

Munters Air Treatment Systems



Our technology, experience and people
make the difference

In control of your climate with Munters

Munters - your sustainable worldwide partner

Since Carl Munters invented the desiccant rotor more than 50 years ago, Munters AB developed into the global market leader in desiccant dehumidification. Today, part of Nordic Capital, with offices in 30 countries, 2,200 employees in many branches around the world, we guarantee you a first class partnership wherever you are situated.

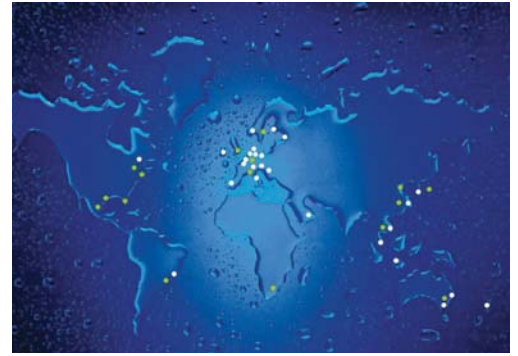
Today we provide energy efficient climate control for comfort, process and environmental protection. Our international network ensures a competent and fast-reacting organization across borders, with skilled employees having happy customers as their number one target.

Big or small - all customers are important to us

Daily we serve all types of customers around the world. From one-man entrepreneurs to the worlds largest industrial players. To us all customers deserve the utmost attention, no matter their size, branch or position. Holding a strong position as supplier to customers in the food and pharmaceutical industries, we are constantly enlarging our scope of customers, developing products and solutions for new and interesting applications and industries.

Our strategy and vision

Munters AB has set the strategy for the future. To continue the healthy growth of the company we are constantly developing new energy-efficient products to serve our customers in the best way possible all over the globe, with Asia as a region with an enormous potential. Together with scope expansions Munters expect to see a significant growth for the benefit of customers and employees.



*“Munters is a **global** leader in **energy-efficient** air treatment solutions based on **technological** and **application expertise** in humidity and climate control techniques”*



Dietmar Mueller,
BA President, Air Treatment

Three Business Areas to serve you

Process

This is our largest business area, offering air treatment and control for industrial processes. Key market segments are the food and pharmaceutical industries, where humidity can have a very adverse effect on product quality in the production, handling and storage phases. The Munters dehumidification system enables producers to control humidity at the desired levels, with the most energy-efficient solutions in the market.



MOAS (Munters Outdoor Air Systems)

This business area specializes in humidity and temperature controls for commercial spaces such as supermarkets, schools, restaurants, airports and hospitals. As in the process industry, customers in this segment focus increasingly on energy consumption and life cycle costs. Our systems for combined dehumidification and air conditioning allows for separate control of temperature and humidity, with market leading energy efficiency.



Direct Space solutions

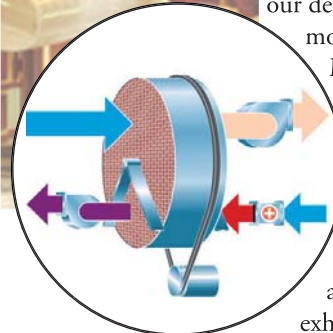
Munters' solutions for Direct Space focuses on strict humidity control in areas sensible to humidity related problems. By controlling and limiting the relative humidity around the year, building structures are protected against destruction and materials stored will be preserved in an optimal climate in the most energy efficient way. Archives, depots and warehouses all over the world are taking advantage of Munters' desiccant technique, preserving raw materials, packed products, irreplaceable artefacts and artwork.



The technologies saving costly energy

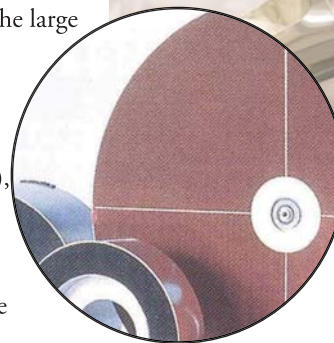
Our rotor principle

The simple yet ingenious principle of our desiccant wheel was invented more than 50 years ago by Carl Munters. Two air streams pass simultaneously through the slowly rotating rotor that is treated with a highly effective desiccant. One air stream is dehumidified to provide the necessary dry air, the other dries the rotor, exhausting the accumulated moisture externally.



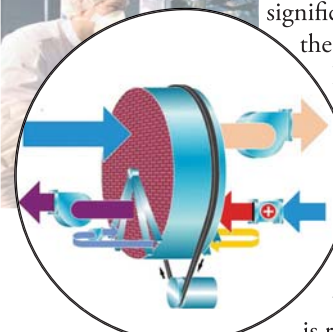
Quantum™ rotors

One of the characteristics of this new Quantum™ rotor is the large dehumidification capacity. The energy consumed for the sorption system can be obtained from primary energy sources (natural gas), steam and/or combined with waste heat, in comparison with expensive electricity thus reducing the yearly operational costs.



Power Purge

This patented technology reduces significantly the energy needed for the rotor reactivation. The Power Purge system collects waste heat from the hottest section of the rotor and utilizes this heat for reactivation - just like an energy recovery system. Furthermore the discharge temperature of the process air is reduced which results in lower energy cost for post cooling.



DesiCool™/PopCool™

Based on Carl Munters inventions on evaporative cooling our air conditioning units are today's answer to a modern, environmentally friendly and economic air conditioning system for bigger premises. Providing both cooling and air conditioning in only one unit, using excess heat, e.g. from production facilities, the running costs are very low and furthermore no refrigerant is needed.



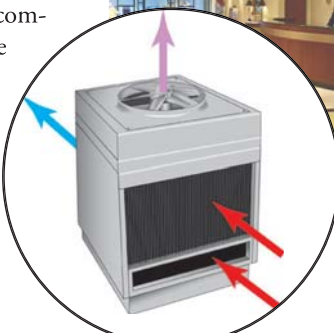
DryCool™ Systems

The DryCool™ systems control temperature and humidity independently. Utilizes direct expansion condenser heat to reactivate the desiccant wheel while the evaporator provides cooling prior to the desiccant process. It is designed to cost-effectively treat 100% makeup air and work in conjunction with existing A/C systems.



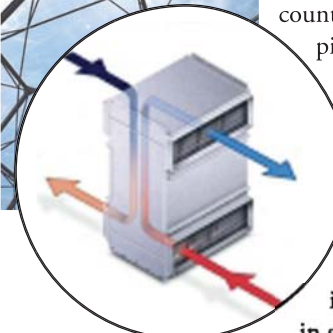
Oasis™

Direct evaporative cooling, indirect evaporative cooling or the combination of both is available in the Oasis™ product. In dry climates this allows for part or all of the cooling requirements of the building to be met without refrigeration based cooling. Units are available with virtually any option and configuration.



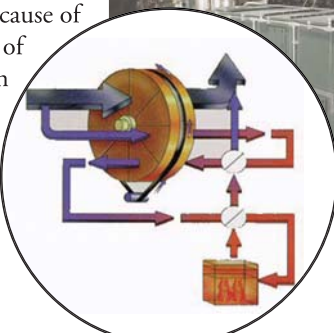
Energy Recovery Products

We offer designs utilizing plate counterflow heat exchangers, heat pipe, and energy recovery wheels. Exhaust recovery ventilation utilizes energy from the exhaust air stream to pre-condition the outside air being introduced into the building. Provides free heating in winter and free cooling in summer. Available only in Munters Americas.



VOC Abatement

Burning low concentration solvent exhaust streams is costly because of the need for large amounts of supplemental fuel to sustain the oxidation reaction. The Zeol Rotor Concentrator System significantly reduces oxidation fuel costs. VOCs in the process exhaust are concentrated up to 30 times, then sent to a very small, efficient oxidizer for destruction.



Industries we serve



Archives and Museums

Museums, libraries and archives can be climate controlled with Munters systems. The valuable artifacts are effectively protected against humidity related damage like corrosion and mould and with low energy costs.



Automotive

For testing of complete cars, engines and parts Munters enables automotive manufacturers to simulate any environmental condition. Dry air also secures proper climate for production, storage and transportation of air-bags, tyres and glass.



Chemical, Food and Pharma

We create energy efficient climate conditions for food and pharmaceutical products during transportation, production and storage, securing consistent quality with cost savings and higher throughput. We can prevent ice build-ups at coldstores with our award-winning IceDry-system.



Consulting Engineers

Munters provides a comprehensive range of services, and our experienced multi-disciplined project managers and engineers provide design, product and installation services in climate control. Always offering energy saving and environmentally friendly solutions.



Defence, Electronics & Semi-conductors

A dry environment stops corrosion, reduces electronic failures, prevents mould and maintains the right mechanical properties of stored materials. Secures high readiness and availability of aircraft, vehicles etc. VOC abatement for the worlds leading Semi-conductor manufacturers.



Data Centres

Our advanced cooling systems provide data centres with the desired cooling using significantly less energy than standard treatment. Munters custom designs integrate DX, chilled water, indirect and direct evaporative cooling and economizer cycles, reducing energy costs by up to 75%.



Offices/Commercial buildings

Munters systems create a more comfortable environment, reduce energy consumption and increase productivity and the quality of life in commercial buildings. Our systems provide a more efficient, high performance HVAC system that creates a better experience for customers and employees.

How problems are solved



Claxton Poultry solves Condensation Problems

Munters solved condensation problems at Claxton Poultry US. Large amounts of water were used to maintain a sanitary work environment. This water evaporates and condenses on ceilings, walls and equipment in the processing areas.

The problem had been addressed by using plastic sheeting hung from the ceiling and personnel wiping away condensation as it formed. A costly solution that did not control condensation to meet with USDA compliance.

"The Munters equipment has allowed Claxton Poultry to operate without condensation-related Non-Compliance-Records," said John Seibel, Claxton.



Energy payback of one year

At Controlled Therapeutics in Glasgow, Scotland, energy costs are an important issue. The company is a leading developer and manufacturer of pharmaceutical products.

By installing our Energy Purge system to their existing dehumidifiers, the energy consumption for regeneration of the units was cut dramatically, resulting in a payback time of only one year.

As the EnergyPurge is an integral fitting, the system only had to be shut down for 12 hours for installation and no additional duct work or other costly alterations or maintenance costs were necessary.

Industries we serve



Paint finishing

Munters provides complete abatement systems to control VOC emissions from paint booths including particulate prefilters and turnkey installation. Cost effective solutions can be designed for systems ranging from an auto booth to an aircraft paint hangar.



Power Generation, Water & Waste Water

Dehumidification of water works eliminates condensation on cold surfaces and secures better hygiene and safety. Saves energy by replacing heating while protecting electronic by controlled humidity. Boilers on power plants are effectively protected against corrosion during stand-by.



Recreation & Leisure

Ice rinks, swimming pools and indoor sports halls are protected with Munters dehumidification remedying condensation and deterioration of building structures whilst saving energy. Better and more healthy indoor climate for athletes, audience and employees.



Shipbuilding & Marine

Dehumidifiers are used for protection against corrosion during sandblasting and painting. On cargo ships, goods are protected from moisture absorption and tanks are dried after cleaning, speeding up the loading of new cargo.



Water Damage Restoration

Munters has a full range of reliable, robust, high performance dehumidifiers to meet a wide range of property drying requirements.

The units are portable, easy-to-use and available in a variety of capacities.



Schools, Universities, Theatres

Good indoor air quality (IAQ) is essential for a productive learning environment. Our humidity controlled buildings ensure comfortable conditions in classrooms, auditoriums, theatre lobbies etc. even at peak occupancies. Cuts energy and operating costs while ensuring healthy and clean air.



Supermarkets & Restaurants

Munters supply air conditioning of supermarkets and restaurants for a comfortable, healthy environment to work, shop or eat in. Utilizing energy recovery and humidity control to help cut energy costs, ensure food and customer safety and staff comfort, and provide the proper amount of fresh, healthy outdoor air.

How problems are solved



DesiCool at Sandvik

Cooling air using nature's own method through evaporation of water - that's DesiCool™, using waste heat to create cooling. Sandvik Wernshausen, Germany, a world-leading manufacturer of tools and machines, found Munters' DesiCool™ system to be the most reliable, economic and environmentally friendly solution for air conditioning.

6 DesiCool™ systems were installed, each providing air conditioning for 10,000m², with an energy saving on 45% compared to competing systems !



DryCool™/HCU in Supermarkets

Munters DryCool/HCU (Humidity Control Unit), allows for separate control of temperature and humidity, with market-leading energy efficiency. Perfectly designed for use in supermarkets, of which Wal-Mart is our largest customer.

DryCool/HCU is superior to traditional air-conditioning systems as it not only controls the temperature but also reduces the relative humidity of the supplied air. These systems create an indoor climate with a comfortable humidity, with no risk of mould and bacteria growth.

Our standard and system solutions



Munters standard product range

Problems related to relative humidity are seen in almost all industries. Products and materials **stored** are affected by the humidity and corrosion and mould occurs. Production processes can be **interrupted** by sticking products, clumping together and can lead to expensive productions stops and waste.

Our range of **standard products** are designed to solve these problems, **creating the perfect climate** for archives, storages and many kinds of production processes. **By creating a constant climate** around the year the production process is optimized, the product quality is kept high, waste is **reduced**, ultimately leading to cost savings.

Based on decades of experience we offer a global range of standard units, easy to install, easy to maintain, and offer a number of control options and product finishes to suit your operating or hygiene requirements.

Munters System Solutions

To meet with the requirements from customers in need of more **sophisticated solutions**, our range of System Products **have been developed**.

The possibility of **adding modules** for humidification, pre-/postcooling and heating, filterboxes, heat exchangers etc. enables us to fulfil all wishes from our customers, building exactly the system that meets specific demands. The tailor-made systems are delivered in a hygienic design and high quality, which are easy to assemble on site by our skilled service engineers who perform expert commissioning of the system.



Stand-alone and integrated units

Standard dehumidification

Our stand-alone dehumidification units used purely for humidity control purposes, are easy to install and take **up minimal floor space**. Duct connections distribute the dry air within premises, or lead **the dry air** into the building/room.



Air Conditioning

Dehumidification is an integrated part of our air conditioning systems, where Carl Munters pioneering inventions on **the desiccant wheel and the evaporative cooler** are **operating perfectly together**.

Without the **need of any refrigerants** our DesiCool™ Air Conditioning systems make an environmentally friendly and energy efficient solution and **as waste heat is used**, the DesiCool™ is a huge energy saver compared to traditional air conditioning solutions.

Comfort Cooling

Our DryCool™ system is the answer to air conditioning. The desiccant rotor and **evaporative coils** are the basic components, and **as waste heat** from the condenser is used **to regenerate the rotor** you **will have dehumidification of the air** at no extra cost. These systems are very cost-effective unit for supermarkets, warehouses, hotels, schools etc.



VOC Abatement Equipment

Munters Concentrators provide **air pollution control** using **hydrophobic zeolite rotors** to control industrial emissions of Volatile Organic Compounds (VOCs) from contaminated airstreams. **As the only facility in the world that controls all aspects of rotor-concentrator system manufacturing** including the HoneyCombe® rotor structure and assembly of complete VOC Abatement systems, Munters guarantees quality and consistency. Systems are **pre-wired** and factory tested and can be packaged to fit into standard freight containers for delivery worldwide.



Our manufacturing and after sales excellence



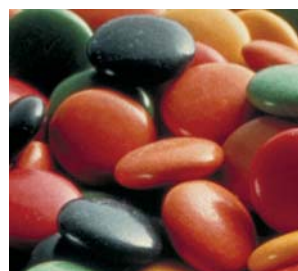
Munters through life care

After installation and commissioning of the delivered system we recommend our customers take advantage of our maintenance agreement. The agreement can be a standard or customised agreement, ensuring that regular inspection and maintenance of the units is being made by our experienced service engineers. Your Munters system will be kept up-to-date, always performing at its maximum with minimal energy consumption. Our engineers will keep you informed on energy optimizing options, always looking for ways to improve capacity and minimize running costs.

Optimising manufacturing procedures and existing products

Our production facilities all over the world are ISO9001 and ISO14001 certified and optimizing the manufacturing procedures and environmental considerations is a constant ongoing process, involving all employees.

To improve the performance of already installed units, our global team of technical engineers are constantly developing techniques and systems, both to improve the capacity itself, but also improving energy efficiency, enabling our units to perform at their best no matter its age.



After Sales at Wrigley

An internal global quality programme at Wrigley has been implemented to ensure consistent products quality worldwide. At Wrigley, UK, the drying times in the Driam coaters during summer were not satisfactory. Munters worked closely with Wrigley UK to implement a 10 week refurbishment programme, upgrading 8 existing dehumidifiers, all now capable of achieving a -12°C dewpoint year round.

The upgrade of the systems enabled Wrigley to shorten the drying cycles, fulfilling internal quality requirements.

Our most important resource - our employees



Munters internal education programme

Around 2,200 people are employed in the Munters Group. People with very different backgrounds, knowledge and experience - all contributing in their own ways to the worldwide success of Munters.

Training programmes are scheduled to provide everybody with the latest knowledge within air treatment, service and application techniques, giving our employees a common global knowledge base which they can use for the benefit of local customers.

Munters exchanging global experiences

The management in Munters Group is working in business areas rather than in regions to optimize the effect of synergy. To benefit from the global status of our company, regional meetings for key personnel within applications and service support are held.

Ensuring that experience is being shared without boundaries we are able to develop our business effectively - at the same time being able to offer the very best service to our global customers.



Working with Munters

*Karin Sjöström, Global Technical Product Manager:
"I feel that I have really been able to develop in the direction I want to go. I have been given the opportunity to broaden my horizons - today being responsible for development of one of our global DH product platforms. A continuing dialogue with both customers and my superiors together with training and applications sharing with colleagues, has paved the way forward.*

My job is exciting and provides a great deal of opportunity for contact with customers and colleagues in other cultures."

Product Programme - Air Treatment

MG/M120 Series

Small, solid units designed for use in minor **archives**, depots, waterworks, **containers**, **vehicles** and defence **applications**.



Process air flow: 50 - 120m³/h

Dehumidification capacity: 0.2 - 0.9 kg/h*

Power consumption: 0.4 - 1.3 kW

ComDry Series

Particularly suitable for use in water plants, warehouses, cellars, archives, etc. as well as for mobile use in water damage.



Process air flow: 80-210m³/h

Dehumidification capacity: 0.5 - 0.7 kg/h*

Power consumption: 0.95 - 1.02 kW

DryCool™ HD

The DryCool™ HD uses a revolutionary combination of desiccant technology coupled with traditional refrigeration to dehumidify any space with cool, dry air.



Process air flow: 340 - 425m³/h

Dehumidification capacity: 2.27 kg/h**

Power consumption: 0.09 kW

ML Series

8 excellent all-round units with integrated humidistats. Condensation units available as options, just like gas-regeneration on the biggest units.



Process air flow: 180 - 2,300m³/h

Dehumidification capacity: 1.3 - 18 kg/h*

Power consumption: 2 - 29.6 kW

MLT Series

High **airflow at low energy costs**. Perfect for **bigger storage facilities**. Available with **integrated humidistats**.



Process air flow: 350 - 3,000m³/h

Dehumidification capacity: 1.5 - 12.5 kg/h*

Power consumption: 2 - 23 kW

ML Plus Series

Tailor made units perfect for **pharmaceutical and food industry**. With **add-on modules for filtration**, cooling, heating and mixing of air.



Process air flow: 100 - 1,350m³/h

Dehumidification capacity: On request

Power consumption: 2 - 15 kW

IceDry® Series

Designed for installation in cold stores and freezer systems.
Food Tec Award-winning systems.



Process air flow: 800 - 1,400m³/h

Dehumidification capacity: 0.6 - 1 kg/h*

Power consumption: 5.4 - 8.7 kW

Product Programme - Air Treatment

MX Series

7 units designed for warehouses, production facilities, etc. Regeneration by electricity, steam or gas. Heat recovery system available for even higher efficiency.



Process air flow: 1,500 - 7,600m³/h
Dehumidification capacity: 10 - 53.8 kg/h*
Power consumption: 18.1 - 93.6 kW

MXT Series

Units in 5 sizes for dehumidification in closed systems. When extra high airflow is needed. Regeneration by electricity, steam or gas.



Process air flow: 2,100 - 9,000m³/h
Dehumidification capacity: 11 - 49 kg/h*
Power consumption: 18.8 - 77.4 kW

MX Plus

MX standard units with add-on modules for extra filtration, cooling, heating and mixing of air.



Process air flow: 1,500 - 7,600m³/h
Dehumidification capacity: on request
Power consumption: 42-137 kW

MA Series

3 units specially designed for sea transport and sandblasting. Mounted on frames with hooks for transportation.



Process air flow: 2,500 - 15,000m³/h
Dehumidification capacity: 19 - 112 kg/h*
Power consumption: 32 - 184 kW

MDU

Modular system, customized options in material and execution. Meeting high requirements on performance and hygiene. Indoor and outdoor installation.



Process air flow: 12,000 - 80,000m³/h
Dehumidification capacity: on request

DryCool™ Standard

Primarily designed to be a dedicated outdoor air unit delivering space neutral conditions, sizes are available up to 27,200m³/h. Also available in water cooled and chilled water versions.



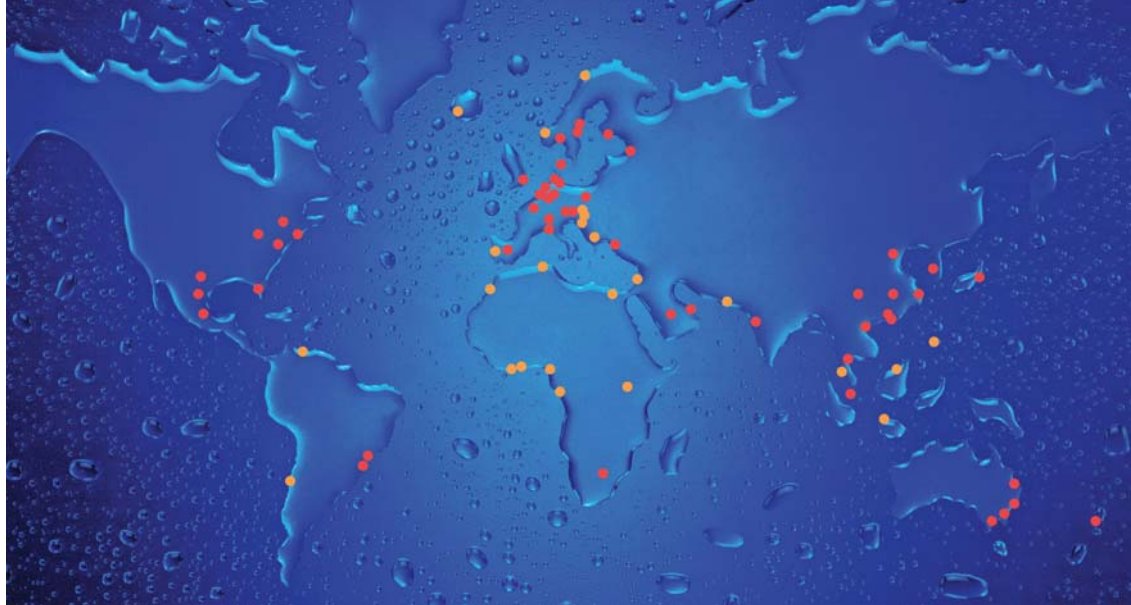
Process air flow: 1,700 - 27,200m³/h
Power consumption: upon unit options

DryCool™ ERV

Munters' innovative DryCool™ dehumidifier with exhaust air energy recovery. This packaged unit provides unmatched efficiency for conditioning outdoor air.



Process air flow: 2,300 - 27,100m³/h
Power consumption: upon unit options



An international name, where the customer comes first

Munters, part of Nordic Capital, has offices in 30 countries and over 2,200 employees in many branches around the world.

We are global leaders in energy efficient air treatment for comfort, process and environmental protection and have experience of over 300,000 successful applications commissioned using our energy conservation and innovations.

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.



MUNTERS INDIA HUMIDITY CONTROL PVT. LTD.

P T Gera Centre 304, Dhole Patil Road, Pune 411001

Tel: +91-20-6681-8900 Fax: +91-20-3052-2521

E-mail: info@munters.in

www.munters.in

AUSTRALIA
Tel +61 2 8843 1588
dh.info@munters.com.au

CZECH REPUBLIC
Tel +420 544 211 434
info@munters-odvlhcovani.cz

ITALY
Tel +39 0183 5211
marketing@munters.it

SINGAPORE
Tel +65 6744 6828
info@munters.com.sg

TURKEY
Tel +90 216 548 14 44
info@muntersform.com

AUSTRIA
Tel +43 1 6164298-0
luftfeuchtung@munters.at

DENMARK
Tel +45 4495 3355
info@munters.dk

JAPAN
Tel +81 3 5970 0021
mkk@munters.co.jp

SOUTH AFRICA
Tel +27 11 997 2000
info@munters.co.za

UAE
Tel +971 4881 3026
middle.east@munters.com

BELGIUM
Tel +32 15 28 56 11
info@muntersbelgium.be

FINLAND
Tel +358 20 776 8230
laitemyynti@munters.fi

KOREA
Tel +82 2 761 8701
munters@munters.co.kr

SPAIN
Tel +34 91 640 09 02
marketing@munters.es

UNITED KINGDOM
Tel +44 8708 505 202
dryair@munters.co.uk

BRAZIL
Tel +55 (41) 3317 5050
munters@munters.com.br

FRANCE
Tel +33 1 3411 5757
dh@munters.fr

MEXICO
Tel +52 722 270 4049
munters@munters.com.mx

SWEDEN
Tel +46 8-626 6300
avfuktning@munters.se

UNITED STATES
Tel +1 978 241 1100
dhinfo@munters.com

CANADA
Tel +1 905 858 5894
dhinfo@munters.com

GERMANY
Tel +49 40-87 96 90-0
mgd@munters.de

NETHERLANDS
Tel +31 172 43 32 31
vochtbeheersing@munters.nl

SWITZERLAND
Tel +41 52 3438886
info.dh@munters.ch

VIETNAM
Tel + 84 8 8256 838
vietnam@muntersasia.com

CHINA
Tel +86 10 8041 8000
info@munters.com.cn

INDIA
Tel +91 20 668 18 900
info@munters.in

POLAND
Tel +48 58 305 35 17
dh@munters.pl

THAILAND
Tel + 66 2 642 2670
info@munters.co.th