

STULZ

CLIMATE. CUSTOMIZED.



EC Tower

The split system for reliably and efficiently cooling equipment and server rooms

The complete range of air conditioning technology – from one source.

For over 40 years, the STULZ family-run company has been synonymous with precision air conditioning at the highest level.

Our solutions for the air conditioning of business-critical applications and sensitive systems have made us a leading company in our industry.

Whether for data centers, industry or communication technology, the STULZ portfolio has a tailor-made cooling solution to suit your requirements.

We guarantee adherence to our uncompromisingly high requirements and quality standards both at our factory in Hamburg and all our production sites around the globe. Moreover, we work hard not only to satisfy our customers' individual wishes, but also to make sure our air conditioning solutions offer maximum energy efficiency and a minimal CO₂ footprint.

Our portfolio extends from traditional room cooling and High Density Cooling to chillers, air handling units and container modules, all the way to micro data centers, service, and our self-developed monitoring software. An all-embracing quality assurance system monitors all the details in development, production, implementation, and service.

Today, STULZ has a presence in more than 140 countries. STULZ GmbH has 21 subsidiaries and eleven production sites in Europe, India, China, and North and South America. We also have partner agreements with numerous sales and service partners on every continent. Our network of highly qualified specialists is a reliable guarantee of the highest standards.

The combined wealth of our experience, values, performance and service is what defines us and is especially valued by our customers. Air conditioning solutions – custom tailored and from one source:
ONE STULZ. ONE SOURCE.

ONE STULZ.

ONE SOURCE.



The right air conditioning system for your equipment room



Most efficient precision air conditioning units for optimum control of temperature and humidity

In equipment and server rooms in which continuous heat removal is a must, any failure can turn into a crisis. Choose the right air conditioning solution! In most cases, high heat loads require the installation of specialized air conditioning systems. Standard split units – so-called comfort air conditioning units – are frequently used for this purpose. You will be familiar with these from hotels, public buildings and stores. However, unlike the EC Tower from STULZ, comfort air conditioning units were not specially developed for non-stop operation in an equipment room.

If you need precise, reliable and cost effective air conditioning for small equipment and server rooms, the EC Tower is an energy efficient and long-lasting series that fits the bill. These units cool more efficiently, more reliably and more sustainably than conventional comfort air conditioning systems. The compact size means little floor space is required and they can be easily integrated in existing server rooms

+ Advantages at a glance

- Maximum cooling capacity with a minimal footprint
- High operational reliability in continuous operation 24/7, 365 days a year
- Fast availability and delivery
- Easy integration and installation
- Cooling capacity from 5 kW to 24 kW
- Available in 2 different sizes
- EC fans for maximum energy efficiency
- Precise regulation of room temperature and air humidity
- Up to 100 m pipe run between internal and external unit



For more safety and efficiency in cooling your equipment

The disadvantages of comfort cooling in technical environments

Comfort air conditioning is designed to also take account of internal humidification. People and plants give rise to continuous natural humidification. The resulting heat loads are referred to as latent heat – this does not cause the temperature to rise. In order to create a pleasant climate for humans, an indoor comfort air conditioning unit therefore uses up to 40 % of its cooling capacity for dehumidification. In an equipment room, this continual dehumidification is counterproductive.

In equipment and server rooms, natural humidification is very low or non-existent, so that during continuous operation, the air humidity is constantly falling. In the winter and between the seasons, in particular, it is sometimes even necessary to humidify these rooms because the air is too dry.

If a comfort air conditioning unit has been installed, the cooling process takes place by means of a “dry” heat exchanger, and loses over 25 % of its efficiency due to the reduced heat transfer surface. Above all, when modern comfort air conditioning units with inverter compressors are used, excessively dry indoor air can temporarily reduce the capacity of the air conditioning system. Then, internal safety chains can prevent the units from wasting expensive energy. The units switch off to avoid “ineffective” operating states from the point of view of comfort air conditioning.



What does this mean for your choice of air conditioning?

The desirable traits of comfort air conditioning rapidly become a costly annoyance where “professional” equipment and server room air conditioning is concerned. If the air conditioning solution is not designed for rooms with comparatively high heat loads, the resulting changes in temperature and humidity often lead to considerable problems. The end result can be serious malfunctions or total failure – and even the complete shutdown of business critical IT systems.

For this very reason, STULZ developed the EC Tower as a split system, especially for heat loads in equipment and server rooms. It is capable of removing comparatively high heat loads and maintaining a constant temperature and air humidity in equipment and server rooms.

This way, you will benefit from more efficiency and a higher cooling capacity, lower operating costs and, last but not least, greater reliability.

Extra sensible cooling capacity

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Optimum air distribution

+

Controlled room humidity

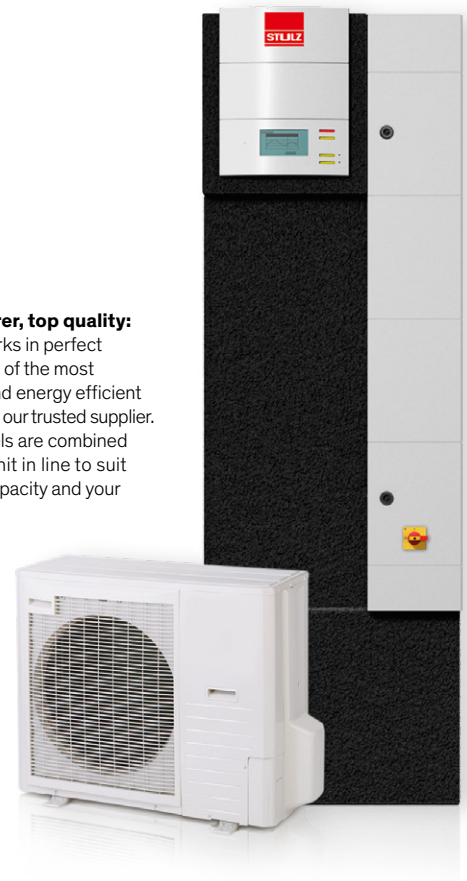
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Low operating costs and operational reliability



Top manufacturer, top quality:

The EC Tower works in perfect harmony with one of the most compact, quiet and energy efficient outdoor units from our trusted supplier. The various models are combined with the indoor unit in line to suit the necessary capacity and your requirements.



The EC Tower achieves the best results for cooling equipment and server rooms

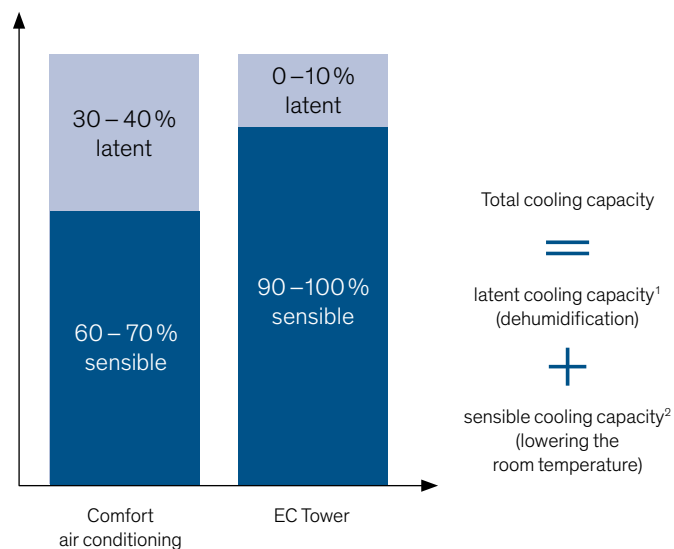
Extra sensible cooling capacity

Sensible cooling capacity lowers the temperature, while latent capacity dehumidifies the air.

Comfort air conditioning units use up to 40 % of their cooling capacity to dehumidify the air, while the EC Tower generates between 90 and 100 % of sensible cooling capacity.

$$\text{SHR} = \frac{\text{Total cooling capacity}}{\text{Sensible cooling capacity}}$$

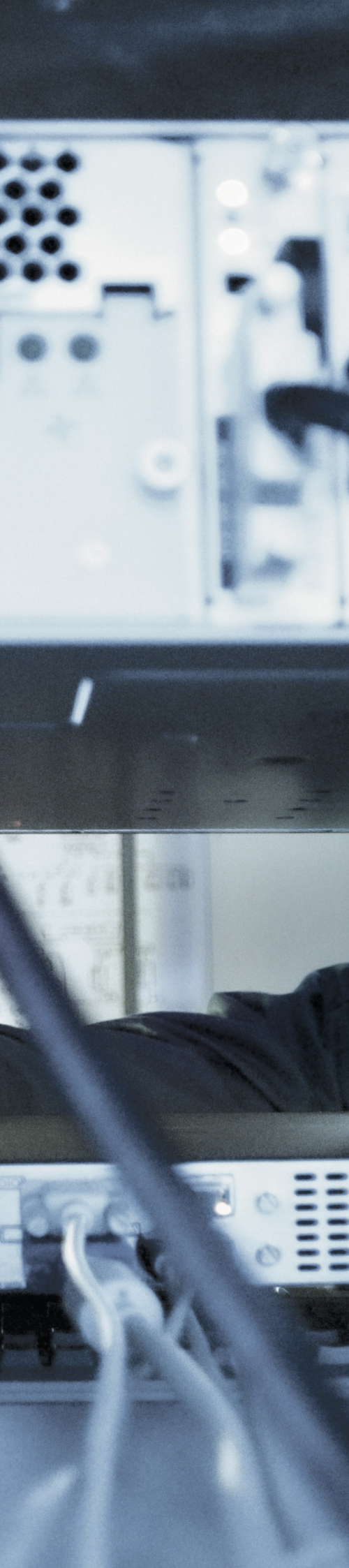
The closer the sensible heat ratio (SHR) is to 1, the better.



¹ Latent cooling capacity = cooling energy for dehumidification

² Sensible cooling capacity = cooling energy purely for lowering the temperature

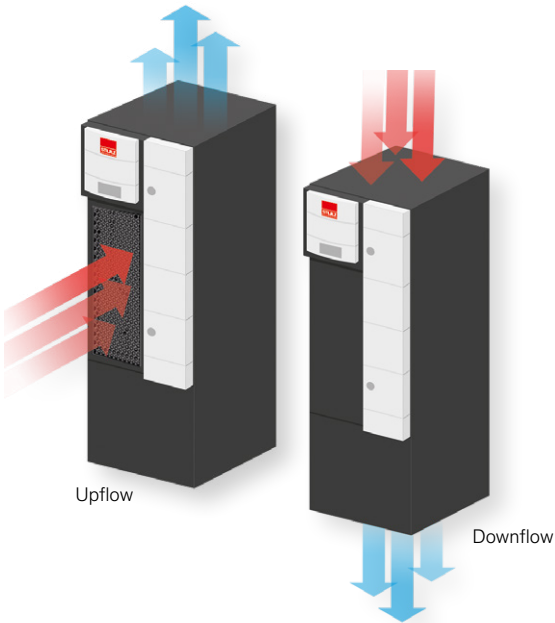




Optimum air distribution

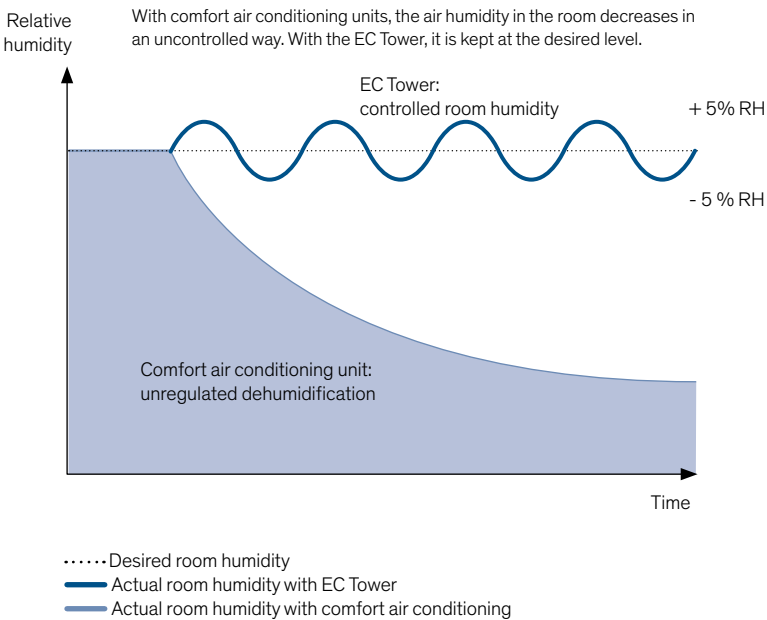
The EC Tower incorporates a modern, energy-saving EC fan, which achieves more than double the airflow rate of a comfort air conditioning unit and therefore prevents the formation of hot spots. The latest generation of fans reduce the noise level by 2 to 3 db(A) and ensure even lower operating costs.

Upflow and downflow versions of the EC Tower are available, suitable for use with raised floors and intermediate ceilings, ensuring optimum air distribution for every type of use.



Controlled room humidity

Whereas comfort air conditioning units can “only” cool, heat and provide unregulated dehumidification, the EC Tower contains an air humidifier as standard. The resulting demand-based, precisely controlled humidification and dehumidification (tolerance +/- 5 % RH) keeps equipment and server rooms at the optimum climate. This prevents the buildup of static, and the EC Tower ensures the cooling process maintains its constant high efficiency.



Low operating costs

Comparison of operating costs between EC Tower and comfort air conditioning unit

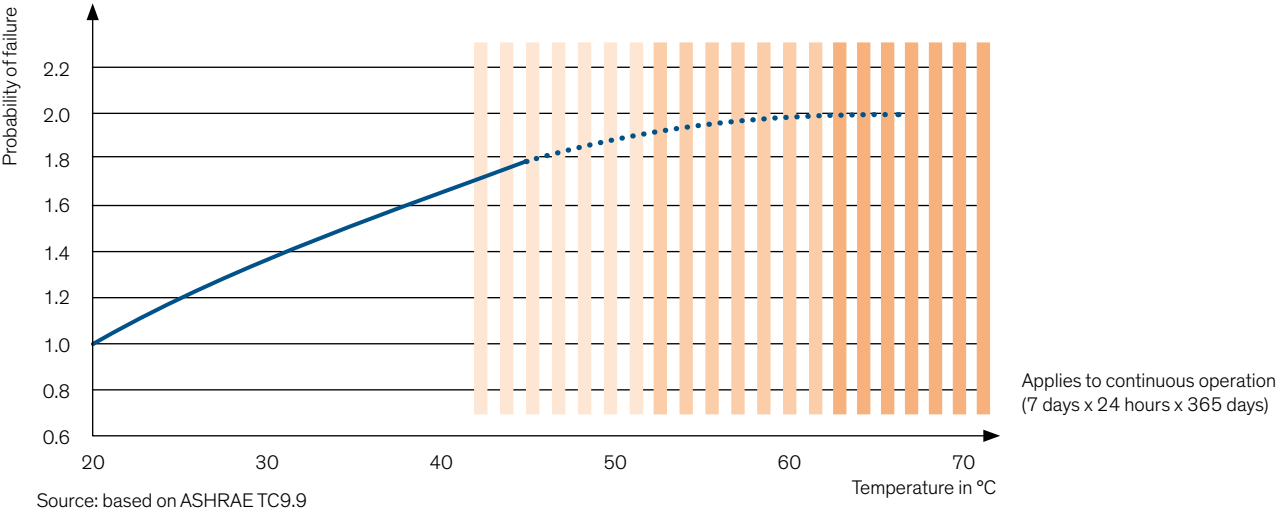
Example: required sensible cooling capacity 6.0 KW

	EC Tower	Comfort	Comfort
Type	ECD 91 / FDC 71 VNX	FDE 71 VG / FDC 71 VNX	2× FDE 50 VG / FDC 100 VS
Overall nominal cooling capacity at 24 °C/50 % indoors	7.7 KW	6.8 KW	9.5 KW
Total nominal cooling capacity, available	7.2 KW	6.7 KW	9.4 KW
of which sensible cooling capacity	6.8 KW	5.3 KW	7.1 KW
of which latent cooling capacity	0.4 KW	1.4 KW	2.3 KW
with a nominal air output	2,500 m³/h	960 m³/h	1,200 m³/h
Supply air temperature	20.0 °C	15.9 °C	15.3 °C
Humidifying capacity required by cooling process	0.59 kg/h	2.05 kg/h	3.31 kg/h
Electricity consumption of humidification per year (6,362 equivalent full load hours)	2,807 kWh/year	9,781 kWh/year	15,788 kWh/year
Mean electricity consumption (outdoor unit/indoor unit/ total)	2.26/0.45/2.71 kW	2.03/0.08/2.11 kW	3.0/0.12/3.12 kW
Electricity consumption for cooling per year without humidification (6,362 equivalent full load hours)	17,231 kWh/year	13,424 kWh/year	19,849 kWh/year
Overall electricity consumption/year	20,037 kWh/year	23,205 kWh/year	35,637 kWh/year
Operating costs/year (cooling and humidification) at an electricity price of 21 eurocents/kWh	4,208 euros/year	4,873 euros/year	7,484 euros/year

The operating costs are based on 24-hour full load operation 365 days of the year. Partial load mode is considered equivalent to 6,362 full load hours. The actual operating costs may differ considerably depending on the required capacity. A mean power consumption must be used for calculating electricity consumption per year. This differs from the nominal power consumption in that it takes account of the outside temperature profile over the year, as when calculating an annual energy rate.

Maximum operational reliability

The stable room conditions (temperature and humidity) throughout the year ensure that your technical equipment always has precisely the right operating climate and the risk of failure is kept to a minimum. For the probability of failure is already 30 % higher at temperatures of 27 °C and above. This increases to as much as 50 % at 35 °C.



Climate. Customized.

You have the challenge, we have the solution.

From standard units to fully customized solutions – the ability to offer such a wide range to customers is the embodiment of our philosophy, “**Climate. Customized.**”.



#1 Climate. Customized. Standard units

For its standard units, STULZ offers a huge selection of accessories and options to permit a high level of flexibility and customization.

#2 Climate. Customized. Standard units with special options

STULZ can add customized options to our standard units, producing highly bespoke designs.

#3 Climate. Customized. Customized air conditioning solutions

STULZ has the solution! In collaboration with customers and tailored to their requirements, we plan, implement and provide continuous support for the perfect air conditioning solution. This way, we can develop individual air conditioning solutions with performance features that all match one another perfectly from the outset.



**For special options and
individual requirements**

For unlimited adaptability:

With the **MiniSpace EC** series, STULZ offers special options and customized air conditioning solutions, so that the customer's wishes can be put into practice in an optimum way.

The ideal solution for your requirements

The EC Tower is specially designed for rooms with comparatively high heat loads, such as equipment and server rooms. The EC Tower has a critical advantage over other solutions for this type of use: the two unit sizes are each available as standard with an optional accessory, such as a raised floor stand or duct connection adapter, which can be ordered off the shelf at any time at short notice. Long delivery times are therefore a thing of the past.



Size 1



Size 2

AT A GLANCE

- Split system for discharging high heat loads
- Optimized for equipment rooms: one system for cooling, humidifying and dehumidifying
- Dynamic output adjustment with inverter-controlled outdoor units from our premium partner
- The outdoor unit and air conditioning cabinet can be up to 100 m apart (dependent on type)
- The outdoor unit and air conditioning cabinet can have a height difference of up to 30 m (dependent on type)
- Special equipment room control system integrated
- Cascading and sequencing possible as standard
- Energy-saving, high-precision EC fan included as standard
- Standard unit includes numerous accessories, e.g. switch gear cabinet socket, status and error messages, emergency fire contact, electric heater, steam humidifier, repair switch and G4 air filter
- Fast delivery times, simple and flexible installation, ready for operation immediately
- Extensive range of options available

Technical Data

EC Tower ECD/ECU 91/181/251:

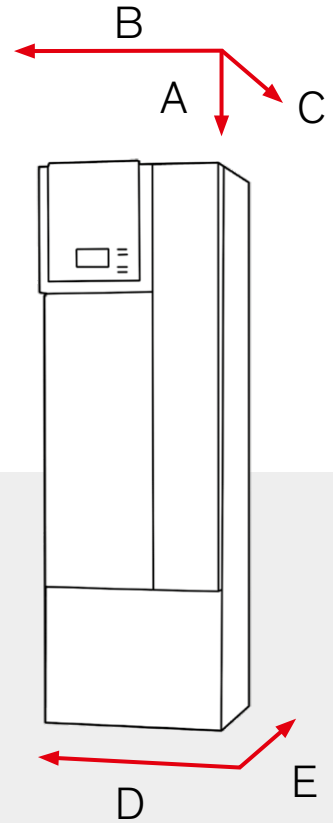
- Small footprint for small equipment rooms
- Can be combined with various outdoor units from our premium partner, for adapting capacity to individual needs

Size 1

	ECD/ECU 91
A	1,861 mm
B	600 mm
C	701 mm
	Footprint
D	600 mm
E	600 mm

Size 2

	ECD/ECU 181/251
A	1,861 mm
B	1,000 mm
C	911 mm
	Footprint
D	1000 mm
E	810 mm



EC Tower							
Indoor unit model (ECD/ECU)*		91		181			251
Outdoor unit model		SRC 50 ZJX	FDC 71 VNX	FDC 140 VS	FDC 140 VSX	FDC 200 VS	FDC 250 VS
Min. cooling capacity	kW	2.3	2.8	5.0	5.0	7.0	10.0
Overall nominal cooling capacity	kW	5.1	7.7	11.1	13.1	21.1	24.5
Total nominal cooling capacity	kW	4.7	7.2	9.8	11.8	19.5	23.1
Sensible nominal cooling capacity	kW	4.5	6.8	9.3	10.8	17.6	21.4
Sensible heat ratio		0.96	0.94	0.95	0.92	0.9	0.93
Nominal airflow	m³/h	2,000	2,500	6,000	6,000	7,000	7,500
Humidifying output	kg/h	3	3	5	5	5	8

*ECD/Downflow: Air outlet facing down. ECU/Upflow: Air outlet facing up.

Planning together. Realizing together.

STULZ – Your partner for air conditioning solutions.

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You can find out more
on our product page.