

Liebert HPS

High Performance Split Air Conditioner for Mobile Network Access Nodes



HPSE



SE_W



HPSC

PRODUCT DOCUMENTATION

Liebert HPS

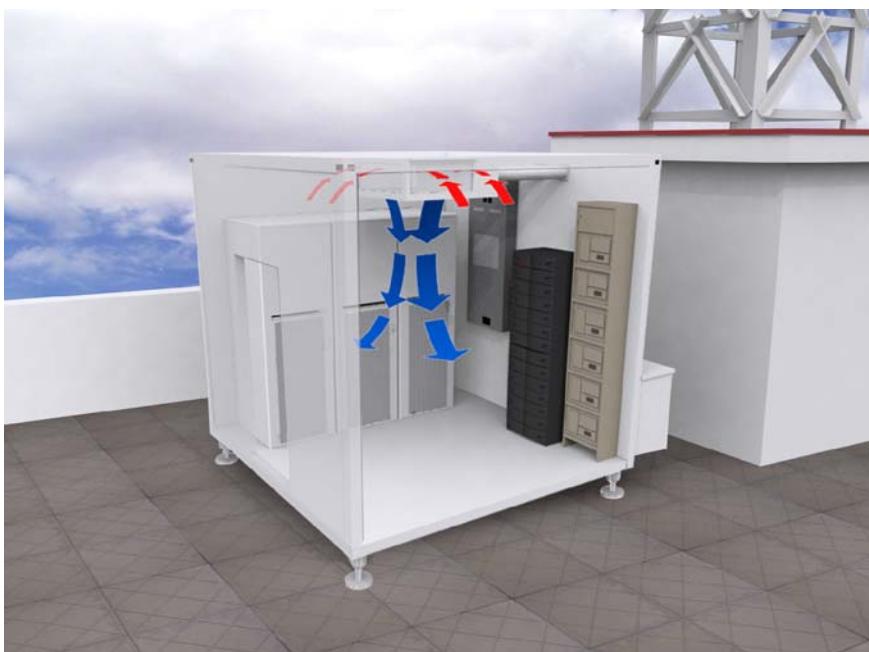
Introduction

Liebert HPS is the high performance split air conditioner family designed to assure proper environmental conditions inside technological environments, especially BTS and Node B for Mobile Networks.

It's composed of the **HPSE** indoor ceiling mounted module coupled with the **HPSC** outdoor module.

It's efficient thanks to the effectiveness air distribution reached through the displacement cooling concept; it's energy and space saving thanks to the high efficiency components and the compactness of the innovative free cooling version; it's extremely flexible thanks to the possibility of selecting among several versions: **Liebert HPS** can be configured depending on the main application drivers (noise level, allowed environmental conditions range etc.) and the desired option (free cooling, emergency free cooling, heating etc.).

The **Liebert HPS** family is also available in the **HPSW** version, made of the **SE_W** indoor wall mounted moudule coupled with the **HPSC** outdoor module.



HPSE ceiling mounted module coupled with **HPSC** outdoor unit: the innovative ceiling mounted installation and efficiency of displacement cooling concept coupled with the reliability and quietness of **HPSC** outdoor unit.

SE_W wall mounted module coupled with **HPSC** outdoor unit: the traditional wall mounted installation coupled with the reliability and quietness of **HPSC** outdoor unit.



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The product conforms to European Union directives 2006/42/EC; 2004/108/EC; 2006/95/EC and 97/23/EC.

Units are supplied complete with a test certificate and conformity declaration and control component list.

Liebert HPS units are CE marked as they comply with the European directives concerning mechanical, electrical and electromagnetic safety.



Distribute the air in the best way

The **HPSE**, ceiling mounted indoor unit is thought to send the cold air straightly down, close to the racks suction area and intakes the hot air out coming from the heat sources, into the cabinet sides (frontal and lateral).

- *Optimal racks feedings*
- *High cooling efficiency*

In this way the mixing effect between conditioner cold air and electronic equipment hot air is denied resulting in a double beneficial effect: the rack is fed by cold air where it is needed and the air conditioner treats only the hot air maximizing its efficiency.

Proper temperature inside the racks, high efficiency of the cooling equipment , hot spot absence in the site: distributing the air in a smart way is very effective.

Save energy and space

The use of the optional freecooling gives the possibility to stop the compressor and use the external fresh air to cool the site: the annual energy absorption, requested to cool the site, goes sensibly down. The 0–100% fine modulation allows to keep constantly the desired set point inside the site.

- *Minimize the energy consumption with the most compact solution*

No adding module is requested when using the **HPSE** ceiling mounted indoor unit: the innovative rotary freecooling system keeps unchanged the requested space to install the unit.

Use the additional freecooling module to have the wall mounted (**SE_W**) solution.

Maximize site reliability

Remote nodes need to exchange data continuously, always working at proper environmental conditions.

- *Reliable components*
- *Emergency free (cooling) system*

Therefore the air conditioner reliability is not an option: it's a must.

The most modern design and components such as scroll compressor and plug – type fans, heat exchanger surfaces and airflows generously designed allow the unit to work 24h/day, 365 days. Maximize the unit reliability selecting the emergency cooling option: in case of main supply fault the air conditioner is supplied by alternative energy sources like 48 VDC batteries or independent AC generator.

Start-up quickly and easily the site

- *Fast plug electrical connectors*
- *Automatic test start-up software*

Liebert HPS is ceiling mounted (HPSE) or wall mounted (SE_W): 2 rows with screws have to be used to easily fix the unit to the site ceiling or wall. No internal wiring of the air conditioner is requested thanks to the availability of the fast plug electrical connectors (special on request).

The auto test software checks automatically all the main components operations, speeding up the site start up procedure.

Choose the cooling unit suitable to your application

- *HPSC Advanced*
- *Low noise level*
- *Extreme environmental conditions*
- *Long piping*

Liebert HPS assures optimal air distribution, efficiency, energy saving, reliability, compactness whatever is its configuration. More stringent requirements in terms of noise level emission and maximum external working temperature, can be satisfied selecting **HPSC** advanced version: 45 dB(A) at 3m f.f and 50° C with internal conditions of 27° C, 35% R.H. at 1.5m from site floor. Long piping installations are not anymore a limit: using the "L" condenser version, high performances are assured also when distance between outdoor and indoor unit is prohibitive.

Respect the environment: ODP, TEWI and . . . noise level

Now days green refrigerants are a standard (low Ozone Depletion Potential)! More than this, the most effective way to respect the environment is to reduce the energy absorption with a high efficiency refrigerant cycle.

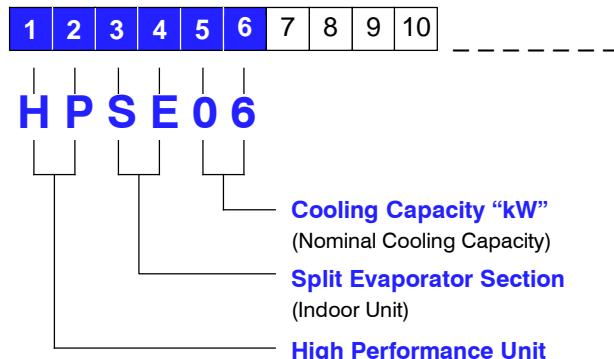
- *Green refrigerants*
- *High efficiency refrigeration cycle*
- *Low noise level*

Liebert HPS reach a high EER (Energy Efficiency Ratio) value thanks to the use of large surface heat exchangers; this effect is maximized by the U – Shape coil used in the evaporating side. The relevant Total Equivalent Warming Impact (TEWI) value is reduced.

Finally the importance of a low noise level: a different way, not less important, to respect the environment.

Model Nomenclature / Digit Numbers

CEILING MOUNTED INDOOR UNIT



HPSE 06 – 14

BASE UNIT EVAPORATOR SECTION

Split air cooled indoor unit

Digits 1, 2, 3, 4, 5, 6

- RAL7035 "bright grey" cabinet

Digit 7 – Emergency cooling (EFC)

- 0 = No emergency cooling
 1 = Emergency cooling through 48Vdc fan (*)
 2 = Kit for connection to external inverter (*)

(*) Option possible only if digit 9 = 1, 2, 3, or 4.

Digit 8 – Main power supply and electric heating (*)

- 0 = 230V / 1Ph / 50Hz (no electric heating) – HPS 06
 400V / 3Ph / 50Hz (no electric heating) – HPS 08–14
 1 = 230V / 1Ph / 50Hz (with electric heating) – HPS 06
 400V / 3Ph / 50Hz (with electric heating) – HPS 08–14

(*) Power supply must be the same as per digit 5 of HPSC unit.

Digit 9 – Fresh air freecooling (FC)

- 0 = No freecooling
 1 = FC circular holes – modulating damper
 2 = FC rectangular holes – modulating damper
 3 = FC circular holes – fast return damper
 4 = FC rectangular holes – fast return damper

Digit 10 – Microprocessor control

- 1 = Control (no display)
Plug for display available on indoor unit
 2 = Control + remote display
Remote wallmount display
 3 = Connectivity (*) control (no display)
Available plugs: LAN, remote display and graphic display
 4 = Connectivity (*) control + remote display
Available plugs: LAN, remote display and graphic display
 5 = Connectivity (*) control + graphic display and language Set L1
Available plugs: LAN, remote display and graphic display
 6 = Connectivity (*) control + graphic display and language Set L2
Available plugs: LAN, remote display and graphic display

(*) To create LAN choose the Connectivity control and select the optional LAN cable.

Language set L1: GB, F, I, D, E, P, NL, S.

Language set L2: GB, PL, CZ, H, RUS, TK.

Digit 11 – Air filter

- 0 = G3
 1 = G4
 2 = G3 (indoor air) + clogged filter pressure switch (indoor air)
 3 = G4 (indoor air) + clogged filter pressure switch (indoor air)

Digit 12 – Packing

- 0 = Cardboard and pallet
 C = Cardboard and wooden crate
 S = Seaworthy

Digit 13 – Free

- 0 = Free option always

Digit 14 – Evaporator coil

- 0 = Standard aluminium evaporator fins
 1 = Epoxy coated evaporator fins

Digit 15 – Free

- 0 = Free option always

Digit 16 – Free

- 0 = Free option always

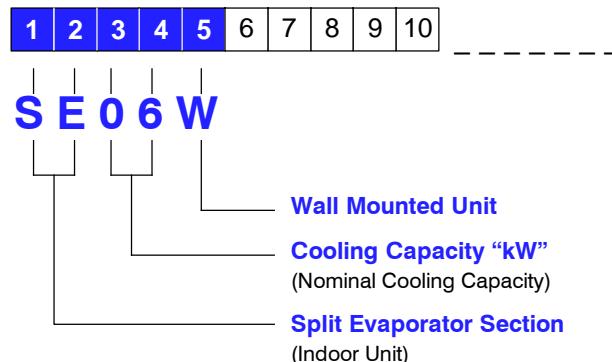
Digit 17 – Special requirements

- 0 = None
 X = Special

Model Description and Selection

Model Nomenclature / Digit Numbers

WALL MOUNTED INDOOR UNIT



SE 06 – 14W

BASE UNIT EVAPORATOR SECTION

Split air cooled indoor unit

Digits 1, 2, 3, 4

- RAL7035 "bright grey" cabinet
- Air flow sensor

Digit 5

W = Wall mounted

Digit 6 – Free

0 = Free option always

Digit 7 – Emergency cooling (EFC)

- 0 = No emergency cooling
- A = Emergency cooling through 48Vdc fan (*)
- 2 = Kit for connection to external inverter (*)
- B = Emergency cooling through 24Vdc fan (*)

(*) Option possible only if digit 9 = 1, 2, 3, or 4.

Digit 8 – Main power supply and electric heating (*)

- 0 = 230V / 1Ph / 50Hz (no electric heating) – HPSW 06
400V / 3Ph / 50Hz (no electric heating) – HPSW 08–14
- 1 = 230V / 1Ph / 50Hz (with electric heating) – HPSW 06
400V / 3Ph / 50Hz (with electric heating) – HPSW 08–14

(*) Power supply must be the same as per digit 5 of HPSC unit.

Digit 9 – Fresh air freecooling (FC)

- 0 = No freecooling
- 1 = FC circular holes – modulating damper
- 2 = FC rectangular holes – modulating damper
- 3 = FC circular holes – spring return damper
- 4 = FC rectangular holes – spring return damper

Digit 10 – Microprocessor control

- A = Control + remote display
Remote wallmount display
- B = Control + remote display + connection cables for stand-by
Remote wallmount display inclusive of connectors cable
- C = Control + graphic display and language Set L1 (*)
- D = Control + graphic display and language Set L2 (*)

(*) Language set L1: GB, F, I, D, E, P, NL, S.

Language set L2: GB, PL, CZ, H, RUS, TK.

Digit 11 – Air filter

- 0 = G3
- 1 = G4
- 2 = G3 + clogged filter pressure switch
- 3 = G4 + clogged filter pressure switch

Digit 12 – Packing

- 0 = Pallet + heavy cardboard
- C = Cardboard and wooden crate
- S = Seaworthy

Digit 13 – Refrigerant

- 1 = R407C

Digit 14 – Evaporator coil

- 0 = Standard aluminium evaporator fins
- 1 = Epoxy coated evaporator fins

Digit 15 – Free

- 0 = Free option always

Digit 16 – Free

- 0 = Free option always

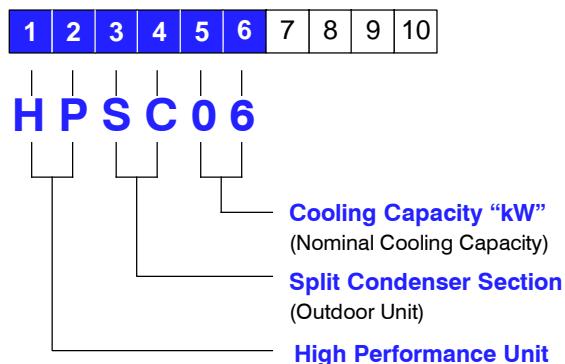
Digit 17 – Special requirements

- 0 = None
- X = Special

Model Description and Selection

Model Nomenclature / Digit Numbers

OUTDOOR UNIT



HPSC 06 – 14

BASE UNIT CONDENSER SECTION

Split air cooled outdoor unit

Digits 1, 2, 3, 4, 5, 6

- Scroll compressor
- R407C – 230V / 1Ph / 50Hz (6kW)
- R407C – 400V / 3Ph / 50Hz (8–14kW)
- RAL7035 "bright grey" cabinet

Digit 7 – Configuration

- 0 = Base (no sight glass filter, ON–OFF fan speed control)
A = Advanced
 - Sight glass filter, modulating fan speed control, lower noise, higher external temperature

L = Long piping application

Digit 8 – Condenser coil

- 0 = Standard aluminium fins
1 = Epoxy coated condenser fins
2 = Standard aluminium fins with protection grilles
3 = Epoxy coated condenser fins with protection grilles

Digit 9 – Packing

- 0 = Pallet + heavy cardboard
C = Cardboard and wooden crate
S = Seaworthy

Digit 10 – Special requirements

- 0 = None
X = Special

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Mechanical Specifications

Refrigerant circuit

- *Scroll compressor*
- *Crankcase heater*
- *Filterdryer and sight glass*

The compressor, located in the motor-condensing section, is hermetic, scroll type, complete with internal protection against overheating. It is housed in a compartment separated from the air flow, protected by an insulated panel, accessible from the front side for complete maintenance. A crankcase heater maintains a minimum refrigerant temperature to allow reliable start-up and operation even in very cold climate. Depending on the configuration a capillary or a thermostatic expansion valve, filter dryer and sight glass, low pressure and high pressure switches and two access valves complete the refrigerant circuit.

Evaporating section

- *High efficiency fans and heat exchangers*

The evaporator section consists of a coil with copper tubes and aluminium fins, with a large face area in order to increase the SHR (Sensible Heat Ratio) and optimize the EER (Energy Efficiency Ratio).

The U-shape coil in the ceiling mounted unit, increases the heat exchange efficiency.

A galvanized steel condensate drain tray (10/10mm thick) is provided.

Depending on unit version, evaporating fan(s), all direct driven, can be axial (HPSE ceiling mounted, cooling only), centrifugal (SE_W only cooling) or centrifugal backward curved (HPSE ceiling or SE_W wall mounted, Freecooling and Emergency Freecooling). Fans are statically and dynamically balanced with self-lubricated bearings, equipped with an airflow sensor as standard to provide an alarm in case of low airflow.



HPSE
(CEILING)



SE_W
(WALL)



HPSC

- *Up to 45 °C external temperature and 50 dB(A)*
- *HPSC advanced: up to 50 °C and 48.5 dB(A)*
- *HPSC long piping: up to 50m distance between evaporating and condensing unit*

Condensing section

A wide surface condensing coil is provided. It is designed in copper tubes with aluminium fins and sized to allow operations at least up to up to 45°C outdoor air temperature.

The "Advanced" version extends the external high temperature limit to 50°C in order to satisfy extreme environmental working conditions. The units are equipped with 6-pole axial fan. The electrical motor is directly coupled on the motor shaft, with internal thermal protection and IP54.

The innovative design of the impeller allows the maximum efficiency with the minimum noise.

In **Liebert HPS** standard, the condenser fan is activated together with the compressor; a simple and valid solution where the required noise level is not extremely low (50 dB(A) at 2m f.f.), where the temperate climate doesn't require to work in extremely low environment conditions (10°C), where using the freecooling you can save your energy and go down to -30°C.

In the "Advanced" **Liebert HPS**, the condensing fan speed is smoothly regulated by a modulating control; it is the ideal solution if the freecooling is not allowed and the air conditioner is required to work in mechanical mode down to -30°C; it's a must where extremely low noise level is required. Keeping the Advanced performances, the long piping version extends the allowed distance between the evaporating and condensing unit (see Fig. 22, Fig. 23, Fig. 24 and Fig. 25).

Filtering section

- *Ambient: G3*
- *Fresh air: pre-filter*

The filter section is placed vertically, before the evaporating coil and provides filtration of the internal ambient and the fresh air to obtain the required degree of air cleanliness in the room. The filter can be removed from the bottom of the unit (indoor side) simply opening the relevant panel and unlocking the support brackets. The standard filter class is G3, according to Eurovent EU4/5 standard. A metallic pre-filter, enclosed in the freecooling air intake grill (accessory), protect the fresh air filter.

Mechanical Specifications

Cabinet

- Evaporating side: ceiling mounted
- Condensing side: worst weather conditions resistance

Liebert HPS frame consists of riveted steel panels, treated with powder coating colour as standard (RAL7035). The evaporating unit can be placed ceiling mounted (HPSE) or wall mounted (SE_W). In the **HPSE**, air inlet is located in the 3 side panels and the air supply is done from the bottom section, through an integrated grille.

In the **SE_W**, air inlet is located at unit frontal bottom side and air supply is from unit top. The motor-condensing unit (HPSC) is designed to be installed outdoor and resist to worst weather conditions.

The thermo-acoustic insulation of the panels is 10 mm thick, mineral wool type, density 70 kg/m³.

The motor-condensing unit takes the external air from the rear and discharge it on the front section. A frontal metal safety grid prevents contact with the fan.

The insulation of the panels is made by a self-extinguishing material, specified as class V1 in relation to its fire proof properties.

Electrical panel

- No internal wiring with the fast plug connectors accessories

The electrical panel of the indoor unit is housed in easily accessible panel: it includes the circuit breaker for the AC power line, the circuit breaker for the optional DC power line and the electronic board. An external main switch is available on the unit side as standard.

Thanks to the fast plug connectors (special on request), no internal wiring is needed: AC power line, DC power line, power supply for the condenser, general warning and alarm, display connection, optional LAN connection are available on the side of the evaporating unit. The electrical board is built in accordance with EN 60204-1 recommendations.

A single phase transformer supplies with 24 VAC the electronic control and the secondary circuit with maximum safety; in **Liebert HPS** with optional 48 VDC emergency freecooling system, the control is directly fed by the 48 VDC supply source.

Automatic restart is provided after a power failure.

The outdoor HPSC condenser unit receives main power supply from the indoor unit, together with the control signals collected in a dedicated weather-proof terminal block.

Operational limits

HPS

HPS	06	06 Advanced Long piping	08	08 to 14 Advanced Long piping
Power supply voltage	230Vac ±10% / 1Ph / 50Hz		400Vac ±10% / 3Ph / 50Hz	
Outdoor working conditions	from	10 °C (mechanical mode) –30 °C (freecooling mode)	–30 °C	10 °C (mechanical mode) –30 °C (freecooling mode)
	to	47 °C	51 °C	45 °C
Indoor working conditions (*)	from	24 °C, 30% R.H. and 24 °C, 80% R.H.		
	to	35 °C, 40% R.H.	34 °C, 40% R.H.	30 °C, 40% R.H.
Storage conditions		–40 °C, 5% R.H.		
		55 °C, 90% R.H.		

(*) Conditions referred to indoor unit (HPSE) air intake section.

Mechanical Specifications

HPSW

HPSW	06	08	10	13	14
Power supply voltage	230V ±10% / 1Ph / 50Hz	400V ±10% / 3Ph + N + PE / 50Hz			
Outdoor working conditions	from	–30 °C			
	to	52 °C	49.5 °C	50.5 °C	49 °C
Indoor working conditions (*)	from	22 °C, 30% R.H., 80% R.H.			
	to	20 °C, 30% R.H., 80% R.H.			
Storage conditions		30 °C, 40% R.H.			
		–40 °C, 5% R.H.			
		55 °C, 90% R.H.			

(*) – The min. indoor temperature is referred to 30% of indoor relative humidity and to the min. outdoor temperature; for higher relative humidity and/or outdoor temperatures, the min. indoor temperature is higher than the table data.

The max. indoor temperature is referred to outdoor temperature of 35° C; for higher indoor relative humidities and/or outdoor temperatures, the max indoor temperature is lower than the table data.

Mechanical Specifications

Fig. 1 – HPSE ceiling mounted – Operating diagram (without freecooling)

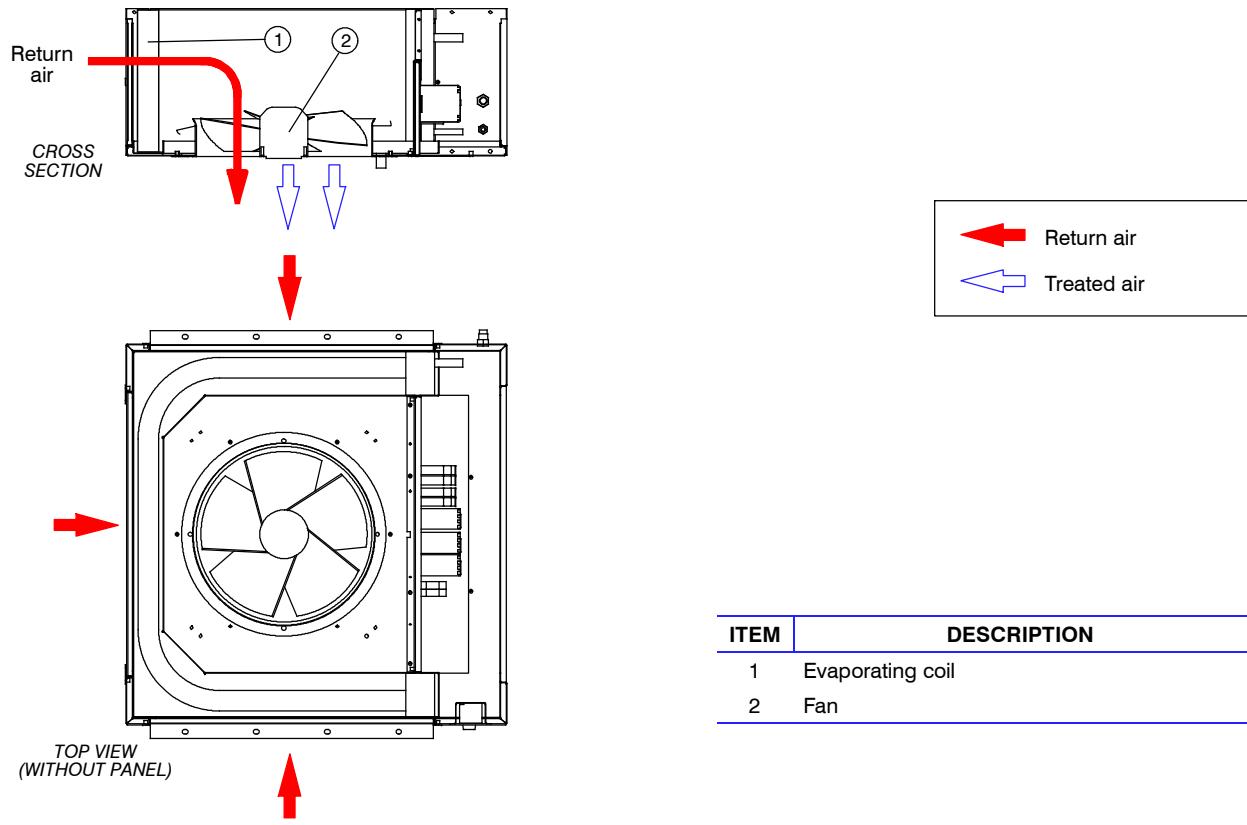
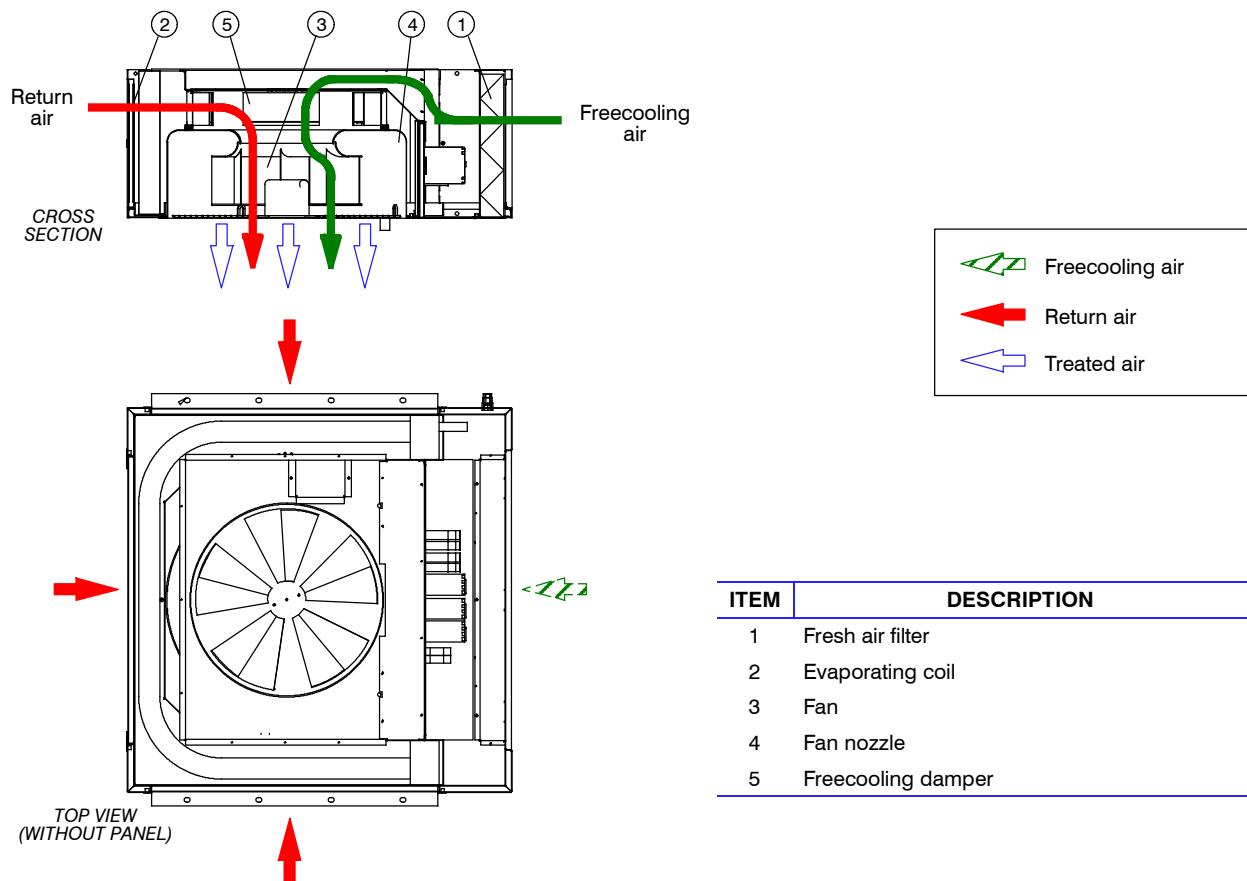
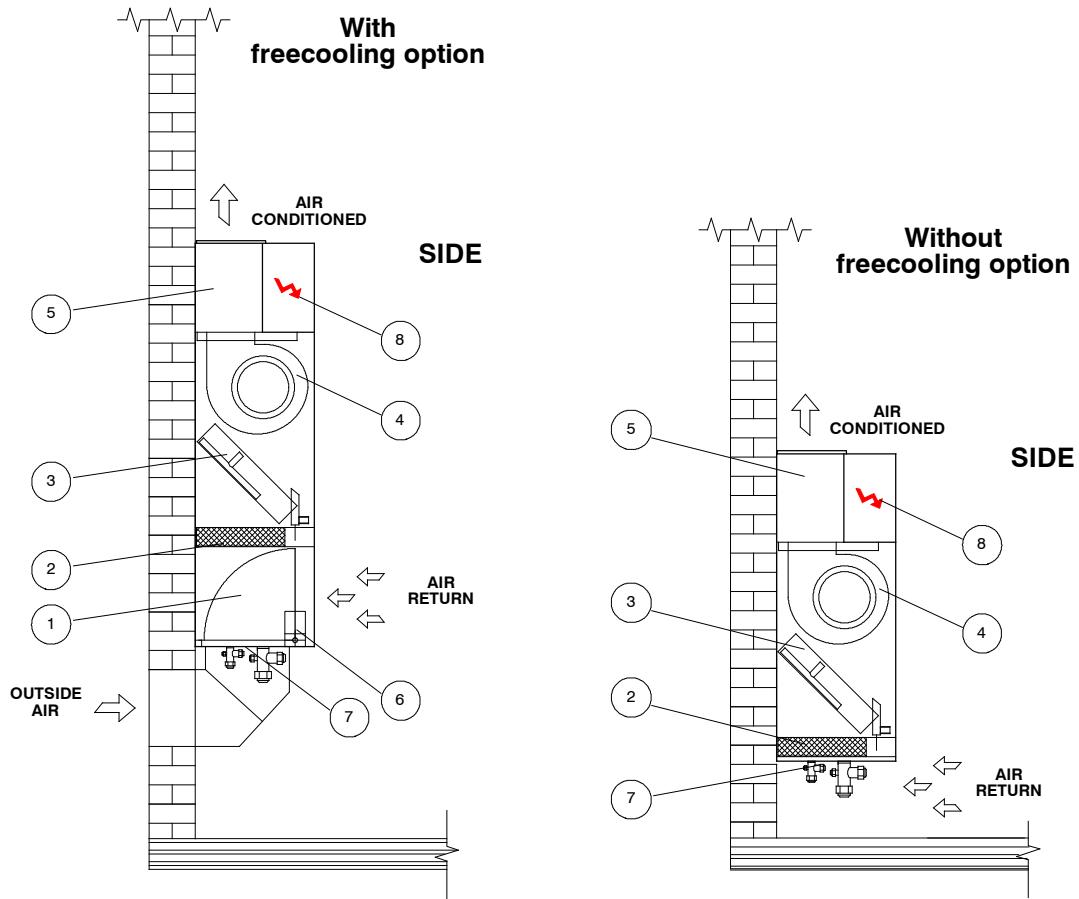


Fig. 2 – HPSE ceiling mounted – Operating diagram (with freecooling)



Mechanical Specifications

Fig. 3 – SE_W wall mounted – Operating diagram



ITEM	DESCRIPTION
1	Freecooling damper
2	Air filter
3	Evaporator coil
4	Evaporator unit fan
5	Air discharge duct
6	Damper motor
7	Air suction grille
8	Electrical panel evaporating unit

4 Control

Main features

The main board is housed in the electrical panel of the **HPSE** and can be connected to the remote display, to be installed in the container/room (connection cable is included in the remote display option).



- The user interface (option) is the 3-digit back-lit display showing parameter values and relevant symbols/codes in a tree menu. It features navigation push buttons and status leds.
- General warning and general alarm signals are available: both of them activate a visual indicator in the optional display.
- Input for remote On-Off and volt-free contacts for simple remote monitoring of general warning and alarms are available.
- The self-test function automatically activates/deactivates the main components (evaporator fan, compressor, freecooling damper, heaters, alarms) without changing the pre-set parameters, to easily start-up and commission the unit. No skilled personnel are requested (*).
- All settings are protected through a 3-Level password system (*).
- Automatic restart is provided after a power failure.

(*) *The Remote display is required to activate the function.*

Technical data

- Power supply: 24 Vac / 24 Vdc / 48 Vdc
- E2prom: 64 Kbit
- Eprom/Flash memory: 2 or 4 Mbit
- RAM memory space: 256 Kbit
- Analogue Input: 1 x Analogue 0–10V
..... 2 x Analogue 0–5V
- Digital Input: 3 x PTC input
..... 5 x Flexible Digital multi input
- Analogue Output: 2 x Analogue 0–10V
- Digital output: 3 x relay high power output
..... 2 x relay 24Vac/48Vdc output
..... 2 x relay low power output
..... 1 x open collector 12Vdc output
- Time and date function buffered by Li-battery
- Hirobus LAN connectors (optional): 3 RJ45 sockets (to and from LAN connected units, remote display)
- Hironet connectors: 1 RJ9 socket for RS485 (direct connection to proprietary supervision)
- Hiromatic E display (optional)
- SMM mobile phones communications via SMS (optional)

5

Options

Emergency cooling

- *Uninterruptible ventilation*
- *Freecooling even in emergency conditions*

The unit is optionally equipped with an emergency cooling system that allows to ventilate or to cool through external fresh air the site in case of main electrical supply fault.

For this purpose the evaporating fan section, the control, and the free cooling damper are supplied in 48 VDC power supply (from rectifier in normal mode, from batteries in emergency mode). This option guarantees the air circulation inside the site and if the control recognizes the proper external temperature to run the freecooling mode, the damper will open to fresh the site and get the required set point. The emergency cooling system is also available in 230 VAC. The compressor and the condenser fan are supplied by standard AC power.

Heating

- *ON-OFF control*
- *Safety thermostat*

The heating option include electric heaters (1.5 kW on model 06, 3.0 kW on models 08–10, 4.5 kW on model 12 and 6.0 kW on model 14), located in the air discharge plenum, one stage and ON–OFF regulation.

A safety thermostat with automatic reset and thermo fuses prevents heaters from reaching dangerous temperatures.

Freecooling

- *Compact system*
- *0–100% modulation*

The freecooling system consists of a damper controlled and moved from a AC servomotor (48VDC supplied in the emergency version).

The system allows a 0–100% modulating freecooling in order to respect the desired set point.

The exhaust air is discharged outdoor through an overpressure damper mounted on the wall and available as accessory. The control allows the unit to run in freecooling mode when the difference between the indoor and outdoor air temperature reaches the required value to get the nominal cooling capacity. In emergency situation, the freecooling is allowed at a lower difference between the indoor and outdoor air temperature, in order to use the external fresh air as much as possible. In the HPSE ceiling mounted version, the innovative rotary system allows the air conditioner to be equipped with the freecooling system without any adding module, maintaining the standard unit dimensions.

Connectivity

- *LAN management*

The possibility to create a LAN is available selecting the “Connectivity” control version and connecting two or more units through the Hirobus cable (optional). Functions provided include stand–by (in case of failure or overload of the unit in operation, the second one starts automatically), automatic rotation and cascade (sharing of the total load among several units).

Special filtration

- *G4 filter*
- *Clogged filter*

Optional high–level filtration can be reached.

A clogged filter system can be supplied to advise when the indoor air filter is dirty.

Package

- *Cardboard box*
- *Wooden crate*

Standard packing consists of a wooden pallet and cardboard box. Polythene foam protects the units' painted surfaces. On request, a cardboard box with an additional wooden crate or wooden case for sea transport can be supplied.

Corrosive environments protection

- *Epoxy coated coils*

The condenser coil and/or evaporator coils are available with aluminium fins coated by epoxy film, to protect from aggressive environmental conditions.

Long piping installation

- *Up to 50 m equivalent length*

Select the “L” condenser option to allow long piping installations between outdoor and indoor units: up to 50 m of equivalent length with up to 20 m of height level difference, being the condensing unit below or above the evaporating one, doesn't matter.

The “L” condenser version includes also all features provided within condenser “Advanced” version (“A”).

6

Test and Reference Norms

Safety

Liebert HPS units are designed, manufactured and tested according to the European Union directives:

- 2006/42/EC;
- 2004/108/EC;
- 2006/95/EC;
- 97/23/EC.

Electrical Board

Design and manufacturing is compliant with EN 60204 – 1.

Electro–Magnetic compatibility (EMC)

Liebert HPS complies with the following EMC standards:

- EN 50081 – 1, Emission (“Generic emission standard, Part 1: Residential, commercial and light industry, Jan 1992”)
- EN 50082 – 2, Immunity (“Generic immunity standard, Part 2: Industrial environment, Mar 1995”).

Mark

Each unit is supplied complete with individual test certificate and a declaration of conformity to the European Union directives. The units are marked “CE”.



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Technical Data

Tab. 1 – HPSE + HPSC (No freecooling version)

MODEL: HPS		06	08
Air supply	–	Downflow	
Main power supply	–	230V±10%/1Ph/50Hz	400V±10%/3Ph+N+PE/50Hz
PERFORMANCE			
Total cooling capacity ⁽¹⁾	kW	6.2	8.2
Sensible cooling capacity ⁽¹⁾	kW	6.2	8.2
Compressor – AC power input ⁽¹⁾	kW	1.73	2.18
Compressor – AC operative current (OA) ⁽¹⁾	A	8.1	3.9
Compressor – AC max current (FLA)	A	11.4	5.1
Compressor – AC starting current (LRA)	A	47.0	32.0
Condenser fan – AC power input ⁽¹⁾	kW	0.08	0.10
Condenser fan – AC max. power input	kW	0.08	0.10
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.6	0.7
Condenser fan – AC max. current (FLA) ⁽²⁾	A	1.4	1.4
Condenser fan – AC start-up current	A	1.6	1.6
Evaporator fan – AC power input ⁽¹⁾	kW	0.17	0.35
Evaporator fan – AC operative current (OA) ⁽¹⁾	A	0.8	1.5
Evaporator fan – AC max. current (FLA) ⁽²⁾	A	0.8	2.0
Evaporator fan – AC start-up current	A	3.0	2.7
Evaporator air flow	m ³ /h	1510	2440
Condenser max. air flow	m ³ /h	2170	1920
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	50	50
Indoor Sound Pressure Level ⁽³⁾	dB(A)	58	62.5
Max. ambient temperature ⁽⁴⁾	°C	47	45
REFRIGERATION CIRCUITS			
Compressor – type / quantity	–	Scroll / 1	
Refrigerant	–	R407C	
Expansion device	–	Capillary	
Evaporator coil – tubes / fins material	–	Copper / Aluminium	
Condenser coil – tubes / fins material	–	Copper / Aluminium	
AIR FILTRATION			
Main air filter – quantity / type	–	3 / Panel filters	
Efficiency (CEN-EU)	–	G3	
Filters dimensiond (DX side)	mm	597 / 267 / 10	
EVAPORATOR FAN			
Quantity / Type / Poles	–	1 / Axial / 4	
Driven / Motor protection	–	Direct / IP44	Direct / IP54
CONDENSER FAN			
Quantity / Type / Poles	–	1 / Axial / 6	
Driven / Motor protection	–	Direct / IP54	
Control system	–	Single speed	
ELECTRIC HEATING			
Type / Steps	–	Wires / 1	
Heating capacity	kW	1.5	3.0
Heating – max. current	A	6.5	
CABINET			
Frame	–	Galvanised steel	
Painting	–	Polyester – RAL7035	
OVERALL DIMENSIONS			
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390	
Width / Height / Depth (HPSE indoor unit)	mm	800 / 310 / 800	
Weight (HPSC outdoor unit)	kg	80	82
Weight (HPSE indoor unit)	kg	50	53

Notes:

(1) – Indoor reference conditions: 30° C / 35% R.H. air intake. Outdoor reference conditions: 35° C. Nominal power supply.

(2) – Values referred to nominal speed (factory set).

(3) – Measured with max. outdoor temperature at 2 m from the unit, in free field conditions.

(4) – Maximum outdoor temperature referred to 30° C / 35% R.H. air intake.

Technical Data

Tab. 2 – HPSE + HPSC (Freecooling and AC emergency freecooling versions)

MODEL: HPS		06	08
Air supply	–	Downflow	
Main power supply	–	230V±10% / 1Ph / 50Hz	400V±10%/3Ph+N+PE/50Hz
Emergency power supply	–	230V±10% / 1Ph / 50Hz	
PERFORMANCE			
Total cooling capacity ⁽¹⁾	kW	5.6	8.3
Sensible cooling capacity ⁽¹⁾	kW	5.6	8.3
Compressor – AC power input ⁽¹⁾	kW	1.76	2.18
Compressor – AC operative current (OA) ⁽¹⁾	A	8.15	3.9
Compressor – AC max current (FLA)	A	11.4	5.1
Compressor – AC starting current (LRA)	A	47.0	32.0
Condenser fan – AC power input ⁽¹⁾	kW	0.08	0.10
Condenser fan – AC max. power input	kW	0.08	0.10
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.6	0.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4
Condenser fan – AC start-up current	A	1.6	1.6
Evaporator fan – AC power input ⁽¹⁾	kW	0.14	0.40
Evaporator fan – AC operative current (OA) ⁽¹⁾	A	0.6	2.8
Evaporator fan – AC max. current (FLA) ⁽²⁾	A	0.6	2.4
Evaporator fan – AC start-up current	A	1.2	9.6
Evaporator air flow	m ³ /h	1390	2020
Freecooling air flow	m ³ /h	820	2040
Condenser max. air flow	m ³ /h	2170	1920
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	50	50
Indoor Sound Pressure Level ⁽³⁾	dB(A)	59	59.5
Max. ambient temperature ⁽⁴⁾	°C	48	45
REFRIGERATION CIRCUITS			
Compressor – type / quantity	–	Scroll / 1	
Refrigerant	–	R407C	
Expansion device	–	Capillary	
Evaporator coil – tubes / fins material	–	Copper / Aluminium	
Condenser coil – tubes / fins material	–	Copper / Aluminium	
AIR FILTRATION			
Main air filter – quantity / type	–	3 / Panel filters for DX side – 1 / Plated panel filter for FC side	
Efficiency (CEN-EU)	–	G3	
Filters dimension (DX side)	mm	597 / 267 / 10	697 / 332 / 10
Filters dimension (FC side)	mm	580 / 300 / 50	680 / 365 / 50
EVAPORATOR FAN			
Quantity / Type / Poles	–	1 / Plug / 4	
Driven / Motor protection	–	Direct / IP44	Direct / IP54
CONDENSER FAN			
Quantity / Type / Poles	–	1 / Axial / 6	
Driven / Motor protection	–	Direct / IP54	
Control system	–	Single speed	
ELECTRIC HEATING			
Type / Steps	–	Wires / 1	
Heating capacity	kW	1.5	3.0
Heating – max. current	A	6.5	
CABINET			
Frame	–	Galvanised steel	
Painting	–	Polyester – RAL7035	
OVERALL DIMENSIONS			
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390	
Width / Height / Depth (HPSE indoor unit)	mm	800 / 310 / 800	900 / 375 / 900
Weight (HPSC outdoor unit)	kg	80	82
Weight (HPSE indoor unit)	kg	55	63

Notes:

- (1) – Indoor reference conditions: 30° C / 35% R.H. air intake. Outdoor reference conditions: 35° C. Nominal power supply.
- (2) – Values referred to nominal speed (factory set).
- (3) – Measured with max. outdoor temperature at 2 m from the unit, in free field conditions.
- (4) – Maximum outdoor temperature referred to 30° C / 35% R.H. air intake.

Technical Data

Tab. 3 – HPSE + HPSC (Freecooling and DC emergency freecooling versions)

MODEL: HPS		06	08
Air supply	–	Downflow	
Main power supply	–	230V±10% / 1Ph / 50Hz	4000V±10%/3Ph+N+PE/5Hz
Emergency power supply	–		48 VDC
PERFORMANCE			
Total cooling capacity ⁽¹⁾	kW	5.9	8.2
Sensible cooling capacity ⁽¹⁾	kW	5.9	8.2
Compressor – AC power input ⁽¹⁾	kW	1.57	2.17
Compressor – AC operative current (OA) ⁽¹⁾	A	7.3	3.9
Compressor – AC max current (FLA)	A	11.4	5.1
Compressor – AC starting current (LRA)	A	47.0	32.0
Condenser fan – AC power input ⁽¹⁾	kW	0.08	0.10
Condenser fan – AC max. power input	kW	0.08	0.10
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.6	0.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4
Condenser fan – AC start-up current	A	1.6	1.6
Evaporator fan – DC power input ⁽¹⁾	kW	0.10	0.28
Evaporator fan – DC operative current (OA) ⁽¹⁾	A	2.6	5.8
Evaporator fan – DC max. current (FLA) ⁽²⁾	A	2.6	9.6
Evaporator fan – DC start-up current	A	0.1	0.1
Evaporator air flow	m ³ /h	1350	1910
Freecooling air flow	m ³ /h	820	2040
Condenser max. air flow	m ³ /h	2170	1920
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	50	50
Indoor Sound Pressure Level ⁽³⁾	dB(A)	57	62
Max. ambient temperature ⁽⁴⁾	°C	48	45
REFRIGERATION CIRCUITS			
Compressor – type / quantity	–	Scroll / 1	
Refrigerant	–	R407C	
Expansion device	–	Capillary	
Evaporator coil – tubes / fins material	–	Copper / Aluminium	
Condenser coil – tubes / fins material	–	Copper / Aluminium	
AIR FILTRATION			
Main air filter – quantity / type	–	3 / Panel filters for DX side – 1 / Plated panel filter for FC side	
Efficiency (CEN-EU)	–	G3	
Filters dimension (DX side)	mm	597 / 267 / 10	697 / 332 / 10
Filters dimension (FC side)	mm	580 / 300 / 50	680 / 365 / 50
EVAPORATOR FAN			
Quantity / Type / Poles	–	1 / Plug / –	
Driven / Motor protection	–	Direct / IP42	Direct / IP20
CONDENSER FAN			
Quantity / Type / Poles	–	1 / Axial / 6	
Driven / Motor protection	–	Direct / IP54	
Control system	–	Single speed	
ELECTRIC HEATING			
Type / Steps	–	Wires / 1	
Heating capacity	kW	1.5	3.0
Heating – max. current	A	6.5	
CABINET			
Frame	–	Galvanised steel	
Painting	–	Polyester – RAL7035	
OVERALL DIMENSIONS			
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390	
Width / Height / Depth (HPSE indoor unit)	mm	800 / 310 / 800	900 / 375 / 900
Weight (HPSC outdoor unit)	kg	80	82
Weight (HPSE indoor unit)	kg	55	63

Notes:

(1) – Indoor reference conditions: 30° C / 35% R.H. air intake. Outdoor reference conditions: 35° C. Nominal power supply.

(2) – Values referred to nominal speed (factory set).

(3) – Measured with max. outdoor temperature at 2 m from the unit, in free field conditions.

(4) – Maximum outdoor temperature referred to 30° C / 35% R.H. air intake.

Technical Data

Tab. 4 – HPSE + HPSC Advanced/Long piping (No freecooling version)

MODEL: HPS ADVANCED/LONG PIPING		06	08	10	12	14
Air supply	–	Downflow				
Main power supply	–	230V±10% / 1Ph / 50Hz	400V±10% / 3Ph+N+PE / 50Hz			
PERFORMANCE						
Total cooling capacity ⁽¹⁾	kW	6.4	8.1	10.0	12.5	14.6
Sensible cooling capacity ⁽¹⁾	kW	6.4	8.1	10.0	12.5	14.6
Compressor – AC power input ⁽¹⁾	kW	1.73	2.23	3.06	3.75	4.68
Compressor – AC operative current (OA) ⁽¹⁾	A	8.0	4.0	5.5	6.6	8.6
Compressor – AC max current (FLA)	A	11.4	5.1	7.0	10.0	10.2
Compressor – AC starting current (LRA)	A	47.0	32.0	46.0	50.0	63.0
Condenser fan – AC power input ⁽¹⁾	kW	0.07	0.10	0.22	0.22	0.28
Condenser fan – AC max. power input	kW	0.24	0.24	0.48	0.48	0.48
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.6	0.7	1.5	1.5	1.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4	2.8	2.8	2.8
Condenser fan – AC start-up current	A	1.6	1.6	3.3	3.3	3.3
Evaporator fan – AC power input ⁽¹⁾	kW	0.17	0.35	0.35	0.34	0.34
Evaporator fan – AC operative current (OA) ⁽¹⁾	A	0.8	1.5	1.5	2.0	2.0
Evaporator fan – AC max. current (FLA) ⁽²⁾	A	0.8	2.0	2.0	2.0	2.0
Evaporator fan – AC start-up current	A	3.0	2.7	2.7	2.7	2.7
Evaporator air flow	m ³ /h	1510	2440	2440	2770	2750
Condenser max. air flow	m ³ /h	2970	2970	6300	5675	5675
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	48.5	48.5	52.5	53.5	55.0
Indoor Sound Pressure Level ⁽³⁾	dB(A)	58	62.5	62.5	64	64
Max. ambient temperature ⁽⁴⁾	°C	51	50	50	50	50
REFRIGERATION CIRCUITS						
Compressor – type / quantity	–	Scroll / 1				
Refrigerant	–	R407C				
Expansion device	–	Thermostatic expansion valve				
Evaporator coil – tubes / fins material	–	Copper / Aluminium				
Condenser coil – tubes / fins material	–	Copper / Aluminium				
AIR FILTRATION						
Main air filter – quantity / type	–	3 / Panel filters				
Efficiency (CEN-EU)	–	G3				
Filters dimensiond (DX side)	mm	597 / 267 / 10			697 / 332 / 10	
EVAPORATOR FAN						
Quantity / Type / Poles	–	1 / Axial / 4				
Driven / Motor protection	–	Direct / IP44	Direct / IP54			
CONDENSER FAN						
Quantity / Type / Poles	–	1 / Axial / 6			2 / Axial / 6	
Driven / Motor protection	–	Direct / IP54				
Control system	–	Variable speed				
ELECTRIC HEATING						
Type / Steps	–	Wires / 1				
Heating capacity	kW	1.5	3.0	3.0	4.5	6.0
Heating – max. current	A	6.5			13.0	
CABINET						
Frame	–	Galvanised steel				
Painting	–	Polyester – RAL7035				
OVERALL DIMENSIONS						
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390			920 / 1190 / 390	
Width / Height / Depth (HPSE indoor unit)	mm	800 / 310 / 800			900 / 375 / 900	
Weight (HPSC outdoor unit)	kg	80	82	97	103	111
Weight (HPSE indoor unit)	kg	50	53		58	

Notes:

- (1) – Indoor reference conditions: 30° C / 35% R.H. air intake. Outdoor reference conditions: 35° C. Nominal power supply.
- (2) – Values referred to nominal speed (factory set).
- (3) – Measured with outdoor temperature of 35° C, at 2 m from the unit, in free field conditions.
- (4) – Maximum outdoor temperature referred to 30° C / 35% R.H. air intake.

Technical Data

Tab. 5 – HPSE + HPSC Advanced/Long piping (Freecooling and AC emergency freecooling versions)

MODEL: HPS ADVANCED/LONG PIPING		06	08	10	12	14
Air supply	–			Downflow		
Main power supply	–	230V ±10% / 1Ph / 50Hz		400V±10% / 3Ph+N+PE / 50Hz		
Emergency power supply	–			230V±10% / 1Ph / 50Hz		
PERFORMANCE						
Total cooling capacity ⁽¹⁾	kW	5.9	8.3	10.3	12.0	14.1
Sensible cooling capacity ⁽¹⁾	kW	5.9	8.3	10.3	12.0	13.8
Compressor – AC power input ⁽¹⁾	kW	1.74	2.22	3.06	3.75	4.67
Compressor – AC operative current (OA) ⁽¹⁾	A	8.1	4.0	5.5	6.6	8.5
Compressor – AC max current (FLA)	A	11.4	5.1	7.0	10.0	11.0
Compressor – AC starting current (LRA)	A	47.0	32.0	46.0	50.0	65.5
Condenser fan – AC power input ⁽¹⁾	kW	0.07	0.10	0.22	0.22	0.28
Condenser fan – AC max. power input	kW	0.24	0.24	0.48	0.48	0.48
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.6	0.7	1.5	1.5	1.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4	2.8	2.8	2.8
Condenser fan – AC start-up current	A	1.6	1.6	3.3	3.3	3.3
Evaporator fan – AC power input ⁽¹⁾	kW	0.14	0.40	0.40	0.42	0.49
Evaporator fan – AC operative current (OA) ⁽¹⁾	A	0.6	2.8	2.8	2.6	2.4
Evaporator fan – AC max. current (FLA) ⁽²⁾	A	0.7	2.4	2.4	2.4	2.4
Evaporator fan – AC start-up current	A	1.2	9.6	9.6	9.6	9.6
Evaporator air flow	m ³ /h	1390	2020	2020	2220	2500
Freecooling air flow	m ³ /h	820	2040	2040	2040	2040
Condenser max. air flow	m ³ /h	2970	2970	6300	5675	5675
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	48.5	48.5	52.5	53.5	55
Indoor Sound Pressure Level ⁽³⁾	dB(A)	59	59.5	59.5	61.5	63
Max. ambient temperature ⁽⁴⁾	°C	52	50	50	50	50
REFRIGERATION CIRCUITS						
Compressor – type / quantity	–		Scroll / 1			
Refrigerant	–		R407C			
Expansion device	–		Thermostatic expansion valve			
Evaporator coil – tubes / fins material	–		Copper / Aluminium			
Condenser coil – tubes / fins material	–		Copper / Aluminium			
AIR FILTRATION						
Main air filter – quantity / type	–	3	Panel filters for DX side – 1 / Plated panel filter for FC side			
Efficiency (CEN-EU)	–		G3			
Filters dimensiond (DX side)	mm	597/267/10		697 / 332 / 10		
Filters dimensiond (FC side)	mm	580/300/50		680 / 365 / 50		
EVAPORATOR FAN						
Quantity / Type / Poles	–		1 / Plug / 4			
Driven / Motor protection	–	Direct / IP44		Direct / IP54		
CONDENSER FAN						
Quantity / Type / Poles	–	1 / Axial / 6		2 / Axial / 6		
Driven / Motor protection	–		Direct / IP54			
Control system	–		Variable speed			
ELECTRIC HEATING						
Type / Steps	–		Wires / 1			
Heating capacity	kW	1.5	3.0	3.0	4.5	6.0
Heating – max. current	A		6.5			13.0
CABINET						
Frame	–		Galvanised steel			
Painting	–		Polyester – RAL7035			
OVERALL DIMENSIONS						
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390		920 / 1190 / 390		
Width / Height / Depth (HPSE indoor unit)	mm	800/310/800		900 / 375 / 900		
Weight (HPSC outdoor unit)	kg	80	82	97	103	111
Weight (HPSE indoor unit)	kg	55		63		

Notes:

(1) – Indoor reference conditions: 30° C / 35% R.H. air intake. Outdoor reference conditions: 35° C. Nominal power supply.

(2) – Values referred to nominal speed (factory set).

(3) – Measured with outdoor temperature of 35° C, at 2 m from the unit, in free field conditions.

(4) – Maximum outdoor temperature referred to 30° C / 35% R.H. air intake.

Technical Data

Tab. 6 – HPSE + HPSC Advanced/Long piping (Freecooling and DC emergency freecooling versions)

MODEL: HPS ADVANCED/LONG PIPING		06	08	10	12	14
Air supply	–			Downflow		
Main power supply	–	230V ±10% / 1Ph / 50Hz		400V±10% / 3Ph+N+PE / 50Hz		
Emergency power supply	–			48 VDC		
PERFORMANCE						
Total cooling capacity ⁽¹⁾	kW	5.9	8.2	10.2	12.0	14.0
Sensible cooling capacity ⁽¹⁾	kW	5.9	8.2	10.2	12.0	13.7
Compressor – AC power input ⁽¹⁾	kW	1.74	2.23	3.06	3.75	4.66
Compressor – AC operative current (OA) ⁽¹⁾	A	8.1	4.0	5.5	6.6	8.5
Compressor – AC max current (FLA)	A	11.4	5.1	7.0	10.0	10.2
Compressor – AC starting current (LRA)	A	47.0	32.0	46.0	50.0	63.0
Condenser fan – AC power input ⁽¹⁾	kW	0.07	0.10	0.22	0.22	0.28
Condenser fan – AC max. power input	kW	0.24	0.24	0.48	0.48	0.48
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.6	0.7	1.5	1.5	1.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4	2.8	2.8	2.8
Condenser fan – AC start-up current	A	1.6	1.6	3.3	3.3	3.3
Evaporator fan – DC power input ⁽¹⁾	kW	0.10	0.28	0.28	0.39	0.45
Evaporator fan – DC operative current (OA) ⁽¹⁾	A	2.6	5.8	5.8	8.1	9.5
Evaporator fan – DC max. current (FLA) ⁽²⁾	A	2.6	9.6	9.6	9.6	9.6
Evaporator fan – DC start-up current	A	0.1	0.1	0.1	0.1	0.1
Evaporator air flow	m³/h	1350	1910	1910	2240	2380
Freecooling air flow	m³/h	820	2040	2040	2040	2040
Condenser max. air flow	m³/h	2970	2970	6300	5675	5675
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	48.5	48.5	52.5	53.5	55
Indoor Sound Pressure Level ⁽³⁾	dB(A)	57	62	62	67	68.5
Max. ambient temperature ⁽⁴⁾	°C	52	50	50	50	50
REFRIGERATION CIRCUITS						
Compressor – type / quantity	–		Scroll / 1			
Refrigerant	–		R407C			
Expansion device	–		Thermostatic expansion valve			
Evaporator coil – tubes / fins material	–		Copper / Aluminium			
Condenser coil – tubes / fins material	–		Copper / Aluminium			
AIR FILTRATION						
Main air filter – quantity / type	–	3	Panel filters for DX side – 1	Plated panel filter for FC side		
Efficiency (CEN-EU)	–		G3			
Filters dimensiond (DX side)	mm	597/267/10		697 / 332 / 10		
Filters dimensiond (FC side)	mm	580/300/50		680 / 365 / 50		
EVAPORATOR FAN						
Quantity / Type / Poles	–		1 / Plug / –			
Driven / Motor protection	–	Direct / IP42		Direct / IP20		
CONDENSER FAN						
Quantity / Type / Poles	–	1 / Axial / 6		2 / Axial / 6		
Driven / Motor protection	–		Direct / IP54			
Control system	–		Variable speed			
ELECTRIC HEATING						
Type / Steps	–		Wires / 1			
Heating capacity	kW	1.5	3.0	3.0	4.5	6.0
Heating – max. current	A		6.5			13.0
CABINET						
Frame	–		Galvanised steel			
Painting	–		Polyester – RAL7035			
OVERALL DIMENSIONS						
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390		920 / 1190 / 390		
Width / Height / Depth (HPSE indoor unit)	mm	800/310/800		900 / 375 / 900		
Weight (HPSC outdoor unit)	kg	80	82	97	103	111
Weight (HPSE indoor unit)	kg	55		63		

Notes:

(1) – Indoor reference conditions: 30° C / 35% R.H. air intake. Outdoor reference conditions: 35° C. Nominal power supply.

(2) – Values referred to nominal speed (factory set).

(3) – Measured with outdoor temperature of 35° C, at 2 m from the unit, in free field conditions.

(4) – Maximum outdoor temperature referred to 30° C / 35% R.H. air intake.

Technical Data

Tab. 7 – SE_W + HPSC (No freecooling version)

MODEL: HPSW		06	08	10	13 (*)	14
Air supply	–			Upflow		
Main power supply	–	230V ±10% / 1Ph / 50Hz		400V ±10% / 3Ph+N+PE / 50Hz		
PERFORMANCE						
Total cooling capacity (1)	kW	6.1	8.3	10.6	13.5	14.7
Sensible cooling capacity (1)	kW	5.4	8.3	10.1	13.2	13.6
Compressor – AC power input (1)	kW	1.74	2.22	3.05	3.80	4.76
Compressor – AC operative current (OA) (1)	A	8.1	4.0	5.5	6.7	8.7
Compressor – AC max current (FLA)	A	11.4	5.1	7.0	10.0	10.2
Compressor – AC starting current (LRA)	A	47.0	32.0	46.0	50.0	63.0
Condenser fan – AC power input (1)	kW	0.11	0.10	0.22	0.23	0.28
Condenser fan – AC max. power input	kW	0.24	0.24	0.48	0.48	0.48
Condenser fan – AC operative current (OA) (1)	A	0.8	0.7	1.5	1.5	1.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4	2.8	2.8	2.8
Condenser fan – AC start-up current	A	1.6	1.6	3.3	3.3	3.3
Evaporator fan – AC power input (1)	kW	0.2	0.46	0.46	1.14	1.14
Evaporator fan – AC operative current (OA) (1)	A	0.9	2.0	2.0	4.8	4.8
Evaporator fan – AC max. current (FLA) (2)	A	0.9	2.2	2.2	7.2	7.2
Evaporator fan – AC start-up current	A	1.8	8.8	8.8	–	–
Evaporator air flow	m³/h	1510	2670	2670	3950	3950
Condenser max. air flow	m³/h	2970	2970	6300	5675	5675
Outdoor Sound Pressure Level (3)	dB(A)	48.5	48.5	52.5	53.5	55.0
Indoor Sound Pressure Level (3)	dB(A)	58	65	65	62	62
Max. ambient temperature (4)	°C	52	49.5	50.5	49	49
REFRIGERATION CIRCUITS						
Compressor – type / quantity	–		Scroll / 1			
Refrigerant	–		R407C			
Expansion device	–		Thermostatic expansion valve			
Evaporator coil – tubes / fins material	–		Copper / Aluminium			
Condenser coil – tubes / fins material	–		Copper / Aluminium			
AIR FILTRATION						
Main air filter – quantity / type	–		1 / Pleated			
Efficiency (CEN-EU)	–		G3			
Filters dimension	mm	740/230/48		946 / 300 / 60		
EVAPORATOR FAN						
Quantity / Type / Poles	–	2 coupled (single motor) / Centrifugal / 4				2 (2 motors) / Centrifugal / 4
Driven	–		Direct			
CONDENSER FAN						
Quantity / Type / Poles	–	1 / Axial / 6		2 / Axial / 6		
Driven / Motor protection	–		Direct / IP54			
Control system	–		Variable speed			
ELECTRIC HEATING						
Type / Steps	–	Tube / 1		Wires / 1		
Heating capacity	kW	3.0		6.0		
Heating – max. current	A	6.5		8.7		
CABINET						
Frame	–		Galvanised steel			
Painting	–		Polyester – RAL7035			
OVERALL DIMENSIONS						
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390		920 / 1190 / 390		
Width / Height / Depth (SE_W indoor unit)	mm	800/310/800		1100 / 395 / 1095		
Weight (HPSC outdoor unit)	kg	80	82	97	103	111
Weight (SE_W indoor unit)	kg	54		110		120

Notes:

(1) – Indoor reference conditions: 27°C / 47% R.H. air intake. Outdoor reference conditions: 35°C. Nominal power supply.

(2) – Values referred to nominal speed (factory set).

(3) – Measured with outdoor temperature of 35°C, at 2 m from the unit, in free field conditions.

(4) – Maximum outdoor temperature referred to 27°C / 47% R.H. air intake.

(*) – HPSW 13 is composed by SE 13W + HPSC 12.

Technical Data

Tab. 8 – SE_W + HPSC (Freecooling and AC emergency freecooling versions)

MODEL: HPSW		06	08	10	13 (*)	14
Air supply	–			Upflow		
Main power supply	–	230V ±10% / 1Ph / 50Hz		400V ±10% / 3Ph+N+PE / 50Hz		
Emergency power supply	–			230V ±10% / 1Ph / 50Hz		
PERFORMANCE						
Total cooling capacity ⁽¹⁾	kW	6.1	8.3	10.6	13.5	14.7
Sensible cooling capacity ⁽¹⁾	kW	5.4	8.3	10.1	13.2	13.6
Compressor – AC power input ⁽¹⁾	kW	1.74	2.22	3.05	3.80	4.76
Compressor – AC operative current (OA) ⁽¹⁾	A	8.1	4.0	5.5	6.7	8.7
Compressor – AC max current (FLA)	A	11.4	5.1	7.0	10.0	10.2
Compressor – AC starting current (LRA)	A	47.0	32.0	46.0	50.0	63.0
Condenser fan – AC power input ⁽¹⁾	kW	0.11	0.10	0.22	0.23	0.28
Condenser fan – AC max. power input	kW	0.24	0.24	0.48	0.48	0.48
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.8	0.7	1.5	1.5	1.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4	2.8	2.8	2.8
Condenser fan – AC start-up current	A	1.6	1.6	3.3	3.3	3.3
Evaporator fan – AC power input ⁽¹⁾	kW	0.2	0.46	0.46	1.14	1.14
Evaporator fan – AC operative current (OA) ⁽¹⁾	A	0.9	2.0	2.0	4.8	4.8
Evaporator fan – AC max. current (FLA) ⁽²⁾	A	0.9	2.2	2.2	7.2	7.2
Evaporator fan – AC start-up current	A	1.8	8.8	8.8	–	–
Evaporator air flow	m³/h	1510	2670	2670	3950	3950
Freecooling air flow	m³/h	1400	2230	2230	3600	3600
Condenser max. air flow	m³/h	2970	2970	6300	5675	5675
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	48.5	48.5	52.5	53.5	55.0
Indoor Sound Pressure Level ⁽³⁾	dB(A)	58	65	65	62	62
Max. ambient temperature ⁽⁴⁾	°C	52	49.5	50.5	49	49
REFRIGERATION CIRCUITS						
Compressor – type / quantity	–		Scroll / 1			
Refrigerant	–		R407C			
Expansion device	–		Thermostatic expansion valve			
Evaporator coil – tubes / fins material	–		Copper / Aluminium			
Condenser coil – tubes / fins material	–		Copper / Aluminium			
AIR FILTRATION						
Main air filter – quantity / type	–		1 / Pleated			
Efficiency (CEN-EU)	–		G3			
Filters dimension	mm	740/230/48		946 / 300 / 60		
EVAPORATOR FAN						
Quantity / Type / Poles	–	2 coupled (single motor) / Centrifugal / 4				2 (2 motors) / Centrifugal / 2
Driven	–		Direct			
CONDENSER FAN						
Quantity / Type / Poles	–	1 / Axial / 6		2 / Axial / 6		
Driven / Motor protection	–		Direct / IP54			
Control system	–		Variable speed			
ELECTRIC HEATING						
Type / Steps	–	Tube / 1		Wires / 1		
Heating capacity	kW	3.0		6.0		
Heating – max. current	A	13.1		8.7		
CABINET						
Frame	–		Galvanised steel			
Painting	–		Polyester – RAL7035			
OVERALL DIMENSIONS						
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390		920 / 1190 / 390		
Width / Height / Depth (SE_W indoor unit)	mm	800/310/1050		1100 / 395 / 1395		
Weight (HPSC outdoor unit)	kg	80	82	97	103	111
Weight (SE_W indoor unit)	kg	62		122		132

Notes:

(1) – Indoor reference conditions: 27°C / 47% R.H. air intake. Outdoor reference conditions: 35°C. Nominal power supply.

(2) – Values referred to nominal speed (factory set).

(3) – Measured with outdoor temperature of 35°C, at 2 m from the unit, in free field conditions.

(4) – Maximum outdoor temperature referred to 27°C / 47% R.H. air intake.

(*) – HPSW 13 is composed by SE 13W + HPSC 12.

Technical Data

Tab. 9 – SE_W + HPSC (Freecooling and DC emergency freecooling versions)

MODEL: HPSW		06	08	10	13 (*)	14
Air supply	–			Upflow		
Main power supply	–	230V ±10% / 1Ph / 50Hz		400V ±10% / 3Ph+N+PE / 50Hz		
Emergency power supply	–			48 VDC		
PERFORMANCE						
Total cooling capacity ⁽¹⁾	kW	6.1	8.3	10.5	13.5	14.7
Sensible cooling capacity ⁽¹⁾	kW	5.4	8.3	10.1	13.2	13.6
Compressor – AC power input ⁽¹⁾	kW	1.75	2.26	3.08	3.80	4.76
Compressor – AC operative current (OA) ⁽¹⁾	A	8.1	4.0	5.5	6.7	8.7
Compressor – AC max current (FLA)	A	11.4	5.1	7.0	10.0	10.2
Compressor – AC starting current (LRA)	A	47.0	32.0	46.0	50.0	63.0
Condenser fan – AC power input ⁽¹⁾	kW	0.11	0.14	0.22	0.23	0.28
Condenser fan – AC max. power input	kW	0.24	0.24	0.48	0.48	0.48
Condenser fan – AC operative current (OA) ⁽¹⁾	A	0.8	0.8	1.5	1.5	1.7
Condenser fan – AC max. current (FLA)	A	1.4	1.4	2.8	2.8	2.8
Condenser fan – AC start-up current	A	1.6	1.6	3.3	3.3	3.3
Evaporator fan – DC power input ⁽¹⁾	kW	0.14	0.38	0.38	0.82	0.82
Evaporator fan – DC operative current (OA) ⁽¹⁾	A	3.0	7.9	7.9	16.8	16.8
Evaporator fan – DC max. current (FLA) ⁽²⁾	A	6.0	16.8	16.8	16.8	16.8
Evaporator fan – DC start-up current	A	0.1	0.1	0.1	0.1	0.1
Evaporator air flow	m ³ /h	1510	2670	2670	3950	3950
Freecooling air flow	m ³ /h	1400	2230	2230	3600	3600
Condenser max. air flow	m ³ /h	2970	2970	6300	5675	5675
Outdoor Sound Pressure Level ⁽³⁾	dB(A)	48.5	48.5	52.5	53.5	55.0
Indoor Sound Pressure Level ⁽³⁾	dB(A)	55	60	60	62	62
Max. ambient temperature ⁽⁴⁾	°C	52	49.5	50.5	49	49
REFRIGERATION CIRCUITS						
Compressor – type / quantity	–		Scroll / 1			
Refrigerant	–		R407C			
Expansion device	–		Thermostatic expansion valve			
Evaporator coil – tubes / fins material	–		Copper / Aluminium			
Condenser coil – tubes / fins material	–		Copper / Aluminium			
AIR FILTRATION						
Main air filter – quantity / type	–		1 / Pleated			
Efficiency (CEN-EU)	–		G3			
Filters dimension	mm	740/230/48		946 / 300 / 60		
EVAPORATOR FAN						
Quantity / Type / Poles	–		2 / Plug / –			
Driven	–		Direct			
CONDENSER FAN						
Quantity / Type / Poles	–	1 / Axial / 6		2 / Axial / 6		
Driven / Motor protection	–		Direct / IP54			
Control system	–		Variable speed			
ELECTRIC HEATING						
Type / Steps	–	Tube / 1		Wires / 1		
Heating capacity	kW	3.0		6.0		
Heating – max. current	A	13.1		8.7		
CABINET						
Frame	–		Galvanised steel			
Painting	–		Polyester – RAL7035			
OVERALL DIMENSIONS						
Width / Height / Depth (HPSC outdoor unit)	mm	920 / 840 / 390		920 / 1190 / 390		
Width / Height / Depth SE_W indoor unit)	mm	800/310/1050		1100 / 395 / 1395		
Weight (HPSC outdoor unit)	kg	80	82	97	103	111
Weight (SE_W indoor unit)	kg	62		122		132

Notes:

(1) – Indoor reference conditions: 27°C / 47% R.H. air intake. Outdoor reference conditions: 35°C. Nominal power supply.

(2) – Values referred to nominal speed (factory set).

(3) – Measured with outdoor temperature of 35°C, at 2 m from the unit, in free field conditions.

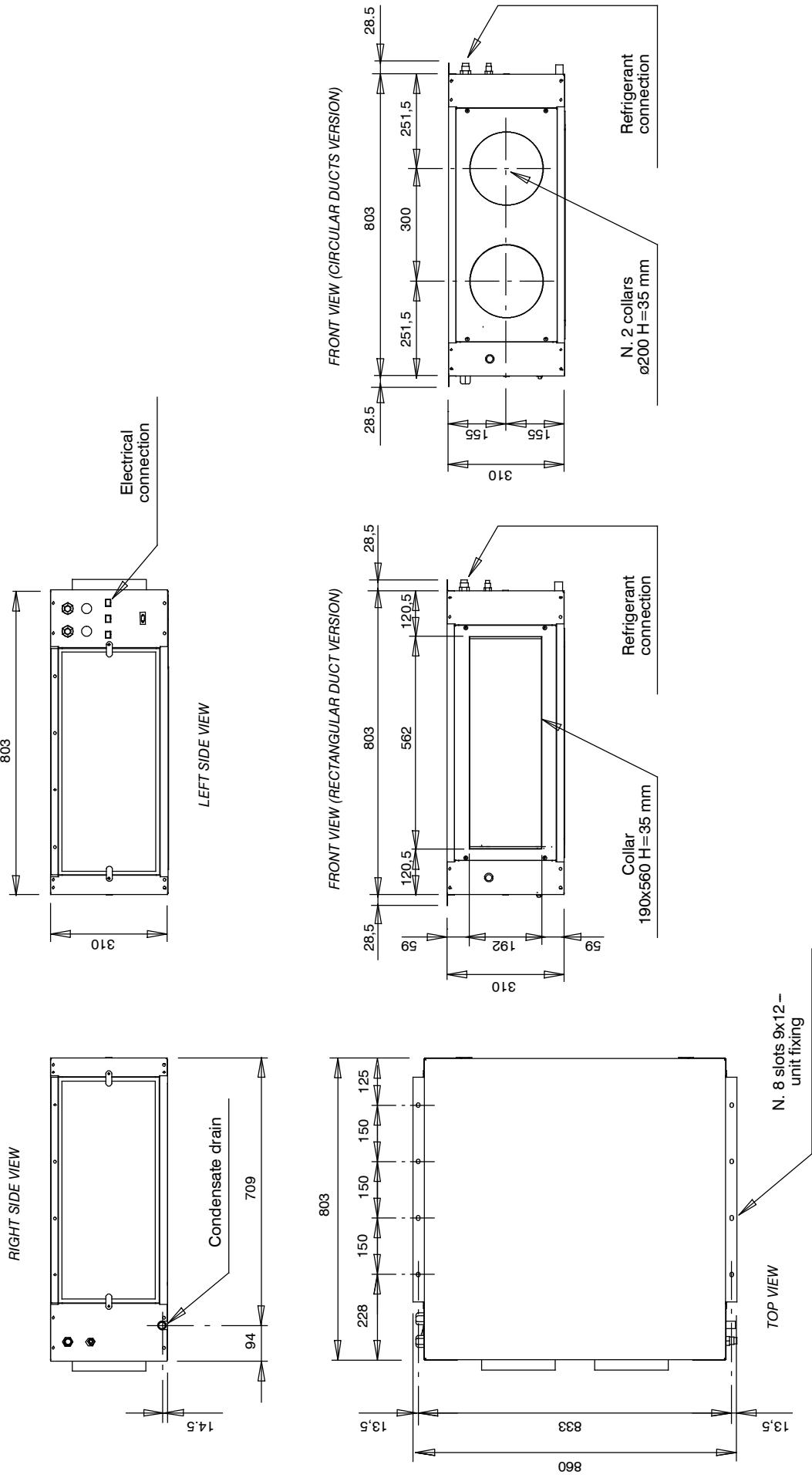
(4) – Maximum outdoor temperature referred to 27°C / 47% R.H. air intake.

(*) – HPSW 13 is composed by SE 13W + HPSC 12.

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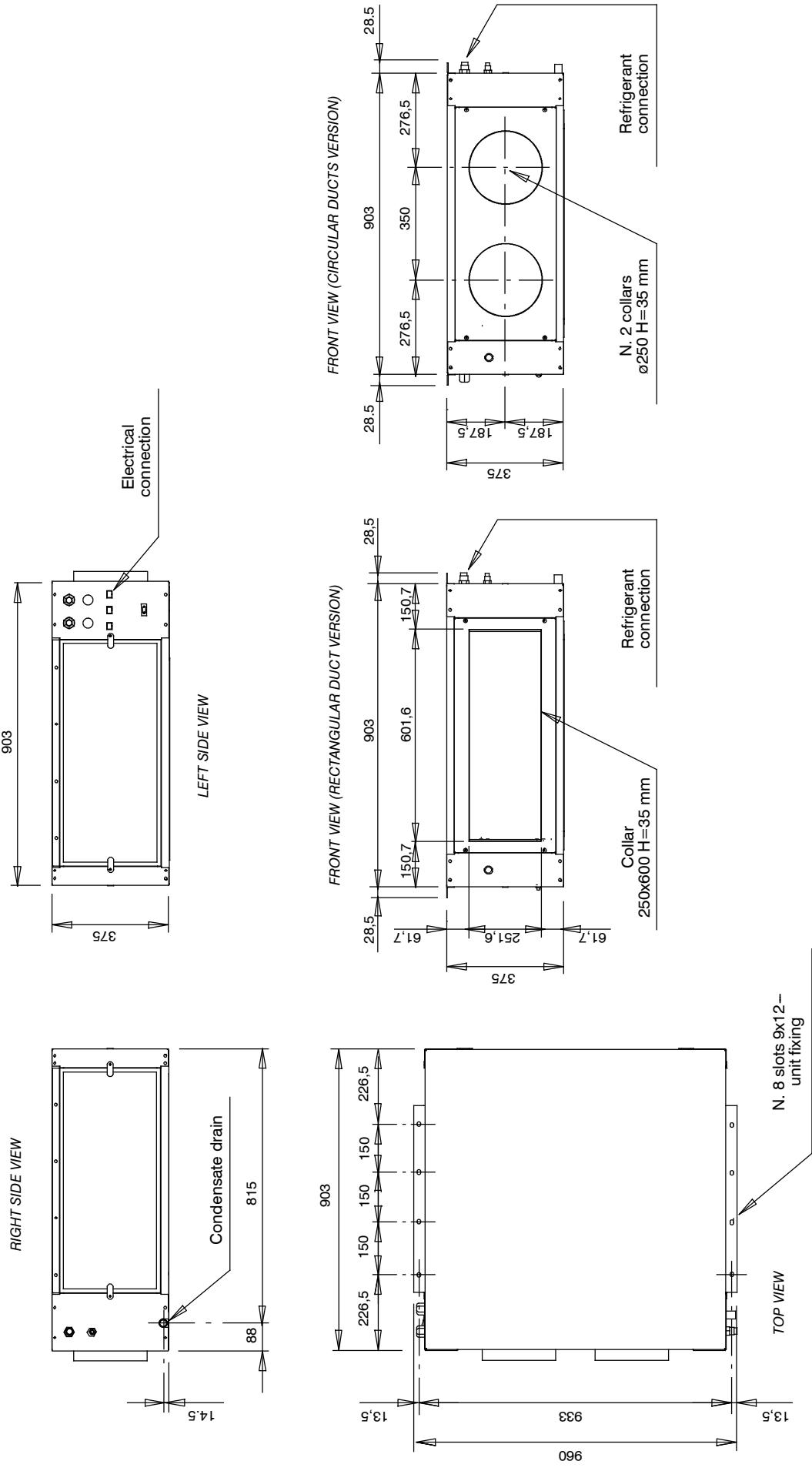
Dimensional Drawings

Fig. 4 – Evaporating unit HPSE 06 (version with freecooling)



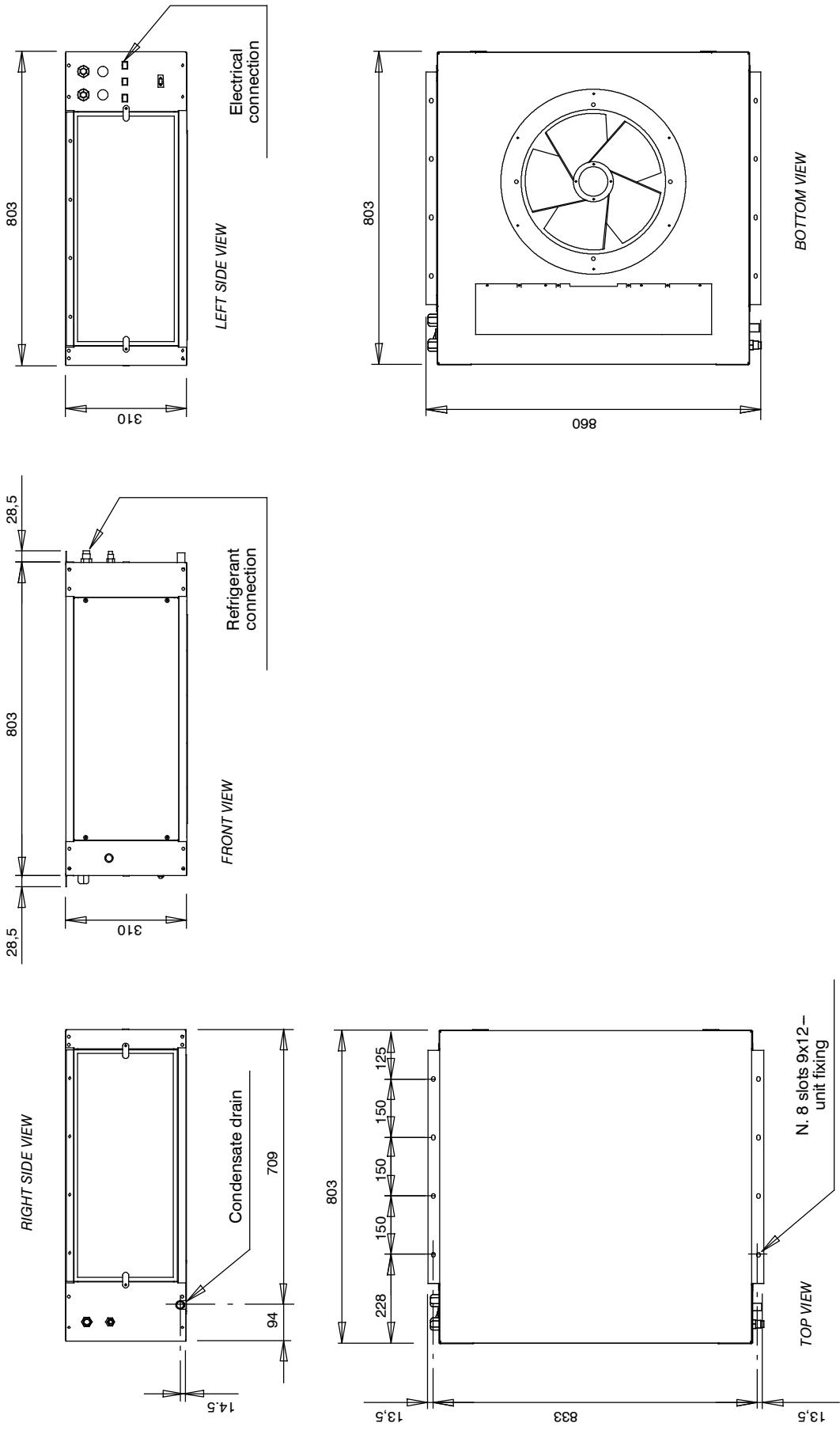
Dimensional Drawings

Fig. 5 – Evaporating unit HPSE 08–10–12–14 (version with freecooling)



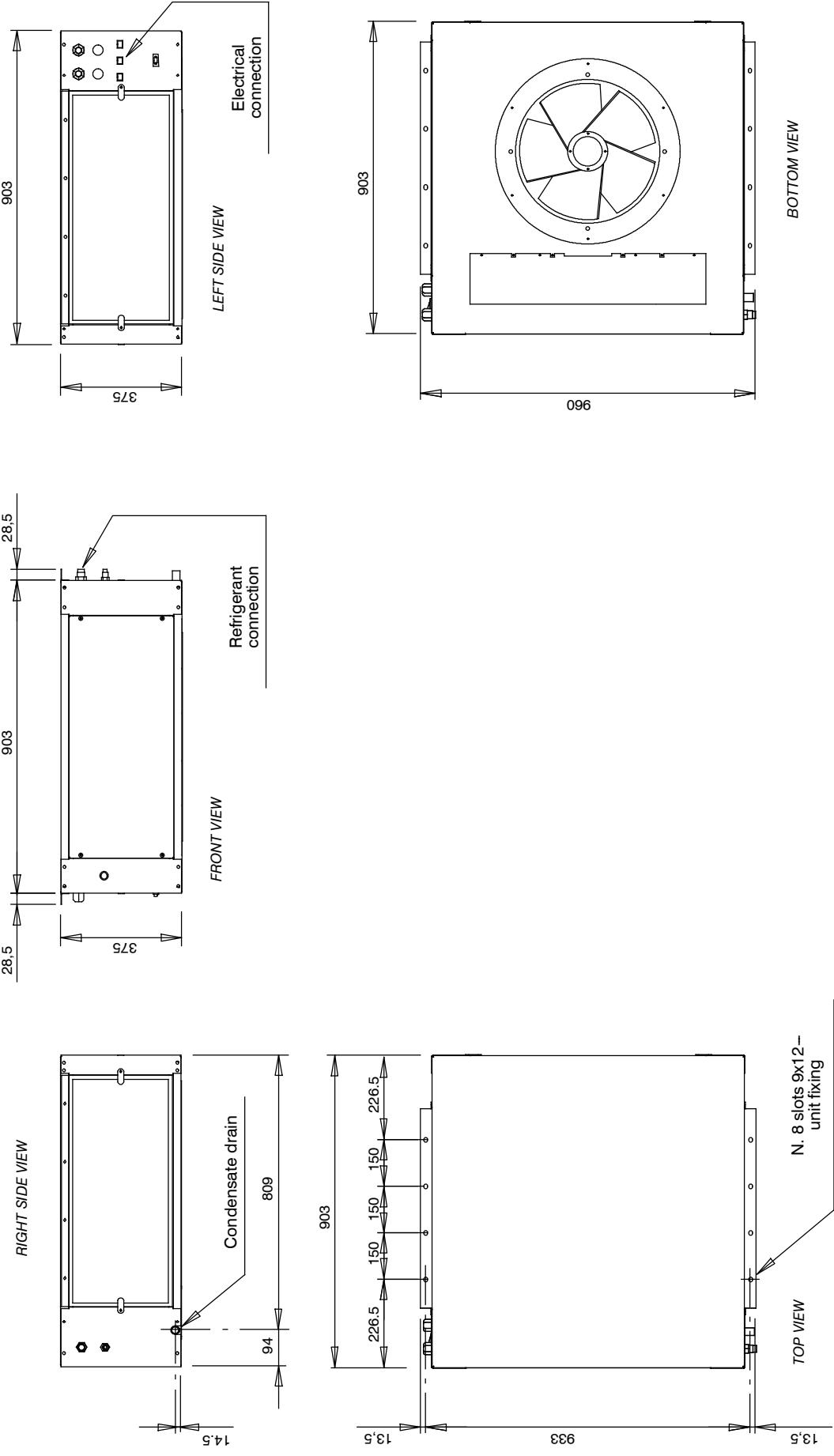
Dimensional Drawings

Fig. 6 – Evaporating unit HPSE 06–08–10 (version without freecooling)



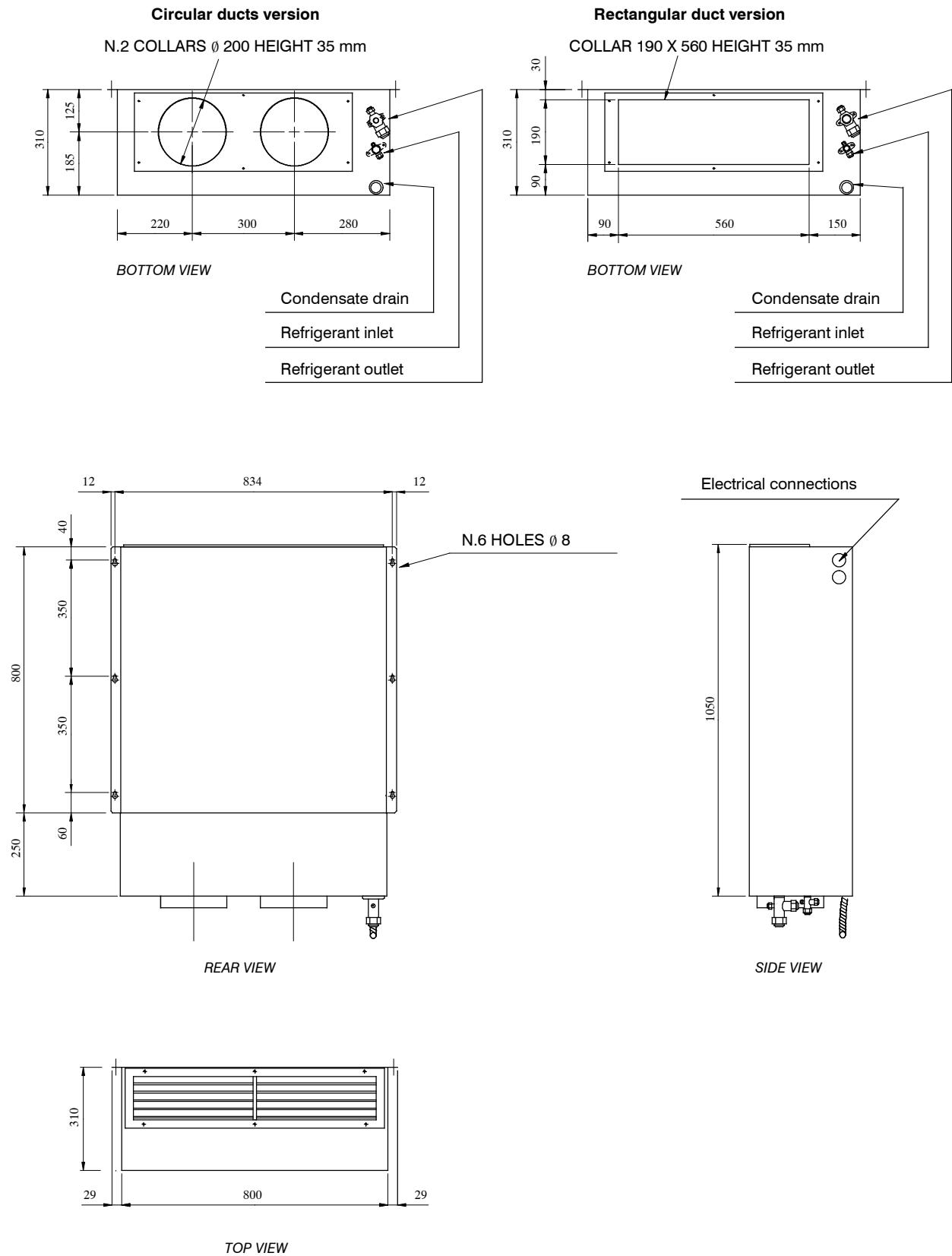
Dimensional Drawings

Fig. 7 – Evaporating unit HPSE 12–14 (version without freecooling)



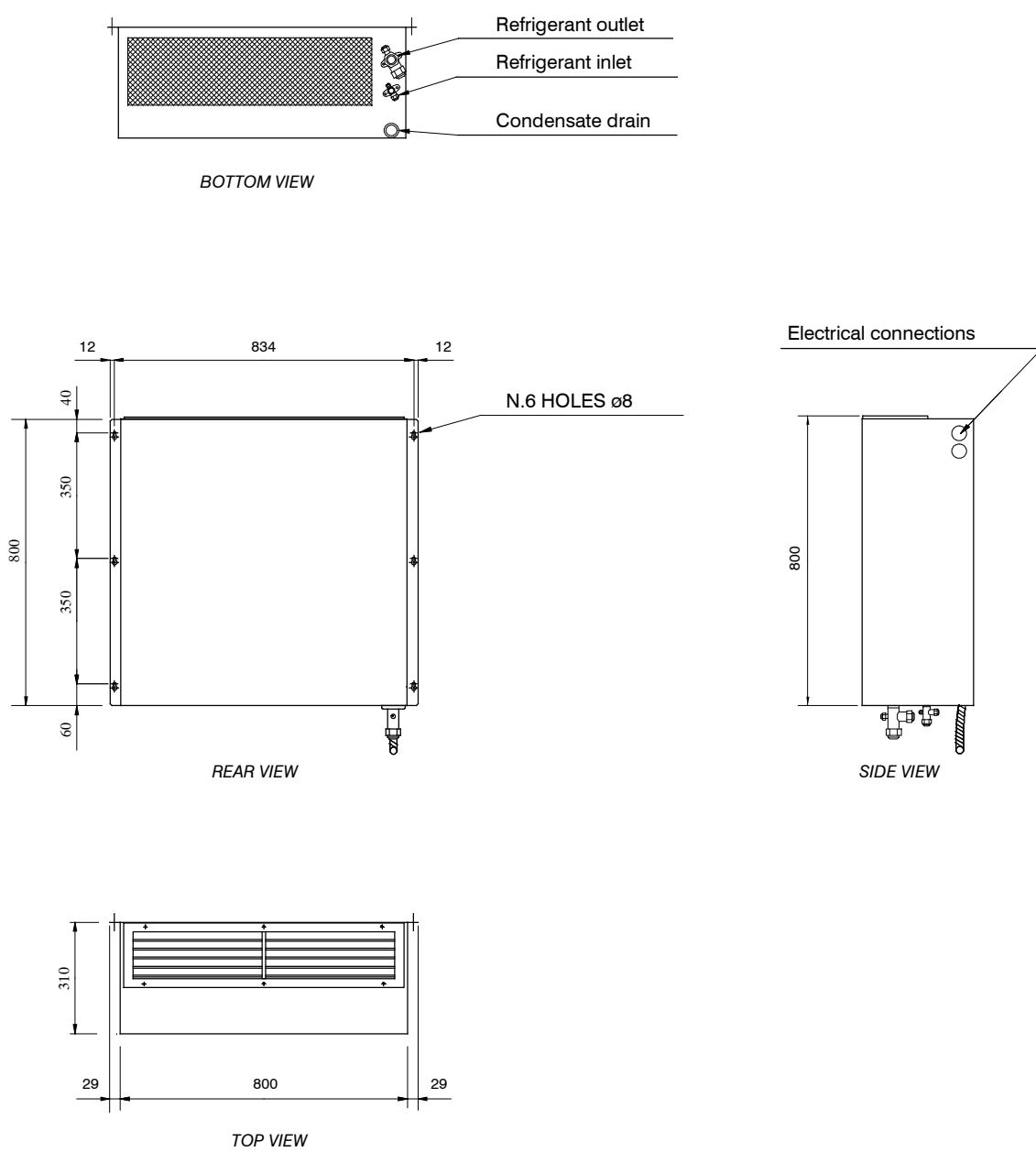
Dimensional Drawings

Fig. 8 – Evaporating unit SE 06W (version with freecooling)



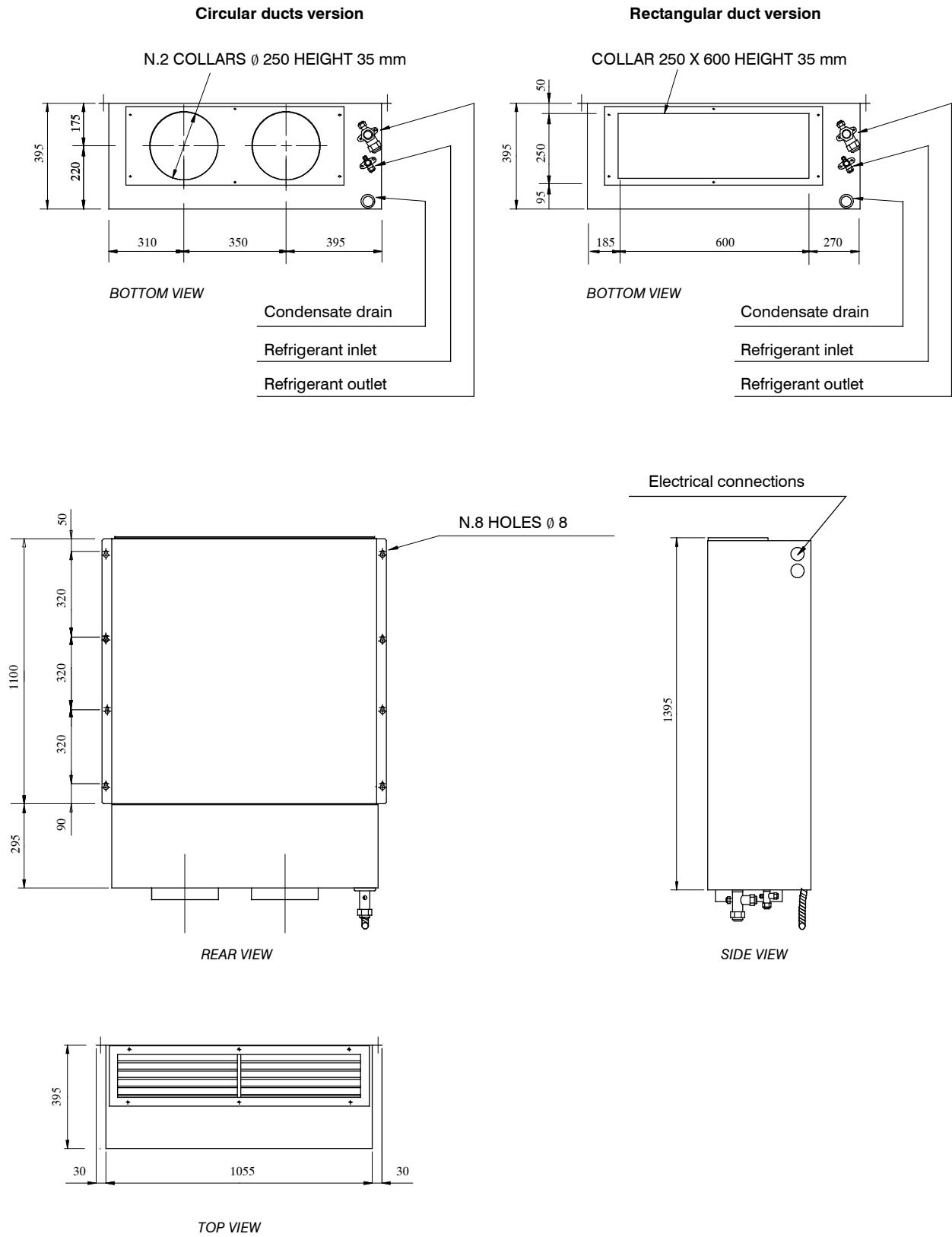
Dimensional Drawings

Fig. 9 – Evaporating unit **SE 06W** (version without freecooling)



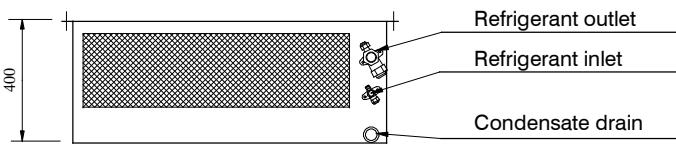
Dimensional Drawings

Fig. 10 – Evaporating unit **SE 08–10–13–14W** (version with freecooling)

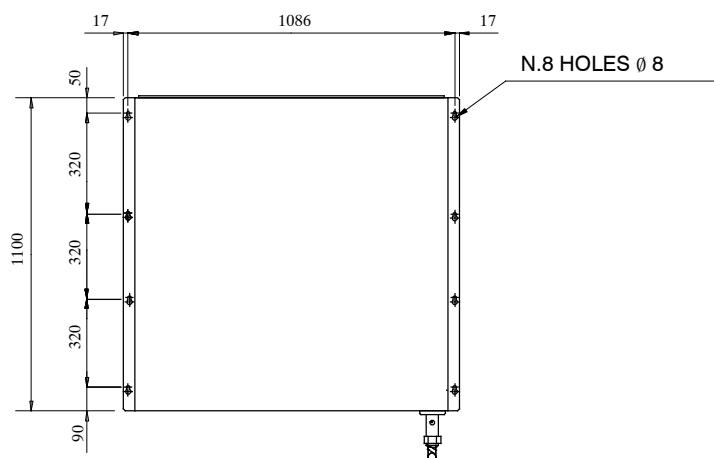


Dimensional Drawings

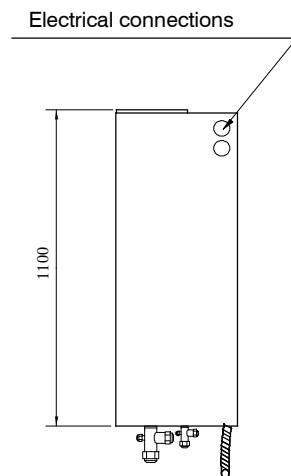
Fig. 11 – Evaporating unit **SE 08–10–13–14W** (version without freecooling)



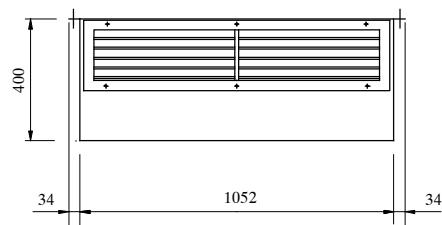
BOTTOM VIEW



REAR VIEW



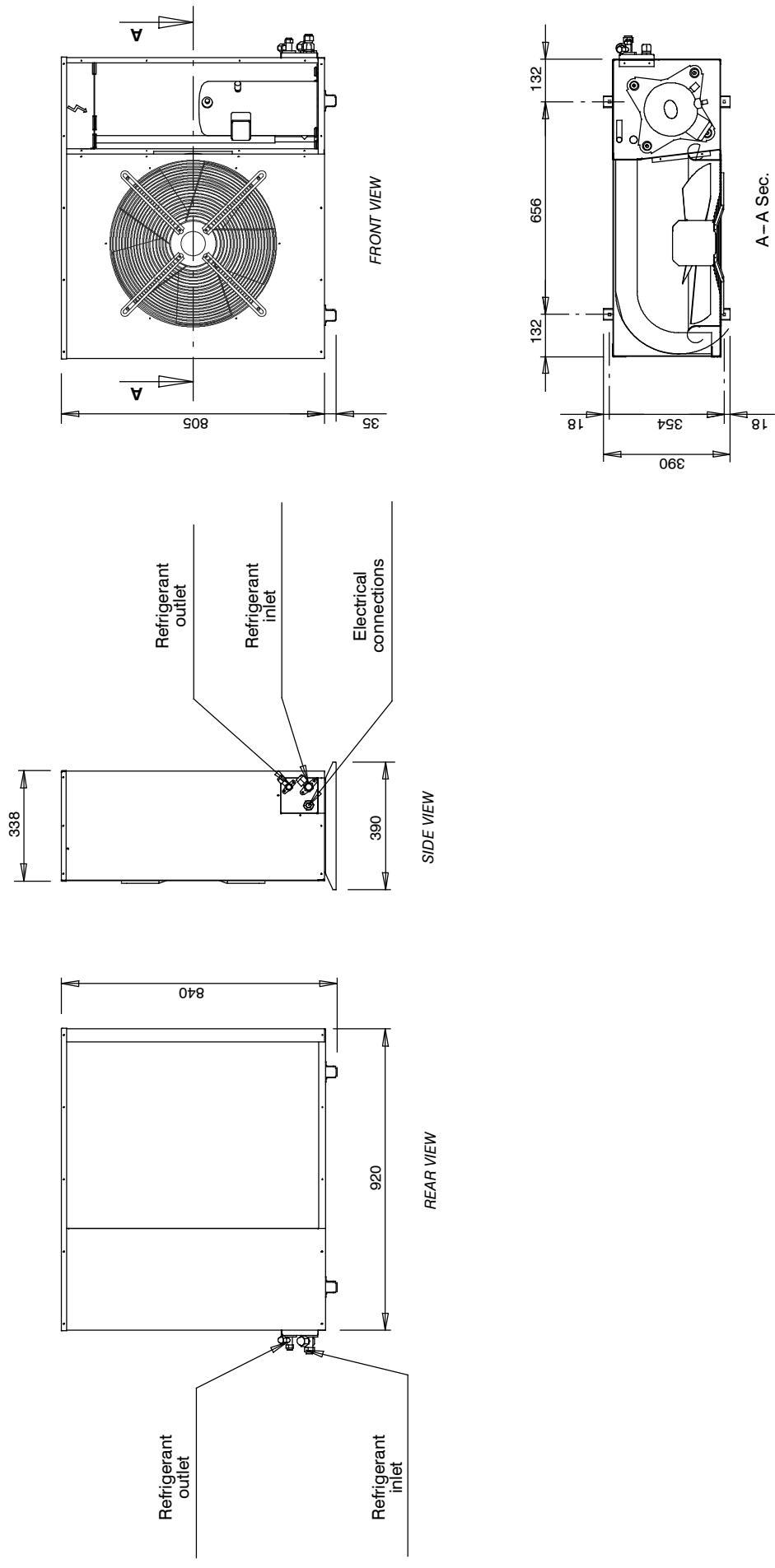
SIDE VIEW



TOP VIEW

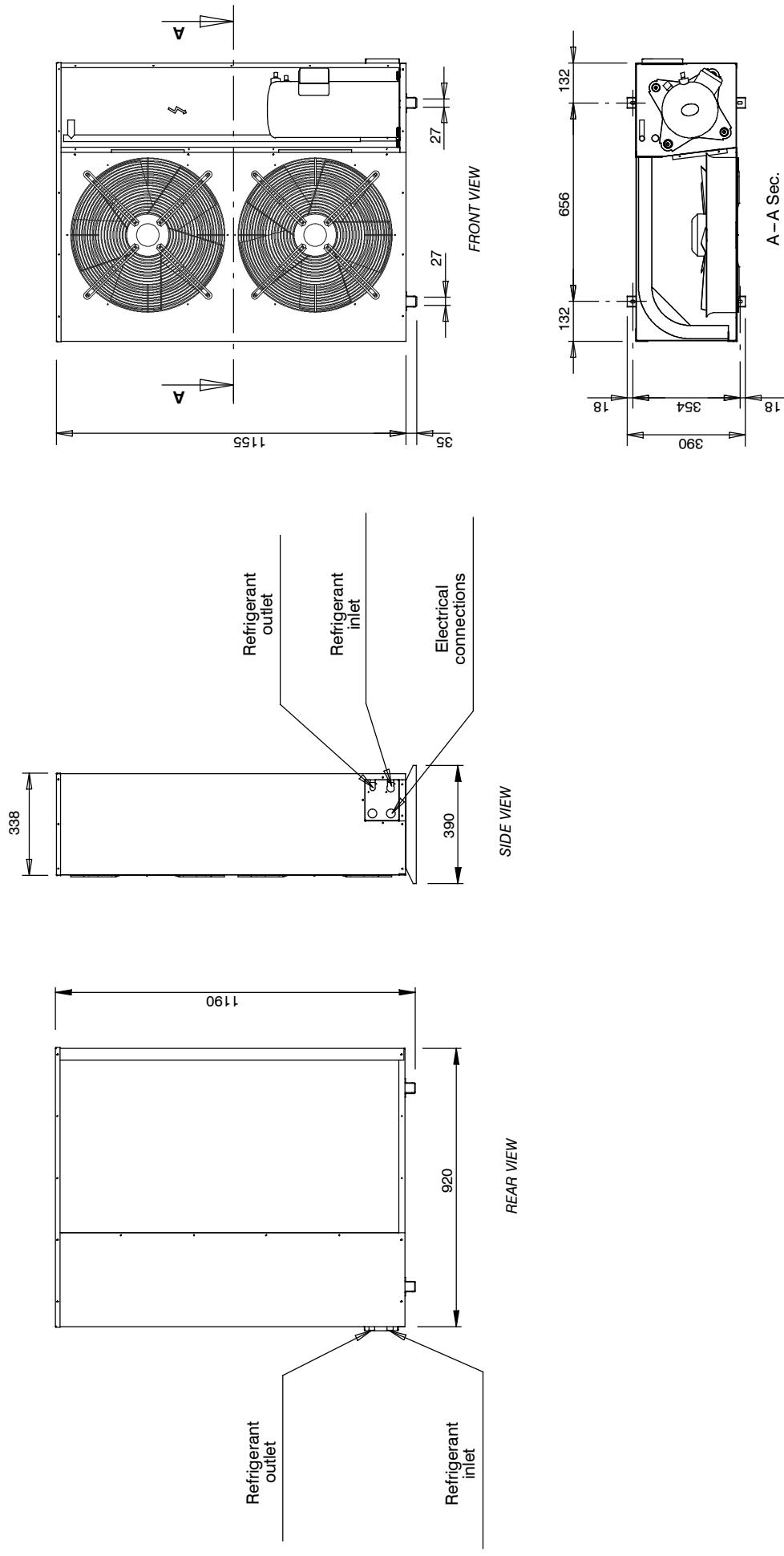
Dimensional Drawings

Fig. 12 – Condensing unit HPSC 06–08



Dimensional Drawings

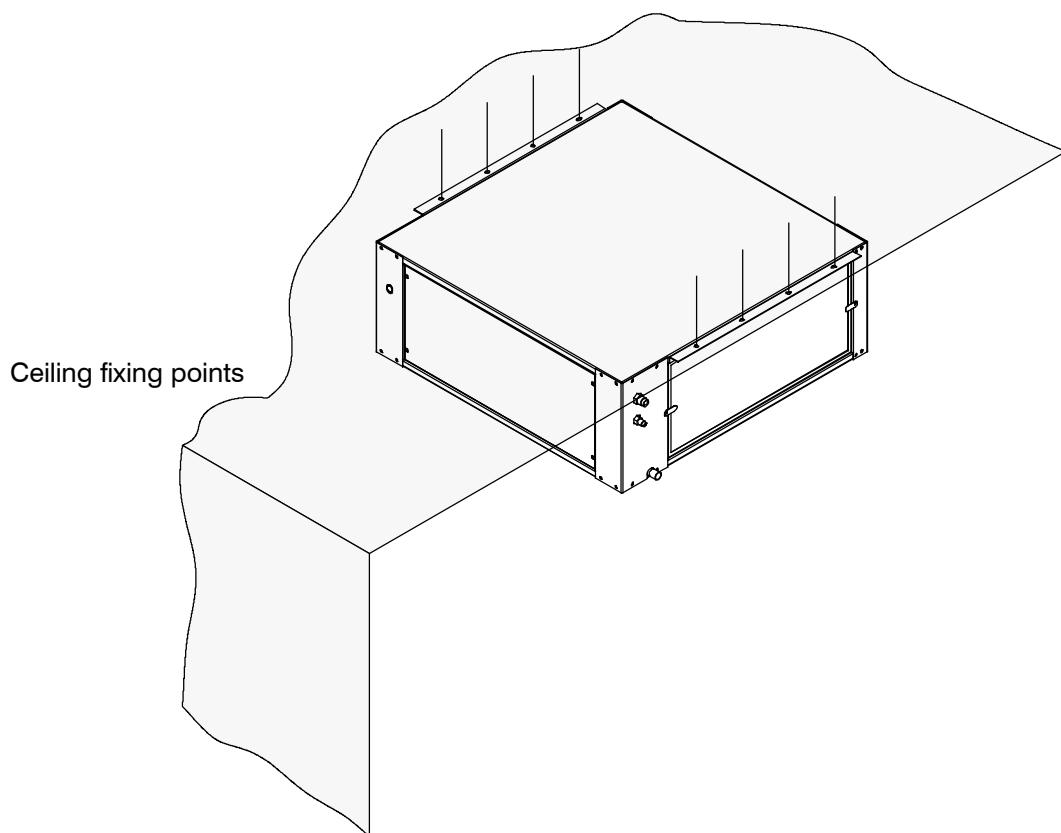
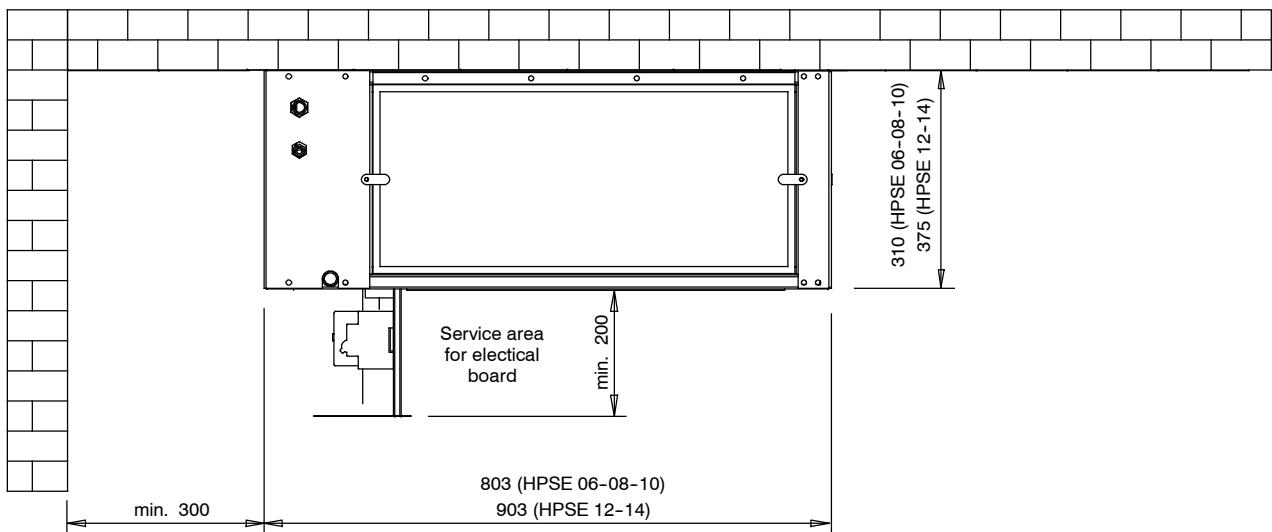
Fig. 13 – Condensing unit HPSC 10–12–14



9

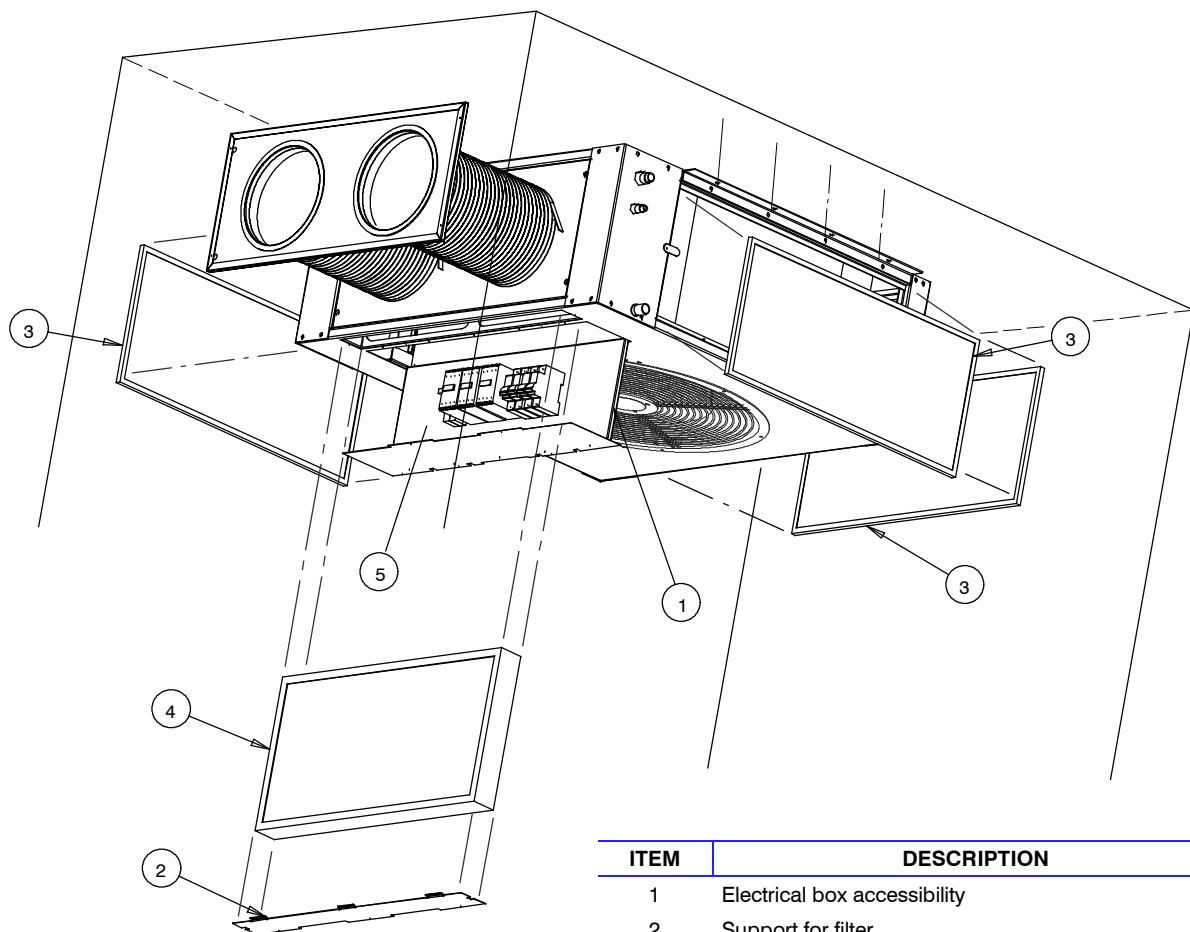
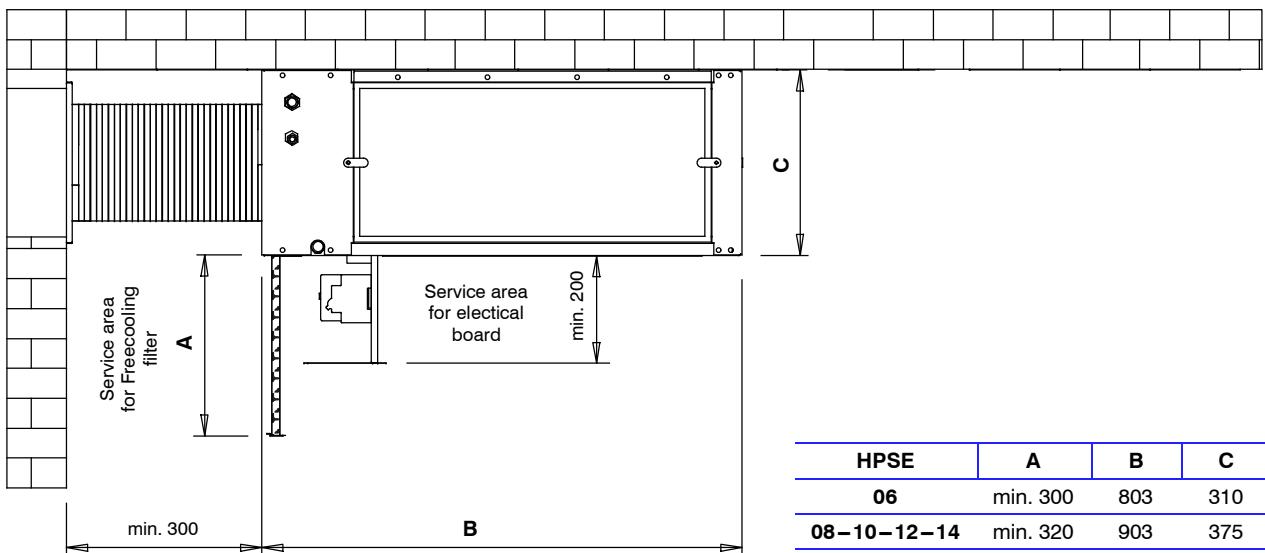
Installation

Fig. 14 – HPSE 06–08–10–12–14 evaporating unit ceiling installation (version without freecooling)



Installation

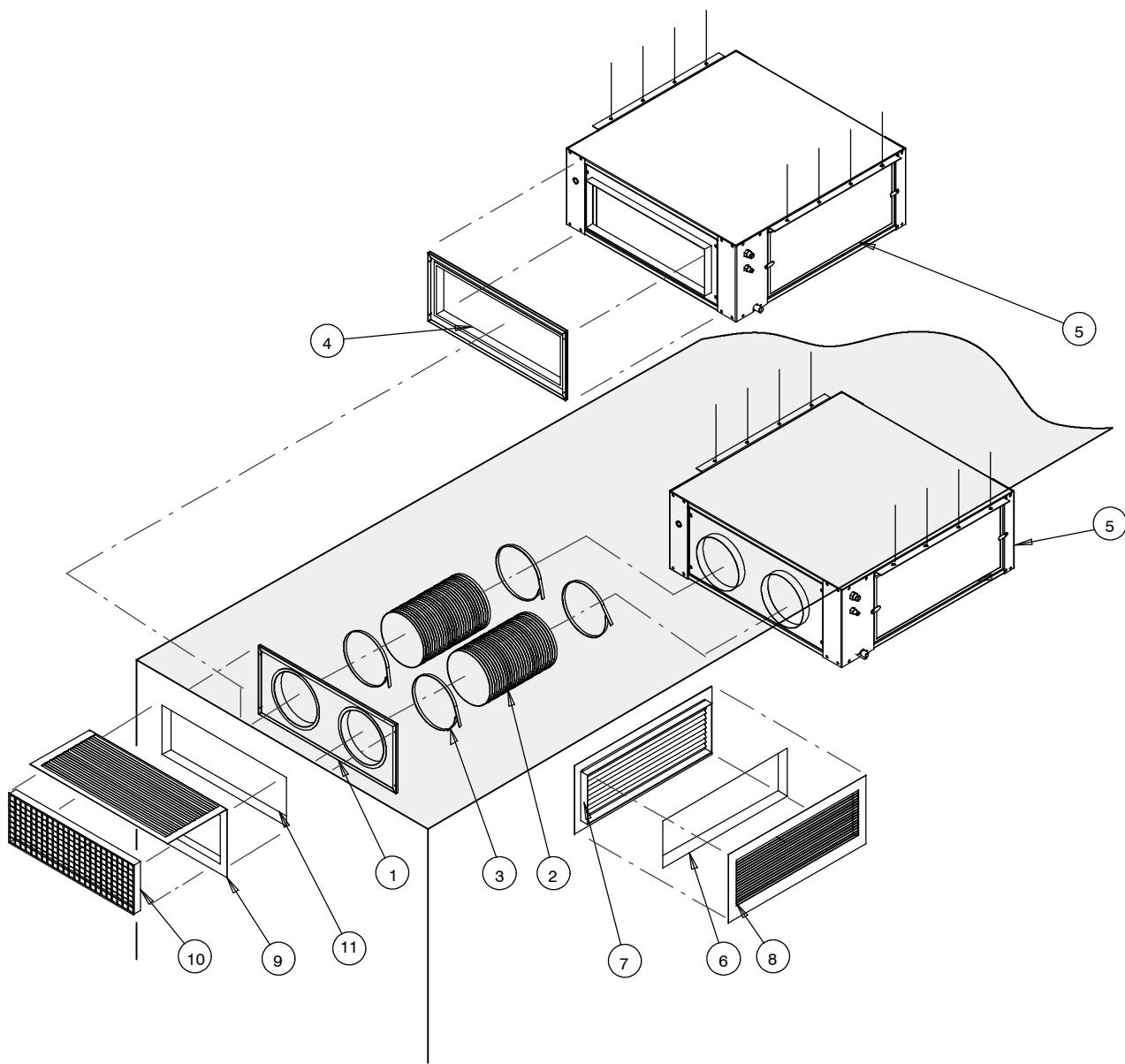
Fig. 15 – HPSE 06–08–10–12–14 evaporating unit installation (version with freecooling)



ITEM	DESCRIPTION
1	Electrical box accessibility
2	Support for filter
3	Air filter
4	Freecooling filter accessibility
5	Electrical box

Installation

Fig. 16 – HPSE 06–08–10–12–14 evaporating unit ceiling installation (version with freecooling)



ITEM	DESCRIPTION	COD. HPSE 06	COD. HPSE 08–10–12–14
1	Wall plate for circular duct	13503801	13536101
2	2 flexible ducts with fixing clamps, L = 0.5 m	270190 (ø 202mm)	270191 (ø 254mm)
3	Fixing clamps	–	–
4	Wall plate for rectangular duct	13501801	13536001
5	Circular / rectangular version	–	–
6	Wall hole	400 x 200mm	600 x 400mm
7	Overpressure damper	134948	134992
8	Grille for overpressure damper	270206	117832
9	Aluminium grille with metallic prefilter	270202	270219
10	Metallic prefilter (included in item 9)	–	–
11	Wall hole	550 x 210mm	590 x 230mm

Installation

Fig. 17 – SE 06–08–10–13–14W service area

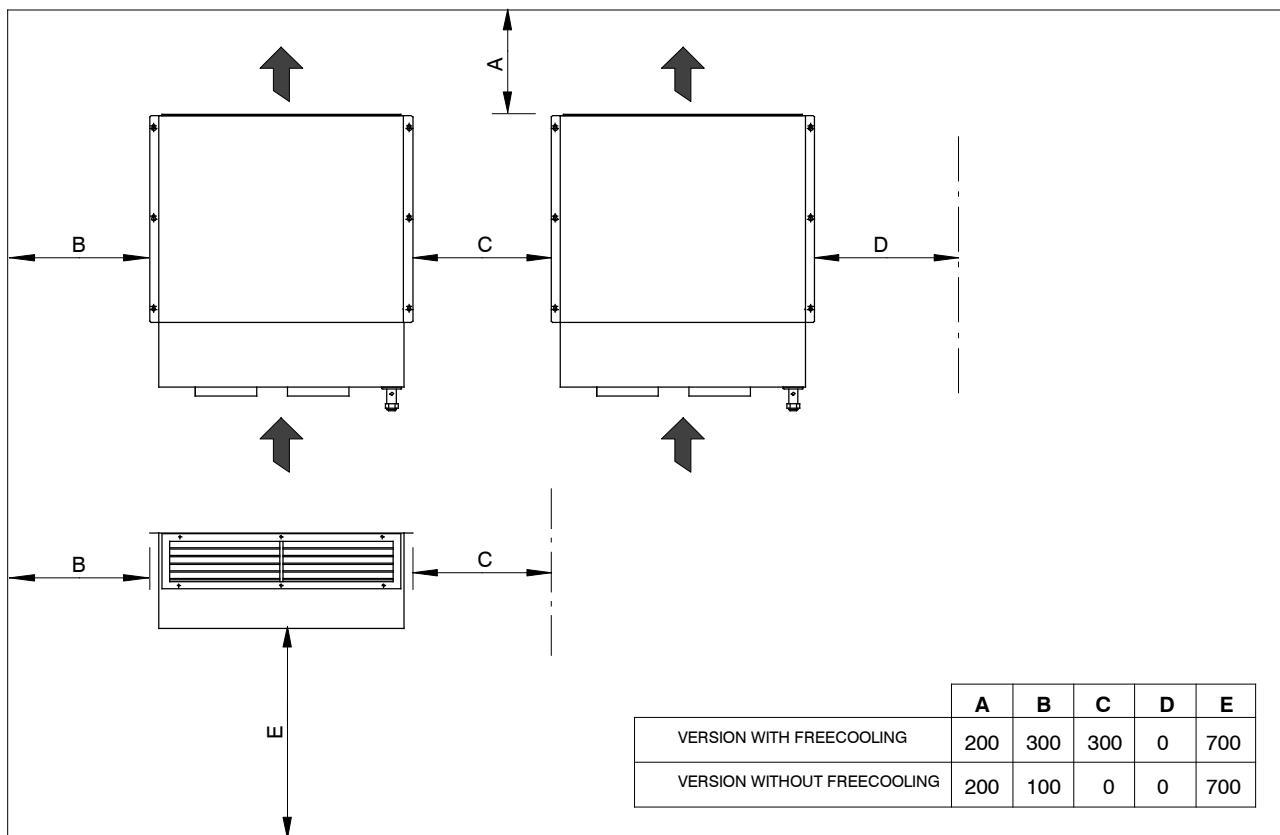
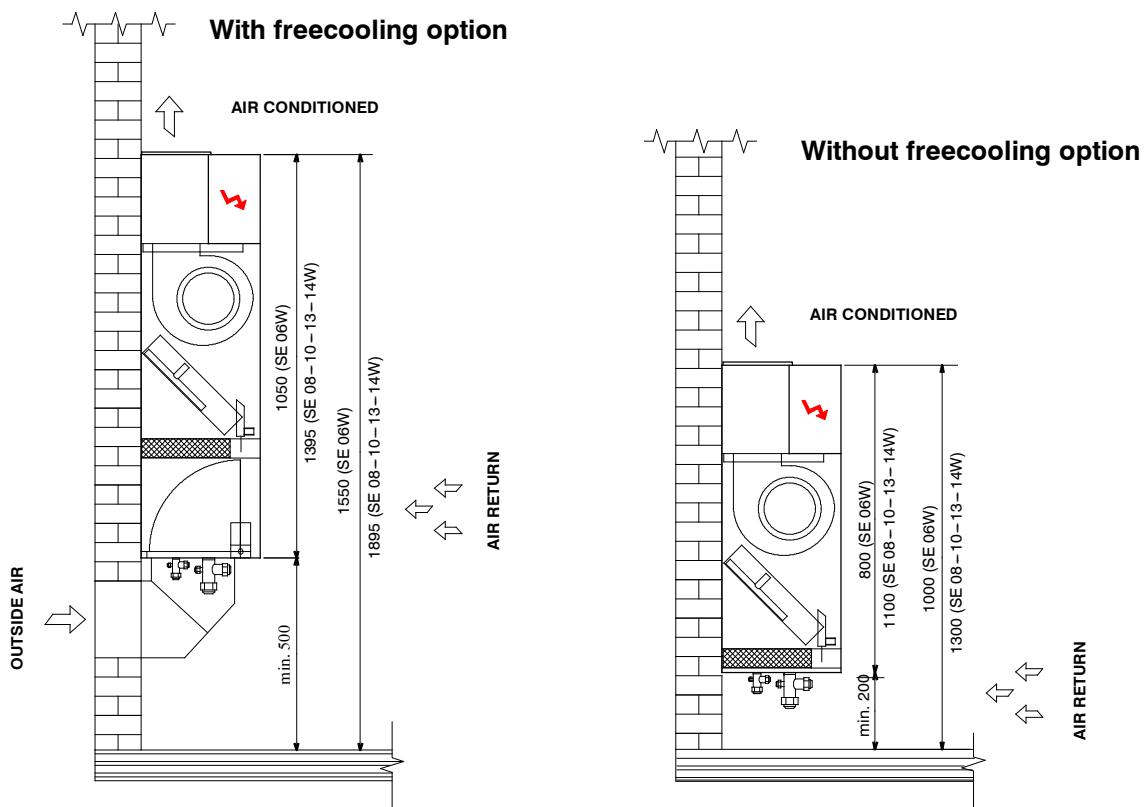
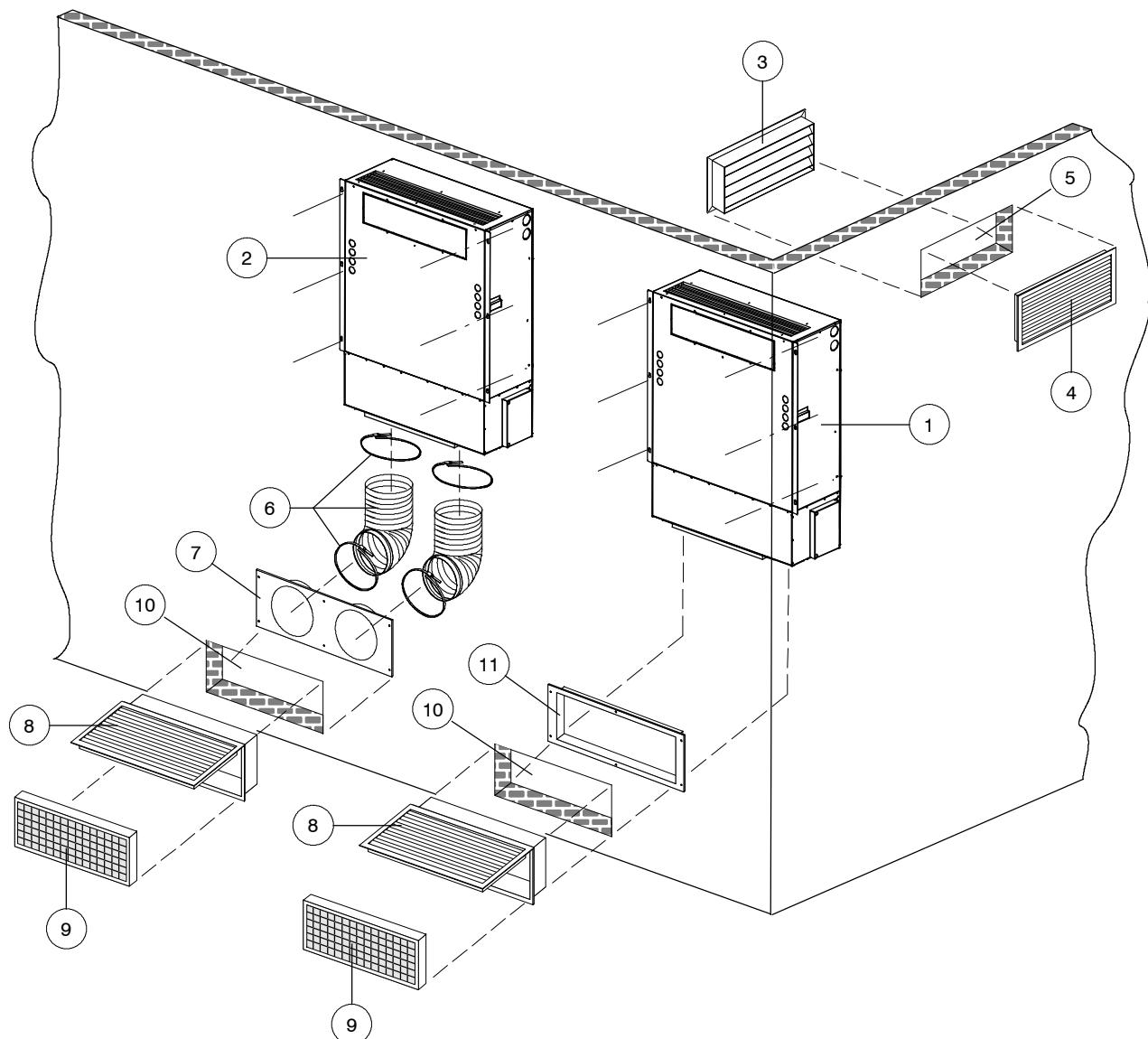


Fig. 18 – SE 06–08–10–13–14W evaporating unit wall installation



Installation

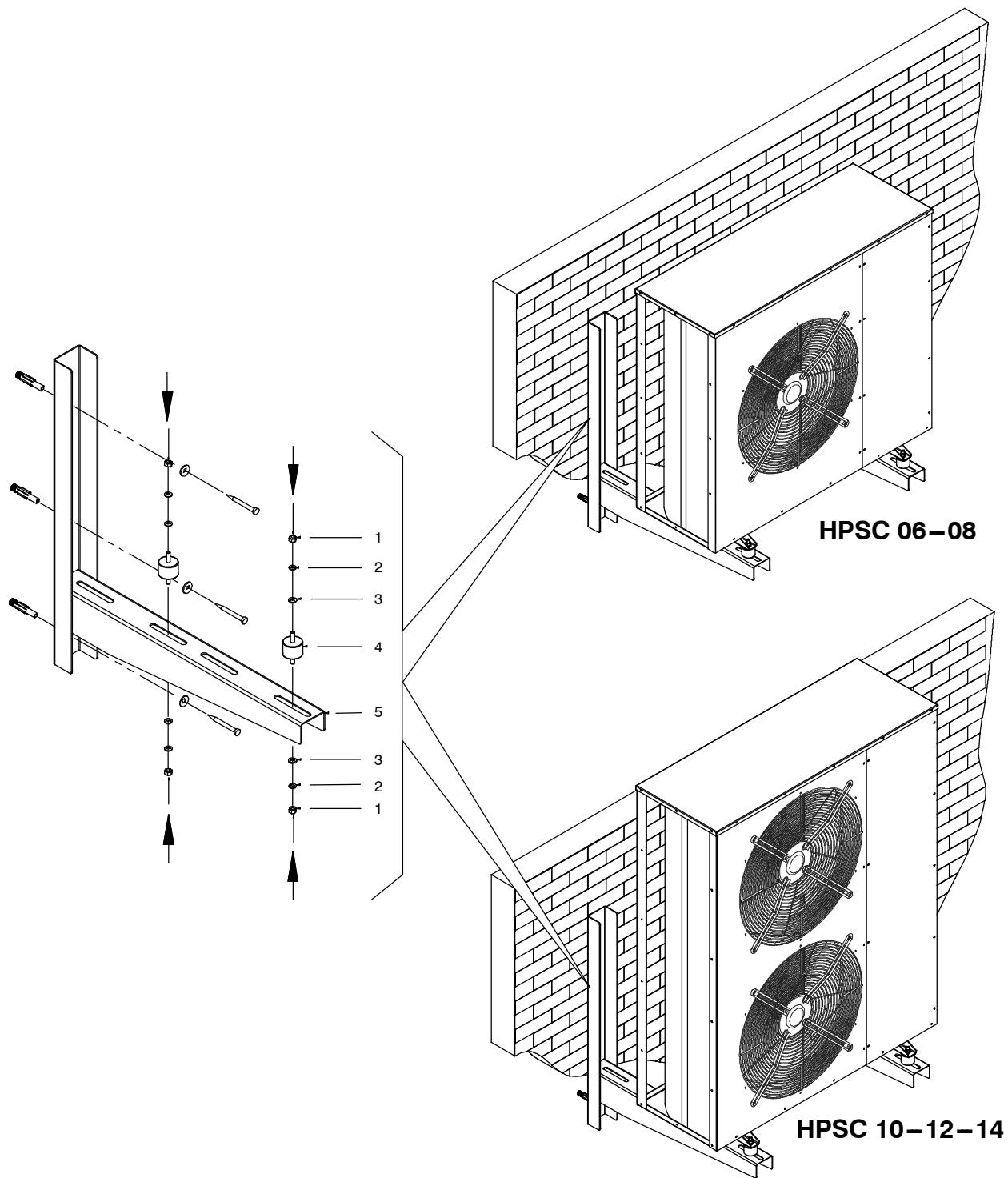
Fig. 19 – SE 06–08–10–13–14W evaporating unit wall installation (version with freecooling)



ITEM	DESCRIPTION	CODE	
		SE 06W	SE 08–10–13–14W
1	SE_W with FC option (optional rectangular hole)	-	-
2	SE_W with FC option (standard circular hole)	-	-
3	Overpressure damper	134948	134992
4	Grille for overpressure damper	270206	117832
5	Hole in the wall	400 x 200 mm	600 x 400 mm
6	2 FC flexible ducts L=0.5 m, with fixing clamps	270190 (\varnothing 202)	270191 (\varnothing 254)
7	Wall plate for FC circular duct	13503801	13536101
8	Aluminium grille with metallic prefilter	270202	270219
9	Metallic prefilter (included in (8))	-	-
10	Hole in the wall	550 x 210 mm	590 x 230 mm
11	Wall plate for FC rectangular duct	13501801	13536001

Installation

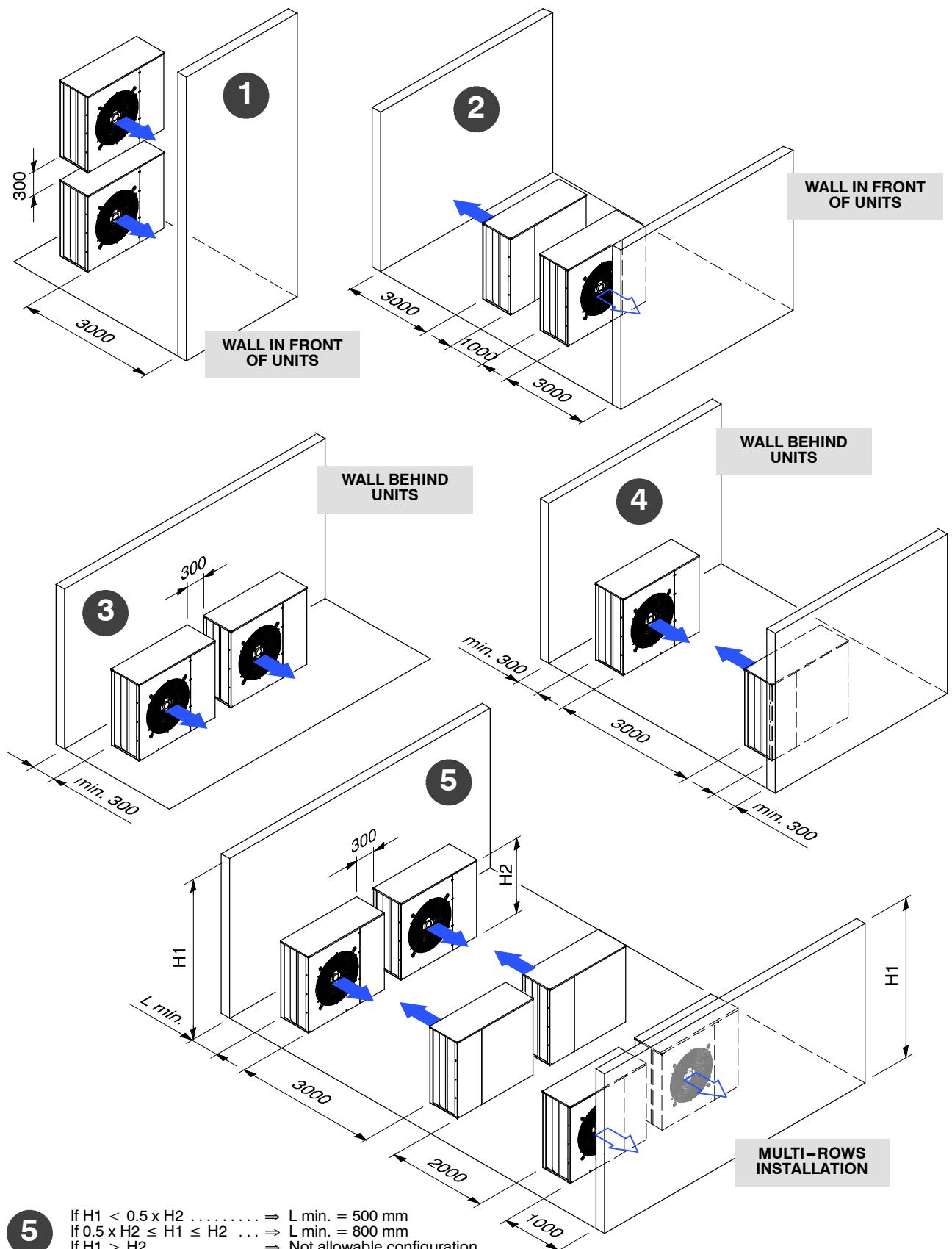
Fig. 20 – HPSC 06–08–10–12–14 condensing unit installation components



ITEM	DESCRIPTION
1	Nut
2	Serrated lock washer
3	Washer
4	Anti-vibrating mount
5	Bracket

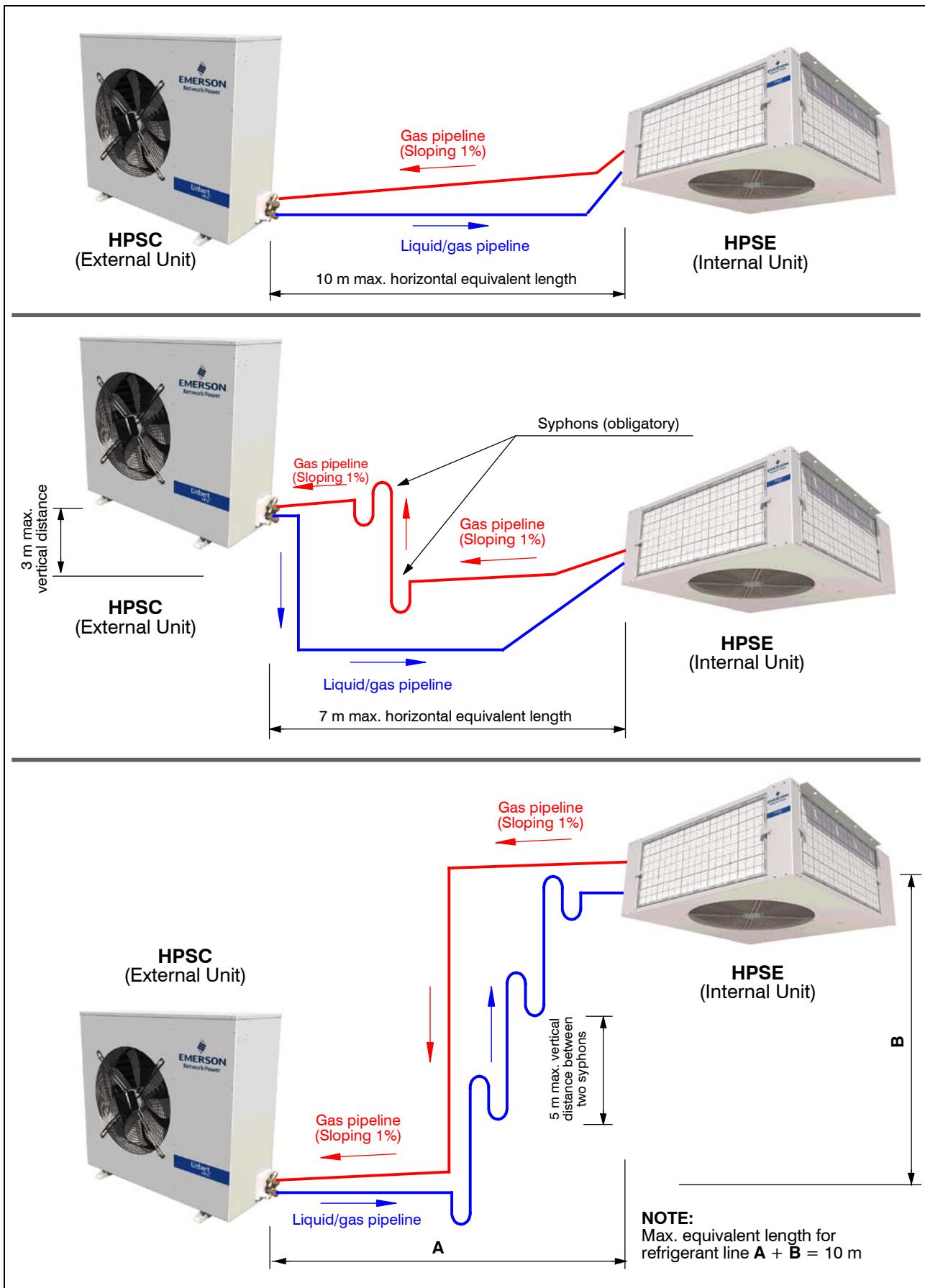
Installation

Fig. 21 – HPSC 06–08–10–12–14 service and working area



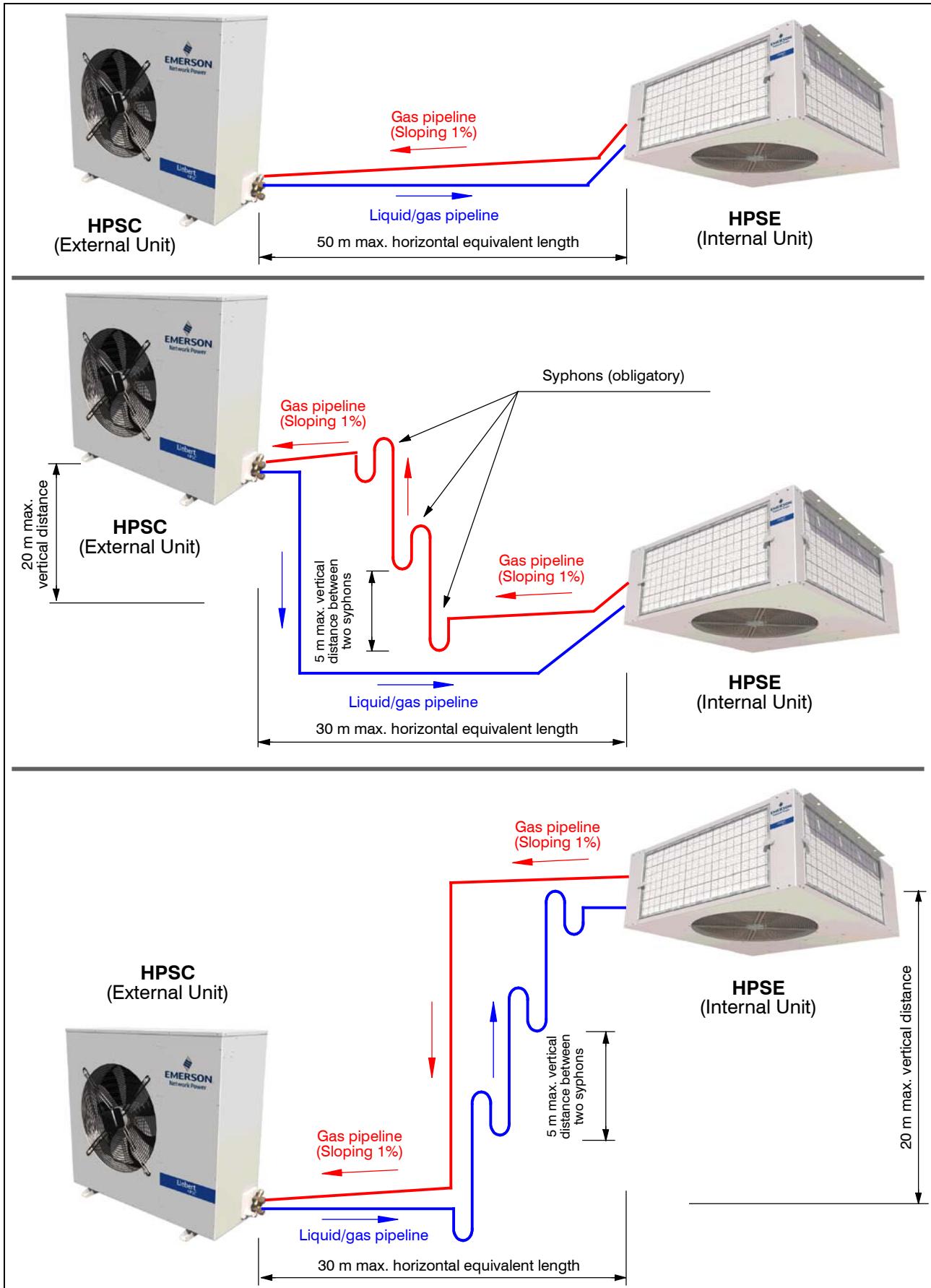
Installation

Fig. 22 – Liebert HPS (HPSE + HPSCxx0/A) suggested refrigerant connections



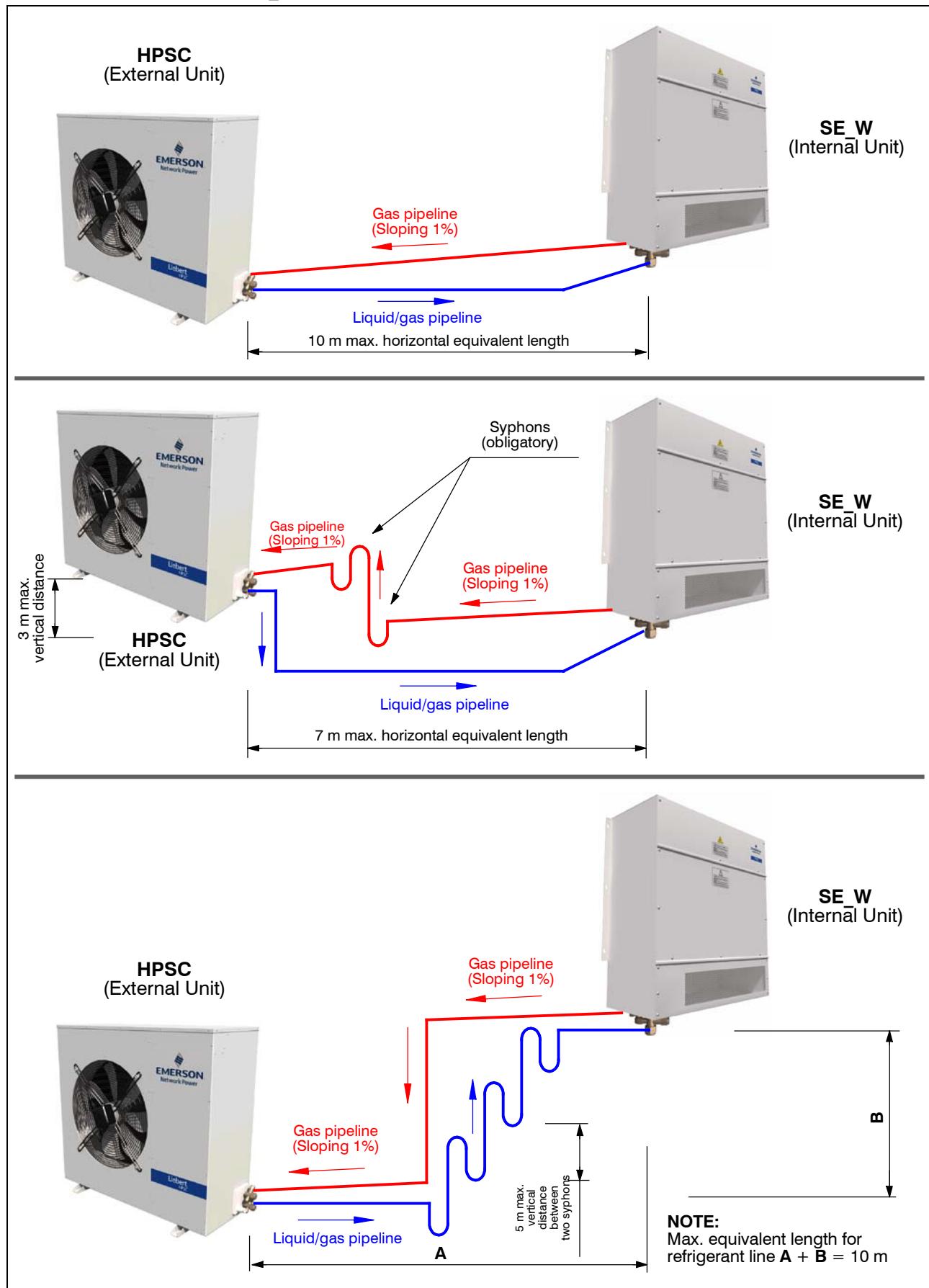
Installation

Fig. 23 – Liebert HPS (HPSE + HPSCxxL, Long piping) suggested refrigerant connections



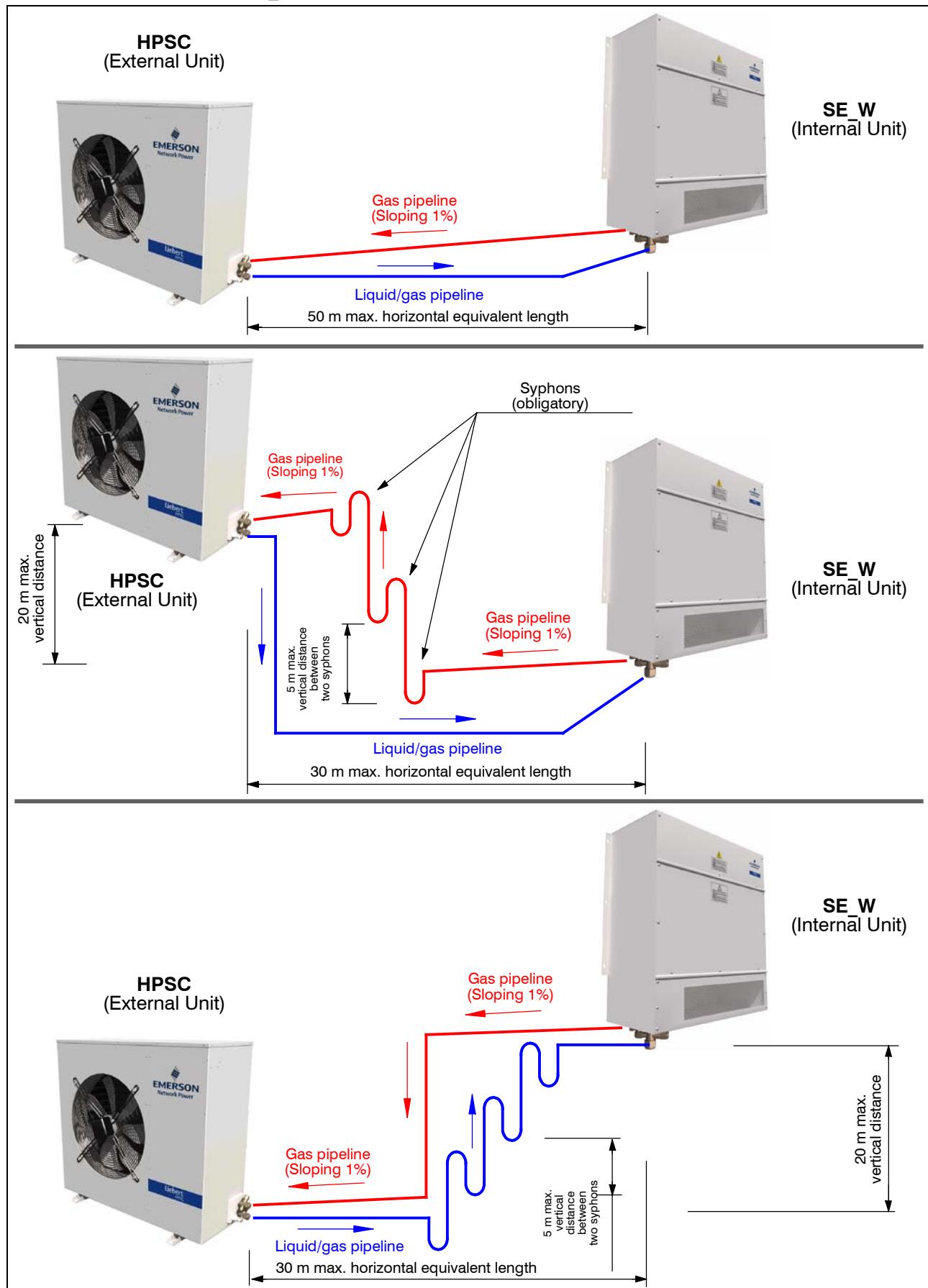
Installation

Fig. 24 – Liebert HPSW (SE_W + HPSCxxA) suggested refrigerant connections



Installation

Fig. 25 – Liebert HPSW (SE_W + HPSCxxL, Long piping) suggested refrigerant connections



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