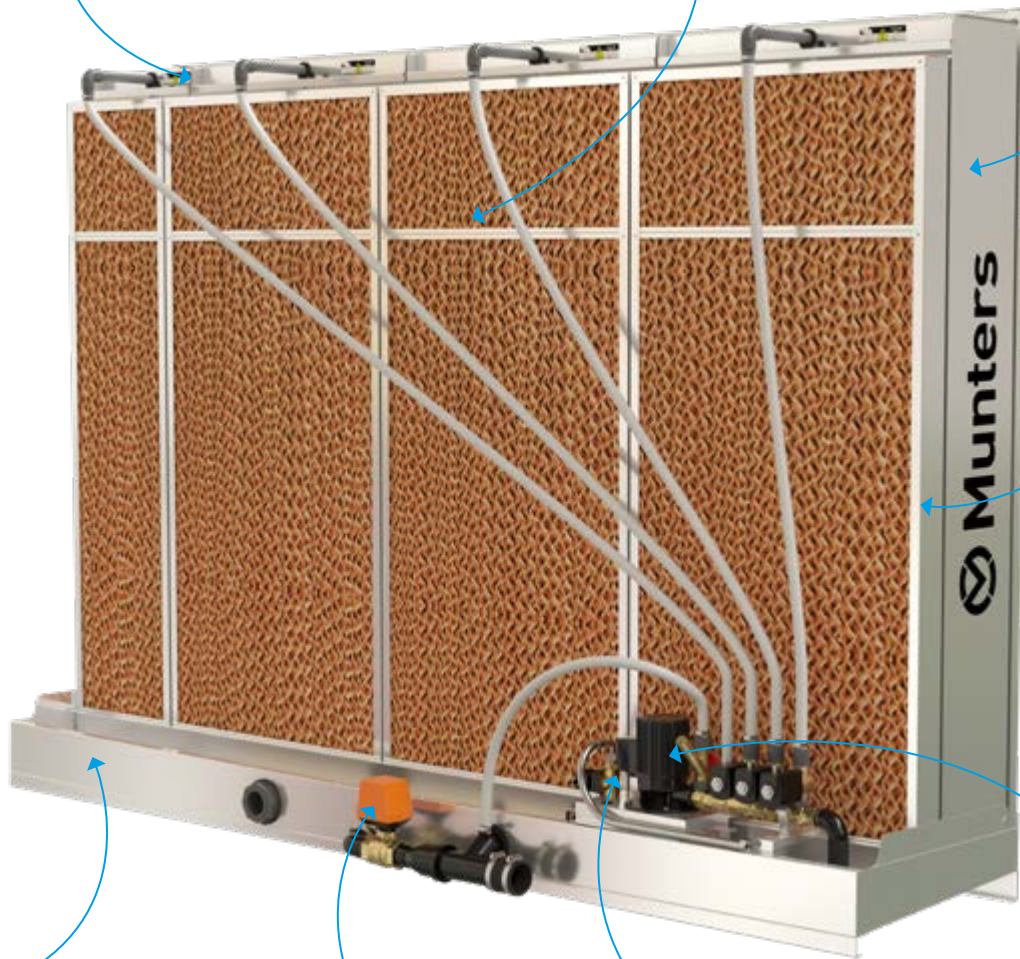
SIX REASONS WHY FA6™ MAKES THE SUM GREATER THAN THE PARTS

- **Optimal cooling for your data center**
FA6 is an ultra-low energy solution that only needs water and air. No chemicals are used in the system which is also free from carbon emissions.
- **Compact and flexible**
FA6 is specially developed for flexible integration into any configuration of data center air-handling system. Its compact design allows for space and cost savings.
- **Quickshift cassettes**
Easily installed modular cassette design makes servicing and replacement quick and efficient.
- **Wide range of sizes**
FA6 comes in a wide range of standard sizes covering volumes from 0.5-40 m³/s (1000-85000 cfm).
- **Low water consumption**
FA6 can be used with a circulating water system to minimize water consumption.
- **Variety of standard options**
We have a number of options available as standard to ensure you find the solution you need. These include UV disinfection, different control systems, direct or circulating water options and many more.

Clever water distribution assembly seals and fastens with one clip to ensure easy servicing and cassette removal.

Features Munters patented GLASdek™ GX40 high performance media in modular stainless steel framed cassettes. GLASdek™ GX40 has been awarded GREENGUARD Gold status certifying that it is completely free from harmful chemical emissions.

Easily installed modular cassette design make servicing and replacement quick and efficient.



Munters unique droplet separator DropSTOP™ is specially designed to prevent water carryover at face velocities up to 5.0 m/s (984 fpm).

Specifically designed water tray guarantees total draining facility to avoid water residue or stagnation.

Motorized drain valve for optimum control of water drainage.

Soft close solenoid valves are used to eradicate water hammering in the supply water pipe.

High quality immersion pumps in 4 sizes provide reliable service over time.

FA6 product data

Technology basics

The heart of FA6 is a cassette made from inorganic non-combustible evaporative media – GLASdek™. Water is supplied to the top of the GLASdek evaporative media via a distribution header. The water flows down the corrugated surface of the media. As the warm, dry air passes through the media it evaporates a proportion of the water and thus produces cold, humidified air. The rest of the water assists in washing the media, and is drained back to the tank.

The energy that is needed for the evaporation is taken from the air itself. The air that leaves the humidifier is therefore humidified and cooled simultaneously without any external energy supply for the evaporation. This is in essence

the adiabatic cooling process. It is very efficient, and the energy consumption is very low.

It also allows the use of water straight from the tap with no need for water treatment (i.e. demineralisation plants). In cases with non-sufficient water quality, it may be necessary to add a water treatment. Minerals and pollutants stay behind in the GLASdek evaporative media to be washed away with the discharge water keeping the total humidification process pure.

Design

FA6 consists of one or more cassettes supported by a rigid frame and a water tank made from stainless steel (EN 1.4301). The cassettes are made from GLASdek evaporative media

protected by stainless steel casings. On top of each individual cassette is a distribution header that supplies the cassette with water and fixes it to the frame.

The water supply to the headers can come from a circulation pump or directly from the mains.

Water systems

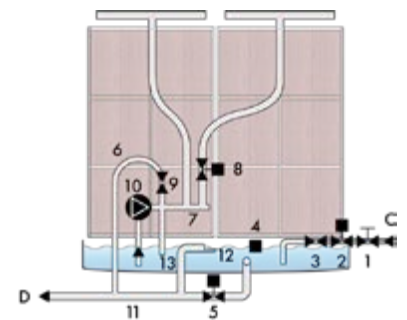
Circulating water systems are most commonly used due to the low water consumption. Direct water systems are commonly used when the water quality is too poor for circulating systems or when the humidifiers' annual operation time is short. Without sufficient water quality, it may be necessary to add a water treatment.

1. Circulating water system

The reservoir is filled with cold water from the mains, and a float valve maintains the water level. When there is a humidity demand, the pump starts and circulates water over the cassettes via the distribution headers. Mains water will contain a certain amount of minerals and salts, the concentration of which varies from place to place. During the evaporation, pure water vapour is released to the air. The minerals and salts remain in the water and are returned to the reservoir. A proportion of the water in the reservoir is continually drained and replaced with fresh water to control the mineral concentration.

Wide range of sizes

FA6 comes in a wide range of standard sizes that conform to all typical air handling unit dimensions. The individual units cover air volumes from 0.5-40 m³/s (1000-85000 cfm). For very large air volumes a combination of units is selected in order to achieve the desired size. Sizes can be modified upon request. Selecting the optimal size is easy with the FA6 Dimensioning Program and on-line technical support.



- C Water supply
- D Drain
- 1. Shut off valve
- 2. Solenoid valve
- 3. Constant flow valve
- 4. Water level switch
- 5. Motorized drain valve
- 6. Bleed-off
- 7. Water distribution from pump
- 8. Solenoid valve for stage control
- 9. Bleed-off valve
- 10. Distribution pump
- 11. Drain pipe
- 12. Overflow drain
- 13. Blow down pipe

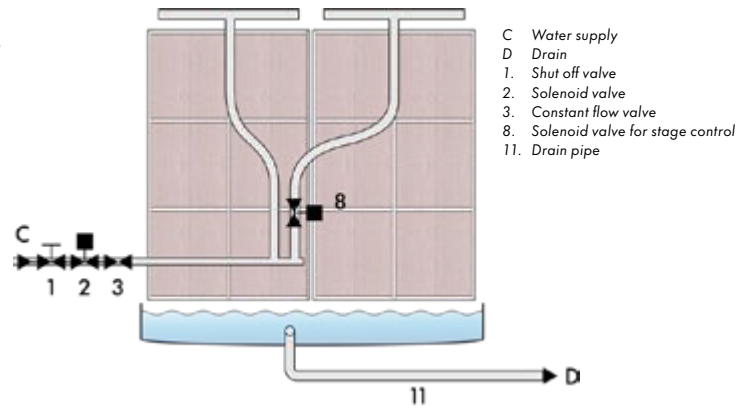
STANDARD SIZES

A, Width in mm (inches)	B, Height in mm (inches)								
	600 (23.6")	900 (35.4")	1200 (47.2")	1500 (59.1")	1800 (70.9")	2100 (82.7")	2400 (94.5")	2700 (106.3")	3000 (118.1")
	m ³ /s (cfm)	m ³ /s (cfm)	m ³ /s (cfm)	m ³ /s (cfm)	m ³ /s (cfm)	m ³ /s (cfm)	m ³ /s (cfm)	m ³ /s (cfm)	m ³ /s (cfm)
600 (23.6")	1.0 (2119)	2.0 (4240)	2.8 (5930)						
900 (35.4")	1.6 (3390)	2.9 (6150)	4.2 (8900)						
1200 (47.2")	2.1 (4450)	3.9 (8260)	5.6 (11900)						
1500 (59.1")		4.9 (10380)	7.0 (14800)	9.0 (19100)	11.0 (19100)	13.0 (27500)	16.0 (33900)	18.0 (38100)	20.3 (43000)
1800 (70.9")		5.8 (12290)	8.0 (17000)	11.0 (23300)	14.0 (29700)	16.0 (33900)	19.0 (40300)	22.0 (46600)	24.3 (51500)
2100 (82.7")			10.0 (21200)	13.0 (27500)	16.0 (33900)	19.0 (40300)	22.0 (46600)	25.0 (52900)	28.4 (60200)
2400 (94.5")			11.0 (23300)	15.0 (31800)	18.0 (38100)	22.0 (46600)	25.0 (52900)	29.0 (61400)	32.0 (67800)
2700 (106.3")			12.0 (25430)	17.0 (36000)	20.0 (42400)	24.0 (50900)	28.0 (59300)	32.0 (67800)	36.5 (77300)
3000 (118.1")			14.0 (29700)	19.0 (40300)	23.0 (48700)	27.0 (57200)	32.0 (67800)	36.0 (76300)	40.6 (86000)

C=630 mm (24.8") for 65-85% efficiency, C=730 mm (28.7") for 95% efficiency.

2. Direct water system

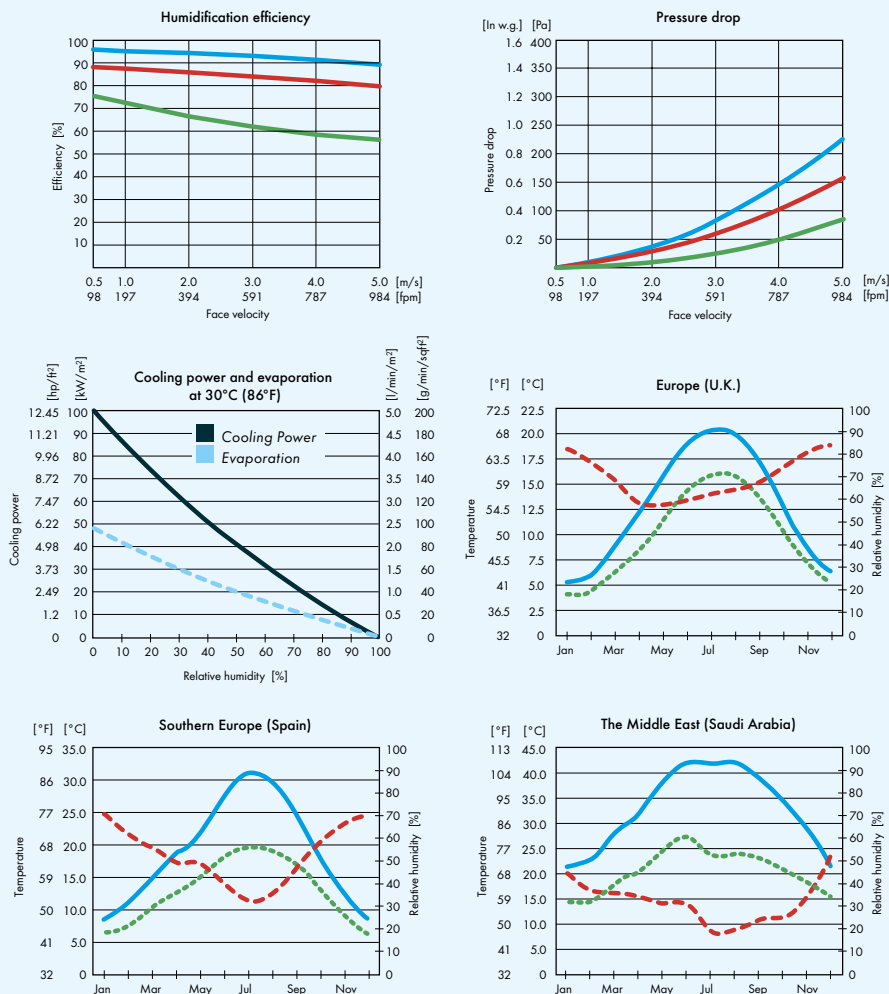
When there is a humidity demand, the mains water is supplied directly to the distribution headers via constant-flow valves. The excess water that is not used for evaporation cleans the cassettes before being discharged.



- C Water supply
- D Drain
- 1. Shut off valve
- 2. Solenoid valve
- 3. Constant flow valve
- 8. Solenoid valve for stage control
- 11. Drain pipe

HIGH PERFORMANCE

Cooling power specified per m² surface area at 5.0 m/s and 95% humidification efficiency.



Evaporative cooling from ambient conditions. Based on average daytime climate condition data.

Munters has made every attempt to ensure the accuracy and reliability of the information provided. However, the information is provided "as is" without warranty of any kind. Munters does not accept any responsibility or liability for the accuracy, content, completeness, legality, or reliability of the information contained.

FA6 can be ordered with three different humidification efficiencies 65, 85 and 95%. The choice of humidification efficiency depends on the control method and the cooling and/or humidity demand of the application.

Droplet separator is recommended for face velocities over 4.0 m/s. The maximum face velocity is 5.0 m/s.

Cooling power

The adiabatic cooling process is often used to eliminate or reduce the load on cooling equipment during the summer. The FA6 can be used as a direct cooler - cooling and humidifying the supply air, or as an indirect cooler in conjunction with a heat recovery rotor - cooling the supply air without adding any humidity.

- Ambient temperature
- Temperature after humidifier
- Ambient humidity

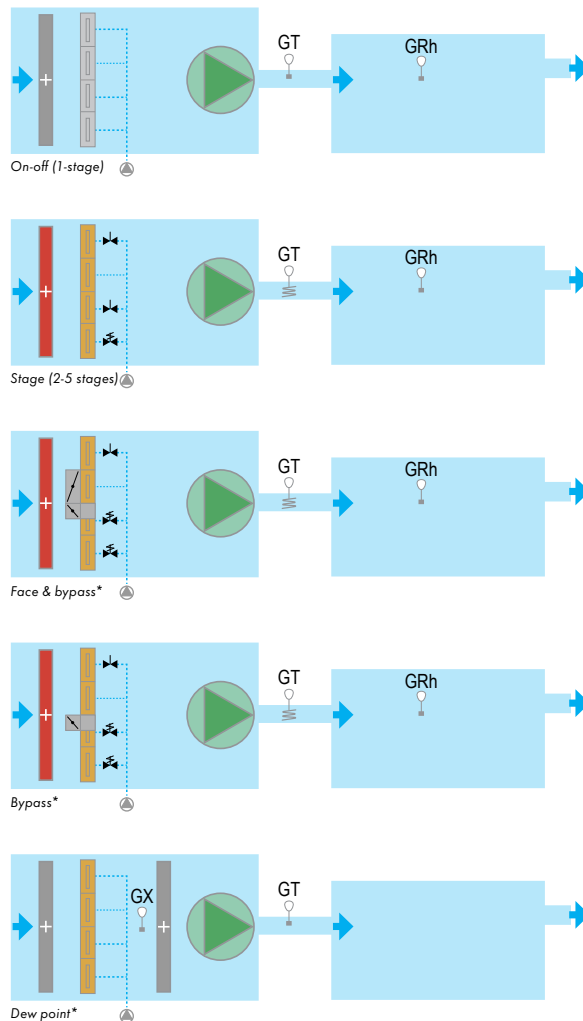
GLASdek™ evaporative media

The inorganic material GLASdek used for the humidifier cassette has been firetested and classified as non-combustible material according to ISO 1182. GLASdek complies with the UL900 standard.

The inorganic material GLASdek used for the droplet separator cassette has been fire tested and classified as non-flammable material class 1, according to BS 476: part 7, M1 according to the French CSTB, and class T1 according to JISA 1322, Japan. This corresponds to NordTestFire 004, class 1, and the German DIN 4102, part 1, class B1.

Control options

The FA6 can be easily controlled to address even the most demanding conditions. The choice of control method depends mainly on the application and the desired accuracy of the system. The controls vary from the simple on-off control with a typical accuracy of $\pm 10\%$ RH to the infinitely variable face and by-pass control with a typical accuracy of $\pm 1\%$ RH.



*) Available for customized designs only. Not included in the order code.

Simple to install

The FA6 is easy to install and easy to configure into both existing and new HVAC systems. Electricity (115/230/400 V, 60 Hz) water supply (1-10 bar (750-7500 mmHG)) and drainage are all that is needed. Due to its high performance and compact design it is the ideal replacement for older, less efficient humidifiers/coolers.



Example of an FA6 installation in a section of an airhandling unit

OPTIONAL EQUIPMENT

To adapt the FA6 to the specific demands of different applications Munters offers a full range of accessories.

1. Droplet separators are used to eliminate the risk of carry-over due to high air velocities or turbulent airflow. They are very easy to install and do not change the FA6 humidifier's space requirement. Separators are recommended for all installations with a face velocity over 3.5 m/s.
2. Stage control consists of solenoid valves that control the water supply to individual cassettes. The valves enable the humidifier/cooling unit to be operated in 2-5 stages to suit a variable humidity demand (availability subject to size).
3. The FA6cc, Clean Concept is a bolt on enhancement for the FA6 Humidifier/Cooler that enables circulating water models to operate at optimum hygiene levels. It also incorporates BMS connections and alarms to increase the operational safety. The FA6cc is designed to exceed current legislation in relation to the control of bacteria in water systems in many countries – e.g. ACOP L8 in the U.K.
- 3.1 FA6ds, Dosing System enables time controlled, and/or externally controlled, dosing of biocides into the humidifier tray. The dosing system is ideal for use in installations with suspected poor water quality or high levels of airborne organic matter.
- 3.2 FA6cs, Conductivity System enables conductivity controlled bleed-off. The system reduces water consumption and is especially effective with stage-controlled humidifiers/coolers.
- 3.3 FA6uv, Ultra Violet Sterilisation System with intensity sensing.
4. Custom designed units can be supplied upon request.

Tested and certified

FA6 humidifier/cooler is manufactured in accordance with the following Harmonized European standards and technical specifications:

- EN 60204-1 edition 3 Safety of machinery, electrical equipment of machines.
- EN 61000-6-3 edition 1 Electromagnetic compatibility EMC Emissions standard for Residential, commercial and light industrial environments.
- EN 61000-6-3/A11 Electromagnetic compatibility EMC Emissions standard for Residential, commercial and light industrial environments.
- EN 61000-6-1 Electromagnetic compatibility EMC Emissions standard for Residential, commercial and light industrial environments.
- All components comply with UL1995 standard.

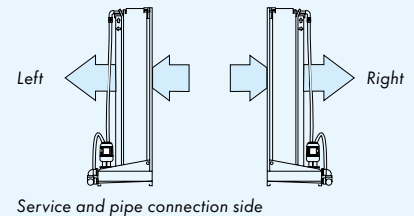
It agrees, with the limitations that have been stipulated for machines, with the most important health and safety requirements of Machinery Directive 2006/42/EG and furthermore 2004/108/EC with guideline for Electromagnetic compatibility. It is certified according to VDI 6022 (German, HVAC Hygiene Standard). More over the FA6 Evaporative Humidifier / Cooler has been rigorously tested by the Central Department for Hospital Hygiene at the Medical Faculty of RWTH in Aachen, Germany. According to the results there were no aerosols containing legionella identified, nor were Legionella pneumophila passed any other way into the air even at very high concentrations of legionella in the circulating water and very high air velocities. The tests were performed both in vitro and in vivo.

HOW TO SELECT FA6?

Selection of the right FA6 is easy with the FA6 Technical manual or the FA6 Dimensioning Program. All you need to know are the following parameters:

- Air volume
- Duct dimensions or the cross-section of the AHU
- Design conditions
- Required control accuracy
- Type of application
- Required air conditions

You are always welcome to contact your nearest Munters sales office for assistance.



ORDER INFORMATION

Humidifier/Cooler FA6-XX - XXX - XXX - XX - X - X

- **Code for humidification efficiency** ————
65=65%, 85=85%, 95=95%
- **Code for width, mm** (see table page 4) ————
- **Code for height, mm** (see table page 4) ————
- **Code for water system** ————
C= Circulating water, D=Direct water,
CS=Face and bypass
1-5=Number of stages (see page 6)*
- **Code for droplet separator** ————
0=Without, 1=With
- **Code for service and pipe connection side** ————
L=Left, R=Right

E.g. FA6-85-120-090-C1-0-L

Comments

FA6 sizes width or height starting with the 2100 are delivered disassembled. The delivery does not include water filter or water trap. *When the number of steps=1, no solenoid valve is

included. In the case of more steps than one, the number of solenoid valves depends on the number of cassettes in the humidifier. Munters will provide you with full details.



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
- Performance checks and optimization
- Munters Remote Assist – online service solution when on-site visits are difficult
- And much more...

Find your nearest Munters office at www.munters.com

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