

INSTALLATION, OPERATION & MAINTENANCE MANUAL
ENERGY RECOVERY VENTILATOR

TRC500



TABLE OF CONTENTS

TRC500 info..... 3-4
Installation..... 5-14
Start-up..... 16
Maintenance..... 17-18

ABOUT S&P

S&P USA operations are based in Jacksonville, Florida. This geographically strategic location allows the shipment of products throughout the US and Canada. The Jacksonville manufacturing facility has more than 150,000 square feet of warehouse space for the stocking of a comprehensive range of products. This permits the overnight delivery of many popular model sizes to anywhere in the US and Canada.

At S&P USA we take pride in the fact that our customers receive only the very highest levels of customer service and care. Our internal and external technical and customer service teams are on-hand to provide professional and experienced application advice to enable our customers to apply our products to their particular ventilation and air movement applications. As the USA sales, marketing and distribution division of the Soler & Palau Ventilation Group of companies we are committed to providing only the very highest levels of customer service. Our commitment in providing only the very highest standards of customer service is key to our company strategy.

Soler & Palau Ventilation Group is the world's leading fan manufacturer. It celebrated its 50th anniversary in 2001. Soler & Palau is able to offer a range of ventilation products benefiting from over 50 years of experience within the industry. The company's impressive, long-term growth is the result of one simple philosophy -- develop an air-moving product that effectively and efficiently meets the needs of the customer, supported by unparalleled engineering, distribution and service.

In 1951 Eduard Soler and Josep Palau, both born in Ripoll, Spain, founded the company Soler & Palau (S&P). From the very start the business proved to be their vocation. Together they combined their extensive knowledge and flair to ensure the successful start of their business project. There is continual in-house product development with state-of-the-art technology, and a continued program of in-house laboratory certifications.

Currently S&P's R&D, manufacturing and distribution facilities occupy a total of 1.1 million square feet, with offices and locations around the globe. S&P products can be found in virtually any commercial or residential application, ranging from innovative, quiet and reliable room ventilators to large diameter, high capacity exhaust systems designed for critical applications in some of the world's toughest environments.

TRC500 INFO

INDOOR UNIT



SPECIFICATIONS

Ventilation Type:

Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 200-540 CFM

AHRI 1060 Certified Core: One L85-G5

Number Motors:

One, 0.6 hp (Single Phase)

Standard Features:

Non-fused disconnect

24 VAC Transformer/Relay Package

Filters:

Two total, MERV 8, 2" pleated,
14" x 20" nominal size

Weight:

134 lbs (unit), 153 lbs (in carton)

193 lbs (on pallet), up to 3 units on 40 lb pallet

Shipping Dimensions:

48" L x 41" W x 18" H (in carton)

55" L x 42" W x 22" H (on pallet)

MOTOR PERFORMANCE

Volts	HZ	Phase	FLA	Min. Cir. Amps	Max. Overcurrent Protection Device
115	60	Single	7.2	9.0	15
208-230	60	Single	3.9-3.6	4.9	15

CORE PERFORMANCE

Airflow CFM	ESP in H ₂ O	Watts 1P	Temp EFF%	Total EFF% Winter/Summer
225	1.25	335	79	75/64
338	1.00	420	75	70/59
380	0.90	470	74	69/58
450	0.65	550	72	66/55
540	0.25	640	69	62/51
575	0.00	690	68	61/50

Note: Airflow performance ratings include effect of clean, standard filter supplied with unit.

*At AHRI 1060 standard conditions.

Note: Watts is for the entire unit.

ERV TRC500

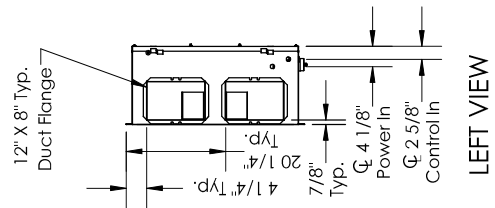
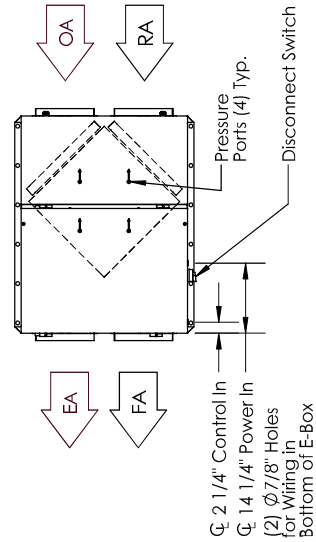
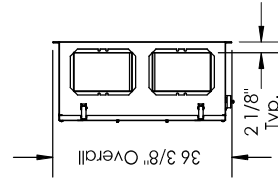
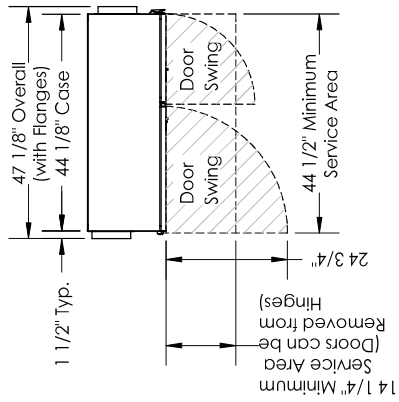
TRC500 INFO

**PRODUCT DIMENSIONS
TRC500**

ABBREVIATIONS
 EA: Exhaust Air to outside
 OA: Outside Air Intake
 RA: Room Air to be exhausted
 FA: Fresh Air to inside

INSTALLATION ORIENTATION
 Unit may be installed in any orientation.

NOTE
 1. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE ROUNDED TO THE NEAREST EIGHTH OF AN INCH.
 2. SPECIFICATIONS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE.



INSTALLATION

PLACEMENT OF THE TRC500

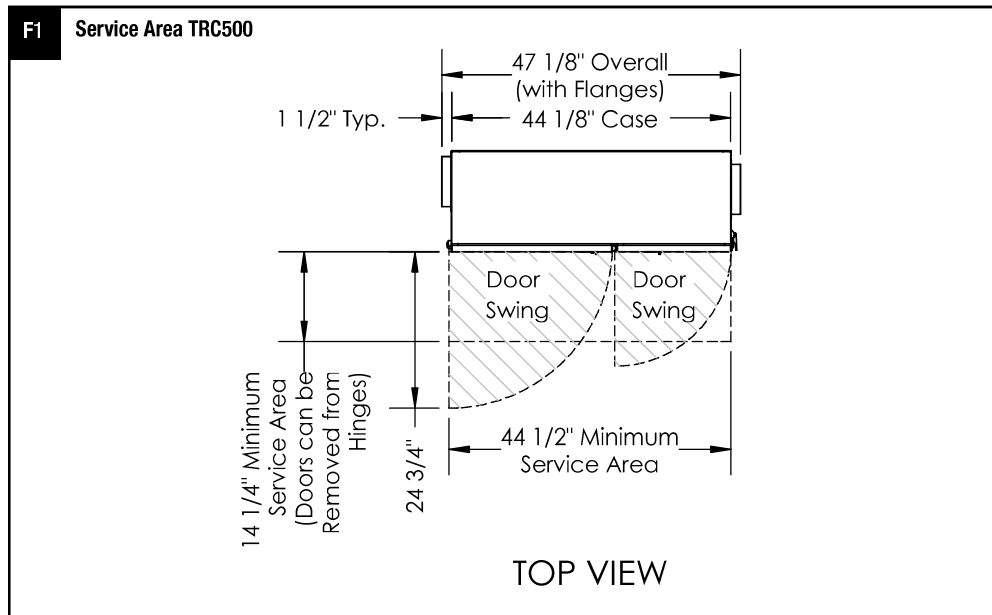
The TRC500 is designed for installation indoors. Select a location that is central to the inside duct runs, and close to both the exhaust duct (to the outside) and the fresh air duct (from the outside). The unit can be installed in any orientation but the contractor is responsible for safe installation of the unit.

For maximum air performance minimize the number of elbows, and do not place elbows within three feet of the TRC500's discharges. For applications where duct noise is a critical issue, use noise attenuating techniques such as duct isolation, insulation, and proper duct design per SMACNA or ASHRAE standards.

PLANNING YOUR INSTALLATION

CAUTION

Provide Adequate Service Access for Maintenance. The TRC500 will require regular filter and core inspections. Install the TRC500 where you can remove the doors for cleaning the core and replacing the filters, and where you can get at the wiring for installation and service.



ERV TRC500

INSTALLATION

PLANNING YOUR INSTALLATION

DUCTS TO THE OUTSIDE

The TRC500 requires four ducts:

- Exhaust Air Duct (insulated duct from unit to outside);
- Outside Air Duct (insulated duct from outside to unit);
- Room Air Duct (from room to unit);
- Fresh Air Duct (from unit to room).

Ducts from unit to the outside must be insulated with sealed vapor barrier on both inside and outside of the insulation or with closed-cell foam insulation.

(4) 8" x12" duct flanges come standard with the TRC500 unit. They are shipped loose in the box and can be installed with screws provided. Holes are provided on the inlet and outlet side of the unit.

The exhaust outlet and fresh air inlet on the outside of the building should be at least ten feet apart to avoid cross-contamination. The exhaust outlet should not dump air into an enclosed space or any other structure. The inlets and outlets should be screened against insects and vermin and shielded from the weather to prevent the entry of rain or snow.

USING FLEX DUCT TO CONNECT TRC500 TO OUTSIDE

Duct need not be flexible, but must have continuous vapor barrier on both inner and outer face of insulation. Position the duct adapters over the openings. Install them with supplied self-drilling screws.

Keep insulated duct runs as short and direct as possible. Suspend or support duct per manufacturer's instructions.

CAUTION

Tape both inner and outer vapor barriers of insulated duct to collars on duct adapters and on wall caps. This is critical to prevent migration of moisture into insulation. Build-up of moisture can result in failure of the duct system and/or frost in the insulation. Make sure any tears in the inner and outer vapor barriers are sealed.

CAUTION

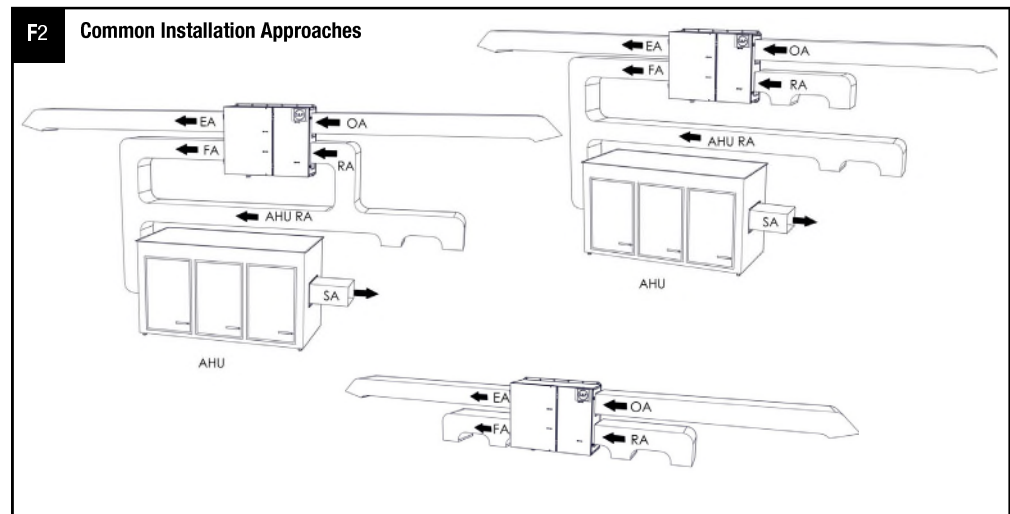
Do not vent exhaust duct up through roof. Condensate will form in cold weather and run back into unit. Instead, slope duct slightly downhill to a horizontal-discharge wall cap, which will allow any condensate to drain to the outside.

NOTE: To prevent the entry of rain through the outside air inlet duct, observe the following:

1. velocity at face of inlet hood should not exceed 500 feet per minute (fpm)
2. inlet duct must be at least 12" inside diameter
3. centerline length along duct from weather hood to unit inlet must be at least 48"
4. centerline of inlet hood must be at least 18" below the centerline of the unit inlet
5. outlet duct must pitch downward to the outside with a slope of at least ¼" to the foot

APPLICATIONS

See figure F2 for examples of some common installation approaches.



INSTALLATION

INSIDE DUCTWORK SYSTEM

Use standard (shipped in box) 8" X 12" duct flange to connect 8" X 12" duct to Room Air and Fresh Air Ports on unit. Position duct flanges over openings. Install with supplied screws.

Or fabricate equivalent, by forming a flange on the first duct section and screw it to the TRC500. Make sure appropriate duct sealant or tape is used to provide an air tight seal.

NOTE: If the inside ducts run through un-conditioned spaces they must be insulated with a sealed vapor barrier on both inside and outside of insulation. In a heated space, uninsulated duct is acceptable, but insulated duct resists break out noise better. Duct sealing improves ventilation performance.

Most installations will not require complicated duct systems to provide good ventilation performance. If ventilating several spaces, evaluate whether the air in the spaces is regularly mixed by the heating/cooling system; if not, provide a room air pick-up and fresh air supply in each space. If air is regularly mixed by the heating/cooling system, one room air pick-up and one fresh air supply may be all that is needed.

Connecting to an existing air-circulation system

It is often convenient and effective to connect the Fresh Air duct from the TRC500 to a return duct of an existing heating/cooling system. This way, whenever the heating/cooling system is running, fresh air from the TRC500 is distributed throughout

the area served by the heating/cooling system.

Connect the Fresh Air duct to a branch return duct at some distance from the heating/cooling system's air handler. This minimizes the amount of air that the air handler can pull through the TRC500 when outside air ventilation is not desired.

If the TRC500 is running when the main air handler is not, fresh air will flow into the space through the branch's return grille. Choose the return branch for your connection accordingly (see next paragraph).

Ducting Fresh Air Directly into Space

In cold or hot weather, the fresh air will be somewhat cooler or warmer than the room air (though always much closer to room temperature than the outside air!). Avoid complaints by locating the Fresh Air supplies where they will not blow directly on occupants.

See Figure F2 for examples of some common installation approaches.

PLANNING YOUR INSTALLATION

INSTALLATION

**PLANNING
YOUR INSTALLATION**

⚠ WARNING

RISK OF FIRE, ELECTRIC SHOCK, OR INJURY. OBSERVE ALL CODES AND THE FOLLOWING:

1. Before servicing or cleaning the unit, switch power off at disconnect switch or service panel and lock-out/tag-out to prevent power from being switched on accidentally. More than one disconnect switch may be required to de-energize the equipment for servicing.
2. This installation manual shows the suggested installation method. Additional measures may be required by local codes and standards.
3. Installation work and electrical wiring must be done by qualified professional(s) in accordance with all applicable codes, standards and licensing requirements.
4. Any structural alterations necessary for installation must comply with all applicable building, health, and safety code requirements.
5. This unit must be grounded.
6. Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment that might be installed in the area affected by this equipment.
7. Use the unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
8. This unit is intended for general ventilating only. Do not use to exhaust hazardous or explosive materials and vapors. Do not connect this unit to range hoods, fume hoods or collection systems for toxics.
9. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
10. This unit must be properly ducted to the outdoors.

If this unit is exhausting air from a space in which chimney-vented fuel burning equipment is located, take steps to assure that combustion air supply is not affected. Follow the heating equipment manufacturer's requirements and the combustion air supply requirements of applicable codes and standards.

SOUND ATTENUATION

Take these simple steps to attenuate noise from the unit.

OUTSIDE THE BUILDING

Exhaust velocity noise is the primary cause of unit-related noise outside the building. Size the exhaust duct and grille for less than 1000 fpm air velocity. When practical, orient the exhaust air hood to point away from houses or public areas.

DUCTS

Make sure the ductwork at the unit outlets is stiff enough to resist the flexure and resulting booming associated with system start-up and shut-off, as well as the turbulent flow conditions at the blower outlets.

In general, provide smooth transitions from the ERV's outlets to the duct. The ducts connecting to the outlets should be straight for a sufficient distance, with gradual transitions to the final duct size.

These guidelines are consistent with SMACNA recommended duct layout practices for efficient and quiet air movement. Follow SMACNA guidelines.

RADIATED NOISE

The outlet ducts can be significant sources of radiated sound as well. The FA and EA ducts (outlet ducts) should be insulated for sound control. This insulation should start at the unit. At a minimum the first ten feet of duct should be insulated. All parts of the FA and EA ducts located in the mechanical space should be insulated for sound control, both to minimize sound radiation out of these ducts and also to control sound radiation into the ducts.

AERODYNAMIC (VELOCITY) NOISE

When sound attenuation is a design concern, the primary consideration is velocity noise at the unit's Fresh Air blower outlet. The average velocity at the blower outlets is 1100 FPM when the unit is operating at 600 CFM.