

Sustainable Comfort

ELITE Series

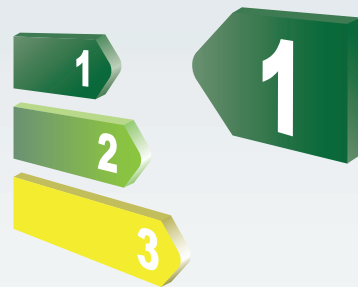
ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Cooling Capacity: 288~1502kW

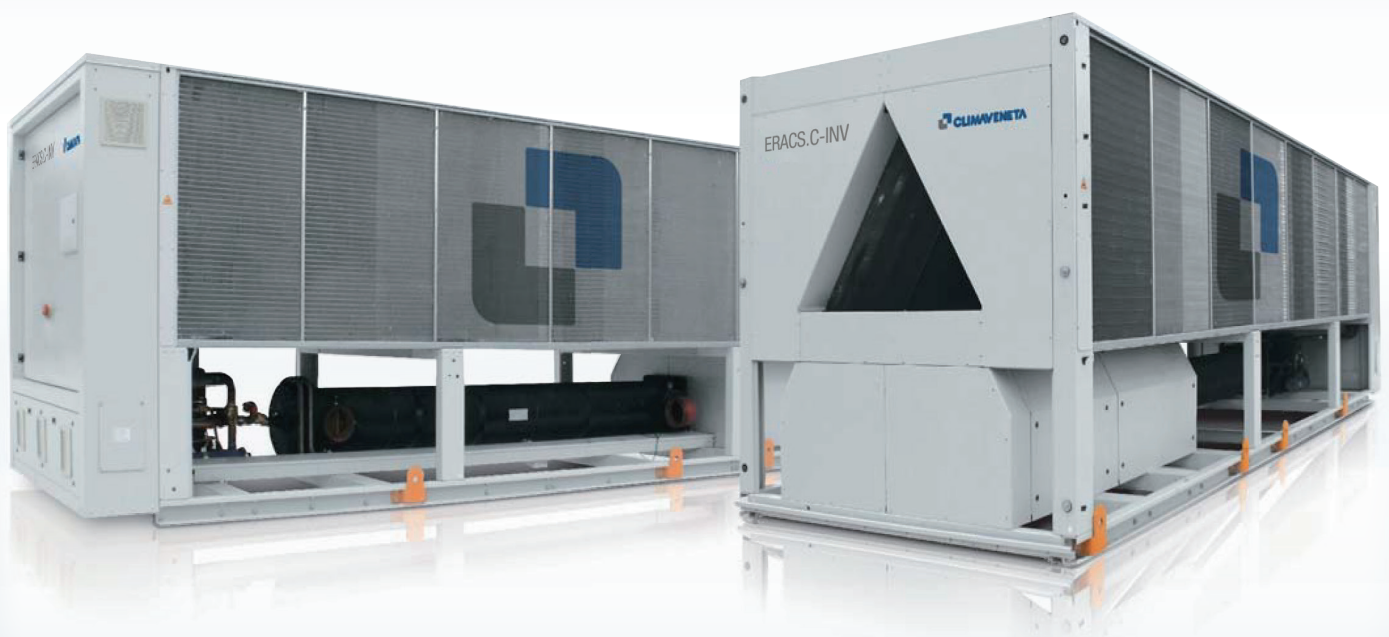


fullinverter
CONCEPT

CLIMAVENETA



GB First Class



ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Unit Features

CLIMAVENETA "ERACS.C-INV" high efficiency screw chiller has introduced the latest technology from Italy which can obviously reduce the total investment and operation cost without conventional cooling tower, cooling water pump and the cooling system.

The unit can be installed on the building roof or outdoor that no extra plant room is needed.

The ERACS.C-INV units are optimized for all commercial and industry application.

Inverter Screw Type Compressor

- Semi-hermetic screw compressor specially designed for HFC134a with higher compression efficiency under full load as well as part load;
- Precisely manufactured twin-screw rotor with aircraft-grade bearing featuring in high reliability, low noise, low vibration and stable running;
- The inverter motor drives the bearing directly with fewest moving components and wearing parts that causes no energy loss and is with higher mechanical efficiency;
- Automatically adjust power output according to load by microprocessor.



Inverter Fan

High efficiency exterior rotor inverter fan from German brand. It can reduce the energy consumption and fan noise.

Super Low Noise

All compressors of ERACS.C-INV series are installed on the vibration isolator. The rubber pad is also fixed between compressor and frame to prevent vibration and noise. The fan is exclusive designed with aircraft grade blades and aluminum-cast exterior motor as well as the air deflector cylinder to eliminate air side noise.

Green Technology

- Environment friendly HFC134a
- Optimized refrigerant system for better electric saving, lower CO₂ emission and higher operation efficiency.



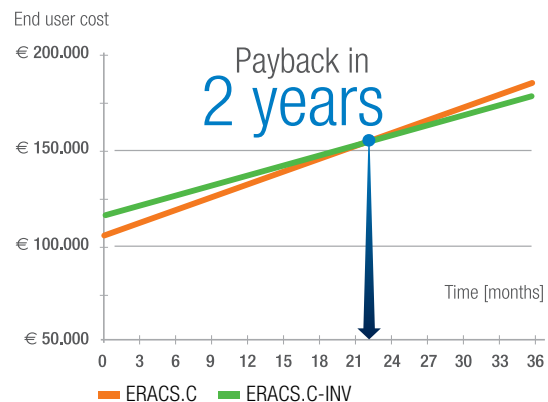
Electronic Expansion Valve

EXV, with high-sensitivity and precise control, has high adaptability of partial load working condition. And it can improve the efficiency of the unit under full load as well as part load.



Cost Saving

Compared with conventional units, INVERTER series can have the payback in 2 years.



Reliable Operation

The unit is designed, manufactured, tested according to international and local standard AHRI, EN, UNI, JIS, GB/T18430.1 for reliable performance. And the electrical system is also strictly designed and produced comply with standard IEC60204-1/GB5226.1. The unit is controlled by the dedicated microprocessor control system. In order to protect the operation safety, the high/ low pressure switch, over/under voltage, phase failure, over load, winding over heat, gas exhaust temperature, water flow switch and oil heater are all equipped.

Casing protection confirms with GB4208-2008.

Nomenclature

ERACS 2402 C - B- INV



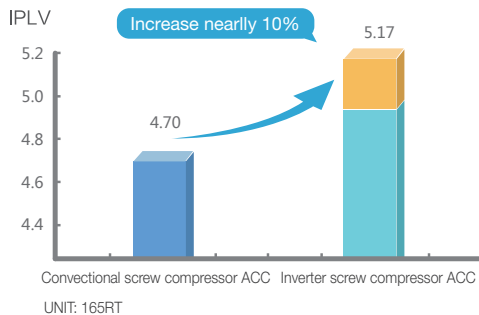
ERACS2402C-B-INV

ERACS.C-INV series inverter air cooled screw chiller with model of 2402, R134a refrigerant.

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Energy Saving

ERACS.C-INV adopts inverter screw type compressor integrated with latest inverter technology. It has higher part load efficiency and more precise control accuracy. IPLV@AHRI can achieve up to 5.17, 10% higher than convectional screw units, with higher operation efficiency.



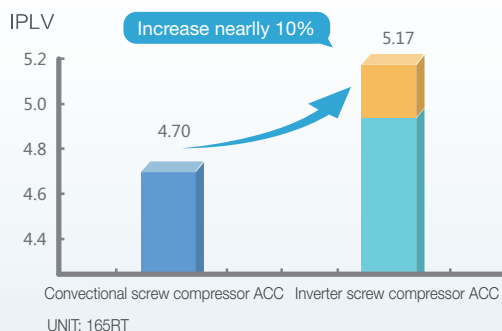
Project Reference

Background: A club in south China, building 4000m², conditioning 3500m²

Unit Selection: Comparison between a 165RT convectional and inverter screw compressor air cooled chiller

AC load	Load percent	100%	75%	50%	25%
	Time(%)	1	42	45	12
Unit operating time	Cooling power	36	1512	1620	432
	consumption time/h				
Screw air cooled power consumption	Convectional kW.h	6,415	153,166	94,608	13,219
	Inverter kW.h	6,563	143,791	79,704	11,059
Annual electricity cost saving	10,000 RMB	2.6			

Note: Electricity price 1RMB/kW.h



Achievement: Operating cost saving achieve 10% when using INVERTER series screw compressor air cooled chiller compared with convectional screw compressor air cooled chiller.

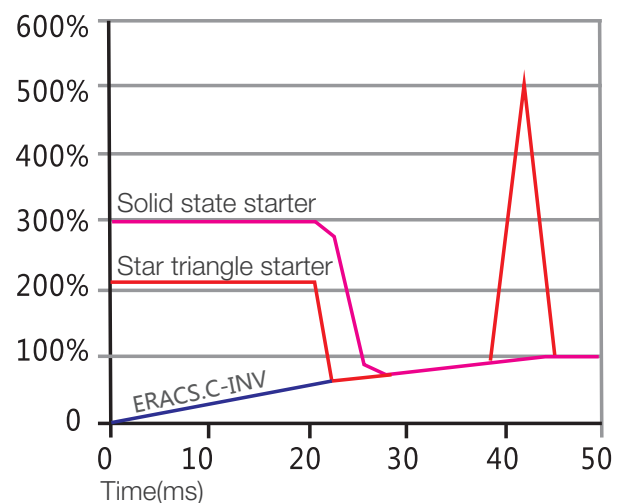
Summary: Inverter series screw compressor air cooled chiller has higher IPLV value. It is suitable for applications with unstable cooling load demand and running at part load most of the time, such as hotel, hospital, shopping mall, office buildings, etc.

Excellent Performance

The standard harmonic distortion rate THD of the unit meets the requirements of IEC61000-3-4 and GB/T17625.

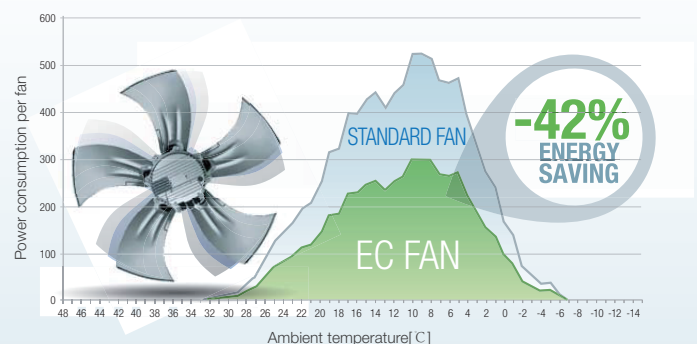
In accordance with IEEE-519 and GB/T14594-93 requirements for harmonic distortion, the total harmonic distortion rate THD can be as low as 5% or less, and the compensation correction displacement power factor is 0.95 during the operation of the unit. The inverter adopts refrigerant cooling and the optimized piping design which ensures cooling of the inverter and avoids unnecessary cooling capacity loss.

Starting current/Nominal full load current



EC Fan(optional)

Energy saving can reach 42% with EC fan compared with convectional fan due to its high efficiency.



Advanced Control System

A brand-new control system is equipped with the features of friendly human-machine interface, excellent controls and adjustments ability, strong capabilities of function expansion, monitoring and management, as well as strong compatibility.

Friendly human-machine interface

The touch screen is embedded in the unit for convenient operation and well protection. The automatic control by the computer realizes unattended operation.

LCD screen can display data and parameter adjustment in various languages and menus. According to the tradition of Climaveneta, the status and parameters of the compressor are visually displayed individually to make sure the operating status clear at a glance.

Unit Control and Operation Management

The advanced microcomputer intelligent control system of W3000 contains specially designed control algorithm of Climaveneta. It highlights the energy efficiency and reliability of the unit. The balanced running time of FIFO compressor prolongs the life of machine. The automatic adjustment of the output load makes the machine more energy saving. Combining with the load shedding system of the compressor, 25-100% stepless adjustment can be achieved and settings of the operating parameters can be adjusted, which is adaptable to different environments. The temperature and pressure protection using analog measurement can predict and prevent failure and increase reliability. Various expansion accessories are available, such as remote and group control.

Network Communication and Building Management Control

The chiller supports BMS connection and can connect to common BMS systems such as MODBUS, LONWORKS, BACNET and so on.



Fault Protection, Alarm and Analysis Capabilities

The microcomputer intelligent controller contains perfect functions of fault protection, alarm, recording and analysis. It has protection functions of high/low pressure switch, lack of phase, reverse phase, overload, overcurrent, overheat, exhaust temperature, water flow, frost and so on. The controller also achieves fault recording and alarm display. The unique "Black Box" fault recording and analyzing system can record 400 failures and more than 200 field data before each failure. It can diagnose and remove faults rapidly to improve the technical support ability. By connecting to the Climaveneta remote service program, it can find potential failures before they occur and take proper preventive treatments.

Microprocessor Control Features

Microprocessor	W3000	Microprocessor	W3000
Remote on/off with external volt-free contact	√	Energy limit function	OPT
Multi-language menu	√	Manual control	√
Phase sequence relay	√	ModBus communication protocol	OPT
Cumulative fault alarm	√	BACNET communication protocol	OPT
Alarms code function	√	LonWorks communication protocol	OPT
"BLACK BOX" function for alarm events	√	Pump control	OPT
Self-test when power on	√	Backup pump control	OPT
Real time programming of daily/weekly program	Par.	Water temp. set-point regulation from external signal(4-20mA)	OPT
Evaporator inlet/outlet water temp. display	√	Remote electric relay control	OPT
Compressor/unit alarms display	√	Local/remote monitor (FWS)	OPT
General unit alarms display	√	Remote secondary temp. control	OPT
Entering water temp. ratio control	√	Set-point regulation from external signal (0-5V)	OPT
Start/stop operating timer	Par.	Compressor run-timer, time balance & FIFO	√
Double set-point timer	Par.	Compressor start scheduling	√
"Pump-Down" when stopped	√		

√ Standard

OPT available on request

Par. available by modifying a value of the configuraton parameters

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Technical Data

ERACS.C-INV		0701HE	0821HE	0951HE	1051HE	1201HE	1301HE	1501HE	1651HE
Cooling Capacity	kW	287.5	336.4	374.3	418.9	470.0	507.9	573.4	632.6
Power Input	kW	76.4	92.3	101.7	112.4	128.8	143.9	163.2	179.2
Chilled Water Flow	m³/h	49.5	57.9	64.4	72.1	80.9	87.4	98.7	108.9
Chilled Water Pressure Drop	kPa	35.3	37.2	38.7	32.0	40.3	42.9	36.0	37.2
Microprocessor		W3000							
Compressor									
Qty.		1	1	1	1	1	1	1	1
Refrigerant Circuit No.		1	1	1	1	1	1	1	1
Stepless Energy Regulation		27～100%							
Fan									
Qty.		6	6	8	8	10	10	10	12
Air Volume	m³/s	33.9	33.9	42.0	44.8	52.8	52.8	55.6	63.6
Fan Power Input	kW	2	2	2	2	2	2	2	2
Refrigerant									
R134a Charged	kg	66	80	82	102	102	105	117	121
Oil	kg	17	17	21	21	25	25	25	25
Dimension									
Length	mm	4000	4000	4000	4900	4900	4900	5800	5800
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	3640	3970	4130	4900	5260	5300	5820	6160

Note:

Working condition: Chilled water (in/out) 12/7°C ; Ambient temperature 35°C

Technical Data

ERACS.C-INV		1902	2102	2402	2652	2952	3302	3602	3902	4252
Cooling Capacity	kW	670.8	745.1	839.3	931.0	1037.0	1152.0	1270.0	1374.0	1502.0
Power Input	kW	188.2	209.4	241.5	265.4	295.0	332.1	356.2	379.7	424.1
Chilled Water Flow	m ³ /h	115.5	128.3	144.5	160.3	178.6	198.3	218.6	236.4	258.5
Chilled Water Pressure Drop	kPa	50.5	56.8	48.0	40.5	50.2	30.7	37.3	46.4	56.1
Microprocessor	W3000									
Compressor										
Qty.		2	2	2	2	2	2	2	2	2
Refrigerant Circuit No.		2	2	2	2	2	2	2	2	2
Stepless Energy Regulation	20～100%									
Fan										
Qty.		12	12	12	14	16	16	20	24	24
Air Volume	m ³ /s	63.6	61	65.3	72.5	82.9	79.8	101.2	127.2	127.2
Fan Power Input	kW	2	2	2	2	2	2	2	2	2
Refrigerant										
R134a Charged	kg	109	120	133	147	186	198	220	235	246
Oil	kg	42	42	50	50	50	50	60	60	60
Dimension										
Length	mm	5800	5800	7000	7000	7900	7900	9400	11200	11200
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	6220	6550	7780	7840	8860	9330	9880	10680	10780

Note:

Working condition: Chilled water (in/out) 12/7°C ; Ambient temperature 35°C

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Technical Data

ERACS.C-INV		0701HE	0821HE	0951HE	1051HE	1201HE	1301HE	1501HE	1651HE
Cooling Capacity	kW	284.6	333.1	370.6	414.7	465.4	503.0	567.8	626.5
Power Input	kW	76.1	92.0	101.2	111.9	128.2	143.2	162.4	178.4
Chilled Water Flow	m³/h	44.5	52.1	58.0	64.9	72.8	78.7	88.8	98.1
Chilled Water Pressure Drop	kPa	28.6	30.2	31.3	25.9	32.6	34.8	29.1	30.2
Microprocessor		W3000							
Compressor									
Qty.		1	1	1	1	1	1	1	1
Refrigerant Circuit No.		1	1	1	1	1	1	1	1
Stepless Energy Regulation		27～100%							
Fan									
Qty.		6	6	8	8	10	10	10	12
Air Volume	m³/s	33.9	33.9	42.0	44.8	52.8	52.8	55.6	63.6
Fan Power Input	kW	2	2	2	2	2	2	2	2
Refrigerant									
R134a Charged	kg	66	80	82	102	102	105	117	121
Oil	kg	17	17	21	21	25	25	25	25
Dimension									
Length	mm	4000	4000	4000	4900	4900	4900	5800	5800
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	3640	3970	4130	4900	5260	5300	5820	6160

Note:

Working condition@AHRI: Chilled water (in/out) 12.2/6.7°C ; Ambient temperature 35°C

Technical Data

ERACS.C-INV		1902	2102	2402	2652	2952	3302	3602	3902	4252
Cooling Capacity	kW	664.2	737.8	831.1	921.8	1027	1141	1257	1360	1487
Power Input	kW	187.4	208.4	240.4	264.1	293.6	330.5	354.5	377.9	422.1
Chilled Water Flow	m ³ /h	103.9	115.5	130.1	144.3	160.7	178.5	196.7	212.9	232.8
Chilled Water Pressure Drop	kPa	41.0	46.0	38.9	32.8	40.7	24.9	30.2	37.6	45.5
Microprocessor		W3000								
Compressor										
Qty.		2	2	2	2	2	2	2	2	2
Refrigerant Circuit No.		2	2	2	2	2	2	2	2	2
Stepless Energy Regulation		20～100%								
Fan										
Qty.		12	12	12	14	16	16	20	24	24
Air Volume	m ³ /s	63.6	61	65.3	72.5	82.9	79.8	101.2	127.2	127.2
Fan Power Input	kW	2	2	2	2	2	2	2	2	2
Refrigerant										
R134a Charged	kg	109	120	133	147	186	198	220	235	246
Oil	kg	42	42	50	50	50	50	60	60	60
Dimension										
Length	mm	5800	5800	7000	7000	7900	7900	9400	11200	11200
Width	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Operation Weight	kg	6220	6550	7780	7840	8860	9330	9880	10680	10780

Note:

Working condition@AHRI: Chilled water (in/out) 12.2/6.7°C ; Ambient temperature 35°C

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Electrical Data

Model	Compressor Qty.	Compressor			Fan		Unit		
		FLI(kW)	FLA(A)	LRA(A)	FLI(kW)	FLA(A)	FLI(kW)	FLA(A)	SA(A)
0701HE	1	108	180	267	12	25.8	120	206	103
0821HE	1	124	207	267	12	25.8	136	233	116
0951HE	1	138.7	240	285	16	34.4	154.7	274	137
1051HE	1	153.7	265.6	365	16	34.4	170	300	150
1201HE	1	176.3	304	459	20	43	196.3	347	173.5
1301HE	1	192	331	459	20	43	212	374	187
1501HE	1	216	365	506	20	43	236	408	204
1651HE	1	236.5	402	628	24	51.6	260.5	454	227
1902HE	2	126	218	285	24	51.6	276	488	244
2102	2	140	241	365	24	51.6	303	535	267
2402	2	160	276	459	24	51.6	345	604	302
2652	2	174	301	459	28	60.2	377	663	331
2952	2	196	332	506	32	68.8	424	732	366
3302	2	215	366	628	32	68.8	462	801	400
3602	2	236	403	715	40	86	512	891	446
3902	2	253	432	850	48	103.2	554	966	483
4252	2	271	463	850	48	103.2	591	1030	515

Note:

F.L.I. Power input L.R.A. Locked rotor current for single compressor

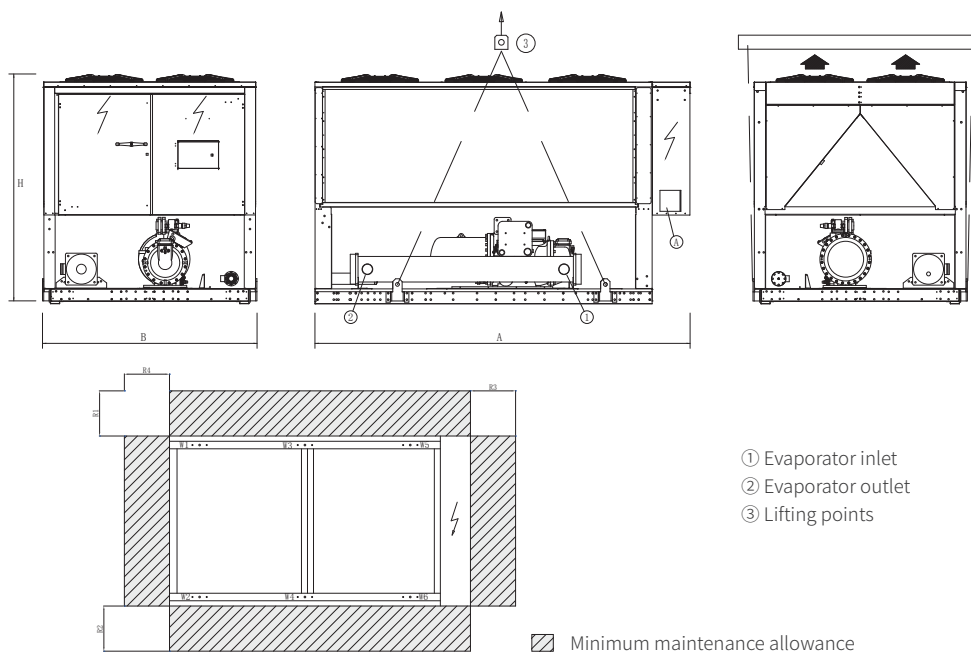
F.L.A. Current absorption S.A. Starting current

Power input 380V-3Ph-50Hz, voltage tolerance $\pm 10\%$, voltage unbalance 3%.

All the values are referred to the maximum working condition. Energy restriction function can be equipped when energy supply is not enough.

Unit Dimension

ERACS 0701--1651C

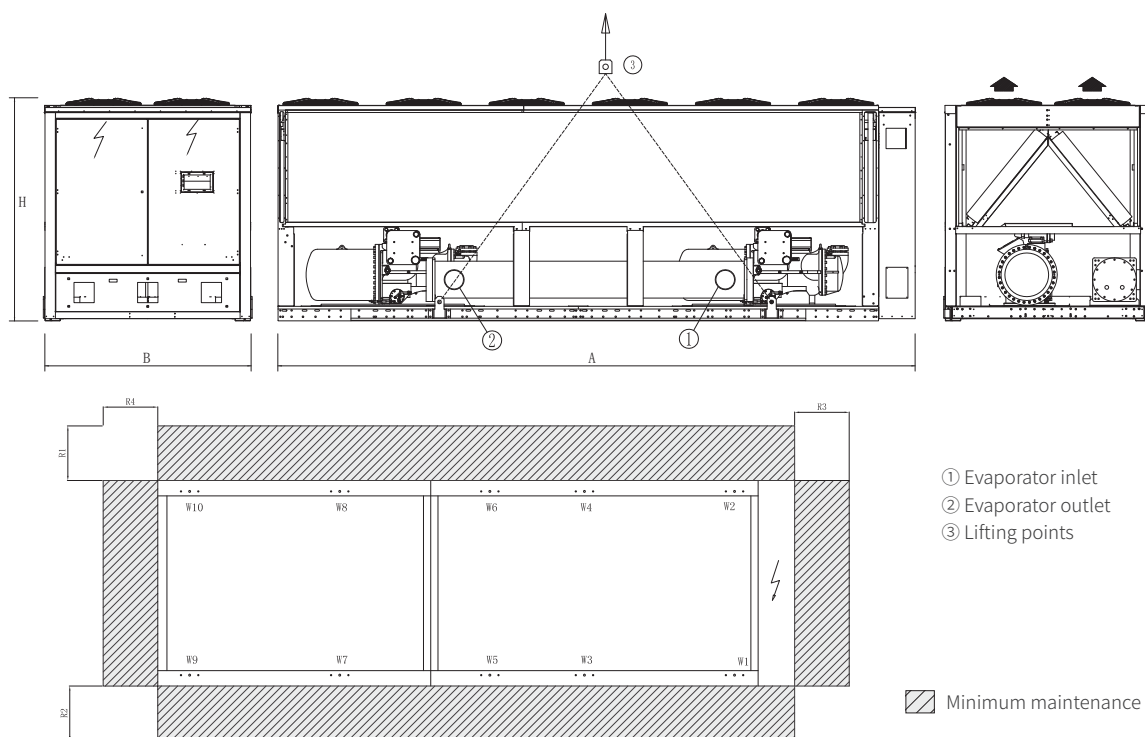


Model	Dimensions			Operating weight Kg	Maintenance allowance				Evaporator pipe connection	
	A	B	H		R1	R2	R3	R4	IN/OUT	
	mm	mm	mm		mm	mm	mm	mm	Type	φ
ERACS 0701C-B-HE-INV	4000	2260	2450	3640	2000	2000	1800	1500	Victaulic	4"
ERACS 0821C-B-HE-INV	4000	2260	2450	3970	2000	2000	1800	1500	Victaulic	5"
ERACS 0951C-B-HE-INV	4000	2260	2450	4130	2000	2000	1800	1500	Victaulic	5"
ERACS 1051C-B-HE-INV	4900	2260	2450	4900	2000	2000	1800	1500	Victaulic	6"
ERACS 1201C-B-HE-INV	4900	2260	2450	5260	2000	2000	1800	1500	Victaulic	6"
ERACS 1301C-B-HE-INV	4900	2260	2450	5300	2000	2000	1800	1500	Victaulic	6"
ERACS 1501C-B-HE-INV	5800	2260	2450	5820	2000	2000	1800	1500	Victaulic	6"
ERACS 1651C-B-HE-INV	5800	2260	2450	6160	2000	2000	1800	1500	Victaulic	6"

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

Unit Dimension

ERACS 1902-4252C



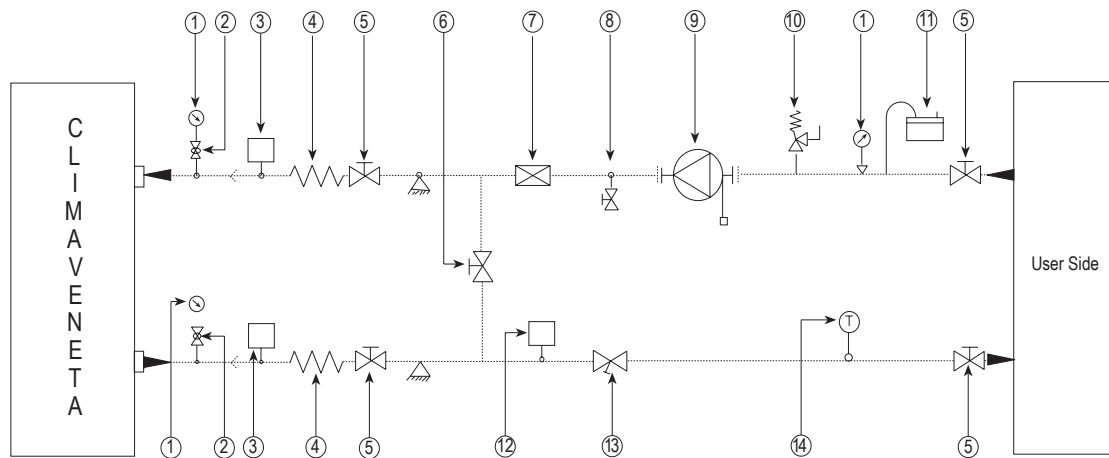
Model	Dimensions			Operating weight Kg	Maintenance allowance				Evaporator pipe connection	
	A	B	H		R1	R2	R3	R4	IN/OUT	
	mm	mm	mm		mm	mm	mm	mm	Type	φ
ERACS 1902C-B-INV	5800	2260	2450	6220	2000	2000	1800	1500	Victaulic	6"
ERACS 2102C-B-INV	5800	2260	2450	6550	2000	2000	1800	1500	Victaulic	6"
ERACS 2402C-B-INV	7000	2260	2450	7780	2000	2000	1800	1500	Victaulic	8"
ERACS 2652C-B-INV	7000	2260	2450	7840	2000	2000	1800	1500	Victaulic	8"
ERACS 2952C-B-INV	7900	2260	2450	8860	2000	2000	1800	1500	Victaulic	8"
ERACS 3302C-B-INV	7900	2260	2450	9330	2000	2000	1800	1500	Victaulic	8"
ERACS 3602C-B-INV	9400	2260	2450	9880	2000	2000	1800	1500	Victaulic	8"
ERACS 3902C-B-INV	11200	2260	2450	10680	2000	2000	1800	1500	Victaulic	8"
ERACS 4252C-B-INV	11200	2260	2450	10780	2000	2000	1800	1500	Victaulic	8"

Water Flow Data

Model	Min.	Max.
	m ³ /h	m ³ /h
0701HE	21.30	93.89
0821HE	27.39	94.90
0951HE	30.10	122.11
1051HE	36.90	125.78
1201HE	36.90	125.78
1301HE	40.21	131.90
1501HE	52.88	175.90
1651HE	52.88	178.99
1902	52.88	181.40
2102	52.88	195.91
2402	80.50	181.40
2652	80.50	227.48
2952	80.50	227.48
3302	115.31	356.62
3602	115.31	356.62
3902	115.31	329.80
4252	115.31	329.80

ERACS.C-INV INVERTER AIR COOLED SCREW CHILLER

CLIMAVENETA Chiller Water Circulation System Schematic



- | | |
|----------------------------|-------------------------------|
| 1. Water pressure gauge | 8. Drain valve |
| 2. On-off valve | 9. Circulating pump |
| 3. Automatic exhaust valve | 10. Safety drain valve |
| 4. Flexible joint | 11. Expansion water box |
| 5. Check valve | 12. Target flow switch |
| 6. Bypass water pipe | 13. One way valve |
| 7. Strainer | 14. Temperature display gauge |

Reminding for CLIMAVENETA chiller water circulation system pipe layout

1. Install an automatic vent valve at the highest point on the chilled water circulation line.
2. The evaporator inlet and outlet of the unit must be equipped with a rubber soft connection, including the cooling water inlet pipe of the chiller.
3. A flow switch is required on the horizontal pipe of the cooling water and the chilled water, and is interlocked with the electric control system of the unit.
4. When installing the chilled water circulation pump pipeline, a short-circuit circulation pipe is needed at the inlet and outlet of the evaporator and a shut-off valve on the short-circuit circulation pipe to make water circulation, decontamination and then confirm the water quality. The unit can be connected only after the quality is OK.
5. A strainer (60 mesh or more) must be installed at the inlet of the evaporator to ensure that the circulating water of the evaporator does not contain any impurities such as metal material, welding slag, steel wire, etc.
6. In order to ensure that the heat exchanger of the unit is not corroded, according to the chemical characteristics of copper, the influent water must not contain corrosive ions such as chloride ions, ammonia ions and sulfur ions. In hard water area, a qualified softened water device need to be installed to make the influent calcium bicarbonate content within the national standard.
7. For outdoor installations, the outdoor pipeline section should be equipped with drain valves. When the unit is not in use, the water should be completely emptied to avoid freezing the pipeline and the unit.
8. Check valve should be installed on evaporator inlet and outlet.



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