

**COMPANY**

# MODEL CS

(Double Wall For Condensing Systems, 1"-4" Air Space)

# MODEL CS<sub>Plus</sub>

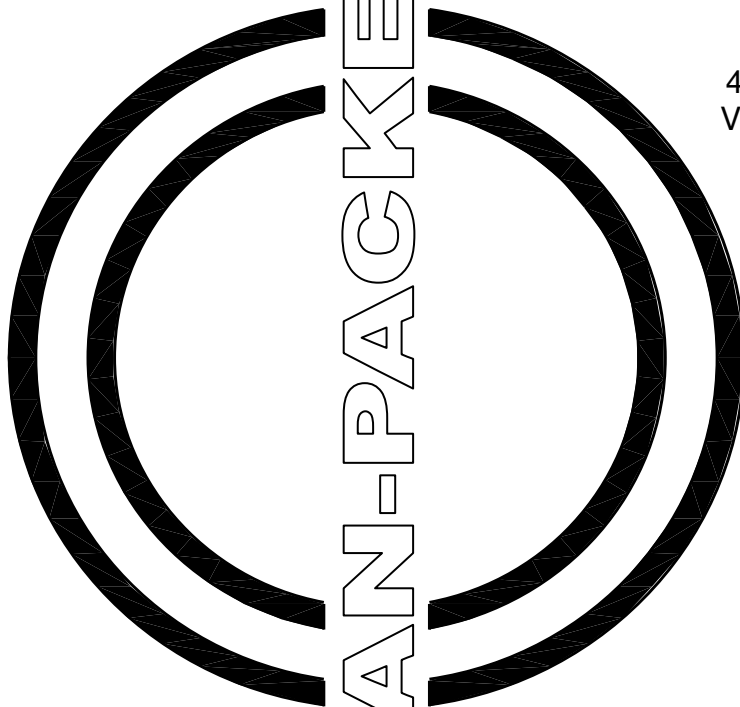
(Double Wall For Condensing Systems, 1"-4" Insulation Space)

# Model MW

(Mono Wall For Condensing Systems, No Outer Wall)

®

**VAN-PACKER**



## Installation Instructions

UL Listed under Standard 1738 for Flue Gas  
Temperatures up to 550 °F (288 °C) and  
40" Maximum water column positive pressure  
Venting Systems for Gas-Burning Appliances,  
Categories II, III, and IV



**BEFORE ASSEMBLY**, examine all components for possible shipping damage.

**REQUIREMENTS:**

Installation must be made in accordance with local and national code requirements. Follow these instructions carefully and contact local building or fire officials about restrictions and installation inspection in your area. Consult the authority having jurisdiction to determine the need to obtain a permit.

Venting system must be installed and terminate in accordance with the requirements of CAN/CGA-B149.1, Natural Gas Installation Code, or CAN/CGA-B149.2, Propane Installation Code, as applicable.

Each part of the venting system must be installed correctly. The safe operation of any system is based on the use of parts supplied by the manufacturer and the performance of the system may be affected if the combination of these parts is not used in actual building construction. Improper or lack of installation of any required part may result in improper operation of the appliance being vented or performance of the venting system. Acceptance of the system is dependent upon full compliance with our installation instructions.

A venting system shall terminate with one of our appropriate vertical or horizontal terminations.

A venting system that extends through any zone above where the connected appliance is located shall be provided with an enclosure having a fire resistance rating equal to or greater than that of the floor or roof assemblies through which it passes.

Due to ice build up and blockage, it is required that the proper sloping and location of condensate drains be employed when the vent is installed in a horizontal installation. Any horizontally installed portion of a venting system shall have a slope (upwards for Category II, III, or IV appliances or downwards for Category III or IV appliances) not less than 1/4 inch (6.4mm) every 12 inches (305mm) to prevent collection of condensate at any location in the assembly. Follow all codes and regulations for proper draining of condensate. Condensate drains recommended every 30' of horizontal vent and at the bottom of every vertical riser. Proper drain trap/loop, (to be by others), must be installed to prevent exhaust from accumulating in building.

The venting system shall not be routed into, through, or within any other vent, such as an existing masonry or factory-built chimney flue.

Any penetration of ceilings, floors, or walls must be properly fire-stopped.

Venting system must be free to expand and contract.

Vent must extend minimum 3' above the highest point where it passes through a roof and minimum 2' above any portion of a building within a horizontal distance of 10'.

Vents must extend at least 5' above the highest connected appliance draft hood outlet.

Vent must terminate at least 6' from any combustion air intake and at least 3' or more from any other building opening, air inlet into building, gas utility meter, service regulator, etc.

Vents terminating horizontally must be located not less than 12" above grade, above anticipated snow line where snow accumulation is expected, and at least 7' above grade when adjacent to a public walkway.

**PLEASE NOTE: Installation Instructions below are based on our MODEL CS and Model CS Plus, (double wall) however they are the same instructions for MODEL MW. The only difference is MODEL MW is "Mono Wall" (no shell). Please ignore any references to the shell when installing MODEL MW. The only differences are clearances to combustibles. Please pay close attention to the MODEL MW clearances.**

**RECOMMENDATIONS:**

Refer to the appliance’s instructions to determine limitations with respect to installation and use, such as maximum horizontal length from the appliance, maximum height, joining of two or more parts to constitute the intended assembly, maximum number of joints or sections of pipe for use in the assembly, and the required installation clearances (air spaces).

Refer to the appliance’s instructions to determine proper sizing and connection of the venting system to the appliance.

Exterior mounted vents should be enclosed below the roof line to reduce condensation and protect against mechanical damage.

**SILICONE SEALANT** shall be used on all joints. Please note: sealant must be installed per our instructions, and the sealant manufactures instructions and used with-in the stated shelf life. Proper joint assembly is essential. Follow these instructions exactly as written. Check appearance of joints upon completion of assembly. Different manufacturers have different joint systems and adhesives. Do not mix pipe, fittings, or joining methods from different manufacturers. Please note: It is required to check the joints and seams for gas tightness when using the venting system with a Category III or IV appliance.

**SILICONE SEALANT CHART (ESTIMATED)**

Section I.D.	4"	5"	6"	7"	8"	9"	10"	12"	14"-16"	18"-20"	22"-30"	32"-38"	40"-48"
Joints per Tube	16	13	12	10	9	8	7	6	5	4	3	2	1

**MODEL CS / MODEL CS Plus Series and Model MW CLEARANCE** to combustibles, see chart below. Warning: any type of insulation or combustible material cannot be within the required clearance space. The air space listed below must be maintained throughout the entire length of the vent for air flow and circulation. This system is not designed to be installed in a fully enclosed combustible enclosure. Can only be enclosed on a maximum of two sides with a combustible enclosure. Clearance to non-combustibles is 0".

Model CS Clearances to Combustibles				Model MW Clearances to Combustibles			
Vertical Installation		Horizontal Installation		Vertical Installation		Horizontal Installation	
Section I.D.	Minimum Clearance	Section I.D.	Minimum Clearance	Section I.D.	Minimum Clearance	Section I.D.	Minimum Clearance
4"-36"	2"	4"-36"	3"	4"-12"	2"	4"-12"	3"
38"-48"	5"	38"-48"	5"	14"-24"	4"	14"-24"	4"
				26"-36"	6"	26"-36"	6"
				38"-48"	8"	38"-48"	8"

**SUPPORT SPACING**

Stacks must be laterally braced no more than 10’ below top of stack and at 20’ maximum spacing for additional braces. Horizontal support spacing shall be 10’ maximum. Vertical supports are required after every transition to vertical. Offsets may require additional supports. Additional supports may be required during installation to avoid damage to vent.

## Joint Installation

The Model CS is a double wall constructed venting system. The inner liner and outer jacket have a one, two, three, or 4 inch air space or an optional one, two, three or four inch insulation space (or a combination of both). The inner liner has a 7/16" rolled flange. The inner liners connect with a Vee Band. The outer jacket connects with a Draw Band. Use a 1/4" bead of silicone sealant at all Vee Band connections on the 7/16" flange. Apply silicone sealant on exterior Draw Bands to prevent rain from entry. The installer shall supply silicone for Draw Bands on exterior portions of venting system.

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

**Installation Tip:** Clean flanges with acetone sprayed on a rag prior to applying sealant.

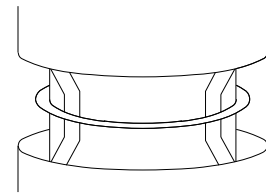
**Note:** Dirty flanges will not allow sealant to adhere to flanges.



2. Join the two-flanged ends of the pipe sections together.

**Please note:** sections are available with optional Male ends, these ends are always installed towards the appliance

**Installation Tip:** Be careful to not smear off the sealant on the flange during assembly. Re-apply if this happens.



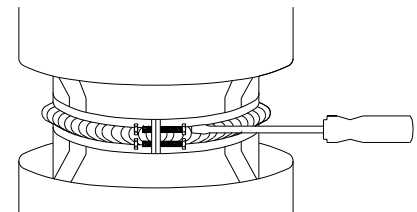
3. Install vee band around flanges.

**Installation Tip:** Apply a bead of sealant into the groove of the vee band. Wipe excess sealant from inside vent to prevent sealant dams.

It is **necessary** to lightly tap the vee band while tightening, this will ensure a snug fit.

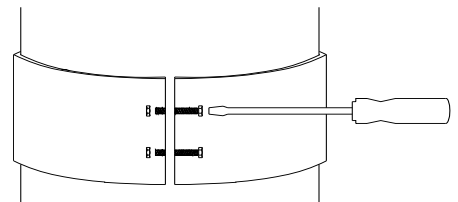
Allow sealant to cure 72 hours before starting Appliance.

**Note:** Sealant will not bond to the flanges if moisture is introduced into the system before sealant has cured.



4. Secure the outer shell with the Draw Band.

It is recommended that silicone sealant be Applied around the top of the Draw Band to prevent moisture from entering between the chimney walls. This should be done on all components exposed to the atmosphere.

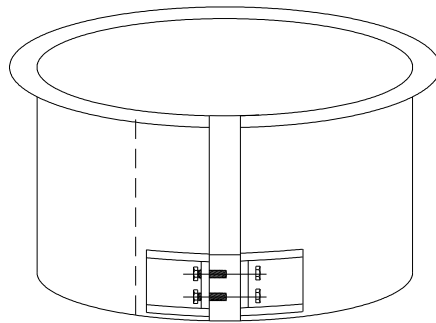


**Important Notice:** Failure to follow our instructions could lead to leaking joints.

## Flangeless Outlet Adapter

### Part FOA

Use the FOA on appliance collars without a flange. Apply a bead of sealant around the collar. Tighten with nuts and screws supplied by Van-Packer. The first section of piping is connected to the flange of the FOA.

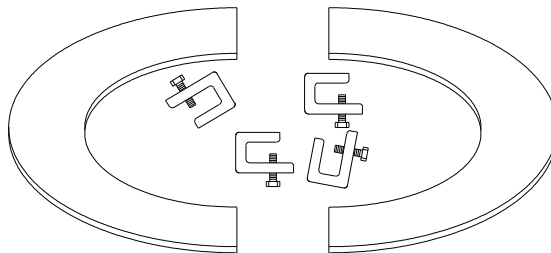


Flangeless Outlet Adapter

## Boiler Adapter Flange

### Part BAF

Use the BAF when the appliance has a blank flanged outlet. Place a bead of sealant around flanged outlet about 1/8 inch from inside diameter. Next place flue on top of outlet, align, set clamp flange around liner flange of flue pipe, and fasten down with "C" clamps.



Boiler Adapter Flange

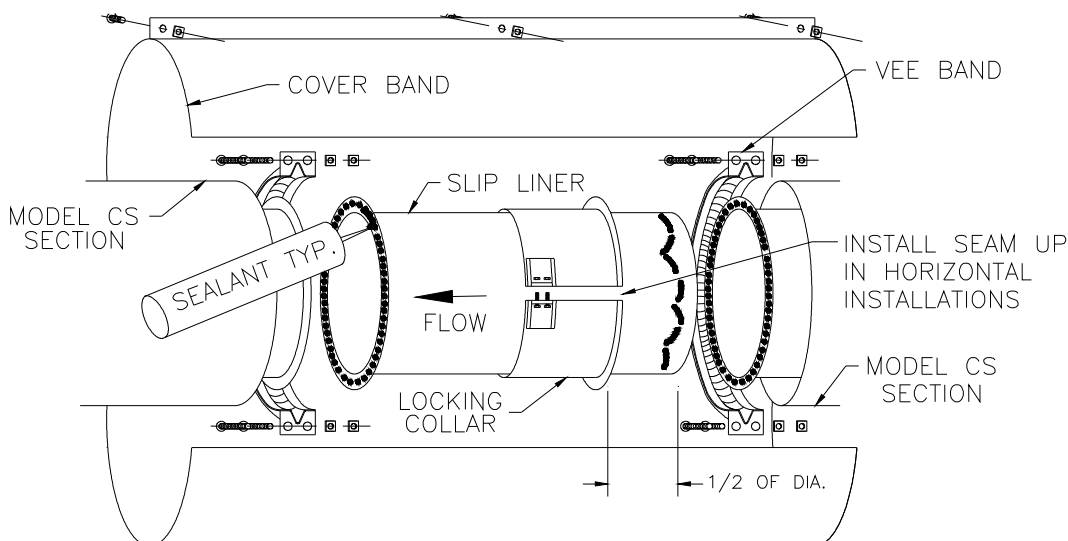
## Variable Length Section

### Part VLS

The VLS is used for custom length sections. Length ranges from 5-1/2" to 18". It includes a Locking Collar, Vee Band, Slip Liner, and Cover Band.

1. Place the locking collar over the slip liner with the flange of the locking collar toward the un-flanged end of the slip liner. Then slide the slip liner into the end of the section that is already in place and adjust to the required length. **Installation Tip:** slide the slip liner into the previous section before installing the following section. The slip liner may require field-trimming if used between two fittings (elbows, tee, etc.). **Note:** Allow for some of the liner to slide into adjacent fitting and with regard to slope, the raw end must always be down-hill from the rolled flange end.
2. Place sealant on adjoining section liner flange around the slip liner, on the end of the slip liner that slips into the end of mating section and on the inside of the locking collar.
3. Slide the flange of the locking collar up to the adjoining section liner flange. Tighten the bolts on the locking collar and install a vee band.
4. Install the next section using a vee band in accordance with the joint installation instructions.
5. Install cover band. The cover band may require field-trimming if used between two fittings (elbows, tee, etc.).

Note: This is a non-load bearing section

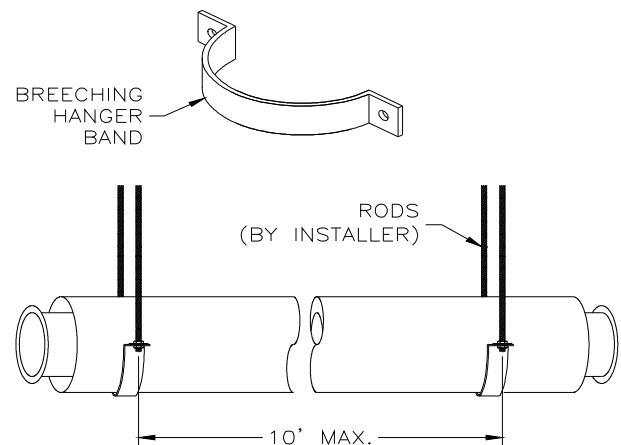


## Breeching Hanger Band

### Part BHB

The BHB is used to support horizontal lengths of pipe.

Note: Breeching support rods are to be by installing contractor

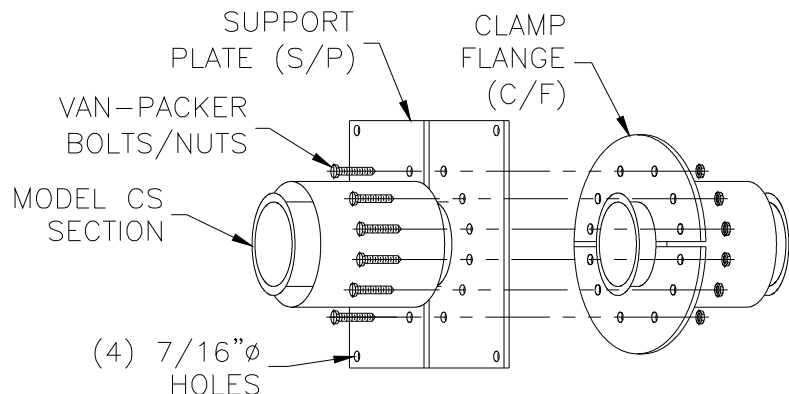
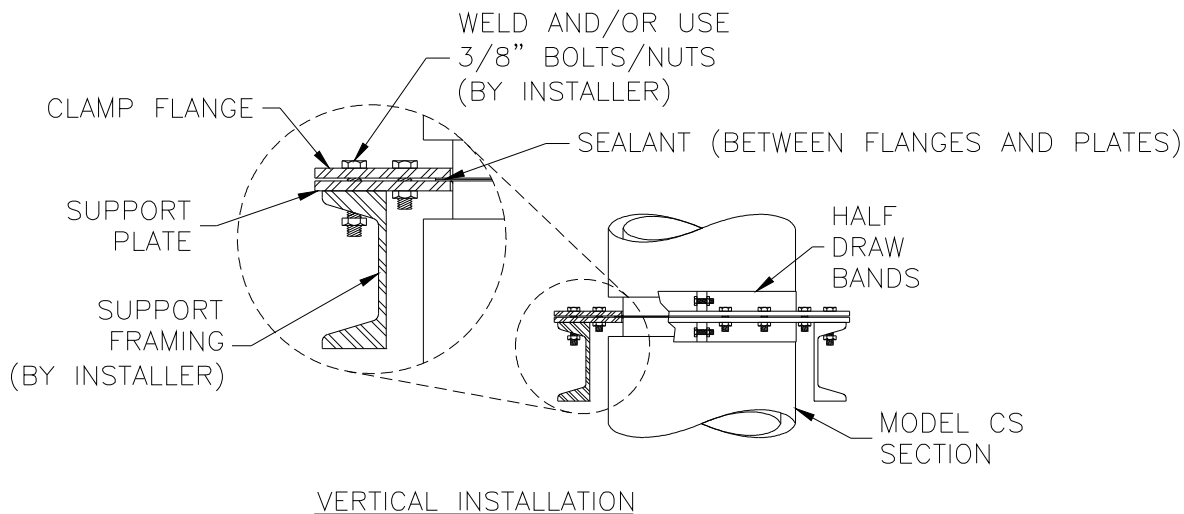


## Plate Support Assembly

### Part PLS

1. The PLS consists of one square two-piece Support Plate (S/P), one round two-piece Clamp Flange (C/F), bolts and nuts. The PLS, in conjunction with field fabricated support members, provides support for the chimney (Do Not line up seams in S/P with C/F).
2. Apply sealant on one end of liner flange. Join the two liners together (no Vee Band is required) to capture the flanges between the support plate and the clamp flange. Bolt together the support plate and the clamp flange with the 3/8" (9.52mm) bolts provided. Fully tighten all the bolts except those at the locations where the support members will attach.
3. Using a 7/16" (11.11mm) drill bit, drill through the existing holes in the assembly into the support members and bolt in place. You may also weld support members to the support plate.
4. Support all four sides of the support plate. Construct structural support members from 1-1/2" x 1-1/2" x 3/16" or larger steel angles, steel channels, beams or other appropriate material (depending on the load to be supported).

Note: Design support members and fasteners in accordance with *Good Engineering Practice* to suit each specific application (by others). Van-Packer assumes no responsibility for the design and/or modification of buildings to accept the given loads.



**Allowable Height Chart in Feet**

Section	Mono Wall			Model CS			Model CS+			Model CS+2			Model CS+3			Model CS+4		
	I.D.	STR	PLS	WSA	STR	PLS	WSA	STR	PLS	WSA	STR	PLS	WSA	STR	PLS	WSA	STR	PLS
4	1500	1500	1186	569	569	450	471	471	373	324	324	256	239	239	189	185	185	147
5	1207	1207	932	483	483	373	393	393	304	286	286	221	217	217	167	171	171	132
6	1081	1081	817	422	422	319	339	339	256	262	262	198	201	201	152	160	160	121
7	932	932	688	385	385	284	328	328	242	239	239	177	186	186	138	149	149	110
8	823	823	595	348	348	252	287	287	208	221	221	160	174	174	126	140	140	101
9	740	740	522	319	319	225	264	264	186	201	201	142	161	161	113	132	132	93
10	700	700	484	295	295	204	242	242	168	189	189	131	152	152	105	125	125	87
12	596	596	396	262	262	174	221	221	147	168	168	112	137	137	91	113	113	75
14	542	542	344	237	237	150	189	189	120	154	154	97	126	126	80	105	105	67
16	486	486	297	216	216	132	178	178	109	143	143	87	117	117	71	98	98	60
18	453	453	266	202	202	118	164	164	96	133	133	78	110	110	64	93	93	54
20	418	418	236	189	189	107	154	154	87	125	125	71	104	104	59	88	88	50
22	397	397	217	178	178	97	145	145	79	118	118	64	98	98	54	83	83	45
24	373	373	196	170	170	89	139	139	73	113	113	59	94	94	50	80	80	42
26	362	362	122	174	174	59	149	149	50	128	128	43	112	112	38	98	98	33
28	333	333	115	160	160	55	138	138	47	119	119	41	103	103	35	91	91	31
30	308	308	106	149	149	51	128	128	44	110	110	38	96	96	33	84	84	29
32	284	284	100	137	137	48	118	118	42	102	102	36	89	89	31	70	70	25
34	271	271	91	131	131	44	113	113	38	97	97	33	76	76	25	68	68	23
36	250	250	81	128	128	39	110	110	34	84	84	26	74	74	23	66	66	20
38	193	193	57	125	125	31	107	107	28	86	86	23	76	76	20	66	66	18
40	184	184	52	113	113	29	98	98	25	84	84	22	74	74	19	65	65	17
42	179	179	46	101	101	25	88	88	22	77	77	19	68	68	17	60	60	15
44	176	176	42	88	88	23	78	78	20	68	68	18	62	62	16	55	55	14
46	167	167	37	76	76	21	68	68	18	61	61	16	55	55	14	50	50	13
48	151	151	35	64	64	20	58	58	17	52	52	15	47	47	13	43	43	12

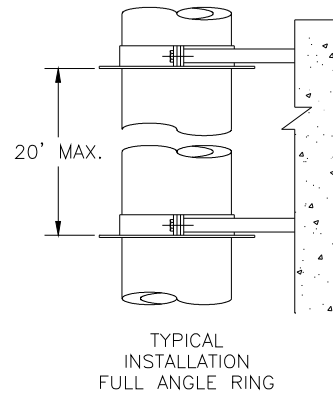
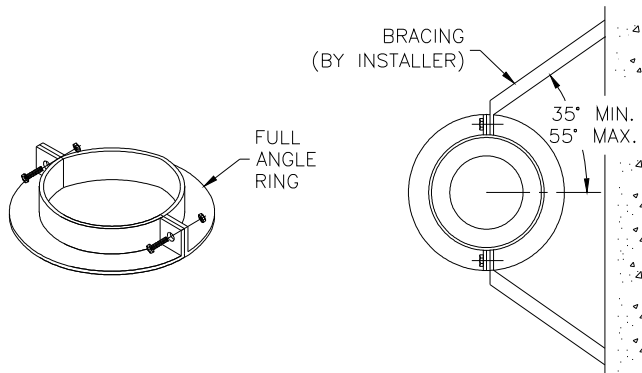


## Full Angle Ring

### Part FAR

The FAR is used to provide lateral support for vertical lengths of pipe.

Note: Lateral support bracing to be by installing contractor

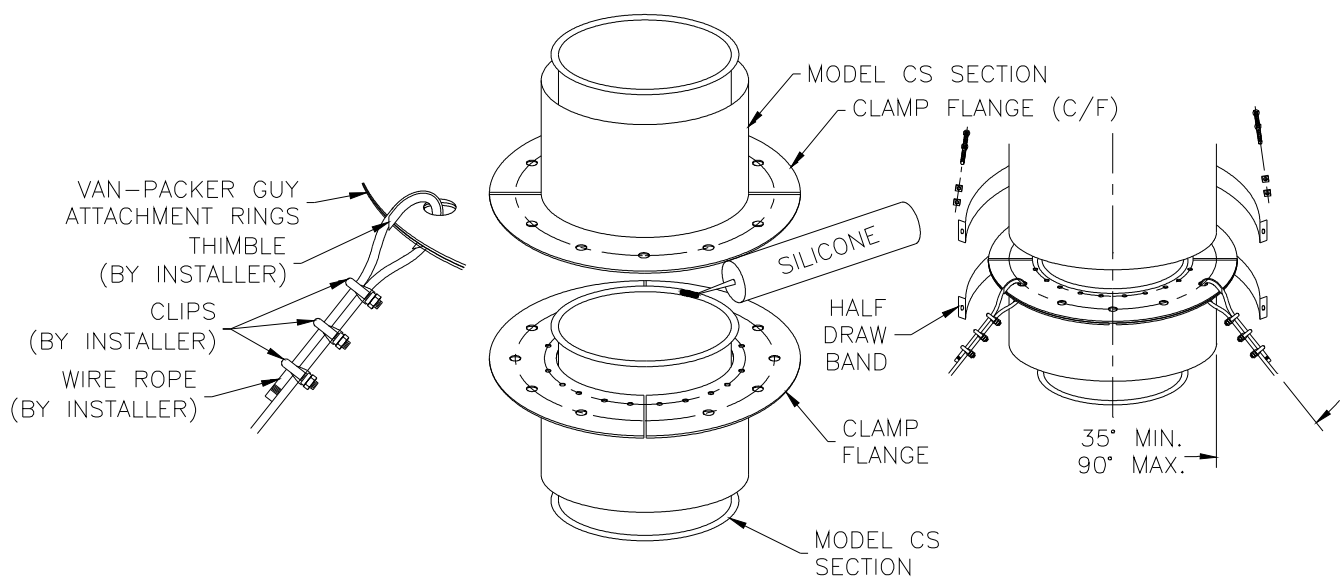


## Guy Attachment Ring

### Part GAR

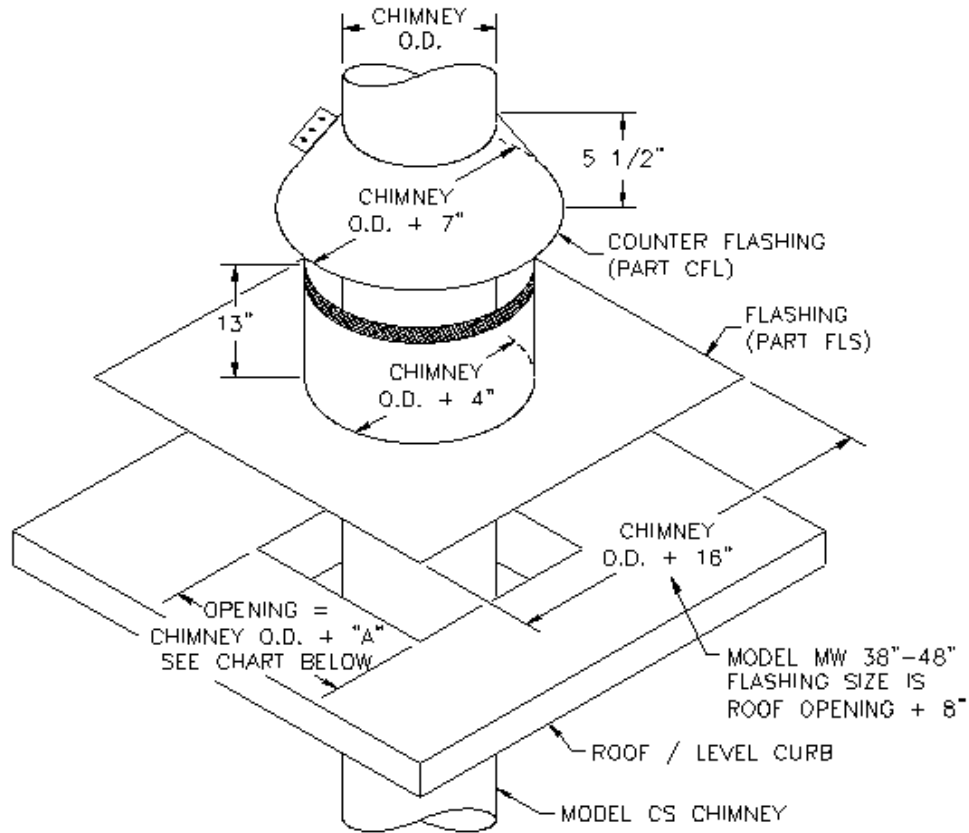
Chimneys that extend above the roof, or are installed in severe weather regions, may require a Guy Attachment Ring to enable the chimney to resist wind loads. The Guy Attachment Ring connects to the building or other structure by means of cables. The Guy Attachment Ring consists of two sets of Clamp Flanges (C/F) (or four identical half rings) with hardware to secure them together. The cables, which attach to the Guy Attachment Ring, must be tight. Most stack configurations pre-load the guy-cables for a satisfactory installation. A minimum of three cables spaced 120° apart is required for one Guy Attachment Ring assembly. Place two sections together following the sealant guidelines and sandwich the section flanges between the clamp flanges. Rotate the seams of the Clamp Flanges by 90°.

Note: Cables, clips, and wire thimbles to be by installing contractor



**Counter Flashing  
Part CFL**

Install a counter flashing above the flashing to provide rain protection. The counter flashing fits around the chimney and rests on the flashing screen. Apply sealant around top of counter flashing to prevent leakage.



MODEL MW				
Section I.D.	4"-12"	14"-24"	26"-36"	38"-48"
"A"	4"	8"	12"	16"

MODEL CS		
Section I.D.	4"-36"	38"-48"
"A"	4"	10"

**Flashing  
Part FLS**

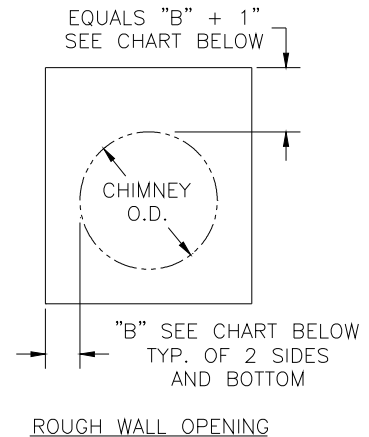
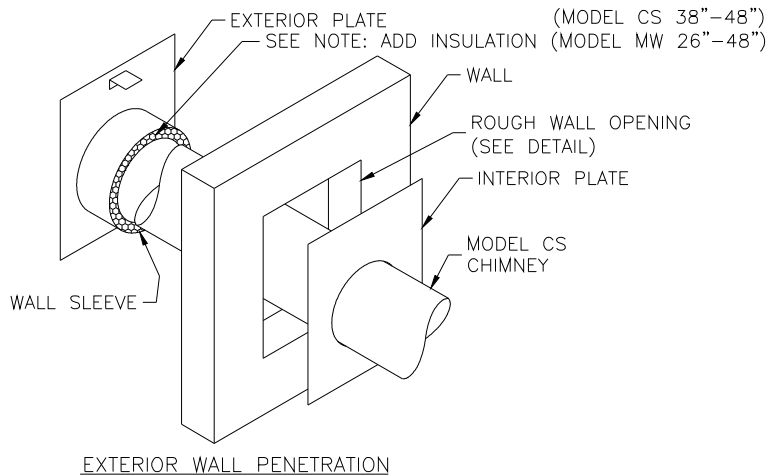
Use when the vent system penetrates a roof structure. Install the flashing on the roof deck. There is a 1" screen to prevent the counter flashing from sliding down and blocking off airflow around the stack.

## Exterior Wall Penetration

### Part EWP

The EWP is for use when penetrating a wall of combustible or non-combustible construction. It includes an interior plate and exterior plate with insulated wall sleeve. Refer to detail below for wall opening size. EWP must be installed with the spacer clip on top. Wall sleeve must be field cut to fit, depending on wall thickness. Sealant may be used for weather protection.

Note: Fasteners for wall plates are to be by installing contractor



**PLEASE NOTE:** MODEL MW sizes 26"-36" and Model CS 38"-48" requires 1" of insulation installed, into this opening, in-between the wall sleeve and liner. Insulation supplied with penetration. It is important to compress the insulation into this opening.

MODEL MW		
Section I.D.	4"-36"	38"-48"
"B"	3"	8"

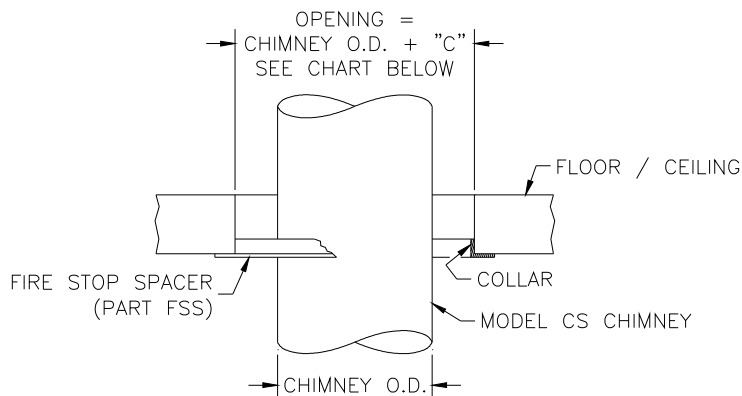
MODEL CS		
Section I.D.	4"-36"	38"-48"
"B"	2"	3"

## Fire Stop Spacer

### Part FSS

The FSS is for use when penetrating a ceiling or floor. See below for required opening.

Note: Fasteners to ceiling or floor are to be by installing contractor



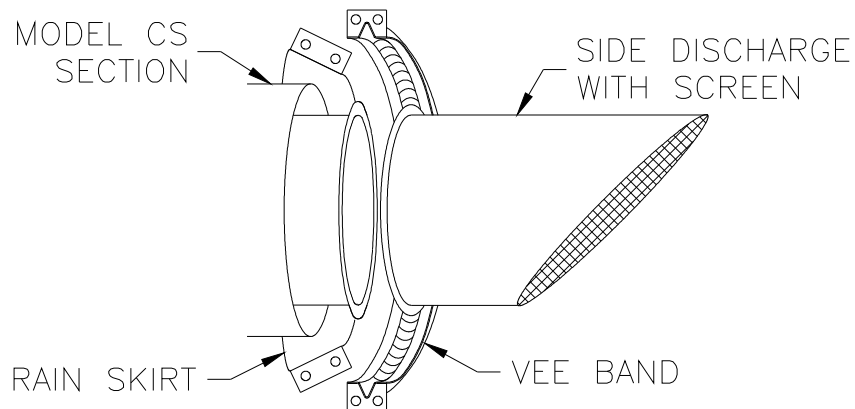
MODEL MW				
Section I.D.	4"-12"	14"-24"	26"-36"	38"-48"
"C"	4"	8"	12"	16"

MODEL CS		
Section I.D.	4"-36"	38"-48"
"C"	4"	10"

## Side Discharge with Screen

### Part SDS

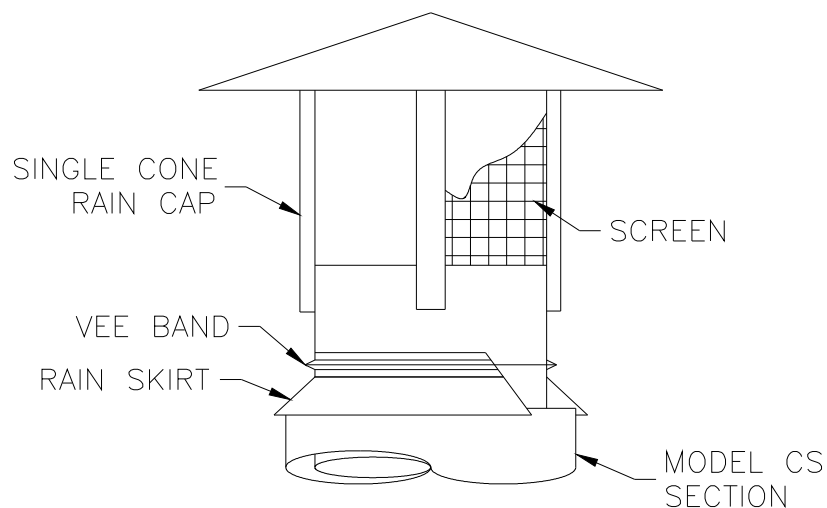
The SDS is for horizontal terminations. Part includes one side discharge with screen and one rain skirt. Connect the discharge to the vent pipe with a vee band. Follow joint installation instructions for sealant. Place a small bead of silicone between rain skirt and vee band and rain skirt and venting system shell for weatherproofing.



## Single Cone Rain Cap

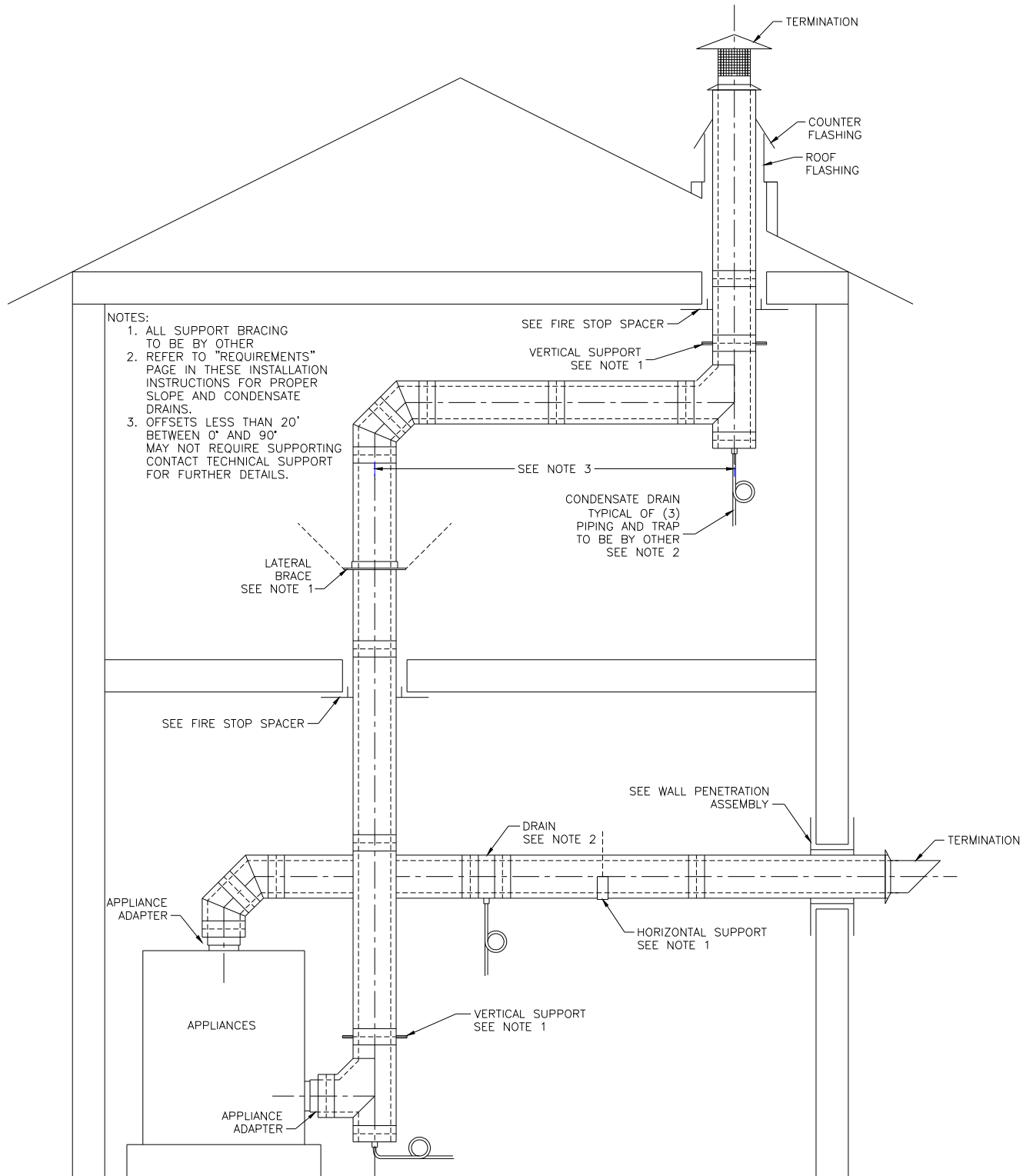
### Part SCS

The SCS is for vertical terminations. Part Includes one single cone rain cap with screen and one rain skirt. Connect the rain cap to the vent pipe with a vee band. Follow joint installation instructions for sealant. Place a small bead of silicone between the rain skirt and vee band for weatherproofing.



# TYPICAL INSTALLATIONS

Read all pages carefully for further details



### **In the Equipment Room:**

The vent system should be inspected at least annually for the presence of soot deposits or debris. Accumulation should be removed.

Combustion soot does not occur in normal operation of gas burning appliances. Insure proper adjustment and maintenance of appliances.

### **Combustion Air:**

It is critical to the long service life of the vent and appliance that clean combustion air be provided to the appliance.

Chlorinated vapors can be very corrosive. These are among some examples of products which must be avoided: Any cleaners containing chlorides, perchlorethylene, paints, varnishes, paint removers, de-icing chemicals, some glues, chlorine products for pools or spas, laundry room detergents, water softening products, some refrigerants, etc.

Consider the use of clean outside air.

***The presence of outside chemicals in the combustion air can be cause for the Van-Packer Co. warranty to be void.***

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