

# Application guide

## ECOLEAN - EAC/EAR

- Providing indoor climate comfort



Revision 2

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Our company is a member of the Eurovent Certification Programme.  
The EcoLean™ range of Lennox chillers are tested and rated in accordance with the Eurovent certification program.



Our company's products comply with European standards.



The manufacturing of EcoLean™ answers to ISO9001 control quality system.



Lennox have been providing environmental solutions since 1895, our range of EcoLean™ reversible chillers continues to meet the standards that have made LENNOX a household name. Flexible design solutions to meet YOUR needs and uncompromising attention to detail. Engineered to last, simple to maintain and Quality that comes as standard. Information on local contacts at [www.lennox europe.com](http://www.lennox europe.com).

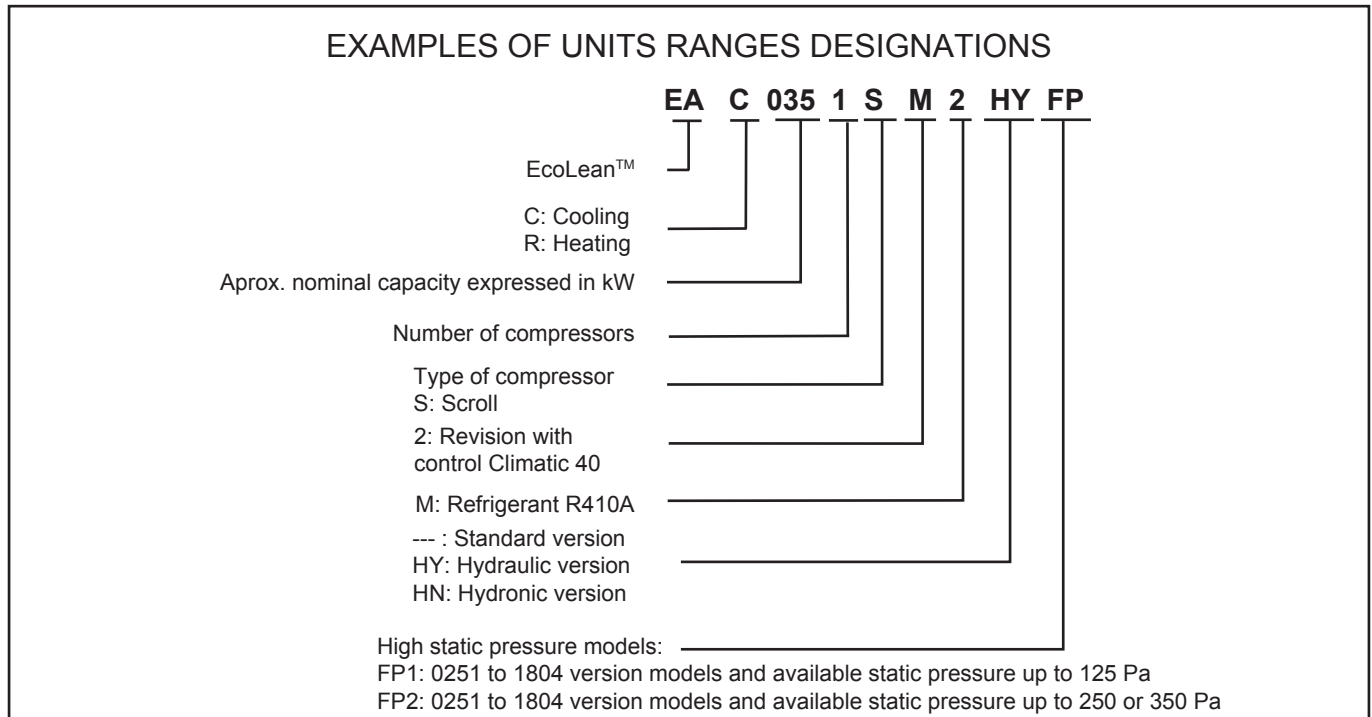
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The specifications and technical characteristics in this booklet are given for information purposes. The manufacturer reserves the right to modify them without prior notice or obligation to modify in a similar manner, the equipments previously supplied.

In order to ensure conformity of finished product with the customers' order and the perfect refrigeration and electrical operation of the unit, the EcoLean™ chillers are systematically tested in the test station before shipping.

With low dimensions and quiet operation, the EcoLean™ chillers make use of the finest in technology to satisfy the strictest reliability and safety requirements.

**EcoLean™ units are equipped with hermetic scroll type compressors.**



## STANDARD ACCESSORIES FITTED SUPPLIED ON THE VARIOUS VERSIONS

### - STANDARD VERSION UNIT

- Piping and inlet/outlet connections.

### - HYDRAULIC VERSION UNIT

- Piping and inlet/outlet connections.
- Water pump.
- Expansion vessel.
- Collapsible water filter.
- Safety valve.
- Manometer.
- Flow switch.

### - HYDRONIC VERSION UNIT

- Piping and inlet/outlet connections.
- Water pump.
- Expansion vessel.
- Collapsible water filter.
- Safety valve.
- Manometer.
- Flow switch.
- Water tank.

## FAN STATIC PRESSURES

### - STANDARD VERSION UNIT (all models)

- Available static pressure up to 50 Pa.

### - FP1 VERSION UNIT (0251 to 1804 models)

- Available static pressure up to 125 Pa.

### - FP2 VERSION UNIT (0251 to 1804 models)

- Available static pressure up to 250 or 350 Pa.

## CHASSIS

- Rigid, hot dipped galvanized chassis.
- Polyester paint - Color RAL 9002.
- Unit lifting and handling via the base frame.

## COMPRESSOR

- Scroll type.
- Suction gas cooled integral motor.
- Crankcase heater.
- Direct on line start.
- Mounted on high efficiency cellular polyurethane vibration absorbers.

## PLATE EXCHANGER

- Stainless steel plate brazed.
- Thermal insulation by top grade 10 mm plastic foam.

## OUTDOOR EXCHANGER

- Expanded copper tubes and high efficiency fins.

## FANS

- Standard version: axial fans 700 or 900 rpm according to models, direct coupling.
- FP1 version: axial fans 1450 rpm, direct coupling 0251 to 0812 models, axial fans 900 rpm ,direct coupling 1003 to 1804 models.
- FP2 version: axial fans "short case" 1450 rpm, direct coupling.

## REFRIGERATION CIRCUITS ACCESSORIES

Welded and hermetically sealed and including the following components:

- Thermostatic expansion valve
- Filter drier
- High-pressure switch with automatic reset
- Low-pressure switch with automatic reset (Heat pump units incorporate two of them, one for cooling cycle and other for heating cycle).
- Four-way valve (heat pump units only).
- Liquid receiver (heat pump units only).
- Pressure transducer (heat pump units only).

## ELECTRICAL PANEL

- Unit wiring in compliance with standard EN 60204-1.
- IP 54 water protection.
- Circuit breaker protection for compressor, fan and water pump.
- Compressor, fan and water pump working contactors
- Crankcase heater.
- Terminal block and wiring for power supply to the unit.

## CONTROL

- Model: Climatic® 200/400.
- Control and check by microprocessor.
- Reading of water and refrigerant temperatures.
- Reading of refrigerant pressure (heat pump units)
- Alarm signaling.
- Diagnostic per circuit.
- Adjustment of temperature set points and parameters adapted for operating conditions
- Hour counter and daily balance of operating time for each compressor by "first in/first out" permutation (units with two compressors).
- Possibility of remote alarm signals.
- Antifreeze protection.
- Fan speed control (0251 to 0812 models only for standard and FP1 version).

DISPLAY (STANDARD)  
(Incorporated in the unit)



## REFRIGERATING OPTIONS

- HP & LP refrigerant gauges.
- Operating with low water temperature (water outlet 0°C / -5°C / -10°C).
- Heating low ambient kit (-15°C) . The reverse unit can operate in heating mode down to an ambient temperature of -15°C (Standard unit just can operate down to -10°C).
- Low ambient kit. The cooling only unit can operate down to an ambient temperature of -15°C (Standard unit just can operate down to 0°C).

## SAFETY OPTIONS

- Chilled water flow switch (standard version unit only).
- Water filter (standard version unit only).
- Evaporator anti freeze heater (necessary for ambient temperatures below +5°C under cooler operation).
- Coil guard.
- Hot gas injection valve (advisable for ambient temperatures below +5 °C under water cooler operation).

## HYDRAULIC OPTIONS

- Water single pump (standard version unit only).
- Isolation valves.
- Twin pumps (models from 0251 to 1804 only).

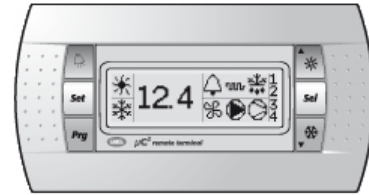
## LOW NOISE OPTION

- Compressor noise insulation by sound-proofing jacket.

## ELECTRICAL OPTIONS

- Door interlocked main switch.
- Three phase protection.
- Remote control panel for microprocessor controller.
- Water tank electrical heater (only for Hydronic version units).
- Soft starter.

## REMOTE CONTROL (OPTION)



## OTHER OPTIONS

- Condenser coil with coated aluminium fins.
- Rubber antivibration mounts, for unit installation.
- Kit air intake plenum, for 0251 to 1403 model units only.
- Kit air discharge plenum, available for high static pressure units only.

	Standard version unit	Hydraulic version unit	Hydronic (1) version unit
<b>COIL TREATMENT</b>			
Epoxy coated al fins coils treated	X	X	X
<b>ELECTRICAL</b>			
Main ON/OFF switch (400V/III)	X	X	X
Soft starter	X	X	X
Three phase protection	X	X	X
Evaporator antifreeze protection	X	X	X
Tank antifreeze heater (400V/III)	Not available	Not available	X
Water tank electrical heater (400V/III) (3)	Not available	Not available	X
<b>REFRIGERANT CIRCUIT</b>			
HP & LP refrigerant gauges	X	X	X
Kit low water temperature	X	X	X
Kit low ambient (-15°C) cooling, models EAC (4)	X	X	X
Kit low ambient (-15°C) heating, models EAR	X	X	X
Thermostatic hot gas injection	X	X	X
<b>HYDRAULIC</b>			
Flow switch	X	Included	Included
Water filter (supplied loose)	X	Included	Included
In/Out isolating valves (supplied loose)	X	X	X
Twin pump (5)	Not available	X	X
<b>CONTROL</b>			
ModBus	X	X	X
Dynamic set point	X	X	X
Remote display (supplied loose)	X	X	X
<b>OTHER OPTIONS</b>			
Coils protection guards	X	X	X
Compressor noise insulation jacket	X	X	X
Anti-vibration (supplied loose)	X	X	X
Inlet-plenum (supplied loose)	X	X	X
Square discharge duct ECOLEAN R410A (2)	X	X	X
Drip tray (6)	X	X	X

X Option element.

(1) Water tank included.

(2) Only versions FP1/FP2.

(3) Only for heat pumps units.

(4) Not available for units EAC 0251 FP2 to 0812 FP2.

(5) For models 0251 to 1804.

With twin pumps, water filter has to be mounted outside the unit. (1003 to 1403 models).  
(6) Only for heat pumps units with FP1/FP2.



NOTE: All the options will be supplied and mounted in the unit, except the water filter, water isolation valves, rubber antivibration mounts, remote controller and air intake plenum supplied to mount in the moment of installation.

### MAIN ON/OFF SWITCH

Located at the electrical box of the unit.

### FLOW SWITCH (included on Hydraulic and Hydronic versions).

The flow switch stops the unit if water flow is lower than the minimum.

### WATER FILTER (included on Hydraulic and Hydronic versions).

The water filter must be fitted in the water inlet of the unit, it protects the unit against particles (greater than 1 mm) getting inside the water circuit, and prevents the water interchanger gets dirty.

NOTE: IT IS NECESSARY TO FIT A WATER FILTER IN THE WATER INLET OF THE UNIT

### EVAPORATOR ANTI FREEZE PROTECTION

The evaporator anti freeze heater prevents the water exchange from low temperatures.

### CONDENSER PROTECTION GUARDS

The condenser coil protection grill prevents light damage to the coil when shipping and when installed. It cannot protect against very heavy impacts.

### THERMOSTATIC HOT GAS INJECTION

Supplies hot gas which is injected into the evaporator gas to increase the suction pressure if the chilled water temperature falls to low. It can be used to allow the unit to operate at reduced capacity, if the water temperature falls below the set point (5°C). It is controlled via the microprocessor controller ON at (5°C) and OFF (6°C) for example. This option is NOT available for units selected with low water temperature option.

### THREE PHASE PROTECTION

Located at electrical box of the unit. It assures that unit will not begin operation on detection of overvoltage, undervoltage, phase reversal fault or phase failure.

### HP AND LP REFRIGERANT GAUGES

Visualize the high and low pressures of the refrigerant circuit.

### EPOXY COATED ALUMINIUM FIN COILS TREATED

Special protection of the aluminium condenser Coil fins, to give improved protection from aggressive external environmental conditions.

### REMOTE DISPLAY

It controls and shows the unit's operating, it may be installed until 100 m from the unit.

### IN/OUT ISOLATING VALVES

To fit at inlet and water outlet of the unit. Isolating the unit from water circuit, so service and maintenance of the unit will be easier.

For units EAC 1003 to 1804 SMHN this option includes another valve in order to isolate the buffer tank.

### ANTI-VIBRATION

To install under the unit, to avoid transmission of vibrations, to the floor where unit is installed, while unit is operating.

Two different type: rubber or prings anti-vibrations (according to models).

### COMPRESSOR NOISE INSULATION JACKET

Each compressor is fitted with a compressor acoustic jacket this provides attenuation of the compressor noise that radiates from the unit when in operation.

### TWIN PUMPS KIT (only available on Hydraulic and Hydronic versions)

It is formed by two-water pump mounted on parallel and with same characteristics as the single one. Only one pump is working the other remains on stand by.

When the water pump, which is operating cuts out, and the pump turns off, automatically starting the water pump on stand by.

It is possible to select which one of the pumps we want to be working through an external switch supplied with the kit.

With the twin pumps, the available static pressure will decrease 5% from the available static pressure with one water pump only.

### SOFT STARTER

It is an electronic element, which reduces the peak compressor starting current up to 40%.

### LOW AMBIENT KIT (-15°C)

(Not available for EAC 0251 FP2 to EAC 0812 FP2)

With this option, the cooling only units (EAC) can operate with ambient temperature below 0°C (standard unit limit) down to (-15°C).

### HEATING LOW AMBIENT KIT (-15°C)

With this option heat pump units (EAR) on heating mode can operate with ambient temperature below (-10°C) (standard unit limit) down to (-15°C).

### MODBUS

It is possible to connect several units with a communication system (MOD BUS Protocol).

### DYNAMIC SET POINT

It changes cooling and heating set point according ambient temperature (an extra sensor must be installed).

### INLET PLENUM (models from 0251 to 1403 only)

It is a accessory for adapting the condenser air intake to accept a duct.

### SQUARE DISCHARGE DUCT

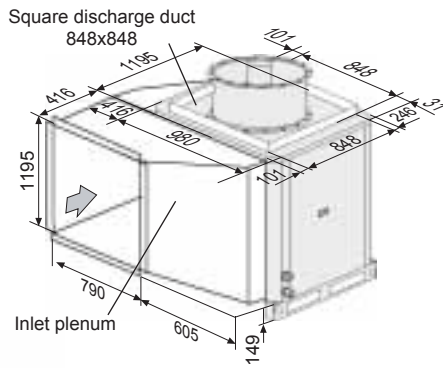
It is formed by 1 or 2 square frames, for adapting discharge air from the unit to a square duct.

# AVAILABLE OPTIONS

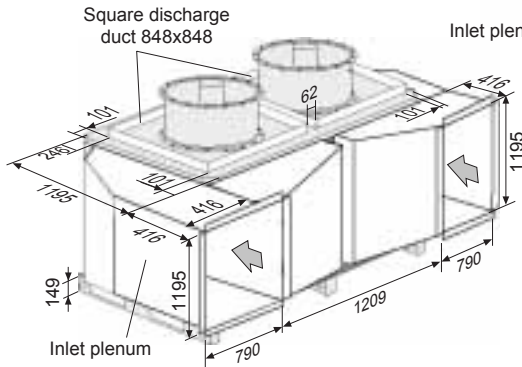


## SQUARE DISCHARGE DUCT AND INLET PLENUM

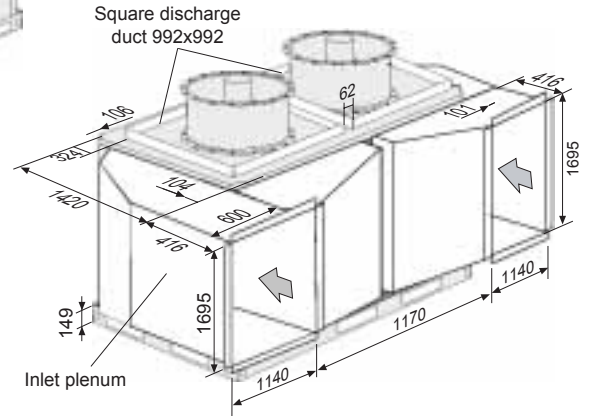
### 0251 to 0431 MODELS



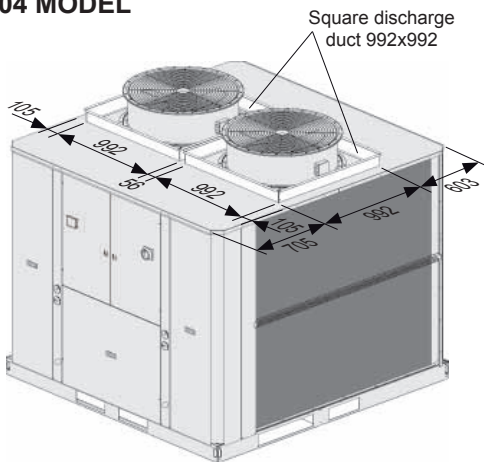
### 0472 to 0812 MODELS



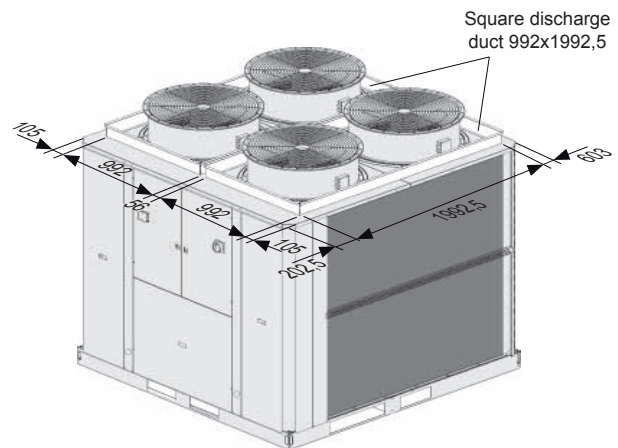
### 1003 to 1403 MODELS



### 1604 MODEL



### 1804 MODEL



## LOW WATER TEMPERATURE

Necessary for water outlet temperatures below +5°C.

There are three different kits, which depend for selecting on the water outlet temperature desired, as the following table shows:

Denomination	Application duty on the water outlet temperature
KIT LOW WATER TEMPERATURE 0°C	For water temperatures below 5°C to 0°C
KIT LOW WATER TEMPERATURE -5°C	For water temperatures below 0°C to -5°C
KIT LOW WATER TEMPERATURE -10°C	For water temperatures below -5°C to -10°C

## TANK ANTI-FREEZE HEATER AND WATER TANK ELECTRICAL HEATER (available only for Hydronic version)

An immersion heater can be supplied complete with safety thermostat and pressure switch fitted in the buffer tank, or an anti-freeze and supplementary heater (heat pump units only).

**Tank Anti-freeze heater:** It starts when water temperature in the buffer tank is lower than + 5°C (Not for units with low water temperature kit).

**Water tank electrical heater:** Heat pump units only. The heater works as anti-freeze heater as explained before and as supplementary heater, when inlet warm water reaches a temperature below a value selected (example: 30 °C) through an independent thermostat included.

## THE POWER INPUT IS:

MODELS	0251SM to 0431SM	0472SM to 0812SM	1003SM to 1403SM	1604SM / 1804SM
Voltage	V	3~400V		
Tank anti-freeze heater	KW	2,25	6,0	9
Water tank electrical heater*	KW	9	12	24,0

(\*) Heat pump units only

ECOLEAN STANDARD VERSION	EAC/EAR	0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM	
<b>Cooling mode</b>										
Cooling capacity (1)	kW	22,1	25,9	32,0	37,6	44,1	50,7	63,4	75,4	
Absorbed power (1)	kW	7,63	9,10	11,20	13,40	15,20	18,15	22,40	26,77	
EER (1)	W/W	2,90	2,85	2,86	2,81	2,90	2,79	2,83	2,82	
<b>Heating mode (only EAR)</b>										
Heating capacity (2)	kW	23,6	27,6	33,6	37,8	47,8	54,7	68,0	75,7	
Absorbed power (2)	kW	7,87	9,20	11,20	13,00	15,93	18,63	22,70	25,97	
COP (2)	W/W	3,00	3,00	3,00	2,91	3,00	2,94	3,00	2,92	
<b>Electrical data</b>										
Power supply		3N ~ 400V 50Hz								
Start-up intensity	A	97,4	103,7	137,7	171,7	121,4	129,1	166,7	206,1	
Maximum current	A	24	25,4	29	34,4	48	50,8	58	68,8	
<b>Refrigeration circuit</b>										
R-410A										
Number of circuits	Nr	1								
Compressor	Type	Scroll								
	Nr	1				2				
Evaporator	Type	AISI 316 stainless steel plate brazed with copper heat exchanger								
Capacity steps	%	0-100				0-55-100				
Refrigerant charge EAC / EAR	kg	5,5/5,8	6,11/6,5	8/8,7	9/10	11/11,4	12,2/12,7	16,1/16,8	18,5/19,3	
Oil charge per compressor	l	3,25	3,25	3,3	3,3	2x3,25	2x3,25	2x3,3	2x3,3	
Crankcase heater per compressor	W	90	90	90	90	90	90	90	90	
<b>Pressure drop</b>										
Nominal water flow	m <sup>3</sup> /h	3,80	4,45	5,50	6,47	7,59	8,72	10,90	12,98	
Pressure drop without water filter	Kpa	51	54	30	34	32	34	40	47	
Pressure drop with water filter (as optional)	Kpa	69	78	60	73	50	57	71	87	
<b>Hydraulic connection</b>										
Type		Threaded-Female								
Diameter	Inches	1 1/2" G				2" G				
<b>Condenser fan (helicoïdal)</b>										
Nr										
Number		1				2				
Nominal air flow	m <sup>3</sup> /h	9750	11500	11300	11000	9750+9750	11500+11500	11300+11300	11000+11000	
Total motor power input	kW	0,69	0,84	0,84	0,84	0,69+0,69	0,84+0,84	0,84+0,84	0,84+0,84	
Fan speed	RPM	900								
<b>Acoustic</b>										
Sound POWER level (3)	dB(A)	75,9	78,9	78,7	78,8	78,9	81,9	81,7	81,8	
Sound POWER level (4)	dB(A)	77,9	81	80,2	80,6	80,9	84	83,2	83,6	
<b>Dimensions</b>										
Width	mm	1195	1195	1195	1195	1960	1960	1960	1960	
Depth	mm	980	980	980	980	1195	1195	1195	1195	
Height	mm	1375	1375	1375	1375	1375	1375	1375	1375	
Operation weight EAC / EAR	kg	238/243	246/251	263/271	292/300	470/480	482/492	518/534	562/578	

(1) All data are at Eurovent condition:

Water : 12°C / 7°C - Air ambient: 35°C

(2) All data are at Eurovent condition:

Water : 40°C / 45°C - Air ambient: 7°C DB / 6°C WB

(3) Sound power level with compressor jacket and low fan speed (Cooling mode conditions air ambient temperature <35°C and Heating mode conditions air ambient temperature >7°C).

(4) Sound power level at Eurovent conditions and without compressor jacket.

FOR HYDRONIC OR HIDRAULIC VERSION SEE PAGE 25.



# INTRODUCTION - PRODUCT RANGE



ECOLEAN STANDARD VERSION	EAC/EAR	1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM	
<b>Cooling mode</b>									
Cooling capacity (1)	kW	88,2	102,4	111,8	125,7	138,8	149,2	174,0	
Absorbed power (1)	kW	31,20	35,30	40,10	43,90	48,30	54,10	60,00	
EER (1)	W/W	2,83	2,90	2,79	2,86	2,87	2,76	2,90	
<b>Heating mode (only EAR)</b>									
Heating capacity (2)	kW	95,0	107,8	118,2	130,4	142,5	158,7	179,6	
Absorbed power (2)	kW	31,18	35,90	39,40	44,60	47,90	52,90	60,80	
COP (2)	W/W	3,05	3,00	3,00	2,92	2,97	3,00	2,95	
<b>Electrical data</b>									
Power supply		3N ~ 400V 50Hz							
Start-up intensity	A	High	217,1	225,9	248,9	290,4	301,2	269,3	302,9
		Low	215,3	223,3	246,3	287	297,8	265,9	299,3
Maximum current	A	High	79,8	88,6	97,6	107,7	118,5	132	151,6
		Low	78	86	95	104,3	115,1	128,6	148
<b>Refrigeration circuit</b>									
Number of circuits	Nr	2							
Compressor	Type	Scroll							
	Nr	3				4			
Evaporator	Type	AISI 316 stainless steel plate brazed with copper heat exchanger							
Capacity steps	%	0-30-75-100				0-30-60-80-100			
Refrigerant charge EAC/EAR	kg	21,8/22,7	25,3/26,3	26,7/27,9	29,7/31	33,7/35,1	36,2/37,7	42,1/43,9	
Oil charge per compressor	l	2x3,25+3,3	3x3,3	2x3,3+4,7	2x3,3+6,8	2x3,3+6,8	4x3,3	2x4,7+2x6,8	
Crankcase heater per compressor	W	3x90	3x90	2x90+120	2x90+120	2x90+150	4x90	2x90+2x120	
<b>Pressure drop</b>									
Nominal water flow	m³/h	15,17	17,61	19,23	21,62	23,87	25,66	29,86	
Pressure drop without water filter	Kpa	32	38	43	48	53	44	52	
Pressure drop with water filter (as optional)	Kpa	41	50	61	70	80	62	76	
<b>Hydraulic connection</b>									
Type		Threaded-Female					Flange		
Diameter	Inches	2 1/2" G					DN80		
<b>Condenser fan (helicoïdal)</b>									
Number	Nr	2						4	
Nominal air flow	m³/h	High	18100+18100	22700+18100	22700+18100	22700+22700	22500+27500	23500+23500	28600+28600
	m³/h	Low	15000+15000	18000+15000	18000+15000	18000+18000	17500+18000	18500+18500	22600+22600
Total motor power input	kW	High	1,05+1,05	2+1,05	2+1,05	2+2	2+2	2+2	2,1+2,1
	kW	Low	0,77+0,77	1,25+0,77	1,25+0,77	1,25+1,25	1,25+1,25	1,25+1,25	1,54+1,54
Fan speed	RPM	High	700+700	900+700	900+700	900+900	900+900	900+900	700+700+700+700
	RPM	Low	550+550	700+550	700+550	700+700	700+700	700+700	550+550+550+550
<b>Acoustic</b>									
Sound POWER level (3)	dB(A)	76,9	78,3	79,3	81,1	81,2	80	80,5	
Sound POWER level (4)	dB(A)	84,7	87	88	90,3	90,4	89	88,7	
<b>Dimensions</b>									
Width	mm	2250	2250	2250	2250	2250	2250	2250	
Depth	mm	1420	1420	1420	1420	1420	2300	2300	
Height	mm	1875	1875	1875	1875	1875	1975	1975	
Operation weight EAC / EAR	kg	640/663	809/831	938/964	990/1016	1019/1045	1328/1347	1683/1703	

(1) All data are at Eurovent condition:  
Water : 12°C / 7°C - Air ambient: 35°C

(2) All data are at Eurovent condition:  
Water : 40°C / 45°C - Air ambient: 7°C DB / 6°C WB

(3) Sound power level with compressor jacket and low fan speed (Cooling mode conditions air ambient temperature <35°C and Heating mode conditions air ambient temperature >7°C).

(4) Sound power level at Eurovent conditions and without compressor jacket.

FOR HYDRONIC OR HIDRAULIC VERSION SEE PAGE 25.

# PERFORMANCE TABLES - UNITS WITHOUT AIR DUCT



## EAC/EAR - STANDARD UNITS

COOLING MODE



Air inlet	Water outlet	28				30				32				35				40				45				48			
		MODELS	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h
6	0251 SM	23,0	6,7	4,0	52	22,6	6,9	3,9	50	22,2	7,2	3,8	48	21,4	7,6	3,7	46	20,1	8,3	3,5	41	18,6	9,2	3,2	36	17,6	9,7	3,0	33
	0291 SM	27,2	8,0	4,7	75	26,7	8,3	4,6	73	26,1	8,6	4,5	70	25,1	9,0	4,3	65	23,4	10,0	4,0	57	21,4	11,0	3,7	48	20,2	11,7	3,5	43
	0351 SM	33,3	9,9	5,7	33	32,7	10,2	5,6	32	32,1	10,6	5,5	30	31,1	11,1	5,3	28	29,2	12,2	5,0	24	27,0	13,4	4,7	20	25,6	14,2	4,4	17
	0431 SM	39,2	11,8	6,8	36	38,5	12,2	6,6	34	37,8	12,6	6,5	33	36,5	13,3	6,3	31	34,2	14,6	5,9	26	31,6	16,0	5,4	22	29,9	17,0	5,1	20
	0472 SM	45,9	13,4	7,9	34	45,1	13,8	7,8	33	44,2	14,3	7,6	32	42,8	15,1	7,4	31	40,2	16,6	6,9	29	37,2	18,3	6,4	26	35,3	19,4	6,1	24
	0552 SM	53,1	15,9	9,1	35	52,1	16,5	9,0	35	51,0	17,1	8,8	34	49,2	18,0	8,5	32	45,8	19,9	7,9	29	42,0	21,9	7,2	26	39,5	23,3	6,8	24
	0672 SM	65,9	19,8	11,3	43	64,8	20,5	11,1	42	63,6	21,1	10,9	41	61,6	22,2	10,6	39	57,8	24,3	9,9	37	53,5	26,7	9,2	34	50,7	28,3	8,7	32
	0812 SM	78,8	23,6	13,6	50	77,3	24,4	13,3	49	75,8	25,2	13,0	48	73,3	26,6	12,6	46	68,7	29,1	11,8	42	63,4	32,0	10,9	38	59,9	33,9	10,3	35
	1003 SM	92,4	27,3	15,9	34	90,6	28,3	15,6	33	88,7	29,3	15,3	32	85,7	31,0	14,7	30	80,0	34,1	13,8	27	73,5	37,7	12,6	23	69,3	40,0	11,9	21
	1103 SM	106,4	31,3	18,3	40	104,6	32,3	18,0	39	102,6	33,3	17,7	38	99,4	35,1	17,1	37	93,4	38,3	16,1	35	86,7	42,0	14,9	32	82,2	44,4	14,1	30
	1203 SM	116,6	35,4	20,1	44	114,5	36,5	19,7	44	112,2	37,8	19,3	43	108,6	39,8	18,7	41	101,8	43,6	17,5	38	94,2	47,9	16,2	35	89,2	50,7	15,3	33
	1303 SM	130,8	39,0	22,5	50	128,5	40,2	22,1	49	126,1	41,5	21,7	48	122,1	43,6	21,0	47	114,6	47,5	19,7	43	106,2	52,0	18,3	40	100,6	55,0	17,3	38
1403 SM	144,7	42,9	24,9	58	142,1	44,2	24,5	56	139,3	45,7	24,0	55	134,8	47,9	23,2	52	126,4	52,2	21,7	47	116,8	57,2	20,1	41	110,8	60,3	19,1	38	
1604 SM	155,9	47,7	26,8	46	153,1	49,2	26,3	44	150,0	50,9	25,8	43	145,1	53,6	25,0	40	135,8	58,8	23,4	35	125,3	64,7	21,5	30	118,3	68,5	20,4	27	
1804 SM	180,8	53,1	31,1	54	177,7	54,8	30,6	52	174,3	56,6	30,0	50	168,9	59,6	29,1	47	158,7	65,2	27,3	42	147,2	71,6	25,3	36	139,7	75,8	24,0	33	
7	0251 SM	23,7	6,8	4,1	54	23,3	7,0	4,0	53	22,8	7,2	3,9	51	22,1	7,6	3,8	51	20,7	8,4	3,6	43	19,2	9,2	3,3	38	18,2	9,8	3,1	34
	0291 SM	28,0	8,0	4,8	80	27,4	8,3	4,7	77	26,9	8,6	4,6	74	25,9	9,1	4,5	54	24,1	10,0	4,2	60	22,1	11,1	3,8	51	20,8	11,7	3,6	46
	0351 SM	34,3	10,0	5,9	35	33,7	10,3	5,8	34	33,0	10,6	5,7	32	32,0	11,2	5,5	30	30,1	12,3	5,2	26	27,9	13,5	4,8	21	26,4	14,2	4,5	19
	0431 SM	40,4	11,9	6,9	38	39,6	12,3	6,8	37	38,9	12,7	6,7	35	37,6	13,4	6,5	34	35,2	14,7	6,1	28	32,5	16,1	5,6	24	30,8	17,1	5,3	21
	0472 SM	47,3	13,5	8,1	35	46,5	13,9	8,0	34	45,6	14,4	7,8	33	44,1	15,2	7,6	32	41,4	16,7	7,1	30	38,4	18,4	6,6	27	36,4	19,5	6,3	25
	0552 SM	54,7	16,0	9,4	37	53,6	16,6	9,2	36	52,5	17,2	9,0	35	50,7	18,1	8,7	34	47,3	20,0	8,1	31	43,4	22,0	7,5	27	40,9	23,4	7,0	25
	0672 SM	67,9	20,0	11,7	44	66,7	20,6	11,5	43	65,5	21,3	11,3	42	63,4	22,4	10,9	40	59,6	24,5	10,2	38	55,2	26,9	9,5	35	52,4	28,5	9,0	33
	0812 SM	81,0	23,8	13,9	52	79,5	24,6	13,7	51	78,0	25,4	13,4	49	75,4	26,8	13,0	47	70,7	29,3	12,2	44	65,3	32,2	11,2	39	61,7	34,2	10,6	37
	1003 SM	95,1	27,5	16,4	35	93,3	28,5	16,0	34	91,3	29,5	15,7	33	88,2	31,2	15,2	32	82,4	34,3	14,2	28	75,8	37,9	13,0	25	71,5	40,3	12,3	22
	1103 SM	109,6	31,5	18,9	41	107,7	32,5	18,5	40	105,7	33,6	18,2	40	102,4	35,3	17,6	38	96,3	38,5	16,6	36	89,4	42,2	15,4	33	84,9	44,7	14,6	31
	1203 SM	120,0	35,7	20,7	46	117,9	36,8	20,3	45	115,5	38,1	19,9	44	111,8	40,1	19,2	43	104,9	43,9	18,0	40	97,1	48,2	16,7	36	92,0	51,1	15,8	34
	1303 SM	134,7	39,3	23,2	52	132,3	40,5	22,8	51	129,8	41,8	22,3	50	125,7	43,9	21,6	48	118,1	47,8	20,3	45	109,4	52,3	18,8	41	103,8	55,3	17,9	39
1403 SM	149,0	43,3	25,6	61	146,3	44,6	25,2	59	143,4	46,0	24,7	57	138,8	48,3	23,9	53	130,2	52,6	22,4	49	120,4	57,6	20,7	43	114,3	60,7	19,7	40	
1604 SM	160,3	48,1	27,6	48	157,4	49,7	27,1	47	154,3	51,3	26,5	45	149,2	54,1	25,7	44	139,7	59,3	24,0	37	129,0	65,2	22,2	32	121,9	69,0	21,0	29	
1804 SM	186,3	53,5	32,1	57	183,1	55,2	31,5	55	179,6	57,0	30,9	53	174,0	60,0	29,9	52	163,6	65,6	28,1	44	151,9	72,1	26,1	38	144,2	76,4	24,8	35	
9	0251 SM	25,2	6,9	4,3	60	24,7	7,1	4,2	58	24,2	7,3	4,2	56	23,4	7,7	4,0	53	22,0	8,5	3,8	48	20,4	9,3	3,5	42	19,4	9,9	3,3	38
	0291 SM	29,6	8,1	5,1	88	29,0	8,4	5,0	85	28,4	8,7	4,9	82	27,4	9,2	4,7	77	25,6	10,1	4,4	67	23,5	11,2	4,1	58	22,2	11,9	3,8	52
	0351 SM	36,3	10,1	6,2	41	35,6	10,5	6,1	39	35,0	10,8	6,0	37	33,9	11,4	5,8	34	31,8	12,4	5,5	30	29,6	13,6	5,1	25	28,1	14,4	4,8	22
	0431 SM	42,7	12,1	7,3	43	41,9	12,5	7,2	41	41,1	12,9	7,1	40	39,7	13,6	6,8	37	37,3	14,9	6,4	32	34,5	16,4	5,9	27	32,6	17,4	5,6	24
	0472 SM	50,1	13,6	8,6	37	49,2	14,1	8,5	37	48,3	14,6	8,3	36	46,8	15,4	8,0	34	44,0	16,9	7,6	32	40,8	18,6	7,0	29	38,8	19,7	6,7	27
	0552 SM	57,9	16,2	10,0	39	56,8	16,8	9,8	39	55,6	17,4	9,6	38	53,7	18,4	9,2	36	50,2	20,2	8,6	33	46,2	22,3	7,9	30	43,6	23,7	7,5	28
	0672 SM	71,9	20,3	12,4	47	70,6	20,9	12,1	46	69,3	21,6	11,9	45	67,1	22,7	11,5	44	63,1	24,9	10,9	41	58,6	27,3	10,1	37	55,6	28,9	9,6	35
	0812 SM	85,6	24,2	14,7	56	84,0	25,0	14,5	54	82,4	25,8	14,2	53	79,7	27,2	13,7	51	74,8	29,8	12,9	47	69,2	32,8	11,9	42	65,5	34,7	11,3	39
	1003 SM	100,6	28,0	17,3	39	98,7	28,9	17,0	38	96,6	30,0	16,6	36	93,4	31,7	16,1	34	87,3	34,8	15,0	31	80,5	38,4	13,9	27	N/A	N/A	N/A	N/A
	1103 SM	116,1	32,0	20,0	44	114,1	33,0	19,6	43	111,9	34,1	19,3	42	108,5	35,8	18,7	41	102,1	39,1	17,6	38	95,0	42,8	16,3	35	90,3	45,3	15,5	33
	1203 SM	127,1	36,3	21,9	49	124,8	37,5	21,5	48	122,3	38,7	21,0	47	118,4	40,8	20,4	45	111,2	44,6	19,1	42	103,1	49,0	17,7	39	N/A	N/A	N/A	N/A
	1303 SM	142,6	39,9	24,5	55	140,0	41,1	24,1	54	137,4	42,4	23,6	53	133,1	44,5	22,9													

# PERFORMANCE TABLES - UNITS WITHOUT AIR DUCT



## EAR - STANDARD UNITS

### HEATING MODE



Air inlet		-10				-5				0				5				7				11			
Water outlet	MODELS	Ph kW	Pe(h) kW	Wf m³/h	Dp kPa	Ph kW	Pe(h) kW	Wf m³/h	Dp kPa	Ph kW	Pe(h) kW	Wf m³/h	Dp kPa	Ph kW	Pe(h) kW	Wf m³/h	Dp kPa	Ph kW	Pe(h) kW	Wf m³/h	Dp kPa	Ph kW	Pe(h) kW	Wf m³/h	Dp kPa
30	0251 SM	15,7	5,6	2,7	27	18,4	5,6	3,2	35	21,2	5,6	3,6	45	23,9	5,7	4,1	55	25,0	5,7	4,3	59	27,1	5,7	4,7	68
	0291 SM	18,5	6,5	3,2	37	21,7	6,5	3,7	49	24,8	6,5	4,3	64	27,9	6,5	4,8	79	29,2	6,6	5,0	86	31,6	6,6	5,4	100
	0351 SM	22,5	7,9	3,9	13	26,3	8,0	4,5	18	30,1	8,2	5,2	26	33,9	8,3	5,8	34	35,3	8,3	6,1	38	38,2	8,4	6,6	46
	0431 SM	25,1	9,1	4,3	13	29,4	9,3	5,1	19	33,6	9,4	5,8	25	37,8	9,6	6,5	33	39,4	9,6	6,8	36	42,6	9,7	7,3	43
	0472 SM	31,9	11,3	5,5	22	37,4	11,3	6,4	26	43,0	11,4	7,4	31	48,4	11,4	8,3	36	50,6	11,5	8,7	38	54,9	11,6	9,4	42
	0552 SM	36,6	13,0	6,3	22	42,9	13,1	7,4	27	49,2	13,1	8,5	32	55,4	13,2	9,5	37	57,8	13,3	9,9	39	62,7	13,4	10,8	44
	0672 SM	45,5	15,9	7,8	28	53,3	16,2	9,2	33	61,0	16,5	10,5	39	68,5	16,8	11,8	45	71,5	16,9	12,3	47	77,5	17,0	13,3	51
	0812 SM	50,3	18,1	8,7	28	58,9	18,5	10,1	35	67,4	18,8	11,6	41	75,7	19,1	13,0	48	79,0	19,2	13,6	50	85,5	19,4	14,7	56
	1003 SM	63,6	21,7	10,9	18	74,6	21,9	12,8	24	85,4	22,2	14,7	30	96,1	22,4	16,5	36	100,3	22,5	17,3	39	108,8	22,7	18,7	44
	1103 SM	72,2	25,3	12,4	26	84,6	25,8	14,5	31	96,8	26,2	16,6	36	108,8	26,6	18,7	41	113,6	26,8	19,5	43	123,1	27,0	21,2	47
	1203 SM	78,6	27,8	13,5	29	92,4	28,3	15,9	35	106,0	28,8	18,2	40	119,4	29,4	20,5	46	124,7	29,4	21,5	48	135,3	29,7	23,3	52
	1303 SM	87,2	31,6	15,0	32	102,2	32,2	17,6	38	117,0	32,7	20,1	44	131,7	33,2	22,7	51	137,5	33,4	23,6	53	149,0	33,7	25,6	58
	1403 SM	95,3	34,0	16,4	30	111,6	34,6	19,2	38	127,7	35,2	22,0	48	143,6	35,8	24,7	57	149,9	36,0	25,8	61	162,4	36,3	27,9	69
	1604 SM	106,1	37,1	18,3	22	124,3	37,8	21,4	30	142,1	38,4	24,4	38	159,6	39,0	27,5	48	166,5	39,2	28,7	52	180,2	39,6	31,0	60
1804 SM	120,3	43,3	20,7	25	141,4	44,0	24,3	33	162,1	44,7	27,9	44	182,6	45,4	31,4	55	190,6	45,7	32,8	59	206,7	46,2	35,6	69	
35	0251 SM	15,6	6,3	2,7	26	18,2	6,3	3,1	35	20,9	6,3	3,6	44	23,5	6,3	4,0	53	24,5	6,3	4,2	58	26,6	6,3	4,6	66
	0291 SM	18,3	7,3	3,1	36	21,4	7,3	3,7	48	24,4	7,3	4,2	62	27,4	7,3	4,7	77	28,6	7,3	4,9	83	31,0	7,3	5,3	96
	0351 SM	22,3	8,7	3,8	12	26,1	8,9	4,5	18	29,7	9,0	5,1	25	33,3	9,1	5,7	33	34,8	9,2	6,0	37	37,6	9,3	6,5	45
	0431 SM	25,0	10,0	4,3	13	29,2	10,2	5,0	19	33,2	10,4	5,7	25	37,3	10,5	6,4	32	38,9	10,6	6,7	35	42,0	10,7	7,2	42
	0472 SM	31,6	12,7	5,4	21	36,9	12,6	6,4	26	42,3	12,6	7,3	30	47,6	12,7	8,2	35	49,7	12,7	8,5	37	53,8	12,8	9,3	41
	0552 SM	36,2	14,6	6,2	22	42,4	14,7	7,3	27	48,4	14,7	8,3	32	54,4	14,7	9,4	37	56,8	14,8	9,8	39	61,5	14,8	10,6	43
	0672 SM	45,2	17,5	7,8	28	52,8	17,9	9,1	33	60,2	18,2	10,4	38	67,5	18,5	11,6	44	70,4	18,6	12,1	46	76,1	18,8	13,1	50
	0812 SM	50,1	20,0	8,6	28	58,5	20,4	10,1	34	66,7	20,7	11,5	40	74,7	21,0	12,9	47	77,9	21,2	13,4	49	84,2	21,4	14,5	54
	1003 SM	63,1	24,3	10,9	18	73,7	24,5	12,7	23	84,1	24,7	14,5	29	94,5	24,9	16,3	35	98,6	25,0	17,0	38	106,7	25,1	18,4	43
	1103 SM	71,6	27,9	12,3	26	83,6	28,4	14,4	31	95,4	28,8	16,4	35	107,1	29,2	18,4	40	111,7	29,4	19,2	42	120,9	29,7	20,8	46
	1203 SM	78,1	30,6	13,4	29	91,4	31,1	15,7	34	104,5	31,6	18,0	39	117,4	32,0	20,2	45	122,5	32,2	21,1	47	132,7	32,5	22,8	51
	1303 SM	86,8	34,8	14,9	32	101,3	35,4	17,4	38	115,5	35,9	19,9	44	129,6	36,4	22,3	50	135,2	36,6	23,3	52	146,2	37,0	25,2	57
	1403 SM	94,9	37,4	16,3	30	110,6	38,1	19,0	38	126,1	38,7	21,7	47	141,4	39,2	24,3	56	147,5	39,4	25,4	60	159,6	39,8	27,5	67
	1604 SM	105,5	40,9	18,1	22	123,1	41,7	21,2	29	140,4	42,3	24,2	37	157,4	42,9	27,1	47	164,1	43,1	28,2	50	177,3	43,5	30,5	59
1804 SM	120,3	47,9	20,7	25	140,4	48,6	24,2	33	160,2	49,2	27,6	43	179,7	49,9	30,9	53	187,5	50,1	32,3	58	202,8	50,6	34,9	67	
40	0251 SM	15,4	7,1	2,7	26	18,0	7,1	3,1	34	20,5	7,0	3,5	42	23,1	7,0	4,0	52	24,1	7,0	4,1	56	26,0	7,0	4,5	64
	0291 SM	18,1	8,2	3,1	35	21,1	8,2	3,6	47	24,0	8,2	4,1	60	27,0	8,2	4,6	74	28,1	8,2	4,8	80	30,4	8,2	5,2	93
	0351 SM	22,2	9,6	3,8	12	25,8	9,8	4,4	18	29,3	9,9	5,0	24	32,8	10,1	5,6	32	34,2	10,1	5,9	35	36,9	10,2	6,3	43
	0431 SM	24,9	11,1	4,3	13	28,9	11,3	5,0	18	32,9	11,5	5,7	24	36,8	11,7	6,3	31	38,3	11,7	6,6	34	41,4	11,8	7,1	40
	0472 SM	31,2	14,3	5,4	21	36,5	14,2	6,3	25	41,6	14,2	7,2	30	46,7	14,2	8,0	34	48,7	14,2	8,4	36	52,7	14,2	9,1	40
	0552 SM	35,9	16,6	6,2	22	41,8	16,5	7,2	26	47,7	16,5	8,2	31	53,5	16,5	9,2	36	55,8	16,6	9,6	38	60,3	16,6	10,4	42
	0672 SM	44,8	19,4	7,7	27	52,2	19,8	9,0	33	59,4	20,1	10,2	38	66,4	20,4	11,4	43	69,2	20,5	11,9	45	74,7	20,7	12,9	49
	0812 SM	49,9	22,1	8,6	28	58,0	22,6	10,0	34	66,0	23,0	11,3	40	73,8	23,3	12,7	46	76,8	23,4	13,2	48	82,9	23,6	14,3	53
	1003 SM	62,5	27,3	10,7	18	72,7	27,4	12,5	23	82,8	27,6	14,3	28	92,8	27,8	16,0	34	96,8	27,9	16,7	36	104,7	28,0	18,0	41
	1103 SM	71,0	30,9	12,2	26	82,6	31,4	14,2	30	94,0	31,9	16,2	35	105,3	32,3	18,1	39	109,8	32,4	18,9	41	118,7	32,7	20,4	45
	1203 SM	77,6	33,9	13,3	29	90,4	34,4	15,6	34	103,0	34,9	17,7	39	115,4	35,6	19,9	44	120,3	35,6	20,7	46	130,1	35,9	22,4	50
	1303 SM	86,3	38,6	14,9	32	100,2	39,1	17,2	38	114,0	39,7	19,6	43	127,5	40,1	21,9	49	132,8	40,3	22,9	51	143,4	40,7	24,7	56
	1403 SM	94,5	41,4	16,2	30	109,5	42,0	18,8	37	124,4	42,6	21,4	46	139,2	43,2	23,9	54	145,0	43,4	24,9	58	156,6	43,8	26,9	65
	1604 SM	104,7	45,4	18,0	21	121,8	46,2	21,0	29	138,5	46,9	23,8	37	155,0	47,5	26,7	45	161,4	47,7	27,8	49	174,2	48,1	30,0	57
1804 SM	119,7	53,1	20,6	24	138,9	53,7	23,9	32	157,8	54,3	27,2	41	176,4	54,9	30,4	51	183,8	55,1	31,6	55	198,4	55,6	34,1	64	
45	0251 SM	15,3	8,0	2,6	26	17,7	7,9	3,1	33	20,2	7,9	3,5	41	22,6	7,9	3,9	50	23,6	7,9	4,1	54	25,5	7,9	4,4	62
	0291 SM	18,0	9,3	3,1	35	20,8	9,3	3,6	46	23,7	9,2	4,1	58	26,5	9,2	4,6	72	27,6	9,2	4,7	78	29,8	9,2	5,1	89
	0351 SM	21,9	10,7	3,8	12	25,4	10,9	4,4	17	28,9	11,0	5,0	23	32,2	11,1	5,5	30	33,6	11,2	5,8	34	36,2	11,3	6,2	41
	0431 SM	24,8	12,3	4,3	13	28,7	12,5	4,9	18	32,5	12,8	5,6	24	36,3	12,9	6,2	30	37,8	13,0	6,5	33	40,7	13,1	7,0	39
	0472 SM	30,9	16,2	5,3	21	35,9	16,1	6,2	25	40,9	16,0	7,0	29	45,8	15,9	7,9	34	47,8	15,9	8,2	35	51,7	15,9	8,9	39
	0552 SM	35,5	18,8	6,1	21	41,2	18,7	7,1	26	46,9	18,7	8,1	30	52,5	18,6	9,0	35	54,7	18,6	9,4	37	59,1	18,6	10,2	41
	0672 SM	44,4	21,5	7,6	27	51,5	21,9	8,9	32	58,5	22,3	10,1	37	65,3	22,6	11,2	42	68,0	22,7	11,7	44	73,3	22,9	12,6	48
	0812 SM	49,7	24,6	8,6	28	57,5	25,1	9,9	34	65,2	25,5	11,2	39	72,8	25,8	12,5	45	75,7	26,0	13,0	48	81,6	26,2	14,0	52
	1003 SM	61,8	30,7	10,6	18	71,7	30,8	12,3	22	81,5	31,0	14,0	28	91,1	31,1	15,7	33	94,9	31,2	16,3	35	102,5	31,3	17,6	40
	1103 SM	70,3	34,2	12,1	26																				

# PERFORMANCE TABLES - UNITS WITH AIR DUCTS



To find out the performances for units installed with air ducts, apply the following coefficients for capacity and consumption, over the performance tables of standard fan units without ducts (see pages 9-10):

## COOLING MODE

AIR AVAILABLE STATIC PRESSURE UP TO	VERSION	MODELS	Available static pressure Pa	Maximum ambient temperature °C	Minimum ambient temperature °C	Correction coefficient cooling capacity	Correction coefficient consumption ((3) only FP1/FP2)		
	50Pa	STANDARD	0251SM to 1804SM	30	44	---	0,95	1,06	
			50	40	---	0,89	1,16		
125Pa		FP1	0251SM to 1003SM	50	48	0°C (1)	1	1	
				75	45		0,947	1,078	
				100	41		0,923	1,122	
				125	37		0,878	1,22	
			1103SM to 1804SM	50	46	0°C (1)	0,964	1,072	
				75	43		0,935	1,094	
			100	39	0,9	1,171			
			125	37	0,856	1,269			
		250 or 350Pa	FP2	0251SM to 0812SM	150	49	0°C	1,01	0,98
					200	46		0,97	1,037
					250	43		0,94	1,099
					300	40		0,90	1,17
1003SM to 1804SM	350			37	0°C (1)	0,87	1,22		
	150			49		1,01	0,98		
	200		46	0,97	1,037				
	250		43	0,94	1,099				
	300		N/A	N/A	N/A				
	350		N/A	N/A	N/A				

(1) With the option cooling low ambient kit (-15°C), it is possible the unit operation down to -15°C.

## HEATING MODE

AIR AVAILABLE STATIC PRESSURE UP TO	VERSION	MODELS	Available static pressure Pa	Minimum ambient temperature °C (2)	Correction coefficient heating capacity	Correction coefficient consumption ((3) only FP1/FP2)		
	50Pa	STANDARD	0251SM to 1804SM	30	-8	0,94	1,02	
			50	-6	0,89	1,03		
125Pa		FP1	0251SM to 1003SM	50	-10	1	1	
				75	-8	0,94	1,02	
				100	-6	0,89	1,03	
				125	-5	0,87	1,04	
		250 or 350Pa	FP2	0251SM to 0812SM	150	-10	1,01	0,99
					200	-10	1	1
250		-8			0,94	1,02		
300		-6			0,89	1,03		
1003SM to 1804SM		350		-5	0,87	1,04		
		150		-10	1,01	0,99		
		200		-10	1	1		
		250		-8	0,94	1,02		
	300	N/A	N/A	N/A				
	350	N/A	N/A	N/A				

N/A: Not available

(2) With the option heating low ambient kit (-15°C), it is possible the unit operation down to -15°C.

(3) After applying correction coefficient consumption is needed to add the following power input to get total power consumption:

EXTRA POWER CONSUMPTION												
MODELS	0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM	1003SM	1103SM 1203SM	1303SM to 1604SM	1804SM
FP1	1,01	0,86	0,81	0,81	2,02	1,72	1,62	1,62	2,9	1,95	1	5,8
FP2	1,61	1,46	1,46	1,41	3,22	2,92	2,92	2,82	7,2	6,25	5,3	14,4

Units are tested and rated in accordance with Eurovent standards

# PERFORMANCES FOR UNITS WITH LOW WATER TEMPERATURE KIT (OPTION)



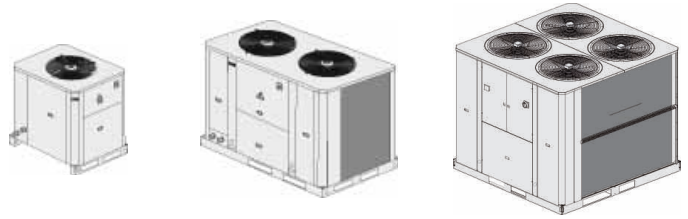
If the water outlet temperature is likely to drop below 5°C, it is very important to use glycol anti-freeze

## CAPACITY TABLES WITH 30% ETHYLENEGLYCOL

The amount of anti-freeze required will vary depending on the water outlet temperature see page 27 for % ethylene based on minimum ambient temperature or water outlet temperature.

Water outlet	Air inlet MODELS	28				30				32				35				40				45				48						
		Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa	Pc kW	Pe(c) kW	Wf m³/h	Dp kPa			
-10	0251 SM	12,4	6,3	2,3	21	12,1	6,5	2,3	20	11,8	6,8	2,2	19	11,3	7,2	2,1	18	10,4	7,9	1,9	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	0291 SM	15,0	7,4	2,8	29	14,6	7,7	2,7	27	14,1	8,0	2,6	26	13,4	8,4	2,5	24	12,1	9,3	2,3	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	0351 SM	18,8	8,9	3,5	10	18,5	9,1	3,4	9	18,1	9,4	3,4	9	17,5	9,9	3,3	8	16,3	10,7	3,0	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	0431 SM	22,3	10,5	4,2	12	21,9	10,8	4,1	12	21,5	11,1	4,0	11	20,7	11,7	3,9	10	19,2	12,7	3,6	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	0472 SM	24,8	12,7	4,6	17	24,2	13,1	4,5	17	23,7	13,5	4,4	17	22,7	14,3	4,2	16	20,8	15,7	3,9	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	0552 SM	29,0	14,8	5,4	18	28,3	15,3	5,3	18	27,5	15,9	5,1	17	26,1	16,8	4,9	16	23,6	18,5	4,4	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	0672 SM	37,1	17,7	6,9	24	36,4	18,3	6,8	24	35,7	18,8	6,7	23	34,4	19,8	6,4	22	32,1	21,5	6,0	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	0812 SM	44,9	21,0	8,4	27	44,1	21,6	8,2	26	43,2	22,3	8,1	26	41,7	23,4	7,8	25	38,7	25,5	7,2	22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1003 SM	51,1	25,0	9,5	15	49,9	25,9	9,3	14	48,5	26,9	9,1	14	46,3	28,4	8,6	13	42,1	31,3	7,9	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1103 SM	60,1	28,2	11,2	24	59,0	29,1	11,0	23	57,8	29,9	10,8	23	55,8	31,4	10,4	22	51,9	34,1	9,7	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1203 SM	64,8	31,8	12,1	26	63,4	32,8	11,8	25	61,9	33,9	11,5	24	59,5	35,7	11,1	23	54,9	39,1	10,2	21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1303 SM	73,0	35,6	13,6	29	71,5	36,6	13,3	28	69,9	37,8	13,0	28	67,2	39,7	12,5	26	62,1	43,3	11,6	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1403 SM	81,3	38,9	15,2	27	79,7	40,1	14,9	26	77,9	41,4	14,5	25	74,9	43,4	14,0	23	69,2	47,3	12,9	21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1604 SM	89,1	42,2	16,6	18	87,4	43,5	16,3	18	85,6	44,9	16,0	17	82,5	47,1	15,4	16	76,7	51,3	14,3	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1804 SM	99,1	48,4	18,5	20	97,1	49,9	18,1	19	94,9	51,5	17,7	18	91,2	54,2	17,0	17	84,3	59,3	15,7	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	-5	0251 SM	15,3	6,4	2,9	29	15,0	6,6	2,8	28	14,6	6,9	2,7	27	14,1	7,2	2,6	25	13,0	7,9	2,4	22	11,8	8,8	2,2	19	11,0	9,3	2,1	17		
0291 SM		18,3	7,5	3,4	42	17,8	7,8	3,3	40	17,4	8,1	3,2	38	16,6	8,6	3,1	35	15,2	9,4	2,8	30	13,6	10,4	2,5	24	12,5	11,1	2,3	21			
0351 SM		22,6	9,2	4,2	15	22,2	9,5	4,1	15	21,8	9,8	4,1	14	21,1	10,3	3,9	13	19,7	11,2	3,7	11	18,1	12,2	3,4	9	17,1	12,9	3,2	8			
0431 SM		26,8	10,9	5,0	18	26,3	11,2	4,9	18	25,7	11,6	4,8	17	24,9	12,2	4,6	16	23,2	13,2	4,3	13	21,3	14,5	4,0	11	20,1	15,3	3,7	10			
0472 SM		30,5	12,8	5,7	23	29,9	13,2	5,6	22	29,2	13,7	5,4	21	28,1	14,4	5,2	20	26,1	15,9	4,9	19	23,7	17,5	4,4	17	22,2	18,5	4,1	15			
0552 SM		35,6	15,1	6,6	24	34,7	15,6	6,5	23	33,8	16,2	6,3	22	32,4	17,1	6,0	21	29,6	18,8	5,5	19	26,5	20,8	4,9	16	24,5	22,1	4,6	15			
0672 SM		44,7	18,4	8,3	30	43,8	19,0	8,2	29	43,0	19,6	8,0	29	41,5	20,5	7,7	28	38,8	22,3	7,2	26	35,7	24,4	6,7	23	33,7	25,7	6,3	22			
0812 SM		53,8	21,8	10,0	34	52,9	22,5	9,9	33	51,8	23,2	9,7	32	50,0	24,3	9,3	31	46,7	26,5	8,7	28	42,9	29,0	8,0	26	40,3	30,6	7,5	24			
1003 SM		62,3	25,6	11,6	20	60,9	26,5	11,4	20	59,4	27,5	11,1	19	56,9	29,1	10,6	18	52,4	32,0	9,8	15	47,1	35,3	8,8	13	43,7	37,5	8,2	11			
1103 SM		72,2	29,3	13,5	29	70,9	30,1	13,2	28	69,1	31,1	13,0	28	67,1	32,6	12,5	27	62,8	35,4	11,7	25	57,9	38,6	10,8	23	54,6	40,7	10,2	21			
1203 SM		78,6	32,8	14,7	32	77,1	33,8	14,4	31	75,4	34,9	14,1	30	72,6	36,8	13,5	29	67,5	40,2	12,6	27	61,6	44,2	11,5	24	57,8	46,8	10,8	23			
1303 SM		88,5	36,5	16,5	36	86,7	37,6	16,2	35	84,9	38,8	15,8	34	81,9	40,8	15,3	33	76,1	44,4	14,2	30	69,6	48,5	13,0	27	65,3	51,3	12,2	26			
1403 SM		98,2	40,0	18,3	36	96,3	41,2	18,0	35	94,2	42,5	17,6	34	90,9	44,6	17,0	32	84,6	48,6	15,8	28	77,3	53,1	14,4	25	72,6	56,0	13,5	22			
1604 SM		106,7	44,0	19,9	26	104,7	45,3	19,5	25	102,6	46,7	19,1	24	99,0	49,1	18,5	22	92,4	53,5	17,2	20	84,8	58,5	15,8	17	79,7	61,8	14,9	15			
1804 SM		120,9	49,7	22,5	29	118,5	51,2	22,1	28	116,0	52,9	21,6	27	111,8	55,6	20,9	25	104,1	60,8	19,4	22	95,2	66,7	17,8	18	89,4	70,6	16,7	16			
0		0251 SM	18,4	6,5	3,4	40	18,0	6,8	3,4	39	17,6	7,0	3,3	37	17,0	7,3	3,2	35	15,8	8,1	3,0	31	14,5	8,9	2,7	27	13,7	9,4	2,6	24		
	0291 SM	21,8	7,7	4,1	58	21,3	8,0	4,0	56	20,8	8,3	3,9	53	20,0	8,76	3,7	50	18,5	9,6	3,4	43	16,8	10,6	3,1	36	15,6	11,3	2,9	31			
	0351 SM	26,8	9,5	5,0	23	26,3	9,8	4,9	22	25,8	10,2	4,8	21	25,0	10,66	4,7	20	23,4	11,6	4,4	17	21,7	12,7	4,0	14	20,6	13,4	3,8	12			
	0431 SM	31,6	11,3	5,9	27	31,0	11,7	5,8	25	30,4	12,1	5,7	24	29,4	12,67	5,5	23	27,6	13,8	5,1	20	25,5	15,1	4,8	16	24,1	15,9	4,5	15			
	0472 SM	36,6	13,0	6,8	28	35,9	13,5	6,7	28	35,2	13,9	6,6	27	34,0	14,70	6,3	26	31,7	16,1	5,9	24	29,1	17,7	5,4	21	27,5	18,8	5,1	20			
	0552 SM	42,6	15,4	7,9	30	41,6	16,0	7,8	29	40,7	16,6	7,6	28	39,1	17,50	7,3	27	36,1	19,2	6,7	24	32,8	21,2	6,1	21	30,6	22,5	5,7	20			
	0672 SM	52,9	19,1	9,9	36	52,0	19,7	9,7	36	51,0	20,3	9,5	35	49,3	21,34	9,2	34	46,3	23,2	8,6	31	42,9	25,3	8,0	29	40,7	26,7	7,6	27			
	0812 SM	63,5	22,7	11,8	42	62,3	23,4	11,6	41	61,1	24,1	11,4	40	59,1	25,34	11,0	38	55,4	27,6	10,3	35	51,2	30,2	9,5	32	48,4	31,9	9,0	30			
	1003 SM	74,2	26,3	13,8	27	72,7	27,3	13,6	26	71,0	28,2	13,2	25	68,3	29,84	12,7	24	63,4	32,8	11,8	21	57,8	36,2	10,8	18	54,1	38,4	10,1	16			
	1103 SM	85,5	30,3	15,9	34	83,9	31,2	15,7	34	82,3	32,2	15,4	33	79,7	33,76	14,9	32	74,9	36,7	14,0	30	69,4	40,0	13,0	28	65,9	42,1	12,3	26			
	1203 SM	93,6	33,9	17,5	38	91,8	35,0	17,1	37	89,9	36,1	16,8	37	86,8	38,02	16,2	35	81,2	41,6	15,1	33	74,8										

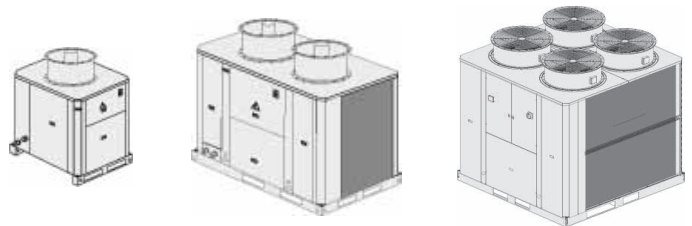
STANDARD FAN UNITS



MODELS		0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM	
Fan type		Axial - Direct coupling				900 rpm		1~230V		
Fan number		1				2				
Air flow rate		9750	11500	11300	11000	9750+9750	11500+11500	11300+11300	11000+11000	
Power input		0,69	0,84	0,84	0,84	0,69+0,69	0,84+0,84	0,84+0,84	0,84+0,84	

MODELS		1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM			
Fan type		Axial - Direct coupling				3~400V					
Fan number		2						4			
Air flow rate		m³/h		High	18100+18100	22700+18100	22700+18100	22700+22700	22500+22700	23500+23500	28600+28600
		Low	15000+15000	18000+15000	18000+15000	18000+18000	17500+18000	18500+18500	22600+22600		
Power input		kW		High	1,05+1,05	2+1,05	2+1,05	2+2	2+2	2+2	2,1+2,1
		Low	0,77+0,77	1,25+0,77	1,25+0,77	1,25+1,25	1,25+1,25	1,25+1,25	1,54+1,54		
Fan speed		rpm		High	700+700	900+700	900+700	900+900	900+900	900+900	700+700+700+700
		Low	550+550	700+550	700+550	700+700	700+700	700+700	700+700	550+550+550+550	

HIGH STATIC FAN PRESSURE UNITS



AIR AVAILABLE STATIC PRESSURE UP TO 125 Pa - FP1 VERSION

MODELS		0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM	1003SM to 1403SM	1604SM	1804SM		
Fan type		Axial - Direct coupling 1450 rpm 1~230V								Axial - Direct coupling 900 rpm (Low speed) 3~400V				
Fan number		1				2					4			
Available static pressure Pa	50	Air flow rate	m³/h	11500	11500	11000	10500	2300	23000	22000	21000	19000+19000	21000+21000	28000+28000
		Power input	kW	1,7	1,7	1,65	1,65	3,4	3,4	3,3	3,3	5	5	10
	75	Air flow rate	m³/h	9600	9600	9200	8800	19200	19200	18400	17600	18000+18000	19000+19000	24000+24000
		Power input	kW	1,65	1,65	1,6	1,6	3,3	3,3	3,2	3,2	5,1	5,1	10,2
	100	Air flow rate	m³/h	8500	8500	8100	7700	17000	17000	16200	15400	17000+17000	17000+17000	22000+22000
		Power input	kW	1,6	1,6	1,55	1,55	3,2	3,2	3,1	3,1	5,2	5,2	10,4
	125	Air flow rate	m³/h	7200	7200	6900	6600	14400	14400	13800	13200	15000+15000	16000+16000	20000+20000
		Power input	kW	1,55	1,55	1,5	1,5	3,1	3,1	3	3	5,3	5,3	10,6

AIR AVAILABLE STATIC PRESSURE UP TO 250 OR 350 Pa - FP2 VERSION

MODELS		0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM	1003SM to 1403SM	1604SM	1804SM		
Fan type		Axial "short case" - Direct coupling 1450 rpm 3~400V								Axial "short case" - Direct coupling 1450 rpm (High speed) 3~400V				
Fan number		1				2				2		4		
Available static pressure Pa	150	Air flow rate	m³/h	12400	12400	11900	11500	24800	24800	23800	23000	22000+22000	24000+24000	34000+34000
		Power input	kW	2,45	2,45	2,4	2,35	4,9	4,9	4,8	4,7	9,2	9,2	18,4
	200	Air flow rate	m³/h	10800	10800	10400	10000	21600	21600	20800	20000	20000+20000	22000+22000	28000+28000
		Power input	kW	2,3	2,3	2,3	2,25	4,6	4,6	4,6	4,5	9,3	9,3	18,6
	250	Air flow rate	m³/h	9200	9200	8800	8500	18400	18400	17600	17000	18000+18000	19000+19000	24000+24000
		Power input	kW	2,3	2,3	2,3	2,3	4,6	4,6	4,6	4,6	9,4	9,4	18,8
	300	Air flow rate	m³/h	7800	7800	7500	7250	15600	15600	15000	14500	N/A		
		Power input	kW	2,4	2,4	2,4	2,45	4,8	4,8	4,8	4,9	N/A		
350	Air flow rate	m³/h	6800	6800	6500	6250	13600	13600	13000	12500	N/A			
	Power input	kW	2,45	2,45	2,45	2,5	4,9	4,9	4,9	5	N/A			

N/A: Not available

## STANDARD FAN UNITS



MODELS		0251SM	0291SM	0351SM	0431SM	0472SM	0552SzM	0672SM	0812SM
Maximum power (kW)		10,79	12,64	16,39	17,74	21,58	25,28	32,78	35,48
Maximum Current (A)	3N~400V	24,00	25,40	29,00	34,40	48,00	50,80	58,00	68,80
LRC (A)	3N~400V	114	121,4	161,4	201,4	138	146,8	190,4	235,8
Starting current (A) (*)	3N~400V	97,4	103,7	137,7	171,7	121,4	129,1	166,7	206,1

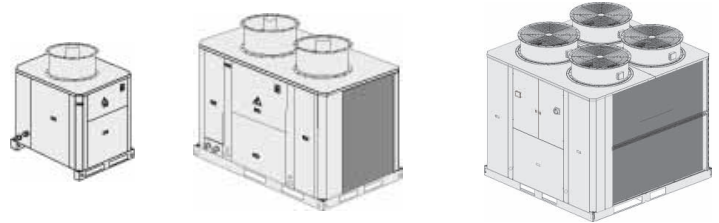
MODELS		1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM
Maximum power (kW)	High	42,6	51,1	56,7	62,3	54,8	71,6	83,0
	Low	42,0	50,0	55,6	60,8	53,3	70,1	81,9
Maximum Current (A)	3N~400V High	79,8	88,6	97,6	107,7	118,5	132,0	151,6
	Low	78,0	86,0	95,0	104,3	115,1	128,6	148,0
LRC (A)	3N~400V High	246,8	255,6	282,6	331,2	342,0	299,0	336,6
	Low	245,0	253,0	280,0	327,8	338,6	295,6	333,0
Starting current (A) (*)	3N~400V High	217,1	225,9	248,8	290,4	301,2	269,3	302,9
	Low	215,3	223,3	246,3	287,0	297,8	265,9	299,3

Not included water pump consumptions of the Hydronic or Hydraulic version (see page 25).

Maximum power calculated for compressor operation at +12,5/65°C.

(\*) Starting current 2 cycles later from compressor starts (4 mseg).

## HIGH STATIC FAN PRESSURE UNITS



### FP1 VERSIONS

MODELS		0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM
Maximum power (kW)	3N~400V	11,8	13,5	17,2	18,6	23,6	27,0	34,4	37,1
Maximum Current (A)	3N~400V	29,0	30,0	33,6	39,0	58,0	60,0	67,2	78,0
LRC (A)	3N~400V	119,0	126,0	166,0	206,0	148,0	156,0	199,6	245,0
Starting current (A) (*)	3N~400V	102,4	108,3	142,3	176,3	131,3	138,3	175,9	215,3

MODELS		1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM
Maximum power (kW)	3N~400V	45,5	53,0	58,6	63,3	55,8	72,6	88,8
Maximum Current (A)	3N~400V	84,6	91,8	100,8	109,3	120,1	133,6	161,2
LRC (A)	3N~400V	251,6	258,8	285,8	332,8	343,6	300,6	346,2
Starting current (A) (*)	3N~400V	221,9	229,1	252,1	292,0	302,8	270,9	312,4

Not included water pump consumptions of the Hydronic or Hydraulic version (see page 25).

Maximum power calculated for compressor operation at +12,5/65°C.

(\*) Starting current 2 cycles later from compressor starts (4 mseg).

### FP2 VERSIONS

MODELS		0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM
Maximum power (kW)	3N~400V	12,4	14,1	17,9	19,2	24,8	28,2	35,7	38,3
Maximum Current (A)	3N~400V	25,4	26,4	30,0	35,5	50,8	52,8	60,0	71,0
LRC (A)	3N~400V	115,4	122,4	162,4	202,5	140,8	148,8	192,4	238,0
Starting current (A) (*)	3N~400V	98,8	104,7	138,7	172,8	124,2	131,1	168,7	208,3

MODELS		1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM
Maximum power (kW)	3N~400V	49,8	57,3	62,9	67,6	60,1	76,9	97,4
Maximum Current (A)	3N~400V	91,2	98,4	107,4	115,9	126,7	140,2	174,4
LRC (A)	3N~400V	258,2	265,4	292,4	339,4	350,2	307,2	359,4
Starting current (A) (*)	3N~400V	228,5	235,7	258,6	298,6	309,4	277,5	325,7

Not included water pump consumptions of the Hydronic or Hydraulic version (see page 25).

Maximum power calculated for compressor operation at +12,5/65°C.

(\*) Starting current 2 cycles later from compressor starts (4 mseg).

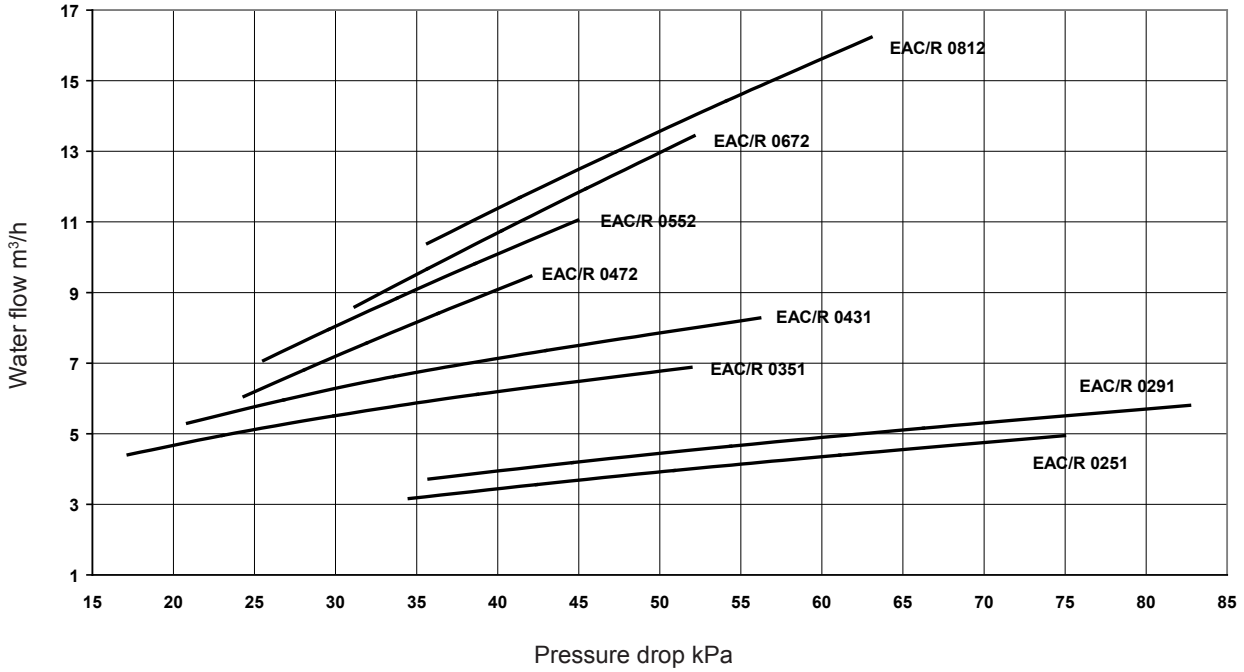


**INSTALLATION ADVISE**

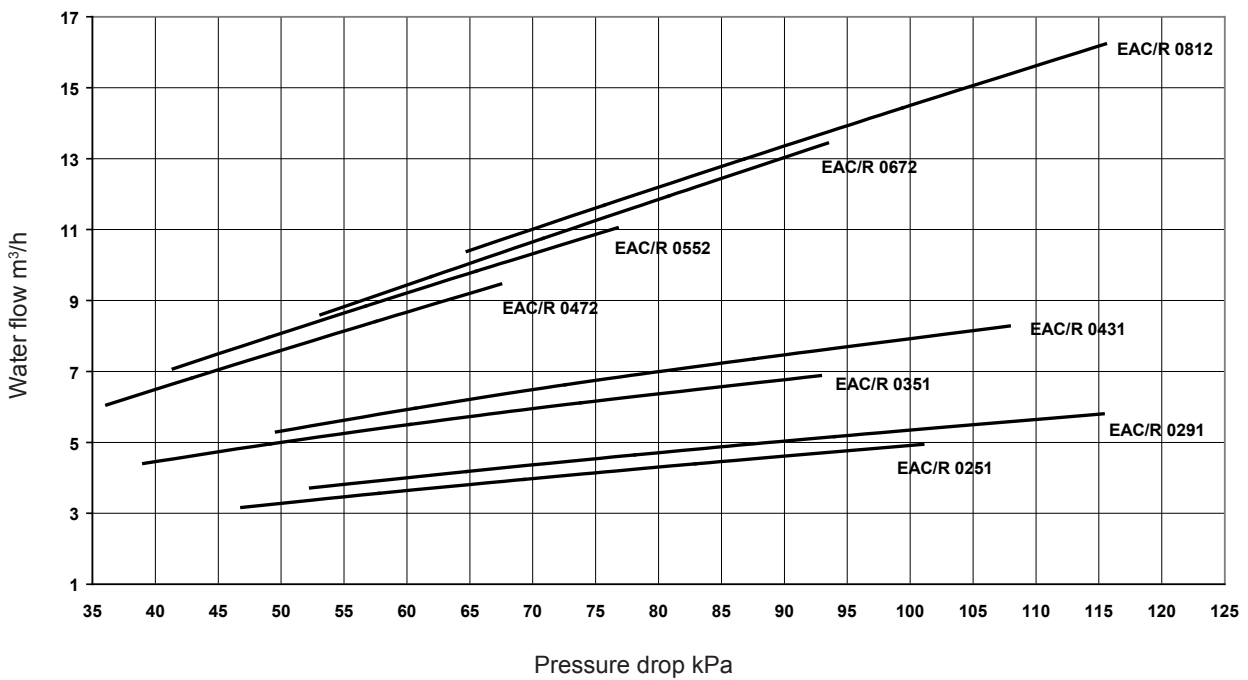
The units **MUST** be fitted with a water filter at the inlet to the unit (trapping any particles with a diameter greater than 1 mm.)

**MODELS EAC / EAR 0251SM TO 0812SM**

**PRESSURE DROP WITHOUT FILTER**



**PRESSURE DROP + WATER FILTER (\*)**



(\*) Option in standard version, included in Hydronic and Hydraulic version.



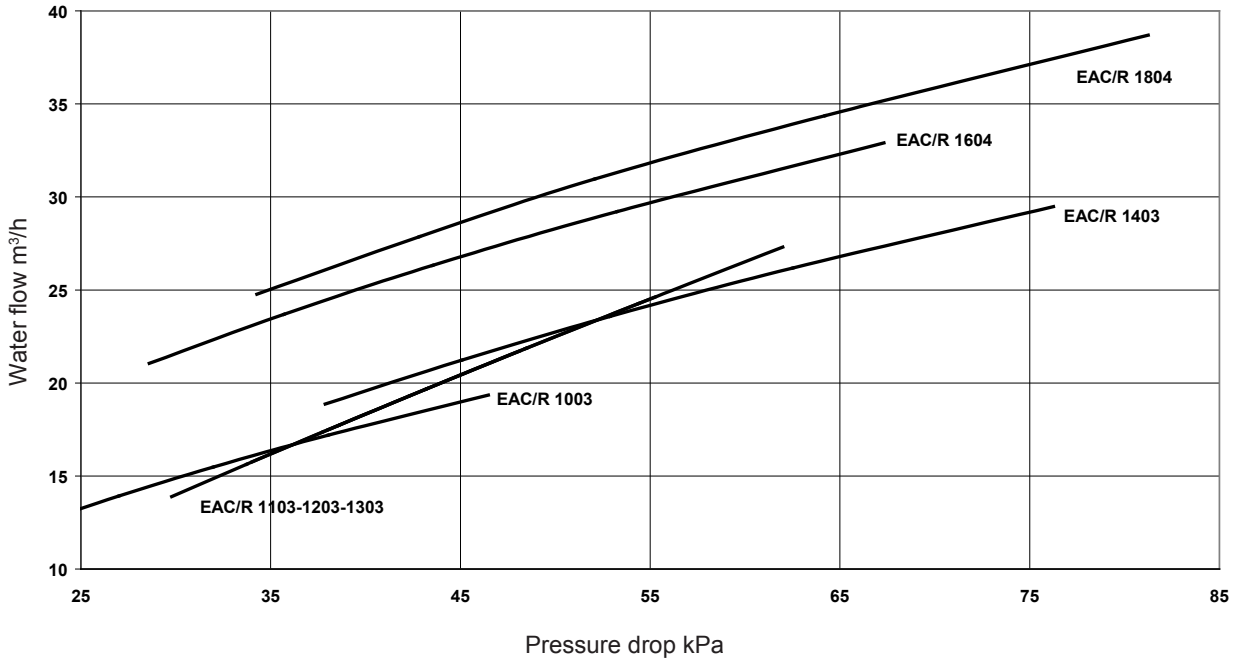


**INSTALLATION ADVISE**

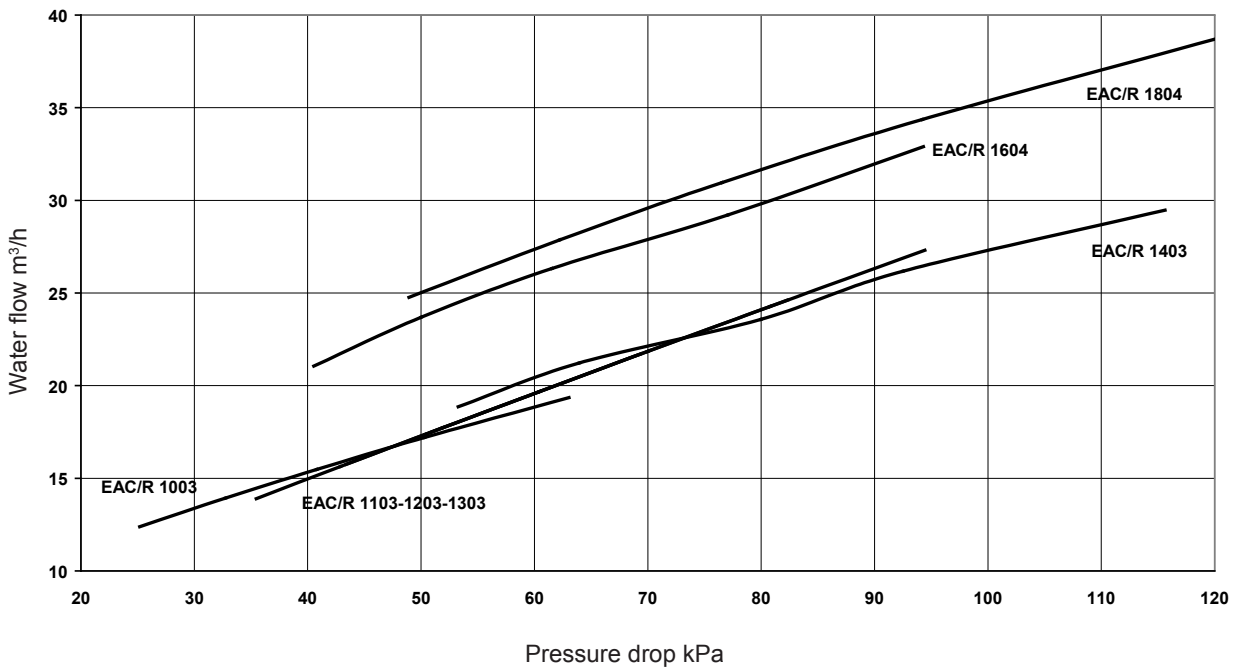
The units **MUST** be fitted with a water filter at the inlet to the unit (trapping any particles with a diameter greater than 1 mm.)

**MODELS EAC / EAR 1003SM TO 1804SM**

**PRESSURE DROP WITHOUT FILTER**



**PRESSURE DROP + WATER FILTER (\*)**

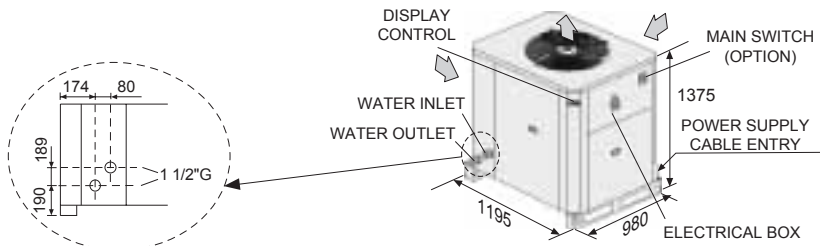


(\*) Option in standard version, included in Hydronic and Hydraulic version.

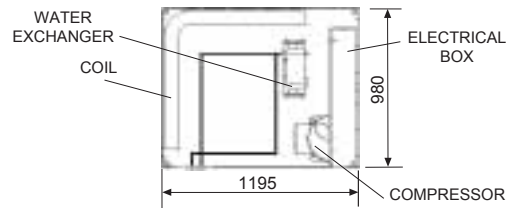
# STANDARD FAN UNITS DIMENSIONAL DATA



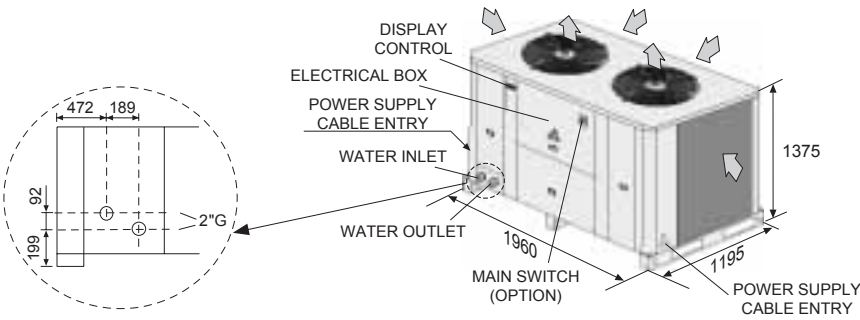
## 1 EAC/EAR 0251SM-0291SM-0351SM-0431SM



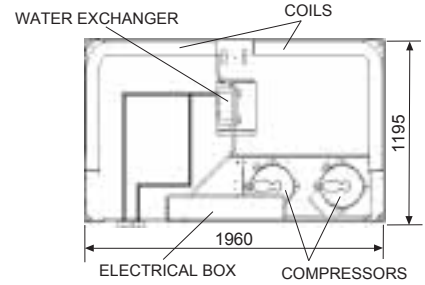
## 1 COMPONENT POSITION STANDARD VERSION UNIT



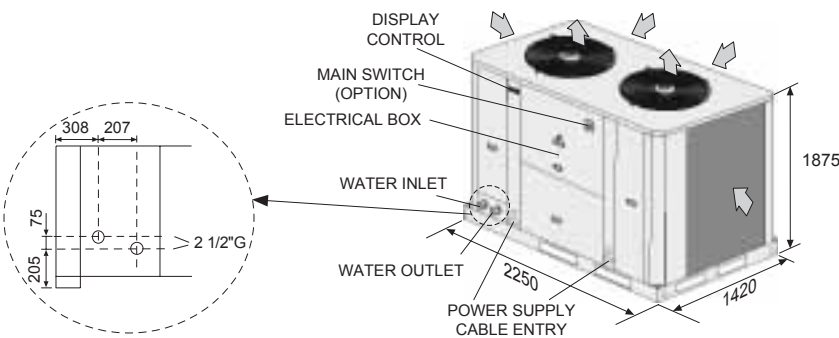
## 2 EAC/EAR 0472SM-0552SM-0672SM-0812SM



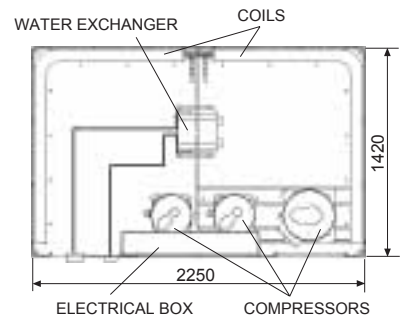
## 2 COMPONENT POSITION STANDARD VERSION UNIT



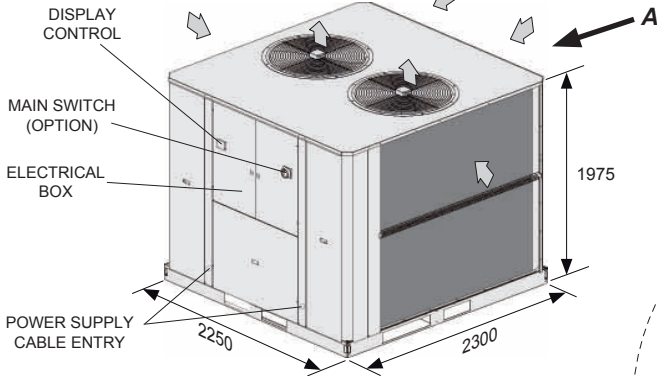
## 3 EAC/EAR 1003SM-1103SM-1203SM-1303SM-1403SM



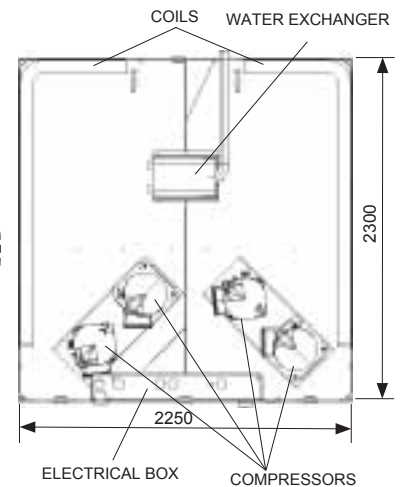
## 3 COMPONENT POSITION STANDARD VERSION UNIT



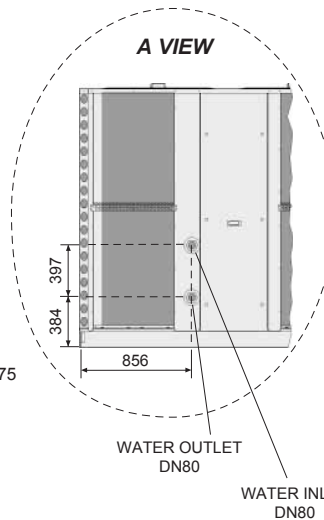
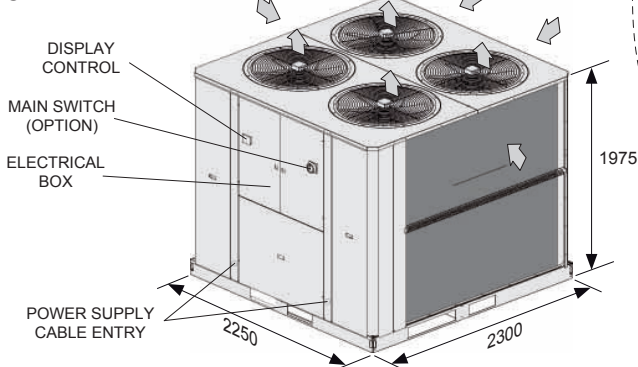
## 4 EAC/EAR 1604SM



## 4/5 COMPONENT POSITION STANDARD VERSION UNIT



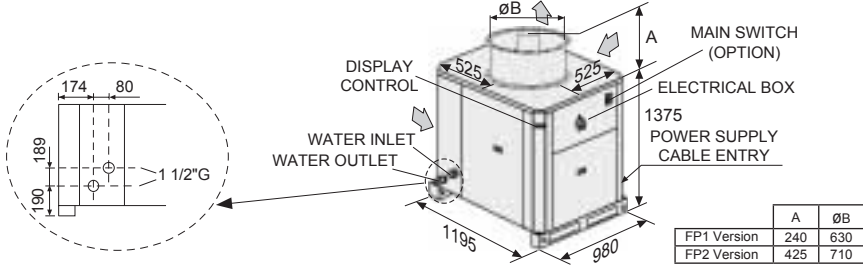
## 5 EAC/EAR 1804SM



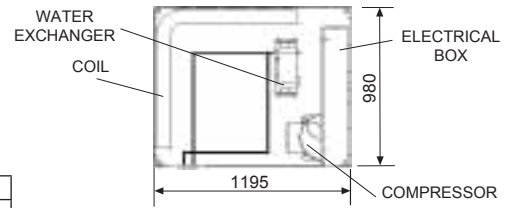
# HIGH STATIC PRESSURE UNITS DIMENSIONAL DATA



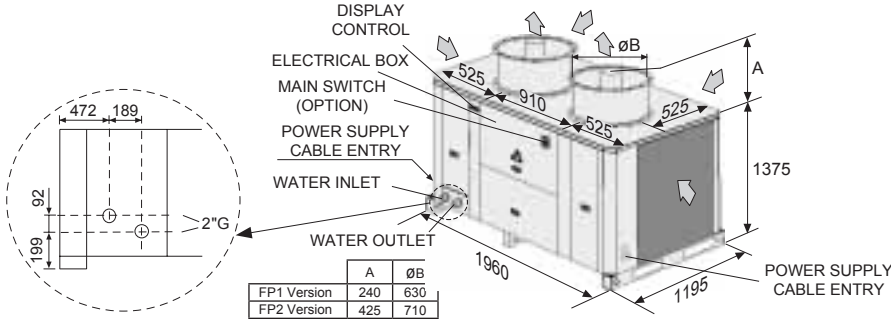
## 1 EAC/EAR 0251SM-0291SM-0351SM-0431SM FP1/FP2



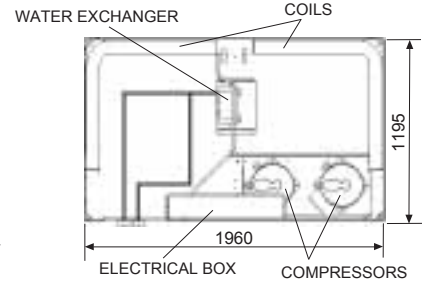
## 1 COMPONENT POSITION STANDARD VERSION UNIT



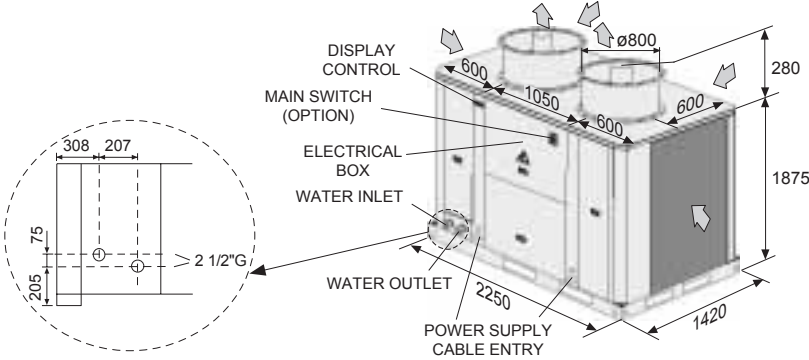
## 2 EAC/EAR 0472SM-0552SM-0672SM-0812SM FP1/FP2



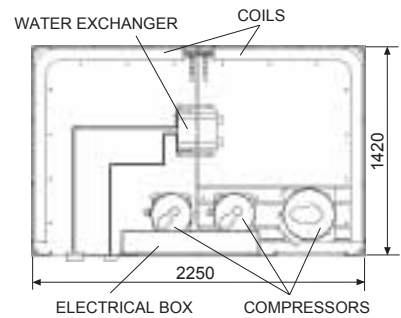
## 2 COMPONENT POSITION STANDARD VERSION UNIT



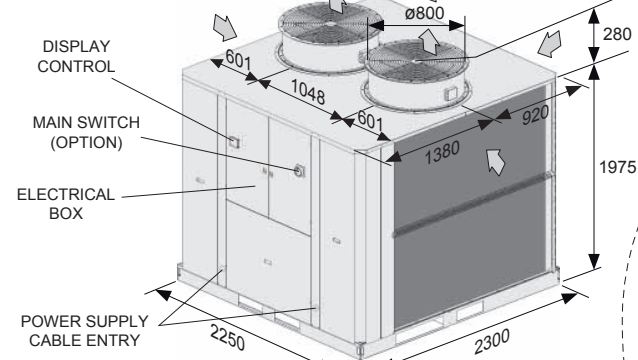
## 3 EAC/EAR 1003SM-1103SM-1203SM-1303SM-1403SM FP1/FP2



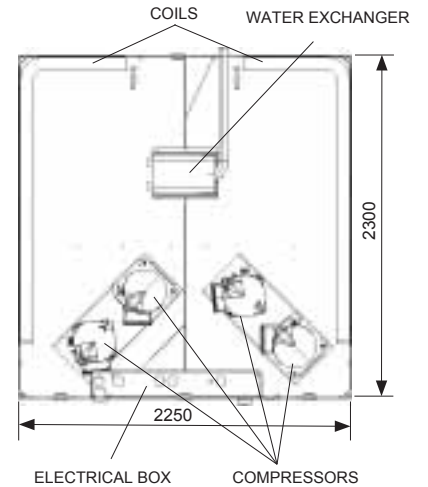
## 3 COMPONENT POSITION STANDARD VERSION UNIT



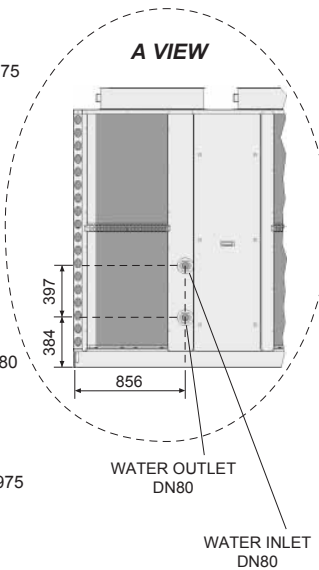
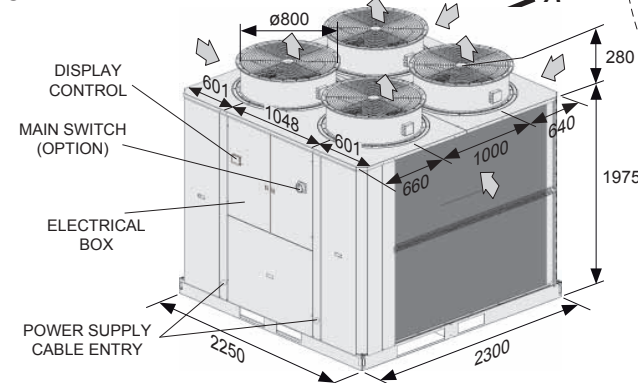
## 4 EAC/EAR 1604SM FP1/FP2

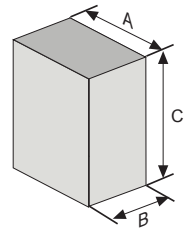


## 4/5 COMPONENT POSITION STANDARD VERSION UNIT



## 5 EAC/EAR 1804SM FP1/FP2





## STANDARD FAN UNITS

MODELS	EAC / EAR	0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM	1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM
<b>A - Width</b>	mm	1195	1195	1195	1195	1960	1960	1960	1960	2250	2250	2250	2250	2250	2250	2250
<b>B - Depth</b>	mm	980	980	980	980	1195	1195	1195	1195	1420	1420	1420	1420	1420	2300	2300
<b>C - Height</b>	mm	1375	1375	1375	1375	1375	1375	1375	1375	1875	1875	1875	1875	1875	1975	1975
<b>Operating Weight (*) Kg</b>	<b>EAC</b>	238	246	263	292	470	482	518	562	640	809	938	990	1019	1328	1683
	<b>EAR</b>	243	251	271	300	480	492	534	578	663	831	964	1016	1045	1347	1703

(\*) Not included Hydronic or Hydraulic version (see page 25).

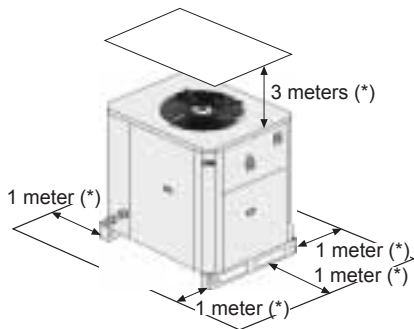
## HIGH STATIC FAN PRESSURE UNITS

MODELS	EAC / EAR	0251SM	0291SM	0351SM	0431SM	0472SM	0552SM	0672SM	0812SM	1003 SM	1103 SM	1203SM	1303SM	1403 SM	1604SM	1804SM	
<b>A - Width</b>	mm	1195	1195	1195	1195	1960	1960	1960	1960	2250	2250	2250	2250	2250	2250	2250	
<b>B - Depth</b>	mm	980	980	980	980	1195	1195	1195	1195	1420	1420	1420	1420	1420	2300	2300	
<b>C - Height</b>	<b>FP1 mm</b>	1615	1615	1615	1615	1615	1615	1615	1615	2155	2155	2155	2155	2155	2255	2255	
	<b>FP2 mm</b>	1800	1800	1800	1800	1800	1800	1800	1800	2155	2155	2155	2155	2155	2255	2255	
<b>Operating weight (*)</b>	<b>EAC</b>	<b>FP1 kg</b>	253	261	278	297	500	512	548	592	680	849	978	1030	1059	1368	1763
		<b>FP2 kg</b>	273	281	298	317	540	552	588	632	680	849	978	1030	1059	1368	1763
	<b>EAR</b>	<b>FP1 kg</b>	258	266	286	305	510	522	564	608	703	871	1004	1056	1085	1387	1783
		<b>FP2 kg</b>	278	286	306	325	550	562	604	648	703	871	1004	1056	1085	1387	1783

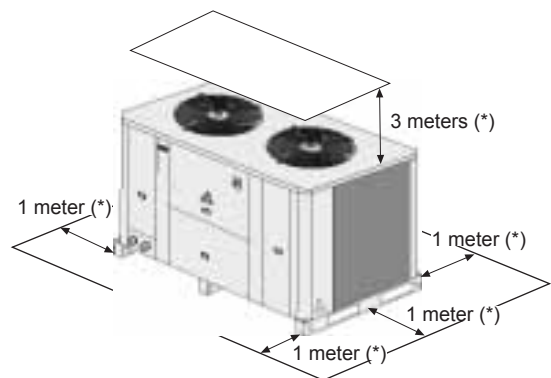
(\*) Not included Hydronic or Hydraulic version (see page 25).

## SERVICE AREAS

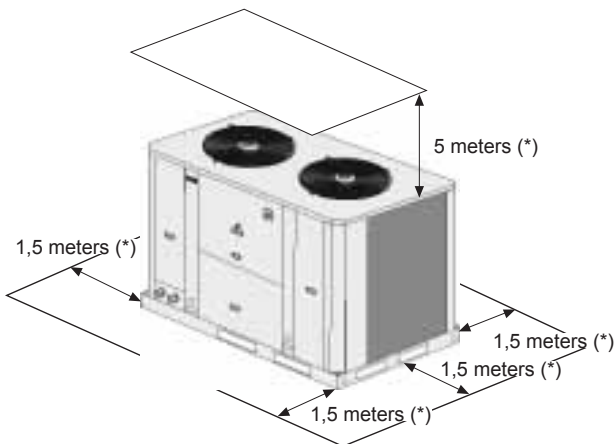
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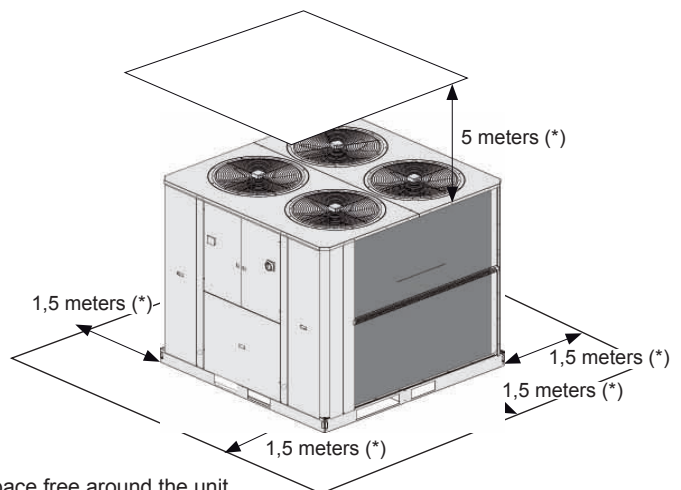
EAC/EAR 0472SM-0552SM-0672SM-0812SM



EAC/EAR 1003SM-1103SM-1203SM-1303SM-1403SM



EAC/EAR 1604SM-1804SM



(\*) Keep this space free around the unit for installation, for all unit versions

## STANDARD FAN UNITS

EAC EAR	Spectrum per octave band (dBA)								Global sound power Lw dB(A)	Sound pressure at 10m. (dBA)	
	Hz	125	250	500	1000	2000	4000	8000			
0251SM	(1)	74	70	70	66	72	67	62	76	48	
	(2)	74	70	72	70	73	70	62	78	50	
0291SM	(1)	80	72	73	74	74	66	65	79	51	
	(2)	80	72	74	75	76	71	65	81	53	
0351SM	(1)	80	72	73	74	73	65	62	79	51	
	(2)	80	72	74	75	75	69	62	80	52	
0431SM	(1)	80	72	73	74	74	65	63	79	51	
	(2)	80	72	74	76	76	68	63	81	53	
0472SM	(1)	77	73	73	69	75	70	65	79	51	
	(2)	77	73	75	73	76	73	65	81	53	
0552SM	(1)	83	75	76	77	77	69	68	82	54	
	(2)	83	75	77	78	79	74	68	84	56	
0672SM	(1)	83	75	76	77	76	68	65	82	54	
	(2)	83	75	77	78	78	72	65	83	55	
0812SM	(1)	83	75	76	77	77	68	66	82	54	
	(2)	83	75	77	79	79	71	66	84	56	
1003SM	Low speed	(1)	71	68	70	73	71	62	67	77	49
		(2)	71	68	74	77	79	73	67	83	55
	High speed	(1)	76	74	75	78	77	65	68	82	54
		(2)	76	74	77	80	80	74	68	85	57
1103SM	Low speed	(1)	73	71	72	75	72	62	64	78	50
		(2)	73	71	74	78	77	71	64	82	54
	High speed	(1)	82	78	78	82	81	74	67	86	58
		(2)	82	78	79	83	82	76	67	87	59
1203SM	Low speed	(1)	73	71	73	76	74	63	64	79	51
		(2)	73	72	76	79	81	74	64	85	57
	High speed	(1)	82	78	78	82	81	74	67	86	58
		(2)	82	79	79	83	84	77	67	88	60
1303SM	Low speed	(1)	75	73	74	77	76	65	68	81	53
		(2)	75	73	77	82	83	76	68	87	59
	High speed	(1)	84	81	80	84	83	77	70	88	60
		(2)	84	81	81	85	86	80	70	90	62
1403SM	Low speed	(1)	75	73	74	77	76	65	69	81	53
		(2)	75	73	77	82	84	76	69	87	59
	High speed	(1)	84	81	80	84	83	77	71	88	60
		(2)	84	81	81	86	86	79	71	90	62
1604SM	Low speed	(1)	75	73	74	77	73	64	66	80	52
		(2)	75	73	76	80	79	72	66	84	56
	High speed	(1)	84	81	80	84	83	77	69	88	60
		(2)	84	81	81	85	84	78	69	89	61
1804SM	Low speed	(1)	74	71	73	76	76	65	66	81	53
		(2)	74	73	77	81	84	75	66	87	59
	High speed	(1)	79	77	78	81	81	68	67	85	57
		(2)	79	77	80	84	85	76	67	89	61

(1) The above data shows noise levels **with** compressor isolation (option).

(2) The above data shows noise levels **without** compressor isolation.

For units: EAC/EAR 1003SM to 1804SM.

- **Low speed:** - For ambient temperatures lower than +35°C and unit working on cooling mode.  
- For ambient temperatures higher than +7°C and unit working on heating mode.
- **High speed:** - For ambient temperatures higher than +35°C and unit working on cooling mode.  
- For ambient temperatures lower than +7°C and unit working on heating mode.

Global sound power level measured in compliance with ISO standard 3744 and under Eurovent certification program

Sound pressure in dB(A) calculated at 10 m, in a free field on a reflecting surface, is given as a guide only and with a directibility of +/- 3 dBA.

Only the sound power spectrum and the global sound power value are used in determining pressure characteristics on site.

## HIGH STATIC PRESSURE UNITS (WITHOUT AIR DUCT)

EAC / EAR		Spectrum per octave band (dBA)								Global sound power Lw dB(A)
		Hz	125	250	500	1000	2000	4000	8000	
FP1 VERSION	0251SM	(1)	60	69	78	82	80	75	68	86
		(2)	60	69	78	82	80	76	68	86
	0291SM	(1)	60	69	78	82	80	75	69	86
		(2)	60	69	78	82	81	76	69	86
	0351SM	(1)	60	69	78	82	80	75	68	86
		(2)	60	69	78	82	81	76	68	86
	0431SM	(1)	60	69	78	82	80	75	68	86
		(2)	60	69	78	82	81	76	68	86
	0472SM	(1)	63	72	81	85	83	78	71	89
		(2)	63	72	81	85	83	79	71	89
	0552SM	(1)	63	72	81	85	83	78	72	89
		(2)	63	72	81	85	84	79	72	89
	0672SM	(1)	63	72	81	85	83	78	71	89
		(2)	63	72	81	85	84	79	71	89
	0812SM	(1)	63	72	81	85	83	78	71	89
		(2)	63	72	81	85	84	79	71	89
	1003SM	(1)	84	81	80	84	80	72	70	87
		(2)	84	81	81	84	82	76	70	88
1003SM	(1)	84	81	80	84	80	72	68	87	
	(2)	84	81	80	84	81	74	68	88	
1203SM	(1)	84	81	80	84	80	72	68	87	
	(2)	84	81	81	85	83	76	68	89	
1303SM	(1)	84	81	80	84	81	72	70	87	
	(2)	84	81	81	85	85	77	70	90	
1403SM	(1)	84	81	80	84	81	72	71	87	
	(2)	84	81	81	86	85	77	71	90	
1604SM	(1)	84	81	80	84	80	72	69	87	
	(2)	84	81	81	85	82	75	69	88	
1804SM	(1)	87	84	83	87	83	75	71	90	
	(2)	87	84	84	88	86	78	71	91	
FP2 VERSION	0251SM	(1)	72	79	84	86	83	78	71	90
		(2)	72	79	84	86	83	78	71	90
	0291SM	(1)	72	79	84	86	83	78	71	90
		(2)	72	79	84	86	84	79	71	90
	0351SM	(1)	72	79	84	86	83	78	70	90
		(2)	72	79	84	86	83	78	70	90
	0431SM	(1)	72	79	84	86	83	78	70	90
		(2)	72	79	84	86	83	78	70	90
	0472SM	(1)	75	82	87	89	86	81	74	93
		(2)	75	82	87	89	86	81	74	93
	0552SM	(1)	75	82	87	89	86	81	74	93
		(2)	75	82	87	89	87	82	74	93
	0672SM	(1)	75	82	87	89	86	81	73	93
		(2)	75	82	87	89	86	81	73	93
	0812SM	(1)	75	82	87	89	86	81	73	93
		(2)	75	82	87	89	86	81	73	93
	1003SM	(1)	96	94	92	93	89	86	82	97
		(2)	96	94	92	93	90	86	82	97
1003SM	(1)	96	94	92	93	89	86	82	97	
	(2)	96	94	92	93	89	86	82	97	
1203SM	(1)	96	94	92	93	89	86	82	97	
	(2)	96	94	92	93	90	86	82	97	
1303SM	(1)	96	94	92	93	89	86	82	97	
	(2)	96	94	92	93	90	87	82	97	
1403SM	(1)	96	94	92	93	89	86	82	97	
	(2)	96	94	92	93	90	87	82	97	
1604SM	(1)	96	94	92	93	89	86	82	97	
	(2)	96	94	92	94	90	86	82	97	
1804SM	(1)	99	97	95	96	92	89	85	100	
	(2)	99	97	95	96	93	89	85	100	

(1) The above data shows noise levels **with** compressor isolation (option).

(2) The above data shows noise levels **without** compressor isolation.

- Global sound power level measured in compliance with ISO standard 3744 and under Eurovent certification program.

- The data table above, are calculated for units operating on cooling or heating mode.

- The above data shows sound power level data (Lw) calculated without air ducts on the installation.

The final sound pressure level for the installation, will be decreased, once the ducts will be installed, and depends on material and dimensions of them.

# OPERATION LIMITS



## STANDARD FAN UNITS WITHOUT AIR DUCTS

### COOLING MODE

MODELS EAC / EAR	0251SM to 0431SM		0472SM to 0812SM		1003SM to 1804SM	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
Outlet chilled water temperature	+5°C	+14°C	+5°C	+14°C	+5°C	+14°C
Inlet chilled water temperature	+10°C	+22°C	+9°C	+22°C	+8°C	+22°C
Air inlet temperature	0°C (1)	+48°C	0°C(1)	+48°C	0°C(1)	+48°C

NOTE: With outdoor temperatures below +5°C, add glycol

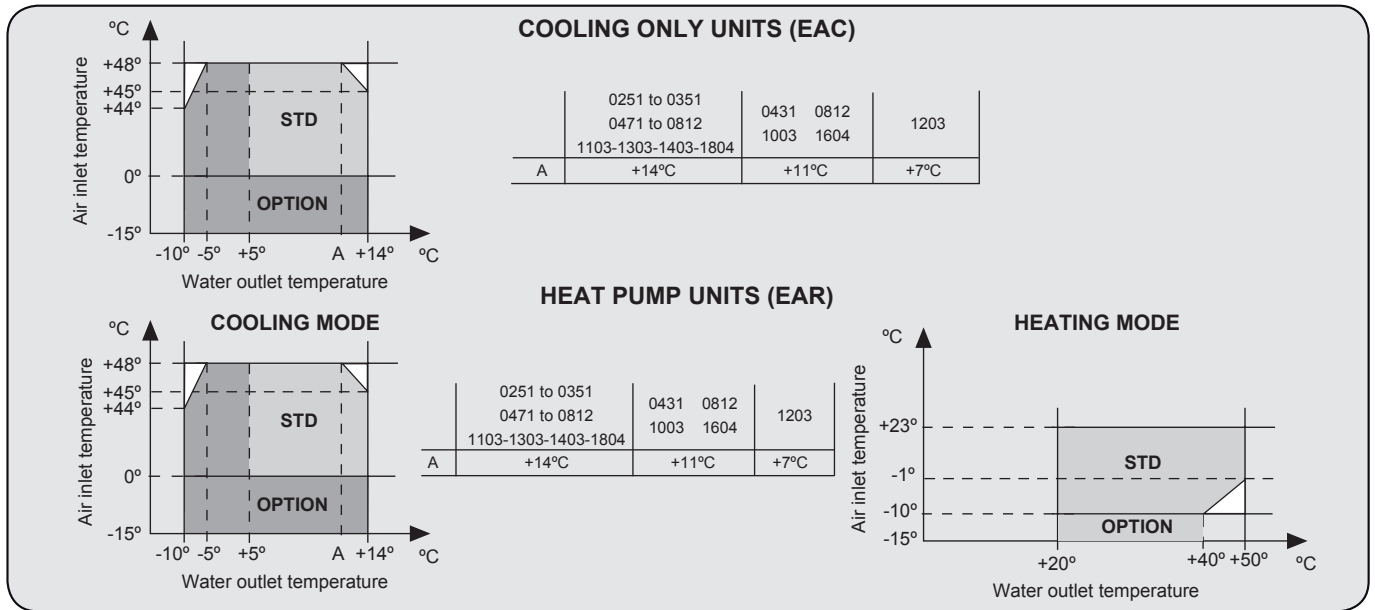
(1) With the option cooling low ambient kit (-15°C), it is possible the unit operation down to -15°C in EAC units.

### HEATING MODE

MODELS EAR	0251SM to 1804SM	
	MINIMUM	MAXIMUM
Hot water outlet temperature (operation)	+20°C	+50°C
Hot water inlet temperature (start)	+10°C	+43°C
Difference hot water inlet / outlet	+3°C	+8°C
Air inlet temperature	-10°C (2)	+23°C

OUTSIDE THESE VALUES, PLEASE CONSULT US

(2) With the option heating low ambient kit (-15°C), it is possible the unit operation down to -15°C



NOTE: With outdoor temperatures below +5°C, add glycol.

## FAN UNITS WITH AIR DUCTS

### COOLING MODE

AIR AVAILABLE STATIC PRESSURE UP TO	VERSION	MODELS	Available static pressure Pa	Maximum ambient temperature °C	Minimum ambient temperature °C	
						Minimum ambient temperature °C
50Pa	STANDARD	0251SM to 1804SM	30	44	---	
			50	40	---	
	FP1	0251SM to 1003SM	50	48	0°C (1)	
			75	45		
			100	41		
			125	37		
125Pa	FP1	1103SM to 1804SM	50	46	0°C (1)	
			75	43		
			100	39		
		FP2	0251SM to 0812SM	125	37	0°C
				150	49	
				200	46	
250 or 350Pa	FP2	1003SM to 1804SM	250	43	0°C	
			300	40		
			350	37		
		FP2	0251SM to 1804SM	150	49	0°C (1)
				200	46	
				250	43	
FP2	1003SM to 1804SM	300	N/A	0°C (1)		
		300	N/A			
		350	N/A			

### HEATING MODE

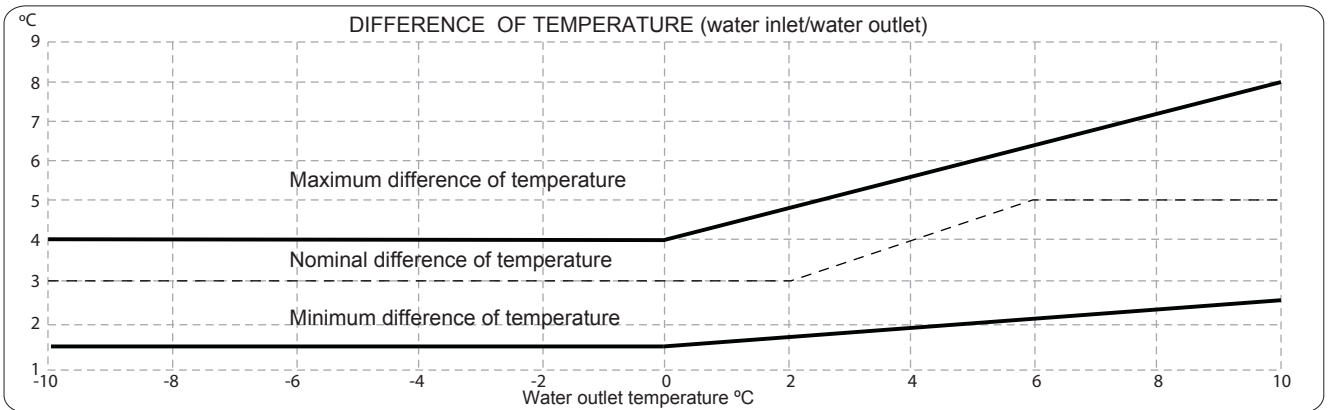
AIR AVAILABLE STATIC PRESSURE UP TO	VERSION	MODELS	Available static pressure Pa	Minimum ambient temperature °C (2)
50Pa	STANDARD	0251SM to 1804SM	30	-8
			50	-6
	FP1	0251SM to 1003SM	50	-10
			75	-8
			100	-6
			125	-5
250 or 350Pa	FP2	0251SM to 0812SM	150	-10
			200	-10
			250	-8
		1003SM to 1804SM	300	-6
			350	-5
			150	-10
	FP2	1003SM to 1804SM	200	-10
			250	-8
			300	N/A
			350	N/A

(1) With the option cooling low ambient kit (-15°C), it is possible the unit operation down to -15°C

(2) With the option heating low ambient kit (-15°C), it is possible the unit operation down to -15°C.

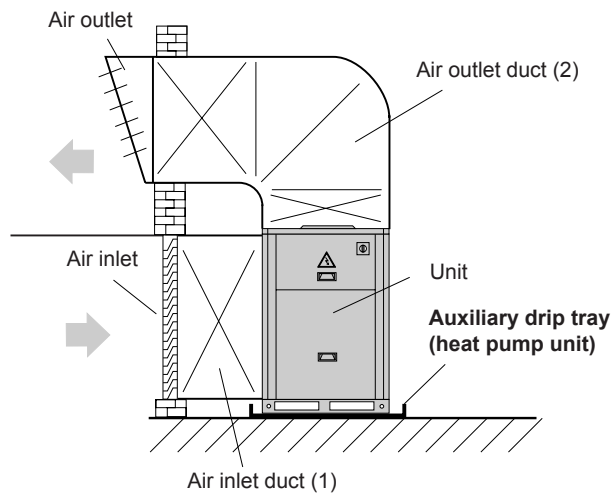
N/A: Not available

## UNITS WITH LOW WATER TEMPERATURE KIT (OPTION)



# UNIT INSTALLATION INSIDE

## LOCATION INSIDE



For location inside, keep in mind following advice:

-In heat pump units during defrost cycle, the units produce a great amount of water melting the ice off coils. If you wish to drain the water, an auxiliary drip tray, should to be installed below the unit to collect and carry out water where desired.

-Air duct installation:

If air duct has been installed, the operating limits get reduced (see operation limits section in this manual).

(1) The air intake plenum (option) available for models from 0251 to 1403 makes easier the installation of the air intake duct (see page 6).

(2) The discharge plenum (option) lets the installation of a square discharge duct for the high static pressure units FP1 and FP2 (see page 6).



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## DESCRIPTION

- All hydraulic accessories are integrated in the standard unit casing

### COMPONENTS:

#### HYDRONIC VERSION:

- Water tank
- Water pump
- Expansion vessel
- Collapsible water filter
- Safety valve
- Manometer
- Flow switch

#### HYDRAULIC VERSION:

- Water pump
- Expansion vessel
- Collapsible water filter
- Safety valve
- Manometer
- Flow switch



## TECHNICAL DATA

MODELS EAC / EAR HY - HN			0251SM	0291SM	0351SM	0431SM	0472SM	0552 SM	0672SM	0812SM
Expansion vessel	Capacity	l	12				18			
	Maximum pressure	Bar					4			
Available static pressure (nominal water flow)		kPa	131	106	150	96	128	115	165	107
water flow rate nominal		l/s	1,06	1,24	1,53	1,80	2,11	2,42	3,03	3,60
Weight (add to the unit weight)	Hydraulic version	kg	16	16	17	17	23	23	24	24
	Hydronic version	kg	47	47	48	48	55	55	57	57
Hydraulic connections		inches	1 1/2"G				2"G			
Water tank (1)		l	75	75	75	75	100	100	100	100

MODELS EAC / EAR HY - HN			1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM
Expansion vessel	Capacity	l	35				50		
	Maximum pressure	Bar					4		
Available static pressure (nominal water flow)		kPa	189	172	151	131	115	115	137
water flow rate nominal		l/s	4,21	4,89	5,34	6,01	6,63	7,13	8,31
Weight (add to the unit weight)	Hydraulic version	kg	26	26	26	26	29	74	92/97
	Hydronic version	kg	81	81	81	81	84	144	162/167
Hydraulic connections		inches	2 1/2"G				DN80		
Water tank (1)		l	240	240	240	240	240	350	350

(1) Only for units with Hydronic version

## SINGLE PUMP

MODELS EAC / EAR HY - HN		0251SM	0291SM	0351SM	0431SM	0472SM	0552 SM	0672SM	0812SM
Pump		Horizontal multistage centrifugal pump							
Type									
Voltage	V	3-400V							
Absorbed power	kW	0,72	0,72	1,10	1,10	1,17	1,17	1,55	1,55
Maximum current	A	1,4	1,4	1,7	1,7	1,7	1,7	2,8	2,8

MODELS EAC / EAR HY - HN		1003SM	1103SM	1203SM	1303SM	1403SM	1604SM	1804SM
Pump		Horizontal multistage centrifugal pump						
Type								
Voltage	V	3-400V						
Absorbed power	kW	2,45	2,45	2,45	2,45	2,93	2,93	3,7
Maximum current	A	4,95	4,95	4,95	4,95	4,8	4,8	6,8

# OPERATING PRINCIPLES



The EcoLean™ system comprises a water cooler or air/water pump combined with a series of hydraulic accessories obtaining the Hydraulic or Hydronic version.

**COMPONENTS:**

HYDRONIC VERSION:  
1,2,3,4,5,6,7,8,9,10,11.

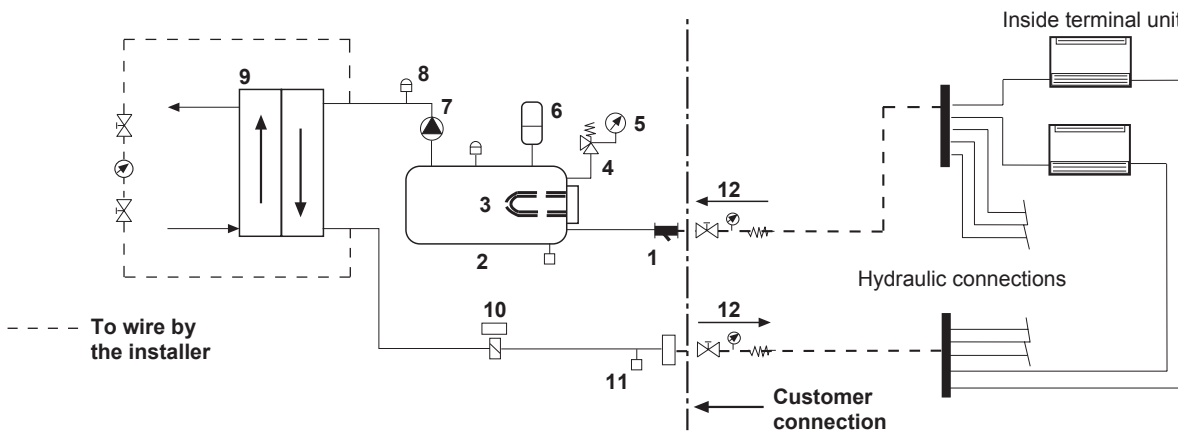
HYDRAULIC VERSION:  
1,4,5,6,7,8,9,10,11.

- 1.- Detachable water filter
- 2.- Water tank
- 3.- Water tank heater (in option)
- 4.- Safety valve
- 5.- Manometer
- 6.- Expansion vessel

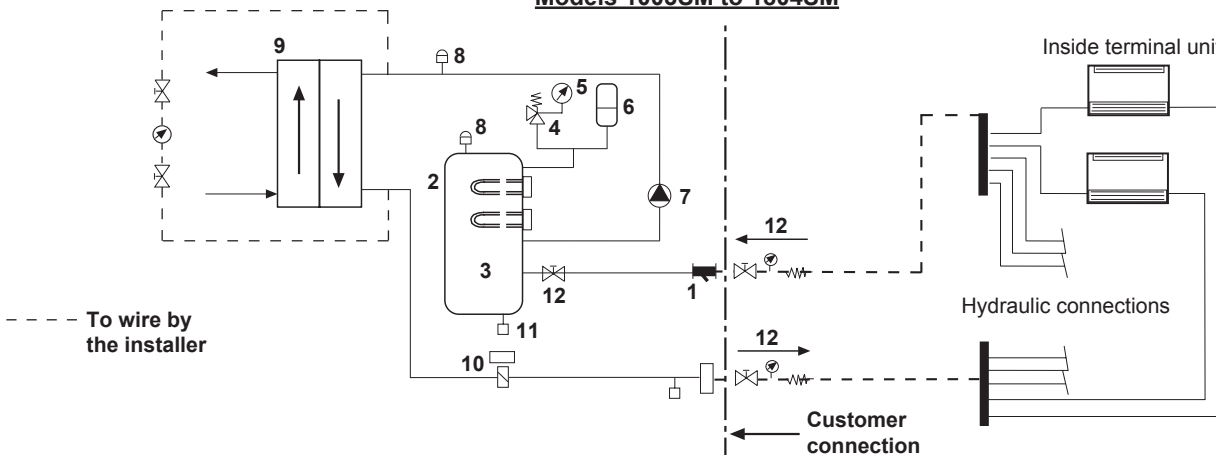
- 7.- Water pump
- 8.- Air purge valve
- 9.- Plate exchanger
- 10.- Flow switch
- 11.- Drain valve
- 12.- Water isolation valves (in option)

**HYDRONIC VERSION**

**Models 0251SM to 0812SM**

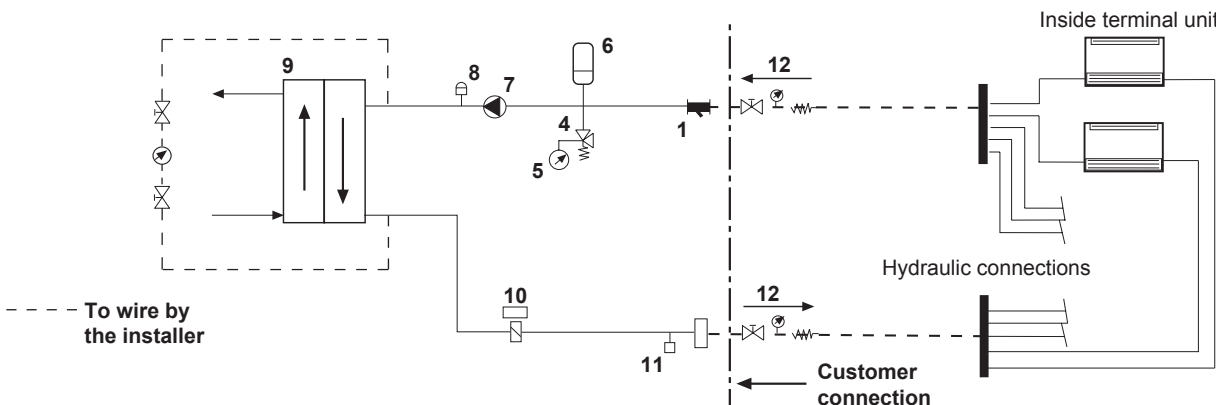


**Models 1003SM to 1804SM**



**HYDRAULIC VERSION**

**Models 0251SM to 1804SM**



# AVAILABLE STATIC PRESSURE OF THE UNIT



WATER FLOW AND AVAILABLE STATIC PRESSURE ( Factory supplied; standard water pump and filter).

MODELS		EAC / EAR 0251SM					EAC / EAR 0291SM					EAC / EAR 0351SM				
Water flow	l/s	0,88	0,99	1,06	1,22	1,37	1,03	1,16	1,24	1,43	1,61	1,22	1,38	1,53	1,70	1,91
	m <sup>3</sup> /h	3,16	3,56	3,80	4,40	4,95	3,72	4,18	4,45	5,16	5,81	4,40	4,95	5,50	6,12	6,88
Available static pressure	kPa	175	152	131	110	87	153	129	106	83	55	214	182	150	115	72

MODELS		EAC / EAR 0431SM				EAC / EAR 0472SM				EAC / EAR 0552SM					
Water flow	l/s	1,47	1,66	1,80	2,04	1,68	1,89	2,11	2,34	2,63	1,96	2,21	2,42	2,73	3,07
	m <sup>3</sup> /h	5,30	5,96	6,47	7,36	6,05	6,81	7,59	8,41	9,46	7,07	7,96	8,72	9,82	11,05
Available static pressure	kPa	161	132	96	47	156	141	128	115	101	140	128	115	99	78

MODELS		EAC / EAR 0672SM					EAC / EAR 0812SM				EAC / EAR 1003SM				
Water flow	l/s	2,39	2,69	3,03	3,32	3,73	2,89	3,25	3,60	4,01	3,44	3,87	4,21	4,78	5,38
	m <sup>3</sup> /h	8,60	9,68	10,90	11,94	13,44	10,39	11,69	12,98	14,43	12,38	13,93	15,17	17,20	19,35
Available static pressure	kPa	223	194	165	134	97	180	147	107	54	214	202	189	173	151

MODELS		EAC / EAR 1103SM					EAC / EAR 1203SM				EAC / EAR 1303SM					
Water flow	l/s	3,86	4,34	4,89	5,36	6,03	4,38	4,92	5,34	6,08	6,84	4,85	5,46	6,01	6,74	7,58
	m <sup>3</sup> /h	13,90	15,63	17,61	19,30	21,72	15,76	17,72	19,23	21,88	24,62	17,48	19,66	21,62	24,27	27,31
Available static pressure	kPa	200	186	172	155	132	185	169	151	130	102	171	152	131	106	71

MODELS		EAC / EAR 1403SM					EAC / EAR 1604SM				EAC / EAR 1804SM					
Water flow	l/s	5,24	5,90	6,63	7,27	8,19	5,85	6,58	7,13	8,12	9,14	6,88	7,74	8,31	9,55	10,75
	m <sup>3</sup> /h	18,86	21,22	23,87	26,17	29,48	21,06	23,69	25,66	29,22	32,90	24,77	27,86	29,93	34,37	38,70
Available static pressure	kPa	165	142	115	90	51	158	138	115	85	53	197	176	137	106	60

NOTE: The flow data indicated in table are between a minimum and a maximum water flow.  
 With the twin pumps kit, the available static pressure will decrease 5% from the data shown above.  
 Unit conversion: Pressure 1KPa = 1/9,8 m.c.a. = 0,01 bar  
 1 bar = 10 m.c.a. = 100 kPa

## GLYCOL SOLUTION UNIT



If the outside temperature where the system is to be installed or the water outlet temperature is likely to drop below 5°C, it is very important to use glycol anti-freeze.

The amount of anti-freeze required will vary depending on the minimum ambient temperature or the water outlet temperature. When the percentage of glycol increases the standard pump flow decreases, the pressure drop increases and the cooling and thermal capacities drop. As a result the minimum flow must be multiplied by the coefficient shown in the table:

MINIMUM AMBIENT TEMPERATURE OR WATER OUTLET TEMPERATURE	ETHYLENE GLYCOL %	PRESSURE DROP	WATER FLOW	POWER INPUT	CAPACITIES	
					COOL	HEAT
FROM +5°C TO 0°C	10%	1,05	1,02	0,997	0,995	0,994
FROM 0°C TO -5°C	20%	1,10	1,05	0,996	0,985	0,993
FROM -5°C TO -5°C	30%	1,15	1,08	0,995	0,975	0,99
FROM -10°C TO -15°C	35%	1,18	1,10	0,994	0,965	0,987

Example: 10 % glycol in EAC 0251SMHN  
 Minimum flow: 3,16 m<sup>3</sup>/h x 1,02  
 Pressure drop: 175 x 1,05  
 System capacity x 0,995  
 Power input x 0,997

## WATER FLOW VOLUME

### MINIMUM WATER FLOW

The installation must never operate with less than the minimum water flow (see table above), this will cause:

- Freezing the water heat exchanger.
- Contamination of the heat exchanger.

### MAXIMUM WATER FLOW

See maximum water flow, (see table above). Always assure the minimum ΔT to the exchanger of 3°C.

### MAXIMUM WATER VOLUME IN THE INSTALLATION

The units with Hydronic or Hydraulic module include a expansion vessel. The table below details the maximum water volume in the system.

If the water volume in the system is greater than that detailed in the table it will be necessary to add additional expansion vessel(s).

The system design must allow for water expansion and contraction.

MODELS	0251SM to 0431SM	0472SM to 0812SM	1003SM to 1403SM	1604SM to 1804SM
SOLUTION	Water volume in liters			
WATER	550	850	1600	2250
WATER + 10% GYT	400	650	1225	1725
WATER + 20% GYT	350	475	1075	1500
WATER + 30% GYT	300	450	925	1300
WATER + 35% GYT	225	325	700	1000

## WATER TANK HEATER (AN OPTION)

The option for Antifreeze protection on the buffer tank includes on cooling only units a immersion heater with safety thermostat.

On heat pump units only when fitted with a buffer tank it is possible to have anti freeze plus supplemental water heater this includes immersion heater with safety thermostat and a adjustable heater thermostat.

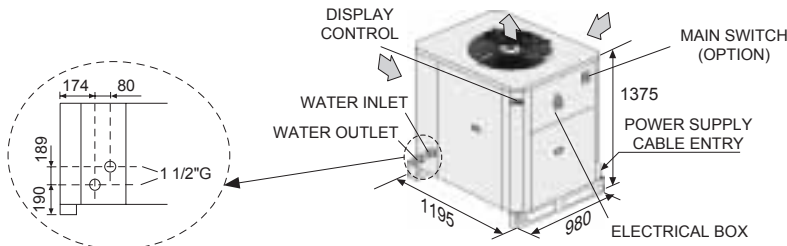
**Tank anti-freeze heater:** It starts when water temperature in the buffer tank is lower than + 5 °C (Not for units with low water temperature kit).  
**Water tank electrical heater:** heat pump units only. The heater works as anti-freeze heater as explained before and as supplementary heater, when inlet warm water reaches a temperature below a value selected (example: 30 °C) through an independent thermostat included.  
 Power consumption is:

MODELS	0251SM to 0431SM	0472SM to 0812SM	1003SM to 1403SM	1604SM - 1804SM
Voltage	V			
Tank anti-freeze heater	3~400V			
Water tank electrical heater	2,25	2,25	6,0	9
Water tank electrical heater*	9	12	24,0	36,0

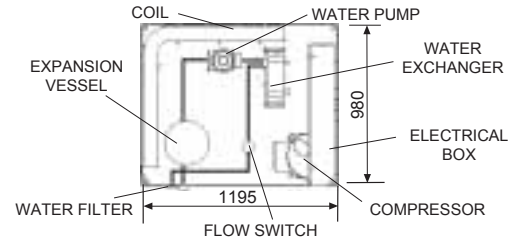
(\*) Heat pump units only

**(HYDRAULIC VERSION)**

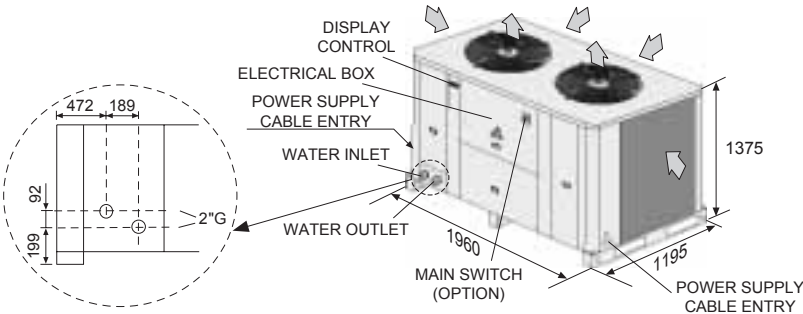
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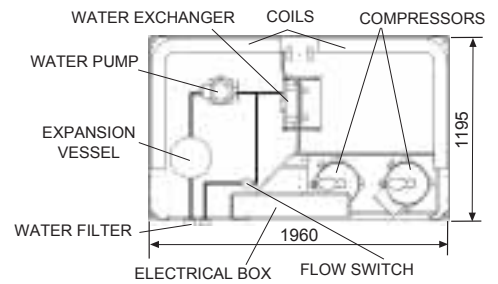
**1 COMPONENT POSITION HYDRAULIC VERSION UNIT**



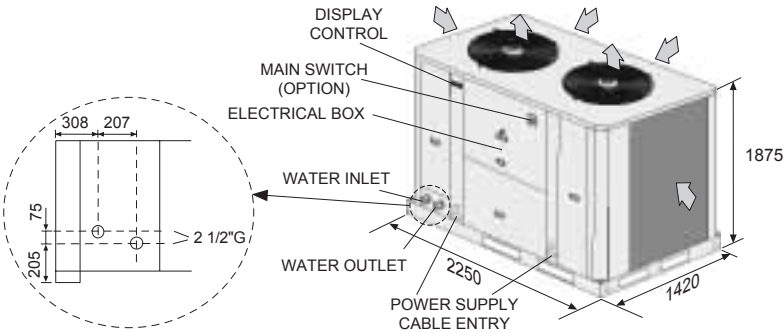
**2 EAC/EAR 0472SM-0552SM-0672SM-0812SM**



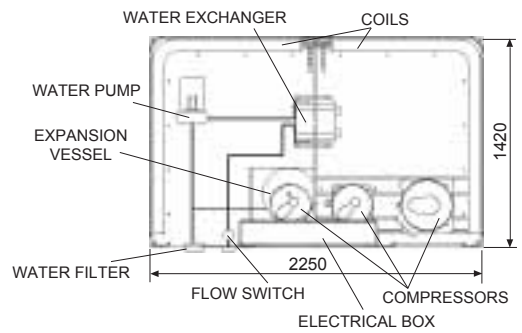
**2 COMPONENT POSITION HYDRAULIC VERSION UNIT**



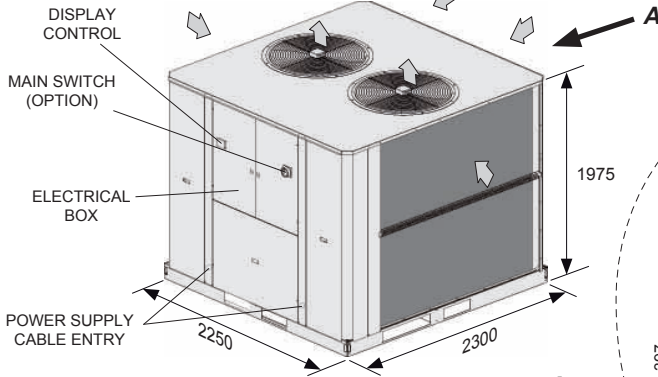
**3 EAC/EAR 1003SM-1103SM-1203SM-1303SM-1403SM**



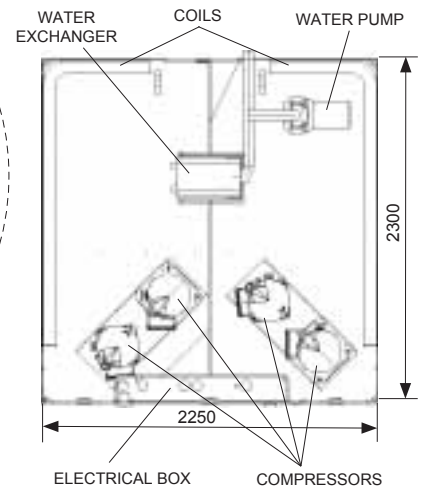
**3 COMPONENT POSITION HYDRAULIC VERSION UNIT**



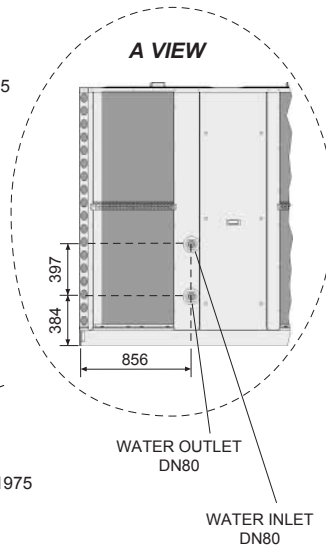
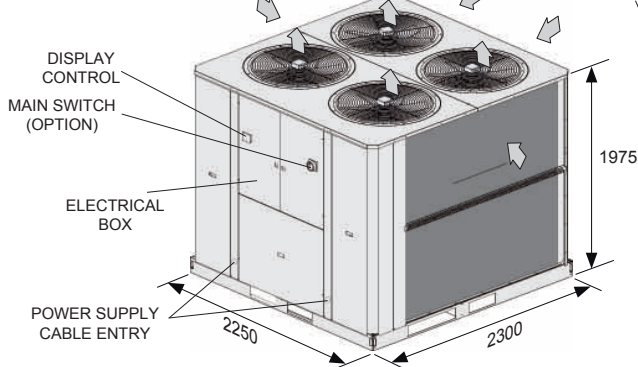
**4 EAC/EAR 1604SM**



**4/5 COMPONENT POSITION HYDRAULIC VERSION UNIT**



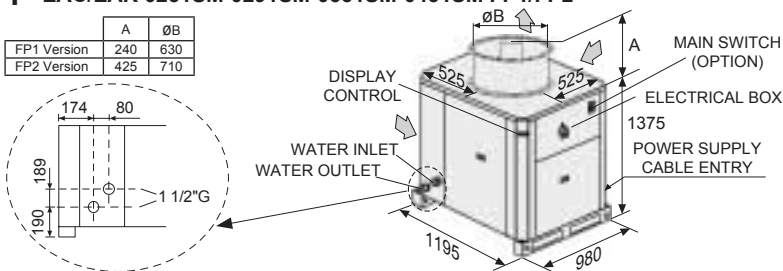
**5 EAC/EAR 1804SM**



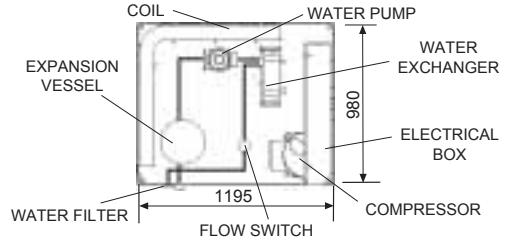
(HYDRAULIC VERSION)

**1 EAC/EAR 0251SM-0291SM-0351SM-0431SM FP1/FP2**

	A	ØB
FP1 Version	240	630
FP2 Version	425	710

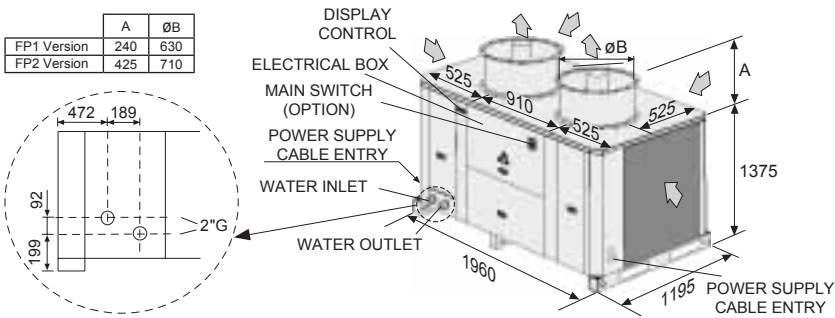


**1 COMPONENT POSITION HYDRAULIC VERSION UNIT**

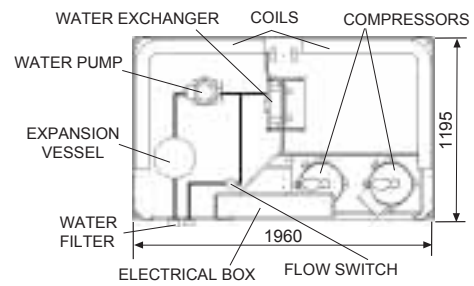


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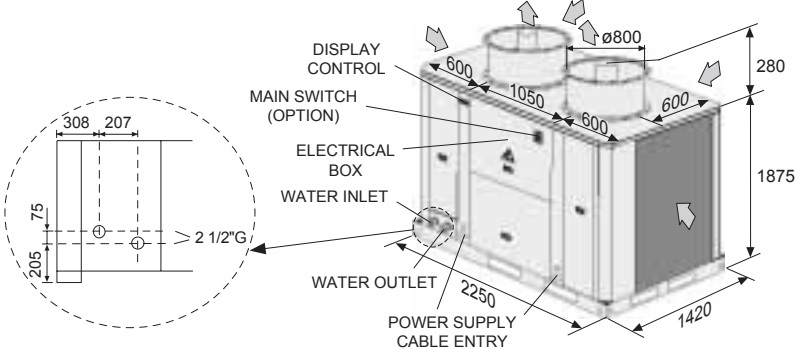
	A	ØB
FP1 Version	240	630
FP2 Version	425	710



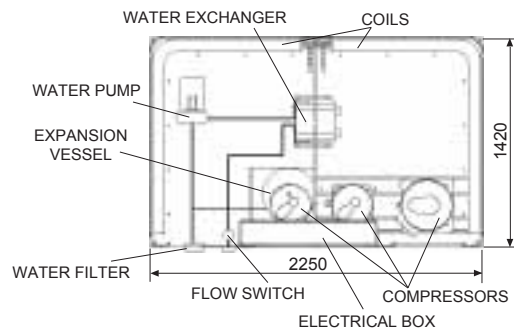
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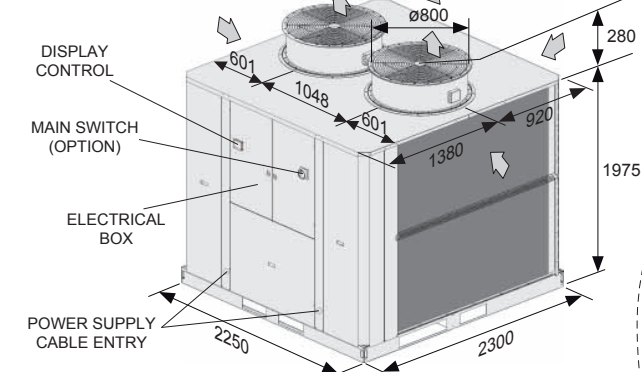
**3 EAC/EAR 1003SM-1103SM-1203SM-1303SM-1403SM FP1/FP2**



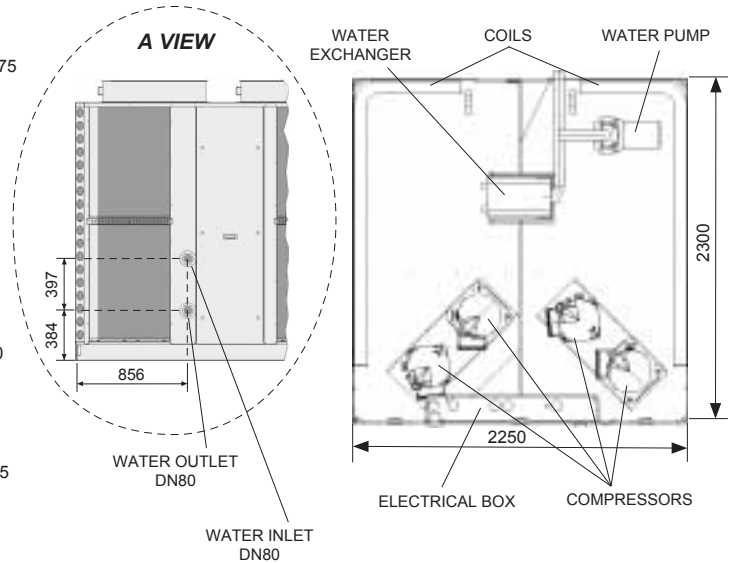
**3 COMPONENT POSITION HYDRAULIC VERSION UNIT**



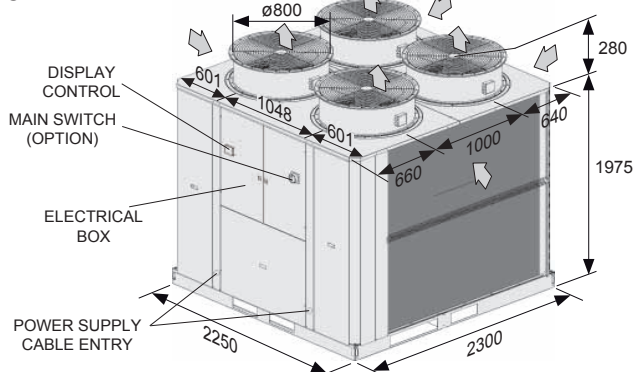
**4 EAC/EAR 1604SM FP1/FP2**



**4/5 COMPONENT POSITION HYDRAULIC VERSION UNIT**

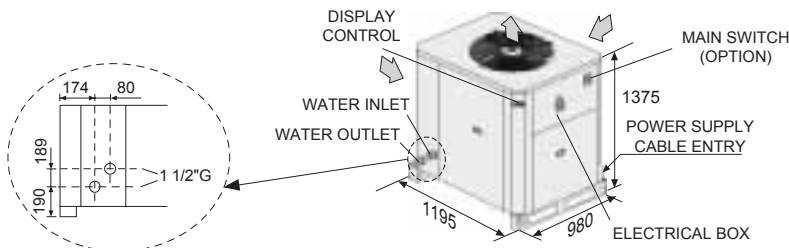


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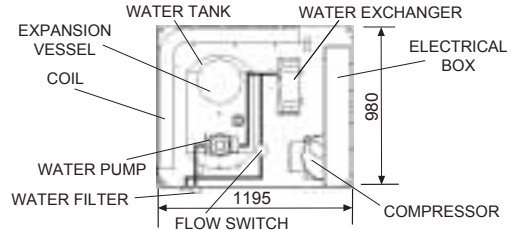


(HYDRONIC VERSION)

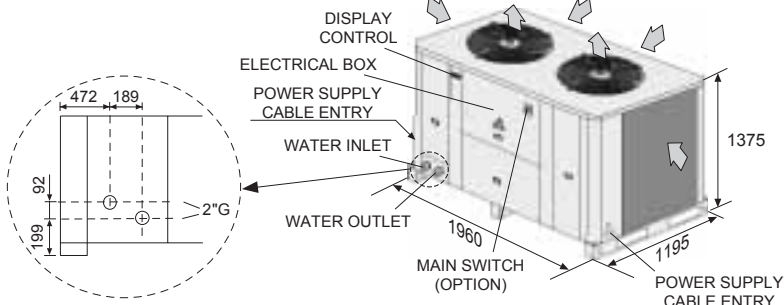
**1 EAC/EAR 0251SM-0291SM-0351SM-0431SM**



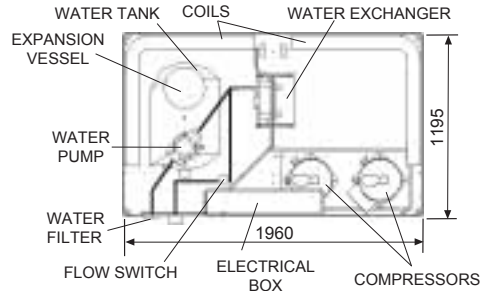
**1 COMPONENT POSITION HYDRONIC VERSION UNIT**



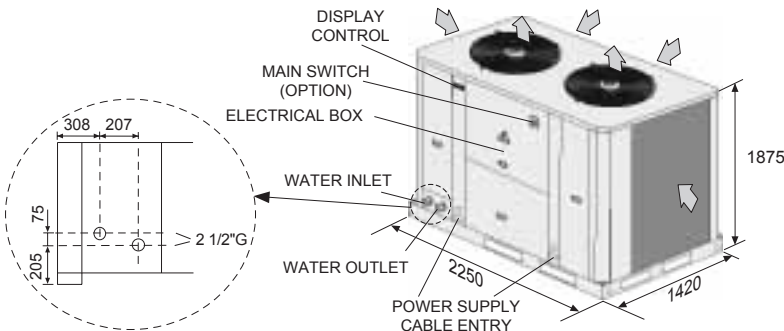
**2 EAC/EAR 0472SM-0552SM-0672SM-0812SM**



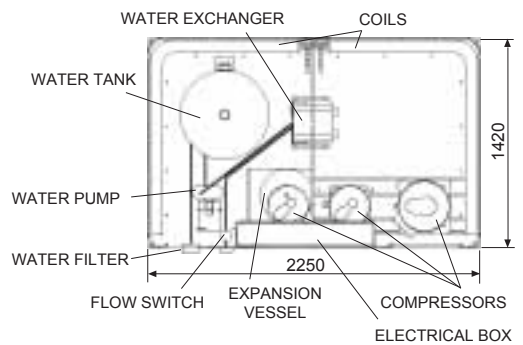
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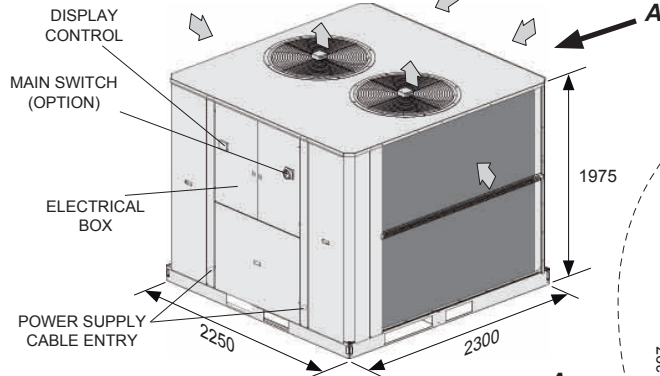
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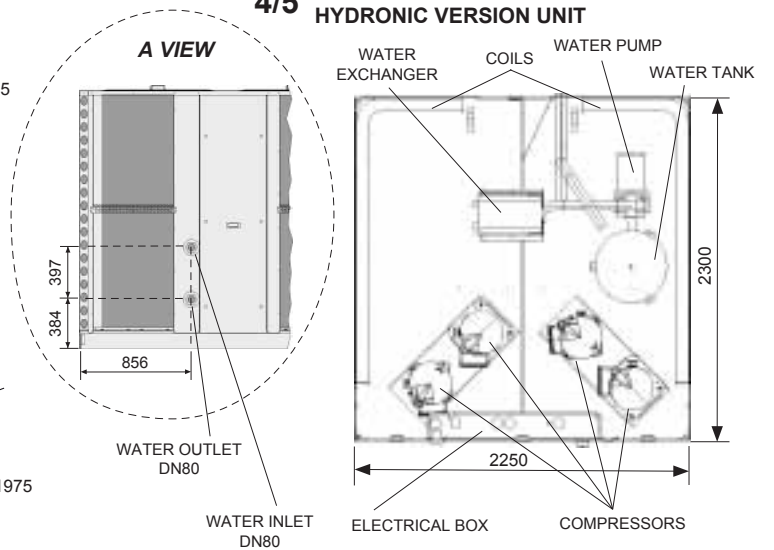
**3 COMPONENT POSITION HYDRONIC VERSION UNIT**



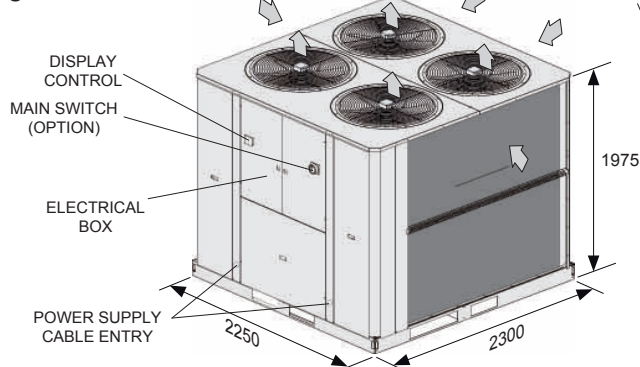
**4 EAC/EAR 1604SM**



**4/5 COMPONENT POSITION HYDRONIC VERSION UNIT**



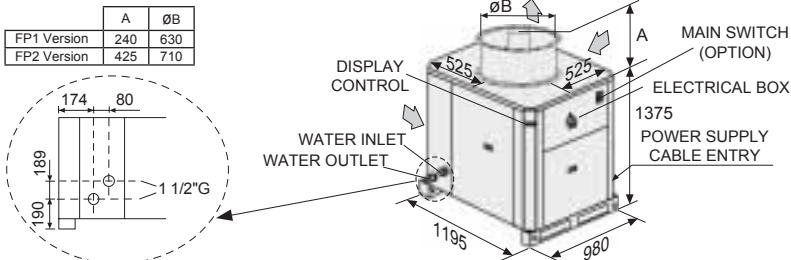
**5 EAC/EAR 1804SM**



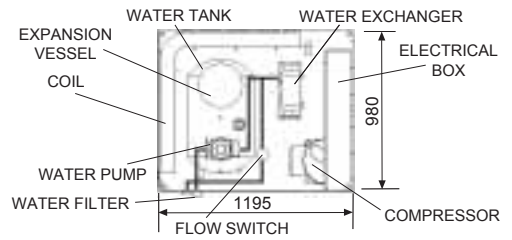
(HYDRONIC VERSION)

**1 EAC/EAR 0251SM-0291SM-0351SM-0431SM FP1/FP2**

	A	ØB
FP1 Version	240	630
FP2 Version	425	710

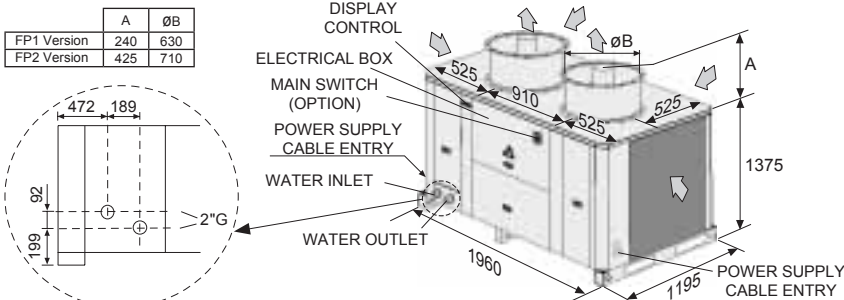


**1 COMPONENT POSITION HYDRONIC VERSION UNIT**

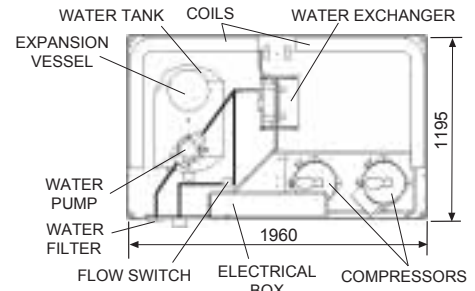


**2 EAC/EAR 0472SM-0552SM-0672SM-0812SM FP1/FP2**

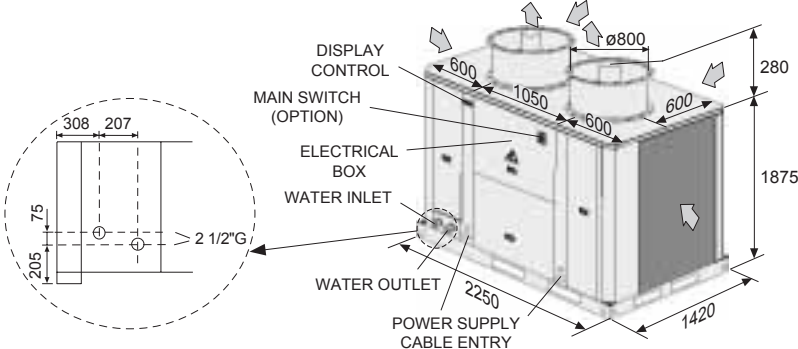
	A	ØB
FP1 Version	240	630
FP2 Version	425	710



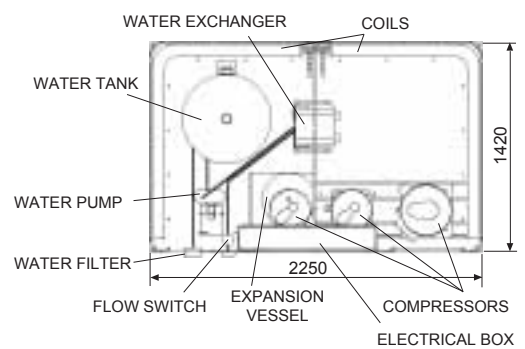
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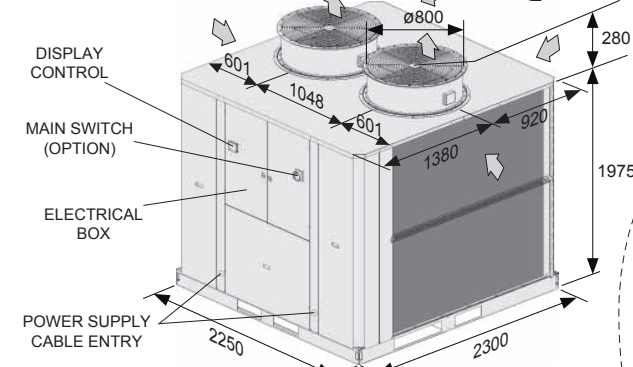
**3 EAC/EAR 1003SM-1103SM-1203SM-1303SM-1403SM FP1/FP2**



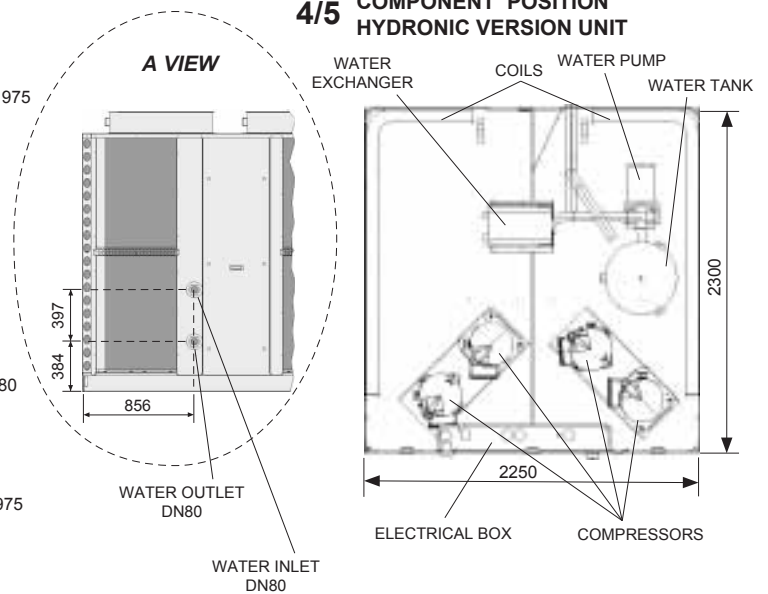
**3 COMPONENT POSITION HYDRONIC VERSION UNIT**



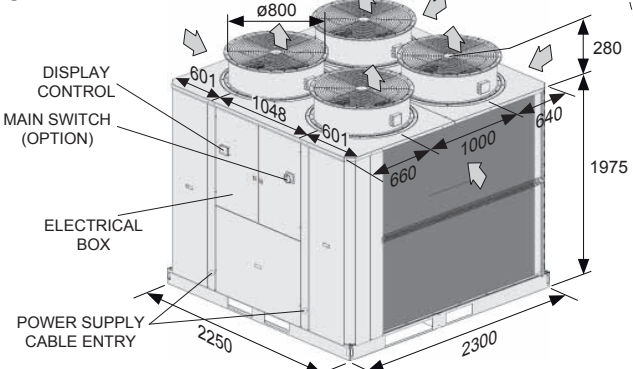
**4 EAC/EAR 1604SM FP1/FP2**



**4/5 COMPONENT POSITION HYDRONIC VERSION UNIT**



**5 EAC/EAR 1804SM FP1/FP2**





**EcoLean™ Technical specification**

To supply and install, where specified in the project n° ..... unit(s) air-cooled water chiller with cooling capacity of ..... kW, to cool ..... m<sup>3</sup>/sec. of water from .....°C to ..... working with ..... °C ambient temperature. The unit should work with electricity at ..... V. 3ph. 50Hz. The electrical power absorbed should not overcome ..... kW. The units COP will be at least ..... at the working conditions of the project. Part load COP will be at least ..... at the working conditions of the project. For the units with 1, 2, 3 or 4 compressors, the chillers will have (1) or (2) independent refrigerant circuits, with the respective electronic microprocessor will allow the starting of the compressors and the control of the chiller. Each chiller will be factory assembled on a robust base frame made of coated steel. The panels will be coated steel panels protected by an epoxy coated paint. The unit will be tested at full load in the factory at the nominal working conditions and water temperatures. Before shipment a full refrigerant leak test will be held to avoid any losses, and the units will be filled with oil and ..... refrigerant.

**General**

Units are leak and pressure-tested at 43 bars high side and 25 bars low side, and then evacuated and charged. Packaged units ship with a full operating charge of oil and refrigerant. Unit panels, structural elements, and control boxes are constructed of 1.5 to 6mm galvanized sheet metal. The chiller is constructed on a solid rugged base frame constructed of steel beams welded together to form a ridged base. The base is structurally able to carry the unit weight and is torsion ally ridged with no vibrating sections. The base is hot dipped galvanised for corrosion protection. The chiller is lifted, moved and mounted via the base frame that contains mounting and lifting points as standard. Unit panels, control boxes and the structural-steel base are finished with baked-on powder paint. The unit is painted to RAL 9002 as standard. The units must be constructed to meet European norms and standards specifically EN 60204-1, NR 2037/2000, ISO9001, & Eurovent certification performance standards.

**Compressors**

All units will have direct driven hermetic Scroll compressors. The scroll compressor axial seal will be achieved by floating tip seals the radial seal is achieved via a micro cushion of oil. The scroll components will be able to disengage in the event of liquid carry over. The compressor motors will be suction gas cooled and have thermal overload device. The operating limits of the compressor motors will allow for +/- 10% of the nameplate voltage. The compressors are mounted on vibration isolation pads to reduce noise transmission.

**Evaporator**

The evaporator is brazed plate type designed, tested, and stamped in accordance with the appropriate pressure-vessel code approval. The evaporator is designed for a waterside working pressure of 10 bars and refrigerant side 45 bars. Water connections are grooved stubs for simple site connection. The evaporator includes an automatic air vent, a drain, and fittings for temperature control sensors, and is insulated with 13 mm (1/2 inch) (K-0.26). Option evaporator heaters are provided to protect the evaporator from freezing at ambient temperatures down to -20°C (-6°F). The evaporator is designed to operate with a flow detection device. Options are for a paddle type switch. The evaporator will have independent refrigerant circuits. The evaporator should be protected from debris and a water filter is available as an option for standard version, included as standard for Hydraulic and Hydronic versions.

**Condenser coil**

The condenser coils are constructed with internally enhanced seamless copper tubes having a "L" configuration and making this unit compact and highly efficiency.

**Condenser fans**

The condenser fans are direct drive vertical discharge helical type with multiple aerofoil blades for higher efficiencies and lower noise. The fan blade will be of the sickle end type mounted in a bell mouth orifice, except for FP versions which are centrifugal ones. The air discharge is vertical and each fan will be coupled to the electrical motor, supplied as standard to IP54/IP55 class "F" insulation with 6 or 8 poles according to models except for FP1 and FP2 unit versions which is 4 poles and capable to work to ambient temperatures of -40°C to +70°C max humidity 80%. The fans are direct driven via a single phase motor except for unit models EAC/EAR 1003S to 1804S and FP2 unit version driven via a three phase motor with permanently lubricated ball bearings. The single phase motors are designed for external operation with the possibility with regulation speed via unit control. The three phase motors are designed with two speeds.

**Control panel**

Field power connection, controls interlock terminals, and unit control system shall be centrally located in a weatherproof cabinet accessible through a lockable door. All 3-phase connections shall be fully shrouded to prevent accidental contact. Power and starting controls shall include lockable individual circuit breaker and contactors for each compressor winding and fan motors. Operating and safety controls shall be via a microprocessor controller plus thermal protection for compressor and fan motors; high and low pressure cut-out switch (for each refrigerant circuit). Standard single point power connections include main three-phase power plus neutral to the compressors, condenser fans and control power transformer. All internal cables must be mounted on cable tray and tied. The chillers will have full earth bonding between isolated metal parts.

**Control & capacity regulation****Standard Controller**

The standard control module is a weatherproof digital display. The display shows up to 4 numeric or letter sequences. In addition to the digital display there are functional leds to denote unit operation. Control interface will be via push button and menu screens for simple use. All alarms and faults are shown via the display

**Functions:**

- Remote stop start (remote connection by others)
- Flow switch (remote connection by others)
- Heat or cool operation selection
- Compressor overload Alarm
- High pressure Alarm
- Low pressure Alarm
- Operating hours compressors
- Operating hours Pump
- Compressor sequencing to match operating hours
- Condenser fan control
- Chilled water pump
- Freeze protection
- Chilled water set point control
- Alarm counter to go from auto reset to manual reset
- Self-diagnostic
- Password protection of settings
- Remote display option
- Hours run

**Refrigerant piping**

Each refrigerant circuit shall include a factory insulated suction line, a refrigerant filter drier, sensor indicator, liquid line, and thermostatic expansion valve. All refrigerant pipework are clamped to prevent vibration. The refrigerant lines should contain independent Schrader valve test points for maintenance.





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