

# ENERVEX CASV 200-315

3913001 07.17

## Submittal Data

Job Name: \_\_\_\_\_

Representative: \_\_\_\_\_

Job Location: \_\_\_\_\_

Job #: \_\_\_\_\_

Architect/Engineer: \_\_\_\_\_

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

ENERVEX Job File: \_\_\_\_\_

### Use

The CASV is a mechanical draft system used to control and maintain draft for multiple or modulating boilers, water heaters, and other Category I, II, III or IV heating appliances. There are no limitations on its use with these appliances and it can be used with any type of chimney or stack.

### Description

The CASV system consists of a single or multiple RSV, Chimney Fan(s) and the EBC31, Modulating Fan Control. The EBC31 maintains a constant draft for the heating appliances by modulating the speed of the chimney fan.

The CASV system is supplied as a complete package with fan(s), control(s), pressure sensor, stack probe, adapters for mounting on a chimney or a wall, and balancing baffles.

### Operation

During installation the EBC31 automatically detects connections, setting requirements and any add-on devices. The planned draft setting must be entered manually via the control panel. After these steps have been taken, the control will keep the settings in memory. The control is shipped with factory settings, however, it can be pre-programmed for an individual job.

Each appliance is interlocked with the control. A call for heat activates the chimney fan and releases the burner once an adequate, pre-set draft is established. The sequence is repeated every time a new heating appliance calls for heat. When an appliance shuts down, the chimney fan will slow down while still maintaining the draft setting. When the last appliance shuts down the chimney fan will operate in post-purge mode for a preset time period.

The integrated proven draft function will shut down the entire system in case of a power failure to the chimney fan or the Motor

Speed Controller (if installed) or mechanical failure. During a following call for heat, the Operating Priority function will detect if one or more appliances can be operated safely and with proper draft. If so, the appliance(s) will be able to operate without fan operation. After two (2) hours, fan operation is checked and if present, the control will go back to normal operation. Otherwise, it will continue to operate in Operating Priority mode. The self-check is repeated every two (2) hours infinitely. During a period without fan operation, the control is in alarm mode.

If the chimney fan has been out of commission for seven (7) days, the Bearing Cycle Activation function will operate the fan at a low speed for a short time. This is automatically repeated every seven (7) days, if the fan has not been operating.

Any errors detected during operation are either shown via the self-diagnostic panel or on the display.

### Sizes

The system is available in many sizes as shown on the following pages, and virtually handles any heating appliance(s) independent of input/HP.

### Listings

The RSV Chimney Fan is ETL-listed to UL 705 for Power Ventilators, UL 378 for Draft Equipment and CSA CAN3 B255-M81 for Mechanical Flue Gas Exhausters.

The EBC 31 Modulating Fan Control is ETL-listed to UL 378 for Draft Equipment, UL 60947 for Low Voltage Switchgear and Controlgear and CSA C22.2 No. 14-95 Standard for Industrial Control Equipment.

### CSI Specifications

CSI Model Specifications are available from ENERVEX and via the internet at [www.enervex.com](http://www.enervex.com).

The document number is: 3917011.

### Warranty

2-Year Factory Warranty. Complete warranty conditions are available from ENERVEX Inc.



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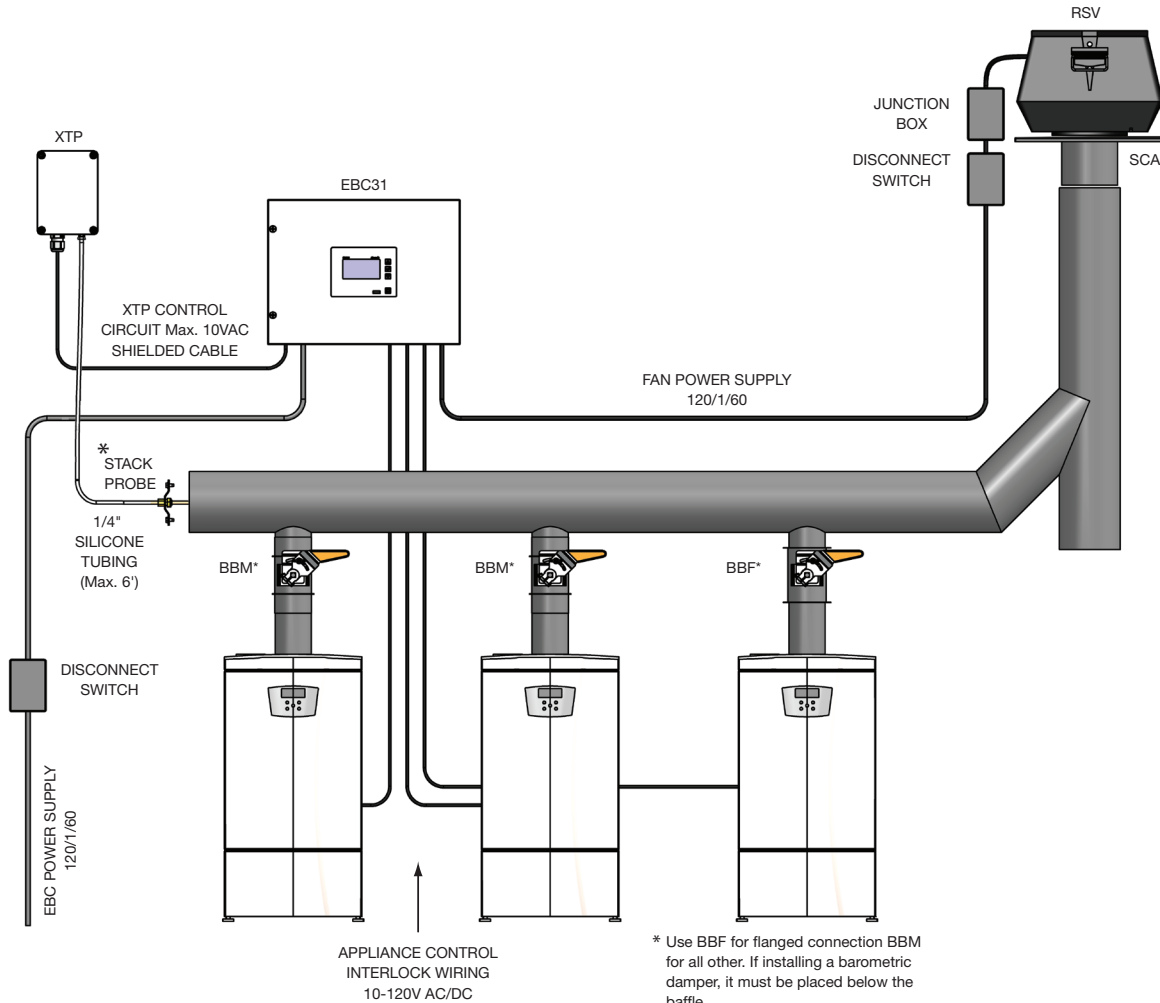
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# ENERVEX CASV 200-315

3913001 07.17

Submittal Data



## System Components and Specifications

| Model    | Fan     | Control                             | Triac Board | If 7+ Appliances           | Fan Mounting | Power Supply Fan | Max. Output HP | Max. Input Amps | RPM  |
|----------|---------|-------------------------------------|-------------|----------------------------|--------------|------------------|----------------|-----------------|------|
| CASV 200 | RSV 200 | EBC31, includes XTP and stack probe | Yes         | Add-on Relay Board or ES12 | SCA          | 120/1/60         | 1/7            | 1.4             | 1600 |
| CASV 250 | RSV 250 |                                     |             |                            |              | 120/1/60         | 1/4            | 2.9             |      |
| CASV 315 | RSV 315 |                                     |             |                            |              | 120/1/60         | 1/2            | 5.8             |      |

| Wiring                    | Wire Rating | Rating Amps | No. of Leads | Max. Length | Min., Wire Gauge |
|---------------------------|-------------|-------------|--------------|-------------|------------------|
| EBC 31 Power Supply       | 600V        | 6.3         | 3            | **          | 14               |
| XTP Control Circuit       | -           | <0.01       | 3            | 300'        | 24               |
| Fan Power Supply          | 600V        | 5.8         | 3            | **          | 14               |
| Appliance Control Circuit | **          | **          | 4            | **          | **               |

All wiring must comply with local codes, and in their absence, the National Electrical Code, NFPA 70.

\* Contact ENERVEX for job-specific probe location

\*\* Job specific - check local code

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# ENERVEX® EBC 31 MODULATING PRESSURE CONTROLLER

3902027 03.16

Product Information

## Use

The EBC 31 is a multi-use draft or pressure controller with integrated webserver and remote access used with fans and dampers to monitor and maintain a constant draft or pressure by varying the speed of a fan(s) or the position of an actuator. It can be used with models RSV, IPVB, TDF, BEF and MDF.

Typical applications are:

- Maintain a constant draft by modulating a power venter in a mechanical draft system serving boilers and water heaters
- Maintain a constant draft by modulating position of an over-draft damper serving boilers and water heaters
- Maintain a constant duct pressure in a dryer venting system or a ventilation system
- Control the supply of combustion air to a mechanical room or directly to a boiler(s)
- Control and maintain room pressure

## Description

The EBC 31 features "Plug-n-Play" to automatically monitor all terminals and register components attached to the control during initial start-up. The control can provide a 0-10V signal to a Variable Frequency Drive (VFD) or actuator. An optional triac board can supply 0-120VAC power directly to the mechanical draft fan or air supply ventilator. An optional damper PCB can provide the ability to control an exhaust fan, an intake fan and a draft damper simultaneously. It can interlock with up to 6 heating appliances, and an unlimited number of additional heating appliances can be handled by using one or more ES12, Relay Box.

The control has an integrated safety system to assure the heating appliance will shut down in case of fan failure or control failure. A unique priority operation function will probe the operating conditions and allow as many appliances as possible to operate without fan assistance, provided the operation is considered safe by the integrated safety system.

The EBC 31 can be set up for intermittent operation so it pre-purges the stack prior to the boiler(s) start and post-purges up to 30 minutes after boiler stop. Alternatively, it can be set up for continuous operation where the fan runs continuously but modulates and runs at idle speed, if no appliances are operating.



The EBC31 can be configured either by using the LCD dot display and buttons, or by using the integrated webserver, which also allows remote monitoring and firmware upgrades. Two RS485 ports can be used for and BACnet communication, and one expansion board can be used for future hardware upgrades.

A bearing cycle activation rotates the fan motor(s) once every 24 hours if the fan(s) has not operated within the last 24 hours.

## Material

The enclosure is made in steel and is NEMA 1 rated.

## Standard Equipment

- Control box
- XTP Sensor
- 6' Silicone tubing
- Stack probe

## Listings

The EBC 31 is ETL Listed in the U.S. and Canada under file no. 101223937ATL:

- UL 60947 Standard for Industrial Control Equipment
- UL 378 Standard for Draft Equipment
- CSA C22.2 No. 14-95 Standard for Industrial Control Equipment

## Warranty

2-Year Factory Warranty. Complete warranty conditions are available from ENERVEX Inc.



**Intertek**

ETL File 101223937ATL

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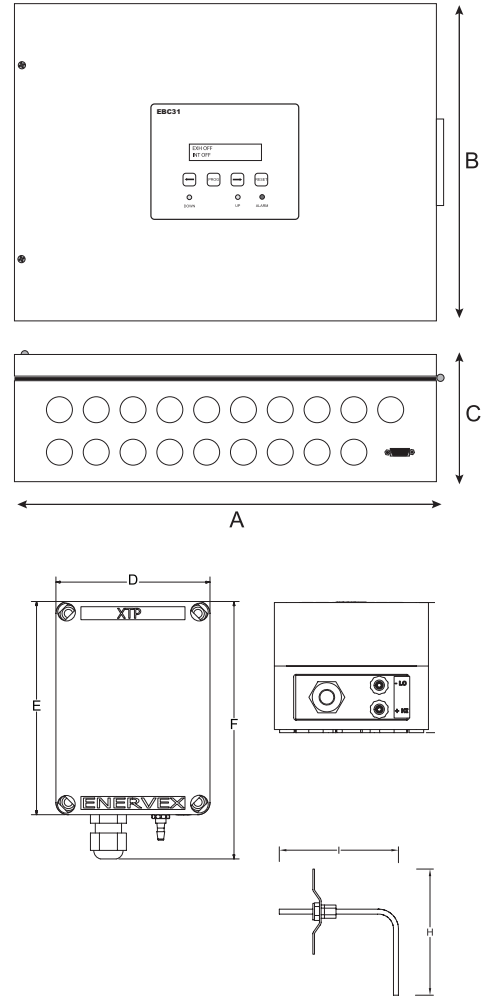
# ENERVEX<sup>®</sup> EBC 31 MODULATING PRESSURE CONTROLLER

3902027 03.16

Product Information

## Specifications

| Model                 |           | EBC31 Control         |
|-----------------------|-----------|-----------------------|
| Power Supply          | VAC       | 1x120                 |
| Amperage              | A         | 6.3                   |
| Operating Temperature | °C / °F   | -20 to 50 / -4 to 122 |
| Range of Operation    | inWC/Pa   | 0-0.6 / 0-150         |
| Tolerance             | inWC/Pa   | 0.01/3 +/-10%         |
| Control Signal        | mA        | max. 10               |
| Control Relay         |           | Max. 120 VAC/8A       |
| Output                | VAC       | 10-36                 |
|                       | VDC       | 0-10                  |
| EMC Standard          | Emission  | EN 50 081-1           |
|                       | Immunity  | EN 50 082-2           |
|                       |           |                       |
| Dimensions            | A in / mm | 14.7 / 372            |
|                       | B in / mm | 11.0 / 280            |
|                       | C in / mm | 4.2 / 107             |
| Weight                | lbs/Kg    | 9 / 4                 |
| XTP Sensor            |           |                       |
| Power Supply          | VDC       | 12-36                 |
| Amperage              | mA        | <20                   |
| Operating Temperature | °C / °F   | -18 to 71 / -0 to 160 |
| Range of Operation    | inWC/Pa   | 0-0.6 / 0-150         |
| Accuracy              | inWC/Pa   | +/-0.08%              |
| Dimensions            | D in / mm | 3.70 / 94             |
|                       | E in / mm | 5.12 / 130            |
|                       | F in / mm | 6.18 / 157            |
| Weight                | lbs/Kg    | .6 / .3               |
| Stack Probe           |           |                       |
| Dimensions            | H in / mm | 4.3 / 108             |
|                       | I in / mm | 3.5 / 89              |



Specifications are subject to change without notice.

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# ENERVEX®

## RSV 160–450 CHIMNEY FAN

3912021 07.17

Product Information

### Use

The RSV is a mechanical draft fan intended for use as part of a chimney, stack or vent system. The fan ensures a negative pressure in the entire chimney or stack system.

### Description

The fan is installed at the chimney termination point and can be mounted vertically or side-wall vented. Discharge is vertical (horizontal, if side-wall vented) at a high velocity.

The fan housing is hinged and the top can be opened for easy service and access to the stack.

The RSV fan is for use with gas, LP gas, and oil fired heating appliances. It is approved for use with category I, II, III and IV appliances in systems where flue gas temperatures do not exceed 625°F (329°C) for intermittent operation and 575°F (302°C) for continuous operation.

The RSV is a component in the CASV, Chimney Automation System.

### Material

The fan housing is 3/16" cast aluminum. One coat of grey hammerpaint is applied for added corrosion resistance.

The backwards curved impeller is cast aluminum. The impeller is dynamically and statically balanced with permanently attached balancing weights.

### Motor

RSV 160-315: Single phase, split capacitor, totally enclosed, Class F insulated, IP54 Protection Class. Sealed ball bearings. Variable Speed. Thermal overload protection.

RSV 400-450: Three phase totally enclosed TEFC motor, Class H insulated. Sealed ball bearings. Variable Speed. Thermal overload protection.

### Standard Equipment

- 2"x4" or 4"x4" junction box with cover and conduit
- Bird Screen

### Optional Equipment

- 5 Amp or 8 Amp Fan Speed Control
- EDrive
- EBC 24 Modulating Pressure Controller
- EBC 30/31/35 Modulating Pressure Controller
- BDC 8 Fan Control



Intertek  
ETL File 514733

Specifications are subject to change without notice.



### Listings

The RSV 160-450 Chimney Fan is ETL Listed in the U.S. and Canada under file no. 514733:

- UL 705 Standard for Power Ventilators
- UL 378 Standard for Draft Equipment
- CSA-CAN3-B255-M81-Mechanical Flue Gas Exhausters

Complies with and meets Type B, Spark Resistant Construction per AMCA standard 99-0401 classifications of Spark Resistant Construction.

### Approvals

- CE Compliant
- The Commonwealth of Massachusetts
- The city of Los Angeles, CA (RR 8474)
- OSHPD Preapproval Of Manufacturer's Certification (OPM) No. OSP-0343-10
- Manufactured at ISO9001 certified plant

### Warranty

- 2-Year Factory Warranty on entire fan
- 10-Year Warranty Against Corrosion Perforation

Complete warranty conditions are available from ENERVEX Inc.

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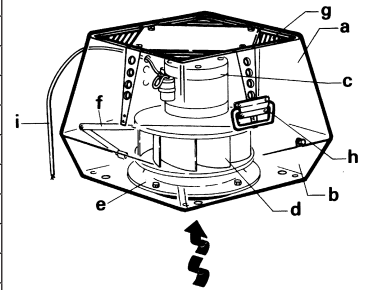
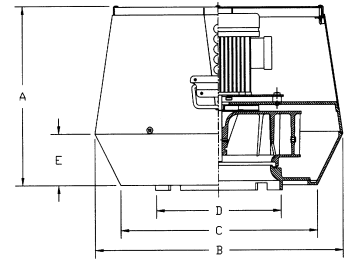
# ENERVEX® RSV 160–450 CHIMNEY FAN

3912021 07.17

Product Information

## Specifications

| Model                     |         | RSV 160              | RSV 200     | RSV 250     | RSV 315           | RSV 400           | RSV 450           |             |
|---------------------------|---------|----------------------|-------------|-------------|-------------------|-------------------|-------------------|-------------|
| Discharge                 |         | Vertical             |             |             |                   |                   |                   |             |
| Fan Type                  |         | Centrifugal Impeller |             |             |                   |                   |                   |             |
| Max. Discharge Velocity   | FPM     | 1,638                | 1,729       | 2,222       | 2,771             | 2,752             | 4,134             |             |
| Actual Discharge Velocity | FPM     | 4.7 x CFM            | 2.9 x CFM   | 1.9 x CFM   | 1.2 x CFM         | 1.03 x CFM        | 1.03 x CFM        |             |
| Voltage                   | VAC     | 1x120                |             |             | 3x208-240 / 3x400 |                   |                   |             |
| RPM                       |         | 1600                 |             |             | 1720              |                   |                   |             |
| Amps                      | A       | 0.5                  | 1.4         | 2.9         | 5.8               | 3.5/1.8           | 6.5/3.6           |             |
| Power Ratings             | kW      | 0.025                | 0.10        | 0.16        | 0.35              | 0.75              | 1.5               |             |
|                           | HP      | 0.04                 | 0.15        | 0.2         | 0.5               | 1                 | 2                 |             |
| Weight                    | lbs     | 28                   | 47          | 60          | 88                | 127               | 155               |             |
|                           | kg      | 12                   | 18          | 26          | 35                | 58                | 70                |             |
| Dimensions                | A       | in / mm              | 9.85 / 250  | 11.03 / 280 | 13.20 / 335       | 14.97 / 380       | 16.94 / 430       | 23.23 / 590 |
|                           | B x B   | in / mm              | 12.21 / 310 | 15.37 / 390 | 19.11 / 485       | 22.85 / 580       | 25.61 / 650       | 25.61 / 650 |
|                           | C x C   | in / mm              | 9.46 / 240  | 12.22 / 310 | 15.17 / 385       | 18.32 / 465       | 20.69 / 525       | 20.69 / 525 |
|                           | Ø D     | in / mm              | 8.63 / 219  | 7.88 / 200  | 9.85 / 250        | 12.41 / 315       | 15.76 / 400       | 15.76 / 400 |
|                           | E       | in / mm              | 2.76 / 70   | 3.15 / 80   | 3.94 / 100        | 4.53 / 115        | 5.12 / 130        | 8.54 / 217  |
| Motor Starter Required    |         | No                   | No          | No          | No                | Yes <sup>1)</sup> | Yes <sup>1)</sup> |             |
| Variable Speed Motor      |         | Yes                  | Yes         | Yes         | Yes               | Yes               | Yes               |             |
| Temperature Rating        | Interm. | 625°F/329°C          |             |             |                   |                   |                   |             |
|                           | Cont.   | 575°F/302°C          |             |             |                   |                   |                   |             |



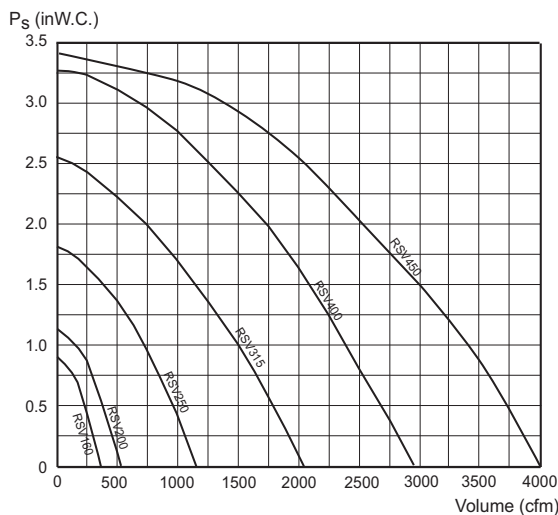
- a** Top Section
- b** Bottom Section
- c** Motor
- d** Centrifugal Impeller
- e** Inlet for Impeller
- f** Locking Hinge
- g** Bird Screen
- h** Carrying Handle
- i** Wiring Conduit

1) NOT required if using a VFD.

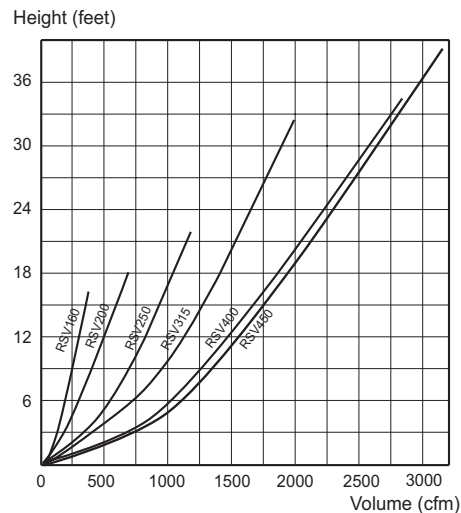
## Sound Diagram

| Model   | Lw dB (measured in accordance with ISO 3744) |       |       |        |        |        |        | Lp dB(A) |
|---------|--|-------|-------|--------|--------|--------|--------|----------|
|         | 125Hz  | 250Hz | 500Hz | 1000Hz | 2000Hz | 4000Hz | 8000Hz |          |
| RSV 160 | 57   | 55    | 54    | 49     | 40     | 35     | 26     | 26       |
| RSV 200 | 58   | 60    | 62    | 61     | 56     | 44     | 37     | 36       |
| RSV 250 | 64   | 68    | 66    | 65     | 61     | 49     | 45     | 41       |
| RSV 315 | 71   | 75    | 70    | 73     | 68     | 57     | 52     | 48       |
| RSV 400 | 76   | 80    | 75    | 79     | 74     | 62     | 57     | 53       |
| RSV 450 | 79   | 83    | 78    | 78     | 77     | 65     | 60     | 56       |

## Capacity



## Plume Height



Specifications are subject to change without notice.

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# ENERVEX POWERSTACK CHIMNEY SYSTEM

Models EPS, EPS1, EPS2 & EPS4

3912065 05.18

Product Information

## Use

The PowerStack EPS system is a state-of-the-art multi-application single or twin-walled exhaust product designed to convey gases, particles, fumes, smoke, grease and products of combustion from a wide range of engineering combustion and process equipment under negative, positive or neutral pressure:

- Condensing and non-condensing Boiler Exhaust
- Diesel engine and Gas Turbine Exhaust
- Restaurant and Kitchen Grease Exhaust
- Coffee Roaster Exhaust
- Industrial Oven and Dryer Exhaust
- And much more

## Description

The PowerStack EPS is a one-type-fits-all pre-fabricated stainless steel exhaust chimney, available in single or double-wall configuration with three available insulation thicknesses to meet the most demanding applications. Available in twenty two internal diameters ranging from 4 inch (100mm) to 48 inch (1200mm). The fully welded inner wall/liner is manufactured from corrosion resistant bespoke 316L-PCM stainless steel and the outer jacket of 304 polished stainless steel. The double-wall EPS is available with 1 inch (25mm), 2 inch (50mm) and 4 inch (100mm) insulation.

All components are designed to be installed without the need for modification, welding or cutting of the product. PowerStack offers a full range of components including set lengths, elbows, tees, appliance adaptors, terminals, clean-outs, expansion sections and supports as well as special angled components, such as 87° elbows/Tees, Duct Drains, Condensate Collectors and Drain Sections to facilitate drainage of condensate when used with condensing appliances.

The PowerStack incorporates a patent pending flanged male/female jointing system. One end of a component has a collar that facilitates easy alignment of the flanges to aid installation of the product. Gas and liquid tightness is guaranteed by a graphite gasket which is bonded to the flange and eliminates the need for a sealant. The gasket is designed for extremely high temperatures and pressures and immune to breakdown by acidic condensate.

An easy-to-install overlapping U-Band compresses the gasket and secures the joint. An insulation blanket and a finishing band with snap-locks to cover the joint connection.

## Material

The fully welded inner wall is manufactured from corrosion resistant bespoke 316L-PCM stainless steel ("PCM" for "Purified Cr and Mo" content).

Thickness 4"– 24": 0.024 inch (0.6mm)

Thickness 26"– 38": 0.048 inch (1.0mm)

Thickness 44"– 48": 0.048 inch (1.2mm)

The fully welded outer wall is manufactured from 0.024 inch (0.6mm) polished 304 stainless steel.

The double-wall EPS is available with 1 inch (25mm), 2 inch (50mm) and 4 inch (100mm) insulation.

Specifications are subject to change without notice.



## Listings

The ENERVEX PowerStack EPS venting systems are Listed by Underwriters Laboratories, Inc. (UL) under UL File MH49940 in the following product categories and diameters indicated:



| Model EPS (single wall) 4" – 48"              |                               |
|---|-------------------------------|
| Building Heating Appliance Chimney            | UL103                         |
| 1400°F Chimney                                | UL2561                        |
| Special Gas Vent                              | UL1738                        |
| Type BH Gas Vent                              | ULC S636 for Type BH Gas Vent |
| Chimney Liner                                 | UL1777                        |
| Chimney Liner                                 | ULC S635                      |
| Grease Duct for Restaurant Cooking Appliances | UL 1978                       |
| Grease Duct                                   | ULC S662                      |

| Model EPS1, EPS2, EPS4 (double wall) 4" – 48" |                                  |
|---|----------------------------------|
| Building Heating Appliance Chimney            | UL103                            |
| 540°C Industrial Chimney                      | ULC/ORD C959                     |
| 1400°F Chimney                                | UL2561                           |
| 760°C Industrial Chimney                      | ULC/ORD C959                     |
| Special Gas Vent                              | UL1738                           |
| Type BH Gas Vent                              | ULC S636-08 for Type BH Gas Vent |
| Grease Duct for Restaurant Cooking Appliances | UL1978                           |
| Grease Duct                                   | ULC S662                         |

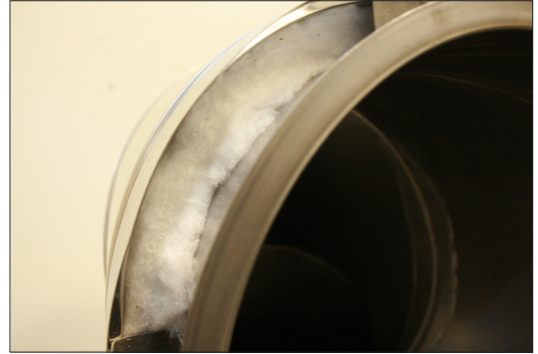
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### Flat Flange For a Perfect Seal

The perfectly flat 1/2" flange seals so well that moisture build-up in the joint is prevented.

The inserted stainless steel collar that represents the male connection is spot-welded to the inner wall and leaves enough clearance to allow condensate to flow freely between inner wall and collar.

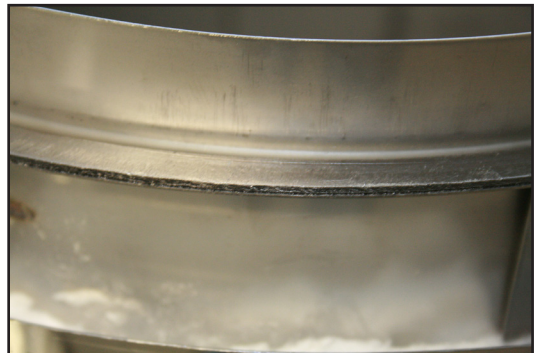
The male/female self-aligning connection with the U-Band makes assembly a "single-person" job.



### Graphite Gasket

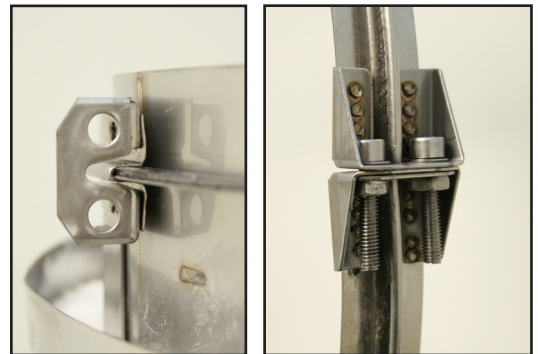
The graphite gasket is permanently secured to the flange of the male connection. With a properly installed U-Band, a perfect pressure and liquid-tight seal is created that doesn't require any sealant.

The joint can be disassembled and reassembled, and there is no need for cleaning or removal of sealant and no need for cutting or modifying — just remove the U-Band and take the chimney apart.



### U-Band

The U-Band is designed so it does not put pressure on the outer edge of the flange. This prevents the flanges from gaping when assembled (common with overlapping V-Bands) and helps the graphite gasket create a perfect seal. The double-nut flange makes assembly easy and a "single-person" job.



### Snap-locks

The one-piece channel bands can be installed without the use of tools. The channel band wraps around the outer wall, overlaps and is secured with snap-locks.





## Codes and Standards

PowerStack when installed per their Installation Instructions, are code compliant with:

- NFPA 211
- NFPA 54
- NFPA 31
- NFPA 37
- CSA-B149

All models comply with the following codes and standards related agencies or associations:

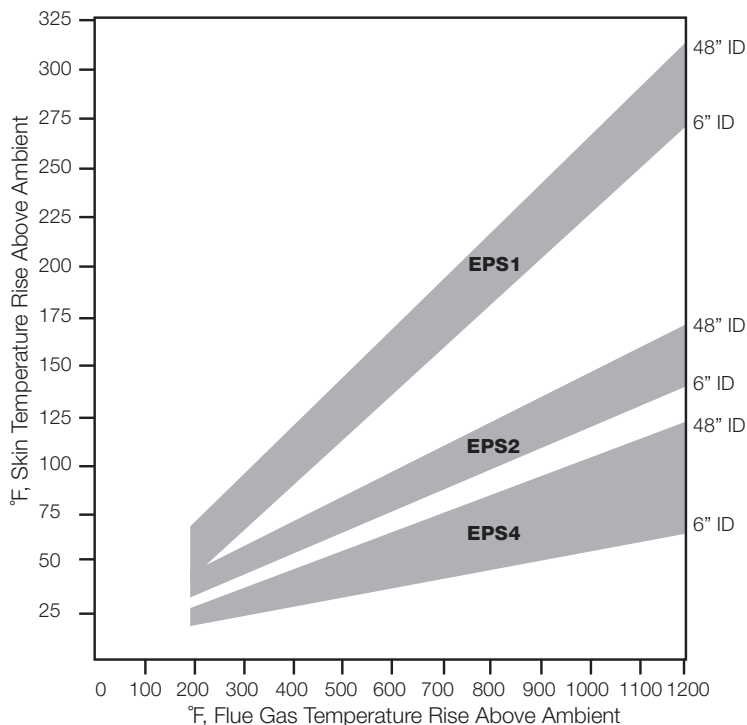
- NFPA (National Fire Protection Association)
- ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers)
- ICC (International Code Congress)
- UL (Underwriters Laboratories, Inc.)
- ULC (Underwriters' Laboratories of Canada)
- CSA (Canadian Standards Association)
- IAPMO (International Association of Plumbing and Mechanical Officials)

## Warranty

2 year factory warranty.

Complete warranty conditions are available from ENERVEX Inc.

## Outer Jacket Temperature Rise (estimated)



NOTE: The Outer Jacket Temperature Rise chart is intended to be a guide only. It is indicative of the likely outer jacket temperatures for any particular PowerStack application, but cannot be exact as each situation requires a calculation and knowledge of mass flow, velocity of the gases, and the location and situation of the chimney, i.e.: enclosed non-ventilated, enclosed ventilated, not enclosed, external, etc.

# ENERVEX POWERSTACK CHIMNEY SYSTEM

Models EPS, EPS1, EPS2 & EPS4

3912065 05.18

Product Information

## Clearances to Combustible

| EPS Min. Airspace Clearance-to-Combustible (Unenclosed) |  |                             |                       |                         |                     |
|---|--|-----------------------------|-----------------------|-------------------------|---------------------|
| Pipe ID   | Building Heating Appliance Chimney (1,000°F) | Chimney Liner (Gas and Oil) | Special Gas Vent      |                         | Grease Duct         |
|   |  |                             | Vertical 480°F Rating | Horizontal 480°F Rating |                     |
| 4-8"<br>(102-203mm)                                     | 18"<br>(450mm)                               |                             | 2"<br>(51mm)          | 3"<br>(76mm)            | See Clearance Chart |
| 10-14"<br>(254-356mm)                                   |  |                             | 3"<br>(76mm)          | 3"<br>(76mm)            |                     |
| 16"<br>(406mm)  |  |                             | 4"<br>(102mm)         | 4"<br>(102mm)           |                     |
| 18-24"<br>(457-610mm)                                   |  |                             | 5"<br>(131mm)         | 5"<br>(131mm)           |                     |
| 26-30"<br>(660-762mm)                                   |  |                             | 6"<br>(152mm)         | 6"<br>(152mm)           |                     |
| 32-38"<br>(812-965mm)                                   |  |                             | 7"<br>(178mm)         | 7"<br>(178mm)           |                     |
| 40-48"<br>(1016-1200mm)                                 |  |                             | 8"<br>(203mm)         | 8"<br>(203mm)           |                     |

\* Enclosed Vertical/Horizontal: DNA

| EPS1 Min. Airspace Clearance-to-Combustible (Unenclosed) |  |                |                                 |              |                     |
|--|--|----------------|---------------------------------|--------------|---------------------|
| Pipe ID  | Building Heating Appliance Chimney (1,000°F) | 1400°F Chimney | Special Gas Vent (550°F Rating) |              | Grease Duct         |
|  |  |                | Vertical                        | Horizontal   |                     |
| 4-8"<br>(102-203mm)                                      | 1"<br>(25mm)                                 | 1"<br>(25mm)   | 0.5"<br>(13mm)                  | 1"<br>(25mm) | See Clearance Chart |
| 12-14"<br>(305-456mm)                                    | 2"<br>(51mm)                                 | 2"<br>(51mm)   |                                 |              |                     |
| 16-22"<br>(406-568mm)                                    | 3"<br>(76mm)                                 | 3"<br>(76mm)   |                                 |              |                     |
| 24-30"<br>(610-762mm)                                    | 4"<br>(102mm)                                | 4"<br>(102mm)  |                                 |              |                     |
| 32-38"<br>(812-965mm)                                    | 5"<br>(131mm)                                | 5"<br>(131mm)  |                                 |              |                     |
| 40-48"<br>(1016-1200mm)                                  | 6"<br>(152mm)                                | 6"<br>(152mm)  |                                 |              |                     |

\* Enclosed Vertical: All Sizes - 1" (25mm) / Horizontal: DNA

| EPS2 Min. Airspace Clearance-to-Combustible (Unenclosed) |  |                |                     |
|--|--|----------------|---------------------|
| Pipe ID  | Building Heating Appliance Chimney (1,000°F) | 1400°F Chimney | Grease Duct         |
| 4-10"<br>(102-254mm)                                     | 1/2"<br>(13mm)                               | 1/2"<br>(13mm) | See Clearance Chart |
| 12-14"<br>(305-456mm)                                    | 1"<br>(25mm)                                 | 1/2"<br>(13mm) |                     |
| 16-30"<br>(406-762mm)                                    | 2"<br>(51mm)                                 | 2"<br>(51mm)   |                     |
| 32-48"<br>(812-1200mm)                                   | 3"<br>(76mm)                                 | 3"<br>(76mm)   |                     |

| EPS4 Min. Airspace Clearance-to-Combustible (Unenclosed) |  |                |                     |
|--|--|----------------|---------------------|
| Pipe ID  | Building Heating Appliance Chimney (1,000°F) | 1400°F Chimney | Grease Duct         |
| 4-14"<br>(102-456mm)                                     | 1/2"<br>(13mm)                               | 1/2"<br>(13mm) | See Clearance Chart |
| 16-30"<br>(406-762mm)                                    | 1"<br>(25mm)                                 | 1"<br>(25mm)   |                     |
| 32-48"<br>(812-1200mm)                                   | 2"<br>(51mm)                                 | 2"<br>(51mm)   |                     |

| Min. Airspace Clearance-to-Combustible for Grease Duct |  |      |      |      |
|--|--|------|------|------|
| Pipe ID  | EPS  | EPS1 | EPS2 | EPS4 |
|  | 18" or Per Local Codes. For single wall construction per NFPA 96 | 4"   | 2"   | 0"   |
| 6"   |  | 4"   | 2"   | 0"   |
| 7"   |  | 4"   | 2"   | 0"   |
| 8"   |  | 4"   | 2"   | 0"   |
| 10"  |  | 5"   | 3"   | 0"   |
| 12"  |  | 5"   | 3"   | 0"   |
| 14"  |  | 5"   | 3"   | 0"   |
| 16"  |  | 5"   | 3"   | 1"   |
| 18"  |  | 5"   | 3"   | 1"   |
| 20"  |  | 5"   | 3"   | 1"   |
| 22"  |  | 5"   | 3"   | 1"   |
| 24"  |  | 5"   | 3"   | 1"   |