

**EKSC series full-liquid screw water
(ground) source heat pump unit**
ST standard type XE efficient type



**EKSC series full-liquid screw water (ground) source
heat pump unit**

Model: ST water circulating type: EKSC250~EKSC900
 ST ground-buried pipe type: EKSC250~EKSC900
 XE water circulating type: EKSC265~EKSC1000
 XE ground-buried pipe type: EKSC265~EKSC1000
Refrigerant: R134a

EUROKLIMAT Air Conditioner, Environmental & Energy-saving Technology from Europe.

EUROKLIMAT (EK) was established in 1963 in Italy. For the past half a century, it has become famous as an energy-saving air-conditioning manufacturer in Italy and globally. Continuous innovation, new product development and top manufacturing quality are the driving force behind this growth.

EUROKLIMAT (EK) pursues the ideals of protecting the environment, providing physical comfort and adopting energy-saving into the whole process of product R&D, manufacturing and service. Our products covering residential, commercial and close control air-conditioner are manufactured according to the global generally accepted standards.



Allianz Assurance in Berlin in 2007



Nokia global R&D headquarters in Helsinki in 2006 and 2007



Huai'an Lianshui airport



Jiangxi Jiujiang Quanzun Electronics Co., Ltd. (Taiwan Canon)



Wahaha Group



AVIC Shenyang Aircraft Corporation



Zhengzhou Green Expo Garden, Geen Expo in China



Shanghai Shenzhou New Energy Development Co., Ltd.



Sanya Campus, National Judges College



Liuzhou Diwang International Business Center



Daguang Highway



361° (China) Co., Ltd.



Su Zhou Yixiangcheng

EKSC series screw water (ground) source heat pump unit

Water (ground) heat pump system is an efficient and energy-saving air-conditioning system that uses the shallow geothermal resources (also known as ground source energy, including underground water, soil, or ground surface water) to provide heating and cooling. The system realizes shift of low temperature thermal energy to high temperature thermal energy by introducing few electricity energy. The ground source energy is used as the heat source for heat pump in winter and the cooling source for air-conditioner in summer. The unit consumes energy of 1 kW to obtain more than 4 to 5 kW cooling/heating capacity. The energy sources from underground. The system does not discharge any waste gas, water, or residue, making it an ideal green air-conditioner that can be widely used in office buildings, hotels, schools, dormitories, hospitals, guesthouses, malls, villas, and residential areas.



DLR European Space Agency

- ❖ In 1912, the water (ground) source heat pump technology was born in Sweden and patented.
- ❖ In the 1950s, countries in Europe and North America started researching into the usage of the water (ground) source heat pump technology.
- ❖ In the 1970s, the water (ground) source heat pump technology research progress dramatically because of the oil crisis and ever-deteriorating environment.
- ❖ In 1978, EK water (ground) source heat pumps were launched in Europe and won unanimous acclamation.
- ❖ In 2000, EK joined hand with the DLR European Space Agency to research into the water (ground) source heat pump technology.
- ❖ In 2009, EK China introduced the leading-edge water (ground) source heat pump technologies to launch the EKSC series screw water (ground) source heat pump units.

Nomenclature

EKSC **900** **F** **R** **3** **ST** **SG - F** **AA**

1 2 3 4 5 6 7 8 9

- | | | |
|----|------|--|
| 1. | EKSC | EKSC series screw water (ground) source heat pump unit |
| 2. | 900 | indicates the cooling capacity code (USRT). |
| 3. | F | shows the design SN. F indicates full-liquid. |
| 4. | R | shows the function mode. R indicates cooling and heating. The default mode is cooling only. |
| 5. | 3 | shows the refrigerant code. 3: means R134a. |
| 6. | ST | shows the product design function. XE indicates the efficient type; ST indicates the standard type. |
| 7. | SG | indicates special function of the product.
SQ indicates the standard model for water circulation conditions.
QR indicates the standard total heat recovery model for water circulation conditions.
QV indicates the dual-condenser standard total heat recovery model for water circulation conditions.
SG indicates the standard model for underground water conditions.
GR indicates the standard total heat recovery model for underground water circulation conditions.
GV indicates the dual-condenser standard total heat recovery model for underground water circulation conditions.
SD indicates the standard model for underground circulation conditions.
DR indicates the standard total heat recovery model for underground circulation conditions.
DV indicates the dual-condenser standard total heat recovery model for underground circulation conditions. |
| 8. | F | shows the power supply feature. F indicates 380V/3N~/50Hz. |
| 9. | AA | shows detailed description of product specification changes. |

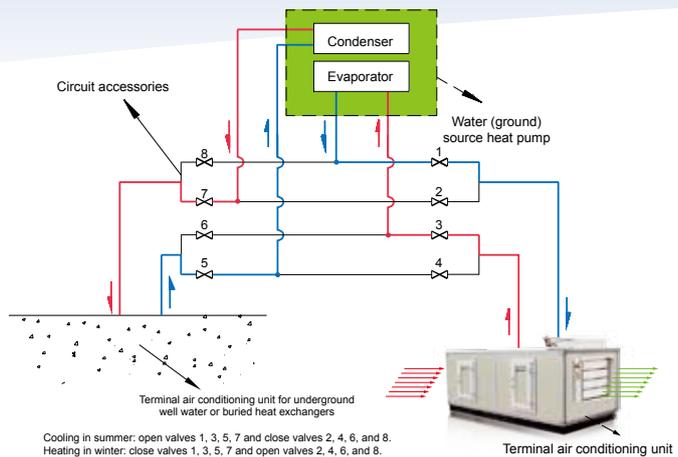
Introduction to the water (ground) source heat pump system

Category

Based on the different media for absorbing energy, the water (ground) source heat pump system is divided into three categories:

1. Underground water system (open circulating well water system)
2. Soil buried-pipe system (ground source closed circulating system)
3. Ground surface water system (ground surface water or lake water circulating system)

Water (ground) source heat pump system



Open circulating well water system

Heat is absorbed from or discharged into the underground water to heat or cool buildings. The largest advantage of this solution is that the underground water temperature is constant at 10 to 16°C, which reduces the initial investment and the operating expenses. The open circulating system is generally used in coastal areas. The soil in these areas allows water to be recharged into the water conveyor layer in the soil through recharging wells.



Ground source closed circulating system

Heat exchangers (pipes) are laid in the soil for heat exchange directly with the soil. Heat is supplied to the unit in winter, and heat discharged by the unit is absorbed in summer. A vertical loop (as shown in the figure on the right) is installed as follows: Vertical holes are drilled in the soil, and then polyethylene plastic pipes are mounted in the holes. In a horizontal loop, heat exchangers (tubes) are buried 1.5 m deep under the ground. In vertical loop or horizontal loop, heat is absorbed from or discharged into the soil.



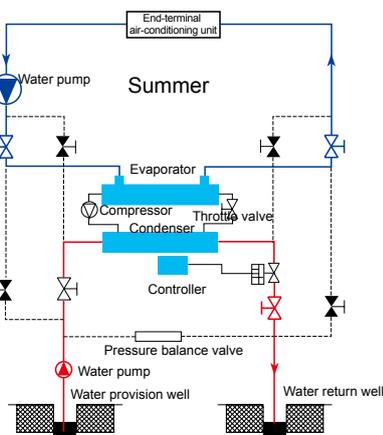
Ground surface water or lake water circulating system

Ground surface water resources such as river, lake and sea water are used for heat exchange through heat exchange devices buried in water. Heat is provided to or discharged from buildings by installing closed heat exchange devices in lake or other water sources near the buildings. The heat exchange devices need to be pleasant-looking and facilitate water discharge. The size and depth of a lake is critical. Precise calculation is required to determine whether the lake water can meet the cooling and heating requirements of buildings.

System flowchart

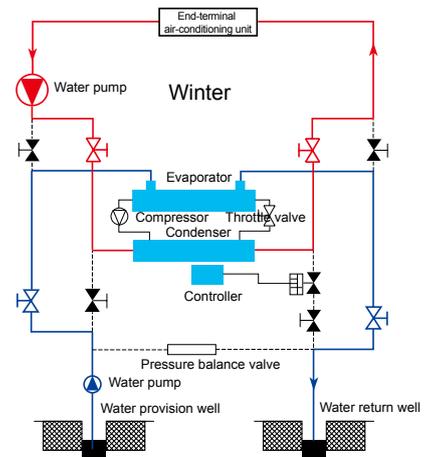
Cooling in summer

When the unit works in cooling mode in summer, well water enters into the condensers of the EKSC water (ground) source unit as the heat discharge source. Refrigerant is evaporated in the evaporator, absorbing heat of water in the cooling system. In this way, 7°C chilled water is offered to the buildings. After being compressed by the compressors, the refrigerant enters into the condensers of the unit. The well water takes away the heat and is recharged underground.



Heating in winter

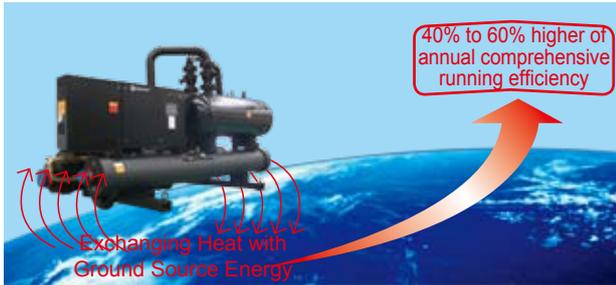
When the unit works in heating mode in summer, well water enters into the evaporators of the EKSC water (ground) source unit as the heat absorbing source. The refrigerant is evaporated in the evaporators, absorbing heat in the well water. After being compressed by compressors, the refrigerant becomes high-temperature high-pressure overheating gas and enters into the condensers to heat the circulating water, obtaining hot water at 45°C to 55°C.



Introduction to the water (ground) source heat pump system

Increasing Efficiency and Saving Energy

The heat exchanger of the EKSC water (ground) source heat pump system exchanges heat with the ground source energy, reducing consumption of primary energy while delivering high and stable heat exchange efficiency. Such a system is barely affected by the environment. Its annual comprehensive running efficiency is 40% to 60% higher than that of a traditional central air conditioning system.



Reliable system

The running conditions of EKSC water (ground) source heat pump system are stable and are not affected by changes to the environmental temperature. The heating capacity does not suffer attenuation even in cold weather, and there is no concern for frosting.



Low maintenance cost

EKSC water (ground) source heat pump system does not require a cooling tower or roof fan, and does not incur installation or maintenance costs for outdoor equipment. The compressors work steadily and do not encounter problems in a traditional central air conditioning system where the refrigerant pressure is excessively high or low, thereby greatly reducing maintenance costs.



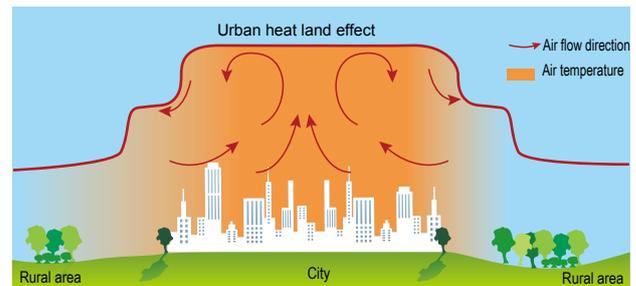
Delivering Green and Environment-Friendly Performance

EKSC water (ground) source heat pump system does not need boilers to provide heating in winter. The system does not discharge any waste gas, water or residue to the environment. It complies with national energy and environment policies and is an ideal green air-conditioner.



Saving Space

EKSC water (ground) source heat pump system does not have a cooling tower or other outdoor devices. In addition, it efficiently saves building area as it does not need the boiler room, cooling tower, auxiliary coal yard and residue yard, making the vertical appearance of the building more pleasant. It can further efficiently reduce the heat land effect surrounding the building.



Supporting a Wide Application Scope

EKSC water (ground) source heat pump system integrates heating, cooling and supply of living hot water. One such system can replace two original systems for boiler and air-conditioner. It is not restricted by environmental or climatic conditions and can be widely used in hotels, schools, malls, and office buildings.



Unit Features

A single compressor system provides cooling capacity of up to 500 RT.

**Single system full-liquid evaporator
Multi-compressor single-system design**

The industry-leading single-system full-liquid evaporator design and multi-compressor single-system design enable the single compressor system to provide cooling capacity of up to 500 RT. The compressors start one by one, greatly reducing shock of the startup current on the grid. In partial load, the dual compressors run by turns, providing a long life cycle.

99.95%

Oil separation efficiency as high as 99.95%
The air return outlet of the full-liquid evaporator is directly connected to the air suction inlet of the compressor.

The optimal built-in oil route lubricating system is equipped with an innovative external efficient oil separator, which has a unique structure to change the flow direction and works with a multi-layer high-density oil filter to deliver the optimal oil separation effect with efficiency of more than 99.95%. The air return outlet of the full-liquid evaporator is directly connected to the air suction inlet of the compressor. This effectively reduces pressure loss and ineffective overheat of the air suction pipeline. Such design is compact, efficient and energy-saving.

Environment-friendly R134a refrigerant

The refrigerant injection amount is reduced by 50% or more compared with a traditional full-liquid unit.

The lubricant injection amount is reduced by 50% or more compared with a traditional full-liquid unit.

Applicable to heat pump, full heat recovery, and cooling accumulation conditions

The full series unit adopts the environment-friendly R134a refrigerant and efficiently reduces the refrigerant filling amount. The refrigerant and lubricant injection amount is reduced by 50% or more compared with a traditional full-liquid unit. The full series unit meets the national requirements for energy efficiency of energy-saving air-conditioning products, and can be used in heat pump, full heat recovery, and cold energy storage to meet different customer requirements.

Efficient and stable R134a full-liquid screw compressor

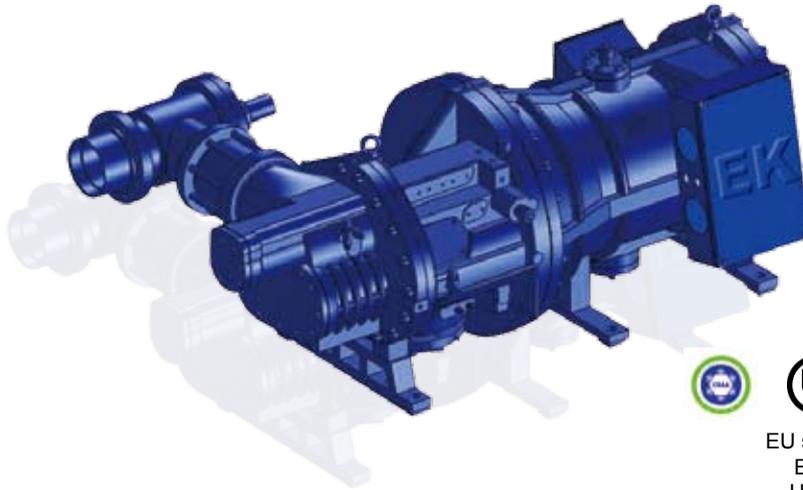
- EK's latest leading R134a efficient dual-screw compressor technology specifically designed for full-liquid unit is used. The maximum cooling capacity of a single-compressor system can reach 450 RT, efficiently reducing the number of compressors while obtaining high full-load COP. The full series unit meets national requirements for energy efficiency of energy-saving air-conditioning products.
- Direct connection design
The air return outlet of the full-liquid evaporator is directly connected to the air suction inlet of the compressor. This effectively reduces pressure loss and ineffective overheat of the air suction pipeline. Such a design is compact, efficient and energy-saving.
- Oil supply upon pressure difference
The optimal built-in oil route lubricating system is equipped with an innovative external efficient oil separator. The oil is supplied through pressure difference. The structure is simple, safe and efficient.
- Oil spray and noise reduction
The unique oil spray and noise reduction function can spray a small amount of lubricant to the air exhaust side, and form an even oil film on the surface of the rotor to absorb sound energy and reduce the overall noise of the compressors. In addition, the even oil film can efficiently lubricate and seal, reducing the leakage amount and improving compressor efficiency.
- Motor cooling
International famous efficient dual-pole three-phase F-level insulation induction motor is used. The independent motor cooling and heat dissipation design efficiently reduces the air suction pressure loss and invalid overheat of air suction. A PT100 temperature sensor is built in, and an INT69 module array is configured to protect the motor, providing active

control on motor temperature rise. The coil temperature of the compressor motor can be accurately monitored and regulated to ensure long-term and wide-range running of the motor in the running range of the compressors.

- The design of smart control on even spray for liquid refrigerant is adopted, improving the compressor efficiency while fully reducing the risks of large-amount leakage of refrigerant and lubricant. In addition, no heat is discharged to the equipment room, saving the initial investment and running expenses for cooling equipment in the equipment room.
- Capacity spool
The spool-type load adder/reducer device is used as the compressor regulation mode. The capacity spool structure configures a highly reliable international brand electromagnet for precise control and perfect match with actual load to ensure efficient running of the unit, provide comfort and save the energy.
- Dual-layer shell
A fine dual-layer shell forged by gray cast iron and processed by precision M/C machine tools is used. A three-dimensional precision tester is used to test the processing precision, ensuring that the gap of the compressor meets the requirements of high-efficiency calculation.
The dual-layer design complies with pressure-bearing requirements, and reduces the noise. Such a high-strength and high-rigidity design ensures long-term running of the compressor.

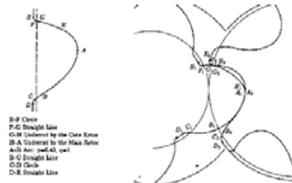


High-speed rotor grinder for EK double screw compressor



EU security regulation certification CEMark,
EU pressure vessel certification PED,
US laboratory national certification UL,
and CRAA certification

- **Bearing**
High-precision and large-frame-size axial and radial bearings are used to strongly support male and female rotors. In addition, excellent oil circuit and organization design is provided to efficiently prolong the bearing lifecycle.
- **Patented rotor**
The patent 5:6 asymmetrical rotor gear form forged by special high-precision rotor grinding machine tools is used. Such a gear form provides high precision and stable quality. In continuous running state, the rotor can maintain the optimal gap to meet the requirements for the highest efficiency.



Patent for EK dual-screw compressor linear model



Measurement for EK dual-screw compressor linear model

Efficient heat exchanger

- All internal heat exchange pipes use efficient heat exchange copper pipes with inner and outer threads to ensure optimal heat exchange flow rate of the refrigerant and chilling medium, enhance the heat transfer at the water side and refrigerant side, optimize the heat transfer efficiency, reduce energy consumption of the unit, and lower the running expenses.
- The evaporator adopts the latest efficient full-liquid design to efficiently reduce the filling amount of the refrigerant by 50% or more compared with a traditional full-liquid heat exchanger.
- The unique built-in over-cooling design of the system can fully avoid hydraulic shock of compressors and improve the cooling capacity and efficiency of the unit.
- The multi-level automatic oil return system accurately returns oil regardless of the liquid level, eliminating impact on heat exchange efficiency.
- The standard piping mode provided by the heat exchanger is trough coupling connection (with short tube), facilitating field installation. Each evaporator and condenser is equipped with independent air exhaust and water drainage devices.



Unit Features

Precise and efficient liquid level control

- The full series adopts liquid level controller with high-resolution digital display and international famous brand electronic expansion valve to steadily control the liquid level of the evaporator at the optimal position so that the unit achieves the optimal heat exchange effect at any load. This ensures high-performance running of the unit and apparently improves the efficiency under partial load.

Innovative external simple and efficient oil separator

- The innovative external efficient oil separator has a unique structure to change the flow direction and works with a multi-layer high-density oil filter to deliver the optimal oil separation effect with efficiency of more than 99.95%.
- Different from an ordinary external oil separator, this efficient oil separator is not affected under various harsh conditions and partial load as well as achieving extremely high oil separation efficiency in full load of the compressor.
- The oil filling amount is 50% or less of that of a traditional full-liquid unit. The subsequent maintenance and care cost is low.
- The oil return port of the oil separator is a chilled oil bunker with high-density washable metal oil filter (as precise as 10 μm) of a large area and small pressure drop. It does not need maintenance or replacement. In addition, a mechanical oil level switch and oil pressure difference protection logic are provided as standard configuration. High/low oil check poles are mounted on the shell, facilitating observation. The maintenance is convenient, and comprehensive measures for safe running are provided.



Wide application in multiple conditions

- The full series unit can be applied in a wide range of conditions including heat pump, full heat recovery, and cold energy storage conditions, meeting different customer requirements.

Environment-friendly and economic storage of refrigerant

- When the unit stops or is under care, the refrigerant needs to be stored in a container to reduce loss. The full series unit is equipped with one-way valve and cut-off valve at the air exhaust side, and a closing valve is set at the inlet/outlet of the container to transfer the refrigerant in the local section to other containers, greatly reducing running and maintenance costs for the customer.

Environment-friendly R134a refrigerant

The unit can select the environment-friendly R134a refrigerant and run with high efficiency under full load or partial load, saving energy while not damaging the ozone layer.



Compact Structure and Easy Installation

- The unit has a compact structure. The start and control systems are integrated. The main switch provides a prolonged handle for easy operation and automatic locking when the switch is on. After the switch is turned on, the automatic locking mode is enabled, providing a safe way to open the cabinet door.
- The unit has a tidy layout and a pleasant appearance. The unit features a precise and compact design, and a small volume, facilitating transportation and greatly reducing occupation area in the equipment room. Only a small workload for piping and cabling is required for installation to efficiently shorten the construction period and reduce the installation cost.

Unit Features

Smart Control

- The large-screen LCD developed by EK is directly connected to the digital control center, greatly improving efficiency and providing monitoring, data recording, security protection, and easy operations.
- The chilled water outlet temperature is controlled to a precision of $\pm 0.2^{\circ}\text{C}$. Various sensors in the system can accurately transfer signals and data to the controller so that the controller can protect unit parts in a timely manner, ensuring reliable running of the unit.
- Three-level password protection prevents mis-operation by non-professional personnel and ensures safe running of the unit. In addition, multiple protection functions are provided.
- All running parameters and alerts of the unit can be recorded and saved.
- The start/stop of the unit can be remotely controlled and data can be transmitted over Internet.



10-inch (800 x 480 pixels) super-large touch screen

Display information

The control center continuously monitors the running system and displays the unit running status and fault information.

The status information includes:

- Start/stop of compressors
- Temperature points (multiple)
- Unit load
- Water pump status
- Opening of valves
- Pressure points (multiple)
- Unit running status

Warning information includes:

- Anti-freezing alert
- Faults of various pressure/temperature sensors
- Valve faults
- Various protection alerts (such as compressor overload and water pump overload)

Centralized control



Specifications

SQ water circulation type ST standard model (EKSC250~EKSC900)

Model		EKSC250	EKSC280	EKSC330	EKSC400	EKSC450	EKSC500	EKSC560	EKSC660	EKSC800	EKSC900	
Cooling condition	Cooling capacity	U.S.RT	248.5	280.6	331.8	403.5	448.8	496.9	561.3	663.5	806.9	897.6
		kW	873.8	987.0	1166.9	1419.0	1578.4	1747.6	1974.0	2333.7	2837.9	3156.8
		x10 ⁴ kcal/h	75.1	84.9	100.4	122.0	135.7	150.3	169.8	200.7	244.1	271.5
	Input power	kW	153.3	170.6	200.6	244.5	271.5	306.5	341.2	401.2	489.0	543.0
	COP	kW/kW	5.70	5.79	5.82	5.80	5.81	5.70	5.79	5.82	5.80	5.81
	Chilled water flow	m ³ /h	150.3	169.8	200.7	244.1	271.5	300.6	339.5	401.4	488.1	543.0
	Chilled water pressure drop	kPa	42	42	49	55	57	62	67	69	72	72
	Water flow at water source	m ³ /h	176.7	199.1	235.2	286.1	318.2	353.3	398.2	470.4	572.2	636.4
Water pressure drop at water source	kPa	47	47	59	67	77	82	82	82	85	85	
Heating condition	Heating capacity	U.S.RT	347.8	392.3	462.4	562.4	625.4	695.6	784.5	924.9	1124.9	1250.7
		kW	1223.2	1379.6	1626.4	1978.1	2199.4	2446.4	2759.2	3252.8	3956.2	4398.8
		x10 ⁴ kcal/h	105.2	118.6	139.9	170.1	189.1	210.4	237.3	279.7	340.2	378.3
	Input power	kW	197.1	220.1	259.2	315.3	350.6	394.2	440.2	518.4	630.6	701.2
	COP	kW/kW	6.21	6.27	6.27	6.27	6.27	6.21	6.27	6.27	6.27	6.27
	Hot water flow	m ³ /h	150.3	169.5	199.8	243.0	270.2	300.6	339.0	399.6	486.0	540.4
	Hot water pressure drop	kPa	34	34	43	48	56	59	59	59	61	61
	Water flow at water source	m ³ /h	176.5	199.4	235.2	286.0	318.0	353.0	398.9	470.3	572.0	636.0
Water pressure drop at water source	kPa	58	58	67	76	78	82	87	89	90	90	
Compressor	Model	Semi-enclosed dual-screw compressor										
	Quantity	1	1	1	1	1	2	2	2	2	2	
Startup mode	Y-Δ											
Power supply	380V/3~50Hz											
Condenser	Model	Shell-and-tube										
	Quantity	1	1	1	1	1	1	1	1	1	1	
Evaporator	Model	Full-liquid										
	Quantity	1	1	1	1	1	1	1	1	1	1	
Refrigerant	Type	R134a										
Lubricant	Brand	EK03										
	Filling amount	L	50	50	60	60	60	80	80	100	100	100
Temperature control	Water temperature PID control											
External diameter of chilled water inlet/outlet pipe	φ(mm)	219.1	219.1	219.1	219.1	219.1	219.1	219.1	273	273	273	
External diameter of cooling water inlet/outlet pipe	φ(mm)	139.7	139.7	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	
Insulation materials	Elastomeric flexible closed-cell insulation material											
Unit weight	kg	5050	5250	5350	5450	5600	9510	9900	10070	10270	10580	
Operating weight	kg	5480	5680	5780	5880	6050	10250	10650	10810	11010	11310	
Rated current (cooling)	A	263	293	345	420	466	526	586	689	840	933	
Rated current (heating)	A	335	376	443	538	598	670	752	886	1076	1196	
Startup current	A	749	882	1358	1358	1388	749	882	1358	1358	1388	
Maximum startup current (cooling)	A	749	882	1358	1358	1388	1012	1175	1702	1778	1854	
Maximum startup current (heating)	A	749	882	1358	1358	1388	1347	1551	2145	2316	2452	
Length x width x height	mm	5060x2200x2450			5060x2200x2550			5100x2200x2650		5300x2200x2750		

Note:

- Nominal cooling conditions: The inlet/outlet water temperature of the evaporator is 12/7°C; the inlet/outlet water temperature of the condenser is 30/35°C.
- Nominal heating conditions: The water flow in the preceding table is guaranteed, the inlet/outlet water temperature of the condenser is 40/~°C; the inlet/outlet water temperature of the evaporator is 20/~°C (note: add anti-freezer if the water temperature in the water circuit of the water source in winter is below 3°C).
- The water pressure drop of the evaporator or condenser does not include resistance of any external water pipe or component.
- For details about on-site power distribution and wiring for unit installation, see the nameplate or installation manual of the unit.

SD ground buried pipe ST standard model (EKSC250–EKSC900)

Model		EKSC250	EKSC280	EKSC330	EKSC400	EKSC450	EKSC500	EKSC560	EKSC660	EKSC800	EKSC900	
Cooling condition	Cooling capacity	U.S.RT	262.9	297.1	350.3	426.0	473.7	525.8	594.2	700.6	852.0	947.4
		kW	924.6	1044.9	1232.0	1498.3	1666.0	1849.2	2089.8	2464.0	2996.6	3332.0
		x10 ⁴ kcal/h	79.5	89.9	106.0	128.9	143.3	159.0	179.7	211.9	257.7	286.6
	Input power	kW	139.9	156.3	184.0	223.8	248.9	279.8	312.6	368.0	447.6	497.8
	COP	kW/kW	6.61	6.69	6.70	6.69	6.69	6.61	6.69	6.70	6.69	6.69
	Chilled water flow	m ³ /h	159.0	179.7	211.9	257.7	286.6	318.1	359.4	423.8	515.4	573.1
	Chilled water pressure drop	kPa	47	47	55	61	63	69	75	77	80	80
	Water flow at water source	m ³ /h	183.1	206.6	243.6	296.2	329.4	366.2	413.2	487.1	592.4	658.7
Water pressure drop at water source	kPa	51	51	64	72	77	79	79	78	81	81	
Heating condition	Heating capacity	U.S.RT	239.1	269.5	317.7	386.4	429.6	478.2	539.0	635.4	772.8	859.3
		kW	840.9	947.8	1117.3	1358.9	1511.0	1681.8	1895.6	2234.6	2717.8	3022.0
		x10 ⁴ kcal/h	72.3	81.5	96.1	116.9	129.9	144.6	163.0	192.2	233.7	259.9
	Input power	kW	177.1	197.7	232.8	283.2	314.9	354.2	395.4	465.6	566.4	629.8
	COP	kW/kW	4.75	4.79	4.80	4.80	4.80	4.75	4.79	4.80	4.80	4.80
	Hot water flow	m ³ /h	158.9	179.1	211.2	256.8	285.6	317.9	358.3	422.4	513.7	571.2
	Hot water pressure drop	kPa	38	38	48	54	58	60	59	59	61	61
	Water flow at water source	m ³ /h	183.0	206.8	243.8	296.5	329.7	365.9	413.5	487.6	593.0	659.4
Water pressure drop at water source	kPa	62	62	73	81	83	84	85	86	88	88	
Compressor	Model	Semi-enclosed dual-screw compressor										
Quantity		1	1	1	1	1	2	2	2	2	2	
Startup mode		Y-Δ										
Power supply		380V/3~/50Hz										
Condenser	Model	Shell-and-tube										
Quantity		1	1	1	1	1	1	1	1	1	1	
Evaporator	Model	Full-liquid										
Quantity		1	1	1	1	1	1	1	1	1	1	
Refrigerant	Type	R134a										
Lubricant	Brand	EK03										
Filling amount	L	50	50	60	60	60	80	80	100	100	100	
Temperature control		Water temperature PID control										
External diameter of chilled water inlet/outlet pipe	φ(mm)	219.1	219.1	219.1	219.1	219.1	219.1	219.1	273	273	273	
External diameter of cooling water inlet/outlet pipe	φ(mm)	139.7	139.7	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	
Insulation materials		Elastomeric flexible closed-cell insulation material										
Unit weight	kg	5050	5250	5350	5450	5600	9510	9900	10070	10270	10580	
Operating weight	kg	5480	5680	5780	5880	6050	10250	10650	10810	11010	11310	
Rated current (cooling)	A	249	267	314	382	425	498	534	628	764	850	
Rated current (heating)	A	306	336	397	483	538	612	672	794	966	1076	
Startup current	A	749	882	1358	1358	1388	749	882	1358	1358	1388	
Maximum startup current (cooling)	A	749	882	1358	1358	1388	998	1149	1672	1740	1813	
Maximum startup current (heating)	A	749	882	1358	1358	1388	1304	1485	2069	2223	2351	
Length x width x height	mm	5060x2200x2450			5060x2200x2550			5100x2200x2650		5300x2200x2750		

Note:

- Nominal cooling conditions: The inlet/outlet water temperature of the evaporator is 12/7°C; the inlet/outlet water temperature of the condenser is 25/30°C.
- Nominal heating conditions: The water flow in the preceding table is guaranteed, the inlet/outlet water temperature of the condenser is ~/45°C; the inlet/outlet water temperature of the evaporator is 7/3.8°C (note: add anti-freezer if the water temperature in the water circuit of the water source in winter is below 3°C).
- The water pressure drop of the evaporator or condenser does not include resistance of any external water pipe or component.
- For details about on-site power distribution and wiring for unit installation, see the nameplate or installation manual of the unit.

Specifications

SQ water circulation type XE efficient model (EKSC265~EKSC1000)

Model		EKSC265	EKSC300	EKSC360	EKSC440	EKSC500	EKSC550	EKSC600	EKSC720	EKSC880	EKSC1000	
Cooling condition	Cooling capacity	U.S.RT	265.7	300.1	359.1	439.4	496.5	545.1	600.1	718.3	878.8	993.0
		kW	934.5	1055.3	1263.0	1545.3	1746.2	1917.0	2110.6	2526.1	3090.6	3492.4
		x10 ⁴ kcal/h	80.4	90.8	108.6	132.9	150.2	164.9	181.5	217.2	265.8	300.3
	Input power	kW	151.9	169.8	200.7	245.1	276.3	308.4	339.6	401.3	490.1	552.6
	COP	kW/kW	6.15	6.21	6.29	6.30	6.32	6.22	6.21	6.29	6.31	6.32
	Chilled water flow	m ³ /h	160.7	181.5	217.2	265.8	300.3	329.7	363.0	434.5	531.6	600.7
	Chilled water pressure drop	kPa	45	45	52	58	60	65	70	72	75	75
	Water flow at water source	m ³ /h	186.9	210.7	251.8	307.9	347.9	382.8	421.4	503.5	615.9	695.7
Water pressure drop at water source	kPa	50	50	62	70	80	85	85	85	88	88	
Heating condition	Heating capacity	U.S.RT	367.7	415.0	494.7	603.7	681.9	753.0	830.0	989.3	1207.4	1363.8
		kW	1293.1	1459.6	1739.7	2123.3	2398.2	2648.4	2919.2	3479.4	4246.6	4796.4
		x10 ⁴ kcal/h	111.2	125.5	149.6	182.6	206.2	227.8	251.1	299.2	365.2	412.5
	Input power	kW	195.3	219.2	259.6	312.4	352.9	396.5	438.4	519.2	624.8	705.8
	COP	kW/kW	6.62	6.66	6.70	6.80	6.80	6.68	6.66	6.70	6.80	6.80
	Hot water flow	m ³ /h	161.2	181.9	216.8	264.6	298.9	330.1	363.8	433.7	529.3	597.8
	Hot water pressure drop	kPa	37	37	46	52	59	63	63	63	65	65
	Water flow at water source	m ³ /h	187.0	211.2	252.1	308.4	348.3	383.5	422.5	504.1	616.8	696.6
Water pressure drop at water source	kPa	61	61	70	78	81	82	87	89	90	90	
Compressor	Model	Semi-enclosed dual-screw compressor										
	Quantity	1	1	1	1	1	2	2	2	2	2	
Startup mode		Y-Δ										
Power supply		380V/3~/50Hz										
Condenser	Model	Shell-and-tube										
	Quantity	1	1	1	1	1	1	1	1	1	1	
Evaporator	Model	Full-liquid										
	Quantity	1	1	1	1	1	1	1	1	1	1	
Refrigerant	Type	R134a										
Lubricant	Brand	EK03										
	Filling amount	L	50	50	60	60	60	80	80	100	100	100
Temperature control		Water temperature PID control										
External diameter of chilled water inlet/outlet pipe	φ(mm)	219.1	219.1	219.1	219.1	219.1	219.1	219.1	273	273	273	
External diameter of cooling water inlet/outlet pipe	φ(mm)	139.7	139.7	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	
Insulation materials		Elastomeric flexible closed-cell insulation material										
Unit weight	kg	5550	5750	5850	5950	6100	10010	10400	10570	10770	11080	
Operating weight	kg	5980	6180	6280	6380	6550	10750	11150	11310	11510	11810	
Rated current (cooling)	A	261	292	345	421	475	530	583	689	842	949	
Rated current (heating)	A	332	374	443	533	602	674	748	886	1066	1204	
Startup current	A	749	882	1358	1358	1388	749	882	1358	1358	1388	
Maximum startup current (cooling)	A	749	882	1358	1358	1388	1014	1174	1703	1779	1863	
Maximum startup current (heating)	A	749	882	1358	1358	1388	1351	1548	2146	2312	2465	
Length x width x height	mm	4110x1800x2450			4110x1900x2550			5110x2200x2650		5300x2200x2750		

Note:

- Nominal cooling conditions: The inlet/outlet water temperature of the evaporator is 12/7°C; the inlet/outlet water temperature of the condenser is 30/35°C.
- Nominal heating conditions: The water flow in the preceding table is guaranteed, the inlet/outlet water temperature of the condenser is 40/~°C; the inlet/outlet water temperature of the evaporator is 20/~°C (note: add anti-freezer if the water temperature in the water circuit of the water source in winter is below 3°C).
- The water pressure drop of the evaporator or condenser does not include resistance of any external water pipe or component.
- For details about on-site power distribution and wiring for unit installation, see the nameplate or installation manual of the unit.

Specifications

SD ground buried pipe XE efficient (EKSC265~EKSC1000)

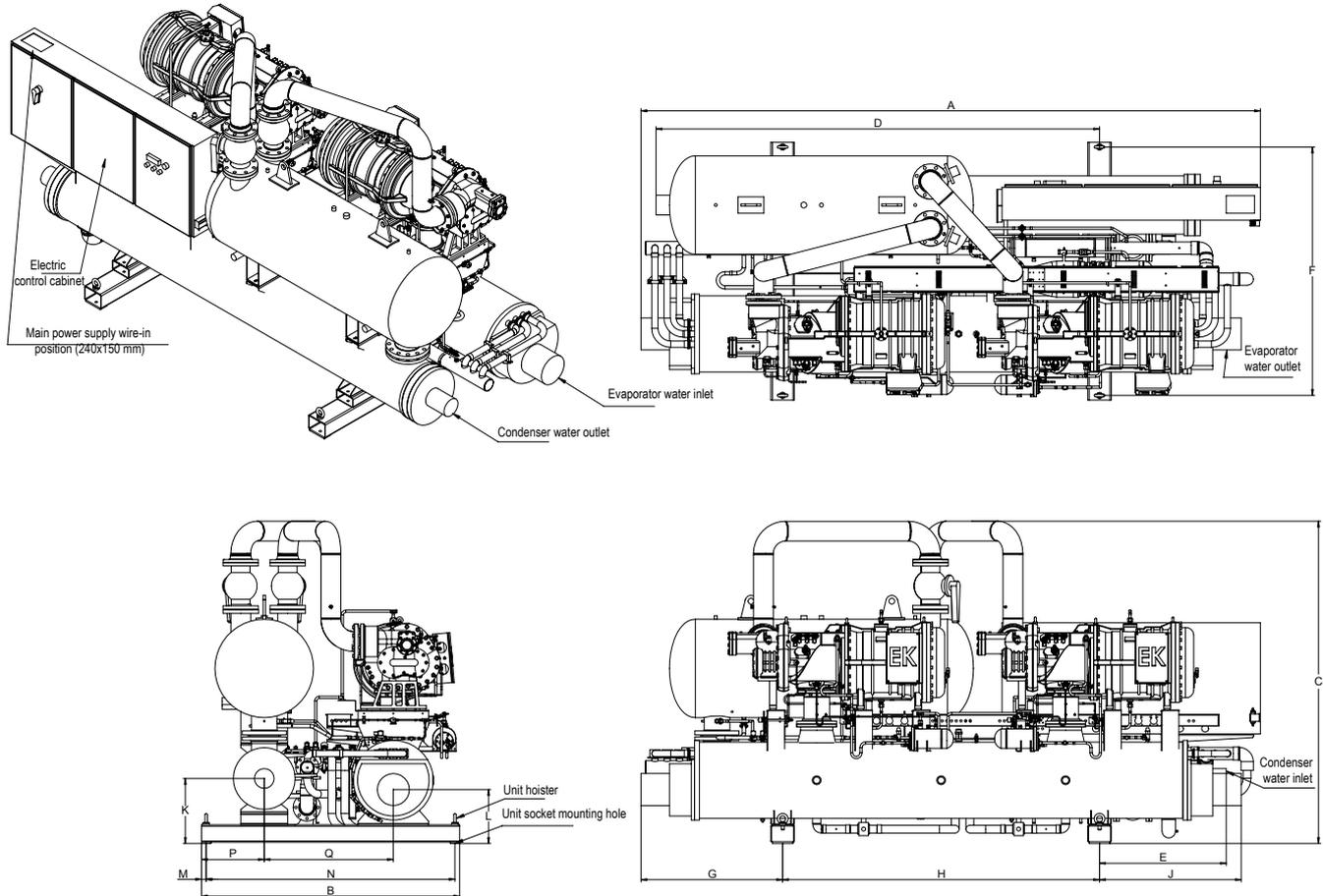
Model		EKSC265	EKSC300	EKSC360	EKSC440	EKSC500	EKSC550	EKSC600	EKSC720	EKSC880	EKSC1000	
Cooling condition	Cooling capacity	U.S.RT	280.4	316.8	378.0	462.5	522.4	575.1	633.6	756.0	925.0	1044.8
		kW	986.1	1114.2	1329.5	1626.6	1837.2	2022.8	2228.4	2659.0	3253.2	3674.4
		x10 ⁴ kcal/h	84.8	95.8	114.3	139.9	158.0	174.0	191.6	228.7	279.8	316.0
	Input power	kW	141.6	159.0	188.2	226.5	255.9	287.5	318.0	376.4	453.0	511.8
	COP	kW/kW	6.96	7.01	7.06	7.18	7.18	7.04	7.01	7.06	7.18	7.18
	Chilled water flow	m ³ /h	169.6	191.6	228.7	279.8	316.0	347.9	383.3	457.3	559.6	632.0
	Chilled water pressure drop	kPa	50	50	58	64	66	72	78	80	83	83
	Water flow at water source	m ³ /h	194.0	219.0	261.0	318.7	360.0	397.4	438.0	522.1	637.5	720.0
Water pressure drop at water source	kPa	54	54	67	75	80	82	82	81	84	84	
Heating condition	Heating capacity	U.S.RT	254.0	286.6	341.4	416.4	470.3	519.9	573.2	682.9	832.9	940.7
		kW	893.2	1007.9	1200.8	1464.6	1654.2	1828.5	2015.8	2401.6	2929.2	3308.4
		x10 ⁴ kcal/h	76.8	86.7	103.3	126.0	142.3	157.3	173.4	206.5	251.9	284.5
	Input power	kW	175.4	196.9	233.1	280.6	316.9	356.1	393.8	466.2	561.2	633.8
	COP	kW/kW	5.09	5.12	5.15	5.22	5.22	5.13	5.12	5.15	5.22	5.22
	Hot water flow	m ³ /h	168.8	190.5	227.0	276.8	312.7	345.6	381.0	453.9	553.7	625.3
	Hot water pressure drop	kPa	41	41	51	57	60	62	62	61	63	63
	Water flow at water source	m ³ /h	192.9	218.0	260.1	318.2	359.4	395.7	435.9	520.1	636.4	718.8
Water pressure drop at water source	kPa	65	65	75	80	81	83	85	85	87	87	
Compressor	Model	Semi-enclosed dual-screw compressor										
	Quantity	1	1	1	1	1	2	2	2	2	2	
Startup mode	Y-Δ											
Power supply	380V/3~50Hz											
Condenser	Model	Shell-and-tube										
	Quantity	1	1	1	1	1	1	1	1	1	1	
Evaporator	Model	Full-liquid										
	Quantity	1	1	1	1	1	1	1	1	1	1	
Refrigerant	Type	R134a										
Lubricant	Brand	EK03										
	Filling amount	L	50	50	60	60	60	80	80	100	100	100
Temperature control	Water temperature PID control											
External diameter of chilled water inlet/outlet pipe	φ(mm)	219.1	219.1	219.1	219.1	219.1	219.1	219.1	273	273	273	
External diameter of cooling water inlet/outlet pipe	φ(mm)	139.7	139.7	168.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3	
Insulation materials	Elastomeric flexible closed-cell insulation material											
Unit weight	kg	5550	5750	5850	5950	6100	10010	10400	10570	10770	11080	
Operating weight	kg	5980	6180	6280	6380	6550	10750	11150	11310	11510	11810	
Rated current (cooling)	A	252	271	321	387	437	512	542	642	774	874	
Rated current (heating)	A	304	335	398	479	541	617	670	796	958	1082	
Startup current	A	749	882	1358	1358	1388	749	882	1358	1358	1388	
Maximum startup current (cooling)	A	749	882	1358	1358	1388	1005	1153	1679	1745	1825	
Maximum startup current (heating)	A	749	882	1358	1358	1388	1314	1488	2077	2224	2366	
Length x width x height	mm	4110x1800x2450			4110x1900x2550			5110x2200x2650		5300x2200x2750		

Note:

- Nominal cooling conditions: The inlet/outlet water temperature of the evaporator is 12/7°C; the inlet/outlet water temperature of the condenser is 25/30°C.
- Nominal heating conditions: The water flow in the preceding table is guaranteed, the inlet/outlet water temperature of the condenser is ~/45°C; the inlet/outlet water temperature of the evaporator is 7/3.8°C (note: add anti-freezer if the water temperature in the water circuit of the water source in winter is below 3°C).
- The water pressure drop of the evaporator or condenser does not include resistance of any external water pipe or component.
- For details about on-site power distribution and wiring for unit installation, see the nameplate or installation manual of the unit.

Unit Outer Dimensions

ST standard model (EKSC250~EKSC900)

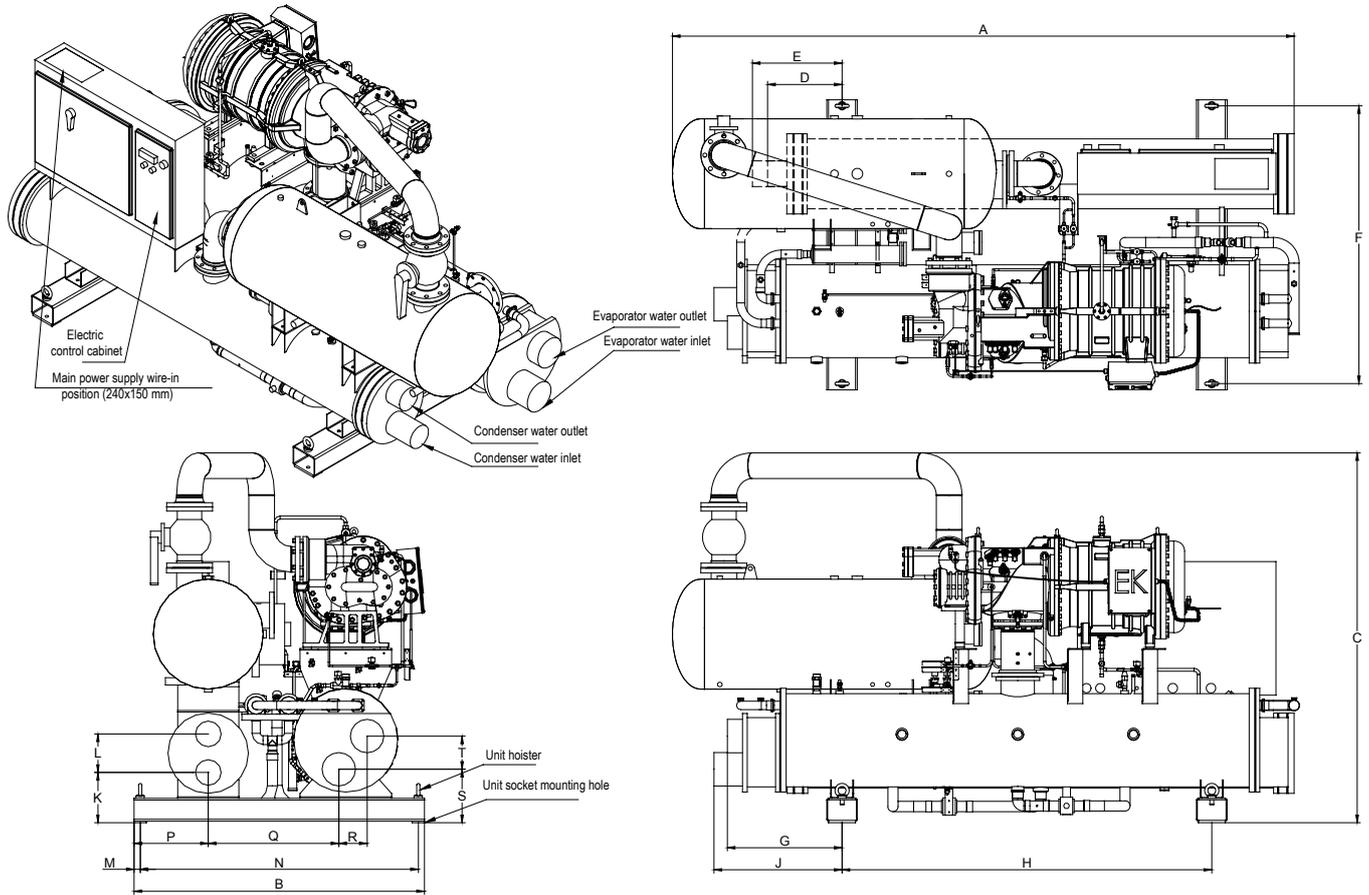


Measurement: mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
EKSC250	5060	2200	2450	3775	1075	2120	1180	2700	1180	500	388	40	2120	535	1100
EKSC280	5060	2200	2450	3775	1075	2120	1180	2700	1180	500	388	40	2120	535	1100
EKSC330	5060	2200	2550	3775	1075	2120	1180	2700	1180	500	388	40	2120	535	1100
EKSC400	5060	2200	2550	3775	1075	2120	1180	2700	1180	500	388	40	2120	535	1100
EKSC450	5060	2200	2550	3775	1075	2120	1180	2700	1180	500	388	40	2120	535	1100
EKSC500	5100	2200	2650	3780	1075	2120	1180	2700	1180	500	388	40	2120	535	1100
EKSC560	5100	2200	2650	3780	1075	2120	1180	2700	1180	500	388	40	2120	535	1100
EKSC660	5300	2200	2750	3780	1080	2120	1207	2700	1207	555	460	40	2120	535	1100
EKSC800	5300	2200	2750	3780	1080	2120	1207	2700	1207	555	460	40	2120	535	1100
EKSC900	5300	2200	2750	3780	1080	2120	1207	2700	1207	555	460	40	2120	535	1100

Unit Outer Dimensions

XE□□□ (EKSC265–EKSC1000)

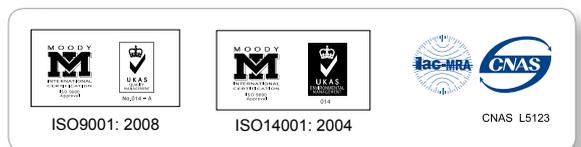


Measurement: mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
EKSC265	4110	1800	2450	484	584	1720	751	2120	838	329	252	40	1720	485	755	185	350	217
EKSC300	4110	1800	2450	484	584	1720	751	2120	838	329	252	40	1720	485	755	185	350	217
EKSC360	4110	1900	2550	487	587	1820	751	2420	838	329	252	40	1820	485	855	185	350	217
EKSC440	4110	1900	2550	487	587	1820	751	2420	838	329	252	40	1820	485	855	185	350	217
EKSC500	4110	1900	2550	487	587	1820	751	2420	838	329	252	40	1820	485	855	185	350	217
EKSC550	5110	2200	2650	487	587	1820	751	2420	838	329	252	40	1820	485	855	185	350	217
EKSC600	5110	2200	2650	487	587	2120	1100	2700	1180	379	352	40	2120	535	1100	200	400	217
EKSC720	5300	2300	2750	487	587	2120	1100	2700	1180	379	352	40	2120	535	1100	200	400	217
EKSC880	5300	2300	2750	487	587	2120	1100	2700	1180	379	352	40	2120	535	1100	200	400	217
EKSC1000	5300	2300	2750	487	587	2120	1130	2700	1210	379	352	40	2120	535	1100	200	400	217



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