

# ERMS Series Submittal Data



Revision: 07/01/11



## Submittal Data

Unit Designation: \_\_\_\_\_

Job name: \_\_\_\_\_

Architect: \_\_\_\_\_

Engineer: \_\_\_\_\_

Contractor: \_\_\_\_\_

## Performance Data

Cooling Capacity: \_\_\_\_\_

EER: \_\_\_\_\_

Heating Capacity: \_\_\_\_\_

COP: \_\_\_\_\_

Ambient Air Temp: \_\_\_\_\_

Entering Water Temp (Clg): \_\_\_\_\_

Entering Air Temp (Clg): \_\_\_\_\_

Entering Water Temp (Htg): \_\_\_\_\_

Entering Air Temp (Htg): \_\_\_\_\_

Airflow: \_\_\_\_\_

Fan Speed or Motor/RPM/Turns: \_\_\_\_\_

Operating Weight: \_\_\_\_\_

## Electrical Data

Power Supply: \_\_\_\_\_

Minimum Circuit Ampacity: \_\_\_\_\_

Maximum Overcurrent Protection: \_\_\_\_\_



## ERMS Series 60Hz Submittal Data

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) standard 62 requires significantly higher amounts of outside air for building HVAC systems. In extremely warm, cold or humid conditions these requirements create a substantial load management problem. The size of the HVAC unit can be increased to handle the additional outside air load, but this significantly increases the initial project costs and wastes energy. *Sterling's* rooftop units are mated with the latest Energy Recovery Module (ERMS) technology to provide the most energy efficient Make Up Air (MUA) system on the market today.

The energy recovery wheel inside the ERMS unit transfers energy from the warmer to the cooler air stream through counter-flowing supply and exhaust air streams through a slowly rotating wheel (less than 60 revolutions per minute). The large energy-transfer surface is arranged to provide laminar air flow through the wheel causing the constant flow of recovered energy to represent up to 75% of the difference in total energy contained within the two air streams.

During both summer and winter, the energy recovery wheel transfers moisture entirely in the vapor state. This process eliminates wet surfaces that retain dust and promote fungal growth. The need for a condensate pan and drain is also eliminated. Because it is constantly rotating, the energy recovery wheel is always being cleaned by counter-flowing air streams, first in one direction, and then the other. Because it is always dry, dust or other particles impinging on the surface during one half cycle, are automatically removed during the next half cycle. When ventilation air is introduced into a building, the cooling and heating equipment must be sized to handle both the building envelope load and the outdoor air ventilation load at the extremes of summer and winter design conditions. The use of an ERMS can significantly reduce the outdoor air ventilation load applied to the heating and cooling equipment, effectively decreasing the heating and cooling requirements. Savings of capital equipment cost for ventilation is significant.

The Sterling Engineered products rooftop is a packaged air, heating and cooling system, suitable for heating, cooling, ventilating and make up air applications. The Sterling rooftop unit has many features and benefits that are not found on other rooftop units:

- ETL Certified Packaged Units.
- Heating Capacities from 100 MBH – 1,200 MBH (29.3 kW – 351.4 kW).
- Natural and Power Vented Furnaces
- 80% Efficient Standard Temperature Rise Furnace.
- Standard Temperature Rise 20-60°F (11-33°C) per Furnace.
- High Temperature Rise 60-90°F (33-50°C) single Furnace.
- CFM Ranges from 800-14,000 CFM (0.4-6.6Cu. m/s).
- Motor Sizes up to 15 Horse Power (EPACT compliant).
- Standard ODP Motors; with Premium Efficiency, Totally Enclosed and 2 speed optional.
- Standard Right Side Service Access, Left Optional.
- Draw-thru Heating or Cooling Coil Cabinet with Stainless Steel Drip Pan.
- Evaporative cooling with standard 8 or optional 12 in. media (203 or 305 mm).
- Standard Insulated Roof Curbs (Optional Un-insulated Roof Curbs Available).
- Vibration Isolation Roof Curbs.
- Adapter Roof Curbs.
- Standard 18 ga. Cabinets, Painted Sterling Gray.
- Standard 20 ga. Aluminized Steel Heat Exchanger (Stainless Steel Optional).
- Standard 1" Washable Filters.
- Standard Single Stage Combination Gas Valve.
- Standard High Temperature Limit (each Furnace).
- Standard Blower Door Safety Interlock Switch.
- Standard Reverse Air Flow Safety Switch.
- Standard 24 Volt Circuit Breaker.
- Standard Printed Circuit Main Connection Board.
- Wiring Harnesses with Stamped Wire Numbers.
- Solid State Automatic Pilot Ignition Control.
- Solid State Fan Time Delay.
- Over 40 Standard Control Packages.



ARI certified energy recovery wheels insure that published effectiveness (%) has been verified by third party testing. The following certification program ratings are included in the ARI standard:

1. Airflow, scfm
2. Pressure drop, inches H<sub>2</sub>O
3. Sensible and net sensible effectiveness (at 100% and 75% rated airflow for heating and cooling conditions)
4. Latent and net latent effectiveness (at 100% and 75% rated airflow for heating and cooling conditions)
5. Total and net total effectiveness (at 100% and 75% rated airflow for heating and cooling conditions)
6. Exhaust air transfer ratio, outdoor air correction factor, and purge angle or setting (if applicable) at 0.00 inches H<sub>2</sub>O and two or more pressure differentials.

Test conditions are 95°F DB / 78°F WB outside air in cooling and 35°F DB outside air in heating with return air temperatures of 75°F DB / 63°F WB in cooling and 70°F DB in heating.

## SPECIFICATION FOR AIRXCHANGE WHEELS

### 1. **Cassette Components**

The energy recovery component shall incorporate a rotary wheel in an insulated cassette frame complete with seals, drive motor and drive belt.

### 2. **Sensible Wheel Characteristics**

Sensible energy recovery wheels shall be constructed of lightweight polymer and shall be provided without desiccant coating. Sensible-only wheels shall be constructed in the same fashion as the total energy recovery wheel.

### 3. **Wheels Layers**

The wheel shall be wound continuously with one flat and one structured layer in an ideal parallel plate geometry providing laminar flow and minimum pressure drop-to-efficiency ratios. The layers shall be effectively captured in stainless steel wheel frames or aluminum and stainless steel segment frames that provide a rigid and self-supporting matrix.

### 4. **Removable Segment Wheels**

Wheels 25" in diameter and greater shall be provided with removable energy transfer matrix. Wheel frame construction shall be a welded hub, spoke and rim assembly of stainless, plated and/or coated steel and shall be self-supporting without matrix segments in place. Segments shall be removable without the use of tools to facilitate maintenance and cleaning. Wheel bearings shall be selected to provide an L-10 life in excess of 400,000 hours. Rim shall be continuous rolled stainless steel and the wheel shall be connected to the shaft by means of taper locks.

### 5. **Seals and Belts**

All diameter and perimeter seals shall be provided as part of the cassette assembly and shall be factory set. Drive belts of stretch urethane shall be provided for wheel rim drive without the need for external tensioners or adjustments.

### 6. **Standards Compliance**

The energy recovery cassette shall be an Underwriters Laboratories Recognized Component for electrical and fire safety. The wheel drive motor shall be an Underwriters Laboratory Recognized Component and shall be mounted in the cassette frame and supplied with a service connector or junction box. Thermal performance shall be certified by the manufacturer in accordance with *ASHRAE Standard 84, Method of Testing Air-to-Air Heat Exchangers and ARI Standard 1060, Rating Air-to-Air Energy Recovery Ventilation Equipment*. *Cassettes shall be listed in the ARI Certified Products.*



ERMS Series 60Hz Submittal Data

ERMS Unit	CFM	Effectiveness (%)				PD
		Sensible	Latent	T Cooling	T Heating	
ERMS-10A	800	82.3	78.1	80.1	80.8	.60
	900	81.2	76.7	78.9	79.6	.67
	1000	80.1	75.4	77.6	78.4	.74
	1100	79.0	74.0	76.4	77.2	.80
	1200	77.9	72.6	75.1	76.0	.87
	1300	76.8	71.3	73.9	74.8	.94
	1400	75.7	69.9	72.6	73.6	1.01
	1500	74.6	68.5	71.3	72.4	1.08
ERMS-10B	1600	73.5	67.1	70.0	71.2	1.15
	1600	79.6	75.5	77.5	78.1	.73
	1700	78.7	74.7	76.7	77.2	.77
	1800	77.8	74.0	75.9	76.4	.82
	1900	76.8	73.3	75.1	75.5	.86
	2000	75.9	72.6	74.3	74.7	.91
	2100	75.0	71.8	73.5	73.8	.96
	2200	74.1	71.1	72.7	73.0	1.00
	2300	73.2	70.4	71.9	72.1	1.05
	2400	72.3	69.6	71.1	71.2	1.09
ERMS-10C	2500	71.3	68.9	70.3	70.4	1.14
	2600	70.4	68.1	69.5	69.5	1.18
	2500	83.5	78.6	80.9	81.7	.53
	2750	82.4	77.7	80.0	80.7	.58
	3000	81.4	76.9	79.0	79.8	.64
	3250	80.3	76.1	78.1	78.8	.69
	3500	79.3	75.2	77.2	77.8	.74
	3750	78.2	74.4	76.3	76.8	.80
ERMS-20A	4000	77.2	73.5	75.4	75.8	.85
	4250	76.1	72.7	74.4	74.8	.90
	4500	75.0	71.8	73.5	73.8	.96
	1600	84.6	79.5	81.8	82.7	.48
	1800	83.4	78.5	80.8	81.6	.54
	2000	82.2	77.6	79.8	80.5	.60
	2200	81.0	76.6	78.7	79.4	.65
	2400	79.8	75.7	77.7	78.3	.71
	2600	78.7	74.7	76.7	77.2	.77
	2800	77.5	73.8	75.7	76.1	.83
	3000	76.3	72.8	74.6	75.0	.89
	3200	75.1	71.9	73.6	73.9	.95
3400	73.9	70.9	72.5	72.8	1.01	
3600	72.7	69.9	71.5	71.6	1.07	
3800	71.5	69.0	70.4	70.5	1.13	
4000	70.3	68.0	69.4	69.4	1.19	



ERMS Series 60Hz Submittal Data

ERMS Unit	CFM	Effectiveness (%)				PD
		Sensible	Latent	T Cooling	T Heating	
ERMS-20B	4000	82.1	77.5	79.7	80.4	.60
	4500	80.6	76.3	78.4	79.0	.68
	5000	79.1	75.1	77.1	77.6	.75
	5500	77.6	73.9	75.8	76.2	.83
	6000	76.1	72.7	74.5	74.8	.90
	6500	74.6	71.5	73.1	73.4	.98
	7000	73.0	70.3	71.8	72.0	1.05
	7500	71.5	69.1	70.5	70.6	1.13
ERMS-30A	2250	84.5	79.4	81.8	82.7	.48
	2500	83.5	78.6	80.9	81.7	.53
	2750	82.4	77.7	80.0	80.7	.58
	3000	81.4	76.9	79.0	79.8	.64
	3250	80.3	76.1	78.1	78.8	.69
	3500	79.3	75.2	77.2	77.8	.74
	3750	78.2	74.4	76.3	76.8	.80
	4000	77.2	73.5	75.4	75.8	.85
	4250	76.1	72.7	74.4	74.8	.90
	4500	75.0	71.8	73.5	73.8	.96
	4750	74.0	71.0	72.6	72.8	1.01
	5000	72.9	70.1	71.7	71.8	1.06
ERMS-30B	5500	84.1	79.1	81.4	82.3	.50
	6000	83.2	78.3	80.6	81.4	.55
	6500	82.3	77.6	79.8	80.6	.59
	7000	81.4	76.9	79.1	79.8	.64
	7500	80.5	76.2	78.3	78.9	.68
	8000	79.6	75.4	77.5	78.1	.73
	8500	78.7	74.7	76.7	77.2	.77
	9000	77.8	74.0	75.9	76.4	.82
	9500	76.9	73.3	75.1	75.5	.86
	10000	76.0	72.5	74.3	74.7	.91
	10500	75.0	71.8	73.5	73.8	.96
	11000	74.1	71.1	72.7	73.0	1.00
	11500	73.2	70.3	71.9	72.1	1.05
	12000	72.3	69.6	71.1	71.2	1.09
12500	71.4	68.8	70.3	70.4	1.14	
13000	70.4	68.1	69.5	69.5	1.18	



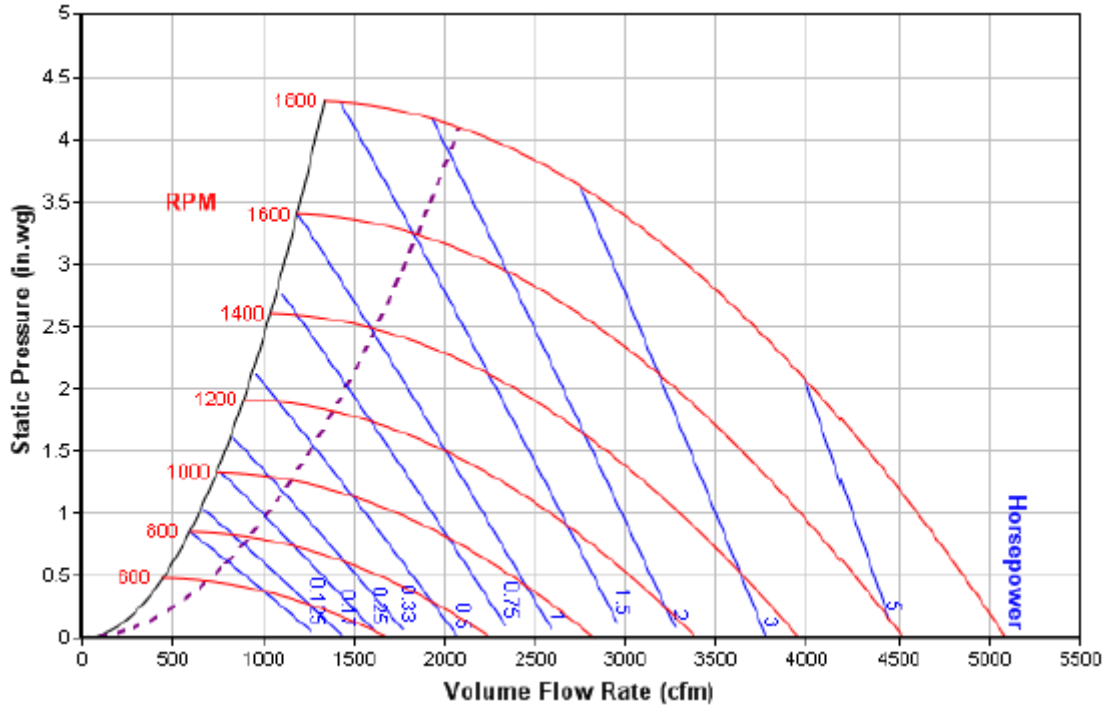
ERMS Series 60Hz Submittal Data

ERMS Unit	CFM	Effectiveness (%)				PD
		Sensible	Latent	T Cooling	T Heating	
ERMS-40A	3000	85.1	79.9	82.3	83.2	.45
	3500	83.6	78.7	81.0	81.8	.53
	4000	82.1	77.5	79.7	80.4	.60
	4500	80.6	76.3	78.4	79.0	.68
	5000	79.1	75.1	77.1	77.6	.75
	5500	77.6	73.9	75.8	76.2	.83
	6000	76.1	72.7	74.5	74.8	.90
	6500	74.6	71.5	73.1	73.4	.98
	7000	73.0	70.3	71.8	72.0	1.05
	7500	71.5	69.1	70.5	70.6	1.13
ERMS-40B	8000	70.0	67.8	69.2	69.1	1.2
	8000	81.3	76.8	79.0	79.7	.64
	9000	79.7	75.6	77.6	78.2	.72
	10000	78.1	74.3	76.2	76.7	.80
	11000	76.5	73.0	74.8	75.2	.88
	12000	74.9	71.7	73.4	73.7	.96
	13000	73.3	70.4	72.0	72.2	1.04
14000	71.6	69.1	70.6	70.7	1.12	

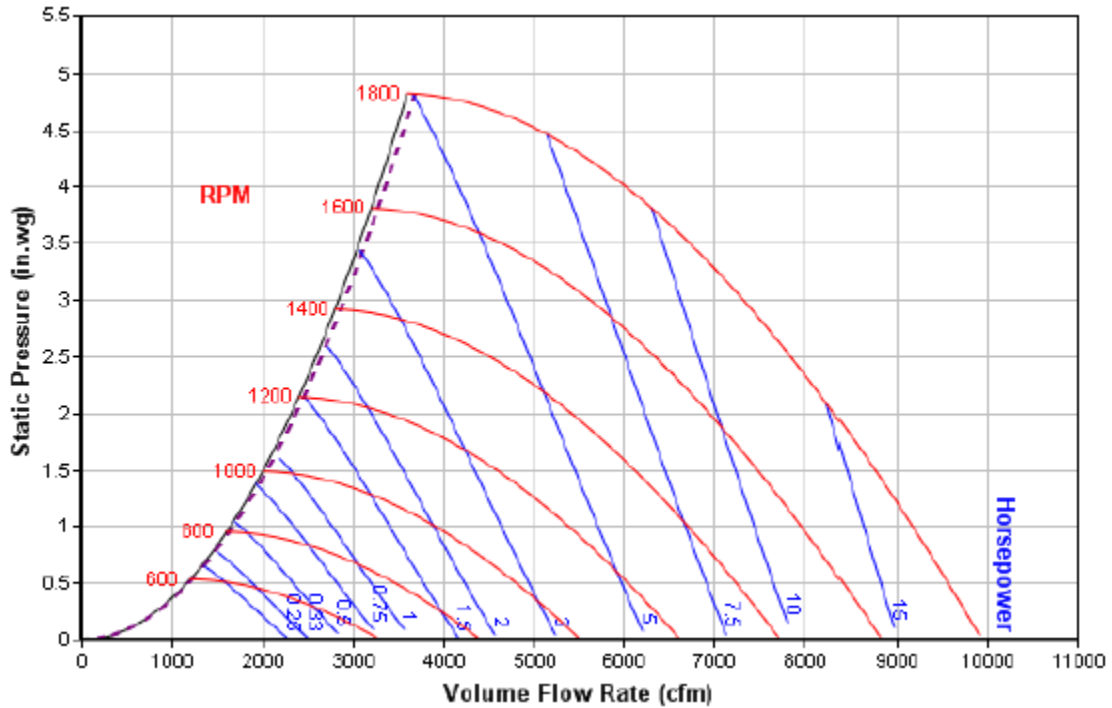


# ERMS Series 60Hz Submittal Data

## ERMS-10A 800-1600 CFM



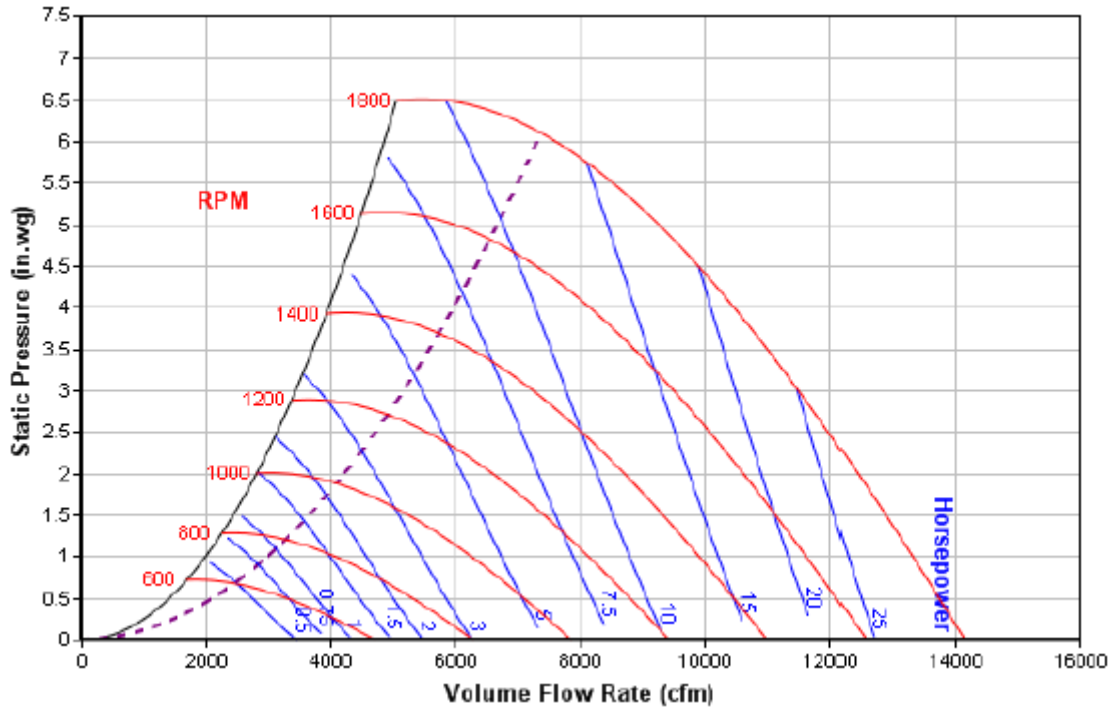
## ERMS-10B 1601-2600 CFM



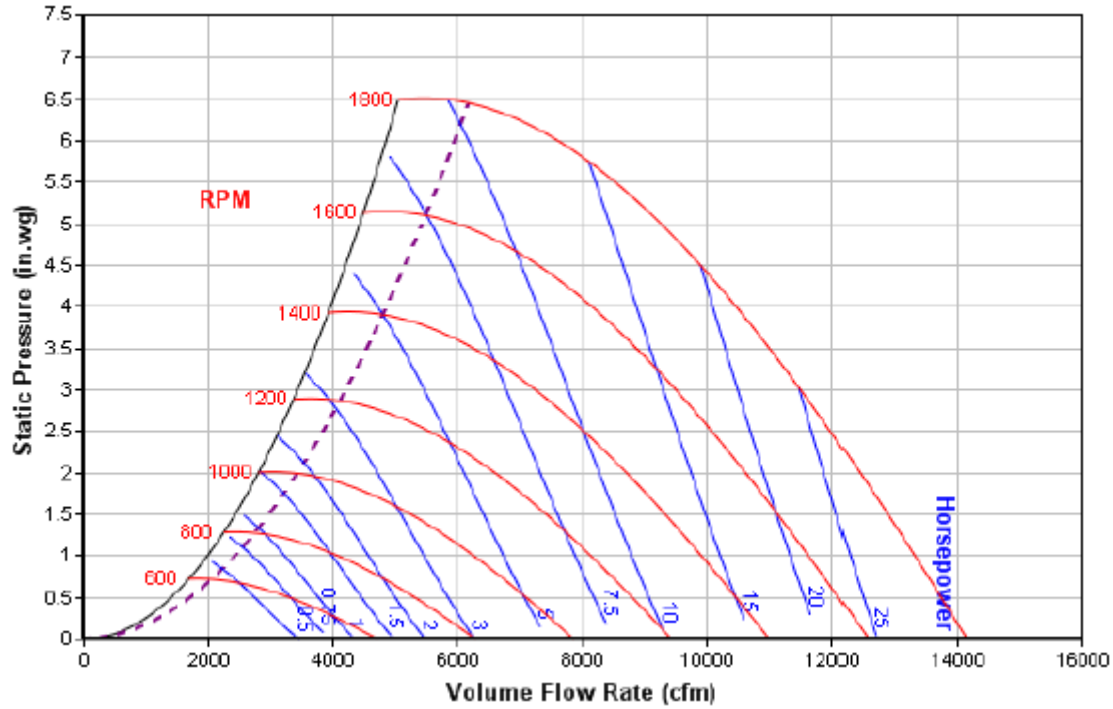


ERMS Series 60Hz Submittal Data

ERMS-10C 2601-4500 CFM



ERMS-20A 1600-4000 CFM

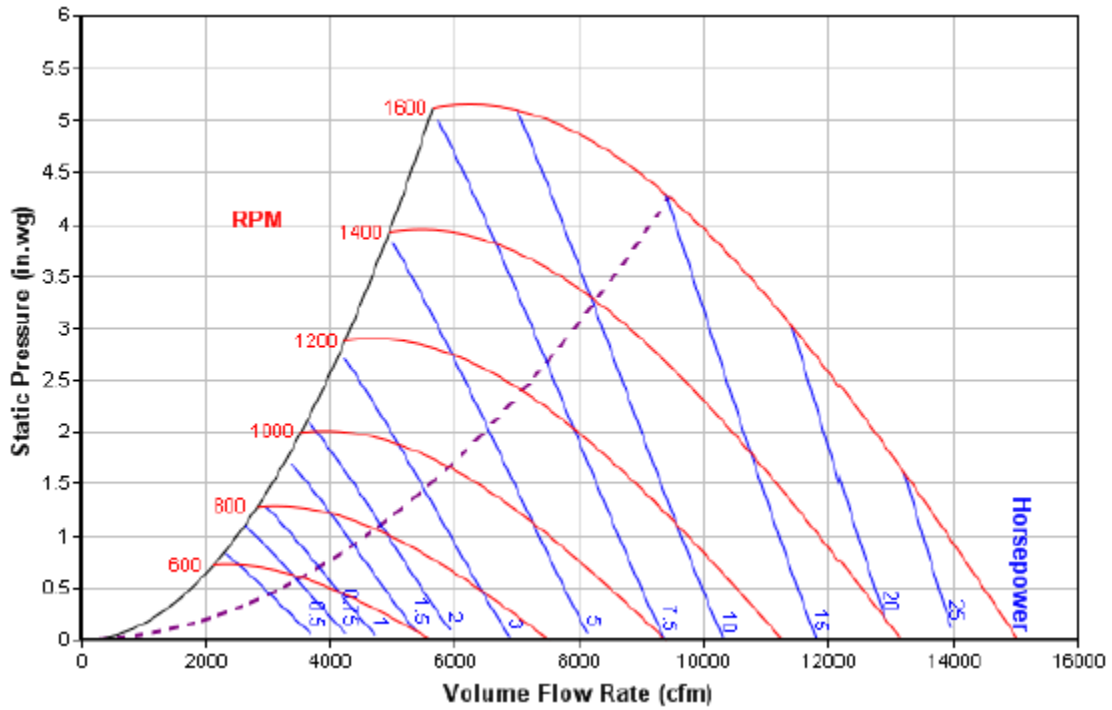




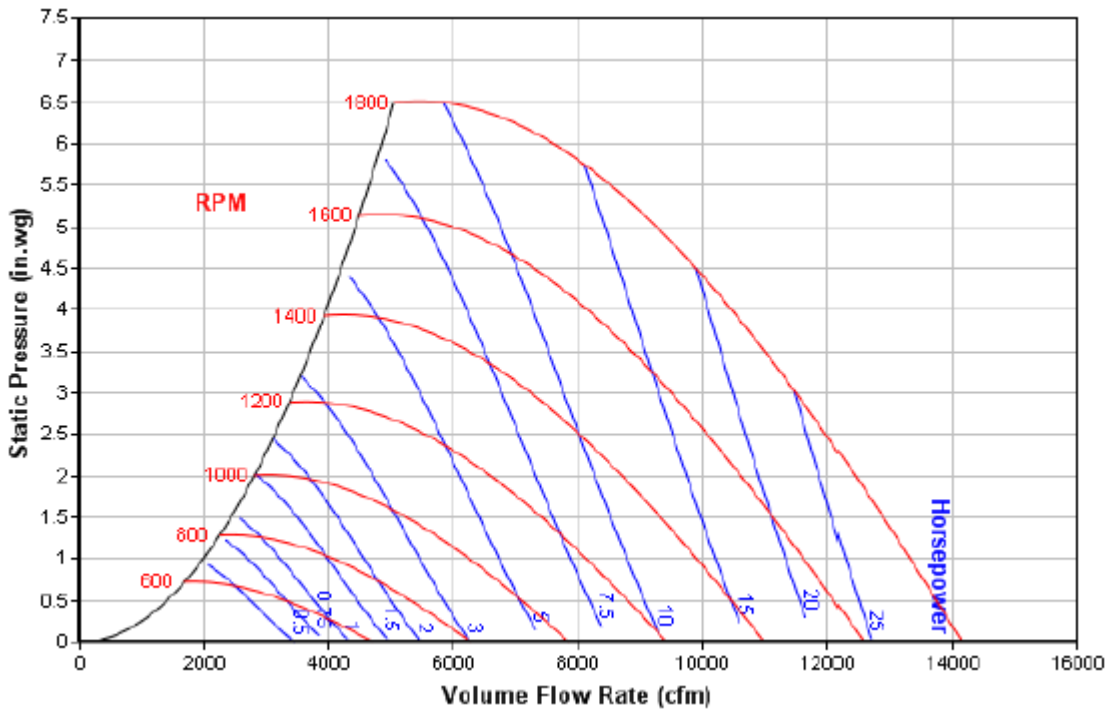


# ERMS Series 60Hz Submittal Data

## ERMS-20B 4001-7500 CFM



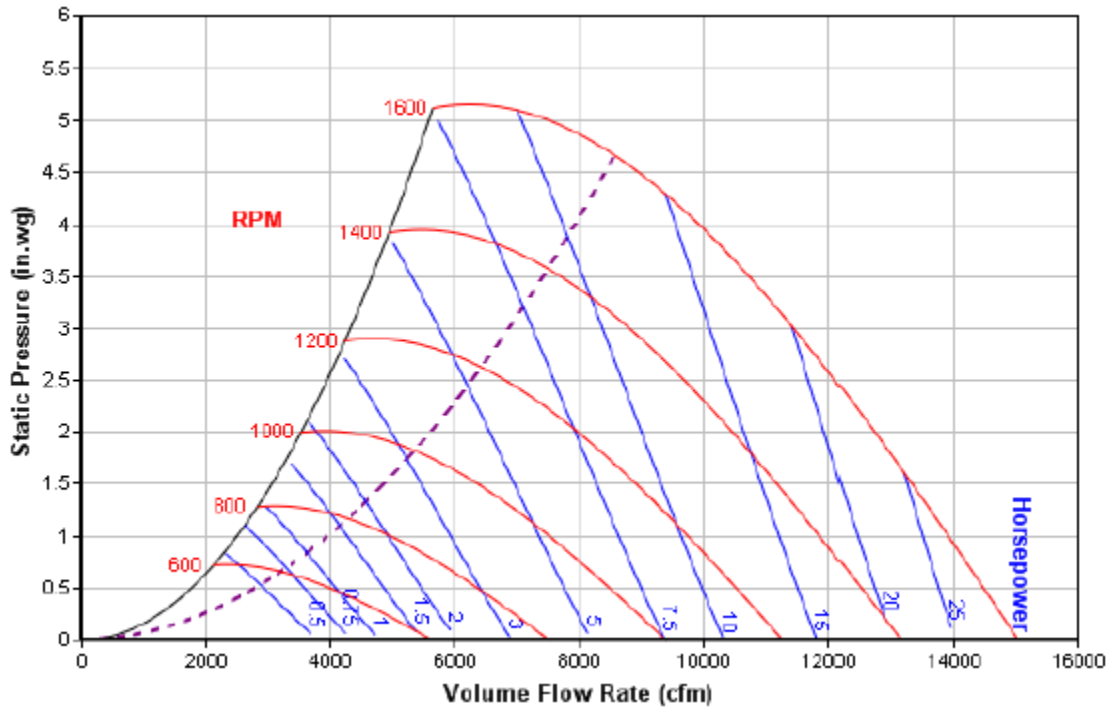
## ERMS-30A 2400-5000 CFM



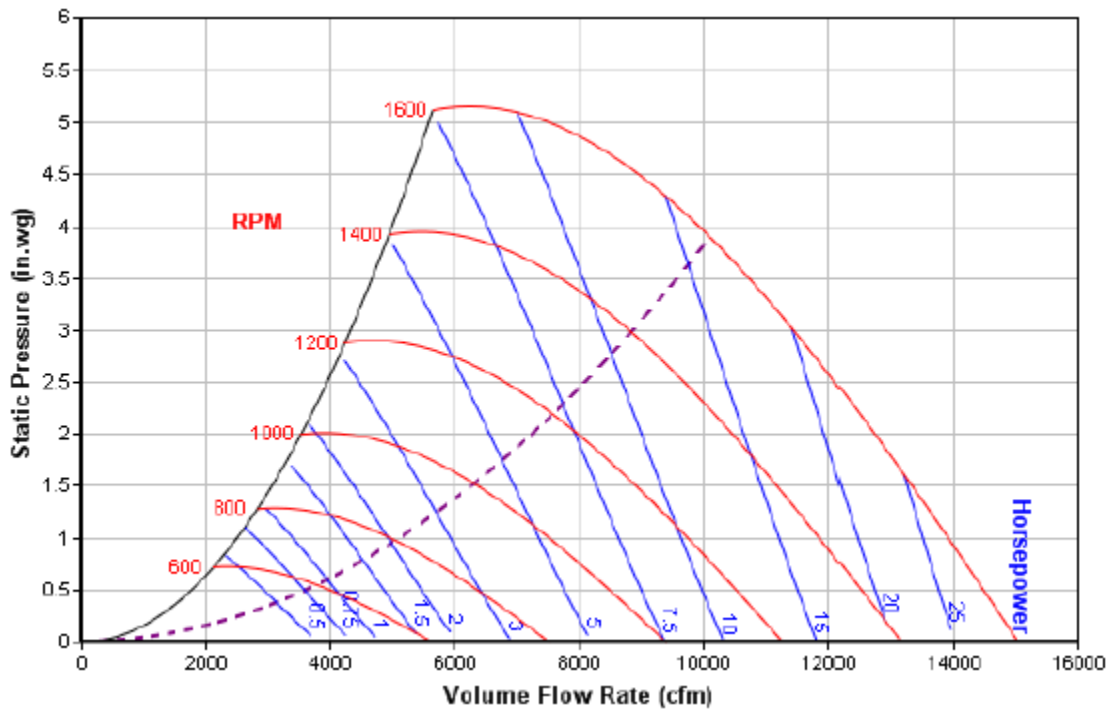


# ERMS Series 60Hz Submittal Data

## ERMS-30B 5001-13000 CFM



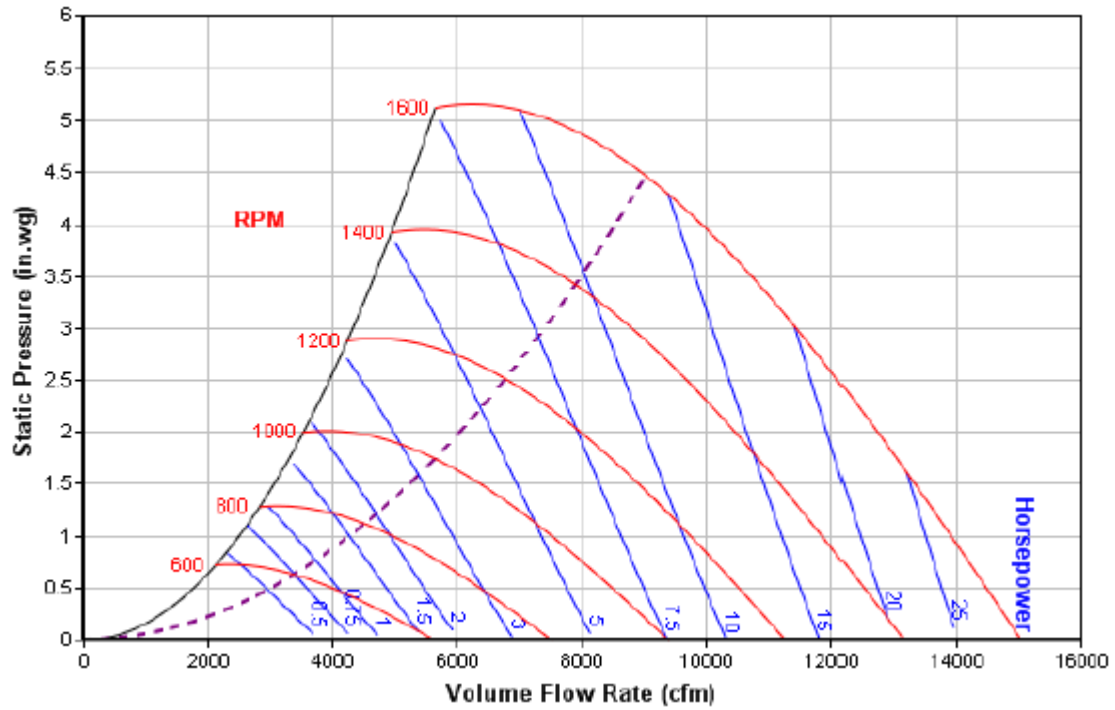
## ERMS-40A 3200-8000 CFM





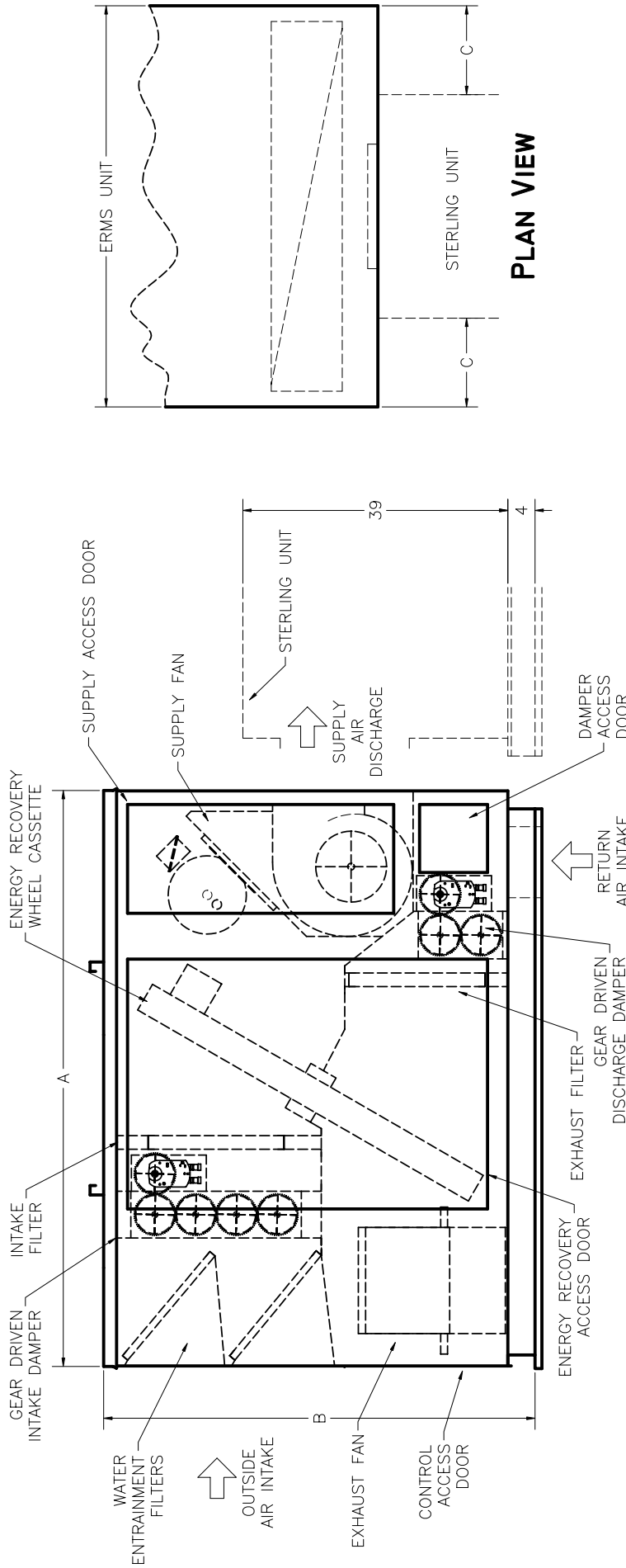
# ERMS Series 60Hz Submittal Data

## ERMS-40B 8001-14000 CFM



# ERMS ENERGY RECOVERY MODULE FOR STERLING UNITS

REV: H



PLAN VIEW

ELEVATION VIEW



STERLING UNIT	ERMS UNIT	CFM	A	B	C	A/C WIDTH	ERMS WIDTH	SHIPPING WEIGHT
RT/PV10/15	ERMS-10A	800-1600	85.125	61.25	13.0625	32.875	59.00	2100 LBS.
	ERMS-10B	1601-2600						2200 LBS.
	ERMS-10C	2601-4500						2300 LBS.
RT/PV20/25/50	ERMS-20A	1600-4000	107.00	64.75	13.50	43.875	70.875	2500 LBS.
	ERMS-20B	4001-7500						2800 LBS.
RT/PV30/35/60/70	ERMS-30A	2400-5000	135.75	84.875	16.50	54.875	87.875	3600 LBS.
	ERMS-30B	5001-13000						4000 LBS.
RT/PV40/80/120	ERMS-40A	3200-8000	135.75	93.25	16.75	60.375	93.875	4300 LBS.
	ERMS-40B	8001-14000						5200 LBS.

FOR: ERMS WIRING DIAGRAM



PART NO:

PROJECT:

ENGINEER:

DISTRIBUTOR:

DRAWING NO: 9600ST.dwg sw/MR

DATE:

APPROVED BY:

DATE: / /



FOR: ERMS CURB

PART NO: ERMS-\*\*-CB\*\*A

### ERMS ROOF CURB

**SELECT HEIGHT**


ERMS CURB PART#	BASE CURB HEIGHT "H"
ERMS-**-CB14A	14"
ERMS-**-CB18A	18"
ERMS-**-CB24A	24"

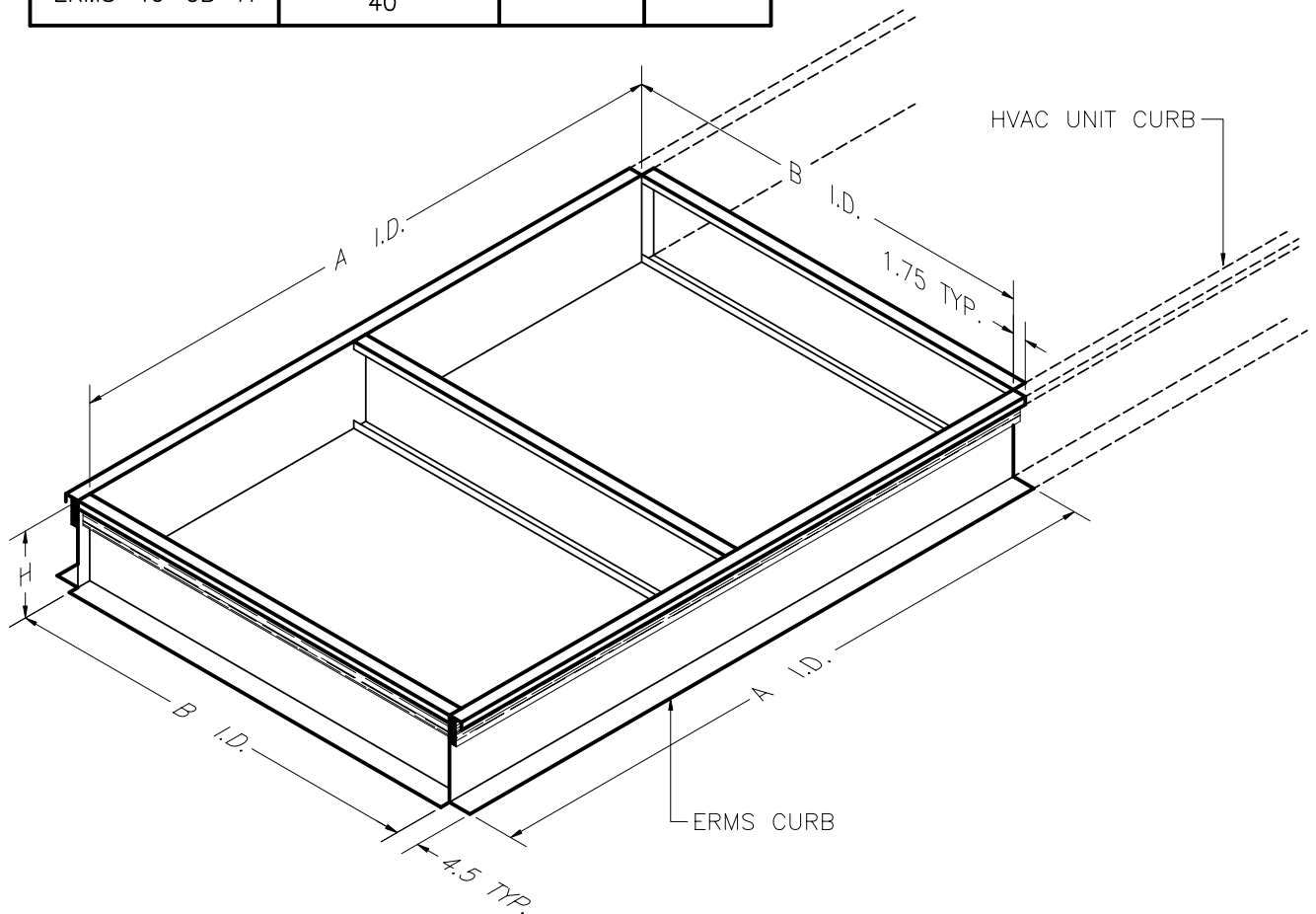
**FEATURES**

- - ROOF CURB IS HEAVY GA. GALVANIZED STEEL.
- - FULL PERIMETER WOOD NAILER PROVIDED.
- - GASKET MATERIAL & ASSEMBLY HARDWARE PROVIDED.
- - CURBS ARE SHIPPED KNOCKED DOWN.

**SELECT PRODUCT**


ERMS CURB PART#	HVAC UNIT CAPACITY (CA)	A	B
ERMS-10-CB**A	10 / 15	85.50	26.425
ERMS-20-CB**A	20 / 25	107.50	37.425
ERMS-30-CB**A	30 / 35	136.125	48.425
ERMS-40-CB**A	40	136.125	53.925



PROJECT:

DATE:

ENGINEER:

DISTRIBUTOR:

DRAWING NUMBER: 9600st.dwg

MR

07.25.11



ERMS Series 60Hz Submittal Data

# ELECTRICAL DATA



ERMS Series 60Hz Submittal Data

208-230 Volt Electrical Data

	208-230 VOLT DATA								5 KW		10 KW		15 KW		20 KW		
	WHEEL			SUPPLY FAN		EXHAUST FAN		BASE ERV UNIT		FLA	14	FLA	28	FLA	42	FLA	56
	CFM	HP	FLA	HP	FLA	HP	FLA	MCA	MOCP	BASE ERV UNIT WITH PREHEAT							
										MCA	MOCP	MCA	MOCP	MCA	MOCP	MCA	MOCP
ERMS-10**	1000	n/a	0.3	1	3.6	1	3.6	8.40	12.00	25.90	26.00	43.40	40.00	60.90	54.00	78.40	68.00
	1100	n/a	0.3	1	3.6	1	3.6	8.40	12.00	25.90	26.00	43.40	40.00	60.90	54.00	78.40	68.00
	1200	n/a	0.3	1	3.6	1	3.6	8.40	12.00	25.90	26.00	43.40	40.00	60.90	54.00	78.40	68.00
ERMS-20**	1300	n/a	0.3	1	3.6	1	3.6	8.40	12.00	25.90	26.00	43.40	40.00	60.90	54.00	78.40	68.00
	1400	n/a	0.3	1	3.6	1	3.6	8.40	12.00	25.90	26.00	43.40	40.00	60.90	54.00	78.40	68.00
	1500	n/a	0.3	1	3.6	1	3.6	8.40	12.00	25.90	26.00	43.40	40.00	60.90	54.00	78.40	68.00
	1600	n/a	0.3	1.5	4.8	1.5	4.8	11.10	15.90	28.60	29.90	46.10	43.90	63.60	57.90	81.10	71.90
ERMS-10**	1700	1/20	0.6	1.5	4.8	1.5	4.8	11.40	16.20	28.90	30.20	46.40	44.20	63.90	58.20	81.40	72.20
	1800	1/20	0.6	1.5	4.8	1.5	4.8	11.40	16.20	28.90	30.20	46.40	44.20	63.90	58.20	81.40	72.20
ERMS-20**	1900	1/20	0.6	1.5	4.8	1.5	4.8	11.40	16.20	28.90	30.20	46.40	44.20	63.90	58.20	81.40	72.20
ERMS-20**	2000	1/20	0.6	1.5	4.8	1.5	4.8	11.40	16.20	28.90	30.20	46.40	44.20	63.90	58.20	81.40	72.20
ERMS-30**	2100	1/20	0.6	2	6.2	2	6.2	14.55	20.75	32.05	34.75	49.55	48.75	67.05	62.75	84.55	76.75
	2200	1/20	0.6	2	6.2	2	6.2	14.55	20.75	32.05	34.75	49.55	48.75	67.05	62.75	84.55	76.75
	2300	1/20	0.6	2	6.2	2	6.2	14.55	20.75	32.05	34.75	49.55	48.75	67.05	62.75	84.55	76.75
	2400	1/20	0.6	3	9.2	3	9.2	21.30	30.50	38.80	44.50	56.30	58.50	73.80	72.50	91.30	86.50
	2500	1/20	0.6	3	9.2	3	9.2	21.30	30.50	38.80	44.50	56.30	58.50	73.80	72.50	91.30	86.50
	2500	1/20	0.6	3	9.2	3	9.2	21.30	30.50	38.80	44.50	56.30	58.50	73.80	72.50	91.30	86.50
ERMS-10**	2750	1/6	1.2	2	6.2	2	6.2	15.15	21.35	32.65	35.35	50.15	49.35	67.65	63.35	85.15	77.35
	3000	1/6	1.2	3	9.2	3	9.2	21.90	31.10	39.40	45.10	56.90	59.10	74.40	73.10	91.90	87.10
ERMS-20**	3250	1/6	1.2	3	9.2	3	9.2	21.90	31.10	39.40	45.10	56.90	59.10	74.40	73.10	91.90	87.10
ERMS-20**	3500	1/6	1.2	3	9.2	3	9.2	21.90	31.10	39.40	45.10	56.90	59.10	74.40	73.10	91.90	87.10
ERMS-30**	3750	1/6	1.2	3	9.2	3	9.2	21.90	31.10	39.40	45.10	56.90	59.10	74.40	73.10	91.90	87.10
ERMS-30**	4000	1/6	1.2	3	9.2	3	9.2	21.90	31.10	39.40	45.10	56.90	59.10	74.40	73.10	91.90	87.10
	4250	1/6	1.2	3	9.2	3	9.2	21.90	31.10	39.40	45.10	56.90	59.10	74.40	73.10	91.90	87.10
	4500	1/6	1.2	5	14.0	5	14.0	32.70	46.70	50.20	60.70	67.70	74.70	85.20	88.70	102.70	102.70
	4750	1/6	1.2	5	14.0	5	14.0	32.70	46.70	50.20	60.70	67.70	74.70	85.20	88.70	102.70	102.70
	5000	1/6	1.2	5	14.0	5	14.0	32.70	46.70	50.20	60.70	67.70	74.70	85.20	88.70	102.70	102.70
	5250	1/6	1.2	5	14.0	5	14.0	32.70	46.70	50.20	60.70	67.70	74.70	85.20	88.70	102.70	102.70
	5500	1/6	1.2	5	14.0	5	14.0	32.70	46.70	50.20	60.70	67.70	74.70	85.20	88.70	102.70	102.70
ERMS-20**	6000	1/4	2.5	5	14.0	5.0	14.0	34.00	48.00	51.50	62.00	69.00	76.00	86.50	90.00	104.00	104.00
	6500	1/4	2.5	5	14.0	5.0	14.0	34.00	48.00	51.50	62.00	69.00	76.00	86.50	90.00	104.00	104.00
ERMS-20**	7000	1/4	2.5	7.5	21.4	7.5	21.4	50.65	72.05	68.15	86.05	85.65	100.05	103.15	114.05	120.65	128.05
ERMS-30**	7500	1/4	2.5	7.5	21.4	7.5	21.4	50.65	72.05	68.15	86.05	85.65	100.05	103.15	114.05	120.65	128.05
ERMS-40**	8000	1/4	2.5	7.5	21.4	7.5	21.4	50.65	72.05	68.15	86.05	85.65	100.05	103.15	114.05	120.65	128.05
	8500	1/4	2.5	7.5	21.4	7.5	21.4	50.65	72.05	68.15	86.05	85.65	100.05	103.15	114.05	120.65	128.05
	9000	1/4	2.5	7.5	21.4	7.5	21.4	50.65	72.05	68.15	86.05	85.65	100.05	103.15	114.05	120.65	128.05
	9500	1/4	2.5	7.5	21.4	7.5	21.4	50.65	72.05	68.15	86.05	85.65	100.05	103.15	114.05	120.65	128.05
	10000	1/4	2.5	10	28.6	10	28.6	66.85	95.45	84.35	109.45	101.85	123.45	119.35	137.45	136.85	151.45
	12000	1/4	2.5	15	40	15	40	92.50	132.50	110.00	146.50	127.50	160.50	145.00	174.50	162.50	188.50
	14000	1/4	2.5	15	40	15	40	92.50	132.50	110.00	146.50	127.50	160.50	145.00	174.50	162.50	188.50



ERMS Series 60Hz Submittal Data

460 Volt Electrical Data

	460 VOLT DATA								5 KW		10 KW		15 KW		20 KW		
	WHEEL			SUPPLY FAN		EXHAUST FAN		BASE ERV UNIT		FLA	6	FLA	12	FLA	18	FLA	24
	CFM	HP	FLA	HP	FLA	HP	FLA	MCA	MOCP	MCA	MOCP	MCA	MOCP	MCA	MOCP	MCA	MOCP
	BASE ERV UNIT WITH PREHEAT																
ERMS-10** ERMS-20**	1000	n/a	0.3	1	1.8	1	1.8	4.35	6.15	11.85	12.15	19.35	18.15	26.85	24.15	34.35	30.15
	1100	n/a	0.3	1	1.8	1	1.8	4.35	6.15	11.85	12.15	19.35	18.15	26.85	24.15	34.35	30.15
	1200	n/a	0.3	1	1.8	1	1.8	4.35	6.15	11.85	12.15	19.35	18.15	26.85	24.15	34.35	30.15
	1300	n/a	0.3	1	1.8	1	1.8	4.35	6.15	11.85	12.15	19.35	18.15	26.85	24.15	34.35	30.15
	1400	n/a	0.3	1	1.8	1	1.8	4.35	6.15	11.85	12.15	19.35	18.15	26.85	24.15	34.35	30.15
	1500	n/a	0.3	1	1.8	1	1.8	4.35	6.15	11.85	12.15	19.35	18.15	26.85	24.15	34.35	30.15
	1600	n/a	0.3	1.5	2.4	1.5	2.4	5.70	8.10	13.20	14.10	20.70	20.10	28.20	26.10	35.70	32.10
ERMS-10** ERMS-20** ERMS-30**	1700	1/20	0.6	1.5	2.4	1.5	2.4	6.00	8.40	13.50	14.40	21.00	20.40	28.50	26.40	36.00	32.40
	1800	1/20	0.6	1.5	2.4	1.5	2.4	6.00	8.40	13.50	14.40	21.00	20.40	28.50	26.40	36.00	32.40
	1900	1/20	0.6	1.5	2.4	1.5	2.4	6.00	8.40	13.50	14.40	21.00	20.40	28.50	26.40	36.00	32.40
	2000	1/20	0.6	1.5	2.4	1.5	2.4	6.00	8.40	13.50	14.40	21.00	20.40	28.50	26.40	36.00	32.40
	2100	1/20	0.6	2	3.1	2	3.1	7.58	10.68	15.08	16.68	22.58	22.68	30.08	28.68	37.58	34.68
	2200	1/20	0.6	2	3.1	2	3.1	7.58	10.68	15.08	16.68	22.58	22.68	30.08	28.68	37.58	34.68
	2300	1/20	0.6	2	3.1	2	3.1	7.58	10.68	15.08	16.68	22.58	22.68	30.08	28.68	37.58	34.68
	2400	1/20	0.6	3	4.3	3	4.3	10.28	14.58	17.78	20.58	25.28	26.58	32.78	32.58	40.28	38.58
2500	1/20	0.6	3	4.3	3	4.3	10.28	14.58	17.78	20.58	25.28	26.58	32.78	32.58	40.28	38.58	
2500	1/20	0.6	3	4.3	3	4.3	10.28	14.58	17.78	20.58	25.28	26.58	32.78	32.58	40.28	38.58	
ERMS-10** ERMS-20** ERMS-30** ERMS-40**	2750	1/6	1.2	2	3.1	2	3.1	8.18	11.28	15.68	17.28	23.18	23.28	30.68	29.28	38.18	35.28
	3000	1/6	1.2	3	4.3	3	4.3	10.88	15.18	18.38	21.18	25.88	27.18	33.38	33.18	40.88	39.18
	3250	1/6	1.2	3	4.3	3	4.3	10.88	15.18	18.38	21.18	25.88	27.18	33.38	33.18	40.88	39.18
	3500	1/6	1.2	3	4.3	3	4.3	10.88	15.18	18.38	21.18	25.88	27.18	33.38	33.18	40.88	39.18
	3750	1/6	1.2	3	4.3	3	4.3	10.88	15.18	18.38	21.18	25.88	27.18	33.38	33.18	40.88	39.18
	4000	1/6	1.2	3	4.3	3	4.3	10.88	15.18	18.38	21.18	25.88	27.18	33.38	33.18	40.88	39.18
	4250	1/6	1.2	3	4.3	3	4.3	10.88	15.18	18.38	21.18	25.88	27.18	33.38	33.18	40.88	39.18
	4500	1/6	1.2	5	6.5	5	6.5	15.83	22.33	23.33	28.33	30.83	34.33	38.33	40.33	45.83	46.33
	4750	1/6	1.2	5	6.5	5	6.5	15.83	22.33	23.33	28.33	30.83	34.33	38.33	40.33	45.83	46.33
	5000	1/6	1.2	5	6.5	5	6.5	15.83	22.33	23.33	28.33	30.83	34.33	38.33	40.33	45.83	46.33
	5250	1/6	1.2	5	6.5	5	6.5	15.83	22.33	23.33	28.33	30.83	34.33	38.33	40.33	45.83	46.33
5500	1/6	1.2	5	6.5	5	6.5	15.83	22.33	23.33	28.33	30.83	34.33	38.33	40.33	45.83	46.33	
ERMS-20** ERMS-30** ERMS-40**	6000	1/4	1.2	5	6.5	5.0	6.5	15.83	22.33	23.33	28.33	30.83	34.33	38.33	40.33	45.83	46.33
	6500	1/4	1.2	5	6.5	5.0	6.5	15.83	22.33	23.33	28.33	30.83	34.33	38.33	40.33	45.83	46.33
	7000	1/4	1.2	7.5	9.8	7.5	9.8	23.25	33.05	30.75	39.05	38.25	45.05	45.75	51.05	53.25	57.05
	7500	1/4	1.2	7.5	9.8	7.5	9.8	23.25	33.05	30.75	39.05	38.25	45.05	45.75	51.05	53.25	57.05
	8000	1/4	1.2	7.5	9.8	7.5	9.8	23.25	33.05	30.75	39.05	38.25	45.05	45.75	51.05	53.25	57.05
	8500	1/4	1.2	7.5	9.8	7.5	9.8	23.25	33.05	30.75	39.05	38.25	45.05	45.75	51.05	53.25	57.05
	9000	1/4	1.2	7.5	9.8	7.5	9.8	23.25	33.05	30.75	39.05	38.25	45.05	45.75	51.05	53.25	57.05
	9500	1/4	1.2	7.5	9.8	7.5	9.8	23.25	33.05	30.75	39.05	38.25	45.05	45.75	51.05	53.25	57.05
	10000	1/4	1.2	10	13.2	10	13.2	30.90	44.10	38.40	50.10	45.90	56.10	53.40	62.10	60.90	68.10
	12000	1/4	1.2	15	18	15	18	41.70	59.70	49.20	65.70	56.70	71.70	64.20	77.70	71.70	83.70
14000	1/4	1.2	15	18	15	18	41.70	59.70	49.20	65.70	56.70	71.70	64.20	77.70	71.70	83.70	



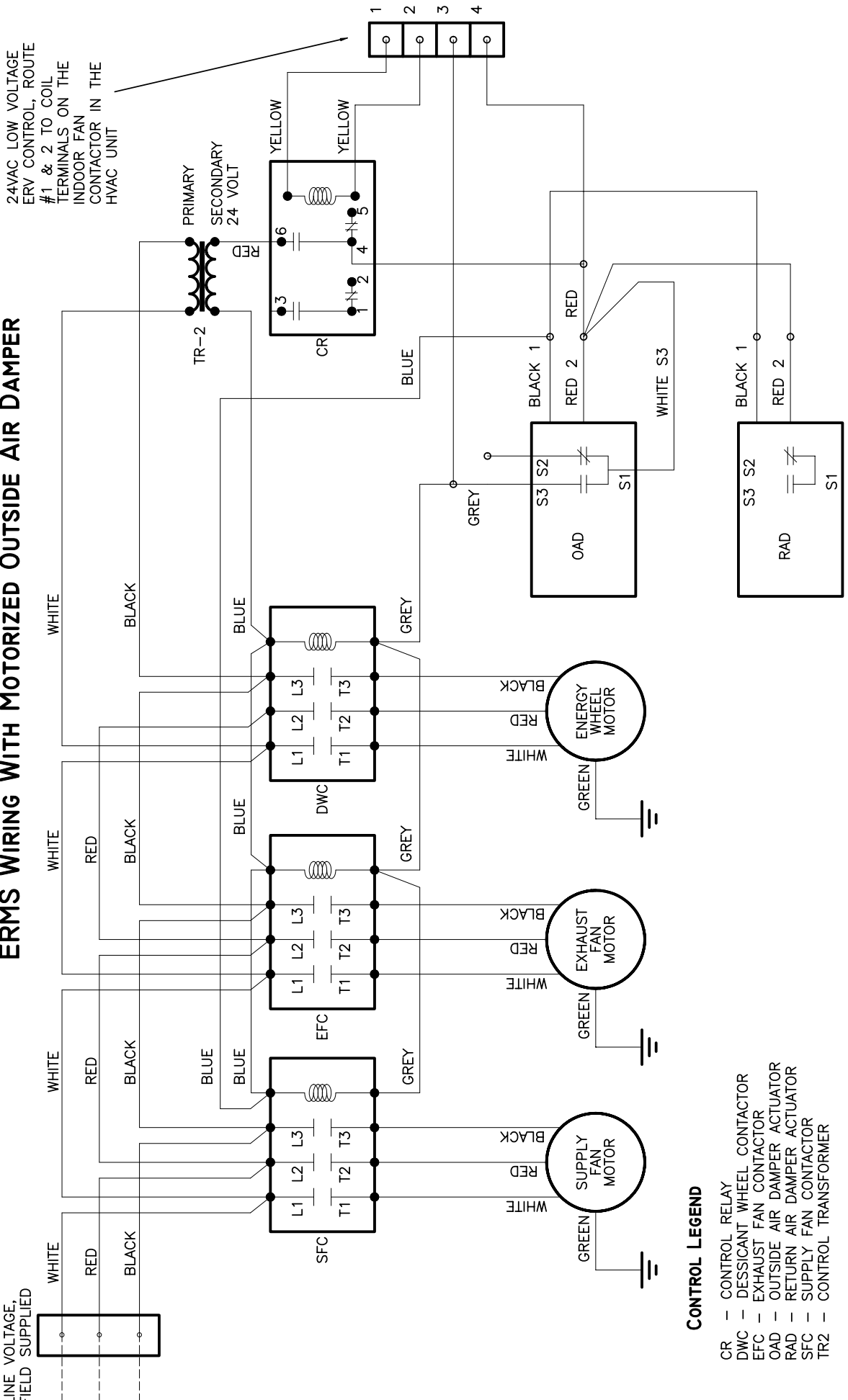


ERMS Series 60Hz Submittal Data

575 Volt Electrical Data

	575 VOLT DATA								5 KW		10 KW		15 KW		20 KW		
	WHEEL			SUPPLY FAN		EXHAUST FAN		BASE ERV UNIT		FLA	5	FLA	10	FLA	14	FLA	19
	CFM	HP	FLA	HP	FLA	HP	FLA	MCA	MOCP	MCA	MOCP	MCA	MOCP	MCA	MOCP	MCA	MOCP
	BASE ERV UNIT WITH PREHEAT																
ERMS-10** ERMS-20**	1000	n/a	0.3	1	1.4	1	1.4	3.45	4.85	9.70	9.85	15.95	14.85	20.95	18.85	27.20	23.85
	1100	n/a	0.3	1	1.4	1	1.4	3.45	4.85	9.70	9.85	15.95	14.85	20.95	18.85	27.20	23.85
	1200	n/a	0.3	1	1.4	1	1.4	3.45	4.85	9.70	9.85	15.95	14.85	20.95	18.85	27.20	23.85
	1300	n/a	0.3	1	1.4	1	1.4	3.45	4.85	9.70	9.85	15.95	14.85	20.95	18.85	27.20	23.85
	1400	n/a	0.3	1	1.4	1	1.4	3.45	4.85	9.70	9.85	15.95	14.85	20.95	18.85	27.20	23.85
	1500	n/a	0.3	1	1.4	1	1.4	3.45	4.85	9.70	9.85	15.95	14.85	20.95	18.85	27.20	23.85
	1600	n/a	0.3	1.5	1.9	1.5	1.9	4.58	6.48	10.83	11.48	17.08	16.48	22.08	20.48	28.33	25.48
ERMS-10** ERMS-20** ERMS-30**	1700	1/20	0.6	1.5	1.9	1.5	1.9	4.88	6.78	11.13	11.78	17.38	16.78	22.38	20.78	28.63	25.78
	1800	1/20	0.6	1.5	1.9	1.5	1.9	4.88	6.78	11.13	11.78	17.38	16.78	22.38	20.78	28.63	25.78
	1900	1/20	0.6	1.5	1.9	1.5	1.9	4.88	6.78	11.13	11.78	17.38	16.78	22.38	20.78	28.63	25.78
	2000	1/20	0.6	1.5	1.9	1.5	1.9	4.88	6.78	11.13	11.78	17.38	16.78	22.38	20.78	28.63	25.78
	2100	1/20	0.6	2	2.5	2	2.5	6.23	8.73	12.48	13.73	18.73	18.73	23.73	22.73	29.98	27.73
	2200	1/20	0.6	2	2.5	2	2.5	6.23	8.73	12.48	13.73	18.73	18.73	23.73	22.73	29.98	27.73
	2300	1/20	0.6	2	2.5	2	2.5	6.23	8.73	12.48	13.73	18.73	18.73	23.73	22.73	29.98	27.73
	2400	1/20	0.6	3	3.5	3	3.5	8.48	11.98	14.73	16.98	20.98	21.98	25.98	25.98	32.23	30.98
	2500	1/20	0.6	3	3.5	3	3.5	8.48	11.98	14.73	16.98	20.98	21.98	25.98	25.98	32.23	30.98
	2500	1/20	0.6	3	3.5	3	3.5	8.48	11.98	14.73	16.98	20.98	21.98	25.98	25.98	32.23	30.98
ERMS-10** ERMS-20** ERMS-30** ERMS-40**	2750	1/6	1.2	2	2.5	2	2.5	6.83	9.33	13.08	14.33	19.33	19.33	24.33	23.33	30.58	28.33
	3000	1/6	1.2	3	3.5	3	3.5	9.08	12.58	15.33	17.58	21.58	22.58	26.58	26.58	32.83	31.58
	3250	1/6	1.2	3	3.5	3	3.5	9.08	12.58	15.33	17.58	21.58	22.58	26.58	26.58	32.83	31.58
	3500	1/6	1.2	3	3.5	3	3.5	9.08	12.58	15.33	17.58	21.58	22.58	26.58	26.58	32.83	31.58
	3750	1/6	1.2	3	3.5	3	3.5	9.08	12.58	15.33	17.58	21.58	22.58	26.58	26.58	32.83	31.58
	4000	1/6	1.2	3	3.5	3	3.5	9.08	12.58	15.33	17.58	21.58	22.58	26.58	26.58	32.83	31.58
	4250	1/6	1.2	3	3.5	3	3.5	9.08	12.58	15.33	17.58	21.58	22.58	26.58	26.58	32.83	31.58
	4500	1/6	1.2	5	5.3	5	5.3	13.13	18.43	19.38	23.43	25.63	28.43	30.63	32.43	36.88	37.43
	4750	1/6	1.2	5	5.3	5	5.3	13.13	18.43	19.38	23.43	25.63	28.43	30.63	32.43	36.88	37.43
	5000	1/6	1.2	5	5.3	5	5.3	13.13	18.43	19.38	23.43	25.63	28.43	30.63	32.43	36.88	37.43
	5250	1/6	1.2	5	5.3	5	5.3	13.13	18.43	19.38	23.43	25.63	28.43	30.63	32.43	36.88	37.43
	5500	1/6	1.2	5	5.3	5	5.3	13.13	18.43	19.38	23.43	25.63	28.43	30.63	32.43	36.88	37.43
ERMS-20** ERMS-30** ERMS-40**	6000	1/4	0.95	5	5.3	5.0	5.3	12.88	18.18	19.13	23.18	25.38	28.18	30.38	32.18	36.63	37.18
	6500	1/4	0.95	5	5.3	5.0	5.3	12.88	18.18	19.13	23.18	25.38	28.18	30.38	32.18	36.63	37.18
	7000	1/4	0.95	7.5	7.7	7.5	7.7	18.28	25.98	24.53	30.98	30.78	35.98	35.78	39.98	42.03	44.98
	7500	1/4	0.95	7.5	7.7	7.5	7.7	18.28	25.98	24.53	30.98	30.78	35.98	35.78	39.98	42.03	44.98
	8000	1/4	0.95	7.5	7.7	7.5	7.7	18.28	25.98	24.53	30.98	30.78	35.98	35.78	39.98	42.03	44.98
	8500	1/4	0.95	7.5	7.7	7.5	7.7	18.28	25.98	24.53	30.98	30.78	35.98	35.78	39.98	42.03	44.98
	9000	1/4	0.95	7.5	7.7	7.5	7.7	18.28	25.98	24.53	30.98	30.78	35.98	35.78	39.98	42.03	44.98
	9500	1/4	0.95	7.5	7.7	7.5	7.7	18.28	25.98	24.53	30.98	30.78	35.98	35.78	39.98	42.03	44.98
	10000	1/4	0.95	10	10	10	10	23.45	33.45	29.70	38.45	35.95	43.45	40.95	47.45	47.20	52.45
	12000	1/4	0.95	15	15.4	15.4	15	35.20	50.60	41.45	55.60	47.70	60.60	52.70	64.60	58.95	69.60
	14000	1/4	0.95	15	15.4	15.4	15	35.20	50.60	41.45	55.60	47.70	60.60	52.70	64.60	58.95	69.60

# ERMS WIRING WITH MOTORIZED OUTSIDE AIR DAMPER



24VAC LOW VOLTAGE ERV CONTROL, ROUTE #1 & 2 TO COIL TERMINALS ON THE INDOOR FAN CONTACTOR IN THE HVAC UNIT

- CONTROL LEGEND**
- CR - CONTROL RELAY
  - DWC - DESSICANT WHEEL CONTACTOR
  - EFC - EXHAUST FAN CONTACTOR
  - OAD - OUTSIDE AIR DAMPER ACTUATOR
  - RAD - RETURN AIR DAMPER ACTUATOR
  - SFC - SUPPLY FAN CONTACTOR
  - TR2 - CONTROL TRANSFORMER

FOR: ERMS WIRING DIAGRAM

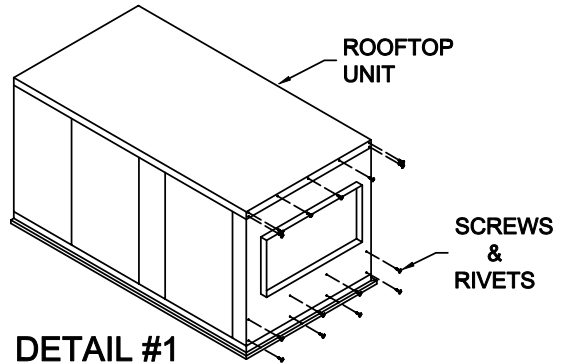
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DRAWING NO: 9600ST.dwg	sw/MR 06.30.11
APPROVED BY:	DATE:
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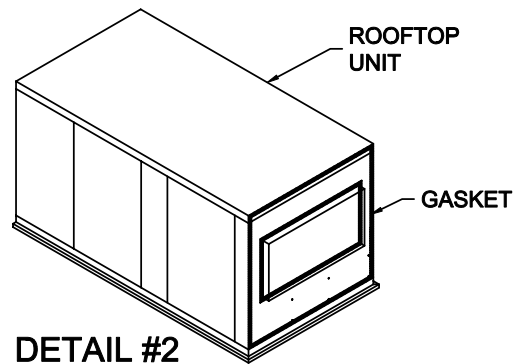


# ERMS Installation Instructions

1 - REMOVE ALL (15) SCREWS LOCATED ON THE BACK OF THE ROOFTOP UNIT AND DISCARD OF THEM. LOCATE THE (15) RIVETS PROVIDED AND PLACE THEM WHERE THE SCREWS WERE REMOVED FROM. (SEE DETAIL #1)

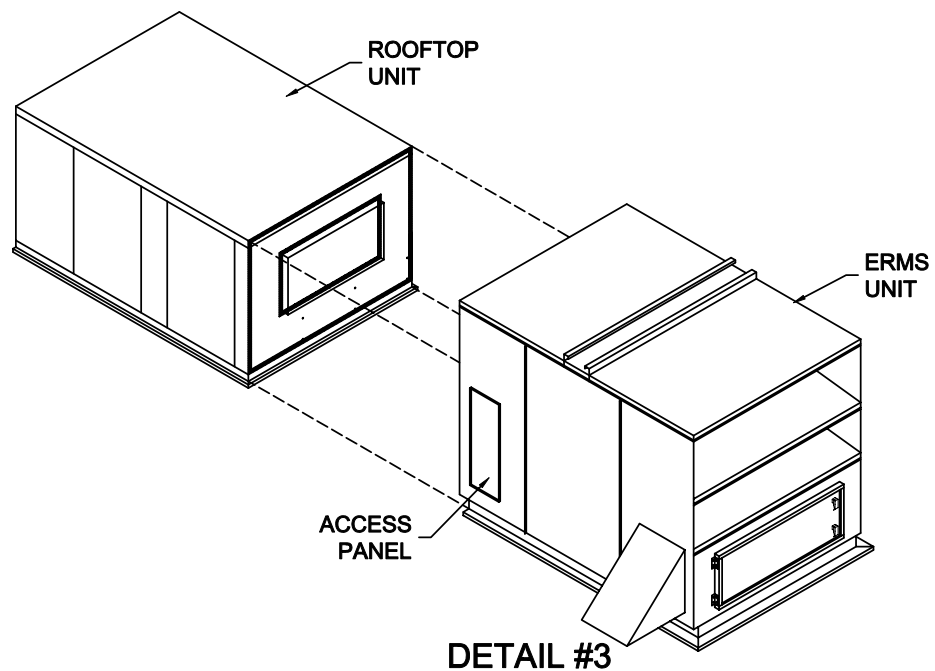


2 - AFTER ALL THE RIVETS HAVE BEEN INSTALLED, LOCATE THE GASKET PROVIDED. PLACE GASKET AROUND OPENING ON BACK OF ROOFTOP UNIT AND EDGE OF UNIT AS SHOWN IN DETAIL #2



3 - REMOVE THE ACCESS PANEL LOCATED ON THE SIDE OF THE ERMS UNIT. THIS PANEL IS LOCATED ON THE SAME SIDE AS THE EXHAUST HOOD. (SEE DETAIL #3)

4 - SLIDE ERMS UNIT INTO PLACE AGAINST THE BACK OF THE ROOFTOP UNIT. THE OUTWARD FLANGES ON THE BACK OF THE ROOFTOP UNIT WILL SLIDE INTO THE OPENING ON THE ERMS UNIT. THE BOTTOM OVERHANGE ON THE ERMS UNIT WILL SIT ON TOP OF THE ROOFTOP UNIT BASE RAIL. (SEE DTEAIL #3 & #4B)





# ERMS Installation Instructions

5 - AFTER ERMS UNIT IS AGAINST THE BACK OF THE ROOFTOP UNIT, OPEN THE BLOWER ACCESS DOOR OF THE ERMS UNIT. (SEE DETAIL #4A).

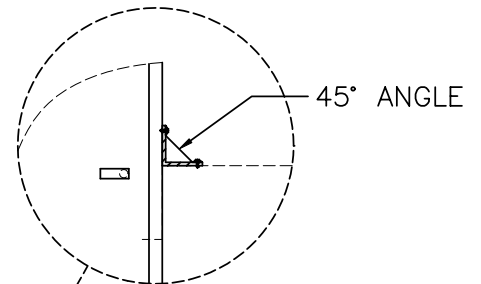
6 - FROM THE INSIDE OF THE ERMS UNIT, USE #12x1 TEK SCREWS PROVIDED AND SCREW THE ERMS UNIT TO THE ROOFTOP UNIT. MAKE SURE TO PUT SCREWS ON BOTH SIDES OF THE ERMS UNIT. USE THE ACCESS PANEL OPENING FROM STEP #3 TO BE ABLE TO LOCATE SCREWS ON FAR SIDE OF ERMS UNIT.

7 - AFTER ERMS UNIT IS ATTACHED TO BACK OF ROOFTOP UNIT, REPLACE THE SIDE ACCESS PANEL TO ERMS UNIT AND CLOSE THE BLOWER ACCESS DOOR.

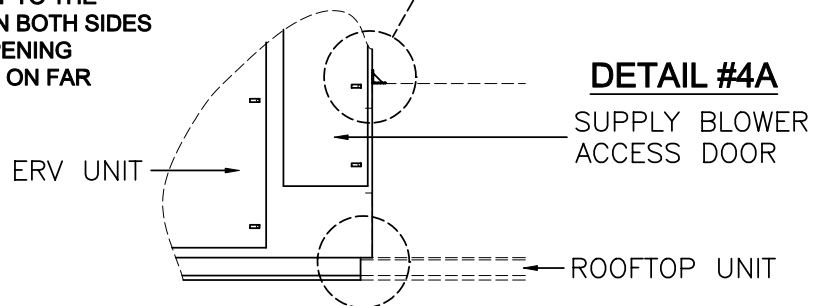
8 - LOCATE THE 45° ANGLE FROM SHIPPING PACKAGE. PLACE GASKET AROUND THE FLANGES ON THE ANGLE. (SEE DETAIL #5). PLACE THE ANGLE ON TOP OF THE ROOFTOP UNIT AGAINST THE ERMS UNIT. (SEE DETAIL #4C). USING SCREWS PROVIDED, ATTACH IN PLACE. (SEE DETAIL #4C).

9 - REFER TO THE WIRING SCHEMATIC FOR WIRING AND START UP.

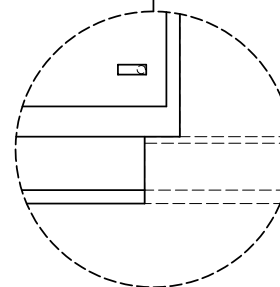
**DETAIL #4C**



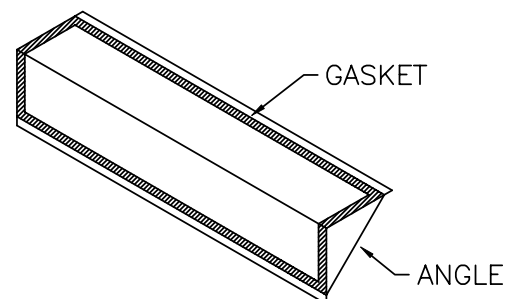
**DETAIL #4A**



**DETAIL #4B**



**DETAIL #5**





**ERMS Guide Specifications**  
**Size Range: 800-14,000 CFM**  
**75% Effectiveness (variable)**

**Part 1 – General**

**1.1 System Description, ERMS**

The *Sterling ERMS* unit is an outdoor rooftop mounted, electrically controlled outdoor air pre-conditioner utilizing an AirExchange Energy Recovery Cassette used to reduce the heating and cooling load placed on the space HVAC unit by untreated outside air. Outside air will be drawn through the ERMS cassette by the ERMS supply blower and shall be discharged directly into the rooftop unit return air.

**1.2 Quality Assurance**

- a. Unit shall be designed in accordance with the UL Standard 1995.
- b. Unit shall be ETL Agency tested and certified.
- c. Roof curb(s) shall be designed to conform to NRCA Standards.
- d. Insulations and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
- e. Unit casing shall be designed to withstand Federal Test Method Standard No. 141 (Method 6061) 500-hour salt spray test.

**Part 2 – Products**

**2.1 Equipment**

**A. General**

The ERMS unit shall be factory assembled, single piece unit. Contained within the unit cabinet shall be all factory wiring with a single, pre-determined point of power input and a single point connection for 24 volt control wiring.

**B. Unit Cabinet**

1. Unit cabinet shall be constructed of galvanized steel coated with a pre-painted baked enamel finish.
2. The cabinet interior shall be insulated with 1", 2lb. density insulation.
3. Cabinet access panels shall be hinged and utilize quarter turn compression latches. Tools shall not be required to operate latches.
4. Supply and Exhaust air streams shall have back draft dampers to prevent air infiltration during OFF cycles.
5. Cabinet construction shall be such to allow entire wheel assembly to slide out to facilitate maintenance.
6. Holes shall be provided in the base rails to facilitate overhead rigging.

**C. Blowers**

1. Blowers shall be belt driven. Motor shall include an adjustable pitch sheave for CFM adjustment.
2. Blower wheel shall be made from steel with a corrosion resistant finish. Wheel shall be dynamically balanced, double inlet type with forward curved blades.
3. Motor shall be mounted on an easily accessible slide base for ease of belt replacement and adjustment.



**D. Filter Section**

1. Standard filter section shall consist of commercially available filters.
2. Filters shall be provided for the outside air entering and the return air entering sides of the Energy Recovery Cassette.

**E. Electrical Requirements**

1. All unit power shall enter the unit cabinet at a single location. Single point power connection shall be standard.
2. A single point connection shall be provided for start/stop control from a time clock or BMS contact for stand alone ERMS operation.
3. Control interlock wiring shall be provided through an externally routed pigtail from the ERMS to the rooftop unit for ERMS control in a "mated" installation.

**F. Energy Recovery Cassette**

1. The Energy Recovery Cassette media shall be nominal 70% effective. Efficiency ratings shall be ARI 1060 Certified.
2. The wheel must be sensible only.
3. The Energy Recovery Cassette shall be a UL Recognized component for electrical and fire safety.
4. The Energy Recovery wheel shall be segmented to facilitate maintenance.