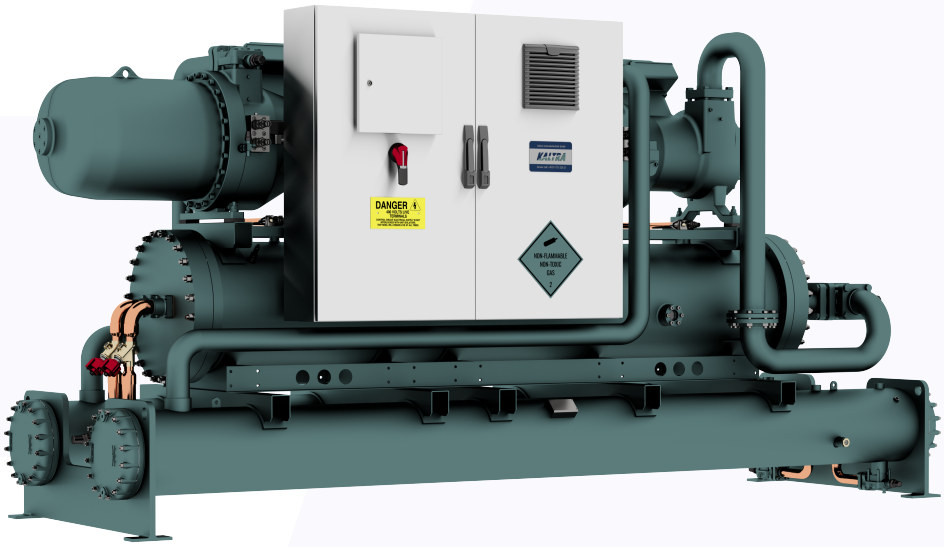
Powerstream Screw

WATER COOLED DUAL-CIRCUIT SCREW CHILLERS

- INDUSTRY BENCHMARKING COMPRESSORS
- DUAL REFRIGERANT CIRCUITS
- EXCELLENT EFFICIENCY WITH EER UP TO 5.58
- LOW OVERALL TCO



600-1200kW R134a

SCREW | WATER COOLED | R134A | FREECOOLING

WWW.KALTRA.DE

KALTRA

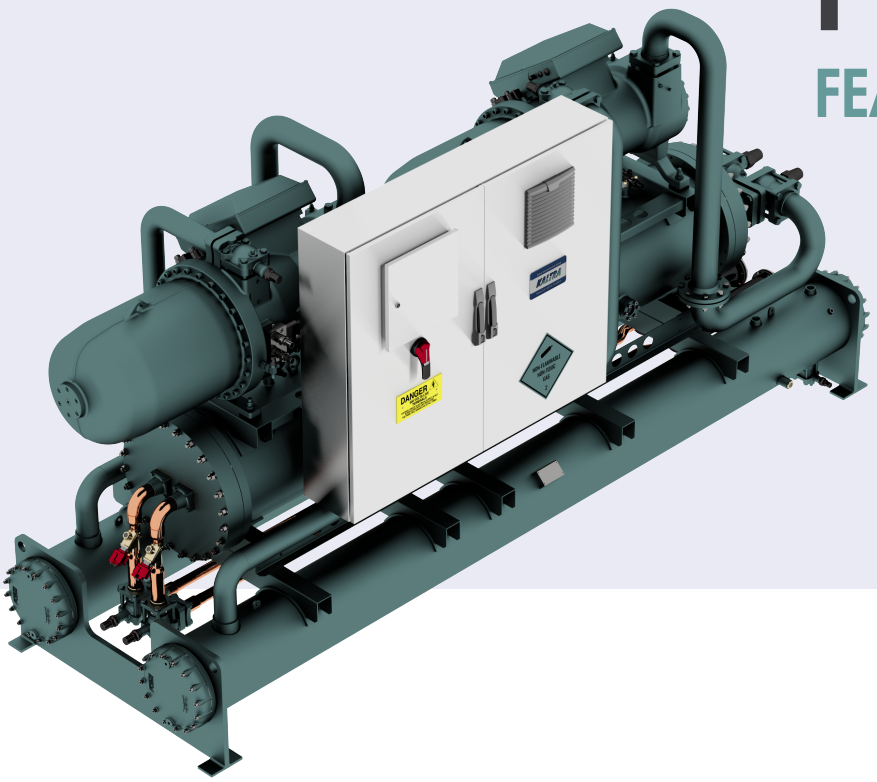
Unsurpassed sustainability

EQUIPPED WITH DUAL REFRIGERANT CIRCUIT, POWERSTREAM SCREW CHILLERS COVER COOLING CAPACITY FROM 600KW TO 1200KW WITH MODULATION IN THE RANGE OF 25-100%. INSTALLED SCREW COMPRESSORS FEATURE SLIDER CONTROL TO ACHIEVE A HIGH LEVEL OF EFFICIENCY AT LOADS OF 60 TO 100 PERCENT

Whether the facility is an industrial plant, commercial building, or data center, Powerstream Screw water chiller fits your unique needs. Engineered to deliver top performance and combined a set of benefits like sustainable design and low maintenance cost, Powerstream Screw chillers are proven performers with unsurpassed energy efficiency and proven reliability.

Powerstream

FEATURES & ADVANTAGES



- SCREW COMPRESSORS WITH SLIDER CAPACITY CONTROL
- ENHANCED PART LOAD EFFICIENCY
- FEATURE-RICH CONTROL SOFTWARE
- HIGH SEASONAL ENERGY EFFICIENCY
- LOW OPERATING COSTS
- PROVEN RELIABILITY

Dry cooler selection

We recommend using Bora or Mistral series dry coolers with Powerstream chillers. These dry coolers are optimized for water-cooled chillers, offer high performance and enable low water temperature difference.

Bora series is well-suited for urban locations due to their low sound emission, as well as for high-polluted areas and coastal installation due to the high corrosion resistance of microchannel heat exchangers used in the unit design. For the installations in hot climate zones, we recommend Bora dry coolers with evaporative pads.

Mistral series dry coolers equipped with finned tube heat exchangers with internally grooved copper tubes and are ideal for any kind of industrial and commercial applications.

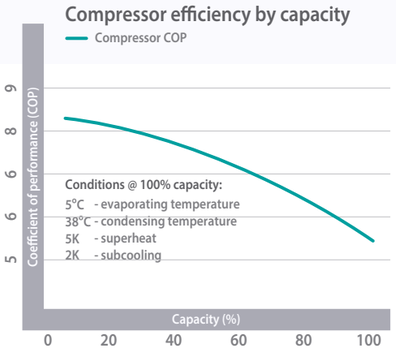
Both dry cooler series feature low operating costs and superb efficiency.

A Smart compressors

Cost-efficient solution for both full and part load conditions

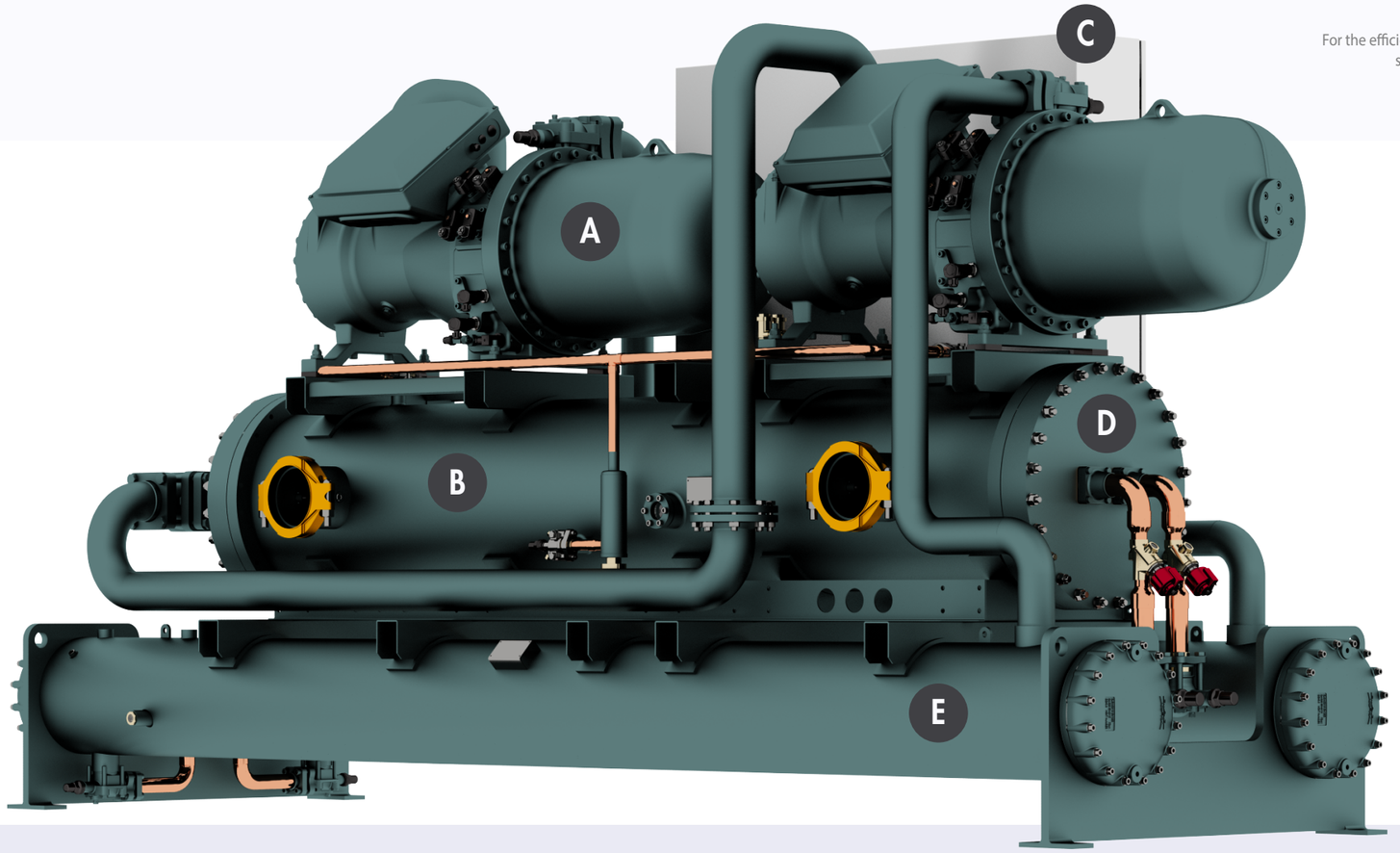
Powerstream's compact semi-hermetic screw compressors are distinguished by a further improvement in energy efficiency at full and part load conditions. Accordingly, these compressors exceed the international efficiency standard of compact screws with respect to the seasonally weighted energy requirements to an even higher degree than before. This results in particularly high ESEER/IPLV and SCOP values.

The cooling capacity of the compressor is controlled by a slider which allows an adaptation of the compressor displacement to the power requirement by shifting the start of the compression process through an axial movements of the control slider. The slider, starting from the full load position (100%)can be positioned to nominal 75%, 50%, and 25%.



ESEER

6.20



Integration to BMS C

Intelligent, centralized chilled water plant control

The control hub of Powerstream chillers is a sophisticated controller with advanced software developed for efficient operation of water-cooled chillers. It manages and optimizes the chiller's performance, giving the complete control over the system for plant operator.

Control software can be directly linked to the existing building management system. Integration with a BMS allows collecting and analyzing operating data of chilled water plant and helps to maintain optimal equipment settings, saves energy, identifies trouble-prone areas, provides maintenance schedules and generate safety and security alarms.

For the efficient operation of multiple units on a single chilled water plant, the sequencing software permits interlinked operation of the complete system, thus providing optimal temperature control and minimal energy consumption.

EEVs D

The electronic expansion valve (EEV) reduces the need for high head pressure when running at lower than nominal ambient conditions.

EEV is controlled by a driver which regulates its opening according to the performance levels required by the system and guarantees the minimal overheating under all operating conditions.

Due to superior control characteristics of EEV, Powerstream chillers demonstrate the energy savings of up to 25%.

SAVINGS

25%

B Evaporator

- ADOPTED FOR PART LOAD CONDITIONS
- OPTIMIZED FOR R134A REFRIGERANT
- ALLOWS HIGH EVAPORATION TEMPERATURES

The shell and tube evaporator used in Powerstream design offers extremely high evaporating temperatures for a given supply water temperature and optimized for R134a refrigerant. Heat transfer rate of the evaporator enhanced with internal refrigerant side tube grooving and optimally positioned baffles.

The tube bundle composed of a series of pre-modeled U-shaped tubes enabling the free expansion of the whole unit independently from the shell. Internal baffles in the water circuit optimize the flow whilst keeping pressure drop to a minimum. Reduced baffle spacing ensures high heat transfer at low flow rates, as well as for brine operation.

Condensers E

OPTIMIZED FOR R134A REFRIGERANT •
HIGH PERFORMANCE •
EASY OF MAINTENANCE •

Powerstream Screw features newly developed shell-and-tube condensers optimized for R134a refrigerant to provide the best possible efficiency. With high-performance tubes, new baffle design and shell, these condensers provide maximum efficiency with a low cost per kW, as well as shorter length and reduced weight.

Powerstream Screw chillers are equipped with two refrigerant circuits each connected to its own shell-and-tube condensers. This design enhances reliability and allows chiller maintenance to be performed without shutting it down completely, as well as the maintenance of connected cooling tower or dry cooler. Therefore, 60% of the design capacity will remain in service in the periods of maintenance.

Technical Specifications

Model		S600	S700	S800	S900	S1000	S1100	S1200
		F2/2	F2/2	F2/2	F2/2	F2/2	F2/2	F2/2
Frame size		F1	F1	F2	F2	F2	F2	F2
Cooling capacity[1]	kW	625	720	815	960	1065	1125	1160
Energy efficiency (EER)	kW/kW	5.58	5.45	5.58	5.52	5.38	5.36	5.35
ESEER		6.20	6.18	5.97	5.92	6.10	6.10	6.10
IPLV (ARI 550/590)		6.55	6.54	6.54	6.46	6.45	6.51	6.21
Net weight	kg	4020	4050	4330	5440	5460	5570	5650
Compressors					Compact screw			
Quantity		2	2	2	2	2	2	2
Capacity modulation	%	25.0÷100.0	25.0÷100.0	25.0÷100.0	25.0÷100.0	25.0÷100.0	25.0÷100.0	25.0÷100.0
Power input	kW	112	132	146	174	198	210	217
Absorbed current	A	186	225	259	284	322	335	354
Evaporator					Flooded shell-and-tube			
Water flow	m^3/h	108	123	140	165	183	193	199
Pressure drop	kPa	25	22	28	32	18	24	25
Max water flow	m^3/h	143	154	174	220	220	245	267
Water volume	L	246	237	298	370	370	370	357
Condenser					Shell-and-tube			
Water flow	m^3/h	126	126	163	181	181	230	238
Pressure drop	kPa	21	49	39	46	23	40	34
Max water flow	m^3/h	126	126	163	181	181	284	284
Water volume	L	120	120	155	170	170	180	180
Refrigerant circuit					R134a			
Quantity		2	2	2	2	2	2	2
Refrigerant charge	kg	170	170	156	216	216	212	212

(1) Water 100%; Chilled water temperatures: 7/12°C; Condenser water temperatures: 30/35°C

Package, options and accessories

Description					
General					
Anti-vibration mounts	□	Noise reduction enclosure	□	Noise absorption shells on compressors	□
Brine 0°C to -6°C	□	Brine 0°C to -12°C	□	Thermal insulation	■
Waterside/Refrigerant side					
Discharge check valve	■	Service valves on liquid/gas lines	■	Temperature probes on evaporator inlet/outlet	■
Electronic expansion valve	■	Water flow switch (loose)	□	Temperature probes on condenser inlet/outlet	■
Oil separator	■	Safety valves on liquid/gas lines	■	Pressure transducers on high/low refrigerant sides	■
Oil flow switch	■	Refrigerant leak detection	□	Economizer	■
Electric and controls					
BMS connectivity	■	GSM connectivity	□	Remote monitoring	□
SNMP connectivity	□	Energy monitoring	□	Touchscreen HMI	□

■ Standard feature
□ Optional feature

Model identification

Powerstream Screw		S	800	F	2	/	2
Compressors type	S	Compact screw					
Nominal capacity		kW					
Evaporator type	F	Flooded shell-and-tube					
Compressors		No. of compressors					
Refrigerant circuits		No. of refrigerant circuits					

Frame sizes

Frame size	Length	Width	Height
	mm	mm	mm
F1	3495	1075	1795
F2	3825	1275	1995