Scroll Compressor

Refrigerant R32 R32

53 to 182 kW

50 to 176 kW

SYSAQUA R32

Air Cooled Water Chillers and Heat Pump

SYSAQUA R32 L (Cooling Only) / SYSAQUA R32 H (Heat Pump)
Models 50 to 170

EUROVENT CERTIFIED PERFORMANCE
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systemair

Key Points

- **R32** new refrigerant with low GWP (global warming potential) of 675, three times less polluting than R410A,
- Units are optimized for partial load operation,
- High SEER and SCOP,
- 2 compressors fitted in tandem for all the range, with two or three capacity steps, depending on the unit's size,
- **Super low noise version with EC fans**,
- "Night Mode" for energy savings and even more reduced noise level in night operation,
- Water law is standard for energy savings,
- Great accessibility to internal components for service operations,
- New display on external panel allowing the complete control of the unit,
- Wide operating limits,
- In Heating Mode, high temperature operation up to 55 °C for sizes 50-130 and up to 53 °C for sizes 150-170,
- Operation in heat pump mode down to external temperature of -15 °C,
- EC fans for low ambient operation in cooling mode down to -15 °C,
- New advanced control system comes built-in with one of the following communication protocol: Modbus RTU, Modbus TCP/IP, Bacnet MSTP, Bacnet IP,
- Phase sequence monitor supplied as standard,
- Control logic on return or leaving water temperature,
- In cooling mode, 3.5 litres of buffer volume per kW are recommended,
- New technology "smart deice" standard for **SYSAQUA R32 H** units to ensure a constant temperature out of water even at very low temperatures
- Double water set point,
- Water filter (not fitted) and water flow switch (factory fitted) are supplied as standard,
- "Plug and play" hydraulic kit optional on sizes 50 to 170,
- Automatic air vent,
- Small footprint, allowing shipping and handling costs to be saved, units find easily a place to be installed.

Specifications

General

The new **SYSAQUA R32 L/SYSAQUA R32 H 50 to 170** have been designed and optimized to operate with R32 refrigerant fluid. They are of single refrigerant circuit type.

They are available in **cooling only (SYSAQUA R32 L)** and **heat pump (SYSAQUA R32 H)** versions.

Each versions consists of **10 sizes (50, 60, 70, 75, 85, 100, 115, 130, 150 & 170)** and covers a nominal cooling capacity range from **50 to 176 kW** and a nominal heating capacity range from **53 to 182 kW**.

All units are equipped with **two scroll compressors fitted in tandem** for adapting to partial system loads.

The general operation status of the machine is continuously under the control of an **IHM controller**.

The **SYSAQUA R32 L** and **SYSAQUA R32 H units can operate without water tank**, thanks to the IHM controller that implements an **auto-adaptative control logic** ensuring a total protection of the compressors at different load or water volume conditions.

The minimum water volume requested in cooling mode is **3.5L/kW** for application air conditioning and **10L/kW** for application process.

In heating mode, **12.5L/kW** are recommended in order to guarantee homogeneous temperatures during the defrosting cycles (comfort and energy savings).

Modulating fans EC type can be also supplied as factory-fitted option to authorize the unit to operate in cooling mode at low ambient temperature and increase the unit performances.

SYSAQUA R32 L and **SYSAQUA R32 H** units can be supplied in several versions:

- **STD (Standard) version**: equipped with AC fans.
- **S (Super low noise) version**: includes dedicated EC fans with lower acoustic level in comparison to standard AC fans, plus dedicated additional compressor jackets.
- **HPF version** : increases the static pressure and it includes EC fans, that can be regulated according to installation needs.

Cabinet and structure

The cabinet and structure of the unit are of heavy duty galvanized steel. All galvanized steel components are **individually painted** by a special painting process before the assembly of the unit.

This painting system performs a homogeneous protection to the corrosion. The painting is a polyester powder based type, coloured in **RAL 7040**.

The units **SYSAQUA R32 L/SYSAQUA R32 H** are suitable for outdoor installation, directly on the building roof or at the ground level.

Compressors

Each unit is equipped with two scroll compressors fitted on a rail and assembled together to form **tandem compressors**.

The compressors are then mounted on rubber pads in order to eliminate noise and vibration transmissions.

The compressor motors have a direct start-up. Each motor is cooled by the refrigerant gas and is equipped with an overload protection.

A **phase sequence monitor** is supplied as standard.

Plate Heat Exchanger

The plate heat exchanger can work as evaporator (for L and H version) and condenser (for H version) and it is made of stainless steel plates insulated with closed cell sysnthetic foam. It is protected by an **antifreeze electric heater** to ensure a good protection against freezing at low ambient temperature (-15 °C min.) when the unit is switched off.

Maximum working pressure is 10 bar at water side, 45 bar for sizes 50-130 and 44.5 bar for sizes 150-170 at refrigerant side.

Finned coil

The finned coil can work as evaporator (for H version) and condenser (for L and H version) and it is made of seamless copper tubes mechanically expanded into aluminimum fins. The fins of **SYSAQUA R32 H** coils are made of aluminium with hydrophylic bluefin coating to facilitate water droplets drain.

Coil pipes are designed with diameter 7.2 mm , to optimize the unit performances and reduce the amount or R32 refrigerant charge.

Finned coils are largely dimensioned in order to optimize performance and defrosting cycles.

The condenser can be equipped, as optional, a protective grille to prevent shocks.

Fans

STD version is provided with axial fans AC type, with two speeds, to increase the unit efficiency during part load conditions.

S version is provided with axial fans EC type, with continuous fan regulation, to grant best acoustic level, higher efficiencies, wider operative limits .

The fan motor are equipped with a thermal overload protection, AC fans have protection grade IP54 while EC fans have IP55 .

EC fans type can be provided to allow the unit to operate in cooling mode at low air ambient temperature down to -15°C minimum. They regulate the fan speed to keep the condensing temperature inside the compressor operative limits.

All fans are fitted with a protective grille on top.

Refrigerant circuit

All units have one refrigerant circuit consisting of: scroll tandem compressors, plate heat exchanger, electronic expansion valve, 4-way reverse cycle valve and liquid receiver (heat pump version only), condenser coil, as well as safety and control devices such as high pressure switch, additional pressure relief valve for sizes 150 and 170 and high/low pressure transducers.

Inspection on refrigerant via a sight glass can be done during service operations, by removing an access panel, without disturbing the unit operating conditions.

A set of LP and HP gauges can be factory fitted as option.

All refrigerant components are shown in the functional diagrams illustrated in the next pages, section "Refrigerant flow diagrams".

Specifications

Hydraulic circuit

Thanks to the design flexibility on the hydraulic circuit, all the units can be configured in several ways:

- **Standard unit** : Unit without pump, the hydraulic circuit contains the following components : supplied loose water filter, mounted water flow switch, water safety valve, automatic air vent, optional field-installed in/out 3/8" water valves.
  All water piping is covered with thermal insulation.
- **1P-SP/1P-HP** : One pump unit has the same equipment as Standard unit, with additional single pump. Version 1P-SP (standard pressure pump) provides an available static pressure to the user in nominal conditions around 100-150 kPa.
  Version 1P-HP (high pressure pump) provides an available static pressure to the user in nominal conditions around 150-200 kPa.
- **2P-SP/2P-HP** : Two pump unit has the same equipment as Standard unit, with additional double pump. Each pump works singularly.
  Version 2P-SP (standard pressure pump) provides an available static pressure to the user in nominal conditions around 100-150 kPa.
  Version 2P-HP (high pressure pump) provides an available static pressure to the user in nominal conditions around 150-200 kPa.
- "**Variable Primary Flow**" is used to modulate the power of the hydraulic pump

The hydraulic connections are of male gas threaded type; for the connection diameters, please refer to the physical data tables on the next pages.

Control panel

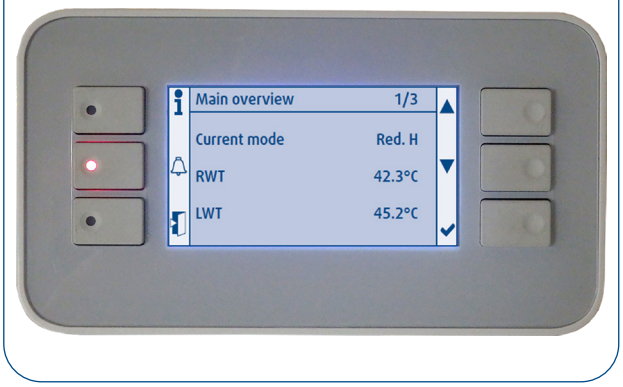
The units are fitted with an external control panel that displays the operating parameters and alarms.

The control panel is accessible from exterior without removing any parts, nor shutting down the unit, because it is placed on an external panel.

The **SYSAQUA R32 L/SYSAQUA R32 H** units are equipped with a microprocessor based control with a new **IHM** logic that implements an intelligent control **with anticipation of needs**, either on entering water temperature, or on leaving water temperature.

The main features of this control system are:

User interface



- User-friendly : with only 6 buttons and a tree logic, it is possible to control the unit easily,
- Reliable : all indications on the display are visible in every weather conditions,
- Internal test procedure,
- Alarm visualization with a logging of the last 10 alarms,
- Remote ON/OFF switching,
- Compressor and pump working hour counter,
- Pressure transducers to control discharge and suction temperatures,
- Maximum discharge temperature control,
- Electronic expansion valves parameters,
- Part load operating mode,
- Remote Cooling/Heating mode switching,
- Compatibility with BMS Modbus RTU, Modbus TCP/IP, Bacnet MSTP, Bacnet IP,
- Compressor operating limits stored in a flash memory.

Specifications

Control and safety devices

Each unit is complete with the following safety and control devices:

Safety:

- Fan motor overload protection.
- Compressor motor overload protection.
- Water flow switch.
- Water filter (supplied loose).
- High pressure switch.
- Pressure relief valve for sizes 150/170.
- High and low pressure transducers.
- Evaporator antifreeze electric heater.
- Crankcase heater.
- Safety valve on 3 bar water side.

Control:

- Entering water temperature sensor.
- Leaving water temperature sensor.
- Coil temperature sensor.
- Two discharge temperature sensors: one for each compressor discharge, to have a precise control of each compressor's operative limits.
- Air temperature sensor.
- Suction and discharge pressure transducers.
- Dry contact available to the client:
  ON / OFF, SUMMER / WINTER, Day / Night.

Conformity with standards

All **SYSAQUA R32 L/SYSAQUA R32 H** units are in compliance with the following standards:

- Machine Directive: 2006/42/EC
- Low Voltage Directive: 2014/35/UE
- Electromagnetic Compatibility Directive: 2014/30/UE
- Pressure Equipment Directive: 2014/68/UE
- RoHs directive: 2011/65/EU

Factory-installed options

- Condenser protective grille.
- Compressor Jacket insulation (standard for S version).
- Coil with epoxy treatment.
- LP/HP gauges.
- Lack of water pressure switch.
- 1-pump hydraulic kit.
- 2-pump hydraulic kit.
- Variable Primary Flow
  - ✔ double speed
  - ✔ capacity
  - ✔ constant outlet pressure
- EC fans (for operation with low ambient temperature down to -15 °C) options for STD version, standard for S version.
- Electrical Extra Heating (sizes 50-130)

Field-installed accessories

- Anti-vibration rubber pads or spring damper.
- In/Out valve kit.

Models designation

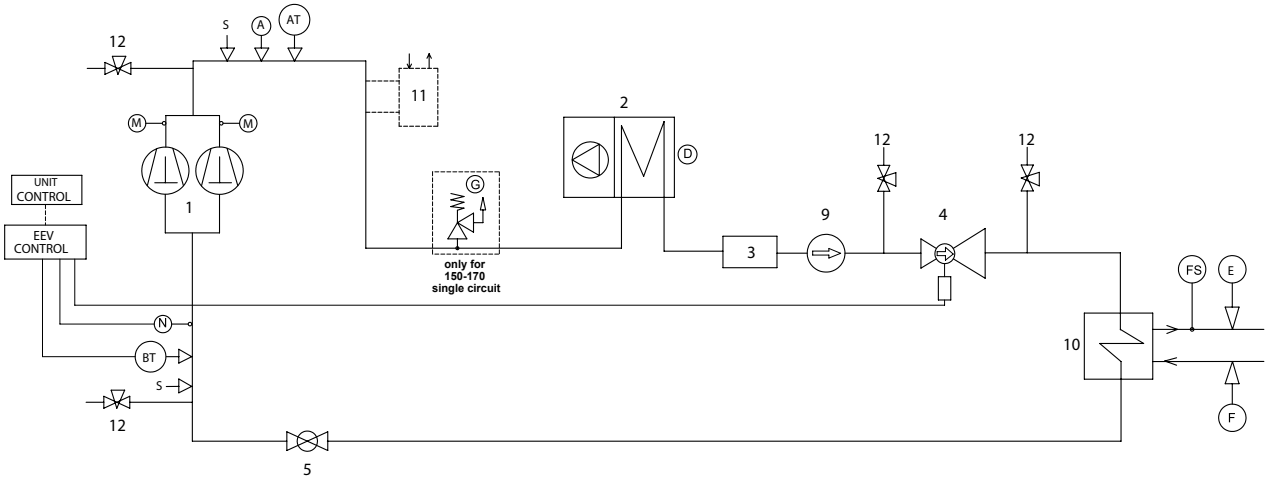
SYSAQUA R32 50 . H . 1P-SP . STD . SYS . AC . + . CG . T

(1) (2) (3) (4) (5) (6) (7) (7)

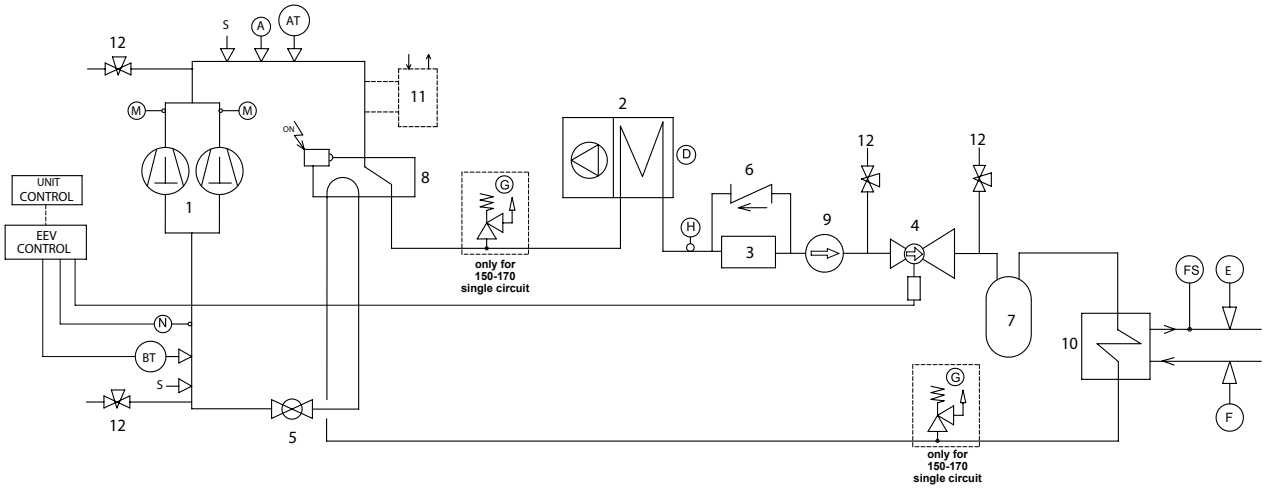
REP.		Description			
1	Size	**SYSAQUA R32 50** : size 50 **SYSAQUA R32 60** : size 60 **SYSAQUA R32 70** : size 70	**SYSAQUA R32 75** : size 75 **SYSAQUA R32 85** : size 85 **SYSAQUA R32 100** : size 100	**SYSAQUA R32 115** : size 115 **SYSAQUA R32 130** : size 130	**SYSAQUA R32 150** : size 150 **SYSAQUA R32 170** : size 170
2	Version	**L** : Cooling only		**H** : Heat pump	
3	Hydraulic circuit	Empty: Without pump **1P-SP**: Single pump standard pressure **1P-HP**: Single pump high pressure		**2P-SP**: Double pump standard pressure **2P-HP**: Double pump high pressure	
4	Regulation	**STD** : Standard		**S** : Super Low Noise	
5	Brand	**SYS** : Systemair			
6	Fan type	**AC** : Standard fans AC motor		**EC** : EC fans **HPF** : High pressure fans	
7	Option	**CG** : Outdoor coil protection grid **WPS** : Low water pressure sensor **AVS** : Spring dampers **AVM** : Rubber pads **VI** : Water isolation valves **KM** : Refrigerant gauge **T** : Buffer tank **SS** : Soft Starter **PFC** : Power factor capacitor		**CC** : Container transport **V2** : Variable pump double speed **VP** : Variable pump constant outlet pressure **DES** : Desuperheater **EH12** : Electric heating 12kW **EH24** : Electric heating 24kW **EH36** : Electric heating 36kW **4G** : 4G Modem	

Refrigerant Flow Diagram

Cooling only version - SYSAQUA R32 L 50 to 170



Heat pump version - SYSAQUA R32 H 50 to 170

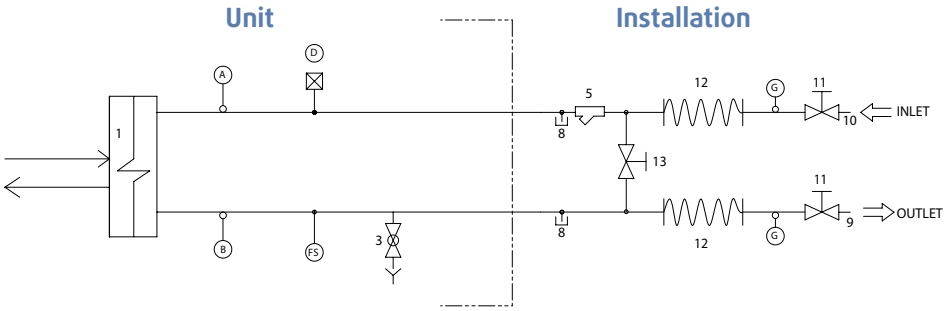


Components	
1	Tandem scroll compressors
2	Air cooled condenser
3	Filter drier
4	Electronic expansion valve
5	Globe valve
6	Check valve
7	Liquid receiver
8	4-way valve
9	Sight glass
10	Heat exchanger
11	Desuperheater (option)
12	LP/HP Service valve

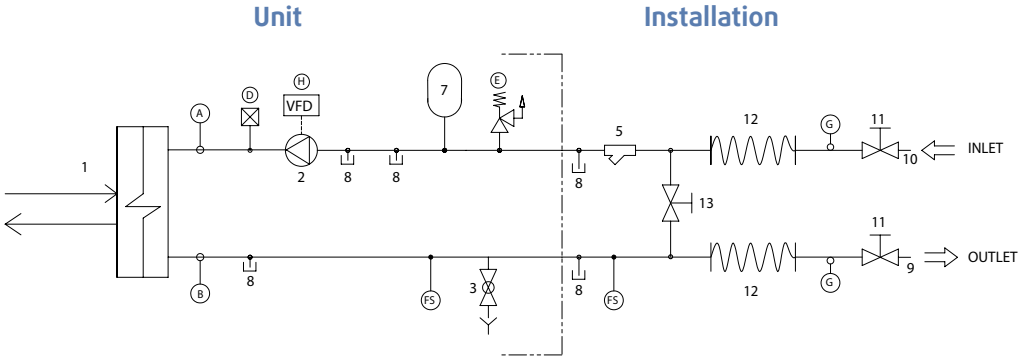
Safety/control devices	
A	High pressure switch
AT	High pressure transducer
BT	Low pressure transducer
D	Air temperature sensor
E	Outlet water temperature sensor
F	Inlet water temperature sensor
FS	Water flow switch
G	PED Pressure relief valve
H	Defrost temperature sensor
M	Discharge temperature
N	Suction temperature sensor
S	1/4" Shrader connection

Hydraulic Circuit Diagram

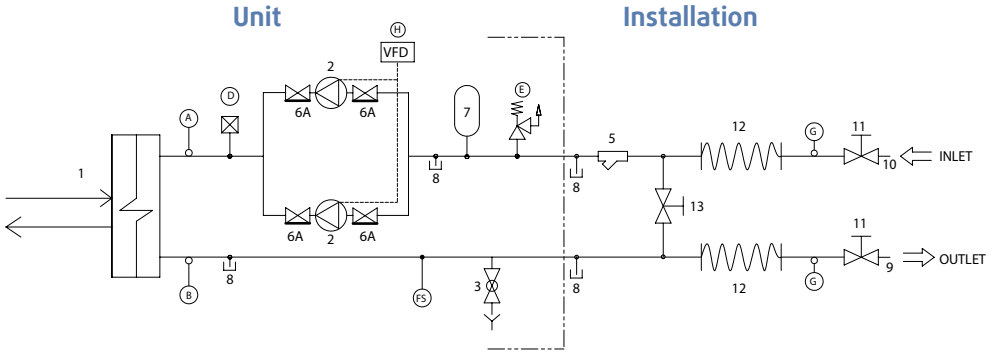
SYSAQUA R32 50-170 - Without pump version



SYSAQUA R32 50-170 - Single pump version



SYSAQUA R32 50-130 - Double pump version

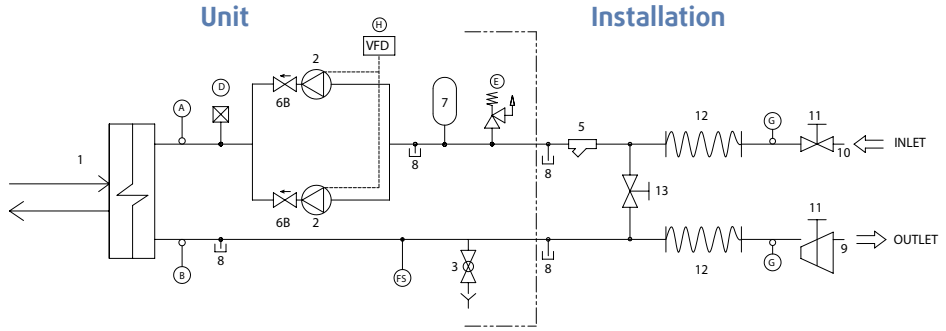


Components	
1	Plate Heat Exchanger
2	Pump
3	Draining valve
4	Water buffer tank
5	Water filter
6A	Gate valve
6B	Check valve
7	Pressure expansion tank
8	Pression point/drainage
9	Water outlet
10	Water inlet
11	Globe valve
12	Flexible pipes
13	By pass valve

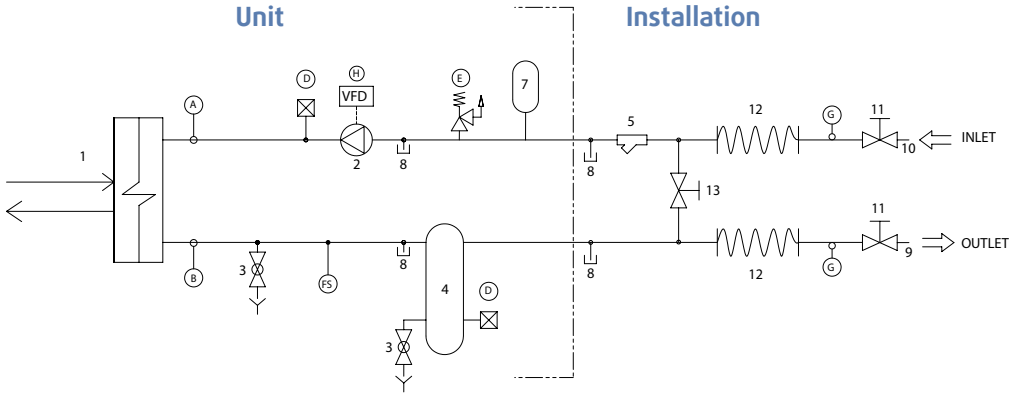
Safety/control devices	
A	Inlet water temperature sensor
B	Outlet water temperature sensor
C	Water differential pressure switch
D	Vent valve
E	Water safety valve (3 bar)
FS	Flow switch
G	Thermometer
H	Variable frequency drive
- - — - -	Unit side
o	Probes

Hydraulic Circuit Diagram

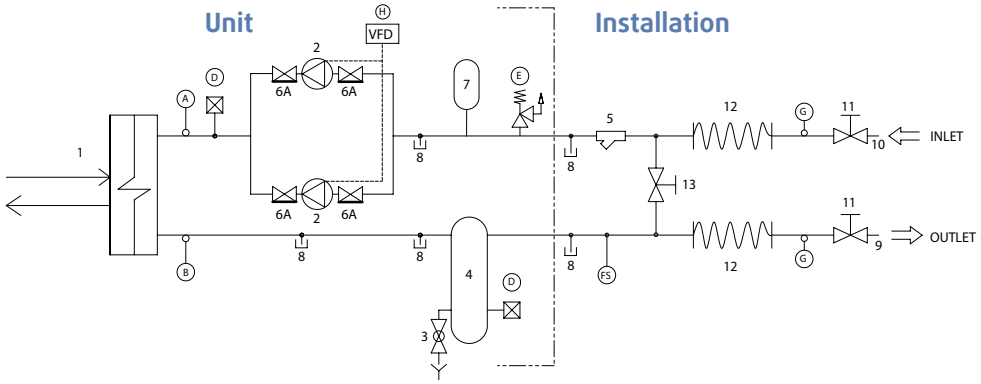
SYSAQUA R32 150-170 - Double pump version



SYSAQUA R32 50-170 - Single pump version + tank



SYSAQUA R32 50-130 - Double pump version + tank



Components	
1	Plate Heat Exchanger
2	Pump
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4	Water buffer tank
5	Water filter
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Safety/control devices	
A	Inlet water temperature sensor
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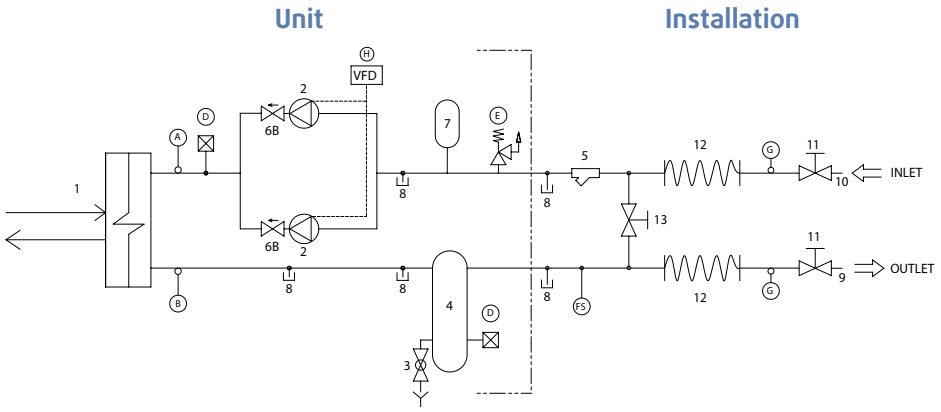
C	Water differential pressure switch
D	Vent valve
E	Water safety valve (3 bar)
FS	Flow switch
G	Thermometer
H	Variable frequency drive
- - — - -	Unit side
o	Probes

Hydraulic Circuit Diagram

SYSAQUA R32 150-170 - Double pump version + tank



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A	Inlet water temperature sensor
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C	Water differential pressure switch
D	Vent valve
E	Water safety valve (3 bar)
FS	Flow switch
G	Thermometer
H	Variable frequency drive
- - — - -	Unit side
o	Probes

Operating Limits

SYSAQUA R32 L in cooling mode

SYSAQUA R32 L models			50		60		70		75		85	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	6.1	15.1	7.1	17.4	8.4	20.1	9.2	22.0	10.2	24.4
Air temperature		°C	See diagrams on next page									

SYSAQUA R32 L models			100		115		130		150		170	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Eau	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	12.2	29.4	14.2	34.7	15.7	38.7	18.7	45.1	20.8	50.9
Air temperature		°C	See diagrams on next page									

* Below 5 °C, glycol is required.
** Considered at nominal unit capacity

SYSAQUA R32 H in cooling mode

SYSAQUA R32 H models			50		60		70		75		85	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	6.6	15.1	7.6	17.4	8.9	20.1	9.7	22.0	10.5	24.4
Air temperature		°C	See diagrams on next page									

SYSAQUA R32 H models			100		115		130		150		170	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Eau	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	12.8	29.4	15.0	34.7	16.0	38.7	19.1	45.1	22.3	50.9
Air temperature		°C	See diagrams on next page									

* Below 5 °C, glycol is required.
** Considered at nominal unit capacity

SYSAQUA R32 H in heating mode

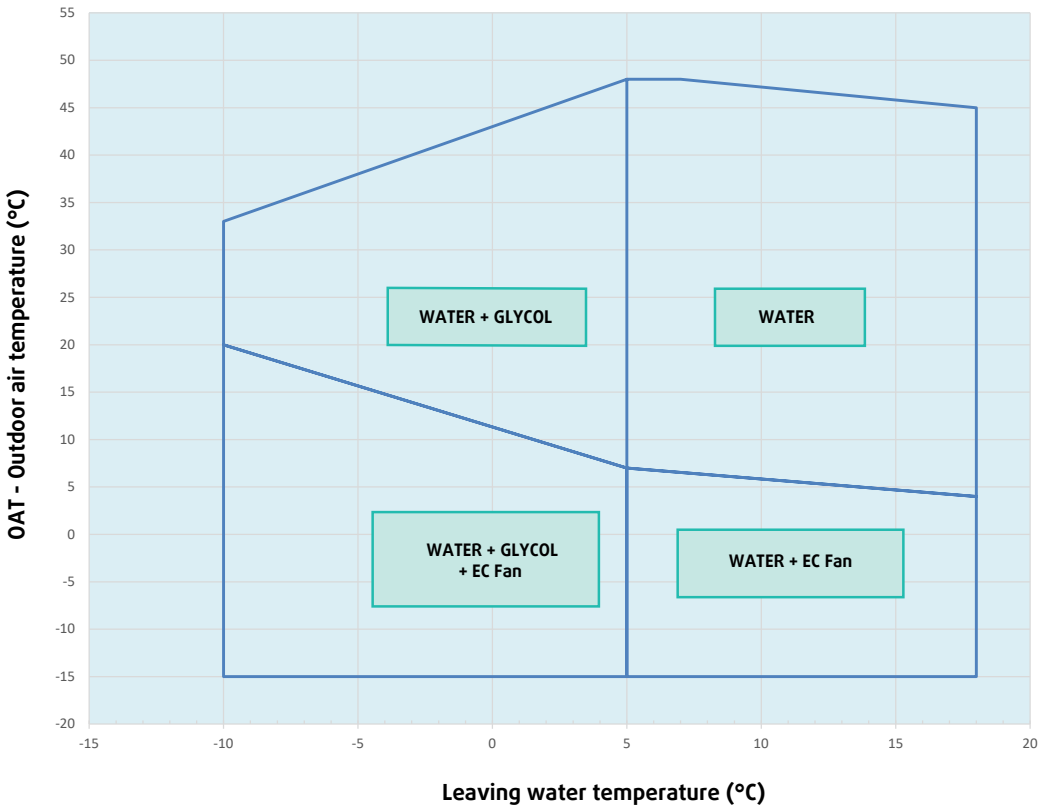
SYSAQUA R32 H models			50		60		70		75		85	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature	°C	20	55	20	55	20	55	20	55	20	55
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	6.6	15.1	7.6	17.4	8.9	20.1	9.7	22.0	10.5	24.4
Air temperature		°C	See diagrams on next page									

SYSAQUA R32 H models			100		115		130		150		170	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature	°C	20	55	20	55	20	55	20	53	20	53
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	12.8	29.4	15.0	34.7	16.0	38.7	19.1	45.1	22.3	50.9
Air temperature		°C	See diagrams on next page									

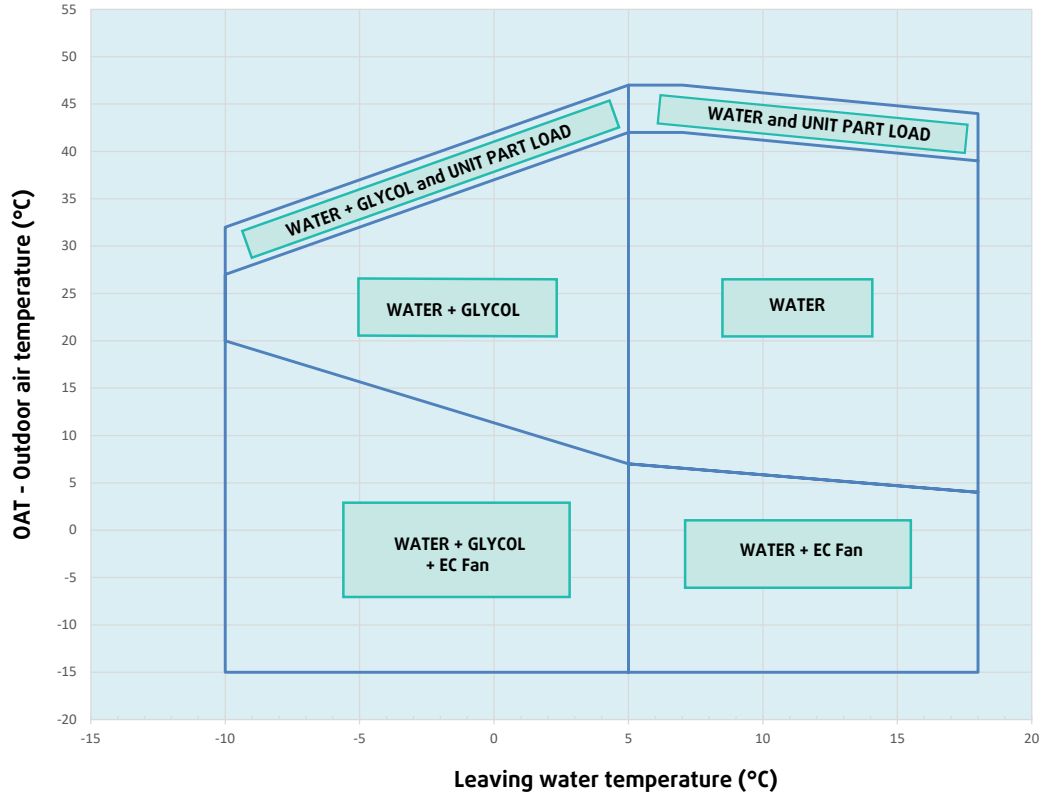
** Considered at nominal unit capacity

Operating Limits

SYSAQUA R32 50-130 L/H in cooling mode

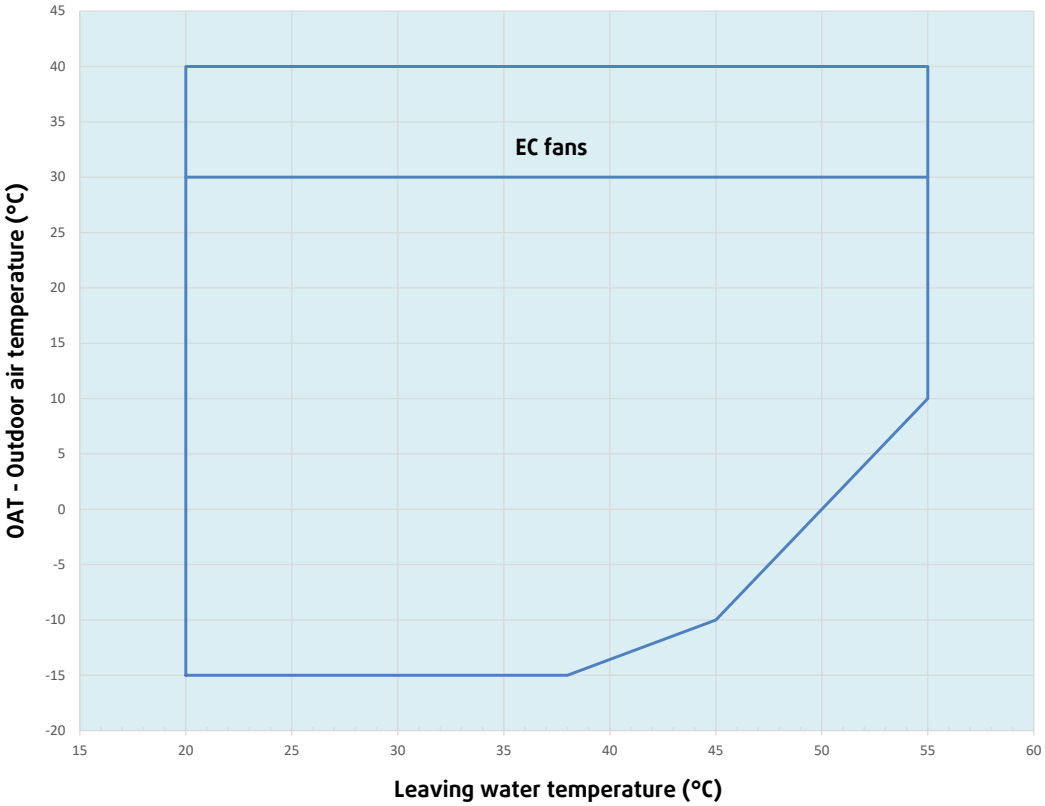


SYSAQUA R32 150-170 L/H in cooling mode

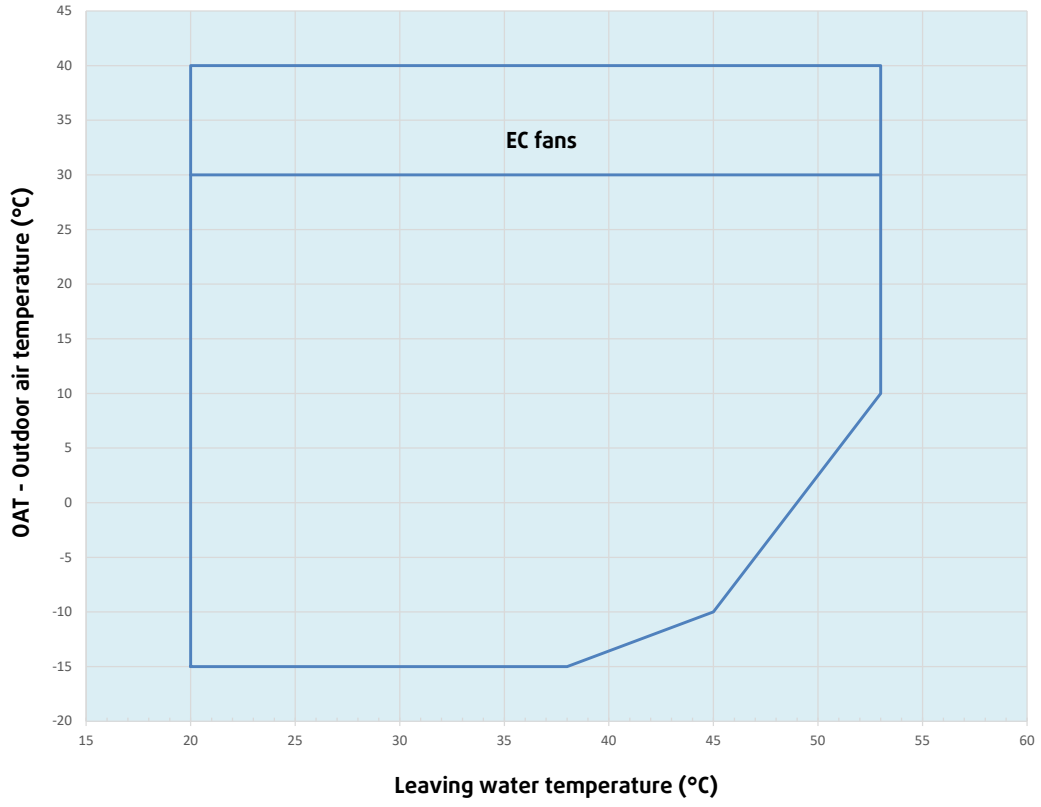


Operating Limits

SYSAQUA R32 50-130 H in heating mode



SYSAQUA R32 150-170 H in heating mode



Correction Factors

Fouling factors - Evaporator

Fouling factor (m².°C/kW)	Capacity	Power input
0.044	1.000	1.000
0.088	0.987	0.995
0.176	0.964	0.985
0.352	0.915	0.962

Fouling factors - Condenser

Fouling factor (m².°C/kW)	Capacity	Power input
0.044	1.000	1.000
0.088	0.987	1.023
0.176	0.955	1.068
0.352	0.910	1.135

Altitude factors

Altitude (m)	Capacity	Power input
0	1.000	1.000
600	0.987	1.010
1 200	0.973	1.020
1 800	0.958	1.030
2 400	0.943	1.040

Correction factors - Ethylene glycol

% glycol	Freezing point (°C)	Capacity	Power input	Water flow	Pressure drop
0	0	1.00	1.00	1.00	1.00
10	-4	0.995	0.998	1.015	1.070
20	-10	0.985	0.995	1.050	1.160
30	-17	0.970	0.985	1.085	1.235

Warning !

Ethylene glycol is toxic to the environment. Moreover, it is not suitable for heating with domestic hot water production by simple exchange.

Correction factors - Propylene glycol

% glycol	Freezing point (°C)	Capacity	Power input	Water flow	Pressure drop
0	0	1.00	1.00	1.00	1.00
10	-3	0.991	0.994	1.005	1.112
20	-7	0.977	0.991	1.030	1.175
30	-13	0.945	0.975	1.067	1.290

Physical Data - SYSAQUA R32 L - STD version

SYSAQUA R32 - Cooling only version			50	60	70	75
Cooling capacity (1)		kW	52.6	60.4	70.0	75.2
Power input (1)		kW	16.8	19.8	22.2	25.7
Total EER 100% (1)			3.12	3.05	3.15	2.93
Energy class EER			A	B	A	B
SEER (2)			4.23	4.40	4.57	4.60
η_{sc} (2)		%	166	173	180	181
Power supply			400V/3~/50Hz			
Startup type			Direct			
Maximum operating current		A	43	53	60	69
Startup current (without Soft Starter)		A	161	162	200	209
Startup current (with Soft Starter)		A	119	121	156	160
REFRIGERANT						
Type			R32			
Number of refrigerant circuit			1			
Charge		kg	7.9	8.1	10.3	10.6
COMPRESSORS						
Number / Type			2 / Scroll			
Part load steps		%	0/47/53/100	0/41/59/100	0/40/60/100	0/46/54/100
Crankcase heater		W	70 / 70	70 / 66	70 / 66	66 / 66
EVAPORATOR						
Number / Type			1 / Plate			
Water flow		m^3/h	9.2	10.6	12.2	13.2
Water pressure drop		kPa	35.3	46.7	33.0	38.2
Water volume		l	6.0	6.0	8.4	8.4
Antifreeze heater		W	30	30	2 x 30	2 x 30
COIL						
Number			1	1	2	2
Frontal surface		m^2	4.2	4.2	5.6	5.6
Number of rows			2	2	2	2
FAN						
Number			1	1	2	2
STD	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	870	870	690	690
	Power input each fan	kW	2.1	2.1	1.0	1.0
EC	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	780	780	620	620
	Power input each fan	kW	1.1	1.1	0.6	0.6
HPF	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	940	940	940	940
	Power input each fan	kW	1.60	1.60	1.90	1.90
	Static pressure	Pa	85	85	180	180
WATER CONNECTIONS						
Evaporator	Type		Male gas threaded			
	Inlet diameter	inch	2"	2"	2"	2"
	Outlet diameter	inch	2"	2"	2"	2"
Desuperheater	Type		Male gas threaded			
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)						
Volume		L	300	300	300	300
DIMENSIONS						
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width		mm	1 160	1 160	1 160	1 160
Height	STD	mm	1 986	1 986	1 986	1 986
	EC/HPF	mm	2 034	2 034	2 034	2 034
WEIGHT						
Operating weight (STD)		kg	533	553	629	645
ACOUSTICAL DATA						
Sound power level (STD/EC)		dB(A)	83.2	83.8	81.3	81.3
Sound pressure level (STD/EC) (*)		dB(A)	51.4	52.0	49.5	49.5
Sound power level (HPF)		dB(A)	87.2	87.3	89.2	89.3
Sound pressure level (HPF) (*)		dB(A)	55.4	55.5	57.4	57.5

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - SYSAQUA R32 L - STD version

SYSAQUA R32 - Cooling only version			85	100	115	130	150	170
Cooling capacity (1)		kW	84.1	102.0	121.0	135.0	156.0	176.0
Power input (1)		kW	29.1	34.1	37.7	42.3	47.9	55.5
Total EER 100% (1)			2.89	2.99	3.20	3.18	3.26	3.17
Energy class EER			B	B	A	A	A	A
SEER (2)			4.52	4.30	4.53	4.47	4.64	4.56
η_{sc} (2)		%	178	169	178	176	183	179
Power supply			400V/3~/50Hz					
Startup type			Direct					
Maximum operating current		A	75	87	94	104	125	142
Startup current (without Soft Starter)		A	215	326	333	343	363	380
Startup current (with Soft Starter)		A	168	234	246	257	277	294
REFRIGERANT								
Type			R32					
Number of refrigerant circuit			1					
Charge		kg	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORS								
Number / Type			2 / Scroll					
Part load steps		%	0/50/100	0/34/66/100	0/44/56/100	0/50/100	0/45/55/100	0/38/62/100
Crankcase heater		W	66 / 66	66 / 66	66 / 66	66 / 66	66 / 105	66 / 105
EVAPORATOR								
Number / Type			1 / Plate					
Water flow		m^3/h	14.7	17.9	21.1	23.5	27.2	30.7
Water pressure drop		kPa	22.6	33.4	46.5	58.0	39.1	49.6
Water volume		l	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater		W	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
COIL								
Number			2	2	2	2	2	2
Frontal surface		m^2	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows			2	2	3	3	3	3
FAN								
Number			2	2	2	2	3	3
STD	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	870	870	870	870	870	870
	Power input each fan	kW	2.1	2.1	1.6	1.6	1.4	1.4
EC	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	780	780	780	780	780	780
	Power input each fan	kW	0.8	0.8	1.0	1.0	0.8	0.8
HPF	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	940	940	940	940	940	940
	Power input each fan	kW	1.60	1.60	1.60	1.60	1.70	1.70
	Static pressure	Pa	85	85	85	85	110	110
WATER CONNECTIONS								
Evaporator	Type		Male gas threaded					
	Inlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	Type		Male gas threaded					
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)								
Volume		L	300	300	300	300	300	300
DIMENSIONS								
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680	3 796/3 796	3 796/3 796
Width		mm	1 160	1 160	1 160	1 160	1 100	1 100
Height	STD	mm	2 286	2 286	2 286	2 286	2 310	2 310
	EC/HPF	mm	2 334	2 334	2 334	2 334	2 370	2 370
WEIGHT								
Operating weight (STD)		kg	713	743	825	827	1 284	1 298
ACOUSTICAL DATA								
Sound power level (STD/EC)		dB(A)	84.4	86.0	87.0	87.4	88.9	91.1
Sound pressure level (STD/EC) (*)		dB(A)	52.5	54.1	55.1	55.5	57.0	59.2
Sound power level (HPF)		dB(A)	89.3	89.7	90.0	90.2	91.6	92.3
Sound pressure level (HPF) (*)		dB(A)	57.4	57.8	58.1	58.3	59.7	60.4

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - SYSAQUA R32 L - S version

SYSAQUA R32 - Cooling only version			50	60	70	75
Cooling capacity (1)		kW	52.6	60.4	70.0	75.2
Power input (1)		kW	15.8	18.8	21.4	24.9
Total EER 100% (1)			3.32	3.21	3.26	3.02
Energy class EER			A	A	A	B
SEER (2)			4.69	4.87	4.88	4.82
η_{sc} (2)		%	184	192	192	190
Power supply			400V/3~/50Hz			
Startup type			Direct			
Maximum operating current		A	43	52	62	71
Startup current (without Soft Starter)		A	160	161	202	211
Startup current (with Soft Starter)		A	119	120	158	162
REFRIGERANT						
Type			R32			
Number of refrigerant circuit			1			
Charge		kg	7.9	8.1	10.3	10.6
COMPRESSORS						
Number / Type			2 / Scroll			
Part load steps		%	0/47/53/100	0/41/59/100	0/40/60/100	0/46/54/100
Crankcase heater		W	70 / 70	70 / 66	70 / 66	66 / 66
EVAPORATOR						
Number / Type			1 / Plate			
Water flow		m^3/h	9.2	10.6	12.2	13.2
Water pressure drop		kPa	35.3	46.7	33.0	38.2
Water volume		l	6.0	6.0	8.4	8.4
Antifreeze heater		W	30	30	2 x 30	2 x 30
COIL						
Number			1	1	2	2
Frontal surface		m^2	4.2	4.2	5.6	5.6
Number of rows			2	2	2	2
FAN						
Number			1	1	2	2
EC	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	780	780	620	620
	Power input each fan	kW	1.1	1.1	0.6	0.6
WATER CONNECTIONS						
Evaporator	Type		Male gas threaded			
	Inlet diameter	inch	2"	2"	2"	2"
	Outlet diameter	inch	2"	2"	2"	2"
Desuperheater	Type		Male gas threaded			
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)						
Volume		L	300	300	300	300
DIMENSIONS						
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width		mm	1 160	1 160	1 160	1 160
Height		mm	2 034	2 034	2 034	2 034
WEIGHT						
Operating weight (STD)		kg	554	574	650	666
ACOUSTICAL DATA						
Sound power level		dB(A)	80.7	81.2	78.3	78.2
Sound pressure level (*)		dB(A)	48.9	49.4	46.5	46.4

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - SYSAQUA R32 L - S version

SYSAQUA R32 - Cooling only version			85	100	115	130	150	170
Cooling capacity (1)		kW	84.1	102.0	121.0	135.0	156.0	176.0
Power input (1)		kW	26.5	31.5	36.5	41.1	46.1	53.7
Total EER 100% (1)			3.17	3.24	3.30	3.28	3.39	3.28
Energy class EER			A	A	A	A	A	A
SEER (2)			5.12	4.92	4.72	4.61	4.92	4.95
η_{sc} (2)		%	202	194	186	181	194	195
Power supply			400V/3~/50Hz					
Startup type			Direct					
Maximum operating current		A	74	86	93	103	123	141
Startup current (without Soft Starter)		A	214	325	332	342	362	379
Startup current (with Soft Starter)		A	167	233	245	256	276	293
REFRIGERANT								
Type			R32					
Number of refrigerant circuit			1					
Charge		kg	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORS								
Number / Type			2 / Scroll					
Part load steps		%	0/50/100	0/34/66/100	0/44/56/100	0/50/100	0/45/55/100	0/38/62/100
Crankcase heater		W	66 / 66	66 / 66	66 / 66	66 / 66	66 / 105	66 / 105
EVAPORATOR								
Number / Type			1 / Plate					
Water flow		m^3/h	14.7	17.9	21.1	23.5	27.2	30.7
Water pressure drop		kPa	22.6	33.4	46.5	58.0	39.1	49.6
Water volume		l	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater		W	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
COIL								
Number			2	2	2	2	2	2
Frontal surface		m^2	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows			2	2	3	3	3	3
FAN								
Number			2	2	2	2	3	3
EC	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	780	780	780	780	780	780
	Power input each fan	kW	0.8	0.8	1.0	1.0	0.8	0.8
WATER CONNECTIONS								
Evaporator	Type		Male gas threaded					
	Inlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	Type		Male gas threaded					
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)								
Volume		L	300	300	300	300	300	300
DIMENSIONS								
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680	3 796/3 796	3 796/3 796
Width		mm	1 160	1 160	1 160	1 160	1 100	1 100
Height		mm	2 334	2 334	2 334	2 334	2 370	2 370
WEIGHT								
Operating weight (STD)		kg	734	764	846	848	1 309	1 323
ACOUSTICAL DATA								
Sound power level		dB(A)	81.7	83.2	84.0	84.4	85.9	88.0
Sound pressure level (*)		dB(A)	49.8	51.3	52.1	52.5	54.0	56.1

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - SYSAQUA R32 H - STD version

SYSAQUA R32 - Heat pump version			50	60	70	75
Cooling capacity (1)		kW	49.8	60.4	70.0	75.2
Power input (1)		kW	17.0	19.8	22.2	25.7
Total EER 100% (1)			2.94	3.05	3.15	2.93
Energy class EER			B	B	B	B
SEER (2)			4.36	4.32	4.54	4.47
η_{sc} (2)		%	171	170	178	176
Heating capacity (3)		kW	53.4	61.5	71.7	80.0
Power input (3)		kW	17.3	19.5	22.2	24.7
Total COP 100% (3)			3.08	3.16	3.22	3.24
SCOP (4)			3.63	3.52	3.55	3.57
η_{sh} (4)		%	142	138	139	140
Energy class SCOP			A+	A+	A+	A+
Power supply			400V/3~/50Hz			
Startup type			Direct			
Maximum operating current		A	43	53	60	69
Startup current (without Soft Starter)		A	161	162	200	209
Startup current (with Soft Starter)		A	119	121	156	160
REFRIGERANT						
Type			R32			
Number of refrigerant circuit			1			
Charge		kg	7.9	8.1	10.3	10.6
COMPRESSORSS						
Number / Type			2 / Scroll			
Part load steps		%	0/47/53/100	0/41/59/100	0/40/60/100	0/46/54/100
Crankcase heater		W	70 / 70	70 / 66	70 / 66	66 / 66
EVAPORATOR						
Number / Type			1 / Plate			
Cooling mode	Water flow	m^3/h	8.7	10.6	12.2	13.2
	Water pressure drop	kPa	31.8	46.7	33.0	38.2
Heating mode	Water flow	m^3/h	9.3	10.7	12.5	13.9
	Water pressure drop	kPa	36.3	48.1	34.4	42.8
Water volume		l	6.0	6.0	8.4	8.4
Antifreeze heater		W	30	30	2 x 30	2 x 30
COIL						
Number			1	1	2	2
Frontal surface		m^2	4.2	4.2	5.6	5.6
Number of rows			2	2	2	2
FAN						
Number			1	1	2	2
STD	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	870	870	690	690
	Power input each fan	kW	2.1	2.1	1.0	1.0
EC	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	780	780	620	620
	Power input each fan	kW	1.1	1.1	0.6	0.6
HPF	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	940	940	940	940
	Power input each fan	kW	1.60	1.60	1.90	1.90
	Static pressure	Pa	85	85	180	180
WATER CONNECTIONS						
Evaporator	Type		Male gas threaded			
	Inlet diameter	inch	2"	2"	2"	2"
	Outlet diameter	inch	2"	2"	2"	2"
Desuperheater	Type		Male gas threaded			
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)						
Volume		L	300	300	300	300
DIMENSIONS						
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width		mm	1 160	1 160	1 160	1 160
Height	STD	mm	1 986	1 986	1 986	1 986
	EC/HPF	mm	2 034	2 034	2 034	2 034
WEIGHT						
Operating weight (STD)		kg	533	553	629	645
ACOUSTICAL DATA						
Sound power level (STD/EC)		dB(A)	83.2	83.8	81.3	81.3
Sound pressure level (STD/EC) (*)		dB(A)	51.4	52.0	49.5	49.5
Sound power level (HPF)		dB(A)	87.2	87.3	89.2	89.3
Sound pressure level (HPF) (*)		dB(A)	55.4	55.5	57.4	57.5

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(1) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - SYSAQUA R32 H - STD version

SYSAQUA R32 - Heat pump version			85	100	115	130	150	170
Cooling capacity (1)		kW	84.1	102	121	135	156	176
Power input (1)		kW	29.1	34.1	37.7	42.3	47.9	55.5
Total EER 100% (1)			2.89	2.99	3.20	3.18	3.26	3.17
Energy class EER			C	B	B	B	B	B
SEER (2)			4.48	4.35	4.34	4.33	4.61	4.62
η_{sc} (2)		%	176	171	171	170	181	182
Heating capacity (3)		kW	86.2	105	123	137	158	182
Power input (3)		kW	28.5	33.3	36.9	40.6	47.7	54.0
Total COP 100% (3)			3.02	3.16	3.34	3.37	3.31	3.37
SCOP (4)			3.57	3.63	3.60	3.73	3.65	3.60
η_{sh} (4)		%	140	142	141	146	143	141
Energy class SCOP			A+	A+	A+	A+	A+	A+
Power supply			400V/3~/50Hz					
Startup type			Direct					
Maximum operating current		A	75	87	94	104	125	142
Startup current (without Soft Starter)		A	215	326	333	343	363	380
Startup current (with Soft Starter)		A	168	234	246	257	277	294
REFRIGERANT								
Type			R32					
Number of refrigerant circuit			1					
Charge		kg	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORSS								
Number / Type			2 / Scroll					
Part load steps		%	0/50/100	0/34/66/100	0/44/56/100	0/50/100	0/45/55/100	0/38/62/100
Crankcase heater		W	66 / 66	66 / 66	66 / 66	66 / 66	66 / 105	66 / 105
EVAPORATOR								
Number / Type			1 / Plate					
Cooling mode	Water flow	m^3/h	14.7	17.9	21.1	23.5	27.2	30.7
	Water pressure drop	kPa	22.6	33.4	46.5	58.0	39.1	49.6
Heating mode	Water flow	m^3/h	15.0	18.3	21.5	23.9	27.5	31.7
	Water pressure drop	kPa	23.6	35.3	48.4	59.7	39.9	52.9
Water volume		l	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater		W	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
COIL								
Number			2	2	2	2	2	2
Frontal surface		m^2	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows			2	2	3	3	3	3
FAN								
Number			2	2	2	2	3	3
STD	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	870	870	870	870	870	870
	Power input each fan	kW	2.1	2.1	1.6	1.6	1.4	1.4
EC	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	780	780	780	780	780	780
	Power input each fan	kW	0.8	0.8	1.0	1.0	0.8	0.8
HPF	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	940	940	940	940	940	940
	Power input each fan	kW	1.60	1.60	1.60	1.60	1.70	1.70
	Static pressure	Pa	85	85	85	85	110	110
WATER CONNECTIONS								
Evaporator	Type		Male gas threaded					
	Inlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	Type		Male gas threaded					
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)								
Volume		L	300	300	300	300	300	300
DIMENSIONS								
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680	3 796/3 796	3 796/3 796
Width		mm	1 160	1 160	1 160	1 160	1 100	1 100
Height	STD	mm	2 286	2 286	2 286	2 286	2 310	2 310
	EC/HPF	mm	2 334	2 334	2 334	2 334	2 370	2 370
WEIGHT								
Operating weight (STD)		kg	713	743	825	827	1 284	1 298
ACOUSTICAL DATA								
Sound power level (STD/EC)		dB(A)	84.4	86.0	87.0	87.4	88.9	91.1
Sound pressure level (STD/EC) (*)		dB(A)	52.5	54.1	55.1	55.5	57.0	59.2
Sound power level (HPF)		dB(A)	89.3	89.7	90.0	90.2	91.6	92.3
Sound pressure level (HPF) (*)		dB(A)	57.4	57.8	58.1	58.3	59.7	60.4

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(1) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - SYSAQUA R32 H - S version

SYSAQUA R32 - Heat pump version			50	60	70	75
Cooling capacity (1)		kW	49.8	60.4	70.0	75.2
Power input (1)		kW	16.0	18.8	21.4	24.9
Total EER 100% (1)			3.12	3.21	3.26	3.02
Energy class EER			B	B	B	B
SEER (2)			4.58	4.77	4.95	4.68
η_{sc} (2)		%	180	188	195	184
Heating capacity (3)		kW	53.4	61.5	71.7	80.0
Power input (3)		kW	16.3	18.5	21.4	23.9
Total COP 100% (3)			3.27	3.33	3.34	3.35
SCOP (4)			3.85	3.88	3.80	3.80
η_{sh} (4)		%	151	152	149	149
Energy class SCOP			A++	A++	A+	A+
Power supply			400V/3~/50Hz			
Startup type			Direct			
Maximum operating current		A	43	52	62	71
Startup current (without Soft Starter)		A	160	161	202	211
Startup current (with Soft Starter)		A	119	120	158	162
REFRIGERANT						
Type			R32			
Number of refrigerant circuit			1			
Charge		kg	7.9	8.1	10.3	10.6
COMPRESSORSS						
Number / Type			2 / Scroll			
Part load steps		%	0/47/53/100	0/41/59/100	0/40/60/100	0/46/54/100
Crankcase heater		W	70 / 70	70 / 66	70 / 66	66 / 66
EVAPORATOR						
Number / Type			1 / Plate			
Cooling mode	Water flow	m^3/h	8.7	10.6	12.2	13.2
	Water pressure drop	kPa	31.8	46.7	33.0	38.2
Heating mode	Water flow	m^3/h	9.3	10.7	12.5	13.9
	Water pressure drop	kPa	36.3	48.1	34.4	42.8
Water volume		l	6.0	6.0	8.4	8.4
Antifreeze heater		W	30	30	2 x 30	2 x 30
COIL						
Number			1	1	2	2
Frontal surface		m^2	4.2	4.2	5.6	5.6
Number of rows			2	2	2	2
FAN						
Number			1	1	2	2
EC	Air flow	m^3/h	21 200	21 200	30 000	30 000
	Rotational speed	Rpm	780	780	620	620
	Power input each fan	kW	1.1	1.1	0.6	0.6
WATER CONNECTIONS						
Evaporator	Type		Male gas threaded			
	Inlet diameter	inch	2"	2"	2"	2"
	Outlet diameter	inch	2"	2"	2"	2"
Desuperheater	Type		Male gas threaded			
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)						
Volume		L	300	300	300	300
DIMENSIONS						
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width		mm	1 160	1 160	1 160	1 160
Height		mm	2 034	2 034	2 034	2 034
WEIGHT						
Operating weight (STD)		kg	554	574	650	666
ACOUSTICAL DATA						
Sound power level		dB(A)	80.7	81.2	78.3	78.2
Sound pressure level (*)		dB(A)	48.9	49.4	46.5	46.4

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(1) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - SYSAQUA R32 H - S version

SYSAQUA R32 - Heat pump version			85	100	115	130	150	170
Cooling capacity (1)		kW	84.1	102.0	121.0	135.0	156.0	176.0
Power input (1)		kW	26.5	31.5	36.5	41.1	46.1	53.7
Total EER 100% (1)			3.17	3.24	3.30	3.28	3.39	3.28
Energy class EER			C	A	A	A	A	A
SEER (2)			5.05	4.96	4.52	4.48	4.90	5.03
η_{sc} (2)		%	199	196	178	176	193	198
Heating capacity (3)		kW	86.2	105.0	123.0	137.0	158.0	182.0
Power input (3)		kW	25.9	30.7	35.7	39.4	45.9	52.2
Total COP 100% (3)			3.33	3.43	3.46	3.48	3.44	3.49
SCOP (4)			3.98	3.98	3.80	3.90	3.88	3.85
η_{sh} (4)		%	156	156	149	153	152	151
Energy class SCOP			A++	A++	A+	A++	A++	A++
Power supply			400V/3~/50Hz					
Startup type			Direct					
Maximum operating current		A	74	86	93	103	123	141
Startup current (without Soft Starter)		A	214	325	332	342	362	379
Startup current (with Soft Starter)		A	167	233	245	256	276	293
REFRIGERANT								
Type			R32					
Number of refrigerant circuit			1					
Charge		kg	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORSS								
Number / Type			2 / Scroll					
Part load steps		%	0/50/100	0/34/66/100	0/44/56/100	0/50/100	0/45/55/100	0/38/62/100
Crankcase heater		W	66 / 66	66 / 66	66 / 66	66 / 66	66 / 105	66 / 105
EVAPORATOR								
Number / Type			1 / Plate					
Cooling mode	Water flow	m^3/h	14.7	17.9	21.1	23.5	27.2	30.7
	Water pressure drop	kPa	22.6	33.4	46.5	58.0	39.1	49.6
Heating mode	Water flow	m^3/h	15.0	18.3	21.5	23.9	27.5	31.7
	Water pressure drop	kPa	23.6	35.3	48.4	59.7	39.9	52.9
Water volume		l	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater		W	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
COIL								
Number			2	2	2	2	2	2
Frontal surface		m^2	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows			2	2	3	3	3	3
FAN								
Number			2	2	2	2	3	3
EC	Air flow	m^3/h	41 300	41 300	41 300	41 300	56 205	56 205
	Rotational speed	Rpm	780	780	780	780	780	780
	Power input each fan	kW	0.8	0.8	1.0	1.0	0.8	0.8
WATER CONNECTIONS								
Evaporator	Type		Male gas threaded					
	Inlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	Type		Male gas threaded					
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)								
Volume		L	300	300	300	300	300	300
DIMENSIONS								
Length without/with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680	3 796/3 796	3 796/3 796
Width		mm	1 160	1 160	1 160	1 160	1 100	1 100
Height		mm	2 334	2 334	2 334	2 334	2 370	2 370
WEIGHT								
Operating weight (STD)		kg	734	764	846	848	1 309	1 323
ACOUSTICAL DATA								
Sound power level		dB(A)	81.7	83.2	84.0	84.4	85.9	88.0
Sound pressure level (*)		dB(A)	49.8	51.3	52.1	52.5	54.0	56.1

(1) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(1) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(2) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Weight

			50	60	70	75	85	100	115	130	150	170
Without pump		kg	527	547	621	637	701	731	813	815	1 265	1 279
Single pump	Standard Pressure	kg	+31	+31	+33	+33	+41	+41	+44	+44	+68	+68
	High Pressure	kg	+34	+34	+34	+34	+44	+44	+44	+44	+77	+77
Double pump	Standard Pressure	kg	+44	+44	+44	+44	+63	+63	+71	+71	+115	+115
	High Pressure	Kg	+51	+51	+47	+47	+70	+70	+74	+74	+133	+133
Fans	EC	kg	+12	+12	+25	+25	+25	+25	+25	+25	+37	+37
	HPF	Kg	+20	+20	+33	+33	+33	+33	+33	+33	+45	+45
S version		kg	+21	+21	+21	+21	+21	+21	+21	+21	+25	+25
Desuperheater		kg	+12	+12	+12	+12	+12	+12	+12	+12	+12	+12
Buffer tank	without electric heating coil	kg	+115*	+115*	+115*	+115*	+115*	+115*	+115*	+115*	+50*	+50*
	with electric heating coil	kg	+120*	+120*	+120*	+120*	+121*	+121*	+121*	+121*	+56*	+56*

Note: The values are indicative. Actual data are indicated on the unit label.
* including extra metal frame.

Electrical Data

Unit without pump with AC fans

Sizes		50	60	70	75	85	100	115	130	150	170
Power supply		400V / 3~ / 50Hz									
Maximum current	A	43	48	57	61	69	81	94	104	125	142
Fuse rating aM	A	63	63	80	80	100	100	125	125	160	200
Total startup current (without Soft Starter)	A	161	163	212	216	224	320	332	343	363	380
Total startup current (with Soft Starter)	A	119	121	156	160	168	234	246	257	277	294

Unit without pump with EC/HPF fans

Sizes		50	60	70	75	85	100	115	130	150	170
Power supply		400V / 3~ / 50Hz									
Maximum current	A	43	47	59	63	68	81	93	103	123	141
Fuse rating aM	A	63	63	80	80	100	100	125	125	160	200
Total startup current (without Soft Starter)	A	160	162	214	218	223	319	331	342	362	379
Total startup current (with Soft Starter)	A	119	120	158	162	167	233	245	256	276	293

Note: The values are indicative. Actual data are indicated on the unit label.

Electrical Data

Standard pressure pump (400V/3/50Hz)

Sizes	Nominal power (kW)	Max. current (A)
50	1.0	1.9
60	1.0	1.9
70	1.4	2.5
75	1.4	2.5
85	2.0	3.4
100	2.0	3.4
115	2.5	4.5
130	2.5	4.5
150	3.4	6.4
170	3.4	6.4

High pressure pump (400V/3/50Hz)

Sizes	Nominal power (kW)	Max. current (A)
50	1.7	3.2
60	1.7	3.2
70	1.7	3.2
75	1.7	3.2
85	3.3	5.9
100	3.3	5.9
115	3.3	5.9
130	3.3	5.9
150	4.5	8.7
170	4.5	8.7

Electrical heater

			50	60	70	75	85	100	115	130	150	170
Power supply			400V / 3~ / 50Hz								/	/
Low power heating	Power	kW	12	12	12	12	24	24	24	24	/	/
	Maximum intensity	A	19	19	19	19	38	38	38	38	/	/
High power heating	Power	kW	24	24	24	24	36	36	36	36	/	/
	Maximum intensity	A	38	38	38	38	57	57	57	57	/	/

Acoustical Data

Sound power level Lw-dB - standard AC fans

SYSAQUA R32 L/ SYSAQUA R32 H models	Frequency in octave band (Hz)								Lw global dB (A)	Sound pressure level dB(A) *
	63	125	250	500	1000	2000	4000	8000		
50	98	89	83	78	78	74	71	68	83.2	51.4
60	99	90	83	78	79	75	72	69	83.8	52.0
70	96	88	81	76	76	72	69	66	81.3	49.5
75	96	88	81	76	76	72	69	66	81.3	49.5
85	99	91	84	79	79	75	72	69	84.4	52.5
100	101	92	85	80	81	77	74	71	86.0	54.1
115	102	93	86	81	82	78	75	72	87.0	55.1
130	103	94	87	82	82	78	75	72	87.4	55.5
150	104	95	88	83	84	80	77	74	88.9	57.0
170	106	97	91	86	86	82	79	76	91.1	59.2

Sound power level Lw-dB - EC fans - S version

SYSAQUA R32 L/ SYSAQUA R32 H models	Frequency in octave band (Hz)								Lw global dB (A)	Sound pressure level dB(A) *
	63	125	250	500	1000	2000	4000	8000		
50	96	87	80	75	75	72	68	66	80.7	48.9
60	96	87	81	76	76	72	69	66	81.2	49.4
70	93	85	78	73	73	69	66	63	78.3	46.5
75	93	84	78	73	73	69	66	63	78.2	46.4
85	97	88	81	76	76	73	69	67	81.7	49.8
100	98	89	83	78	78	74	71	68	83.2	51.3
115	99	90	83	78	79	75	72	69	84.0	52.1
130	100	91	84	79	79	75	72	69	84.4	52.5
150	101	92	85	80	81	77	74	71	85.9	54.0
170	103	94	87	82	83	79	76	73	88.0	56.1

Sound power level Lw-dB - HPF fans (at max speed)

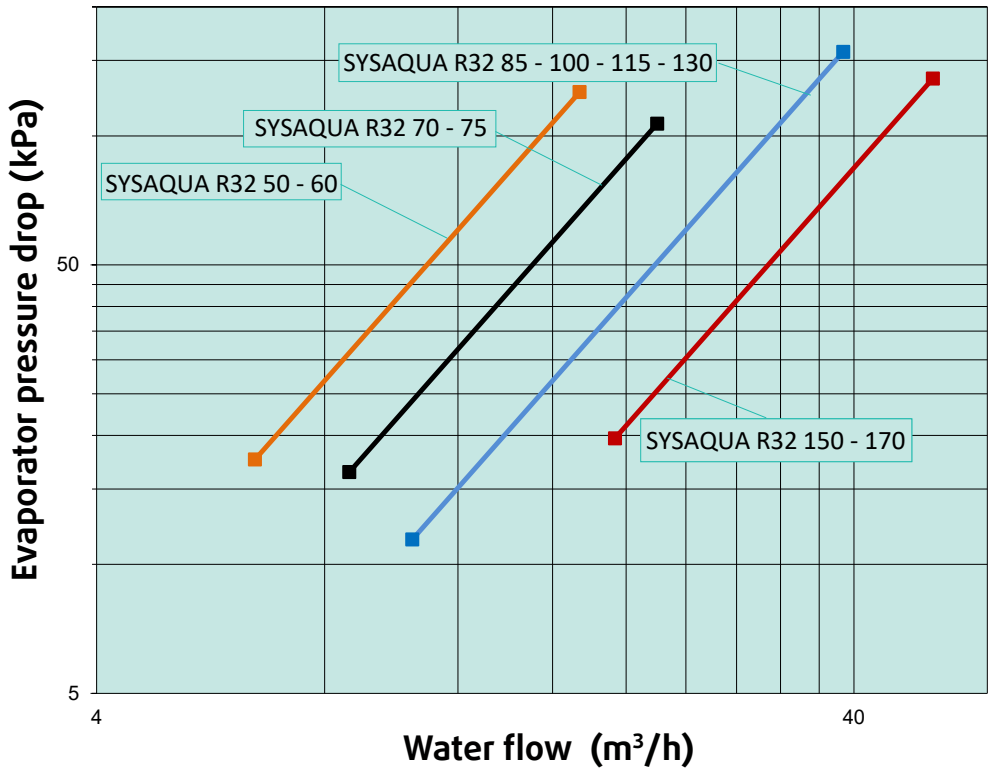
SYSAQUA R32 L/ SYSAQUA R32 H models	Frequency in octave band (Hz)								Lw global dB (A)	Sound pressure level dB(A) *
	63	125	250	500	1000	2000	4000	8000		
50	104	95	88	83	83	80	76	74	87.2	55.4
60	104	95	88	83	83	80	76	74	87.3	55.5
70	107	98	91	86	86	83	79	77	89.2	57.4
75	106	97	90	85	85	82	78	76	89.3	57.5
85	105	96	89	84	84	81	77	75	89.3	57.4
100	105	96	89	84	85	81	78	75	89.7	57.8
115	105	96	90	85	85	81	78	75	90.0	58.1
130	105	96	90	85	85	81	78	75	90.2	58.3
150	108	99	92	87	87	84	80	78	91.6	59.7
170	108	99	92	87	88	84	81	78	92.3	60.4

Note: Sound data valid in max. air flow rate condition.

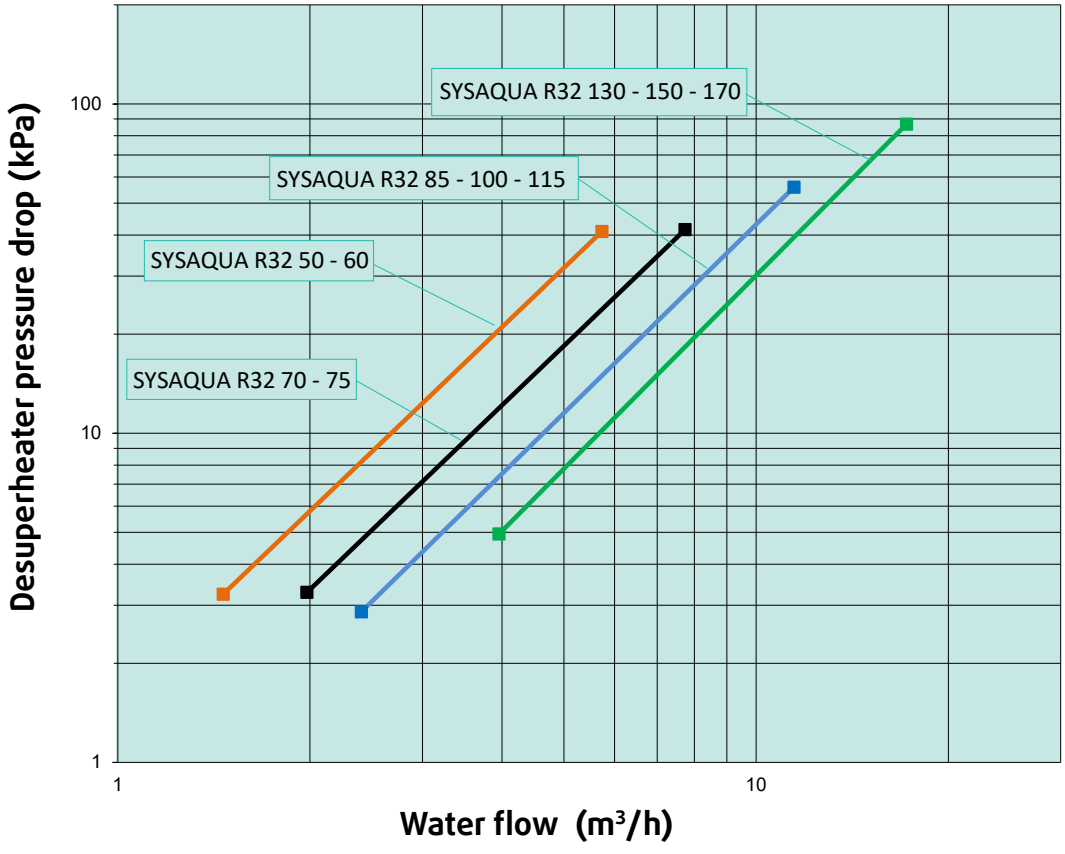
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO standard 3744 with parallelepiped shape.

Water Pressure Drop

SYSAQUA R32 50-170 - Indoor Heat Exchanger

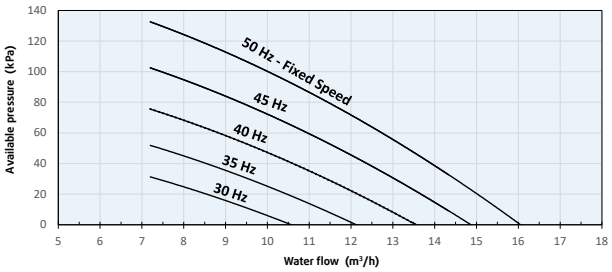


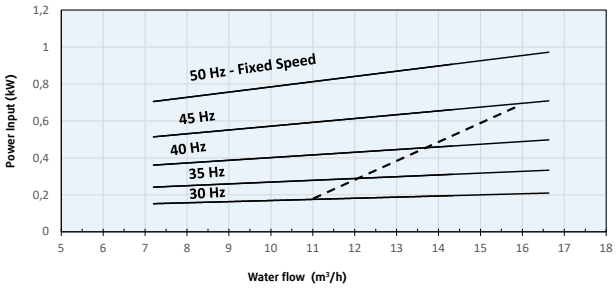
SYSAQUA R32 50-170 - Desuperheater



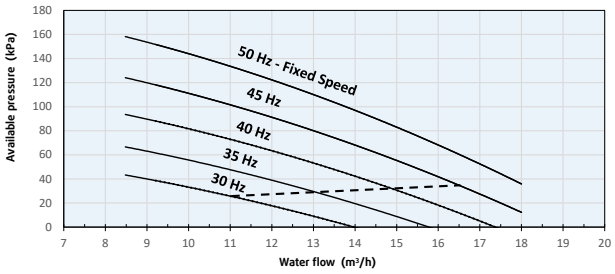
Water Pump Curves

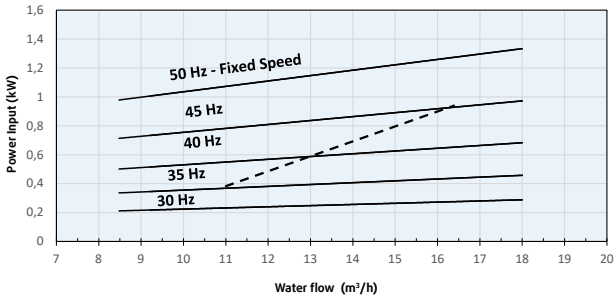
SYSAQUA R32 50 - 60 - Standard pressure pump



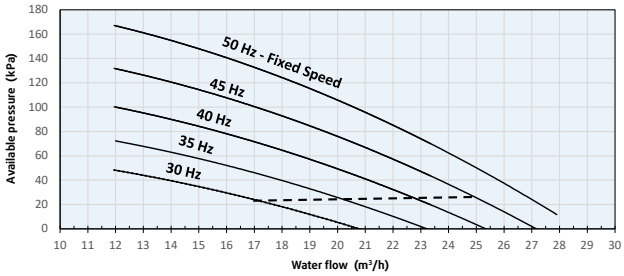


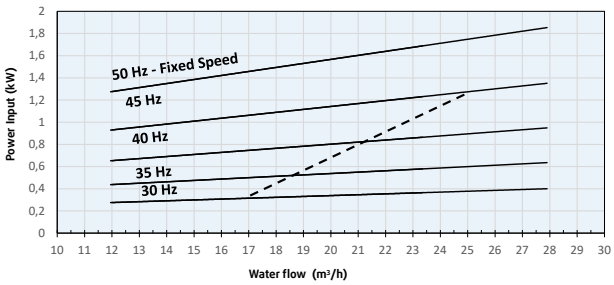
SYSAQUA R32 70 - 75 - Standard pressure pump



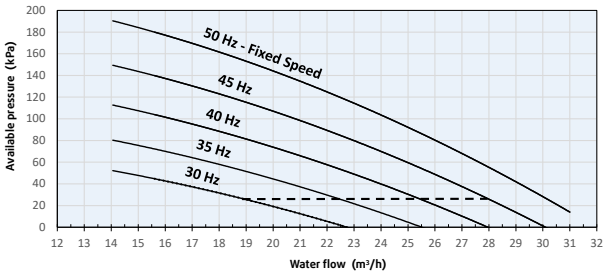


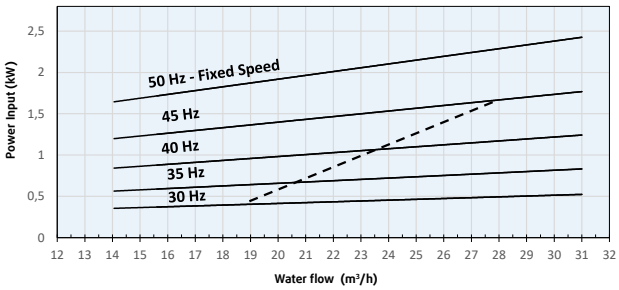
SYSAQUA R32 85 - 100 - Standard pressure pump



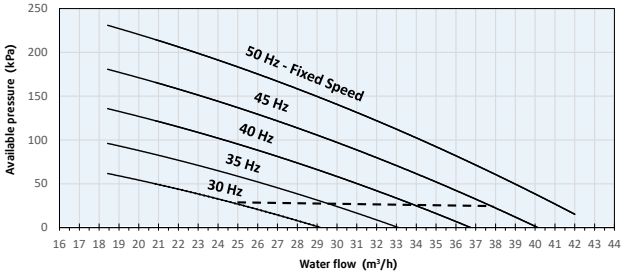


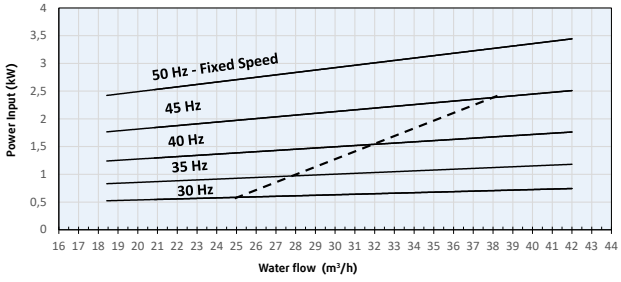
SYSAQUA R32 115 - 130 - Standard pressure pump





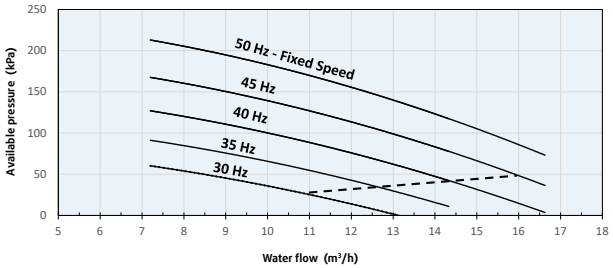
SYSAQUA R32 150 - 170 - Standard pressure pump

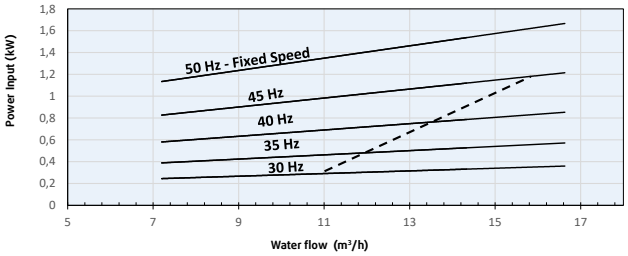




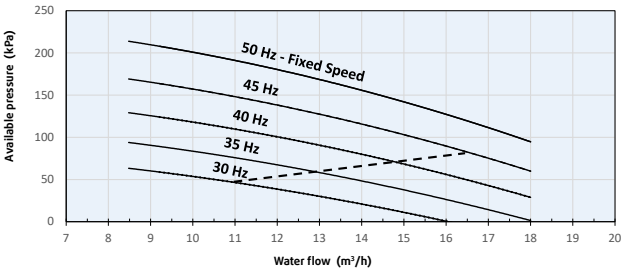
Water Pump Curves

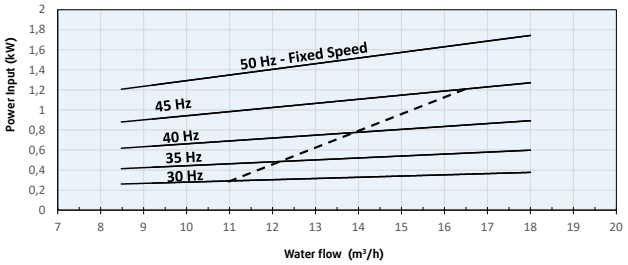
SYSAQUA R32 50 - 60 - High pressure pump



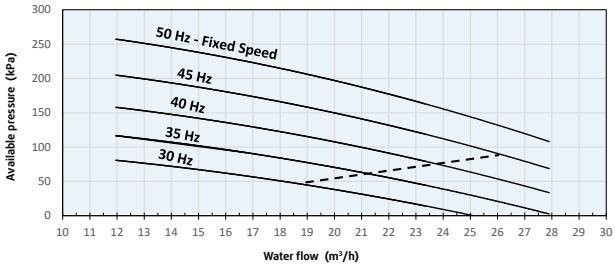


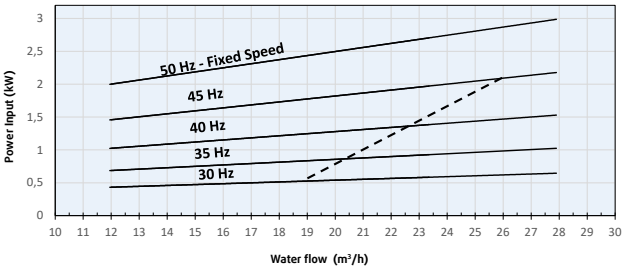
SYSAQUA R32 70 - 75 - High pressure pump



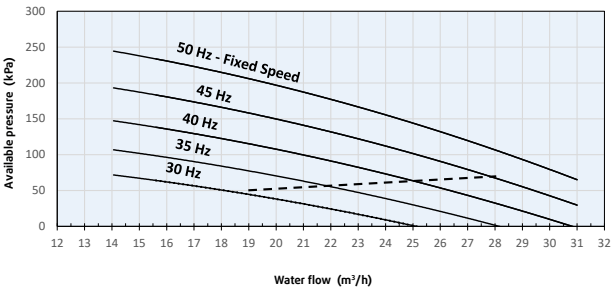


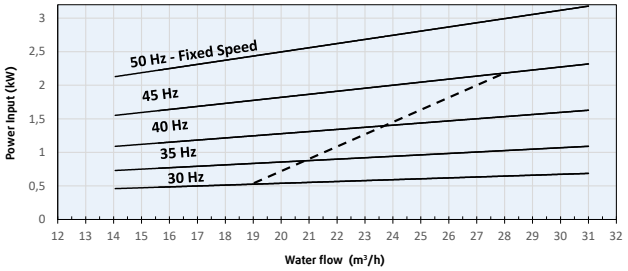
SYSAQUA R32 85 - 100 - High pressure pump



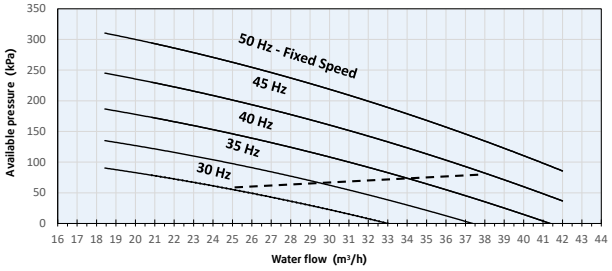


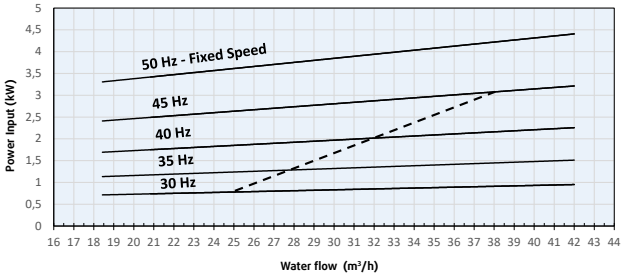
SYSAQUA R32 115 - 130 - High pressure pump





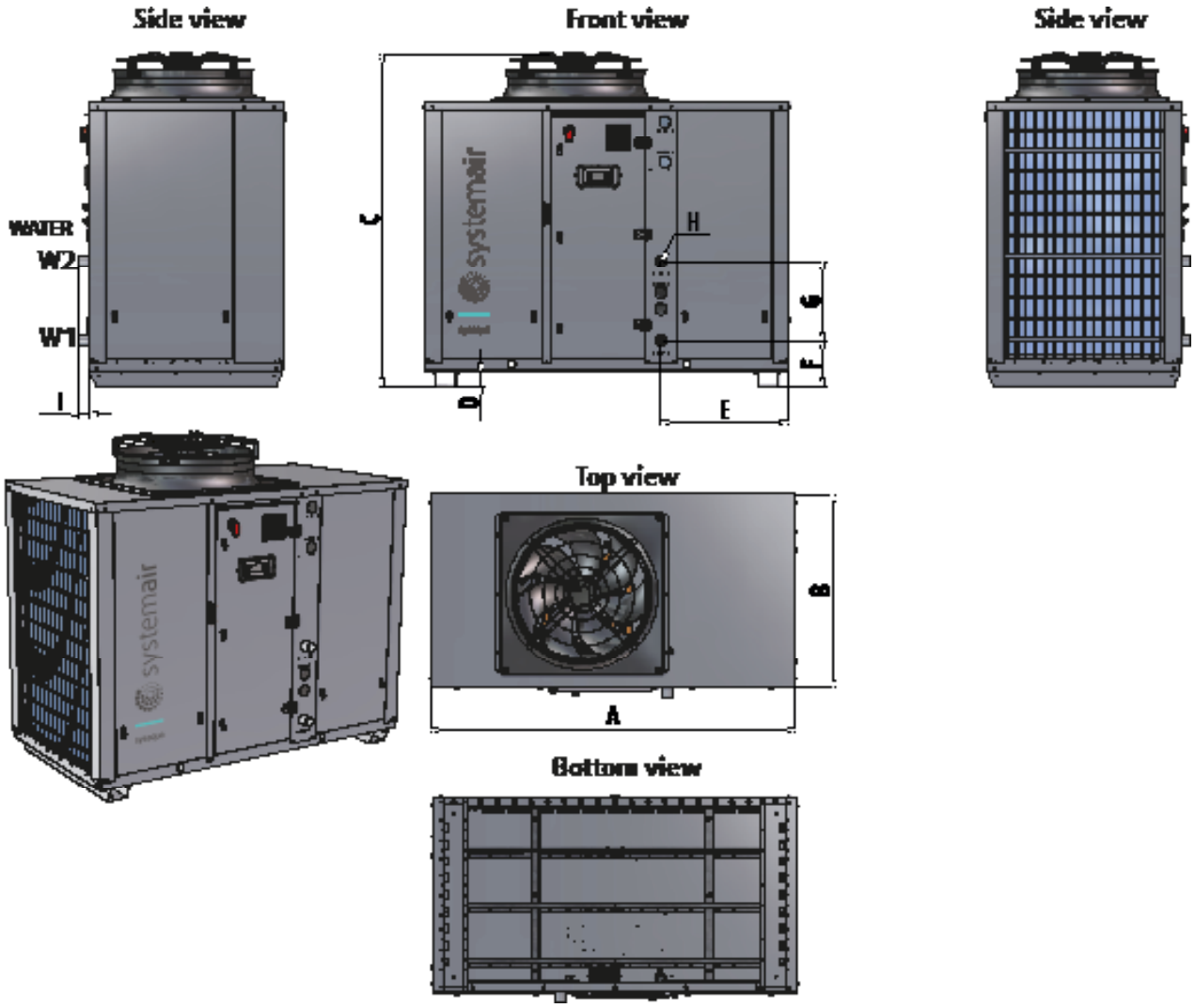
SYSAQUA R32 150 - 170 - High pressure pump





Dimensions (mm)

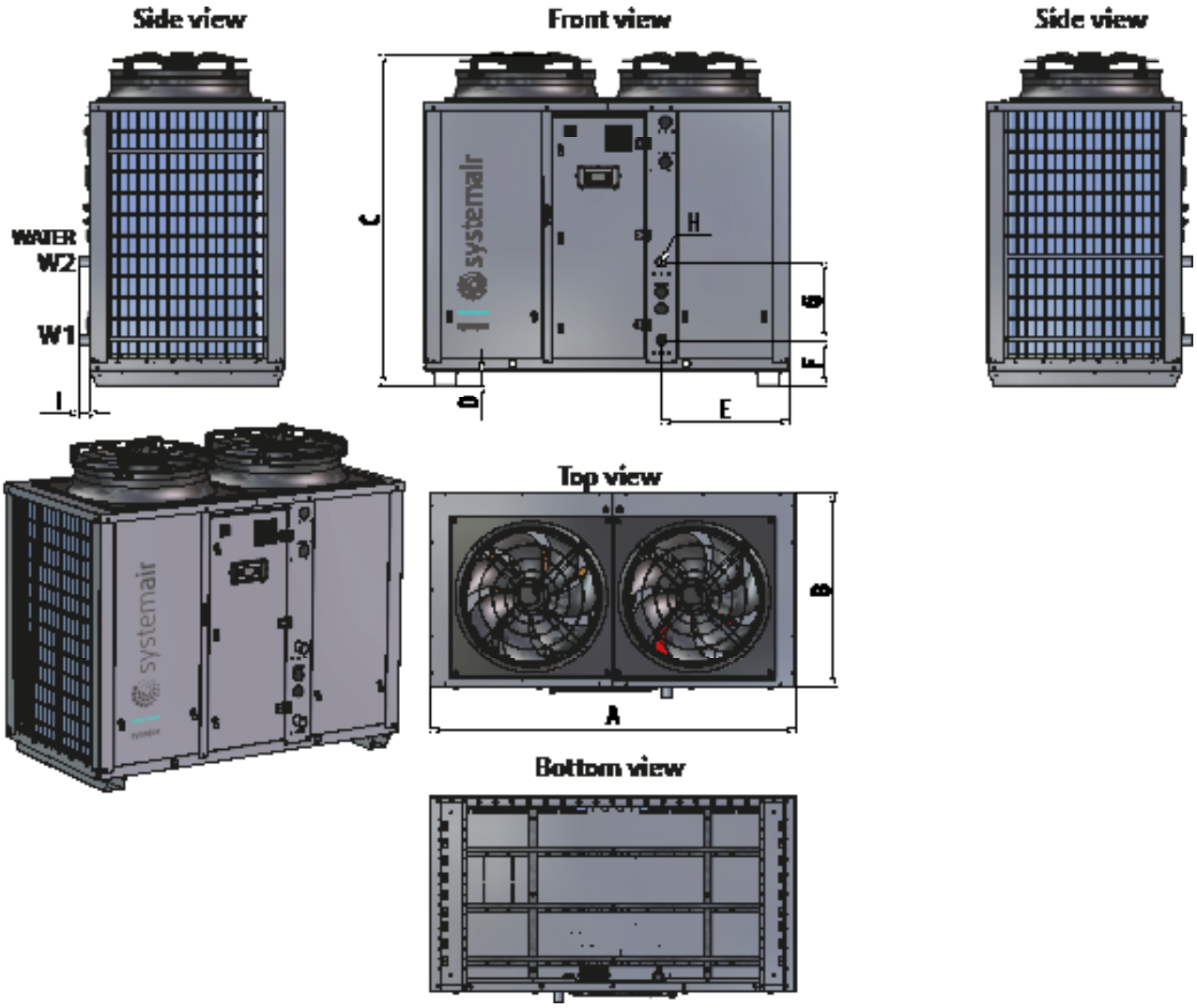
SYSAQUA R32 L/SYSAQUA R32 H 50 to 60 - without buffer tank



			A	B	C	D	E	F	G	ØH	I	W1	W2
STD version AC fans	without buffer tank	mm	2 180	1 160	1 986	90	764	270	470	2"	60		
	with buffer tank	mm	2 680	1 160	1 986	90	1 265	743	436	2"	60		
STD / S / HPF version EC fans	without buffer tank	mm	2 180	1 160	2 034	90	764	270	470	2"	60		
	with buffer tank	mm	2 680	1 160	2 034	90	1 265	743	436	2"	60		

Dimensions (mm)

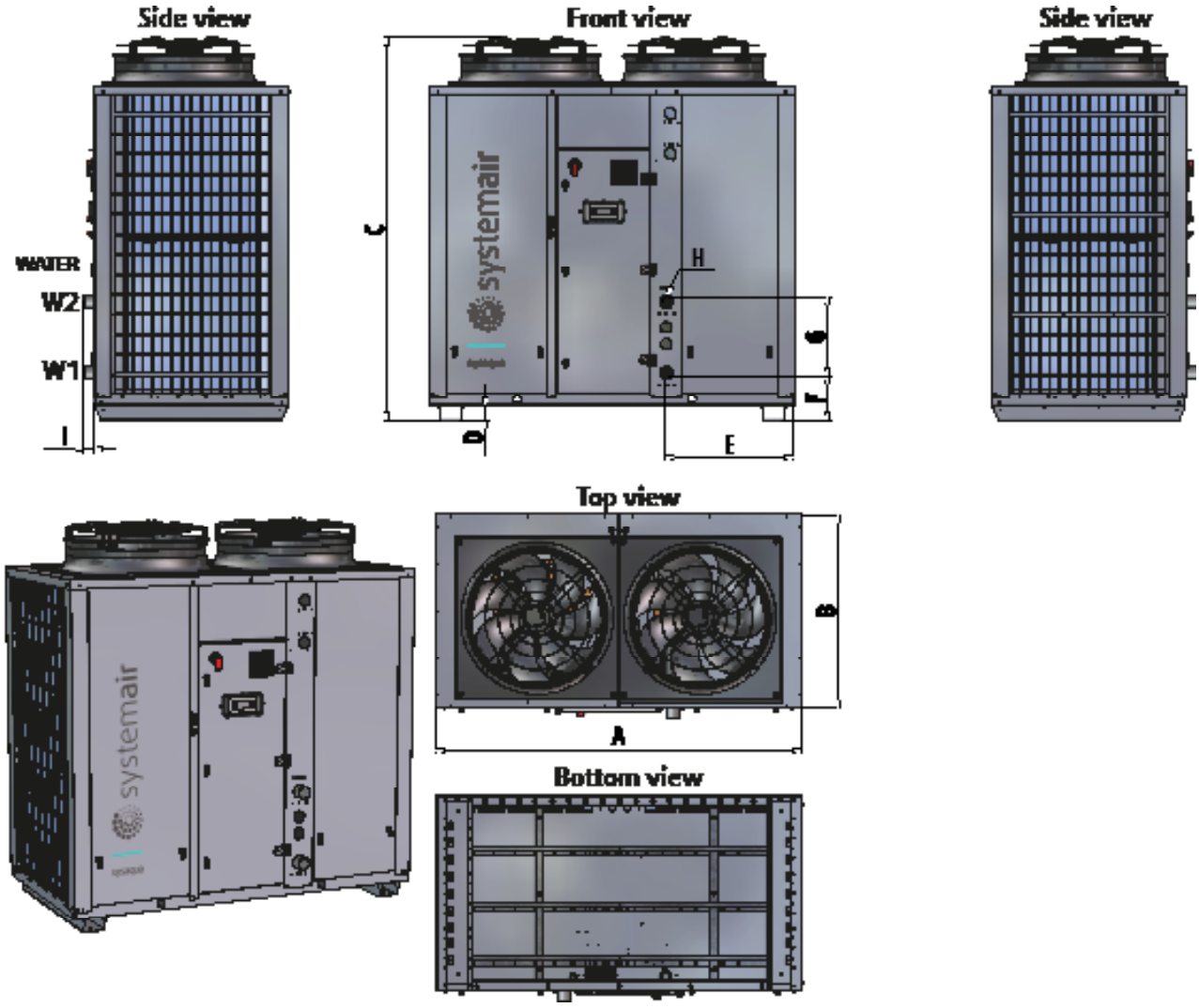
SYSAQUA R32 L/SYSAQUA R32 H 70 to 75 - without buffer tank



			A	B	C	D	E	F	G	ØH	I	W1	W2
STD version AC fans	without buffer tank	mm	2 180	1 160	1 986	90	764	270	470	2"	60		
	with buffer tank	mm	2 680	1 160	1 986	90	1 265	743	436	2"	60		
STD / S / HPF version EC fans	without buffer tank	mm	2 180	1 160	2 034	90	764	270	470	2"	60		
	with buffer tank	mm	2 680	1 160	2 034	90	1 265	743	436	2"	60		

Dimensions (mm)

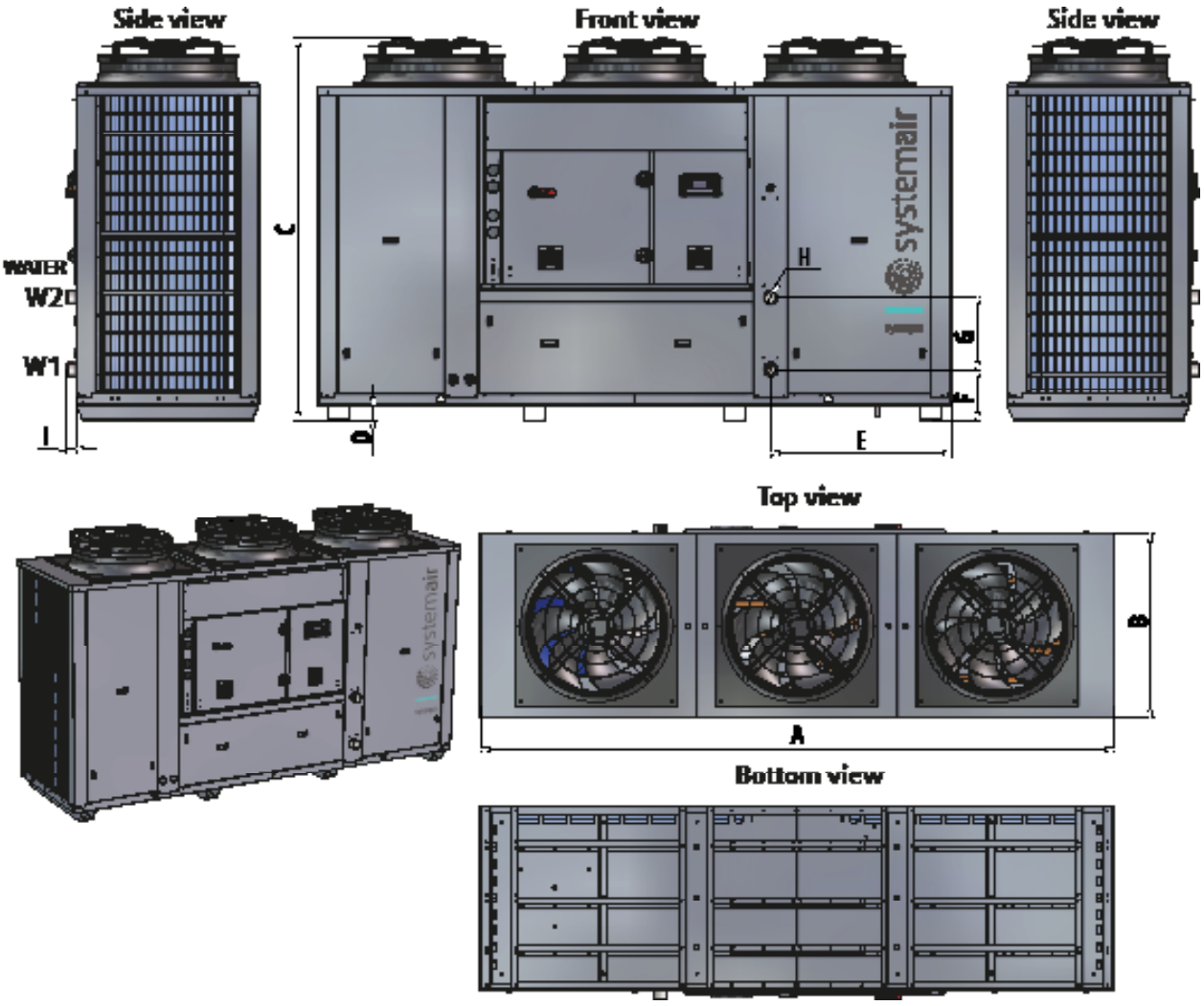
SYSAQUA R32 L/SYSAQUA R32 H 85 to 130 - without buffer tank



			A	B	C	D	E	F	G	ØH	I	W1	W2
STD version AC fans	without buffer tank	mm	2 180	1 160	2 286	90	760	280	426	2"1/2	60		
	with buffer tank	mm	2 680	1 160	2 286	90	1 265	711	638	2"1/2	60		
STD / S / HPF version EC fans	without buffer tank	mm	2 180	1 160	2 334	90	760	280	426	2"1/2	60		
	with buffer tank	mm	2 680	1 160	2 334	90	1 265	711	638	2"1/2	60		

Dimensions (mm)

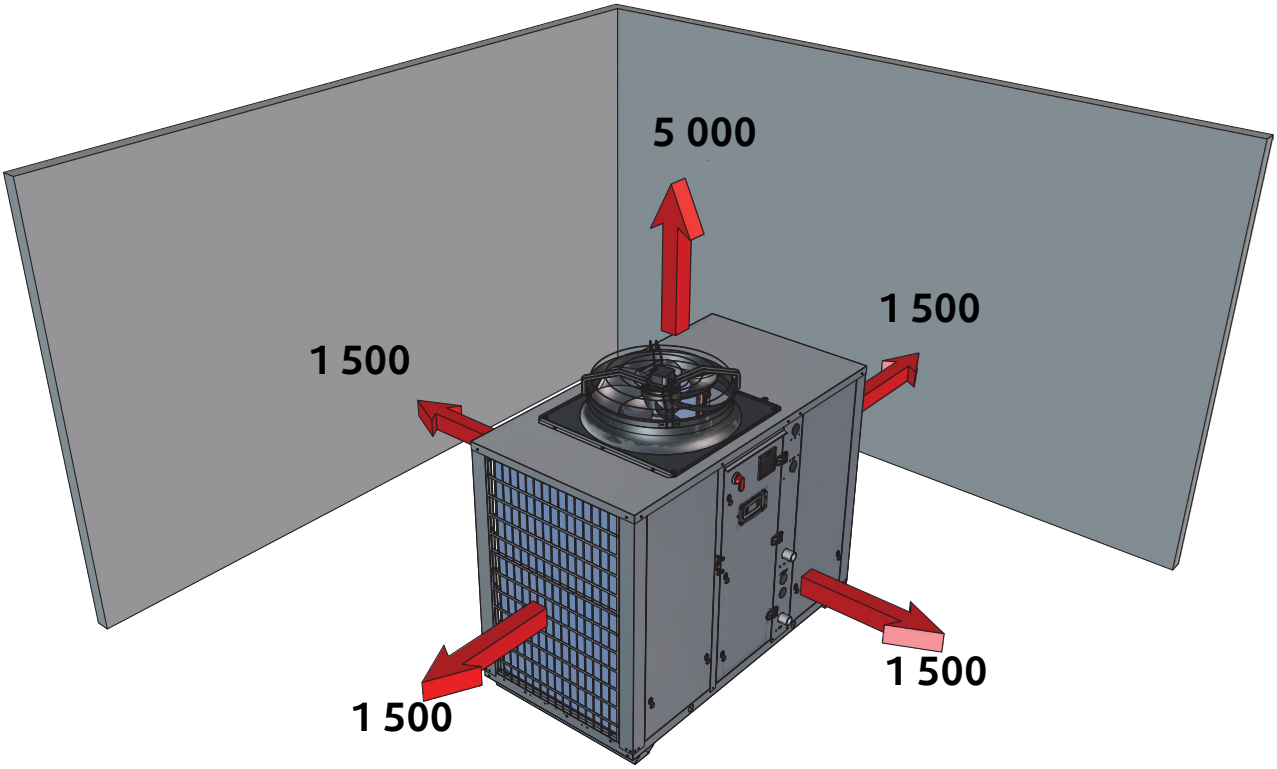
SYSAQUA R32 L/SYSAQUA R32 H 150 to 170 - without buffer tank



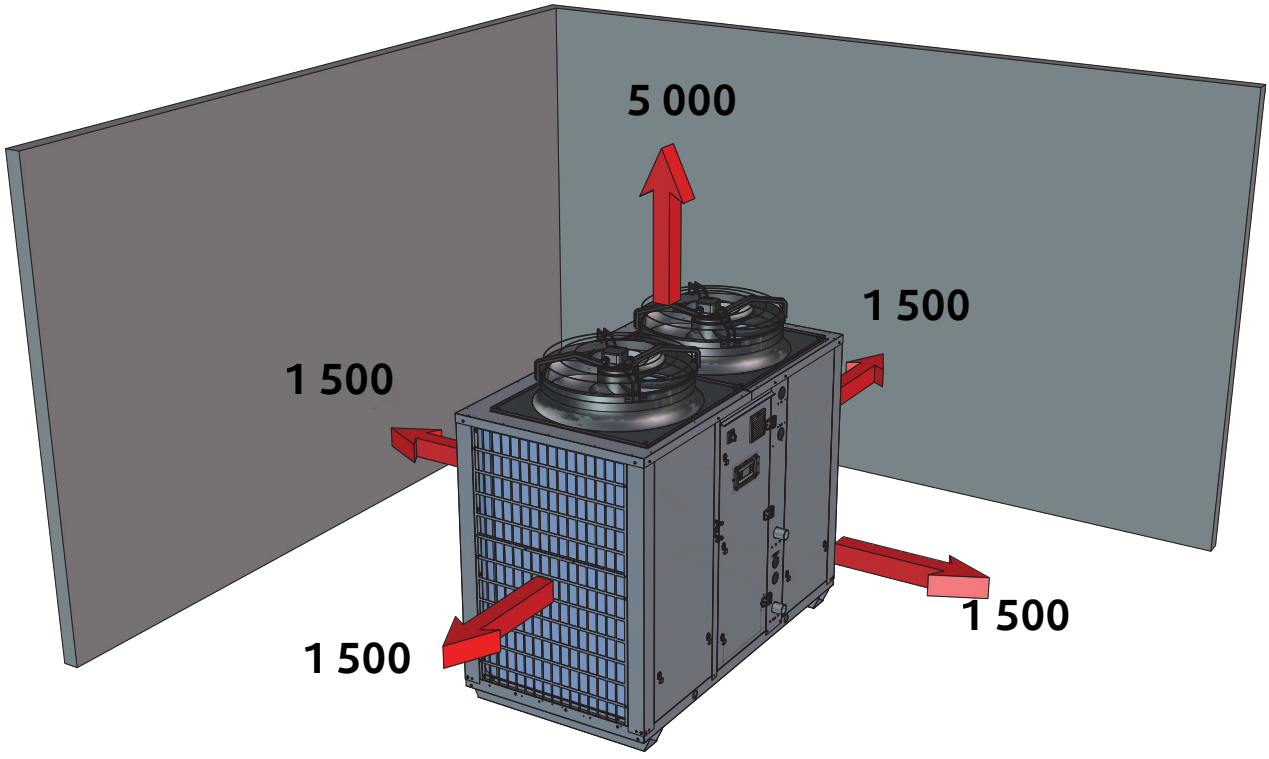
			A	B	C	D	E	F	G	ØH	I	W1	W2
STD version AC fans	without buffer tank	mm	3 789	1 151	2 285	91	1 080	305	426	2"1/2	55		
	with buffer tank	mm	3 789	1 151	2 285	91	1 080	305	426	2"1/2	55		
STD / S / HPF version EC fans	without buffer tank	mm	3 789	1 151	2 333	91	1 080	305	426	2"1/2	55		
	with buffer tank	mm	3 789	1 151	2 333	91	1 080	305	426	2"1/2	55		

Space Requirements (mm)

SYSAQUA R32 50 to 60

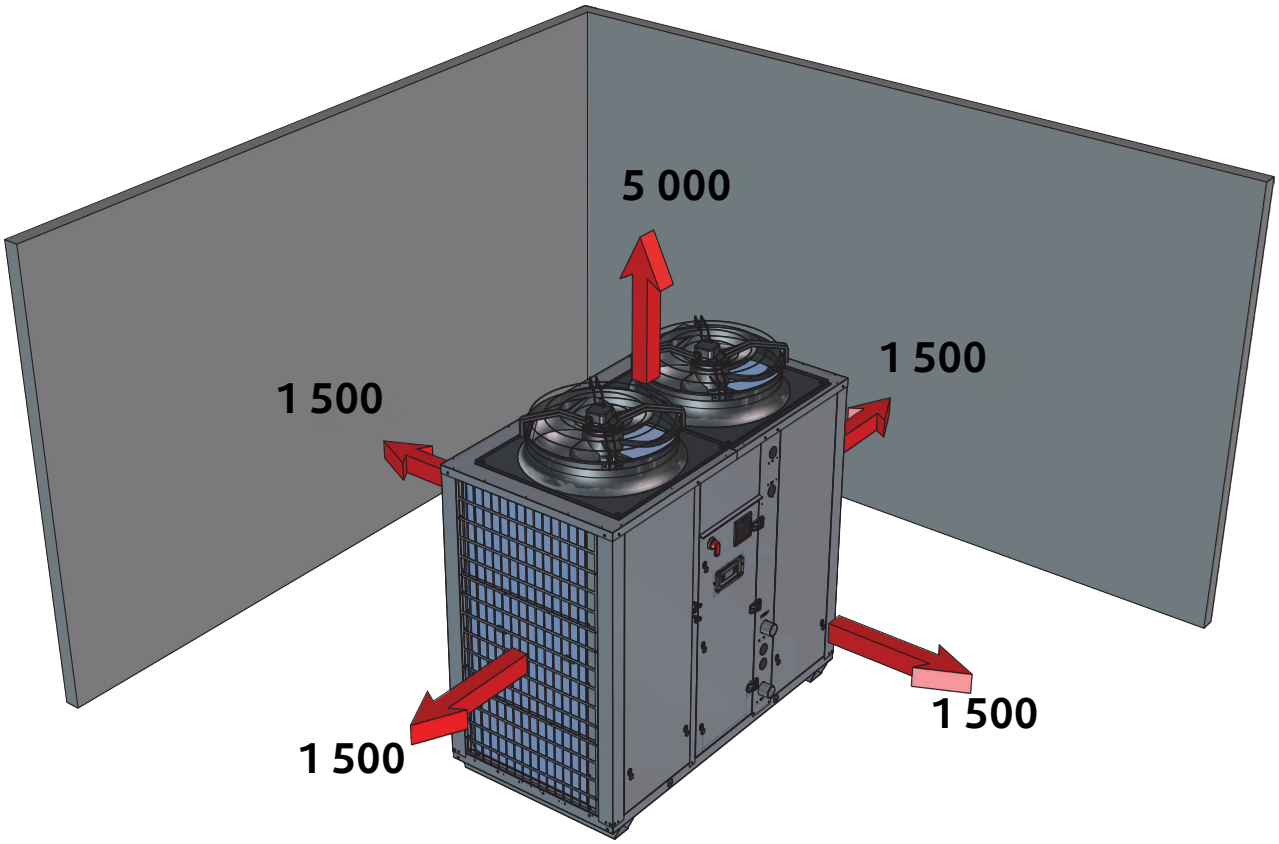


SYSAQUA R32 70 to 75

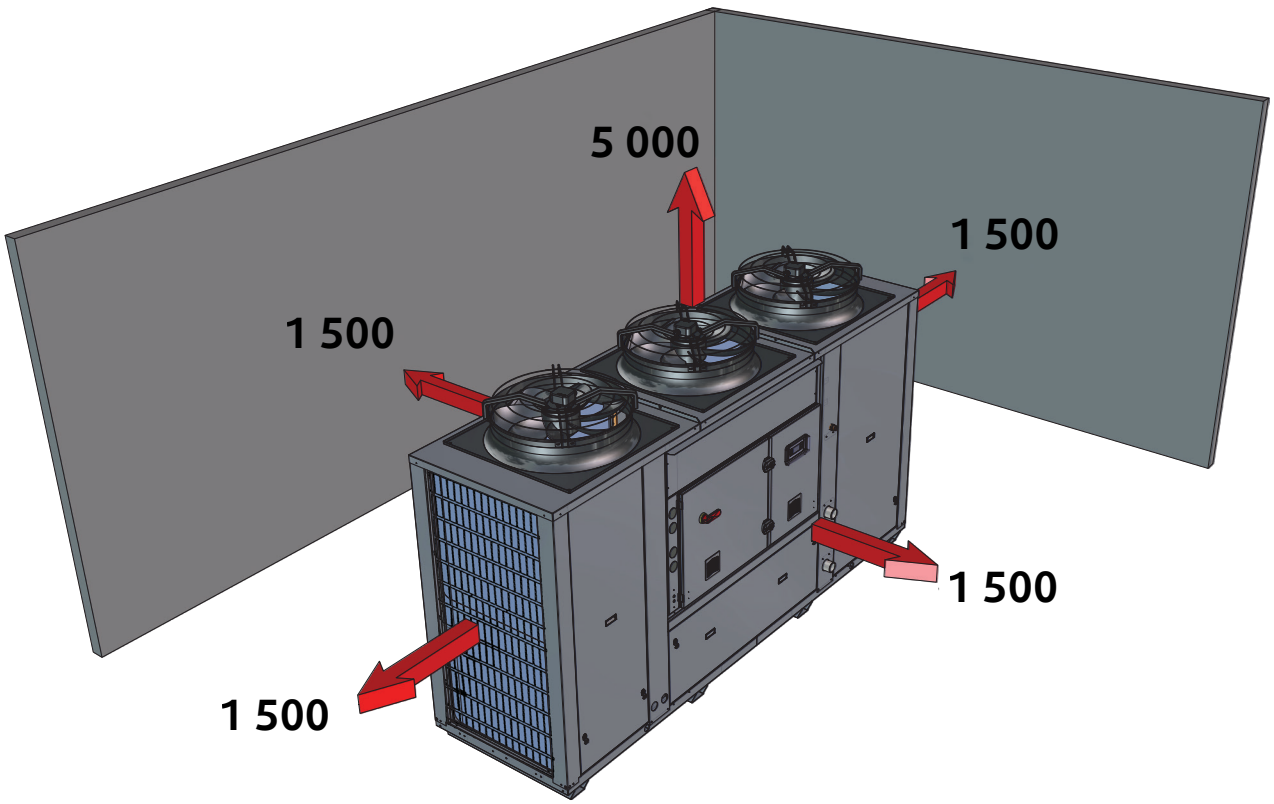


Space Requirements (mm)

SYSAQUA R32 85 to 130



SYSAQUA R32 150 to 170



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March 2022