STULZ the natural choice

CyberAir

the new world of close control air conditioning

STULZ



CyberAir
Questioning the status quo

To develop the extraordinary, STULZ questioned the status quo and set new standards with CyberAir for reliability and innovation in precision air conditioning units.

Using and further developing trend-setting technologies, STULZ offers unknown benefits in safety, cost reduction and environmental compatibility.

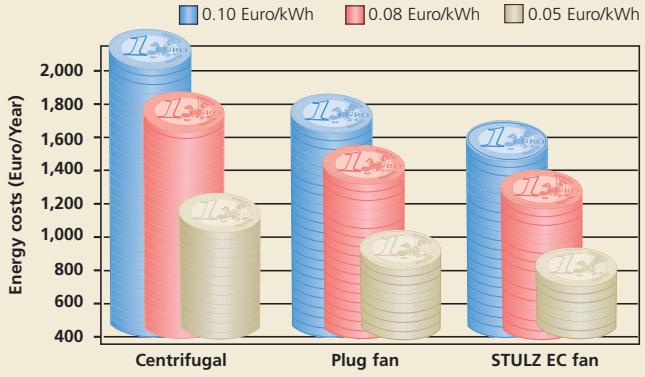
One thing does not change with CyberAir: STULZ can always be trusted to provide reliability and quality.

» CyberAir units offer the highest cooling capacities with the lowest footprint, operating costs and noise level designed to meet the needs of the latest high density IT Servers

» Mission Critical applications rely on STULZ CyberAir for the next generation of IT cooling

Source: IBM Deutschland GmbH

- CyberAir units utilise the latest EC fan technology and achieve revolutionary energy savings.
- The C7000 microprocessor provides the CyberAir unit with reliable precision control and monitoring of the environment with the ability to exchange data with Building Management Systems.
- CyberAir units are built to the highest quality standards in a modern facility only using quality components.
- CyberAir, the complete precision air conditioning range up to 150 kW per unit, available in 8 cooling designs and 5 sizes.



Energy cost savings with EC fan compared to ordinary fans.

At 8,500 m³/h and 350 Pa

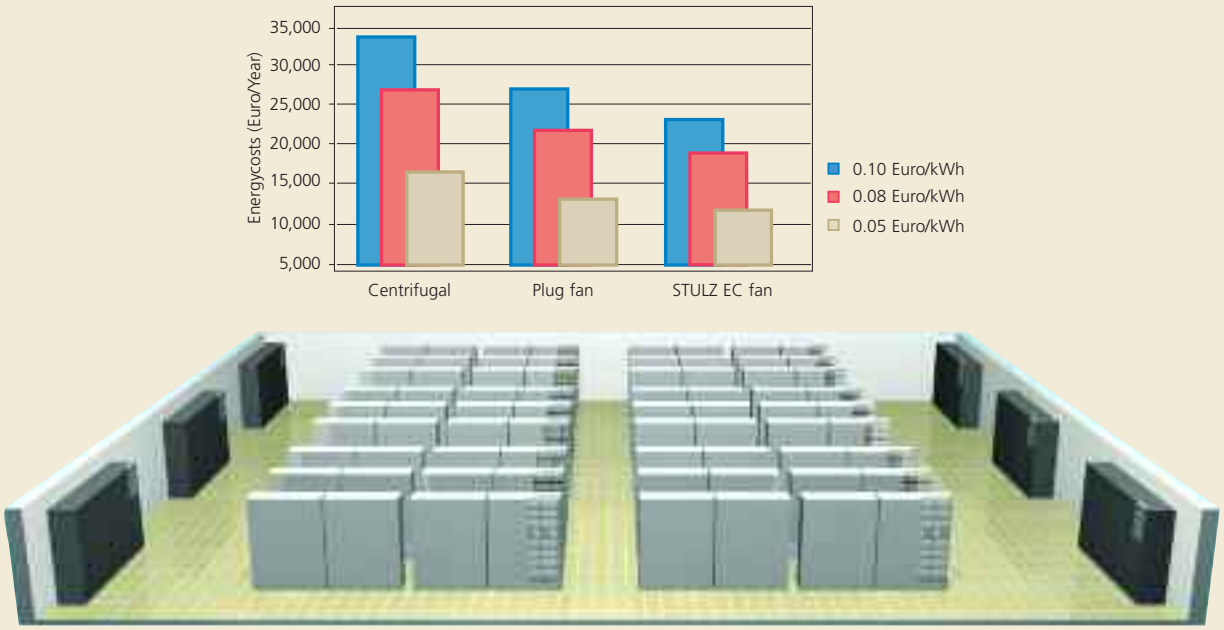
CyberAir EC fan technology
Nothing in the world comes close to it

The EC fan technology – electronically commutated motor – offers a breeze of fresh air with the new generation of high-performance compact CyberAir precision air condition units.

This new technology increases the efficiency of each CyberAir unit considerably reducing the operating costs. This is made possible by utilising modern electronics which together with the intelligent Controller C7000 allow for any given control variant and ensure a 24 hour optimised operation tuned to the prevalent ambient paramenters.

All parameters, like volume flow, cooling capacity, external compression, noise level, can be optimised with each unit for the local conditions.

- **» High efficiency with energy savings up to 30 % compared to standard fans**
- **» Infinitely variable air volume setting via Controller C7000**
- **» Long and maintenance-free operating life through direct drive technology**
- **» Smooth air path and noise absorbing insulation reduces sound levels**
- **» Anti-vibration-mounting isolates fan from unit structure**



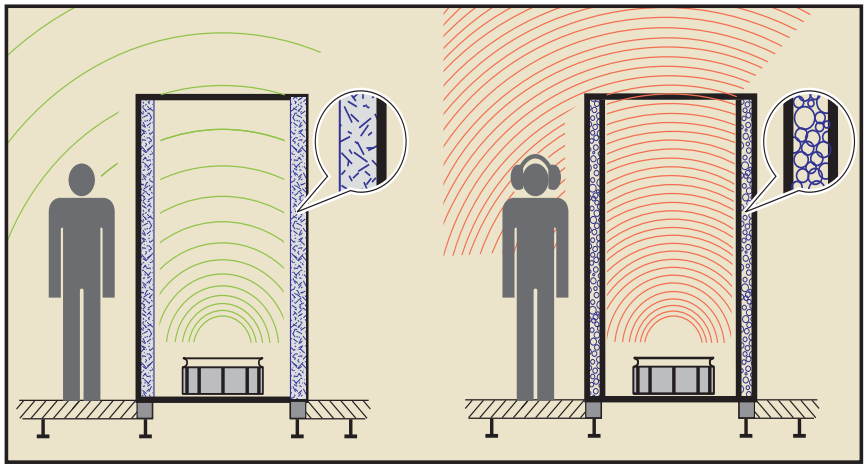
A typical example of the running cost savings of CyberAir's low energy EC fans compared with ordinary fans. A computer room with six ASD1200CW CyberAir units.

CyberAir
Perfect blend of design and materials

CyberAir's innovative design produces tangible benefits. Our engineers have one aim: The perfect blend of design and materials. Each design and component has been repeatedly tested. STULZ has specialised in the protection of critical systems for more than three decades. The result: More and more clients throughout the world trust our product and system solutions.

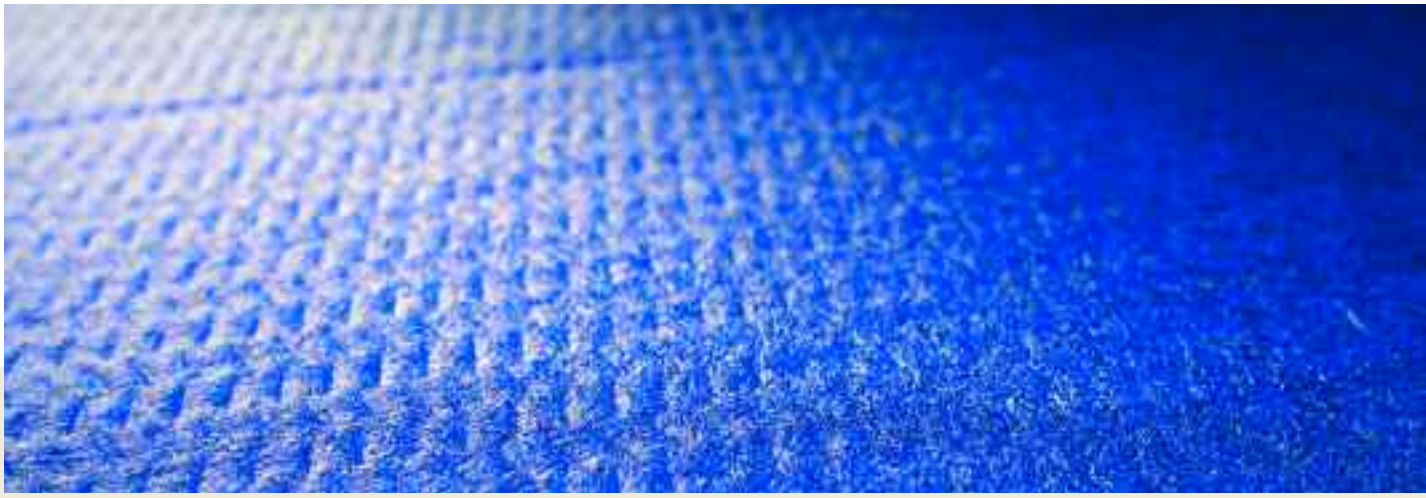
Sound absorption system

- » Absorption instead of reflection: Reduction of the sound pressure level through innovative use of sound absorbing materials
- » Silent operation through flow-optimised fan design
- » Intelligent, silent air ducting



CyberAir's sound absorbing insulation has up to 5dBA noise reduction compared with double skin panels

- » **STULZ Sound Absorption System reduces the sound levels by up to 5 dBA less than double skin panels**
- » **CyberAir units require ≥ 12 % less space for the same cooling capacity**
- » **CyberAir units offer the greatest possible protection for critical systems rooms**



Sound absorption system
Absorption instead of reflection through targeted use of sound absorbing materials

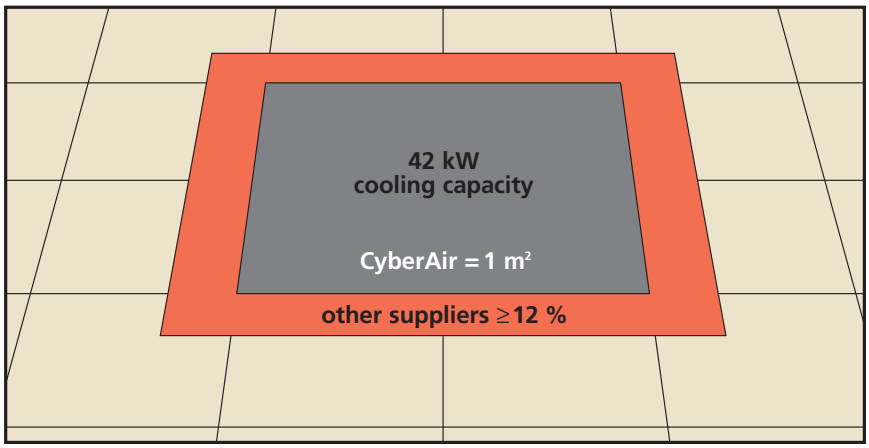
Source: IBM Deutschland GmbH

Small footprint with new dimensions

- Extremely favourable proportion of footprint and cooling capacity
- Front maintenance access

High flexibility, smooth extension

- The systems can be expanded to up to 31 units per room without additional hardware
- It is possible to combine units of different size and capacity
- Optimal air distribution and removal of spot heat loads
- Units fit through standard doors and allow for easy transportation



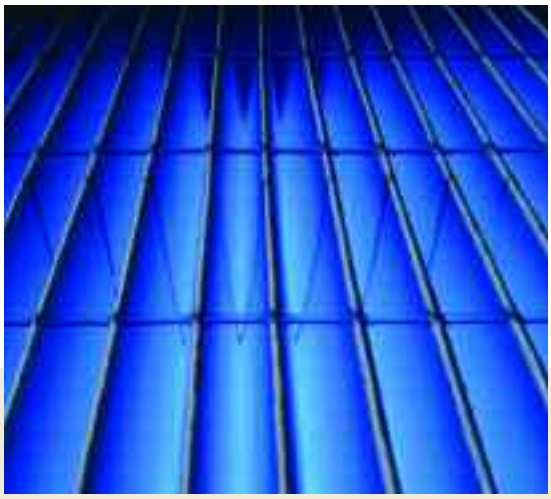
CyberAir footprint in relation to cooling capacity

Filter Control Management

- Protection against low air flow and hot spots through intelligent fan control
- A required filter change will automatically be indicated

Safety and high availability

- High processing and material quality in every detail
- Corrosion protection
- High-quality components guarantee long service life
- Automatic switch-over to stand-by unit during failure
- Unit and component sequencing



High efficiency G4 (EU4) Zig-Zag filters extend filter service intervals and reduce airflow resistance

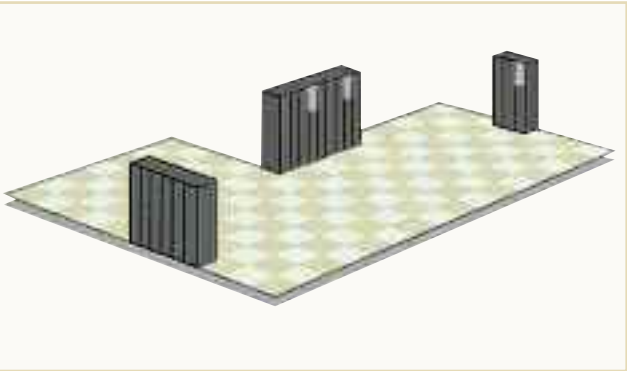
Electric reheat with stainless steel sheath provides high capacity with low surface temperatures

CyberAir
Consistent development of modular design

Modular design has gained new significance with CyberAir. A proven system that not only provides maximum flexibility, but total security. Each CyberAir unit features its own stand alone intelligence and is unaffected by external failures.This safety is achieved through tailor-made, cost-effective modular redundancy; the VarioLogic System guarantees the automatic switch-over to reserve capacities or additional capacity during peak loads

The EC fan allows the air quantity to be easily adjusted and eliminate hot spots with better room air distribution. The ability to adjust air flow is of particular benefit to rooms housing the latest high density servers

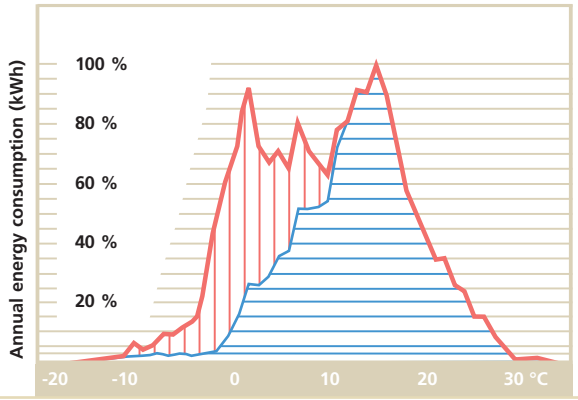
Provision for trouble-free expansion
With increasing heat loads, CyberAir can be extended by adding further modules. Up to 31 units can be installed in one computer room and controlled via one C7000 VarioLogic System.

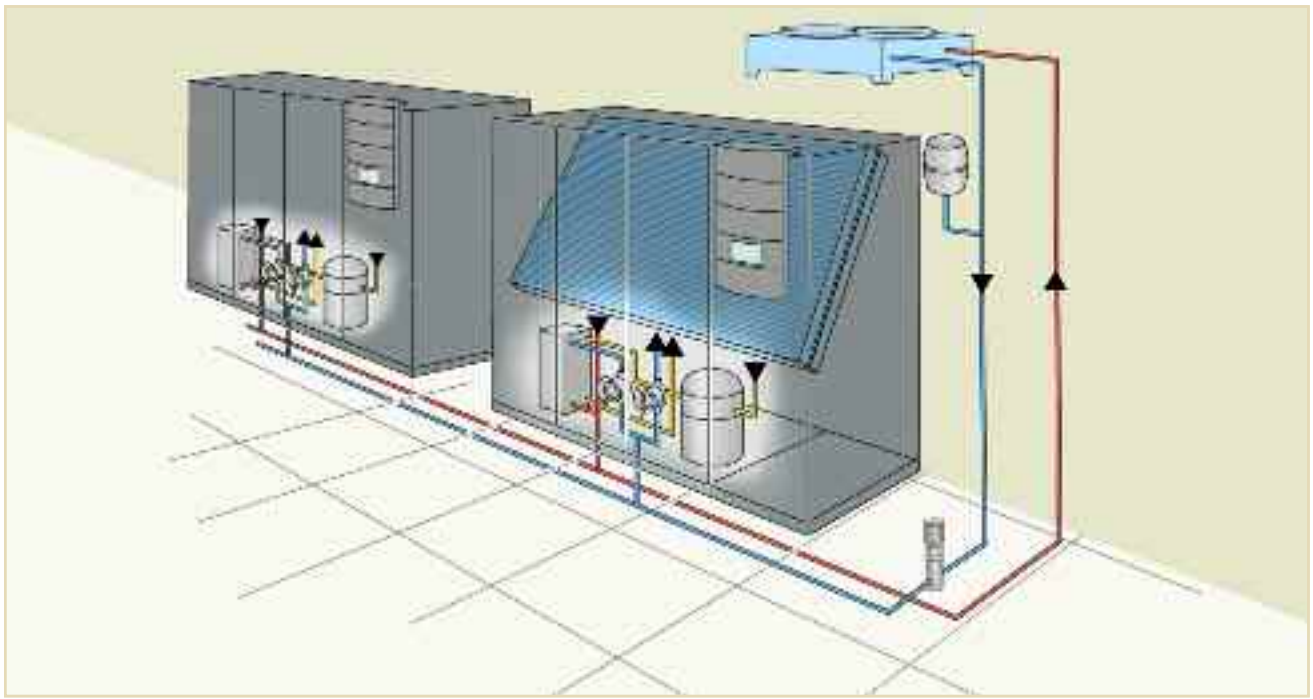


CyberAir GE2 – Indirect Free Cooling
A technology breakthrough

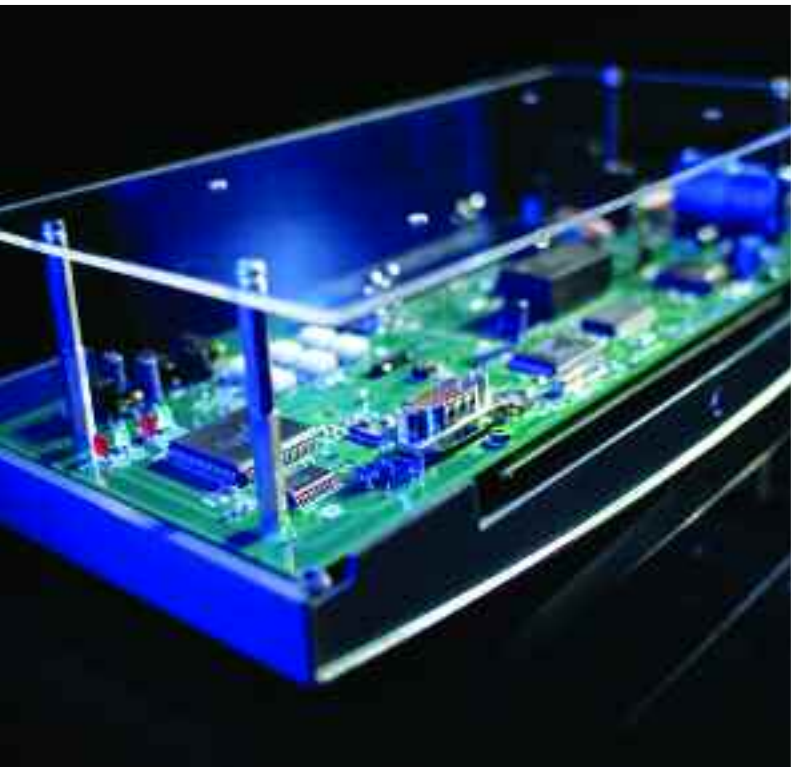
In the development of this new generation of indirect free cooling, CyberAir uses all available technology options to reduce energy costs and noise levels

Comparison of annual energy consumption between an air-cooled system (A) and a GE2 free cooling system

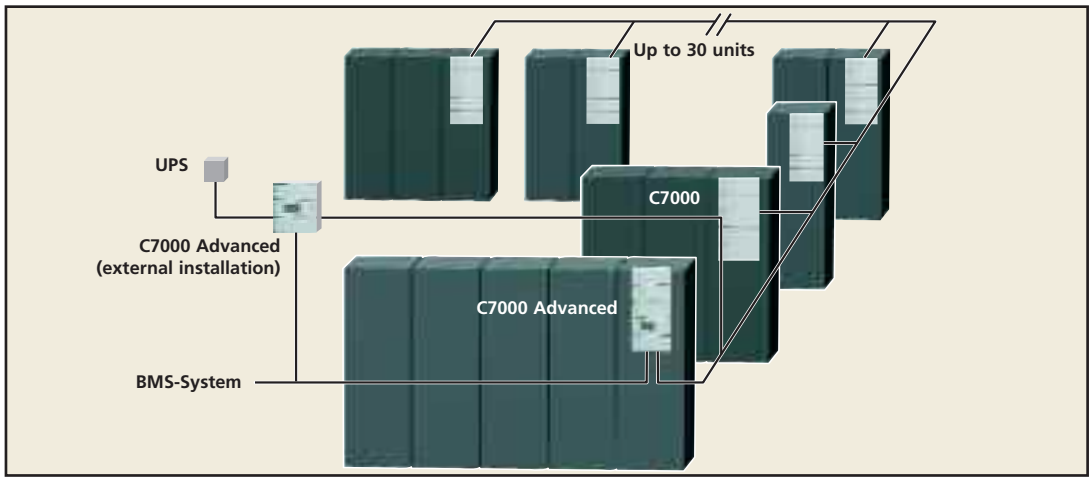




C7000 Advanced



C7000 Plus



CyberAir C7000 Intelligent control with VarioLogic

STULZ VarioLogic provides security for current applications and future expansion requirements. Whether local or central control: with CyberAir's C7000 you always choose reliability.

Protection and safety for critical applications through intelligent control strategies

» Sequencing strategies with up to 31 units
» Operating hour compensation extends service life of components
» One VarioLogic system can control up to 31 units within a room
» Filter control management ensures constant air distribution
» Refrigerant pressure management protects against system failure
» Programmable UPS operation reduces electrical load when there is a power failure
» Potential-free contacts for alarm and operating states permit easy remote monitoring
» Scalable graphical recording of control values "temperature" and "humidity" between 1 and 1440 days
» Event log recording the last 200 event

Connectivity

» Connection to all BMS systems of well-established manufacturers
» Connection to STULZ BMS systems TeleCompTrol
» Communication via internet protocols SNMP and HTTP
» SMS or email alarm messages via GSM modem
» No additional hardware required

C7000 Advanced with high level user convenience

» Simple firmware set up for individual applications
» Configurable PI control
» Display selectable in English and several foreign languages
» Downloads available for the latest operating software
» RS232 and RS485 interface for direct connecting of BMS
» Manual operating mode for maintenance purposes

» **C7000**
Has all the control and monitoring functions but has no visual display and is tamper-proof. All control and service parameters can be read and adjusted from a separate display or laptop.

» **C7000 Plus**
As C7000, but with 4-line LCD operating panel for data entry and output. The C7000 Plus allows for up to 31 units to be configured and have their actual parameters displayed.

» **C7000 Advanced**
Convenient and comprehensive communication for up to 31 units. Operational control, management and monitoring via large LCD graphical display. Connection to all BMS systems possible. Modbus and other data protocols have already been implemented.

CyberAir Network solutions for limitless communication

» **Support of all current BMS protocols**

» **Communication via IP protocols SNMP, HTTP**

» **STULZ BMS system TeleCompTrol in bus and modem version**

STULZ interfaces to BMS and the Internet

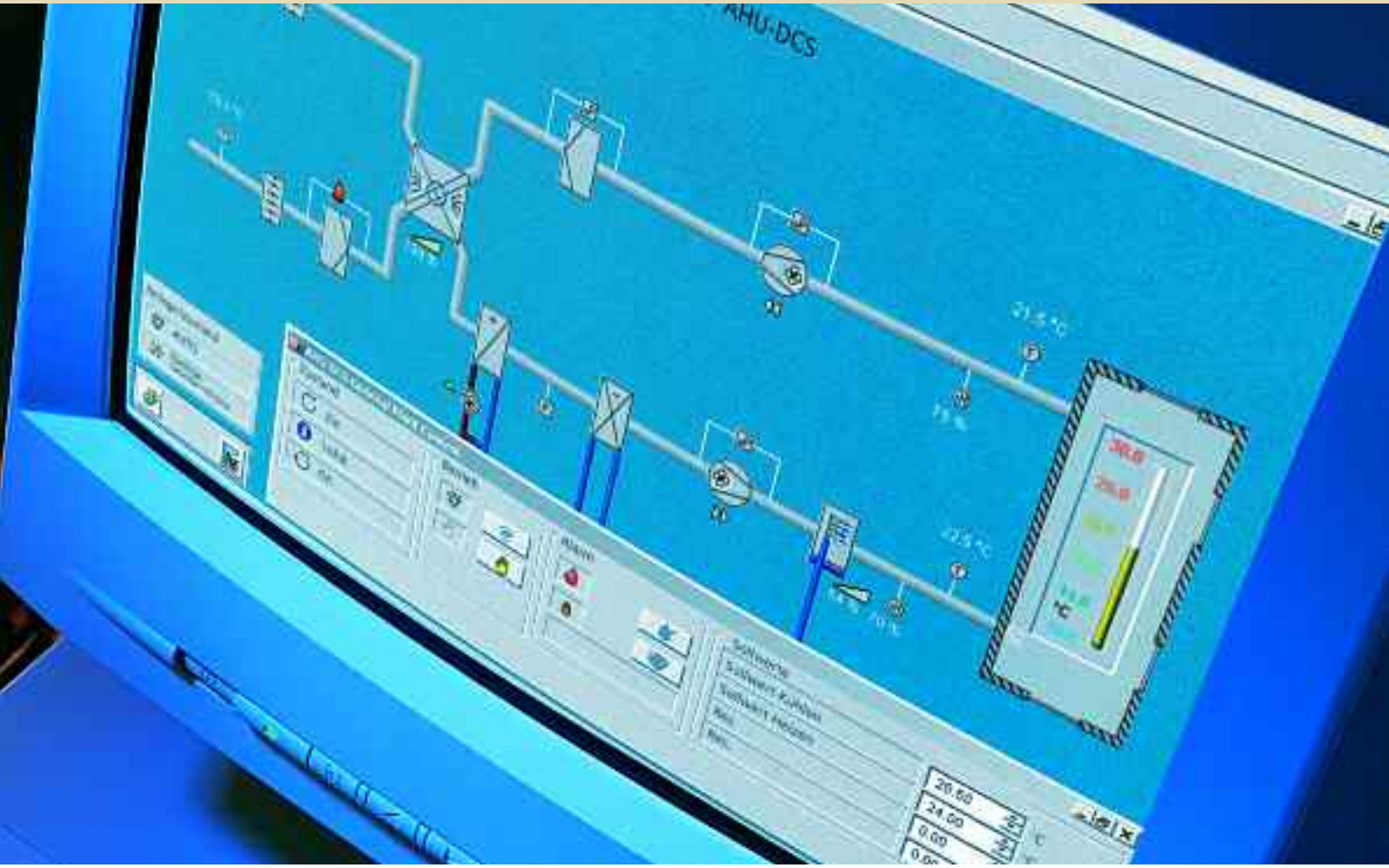
» The STULZ MIB7000 (Multifunctional Interface Board)
- Integrated sequencing function for up to 31 units
- Interfaces RS485/RS232
- Support of all current BMS protocols

» The STULZ WIB7000 (Web Interface Board)
- Communication via IP protocols SNMP, HTTP
- Browser-based configuration and operation

» The STULZ LIB7000 (Lon Interface Board)
- LonWorks®-Technology for STULZ A/C Units

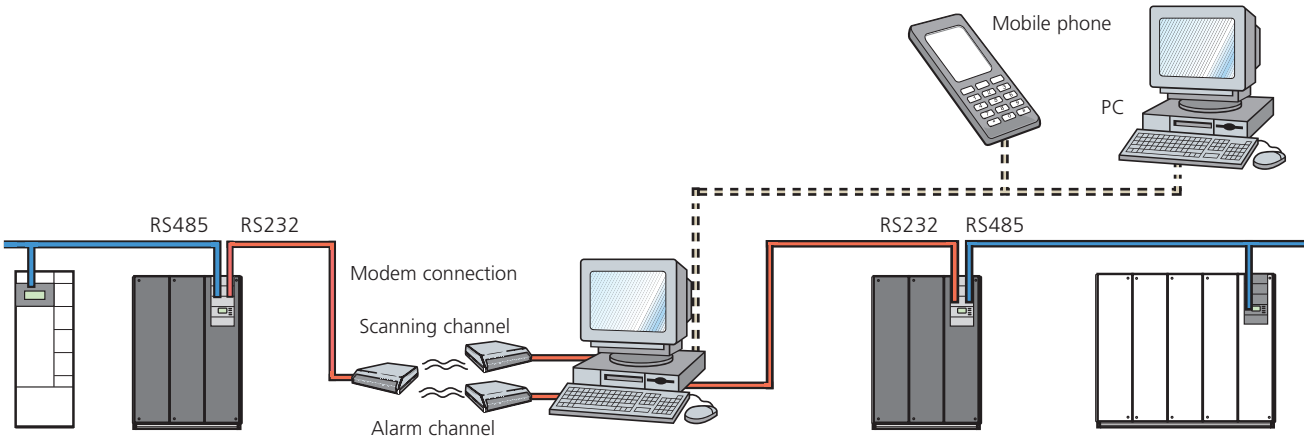
BMS supplier	Data protocol	Gateways for STULZ controllers		
		C7000 Advanced	C7000 + C7000Plus each with E-Bus	further STULZ controllers [1]
STULZ, TeleCompTrol	SDC	OnBoard [3]	MIB7000	
Other suppliers	Modbus			
Kieback & Peter	P90			
Satchwell	SNP		MIB7000 [3]	MIB7000
TREND MICRO	Network-Bus			
Saia	S-Bus		MIB7000 [3]	
Other suppliers	BACnet	MIB7000 [3]		
LANDIS & STAEFA	Ni-Bus	MIB7000 [3]		C4000 NIStulz
LonWorks®	LonTalk®	LIB7000 [3]	LIB7000 + MIB7000 [3]	LIB7000 + MIB7000
Other suppliers	SNMP	WIB7000		
Other suppliers	HTTP			
JOHNSON CONTROLS	N2-Bus	METASYS [2][3]		METASYS [2]
LANDIS & GYR	Unigyr-Bus	CFE [2][3]		CFE [2]
SIEMENS	Sinec L2-Bus	CP524 [2][3]		CP524 [2]

[1] further controllers: C1002, C1010, C4000, C5000, C6000 [2] Gateway from BMS supplier [3] Available on request



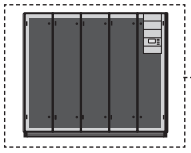
The STULZ BMS system TeleCompTrol

» Monitoring and control of STULZ chillers and A/C units
» Graphical display of all unit parameters
» Monitoring, sending and storing of unit alarms
» Alarm forwarding with error messages on PC or mobile phone via SMS



Modem version | **Bus version**

Options to suit every application

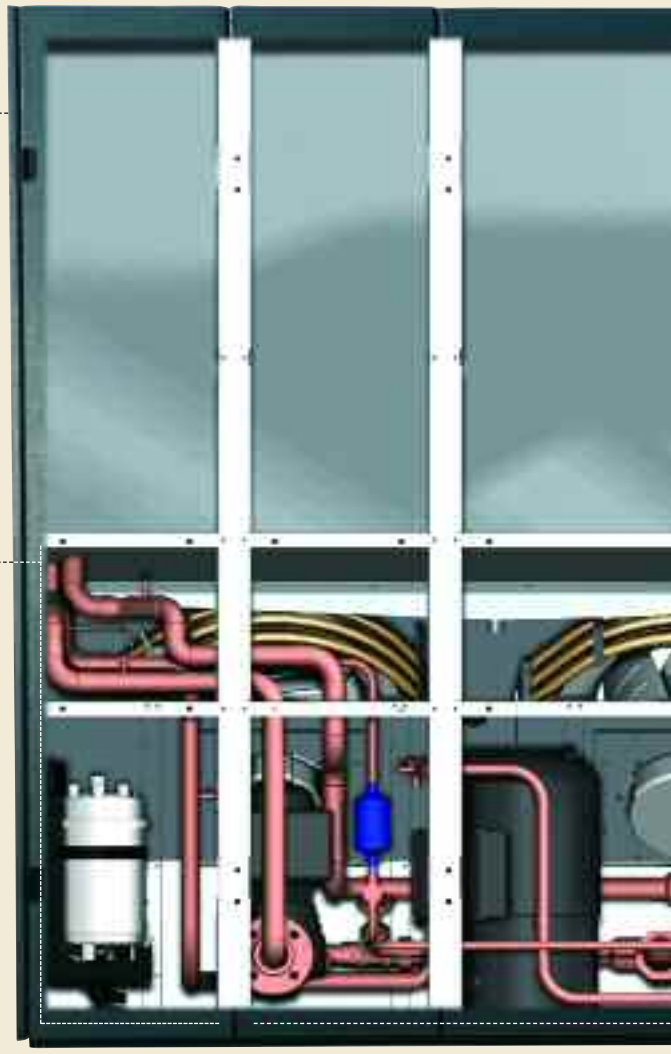


Mechanical and general options

- Special paint finishes
- Raised floor stand
- Dampers
- Flexible duct connection
- Fresh air connection
- High efficiency filter EU5
- Exhaust chamber
- Intake plenums for upflow units
- Sound attenuators
- Double skin panels and doors
- Condensate pump

Humidifier options

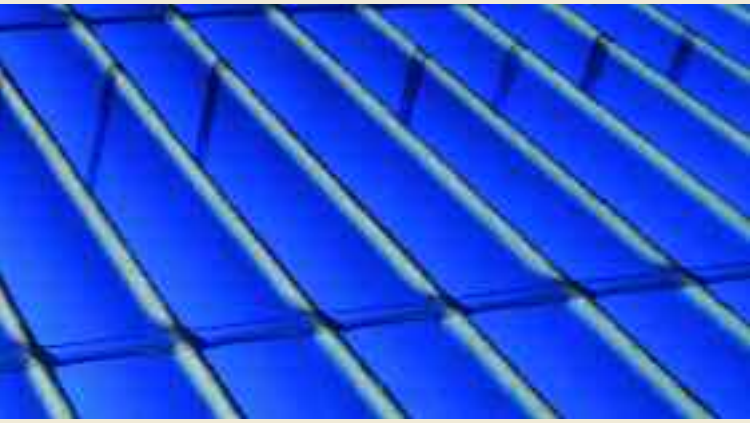
- Electrode Boiler Humidifier
- Control of remote STULZ BNB humidifier

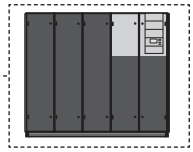


Option temperature sensor for room monitoring

Option humidifier

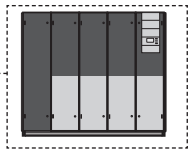
Optional EU5 zig-zag air filter





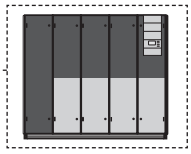
Control options

- Fire detector
- Smoke detector
- Emergency fire shut-down
- Water detector
- Manual override
- Automatic control of Dampers
- Phase monitoring
- Remote on/off control
- Special voltages



Cooling options

- Capacity control with electronic suction valve or hot gas bypass
- 2-way valve
- Microprocessor controlled 2- or 3-way valve head pressure control



Heating options

- Electric heating, 1 to 3 stages or proportional
- Hot gas reheat
- Hot water reheat

Options for condensators (air cooled)

- Electric fan speed control
- Winter operation down to minus 45 °C
- Coil corrosion protection

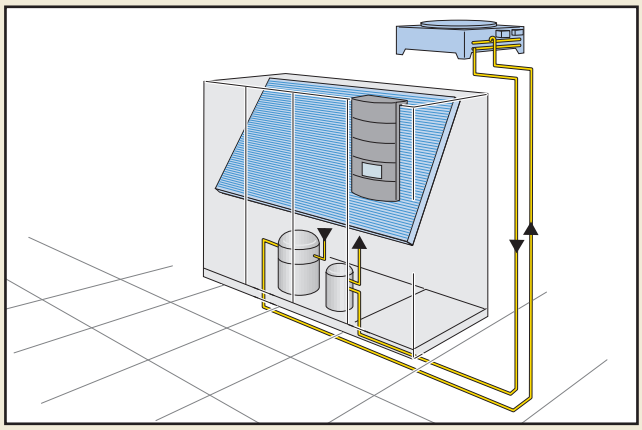
8 cooling systems: The perfect solution for every requirement

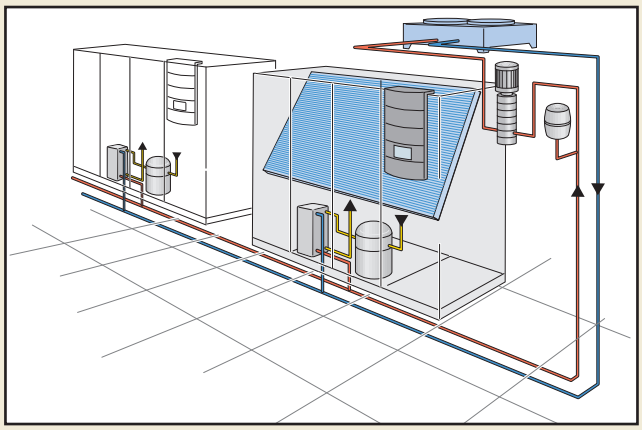
A-System
The air-cooled (A) direct expansion (DX) system uses refrigerant as the heat transfer medium. Room air re-circulates through the internally mounted CyberAir unit which houses the evaporator coil, scroll compressor and refrigeration system. A remotely mounted air-cooled condenser is connected, by specialist installers, to the room unit via a sealed refrigeration circuit such that the absorbed room heat load can be rejected to atmosphere.

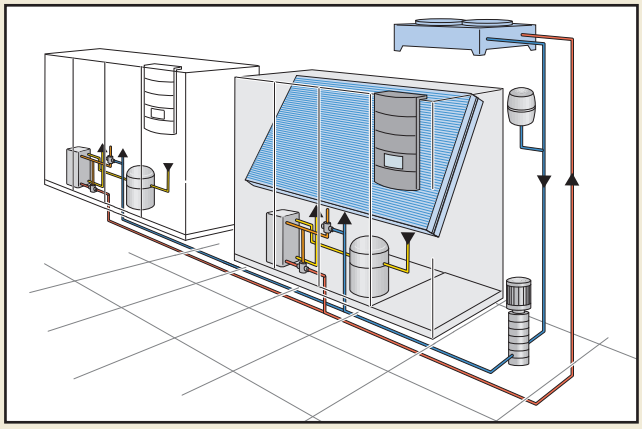
G-System
The glycol/water cooled (G) version utilises the same refrigeration system as the type-A CyberAir unit and room air re-circulates through an evaporator coil. However an internally mounted plate condenser is then used to transfer the room heat load to a glycol solution. This condenser water acts as a secondary heat transfer medium, which is then pumped to a remotely mounted air-cooled drycooler or cooling tower where the heat is finally rejected to atmosphere. Generally the condenser water system is in the form of a ring main connected in parallel to a number of stand-alone CyberAir units mounted in the critical space.

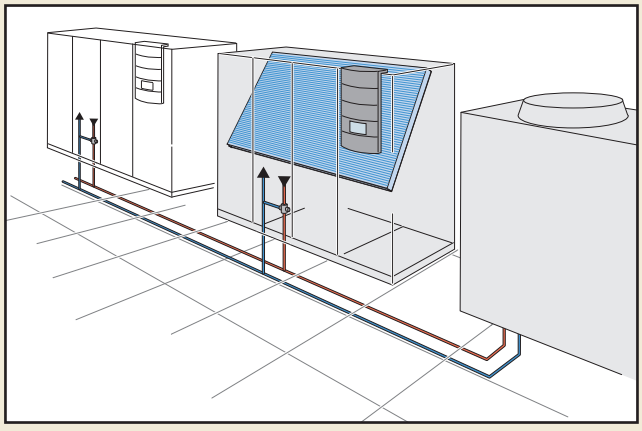
GE1-System
The type GE low energy free-cooling system operates in an identical way to the type G system in summer with heat exchange to a condenser water ring main with remotely mounted drycooler. However the CyberAir GE design incorporates an additional free-cooling coil in parallel to the evaporator. Through an ingenious system of valves controlled by the STULZ C7000, all of the room heat load can be absorbed by the GE coil in low ambient temperatures. In the intermediate seasons, when the ambient temperature falls below the required room condition, the GE coil provides pre-cooling to reduce compressor run time. As compressors account for around 80 % of the CyberAir's energy input, the GE system significantly reduces running costs.

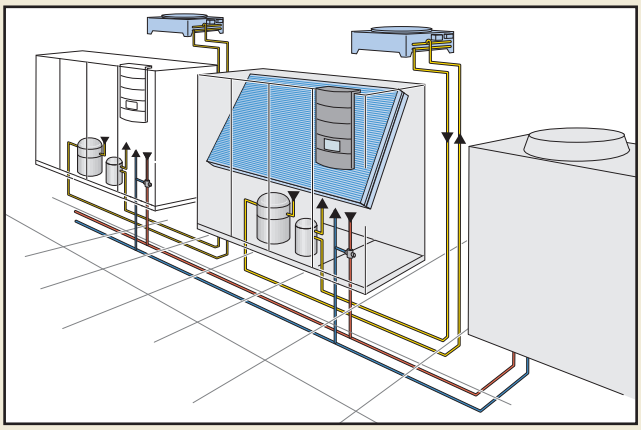
CW-System
When a central chilled water system, such as the STULZ CyberCool, is the appropriate method of heat rejection, CyberAir units are available in a packaged fan-coil design. Room air is recirculated through the CyberAir cooling coil, which transfers the heat load directly into the chilled water ring main. Water flow rate is regulated by a 2 or 3-way chilled water valve, controlled by the C7000, to precisely maintain conditions in the critical space.


A-System


G-System

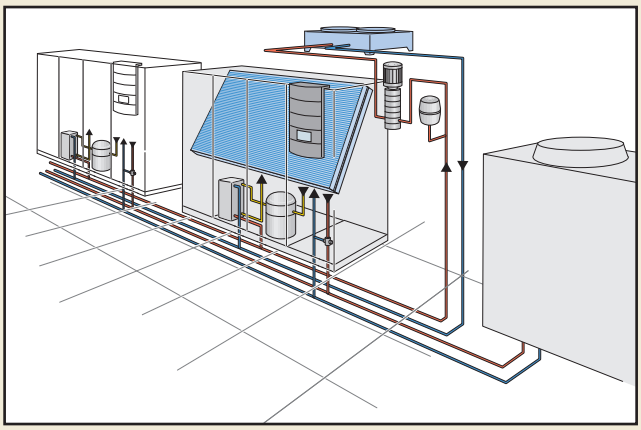

GE1-System


CW-System



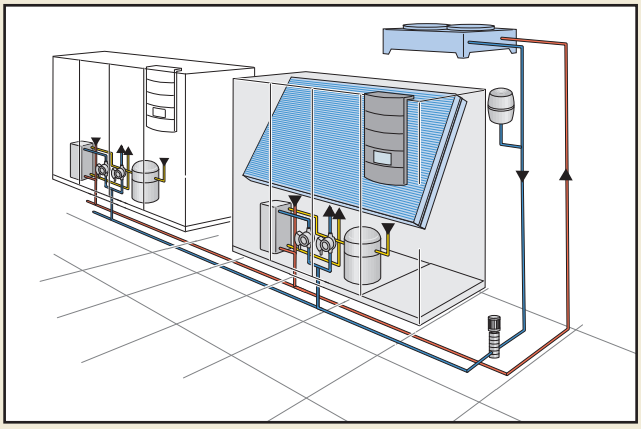
ACW-System

ACW-System
The ACW CyberAir system is a combination of both the "A" and "CW" systems with two cooling coils. The C7000 manages the ACW system to allow the air cooled "A" system to operate as standby to the "CW" chilled water system or vice versa to give added security and back up to the computer room.



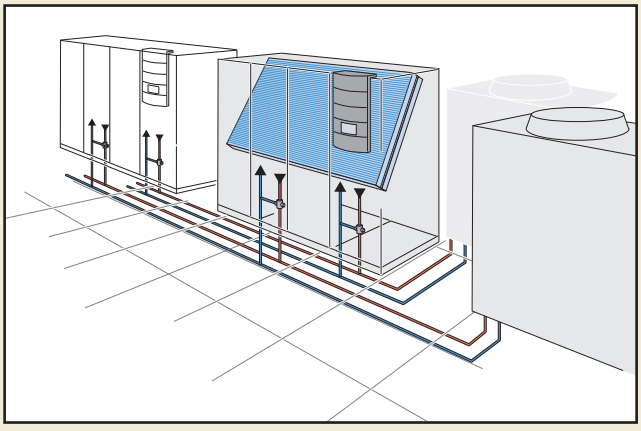
GCW-System

GCW-System
The GCW CyberAir system is a combination of both the "G" and "CW" systems with two cooling coils. The C7000 manages the GCW system to allow the glycol cooled or condenser water "G" system to operate as standby to the "CW" chilled water system or vice versa to give added security and back up to the computer room.



GE2-System

GE2-System
The GE2 system is a Freecool system similar to the GE1 system using outdoor air in winter to cool glycol and save running the compressors. With GE2 the C7000 controls inverter driven variable speed pumps instead of the system of valves saving even more energy by efficient pumping of the glycol with a lower pressure drop. A small external pump covers the remaining pressure drop of the pipework and the drycooler.



CW2-System

CW2-System
The CyberAir unit in CW2 has two independent cooling coils and control valves and can take chilled water from two independent systems. The system can provide added back up and security. A typical application is to use the central building chilled water system as the primary chilled water source with a STULZ CyberCool chiller as the secondary chilled water source to operate when the central system is not available for example at weekends or overnight.

Technical specifications
CyberAir

DX and Dualfluid-Units, single circuit (1 compressor)											
ASD/ASU xxx A/G/GE1/ACW/GCW			**171**	**201**	**241**	**301**	**351**	**431**	**521**	**661**	**791**
DX-Cooling capacity (total)[1]		kW	18.0	20.8	25.8	31.5	36.0	45.0	53.2	70.8	85.7
DX-Cooling capacity (sensible)[1]		kW	18.0	20.8	24.5	29.9	34.2	45.0	49.5	64.4	71.9
CW-Cooling capacity (total)[2]		kW	19.5	22.4	26.8	33.1	38.6	51.2	56.0	75.5	78.6
CW-Cooling capacity (sensible)[2]		kW	18.0	20.6	24.4	30.0	34.7	45.6	49.5	66.3	69.0
Airflow		m³/h	5,200	6,000	7,200	8,500	9,900	12,800	14,000	19,000	20,000
Compressor absorbed power		kW	3.7	4.2	5.3	6.4	7.2	9.2	11.0	14.6	18.3
A,G-System Down	Max. av. ESP	Pa	700	610	420	260	310	460	340	280	190
	Noise Level[3]	dBA	46.2	49.3	53.2	51.8	55.5	54.1	56.0	57.4	58.9
	Fan absorbed power	kW	0.5	0.8	1.3	1.2	1.9	2.3	3.0	4.1	4.7
A,G-System Upflow	Max. av. ESP	Pa	660	560	350	250	290	280	180	260	160
	Noise Level[3]	dBA	48.5	50.8	53.8	52.7	55.7	51.7	53.2	58.0	58.9
	Fan absorbed power	kW	0.6	1.0	1.6	1.3	2.1	2.4	3.1	4.5	5.2
GE1,ACW,GCW Down	Max. av. ESP	Pa	640	530	300	440	200	410	290	180	80
	Noise Level[3]	dBA	47.1	50.1	53.9	52.4	55.7	54.5	56.4	57.8	58.9
	Fan absorbed power	kW	0.6	1.0	1.6	1.5	2.3	2.6	3.4	4.8	5.6
GE1,ACW,GCW Upflow	Max. av. ESP	Pa	610	480	240	420	180	210	340	160	50
	Noise Level[3]	dBA	49.4	51.7	54.7	53.3	55.9	53.3	55.0	58.3	59.2
	Fan absorbed power	kW	0.8	1.2	1.9	1.6	2.5	2.9	3.7	5.2	6.0
Size			**1**	**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**

DX and Dualfluid-Units, double circuit (2 compressors)											
ASD/ASU xxx A/G/GE1/ACW/GCW			**222**	**272**	**332**	**442**	**482**	**602**	**692**	**852**	**1052**
DX-Cooling capacity (total)[1]		kW	23.2	29.7	34.9	46.3	51.5	63.8	72.2	87.3	104.3
DX-Cooling capacity (sensible)[1]		kW	23.2	29.7	34.9	42.9	47.9	60.2	66.3	76.7	88.7
CW-Cooling capacity (total)[2]		kW	25.5	35.5	38.6	47.6	54.0	68.6	75.1	88.9	97.8
CW-Cooling capacity (sensible)[2]		kW	23.0	32.0	34.7	42.6	47.9	60.8	66.0	76.3	84.4
Airflow		m³/h	6,600	9,100	9,900	11,900	13,500	17,300	18,900	21,000	24,000
Compressor absorbed power		kW	4.6	5.6	7.2	9.6	10.6	12.8	14.4	18.4	22.0
A,G-System Down	Max. av. ESP	Pa	520	170	310	530	390	160	290	420	200
	Noise Level[3]	dBA	51.3	53.3	55.5	52.6	55.3	55.1	57.3	56.5	59.4
	Fan absorbed power	kW	1.0	1.4	1.9	1.9	2.7	3.0	4.0	4.0	5.9
A,G-System Upflow	Max. av. ESP	Pa	470	150	290	340	220	140	260	270	350
	Noise Level[3]	dBA	52.4	53.9	55.7	50.6	52.6	56.1	57.9	54.2	56.6
	Fan absorbed power	kW	1.2	1.6	2.1	2.0	2.8	3.4	4.4	3.8	5.5
GE1,ACW,GCW Down	Max. av. ESP	Pa	420	80	200	490	340	340	190	330	90
	Noise Level[3]	dBA	52.1	53.6	55.7	52.9	55.6	55.8	57.7	57.1	60.0
	Fan absorbed power	kW	1.3	1.8	2.3	2.1	3.0	3.6	4.7	4.7	6.9
GE1,ACW,GCW Upflow	Max. av. ESP	Pa	370	60	180	280	380	320	170	430	250
	Noise Level[3]	dBA	53.3	54.2	55.9	52.1	54.4	56.7	58.2	55.5	57.7
	Fan absorbed power	kW	1.5	1.9	2.5	2.3	3.3	4.0	5.1	4.6	6.7
Size			**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**

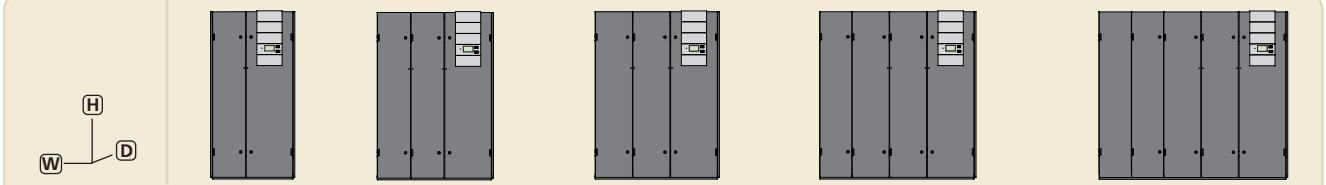
Note: All data valid for 400V/3ph/50Hz with 20Pa ESP (external static pressure) at downflow units and 50Pa ESP at upflow units

[1] Evaporator capacity for A,G,GE,ACW,GCW-Units ; Return air: 24 °C, 50 % r. H.

[2] CW-coil capacity for ACW,GCW-Units ; Return air: 24 °C, 50 % r. H. ; Water temperature: 7 °C/12 °C

[3] Sound Pressure level at 2 m distance, free field

Dimensions / Weight / No of fans						
Size		**1**	**2**	**3**	**4**	**5**
Width	mm	1,000	1,400	1,750	2,150	2,550
Height	mm	1,980	1,980	1,980	1,980	1,980
Depth	mm	890	890	890	890	890
Weight A/ACW (max. per size)	kg	406/451	484/534	710/765	786/846	923/988
Weight G/GCW, GE1, GE2 (max. per size)	kg	435/465	545/580	780/820	885/958	1,035/1,094
No of fans		1	1	2	2	3



Dimensions, mm	W 1000/H 1980/D 890	W 1400/H 1980/D 890	W 1750/H 1980/D 890	W 2150/H 1980/D 890	W 2550/H 1980/D 890

Technical specifications
CyberAir

LowNoise DX and Dualfluid-Units, single circuit (1 compressor)											
ALD/ALU xxx A/G/GE2			**171**	**201**	**241**	**301**	**351**	**431**	**521**	**661**	**791**
DX-Cooling capacity (total)[1]		kW	18.1	21.0	26.3	32.5	36.3	45.1	54.8	70.7	85.9
DX-Cooling capacity (sensible)[1]		kW	17.9	21.0	24.8	30.9	35.9	45.1	49.6	64.2	73.7
CW-Cooling capacity (total)[2]		kW	18.8	21.8	26.5	32.4	37.5	46.3	53.4	75.0	87.4
CW-Cooling capacity (sensible)[2]		kW	17.5	20.3	24.4	29.9	34.4	42.8	48.1	65.4	73.7
Airflow		m³/h	4,900	5,800	6,900	8,500	9,900	12,500	13,500	17,700	19,600
Compressor absorbed power		kW	3.7	4.2	5.3	6.4	7.2	9.2	11.0	14.6	18.3
A,G-System Down	Max. av. ESP	Pa	590	540	450	730	670	460	410	590	500
	Noise Level[3]	dBA	40.1	43.6	47.3	45.5	48.7	48.1	49.7	52.8	55.0
	Fan absorbed power	kW	0.2	0.4	0.6	0.7	1.1	1.2	1.5	2.4	3.3
A,G-System Upflow	Max. av. ESP	Pa	580	530	440	520	450	450	400	640	570
	Noise Level[3]	dBA	43.6	46.2	49.1	45.4	47.7	50.7	52.0	51.6	53.3
	Fan absorbed power	kW	0.3	0.5	0.8	0.8	1.2	1.4	1.7	2.4	3.2
GE2 Down	Max. av. ESP	Pa	560	500	400	710	640	420	360	530	420
	Noise Level[3]	dBA	40.4	43.9	47.6	45.9	49.1	48.6	50.2	53.5	55.6
	Fan absorbed power	kW	0.3	0.5	0.8	0.8	1.2	1.4	1.7	2.8	3.8
GE2 Upflow	Max. av. ESP	Pa	550	490	380	490	410	410	350	590	500
	Noise Level[3]	dBA	44.1	46.7	49.5	47.0	49.3	51.2	52.4	52.7	54.3
	Fan absorbed power	kW	0.4	0.6	0.9	1.0	1.4	1.6	2.0	2.9	3.8
Size			**2**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**

LowNoise DX and Dualfluid-Units, double circuit (2 compressors)											
ALD/ALU xxx A/G/GE2			**222**	**272**	**332**	**442**	**482**	**602**	**692**		
DX-Cooling capacity (total)[1]		kW	23.4	29.8	35.6	46.9	53.3	63.6	72.9		
DX-Cooling capacity (sensible)[1]		kW	23.4	29.8	35.3	43.0	48.2	60.3	66.4		
CW-Cooling capacity (total)[2]		kW	24.4	31.5	36.6	45.9	51.7	69.9	77.4		
CW-Cooling capacity (sensible)[2]		kW	22.8	29.9	33.6	41.7	46.7	62.0	67.5		
Airflow		m³/h	6,600	8,800	9,700	11,700	13,100	17,100	18,400		
Compressor absorbed power		kW	4.6	5.6	7.2	9.6	10.6	12.8	14.4		
A,G-System Down	Max. av. ESP	Pa	480	720	680	500	430	620	560		
	Noise Level[3]	dBA	46.4	46.2	48.2	46.7	49.1	52.0	53.6		
	Fan absorbed power	kW	0.6	0.8	1.1	1.0	1.3	2.2	2.7		
A,G-System Upflow	Max. av. ESP	Pa	470	510	460	490	420	430	380		
	Noise Level[3]	dBA	48.4	45.9	47.4	49.6	51.5	50.9	52.0		
	Fan absorbed power	kW	0.7	0.9	1.2	1.2	1.6	2.2	2.6		
GE2 Down	Max. av. ESP	Pa	430	700	650	460	390	560	490		
	Noise Level[3]	dBA	46.7	46.6	48.6	46.9	49.6	52.7	54.3		
	Fan absorbed power	kW	0.7	0.9	1.2	1.2	1.6	2.6	3.2		
GE2 Upflow	Max. av. ESP	Pa	420	470	420	450	380	610	560		
	Noise Level[3]	dBA	48.8	47.5	48.9	50.1	51.9	52.2	53.3		
	Fan absorbed power	kW	0.8	1.0	1.3	1.4	1.8	2.6	3.2		
Size			**2**	**3**	**3**	**4**	**4**	**5**	**5**		

Note: All data valid for 400V/3ph/50Hz with 20Pa ESP (external static pressure) at downflow units and 50Pa ESP at upflow units

[1] Evaporator capacity for A,G,GE-Units ; Return air: 24 °C, 50 % r. H.

[2] CW-coil capacity for GE2-Units ; Return air: 24 °C, 50 % r. H. ; Water inlet temperature: 7 °C

[3] Sound Pressure level at 2 m distance, free field

Humidifer capacity and el. heating capacity						
Size		**1**	**2**	**3**	**4**	**5**
Humidifier capacity	kg/h	5	8	8	8	15
max. no. of heating steps		3	3	3	3	3
Heating capacity Step 1	kW	4/9	4/9	4/9	4/9	4/9
Heating capacity Step 2	kW	4	4	4/9	4/9	4/9
Heating capacity Step 3	kW	4	4	4	4	4/9
max. total heating capacity	kW	12	12	18	18	27

Technical data subject to change without notice.

Technical specifications
CyberAir CW

CW-Units (1 chilled water circuit)												
ASD/ASU xxx CW			**300**	**400**	**500**	**660**	**740**	**900**	**960**	**1100**	**1200**	**1500**
CW-Cooling capacity (total)[2]		kW	30.1	38.8	54.1	68.1	75.5	89.8	101.8[4]	114.7[4]	121.0[4]	146.2[4]
CW-Cooling capacity (sensible)[2]		kW	25.6	33.1	43.0	54.9	63.9	75.7	82.0[4]	92.6[4]	99.0[4]	120.1[4]
Airflow		m³/h	6,500	8,500	10,000	13,000	16,000	19,000	19,500	22,000	24,000	29,000
CW-System Down	Max. av. ESP	Pa	420	140	670	450	410	140	330	70	410	110
	Noise Level[3]	dBA	46.0	51.6	48.8	54.5	54.5	58.2	62.2	64.8	61.2	65.1
	Fan absorbed power	kW	0.7	1.6	1.1	2.4	3.1	5.1	3.6	5.2	4.6	8.0
CW-System Upflow	Max. av. ESP	Pa	400	370	650	430	400	120	330	60	370	120
	Noise Level[3]	dBA	48.5	53.1	50.7	55.0	55.8	58.6	62.4	65.0	62.3	65.4
	Fan absorbed power	kW	0.8	1.8	1.3	2.7	3.4	5.5	3.9	5.5	5.4	8.3
Size			**1**	**1**	**2**	**2**	**3**	**3**	**4**	**4**	**5**	**5**

CW2-Units (2 chilled water circuits)							
ASD/ASU xxx CW2			**330**	**560**	**650**	**950**	**1200**
CW-Cooling capacity (total)[2]		kW	26.0	48.8	62.7	78.6	103.0
CW-Cooling capacity (sensible)[2]		kW	24.0	43.5	55.1	69.0	89.3
Airflow		m³/h	7,500	13,000	16,000	20,000	26,000
CW2-System Down	Max. av. ESP	Pa	410	360	240	100	220
	Noise Level[3]	dBA	51.4	55.4	56.4	58.8	58.1
	Fan absorbed power	kW	1.5	2.9	4.3	5.4	6.8
CW2-System Upflow	Max. av. ESP	Pa	260	300	190	90	210
	Noise Level[3]	dBA	54.9	56.3	57.2	61.7	58.5
	Fan absorbed power	kW	1.9	3.4	4.9	5.7	7.2
Size			**1**	**2**	**3**	**4**	**5**

Note: All data valid for 400V/3ph/50Hz with 20Pa ESP (external static pressure) at downflow units and 50Pa ESP at upflow units

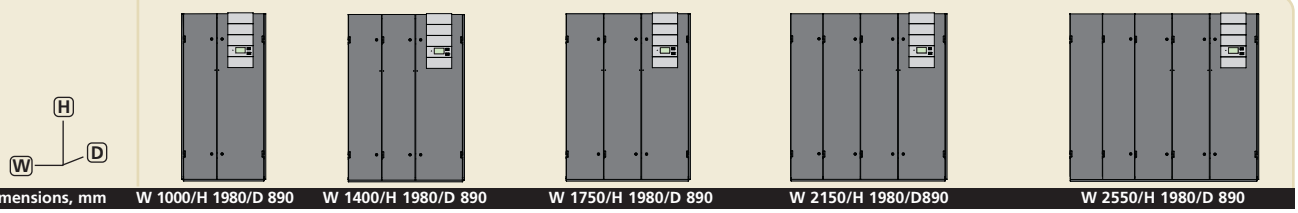
[2] CW-coil capacity for CW,CW2-Units ; Return air: 24 °C, 50 % r. H. ; Water temperature: 7 °C/12 °C

[3] Sound Pressure level at 2 m distance, free field

[4] Indicated data for downflow units. Cooling capacity for upflow units is approx. 10 % less. For details see StulzSelect.

Humidifer capacity and el. heating capacity							
Size		**1**	**2**	**3**	**4**	**5**
Humidifier capacity	kg/h	5	8	8	8	15
Max. no. of heating steps		3	3	3	3	3
Heating capacity Step 1	kW	4/9	4/9	4/9	4/9	4/9
Heating capacity Step 2	kW	4	4/9	4/9	4/9	4/9
Heating capacity Step 3	kW	4	4	4	4	4/9
Max. total heating capacity	kW	12	18	18	18	27

Dimensions / Weight / No of fans						
Size		**1**	**2**	**3**	**4**	**5**
Width	mm	1,000	1,400	1,750	2,150	2,550
Height	mm	1,980	1,980	1,980	1,980	1,980
Depth	mm	890	890	890	890	890
Weight CW/CW2 (max. per size)	kg	307/357	362/442	547/577	568/608	755/795
No of fans		1	2	2	2	3



Dimensions, mm	W 1000/H 1980/D 890	W 1400/H 1980/D 890	W 1750/H 1980/D 890	W 2150/H 1980/D890	W 2550/H 1980/D 890

Technical data subject to change without notice.

You can trust STULZ
Competency in consultation and planning

- **Expert advice and planning support**
- **Rapid installation and commissioning**
- **Customer service without delay**
- **Professional documentation**

Early planning support and expert advice sets the course for achieving the best possible project solution. STULZ is renowned for its dependable applications advice, with 35 years of experience in air conditioning technology. Through load calculations and energy analysis for CyberAir STULZ can assist the planning engineer and system designer with project development.

Rapid installation and commissioning

CyberAir units are of a compact design that is factory assembled and pre-wired to offer a fully packaged solution ready for connection to power and water services.
This ensures a rapid and uncomplicated installation for the Contractor and very straightforward commissioning. The EC fan can easily be adjusted on site to precisely match the required local operating conditions. In addition, STULZ specialists are happy to assist with commissioning, testing and certification.

Professional documentation

To assist the planning engineer and system designer from tender submission to project completion, STULZ provides professional documentation in form of technical manuals, planning software and layout drawings.

Customer service without delay

CyberAir units are manufactured from high-quality materials and components that have been checked and repeatedly tested during production. In the unlikely event of a fault, STULZ customer service is available at all times to ensure the continuous availability of the system.

STULZ air conditioning technology
Creating value – implementing visions

Competency

» Trend-setting in air conditioning technology
» International specialist know-how
» Innovations as client benefit

Reliability

» Quality which keeps its promise
» Promises which are reliable
» Customer proximity, providing safety

Globality

» Global cooperation
» International production location
» Global distribution and service network

Responsibility

» Forward-looking thought and action
» Responsibility for people – safety for technology
» Environmentally aware development – preserving resources

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