AMPCO BY duravent

Models VSI/IVSI

Stainless Steel Double Wall Positive Pressure Venting Systems

Special Gas Vent Applications

AMPCO Commercial Models VSI/IVSI are modular, prefabricated venting systems featuring quick assembly, pressure-sealing capabilities and temperature ratings up to 550 °F for Special Gas Vent applications, with low clearance to combustibles.

c UL us LISTED

Tested and listed to UL1738/ULC-S636

SPECIAL GAS VENT APPLICATIONS

- *Boilers*
- *Water Heaters*
- *Furnaces*

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UNDERWRITERS LABORATORIES LISTINGS

Models VSI and IVSI in sizes 5" through 48" diameters have been tested and Listed (Safety Certified) by Underwriters Laboratories, Inc. (ULI) and bears the UL and/or c-UL logo signifying compliance with U.S. and/or Canadian standards. UL Listing product categories include:

(USA)

Special Gas Vent (UL1738)

(Canada)

Type BH Gas Vent (ULC-S636)

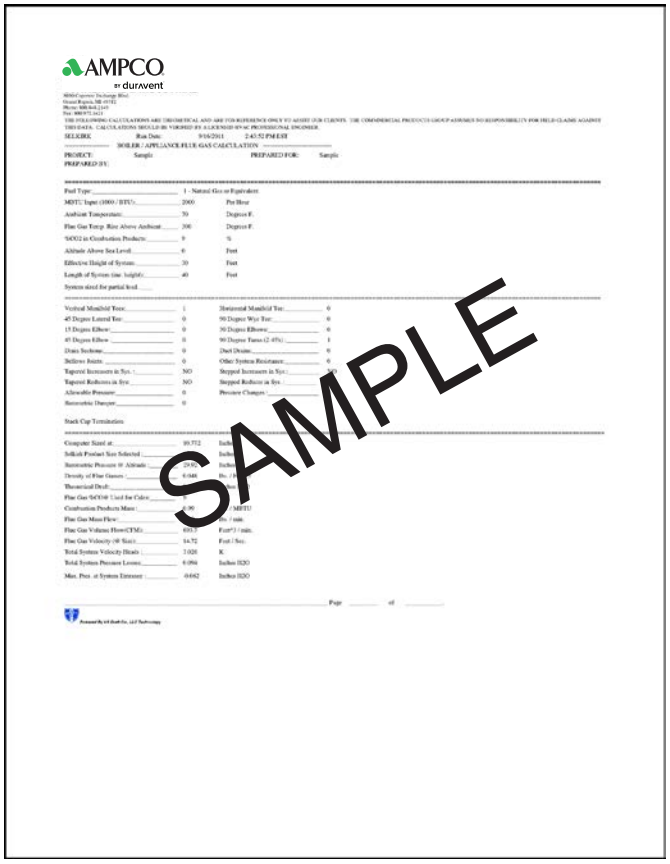
UL file numbers for PS and IPS include MH16161

CODE AND STANDARD COMPLIANCE

NFPA
ICC (IMC, IFGC)
IAMPO (UMC)
NBC (Canadian National Building Code)

ASSOCIATION/COMMITTEE PARTICIPATION

AMPCO Sizing/Pressure Calculations



AMPCO Model VSI and IVSI are modular, prefabricated venting systems which embody flanged joints designed for both quick assembly and pressure-sealing capabilities. They offer a combination of insulated venting components as well as the structural accessories needed for support and attachment to building structures.

Standard gas-carrying venting parts are usable for category I, II, III, & IV Boiler, Water Heater, and Furnace applications.

Features and Benefits

- Factory-built for high quality, durability and long life
- Stainless steel double-wall construction with up to 4" ceramic fiber insulation for strength and stringent temperature requirements
- Safety tested and listed to multiple UL standards, signifying compliance with U.S. and Canadian codes
- 5" to 48" diameters (ID) to fit the wide range of commercial applications and customer specifications
- Array of components and accessories designed to make a complete installation simple and quick
- AMPCO 5-year limited warranty for Special Gas Vent applications

Complete Line of Fittings

Fittings include various elbows, tees, supports and terminations, as well as a variety of accessory fittings designed to make installation simple and quick.

Each component is shipped complete and ready for installation. Each ordered part includes Inner Vee Bands, Outer Channel Bands and all the necessary hardware.

All items included with each order are listed in this catalog under the part description.

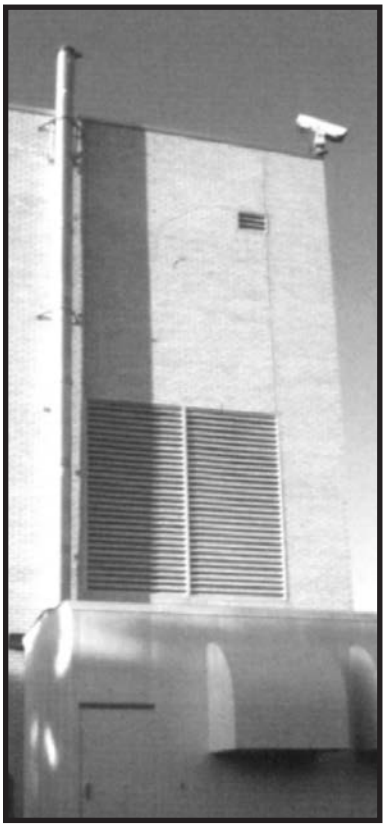
Exceeding the Requirements

AMPCO, inventors of the positive pressure system concept, far exceeds the requirements of codes and other manufacturers. Results of our testing programs illustrate this fact.

Leak Tests
AMPCO conducted system pressure testing (to 15" w.c.) against leakage tests in UL1738/ULC-S636.

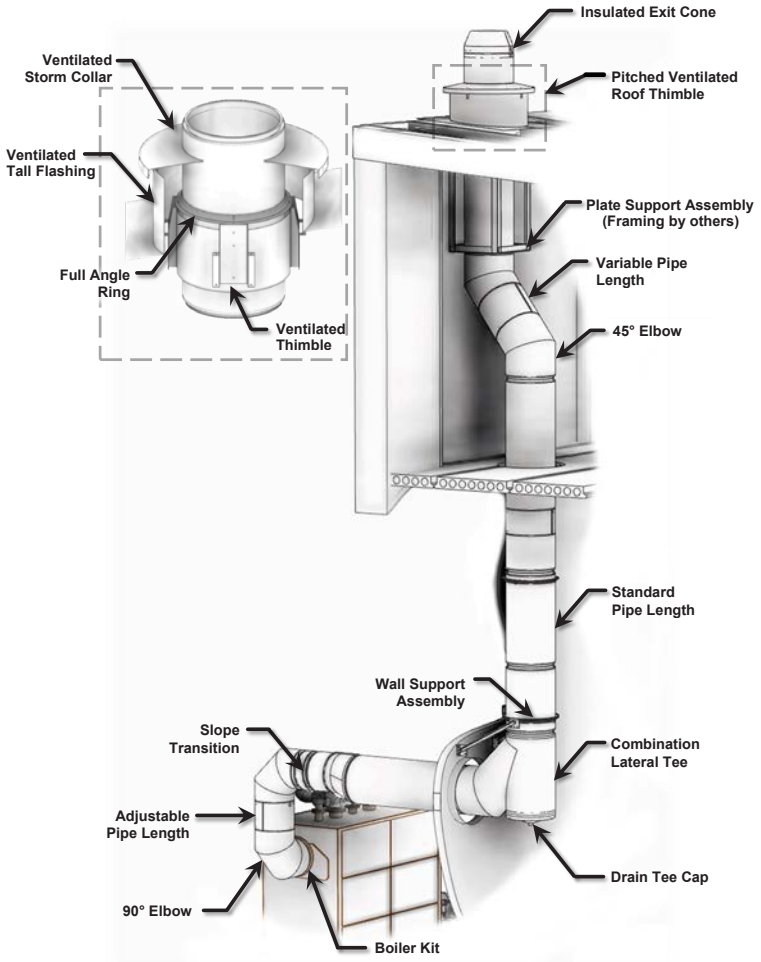
Seismic Tests
We further demonstrated the superiority of the Model VSI and IVSI concept by conducting seismic load tests. These tests proved the structural integrity of our products under severe stress by showing that a guyed stack measuring 20 inches in diameter and exceeding 10 feet above the guying location, per our UL testing, could withstand the rigors of all seismic zones.

Structural Tests
AMPCO recently tested for greater freestanding limits (termination height above a guide point). These tests, simulating stack performance under 110 mph wind conditions, again demonstrated the superiority of AMPCO products.



This page illustrates some of the major parts described on pages 8-30.

Note: For details on parts usage, refer to the AMPCO installation instructions.



Model VSI vs. Model IVSI

OD Calculation	
Model(s)	**OD (Inches)**
VSI, IVSIC1	OD=ID+2
IVSIC2	OD=ID+4
IVSIC4	OD=ID+8

Understanding Product Codes and Part Numbers (Example: 6IVSI316/316-AG30C2)

All parts manufactured by AMPCO are identified by a series of numbers and letters which describe their makeup and function.

Here is how to interpret the Part Number designation for Model VSI and IVSI products.

1. It begins with the pipe or fitting's internal diameter (in inches) such as 6, 22, 36, etc.
2. This is followed by the Model designation, VSI for air-insulated, or IVSI for parts that are fiber insulated.
3. Next, is the product's Material designation, 316/316, 316/304, or 316/Alum. The first number indicates the material of the inner wall, while the second half indicates the material of the outer wall, if stainless. If aluminized steel outer wall (Alum), the part number will indicate the inner wall only.
4. Then, following a long dash, the product Code is listed, such as AG30, JY, or MVT. If the product is air insulated, the product identification ends with this code.
5. Finally, when a product is fiber insulated, a designation is added at the end to indicate insulation thickness. C1 means a thickness of 1-inch; C2, 2-inches; C4 4 inches.

(For comparison, see photos above.)

Thus, the Ordered Part Number for a 30-inch Adjustable Pipe, with a 6-inch I.D., made of 316 Stainless Steel inner and aluminized steel outer, packed with 2-inch ceramic fiber insulation, is listed:

6IVSI316-AG30-C2

***** Note: For products with reduction or increaser parts, the part number changes as follows:

MT and JL - Diameter of Body listed in front of Model VSI or IVSI.
Diameter of Snout listed in front of Code designation.

Example - For a Manifold Tee with a 42" dia. Body and 30" dia. Snout:

42VSI316-30MT

OT and OS - Smaller diameter listed first (before Model designation)
Larger diameter listed before Code designation

Example - For a Tapered Increaser with an 8" to 16" dia. Body:

8VSI316-16OT

Overlapping Vee Band

Code:
VB

Vee Band for connecting inner 1/2" rolled flanges. Capable of holding 15" w.c. of pressure when properly installed.

Materials Available:

All Stainless Construction

Notes:
1. VB's are a one or two-piece design. Included with pipe sections.
2. Model VSI part used for all IVSI applications.

Alignment Sleeve

Code:
AS

Used in centering adjacent components in horizontal and vertical orientations to facilitate installation.

Materials Available:

All Stainless Construction

Notes:
1.AS included with pipe sections.

Channel Band

Code:
CB

Used to seal the Outer Jackets of two adjoining components.

(CB height is 4 ¾")

Materials Available:

Aluminized Steel	316

Notes:
1. Ceramic fiber insulation provided for IVSI models with the CB and HCB.

Half Channel Band

Code:
HCB

Used to seal the Outer Jackets of two adjoining components when the VB must remain open (such as PA's).

Materials Available:

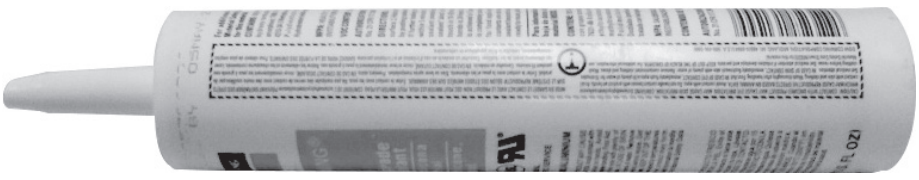
Aluminized Steel	316

Notes:
1. Ceramic fiber insulation provided for IVSI models with the CB and HCB.

Sealant

Code: SGV550

SGV550 Sealant is for 550° F. maximum flue gas temperatures, and is applied to the VB and pipe flange before connecting two Inner Pipes at installation.



Sealant Coverage

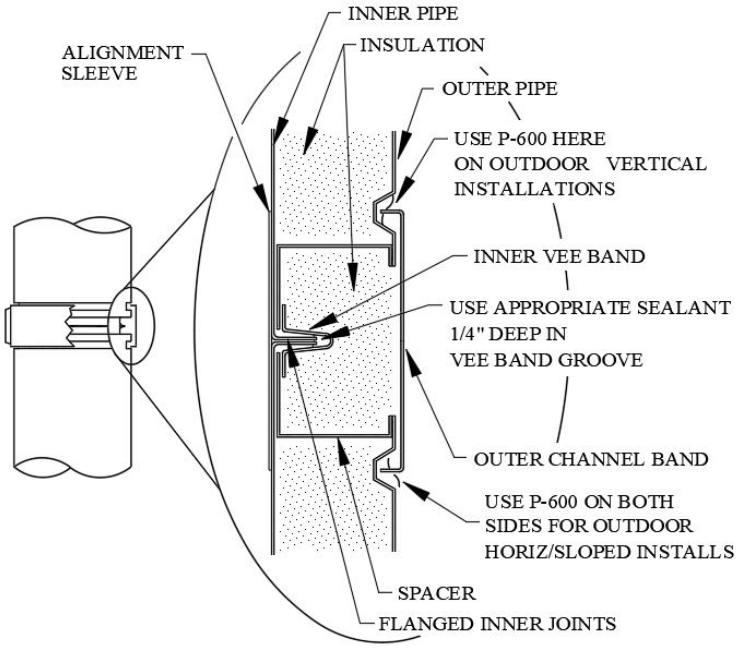
Expected Number of Joints Sealed Per Tube

Inner Dia. (inches)	SGV550
5/6	5
8/10	5
12	4
14/16	4
18/20	3
22/24	3
26/28	2
30/32	2
36	1
42/48	.5

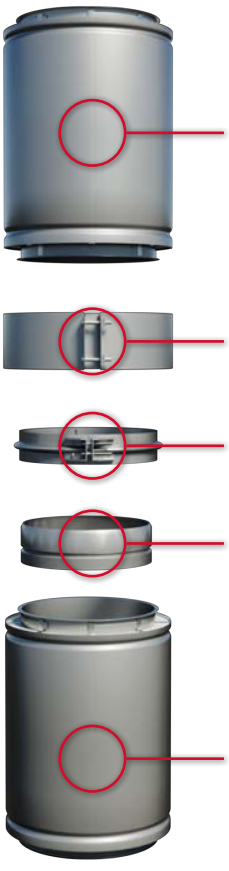
Quick and Easy Component Assembly

For all AMPCO pipe and fittings, the flange-to-flange inner pipe joints are identical for each pipe inside diameter.

Quick and easy component assembly using only standard tools.



*Illustrations shown are for reference only.
(Refer to Installation Instructions for detailed sealant application and use.)



Straight Length Component

Used horizontally and vertically – array of components available, designed to make a complete installation simple and quick.

Channel Band Assembly

Used to enclose the inner-wall conduit and component locking system, providing a clean finished appearance for the overall installation; factory-assembled components with a one-piece assembly facilitates field installation.

V-Band Component Locking Assembly

Used to secure adjacent components for a strong secure joint; factory-assembled components with a one-piece assembly facilitates field installation.

Alignment Sleeve

Used to provide easier and quicker component assembly in centering adjacent components in the horizontal and vertical orientations and provides a backing for sealant applied to the flange keeping it in the intended location, along with adding strength to the overall joint connection.

Straight Length Component

Used horizontally and vertically – array of components available, designed to make a complete installation simple and quick.

Finished Assembly

Completed installation provides a strong, uniformly aligned pressure stack.

Straight Pipe Lengths

Codes:

59, 42, 30, 18

Standard pipe lengths for all AMPCO exhaust systems.

Materials Available:

316/Alum | **316/304** | **316/316**

- 59.13" lengths available in
  - 6" dia. through 24" dia., VSI and IVSI-C1
  - 6" dia. through 22" dia., IVSI-C2
  - 6" dia. through 18" dia., IPSC4
- 42" lengths available in:
  - 5" dia. through 42" dia., VSI/IVSI-C1
  - 5" dia. through 40" dia., IVSI-C2
  - 5" dia. through 36" dia., IVSI-C4
- 18" & 30" lengths available in all diameters (5"-48") of all products (VSI, IVSI-C1, IVSI-C2, and IVSI-C4).

Ordered Part Includes:
Straight Pipe Length, plus one VB, one AS, and one CB.

Notes:
1. Special pipe lengths from 6" to 59.13" available upon special request.
   (i.e. 25.5" length)
2. K Factors
   (Where L = pipe length in feet and D = pipe diameter in inches)

   a. For Boiler Stacks and Chimneys:

   $$K=0.30\ \frac{L}{D}$$

   b. For Diesel and Turbine Exhausts and Grease Ducts:

   $$K=0.25\ \frac{L}{D}$$

   e.g. for 50 feet of 10 inch diameter pipe

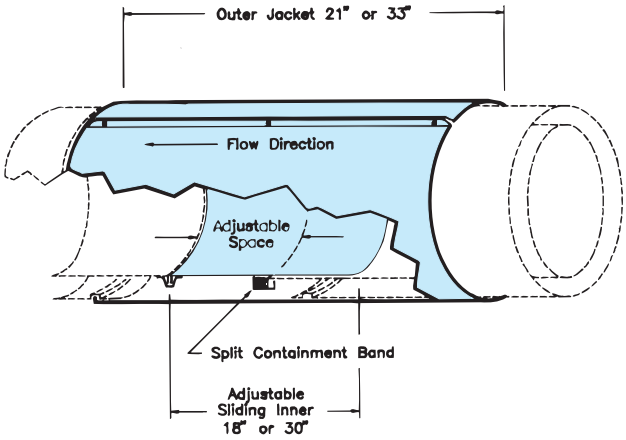
   $$K=0.25\ \frac{50}{10}=1.25$$

Adjustable Pipe Lengths

Codes:

AG30, AG18

Fills odd dimensions and compensates for expansion between two fixed points on low pressure applications.



Materials Available:

316/Alum | **316/304** | **316/316**

Ordered Part Includes:
Pipe, plus one 30" or 18" inner Slip Section, one TSU, one Packing Seal, one two-piece Compression Band, one two-piece Containment Ring, one two-piece Outer Jacket, and one VB.
Ceramic fiber insulation provided for IVSI models.

Notes:
1. Minimum installed length is 4".
2. AG18 not available for 28" diameter and above.
3. Maximum installed space is when the inner slip section protrudes at least 1/2 pipe diameter into the adjacent pipe.
4. Flow Resistance Factor (K) is the same as insulated pipe lengths.

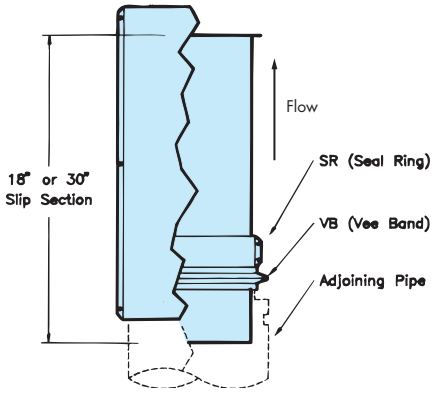
Variable Pipe Lengths

Codes:

VL30, VL18

Fills odd dimensions between standard lengths. (Not used to compensate for thermal expansion.)

- VL30 fills 4"- 26" space.
- VL18 fills 4"-14" space.



Materials Available:

316/Alum | 316/304 | 316/316

Ordered Part Includes:
VL30 or VL18, plus one 30" or 18" Inner Slip Section, one two-piece Outer Jacket, one Custom SR, and one VB.Ceramic fiber insulation provided for IVSI models.

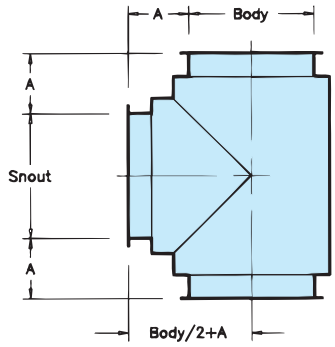
Notes:
1. The Custom SR is sealed with supplied sealant, not allowing the VL to compensate for expansion.
2. Flow Resistance Factor (K) is the same as insulated pipe.

90° Manifold Tee

Code:

MT

Joins vertical and horizontal sections to affect a change of direction. Also provides for connection of drain or inspection fittings.



Dimension A		
VSI/IVSI	IVSI-C2	IVSI-C4
4"	5"	7"

Materials Available:

316/Alum | 316/304 | 316/316

Ordered Part Includes:
MT, plus one VB for the body diameter, one VB for the snout diameter, one AS for the body diameter, and one CB for the body diameter.

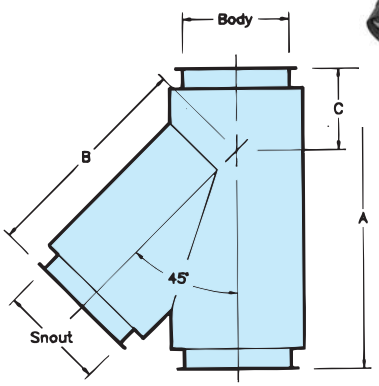
Notes:
1. Use TCN/NTAC for clean out or inspection, or TC for drain at base of vertical stack.
2. Snout available in any standard diameter equal to or smaller than the body diameter.
3. K = 1.25 Flow Resistance Factor

45° Lateral Tee

Code:

JL

Provides a low resistance entry into manifolds. Combine with EL45 for low resistance 90° direction change.



Materials Available:

316/Alum	316/304	316/316

Ordered Part Includes:
JL, plus one VB for the body diameter, one VB for the snout diameter, one AS for the body diameter, and one CB for the body diameter.

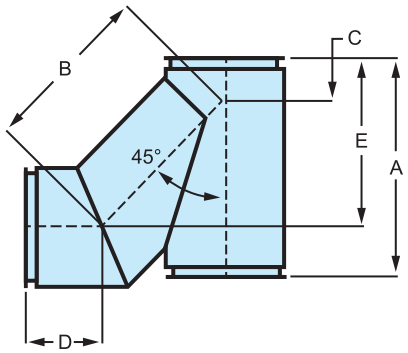
Notes:
1. Snout available in any standard diameter equal to or smaller than the body diameter.

Product (Pipe I. D.)			Dimensions (Inches)			
VSI/ IVSI-C1	IVSI C2	IVSI C4	A	B	C	(O. D.)
5	–	–	19 1/2	13 3/4	5 3/4	7
6	5	–	19 1/2	13 3/4	5 3/4	8/9
8	6	–	22 7/8	16 5/8	6 1/4	10
10	8	–	24 1/16	19	5 1/16	12
–	–	5	26 15/16	21 7/16	5 1/2	13
12	10	6	26 15/16	21 7/16	5 1/2	5 1/2
14	12	8	29 3/4	23 7/8	5 7/8	16
16	14	10	32 9/16	26 1/4	6 5/16	18
18	16	12	35 3/8	28 3/4	6 3/4	20
20	18	14	38 3/16	31 1/16	7 1/8	22
22	20	16	43 7/8	35 7/8	8	24
24	22	18	43 7/8	35 7/8	8	26
26	24	20	49 9/16	40 3/4	8 13/16	28
28	26	22	49 9/16	40 3/4	8 13/16	30
30	28	24	55 3/16	45 9/16	9 5/8	32
32	30	26	55 3/16	45 9/16	9 5/8	34
–	32	28	60 13/16	50 3/8	10 7/16	36
36	–	30	60 13/16	50 3/8	10 7/16	38
–	36	32	69 15/16	58 1/4	11 3/4	40
–	–	–	69 15/16	58 1/4	11 3/4	42
42	–	36	69 15/16	58 1/4	11 3/4	44
–	42	–	79 3/16	66 1/8	13	46
48	–	42	79 3/16	66 1/8	13	50
–	48	–	88 5/8	74 1/4	14 7/16	52
–	–	48	88 5/8	74 1/4	14 7/16	56

Combination Lateral Tee

Code:

CL



Materials Available:

304/Alum	316/Alum	304/304	316/316

Note: Alum is aluminized steel

Ordered Part Includes:
CL, plus one VB for the body diameter, one VB for the snout diameter, one AS for the body diameter, and one CB for the body diameter.

Notes:
1. K = 0.55 Flow Resistance Factor

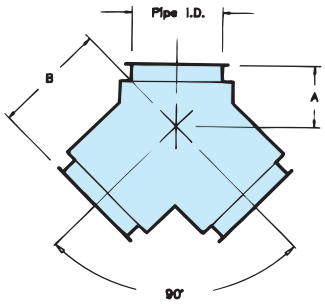
Product (Pipe I. D.)				Dimensions (Inches)					
VSI/IVSI C1	IVSI C2	IVSI Z3	IVSI C4/Z4	A	B	C	D	E	(O. D.)
5	–	–	–	19-1/2	13-3/4	5-3/4	8-1/2	15-3/8	7
6	5	–	–	19-1/2	13-3/4	5-3/4	8-1/2	15-3/8	8/9
8	6	–	–	22-7/8	16-5/8	6-1/4	8-15/16	18	10
–	–	5	–	23-1/2	17-3/4	5-3/4	9-1/8	18-5/16	11
10	8	6	–	24-1/16	19	5-1/16	9-5/16	18-1/2	12
–	–	–	5	26-15/16	21-7/16	5-1/2	10-1/4	20-9/16	13
12	10	8	6	26-15/16	21-7/16	5-1/2	10-1/4	20-9/16	14
14	12	10	8	29-3/4	23-7/8	5-7/8	10-11/16	22-3/4	16
16	14	12	10	32-9/16	26-1/4	6-5/16	11-5/8	24-7/8	18
18	16	14	12	35-3/8	28-3/4	6-3/4	12-1/16	27	20
20	18	16	14	38-3/16	31-1/16	7-1/8	13	29-1/16	22
22	20	18	16	43-7/8	35-7/8	8	13-5/16	33-3/8	24
24	22	20	18	43-7/8	35-7/8	8	14-5/16	33-3/8	26
26	24	22	20	49-9/16	40-3/4	8-13/16	14-7/8	37-5/8	28
28	26	24	22	49-9/16	40-3/4	8-13/16	15-11/16	37-5/8	30
30	28	26	24	55-3/16	45-9/16	9-5/8	16-1/4	41-13/16	32
32	30	28	26	55-3/16	45-9/16	9-5/8	17	41-13/16	34
–	32	30	28	60-13/16	50-3/8	10-7/16	17-9/16	46-1/16	36
36	–	32	30	60-13/16	50-3/8	10-7/16	18-3/8	46-1/16	38
–	36	–	32	69-15/16	58-1/4	11-3/4	18-7/8	52-15/16	40
–	–	36	–	69-15/16	58-1/4	11-3/4	19-5/16	52-15/16	42
42	–	–	36	69-15/16	58-1/4	11-3/4	19-11/16	52-9/16	44
–	42	–	–	79-3/16	66-1/8	13	20-1/8	59-11/16	46
48	–	–	42	79-3/16	66-1/8	13	21-7/16	59-11/16	50
–	48	–	–	88-5/8	74-1/4	14-7/16	21-7/16	64-1/2	52
–	–		48	88-5/8	74-1/4	14-7/16	21-7/16	66-15/16	56

90° WYE

Code:

JY

Provides low pressure drop for joining appliances in the horizontal and vertical position.



Materials Available:

316/Alum | **316/304** | **316/316**

Ordered Part Includes:
JY, plus two VB's, one AS, and one CB.

Notes:
1. All openings are the same diameter.
2. Can be used with TCN/NTAC to provide a single clean out toward each 90° direction change.
3. Use OT or OS as needed for smaller branch connections.
4. K = 0.6 Flow Resistance Factor

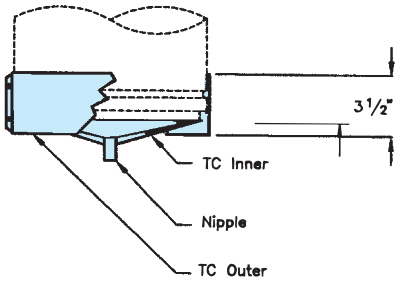
Product			Dimensions		
Pipe I. D.			inches		
VSI/ IVSI-C1	IVSI-C2	IVSI-C4	A	B	(O. D.)
5	–	–	4 5/8	9	7
6	5	–	4 5/8	9	8/9
8	6	–	5 1/16	10	10
–	–	–	5	11	11
10	8	–	5	11	12
–	–	–	5 1/2	12	14
12	10	6	5 1/2	12	14
14	12	8	5 7/8	13	16
16	14	10	6 3/8	14	18
18	16	12	6 5/8	15	20
20	18	14	7 1/8	17	22
22	20	16	8	19	24
24	22	18	8	19	26
26	24	20	8 3/4	22	28
28	26	22	8 3/4	22	30
30	28	24	9 5/8	24	32
32	30	26	9 5/8	24	34
–	32	28	10 1/2	27	36
36	–	30	10 1/2	27	38
–	36	32	11 3/4	31	40
–	–	–	11 3/4	31	42
42	–	36	11 3/4	31	44
–	42	–	13	34	46
48	–	42	13	34	50
–	48	–	14 1/4	38	52
–	–	48	14 1/4	38	56

Drain Tee Cap

Code:

TC

Provides a drain at the base of a vertical chimney when connected to the MT or JL.



Materials Available:

316/Alum | **316/304** | **316/316**

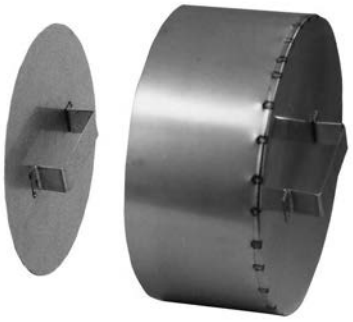
Ordered Part Includes:
TC, plus one 1" N.P.T. Nipple (5"-20" sizes), or 2" N.P.T. Nipple (22"-48" sizes), one Inner Section, one Outer Jacket, and one VB. Ceramic fiber insulation provided for IVSI models.

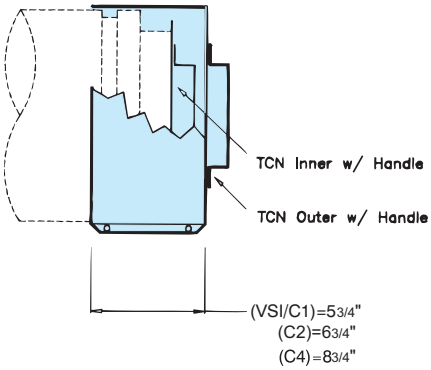
Cleanout Tee Cap

Code:

TCN

Provides for cleanout at end of manifold when connected to MT or JL.





Materials Available:

316/Alum | **316/304** | **316/316**

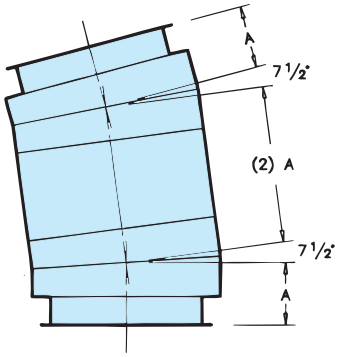
Ordered Part Includes:
TCN, plus one Inner Section (with handle), one Outer Jacket (with handle), and one VB.
Ceramic fiber insulation provided for IPS models

15° Elbow

Code:

EL15

This two-piece Elbow can establish many different degrees when combined with other standard Elbows.



Materials Available:

316/Alum | **316/304** | **316/316**

Ordered Part Includes:
Two 7 1/2 Deg. Elbows, plus two VB's, two AS's, and two CB's.

Notes:
1. K = 0.06 Flow Resistance Factor

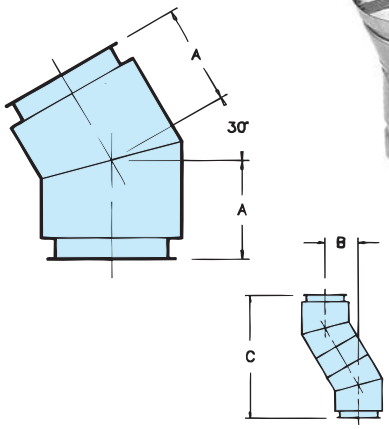
Product (Pipe I. D.)		Dimensions (Inches)		
VSI/ IVSI-C1	IVSI-C2	IVSI-C4	A	(O. D.)
5	–	–	4 3/16	7
6	5	–	4 3/16	8/9
8	6	–	4 1/4	10
–	–	–	4 5/16	11
10	8	–	4 5/16	12
–	–	5	4 7/16	14
12	10	6	4 7/16	14
14	12	8	4 1/2	16
16	14	10	4 9/16	18
18	16	12	4 5/8	20
20	18	14	4 11/16	22
22	20	16	4 3/4	24
24	22	18	4 13/16	26
26	24	20	4 7/8	28
28	26	22	4 15/16	30
30	28	24	5	32
32	30	26	5 1/16	34
–	32	28	5 1/8	36
36	–	30	5 3/16	38
–	36	32	5 5/16	40
–	–	–	5 3/8	42
42	–	36	5 3/8	44
–	42	–	5 1/24	46
48	–	42	5 9/16	50
–	48	–	5 9/16	52
–	–	48	5 9/16	56

30° Elbow

Code:

EL30

Used for a vertical or horizontal direction change of 30°.



Materials Available:

316/Alum | **316/304** | **316/316**

Ordered Part Includes:
EL30, plus one VB, one AS, and one CB.

Notes:
1. K = 0.12 Flow Resistance Factor

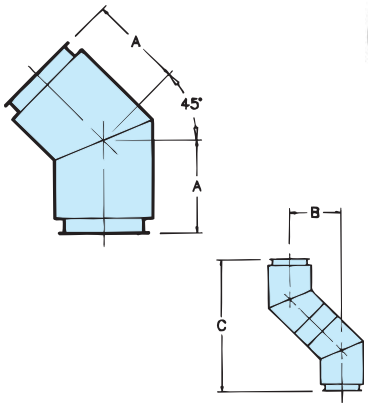
Product (Pipe I. D.)			Dimensions (Inches)			
VSI/ IVSI-C1	IVSI-C2	IVSI-C4	A	B	C	(O. D.)
5	–	–	6 1/8	6 1/8	22 3/8	7
6	5	–	6 1/8	6 1/8	22 7/8	8/9
8	6	–	6 3/8	6 3/8	23 7/8	10
–	–	–	6 9/16	6 9/16	24 3/8	11
10	8	–	6 11/16	6 11/16	24 7/8	12
–	–	5	7 5/16	7 5/16	27 1/4	13
12	10	6	7 5/16	7 5/16	27 1/4	14
14	12	8	7 7/8	7 7/8	29 5/8	16
16	14	10	8 1/4	8 1/4	30 5/8	18
18	16	12	8 5/8	8 5/8	31 5/8	20
20	18	14	9 1/8	9 1/8	34 1/8	22
22	20	16	9 3/8	9 3/8	35	24
24	22	18	10 1/16	10 1/16	37 1/2	26
26	24	20	10 5/16	10 5/16	38 1/2	28
28	26	22	11	11	40 7/8	30
30	28	24	11 1/4	11 1/4	41 7/8	32
32	30	26	11 7/8	11 7/8	44 3/8	34
–	32	28	12 3/16	12 3/16	45 3/8	36
36	–	30	12 7/8	12 7/8	47 3/4	38
–	36	32	13 1/8	13 1/8	48 7/8	40
–	–	–	13 9/16	13 9/16	50	42
42	–	36	14	14	52 1/2	44
–	42	–	14 1/4	14 1/4	53 1/8	46
48	–	42	14 3/16	14 3/16	56 7/16	50
–	48	–	15 5/16	15 5/16	57 1/8	52
–	–	48	15 5/16	15 5/16	57 1/8	56

45° Elbow

Code:

EL45

Used for a vertical or horizontal direction change of 45°.



Materials Available:

316/Alum | **316/304** | **316/316**

Ordered Part Includes:
EL45, plus one VB, one AS, and one CB.

Notes:
1. K = 0.15 Flow Resistance Factor

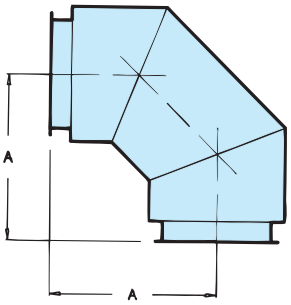
Product (Pipe I. D.)			Dimensions (Inches)			
VSI/ IVSI-C1	IVSI-C2	IVSI-C4	A	B	C	(O. D.)
5	–	–	8 1/2	12	29	7
6	5	–	8 1/2	12	29	8/9
8	6	–	8 15/16	12 5/8	30 7/16	10
–	–	–	9 1/8	12 7/8	31 1/8	11
10	8	–	9 5/16	13 3/16	31 7/8	12
–	–	5	10 1/4	14 1/2	35	13
12	10	6	10 1/4	14 1/2	35	14
14	12	8	10 11/16	15 1/8	36 1/2	16
16	14	10	11 5/8	16 7/16	39 5/8	18
18	16	12	12 1/16	17 1/16	41 1/8	20
20	18	14	13	18 3/8	44 1/4	22
22	20	16	13 5/16	18 13/8	45 1/2	24
24	22	18	14 5/16	20 1/4	48 1/8	26
26	24	20	14 7/8	21 1/16	50 7/8	28
28	26	22	15 11/16	22 3/16	53 1/2	30
30	28	24	16 1/4	22 15/16	53 3/8	32
32	30	26	17	24	58	34
–	32	28	17 9/16	24 3/4	59 7/8	36
36	–	30	18 3/8	25 15/16	62 5/8	38
–	36	32	18 7/8	26 11/16	64 1/2	40
–	–	–	19 5/16	27 5/16	65 15/16	42
42	–	36	19 11/16	27 7/8	67	44
–	42	–	20 1/8	28 7/16	68 5/8	46
48	–	42	21 7/16	30 5/16	74 7/8	50
–	48	–	21 7/16	30 5/16	74 7/8	52
–	–	48	21 7/16	30 5/16	74 7/8	56

90° Elbow

Code:

EL90

Used for a vertical or horizontal direction change of 90°.



Materials Available:

316/Alum | **316/304** | **316/316**

Ordered Part Includes:
EL90, plus one VB, one AS, and one CB.

Notes:
1. K = 0.30 Flow Resistance Factor

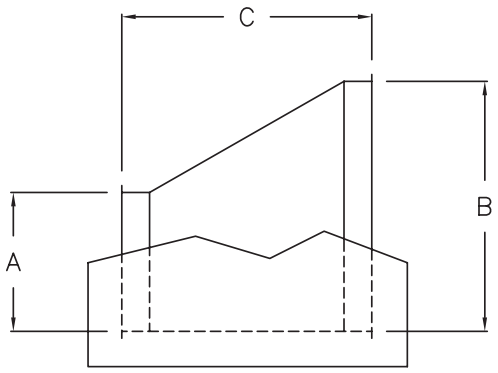
Product (Pipe I. D.)		Dimensions (Inches)		
VSI/ IVSI-C1	IVSI-C2	IVSI-C4	A	(O. D.)
5	–	–	11 1/2	7
6	5	–	11 1/2	8/9
8	6	–	12 1/2	10
–	–	–	13 1/2	11
10	8	–	13 1/2	12
–	–	5	14 1/2	13
12	10	6	14 1/2	14
14	12	8	15 1/2	16
16	14	10	16 1/2	18
18	16	12	17 1/2	20
20	18	14	18 1/2	22
22	20	16	19 1/2	24
24	22	18	20 1/2	26
26	24	20	21 1/2	28
28	26	22	22 1/2	30
30	28	24	23 1/2	32
32	30	26	24 1/2	34
–	32	28	25 1/2	36
36	–	30	26 1/2	38
–	36	32	27 1/2	40
–	–	–	28 1/2	42
42	–	36	29 1/2	44
–	42	–	30 1/2	46
48	–	42	32 1/2	50
–	48	–	33 1/2	52
–	–	48	35 1/2	56

Eccentric Increaser

Code:

EOT

The primary increaser used for changing diameters, due to flat bottom for effective condensate flow back to drain.



Materials Available:

316/Alum | **316/304** | **316/316**

Dimensions:
A = Smaller Diameter
B = Larger Diameter
C = Installed Length = [(B-A) 2] + 2 (see Note 1 below)

Example:
Installed Length for 12VSI316-18EOT equals [(18-12)2] + 2 = 14 inches.

Ordered Part Includes:
EOT, plus one two-piece Outer Jacket, and one VB for smaller diameter.
Ceramic fiber insulation provided for IVSI models.

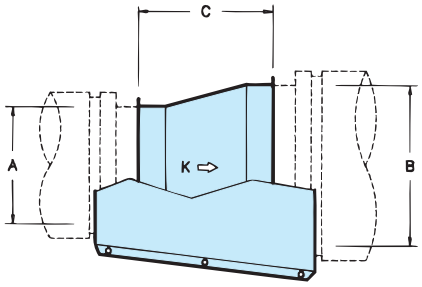
Notes:
1. Installed length shall not be greater than longest available straight pipe length (see page 10) for each diameter.
2. K = N [1-(A/B)2]2
   where N = 0.47 for one step EOT
   N = 0.53 for two step EOT

Tapered Increaser/Reducer

Code:

OT

Used when a pipe diameter change is required. Make sure condensate build-up in larger diameter is drained away downstream of increaser.



Materials Available:

316/Alum | 316/304 | 316/316

Dimensions:
A = Smaller Diameter
B = Larger Diameter
C = Installed Length = [(B-A) 2] + 2 (see Note 1 below)

Example:

Installed Length for 12VSI316-18OT equals [(18-12)2] + 2 = 14 inches.

Ordered Part Includes:
OT, plus one two-piece Outer Jacket, and one VB for smaller diameter.
Ceramic fiber insulation provided for IVSI models.

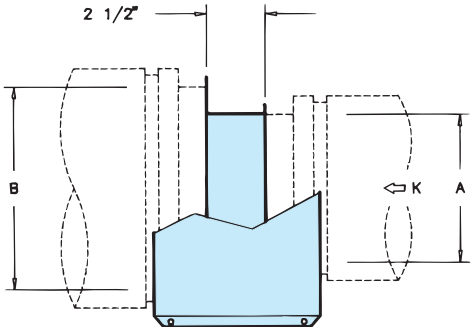
Notes:
1. Installed length shall not be greater than longest available straight pipe length (see page 10) for each diameter.
2. K = N [1-(A/B)2]2
   where N = 0.47 for one step OT
   N = 0.53 for two step OT

Step Increaser/Reducer

Code:

OS

Used when pipe diameter change is required in a small space. Make sure condensate build-up in large diameter is drained away downstream of increaser.



Materials Available:

316/Alum | 316/304 | 316/316

Ordered Part Includes:
OS (Inner Stepped Pipe), plus one two-piece Outer Jacket, and one VB for the smaller diameter. Ceramic fiber insulation provided for IVSI models.

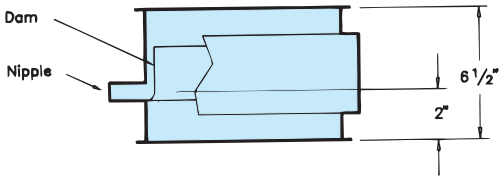
Notes:
1. This is a non-structural part; use only if OT will not fit within the allowable space.
2. $K = N [1-(A/B)^2]^2$

Drain Section

Code:

DS

Used with open stack terminations for draining off rain water from inside vertical or horizontal flue.



Materials Available:

316/Alum	316/304	316/316

Ordered Part Includes:
DS, plus one Drain Dam within the pipe length, one 1" Nipple, one CB, and one VB.

Notes:
1. K = 0.25 Flow Resistance Factor

Angle Rings
Codes:
HR & FR

Used for guiding and/or supporting horizontal installations.

Half Ring (HR)

Full Ring (HR)

Materials Available:

Painted Steel

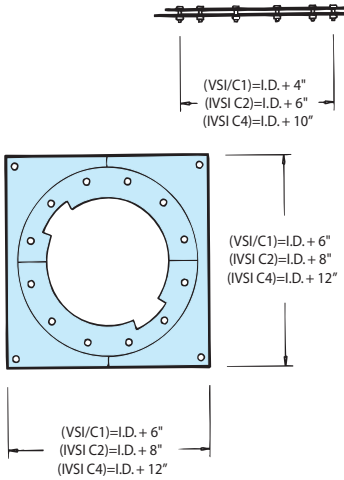
Notes:
1. Model IVS part used for IVSI-C1 applications.

Product (Pipe I. D.)			Dimensions (Inches) HR				
VSI/ IVSI-C1	IVSI-C2	IVSI-C4	Bolt Hole Circle	I.D. of Ring	No of Holes (HR)	Size of Angles	Angle of Holes
5	–	–	9	7 1/8	6	(1)	45
6	5	–	10	8 1/8	6	(1)	45
8	6	–	12	10 1/8	6	(1)	45
–	–	–	13	11 1/8	6	(1)	45
10	8	–	14	12 1/8	6	(1)	45
–	–	5	15	13 1/8	6	(1)	45
12	10	6	16	14 1/8	6	(1)	45
14	12	8	18	16 1/8	6	(1)	45
16	14	10	20	18 1/8	6	(1)	45
18	16	12	22	20 1/8	6	(1)	45
20	18	14	24	22 1/8	6	(1)	45
22	20	16	26	24 1/8	10	(2)	22.5
24	22	18	28	26 1/8	10	(2)	22.5
26	24	20	30	28 1/8	10	(2)	22.5
28	26	22	32	30 1/8	10	(2)	22.5
30	28	24	34	32 1/8	10	(2)	22.5
32	30	26	36	34 1/8	10	(2)	22.5
–	32	28	38	36 1/8	10	(2)	22.5
36	–	30	40	38 1/8	10	(2)	22.5
–	36	32	42	40 1/8	10	(2)	22.5
–	–	–	44	42 1/8	10	(2)	22.5
42	–	36	46	44 1/8	10	(2)	22.5
–	42	–	48	48 1/8	10	(2)	22.5
48	–	42	52	50 1/8	10	(2)	22.5
–	48	–	54	62 1/8	10	(2)	22.5
–	–	48	58	66 1/8	10	(2)	22.5

(1) Size of Angles = 1½ x 1½ x 3/16
(2) Size of Angles = 2 x 2 x 3/16

Plate Support Assembly
Code:
PA

Used for supporting the load of the stack, and as a fixed point anchor near fittings.



Materials Available:

Painted Steel

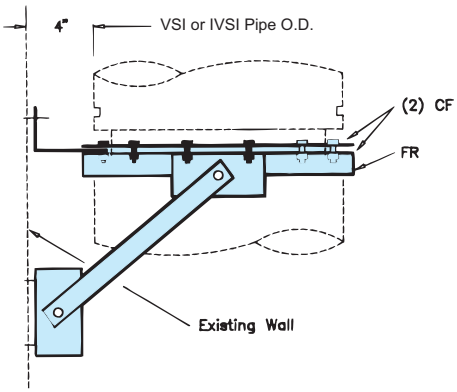
Ordered Part Includes:
Split (square) plate, one CF, two HCB's and hardware.

Plate Thickness:
0.188" for sizes 6" through 20" diameters
0.250" for sizes 22" through 36" diameters
0.375" for sizes 42" through 48" diameters

Notes:
1. Two 316 Stainless Steel HCB's are provided for stainless steel outer projects.
2. PA fabricated from 304 Stainless Steel is available upon request and is non-returnable. Allow extra manufacturing time.

Wall Support Assembly
Code:
WA

"Limited" support assembly with factory supplied bracing.



Materials Available:

Painted Steel

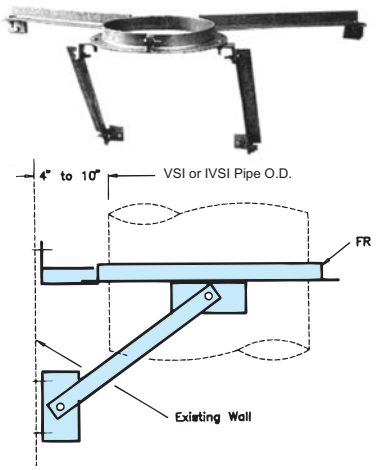
Ordered Part Includes:
One FR, two CF's, two HCB's, five brackets, two struts, and all hardware except connection at wall.

Notes:
1. Assembly will maintain a 4" clearance between pipe O.D. and supporting structure.

Wall Guide Assembly

Code:
WG

Same use as FR, but with factory-supplied bracing.



Materials Available:

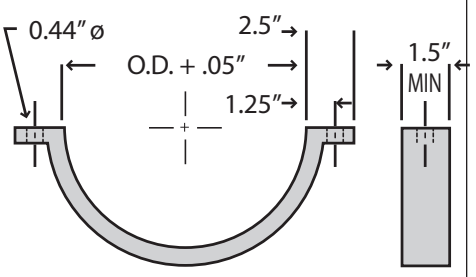
Painted Steel

Ordered Part Includes:
One FR, four struts, and six brackets.

Notes:
1. Assembly will maintain a 4" to 10" clearance between pipe O.D. and supporting structure.
2. Model VSI part used for IVSI-C1 applications.

Support Strap

Code:
SS



Materials Available:

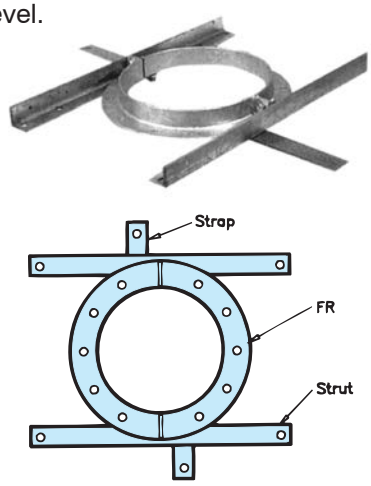
Painted Steel

Notes:
Available in 5 through 26" PS only.
0.188" Thick Hot Rolled Steel

Floor Guide Assembly

Code:
FG

Same use as FR, but with factory-supplied bracing for use at floor level.



Materials Available:

Painted Steel

Ordered Part Includes:
One FR, two struts, and two straps.

Notes:
1. Maximum hole through floor should not exceed the pipe O.D. plus 8".
2. Model VSI part used for IVSI-C1 applications.

Pipe I.D. (Inches)			Dimensions	
VSI/ IVSI-C1	IVSI-C2	IVSI-C4	I.D. of Ring	Size of Angles
5	–	–	17 1/2	(1)
6	–	–	18	(1)
–	5	–	19 1/2	(1)
8	6	–	21	(1)
–	–	–	21 1/2	(1)
–	–	5	22 1/2	(1)
10	8	–	24	(1)
12	10	6	27	(1)
14	12	8	29	(2)
16	14	10	30	(2)
18	16	12	32	(2)
20	18	14	33	(2)
22	20	16	34 1/2	(3)
24	22	18	36	(3)
26	24	20	37	(3)
28	26	22	38	(3)
30	28	24	39 1/2	(3)
32	30	26	41	(3)
–	32	28	42 1/2	(3)
36	–	30	44	(3)
–	36	32	46	(3)
–	–	–	47	(3)
42	–	–	48	(3)
–	42	36	50	(3)
–	–	42	52	(3)
48	–	–	53	(3)
–	48	–	54	(3)
–	–	48	58	(3)

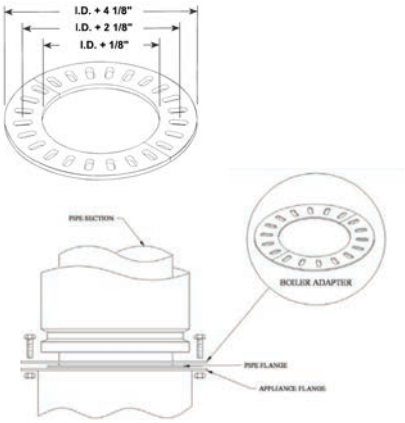
(1) Steel Angle = 1-1/2 x 1-1/2 x 3/16
(2) Steel Angle = 1-3/4 x 1-3/4 x 3/16
(3) Steel Angle = 2 x 2 x 3/16

Flanged Boiler Kit

Code:

BK

Used to transition to a flanged appliance. Features 24 connection slots to mate 4, 6, 8 or 12 bolt hole patterns.



24 Holes .375 x 1.0 at 15 degrees.
Constructed of 1/4" hot-rolled steel.

Ordered Part Includes:
Two Half Boiler Adapter Flange Plates.
Order HCB's separately if needed.

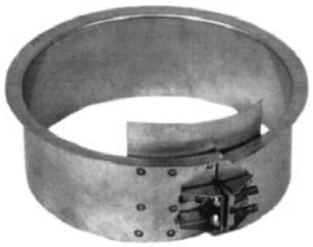
Notes:
1. Model VSI part used for all IVSI applications.

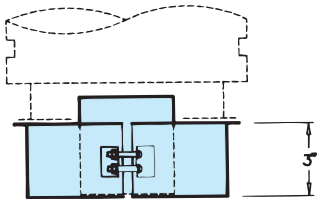
Seal Ring

Code:

SR

Used for non-welded attachment to appliances having an unflanged or collar outlet.





Materials Available:

316/Alum	316/304	316/316

Ordered Part Includes:
SR, one CB, and one VB & hardware

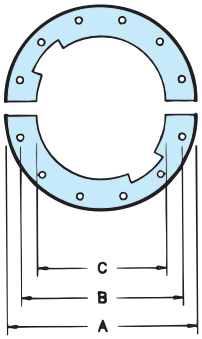
Notes:
1. Ceramic fiber insulation provided for IVSI models.

Clamp Flange

Code:

CF

Can be used as an attachment to flanged equipment (also part of PA and WA).



A = Flange O.D.
VSI/IVSI-C1 = I.D. + 5"
C2 = I.D. + 7"
C4 = I.D. + 11"

B = Bolt Hole Circle
VSI/IVSI-C1 = I.D. + 4"
C2 = I.D. + 6"
C4 = I.D. + 10"

C = Flange I.D.
VSI/IVSI-C1 C2,C4 = I.D. + 1/2"

Materials Available:

Painted Steel

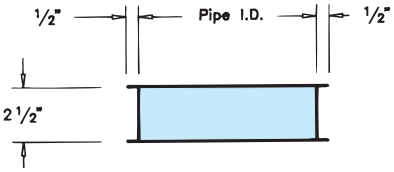
Ordered Part Includes:
Two half clamp flange plates.

Notes:
1. 0.139" minimum thickness for sizes 5" to 8" diameters.
2. 0.188" minimum thickness for sizes 10" through 36" diameters.
3. 0.375" minimum thickness for sizes 42" and 48" diameters.
4. Model VSI part used for IVSI-C1 applications.
5. Order HCB's separetely if needed.

Flanged Transition

Code:
TS

Flanged at both ends.



Materials Available:

316/Alum | 316/304 | 316/316

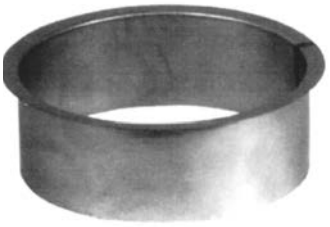
Ordered Part Includes:
TS, plus one CB and one VB.
Ceramic fiber insulation provided with IVSI models.

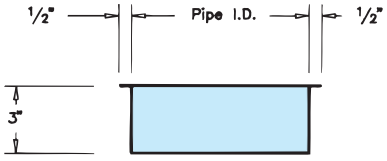
Notes:
1. Can be used for welding to equipment or transitions fabricated in the field.

Unflanged Transition

Code:
TSU

Flanged at one end.





Materials Available:

316/Alum | 316/304 | 316/316

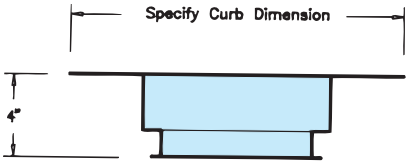
Ordered Part Includes:
TSU, plus one CB and one VB.
Ceramic fiber insulation provided with IVSI models.

Notes:
1. Can be used for welding to equipment or transitions fabricated in the field.

Fan Adapter

Code:
FA

Used for connection to an "up-blast" kitchen exhaust fan.



Materials Available:

316/Alum | 316/304 | 316/316

Ordered Part Includes:
FA, plus one VB and one CB.

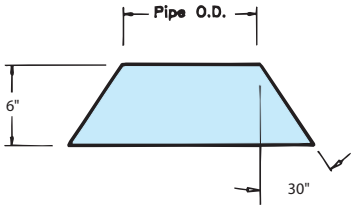
Notes:
1. Dimension of square plate (which is sandwiched between curb and fan housing) must be specified when ordering.

Storm Collar

Code:

SC

Used above the TF and PTF for complete weatherization above the roof.



Materials Available:

Aluminized or Galvanized Steel		304	316

Ordered Part Includes:
SC, plus hardware.

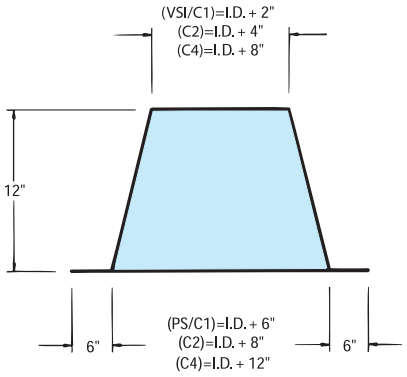
Notes:
1. Requires P600 sealant when installing.
2. Model VSI part used for IVSI-C1 applications.

Tall Flashing

Code:

TF

Used in conjunction with SC for weatherization at the roof.



Materials Available:

Aluminized or Galvanized Steel		304	316

Ordered Part Includes:
TF only.

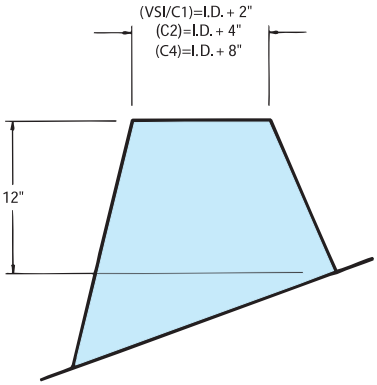
Notes:
1. Use limited to installations where complete roof penetration is non-combustible.
2. Model VSI part used for IVSI-C1 applications

Pitched Tall Flashing

Code:

PTF

Same function as TF, except for use on a pitched roof.



Materials Available:

Aluminized or Galvanized Steel		304	316

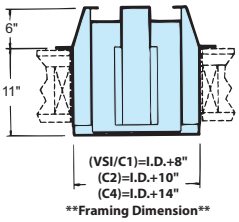
Ordered Part Includes:
PTF only (specify pitch when ordering).

Notes:
1. Part is non-returnable and may require extra manufacturing time.
2. Use limited to installations where complete roof penetration is non-combustible.
3. Model VSI part used for IVSI-C1 applications.

Ventilated Thimble

Code: THB

Body part of MVT, MRS, and PVT. Also can be used by itself for a wall penetration (see installation instructions).



Materials Available:

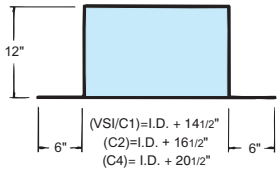
Galvanized Steel

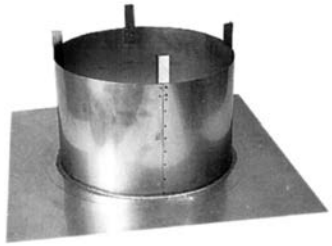
Notes:
1. Model VSI part used for IVSI-C1 applications.

Ventilated Tall Flashing

Code: VTF

Encloses the THB, offers protection from weather and moisture penetration





Materials Available:

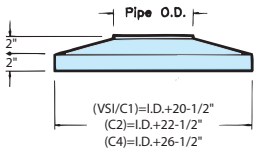
Aluminized or Galvanized Steel		304	316

Notes:
1. Model VSI part used for IVSI-C1 applications.

Ventilated Storm Collar

Code: VSC

Protects the VTF from weather and moisture penetration. Also used with THB for wall penetration (see installation instructions).



Materials Available:

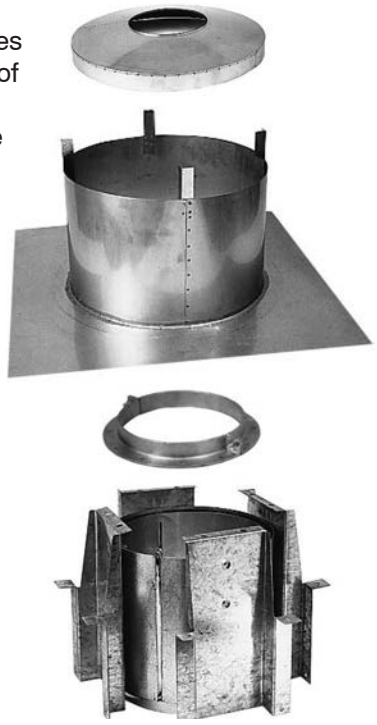
Aluminized or Galvanized Steel		304	316

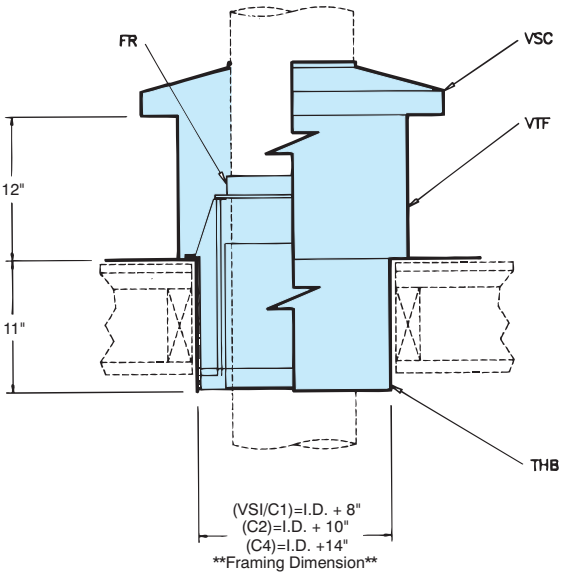
Notes:
1. Model VSI part used for IVSI-C1 applications.

Ventilated Roof Thimble Assembly

Code: MVT

For use where pipe passes through a combustible roof or structure. Also guides the chimney 6" above the roof line.





Materials Available:

Aluminized or Galvanized Steel		304	316

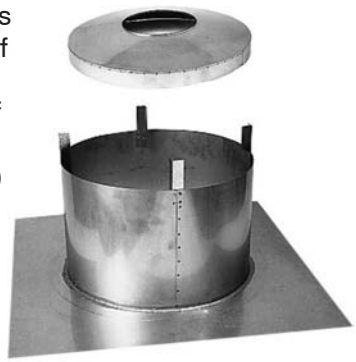
Ordered Part Includes:
One THB, one FR, one VTF, and one VSC.

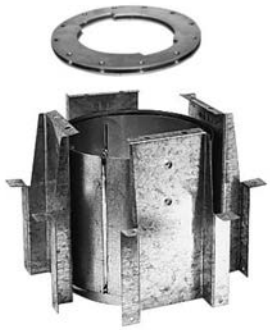
Notes:
1. Model VSI part used for IVSI-C1 applications.

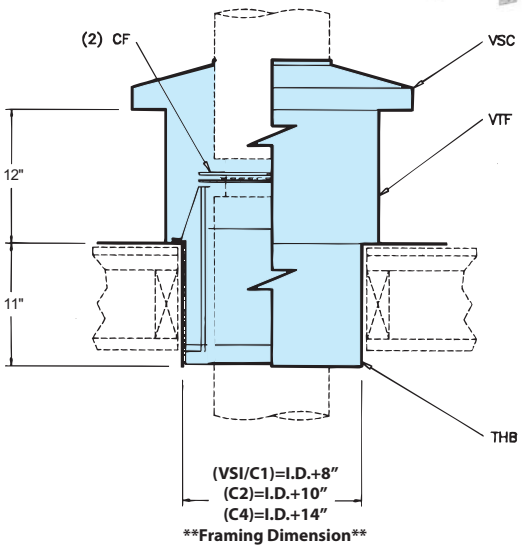
Ventilated Roof Support Assembly

Code:
MRS

For use where pipe passes through a combustible roof or structure. Supports the chimney 6" above the roof line which may require an expansion joint (AG or BJ) below the roof.







Materials Available:

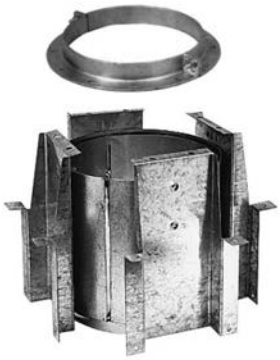
Aluminized or Galvanized Steel		304	316

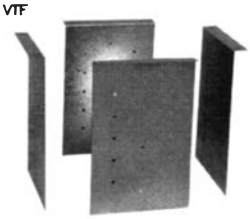
Ordered Part Includes:
One THB, two CF's, one VTF, and one VSC.

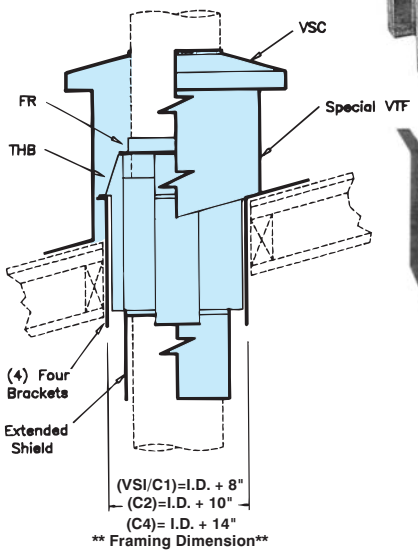
Pitched Ventilated Roof Thimble

Code:
PVT

For use when pipe passes through a combustible pitched roof or structure. Above 24" sizes and steep pitches are not available.







Materials Available:

Aluminized or Galvanized Steel		304	316

Ordered Part Includes:
One THB, 4 brackets, extended shield, special VTF, one FR, and one VSC.

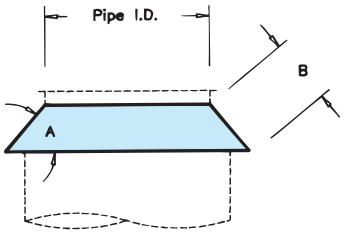
Notes:
1. Does not provide lateral support. An additional FR is required below the roof.
2. May require extra manufacturing time and is non-returnable.
3. Model VSI part used for IVSI-C1 applications.

Open Stack Closure Ring

Code:

CR

Protects the insulated space between standard pipe inner and outer. Requires a drain at base of stack.



Materials Available:

316

Ordered Part Includes:
CR, plus hardware.

Notes:
1. Model VSI part used for IVSI-C1 applications.

Product	Dimensions	
	A	B
VSI/C1	50°	3"
IVSI-C2	32°	31/2"
IVSI-C4	17°	51/4"

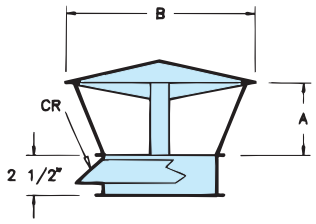
Stack Cap

Code:

SK

Provides partial protection with low flow resistance. May require a drain at base of stack.

Note: Not permitted for CATII applications.



Materials Available:

316

Ordered Part Includes:
SK, plus one CR, one HCB and one VB.

Notes:
1. Model VSI part used for IVSI-C1 applications.
2. K = 0.5 Flow Resistance Factor
3. Optional Birdscreen available

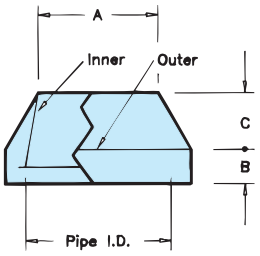
Product (Pipe I. D.)	Dimensions (Inches)	
VSI IVSI-C1 IVSI-C2 IVSI-C4	A	B
5	2 1/2	10 1/4
6	3	10 1/4
8	4	13 5/8
10	5	17
12	6	20 1/2
14	7	24
16	8	27 3/8
18	9	30 3/4
20	10	34 1/8
22	11	37 5/8
24	12	41
26	13	44 3/8
28	14	47
30	15	51 1/4
32	16	54 5/8
36	18	61 1/2
42	21	71 3/4
48	24	82

Insulated Exit Cone

Code:

EC

Will increase stack exit velocity 1 1/2 times. Requires a drain at bottom of stack.



Materials Available:

316 | 316/316

Ordered Part Includes: One inner cone, one outer finish collar, and one VB.

Notes:
1. K = 1.25 Flow Resistance

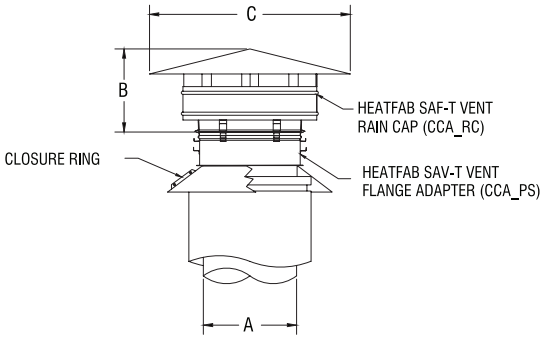
Product (Pipe I. D.)	Dimensions (Inches)		
All Models	A	B	C
5	4 7/8	4	1 3/8
6	4 7/8	4	1 1/2
8	6 9/16	4	1 3/4
10	8 3/16	4	3 3/8
12	9 7/8	4	3 3/4
14	11 1/2	4	4
16	13 1/16	6	4 3/8
18	14 3/4	6	4 5/8
20	16 5/16	6	5
22	18	6	5 1/4
24	19 5/8	6	5 5/8
26	21 1/4	6	6
28	22 7/8	6	6 1/4
30	24 1/2	6	6 5/8
32	26 1/8	6	6 7/8
36	29 3/8	10	7 1/2
42	34 5/16	12	8 1/2
48	39 3/16	12	9 1/2

Rain Cap

Code:

CCA

Provides the greatest degree of wind protection and required for use on Category II applications. Sizes available are from 5"-32". Rain cap adapts to VSI/IVSI pipe models via the following parts ordered separately: Saf-T Vent Double Flange Adapter (CCA_PS), Open Stack Closure Ring (CR) and Vee-Band (VB). Reference illustration and table below.



Materials Available:

29-4C

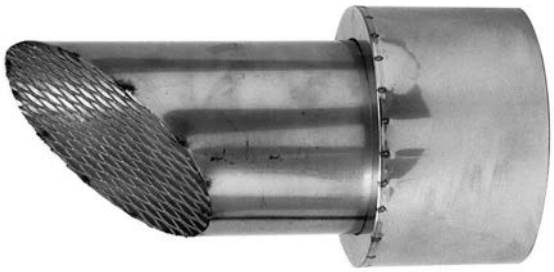
Product (Pipe I.D.)	Saf-T Vent Rain Cap Part Number	Saf-T Vent Flange Adapter Part Number	Dimensions		
			A	B	C
5	CCA05RC	CCA05PS	5	8.5	14
6	CCA06RC	CCA06PS	6	8.5	14
8	CCA08RC	CCA08PS	8	9.5	18
10	CCA10RC	CCA10PS	10	9.5	20
12	CCA12RC	CCA12PS	12	9.5	24
14	CCA14RC	CCA14PS	14	11.5	28
16	CCA16RC	CCA16PS	16	13.5	32
18	CCA18RC	CCA18PS	18	15.5	36
20	CCA20RC	CCA20PS	20	17.5	36
22	CCA22RC	CCA22PS	22	19.5	44
24	CCA24RC	CCA24PS	24	19.5	48
26	CCA26RC	CCA26PS	26	25	52
28	CCA28RC	CCA28PS	28	25	52
30	CCA30RC	CCA30PS	30	25	52
32	CCA32RC	CCA32PS	32	25	52

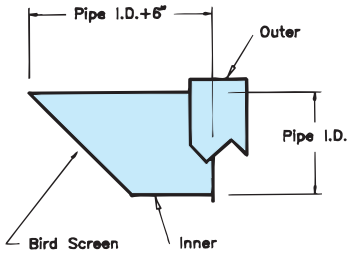
Miter Cut

Code:

MC

Used for horizontal engine exhaust termination.





Materials Available:

316/316

Ordered Part Includes:
One inner with bird screen, one outer finish collar, and one VB.

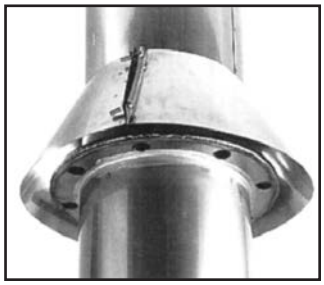
Notes:
1. The 1/2" mesh-pattern bird screen has a 60 percent open area.
2. K = 1.25 Flow Resistance Factor

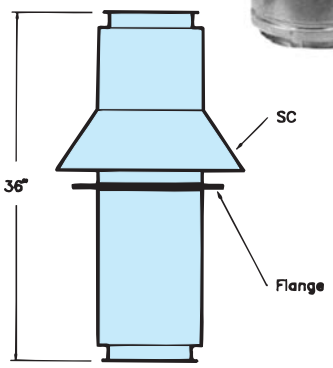
Guy Section

Code:

GS

A rigid, factory-welded section for attaching guys to chimney stack.





Materials Available:

316/Alum	316/304	316/316

Ordered Part Includes:
Welded pipe section, with painted carbon steel flange, storm collar SC, one AS, one VB and one CB.

Notes:
1. Flange has 13/16" diameter holes, 30° apart.
2. Flow Resistance Factor (K) is the same as insulated pipe.

Through-Penetration Firestop

Code:

TPF

Use when penetrating a 2 hour fire-rated floor or wall with IVSI-Z3 or IVSI-Z4 grease duct.

Materials Available:

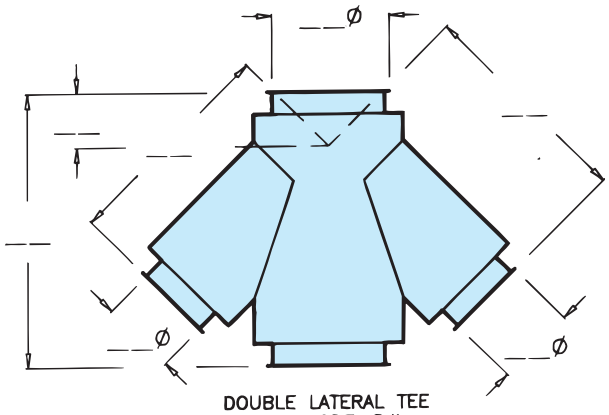
Aluminized Steel	304 or 316 Stainless Steel

Ordered Part Includes:
One closure band, two cover plate halves, 12-inch wide insulation strip and one 4-inch insulation strip.

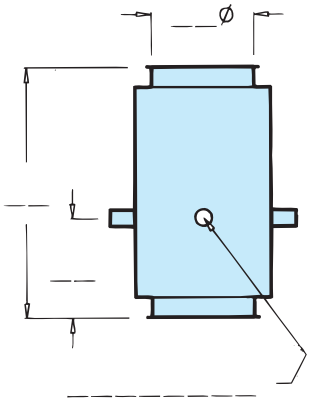
Notes:
1. For use with IVSI-Z3 and IVSI-Z4 grease duct only
2. One kit required for a floor penetration and two kits requires for wall penetrations.

Several special parts, such as those shown here, are available upon request.

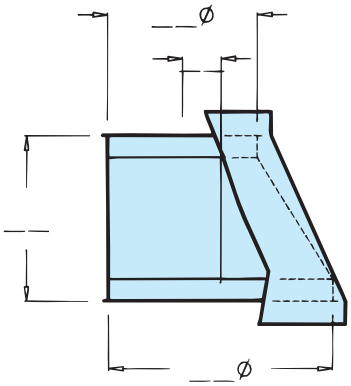
Please provide detail of the required part if not already designed by Selkirk, and allow extra manufacturing time. Special parts are non-returnable.



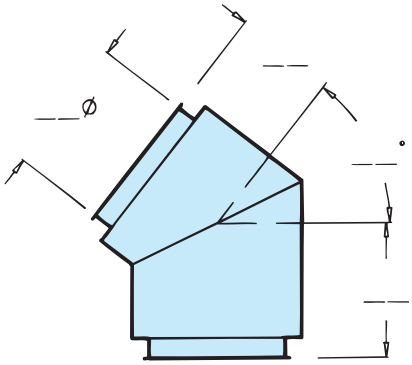
DOUBLE LATERAL TEE
PART CODE: DJL



TEST & MONTORING
PORTS AT ANY LOCATION

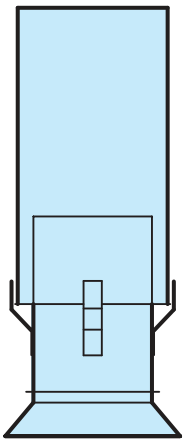


ECCENTRIC
TAPERED INCREASER

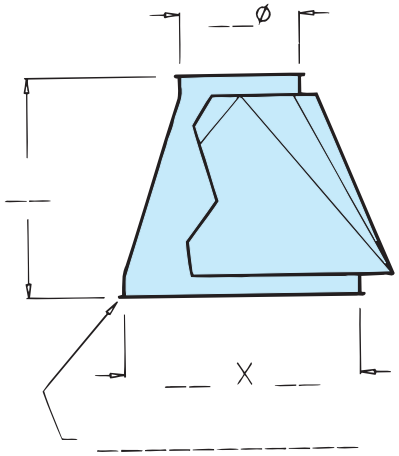


SPECIAL DIMENSIONS
ON ANY FITTING

SPECIAL DIMENSIONS
ON ANY FITTING



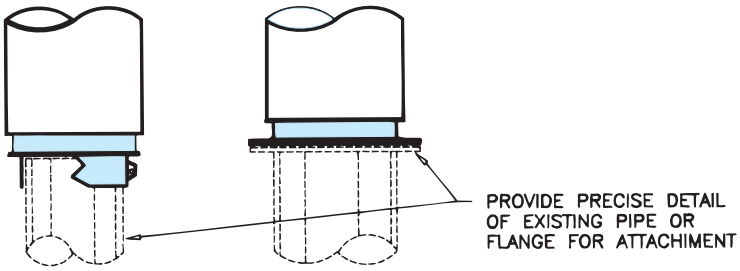
WEATHERHEAD



RECTANGULAR/SQUARE TO
ROUND TRANSITIONS

SINGLE WALL PART CODE: ___x___SWA

DOUBLE WALL PART CODE: ___x___DWA



SPECIAL DIAMETER
SEAL RING

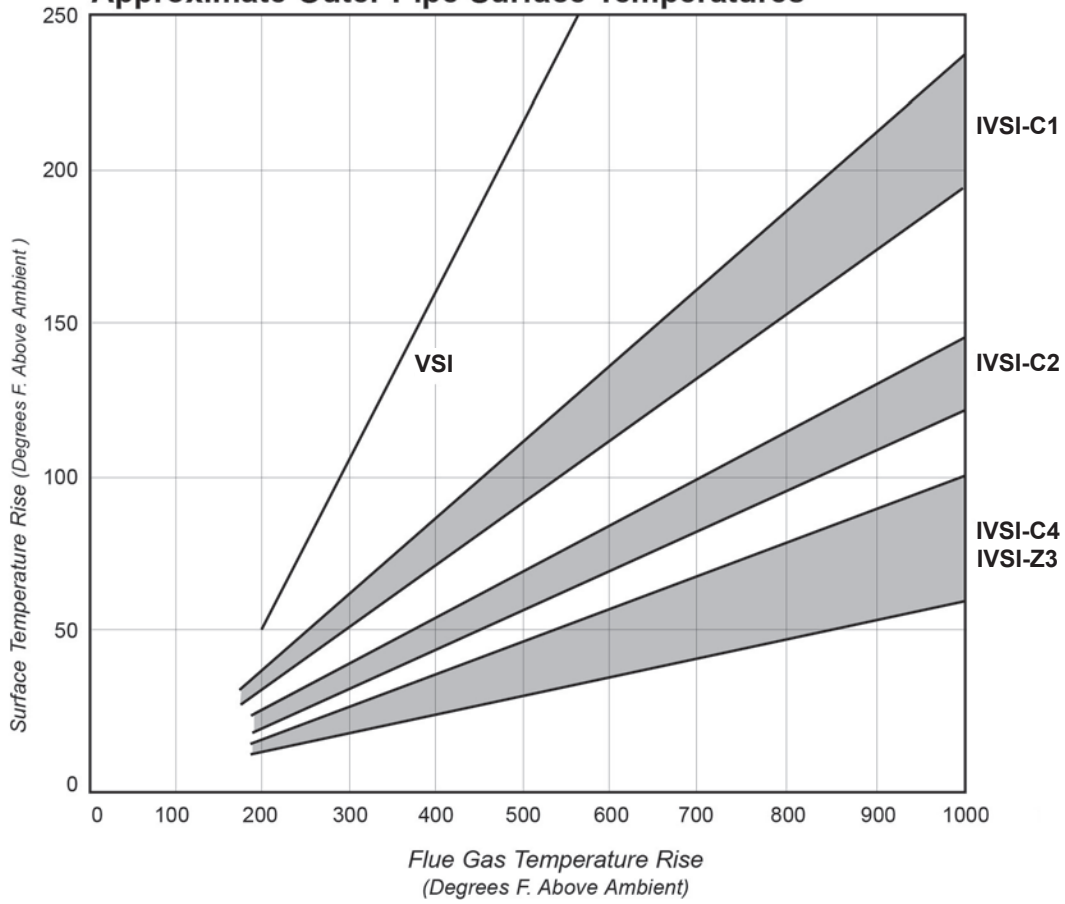
SPECIAL
FLANGE ADAPTER

Material Thickness - Model VSI/IVSI

Diameter	Inner		Outer	
	Gauge *	Material	Gauge*	Material
5”-32”	20 20	.035” - 316 SS	24 24	.025” Alum Steel or 304 & 316 SS
36”	20 20	.035” - 316 SS	21 20	.034” Alum Steel or .034” 304 & 316 SS
38”-48”	18 18	.048” - 304 &316 SS	21 20	.034” Alum Steel or .035” 304 & 316 SS

* Gauge is approximate.

Approximate Outer Pipe Surface Temperatures



Operating Temperatures and Clearances to Combustibles

Table I-1: Model VSI316 and IVSI316 Min. Airspace Clearance-to-Combustible Construction					
Model	**Pipe ID**	**Max. Appliance Operating Temperature**	**Clearance to Combustible Material**	**Orientation**	**Enclosure**
VSI/IVSI	5-12"	230°F*	0"	Vert. & Horiz.	Fully Enclosed
VSI/IVSI	14-48"	194°F*			
VSI/IVSI	5-24"	550°F	1"	Vert.	Fully Enclosed
VSI	26-48"	480°F	2"	Vert.	Fully Enclosed
VSI	26-48"		1"		
VSI	5-24"	550°F	3"	Vert. & Horiz.	Fully Enclosed
VSI/IVSI	5-8"	550°F	1"	Horiz.	Unenclosed
VSI/IVSI	10-12"		2"		
VSI/IVSI	14-32"		3"		
VSI/IVSI	34-48"		6"		
IVSIZ3	5-36"	500°F	0"	Vert. & Horiz.	Unenclosed

* Permitted to be fully enclosed with combustibles at 0" clearance per ULC-S636

Notes

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Selkirk (USA) Support	800.748.0392
Selkirk (CAN)	888.735.5475

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