

# ACHIEVE YOUR VISION

CHILLER  
FAN COIL  
ICE THERMAL STORAGE SYSTEM  
CHU & AHU  
BOILER



**AFRA**  
HVAC SYSTEM





# Introduction



### Compressor

- The combination of COPELAND Semi-Hermetic Scroll type
- With highly efficient performance
- Anti Vibration Joint
- Oil heater System (optional)
- Dehumidifier filter dryer
- Safety valve for protect compressor at high Pressure
- Liquid Line Solenoid Valve
- Liquid Line Pressure Switch and Pressure Transmitter

### Evaporator

- Shell and tube type including steel pipe for shell and copper tubes with 3/8 inch internal groove and compressive strength of 300 PSI
- Tested in accordance ASME section VIII standard
- Special design for low pressure drop and optimized heat transfer
- Water Strainer
- Anti Freeze System

### Condenser

- Flat shaped style considering the optimization of the amount of space
- With high efficiency and low pressure drop
- Fin and Tube series
- 3/8" copper tube with up to 450 PSI compressive strength
- 12FPI number of Fin per Inch
- Adiabatic Cooling system for Reducing of power input, that is based on the natural thermodynamic properties of water (optional)

### Fan

- Axial low noise model
- Variable frequency drive for saving energy and reducing sound level (optional)
- Sound reduction diffuser (optional)
- EUROVENT trademark with "IP54" grading

### Electrical and safety equipment

- SIEMENS PLC
- Ability to synchronize with BMS
- Compatible with network connection protocols
- DANFOSS trademark high pressure and low pressure sensor
- Switch cabinet with IP54
- Switch cabinet with SIEMENS trademark;
- Main switching (optional), Phase control, Contactor, MSPS
- UPS buffered controller to prevent damage during operating (optional)
- Light and socket in the switch cabinet
- Alarm system for faults

### PLC Programming

- Automatic troubleshooting
- Display the performance status of all control parameters
- Display operating hours
- Display number of start times of compressors separately
- Complete observance of the operation schedule of the compressors
- Recording of the latest errors that have occurred

### Body

- Galvanized steel sheet with electrostatic paint coated
- Sound insulation for reducing sound level
- Manufactured with NC & CNC machines
- Air arteries on the columns of body to allow more air to pass through the condenser

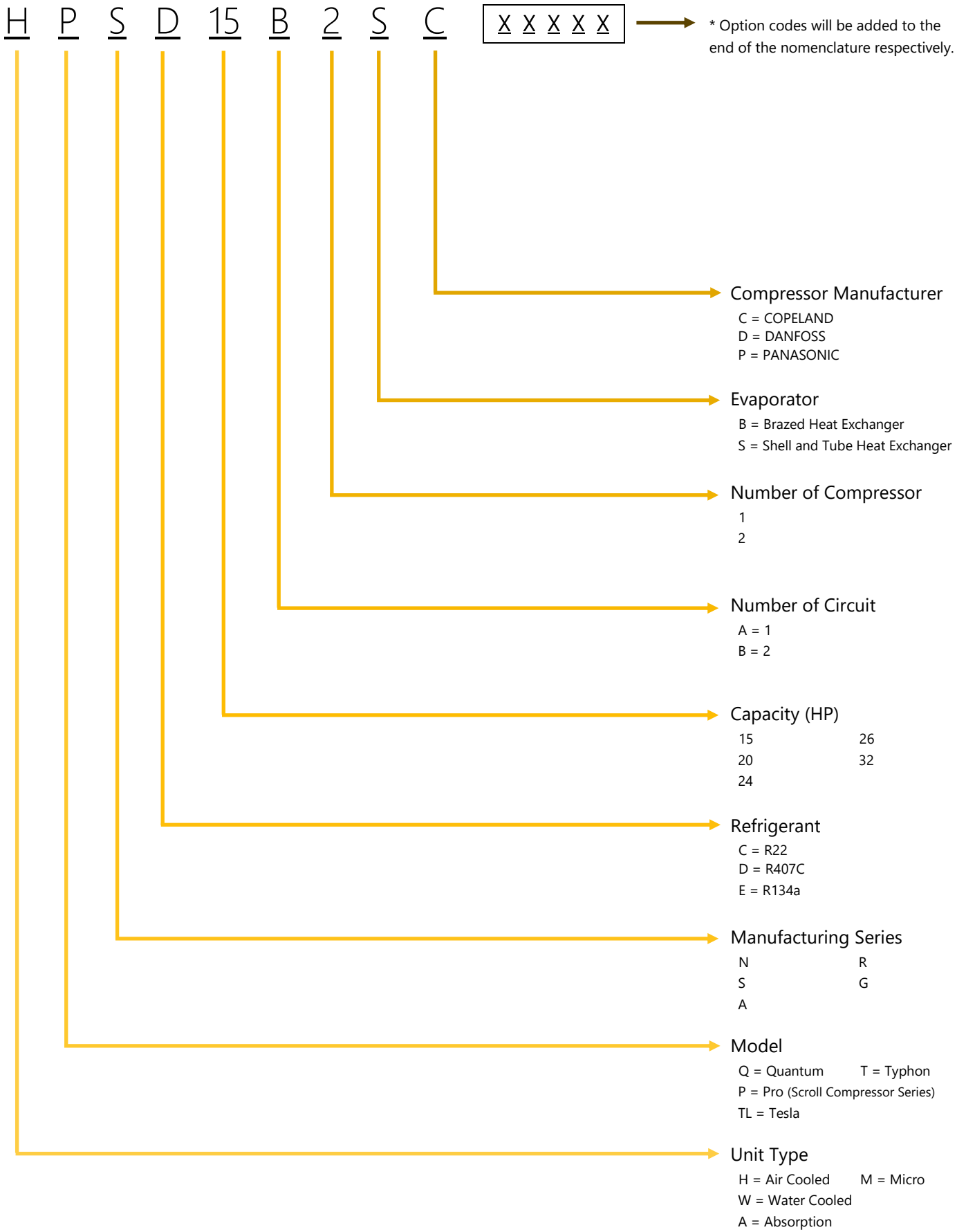
### Liquid Line Equipment

- DANFOSS TEV
- CASTEL trademark sight glass and filter dryer for dehumidification refrigerant
- Liquid receiver with Rotalock valve



Nomenclature

HPS Series



Standard Features

- This table contains a complete explanation of each parts used in units.

Item	Description	Product's Brand
Control Panel	<ul style="list-style-type: none"> <li>▪ Controlling the unit circuit for the required closed loop.</li> <li>▪ Providing the preview and the configuration of controlling system parameters to the user.</li> <li>▪ Equipped with the advanced communication interfaces.</li> <li>▪ Compatible with grid connection protocols.</li> <li>▪ Displaying errors.</li> </ul>	SIEMENS
Phase Control	<p><b>Phase sequence and phase loss sensors are designed for the following measures:</b></p> <ul style="list-style-type: none"> <li>▪ Protecting three-phase electric motors.</li> <li>▪ Controlling the phase sequence, zero control in zero-based series, controlling each single phase with adjacent phase, and controlling each phase and zero to provide standard electricity input.</li> <li>▪ Detecting the defections leading motor damages such as voltage failure in one or more phases or voltage imbalance between them.</li> <li>▪ Preventing rotation of the motor the wrong way.</li> </ul>	SIEMENS
Terminals	<ul style="list-style-type: none"> <li>▪ Acting as a connector or separator between electrical panel tray and other components of the device (in terms of electrical performance).</li> </ul>	KLEMSAN
Contactor	<ul style="list-style-type: none"> <li>▪ Connecting and disconnecting the electric current of the circuit.</li> </ul>	SIEMENS
MSPS	<p><b>Motor Safety Protection System to performs an electric motor:</b></p> <ul style="list-style-type: none"> <li>▪ isolation.</li> <li>▪ motor protection against overload and short circuit.</li> <li>▪ control of the motor.</li> </ul>	SIEMENS
Liquid Line	<p><b>Includes:</b></p> <ul style="list-style-type: none"> <li>▪ Sight Glass, Filter Dryer, Safety Valve, Bulb Valve.</li> </ul>	CASTEL
Sensors	<p><b>Includes:</b></p> <ul style="list-style-type: none"> <li>▪ Pressure Switch, Pressure Transmitter, Temperature Sensor.</li> </ul>	DANFOSS
TEV	<p><b>Thermal Expansion Valve:</b></p> <ul style="list-style-type: none"> <li>▪ Ensuring accurate control of refrigerant injection into the evaporator.</li> </ul>	DANFOSS

- All models are supplied with COPELAND scroll compressor trademark. Contact us for more data about other brands.



Standard Features

Item	Description	Product's Brand
Condenser <sup>1</sup>	<ul style="list-style-type: none"> <li>▪ Fin and tube with 12FPI number of Fin per Inch including 3/8" copper tube and compressive strength of 450 PSI.</li> </ul>	AFRA
Evaporator <sup>1</sup>	<ul style="list-style-type: none"> <li>▪ Shell and tube type including steel pipe for shell and copper tubes with 3/8-inch internal groove and compressive strength of 300 PSI.</li> <li>▪ Equipped with water flow switch, water strainer, Anti Freeze System.</li> <li>▪ Tested in Accordance "ASME Section VIII" Standard.</li> <li>▪ IT Trademark Insulator.</li> </ul>	REFKAR
Liquid Receiver	<ul style="list-style-type: none"> <li>▪ Eliminating gas refrigerant.</li> <li>▪ Ensuring that pure liquid refrigerant enters the expansion valve.</li> <li>▪ Equipped with Rotalock valve for easier operation and maintenance.</li> </ul>	AFRA

1. Powered by UNILAB

- All models are supplied with COPELAND scroll compressor trademark. Contact us for more data about other brands.

Options

- This table includes information of equipment that their installation enhances the unit's efficiency.

Item	Description	Product's Brand
1. Soft Starter	<ul style="list-style-type: none"> <li>▪ Reducing the mechanical stress and shocks caused by starts and stops to the compressor</li> <li>▪ Controlling the consuming current of compressors and protecting them from the electrical overload</li> <li>▪ Having the minimum amount of reactive power</li> <li>▪ To perform a safe boot, three asynchronous phases are used</li> <li>▪ Consistently controlling of the compressor voltage source in the operating stage</li> <li>▪ The compressor is aligned with load behavior to accelerate the mechanical equipment's operation</li> <li>▪ Increasing the life span</li> </ul>	SIEMENS
2. VFD Controller	<ul style="list-style-type: none"> <li>▪ Controlling the fan speed.</li> <li>▪ Reducing the fan sound level.</li> <li>▪ Balancing the refrigerant pressure in the condenser.</li> <li>▪ Increasing the compressor's life span.</li> <li>▪ Preventing the frequent start / stops that damage the equipment.</li> </ul>	SIEMENS
3. Main Switch	<ul style="list-style-type: none"> <li>▪ Power Switch (On/Off).</li> <li>▪ Controlling the input current to the device.</li> </ul>	SIEMENS
4. Oil Heater	<ul style="list-style-type: none"> <li>▪ Preventing the mix of the refrigerant and the compressor oil.</li> </ul>	-
5. Oil Separator	<ul style="list-style-type: none"> <li>▪ Preventing the compressor oil discharge.</li> <li>▪ Returning the oil to the compressor leading an automatic lubrication for the compressor's parts.</li> <li>▪ Preventing the mix of the oil and the refrigerant which makes acid in the system.</li> <li>▪ Protecting from corrosion.</li> <li>▪ Protecting the compressor from damage.</li> </ul>	CASTEL
6. Accumulator	<ul style="list-style-type: none"> <li>▪ Preventing the liquid refrigerant to enter the compressor.</li> <li>▪ Reevaporating of collected refrigerant in Accumulator to enhance the compressor's efficiency.</li> <li>▪ Protecting the compressor from damage.</li> </ul>	CASTEL

- Option codes must be added to the end of the nomenclature and it is mandatory in the registration process.

## Options

- This table includes information of equipment that their installation enhances the unit's efficiency.

Item	Description	Product's Brand
7. Economizer	<ul style="list-style-type: none"> <li>▪ Increasing the efficiency by creating a sub-circuit.</li> <li>▪ Improving the system performance.</li> <li>▪ Energy saving.</li> <li>▪ Utilizing brazed plate heat exchanger.</li> </ul>	KELVION (Heat Exchanger)
8. Adiabatic Cooling system	<ul style="list-style-type: none"> <li>▪ 10cm Thickness cellulose pads waterfall system with semi-closed circuit and controlling ambient air temperature system to prevent water loss.</li> <li>▪ The air temperature reduction can reach as much as 15 °C depending on the ambient air enthalpy conditions.</li> </ul>	AFRA
9. Switch Cabinet	<p>A. UPS buffered controller to prevent damage during operating.</p> <p>B. Cooling system specially for switch cabinet.</p>	-
10. Fan	<ul style="list-style-type: none"> <li>▪ Sound reduction diffuser.</li> </ul>	EUROVENT

- Option codes must be added to the end of the nomenclature and it is mandatory in the registration process.

In general, all refrigerant types are characterised by two numbers: Ozone Depletion Potential (ODP) and Global Warming Potential (GWP).



ODP values range from 0 to 1: the closest the ODP value is to 1, the more harmful the refrigerant is for the ozone layer. CFCs are generally characterised by a big ODP value, because they contain chlorine, which is accused of heavily contributing to the Ozone Depletion phenomenon. As a result, CFCs have been phased out of use nowadays.



GWP values range from 0 to several thousands: the bigger the GWP value is, the more harmful the refrigerant is for the global warming effect. In general, HCFCs have also been phased out since 2005, and only the chlorine free (zero ozone depletion) HFCs are allowed for use nowadays.



The table includes refrigerant properties that using in refrigeration circuit.

ASHRAE Number	Type	Molecular Formula	ODP	GWP (100yr)
R-407C	HFC	23±2% CH <sub>2</sub> F <sub>2</sub> 25±2% C <sub>2</sub> HF <sub>5</sub> 52±2% C <sub>2</sub> H <sub>2</sub> F <sub>4</sub>	0	1774
R-134a	HFC	C <sub>2</sub> H <sub>2</sub> F <sub>4</sub>	0	1300
R-22	HCFC	CHClF <sub>2</sub>	0.055	1760

- Powered by [Wikipedia.org](https://www.wikipedia.org)



# Technical Data

Model No.			HPSD15B2SC	HPSD20B2SC	HPSD24B2SC
1	Cooling capacity	KW	38.4	50.2	57.8
		RT	11	14	16
	Total input power	KW	13.7	19.1	21.2
	Total rated current	A	29.8	35.4	38.4
	EER	-	2.80	2.63	2.73
2	Cooling capacity	KW	35.4	46.7	53.2
		RT	10	13	15
	Total input power	KW	15.4	21.1	23.4
	Total rated current	A	31.8	38.1	41.4
	EER	-	2.30	2.21	2.27
ESEER		-	3.47	3.10	3.28
Evaporator	Type	-	Shell and tube		
	Brand	-	REFKAR		
	Water flow rate	gpm	29.8	39	47.4
		m <sup>3</sup> /h	6.8	8.9	10.8
	Water pressure drop	kPa	10	8	12
Max design pressure	Mpa	0.8			
Condenser	Type	-	Flat shape		
	Brand	-	AFRA GOSTAR		
	Heat exchanger	-	Aluminium fin		
	Number of rows	-	2	3	
	Fins per inch	FPI	12		
Fan	Type	-	Axial fan		
	Brand	-	EUROVENT		
	Number	-	2		
	Speed	rpm	1350	900	
	Diameter	mm	600	800	
	Air flow rate	m <sup>3</sup> /h	10000	22000	
	Discharge	Side/Top	Top		
Compressor	Type	-	Semi-Hermetic Scroll		
	Brand	-	COPELAND		
	Model	-	ZR94KCE-TFD	ZR125KCE-TFD	ZR144KCE-TFD
	Combination	Pieces	2		
	Oil type	-	POE RL32-3MAF		
	Oil charge amount	L	2.65	3.25	
	Oil heater	-	• (Optional)		
Refrigerant	Type	-	R407C		
Ambient temp. range	°C	21 ~ 46		21 ~ 42	
Command control system	Type	-	SIEMENS PLC		
Sound pressure level	dB(A)	~ 65			
Power supply	∅, V, Hz	3, 400, 50			
Dimension	WxHxD	mm	972x1209x1576	972x1265x2171	
Net weight		kg	~ 800		

1 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 35 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

2 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 40 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

- Evaporating SST : 2 °C  
 - Water side fouling factor : 0.000043 m<sup>2</sup> . °C / KW  
 - ESEER calculations is based on European standard.  
 - Measuring sound pressure level at 3m away and ±3dB tolerance.  
 - The characteristics of water flow rate and water pressure drop are given based on case "1".

Model No.			HPSD26B2SC	HPSD32B2SC	
1	Cooling capacity	KW	61.9	73.2	
		RT	18	21	
	Total input power	KW	23.6	27.6	
	Total rated current	A	43.8	55.5	
EER		-	2.62	2.65	
2	Cooling capacity	KW	57	67.6	
		RT	16	19	
	Total input power	KW	26.2	30.6	
	Total rated current	A	47.1	59.1	
EER		-	2.17	2.21	
ESEER		-	3.29	3.34	
Evaporator	Type	-	Shell and tube		
	Brand	-	REFKAR		
	Water flow rate	gpm	47	58	
		m <sup>3</sup> /h	10.7	13.2	
	Water pressure drop	kPa	12.2	16.8	
Max design pressure	Mpa	0.8			
Condenser	Type	-	Flat shape		
	Brand	-	AFRA GOSTAR		
	Heat exchanger	-	Aluminium fin		
	Number of rows	-	3		
	Fins per inch	FPI	12		
Fan	Type	-	Axial fan		
	Brand	-	EUROVENT		
	Number	-	2		
	Speed	rpm	900		
	Diameter	mm	800		
	Air flow rate	m <sup>3</sup> /h	22000		
	Discharge	Side/Top	Top		
Compressor	Type	-	Semi-Hermetic Scroll		
	Brand	-	COPELAND		
	Model	-	ZR160KCE-TFD	ZR190KCE-TFD	
	Combination	Pieces	2		
	Oil type	-	POE RL32-3MAF		
	Oil charge amount	L	3.37	3.38	
	Oil heater	-	• (Optional)		
Refrigerant	Type	-	R407C		
Ambient temp. range	°C	21 ~ 46			
Command control system	Type	-	SIEMENS PLC		
Sound pressure level	dB(A)	~ 70	~ 72		
Power supply	Ø, V, Hz	3, 400, 50			
Dimension	WxHxD	mm 972x1265x2171			
Net weight	kg	~ 800			

1 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 35 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

2 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 40 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

- Evaporating SST : 2 °C  
 - Water side fouling factor : 0.000043 m<sup>2</sup> . °C / KW  
 - ESEER calculations is based on European standard.  
 - Measuring sound pressure level at 3m away and ±3dB tolerance.  
 - The characteristics of water flow rate and water pressure drop are given based on case "1".

Model No.		HPSC15B2SC	HPSC20B2SC	HPSC24B2SC	
1	Cooling capacity	KW	39.2	52.8	60.2
		RT	11	15	17
	Total input power	KW	13.4	19.2	21.2
	Total rated current	A	29	35	38.2
	EER	-	2.93	2.75	2.84
2	Cooling capacity	KW	36.6	49.8	56.2
		RT	10	14	16
	Total input power	KW	14.8	21.2	23.4
	Total rated current	A	31	37.6	41.2
	EER	-	2.47	2.35	2.34
ESEER		-	3.65	3.21	3.51
Evaporator	Type	-	Shell and tube		
	Brand	-	REFKAR		
	Water flow rate	gpm	30	41.1	46.9
		m <sup>3</sup> /h	6.8	9.3	10.7
	Water pressure drop	kPa	12.5	10	13.5
Max design pressure	Mpa	0.8			
Condenser	Type	-	Flat shape		
	Brand	-	AFRA GOSTAR		
	Heat exchanger	-	Aluminium fin		
	Number of rows	-	2	3	
	Fins per inch	FPI	12		
Fan	Type	-	Axial fan		
	Brand	-	EUROVENT		
	Number	-	2		
	Speed	rpm	1350	900	
	Diameter	mm	600	800	
	Air flow rate	m <sup>3</sup> /h	10000	22000	
	Discharge	Side/Top	Top		
Compressor	Type	-	Semi-Hermetic Scroll		
	Brand	-	COPELAND		
	Model	-	ZR94KCE-TFD	ZR125KCE-TFD	ZR144KCE-TFD
	Combination	Pieces	2		
	Oil type	-	POE RL32-3MAF		
	Oil charge amount	L	2.65	3.25	
	Oil heater	-	● (Optional)		
Refrigerant	Type	-	R22		
Ambient temp. range	°C	21 ~ 46			
Command control system	Type	-	SIEMENS PLC		
Sound pressure level	dB(A)	~ 65			
Power supply	∅ , V , Hz	3 , 400 , 50			
Dimension	WxHxD	mm	972x1209x1576	972x1265x2171	
Net weight	kg	~ 800			

1 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 35 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

2 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 40 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

- Evaporating SST : 2 °C  
 - Water side fouling factor : 0.000043 m<sup>2</sup> . °C / KW  
 - ESEER calculations is based on European standard.  
 - Measuring sound pressure level at 3m away and ±3dB tolerance.  
 - The characteristics of water flow rate and water pressure drop are given based on case "1".

According to our innovation policy , some specifications may be change without prior notification.



Model No.			HPSC26B2SC	HPSC32B2SC	
1	Cooling capacity	KW	64.8	76.6	
		RT	18	22	
	Total input power	KW	23.4	27.6	
	Total rated current	A	43	53.6	
EER		-	2.77	2.78	
2	Cooling capacity	KW	60	71.2	
		RT	17	20	
	Total input power	KW	25.6	30.4	
	Total rated current	A	46.4	57.4	
EER		-	2.34	2.34	
ESEER		-	3.30	3.37	
Evaporator	Type	-	Shell and tube		
	Brand	-	REFKAR		
	Water flow rate	gpm	51.7	60.6	
		m <sup>3</sup> /h	11.7	13.8	
	Water pressure drop	kPa	14	19.1	
Max design pressure	Mpa	0.8			
Condenser	Type	-	Flat shape		
	Brand	-	AFRA GOSTAR		
	Heat exchanger	-	Aluminium fin		
	Number of rows	-	3		
	Fins per inch	FPI	12		
Fan	Type	-	Axial fan		
	Brand	-	EUROVENT		
	Number	-	4		
	Speed	rpm	900		
	Diameter	mm	800		
	Air flow rate	m <sup>3</sup> /h	22000		
	Discharge	Side/Top	Top		
Compressor	Type	-	Semi-Hermetic Scroll		
	Brand	-	COPELAND		
	Model	-	ZR160KCE-TFD	ZR190KCE-TFD	
	Combination	Pieces	2		
	Oil type	-	POE RL32-3MAF		
	Oil charge amount	L	3.37	3.38	
	Oil heater	-	● (Optional)		
Refrigerant	Type	-	R22		
Ambient temp. range	°C	21 ~ 46			
Command control system	Type	-	SIEMENS PLC		
Sound pressure level	dB(A)	~ 70	~ 72		
Power supply	Ø, V, Hz	3, 400, 50			
Dimension	WxHxD	mm 972x1265x2171			
Net weight	kg	~ 800			

1 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 35 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

2 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 40 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

- Evaporating SST : 2 °C  
 - Water side fouling factor : 0.000043 m<sup>2</sup> . °C / KW  
 - ESEER calculations is based on European standard.  
 - Measuring sound pressure level at 3m away and ±3dB tolerance.  
 - The characteristics of water flow rate and water pressure drop are given based on case "1".

Model No.			HPSE15B2SC	HPSE20B2SC	HPSE24B2SC
1	Cooling capacity	KW	24.8	34	39.8
		RT	7	10	11
	Total input power	KW	9.6	13.9	15.6
	Total rated current	A	25.2	29	29.6
	EER	-	2.58	2.45	2.55
2	Cooling capacity	KW	22.8	31.8	36.8
		RT	6	9	10
	Total input power	KW	10.6	15	17
	Total rated current	A	26.4	30.2	31.8
	EER	-	2.14	2.12	2.16
ESEER		-	3.12	2.81	3.01
Evaporator	Type	-	Shell and tube		
	Brand	-	REFKAR		
	Water flow rate	gpm	17.7	26.5	30
		m <sup>3</sup> /h	4	6	6.8
	Water pressure drop	kPa	9	9.5	12
Max design pressure	Mpa	0.8			
Condenser	Type	-	Flat shape		
	Brand	-	AFRA GOSTAR		
	Heat exchanger	-	Aluminium fin		
	Number of rows	-	2	3	
	Fins per inch	FPI	12		
Fan	Type	-	Axial fan		
	Brand	-	EUROVENT		
	Number	-	2		
	Speed	rpm	1350	900	
	Diameter	mm	600	800	
	Air flow rate	m <sup>3</sup> /h	10000	22000	
	Discharge	Side/Top	Top		
Compressor	Type	-	Semi-Hermetic Scroll		
	Brand	-	COPELAND		
	Model	-	ZR94KCE-TFD	ZR125KCE-TFD	ZR144KCE-TFD
	Combination	Pieces	2		
	Oil type	-	POE RL32-3MAF		
	Oil charge amount	L	2.65	3.25	
	Oil heater	-	• (Optional)		
Refrigerant	Type	-	R134a		
Ambient temp. range	°C	21 ~ 46			
Command control system	Type	-	SIEMENS PLC		
Sound pressure level	dB(A)	~ 65			
Power supply	∅, V, Hz	3, 400, 50			
Dimension	WxHxD	mm	972x1209x1576	972x1265x2171	
Net weight	kg	~ 800			

1 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 35 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

2 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 40 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

- Evaporating SST : 2 °C  
 - Water side fouling factor : 0.000043 m<sup>2</sup> . °C / KW  
 - ESEER calculations is based on European standard.  
 - Measuring sound pressure level at 3m away and ±3dB tolerance.  
 - The characteristics of water flow rate and water pressure drop are given based on case "1".

Model No.			HPSE26B2SC	HPSE32B2SC
1	Cooling capacity	KW	42.2	50.6
		RT	12	14
	Total input power	KW	16.9	20.2
	Total rated current	A	36.2	48.6
EER		-	2.50	2.50
2	Cooling capacity	KW	39.2	47
		RT	11	13
	Total input power	KW	18.4	22
	Total rated current	A	38	50.2
EER		-	2.13	2.14
ESEER		-	2.93	2.93
Evaporator	Type	-	Shell and tube	
	Brand	-	REFKAR	
	Water flow rate	gpm	32.2	40.3
		m <sup>3</sup> /h	7.3	9.2
	Water pressure drop	kPa	14	18
Max design pressure	Mpa	0.8		
Condenser	Type	-	Flat shape	
	Brand	-	AFRA GOSTAR	
	Heat exchanger	-	Aluminium fin	
	Number of rows	-	3	
	Fins per inch	FPI	12	
Fan	Type	-	Axial fan	
	Brand	-	EUROVENT	
	Number	-	2	
	Speed	rpm	900	
	Diameter	mm	800	
	Air flow rate	m <sup>3</sup> /h	22000	
	Discharge	Side/Top	Top	
Compressor	Type	-	Semi-Hermetic Scroll	
	Brand	-	COPELAND	
	Model	-	ZR160KCE-TFD	ZR190KCE-TFD
	Combination	Pieces	2	
	Oil type	-	POE RL32-3MAF	
	Oil charge amount	L	3.37	3.38
	Oil heater	-	• (Optional)	
Refrigerant	Type	-	R134a	
Ambient temp. range	°C	21 ~ 46		
Command control system	Type	-	SIEMENS PLC	
Sound pressure level	dB(A)	~ 70	~ 72	
Power supply	Ø, V, Hz	3, 400, 50		
Dimension	WxHxD	mm 972x1265x2171		
Net weight	kg	~ 800		

1 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 35 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

2 : Chilled water inlet / outlet : 12 °C / 7 °C  
 Outdoor ambient temp. : 40 °C DB  
 Sea level : 4000 ft  
 Fan input power included  
 Pump input power not included

- Evaporating SST : 2 °C  
 - Water side fouling factor : 0.000043 m<sup>2</sup> . °C / KW  
 - ESEER calculations is based on European standard.  
 - Measuring sound pressure level at 3m away and ±3dB tolerance.  
 - The characteristics of water flow rate and water pressure drop are given based on case "1".



# Performance Data

Model No.	Ambient Temp. (°C)	Cooling Capacity (KW)	Power Input (KW)	Rated Current (A)	COP
HPSD15B2SC	30	41.2	12.3	28.2	3.35
	35	38.4	13.7	29.8	2.80
	37	37.2	14.4	30.6	2.58
	40	35.4	15.4	31.8	2.30
	42	34.0	16.1	32.6	2.11
	46	31.2	17.6	34.6	1.77
HPSD20B2SC	30	53.5	17.3	33.2	3.09
	35	50.2	19.1	35.4	2.63
	37	48.9	19.9	36.4	2.46
	40	46.7	21.1	38.1	2.21
	42	45.2	22.0	39.3	2.06
	46	42.1	23.9	41.9	1.76
HPSD24B2SC	30	61.8	19.2	35.8	3.22
	35	57.8	21.2	38.4	2.73
	37	56.0	22.2	39.4	2.52
	40	53.2	23.4	41.4	2.27
	42	51.4	24.6	42.8	2.09
	46	-	-	-	-
HPSD26B2SC	30	66.9	21.4	41.1	3.13
	35	61.9	23.6	43.8	2.62
	37	65.6	24.6	45.1	2.67
	40	57.0	26.2	47.1	2.17
	42	55.0	27.3	48.6	2.01
	46	50.7	29.7	51.9	1.71
HPSD32B2SC	30	78.3	25.0	52.6	3.13
	35	73.2	27.6	55.5	2.65
	37	71.1	28.8	56.9	2.47
	40	67.6	30.6	59.1	2.21
	42	65.4	31.9	60.6	2.05
	46	60.5	34.7	64.1	1.74

- Chilled water inlet / outlet : 12 °C / 7 °C

Model No.	Ambient Temp. (°C)	Cooling Capacity (KW)	Power Input (KW)	Rated Current (A)	COP
HPSC15B2SC	30	41.8	12.2	27.1	3.43
	35	39.2	13.4	29.0	2.93
	37	38.2	14.0	29.8	2.73
	40	36.6	14.8	31.0	2.47
	42	35.6	15.4	32.0	2.31
	46	33.0	16.8	34.2	1.96
HPSC20B2SC	30	55.6	17.6	32.8	3.16
	35	52.8	19.2	35.0	2.75
	37	51.6	20.0	36.0	2.58
	40	49.8	21.2	37.6	2.35
	42	48.6	22.0	38.6	2.21
	46	45.8	23.8	41.2	1.92
HPSC24B2SC	30	63.8	19.4	35.4	3.29
	35	60.2	21.2	38.2	2.84
	37	58.6	22.0	39.4	2.66
	40	56.2	23.4	41.2	2.40
	42	54.6	24.2	42.6	2.26
	46	51.2	26.2	45.6	1.95
HPSC26B2SC	30	69.0	21.4	40.0	3.22
	35	64.8	23.4	43.0	2.77
	37	62.8	24.3	44.4	2.58
	40	60.0	25.6	46.4	2.34
	42	57.8	26.8	48.0	2.16
	46	53.2	29.0	51.4	1.83
HPSC32B2SC	30	81.6	25.2	50.4	3.24
	35	76.6	27.6	53.6	2.78
	37	74.6	28.8	55.0	2.59
	40	71.2	30.4	57.4	2.34
	42	68.6	31.6	58.9	2.17
	46	63.4	34.2	62.4	1.85

- Chilled water inlet / outlet : 12 °C / 7 °C

Model No.	Ambient Temp. (°C)	Cooling Capacity (KW)	Power Input (KW)	Rated Current (A)	COP
HPSE15B2SC	30	26.6	8.8	24.4	3.02
	35	24.8	9.6	25.2	2.58
	37	24.0	10.0	25.8	2.40
	40	22.8	10.6	26.4	2.14
	42	21.8	11.1	26.8	1.97
	46	20.0	12.0	27.8	1.67
HPSE20B2SC	30	36.0	12.8	28.0	2.81
	35	34.0	13.9	29.0	2.45
	37	33.2	14.4	29.4	2.31
	40	31.8	15.0	30.2	2.12
	42	30.8	15.5	30.8	1.98
	46	28.8	16.6	32.0	1.73
HPSE24B2SC	30	42.6	14.2	27.8	3.00
	35	39.8	15.6	29.6	2.55
	37	38.6	16.2	30.5	2.38
	40	36.8	17.0	31.8	2.16
	42	35.6	17.6	32.8	2.02
	46	33.0	19.0	34.9	1.74
HPSE26B2SC	30	45.2	15.6	34.8	2.90
	35	42.2	16.9	36.2	2.50
	37	41.0	17.4	37.0	2.36
	40	39.2	18.4	38.0	2.13
	42	37.8	19.2	38.6	1.97
	46	35.0	20.6	40.2	1.70
HPSE32B2SC	30	54.0	18.6	47.2	2.90
	35	50.6	20.2	48.6	2.50
	37	49.2	20.9	49.2	2.35
	40	47.0	22.0	50.2	2.14
	42	45.6	22.8	50.8	2.00
	46	42.6	24.8	52.4	1.72

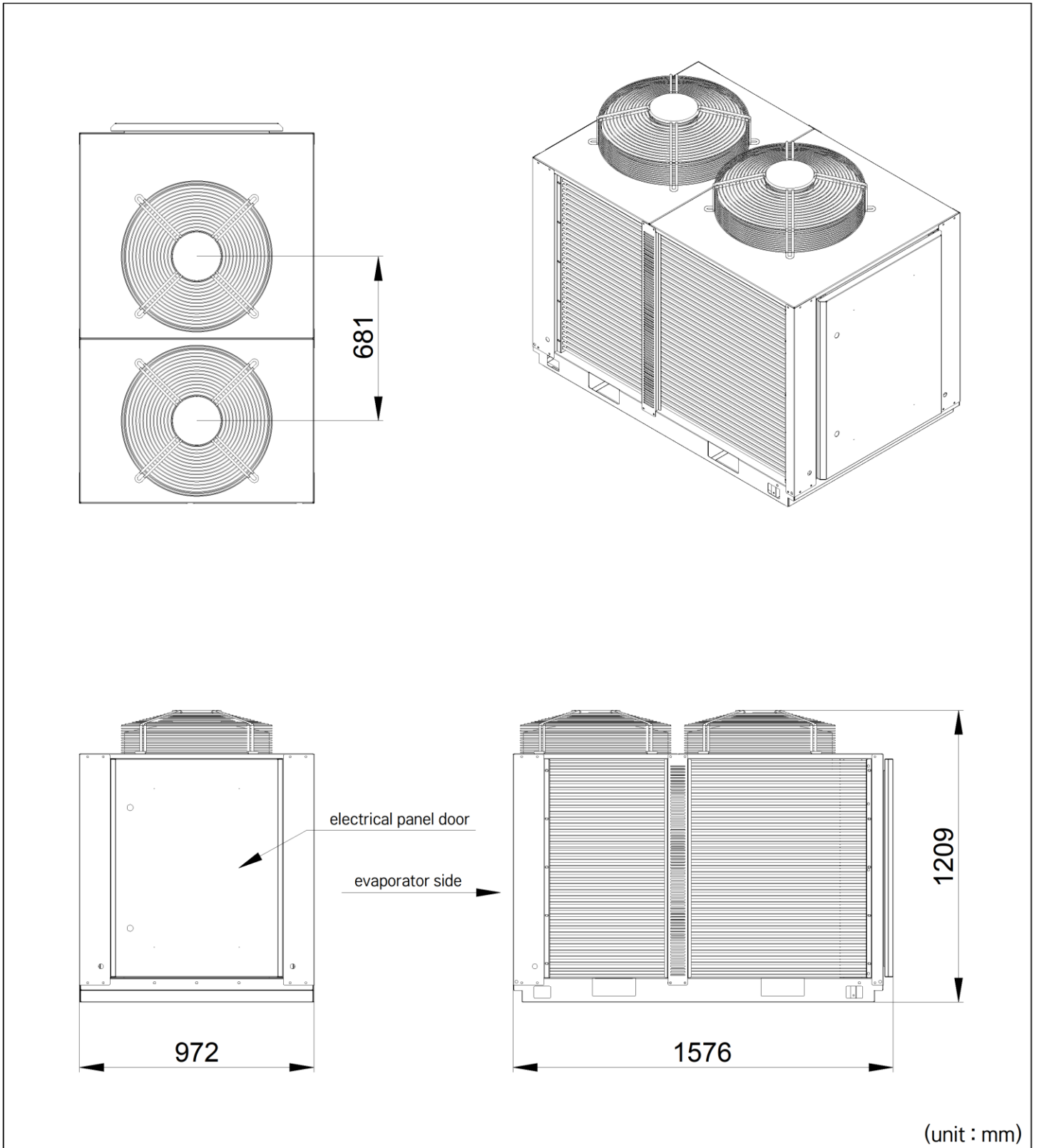
- Chilled water inlet / outlet : 12 °C / 7 °C



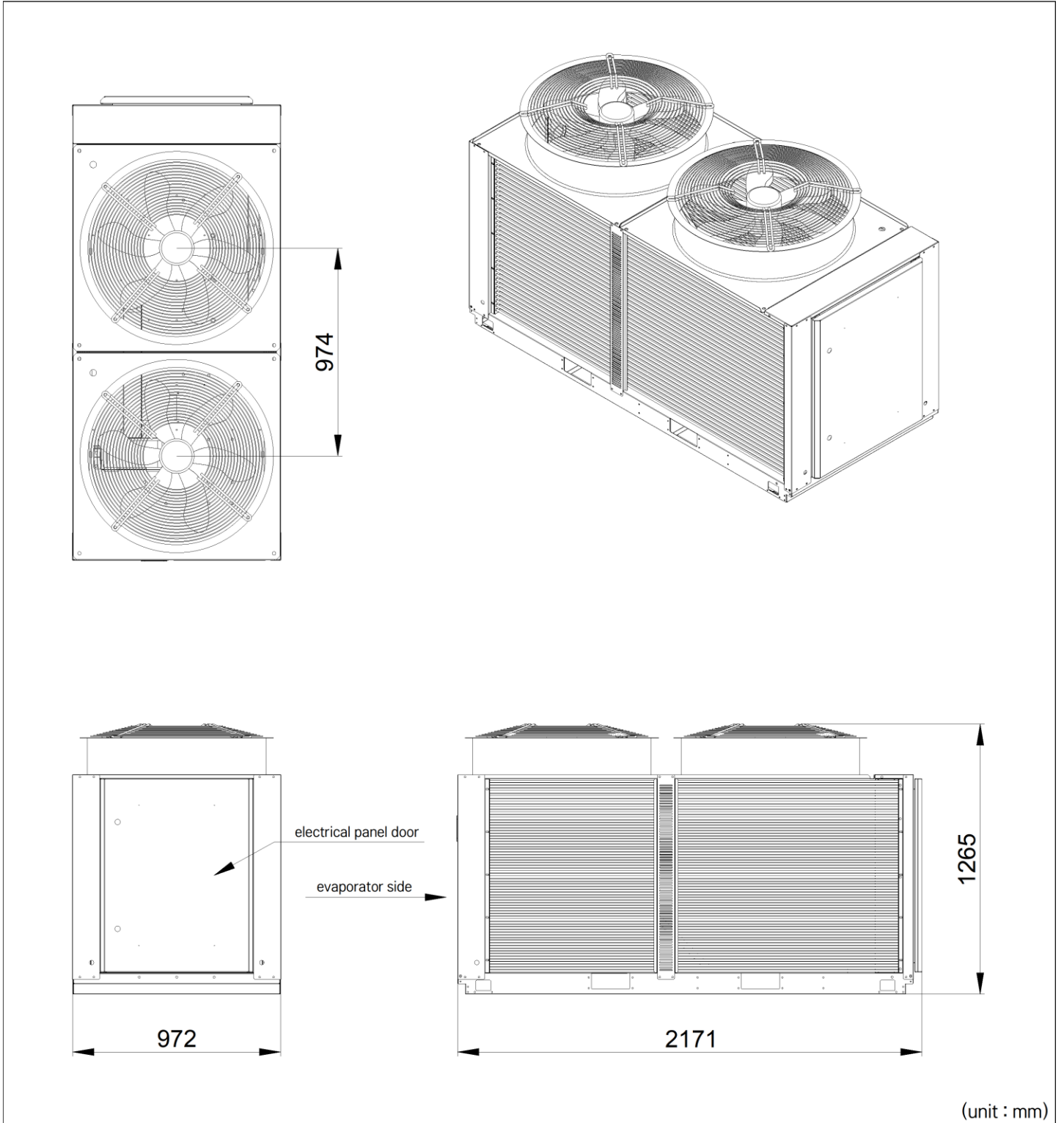
# Dimensions



**HPSD15B2SC**



**HPSD20B2SC - HPSD24B2SC - HPSD26B2SC - HPSD32B2SC**















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