CI/SfB

(57.7)

1st Edition

Roof Units

from Vent-Axia

Energy Recovery Ventilation (ERV) Range

Vent-Axia Roof Units Range

Vent-Axia®

Energy Recovery Ventilation (ERV) Range

Building on the success of the Sentinel Totus^2 range of Demand Energy Recovery Ventilation units, Vent-Axia has launched the Energy Recovery Ventilation (ERV) range of simplified Heat Recovery Ventilation units. This range consists of two sizes of heat recovery units to cover airflows up to 1500m^3/hr with basic controls and functionality to suit the requirements of projects that need heat recovery ventilation but on a lower budget and without the complexities of Demand Ventilation Control.

With options of either a 90% efficient or a lower cost 55% efficient Energy Recovery Cell the ERV range allows the client to take a view on the level of up-front expenditure compared to long term running cost savings that heat recovery ventilation can provide.

Two levels of control and unit functionality further extend the cost control by allowing the client to choose a 'Basic' unit that provides manual speed control or a 'Standard' unit that includes manual speed control and heat recovery control functions such as frost protection and summer bypass control.

All units are powered by advanced EC/DC motors to ensure that the power consumed is minimised to achieve the Specific Fan Power required for the Building Regulations and longevity of operational life is maximised.

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ERV Comparison Table

	Totus² Range	ERV-HIBox Standard	ERV-HIBox Basic	ERV-Box Standard	ERV-Box Basic
Model / Stock Reference	All	ERV1000HIS ERV1500HIS	ERV1000HIB ERV1500HIB	ERV1000S ERV1500S	ERV1000B ERV1500B
HR Cell 90%	✔	✔	✔	x	x
HR Cell 55%	x	x	x	✔	✔
Aluzinc Acoustic Casing	✔	✔	✔	✔	✔
EC/DC Motors	✔	✔	✔	✔	✔
Condensate drain	Pumped	Gravity	Gravity	Gravity	Gravity
Condensate Pump	✔	Option 403455	Option 403455	Option 403455	Option 403455
Filter G4	✔	✔	Option 447251 Option 447252	✔	Option 447251 Option 447252
Control functionality	Sentinel Demand Ventilation control	Manual speed control and basic HR control	Manual speed control only	Manual variable speed control and basic HR control	Manual speed control only
Bypass inc actuator	✔	✔	x	✔	x
Electric Frost Heater	✔	✔	x	✔	x
Wall Controller	✔	✔	✔	✔	✔
Isolator Switch	✔	✔	x	✔	x
BMS control	✔	x	x	x	x
External Damper Control	✔	x	x	x	x
Proportional Sensors control	✔	x	x	x	x
Constant Pressure control	✔	x	x	x	x
Weathercowl	Option 445832 Option 446591	Option 445832 Option 446591	Option 445832 Option 446591	Option 445832 Option 446591	Option 445832 Option 446591

Note: Part numbers shown as option are available at extra cost and are supplied loose

Energy Recovery Ventilation Range

Features and Benefits

- **2 model sizes covering 500 to 1500m³/hr**
- **Choice of 90% or 55% efficient aluminium energy recovery cell**
- **High performance EC/DC motors**
- **Compact low profile unit (360mm high)**
- **Internal or External mounting as standard**
- **Robust aluminium cell construction**
- **Simple control functionality**

Construction

The unit is manufactured with a frameless construction, and incorporates single skinned Aluzinc panels with a highly thermal and acoustically efficient internal insulating foam. The unit is be suitable for internal or external mounting as standard.

The unit is constructed with removable top and bottom access panels allowing full maintenance access.

The removable panels provide access to the following:

- ✔ Supply or extract fan
- ✔ Supply and extract filter (when fitted)
- ✔ Heat exchanger
- ✔ Frost heater (when fitted)

Within a separate side section access is provided for wiring termination and set-up/ commissioning. The user control interface therein is within a separate viewing and access panel allowing commissioning without the need to access to the wiring section. This controller can be demounted for remote installation if required.

Options

The ERV range consists of two unit sizes (ERV1000 and ERV1500) each available with two versions of control and unit functionality (Basic and Standard) and two versions of the heat recovery cell (55% and 90% efficiency) giving 8 models in total.

The frameless single skinned construction, with Aluzinc panels internally lined with a 90kg/m³ high efficiency acoustic and thermally insulating foam (fire retardant to BS476 part 7 class1 and part 6 class O), minimises noise and thermal breakout from the casing. Aluzinc construction allows for the units to be mounted either internally or externally as standard (IPX4). An optional inlet cowl is available for external applications if required.

The casing is designed to be as compact as possible for concealed false ceiling applications with access panels on both top and bottom as standard for ease of access and maintenance.

Performance and Sound

Extensively tested in accordance with BS 848 part 1 and 2, the published dB(A) figures are free field sound pressure levels with spherical propagation at reference level of $2x10^{-5}$ Pa. The inlet and outlet sound power level spectra figures are dB with a reference of 10^{-12} Watts.

Motor and impeller

All units contain a pair of Class 1 EC/DC external rotor motors with backward curved impellers carefully selected for maximum performance coupled with minimum sound and power consumption, fully compliant with the requirements for ERP 2015. The assembly is balanced to DIN ISO 1940 grade 6.3. Bearings are greased for life for maintenance free operation coupled with long service life for added peace of mind.

Electrical supply is 230V, 50Hz single phase.

Energy Recovery Cell

The ERV range includes either an Aluminium crossflow plate heat exchanger with an efficiency of 55% on the ERV units or an Aluminium counter flow plate heat exchanger offering higher efficiencies of up to 90% on the Hi Box units.

By utilising Aluminium heat exchangers the Vent-Axia ERV range of units can be installed in most environments including those with high humidity yet without the need to regularly maintain or replace the heat exchanger cell. The Aluminium cells are designed to be maintenance free (other than basic cleaning in situ) and to last the life of the unit.

Internal Unit Functionality

Flow Imbalance

The supply and extract flows on the standard unit can be offset by up to 20% to give an imbalanced flow as required.

Not available on the simplified unit.

Summer Bypass

The Standard ERV and ERV Hi-Box include as standard a Summer Bypass facility and integral controls to control its operation. The damper operates on both the Heat Recovery route and Bypass route enabling a full 100% bypass maximising the energy recovery benefits of free cooling when available.

Not available on the Basic unit.

Frost Protection

Integral to the standard unit is a 2 stage 2kW electric heater providing frost protection. The control for the inbuilt heaters is fully integrated and automatic ensuring the heat recovery cell does not freeze up under very low ambient conditions. The frost protection system will switch in each of the two stages as required when the ambient temperature falls below 0°C.

Not included on the Basic unit.

Condense Drain

All versions are fitted with a gravity condensation drain. An optional condensation drain pump is available for mounting in the condensation pipework external to the unit, includes float switch.

Filters

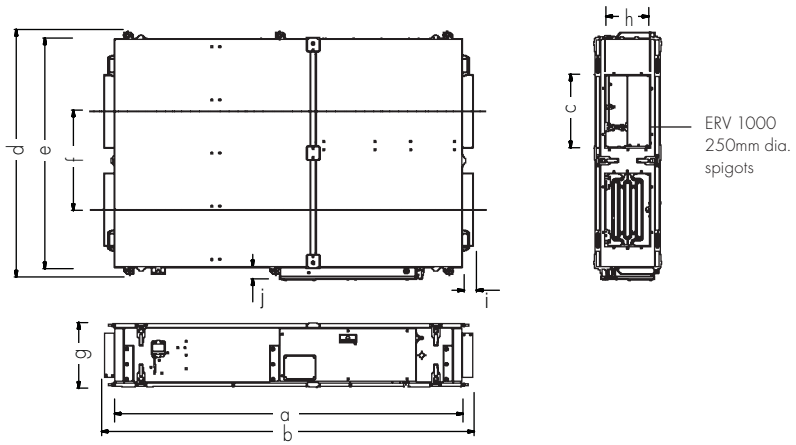
The ERV standard unit includes a G4 replaceable synthetic filter as standard, these are available as an optional extra on the Basic version to drop in to the pre-fitted filter slide rails.

Control

The Standard ERV unit comes complete with an integral controller providing manual variable speed control and the ability to control the summer bypass and frost protection functions. This allows the unit to be set to the customer requirements for continuous operation. The controller is fitted to the unit but can be remotely mounted on site if required. An integral time clock also provides for scheduling of the run for the unit. A boost facility can be manually selected via the control unit controller. The controller LCD display shows the hours run and filter life information during operation and is fitted as standard to the unit although this can be remotely mounted on site.

The Basic ERV controller provides a manual 3 speed control via a rotary switch with no display function. There is no frost protection or bypass included within the unit. The controller is fitted to the unit but can be remotely mounted on site if required and includes a green LED run indicator.

Dimensions (mm)

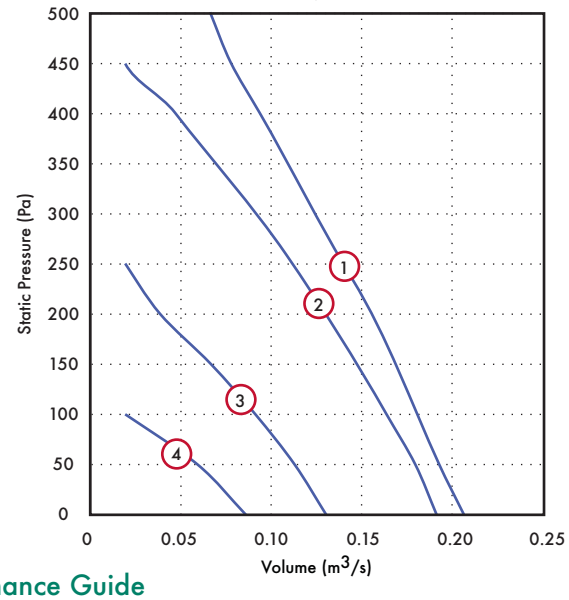


Model	A	B	C	D	E	F	G	H	I	J
ERV 1000	1800	1920	-	940	900	450	352	250Ø	60	65
ERV 1500	1900	2020	400	1290	1250	583	350	250	60	65

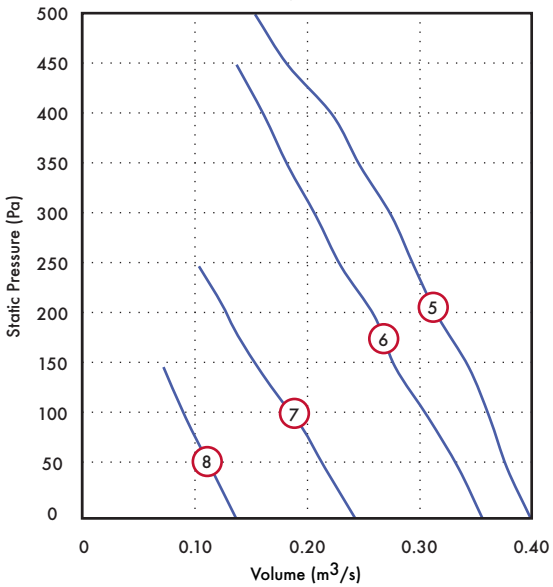
ERV-Box - 55% Efficiency Cell

Performance Curves

ERV1000S / ERV1000B



ERV1500S / ERV1500B



Performance Guide

Stock Ref	Curve	Speed	Airflow, m³/s @ Pa 0	50	100	150	200	250	300	350	400	450	500	Supply	F.L.C Amps
ERV1000S / ERV1000B	1	Max Supply	0.21	0.19	0.18	0.17	0.16	0.14	0.12	0.11	0.09	0.08	0.07	230V/1/50Hz	3.0
		SFP	1.62	1.74	1.88	2.03	2.20	2.41	2.72	3.12	3.62	4.48	5.38		
	2	Balanced 100%	0.19	0.18	0.16	0.15	0.13	0.11	0.09	0.07	0.05	0.01			2.5
		SFP	1.37	1.47	1.61	1.77	1.92	2.15	2.45	2.85	3.42	3.47			
	3	Balanced 80%	0.13	0.11	0.09	0.07	0.04	0.02							1.0
		SFP	0.84	0.98	1.15	1.43	1.94	2.39							
	4	Balanced 40%	0.09	0.06	0.02										0.5
		SFP	0.54	0.76	1.56										
ERV1500S / ERV1500B	5	Max Supply	0.40	0.38	0.36	0.34	0.31	0.29	0.27	0.25	0.22	0.18	0.15		3.0
		SFP	1.58	1.69	1.77	1.87	2.05	2.17	2.32	2.56	2.81	3.38	3.88		
	6	Balanced 100%	0.35	0.33	0.31	0.28	0.26	0.23	0.21	0.18	0.16	0.14			2.5
		SFP	1.42	1.53	1.68	1.87	2.03	2.29	2.50	2.76	3.01	3.47			
	7	Balanced 80%	0.24	0.22	0.19	0.16	0.13	0.11							1.0
		SFP	0.90	1.05	1.19	1.37	1.61	1.99							
	8	Balanced 40%	0.14	0.12	0.09	0.07									0.5
		SFP	0.57	0.69	0.84	1.03									

Sound Power Level Spectra dB (ref 10^{-12} Watts)

Stock Ref	Speed	Test Mode	63	125	250	500	1K	2K	4K	8K	dB(A) @ 3m
ERV1000S/ ERV1000B	Max Supply	External	58	65	69	54	53	54	48	46	35
		Room side	55	59	55	50	49	53	37	36	
		Breakout	59	59	61	50	46	49	36	34	
	Balanced 100%	External	58	63	69	54	53	52	45	45	34
		Room side	53	58	55	46	48	50	34	34	
		Breakout	57	58	59	47	45	47	34	33	
	Balanced 70%	External	54	58	64	49	47	42	35	36	28
		Room side	49	53	53	39	40	38	26	29	
		Breakout	54	54	55	41	38	36	27	30	
	Balanced 40%	External	47	52	48	39	37	30	26	29	22
		Room side	48	48	38	33	31	27	22	28	
		Breakout	48	51	39	35	31	28	26	29	
ERV1500S / ERV1500B	Max Supply	External	66	70	75	60	57	52	50	45	41
		Room side	61	62	65	54	52	46	42	41	
		Breakout	65	68	69	54	49	45	40	40	
	Balanced 100%	External	64	68	72	57	53	49	45	42	37
		Room side	58	61	60	52	49	43	38	39	
		Breakout	62	66	64	51	46	43	38	39	
	Balanced 70%	External	59	64	57	46	45	40	35	32	29
		Room side	54	56	48	42	40	34	30	31	
		Breakout	59	62	50	41	38	34	29	30	
	Balanced 40%	External	58	53	46	37	37	29	25	29	22
		Room side	49	46	40	33	32	25	23	30	
		Breakout	52	52	41	32	30	27	25	31	

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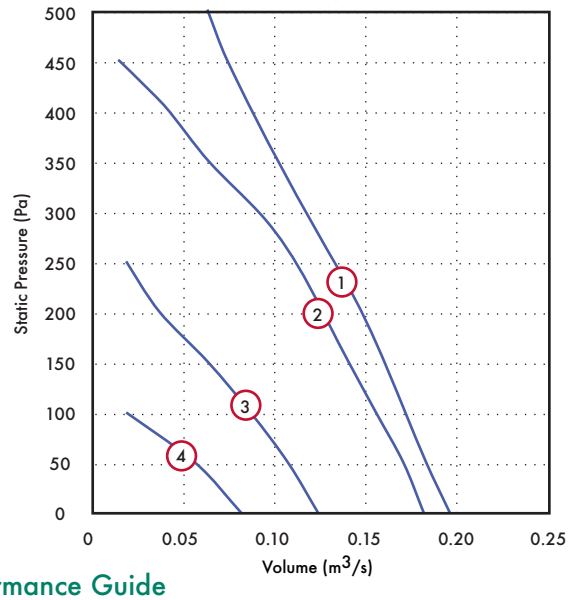
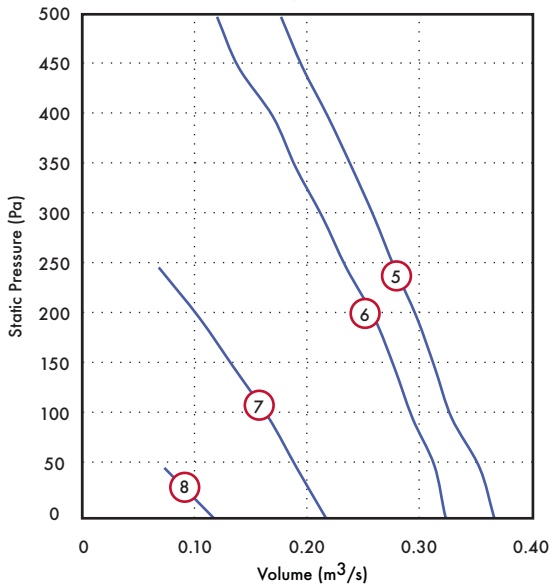
ERV-HIBox - 90% Efficiency Cell

Performance Curves

ERV1000HIS / ERV1000HIB



ERV1500HIS / ERV1500HIB



Performance Guide

Stock Ref	Curve	Speed	Airflow, m³/s @ Pa 0	50	100	150	200	250	300	350	400	450	500	Supply	F.L.C Amps
ERV1000HIS / ERV1000HIB	1	Max Supply	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.10	0.09	0.07	0.06	230V/1/50Hz	3.0
		SFP	1.71	1.84	1.98	2.14	2.32	2.53	2.86	3.28	3.81	4.71	5.67		
	2	Balanced 100%	0.18	0.17	0.16	0.14	0.13	0.11	0.09	0.07	0.04	0.01			2.5
		SFP	1.44	1.55	1.70	1.87	2.02	2.27	2.58	3.00	3.60	3.66			
	3	Balanced 80%	0.12	0.11	0.09	0.06	0.04	0.02							1.0
		SFP	0.89	1.03	1.21	1.51	2.04	2.51							
	4	Balanced 40%	0.08	0.06	0.02										0.5
		SFP	0.57	0.80	1.64										
ERV1500HI / ERV1500HIB	5	Max Supply	0.37	0.35	0.33	0.31	0.30	0.28	0.26	0.24	0.22	0.20	0.18		3.0
		SFP	1.71	1.77	1.91	2.01	2.10	2.26	2.40	2.58	2.79	3.05	3.31		
	6	Balanced 100%	0.32	0.31	0.29	0.28	0.26	0.24	0.21	0.19	0.17	0.14	0.12		2.5
		SFP	1.37	1.60	1.71	1.81	1.93	2.11	2.29	2.54	2.79	3.29	3.71		
	7	Balanced 80%	0.22	0.19	0.17	0.14	0.10	0.07							1.0
		SFP	0.91	1.04	1.19	1.43	1.78	2.56							
	8	Balanced 40%	0.12	0.07											0.5
		SFP	0.62	0.97											

Sound Power Level Spectra dB (ref 10^{-12} Watts)

Stock Ref	Speed	Test Mode	63	125	250	500	1K	2K	4K	8K	dB(A) @ 3m
ERV1000HIS / ERV1000HIB	Max Supply	External	58	65	69	54	53	54	48	46	35
		Room side	55	59	55	50	49	53	37	36	
		Breakout	59	59	61	50	46	49	36	34	
	Balanced 100%	External	58	63	69	54	53	52	45	45	34
		Room side	53	58	55	46	48	50	34	34	
		Breakout	57	58	59	47	45	47	34	33	
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		Room side	49	53	53	39	40	38	26	29	
		Breakout	54	54	55	41	38	36	27	30	
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		Room side	48	48	38	33	31	27	22	28	
		Breakout	48	51	39	35	31	28	26	29	
ERV1500HIS / ERV1500HIB	Max Supply	External	66	70	75	60	57	52	50	45	41
		Room side	61	62	65	54	52	46	42	41	
		Breakout	65	68	69	54	49	45	40	40	
	Balanced 100%	External	64	68	72	57	53	49	45	42	37
		Room side	58	61	60	52	49	43	38	39	
		Breakout	62	66	64	51	46	43	38	39	
	Balanced 70%	External	59	64	57	46	45	40	35	32	29
		Room side	54	56	48	42	40	34	30	31	
		Breakout	59	62	50	41	38	34	29	30	
	Balanced 40%	External	58	53	46	37	37	29	25	29	22
		Room side	49	46	40	33	32	25	23	30	
		Breakout	52	52	41	32	30	27	25	31	

By Appointment to H.M. The Queen
Suppliers of Unit Ventilation Equipment
Vent-Axia, Crawley, West Sussex

Vent-Axia®

VENT-AXIA CONTACT NUMBERS

Free technical, installation and sales advice is available

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