Electrical Enclosure Cooling

Top-mounted cooling units for the highest demands.

Top-mounted cooling units – the space-saving solution with patented condensate management.

Edition 15

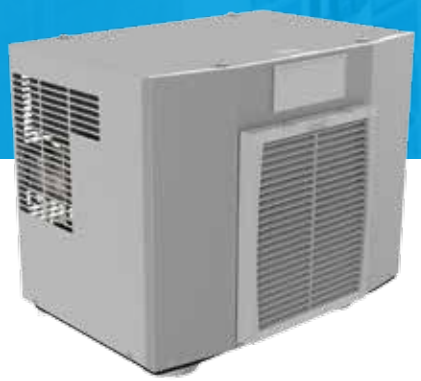
SHARING COMPETENCE

Pfannenberg
ELECTRO-TECHNOLOGY FOR INDUSTRY

Product‘s Advantages

100% condensate protection needs so little space.

Proper cooling is essential to regulating the temperature in electrical enclosures.
Our DTT series top-mounted cooling units were developed to provide cooling of electrical enclosures in areas with limited space.
Our DTT series top-mounted cooling units feature a condensate management system that provides 100% protection from condensat.



One of the main advantages of the DTT series top-mounted cooling units is their compact size. They are ideal for narrow production lines, electrical enclosures that are placed tightly together in a row and areas that are required to be kept obstruction free. The top positioning of the DTT units keep them protected from mechanical damage.

Why choose the DTT top-mounted cooling unit? This design saves you money. The compact, top mount design allows you to save valuable space to use for other purposes. It’s low energy consumption reduces your energy costs.

Our DTT top-mounted cooling units have a unique, revolutionary patented condensate management design. The innovative position of the cooling circuits challenges the traditional design of top mounted cooling units, preventing condensate from penetrating the electrical enclosure.

During the experimental study of the top-mounted cooling unit DTT 6201, we were able to reach very good thermal management results.
The temperatures in both the free flow region in front of the component parts and in the hotspot zone are consistently at an uncritical temperature level.

Dr.-Ing Wolfgang Heidemann, doctor of engineering, deputy institute director, research associate of the department thermodynamics, thermal technology and cooling technology at the Stuttgart University Institute of Thermodynamics and Thermal Engineering (ITW)

Pfannenberg top-cooling – a concept that makes sense.

In the development of the newest DTT generation, all the economic advantages of top-mounted cooling have been exploited. In addition to saving expensive storage space, a superior energy efficiency was in focus from the beginning. We are proud of the fact that we were able to increase these factors again in comparison to standard models and have reached a market-leading value again. Together with the high level of service and maintenance friendliness you can achieve cost savings on many levels.

1. Energy efficiency

- New energy efficient Micro Channel Technology
- Energy savings mode allows the unit to automatically switch of the internal motor

2. Service and maintenance friendliness

- Quick fastening mounts allow for easy, tool-free installation
- Removable front cover allows for quick access to the internal components
- Same filter adapter design used in the DTI/DTS series door and side mounted units
- Filters can be changed in seconds and require no tools because they are attached without screws

3. Design

- Top mount design saves storage space, keeps routes clear and protects the units from mechanical damage during production
- Durable, robust steel cover (no plastic) is ideal for industrial environments
- Stainless steel cover can be painted in various custom colours

Product Range

A customised solution. For every requirement.

As innovative as the DTT series' concept is and as good as the quality is – as comprehensive as the product range with all its possible customisations is. Because it is our principal aspiration to develop the best solution for every one of your requirements. Even if it necessary to have a small revolution to do so.

1. Variety of products

The new DTT series is available in 3 sizes and 6 performance levels and fits onto the cooling units of every manufacturer. A UR-certificate is, of course, standard for all units.

Model	Cooling capacity	Rated voltage	Article number
Size 1			
DTT 6101 SC	500 W	230 V	13256141055
DTT 6101 MC	500 W	230 V	13256171055
DTT 6201 SC	1000 W	230 V	13256241055
DTT 6201 SC	1000 W	400 V 2~	13256249055
DTT 6201 MC	1000 W	230 V	13256271055
DTT 6201 MC	1000 W	400 V 2~	13256279055
Size 2			
DTT 6301 SC	1500 W	230 V	13256341055
DTT 6301 SC	1500 W	400 V 2~	13256349055
DTT 6301 MC	1500 W	230 V	13256371055
DTT 6301 MC	1500 W	400 V 2~	13256379055
DTT 6401 400 V SC 7035	2000 W	400 V	13256432055
DTT 6401 230 V SC 7035	2000 W	230 V	13256441055
DTT 6401 400 V MC 7035	2000 W	400 V	13256462055
DTT 6401 230 V MC 7035	2000 W	230 V	13256471055
Size 3			
DTT 6601 400 V SC 7035	3000 W	400 V	13256632055
DTT 6601 400 V MC 7035	3000 W	400 V	13256662055
DTT 6801 400 V SC 7035	4000 W	400 V	13256832055
DTT 6801 400 V MC 7035	4000 W	400 V	13256862055

*SC = Standard Controller, MC = Multi Controller
*The cooling units are available in all special colours in addition to RAL 7035.
*Pre-filters and filter mats can be ordered as an option.

2. Filter media for every area

· Aluminium filter for air containing oil or aerosols
· Vlies filters for environments with a light dust contamination
· Fluted filters for environments with a high dust contamination

The filter media and filter frame for top-mounted cooling units are identical with the ones from Pfannenberg's side-mounted and partially recessed cooling units. This makes the maintenance easier and reduces costs.

3. Multi Controller (optional)

The energy-saving mode enables, via an additional sensor, a fan control that is requirement related.

4. Adjustment of design and colour

The DTT series provides a perfect mix of functionality and design with a large variety of optional surfaces (powder-coated sheet steel up to V2A) as well as the possibility to adjust the colour to your company colours.

5. Reliability

Naturally, the reliability of Pfannenberg's cooling technology is also found again in the DTT top-mounted cooling unit series. Of course, compressors, fans and heat exchangers of the highest quality are used, providing a durable and secure cooling for your valuable electrical enclosure components.

6. Anti freeze control

A new feature standardised in DTT top mounted units to shut off the cooling circuit and thus effectively preventing formation of ice on the evaporator.

NEW

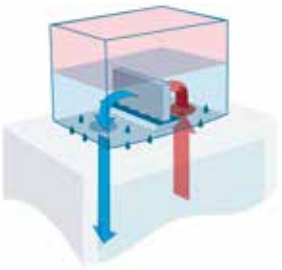
Patented, revolutionary DTT condensate management system.

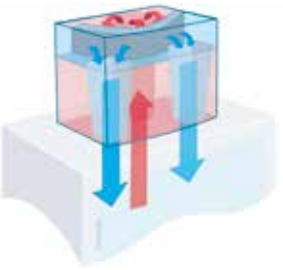
Main feature of the DTT's innovative condensate management is the repositioning of the cooling circuits. Moving the cold area up prevents the cold bridge to the electrical enclosure and also enables a problem-free drainage of condensate. An extensive separation of air flow and evaporator stops the formation of twirling droplets. Lastly the integrated air outlet nozzel makes the use of conventional air hoses unnecessary, minimizing the condensation risk.

DTT – security with 4-fold condensate protection!

1. No cold bridge to the ceiling of the electrical enclosure
2. No overflow of condensate into the electrical enclosure
3. No droplets that are stirred up in the airflow
4. No air hoses that are at risk of condensation

1. Cold bridge

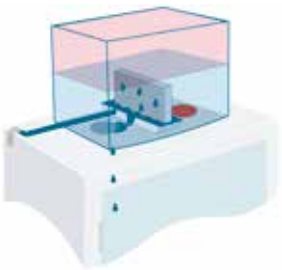


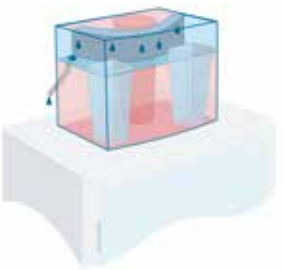


The challenge:
The less contact the colder area of the unit has with the ceiling of the warm electrical enclosure, the less risk there is of condensate forming and dropping inside the enclosure.

The Pfannenberg solution:
By changing the position of the air-conditioning circuits we have relocated the cold area of the cooling unit to the top reducing the risk if condensate forming.

2. Overflow of condensate

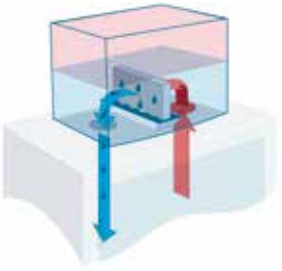


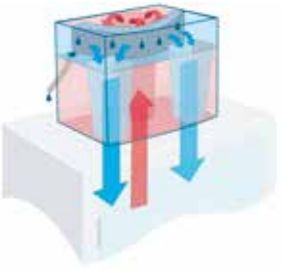


The challenge:
The horizontal condensate discharge which runs along the unit's floor makes the condensate drainage more difficult. Part of the condensate water that has accumulated in the cooling unit can overflow into the electrical enclosure via the air outlet opening.

The Pfannenberg solution:
By allowing vertical drainage of the condensate from the top positioned evaporator provides trouble free drainage of the condensate water, avoiding contact with the electrical enclosure.

3. Twirling droplets

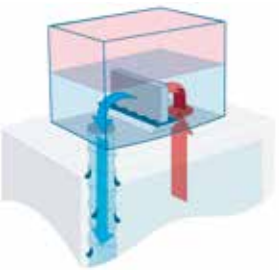


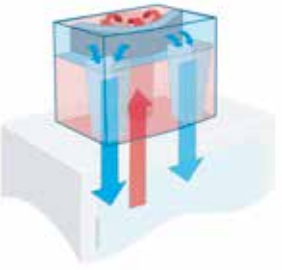


The challenge:
When concentrated warm air hits the evaporator, condensate water can form and get carried into the electrical enclosure via the cold air.

The Pfannenberg solution:
Spreading out the warm air over a large evaporator reduces the speed and mixing of the air. This guarantees a condensate-free air flow in the direction of the electrical enclosure.

4. Air hoses





The challenge:
The hoses conducting the cold air are surrounded by warm air of the electrical enclosure. As a result, condensate can form on the surface of the hose.

The Pfannenberg solution:
Integrated air nozzles instead of air hoses are positioned on both sides of the cooling unit to accelerate the cold air, conducting the condensate-free air down to the bottom of the electrical enclosure.

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