AMPCO
BY duravent

Z-CLEAR™

Zero Clearance Grease Duct & Integral Fire Rated Chase

AMPCO Z-Clear™ is the most innovative factory-built kitchen grease duct in the industry. With a zero clearance rating, our integrated chase construction sets the standard for design.

c UL us LISTED

FEATURES

- *3" or 4" Wall Thickness*
- *High Temperature Blanket Insulation*
- *5" to 36" I.D. Diameters*
- *Smaller Footprint with 3" Wall*
- *Lighter Weight*
- *2-Hour Fire Rating*
- *Limited Lifetime Warranty*

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UNDERWRITERS LABORATORIES LISTINGS

Models IVSI-Z3 & Z4 available in sizes 5" through 36" diameters have been tested and Listed (Safety Certified) by Underwriters Laboratories, Inc. (UL) and/or Underwriters Laboratories of Canada (ULC) under a variety of categories including:

Grease Duct: UL1978, 2221, & ASTM E-2336

CERTIFICATIONS			
Model	**UL1978**	**UL2221**	**ASTM-E2336***
Z3/ZC	Yes	Yes: 2 Hr	Yes: 1 Hr
Z4/ZC+	Yes	Yes: 2 Hr	Yes: 2 Hr

*ASTM E2336 is only code required for field applied grease duct enclosures (i.e. grease duct insulation wraps applied to field fabricated grease duct)

CODE COMPLIANCE

When installed in accordance with its installation instructions, Models IVSI-Z3 & Z4 comply with the following codes:

NFPA (National Fire Protection Association)
ICC (International Code Council)
UMC (Uniform Mechanical Code
NYC Fire Dept Approved

ASSOCIATION/COMMITTEE PARTICIPATION

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ZERO CLEARANCE GREASE DUCT AND INTEGRAL FIRE-RATED CHASE

ZClear™ is the most innovative factory-built kitchen grease duct in the industry. With a zero clearance rating, our integrated chase construction sets the standard for design.

Available in both stainless and aluminized steel exteriors, ZClear™ can be customized to your unique application requirements. ZClear™ is the clear choice for new restaurant construction or retrofitting future expansions or modifications.

INTEGRAL CHASE

No longer will architects or contractors need to design and install a fire-rated chase to provide protection as required for welded steel or other grease duct designs. The ZClear system helps reduce floor space requirements (fig.1) and additional time and costs associated with constructing an on-site fire chase (fig.2).

SETTING THE STANDARD

ZClear meets the following stringent codes and standards:

- UL1978 – Standard for Grease Ducts - including 30 minute, 2000°F test
- UL2221 – Fire Rating referenced in NFPA96, IMC and UMC
- NFPA96 – Installation standard

PERFORMANCE

Energy efficiency and overall performance are greatly improved with round grease duct designs due to less flow resistance. In addition, round systems have no corners where grease can build up, so they are easier to clean and less susceptible to fire than rectangular systems.

SIMPLICITY

Almost no slope is required on horizontal runs of ZClear. Carbon steel duct systems require a 1/4" drop per 1' of ducting for proper contaminant drainage. Example: A 40' horizontal run of AMPCO's Grease Duct would require 10" less headroom than a typical field fabricated system.

DESIGN SERVICES

The modular concept of factory-built grease duct provides for maximum design flexibility and ease of installation. Just ask for ZClear when utilizing your design services engineer for a complete system layout. The AMPCO engineering staff provides design services for special product applications and for installations requiring complex routing or unusual manifold systems.

Grease Duct "Footprint" – 24" I.D. ZClear™ vs. 12" x 36" Fabricated Welded Steel

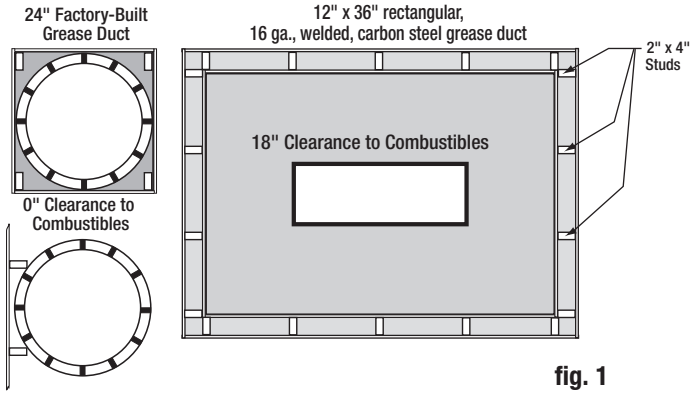


fig. 1

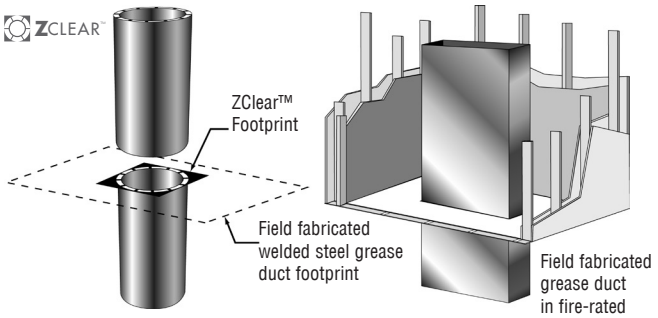


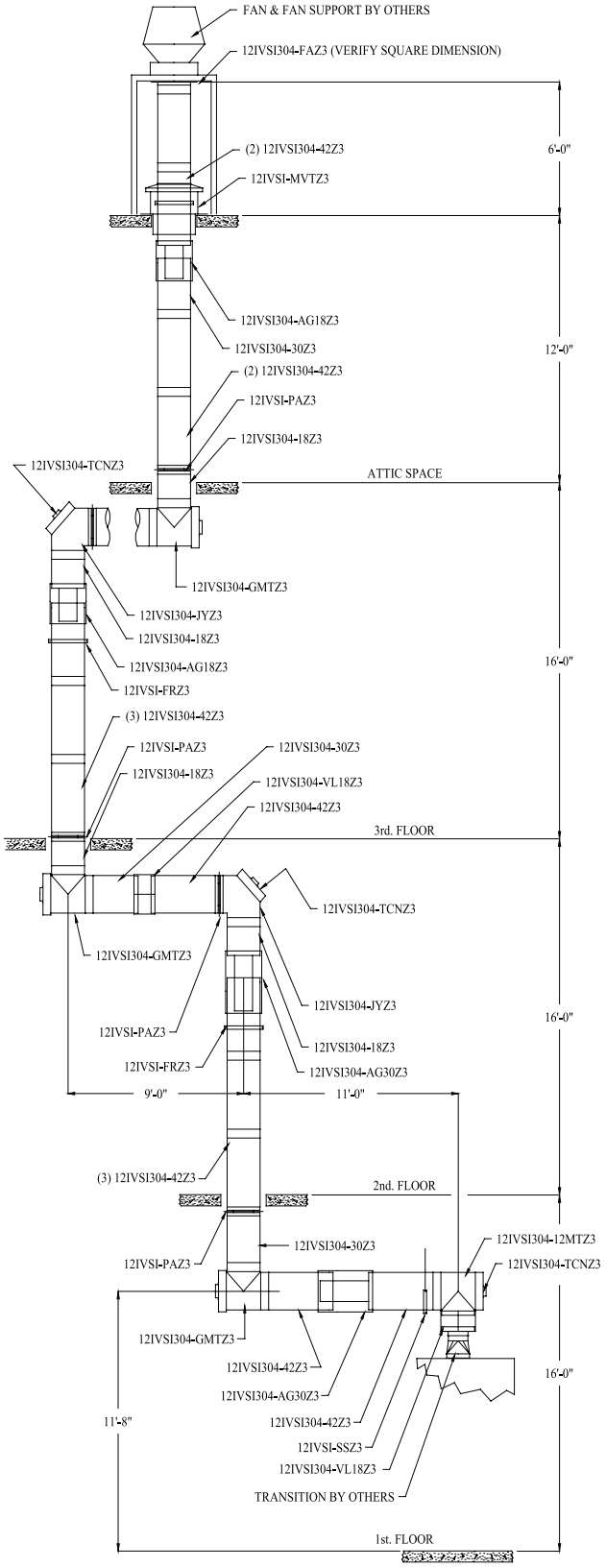
fig. 2

Comparison of wrapped, welded steel and ZClear™ after 2000ºF (simulated grease fire) for 30 minutes.

***ZClear™** after 2000ºF (simulated grease fire) for 30 minutes.*

12"x 36" rectangular, 16 Ga., welded, carbon steel duct with generic "wrap" insulation – after 2000ºF (simulated grease fire) for 30 minutes.

GUIDE TO COMPONENT PARTS



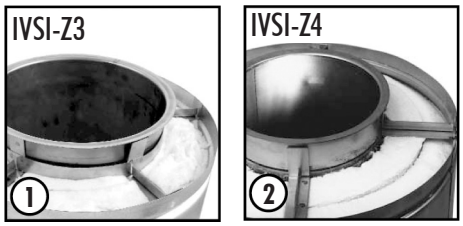
GUIDE TO COMPONENT PARTS

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

Copies are available from field service representatives and regional offices.
(Available for download on ampcostacks.com)

PRODUCT IDENTIFICATION

Models IVSI-Z3 (ZC) and IVSI-Z4 (ZC+)



(Photo 1) Adding 3" of ceramic fiber insulation to 8" pipe makes the diameter of the outer wall 14". (Photo 2) Adding 4" of ceramic fiber insulation to the same 8" pipe makes the diameter of the outer wall 16".

Understanding Product Codes and Part Numbers

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's or fitting's Internal Diameter (in inches) such as **8**, **22**, **36**, etc.
2. This is followed by the *Model* designation or **IVSI** for parts that are fiber insulated (Model Z3 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 ceramic fiber insulated, a designation is added at the end to indicate *Insulation Thickness*. **Z3**, 3"; and **Z4**, 4".

(For comparison, see photos above.)

Thus, the Ordered Part Number for a 30" Adjustable Pipe, with a 6" I.D., made of 304 Stainless Steel inner and Aluminized Steel outer, packed with 3" ceramic fiber insulation, is listed:

6IVSI304- AG30Z3*

*** 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 36" dia. Body and 30" dia. Snout:

36IVSI304-30MTZ3

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:

8IVSI304-160TZ3

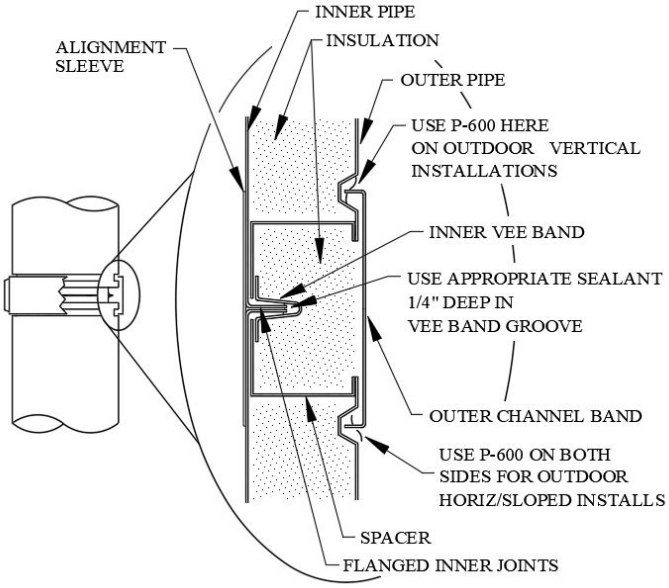
JOINT ASSEMBLY

Quick and Easy Component Assemblyy

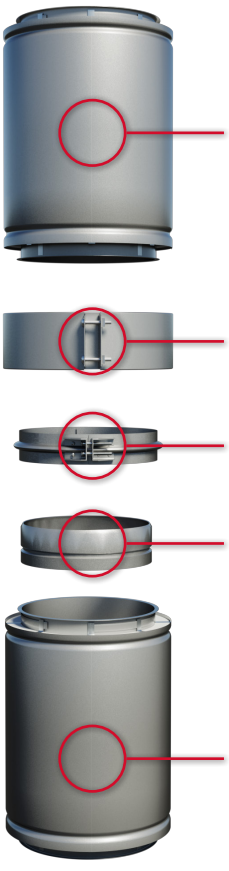
For all AMPCO pipe and fittings, the flange-to-flange inner pipe joints are identical for each pipe inside diameter.

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

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.

JOINT ASSEMBLY PARTS

Overlapping Vee Band
Code: VB

Vee Band for connecting the inner 1/2" rolled flanges. Capable of holding 60" 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 PS part used for all IPS 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 3/4")

Materials Available:

Aluminized Steel/316

Notes:
1. Ceramic 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 PAs).

Materials Available:

Aluminized Steel/316

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

Sealant
Code: P600

P600 Sealant is for 600 F maximum flue gas temperatures, and also for exterior weathering.

Sealant Coverage
Expected Number of Joints Sealed Per Tube

Inner Dia. (inches)	P600
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

Straight Pipe Lengths

Codes: 59, 42, 30, 18

Standard pipe lengths for all AMPCO exhaust systems.

*Materials Available (shaded areas):

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

- 59.13" lengths available in:
  - 6"-20" inner diameter for Z3
  - 6"-18" inner diameter for Z4
- 42" lengths available in:
  - 5"-36" inner diameter for Z3 and Z4
- 18" and 30" lengths available in:
  - 5"-36" inner diameter for Z3 and Z4

Ordered Part Includes:

Pipe, plus one VB 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:

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

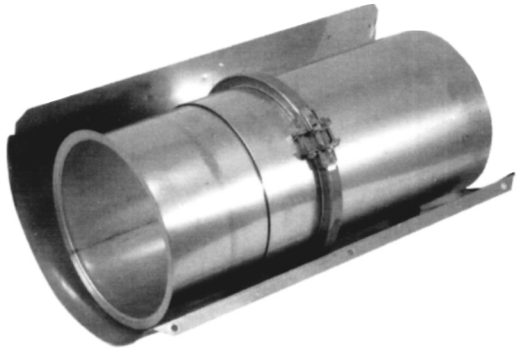
   e.g. for 50′ of 10″ diameter pipe

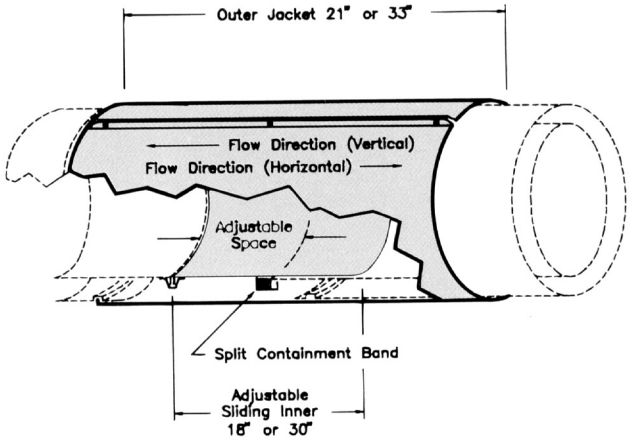
$$K = 0.25 \frac{50}{10} = 1.25$$

Adjustable Pipe Lengths

Codes: AG30, AG18

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





*Materials Available (shaded areas):

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 VB.
Field applied ceramic insulation provided.

Notes:

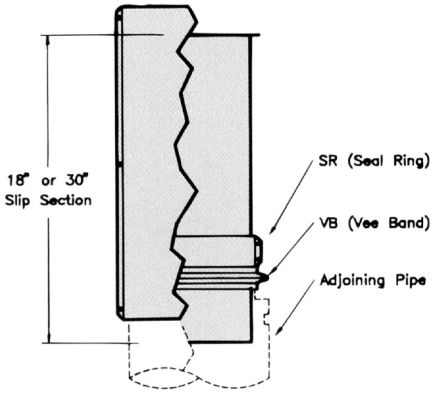
1. Minimum installed length is 4″.
2. AG18 not available for 28″ diameter and above.
3. Maximum installed space is when the inner slip section protrudes at least 1/2 pipe diameter into the adjacent pipe.
4. Flow Resistance Factor (K) is the same as insulated pipe lengths.

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 (shaded areas):

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 VB.

Field applied ceramic insulation provided.

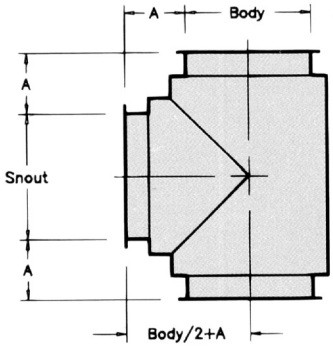
Notes:

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.



Dimension A	
IVSI-Z3	IVSI-Z4
6"	7"

Materials Available (shaded areas):

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

Ordered Part Includes:

GMT, plus one TCN, two VB's, and one CB.

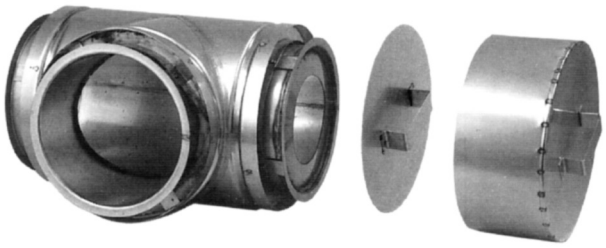
Notes:

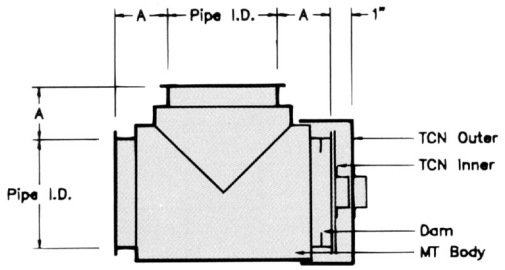
1. Use TCN or NTAC for clean out or inspection, or TC for drain at base of vertical stack.
2. Snout available in any standard diameter equal to or smaller than the body diameter.
3. K = 1.25 Flow Resistance Factor

90° Grease Duct Tee

Code: GMT

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





Dimension A	
IVSI-Z3	IVSI-Z4
6"	7"

Materials Available (shaded areas):

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

Ordered Part Includes:

GMT, plus one TCN, two VB's, and one CB.

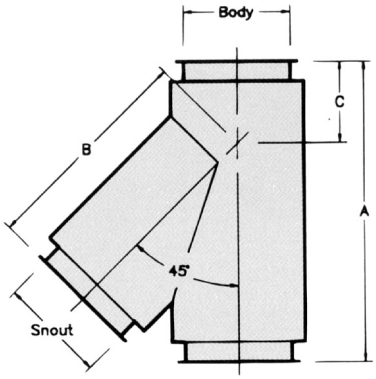
Notes:

1. K = 1.25 Flow Resistance Factor

45° Lateral Tee

Code:

Provides a low resistance entry into Combine with EL45 for low resistance change.



Materials Available (shaded areas):

304/Alum	316/Alum	304/304	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:

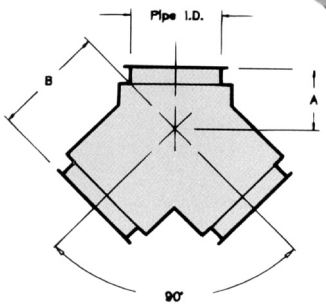
1. Snout available in any standard diameter equal to or smaller than the body diameter.
2. K = 0.4 Flow Resistance Factor

Product (pipe I. D.)			Dimensions (inches)		
IVSI-Z3	IVSI-Z4	(O. D.)	A	B	C
5	–	11	23½	17¾	5¾
6	–	12	24 1/16	19	5 1/16
–	5	13	26 15/16	21 7/16	5½
8	6	14	26 15/16	21 7/16	5½
10	8	16	29¾	23⅜	5⅞
12	10	18	32 1/16	26¼	6 5/16
14	12	20	35⅜	28¾	6¾
16	14	22	38 3/16	31 1/16	7⅛
18	16	24	43⅞	35⅞	8
20	18	26	43⅞	35⅞	8
22	20	28	49 9/16	40¾	8 13/16
24	22	30	49 9/16	40¾	8 13/16
26	24	32	55 3/16	45 5/16	9⅝
28	26	34	55 3/16	45 5/16	9⅝
30	28	36	60 13/16	50⅜	10 7/16
32	30	38	60 13/16	50⅜	10 7/16
–	32	40	69 15/16	58¼	11¾
36	–	42	69 15/16	58¼	11¾
–	36	44	69 15/16	58¼	11¾
–	–	46	79 3/16	66⅛	13
–	42	50	79 3/16	66⅛	13
–	–	52	88⅝	74¼	14 7/16
–	48	56	88⅝	74¼	14 7/16

90° WYE

Code: JY

Provides low pressure drop appliances in the position.



Materials Available (shaded areas):

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

Ordered Part Includes:

JY, plus two VB's, one AS, and one CB.

Notes:

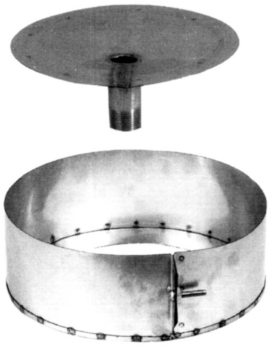
1. All openings are the same diameter.
2. Can be used with TCN to provide a single clean out toward each 90° direction change.
3. Use OT or OS as needed for smaller branch connections.
4. K = 0.6 Flow Resistance Factor

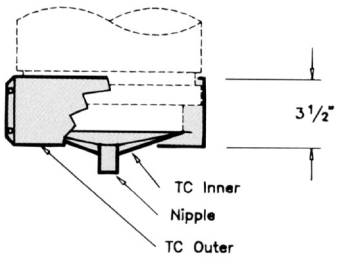
Product (pipe I. D.)			Dimensions (inches)	
IVSI-Z3	IVSI-Z4	(O. D.)	A	B
5	–	11	5	11
6	–	12	5	11
–	5	13	5½	12
8	6	14	5½	12
10	8	16	5⅞	13
12	10	18	6⅜	14
14	12	20	6⅝	15
16	14	22	7⅛	17
18	16	24	8	19
20	18	26	8	19
22	20	28	8¾	22
24	22	30	8¾	22
26	24	32	9⅝	24
28	26	34	9⅝	24
30	28	36	10½	27
32	30	38	10½	27
–	32	40	11¾	31
36	–	42	11¾	31
–	36	44	11¾	31
–	–	46	13	34
–	42	50	13	34
–	–	52	14¼	38
–	48	56	14¼	38

Drain Tee Cap

Code: TC

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





Materials Available (shaded areas):

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

Ordered Part Includes:

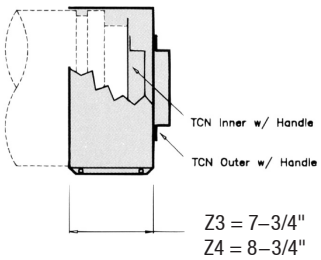
TC, plus one 1" N.P.T. Nipple (5" – 20" sizes), or 2" N.P.T. Nipple (22" – 48" sizes), one Inner Section, one Outer Jacket, and one VB.

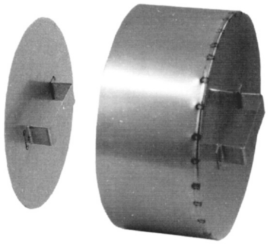
Fiber insulation provided for IVSI-Z3/IVSI-Z4 models

Cleanout Tee Cap

Code: TCN

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





Materials Available (shaded areas):

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

Ordered Part Includes:

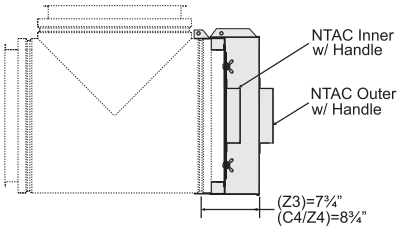
TCN, plus one Inner Section (with handle), one Outer Jacket (with handle), and one VB.

Fiber insulation provided for IVSI-Z3/IVSI-Z4 models.

No Tool Access Cap

Code: NTAC

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



Materials Available (shaded areas):

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

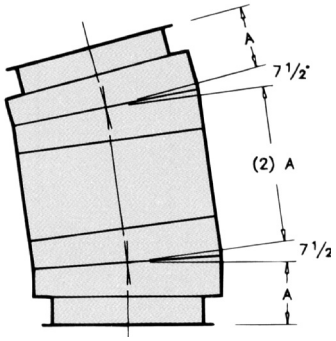
Ordered Part Includes:

NTAC, plus one dam, insulation shield, outer cover, and one VB. Field applied ceramic insulation provided.

15° Elbow

Code: EL 15

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



Materials Available (shaded areas):

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

Ordered Part Includes:

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

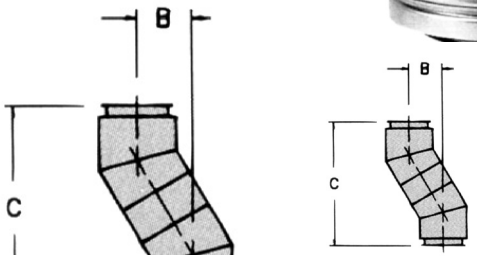
Notes:
1. K = 0.06 Flow Resistance Factor

Product (pipe I. D.)			Dimensions (inches)
IVSI-Z3	IVSI-Z4	(O. D.)	A
5	–	11	4 5/16
6	–	12	4 5/16
–	5	13	4 7/16
8	6	14	4 7/16
10	8	16	4 1/2
12	10	18	4 9/16
14	12	20	4 5/8
16	14	22	4 11/16
18	16	24	4 3/4
20	18	26	4 13/16
22	20	28	4 7/8
24	22	30	4 15/16
26	24	32	5
28	26	34	5 1/16
30	28	36	5 1/8
32	30	38	5 3/16
–	32	40	5 5/16
36	–	42	5 3/8
–	36	44	5 3/8
–	–	46	5 1/24
–	42	50	5 9/16
–	–	52	5 9/16
–	48	56	5 9/16

30° Elbow

Code: EL30

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



Materials Available (shaded areas):

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

Ordered Part Includes:

EL30, plus one VB, one AS, and one CB.

Notes:

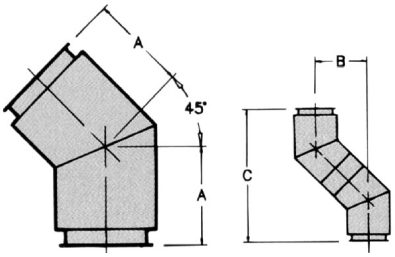
1. K = 0.12 Flow Resistance Factor

Product (pipe I. D.)			Dimensions (inches)		
IVSI-Z3	IVSI-Z4	(O. D.)	A	B	C
5	–	11	6 9/16	6 9/16	24 3/8
6	–	12	6 11/16	6 11/16	24 7/8
–	5	13	7 5/16	7 5/16	27 1/4
8	6	14	7 5/16	7 5/16	27 1/4
10	8	16	7 7/8	7 7/8	29 3/8
12	10	18	8 1/4	8 1/4	30 3/8
14	12	20	8 5/8	8 5/8	31 5/8
16	14	22	9 1/8	9 1/8	34 1/8
18	16	24	9 3/8	9 3/8	35
20	18	26	10 1/16	10 1/16	37 1/22
22	20	28	10 5/16	10 5/16	38 1/22
24	22	30	11	11	40 7/8
26	24	32	11 1/4	11 1/4	41 7/8
28	26	34	11 7/8	11 7/8	44 3/8
30	28	36	12 3/16	12 3/16	45 3/8
32	30	38	12 7/8	12 7/8	47 3/4
–	32	40	13 1/8	13 1/8	48 7/8
36	–	42	13 9/16	13 9/16	50 5/8
–	36	44	14	14	52 1/2

45° Elbow

Code: EL45

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



Materials Available (shaded areas):

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

Ordered Part Includes:

EL45, plus one VB, one AS, and one CB.

Notes:

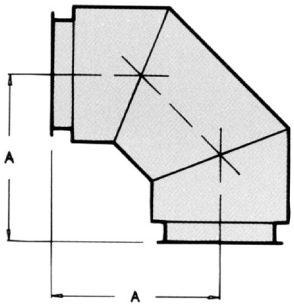
1. K = 0.15 Flow Resistance Factor

Product (pipe I. D.)			Dimensions (inches)		
IVSI-Z3	IVSI-Z4	(O. D.)	A	B	C
5	–	11	9 1/8	12 7/8	31 1/8
6	–	12	9 5/16	13 3/16	31 7/8
–	5	13	10 1/4	14 1/2	35
8	6	14	10 1/4	14 1/2	35
10	8	16	10 11/16	15 1/8	36 1/2
12	10	18	11 5/8	16 7/16	39 5/8
14	12	20	12 1/16	17 1/16	41 1/8
16	14	22	13	18 3/8	44 1/4
18	16	24	13 5/16	18 13/16	45 1/2
20	18	26	14 5/16	20 1/4	48 1/8
22	20	28	14 7/8	21 1/16	50 7/8
24	22	30	15 11/16	22 3/16	53 1/2
26	24	32	16 1/4	22 15/16	53 3/8
28	26	34	17	24	58
30	28	36	17 9/16	24 3/4	59 7/8
32	30	38	18 3/8	25 15/16	62 3/8
–	32	40	18 7/8	26 11/16	64 1/2
36	–	42	19 5/16	27 5/16	65 15/16
–	36	44	19 11/16	27 7/8	67

90° Elbow

Code: EL90

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



Materials Available (shaded areas):

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

Ordered Part Includes:

EL90, plus one VB, one AS, and one CB

Notes:

1. K = 0.30 Flow Resistance Factor

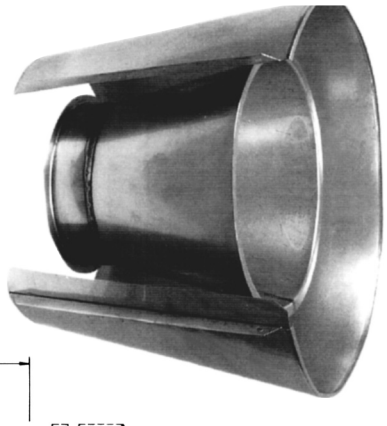
Small access door on middle gore available as special order

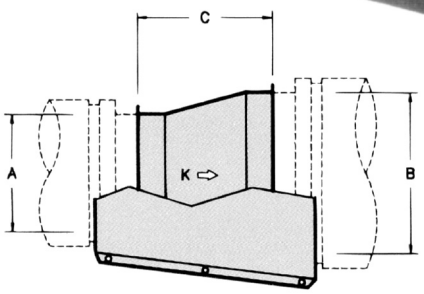
Product (pipe I. D.)			Dimensions (inches)
IVSI-Z3	IVSI-Z4	(O. D.)	A
5	–	11	13½
6	–	12	13½
–	5	13	14½
8	6	14	14½
10	8	16	15½
12	10	18	16½
14	12	20	17½
16	14	22	18½
18	16	24	19½
20	18	26	20½
22	20	28	21½
24	22	30	22½
26	24	32	23½
28	26	34	24½
30	28	36	25½
32	30	38	26½
–	32	40	27½
36	–	42	28½
–	36	44	29½

Tapered Increaser/Reducer

Code: OT

Used when a pipe diameter change is required.





Materials Available (shaded areas):

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 12IVSI304-180T equals [(18-12)2] + 2 = 14".

Ordered Part Includes:

OT, plus one two-piece Outer Jacket, and one VB for smaller diameter.

Field applied ceramic insulation provided.

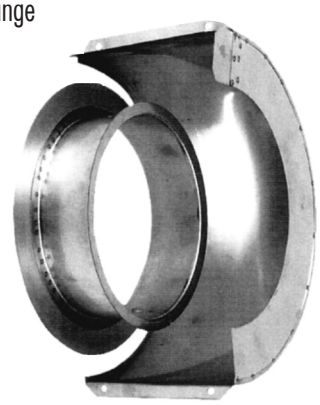
Notes:

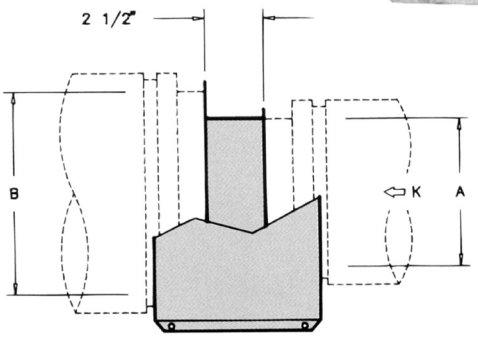
1. Installed length shall not be greater than longest available straight pipe length (see page 6) for each diameter.
2. $K = N\,[1 - (A/B)^2]^2$ where N = 0.47 for one step OT; N = 0.53 for two step OT
3. Special Eccentric Increaser (flat bottom) available w/ same length rules. Part code is EOT

Step Increaser/Reducer

Code: OS

Used when pipe diameter change is required in a small space.





Materials Available:

316/Alum	316/316

Ordered Part Includes:

OS (Inner Stepped Pipe), plus one two-piece Outer Jacket, and one VB for the smaller diameter.

Field applied ceramic insulation provided.

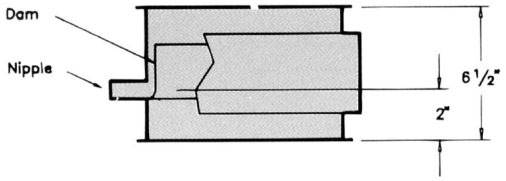
Notes:

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 (shaded areas):

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 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 (FR)

Materials Available:

Painted Steel

Product		Dimensions (inches) - HR				
(pipe I. D.)		Bolt Hole Circle	I.D. of Ring	No of Holes (HR)	Size of Angles	Angle of Holes
IVSI-Z3	IVSI-Z4					
5	–	13	11⅛	6	(1)	45
6	–	14	12⅛	6	(1)	45
–	5	15	13⅛	6	(1)	45
8	6	16	14⅛	6	(1)	45
10	8	18	16⅛	6	(1)	45
12	10	20	18⅛	6	(1)	45
14	12	22	20⅛	6	(1)	45
16	14	24	22⅛	6	(1)	45
18	16	26	24⅛	10	(2)	22.5
20	18	28	26⅛	10	(2)	22.5
22	20	30	28⅛	10	(2)	22.5
24	22	32	30⅛	10	(2)	22.5
26	24	34	32⅛	10	(2)	22.5
28	26	36	34⅛	10	(2)	22.5
30	28	38	36⅛	10	(2)	22.5
32	30	40	38⅛	10	(2)	22.5
–	32	42	40⅛	10	(2)	22.5
36	–	44	42⅛	10	(2)	22.5
–	36	46	44⅛	10	(2)	22.5

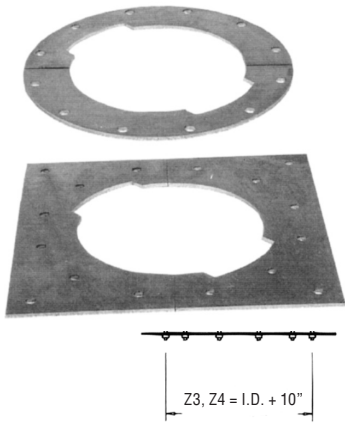
(1) Size of Angles = 1½ x 1½ x 3/16

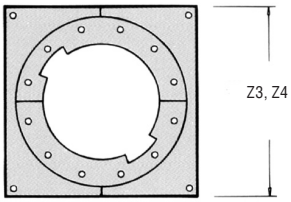
(2) Size of Angles = 2 x 2 x 3/16

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 HCBs and hardware.

Plate Thickness:

0.188" for sizes 6" through 20" diameters
0.250" for sizes 22" through 36" diameters

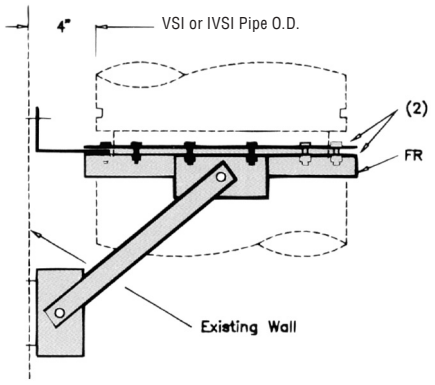
Notes:

1. Two 316 Stainless Steel HCBs 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:

Painted Steel

Ordered Part Includes:

One FR, two CFs, two HCBs, five brackets, two struts, and all hardware except connection at wall.

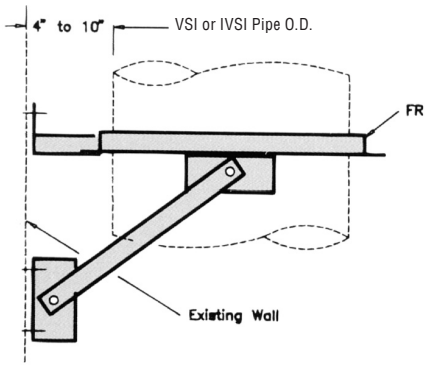
Notes:

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.

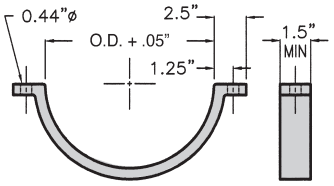
Notes:

1. Assembly will maintain a 4" to 10" clearance between pipe O.D. and supporting structure.

Support Strap

Code: SS

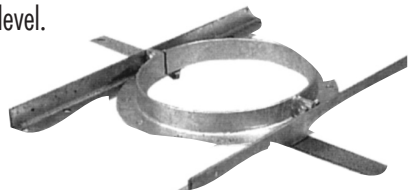
Available up to 28" OD pipe only. 0.188" thick painted steel.

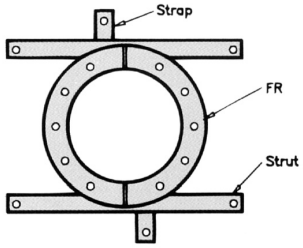


Floor Guide Assembly

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".

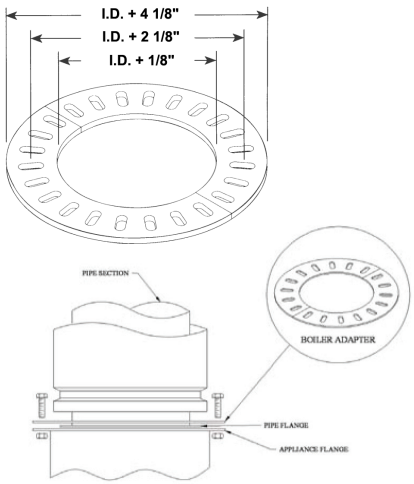
Pipe I.D. (inches)		Material (inches)	
IVSI-Z3	IVSI-Z4	Strut Length	Strut Size
–	–	21	(1)
5	–	21½	(1)
–	5	22½	(1)
6	–	24	(1)
8	6	27	(1)
10	8	29	(2)
12	10	30	(2)
14	12	32	(2)
16	14	33	(2)
18	16	34½	(3)
20	18	36	(3)
22	20	37	(3)
24	22	38	(3)
26	24	39½	(3)
28	26	41	(3)
30	28	42½	(3)
32	30	44	(3)
–	32	46	(3)
36	–	47	(3)
–	–	48	(3)
–	36	50	(3)

(1) Steel Angle, 1½" x 1½" x 3/16"
(2) Steel Angle, 1¾" x 1¾" 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"

Materials Available:

Painted Steel

Ordered Part Includes:

Two Half Boiler Adapter Flange Plates

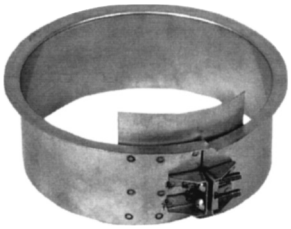
Notes:

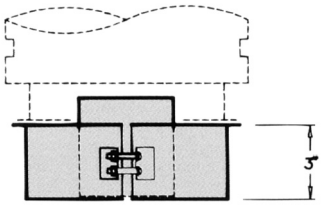
1. Order HCB's separately if needed

Seal Ring

Code: SR

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





Materials Available (shaded areas):

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

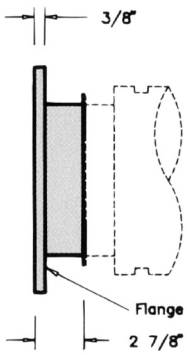
Ordered Part Includes:

SR, plus one VB and hardware.

Flange Adapter

Code: FD

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



Materials Available (shaded areas):

316/Alum	316/316

Ordered Part Includes:

Flange welded to TS, one CB, and one VB.

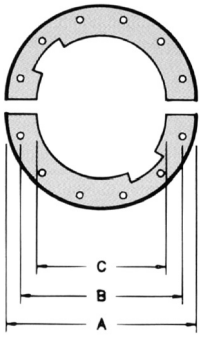
Field applied ceramic insulation provided.

Product	Dimensions (inches)			
Pipe I.D.	No. of Bolts	Bolt Hole Dia.	Flange O.D.	Bolt Circle
5	8	⅞	10	8½
6	8	⅞	11	9½
8	8	⅞	13½	11¾
10	12	1	16	14¼
12	12	1	19	17
14	12	1⅛	21	18¾
16	16	1⅛	23½	21¼
18	16	1¼	25	22¾
20	20	1¼	27½	25
22	20	1⅜	29½	27¼
24	20	1⅜	32	29½
28	28	1⅜	36½	34
30	28	1⅜	38½	36
32	28	1⅝	41¾	38½
36	32	1⅝	46	42¾

Clamp Flange

Code: CF

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



A = Flange O.D.
Z3 = I.D. + 11"
Z4 = I.D. + 11"
B = Bolt Hole Circle
Z3 = I.D. + 10"
Z4 = I.D. + 10"
C = Flange I.D.
Z3, Z4 = I.D. + 1/2"

Materials Available:

Painted Steel

Ordered Part Includes:

Two half clamp flange plates.

Notes:

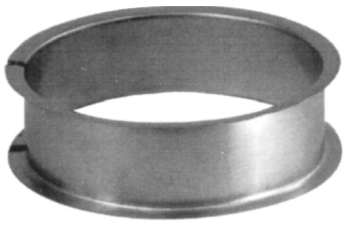
1. 0. 129" minimum thickness for sizes 5" to 8" diameters.
2. 0.188" minimum thickness for sizes 10" through 36" diameters.
3. Order HCB's separately, if needed.

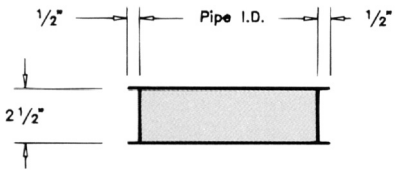
CONNECTION ACCESSORIES

Flanged Hood Transition

Code: TS

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





Materials Available (shaded areas):

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

Ordered Part Includes:

TS, plus one CB and one VB.

Field applied ceramic insulation provided.

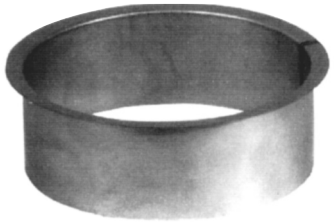
Notes:

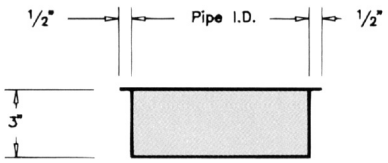
1. Can be used for welding to equipment or transitions fabricated in the field.

Unflanged Hood Transition

Code: TSU

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





Materials Available (shaded areas):

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

Ordered Part Includes:

TSU, plus one CB and one VB.

Field applied ceramic insulation provided.

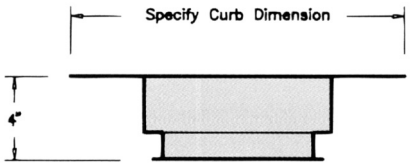
Notes:

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 (shaded areas):

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

Ordered Part Includes:

FA, plus one VB and one CB.

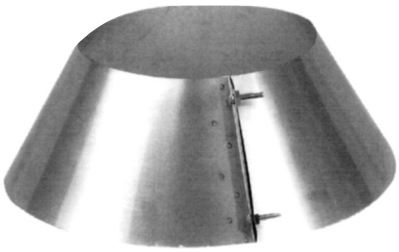
Notes:

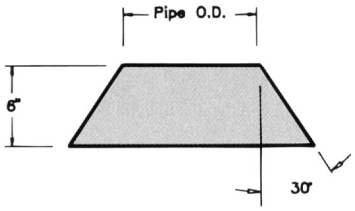
1. Dimension of square plate (which is sandwiched between curb and fan housing) must be specified when ordering.

ROOF PENETRATIONS

Storm Collar
Code: SC

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





Materials Available (shaded areas):

Aluminized or Galvanized Steel	304	316

Ordered Part Includes:

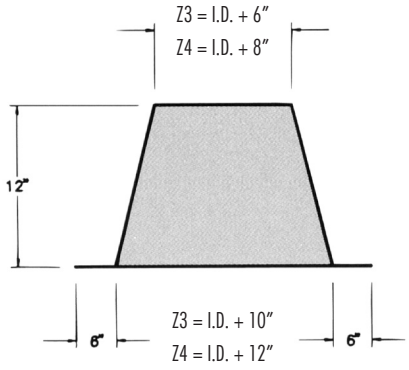
SC, plus hardware.

Notes:

1. Requires P600 sealant when installing.

Tall Flashing
Code: TF

Used in conjunction with SC for weatherization at the roof.



Materials Available (shaded areas):

Aluminized or Galvanized Steel	304	316

Ordered Part Includes:

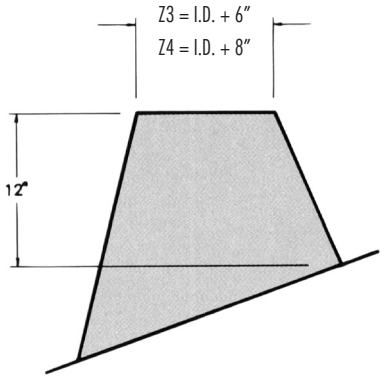
TF only.

Notes:

1. Use limited to installations where complete roof penetration is non-combustible.

Pitched Tall Flashing
Code: PTF

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



Materials Available (shaded areas):

Aluminized or Galvanized Steel	304	316

Ordered Part Includes:

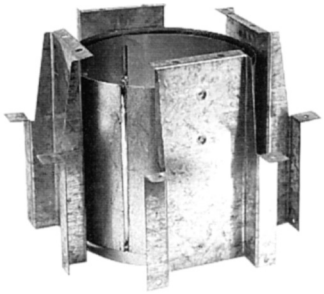
PTF only (specify pitch when ordering).

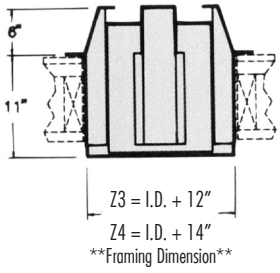
Notes:

1. Part is non-returnable and may require extra manufacturing time.
2. Use limited to installations where complete roof penetration is non-combustible.

Ventilated Thimble
Code: THB

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





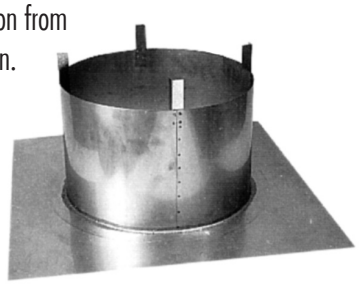
Materials Available:

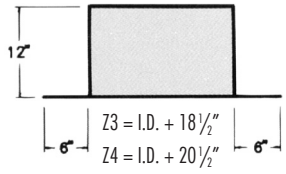
Galvanized Steel

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

Ventilated Tall Flashing
Code: VTF

Encloses the THB, offers protection from weather and moisture penetration.





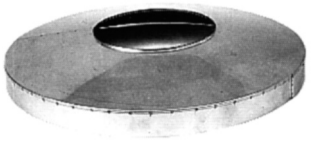
Materials Available (shaded areas):

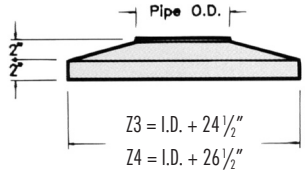
Aluminized or Galvanized Steel	304	316

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

Ventilated Storm Collar
Code: VSC

Protects the VTF from weather and moisture penetration.



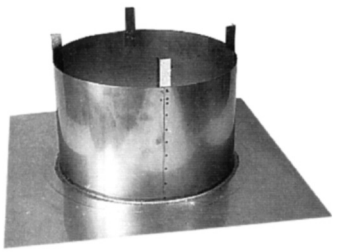


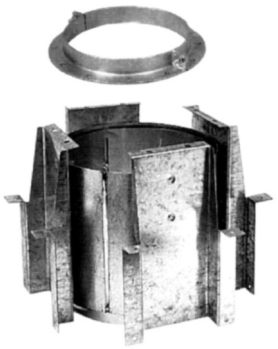
Materials Available (shaded areas):

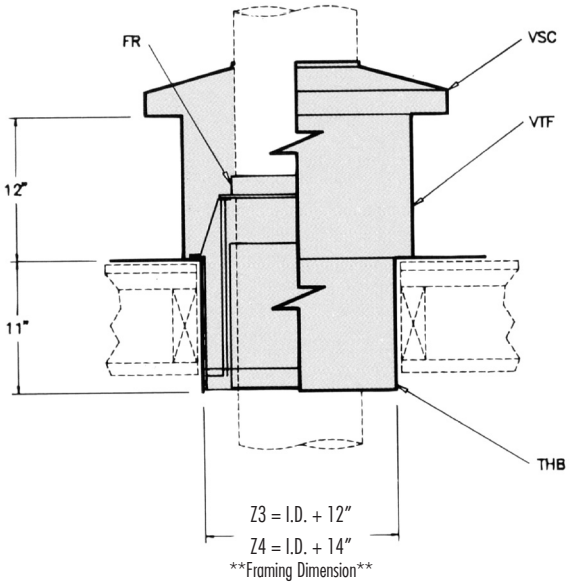
Aluminized or Galvanized Steel	304	316

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 (shaded areas):

Aluminized or Galvanized Steel	304	316

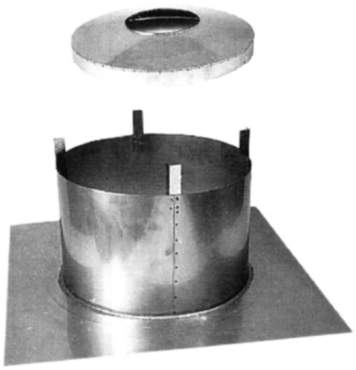
Ordered Part Includes:

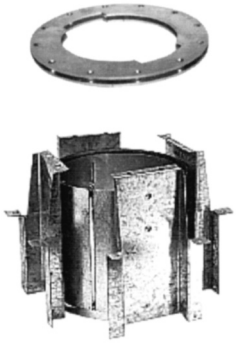
One THB, one FR, one VTF, and one VSC.

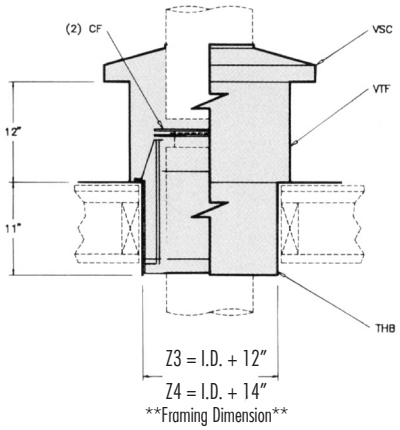
Ventilated Roof Support Assembly

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 (shaded areas):

Aluminized or Galvanized Steel	304	316

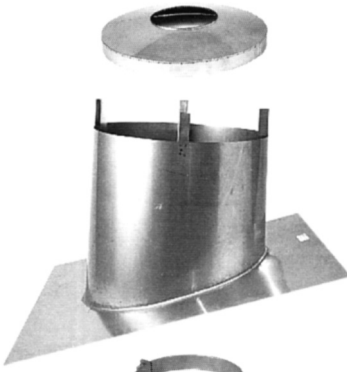
Ordered Part Includes:

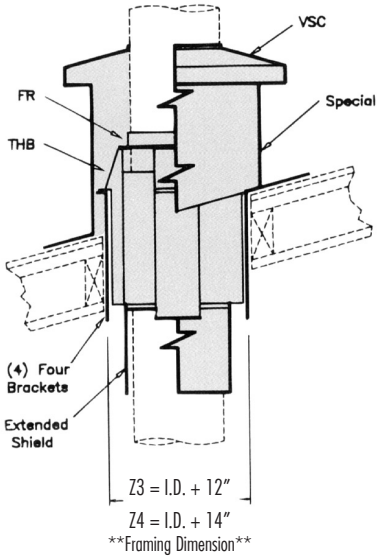
One THB, two CFs, one VTF, and one VSC.

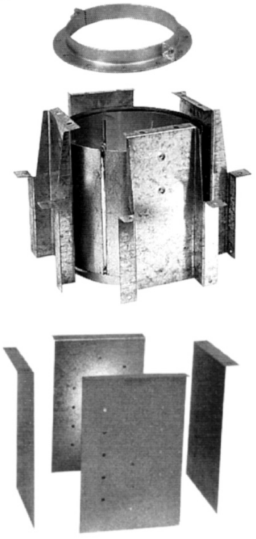
Pitched Ventilated Roof Thimble

Code: PVT

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







Materials Available (shaded areas):

Aluminized or Galvanized Steel	304	316

Ordered Part Includes:

One THB, 4 brackets, extended shield, special VTF, one FR, and one VSC.

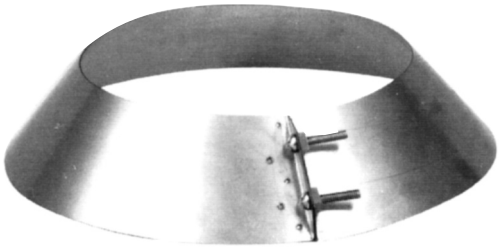
Notes:

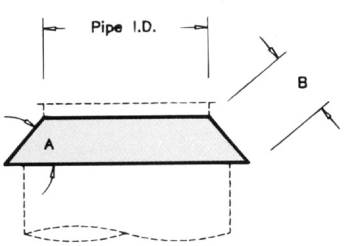
1. Does not provide lateral support. An additional FR is required below the roof.
2. May require extra manufacturing time and is non-returnable.

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 (shaded areas):

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

Ordered Part Includes:

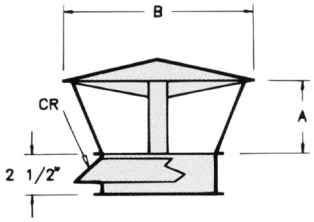
CR, plus hardware.

Product	Dimensions	
	A	B
Z3	25°	4½"
Z4	17°	5¼"

Stack Cap

Code: SK

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



Materials Available (shaded areas):

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

Ordered Part Includes:

SK, plus one CR and one VB.

Notes:

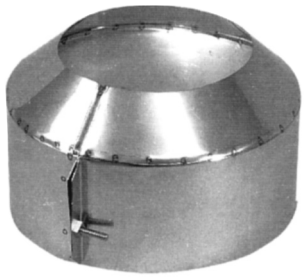
1. K = 0.5 Flow Resistance Factor

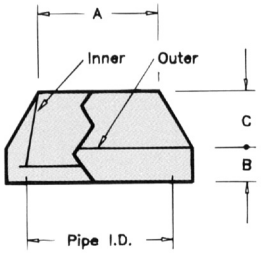
Product (pipe I. D.)	Dimensions (inches)	
Z3 Z4	A	B
5	2½	10¼
6	3	10¼
8	4	13⅜
10	5	17
12	6	20½
14	7	24
16	8	27⅜
18	9	30¾
20	10	34⅛
22	11	37⅜
24	12	41
26	13	44⅜
28	14	47⅞
30	15	51¼
32	16	54⅜
36	18	61½
42	21	71¾
48	24	82

Insulated Exit Cone

Code: EC

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





Materials Available (shaded areas):

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

Ordered Part Includes:

One inner cone, one outer finish collar, and one VB.

Notes:

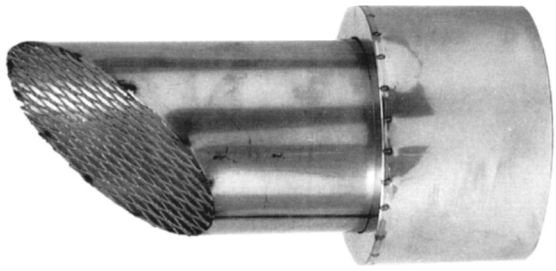
1. K = 1.25 Flow Resistance Factors

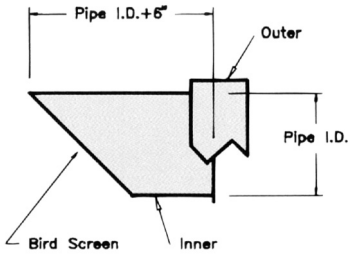
Product	Dimensions		
(Pipe I.D.)	(Inches)		
All Models	A	B	C
5	4 7/8	4	1 3/8
6	4 7/8	4	1 1/2
8	6 9/16	4	1 3/4
10	8 3/16	4	3 3/8
12	9 7/8	4	3 3/4
14	11 1/2	4	4
16	13 1/16	6	4 3/8
18	14 3/4	6	4 5/8
20	16 5/16	6	5
22	18	6	5 1/4
24	19 5/8	6	5 5/8
26	21 1/4	6	6
28	22 7/8	8	6 1/4
30	24 1/2	8	6 5/8
32	26 1/8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

Miter Cut

Code: MC

Used for horizontal engine exhaust termination.





Materials Available (shaded areas):

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

Ordered Part Includes:

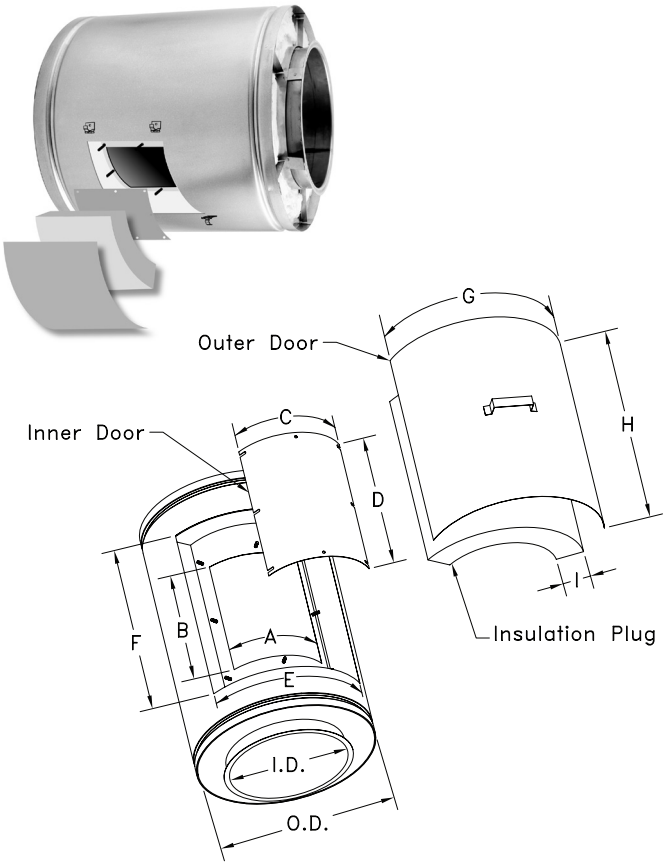
One inner with bird screen, one outer finish collar, and one VB.

Notes:

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

Inline Access Door

Code: IAD



Notes:

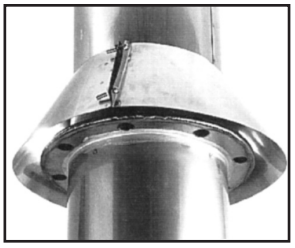
1. IAD available on 30" Pipe Lengths only.
2. Inner door is secured in place with wing nuts.
3. Outer door is secured in place with snap–down latches.

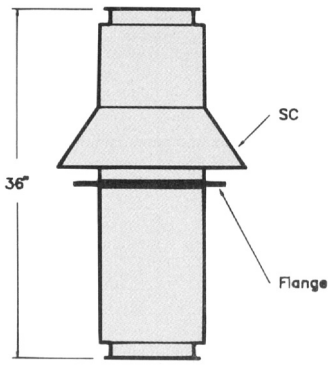
Product	Inner Hole Size (inches)		Inner Door Size (inches)		Outer Hole Size (inches)		Outer Door Size (inches)	
Pipe I.D.	A	B	C	D	E	F	G	H
5 & 6	3½	12	6	14½	9½	18½	12	21
8 & 10	6	12	8½	14½	12	18½	14½	21
12 - 16	9	12	11½	14½	15	18½	17½	21
18 - 22	13	12	15½	14½	19	18½	21½	21
24 - 30	18	12	20½	14½	24	18½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

Guy Section

Code: GS

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





Materials Available (shaded areas):

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

Ordered Part Includes:

Welded pipe section with flange and storm collar, one CB, and one VB.

Notes:

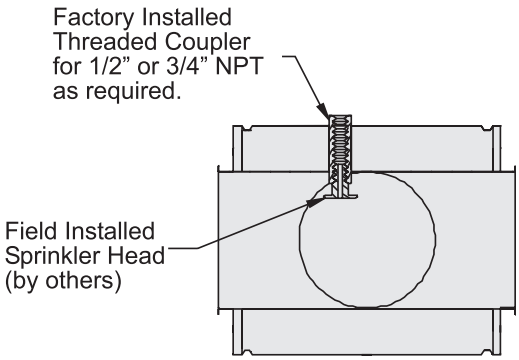
1 Flange has $^{13}/_{16}$" diameter holes, 30° apart.

2. Flow Resistance Factor (K) is the same as insulated pipe.

Nozzle Tee Section

Code: NTS

Provides access for installation/inspection of sprinkler head.



Materials Available (shaded areas):

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

Ordered Part Includes:

NTS, 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 or NTAC for access cover
2. Snout available in any standard diameter equal to or smaller than 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 2 hour fire-rated floor or wall with IVSI-Z3 or IVSI-Z4 grease duct.

Materials Available (shaded areas):

Aluminized Steel	304 or 316 Stainless Steel

Ordered Part Includes:

One closure band, two cover plate halves, 12" wide insulation strip and one 4" insulation strip.

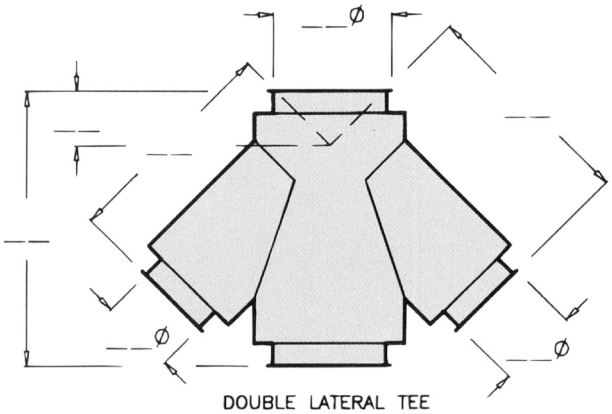
Notes:

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

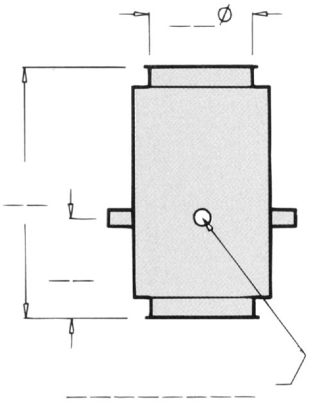
SPECIAL PARTS

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

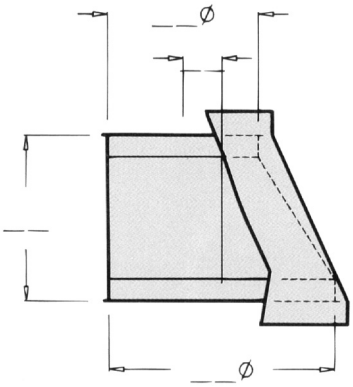
Please provide detail of the required part if not already designed by AMPCO, and allow extra manufacturing time. Special parts are non-returnable.



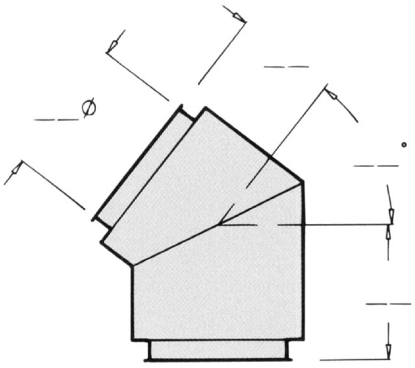
DOUBLE LATERAL TEE
PART CODE: DJL



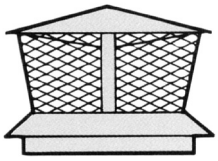
TEST & MONTORING
PORTS AT ANY LOCATION



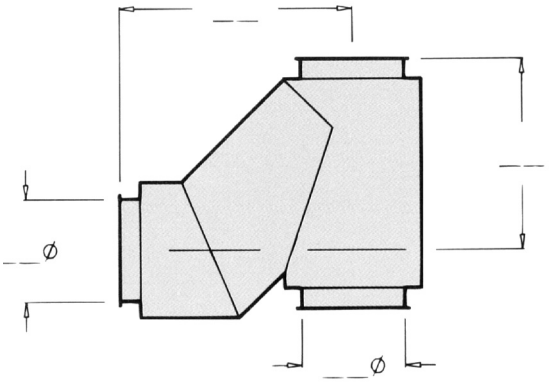
ECCENTRIC
TAPERED INCREASER



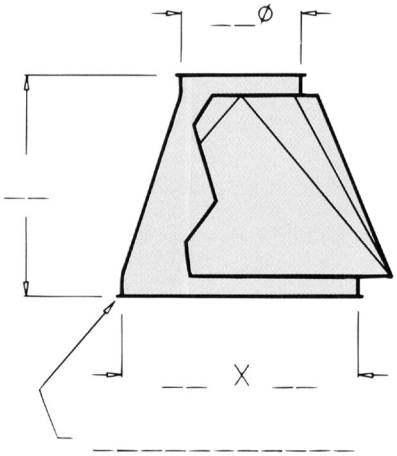
SPECIAL DIMENSIONS
ON ANY FITTING



STACK CAP
WITH BIRDSCREEN



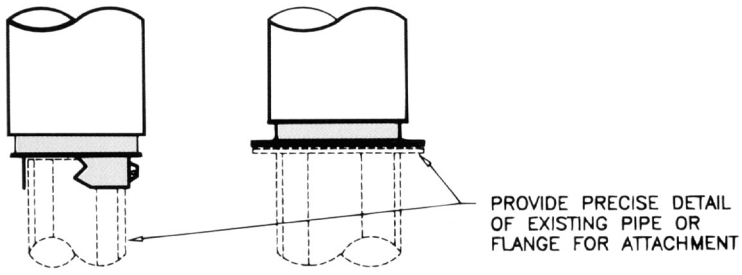
COMBINATION LATERAL TEE AND ELBOW
PART CODE: CL



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 ATTACHMENT

SPECIAL DIAMETER
SEAL RING

SPECIAL
FLANGE ADAPTER

NOTES

NOTES

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