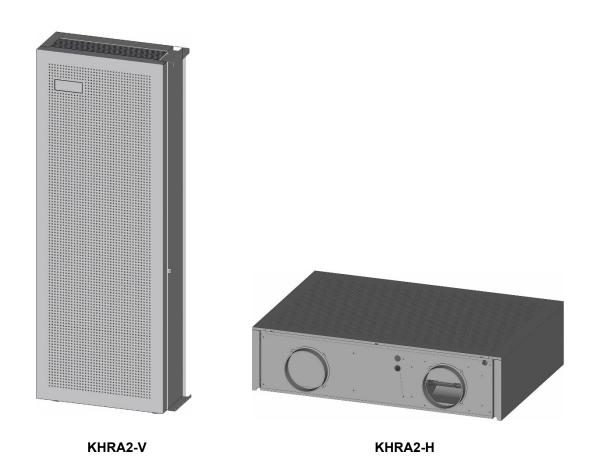
KHRA2-V, KHRA2-H

CLEAN-AIR VENTILATION UNIT

Datasheet 1033EN 11/2020

CLEAN-AIR compact ventilation units with thermodynamic heat recovery in heat pump and horizontal or vertical configuration.

For surface (VV) or flush (concealed, VS) mounting



- > ALL IN ONE These units can autonomously integrate the ventilation demands from the rooms served.
 - The ready-to-use unit includes every component required for its operation.
- > **VENTILATION** Brushless plug-fan fans for vertical models, constant flow-rate centrifugal fans for horizontal versions with electronic motor and modulating control. High efficiency and reduced noise.
- > ACTIVE THERMODYNAMIC RECOVERY The cooling inverter unit enables to recover energy from the ejected air through a dedicated circuit. Thermodynamic recovery enables to efficiently provide superior energy to the room compared to the amount retrieved by ventilation.
- > FILTERING ePM1 filter 80 % with reduced loss of pressure and easy to remove.
- REGULATION STRUCTURE Electric switchboard on unit side with microprocessor and dedicated regulation.
 Fan control, temperature display, timer-based management of dirty filters, heat pump control based on heat and cooling demands, air flow rate control with built-in air quality probe. Remote graphic interface and APP-based WIFI connection.

VERSIONS AND PRODUCT CODES

KHRA2-V

Product code	Description
KHRA2VV380	CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical surface mounting
KHRA2VV380U	CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical surface mounting, with built-in germicide UV lamp
KHRA2VS380	CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical flush mounting
KHRA2VS380U	CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical flush mounting, with built-in germicide UV lamp

KHRA2-H

Product code	Description
KHRA2HV460 CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for horizontal surf- mounting	
KHRA2HV460U	CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for horizontal surface mounting, with built-in germicide UV lamp
KHRA2HS460	CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for horizontal flush mounting
KHRA2HS460U	CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for horizontal flush mounting, with built-in germicide UV lamp

ACCESSORIES: REMOTE CONTROLS (mandatory for flush-mounting versions)

KHR-C

Product code	scription			
KHRCY001	digital remote control with T/H sensor, WIFI			
KHRCY002	e digital remote control with T/H sensor, WIFI			
KHRCY011	Black digital remote control with T/H sensor, ModBus			
KHRCY012	White digital remote control with T/H sensor, ModBus			

AERAULIC ACCESSORIES

KBE

Product code	Description			
KBEY002	Electric battery with fixed-point regulation thermostat, DN160 mm Supply voltage 230 V Installable on: KHRA2-V, KHRA2-H			

KPL-F2

Product code	Description
KPLF2Y002	Insulated plenum with unit connection flange and two DN160 mm round openings. Dimensions (410x175x175 mm) Supply voltage 230 V Installable on flush-mounting versions: KHRA2VS380, KHRA2VS380U, KHRA2HS460, KHRA2HS460U

KGR-A

Product code	Description
KGRAY001	Delivery aluminum grid with two rows of adjustable fins. White. Dimensions 450x225 mm Installable on flush-mounting versions: KHRA2VS380, KHRA2VS380U, KHRA2HS460, KHRA2HS460U

KGR-F

Product code	Description
TRGREYOO1	Intake grid with fixed-fin filter. White. Dimensions 450x225 mm Installable on flush-mounting versions: KHRA2VS380, KHRA2VS380U, KHRA2HS460, KHRA2HS460U

FILTERING

KFR

Product code	Description
KFRY010	Kit of 2 spare ePM1 filters Installable on: KHRA2-V
KFRY011	Kit of 2 spare ePM1 filters Installable on: KHRA2-H
KFRY012	Spare Coarse pre-filter Installable on: KHRA2-V
KFRY013	Spare Coarse pre-filter Installable on: KHRA2-H

KHRA2-UV

Product code	Description
KHRA2UV001	Spare UV lamp Supply voltage 230 V Installable on: KHRA2-V, KHRA2-H with UV lamp

GENERAL CHARACTERISTICS

STRUCTURE

High-resistance structure with free-standing sheet frame

Selected materials with excellent thermal and acoustic insulation characteristics



BLDC COMPRESSOR

High-efficiency rotative compressor with BLDC motor and control driver



FANS

Unit with electric motor EC fans



FILTERING

Two ePMI 80% filters included and Coarse prefilter for external air



UV LAMP

Built-in UVC lamp for sanitization of internal parts and inlet air



MICROPROCESSOR

System managed by easy-to-control cuttingedge electronics. Built-in or remote control with WIFI card and APP-based control of main functions



TECHNICAL CHARACTERISTICS

CLEAN-AIR units are designed for indoor air exchange.

These units are easy to install thanks to their two Ø 160 mm openings and feature a high exchange air flow rate which makes them fit for residential buildings, schools, ambulatories, offices and any situation requiring air exchange.

Thermodynamic recovery provides an integration to the environment climate conditions, enhancing the indoor comfort of air conditioning systems; in addition, the inlet air always features a temperature close to or better than the room temperature while guaranteeing a higher level of perceived comfort.

The monoblock unit includes every component for proper operation: fans, cooling circuit with high-efficiency compressor and air filtering sections.

ALL IN ONE: Complete unit for air exchange and integration of cooling thermal demands from the rooms served.

The ready-to-use unit includes every component required for its operation.

UV LAMP AND VOC SENSOR: Available are versions with built-in UV lamp for a UVC germicide action on the air injected from the

outside.

The lamp turns on automatically based on the quality of indoor air.

VENTILATION: Fans with direct-coupling brushless motor and featuring various operational modes controlled mainly

by the built-in air-quality sensor.

ACTIVE THERMODYNAMIC RECOVERY: The unit actively recovers the energy from the ejected air. Thanks to the cooling circuit, the

thermodynamic recovery enables to provide the room quantities of energy greater than the energy

subtracted by ventilation for 90 % of the operational time.

FILTERING: The intake and inlet air circuits feature 2 ePM1 filters. The inlet air filter is situated after the battery to

fully filter impurities.

The external air features a Coarse prefilter that keeps the unit clean.

STRUCTURE: Free-standing sheet structure varnished on the outside (surface-mounting versions only) with

intermediate polyethylene and EPDM thermal and acoustic insulation.

REFRIGERANT CIRCUIT: Brazed copper refrigerant circuit including: high-efficiency BLDC compressor, dehydrating filter,

finned coils, electronic expansion valve, inversion valve and safety devices.

REGULATION: Side electric switchboard with microprocessor and dedicated regulation.

Fan control with air-quality sensor, display and temperature set-point, timer-based control of dirty

filters.

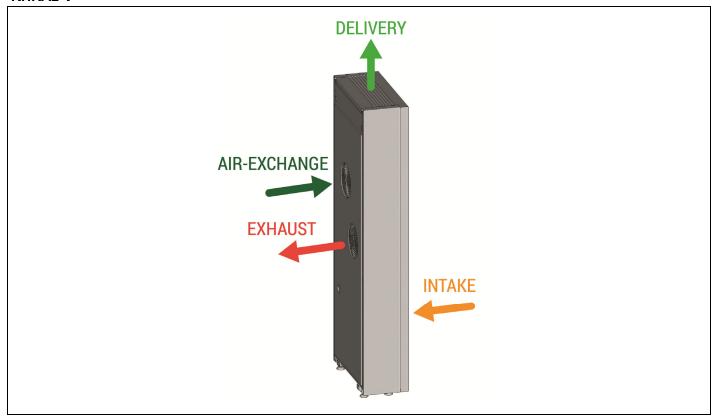
Panel with side graphic interface and WIFI, remote included with surface-mounting versions only.

Remote panel sold separately with WIFI or ModBus RTU for connection up to 8 m from the unit,

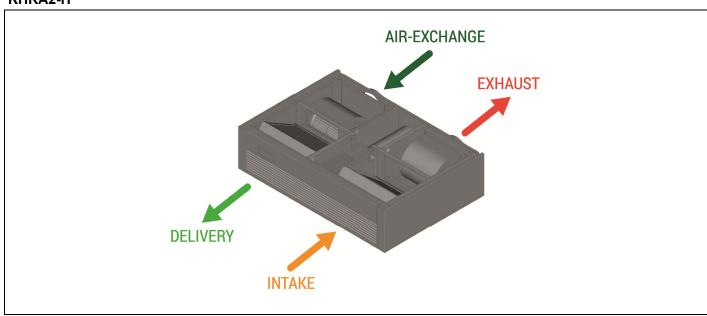
flush-mounting versions only.

FLOW DIAGRAM

KHRA2-V



KHRA2-H



TECHNICAL DATA

GENERAL TECHNICAL DATA

Product codes		KHRA2VV380 KHRA2VV380U	KHRA2VS380 KHRA2VS380U	KHRA2HV460 KHRA2HV460U	KHRA2HS460 KHRA2HS460U	
Type of fans		Backward-curved radial fans with Brushless motor		Forward-curved centrifugal fans with Brushless motor, constant flow rate operation		
No. of fans				2		
Air flow rate BO / V3 / V2 / V1	m ³ /h	380 / 320 / 190 / 130	380 / 320 / 190 / 130	460 / 400 / 240 / 140	460 / 400 / 240 / 140	
Useful pressure	Pa	1	60 / 110	1	130	
Type of compressor		Rotary BLDC				
Cooling gas		R410A				
Filters		2x ePM1 80% + Coarse prefilter				
Max power absorbed by fans	kW	0,1	0,15	0,12	0,24	
Max power absorbed by compressors	kW	0,95	0,95	1,15	1,15	
Power supply voltage V/ph/Hz		220/1/50	220/1/50	220/1/50		
Total max power absorbed kW		1,05	1,15	1,27	1,37	
Total max current absorbed	Α	4,8	5	5,8	6,1	
Acoustic pressure ²	dB(A)	41	43/46	43	45/47	

⁽¹⁾ External air -5°C/80% RH - Indoor air 20°C/50% RH - Nominal flow rate

TECHNICAL DATA FOR WINTER OPERATION

Product codes		KHRA2VV380 KHRA2VV380U	KHRA2VS380 KHRA2VS380U	KHRA2HV460 KHRA2HV460U	KHRA2HS460 KHRA2HS460U
Thermal capacity ¹	kW	3,1	3,1	3,62	3,62
Absorbed capacity	kW	0,71	0,71	0,84	0,84
Total COP		4,4	4,4	4,3	4,3

⁽¹⁾ External air -5°C/80% RH - Indoor air 20°C/50% RH - Nominal flow rate

TECHNICAL DATA FOR SUMMER OPERATION

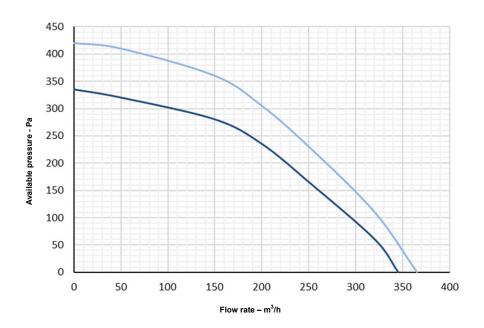
Product codes		KHRA2VV380 KHRA2VV380U	KHRA2VS380 KHRA2VS380U	KHRA2HV460 KHRA2HV460U	KHRA2HS460 KHRA2HS460U
Cooling capacity ¹	kW	2,41	2,41	2,77	2,77
Absorbed capacity	kW	0,73	0,73	0,91	0,91
Total EER		3,3	3,3	3,0	3,0

⁽¹⁾ External air 35°C/50% RH - Indoor air 27°C/60% RH - Nominal flow rate

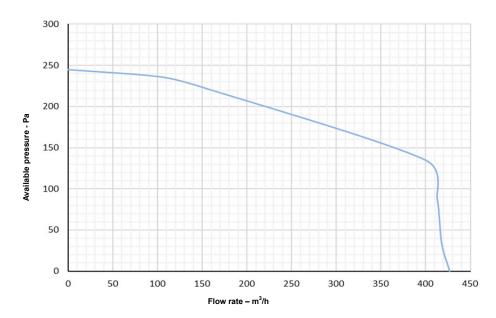
⁽²⁾ Acoustic pressure at V3 nominal flow rate, at 3 m in free field according to 3744

AERAULIC CURVES FOR FLUSH-MOUNTING VERSIONS

AERAULIC CURVES FOR VERTICAL FLUSH-MOUNTING VERSIONS KHRA2VS380, KHRA2VS380U (Backward curved radial fans)



AERAULIC CURVES FOR HORIZONTAL FLUSH-MOUNTING VERSIONS KHRA2HS460, KHRA2HS460U (Constant flow rate fans)



ACCESSORY TECHNICAL CHARACTERISTICS FOR FLUSH-MOUNTING VERSIONS KHRA2VS380, KHRA2VS380U, KHRA2HS460, KHRA2HS460U

KHRCY001 - Black digital remote control with T/H sensor, WIFI

Black remotable panel for assembly on 502-503 boxes or wall mounting Speed, temperature and operational mode control Max connection length 8 m, cable included Built-in WIFI for APP-based unit control





KHRCY002 - White digital remote control with T/H sensor, WIFI

White remotable panel for assembly on 502-503 boxes or wall mounting Speed, temperature and operational mode control Max connection length 8 m, cable included Built-in WIFI for APP-based unit control





KHRCY011 - Black digital remote control with T/H sensor, ModBus

Black remotable panel for assembly on 502-503 boxes or wall mounting Speed, temperature and operational mode control Max connection length 8 m, cable included Built-in ModBus card for control through BMS systems or external commands





KHRCY012 - White digital remote control with T/H sensor, ModBus

White remotable panel for assembly on 502-503 boxes or wall mounting Speed, temperature and operational mode control Max connection length 8 m, cable included Built-in ModBus card for control through BMS systems or external commands





KBEY002 - Electric battery with fixed-point regulation thermostat, DN160 mm

Electric post-heating round-section units are made by a galvanized sheet frame with armored resistor.

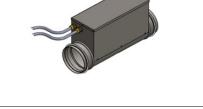
Round flanges for convenient duct-type installation.

The side electric box with cable duct included enables to access the inner components:

- Automatic thermal protector
- Manual thermal protector
- Teletrembler
- Adjustable thermostat -35/+35 °C
- Terminal strip

The thermostat assembled on the battery enables to set the delivery air temperature directly.

Installable on: KHRA2-V, KHRA2-H.



Nominal electric power	kW	1
Power supply	V / Ph / Hz	230 / 1 / 50
Absorption	А	4,5
Diameter	mm	160

KPLF2Y002 - Insulated plenum with unit connection flange and two DN160 mm round inlets

Galvanized sheet plenum with internal insulation, provided with 2 DN160 inlets and 1 cap.

The plenum can be used as a single delivery or intake diffusor by using two pipes or as a twin diffusor by using one pipe to distribute air in two separate rooms. Dimensions 410x175x175 mm.

Installable on flush-mounting versions: KHRA2VS380, KHRA2VS380U, KHRA2HS460, KHRA2HS460U.



KGRAY001 - White delivery aluminum grid with two rows of adjustable fins

Provided with two rows of adjustable fins for efficient air distribution.

No screws required for installation.

RAL9016 varnished finish.

Outer dimensions 450x250 mm.

Installable on flush-mounting versions: KHRA2VS380, KHRA2VS380U, KHRA2HS460, KHRA2HS460U.



KGRFY001 - White intake grid with fixed-fin filter

Provided with one single row of fixed fins and a ePM1 80% filter to prevent debris from entering the ducts up to the unit inlet.

The filter is easy to inspect by removing the fixed bars.

RAL9016 varnished finish.

Outer dimensions 450x250 mm.

Installable on flush-mounting versions: KHRA2VS380, KHRA2VS380U, KHRA2HS460, KHRA2HS460U.



KFRY010 - Kit of 2 spare ePM1 filters for KHRA2-V

Kit including two ePM1 80 % filters to service KHRA2-V units.

Installable on: KHRA2-V.



KFRY011 - Kit of 2 spare ePM1 filters for KHRA2-H

Kit including two ePM1 80 % filters to service KHRA2-H units. Installable on: KHRA2-H.



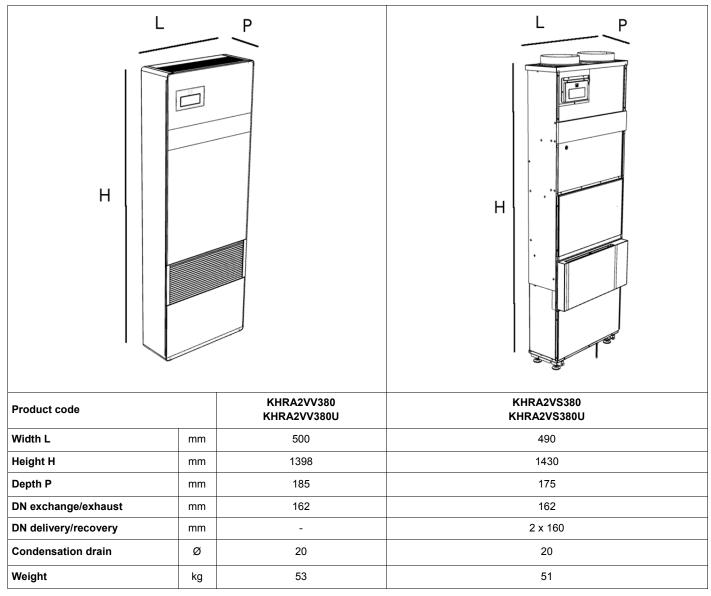
KFRY012 – Spare Coarse prefilter for KHRA2-V Kit including a spare Coarse prefilter to service KHRA2-V units. Filters are easy to remove. Installable on: KHRA2-V.

KFRY012 – Spare Coarse prefilter for KHRA2-H		
Kit including a spare Coarse prefilter to service KHRA2-H units. Filters are easy to remove. Installable on: KHRA2-H.		

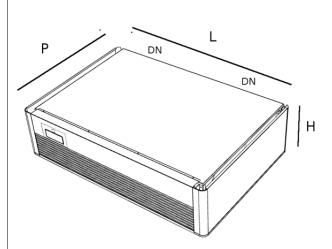
KHRA2UV001 - Spare UV lamp				
Kit including a bulb for the germicide UVC system. The lamp works on a 254 nm UVC wavelength. The lamp estimated duration is 10000 hours. Installable on: KHRA2-V, KHRA2-H with UV lamp				
Nominal electric power	Watt	36		
Power supply	V / Ph / Hz	230 / 1 / 50		
Bulb length	mm	350		

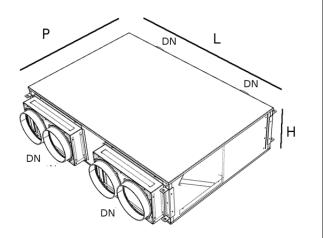
DIMENSIONS

KHRA2-V



KHRA2-H





Product code		KHRA2HV460 KHRA2HV460U	KHRA2HS460 KHRA2HS460U
Width L	mm	1010	950
Depth P	mm	690	710
Height H	mm	255	245
DN exchange/exhaust	mm	162	162
DN delivery/recovery	mm	2 x 160	2 x 160
Condensation drain	Ø	20	20
Weight	kg	74	72

OPERATIONAL LIMITS

HEATING	Indoor air	External air
	10/25° °C	-15/20 °C
COOLING	Indoor air	External air
	18/28 °C	20/38 °C

PRODUCT SPECIFICATIONS

KHRA2VV380

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical surface mounting.

Free-standing galvanized steel structure with RAL9003 varnished finish.

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection.

Round inlets for duct-type installation with grids facing outward, template and accessories included.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Backward-curved centrifugal fans with low-consumption electronic speed control EC motors.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and built-in APP, infrared remote control included.

KHRA2VV380U

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical surface mounting, with built-in germicide UV lamp. Free-standing galvanized steel structure with RAL9003 varnished finish.

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection.

Round inlets for duct-type installation with grids facing outward, template and accessories included.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Backward-curved centrifugal fans with low-consumption electronic speed control EC motors.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and built-in APP, infrared remote control included.

KHRA2VS380

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical flush mounting.

Free-standing galvanized sheet structure.

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection.

Round inlets for duct-type installation with grids facing outward, template and accessories included.

Twin round inlet for delivery air duct-type installation.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Backward-curved centrifugal fans with low-consumption electronic speed control EC motors.

Double setting for duct-type installation: low useful hydraulic head/high useful hydraulic head.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and APP for wall mounting with 503 flush-mounting box or wall mounting, length 10 m.

KHRA2VS380U

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical flush mounting, with built-in germicide UV lamp.

Free-standing galvanized sheet structure.

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection.

Round inlets for duct-type installation with grids facing outward, template and accessories included.

Twin round inlet for delivery air duct-type installation.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Backward-curved centrifugal fans with low-consumption electronic speed control EC motors.

Double setting for duct-type installation: low useful hydraulic head/high useful hydraulic head.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and APP for wall mounting with 503 flush-mounting box or wall mounting, length 10 m.

KHRA2HV460

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for horizontal surface mounting, with built-in germicide UV lamp.

Free-standing galvanized steel structure with RAL9003 varnished finish.

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection.

Round inlets for duct-type installation with grids facing outward, template and accessories included.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Forward-curved centrifugal fans with low-consumption electronic speed control EC motors.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and built-in APP, infrared remote control included.

HRA2HV460U

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for vertical surface mounting, with built-in germicide UV lamp.

 $\label{thm:continuous} \mbox{Free-standing galvanized steel structure with RAL9003 varnished finish.}$

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection.

Round inlets for duct-type installation with grids facing outward, template and accessories included.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Forward-curved centrifugal fans with low-consumption electronic speed control EC motors.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and built-in APP, infrared remote control included.

KHRA2HS460

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for horizontal flush mounting.

Free-standing galvanized sheet structure.

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection. Round inlets for duct-type installation with grids facing outward, template and accessories included.

Twin round inlet for delivery air duct-type installation.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Backward-curved centrifugal fans with low-consumption electronic speed control EC motors.

Double setting for duct-type installation: low useful hydraulic head/high useful hydraulic head.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and APP for wall mounting with 503 flush-mounting box or wall mounting, length 10 m.

KHRA2HS460U

CLEAN-AIR compact ventilation unit with thermodynamic heat recovery in heat pump, for horizontal flush mounting, with built-in germicide UV lamp. Free-standing galvanized sheet structure.

Heat exchangers and flows with excellent seal and no leakages typical of traditional heat exchangers.

Compact dimensions for convenient floor or wall installation, with front panel easy to access for service and inspection. Round inlets for duct-type installation with grids facing outward, template and accessories included.

Twin round inlet for delivery air duct-type installation.

Rapid filter inspection and condensation drain.

Cooling circuit with high-efficiency BLDC rotative compressor, thermal exchange coils, throttling valve and safety devices.

Electric switchboard with control cards and command terminal strip.

Backward-curved centrifugal fans with low-consumption electronic speed control EC motors.

Double setting for duct-type installation: low useful hydraulic head/high useful hydraulic head.

ePM1 filters with reduced losses of pressure for external air and foul air. Coarse prefilter on external air.

Side electric switchboard with microprocessor and dedicated regulation.

Fan control, temperature display, timer-based management of dirty filters, control of air-quality sensor with flow rate modulation.

Control panel with WIFI and APP for wall mounting with 503 flush-mounting box or wall mounting, length 10 m.

CE MARKING

The CE marking (on every machine) certifies compliance with the European Community standards listed below:

Low-voltage Standard
 Electromagnetic Compatibility Standard
 2014/35/EC
 2014/30/EC



Product designed for Giacomini S.p.A. by S. Via Del Commercio 1/A, 23017 Morbegno (SO)

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