

DESIGN MANUAL

CORR/GUARD®



Special Gas Vent 6" - 36" Diameters

METAL-FAB

CORR/GUARD® SPECIAL GAS VENT

Advanced design that cuts cost and time on the job!

COMPLETE VENT LINE

- Including straight pipe lengths, adapters, elbows, tees, drain sections, support bands, flashing, caps and more. Single wall & double wall.
- 6" - 24" diameter; integral sleeve design.
- 26" - 36" diameter; flanged design.

AL29-4C STAINLESS STEEL FLUE

- Exceeds corrosion resistance requirements in UL1738 - Standard for Venting Systems for Gas-Burning Appliances, Categories II, III, and IV.

SELECTION OF CASINGS

- Choose the most cost effective materials for the environment.
 - Aluminized Steel
 - 430 Stainless Steel
 - 304 Stainless Steel
 - 316 Stainless Steel

LIMITED LIFETIME WARRANTY



Integral Sleeve connections are formed to fit with precision at each connection.



All-welded construction provides liquid-tight performance and clean appearance.



Vee Band connectors are engineered for exact fit around flanges, providing a strong, liquid-tight connection.

Also available: Corr/Guard® in 3"- 5" diameter

- Leak-proof "Viton" gasket
- One-step connection and snap-lock
- Single Wall and Double Wall

See Corr/Guard 3"-5" Brochure L2158 available at www.metal-fabcommercial.com

Appliance Adapters

See Corr/Guard Appliance Adapters Brochure L2159

Available at:
www.metal-fabcommercial.com

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GENERAL INFORMATION

Pertinent information is consolidated in this publication to assist you with application information, codes and standards, dimensional information, support requirements and other data of special interest. It is our goal to enable you to select the proper product to meet the requirements of your project confidently and efficiently.

For additional information you may contact us via:

Web Site: www.metal-fabcommercial.com
Telephone: 316-943-2351
Toll Free Phone: 800-835-2830
Fax: 316-771-4168
E-mail: info@metal-fabcommercial.com

Complete information for proper and safe installations is found in the Metal-Fab Installation Instructions. (Literature No. L2591)

This design manual contains data to assist in the proper selection, design, and layout of venting systems using Metal-Fab models:

- **FCS** – Double Wall Special Gas Vent
- **FCSSW** – Single Wall Special Gas Vent
- **FCS-1** – Double Wall Insulated Special Gas Vent
- **FCG** – Double Wall Special Gas Vent (26" - 36").
- **FCGSW** – Single Wall Special Gas Vent (26" - 36").

CODES AND STANDARDS

Corr/Guard is listed to UL 1738, Standard for Venting Systems for Gas-Burning Appliances, Categories II, III, IV and ULC S636. These requirements cover venting systems intended for venting Category II, III, and IV gas-burning appliances as defined by the Standard for Gas-Fired Central Furnaces (except Direct Vent Central Furnaces), ANSI Z21.47 and the National Fuel Gas Code, NFPA 54. Venting systems covered by these requirements are intended to be used with Category II, III, and IV appliances that have been installed in accordance with NFPA 54, the ICC International Mechanical Code, the IAPMO Uniform Mechanical Code, and local codes.

Corr/Guard vent material is AL29-4C® superferritic stainless steel. This vent is intended for use wherever appliance manufacturers specify superferritic stainless steel as the required vent material and, vent gas temperatures do not exceed those listed in the Metal-Fab Installation Instructions and the Application section of this manual.

Venting system design may be limited by appliance performance. Consult appliance installation instructions to determine limitations such as maximum horizontal length, maximum vertical height, elbow and offset limitations, and number of appliances permitted in a common vent.

Model FCSSW/FCGSW chimney liner systems, sizes 6" thru 36" diameter are intended for use in masonry chimneys used to vent Category II, III, or IV gas-fired appliances. FCSSW/FCGSW are suitable for installation in masonry chimneys having no clearance between combustible construction and the outer chimney surface. Model PSW chimney lining system, sizes 6" thru 36" diameter are intended for use in masonry chimneys used to vent gas fired appliances equipped with draft hoods; appliances equipped with draft hoods; appliances intended for use with Type B gas vents. PSW is suitable for installation in masonry chimneys having no clearance between combustible construction and the outer chimney surface.



CORR/GUARD® PRODUCT INFORMATION

Corr/Guard 6" – 12" Diameters To determine metric dimensions: multiply inches X 25.4

DESCRIPTION	DOUBLE WALL	SINGLE WALL
Max Operating Temperature	550° F (288 C)	550° F (288 C)
Max Operating Pressure	6" w.g.	6" w.g.
Clearance to Combustibles ENCLOSED – VERTICAL @550°F (288 C)	1"	Can Not Be Enclosed with Combustible Material
Clearance to Combustibles ENCLOSED – HORIZONTAL	Can Not Be Enclosed with Combustible Material	Can Not Be Enclosed with Combustible Material
Clearance to Combustibles UNENCLOSED HORZ. or VERT. @ 550° F (288 C)	1"	2"
JOINT CONNECTION	SLEEVED – P070 Sealant Required	SLEEVED – P070 Sealant Required
Flue Material Thickness	AL29-4C 0.015"	AL29-4C 0.015"
Casing Materials	Std- Aluminized Steel 0.018" Opt – 430 Stainless Steel 0.024" Opt – 304 Stainless Steel 0.024" Opt – 316 Stainless Steel 0.024"	Not Applicable

Corr/Guard 14" – 24" Diameters To determine metric dimensions: multiply inches X 25.4

DESCRIPTION	DOUBLE WALL	SINGLE WALL
Max Operating Temperature	550° F (288 C)	550° F (288 C)
Max Operating Pressure	6" w.g.	6" w.g.
Clearance to Combustibles ENCLOSED – VERTICAL @550°F (288 C)	1"	Can Not Be Enclosed with Combustible Material
Clearance to Combustibles ENCLOSED – HORIZONTAL	Can Not Be Enclosed with Combustible Material	Can Not Be Enclosed with Combustible Material
Clearance to Combustibles UNENCLOSED HORZ. or VERT. @ 550° F (288 C)	14" – 18" = 2" 20" – 24" = 3"	14" – 18" = 3" 20" – 24" = 4"
JOINT CONNECTION	SLEEVED – P070 Sealant Required	SLEEVED – P070 Sealant Required
Flue Material Thickness	AL29-4C 0.024	AL29-4C 0.024
Casing Materials	Std- Aluminized Steel Opt – 430 Stainless Steel Opt – 304 Stainless Steel Opt – 316 Stainless Steel 0.024"	Not Applicable
Thickness		

Corr/Guard 26" – 36" Diameters To determine metric dimensions: multiply inches X 25.4

DESCRIPTION	DOUBLE WALL	SINGLE WALL
Max Operating Temperature	550° F (288 C)	550° F (288 C)
Max Operating Pressure	6" w.g.	6" w.g.
Clearance to Combustibles ENCLOSED – VERTICAL @550°F (288 C)	2"	Can Not Be Enclosed with Combustible Material
Clearance to Combustibles ENCLOSED – HORIZONTAL	Can Not Be Enclosed with Combustible Material	Can Not Be Enclosed with Combustible Material
Clearance to Combustibles UNENCLOSED HORZ. or VERT. @ 550° F (288 C)	26" – 30" = 4" 32" – 36" = 5"	26" – 30" = 5" 32" – 36" = 6"
JOINT CONNECTION	FLANGED – P070 Sealant Required	FLANGED – P070 Sealant Required
Flue Material Thickness	AL29-4C 0.035	AL29-4C 0.035
Casing Materials	Std- Aluminized Steel Opt – 430 Stainless Steel Opt – 304 Stainless Steel Opt – 316 Stainless Steel 0.035"	Not Applicable
Thickness		

DESIGN CONSIDERATIONS

When venting gas appliances always consult the appliance installation instructions. Horizontal runs, elbows, offsets, vertical height, may be limited by appliance performance specifications.

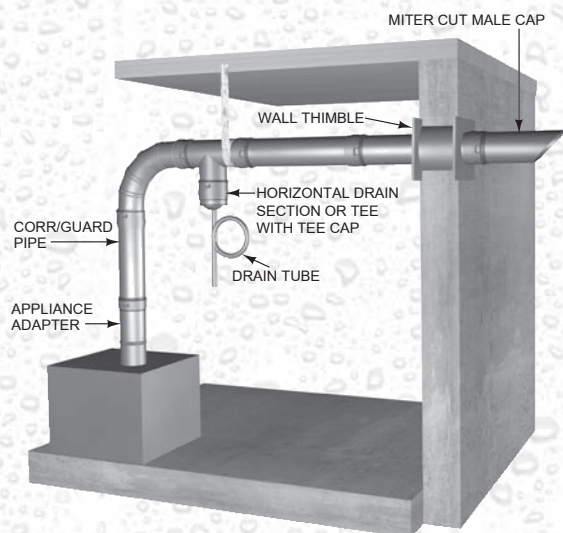
Horizontal runs must slope a minimum of 1/4" : 12" (6mm-305mm). Neutral or negative pressure systems must slope upward – away from the appliance. Positive pressure within the vent may slope upward or downward. Provide for condensate drainage where required.

Vertical runs are directional-specific and must be properly supported. Supports are required above every offset to prevent vertical loading on elbows.

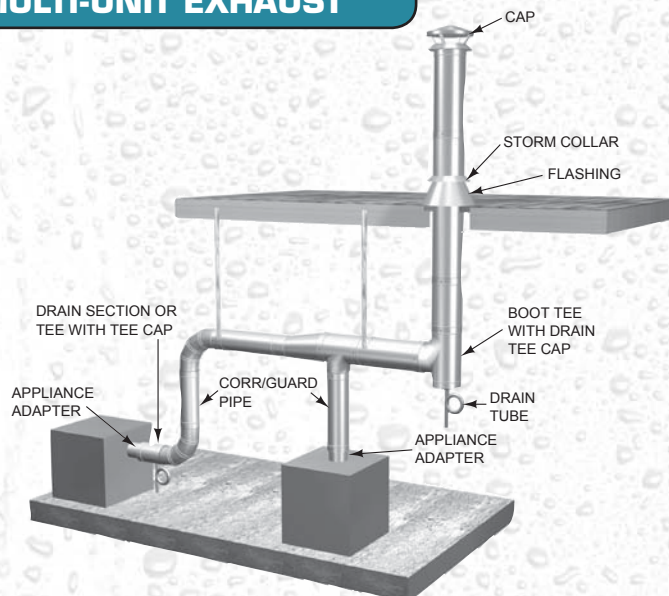
NOTE:

For Additional Information
See Corr/Guard Installation Instructions, No. L2591
Available at: www.metal-fabcommercial.com

SIDEWALL EXHAUST



MULTI-UNIT EXHAUST



COMPONENTS

Corr/Guard is identified as "FCSSW" and "FCS" designating the integral sleeve design incorporated in 6" – 24" diameters. 26" – 36" is identified as FCGSW and FCG, designating the flanged design.

Corr/Guard is now available in a multitude of material options to address your unique applications. To facilitate the ordering process we have a designated "CTO" code which allows you to **Configure To Order**. The CTO code consists of three (3) designators. The 1st identifies flue material; the 2nd identifies outer casing material, and the 3rd, a 0 or 1 indicates if the product is "air" or "ceramic fiber" insulated.

Selections

FLUE	CASING	INSULATION
C – AL29-4C STAINLESS	A – ALUMINIZED STEEL 3 – 430 STAINLESS 4 – 304 STAINLESS 6 – 316 STAINLESS	0 – Air Insulated 1 – Ceramic Insulated

Example:

You have selected a 6" diameter pipe section, 36" in length, double wall construction, with a 430 stainless casing with ceramic fiber insulation. The part number is 6 (diameter)-FCS (sleeved Corr/Guard) 36" length. Additionally, you have selected the CTO code: C (AL29-4C Stainless Flue) - 3 (430 Stainless Casing) -1 (Ceramic Insulated).

The complete designation is: 6FCS36 – C31.

CORROSION RESISTANCE

Corr/Guard products are designed for use on today's highly efficient condensing appliances. AL29-4C, a Superferritic Stainless Steel was the first steel to successfully exceed the requirements of UL 1738, "Standard For Venting Systems For Gas-Burning Appliances, Categories II, III, and IV." It is considered the benchmark for condensing flue materials.

FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

Metal-Fab provides an Appliance / Adapter Cross-Reference guide listing the most popular appliances and the Adapter required to connect Corr/Guard Venting systems. The Cross-Reference is available on our web site: <http://www.metal-fabcommercial.com/media/L2159.pdf>

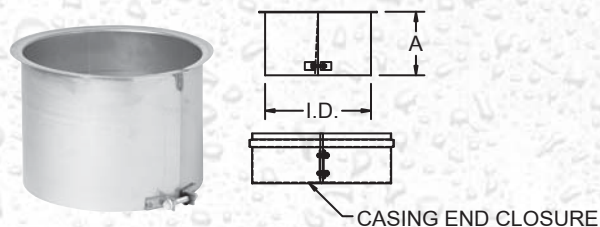
SINGLE WALL BOILER ADAPTER (SBA)

6" - 24" Diameters

Flow Resistance K = same as pipe.

6"- 24": A = 7" (178)

NOTE: Used to attach pipe to straight shank outlets. Attaches around exterior of collar. FCS SBA includes closure band. Not required on FCSSW.



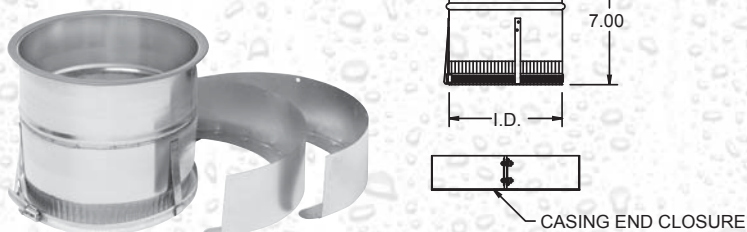
SINGLE WALL BOILER ADAPTER - INSIDE (SBAI)

6" - 24" Diameters

Use on vertical outlets when appliance incorporates condensate drain.

Flow Resistance K = same as pipe.

NOTE: Not available above 24".



REDUCER COLLAR (RC)

6" - 24" Diameters

Flow Resistance K = same as pipe.

A: Inlet Diameter

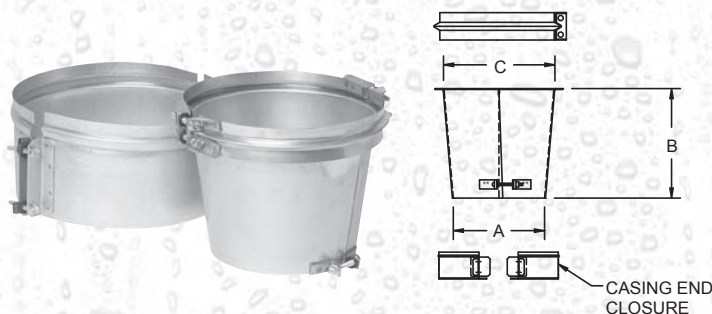
B: Component Length: 6" - 24" = 7" (178)

C: Outlet Diameter

Used to attach pipe to an outlet source smaller than pipe diameter.

Specify dimensions when ordering.

Example: 8 (outlet) FCS7 (Inlet) RC



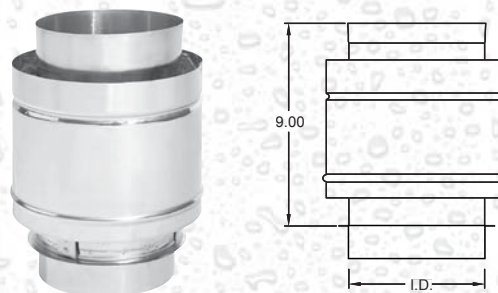
FEMALE FLANGE CONNECTOR (FFC)

6" - 24" Diameters

Flow Resistance K = same as pipe.

Used to transition from FCS to CG

NOTE: Not available in 7" & 9" diameters.



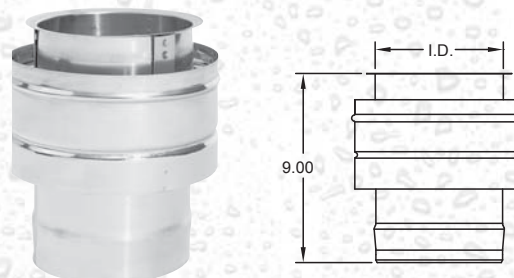
MALE FLANGE CONNECTOR (MFC)

6" - 24" Diameters

Flow resistance K = same as pipe.

Used to transition from CG to FCS

NOTE: Not available in 7" & 9" diameters.

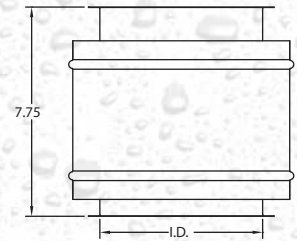


FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

FEMALE TO FEMALE ADAPTER (DFA)

6" - 24" Diameters

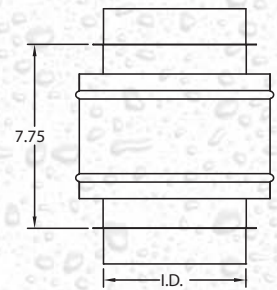
Used to change direction of slope.



MALE TO MALE ADAPTER (DMA)

6" - 24" Diameters

Used to change direction of slope.

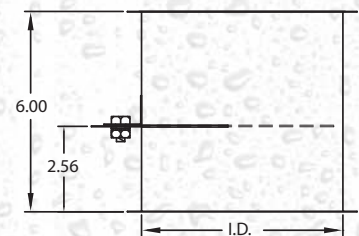


BLAST GATE (BG)

6" - 12" Diameters

Used for balancing pressures in a common vent system.

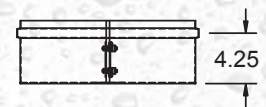
Note: Available in single wall only.



CASING END CLOSURE (CEC)

6" - 24" Diameters

Used as an end cover when transitioning from FCSSW single wall to FCS double wall construction. Attaches to casing with sheet metal screws.



FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

PIPE LENGTHS

NOTE: Deduct 1-1/4" for installed length.

Flow Resistance $K = .4 \left(\frac{L}{D} \right)$ for 6"(152) - 16"(606) diameters

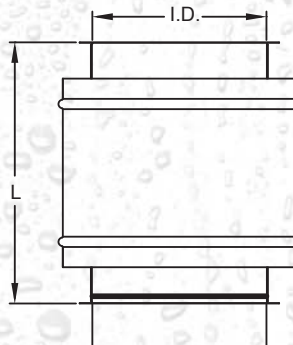
Flow Resistance $K = .3 \left(\frac{L}{D} \right)$ for 18"(458) - 24"(915) diameters

Flow Resistance $K = .25 \left(\frac{L}{D} \right)$ for Engine and turbine exhausts,

L = pipe length in feet

D = pipe diameter in inches

NOTE: Custom lengths available, contact factory.



STRAIGHT LENGTH 6" THRU 24"

PIPE LENGTHS	INSTALLED LENGTH (L)
9.00" (229)	7.75" (197)
12.00" (305)	10.75" (273)
18.00" (458)	16.75" (425)
24.00" (610)	22.75" (578)
36.00" (915)	34.75" (883)

PIPE I.D.	PIPE O.D.
FCSSW	FCS
6" (153)	8" (204)
7" (178)	9" (229)
8" (204)	10" (254)
9" (229)	11" (280)
10" (254)	12" (305)
12" (305)	14" (356)
14" (356)	16" (407)
16" (407)	18" (458)
18" (458)	20" (508)
20" (508)	22" (559)
22" (559)	24" (610)
24" (610)	26" (661)

VARIABLE LENGTH (VL22)

Flow Resistance $K = .4 \left(\frac{L}{D} \right)$

L = pipe length in feet

D = flue diameter

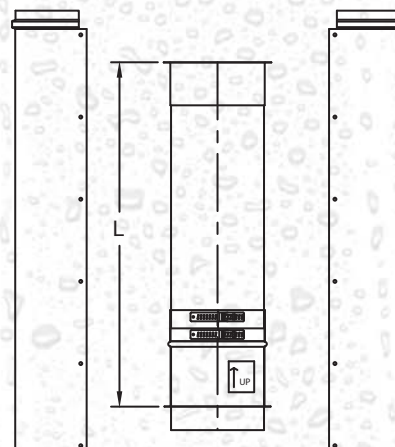
NOTE: Used to fill gaps between standard length components. Does not allow for thermal expansion.

INSTALLED LENGTH (L)

VL22

Minimum: 9" (229)

Maximum: 22" (559)

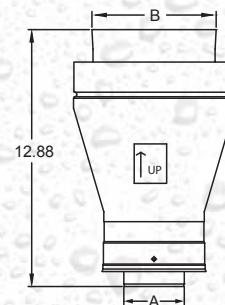


TAPERED INCREASER (TI)

3" Diameter

A	B
3.00" (76)	6.00" (152)

Dimensions in inches (mm).



TAPERED INCREASER (TI)

6" – 24" Diameters

$$\text{Flow Resistance } K = .51 \frac{[1 - (\frac{A}{C})^2]^2}{(\frac{A}{C})^4}$$

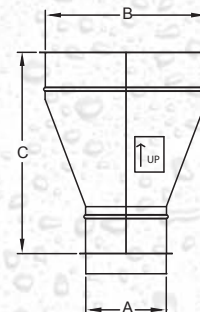
A = Inlet Diameter

B = Outlet Diameter

C = Installed Length – See Table

NOTE: ½ Step = 1" increase in diameter;
1 Step = 2" increase in diameter

Steps	½ - 3	3 ½ - 6
"C" Length	15" (381)	20" (508)



When ordering, specify inlet and outlet diameters with inlet diameter first.

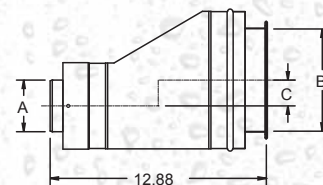
Example: 12FCSTI14 for 12" to 14" increase.

ECCENTRIC TAPERED INCREASER (EI)

4" – 5" Diameters

A	B	C
4.00" (102)	6.00" (152)	1.00" (25)
5.00" (127)	6.00" (152)	0.50" (13)

Dimensions in inches (mm).



ECCENTRIC TAPERED INCREASER (EI)

6" – 24" Diameters

$$\text{Flow Resistance } K = .51 \frac{[1 - (\frac{A}{C})^2]^2}{(\frac{A}{C})^4}$$

A = Inlet Diameter

B = Outlet diameter

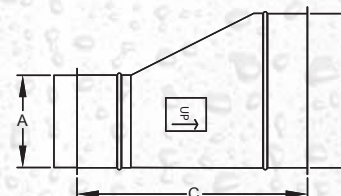
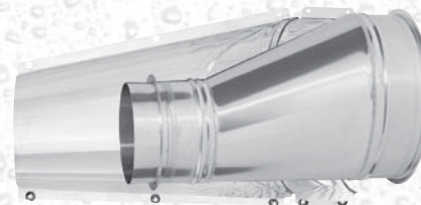
C = Installed Length – See Table

NOTE: ½ Step = 1" increase in diameter;
1 Step = 2" increase in diameter

Steps	½ - 2	2 ½ - 4	4.5 - 6
"C" Length	15" (381)	21" (534)	28" (712)

When ordering, specify inlet and outlet diameters with inlet diameter first.

Example: 12FCSEI14 for 12" to 14" increase.



FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

TAPERED REDUCER (R)

6" - 24" Diameters

$$\text{Flow Resistance } K = .16 \frac{[1 - (\frac{A}{C})^2]^2}{(\frac{A}{C})^4}$$

A = Inlet Diameter

B = Outlet Diameter

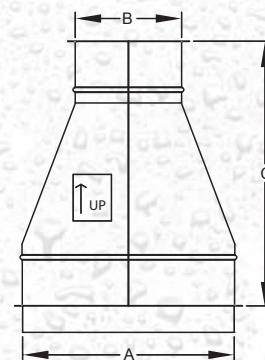
C = Installed Length – See Table

NOTE: ½ Step = 1" decrease in diameter;
1 Step = 2" decrease in diameter

Steps	6 - 3 ½	3 - ½
"C" Length	20" (508)	15" (381)

When ordering, specify inlet and outlet diameters with inlet diameter first.

Example: 14FCSR12 for 14" to 12" decrease.



ECCENTRIC REDUCER (ER)

6" - 24" Diameters

$$\text{Flow Resistance } K = .16 \frac{[1 - (\frac{A}{C})^2]^2}{(\frac{A}{C})^4}$$

A = Inlet Diameter

B = Outlet diameter

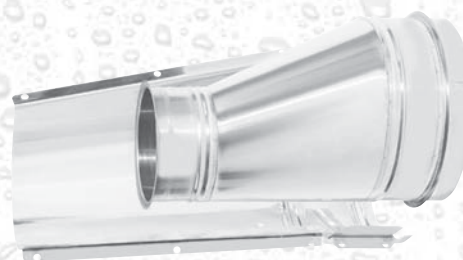
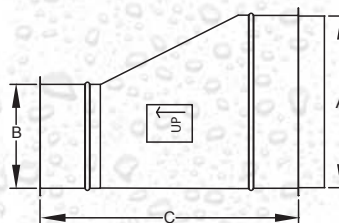
C = Installed Length – See Table

NOTE: ½ Step = 1" decrease in diameter;
1 Step = 2" decrease in diameter

Steps	6 - 4 ½	4 - 2 ½	2 - ½
"C" Length	28" (712)	21" (534)	15" (381)

When ordering, specify inlet and outlet diameters with inlet diameter first.

Example: 14FCSER12 for 14" to 12" decrease.



FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

15° ELBOW (15L)

6" - 24" Diameters

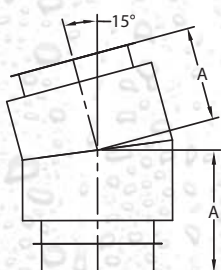
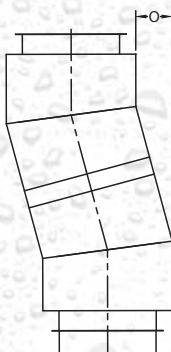
Flow Resistance K = 0.06

Offset Distance:

$$O = 2 \times "A" \times 0.259$$

Offset distance with
pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.259$$



PIPE I.D.		A	
		FCSSW / FCS	
6"	(153)	4.56"	(116)
7"	(178)	4.63"	(118)
8"	(204)	4.68"	(119)
9"	(229)	4.75"	(121)
10"	(254)	4.88"	(124)
12"	(305)	5.00"	(127)
14"	(356)	5.13"	(130)
16"	(407)	5.25"	(133)
18"	(458)	5.38"	(137)
20"	(508)	5.50"	(140)
22"	(559)	5.63"	(153)
24"	(610)	5.75"	(146)

Dimensions in inches (mm).

30° ELBOW (30L)

6" - 24" Diameters

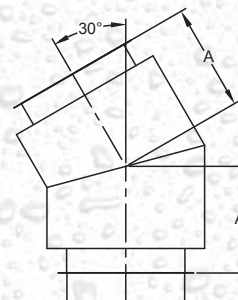
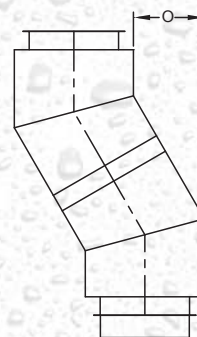
Flow Resistance K = 0.12

Offset Distance:

$$O = 2 \times "A" \times 0.5$$

Offset distance with
pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.5$$



PIPE I.D.		A	
		FCSSW / FCS	
6"	(153)	5.00"	(127)
7"	(178)	5.13"	(130)
8"	(204)	5.25"	(133)
9"	(229)	5.38"	(137)
10"	(254)	5.50"	(140)
12"	(305)	5.75"	(146)
14"	(356)	6.06"	(154)
16"	(407)	6.38"	(162)
18"	(458)	6.63"	(168)
20"	(508)	6.88"	(175)
22"	(559)	7.13"	(181)
24"	(610)	7.38"	(187)

Dimensions in inches (mm).

FCS/FCSSW COMPONENTS 6" – 24" DIAMETERS

45° ELBOW (45L)

6" – 24" Diameters

Flow Resistance K = 0.15

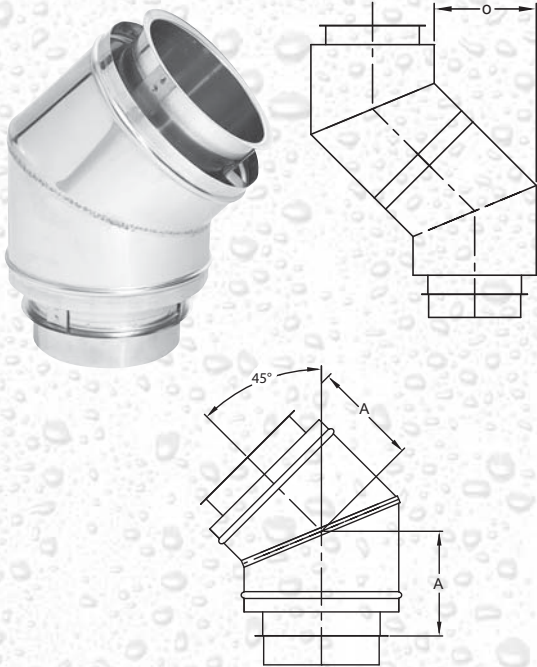
Offset Distance:

$$O = 2 \times "A" \times 0.707$$

Offset Distance with

pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.707$$



PIPE I.D.		A	
		FCSSW / FCS	
6"	(153)	5.44"	(138)
7"	(178)	5.63"	(143)
8"	(204)	5.86"	(149)
9"	(229)	6.06"	(154)
10"	(254)	6.26"	(159)
12"	(305)	6.76"	(172)
14"	(356)	7.13"	(181)
16"	(407)	7.51"	(191)
18"	(458)	7.94"	(202)
20"	(508)	8.32"	(211)
22"	(559)	8.76"	(223)
24"	(610)	9.26"	(235)

Dimensions in inches (mm).

90° ELBOW (90L)

6" – 24" Diameters

Flow Resistance K:

$$6" - 8" = 0.38$$

$$9" - 18" = 0.42$$

$$20" - 24" = 0.54$$

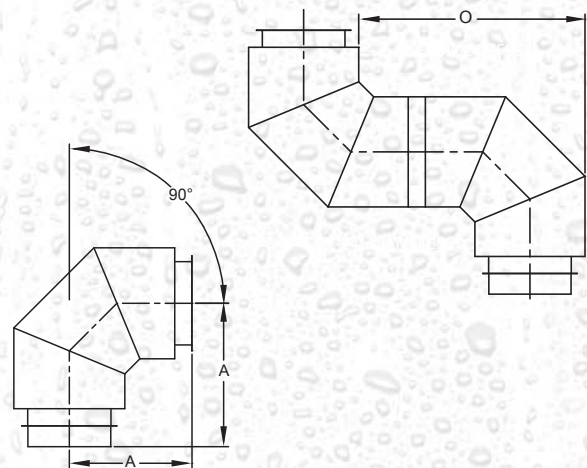
Offset Distance:

$$O = 2 \times "A"$$

Offset Distance with pipe

length between elbows:

$$O = 2 \times "A" + \text{pipe length}$$



PIPE I.D.		A	
		FCSSW / FCS	
6"	(153)	8.88"	(225)
7"	(178)	9.38"	(238)
8"	(204)	9.88"	(251)
9"	(229)	10.38"	(264)
10"	(254)	10.88"	(276)
12"	(305)	11.88"	(302)
14"	(356)	12.88"	(327)
16"	(407)	13.88"	(352)
18"	(458)	14.88"	(378)
20"	(508)	15.88"	(403)
22"	(559)	16.88"	(429)
24"	(610)	17.88"	(454)

Dimensions in inches (mm).

FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

BOOT TEE (BT)

6" - 24" Diameters

Flow Resistance $K = 0.65$

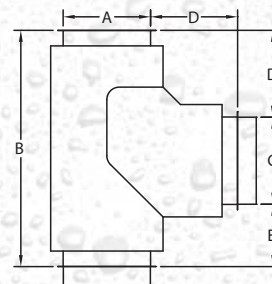
A = Pipe I.D.

B = "C" I.D. + 12"

C = Tap I.D.

D = 7"

E = 5"



BOOT TEE W/ DRAIN (BTD)

6" - 24" Diameters

Flow Resistance $K = 0.65$

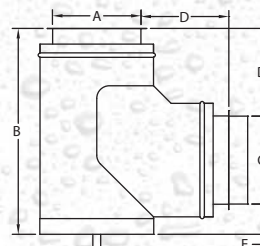
A = Pipe I.D.

B = "C" I.D. + 9.75"

C = Tap I.D.

D = 7"

E = 2.75"



90° TEE (T)

6" - 24" Diameters

Flow Resistance $K = 1.25$

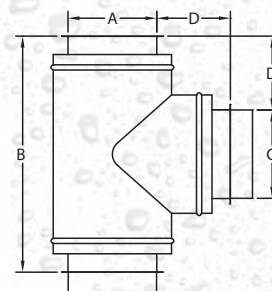
A = Pipe I.D.

B = "C" I.D. + 10"

C = Tap I.D.

D = 5"

NOTE: Specify tap diameter (C) at time of order.



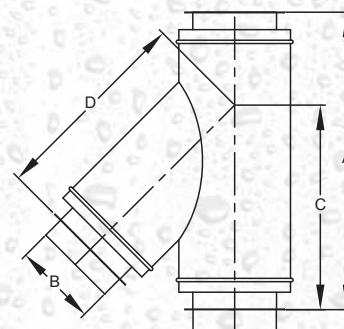
45° TEE (45T)

6" - 24" Diameters

Flow Resistance $K = 0.4$

NOTE: Used for low resistance flow into vertical or horizontal run. Specify Tap Diameter "B" when ordering.

NOTE: For dimensional information see tables on page 28.



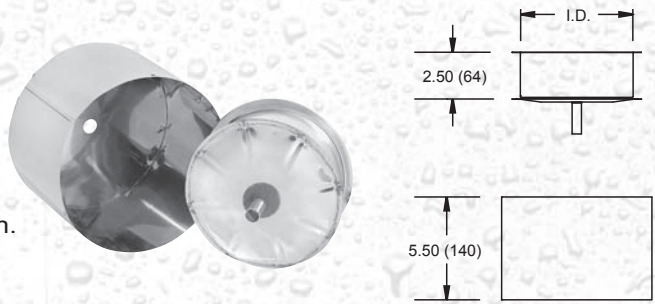
FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

DRAIN TEE CAP W/ CASING END CLOSURE (TC)

6" - 24" Diameters

Drain Diameter: 5/8"

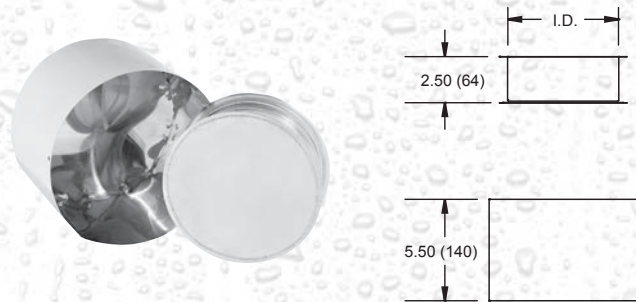
NOTE: Provides drain port for rain or condensation.



TEE CAP LESS DRAIN W/ CASING END CLOSURE (TCN)

6" - 24" Diameters

NOTE: Used to close and seal unused port of Tees, Wyes and Laterals.



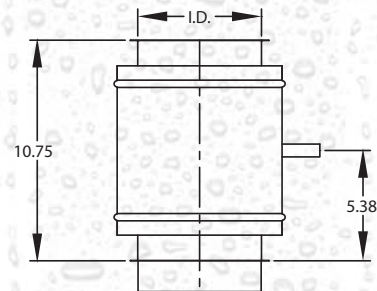
DRAIN SECTION (DS)

6" - 24" Diameters

Flow Resistance K = 0.25

Drain Diameter: 6" - 24" = 1/2"

NOTE: Used to drain rain water or condensation from inside the stack.



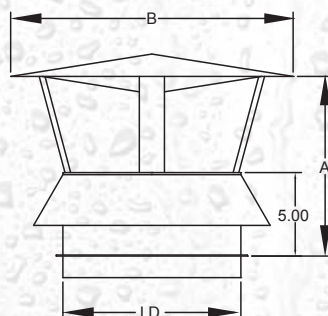
STACK CAP (C) (CB)

6" - 24" Diameters

Flow resistance K = 0.5

NOTE: Provides partial rain protection. Use of Drain Tee Cap (TC) or Drain Section (DS) is recommended.

NOTE: Also available with bird screen order as (CB).



PIPE I.D.		A		B	
6"	(153)	9.50"	(241)	11.00"	(280)
7"	(178)	10.50"	(267)	12.50"	(318)
8"	(204)	11.50"	(292)	14.00"	(356)
9"	(229)	12.75"	(324)	15.50"	(394)
10"	(254)	13.50"	(343)	17.00"	(432)
12"	(305)	14.50"	(368)	21.00"	(534)
14"	(356)	15.50"	(394)	24.00"	(610)
16"	(407)	17.50"	(445)	28.00"	(712)
18"	(458)	18.50"	(470)	31.00"	(788)
20"	(508)	20.50"	(521)	34.00"	(864)
22"	(559)	21.50"	(546)	38.00"	(965)
24"	(610)	23.50"	(597)	41.00"	(1041)

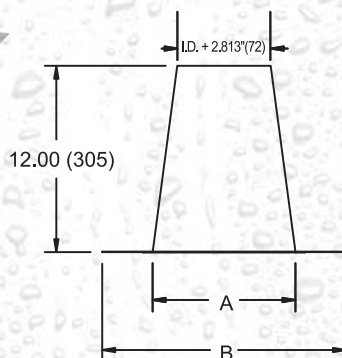
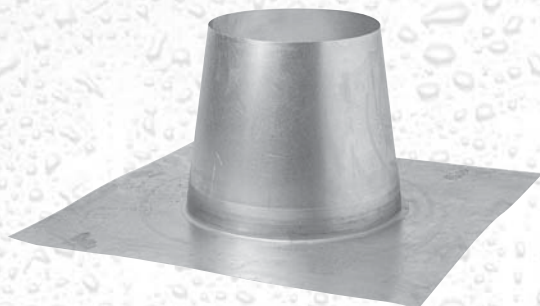
Dimensions in inches (mm).

FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

TALL CONE FLASHING (F)

6" - 24" Diameters

Used for flat roof applications.



PIPE I.D.		FCSSW/FCS			
		A		B	
6"	(153)	12.00"	(305)	24.00"	(610)
7"	(178)	13.00"	(330)	25.00"	(635)
8"	(204)	14.00"	(356)	26.00"	(661)
9"	(229)	15.00"	(381)	27.00"	(686)
10"	(254)	16.00"	(407)	28.00"	(712)
12"	(305)	18.00"	(458)	30.00"	(762)
14"	(356)	20.00"	(508)	32.00"	(813)
16"	(407)	22.00"	(559)	34.00"	(864)
18"	(458)	24.00"	(610)	36.00"	(915)
20"	(508)	26.00"	(661)	38.00"	(966)
22"	(559)	28.00"	(712)	40.00"	(1016)
24"	(610)	30.00"	(762)	42.00"	(1067)

Dimensions in inches (mm).

FIXED PITCH FLASHING (FPF)

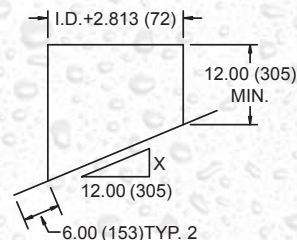
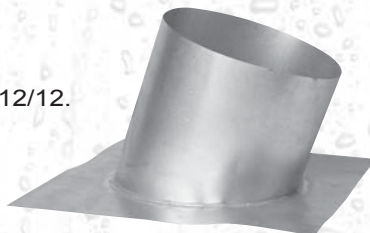
6" - 24" Diameters

NOTES:

1. X=PITCH RATE, AVAILABLE RATES 1/12-12/12. Please specify pitch rate with order.
2. Fixed Pitch Flashing is available in sizes from 6" through 24".

When ordering, specify pipe diameter followed by pitch rate.

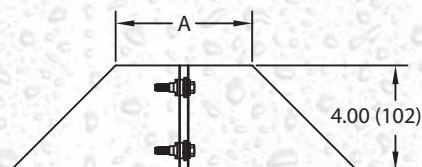
Example: 6FCSFPF4 for 6" diameter and 4/12 pitch.



STORM COLLAR (SC)

6" - 24" Diameters

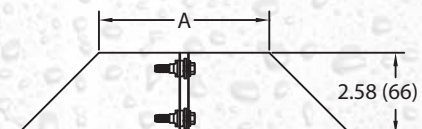
A = Pipe Diameter (O.D.)



CLOSURE RING (CR)

6" - 24" Diameters

A = Pipe Diameter (I.D.)

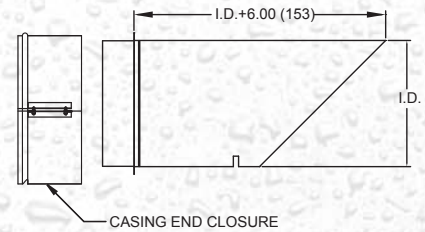


FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

MITER CUT MALE (MCM)

6" - 24" Diameters

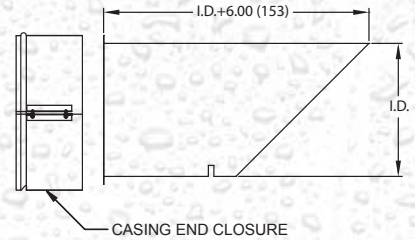
NOTE: Used for horizontal termination sloping toward the appliance. Standard with bird screen.



MITER CUT FEMALE (MCF)

6" - 24" Diameters

NOTE: Used for horizontal termination sloping away from the appliance. Standard with bird screen.



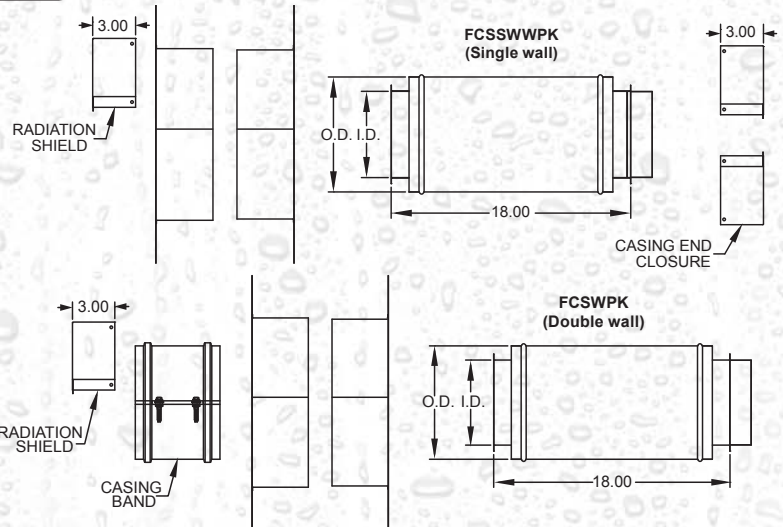
WALL PENETRATOR KIT (WPK)

6" - 24" Diameters

NOTE: Used for horizontal penetrations.



Framing dimension I.D. + 6"

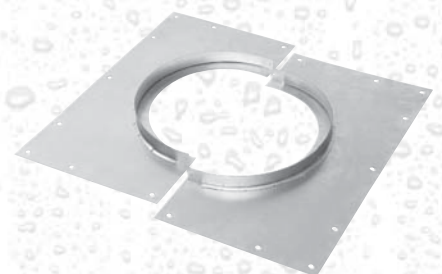
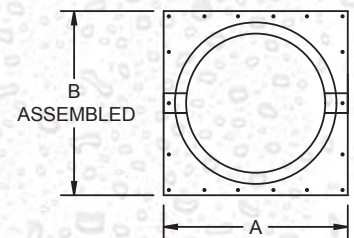


FIRESTOP (FS)

6" - 24" Diameters

PIPE I.D.		FCSSW				FCS			
		A		B		A		B	
6"	(153)	16.00"	(407)	16.00"	(407)	18.00"	(458)	18.00"	(458)
7"	(178)	17.00"	(432)	17.00"	(432)	19.00"	(483)	19.00"	(483)
8"	(204)	18.00"	(458)	18.00"	(458)	20.00"	(508)	20.00"	(508)
9"	(229)	19.00"	(483)	19.00"	(483)	21.00"	(533)	21.00"	(533)
10"	(254)	20.00"	(508)	20.00"	(508)	22.00"	(559)	22.00"	(559)
12"	(305)	22.00"	(559)	22.00"	(559)	24.00"	(610)	24.00"	(610)
14"	(356)	24.00"	(610)	24.00"	(610)	26.00"	(661)	26.00"	(661)
16"	(407)	26.00"	(661)	26.00"	(661)	28.00"	(712)	28.00"	(712)
18"	(458)	28.00"	(712)	28.00"	(712)	30.00"	(762)	30.00"	(762)
20"	(508)	30.00"	(762)	30.00"	(762)	32.00"	(813)	32.00"	(813)
22"	(559)	32.00"	(813)	32.00"	(813)	34.00"	(864)	34.00"	(864)
24"	(610)	34.00"	(864)	34.00"	(864)	36.00"	(915)	36.00"	(915)

Dimensions in inches (mm).

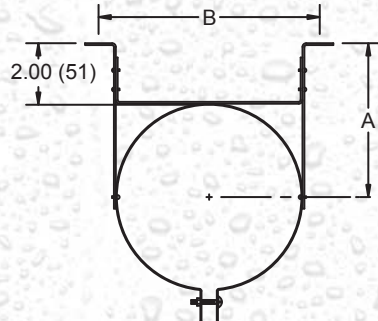


FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

WALL BAND (WB)

6" - 16" Diameters

For interior use only. Do not exceed 8' 0" between supports.



PIPE I.D.		FCSSW				FCS			
		A		B		A		B	
6"	(153)	5.00"	(127)	7.07"	(180)	6.00"	(153)	9.07"	(230)
7"	(178)	5.50"	(140)	8.07"	(205)	6.50"	(165)	10.07"	(256)
8"	(204)	6.00"	(153)	9.07"	(230)	7.00"	(178)	11.07"	(281)
9"	(229)	6.50"	(165)	10.07"	(256)	7.50"	(191)	12.07"	(307)
10"	(254)	7.00"	(178)	11.07"	(281)	8.00"	(204)	13.07"	(332)
12"	(305)	8.00"	(204)	13.07"	(332)	9.00"	(229)	15.07"	(383)
14"	(356)	N/A		N/A		10.00"	(254)	17.07"	(434)
16"	(407)	N/A		N/A		11.00"	(279)	19.07"	(484)

Dimensions in inches (mm).



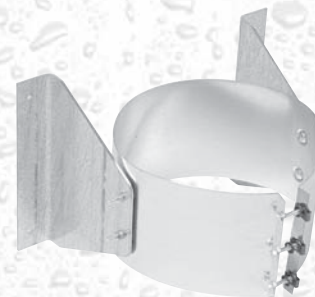
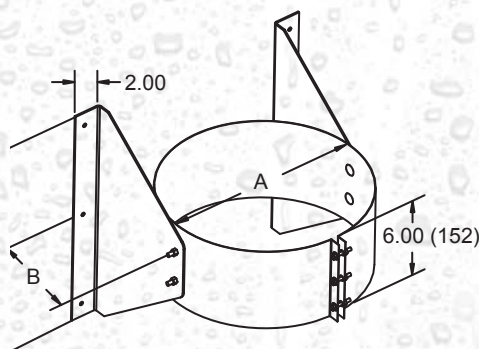
WALL SUPPORT (WS)

6" - 24" Diameters

The wall support is used to secure the vent to interior and exterior walls, maintaining clearance and providing alignment. Do not exceed 30 ft. distance between supports on interior walls. Do not exceed 8 ft. between supports on exterior walls.

PIPE I.D.	FCSSW						FCS					
	A		B		C		A		B		C	
6"	6.00"	(152)	5.00"	(127)	8.00"	(203)	8.00"	(203)	5.00"	(127)	8.00"	(203)
7"	7.00"	(178)	5.50"	(140)	9.00"	(229)	9.00"	(229)	5.50"	(178)	9.00"	(229)
8"	8.00"	(203)	6.00"	(152)	10.00"	(254)	10.00"	(254)	6.00"	(152)	10.00"	(254)
9"	9.00"	(229)	6.50"	(165)	11.00"	(279)	11.00"	(279)	6.50"	(165)	11.00"	(279)
10"	10.00"	(254)	7.00"	(178)	12.00"	(305)	12.00"	(305)	7.00"	(178)	12.00"	(305)
12"	12.00"	(305)	8.00"	(203)	14.00"	(356)	14.00"	(356)	8.00"	(203)	14.00"	(356)
14"	14.00"	(356)	13.00"	(330)	16.00"	(406)	16.00"	(406)	13.00"	(330)	16.00"	(406)
16"	16.00"	(406)	14.00"	(356)	18.00"	(457)	18.00"	(457)	14.00"	(356)	18.00"	(457)
18"	18.00"	(457)	15.00"	(381)	20.00"	(508)	20.00"	(508)	15.00"	(381)	20.00"	(508)
20"	20.00"	(508)	16.00"	(406)	22.00"	(559)	22.00"	(559)	16.00"	(406)	22.00"	(559)
22"	22.00"	(559)	17.00"	(432)	24.00"	(610)	24.00"	(610)	17.00"	(432)	24.00"	(610)
24"	24.00"	(610)	18.00"	(457)	26.00"	(660)	26.00"	(660)	18.00"	(457)	26.00"	(660)

Dimensions in inches (mm).



FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

PLATE SUPPORT (PS)

6" - 24" Diameters

Provides vertical or horizontal rigid support.
Includes split plates, clamp flanges, and 1/2 closure bands.

NOTE: Does not allow for thermal expansion.
Plate dimension = Flue diameter + 9"

(Zinc Plated)

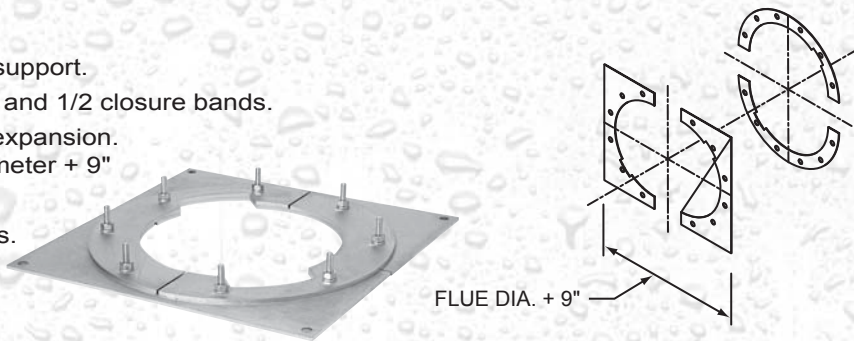
Do not exceed "X" between supports.

6" - 12" FCSSW X = 100'

14" - 24" FCSSW X = 75'

6" - 12" FCS X = 50'

14" - 24" FCS X = 30'



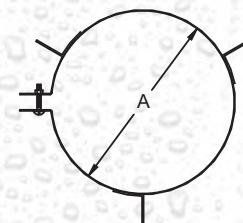
GUY RING (GR)

6" - 24" Diameters

NOTE: Guy Ring clamps
around outside of pipe.

A = Flue Diameter for FCSSW

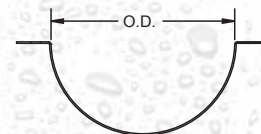
A = Flue Diameter + 2" for FCS



HALF ANGLE RING (HAR)

6" - 24" Diameters

Maximum distance between
supports or elbows = 7' 0"

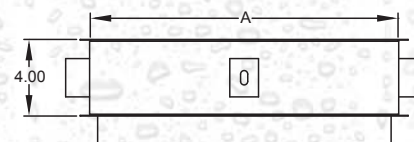


LIFTING RING (LR)

6" - 12" Diameters

Used to support and lower
vent assembly into existing chimney.

NOTE: Available in single wall only.



STACK SUPPORT ASSEMBLY (SSA)

6" - 24" Diameters

Supports Vertical Stack at floor level.
Includes moisture drain.

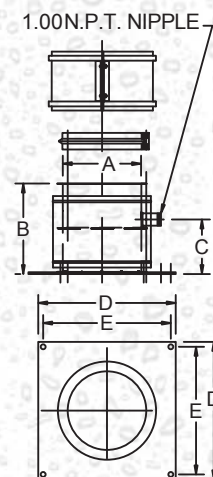
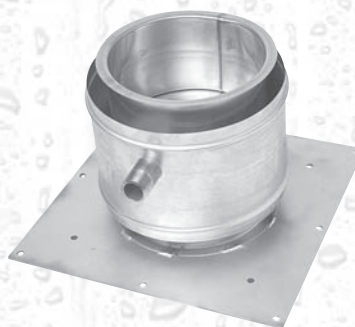
Maximum Supported Height:

6" - 12" FCSSW = 100'

14" - 24" FCSSW = 75'

6" - 12" FCS = 50'

14" - 24" FCS = 30'



FCSSW / FCS

A = PIPE I.D.

B = 9" (229)

C = 5.5" (140)

D = A+7" (148)

E = A+6" (152)

METAL-FAB[®] INC.

CORR/GUARD[®]



SPECIAL GAS VENT
26" to 36" DIAMETERS

FCG/FCGSW COMPONENTS 26" - 36" DIAMETERS

Metal-Fab provides an Appliance / Adapter Cross-Reference guide listing the most popular appliances and the Adapter required to connect Corr/Guard Venting systems. The Cross-Reference is available on our web site: <http://www.metal-fabcommercial.com/media/L2159.pdf>

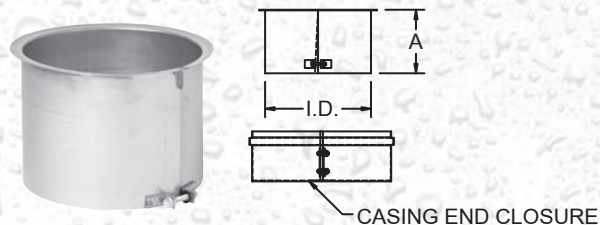
SINGLE WALL BOILER ADAPTER (SBA)

26" - 36" Diameters

Flow Resistance K = same as pipe

A = 6" (102)

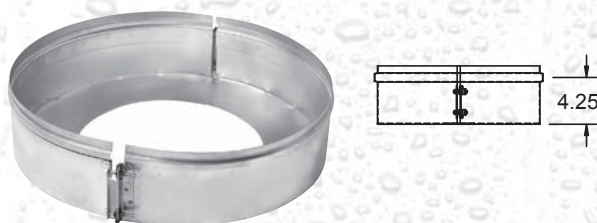
NOTE: Used to attach pipe to straight shank outlets
Attaches around exterior of collar. FCG SBA includes closure band. Not required on FCGSW.



CASING END CLOSURE (CEC)

26" - 36" Diameters

Used as an end cover when transitioning from FCGSW single wall to FCG double wall construction.
Clamps around casing bead.



PIPE LENGTHS

26" - 36" Diameters

NOTE: Deduct 1-1/8" for installed length.

Flow Resistance $K = .3 \left(\frac{L}{D} \right)$ for 26" (458) - 36" (915) diameters

Flow Resistance $K = .25 \left(\frac{L}{D} \right)$ for Engine and turbine exhausts,

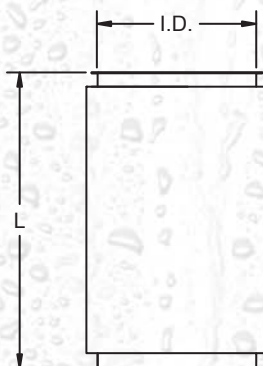
L = pipe length in feet

D = pipe diameter in inches

NOTE: Custom lengths available; contact factory.

STRAIGHT LENGTH 26" THRU 36"

PIPE LENGTHS	INSTALLED LENGTH (L)
9.00" (229)	7.88" (200)
12.00" (305)	10.88" (276)
18.00" (458)	16.88" (429)
24.00" (610)	22.88" (581)
36.00" (915)	34.88" (886)



PIPE I.D.	PIPE O.D.
FCGSW	FCG
26" (661)	28" (712)
28" (712)	30" (762)
30" (762)	32" (813)
32" (813)	34" (864)
34" (864)	36" (915)
36" (915)	38" (966)

VARIABLE LENGTH (VL)

26" – 36" Diameters

Flow Resistance $K = .4\left(\frac{L}{D}\right)$

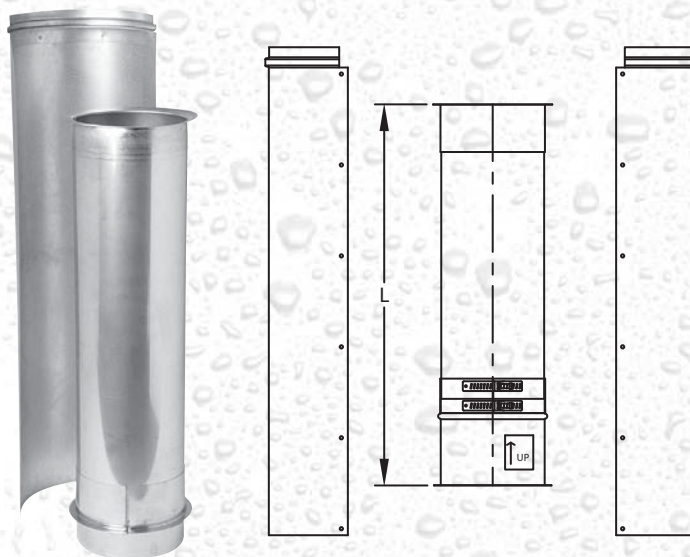
L = pipe length in feet

D = flue diameter

NOTE: Used to fill gaps between standard length components. Does not allow for expansion.

INSTALLED LENGTH (L)

	VL10	VL22
Minimum:	7.5" (191)	7.5" (191)
Maximum:	10" (254)	22" (559)



TAPERED INCREASER (TI)

26" – 36" Diameters

Flow Resistance $K = .51 \frac{[1 - (\frac{A}{C})^2]^2}{(\frac{A}{C})^4}$

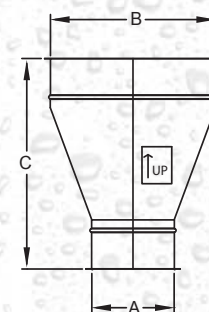
A = Inlet Diameter

B = Outlet Diameter

C = Installed Length – See Table

NOTE: ½ Step = 1" increase in diameter;
1 Step = 2" increase in diameter

Steps	½ - 3	3 ½ - 6
"C" Length	15" (381)	20" (508)



When ordering, specify inlet and outlet diameters with inlet diameter first.

Example: 22FCGTI26 for 22" to 26" increase.

ECCENTRIC TAPERED INCREASER (EI)

26" – 36" Diameters

Flow Resistance $K = .51 \frac{[1 - (\frac{A}{C})^2]^2}{(\frac{A}{C})^4}$

A = Inlet Diameter

B = Outlet diameter

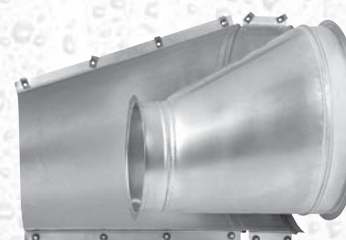
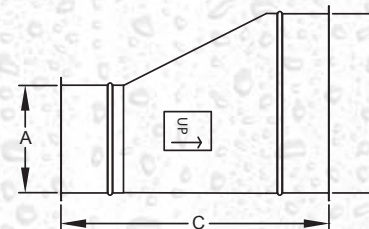
C = Installed Length – See Table

NOTE: ½ Step = 1" increase in diameter;
1 Step = 2" increase in diameter

Steps	½ - 2	2 ½ - 4	4.5 - 6
"C" Length	15" (381)	21" (534)	28" (712)

When ordering, specify inlet and outlet diameters with inlet diameter first.

Example: 22FCGEI26 for 22" to 26" increase.



FCG/FCGSW COMPONENTS 26" - 36" DIAMETERS

VARIABLE OFFSET KIT (VOK)

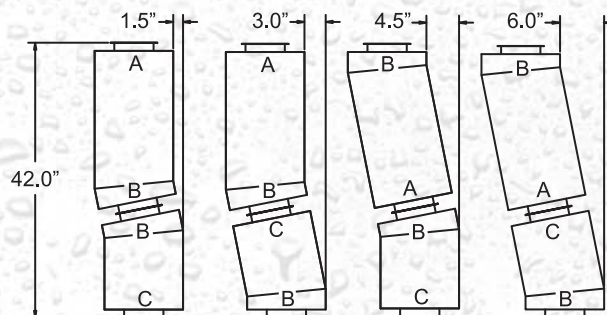
26" - 36" Diameters

Flow Resistance $K = 0.9$

Assembled Length = 42"

ENDS JOINED	OFFSET
B-B	1.50"
B-C	3.00"
A-B	4.50"
A-C	6.00"

Provides offsets of 1.5", 3.0", 4.5", & 6" by rotating components.



15° ELBOW (15L)

26" - 36" Diameters

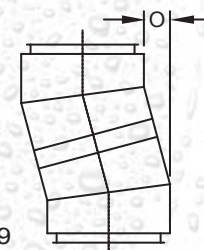
Flow Resistance $K = 0.06$

Offset Distance:

$$O = 2 \times "A" \times 0.259$$

Offset distance with pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.259$$



PIPE I.D.		A	
		FCGSW / FCG	
26"	(661)	8.50"	(216)
28"	(712)	8.50"	(216)
30"	(762)	8.50"	(216)
32"	(813)	8.50"	(216)
34"	(864)	8.50"	(216)
36"	(915)	8.50"	(216)

Dimensions in inches (mm).

30° ELBOW (30L)

26" - 36" Diameters

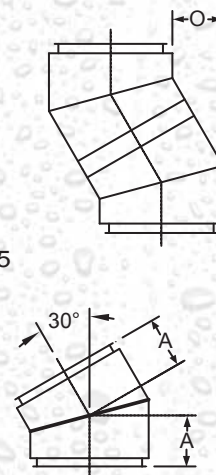
Flow Resistance $K = 0.12$

Offset Distance:

$$O = 2 \times "A" \times 0.5$$

Offset distance with pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.5$$



PIPE I.D.		A	
		FCGSW / FCG	
26"	(661)	8.50"	(216)
28"	(712)	8.50"	(216)
30"	(762)	8.50"	(216)
32"	(813)	8.50"	(216)
34"	(864)	8.50"	(216)
36"	(915)	8.50"	(216)

Dimensions in inches (mm).

45° ELBOW (45L)

26" - 36" Diameters

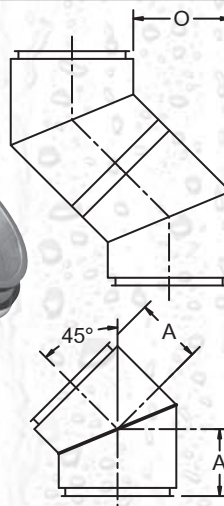
Flow Resistance $K = 0.15$

Offset Distance:

$$O = 2 \times "A" \times 0.707$$

Offset Distance with pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.707$$



PIPE I.D.		A	
		FCGSW / FCG	
26"	(661)	11.75"	(299)
28"	(712)	11.75"	(299)
30"	(762)	11.75"	(299)
32"	(813)	11.75"	(299)
34"	(864)	11.75"	(299)
36"	(915)	11.75"	(299)

Dimensions in inches (mm).

FCG/FCGSW COMPONENTS 26" – 36" DIAMETERS

90° ELBOW (90L)

26" – 36" Diameters

Flow Resistance K:

26" = 0.54

28" – 36" = 0.72

Offset Distance:

$O = 2 \times "A"$

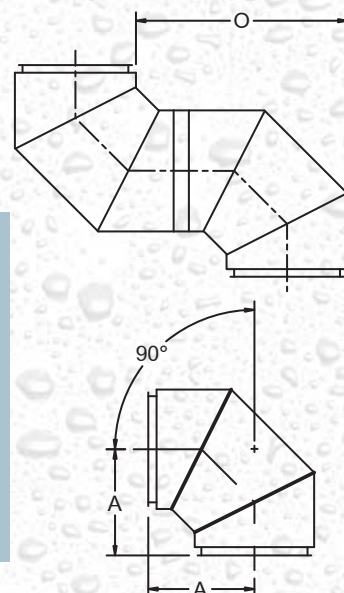
Offset Distance with pipe length between elbows:

$O = 2 \times "A" + \text{pipe length}$



PIPE I.D.		A	
		FCGSW / FCG	
26"	(661)	21.00"	(534)
28"	(712)	22.00"	(559)
30"	(762)	23.00"	(585)
32"	(813)	24.00"	(610)
34"	(864)	25.00"	(635)
36"	(915)	26.00"	(661)

Dimensions in inches (mm).



90° TEE (T)

26" – 36" Diameters

Flow Resistance K = 1.25

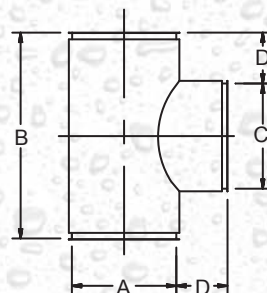
A = Pipe I.D.

B = "C" I.D. + 10"

C = Tap I.D.

D = 5"

NOTE: Specify tap diameter (C) at time of order.



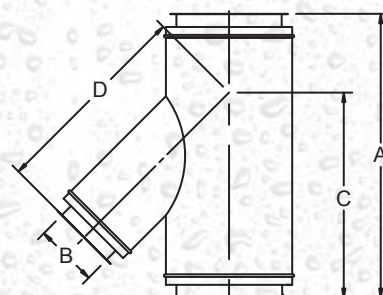
45° TEE (45T)

26" – 36" Diameters

Flow Resistance K = 0.4

NOTE: Used for low resistance flow into vertical or horizontal run. Specify Tap Diameter "B" when ordering.

NOTE: For dimensional information see tables on page 28 and 29.



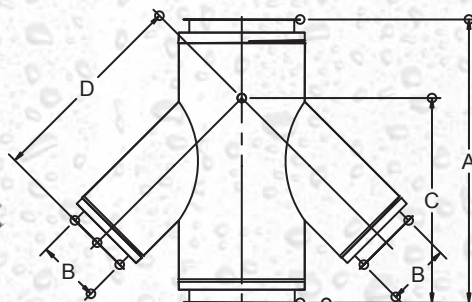
DOUBLE LATERAL (DL)

26" – 36" Diameters.

Flow Resistance K = 0.4

NOTE: Used to centrally connect two appliance manifolds to a common chimney. Specify tap diameter "B" at time of order. Tap dia. must be less than Body dia.

NOTE: For dimensional information see tables on page 28 and 29.

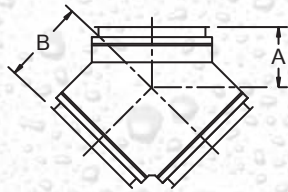


FCG/FCGSW COMPONENTS 26" – 36" DIAMETERS

90° WYE (90Y)

26" – 36" Diameters.

Flow Resistance K = 0.6



PIPE I.D.	FCGSW / FCG	
	A	B
26" (661)	9.37" (238)	19.00" (483)
28" (712)	9.75" (248)	20.00" (508)
30" (762)	10.25" (261)	21.00" (534)
32" (813)	10.62" (270)	22.00" (559)
34" (864)	11.12" (283)	23.00" (585)
36" (915)	11.50" (292)	24.00" (610)

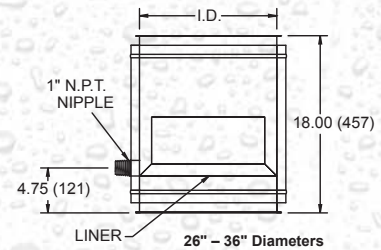
DRAIN SECTION (DS)

26" – 36" Diameters

Flow Resistance K = 0.25

Drain Diameter: 26" – 36" = 1" NPT

NOTE: Used to drain rain water or condensation from inside the stack.

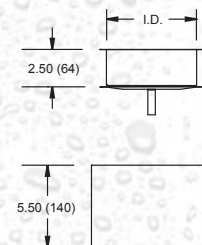


DRAIN TEE CAP W/ CASING END CLOSURE (TC)

26" – 36" Diameters

Drain Diameter: 5/8"

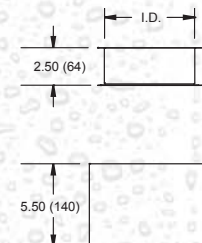
NOTE: Provides drain port for rain or condensation.



TEE CAP LESS DRAIN W/ CASING END CLOSURE (TCN)

26" – 36" Diameters

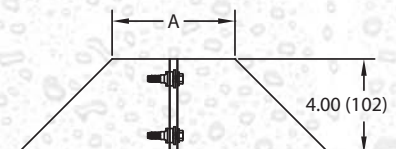
NOTE: Used to close and seal unused port of Tees, Wyes and Laterals.



STORM COLLAR (SC)

26" – 36" Diameters

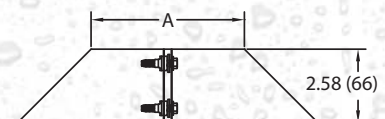
A = Pipe Diameter (O.D.)



CLOSURE RING (CR)

26" – 36" Diameters

A = Pipe Diameter (I.D.)

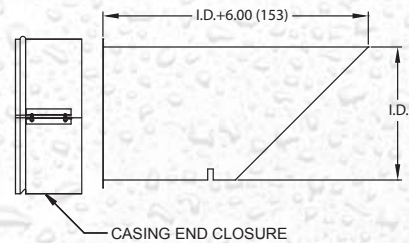


FCG/FCGSW COMPONENTS 26" - 36" DIAMETERS

MITER CUT MALE (MCM)

26" - 36" Diameters

NOTE: Used for horizontal termination. Standard with bird screen.

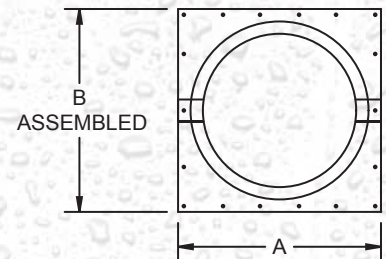


FIRESTOP (FS)

26" - 36" Diameters

PIPE I.D.		FCGSW		FCG	
		A	B	A	B
26"	(661)	36.00"	(915)	38.00"	(966)
28"	(712)	38.00"	(966)	40.00"	(1016)
30"	(762)	40.00"	(1016)	42.00"	(1067)
32"	(813)	42.00"	(1067)	44.00"	(1118)
34"	(864)	44.00"	(1118)	46.00"	(1168)
36"	(914)	46.00"	(1168)	48.00"	(1219)

Dimensions in inches (mm).



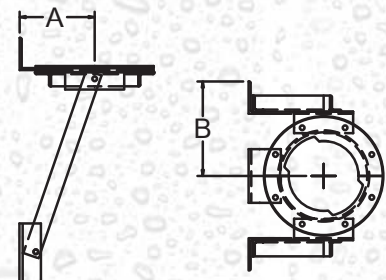
WALL SUPPORT (WS)

26" - 36" Diameters

Used to provide vertical support.

NOTE: Does not allow for thermal expansion.
(Zinc Plated)

PIPE I.D.	FCGSW / FCG	
	A	B
26" (661)	18.62" (473)	18.00" (458)
28" (712)	19.62" (499)	19.00" (483)
30" (762)	20.62" (524)	20.00" (508)
32" (813)	21.62" (550)	21.00" (534)
34" (864)	23.12" (588)	22.50" (572)
36" (915)	24.12" (613)	23.50" (597)



Do not exceed 40' between supports on interior walls.

Do not exceed 10' between supports on exterior walls

PLATE SUPPORT (PS)

26" - 36" Diameters

Provides vertical or horizontal rigid support.
Includes split plates, clamp flanges, and 1/2 closure bands.

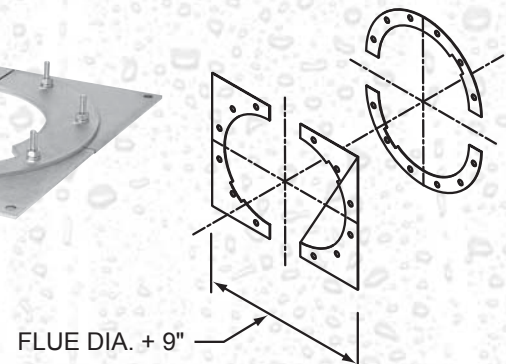
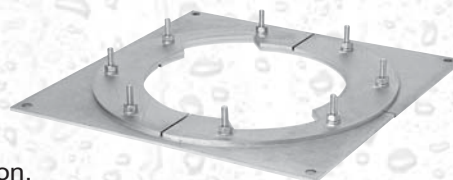
NOTE: Does not allow for thermal expansion.
Plate dimension = Flue diameter + 9"

(Zinc Plated)

Do not exceed "X" between supports.

26" - 36" FCGSW X = 100'

26" - 36" FCG X = 100'



FCG/FCGSW COMPONENTS 26" - 36" DIAMETERS

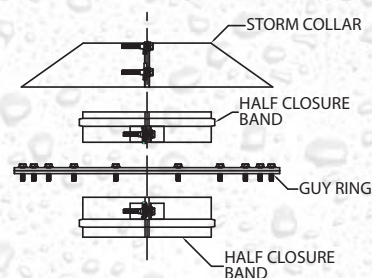
GUY RING (GR)

26" - 36" Diameters

NOTE: Guy Ring clamps around outside of pipe.

A = Flue Diameter for FCGSW

A = Flue Diameter + 2" for FCG



HALF ANGLE RING (HAR)

26" - 36" Diameters

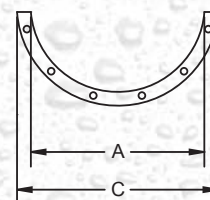
Used to support horizontal runs.

(Zinc Plated)

Maximum distance between supports or elbows = 10' 6"



HALF ANGLE RING



FULL ANGLE RING (FAR)

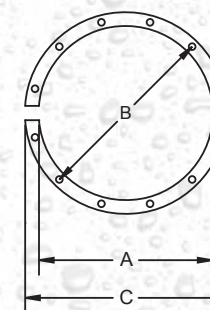
26" - 36" Diameters

Provides lateral support for vertical runs. Allows pipe movement for thermal expansion.

(Zinc Plated)



FULL ANGLE RING



PRODUCT		DIMENSIONS			
PIPE I.D.		Inside	Hole Centerline	Outside	Hole Qty.
FCGSW	FCG	A	B	C	D
26" (661)	-	26.25" (667)	28.50" (724)	30.25" (769)	24
28" (712)	26" (661)	28.25" (718)	30.50" (775)	32.25" (820)	24
30" (762)	28" (712)	30.25" (769)	32.50" (826)	34.25" (870)	28
32" (813)	30" (762)	32.25" (820)	34.50" (877)	36.25" (921)	28
34" (864)	32" (813)	34.25" (870)	36.50" (928)	38.25" (972)	32
36" (915)	34" (864)	36.25" (921)	38.50" (978)	40.25" (1022)	32
-	36" (915)	38.25" (972)	40.50" (1029)	42.25" (1073)	36

STACK SUPPORT ASSEMBLY (SSA)

26" - 36" Diameters

Supports Vertical Stack at floor level. Includes moisture drain.

Maximum Supported Height:

26" - 36" FCG / FCGSW = 100'

FCGSW / FCG

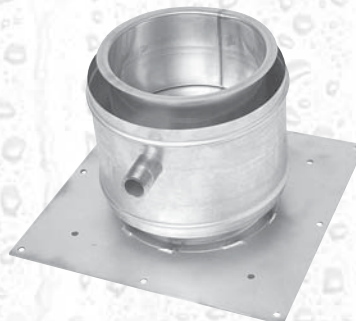
A = PIPE I.D.

B = 9" (229)

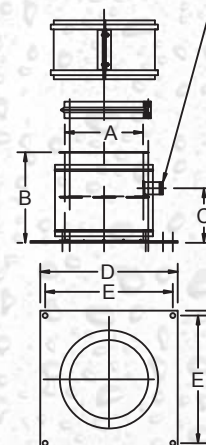
C = 5.5" (140)

D = A+7" (148)

E = A+6" (152)



1.00N.P.T. NIPPLE



CORR/GUARD® COMPONENTS 6" - 36" DIAMETERS

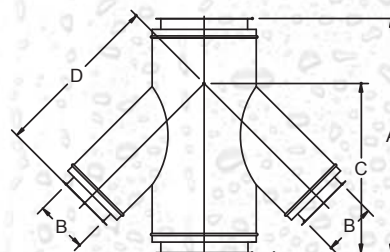
CORR/GUARD® 45MT & DL TABLE IN INCHES
6" - 36" Diameters

IAPT.D.														
	36	34	32	30	28	26	24	22	20	18	16	14	12	
36FCG	"A"	63.74	60.91	58.08	55.26	52.43	49.60	46.77	43.94	41.11	38.28	37.46	36.63	34.80
	"B"	36	34	32	30	28	26	24	22	20	18	16	14	12
	"C"	50.87	49.46	48.04	46.63	45.21	43.80	42.39	40.97	39.56	38.14	36.73	35.31	33.90
	"D"	50.87	49.87	48.87	47.87	46.87	45.87	44.87	43.87	42.87	41.87	40.87	39.87	38.87
34FCG	"A"	60.91	58.08	55.26	52.43	49.60	46.77	43.94	41.11	38.28	36.46	35.63	33.80	31.97
	"B"	34	32	30	28	26	24	22	20	18	16	14	12	10
	"C"	48.46	47.04	45.63	44.21	42.80	41.39	39.97	38.56	37.14	35.73	34.31	32.90	31.49
	"D"	48.46	47.46	46.46	45.46	44.46	43.46	42.46	41.46	40.46	39.46	38.46	37.46	36.46
32FCG	"A"	58.08	55.26	52.43	49.60	46.77	43.94	41.11	38.28	35.46	34.63	32.80	30.97	29.14
	"B"	32	30	28	26	24	22	20	18	16	14	12	10	8
	"C"	46.04	44.63	43.21	41.80	40.39	38.97	37.56	36.14	34.73	33.31	31.90	30.49	29.08
	"D"	46.04	45.04	44.04	43.04	42.04	41.04	40.04	39.04	38.04	37.04	36.04	35.04	34.04
30FCG	"A"	55.26	52.43	49.60	46.77	43.94	41.11	38.28	35.46	32.63	31.80	29.97	28.14	27.31
	"B"	30	28	26	24	22	20	18	16	14	12	10	8	6
	"C"	43.63	42.21	40.80	39.39	37.97	36.56	35.14	33.73	32.31	30.90	29.49	28.08	27.27
	"D"	43.63	42.63	41.63	40.63	39.63	38.63	37.63	36.63	35.63	34.63	33.63	32.63	31.63
28FCG	"A"	52.43	49.60	46.77	43.94	41.11	38.28	35.46	32.63	30.80	28.97	27.14	26.31	25.48
	"B"	28	26	24	22	20	18	16	14	12	10	8	6	4
	"C"	41.21	39.80	38.39	36.97	35.56	34.14	32.73	31.31	29.90	28.49	27.08	25.67	24.86
	"D"	41.21	40.21	39.21	38.21	37.21	36.21	35.21	34.21	33.21	32.21	31.21	30.21	29.21
26FCG	"A"	49.60	46.77	43.94	41.11	38.28	35.46	32.63	29.80	27.97	26.14	25.31	24.48	23.65
	"B"	26	24	22	20	18	16	14	12	10	8	6	4	2
	"C"	38.80	37.39	35.97	34.56	33.14	31.73	30.31	28.90	27.49	26.08	24.67	23.26	22.45
	"D"	38.80	37.80	36.80	35.80	34.80	33.80	32.80	31.80	30.80	29.80	28.80	27.80	26.80
24FCG	"A"	46.77	43.94	41.11	38.28	35.46	32.63	29.80	26.97	25.14	24.31	23.48	22.65	21.82
	"B"	24	22	20	18	16	14	12	10	8	6	4	2	0
	"C"	36.39	34.97	33.56	32.14	30.73	29.31	27.90	26.49	25.08	23.67	22.26	20.85	20.04
	"D"	36.39	35.39	34.39	33.39	32.39	31.39	30.39	29.39	28.39	27.39	26.39	25.39	24.39
22FCS	"A"	43.94	41.11	38.28	35.46	32.63	29.80	26.97	24.14	23.31	22.48	21.65	20.82	20.00
	"B"	22	20	18	16	14	12	10	8	6	4	2	0	-2
	"C"	33.97	32.56	31.14	29.73	28.31	26.90	25.49	24.08	22.67	21.26	20.85	20.44	20.03
	"D"	33.97	32.97	31.97	30.97	29.97	28.97	27.97	26.97	25.97	24.97	23.97	22.97	21.97
20FCS	"A"	41.11	38.28	35.46	32.63	29.80	26.97	24.14	22.31	21.48	20.65	19.82	19.00	18.17
	"B"	20	18	16	14	12	10	8	6	4	2	0	-2	-4
	"C"	31.56	30.14	28.73	27.31	25.90	24.49	23.08	21.67	20.26	18.85	17.44	16.03	15.22
	"D"	31.56	30.56	29.56	28.56	27.56	26.56	25.56	24.56	23.56	22.56	21.56	20.56	19.56
18FCS	"A"	38.28	35.46	32.63	29.80	26.97	24.14	22.31	21.48	20.65	19.82	19.00	18.17	17.35
	"B"	18	16	14	12	10	8	6	4	2	0	-2	-4	-6
	"C"	29.14	27.73	26.31	24.90	23.49	22.08	20.67	19.26	17.85	16.44	15.03	13.62	12.81
	"D"	29.14	28.14	27.14	26.14	25.14	24.14	23.14	22.14	21.14	20.14	19.14	18.14	17.14
16FCS	"A"	35.46	32.63	29.80	26.97	24.14	22.31	21.48	20.65	19.82	19.00	18.17	17.35	16.53
	"B"	16	14	12	10	8	6	4	2	0	-2	-4	-6	-8
	"C"	26.73	25.31	23.90	22.49	21.08	19.67	18.26	16.85	15.44	14.03	12.62	11.21	10.40
	"D"	26.73	25.73	24.73	23.73	22.73	21.73	20.73	19.73	18.73	17.73	16.73	15.73	14.73
14FCS	"A"	32.63	29.80	26.97	24.14	22.31	21.48	20.65	19.82	19.00	18.17	17.35	16.53	15.71
	"B"	14	12	10	8	6	4	2	0	-2	-4	-6	-8	-10
	"C"	24.31	22.90	21.49	20.08	18.67	17.26	15.85	14.44	13.03	11.62	10.21	8.80	8.00
	"D"	24.31	23.31	22.31	21.31	20.31	19.31	18.31	17.31	16.31	15.31	14.31	13.31	12.31
12FCS	"A"	29.80	26.97	24.14	22.31	21.48	20.65	19.82	19.00	18.17	17.35	16.53	15.71	14.89
	"B"	12	10	8	6	4	2	0	-2	-4	-6	-8	-10	-12
	"C"	21.90	20.49	19.08	17.67	16.26	14.85	13.44	12.03	10.62	9.21	7.80	6.40	5.60
	"D"	21.90	20.90	19.90	18.90	17.90	16.90	15.90	14.90	13.90	12.90	11.90	10.90	9.90
10FCS	"A"	26.97	24.14	22.31	21.48	20.65	19.82	19.00	18.17	17.35	16.53	15.71	14.89	14.07
	"B"	10	8	6	4	2	0	-2	-4	-6	-8	-10	-12	-14
	"C"	19.49	18.08	16.67	15.26	13.85	12.44	11.03	9.62	8.21	6.80	5.40	4.00	3.20
	"D"	19.49	18.49	17.49	16.49	15.49	14.49	13.49	12.49	11.49	10.49	9.49	8.49	7.49
9FCS	"A"	25.56	24.14	22.73	21.31	20.90	19.48	18.07	16.66	15.25	13.84	12.43	11.02	9.61
	"B"	9	8	7	6	5	4	3	2	1	0	-1	-2	-3
	"C"	18.28	17.57	16.86	16.16	15.45	14.75	14.04	13.34	12.63	11.93	11.22	10.52	9.81
	"D"	18.28	17.28	16.28	15.28	14.28	13.28	12.28	11.28	10.28	9.28	8.28	7.28	6.28
8FCS	"A"	24.14	22.73	21.31	20.90	19.48	18.07	16.66	15.25	13.84	12.43	11.02	9.61	8.20
	"B"	8	7	6	5	4	3	2	1	0	-1	-2	-3	-4
	"C"	17.07	16.36	15.66	14.95	14.25	13.54	12.84	12.13	11.43	10.72	10.02	9.31	8.61
	"D"	17.07	16.07	15.07	14.07	13.07	12.07	11.07	10.07	9.07	8.07	7.07	6.07	5.07
7FCS	"A"	22.73	21.31	20.90	19.48	18.07	16.66	15.25	13.84	12.43	11.02	9.61	8.20	6.79
	"B"	7	6	5	4	3	2	1	0	-1	-2	-3	-4	-5
	"C"	15.86	15.16	14.45	13.75	13.05	12.34	11.64	10.94	10.23	9.53	8.83	8.12	7.42
	"D"	15.86	14.86	13.86	12.86	11.86	10.86	9.86	8.86	7.86	6.86	5.86	4.86	3.86
6FCS	"A"	21.31	20.90	19.48	18.07	16.66	15.25	13.84	12.43	11.02	9.61	8.20	6.79	5.38
	"B"	6	5	4	3	2	1	0	-1	-2	-3	-4	-5	-6
	"C"	14.66	13.96	13.25	12.55	11.85	11.15	10.44	9.74	9.04	8.34	7.64	6.94	6.24
	"D"	14.66	13.66	12.66	11.66	10.66	9.66	8.66	7.66	6.66	5.66	4.66	3.66	2.66

The diagram illustrates a 45-degree tee fitting. Dimension A represents the total height of the fitting. Dimension B indicates the thickness of the flange. Dimension C shows the radius of the curved transition. Dimension D denotes the length of the side branch. The diagram is a cross-sectional view showing the internal and external profiles of the fitting.

FCSSW, FCS, FCGSW and FCG

45MT & DL TABLE IN INCHES



FCSSW, FCS, FCGSW and FCG
45MT & DL TABLE IN INCHES

WARRANTY

LIMITED LIFETIME WARRANTY

The Metal-Fab, Inc. 6 thru 36-inch diameter Model FCS/FCG "Corr/Guard Double Wall" and FCSSW/FCGSW "Corr/Guard Single-Wall" factory-built gas vent system (the products), when installed in accordance to manufacturer's instructions and when properly and regularly cleaned and maintained, are warranted by Metal-Fab, Inc. under normal use against defects in material or workmanship for as long as the original purchaser owns the vent system.

Refer to Metal-Fab Warranty form L2619 for complete information and claim procedures, exclusions and limitations. The entire warranty is available at: www.metal-fabcommercial.com

CORR/GUARD® COMPONENTS 6" - 36" DIAMETERS

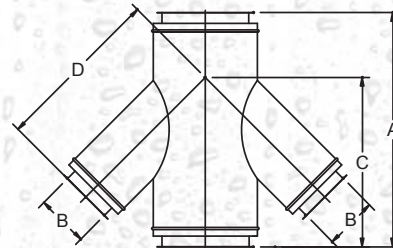
**CORR/GUARD® 45MT & DL TABLE IN METRIC
153mm – 915mm Diameters**

TAP I.D.													
	36	34	32	30	28	26	24	22	20	18	16	14	12
36FCG	"A"	1619	1547	1475	1403	1332	1260	1188	1116	1044	972	901	830
	"B"	914	864	813	762	711	660	610	559	508	457	406	356
	"C"	1292	1256	1220	1184	1148	1112	1077	1041	1005	969	933	897
	"D"	1292	1267	1241	1216	1190	1165	1140	1114	1089	1063	1038	1013
34FCG	"A"	1547	1475	1403	1332	1260	1188	1116	1044	972	901	830	758
	"B"	864	813	762	711	660	610	559	508	457	406	356	305
	"C"	1231	1195	1159	1123	1087	1051	1015	979	943	907	872	836
	"D"	1231	1205	1180	1155	1129	1104	1078	1053	1028	1002	977	951
32FCG	"A"	1475	1403	1332	1260	1188	1116	1044	972	901	830	758	686
	"B"	813	762	711	660	610	559	508	457	406	356	305	254
	"C"	1169	1134	1098	1062	1026	990	954	918	882	846	810	774
	"D"	1169	1144	1119	1093	1068	1042	1017	992	966	941	915	890
30FCG	"A"	1403	1332	1260	1188	1116	1044	972	901	829	758	686	614
	"B"	762	711	660	610	559	508	457	406	356	305	254	203
	"C"	1108	1072	1036	1000	964	929	893	857	821	785	749	713
	"D"	1108	1083	1057	1032	1007	981	956	930	905	880	854	829
28FCG	"A"	1332	1260	1188	1116	1044	972	901	829	758	686	614	542
	"B"	711	660	610	559	508	457	406	356	305	254	203	152
	"C"	1047	1011	975	939	903	867	831	795	759	724	688	652
	"D"	1047	1021	996	971	945	920	894	869	844	818	793	767
26FCG	"A"	1260	1188	1116	1044	972	901	829	757	685	613	541	469
	"B"	660	610	559	508	457	406	356	305	254	203	152	101
	"C"	985	950	914	878	842	806	770	734	698	662	626	590
	"D"	985	960	935	909	884	858	833	808	782	757	731	705
24FCS	"A"	1188	1116	1044	972	901	829	757	685	613	541	469	397
	"B"	610	559	508	457	406	356	305	254	203	152	101	51
	"C"	924	888	852	816	780	745	709	673	637	601	565	529
	"D"	924	899	873	848	823	797	772	746	721	696	671	645
22FCS	"A"	1116	1044	972	901	829	757	685	613	541	469	397	325
	"B"	559	508	457	406	356	305	254	203	152	101	51	26
	"C"	863	827	791	755	719	683	647	611	575	539	503	467
	"D"	863	837	812	787	761	736	710	685	660	635	610	585
20FCS	"A"	1044	972	901	829	757	685	613	541	469	397	325	253
	"B"	508	457	406	356	305	254	203	152	101	51	26	13
	"C"	802	766	730	694	658	622	586	550	514	478	442	406
	"D"	802	776	751	725	700	675	649	624	598	573	547	522
18FCS	"A"	972	901	829	757	685	613	541	469	397	325	253	181
	"B"	457	406	356	305	254	203	152	101	51	26	13	6
	"C"	740	704	668	632	597	561	525	489	453	417	381	345
	"D"	740	715	689	664	639	613	588	563	538	513	488	463
16FCS	"A"	901	829	757	685	613	541	469	397	325	253	181	109
	"B"	406	356	305	254	203	152	101	51	26	13	6	3
	"C"	679	643	607	571	535	499	463	427	391	355	319	283
	"D"	679	653	628	603	578	552	527	502	477	452	427	402
14FCS	"A"	829	757	685	613	541	469	397	325	253	181	109	57
	"B"	356	305	254	203	152	101	51	26	13	6	3	1
	"C"	618	582	546	510	474	438	402	366	330	294	258	222
	"D"	618	592	567	541	515	490	464	438	413	387	361	335
12FCS	"A"	757	685	613	541	469	397	325	253	181	109	57	25
	"B"	305	254	203	152	101	51	26	13	6	3	1	1
	"C"	556	520	484	448	412	376	340	304	268	232	196	160
	"D"	556	531	518	505	493	480	467	454	441	428	415	402
10FCS	"A"	685	649	613	577	541	505	469	433	397	361	325	289
	"B"	254	229	203	178	152	127	101	76	51	26	13	6
	"C"	495	477	459	441	423	405	387	369	351	333	315	297
	"D"	495	482	470	457	444	431	418	405	392	379	366	353
9FCS	"A"	649	613	577	541	505	469	433	397	361	325	289	253
	"B"	229	203	178	152	127	101	76	51	26	13	6	3
	"C"	464	446	428	410	392	374	356	338	320	302	284	266
	"D"	464	452	439	426	413	400	387	374	361	348	335	322
8FCS	"A"	613	577	541	505	469	433	397	361	325	289	253	217
	"B"	203	178	152	127	101	76	51	26	13	6	3	1
	"C"	434	416	398	380	362	344	326	308	290	272	254	236
	"D"	434	421	408	395	382	369	356	343	330	317	304	291
7FCS	"A"	577	541	505	469	433	397	361	325	289	253	217	181
	"B"	178	152	127	101	76	51	26	13	6	3	1	1
	"C"	403	385	367	349	331	313	295	277	259	241	223	205
	"D"	403	390	377	364	351	338	325	312	299	286	273	260
6FCS	"A"	541	505	469	433	397	361	325	289	253	217	181	145
	"B"	152	127	101	76	51	26	13	6	3	1	1	1
	"C"	372	354	336	318	300	282	264	246	228	210	192	174
	"D"	372	359	346	333	320	307	294	281	268	255	242	229

Technical drawing of a 45-degree elbow fitting. The drawing shows the side and end views of the fitting. Dimension A is the overall height of the fitting. Dimension B is the width of the fitting at the base. Dimension C is the width of the fitting at the top. Dimension D is the length of the fitting along the 45-degree angle.

FCSSW, FCS, FCGSW and FCG

45MT & DL TABLE IN INCHES



**FCSSW, FCS, FCGSW and FCG
45MT & DL TABLE IN INCHES**

WARRANTY

LIMITED LIFETIME WARRANTY

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CORR/GUARD® COMPONENTS 6" – 36" DIAMETERS

JOINT ASSEMBLY

6" – 36" Diameters

- 1a. FCS/FCSSW: Apply continuous bead of sealant ¼" wide at corner of flange and sleeve
- 1b. FCG/FCGSW: Apply continuous bead of sealant ¼" wide to one flange
2. Join to next section
3. Fill the flange vee band with sealant and install around flanges
4. Gently tap vee band with a soft head mallet while tightening band to assure tight seal
5. Install casing closure band. (Seal if external to structure to prevent moisture infiltration)



SEALANT REQUIREMENTS

6" – 36" Diameters

P070 Sealant

Flue Diameter	Tubes / Joint	Joints / Tube
6"	0.20	5
8"	0.20	5
10"	0.20	5
12"	0.25	4
14"	0.25	4
16"	0.25	4
18"	0.33	3
20"	0.33	3
22"	0.33	3
24"	0.50	2
26"	0.50	2
28"	0.50	2
30"	0.67	1-1/2
32"	0.67	1-1/2
34"	0.67	1-1/2
36"	0.67	1-1/2



G Series Factory-Built Grease Duct Systems



Pressure Rated Chimney & Vents



Generator & Fume Exhaust



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