TCS – Chillers

TCS 190-610 series

TCS – Air-Cooled Multiscroll Chillers for Industrial Process Cooling

Tailored to cater to industrial cooling requirements, TCS delivers outstanding efficiency, flexible refrigerant options, and unmatched performance to conquer your toughest cooling demands.

Step into the future of industrial energy efficiency and sustainability with our cutting-edge Air-Cooled Multiscroll Chillers – TCS.

Exceptional energy efficiency

The TCS chiller is engineered with high Seasonal Energy Performance Ratio (SEPR) in mind, it guarantees efficient cooling for industrial operations while minimizing energy usage. This lowers operational costs and supports environmental sustainability without compromising performance.

Advanced multiscroll technology

At the heart of our TCS Chiller lies a cutting-edge multiscroll compressor system, engineered for stable and dependable performance. This compressor technology boosts efficiency, reduces vibrations, and extends the chiller's lifespan and reliability.

Wide cooling capacity range

The TCS is available in a wide cooling capacity range to accommodate various industrial needs. From 190kW up to an impressive 610kW capacity (@7/35°C) our chiller can handle even the most challenging thermal loads.

Low GWP (global warming potential) option

We prioritize environmental sustainability and offer the choice to equip your TCS with R454B refrigerant, a low-global warming potential solution. This low-impact refrigerant aids in lowering greenhouse gas emissions, promoting a greener future.

Versatility and configuration

Every industrial process comes with unique requirements. The TCS is designed with high versatility, allowing different configurations based on your specific cooling needs.

Reliability

With its robust design, TCS delivers reliable and continuous performance, ensuring stable operation even in the most demanding industrial conditions.

TCS Segments and applications

The TCS range is a versatile solution that perfectly fits a wide range of segments and applications in the industrial sector, ensuring high performance and reliability in various process cooling scenarios.

The TCS is designed to successfully tackle industrial processes that require significant cooling capacity. From large-scale cooling applications to temperature management in complex industrial environments, the TCS is capable of providing efficient and reliable refrigeration.

Application examples for TCS

Metal or Plastic Processing
In the metal and plastic processing industry, precise cooling is crucial to ensure high-quality results. The TCS offers powerful and stable cooling capacity, allowing for optimal temperature control during the molding process, reducing cycle times, and optimizing production.

Cement Industry
Cement production requires reliable and continuous cooling. The TCS proves to be an ideal solution for cooling various stages of the production process, helping to maintain a constant temperature and ensuring the quality of the produced cement.

Beer or Wine Production
In the beverage industry, temperature is a critical element in producing high-quality beer and wine. The TCS provides accurate cooling during fermentation and the final cooling process, helping to maintain ideal temperature levels to achieve a product of excellence.

Cooling of rolls or Process Tanks
In industrial processes involving rolls, process tanks, and other equipment, effective cooling is essential to maintain optimal operating conditions. The TCS offers the cooling power necessary to handle the high temperatures generated by these machines, ensuring stable and reliable operation.

Our offering

TCS 110-170

The entry point of the TCS family, TCS 110–170, features a single refrigerant circuit with up to three scroll compressors and a single-pump hydraulic loop. With options for either plate-to-plate or shell-and-tube evaporators and a buffer tank, it's a compact yet versatile solution for smaller-scale applications like plastic molding, roll cooling, or beverage production. Its simplicity makes it easy to install and operate, while the configuration choices allow users to match the unit to their specific process.

TCS 190-310

This model features two parallel refrigerant circuits, each with multiple scroll compressors to ensure stable, efficient cooling. Its configurable hydraulic circuit, offering choices in evaporator type, pumps, and integrated tanks, means it can be adapted to the precise needs of metal and plastic processing or roll cooling, where adaptability and temperature consistency are key to quality and efficiency.

TCS 350-480

TCS 480 continues the modular philosophy introduced in the smaller models, offering scalable cooling for medium to large industrial demands. With the ability to integrate both a shell-and-tube evaporator and an onboard tank, it provides a cooling infrastructure that's ideal for high-load applications such as the cement industry or process tank operations. This dual-component flexibility ensures uninterrupted performance, protecting critical equipment and maintaining smooth production. All within a unit designed to grow with your needs.

TCS 520-610

This model represents the apex of this approach, pushing cooling capacity to its highest tier while preserving efficiency and multi-scroll flexibility. Ideal for sectors like beer and wine production, in which fermentation and roll cooling demand precise control, this chiller combines performance and configurability, allowing you to adapt to evolving requirements without compromising quality.

Benefits & features

Discover here the full range of benefits and features that make our TCS chillers the best option for industrial cooling requirements.

TCS 310

1 Electronikon MarkV controller

- Proven algorithms provide operational efficiency for the whole range
- You can always track machine status and working parameters using Atlas Copco SMARTLINK connection
- Built-in set of safety options, like phase sequence relay provides ultimate protection and reduced risk of malfunction
- Sun rays shield to increase the protection of the controller

2 Axial fans

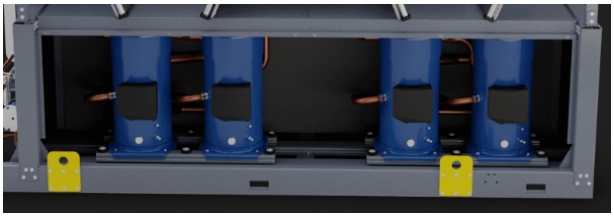
- Axial fans configured with protective grilles and high performance bladed with integrated premium high efficiency EC brushless motors.
- Night mode offers significant noise reduction during night hours.

3 Compressor noise reduction box

- To reduce the noise of the unit, a compressor noise reduction box is available.
- Easily removeable for inspection and maintenance.

4 Refrigerant circuit

- Twin refrigerant circuit for redundancy
- Optimized control for stability, efficiency and redundancy
- Continuous uptime and perfect serviceability with industry-standard scroll compressor
- Electronic expansion valve (EEV) as standard for highest energy efficiency, flexibility and time saving during maintenance



5 Evaporator

- Plate to plate stainless steel heat exchanger
- Optimized for high efficiency
- Shell and tube robust evaporator available as option

6 Microchannel Condenser

- Light-weighted with a high rate of heat transfer
- Provides lower cost of maintenance with reduced refrigerant charge
- With epoxy coating (as option) for corrosive industrial environment

7 Insulated on board water tank

- Internal resin coating protection to avoid corrosion
- Available close atmospheric or pressurized for a wide range of applications
- Protected continuous operation with a set of onboard safety devices

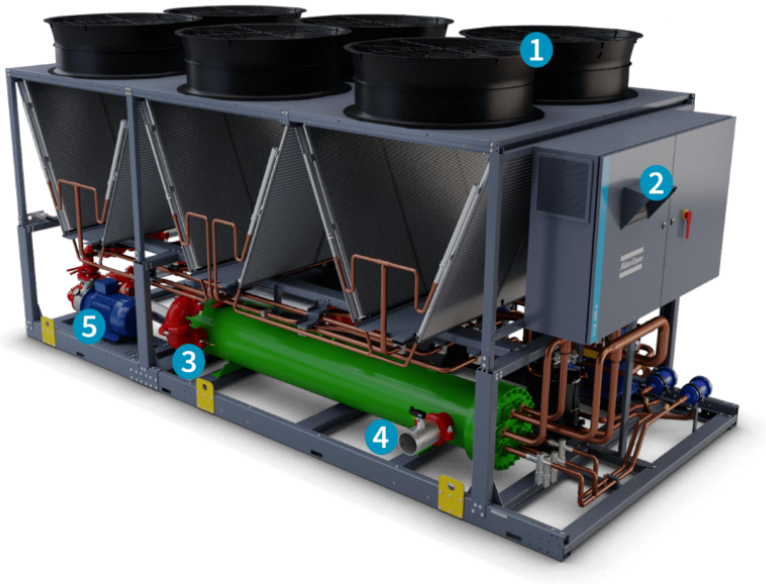
8 Circulation pumps

- Vast range of configurations with different range of pressure to meet the variety of hydro circuits
- Stand-by pump with automatic switching available in all versions for operation with no interruption
- Housing and impellers made in 316L stainless steel
- iE3 efficiency motor

9 Hydro connections

- Easy installation with grooved connection as standard
- Vast range of flanges (as accessory) to meet your needs (UNI,ASME)

TCS 480



1 Axial fans

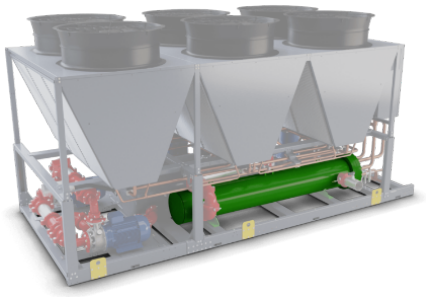
- Axial fans equipped with protective metal grids for safety. Their blade design enhances performance while reducing noise. High-efficiency brushless motors are integrated to maximize overall energy efficiency.
- Night mode offers significant noise reduction during night hours.

2 Elektronikon MarkV controller

- Proven algorithms provide operational efficiency for the whole range
- You can always track machine status and working parameters using Atlas Copco SMARTLINK connection
- Built-in set of safety options, like phase sequence relay provides ultimate protection and reduced risk of malfunction
- Sun rays shield to increase the protection of the controller

3 Evaporator

- Copper tube & steel shell heat exchanger
- Compatible with onboard tank for all-in-one integration
- Durable design for heavy industrial use
- Sacrificial anode included to prevent corrosion
- Designed for low water temperatures to save space



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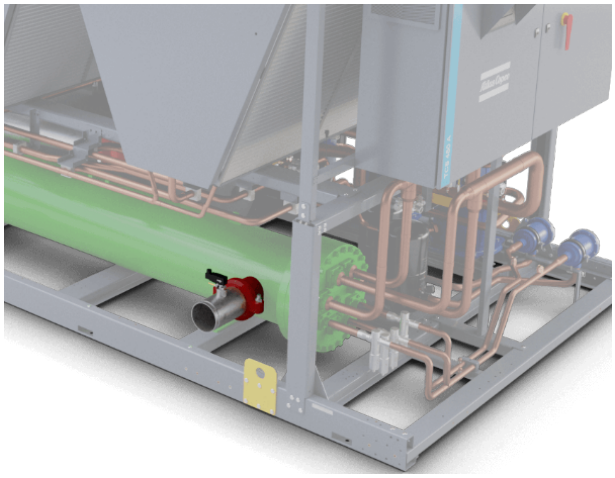

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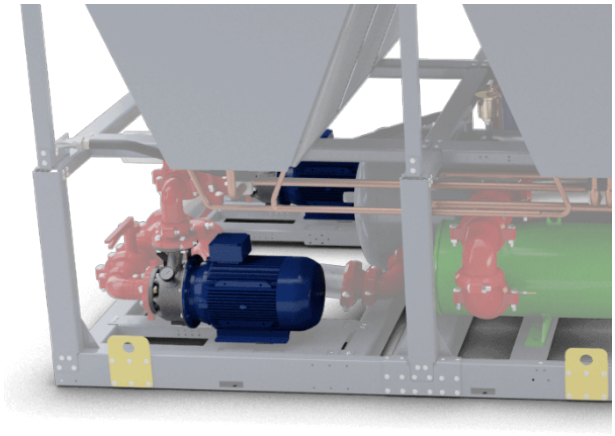


6 Refrigerant circuit

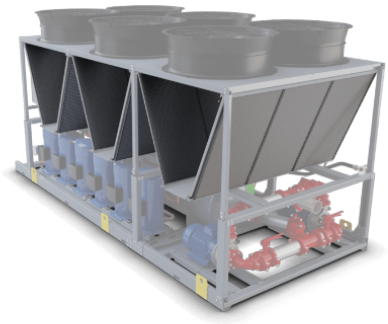
- Twin refrigerant circuit for redundancy
- Optimized control for stability, efficiency and redundancy
- Continuous uptime and perfect serviceability with industry-standard scroll compressor
- Electronic expansion valve (EEV) as standard for highest energy efficiency, accuracy in load regulation, flexibility and time saving during maintenance

7 Compressor noise reduction box

- To reduce the noise of the unit, a compressor noise reduction box is available
- Easily removable for inspection and maintenance

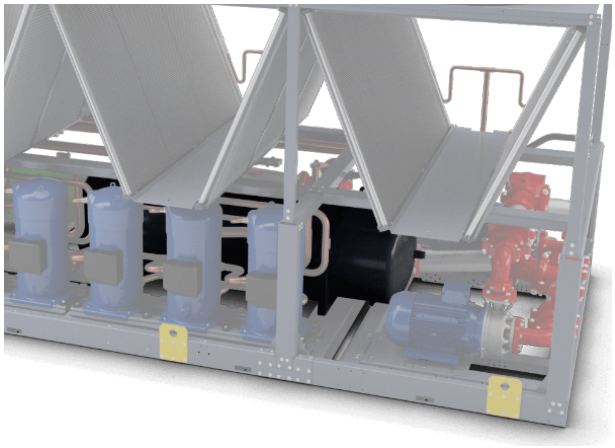
8 Microchannel condenser

- Light-weighted with a high rate of heat transfer
- Provides lower cost of maintenance with reduced refrigerant charge
- With epoxy coating (as option) for corrosive industrial environment



9 Insulated on board water tank

- Internal resin coating protection to avoid corrosion
- Available close atmospheric or pressurized for a wide range of applications
- Protected continuous operation with a set of onboard safety devices



Exceptional Efficiency: Leading in Energy Efficiency

The TCS range is the result of design that places energy efficiency at the core of its development. Thanks to innovative technological and control advancements, the TCS achieves significantly higher Seasonal Energy Performance Ratio (SEPR) values compared to market standards, ensuring outstanding performance with minimal energy consumption.

High seasonal energy performance ratio (SEPR)

The TCS stands out for its high SEPR, which represents the ratio of cooling energy provided to electrical energy consumed during the entire seasonal operation. With state-of-the-art components, advanced thermodynamic cycle optimization, and highly efficient fan control, the TCS allows significant energy savings.

Efficiency through optimized fan control

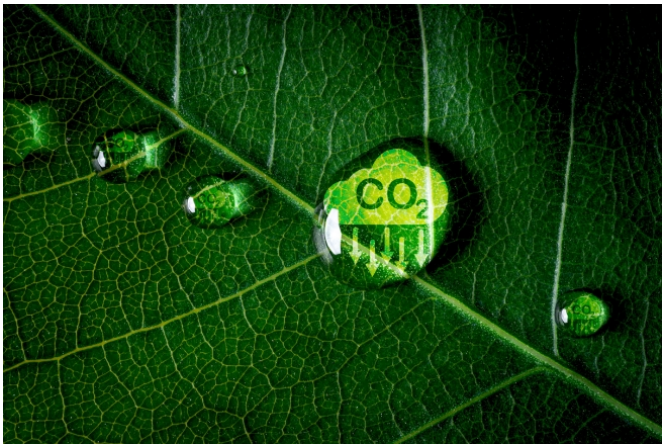
Fans play an important role in energy consumption. This is why, the TCS include a sophisticated fan control system developed to ensure the chiller operates at the point of maximum efficiency, based on the thermal load. This intelligent logic optimizes fan speed and operation based on cooling demands, minimizing energy waste and ensuring precise and controlled cooling.

Efficiency during thermal load variations

In industrial processes, thermal loads can vary over time. The TCS is designed to dynamically adapt to these fluctuations, automatically adjusting the operation of compressors and fans to maintain optimal efficiency even under partial load conditions. This results in more stable operation, reduced energy consumption, and extended chiller lifetime.

Eco-friendly and sustainable

With high SEPR, the superior energy efficiency of the TCS not only translates to cost savings for users but also contributes to environmental sustainability. By reducing energy consumption and greenhouse gas emissions, the TCS is an eco-friendly and environmentally responsible choice, allowing businesses to achieve their social and environmental responsibility goals.



Cover all bases with a Service Plan

Industrial cooling is vital to your production process. Selecting the right service level will keep your production running efficiently while keeping operational costs under control.

Custom service expertise and logistics

By tailoring service to your needs and priorities, we help you make the most of your investment and manage your resources effectively. Whatever the service level you choose, our expertise makes it easier for you to time service correctly and source the right parts quickly and hassle-free.

Covering all service bases

Our service experts are well-trained and experienced. They perform service more quickly, optimizing the availability of your equipment. They spot and fix potential problems early, preventing efficiency loss and breakdowns. They cover all bases, servicing all your industrial chillers and coolers, including machines not delivered by us.

Focus on your business

Maximum care means we provide uninterrupted flow of cooling power, while you can focus on your core activities. Let us worry about parts inventory, equipment monitoring, service interventions and repairs. Get unrivalled uptime and efficiency, reduce overhead costs and achieve your business goals.

Monitoring and control

Intelligence is part of the package, with Mk5 Elektronikon® and SMARTLINK technology ensure optimal control and monitoring of your TCS chiller.

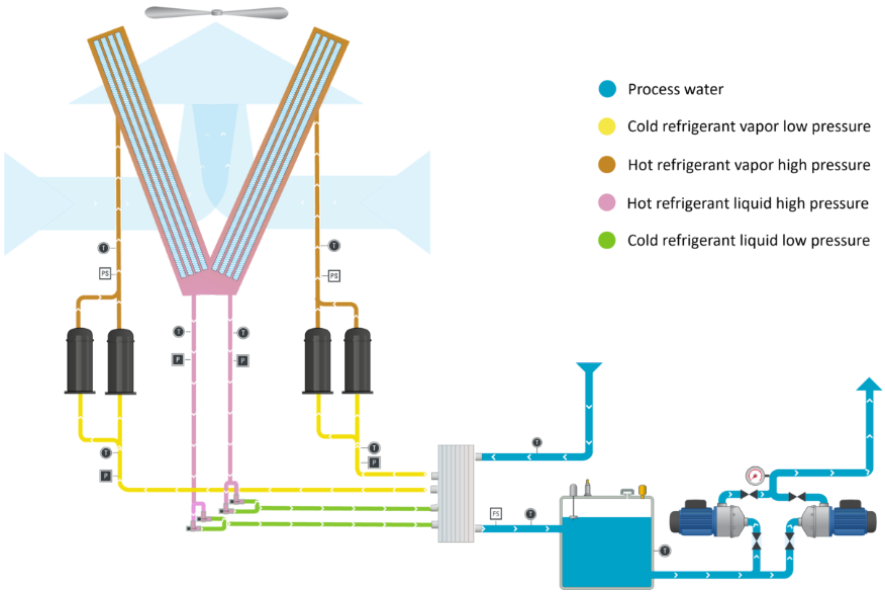
The Mk5 Elektronikon®

The Elektronikon® unit controller is specially designed to maximize the performance of your chillers under a variety of conditions. Built-in set of safety options like phase sequence relay provides ultimate protection and reduced risk of malfunction.
Our solutions provide you with key benefits such as increased energy efficiency, lower energy consumption, reduced maintenance times and less stress… less stress for both you and your entire system.

SMARTLINK

Monitor your chiller with SMARTLINK
Knowing the status of your equipment at all times is the surest way to achieve optimal efficiency and maximum availability.
Go for energy efficiency
Customized reports on the energy efficiency of your equipment.
Increase uptime
All components are replaced on time, ensuring maximum uptime.
Save money
Early warnings avoid breakdowns and production loss.

TCS Flowchart



Air flow

The air goes through the microchannel condensers to reduce the pressure and temperature of the refrigerant. On top of the unit, speed-regulated axial fans create an air flow which fully reveal their efficiency, especially during partial loads.

Refrigerant flow

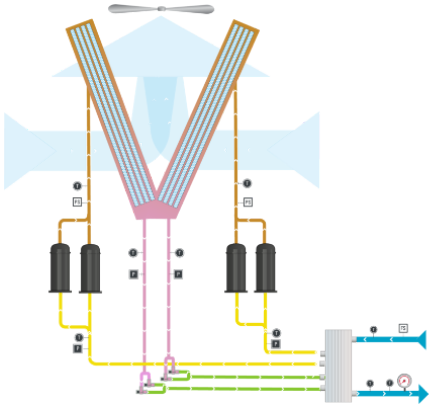
Refrigerant fluid, kept at low pressure, is made to evaporate near to the cold source: by evaporating, it absorbs the vaporization heat from the cold source, cooling it further. The refrigerant gas is compressed to a higher pressure with use of mechanical energy (electrical). The refrigerant gas, at high pressure and high temperature, is condensed near to the hot source: by condensing, it transfers heat to the hot source. The refrigerant liquid at high pressure is brought back to the low pressure it had at the beginning. The low pressure encourages its evaporation even at low temperatures, like that of the cold source. The cycle ends and begins from the start.

Water flow

The hot inlet water flow goes through the evaporator, where refrigerant flow at low pressure is going to reduce the temperature of the water collecting the heat and evaporating the refrigerant. Than after passing the evaporator, the water flow goes into a water tank with a set of safety devices. It then flows to a pump group, which consists of one or two pumps with various outlet pressure versions bringing chilled water to the application.

TCS hydraulic configuration options

Plate evaporator



Shell & tube

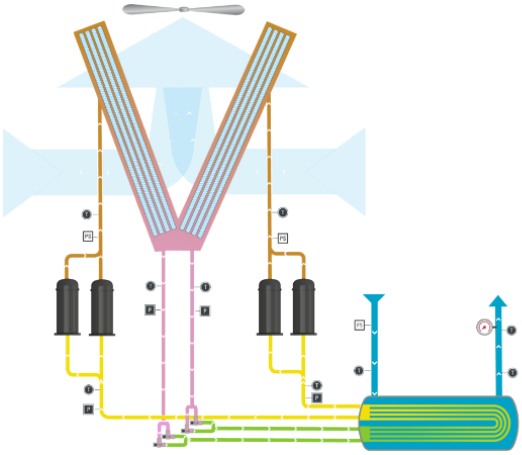
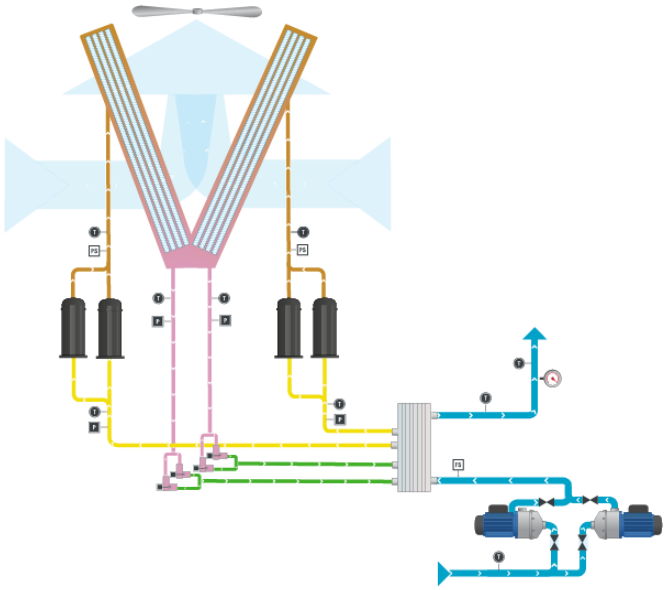
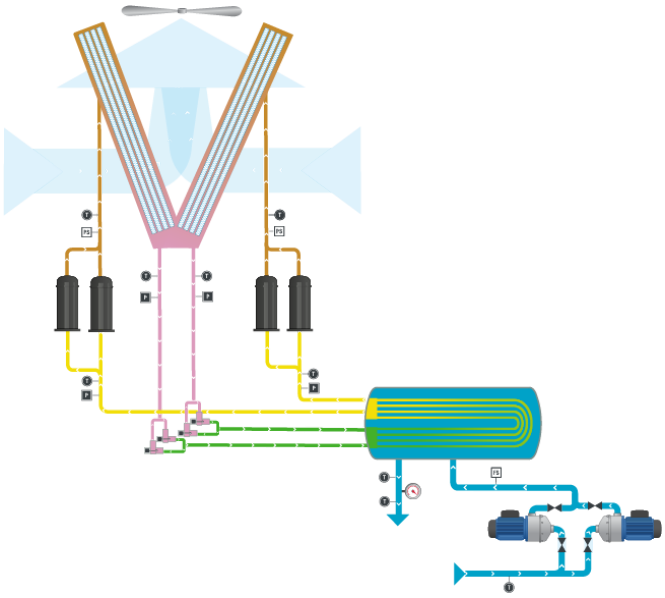


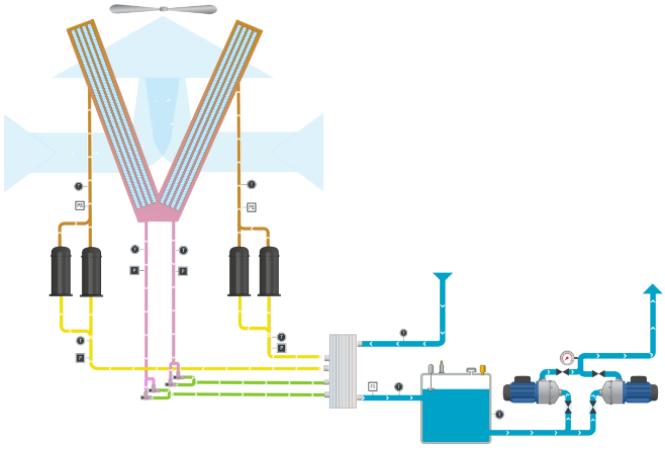
Plate with stand-by pump



Shell & tube with stand-by pump

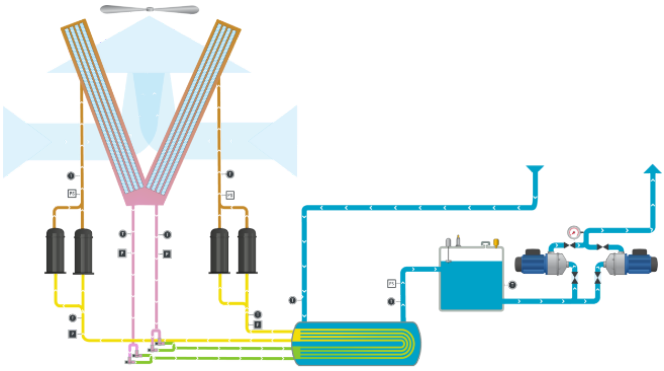


Plate, tank and stand-by pump



Shell & tube, tank and stand-by pump

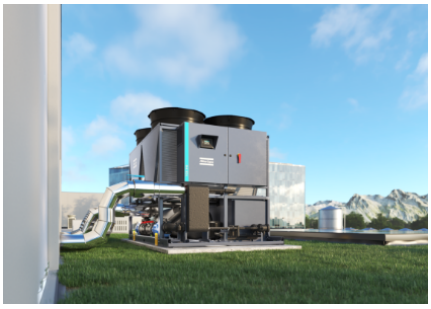
** Available only for TCS 350-610*



Configurability for your industrial needs

TCS offers a high level of configurability with a wide range of options, empowering you to create a chiller that perfectly aligns with your specific industry requirements.

Evaporator Options: Plate to plate or Shell-and-Tube
Choose between a plate evaporator for compactness and efficiency or a shell-and-tube evaporator for robustness and versatility, ensuring that the chiller's cooling system is tailored to your process demands.



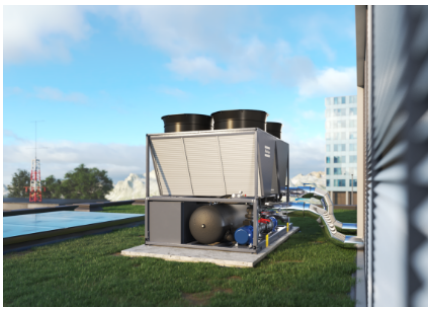
Three Water Outlet Temperature Ranges: MT, HT, XHT
Select from three different water outlet temperature ranges: Medium Temperature (MT), High Temperature (HT), and Extra High Temperature (XHT). This flexibility allows you to match the chiller's performance precisely to your process cooling needs.

Two Refrigerant Options: R410A or R454B
Customize your chiller's refrigerant according to your environmental priorities and regulatory requirements. Choose between the standard R410A refrigerant or the low GWP R454B refrigerant, reducing your carbon footprint and supporting sustainability initiatives.

Configurable Integrated Hydraulic Part: Single or Dual Pump
Tailor the hydraulic part of the chiller to your hydraulic requirements. Select between a single or dual pump stand-by configuration with a wide range of available flow rates and pressures, and choose whether you want an integrated tank or not, ensuring the chiller's hydraulic system is perfectly matched to your process conditions.

Aluminum Inlet Air Filters
Ensure the longevity and reliability of the chiller choosing inlet air filters that keep the condenser coils clean, maximizing the chiller's performance and reducing maintenance needs.

Compressor Noise Reduction Box
For environments that demand low noise levels, select the compressor noise reduction box option. This feature effectively reduces the noise generated by the compressors, ensuring a quieter working environment.



Energy Consumption Meter
Stay informed about the chiller's energy usage with the energy consumption meter option, helping you monitor and optimize energy efficiency.

Double Safety Valve
Ensure an extra layer of safety with the double safety valve, providing redundancy and protection in during maintenance activity.

Antivibration Kit
Minimize vibration and noise with the antivibration kit option, ensuring stable and silent chiller operation.

Epoxy-Coated Condenser Coils
Epoxy-coated condenser coils for protection against corrosion and increased longevity, ideal for demanding and harsh environments.

TCS features and options

FEATURES	TCS 110-610A Chiller
General	
F-gas	R410A – R454B
GWP	2088 – 467
IP grade	IP54
Installation	
Lifting with bars + ropes + spreader beam	●
Electrical	
400V/3ph 50Hz IEC	V
460V/3ph 60Hz UL 508A	V
Control	
Controller type	Elektronikon MKVS
4,3" touchscreen	●
Text on display in local language	●
Day and week scheduler	●
Service timer	●
Refrigerant High pressure transmitter (digital)	●
Refrigerant Low pressure transmitter (digital)	●
Automatic priority for compressors	●
Safety	
Phase sequence motor direction	●
Thermal-magnetic circuit breakers protection on compressors, pump and fan	●
High pressure switch with manual reset	●
Flow switch – paddle type	●
Low pressure switch – with auto reset (with hysteresis)	–
Low pressure transmitter – with auto reset (hysteresis)	●
Winter protection: auto-on of the pump with low ambient temperature (software function)	●
Anti Flood system (if automatic filling system included)	●
System integration	
Remote ON-OFF	●
Single free contact for warning	●
Single free contact for shut down alarm	●
Remote setpoint + Temperature transmission (4..20mA)	opt
Modbus RTU – RS480	accessory
Profibus	accessory
Profinet	accessory
TCP	accessory
Ehernet IP	accessory
CANbus	accessory
Remote control panel	accessory

FEATURES	TCS 110-610A Chiller
Connectivity	
Smartlink connectivity incl modem (4G), incl 'service' license	●
Smartlink UPTIME license	opt
Expansion valve	
Electronic expansion valve (EEV)	●
Compressor	
Scroll	●
Crankcase heater	●
Sound reducing enclosure for compressors	opt
Hydronics	
No Pump	●
Pump non-ferrous	V
Pump non-ferrous + stdby pump	V
No tank	●
Internal epoxy coated tank, antirust externally painted and insulated 20mm polyethylene closed circuit + hydro devices included: solenoid valve, water level sensor, city water line filter, safety relief valve (2,5 barg), venting valve, drain	V*
Manual filling system	V
Automatic filling system (solenoid valve, tap water filter, MKVS controlled)	opt
External manual by-pass	opt
Water pressure gauge (only if pump is included)	●
Grooved water connections	●
Flanges EN 1092-1 type 13B / PN16 Galvanized carbon steel (ex UNI 2254-67)	opt
Flanges ASME / PN16 Galvanized carbon steel	opt
Counterflanges	opt
Fan	
EC Variable speed fan (brushless fan with integrated control, suitable above to -20°C ambient)	●
Condenser	
Condenser (Microchannel)	●
Condenser (Microchannel) – with epoxy powder coating	opt
Cleanable condenser air filter (frame and mesh in aluminum)	opt
Evaporator	
Brazed plate HE	V
Shell & Tubes heat exchanger	V
Refrigerant circuit	
Sight glass	●
Liquid receiver	●
Filter drier	●
Packaging	
Pallet and plastic wrap protection	●
Wooden case (close box)	opt
Prepared for container	opt

Not for TCS190-310 with S&T evaporator.

Refrigerant option R454B

R454B – green refrigerant option
The TCS Chiller is an innovative cooling solution designed to deliver superior performance with reduced environmental impact. At the heart of this innovation, the R454B refrigerant gas, an eco-conscious choice that promotes a transition towards more sustainable and environmentally friendly solutions.

Low Global Warming Potential (GWP)
R454B boasts a significantly lower GWP compared to the traditional R410A, thereby substantially reducing the environmental footprint of your cooling system.

Atlas Copco: Your Reliable Partner for Transition
Atlas Copco organization is committed to supporting our clients in all stages of transition towards sustainable solutions. With a team of expert technicians, we are ready to provide guidance, training, and ongoing assistance to ensure safe and efficient utilization of our chillers. Make the right choice for a sustainable future. Choose the TCS Chiller with R454B Refrigerant Gas and join us in our commitment to a cleaner and safer environment.

Energy Efficiency

Thanks to its excellent thermal properties, R454B ensures highly efficient operation, leading to reduced energy consumption and operational costs.

Lower superheat

R454B offers enhanced efficiency at partial loads, reducing issues of superheating and ensuring a more stable and reliable operation.

Proven technological components

The R454B version is designed with proven technology that keep maintenance cost under control.

Technical specifications 50Hz

Main data

Product range	unit	TCS 1V, 2V, 3V, 4V
Compressor Type	–	Scroll
Expansion valve type	–	Electronic
Condenser type	–	MCX
Fan control	–	EC Brushless
Fan nominal power (each)	**kW**	3.3
Minimum ambient temperature	**°C / °F**	– 20 °C / -4 °F
Maximum ambient temperature	**°C / °F**	46 °C / 115 °F
Evaporator type	–	Brazed Plate or Shell and Tubes
Power supply	–	400V ±10% / 3Ph+PE / 50Hz or 460V ±10% / 3Ph+PE / 60Hz
Auxiliary voltage	–	24V AC/DC
IP rating	–	IP54
Approvals	–	IEC (50 Hz), UL (60 Hz), PED 2014/68/UE

TCS 110-170 50 Hz

Product model		**TCS 110 A**		**TCS 135 A**		**TCS 155 A**		**TCS 170 A**	
Refrigerant type / GWP	**unit**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**
HT									
Cooling Capacity (1)	kW	Available	125	Available	138	Available	151	Available	175
Power consumption	kW	September	41.2	September	46.5	September	51.8	September	62.1
EER (1)	–		3		3		2.9		2.8
SEPR HT (4)	–		6.62		6.49		6.26		6.1
Water flow rate	m^3/h		21.5		23.7		26		30.1
XHT									
Cooling Capacity (2)	kW	Available	113	Available	145	Available	175	Available	193
Power consumption	kW	September	20.4	September	27.8	September	35.8	September	41.3
EER (2)	–		5.5		5.2		4.9		4.7
Water flow rate	m^3/h		19.4		24.9		30.1		33.2
Compressors in circuit 1/2	–	2/0	2/0	2/0	2/0	2/0	2/0	3/0	3/0
Number of fans	–	2							
Hydraulic connection-in/out	–	Grooved – 3"/ 3"							
Working temperatures	°C	-20…+46							
Net weight	Kg	895							

Product model		TCS 110 A		TCS 135 A		TCS 155 A		TCS 170 A	
Refrigerant type / GWP	unit	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467
Length	mm	2660							
Width	mm	1590							
Height	mm	2520							

TCS 190-310 50 Hz

Product model		TCS 190		TCS 230		TCS 260		TCS 280		TCS 310	
Refrigerant type / GWP	unit	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467
MT											
Cooling Capacity (3)	kW	164	161	180	178	205	203	235	233	Not Available	
Power consumption	kW	87	82	98	94	111	107	124	121		
SEPR (4)	–	3.6	3.7	3.6	3.7	3.5	3.6	3.6	3.8		
Compressor for each circuit	–	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2		
Water flow rate	m^3/h	26.8	26.4	29.5	29.2	33.5	33.1	38.4	38		
Net weight	Kg	2331	2331	2430	2430	2459	2459	2550	2550		
HT											
Cooling Capacity (1)	kW	195	190	230	227	250	246	285	278	312	305
Power consumption	kW	61.5	59.7	74.3	71.5	81.9	79.2	94.4	92.9	106.5	106.2
SEPR (4)	–	5.9	6.2	6	6.3	5.8	6	5.8	5.9	5.7	5.8
Compressor for each circuit	–	3/2	3/2	3/3	3/3	2/2	2/2	2/2	2/2	2/2	2/2
Water flow rate	m^3/h	33.5	32.5	39.5	38.9	43	42.1	48.8	47.7	53.6	52.3
Net weight	Kg	1619	1619	1784	1784	1791	1791	1950	1950	2049	2049
XHT											
Cooling Capacity (2)	kW	217.6	208.9	231.1	222.3	252.3	247.8	287.5	275.9	339	324.5
Power consumption	kW	41.2	39.5	40.3	37.9	44.9	42.9	51.5	49.7	62.8	61.5
SEPR (4)	–	6.1	6.3	6.3	6.6	6.4	6.8	6.3	6.7	6.2	6.5
Compressor for each circuit	–	2/2	2/2	2/2	2/2	3/2	3/2	3/2	3/2	3/3	3/3
Water flow rate	m^3/h	37.4	36	39.8	38.3	43.4	42.7	49.5	47.5	58.3	55.8
Net weight	Kg	1632	1632	1637	1637	1697	1697	1772	1772	1846	1846
Number of fans	–	3	3	4	4	4	4	4	4	4	4
Hydraulic connection-in/out	–	Grooved – 4"/ 4"									
Length	mm	3500									
Width	mm	2230									
Height	mm	2520									

TCS 350-480 50 Hz

Product model		TCS 350 A		TCS 390 A		TCS 440 A		TCS 480 A	
Refrigerant type / GWP	**units**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**
MT									
Cooling Capacity (3)	kW	312	308	353	351	**Not Available**			
Power consumption	kW	166	163	186	181				
SEPR (4)	–	3.6	3.7	3.7	3.8				
Compressor for each circuit	–	3/3	3/3	3/3	3/3				
Water flow rate	m^3/h	51	50.4	57.8	57.4				
Net weight	Kg	3252	3252	3430	3430				
HT									
Cooling Capacity (1)	kW	363	354	414	405	441	431	469	457
Power consumption	kW	119	118	132	129	146	144	160	159
SEPR (4)	–	5.94	6.12	6.1	6.33	5.84	6.01	5.84	5.96
Compressor for each circuit	–	2/2	2/2	2/2	2/2	2/3	2/3	3/3	3/3
Water flow rate	m^3/h	62.9	61.3	71.1	69.7	75.8	74.1	80.6	78.5
Net weight	Kg	2914	2914	3078	3078	3210	3210	3341	3341
XHT									
Cooling Capacity (2)	kW	381	364	430	412	474	452	**Not Available**	
Power consumption	kW	68	65	77	74	87	84		
SEPR (4)	–	6.26	6.68	6.2	6.55	6.17	6.47		
Compressor for each circuit	–	2/2	2/2	2/2	2/2	2/2	2/2		
Water flow rate	m^3/h	65.6	62.7	74	70.9	81.5	77.8		
Net weight	Kg	2688	2688	2920	2920	3019	3019		
Number of fans	–	5	5	6	6	6	6	6	6
Hydraulic connection-in/out	–	Grooved – 5"/ 5"							
Length	mm	5018							
Width	mm	2231							
Height	mm	2526							

TCS 520-610 50 Hz

Product model		TCS 520 A		TCS 560 A		TCS 610 A	
Refrigerant type / GWP	**units**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**
HT							
Cooling Capacity (1)	kW	501	485	530	512	599	578
Power consumption	kW	165	162	179	177	199	196
SEPR (4)	–	5.9	6.1	5.8	5.9	5.8	6
Compressor for each circuit	–	3/2	3/2	3/3	3/3	3/3	3/3
Water flow rate	m^3/h	86.6	83.7	91.7	88.4	102.9	99.4
Net weight	Kg	4104	4104	4327	4327	4648	4648
XHT							
Cooling Capacity (2)	kW	536	509	558	528	601	696
Power consumption	kW	97	93	102	99	109	139
SEPR (4)	–	6.1	6.6	6	6.3	6.1	6.2
Compressor for each circuit	–	2/2	2/2	3/3	3/3	2/2	3/2
Water flow rate	m^3/h	92.3	87.6	96.1	90.8	103.4	119.9
Net weight	Kg	3672	3672	3987	3987	4296	4472
Number of fans	–	7	7	7	7	8	8
Hydraulic connection-in/out	–	Grooved – 6" / 6"					
Length	mm	6474					
Width	mm	2231					
Height	mm	2526					

(1) Reference conditions: ambient air 35°C, evaporator HT in 12°C / out 7°C, 0% Glycol/Relative Humidity 40%.
(2) *Reference condition: Ambient Air 25°C, Evaporator in 20°C / out 15°C, 0% Glycol/Relative Humidity 40%*
(3) *Reference condition: Ambient Air 35°C, Evaporator MT in -2°C/out -8°C, 25% Glycol/Relative Humidity 40%*
(4) *Data declared in compliance with the European Regulation (EU) 2016/2281 with regard to eco-design requirements for cooling products and high temperature process chillers. Values refer to configuration without pump. For the XHT variants is a theoretical value.*

Technical specifications 60Hz

Main data

Product range	unit	TCS 1V, 2V, 3V, 4V
Compressor Type	–	Scroll
Expansion valve type	–	Electronic
Condenser type	–	MCX
Fan control	–	EC Brushless
Fan nominal power (each)	**kW**	3.3
Minimum ambient temperature	**°C / °F**	– 20 °C / -4 °F
Maximum ambient temperature	**°C / °F**	46 °C / 115 °F
Evaporator type	–	Brazed Plate or Shell and Tubes
Power supply	–	400V ±10% / 3Ph+PE / 50Hz
		or
		460V ±10% / 3Ph+PE / 60Hz
Auxiliary voltage	–	24V AC/DC
IP rating	–	IP54
Approvals	–	IEC (50 Hz), UL (60 Hz), PED 2014/68/UE

TCS 110-170 60Hz

Product model		TCS 110 A		TCS 135 A		TCS 155 A		TCS 170 A	
Refrigerant type / GWP	**unit**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**
HT									
Cooling Capacity (1)	kW	Available	122	Available	146	Available	161	Available	176
Power consumption	kW	September	39.6	September	48.8	September	55.8	September	63.9
EER (1)	–		3.1		3		2.9		2.8
SEPR HT (4)	–		6.53		6.1		6.05		5.7
Water flow rate	m^3/h		21		25.1		27.7		30.3
XHT									
Cooling Capacity (2)	kW	Available	122	Available	133	Available	170	Available	204
Power consumption	kW	September	22.4	September	24.5	September	34.5	September	44.8
EER (2)	–		5.4		5.4		4.9		4.8
Water flow rate	m^3/h		21		22.9		29.2		35.1
Compressors/Circuits	–	2-Jan	2-Jan	2-Jan	2-Jan	2-Jan	2-Jan	3-Jan	3-Jan
Number of fans	–	2							
Hydraulic connection-in/out	–	Grooved – 3″/ 3″							
Working temperatures	°F	-4…+115							
Net weight	Kg	895							
Length	mm	2660							
Width	mm	1590							
Height	mm	2520							

TCS 190-310 60Hz

Product model		TCS 190 A		TCS 230 A		TCS 260 A	TCS 280 A		TCS 310 A	
Refrigerant type / GWP	unit	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467	R410A / 2088 – R454B/467/	R410A / 2088	R454B / 467	R410A / 2088	R454B / 467
MT										
Cooling Capacity (3)	kW / MBTU/hr	175 / 0,6	172 / 0,59	195 / 0,67	191 / 0,65	Not Available	Not Available		251 / 0,86	246 / 0,84
Power consumption	kW	92	86	105	100				135	132
SEPR (4)	–	3.6	3.8	3.5	3.6				3.5	3.5
Compressor for each circuit	–	2/2	2/2	2/2	2/2				2/2	2/2
Water flow rate	m3/h / gpm	28,7 / 126,4	28,2 / 124,2	31,8 / 140	31,3 / 137,8				41 / 180,5	40,2 / 177
Net weight	kg / lb	2233 / 4923	2233 / 4923	2331 / 5139	2331 / 5139				2520 / 5556	2520 / 5556
HT										
Cooling Capacity (1)	kW / MBTU/hr	191 / 0,65	188 / 0,64	231 / 0,79	228 / 0,78	Not Available	280 / 0,96	274 / 0,93	303 / 1,03	294 / 1
Power consumption	kW	59.1	55.7	75	72.1		91.3	89	100.5	97.7
SEPR (4)	–	6	6.5	5.8	6.3		5.9	6.3	5.6	5.8
Compressor for each circuit	–	2/2	2/2	3/2	3/2		3/3	3/3	2/2	2/2
Water flow rate	m3/h / gpm	32,8 / 144,4	32,2 / 141,8	39,6 / 174,4	39,1 / 172,2		48 / 211,3	47,1 / 207,4	52 / 228,9	50,5 / 222,3
Net weight	kg / lb	1637 / 3609	1637 / 3609	1711 / 3772	1711 / 3772		1846 / 4070	1846 / 4070	1852 / 4083	1852 / 4083
XHT										
Cooling Capacity (2)	kW / MBTU/hr	Not Available		257,5 / 0,88	252,1 / 0,86	Not Available	279,9 / 0,96	269,5 / 0,92	320,8 / 1,09	312,4 / 1,07
Power consumption	kW			44.6	42.4		50.3	46	57.3	55.9
SEPR (4)	–			6.3	6.7		6.1	6.8	6.3	6.8
Compressor for each circuit	–			2/2	2/2		2/2	2/2	3/2	3/2
Water flow rate	m3/h / gpm			44,3 / 195	43,4 / 191,1		48,2 / 212,2	46,4 / 204,3	55,2 / 243	53,8 / 236,9
Net weight	kg / lb			1626 / 3585	1626 / 3585		1698 / 3743	1698 / 3743	1759 / 3878	1759 / 3878
Number of fans	–	4								
Hydraulic connection-in/out	–	Grooved – 4" / 4"								
Length	mm / in	3500 / 137,8								
Width	mm / in	2230 / 87,8								
Height	mm / in	2520 / 99,2								

TCS 350-480 60 Hz

Product model		TCS 350 A		TCS 390 A		TCS 440 A		TCS 480 A	
Refrigerant type / GWP	**unit**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**
MT									
Cooling Capacity (3)	**kW / MBTU/hr**	293 / 1	287 / 0,98	326 / 1,11	324 / 1,11	360 / 1,23	353 / 1,2	426 / 1,45	413 / 1,41
Power consumption	**kW**	147	143	176	172	187	185	228	225
SEPR (4)	**–**	3.6	3.7	3.6	3.6	3.6	3.7	3.6	3.59
Compressor for each circuit	**–**	2/2	2/2	3/3	3/3	3/2	3/2	3/3	3/3
Water flow rate	**m3/h / gpm**	47,9 / 210,9	46,9 / 206,5	53,3 / 234,7	52,9 / 232,9	58,9 / 259,3	57,7 / 254	69,7 / 306,9	67,6 / 297,6
Net weight	**kg / lb**	2944 / 6490	2944 / 6490	3299 / 7273	3299 / 7273	3254 / 7174	3254 / 7174	3430 / 7562	3430 / 7562
HT									
Cooling Capacity (1)	**kW**	347 / 1,18	336 / 1,15	386 / 1,32	376 / 1,28	440 / 1,5	427 / 1,46	489 / 1,67	474 / 1,62
Power consumption	**kW**	114	111	126	123	145	142	163	161
SEPR (4)	**–**	5.7	5.9	5.7	5.9	5.7	5.8	5.8	5.7
Compressor for each circuit	**–**	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Water flow rate	**m3/h**	60,2 / 265,1	58,3 / 256,7	66,4 / 292,4	64,5 / 284	75,5 / 332,4	73,4 / 323,2	83,9 / 369,4	81,4 / 358,4
Net weight	**Kg**	2786 / 6142	2786 / 6142	2977 / 6563	2977 / 6563	3048 / 6720	3048 / 6720	3078 / 6786	3078 / 6786
XHT									
Cooling Capacity (2)	**kW**	352 / 1,2	338 / 1,15	415 / 1,42	399 / 1,36	456 / 1,56	437 / 1,49	506 / 1,73	481 / 1,64
Power consumption	**kW**	62	57	75	69	85	81	98	95
SEPR (4)	**–**	6.2	6	5.5	6.8	6	6.4	5.8	6.1
Compressor for each circuit	**–**	3/2	3/2	3/3	3/3	2/2	2/2	2/2	2/2
Water flow rate	**m3/h**	60,5 / 266,4	58,1 / 255,8	71,5 / 314,8	68,7 / 302,5	78,5 / 345,6	75,2 / 331,1	87,1 / 383,5	82,8 / 364,6
Net weight	**Kg**	2608 / 5750	2608 / 5750	2774 / 6116	2774 / 6116	2822 / 6221	2822 / 6221	2920 / 6437	2920 / 6437
Number of fans	**–**	5	5	6	6	6	6	6	6
Hydraulic connection-in/out	**–**	Grooved – 5" / 5"							
Length	**mm**	5018 / 197,6							
Width	**mm**	2231 / 87,8							
Height	**mm**	2526 / 99,4							

TCS 520-610 60 Hz

Product model		TCS 520 A		TCS 560 A	
Refrigerant type / GWP	**unit**	**R410A / 2088**	**R454B / 467**	**R410A / 2088**	**R454B / 467**
HT					
Cooling Capacity (1)	**kW / MBTU/hr**	523 / 1,78	502 / 1,71	534 / 1,82	541 / 1,85
Power consumption	**kW**	176	173	191	187
SEPR (4)	**–**	5.6	5.6	5.6	5.7
Compressor for each circuit	**–**				
Water flow rate	**m3/h / gpm**	90,5 / 398,5	86,8 / 382,2	96,9 / 426,6	93 / 409,5
Net weight	**kg / lb**	4060 / 8951	4060 / 8951	4375 / 9645	4375 / 9645
XHT					
Cooling Capacity (2)	**kW / MBTU/hr**	565 / 1,93	530 / 1,81	**Not available**	
Power consumption	**kW**	108	104		
SEPR (4)	**–**	5.7	5.1		
Compressor for each circuit	**–**				
Water flow rate	**m3/h / gpm**	97,3 / 428,4	91,2 / 401,5		
Net weight	**kg / lb**	3869 / 8530	3869 / 8530		
Number of fans	**–**	7	7	8	8
Hydraulic connection-in/out	**–**	Grooved – 6"/ 6"			
Length	**mm**	6474 / 254,9			
Width	**mm**	2231 / 87,8			
Height	**mm**	2526 / 99,4			

(1) Reference conditions: ambient air 35°C, evaporator HT in 12°C / out 7°C, 0% Glycol/Relative Humidity 40%.
(2) *Reference condition: Ambient Air 25°C, Evaporator in 20°C / out 15°C, 0% Glycol/Relative Humidity 40%*
(3) *Reference condition: Ambient Air 35°C, Evaporator MT in -2°C/out -8°C, 25% Glycol/Relative Humidity 40%*
(4) *Data declared in compliance with the European Regulation (EU) 2016/2281 with regard to eco-design requirements for cooling products and high temperature process chillers. Values refer to configuration without pump. For the XHT variants is a theoretical value.*

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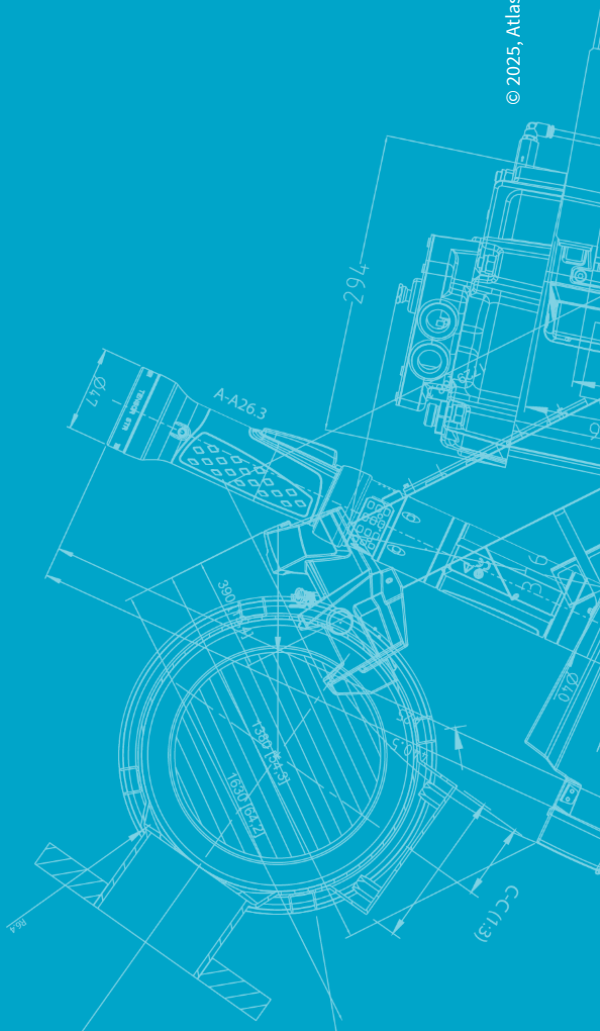

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