

N-SERIES ENERGY RECOVERY VENTILATOR INDOOR OVER AND UNDER DUCT ARRANGEMENTS

STANDARD CONSTRUCTION

CABINET

20 (1.0) gage galvanized steel.

PANELS

18 (1.3) gage galvanized steel.

FINISH

Polyester Resin based powder coat.
Off White color.

WHEEL

ARI rated Internal Enthalpy Wheel.

FILTERS

Intake and Exhaust: 2" Pleated

TEMPERATURE LIMITS

+10°F (-12°C) to. +115°F (+46°C).

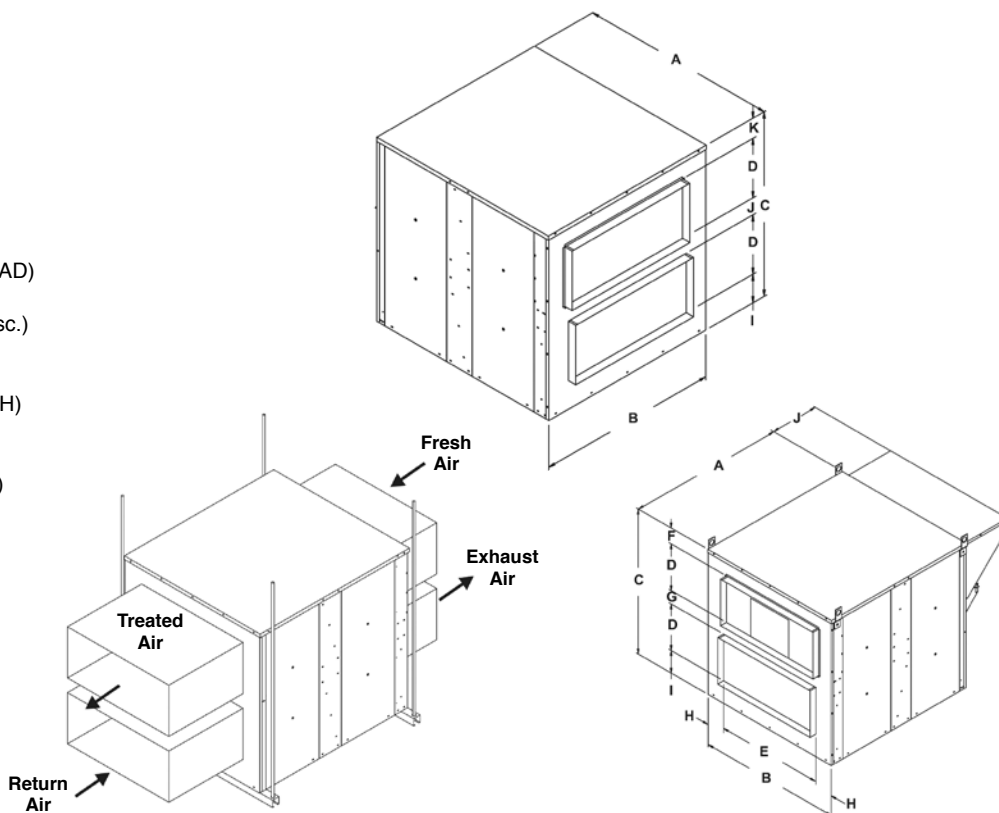
OPTIONS

- Low Ambient Kit (LAK)
- Motorized Outside Air Damper (MOAD)
- Start-Stop-Jog (SSJ)
- Disconnect for Field Installation (Disc.)
- Rotation Sensor (RS)
- Pressure Sensor (PS)
- Medium and High Pulley Kits (M or H)
- Dirty Filter Switches (DFS)
- Variable Frequency Drives (VFD)

Dimensions shown in parentheses () indicate millimeters.

FEATURES

"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. Balancing dampers should be utilized to help control the air volumes.



ERV Model	CFM Range	Dimensions (in inches)										
		A	B	C	D	E	F	G	H	I	J	K
N11-02	300-1100	56.75	32.13	39.50	11.00	27.00	6.50	10.00	2.56	1.00	10.00	6.50
N20-02	1200-2000	54.38	37.25	37.50	12.00	30.00	8.00	4.00	3.63	1.50	7.00	5.00
N28-02	1200-2800	60.00	42.63	43.56	14.00	32.00	9.56	4.50	5.31	1.50	8.81	5.25
N36-02	2000-3600	60.00	46.69	57.37	16.50	39.50	12.13	6.38	3.59	5.88	11.75	6.75
N46-02	3000-4600	60.00	52.69	57.37	16.50	39.50	12.13	6.38	6.59	5.88	11.75	6.75
N62-02	4600-6200	72.00	70.88	63.63	19.50	39.50	12.13	6.50	15.69	5.88	12.00	6.75

Qty.	Model	Motor Data			Options											TAG			
		Voltage	Phase	Cycle	Pulley Kit		LAK	MEAD	MOAD	SSJ	Disc.	RS	PS	DFS	VFD				
					M	H													

SPECIFICATIONS AND ELECTRICAL DATA								
Model Numbers		N11-02 Over/Under Indoor 300 - 1100 CFM ERV				N20-02 O/U Indoor 1200 - 2000 CFM ERV		
Line Voltage – 60hz		208/230v 1ph	208/230v 3ph	460v 3ph	575v 3ph	208/230v 3ph	460v 3ph	575v 3ph
Fresh Air Blower	Motor – hp	1.5 / Belt				2 / Belt		
	Wheel Size (dia x width) – in	9 x 4				9 x 9		
	Motor Speed – rpm	1725				1725		
	Motor Speed(s)	Adjustable Sheave				Adjustable Sheave		
	Bearing Type	Ball				Ball		
	Full Load Amps	9.1	5.6	2.8	2.0	6.0	2.6	2.4
	Service Factor	1.15				1.15		
Exhaust Air Blower	Motor – hp Stationary	1.5 / Belt				2 / Belt		
	Wheel Size (dia x width) – in	9 x 4				9 x 9		
	Motor Speed – rpm	1725				1725		
	Motor Speed(s)	Adjustable Sheave				Adjustable Sheave		
	Bearing Type	Ball				Ball		
	Full Load Amps	9.1	5.6	2.8	2.0	6.0	2.6	2.4
	Service Factor	1.15				1.15		
Wheel Electrical Data	Potential Volts	208 - 230				208 - 230		
	Motor Speed – rpm	1050				1050		
	Full Load Amps	0.3				0.3		
Total Electrical	MCA – Stationary	20.8	12.9	6.6	4.8	13.8	6.2	5.7
	OCPD – Stationary	30	15	9	7	20	9	8
Wheel Data	Wheel Depth – in	3				3		
	Wheel Diameter – in	25.3				30.346		
	Construction / Media Type	One Piece / Polymeric				One Piece / Polymeric		
Curb	Curb Height – in	14				14		
Weights	Shipping Weight – lbs. (kg)	389				650		
	Net Weight – lbs. (kg)	314				570		

N11 ARI CERTIFIED RATINGS					
Thermal Ratings @ 0" Pressure Diff.			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 @ 1.0Δ	Nominal Airflow CFM	900 @ 1.0Δ
EATR – -1.00 H ₂ O	9.30%	OACF – -1.00 H ₂ O	0.97
EATR – 0.00 H ₂ O	0.70%	OACF – 0.00 H ₂ O	1.19
EATR – +1.00 H ₂ O	0.00%	OACF – +1.00 H ₂ O	1.34

N20 ARI CERTIFIED RATINGS					
Thermal Ratings @ 0" Pressure Diff.			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 @ .95Δ	Nominal Airflow CFM	1600 @ .95Δ
EATR – -1.00 H ₂ O	7.80%	OACF – -1.00 H ₂ O	0.97
EATR – 0.00 H ₂ O	0.40%	OACF – 0.00 H ₂ O	1.16
EATR – +1.00 H ₂ O	0.00%	OACF – +1.00 H ₂ O	1.29

SPECIFICATIONS AND ELECTRICAL DATA

Model Numbers		N28-02 – O/U Indoor 1200 - 2800 CFM ERV			N36-02 – O/U Indoor 2000 - 3600 CFM ERV		
		208/230v 3ph	460v 3ph	575v 3ph	208/230v 3ph	460v 3ph	575v 3ph
Line Voltage – 60hz							
Fresh Air Blower	Motor – hp / type	3 / Belt			3 / Belt		
	Wheel Size (dia x width) – in	10 x 10			12 x 9		
	Motor Speed – rpm	1725			1725		
	Motor Speed(s)	Adjustable Sheave			Adjustable Sheave		
	Bearing Type	Ball			Ball		
	Full Load Amps	9.4	4.3	3.2	9.4	4.3	3.2
	Service Factor	1.15			1.15		
Exhaust Air Blower	Motor – hp Stationary	3 / Belt			3 / Belt		
	Wheel Size (dia x width) – in	10 x 10			12 x 9		
	Motor Speed – rpm	1725			1725		
	Motor Speed(s)	Adjustable Sheave			Adjustable Sheave		
	Bearing Type	Ball			Ball		
	Full Load Amps	9.4	4.3	3.2	9.4	4.3	3.2
	Service Factor	1.15			1.15		
Wheel Electrical Data	Motor – hp (1 phase)	0.005			0.17		
	Potential Volts	200 / 208 - 230			200 / 208 - 230		
	Motor Speed – rpm	825			1075		
	Full Load Amps	0.6			1.2		
Total Electrical	MCA – Stationary	21.8	10.3	7.8	22.4	10.9	8.4
	OCPD – Stationary	30	12	10	30	15	10
Wheel Data	Wheel Depth x Diameter – in	3 x 37.759			3 x 41.825		
	Construction / Media Type	Segmented Pies / Polymeric			Segmented Pies / Polymeric		
Curb	Curb Height – in	14			14		
Weights	Shipping Weight – lbs. (kg)	876			950		
	Net Weight – lbs. (kg)	801			854		

N28 ARI CERTIFIED RATINGS

Thermal Ratings @ 0" Pressure Diff.		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	2600 @ .95Δ	Nominal Airflow CFM	2600 @ .95Δ
EATR – -1.00 H ₂ O	6.10%	OACF – -1.00 H ₂ O	0.99
EATR – 0.00 H ₂ O	0.40%	OACF – 0.00 H ₂ O	1.13
EATR – +1.00 H ₂ O	0.00%	OACF – +1.00 H ₂ O	1.23

N36 ARI CERTIFIED RATINGS

Thermal Ratings @ 0" Pressure Diff.		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 @ .9Δ	Nominal Airflow CFM	3100 @ .9Δ
EATR – -1.00 H ₂ O	4.90%	OACF – -1.00 H ₂ O	0.99
EATR – 0.00 H ₂ O	1.30%	OACF – 0.00 H ₂ O	1.07
EATR – +1.00 H ₂ O	0.30%	OACF – +1.00 H ₂ O	1.12

SPECIFICATIONS AND ELECTRICAL DATA							
Model Numbers		N46-02 – O/U Indoor 3000 - 4600 CFM ERV			N62-02 – O/U Indoor 4600 - 6200 CFM ERV		
Line Voltage – 60hz		208/230v 3ph	460v 3ph	575v 3ph	208/230v 3ph	460v 3ph	575v 3ph
Fresh Air Blower	Motor – hp / type	5 / Belt			5 / belt		
	Wheel Size (dia x width) – in	12 x 12			15 x 15		
	Motor Speed – rpm	1725			1725		
	Motor Speed(s)	Adjustable Sheave			Adjustable Sheave		
	Bearing Type	Ball			Ball		
	Full Load Amps	14.0	7.0	5.1	14.0	7.0	5.1
	Service Factor	1.15			1.15		
Exhaust Air Blower	Motor – hp Stationary	5 / Belt			5 / belt		
	Wheel Size (dia x width) – in	12 x 12			15 x 15		
	Motor Speed – rpm	1725			1725		
	Motor Speed(s)	Adjustable Sheave			Adjustable Sheave		
	Bearing Type	Ball			Ball		
	Full Load Amps	14.0	7.0	5.1	14.0	7.0	5.1
	Service Factor	1.15			1.15		
Enthalpy Wheel Electrical Data	Motor – hp (1 phase)	0.17			.17		
	Potential Volts	200 / 208 - 230			200 / 208 – 230		
	Motor Speed – rpm	1075			1075		
	Full Load Amps	1.2			1.2		
Total Electrical	MCA – Stationary	32.7	17.0	12.7	32.7	17.0	12.7
	OCPD – Stationary	40	25	15	40	25	15
Wheel Data	Wheel Depth x Diameter – in	3 x 46.776			3 x 52.026		
	Construction / Media Type	Segmented Pies / Polymeric			Segmented Pies / Polymeric		
Curb	Curb Height – in	14			14		
Weights	Shipping Weight – lbs. (kg)	1228			1380		
	Net Weight – lbs. (kg)	1113			1205		

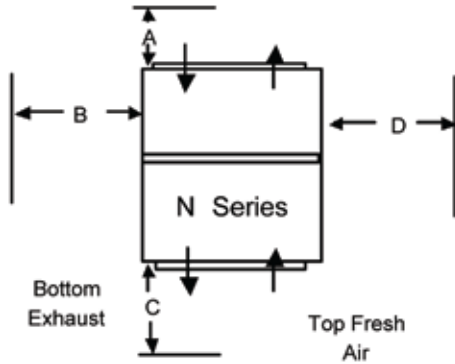
N46 ARI CERTIFIED RATINGS					
Thermal Ratings @ 0" Pressure Diff.			Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating		68%	60%	65%
	75% Airflow Heating		73%	67%	71%
	100% Airflow Cooling		68%	60%	63%
	75% Airflow Cooling		73%	67%	70%
Net Effectiveness	100% Airflow Heating		68%	60%	65%
	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 @ .9Δ	Nominal Airflow CFM	3900 @ .9Δ		
EATR – -1.00 H ₂ O	4.40%	OACF – -1.00 H ₂ O	0.99		
EATR – 0.00 H ₂ O	1.10%	OACF – 0.00 H ₂ O	1.06		
EATR – +1.00 H ₂ O	0.20%	OACF – +1.00 H ₂ O	1.11		

N62 ARI CERTIFIED RATINGS					
Thermal Ratings @ 0" Pressure Diff.			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 @ .95Δ	Nominal Airflow CFM	5500 @ .95Δ		
EATR – -1.00 H ₂ O	4.00%	OACF – -1.00 H ₂ O	0.99		
EATR – 0.00 H ₂ O	1.00%	OACF – 0.00 H ₂ O	1.06		
EATR – +1.00 H ₂ O	0.20%	OACF – +1.00 H ₂ O	1.10		

FILTER SIZES

Series	Size	Return Filter				Intake Filter			
		Qty	Width	Height	Type	Qty	Width	Height	Type
N	11	1	18	25	2" PLT	1	18	25	2" PLT
	20	2	16	16		2	16	16	
	28	2	20	20		2	20	20	
	36	2/1	16 / 14	20		2 / 1	16 / 14	20	
	46	2	24	24		2	24	24	
	62	5	14	20		5	14	20	

SERVICE CLEARANCES



Dimension (inches)	"N" SERIES					
	11	20	28	36	46	62
A	12	12	12	12	12	12
B	36	36	36	36	36	36
C	36	36	36	36	36	36
D	36	36	36	36	36	36

"N11-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for N11, 1.5HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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 for N11, 1.5HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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

"N20-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for N20, 2HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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 for N20, 2HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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

Notes:

1. Drive losses included in above tables.
2. Performances can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

RPM Range

	Not available from pulley kits
	Low Speed (Factory Standard)
	Medium Speed
	High Speed

"N28-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for N28, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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 for N28, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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

"N36-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for N36, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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 for N36, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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

Notes:

1. Drive losses included in above tables.
2. Performances can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

RPM Range

	Not available from pulley kits
	Low Speed (Factory Standard)
	Medium Speed
	High Speed

"N46-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for N46, 5HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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 for N46, 5HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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

"N62-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for N62, 5HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	4600	795	900	960	1010	1090	1135	1165
	5000	835	945	1000	1160	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 for N62, 5HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	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

Notes:

1. Drive losses included in above tables.
2. Performances can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

RPM Range

	Not available from pulley kits
	Low Speed (Factory Standard)
	Medium Speed
	High Speed

N SERIES ERV SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans or in accordance with schedule, mechanical cooling and/or heating system complete with a stand alone Energy Recovery Ventilator (ERV). The Energy Recovery Ventilator will contain an energy recovery component rated in accordance with ARI Standard 1060 with ratings certified by ARI. ERV shall be designed for ducting to the A/C (rooftop, upflow, horizontal) unit into the duct system of an air conditioning unit or as a stand alone unit with its own duct system. The cabinet shall be galvanized material with a powder coated paint finish electrostatically bonded to the metal. Cabinet panels where conditioned air is handled shall be fully insulated to prevent condensation and minimize sound. Openings shall be provided for duct connections. Lifting devices shall be provided for rigging. Test ports shall be provided so airflow can be measured across the energy recovery wheel. The intake and exhaust air blowers of the ERV shall contain a centrifugal forward curved blower. They shall have ball bearings with adjustable belt drive and motor mount base shall permit ease of motor change-over and belt tension adjustment.

The energy recovery device shall be a rotary heat exchanger per ARI Standard 1060 description. The device will be an enthalpy wheel coated with a silica gel desiccant by a patented process without the use of binders or adhesives which may plug the desiccant aperture. The substrate shall be a lightweight polymer. Desiccant shall not dissolve or deliquesce in the presence of water or high humidity. The wheel shall be easily cleanable with water and/or alkaline based coil cleaning solution. In all size units the wheel shall be provided with removable segments for cleaning and maintenance.

All diameter and perimeter seals shall be provided. The energy recovery cassette shall be an Underwriters Laboratories Recognized Component for electrical and fire safety.

ERV unit to have 2" pleated filters on the intake and return air sides. ERV shall be provided with a single point power connection for high voltage. Energy Recovery Ventilator shall be Ruskin "N" Series for indoor use in over and under duct configurations.

OPTIONS (specifier select as required)

Low Ambient Kit - Furnish and install a low ambient kit to prevent frost formation on the energy recovery wheel.

Motorized Intake Air Damper - Furnish and install motorized intake air damper.

Stop-Start-Jog - Furnish and install stop-start-jog controls to stop wheel rotation during economizer cycle operation.

Disconnect - Furnish disconnect box for field installation.

Dirty Filter Switch - Furnish and install dirty filter switch.

Rotation Sensor - Furnish and install rotation sensor to verify wheel rotation.

Pressure Sensor - Furnish and install pressure sensor to confirm airflow performance.

Ruskin continually strives to improve our products, and reserves the right to change product design and specification without notice.

RUSKIN[®]

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