



IT Cooling Solutions

CyberCool Indoor Data-Chiller

Targeted cooling of IT and medical equipment



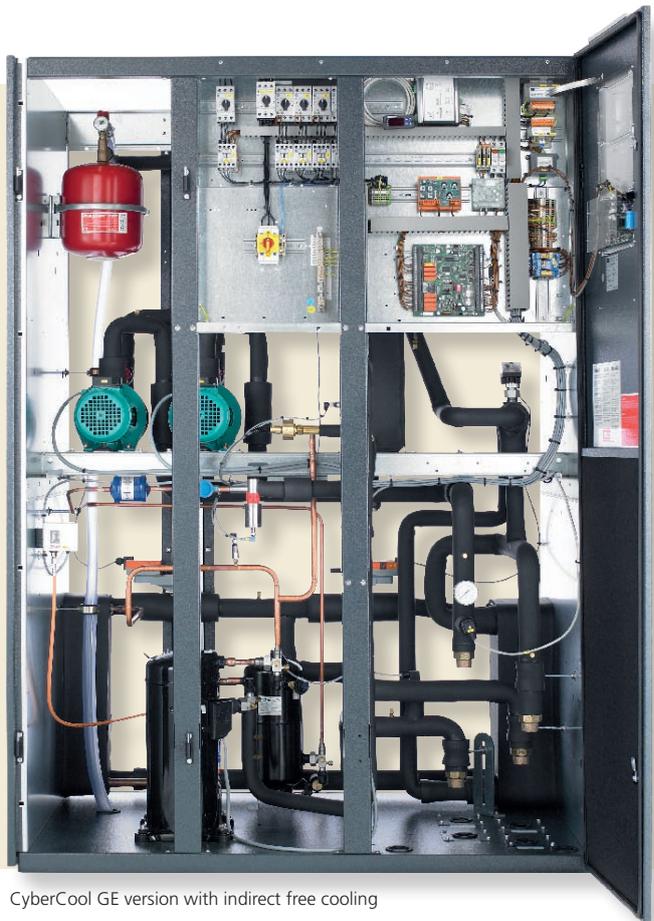
Compact, highly available chilled water generation: CyberCool indoor data chillers

With our STULZ CyberCool indoor data chillers, you can rely on three different systems to ensure a supply of chilled water that precisely suits demand. Complete, autonomous and highly available.

Water transports heat 3,500 times better than air. This is why racks are increasingly cooled with water, because without liquid cooling, the extreme heat loads cannot be dissipated. CyberCool Indoor Data Chillers are specially designed for indoor use, and reliably supply the chilled water you require.

Advantages at a glance

- Independent chilled water supply close to consumption: Completely autonomous system with high availability of 99.999 %
- Units in standard door size and compact design for easy transport and assembly
- Chilled water generation even in a restricted space
- Construction of redundant chilled water systems
- As a compact DX chiller or an energy-saving free cooling chiller
- Suitable for use in areas sensitive to noise, thanks to low-noise condensers and heat exchangers
- Minimal indoor refrigerant circuit (no anti-freeze + low water volume = reduced risk)
- Easy maintenance: All parts accessible from the front
- Reliable monitoring: Easy integration of BSM systems or alarms via floating contacts



CyberCool GE version with indirect free cooling

Reliability

Modern STULZ control systems (C6000/C7000) enable the construction of integrated, demand-based chilled water systems, which also act as an interface to higher-level monitoring systems. Unlike conventional chillers, the CyberCool indoor data chiller uses minimal volumes of liquid and 100 % water in the cooling system. This reduces the risks in the event of leakage. All liquid-bearing parts are strictly separated from the electronics. For higher capacities up to 600 kW, several units can be combined to create a redundant system.

Simpler to transport, assemble and integrate

Compact CyberCool indoor data chillers fit through any standard office door. This means they can be easily moved within buildings and set up wherever required. Whether in data centres, plant rooms or hospital environments, its modern, practical design and quiet operation make the CyberCool indoor data chiller a system that is especially easy to integrate. Equipped with low-noise 40 dBA condensers or heat exchangers, the chillers can even be used in areas with strict noise requirements.

Extremely reliable, with automatic energy-saving: the GE version with indirect free cooling

Demand-based cooling

With the aid of the intelligent C7000 control system, the CyberCool GE with indirect free cooling selects the ideal operating mode on the basis of the current ambient temperatures and chilled water status. Energy-intensive compressor cooling is only used when the ambient temperature does not allow free cooling.

GE standard version

- Brazed plate heat exchanger for direct cooling
- High-pressure centrifugal pump (2 bar supply pressure)
- Condensation pressure regulation via pressure sensor (2-way G valve)
- Water volume control (2-way GE valve)
- C7000 IO controller for mode control

Improved EER thanks to indirect free cooling

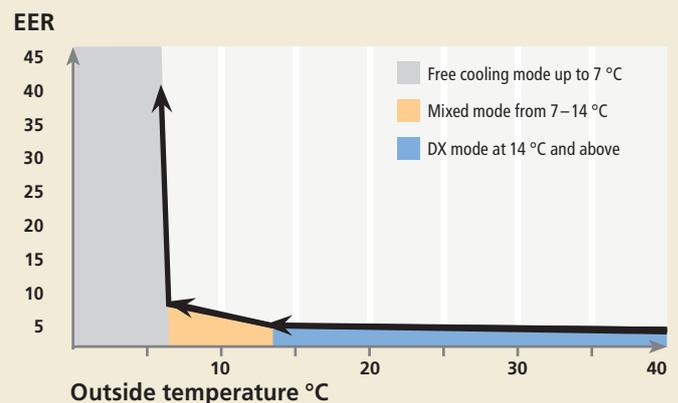
The EER (Energy Efficiency Ratio) indicates the efficiency of refrigerant systems, and describes the ratio of achieved cooling capacity to the amount of electrical energy used. Once the chiller, heat exchanger and accessories have been determined, the EER depends solely on the water temperature and the outside temperature.

For example, the chiller functions in DX mode at a water inlet temperature of 18 °C, a water return temperature of 12 °C and an outside temperature in excess of 14 °C. If the temperature falls, the CSI goes into Mixed mode, combining free cooling with DX mode. Since the entire cooling output is no longer being generated by the compressor in Mixed mode, the EER rises.

From temperatures below 7 °C, the compressor is no longer needed, and the system works in FC mode. In FC mode, the entire cooling capacity is obtained indirectly from the outside air via the heat exchanger. If the outside temperature drops even further, the power consumption of the heat exchanger fans falls, as the same cooling capacity can be achieved with less air flow. Therefore, heat exchangers with EC fans are particularly suitable for maximising the EER of the system as a whole.

Free cooling can be employed in most regions of the world, depending on the local temperature profile.

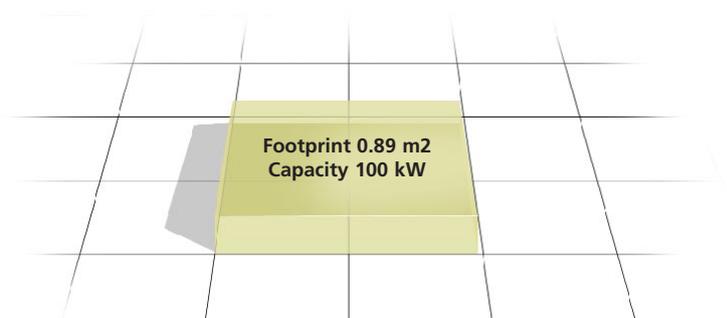
Example: In Hamburg, DX mode is only required for 21 % of the year



Compact chilled water generation in a restricted space

A/G standard version

- Electronically controlled valves steplessly regulate output between 40–100 % of nominal cooling capacity
- High-pressure centrifugal pump (2 bar supply pressure)
- C6000
- Thermostatic expansion valve
- Space-saving, easy to transport
- Electronic hot-gas bypass



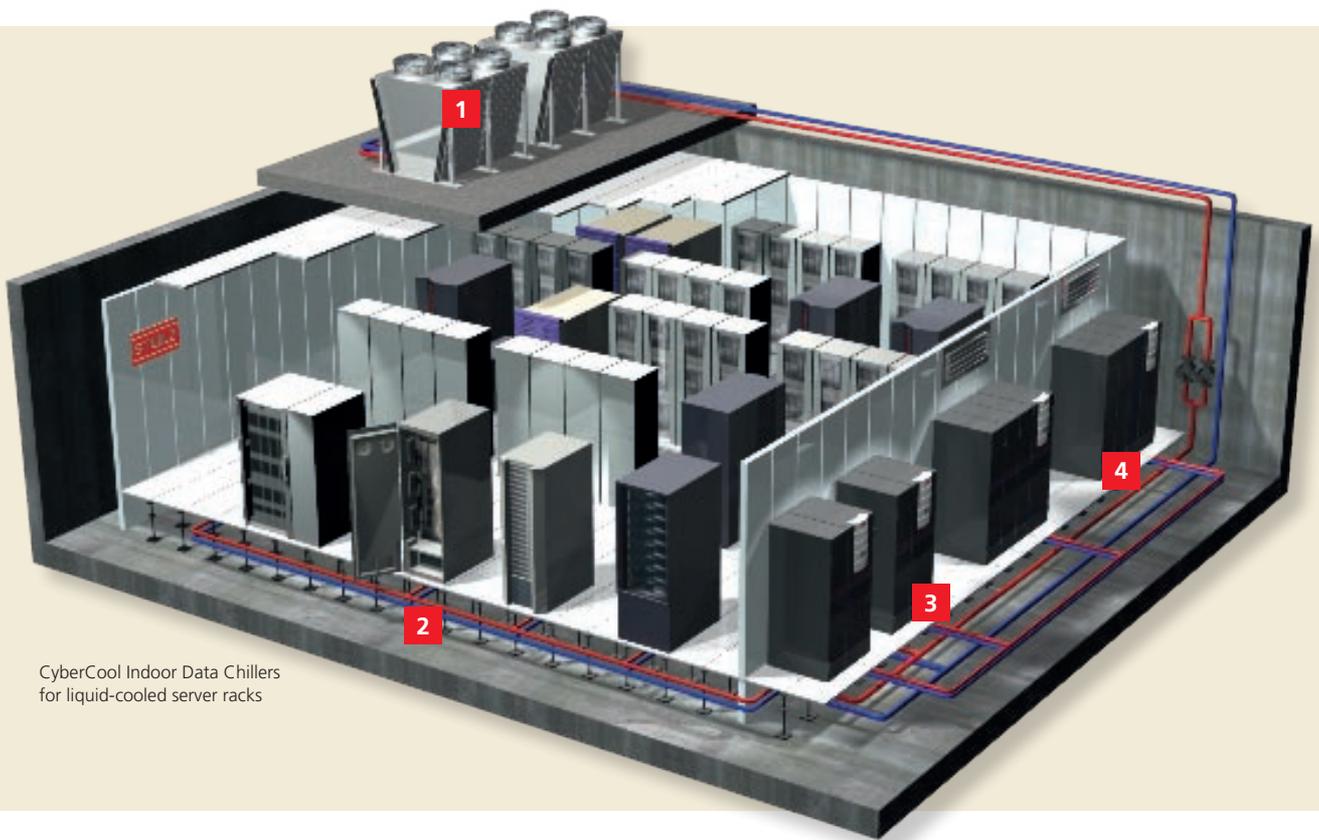
CyberCool A/G als luft- oder wassergekühlte Ausführung produziert auf einer Fläche von nur 0,89 m² Kühlwasser für Kälteleistungen bis 100 kW.

The power and flexibility of CyberCool indoor data chillers cannot fail to impress in the data centre

The increasing integration and packing density of processors and computer/server systems gives rise to volumes of waste heat that were unimaginable in such a limited space just a few years ago. Regular server modernisation is the only way to keep pace with these changes. Since large-scale structural modifications are difficult to implement later on in existing data centres, instead increasing use is made of liquid-cooled server racks and cold aisle/hot aisle housings. Heat loads of more than 30kW per rack can be produced in these centres. Here, CyberCool Indoor Data Chillers are used, and effectively, reliably and independently provide the

liquid-cooled server racks and CW air-conditioners with chilled water right where it is needed.

Because the primary circuit is situated in the immediate vicinity of the rack in the data centre, CyberCool Indoor Data Chillers consist of a split system, minimising the volume of water in the primary circuit. They can be planned with allowances for changes in scale, and therefore grow with your future requirements. Thanks to their compact design, CyberCool Indoor Data Chillers can also be retro-fitted and integrated with ease in an existing system.



CyberCool Indoor Data Chillers for liquid-cooled server racks

Areas of application for CyberCool Indoor Data Chillers:

- Data centres
- High-density server racks
- Liquid-cooled server racks
- Hot aisle housings
- Medical equipment

- 1** Heat exchangers for indirect free cooling
- 2** High-density zone with liquid-cooled server racks
- 3** CyberCool GE Indoor Data Chillers with indirect free cooling
- 4** CyberAir 2 CW liquid-cooled closed-circuit air-conditioning

Technical data and options at a glance

Options



Pressure gauge



C7000 Advanced user interface (for GE units only)



2 high-pressure centrifugal pumps (standby)

Technical data

CyberCool indoor data chiller		GE					A/G				
CS1xxxGE/A/G		201	401	601	801	1,001	201	401	601	801	1,001
Cooling capacity ¹⁾	kW	24.0	41.8	61.2	77.3	98.6	20.8	48.5	65.0	80.0	100.0
Refrigerant circuit											
Type of compressor		Scroll									
Refrigerant R407C ²⁾	kg	6.0	10.7	12.5	12.5	12.6	2.3	3.5	6.8	7.0	9.0
Chilled water circuit											
Water flow	m ³ /h	3.4	5.9	8.7	11.0	14.0	3.0	6.9	9.2	11.4	14.2
No. of pumps		1									
Available pump pressure	kPa	150	214	149	185	167	210	210	200	200	220
Unit data											
Power input DX mode	kW	7.2	12.0	18.6	22.2	26.7	5.8	13.3	17.3	22.0	26.4
Power input FC mode	kW	0.7	1.4	1.5	2.0	2.4	-	-	-	-	-
Dimensions (WxHxD)	mm	1,400 x 1,980 x 890					1,000 x 1,980 x 890				
Weight ³⁾	kg	454	513	627	702	745	295/310	365/380	465/490	480/505	570/595

¹⁾ At 18 °C water inlet/12 °C water outlet temperature; condensing temperature = 50 °C; for G and GE units only: cooling liquid 70 % water, 30 % glycol; temperature of cooling liquid in DX mode, inlet/outlet: 39 °C/45 °C; temperature of cooling liquid in FC mode, inlet/outlet: 10 °C/15 °C (GE only)

²⁾ For G and GE units only

³⁾ Weight of version A/version G

All data apply at 400V/3ph/50Hz and with refrigerant R407C.

Options

Refrigerant circuit

- Crankcase heater
- Pressure gauge in refrigerant circuit
- Winter kit*
- Hot-gas bypass, electronically controlled**

Condensation

- Condensation pressure regulation via 2-way or 3-way control valves***
- Air-cooled condensers in the standard or low-noise version*

Mechanical

- Raised floor stand
- Second mains supply for emergency operation

Chilled water circuit

- Insulated pipes/evaporator
- Water temperature sensor
- Pressure gauge
- Circuit control valve
- Non-return valve/main slide valve
- High-pressure centrifugal pump (primary pump for the chiller in the data centre, 3 bar supply pressure instead of 2 bar)
- Standby pump
- Bleeder valve

Control

- C7000 Advanced user interface and gateway**

*For A units only **For GE units only ***For G units only

STULZ Company Headquarters

D **STULZ GmbH**
Holsteiner Chaussee 283 · 22457 Hamburg
Tel.: +49(40)55 85-0 · Fax: +49(40)55 85-352 · products@stulz.de

STULZ Subsidiaries

AUS **STULZ AUSTRALIA PTY. LTD.**
34 Bearing Road · Seven Hills NSW 21 47
Tel.: +61(2)96 74 47 00 · Fax: +61(2)96 74 67 22 · sales@stulz.com.au

CN **STULZ AIR TECHNOLOGY SYSTEMS (SHANGHAI) CO., LTD.**
No. 999 Shen Fu Road, Min Hang District · Shanghai 201108 · P.R. China
Tel.: +86(21) 54 83 02 70 · Fax: +86(21)54 83 02 71 · info@stulz.cn

E **STULZ ESPAÑA S.A.**
Avenida de los Castillos 1034 · 28918 Leganés (Madrid)
Tel.: +34(91)517 83 20 · Fax: +34(91)517 83 21 · info@stulz.es

F **STULZ FRANCE S. A. R. L.**
107, Chemin de Ronde · 78290 Croissy-sur-Seine
Tel.: +33(1)34 80 47 70 · Fax: +33(1)34 80 47 79 · info@stulz.fr

GB **STULZ U. K. LTD.**
First Quarter · Blenheim Rd. · Epsom · Surrey KT 19 9 QN
Tel.: +44(1372)74 96 66 · Fax: +44(1372)73 94 44 · sales@stulz.co.uk

I **STULZ S.P.A.**
Via Torricelli, 3 · 37067 Valeggio sul Mincio (VR)
Tel.: +39(045)633 16 00 · Fax: +39(045)633 16 35 · info@stulz.it

IN **STULZ-CHSPL (INDIA) PVT. LTD.**
006, Jagruti Industrial Estate · Mogul Lane, Mahim · Mumbai - 400 016
Tel.: +91(22) 56 66 94 46 · Fax: +91(22) 56 66 94 48 · info@stulz.in

NL **STULZ GROEP B. V.**
Postbus 75 · 1180 AB Amstelveen
Tel.: +31(20)54 51 111 · Fax: +31(20)64 58 764 · stulz@stulz.nl

NZ **STULZ NEW ZEALAND LTD.**
Office 71, 300 Richmond Rd. · Grey Lynn · Auckland
Tel.: +64(9)360 32 32 · Fax: +64(9)360 21 80 · sales@stulz.co.nz

PL **STULZ POLSKA SP. Z O.O.**
Budynek Mistral · Al. Jerozolimskie 162 · 02 – 342 Warszawa
Tel.: +48(22)883 30 80 · Fax: +48(22)824 26 78 · info@stulz.pl

USA **STULZ AIR TECHNOLOGY SYSTEMS (SATS), INC.**
1572 Tilco Drive · Frederick, MD 21704
Tel.: +1(301)620 20 33 · Fax: +1(301)662 54 87 · info@stulz-ats.com

ZA **STULZ SOUTH AFRICA PTY. LTD.**
P.O.Box 15687 · Lambton 1414 · Gauteng
Tel.: +27(11)873 68 06 · Fax: +27(11)873 31 36 · aftersales@stulz.co.za

IT Cooling Solutions

Close to you all over the world.

... With specialist, competent partners in our subsidiaries and exclusive sales and service partners around the world. Our five production sites are in Europe, North America and Asia.