HHA

INDUSTRIAL DEHUMIDIFIERS

Dehumidifying capacity from 50 l/24h to 550 l/24h
Air flow from 500 m^3/h to 4200 m^3/h

HHA dehumidifiers series 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 8 models which cover a capacity range from 50 to 550 l/24h. These units are intended to be ceiling installed in a technical room. A centrifugal fan with high available static pressure allows unit connection to ductworks, both for air suction and discharge.

Units from size 50 to 200 are supplied with a solenoid valves set for the hot ga s injection used to defrost the evaporator in case of severe working conditions.

Temperature and humidity probes are accessories supplied on request.

VERSIONS

The series includes 8 models with air flows from 500 to 4200 m^3/h.

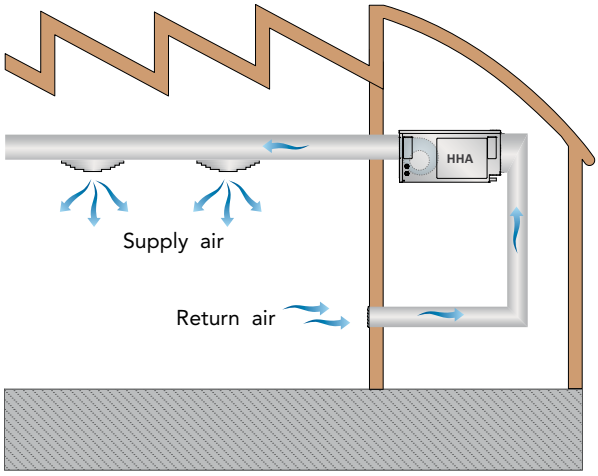
TECHNICAL DATA

HHA		50	75	100	150	200	300	440	500
Moisture removed at 30°C - 80%	l/24h	55,7	79,6	108,7	169,8	206,4	264,8	439,3	544,0
Moisture removed at 30°C - 60%	l/24h	39,5	56,8	77,5	118,1	146,8	206,1	338,8	389,6
Moisture removed at 27°C - 60%	l/24h	34,9	50,3	69,3	104,7	130,1	186,5	297,5	345,0
Moisture removed at 20°C - 60%	l/24h	24,9	35,9	49,5	75,4	93,2	135,6	222,3	250,6
Nominal input power (1)	kW	0,7	1,3	1,7	2,1	2,7	3,8	6,2	7,2
Maximum input power	kW	1,2	2,0	2,1	2,7	3,4	6,4	9,7	11,0
Maximum input current	A	5,9	8,5	10,2	12,6	16,3	10,8	15,8	17,9
Peak current	A	19,9	25,6	38,6	41,2	64,2	51,0	69,8	76,8
Air Flow	m^3/h	500	800	1000	1400	1650	3500	4200	4200
Available static pressure	Pa	50÷150	50÷150	50÷150	50÷150	50÷150	150÷250	150÷250	150÷250
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088	2088
Refrigerant charge	kg	0,36	0,60	0,60	0,90	1,20	2,5	2,7	3,00
Equivalent CO2 charge	t	0,75	1,25	1,25	1,88	2,20	6,26	6,26	6,26
Sound power (2)	dB(A)	58	60	62	67	69	76	77	77
Sound pressure (3)	dB(A)	45	46	48	53	55	61	62	62
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50	400/3/50	400/3/50

Performances are calculated with low fan speed and are referred to the following conditions:
(1) Temperature 30°C; Humidity 80%

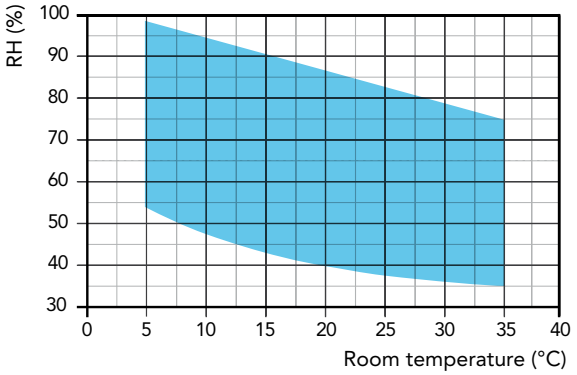
(2) Sound power level calculated according to ISO EN 3744.
(3) Sound pressure level measured at 1 mt from the unit in free field conditions according to ISO EN 3744.

PLANT SCHEME

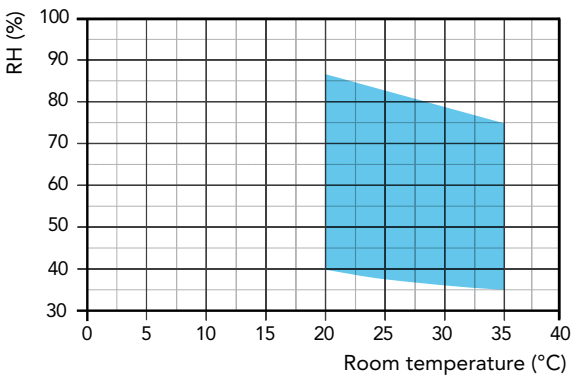


OPERATION LIMITS

Mod. 50-75-100-150-200



Mod. 300-440-500



COMPONENTS

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 and to operate in aggressive environments. The frame is self-supporting with removable panels. The colour of the unit is RAL 9010 both for the base and for the frontal panel.

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). Units from size 50 to 200 are supplied with injection valves kit for hot gas defrost cycle.

COMPRESSOR
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, standard, with sound-proof cover 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 powder coated steel drip tray and all evaporators are supplied with a temperature sensor used as automatic defrost probe.

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 3 speeds, with integrated thermal protection. The protection class of the motors is IP 54.

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

MICROPROCESSOR
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 BOX
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. If the unit is endowed of cabinet, after its removal.

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, carefully evacuated and dried after leak tests under pressure and then charged with refrigerant R410A.
They are all fully operational tested before shipment. They all conforms to European Directives and are individually marked with the CE label and provided with Conformity Declaration.

ACCESSORY DESCRIPTIONS

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

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

INSE - Serial interface card RS485
This interface card enables the controller to comunicate with other devices using Modbus protocol.

KGBH - Louver kit and case for ducted version
Air grille double row adjustable brushed aluminium fins, equipped for wall mounting with subframe.

LS00 - Low noise version
This version includes the complete acoustic insulation of the unit (compressor + heat exchangers vanes) with compressor jackets and insulating material made with high density media and the interposition of heavy bitumen layer.

PCRL - Remote control panel
This panel can be mounted up to 50m (maximum) from the unit and replicates all of the control functions. It is connected using a twin cable of 0.5 mm sq section.

RGDD - Humidity and Temperature electronic probe sensor
Built-in Electronic temperature and humidity probe.

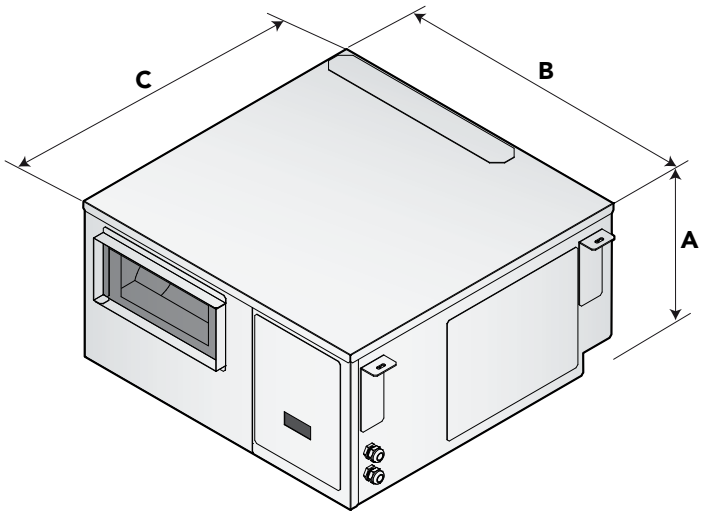
V1CE - E.C. Supply fan

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 commuter (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.

ACCESSORIES

HHA		50	75	100	150	200	300	440	500
A.C. fans ≤ 150 Pa		●	●	●	●	●	●	●	●
Hot gas defrost		●	●	●	●	●	–	–	–
Thermostatic valve		●	●	●	●	●	●	●	●
Low noise version	LS00	●	●	●	●	●	●	●	●
Main switch		●	●	●	●	●	●	●	●
Supply flange	CANA	●	●	●	●	●	●	●	●
Serial interface card RS485	INSE	O	O	O	O	O	O	O	O
Humidity and Temperature electronic probe sensor	RGDD	O	O	O	O	O	O	O	O
Remote mechanical hygrostat	HYGR	O	O	O	O	O	O	O	O
Louver kit and case for ducted version	KGBH	O	O	O	O	O	O	O	O
High efficiency E.C. fans ≤ 300 Pa	V1CE	O	O	O	O	O	O	O	O
Remote control Panel	PCRL	O	O	O	O	O	O	O	O

● Standard, O Optional, – Not available.



Mod.	A (mm)	B (mm)	C (mm)	kg
50	360	700	710	63
75	460	980	900	95
100	460	980	900	122
150	530	1160	1050	131
200	530	1160	1050	140
300	704	1437	1050	160
440	704	1437	1050	180
500	704	1437	1050	230