MODEL PSW CHIMNEY AND VENTS INSTALLATION AND MAINTENANCE INSTRUCTIONS

GENERAL INFORMATION

LISTINGS

Underwriters Laboratories does not have a listing for single wall Chimney/Vent for building heating appliances. By it's nature, single wall chimney is not listed for reduce clearances to combustibles.

APPLICATIONS

Model PSW building heating appliance chimneys are suitable for use with building heating appliances and other low heat appliances as described in the Chimney Selection Chart of the National Fire Protection Association Standard No. 211, which produce exhaust flue gas at a temperature not exceeding 1000° F continuous PSW Chimneys are also suitable for use as complete exhaust systems for diesel engines and gas turbines. The Model PSW may also be used for higher heat applications where continuous temperatures are not in excess of 1400° F and where the intermittent maximum temperatures are less than 1800° F.

These chimneys are to be installed as required by NFPA for factory built chimneys and chimney units. They are not to be enclosed within combustible construction. An interior exhaust system is to be enclosed in a fire resistive shaft of appropriate size and rating where the exhaust system extends through any story of a building above that in which the connected appliance is located. An unenclosed chimney may be placed adjacent to walls of combustible construction at the clearances specified herein. Consult local authorities having jurisdiction.

Model PSW chimneys are intended for use as complete systems connecting the appliance, engine or duct to the outdoors, or as appliance connector, flue gas collector and breeching conveying flue gas to a stack built in conformance with NFPA 211, while operating under positive forced draft, negative draft or neutral gravity flow internal pressure conditions.

Complete system size and capacity information can be obtained from the ASHRAE Handbook, Equipment Volume or by contacting Metal-Fab, Inc., PO Box 1138, Wichita, KS 67201.

Refer to Metal-Fab Design Manual L1690 for description of all necessary components.

MULTI-ENGINE EXHAUSTS NOT RECOMMENDED

Where multiple engines are being considered, it is recommended that they not be connected into one common exhaust system. Exhaust gases tend to flow to cooler, non-operating engines, thereby causing formation of condensation. Consult with your engine manufacturer before the installation of multiple engines vented into a common exhaust.

When designing engine exhaust systems:

- Provide correct pipe diameter and keep runs short with the minimum number of turns possible.
- Ensure that the exhaust system is properly supported and is isolated from vibration.
- Pay particular attention to thermal expansion and placement of bellows joints.
- Provide proper condensation traps and drains.

EXPLOSION PROTECTION

The use of PSW fittings such as lateral tees, wyes and elbows should be kept to a minimum to reduce back pressure and accumulation of unburned fuels. When a change of direction is required in an engine exhaust system, fittings used for direction change must be reinforced by means of plate support or wall support assemblies to prevent damage if an explosion caused by ignition of unburned fuel should occur. Additionally, the exhaust system should be equipped with a relief valve if possible.

OPERATING PRECAUTIONS

CREOSOTE AND SOOT - Formation and Need for Removal

When wood is burned slowly, it produces tar and organic vapors which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow burning fire. As a result, creosote residue accumulates on the flue lining. If ignited, this creosote makes an extremely hot fire. For this reason, the chimney should be inspected at least every two months during the heating season to determine if a creosote or soot buildup has occured. If creosote or soot has been accumulated, it should be removed to reduce risk of chimney fire.

A licensed or qualified chimney sweep should be contacted to clean the chimney. Contact local building or fire officials about restrictions and installation inspection in your area. Adequate clearance is required around cleanouts to assure accessibility for removal of creosote and soot accumulated within the chimney.

NOTE: Dimensions in these instructions are in American Standard (feet and inches), with Metric (mm) in parenthesis except stated otherwise.

CLEARANCES

Model PSW Chimney is primarily intended for use in noncombustible surroundings.

Chimney installed in an open room which does not require an enclosure shall have a minimum clearance of 18" (457mm) to combustibles. Chimney may be located in a corner formed by two combustible walls as long as the minimum clearance to combustible is maintained.

In any building more than one story in height or in one story buildings where roof penetration is required to have a fire resistance rating, the chimney must be enclosed in a continuous enclosure extending from the ceiling above the appliance, through any concealed spaces and through the roof so as to maintain the integrity of the fire separation required by applicable building code.

When the PSW chimney extends through any story of a building above that in which the connected appliances are located, and which is not less than four stories in height, the enclosure wall shall have a fire resistance rating of not less than 2 hours.

OUTDOOR INSTALLATION

Model PSW Chimney applications exceeding 600°F or using P071 joint sealant are not recommended for external use. Double Wall (Model PIC) chimney or Insulated Double Wall (IPIC) chimney is recommended.

PIPE WEIGHT

The average weight of the chimney per lineal foot can be calculated using the following formula:

PSW 0.40 X Diameter = lbs. per foot

Example: 8PSW 0.40 X 8 = 3.2 lbs. per foot

Duct design should make sure that the PSW Chimney is adequately supported to ensure parts are not overloaded.

PART NUMBERS

These instructions identify Model PSW parts by name of part number in the text and illustrations. Actual parts also carry a flue diameter prefix and a three digit "CTO" suffix which defines the materials of construction, such as 24PSW30 4A0 for a 24-inch diameter single wall pipe section 30 inches long with Type 304 stainless steel flue. PSW pipe is available in 304 stainless steel or 316 stainless steel.

PIPE AND FITTING ASSEMBLY

The Model PSW Chimney joint sealing system is designed for quick and easy installation (See **FIG. 1**). All joints must be liquid tight. To insure that all joints meet that requirement, follow these steps.

1. Apply a continuous bead of sealant to one of the flanges to be joined.

NOTE: For gas temperatures up to 600°F, use P077 sealant. For gas temperature over 600°F, use P071 sealant

CAUTION: The use of any other sealant on the flange surface will negate the product warranty and may impair the sealing effectiveness.

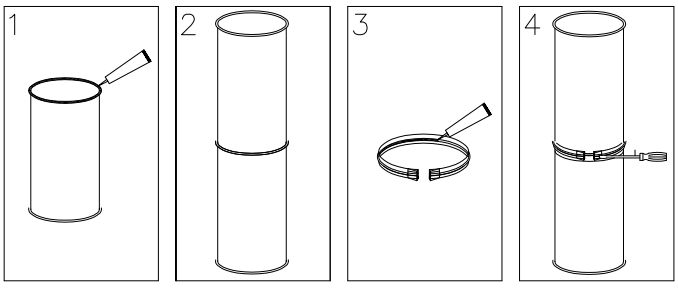
2. Join the two flanged ends of the pipe section together.
3. Fill the channel of the flange band with the correct sealant.
4. Install the flange band around the flanges.

NOTE: Light tapping with a hammer all around the band while tightening the end clamp bolt helps to align and pull the flanges together.

For all ENGINE EXHAUST and other HIGH PRESSURE applications, perform Steps 1 through 3 above, then:

4. Install the seal clip(s) on the flanges 6", 8" and 10" only.
5. Install the flange band around the flanges making sure the joint is located so the seal clip overlaps both edges of the joint.
6. Fill the space behind the flange band on both sides of the flange with required sealant.

FIG. 1 - JOINT ASSEMBLY



SUPPORT LIMITS & SPACING

TABLE 1 provides the maximum vertical distances between Supports for various support types

TABLE 1

SUPPORT METHOD	Maximum Supported Length
Wall Support	40' (12.2m)
Pier or Appliance Outlet	100' (305 m)
Plate Support Assembly	100' (305 m)

GUIDE SPACING

TABLE 2 provides the maximum distances between Guides for Chimney installed inside of building (For exterior installations, See **TABLE 3 & FIG. 2**).

TABLE 2

SUPPORT METHOD	Maximum Supported Length
Maximum Unsupported Horizontal Spacing	12'-6" (3.8m)
Maximum Unsupported Vertical Spacing Below Roof Line	25'-0" (7.6m)

FIG. 2 - GUYING FOR SINGLE SECTION

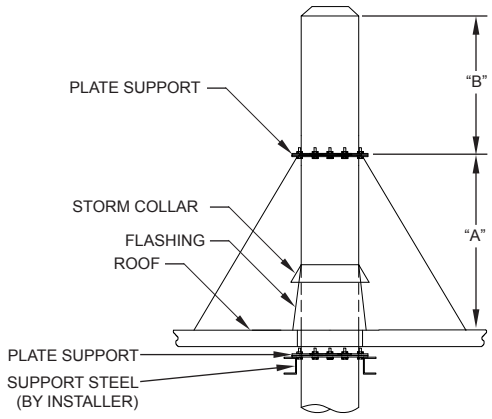


TABLE 3

PSW GUYING REQUIREMENTS		
PIPE SIZE	**"A"**	**"B"**
6"	17' 0" (5.18m)	8' 6" (2.59m)
8"	17' 6" (5.33m)	8' 9" (2.67m)
10"	18' 6" (5.64m)	9' 3" (2.82m)
12"	20' 0" (6.10m)	10' 0" (3.05m)
14"	21' 0" (6.40m)	10' 6" (3.20m)
16"	22' 0" (6.71m)	11' 0" (3.35m)
18"	23' 0" (7.01m)	11' 6" (3.51m)
20"	24' 0" (7.32m)	12' 0" (3.66m)
22"	24' 6" (7.47m)	12' 3" (3.73m)
24"	25' 0" (7.62m)	12' 6" (3.81m)
26"	26' 0" (7.92m)	13' 0" (3.96m)
28"	27' 0" (8.23m)	13' 6" (4.11m)
30"	27' 0" (8.23m)	13' 6" (4.11m)
32"	28' 6" (8.69m)	14' 3" (4.34m)
34"	29' 0" (8.84m)	13' 6" (4.11m)
36"	30' 0" (9.14m)	15' 0" (4.57m)
38"	30' 6" (9.30m)	15' 3" (4.64m)
40"	31' 0" (9.45m)	15' 6" (4.72m)
42"	32' 0" (9.75m)	16' 0" (4.88m)
44"	32' 6" (9.91m)	16' 3" (4.95m)
46"	33' 6" (10.21m)	16' 9" (5.10m)
48"	34' 6" (10.52m)	17' 3" (5.26m)