

Munters FA6™

Direct evaporative cooling system designed for optimal performance

Performance

- Very low pressure drop and energy consumption
- Controllability within 2-5% RH
- High efficiency: can control humidity and cooling efficiency output from 65% up to 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
- Stainless steel framed media for easy installation and serviceability

Regulatory compliance

- Fire-rated according to UL®900, ULC-S111
- GREENGUARD Gold certified
- All components are CE/UL approved



Energy saving cooling and humidification

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 framed stainless steel cassettes, making the solution robust and easy to install and service.

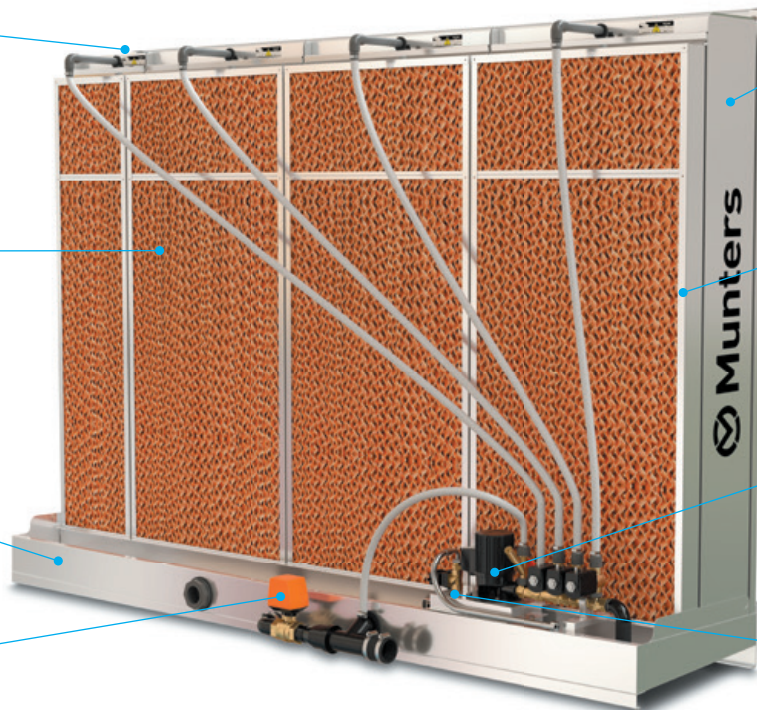
The FA6 is a high performance, low operating cost solution which is available in a wide range of sizes designed for integration into air handling systems.

Engineered 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.

Specifically designed sloped sump ensures water fully drains from the system.

Motorized drain valve for optimum control of water drainage.



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

Munters unique droplet separator DropSTOP™ is specially designed to prevent water carryover at face velocities up to 984 fpm.

High quality immersion pumps provide reliable service over time.

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

Six reasons why FA6 makes the sum greater than the parts

Emissions-free optimal cooling

The FA6 is a low energy eco-friendly option for effective cooling and humidification.

Compact and flexible

FA6 is specially developed for flexible integration into any air handling system configuration. Its compact design allows for space and cost savings.

Framed stainless steel media cassette

Easily installed modular cassette design makes servicing and replacement of GX40 quick and efficient.

Extended media life

GX40 has a media life expectancy in the range of six-eight years or more when properly maintained.

Low water consumption

FA6 can be used with a circulating water system to minimize water consumption.

Variety of standard options

A number of options are available as standard to ensure the right solution. These include UV disinfection, conductivity control, different control systems, direct or circulating water options and many more.



FA6 product data

Technology basics

The heart of the FA6 is the GX40 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 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.

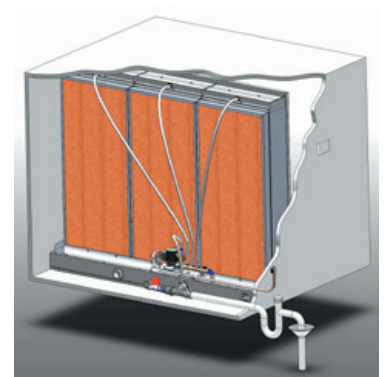
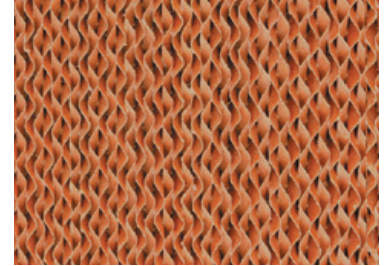
The energy that is needed for the evaporation is taken from the air itself. The air that leaves the humidifier is therefore humidified and cooled simultaneously without any external energy supply for the evaporation. This is in essence the adiabatic cooling process. It is very efficient, and the energy consumption is very low.

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

Design

FA6 consists of one or more media cassettes supported by a rigid frame and a water tank made from stainless steel AISI 304. The media blocks 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 used to ensure low water consumption. Direct water systems are commonly used when the water quality is too poor for circulating systems or when annual operation time is short. Without sufficient water quality, it may be necessary to add a water treatment.

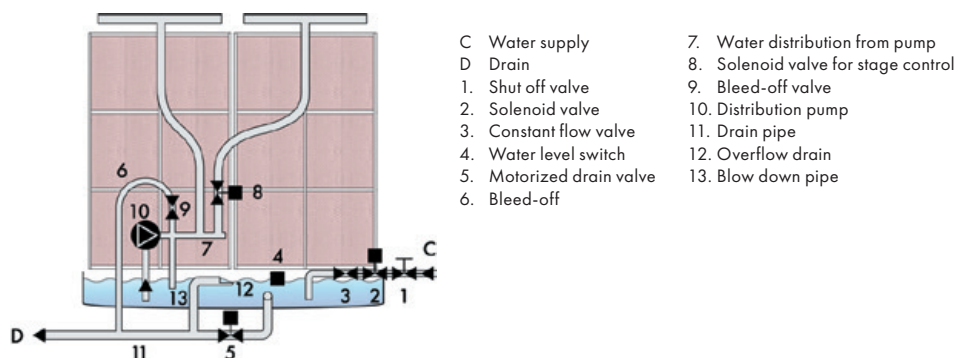
1. Circulating water system

The sump is filled with cold water from the mains, a float valve maintains a constant water level. When there is a 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, only pure water vapor is released to the air stream.

The minerals and salts remain in the water and are returned to the sump. A proportion of the water in the sump is continually drained and replaced with fresh water to control the mineral concentration.

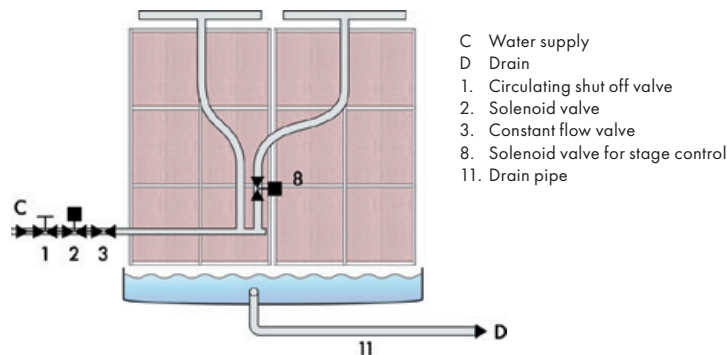
Wide range of sizes

FA6 comes in a wide range of standard sizes that conform to all typical air handling unit dimensions.



2. Direct water system

When there is a humidity or cooling demand, the 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.





High performance

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.

DropSTOP (droplet separator) is recommended for face velocities over 689 fpm with a maximum face velocity of 984 fpm.

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.

GLASdek GX40 evaporative media

The ceramic-coated material, GLASdek GX40, used in the media cassette has been fire-rated and complies with the UL900 and ULC-S111 standard. Additionally, GLASdek GX40 is classified as non-combustible according to EN13501-1, Class A1. The fiberglass material used for the DropSTOP cassette has been fire-rated and complies with the UL900 and ULC-S111 standard.

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-bypass control with an accuracy of $\pm 1\%$ RH typically.

Simple to install

The FA6 is easy to install and easy to configure into both existing and new HVAC systems.

Electricity (115/1/60 Hz)

Water supply (22-145 psi) 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.

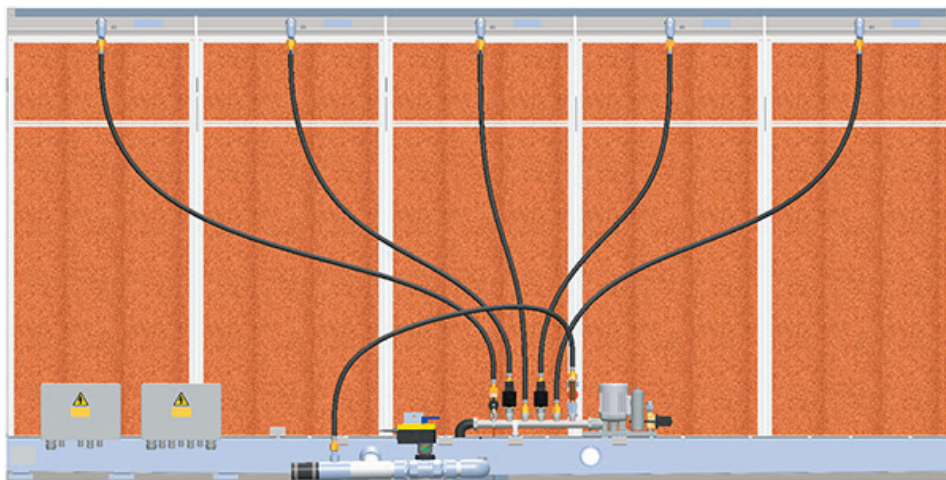


Example of an FA6 installation in a section of an air handling unit

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 space requirement. Separators are recommended for installations with high face velocities.
2. Stage control consists of solenoid valves that control the water supply to individual cassettes. The valves enable the cooler/humidifier to be operated in 2–5 stages to suit a variable cooling/humidity demand (availability subject to size).
3. FA6cs, Conductivity System enables conductivity controlled bleed-off. The system reduces water consumption and is especially effective with stage-controlled coolers/humidifiers.
4. FA6uv, Ultra Violet Sterilization System with intensity sensing.
5. The FA6cc, Clean Concept is a bolt on enhancement for the FA6 cooler/humidifier 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.
6. FA6ds, Dosing System enables time controlled, and/or externally controlled, dosing of biocides into the cooler/humidifier sump. The dosing system is ideal for use in installations with poor water quality and/or high levels of airborne matters.



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