STULZ

CLIMATE. CUSTOMIZED.

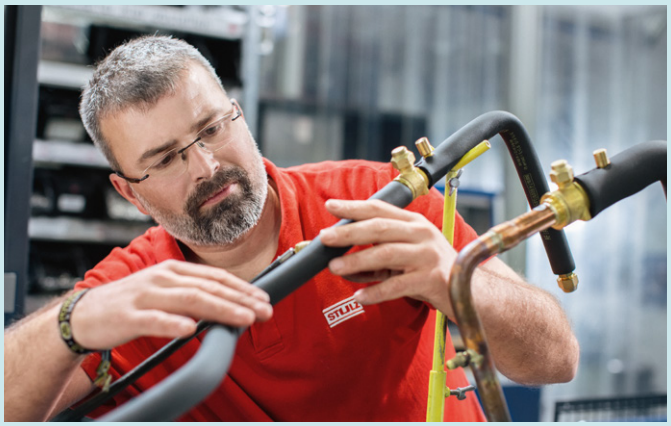
CyberCool Indoor

Free cooling function for maximum efficiency – the powerful chiller for indoor installation

STULZ air conditioning systems for mission-critical applications – around the globe

For 40 years we have been one of the world's leading manufacturers of air conditioning solutions for mission-critical applications. For our customers, we develop and produce air conditioning systems and chillers, plan individual air conditioning solutions, implement the systems and keep them up and running with our own service department.

Our headquarters are in Hamburg. With 19 subsidiaries, 10 production sites, and sales and service partners in over 140 countries, we make sure we are close to our customers wherever they are in the world.



Technical peak performance from Germany
It is the combination of decades of experience and a continuous innovative spirit that makes STULZ unique. From engineers to customer advisers, we collaborate in close-knit teams to develop and continually optimize our air conditioning and chilled water systems throughout all stages of development. So it should come as no surprise that our systems are extremely reliable and durable, setting the benchmark for energy efficiency around the globe.

High quality service worldwide close to you
Our trained and experienced sales and service partners are located in over 140 countries. The resulting proximity to our customers allows fast response times. In addition, regular training courses and an active exchange of information ensure high quality and an extensive knowledge of all our products. This way, you can be sure your products are in the best hands and get the right maintenace - all over the world.

CyberCool Indoor – flexible chilled water solutions for sensitive applications

STULZ CyberCool Indoor provides powerful, highly efficient chilled water cooling with a minimal footprint. It permits flexible cooling solutions in virtually any size and performance requirement, and can be set up close to the consumer.

The unit's modern design and compact construction allows it to be installed inside the building easily, as well as integrated in existing systems. Strict requirements on noise emissions, like those common in residential areas, for example, are met by especially quiet condensers and dry coolers.

In order to guarantee chilled water generation to suit requirements, CyberCool Indoor is available in two versions and three different systems. The systems allow for scalable planning and grow at the same pace as your future requirements.

The three systems:

A
AS

Air-cooled:
The compact standard solution

G
GS

Water-cooled:
Quiet and easy to integrate

TCO-LEADER
GE
GES

Water-cooled with integrated free cooling function:
Maximum efficiency

CyberCool Indoor at a glance

- Chiller for indoor installation
- Cooling capacity from 20 kW to 100 kW
- Three different systems
- Integrated free cooling function for low total operating costs
- Available with and without EC compressor
- Customized adaptations and special solutions for every application

Your challenges, our solutions: CyberCool Indoor in the overall system

✚ Benefits in medical technology

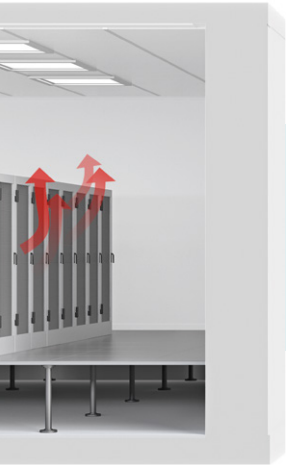
- Quiet condensers or dry coolers minimize noise emission outdoors*
- Particularly rapid adaptation quick response to variable loads
- No glycol in hygienically sensitive areas

✚ Benefits in process cooling applications

- Customized solutions for every application
- Broad operating range (chilled water outlet between +4 °C and +18 °C)

* Not included in delivery

Whether cooling high-performance computers, data centers, medical technology or process and industrial applications – CyberCool Indoor is suitable for all sensitive applications. Furthermore, numerous options and individual solutions make it possible to accommodate project-specific requirements perfectly and to maximize operational availability.



✚ Benefits in the data center

- Indirect free cooling means year-round energy efficiency
- High chilled water temperatures of up to +18 °C (outlet) and +25 °C (inlet)
- Dual power supply (optional) provides a high level of reliability

✚ Benefits in industrial cooling applications

- Simple to integrate in existing chilled water networks
- Installation in the immediate vicinity of the consumer

Always the right choice: CyberCool Indoor with three cooling systems

Air-cooled:
The compact standard solution

A
AS

+ Benefits of the system:

- Tried and tested, rugged technology
- Reduced to just the major components
- Refrigerant used as transport medium with optimum heat transfer

Water-cooled:
Quiet and easy to integrate

G
GS

+ Benefits of the system:

- Integrable in existing chilled water networks
- Dry cooler can be linked to several units
- Pumps allow a large distance between the CyberCool Indoor and the dry cooler

Method of operation:
A chilled water circuit transfers the heat load to the evaporator where the heat is drawn from the water and passed to the refrigerant. The refrigerant gives off the heat to the outside air via an air-cooled condenser.

Method of operation:
Like A/AS on the direct evaporator principle – with one difference: the heat is transferred to a water/glycol mixture via an integrated plate condenser; this mixture gives off its heat to the outside air in a closed circuit via an external dry cooler.

Water-cooled with integrated free cooling function: Maximum efficiency

+ Benefits of the system:

- TCO leader: Minimal total operating costs over runtime (see page 9)
- All free cooling (FC) components integrated in the unit
- The most efficient system thanks to intelligent switching of operating modes (DX - mixed - FC)

Method of operation:
Like G/GS, but with indirect free cooling which replaces energy-intensive compressor operation in part or in full when outside temperatures are low. In FC mode, the heat is transferred straight to the chilled water circuit by an integrated free cooling heat exchanger and given off into the outside air via an external dry cooler.

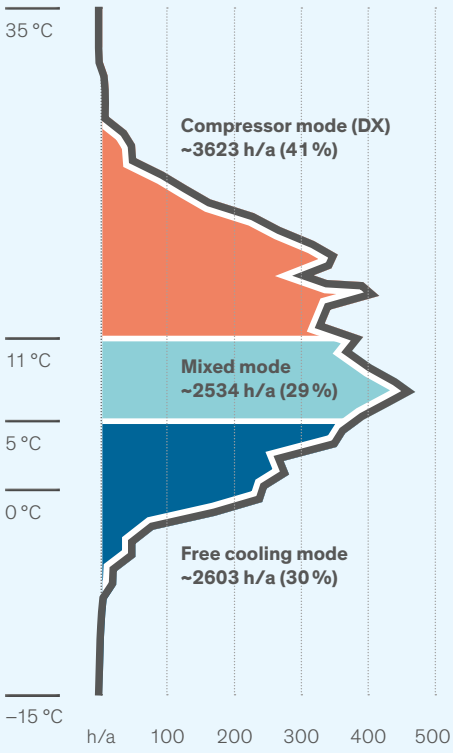
Three operating modes for maximum efficiency

The most efficient mode is selected automatically depending on outside temperature – reliably throughout the whole year and whatever the local temperature profile.

Compressor mode (DX)
At high outside temperatures, entire cooling capacity is achieved using the compressor. The use of perfectly-matched components means that the CyberCool Indoor already works extremely efficiently, even in this mode.

Mixed mode
At moderate temperatures, the CyberCool Indoor runs in energy-efficient mixed mode, a mixture of free cooling and significantly-reduced compressor cooling.

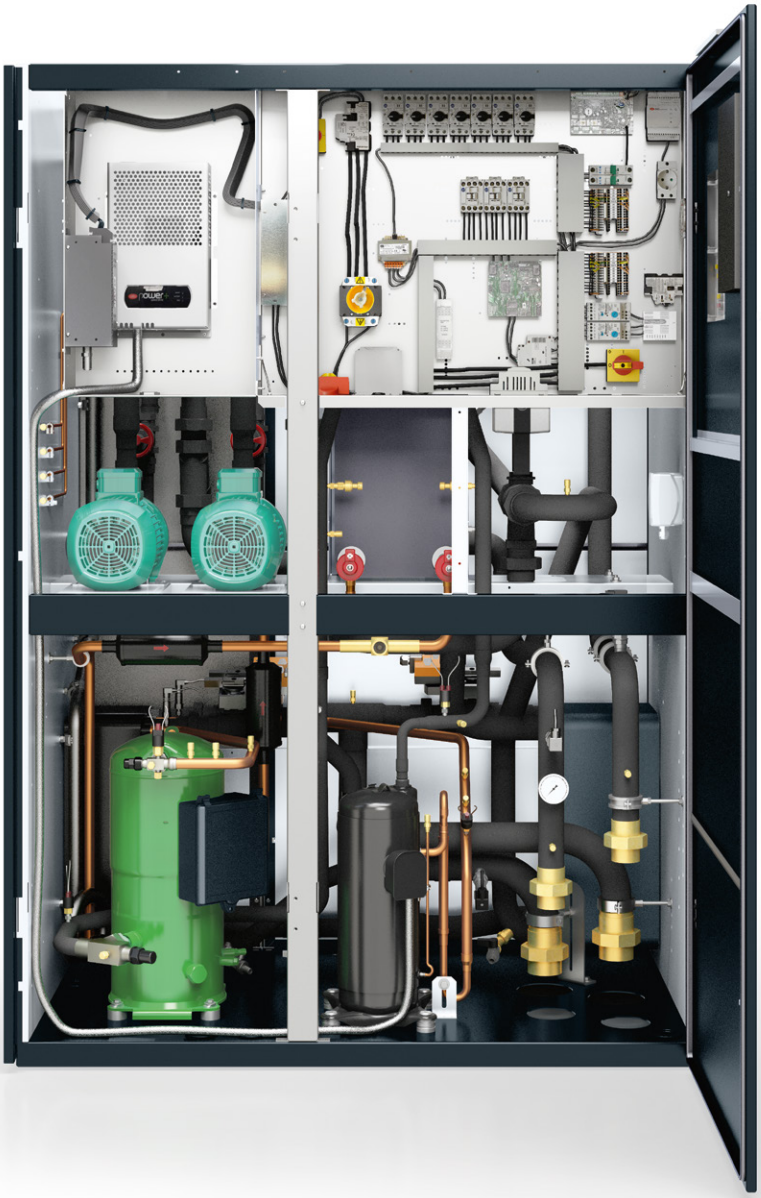
Free cooling mode (FC)
At low outside temperatures, free cooling delivers the greatest potential savings. In this case, only outside air is used for cooling, compressor cooling is switched off completely.



Location:	**Hamburg**
Model:	**CSI 661 GE**
Chilled water remperature:	**18/12 °C**

CyberCool Indoor EC – the benchmark for operational reliability and efficiency

CyberCool Indoor EC was developed for especially stringent project requirements. In this variant, two complete but redundant refrigerant circuits are fitted for maximum operational availability. In addition to the ON/OFF compressor which comes as standard, an infinitely variable-speed EC compressor ensures maximum efficiency in partial load mode. This means that the unit responds especially rapidly to fluctuations in load and changes in temperature – only the required cooling capacity is ever generated, optimizing year-round efficiency.



Available in all three systems:

AS

GS

TCO-LEADER GES

+ Benefits of the system:

- Redundancy means operational availability
- All units with two refrigerant circuits
- Rapid adaptation to fluctuating loads
- Maximum efficiency in partial load mode
- Integrated compressor soft-start and continuous operation without compressor on/off cycles result in a very long life-time

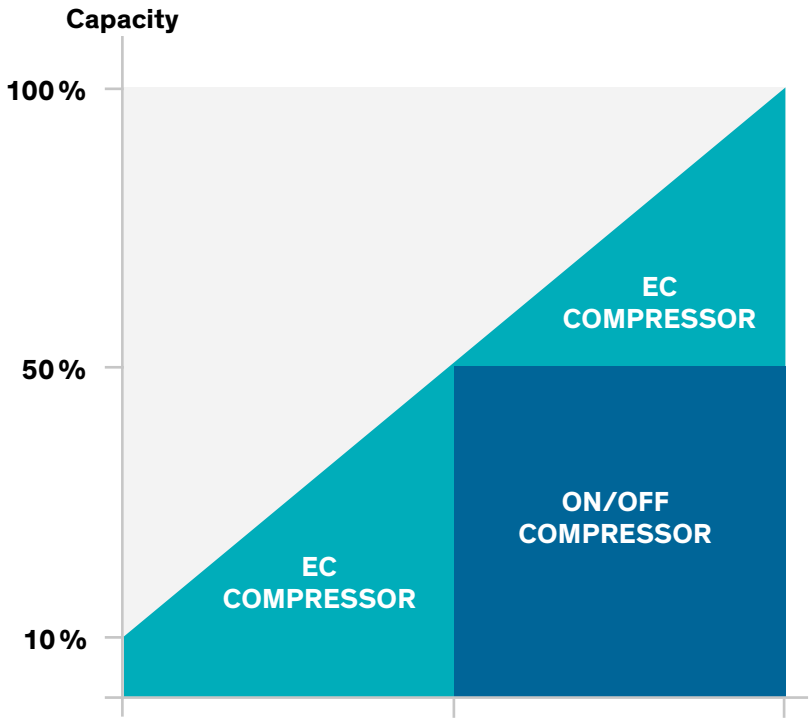
Variable cooling capacity in partial and full load mode

10* – 50 % cooling capacity
The EC compressor is infinitely controllable and generates exactly the cooling capacity required. The ON/OFF compressor is switched off.

~ 50 % cooling capacity
If approximately 50 % of total cooling capacity is required, the ON/OFF compressor constantly delivers the cooling capacity required. The EC compressor is switched off.

50 – 100 % cooling capacity
The ON/OFF compressor generates 50 % of cooling capacity continuously. The EC compressor is infinitely controllable and generates the cooling capacity required over and above this.

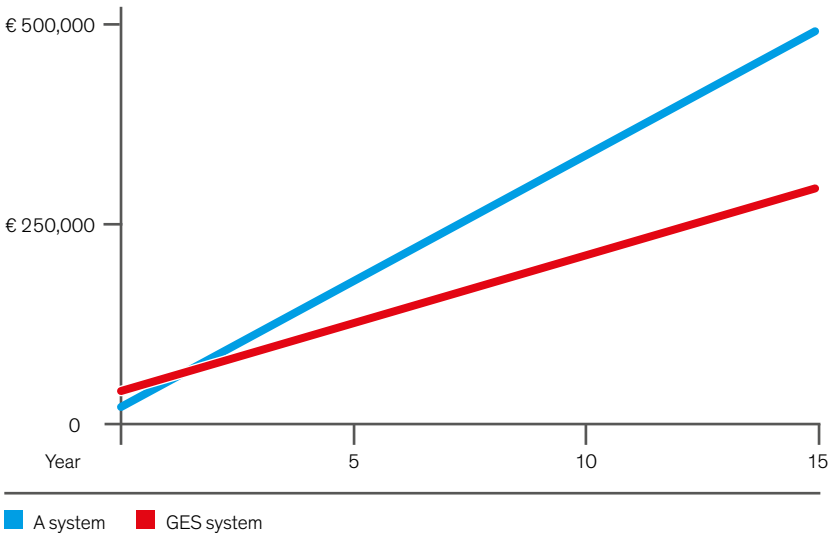
*Depending on model and mode



CyberCool Indoor EC – the TCO leader

The integrated free cooling function is enabling CyberCool Indoor to consolidate its position as technology leader among indoor chillers. Also equipped with an EC compressor (GES system), the unit is especially efficient in partial load mode. The interaction between variable-speed compressor and indirect free cooling guarantees particularly energy-saving mixed mode. When compared directly to an A system, it is clear that the low operating costs soon cover the higher investment costs.

Comparison of a CSI 661 A model with a CSI 662 GES



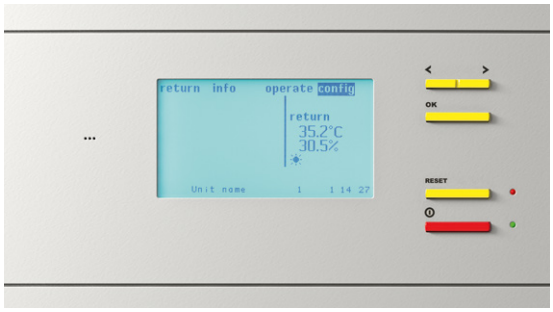
Location:	**Hamburg**
Chilled water temperature:	**18/12 °C**
Cooling capacity:	**64 kW**

TCO (Total Cost of Ownership) describes total costs over the entire service life of a unit (incl. investment, operation and maintenance).

Smart solutions – all from a single source

Integrated software solutions for intelligent control

At STULZ, hardware and software development is an integrated holistic in-house process. Control and chiller are perfectly aligned with one another, which is the only way to satisfy the most demanding expectations in terms of availability and efficiency



- Project-specific software development and optimization
- Compatible with all common BMS protocols
- Runtime comparison and alarm switching ensure availability
- Machine-independent parallel operation of several chillers
- Sophisticated warning and alarm system

Simple setup and integration
The compact CyberCool Indoor also fits through standard doors and can be set up anywhere without any problems. Spatial segregation of the two noise sources and the use of especially quiet condensers or dry coolers minimizes noise emissions outdoors. As all the important components are integrated in the CyberCool Indoor, its sensitive technology is perfectly safe inside the building. What is more, CyberCool Indoor is perfectly protected from vandalism or accidental damage.

Easy maintenance, reliable service
The CyberCool Indoor provides straightforward access from the front, making all the active components, such as compressors, expansion valves and pumps, easy to maintain. The large door facilitates the access to the electrical cabinet at any time, along with all its electrical components.

The STULZ Test Center – test-driving customer solutions
CyberCool Indoor units are subjected to a full computer-controlled check in the STULZ Test Center. Extensive measurements under a wide variety of conditions show the actual performance data of the systems and components, bringing transparency to the theoretical design data.

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

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

STULZ customers always get customized solutions perfectly configured to suit the application 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 create sustainable, perfectly adapted air conditioning solutions that are at once 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

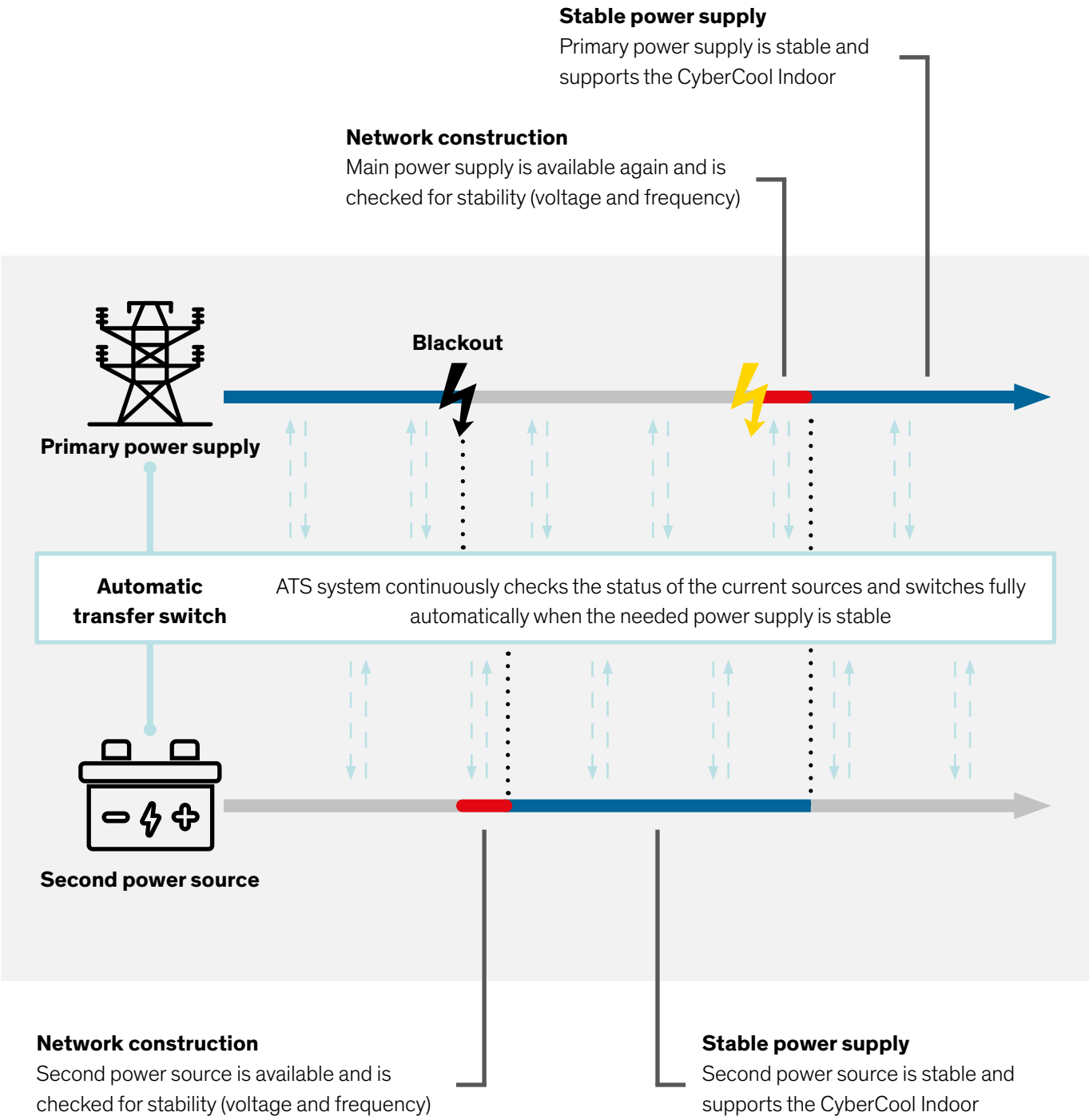
Above and beyond the standard units, STULZ designers realize customer-specific options to individualize standard units to an enormous extent.

Climate Customized #3
Tailor-made air conditioning solutions

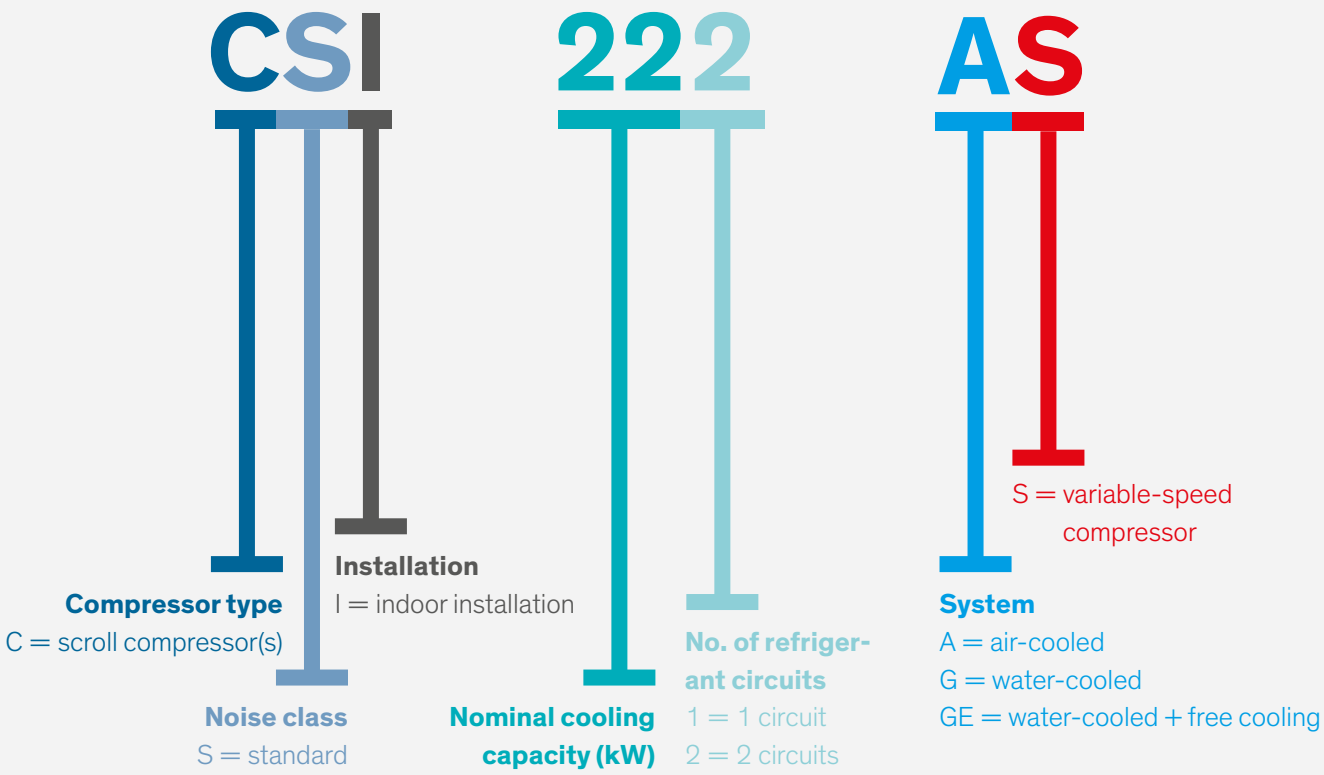
STULZ has the solution! In collaboration with the customer and tailored to suit requirements, we plan, implement and continuously look after the perfect air conditioning solution. This allows the development of individual air conditioning solutions with performance features which all match one another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

Option: Second power source for the greatest possible reliability

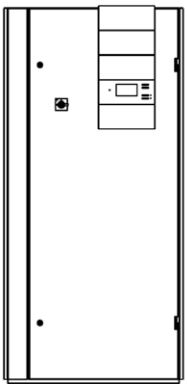
One of the key requirements for mission-critical and sensitive applications is uninterrupted cooling – in the event of a power outage, for example. To guarantee stable cooling capacity in spite of this, STULZ provides the option of an **automatic transfer switch** fitted directly in the switch gear cabinet. 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**.



Nomenclature

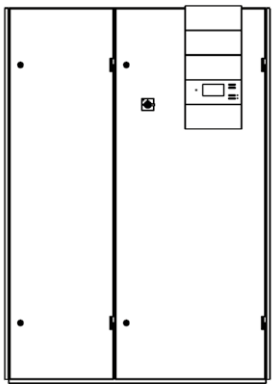


Frame sizes and dimensions



Size 1

L x W x H (mm)
950 × 890 × 1980



Size 2

L x W x H (mm)
1400 × 890 × 1980

Technical Data

CyberCool Indoor standard version A

Model		221	421	661	841	981	
Operating point 18/12 °C [1]							
Cooling capacity	kW	21.3	39.9	63.0	79.8	93.3	
Total power consumption	kW	5.8	10.4	16.6	20.8	24.2	
EER	kW/kW	3.7	3.8	3.8	3.8	3.9	
Compressors		1	1	2	2	2	A
Noise							
Noise level [4]	dB(A)	50.9	50.9	50.9	54.7	56.0	
Dimensions							
Size [5]		1	1	1	1	1	
Transport weight	kg	281	351	450	466	556	
Operating weight	kg	285	357	457	476	571	

CyberCool Indoor standard version G

Model		221	421	661	841	981	
Operating point 18/12 °C [2]							
Cooling capacity	kW	21.9	40.8	64.1	81.0	94.7	
Total power consumption	kW	5.6	10.1	16.2	20.4	23.8	
EER	kW/kW	3.9	4.0	4.0	4.0	4.0	
Compressors		1	1	2	2	2	G
Noise							
Noise level [4]	dB(A)	50.9	50.9	50.9	54.7	56.0	
Dimensions							
Size [5]		1	1	1	1	1	
Transport weight	kg	296	365	476	493	581	
Operating weight	kg	305	381	495	517	601	

CyberCool Indoor Standard-Version GE

Model		221	421	661	841	981	
Operating point 18/12 °C [2]							
Cooling capacity	kW	21.8	43.4	64.1	81.0	94.7	
Total power consumption	kW	5.6	11.3	16.2	20.4	23.8	
EER	kW/kW	3.9	3.8	4.0	4.0	4.0	
100 % Free Cooling [3]	°C	9.6	9.4	9.5	9.5	9.2	
Compressors		1	1	2	2	2	GE
Noise							
Noise level [4]	dB(A)	50.9	50.9	50.9	54.7	56.0	
Dimensions							
Size [5]		2	2	2	2	2	
Transport weight	kg	455	515	625	699	747	
Operating weight	kg	471	547	660	739	795	

CyberCool Indoor EC version AS

Model		222	422	662	842	982	
Operating point 18/12 °C [1]							
Cooling capacity	kW	22.0	43.9	67.6	83.1	91.9	
Total power consumption	kW	6.0	12.6	18.8	24.6	26.4	
EER	kW/kW	3.7	3.5	3.6	3.4	3.5	
Compressors		2	2	2	2	2	AS
Noise							
Noise level [4]	dB(A)	51.4	52.5	54.0	55.3	56.4	
Dimensions							
Size [5]		1	1	1	1	1	
Transport weight	kg	390	420	480	510	520	
Operating weight	kg	395	427	488	522	537	

CyberCool Indoor EC version GS

Model		222	422	662	842	982	
Operating point 18/12 °C [2]							
Cooling capacity	kW	22.7	45.3	69.2	84.9	97.1	
Total power consumption	kW	5.6	12.1	18.2	23.8	26.3	
EER	kW/kW	4.1	3.7	3.8	3.6	3.7	
Compressors		2	2	2	2	2	GS
Noise							
Noise level [4]	dB(A)	51.4	52.5	54.0	55.3	56.4	
Dimensions							
Size [5]		2	2	2	2	2	
Transport weight	kg	470	510	580	610	620	
Operating weight	kg	481	524	600	632	643	

CyberCool Indoor EC-Version GES

Model		222	422	662	842	982	
Operating point 18/12 °C [2]							
Cooling capacity	kW	22.6	45.3	69.2	84.9	97.1	
Total power consumption	kW	5.7	12.1	18.2	23.8	26.3	
EER	kW/kW	4.0	3.7	3.8	3.6	3.7	
100 % Free Cooling [3]	°C	9.9	10	10	9.9	10.1	
Compressors		2	2	2	2	2	GES
Noise							
Noise level [4]	dB(A)	51.4	52.5	54.0	55.3	56.4	
Dimensions							
Size [5]		2	2	2	2	2	
Transport weight	kg	520	570	650	690	700	
Operating weight	kg	534	596	690	733	748	

[1] Chilled water inlet/outlet: 18/12 °C, Condensation temperature 50 °C
[2] Chilled water inlet/outlet: 18/12 °C, Cooling water inlet/outlet: 39/45 °C (30 % ethylene glycol)
[3] Cooling water temperature for switching to 100 % Free Cooling
[4] Noise level at a distance of 2 m
[5] Frame sizes and dimensions on page 13

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Close to you around the world

With specialist, competent partners in ten German branches and in subsidiaries and exclusive sales and service agents around the world.
Our ten production sites are situated in Europe, North America and Asia.

For further information, please visit our website at **www.stulz.com**

You can find out more on our product page.