

8 ÷ 74 kW

Air conditioners with displacement air delivery



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GENERAL CHARACTERISTICS

HEAT HUNTER: Air conditioners with displacement air delivery. R410C refrigerant charge.

The machines are made for indoor installation.

The constructive solutions and the internal lay-out allow high application flexibility and the frontal access to the main components for the inspection and routine maintenance.

Machines supply fully assembled with refrigerant charge and control systems. The installation requires electrical and hydraulic /refrigerant connections only allowing high costs and time reduction.

Final assembly on all machines before shipment including running test, reading and monitoring of operating parameters, alarms simulation and visual check.

Design, assembly and test as per the Company Quality Assurance program in full compliance with ISO 9001. RC Group has been the first Italian company in its segment to get the ISO 9001 in October 13th, 1991 with certificate ICIM 0018.

The machines are in full compliance with European Norms 2006/42CE, 2006/95CE, 2004/108CE, 97/23CE and subsequent amendments.

SERIES IDENTIFICATION



HEAT HUNTER DX – Air conditioners equipped with scroll compressors and inverter controlled centrifugal fans.

Air suction from the top and air delivery from the front side.

DX Air cooled unit Cooling capacity 7,8 ÷ 45,5 kW

DW Water cooled unit Cooling capacity 8,2 ÷ 49,7 kW

HEAT HUNTER CW – Chiller water fed air conditioners equipped with inverter controlled centrifugal fans.

Air suction from the top and air delivery from the front side.

CW Chiller water fed Cooling capacity 17,0 ÷ 74,3 kW

MODEL IDENTIFICATION

HEAT HUNTER DX DL FC 010 HH0

DX Unit type

DX direct expansion – air cooled DW direct expansion – water cooled CW chiller water fed

DL Air delivery

DL Displacement

FC Version

-- Standard

FC with free-cooling plenum

010 Cooling capacity (kW)

HH0 Cabinet size

WORKING LIMITS

COOLING - room air temperature:

14°C minimum temperature with wet bulb.
16°C minimum temperature with dry bulb.
24°C maximum temperature with wet bulb.
32°C maximum temperature with dry bulb.

COOLING - room air humidity:

20%RH minimum relative humidity. 75%RH maximum relative humidity.

REMOTE AIR COOLED CONDENSER

Ambient temperature:

20°C minimum temperature with nominal air flow rate. 20/-15°C temperature range with air flow rate control

45°C maximum temperature.

WATER COOLED CONDENSER

Water temperature:

30/48°C temperature range from the condenser.

The values are indicative. The working temperatures are influenced by a series of variables as:

- · Working conditions
- Thermal load
- · Cleanness status of the condensing coils
- · Set of the microprocessor control

STORING TEMPERATURE

If the machine is not installed on receipt and is stored for a long time, store it in a protected place, at temperatures ranging between -30 $^{\circ}$ C and 50 $^{\circ}$ C in absence of superficial condensation and direct sun light.

AIR CONDITIONING SYSTEM WITH DISPLACEMENT AIR DELIVERY

The basic concept of the air conditioning system with displacement air delivery is based on the natural convection principle, where the cold air is at the lower ambient zones, while the hot air is at the higher ones.

This concept has been developed and applied by RC GROUP for the air conditioning in Telephone Exchangers and Hi-Tech. facilities.

The modern Telecom devices have the aim of heat dissipation by air suction from the lower side close to the floor, for discharge from the top side.

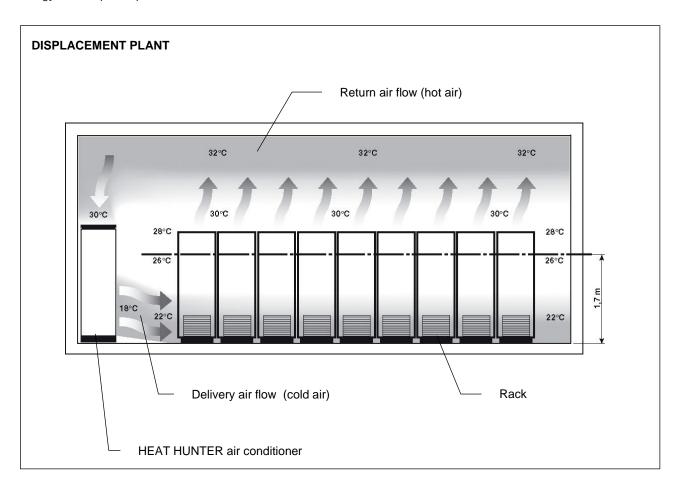
The air circulation inside the Telecom device can be in natural convenction mode or through internal fans.

The RC GROUP free-cooling air conditioning system with displacement air delivery supplies the cold air directly into the room close to the floor with extremely low air speed and intakes the air from the top side of the conditioner where the air temperature is higher.

Therefore, the Telecom devices intakes the cold air from the bottom and discharges the hot air from the top.

The system and the extremely low air speed, causes a high air stratification with 10°C temperature difference between the coldest and the most hot zone. For example we can consider a temperature condition of 22°C close to the floor and 32°C close to the ceiling with a mean temperature of 26°C at 1,7m height from the floor.

By hot air suction in the higher ambient zone, the air conditioner remarkably increases both the thermodynamic performance and the efficiency, with consequent working conditions and energy consumption optimization.



ENERGY SAVING (FREE-COOLING)

For an energy-saving, the RC GROUP conditioners are equipped with a proportional automatic free-cooling system in order to obtain free cooling when the indoor temperature is higher than outdoor one.

Practically, the fresh air is used as coolant, when the outside conditions allow for this, in order to cool the ambient.

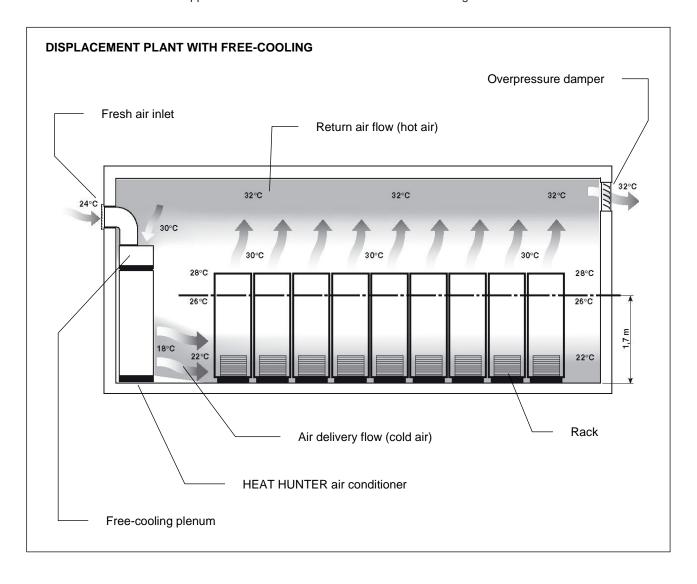
The cooling system is fully proportional and allows three working mode type:

- total free-cooling: only fresh air is used to cool the ambient
- partial free-cooling: the fresh air is used for a pre-cooling and the compressor is used to balance the load.
- mechanical cooling: the compressor is used to cool the ambient.

The fresh air put in the ambient causes an internal pressure increase, that must be avoided to grant a correct performance of the plant.

For this reason it is necessary to install an overpressure damper close to the ceiling, to allow the hot air discharge.

Please note the overpressure damper, necessary for the correct running of the plant, placed at the opposite side of the air conditioner close to the ceiling.



MAIN COMPONENTS

COMMON COMPONENTS

- Base, inner frame and upper perimetral frame painted with epoxy powders. The inner frame is provided with seals to ensure air tight with the panels. Base, inner frame and upper perimetral frame in Black colour.
- Galvanized steel sheet panels externally coated with PVC film. The panels are internally
 insulated with noise absorption material and fixed to the frame with non visible bolts
 system. The panels have a colour similar to RAL 7015 Slate gray with hammered
 finish
- Electric board in separate technical compartment on the unit front.
- Electric board, regulations and control devices in separated technical side compartment on the unit front (starting from H4 casing included).
- Air flow:
 - Air intake from the unit top.
 - Air delivery from the unit front through special grille directly obtained on frontal panels.
- Patented AIR-RAIL system to "guide" the laminar air flow through aerodynamic inductors placed on unit base.
- Washable air filters with cells in synthetic fibre having G4 efficiency.
- Air flow equalizer system placed upflow of the cooling coil.
- Double suction centrifugal fan with forward blades, directly coupled to a 3 phase 6 poles electric motor with external rotor.
- Inverter for the continuous control of the fan rotation speed.
- Rubber holders for supply fans.
- Rubber gasket for the fan outlet sealing to the unit structure.
- Cooling coil with copper pipes, aluminium finning and galvanized thick steel frame
- Condensate tray made of peraluman with PVC flexible discharge.
- Temperature sensors on air intake.
- Temperature sensor on air delivery.
- MP.COM microprocessor control system with display and keyboard.
- Patented MISTRAL logic for the control of the temperature gradient and the air flow.
- Electric board: on units size HH1, HH2 and HH3 the electric board is mounted on slides and completely extractable. The electric board includes:
 - Door lock main switch.
 - Magnetothermic automatic switches.
 - Contactors.
 - Auxiliary circuit and microprocessor feeding by transformer.

DIRECT EXPANSION UNITS COMPONENTS

- SCROLL type hermetic compressor with built-in integral electric protection, built-in silencer on gas discharge and crankcase electric heater.
- Rubber holders for compressor.
- Phases monitoring relay for each compressor.
- Components of cooling circuit:
 - Thermostatic expansion valve with external equalizer.
 - Liquid and moisture indicator.
 - Dryer and anti-acid gas filter.
 - Solenoid valve on liquid line.
 - Liquid received complete with accessories.
 - Low pressure safety switch.
 - High pressure safety switch.
 - High pressure transducer, on gas discharge, for monitoring, control and safety functions of the condensing pressure.
 - Copper piping.
 - Flexible piping for pressure switches connection.
 - R407C refrigerant charge and non freezing oil charge.

DX VERSION

- 0÷10V proportional signal to manage the condensing control system of the remote air cooled condenser.
- Valves on gas delivery and liquid return for unit connection to remote air cooled condenser.

DW VERSION

 Stainless steel AISI 316 welded plate type water cooled condenser for city, well or tower water.

WARNING

For DX units it is necessary to provide the refrigerant charge for the connection pipes and for the remote air cooled condenser.

CHILLED WATER UNITS COMPONENTS

CW VERSION

- 2-way motorized cooling valve with proportional action. The 2-way valve is for plant with variable water flow. It is possible to modify the valve in 3-way by removing the cap on the third way valve (by-pass way).
- · Copper water pipes with anticondensate insulation.

OPTIONAL ACCESSORIES

- Remote air cooled condensers equipped with axial fans (TEAM MATE), available in standard solution (STD), low noise (LNO) and extremely low noise (ELN).
- Proportional controlled steam humidifier with immersed electrodes fitted with safety and running accessories (temperature and humidity sensor on air intake is included).
- Dehumidification system through air flow reduction. This accessory includes the installation of the temperature/humidity combined sensor on the air intake.
- Electric heater consisting of aluminium armoured elements with integral finning fitted with safety thermostat.
- Compressor capacitor for power factor cosø 0,9 (DX / DW versions).
- Compressor noise deadening cap for a noise reduction of about 5 dB(A) (DX / DW versions).
- Water regulating calve for condensing control (DW version)
- Disposable air filters with F5 efficiency.
- Kit for condensate discharge that include water pump with float switch and 10m linear of discharge plastic pipe.
- Clogged filters alarm through differential air pressure switch on air side.
- Air flow loss alarm.
- Floor water presence alarm with sensor.
- Additional underfloor water sensor kit.
- Temperature/humidity probe on air intake
- Remote room temperature probe.
- Chilled water inlet / outlet probes (CW version)
- Fresh air kit
- Plenum with damper for direct Free-Cooling.
- MP.COM microprocessor control accessories:
 - Remote terminal
 - Line current indication.
 - Line voltage indication.
 - Clock card for alarms date and time displaying and memorization.
 - Serial port RCcom, MBUS/JBUS
 - Serial port LON
 - Serial port TREND
 - Serial port BACnet for Ethernet
 - Serial port BACnet for MS/TP
 - Data logger for the memorization of the intervened alarms.

WARNING

RC GROUP reserves the right to accept the matching of the optional installed on the unit.

TECHNICAL DATA – HEAT HUNTER DX

Direct expansion, air cooled

MODEL		008	009	010	013	015	017
SIZE		HH0	HH0	HH0	HH1	HH1	HH1
COOLING CAPACITY (1)							
Total	kW	7,8	8,8	10,2	13,7	15,9	17,5
Sensible	kW	7,4	8,4	9,7	13,0	15,2	16,4
Compressor power input	kW	1,7	2,1	2,5	3,0	3,8	4,2
Compressor operating current	Α	3,1	4,0	4,9	5,0	6,3	7,5
SUPPLY FANS	n.	1	1	1	1	1	1
Air flow	m³/h	2200	2200	2200	3300	3300	3300
Nominal external static pressure	Pa	0	0	0	0	0	0
Max external static pressure (2)	Pa	100	100	100	65	65	65
Operating power input	kW	0,22	0,22	0,22	0,45	0,45	0,45
Max operating current (FLA)	A	3,40	3,40	3,40	3,40	3,40	3,40
COMPRESSOR		scroll	scroll	scroll	scroll	scroll	scroll
Quantity	n.	1	1	1	1	1	1
Max operating current (FLA)	A	4,7	6,0	7,0	8,0	10,3	11,8
Starting current (LRA)	A	28,0	38,0	46,0	43,0	51,5	64,0
Capacity steps	n.	1	1	1	1	1	1
AIR FILTERS	n.	<u>.</u> 1	1	<u> </u>	2	2	2
Efficiency		G4	G4	G4	G4	G4	G4
REFRIGERANT		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge (3)	kg	2,8	2,8	2,8	3,5	3,5	3,5
Gas circuit	n.	1	1	1	1	1	1
POWER SUPPLY	V/Ph/Hz	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
ENERGY EFFICIENCY INDEXES (400/0/00114	400/0/00114	400/0/00114	400/0/00114	400/0/00114	400/0/00111
EER – Energy Efficiency Index	kW/kW	3,61	3,40	3,39	3,75	3,43	3,39
SOUND LEVEL - ISO3744(5)		0,01	0, 10	0,00	0,70	0, 10	0,00
On air delivery	dB(A)	51,5	51,5	51,5	59,1	59,1	59,1
On air intake	dB(A)	57,2	57,2	57,2	64,9	64,9	64,9
DIMENSIONS	uB(///	07,2	01,2	01,2	0 1,0	0 1,0	0 1,0
Length	mm	785	785	785	1470	1470	1470
Width	mm	600	600	600	600	600	600
Height	mm	1980	1980	1980	1980	1980	1980
NET WEIGHT	kg	205	205	205	310	320	320
REMOTE CONDENSER (6)	Ng .	200	200	200	010	020	020
Quantity	n.	1	1	1	1	1	1
TEAM MATE		М 11	M 11	М 14	М 17	M 20	M 25
ELECTRIC HEATER		141 1 1	141 11	141 1-7	101 17	101 20	IVI ZO
Capacity	kW	2,6	2,6	2,6	3,0	3,0	3,0
Operating current (OA)	A	3,7	3,7	3,7	4,3	4,3	4,3
Capacity steps	n.	1	1	1	1	1	1
HUMIDIFIER		<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u> </u>
Steam capacity	kg/h	3	3	3	3	3	3
Power input	kW	2,3	2,3	2,3	2,3	2,3	2,3
Operating current (OA)	A	3,2	3,2	3,2	3,2	3,2	3,2
Max operating current (FLA)	A	4,5	4,5	4,5	4,5	4,5	4,5
REFRIGERANT CONNECTIONS	/ \	7,0	٦,٥	٦,٥	٦,٥	7,0	7,0
Gas delivery	ODS Ø	12	12	12	16	16	16
Liquid return	ODS Ø	12	12	12	12	12	12
CONNECTIONS ISO228/1-G	ט טטט ע	14	14	14	14	14	12
Humidifier filling	FØ	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Condensate discharge – rubber pipe	FØ FØ	3/4 1/2"	3/4 1/2"	3/4 1/2"	3/4 1/2"	3/4 1/2"	3/4 1/2"
Condensate discharge – rubber pipe	1 20	1/4	1/4	1/4	1/4	1/4	1/2

- 1. Characteristic referred to room condition at 26°C with 45%UR at 1,7m height from the floor, equivalent to a cooling coil inlet air temperature of 30°C with 35%UR; air to the condenser at 35°C.
- Available pressure for Free-Cooling system and ducting, corresponding to nominal air flow with Inverter output at 50Hz.
- Unit refrigerant charge. Remote condenser, connections pipes and optional are excluded.
 The index include the remote air cooled condenser
- Noise pressure level at 1 meter in free field.
- 6. For matching to other remote air cooled condensers please refer to RC WORLD selection program

DATI TECNICI – HEAT HUNTER DX

Direct expansion, air cooled

MODEL		021	023	027	030	038	045
SIZE		HH2	HH2	HH2	HH2	HH3	HH3
COOLING CAPACITY (1)							
Total	kW	21,3	23,8	27,7	30,3	39,1	45,5
Sensible	kW	20,3	22,7	26,5	29,0	37,4	43,6
Compressor power input	kW	4,2	5,0	6,3	7,2	8,4	10,6
Compressor operating current	Α	7,5	8,8	11,4	13,4	15,5	19,3
SUPPLY FANS	n.	2	2	2	2	3	3
Air flow	m³/h	6600	6600	6600	6600	10000	10000
Nominal external static pressure	Pa	0	0	0	0	0	0
Max external static pressure (2)	Pa	65	65	65	65	65	65
Operating power input	kW	1,00	1,00	1,00	1,00	1,63	1,63
Max operating current (FLA)	Α	3,40	3,40	3,40	3,40	3,40	3,40
COMPRESSOR		scroll	scroll	scroll	scroll	scroll	scroll
Quantity	n.	1	1	1	1	1	1
Max operating current (FLA)	Α	11,8	15,0	16,0	21,0	22,0	31,0
Starting current (LRA)	Α	64,0	75,0	95,0	111,0	118,0	140,0
Capacity steps	n.	1	1	1	1	1	1
AIR FILTERS	n.	3	3	3	3	4	4
Efficiency		G4	G4	G4	G4	G4	G4
REFRIGERANT		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge (3)	kg	4,5	4,5	4,7	4,8	7,7	7,7
Gas circuit	n.	1	1	1	1	1	1
POWER SUPPLY	V/Ph/Hz	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
ENERGY EFFICIENCY INDEXES (4)						
EER – Energy Efficiency Index	kW/kW	3,70	3,64	3,54	3,46	3,62	3,42
SOUND LEVEL - ISO3744(5)							
On air delivery	dB(A)	62,2	62,2	62,2	62,2	64,3	64,3
On air intake	dB(A)	68,0	68,0	68,0	68,0	70,0	70,0
DIMENSIONS							_
Length	mm	2005	2005	2005	2005	2540	2540
Width	mm	600	600	600	600	600	600
Height	mm	1980	1980	1980	1980	1980	1980
NET WEIGHT	kg	390	390	425	440	530	540
REMOTE CONDENSER (6)							
Quantity	n.	1	1	1	1	1	1
TEAM MATE		M 25	M 30	M 35	M 35	M 45	M 50
ELECTRIC HEATER							
Capacity	kW	4,5	4,5	4,5	4,5	6,0	6,0
Operating current (OA)	Α	6,5	6,5	6,5	6,5	8,7	8,7
Capacity steps	n.	1	1	1	1	1	11
HUMIDIFIER							
Steam capacity	kg/h	3	3	3	3	3	3
Power input	kW	2,3	2,3	2,3	2,3	2,3	2,3
Operating current (OA)	Α	3,2	3,2	3,2	3,2	3,2	3,2
Max operating current (FLA)	Α	4,5	4,5	4,5	4,5	4,5	4,5
REFRIGERANT CONNECTIONS							
Gas delivery	ODS Ø	18	18	22	22	22	26
Liquid return	ODS Ø	16	16	16	16	22	22
CONNECTIONS ISO228/1-G							
Humidifier filling	FØ	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Condensate discharge – rubber pipe	FØ	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"

- Characteristic referred to room condition at 26°C with 45%UR at 1,7m height from the floor, equivalent to a cooling coil inlet air temperature of 30°C with35%UR; air to the condenser at 35°C. 1.
- 2. Available pressure for Free-Cooling system and ducting, corresponding to nominal air flow with Inverter output at 50Hz.
- 3. Unit refrigerant charge. Remote condenser, connections pipes and optional are excluded.
- The index include the remote air cooled condenser Noise pressure level at 1 meter in free field.
- 4. 5.
- For matching to other remote air cooled condensers please refer to RC WORLD selection program

TECHNICAL DATA – HEAT HUNTER DW

Direct expansion, water cooled

MODEL		008	009	010	013	015	017
SIZE		HH0	HH0	HH0	HH1	HH1	HH1
COOLING CAPACITY (1)							
Total	kW	8,2	9,2	10,7	14,7	17,0	18,4
Sensible	kW	7,8	8,8	10,2	14,0	16,2	16,8
Compressor power input	kW	1,5	1,8	2,2	2,4	3,1	3,7
Compressor operating current	Α	2,8	3,6	4,4	4,2	5,3	6,7
Condenser water flow rate	m³/h	1,4	1,6	1,9	2,5	2,9	3,2
Condenser pressure drop	kPa	3	3	4	5	7	8
SUPPLY FANS	n.	1	1	1	1	1	1
Air flow	m ³ /h	2200	2200	2200	3300	3300	3300
Nominal external static pressure	Pa	0	0	0	0	0	0
Max external static pressure (2)	Pa	100	100	100	65	65	65
Operating power input	kW	0,22	0,22	0,22	0,44	0,44	0,44
Max operating current (FLA)	A	3,40	3,40	3,40	3,40	3,40	3,40
COMPRESSOR		scroll	scroll	scroll	scroll	scroll	scroll
Quantity	n.	1	1	1	1	1	1
Max operating current (FLA)	A	4,7	6,0	7,0	8,0	10,3	11,8
Starting current (LRA)	A	28,0	38,0	46,0	43,0	51,5	64,0
Capacity steps	n.	1	1	1	1	1	1
WATER COOLED CONDENSER	n.	1	<u> </u>	<u>.</u> 1	<u> </u>	1	<u> </u>
Water volume	i	0,9	1,0	1,2	1,5	1,5	1,8
Max water flow rate	m³/h	1,8	2,1	2,3	3,2	3,7	4,1
AIR FILTERS	n.	1	1	1	2	2	2
Efficiency	11.	G4	G4	G4	G4	G4	G4
REFRIGERANT		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	3,0	3,0	3,1	4,0	4,4	4,4
Gas circuit	n.	3,0 1	3,0 1	1	1	1	1
POWER SUPPLY	V/Ph/Hz	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
ENERGY EFFICIENCY INDEXES	V/1 11/11/2	+00/3/3011 1	400/3/30111	400/3/30111	400/3/30111	400/3/30111	400/3/30111
EER – Energy Efficiency Index	kW/kW	4,90	4,53	4,50	5,23	4,82	4,49
SOUND LEVEL - ISO3744(3)	KVV/KVV	7,00	7,00	4,00	0,20	7,02	7,70
On air delivery	dB(A)	51,5	51,5	51,5	59,1	59,1	59,1
On air intake	dB(A)	57,2	57,2	57,2	64,9	64,9	64,9
DIMENSIONS	ub(A)	57,2	01,2	57,2	04,5	04,5	04,0
Length	mm	785	785	785	1470	1470	1470
Width	mm	600	600	600	600	600	600
Height	mm	1980	1980	1980	1980	1980	1980
NET WEIGHT	kg	215	215	215	320	340	340
ELECTRIC HEATER	ĸġ	210	210	210	320	340	340
Capacity	kW	2,6	2,6	2,6	3,0	3,0	3,0
Operating current (OA)	A	3,7	3,7	3,7	4,3	4,3	4,3
Capacity steps	n.	1	1	1	1	1	٦,5 1
HUMIDIFIER	11.				'		<u>'</u>
Steam capacity	kg/h	3	3	3	3	3	3
Power input	kW	2,3	2,3	2,3	2,3	2,3	2,3
Operating current (OA)	A	2,3 3,2	2,3 3,2	3,2	3,2	2,3 3,2	3,2
	A	3,2 4,5	3,∠ 4,5	3,2 4,5	3,2 4,5	3,∠ 4,5	3,2 4,5
Max operating current (FLA) CONNECTIONS ISO228/1-G	^	4,0	4,0	4,5	4,5	4,0	4,5
Condenser water inlet/outlet	ΜØ	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"
	FØ	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Humidifier filling Condensate discharge – rubber pipe	FØ FØ						
Condensate discharge – rubber pipe	ГЫ	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"

Characteristic referred to room condition at 26□C with 45%UR at 1,7m height from the floor, equivalent to a cooling coil inlet air temperature of 30°C with 35%UR; water temperature to the condenser at 30/36°C.

Available pressure for Free-Cooling system and ducting, corresponding to nominal air flow with Inverter output at 50Hz. Noise pressure level at 1 meter in free field.

DATI TECNICI – HEAT HUNTER DW

Espansione diretta, condensato ad acqua

MODEL		021	023	027	030	038	045
SIZE		HH2	HH2	HH2	HH2	HH3	HH3
COOLING CAPACITY (1)							
Total	kW	23,1	25,2	29,0	32,6	41,3	49,7
Sensible	kW	22,0	24,0	27,6	31,0	39,4	47,2
Compressor power input	kW	3,4	4,3	5,6	5,9	7,3	8,5
Compressor operating current	Α	6,3	7,8	10,5	11,6	13,9	16,2
Condenser water flow rate	m³/h	3,8	4,3	5,0	5,6	7,0	8,4
Condenser pressure drop	kPa	5	7	9	6	10	25
SUPPLY FANS	n.	2	2	2	2	3	3
Air flow	m³/h	6600	6600	6600	6600	10000	10000
Nominal external static pressure	Pa	0	0	0	0	0	0
Max external static pressure (2)	Pa	65	65	65	65	65	65
Operating power input	kW	1,00	1,00	1,00	1,00	1,63	1,63
Max operating current (FLA)	A	3.40	3,40	3,40	3,40	3,40	3.40
COMPRESSOR		scroll	scroll	scroll	scroll	scroll	scroll
Quantity	n.	1	1	1	1	1	1
Max operating current (FLA)	A	11,8	15,0	16,0	21,0	22,0	31,0
Starting current (LRA)	A	64,0	75,0	95,0	111,0	118,0	140,0
Capacity steps	n.	1	73,0 1	93,0 1	1	1 10,0	140,0
WATER COOLED CONDENSER	n.	<u>'</u> 1	<u>'</u> 1	<u>'</u> 1	<u>'</u> 1	<u>'</u> 1	1
Water volume	11. 	1,8	1,8	2,5	3,0	3.0	4,0
Max water flow rate	m ³ /h	5,1	5,6	2,3 6,4	7,2	9,1	4,0 12,1
AIR FILTERS	n.	3,1	3,0	3	3	4	4
Efficiency	11.	G4	G4	G4	G4	4 G4	4 G4
REFRIGERANT		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	ka	5,4	5,7	5,9	-	9,3	9,5
0	kg	5,4 1	5, <i>1</i> 1	5,9 1	6,4 1	9,3 1	9,5 1
Gas circuit POWER SUPPLY	n. V/Ph/Hz	400/3/50+N			•		
ENERGY EFFICIENCY INDEXES	V/PII/ПZ	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
EER – Energy Efficiency Index	kW/kW	5,29	4,77	4,39	4,72	4,65	4,91
SOUND LEVEL – ISO3744(3)	KVV/KVV	5,29	4,77	4,39	4,72	4,65	4,91
. ,	4D(A)	60.0	60.0	60.0	60.0	64.2	64.0
On air delivery	dB(A)	62,2	62,2	62,2	62,2	64,3	64,3
On air intake	dB(A)	68,0	68,0	68,0	68,0	70,0	70,0
DIMENSIONS		2005	2005	2005	2005	0540	2540
Length	mm	2005	2005	2005	2005	2540	
Width	mm	600	600	600	600	600	600
Height	mm	1980	1980	1980	1980	1980	1980
NET WEIGHT	kg	405	405	440	455	550	565
ELECTRIC HEATER	134/	4.5	4.5	4.5	4.5	0.0	0.0
Capacity	kW	4,5	4,5	4,5	4,5	6,0	6,0
Operating current (OA)	Α	6,5	6,5	6,5	6,5	8,7	8,7
Capacity steps	n.	1	1	1	1	1	11
HUMIDIFIER		_	_	_	_	_	_
Steam capacity	kg/h	3	3	3	3	3	3
Power input	kW	2,3	2,3	2,3	2,3	2,3	2,3
On a notice of a common to (OA)			3,2	3,2	3,2	3,2	3,2
Operating current (OA)	Α	3,2	,	,	,	,	
Max operating current (FLA)	A A	3,2 4,5	3,2 4,5	3,2 4,5	4,5	4,5	4,5
Max operating current (FLA) CONNECTIONS ISO228/1-G	A	4,5	4,5	4,5	4,5	4,5	4,5
Max operating current (FLA) CONNECTIONS ISO228/1-G Condenser water inlet/outlet	A M Ø	4,5 1 1/2"	4,5 1 1/2"	4,5 1 1/2"	4,5 1 1/2"	4,5 1 1/2"	4,5 2"
Max operating current (FLA) CONNECTIONS ISO228/1-G	A	4,5	4,5	4,5	4,5	4,5	4,5

- 1. Characteristic referred to room condition at 26°C with 45%UR at 1,7m height from the floor, equivalent to a cooling coil inlet air temperature of 30°C with 35%UR; water temperature to the condenser at 30/36°C.
- 2. Available pressure for Free-Cooling system and ducting, corresponding to nominal air flow with Inverter output at 50Hz.
- 3. Noise pressure level at 1 meter in free field.

TECHNICAL DATA – HEAT HUNTER CW

Chilled water

SIZE	MODEL		014	021	025	044	066
Total kW 17,0 25,7 36,0 54,7 74,3 Sumsible kW 15,9 23,8 35,1 51,1 71,5 SUPPLY FANS n. 1 1 2 2 2 3 Air flow m²/h 2200 3330 5500 6660 10000 Nominal external static pressure Pa 0 0 0 0 0 Max external static pressure (2) Pa 100 65 65 65 65 Operating power input kW 0,2 0,5 0,9 1,0 1,6 Max operating current (FLA) A 3,4 3,4 3,4 3,4 3,4 3,4 3,4 COLING Water flow rate m³/h 2,7 4,1 5,7 8,7 11,8 4 4P colline xalve flow rate m³/h 2,7 4,1 5,7 8,7 11,8 4 6 4 G4 G4	SIZE		HH0	HH1	HH1	HH2	HH3
Sensible kW 15,9 23,8 35,1 51,1 71,5 SUPPLY FANS n. 1 1 2 2 3 Air flow m²/h 2200 3330 5500 6660 10000 Nominal external static pressure Pa 0 0 0 0 0 Max external static pressure (2) Pa 100 65 65 65 65 Operating power input kW 0.2 0.5 0.9 1.0 1.6 Max operating current (FLA) A 3.4 3.4 3.4 3.4 3.4 Water flow rate m³/h 2.7 4.1 5.7 8.7 11.8 dP coil + valve kPa 39 30 39 65 47 AIR FLTERS n. 1 1 2 2 2 2 2 Efficiency G4 G4 G4 G4 G4 G4 G4 G4 G4 G4 <td< td=""><td>COOLING CAPACITY (1)</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	COOLING CAPACITY (1)						
SUPPLY FANS	Total	kW	17,0	25,7	36,0	54,7	74,3
Air flow m³/h 2200 3330 5500 6660 10000 Nominal external static pressure Pa 0 0 0 0 0 0 Max external static pressure (2) Pa 100 65 65 65 65 Operating power input kW 0,2 0,5 0,9 1,0 1,6 Max operating current (FLA) A 3,4 <th>Sensible</th> <th>kW</th> <th>15,9</th> <th>23,8</th> <th>35,1</th> <th>51,1</th> <th>71,5</th>	Sensible	kW	15,9	23,8	35,1	51,1	71,5
Nominal external static pressure Pa 0 0 0 0 0 0 0 0 0	SUPPLY FANS		1	1	2	2	3
Max external static pressure (2) Pa 100 65 65 65 65 Operating power input kW 0,2 0,5 0,9 1,0 1,6 Max operating current (FLA) A 3,4 3,4 3,4 3,4 3,4 COOLING COIL Water flow rate m³/h 2,7 4,1 5,7 8,7 11,8 dP coil + valve kPa 39 30 39 65 47 AIR FILTERS n. 1 1 2 2 2 2 Efficiency G4	Air flow	m³/h	2200	3330	5500	6660	10000
Operating power input Max operating current (FLA) kW 0,2 0,5 0,9 1,0 1,6 Max operating current (FLA) A 3,4<	Nominal external static pressure	Pa	0	0	0	0	0
Max operating current (FLA) A 3,4 </td <td>Max external static pressure (2)</td> <td>Pa</td> <td>100</td> <td>65</td> <td>65</td> <td>65</td> <td>65</td>	Max external static pressure (2)	Pa	100	65	65	65	65
COOLING COIL Water flow rate dProvided Representation of the provided Representatio	Operating power input	kW	0,2	0,5	0,9	1,0	1,6
Water flow rate dP coil + valve m³/h kPa 2,7 39 4,1 30 5,7 30 8,7 39 11,8 65 47 AIR FILTERS n. 1 1 2 2 2 Efficiency G4 G4 G4 G4 G4 G4 POWER SUPPLY V/Ph/Hz 400/3/50+N 40		Α					
dP coil + valve kPa 39 30 39 65 47 AIR FILTERS n. 1 1 2 2 2 Efficiency G4 G6 G8,0 G5,2 G8,2 70,0 D D D D D D D D D D D D D D D <td>COOLING COIL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	COOLING COIL						
AIR FILTERS	Water flow rate	m³/h	2,7	4,1	5,7	8,7	11,8
Efficiency G4 G4 G4 G4 G4 G4 G4 POWER SUPPLY V/Ph/Hz 400/3/50+N 400/3 400/3	dP coil + valve	kPa	39	30	39	65	47
POWER SUPPLY V/Ph/Hz 400/3/50+N 400/3/5	AIR FILTERS	n.	1	1	2	2	2
SOUND LEVEL – ISO3744(3) On air delivery dB(A) 55,3 63,1 63,3 66,3 68,1 On air intake dB(A) 57,2 65,0 65,2 68,2 70,0 DIMENSIONS Length mm 785 1470 1470 2005 2540 Width mm 600 600 600 600 600 Height mm 1980 1980 1980 1980 1980 NET WEIGHT kg 165 270 290 355 435 ELECTRIC HEATER Capacity kW 2,6 3,0 3,0 4,5 6,0 Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 3 <t< td=""><td>Efficiency</td><td></td><td>G4</td><td>G4</td><td>G4</td><td>G4</td><td>G4</td></t<>	Efficiency		G4	G4	G4	G4	G4
On air delivery On air intake dB(A) dB(A) 55,3 des,1 des,0 63,3 des,2 des,2 des,2 des,0 68,1 des,2 d	POWER SUPPLY	V/Ph/Hz	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
On air intake dB(A) 57,2 65,0 65,2 68,2 70,0 DIMENSIONS Length mm 785 1470 1470 2005 2540 Width mm 600 600 600 600 600 600 Height mm 1980 1980 1980 1980 1980 NET WEIGHT kg 165 270 290 355 435 ELECTRIC HEATER Capacity kW 2,6 3,0 3,0 4,5 6,0 Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 3 Operating current (OA) A 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 <t< td=""><td>SOUND LEVEL - ISO3744(3)</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	SOUND LEVEL - ISO3744(3)						
DIMENSIONS Length mm 785 1470 1470 2005 2540 Width mm 600 600 600 600 600 600 Height mm 1980 1980 1980 1980 1980 NET WEIGHT kg 165 270 290 355 435 ELECTRIC HEATER Capacity kW 2,6 3,0 3,0 4,5 6,0 Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 3 3 3 2,3	On air delivery	dB(A)	55,3	63,1	63,3	66,3	68,1
Length mm 785 1470 1470 2005 2540 Width mm 600 600 600 600 600 Height mm 1980 1980 1980 1980 1980 NET WEIGHT kg 165 270 290 355 435 ELECTRIC HEATER Capacity kW 2,6 3,0 3,0 4,5 6,0 Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 3 Steam capacity kg/h 3 3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 3,2 3,2 3,2	On air intake	dB(A)	57,2	65,0	65,2	68,2	70,0
Width mm 600 </td <td>DIMENSIONS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	DIMENSIONS						
Height mm 1980 1980 1980 1980 1980 NET WEIGHT kg 165 270 290 355 435 ELECTRIC HEATER Capacity kW 2,6 3,0 3,0 4,5 6,0 Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 3 Power input kW 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 Operating current (OA) A 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,4 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5	Length	mm	785	1470	1470	2005	2540
NET WEIGHT kg 165 270 290 355 435	Width	mm	600	600	600	600	600
ELECTRIC HEATER Capacity kW 2,6 3,0 3,0 4,5 6,0 Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 3 Power input kW 2,3 2,3 2,3 2,3 2,3 2,3 Operating current (OA) A 3,2 3,2 3,2 3,2 3,2 Max operating current (FLA) A 4,5 4,5 4,5 4,5 CONNECTIONS ISO228/1-G Water inlet/outlet MØ 1" 1 1/4" 1 1/4" 1 1/2" 2" Humidifier filling FØ 3/4" 3/4" 3/4" 3/4" 3/4" 3/4"	Height	mm	1980	1980	1980	1980	1980
Capacity kW 2,6 3,0 3,0 4,5 6,0 Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 Power input kW 2,3 2,3 2,3 2,3 2,3 2,3 Operating current (OA) A 3,2 3,2 3,2 3,2 3,2 3,2 Max operating current (FLA) A 4,5 4,5 4,5 4,5 4,5 CONNECTIONS ISO228/1-G Water inlet/outlet M Ø 1" 1 1/4" 1 1/4" 1 1/2" 2" Humidifier filling F Ø 3/4" 3/4" 3/4" 3/4" 3/4" 3/4" 3/4"	NET WEIGHT	kg	165	270	290	355	435
Operating current (OA) A 3,7 4,3 4,3 6,5 8,7 Capacity steps n. 1 1 1 1 1 1 HUMIDIFIER Steam capacity kg/h 3 3 3 3 3 3 3 3 3 3 3 2,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 <t< td=""><td>ELECTRIC HEATER</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	ELECTRIC HEATER						
Capacity steps n. 1 2 3 3 3 3 3 3 3 3 3 3 2 3 4 5 4	Capacity	kW	2,6	3,0	3,0	4,5	6,0
HUMIDIFIER Steam capacity kg/h 3 2 3 2 4 5 4 5	Operating current (OA)	Α	3,7	4,3	4,3	6,5	8,7
Steam capacity kg/h 3 3 3 3 3 3 3 3 3 3 3 3 3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 4,5 4,5 4,5 4,5 4,5 4,5 4,5 2,5 2,5 4,5 4,5 2,5 2,5 2,5 4,5 4,5 2,5 2,5 4,5 4,5 4,5 2,5 4,5	Capacity steps	n.	1	1	1	1	1
Power input kW 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 2,3 3,2 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 4,5 2 2 2 2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 4,5 4,5 4,5 4,5 4,5	HUMIDIFIER						
Operating current (OA) A 3,2 3,2 3,2 3,2 3,2 3,2 3,2 3,2 4,5	Steam capacity	kg/h	3	3	3	3	3
	Power input	kW	2,3	2,3	2,3	2,3	2,3
CONNECTIONS ISO228/1-G Water inlet/outlet M Ø 1" 1 1/4" 1 1/4" 1 1/2" 2" Humidifier filling F Ø 3/4" 3/4" 3/4" 3/4" 3/4"	Operating current (OA)	Α		3,2	3,2		3,2
Water inlet/outlet M Ø 1" 1 1/4" 1 1/4" 1 1/2" 2" Humidifier filling F Ø 3/4" 3/4" 3/4" 3/4" 3/4"		Α	4,5	4,5	4,5	4,5	4,5
Humidifier filling F Ø 3/4" 3/4" 3/4" 3/4" 3/4"	CONNECTIONS ISO228/1-G						
	Water inlet/outlet	ΜØ	1"	1 1/4"	1 1/4"	1 1/2"	2"
Condensate discharge – rubber pipe $F \varnothing$ 1/2" 1/2" 1/2" 1/2" 1/2" 1/2"	Humidifier filling	FØ	3/4"	3/4"	3/4"	3/4"	3/4"
	Condensate discharge – rubber pipe	FØ	1/2"	1/2"	1/2"	1/2"	1/2"

- Characteristic referred to room condition at 26°C with 45%UR at 1,7m height from the floor, equivalent to a cooling coil inlet air temperature of 30°C with 35%UR; chilled water temperature 7/12°C.

 Available pressure for Free-Cooling system and ducting, corresponding to nominal air flow with Inverter output at 50Hz.
- Noise pressure level at 1 meter in free field.

ELECTRICAL DATA

MAXIMUM ELECTRICAL ABSORPTION CALCULATION

This chapter has the aim to explain the calculation of the maximum absorbed current by the unit (A), corresponding to extreme working conditions.

Example in cooling mode for unit HEAT.HUNTER.DW.027.HH2

COOLING (1) - Main fans (FLA) - Compressor (FLA) - Electric heaters (OA) Absorbed current	A A A	3,4 16,0 6,5 25,9	+ + =
COOLING (2) - Main fans (FLA) - Compressor (FLA) - Humidifier (FLA) Absorbed current	A A A	3,4 16,0 4,5 23,9	+ + =
HEATING (3) - Main fans (FLA) - Electric heaters (OA) - Humidifier (FLA) Absorbed current	A A A	3,4 6,5 4,5 14,4	+ + =

The COOLING (1) working condition corresponds to the unit maximum electric absorption.

IMPORTANT

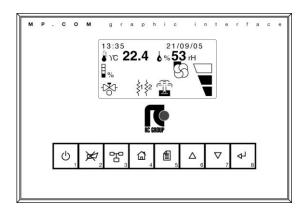
For the axial and centrifugal fans, the current nominal values have been considered equal to the data plate values. For this reason, the nominal current and the data plate current is the same.

Actually, the real absorbed current is normally lower than the data plate value. These values depend on the unit working conditions and on the type of control of the plant.

MP.COM: MICROPROCESSOR CONTROL SYSTEM

The MP.COM microprocessor control system is equipped with 8 keys terminal and back lighted graphic display on which all information in different languages or easily identifiable symbols are displayed.

The system disposes of a "flash" memory that preserves the information even in absence of power supply.



KEYBOARD FUNCTIONS

- KEY 1 Switches on/off the unit.
- KEY 2 Stops the alarm acoustical signal and displays the intervened alarm.
- KEY 3 Accedes to the parameters of possible units connected in LAN network.

 LAN connection with 3 wires without additional accessories. It is possible to connect in network different capacity units and with different number of compressors.
- KEY 4 Home key displays the main screen.
- KEY 5 Accedes to control and visualization menus as:
 - Unit working status
 - Set-points
 - Alarms reset (protected by password)
 - Service parameters setting (protected by password)
 - Intervened alarms history
 - Setting for main components manual operation (protected by password)
 - Date and time setting
 - Setting of communication system for SMS messages dispatch
- KEY 6 Scroll the pages inside each menu and decreases the displayed value
- KEY 7 Scroll the pages inside each menu and increases the displayed value
- KEY 8 Shift the cursor inside each menu and confirm a parameter insertion

REMOTE CONTROLS/ALARMS

INLETS	
1 External enabling	•
2 Cooling enabling	•
4 Smoke/Fire alarm	•
OUTLETS	
1 General alarm 1 – deviating contact	••
2 General alarm 2 – programmable deviating contact (optional)	••
3 General alarm 3 - programmable deviating contact (optional)	••

- · controls/alarms for remotization
- •• voltage free controls/alarms for remotization

MISTRAL CONTROL LOGIC

The HEAT HUNTER air-conditioners are controlled trough the patented MISTRAL (Modulating control of Indoor STRAtification Layer) control logic.

Since the engine of a displacement system is the difference between the air temperature close to the ceiling and close to the floor (room Dt), for a correct plant working condition this difference must be the same in every working conditions.

The system controls the room air temperature. The humidity control is optional.

THE ROOM AIR TEMPERATURE CONTROL

The room air temperature control is obtained by three different measured temperature:

- conditioner air intake temperature
- room temperature close to the conditioner (with additional sensor)
- conditioner air delivery temperature

The room temperature corresponds to the mean air temperature at 1,7m height from floor in the racks corridor.

The control logic foresees that the conditioner air delivery temperature is controlled through a variation of the conditioner air flow, keeping the room Dt constant.

The temperature is controlled through the conditioner air intake probe, it activates the compressor when the temperature rises.

The conditioner air delivery probe controls the supply fan speed between 75% and 100%, to maintain the air delivery temperature set-point.

With compressor off the air flow is automatically reduced to 30% of the nominal air flow.

ADDITIONAL TEMPERATURE SENSOR

Each conditioner can be wired to an additional probe to measure the room temperature in a determinate point of the room.

These additional probes must be used only if strictly requested.

We suggest two types of usage:

- The presence of a highly temperature sensitive device and/or with a thermal load higher than the average. In this situation the probe should be placed close to the device and wired to the nearest conditioner.
- Some particular situations of the room lay-out.

The additional probe compensates the compressor set-point, increasing or decreasing it, to keep the air temperature set-point where the probe is installed.

On the contrary, with room temperature lower than set-point, the control is made by temperature measured by conditioner as previously described.

THE ROOM RELATIVE HUNIDITY CONTROL

The room relative humidity control takes place only if the conditioner is equipped with the additional Relative Humidity probe.

When the relative humidity exceeds the set-point, the control decreases the air delivery temperature set-point. This reduction causes not only an automatic air flow reduction and an increase of the differentials set-point, but also a lower relative humidity of the air delivery, able to increase the latent heat and to correctly dehumidify the room.

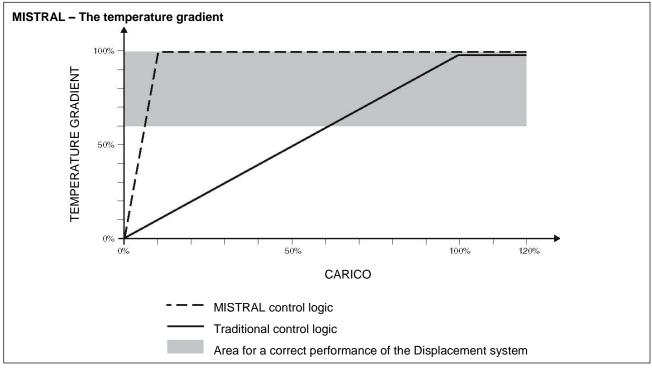
ADVANTAGE OF THE MISTRAL LOGIC

The MISTRAL control logic allows two types of advantages.

The first advantage regards the temperature gradient in the room where the air-conditioner has been installed.

Within the air-conditioner's range of operation, i.e. when the capacity delivered by it is greater than 0%, thanks to the patented MISTRAL control logic, the gradient is equal to the designed value.

On the contrary, with the traditional control logic, without modifying the air flow, the gradient decreases and its values prevent the correct operation of the system, because the displacement principle cannot work well if the differential temperature values are too low.



The other advantage is connected with the power consumption of the fans, of the variation if the air flow depends on a variation in the fan's rpm.

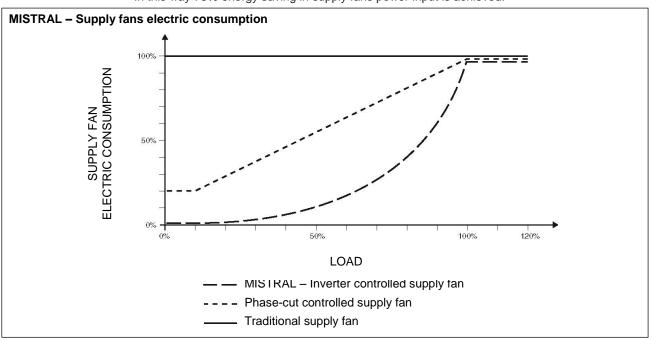
With the traditional system the ventilation capacity is always at its peak, regardless of the air temperature in the room (and accordingly, regardless of the capacity required by the system). When using the system patented by RC, the capacity decreases considerably according to the room temperature (i.e. the capacity required by the system).

This decrease is different according as the fans are supplied through Inverter or phase-cut electronic regulator.

Thanks to MISTRAL control logic, it is possible to obtain the best energy savings in every load conditions, even at 100%. Indeed, in a plant with two Heat Hunter air conditioners (Master and Slave), it is more convenient to have both conditioners working at 50% than only one working at 100% of the load.

With both conditioners working at 50%, the supply fan power input for each unit is the 12,5% of the maximum.

In this way 75% energy saving in supply fans power input is achieved.

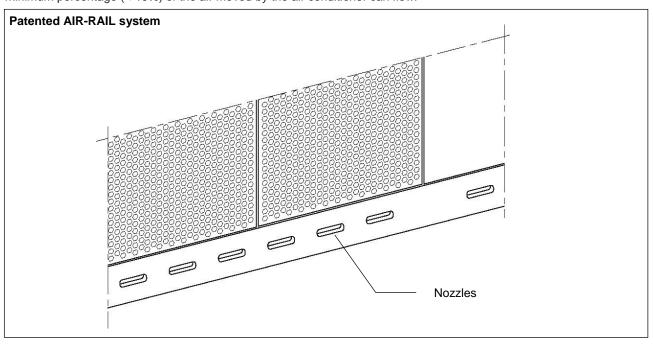


AIR-RAIL PATENTED AIR-DISTRIBUTION SYSTEM

The AIR-RAIL distribution system can create an "adhering vein of air", so as to "guide" the air flow by induction and to convey it where it is actually needed, and thus preventing any bypass phenomena after the collision between the air flow leaving the air-conditioner and the racks.

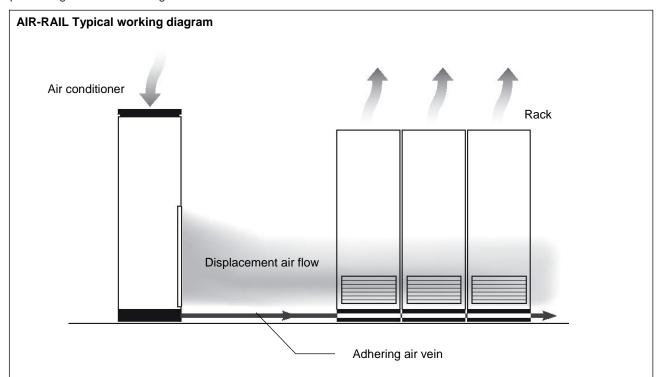
The formation of the adhering vein is essential, because the displacement distribution, due to the low speed, does not produce any induction effect. The flow is properly distributed where there is enough space, but encounters a few problems when the distance between the airconditioner and the rack is limited.

The base of the unit is provided with a series of nozzles that can be capped, where only a minimum percentage (< 10%) of the air moved by the air conditioner can flow.



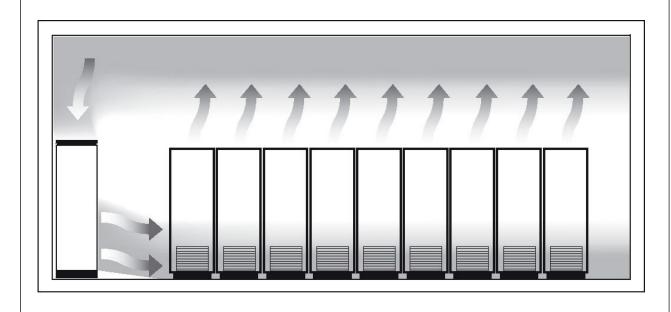
This air forms an adhering vein, at the floor level, that can pull the displacement air flow by induction.

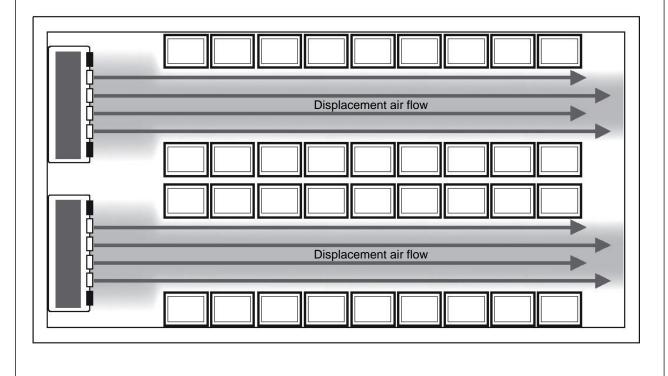
In practice, this vein makes it possible to convey the air in a proper way, like a sort of rail, preventing the air from hitting the racks.



Nozzles are fitted uncapped while the unused nozzles have to be capped. In this way, if the air is pulled towards the corridor, the adhering air vein releases, by induction, some space where the leaving air is conveyed on the side of the displacement diffuser above the capped nozzles.

AIR-RAIL - Typical installation diagram





Uncapped nozzles

Capped nozzles

OPTIONAL ACCESSORIES - REMOTE AIR COOLED CONDENSER

Remote air cooled condenser series TEAM MATE with horizontal air flow, from coil to fan.

The machines are made with weather resistant materials and suitable for outdoor installation.

Design, assembly and test as per the Company Quality Assurance program in full compliance with ISO 9001. RC Group has been the first Italian company in its segment to get the ISO 9001 in October 13th, 1991 with certificate ICIM 0018.

The machines are in full compliance with European Norms 2006/42CE, 2006/95CE, 2004/108CE, 97/23CE and subsequent amendments.

SERIES IDENTIFICATION

TEAM MATE remote air cooled condensers equipped with axial

Nominal capacity: 11,9 ÷ 294,0 kW



- TEAM MATE STD No air flow and sound level reduction
- TEAM MATE LNO Air flow reduction at 85% with consequent sound level reduction.
- TEAM MATE ELN Air flow reduction at 70% with further sound level reduction.



TEAM MATE

MAIN COMPONENTS

FRAMEWORK

- Base, self supporting frame and panelling in steel plate with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders.
- Colour: RAL 9002

FANS SECTION

- Axial fans with sickle-shaped blades, fan guard and optimized for low noise levels.
- External rotor electric motor with stepless variable speed for condensing pressure control.
- IP54 enclosure class.

CONDENSING COIL

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops. The combination of two factors, special tubes and fins, allow to optimally combine the following aspects:
 - Maximum capacity relative to the size of the exchanger.
 - Minimum charge of refrigerant.
 - Reduction of the air flow required for the heat exchange.
- · Frame in galvanized steel.

REFRIGERANT CIRCUIT

 Valves on gas and liquid line for coupling to refrigerant pipe. The condenser is supplied with nitrogen seal.

ELECTRICAL PANEL

In accordance with EN60204-1 norms, suitable for outdoor installation, IP54 enclosure class, complete with:

- Terminals for power supply (from network).
 - 230/1/50
- Terminals for 0÷10V signal for condensing control system (connect to indoor machine).
- Terminals for alarm signal (connect to indoor machine).
- · Fans speed regulator for condensing control.

OPTIONAL ACCESSORY

Support legs for vertical air flow.

TECHNICAL DATA

MODEL		M 11	M 14	M 17	M 20	M 25	M 30
TEAM MATE STD							
AXIAL FANS	n.	1	1	1	1	1	1
Air flow	m³/h	4900	4500	5200	6400	9600	9500
Operating power input	kW	0,25	0,25	0,25	0,39	0,53	0,53
Max operating current (FLA)	A	1,18	1,18	1,18	1,80	2,85	2,85
SOUND PRESSURE LEVEL (1)	dB(A)	63,0	63,0	63,0	65,0	67,0	67,0
TEAM MATE LNO							
AXIAL FANS	n.	1	1	1	1	1	1
Air flow	m³/h	4165	3825	4420	5540	8160	8075
Operating power input	kW	0,21	0,21	0,21	0,33	0,45	0,45
Max operating current (FLA)	A	1,18	1,18	1,18	1,80	2,85	2,85
SOUND PRESSURE LEVEL (1)	dB(A)	59,1	59,1	59,1	61,1	63,1	63,1
TEAM MATE ELN							
AXIAL FANS	n.	1	1	1	1	1	1
Air flow	m³/h	3430	3150	3640	4480	6720	6650
Operating power input	kW	0,18	0,18	0,18	0,27	0,37	0,37
Max operating current (FLA)	A	1,18	1,18	1,18	1,80	2,85	2,85
SOUND PRESSURE LEVEL (1)	dB(A)	54,5	54,5	54,5	56,5	58,5	58,5
COMMON DATA							
POWER SUPPLY	V/ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
REFRIGERANT CHARGE (2)	kg	0,8	1,2	1,7	1,7	2,0	3,0
DIMENSIONS		•	•	,	*	,	,
Length	mm	875	875	1200	1200	1400	1400
Width	mm	540	540	540	540	665	665
Height	mm	726	726	726	726	1026	1026
NET WEIGHT	kg	51,0	54,5	66,0	72,0	102,0	111,0
MODEL		M 35	M45	M50	M60	M70	
TEAM MATE STD							
AXIAL FANS	n.	1	2	2	-	-	
Air flow	m³/h	9100	12000	17000	-	=	
Operating power input	kW	0,53	0,78	1,08	-	-	
Max operating current (FLA)	A	2,85	3,60	5,70	-	-	
SOUND PRESSURE LEVEL (1)	dB(A)	67,0	67,4	69,4	-	-	
TEAM MATE LNO							
AXIAL FANS	n.	1	2	-	2	2	
Air flow	m³/h	7735	10200	-	13600	15300	
Operating power input	kW	0,45	0,66	-	0,92	0,92	
Max operating current (FLA)	A A	2,85	3,60	=	5,70	5,70	
SOUND PRESSURE LEVEL (1)	dB(A)	63,1	63,6	=	65,5	65,5	
TEAM MATE ELN							
AXIAL FANS	n.	1	2	-	2	2	
Air flow	m³/h	6370	8400	-	11200	12600	
Operating power input	kW	0,37	0,55	-	0,76	0,76	
Max operating current (FLA) SOUND PRESSURE LEVEL (1)	A dB(A)	2,85 58,5	3,60 58,9	-	5,70 60,8	5,70 60,8	
OCCID I RESOURE LEVEL (I)	ub(A)	50,5	50,8	-	00,0	00,0	
COMMON DATA	Mle I- B I	000/4/50	000/4/50	000/4/50	000/4/50	000/4/50	
POWER SUPPLY REFRIGERANT CHARGE (2)	V/ph/Hz kg	230/1/50 4,0	230/1/50 4,7	230/1/50 4,1	230/1/50	230/1/50	
DIMENSIONS	ĸy	4,0	4,1	4 , I			
Length	mm	1400	1600	1850	1850	2320	
Width	mm	665	665	665	665	665	
Height	mm	1026	1026	1026	1026	1140	
NET WEIGHT	kg	120,0	153,0	175,0	188,0	214,0	

- 1. Sound pressure level [Lp] 1m far according to ISO EN 3744.
- 2. The condenser is supplied with nitrogen seal. For the refrigerant charge consider, in addition to the these value, even the refrigerant pipes for the connection to the indoor machine and lubricant oil in 10% ratio of charged refrigerant.

ACOUSTIC DATA

TEAM MATE STD

MODEL		M 11	M 14	M 17	M 20	M 25
Sound power level [Lw] (1)	dB(A)	76,8	76,8	77,1	79,1	81,8
Sound pressure level at 1m [Lp] (2)	dB(A)	63,0	63,0	63,0	65,0	67,0
Sound pressure level at 5m [Lp] (3)	dB(A)	51,3	51,3	51,5	53,5	56,1
Sound pressure level at 10m [Lp] (3)	dB(A)	45,6	45,6	45,9	47,9	50,5
MODEL		M 30	M 35	M45	M50	
Sound power level [Lw] (1)	dB(A)	81,8	81,8	82,4	84,5	
Sound pressure level at 1m [Lp] (2)	dB(A)	67,0	67,0	67,4	69,4	
Sound pressure level at 5m [Lp] (3)	dB(A)	56,1	56,1	56,6	58,7	
Sound pressure level at 10m [Lp] (3)	dB(A)	50,5	50,5	51,1	53,2	

TEAM MATE LNO

MODEL		M 11	M 14	M 17	M 20	M 25
Sound power level [Lw] (1)	dB(A)	72,9	72,9	73,2	75,2	77,9
Sound pressure level at 1m [Lp] (2)	dB(A)	59,1	59,1	59,1	61,1	63,1
Sound pressure level at 5m [Lp] (3)	dB(A)	47,4	47,4	47,7	49,7	52,2
Sound pressure level at 10m [Lp] (3)	dB(A)	41,7	41,7	42,0	44,0	46,6
MODEL		M 30	M 35	M45	M60	M70
Sound power level [Lw] (1)	dB(A)	77,9	77,9	78,5	80,7	81,1
Sound pressure level at 1m [Lp] (2)	dB(A)	63,1	63,1	63,6	65,5	65,5
Sound pressure level at 1m [Lp] (2) Sound pressure level at 5m [Lp] (3)	dB(A) dB(A)	63,1 52,2	63,1 52,2	63,6 52,7	65,5 54,8	65,5 55,1

TEAM MATE ELN

MODEL		M 11	M 14	M 17	M 20	M 25
Sound power level [Lw] (1)	dB(A)	68,2	68,2	68,6	70,6	73,3
Sound pressure level at 1m [Lp] (2)	dB(A)	54,5	54,5	54,5	56,5	58,5
Sound pressure level at 5m [Lp] (3)	dB(A)	42,8	42,8	43,0	45,0	47,5
Sound pressure level at 10m [Lp] (3)	dB(A)	37,1	37,1	37,4	39,4	42,0
MODEL		M 30	M 35	M45	M60	M70
Sound power level [Lw] (1)	dB(A)	73.3	73.3	73.9	76.0	76.5
	dB(A)	73,3 58,5	73,3 58,5	73,9 58,9	76,0 60,8	•
Sound power level [Lw] (1) Sound pressure level at 1m [Lp] (2) Sound pressure level at 5m [Lp] (3)	. ,	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	76,5 60,8 50,5

- Sound power level [Lw] according to ISO EN 9614 2. Sound pressure level [Lp] according to ISO EN 3744. Sound pressure level [Lp] in free field conditions.
- 1. 2. 3.

IMPORTANT

For further information about units acoustic data, please refer to "The Noise" bulletin of RC GROUP technical literature.

OPTIONAL ACCESSORIES - CONDENSATE DISCHARGE PUMP (KIT)

The optional is supplied in mounting kit.

A plastic case includes the vertical type pump, the water tank with float plus safety switch and hydraulic and electric connection.

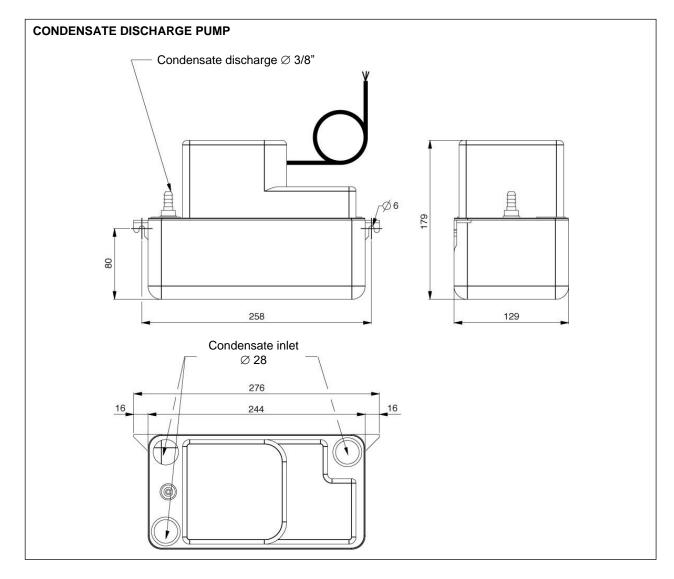
Together the pump 10 linear meters of plastic discharge pipe is supplied.

The optional has to be installed as shown in the documentation delivered together with the unit.

Wiring includes power supply and an alarm, displayed on microprocessor, that includes motor pump thermal protection and tank overflow.

The condensate discharge pump operation is fully automatic.

TECHNICAL DATA		
Power supply		230/1/50
Power input	W	75
Absorbed current	Α	0,5
Capacity tank	I	2
Discharge pipe	Ø mm	10/16
Maximum water flow	l/h	300
Minimum water flow	l/h	3
Discharge head		
 with min. water flow 	mH_2O	4,5
 with max. water flow 	mH_2O	0,3



OPTIONAL ACCESSORIES - PLENUM WITH FREE-COOLING DAMPER

The plenum allows direct free-cooling, which is a direct fresh air put into the room through the air conditioner.

The optional has the same dimensional and constructive characteristics of the conditioner and is placed on the upper side of the unit.

A two-way damper controls the outdoor and return air flows through a proportional servomotor directly driven by microprocessor.

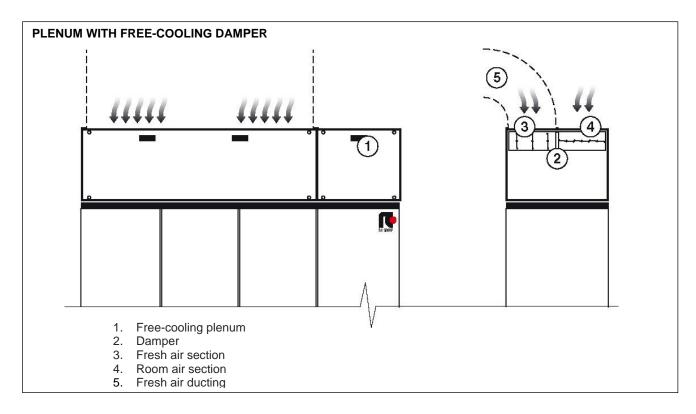
The cooling system is fully proportional and allows three working mode types:

- total free-cooling: only fresh air is used to cool the ambient.
- partial free-cooling: the fresh air is used for a pre-cooling and the compressor is used to balance the load.
- mechanical cooling: the compressor is used to cool the ambient.

COMPONENTS:

- Housing made of galvanized steel sheet inner frame that includes gaskets for air tightening.
- Panels in galvanized steel sheet externally coated with PVC film. Panels are internally insulated by noise absorption material (self-extinguish class 1) and are fixed with screws.
- Two-way damper (fresh air and return) in galvanized stell sheet with steel pins rotating on nylon brushing.
- Proportional servomotor directly driven by microprocessor.
- Terminals for servomotor electric connection to the unit.

The servomotor electric cable is contained inside the unit electric board.



WARNING

The fresh air ducting is at Customer care.

We suggest you to install a protection grille on fresh air intake.

IT IS COMPULSORY TO INSTALL AN OVERPRESSURE DAMPER TO ALLOW THE ROOM AIR EXHAUSTION

OPTIONAL ACCESSORIES - FRESH AIR KIT

The optional is associated to the Plenum with Free-Cooling damper and allows the fresh air ducting. The optional include the overpressure damper for the air exhaustion from the room. The kit include:

- HEAT HUNTER HH0
 - n° 1 x 6 meter of spiral flexible PVC pipe
 - Conveyor with 1 oval nozzle
 - n° 1 grille for fresh air 500x500
 - n° 1 overpressure damper 500x450h
 - gaskets, metal bands and screws for mounting.

• HEAT HUNTER HH1 / HH2

- n° 2 x 6 meter of spiral flexible PVC pipe
- Conveyor with 2 oval nozzles
- n° 2 grilles for fresh air 500x500
- n° 2 overpressure damper 500x450h
- gaskets, metal bands and screws for mounting.

• HEAT HUNTER HH3

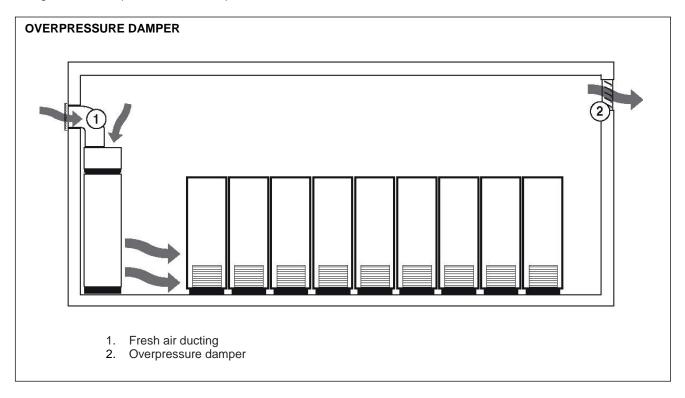
- n° 3 x 6 meter of spiral flexible PVC pipe
- Conveyor with 3 oval nozzles
- n° 3 grilles for fresh air 500x500
- n° 3 overpressure damper 500x450h
- gaskets, metal bands and screws for mounting.

FRESH AIR KIT 4 (1)FRESH AIR GRILLE **OVERPRESSURE DAMPER** 500×500 1. Free-cooling plenum 2. Damper 3. Conveyor 4. Flexible PVC pipe 5. Fresh air grille

OVERPRESSURE DAMPER - (Unit with fresh air kit)

For a correct performance of the plant it is necessary to install an overpressure damper close to the ceiling.

The damper must allow air exhaustion when air conditioners work in Free-Cooling mode. The fresh air put in inside the ambient causes an internal pressure increase, that must be avoided to grant a correct performance of the plant.



OVERPRESSURE DAMPER - (Unit with Free-cooling plenum and without fresh air kit)

The Customer will provide the installation of an overpressure damper.

The overpressure damper airflow has to be the summa of all conditioners air flow installed into the room.

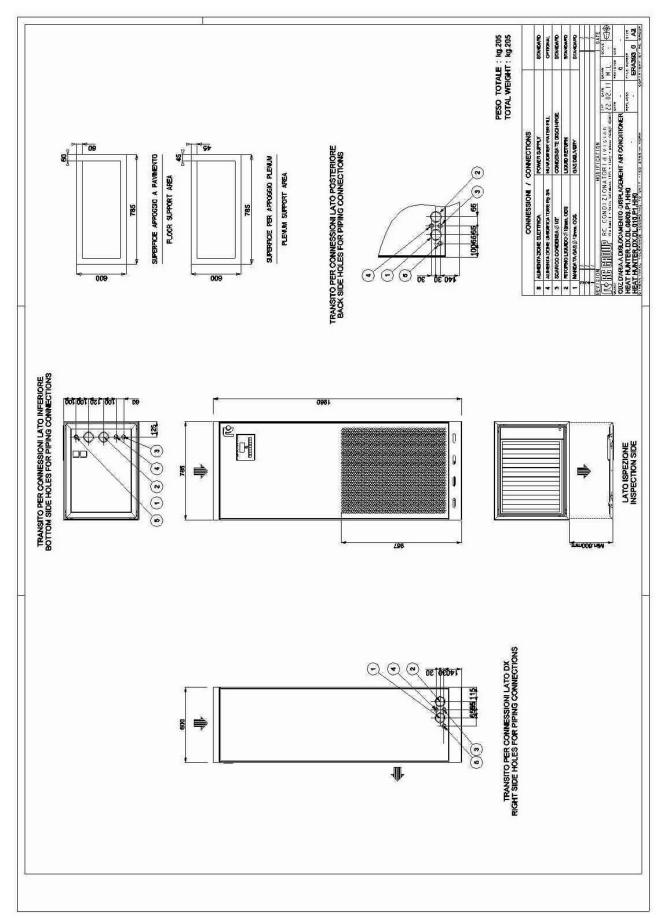
Example:

Plant with two Heat. Hunter units model 026 HH2 with free-cooling plenum with nominal air flow of $6.660~{\rm m}^3/{\rm h}$ each.

The overpressure damper has to be dimensioned for an air exhaustion of $6,660 + 6,660 = 13,320 \text{ m}^3/\text{h}$.

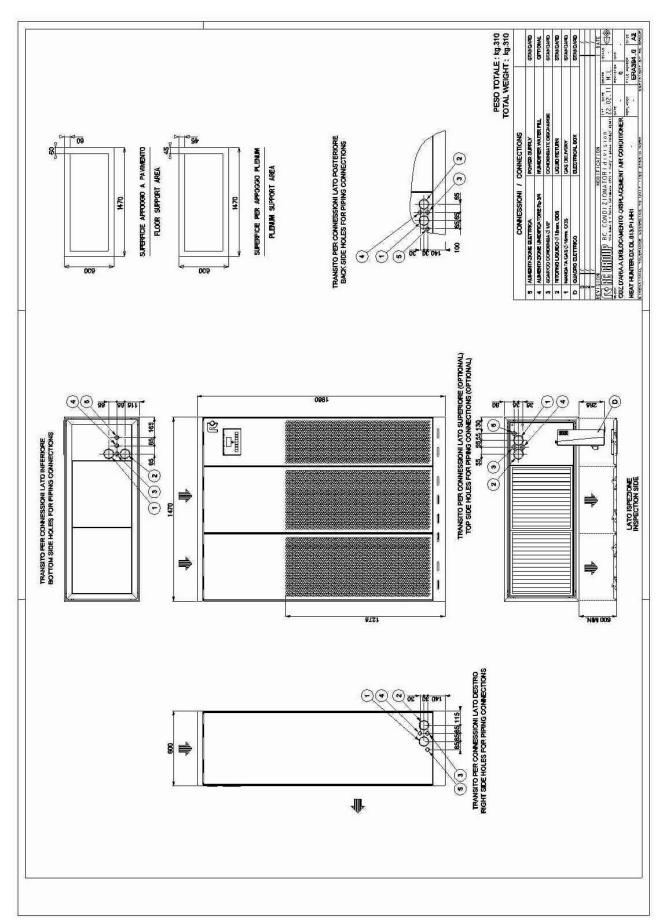
UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DX HH0



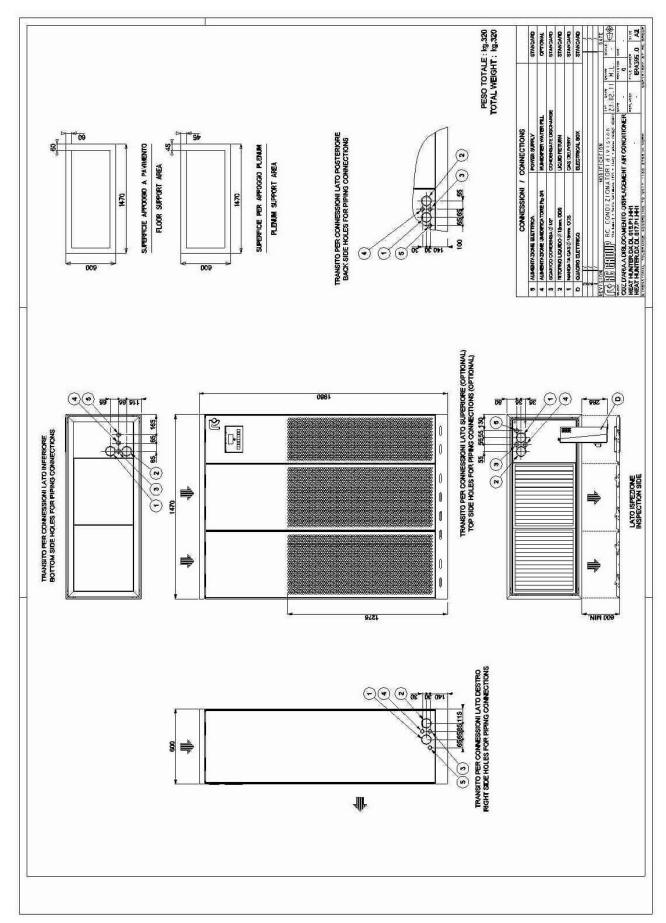
UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DX HH1, mod.013 P1



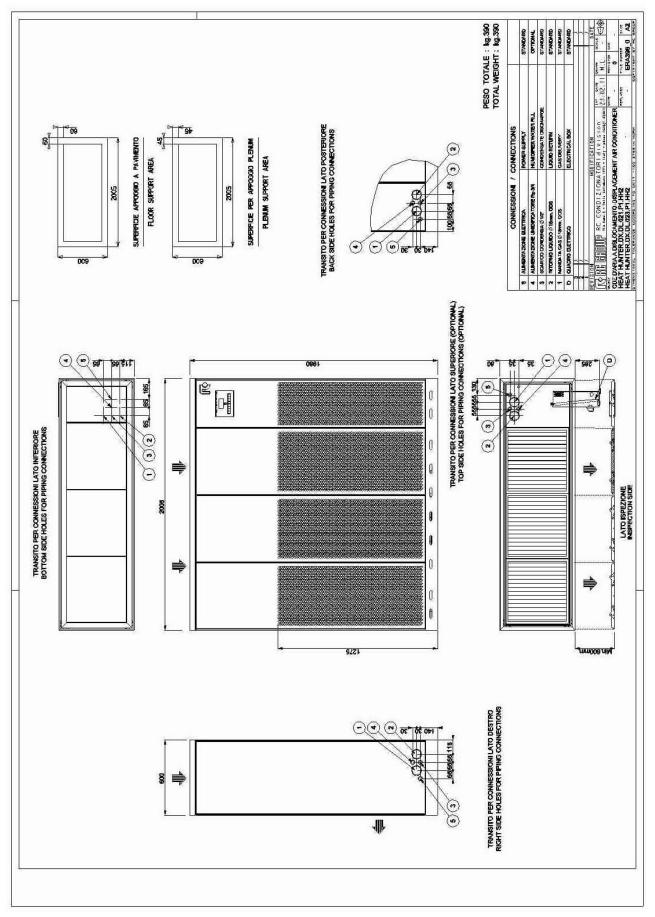
UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DX HH1, mod.015, 017 P1



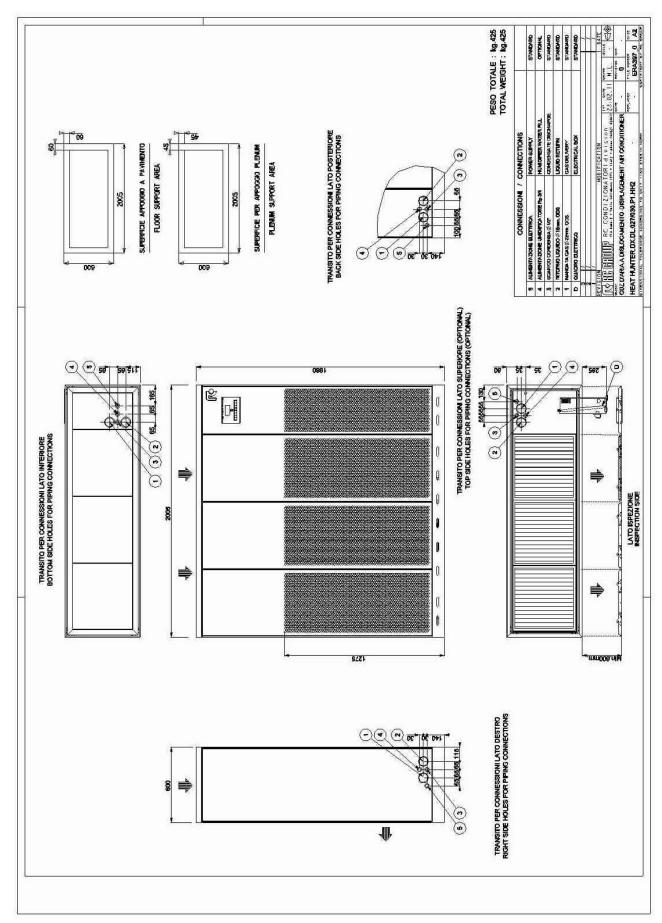
UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DX HH2, mod.021, 023 P1



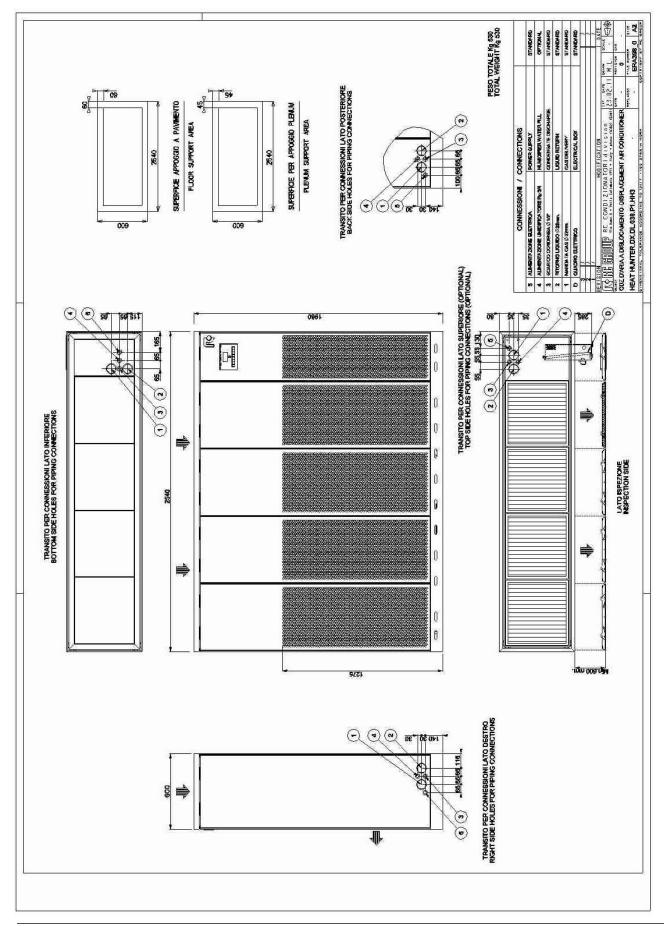
UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DX HH2, mod.027, 030 P1



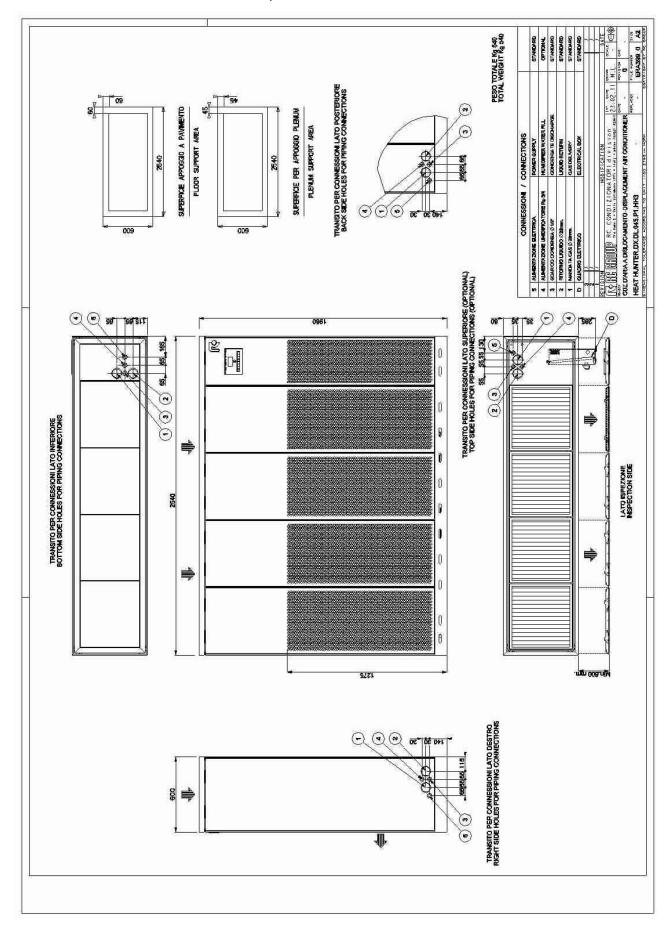
UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DX HH3, mod.038 P1



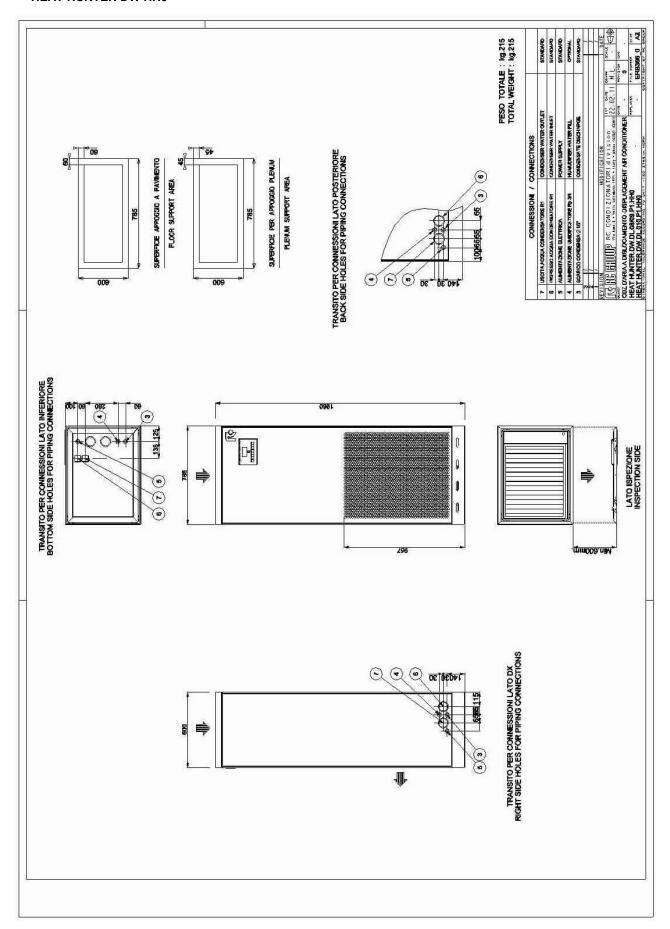
UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DX HH3, mod.045 P1

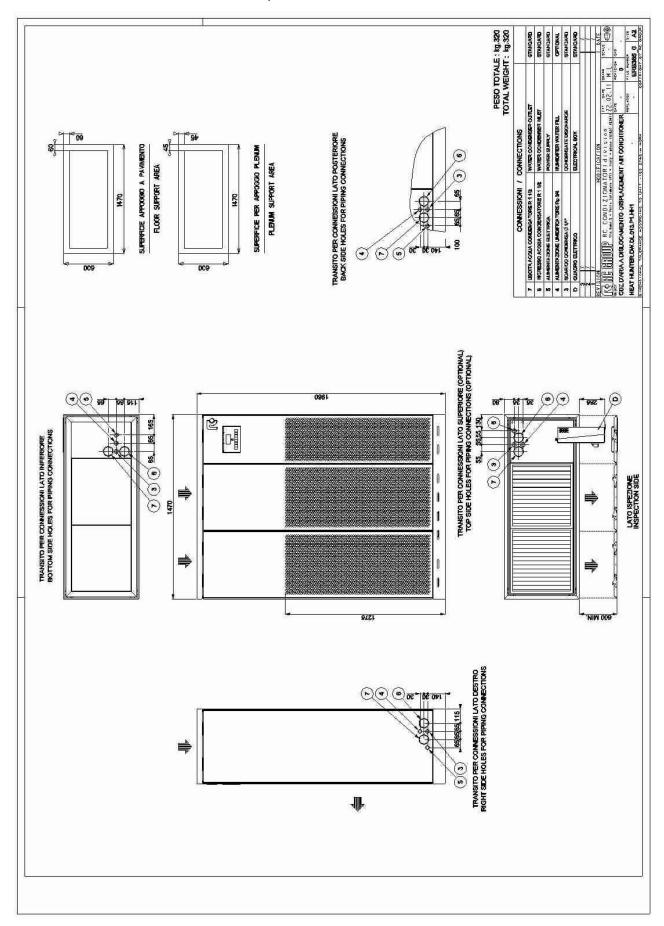


UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DW HH0



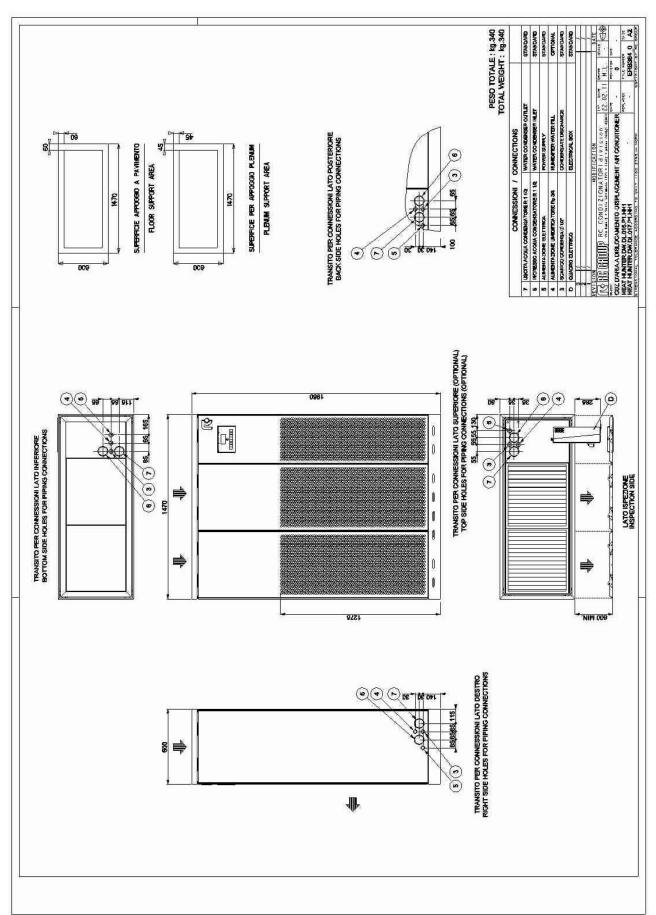
HEAT HUNTER DW HH1, mod.013 P1



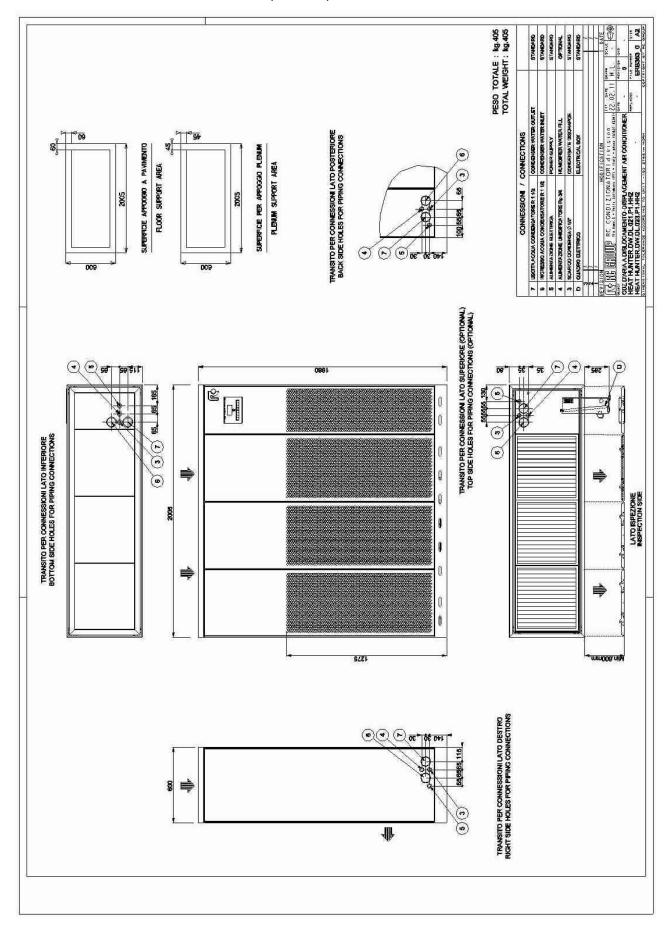
heat hunter

UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DW HH1, mod.015, 017 P1



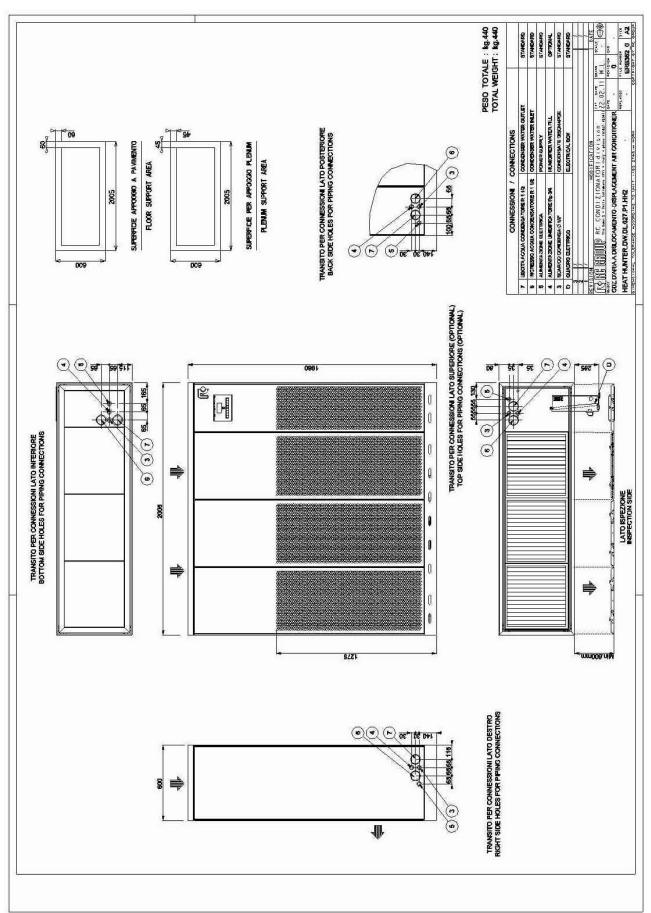
HEAT HUNTER DW HH2, mod.021, 023 P1



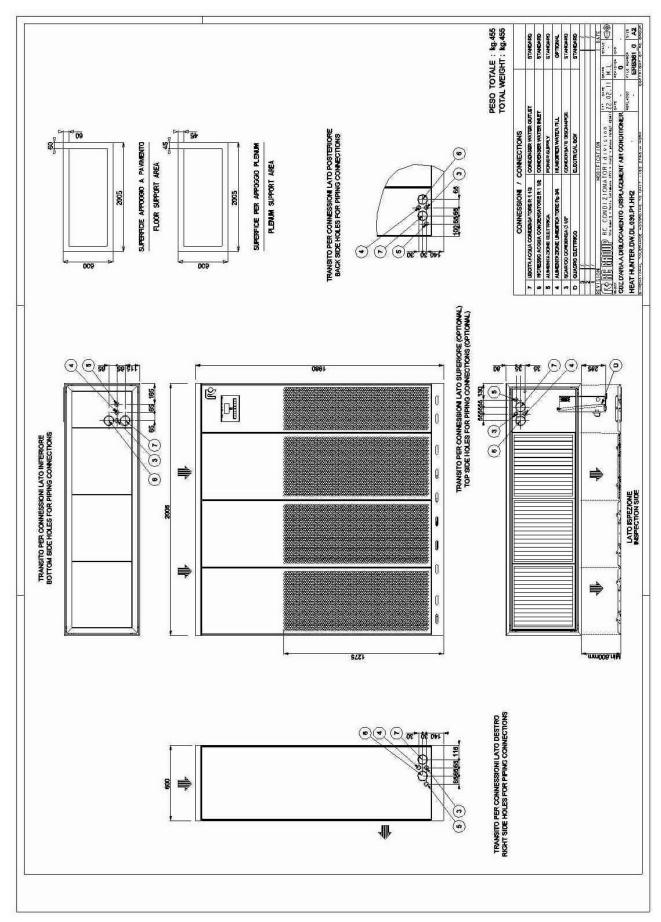
heat hunter

UNIT DRAWINGS Dimensions in mm

HEAT HUNTER DW HH2, mod.027 P1



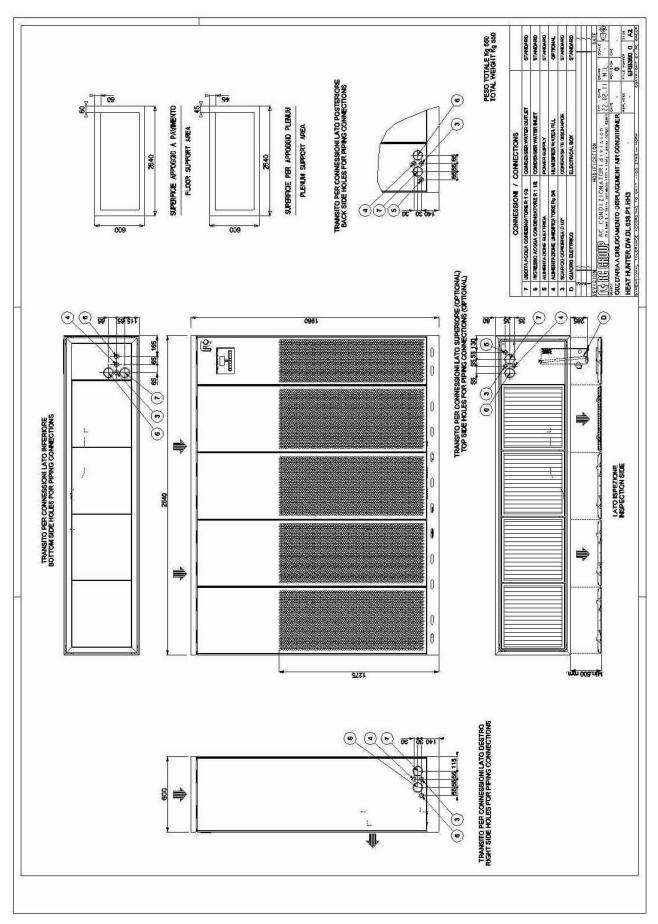
HEAT HUNTER DW HH2, mod.030 P1



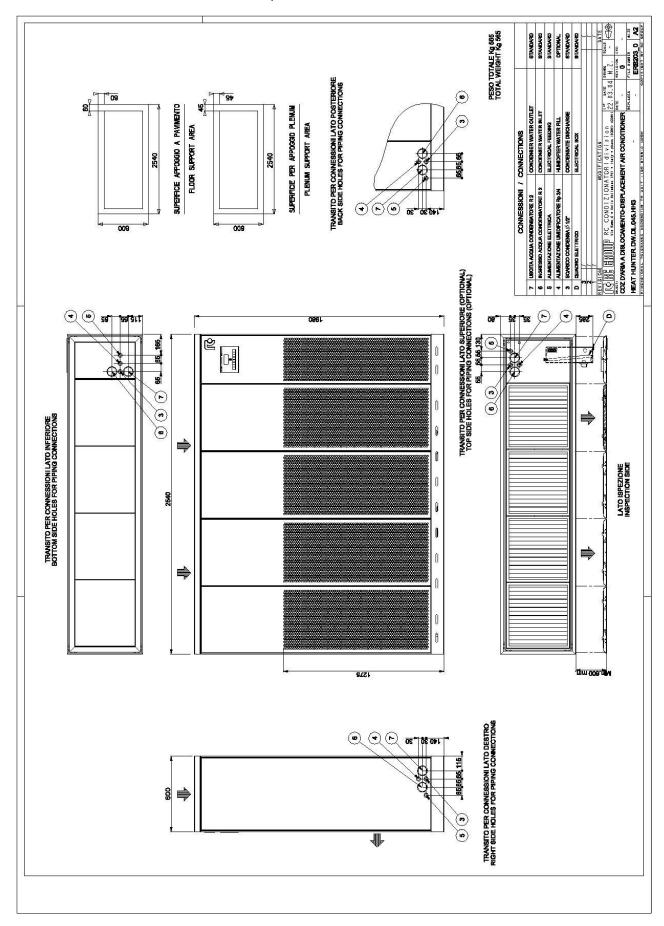
heat hunter

UNIT DRAWINGS Dimensions in mm

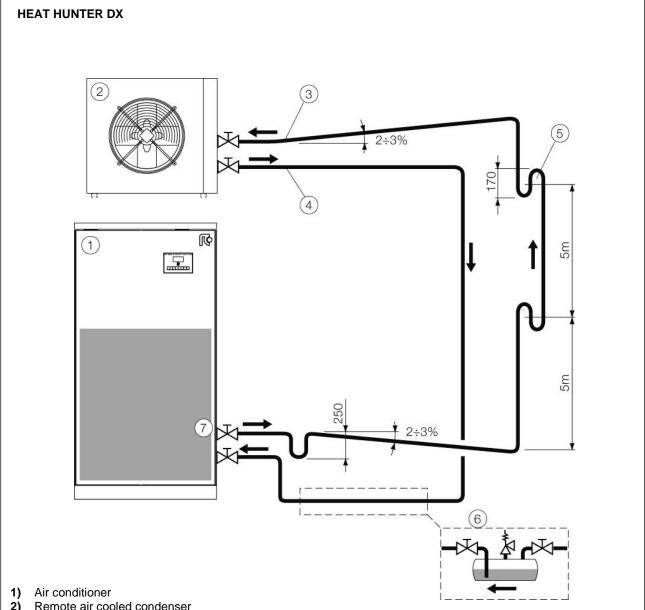
HEAT HUNTER DW HH3, mod.038 P1



HEAT HUNTER DW HH3, mod.045 P1



TYPICAL INSTALLATION DIAGRAMS FOR DIRECT EXPANSION MACHINES WITH REMOTE AIR COOLED CONDENSER



- Remote air cooled condenser
- 3) Gas discharge line
- 4) Liquid line
- Trap. Foresee a trap every 5m of the rising pipe.
- Additional liquid receiver external to the conditioner with cocks and safety valve. Suggested part in the following cases:
 - a) refrigerant line longer than 25-30m
 - b) plant operation with ambient temperature lower than 0°C Install the liquid receiver close to the air conditioner.
- Solenoid valve of the liquid line. It is an optional accessory of the air conditioner for refrigeration plants with refrigerant pipe longer than 10m

THIS DIAGRAM APPLIES TO EACH REFRIGERANT CIRCUIT OF THE UNIT.

WARNING

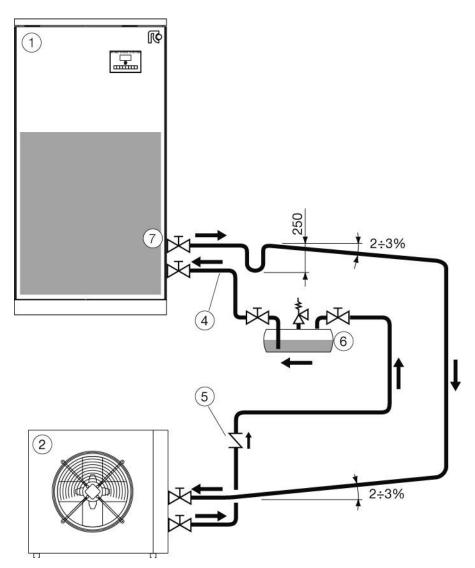
It is necessary to provide the refrigerant charge for the connection pipes and for the remote air cooled condenser.

Charge refrigerant in the suitable quantity and lubricant oil in 10% ratio of charged refrigerant.

Lubricant oil must be the same type as the charged one as shown on the compressor plate.

TYPICAL INSTALLATION DIAGRAMS FOR DIRECT EXPANSION MACHINES WITH REMOTE AIR COOLED CONDENSER

HEAT HUNTER DX



- 1) Air conditioner
- 2) Remote air cooled condenser
- 3) Gas discharge line
- 4) Liquid line
- Non return valve.
- **6)** Additional liquid receiver external to the conditioner with cocks and safety valve. Install the liquid receiver close to the air conditioner.
- 7) Solenoid valve of the liquid line. It is an optional accessory of the air conditioner for refrigeration plants with refrigerant pipe longer than 10m

THIS DIAGRAM APPLIES TO EACH REFRIGERANT CIRCUIT OF THE UNIT.

WARNING

It is necessary to provide the refrigerant charge for the connection pipes and for the remote air cooled condenser.

Charge refrigerant in the suitable quantity and lubricant oil in 10% ratio of charged refrigerant.

Lubricant oil must be the same type as the charged one as shown on the compressor plate.

heat hunter	
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heat hunter	
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The continuous improvement of products may imply changes in the data shown in this catalogue.



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