SUBMITTAL RECORD _____
JOB _____
LOCATION _____
SUBMITTED TO _____
SUBMITTAL PREPARED BY _____
APPROVED BY _____
DATE _____

COMMERCIAL / INDUSTRIAL
MODELS “PS” & “IPS”
Nampa, ID Huntsville, AL MADE IN USA

SUITABLE FOR POSITIVE PRESSURE VENTING APPLICATIONS WITH MAXIMUM 60” WATER COLUMN INTERNAL STATIC PRESSURE AT 1000 DEGREES F.

MODEL PS & IPS

A complete guide to the identification and selection of Selkirk Products

- ☐ Model PS
- ☐ Model IPS-C1
- ☐ Model IPS-C2
- ☐ Model Zero Clear (IPS-Z3)
- ☐ Model IPS-C4
- ☐ Model Zero Clear Plus (IPS-Z4)

This Submittal Record contains information on the following items:

• Joint Assembly Parts •
• Double Wall Pipe •
• Adjustable/Variable Pipe •
• Double Wall Fittings •
• Support/Guide Accessories •
• Connection Accessories •
• Roof Penetrations •
• Terminations •

SELKIRK®
COMMERCIAL & INDUSTRIAL

Table of Contents

UNDERWRITERS LABORATORIES LISTINGS

Model PS and IPS in sizes 5" through 48" diameters have been tested and Listed (Safety Certified) by Underwriters Laboratories, Inc. (ULI) and/or Underwriters' Laboratories of Canada (ULC) under a variety of categories including:

(USA)

Grease Duct
Building Heating Appliance Chimney
1400° F Chimney
Type L Vent (Model IPS only)

(Canada)

Grease Duct
540°C (1000°F) Industrial Chimney
760°C (1400°F) Industrial Chimney

CODE COMPLIANCE

When installed in accordance with its installation instructions, Model PS and IPS comply with the following codes:

NFPA (National Fire Protection Association)
SBCCI (Southern Building Code Congress International)
ICBO (International Conference of Building Officials)
BOCA (Building Officials and Code Administrators)
ICC (International Code Council)

ASSOCIATIONS

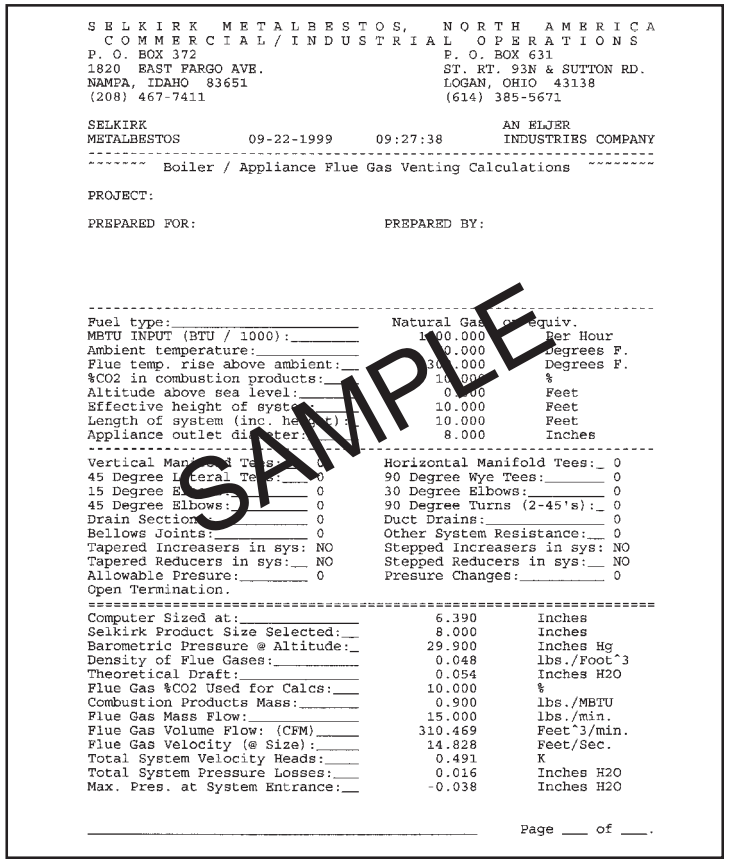
Selkirk is proud to be an active member of the following associations:

NAFEM North American Association of Food Equipment Manufacturers

gama

EGSA Electrical Generating Systems Association

Selkirk Sizing/Pressure Calculations



SELKIRK METALBESTOS, NORTH AMERICA
COMMERCIAL/INDUSTRIAL OPERATIONS

P. O. BOX 372
1820 EAST FARGO AVE.
NAMPA, IDAHO 83651
(208) 467-7411

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LOGAN, OHIO 43138
(614) 385-5671

SELKIRK METALBESTOS — AN ELJER INDUSTRIES COMPANY

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~~~~~~~ Boiler / Appliance Flue Gas Venting Calculations ~~~~~~~

PROJECT:

PREPARED FOR: PREPARED BY:

Fuel type:		Natural Gas @	Equiv.
MBTU INPUT (BTU / 1000):		1000.000	Per Hour
Ambient temperature:		70.000	Degrees F.
Flue temp. rise above ambient:		300.000	Degrees F.
%CO2 in combustion products:		10.000	%
Altitude above sea level:		0.000	Feet
Effective height of system:		10.000	Feet
Length of system (inc. height):		10.000	Feet
Appliance outlet diameter:		8.000	Inches
Vertical Manifold Tees:	0	Horizontal Manifold Tees:	0
45 Degree Lateral Tees:	0	90 Degree Wye Tees:	0
15 Degree Elbows:	0	30 Degree Elbows:	0
45 Degree Elbows:	0	90 Degree Turns (2-45's):	0
Drain Section:	0	Duct Drains:	0
Bellows Joints:	0	Other System Resistance:	0
Tapered Increasers in sys:	NO	Stepped Increasers in sys:	NO
Tapered Reducers in sys:	NO	Stepped Reducers in sys:	NO
Allowable Presure:	0	Presure Changes:	0
Open Termination.			
Computer Sized at:	6.390	Inches	
Selkirk Product Size Selected:	8.000	Inches	
Barometric Pressure @ Altitude:	29.900	Inches Hg	
Density of Flue Gases:	0.048	lbs./Foot^3	
Theoretical Draft:	0.054	Inches H2O	
Flue Gas %CO2 Used for Calcs:	10.000	%	
Combustion Products Mass:	0.900	lbs./MBTU	
Flue Gas Mass Flow:	15.000	lbs./min.	
Flue Gas Volume Flow: (CFM)	310.469	Feet^3/min.	
Flue Gas Velocity (@ Size):	14.828	Feet/Sec.	
Total System Velocity Heads:	0.491	K	
Total System Pressure Losses:	0.016	Inches H2O	
Max. Pres. at System Entrance:	-0.038	Inches H2O	

Page ___ of ___.
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Selkirk Model PS and IPS are modular, prefabricated piping systems which embody flanged joints designed for both quick assembly and pressure-sealing capabilities. They offer a combination of insulated piping components as well as the structural accessories needed for support and attachment to building structures. Expansion joints are available both in gasket designs and in pressure tight, all-welded bellows designs.

Standard gas-carrying piping parts are usable for a wide variety of applications:

- *Chimneys and stacks for all types of building heating equipment.*
- *Chimneys for industrial ovens, furnaces and processing equipment.*
- *Exhaust piping for engines or turbine units.*
- *Ducting in restaurants for compliance with Type 1 hood requirements.*
- *Ducting for heated air and combustion products.*
- *Ducting for light duty pollution control equipment.*
- *Venting for engine exhaust.*
- *Venting for offshore drilling rigs.*

Complete Line of Fittings

Model PS and IPS are available in eighteen sizes, from 5" I.D. to 48" I.D. 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.

Thermal Expansion Aspects

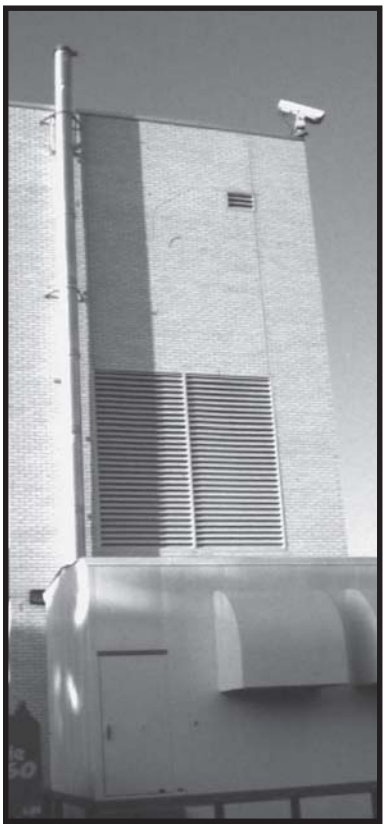
The flange-to-flange joints of the Model IPS inner pipe transmit axial thermal expansion movements and forces in the same manner as continuous welded pipe. In addition, the expansion of the 300 Series Stainless Steel is approximately 50% greater than that of ordinary low carbon steel and can be estimated as one inch per 100°F rise in gas temperature per 100’ (50’ at 300°F will expand 1.5”). It is important to calculate this expansion and allow for it by using a suitable Bellows Joint (Part No. P-BJ) or an Adjustable Length (Part No. P-AG) wherever the expansion might exceed 1/4”. This P-AG fitting, which comprises a closely fitting sliding internal section with a graphite packing seal and a sliding outer section, can be used to absorb these movement.

Exceeding the Requirements

Selkirk, 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

Selkirk conducted system pressure testing against leakage in the presence of UL inspectors. Results of these tests are impressive. Using the OSHA occupation standard-of-leakage rate of 50 parts per million over an eight hour period as criterion for acceptance, the Selkirk system was tested to a leakage rate of only.144 parts per million, or three-tenths of one percent (.3%) of the maximum allowable leakage.



Seismic Tests

We further demonstrated the superiority of the Model PS and IPS 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 (installed in strict accordance with the UL103 Listing) could withstand the rigors of all seismic zones.

Structural Tests

Selkirk 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 Selkirk products.

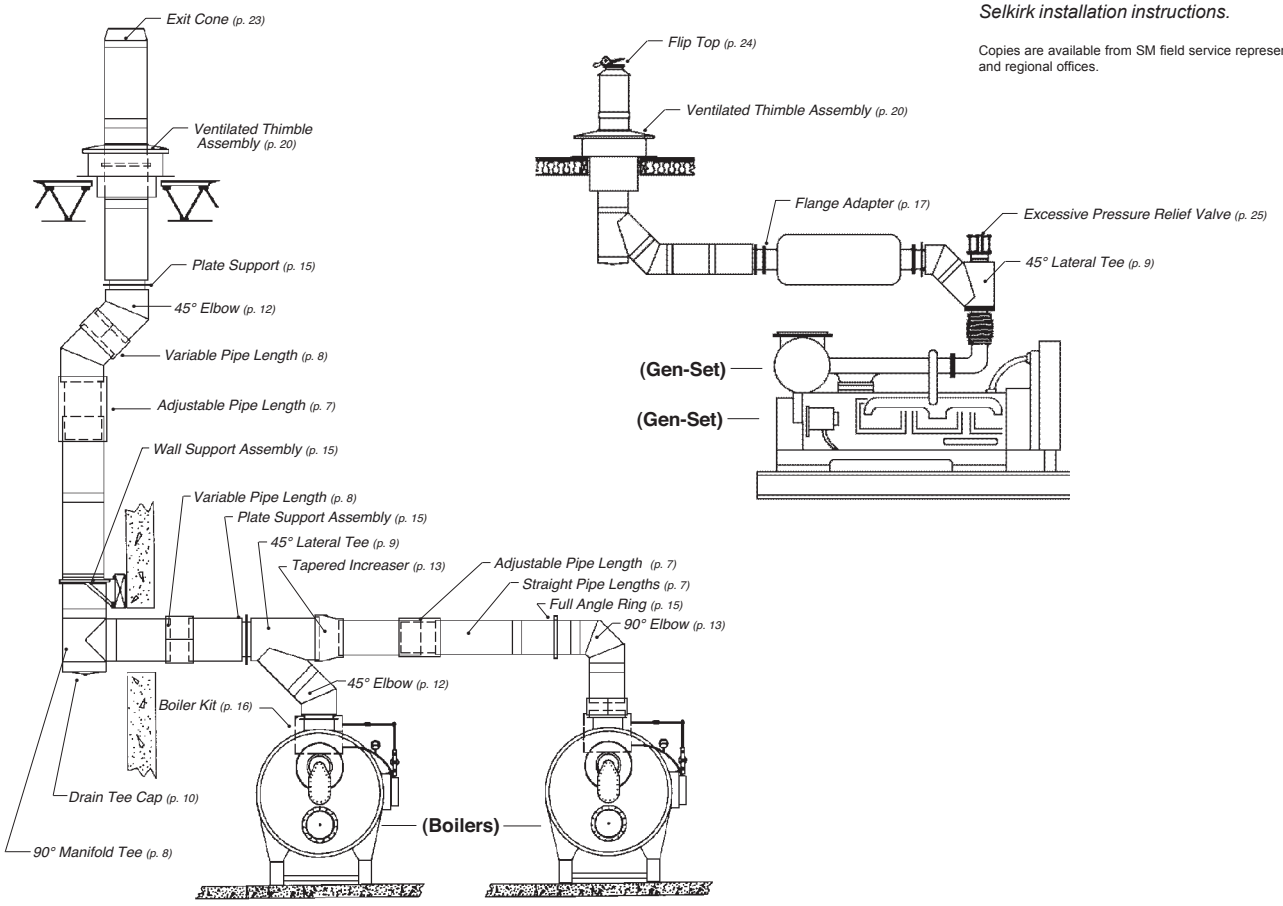
Skin Temperature Rise Tests

Among other things, UL103 covers the temperature rise limits of the surrounding combustible materials in an unenclosed chimney installation - and it defines the test set-up to measure the actual temperature rise of those materials at the OEM recommended clearances. Our published Model IPS skin temperatures were obtained during these tests.

This page illustrates some of the major parts described on pages 5-27.

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

Copies are available from SM field service representatives and regional offices.



Model PS vs. Model IPS

Fiber insulation increases the diameter of the outer wall on Model IPS-C2, IPS-Z3, IPS-C4 and IPS-Z4 pipe and fittings. Shown in this sequence is the same 8-inch diameter inner pipe. (Photo 1) Without insulation the outside diameter of the pipe is 10-inches. (Photo 2) This is also true of the same pipe with a 1-inch layer of insulation. (Photo 3) However, the same 8-inch pipe with 2-inch insulation results in an outside diameter of 12 inches. (Photo 4) Adding 3 inches of fiber insulation to the same 8-inch pipe makes the diameter of the outer wall 14 inches. (Photo 5 & 6) Adding 4 inches of fiber insulation makes the diameter of the outer wall 16 inches.

Understanding Product Codes and Part Numbers

All parts manufactured by Selkirk 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 PS and IPS products.

1. It begins with the pipe or fitting's internal diameter (in inches) such as **8**, **22**, **36**, etc.
2. This is followed by the *Model* designation, **P** for air-insulated (Model PS), or **IP** for parts that are fiber insulated (Model IPSC1, C2, Z3,C4, or Z4).
3. Next, is the product's *Material* designation, such as **316** or **304/304**. The first item indicates the makeup of the inner liner, while the second half indicates the material content of the outer wall, if stainless. If aluminized outer, the part number indicates inner material only.
4. Then, following a long dash, the product's *Code* name is listed, such as **AG30**, **JY**, or **MVT**. If the product is air insulated, the product identification ends with this code.

   (For Product Code listings, refer to page 2.)
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; **Z3**, 3-inches; **Z4/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 304 Stainless Steel inner and aluminized steel outer, packed with 2-inch fiber insulation, is listed:

6IP304- AG30C2*

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* 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 P or IP.
Diameter of Snout listed in front of Code designation.

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

42P304-30MT

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:

8P304-16OT

Overlapping Vee Band

Code: OVB

Used to seal the inner liner of two adjoining components.

Materials Available:

All Stainless Construction

Notes:
1. 5", 6", 8", and 48" diameter VB's are a two-piece design. 10" through 36" diameter VB's are a one-piece design.
2. All OVB's are a two-piece design.
3. Model PS part used for all IPS applications.

Channel Band

Code: CB

Used to seal the Outer Jackets of two adjoining components.

(CB height is 43/4 inches)

Materials Available:

Aluminized Steel	316

Notes:
1. Fiber insulation provided for IPS 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

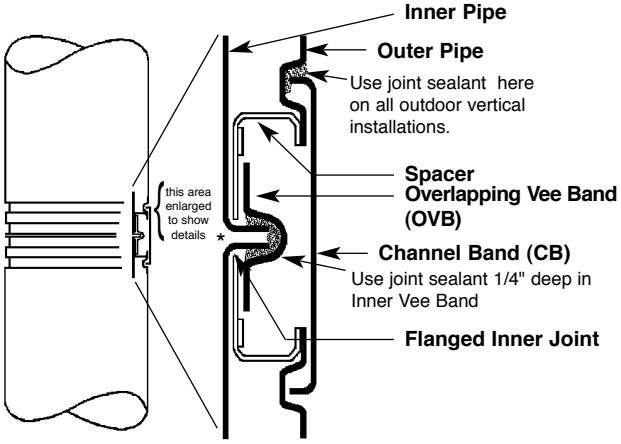
Notes:
1. Fiber insulation provided for IPS models with the CB and HCB.

The Four Easy Steps to Joint Assembly

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

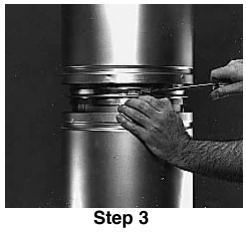
Temperature of gases carried in the system determines the proper sealant used.*

As shown in the adjoining illustration and photos, assembly is accomplished in four easy steps, using only standard tools.

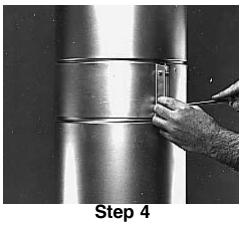


Step 1
Fill Inner Vee Band (OVB) with proper sealant.

Step 2
Position Inner OVB below flange of pipe or fitting.



Step 3
Mate flanges of two pipes. Position Inner OVB over both flanges and tighten.



Step 4
Position Outer Channel Band around outer casing. Align with pipe grooves and tighten.

*See Grease Duct, Boiler Stack, or Engine Exhaust instructions for correct sealant usage.

Low Temperature Sealant

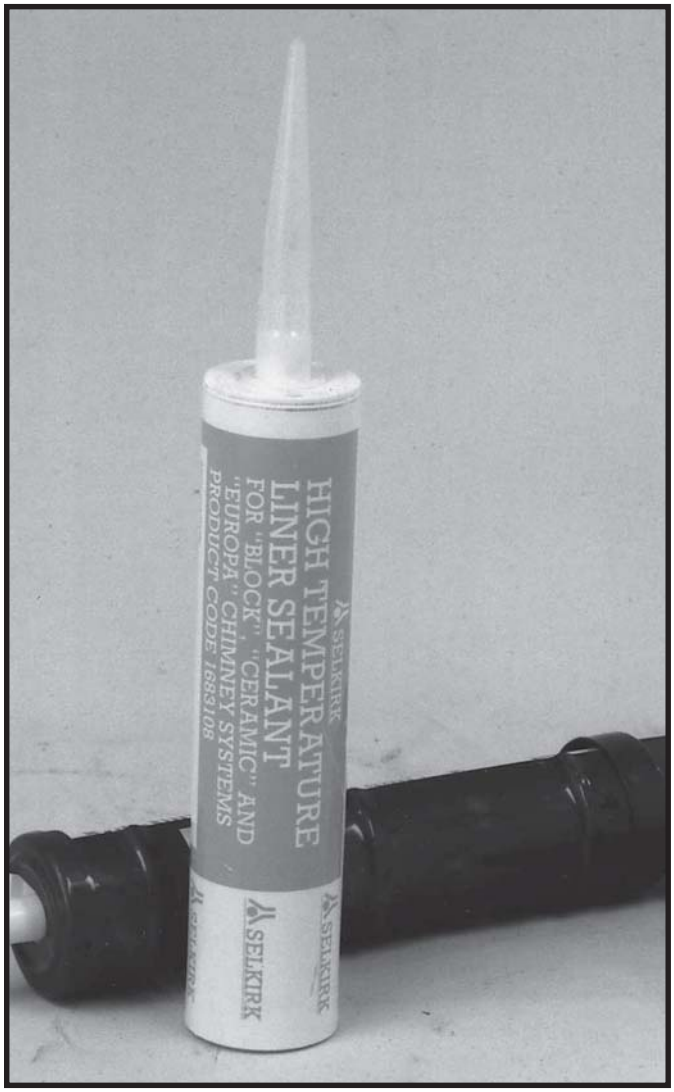
Code:
P600

High Temperature Sealant

Code:
P2000E

Depending upon application, either or both of Selkirk's low- and high-temperature sealants are applied to the OVB before connecting two Inner Pipes at installation.

As designated, P600 Sealant is for 600° F. maximum flue gas temperatures, while P2000E is capable for flue gases up to 2000° F.



P600 and P2000E sealants are available in tubes for use with a standard caulking gun.

Sealant Coverage
Expected Number of Joints Sealed Per Tube

Inner Dia. (inches)	P600 & P2000E
5/6	10
8/10	9
12	8
14/16	7
18/20	6
22/24	5
26/28	4
30/32	3
36	2
42/48	1

Straight Pipe Lengths

Codes:

60, 42, 30, 18

Standard pipe lengths for all Selkirk exhaust systems.

Materials Available:

304/Alum	**316/Alum**	**304/304**	**316/316**
60" lengths available in aluminized outers only			

- 60" lengths available in 8" dia. through 14" dia., all products.
- 42" lengths available in:
  - 6" dia. through 32" dia., PS and IPSC1
  - 6" dia. through 28" dia., IPSC2/ Z3
  - 6" dia. through 24" dia., IPSC4/ Z4
- 18" & 30" lengths available in all diameters (5"-48") of all products (PS, IPSC1, IPSC2, IPS-Z3, IPSC4 and IPS-Z4).

Ordered Part Includes:
Pipe, plus one OVB and one CB.

Notes:
1. Special pipe lengths from 5" to 60" available upon request.

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

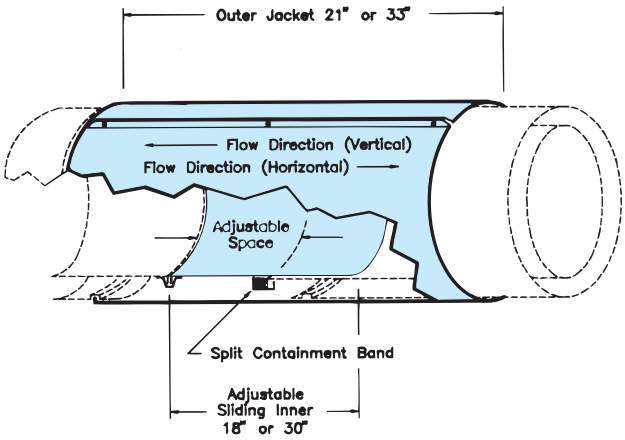
$$K = 0.25 \frac{50}{10} = 1.25$$

Adjustable Pipe Lengths

Codes:

AG30, AG18

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



Materials Available:

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

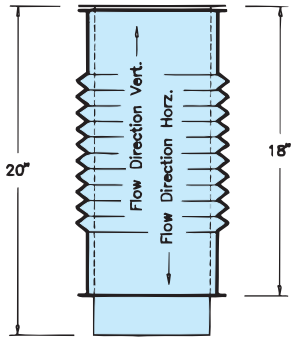
Ordered Part Includes:
Pipe, plus one 30" or 18" inner Slip Section, one TSU, one Packing Seal, one two-piece Compression Band, one two-piece Containment Ring, one two-piece Outer Jacket, and one OVB. Fiber insulation provided for IPS models.

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.

Lined Bellows Joint

Code:
BJ

Provides a pressure tight expansion joint for engine exhaust and other high pressure applications.



Materials Available:

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

Ordered Part Includes:
BJ, plus one Liner, one Outer Jacket (IPS only), and one OVB.

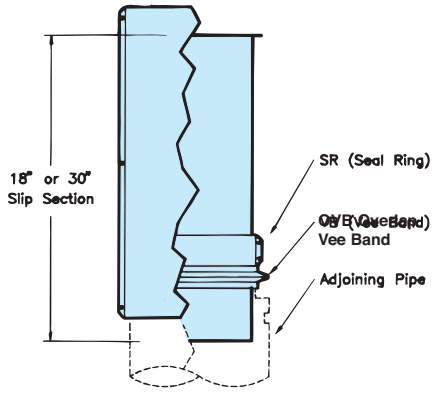
Fiber insulation provided for IPS models.

Notes:
1. Optional to standard adjustable pipe lengths.
2. Liner protects Bellows but limits movement to liner expansions only.
3. Flow Resistance Factor (K) is the same as insulated pipe.

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:

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

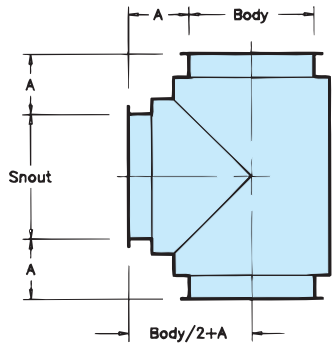
Ordered Part Includes:
VL30 or VL18, plus one 30" or 18" Inner Slip Section, one two-piece Outer Jacket, one SR, and one OVB.
Fiber insulation provided for IPS models.

Notes:
1. The 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.



Materials Available:

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

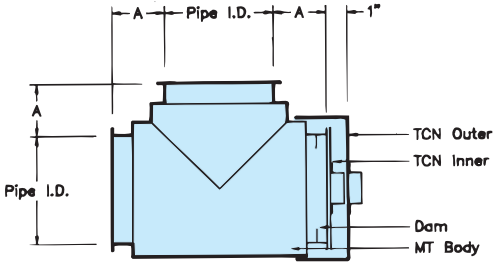
Ordered Part Includes:
MT, plus one OVB for the body diameter, one VB for the snout diameter, and one CB for the body diameter.

Notes:
1. Use TCN 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

90° Grease Duct Tee

Code:
GMT

Part MT with dam added for protection against fluids running out while cleaning.



Dimension A			
PS/IPS-C1	IPS-C2	IPS-Z3	IPS-C4/IPS-Z4
4"	5"	6"	7"

Materials Available:

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

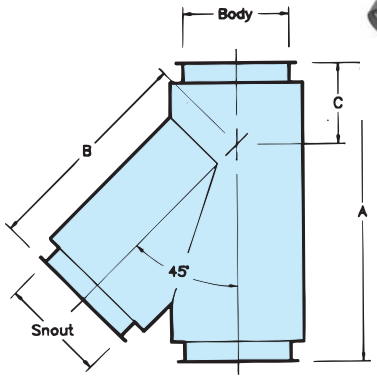
Ordered Part Includes:
GMT, plus one TCN, two OVB's and one CB.

Notes:
1. 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:

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

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

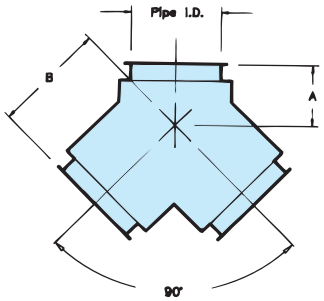
Notes:
1. Snout available in any standard diameter equal to or smaller than the body diameter.
2. K = 0.4 Flow Resistance Factor

Product (Pipe I.D.)				Dimensions (Inches)			
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	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
-	-	5	-	23 1/2	17 3/4	5 3/4	11
10	8	6	-	24 1/16	19	5 1/16	12
-	-	-	5	6 15/16	21 7/16	5 1/2	13
12	10	8	6	26 15/16	21 7/16	5 1/2	14
14	12	10	8	29 3/4	23 7/8	5 7/8	16
16	14	12	10	32 9/16	26 1/4	6 5/16	18
18	16	14	12	35 3/8	28 3/4	6 3/4	20
20	18	16	14	38 3/16	31 1/16	7 1/8	22
22	20	18	16	43 7/8	35 7/8	8	24
24	22	20	18	43 7/8	35 7/8	8	26
26	24	22	20	49 9/16	40 3/4	8 13/16	28
28	26	24	22	49 9/16	40 3/4	8 13/16	30
30	28	26	24	55 3/16	45 9/16	9 5/8	32
32	30	28	26	55 3/16	45 9/16	9 5/8	34
-	32	30	28	60 13/16	50 3/8	10 7/16	36
36	-	32	30	60 13/16	50 3/8	10 7/16	38
-	36	-	32	69 15/16	58 1/4	11 3/4	40
-	-	36	-	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

90° WYE

Code:
JY

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



Materials Available:

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

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

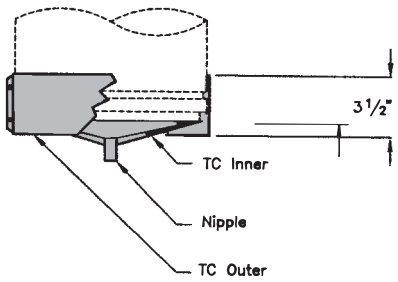
Notes:
1. All openings are the same diameter.
2. Can be used with TCN to provide a single clean out toward each 90° direction change.
3. Use OT or OS as needed for smaller branch connections.
4. K = 0.6 Flow Resistance Factor

Product (Pipe I.D.)				Dimensions (Inches)		
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	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	-	5	11	11
10	8	6	-	5	11	12
-	-	-	5	5 1/2	12	13
12	10	8	6	5 1/2	12	14
14	12	10	8	5 7/8	13	16
16	14	12	10	6 3/8	14	18
18	16	14	12	6 5/8	15	20
20	18	16	14	7 1/8	17	22
22	20	18	16	8	19	24
24	22	20	18	8	19	26
26	24	22	20	8 3/4	22	28
28	26	24	22	8 3/4	22	30
30	28	26	24	9 5/8	24	32
32	30	28	26	9 5/8	24	34
-	32	30	28	10 1/2	27	36
36	-	32	30	10 1/2	27	38
-	36	-	32	11 3/4	31	40
-	-	36	-	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:

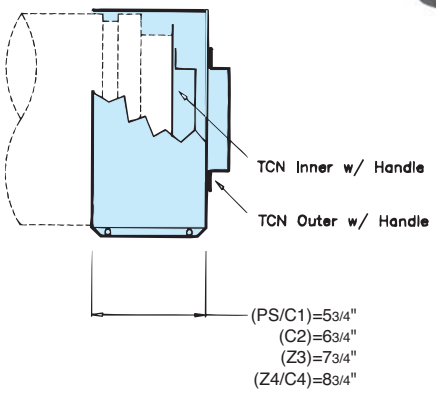
304/Alum	316/Alum	304/304	316/316

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 OVB. Fiber insulation provided for IPS models.

Cleanout Tee Cap

Code:
TCN

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



Materials Available:

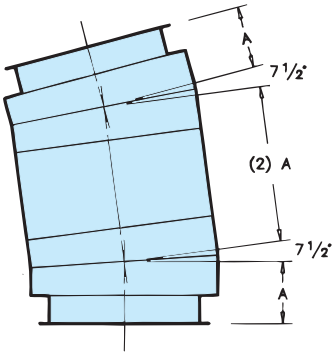
304/Alum	316/Alum	304/304	316/316

Ordered Part Includes:
TCN, plus one Inner Section (with handle), one Outer Jacket (with handle), and one OVB.
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:

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

Ordered Part Includes:
Two 7 1/2" Elbows, plus two CB's, and two OVB's.

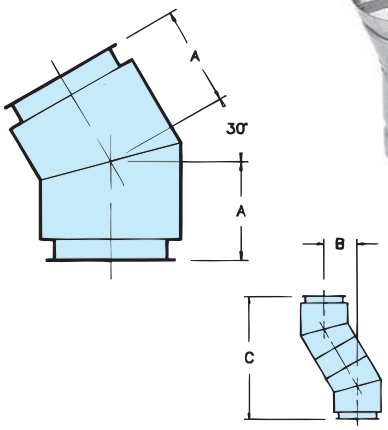
Notes:
1. K = 0.06 Flow Resistance Factor

Product (Pipe I.D.)			Dimensions (Inches)		
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	A	(O.D.)
5	-	-	-	4 3/16	7
6	5	-	-	4 3/16	8/9
8	6	-	-	4 1/4	10
-	-	5	-	4 5/16	11
10	8	6	-	4 5/16	12
-	-	-	5	4 7/16	13
12	10	8	6	4 7/16	14
14	12	10	8	4 1/2	16
16	14	12	10	4 9/16	18
18	16	14	12	4 5/8	20
20	18	16	14	4 11/16	22
22	20	18	16	4 3/4	24
24	22	20	18	4 13/16	26
26	24	22	20	4 7/8	28
28	26	24	22	4 15/16	30
30	28	26	24	5	32
32	30	28	26	5 1/16	34
-	32	30	28	5 1/8	36
36	-	32	30	5 3/16	38
-	36	-	32	5 5/16	40
-	-	36	-	5 3/8	42
42	-	-	36	5 3/8	44
-	42	-	-	5 1/24	6
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:

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

Ordered Part Includes:
EL30, plus one CB and one OVB.

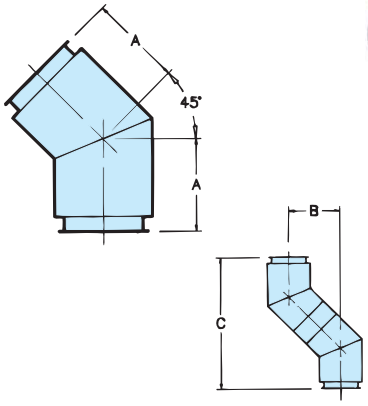
Notes:
1. K = 0.12 Flow Resistance Factor

Product				Dimensions			
(Pipe I.D.)				(Inches)			
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	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**
-	**-**	**5**	**-**	6 9/16	6 9/16	24 3/8	**11**
10	**8**	**6**	**-**	6 11/16	6 11/16	24 7/8	**12**
-	**-**	**-**	**5**	7 5/16	7 5/16	27 1/4	**13**
12	**10**	**8**	**6**	7 5/16	7 5/16	27 1/4	**14**
14	**12**	**10**	**8**	7 7/8	7 7/8	29 5/8	**16**
16	**14**	**12**	**10**	8 1/4	8 1/4	30 5/8	**18**
18	**16**	**14**	**12**	8 5/8	8 5/8	31 5/8	**20**
20	**18**	**16**	**14**	9 1/8	9 1/8	34 1/8	**22**
22	**20**	**18**	**16**	9 3/8	9 3/8	35	**24**
24	**22**	**20**	**18**	10 1/16	10 1/16	37 1/22	**6**
26	**24**	**22**	**20**	10 5/16	10 5/16	38 1/22	**8**
28	**26**	**24**	**22**	11	11	40 7/8	**30**
30	**28**	**26**	**24**	11 1/4	11 1/4	41 7/8	**32**
32	**30**	**28**	**26**	11 7/8	11 7/8	44 3/8	**34**
-	**32**	**30**	**28**	12 3/16	12 3/16	45 3/8	**36**
36	**-**	**32**	**30**	12 7/8	12 7/8	47 3/4	**38**
-	**36**	**-**	**32**	13 1/8	13 1/8	48 7/8	**40**
-	**-**	**36**	**-**	13 9/16	13 9/16	50 5/8	**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:

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

Ordered Part Includes:
EL45, plus one CB and one OVB.

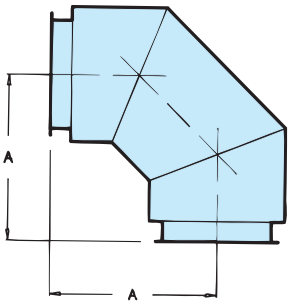
Notes:
1. K = 0.15 Flow Resistance Factor

Product				Dimensions			
(Pipe I.D.)				(Inches)			
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	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**
-	**-**	**5**	**-**	9 1/8	12 7/8	31 1/8	**11**
10	**8**	**6**	**-**	9 5/16	13 3/16	31 7/8	**12**
-	**-**	**-**	**5**	10 1/4	14 1/2	35	**13**
12	**10**	**8**	**6**	10 1/4	14 1/2	35	**14**
14	**12**	**10**	**8**	10 11/16	15 1/8	36 1/2	**16**
16	**14**	**12**	**10**	11 5/8	16 7/16	39 5/8	**18**
18	**16**	**14**	**12**	12 1/16	17 1/16	41 1/8	**20**
20	**18**	**16**	**14**	13	18 3/8	44 1/4	**22**
22	**20**	**18**	**16**	13 5/16	18 13/16	45 1/2	**24**
24	**22**	**20**	**18**	14 5/16	20 1/4	48 1/8	**26**
26	**24**	**22**	**20**	14 7/8	21 1/16	50 7/8	**28**
28	**26**	**24**	**22**	15 11/16	22 3/16	53 1/2	**30**
30	**28**	**26**	**24**	16 1/4	22 15/16	53 3/8	**32**
32	**30**	**28**	**26**	17	24	58	**34**
-	**32**	**30**	**28**	17 9/16	24 3/4	59 7/8	**36**
36	**-**	**32**	**30**	18 3/8	2515/16	62 5/8	**38**
-	**36**	**-**	**32**	18 7/8	26 11/16	64 1/2	**40**
-	**-**	**36**	**-**	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:

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

Ordered Part Includes:
EL90, plus one CB and one OVB.

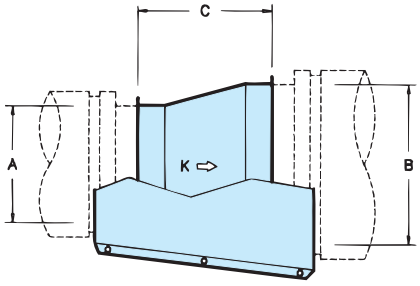
Notes:
1. K = 0.30 Flow Resistance Factor

Product (Pipe I.D.)				Dim. (Inches)	
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	A	(O.D.)
5	-	-	-	11 1/2	7
6	5	-	-	11 1/2	8/9
8	6	-	-	12 1/2	10
-	-	5	-	13 1/2	11
10	8	6	-	13 1/2	12
-	-	-	5	14 1/2	13
12	10	8	6	14 1/2	14
14	12	10	8	15 1/2	16
16	14	12	10	16 1/2	18
18	16	14	12	17 1/2	20
20	18	16	14	18 1/2	22
22	20	18	16	19 1/2	24
24	22	20	18	20 1/2	26
26	24	22	20	21 1/2	28
28	26	24	22	22 1/2	30
30	28	26	24	23 1/2	32
32	30	28	26	24 1/2	34
-	32	30	28	25 1/2	36
36	-	32	30	26 1/2	38
-	36	-	32	27 1/2	40
-	-	36	-	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

Tapered Increaser/Reducer

Code:
OT

Used when a pipe diameter change is required.



Materials Available:

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

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

Example:
Installed Length for 12P304-180T equals [(18-12)2] + 2 = 14 inches.

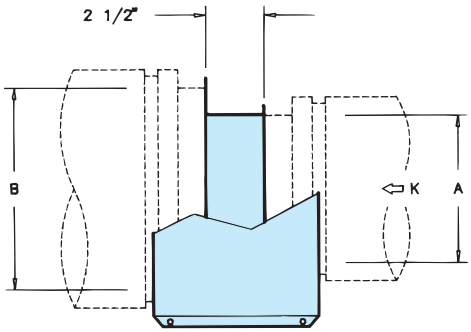
Ordered Part Includes:
OT, plus one two-piece Outer Jacket, and one OVB for smaller diameter.
Fiber insulation provided for IPS models.

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.



Materials Available:

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

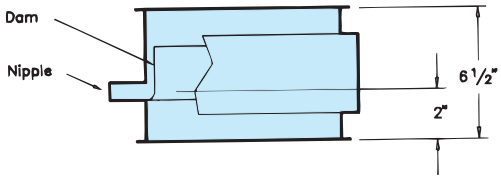
Ordered Part Includes:
OS (Inner Stepped Pipe), plus one two-piece Outer Jacket, and one OVB for the smaller diameter.
Fiber insulation provided for IPS models.

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:

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

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

Notes:
1. K = 0.25 Flow Resistance Factor

Angle Rings

Codes:
HR & FR

Used for guiding and/or supporting horizontal installations.

Materials Available:

Electroplated or Galvanized Steel

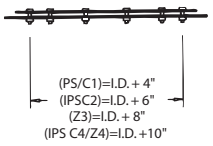
Notes:
1. Model PS part used for IPSC1 applications.

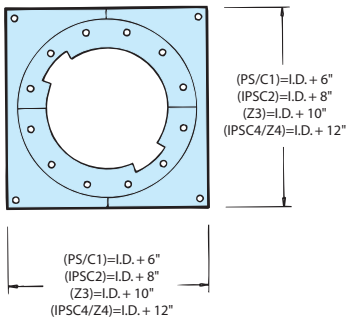
Product (Pipe I.D.)				Dimensions (Inches) HR				
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	Bolt Hole Circle	I.D. of Ring	No. of Holes (HR)	Size of Angles	Angle of Holes
5	-	-	-	9	7 1/8	6	(1)	45
6	5	-	-	10	8 1/8	6	(1)	45
8	6	-	-	12	10 1/8	6	(1)	45
-	-	5	-	13	11 1/8	6	(1)	45
10	8	6	-	14	12 1/8	6	(1)	45
-	-	-	5	15	13 1/8	6	(1)	45
12	10	8	6	16	14 1/8	6	(1)	45
14	12	10	8	18	16 1/8	6	(1)	45
16	14	12	10	20	18 1/8	6	(1)	45
18	16	14	12	22	20 1/8	6	(1)	45
20	18	16	14	24	22 1/8	6	(1)	45
22	20	18	16	26	24 1/8	10	(2)	22.5
24	22	20	18	28	26 1/8	10	(2)	22.5
26	24	22	20	30	28 1/8	10	(2)	22.5
28	26	24	22	32	30 1/8	10	(2)	22.5
30	28	26	24	34	32 1/8	10	(2)	22.5
32	30	28	26	36	34 1/8	10	(2)	22.5
-	32	30	28	38	36 1/8	10	(2)	22.5
36	-	32	30	40	38 1/8	10	(2)	22.5
-	36	-	32	42	40 1/8	10	(2)	22.5
-	-	36	-	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

Plate Support Assembly

Code:
PA

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





Materials Available:

Electroplated or Galvanized Steel

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

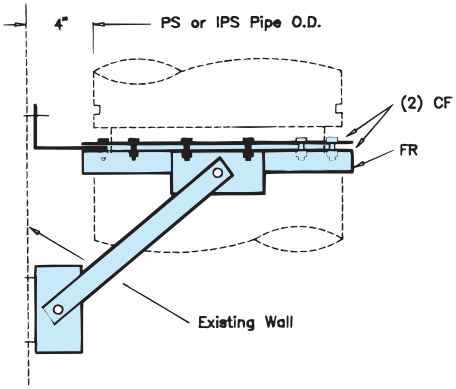
Plate Thickness:
0.188" for sizes 6" through 20" diameters
0.250" for sizes 22" through 36" diameters
0.375" for sizes 42" through 48" diameters

Notes:
1. Two 316 Stainless Steel HCB's should be ordered separately 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:

Electroplated or Galvanized Steel

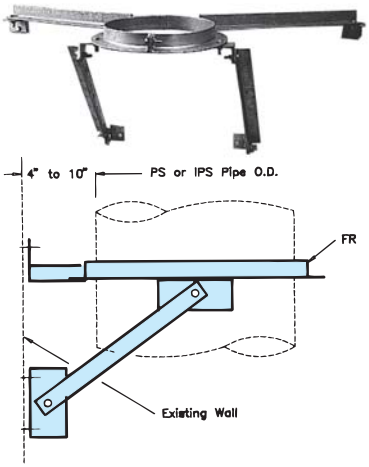
Ordered Part Includes:
One FR, two CF's, two HCB's, five brackets, two struts, and all hardware except connection at wall.

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:

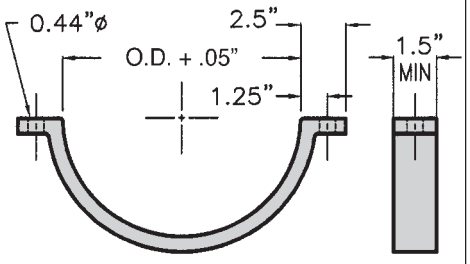
Electroplated or Galvanized Steel

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 PS part used for IPSC1 applications.

Support Strap

Code:
SS



Materials Available:

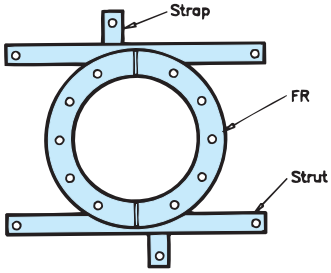
Hot Rolled Steel

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:

Electroplated or Galvanized 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 PS part used for IPSC1 applications.

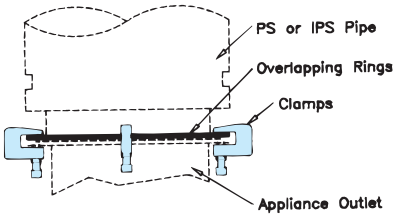
Pipe I.D. (Inches)				Dimensions	
IPS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	Strut Length	Strut Size
5	-	-	-	17 1/2	(1)
6	-	-	-	18	(1)
-	5	-	-	19 1/2	(1)
8	6	-	-	21	(1)
-	-	5	-	21 1/2	(1)
-	-	-	5	22 1/2	(1)
10	8	6	-	24	(1)
12	10	8	6	27	(1)
14	12	10	8	29	(2)
16	14	12	10	30	(2)
18	16	14	12	32	(2)
20	18	16	14	33	(2)
22	20	18	16	34 1/2	(3)
24	22	20	18	36	(3)
26	24	22	20	37	(3)
28	26	24	22	38	(3)
30	28	26	24	39 1/2	(3)
32	30	28	26	41	(3)
-	32	30	28	42 1/2	(3)
36	-	32	30	44	(3)
-	36	-	32	46	(3)
-	-	36	-	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 for connecting piping to an appliance having a flanged outlet.



Materials Available:

Electroplated or Galvanized Steel

Ordered Part Includes:
Two overlapping rings, hardware and required "C" type clamps (see table below).

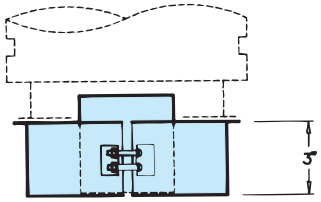
Notes:
1. Model PS part used for all IPS applications.

Pipe Size (inches)	# Clamps	Ring Width (inches)	Ring I.D. (inches)
5	4	1 1/2	5 3/16
6	4	1 1/2	6 3/16
8	4	1 1/2	8 3/16
10	5	1 1/2	10 3/16
12	6	1 1/2	12 3/16
14	7	1 1/2	14 3/16
16	8	1 1/2	16 3/16
18	9	1 1/2	18 3/16
20	10	1 1/2	20 3/16
22	11	1 1/2	22 3/16
24	12	1 1/2	24 3/16
26	13	1 1/2	26 3/16
28	14	1 1/2	28 3/16
30	15	1 1/2	30 3/16
32	16	1 1/2	32 3/16
36	18	1 1/2	36 3/16
42	21	1 1/2	42 3/16
48	24	1 1/2	48 3/16

Seal Ring

Code:
SR

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



Materials Available:

304/Alum	316	304/304	316/316

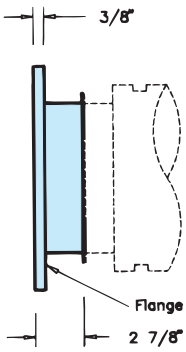
Ordered Part Includes:
SR, plus one OVB and hardware.

Notes:
1. Model PS part used for all IPS applications.

Flange Adapter

Code:
FD

Provides a rigid connection to a 125 lb. or 150 lb. ANSI flange.



Materials Available:

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

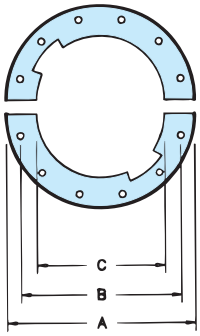
Ordered Part Includes:
Flange welded to TS, one CB, and one OVB. Fiber insulation provided for IPS models.

Product	Dimensions (inches)			
Pipe I.D.	No. of Bolts	Bolt Hole Dia.	Flange O. D.	Bolt Circle
5	8	7/8	10	8 1/2
6	8	7/8	11	9 1/2
8	8	7/8	13 1/2	11 3/4
10	12	1	16	14 1/4
12	12	1	19	17
14	12	1 1/8	21	18 3/4
16	16	1 1/8	23 1/2	21 1/4
18	16	1 1/4	25	22 3/4
20	20	1 1/4	27 1/2	25
22	20	1 3/8	29 1/2	27 1/4
24	20	1 3/8	32	29 1/2
28	28	1 3/8	36 1/2	34
30	28	1 3/8	38 1/2	36
32	28	1 5/8	41 3/4	38 1/2
36	32	1 5/8	46	42 3/4
42	36	1 5/8	53	49 1/2
48	44	1 5/8	59 1/2	56

Clamp Flange

Code:
CF

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



A = Flange O.D.
PS/IPSC1 = I.D. + 5"
C2 = I.D. + 7"
Z3 = I.D. + 9"
Z4/C4 = I.D. + 11"

B = Bolt Hole Circle
PS/IPSC1 = I.D. + 4"
C2 = I.D. + 6"
Z3 = I.D + 8"
Z4/C4 = I.D. + 10"

C = Flange I.D.
PS/IPSC1 C2,C4 = I.D. + 1/2"
Z3,Z4

Materials Available:

Electroplated or Galvanized Steel

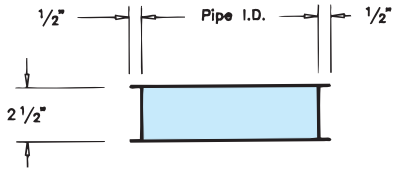
Ordered Part Includes:
Two half clamp flange plates.

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 PS part used for IPSC1 applications.

Flanged Hood Transition

Code:
TS

Used on standard appliances such as kitchen hood exhausts. Flanged at both ends.



Materials Available:

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

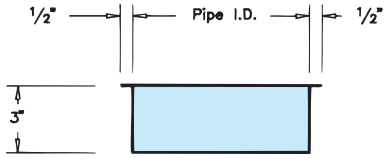
Ordered Part Includes:
TS, plus one CB and one OVB.
Fiber insulation provided with IPS models.

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

Unflanged Hood Transition

Code:
TSU

Used on standard appliances such as kitchen hood exhausts. Flanged at one end.



Materials Available:

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

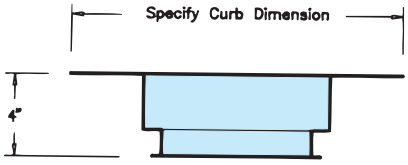
Ordered Part Includes:
TSU, plus one CB and one OVB.
Fiber insulation provided with IPS models.

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:

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

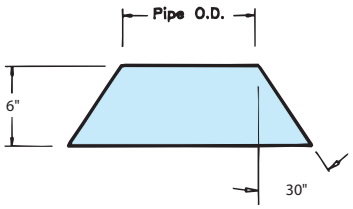
Ordered Part Includes:
FA, plus one OVB and one CB.

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

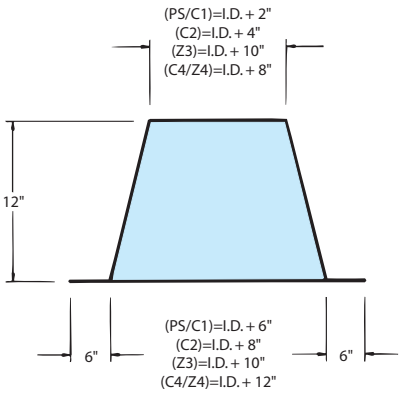
Ordered Part Includes:
SC, plus hardware.

Notes:
1. Requires P600 sealant when installing.
2. Model PS part used for IPSC1 applications.

Tall Flashing

Code:
TF

Used in conjunction with SC for weatherization at the roof.



Materials Available:

Aluminized or Galvanized Steel		304	316

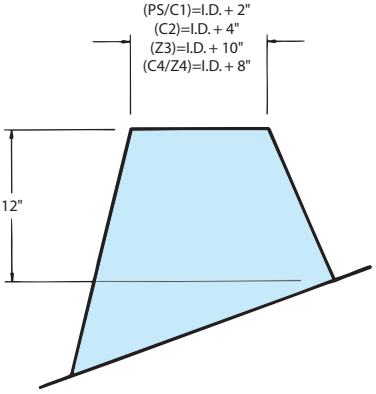
Ordered Part Includes:
TF only.

Notes:
1. Use limited to installations where complete roof penetration is non-combustible.
2. Model PS part used for IPSC1 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

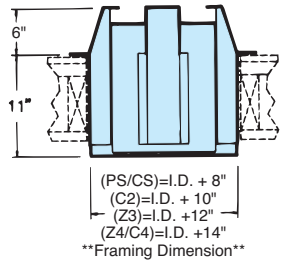
Ordered Part Includes:
PTF only (specify pitch when ordering).

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 PS part used for IPSC1 applications.

Ventilated Thimble

Code: THB

Body part of MVT, MRS, and PVT. Also can be used by itself for a wall penetration.



Materials Available:

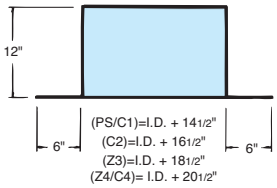
Galvanized Steel

Notes:
1. Model PS part used for IPSC1 applications.

Ventilated Tall Flashing

Code: VTF

Encloses the THB, offers protection from weather and moisture penetration



Materials Available:

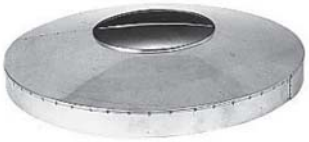
Aluminized or Galvanized Steel		304	316

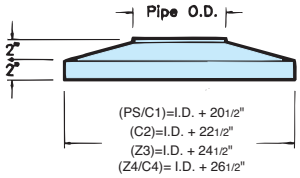
Notes:
1. Model PS part used for IPSC1 applications.

Ventilated Storm Collar

Code: VSC

Protects the VTF from weather and moisture penetration.





Materials Available:

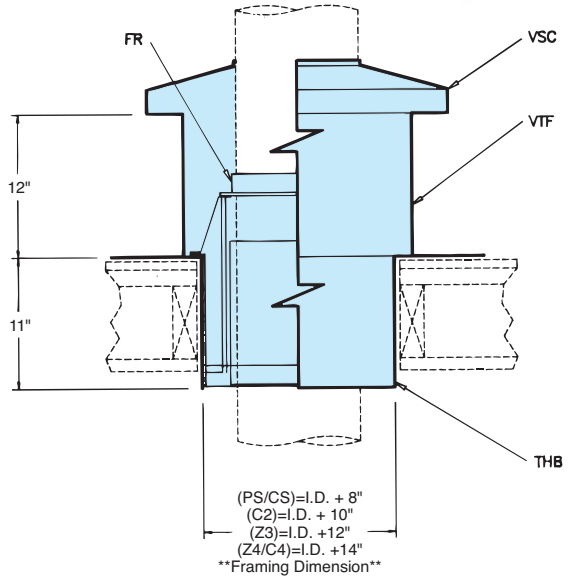
Aluminized or Galvanized Steel		304	316

Notes:
1. Model PS part used for IPSC1 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

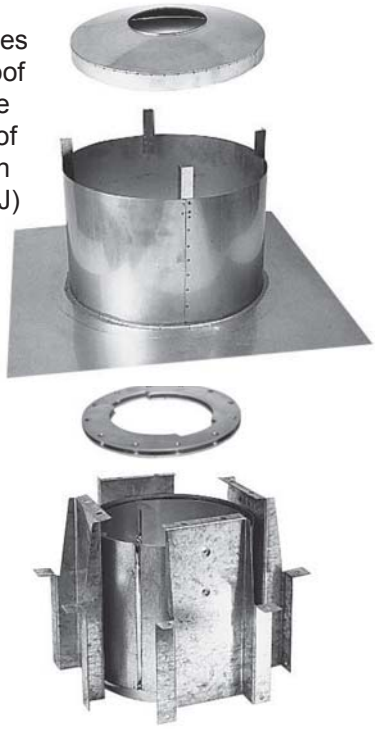
Ordered Part Includes:
One THB, one FR, one VTF, and one VSC.

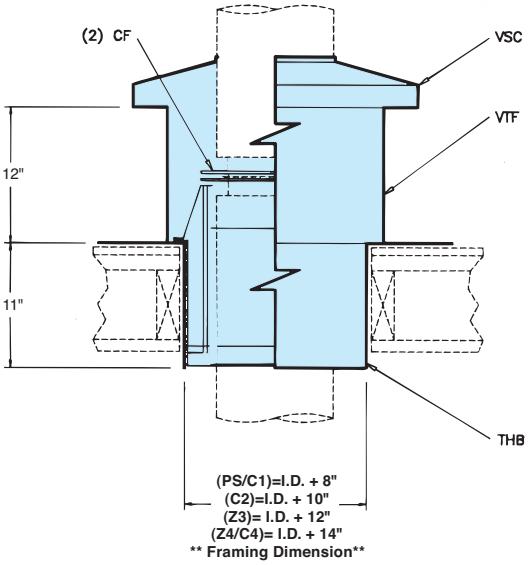
Notes:
1. Model PS part used for IPSC1 applications.

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:

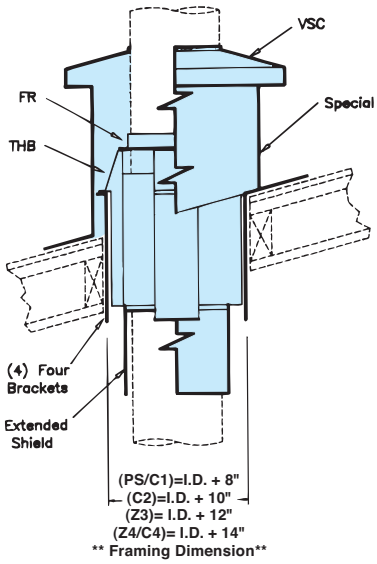
Aluminized or Galvanized Steel		304	316

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

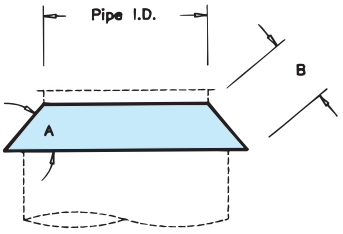
Ordered Part Includes:
One THB, 4 brackets, extended shield, special VTF, one FR, and one VSC.

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 PS part used for IPSC1 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:

304/Alum	316/Alum	304/304	316

Ordered Part Includes:
CR, plus hardware.

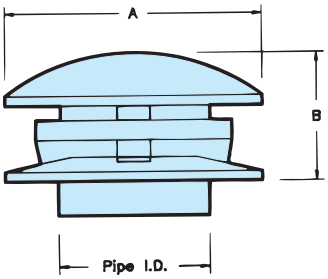
Notes:
1. Model PS part used for IPSC1 applications.

Product	Dimensions	
	A	B
PS/C1	50°	3"
IPS-C2	32°	3 1/2"
IPS-Z3	25°	4 1/2"
IPS-C4/Z4	17°	5 1/4"

Chimney Round Top

Code:
CT

Provides the greatest degree of rain protection. Available only in 5", 6", 8", 10", 12", and 14" sizes.



Materials Available:

430 Stainless Steel

Ordered Part Includes:
CT, plus hardware.

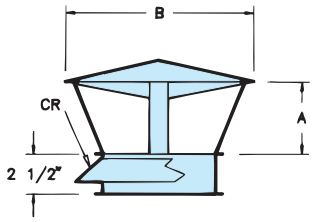
Notes:
1. Model PS part used for IPSC1 applications.
2. Part not available for IPSC2 and IPSC4 applications.
3. K = 0.5 Flow Resistance Factor

Product	Dimensions		
(I. D.)	(inches)		(O.D.)
PS IPSC1 Only	A	B	
5	12	5 1/2	7
6	12	5 1/2	8/9
8	16	7	10
10	20	8 1/2	12
12	24	10	14
14	28	11 1/2	16

Stack Cap

Code:
SK

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



Materials Available:

304/Alum	316/Alum	304/304	316

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

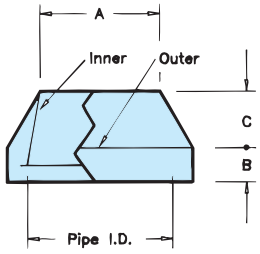
Notes:
1. Model PS part used for IPSC1 applications.
2. K = 0.5 Flow Resistance Factor

Product	Dimensions	
(pipe I.D.)	(inches)	
PS IPSC1 IPSC2 IPSC4 IPS-Z3 IPS-Z4	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 7/8
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:

304/Alum	316/Alum	304/304	316

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

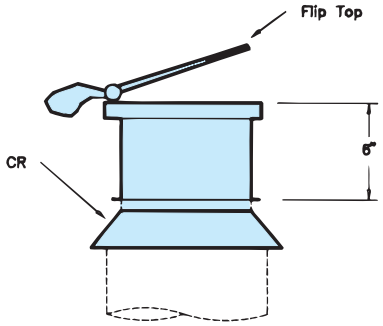
Notes:
1. K = 1.25 Flow Resistance

Product (Pipe I.D.)				Dimensions (Inches)			
PS/ IPS-C1	IPS-C2	IPS-Z3	IPS-C4/ IPS-Z4	A	B	C	(O.D.)
5	-	-	-	4 7/8	4	1 3/8	**7**
6	**5**	-	-	4 7/8	4	1 1/2	**8/9**
8	**6**	-	-	6 9/16	4	1 3/4	**10**
-	-	**5**	-	7 3/8	4	2 9/16	**11**
10	**8**	**6**	-	8 3/16	4	3 3/8	**12**
-	-	-	**5**	9 1/16	4	3 9/16	**13**
12	**10**	**8**	**6**	9 7/8	4	3 3/4	**14**
14	**12**	**10**	**8**	11 1/2	4	4	**16**
16	**14**	**12**	**10**	13 1/16	6	4 3/8	**18**
18	**16**	**14**	**12**	14 3/4	6	4 5/8	**20**
20	**18**	**16**	**14**	16 5/16	6	5	**22**
22	**20**	**18**	**16**	18	6	5 1/4	**24**
24	**22**	**20**	**18**	19 5/8	6	5 5/8	**26**
26	**24**	**22**	**20**	21 1/4	6	6	**28**
28	**26**	**24**	**22**	22 7/8	8	6 1/4	**30**
30	**28**	**26**	**24**	24 1/2	8	6 5/8	**32**
32	**30**	**28**	**26**	26 1/8	8	6 7/8	**34**
-	**32**	**30**	**28**	27 3/4	10	7 1/4	**36**
36	-	**32**	**30**	29 3/8	10	7 1/2	**38**
-	**36**	-	**32**	31	10	7 7/8	**40**
-	-	**36**	-	32 3/4	12	8 3/16	**42**
42	-	-	**36**	34 5/16	12	8 1/2	**44**
-	**42**	-	-	36	12	8 7/8	**46**
48	-	-	**42**	39 3/16	12	9 1/2	**50**
-	**48**	-	-	-	12	-	**52**
-	-	-	**48**	-	12	-	**56**

Flip Top

Code:
FL

Termination that prevents moisture and debris from entering system. Flip top opens with internal pressure and closes when pressure is absent.



Materials Available:

Cast Aluminum

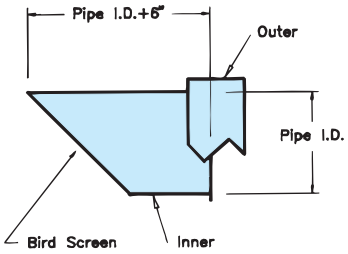
Ordered Part Includes:
FL connected to a 316 stainless steel TS (6" high), plus one CR, and one OVB.

Notes:
1. Available in sizes 5" through 24" only.
2. Model PS part used for IPSC1 applications.

Miter Cut

Code:
MC

Used for horizontal engine exhaust termination.



Materials Available:

304/Alum	316/Alum	304/304	316

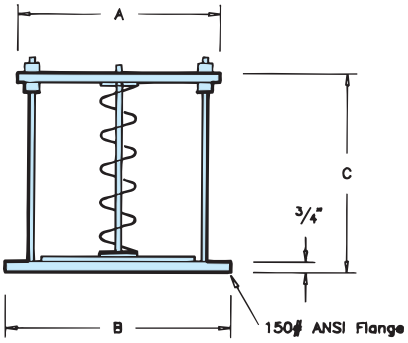
Ordered Part Includes:
One inner with bird screen, one outer finish collar, and one OVB.

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

Excessive Pressure Relief Valve

Code:
ER

For use on all engine exhaust. Helps control the venting pressure should a backfire occur.



Ordered Part Includes:
ER, plus gasket, bolts, washers and nuts for attachment to FD.

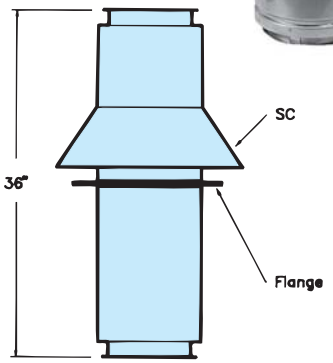
Notes:
1. Excessive Pressure Relief Valves are recommended in accordance with NFPA 37.
2. Caution must be used in locating valve in an exhaust system. Hot gases and high velocity could cause injury.
3. Number of Snubber Springs, Tension Springs, Support Rods, and Guide Rods vary with valve size.
4. Model PS part used for all IPS applications.

PS IPSC1 (pipe I.D.)	Dimensions (inches)			No. of Springs
	A	B	C	
5	8 5/8	10	10 3/4	1
6	9 5/8	11	10 3/4	1
8	12 5/8	13 1/2	10 3/4	1
10	14	16	10 3/4	1
12	16 3/4	19	10 3/4	2
14	18 1/4	21	10 3/4	2
16	20 1/4	23 1/2	10 3/4	3
18	22 1/4	25	10 3/4	3
20	24 1/4	27 1/2	10 3/4	3
22	26 1/4	27 1/2	10 3/4	4
24	28 1/	32	10 3/4	4

Guy Section

Code:
GS

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



Materials Available:

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

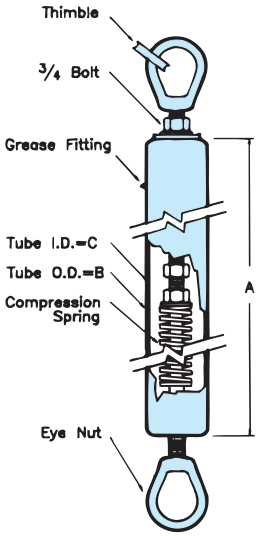
Ordered Part Includes:
Welded pipe section with flange and storm collar, one CB, and one OVB.

Notes:
1. Contact factory for guy calculations before ordering.
2. Flange has 13/16" diameter holes, 30° apart.
3. Flow Resistance Factor (K) is the same as insulated pipe.

Guy Tensioner

Code:
GT

Used with GS to allow the stack to expand without stretching the guy wire or buckling the stack.



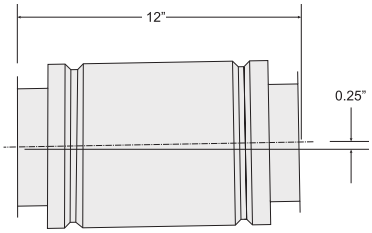
Notes:
1. Available in four tension capacities as shown below.
2. Contact factory for guy calculations before ordering.

Dimensions (inches)				
Tension Capacity (lb.)	*1050*	*1350*	*2100*	*2700*
Tube Length - A	24	24	38	38
Tube O.D.	1 7/8	1 7/8	2 3/8	2 3/8
Tube I.D.	1 5/16	1 5/16	1 5/8	2 1/16
Maximum Compression Travel	3	3	3	3
Weight (lb.)	15	22	25	37

Slope Transition

Code:
ST

Used to create immediate 1/4” on 12” slope on horizontal runs when required by local code. Typically used in pairs (one at lower (inlet) end, other at upper (outlet) end of sloped [1/4 on 12] horizontal run). Not required by UL certification or Selkirk, but may be required in some jurisdictional areas.



Materials Available:

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

Ordered Part Includes:
Slope Transition, plus one OVB and one CB.

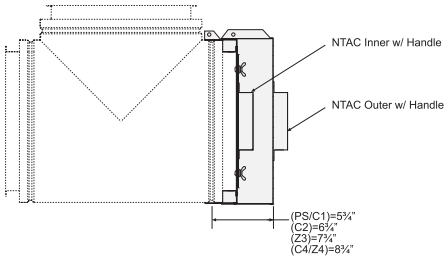
Notes:
1. K Factors =

(use same formula as Straight Pipe Lengths for approximate K factor)

No Tool Access Cap

Code:
NTAC

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



Materials Available:

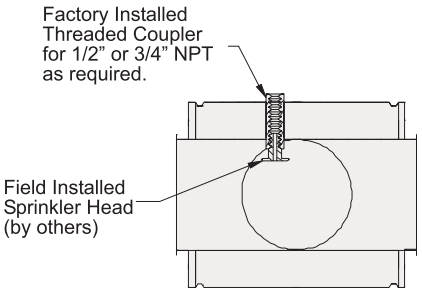
304/Alum	**316/Alum**	**304/304**	**316/316**

Ordered Part Includes:
NATC, plus one dam, insulation shield, outer cover, and one OVB. Fiber Insulation provided for IPS models.

Nozzle Tee Section

Code:
NTS

Provides access for installation/ inspection of sprinkler head.



Materials Available:

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

Ordered Part Includes:
NTS, plus one OVB for the body diameter, one OVB for the snout diameter, and one CB for the body diameter.

Notes:
1. Use TCN or NTAC for access cover
2. Snout available in any standard diameter equal to or smaller then the body diameter.
3. For dimension see 90° Manifold Tee in this booklet.
4. K=1.25 plus an unknown for the sprinkler head. Contact sprinkler head manufacturer.

Through-Penetration Firestop

Code:
TPF

Use when penetrating a fire rated floor or wall with IPSZ3 or IPS-Z4 grease duct.

Materials Available:

Aluminized Steel	**304 or 316 Stainless Steel**

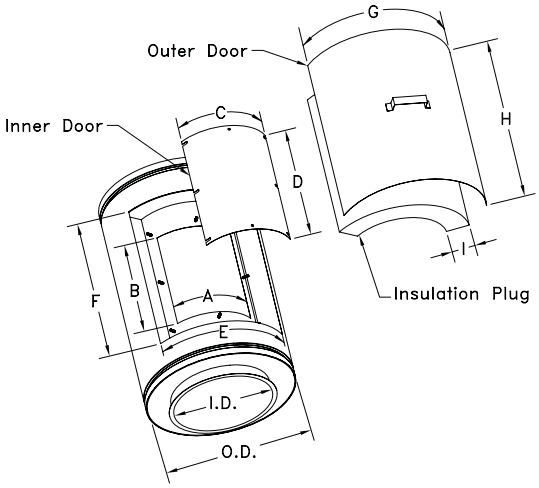
Ordered Part Includes:
One closure band, two cover plate halves, 12-inch wide insulation strip and one 4-inch insulation strip.

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

Inline Access Door

Code:
IAD

Provides access for installation/inspection of sprinkler head.



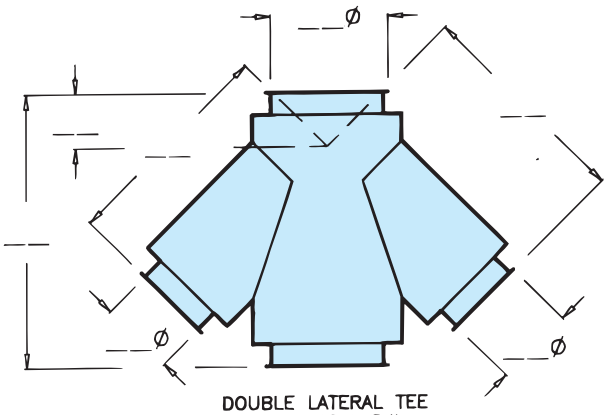
Product	**Inner Hole Size** (inches)		**Inner Door Size** (inches)		**Outer Hole Size** (inches)		**Outer Door Size** (inches)	
Pipe I.D.	A	B	C	D	E	F	G	H
5 & 6	3½	12	6	14½	9½	18½	12	21
8 & 10	6	12	8½	14½	12	18½	14½	21
12 - 16	9	12	11½	14½	15	18½	17½	21
18 - 22	13	12	15½	14½	19	18½	21½	21
24 - 30	18	12	20½	14½	24	18½	26½	21
32 & 36	24	12	26½	14½	30	18½	32½	21

Product	**Dimension** (inches)
MODEL	
IPS-Z3	3
IPS-C4/ZC+	4

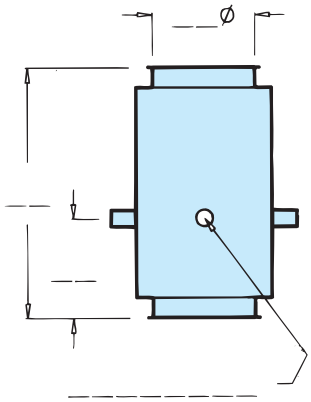
Notes:
1. IAD available on 30” Pipe Lengths only.
2. Inner door is secured in place with wing nuts.
3. Outer door is secured in place with snap–down latches.
4. Outer door for double wall models only (PS, IPS & ZC).

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

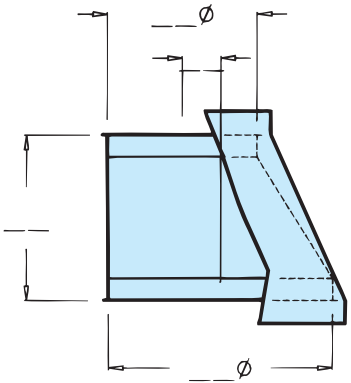
Please provide detail of the required part if not already designed by Selkirk, and allow extra manufacturing time. Special parts are non-returnable.



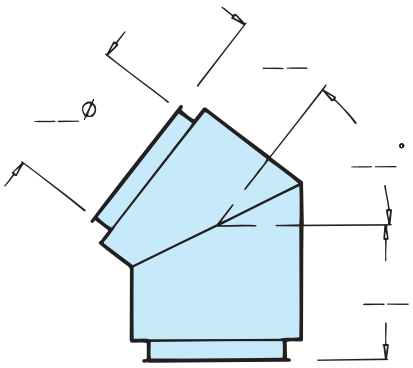
DOUBLE LATERAL TEE
PART CODE: DJL



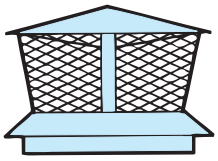
TEST & MONTORING
PORTS AT ANY LOCATION



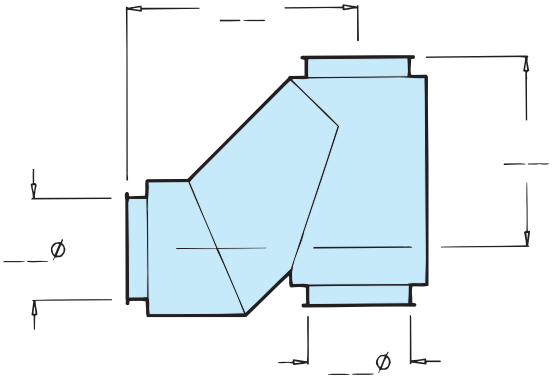
ECCENTRIC
TAPERED INCREASER



SPECIAL DIMENSIONS
ON ANY FITTING

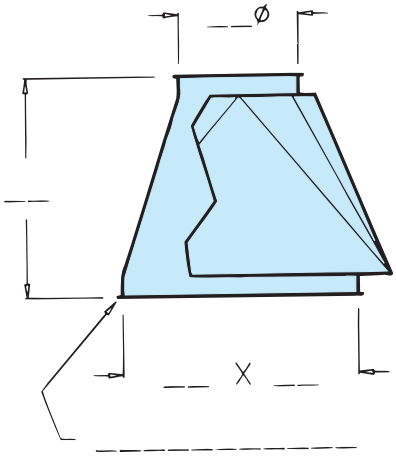


STACK CAP
WITH BIRDSCREEN



COMBINATION LATERAL TEE AND ELBOW
PART CODE: CL

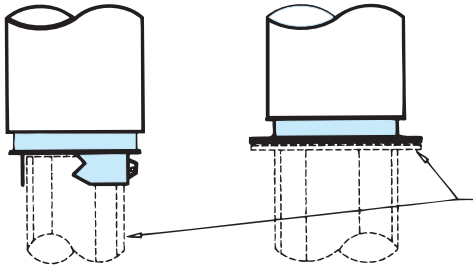
SPECIAL DIMENSIONS
ON ANY FITTING



RECTANGULAR/SQUARE TO
ROUND TRANSITIONS

SINGLE WALL PART CODE: ___x___SWA

DOUBLE WALL PART CODE: ___x___DWA



PROVIDE PRECISE DETAIL
OF EXISTING PIPE OR
FLANGE FOR ATTACHIMENT

SPECIAL DIAMETER
SEAL RING

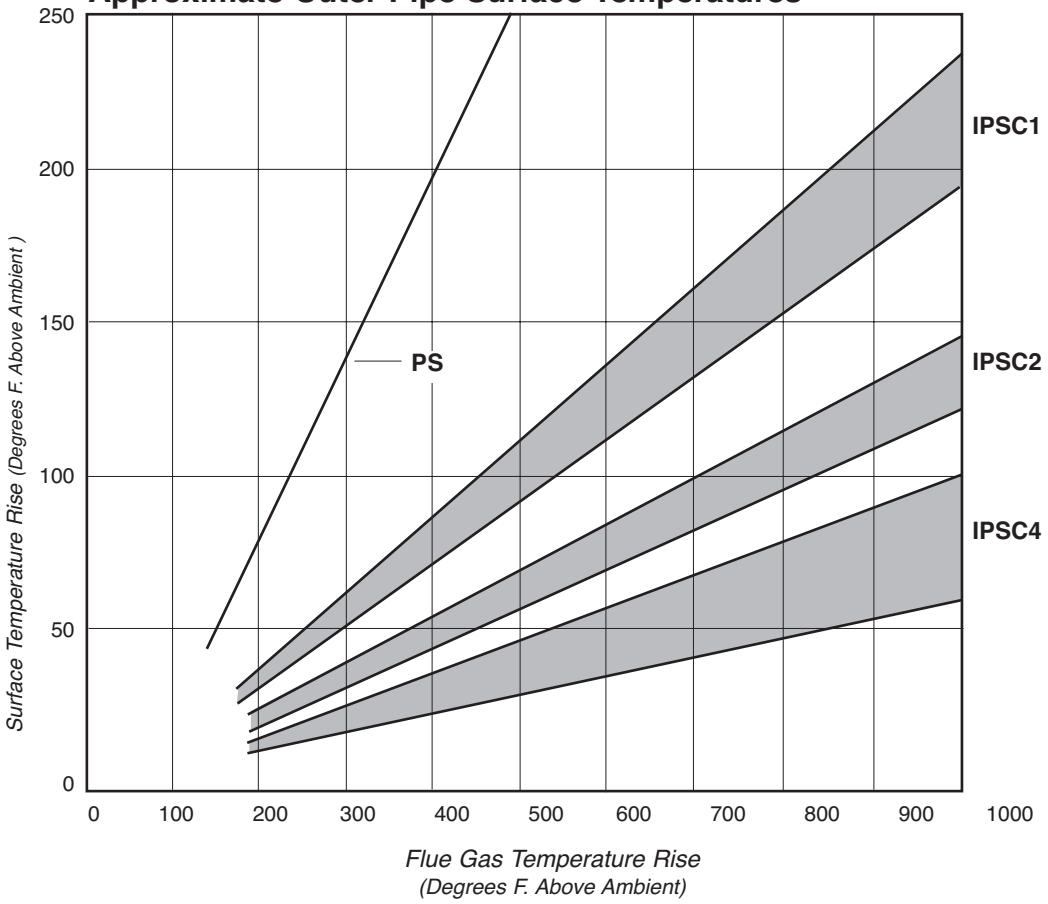
SPECIAL
FLANGE ADAPTER

Material Thickness - Model PS/IPS

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

Criteria	Type L Vent	Restaurant Grease Duct [1]	Building Heating Appliance Chimney [1], [2]	1400° F Factory-Built Chimney [1]
Application	Chimneys and stacks for appliances Listed suitable for venting with Type L or Type B venting systems.	Cooking Appliances Ventilation Hoods Restaurant Grease Ducts Pizza Oven Exhausts	Low and High Pressure Steam Boilers Diesel and Turbine Exhausts Building Heating Equipment	Industrial Furnaces Processing Equipment Kilns and Ovens Diesel and Turbine Exhausts
Maximum Operating Temperatures	550° F Continuous 1700° F Intermittent	500° F Continuous 2000° F Intermittent	1000° F Continuous 1400° F Intermittent	1400° F Continuous 1800° F Intermittent
Clearances To Combustibles: ***Model PS***	PS not listed as L-Vent. 5-24" I.D. - 3"	5”, 6”, 8”, 10” I.D. – 5” 12” I.D. – 6” 14” I.D. – 7” 16” I.D. – 8” 18” I.D. – 9” 20” I.D. – 10” 22” - 24” I.D. – 11” 26” - 28” I.D. – 12” 30” - 32” I.D. – 13” 36” I.D. – 14” 42” I.D. – 16” 48” I.D. – 17”	5 - 16” I.D. – 6” 18” - 20” I.D. – 7” 22” - 26” I.D. – 8” 28” - 30” I.D. – 9” 32” - 36” I.D. – 10” 42” I.D. – 11” 48” I.D. – 12”	5 - 16” I.D. – 6” 18” I.D. – 8” 20” I.D. – 9” 22” I.D. – 10” 24” I.D. – 12” 26” I.D. – 13” 28” I.D. – 14” 30” I.D. – 16” 32” I.D. – 17” 34” I.D. – 19” 36” - 48” I.D. – 20”
Model IPSC1	Not Listed	5" - 6” I.D. – 2” 8” - 16” I.D. – 3” 18” - 24” I.D. – 4” 26” - 32” I.D. – 5” 36” I.D. – 6” 42” - 48” I.D. – 7”	5" - 8” I.D. – 1” 10” - 16” I.D. – 2” 18” - 24” I.D. – 3” 26” - 32” I.D. – 4” 36” I.D. – 5” 42” - 48” I.D. – 6”	5" - 6” I.D. – 1” 8” - 16” I.D. – 2” 18” - 24” I.D. – 3” 26” - 32” I.D. – 4” 36” I.D. – 5” 42” - 48” I.D. – 6”
Models IPS Z3 & Z4		5" - 36” I.D. – 0”	Not Listed	Not Listed
Models IPS C2 & C4	5-24" I.D. - 2"	5” - 16” I.D. – 1” 18” - 20” I.D. – 2” 22” - 24” I.D. – 3” 26” - 32” I.D. – 4” 36” I.D. – 5” 42” ” - 48” I.D. – 6”	5” - 16” I.D. – .5” 18” I.D. – 1” 20” I.D. – 1.5” 22” - 24” I.D. – 2” 26” - 32” I.D. – 3” 36” I.D. – 4” 42” - 48” I.D. – 5”	5” - 16” I.D. – .5” 18” - 24” I.D. – 2” 26” - 32” I.D. – 3” 36” I.D. – 4” 42” - 48” I.D. – 5”
Clearance to non-combustibles - as required for installation, access for inspection or per local code.				

1. Enclosure - Grease Ducts, Building Heating Appliance Chimneys and 1400∞F Chimneys are intended for use unenclosed or enclosed in an appropriate non-combustible chase.
2. Under the "Building Heating Appliance Chimney" Listing, 5" through 24" Model IPS has qualified for UL's additional, optional "Type HT" rating for chimneys for certain appliance venting applications; especially solid fuel.

Models PS and IPS

Prefabricated Pressure Piping Systems

Standard 1-Year Warranty

Selkirk warrants the chimney, grease duct and engine exhaust system and components against functional failure due to defects in material and workmanship for a period of one year from date of delivery to the construction site. Functional failure is defined as any failure of the system or component to perform its intended function of exhausting, without adverse leakage, combustion byproducts from engine operation or heating equipment. During this period, any system or component supplied by Selkirk failing to perform its intended function will be repaired or replaced at the manufacturer's option, following determination by a factory authorized inspector that a functional failure has occurred. This warranty is limited to repair or replacement of the product plus shipping cost to the failure location. This warranty does not cover any labor costs for removal or replacement of the defective product, nor does this warranty cover any system components not furnished by Selkirk and installed as part of the system.

This limited warranty is extended to the purchaser subject to the satisfaction of the following conditions:

1.) Generally accepted engineering practices have been followed to determine that sizing and material specifications are suitable for the application and environment involved.

2.) The undamaged components have been correctly installed in accordance with the installation instructions published by Selkirk at the time of shipment.

Selkirk assumes no liability for incidental or consequential damages of any kind or for any damages resulting in whole or in part from misuse, improper installation, or inadequate maintenance of the system or any component part thereof. This warranty is in lieu of all other express warranties or guarantees of any kind. All implied warranties, including merchantability and fitness, are limited to the duration of the express warranty contained herein. Selkirk neither assumes nor does it authorize any other person to assume on its behalf any other liability in connection with the sale of its products.

For prompt warranty service, contact the nearest Selkirk Commercial/ Industrial Venting Products Agent, or Selkirk Customer Service Department, 815 Kimberly Drive, Carol Stream, Illinois 60188 Models G, PS and IPS Prefabricated Pressure Piping Systems

Models PS and IPS

Prefabricated Pressure Piping Systems

Extended 10-Year Warranty

Selkirk warrants the chimney, grease duct, engine exhaust system and components against functional failure due to defects in material and workmanship for a period of ten years from date of delivery to the construction site. Functional failure is defined as any failure of the system or a component to perform its intended function of exhausting, without adverse leakage, combustion byproducts from engine operation or boiler heating equipment. During this period, any system or component supplied by Selkirk failing to perform its intended function will be repaired or replaced at the manufacturer's option, following determination by a factory-authorized inspector that a functional failure has occurred. This warranty is limited to repair or replacement of the product plus shipping cost to the failure location. This warranty does not cover any labor costs for removal or replacement of the defective product, nor does this warranty cover any system components not furnished by Selkirk and installed as part of the system.

This limited warranty is extended to the purchaser subject to the satisfaction of the following conditions:

1.) System sizing and design has been performed by Selkirk personnel, and design parameters provided to Selkirk by the responsible engineer were and are accurately representative of the operating conditions.

2.) The undamaged components have been correctly installed in accordance with system design and sizing as performed by Selkirk and installation instructions published by Selkirk at the time of shipment.

3.) Proper precautions have been taken to ensure that boiler or engine combustion air is free of solvent or refrigerant vapors or any halogenated compound which may cause acid condensates to form within the chimney.

4.) Selkirk has supplied the entire chimney or exhaust system from boiler/engine outlet to the termination of the stack.

5.) Prior to start-up and thereafter, exposed aluminized steel surfaces are protected with a minimum of one base coat of primer and one finish coat of heat-resistant and corrosive-resistant paint at all times. Stainless steel surfaces need not be primed or painted.

Systems partially supplied by Selkirk may not qualify for the extended warranty.

Selkirk assumes no liability for incidental or consequential damages of any kind or for any damages resulting in whole or in part from misuse, improper installation, or inadequate maintenance of the system or any component part thereof. This warranty is in lieu of all other express warranties or guarantees of any kind. All implied warranties, including merchantability and fitness, are limited to the duration of the express warranty contained herein. Selkirk neither assumes nor does it authorize any other person to assume on its behalf any other liability in connection with the sale of its products.

For prompt warranty service, contact the nearest Selkirk Commercial/Industrial Venting Products Agent, or Selkirk Customer Service Department, 815 Kimberly Drive, Carol Stream, Illinois 60188 Models ZeroClear and ZCPlus Prefabricated Grease Duct Systems

Models Zero Clear & Zero Clear Plus

Prefabricated Grease Duct System

Extended 15-Year Warranty

Selkirk warrants the grease duct systems and components against functional failure due to defects in material and workmanship for a period of fifteen years from date of delivery to the construction site. Functional failure is defined as any failure of the system or component to perform, under normal operating conditions, its intended function as a grease duct system. During this period, any system or component supplied by Selkirk failing to perform its intended function will be repaired or replaced at the manufacturer's option, following determination by a factory-authorized inspector that a functional failure has occurred. This warranty is limited to repair or replacement of the product plus shipping cost to the failure location. This warranty does not cover replacement of any sealants in the event of a fire within the duct system, nor does it cover any labor costs for removal or replacement of the defective product. This warranty does not cover any system components not furnished by Selkirk (such as supplemental fire rated wrap systems, generic structural support structures, etc.) and installed as part of the system.

This limited warranty is extended to the purchaser subject to the satisfaction of the following conditions:

1.) Generally accepted engineering practices have been followed to determine that sizing and material specifications are suitable for the application and environment involved.

2.) The undamaged components have been correctly installed in accordance with the installation instructions published by Selkirk at the time of shipment.

Selkirk assumes no liability for incidental or consequential damages of any kind or for any damages resulting in whole or in part from misuse, improper installation, or inadequate maintenance of the system or any component part thereof. This warranty is in lieu of all other express warranties or guarantees of any kind. All implied warranties, including merchantability and fitness, are limited to the duration of the express warranty contained herein. Selkirk neither assumes nor does it authorize any other person to assume on its behalf any other liability in connection with the sale of its products.

For prompt warranty service, contact the nearest Selkirk Commercial/ Industrial Venting Products Agent, or Selkirk Customer Service Department, 815 Kimberly Drive, Carol Stream, Illinois 60188

c UL us
LISTED

Model PS/IPS have been approved by the City of New York Department of Buildings, Materials and Equipment Acceptance Division under the following MEA file numbers:

	Model PS	Model IPS
Building Heating Appliance Chimney	MEA 132-90M	MEA 135-90M
1400° F Chimney	MEA 133-90M	MEA 181-90M
Grease Duct	MEA 134-90M	MEA 134-90M

UNDERWRITERS LABORATORIES LISTING

Model PS has been tested and listed by Underwriters' Laboratories, Inc. (ULI) and/or Underwriters' Laboratories of Canada (ULC) for a variety of applications in Pipe I.D. sizes 5" through 36" Model PS is ULI listed for 42" and 48" for Building Heating Appliances Chimneys.

	ULI
Grease Duct	MH6673
Building Heating Appliance Chimney	MH6673
Industrial 1400° F Chimney	MH6673

APPLICABLE MODEL PS/IPS REFERENCES

Building Heating Appliance Chimney
UL103 NFPA211 NFPA31 NFPA37 ULC-S604
1400°Chimney
UL103 NFPA211 NFPA37
Grease Duct
UL103 NFPA96
Type L Vent
UL641

MODEL PS OPERATING TEMPERATURES AND CLEARANCES

Model PS has been tested and listed by ULI and/or ULC for the applications shown here. Any Application of Model PS should consider operating temperatures, pressures, fuels to be burned or vapors or gases conveyed, the type of heating appliance utilized, building use and purpose and materials of construction.

Operating Temperatures and Clearances

Criteria	Type L Vent	Restaurant Grease Duct [1]	Building Heating Appliance Chimney [1], [2]	1400° F. Factory-Built Chimney [1]
Application	Chimneys and stacks for appliances Listed suitable for venting with Type L or Type B venting systems.	Cooking Appliances Ventilation Hoods Restaurant Grease Ducts Pizza Oven Exhausts	Low and High Pressure Steam Boilers Diesel and Turbine Exhausts Building Heating Equipment	Industrial Furnaces Processing Equipment Kilns and Ovens Diesel and Turbine Exhausts
Maximum Operating Temperatures	550° F Continuous 1700° F Intermittent	500° F Continuous 2000° F Intermittent	1000° F Continuous 1400° F Intermittent	1400° F Continuous 1800° F Intermittent
Clearances To Combustibles: ***Model PS***	PS not listed as L-Vent.	6, 8 & 10" I.D. - 5" 12" I.D. - 6" 14" I.D. - 7" 16" I.D. - 8" 18" I.D. - 9" 20" I.D. - 10" Over 20" I.D. - 18"	6"-36" I.D. - 6" Exterior - 10" Interior 42"-48" I.D. - 6" Exterior - 18" Interior	Exterior and Interior 6"-24" I.D. - 15" Over 24" I.D. - 24"
Model IPSC1	5-24" I.D. - 3"	5-6" I.D. - 2" 8-16" I.D. - 3" 18-24" I.D. - 4" 26-32" I.D. - 5" 36" I.D. - 6" 42-48" I.D. - 7"	5-8" I.D. - 1" 10-16" I.D. - 2" 18-24" I.D. - 3" 26-32" I.D. - 4" 36" I.D. - 5" 42-48" I.D. - 6"	5-6" I.D. - 1" 8-16" I.D. - 2" 18-24" I.D. - 3" 26-32" I.D. - 4" 36" I.D. - 5" 42-48" I.D. - 6"
Models IPS Z3 & Z4	Not Listed	5"-36" I.D. - 0"	Not Listed	Not Listed
Models IPS C2 &C4	5-24" I.D. - 2"	5-6" I.D. - 1" 8-16" I.D. - 2" 18-24" I.D. - 3" 26-32" I.D. - 4" 36" I.D. - 5" 42-48" I.D. - 6"	5-16" I.D. - 1" 18-24" I.D. - 2" 26-32" I.D. - 3" 36" I.D. - 4" 42-48" I.D. - 5"	5-16" I.D. - 1" 18-24" I.D. - 2" 26-32" I.D. - 3" 36" I.D. - 4" 42-48" I.D. - 5"
Clearance to non-combustibles - as required for installation, access for inspection or per local code.				

1. Enclosure - Grease Ducts, Building Heating Appliance Chimneys and 1400° F Chimneys are intended for use unenclosed or enclosed in an appropriate non-combustible chase.
2. Under the "Building Heating Appliance Chimney" Listing, 5" through 24" Model IPS has qualified for UL's additional, optional "Type HT" rating for chimneys for certain appliance venting applications; especially solid fuel.

Selkirk representatives throughout North America are qualified to provide complimentary field service to assist contractors, builders, engineers and architects in designing Boiler Stacks and Breeching, Grease Ducts, Diesel and Turbine Exhausts, Marine Exhausts, and Ducts, Freestanding Stack Systems, and Residential Chimney and gas Vent Systems. Contact the Selkirk Regional Office nearest you for assistance.

Commercial Products Group
815 Kimberly Drive
Carol Stream, IL 60188
Toll Free: 1.800.624.8642

SELKIRK®
COMMERCIAL & INDUSTRIAL

rwww.selkirkcommercial.com

Selkirk Canada Corporation
375 Green Road
Stoney Cree, ON L8E4A5
Toll Free: 1.888.SELKIRK (735.5475)

SCISBPPS - August 2009