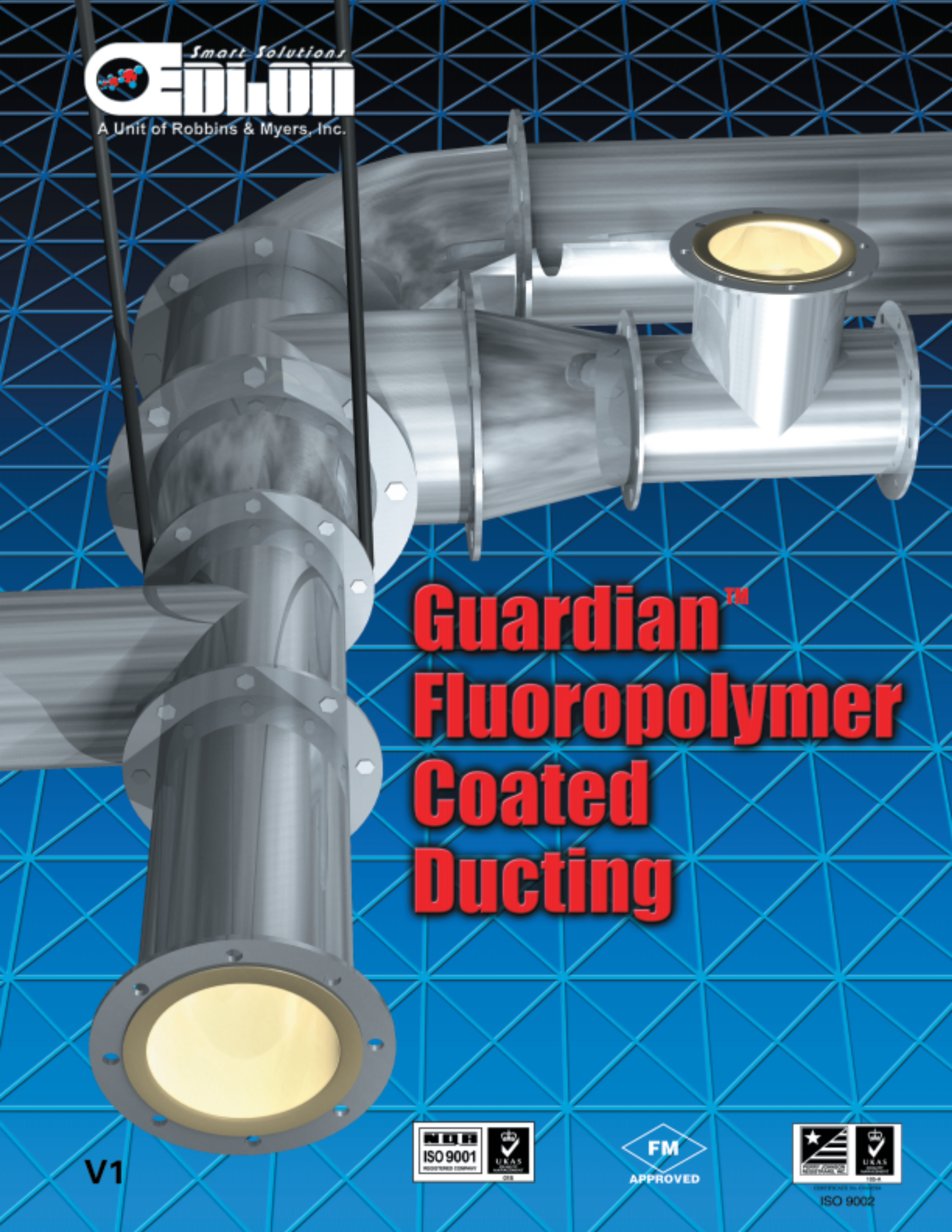
Smart Solutions

EDLON

A Unit of Robbins & Myers, Inc.



Guardian™ Fluoropolymer Coated Ducting

V1

ISO 9001

FM APPROVED

ISO 9002

Table of Contents

Ultra-Pure & Corrosion Resistant Fluoropolymer Solutions

Fluoropolymer Expertise

Edlon is a global manufacturer of Corrosion Resistant, High Purity Products serving the Semiconductor, Pharmaceutical and Chemical Processing Industries. Manufacturing facilities are located in Leven, Scotland, Avondale, PA, West Chester, PA, Charleston, WV and Suzhou, China. With over 38 years of experience, Edlon is a recognized leader in fluoropolymer fabrication and thick film coating technologies for corrosion resistant and high purity material applications.

Proprietary Fabrication Techniques

As a world leader in fluoropolymer lining, Edlon offers proprietary technologies in the areas of Pure-Fusion™ seaming, electrostatically applied coatings, thermoforming and molding. Edlon engineers recognized early that providing the best solutions would require expertise in all areas of fluoropolymer fabrication. Many of Edlon's products are patented and most of our fabrication techniques are considered proprietary.

Broadest Range of Corrosion Resistant Materials

A wide selection of polymer and fluoropolymer materials and a broad range of application techniques makes Edlon the ONLY full-range supplier of fluoropolymer solutions in the world.
Capabilities include:

- Fluoropolymer loose linings & bonded linings
- Thick, permeation-resistant fluoropolymer coatings
- FM Approved thin film coatings for corrosive fume exhaust ducting
- Fluoropolymer rotomolding & rotolining
- Fluoropolymer vacuum forming
- Molded and machined fluoropolymer components
- Full line of plastic-lined piping products

Edlon solutions utilize the full range of corrosion resistant high-purity materials, depending on the specific media and operating requirements.

Innovation, Ingenuity and Excellence

Edlon is the leader in designing unique innovative solutions for the most corrosive environments. Our understanding of fluoropolymers dates back to 1958 when Edlon invented the isostatic molding and fusion welding processes. Today, Edlon can assist and design equipment to your specifications helping to meet your corrosion requirements. Edlon has in-depth technical expertise with all plastic materials including PFA 450HP, PFA 350, PTFM, PTFE, FEP, ETFE, ECTFE, PVDF, PP and HDPE. All materials are virgin grade and are of the highest quality and purity available.

Multiple Coating Options

SC-7001™ PFA (perfluoroalkoxy)

PFA exhibits chemical resistance virtually identical to PTFE. Suitable for service from 0°F to 400°F (-32° C to 205°C), PFA is a fully fluorinated thermoplastic. PFA provides excellent low and high temperature toughness and exceptional flame resistance. It is the preferred material in environments where harsh chemicals, thermal, and mechanical stresses are present. Due to its chemical stability, PFA is well-suited for highly corrosive applications.

SC-5001 FM™ ETFE (ethylene tetrafluoroethylene)

ETFE combines mechanical toughness with outstanding chemical resistance approaching the fully fluorinated polymers. ETFE is effective from -20°F to 300°F (-29°C to 149°C).

SC-2001 FM™ ECTFE (ethylene chlorotrifluoroethylene)

ECTFE features excellent permeation and abrasion resistance. Rated from 0°F to 300°F (-32°C to 149°C), it has a surface smoothness exceeding that of other fluoropolymers making it an excellent option for corrosion protection. In addition, its unique molecular structure makes ECTFE ideal for high build coatings.

All coating systems are available in an anti-static grade for applications where static discharge is a concern.

Please contact EDLON for assistance in selecting the best coating for your application

Guardian™ Fluoropolymer Coated Ducting

GUARDIAN™ Fluoropolymer Coated Ducting is a high performance exhaust system designed for a wide range of industrial applications. Tenacious bond strength and uniform coating thickness combine to resist chemical attack.

- Edlon's GUARDIAN™ fluoropolymer coated stainless steel ducting is a corrosive exhaust system that has no need for an internal sprinkler system. It is designed & manufactured in accordance with **Factory Mutual Research Standards 4922 & 4910**.
- All exhaust ducts manufactured by Edlon worldwide are identified under the GUARDIAN™ trademark.
- All ducts are designed for vacuum of 6" WG (1500 Pa), 12" WG (3000 Pa) or 18" WG (4500 Pa).
- All ducts are fabricated from 300 series stainless steel and are coated on the internal surface with either an SC-5001 FM™ ETFE, SC-2001 FM™ ECTFE or SC-7001 FM™ PFA fluoropolymer composite coating to a thickness of 0.012" (0.2 mm) nominal, 0.017" (0.3 mm) maximum. All coating systems are available in an anti-static grade for applications where static discharge is a concern.
- Edlon offers a variety of duct joining systems. These systems include loose backing flanges, welded flanges, KF flanges and band clamps.

Reference Documents

SMACNA-01	Accepted Industry Practice for Industrial Duct Construction
SMACNA-06	HVAC Duct Construction Standards
SMACNA	Round Industrial Duct Construction Standards
FM 4922	Factory Mutual Standard 4922
FM 4910	Factory Mutual Standard 4910

Flange Specifications

Available joining systems include welded flanges, angle rings (Vanstone), band clamps, KF clamps.

North American Fabrication

DUCT DIAMETER (Inches)	Backing Ring Specification (Inches)						PTFE Gasket (w x h)	Available Joining Systems
	Width (W)	Thickness (T)	# Holes	Bolt Hole Size	Bolt Size	Bolt Circle Diameter		
4	1-1/4	1/8	6	3/8 x 5/8 slot	5/16	5.30	3/16 x 1/8	KF + AR, WF, & BC
6						7.50		Angle Rings, Welded Flanges, & Band Clamp
8			8			9.50		
10						11.50		
12	1-1/2	3/16	12	7/16 x 11/16 slot	3/8	13.81	1/4 x 1/8	Angle Rings & Welded Flanges
14						15.81		
16			16			17.63		
18						19.63		
20			20			21.63		
22						23.88		
24						25.88		
26	2		24			27.88	1/4 x 3/16	
28						29.88		
30			28			31.88		
32						33.88		
34			32			35.88		
36						37.88		
38			36			40.38		
40						42.38		
42			40			44.38		
44						46.38		
46			44			48.38		
48						50.38		
50	2-1/2		48	9/16	7/16	52.88		
52						54.88		
54			52			56.88		
56						58.88		
58			56			60.88		
60						62.88		

European Fabrication

DUCT DIAMETER (mm)	Backing Ring Specification (mm)						PTFE Gasket (w x h)	Available Joining Systems
	Width (W)	Thickness (T)	# Holes	Bolt Hole Size	Bolt Size	Bolt Circle Diameter		
100	30	3.0	6	10.0 x 16.0 slot	8.0	135	5.0 x 3.0	KF + AR, WF, & BC
150						191		Angle Rings, Welded Flanges, & Band Clamp
200			8			241		
250						292		
300	40	5.0	12	10.0 x 18.0 slot	10.0	351	7.0 x 3.0	Angle Rings & Welded Flanges
350						402		
400			16			448		
450						499		
500			20			549		
550						607		
600						657		
650	50		24			708	7.0 x 5.0	
700						759		
750			28			810		
800						861		
850			32			911		
900						962		
950			36			1026		
1000						1076		
1050			40			1127		
1100						1178		
1150			44			1229		
1200						1280		
1250	65		48	15.0	12.0	1343		
1300						1394		
1350			52			1445		
1400						1496		
1450			56			1546		
1500						1597		

UK: +44-1333-426-222
www.edlon.com
US: 1-800-753-3566
610-268-3101

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Straight Duct

Straight Duct is available in plain, flange by plain and flange by flange end.

NORTH AMERICAN FABRICATION

DUCT DIAMETER (Inches)	Minimum Duct Thickness (Inches)			Standard Length (Inches)		
	-6" WG	-12" WG	-18" WG	48	60	72
4	20	20	20	47	59	Not Available
6						
8						
10						71
12						
14						
16			18			
18						
20		18				
22			16			
24						
26	18					
28		16				
30			14			
32						
34						
36						
38	16	14				
40			12			
42						
44						
46						
48						
50	14	12				
52						
54						
56						
58						
60						

EUROPEAN FABRICATION

DUCT DIAMETER (mm)	Minimum Duct Thickness (mm)			Standard Length (mm)	
	1500 Pa	3000 Pa	4500 Pa	1200	2000
100	1.0	1.0	1.0	1200	Not Available
150					
200					
250					2000 - Available Upon Request
300					
350					
400			1.2		
450					
500		1.2			
550			1.5		
600					
650	1.2				
700		1.5			
750					
800			2.0		
850					
900					
950	1.5	2.0			
1000			2.5		
1050					
1100					
1150					
1200					
1250	2.0	2.5			
1300					
1350					
1400					
1450					
1500					

**** Larger Diameters & Longer Length Duct are Available Upon request**

CONCENTRIC REDUCER

"A" Large Diameter		"B" Small Diameter	"C" Overall Length
in	mm		
4	100		
6	150		
8	200		
10	250		
12	300		
14	350		
16	400		
18	450		
20	500		
22	550		
24	600		
26	650		
28	700	Any Reduction	
30	750		
32	800		
34	850		
36	900		
38	950		
40	1000		
42	1050		
44	1100		
46	1150		
48	1200		
50	1250		
52	1300		
54	1350		
56	1400		
58	1450		
60	1500		

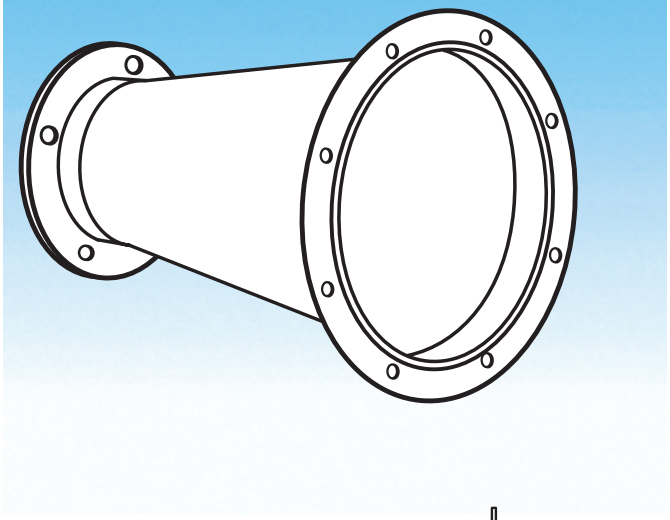
To Determine Standard Length (inch):

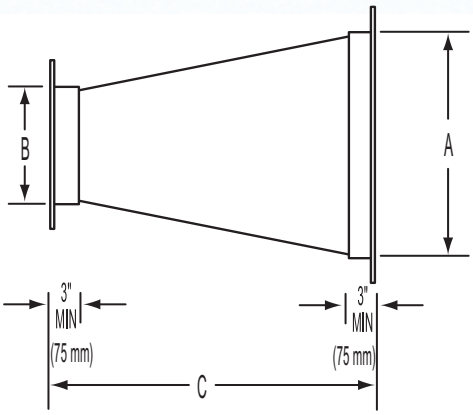
Amount of Reduction "A" minus "B"	Standard Length "C"
9" or less	18"
10" to 14"	24"
15" to 19"	30"
20" to 24"	36"

To Determine Standard Length (mm):

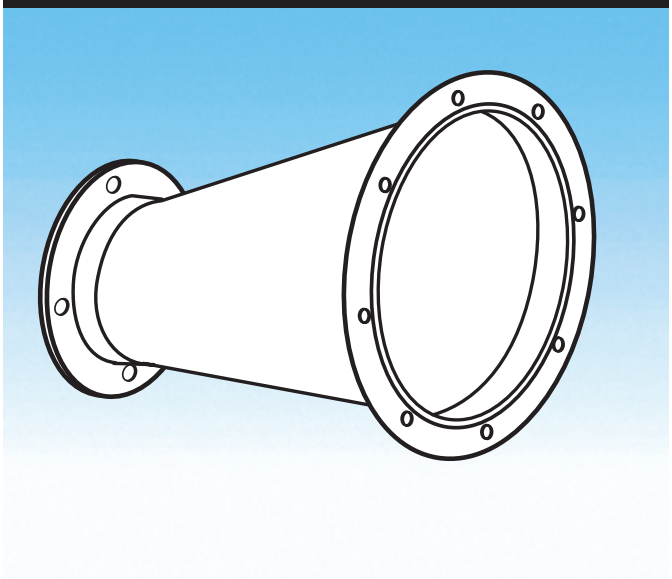
Amount of Reduction "A" minus "B"	Standard Length "C"
230 or less	450
250 to 350	600
380 to 480	750
500 to 600	900

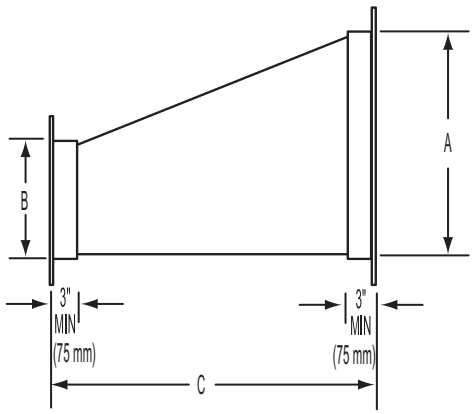
*** Custom Lengths Available Upon Request**





ECCENTRIC REDUCER





Fittings available in inch (US manufacture) and metric (UK manufacture). Please specify preference on order.

UK: +44-1333-426-222
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US: 1-800-753-3566
610-268-3101

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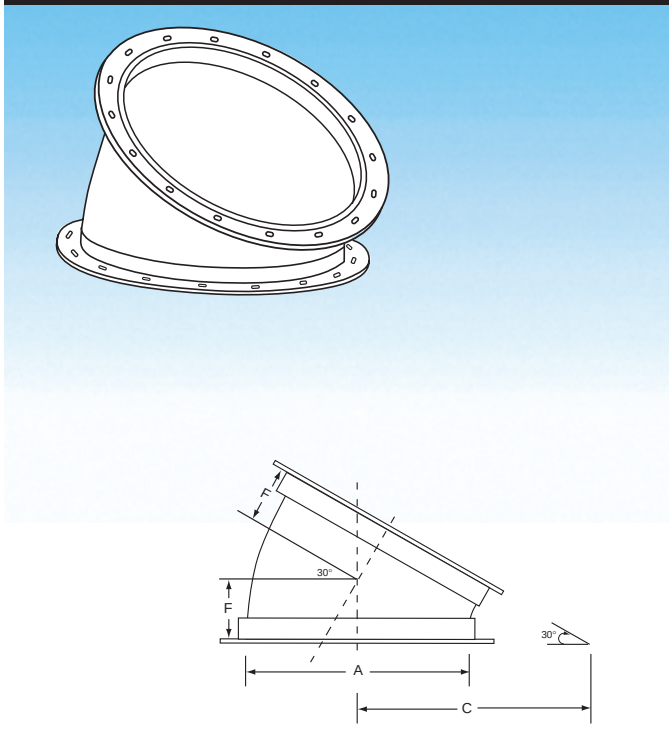
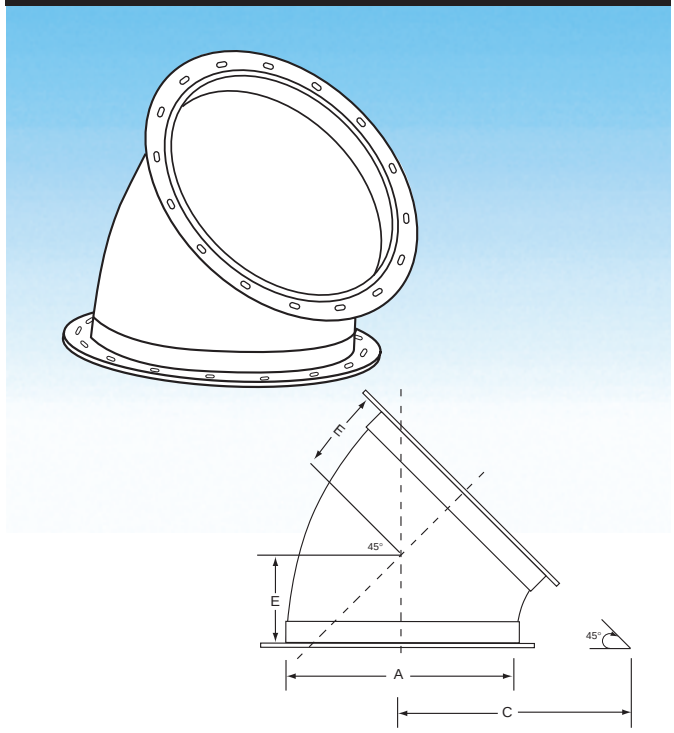
PRESSED ELBOWS

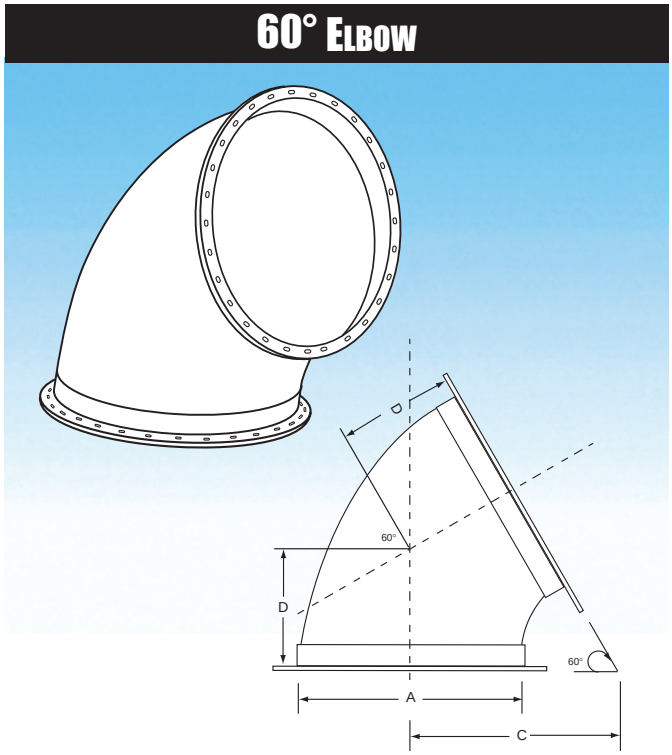
30° ELBOW



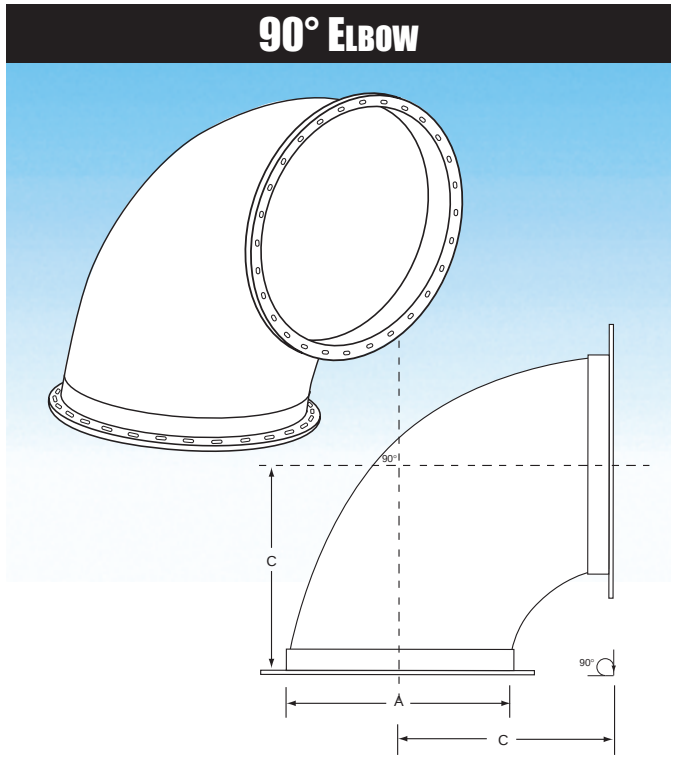
45° ELBOW



60° ELBOW



90° ELBOW



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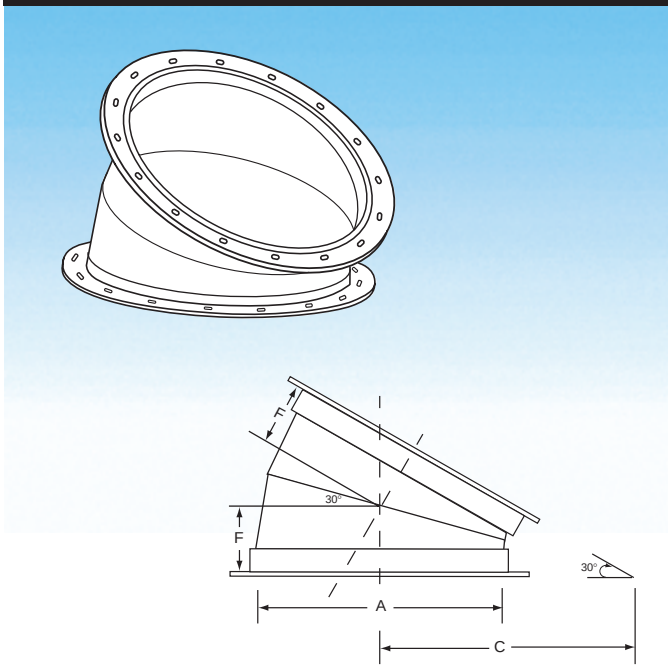
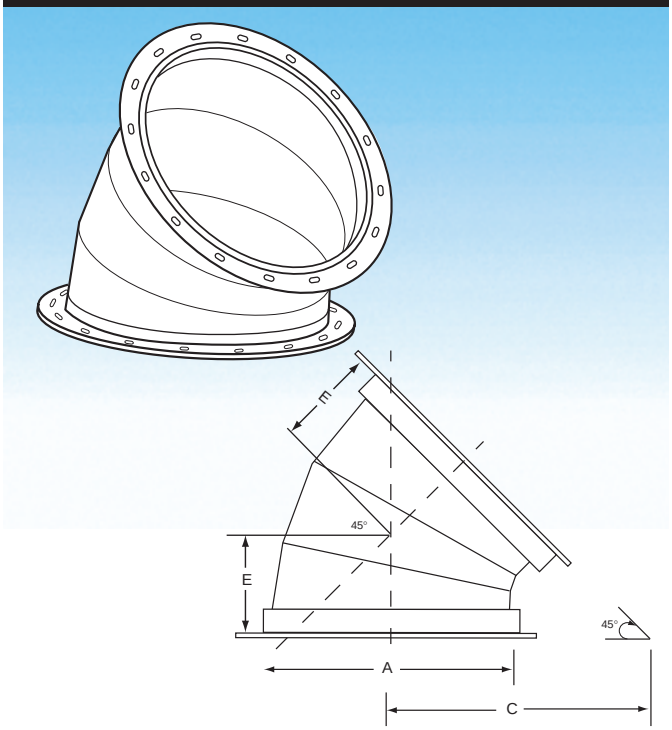
GORED (SEGMENTED) ELBOWS

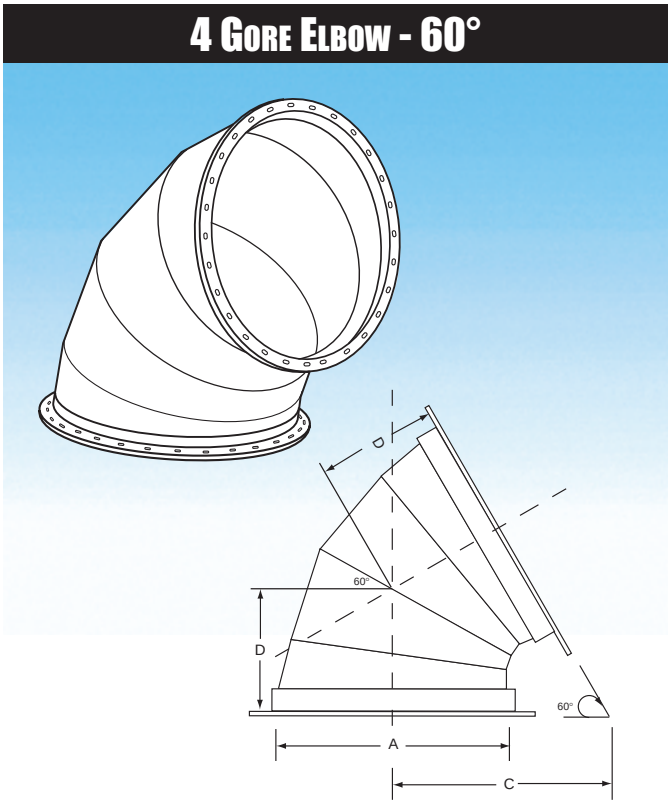
2 GORE ELBOW - 30°



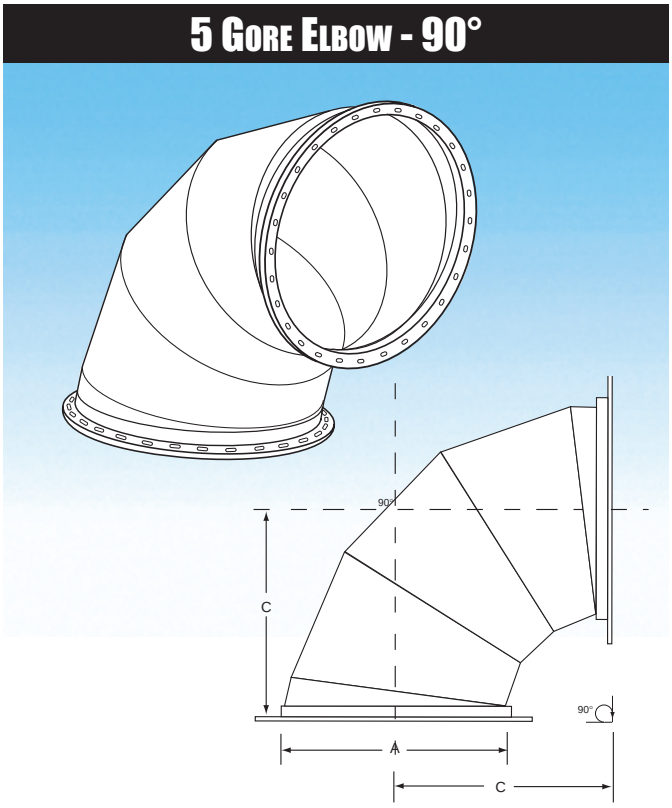
3 GORE ELBOW - 45°



4 GORE ELBOW - 60°



5 GORE ELBOW - 90°



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ELBOW SPECIFICATIONS

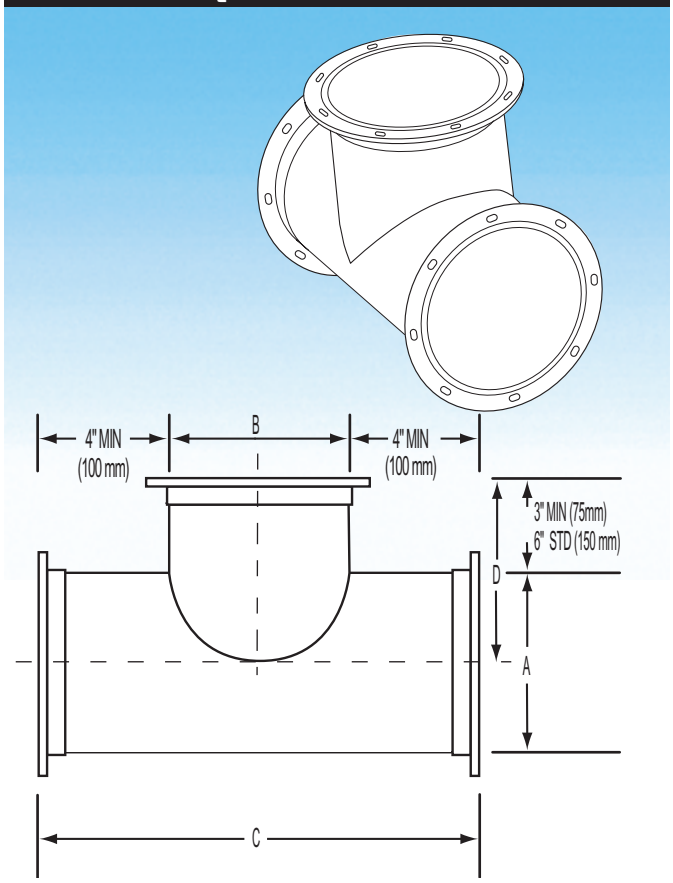
90 DEG, 60 DEG, 45 DEG, 30 DEG

"A" (Main Section Diameter)		"C" (90° CL to Face)		"D" (60° CL to Face)		"E" (45° CL to Face)		"F" (30° CL to Face)	
in	mm	in	mm	in	mm	in	mm	in	mm
4	100	6	150	4	100	3	75	2	50
6	150	9	225	6	150	4.5	112.5	3	75
8	200	12	300	8	200	6	150	4	100
10	250	15	375	10	250	7.5	187.5	5	125
12	300	18	450	12	300	9	225	6	150
14	350	21	525	14	350	10.5	262.5	7	175
16	400	24	600	16	400	12	300	8	200
18	450	27	675	18	450	13.5	337.5	9	225
20	500	30	750	20	500	15	375	10	250
22	550	33	825	22	550	16.5	412.5	11	275
24	600	36	900	24	600	18	450	12	300
26	650	39	975	26	650	19.5	487.5	13	325
28	700	42	1050	28	700	21	525	14	350
30	750	45	1125	30	750	22.5	562.5	15	375
32	800	48	1200	32	800	24	600	16	400
34	850	51	1275	34	850	25.5	637.5	17	425
36	900	54	1350	36	900	27	675	18	450
38	950	57	1425	38	950	28.5	712.5	19	475
40	1000	60	1500	40	1000	30	750	20	500
42	1050	63	1575	42	1050	31.5	787.5	21	525
44	1100	66	1650	44	1100	33	825	22	550
46	1150	69	1725	46	1150	34.5	862.5	23	575
48	1200	72	1800	48	1200	36	900	24	600
50	1250	75	1875	50	1250	37.5	937.5	25	625
52	1300	78	1950	52	1300	39	975	26	650
54	1350	81	2025	54	1350	40.5	1012.5	27	675
56	1400	84	2100	56	1400	42	1050	28	700
58	1450	87	2175	58	1450	43.5	1087.5	29	725
60	1500	90	2250	60	1500	45	1125	30	750

Pressed elbows only available in 4" - 12" (100 mm to 300 mm).
Available in larger sizes up to 90" (2250 mm).
NOTE: Standard Radius at Duct Centerline = 1.5 x Diameter.

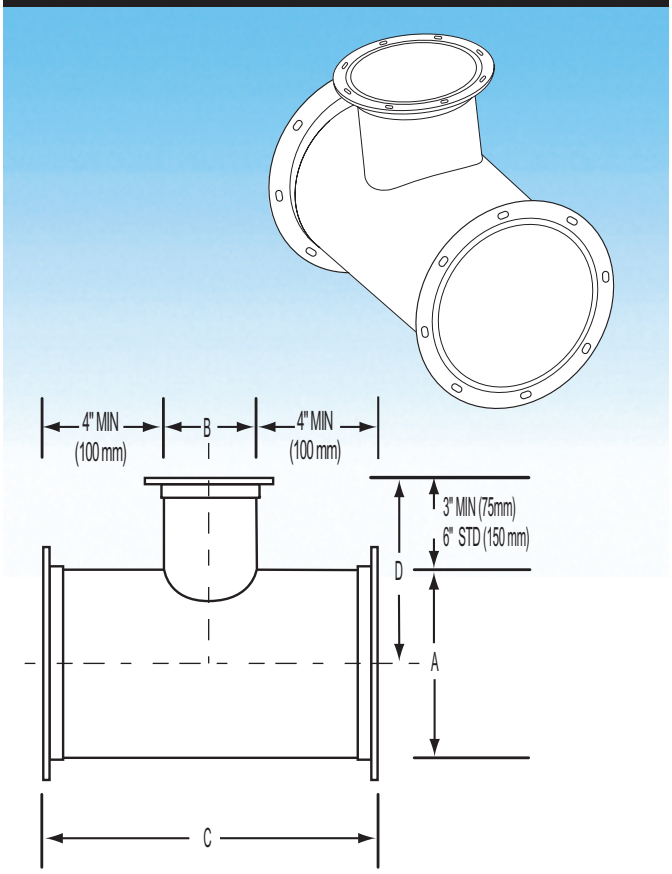
Fittings available in inch (US manufacture) and metric (UK manufacture). Please specify preference on order.

EQUAL STRAIGHT TEES

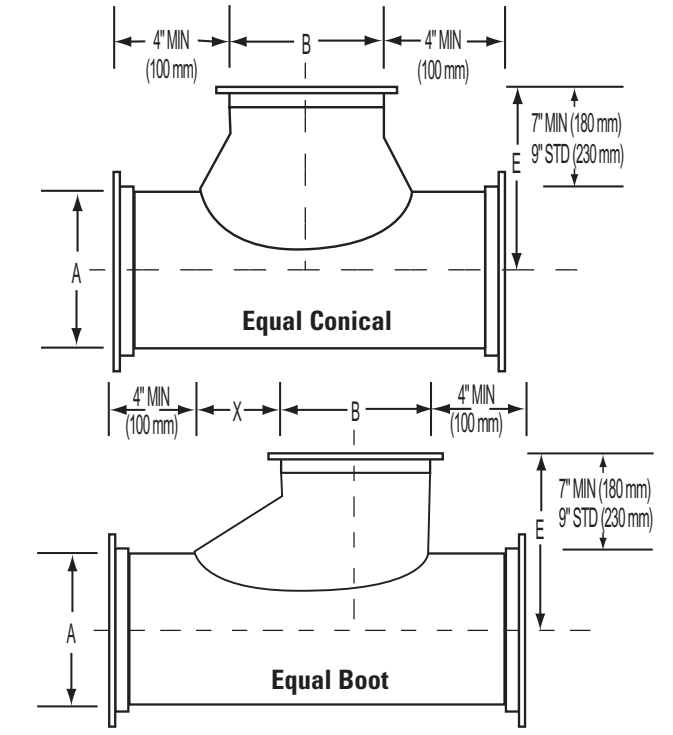


See dimensional data on next page.

REDUCING STRAIGHT TEES



EQUAL CONICAL & BOOT TEES



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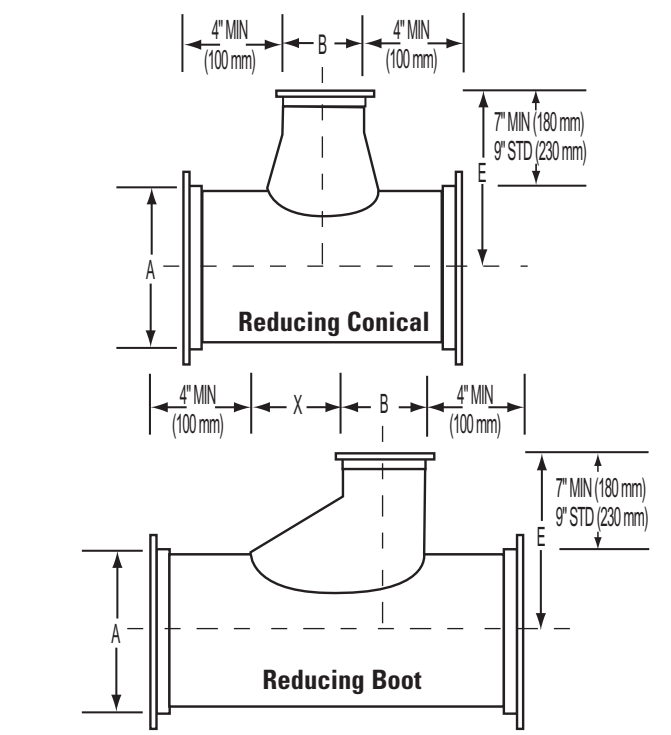

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US: 1-800-753-3566
610-268-3101

TEE SPECIFICATIONS

"A" (Main Section Diameter)		"C" (Equal Straight & Equal Conical Tee Overall length)		"D" (Equal Straight & Reducing Straight Tee CL to Face of Branch)		"E" (Boot & Conical Tee CL to Face of Branch)	
in	mm	in	mm	in	mm	in	mm
4	100	12	300	8	200	11	275
6	150	14	350	9	225	12	300
8	200	16	400	10	250	13	325
10	250	18	450	11	275	14	350
12	300	20	500	12	300	15	375
14	350	22	550	13	325	16	400
16	400	24	600	14	350	17	425
18	450	26	650	15	375	18	450
20	500	28	700	16	400	19	475
22	550	30	750	17	425	20	500
24	600	32	800	18	450	21	525
26	650	34	850	19	425	22	550
28	700	36	900	20	500	23	575
30	750	38	950	21	525	24	600
32	800	40	1000	22	550	25	625
34	850	42	1050	23	575	26	650
36	900	44	1100	24	600	27	675
38	950	46	1150	25	625	28	700
40	1000	48	1200	26	650	29	725
42	1050	50	1250	27	675	30	750
44	1100	52	1300	28	700	31	775
46	1150	54	1350	29	725	32	800
48	1200	56	1400	30	750	33	825
50	1250	58	1450	31	775	34	850
52	1300	60	1500	32	800	35	875
54	1350	62	1550	33	825	36	900
56	1400	64	1600	34	850	37	925
58	1450	66	1650	35	875	38	950
60	1500	68	1700	36	900	39	975

Boot Tee:
Consult Factory

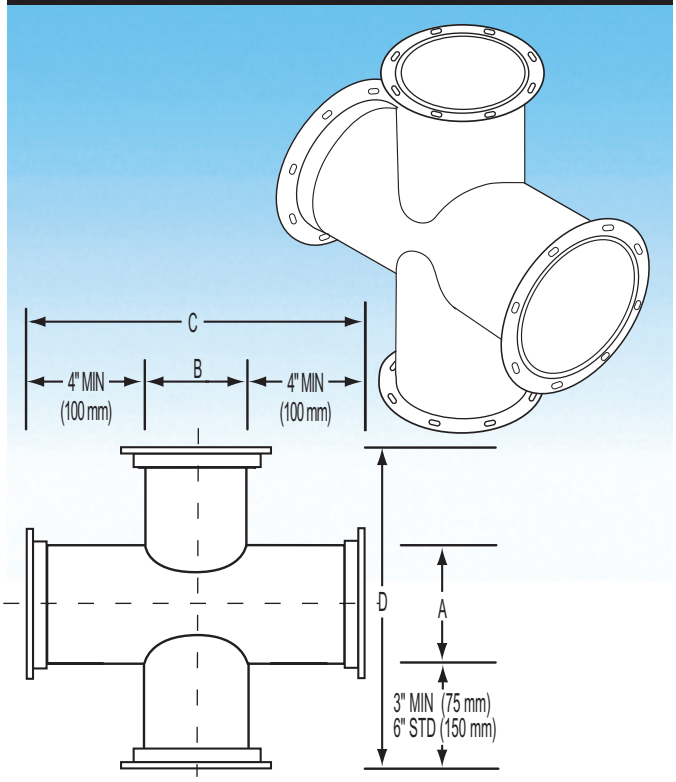
Reducing Straight Tee:
Any Size Reduction Possible.
Overall length (C) = Nominal Nozzle Diameter (B) + 8" (200 mm)
CL to Face (D) = 1/2 A + 6" (150 mm)

Reducing Conical Tee:
Any Size Reduction Possible.
Overall length (C) = Nominal Nozzle Diameter (B) + 8" (200 mm)
CL to Face (D) = 1/2 A + 6" (150 mm)

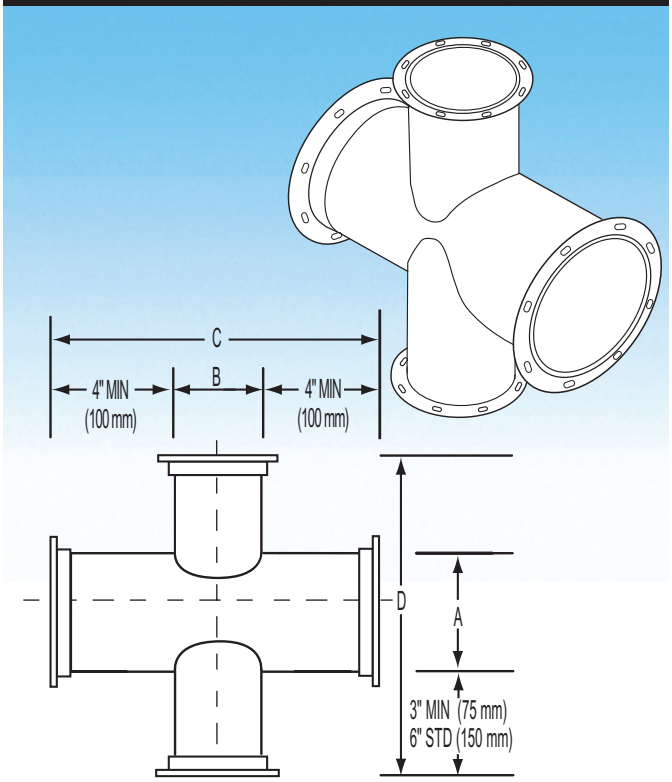
Boot			
"B"		"X"	
in	mm	in	mm
4 - 8	100 - 200	4	100
10 - 14	250 - 350	7	175
16 - 21	400 - 525	10	250
28 - 60	700 - 1500	13	305

Fittings available in inch (US manufacture) and metric (UK manufacture). Please specify preference on order.

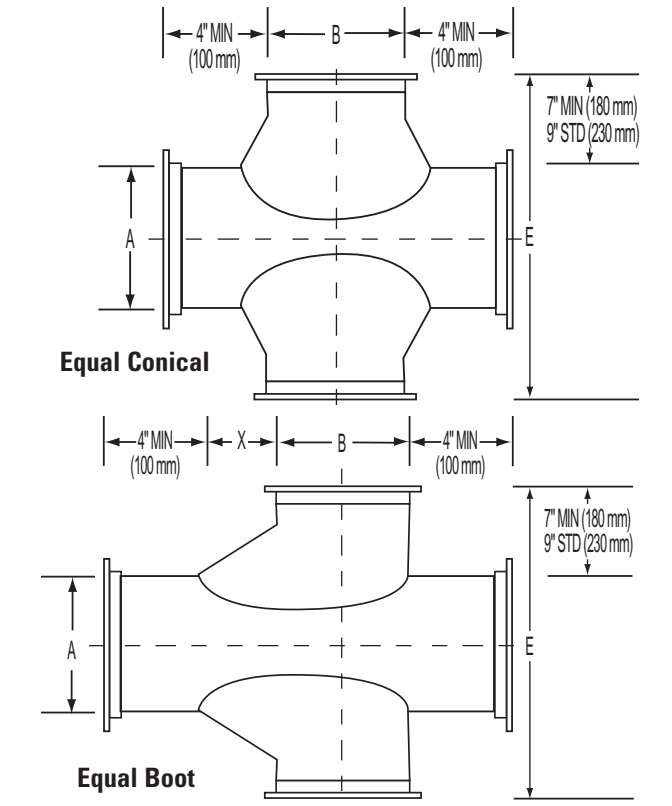
EQUAL STRAIGHT CROSS



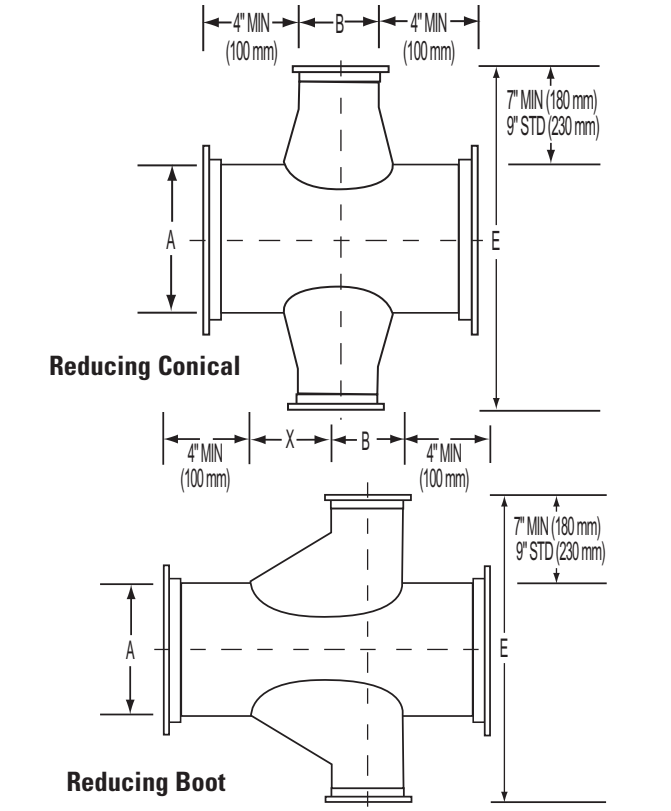
REDUCING STRAIGHT CROSS



EQUAL CONICAL & BOOT CROSSES



REDUCING CONICAL & BOOT CROSSES



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610-268-3101

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EQUAL STRAIGHT CROSS SPECIFICATIONS

"A" (Main Section Diameter)		"C" Overall Length (Equal Straight, Conical)		"D" Overall Height (Face to Face)	
in	mm	in	mm	in	mm
4	100	12	300	16	400
6	150	14	350	18	450
8	200	16	400	20	500
10	250	16	450	22	550
12	300	20	500	24	600
14	350	22	550	26	650
16	400	24	600	28	700
18	450	26	650	30	750
20	500	28	700	32	800
22	550	30	750	34	850
24	600	32	800	36	900
26	650	34	850	38	950
28	700	36	900	40	1000
30	750	38	950	42	1050
32	800	40	1000	44	1100
34	850	42	1050	46	1150
36	900	44	1100	48	1200
38	950	46	1150	50	1250
40	1000	48	1200	52	1300
42	1050	50	1250	54	1350
44	1100	52	1300	56	1400
46	1150	54	1350	58	1450
48	1200	56	1400	60	1500
50	1250	58	1450	62	1550
52	1300	60	1500	64	1600
54	1350	62	1550	66	1650
56	1400	64	1600	68	1700
58	1450	66	1650	70	1750
60	1500	68	1700	72	1800

Boot Crosses:
Consult Factory

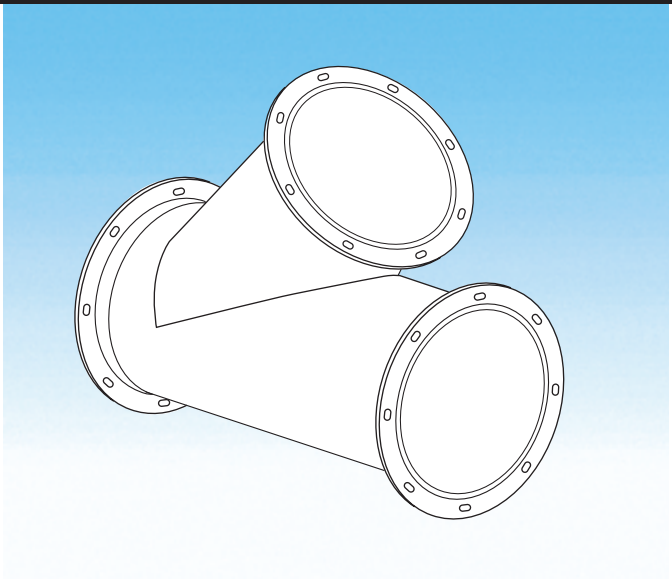
Reducing Crosses:
Any Size Reduction Possible.
Overall Reducing, Straight, Conical length (C) = Nominal Nozzle Diameter (B) + 8" (200 mm)
Overall Height (D) = A + 12" (300 mm)

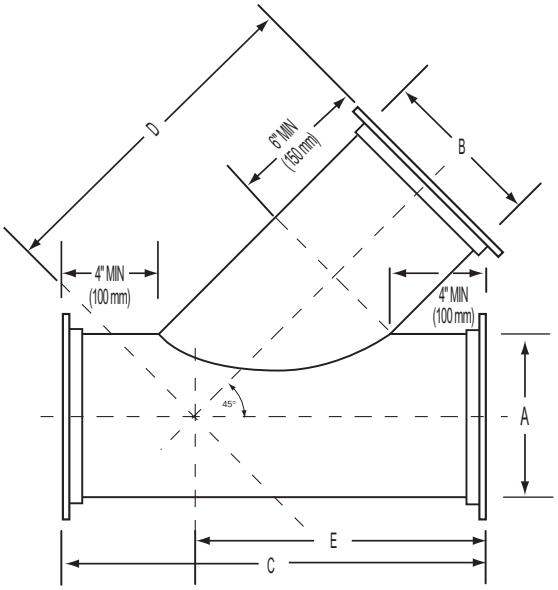
Reducing Conical, Reducing Boot, Equal Conical and Equal Boot Crosses (overall height) (E) = A + 18" (450 mm),

Boot			
"B"		"X"	
in	mm	in	mm
4 - 8	100 - 200	4	100
10 - 14	250 - 350	7	175
16 - 21	400 - 525	10	250
28 - 60	700 - 1500	13	305

Fittings available in inch (US manufacture) and metric (UK manufacture). Please specify preference on order.

EQUAL LATERALS



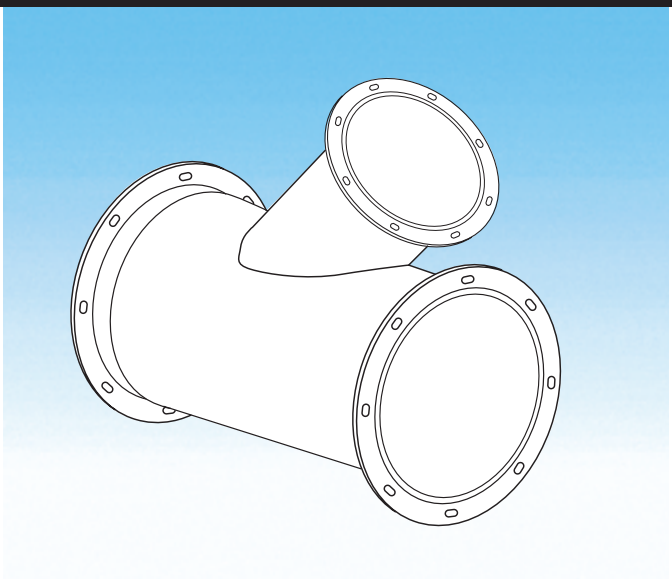


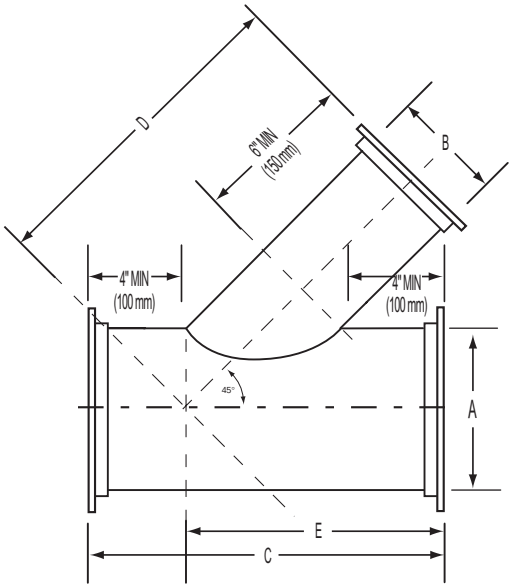
CL Intersect (E) = 1/2 C + 1/2 B

Overall Length (C) = Nominal Nozzle Diameter (B) (1.414) + 8" (200mm)

Branch CL to Face (D) = 1/2 A (1.414) + 1/2 B + 6" (150 mm)

REDUCING LATERALS





Any Size Reduction Possible

Reducing Laterals:

CL Intersect (E) = 1/2 C + 1/2 B

Overall Length (C) = Nominal Nozzle Diameter (B) (1.414) + 8" (200mm)

Branch CL to Face (D) = 1/2 A (1.414) + 1/2 B + 6" (150 mm)

Fittings available in inch (US manufacture) and metric (UK manufacture). Please specify preference on order.

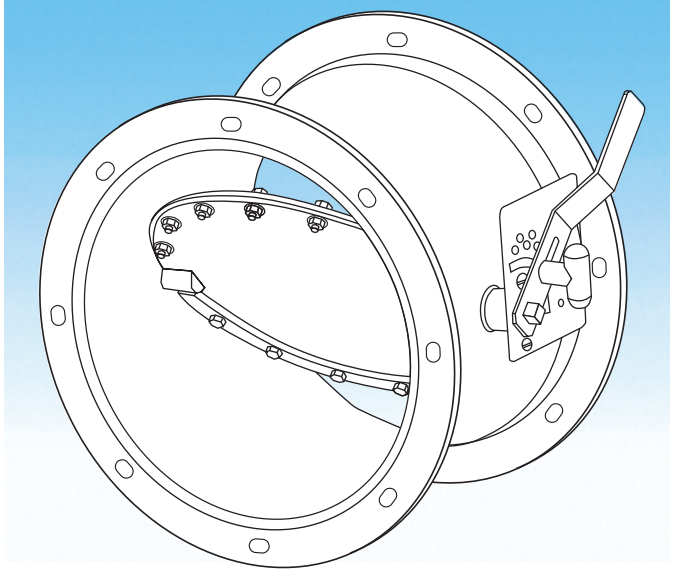
EQUAL LATERAL SPECIFICATIONS

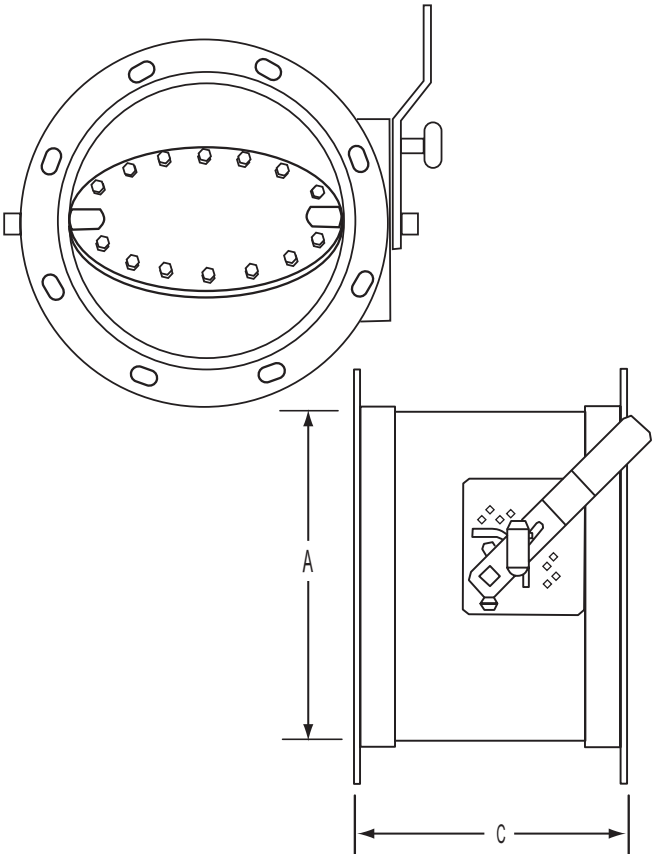
"A" (Main Section Diameter)		"C" (Overall Length)		"D" (CL to Face Branch)		"E" (CL Intersect)	
in	mm	in	mm	in	mm	in	mm
4	100	13.7	347.9	10.8	270.7	8.9	224.0
6	150	15.5	393.7	13.2	331.1	10.8	271.9
8	200	19.3	490.2	15.7	391.4	13.7	345.1
10	250	22.1	561.3	18.1	451.8	16.1	405.7
12	300	25.0	635.0	20.5	512.1	18.5	467.5
14	350	27.8	706.1	22.9	572.5	20.9	528.1
16	400	30.6	777.2	25.3	632.8	23.3	588.6
18	450	33.5	850.9	27.7	693.2	25.8	650.5
20	500	36.3	922.0	30.1	753.5	28.2	711.0
22	550	39.1	993.1	32.6	813.8	30.6	771.6
24	600	41.9	1064.3	35.0	874.2	33.0	832.2
26	650	44.8	1137.9	37.4	934.6	35.4	894.0
28	700	47.6	1209.0	39.8	994.9	36.8	954.5
30	750	50.4	1280.2	42.2	1055.3	40.2	1015.1
32	800	53.2	1351.3	44.6	1115.6	42.6	1075.7
34	850	56.1	1424.9	47.0	1176.0	45.1	1137.5
36	900	58.9	1496.1	49.5	1236.3	47.5	1198.1
38	950	61.7	1567.2	51.9	1296.7	49.9	1258.6
40	1000	64.6	1640.8	54.3	1357.0	52.3	1320.4
42	1050	67.4	1712.0	56.7	1417.4	54.7	1381
44	1100	70.2	1783.1	59.1	1477.7	57.1	1441.6
46	1150	73.0	1854.2	61.5	1538.1	59.5	1502.1
48	1200	75.9	1927.9	63.9	1598.4	62.0	1564.0
50	1250	78.7	1999.0	66.4	1658.8	64.4	1624.5
52	1300	81.5	2070.1	68.8	1719.1	66.8	1685.1
54	1350	84.4	2143.8	71.2	1779.5	69.2	1746.9
56	1400	87.2	2214.9	73.6	1839.8	71.6	1807.5
58	1450	90	2286.0	76.0	1900.2	74.0	1868.0
60	1500	92.8	2357.1	78.4	1960.5	76.4	1928.6

Fittings available in inch (US manufacture) and metric (UK manufacture). Please specify preference on order.

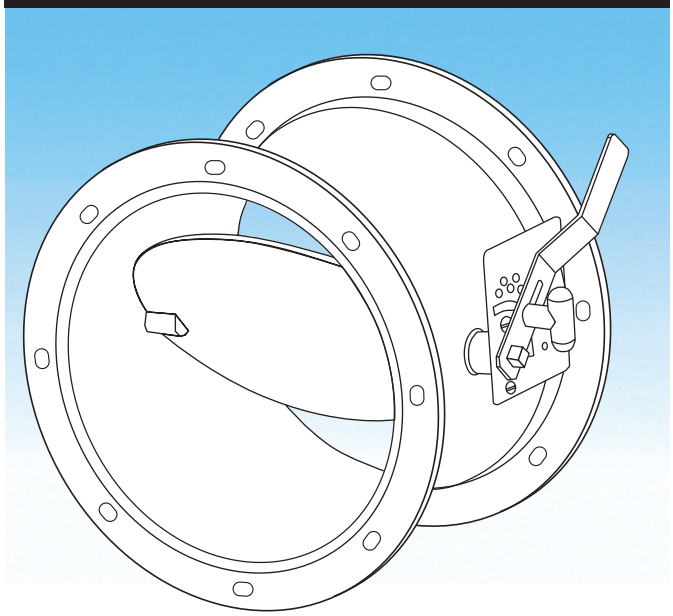
Accessories

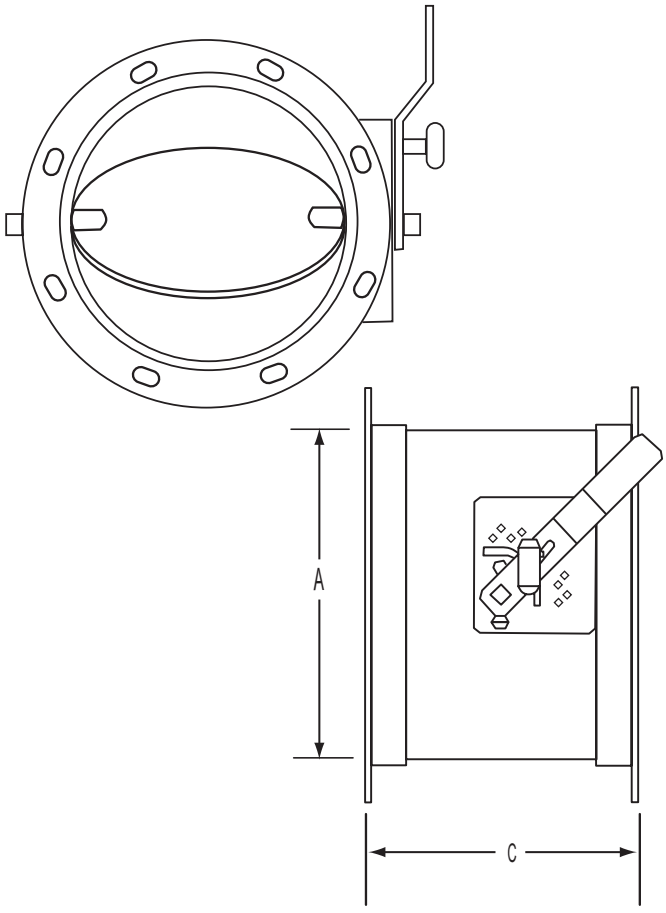
Shut-off Damper





Balance Damper





Various style dampers are available upon request

UK: +44-1333-426-222
www.edlon.com
US: 1-800-753-3566
610-268-3101

FM APPROVED

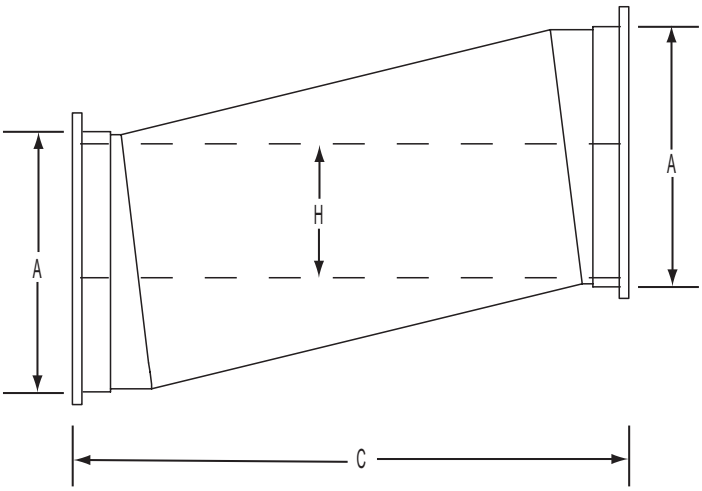
DAMPER SPECIFICATIONS

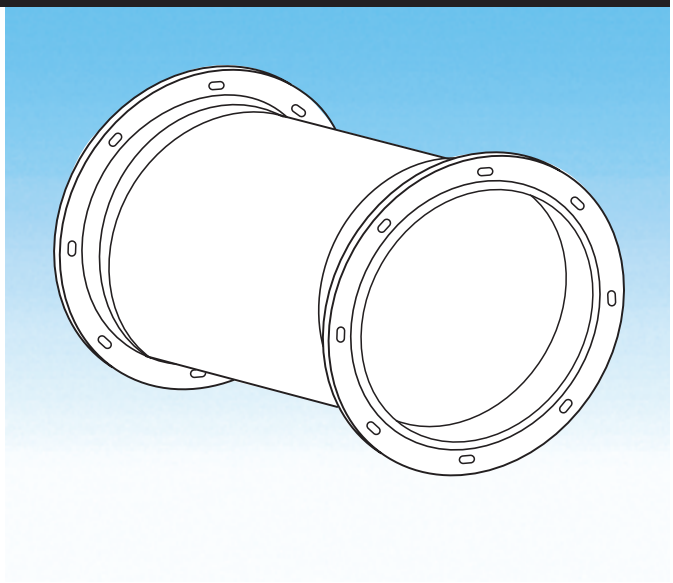
"A" (Diameter)		"C" Overall Length	
in	mm	in	mm
4	100	9.25	235
6	150	9.25	235
8	200	9.25	235
10	250	9.25	235
12	300	9.25	235
14	350	9.25	235
16	400	9.25	235
18	450	9.25	235
20	500	9.25	235
22	550	10	254
24	600	10	254
26	650	10	254
28	700	10	254
30	750	10	254
32	800	10	254
34	850	10	254
36	900	10	254
38	950	10	254
40	1000	10	254
42	1050	10	254
44	1100	10	254
46	1150	10	254
48	1200	10	254
50	1250	10	254
52	1300	10	254
54	1350	10	254
56	1400	10	254
58	1450	10	254
60	1500	10	254

Accessories

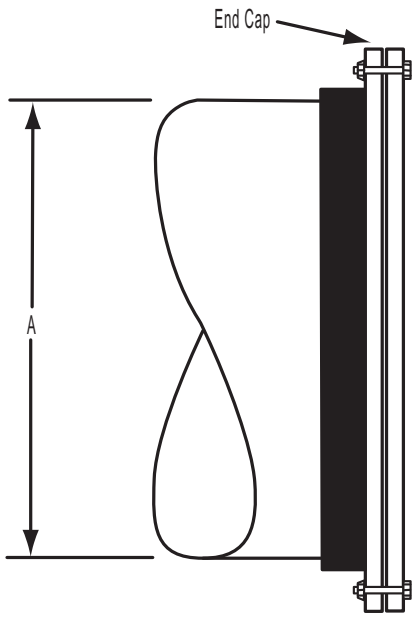
Offsets

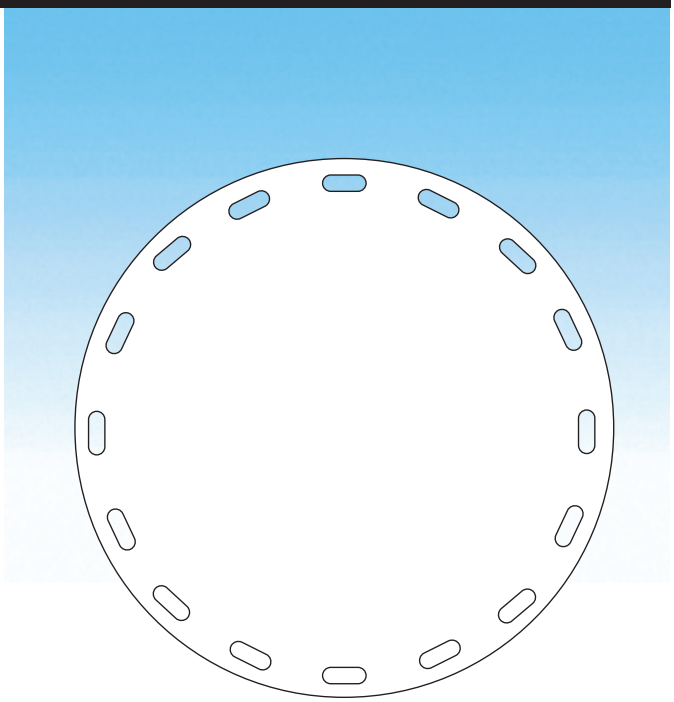
"A" Diameter	"H" Centerline Offset	"C" Overall Length
Customer Specification	Customer Specification	Consult Factory





End Cap





See flange specification chart on page 4 for dimensional data

Fittings available in inch (US manufacture) and metric (UK manufacture). Please specify preference on order.

Other Accessories

Edlon offers many other accessories for your Fluoropolymer Coated Ducting System that are not shown herein. Some of these include:

- Square to Round Transitions
- Field Installed Saddle Taps
- Field Installed Test Ports and Nipples
- Inspection Ports
- Flexible Hose
- Expansion Joints
- Sprinkler Adapters
- KF Flange Adapters
- NPT Nipple Adapters

Please contact us with your specific application.

Quality Assurance

- All Edlon Guardian™ Coated SS Ducting is manufactured in ISO 9000 Certified Facilities providing the highest quality standard in the market.
- Edlon spark tests all Guardian Coated SS Ducting at 2500 volts DC to guarantee pin hole free coatings.
- Complete documentation is on file for each project.
- Edlon has worldwide fabrication facilities to serve your needs. Regardless of the facility, Edlon duct is manufactured to the same high standards.

FM APPROVED

105-A
CERTIFICATE No. C01-0584
ISO 9002

NQA ISO 9001 REGISTERED COMPANY
UKAS QUALITY MANAGEMENT 015

Installation

- It is recommended that operators handling the ducts should wear clean gloves during unpacking and installation.
- During assembly operations, do not remove the protective packaging from the duct opening until necessary for installation
- Special care shall be taken with the ducts inner coating during assembly.
  - NEVER cut, tear, or drill the coating
  - Never perform metal welding near the duct-coated surfaces.
  - Inform Edlon immediately of any coating damage, and isolate the part for repair or return to Edlon.
- Field installed saddle taps are available. They require special fittings, gasketing and procedures. Please consult factory.
- Handle duct during assembly with the utmost care, avoiding mechanical damage, dents, punctures and crushing.
- It is the responsibility of the end user to verify that the installer has carried out installation as detailed in Edlon's Guardian coated ducting specification.
- For procedures on installing band clamp and KF style connections, please contact factory.

Gasketing & Bolt Up

The Edlon GUARDIAN™ coated duct system relies on expanded 100% PTFE gaskets for all duct flange-to-flange joints.

General Properties

- FM 4922 compliant
- Non-flammable
- Suitable for a wide range of temperatures from -450°F to +600°F (-267°C to + 315°C) continuous.
- Unaffected by common chemicals; pH range from 0 to 14
- Excellent conformability to surface irregularities
- No aging or hardening in service
- Adhesive on one side for ease of placement

Gasket Specification:

- 2"-10" (100mm - 250mm) diameter: 3/16" (5mm)
- 12"-60" (300mm - 1500mm) diameter: 1/4" (7mm)

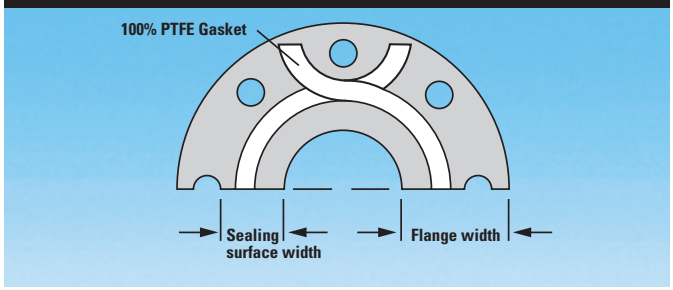
Installation instructions:

1. Clean all sealing surfaces to remove any dirt or debris.
2. Cut gasket to the required length.
3. Remove the adhesive backing and position the tape at the center of the sealing area.
4. Fit the gasket tape around the entire flange circumference.
5. Overlap the two ends as per the picture below.
6. Install bolting hardware and finger tighten.
7. Torque bolts to specification in at least 3 progressive torque sequences in a crisscross pattern.
8. Perform a circular torque check to ensure a tight, long-lasting seal.

Warning: Do not scratch the coating when cutting the gasket.

Torque requirements shall be provided with Edlon's installation instructions for GUARDIAN™ FM coated ductwork.

Gasket Position



The gasket is placed between the inner edge of the flange and the bolt holes, as shown in the above diagram.

FM Bolt Torque Specification

Bolt Diameter	Required Torque	Bolt Diameter	Required Torque
(in)	(ft-lb)	(mm)	(Nm)
5/16	12	8	17
3/8	18	10	25
7/16	25	12	34

(Lubrication not required)

If ducts have been disassembled, always apply new gasket material to reduce the risk of a sealing problem.

Packaging, Shipment & Storage

GUARDIAN™ ducts are shipped with end covers to protect from damage, dirt, and moisture. Bagging available upon request.

- Please ensure that all labeling is present on the packaging upon delivery.
- Consignee (end user or mechanical contractor) must inspect shipment upon receipt and note any and all damage or discrepancies on the Bill of Lading. Edlon must be notified of any issues within 24 hours of receipt.
- GUARDIAN™ ducts are shipped in sealed and protective packaging. All openings are closed.
  - Do not remove original packaging before installation.
  - All parts should be stored in a clean, safe area.
- When necessary to store outside, elevate from ground and enclose with waterproof wrapping to protect from moisture, dirt and debris.
- If coating is damaged during handling or installation - DO NOT INSTALL. Contact Edlon for inspection and repair instructions.

Corrosion Resistance Guide

This table illustrates the chemical resistance of Edlon's Fluoropolymer coatings used in duct for exhausting corrosive gases, fumes and smoke.

Duct coated with our SC-2001 FM ECTFE system and SC-5001 FM ETFE sytem are approved by Factory Mutual to FM4922 (Fume and/or Smoke Exhaust Duct Systems) and FM4910 (Fume and/or Smoke Exhaust Duct Systems for Use in Clean Rooms). All coating systems are available in an anti-static grade for applications where static discharge is a concern.

The maximum temperature for each chemical is derived from published data, lab testing and service experience. The user must consider their specific operating conditions when making a material selection. Mixtures of chemicals may behave differently than individual components.

Edlon expressly disclaims any warranty, expressed or implied, of fitness for any specific purpose in connection with the information contained herein.

Edlon recommends that tests be conducted under actual or simulated conditions wherever possible to determine the suitability of any coating for a particular application. Actual perfomance, particularly in applications involving chemical mixtures or varying conditions, may differ from the performance of individual chemicals. Immersion test samples are available from Edlon for testing purposes.

Legend:

- No Data Available

NR - Not Recommended

BP - Boiling Point

This list does not cover the complete range of chemicals for which fluoropolymers are suitable. For chemicals not listed please contact Edlon for additional information.

CHEMICAL	SC-7001 PFA		SC-2001 FM ECTFE		SC-5001 FM ETFE	
	C°	F°	C°	F°	C°	F°
Acetamide	204	399	93	199	120	248
Acetate Solvents	204	399	38	100		
Acetaldehyde	204	399	38	100	95	203
Acetic Acid	204	399	<80%100 =>80%149	<80%212 =>80%300	120	248
Acetic Acid Glacial	204	399	100	212	110	230
Acetic Anhydride	204	399	23	73	65	149
Acetone	204	399	50	122	65	149
Acetonitrile	204	399	100	212	65	149
Acetyl Chloride	204	399	50	122	65	149
Acetylene	204	399	50	122	120	248
Acylonitrile	204	399	23	73	65	149
Adipic Acid	204	399	50	73	135	275
Allyl Alcohol	204	399			100	212
Allyl Chloride	204	399	149	300	100	212
Alum (Aluminium Potassium Sulphate)	204	399	149	300	150	302
Aluminium Chloride	204	399	93	199	150	302
Aluminium Fluoride	204	399	149	300	150	302
Aluminium Hydroxide	204	399	149	300	150	302
Aluminium Nitrate	204	399	149	300	150	302
Aluminium Suphate	204	399	149	300		
Ammonia 100% Anhydrous	204	399	93	199	150	302
Ammonia Aqueous	204	399	93	199	110	230
Ammonia Bifluoride	204	399	149	300	150	302
Ammonium Carbonate	204	399	149	300	150	302
Ammonium Chloride	204	399	120 to 25%	248 to 25%	150	302
Ammonium Dichromate			120	248	135	275
Ammonium Fluoride	204	399	149 to 25%	300 to 25%	150	302

CHEMICAL	SC-7001 PFA		SC-2001 FM ECTFE		SC-5001 FM ETFE	
	C°	F°	C°	F°	C°	F°
Ammonium Hydroxide	204	399	149 to 30%	300 to 30%	150	302
Ammonium Nitrate	204	399	149	300	110	230
Ammonium Persulphate	204	399	50	122	150	302
Ammonium Phosphate Dibasic	204	399	21	70		
Ammonium Sulphate 10%	204	399	149	300	150	302
Amyl Alcohol	204	399	149	300	150	302
Amyl Chloride	204	399	149	300	150	302
Amyl Acetate	204	399	38	100	120	248
Aniline	204	399	100	212	110	230
Aniline Hydrochloride	204	399	NR	NR	65	149
Antimony Trichloride	204	399	23	73	100	212
Aqua Regia	204	399	100	212	100	212
Arsenic Acid	204	399	149	300	150	302
Barium Carbonate	204	399	149	300	150	302
Barium Chloride Saturated	204	399	149	300	150	302
Barium Hydroxide	204	399	149	300	150	302
Barium Nitrate	204	399	149	300		
Barium Sulphate	204	399	149	300	150	302
Barium Sulphide	204	399	149	300	150	302
Beer	204	399	149	300		
Beet Sugar Liquor	204	399	149	300		
Benzaldehyde	204	399	50	122	100	212
Benzene	204	399	50	122	100	212
Benzene Sulfonic Acid	204	399	50	122	100	212
Benzoic Acid	204	399	120	248	135	275
Benzonitrile	204	399	93	199		
Benzyl Alcohol	204	399	149	165	150	302
Benzyl Chloride	204	399	38	100	150	302
Borax	204	399	149	300	150	302
Boric Acid	204	399	149	300	150	302

Corrosion Resistance Guide

CHEMICAL	SC-7001 PFA		SC-2001 FM ECTFE		SC-5001 FM ETFE	
	C°	F°	C°	F°	C°	F°
Bromine Dry Gas	100	212	NR	NR	65	149
Bromine Moist Gas	100	212	38	100	110	230
Butadeine	204	399	120	248	120	248
Butane	204	399	120	248	150	302
Butylene	204	399	149	65	150	302
Butyric Acid	204	399	120	248	120	248
Butyl Acetate	204	399	23	73	110	230
Butyl Alcohol (Butanol)	204	399	149	300	150	302
Butyl Amine	204	399	NR	NR	50	122
Butyl Ether	204	399	93	199		
Butyle Phthalate	204	399	100	212	65	149
Butyl Chloride	204	399			150	302
Calcuim Bisulfite	204	399	149	300		
Calcium Carbonate	204	399	149	300	150	302
Calcium Chloride	204	399	149	300	150	302
Calcium Hydroxide	204	399	149	300	150	302
Calcium Hypochlorite	204	399	149	300	150	302
Carbolic Acid (Phenol)	204	399	50	122	100	212
Calcium Nitrate	204	399	149	300	150	302
Calcium Sulphate	204	399	149	300	150	302
Carbon Dioxide	204	399	149	300	150	302
Carbon Disulfide	204	399	23	73	65	149
Carbon Monoxide	204	399	149	300	150	302
Carbon Tetrachloride	150	302	149	300	135	275
Carbonic Acid	204	399	149	300	150	302
Caustic Potash (Potassium Hydroxide)	204	399	121	250	100	212
Caustic Soda (Sodium Hydroxide)	204	399	120 to 50%	248 to 50%	100 to 50%	212 to 50%
Cellosolves	204	399	149	300	150	302
Chlorinated Water	204	399	100	212		
Chlorine (Wet or Dry)	204	399	100	212	100	212
Chloroacetic Acid (To 50%)	204	399	100	212	110	230
Chlorobenzene	204	399	50	122	100	212
2 Chloroethanol	204	399	93	199		
Chloroform	204	399	50	122	100	212
Chlorosulphonic Acid	204	399	50	122	25	77
Chromic Acid	204	399	100	212	65	149
Citric Acid	204	399	149	300		
Copper Cyanide	204	399	149	300	150	302
Copper Fluoride	204	399	149	300	150	302
Copper Nitrate	204	399	149	300	150	302
Copper Sulphate	204	399	149	300		
Cottonseed Oil	204	399	149	300		
Creosote Hot (Wood & Coal Tar)	204	399	21	70		
M Cresol (Crude)	204	399	100	212	135	275
Crude Oil	204	399	149	300	150	302
Cresylic Acid	204	399	21 to 50%	70 to 50%	135	275
Cupric Chloride	204	399	149	300		
Cyclohexane	204	399	100	212	150	302
Cyclohexanol	204	399	50	122	120	248
Cyclohexanone	204	399	50	122	150	302
Detergents General	204	399	93	199		
Diacetone Alcohol (Acetol)	204	399	50	122	100	212
Dibutyl Phthalate	204	399			65	149
Dichlorobenzene	204	399			65	149
Dichlorodifluoro Methane (F-12)	204	399	21	70		
Dichloroethylene	204	399	38	100	65	149
Diesel Fuel	204	399	93	199	150	302

CHEMICAL	SC-7001 PFA		SC-2001 FM ECTFE		SC-5001 FM ETFE	
	C°	F°	C°	F°	C°	F°
Diethanolamine	204	399				
Diethylamine	204	399			110	230
Diethylene Glycol	204	399	21	70		
Diethyl Ether	204	399	93	199	100	212
Diisobutylene	204	399			135	275
Dimethyl Aniline	204	399	93	199	135	275
Dimethyl Formamide	204	399	38	100	120	248
Dimethyl Phthalate	204	399	93	199	65	149
Dimethyl Sulfoxide	204	399	38	100		
Dipropylene Glycol	204	399				
Dioctyl Phthalate	204	399	93	199	65	149
P-Dioxane	204	399	93	199	65	149
Dow Therm	204	399	93	199		
Ethers	204	399	93	199	100	212
Ethyl Acetate	204	399	93	199	65	149
Ethyl Alcohol (Ethanol)	204	399	149	300	150	302
Ethyl Chloride Wet	204	399			150	302
Ethyl Ether	204	399	93	199		
Ethylene Bromide	204	399			150	302
Ethylene Chlorohydrin	204	399			65	149
Ethylene Chloride	204	399			150	302
Ethylene Diamine	204	399	93	199	50	122
Ethylene Dichloride	204	399	23	73		
Ethylene Glycol (Dihydroxyethane)	204	399	93	199	150	302
Ethylene Oxide	204	399	93	199	110	230
Fatty Acids	204	399	93	199	150	302
Ferric Chloride	204	399	149	300	150	302
Ferric Nitrate	204	399	149	300	150	302
Ferric Sulphate	204	399	149	300	150	302
Ferrous Chloride	204	399	149	300	150	302
Ferrous Sulphate	204	399	149	300	150	302
Fluoboric Acid	204	399	120	248	135	275
Fluosilic Acid	204	399	149	300	135	275
Fluorine Gas Dry	100	212			40	124
Fluorine Gas Wet	100	212	23	73	40	124
Formaldehyde (Formalin)	204	399	50	122	110	230
Formic Acid	204	399	120	248	135	275
Freon	200	392	50	122	110	230
Fuel Oils	204	399	149	300	150	302
Furan	204	399	38	100	65	149
Furfural (Furfuraldehyde)	204	399	100	212	100	212
Gallic Acid	204	399	50	122	100	212
Gas Natural	204	399	149	300	150	302
Gasolene Leaded Refined	204	399	149	300	150	302
Gasolene Unleaded Refined	204	399	149	300	150	302
Gelatin	204	399	100	38	100	212
Glucose	204	399	149	300	100	212
Glycerine (Glycerol)	204	399	149	300	150	302
Glycolic Acid (Hydroxy Acetic)	204	399	38	100	120	248
Glycol (Ethylene Glycol)	204	399	93	199	135	275
Helium	204	399	21	70	100	212
Heptane	204	399	149	300	150	302
Hexane	204	399	93	199	150	302
Hydrazine	204	399			40	124
Hydraulic Fluid (Petroleum)	204	399	38	100		
Hydraulic Fluid (Synthetic)	204	399	38	100		
Hydrobromic Acid	204	399	100	212	100	212
Hydrochloric Acid 0-20%	204	399	93	199	150	302
Hydrochloric Acid 21-36%	204	399	93	199	150	302
Hydrochloric Acid Wet Vapour	204	399			150	302

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Corrosion Resistance Guide (cont.)

CHEMICAL	SC-7001 PFA		SC-2001 FM ECTFE		SC-5001 FM ETFE	
	C°	F°	C°	F°	C°	F°
Hydrochloric Acid Dry Vapour	204	399			150	302
Hydrocyanic Acid	204	399			150	302
Hydrofluoric Acid (35%)	150	212	120	248	135	275
Hydrofluoric Acid (70%)	150	212	120	248	120	248
Hydrofluoric Acid (100%)	204	399	120	248	110	230
Hydrofluorosilicic Acid	204	399			150	302
Hydrogen Gas	204	399	149	300	150	302
Hydrogen Chloride Gas	204	399				
Hydrogen Cyanide	204	399			150	302
Hydrogen Fluoride Anhydrous	204	399				
Hydrogen Peroxide	204	399	60 to 30%	140 to 30%	120 to 30%	248 to 30%
Hydrogen Sulphide	204	399	93	199	150	302
Hypochlorous Acid	204	399			150	302
Isobutyl Alcohol	204	399			135	275
Isooctane	204	399				
Isopropyl Alcohol	204	399	149	300		
Isopropyl Ether	204	399				
Jet Fuel (JP3, JP4, JP5)	204	399	149	300	110	230
Kerosene	204	399	149	300		
Ketones	204	399	93	199		
Lactic Acid	204	399	149	300	120	248
Lacquers & Lacquer Solvents	204	399	21	70		
LPG (Propane)	204	399	21	70	135	275
Lard	204	399	150	302		
Lead Acetate	204	399	150	302		
Lead Nitrate	204	399				
Lime Sulphur (Calcium Sulphide)	204	399	120	248		
Lineoleic Acid	204	399	135	275		
Linseed Oil	204	399	21	70	150	302
Lithium Chloride	204	399	52	126		
Lithium Hydroxide	204	399	150	302		
Lubricating Oil	204	399	149	300	150	302
Lime (Calcium Oxide)	204	399	149	300	135	275
Magnesium Carbonate	204	399			150	302
Magnesium Chloride	204	399	149	300	150	302
Magnesium Hydroxide	204	399			150	302
Magnesium Nitrate	204	399			150	302
Magnesium Sulphate	204	399			150	302
Malic Acid	204	399			135	275
Maleic Acid	204	399			135	275
Manganese Chloride	204	399				
Manganese Sulphate	204	399				
Mercuric Chloride	204	399			135	275
Mercuric Cyanide	204	399			135	275
Mercurous Nitrate	204	399			135	275
Mercury	204	399	21	70	135	275
Methane	204	399			120	248
Methyl Acetate	204	399				
Methyl Alcohol (Methanol)	204	399	149	300	150	302
Methyl Amine	204	399	23	73		
Methyl Bromide	204	399	149	300	150	302
Methyl Cellosolve	204	399	149	300	150	302
Methyl Chloride	204	399	149	300	150	302
Methyl Ethyl Ketone	204	399	50	122		
Methyl Isobutyl Ketone (MIBK)	204	399	50	122	110	230
Methylene Chloride	204	399	50	122	100	212

CHEMICAL	SC-7001 PFA		SC-2001 FM ECTFE		SC-5001 FM ETFE	
	C°	F°	C°	F°	C°	F°
Milk	204	399	149	300		
Mineral Oil	204	399	149	300	150	302
Molasses	204	399	149	300		
Motor Oil	204	399	149	300		
Monochlorobenzene	204	399	38	100	110	230
Monochlorodifluoromethane (F-22)	204	399	21	70		
Monoethanol Amine	204	399			65	149
Nitrobenzene	204	399	50	122	150	302
Nitrogen	204	399	149	300	150	302
Nitromethane	204	399	93	199	100	212
Nitrous Acid	204	399	100	212	100	212
Nitrous Oxide	204	399	50	122		
Oils (Mineral)	204	399	149	300		
Oleic Acid (Red Oil)	204	399	120	135		
Oxalic Acid	204	399	50	122	110	230
Ozone	204	399	100	212	100	212
Palmitic Acid	204	399	120	248	135	275
Perchloric Acid	204	399	50	122	65	149
Petroleum	204	399	100	212	150	302
Phosphoric Acid	204	399	93	199	135	275
Phosphorus	204	399	23	73		
Phosphorous Trichloride	204	399	100	120		
Photographic Solutions	204	399	50	122		
Picric Acid	204	399	23	73	50	122
Plating Solutions	204	399	100	212		
Propyl Acetate	204	399	50	122		
Propyl Alcohol (Propanol)	204	399	149	300	100	212
Propylene Oxide	204	399	NR	NR	65	149
Pyridine	204	399	NR	NR	65	149
Pyrogallic Acid	204	399	50	122	65	149
Salicylic Acid	204	399	120	248	120	248
Salicylaldehyde	204	399	50	122	100	212
Sodium Bicarbonate	204	399	149	300	150	302
Sodium Carbonate (Soda Ash)	204	399	149	300	150	302
Sodium Dichromate	204	399	100	212	100	212
Sodium Fluoride	204	399	149	300	150	302
Sodium Hydroxide (<50% Caustic Soda)	204	399	120	248	100	212
Sodium Hypochlorite	204	399	120	248	150	302
Sodium Nitrate	204	399	149	300	150	302
Sodium Sulphate	204	399	149	300	150	302
Sulphur Dioxide	204	399	50	122	110	230
Sulphuric Acid	204	399	120	248	150	302
Sulphurous Acid	204	399	100	212	110	230
Tanning Liquor (Alum Solution)	204	399	100	212		
Tetrachloroethylene	120	248	23	73		
Toluene (Toluol)	204	399	23	73	120	248
Trichloroacetic Acid	204	399	50	122	100	212
Trichloroethylene	120	248	23	135		
Vinegar	204	399	100	212		
Vinyl Acetate	204	399	50	122	135	275
Wines	204	399	100	212		
Xylene (Xylol)	204	399	50	122	120	248
Zinc Chloride (To 25%)	204	399			150	302

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