



3900 Dr. Greaves Rd. • Kansas City, MO 64030 • (816) 761-7476 • FAX (816) 765-8955

M-SERIES ENERGY RECOVERY VENTILATOR INDOOR SIDE BY SIDE DISCHARGE

STANDARD CONSTRUCTION

CABINET

20 (1.0) gage galvanized steel.

PANELS

18 (1.3) gage galvanized steel.

FINISH

Polyester Resin based powder coat.
Hammer Gray.

WHEEL

ARI rated Internal Enthalpy Wheel.

FILTERS

Intake and Exhaust: 2" Pleated

TEMPERATURE LIMITS

+10°F (-12°C) to. +115°F (+46°C).

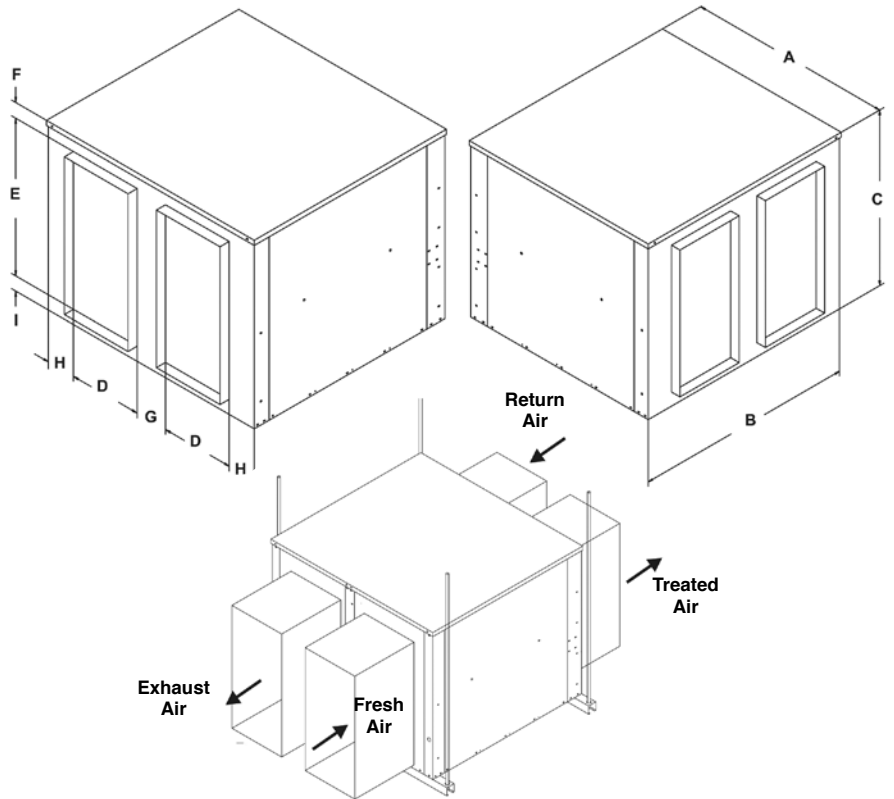
OPTIONS

- Low Ambient Kit (LAK)
- 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

"M" series energy recovery ventilators are designed for use inside a building for applications that require "side-by-side" 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. Balancing dampers should be utilized to help control the air volumes.



ERV with Horizontal Ductwork

ERV Model	CFM Range	Dimensions (in inches)								
		A	B	C	D	E	F	G	H	I
M11-02	300-1100	44.75	32.13	33.50	11.00	27.00	4.00	4.25	2.88	2.50
M20-02	1200-2000	54.38	37.25	37.50	12.00	30.00	5.87	5.13	4.06	1.63
M28-02	1200-2800	52.25	42.63	43.56	14.00	32.00	8.69	5.25	4.25	2.88
M36-02	2000-3600	60.00	46.69	57.37	16.50	39.50	12.00	5.50	4.05	5.88
M46-02	3000-4600	60.00	52.69	57.37	16.50	39.50	12.00	8.69	5.50	5.88
M62-02	4600-6200	72.00	70.88	63.63	19.50	39.50	17.53	14.50	8.70	6.60

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		M11-02 S/S Indoor 300 - 1100 CFM ERV				M20-02 S/S 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		
Weights	Shipping Weight – lbs. (kg)	389				650		
	Net Weight – lbs. (kg)	314				570		

M11 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		

M20 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		M28-02 – S/S Indoor 1200 - 2800 CFM ERV			M36-02 – S/S 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		
Enthalpy 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		

M28 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

M36 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		M46-02 – S/S Indoor 3000 - 4600 CFM ERV			M62-02 – S/S 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		

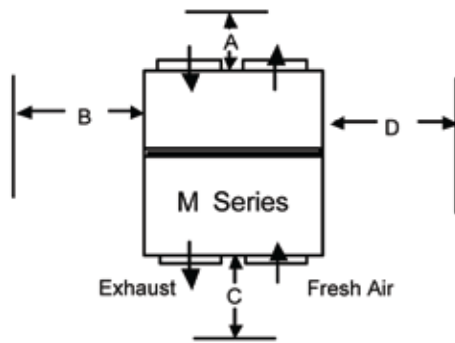
M46 ARI CERTIFIED RATINGS					
Thermal Ratings @ 0" Pressure Diff.			Sensible	Latent	Total
Total Effectiveness	100% Airflow Heating		68%	60%	65%
	75% Airflow Heating		73%	67%	71%
	100% Airflow Cooling		68%	60%	63%
	75% Airflow Cooling		73%	67%	70%
Net Effectiveness	100% Airflow Heating		68%	60%	65%
	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		

M62 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
M	11	1	14	20	2" PLT	1	14	20	2" PLT
	20	2	16	16		2	14	16	
	28	2	20	20		2	20	20	
	36	3	16	20		3	16	20	
	46	2	24	24		2	24	24	
	62	5	14	20		5	14	20	

SERVICE CLEARANCES



Dimension (inches)	"M" 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	48	48	60	60

“M11-02” INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for M11, 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	1075	1280	1390	1535	1635
	500	n/a	1065	1275	1355	1505	1615	1670
	700	1060	1270	1370	1525	1610	1660	1790
	900	1310	1455	1520	1605	1655	1820	1960
	1100	1445	1515	1625	1725	1815	1955	2035
EXHAUST								
Blower RPM for M11, 1.5HP, 2” Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	300	n/a	1075	1180	1290	1445	1565	1645
	500	n/a	1170	1285	1375	1470	1605	1725
	700	1065	1280	1370	1465	1600	1680	1800
	900	1255	1360	1460	1590	1675	1755	1865
	1100	1445	1455	1585	1670	1750	1860	1935

“M20-02” INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for M20, 2HP, 2” Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	1200	n/a	1225	1315	1405	1440	1695	1725
	1400	1220	1275	1400	1480	1620	1730	1790
	1600	1225	1345	1475	1615	1715	1775	1890
	1800	1335	1465	1610	1710	1765	1880	1930
	2000	1380	1585	1680	1755	1815	1920	n/a
EXHAUST								
Blower RPM for M20, 2HP, 2” Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	1200	1045	1170	1380	1475	1635	1720	1805
	1400	1115	1330	1470	1570	1725	1745	1850
	1600	1320	1460	1565	1680	1790	1840	1940
	1800	1415	1560	1725	1780	1885	1930	2045
	2000	1490	1660	1770	1875	1920	1985	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

"M28-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for M28, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	1200	n/a	n/a	985	1115	1255	1390	1445
	1600	n/a	975	1090	1190	1320	1320	1525
	2000	960	1085	1185	1315	1410	1410	1550
	2400	1080	1240	1310	1405	1485	1485	1650
	2800	1230	1395	1505	1535	1595	1595	1775
EXHAUST								
Blower RPM for M28, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	1200	n/a	n/a	1050	1210	1315	1375	1465
	1600	n/a	1020	1200	1285	1365	1465	1545
	2000	1010	1190	1320	1355	1540	1580	1660
	2400	1155	1315	1425	1545	1660	1735	1785
	2800	1290	1450	1600	1725	1755	1825	1880

"M36-02" INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for M36, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	2000	820	930	1015	1095	1160	1245	1315
	2400	920	1010	1090	1155	1240	1305	1405
	2800	1000	1085	1150	1235	1295	1410	1500
	3200	1130	1200	1260	1395	1430	1495	1565
	3600	1190	1385	1420	1455	1510	n/a	n/a
EXHAUST								
Blower RPM for M36, 3HP, 2" Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	2000	780	890	970	1065	1130	1235	1275
	2400	885	965	1060	1125	1230	1270	1340
	2800	945	1055	1120	1225	1265	1355	1405
	3200	1050	1135	1255	1325	1350	1415	1460
	3600	1125	1250	1305	1340	1415	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

“M46-02” INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for M46, 5HP, 2” Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	3000	925	1035	1110	1140	1235	1315	1350
	3400	1030	1120	1185	1225	1310	1345	1385
	3800	1100	1150	1240	1335	1385	1420	1455
	4200	1165	1245	1375	1435	1460	1505	1550
	4600	1230	1315	1335	1470	1525	1585	1655
EXHAUST								
Blower RPM for M46, 5HP, 2” Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	3000	985	1085	1155	1280	1325	1370	1440
	3400	1060	1150	1270	1320	1365	1430	1480
	3800	1145	1265	1335	1400	1450	1475	1505
	4200	1240	1330	1375	1460	1470	1515	1560
	4600	1305	1400	1420	1485	1525	1550	1650

“M62-02” INDOOR ERV AIRFLOW PERFORMANCE								
SUPPLY								
Blower RPM for M62, 5HP, 2” Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	4600	820	910	990	1020	1135	1165	1225
	5000	885	965	1040	1100	1160	1225	1280
	5400	910	1000	1095	1155	1215	1275	n/a
	5800	960	1060	1145	1205	1265	1290	n/a
	6200	1020	1110	1195	1255	1275	n/a	n/a
EXHAUST								
Blower RPM for M62, 5HP, 2” Pleated Filters								
		External Static Pressure (in water)						
		0	.25	.5	.75	1	1.25	1.5
CFM	4600	875	935	1000	1025	1140	1175	1190
	5000	910	975	1040	1130	1190	1200	1280
	5400	945	1015	1095	1150	1230	1275	n/a
	5800	990	1060	1125	1175	1265	n/a	n/a
	6200	1010	1110	1195	1200	n/a	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

M 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 "M" Series for indoor use in a side-by-side configuration.

OPTIONS (specifier select as required)

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

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.



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using vegetable based inks 