Z-FLEX®
CHIMNEY & VENTING SOLUTIONS

Z-VENT®
Gas Vent System

Advanced Engineering for
High Efficiency Gas Boilers and Heaters

Z-VENT® Gas Vent

A revolutionary self sealing Gas Vent System that dramatically reduces the total installed vent system cost.

Double Fail Safe Connections

Z-VENT® Gas Vent components are supplied with self sealing FKM gasket connections that install in half the time of field sealed systems.

The custom design of the gaskets, along with precision engineered close tolerance construction components, ensure an air and water-tight fit. This air and water-tight connection with fusion welded pipe seams ensures optimum vent performance and reliability. No field applied sealant is necessary, cure time or call backs. Single Wall metallic gas vent is cut to length on site. Singlewall and Doublewall is manufactured in diameters up to 24".

UL Tested and Listed

Z-VENT® Gas Vent System is listed by Underwriters Laboratories to UL 1738 and ULC S636, File MH 18505, for Gas-Burning Appliances, Category I, II,III and IV. Conforming to Underwriters Laboratories pressure specifications, ensures reliability and optimum vent performance. Leakage tested to 2½ times the UL pressure rating of 8" W.C.

Single Wall Stainless Steel Up to 24" Diameters

Complete Systems – from starter to termination
Cut-to-Length – **OR** - Adjustable Lengths available
Up to 10' lengths available in 3" & 4" diameters

Gasket Joint Connections - All Diameters

- Double Fail-Safe™ FKM self-sealing gaskets
- Factory installed Air-tight & Water-tight seals
- **NO** sealant required – saves installation time and money
- 2" overlapping secure joint up to 12" diameters
- 3" overlapping secure joint 14" through 24" diameters

Gear Clamp Closure System

- Field tested and time proven for more than 10 years
- Easy to install - using standard tools
- On exterior of female joint
- Easy to replace if damaged during installation
- **NO** screws – **NO** tabs to bend
- **NO** joint bands or coupling to install

Fusion Welded Pipe Seams

- High tech welding – no filler material used
- Air and Water tight seams

Equipment Starter Adapters Available

- For all Category I, II, III, & IV Gas Fired Appliances
- Boilers – Water Heaters
- Unit Heaters – Tankless Water Heaters

Double Wall Stainless Steel Up to 24" Diameters

- 1" airspace insulated Double Wall Vent System
- UNS S44735 (i.e. AL 29-4C®) Superferritic Stainless Steel inner gas vent conduit
- 304 (or 316*) Stainless Steel outer jackets
- Complete Systems - from starter to termination
- 4' lengths available up to 8" diameters
- Elbows, Tee's, Supports, Flashings, etc
- Adjustable lengths - All diameters

Gasket Joint Connection - All Diameters

- Double Fail-Safe™ FKM self-sealing gaskets
- Air-tight and Water-tight joint seal
- Factory installed
- **NO** sealant required – saves installation time
- Insures proper seal every time

Snap-Lock Joining System (Up to 5" diameter)

- Fast – Simple –Secure
- **NO** tools required

ZV-Clamp Joining System (6" to 24" diameters)

- Flange to Flange ZV-Clamp™ outer connection
- Increased structural integrity
- Quick professional assembly

Fusion Welded Pipe Seams

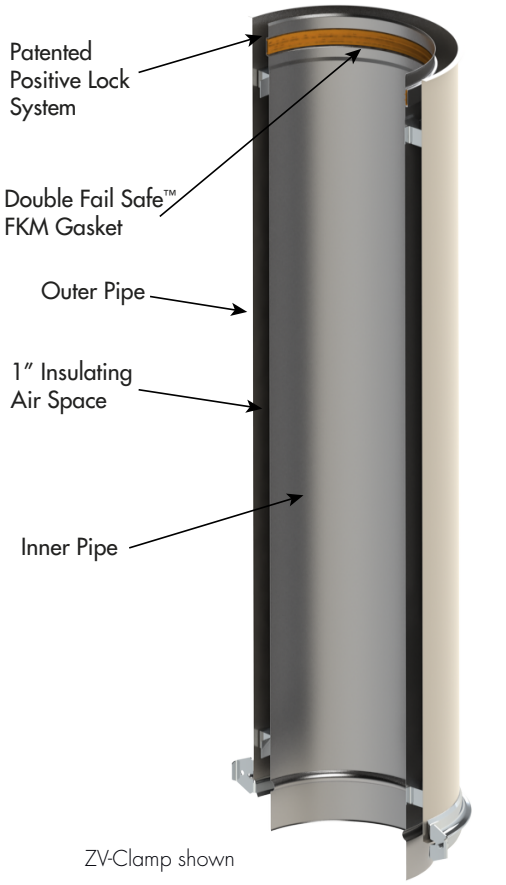
- High tech welding – no filler material used
- Ensures the materials anti-corrosive properties
- Air & water tight seams

**Custom Order, P.O.R.*

Application

Z-VENT® is a factory built, engineered **Gas Vent System** suitable for venting positive,neutral or negative pressure, residential and commercial gas fired heating equipment where the maximum allowable continuous vent gas temperature is up to 550°F (288°C) for up to 12" diameter and 480°F (248°C) for 14"-24" diameters.

Z-VENT®
Double Wall Construction



ZV-Clamp shown

Construction

The inner flue is manufactured from superferritic **UNS S44735 (i.e. AL 29-4C®)** stainless steel. This alloy shows excellent resistance to chloride ion pitting, crevice corrosion and stress corrosion cracking, making it the ideal choice for battling the effects of high temperature flue gases and corrosive condensate from high efficiency gas heating equipment.

A unique built-in **Double Fail Safe™ FKM Gasket System** provides air and water tight connections, with no sealant required.

Z-VENT® is Leakage tested to 2½ times the UL listed pressure rating of 8 inches water column.

Z-VENT® Double Wall System

Incorporates a one inch air space between the vent walls, providing an insulation factor. The insulated double wall construction reduces clearance to combustibles and helps to maintain stack temperature; an important feature in the safe venting of modern high efficiency heating equipment. The outer wall is fabricated from Type 304 Stainless Steel, providing long lasting performance and superior structural integrity. Where the vent is installed in potentially corrosive environments such as rooms with chemicals present, the option of 316* Stainless Steel is available, providing increased corrosion resistance.

Fusion welded components provide superior fit, reduced turbulence and flow resistance. Also eliminated are crevices and other spots where condensation can collect and corrode the vent. Pipe and fittings ends are precision formed and calibrated using specially designed high tolerance tooling. All seams are continuously welded using proprietary Z-Weld technology providing indefinite service life and a virtual air and water tight construction.

**Custom order, P.O.R.*

Patented Sealing System

Z-VENT® components are supplied with factory installed, patented (US Patent 6-523-865), self-sealing gaskets. The custom gasket design with precision engineered close tolerance construction ensure an air and water tight fit leakage tested to 2½ times the UL pressure rating of 8 inches W.C.

Single Wall

Available in diameter sizes ranging up to 24". Engineered for use with Category I, II, III and IV gas-burning appliances only, where the maximum vent gas temperature at the appliance outlet does not exceed 550°F (288°C) for up to 12" diameter and 480°F (248°C) for 14"-24" diameters.

Z-VENT® can be installed in practically any configuration through the use of a wide range of pipe, fittings, terminations and appliance specific adaptors. See **Z-VENT®** installation instructions and appliance manufacturer's instructions for recommended clearances to combustibles.

Double Wall

Available in diameter sizes ranging up to 24". Engineered for use with Category I, II, III and IV gas-burning appliances only, where the maximum vent gas temperature at the appliance outlet does not exceed 550°F (288°C) for up to 12" diameter and 480°F (248°C) for 14"-24" diameters.

Z-VENT® Double Wall's one inch air space between the inner and outer wall provides an insulation factor and is therefore recommended for installations where reduced surface temperatures are needed and where stack temperatures need to be maintained.

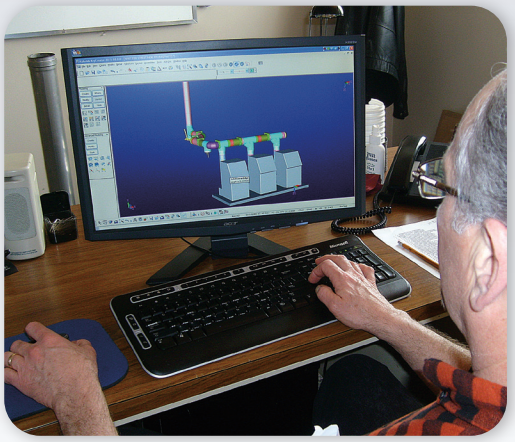
Z-VENT® Double Wall is also recommended for exterior runs and installations where greater structural durability is needed.

Z-VENT® can be installed in practically any configuration through the use of a wide range of pipe lengths, fittings, terminations and appliance specific adaptors.

Please see **Z-VENT®** *installation instructions and appliance manufacturer's instructions at www.z-flex.com for recommended clearances to combustibles.*

With ZVClamp

OEM Design Services



Z-FLEX® has been a market leader for over 30 years in the design of venting systems and related products. Our strength lies in our extensive knowledge of specialized manufacturing techniques and product development with OEM manufacturers.

Technical and CAD Services

Z-FLEX® provides full technical support for all its products through literature, training and our in-house technical staff. **Z-FLEX®** offers submittal drawings and bill's of material within 48 hours provided all the design check-list information is available.

For more information, contact our technical department at sales@z-flex.com (1-800-654-5600)

Suggested Specification

Venting shall be **Z-VENT®** as manufactured by **Z-FLEX®** (1-800-654-5600).

The vent system shall consist of factory welded pipe and fittings incorporating a factory fitted sealing gasket which, when installed in accordance with the manufacturer's installation instructions, will seal the pipe joints without the use of field applied sealant.

The vent system shall be leakage tested to 8" W.C. positive pressure. The vent system will be tested and listed by Underwriters Laboratories to UL1738/ULC S636 with a maximum rated vent gas temperature of 550°F (288°C) for up to 12" diameter and 480°F (248°C) for 14"-24" diameters.

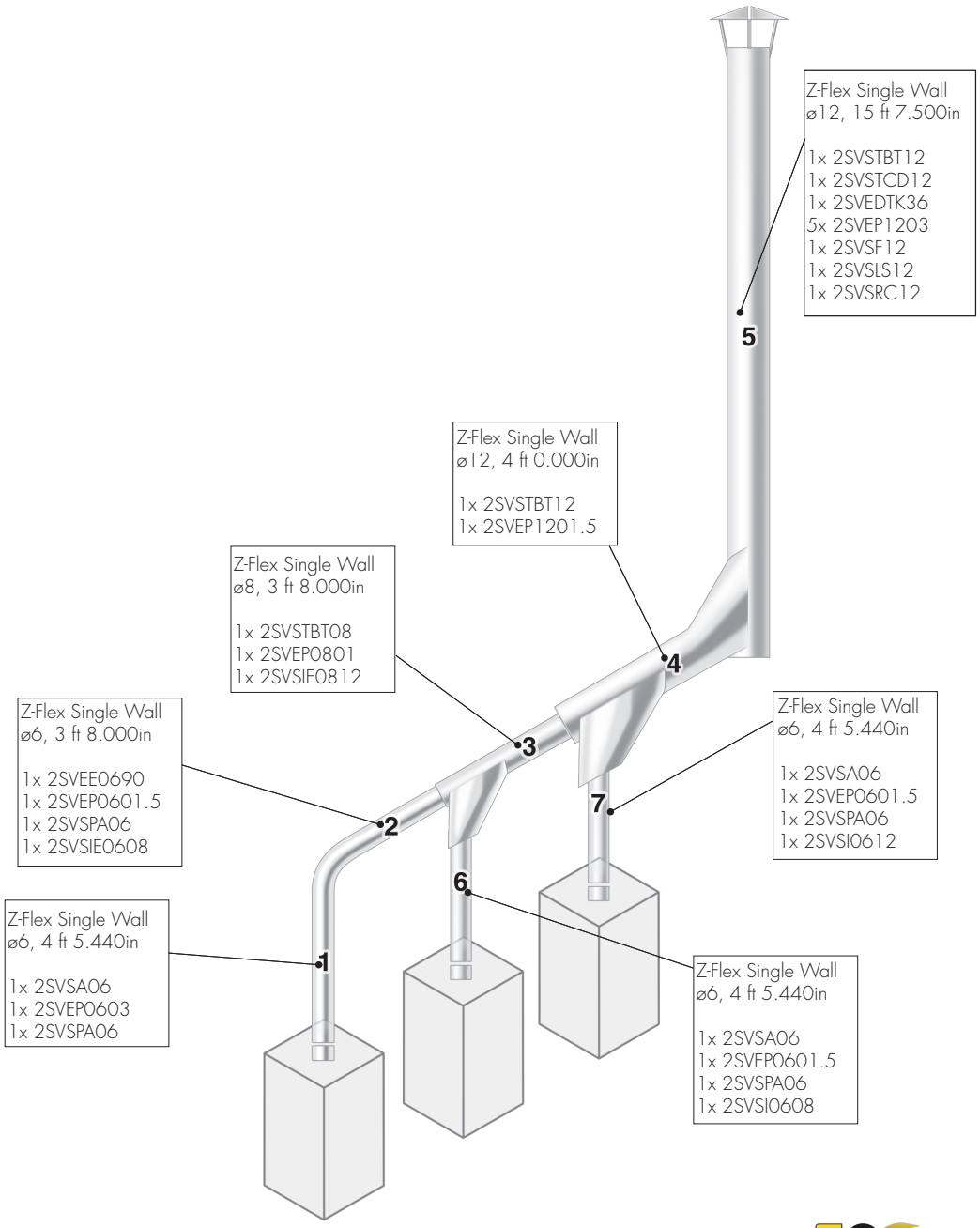
Clearance to Combustibles

Minimum Air Space Clearance to Combustible Materials and Building Insulation

<table>
<tr><th rowspan="2">Vent Diameter</th><th rowspan="2">Maximum Rated Vent Gas Temperature</th><th colspan="2">Enclosed</th><th colspan="2">Unenclosed</th></tr>
<tr><th>Horizontal</th><th>Vertical</th><th>Horizontal</th><th>Vertical</th></tr>
<tr><td rowspan="2">Up to 12"</td><td>550°F (288°C)</td><td rowspan="2">Non-Combustible Material</td><td rowspan="2">6" (150mm)</td><td colspan="2">Single Wall: 3" (75mm)</td></tr>
<tr><td>480°F (249°C)</td><td colspan="2">Double Wall: 2" (50m)</td></tr>
<tr><td rowspan="3">14" to 24"</td><td>480°F (249°C)</td><td>8" (200mm)</td><td>4" (100mm)</td><td colspan="2">1" (25mm)</td></tr>
<tr><td rowspan="2">300°F (149°C)</td><td colspan="2">Non-Combustible Material</td><td colspan="2">3" (75mm)</td></tr>
<tr><td colspan="2">Single Wall: Non-Combustible Material</td><td colspan="2" rowspan="2">1" (25mm)</td></tr>
<tr><td>Double Wall: 8" (200mm)</td><td>Double Wall: 4" (100mm)</td></tr>
</table>

Z-Quote™ is a revolutionary software solution that creates a detailed, dimensional, **Z-VENT®** system layout, accurate bill of material and quote proposal in minutes.

Simply submit a completed design check list and our technical staff will provide you with a quote, detailed drawing with part call outs, and material list.



Example of Z-Quote™

Design Checklist

A Z-Quote drawing will be provided complete with the design checklist. In order to receive an accurate and timely response, please complete the checklist with as much detail as possible. The information is critical and allows the engineering department to produce an accurate design layout. Please note that missing information will cause delays. Please do not submit mechanical drawings.

Please do not submit mechanical drawings. Please filter out and submit only the relevant data that applies.

Detail Information

Company Name:		Job Name:			
Contact:		Location:			
Telephone:		Date Quote Required:	(DD/MM/YY)	Expected Install Date:	(DD/MM/YY)
Fax:		Email Address:			

Appliance Data

Please Check Appropriate Boxes

Make/Model:_____

(Please list separately if models are of different sizes)

Number of Units:_____

Fuel	Nat. Gas	LP Gas	#2 Oil	Wood	Other_____

Appliance Vent Category	I	II	III	IV	Appliance Vent Outlet Outside Diameter in Inches:		Is Appliance Installed on Pad?	Y	N	Pad Height in Inches:	

Are Multiple Appliances Individually Vented?	Y	N	Are Multiple Appliances Common Vented?	Y	N	Common Vent Diameter in Inches:		Is External Power Venter Used?	Y	N
Are Barometric Dampers Used?	Y	N								

Venting Material			**Building Structure**					
	Z-Vent (S.S.)			Ceiling Combustible?	Y	N	Ceiling Thickness in Inches:	
	Single Wall							
	Double Wall			Wall Combustible?	Y	N	Wall Thickness in Inches:	
	Z-DENS (Polypropylene)							
Check Appropriate Boxes	Rigid							
	Flex							
	Concentric							
	Cascade		Cascade Non-Return Required?		Y	N		

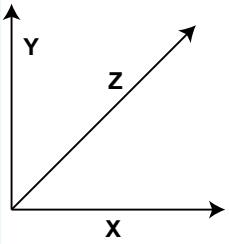
Check All To Include In Quote		**Vertical**		**Horizontal**		**Roof Top**
	Firestop Support at Ceiling		Vent Support or Fixing Bracket		Flashing	
	Guy Band Inside (cable by others)		Wall Thimble		Roof Pitch	
	Vent/Base Support				Firestop Support	
	Vent Support or Fixing Bracket				Guy Band (cable by others)	

Vent Termination (check one)						
	Concentric Horizontal	Horizontal Low Profile	Hood w/Damper	Hood	90° Elbow	45° Elbow
	Concentric Vertical	Rain Cap	Exit Cone	Tee	Straight	

Center line Dimensional Data *(Please do not submit mechanical drawings)*	
1. Between **each** appliance exhaust outlet	6. From floor to ceiling
2. Between each appliance side by side	7. From breaching to top of stack
3. From appliance(s) to breaching wall	8. From appliance to breaching wall
4. From the floor to the appliance exhaust outlet	9. From appliance outlet to vertical stack *(for stacks terminating through roof)*
5. From floor to breaching	

On a separate sheet please provide a desired layout drawing/sketch showing the dimensions on elevation and plan views as per this example

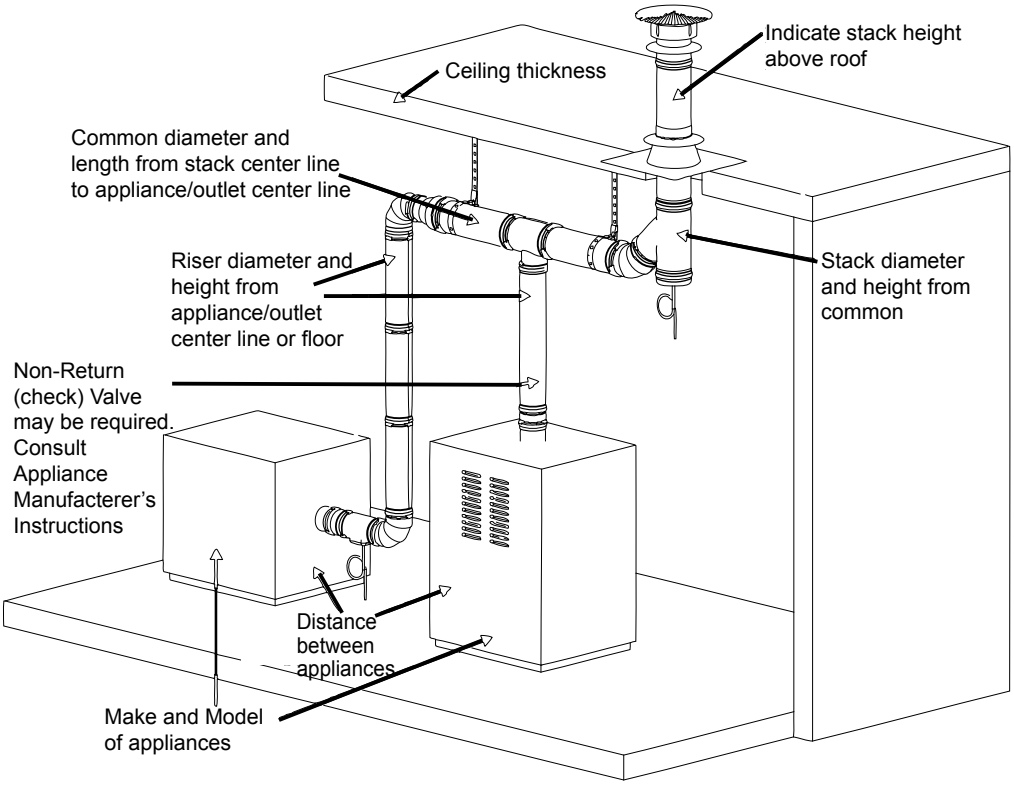
LAYOUT SKETCH / DRAWING

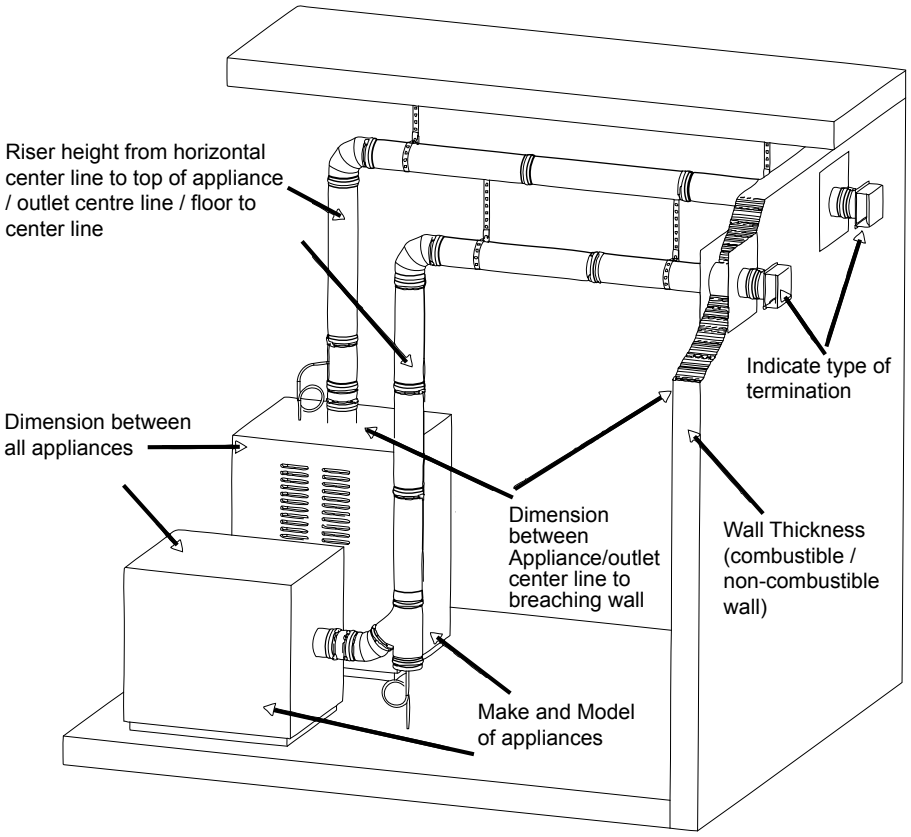


Plan View (Top)

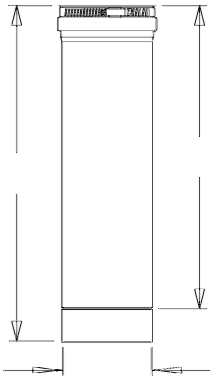
Elevation View (Front)

Examples of required information

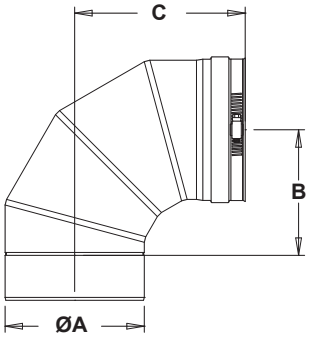




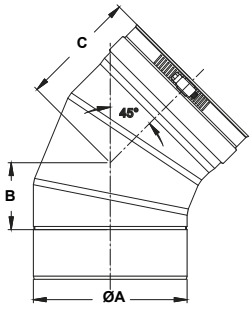
Suggested Resistance Loss Coefficients or K-Values*



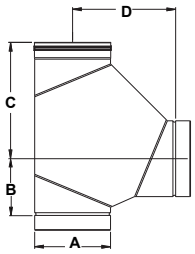
Pipe
Flow Resistance
K= 0.4(L in ft./D in in.)



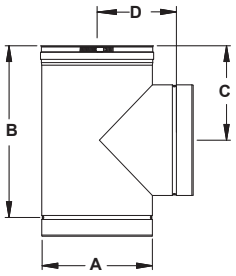
90° Elbow Flow Resistance K= .75



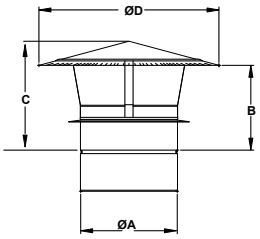
45° Elbow Flow Resistance K= .3



Boot Tee Flow Resistance K= 0.75



Tee Flow Resistance K= 1.25



Low Resistance Rain Cap
Flow Resistance K= .5

Converging Exit Cone Flow Resistance K = (Inlet Diameter/Outlet Diameter)⁴ - 1
Taper Reducer Flow Resistance K = 1 - (Outlet Diameter/Inlet Diameter)⁴
**From Table 9 in Chapter 35 of 2016 ASHRAE Handbook - HVAC Systems & Equipment*

Capacity of Round Pipes

Dia in.	Dia mm	Circumference in.	Area, sq in.
2	50.8	06.28	03.14
3	76.2	09.42	07.07
4	101.6	12.57	12.57
5	127.0	15.71	19.63
6	152.4	18.85	28.27
7	177.8	21.99	38.48
8	203.2	25.13	50.27
9	228.6	28.27	63.62
10	254.0	31.42	78.54
12	304.8	37.70	113.10
14	355.6	43.98	153.94
16	406.4	50.27	201.06
18	457.2	56.55	254.47
20	508.0	62.83	314.16
22	558.8	69.12	380.13
24	609.6	75.40	452.39

Stainless Steel Weights

Gauge	Stainless Steel in (mm)
10	0.1406 (3.57)
11	0.1250 (3.18)
12	0.1094 (2.78)
13	0.0940 (2.40)
14	0.0781 (1.98)
15	0.0700 (1.80)
16	0.0625 (1.59)
17	0.0560 (1.40)
18	0.0500 (1.27)
19	0.0440 (1.10)
20	0.0375 (0.95)
21	0.0340 (0.86)
22	0.0310 (0.79)
23	0.0280 (0.71)
24	0.0250 (0.64)
25	0.0220 (0.56)
26	0.0190 (0.48)
27	0.017 (0.43)
28	0.016 (0.41)
29	0.014 (0.36)
30	0.013 (0.33)

Z-FLEX®

The Flexible Venting Solutions Specialist

Z-FLEX®, part of the Novaflex Group of companies, is the leading manufacturer of specialty venting systems for furnaces, boilers, water heaters, oil heaters, fireplaces, and more.

Z-FLEX® has been providing flexible answers to gas oil, pellet and wood venting applications since 1979. We have pioneered flexible chimney liner solutions and gas vent using variety of innovations in materials and construction which have led to products that deliver:

- Superior performance and increased efficiency
- Easier handling and faster, simpler installation
- Greater reliability, safety and increased service life

To that, we add responsive customer service and expert technical support.

The NovaFlex Group® is a privately held company committed to continuous advancement in venting, HVAC, hose and connector solutions. NovaFlex® has one of the broadest product ranges available in the hose and ducting marketplace as well as in the HVAC, Industrial Venting and Hose Industries and in Commercial Exhaust Venting Systems.

THE NOVAFLEX® GROUP

Z-FLEX® CHIMNEY & VENTING SOLUTIONS

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Ver: 03.2025