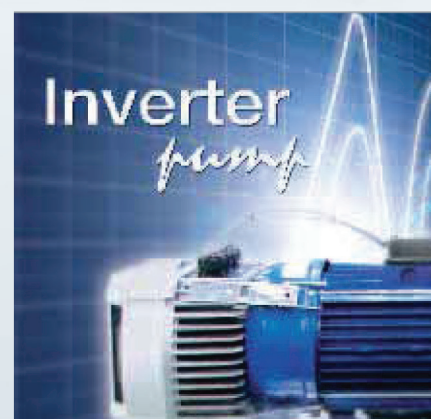
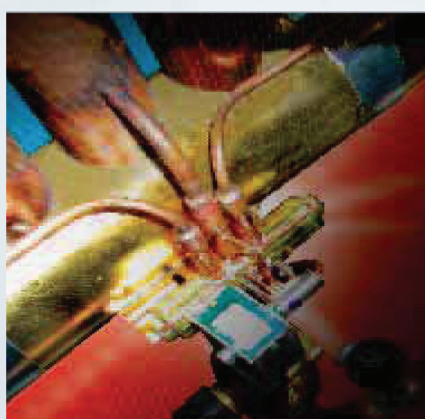


Scroll Type Water/Ground Source Heat Pump



AQSW-H/-N 50~430kW

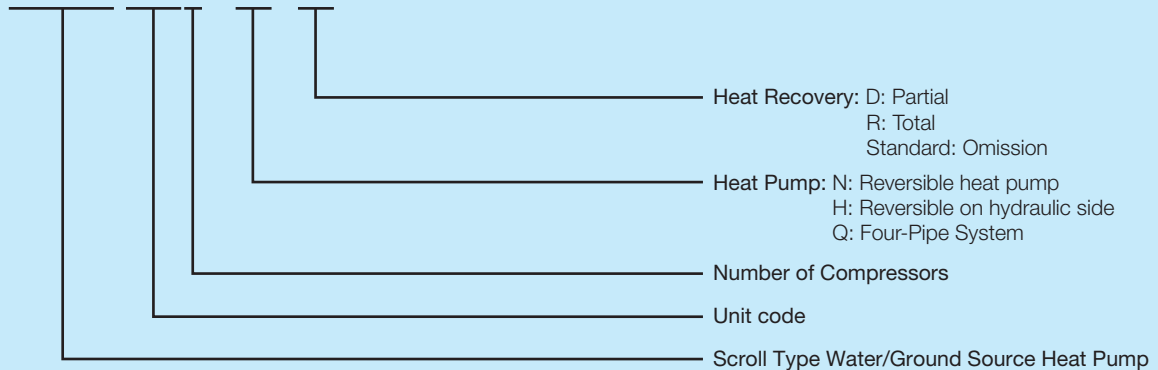
Configured with partial heat recovery, full heat recovery, four-pipe, and hydraulic module options





Scroll Type Water/Ground Source Heat Pump

AQSW 0152 - N - D



Example:

AQSW0152-N-D

Model 0152 uses HFC410A refrigerant with partial heat recovery and reversible on refrigerant side.

High Efficiency and Energy Saving

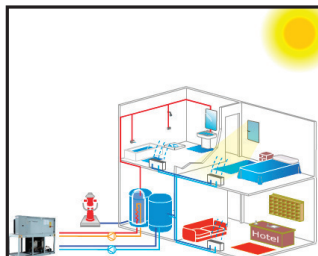
- Equipped with a high-efficiency, high-quality scroll compressor to enhance unit efficiency.
- Utilizes environmentally advanced HFC410A refrigerant, transforming ground energy (soil, groundwater, surface water, sewage, etc.) into high-grade energy for effective development and utilization.
- Excellent partial load efficiency (ESEER) saves more for users.
- Multi-functional unit capable of heat recovery, providing free hot water.



High Integration

The ground source heat pump unit releases a large amount of condenser heat as waste heat to shallow soil or surface during cooling. By using heat recovery technology and combined heating and cooling technology, the waste heat from cooling is recovered to heat domestic hot water, significantly reducing or even eliminating costs and saving a lot on hot water operation costs.

The unit has built-in independent heat recovery circuits or independent combined circuits for cooling and heating, providing cold, warm, and hot water supply functions. The heat pump unit can be equipped with a built-in hydraulic module, making pipe connections simple and usage flexible, and allowing for individual metering performance.



High Reliability

Uses a nearly constant temperature underground or surface heat source year-round, providing stable and reliable cooling in summer, heating in winter, and hot water throughout the year, unaffected by outdoor conditions.

The unit is designed, manufactured, and tested according to international and domestic standards (ARI, EN, UNI, JIS, and GB/T19409), ensuring reliable quality.

Four-Pipe Function

Climaveneta's ground/water source heat pump simultaneously meets cooling, heating, and hot water needs, ideal for offices, malls, supermarkets, swimming pools, high-end apartments requiring cooling and year-round hot water, dehumidification reheating, industrial air conditioning, and other places needing simultaneous cooling and heating.

The heat pump uses Climaveneta's advanced technology and unique design to balance cold and heat demands automatically, meeting different loads simultaneously.

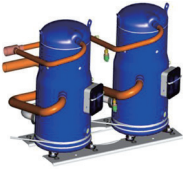
Beyond the features of conventional water/ground source heatpumps, it achieves a combined cooling and heating efficiency ratio of over 9 when providing both cooling and heating.

- Cooling only mode.
- Heat pump mode for heating or hot water.
- Unique simultaneous cooling, heating, and hot water mode.
- Self-balancing function for cooling and heating demands through a unique heat exchanger, ensuring different needs.
- System modes: separated cooling and heating pipes, four-pipe system.



Flexible Scroll Compressor

- High-efficiency scroll compressor with low noise.
- Flexible compressor structure, resistant to liquid slugging and wear.



- Twin compressors, multi-circuit system, strong redundancy, high part-load efficiency, low starting current.
- Multi-cylinder structure naturally solves oil return lubrication.

High-Quality Heat Exchanger

- Uses AISI316 stainless steel brazed plate heat exchanger.
- Compact structure with large heat exchange area per unit volume and light weight.
- Corrugated plate heat exchanger increases heat exchange area and enhances heat transfer efficiency.



Green and Environmentally Friendly



- Uses environmentally advanced HFC410A refrigerant, which does not damage the atmospheric ozone layer, with an ODP value of 0.
- Excellent heat exchange performance saves power consumption, reduces CO2 emissions, and improves unit energy efficiency ratio.

Electrical Safety

- Electrical system manufactured according to IEC60204-1/GB5226.1 standards, complying with EMC electromagnetic compatibility standards.
- Unit power supply controlled by an isolator linked with the electrical control box door, enhancing operational safety.
- Equipped with electrical protection devices such as phase loss, reverse phase, and overload protection.

Easy Installation

- Compact modular structure with a small footprint.
- The unit is pre-charged with refrigerant oil and refrigerant, and tested and commissioned before leaving the factory.
- On-site only requires connecting water pipes and power supply for operation.

Network and Building Management

Supports building control connections. Can connect with Climaveneta's chiller plant systems such as ClimaPro and common building control systems through ModBus and BACnet.

Smart Control System

Adopting a new control system with a user-friendly interface, excellent control adjustment functions, strong expandability, monitoring and management capabilities, and compatibility.

The operation screen is embedded in the unit, facilitating operation and providing excellent protection. Fully computerized automatic control achieves unmanned operation.

Intuitive LCD interface, displaying data and parameters in multiple languages and menus. Following Climaveneta's tradition, compressor status and parameters have separate straightforward displays for clear operation status.



W3000



W3000C

Unit Control and Operation Management

Advanced W3000 microcomputer intelligent control system, with Climaveneta's specially designed control algorithms, highlighting the unit's energy-saving and reliability features:

- FIFO compressor operation time balancing function extends the overall unit lifespan.
- Automatic load adjustment output function saves energy.
- Seamless adjustment from 25% to 100% through coordination with the compressor's unloading system.
- Running parameter adjustment and setting to adapt to different environmental applications.
- Temperature and pressure protection using analog measurement to predict and prevent faults, enhancing reliability.

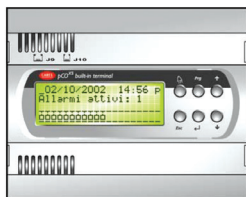
Fault Protection, Alarm, and Analysis

The microcomputer intelligent controller boasts comprehensive fault protection, alarm, recording, and analysis functions. It includes protections such as high and low-pressure switches, phase loss, phase reversal, overload, overcurrent, overheating, discharge temperature, water flow, antifreeze, etc. It also facilitates fault recording, alarm display, and incorporates a "Black Box" fault recording and analysis system. This system can record up to 400 faults and over 200 field data points before each fault occurrence. After a fault occurs, this data aids in fault diagnosis, facilitating swift troubleshooting and improving technical support effectiveness. By connecting to the Climaveneta Service remote service program, potential faults can be detected before they occur, allowing for proper preventive measures to be taken, thus preventing problems before they arise.

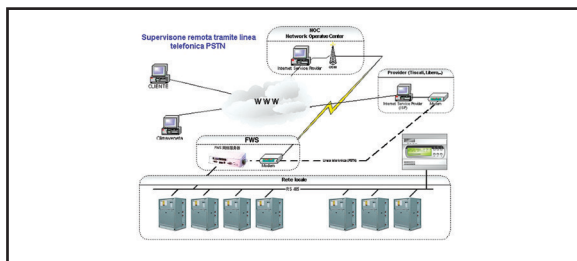


Centralized control system

Sequencer



- Intuitive LCD Display
- Enables cluster control and management of various units
- Centralized control of managed units' start and stop functions
- Supports pump control
- Can connect to Building Management Systems (BMS) via ModBus, LonWorks, BACnet protocols



Manager 3000



- Touchscreen interface for more intuitive and convenient operation
- Enables cluster control and management of various units
- Centralized control of managed units' start and stop functions
- Supports pump control
- Can connect to Building Management Systems (BMS) via ModBus, LonWorks, BACnet protocols

FWS Internet Network Server

The microcomputer intelligent controller can be optionally equipped with the Climaveneta's FWS network server, enabling monitoring, parameter setting and adjustment, and control of unit operation via a local area network or the Internet.

Microprocessor Control Features

Microprocessor	W3000C	W3000	Microprocessor	W3000C	W3000
Remote On/Off	√	√	Manual Control	√	√
Multilingual Selection	√	√	Metasys Johnson System Communication	OPT	OPT
Phase Sequence Protection	√	√	ModBus System Communication	OPT	OPT
Fault Alarms	√	√	BACnet System Communication	OPT	OPT
Fault Codes	√	√	LonWorks Network System Communication	OPT	OPT
"BLACK BOX" Fault Protection Functionality	√	√	Siemens System Communication	OPT	OPT
Startup Self-diagnosis Function	√	√	Pump Control	OPT	OPT
Real-time Daily/Weekly Programming Control	OPT	Par.	Standby Pump Control	OPT	OPT
Evaporator Inlet/Outlet Temperature Display	√	√	External 4-20mA Signal Water Temperature Setting	OPT	OPT
Compressor/Circuit Fault Display	√	√	Remote Relay Control	OPT	OPT
Alarm Display	√	√	Local/Remote Network Monitoring (FWS)	OPT	OPT
Proportional Control of Inlet Water Temperature	√	√	Remote Dual Setpoint Temperature Control		OPT
Scheduled Programming Operation Function	OPT	Par.	External 0-5V Signal Parameter Setting	OPT	OPT
Dual Temperature Setpoint Timing Function	OPT	Par.	Compressor Run Hour, Time Balance, and FIFO	√	√
"Pump-Down" Function	√	√	Compressor Operating Time Management	√	√
Energy Limitation Function	OPT	OPT			

√ standard OPT optional Par. adjustable parameters



Technical Parameters

AQSW-H/N		0152	0182	0202	0252	0262	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204
Cooling performance																				
Cooling capacity	kW	50.1	58.1	68.1	76.6	85.4	99.7	117.0	133.0	149.0	166.0	191.0	216.0	200.0	234.0	264.0	299.0	333.0	380.0	429.0
Cooling input power	kW	9.2	10.6	12.1	14.2	15.6	18.5	21.6	24.7	27.5	30.6	35.1	39.6	36.9	43.0	49.2	55.2	60.9	70.3	79.4
Chilled water flow rate	m3/h	8.6	10	11.7	13.2	14.7	17.2	20.2	22.9	25.6	28.5	32.8	37.1	34.5	40.3	45.4	51.5	57.2	65.5	73.8
Chilled water pressure drop	kPa	32.2	32.3	34	43.1	53.8	28.6	29.6	29.8	37.3	31.6	32.0	34.7	28.8	29.3	29.8	38.0	32.5	32.0	34.4
Ground source water flow rate	m3/h	11	12.7	14	16.8	18.4	21.9	25.6	29.2	32.6	36.4	41.8	47.2	43.9	51.1	58.0	65.5	72.7	83.2	94.0
Ground source water pressure drop	kPa	52.1	52.1	34	69.7	83.3	46.3	47.8	48.2	60.3	51.0	51.7	56.0	46.6	47.3	48.4	61.6	52.5	51.7	55.7
Heating performance																				
Heating capacity	kW	54.1	62.5	73	82.6	89.2	108.0	126.0	142.0	159.0	178.0	204.0	231.0	217.0	251.0	282.0	319.0	356.0	407.0	460.0
Heating input power	kW	13.1	14.7	17.2	19.6	22.1	25.4	29.2	33.1	37.0	41.1	47.2	53.2	50.6	58.2	65.9	74.1	81.8	94.5	107.0
Ground source water flow rate	m3/h	11.0	12.7	14	16.8	18.4	21.9	25.6	29.2	32.6	36.4	41.8	47.2	43.9	51.1	58.0	65.5	72.7	83.2	94.0
Ground source water pressure drop	kPa	52.1	52.1	34	69.7	83.3	46.3	47.8	48.2	60.3	51.0	51.7	56.0	46.6	47.3	48.4	61.6	52.5	51.7	55.7
Hot water flow rate	m3/h	8.6	10	11.7	13.2	14.7	17.2	20.2	22.9	25.6	28.5	32.8	37.1	34.5	40.3	45.4	51.5	57.2	65.5	73.8
Hot water pressure drop	kPa	32.2	32.3	34	43.1	53.8	28.6	29.6	29.8	37.3	31.6	32.0	34.7	28.8	29.3	29.8	38.0	32.5	32.0	34.4
Partial heat recovery performance																				
Cooling capacity	kW	51.9	60.1	70.4	79.4	86.4	103.2	121.2	137.8	154.2	171.7	197.3	223.1	207.1	242.6	273.7	309.1	344.7	393.2	444.5
Cooling power	kW	9.0	10.2	11.8	13.8	15.2	17.9	20.9	23.9	26.7	29.7	34.1	38.4	35.8	41.7	47.7	53.6	59.1	68.2	77.0
Heat recovery capacity	kW	4.0	4.6	5.3	6.2	6.8	8.1	9.4	10.8	12.0	13.4	15.3	17.3	16.1	18.8	21.5	24.1	26.6	30.7	34.7
Chilled water flow rate	m3/h	8.9	10.4	12.1	13.7	14.8	17.7	20.9	23.8	26.6	29.6	34.0	38.4	35.7	41.7	47.1	53.2	59.3	67.7	76.6
Chilled water resistance	kPa	34.6	34.7	36.4	46.2	54.8	30.7	31.8	31.9	39.9	33.8	34.3	37.1	30.9	31.4	32.0	40.8	34.9	34.2	36.9
Hot water flow rate	m3/h	0.7	0.8	0.9	1.1	1.2	1.4	1.6	1.9	2.1	2.3	2.6	3.0	2.8	3.2	3.7	4.1	4.6	5.3	6.0
Hot water resistance	kPa	21	21	21	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Full heat recovery and four-pipe system performance (W3000 controller)																				
Cooling capacity	kW	42.2	49.2	57.5	64.9	71.7	85.5		111.9		140.7		182.6							
Cooling input power	kW	13.1	14.8	17.2	19.6	21.5	25.4		33.2		41.2		53.3							
Heat recovery capacity	kW	54.6	63.1	73.7	83.3	91.9	109.4		143.1		179.4		232.7							
Chilled water flow rate	m3/h	7.3	8.5	9.9	11.2	12.4	14.7		19.3		24.2		31.4							
Chilled water pressure drop	kPa	22.9	23.3	24.3	30.9	37.8	21.1		21.1		22.7		24.9							
Hot water flow rate	m3/h	9.5	11.0	12.8	14.5	16.0	19.0		24.9		31.2		40.4							
Hot water resistance	kPa	38.9	38.9	40.6	51.9	63.2	35.1		35.1		37.6		41.2							
Microcomputer controller		W3000C																		
Compressor type		Scroll compressor																		
Number of compressors	n	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4
Cooling circuits	n	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
HFC410A charge amount	kg	4.5	4.9	6.5	6.5	6.5	9.0	10.0	12.2	12.2	14.8	15.0	17.0	18.0	20.0	24.4	24.4	29.6	30.0	34.0
Refrigeration oil	kg	3	3.3	3.3	3.3	3.3	6.7	6.7	6.7	6.7	6.7	7.2	7.2	13.4	13.4	13.4	13.4	13.4	14.4	14.4
Unit noise	dB(A)	58	59	59	59	60	61	62	62	63	63	64	71	64	65	65	66	66	67	74
Operating weight	kg	300	315	325	335	340	595	630	675	705	755	805	850	1100	1175	1255	1310	1415	1520	1600

Note:

- Cooling conditions: Chilled water inlet/outlet temperature -7°C, unit water flow rate 0.172 m³/(h·kW), cooling water (well water) inlet/outlet temperature 25/-°C, unit water flow rate 0.215 m³/(h·kW)
- Heating conditions: Hot water inlet/outlet temperature -45°C, unit water flow rate 0.172 m³/(h·kW), cooling water (well water) inlet/outlet temperature 10/-°C, unit water flow rate 0.215 m³/(h·kW)
- Heat recovery conditions: Hot water inlet/outlet temperature 40/45°C
- Noise value measured 1 meter away from the unit
- For reversible on hydraulic side units, please contact the Climaveneta office



Model	Maximum value						
	Compressor (Single)				Unit		
	n	F.L.I (kW)	F.L.A (A)	L.R.A (A)	F.L.I (kW)	F.L.A (A)	S.A (A)
0152	2	9.1	15.3	98.0	18.2	30.6	113.0
0182	2	10.7	18.6	142.0	21.4	37.2	161.0
0202	2	11.9	20.1	142.0	23.8	40.2	162.0
0252	2	13.7	23.1	147.0	27.4	46.2	170.0
0262	2	16.6	26.8	158.0	33.2	53.6	185.0
0302	2	17.4	29.3	197.0	34.8	58.6	226.0
0352	1+1	17.3/23.8	30.5/39.7	180.0/215.0	41.1	70.2	246.0
0412	2	23.8	39.7	215.0	47.6	79.4	255.0
0452	1+1	23.8/30.0	39.7/51.2	215.0/260.0	53.8	90.9	300.0
0512	2	30.0	51.2	260.0	60	102.4	311.0
0552	1+1	30.0/35.4	51.2/57.9	260.0/320.0	65.4	109.1	371.0
0612	2	35.4	57.9	320.0	70.8	115.8	378.0
0604	4	17.4	29.3	197.0	69.6	117.2	285.0
0704	2+2	17.3/23.8	30.5/39.7	180.0/215.0	82.2	140.4	316.0
0804	4	23.8	39.7	215.0	95.2	158.8	334.0
0904	2+2	23.8/30.0	39.7/51.2	215.0/260.0	107.6	181.8	391.0
1004	4	30.0	51.2	260.0	120	204.8	414.0
1104	2+2	30.0/35.4	51.2/57.9	260.0/320.0	130.8	218.2	491.0
1204	4	35.4	57.9	320.0	141.6	231.6	494.0

F.L.I Full Load Input Power

L.R.A Locked Rotor Amp

Power Supply Type 380-3Ph-50Hz

Three-Phase Voltage Imbalance Range 3%

F.L.A Full Load Amp

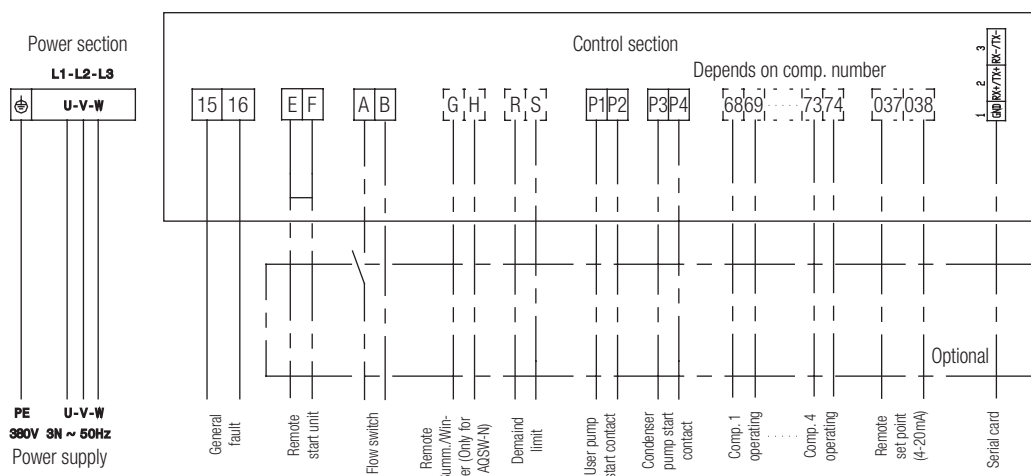
S.A Starting Amp

Allowed Voltage Fluctuation Range 10%

Rated power and current are based on rated conditions.

Maximum values are based on theoretical limits. These are for reference only for power distribution and wiring; if the power supply is insufficient, the energy limitation function can be selected.

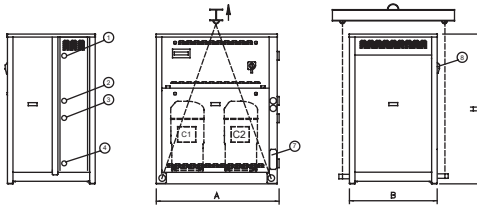
Wiring Diagram



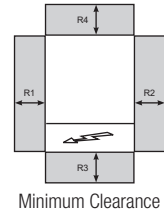
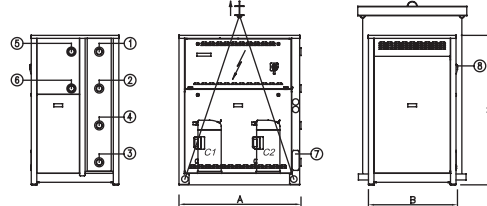


Dimensions

AQSW0152-0612-N

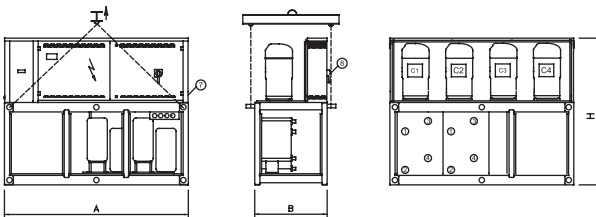


AQSW0152-0612-N-R

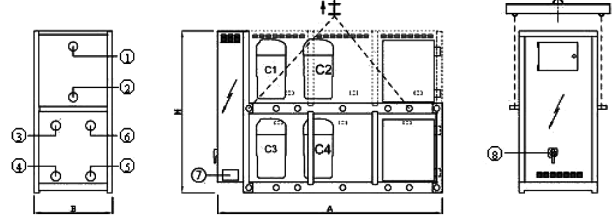


Minimum Clearance

AQSW0604-1204-N



AQSW0604-1204-N-R



Model	AQSW-H/-N				AQSW-H/-N-D				AQSW-H/-N-R				Connection size					
	A	B	H	P/W	A	B	H	P/W	A	B	H	P/W	AQSW-H/-N			AQSW-H/-N-R		
	(mm)	(mm)	(mm)	(Kg)	(mm)	(mm)	(mm)	(Kg)	(mm)	(mm)	(mm)	(Kg)	①/②	③/④	⑤/⑥	①/②	③/④	⑤/⑥
0152	1025	650	1255	300	1025	650	1255	320	1220	893	1500	450	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"
0182	1025	650	1255	315	1025	650	1255	335	1220	893	1500	470	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"
0202	1025	650	1255	325	1025	650	1255	345	1220	893	1500	490	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"
0252	1025	650	1255	335	1025	650	1255	355	1220	893	1500	505	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"
0262	1025	650	1255	340	1025	650	1255	360	1220	893	1500	525	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"
0302	1205	875	1500	595	1222	873	1496	615	1220	893	1500	550	2-1/2"	2-1/2"	2-1/2"	2"	2"	2"
0352	1205	875	1500	630	1205	875	1500	650					2-1/2"	2-1/2"	2-1/2"			
0412	1205	875	1500	675	1205	875	1500	695	1220	893	1500	745	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"
0452	1205	875	1500	705	1205	875	1500	725					2-1/2"	2-1/2"	2-1/2"			
0512	1205	875	1500	755	1205	875	1500	775	1220	893	1500	825	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"
0552	1205	875	1500	805	1205	875	1500	825					2-1/2"	2-1/2"	2-1/2"			
0612	1205	875	1500	850	1205	875	1500	870	1220	893	1500	910	2-1/2"	2-1/2"	2-1/2"			
0604	2230	880	1780	1100	2230	880	1780	1130					2-1/2"	2-1/2"	2-1/2"			
0704	2230	880	1780	1175	2230	880	1780	1205					2-1/2"	2-1/2"	2-1/2"			
0804	2230	880	1780	1255	2230	880	1780	1285					2-1/2"	2-1/2"	2-1/2"			
0904	2230	880	1780	1310	2230	880	1780	1340					2-1/2"	2-1/2"	2-1/2"			
1004	2230	880	1780	1415	2230	880	1780	1445					2-1/2"	2-1/2"	2-1/2"			
1104	2230	880	1780	1520	2230	880	1780	1550					2-1/2"	2-1/2"	2-1/2"			
1204	2230	880	1780	1600	2230	880	1780	1630					2-1/2"	2-1/2"	2-1/2"			
													GB/T8260					

① Ground Source Inlet

③ User side inlet

⑤ Heat Recovery Inlet

⑦ Power Cable Inlet

② Ground Source Outlet

④ User side outlet

⑥ Heat Recovery Outlet

⑧ Main Switch

Maintenance Space R1, R2, R3, R4: 1000mm

The appearance of the unit differs between internal and hydraulic side reversible units.

The above diagram is for reference only. For detailed drawings, please consult with Climaveneta.

**Global Headquarter**

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