STULZ

CLIMATE. CUSTOMIZED.

CyberCool WaterTec

Forward-thinking, environmentally friendly and efficient.
The new water-cooled chiller by STULZ.

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

For over 50 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 CO_2 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 23 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.

Use the technology of the future, today

Chillers are the ideal air conditioning solution for mission-critical applications. The biggest hurdles are the comparatively high investment and refrigeration costs, as well as installing and replacing the units. STULZ has dedicated itself to addressing these challenges and offers a solution that already meets the requirements of ErP 2021.

The CyberCool WaterTec is a water-cooled chiller that combines all the relevant factors: the design is compact and maintenance friendly, the Turbocor technology is optimized for partial loads, and, in a forward-thinking manner, refrigerant quantities are minimized with the simultaneous use of a refrigerant that has a very low global warming potential.

CyberCool WaterTec

- Water-cooled chiller
- Cooling capacity from 350 to 1,510 kW
- Available in 5 different sizes
- Partial load-optimized Turbocor technology
- ErP 2021 ready

+ Advantages at a glance

- Refrigerant quantities are significantly reduced, thanks to innovative spray evaporator technology
- Uses refrigerant R1234ze, which has a very low global warming potential
- Contains partial load-optimized Turbocor technology, for increased efficiency
- Easy to integrate and maintain
- Operates with minimal noise and vibration
- Option of Free Cooling thanks to additional CyberCool Free Cooling Booster module:
  - Maximum savings in operating costs due to high Free Cooling percentage all year round
  - Quick and easy installation thanks to plug & play
  - No complex and extensive planning required to enable Free Cooling

Optimal cooling generation for mission-critical applications

Whether high-performance computing, data centers, industrial facilities or entire buildings, CyberCool WaterTec is well-suited for all of your mission-critical applications. The installation process is straightforward, thanks to its compact design, even when installation occurs in the vicinity of consumers. Devising bespoke solutions and adding extra features are commonplace for STULZ, and this ensures that we can meet our customers' every need and reduce any safety risk, however small.

Advantages for cooling data centers

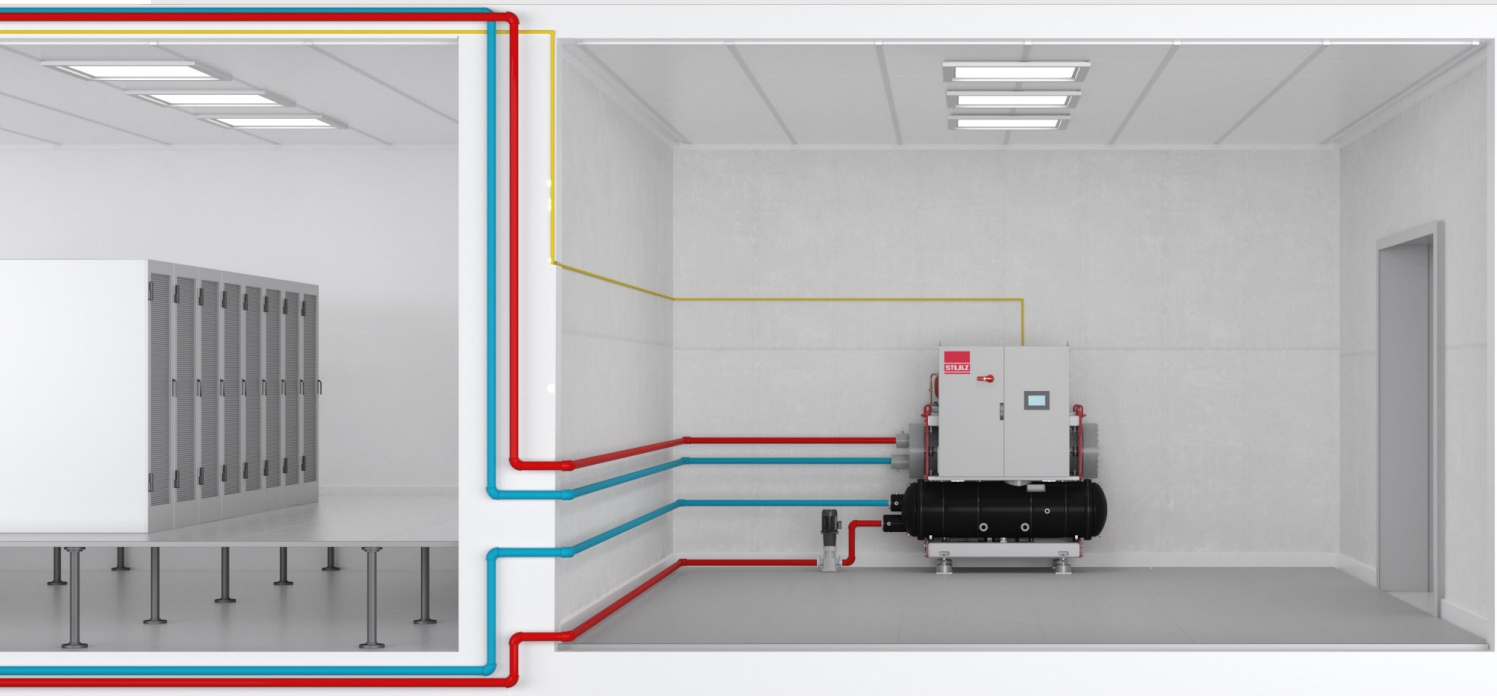
- High-performance and reliable cooling for data centers of any size
- Partial load optimization and Free Cooling module (option) ensure energy efficiency all-year round
- Automatic transfer switch (option) and quick-start function guarantee maximum operational reliability
- Integration and maintenance are hassle-free thanks to its compact design and easy dismantlement

Advantages for process and industrial cooling

- High-performance and reliable cooling for small and large-scale industrial facilities
- Easy integration for both existing liquid cooling systems and new ones
- Ideal for mission-critical applications that require high-level efficiency
- Broad operating range with chilled water outlet temperatures of 1 °C to 19 °C

Advantages for building cooling

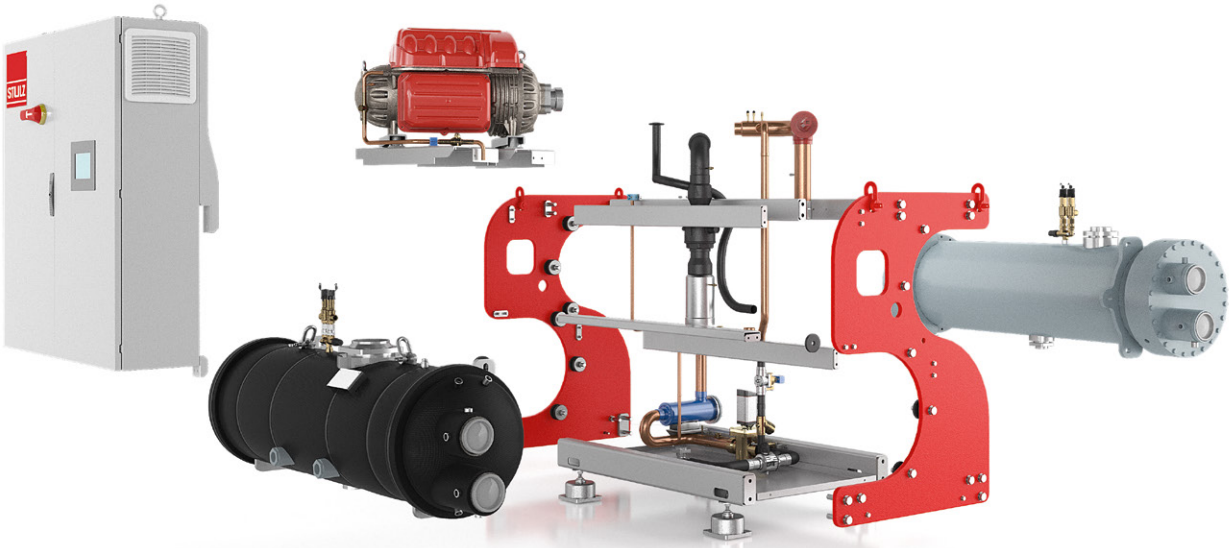
- High-performance and reliable cooling of entire buildings (including large buildings such as hospitals)
- Operates with minimal noise and vibration (low emissions both in- and outward)
- Environmental footprint is very good, as a result of high efficiency and environment-friendly refrigerant
- Adapts particularly rapidly to variable loads



Fast and trouble-free: integration and maintenance

Compact design
Installing and replacing chillers is usually associated with a lot of hassle and high costs. In order to relieve the customer when integrating the new unit, STULZ have attached great importance to the compact design of the CyberCool WaterTec. As a result, we are often able to integrate the unit in a pre-assembled state.

Easy to dismantle
The entire design of the CyberCool WaterTec makes life easier for the user – and not just because it takes up minimal space. Its modular design makes the unit very easy to dismantle into separate components, if required. Even the frame, which must adhere to the highest stability requirements, can be easily dismantled. As a result, the CyberCool WaterTec does not require any effort when being installed, even in difficult conditions, and is always easy to service. In addition, the switch gear cabinet is equipped with hooks at the rear and can be mounted separately on a wall.



Intelligent switching operation and control

Here at STULZ we develop software and hardware in an integrated process, whereby engineers and software developers work hand-in-hand to find the best solution. In this way, we can develop digital control systems that reflect the reliability and efficiency that customers expect of our system controls, and for which STULZ has stood for decades.
The result: STULZ controllers are highly reliable and are easy and intuitive to operate. They coordinate the components of the CyberCool WaterTec completely automatically and enable the unit to be connected easily to all usual building management systems. The operating system is generally very flexible and, by request, it can be extended with several parameters and functions.

The SEC.blue controller is very easy to handle for both operators and service technicians. Thanks to its multiple display graphics, it offers an intuitive user experience.

- Up-to-date hardware, state-of-the-art software
- The software is adapted to each project and ensures a high level of connectivity and flexibility
- Intelligent switch operation and control of partial load mode
- Several chillers can be operated in parallel across machines
- Option: Control of external components, such as pumps, valves, and dry cooler

Ethernet

ModBus RTU, TCP-IP

Micro SD

Programmable

Color touchscreen

7" touchscreen display

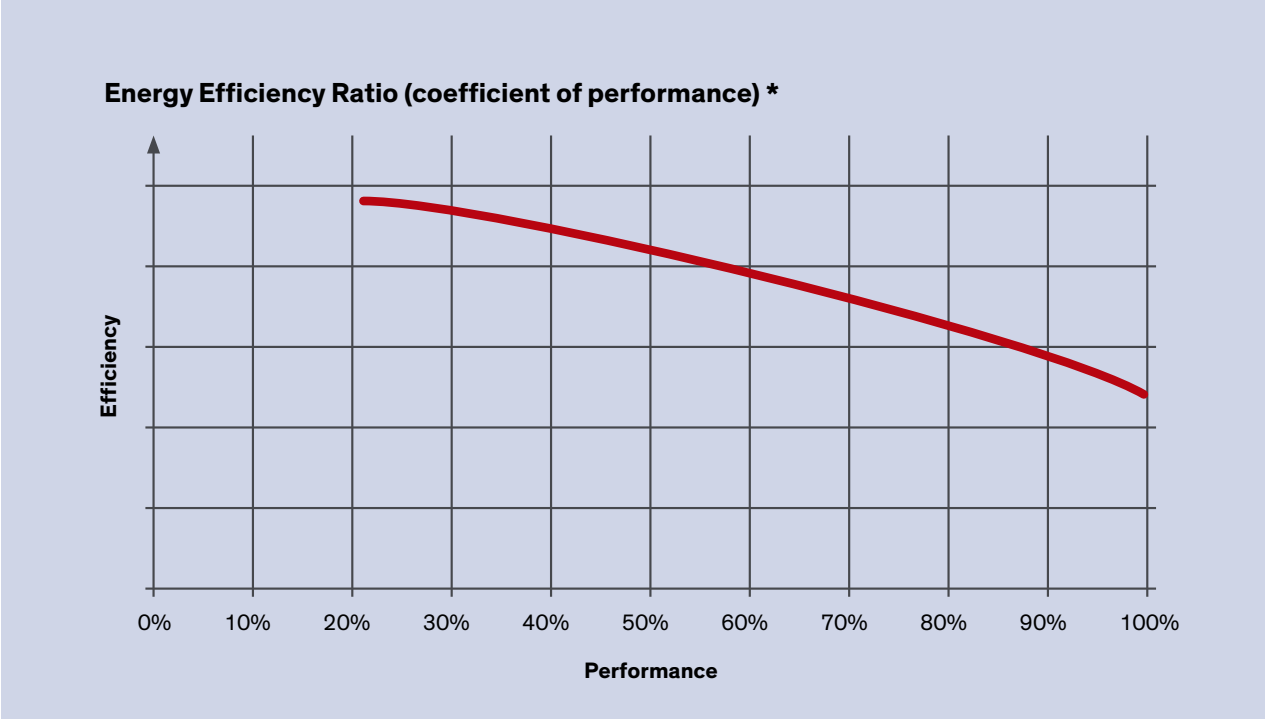
Web server

0 % oil,
70 % less refrigerant,
100 % cooling capacity

The shortage of refrigerants makes the type and filling quantity of refrigerants an increasingly important cost factor. STULZ is already reacting to these issues with future-proof solutions. The components of the CyberCool WaterTec work together in such an efficient manner that mission-critical refrigeration systems can be operated efficiently, economically and with respect for the environment – without any safety or reliability restrictions.

Partial load mode improves efficiency

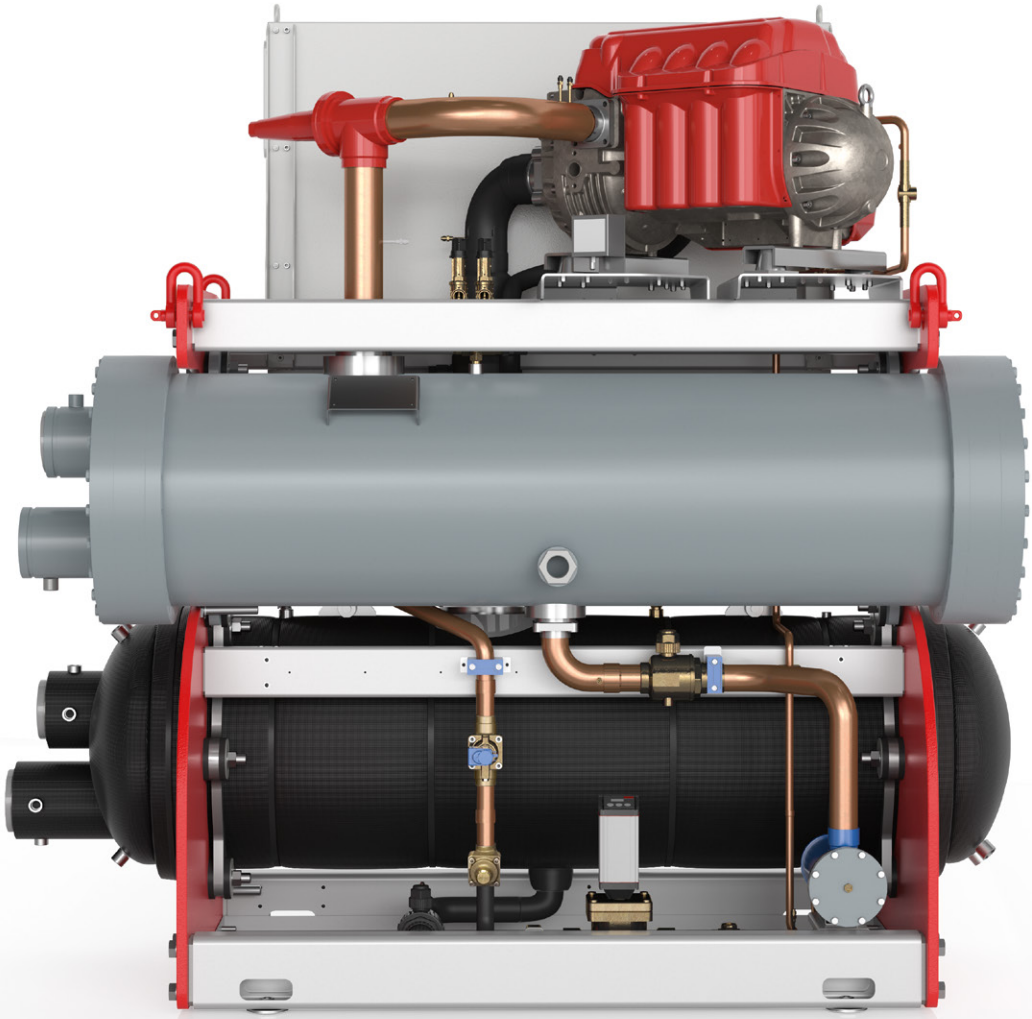
Depending on the size of the unit, the CyberCool WaterTec is equipped with between 1-4 Turbocor compressors, for partial load-optimized operation. The compressors run with magnetic bearings, which enables the system to operate completely oil-free. The efficient technology works without any friction losses and reduces operating costs.



* TSI 03501 WTTA

Refrigerant R1234ze has very low global warming potential

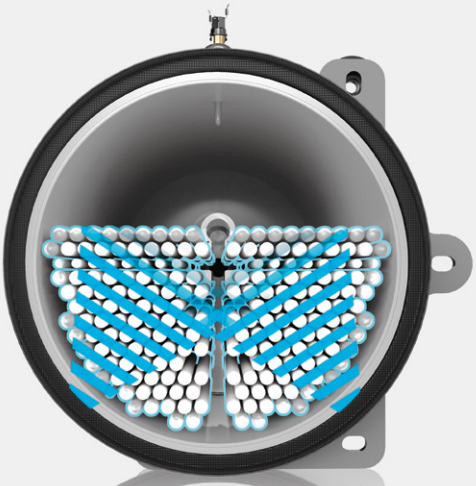
The CyberCool WaterTec runs on the environment-friendly refrigerant R1234ze as standard. The HFO refrigerant has a very low global warming potential and is well-suited as a future-proof and efficient alternative to traditional HFC-based refrigerants. This is STULZ's sustainable solution to the refrigerant shortage which was triggered by the (EU) regulation number 517/2014.



Up to 70 % less refrigerant

The CyberCool WaterTec is equipped as standard with the innovative spray evaporator technology. It enables the unit to operate with up to 70 % less refrigerant compared to flooded evaporators with the same level of efficiency. This not only helps the environment, but also makes a positive and noticeable difference to procurement costs.

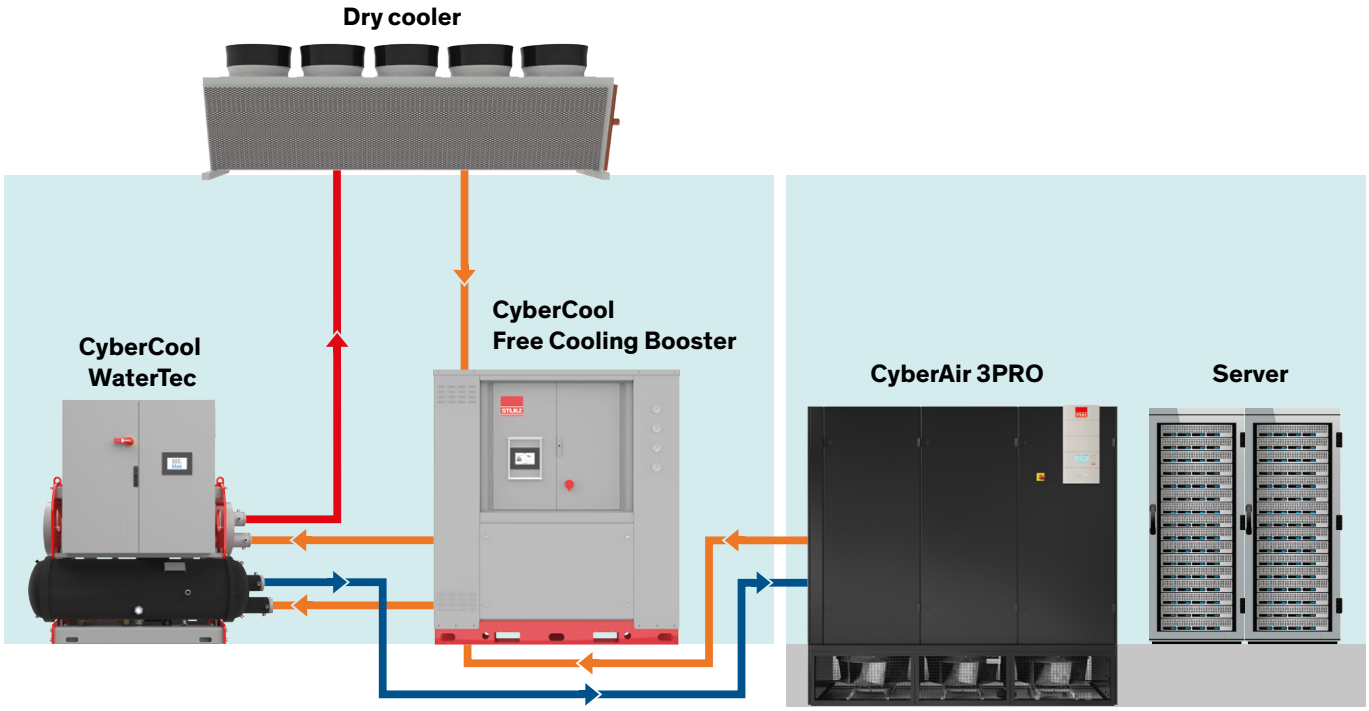
The use of the refrigerant R1234ze and an innovative spray evaporator ensure environmentally friendly and economical operation. CyberCool WaterTec already meets the requirements of ErP 2021.



Free Cooling with CyberCool Free Cooling Booster

Free Cooling is an intelligent solution for minimizing energy-intensive compressor mode and significantly cutting operating costs. Equipped with an additional Free Cooling module, CyberCool WaterTec uses the outside temperature, which offers the greatest potential for savings, especially in cold and temperate climates.

Without complex and extensive planning, the Free Cooling module can be easily integrated and connected to the piping via a Victaulic connection. Thanks to its own control cabinet including SEC.blue controller, optimum control and trouble-free communication with the CyberCool WaterTec are ensured.



Advantages at a glance

- Significant energy savings thanks to Free Cooling including Mixed mode
- Low commissioning times and installation costs thanks to plug-and-play principle
- High reliability thanks to redundancy concept and high-quality components
- With or without glycol in the consumer circuit
- Maintenance-friendly design: less stress on mechanical parts, therefore lower maintenance costs and long service life
- Energy-saving, variable speed pumps
- Both indoor and outdoor installation possible

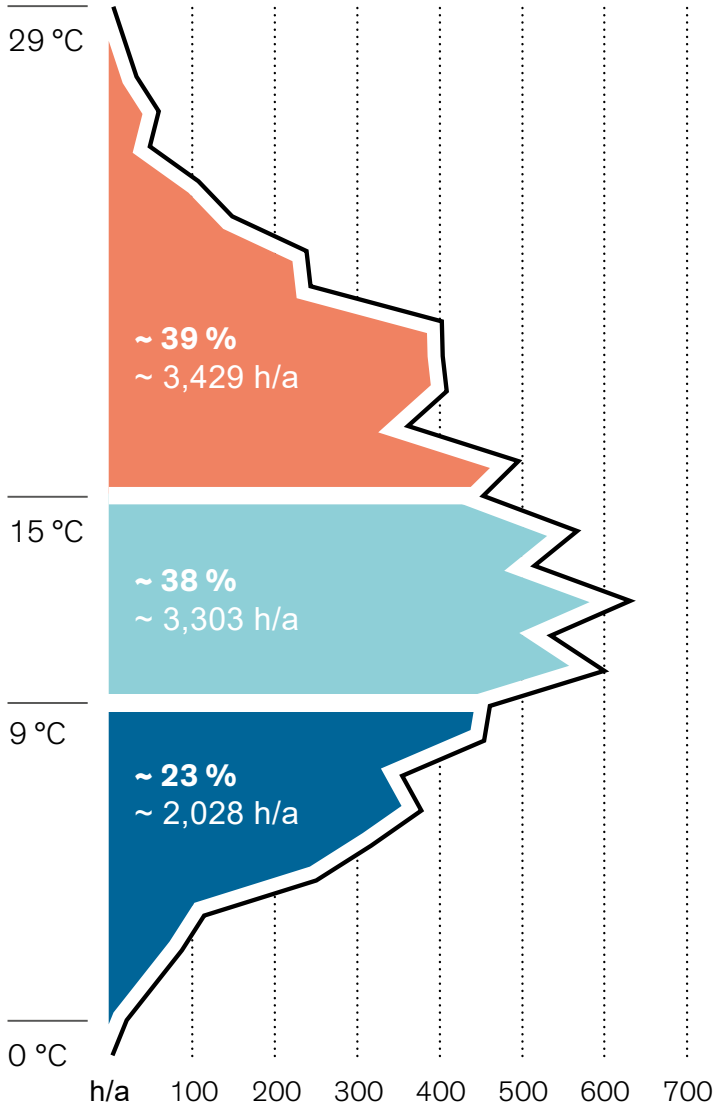
Three operating modes for maximum efficiency

Depending on the outdoor temperature, the most efficient mode is selected automatically and reliably throughout the year, whatever the local temperature profile.

Compressor mode (DX)
At high outdoor temperatures, the entire cooling capacity is achieved using the compressor. The CyberCool WaterTec works very efficiently, even in this mode, by using perfectly-matched components.

Mixed mode
At moderate temperatures, the CyberCool WaterTec runs in energy-efficient Mixed mode – a combination of Free Cooling and significantly reduced compressor cooling.

Free Cooling mode (FC)
At low outdoor temperatures, Free Cooling delivers the greatest potential savings. In this case, only outside air is used for cooling and compressor cooling is switched off completely.



High savings can be achieved through intelligent control of the operating modes.

	With Free Cooling	Without Free Cooling
Energy consumption	**2,078,140 kWh**	**3,076,234 kWh**
Energy costs	**311,721 €**	**461,435 €**
Savings per year	**149,714 €**	

Energy consumption using the example of a system with TSI1400 chiller, WFM05 CyberCool Free Cooling Booster and EHLD1F 1297 A dry coolers; operating temperature: 18/12 °C; based on the temperature profile of the city of London, 0.15 € / kWh

Quick and easy installation thanks to plug & play

CyberCool Free Cooling Booster is a high-performance solution designed for plug-and-play installations, making it suitable for any location.

The standard unit is a pre-installed system that contains all important hydraulic components, so that installers don‘t need to take any construction measures to integrate Free Cooling. Due to the unit design, the Free Cooling modules can be installed quickly and easily, which reduces commissioning times and installation costs significantly.

Thanks to its own switch cabinet including SEC.blue controller, optimum control and perfect communication with chillers and dry coolers are ensured.

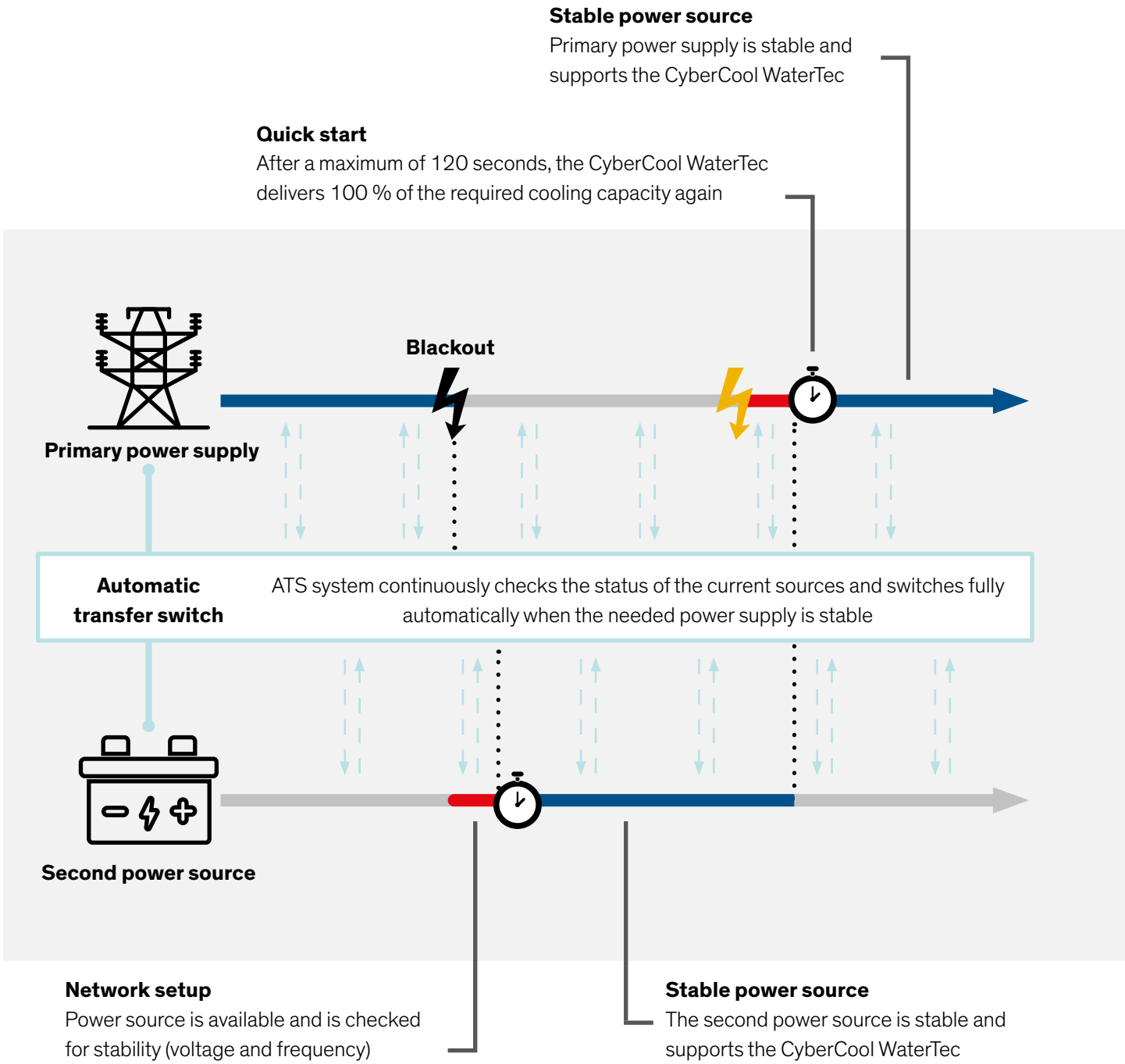
SEC.blue monitors both the outdoor and the operating temperature and regulates the cooling capacity of the dry cooler. Optimum control of the condensing temperature and maximum amount of Free Cooling hours are ensured even at high outdoor temperatures. This results in minimal operating costs and a low CO_2 footprint.

+ SEC.blue

- Intuitive user interface via 7“ touch screen
- Ethernet port RJ32
- RS485 ModBus
- Alarm management
- Alarm history display

Option: Second power source for the greatest possible reliability

One of the key requirements for mission-critical and sensitive applications is uninterrupted cooling – in the event of a power outage, for example. To guarantee stable cooling capacity in spite of this, STULZ provides the option of an **automatic transfer switch** fitted directly in the switch gear cabinet. If the primary power supply fails, this is detected automatically and the system defaults to a second power source within a minimum of **180 ms**.



Operational reliability

The CyberCool WaterTec offers maximum operational reliability: All of the system components ensure smooth, continuous operation 24/7 and 365 days per year.

- Function and pressure tests of all mechanical and electrical components ensure quality control
- EMC filter protects the main power supply and the connected components against harmonic waves produced by the chiller
- Line reactor for the protection of the chiller against voltage peaks
- The line reactor as well as the EMC filter are installed per each compressor to ensure maximum operational reliability
- Soft start of the compressor with an inrush current of < 5 amps.
- The compressors start up one by one, to ensure that the main power supply is stable
- System components are standardized and can be acquired easily, which facilitates replacement of parts and ensures reliability
- Quality management from development to start-up, through certification to ISO 9001 and ISO 14001

Climate. Customized. You have the challenge, we have the solution.

- Location
- Room planning
- Local climate
- Environmental protection
- Noise protection
- Generation of heat
- Peace of mind
- Integration and connectivity
- In-house engineering
- In-house software development

STULZ customers always receive solutions that are customized and are perfectly configured for the applications in question.

From standard units to fully tailor-made customer solutions – the ability to offer such a wide range to customers is the embodiment of our philosophy, “Climate. Customized.”. Our aim is to realize our customers' wishes in the ideal way and to create sustainable, and perfectly adapted air conditioning solutions that are equally powerful, reliable and efficient.

Climate Customized #1
Standard units

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

Climate Customized #2
Standard units with special options

In addition to the standard units, STULZ can adapt the standard units to produce highly bespoke designs, to meet customer-specific needs.

Climate Customized #3
Tailor-made air conditioning solutions

STULZ has the solution! In collaboration with the customer and tailored to suit requirements, we plan, implement and continuously look after the perfect air conditioning solution. This allows the development of individual air conditioning solutions with performance features which all match one another perfectly from the outset.

Nomenclature

TSI 0350 1 WT T A

Power source
A = 400/3/50 Single power source
B = 460/3/60 Single power source
C = 400/3/50 Two power sources
D = 460/3/60 Two power sources

Condenser
T = standard temperature spread (ΔT<8K)
H = high temperature spread (8K<ΔT<15K)

Evaporator
T = standard temperature spread
H = high temperature spread

System
W = water-cooled

No. of refrigerant circuits
1 = 1 circuit
2 = 2 circuits

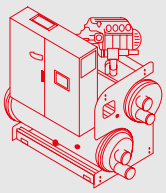
Nominal cooling capacity (kW)

Installation
I = indoor installation

Noise class
S = standard

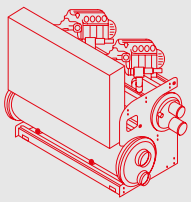
Type of compressor
T = Turbocor compressor(s)

Summary of dimensions



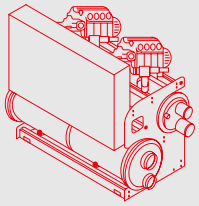
Size 1

L × W × H (mm)
2,089 × 1,185 × 1,955
1 refrigerant circuit
1 compressor



Size 2

L × W × H (mm)
2,733 × 1,330 × 2,060
1 refrigerant circuit
2 compressors



Size 3

L × W × H (mm)
2,733 × 1,330 × 2,060
2 refrigerant circuits
2 compressors

Technical data

Performance data TSI - WTTA

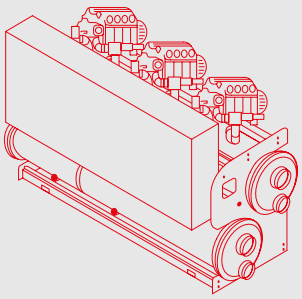
Model		03501	07001	07002	10502	14002
Operating point 18 °C/12 °C [1]						
Cooling capacity	kW	378	769	769	1,135	1,513
Total power consumption	kW	64	142	142	192	256
EER	kW/kW	5.9	5.4	5.4	5.9	5.9
Noise						
Noise level [2]	dB(A)	60.4	63.3	63.3	64.9	66.1
Dimensions						
Width	mm	2,089	2,733	2,733	3,793	3,832
Depth	mm	1,185	1,330	1,330	1,490	1,630
Height	mm	1,955	2,060	2,060	2,105	2,390
Transportation weight	kg	2,017	3,117	3,117	4,540	5,968
Operating weight	kg	2,227	3,442	3,442	5,250	6,837

[1] Chilled water inlet/-outlet 18/12 °C, Cooling water inlet/-outlet 30/35 °C (30% Ethylene glycol)
[2] Noise level from 10 m distance
Refrigerant: R1234ze (GWP: 7)

Performance data CyberCool Free Cooling Booster

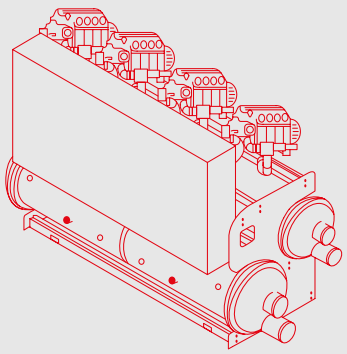
Model		WFM01	WFM02	WFM03	WFM04	WFM05
Flow rate	m³/h	59.4	96.4	119.6	188.4	260.9
Weight	kg	1,140	1,651	1,940	3,510	4,655
Dimensions (height × width × depth)	mm	2,126 × 1,909 × 1,404	2,451× 2,208 × 1,710	2,451× 2,208 × 1,710	2,467 × 2,360 × 4,280	2,467 × 2,360 × 4,279
System combination	TSI	03501	No match for TSI	07001 / 07002	10502	14002
	Dry cooler	EHLD1F 1256B		EHLD1F 1287A	EHLD1F 1256B	EHLD1F 1256B
Cooling capacity [1]	kW	349		684	1,052	1,403
100 % Free Cooling [1]	°C	7		7	7	8

[1] Consumer: water temperature (in/out) 18 °C/12 °C; ethylene glycol 0 %; dry cooler: outdoor temperature 35 °C; ethylene glycol 30 %



Size 4

L × W × H (mm)
3,793 × 1,490 × 2,105
2 refrigerant circuits
3 compressors



Size 5

L × W × H (mm)
3,832 × 1,630 × 2,390
2 refrigerant circuits
4 compressors

CLOSE TO YOU AROUND THE WORLD

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BRAZIL
CHINA
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GERMANY
INDIA
INDONESIA
IRELAND
ITALY
MEXICO
NETHERLANDS
NEW ZEALAND
POLAND
SINGAPORE
SOUTH AFRICA
SPAIN
SWEDEN
THAILAND
UNITED KINGDOM
USA

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