STULZ

CLIMATE. CUSTOMIZED.

CyberCool Explorer WS

Air-cooled screw chillers with Free Cooling for a cooling capacity of 280 to 1,860 kW

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, Liquid Cooling solutions, 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 24 subsidiaries, one software development company and ten 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.**

The best solution for mission-critical IT applications. Highly efficient. Environmentally sustainable. Reliable.

CyberCool Explorer WS chillers are specifically designed to meet the cooling needs of data centers. These units are ideal for a range of cooling capacity from 280 to 1,860 kW. The units are designed to operate at very high water temperatures, up to + 32 °C at the inlet and + 25 °C at the outlet. Thanks to this, the integrated Free Cooling can operate for most of the year, ensuring exceptional energy savings.

SEC.blue controller, engineered by STULZ, offers advanced temperature control, energy savings and connectivity functions.

WSA and WSI versions

CyberCool Explorer WS chillers are available as standard units (WSA) and with inverter-driven screw compressors (WSI). Both versions are optimized for low GWP eco-friendly refrigerants (WSA: R513A and R1234ze, WSI: R1234ze).

Maximum reliability

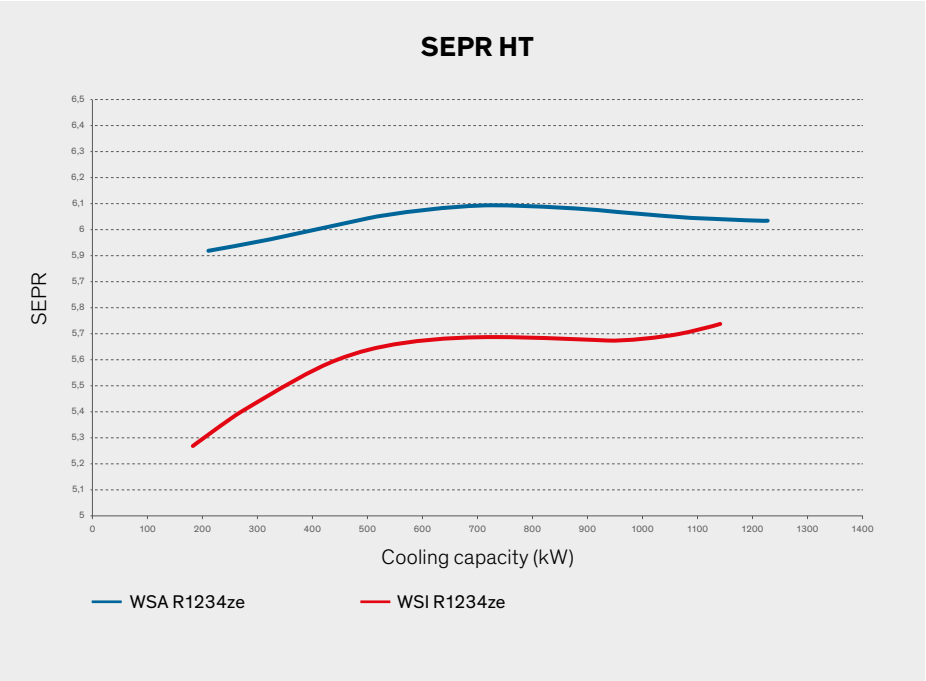
CyberCool Explorer WS units are designed for reliable 24/7 operation, 365 days a year. Continuity and reliability of cooling are key factors, ensured by a comprehensive range of options and features that maximize uptime in the event of an emergency, such as Quick Start, Automatic Transfer Switch and Emergency Cooling.

Energy efficiency

CyberCool Explorer WS units are designed for maximum efficiency in both peak and part load conditions and are ErP2021 - SEPR HT (EU) 2016/2281 compliant.

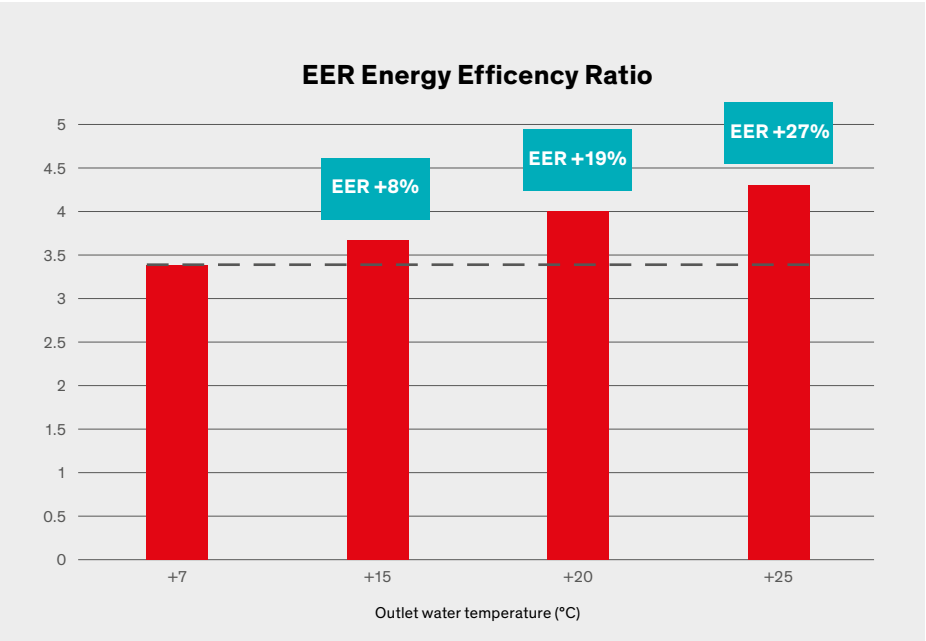
This is achieved by:

- **Increased heat exchange surface area** of evaporators and microchannel condensers
- **Economizer heat exchangers**
- **Inverter technology** on the compressor, **EC fans** and **VSD pumps**
- Maximized **Free Cooling coils**, which use outside air as the primary cooling source, allowing pure Free Cooling operation even around +10 °C.



Optimized for IT applications

With maximum water temperatures of +32 °C inlet and +25 °C outlet, the unit offers a high capacity/footprint ratio and EER efficiency. This results in improved unit CAPEX and OPEX.

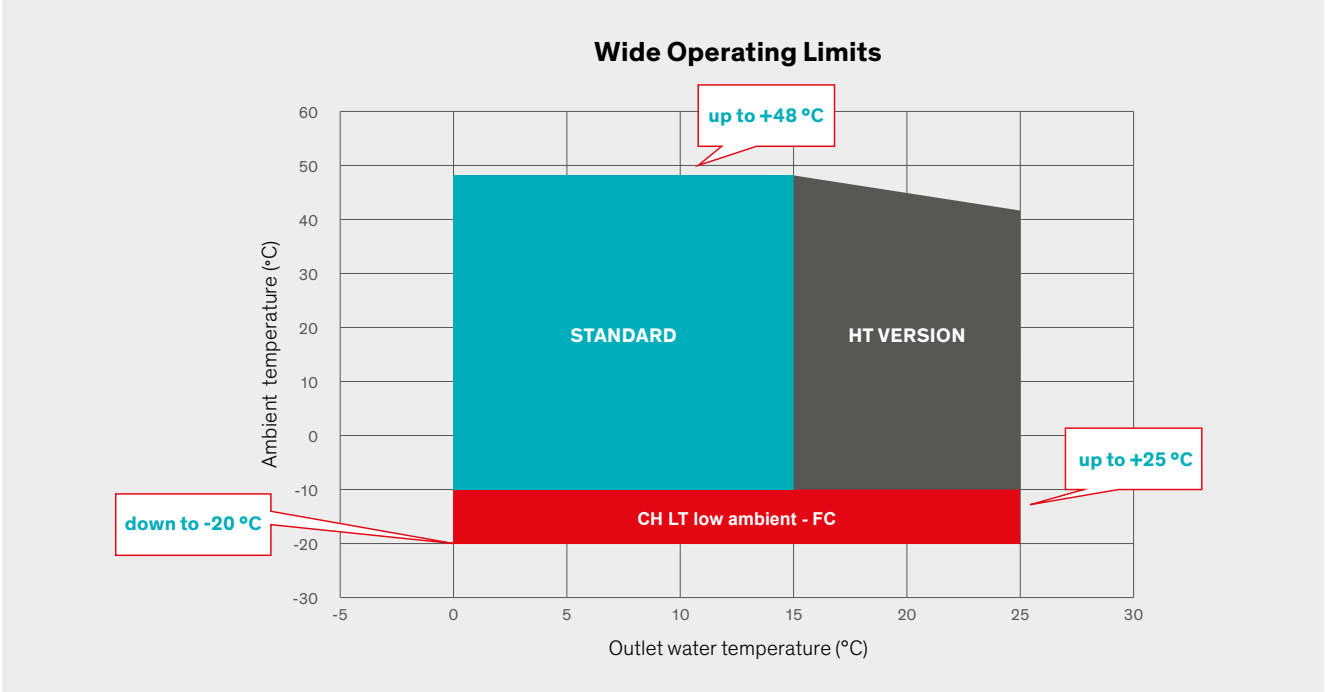


Extended operating limits

Thanks to specific versions and accessories, CyberCool Explorer WS can be installed in very cold and hot climates worldwide.

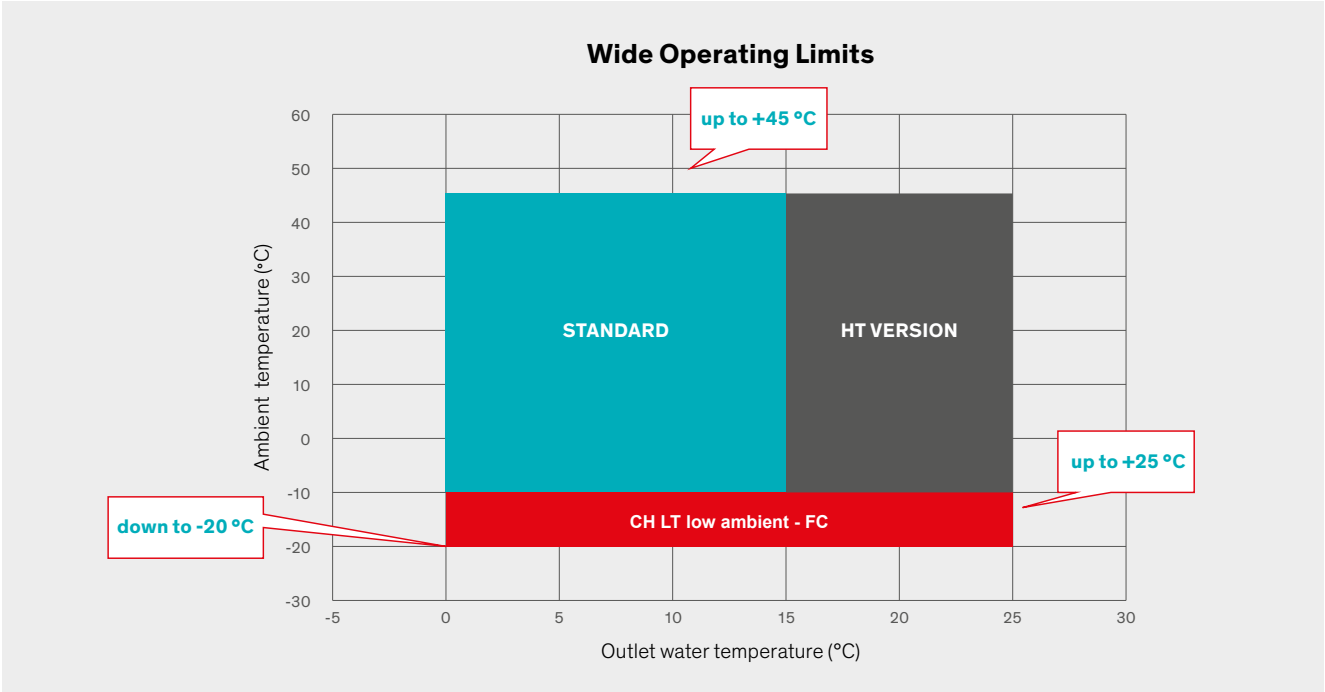
WSA (R513A, R1234ze)

With WSA units, full-load operation is guaranteed from -20 °C up to +48 °C outside air temperature for standard and Free Cooling versions. A Free Cooling version suitable for operation down to -40 °C is also available.



WSI (R1234ze)

With the WSI units, full-load operation is guaranteed from -20 °C up to +45 °C outside air temperature for standard and Free Cooling versions.



Core Technologies

SYSTEM SUPERVISION AND OPTIMIZATION

The programmable microprocessor control SEC.blue optimizes the entire system and features an advanced touch display. It can be easily connected to common BMS protocols, enabling remote supervision.

ROBUST AND RESISTANT TO ATMOSPHERIC AGENTS

The structure is designed to ensure **total resistance to weathering and corrosion.** The electrical panel features a standard IP44 (optional IP54) degree of protection **suitable for outdoor installation**.

ENERGY SAVINGS THANKS TO MAXIMIZED FREE COOLING COILS

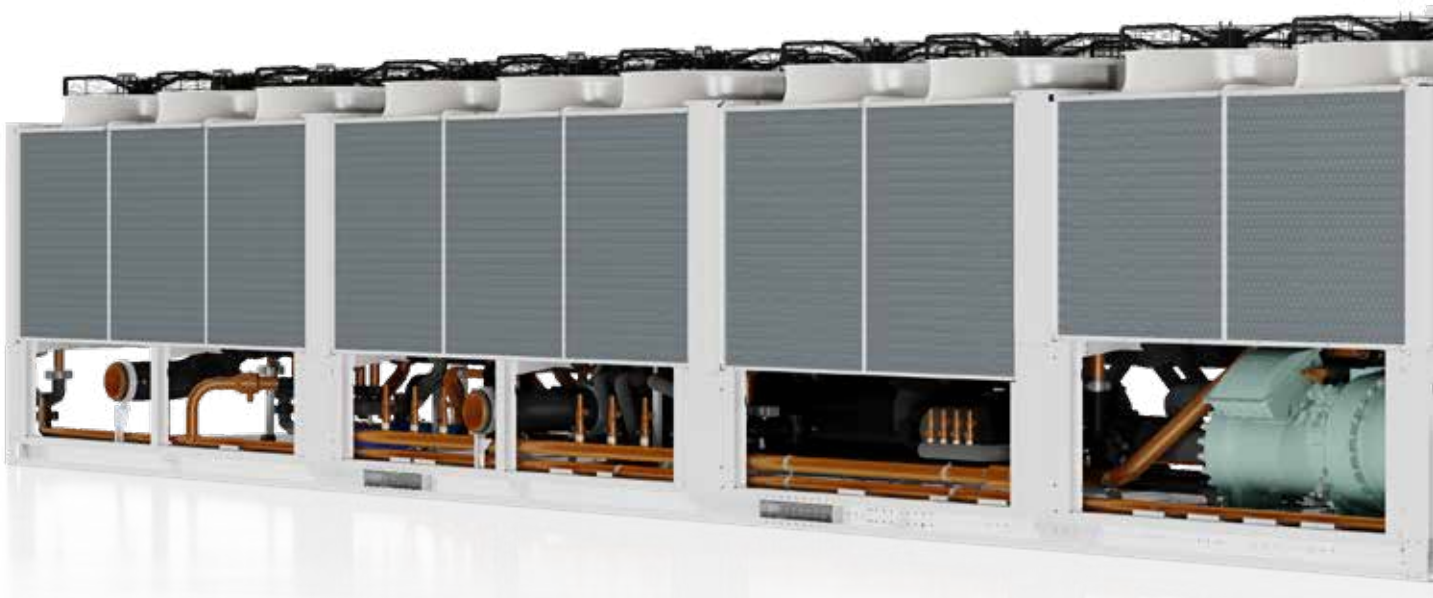
CyberCool Explorer WS units with Free Cooling feature Free Cooling fin coils that are strategically installed in series in front of the microchannel condensers, without affecting the size of the unit. The large surface area of the Free Cooling coils ensures early switchover to efficient Mixed and Free Cooling mode, effectively minimizing compressor runtime and significantly boosting energy savings.

HIGH PERFORMANCE SCREW COMPRESSORS

WSA units: screw compressor in stepless configuration, which adapts its capacity precisely and continuously to changes in the system's heat load.
WSI units: screw compressor with integrated frequency converter, which ensures maximum efficiency at part loads and extensive modulation of cooling capacity.

OPTIMIZED REFRIGERANT CIRCUIT

EEV: the electronic expansion valve optimizes the operation of the refrigerant circuit and extends the operating range of the unit.
Sub-cooling Economizer: this exchanger increases the sub-cooling in each circuit and therefore also the cooling capacity, all with the same energy consumption.



HIGH EFFICENCY MCHE CONDENSERS & REDUCED REFRIGERANT CHARGE

To maximize air-gas coolant heat exchange efficiency the units are equipped with MCHE exchangers made of long-life aluminum, with a 'W' or 'V' shaped longitudinal geometry. The microchannel technology allows the refrigerant charge to be reduced by between 20% and 30% compared to the traditional finned coil solution.

ENVIRONMENTALLY FRIENDLY & NON-TOXIC REFRIGERANTS

R513A: GWP = 573 (WSA/WSE/WSF units) non-flammable (Class A1).
R1234ze: HFO GWP = 7(WSA/WSE/WSF/WSI/WSJ units) mildly flammable (class A2L)

BUILT IN HYDRONIC MODULES

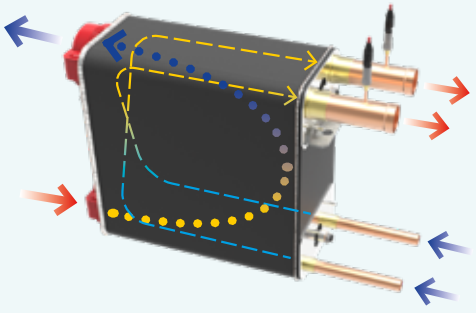
All units can be supplied with one or two P1 (1.5 bar) or P2 (2.5 bar) fixed speed or VSD pumps pre-assembled in the chiller's hydraulic circuit and equipped with upstream and downstream shutoff valves. The pumps are the centrifugal type, with ceramic, carbon or EPDM mechanical seals.

VARIABLE SPEED FANS

High-performance AC axial fans electronically controlled by standard phase-cut regulator for WSA units without Free Cooling.
High efficiency EC axial fans equipped with electronically commutated brushless motor with integrated temperature control and continuous speed modulation from 10% to 100%. Available for all units as standard and as an option for WSA units.

Depending on the model, CyberCool Explorer WS units are equipped with one or two refrigeration circuits.

Single-circuit units feature a brazed plate evaporator designed to maximize the heat exchange coefficient with minimal pressure drops.



Dual-circuit units are equipped with a **dry expansion single pass shell-and-tube evaporator**. Copper tubes are internally grooved to ensure high heat exchange and are inspectable for easy maintenance.

Both evaporator models are protected against freezing and have Victaulic® connections for quick installation.

SEC.blue Microprocessor Controller

Main features

- **Adaptation**
  Proprietary operating system with project specific software adaptation.
- **Sequencing**
  Sequencing management of up to 10 chillers in 5 different work zones and managed as a single unit, for maximum system efficiency.
- **Redundancy**
  If one of the sequenced chillers fails, a backup unit is automatically activated to ensure service continuity.
- **Emergency cooling**
  When cooling capacity of the active chiller in a defined work area is insufficient, the emergency cooling function activates the other chillers in sequence.
- **Monitoring**
  SEC.blue has an on-board Ethernet port for communication with the main Internet protocols and remote software update. It also features an RS485 port for communication via ModBus RTU and an integrated web page, with data log and alarm sending by e-mail.
- **Touch display**
  7" touch screen display for simple access to the chiller status and settings.
- **Measurement and display**
  Measurement and display of process fluid inlet/outlet temperatures and ambient temperature.
- **Demand limit function**
  Allows the power consumption to be limited.
- **Unloading function**
  To keep the unit running even at high ambient temperatures

The SEC.blue programmable microprocessor controller allows optimal operation of both the refrigeration and hydronic circuits. It is flexible and easy to use.

Suitable for every need

The wide range of configurations and numerous options available make the CyberCool Explorer WS the ideal solution to meet the diverse needs of critical infrastructures.

LN
Low Noise Version

For the quietest operation without compromising performance. Compressors are installed in a metal box, which is acoustically insulated with sound-absorbing foam rubber.

HT
High Temperature Version

Energy efficiency is a key parameter in data centers. This is achieved with cooling systems that operate at high water temperatures. The HT version is designed to cool **liquids from +15 °C to +25 °C** and includes:

- **special evaporator and expansion valves**
- **units with R513A refrigerant feature special compressors optimized for high temperature working conditions**

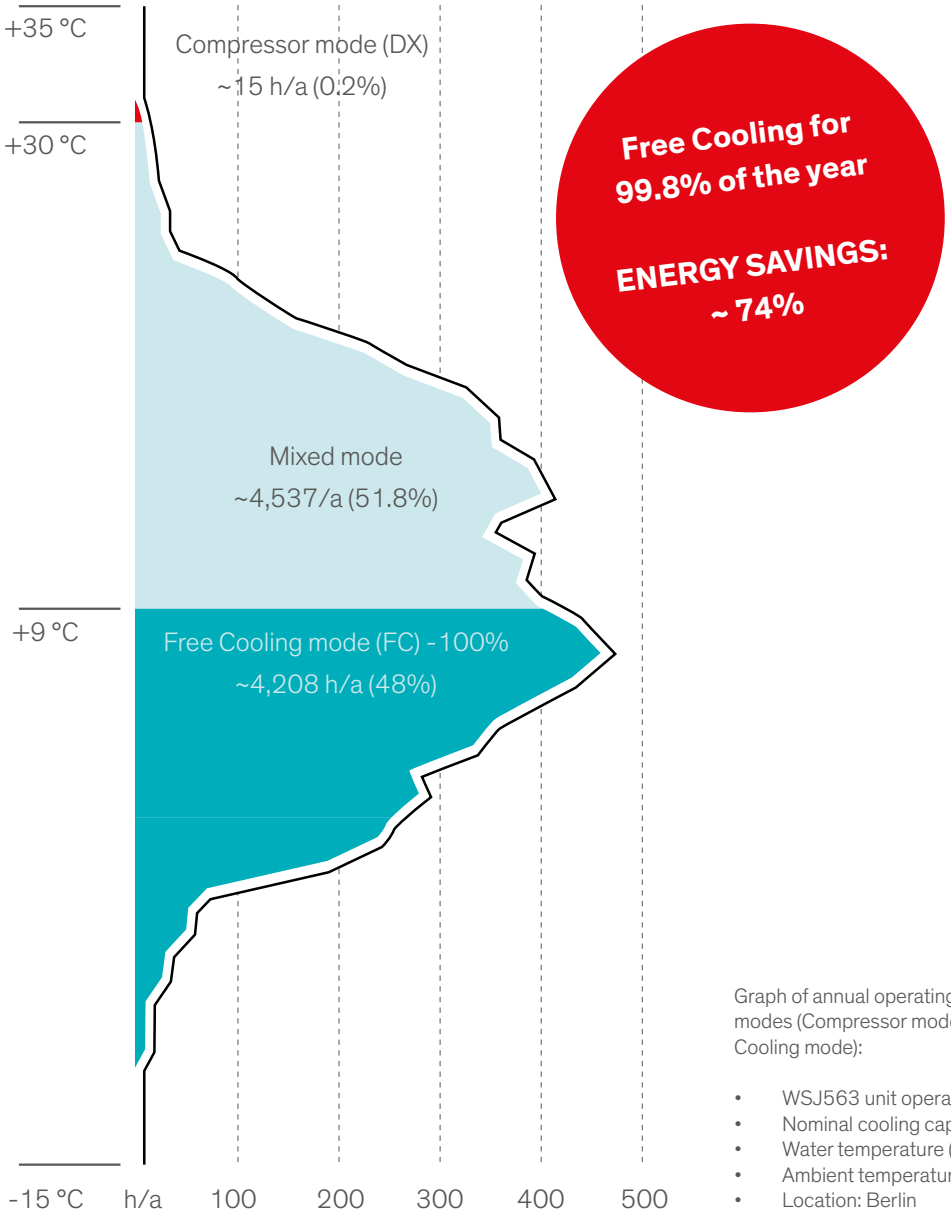
LT
Low Ambient Temperature Chiller Version

Suitable for cold climates, this version includes brushless EC fans and an insulated and heated compressor compartment as standard. The additional condensing pressure control system allows the chiller to operate in ambient temperatures as low as -20 °C.

Free Cooling

In data centers, where cooling demand is constant throughout the year, Free Cooling technology offers the greatest potential for energy savings, especially in cold and temperate climates.

Both WSA and WSI units offer Free Cooling and can operate in environments down to -20 °C (-40 °C available as an option) thanks to three different operating modes: Free Cooling mode, Mixed mode and Compressor mode (DX). These are automatically selected by the SEC.blue controller based on the ambient air and operating water temperatures. Sec.blue logic controls the water valves to maximize heat exchange with the environment in Free Cooling.

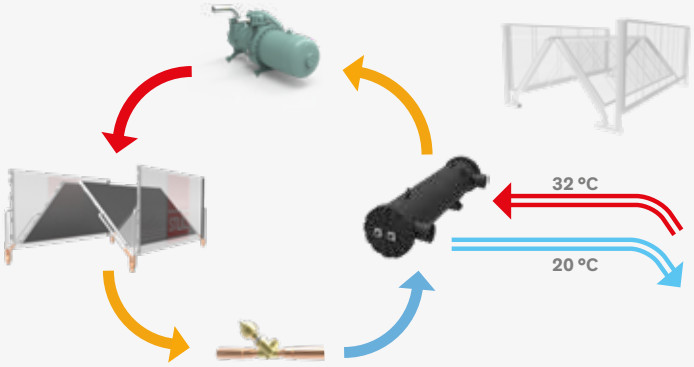


Graph of annual operating hours in different operating modes (Compressor mode (DX), Mixed mode, Free Cooling mode):

- WSJ563 unit operating 24H/365
- Nominal cooling capacity 1,646 kW
- Water temperature (in/out) 32 °C / 20 °C
- Ambient temperature + 35 °C
- Location: Berlin

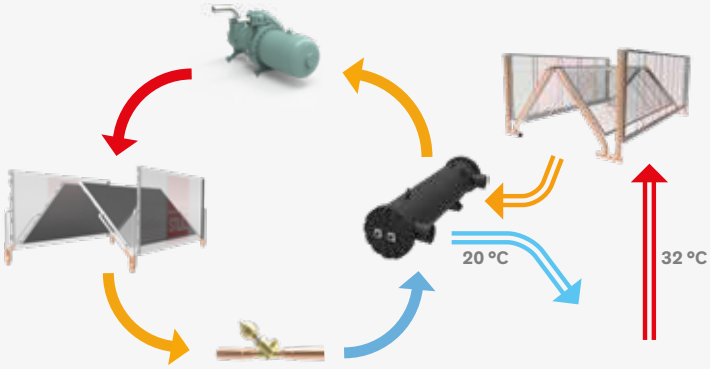
Compressor mode (DX)

When the ambient temperature is higher than the water inlet temperature, the Free Cooling circuit is excluded. The water is completely cooled by the compressors in the refrigerant circuits.



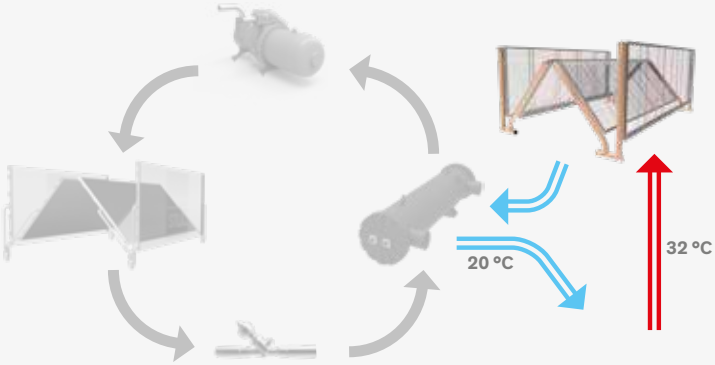
Mixed mode

When the ambient temperature falls below the inlet water temperature, the water is diverted through the Free Cooling exchangers, which provide part of the required cooling capacity. At this stage, the power absorbed by the compressors is reduced.



Free Cooling mode

When the ambient temperature is approximately 10K lower than the supply temperature, the Free Cooling circuit can provide all the cooling capacity required by the user. The compressors are switched off and only the fans are active. This significantly reduces energy consumption and minimizes running costs.



Free Cooling -40 °C

For particularly harsh applications in environments down to -40 °C, an optional configuration of the WSA with Free Cooling is available. This consists of: insulated and heated compressor compartment; electric heaters on the hydraulic circuit; components certified for operation down to -40 °C.

Full Inverter Versions

The WSI units with inverter-driven screw compressors are available with and without Free Cooling. The units combine the advantages of inverter technology with the benefits of the environmentally friendly HFO refrigerant R1234ze.

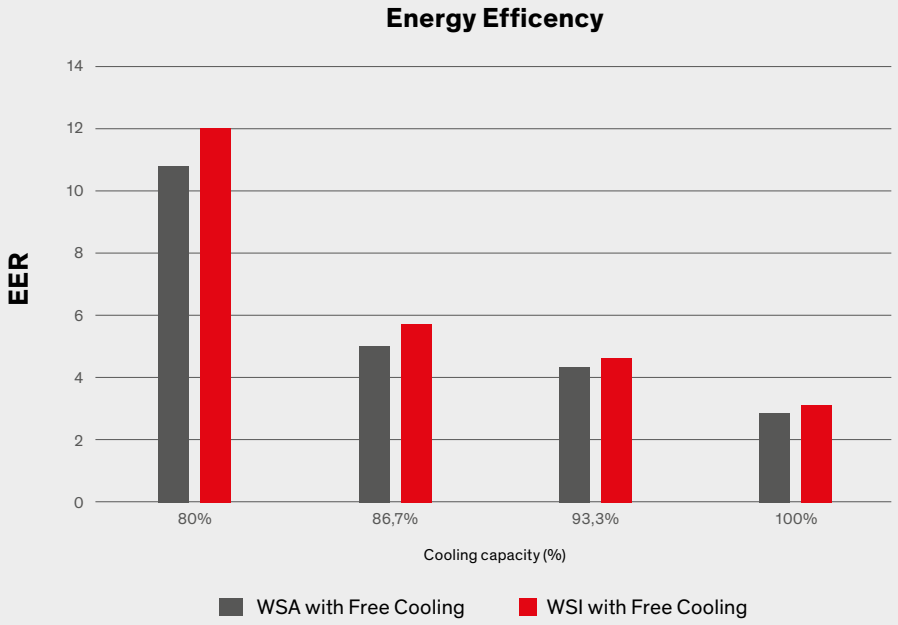
The use of inverter technology for compressors, fans and pumps maximizes the energy efficiency of these units. Inverter-driven screw compressors improve efficiency especially at part loads and in Mixed mode operation, resulting in significant annual energy savings of up to 15% compared to traditional solutions.

Inverter screw compressors

These semi-hermetic screw compressors feature an integrated frequency converter that adjusts the cooling capacity of each compressor from 25% to 100%. In dual-circuit units the minimum total control step is 12.5%. The variation of the Vi compressor ratio by means of a cassette valve, combined with the reduction of the speed, allows the energy efficiency of the unit to be maximized under all operating conditions.

Optimized energy efficiency levels

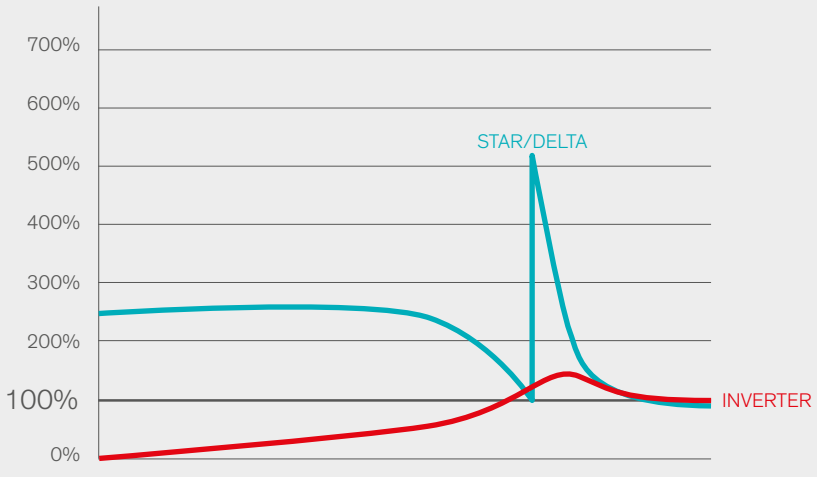
WSI units are designed to ensure both maximum efficiency under peak conditions and optimized consumption under partial loads. They are therefore the ideal solution for chilled water cooling in data centers.



(*) EER calculated according to Regulation (EU) 2016/2281, Directive 2009/125/EC for high temperature process chillers. Cold water inlet/outlet: 12/7 °C, ambient temperature: 35 °C, 100% glycol

Low inrush current

Inverter technology in screw compressors ensures a low start-up inrush current, which not only reduces stress on mechanical components and preserves the electric motor, but also reduces peak loads on the local electrical infrastructure.



Suitable For Any Critical Structure

Maximum configurability plays a crucial role in today's critical infrastructures, and in this context the wide range of options and accessories available for the WSA and WSI units enables an extremely diverse range of application requirements to be met.

Quick Start

QUICK START is available for all CyberCool Explorer WS units as an option and ensures that the required **cooling capacity is restored in approximately 105 seconds (WSA/WSF) or 157 seconds (WSI/WSJ) after the power supply is restored.**

ATS Automatic Transfer Switch (ATS)

In situations where there is an interruption in the power supply from the main line, **the ATS automatically switches to the backup line**, minimizing the interruption of the unit's power supply.
The ATS controls the eventual restoration of the primary power supply for **complete redundancy without a single point of failure as per TIER recommendations**.

Energy Meter

The **Energy Meter option allows the unit's electricity consumption to be monitored** and the data to be transmitted to energy **metering systems to control the efficiency of IT systems (PUE - Power Usage Effectiveness)**.

+ Further options and accessories

Eletrical

- Soft Starter
- Y/D start
- ATS double power supply
- Dedicated power supply for electronic controller
- Lighting of the electrical cabinet
- Automatic circuit breakers for compressors and pumps
- Energy meter
- UPS for controller

Hydraulic

- 1 pump P1 / 2 pumps P1 + P1 standby (1.5 bar)
- 1 pump P2 / 2 pumps P2 + P2 standby (2.5 bar)
- 1 pump P1 VSD / 2 pumps P1 + P1 VSD standby (1.5 bar)
- 1 pump P2 VSD / 2 pumps P2 + P2 VSD standby (2.5 bar)
- Electronic flow switch
- Antifreeze heater for hydraulic circuit
- Increased insulation of the hydraulic circuit/evaporator
- Manual filling
- Water filter
- Victaulic®-Flange adapter
- Victaulic®-Threaded adapter

Refrigerant circuit

- Fin and tube condensers (Cu/Al)
- MCHE condenser-corrosion treatment using cataphoresis
- Free Cooling coils anti-corrosion epoxy-acrylic resin coating
- Air filters
- Compressor suction line valve
- Dual pressure relief valve with switch valve

Structure

- Anti-intrusion grills
- Coil protection grills
- Anti-hailstone grills
- Multi-spring anti-vibration mounts
- Anti-seismic anti-vibration mounts

Connectivity

- Remote graphic display (for wall mounting)
- Remote touch screen display (for wall mounting)

Packing

- Dedicated packaging for shipping by container
- Marine packing kit

Ready For Any Worldwide Regulation And Directive

The use of **new-generation environmentally friendly refrigerants such as R513A (GWP=573) and R1234ze (GWP=7) enables WSA/WSI units to comply with the main European and international standards**, which regulate the use of refrigerant gases according to their impact on the greenhouse effect (**GWP Global Warming Potential**). All WSA/WSI units comply with both the newly revised European F-gas regulation which, from 2027, will prohibit the use of refrigerants with a GWP greater than 750 for chillers with a rated output of more than 12 kW, and with the US AIM Act which, from 2025/26, will prohibit the use of refrigerant gases with a GWP greater than 700 for chillers.

Medium pressure	**R134a**	**R513A**	**R123Aze**
Flammability*	A1 - NOT flammable	A1 - NOT flammable	A2L - MILDLY flammable
Toxicity*	Lower (A)	Lower (A)	Lower (A)
GWP**	1430	573	7
ODP**	0	0	0
Atmospheric lifetime	13.4 years	5.9 years	16 days

*ASHRAE 34-ISO 817 **IPCAR4

Maximum operational reliability

During development and design, the focus was on maximum reliability. This not only guarantees the chiller's problem-free condition during transport on the road or in a container, it also ensures reliable operation over many years.
The arrangement of the components allows easy maintenance.
The chiller can be adapted to different thermal loads via the refrigerant circuit with screw compressors including output slider.

The quality of STULZ

All chillers have been developed and produced in accordance with the following directives and standards:

- UNI EN ISO 9001: Quality management system
- UNI EN ISO 14001: Environmental management
- 2006/42/EC: Machinery directive
- 2014/35/EU: Low-voltage directive
- 2014/30/EU: EMC directive
- 2014/68/EU: Pressure equipment directive
- EN 378-1, 2, 3, 4: Chilling systems and heat pumps
- DIN EN ISO 12100: Safety of machines
- EN ISO 13857: Safety of machines – safety clearances
- EN 60204-1: Safety of machines – electrical equipment
- EN 61000-6-2: Immunity for industrial areas
- EN 61000-6-4: Generic standards – emitted interference for industrial areas

In all phases of project planning and production, compliance with these directives and laws was checked by an independent quality system.

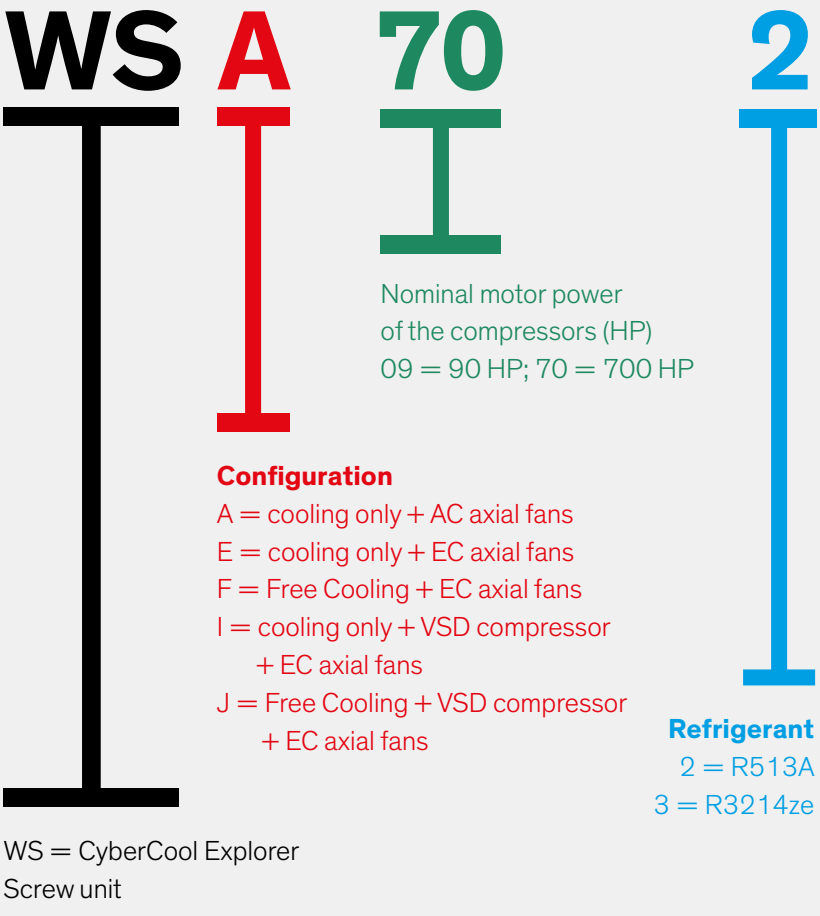
All components that are installed in STULZ Explorer chillers are subject to quality control.

The finished chillers are subject to functional testing and leakage tests as standard. These include:

- Leakage test of the refrigerant and hydraulic circuit
- Checking of STULZ SEC.blue control parameters
- Calibration check of sensors and gages
- Test of functions and alarms

The inspection certificate is contained in the documentation package.

Nomenclature



Technical Data

Performance data - WSA - R513A

Model		090	110	140	160	180	200	220	250	280	300	320	360	380	420	480	560	640	700
Cooling capacity [1]	kW	188	237	282	357	396	442	512	542	634	689	752	831	959	973	1093	1148	1270	1432
Total power input [1]	kW	69	82	108	121	141	141	166	181	212	231	236	277	299	326	368	407	442	478
EER [1]		2.72	2.89	2.61	2.95	2.81	3.13	3.08	2.99	2.99	2.98	3.19	3.00	3.21	2.98	2.97	2.82	2.87	3.00
Cooling capacity [2]	kW	282	360	426	531	579	656	755	782	944	n.a.	1097	1223	n.a.	1417	1622	1692	n.a.	n.a
Total power input [2]	kW	84	97	130	143	171	169	197	229	250	n.a.	285	336	n.a.	380	432	504	n.a.	n.a.
EER [2]		3,36	3,71	3,28	3,71	3,39	3,88	3,83	3,41	3,78	n.a.	3,85	3,64	n.a.	3,73	3,75	3,36	n.a.	n.a.
SEPR HT [3]		5.60	5.30	5.26	5.61	5.51	5.51	5.43	5.58	5.68	5.54	5.67	5.46	5.41	5.57	5.54	5.88	5.76	5.90
Technical data																			
Refrigerant gas		R513A																	
No. of compressors/ circuits		1/1			2/2														
No. of axial fans		3	4	4	6	6	8	8	8	10	10	12	12	14	14	16	16	18	20
Sound power [4]	dB(A)	88.3	93.6	92.8	91.3	91.2	95.2	96.6	95.4	95.9	97.8	96.8	97	98.9	97.9	98.7	99.5	100.1	102
Dimensions and weights																			
Hydraulic connection diameter		3"	3"	4"	4"	4"	5"	5"	5"	5"	6"	6"	6"	6"	6"	8"	8"	8"	8"
Width		1140	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280
Depth		4330	3205	3205	4330	4330	5875	5875	5875	6955	6955	8080	8080	9582	9582	10707	10707	11830	13330
Height		2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485
Empty weight - BASIC version [5]	kg	3290	3970	4140	5270	5410	7200	7230	7220	8390	8430	9240	10100	10900	11380	12120	12930	13560	14390

(1) Data based on nominal conditions (UNI EN 14511:2018): water temperature inlet/outlet 12/7 °C, ambient air temperature +35 °C.
(2) Data based on HT high water temperature conditions for IT applications: water temperature inlet/outlet 30/20 °C, ambient air temperature +35 °C
(3) Data declared in accordance with European Regulation (EU) 2016/2281 for high temperature process chillers
(4) Sound power level measured according to EN ISO 9614. Data of basic unit without options, full load and based on the following conditions: evaporator fluid: 100% water, IN/OUT temp. = +12/+7 °C, ambient temp. = +35 °C.
(5) Unit in standard configuration, without optional accessories

Performance data - WSF - FREE COOLING - R513A

Model		090	110	140	160	180	200	220	250	280	300	320	360	380	420	480	560	640	700
Cooling capacity (1)	kW	190	240	287	360	400	446	518	548	642	698	761	841	974	986	1118	1164	1287	1486
Total power input (1)	kW	70	84	109	125	145	146	171	185	217	237	242	283	307	334	377	413	450	491
EER (1)		2.70	2.84	2.61	2.91	2.76	3.05	2.97	2.97	2.95	2.93	3.14	2.94	3.11	2.97	2.97	2.82	2.86	2.98
Cooling capacity (2)	kW	286	364	432	530	585	657	744	790	965	n.a.	1102	1209	n.a.	1441	1649	1706	n.a.	n.a
Total power input (2)	kW	85	99	130	145	172	172	199	231	252	n.a.	289	339	n.a.	386	435	506	n.a.	n.a.
Temp. 100% Free Cooling (2)	°C	10.2	11.0	8.8	11.1	10.0	12.1	11.3	10.0	11.0	n.a.	11.7	10.8	n.a.	10.1	10.3	9.9	n.a.	n.a.
EER (2)		3.36	3.68	3.32	3.66	3.40	3.82	3.74	3.42	3.83	n.a.	3.81	3.57	n.a.	3.73	3.79	3.37	n.a.	n.a.
SEPR HT (3)		6.14	5.61	5.86	6.41	6.24	6.16	6.18	6.21	6.39	6.31	6.36	6.02	6.37	6.21	6.19	6.44	6.40	6.47
Technical data																			
Refrigerant gas		R513A																	
No. of compressors/ circuits		1/1			2/2														
No. of axial fans		3	4	4	6	6	8	8	8	10	10	12	12	12	12	12	16	18	20
Sound power (4)	dB(A)	88.6	93.7	93	91.7	91.6	95.4	96.8	95.6	96.1	97.9	97	97.2	99.1	98.1	98.9	99.7	100.3	102.2
Dimensions and weights																			
Hydraulic connection diameter		3"	3"	4"	4"	4"	5"	5"	5"	5"	6"	6"	6"	6"	6"	8"	8"	8"	8"
Width		1140	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280
Depth		4330	3205	3205	4330	4330	5875	5875	5875	6955	8080	8080	9582	9582	9582	10707	10707	11830	13330
Height		2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485
Empty weight - BASIC version (5)	kg	3390	4110	4270	5450	5590	7450	7480	7480	8640	8680	9590	10440	11270	11740	13010	13820	14580	15560

(1) Data based on nominal conditions (UNI EN 14511:2018): water temperature inlet/outlet 12/7 °C, ambient air temperature +35 °C.
(2) Data based on HT high water temperature conditions for IT applications: water temperature inlet/outlet 30/20 °C, ambient air temperature +35 °C
(3) Data declared in accordance with European Regulation (EU) 2016/2281 for high temperature process chillers
(4) Sound power level measured according to EN ISO 9614. Data of basic unit without options, full load and based on the following conditions: evaporator fluid: 100% water, IN/OUT temp. = +12/+7 °C, ambient temp. = +35 °C.
(5) Unit in standard configuration, without optional accessories

Performance data - WSA - R1234ze

Model		090	110	140	160	180	220	250	280	300	320	360	380	420	480	560	640	700
Cooling capacity (1)	kW	178	196	230	262	330	371	433	472	526	570	681	746	784	872	899	991	1117
Total power input (1)	kW	60	68	76	88	104	122	130	153	165	172	200	212	233	266	294	317	334
EER (1)		2.97	2.88	3.03	2.98	3.17	3.04	3.33	3.08	3.19	3.31	3.41	3.52	3.36	3.28	3.06	3.13	3.34
Cooling capacity (2)	kW	281	312	358	406	508	570	662	718	n.a.	868	1011	n.a.	1163	1308	1349	1476	n.a.
Total power input (2)	kW	73	84	92	104	125	148	156	185	n.a.	195	230	n.a.	272	315	347	373	n.a.
EER (2)		3.85	3.71	3.89	3.90	4.06	3.85	4.24	3.88	n.a.	4.45	4.40	n.a.	4.28	4.15	3.89	3.96	n.a.
SEPR HT (3)		5.10	5.26	5.43	5.06	5.46	5.19	5.52	5.57	5.51	5.55	5.53	5.56	5.51	5.52	5.61	5.51	5.54
Technical data																		
Refrigerant gas		R1234ze																
No. of compressors/ circuits		1/1				2/2												
No. of axial fans		3	3	4	4	6	6	8	8	8	10	12	12	12	12	14	16	18
Sound power (4)	dB(A)	93.5	92.3	92.8	93.7	95.1	96.6	95.4	95.8	97.7	96.8	97	98.9	97.9	98.7	99.5	100.1	102
Dimensions and weights																		
Hydraulic connection diameter		3"	3"	3"	4"	4"	4"	5"	5"	5"	5"	6"	6"	6"	6"	6"	8"	8"
Width		1140	1140	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280
Depth		4330	4330	3205	3205	4330	4330	5875	5875	5875	6955	8080	8080	8080	8080	9582	10707	11830
Height		2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485
Empty weight - BASIC version (5)	kg	3670	3690	4110	4130	5950	6110	7200	7300	7360	8420	10020	10070	10090	10230	11390	12010	13560

(1) Data based on nominal conditions (UNI EN 14511:2018): water temperature inlet/outlet 12/7 °C, ambient air temperature +35 °C.
(2) Data based on HT high water temperature conditions for IT applications: water temperature inlet/outlet 30/20 °C, ambient air temperature +35 °C
(3) Data declared in accordance with European Regulation (EU) 2016/2281 for high temperature process chillers
(4) Sound power level measured according to EN ISO 9614. Data of basic unit without options, full load and based on the following conditions: evaporator fluid: 100% water, IN/OUT temp. = +12/+7 °C, ambient temp. = +35 °C.
(5) Unit in standard configuration, without optional accessories

Performance data - WSF - FREE COOLING - R1234ze

Model		090	110	140	160	180	220	250	280	300	320	360	380	420	480	560	640	700
Cooling capacity [1]	kW	182	198	232	266	331	373	433	474	528	571	683	753	787	878	906	998	1158
Total power input [1]	kW	62	69	79	90	108	125	136	158	170	179	209	220	240	273	302	327	347
EER [1]		2.94	2.87	2.94	2.96	3.06	2.98	3.18	3.00	3.11	3.19	3.27	3.42	3.28	3.22	3.00	3.05	3.34
Cooling capacity [2]	kW	287	315	363	410	507	575	677	713	n.a.	877	1016	n.a.	1170	1314	1373	1518	n.a.
Total power input [2]	kW	75	84	94	105	127	149	161	189	n.a.	206	238	n.a.	276	318	358	384	n.a.
Temp. 100% Free Cooling [2]	°C	10.5	9.1	11.1	9.8	11.8	10.4	12.0	11.2	n.a.	12.5	12.9	n.a.	10.6	7.9	11.1	11.7	n.a.
EER [2]		3.83	3.75	3.86	3.90	3.99	3.86	4.20	3.77	n.a.	4.26	4.27	n.a.	4.24	4.13	3.84	3.95	n.a.
SEPR HT [3]		5.83	5.80	6.27	5.88	6.30	5.96	6.21	6.37	6.88	6.13	6.34	6.42	6.36	6.36	6.42	6.35	6.52
Technical data																		
Refrigerant gas		R1234ze																
No. of compressors/ circuits		1/1				2/2												
No. of axial fans		3	3	4	4	6	6	8	8	8	10	12	12	12	12	14	16	18
Sound power [4]	dB(A)	93.7	92.4	93	93.9	95.3	96.7	95.6	96	97.8	97	97.2	99	98.1	98.8	99.6	100.2	102.1
Dimensions and weights																		
Hydraulic connection diameter		3”	3”	3”	4”	4”	4”	5”	5”	5”	5”	6”	6”	6”	6”	6”	8”	8”
Width		1140	1140	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280
Depth		4330	4330	3025	3025	4330	4330	5875	5875	5875	6955	8080	8080	8080	8080	9582	10707	11830
Height		2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485
Empty weight - BASIC version [5]	kg	3770	3790	4240	4260	6130	6290	7460	7550	7610	8700	10370	10410	10450	10600	11760	12890	14580

(1) Data based on nominal conditions (UNI EN 14511:2018): water temperature inlet/outlet 12/7 °C, ambient air temperature +35 °C.
(2) Data based on HT high water temperature conditions for IT applications: water temperature inlet/outlet 30/20 °C, ambient air temperature +35 °C
(3) Data declared in accordance with European Regulation (EU) 2016/2281 for high temperature process chillers
(4) Sound power level measured according to EN ISO 9614. Data of basic unit without options, full load and based on the following conditions: evaporator fluid: 100% water, IN/OUT temp. = +12/+7 °C, ambient temp. = +35 °C.
(5) Unit in standard configuration, without optional accessories

Performance data - WSI - R1234ze

Model		110	160	180	220	280	300	320	360	420	480	560	640	700	720 [6]
Cooling capacity [1]	kW	214	267	352	448	509	565	638	703	853	942	1094	1205	1265	n.a.
Total power input [1]	kW	69	87	112	140	155	177	195	223	264	301	359	380	379	n.a.
EER [1]		3.10	3.07	3.14	3.20	3.28	3.19	3.27	3.15	3.23	3.13	3.05	3.17	3.34	n.a.
Cooling capacity [2]	kW	336	424	547	685	759	858	936	1080	1270	1392	1639	1727	1841	1903
Total power input [2]	kW	84	105	134	169	163	212	229	266	316	360	433	463	462	458
EER [2]		4.00	4.04	4.08	4.05	4.66	4.05	4.09	4.06	4.02	3.87	3.79	3.73	3.98	4.16
SEPR HT [3]		6.03	5.76	5.90	6.20	6.28	6.09	6.06	6.04	6.11	6.19	6.26	6.15	6.04	n.a.
Technical data															
Refrigerant gas		R1234ze													
No. of compressors/ circuits		1/1			2/2										
No. of axial fans		3	4	6	6	8	8	10	12	12	14	16	16	18	20
Sound power [4]	dB(A)	95.9	96.3	98.2	98.9	100.9	99.3	101.3	101.2	99.6	99.6	101.2	103.1	103.1	103.3
Dimensions and weights															
Hydraulic connection diameter		3"	4"	4"	5"	5"	5"	6"	6"	6"	6"	8"	8"	8"	8"
Width		1140	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280
Depth		4330	3205	4330	4330	4330	4330	6955	8080	8080	9582	10707	10707	11830	13370
Height		2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485
Empty weight - BASIC version [5]	kg	3630	3980	4800	5760	7060	7000	7930	8630	9740	10490	11760	12450	13120	13790

(1) Data based on nominal conditions (UNI EN 14511:2018): water temperature inlet/outlet 12/7 °C, ambient air temperature +35 °C.
(2) Data based on HT high water temperature conditions for IT applications: water temperature inlet/outlet 30/20 °C, ambient air temperature +35 °C
(3) Data declared in accordance with European Regulation (EU) 2016/2281 for high temperature process chillers
(4) Sound power level measured according to EN ISO 9614. Data of basic unit without options, full load and based on the following conditions: evaporator fluid: 100% water, IN/OUT temp. = +12/+7 °C, ambient temp. = +35 °C.
(5) Unit in standard configuration, without optional accessories
(6) WSI/WSJ 720 available only in HT version

Performance data - WSJ - FREE COOLING - R1234ze

Model		110	160	180	220	280	300	320	360	420	480	560	640	700	720 (6)
Cooling capacity (1)	kW	212	265	348	442	508	558	641	696	842	933	1085	1202	1268	n.a.
Total power input (1)	kW	72	90	116	146	164	184	204	231	273	312	370	392	392	n.a.
EER (1)		2.94	2.96	3.00	3.03	3.10	3.03	3.14	3.01	3.08	2.99	2.93	3.07	3.23	n.a.
Cooling capacity (2)	kW	331	418	539	669	757	845	928	1069	1260	1382	1637	1719	1821	1884
Total power input (2)	kW	87	109	139	175	176	220	238	276	328	374	450	480	478	474
Temp. 100% Free Cooling (2)	°C	8.10	8.80	10.30	8.60	10.20	9.40	10.40	10.90	9.30	9.50	9.20	8.50	9.20	10.4
EER (2)		3.80	3.83	3.88	3.82	4.30	3.84	3,90	3.87	3.84	3.70	3.64	3.58	3.81	3.97
SEPR HT (3)		6.78	6.66	6.41	6.90	6.94	6.71	6.60	6.52	6.77	6.70	6.97	6.64	6.74	n.a.
Technical data															
Refrigerant gas		R1234ze													
No. of compressors/ circuits		1/1			2/2										
No. of axial fans		3	4	6	6	8	8	10	12	12	14	16	16	18	20
Sound power (4)	dB(A)	95.9	96.3	98.2	98.9	100.9	99.3	101.3	101.2	99.6	99.6	101.2	103.1	103.1	103,3
Dimensions and weights															
Hydraulic connection diameter		3”	4”	4”	5”	5”	5”	6”	6”	6”	6”	8”	8”	8”	8”
Width		1140	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280	2280
Depth		4330	3205	4330	4330	4330	4330	6955	8080	8080	9582	10707	10707	11830	13370
Height		2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485	2485
Empty weight - BASIC version (5)	kg	3730	4110	4980	6050	7410	7350	8300	9080	10230	11130	12570	13300	13960	14620

(1) Data based on nominal conditions (UNI EN 14511:2018): water temperature inlet/outlet 12/7 °C, ambient air temperature +35 °C.
(2) Data based on HT high water temperature conditions for IT applications: water temperature inlet/outlet 30/20 °C, ambient air temperature +35 °C
(3) Data declared in accordance with European Regulation (EU) 2016/2281 for high temperature process chillers
(4) Sound power level measured according to EN ISO 9614. Data of basic unit without options, full load and based on the following conditions: evaporator fluid: 100% water, IN/OUT temp. = +12/+7 °C, ambient temp. = +35 °C.
(5) Unit in standard configuration, without optional accessories
(6) WSI/WSJ 720 available only in HT version

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