JAK-KA®

Catalog

JRH73

JAKKA heat recovery unit

JAK-KA GROUP
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www.jakkagroup.com

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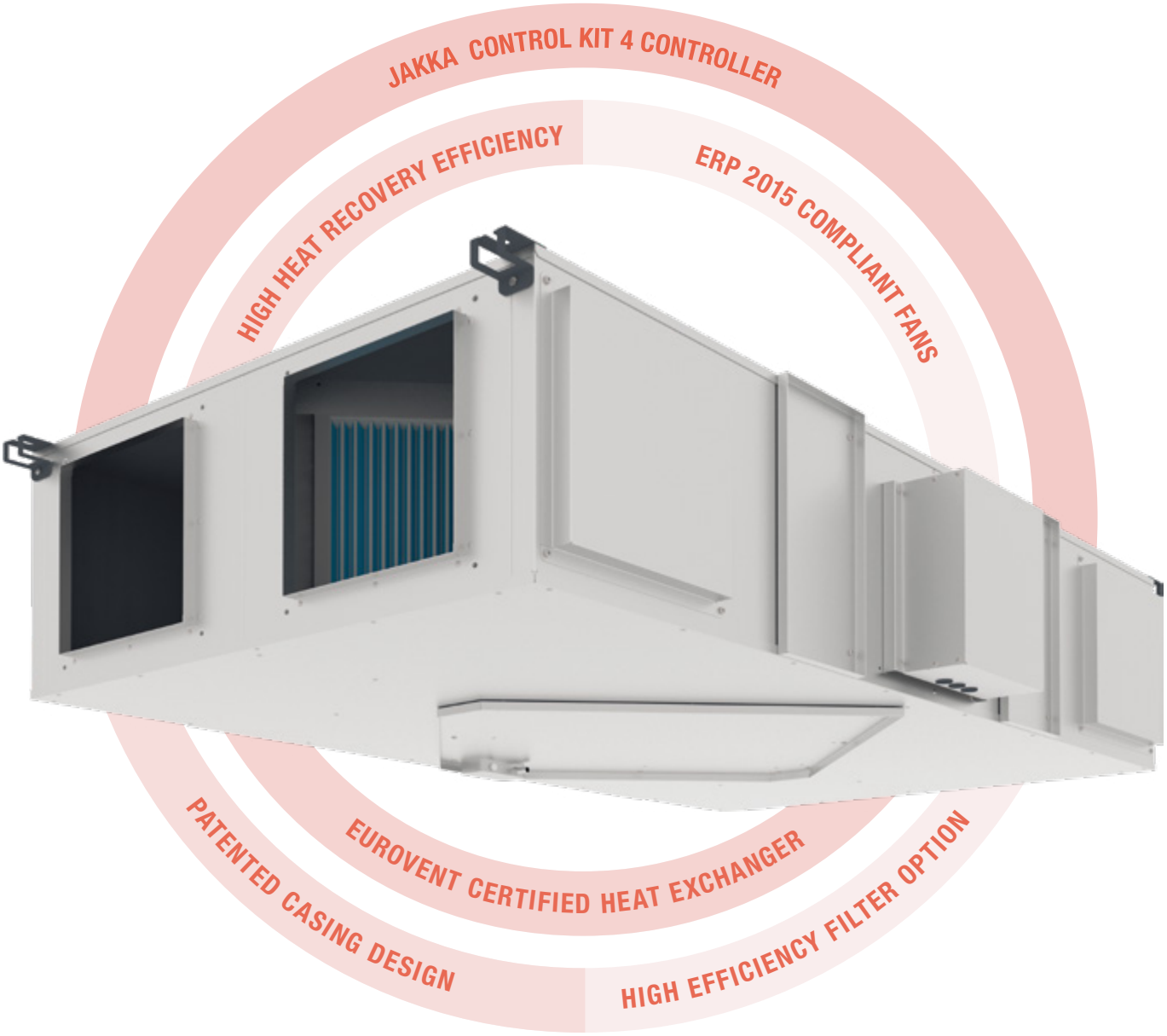
Content

JRH73 units are designed to meet todays increasing energy efficieny demand using heat recovery and low electrical energy consumption. Units are built using high technology modern components optimised for market needs and running conditions.

High efficiency and low internal pressure drop heat recovery exchangers, ErP 2015 compliant plug fans, green building (LEED, BREEAM) compliant filters, durable and compact casing forms the main components of JRH73 units. Standard control component JAKKA CONTROL KIT 4 controls not only ventilation, but also all other optional accessories such as electrical pre and after heater and water heating coil.

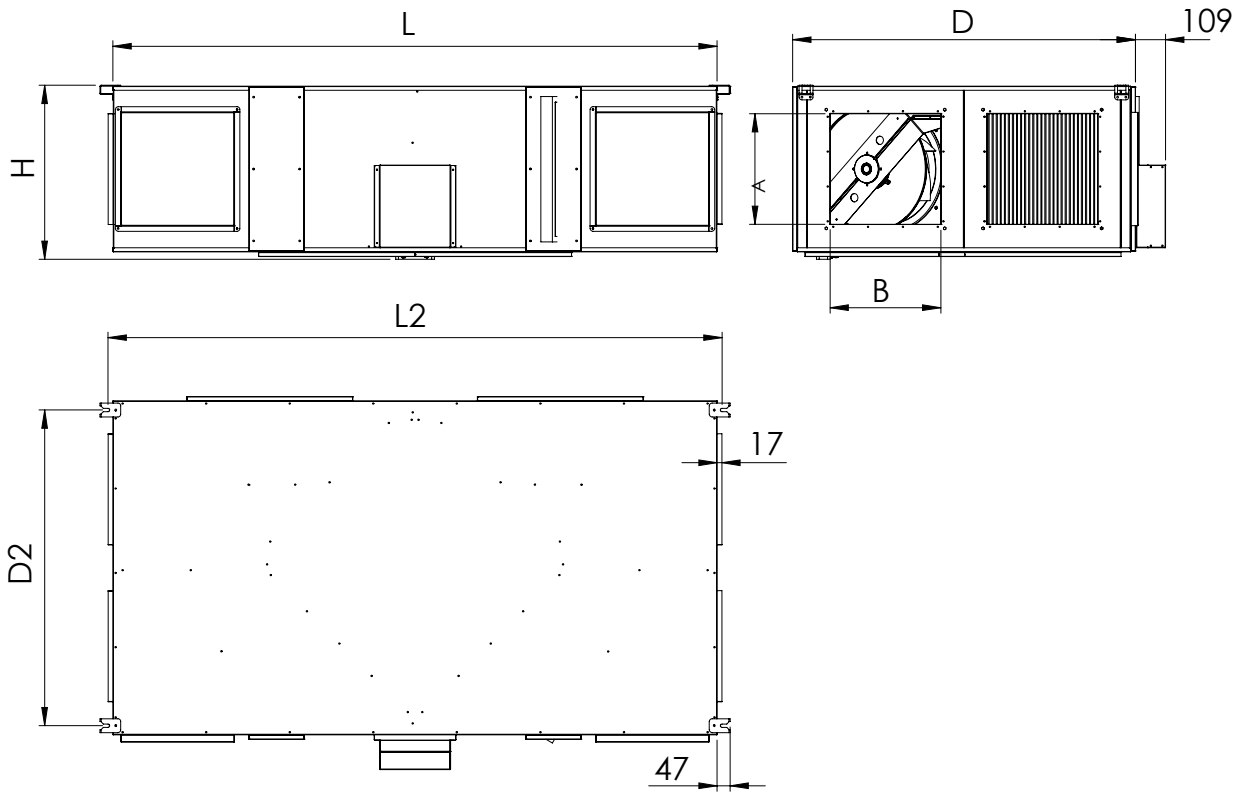
JRH73 units will:

- Supply fresh air from outside.
- Extract stale inside air.
- Recover energy by heat transfer between extract and supply air.
- Increase quality of the intake air by filtration.
- Make sure the user can control the unit with all variable needs with standard control equipment.

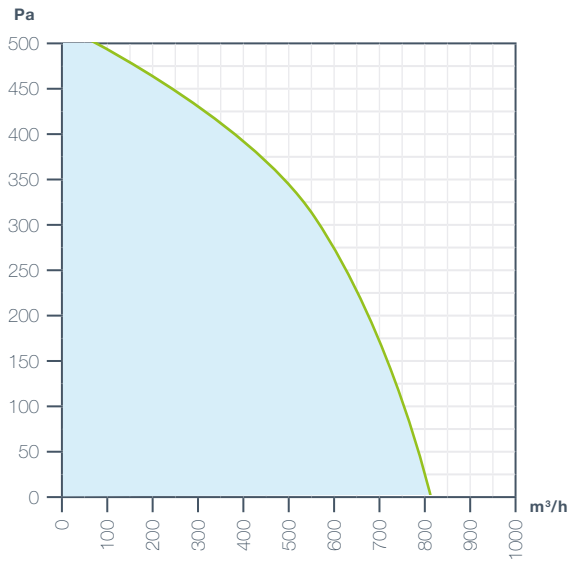


		Model							
		JRH73							
	Units	700	1200	1500	2000	3000	4000	5000	6000
Power supply	50Hz	1~ 220-240V							3~ 380-400V
Working range		-12°C ÷ 46°C and RH ≤ 80%							
Performance data									
Air flow rate (1)	[m³/h]	810	1.340	1.470	2.160	3.220	4.200	4.950	5.640
Sound level (2)	[dB(A)]	57	59	61	60	55	53	58	52
Electrical data for fans									
Fan motor power	[W]	2x 135	2x 278	2x 303	2x 243	2x 540	2x 560	2x 650	2x 0,92
Nominal current	[A]	2x 0,6	2x 1,20	2x 1,30	2x 1,1	2x 2,30	2x 2,40	2x 2,70	2x 1,90
Dimensions and weight									
L: Length (without flanges)	[mm]	1.296	1.458	1.458	1.820	1.790	2.182	2.282	2.282
D: Width (without flanges)	[mm]	723	824	824	1.086	1.186	1.238	1.238	1.338
H: Height	[mm]	330	390	439	509	559	630	660	699
L2: Axis distance between carriers	[mm]	1.331	1.494	1.494	1.856	2.006	2.182	2.318	2.318
D2: Axis distance between carriers	[mm]	625	726	726	988	1.088	1.140	1.140	1.240
A: Flange height	[mm]	200	250	250	300	350	400	450	450
B: Flange length	[mm]	200	250	250	300	350	400	475	540
Weight	[kg]	60	75	88	110	140	170	190	210
Filter data									
Filter class (exhaust/fresh air)(3)		G4/G4	G4/G4	G4/G4	G4/G4	G4/G4	G4/G4	G4/G4	G4/G4
Length	[mm]	328	386	386	538	595	625	625	683
Height	[mm]	226	286	335	405	455	525	555	595
Thickness	[mm]	48	48	48	48	48	48	48	48

[1] Nominal flow rate.
[2] Sound level data are measured at 250 Hz and 3m away from the unit's bottom.
[3] The filter class is specified according to EN779: 2012 standard.

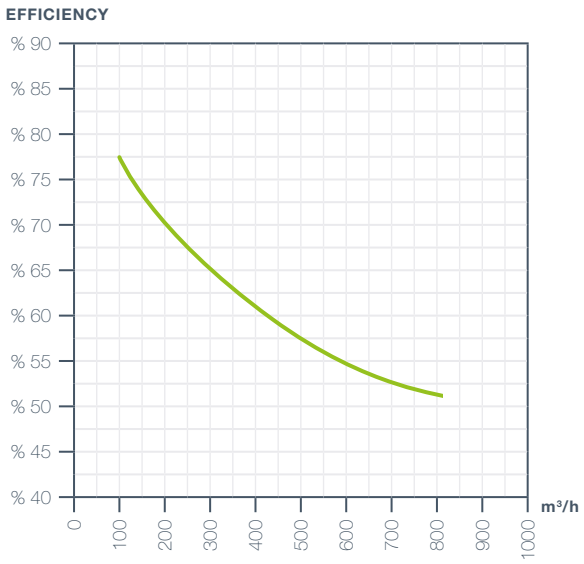


JRH73 / 700 ▪ AIR PERFORMANCE CURVE



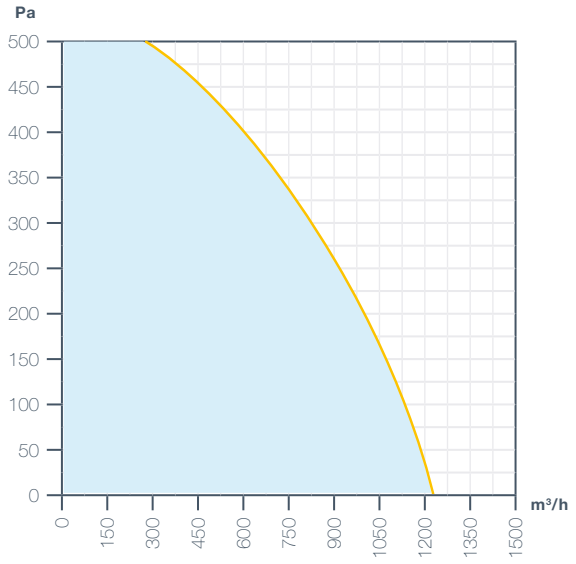
Curves are presented at conditions where air density is measured 1,2 kg/m³.

JRH73 / 700 ▪ EFFICIENCY CURVE



Outside air -5°C, Inside air 22°C, 50% RH

JRH73 / 1200 ▪ AIR PERFORMANCE CURVE



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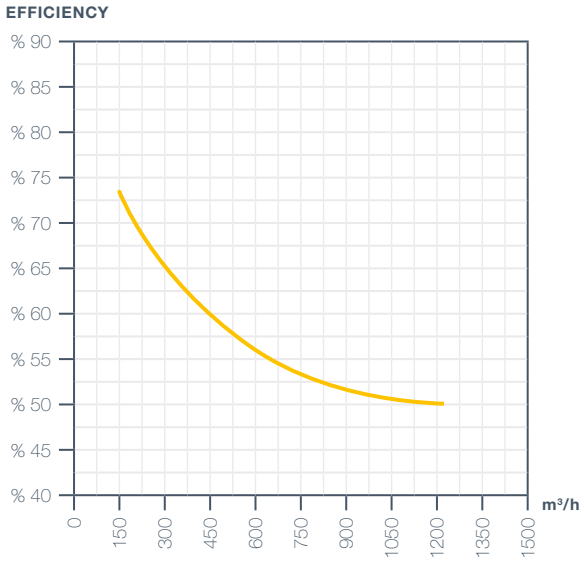
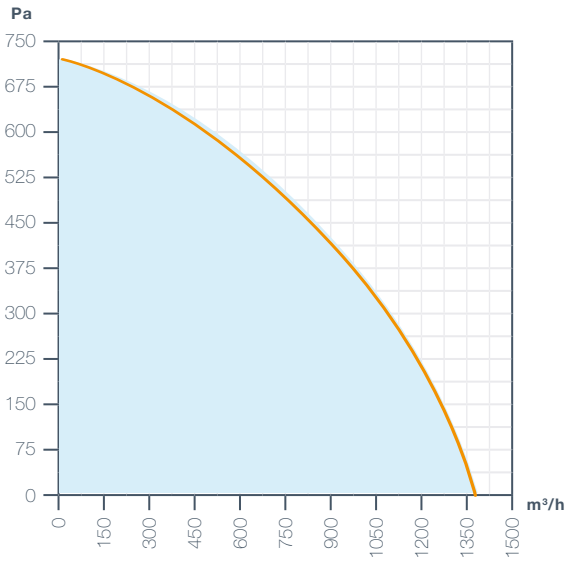
JRH73 / 1200 ▪ EFFICIENCY CURVE



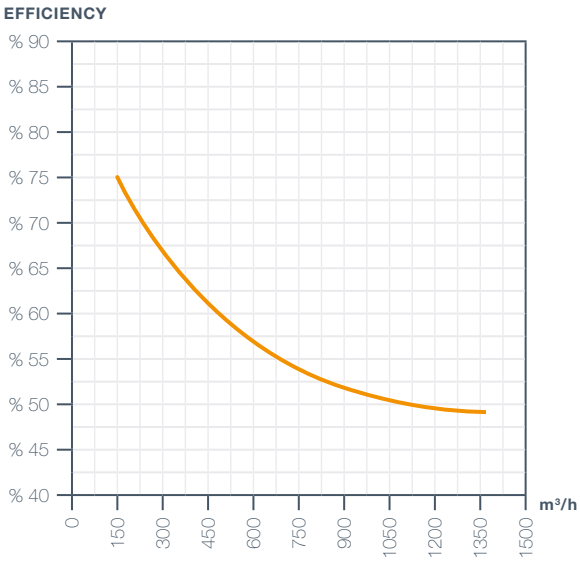
Outside air -5°C, Inside air 22°C, 50% RH

JRH73 / 1500 ▪ AIR PERFORMANCE CURVE



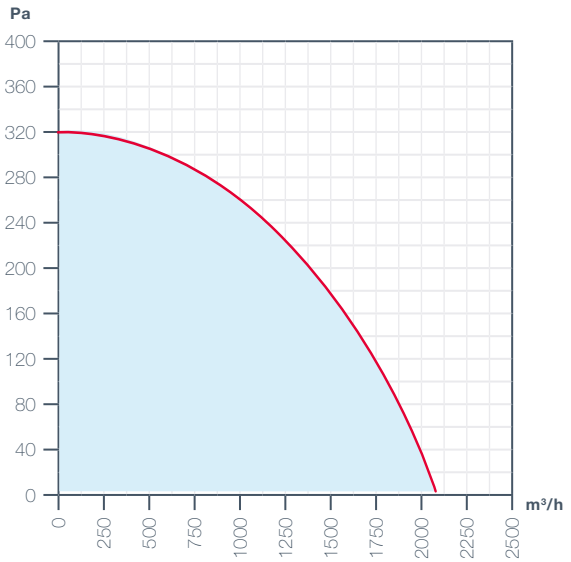
Curves are presented at conditions where air density is measured 1,2 kg/m³.

JRH73 / 1500 ▪ EFFICIENCY CURVE



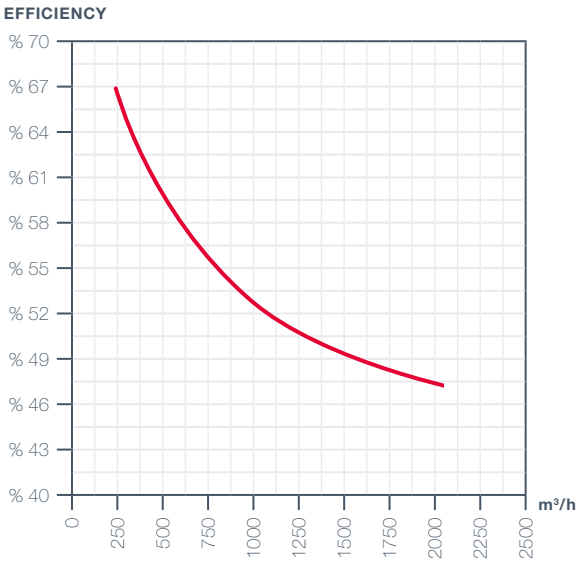
Outside air -5°C, Inside air 22°C, 50% RH

JRH73 / 2000 ▪ AIR PERFORMANCE CURVE



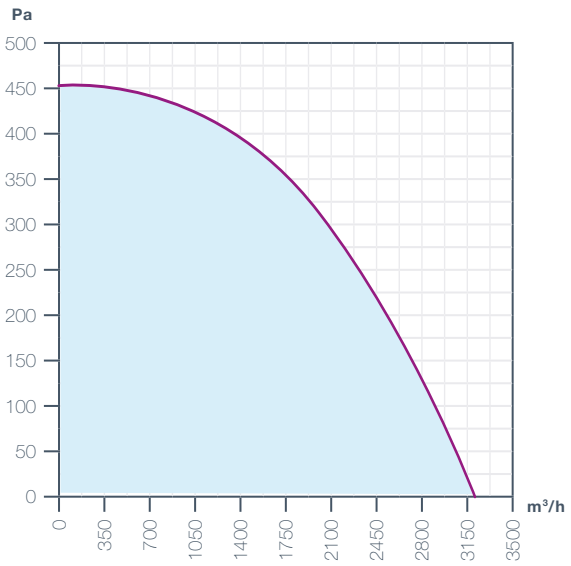
Curves are presented at conditions where air density is measured 1,2 kg/m³.

JRH73 / 2000 ▪ EFFICIENCY CURVE



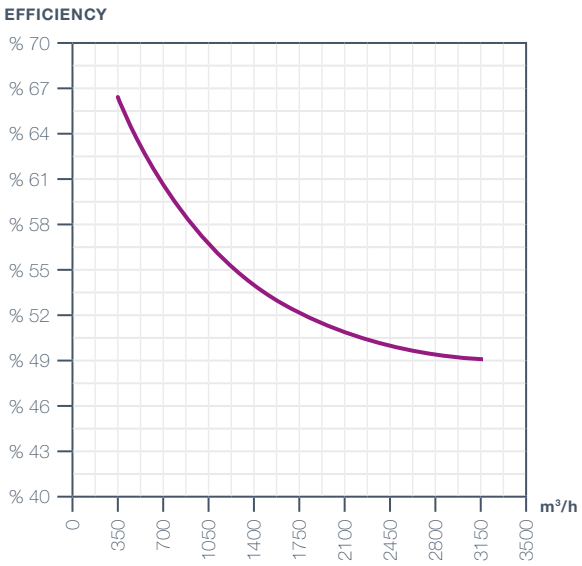
Outside air -5°C, Inside air 22°C, 50% RH

JRH73 / 3000 ■ AIR PERFORMANCE CURVE



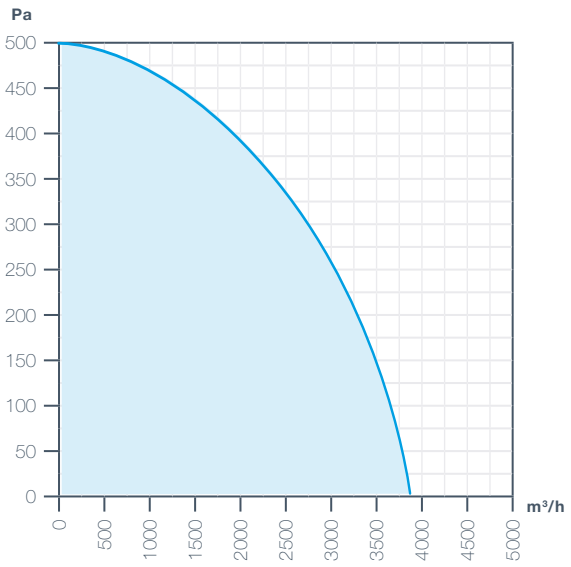
Curves are presented at conditions where air density is measured 1,2 kg/m³.

JRH73 / 3000 ■ EFFICIENCY CURVE



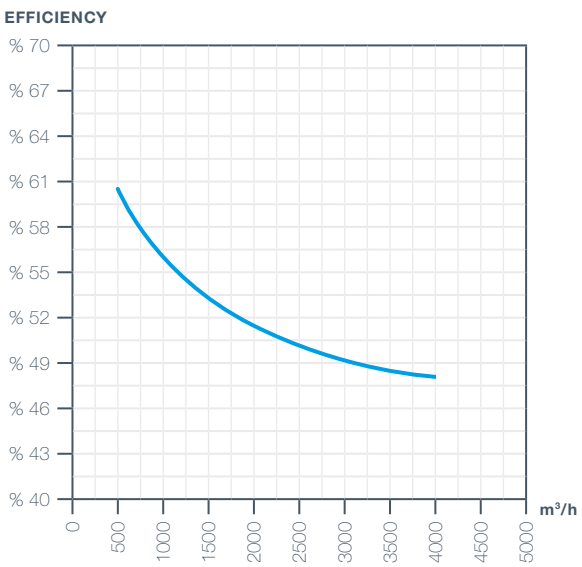
Outside air -5°C, Inside air 22°C, 50% RH

JRH73 / 4000 ■ AIR PERFORMANCE CURVE



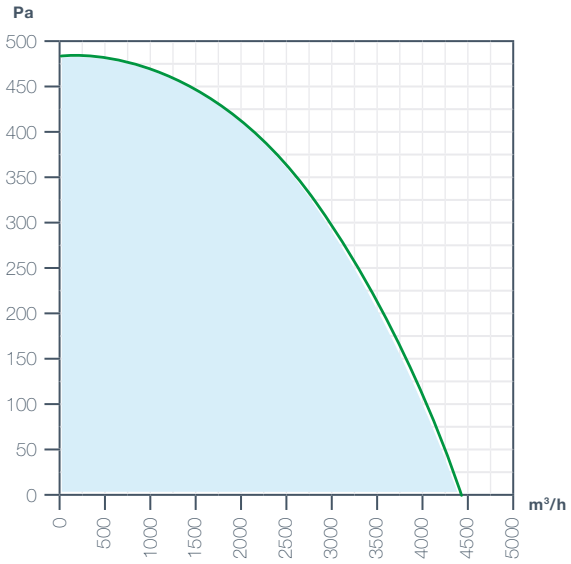
Curves are presented at conditions where air density is measured 1,2 kg/m³.

JRH73 / 4000 ■ EFFICIENCY CURVE



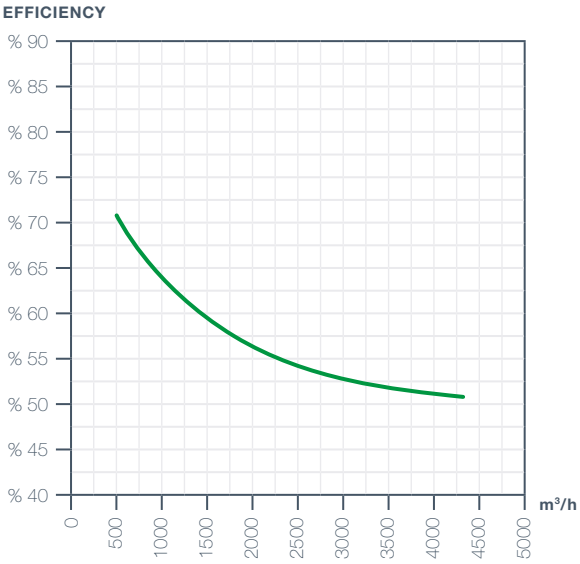
Outside air -5°C, Inside air 22°C, 50% RH

JRH73 / 5000 ▪ AIR PERFORMANCE CURVE



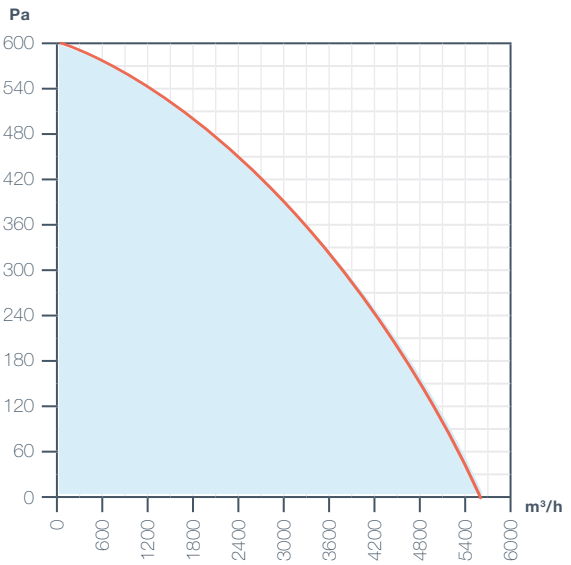
Curves are presented at conditions where air density is measured 1,2 kg/m³.

JRH73 / 5000 ▪ EFFICIENCY CURVE



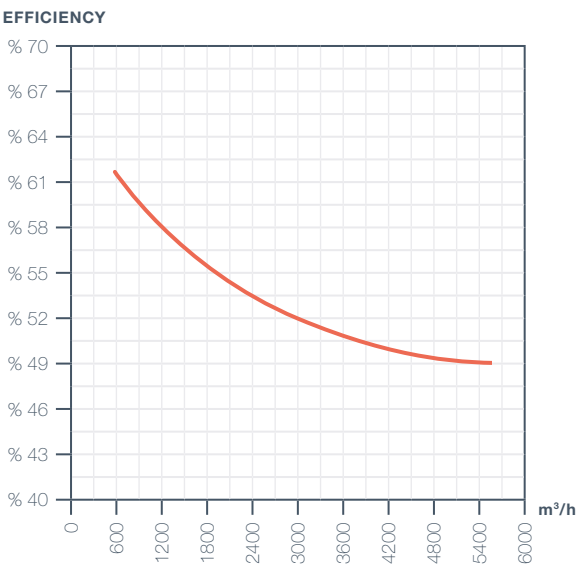
Outside air -5°C, Inside air 22°C, 50% RH

JRH73 / 6000 ▪ AIR PERFORMANCE CURVE

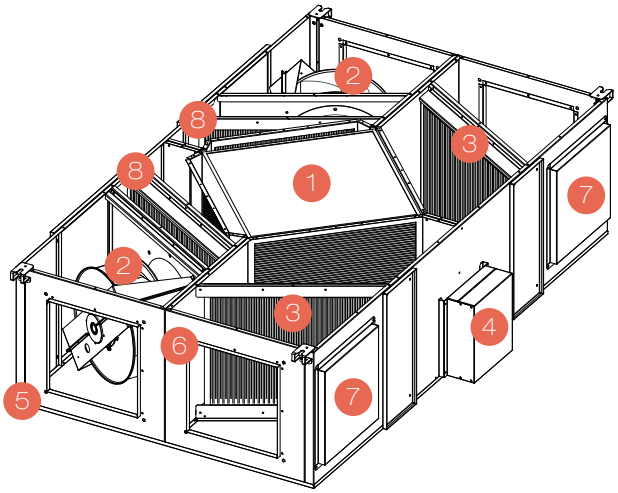


Curves are presented at conditions where air density is measured 1,2 kg/m³.

JRH73 / 6000 ▪ EFFICIENCY CURVE



Outside air -5°C, Inside air 22°C, 50% RH



1. Heat Exchanger
2. Fan
3. Filter
4. Controller Board Box
5. Casing
6. Duct Connections
7. Alternative Duct Connections
8. Optional Second Stage Filter

CASING

JRH73 units are produced using polyester painted sheet metal with high corrosion resistance. Inside the unit, Aluminum and Zinc coated AZ 150 quality Aluzinc sheet metal is used. The casing is patented with its low pressure drop and high stability.

All components that require service, have their own service doors. This way the unit does not have to be disconnected from ducting system for servicing. Units are serviceable from left and right by design. This prevents problematic installations where service doors and electrical panel removals might cause.

FAN

JRH73 units are designed with high energy efficient, low sound pressure and low power consumption plug fans. All of our fans are compliant with ECO-DESIGN criteria by Eruopean Union Energy Comitee and ErP 2015. All of the fans are suitable for variable speed control. Fans up to JRH73/5000 units are controlled with built-in JAKKA CONTROL KIT 4 control. They have 3 fixed speeds or stepless control with the help of an air quality sensor.
JRH73 units use single phase AC motors for up to JRH73/5000 units and 3 phase AC motors for JRH73/6000 units. Required electrical protection is taken with electronic components against high temperature or locked rotor.

ErP2015 COMPLIANT

HEAT EXCHANGER

JRH73 units have high corrosion resistant heat recovery exchangers made from Aluminum plates. Plates are designed with advanced engineering methods to improve heat recovery efficiency and reduce pressure drops. EUROVENT certification ensures the continuity of top of its class efficiency.

Heat recovery exchangers used in JRH73 units have between 22% and 35% more heat transfer surface over other exchangers in the market. Air velocity is between 11% and 29% lower than market standards. This results in higher heat exchange efficiency and lower pressure drops.

FILTER

Air is cleaned with standard G4 type filters before it reaches any component in JRH73 units. Low pressure drop filters have a rate of 98% when it comes to partical catching efficieny. Long lasting filters are easily cleaned with pressured air and after completing their lifecycle, they can be replaced easily. Optionally, F7 or M5 filters can be used for if green building directives. High efficiency filters are produced especially for extending the surface area and reducing pressure drops. Filters fill up because of the particles they hold and this results in reduced air flow. In order to avoid dirty filters to affect air balance in the building, the unit has a filter cleaning alarm based on working hours.

JAKKA CONTROL KIT 4 is specially designed and tuned for ceiling type ventilation devices. Controls both the standard components in the appliance and the optional components that can be installed in the duct to meet the desired blowing air conditions. All devices manufactured with Plug and Play logic and are shipped after extensive testing of control equipment and all components in the factory.

Basic functions provided by JAKKA CONTROL KIT 4

- Fans can be set at 3 different speeds independently
- Weekly timer schedule (2 working periods per day)
- Electric preheater control (1 step control)
- Heat exchanger frost protection
- Electric afterheater control (2 step binary control)
- Water coil control (ON-OFF control of 2-way valves)
- Heating coil freeze protection
- Automatic BOOST mode
- Damper (by-pass) control
- VOD (CO_2 sensor is required)
- Filter pollution control (checking running time)
- Fire alarm (Can be used building NO fire sensor) (When alarm occur both fans work at maximum speed until fire allarm go off, or fan motor(s) overheat)
- Building automation connection (ModBUS) on request (Some functionalitues in software with ModBUS differ to standard software version, please check before order)

Room control panel (HMI)

The appliances have a room control panel so that the functions can be adjusted easily. This user-friendly interface allows flow rate, temperature setting, operating mode selection, season selection, weekly time schedule to be done easily and quickly.

Building Management System connection

JAKKA CONTROL KIT 4 works interactively with other ventilation and air conditioning devices and building automation systems using Modbus protocol.

Heating capacity control

Preheaters are used during winter to heat up fresh outdoor air temperature, to the temperature that exceeds freezing, before reaching exchanger. Preheaters are equiped with operating and safety thermostats that are supplied as standard, and all other required electric components that allow plug and play installation with JAKKA CONTROL KIT 4 controller that can autonomously drive preheater in 1 (one) step (ON-OFF).
Afterheaters are used to heat up supply air temperature to set value on controller. Afterheaters are equiped with operating and safety thermostats that are supplied as standard, and all other required electric components that allow plug and play installation with JAKKA CONTROL KIT 4 controller that can drive afterheater in 2 (two) step binary control. Example: first step is activating 1/3 or 1/2 of total heater power - depending on redistribution of heating elements; second step is activating only rest 2/3 or 1/2 of heater power; and thirt step is activating both, step one and step two at once.
Hot water coils can also be used to heat up supply air temperature to set value on controller. They are equiped wth frost protection mechanism that prevents the temperature of the feed water from reaching freezing conditions in extreme cold climates. JAKKA CONTROL KIT 4 controller can control them over 2 way ON-OFF valves.

Flow control

Fan speed can be adjusted according to 3 different speed levels from the room control panel for supply air and extract air. It is also capable of automatic BOOST with the help of an additional sensor, so that it can meet the instant fresh air increase needs (decreasing indoor air quality, increasing relative humidity etc). In addition, in applications where stepless control is required, fresh air need is calculated according to the conditions in the indoor environment with the help of an additional sensor, and ventilation can be done as much as required by the automatic flow rate option. In this way, the load of indoor air conditioning devices can be reduced and the total energy consumption of the building can be reduced considerably.

Weekly timer

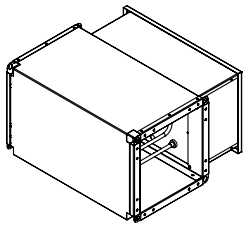
The units have a programmable weekly schedule and the unit automatically switches on and off at the desired time according to the program set.

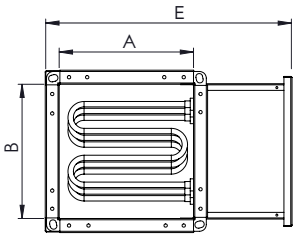
Alarms

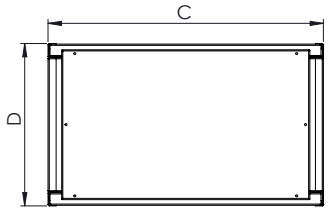
When the operation and performance of the devices are monitored by the JAKKA CONTROL KIT 4 control, the inputs from the ventilation system are also carried to the device and the operation is regulated accordingly. Fan overheating warning, electric heater high temperature warning, fire alarm, filter pollution control, device status information and so on. With the alarms the system provides the highest performance and continuous operation.

Electrical Heater

Electrical preheaters are designed for cold/extra cold climates to prevent condensing air from freezing and afterheaters for heating up supply air. Both, preheaters and afterheates are equiped with operating and safety thermostats that are supplied as standard, and all other required components that allow plug and play installation.







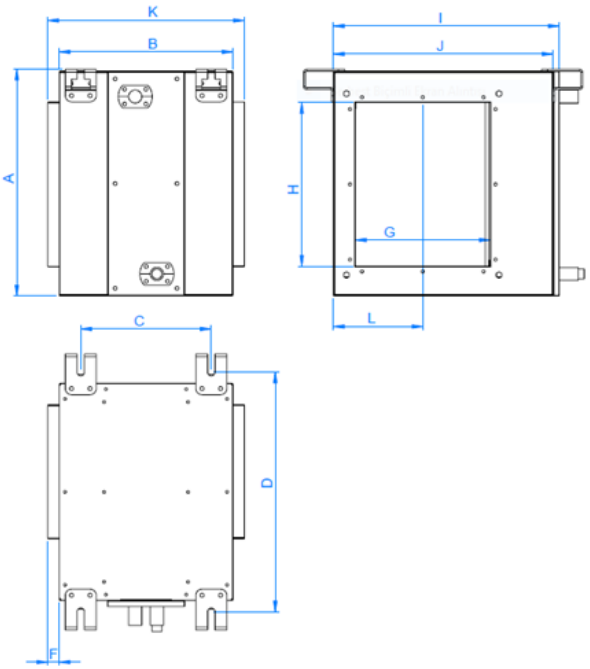
Model	Dimensions [mm] AxB	C	D	E	Available capacities [kW]				Control steps Preheater	Afterheater 1	2	3	Power supply [V/Hz]
700	200 x 200	410	242	367	0,75	1,5	2,3*	3,0	1	√	-	-	230/50
1200	250 x 250	410	292	417	2,3	3,0	4,5*	6,0	1	√	-	-	380/50
1500	250 x 250	410	292	417	2,3	3,0	4,5*	6,0	1	√	-	-	380/50
2000	300 x 300	410	342	467	3,0	4,5	6,0*	9,0	1	1/2	1/2	-	380/50
3000	400 x 350	410	392	567	4,5	6,0	9,0*	13,5	1	1/2	1/2	-	380/50
4000	450 x 400	410	442	617	6,0	9,0	13,5*	18,0	1	1/3	2/3	1+2/3	380/50
5000	500 x 450	410	492	667	9,0	13,5	18,0*	22,5	1	1/3	2/3	1+2/3	380/50
6000	550 x 450	410	492	717	9,0	13,5	18,0	22,5*	1	1/3	2/3	1+2/3	380/50

Recomanded capacities, other on request

* On Stock

Heating Coils

Water heater coils used with JRH73 units can be installed at the exit or inside of supply air duct. Coils are designed for standard unit capacities and they heat the air to the reqiured supply air temperature.



Model	Dimensions (mm) A	B	C	D	F	G	H	I	J	K	L	Coil pipe diameter (inch) ØD in	ØD out	Capacity (kW) (80/60°C)
700	371	281	211	392	18,5	218	268	365	355	318	144	1/2	1/2	2,8
1200	421	281	211	497	18,5	290	307	470	460	318	180	1/2	1/2	4,8
1500	471	281	211	527	18,5	345	337	500	490	318	207	1/2	1/2	6
2000	521	281	211	587	18,5	405	387	560	550	318	245	1/2	1/2	8
3000	571	281	211	737	18,5	555	437	710	700	318	321	1/2	1/2	12
4000	671	281	211	797	18,5	615	508	770	760	318	350	1/2	1/2	16
5000	706	316	246	917	18,5	735	543	890	880	353	413	1/2	1/2	20
6000	721	286	216	1032	18,5	835	558	1005	995	323	466	1/2	1/2	24

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