Energy Recovery Products

Information Guide

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General Information

Energy Recovery Products

Product Overview

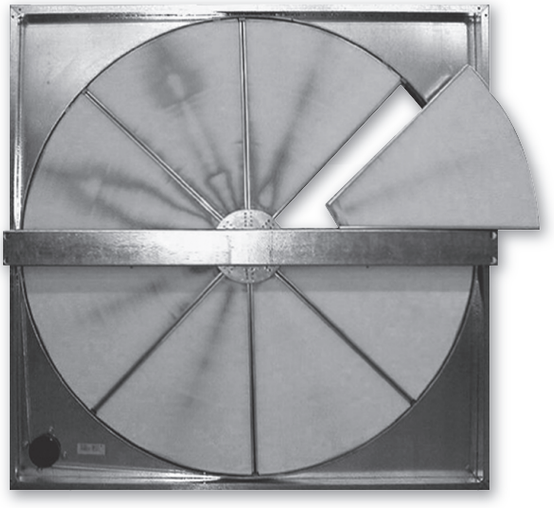
Energy Recovery Ventilators (ERV) are used to recover exhaust air energy and reintroduce it into the conditioned space. The recovery wheel provides sensible and latent energy exchange between the entering and exhaust air streams of a building. This allows a substantial amount of the energy which is normally lost in the exhaust air stream to be returned into the entering air. Ideal applications are areas that have cold or hot temperatures with high occupancy loads or high ventilation requirements. Areas that have high humidity or very low humidity (recover exhaust air humidity from buildings that have humidifiers) are good applications. ERV's also reduce the design loads due to outside air, which can mean downsizing the air conditioning equipment. Application software is available to calculate the load reductions and provide the energy and dollar savings for all areas of the United States and Canada.

The ERV enthalpy wheel contains parallel layers of a polymeric material that are impregnated with silica gel (desiccant). The wheel is located in the entering (intake) air and exhaust air streams of the ventilation equipment. As the wheel rotates through each air stream, the wheel surface captures sensible and latent energy. In the heating mode, the wheel rotates to provide a constant transfer of heat from the exhaust air stream to the colder intake air stream. During the cooling season, the process is reversed. For applications that do not need to recover energy during mild outside weather conditions, an option is provided to stop the wheel from rotating, thereby providing cooling with energy recovery.

Enthalpy Wheel

The heart of the Unitary Energy Recovery Ventilator is the Energy Recovery Wheel (defined by ARI as a rotary heat exchanger). The wheel has a patented design of parallel layers of wrapped polymeric material that is impregnated with a silica gel (desiccant). This unique design makes it the only truly cleanable wheel on the market today. All wheels are slide out cassettes, and all wheels have pie segments that are removable for cleaning.

Segmented Enthalpy Wheel



Key Terminology

Effectiveness

The measured energy recovery effectiveness not adjusted to account for that portion of the psychrometric change in the leaving supply air (Station 2) that is the result of leakage of entering exhaust air (Station 3) rather than exchange of heat or moisture between the air streams.

Net Effectiveness

The measured recovery effectiveness adjusted to account for that portion of the psychometric change in the leaving supply air (Station 2) that is the result of leakage of the entering exhaust air (Station 3) rather than exchange of heat or moisture between the air streams.

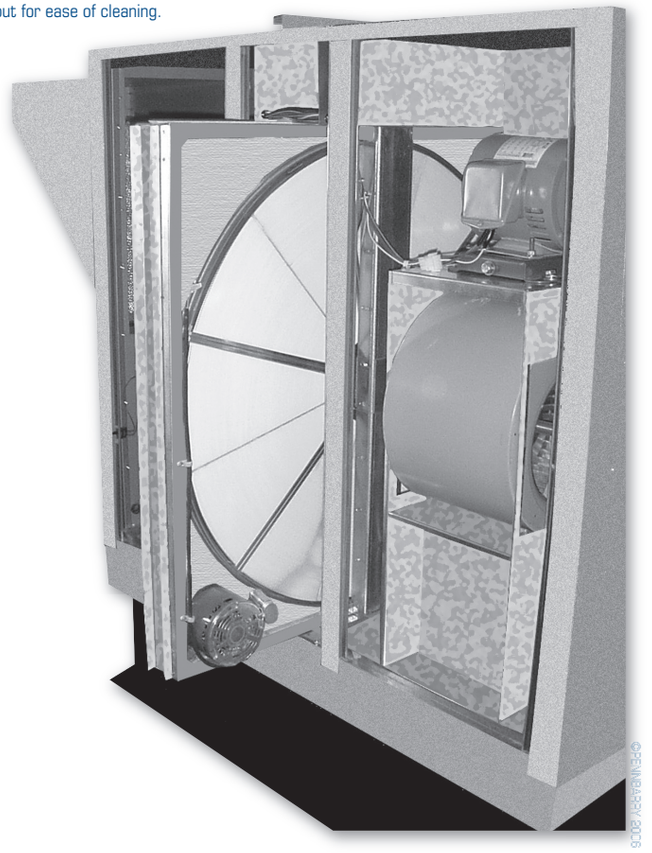
Exhaust Air Transfer Ratio (EATR)

The tracer gas concentration difference between the leaving supply air (Station 2) and entering supply (outdoor) air stream (Station 1) divided by the tracer gas concentration in the entering exhaust (return) air (Station 3) at the 100% rated air-flow, expressed as a percentage.

Outdoor Air Correction Factor (OACF)

The entering supply (outdoor) airflow (Station 1) divided by the measured (gross) leaving supply airflow (Station 2).

All enthalpy wheels slide out for ease of cleaning.



Optional Accessories

Roof Mounting Frame
A 14 or 24 inch (355 or 610 mm) roof curb is required to match supply and exhaust openings of the ERV with the rooftop ERV units. PennBarry provides a full line of roof curbs to match the specified unit.

Low Ambient Control Kit
Prevents frost formation on energy wheel heat transfer surfaces by terminating the intake blower operation when discharge air temperature falls below a field selectable temperature setting. Intake blower operation resumes operation after temperature rises above the adjustable temperature differential.

Pressure Sensor
Measurement device on the ERV to determine airflow across the Enthalpy Wheel. The control test ports are on the Intake portion of the ERV, but can easily be moved to the Exhaust portion.

Motorized Intake Air Damper
Damper mounts in the outdoor air intake hood. It opens when the ERV is energized and closes when de-energized.

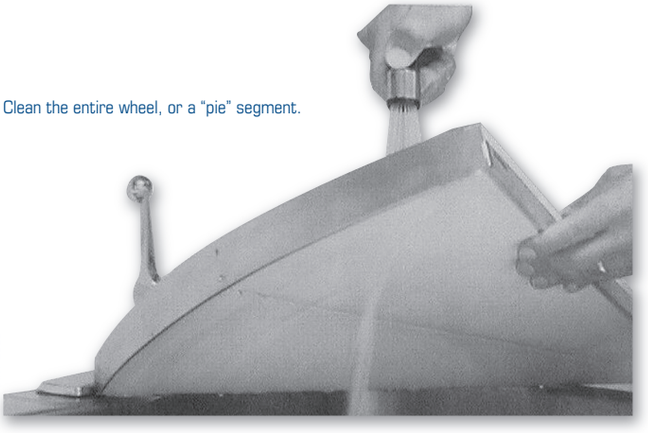
Stop-Start-Jog
Function that rotates the enthalpy wheel on a preset timer to prevent contamination of the wheel during economizer operation.

Rotation Sensor
A Control is used to provide a method of a 24 volt signal for notification should the ERV wheel not rotate during normal operation. This includes bad motors, broken belts, etc.

Disconnect with GFI Plug
The ERV is provided with a factory mounted disconnect switch. The option comes complete with a factory mounted GFI plug. The plug must be field wired.

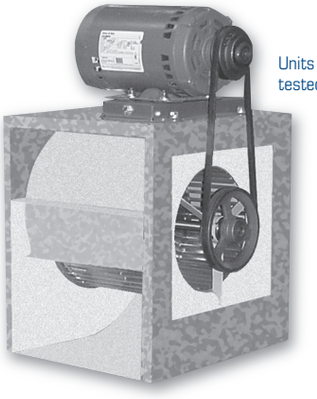
VFD
Variable Frequency Drives are provided for both the intake and exhaust blowers. This allows the system to be perfectly balanced to the building requirements.

Clean the entire wheel, or a "pie" segment.

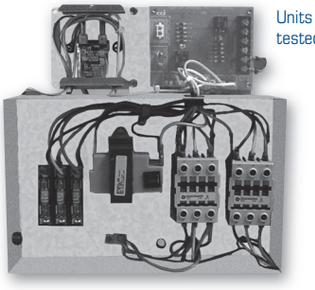


ARI Standard 1060-2005

The Air-Conditioning and Refrigeration Institute (ARI) issued Standard 1060-2005 to certify air-to-air energy recovery ventilators. This standard deals specifically with the ratings of the Energy Recovery Wheel that is incorporated into the ERV. All of the energy recovery units have an ARI certified wheel. The data shown in the specification charts are the ARI certified data for the wheel. Actual performance may vary.



Units are supplied with fully tested blower assemblies.

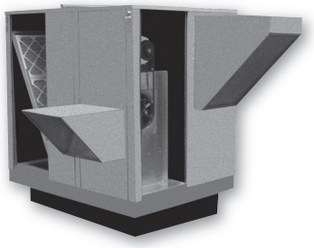


Units are supplied with fully tested control systems.

Units are supplied with filters before the enthalpy wheel.

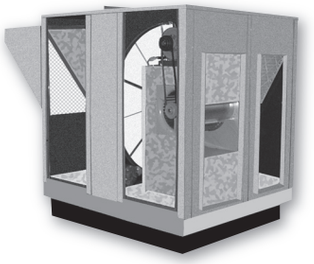
Product Overview

Energy Recovery Products



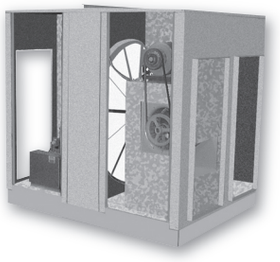
ERV D-Series (Outdoor)

Stand-alone for downward discharge duct arrangements in rooftop applications.



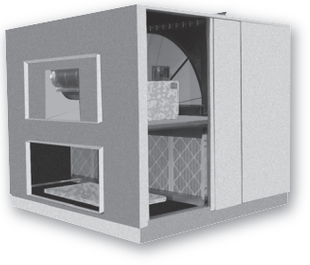
ERV S-Series (Outdoor)

Stand-alone for outdoor, side-by-side duct arrangements.



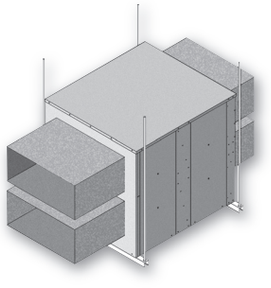
ERV M-Series (Indoor)

Stand-alone for indoor, side-by-side applications.



ERV O-Series (Outdoor)

Stand-alone for outdoor, over-and-under duct arrangements.

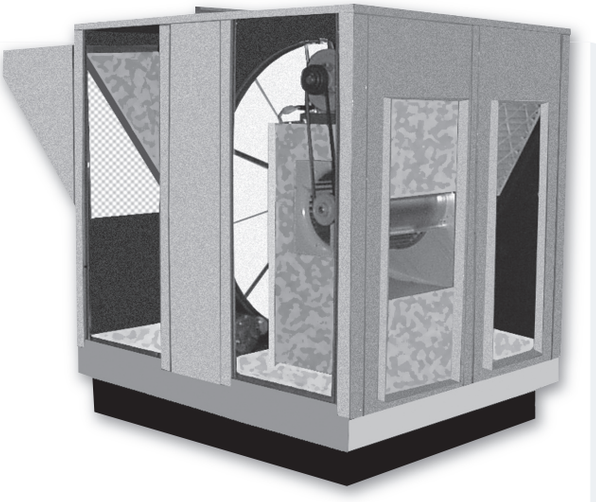


ERV N-Series (Indoor)

Stand-alone for indoor, over-and-under applications.

ERV S-Series Product Description

"S" Series energy recovery ventilators are designed for outside use in rooftop or "pad" installations where the application requires a "side-by-side" duct system. One of the benefits of this design is the ability to easily be connected to the horizontal duct work of an air conditioning system. Field supplied balancing dampers should be utilized to help control the air volumes.



Application & Construction

- Dry energy transfer. Moisture in supply (intake) air stream is transferred to exhaust air stream in a vapor state, eliminating condensate plumbing in the ventilator.
- Units can be used in a rooftop application or ground application.
- Reduces cooling load at design temperatures up to 4 tons per 1000 cfm of outside air.
- Reduces heating load up to 12,000 Btuh per 400 cfm of outside air.
- Enthalpy wheel made of polymeric material with silica gel impregnated into the material.
- Centrifugal blowers (both intake and exhaust) for high static capability and low sound levels.
- Heavy gauge galvanized steel cabinets.
- Separate fused power supply.
- Insulated cabinet.
- Roof curbs have duct supports.

Operation & Maintenance

- Internal enthalpy wheel made of polymeric material with silica gel impregnated into the material. The enthalpy wheel has a five year limited warranty.
- Internal enthalpy wheels are easily cleanable. All wheels are segmented into easily removable pie segments.
- All wheels are designed to easily slide in and out of the ERV for servicing.
- Continuous operation down to 10°F (-12°C) without defrost at indoor relative humidity up to 40%. For temperatures below 10°F (-12°C), Optional Low Ambient Control Kit is required. Kit includes temperature sensor to shutoff power to ERV before frost build up can occur on recovery wheel.

Certification

- ARI 1060-2000 certified internal enthalpy wheel is provided.

Filter

- Unit is supplied with an aluminum mist eliminator filter for the intake air and a 2" pleated filter for the exhaust air.

Blower Assembly

- Blowers are housed within a sheet metal frame to insure reliable performance.
- Blower motor is mounted on an adjustable motor mount that provides an easy method of adjusting the belts.
- Blowers are equipped with adjustable sheave pulleys.
- Blower pulley and the motor pulley are aligned by a state of the art "laser" alignment system.
- All blowers are shipped with low-speed belts installed. The units are shipped with the specified belt kit for field installation.

Control System

- Control enclosures provided with internal fuses.
- Electronic control board.
- Fully wired.
- Independently fused.
- Color coded wires.
- Provides own 24 volt circuit.
- All options are "plug-in" modules.

Optional Accessories

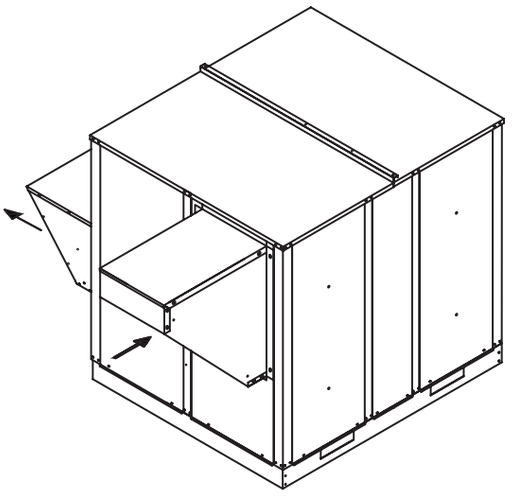
- Roof Mounting Frame
- Low Ambient Control Kit
- Pressure Sensor
- Motorized Intake Air Damper
- Stop-Start-Jog
- Rotation Sensor
- Disconnect with GFI Plug
- VFD

ERV S-Series - Dimensional Data

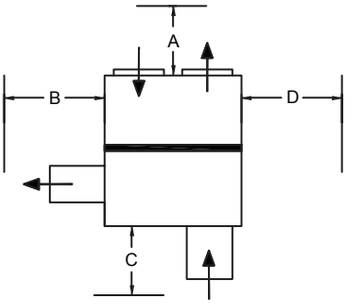
Energy Recovery Products

Dimensional Data

ERV S-Series Unit Labels

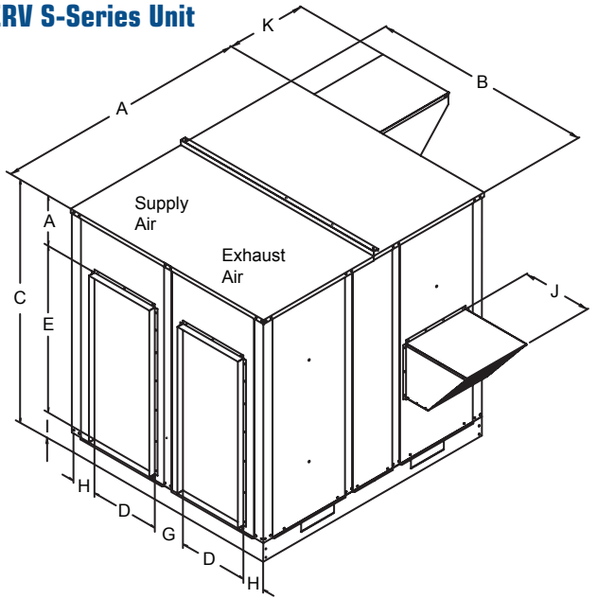


ERV S-Series Clearances



Size	A	B	C	D
S11	12	60	48	36
S20	12	60	60	36
S28	12	60	60	48
S36	12	60	60	48
S46	12	60	72	60
S62	12	60	72	60

ERV S-Series Unit



ERV S-Series Dimensions

Size	Min CFM	Max CFM	A	B	C	D	E	F	G	H	I	J	K
S11	300	1100	44.75	32.13	33.50	11.00	27.00	4.00	4.25	2.88	2.50	20.75	14.38
S20	1200	2000	54.38	37.25	37.50	12.00	30.00	5.87	5.13	4.06	1.63	20.75	17.50
S28	1200	2800	52.25	42.62	43.56	14.00	32.00	8.69	5.25	4.25	2.88	20.75	25.50
S36	2000	3600	60.00	46.69	57.37	16.50	39.50	12.00	5.50	4.05	5.88	20.75	25.50
S46	3000	4600	60.00	52.69	57.37	16.50	39.50	12.00	8.69	5.50	5.88	20.75	28.06
S62	4600	6200	72.00	70.88	63.63	19.50	39.50	17.53	14.50	8.70	6.60	20.75	37.75

Dimensions are labeled in inches.

Dimensional & Electrical Data

ERV S-Series Filter Sizes

Size	Return Filter				Intake Filter			
	Qty	Width	Height	Type	Qty	Width	Height	Type
S11	1	14	20	2" PLT	1	16.25	10.375	1" ME
S20	2	16	20		1	12.5	20	
S28	2	20	10		1	14.75	32.25	
S36	3	16	20		1	16.5	32.25	
S46	2	24	24		1	20	36	
S62	5	14	20		1/1	20/20	36/12.5	

PLT is Pleated Filter. ME is Mist Eliminator Filter.

ERV S-Series Electrical Data

		300-1100 CFM				1200-2000 CFM			1200-2800 CFM			2000-3600 CFM			3000-4600 CFM			4600-6200 CFM		
Phase		1	3	1	3	3			3			3			3			3		
Line Voltage 60 hz		208/230v	208/230v	460v	460v	208/230v	460v	575v	208/230v	460v	575v	208/230v	460v	575v	208/230v	460v	575v	208/230v	460v	575v
Fresh Air Blower	**Motor (hp)**	1.5				2			3			3			5			5		
	Wheel Size - DxW (in)	9 x 4				9 x 9			10 x 10			12 x 9			12 x 12			15 x 15		
	Motor Speed (rpm)	1725				1725			1725			1725			1725			1725		
	FLA	9.1	5.6	2.8	2.0	6.0	2.6	2.4	9.4	4.3	3.2	9.4	4.3	3.2	14.0	7.0	5.1	14.0	7.0	5.1
	Service Factor	1.15				1.15			1.15			1.15			1.15			1.15		
Exhaust Air Blower	**Motor (hp) Stationary**	1.5				2			3			3			5			5		
	Wheel Size - DxW (in)	9 x 4				9 x 9			10 x 10			12 x 9			12 x 12			15 x 15		
	Motor Speed (rpm)	1725				1725			1725			1725			1725			1725		
	FLA (Stationary)	9.1	5.6	2.8	2.0	6.0	2.6	2.4	9.4	4.3	3.2	9.4	4.3	3.2	14.0	7.0	5.1	14.0	7.0	5.1
	Service Factor	1.15				1.15			1.15			1.15			1.15			1.15		
Enthalpy Wheel Data	**Depth (in)**	3				3			3			3			3			3		
	Diameter (in)	25.3				30.346			37.759			41.825			46.776			52.026		
	Construction	One-Piece				One-Piece			Segmented			Segmented			Segmented			Segmented		
	Potential Volts	208 - 230				208 - 230			200 / 208 - 230			200 / 208 - 230			200 / 208 - 230			200 / 208 - 230		
	Motor Speed (rpm)	1050				1050			825			1075			1075			1075		
	Motor (hp) 1 Phase	< .08				< .08			0.05			0.17			0.17			0.17		
	FLA	0.3				0.3			0.6			1.2			1.2			1.2		
Total Electrical	**MCA (Stationary)**	20.8	12.9	6.6	4.8	13.8	6.2	5.7	21.8	10.3	7.8	22.4	10.9	8.4	32.7	17.0	12.7	32.7	17.0	12.7
	OCPD (Stationary)	30.0	15.0	9.0	7.0	20.0	9.0	8.0	30.0	12.0	10.0	30.0	15.0	10.0	40.0	25.0	15.0	40.0	25.0	15.0
Curb	**Curb Height (in)**	14				14			14			14			14			14		
Weights	**Shipping Weight (lbs)**	318				425			470			571			920			1250		
	Net Weight (lbs)	245				345			395			475			805			1075		

See pages 35 and 36 for ARI Certified Rating information.

ERV S-Series - Performance Data

Energy Recovery Products

Airflow Performance

Low Speed | Med. Speed | High Speed

S11

Supply Blower RPM (1.5HP, Mist Eliminator Filter in Intake Hood)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
300	n/a	n/a	1020	1205	1365	1480	1590
500	n/a	1015	1200	1320	1460	1565	1670
700	990	1190	1315	1455	1560	1665	1715
900	1150	1310	1450	1555	1660	1680	1795
1100	1305	1440	1550	1655	1740	1815	1895

Exhaust Blower RPM (1.5HP, Barometric Hood, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
300	n/a	n/a	1150	1285	1415	1515	1640
500	n/a	1145	1275	1410	1510	1545	1720
700	1140	1270	1405	1505	1590	1715	1815
900	1320	1435	1585	1665	1705	1810	1930
1100	1495	1580	1660	1755	1880	n/a	n/a

S20

Supply Blower RPM (2HP, Mist Eliminator Filter in Intake Hood)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	1065	1285	1375	1415	1495	1580	1685
1400	1140	1330	1410	1440	1555	1660	1760
1600	1290	1400	1480	1545	1670	1745	1835
1800	1395	1470	1540	1665	1735	1800	1880
2000	1460	1530	1650	1725	1795	1870	1960

Exhaust Blower RPM (2HP, Barometric Hood, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	1175	1290	1430	1520	1680	1765	1850
1400	1245	1425	1515	1675	1755	1830	1920
1600	1400	1505	1670	1750	1825	1910	1980
1800	1495	1660	1740	1820	1900	1975	2090
2000	1645	1730	1815	1895	1965	2080	2170

S28

Supply Blower RPM (3HP, Mist Eliminator Filter in Intake Hood)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	n/a	955	1070	1210	1370	1465	1550
1600	n/a	1065	1205	1305	1460	1540	1595
2000	1060	1200	1290	1445	1530	1585	1680
2400	1190	1335	1440	1490	1575	1670	1755
2800	1300	1460	1550	1645	1705	1750	1800

Exhaust Blower RPM (3HP, Barometric Hood, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	n/a	n/a	1025	1170	1270	1355	1400
1600	n/a	1020	1155	1240	1330	1390	1490
2000	1015	1150	1235	1325	1380	1475	1590
2400	1140	1285	1365	1420	1510	1595	1640
2800	1280	1345	1455	1540	1575	1670	1745

Performance can vary depending on ambient conditions. Drive losses included in tables. Blower RPMs are for reference only.

Airflow Performance

Low Speed | Med. Speed | High Speed

S36

Supply Blower RPM (3HP, Mist Eliminator Filter in Intake Hood)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
2000	815	925	1020	1105	1155	1255	1325
2400	920	1060	1130	1215	1250	1355	1385
2800	1010	1140	1240	1285	1370	1425	1470
3200	1125	1235	1340	1385	1455	1465	n/a
3600	1225	1375	1440	1460	1500	n/a	n/a

Exhaust Blower RPM (3HP, Barometric Hood, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
2000	755	890	970	1060	1125	1215	1280
2400	985	1035	1085	1140	1240	1275	1325
2800	1020	1115	1175	1230	1270	1335	1370
3200	1105	1200	1225	1285	1300	1390	1430
3600	1155	1265	1295	1335	1385	n/a	n/a

S46

Supply Blower RPM (5HP, Mist Eliminator Filter in Intake Hood)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
3000	965	1085	1150	1230	1295	1345	1420
3400	1035	1145	1250	1290	1335	1415	1475
3800	1120	1245	1285	1315	1440	1470	1535
4200	1215	1305	1355	1430	1465	1530	1595
4600	1300	1375	1450	1460	1540	1590	1650

Exhaust Blower RPM (5HP, Barometric Hood, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
3000	1010	1105	1195	1255	1300	1375	1415
3400	1100	1190	1250	1320	1370	1410	1480
3800	1185	1245	1360	1410	1440	1475	1540
4200	1240	1355	1425	1465	1530	1590	1630
4600	1345	1410	1485	1520	1585	1650	1700

S62

Supply Blower RPM (5HP, Mist Eliminator Filter in Intake Hood)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
4600	795	900	1030	1075	1160	1220	1255
5000	855	920	1070	1130	1190	1250	1275
5400	880	950	1095	1155	1245	1270	1290
5800	915	1035	1115	1175	1255	1280	n/a
6200	985	1080	1135	1225	1265	n/a	n/a

Exhaust Blower RPM (5HP, Barometric Hood, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
4600	705	885	985	1045	1100	1155	1215
5000	825	950	1025	1095	1150	1210	1245
5400	875	980	1080	1140	1190	1240	1275
5800	935	995	1130	1180	1230	n/a	n/a
6200	985	1095	1165	n/a	n/a	n/a	n/a

Performance can vary depending on ambient conditions. Drive losses included in tables. Blower RPMs are for reference only.

ERV S-Series - Specification

Energy Recovery Products

Specification & Configuration

ERV S-Series Written Specification

Energy recovery ventilators shall include an ARI 1060-2000 certified enthalpy wheel which contains parallel layers of polymeric material that are impregnated with silica gel. All enthalpy wheels shall consist of removable 'pie' segments mounted in a slide-out track for easy inspection and cleaning.

Fan blowers shall be of the forward curve, centrifugal type, with separate motors with adjustable sheaves for the exhaust air stream and supply air stream allowing for independent balancing. Motors and blower assemblies shall have permanently lubricated ball bearings. All blower wheels shall be balanced.

Provide aluminum mist eliminator filter for the intake air and a minimum 2" pleated filter for the exhaust air on all outdoor applications. Provide minimum 2" pleated filter for both the exhaust and intake air on all indoor applications.

Unit casing shall be constructed of heavy gage galvanized steel. All sections designed for conditioned air shall be internally insulated using 1" dual density fiberglass liner. All components shall be easily accessible through removable panels for both exhaust and supply compartments.

Energy recovery ventilators shall be ETL listed as a complete assembly. All electrical components shall be UL listed or recognized and installed in accordance with the National Electric Code. All electrical components shall be mounted in sheet metal control enclosures with fused single point electrical connections.

Example: 56 - S20 - 02X - H - 23 - SD00000

Configuration

1. **Paint Designation**
   56 - Off White

2. **Model & Size**
   S11 - S-Series, Unit Size 11
   S20 - S-Series, Unit Size 20
   S28 - S-Series, Unit Size 28
   S36 - S-Series, Unit Size 36
   S46 - S-Series, Unit Size 46
   S62 - S-Series, Unit Size 62

3. **Unit Cabinet Size**
   02X - Standard Cabinet

4. **Blower Speed**
   L - Low
   M - Medium
   H - High

5. **Voltage**
   21 - 208/230 volt, 1 Phase
   23 - 208/230 volt, 3 Phase
   33 - 460 volt, 3 Phase
   43 - 575 volt, 3 Phase

6. **Options**
   L - Low Ambient Kit
   M - Motorized Outside Air
   S - Stop-Start-Jog
   P - Pressure Sensor
   R - Wheel Rotational Sensor
   D - Disconnect with GFI
   V - Variable Frequency Drive

ARI Certified Ratings

D11, S11, M11, O11, N11

ARI Certified Ratings for 300 - 1100 CFM

Thermal Ratings @ 0" Pressure Difference		Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating	76%	68%	73%
	75% Airflow Heating	81%	73%	78%
	100% Airflow Cooling	76%	68%	72%
	75% Airflow Cooling	81%	73%	76%
Net Effectiveness	100% Airflow Heating	76%	68%	73%
	75% Airflow Heating	81%	73%	78%
	100% Airflow Cooling	76%	68%	72%
	75% Airflow Cooling	81%	73%	76%

Enthalpy Wheel ARI Rating Data	
Nominal Airflow CFM	900 @ 1.0D
EATR: -1.00 H2O	9.30%
EATR: 0.00 H2O	0.70%
EATR: +1.00 H2O	0.00%
OACF: -1.00 H2O	0.97
OACF: 0.00 H2O	1.19
OACF: +1.00 H2O	1.34

D20, S20, M20, O20, N20

ARI Certified Ratings for 1200 - 2000 CFM

Thermal Ratings @ 0" Pressure Difference		Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating	68%	61%	65%
	75% Airflow Heating	72%	67%	71%
	100% Airflow Cooling	68%	61%	64%
	75% Airflow Cooling	72%	67%	70%
Net Effectiveness	100% Airflow Heating	68%	61%	65%
	75% Airflow Heating	72%	67%	71%
	100% Airflow Cooling	68%	61%	64%
	75% Airflow Cooling	72%	67%	70%

Enthalpy Wheel ARI Rating Data	
Nominal Airflow CFM	1600 @ 1.0D
EATR: -1.00 H2O	7.80%
EATR: 0.00 H2O	0.40%
EATR: +1.00 H2O	0.00%
OACF: -1.00 H2O	0.97
OACF: 0.00 H2O	1.16
OACF: +1.00 H2O	1.29

D28, S28, M28, O28, N28

ARI Certified Ratings for 1200 - 2800 CFM

Thermal Ratings @ 0" Pressure Difference		Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	74%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	74%	67%	70%
Net Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	74%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	74%	67%	70%

Enthalpy Wheel ARI Rating Data	
Nominal Airflow CFM	1600 @ 1.0D
EATR: -1.00 H2O	7.80%
EATR: 0.00 H2O	0.40%
EATR: +1.00 H2O	0.00%
OACF: -1.00 H2O	0.97
OACF: 0.00 H2O	1.16
OACF: +1.00 H2O	1.29

ERV Series - Certified Ratings

Energy Recovery Products

ARI Certified Ratings

D36, S36, M36, 036, N36

ARI Certified Ratings for 2000 - 3600 CFM

Thermal Ratings @ 0" Pressure Difference		Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	74%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	74%	67%	70%
Net Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	74%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	74%	67%	70%

Enthalpy Wheel ARI Rating Data	
Nominal Airflow CFM	3100 @ 0.9D
EATR: -1.00 H2O	4.90%
EATR: 0.00 H2O	1.30%
EATR: +1.00 H2O	0.30%
OACF: -1.00 H2O	0.99
OACF: 0.00 H2O	1.07
OACF: +1.00 H2O	1.12

D46, S46, M46, 046, N46

ARI Certified Ratings for 3000 - 4600 CFM

Thermal Ratings @ 0" Pressure Difference		Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	73%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	73%	67%	70%
Net Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	73%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	73%	67%	70%

Enthalpy Wheel ARI Rating Data	
Nominal Airflow CFM	3900 @ 0.95D
EATR: -1.00 H2O	4.40%
EATR: 0.00 H2O	1.10%
EATR: +1.00 H2O	0.20%
OACF: -1.00 H2O	0.99
OACF: 0.00 H2O	1.06
OACF: +1.00 H2O	1.11

D62, S62, M62, 062, N62

ARI Certified Ratings for 4600 - 6200 CFM

Thermal Ratings @ 0" Pressure Difference		Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	73%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	73%	67%	70%
Net Effectiveness	100% Airflow Heating	68%	60%	65%
	75% Airflow Heating	73%	67%	71%
	100% Airflow Cooling	68%	60%	63%
	75% Airflow Cooling	73%	67%	70%

Enthalpy Wheel ARI Rating Data	
Nominal Airflow CFM	5500 @ 0.95D
EATR: -1.00 H2O	4.00%
EATR: 0.00 H2O	1.00%
EATR: +1.00 H2O	0.20%
OACF: -1.00 H2O	0.99
OACF: 0.00 H2O	1.06
OACF: +1.00 H2O	1.10