

# ENERGY RECOVERY TOTAL RECOVERY VENTILATORS

**Balanced Ventilation for Residential and Commercial Buildings** 



## INDOOR AIR QUALITY

As buildings are being built with higher quality construction methods, balanced ventilation methods are more important than ever. An unbalanced home results in poor Indoor Air Quality (IAQ), causing poor conditions for your home and the inhabitants.

As codes change, it is important for you to understand why Indoor Air Quality is so important and the options available to you from S&P USA.

Americans spend
of their time
INDOORS.



The EPA ranks indoor air polluntants as a TOP FIVE enviromential HEALTH RISK.

# ADVERSE EFFECTS OF POOR INDOOR AIR QUALITY



**COMMON HEALTH ISSUES:** Allergies, headaches, cough, asthma, skin irratiants and breathing difficulties.

**SEVERE HEALTH ISSUES:** Cancer, liver disease, kidney damage and nervous system failure



#### **DETERIORATING BUILDINGS**

- VOCs released by cooking, cleaning, storing household chemicals, and can be found in furniture, paint, adhesives and upholstery.
- HUMIDITY built up from showering, cooking and even breathing

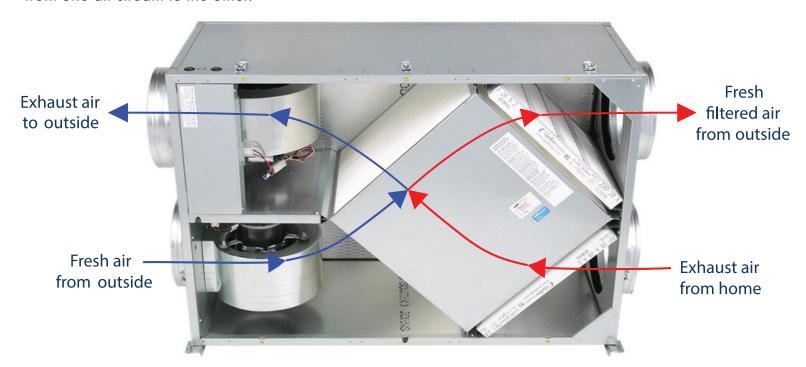


Studies by the Harvard School of Public Health and the Lawrence Berkeley National Labroratory found that Carbon Dioxide (CO<sub>2</sub>) negatively impacted thinking and decision making at acceptable levels found in most homes and offices.

## HOW ERVs WORK

With S&P's TR, TRe, TRLPe & TRC (Total Recovery) ERV Series for all climates, stale room air is exhausted and fresh outdoor air is brought back into the building. These two air streams are directed through a highly developed enthalpic air-to-air energy exchange core. The air streams are physically separated by many layers of plates so there is no mixing or contamination of the fresh air. The plates are made of an engineered resin material that simultaneously transfers heat by conduction and humidity by attracting and moving water vapor from one air stream to the other.

S&P's TR & TRCs moderate extremes in both temperature and humidity, creating a comfortable indoor environment. The unique moisture transfer capability of the S&P core also eliminates condensation and frost build up in most applications. Unlike other ERVs on the market, no mechanical or electrical defrost systems are needed, which means higher heat recovery efficiencies, easier installation and more reliable operation.



#### **TERMS TO KNOW**

#### **SENSIBLE HEAT**

The amount of energy involved in raising or lowering the temperature of air not including any energy required to cause water vapor to change state.

#### **LATENT HEAT**

The amount of energy associated with the humidity (or water vapor content) of an air stream. A drier air stream contains less latent heat and will impose a smaller latent load on the air conditioner.

#### **BALANCED VENTILATION**

A ventilation strategy using both an exhaust air blower and a supply or make-up air blower that does not pressurize or de-pressurize a building.

#### **ENTHALPY**

The total amount of energy contained in air, the sum of sensible and latent heat.

#### **AIR-TO-AIR HEAT EXCHANGER**

Generic term for technologies designed to transfer heat - and sometimes moisture - between two air streams.

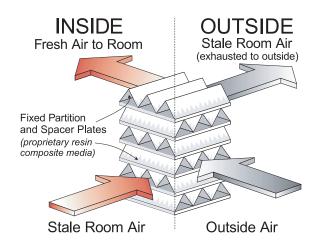
#### **HEAT RECOVERY VENTILATOR - HRV**

An air-to-air heat exchanger that transfers sensible heat only; no humidity (latent heat) transfer occurs between the two air streams.

#### **ENERGY RECOVERY VENTILATOR - ERV**

An air-to-air heat exchanger that transfers sensible heat & latent (humidity) heat

## THE S&P ADVANTAGE



#### **5TH GENERATION CORE**

- Efficient transfer of heat and moisture
- No liquid is accumulated; no drain pan or defrost mechanism is required!
- Contaminated air is exhausted from the building, while the static plate core regulates extremes in humidity
- Industry best 10-year warranty



#### 10 YEAR CORE WARRANTY

S&P TR, TRe, TRC, TRLPe and TRCe are protected by a 10-year core warranty (2 years on balance of the unit). This commitment - twice as long as coverage on the best wheel products - means with S&P you can just fit and forget.



#### **CERTIFIED**

- cULus
- cETLus
- HVI
- AHRI







Intertek

See Individual listing for certification details.

The ASHRAE 62.2 Ventilation and Acceptable Indoor Air Quality in Residential Buildings standard outlines acceptable minimum ventilation rates for residential buildings. These continuous ventilation rates provide minimum ventilation requirements to help ensure occupant health.

(Minimum Ventilation = .03 X sq. ft. + 7.5(# of bedrooms + 1) Other Standards such as Ashrae 62.1 provide Outdoor Air Ventilation rates (CFM/Occupant) on a wide variety of commercial applications.

Ashrae 62.2 Ventilation Requirements					
		Number of Bedrooms			
Floor Area (SF)	1	2	3	4	5
<500	30	38	45	53	60
501-1000	45	53	60	68	<i>7</i> 5
1001-1500	60	68	<i>7</i> 5	83	90
1501-2000	<i>7</i> 5	83	90	98	105
2001-2500	90	98	105	113	120
2501-3000	105	113	120	128	135

# MODELS TR, TRe, TRC, TRCe & TRPLe OVERVIEW & SIZING



Model TR90 and TR90G



Models TR130, TR200 and TR300



Model TRe90 and TRe90H



Model TRe200 and TRe300



Model TRC500 and TRCe500



Model TRC800 and TRCe800



Model TRC800V and TRCe800V



Model TRC 1200 and TRCe 1200



Model TRC1600



Model TRLPe 110 and TRPLe 110H

## TR, TRe & TRLPe SERIES MODELS

## Models TRLPe110/TRLPe110H









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 30-130 CFM

Unit is HVI Tested/Certified per CSA C439

Protocol: Using one L-30-G5 Core

Number Motors: Two, 120 VAC EC motorized impeller

V Hz		Phase	Input Watts per Motor	FLA per motor
120	60	Single	53	0.85

#### Standard Features:

- White painted cabinet
- Line-cord power supply for the TRLPe 110
- Hard wired/no cord for the TRLPe 110H
- Low-voltage circuit for controls
- Unit may be mounted in any orientation
- Cross-core differential pressure ports
- Dial-A-Flow balance and airflow adjustment
- Variable speed
- Boost mode

Control: Onboard digital controller with independent variable speeds

Filters: Two total, MERV 8, spun polyester media. 7-1/2" x 10-1/2" x 1"

Weight: 35 lbs (unit), 41 lbs (in carton)

Shipping Dimensions: 31-1/4" L x 22-3/8" W x 14-3/8" H

### Model TR130









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 50-140 CFM

Unit may be mounted in any orientation

Number Motors: One double-shaft motor, 0.1 hp

V	Hz	Phase	Input Watts	FLA per motor
120	60	Single	102 @ 130 CFM	1.3

Control Voltage: 12-14 AC voltage suitable to power SPTL

S&P branded controls

| Filters: MERV 8, spun polyester media. 10-1/2" x 10-1/2" x 1"

Weight: 48 lbs (unit), 60 lbs (in carton)

Shipping Dimensions: 32" L x 22" W x 18" H

## **Model TR200**





RECOVERY VENTILATOR

#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 100-200 CFM

Unit may be mounted in any orientation

Number Motors: One double-shaft motor, 0.1 hp

V	Hz	Phase	Input Watts	FLA per motor
120	60	Single	157 @ 181 CFM	1.5

Control Voltage: 12-14 AC suitable to power SPTL S&P

branded control

Filters: MERV 8, spun polyester media. 10-1/2" x 21-3/4" x 1"

Weight: 68 lbs (unit), 110 lbs (in carton)

Shipping Dimensions: 34" L x 44" W x 34" H

## **Model TRe200**











#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 30-225 CFM

Unit is HVI Tested/Certified per CSA C439

Protocol: Using one L-50-G5 Core

Number Motors: Two, 115 VAC EC motorized impeller

V	Hz	Phase	Input Watts per Motor	FLA per motor
115	60	Single	85	1.22

#### Standard Features:

- White painted cabinet
- Line-cord power supply
- Low-voltage circuit for controls
- Unit may be mounted in any orientation
- Cross-core differential pressure ports
- Dial-A-Flow balance and airflow adjustment
- Variable speed
- Continuous mode (low speed) Boost mode (high speed)

Controls: Onboard digital controller with independent variable speeds

Filters: Two total, MERV 8, spun polyester media.

10-1/2" x 10-1/2" x 1"

Weight: 36 lbs (unit), 48 lbs (in carton)

Shipping Dimensions: 32" L x 22" W x 18" H

## **Model TR300**



#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer Typical Airflow Range: 150-300 CFM

Unit may be mounted in any orientation

Single

Number Motors: One double shafted motor, 0.2 hp Hz Phase **Input Watts FLA** per motor 120

315 @ 297 CFM

3.3

Control Voltage: 12-14 AC suitable to power SPTL S&P

branded control

60

Filters: MERV 8, spun polyester media.  $10-1/2" \times 21-3/4" \times 1"$ 

Weight: 72 lbs (unit), 115 lbs (in carton)

Shipping Dimensions: 34" L x 44" W x 34" H

## **Model TRe300**











#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 30-280 CFM

Unit is HVI Tested/Certified per CSA C439

Protocol: Using one L-50-G5 Core

Number Motors: Two, 115 VAC EC motorized impeller

V	Hz	Phase	Input Watts per Motor	FLA per motor
120	60	Single	85	1.22

#### Standard Features:

- White painted cabinet
- Line-cord power supply
- Low-voltage circuit for controls
- Unit may be mounted in any orientation
- Cross-core differential pressure ports
- Dial-A-Flow balance and airflow adjustment
- Variable speed
- Continuous mode (low speed) Boost mode (high speed)

Control: Onboard digital controller with independent variable speeds

Filters: Two total, MERV 8, spun polyester media.

10-1/2" x 21-3/4" x 1"

Weight: 52 lbs (unit), 66 lbs (in carton)

Shipping Dimensions: 33" L x 22" W x 29" H

## Models TRe90/TRe90H











#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 30-130 CFM

Unit is HVI Tested/Certified per CSA C439

Protocol: Using one L-50-G5 Core

Number Motors: Two, 110 VAC EC motorized impeller

V	Hz	Phase	Input Watts per Motor	FLA per motor
120	60	Single	53	0.85

#### Standard Features:

- White painted cabinet
- Line-cord power supply for the TRe90
- Hard wired/no cord for the TRe90H
- Low-voltage circuit for controls
- Unit may be mounted in any orientation
- Cross-core differential pressure ports
- Dial-A-Flow balance and airflow adjustment
- Variable speed
- Boost mode

Control: Onboard digital controller with independent variable speeds

Filters: Two total, MERV 8, spun polyester media.

 $7-1/2" \times 10-1/2" \times 1"$ 

Weight: 32 lbs (unit), 38 lbs (in carton)

Shipping Dimensions: 30" L x 22" W x 15" H

## Models TR90/TR90G









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 40-110 CFM

TR90 - Painted Case, Low Voltage Controls, Line Cord,

Unit may be mounted in any orientation

**TR90G** - Galvanized Case, Line Voltage, No Line Cord; No Control Board, Unit may be mounted in any orientation and in heated or unheated locations

Number Motors: Two, 0.03 hp each, totally enclosed, thermally protected

V	Hz	Phase	Input Watts	FLA per Motor
120	60	Single	46 @ 90 CFM	0.35

Control Voltage: TR90 - 12-14 VAC

TR90G - 115 VAC

Filters: TR90 - Two total, MERV 8, spun polyester media.

9-5/8" x 10-1/2" x 1"

**TR90G** - MERV 8, spun polyester media. 9-5/8" x 10-1/2" x 1"

Weight: 36 lbs (unit), 40 lbs (in carton)

Shipping Dimensions: 29" W x 22" L x 15" H

## TRC & TRCe SERIES MODELS

### **Model TRC500**









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 200-540 CFM

AHRI 1060 Certified Core: One L85-G5

Motors: One, 0.6 hp (Single Phase)

V	Hz	Phase	FLA per motor	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

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package Cross-Core Differential Pressure Ports

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

Weight: 137 lbs (unit), 250 lbs (ship weight, on pallet)

Shipping Dimensions: 62" L x 42" W x 22" H

### **Model TRCe500**









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 200-530 CFM

AHRI 1060 Certified Core: One L85-G5

Motors: One, 0.5 hp, Direct Drive EC blower/motor package

V	Hz	Phase	FLA per motor	Min. Cir. Amps	Max Overcurrent Protection Device
115	60	Single	8.1	10.1	15
208-230	60	Single	4.8	6.0	15

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package Cross-Core Differential Pressure Ports

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

Weight: 140 lbs (unit), 250 lbs (ship weight, on pallet)

Shipping Dimensions: 62" L x 42" W x 22" H



## **Model TRC800**









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 250-925 CFM

AHRI 1060 Certified Core: One L85-G5

Motors: Two direct drive blower/motor packages

V	Hz	Phase	FLA per motor	Min. Cir. Amps	Max Overcurrent Protection Device
115	60	Single	9.0	20.3	25
208-230	60	Single	4.5	10.1	15

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package Cross-Core Differential Pressure Ports

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

Weight: 204 lbs (unit), 325 lbs (shipping weight, on pallet)

Shipping Dimensions: 63" L x 30" W x 56" H

## **Model TRCe800**











#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 250-1,000 CFM
AHRI 1060 Certified Core: One L125-G5

Motors: Two, 0.5 hp, direct drive EC blower/motor package

V	Hz	Phase	FLA per motor	Min. Cir. Amps	Max Overcurrent Protection Device
115	60	Single	8.1	18.2	25
208-230	60	Single	4.8	10.8	15

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package Cross-Core Differential Pressure Ports

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

Weight: 207 lbs (unit), 325 lbs (shipping weight, on pallet)

Shipping Dimensions: 63" L x 30" W x 56" H

## **Model TRC800V**









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 250-925 CFM

AHRI 1060 Certified Core: One L125-G5

Motors: Two, 0.75 hp, direct drive blower/motor packages

V	Hz	Phase FLA per motor		Min. Cir. Amps	Max Overcurrent Protection Device	
120	60	Single	9.0	20.3	25	
208-230	60	Single	4.5	10.1	15	

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package

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

Weight: 201 lbs (unit), 325 lbs (shipping weight, on pallet)

Shipping Dimensions: 42" L x 30" W x 71" H

## **Model TRCe800V**











#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 250-1,100 CFM

AHRI 1060 Certified Core: One L125-G5

Motors: Two, 0.5 hp, direct drive EC blower/motor packages

V	Hz	Phase	FLA per motor	Min. Cir. Amps	Max Overcurrent Protection Device	
115	60	Single	8.1	18.2	25	
208-230	60	Single	4.8	10.8	15	

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package Cross-Core Differential Pressure Ports

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

Weight: 204 lbs (unit), 325 lbs (shipping)

Shipping Dimensions: 42" L x 30" W x 71" H



## **Model TRC1200**









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 375-1,575 CFM

AHRI 1060 Certified Cores: One L62-G5 & One L125-G5

Motors: Two, 1.0 hp ea., Direct Drive blower/motor packages

V	Hz	Phase	FLA per motor	Min. Cir. Amps	Max Overcurrent Protection Device
120	60	Single	6.5	14.6	20
208-230	60	Single	3.3-3.4	7.7	15
208-230	60	Three	2.2-2.2	5.0	15
460	60	Three	1.1	2.5	15

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package Cross-Core Differential Pressure Ports

Filters: Four total, MERV 8, pleated, (2) 14" x 20" x 2" and

(2) 16" x 20" x 2" nominal size

Weight: 337 lbs (unit), 403 lbs.(Shipping)

Shipping Dimensions: 70" L x 47" W x 53" H

## **Model TRCe 1200**









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 375-1,575 CFM

AHRI 1060 Certified Core: One L125-G5

Motors: Two, 1.0 hp ea., Direct Drive EC blower/motor package

V	Hz	Phase	FLA per motor		Max Overcurrent Protection Device
115	60	Single	8.0	18.0	20
208-230	60	Single	4.4	9.9	15

Standard Features: Non-Fused Disconnect

24 VAC Transformer/Relay Package Cross-Core Differential Pressure Ports

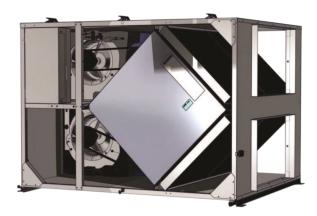
Filters: Four total, MERV 8, pleated, (2) 14" x 20" x 2" and

(2) 16" x 20" x 2" nominal size

Weight: 336 lbs, 571 lbs (Shipping)

Shipping Dimensions: 70" L x 47" W x 53" H

## **Model TRC1600**









#### **SPECIFICATIONS**

Ventilation Type: Static Plate, Heat and Humidity Transfer

Typical Airflow Range: 500-2,000 CFM

AHRI 1060 Certified Core: Two L125-00

Motors: Two, 1.0 hp ea., Direct Drive blower/motor packages

Drive HP	V	Hz	Phase	FLA per motor	Min. Cir. Amps	Max Overcurrent Protection Device
	120	60	Single	15.2	34.2	45
1.5	208-230	60	Single	8.2-7.6	18.5	25
1.5	208-230	60	Three	4.6-4.8	10.8	15
	460	60	Three	2.4	5.4	15

Standard Features: Motor Starters, Non-fused Disconnect

24 VAC Transformer/Relay Package Cross-core differential pressure ports

Filters: Four total, MERV 8, pleated, 20" x 20" x 2" nominal size

Weight: 406 lbs (unit), 714 lbs (Shipping)

Shipping Dimensions: 70" L x 47" W x 40" H

## TR, TRe & TRLPe SERIES CONTROLS



#### SPTL - PERCENTAGE TIMER CONTROL - SPTL

- Primary control for TR90, TR130, TR200, TR300, TRPLe110 & TRLPe110H
- Runs unit an adjustable amount of time each hour
- Two wire, low voltage connection to TR and TRe
- Meets ASHRAE 62.2 continuous ventilation standards



#### SPBL - PUSH BUTTON POINT-OF-USE CONTROL - SPBL

- Push button control turns on unit
- 20 minute run-time with one touch
- Push 2x for 40 or 3x for 60 minutes
- Two wire, low voltage connection to SPTL



#### SFM - PERCENTAGE TIMER CONTROL WITH FURNACE INTERLOCK - SFM

- Alternate primary control for TR90, TR130, TR200, TR300, TRPLe110 & TRLPe110H
- Wires to TR and TRe unit and either thermostat or furnace control to turn on furnace blower
- Six wire, low voltage connection
- Meets ASHRAE 62.2 continuous ventilation standards



#### SPBT - PUSH BUTTON POINT-OF-USE CONTROL - SPBT

- Push button control turns on unit
- 20 minute run-time with one touch
- Push 2x for 40 or 3x for 60 minutes
- Two wire, low voltage direct connection to TRe series



#### ES24V - ENVIROSENSE VENTILATION CONTROL - ES24V

- 3-Modes Off/On/Eco-Mode
- Auxiliary terminals for Supply fan or ERV, Motorized damper, duct heater and Central AHU interlocking
- Simple Eco-Mode programming to limit outside air at set humidity and temperature points
- 24 volt AC control power

## TRC & TRPLe SERIES CONTROLS



#### STC7D-W - DIGITAL TIME CLOCK - WALL MOUNT - STC7D-W

- Up to 8 on/off cycles per day or 56 per week
- 24 VAC power requirement
- Battery back-up
- Fits any 4" x 4" electrical box



#### SMC-C/SMC-W - MOTION (OCCUPANCY) CONTROL - CEILING MOUNT - SMC-C/SMC-W

- Passive infared sensor
- Adjustable time-off delay from 30 seconds to 30 minutes
- 24 VAC power requirement
- SMC-Covers up to 1500 sq. ft. floor space
- SMC-W-Covers up to 2500 sq. ft. floor space



#### SCO2-W - CARBON DIOXIDE CONTROL - WALL MOUNT - SCO2-W

- Adjustable control from 600-2000 PPM
- Digital display
- 24 VAC power requirement
- Computer/BAS interface for information and control
- Self calibrates during periods of low occupancy



#### ES24V - ENVIROSENSE VENTILATION CONTROL - ES24V

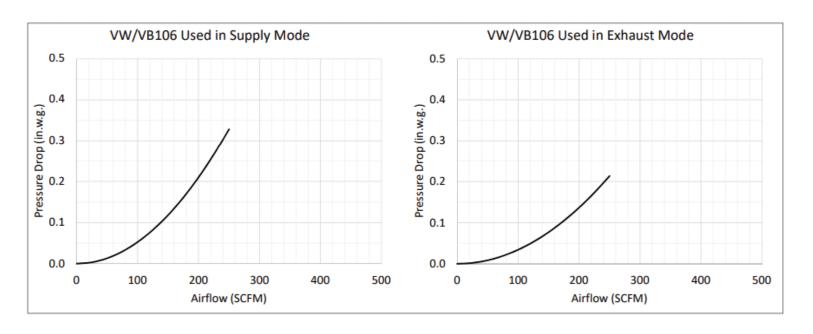
- 3-Modes Off/On/Eco-Mode
- · Auxiliary terminals for motorized damper, duct heater and Central AHU interlocking
- Simple Eco-Mode programming to limit outside air at set humidity and temperature points
- 24 volt AC control power

## ERV GENERAL ACCESSORIES

#### VB-106 & VW106 6" FIXED LOUVER

#### Standard Features:

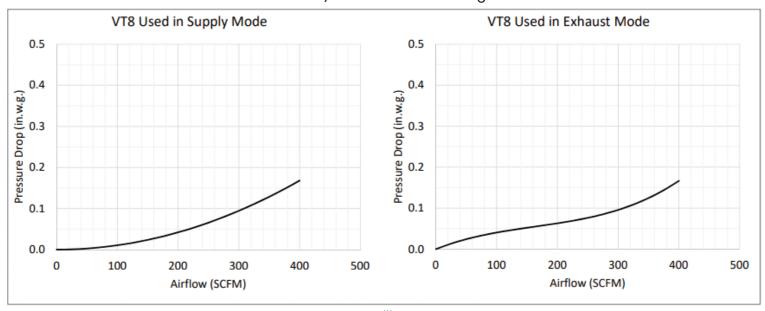
VB-106 Brown Fixed Wall Louver Cleanable metal screen Low pressure drop design



#### (VT8) 8" VINYL LOUVER

#### Standard Features:

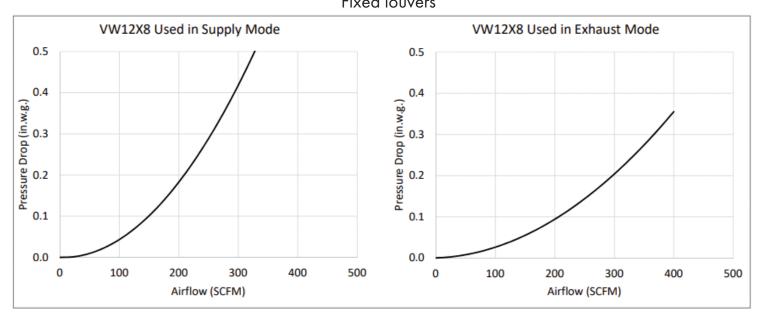
Taupe Vinyl
1/4" plastic screen
1-1/2" channel for siding



#### VW12X8 - 12" X 8" X 8"

#### Standard Features:

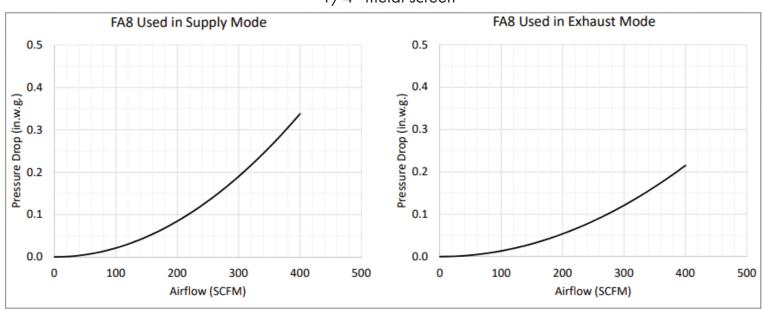
8" Round Duct Connection
Flush mount
1/2" metal screen
Fixed louvers



#### FA8-G & FA8-P 8" GALVANIZED & 8" GALVANNEAL WALL VENTS -

#### Standard Features:

8" Round Duct Connection Paintable (Galvanneal only) 1/4" metal screen

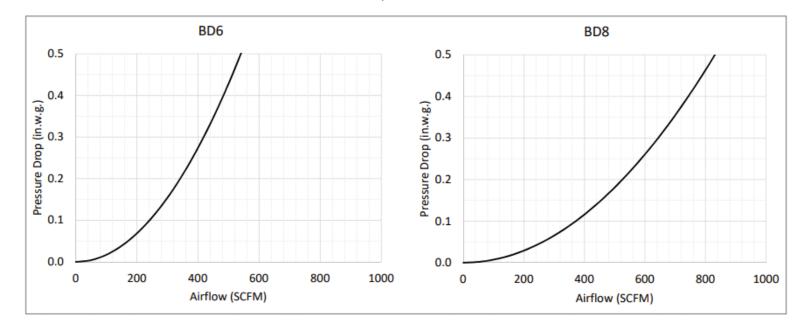




#### BD6 & BD8 6" & 8"

#### **Standard Features:**

Mechanical "butterfly" design Male/female ends





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