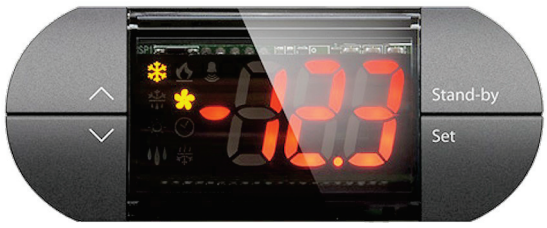
SPHD-Series

Deshumidificadores Piscinas

Deshumidificadores Industriales

Manual IOM



1 INTRODUCTION

The present User Manual indicates the uses of the unit and gives instructions for transport, installation, assembling and regulation of the machine. It gives directions about maintenance, spare parts request, residual risks presence and staff education.

The User Manual should be read and used in the following way:
- each operator and person concerned with the use and maintenance of the unit should read it carefully and follow the instructions given;
- the employer has to verify that the operator has the required attitudes to conduct the unit and that he has carefully read the manual; the employer is also supposed to inform the operator about the risks of accidents, mainly risks deriving from the noise, the individual protection devices and the rules preview according to the law, both at an international level and at the destination Country level;
- the manual should always be available for the user, the transport Company, the operators for the placement, the maintenance, the reparation and the dismantling of the unit;
- the manual should be protected from humidity and hot zones and considered as an integrant part of the unit for all its lifetime; it has to be delivered to the next owner of the unit;
- please make sure that every update is included in the manual;
- do not damage, remove, strip or re-write the manual, neither part of it; in case it is lost or damaged, please contact the manufacturer for the request of a new user manual and communicate the matriculation number of the unit (you find it on the data label).

Please, take care of the following symbols. Their function is to underline the following information:

It makes reference to dangerous situations that can occur when using the machine, in order to grant people safety.

It makes reference to dangerous situations that can occur when using the machine, in order to avoid damages to the unit itself and to things around it.

It makes reference to suggestions or additional integration for a correct use of the unit.

The manufacturer has the right to update products and relative manuals, without being obliged to update previous versions, with exception of particular cases.
This manual refers to the current technologies adopted at the moment of the selling of the unit and can not be considered inadequate according to following updating due to technology evolutions.
To ask for eventual manual updating or for integration, please forward your request to the previously indicated references.
Please contact the manufacturer for further information or suggestions.
In case of re-selling of the unit, please inform the manufacturer about the new owner references, in order to facilitate the communication between the both of us.

1.1 RESPONSABILITIES

The unit is granted according to the contract clauses subscribed in the sales negotiation.

The manufacturer is not responsible for accidents that can occur because of:

- the non-following of the instructions given in this manual about the correct use, maintenance and first-starting of the machine;
- changes made in the unit or in the safety devices without a written authorization from the manufacturer;
- non-authorized attempts of repair;
- negligence in constant maintenance or use of non-original spare parts.

Anyhow, if the user accuses the manufacturer for any fault of the unit, he has to demonstrate that the damage occurred has been a direct consequence of the supposed fault.

1.2 SERVICE RULES

The service rules described in this manual have to be considered as integral part of the unit supplied.
Moreover, these rules are reserved to the operator, who has previously been instructed about the unit in object and they provide necessary information about safety and correct use of the machine.
Please, consider that incorrect and incomplete education about the units can cause accidents.

Read carefully the following suggestions:

- the first-starting of the unit should be done only by a qualified and manufacturer-authorized operator;

- when installing the unit or when an intervention is required, it is fundamental to follow the rules described in this manual and to pay attention to the directions given by the control of the machine;
- accidents can be avoided by following these technical instructions, with reference to the machine-directive CE/42/2006 and its following revisions; in every case, keep attention to the national safety rules;
- do not remove or damage protections, labels and writings, especially those imposed by the law; in case they are no more readable, please substitute them. .

The machine-directive CE/42/2006 gives the following definitions:

DANGEROUS ZONE: *every zone internal or in the nearby of a unit where the presence of men is a risk their safety or wealth;*
EXPOSED PERSON: *every person who stands within or nearby a danger zone;*
OPERATOR: *the person charged for the installation, the starting, the regulation, the maintenance, the cleaning, the reparation and the transport of the unit.*

All the operators should follow the accidents prevention measures, both international and of the destination Country, in order to avoid accidents.

Please remember that the European Community has issued several directives concerning workers' safety and wealth, such as CEE/391/89, CEE/686/89, CEE/654/89, CEE/655/89, CEE/656/89, CEE/188/89, CEE/58/92 and CEE/57/92, that employers are supposed to follow and to make them followed.

The units have been realized in conformity with technical laws, dispositions and rules in force.
Used materials, equipment parts, production processes, quality warranty and control satisfy the required maximum safety standards.
The lifetime of the unit and its correct functioning can be granted by using it for the supposed usages, by moving them carefully and by following accurately maintenance and revisions.

1.3 USES

ID units are industrial dehumidifiers thought for all those environments where the high humidity % can damage the structure or the product.
SP units are swimming pool dehumidifiers thought for all those environments where the high humidity % can create dis-comfort conditions and where there is presence of corrosion agents.
IT units are industrial dehumidifiers with the temperature control function, thought for all those environments where the high humidity % can damage the structure or the product and where air conditioning is required.
ST units are swimming pool dehumidifiers with the temperature control function, thought for all those environments where the high humidity % can create dis-comfort, where there is presence of corrosion agents and where air conditioning is required.

Their use is recommended within the functioning limitations indicated in this manual.

Place the unit where there are not explosion or fire dangers, neither in vibrating areas or in presence of electro-magnetical fields. Furthermore, do not operate in ways which differ from those indicated and do not underestimate safety operations.

SP and ST units are thought for ambiences with presence of chlorine or other corrosion agents: it is very important to have the unit ON as much as possible, in order to avoid the deposit of corrosion and, in the long-term, the damaging of the unit.

- The unit will be turned off for the ordinary and extraordinary maintenance; it is strongly suggested to turn the unit on as soon as possible, after the maintenance.
- The unit should not be stopped during the seasonal pauses.
- Insert an intermediate exchanger if the unit is equipped with the optional de-superheater, in order to avoid pool water circulating directly on it.

1.4 RESIDUAL RISK AREAS

Due to the peculiar functionality of the unit, in some areas of it, there are residual risks which was not possible to elude during the project neither to reduce. Each operator should be aware of the residual risks in this unit, in order to avoid accidents.

Residual risk areas:

- *Short circuit or fire caused by short circuit risk;*
- *Explosion danger because of the presence of under pressure circuits or pollution due to the refrigerant gas in the circuit;*
- *Burn danger because of high temperature pipes;*
- *Slash danger.*

1.5 INTERVENTION AND MAINTENANCE

It is useful to remember that the manual can not substitute the suitable experience of the user; for some maintenance operations, the manual represents a reminder of the main activities for competent operators, who have attended, for instance, instructive courses promoted by the manufacturer.

Please, read carefully the following suggestions:
- a preventive and constant maintenance grants the high safety standard. Do not postpone the required reparations and make sure they will be done by qualified staff and by using exclusively original spare parts;
- schedule carefully each intervention;
- operators workplace should be clean and free from objects which could limit their movements;
- operators should avoid inaccurate operations and positions, in order not to compromise their balance;
- operators should pay attention to risks of trapping or cloths/hair entangling in moving parts; the use of a cap is strongly recommended for people with long hair;
- necklaces, bracelets and rings could be dangerous;
- the place should be suitably lit up; an inadequate lighting can be dangerous;
- wait approximately half an hour after the turning off of the machine, before intervene for any maintenance, in order to avoid burns;

- do not repair high pressure damaged pipes with welding;
- during installation and maintenance, fluids in the refrigerant circuit and electric parts, can generate dangerous situations;

- reduce, as much as possible, the opening time of the refrigerant circuit: this because, even for a short time, the air exposition of oil causes the absorption of high humidity quantities and this leads to the creation of weak acids;
- each intervention on the unit should be made by qualified staff;
- before starting a maintenance intervention, make sure the power supply has been turned off;
- make sure the safety devices work correctly; if not, do not turn on the unit;
- use only equipment suggested by the manufacturer of the unit, in order to reduce the possibility of accidents due to low quality equipment;

-after the cleaning of the unit, the operator should verify that there are not damaged parts; in case he finds out something wrong, he should ask for the intervention of a maintenance technician;

- the place should always be clean and properly tidied up, because smearing of oil or grease could cause sliding or fallings;
- the use of inflammable fluids during cleaning operations is forbidden.

During the cleaning operations, do not use gas oil, oil or solvent because while the first leaves an oily patina, which leads to dust attraction, the latter can damage the paint and leads to the creation of rust. If some water seeps into the electrical devices, it will produce oxidation, which can cause the dysfunction of the unit. You should not use water or steam spout on sensors, connectors and other electrical parts.

Please pay attention to the integrity of pipes and other devices, which could wear out. Check that there are not leaks of fluids and other dangerous substances. If something like this occurs, the operator should not turn on the unit before the reparation.

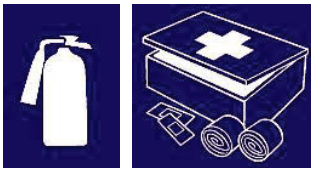
1.6 GENERAL SAFETY RULES

1.6.1 Safety clothes

Operators should wear safety equipment such as gauntlet, helmet, safety glasses, safety footwear and cap for protection from the noise.

1.6.2 Fire extinguisher and first aid

Place a first aid box and a fire extinguisher near the unit.
Check regularly that fire extinguishers are charge and that you have understood how to use them.
In case of fire use it according to the regulations in force and contact the fire-men.
Check regularly that the first aid box is fully equipped.
Verify to have nearby the useful emergency phone numbers.



The owner of the place where the unit is installed is responsible for the fire extinguisher and the first aid box.

1.6.3 Suggestions for advices and maintenance

Put an “under maintenance” label on all sides of the unit.
Check carefully the unit by following the list of operations suggested in the present manual.

1.6.4 Safety labels

General danger

High voltage danger

Burn danger

Equipment in movement danger

Slash danger

2 PRODUCT DESCRIPTION

ID (industrial),SP (swimming pools), IT and ST dehumidifiers are thought for the usage in swimming pools, industrial and commercial places with high latent loads, where a 24h/day functioning is required. Typical installations may be in swimming pools, seasoning cells for food, warehouses and wherever the creation of condense could damage the structure or the product.
IT and ST models are suggested where dehumidification is required, but also air ocnditioning: this solution allows to insert a single indoor unit, reducing costs and consumptions.

ID, SP, IT and ST dehumidifiers put together technical advanced solutions and a pleasent design. These units are thought to be connected with rigid canalization. The use of high quality refrigerant, hydraulic, aeraulic components make ID, SP, IT and ST dehumidifiers the state-of-art in terms of efficiency, reliability and emitted sound level. Another plus is the easy opening for maintenance.

A complete accessories' list allow the management of every kind of requests and, if the standard units are not able to satisfy the needs of the Customer, HiDew remains at disposal for the study of a specific and customized solution.

2.1 COMPONENTS

2.1.1 REFRIGERANT CIRCUITS

The refrigerant circuit is completely developed internally, by using only first quality and brands for components and copper pipes (Cu-DHP quality), qualified operators and processes, according to the Directive 97/23/CE, for all the brazing and testing operations. All the units are realized with a single or double circuit with ecological refrigerant gas R410a.

Refrigerant components:

- Compressors: HiDew uses only scroll compressors by the main international brand. Engines are thermally protected with an internal protection, which controls the winding temperature and turns off the power supply if necessary.
- De-hydrator filter with molecular sieve
- Thermostatic valve
- Fluid indicator
- Electro-valve for fluid interception
- Schrader valves for control and / or maintenance
- Thermal exchange coils
- Copper pipes and aluminium fin
- In our units for swimming pools, we use thermal exchange coil with anti-corrosion treatment, in order to resist the atmosphere

2.1.2 VENTILATION

Ventilation can be centrifugal (low / high pressure) or electronic (evolved): this last one grants the max efficiency in terms of costs and possible applications:

- Traditional centrifugal fans have curve shovels, directly coupled or connected with belt and pulleys to the asynchronous electric engine
- Evolved fans are radial ones with reversed shovels, directly coupled to the brushless electric engine with permanent magnets; they grant reduced consumptions and lower emitted sound levels.

With this last solution, the ACF (Automatic Control Flow) option permits the auto-calibration of the unit concerning the air flow set without the manual regulation through dampers; it also grants always the desired air flow.

2.2 SERIES

I modelli selezionabili sono 18 classificati in base al frame e alla resa in deumidifica:

2.2.1 Frame 2

0130	0160	0190

2.2.2 Frame 3

0210	0260	0300

2.2.3 Frame 4

0350	0450	0580

2.2.4 Frame 5

0750	0950

2.2.5 Frame 6

1100	1400

2.2.6 Frame 7

1500	1700	1900	2200

2.2.7 Frame 8

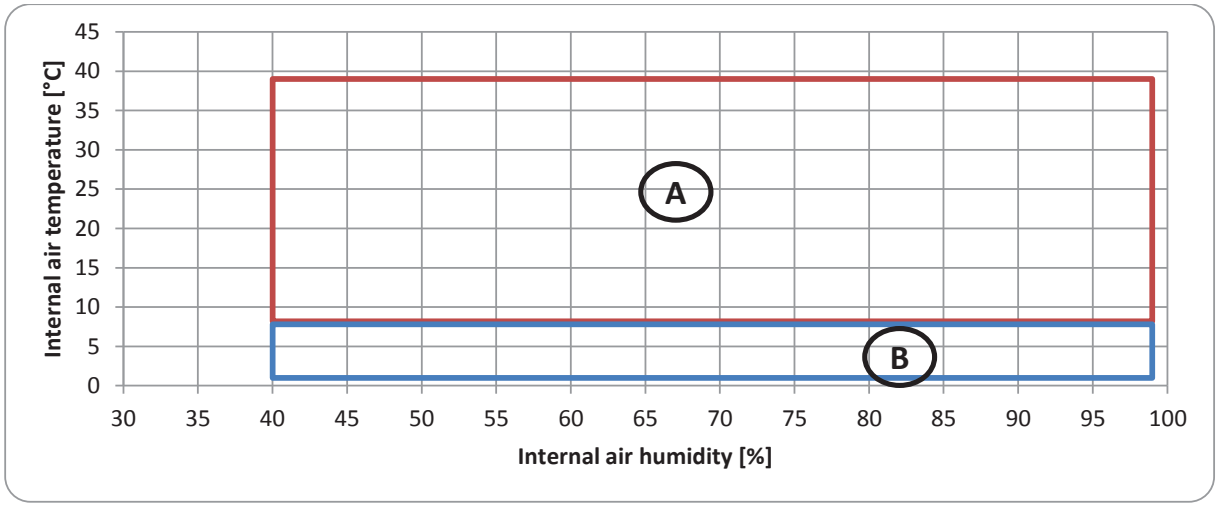
3000

Units of the same frame have the same external dimensions.
The numeric value is an indication of the dehumidifying capacity expressed in l/day.

2.3 OPERATIONAL LIMITATIONS

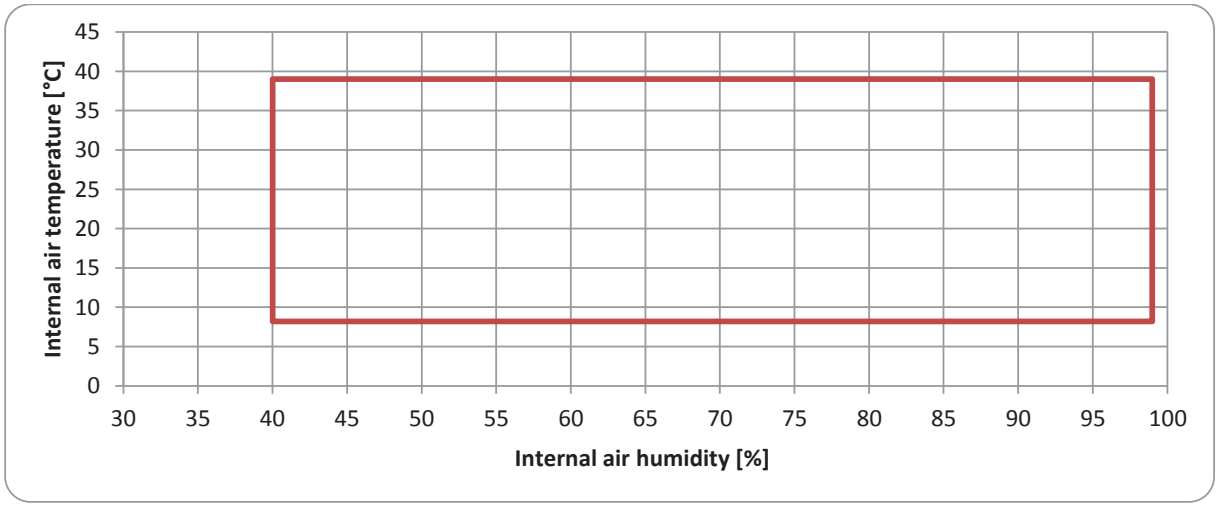
The functioning of the unit is granted according to the limitations indicated in the diagram below.
Outside these limitations, it is not granted.

2.3.1 ID and IT units



A. dehumidifier's operational limitation
B. dehumidifier's operational limitation with "hot gas defrost" option

2.3.2 SP and ST units



2.4 OPTIONS

OPTIONS AND FUNCTIONS	ID – SP Standard control	IT – ST Standard control	ID – SP – IT – ST Advanced control
Electronic radial fans	--	--	OPTION
ACF: automatic control flow	--	--	OPTION
High prevalence centrifugal fans	OPTION	OPTION	OPTION
Post-heating water coil with 3-ways valve	OPTION	--	OPTION
De-superheater	OPTION	OPTION	OPTION
Dirty filter sensor	OPTION	OPTION	OPTION
Softstart	OPTION	OPTION	OPTION
RS485 serial board	OPTION	OPTION	OPTION
Filter holder frame for suction ducting	OPTION	OPTION	OPTION
Clock card – time bands	--	--	OPTION
Mechanical humidistat	OPTION	OPTION	--
CTI – chrono – thermo – hygrostat	OPTION	OPTION	--
Hot gas defrost	OPTION	OPTION	OPTION
Remote userr terminal	--	--	OPTION
Outdoor version	OPTION	OPTION	OPTION
Manometers	OPTION	OPTION	OPTION
Summer / winter function	--	--	OPTION
Silent version	OPTION	OPTION	OPTION
High efficiency air filters	OPTION	OPTION	OPTION
Electrical heaters	OPTION	--	OPTION
Oversized electrical heaters	OPTION	--	OPTION
Post-heating coil for heat pump water	OPTION	--	OPTION

2.4.1 ADVANCED CONTROL

The advanced control is composed by a programmable card and a display; it permits more functions and options combined with a more simple and complete user interface.
All the software is developed by our internal qualified staff, as for the refrigerant circuits, electronic and electro-mechanical components.
Customizable software available on demand.

A further advantage of the advanced control is the possible combination with several options:

- EC fans
- ACF (Automatic control flow)
- Post-heating water coil with valve
- Clock card – time bands
- Humidity probe

2.4.2 ELECTRONIC RADIAL FANS

Electronic radial backward-curved blade fans with brushless motor and built-in inverter represent the state of art in ventilation technology for industrial environments. These fans combine high aeraulic efficiency and silent operation.
The built-in inverter allows modulating the number of revs and this, together with the ACF system, makes them particularly suitable for installations where accurate flow rate control is required.
This option is only available with advanced control.

2.4.3 ACF: AUTOMATIC CONTROL FLOW

This option allows setting a constant air flow rate in the unit; in the event of pressure drops along the ducts other than those foreseen by the system designer, the unit will adapt to maintain the set air flow rate, regardless of the shape, length and pressure drop of the duct.
This option is only available with advanced control and [electronic radial fans].

2.4.4 HIGH PREVALENCE CENTRIFUGAL FANS

For traditional centrifugal fans with motor coupled directly or with belt transmission, the optional high pressure is available to ensure up to 200 Pa in supply.
Higher prevalence are available on request as special products.

2.4.5 POST HEATING WATER COIL WITH MODULATING OR ON/OFF VALVE

It consists of a hot water re-heat coil and a valve, and their purpose is to heat the environment through hot water coming from a boiler or a heat pump, tracking a set temperature set on the user command.
An on/off valve in conjunction with the basic control and a modulating valve in combination with the advanced control is installed.
This option is not available combined with standard control on IT/ST models.
This option can not be combined with standard control + electrical heaters OR oversized electrical heaters OR oversized water coil for heat pump water.

2.4.6 DE-SUPERHEATER (FOR SP/ST MODELS)

It is a device which allow you to dismantle the thermal load produced by the compressor, on the water, suggested for the applications where you wish to heat the water in pools.
ATTENTION: it can not be in direct contact with pool water, but need an intermediate exchanger.

2.4.7 DIRTY FILTER SENSOR

It is a differential manostat which reveals when the filters are dirty and this can lead to a non-correct functioning of the unit.
With this option, the filters are supposed to be cleaned when indicated, and not according to a constant period of time.

2.4.8 SOFT START

It consists in a soft start device for every compressor in order to reduce inrush current upon start-up, following a pre-set ramp.

2.4.9 SERIAL BOARD RS485

Connection to RS485 bus is made available for unit supervision by remote or by home automation system. (Further info available from our Technical Dept.)

2.4.10 FILTER HOLDER FRAME FOR SUCTION DUCTING

It is a holder frame inserted on the suction part of the dehumidifier; it allows the removal of the air filter from the front and an easier connection to the suction ducting.

2.4.11 CLOCK – CARD TIME BANDS

It consists of an additional clock board and a control software that allow the dehumidifier to operate in daily time bands, setting the humidity, temperature, air renewal and on/off values.
This option is only available with advanced control.

2.4.12 MECHANICAL HUMIDISTAT

It consists in a humidistat, which is located in the room and connected to the dehumidifier and activates the compressors when the set humidity value is exceeded.
This option is only available with standard control.

2.4.13 CTI – CHRONO THERMO HYGROSTAT

It consists of a device that you can place on the wall and connect to the unit, which allows you to read temperature and humidity and it manages the dehumidification and the heating. Temperature and humidity can be set as fix or according to time bands.
This option is only available with standard control.

2.4.14 HOT GAS DEFROST

It consists of a gas valve that injects hot gas in the evaporator coil, thereby allowing for quick defrost and extending the dehumidifier application limit.
This option can not be combined with standard control + post-heating water coil with on/off valve OR electrical heaters.

2.4.15 REMOTE USER TERMINAL

It consists of an outdoor device to be fitted on the wall that controls all dehumidifier functions. The electronic control on the machine and the remote terminal are identical from a dimensional, aesthetic and electronic (hardware) point of view.
This option is only available with advanced control.

2.4.16 OUTDOOR VERSION

Thanks to specific modifications of carpentry and electric part, the unit can be installed outside, even avoiding the inserting in a technical room.
This option combined with a post-heating water coil requires the advanced control.

2.4.17 MANOMETERS

Units can be supplied with manometers (high and low for each refrigerant circuit). They allow the immediate visualization of pressure level in the refrigerant circuit.

2.4.18 SUMMER / WINTER FUNCTION

The summer / winter function allows heating with hot water in the winter, and cooling with cold water in the summer.
This option must be combined with post-heating water coil with modulating valve, and requires the advanced control.

2.4.19 SILENT VERSION

This option allows the reduction of the emitted noise of compressor so the unit is more silent.
It is composed by a phono-absorber mattress in the compressor vain.

2.4.20 HIGH EFFICIENCY AIR FILTERS

This type of filter, replacing the polyurethane model in the dehumidifier, increases air purification and holds dust particles more effectively.
This option is only available with [filter-holder frame for intake ducting].

2.4.21 ELECTRICAL HEATERS

More steps electric coils which permit the heating of the supply air when there is no hot water available. Safety is granted by a thermostat that, in case of over-temperature, turns off the coils and signals an alarm.
This option is not available for IT/ST units with standard control.
With standard control, this option can not be combined with post-heating water coil with valve OR oversized electrical heaters OR post-heating coil for heat pump water.

2.4.22 OVERSIZED ELECTRICAL HEATERS

More steps electric coils which permit the heating of the supply air with more power than the standard electrical heaters.
Safety is granted by a thermostat that, in case of over-temperature, turns off the coils and signals an alarm.
This option is not available for IT/ST units with standard control.
With standard control, this option can not be combined with post-heating water coil with valve OR standard electrical heaters OR post-heating coil for heat pump water.

2.4.23 POST HEATING WATER COIL FOR HEAT PUMP WATER

It consists of a more powerful post-heating coil and a valve, and its purpose is to heat the environment through hot water coming from a heat pump, tracking a set temperature set on the user command.
An on/off valve in conjunction with the basic control and a modulating valve in combination with the advanced control is installed.
This option is not available combined with standard control on IT/ST models.
This option can not be combined with standard control + electrical heaters OR oversized electrical heaters OR oversized water coil for heat pump water.

2.5 STRUCTURE

The unit is realized with an exclusive design that also simplifies the complete accessibility, when the unit is closed, to all the components: this aspect, together with the high quality of the equipment grants the reduction of the emitted sound level.
Almost all the panels are removable, in order to concede a complete accessibility to the unit. For ordinary maintenance, the access is required to filters, fans, compressor and recover.
All bolts and screws are realized with non-oxidable materials, INOX or carbon steel with superficial treatment of passivation.
The distribution of the components grants an easy access to the unit and an optimal weight distribution.

2.6 ELECTRICAL CIRCUITS

The electrical panel is realized and wired according to the Directive EN 60204-1. The control circuit is protected with a specific magneto-thermal switch.

All the remote controls are realized with low tension signals and supplied by an insulating transformer.

When stopping the group, do not turn the tension off through the basic protection of the unit, because this device should be used to dissect the unit in its whole for maintenance. Use the user terminal.

2.7 REFRIGERANT AND HYDRAULIC CIRCUITS

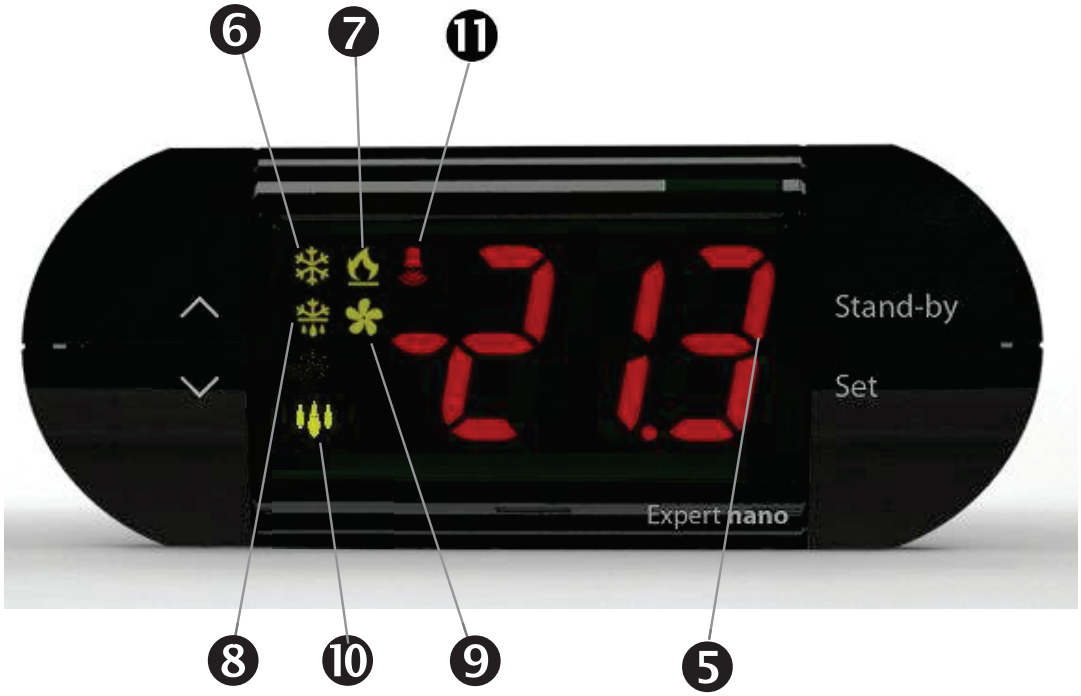
All the copper pipes are realized under our specifications in order to control the whole construction process, and also to improve our products' quality. Each pipe follows the 97/23PED dispositions and is verified through the FEM code, on the more stressed point from the 180° folding and at the max pressure allowed by the safety members.
All the units mount, at the basis of the exchanger, INOX basin to pick up condensation.

3 USER TERMINAL – BASIC CONTROL

The unit is delivered in “OFF” (to turn it on, keep pressed the key [STAND-BY]), ready to function completely autonomously.
The control manages all the functions and the devices of the unit, acting on call from the external humidistat.
Please, remember that the compressor has a delay when starting and re-starting of 5 minutes, in order to avoid mechanical diseases to the internal components.
Every error or fault is displayed according to the table “DIAGNOSTIC AND ALARMS”, that you find here below.
The ventilation is always active and not associated to the starting of the compressor.

Some of these settings may be changed according to the “PARAMETERS TABLE”, that you find here below.

3.1 DISPLAY AND KEYS



1. UP Key (▲)

It increases values/ Slides the parameters.
It buys off the sound alarm if present.

2. DOWN Key (▼)

It decreases the values / Slides the parameters.

3. STAND-BY Key

If pressed more than 1 sec, it turns on/off the unit.
When turning on, a sound signal is emitted as confirmation.
In stand-by mode, the unit stops and displays the writing “OFF”.

4. SET Key

It allows to set parameters.
It restores the sound alarm if present.
Except for the programming, it has no other functions.

5. TEMPERATURE Value / PARAMETERS

6. COMPRESSOR ICON

OFF	= Compressor OFF
ON	= Compressor ON
flashing	= Compressor OFF, waiting to turn on

7. HEATING ICON

OFF	= Heating OFF
ON	= Heating ON

8. DEFROST ICON

OFF	= Defrost OFF
ON	= Defrost ON

9. VENTILATION ICON

OFF	= Ventilation OFF
ON	= Ventilation ON

10. DEHUMIDIFICATION CALL ICON

ON	= Digital input ACTIVE
OFF	= Digital input INACTIVE

11. ALARM PRESENCE ICON

OFF	= No alarm present
flashing	= Alarm present

3.2 MAIN COMMANDS

3.2.1 3.2.1 TUNING ON / TURNING OFF

On the display you can see the status of the unit, ON or OFF.
To turn the unit on or off, push the STAND-BY key.

3.2.2 3.2.2 MODIFICATION OF THE DESIRED TEMPERATURE SET

Units IT and ST can do air conditioning.
Units ID and SP, equipped with electrical heaters or post-heating water coil, can do heating.
In these cases, on the control, you see a value of desired temperature that can be modified following this process:
- keep pushed UP and DOWN for 3 seconds to enter the User Menu
- with UP and DOWN place on SEC
- keep pushed SET to display, push UP and DOWN to modify and release the key SET to exit from the modification
- keep pushed UP and DOWN for 3 seconds to exit from the menu

3.3 USER MENU

On the User Menu you can display the reading of temperature probes, modify the desired temperature and display the software release.
To enter the User Menu, follow the process below:
- keep pushed UP and DOWN for 3 seconds. When entering the menu, you will hear an acoustic signal
- with UP and DOWN, place on the variable you wish to display/modify
- now it is possible to modify the value by keeping pushed SET and pushing UP or DOWN
- to exit, keep pushed UP and DOWN, or wait 30 seconds without pushing any keys; you will hear an acoustic signal as confirmation.

NAME	*DESCRIPTION*	*DEFAULT*
SEc	Set point desired temperature	26,0
tAC	Reading air temperature	Reading
tEu	Reading defrost temperature	Reading
reL	Software release	Reading

3.4 OTHER FUNCTIONS

3.4.1 Manual activation for defrost

When activation conditions are present (temperature read from the defrost probe < 5°C), it is possible to activate the defrost by pressing the (▼) key for more than 3 seconds; a sound signal will follow as a confirmation.

3.4.2 Manual forcing for stop defrost

During the defrosting, keeping pressed the (▼) key for 3 seconds, the stop of the defrosting is forced; a sound signal will follow as a confirmation.
This function can not be activated from the programming menu.

4 USER TERMINAL - ADVANCED CONTROL

The whole software for the management of refrigerant circuit, electronic and electro-mechanical components, is developed within HiDew, thanks to a highly qualified Software Development Office.
Here below there is a list of the available functions:

- Unit ON/OFF;
- Dehumidification ON/OFF;
- Set of the desired humidity (humidity set);
- Set of the desired temperature (temperature set) [*not always available*];
- Alarms display;
- Wrong phase-sequence signal (on all 3-phases models);
- Reading of all the probes
- Display of components' status
- Time bands' management [*optional]*;
- Season choice: summer and winter [*optional*];
- Display of dirty filters [*optional*];

4.1 KEYS USE

4.1.1 UP/DOWN

With these keys, you can move to one screen to another, or modify the selected value.

4.1.2 PRG KEY

This key allows to enter the displaying pages or to modify all the advanced parameters.
The password is required.

4.1.3 ESC KEY

It allows to exit from the modification of a value or to come back to the previous screen.

4.1.4 ENTER

On the main screen, it allows to turn on/off the unit.
On the other screens, it allows to enter the modification of a value or to confirm the modification and come back to the menu

4.1.5 ALARM KEY

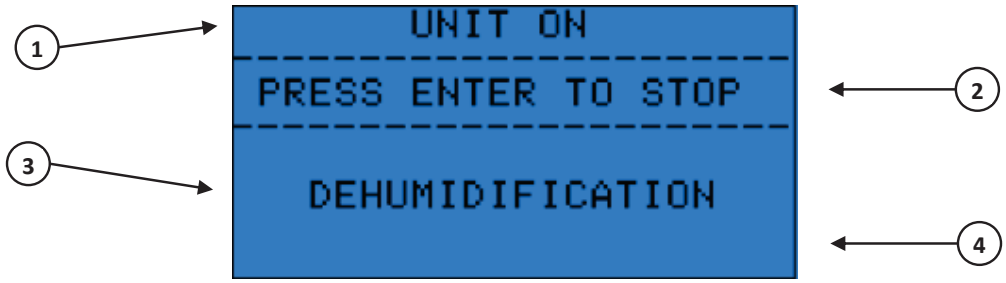
The Alarm keys becomes red when there is an alarm.
It allows to enter in the alarms' pages:

- if there are not alarm, you will see: no alarm present
- with one or more alarms present, a page for every alarm

ATTENZIONE
WARNING

The pictures shown in the following pages, may be different, according to the unit purchased, because of the options or of software modification/updates.

4.2 MAIN SCREEN



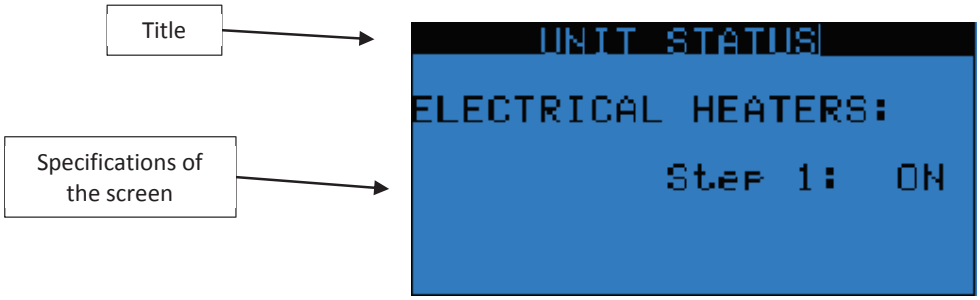
1. Indication of the unit status:
- *unit ON*
- *unit OFF from the display*
- *unit OFF from contact (remote)*
- *unit OFF from time bands*

2. indication of the operation to do in order to change status (enter to turn on / enter to turn off)

3. Information on the functioning status of the unit:
- *Unit turning on: starting the unit*
- *Ventilation: dehumidification is not active and the unit is functioning only in ventilation*
- *Dehumidification: the unit is functioning is regularly functioning in dehumidification*
- *Compressor stop for __: there is an anomaly on the refrigerant circuit, make reference to the paragraph "faults and anomalies"*

4. Indication of one of the following anomalies (please, make reference to the paragraph "faults and anomalies":
- *Dirty filters: the air filter is dirty*
- *fault probe __: this refers to an error on the probe indicated*
- *Phases' sequence error: the phases are inverted or there is one supply phase missing*

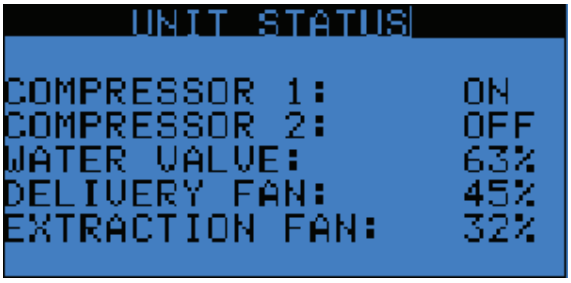
4.3 OTHER SCREENS OF THE USER MENU



How to use the keys for move through the screens:
- with ↑ ↓ you move to a screen to another
- pushing **Esc** you come back to the main screen

In the next pages you will find explanation on all the screens:
- unit status
- sensors
- regulations
- clock card – time bands
- air flows
- software info

4.3.1 UNIT STATUS



These screens are only for displaying and allow to check the status of the dehumidifier.
You can display the status of the following devices:

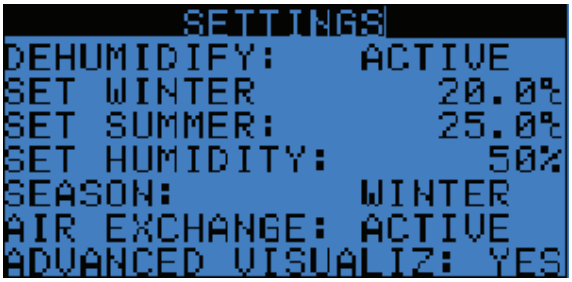
- Compressors
- Fans
- Hot water valve*
- Electrical heaters*

*these status are present only if there are the options dedicated
The second screen is displayed only if there is the dedicated option

4.3.2 SENSORS

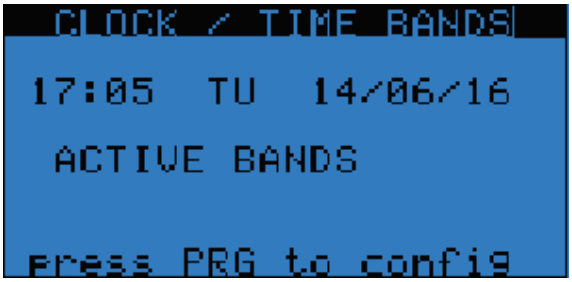
This screen is only for displaying and allows to see the values read from the probes.

4.3.3 REGULATION



This screen allows the modification of the unit's settings; please make reference to the next paragraph.

4.3.4 CLOCK CARD – TIME BANDS



This screen is present only if the option has been bought.

ATTENZIONE
WARNING

Use of the keys during navigation:

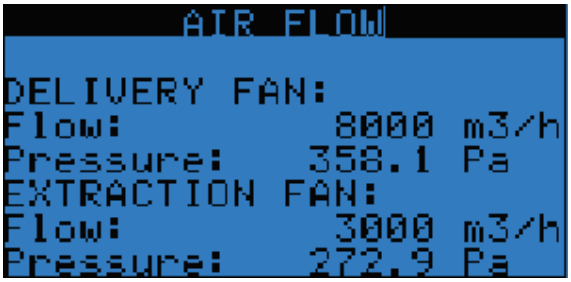
- Pushing ENTER, you enter in the modification mode and the activation of time bands starts flashing
- Pushing UP and DOWN, you move from one screen to another
- Pushing ESC you come back to the main screen
- Pushing PRG you enter the page for the setting of the clock and of relative time bands (additional info available in the dedicated paragraph)

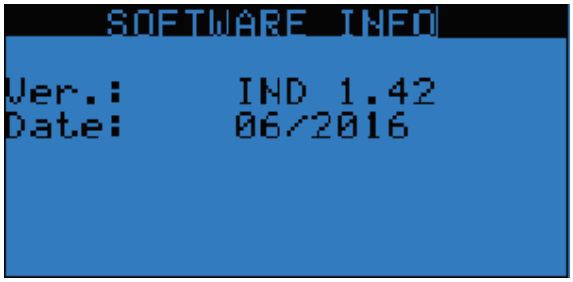
ATTENZIONE
WARNING

Use of the keys during modification:

- Pushing ENTER you exit from the modification mode and come back to the navigation
- With UP and DOWN you modify the activation of time bands
- Pushing ESC you exit from the modification mode and come back into the navigation one
- Pushing PRG you enter the screen for the setting of clock and time bands (additional info available in the dedicated paragraph)

4.3.5 LAST INFORMATION SCREENS





These screens are only for displaying and are shown only if the advanced visualization is active

- AIR FLOW: it is available only if you have chosen the optional ACF, and it shows the effective air flow measured for each fan
- SOFTWARE INFO: it indicates the version of the software installed and the date of its development.

4.4 COMMANDS

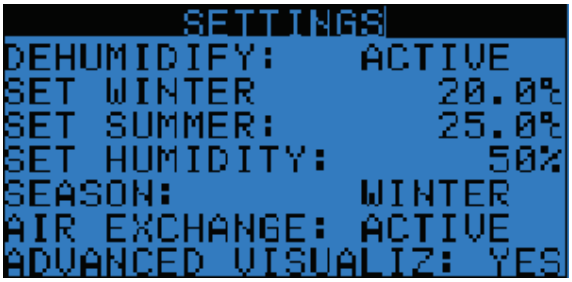
4.4.1 TURN ON / TURN OFF THE UNIT

To turn on/turn off the unit:

- Place on the main screen by pushing few times ESC
- Use the ENTER key to turn on/turn off the unit

4.4.2 TURN ON / TURN OFF THE UNIT

- Place on the main screen by pushing few times ESC
- With UP and DOWN, move from screen to screen till you arrive on the regulation one



Use of the keys during navigation:

- Pushing ENTER, you enter in the modification mode and the first value will start flashing
- Pushing UP and DOWN you move through the screens
- Pushing ESC you come back to the main screen

Use of the keys during modification:

- Pushing ENTER, the next value will start flashing or, if you are at the last value, you come back to the navigation mode
- With UP and DOWN, you modify the flashing value
- Pushing ESC, you come back to the navigation mode

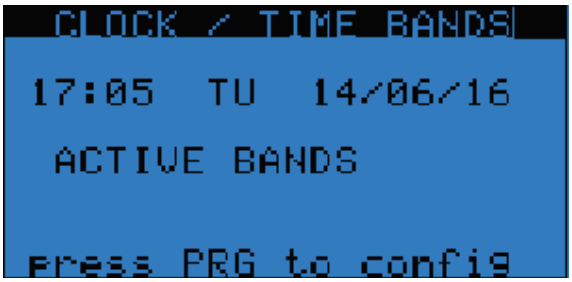
Here below you find the list of possible modifications:

- Active/inactive dehumidification
- Setting of the desired temperature (in winter mode)
- Setting of the desired temperature (in summer mode)
- Setting of the desired humidity
- Setting of the season (if this is not present, you will only display the winter set)
- Setting of fresh air
- Setting of the advanced visualization (you can see the last 2 screens of the user menu)

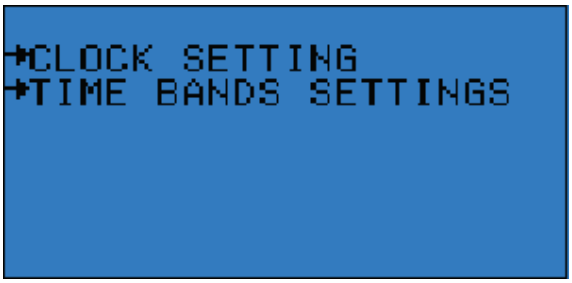
Some of the above list, are displayed only if you have chosen the dedicated option.

4.5 TIME BANDS SETTING

Place on the main screen pushing ESC if necessary.
With UP and DOWN, you move through the screens: place on CLOCK/TIME BANDS one.



Push the PRG key:



You are now in the setting screen.
Now, you need to set the clock and then to configure the time bands.
Please, follow the procedure described here below.

4.5.1 CLOCK SETTING

With UP and DOWN, you place on CLOCK SETTING and push ENTER

ATTENZIONE
WARNING

Use of the keys:

- With UP and DOWN you modify the flashing value
- Pushing ENTER you move to the next value
- Pushing ESC you save and come back to the previous screen

4.5.2 TIME BANDS SETTING

The control manages time bands in 2 programs: week days and holidays.
Each program can manage: on/off, temperature and humidity.
Once finished the modification of both the programs, you will have to associate a program to every day of the week.

With UP and DOWN you place on CLOCK SETTING; now, push ENTER.

ATTENZIONE
WARNING

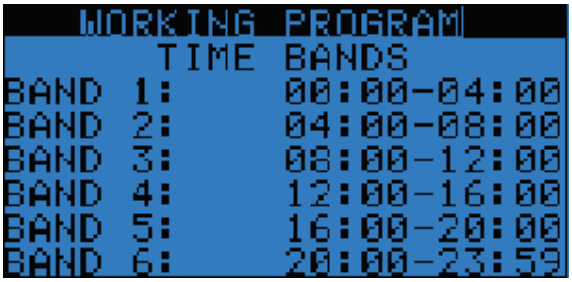
Use of the keys during navigation:

- With UP and DOWN you move through the screens
- Pushing ENTER you move into the modification mode and the first value will start flashing
- Pushing ESC you come back to the main screen

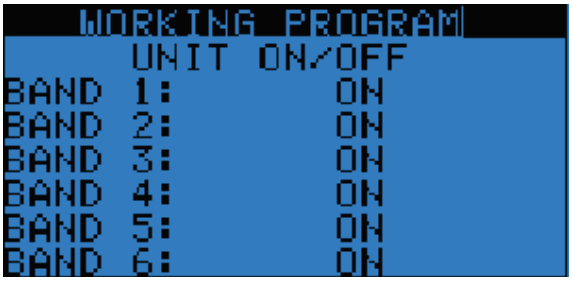
ATTENZIONE
WARNING

Use of the keys during modification:

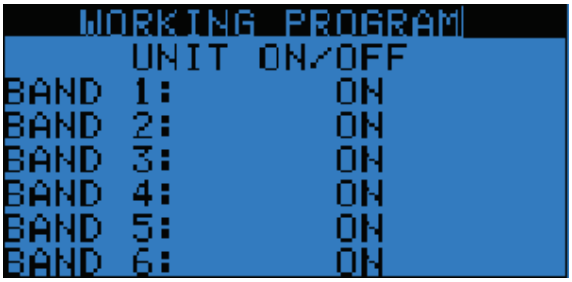
- With UP and DOWN you modify the flashing value
- Pushing ENTER, the following value will start flashing or, if you are at the last value, you come back to the navigation mode
- Pushing ESC you come back to the navigation mode



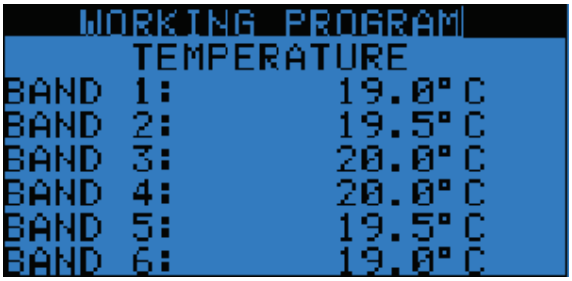
You are now on the first page, where you can set every single band for the week days.



You are now on the second screen, where you can set the turning on/turning off of the unit for every single time band.

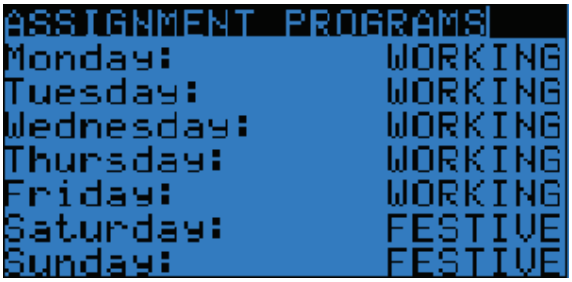


You are now on the third screen, where you can set the desired humidity for every single time band.



You are now on the fourth screen, where you can set the desired temperature for every single time band.
This screen is displayed only if you have the optional post-heating coil OR electrical heaters.

After having set the programs for all the weekdays, you have to follow the same process for the holiday ones.



The last screen allows to associate a program to every single day.

After having completed all the setting, you can exit by pushing ESC for few times.

ATTENZIONE
WARNING

Remember to set the time bands, making reference to the previous paragraph.

5 TECHNICAL DATA

5.1 TECHNICAL DATA SHEET

UNIT		130	160	190
Compressor	Type	Rotative	Rotative	Scroll
Refrigerant circuit	nr	1	1	1
Refrigerant gas	Type	R410A	R410A	R410A
Dehumidifying capacity	L/24h	128	157	190
Cooling power (only model IT/ST)	kW	6,5	8	10
Compressor power	kW	1,4	2,1	3,4
Compressor current	A	6,3	9,7	16,8
Unit power with standard centrifugal fans	kW	1,7	2,5	3,8
Unit current with standard centrifugal fans	A	7	11	18
Unit power with radial fans	kW	1,4	2,3	3,7
Unit current with radial fans	A	6	10	17
Max power	kW	2,5	3,6	5,3
Max current	A	11	16	24
Inrush current	A	40	65	100
Power supply	V / Ph / Hz	230 / 1+N / 50		
Post-heating water coil thermal power	kW	9,8	9,8	9,8
Coil water flow	m^3/h	0,84	0,84	0,84
Water load losses	kPa	38	38	38
Supply fans	nr	1	1	1
Recirculation air flow	m^3/h	1200	1600	1600
Available static pressure with standard centrifugal fans	Pa	50	50	50
Available static pressure with centrifugal fans + high prevalence	Pa	100	130	130
Available static pressure with radial fans	Pa	450	400	400
De-superheater thermal power	kW	2	2,5	2,8
De-superheater water flow	m^3/h	0,35	0,43	0,48
Dimensions (L x D x H)	mm	700 x 550 x 900		
Weight	Kg	100	105	110

EXTERNAL CONDENSER (only model IT/ST)		130	160	190
Max power	kW	0.17	0.17	0.17
Max current	A	1.35	1.35	1.35
Power supply	V / Ph / Hz	230 / 1+N / 50		
Dimensions (L x D x H)	mm	748 x 404 x 575		

The dehumidifying capacity is declared with ambience conditions: 30°C/80%r.h.
The cooling power is declared with ambience conditions: 30°C/80%r.h, and external air at conditions 30°C/0%r.h. (only for models IT/ST)
Currents and powers are declared with ambience conditions: 30°C/80%r.h., at nominal air flow + 50Pa of prevalence.
The thermal power of water coil is declared with ambience air at 30°C, water in 80°C / out 70°C
Pressures, currents and powers are declared at the recirculation air flow indicated in these tables.

At different conditions, the declared values may sensibly vary, the further from the nominal conditions, the bigger will be the difference in values.

UNIT		210	260	300
Compressor	Type	Scroll	Scroll	Scroll
Refrigerant circuit	nr	1	1	1
Refrigerant gas	Type	R410A	R410A	R410A
Dehumidifying capacity	L/24h	210	268	302
Cooling power (only model IT/ST)	kW	11	15	16
Compressor power	kW	3,2	4,1	4,2
Compressor current	A	6,1	7,4	7,6
Unit power with standard centrifugal fans	kW	3,7	4,8	4,9
Unit current with standard centrifugal fans	A	8	10	10
Unit power with radial fans	kW	3,5	4,6	4,8
Unit current with radial fans	A	6	8	8
Max power	kW	5,5	6,7	6,9
Max current	A	10	12	12
Inrush current	A	51	66	66
Power supply	V / Ph / Hz	400 / 3+N / 50		
Post-heating water coil thermal power	kW	16,5	17	17
Coil water flow	m^3/h	1,42	1,46	1,46
Water load losses	kPa	30	31	31
Supply fans	nr	1	1	1
Recirculation air flow	m^3/h	2000	2800	2800
Available static pressure with standatd centrifugal fans	Pa	50	50	50
Available static pressure with centrifugal fans + high prevalence	Pa	100	100	100
Available static pressure with radial fans	Pa	550	350	350
De-superheater thermal power	kW	2,9	4,6	4,8
De-superheater water flow	m^3/h	0,5	0,8	0,8
Dimensions (L x D x H)	mm	700 x 850 x 900		
Weight	Kg	120	130	140

EXTERNAL CONDENSER (only model IT/ST)		210	260	300
Max power	kW	0.34	0.34	0.34
Max current	A	2.7	2.7	2.7
Power supply	V / Ph / Hz	230 / 1+N / 50		
Dimensions (L x D x H)	mm	1303 x 404 x 575		

ID / SP / IT / ST – Industrial / Swimming Pools Dehumidifier with/without temperature control function

UNIT		350	450	580
Compressor	Type	Scroll	Scroll	Scroll
Refrigerant circuit	nr	1	1	1
Refrigerant gas	Type	R410A	R410A	R410A
Dehumidifying capacity	L/24h	358	452	581
Cooling power (only model IT/ST)	kW	19	23	30
Compressor power	kW	4,2	5,1	7,7
Compressor current	A	7,6	9	13,7
Unit power with standard centrifugal fans	kW	5,2	6	8,8
Unit current with standard centrifugal fans	A	12	13	18
Unit power with radial fans	kW	4,6	5,5	8,5
Unit current with radial fans	A	8	9	14
Max power	kW	8,6	10	13,4
Max current	A	16	18	24
Inrush current	A	69	72	102
Power supply	V / Ph / Hz	400 / 3+N / 50		
Post-heating water coil thermal power	kW	26,5	26,5	27
Coil water flow	m^3/h	2,28	2,28	2,32
Water load losses	kPa	40	40	40
Supply fans	nr	1	1	1
Recirculation air flow	m^3/h	3800	4000	4800
Available static pressure with standard centrifugal fans	Pa	50	50	50
Available static pressure with centrifugal fans + high prevalence	Pa	130	110	130
Available static pressure with radial fans	Pa	550	540	450
De-superheater thermal power	kW	4,3	5,8	8,1
De-superheater water flow	m^3/h	0,7	1,0	1,4
Dimensions (L x D x H)	mm	830 x 850 x 1350		
Weight	Kg	220	230	240

EXTERNAL CONDENSER (only model IT/ST)		350	450	580
Max power	kW	0.34	0.34	0.34
Max current	A	2.7	2.7	2.7
Power supply	V / Ph / Hz	230 / 1+N / 50		
Dimensions (L x D x H)	mm	1303 x 404 x 575		

UNIT		750	950
Compressor	Type	Scroll	Scroll
Refrigerant circuit	nr	1	1
Refrigerant gas	tipo	R410A	R410A
Dehumidifying capacity	L/24h	760	955
Cooling power (only model IT/ST)	kW	38	50
Compressor power	kW	9	11,6
Compressor current	A	17	22
Unit power with standard centrifugal fans	kW	10	13,2
Unit current with standard centrifugal fans	A	19	24
Unit power with radial fans	kW	9,7	13
Unit current with radial fans	A	18	24
Max power	kW	16,3	20
Max current	A	27	33
Inrush current	A	151	201
Power supply	V / Ph / Hz	400 / 3+N / 50	
Post-heating water coil thermal power	kW	48	55
Coil water flow	m^3/h	4,13	4,73
Water load losses	kPa	36	38
Supply fans	nr	1	1
Recirculation air flow	m^3/h	7000	8200
Available static pressure with standard centrifugal fans	Pa	130	130
Available static pressure with centrifugal fans + high prevalence	Pa	250	250
Available static pressure with radial fans	Pa	450	400
De-superheater thermal power	kW	11,5	14,5
De-superheater water flow	m^3/h	2,0	2,5
Dimensions (L x D x H)	mm	1000 x 1400 x 1350	
Weight	Kg	410	430

EXTERNAL CONDENSER (only model IT/ST)		750	950
Max power	kW	1.02	1.02
Max current	A	8.1	8.1
Power supply	V / Ph / Hz	230 / 1+N / 50	
Dimensions (L x D x H)	mm	1858 x 404 x 1130	

ID / SP / IT / ST – Industrial / Swimming Pools Dehumidifier with/without temperature control function

UNIT		1100	1400
Compressor	Type	Scroll	Scroll
Refrigerant circuit	nr	2	2
Refrigerant gas	Type	R410A	R410A
Dehumidifying capacity	L/24h	1120	1350
Cooling power (only model IT/ST)	kW	56	66
Compressor power	kW	6	7,2
Compressor current	A	11,4	14,3
Unit power with standard centrifugal fans	kW	14	16,8
Unit current with standard centrifugal fans	A	26	32
Unit power with radial fans	kW	13,5	16,7
Unit current with radial fans	A	25	32
Max power	kW	23,5	26,7
Max current	A	38	45
Inrush current	A	121	169
Power supply	V / Ph / Hz	400 / 3+N / 50	
Post-heating water coil thermal power	kW	76	83
Coil water flow	m^3/h	6,54	7,14
Water load losses	kPa	55	58
Supply fans	nr	2	2
Recirculation air flow	m^3/h	11000	12500
Available static pressure with standard centrifugal fans	Pa	200	200
Available static pressure with centrifugal fans + high prevalence	Pa	300	300
Available static pressure with radial fans	Pa	480	450
De-superheater thermal power	kW	14	18
De-superheater water flow	m^3/h	2,4	3,1
Dimensions (L x D x H)	mm	1000 x 1950 x 1640	
Weight	Kg	650	720

EXTERNAL CONDENSER (only model IT/ST)		1100	1400
Max power	kW	1.36	1.36
Max current	A	10.8	10.8
Power supply	V / Ph / Hz	230 / 1+N / 50	
Dimensions (L x D x H)	mm	2413 x 404 x 1130	

ID / SP / IT / ST – Industrial / Swimming Pools Dehumidifier with/without temperature control function

UNIT		1500	1700	1900	2200
Compressor	Type	Scroll	Scroll	Scroll	Scroll
Refrigerant circuit	nr	2	2	2	2
Refrigerant gas	Type	R410A	R410A	R410A	R410A
Dehumidifying capacity	L/24h	1480	1710	1870	2180
Cooling power (only model IT/ST)	kW	75	86	96	110
Compressor power	kW	7,9	9	10	11,6
Compressor current	A	15	17	17,8	22
Unit power with standard centrifugal fans	kW	18	20	22	26
Unit current with standard centrifugal fans	A	34	39	40	50
Unit power with radial fans	kW	17	20	22	27
Unit current with radial fans	A	32	37	38	49
Max power	kW	29	32	36	40
Max current	A	48	54	58	67
Inrush current	A	170	178	191	234
Power supply	V / Ph / Hz	400 / 3+N / 50			
Post-heating water coil thermal power	kW	98	107	107	118
Coil water flow	m³/h	8,43	9,2	9,2	10,15
Water load losses	kPa	60	63	63	68
Supply fans	nr	2	2	2	2
Recirculation air flow	m³/h	13000	15000	15000	17000
Available static pressure with standard centrifugal fans	Pa	200	200	200	200
Available static pressure with centrifugal fans + high prevalence	Pa	300	300	300	300
Available static pressure with radial fans	Pa	450	480	480	450
De-superheater thermal power	kW	19	22	25	29
De-superheater water flow	m³/h	3,2	3,8	4,3	5,0
Dimensions (L x D x H)	mm	1000 x 2500 x 1640			
Weight	Kg	780	840	900	950

EXTERNAL CONDENSER (only model IT/ST)		1500	1700	1900	2200
Max power	kW	3.4	3.4	3.4	3.4
Max current	A	5.7	5.7	5.7	5.7
Power supply	V / Ph / Hz	400 / 3+N / 50			
Dimensions (L x D x H)	mm	3800 x 900 x 1144			

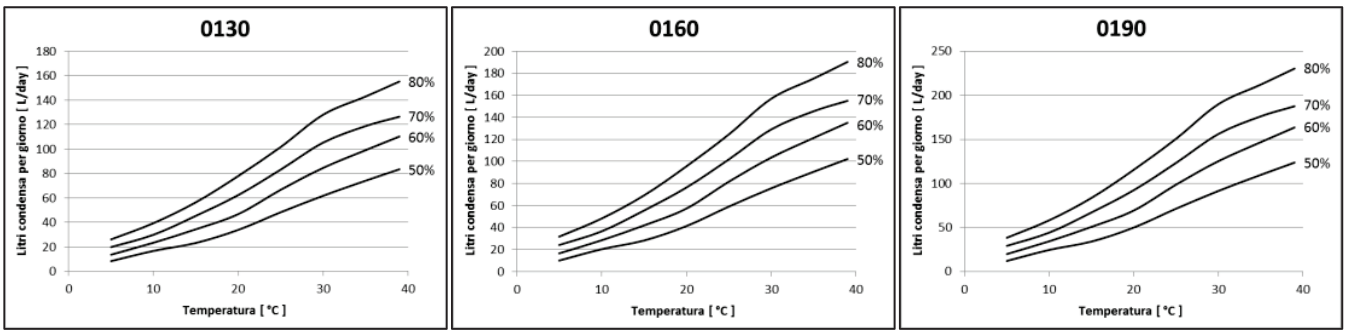
ID / SP / IT / ST – Industrial / Swimming Pools Dehumidifier with/without temperature control function

UNIT		3000
Compressor	Type	Scroll
Refrigerant circuit	nr	2
Refrigerant gas	tipo	R410A
Dehumidifying capacity	L/24h	2960
Cooling power (only model IT/ST)	kW	148
Compressor power	kW	15,2
Compressor current	A	26,7
Unit power with standard centrifugal fans	kW	35
Unit current with standard centrifugal fans	A	62
Unit power with radial fans	kW	34
Unit current with radial fans	A	60
Max power	kW	54
Max current	A	88
Inrush current	A	265
Power supply	V / Ph / Hz	400 / 3+N / 50
Post-heating water coil thermal power	kW	168
Coil water flow	m^3/h	14,45
Water load losses	kPa	60
Supply fans	nr	3
Recirculation air flow	m^3/h	25000
Available static pressure with standard centrifugal fans	Pa	200
Available static pressure with centrifugal fans + high prevalence	Pa	300
Available static pressure with radial fans	Pa	400
De-superheater thermal power	kW	37
De-superheater water flow	m^3/h	6,4
Dimensions (L x D x H)	mm	1000 x 3390 x 1640
Weight	Kg	1250

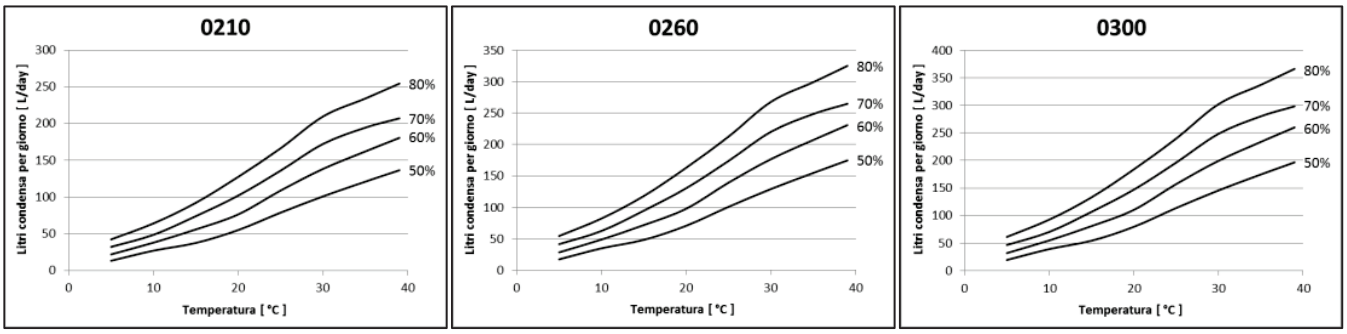
EXTERNAL CONDENSER (only model IT/ST)		3000
Max power	kW	5.2
Max current	A	8.55
Power supply	V / Ph / Hz	400 / 3+N / 50
Dimensions (L x D x H)	mm	5550 x 900 x 1144

5.2 YIELD CURVES

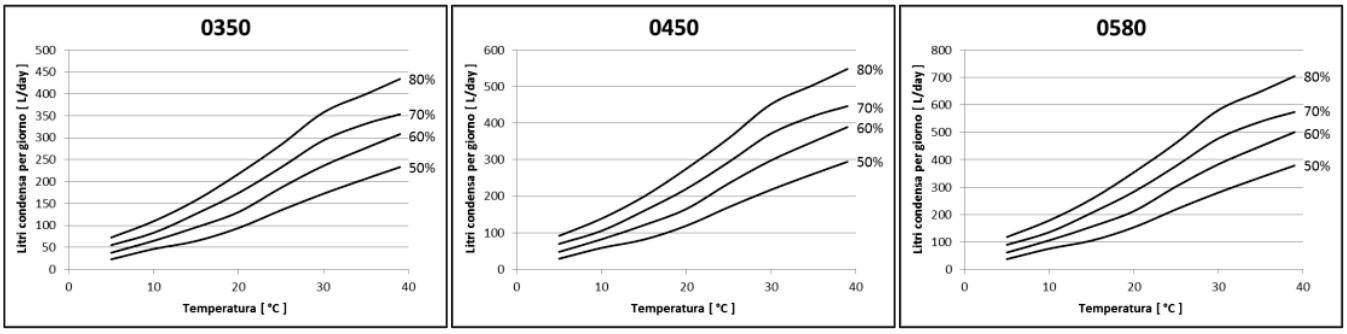
5.2.1 FRAME 2



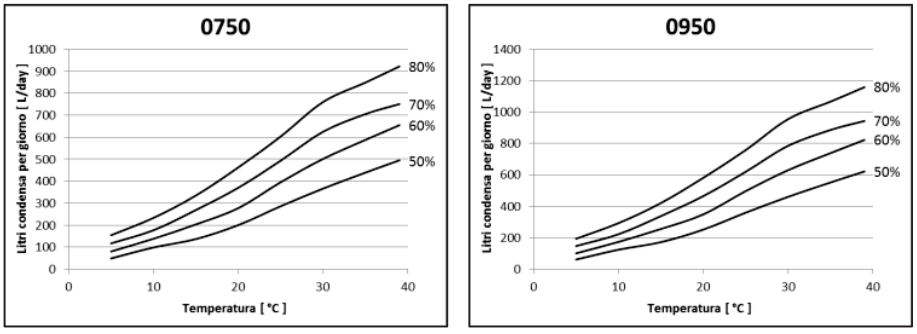
5.2.2 FRAME 3



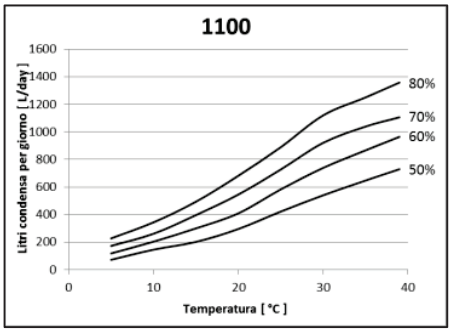
5.2.3 FRAME 4

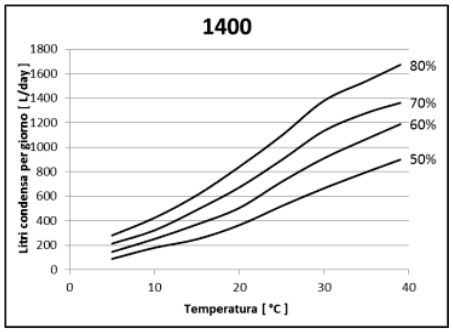


5.2.4 FRAME 5

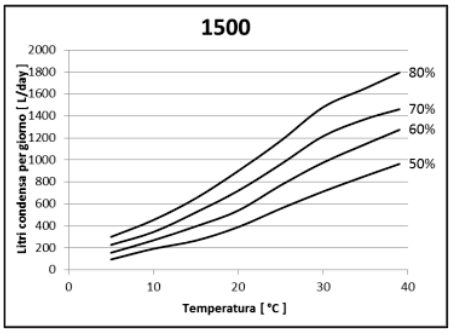


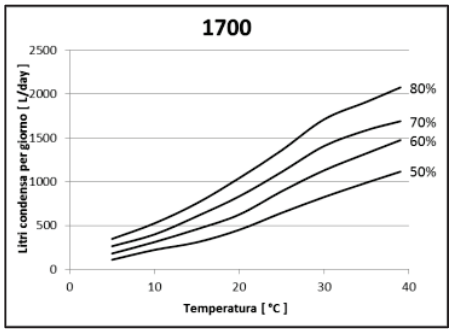
5.2.5 FRAME 6

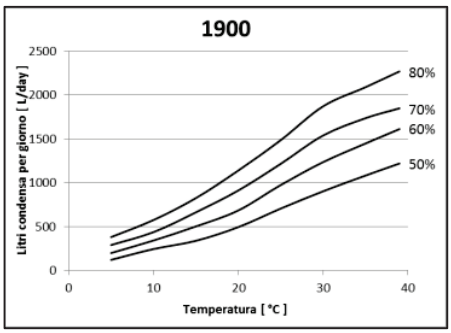


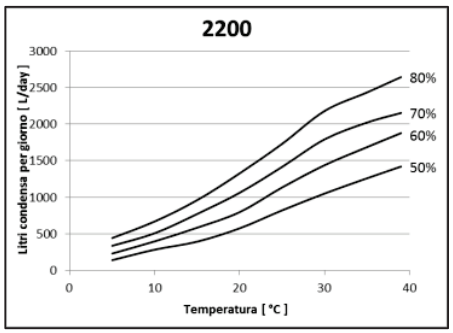


5.2.6 FRAME 7

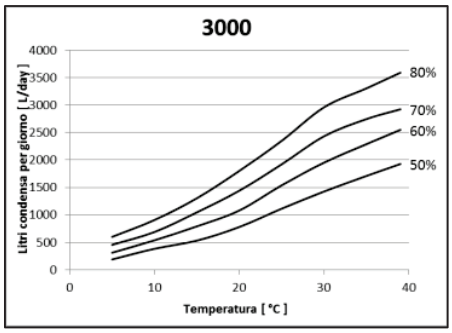








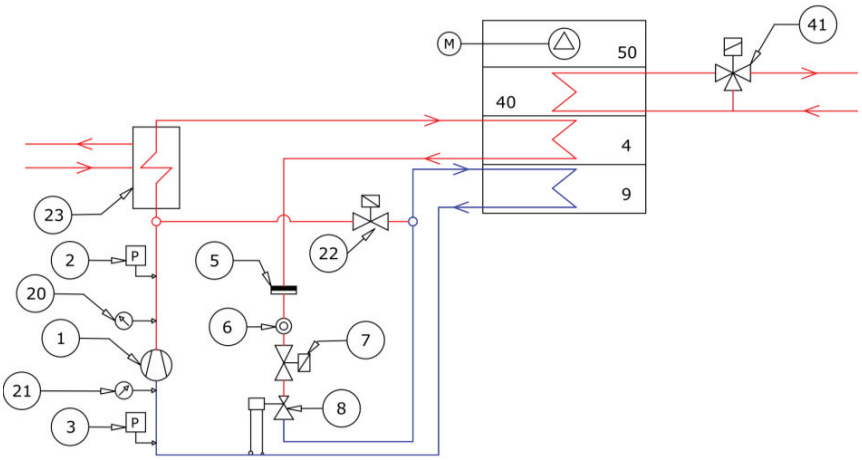
5.2.7 FRAME 8



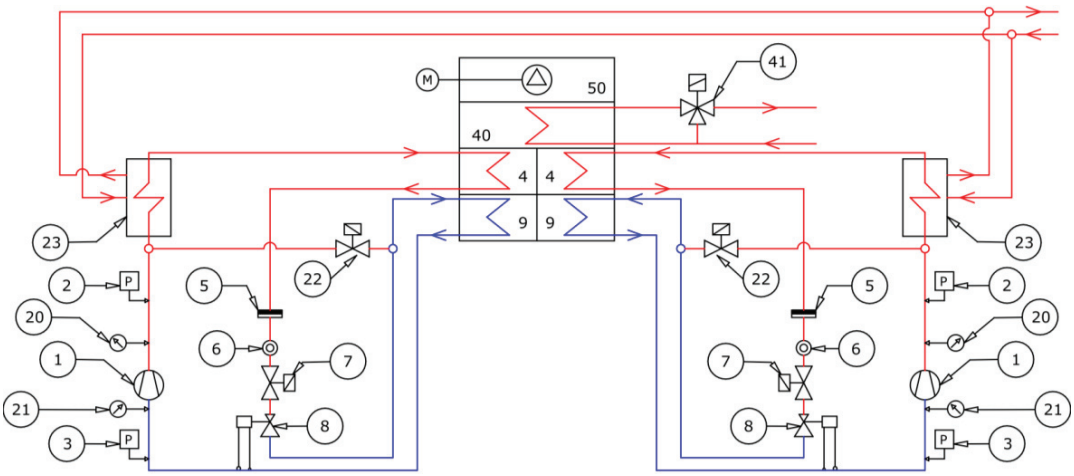
5.3 FUNCTIONAL DIAGRAMS

1 compressor
2 high pressure manostat
3 low pressure manostat
4 condenser coil
5 de-hydrator filter
6 flux light
7 electro-valve
8 thermostatic valve
9 evaporator coil
20 high pressure manostat [optional]
21 low pressure manostat [optional]
22 hot gas defrost valve [optional]
23 de-superheater [optional]
40 post-heating water coil [optional]
41 3-ways valve for post-heating coil [optional]
50 fan/fans

5.3.1 ID - SP Single circuit

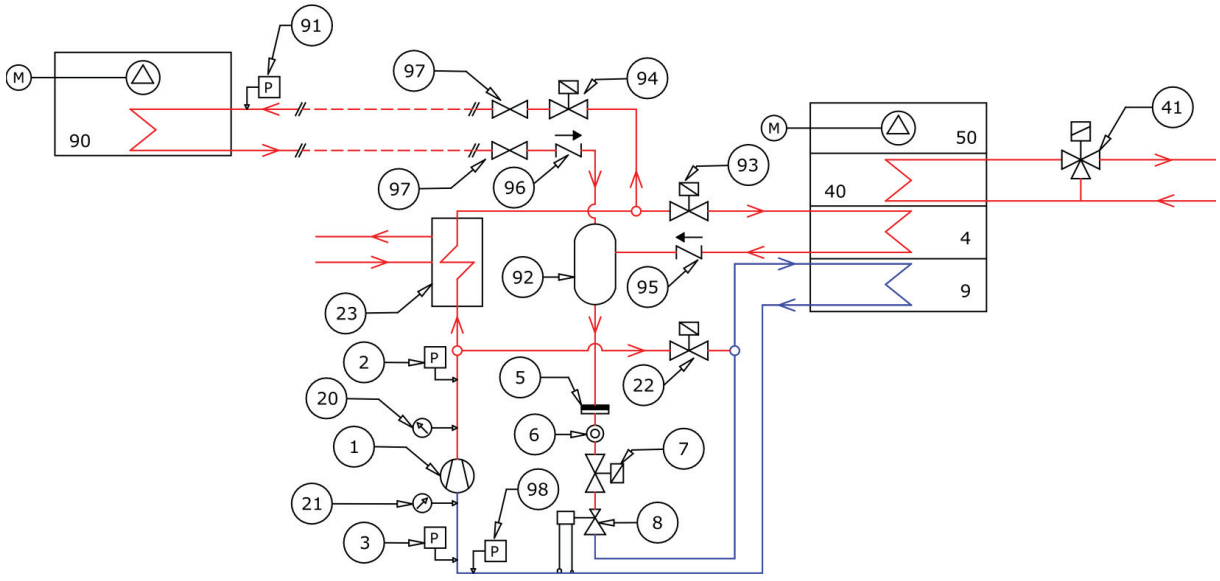


5.3.2 ID - SP Double circuit

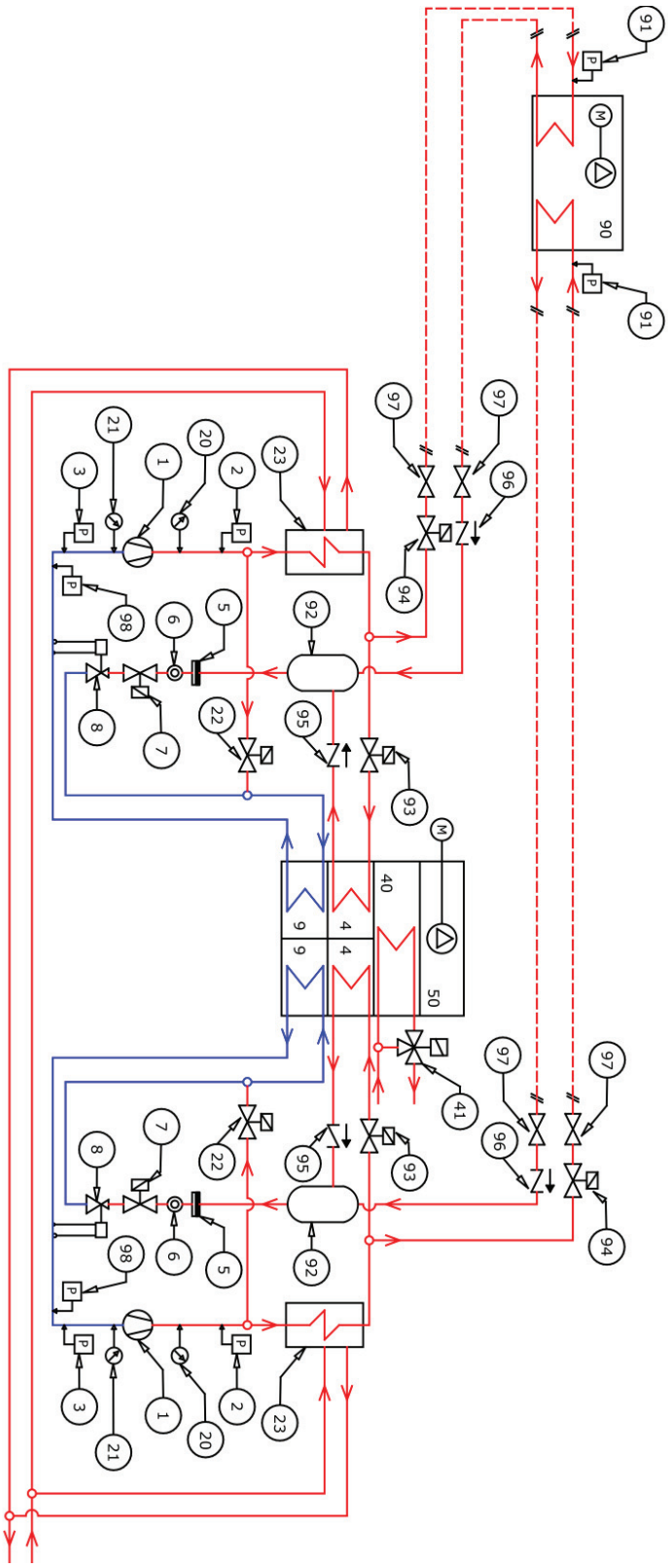


1 compressor
2 high pressure manostat
3 low pressure manostat
4 condenser coil
5 de-hydrator filter
6 flux light
7 liquid electro-valve
8 thermostatic valve
9 evaporator coil
20 high pressure manostat [optional]
21 low pressure manostat [optional]
22 hot gas defrost electro-valve [optional]
23 de-superheater [optional]
40 post-heating water coil [optional]
41 3-ways valve for water coil [optional]
50 fan/fans
90 external condenser with ventilation
91 high pressure transducer on external condenser
92 liquid receiver
93 internal condenser electro-valve
94 external condenser electro-valve
95 non-return valve on internal condenser
96 non-return valve on external condenser
97 damper
98 low pressure transducer

5.3.3 IT - ST Single circuit



5.3.4 IT - ST Double circuit



6 AFTER SALES

6.1 FAILURES

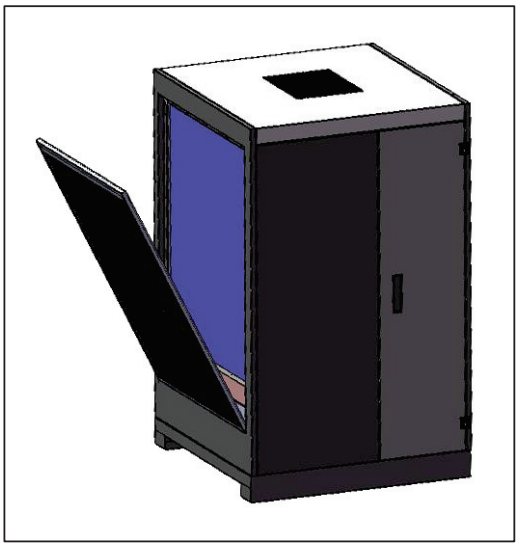
In the following pages you find the more frequent possible causes of block or dysfunction of the unit. The classification is made on easy-to-identify signs.

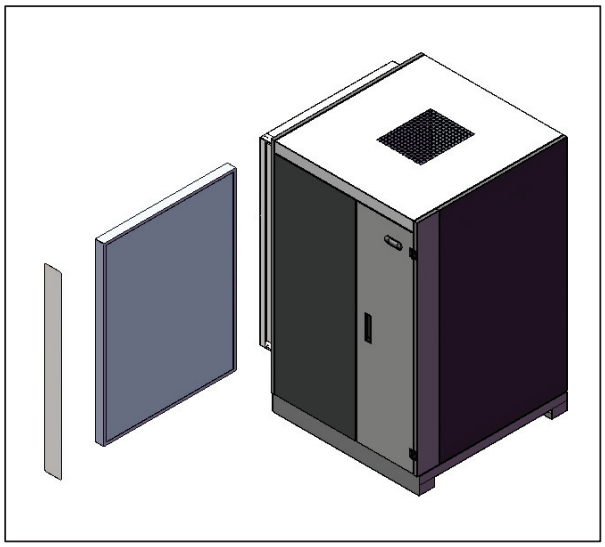
When executing the operations suggested to solve the problem, be careful: an excessive self-confidence can be dangerous. It is recommended to contact the manufacturer or a qualified technician, after having identified the failure.

NR	ANOMALY	POSSIBLE CAUSES	WHAT TO DO
1	The unit can not start	There is no power supply to the unit	Check if there is power supply on feeding clamps
		There is no power supply to the electrical board	Check if there is power supply on the board clamps
		There are some alarms on	See on the terminal the presence of alarms, remove the cause and make it start again
2	The compressor can not start	Intervention of the internal thermal protector	Turn the unit supplying off, wait for the compressor to be cooled, turn the supplying on again and see if the unit starts. Identify the cause of the intervention and remove it
		High pressure protection intervention on the refrigerant circuit	Make reference to anomaly nr 4
		Low pressure protection intervention on the refrigerant circuit	Make reference to anomaly nr 5
		Temperature and humidity set points block the turning on	Set different values
		Temperature in ambience is too high/too low	Keep temperature in ambience between 8°C and 41°C If there is the optional “hot gas defrost”, the minimum allowed temperature is 2°C
3	The fan is too noisy	A too much high air flow has been set	Check the flow setting and reduce it, if necessary
		The ducts are too short and/or tortuous	Check the ducts and realize them in the correct way
4	High pressure	The air flow is not sufficient	Check that all the fans are turning correctly
			Check the cleaning status of filters and of thermal exchange coils
		Other causes	Call a dedicated technician
5	Low pressure	The air flow is not sufficient	Check that all the fans are turning correctly
			Check the cleaning status of filters and of thermal exchange coils
		There is a gas leak on the circuit	Call a dedicated technician
		Other causes	Call a dedicated technician
6	Ventilation alarm	There is a problem on a fan	Call a dedicated technician
7	Overtemperature electrical heaters	The air flow is not sufficient	Check that all the fans are turning correctly
			Check the cleaning status of filters and of thermal exchange coils
		Ither causdes	Call a dedicated technician

6.2 PERIODICAL MAINTENANCE

6.2.1 AIR FILTERS CLEANING / REPLACEMENT





Open the panel containing the filter, remove it and wash in running water, trying not to damage it. A ruined or damaged filter must be replaced.

It is top important always to insert the suction filter on the unit. Their lack compromises the correct functioning of the unit.

6.2.2 MAINTENANCE TABLE

To grant the performance of the unit, it is strongly suggested to make reference to the following table for maintenance done and to be done.

MAINTENANCE	*YEAR* ___				*YEAR* ___				*YEAR* ___				*YEAR* ___				*YEAR* ___			
	1° quarter	2° quarter	3° quarter	4° quarter	1° quarter	2° quarter	3° quarter	4° quarter	1° quarter	2° quarter	3° quarter	4° quarter	1° quarter	2° quarter	3° quarter	4° quarter	1° quarter	2° quarter	3° quarter	4° quarter
Control and safety equipment functioning																				
Compressor status																				
Sound level emitted																				
No oil losses from the compressor																				
No refrigerant gas losses from the refrigerant circuit																				
No water losses from the hydraulic circuit																				
Clamps control on the electrical panel																				
Heat recover cleaning																				
Air filters cleaning / replacement																				
Condense small basin collector cleaning																				
Thermal exchange coil cleaning																				

7 DISMANTLING OF THE UNIT

When dismantling the unit, please take note of the following advices:
- the refrigerant gas should be recovered from qualified staff and sent to the proper collection centers;
- the compressors lubricating oil should be recovered and sent to the proper collection centers;
- the structure and the components, if no more usable, should be demolished and divided according to their material: this is particularly true for copper and aluminium.

Please follow the mentioned dispositions, in order to facilitate the collection, dismantling and recycling centers, and to reduce as much as possible the environmental impact required by these operations.

- If the unit, or part of it, has been dismantled, its susceptible components should be made inoffensive, in order to avoid any danger.

When substituting components subjected to differentiate dismantling, it is necessary to make reference to the current dispositions.

Dismantling operations should be led by qualified staff

7.1 ENVIRONMENTAL PROTECTION

The law concerning the directions [reg. CE 2037/00] about the use of ozone damaging substances and gases responsible of the greenhouse effect, affirms the prohibition of refrigerant gases dispersion in the environment: owners are obliged to recover and deliver them to the reseller or to the dedicated collecting centers.
The R410A refrigerant gas, even if not damaging the ozone, is mentioned within the substances responsible for the greenhouse effect; so, it it has to follow these directions.

Please be careful during maintenance operations, in order to reduce, as much as possible, the risk of refrigerant leaks.

8 INSTALLATION

8.1 INTRODUCTION

8.1.1 INSPECTION

When receiving the unit, please check it: the unit has left our factory after having been controlled; damages should be immediately protested to the forwarder and noted on the Delivery Paper before signing it.
The manufacturer or his agent should be informed as soon as possible about the entity of the damage.
The Customer is supposed to fulfill a written report for every relevant damage.

8.1.2 LIFTING AND TRANSPORT

Please be careful when moving the unit and avoid sudden or harsh working during the unloading and the placement of it.
Indoor transports should be carefully conducted and the components of the unit should never be used as point of support.

When lifting the unit make sure you have well fixed it, in order to avoid overturning or accidents. Do not use the removable panels as point of lift.

8.1.3 DEPACKING

The package of the unit should be carefully removed, trying to avoid every possible damage to the machine; the package can be of wood, paper, nylon and other materials. It is a good habit to preserve the different packages and deliver them separately for both the draining or the recycling, in order to reduce the environmental impact.

8.1.4 UNIT IDENTIFICATION

Each unit is characterized by an identification label, placed on the internal side of the electrical panel space. Here you find all the necessary data for installation, maintenance and traceable of the unit.

Take note of the model, the matriculation number, the definitive refrigerant charge of the unit, as reported in the table.

Modello - Model	
Matricola - Serial number	
Data di produzione - Date of production	
Categoria PED/ CE 97/23 Category	
Procedura di valutazione conformità - Conformity module	
Max temp. di stoccaggio - Max storage temperature [°C]	
Max temp. funzionamento - Max ambient working temperature [°C]	
Min. temp. ambiente di funzionamento-Min. ambient working temp. [°C]	
Potenza frigorifera nominale - Nominal Cooling Capacity [kW]	
Potenza nominale in riscaldamento - Nominal Heating Capacity [kW]	
Refrigerante - Refrigerant [Ashrae 15/1992]	
Carica refrigerante - Refrigerant charge [kg]	
Peso a vuoto - Empty weight [kg]	
Alimentazione - Power supply	
Potenza assorbita Nominale - Nominal power input [kW]	
Corrente nominale - Nominal absorbed current [A]	
Corrente massima - Full load ampere FLA [A]	
Corrente di spunto - Starting Current LRA [A]	
Schema elettrico - Wiring diagram	
Schema frigorifero - Refrigeration diagram	

8.2 PLACEMENT

Please keep attention to the following advices when deciding the most suitable place for the installation of the unit and its connections:
- hydraulic pipes dimensions and origin;
- power supply placement;
- accessibility for maintenance or repair operations;
- point of support firmness.

It is fundamental to grant the complete accessibility to the unit.

The installation of anti-vibration material for each point of support is strongly recommended in order to avoid the transmission of noise and vibrations.

8.2.1 UNIT

All ID/SP/IT/ST models are thought for indoor installation.

Do not install the unit external and make sure it is not exposed to atmospheric agents such as rain, hail, humidity and frost.

8.2.2 EXTERNAL CONDENSER

All the external condensers are thought for both installation: indoor or outdoor.

8.3 HYDRAULIC AND ELECTRICAL CONNECTIONS

8.3.1 HYDRAULIC CONNECTIONS

When realizing a hydraulic circuit, it is fundamental to observe both the national and the local regulations.

Do not make any torsion on the unit connections. With a key block the connection and with another one fix the junction.

Realize the connections without making any torsion directly on the hydraulic connections of the unit. Block the connections of the unit with a spanner, and with another one, rotate the connection pipe fitting.
Join the pipes through flexible couplings, in order to avoid the transmission of vibrations and compensate the thermic expansion.
It is recommended to install on the pipes, the following components:
- zone valve (only if it is not already included in the dehumidifier);
- temperature and pressure indicators for the standard maintenance and control. Pressure control allows an evaluation of the expansion tank correct functionality and also the anticipated signal in case of water loss from the plant;
- interception valves (dampers) to insulate the unit from the hydraulic circuit in case of maintenance interventions;
- net metallic filter (ingoing pipe) with mesh of less than 1 millimeter, to protect the exchanger from slag or impurities typical of pipes. This suggestion is very important for the first start;
- leaking valve, to be placed in the higher parts of the hydraulic circuit, in order to permit the air purging. On the internal pipes, there are leaking manual valves, to permit the air purging on board: this operation has to be done when the tension is off;
- drain tap and, if necessary, draining tank, to permit the emptying of the machine for the maintenance;
- in case of process applications, the installation of a de-coupling exchanger is recommended, in order to avoid the dirtying of the exchanger.

It is fundamental that the incoming of water is realized in the correct connections, according to the label "Water incoming". If not, the circulation is not respected and this leads to possible bad workings, blocks or breaks of the unit.

Dimensions and placements of the hydraulic connections are indicated in dimensional tables and general drawings.

The hydraulic circuit has to be realized in order to grant a constant nominal air flow rate (+/-15%) in the different functioning conditions.

8.3.2 CONDENSATE DRAINAGE CONNECTION

Use a flexible rubber with an internal diameter of 16 mm.
On the drain pipe there is already a siphon, within the unit.

The inclination of the drain pipe should permit the water down flow outside. If not, the bulb collection will fill up and there will be water loss.

8.3.3 REFRIGERANT CONNECTIONS (ONLY MODELS IT/ST)

IT and ST units are equipped with an external condenser which allows to dismantle outside the excessive heat, in order to do air conditioning inside

For all the interventions/operations on refrigerant cirucits, it is necessary to ask for qualified staff with certificated skills.

All these operations have to be done when there is no electrical tension.

Model of the unit	Nr of refrigerant circuits
0130 - 0950	1
1100 - 3000	2

The max allowed distance between unit and external condenser is 30 mts: this means that the max length for every circuit (including the supply pipe and the recovery pipe) should not be more than 60 mts.

The external condenser can be fixed up to a max difference in level of 5 mts compared to the unit.

The unit and the external condenser are supplied with azote fill, so the refrigerant technician should proceed as follows:

1. Turn power supply off from both unit and external condenser
2. Connect manometers to the unit and to the external condenser, to check that all is still in pressure and that drops have not occurred during transport, placement and fixing phases
3. Place all the pipes, junctions, curves and all the materials for the refrigerant connection
4. Empty the circuit of the unit and of the external condenser from the azote
5. Remove the stoppers, welded on the external condenser
6. Open the taps on the unit
7. Proceed with the brased-welding of all the components, by avoiding the overheating of sensible parts, such as taps (on the unit) and pressure transducers (on the external condenser); on the sensible parts, place always a wet rag, to reduce the heating
8. Check visually all the circuit and make sure that there are not drops or cracks
9. Check that all the taps are open, remove the coils from all the electro-valves and insert the round magnets to force them in standing open; there are 3 electro-valves for every circuit
10. Charge with azote every circuit, with a minimum pressure of 16 bar and take note of the effective pressure for every circuit
11. Wait, at least, 24 hours and check the pressure of every circuit: if the pressure has decreased, this means that there is a leak so, discharge the unit from the azote, find and remove the loss and start again from the previous point
12. Empty every circuit
13. Fill every circuit with gas R410A, according to the table here below: this is a partial charge and i twill be necessary to finis hit during the first starting:

model	**Starting gas charge for every circuit (kg)**	**model**	**Starting gas charge for every circuit (kg)**
0130	1 kg	0450	4.7
0160 - 0190	2 kg	0580	5
0210	4 kg	0750 – 0950	9.5 + 9.5
0260	8 kg	1100 – 1400	5.5 + 5.5
0300	6 kg	1500 – 1700 – 1900 – 2200	7.5 + 7.5
0350	10 kg	3000	10 + 10

14. Remove the round magnets from the electro-valves and restore the stoppers (previously removed)
15. During the first starting, when the compressor (or compressors) turns on, i twill be necessary to finish the charge.

8.3.4 ELECTRICAL CONNECTIONS

No tension while wiring.

DEATH DANGER

Open the electrical panel, introduce the supplying cable and the others according to the hole, connect them to the clamps and on the disconnecting switch, close the panel.

The grounding connection is compulsory. The installer should connect the ground cable with the suitable clamp situated within the electrical panel, with a yellow-green indication.

Electrical connection, feed cables and protections should be realized according to the attached wiring diagram and following local and international directions.

Make always reference to the wiring diagram.

For models IT/ST proceed with the electrical connection of the external unit: there is no need to have connection cable between the unit and the external condenser.

8.4 FIRST STARTING

Before proceeding with the start of the unit, check that all the closing panels are placed correctly and closed properly.
For the first start follow carefully these directions:

Check that all the connections (hydraulic, electric and aeraulic) are properly installed and that all the directions indicated on labels, user manual and electric drawing are followed.

Check that the refrigerant circuit taps, if present, are open and that the hydraulic plant is cracked, by eliminating any residual air, charging it gradually and opening the cracking devices on the top side.
Check that there is not any water loss.
All the units are provided with a user terminal which supervises to the general management of the unit.

8.4.1 Units ID/SP

Give power to the unit.
After the final loading, turn the unit on (make reference to the paragraphs dedicated to the user terminal.

8.4.2 Units IT/ST

Give power to the unit and to the external condenser.
In the following lines, you will be required to change some parameters on the display: make always reference to the paragraphs dedicated to the user terminal.
Keep the unit in OFF.
It is necessary to finish the gas charge, then:
- set a high temperature desired, so the condensation will start within the unit (neutral air / no air condition)
- turn the unit on and wait for the compressor(s) to start (if necessary, set a low humidity desired)
- monitor the flux light, the overheating and the undercooling of every circuit: if necessary, for every circuit, you should charge gas and regulate the thermostatic valve so:
    - you will not have bubbles on the flux light
    - you will have an overheating and an undercooling between 5 and 8°C
- set a low temperature desired so the condensation will be on the external condenser and you will have air condition
- check the correct functioning of the external condenser when there is condensation commutation, the fans should start
- check once again the flux light for every circuit: if there are bubbles, add gas; in this way of functioning, the undercooling and the overheating could not be the correct ones, but do not worry
- the gas charge is now finished: set temperature and humidity as required by the customer.

8.5 INSTALLER'S PARAMETERS MODIFICATION

The installer's parameters allow to modify some advanced settings of the unit.

ATTENTION! Some parameters modify sensibly the functioning of the unit.
MODIFY ONLY IF NECESSARY.

8.5.1 Standard control

To enter the menu of installer's parameters, it is necessary to:

- keep pushed, at the same time, for 5 seconds, the UP and STAND-BY keys, till the display shows the first variable. When entering the menu, an acoustic signal will be emitted, as confirmation
- select with UP and DOWN the variable you wish to modify
- now it is possible to modify the value by keeping pushed SET and pushing UP or DOWN
- when the set is finished, to exit the menu, keep pushed UP and DOWN (or wait 30 seconds without pressing any keys), till the display shows again the functioning status (ON or OFF). When exiting from the menu, an acoustic signal will be emitted, as confirmation
- the recording of the modifications will be automatic when exiting from the menu.

PARAM	*DESCRIPTION*	*VALUES*	*DEFAULT*
F3	Fans status when compressor is not working	0= fan on with unit ON 1= fan on with only compressor on 2= fan on with closed hygrostat contact	0
CM3	Compressor activation	The compressor starts: 0= hygrostat input or cooling request 1= hygrostat input 2= cooling request 3= hygrostat inout and cooling request	1
Ad	Address for serial board RS485	from 1 to 247	1

8.5.2 Advanced control

To enter the installer's menu, follow this process:
- place on the main screen, by pushing few times the ESC key (if necessary)
- push PRG to enter the first screen of the user menu
- a password will be required: insert "0010" and push ENTER to confirm

This menu is composed by 5 screens:
- remote on/off
- summer/winter
- static defrost*
- hot gas defrost*
- ModBus communication*

* this screen is not always present

Use of the keys during navigation:

- With UP and DOWN you move through the screens (some of them are displayed just in case your unit has the options)
- With ESC you exit and come back to the main screen
- With ENTER you enter in the modification mode

Use of the keys during modification mode:

- With UP and DOWN you modify the flashing value
- With ESC you exit from the modification mode and come back in the navigation one
- With ENTER you confirm a flashing vale and, if there are other values to modify, you move to the following one, otherwise you exit from the modification mode and enter in the navigation one

Here below there is the detail of the installer menu:

- screen 1: allows the setting of the remote on/off and it is possible to invert the logic
- screen 2: allows the setting of the season from display, or from clamp box, and it is possible to invert the logic
  (this screen is displayed only if there is the optional water coil for heat and cold water)
- screen 3: allows the regulation of parameters regarding the static defrost
  (this screen is displayed only if there is not the optional hot gas defrost)
- screen 4: allows the regulation of parameters regarding the hot gas defrost
  (this screen is displayed only if there is the optional hot gas defrost)
- screen 5: allows the setting of parameters regarding the ModBus RS485 communication
  (this screen is displayed only if there is the optional Board RS485)

8.6 AIR FLOWS, PREVALENCES AND DUCTS

8.6.1 Calibration of the air flow with centrifugal fan

These units do not allow the calibration of the air flow, because the fan is not a modulating one.

8.6.2 Calibration of the air flow with radial fans and ACF option

If the unit is equipped with the option ACF (Automatic air flow control), there is no need to calibrate the dehumidifier.

Thanks to the option which includes a transducer and its applicator, the unit automatically sets the delivery air flow according to the nominal value declared in the technical data sheet; you can increase/decrease this value and set the most correct air flow.

8.6.3 Calibration of the air flow with radial fans without ACF option

If there is not the optional ACF, it is suggested to measure the air flow in suction in order to calibrate in the right way the ventilation.

If the measure corresponds to more or less 10% from the nominal one (indicated in the technical table), it is necessary to modify the speed from the user terminal on board. This is fundamental for the correct functioning of the unit.

The calibration has to be done by qualified staff equipped with anemometer and necessary knowledge of the unit.

- From the main screen, push PRG
- Enter the screen requiring the password
- Insert “005” and push ENTER
- Enter the screen of the installer
- Pushing DOWN, place to CALIBRATION and push ENTER
- Enter the calibration screen
- Push ENTER till you place on the value you wish to modify
- With UP and DOWN it is possible to modify the air flow
- Measure the air flow in suction and modify the speed of the supply fan, in order to approach as much as possible the nominal flow declared in the technical tables
- The supply fan is regulated
- Push ENTER till the flashing sign come back in the top, on the left
- Push ESC to come back to the installer screen
- Push ESC to come back to the main screen

8.6.4 Ducts

The suction of the unit is not predisposed for ducts: so, if you wish to duct it, you should consider the option called “filter holder frame for suction duct”, because it is fundamental to insert always a filter in suction.
For the duct on the air supply, you can use a flange, according to the dimensions of the unit.