Energy Recovery Products

Information Guide

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FanSizer software allows you to select the best centrifugal or axial unit for your application. Input CFM, static pressure and a sound level limit, and FanSizer will make the optimum selection. It allows you to complete job schedules which you can store, modify and print in seconds. Features include: online help, on-screen product drawings and dimensions, and complete text specifications. In addition, you can convert job schedules to ASCII code for use with other programs like word processing.

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General Information

Energy Recovery Products

Product Overview

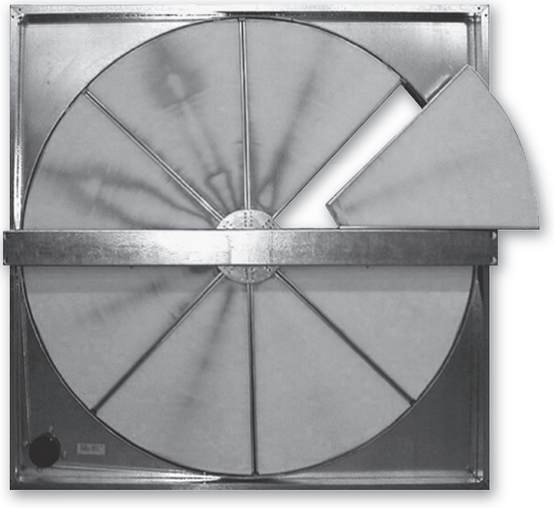
Energy Recovery Ventilators (ERV) are used to recover exhaust air energy and reintroduce it into the conditioned space. The recovery wheel provides sensible and latent energy exchange between the entering and exhaust air streams of a building. This allows a substantial amount of the energy which is normally 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.

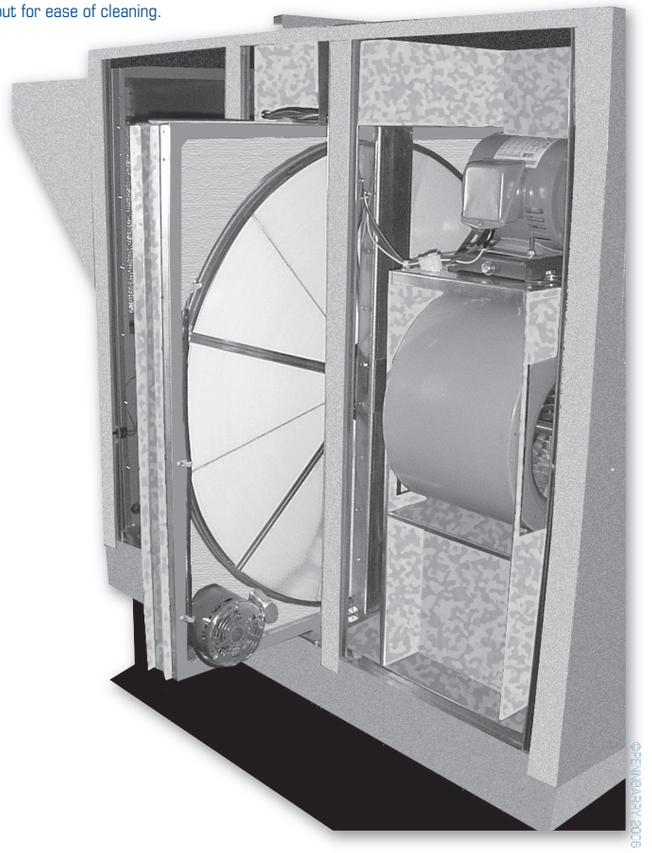
Exhaust Air Transfer Ratio (EATR)

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.

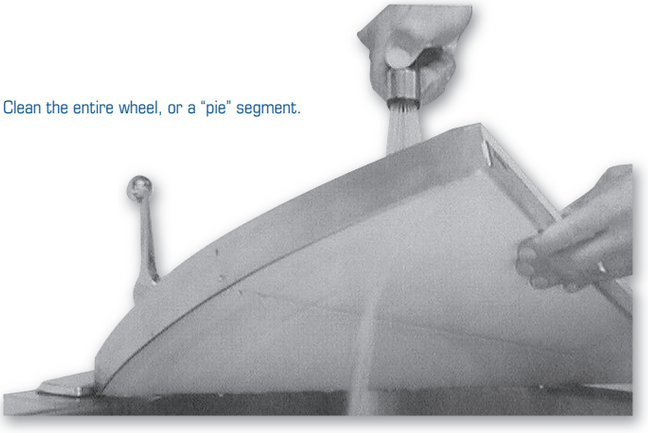
Stop-Start-Jog
Function that rotates the enthalpy wheel on a preset timer to prevent contamination of the wheel during economizer operation.

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.

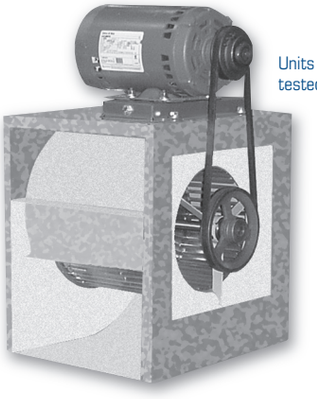
VFD
Variable Frequency Drives are provided for both the intake and exhaust blowers. This allows the system to be perfectly balanced to the building requirements.

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

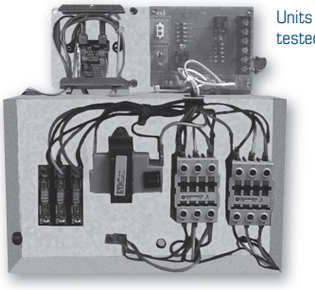


ARI Standard 1060-2005

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.

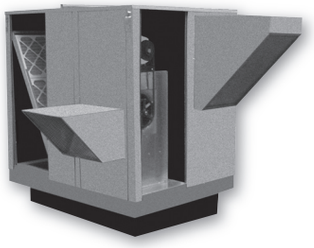


Units are supplied with fully tested control systems.

Units are supplied with filters before the enthalpy wheel.

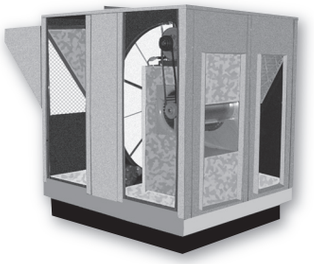
Product Overview

Energy Recovery Products



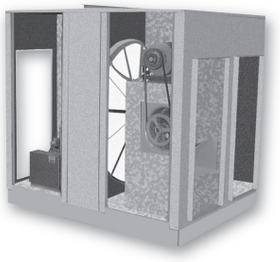
ERV D-Series (Outdoor)

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



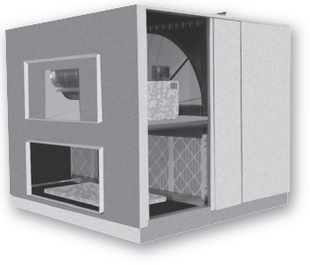
ERV S-Series (Outdoor)

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



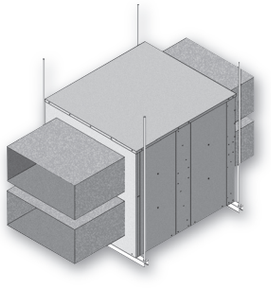
ERV M-Series (Indoor)

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



ERV O-Series (Outdoor)

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

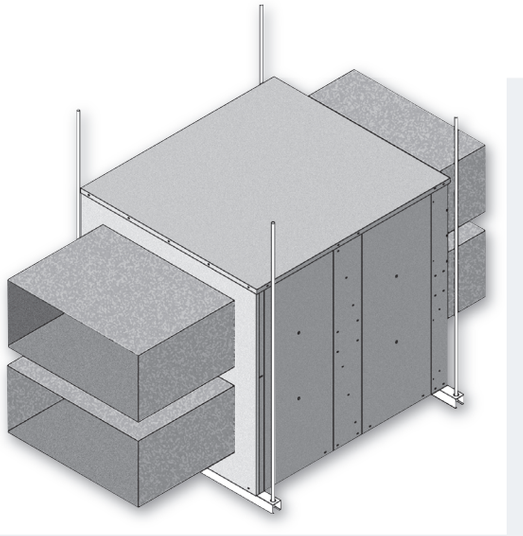


ERV N-Series (Indoor)

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

Model ERV N-Series Product Description

"N" Series energy recovery ventilators are designed for use inside a building for applications that require "over and under" duct. Typically these units are installed in a mechanical room or mounted above a ceiling. Both the outside air intake and the exhaust air have duct systems to an outside source. The return air and supply air also are ducted. The horizontal return duct connection can be converted to bottom return in the field. Field provided 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 mechanical room application or plenum 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 a 2" pleated filter for both the intake air and 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

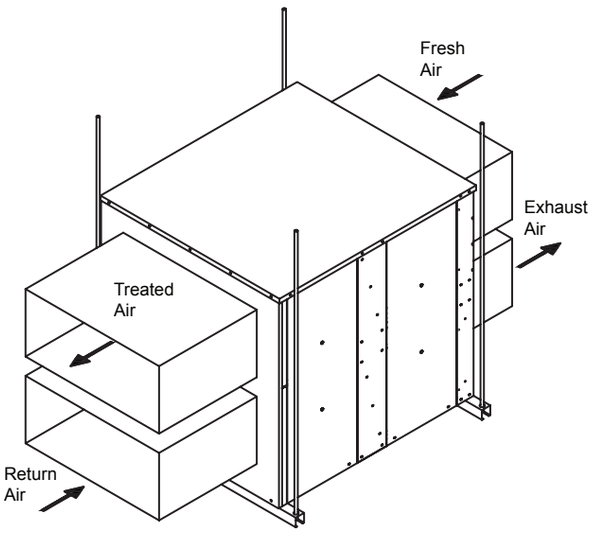
- Low Ambient Control Kit
- Pressure Sensor
- Motorized Intake Air Damper
- Stop-Start-Jog
- Rotation Sensor
- Disconnect with GFI Plug
- VFD

ERV N-Series - Dimensional Data

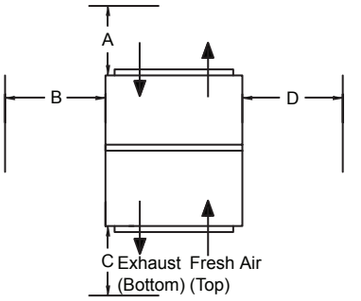
Energy Recovery Products

Dimensional Data

ERV N-Series Unit Labels

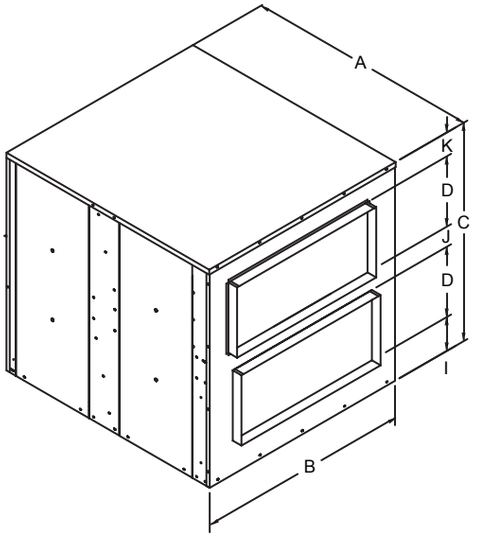


ERV N-Series Clearances

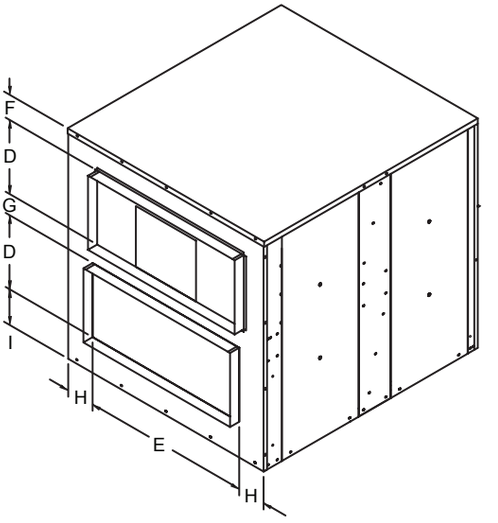


Size	A	B	C	D
N11	12	36	36	36
N20	12	36	36	36
N28	12	36	36	36
N36	12	36	36	36
N46	12	36	36	36
N62	12	36	36	36

ERV N-Series Unit



ERV N -Series Unit



ERV N-Series Dimensions

Size	Min CFM	Max CFM	A	B	C	D	E	F	G	H	I	J	K
N11	300	1100	56.75	32.13	39.50	11.00	27.00	6.50	10.00	2.56	1.00	10.00	6.50
N20	1200	2000	54.38	37.25	37.50	12.00	30.00	8.00	4.00	3.63	1.50	7.00	5.00
N28	1200	2800	60.00	42.62	43.56	14.00	32.00	9.56	4.50	5.31	1.50	8.81	5.25
N36	2000	3600	60.00	46.69	57.37	16.50	39.50	12.13	6.38	3.59	5.88	11.75	6.75
N46	3000	4600	60.00	52.69	57.37	16.50	39.50	12.13	6.38	6.59	5.88	11.75	6.75
N62	4600	6200	72.00	70.88	63.63	19.50	39.50	12.13	6.50	15.69	5.88	12.00	6.75

Dimensions are labeled in inches.

Filter and Electrical Information - ERV N-Series

Energy Recovery Products

Dimensional & Electrical Data

ERV N-Series Filter Sizes

Size	Return Filter				Intake Filter			
	Qty	Width	Height	Type	Qty	Width	Height	Type
N11	1	18	25	2" PLT	1	18	25	2" PLT
N20	2	16	16		2	16	16	
N28	2	20	20		2	20	20	
N36	3	16	20		3	16	20	
N46	2	24	24		2	24	24	
N62	3	18	25		3	18	25	

PLT is Pleated Filter.

ERV N-Series Electrical Data

		300-1100 CFM				1200-2000 CFM			1200-2800 CFM			2000-3600 CFM			3000-4600 CFM			4600-6200 CFM		
Phase		1	3			3			3			3			3			3		
Line Voltage 60 hz		208/230v	208/230v	460v	575v	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 N-Series - Performance Data

Energy Recovery Products

Airflow Performance

Low Speed | Med. Speed | High Speed

N11

Supply Blower RPM (1.5HP, 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	980	1065	1320	1400	1520
500	n/a	905	1050	1215	1360	1495	1595
700	865	1035	1210	1330	1440	1535	1620
900	1030	1205	1325	1435	1530	1615	1725
1100	1200	1320	1430	1525	1605	1720	1800

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

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
300	n/a	815	1030	1185	1305	1450	1535
500	n/a	950	1075	1220	1375	1490	1610
700	810	1070	1195	1295	1445	1510	1645
900	995	1125	1290	1405	1500	1600	1690
1100	1120	1280	1400	1495	1595	1685	1770

N20

Supply Blower RPM (2HP, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	990	1075	1220	1380	1480	1605	1720
1400	1030	1165	1280	1410	1520	1620	1740
1600	1135	1250	1340	1445	1570	1665	1760
1800	1240	1330	1425	1550	1625	1720	1785
2000	1295	1405	1540	1615	1705	1760	1830

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

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	900	1085	1235	1380	1495	1585	1680
1400	1050	1220	1345	1490	1535	1630	1715
1600	1205	1335	1430	1520	1625	1705	1790
1800	1315	1425	1510	1580	1655	1775	1850
2000	1390	1490	1570	1650	1735	1750	n/a

N28

Supply Blower RPM (3HP, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	n/a	900	1045	1135	1255	1395	1410
1600	880	1035	1130	1245	1385	1405	1450
2000	1045	1145	1235	1325	1400	1440	1555
2400	1135	1300	1375	1435	1505	1550	1590
2800	1295	1365	1435	1515	1580	1625	1695

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

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
1200	n/a	955	1075	1185	1285	1355	1495
1600	945	1055	1175	1265	1335	1445	1635
2000	1045	1170	1330	1395	1440	1570	1695
2400	1210	1325	1435	1510	1580	1620	1675
2800	1315	1475	1500	1595	1710	1755	1790

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

N36

Supply Blower RPM (3HP, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
2000	735	860	920	1005	1075	1150	1220
2400	850	945	1030	1090	1110	1215	1265
2800	935	1020	1080	1145	1200	1255	1335
3200	1015	1075	1105	1195	1285	1325	1380
3600	1065	1125	1220	1305	n/a	n/a	n/a

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

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
2000	740	855	930	970	1080	1155	1240
2400	800	925	1015	1075	1145	1225	1280
2800	885	1010	1070	1140	1235	1255	1330
3200	950	1065	1135	1230	1290	1325	n/a
3600	1055	1130	1235	1280	1310	n/a	n/a

N46

Supply Blower RPM (5HP, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
3000	840	990	1065	1135	1215	1265	1335
3400	875	1060	1130	1205	1255	1320	1385
3800	1015	1120	1200	1245	1315	1365	1450
4200	1080	1195	1240	1350	1395	1445	1510
4600	1120	1200	1315	1380	1460	1515	1560

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

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
3000	850	995	1065	1135	1220	1270	1335
3400	925	1060	1130	1225	1265	1330	1375
3800	1020	1120	1220	1285	1325	1370	1430
4200	1100	1215	1280	1345	1400	1435	1480
4600	1150	1275	1340	1415	1475	1520	1565

N62

Supply Blower RPM (5HP, 2" Pleated Filters)

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
4600	795	900	960	1010	1090	1135	1165
5000	835	945	1000	1060	1135	1155	1230
5400	895	985	1040	1130	1155	1220	1265
5800	940	1025	1085	1145	1225	1250	1300
6200	990	1070	1105	1210	1245	1290	n/a

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

CFM	External Static Pressure (in water)						
	0	0.25	0.5	0.75	1	1.25	1.5
4600	780	910	900	1045	1085	1135	1185
5000	825	945	1015	1075	1125	1180	1230
5400	890	990	1065	1105	1170	1220	1270
5800	940	1025	1085	1165	1215	1250	1310
6200	980	1060	1150	1205	1235	1305	n/a

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

ERV N-Series - Specification

Energy Recovery Products

Specification & Configuration

ERV N-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 - N28 - 02X - M - 23 - RDV0000

Configuration

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

2. **Model & Size**
   N11 - N-Series, Unit Size 11
   N20 - N-Series, Unit Size 20
   N28 - N-Series, Unit Size 28
   N36 - N-Series, Unit Size 36
   N46 - N-Series, Unit Size 46
   N62 - N-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