

# NHA - NHAZ



NHAZ (Outdoor unit)



Dehumidifiers are high-performances units especially designed for industrial or commercial purposes where humidity level should be controlled or water vapor condensation should be prevented. These units are particularly indicated for archives, ironing rooms, bookstores, cheese factories, underground rooms, cellars and industrial sites where high humidity level is present. This series comprises 6 models which cover a capacity range from 263 to 940 l/24h. The units are designed for easy maintenance and service, each part being readily accessible and, when required, easily replaceable thus reducing service and maintenance costs.

The NHA units are supplied with a solenoid valves set for the hot gas injection used to defrost the evaporator in case of severe working conditions.

Temperature and humidity probes are accessories supplied on request.

## Versions

- Z** The units in (Z) configuration are supplied complete of external remote condenser who needs to be connected to the dehumidifier through refrigerant lines. The use of remote condenser allows the simultaneous control of temperature and humidity, working in cooling or in dehumidification mode. For a correct operation the units have to be connected to a remote thermostat+ hygostat.

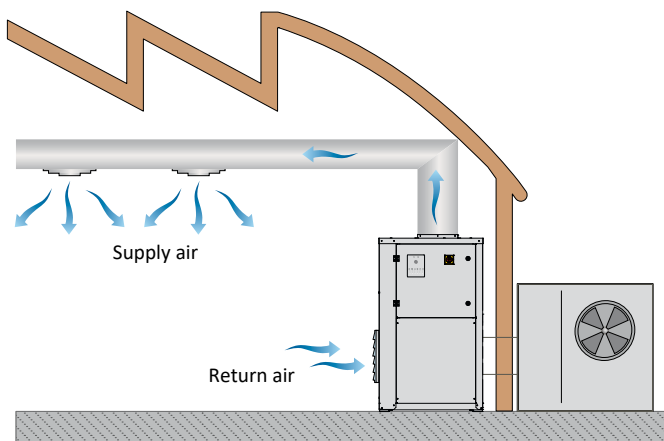
NHA		275	355	455	555	755	955
Moisture removed at 30°C - 80%	l/24h	263,1	340,2	418,8	566,8	751,1	939,3
Moisture removed at 30°C - 60%	l/24h	185,1	262,3	336,3	425,0	596,4	759,7
Moisture removed at 27°C - 60%	l/24h	161,4	233,5	302,0	375,7	534,3	680,3
Moisture removed at 20°C - 60%	l/24h	111,4	168,5	223,9	267,1	391,0	501,0
Moisture removed at 10°C - 70%	l/24h	75,6	118,3	160,9	180,2	269,8	349,6
Total cooling cap. (30°C-80% - 35°C ext)	kW	12,93	16,96	19,83	25,57	35,56	43,17
Sensible cooling cap. (30°C-80% - 35°C ext)	kW	4,48	5,91	7,20	8,80	12,45	15,50
Nominal input power at 30°C-80%	kW	4,38	5,69	9,04	10,09	15,52	20,01
Maximum input power	kW	6,3	7,8	9,8	14,0	18,9	22,9
Maximum input current	A	11,0	14,0	18,2	25,6	34,4	44,1
Peak current	A	46,0	59,0	77,0	93,0	114,0	159,0
Air Flow indoor unit	m <sup>3</sup> /h	3500	4200	4200	5500	7000	8500
Air Flow outdoor unit	m <sup>3</sup> /h	7500	7100	6700	15000	14200	21300
Available static pressure	Pa	50	50	50	50	50	50
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge <sup>(4)</sup>	kg	3,00	2,50	2,50	9,00	8,00	8,00
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	6,26	5,22	5,22	18,79	16,70	16,70
Sound power <sup>(1)</sup>	dB(A)	70	71	71	73	73	73
Sound pressure <sup>(2)</sup>	dB(A)	63	64	64	66	66	66
Sound pressure <sup>(3)</sup>	dB(A)	39	41	40	40	42	43
Power supply	V/Ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50

Performances are calculated with low fan speed and are referred to the following conditions:

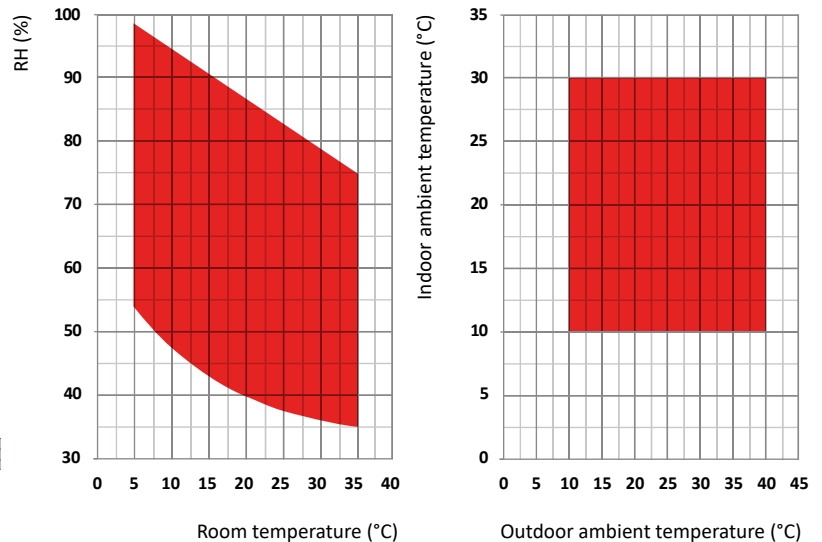
- (1) Sound Power level according to ISO 9614 fan with available static pressure 50 Pa.
- (2) Sound pressure level measured at 1 mt from the unit in free field conditions according to ISO 9614. fan with available static pressure 50 Pa.

- (3) Sound pressure level measured at 10 mt from the unit in free field conditions according to ISO 9614. fan with available static pressure 50 Pa.
- (4) Without refrigerant lines content (NHAZ).

### Plant scheme



### Operation limits



## Frame

All units are made from hot-galvanised thick sheet metal, painted with polyurethane powder enamel at 180°C to ensure the best resistance against the atmospheric agents. The frame is self-supporting with removable panels. All screws and rivets are in stainless steel. The colour of the units is RAL 9018.

## Refrigerant circuit

The refrigerant gas used in these units is R410A. The refrigerant circuit is made by using international primary brands components and according to ISO 97/23 concerning welding procedures. The refrigerant circuit includes: sight glass, filter drier, thermal expansion valve with external equalizer, Schrader valves for maintenance and control, pressure safety device (according to PED regulation). All the units are supplied with injection valves kit for hot gas defrost cycle.

## Compressors

The compressors are rotative type, with thermal overload protection by a klixon embedded in the motor winding. The compressor is mounted on rubber vibration dampers and it is supplied, on request, with sound-proof cover (optional) to reduce noise emission. The inspection is possible through the frontal panel of the unit that allows the maintenance of the compressor.

## Condenser and evaporator

Condensers and evaporators are made of copper pipes and aluminium fins.

The diameter of the copper pipes is 3/8" and the thickness of the aluminium fins is 0,1 mm. The tubes are mechanically expanded into the aluminium fins to improve the heat exchange factor. The geometry of these heat exchangers guarantees a low air side pressure drop and then the use of low rotation (and low noise emission) fans. All units are supplied, standard, with a stainless steel drip tray and all evaporators are supplied with a temperature sensor used as automatic defrost probe.

## Supply fan

The fans are made of galvanized steel, centrifugal type. It is statically and dynamically balanced and supplied. The electric motors are directly connected to the fan; they are all at 2 speeds, with integrated thermal protection. The protection class of the motors is IP 54.

## Air filter

It is made of synthetic filtering media, undulated type, without electro-static charge; they are all removable for differential disposal, ePM10 50% according to UNI EN ISO 16890:2017.

## Microprocessors

All units are supplied standard with microprocessor controls. The microprocessor controls the following functions: compressor timing, automatic defrost cycles, alarms. An appropriate LCD display shows the operation mode of the unit, set point and alarms.

## Electric enclosure

The electric switch board is made according to electromagnetic compatibility norms CEE 2014/35 and 2014/30. The accessibility to the board is possible after removing the front panel of the unit and the OFF positioning of the main switch. The following components are also standard installed: main switch, magnetic-thermal switches (as a protection fans and compressors), control circuit automatic breakers, compressor contactors, fan contactors. The

terminal board is supplied with voltage free contacts for remote ON-OFF and general alarm.

## Control and protection devices

All units are supplied with the following control and protection devices: antifreeze protection sensor, high pressure switch with manual reset, low pressure switch with automatic reset, high pressure safety valve, compressor thermal overload protection, fans thermal overload protection.

## Test

All the units are fully assembled and wired at the factory, the refrigerant circuit is pressure tested to check for leaks then evacuated and charged with the correct weight of R410a. They are all fully operational tested before shipment. They all conform to European Directives and are individually marked with the CE label and provided with Conformity Declaration.

## Accessories

### CANA - Delivery flange for channel connection

Press-folded rectangular flange for connection to the ducts and installed on the fan expulsion mouth

### FARC - Air filter with frame for ducted installation

Complete with efficiency air filter which can be removed by the side and frame for ducted installation.

### HBSEL- HOEL - Electric heater 9kW/18kW

The electric heater kit is in aluminium and is used to integrate the unit heating capacity. The kit is composed of an on-off double safety thermostat without capacity steps.

### HOWA - Hot water coil

The heat exchanger is made of copper pipes and aluminium fins. The diameter of the copper pipes is 3/8" and the thickness of the aluminium fins is 0,1 mm. The tubes are mechanically expanded into the aluminium fins to improve the heat exchange factor.

### HYGR- Remote mechanical hygrostat + thermostat

To be installed on the wall, it is supplied with a regulation knob and working range from 30% to 100% with precision of 3%.

### INOX - Stainless steel frame

It's used to ensure the best resistance against the atmospheric agents and the operation in aggressive environments. The frame is made of stainless steel AISI 304, self-supporting with removable panels to facilitate inspection and maintenance of internal components. All screws and rivets are in stainless steel.

### KAVG - Rubber vibration dampers

To be installed beneath the unit base and the ground to avoid the transmission of vibrations (and the noise) to the building.

### KIWA - 3 Way on/off valve

It is used to control the waterflow in the coil. The valve is directly controlled from the unit microprocessor.

### LSMC - Compressor soundproofing

Compressor jackets with high density insulation material.

### SIMC - Wired industrial plug

Appropriately sized with a 2 meter long cable.

### TROL - Floor trolley version

To facilitate dehumidifier handling where is placed.

### V1CE - E.C. Supply fan

The supply fan is a high performance centrifugal type, double inlet forward curved blades, directly coupled to the electric motor. The fan wheel and the scroll are made from hot galvanised thick sheet metal, painted with polyurethane powders, to ensure the best resistance against aggressive environments. The electric motor is a high efficiency DC brushless type with external rotor, to guarantee an ideal cooling of the windings and the absence of power lost due to pulleys and belt transmission. The fan is statically and dynamically balanced class 6,3 according to ISO1940. The electric motor

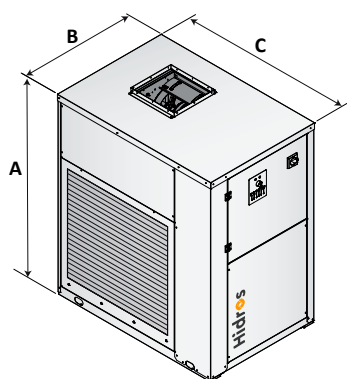
has a separate electronic commutator (driver) and a speed modulation 0-10V, integrated PFC, burn out thermal protection (in case of considerable reduction of the power supply), protection degree IP54, serial interface card with modbus protocol RTU.

NHA - NHA Z		275	355	455	555	755	955
Hot gas defrost		●	●	●	●	●	●
Main switch		●	●	●	●	●	●
Supply flange	CANA	○	○	○	○	○	○
Air filter with frame for ducted installation	FARC	○	○	○	○	○	○
A.C. fan with available static pressure up to 150 Pa	HAPS	○	○	○	○	○	○
Electric heater kit 18kW	HBSEL	–	–	–	○	○	○
Electric heater kit 9 kW	HOEL	○	○	○	○	○	○
Hot water coil	HOWA *	○	○	○	○	○	○
Remote mechanical hygostat	HYGR	○	○	○	○	○	○
Stainless steel frame	INOX	○	○	○	○	○	○
Rubber vibration dampers	KAVG	○	○	○	○	○	○
3 Way on/off valve	KIWA	○	○	○	○	○	○
Compressor soundproofing	LSMC	○	○	○	○	○	○
Wired industrial plug	SIMC	○	○	○	○	○	○
Floor trolley version	TROL	○	○	○	○	○	○
High efficiency E.C. fans ≤ 300 Pa	V1CE	○	○	○	○	○	○

\* For NHAZ units it can only be activated in winter and in heating mode.

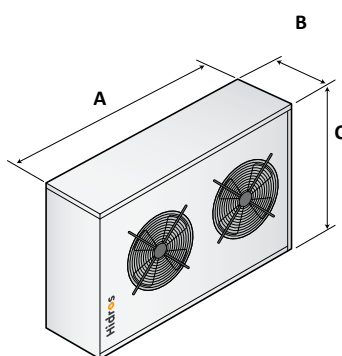
● Standard, ○ Optional, – Not available.

### Indoor unit



Mod.	Frame	A (mm)	B (mm)	C (mm)	kg
275	F3	1261	758	1118	204
355	F3	1261	758	1118	208
455	F3	1261	758	1118	212
555	F4	1753	858	1519	412
755	F4	1753	858	1519	420
955	F4	1753	858	1519	427

### Outdoor unit



Mod.	A (mm)	B (mm)	C (mm)	kg
275	1582	480	510	44
355	1582	480	510	46
455	1206	570	830	67
555	1206	570	830	71
755	2980	480	510	88
955	2203	570	830	112

### Configurations

