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AIR TO WATER HEAT PUMPS

HEART OF YOUR HOME

Air To Water Heat Pumps

Nowadays, people are becoming increasingly focused on the costs of heating as well as on environmental issues. Traditiona heating systems cost more to run and are bad for the environment.

Thus, people are searching for new heating technology with higher efficiencies, low running costs and eco-friendly features. Fortunately, this is possible with S-THERM+, S-THERM and SANITARY WATER HEATERS!

These are air to water heat pumps created for house and room heating, as well as for water heating.

EVI SCROLL AIR TO WATER HEAT PUMPS

S-THERM+ series air source heat pumps are specially designed for cold climates and to work in outside air temperatures of -20°C. Its core philosophy is to solve the user's home heating requirements during winter and spring and provide cooling during a hot summer and autumn. High temperature EVI Scroll compressors are equipped with a vapour injection connection for Economizer Operation. Effective enhancement is accomplished by utilising a sub cooling circuit, it also increases heating capacity. The system is readily capable of reaching an outlet water temperature of 65° C.

DC INVERTER AIR TO WATER HEAT PUMPS

Adopting advanced heat pump technology, the S-THERM air source water heaters absorb natural heat energy from the ambient air and increases it for room heating. Not only does it satisfy room heating requirements, it also supplies domestic hot water. Besides, S-THERM can provide you a cooler environment in a hot summer. If you choose S-THERM, you will enjoy a comfortable environment at your home all year round. It is an all-in-one! S-THERM adopts eco-friendly refrigerant R410A, which is harmless to the ozone layer. Moreover, with advanced heat pump technology and powerful hardware, the efficiency of S-THERM has been improved, resulting in lower CO2 emissions. It is an eco-friendly product, which can reflect your awareness of social responsibility to the environment.

SANITARY WATER HEATERS

SINCLAIR heat pumps for water heating take advantage of the heat pump principle with environmentally-friendly R134a refrigerant. They save energy compared to commonly used sources for sanitary water heating. Due to its automatic antilegionella function, the water in the tank remains harmless and ready for use.





More Advanced Technology for Water Up to 65 °C

A heat pump absorbs energy from the surroundings and transfers it to heat the water. So the house could be warmed by pumping this warm water	
to an underfloor pipe heating system or radiators.	
The indoor unit is designed for super low noise operation. All moving parts are	
set on a suspended base with the pipe system carefully designed and arranged to reduce vibration. The Inside of the cabinet is fully insulated. All this ensures	
that the unit operates stably and quietly	

EVI COMPRESSOR SYSTEMS BENEFIT OVER STANDARD REFRIGERATION COMPRESSOR SYSTEMS OF EQUIVALENT CAPACITY DUE TO THE FOLLOWING:

CAPACITY IMPROVEMENT

Since the added capacity achieved by enhanced subcooling provides a higher enthalpy gain across the evaporator, the compressor displacement required can be reduced by the percentage enthalpy gain for the same evaporator capacity.

INCREASED COP

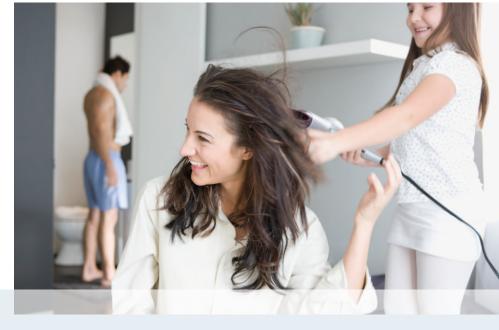
In a vapour-injected scroll compressor cycle, the efficiency is higher than in a conventional single-stage compressor delivering the same capacity. This is because the capacity increase from the extra subcooling is achieved from less input power. The vapour created in the sub-cooling process is then compressed only from the higher interstage pressure rather than from the lower suction pressure.



EVI COMPRESSOR SYSTEM BENEFITS

EVI SCROLL COMPRESSORS HAVE THE FOLLOWING FEATURES

- · Higher volume efficiency
- · Low noise level
- Reliability
- · Easy construction solution
- · Suitability for heat pumps



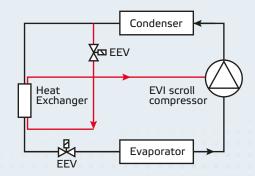
EVI SCROLL COMPRESSOR CYCLE

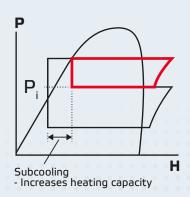
The vapour-injected scroll compressor cycle is similar to a two-stage compressor with interstage cooling, but is achieved using a single compressor.

The high stage is accomplished by extracting a portion of the condenser liquid and expanding it through an expansion valve into a counter flow brazed-plate heat exchanger acting as a subcooler.

The superheated vapour is then injected into an intermediate vapour injection port in the scroll compressor.

This additional subcooling increases the evaporator capacity by reducing its inlet enthalpy.





INDOOR UNITS

SHP-140IRC SHP-180IRC





STANDARD UNIT COMPOSITION

- New EVI compressor specially designed for high water temperature.
- Base frame and external panels made of galvanized powder coated steel.
- · Wilo EC water pump installed inside.
- · Copeland compressor with R407c refrigerant.
- · Flow sensor for water flow protection.
- · Fully sealed control box to IP60.
- · Intelligent Smart Sinclair controller and adjustment by quick mind microprocessor.
- New lattice LCD display wire controller with JOG wheel.
- · 3kW bivalent electric heater inside the indoor unit.
- · Danfoss soft starter.
- · Outflow water temperature up to 65°C.
- · 5 years warranty.



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NDOOR UNIT			SHP-140IRC	SHP-180IRC
emperature	A10/W35	Heating Capacity (kW)	15,55	17,88
Outdoor Air/ Outflow Water (°C) *		Power Input (kW)	3,28	3,90
		COP (-)	4,75	4,58
	A7/W35	Heating Capacity (kW)	14,73	16,79
		Power Input (kW)	3,28	3,94
		COP (-)	4,49	4,26
	A2/W35	Heating Capacity (kW)	11,38	13,27
		Power Input (kW)	3,06	3,77
		COP (-)	3,72	3,52
	A-7/W35	Heating Capacity (kW)	10,30	11,09
		Power Input (kW)	3,17	3,85
		COP (-)	3,25	2,88
	A-15/W45	Heating Capacity (kW)	8,81	10,43
		Power Input (kW)	4,09	4,95
		COP (-)	2,16	2,11
	A20/W35	Heating capacity (kW)	18,28	22,32
		Power input (kW)	3,28	3,83
		COP (-)	5,58	5,82
	A35/W12	Cooling Capacity (kW)	10,90	12,50
		Power Input (kW)	3,41	4,46
		EER (-)	3,20	2,80
echnical Specifications	Power Supply	V/-/Hz	400 / 3 / 50	400 / 3 / 50
	Outdoor Temperature Range	°C	-20 ~ +40	-20 ~ +40
	Temperature of Leaving Water	°C	+12 ~ +65	+12 ~ +65
	Refrigerant / Charge	-/kg	R407c / 8,0	R407c / 9,5
	Electric Heater	kW	3,0	3,0
	Compressor QTY	-	1	1
	Compressor	Туре	COPELAND EVI scroll	COPELAND EVI scroll
	Refrigerant Liquid pipe	mm (inch)	12 (1/2")	12 (1/2")
	Refrigerant Gas pipe	mm (inch)	22 (7/8")	22 (7/8")
	Water Pipe Inlet / Outlet	-	DN 25 (1")	DN 25 (1")
	Sound pressure level L _{pA} at 1 m/10 m	dB	51/31	51/31
	Net Dimensions	mm	602 x 638 x 1035	602 x 638 x 1035
	Net Weight	kg	159	150



*Values were measured according to EN 14511-2:2012 / EHPA standards including defrost cycle.

OUTDOOR UNITS

SHP-140ERC SHP-180ERC





STANDARD UNIT COMPOSITION

- Air/refrigerant heat exchanger (fins & coil) with hydrophylic coating.
- · Electronic expansion valve.
- · Automatic intelligent defrosting function.
- General testing and operational test carried out for every unit before package.
- · Fan with EC motor.
- · Anti-snow function.
- · 5 years warranty.



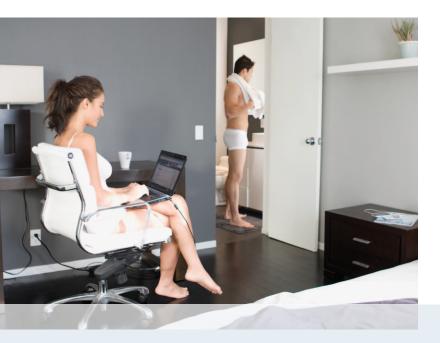
OUTDOOR UNIT		SHP-140ERC SHP-180ERC				
Power supply	V/Ph/Hz	230/1/50 (fro	om indoor unit)			
Fan Quantity	pcs		1			
Fan Power Input	W	1	82			
Fan Direction	-	Ver	tical			
Air Flow	m³/h	4995				
Refrigeration Gas Pipe	mm (inch)	12 ((1/2")			
Refrigeration Liquid Pipe	mm (inch)	22 ((7/8")			
Sound pressure level L _{pA} at 1 m/10 m	dB	58,2	/38,2			
Unit Dimension (L*W*H)	mm	1168 x 10	063 x 1102			
Net Weight	kg		94			







SMART SINCLAIR CONTROL SYSTEM



FEATURES

- Controls the heating of two independent reservoirs (tank for sanitary water and tank for heating water)
- · Control of two equitherm circuits heating (i.e. floor heating and radiator heating)
- Controlling of EVI system for high COP and capacity
- System is more economical by using load management
- System monitors power input to prevent damage by wrong connection, over or under voltage
- Controls defrost mode depending on time, temperature and outdoor weather
- · Automatic alarm and error reports



INDOOR UNIT CONTROL PANEL



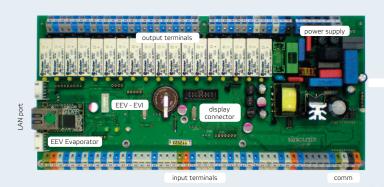
CONTROL AND COMMUNICATION OPTIONS

Standard

- · Built-in LCD panel and JOG wheel
- · By USB port (universal serial bus)
- · Industrial communication standard line RS485
- Long-distance monitoring via internet and remote access from the service center
- Using your PC- ethernet connection (via LAN/WAN) - tablet, smart phone

Optional

· Using your mobile phone GSM (by calling or SMS)





REMOTE CONTROL

CONTROL ON THE LOCAL NETWORK

- · Comfort control with tablet PC
- · User-friendly interface
- Well-arranged display and quick orientation in menus
- · Simple setup
- Quick access to basic information about the system



BASIC INFORMATION WINDOW

-2.8°C

29.3°C

- · Overview of basic temperatures
- · Indication of operating mode and load management

24.1°C

· Icon to enter the menu (home, heat pump control, temperature, settings)

COMFORTABLE SETTINGS MENU

- · Adjustment of temperatures
- · Priorities
- · Runtime parameters
- · Equitherm
- · LAN, GSM
- · Remote monitoring
- · Language



REMOTE CONTROL



CONTROL OVER THE INTERNET

- Access from anywhere via the internet.
- Easy access thru
 the web interface
 on www.sinclairheatpumps.eu
- Founding of account and service of account is free of charge
- Interactive interface (equitherm curve shows actuals set temperatures)
- Interface is optimized for use on touch-screen devices

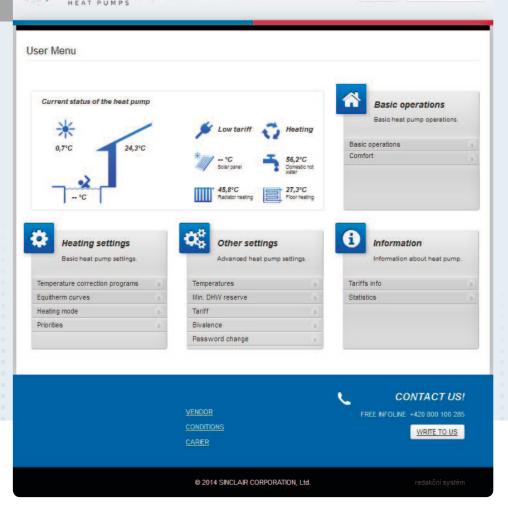
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DISPLAYED INFORMATIONS

- Basic overview of the system (temperatures, electrical tariff, etc.)
- Currently set values for each item
- Possibility to view statistics of heat pump

OPTIONS

- Possibility to set all parameters as shown on the control panel of the unit
- User and service levels of the access





WATER PIPING DIAGRAM

WITH COMBINED ACCUMULATION TANK

COMBINED BUFFER TANK ST-500MCS, ST-500MC

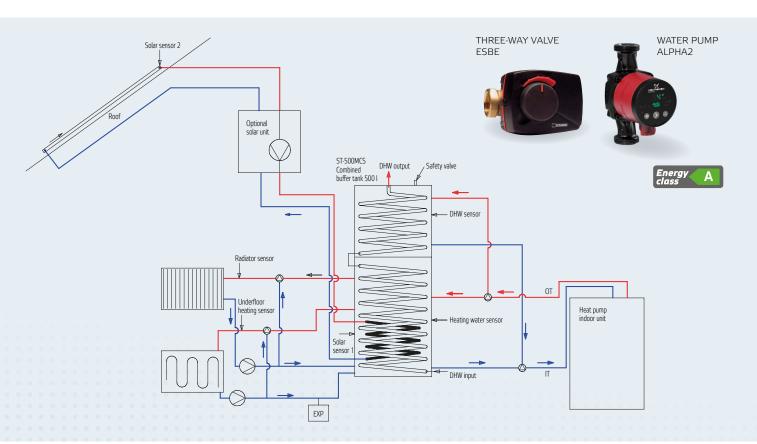
- · Steel storage tank of 500 liters with stainless steel heat exchanger
- · DHW flow heater
- · Possibility of connecting to solar heating
- · Compact, gray leatherette body with black plastic top cover
- · 50 mm polyurethane foam insulation
- · 2 years warranty

RECOMMENDED COMPONENTS

- Three-way valves for switching between the upper 1/3 tank for DHW and the lower 2/3 tanks for heating circuit ESBE series VRG 131/132 with electronic control type ESBE Series 641 (running time 30 seconds)
- Three-way valves for equithermal control of the temperature in the radiators or underfloor heating system with electronic control type ESBE Series 671 (running time 240 seconds)
- · Circulator pump for water circulation in heating systems Grundfos Alpha2



ST-500MCS



COOLING CANNOT BE USED IN THIS CONNECTION

WATER PIPING DIAGRAM

WITH SINCLAIR WATER HEATER

BUFFER TANK ST-400A, ST-500A

- · Simple storage tank of 400 or 500 litres
- · Compact, gray leatherette body with black plastic top cover
- · 50 mm polyurethane foam insulation
- · 2 years warranty

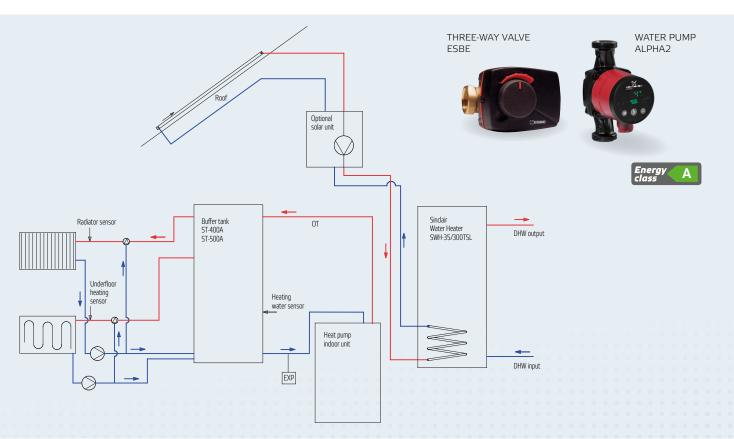
RECOMMENDED COMPONENTS

- Three-way valves for equithermal control of the temperature in the radiators or underfloor heating system with electronic control type ESBE Series 671 (running time 240 seconds)
- Circulator pump for water circulation in heating systems Grundfos Alpha2



SINCLAIR WATER HEATER SWH-35/300TSL

ST-400A



FAN COIL UNIT MAY BE USED IN COOLING MODE IN THIS CONNECTION



WATER PIPING DIAGRAM

INDIRECT WATER HEATERS

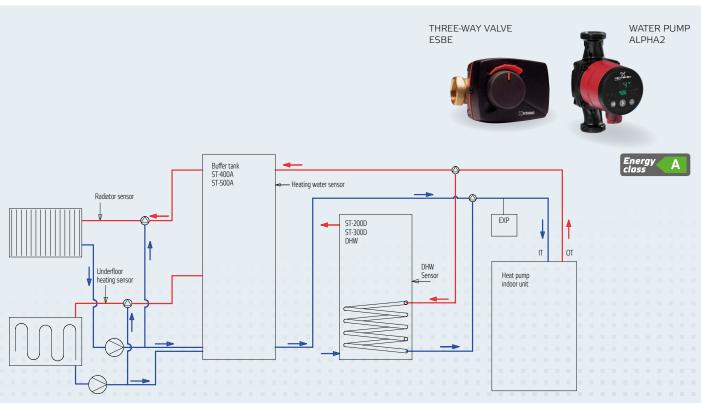
INDIRECT WATER HEATERS ST-200D, ST-300D

- · Cylindrical hot water tank
- · Compact, gray leatherette body with black plastic top cover
- · 50 mm polyurethane foam insulation
- · 2 years warranty

RECOMMENDED COMPONENTS

- Three-way valves for switching between the tank for DHW and buffer tank ESBE series VRG 131/132 with electronic control type ESBE Series 641 (running time 30 seconds)
- Three-way valves for equithermal control
 of the temperature in the radiators or underfloor heating
 system with electronic control type ESBE Series 671
 (running time 240 seconds)
- Circulator pump for water circulation in heating systems Grundfos Alpha2





FAN COIL UNIT MAY BE USED IN COOLING MODE IN THIS CONNECTION

CASCADE MODE



GENERAL PROPERTIES

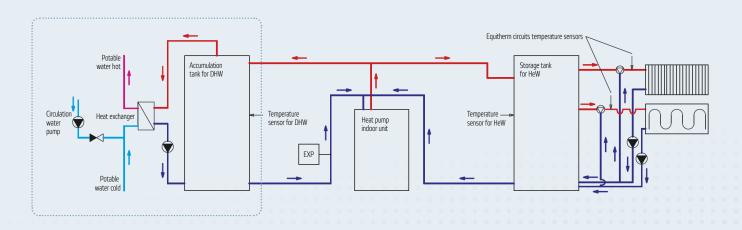
- For heating buildings with high heating requirements
- Convenient for heating residential or office buildings
- Standard software option no need for upgrades

CONTROL SYSTEM

- · Master and slave connection, one unit controls others
- Eight units can be connected together in one cascade (up to 144 kW)
- · Alternating units increases the life of units
- · Some of the units can heat the hot water while others can provide the heating water

SPECIAL ACCESSORIES FOR CASCADES

- Station for instantaneous heating of domestic hot water (fresh station)
- Storage tank with 1000 L volume designed for optimal heating of heating water
- · Distributor connecting units to the storage tank



WATER PIPING DIAGRAM WITH FRESH STATION FOR DHW



OPTIONAL ACCESSORIES



ROOM THERMOSTAT SAU-1000

- · Easy to use thanks to location in room
- \cdot Correction of requested temperature by ± 4 °C
- · Easy installation with 3 core cable

OUTDOOR UNIT COVER ZG6009

- · Protective cover for outdoor unit
- · Reduces the amount of leaves falling into the evaporator
- · Prevents the ingress of water and rain into the evaporator

GSM MODULE SHP-GSM

- · Possibility of controlling the unit through a gsm network
- · Information about status of unit and main temperatures
- $\cdot\;$ Switching the modes on and off
- · SMA connector for antenna
- Standard accessories (included in package) are battery and antenna



GSM MODULE SHP-GSM

COVER ZG6009

SINCLAIR FAN COIL UNITS

GENERAL FEATURES

- · Possibility of heating or cooling
- · Easy connection
- · Elegant look



Model	Model		SF-08C	SF-12C	SF-16C
Power system	Туре	V/Ph/Hz	220-240/1/50	220-240/1/50	220-240/1/50
	Input	W	100	150	160
Air flow volume	High	m³/h	850	1250	1640
		ft³/min	500	735	965
	Medium	m³/h	638	1030	1450
		ft³/min	375	606	853
	Low	m³/h	515	914	1328
		ft³/min	303	538	781
Capacity	Cooling	W	4640	6700	8700
	Heating	W	7500	10500	12900
Electric heater rated power	er	W	1400	1400	1400
Water system	Water flow volume	m³/h	0.81	1.18	1.53
	Pressure drop	kPa	15	25	27
Sound pressure level L _{pA}		dB	46	47	53
Coil	Туре	-		Copper with aluminium fins	
	Operating pressure	MPa	<1.6MPa	<1.6MPa	<1.6MPa
Connection pipe size	Water inlet / outlet	inch	3/4"	3/4"	3/4"
	Condensing water drain	mm	32	32	32
Net weight	Body	kg	30	30	38
	Panel	kg	6.5	6.5	6.5
Gross weight	Body	kg	38	38	46
	Panel	kg	10	10	10
Wired remote controller (c	optional)		YB1F2(X-FAN)		
Wireless remote controlle	r (standard)			Z4E351B	



Model			SF-51H	SF-68H	SF-85H
Power system	Туре	V/Ph/Hz	220-240/1/50	220-240/1/50	220-240/1/50
	Input	W	50	60	60
Air flow volume	High	m³/h	550	680	850
		ft³/min	324	400	500
	Medium	m³/h	413	591	708
		ft³/min	242	347	416
	Low	m³/h	367	532	616
		ft³/min	215	312	362
Capacity	Cooling	W	2700	3600	4200
	Heating	W	4050	5400	6300
Water system	Water flow volume	m³/h	0.45	0.6	0.7
		gal/min	1.98	2.64	3.08
	Pressure drop	kPa	24	44	45
Sound pressure level L _{pA}		dB	40	43	48
Coil	Туре	-	Copper with aluminium fins		
	Operation pressure	MPa	<1.5MPa	<1.5MPa	<1.5MPa
Connection pipe size	Water inlet / outlet	inch	1/2"	1/2"	1/2"
	Condensate drain	mm	15,6	15,6	15,6
Outline dimensions (WxDx	:H)	mm	845x180x275	940x200x298	940x200x298
Net weight		kg	11 13 13		
Wired remote controller (o	ptional)		YB1F2(X-FAN)		
Wireless remote controller	(standard)		Z4E351B		



Basic System Configuration

S-THERM 2ND GENERATION DC INVERTER AIR TO WATER HEAT PUMPS

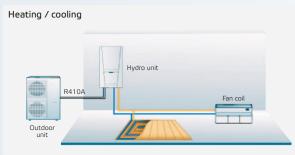
DC Inverter Air to Water Heat Pump is composed of outdoor unit, hydro box (indoor unit) and optional water tank.



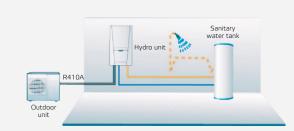
OPERATION FUNCTIONS

- · Cooling & heating
- · Water heating
- · Cooling + water heating
- · Heating + water heating
- Emergency modeQuick water heating
- · Holiday mode
- · Forced operation mode
- · Silent mode
- · Dissinfection mode
- · Water-dependent heating mode

COMBINATION EXAMPLES



Water heating



Heating / cooling with water heating



INDOOR UNITS (HYDROBOX)

GHS-120IRAB-3 GSH-140IRAB-3 GSH-160IRAB-3

FEATURES

- · Compact and deluxe design
- Adopts high efficiency plate heat exchanger
- · User friendly control panel
- · Easy installation and maintenance
- · Safe and reliable
- · 5 years warranty



Model				GSH-120IRAB-3 GSH-140IRAB-3 GSH-160IRAB-3			
Power supply			V/Ph/Hz		380-415/3/50		
Rated input			W		6200		
Connecting pipe (refrige	erant)	Gas	mm(inch)		15.9(5/8)		
		Liquid	mm(inch)		9.52(3/8)		
Connecting pipe (water)	Water inlet	inch		1"Male BSP		
		Water outlet	inch		1"Male BSP		
Safety valve			Bar		3		
Leaving water temp.		Cooling (Fan coil unit)	°C		7~25		
		Cooling (Floor cooling)	°C		18~25		
		Heating (Fan coil unit)	°C		25~55(High Temperature Cycle)		
		Heating (Floor heating)	°C		25~45(Low Temperature Cycle)		
Main components	Pump	Туре	-		Water-cooled		
		Nr. of speed	-	3			
		Power input	W	200			
			LPM	12			
	Expansion Vessel	Volume	Liter	10			
		Water Pressure(Max)	Bar	3			
		Water Pressure(Pre)	Bar		1		
	Electric Heater	Туре	-		Sheath		
		Material	-		Stainless Steel		
		Operation	-		Automatic		
		Steps	-		1		
		Capacity	kW		6		
		Combination			6		
		Power input	V/Ph/Hz		400/3/50		
	Heat Exchanger	Туре	-		Brazed Plate HEX		
		Quantity	-		1		
Sound pressure level L	_A at 1 meter		dB	31			
Dimensions	Outline (W×D×H)		mm		900x500x324		
Weight	Net / Gross		kg		60/69		
	_			***			



OUTDOOR UNITS

GSH-120ERAB-3 GSH-140ERAB-3 GSH-160ERAB-3



FEATURES

- · High efficiency and energy saving
- · Comfortable
- · Intelligent control
- · PFC control technology
- · BLDC motor control technology
- · 5 years warranty

Model			GSH-120ERAB-3	GSH-140ERAB-3	GSH-160ERAB-3	
Capacity1	Heating floor heating	kW	12,5	14,2	15,5	
	Cooling floor cooling	kW	13,5	14,5	15	
Power Input1	Heating floor heating	kW	2,75	3,23	3,78	
	Cooling floor cooling	kW	3,46	3,92	4,11	
EER1	Cooling floor cooling	-	3,90	3,70	3,65	
COP1	Heating floor heating	-	4,55	4,40	4,10	
Capacity2	Heating Fan coil or Radiator	kW	11,5	12,5	14	
	Cooling for Fan coil	kW	9,5	10,5	11	
Power Input2	Heating Fan coil or Radiator	kW	3,4	3,6	4,1	
	Cooling for Fan coil	kW	3,2	3,6	3,7	
EER2	Cooling for Fan coil	-	3,00	2,95	2,95	
COP2	Heating Fan coil or Radiator	-	3,40	3,45	3,40	
Power Supply		V/Ph/Hz	380-415/3/50			
Rated input	Cooling	kW	4,8	7,0	5,5	
	Heating	kW	4,3	6,0	5,4	
Rated current	Cooling	A	14,0	14,0	15,0	
	Heating	A	12,0	12,0	13,0	
Refrigerant	Туре	-	R410A	R410A	R410A	
	Charge	kg	3,4	3,4	3,4	
Sanitary water Temperature		°C		40~80		
Sound Pressure Level L _{pA}	Cooling	dB	57	57	59	
	Heating	dB	55	55	56	
Connecting pipe (refrigerant)	Gas	mm(inch)	15,9 (5/8")	15,9 (5/8")	15,9 (5/8")	
	Liquid	mm(inch)	9,52 (3/8")	9,52 (3/8")	9,52 (3/8")	
Dimensions	Outline (WxDxH)	mm	900x412x1345	900x412x1345	900x412x1345	
Weight	Net / Gross	kg	107/117	107/117	106/118	

 $\label{lem:conditions} \mbox{1 Capacities and power inputs are based on the following conditions:}$

Cooling conditions: Indoor Water Temperature 23°C/18°C; Outdoor Air Temperature 35°CDB/24°CWB Heating conditions: Indoor Water Temperature 30°C/35°C Outdoor Air Temperature 7°CDB/6°CWB Standard piping length 7.5m ${\bf 2}$ Capacities and power inputs are based on the following conditions:

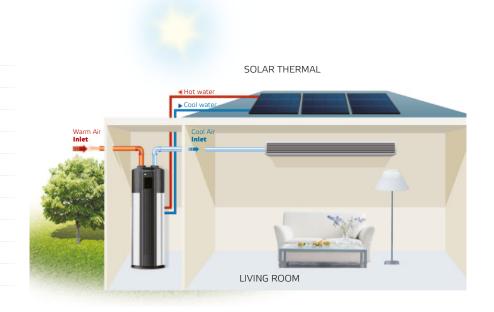
Cooling conditions: Indoor Water Temperature 12°C/7°C; Outdoor Air Temperature 35°CDB/24°CWB Heating conditions: Indoor Water Temperature 40°C/45°C; Outdoor Air Temperature 7°CDB/6°CWB Standard piping length 7.5m







Sanitary Water Heaters



ADVANTAGE OF HEAT PUMPS

SINCLAIR heat pumps for water heating takes the advantage of heat pump principle with environmentallyfriendly R134a refrigerant. It saves energy compared to commonly used sources of sanitary water heating.

Due to its automatic antilegionella function, the water in the tank remains harmless and ready for use.







FEATURES



SAFETY

Complete insulation between water and electricity.
No potential electric shock problem. No fuel pipes and storage, no potential danger from oil leakage, fire, explosion etc.

HIGH EFFICIENCY

Adopts heat pump principle, which absorbs heat from outdoor air and produces hot water, thermal efficiency can be up to 450%.

ENERGY SAVING

Power consumption comparison under the same condition to heat 1 ton from 15 to 55 degree.

ALLWEATHER RUNNING

Ambient temp: -30 to 43°C, not affected by nighttime temperatures, overcast sky, rain and snow.

AUTOMATIC CONTROL

Automatic start-up and shutdown, automatic defrosting without any attention.

ENVIRONMENT FRIENDLY

No discharge of poisonous gas. No pollution of the atmosphere or environment.

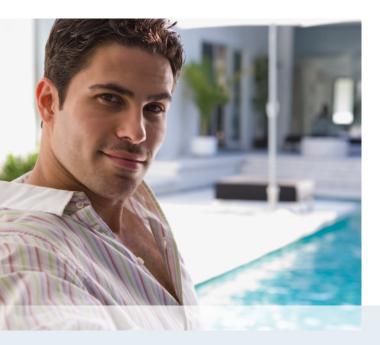
EASILY OPERATE

User-friendly LCD display for easy interaction.

EASY FOR INSTALLATION AND MAINTENANCE

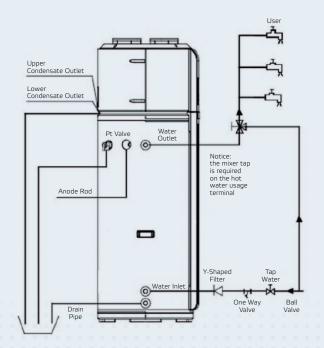
Just need to connect water pipes.

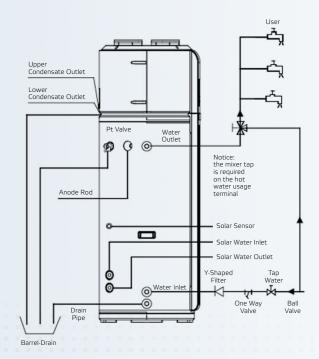
Effective Water Heating



FEATURES

- No cross contamination potential, refrigerant coil is wrapped around the outside of the tank and insulated.
- · High efficiency
- · Can be installed inside or outside
- · Closed refrigerant circuit, easy for installation
- · Automatic weekly anti-legionella function.
- Multi protection (PT valve, double high water temp. protection switches)
- · Thermal expansion valve
- · Built-in heat exchanger, compatible with solar thermal or boilers (optional).
- · Four way valve for automatic defrosting





SWH-15/190T

SWH-35/300TSL, SWH-35/300TL

WATER HEATERS

SWH-35/300TL SWH-35/300TSL SWH-15/190T

- · Water tank volume 190 liters or 300 liters
- · Environmentally friendly refrigerant R134a
- · Two operation modes: economy, e-heater
- · Stainless steel solar heat exchanger
- · Outlet water temperature 38-60°C
- · Running ambient temperature -30-43°C
- · 3 years warranty





Model		SWH-15/190T		SWH-35/300TSL, SWH-35/300TL	
Running mode power input		Economy	E-heater	Economy	E-heater
Running ambient temp.	0C	-7-43	-30-43	-7-43	-30-43
Output water Temp.	°C	Default 55 ^o	°C,38°C~70°C	Default 55°C,	38°C~60°C
Power supply	V/Ph/Hz	220-2	40/1/50	220-240	0/1/50
Storage size	L	•	190	30	0
Water heating Capacity	kW	1,50	3,00	3,0	3,0
COP		3,60	1,00	3,6	1,0
Max. power input	kW		3,8	4,	3
Max. current	A	3,5	13,0	5,7	13,0
Ambient temp.	°C	-3	0-43	-30-43	
Dimension (DxH)	mm	Ф56	8x1640	Ф650х1920	
Net weight	kg		96	123	
Sound pressure level L _{DA}	dB		38	48	
Refrigerant type/Charged volume	kg	R134	4a/0,95	R134a/1,2	
Refrigerant design pressure	MPa	3,0	0/1,2	3,0/1,2	
Tank design pressure	MPa	0,1	15-1,0	1	
Air flow volume	m³/h	218/2	202/178	414/355/312	
Water inlet pipe	mm	D	N20	DN20	
Water outlet pipe	mm	D	N20	DN20	
Max. pressure	MPa		1.2	1,2	
Design pressure	MPa	0,1	15-1,0	1	
Solar water inlet pipe	mm			DN:	20
Solar water outlet pipe	mm		***************************************	DN:	20
Solar pipe max. pressure	MPa			0,	7
E-heater	kW		3,0	3,	0
Hot water yield	m³/h	0,045	0,075	0,086	

^{1.} The test conditions: outdoor temp. $15/12^{\circ}$ C(DB/WB), inlet water temp. 15° C, outlet water temp. 45° C.

^{2.} The specification may be changed for product improvement, please refer to the nameplate.

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AIR TO AIR HEAT PUMPS

HEART OF YOUR HOME

AIR TO AIR HEAT PUMPS

Air to air heat pumps are great choice for people who want to heat and cool with only one device. This type of heat pump is very profitable for houses with small heat loses where air to water heat pumps have a long term cost return.

Heat pumps have low running costs, high efficiency and features to achieve a comfortable environment.

MATRIX SERIES AIR TO AIR HEAT PUMPS

The split design of these heat pumps is excellent, especially for houses with large open spaces. One outdoor unit is connected to one wall mounted indoor unit. These units are designed to be elegant and unobtrusive. Using R410A refrigerant, Matrix units can provide heat even when the outdoor temperature falls to -20 $^{\circ}$ C.

ARCTIC SERIES AIR TO AIR HEAT PUMPS

Air to air heat pumps from ARCTIC series are made with focus on exclusive look of the indoor units. They will fit into any room where design of indoor unit and smooth runnig are the key requirements. Beside this are ARCTIC units capable of heating down to -30 $^{\circ}\text{C}$ when using ecological R410A refrigerant.

MULTI SYSTEM SERIES AIR TO AIR HEAT PUMPS

In this series up to five indoor units can be connected to one outdoor unit. This makes the system suitable for houses with more rooms. A different temperature can be set for each room. Indoor units are available in six variations, i.e. wall mounted units, duct units. Uses the same refrigerant as Matrix series, R410A.



MATRIX UNITS

ASH-09AIM2 PT ASH-13AIM2 PT ASH-18AIM2 PT ASH-24AIM2 PT

FEATURES

- · Energy class A++/A+
- Powerful Japanese compressor technology
- R410a environmentally friendly refrigerant
- · Compact design
- · Easy to clean panel
- Standard filters catechin and active carbon filter
- · Dual side condesate outlet
- · 3-year warranty







MODEL		ASH-09AIM2 PT	ASH-13AIM2 PT	ASH-18AIM2 PT	ASH-24AIM2 PT	
Capacity heating / cooling	k	W	3,0(0,8-3,6) / 2,6(0,6-3,2)	4,0(0,9-4,4) / 3,5(0,6-3,9)	5,8(1,1-6,8) / 5,3(1,3-6,6)	7,0(2,5-7,6) / 6,5(2,5-6,8)
Power supply	V/P	h / Hz	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50
	U	nit	Outdoor	Outdoor	Outdoor	Outdoor
Power input cooling / heating	\	N	870 / 900	1170 / 1200	1625 / 1760	2180 / 2220
Max. power input cooling / heating	1	N	1300 / 1400	1400 / 1550	2650 / 2650	2650 / 2800
Current cooling / heating		A	3,92 / 3,80	5,30 / 5,20	7,80 / 7,20	9,80 / 9,70
Max. current cooling / heating		A	6,7 / 6,0	7,8 / 6,5	11,8 / 11,8	12,4 / 9,8
SEER / SCOP	-	/-	6,1 / 4,0	6,1 / 4,0	6,1 / 4,0	6,1 / 4,0
Energy class			A++ / A+	A++ / A+	A++ / A+	A++ / A+
Air flow	ID	m³/h	600/500/400/300	600/500/400/300	850/780/650/550	1000/800/700/550
	OD	m³/h	1600	1600	3200	4000
Sound pressure level L _{pA}	ID	dB	42/39/34/28	42/40/35/30	48/43/40/35	51/47/42/39
	OD	dB	51	53	56	58
Dehumidifying volume	L	/h	0.80	1.40	1.80	2.00
Refrigerant type / charge	-/	kg	R410A / 0,70	R410A / 0,85	R410A / 1,35	R410A / 1,80
Pipe diameter	Liquid side	inch / mm	14/6,4	1/4 / 6,4	1/4 / 6,4	1/4 / 6,4
	Gas side	inch / mm	% / 9,52	% / 9,52	1/2,7	% / 15,9
Standard pipe length	ı	m	5,0	5,0	5,0	5,0
Max. pipe length	ı	m	15,0	15,0	25,0	25,0
Elevation / Drop height	ı	m	10,0	10,0	10,0	10,0
Additional refrigerant	9.	/ m	20	20	20	50
Dimension (w x h x d)	ID	mm	848x274x189	848x274x189	945x298x211	1018x315x230
	OD	mm	776x540x320	776x540x320	963x700x396	1000x790x427
Package dimension (w x h x d)	ID	mm	926x279x359	926x279x359	1013x383x300	1086x398x328
	OD	mm	851x595x363	851x595x363	1029x750x458	1083x855x488
Weight netto/brutto	ID	kg	9,5 / 11,5	9,5 / 11,5	12,0 / 15,0	15,0 / 18,5
	OD	kg	28,0 / 31,0	29,0 / 32,0	45,0 / 49,5	55,0 / 60,0
Requested temperature range	0	C	16 ~ 30	16 ~ 30	16~30	16 ~ 30
Operating temperature range	Cooling	°C	-15 ~ 48	-15 ~ 48	-15 ~ 48	-15 ~ 48
	Heating	°C	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24

The specification of products is subject to change based further development of the units by the producer and can be changed without prior notice. Refer to rating label.

Data are based on following conditions: Length of connection pipe: 5m. Cooling: indoor temperature 27°C DB/19°C WB, outdoor temperature 35°C DB/24°C WB.

Heating condition: indoor temperature 20°C DB/15°C WB, outdoor temperature 7°C DB/69°C WB. SEER/SCOP was calculated according to EN14825 for average season at part load conditions.

Contains fluorinated greenhousegases covered by the Kyoto Protocol. R410A (50% HFC-32, 50% HFC-125), GWP of used refrigerant: 2088

Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual Operation due to environmental change.

Power input is tested under standard condition.





ARCTIC UNITS

ASH-13AIA PT ASH-18AIA PT

FEATURES

- · Energy class A++ / A++
- 3-year warranty
- · R410a environmentally friendly refrigerant
- · Design silver panel
- Standard filters-catechin and active carbon filter
- New construction of compressor
- Silent operation mode
- · Adjustable position of guide louver/left-right
- · Cooling from -18°C to 54°C outdoor temperature
- · Heating from -18°C to 54°C outdoor temperature





be controlled with IOS or android phone / tablet.





MODEL			ASH-13AIA PT	ASH-18AIA PT
Capacity heating / cooling	kW		3,6(0,6-5,4) / 3,5(0,4-4,5)	5,3(0,8-7,2) / 5,3(0,9-5,7)
Power supply	V/P	h / Hz	220-240 / 1 / 50	220-240 / 1 / 50
	U	nit	Outdoor	Outdoor
Power input cooling / heating	1	N	920 / 970	1600 / 1420
Max. power input cooling / heating	1	N	1550 / 1680	2050 / 2400
Current cooling / heating		A	4,1 / 4,2	7,1 / 6,2
Max. current cooling / heating		A	6,8 / 7,1	9,1 / 10,6
SEER / SCOP	-	/-	7,0 / 4,6	6,1 / 4,0
Energy class			A++ / A++	A++ / A++
Air flow	ID	m³/h	720/ 550/ 490/ 420/ 370/ 320/ 290	850/750/650/600/500/400/340
	OD	m³/h	2400	3200
Sound pressure level L _{pA}	ID	dB	43/38/36/34/31/23/20	46/ 42/ 40/ 36/ 33/ 25/ 22
	OD	dB	50	56
Dehumidifying volume	l.	/h	1,40	1,80
Refrigerant type / charge	- / kg		R410A / 1,3	R410A / 1,65
Pipe diameter	Liquid side	inch / mm	1/4 / 6,4	% / 6,4
	Gas side	inch / mm	½ / 12,7	½ / 12,7
Standard pipe length		n	5,0	5,0
Max. pipe length		n	20,0	25,0
Elevation / Drop height		n	10,0	10,0
Additional refrigerant	9	/m	20,0	20,0
Dimension (w x h x d)	ID	mm	860x305x170	960x320x205
	OD	mm	899x596x378	965x700x396
Package dimension (w x h x d)	ID	mm	935x388x295	1043x403x333
	OD	mm	948x645x420	1029x750x458
Weight netto/brutto	ID	kg	12,5 / 15,0	14,0 / 17,0
	OD	kg	43,0 / 46,0	51,0 / 55,5
Requested temperature range		C	16~30	16~30
Operating temperature range	Cooling	oC.	-18 ~ 54	-18 ~ 54
	Heating	°C	-30 ~ 24	-30 ~ 24

The specification of products is subject to change based further development of the units by the producer and can be changed without prior notice. Refer to rating label. Data are based on following conditions: Length of connection pipe: 5m. Cooling: indoor temperature 27°C DB/19°C WB, outdoor temperature 35°C DB/24°C WB. Heating condition: indoor temperature 20°C DB/15°C WB, outdoor temperature 7°C DB/6°C WB. SEER/SCOP was calculated according to EN14825 for average season at part load conditions. Contains fluorinated greenhouse gases covered by the Kyoto Protocol. R410A (50% HFC-32, 50% HFC-125), GWP of used refrigerant: 2088 Noise is tested in the semi-anechoic room, so it should be slightly higher in the actual Operation due to environmental change. Power input is tested under standard condition.





MULTI SYSTEM SERIES AIR TO AIR HEAT PUMPS

OUTDOOR UNIT

MS-E18AIN MS-E24AIN MS-E28AIN MS-E36AI MC-E42AI

FEATURES

- Powerful Japanese compressor technology
- · 3-year warranty
- R410a environmentally friendly refrigerant
- · Flexible installation
- Free combination up to 5 indoor units
- · Autorestart function
- Precise temperature control



MC-FXXAI

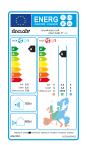
MC-CXXAI

MODEL			MC E40AIN	MC ESTAIN	MC ESOAIN	MC ESCAL	MC E42AI
MODEL			MS-E18AIN	MS-E24AIN	MS-E28AIN	MS-E36AI	MC-E42AI
Capacity heating / cooling	k'	W	5,4(2,6-5,5) / 5,2(2,2-4,8)	8,5(3,7-8,8) / 7,1(2,3-8,5)	9,3(3,7-10,2) / 8,0(2,3-10,2)	12,0(2,6-13,0) / 10,5(2,1-11,0)	13,0(2,6-14,0) / 12,1(2,1-13,6)
Power input heating / cooling	k'	W	1,55 / 1,45	2,28 / 2,18	2,49 / 2,54	3,75 / 3,50	3,55 / 3,59
Current cooling / heating	/	A	6,43 / 6,88	9,67 / 10,12	11,05 / 15,71	15,20 / 15,42	16,22 / 16,43
Power supply	V/P	h / Hz	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50
SEER / SCOP		/-	6,1/4,0	6,1 / 4,0	6,1 / 4,0	5,5 / 3,8	5,1 / 3,8
Energy class		-	A++ / A+	A++ / A+	A++ / A+	A/A	A/A
Air flow volume	m ³	/h	3200	3200	4000	5200	5500
Sound pressure level L _{pA}	dB		56	58	58	57	54
Refrigerant type / charge	- / kg		R410A / 1,6	R410A / 2,2	R410A / 2,6	R410A / 4,3	R410A / 4,8
Refrigerant pipe	Liquid side	inch mm	6,4x2	6,4x3	6,4x4	6,4x3+9,5x1	6,4x4 + 9,5x1
	Gas side	inch mm	9,52x2	9,52x3	9,52x4	9,5x2+12,7x1+15,9x1	9,5x2 + 12,7x2 + 15,9x1
Pipe length	Max	m	20	60	70	70	80
Elevation / drop height	Max	m	5	10	10	15	15
Dimension (w x x d)	m	m	963x700x396	1001x790x427	1001x790x428	1015x1103x440	1015x1103x440
Package dimension (w x x d)	m	m	1029x750x458	1083x855x488	1083x855x488	1158x1235x493	1158x1235x493
Weight netto/brutto	k	g	51,0 / 55,5	68,0 / 73,0	69,0 / 74,0	94,0 / 104,0	102,0 / 112,0
Operating temperature range	Cooling	°C	-15 ~ 43	-15 ~ 43	-15 ~ 43	-15 ~ 48	-15 ~ 48
	Heating	°C	-20 ~ 24	-20 ~ 24	-20 ~ 24	-15 ~ 27	-15 ~ 27

The specification of products is subject to change based on further development of the units by the producer and can be changed without prior notice. Data are based on the following conditions:

Length of connection pipe: 5m

Cooling: indoor temperature 27°C DB/19°C WB, outdoor temperature 35°C DB/24°C WB Heating condition: indoor temperature 20°C DB/15°C WB, outdoor temperature 7°C DB/6°C WB SEER/SCOP was calculated according to EN14825 for average season at part load conditions.





OUTDOOR UNIT

COMBINATION TABLE

MS-E	E18AIN	MS-E	24AIN		MS-E28AIN		(un
1 model	2 models	2 models	3 models	2 models	3 models	4 models	
2,1	2,1+2,1	2,1+2,1	2,1+2,1+2,1	2,1+2,1	2,1+2,1+2,1	2,1+2,1+2,1+2,1	
2,6	2,1+3,5	2,1+3,5	2,1+2,1+5,0	2,1+3,5	2,1+2,1+5,0	2,1+2,6+2,6+3,5	
3,5	2,6+3,5	2,6+2,6	2,1+2,6+5,0	2,6+2,6	2,1+2,6+5,0	2,1+2,1+2,1+2,6	-
	2,1+2,6	2,6+5,0	2,6+2,6+3,5	2,6+5,0	2,6+2,6+2,6	2,1+2,1+2,6+2,6	-
	2,6+2,6	3,5+5,0	3,5+3,5+3,5	3,5+5,0	2,6+3,5+3,5	2,6+2,6+2,6+2,6	
		2,1+2,6	2,1+2,1+2,6	2,1+2,6	3,5+3,5+5,0	2,1+2,1+2,1+3,5	
		2,1+5,0	2,1+2,6+2,6	2,1+5,0	2,1+2,1+2,6	2,1+2,1+2,6+3,5	
		2,6+3,5	2,1+3,5+3,5	2,6+3,5	2,1+2,6+2,6	2,1+2,6+2,6+2,6	
		3,5+3,5	2,1+2,1+3,5	3,5+3,5	2,1+3,5+3,5		
			2,1+2,6+3,5	5,0+5,0	2,6+2,6+3,5		-
			2,6+2,6+2,6		2,6+3,5+5,0		-
					2,1+2,1+3,5		-
					2,1+2,6+3,5		
					2,1+3,5+5,0		-
					2,6+2,6+5,0		•
					3,5+3,5+3,5		-
			MS-	E36AI	داد. داد داد		
2 m	nodels		3 models			4 models	
2,1+3,5	2,6+7,1	2,1+2,1+2,1	2,1+3,5+5,0	2,6+3,5+5,0	2,1+2,1+2,1+2,1	2,1+2,1+5,0+5,0	2.6+2.6+2.6+2.6
2,1+5,0	3,5+3,5	2,1+2,1+2,6	2,1+3,5+7,1	2,6+3,5+7,1	2,1+2,1+2,1+2,6	2,1+2,6+2,6+2,6	2,6+2,6+2,6+3,5
2,1+7,1	3,5+5,0	2,1+2,1+3,5	2,1+5,0+5,0	2,6+5,0+5,0	2,1+2,1+2,1+3,5	2,1+2,6+2,6+3,5	2,6+2,6+2,6+5,0
2,6+2,6	3,5+7,1	2,1+2,1+5,0	2,1+5,0+7,1	2,6+5,0+7,1	2,1+2,1+2,1+5,0	2,1+2,6+2,6+5,0	2,6+2,6+3,5+3,5
2,6+3,5	5,0+5,0	2,1+2,1+7,1	2,6+2,6+2,6	3,5+3,5+3,5	2,1+2,1+2,1+7,1	2,1+2,6+3,5+3,5	2,6+2,6+3,5+5,0
2,6+5,0	5,0+7,1	2,1+2,6+2,6	2,6+2,6+3,5	3,5+3,5+5,0	2,1+2,1+2,6+2,6	2,1+2,6+3,5+5,0	2,6+3,5+3,5+3,5
2,0+3,0	J,U+1,1	2,1+2,6+3,5	2,6+2,6+5,0	3,5+5,0+5,0	2,1+2,1+2,6+3,5	2,1+2,6+5,0+5,0	נ,נדנ,נדנ,נדט,2
		2,1+2,6+5,0	2,6+2,6+7,1	υ,ςτυ,ςτς	2,1+2,1+2,6+5,0	2,1+3,5+3,5+3,5	
		2,1+2,6+7,1	2,6+3,5+3,5		2,1+2,1+2,6+7,1	ב,נדנ,נדנ,נדו,2	
		2,1+3,5+3,5	2,0+3,3+3,3		2,1+2,1+2,0+7,1		
		2,1+3,3+3,3					
		MC-E42AI			2,1+2,1+3,5+5,0		
J	andals.	MC-E42AI	2 models				
2,1+5,0	nodels 2,6+7,1	21,21,21	3 models 2,1+3,5+7,1	2,6+5,0+5,0			
· ·		2,1+2,1+2,1			-		
2,1+7,1	3,5+3,5	2,1+2,1+2,6	2,1+5,0+5,0	2,6+5,0+7,1	-		
2,6+3,5	3,5+5,0	2,1+2,1+3,5	2,1+5,0+7,1	2,6+7,1+7,1	=		
2,6+5,0	3,5+7,1	2,1+2,1+5,0	2,1+7,1+7,1	3,5+3,5+3,5	_		
	5,0+5,0	2,1+2,1+7,1	2,6+2,6+2,6	3,5+3,5+5,0	-		
	5,0+7,1	2,1+2,6+2,6	2,6+2,6+3,5	3,5+3,5+7,1	-		
	7,1+7,1	2,1+2,6+3,5	2,6+2,6+5,0	3,5+5,0+5,0	_		
		2,1+2,6+5,0	2,6+2,6+7,1	3,5+5,0+7,1	_		
		2,1+2,6+7,1	2,6+3,5+3,5	3,5+7,1+7,1	_		
		2,1+3,5+3,5	2,6+3,5+5,0	5,0+5,0+5,0	_		
		2,1+3,5+5,0	2,6+3,5+7,1	5,0+5,0+7,1			
	4 m	nodels			5 m	odels	ı
2,1+2,1+2,1+2,1	2,1+2,1+5,0+5,0	2,1+3,5+3,5+5,0	2,6+2,6+5,0+5,0	2,1+2,1+2,1+2,1+2,1	2,1+2,1+2,6+2,6+2,6	2,1+2,6+2,6+2,6+2,6	2,6+2,6+2,6+2,6+2
2,1+2,1+2,1+2,6	2,1+2,1+5,0+7,1	2,1+3,5+3,5+7,1	2,6+2,6+5,0+7,1	2,1+2,1+2,1+2,1+2,6	2,1+2,1+2,6+2,6+3,5	2,1+2,6+2,6+2,6+3,5	2,6+2,6+2,6+2,6+3
2,1+2,1+2,1+3,5	2,1+2,6+2,6+2,6	2,1+3,5+5,0+5,0	2,6+3,5+3,5+3,5	2,1+2,1+2,1+2,1+3,5	2,1+2,1+2,6+2,6+5,0	2,1+2,6+2,6+2,6+5,0	2,6+2,6+2,6+2,6+5
2,1+2,1+2,1+5,0	2,1+2,6+2,6+3,5	2,1+3,5+5,0+7,1	2,6+3,5+3,5+5,0	2,1+2,1+2,1+2,1+5,0	2,1+2,1+2,6+2,6+7,1	2,1+2,6+2,6+3,5+3,5	2,6+2,6+2,6+3,5+3
2,1+2,1+2,1+7,1	2,1+2,6+2,6+5,0	2,1+5,0+5,0+5,0	2,6+3,5+3,5+7,1	2,1+2,1+2,1+2,1+7,1	2,1+2,1+2,6+3,5+3,5	2,1+2,6+2,6+3,5+5,0	2,6+2,6+3,5+3,5+3
2,1+2,1+2,6+2,6	2,1+2,6+2,6+7,1	2,6+2,6+2,6+2,6	2,6+3,5+5,0+5,0	2,1+2,1+2,1+2,6+2,6	2,1+2,1+2,6+3,5+5,0	2,1+2,6+3,5+3,5+3,5	
2,1+2,1+2,6+3,5	2,1+2,6+3,5+3,5	2,6+2,6+2,6+3,5	2,6+5,0+5,0+5,0	2,1+2,1+2,1+2,6+3,5	2,1+2,1+3,5+3,5+3,5		
2,1+2,1+2,6+5,0	2,1+2,6+3,5+5,0	2,6+2,6+2,6+5,0	3,5+3,5+3,5+3,5	2,1+2,1+2,1+2,6+5,0			
,1+2,1+2,6+7,1	2,1+2,6+3,5+7,1	2,6+2,6+2,6+7,1	3,5+3,5+3,5+5,0	2,1+2,1+2,1+3,5+3,5			
,1+2,1+3,5+3,5	2,1+2,6+5,0+5,0	2,6+2,6+3,5+3,5	3,5+3,5+3,5+7,1	2,1+2,1+2,1+3,5+5,0			
,1+2,1+3,5+5,0	2,1+2,6+5,0+7,1	2,6+2,6+3,5+5,0	3,5+3,5+5,0+5,0				
1+71+35+71	2 1+3 5+3 5+3 5	26+26+35+71					

When indoor rated total capacity exceeds the outdoor rated capacity, it cannot be ensured that each indoor unit actual running capacity could reach its value required by rated capacity. For MS-E28AI, MS-E36AI, MC-E42AI it is not allowed to install one indoor unit only. If the specification of outdoor unit gas valve is 3/8, but customer needs to install 5,3kW or 7,1kW indoor unit. Customer needs to use a "pipe joint subassembly" to make a conversion joint with outdoor unit gas valve and connection pipe.

2,6+2,6+3,5+7,1

2,1+2,1+3,5+7,1

2,1+3,5+3,5+3,5

INDOOR UNITS



TYPE			WALL MOUNTED					
MODEL			MS-H07AICN PT	MS-H07AICN PT MS-H09AICN PT MS-H12AICN PT		MS-H18AICN PT		
Capacity heating/cooling	kW	I	2,60 / 2,10	3,00 / 2,60	4,00 / 3,50	5,80 / 5,28		
Power supply	V/Ph	/Hz	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50	220-240 / 1 / 50		
Air flow volume	m³/h		580/500/400/300	600/500/400/300	600/500/400/300	850/780/650/550		
Sound pressure level L _{pA}	dB		41/39/34/28	42/39/34/28	42/40/35/30	45/43/37/33		
Dehumidifying volume	L/I	1	0,6	0,8	1,2	1,8		
Refrigerant pipe	Liquid side	inch / mm	1/4 / 6,4	1/4 / 6,4	1/4 / 6,4	1/4 / 6,4		
	Gas side inch / mm		% / 9.52	% / 9.52	% / 9.52	1/2,7		
Dimension (w x h x d)	mr	n	845x275x180	845x275x180	845x275x180	940x298x200		
Weight netto	kg		9,0 / 11,0	9,0 / 11,0	9,0 / 11,0	12,0 / 15,0		
Controller	Тур	e	remote & wired	remote & wired	remote & wired	remote & wired		



PLASMA **₹**TEC

TYPE			WALL M	OUNTED
MODEL			MS-H09AISW PT	MS-H12AISW PT
Capacity heating/cooling	kW	1	2,8/2,6	3,8/3,5
Power supply	V/Ph/Hz		220-240/1/50	220-240/1/50
Air flow volume	m³/h		260-450	280-560
Sound pressure level L _{pA}	dB		25/26/28/30/32/35/38	26/27/28/31/34/36/39
Dehumidifying volume	I/h		0,8	1,4
Refrigerant pipe	Liquid side	inch / mm	1/4 / 6,4	1/4 / 6,4
	Gas side	inch / mm	% / 9,5	% / 9,5
Dimension (w x h x d)	mn	1	860x299x153	896x320x159
Weight netto	kg		9,5	11,5
Controller	Тур	е	remote & wired	remote & wired



TYPE				FLOOR CEILING				
MODEL			MS-P09AI	MS-P12AI	MS-P18AI			
Capacity heating/cooling	kV	V	2,8 / 2,6	3,8 / 3,5	5,8 / 5,3			
Power supply	V/Ph	/Hz	220-240/1/50	220-240/1/50	220-240/1/50			
Air flow volume	m³/h		480-650	550-750	650-840			
Sound pressure level L _{pA}	dB		25/27/30/33/36/38/40	27/32/35/37/38/40/42	32/35/37/41/44/46/48			
Dehumidifying volume	I/I	ı	0,8	1,4	1,8			
Refrigerant pipe	Liquid side inch / mm		1/4 / 6,4	1/4 / 6,4	1/4 / 6,4			
	Gas side	inch / mm	¾ / 9,5	¾ / 9,5	3 ₈ / 12,7			
Dimension (w x h x d)	mi	n	700x600x215	700x600x215	700x600x215			
Weight netto	kg		15,0 / 18,0	15,0 / 18,0	15,0 / 18,0			
Controller	Тур	De .	remote & wired	remote & wired	remote & wired			



The noise levels mentioned in this catalogue are values measured under ideal conditions, in an anechoic chamber. These values can be influenced by local conditions (acoustical bouncing area, the equipment of the room, etc.). The pictures of units and accessories are illustrative only. The specification of products is subject to change based further development of the units by the producer and can be changed without prior notice.

INDOOR UNITS



TYPE			FLOOR CEILING					
MODEL			MC-F09AI	MC-F12AI	MC-F18AI	MC-F24AI		
Capacity heating/cooling	kW	I	2,8 / 2,5	3,9 / 3,5	5,5 / 5,0	8,0 / 7,1		
Power supply	V/Ph/Hz		220-240/1/50	220-240/1/50	220-240/1/50	220-240/1/50		
Air flow volume	m³/h		650	650	950	1250		
Sound pressure level L _{pA}	dB		40 / 36	40 / 36	45 / 40	48 / 40		
Refrigerant pipe	Liquid side	inch / mm	1/4 / 6,4	1/4 / 6,4	1/4 / 6,4	% / 9,5		
	Gas side inch / mm		% / 9,5	% / 9,5	1/2,7	% / 15,9		
Dimension (w x h x d)	mr	1	1220x700x225	1220x700x225	1220x700x225	1220x700x225		
Weight netto	kg		40,0 / 50,0	40,0 / 50,0	45,0 / 54,0	45,0 / 54,0		
Controller	Тур	e	remote & wired	remote & wired	remote & wired	remote & wired		



TYPE				CASSETTE				
MODEL	MODEL			MC-C18AI	MC-C24AI			
Capacity heating/cooling	kV	V	4,0 / 3,5	5,5 / 5,0	8,0 / 7,1			
Power supply	V/Ph	/Hz	220-240/1/50	220-240/1/50	220-240/1/50			
Sound pressure level L _{pA}	dE	3	600	600	1180			
Air flow volume	m³/h		46 / 44 / 42	46 / 44 / 42	39 / 37 / 35			
Refrigerant pipe	Liquid side	inch / mm	1/4 / 6,4	1/4 / 6,4	% / 9,5			
	Gas side	inch / mm	% / 9,5	1/2,7	% / 15,9			
Dimension (w x h x d)	mr	n	570x570x230	570x570x230	840x840x240			
Dimension - panel	mr	n	650x650x50	650x650x50	950x950x60			
Weight netto	kg)	18,0 / 23,0 (2,5 / 3,5)	18,0 / 23,0 (2,5 / 3,5)	30,0 / 38,0 (6,5 / 10,0)			
Controller	Тур	e	remote & wired	remote & wired	remote & wired			



TYPE			DUCT					
MODEL			MC-D09AI	MC-D12AI	MC-D18AI	MC-D24AI		
Capacity heating/cooling	kV	1	2,8 / 2,5	3,9 / 3,5	5,5 / 5,0	8,0 / 7,1		
Power supply	V/Ph	/Hz	220-240/1/50	220-240/1/50	220-240/1/50	220-240/1/50		
Sound pressure level L _{pA}	dE		450	550	700	1000		
Air flow volume	m³,	ħ	37 / 31	39 / 32	41 / 33	42 / 34		
Refrigerant pipe	Liquid side	inch / mm	1/4 / 6,4	1/4 / 6,4	1/4 / 6,4	%/9,5		
	Gas side	inch / mm	% / 9,5	% / 9,5	½ / 12,7	% / 15,9		
External static pressure	Pa		0-15	0-15	0-15	0-15		
Dimension (w x h x d)	mr	1	700x200x615	700x200x615	900x200x615	1100x200x615		
Weight netto	kg		22,0 / 27,0	23,0 / 29,0	23,0 / 29,0 27,0 / 36,0			
Controller	Тур	e	wired	wired	wired	wired		

MODEL			MS-E18AIN	MS-E24AIN	MS-E28AIN	MS-E36AI	MC-E42AI	
Max. connection p	ipe length	m	20	60	70	70	80	
Max. connection p	ipe length (One indoor unit)	m	10	20	20	20	25	
Max. installation	Outdoor unit is installed under the lower side of indoor unit	m	5	10	10	15	15	
elevation	Outdoor unit is installed on the upper side of indoor unit		5	10	10	15	15	
Max. connection p	ipe length (Under the condition of no need to charge the refrigerant, liquid pipe total length)	m	10	30	40	40		
Refrigerant charge	volume	g/m		20		22		











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