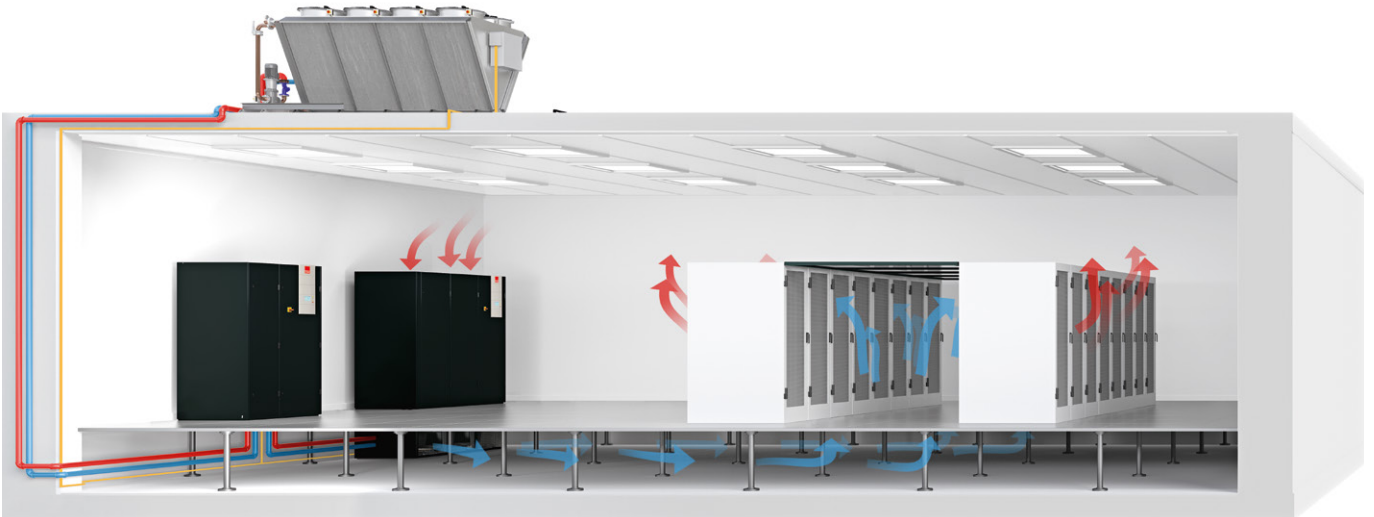


# STULZ

CLIMATE. CUSTOMIZED.



# CyberCool Indoor

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

# 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<sub>2</sub> 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.



# 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:



### Air-cooled:

The compact standard solution



### Water-cooled:

Quiet and easy to integrate



### 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 quick response to variable loads (EC version)
- 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)

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 comply project-specific requirements perfectly and to maximize operational availability.



### **+ Benefits in the data center**

- Indirect Free Cooling for maximum savings potential
- 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

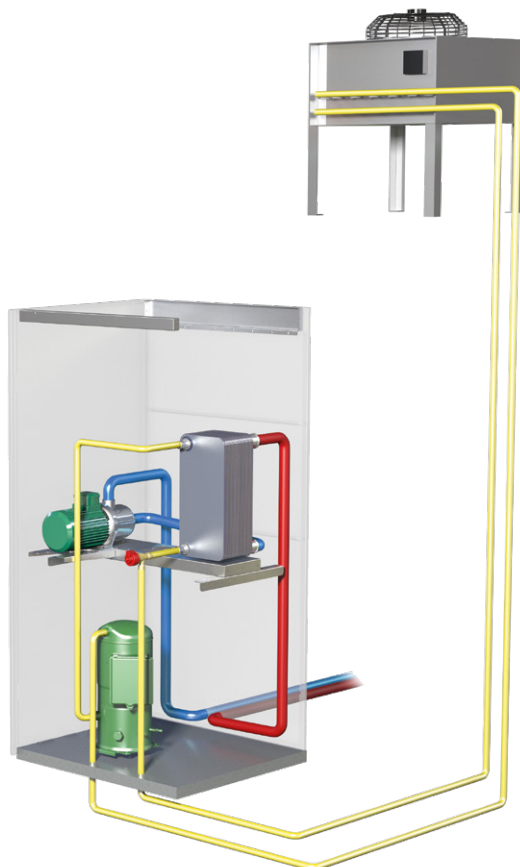
## Air-cooled:

### 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



#### 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 rejects the heat to the outside air via an air-cooled condenser.

## Water-cooled:

### Quiet and easy to integrate

G  
GS

#### + Benefits of the system:

- Integrable in existing cooling 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:

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 rejects 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 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 cooling water circuit by an integrated Free Cooling heat exchanger and rejected 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)

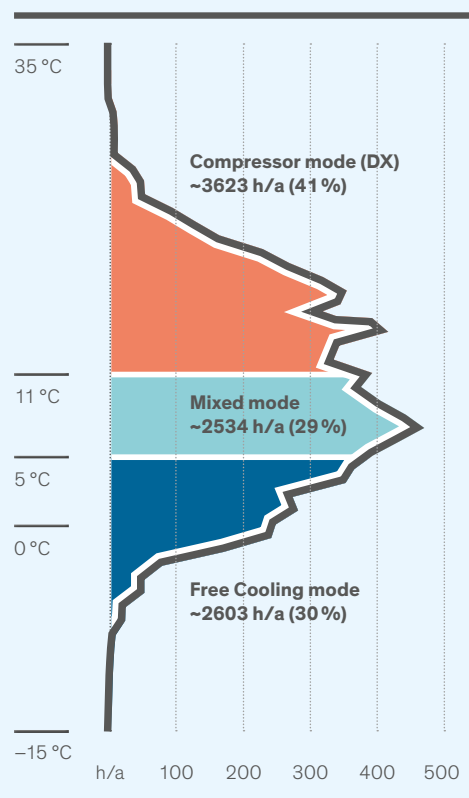
At high outside temperatures, entire cooling capacity is achieved using the compressor. The use of perfectly-matched components means that the CyberCool Indoor already works extremely efficiently, even in this mode.

#### 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.

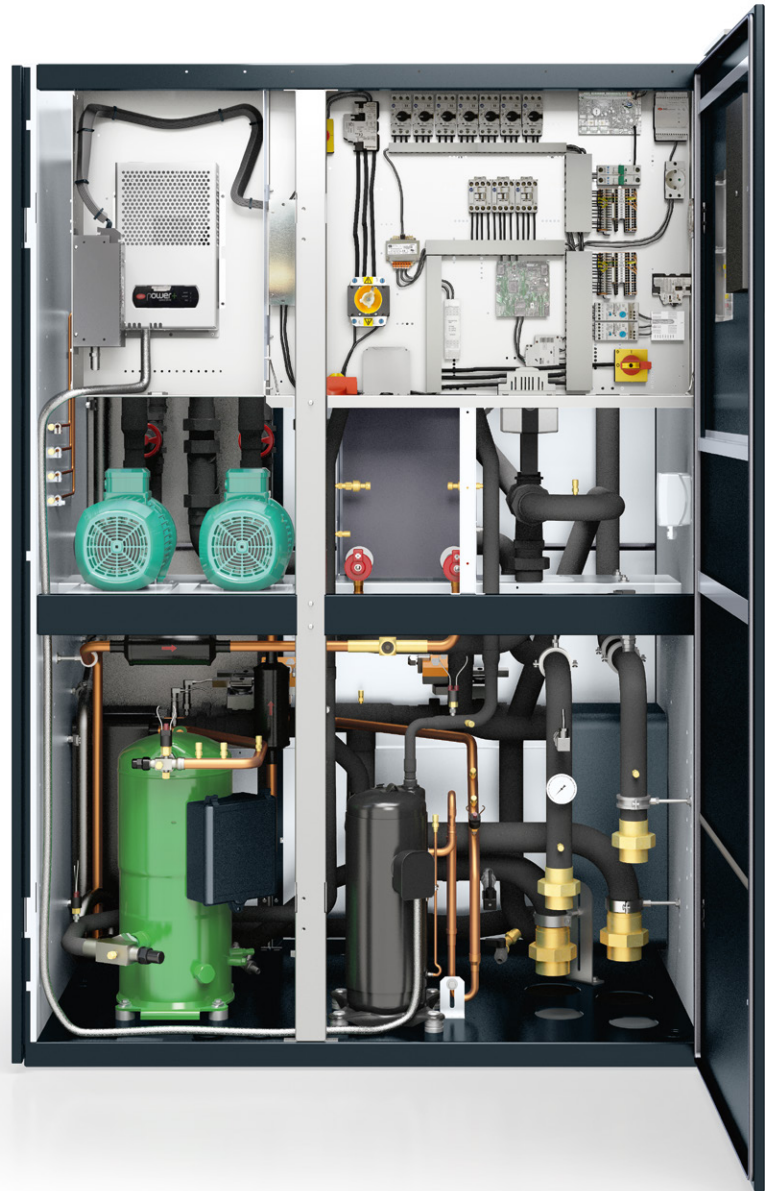


Location: Hamburg  
Model: CSI 661 GE  
Chilled water temperature: 18/12 °C

# 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:**



## + 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 variable-speed driven and generates exactly the cooling capacity required. The ON/OFF compressor is switched off.

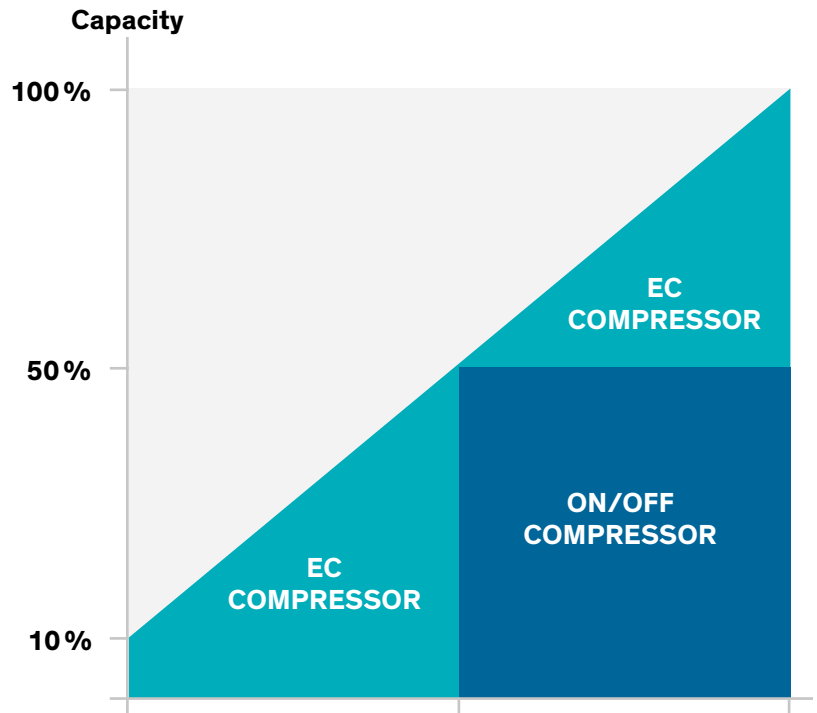
## ~ 50% cooling capacity

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 variable-speed driven and generates the cooling capacity required over and above this.

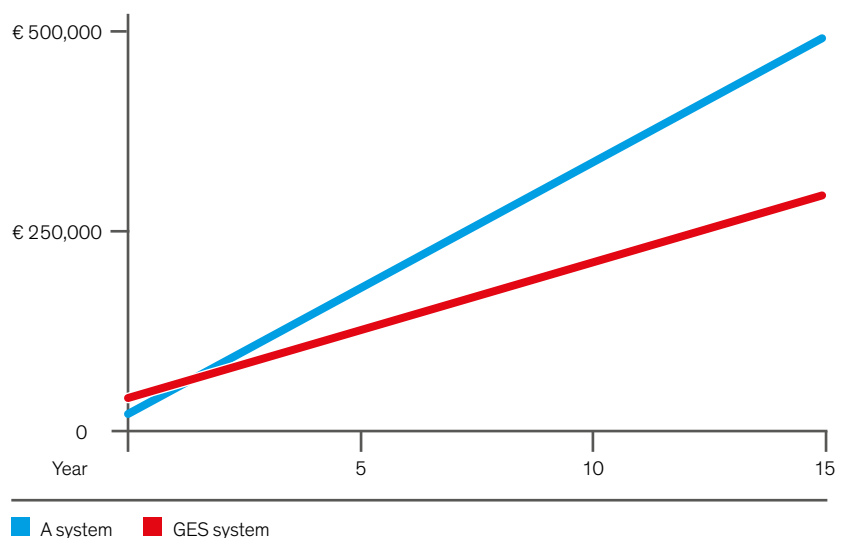
\*Depending on model and mode



# 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



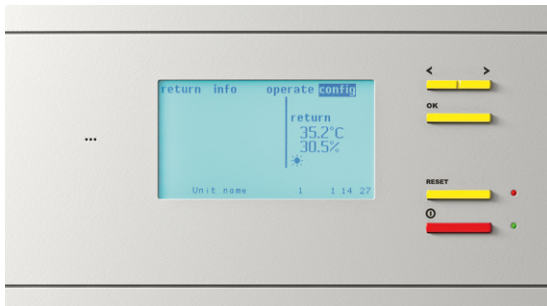
**TCO (Total Cost of Ownership)** describes total costs over the entire service life of a unit (incl. investment, operation and maintenance).

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

# 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.

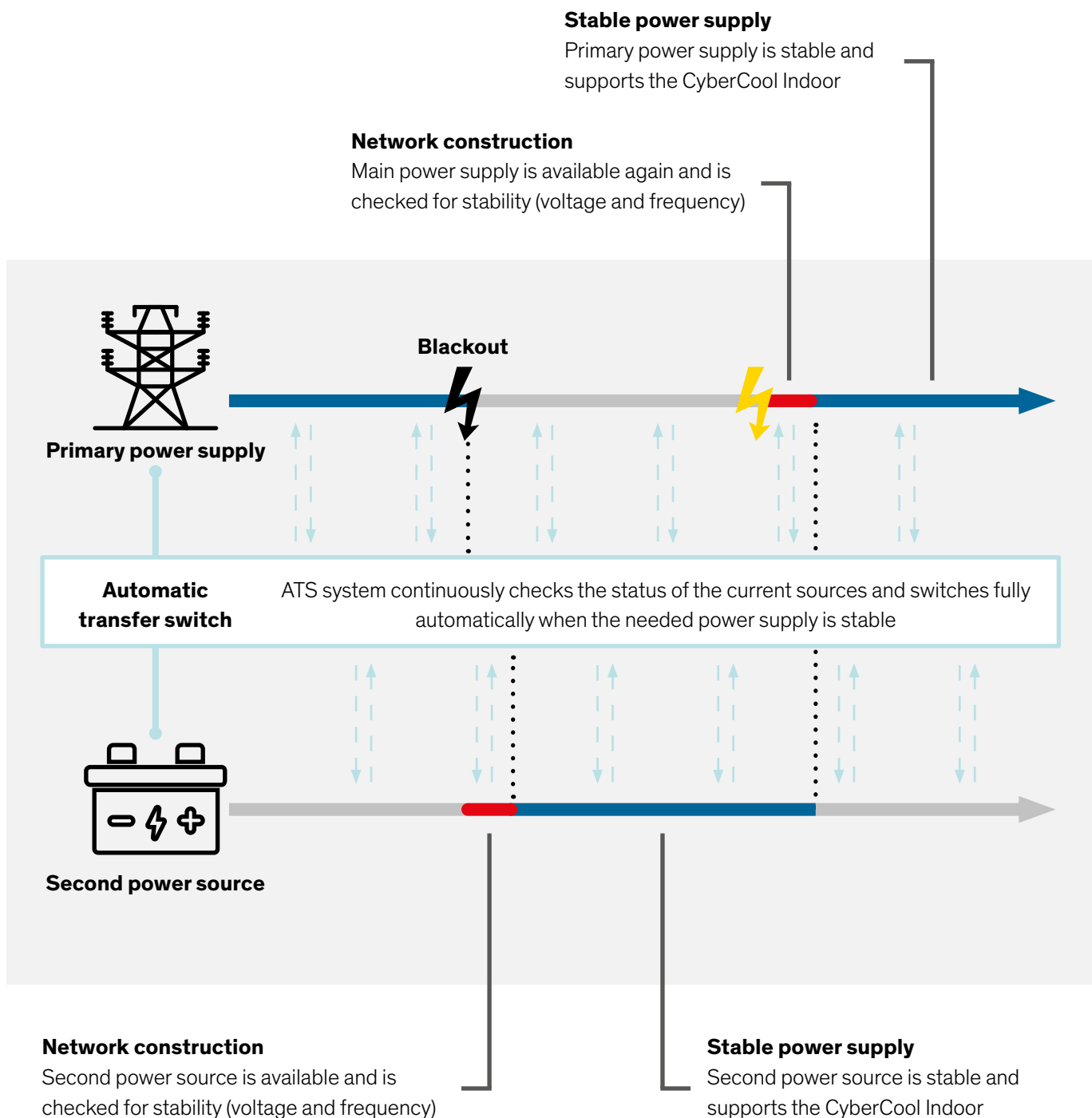


## **Climate Customized #3** **Tailor-made air conditioning solutions**

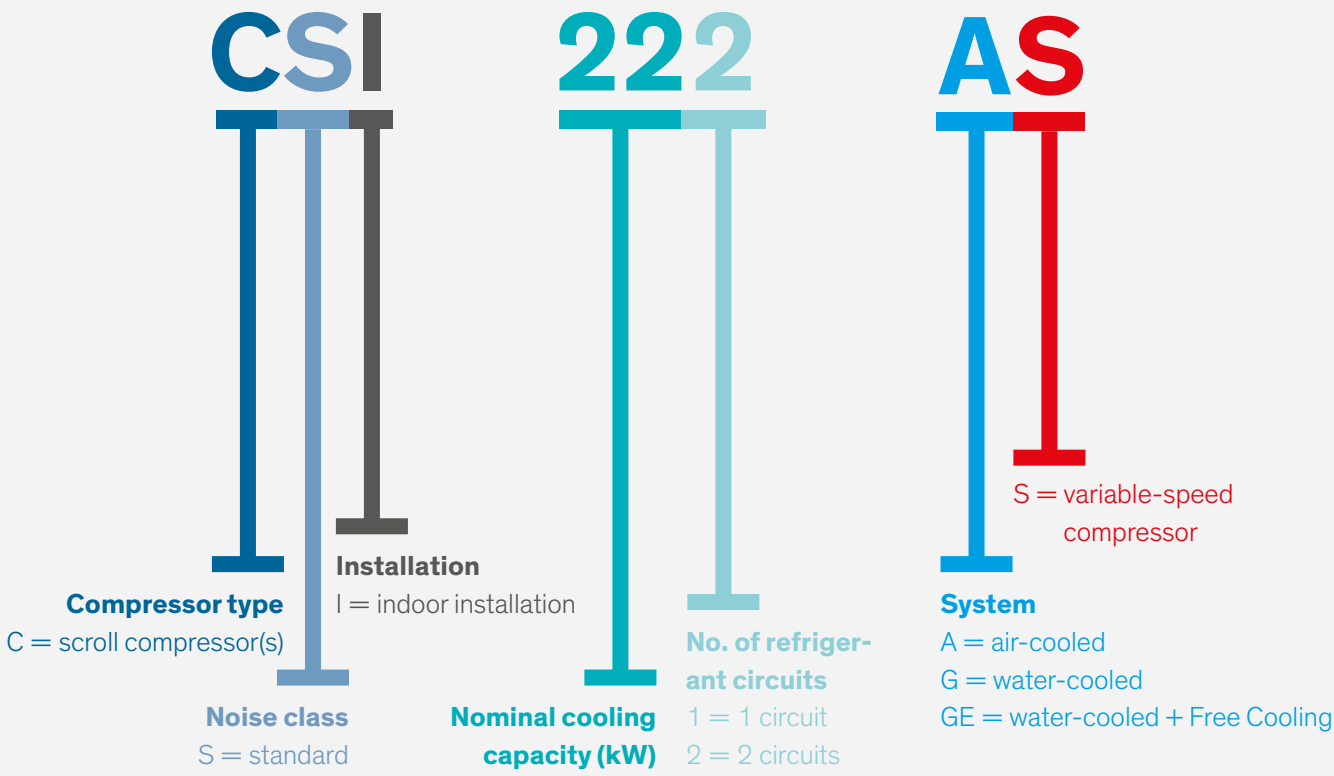
STULZ has the solution! In collaboration with the customer and tailored to suit requirements, we plan, implement and continuously look after the perfect air conditioning solution. This allows the development of individual air conditioning solutions with performance features which all match one another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

# Option: Second power source for the greatest possible reliability

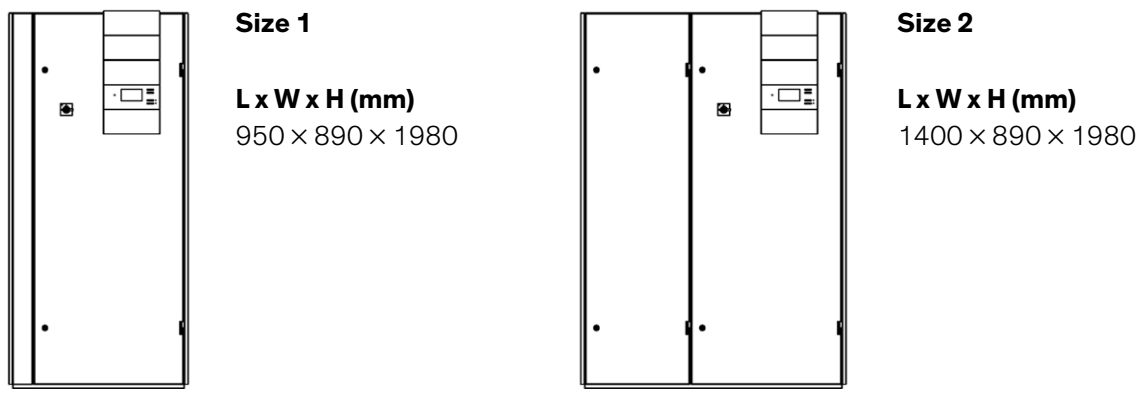
One of the key requirements for mission-critical and sensitive applications is uninterrupted cooling – in the event of a power outage, for example. To guarantee stable cooling capacity in spite of this, STULZ provides the option of an **automatic transfer switch** fitted directly in the switch gear cabinet.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





# Technical Data

## CyberCool Indoor standard version A

Model		221	421	661	841	981	A
Operating point 18/12 °C <sup>1)</sup>							
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	
<b>Noise</b>							
Noise level <sup>4)</sup>	dB(A)	50.9	50.9	50.9	54.7	56.0	
<b>Dimensions</b>							
Size <sup>5)</sup>		1	1	1	1	1	
Transport weight	kg	281	351	450	466	556	G
Operating weight	kg	285	357	457	476	571	

## CyberCool Indoor standard version G

Model		221	421	661	841	981	G
Operating point 18/12 °C <sup>2)</sup>							
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	
<b>Noise</b>							
Noise level <sup>4)</sup>	dB(A)	50.9	50.9	50.9	54.7	56.0	
<b>Dimensions</b>							
Size <sup>5)</sup>		1	1	1	1	1	GE
Transport weight	kg	296	365	476	493	581	
Operating weight	kg	305	381	495	517	601	GE

## CyberCool Indoor Standard-Version GE

Model		221	421	661	841	981	GE
Operating point 18/12 °C <sup>2)</sup>							
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 <sup>3)</sup>	°C	9.6	9.4	9.5	9.5	9.2	
Compressors		1	1	2	2	2	
<b>Noise</b>							
Noise level <sup>4)</sup>	dB(A)	50.9	50.9	50.9	54.7	56.0	
<b>Dimensions</b>							
Size <sup>5)</sup>		2	2	2	2	2	GE
Transport weight	kg	455	515	625	699	747	
Operating weight	kg	471	547	660	739	795	GE

## CyberCool Indoor EC version AS

Model		222	422	662	842	982	AS
Operating point 18/12 °C <sup>1)</sup>							
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	
<b>Noise</b>							
Noise level <sup>4)</sup>	dB(A)	51.4	52.5	54.0	55.3	56.4	
<b>Dimensions</b>							
Size <sup>5)</sup>		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	GS
Operating point 18/12 °C <sup>2)</sup>							
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	
<b>Noise</b>							
Noise level <sup>4)</sup>	dB(A)	51.4	52.5	54.0	55.3	56.4	
<b>Dimensions</b>							
Size <sup>5)</sup>		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	GES
Operating point 18/12 °C <sup>2)</sup>							
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 <sup>3)</sup>	°C	9.9	10	10	9.9	10.1	
Compressors		2	2	2	2	2	
<b>Noise</b>							
Noise level <sup>4)</sup>	dB(A)	51.4	52.5	54.0	55.3	56.4	
<b>Dimensions</b>							
Size <sup>5)</sup>		2	2	2	2	2	
Transport weight	kg	520	570	650	690	700	
Operating weight	kg	534	596	690	733	748	

<sup>1)</sup> Chilled water inlet/outlet: 18/12 °C, Condensation temperature 50 °C

<sup>2)</sup> Chilled water inlet/outlet: 18/12 °C, Cooling water inlet/outlet: 39/45 °C (30 % ethylene glycol)

<sup>3)</sup> Cooling water temperature for switching to 100 % Free Cooling

<sup>4)</sup> Noise level at a distance of 2 m

<sup>5)</sup> Frame sizes and dimensions on page 13

# CLOSE TO YOU AROUND THE WORLD



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