

BREATHSAVER® FIBERGLASS CONDUIT SYSTEM FOR

LOW SMOKE / HIGH TEMPERATURE applications



FIRE
COMPOSITES®

F I R S T I N T H E F I E L D

®



FRE Composites' plants produce North America's highest quality fiberglass conduit products, ready for shipment worldwide. These plants house up-to-date automated filament winding equipment, and contains plenty of warehousing capacity, both indoors and outdoors.

FRE
COMPOSITES®

F I R S T I N T H E F I E L D

®

OUR VISION

At FRE Composites, we have the experience, having manufactured our first fiberglass products as far back as 1958. Today, the company has skilled and experienced workforce operating two (2) plants and exporting product to numerous countries worldwide.

Currently, FRE Composites is focused exclusively on the design, engineering and production of composite filament-wound fiberglass conduit products and accessories. However, in addition to core products serving electric, telecom, water and wastewater utilities, and transportation industries, FRE Composites has engineered and produced highly specialized products for use in space exploration made from carbon fibers and other exotic materials, such as rocket launch tubes and the main structure of the CANADARM robotic arm, which is used by NASA's Space Shuttle to manipulate payloads in space. The CANADARM was also used to assist in the construction of the International Space Station, and in 2005, a CANADARM system attached to the International Space Station successfully assisted in the first in-orbit repair of the Space Shuttle Discovery.

Our 100,000 sq.ft. plant in Canada and our 50,000 sq. ft. plant in the United States have the capacity to accommodate high production requirements while maintaining substantial flexibility to foster to our growing customer base needs. Although we are the only source of FRE® trademarked conduit, it's no secret that we are not the only suppliers of fiberglass conduit in North America. Considering that you have choices, why should you do business with us ?

EXPERIENCE
COMPETENCE
COMMITMENT

Quality

Our products are engineered to exacting standards, and are produced to consistent quality standards to provide superior life expectancy. Design performance and quality control always have been, and always will be, our number one priority.

Experience

Our long experience has taught us how to design and to build our products right: First in the Field®.

Production capacity

FRE Composites operates the largest production facility to produce fiberglass conduit in North America, which enables us to produce large volumes of product within tight delivery deadlines while being flexible to service ongoing requirements of numerous projects. We value distribution.

Distribution

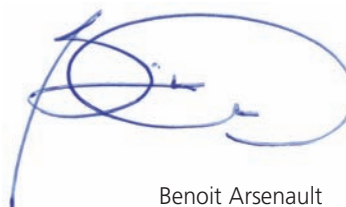
FRE Composites has always joined forces with distribution to promote its product lines. FRE® fiberglass conduit products are available in all popular sizes from stocking distributors from coast to coast in both Canada and the United States.

Service

We are organized to provide courteous and professional customer service in Chinese, English, French, Italian, Russian and Spanish. To better serve clients beyond continental North America, we are in the process of adding service capabilities in several additional languages.

We are eager to serve you professionally and courteously, supplying you with high quality conduit systems in accordance with your requirements.

No job is too small or too big.



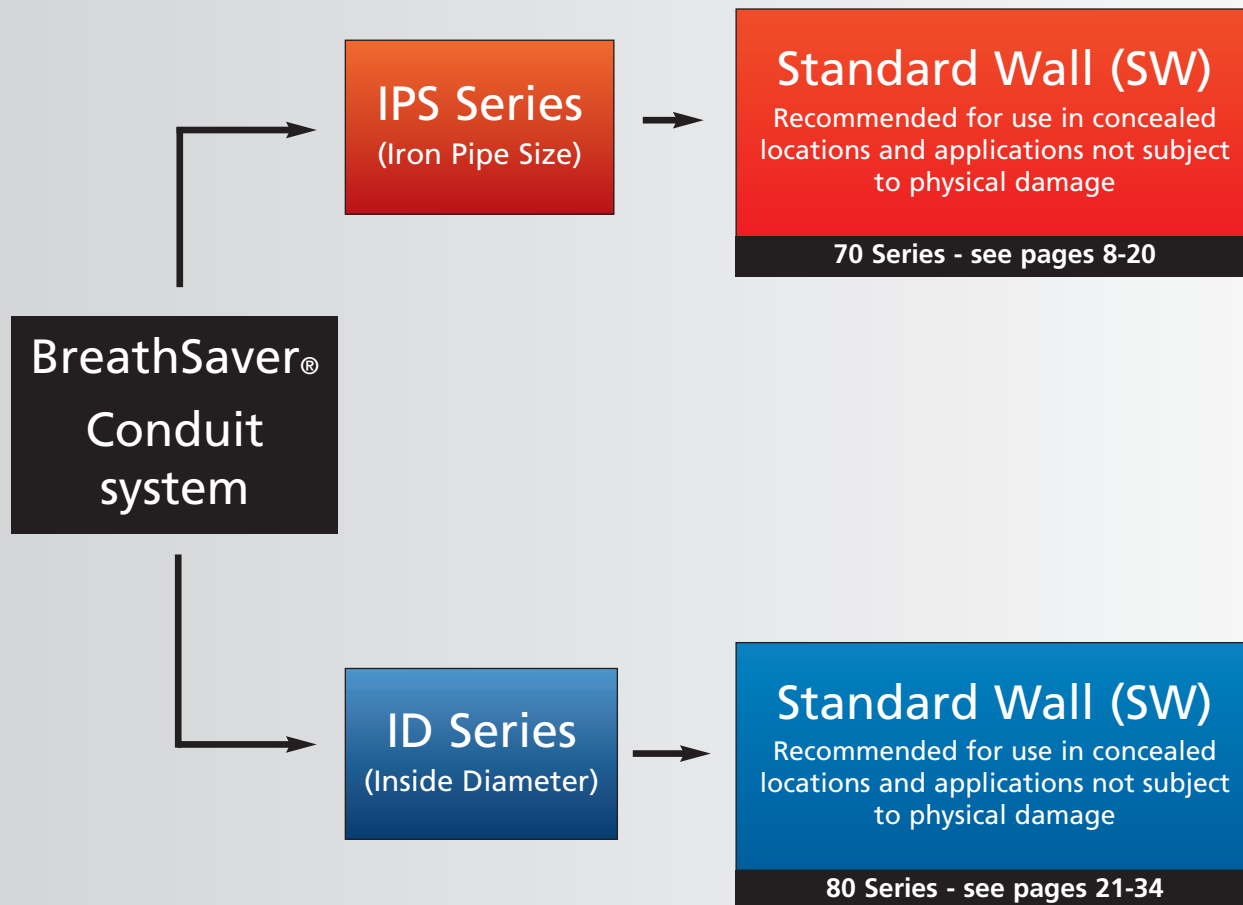
Benoit Arsenault
President

BreathSaver® Conduit System

SYSTEM

DIMENSIONS

WALL THICKNESS



Upon special request, FRE Composites products can be designed to meet specific requirements such as wall thickness, offset elbows, special radii elbows and adapters.



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LIMITATION OF LIABILITY

Due to the varied nature of electrical system designs, field conditions and installation techniques and practices under which BreathSaver® Conduit may be used, no guaranty or promise can be made regarding its performance in individual applications, since these factors are beyond the control of FRE Composites (2005) Inc. ("FRE Inc."). Therefore FRE Inc. or any of its affiliates and associates, accepts no responsibility for the performance of installed BreathSaver® Conduit systems.

At the written request of the engineer, architect, designer or contractor responsible for the design, installation practices or supervision, FRE Inc. may provide assistance or on-site advice based on past experience but only as a guide for successful installation. However said engineer, architect, designer and contractor shall remain solely responsible for ensuring the design, installation practices and supervision are adequate for the intended application. FRE Inc. shall not be liable in any way towards anyone by reason of such assistance or on-site advice.

In all cases, FRE Inc.'s only liability will be the replacement of conduit or fittings shown to be defective in workmanship or materials prior to installation. Under no circumstances shall FRE Inc. be liable for any claims, damages, losses (including a loss of opportunity, business or profit) or costs whether based on the fault or negligence (whether gross or not) of FRE Inc., on contractual, legal or statutory warranties, strict liability or otherwise except as expressly provided herein.

BreathSaver® Conduit is primarily designed for use in concealed locations where low smoke, flame and toxicity are critical. Should prolonged exposure be desired, please contact us for details on special protection techniques.

FRE Inc. has prepared this data as a guide only. Although FRE Inc. believes the information contained herein is accurate and reliable, this information shall not be construed as representation, warranty or guarantee, whether express or implied. FRE Inc. reserves the right to update products and /or data as necessary without notice.

Why should you consider using BreathSaver® conduit?

Phenolic conduit offers many advantages over other commonly used conduit, such as steel and PVC, as listed below:

LOW SMOKE, NO FLAME, LOW TOXICITY:

BreathSaver® conduit has a very low Smoke Optical Density of 2 @ 4 minutes per ASTM E662. It offers an outstanding flame resistance as it actually complies with the requirements of NFPA 130 (932°F or 500°C for 1 hour without self-supporting combustion). It also has a Flame Spread Index of 2 when tested under radiant heat (ASTM E162) a flame spread of 15 or Class 1 fire rated (ASTM E84). Unlike PVC, BreathSaver® is low halogen and does not release bromine or chlorine. BreathSaver® is a unique conduit system when it comes to toxicity (SMP 800C). *It is the right choice.*

TEMPERATURE RANGE:

BreathSaver® Conduit can withstand a wide array of temperature ranging from -40°F to 525°F (-40°C to 274°C). Unlike PVC which is malleable in heat, BreathSaver® Conduit maintains its unique characteristics.

EASE OF ASSEMBLY:

Phenolic fiberglass conduit is easy to install, partly resulting from its light weight, which facilitates handling. Fitting sections together using the push-fit spigot and bell design further facilitates assembly. BreathSaver® conduit is joined with the use of an adhesive.

LIGHTWEIGHT:

Phenolic fiberglass conduit weighs considerably less than PVC or steel, resulting in cost savings through reduced handling time, reduced assembly time, reduced requirements for mechanized handling, reduced freight charges, reduced system weight, and lower costs of support. By way of example, 2" (53 mm) BreathSaver® conduit weighs 34 pounds (15 kg) per 100 ft (30 m), compared with 71 (32 kg) to 100 pounds (45 kg) for an identical length of PVC conduit, or about 330 pounds (150 kg) for a conduit made of steel. One hundred ft. of 4" (103 mm) BreathSaver® conduit weighs in at 76 pounds (34 kg), compared with 236 pounds (107 kg) (Schedule 40) to 286 pounds (130 kg) (Schedule 80) for PVC and almost 1 000 pounds (454 kg) for steel.

CABLE FUSION:

Fiberglass is an excellent insulator. Unlike fiberglass conduit, steel conduit will weld with cable, and PVC conduit may fuse or melt under electrical fault conditions.

CORROSION RESISTANT:

BreathSaver® fiberglass conduit system is not affected by the effects of water or most other chemicals. Contact the factory for further information, if specific information is required.

NO BURN-THROUGH:

Unlike rigid PVC, phenolic fiberglass elbows have a strong resistance to being cavitated or pierced as a result of rope pull.

a complete system

Why should you specify BreathSaver® conduit made by FRE Composites?

There are a number of reasons why BreathSaver® conduit offers the industry the most for its money. Our **experience** and **quality record** speak for themselves. We live and breathe quality: quality is the number one priority to which everything else is subordinate. After nearly fifty years in the business, we know how to do things right, and we know how to ensure that we keep doing them right.

Our **total production capacity** is the largest in the industry enabling us to produce large volumes of product within tight delivery deadlines, and product is available from **stocking distributors** throughout Canada, the United States and elsewhere around the world.

TO ENSURE THAT YOUR PROJECT WILL BENEFIT FROM THE HIGHEST QUALITY CONDUIT PRODUCTS, SPECIFY BREATHSAVER® CONDUIT:

KEY SPECIFICATION POINTS:

- Shall be manufactured from E or E-CR glass and **phenolic** resin (no fillers).
- Shall have a glass content of 68%, plus or minus 3%.
- All joints shall be inside tapered bell end and of even socket depth through out the raceway (conduits & fittings).
- NFPA 130 compliant.
- Class 1 Fire rated (ASTM E84).
- Flame Spread Index ≤ 2 (ASTM E162).
- Smoke Optical Density ≤ 2 (ASTM E662).
- SMP 800C compliant.
- Union made.
- Multiple locations to better serve your needs.

**For more information, please contact us
1 888 849-9909**

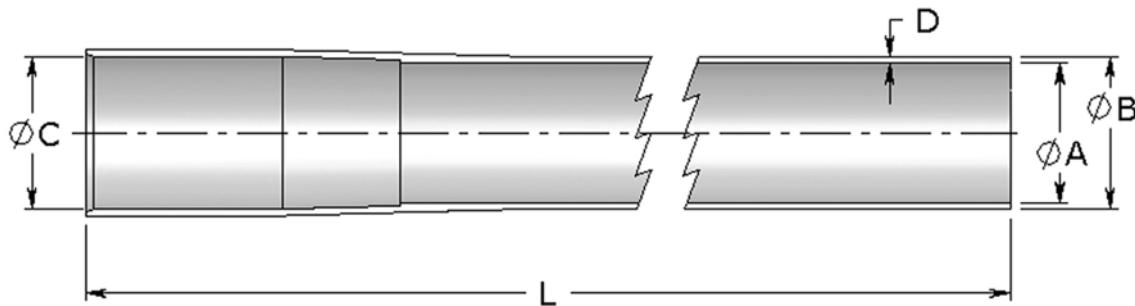


your right choice

low cost

IPS STANDARD WALL (SW) CONDUIT SYSTEM

IPS STANDARD WALL (SW) CONDUIT



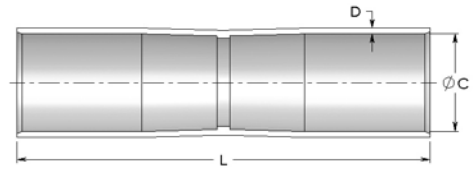
Size	Symbol	ØA	ØB	ØC	D	L	ØA	ØB	ØC	D	L	
in	mm	inches					millimeters					meters
1	27	70-1000	1.183	1.315	1.351	0.066	118.25	30.0	33.4	34.3	1.7	3
1¼	35	70-1200	1.528	1.660	1.698	0.066	118.25	38.8	42.2	43.1	1.7	3
1½	41	70-1500	1.768	1.900	1.938	0.066	118.25	44.9	48.3	49.2	1.7	3

- All our BreathSaver® products are offered with a push-fit assembly requiring adhesive.
- Standard length is 9.84 ft. (3m).
- Spigot end tapered for ease of installation



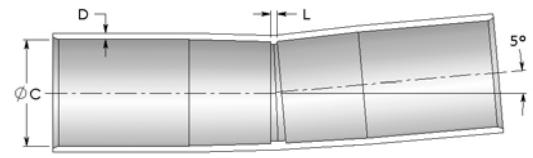
IPS SW DOUBLE BELL COUPLING

Size	Symbol	ØC	D	L	ØC	D	L	
in	mm	inches			millimeters			
1	27	70-1010	1.351	0.066	8.250	34.3	1.7	209.6
1¼	35	70-1210	1.698	0.066	8.250	43.1	1.7	209.6
1½	41	70-1510	1.938	0.066	8.250	49.2	1.7	209.6



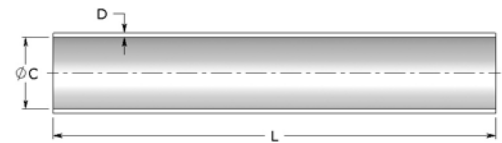
IPS SW 5° DOUBLE BELL COUPLING

Size	Symbol	ØC	D	L	ØC	D	L	
in	mm	inches			millimeters			
1	27	70-1011	1.351	0.066	0.125	34.3	1.7	3.2
1¼	35	70-1211	1.698	0.066	0.125	43.1	1.7	3.2
1½	41	70-1511	1.938	0.066	0.125	49.2	1.7	3.2

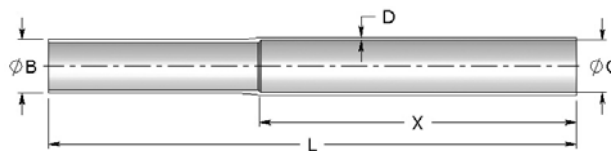


IPS SW SLEEVE

Size	Symbol	ØC	D	L	ØC	D	L	
in	mm	inches			millimeters			
1	27	70-1016	1.351	0.066	12	34.3	1.7	304.8
1¼	35	70-1216	1.698	0.066	12	43.1	1.7	304.8
1½	41	70-1516	1.938	0.066	12	49.2	1.7	304.8



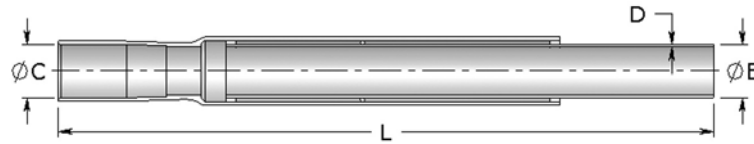
IPS SW SINGLE EXPANSION JOINT



Size	Symbol	ØB	ØC	D	L	X	ØB	ØC	D	L	X	
in	mm	inches					millimeters					
1	27	70-1012	1.315	1.351	0.066	20	12	33.4	34.3	1.7	508.0	304.8
1¼	35	70-1212	1.660	1.698	0.066	20	12	42.2	43.1	1.7	508.0	304.8
1½	41	70-1512	1.900	1.938	0.066	20	12	48.3	49.2	1.7	508.0	304.8

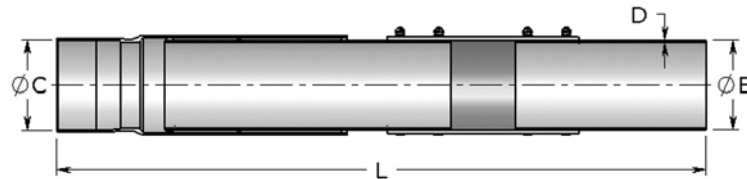
IPS
SW

IPS SW O-RING EXPANSION JOINT



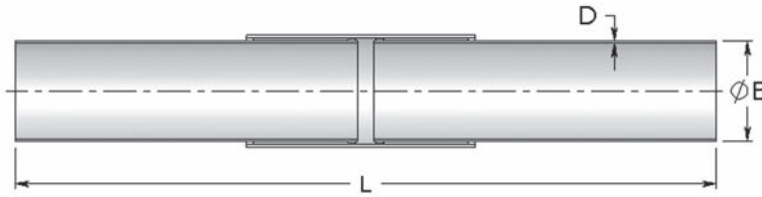
Size		Symbol	ØB	ØC	D	L min	L max	ØB	ØC	D	L min	L max
in	mm	No.	inches					millimeters				
1	27	70-1017	1.315	1.351	0.066	23	35	33.4	34.3	1.7	584.2	889.0
1¼	35	70-1217	1.660	1.698	0.066	23	35	42.2	43.1	1.7	584.2	889.0
1½	41	70-1517	1.900	1.938	0.066	23	35	48.3	49.2	1.7	584.2	889.0

IPS SW O-RING EXPANSION / DEFLECTION JOINT



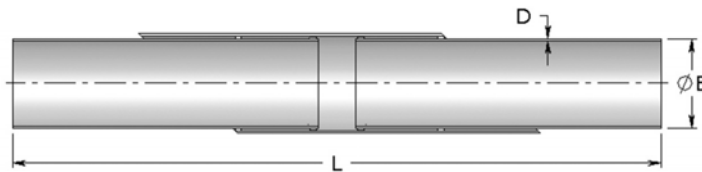
Size		Symbol	ØB	ØC	D	L min	L max	ØB	ØC	D	L min	L max
in	mm	No.	inches					millimeters				
1	27	70-1057	1.315	1.351	0.066	39	51	33.4	34.3	1.7	990.6	1295.4
1¼	35	70-1257	1.660	1.698	0.066	39	51	42.2	43.1	1.7	990.6	1295.4
1½	41	70-1557	1.900	1.938	0.066	39	51	48.3	49.2	1.7	990.6	1295.4

IPS SW WOBBLE (FOR UP TO 3° CURVATURE)



Size		Symbol No.	ØB	D	Lmin	Lmax	ØB	D	L min	L max
in	mm		inches				millimeters			
1	27	70-1013	1.315	0.066	36	46	33.4	1.7	914.4	1168.4
1¼	35	70-1213	1.660	0.066	36	46	42.2	1.7	914.4	1168.4
1½	41	70-1513	1.900	0.066	36	46	48.3	1.7	914.4	1168.4

IPS SW SKEW WOBBLE (FOR UP TO 7.5° CURVATURE)



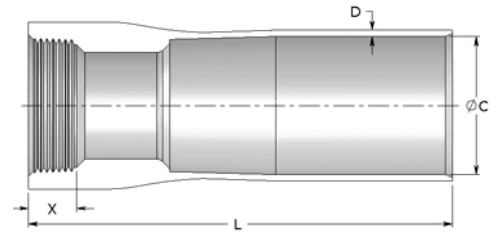
Size		Symbol No.	ØB	D	L min	L max	ØB	D	L min	L max
in	mm		inches				millimeters			
1	27	70-1014	1.315	0.066	48	56	33.4	1.7	1219.2	1422.4
1¼	35	70-1214	1.660	0.066	48	56	42.2	1.7	1219.2	1422.4
1½	41	70-1514	1.900	0.066	48	56	48.3	1.7	1219.2	1422.4

IPS SW



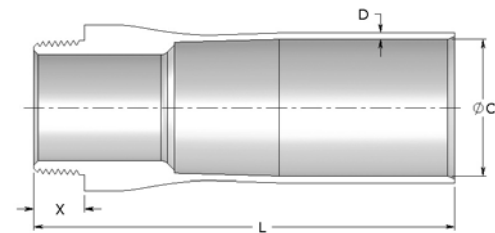
IPS SW NPT FEMALE THREADED ADAPTER

Size	Symbol	$\varnothing C$	D	L	X	$\varnothing C$	D	L	X	
in	mm	No.	inches			millimeters				
1	27	70-1044	1.351	0.066	6	0.661	34.3	1.7	152.4	16.8
1¼	35	70-1244	1.698	0.066	6	0.681	43.1	1.7	152.4	17.3
1½	41	70-1544	1.938	0.066	6	0.681	49.2	1.7	152.4	17.3



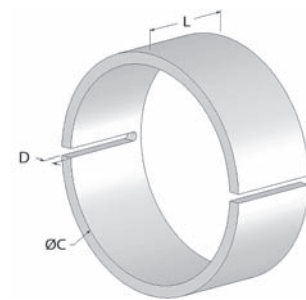
IPS SW NPT MALE THREADED ADAPTER

Size	Symbol	$\varnothing C$	D	L	X	$\varnothing C$	D	L	X	
in	mm	No.	inches			millimeters				
1	27	70-1027	1.351	0.066	6	0.683	34.3	1.7	152.4	17.3
1¼	35	70-1227	1.698	0.066	6	0.707	43.1	1.7	152.4	18.0
1½	41	70-1527	1.938	0.066	6	0.724	49.2	1.7	152.4	18.4

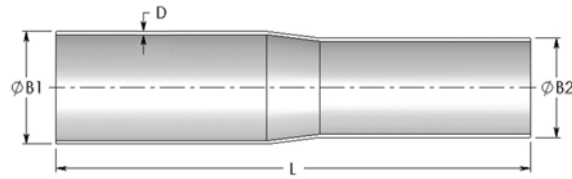


IPS SW SPLIT STOP RING

Size	Symbol	$\varnothing C$	D	L	$\varnothing C$	D	L	
in	mm	No.	inches		millimeters			
1	27	70-1064	1.351	0.185	2	34.3	4.7	50.8
1¼	35	70-1264	1.698	0.185	2	43.1	4.7	50.8
1½	41	70-1564	1.938	0.185	2	49.2	4.7	50.8



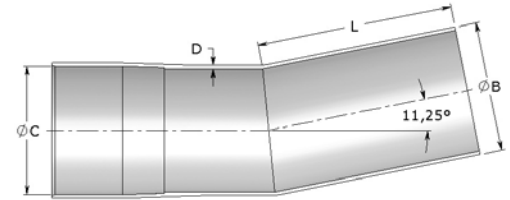
IPS SW REDUCER



Size		Symbol No.	ØB1	ØB2	D	L	ØB1	ØB2	D	L
in	mm		inches				millimeters			
1¼	35	70-1229	1.660	1.315	0.066	18	42.2	33.4	1.7	457.2
1½	41	70-1529	1.900	1.660	0.066	18	48.3	42.2	1.7	457.2

IPS SW 11.25° FITTING

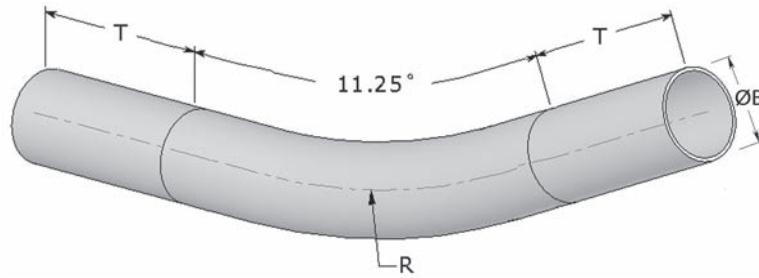
Size		Symbol No.	ØB	ØC	D	L	ØB	ØC	D	L
in	mm		inches				millimeters			
1	27	70-1035	1.315	1.351	0.066	7	33.4	34.3	1.7	177.8
1¼	35	70-1235	1.660	1.698	0.066	7	42.2	43.1	1.7	177.8
1½	41	70-1535	1.900	1.938	0.066	7	48.3	49.2	1.7	177.8



IPS
SW



IPS SW 11.25° ELBOW



10" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
No.							
1	27	70-1035R10	1.315	10	6	33.4	254.0 152.4

48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
No.							
1	27	70-1035R48	1.315	48	6	33.4	1219.2 152.4
1¼	35	70-1235R48	1.660	48	6	42.2	1219.2 152.4
1½	41	70-1535R48	1.900	48	6	48.3	1219.2 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
No.							
1	27	70-1035R12	1.315	12	6	33.4	304.8 152.4
1¼	35	70-1235R12	1.660	12	6	42.2	304.8 152.4
1½	41	70-1535R12	1.900	12	6	48.3	304.8 152.4

60" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
No.							
1	27	70-1035R60	1.315	60	6	33.4	1524.0 152.4
1¼	35	70-1235R60	1.660	60	6	42.2	1524.0 152.4
1½	41	70-1535R60	1.900	60	6	48.3	1524.0 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
No.							
1	27	70-1035R24	1.315	24	6	33.4	609.6 152.4
1¼	35	70-1235R24	1.660	24	6	42.2	609.6 152.4
1½	41	70-1535R24	1.900	24	6	48.3	609.6 152.4

72" RADIUS

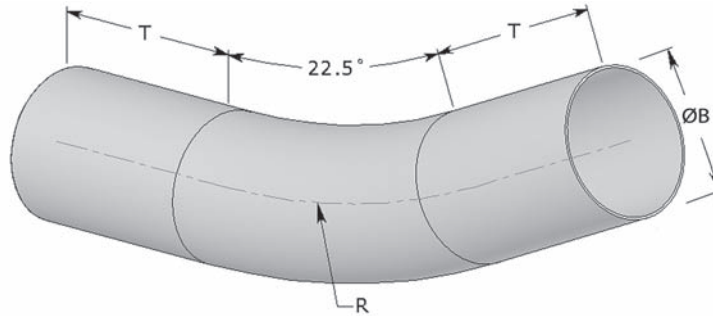
Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
No.							
1	27	70-1035R72	1.315	72	6	33.4	1828.8 152.4
1¼	35	70-1235R72	1.660	72	6	42.2	1828.8 152.4
1½	41	70-1535R72	1.900	72	6	48.3	1828.8 152.4

36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
No.							
1	27	70-1035R36	1.315	36	6	33.4	914.4 152.4
1¼	35	70-1235R36	1.660	36	6	42.2	914.4 152.4
1½	41	70-1535R36	1.900	36	6	48.3	914.4 152.4



IPS SW 22.5° ELBOW



10" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1034R10	1.315	10	6	33.4	254.0 152.4

48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1034R48	1.315	48	6	33.4	1219.2 152.4
1¼	35	70-1234R48	1.660	48	6	42.2	1219.2 152.4
1½	41	70-1534R48	1.900	48	6	48.3	1219.2 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1034R12	1.315	12	6	33.4	304.8 152.4
1¼	35	70-1234R12	1.660	12	6	42.2	304.8 152.4
1½	41	70-1534R12	1.900	12	6	48.3	304.8 152.4

60" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1034R60	1.315	60	6	33.4	1524.0 152.4
1¼	35	70-1234R60	1.660	60	6	42.2	1524.0 152.4
1½	41	70-1534R60	1.900	60	6	48.3	1524.0 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1034R24	1.315	24	6	33.4	609.6 152.4
1¼	35	70-1234R24	1.660	24	6	42.2	609.6 152.4
1½	41	70-1534R24	1.900	24	6	48.3	609.6 152.4

72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1034R72	1.315	72	6	33.4	1828.8 152.4
1¼	35	70-1234R72	1.660	72	6	42.2	1828.8 152.4
1½	41	70-1534R72	1.900	72	6	48.3	1828.8 152.4

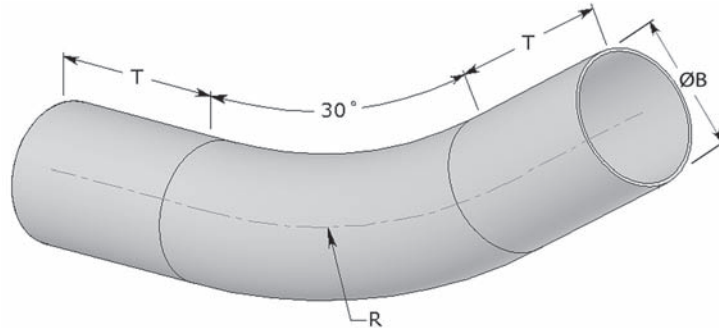
36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1034R36	1.315	36	6	33.4	914.4 152.4
1¼	35	70-1234R36	1.660	36	6	42.2	914.4 152.4
1½	41	70-1534R36	1.900	36	6	48.3	914.4 152.4

IPS SW



IPS SW 30° ELBOW



10" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1033R10	1.315	10	6	33.4	254.0 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1033R12	1.315	12	6	33.4	304.8 152.4
1¼	35	70-1233R12	1.660	12	6	42.2	304.8 152.4
1½	41	70-1533R12	1.900	12	6	48.3	304.8 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1033R24	1.315	24	6	33.4	609.6 152.4
1¼	35	70-1233R24	1.660	24	6	42.2	609.6 152.4
1½	41	70-1533R24	1.900	24	6	48.3	609.6 152.4

36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1033R36	1.315	36	6	33.4	914.4 152.4
1¼	35	70-1233R36	1.660	36	6	42.2	914.4 152.4
1½	41	70-1533R36	1.900	36	6	48.3	914.4 152.4

48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1033R48	1.315	48	6	33.4	1219.2 152.4
1¼	35	70-1233R48	1.660	48	6	42.2	1219.2 152.4
1½	41	70-1533R48	1.900	48	6	48.3	1219.2 152.4

60" RADIUS

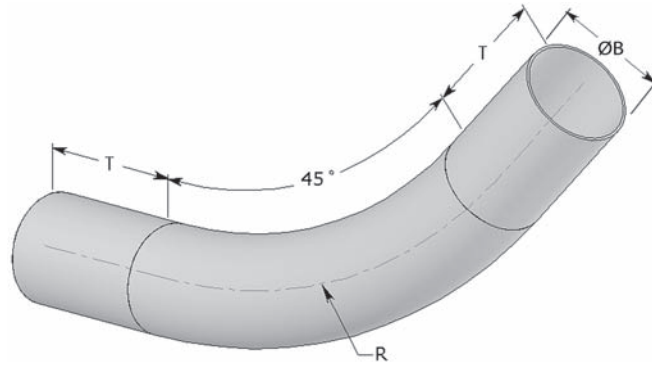
Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1033R60	1.315	60	6	33.4	1524.0 152.4
1¼	35	70-1233R60	1.660	60	6	42.2	1524.0 152.4
1½	41	70-1533R60	1.900	60	6	48.3	1524.0 152.4

72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1033R72	1.315	72	6	33.4	1828.8 152.4
1¼	35	70-1233R72	1.660	72	6	42.2	1828.8 152.4
1½	41	70-1533R72	1.900	72	6	48.3	1828.8 152.4



IPS SW 45° ELBOW



10" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1032R10	1.315	10	6	33.4	254.0 152.4

48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1032R48	1.315	48	6	33.4	1219.2 152.4
1¼	35	70-1232R48	1.660	48	6	42.2	1219.2 152.4
1½	41	70-1532R48	1.900	48	6	48.3	1219.2 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1032R12	1.315	12	6	33.4	304.8 152.4
1¼	35	70-1232R12	1.660	12	6	42.2	304.8 152.4
1½	41	70-1532R12	1.900	12	6	48.3	304.8 152.4

60" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1032R60	1.315	60	6	33.4	1524.0 152.4
1¼	35	70-1232R60	1.660	60	6	42.2	1524.0 152.4
1½	41	70-1532R60	1.900	60	6	48.3	1524.0 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1032R24	1.315	24	6	33.4	609.6 152.4
1¼	35	70-1232R24	1.660	24	6	42.2	609.6 152.4
1½	41	70-1532R24	1.900	24	6	48.3	609.6 152.4

72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1032R72	1.315	72	6	33.4	1828.8 152.4
1¼	35	70-1232R72	1.660	72	6	42.2	1828.8 152.4
1½	41	70-1532R72	1.900	72	6	48.3	1828.8 152.4

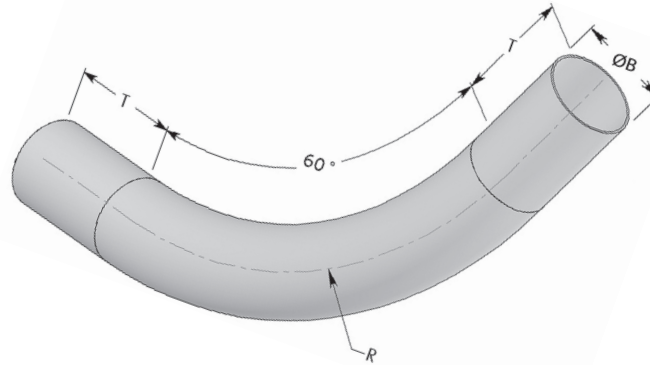
36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1032R36	1.315	36	6	33.4	914.4 152.4
1¼	35	70-1232R36	1.660	36	6	42.2	914.4 152.4
1½	41	70-1532R36	1.900	36	6	48.3	914.4 152.4

IPS SW



IPS SW 60° ELBOW



10" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1031R10	1.315	10	6	33.4	254.0 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1031R12	1.315	12	6	33.4	304.8 152.4
1¼	35	70-1231R12	1.660	12	6	42.2	304.8 152.4
1½	41	70-1531R12	1.900	12	6	48.3	304.8 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1031R24	1.315	24	6	33.4	609.6 152.4
1¼	35	70-1231R24	1.660	24	6	42.2	609.6 152.4
1½	41	70-1531R24	1.900	24	6	48.3	609.6 152.4

36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1031R36	1.315	36	6	33.4	914.4 152.4
1¼	35	70-1231R36	1.660	36	6	42.2	914.4 152.4
1½	41	70-1531R36	1.900	36	6	48.3	914.4 152.4

48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1031R48	1.315	48	6	33.4	1219.2 152.4
1¼	35	70-1231R48	1.660	48	6	42.2	1219.2 152.4
1½	41	70-1531R48	1.900	48	6	48.3	1219.2 152.4

60" RADIUS

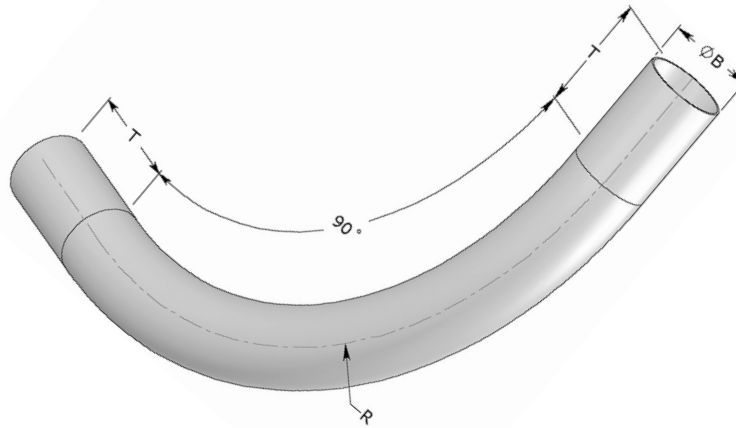
Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1031R60	1.315	60	6	33.4	1524.0 152.4
1¼	35	70-1231R60	1.660	60	6	42.2	1524.0 152.4
1½	41	70-1531R60	1.900	60	6	48.3	1524.0 152.4

72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1031R72	1.315	72	6	33.4	1828.8 152.4
1¼	35	70-1231R72	1.660	72	6	42.2	1828.8 152.4
1½	41	70-1531R72	1.900	72	6	48.3	1828.8 152.4



IPS SW 90° ELBOW



10" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1030R10	1.315	10	6	33.4	254.0 152.4

36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1030R36	1.315	36	6	33.4	914.4 152.4
1¼	35	70-1230R36	1.660	36	6	42.2	914.4 152.4
1½	41	70-1530R36	1.900	36	6	48.3	914.4 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1030R12	1.315	12	6	33.4	304.8 152.4
1¼	35	70-1230R12	1.660	12	6	42.2	304.8 152.4
1½	41	70-1530R12	1.900	12	6	48.3	304.8 152.4

48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1030R48	1.315	48	6	33.4	1219.2 152.4
1¼	35	70-1230R48	1.660	48	6	42.2	1219.2 152.4
1½	41	70-1530R48	1.900	48	6	48.3	1219.2 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1030R24	1.315	24	6	33.4	609.6 152.4
1¼	35	70-1230R24	1.660	24	6	42.2	609.6 152.4
1½	41	70-1530R24	1.900	24	6	48.3	609.6 152.4

60" RADIUS

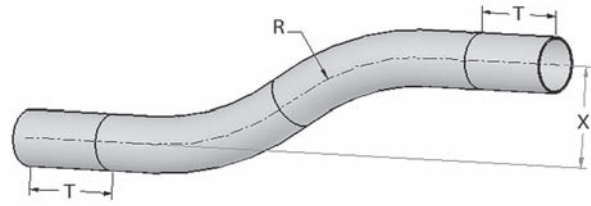
Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
1	27	70-1030R60	1.315	60	6	33.4	1524.0 152.4
1¼	35	70-1230R60	1.660	60	6	42.2	1524.0 152.4
1½	41	70-1530R60	1.900	60	6	48.3	1524.0 152.4

IPS
SW



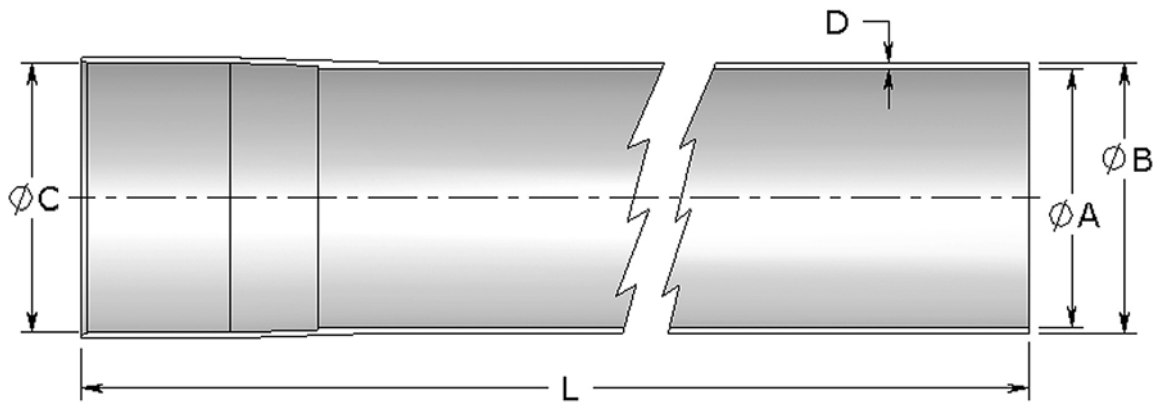
IPS SW OFFSET ELBOW

Size	Symbol No.
all	special



ID STANDARD WALL (SW) CONDUIT SYSTEM

ID STANDARD WALL (SW) CONDUIT



Size	Symbol	ØA	ØB	ØC	D	L						
							ØA	ØB	ØC	D	L	
in	mm	No.	inches			millimeters					meters	
2	53	80-2000	2.000	2.140	2.170	0.070	236.25	50.8	54.4	55.1	1.8	6
2½	63	80-2500	2.500	2.640	2.670	0.070	236.25	63.5	67.1	67.8	1.8	6
3	78	80-3000	3.000	3.140	3.170	0.070	236.25	76.2	79.8	80.5	1.8	6
4	103	80-4000	4.000	4.140	4.170	0.070	236.25	101.6	105.2	105.9	1.8	6
5	129	80-5000	5.000	5.190	5.230	0.095	236.25	127.0	131.8	132.8	2.4	6
6	155	80-6000	6.000	6.190	6.230	0.095	236.25	152.4	157.2	158.2	2.4	6

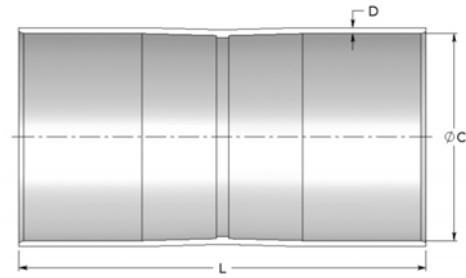
- All our BreathSaver® products are offered with a push-fit assembly requiring adhesive.
- Standard length is 19.68 ft. (6m), but can also be available in 9.84 ft. section (3m), if required.
- Spigot end tapered for ease of installation



ID SW

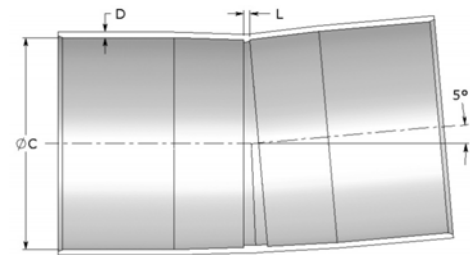
ID SW DOUBLE BELL COUPLING

Size	Symbol	ØC	D	L	ØC	D	L
in	mm	inches			millimeters		
2	53 80-2010	2.170	0.070	8.25	55.1	1.8	209.6
2½	63 80-2510	2.670	0.070	8.25	67.8	1.8	209.6
3	78 80-3010	3.170	0.070	8.25	80.5	1.8	209.6
4	103 80-4010	4.170	0.070	8.25	105.9	1.8	209.6
5	129 80-5010	5.230	0.095	8.25	132.8	2.4	209.6
6	155 80-6010	6.230	0.095	8.25	158.2	2.4	209.6



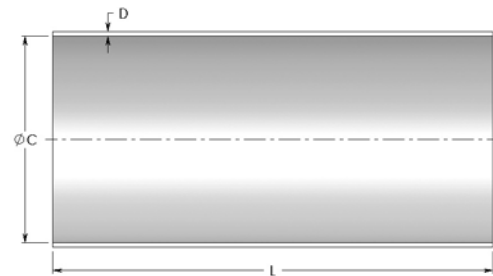
ID SW 5° DOUBLE BELL COUPLING

Size	Symbol	ØC	D	L	ØC	D	L
in	mm	inches			millimeters		
2	53 80-2011	2.170	0.070	0.125	55.1	1.8	3.2
2½	63 80-2511	2.670	0.070	0.125	67.8	1.8	3.2
3	78 80-3011	3.170	0.070	0.125	80.5	1.8	3.2
4	103 80-4011	4.170	0.070	0.125	105.9	1.8	3.2
5	129 80-5011	5.230	0.095	0.125	132.8	2.4	3.2
6	155 80-6011	6.230	0.095	0.125	158.2	2.4	3.2

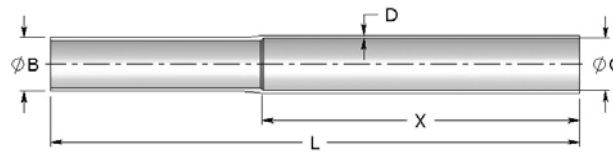


ID SW SLEEVE

Size	Symbol	ØC	D	L	ØC	D	L
in	mm	inches			millimeters		
2	53 80-2016	2.170	0.070	12	55.1	1.8	304.8
2½	63 80-2516	2.670	0.070	12	67.8	1.8	304.8
3	78 80-3016	3.170	0.070	12	80.5	1.8	304.8
4	103 80-4016	4.170	0.070	12	105.9	1.8	304.8
5	129 80-5016	5.230	0.095	12	132.8	2.4	304.8
6	155 80-6016	6.230	0.095	12	158.2	2.4	304.8



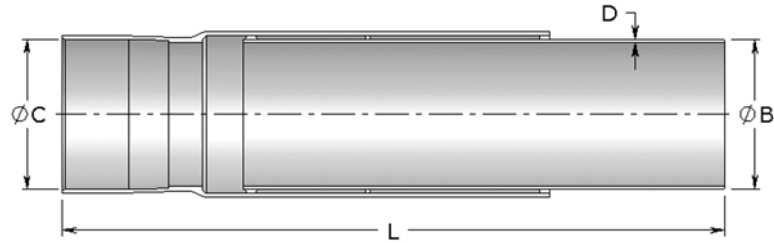
ID SW SINGLE EXPANSION JOINT



Size	Symbol	ØB	ØC	D	L	X	ØB	ØC	D	L	X
in	mm	inches					millimeters				
2	53 80-2012	2.140	2.170	0.070	20	12	54.4	55.1	1.8	508.0	304.8
2½	63 80-2512	2.640	2.670	0.070	20	12	67.1	67.8	1.8	508.0	304.8
3	78 80-3012	3.140	3.170	0.070	20	12	79.8	80.5	1.8	508.0	304.8
4	103 80-4012	4.140	4.170	0.070	20	12	105.2	105.9	1.8	508.0	304.8
5	129 80-5012	5.190	5.230	0.095	20	12	131.8	132.8	2.4	508.0	304.8
6	155 80-6012	6.190	6.230	0.095	20	12	157.2	158.2	2.4	508.0	304.8

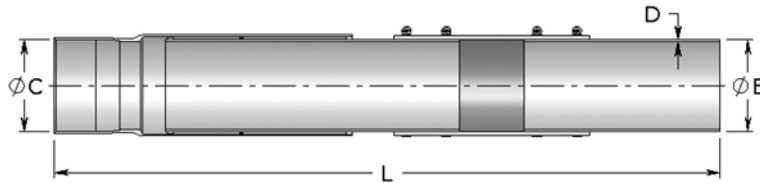


ID SW O-RING EXPANSION JOINT



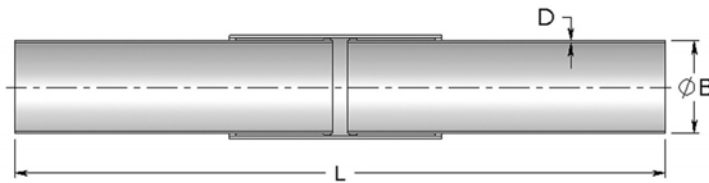
Size		Symbol	ØB	ØC	D	L min	L max	ØB	ØC	D	L min	L max
in	mm	No.	inches					millimeters				
2	53	80-2017	2.140	2.170	0.070	23	35	54.4	55.1	1.8	584.2	889.0
2½	63	80-2517	2.640	2.670	0.070	23	35	67.1	67.8	1.8	584.2	889.0
3	78	80-3017	3.140	3.170	0.070	23	35	79.8	80.5	1.8	584.2	889.0
4	103	80-4017	4.140	4.170	0.070	23	35	105.2	105.9	1.8	584.2	889.0
5	129	80-5017	5.190	5.230	0.095	23	35	131.8	132.8	2.4	584.2	889.0
6	155	80-6017	6.190	6.230	0.095	23	35	157.2	158.2	2.4	584.2	889.0

ID SW O-RING EXPANSION / DEFLECTION JOINT



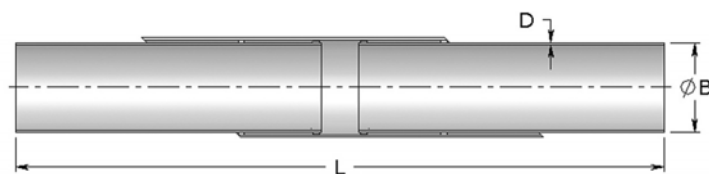
Size		Symbol	ØB	ØC	D	L min	L max	ØB	ØC	D	L min	L max
in	mm	No.	inches					millimeters				
2	53	80-2057	2.140	2.170	0.070	39	51	54.4	55.1	1.8	990.6	1295.4
2½	63	80-2557	2.640	2.670	0.070	39	51	67.1	67.8	1.8	990.6	1295.4
3	78	80-3057	3.140	3.170	0.070	39	51	79.8	80.5	1.8	990.6	1295.4
4	103	80-4057	4.140	4.170	0.070	39	51	105.2	105.9	1.8	990.6	1295.4
5	129	80-5057	5.190	5.230	0.095	39	51	131.8	132.8	2.4	990.6	1295.4
6	155	80-6057	6.190	6.230	0.095	39	51	157.2	158.2	2.4	990.6	1295.4

ID SW WOBBLE (FOR UP TO 3° CURVATURE)



Size	Symbol	ØB	D	L min		L max		ØB	D	L min		L max	
				in	mm	inches	inches			millimeters	millimeters		
2	53	80-2013	2.140	0.070	36	46	54.4	1.8	914.4	1168.4			
2½	63	80-2513	2.640	0.070	36	46	67.1	1.8	914.4	1168.4			
3	78	80-3013	3.140	0.070	36	46	79.8	1.8	914.4	1168.4			
4	103	80-4013	4.140	0.070	36	46	105.2	1.8	914.4	1168.4			
5	129	80-5013	5.190	0.095	36	46	131.8	2.4	914.4	1168.4			
6	155	80-6013	6.190	0.095	36	46	157.2	2.4	914.4	1168.4			

ID SW SKEW WOBBLE (FOR UP TO 7.5° CURVATURE)

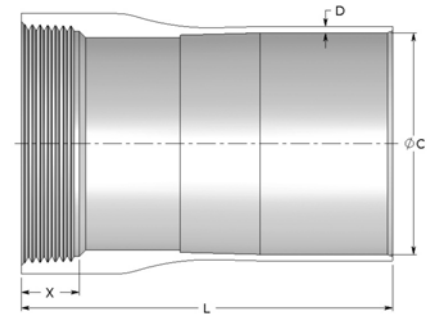


Size	Symbol	ØB	D	L min		L max		ØB	D	L min		L max	
				in	mm	inches	inches			millimeters	millimeters		
2	53	80-2014	2.140	0.070	48	56	54.4	1.8	1219.2	1422.4			
2½	63	80-2514	2.640	0.070	48	56	67.1	1.8	1219.2	1422.4			
3	78	80-3014	3.140	0.070	48	56	79.8	1.8	1219.2	1422.4			
4	103	80-4014	4.140	0.070	48	56	105.2	1.8	1219.2	1422.4			
5	129	80-5014	5.190	0.095	48	56	131.8	2.4	1219.2	1422.4			
6	155	80-6014	6.190	0.095	48	56	157.2	2.4	1219.2	1422.4			



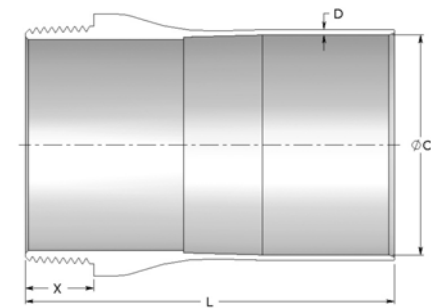
ID SW NPT FEMALE THREADED ADAPTER

Size	Symbol	ØC	D	L	X	ØC	D	L	X	
in	mm	inches				millimeters				
2	53	80-2044	2.170	0.070	7	0.697	55.1	1.8	177.8	17.7
2½	63	80-2544	2.670	0.070	7	0.932	67.8	1.8	177.8	23.7
3	78	80-3044	3.170	0.070	7	1.016	80.5	1.8	177.8	25.8
4	103	80-4044	4.170	0.070	7	1.094	105.9	1.8	177.8	27.8
5	129	80-5044	5.230	0.095	7	1.187	132.8	2.4	177.8	30.1
6	155	80-6044	6.230	0.095	7	1.208	158.2	2.4	177.8	30.7

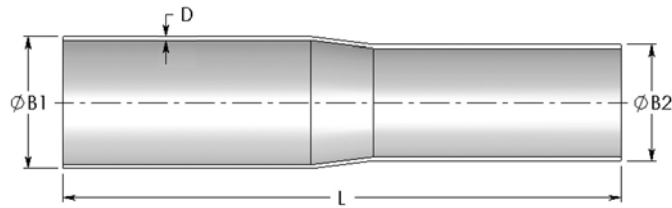


ID SW NPT MALE THREADED ADAPTER

Size	Symbol	ØC	D	L	X	ØC	D	L	X	
in	mm	inches				millimeters				
2	53	80-2027	2.170	0.070	7	0.757	55.1	1.8	177.8	19.2
2½	63	80-2527	2.670	0.070	7	1.138	67.8	1.8	177.8	28.9
3	78	80-3027	3.170	0.070	7	1.200	80.5	1.8	177.8	30.5
4	103	80-4027	4.170	0.070	7	1.300	105.9	1.8	177.8	33.0
5	129	80-5027	5.230	0.095	7	1.406	132.8	2.4	177.8	35.7
6	155	80-6027	6.230	0.095	7	1.513	158.2	2.4	177.8	38.4

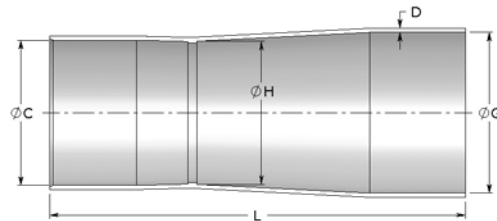


ID SW REDUCER



Size	Symbol	No.	ØB1	ØB2	D	L	ØB1	ØB2	D	L
			inches				millimeters			
2	53	80-2029	2.140	1.900	0.070	18	54.4	48.3	1.8	457.2
2½	63	80-2529	2.640	2.140	0.070	18	67.1	54.4	1.8	457.2
3	78	80-3029	3.140	2.640	0.070	18	79.8	67.1	1.8	457.2
4	103	80-4029	4.140	3.640	0.070	18	105.2	92.5	1.8	457.2
5	129	80-5029	5.190	4.690	0.095	18	131.8	119.1	2.4	457.2
6	155	80-6029	6.190	5.190	0.095	18	157.2	131.8	2.4	457.2

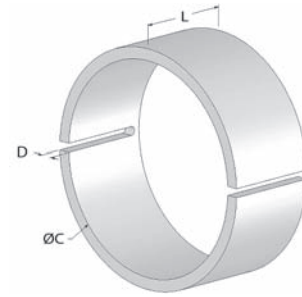
ID SW MULTIFIT ADAPTER



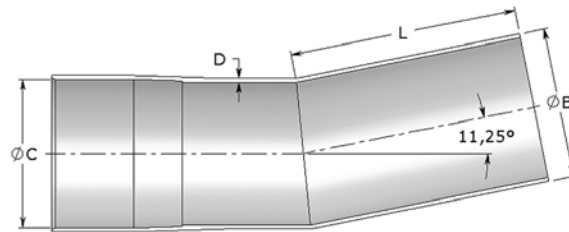
Size	Symbol	No.	ØC	D	ØG	ØH	L	ØC	D	ØG	ØH	L
			inches					millimeters				
2	53	80-2037	2.170	0.070	2.424	2.239	12	55.1	1.8	61.6	56.9	304.8
2½	63	80-2537	2.670	0.070	2.924	2.739	12	67.8	1.8	74.3	69.6	304.8
3	78	80-3037	3.170	0.070	3.549	3.239	12	80.5	1.8	90.1	82.3	304.8
4	103	80-4037	4.170	0.070	4.620	4.109	12	105.9	1.8	117.3	104.4	304.8
5	129	80-5037	5.230	0.095	5.650	5.289	12	132.8	2.4	143.5	134.3	304.8
6	155	80-6037	6.230	0.095	6.686	6.259	12	158.2	2.4	169.8	159.0	304.8

ID SW SPLIT STOP RING

Size	Symbol	ØC	D	L	ØC	D	L	
in	mm	inches			millimeters			
2	53	80-2064	2.170	0.185	2	55.1	4.7	50.8
2½	63	80-2564	2.670	0.185	2	67.8	4.7	50.8
3	78	80-3064	3.170	0.185	2	80.5	4.7	50.8
4	103	80-4064	4.170	0.185	2	105.9	4.7	50.8
5	129	80-5064	5.230	0.185	2	132.8	4.7	50.8
6	155	80-6064	6.230	0.185	2	158.2	4.7	50.8

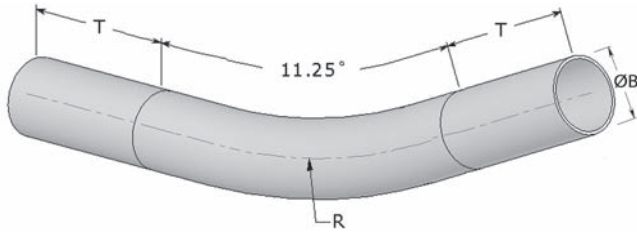


ID SW 11.25° FITTING



Size	Symbol	ØB	ØC	D	L	ØB	ØC	D	L	
in	mm	inches				millimeters				
2	53	80-2035	2.140	2.170	0.070	7	54.4	55.1	1.8	177.8
2½	63	80-2535	2.640	2.670	0.070	7	67.1	67.8	1.8	177.8
3	78	80-3035	3.140	3.170	0.070	7	79.8	80.5	1.8	177.8
4	103	80-4035	4.140	4.170	0.070	7	105.2	105.9	1.8	177.8
5	129	80-5035	5.190	5.230	0.095	7	131.8	132.8	2.4	177.8
6	155	80-6035	6.190	6.230	0.095	7	157.2	158.2	2.4	177.8

ID SW 11.25° ELBOW



12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2035R12	2.140	12	6	54.4	304.8 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2035R24	2.140	24	6	54.4	609.6 152.4
2½	63	80-2535R24	2.640	24	6	67.1	609.6 152.4
3	78	80-3035R24	3.140	24	6	79.8	609.6 152.4

36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2035R36	2.140	36	6	54.4	914.4 152.4
2½	63	80-2535R36	2.640	36	6	67.1	914.4 152.4
3	78	80-3035R36	3.140	36	6	79.8	914.4 152.4
4	103	80-4035R36	4.140	36	6	105.2	914.4 152.4
5	129	80-5035R36	5.190	36	6	131.8	914.4 152.4

48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2035R48	2.140	48	6	54.4	1219.2 152.4
2½	63	80-2535R48	2.640	48	6	67.1	1219.2 152.4
3	78	80-3035R48	3.140	48	6	79.8	1219.2 152.4
4	103	80-4035R48	4.140	48	6	105.2	1219.2 152.4
5	129	80-5035R48	5.190	48	6	131.8	1219.2 152.4
6	155	80-6035R48	6.190	48	6	157.2	1219.2 152.4

60" RADIUS

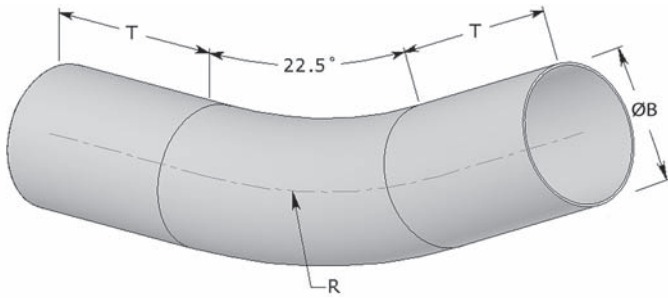
Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2035R60	2.140	60	6	54.4	1524.0 152.4
2½	63	80-2535R60	2.640	60	6	67.1	1524.0 152.4
3	78	80-3035R60	3.140	60	6	79.8	1524.0 152.4
4	103	80-4035R60	4.140	60	6	105.2	1524.0 152.4
5	129	80-5035R60	5.190	60	6	131.8	1524.0 152.4
6	155	80-6035R60	6.190	60	6	157.2	1524.0 152.4

72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2035R72	2.140	72	6	54.4	1828.8 152.4
2½	63	80-2535R72	2.640	72	6	67.1	1828.8 152.4
3	78	80-3035R72	3.140	72	6	79.8	1828.8 152.4
4	103	80-4035R72	4.140	72	6	105.2	1828.8 152.4
5	129	80-5035R72	5.190	72	6	131.8	1828.8 152.4
6	155	80-6035R72	6.190	72	6	157.2	1828.8 152.4



ID SW 22.5° ELBOW



48" RADIUS

Size	Symbol	ØB R T			ØB R T			
		inches			millimeters			
in	mm	No.						
2	53	80-2034R48	2.140	48	6	54.4	1219.2	152.4
2½	63	80-2534R48	2.640	48	6	67.1	1219.2	152.4
3	78	80-3034R48	3.140	48	6	79.8	1219.2	152.4
4	103	80-4034R48	4.140	48	6	105.2	1219.2	152.4
5	129	80-5034R48	5.190	48	6	131.8	1219.2	152.4
6	155	80-6034R48	6.190	48	6	157.2	1219.2	152.4

12" RADIUS

Size	Symbol	ØB R T			ØB R T			
		inches			millimeters			
in	mm	No.						
2	53	80-2034R12	2.140	12	6	54.4	304.8	152.4

60" RADIUS

Size	Symbol	ØB R T			ØB R T			
		inches			millimeters			
in	mm	No.						
2	53	80-2034R60	2.140	60	6	54.4	1524.0	152.4
2½	63	80-2534R60	2.640	60	6	67.1	1524.0	152.4
3	78	80-3034R60	3.140	60	6	79.8	1524.0	152.4
4	103	80-4034R60	4.140	60	6	105.2	1524.0	152.4
5	129	80-5034R60	5.190	60	6	131.8	1524.0	152.4
6	155	80-6034R60	6.190	60	6	157.2	1524.0	152.4

24" RADIUS

Size	Symbol	ØB R T			ØB R T			
		inches			millimeters			
in	mm	No.						
2	53	80-2034R24	2.140	24	6	54.4	609.6	152.4
2½	63	80-2534R24	2.640	24	6	67.1	609.6	152.4
3	78	80-3034R24	3.140	24	6	79.8	609.6	152.4

72" RADIUS

Size	Symbol	ØB R T			ØB R T			
		inches			millimeters			
in	mm	No.						
2	53	80-2034R72	2.140	72	6	54.4	1828.8	152.4
2½	63	80-2534R72	2.640	72	6	67.1	1828.8	152.4
3	78	80-3034R72	3.140	72	6	79.8	1828.8	152.4
4	103	80-4034R72	4.140	72	6	105.2	1828.8	152.4
5	129	80-5034R72	5.190	72	6	131.8	1828.8	152.4
6	155	80-6034R72	6.190	72	6	157.2	1828.8	152.4

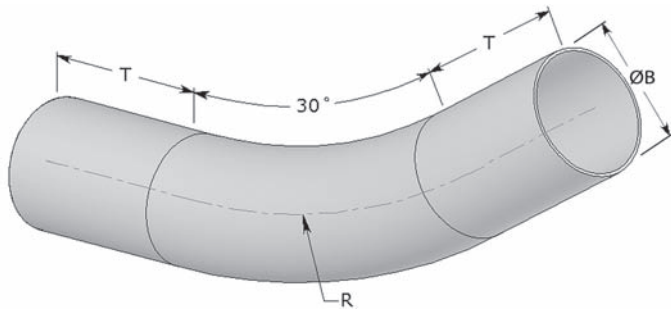
36" RADIUS

Size	Symbol	ØB R T			ØB R T			
		inches			millimeters			
in	mm	No.						
2	53	80-2034R36	2.140	36	6	54.4	914.4	152.4
2½	63	80-2534R36	2.640	36	6	67.1	914.4	152.4
3	78	80-3034R36	3.140	36	6	79.8	914.4	152.4
4	103	80-4034R36	4.140	36	6	105.2	914.4	152.4
5	129	80-5034R36	5.190	36	6	131.8	914.4	152.4

ID SW



ID SW 30° ELBOW



48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2033R48	2.140	48	6	54.4	1219.2 152.4
2½	63	80-2533R48	2.640	48	6	67.1	1219.2 152.4
3	78	80-3033R48	3.140	48	6	79.8	1219.2 152.4
4	103	80-4033R48	4.140	48	6	105.2	1219.2 152.4
5	129	80-5033R48	5.190	48	6	131.8	1219.2 152.4
6	155	80-6033R48	6.190	48	6	157.2	1219.2 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2033R12	2.140	12	6	54.4	304.8 152.4

60" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2033R60	2.140	60	6	54.4	1524.0 152.4
2½	63	80-2533R60	2.640	60	6	67.1	1524.0 152.4
3	78	80-3033R60	3.140	60	6	79.8	1524.0 152.4
4	103	80-4033R60	4.140	60	6	105.2	1524.0 152.4
5	129	80-5033R60	5.190	60	6	131.8	1524.0 152.4
6	155	80-6033R60	6.190	60	6	157.2	1524.0 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2033R24	2.140	24	6	54.4	609.6 152.4
2½	63	80-2533R24	2.640	24	6	67.1	609.6 152.4
3	78	80-3033R24	3.140	24	6	79.8	609.6 152.4

72" RADIUS

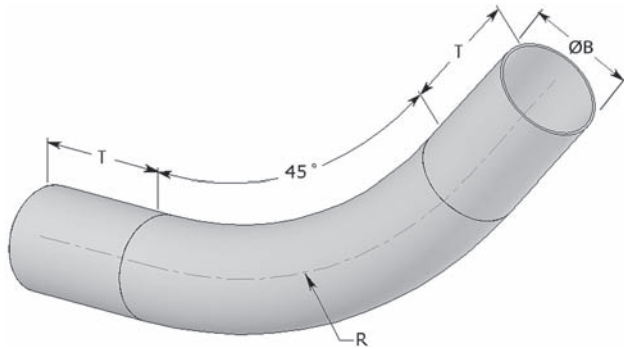
Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2033R72	2.140	72	6	54.4	1828.8 152.4
2½	63	80-2533R72	2.640	72	6	67.1	1828.8 152.4
3	78	80-3033R72	3.140	72	6	79.8	1828.8 152.4
4	103	80-4033R72	4.140	72	6	105.2	1828.8 152.4
5	129	80-5033R72	5.190	72	6	131.8	1828.8 152.4
6	155	80-6033R72	6.190	72	6	157.2	1828.8 152.4

36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2033R36	2.140	36	6	54.4	914.4 152.4
2½	63	80-2533R36	2.640	36	6	67.1	914.4 152.4
3	78	80-3033R36	3.140	36	6	79.8	914.4 152.4
4	103	80-4033R36	4.140	36	6	105.2	914.4 152.4
5	129	80-5033R36	5.190	36	6	131.8	914.4 152.4



ID SW 45° ELBOW



48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2032R48	2.140	48	6	54.4	1219.2 152.4
2½	63	80-2532R48	2.640	48	6	67.1	1219.2 152.4
3	78	80-3032R48	3.140	48	6	79.8	1219.2 152.4
4	103	80-4032R48	4.140	48	6	105.2	1219.2 152.4
5	129	80-5032R48	5.190	48	6	131.8	1219.2 152.4
6	155	80-6032R48	6.190	48	6	157.2	1219.2 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2032R12	2.140	12	6	54.4	304.8 152.4

60" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2032R60	2.140	60	6	54.4	1524.0 152.4
2½	63	80-2532R60	2.640	60	6	67.1	1524.0 152.4
3	78	80-3032R60	3.140	60	6	79.8	1524.0 152.4
4	103	80-4032R60	4.140	60	6	105.2	1524.0 152.4
5	129	80-5032R60	5.190	60	6	131.8	1524.0 152.4
6	155	80-6032R60	6.190	60	6	157.2	1524.0 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2032R24	2.140	24	6	54.4	609.6 152.4
2½	63	80-2532R24	2.640	24	6	67.1	609.6 152.4
3	78	80-3032R24	3.140	24	6	79.8	609.6 152.4

72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2032R72	2.140	72	6	54.4	1828.8 152.4
2½	63	80-2532R72	2.640	72	6	67.1	1828.8 152.4
3	78	80-3032R72	3.140	72	6	79.8	1828.8 152.4
4	103	80-4032R72	4.140	72	6	105.2	1828.8 152.4
5	129	80-5032R72	5.190	72	6	131.8	1828.8 152.4
6	155	80-6032R72	6.190	72	6	157.2	1828.8 152.4

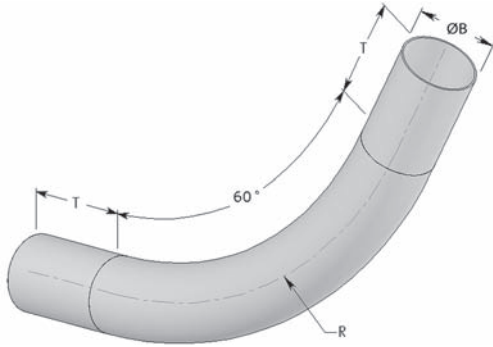
36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2032R36	2.140	36	6	54.4	914.4 152.4
2½	63	80-2532R36	2.640	36	6	67.1	914.4 152.4
3	78	80-3032R36	3.140	36	6	79.8	914.4 152.4
4	103	80-4032R36	4.140	36	6	105.2	914.4 152.4
5	129	80-5032R36	5.190	36	6	131.8	914.4 152.4

ID SW



ID SW 60° ELBOW



48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
2	53	80-2031R48	2.140	48	6	54.4	1219.2 152.4
2½	63	80-2531R48	2.640	48	6	67.1	1219.2 152.4
3	78	80-3031R48	3.140	48	6	79.8	1219.2 152.4
4	103	80-4031R48	4.140	48	6	105.2	1219.2 152.4
5	129	80-5031R48	5.190	48	6	131.8	1219.2 152.4
6	155	80-6031R48	6.190	48	6	157.2	1219.2 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
2	53	80-2031R12	2.140	12	6	54.4	304.8 152.4

60" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
2	53	80-2031R60	2.140	60	6	54.4	1524.0 152.4
2½	63	80-2531R60	2.640	60	6	67.1	1524.0 152.4
3	78	80-3031R60	3.140	60	6	79.8	1524.0 152.4
4	103	80-4031R60	4.140	60	6	105.2	1524.0 152.4
5	129	80-5031R60	5.190	60	6	131.8	1524.0 152.4
6	155	80-6031R60	6.190	60	6	157.2	1524.0 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
2	53	80-2031R24	2.140	24	6	54.4	609.6 152.4
2½	63	80-2531R24	2.640	24	6	67.1	609.6 152.4
3	78	80-3031R24	3.140	24	6	79.8	609.6 152.4

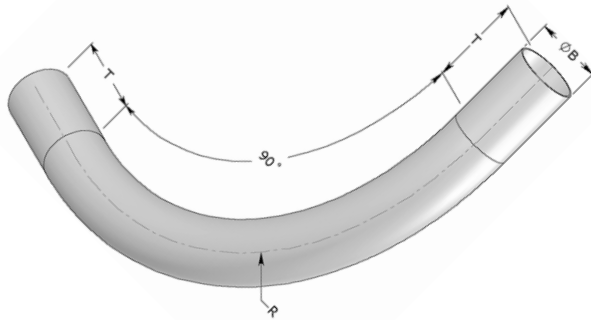
72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
2	53	80-2031R72	2.140	72	6	54.4	1828.8 152.4
2½	63	80-2531R72	2.640	72	6	67.1	1828.8 152.4
3	78	80-3031R72	3.140	72	6	79.8	1828.8 152.4
4	103	80-4031R72	4.140	72	6	105.2	1828.8 152.4
5	129	80-5031R72	5.190	72	6	131.8	1828.8 152.4
6	155	80-6031R72	6.190	72	6	157.2	1828.8 152.4

36" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
2	53	80-2031R36	2.140	36	6	54.4	914.4 152.4
2½	63	80-2531R36	2.640	36	6	67.1	914.4 152.4
3	78	80-3031R36	3.140	36	6	79.8	914.4 152.4
4	103	80-4031R36	4.140	36	6	105.2	914.4 152.4
5	129	80-5031R36	5.190	36	6	131.8	914.4 152.4

ID SW 90° ELBOW



48" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2030R48	2.140	48	6	54.4	1219.2 152.4
2½	63	80-2530R48	2.640	48	6	67.1	1219.2 152.4
3	78	80-3030R48	3.140	48	6	79.8	1219.2 152.4
4	103	80-4030R48	4.140	48	6	105.2	1219.2 152.4
5	129	80-5030R48	5.190	48	6	131.8	1219.2 152.4
6	155	80-6030R48	6.190	48	6	157.2	1219.2 152.4

12" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2030R12	2.140	12	6	54.4	304.8 152.4

60" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2030R60	2.140	60	6	54.4	1524.0 152.4
2½	63	80-2530R60	2.640	60	6	67.1	1524.0 152.4
3	78	80-3030R60	3.140	60	6	79.8	1524.0 152.4
4	103	80-4030R60	4.140	60	6	105.2	1524.0 152.4
5	129	80-5030R60	5.190	60	6	131.8	1524.0 152.4
6	155	80-6030R60	6.190	60	6	157.2	1524.0 152.4

24" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2030R24	2.140	24	6	54.4	609.6 152.4
2½	63	80-2530R24	2.640	24	6	67.1	609.6 152.4

72" RADIUS

Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2030R72	2.140	72	6	54.4	1828.8 152.4
2½	63	80-2530R72	2.640	72	6	67.1	1828.8 152.4
3	78	80-3030R72	3.140	72	6	79.8	1828.8 152.4
4	103	80-4030R72	4.140	72	6	105.2	1828.8 152.4
5	129	80-5030R72	5.190	72	6	131.8	1828.8 152.4
6	155	80-6030R72	6.190	72	6	157.2	1828.8 152.4

36" RADIUS

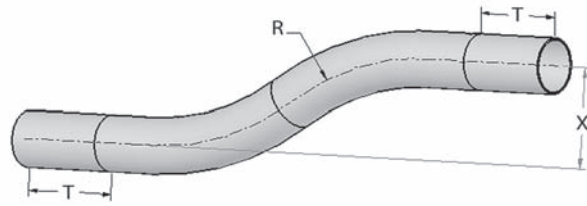
Size	Symbol	ØB	R	T	ØB	R	T
in	mm	inches			millimeters		
	No.						
2	53	80-2030R36	2.140	36	6	54.4	914.4 152.4
2½	63	80-2530R36	2.640	36	6	67.1	914.4 152.4
3	78	80-3030R36	3.140	36	6	79.8	914.4 152.4
4	103	80-4030R36	4.140	36	6	105.2	914.4 152.4

ID SW



ID SW OFFSET ELBOW

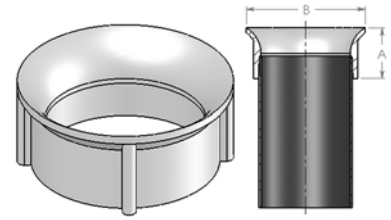
Size	Symbol No.
all	special



STANDARD WALL (SW) ACCESSORIES

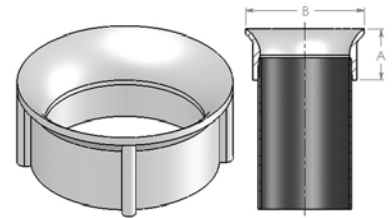
IPS SW RADIUS BELL END

Size	Symbol	ØA	ØB	ØA	ØB	
in	mm	inches		millimeters		
1	27	30-1018	1.210	1.815	30.734	46.101
1¼	35	30-1218	1.300	2.125	33.020	53.975
1½	41	30-1518	1.555	2.510	39.497	63.754



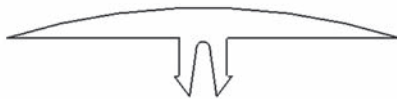
ID SW RADIUS BELL END

Size	Symbol	ØA	ØB	ØA	ØB	
in	mm	inches		millimeters		
2	53	40-2018	1.7	3.0	43.18	76.2
3	78	40-3018	1.7	4.0	43.18	101.6
4	103	40-4018	2.2	5.0	55.88	127.0
5	129	40-5018	2.2	6.0	55.88	152.4
6	155	40-6018	2.4	7.0	60.96	177.8



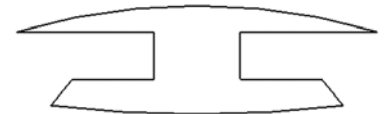
THERMOPLASTIC T-STRIP

Size	Symbol No.
All	40-0167



THERMOPLASTIC H-STRIP

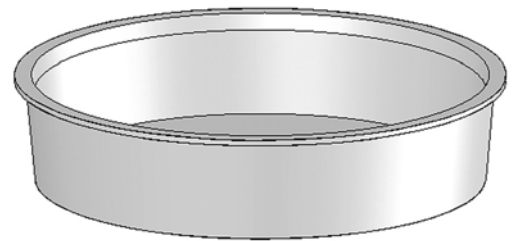
Size	Symbol No.
All	40-0169



GENERAL ACCESSORIES

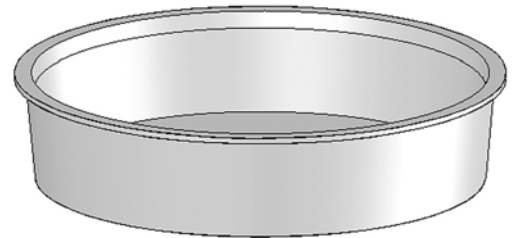
IPS THERMOPLASTIC PLUG

Size		Symbol No.	Depth	
in	mm		in	mm
1	27	30-1028	0.6	15.2
1¼	35	30-1228	0.8	20.3
1½	41	30-1528	0.8	20.3

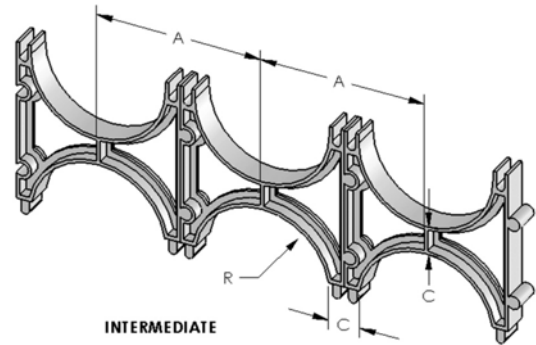
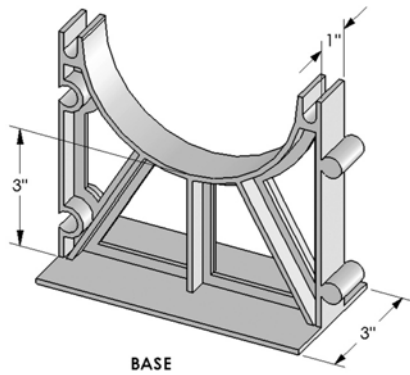


ID THERMOPLASTIC PLUG

Size		Symbol No.	Depth	
in	mm		in	mm
2	53	40-2028	1.0	25.4
3	78	40-3028	1.0	25.4
4	103	40-4028	1.3	33.0
5	129	40-5028	1.0	25.4
6	155	40-6028	1.5	38.1



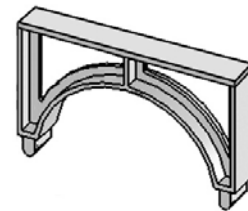
BASE & INTERMEDIATE SPACER (ID ONLY)



Conduit size		Base	Intermediate	C R A			C R A		
in	mm	Spacer No.	Spacer No.	inches			millimeters		
2	53	45-0131	45-0137	1½	1.2	4.0	38.1	30.5	101.6
3	78	45-0138	45-0139	1½	1.8	5.1	38.1	45.7	129.5
4	103	45-0115	45-0124	1½	2.3	6.1	38.1	58.4	154.9
5	129	45-0143	45-0136	1½	2.9	7.3	38.1	73.7	185.4
6	155	45-0144	45-0145	1½	3.3	8.2	38.1	83.8	208.3
2	51	45-0109	45-0110	2	1.2	4.5	50.8	30.5	114.3
3	76	45-0104	45-0140	2	1.8	5.6	50.8	45.7	142.2
4	102	45-0103	45-0108	2	2.3	6.6	50.8	58.4	167.6
5	127	45-0116	45-0125	2	2.9	7.9	50.8	73.7	200.7
6	152	45-0117	45-0127	2	3.4	8.7	50.8	83.8	221.0
2	53	45-0123	45-0111	3	1.2	5.5	76.2	30.5	139.7
3	73	45-0121	45-0122	3	1.8	6.6	76.2	45.7	167.6
4	103	45-0105	45-0112	3	2.3	7.6	76.2	58.4	193.0
5	129	45-0101	45-0134	3	2.9	8.9	76.2	73.7	226.1
6	155	45-0135	45-0147	3	3.4	9.8	76.2	83.8	248.9

CAPLOCK FOR SPACER (ID ONLY)

Conduit size		Caplock
in	mm	No.
2	53	45-0133
3	78	45-0130
4	103	45-0126
5	129	45-0129
6	155	45-0132



SPLICE & REPAIR KIT

Size	Symbol No.	Conduit size		Length of cut mat		Splices per kit
		in	mm	in	cm	
All	40-0174	2	53	10	25	14
		3	78	12	31	11
		4	103	15	38	9
		5	129	19	48	7
		6	155	23	59	6



ADHESIVE KIT

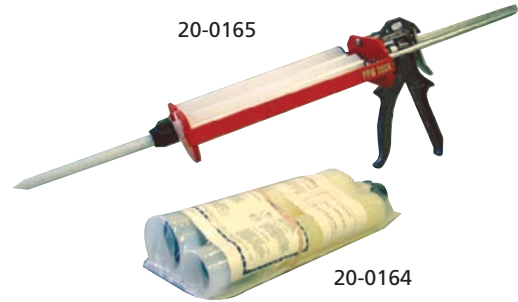
Size	Symbol No.	
All	40-0161	Epoxy Kit
All	20-0164	Dual Cartridge
All	20-0165	Dual Cartridge Applicator

40-0161



MECHANICAL PROPERTIES (40-0161)	
Shore D Hardness	81
Tensile strength	3 060 Psi
Lap shear strength	252 Psi
Viscosity	3 700 cP
Mix ratio	2 : 1
Color	Opaque
Solid content	100%

20-0165



20-0164

MECHANICAL PROPERTIES (20-0164)	
Shore D Hardness	90
Tensile strength	9 900 Psi
Lap shear strength	2 600 Psi
Viscosity	40 000 cP
Mix ratio	2 : 1
Color	Opaque
Solid content	100%

JOINT CALCULATION TABLE (ADHESIVE KIT)

IPS BASED				
Size	Joints made per kit	Pull-Out Strength		
		in	mm	kg
1	26	2 000	907	
1¼	24	2 000	907	
1½	20	2 000	907	

ID BASED				
Size	Joints made per kit	Pull-Out Strength		
		in	mm	kg
2	18	2 000	907	
2½	16	2 500	1 134	
3	13	3 000	1 360	
4	10	4 000	1 814	
5	7	5 000	2 268	
6	6	6 000	2 722	

MIXER TIP

Size	Symbol No.
All	20-0166



PRODUCT TEST DATA

BreathSaver® fiberglass conduit

MATERIAL	TEST RESULTS	TEST PROTOCOL
Resin Glass	Phenolic (no fillers) Fiberglass (E or E-CR Glass)	CSA C22.2 No. 2515

PHYSICAL PROPERTIES	TEST RESULTS	TEST PROTOCOL
Glass Content	68% ± 3%	API 15LR
Specific Gravity	1.70 - 1.75 g/cm ³	ASTM D792
Barcol Hardness	50 ± 2	ASTM D2583
U.V. Resistance	> 3 500 Hrs (Xenon Arc)	CSA C22.2 No. 2515
Water Absorption	≤ 1.5%	ASTM D570

MECHANICAL DATA	TEST RESULTS	TEST PROTOCOL
Tensile Strength (axial)	≥ 7 000 Psi (48.26 Mpa)	ASTM D638
Elasticity Modulus (4") (103 mm)	1.2 E6 Psi (8 274 Mpa)	ASTM D638

SURFACE FINISH	TEST RESULTS	TEST PROTOCOL
Exterior (average)	< 2 000 microinches (50.8 micrometers)	
Interior (average)	< 250 microinches (6.4 micrometers)	
Color	Black (standard)	

THERMAL PROPERTIES	TEST RESULTS	TEST PROTOCOL
Coefficient of Thermal Expansion	0.51 E-5 in./in./°F (0.927 E-5 m./m./°C)	ASTM D696
Thermal Conductivity	1.67 Btu.in/ft ² .h. °F (0.240W/ m.K)	ASTM D335
Thermal Resistivity	0.6°F. ft ² .h/Btu.in (4.17 mK/W)	ASTM D335
Heat Deflection Temperature (HDT)	> 482°F (> 250°C)	ASTM D648

FLAME & SMOKE PROPERTIES	TEST RESULTS	TEST PROTOCOL
Flame Spread	15 (Asbestos 0 Red Oak 100)	ASTM E84
Flame Spread Index	2 (max. 35)	ASTM E162
Smoke Optical Density @ 4 minutes	2 (max. 200)	ASTM E662
Light Absorption	0% (no smoke generated)	SAV 242
Emissions NO ²	2 ppm (max. 100 ppm)	SMP 800C
Emissions SO ²	< 1 ppm (max. 500 ppm)	SMP 800C
Emissions HCl	< 1 ppm (max. 100 ppm)	SMP 800C
Emissions HF	< 1 ppm (max. 100 ppm)	SMP 800C
Emissions HBr	< 1 ppm (max. 100 ppm)	SMP 800C
Emissions HCN	< 1 ppm (max. 100 ppm)	SMP 800C
Emissions CO	330 ppm (max. 3 500 ppm)	SMP 800C
Emissions CO ²	9 400 ppm (max. 90 000 ppm)	SMP 800C

ELECTRICAL DATA	TEST RESULTS	TEST PROTOCOL
Dielectric Strength	150 volts/mil	ASTM D149
Dielectric Breakdown Voltage	21.5 kV	ASTM D149



REPRESENTATIVE PERFORMANCE SPECS

Size in	Wall		Weight		Impact (ASTM D2444)		Moment of inertia		
	mm	in	mm	lbs/ft.	Kg/m	lbs ft.	Kg m	in. ⁴	cm ⁴
IPS STANDARD WALL (SW)									
1	27	.066	1.7	.20	.30	10	1.38	0.050	2.1
1¼	35	.066	1.7	.25	.37	12.5	1.73	0.103	4.3
1½	41	.066	1.7	.29	.43	15	2.07	0.157	6.5
ID STANDARD WALL (SW)									
2	53	.070	1.8	.35	.51	20	2.77	0.244	10.2
2½	63	.070	1.8	.43	.64	25	3.46	0.467	19.4
3	78	.070	1.8	.51	.76	30	4.15	0.796	33.1
4	103	.070	1.8	.68	1.01	40	5.53	1.854	77.2
5	129	.095	2.4	1.15	1.71	50	6.91	4.936	205.4
6	155	.095	2.4	1.38	2.05	60	8.30	8.449	351.7

FLEXURAL DATA

Maximum Flexural Modulus: 1.2E6 Psi 8 274 Mpa

CHEMICAL RESISTANCE

	after 6 months	after 9 months		after 6 months	after 9 months
Sulphuric acid, 10% aq. sln.	E	E	NaOH, aq. sln. at pH 14	NR	NR
Hydrochloric acid, 15% aq. sln.	NR	NR	Water, deionised	E	E
Nitric acid, 15% aq. sln.	E	E	Methanol	E	E
Hydrofluoric acid, 1% aq. sln.	E	E	Ethanolamine, 30% aq. sln.	NR	NR
NaOH, aq. sln. at pH 9 -10	NR	NR	Chloroform, 25%	E	E

E: excellent chemical resistance

NR: not recommended for long term contact.

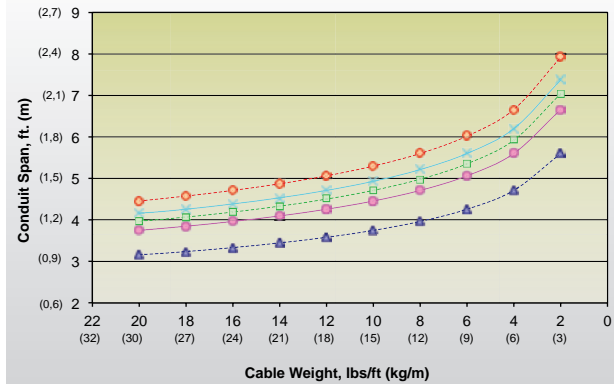
Note : Chemical resistance tests were carried out by immersion. All tests were done at 25°C (77°F). In all cases, the tensile strength was measured at the end of the immersion period using ASTM D-698 method, and compared to that of reference samples (not subject to any chemical attack) kept as control. A retention of at least 75% of the original tensile strength after immersion was taken as evidence of good chemical resistance.

CONDUIT DEFLECTION TABLES

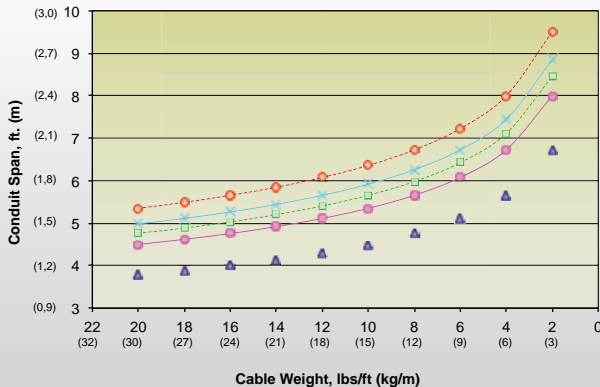
The graphs on the following pages reflect the span-deflection characteristics of BreathSaver® Conduit. First, select the appropriate deflection graph. Continue by selecting the appropriate cable weight from the X-axis and move in a vertical direction, intercepting various deflection lines. At the appropriate deflection line for your application, look left the chart to find the recommended span between supports.

In order to take long-term creep into account, the charts have been tabulated using the long-term modulus in the calculations. Because of this, conduit sections will actually deflect much less than the charted value when first installed. If this long-term safety margin is not required, FRE Composites will prepare appropriate span charts for your application on request.

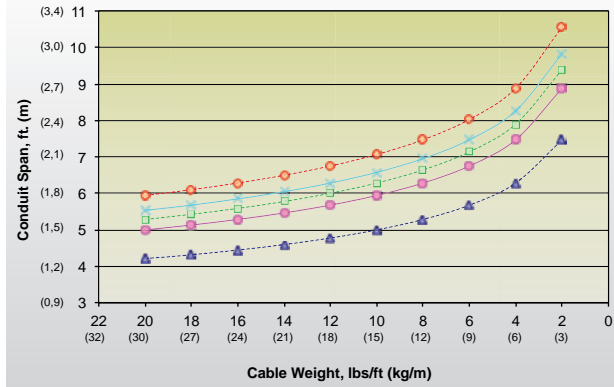
1" (27 mm) SW Conduit (IPS only)



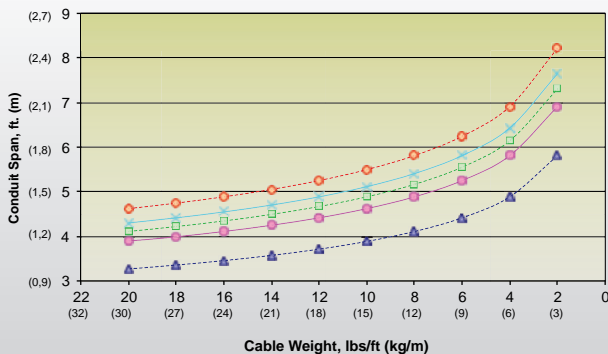
1 1/4" (35 mm) SW Conduit (IPS only)



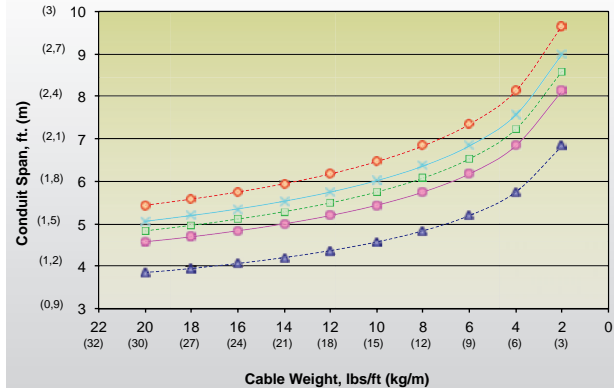
1 1/2" (41 mm) SW Conduit (IPS only)



2" (53 mm) SW Conduit (ID only)



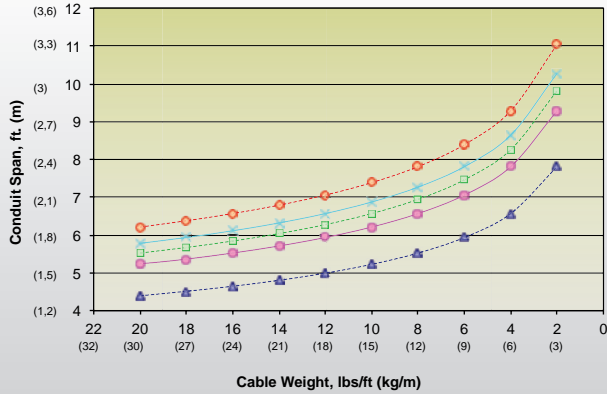
2 1/2" (63 mm) SW Conduit (ID only)



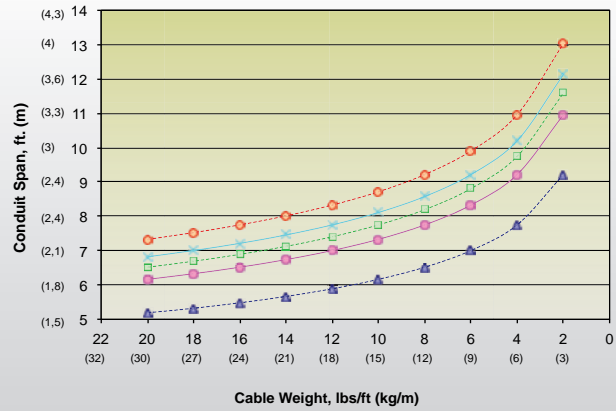
---▲--- 1/4" (6mm) Deflection —●— 1/2" (13mm) Deflection - - -■ - - - 5/8" (16mm) Deflection —×— 3/4" (19mm) Deflection - - -◇ - - - 1" (25mm) Deflection

CONDUIT DEFLECTION TABLES (CONTINUED)

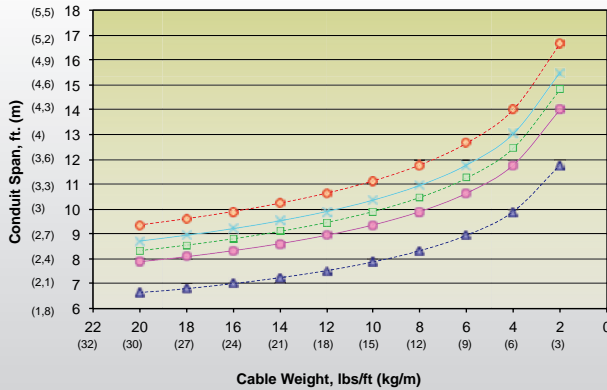
3" (78 mm) SW Conduit (ID only)



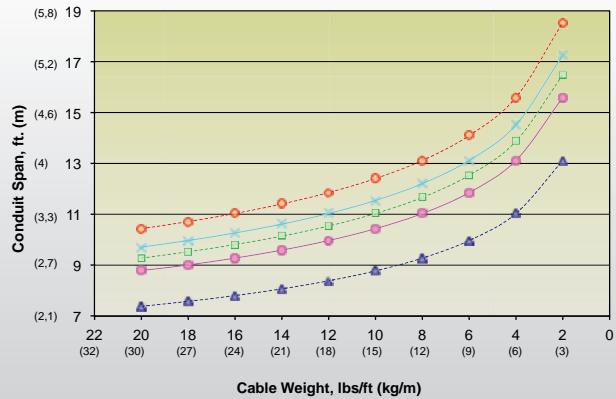
4" (103 mm) SW Conduit (ID only)



5" (129 mm) SW Conduit (ID only)



6" (155 mm) SW Conduit (ID only)



---▲--- 1/4" (6mm) Deflection ---●--- 1/2" (13mm) Deflection ---■--- 5/8" (16mm) Deflection ---×--- 3/4" (19mm) Deflection ---◇--- 1" (25mm) Deflection

WIRE FILL

Maximum allowable percentage wire fill from 2008 National Electrical Code (NEC) and 2012 Canadian Electrical Code (CEC).

IPS SIZES

IMPERIAL					
Trade size IPS	Inside Diameter (in)	Total Area 100% (in ²)	NUMBER OF CONDUCTORS & Percent of cross section of conduit for conductors		
			1 53% fill (in ²)	2 31% fill (in ²)	Over 2 40% fill (in ²)
1	1.183	1.099	0.583	0.341	0.440
1¼	1.528	1.834	0.972	0.568	0.733
1½	1.768	2.455	1.301	0.761	0.982

METRIC					
Trade size IPS	Inside Diameter (mm)	Total Area 100% (mm ²)	NUMBER OF CONDUCTORS & Percent of cross section of conduit for conductors		
			1 53% fill (mm ²)	2 31% fill (mm ²)	Over 2 40% fill (mm ²)
25	30	709	376	220	284
32	39	1 183	627	367	473
38	45	1 584	839	491	634

ID SIZES

IMPERIAL					
Trade size ID	Inside Diameter (in)	Total Area 100% (in ²)	NUMBER OF CONDUCTORS & Percent of cross section of conduit for conductors		
			1 53% fill (in ²)	2 31% fill (in ²)	Over 2 40% fill (in ²)
2	2.000	3.142	1.665	0.974	1.257
2½	2.500	4.909	2.602	1.522	1.964
3	3.000	7.069	3.746	2.191	2.827
4	4.000	12.566	6.660	3.896	5.027
5	5.000	19.635	10.407	6.087	7.854
6	6.000	28.274	14.985	8.765	11.310

METRIC					
Trade size ID	Inside Diameter (mm)	Total Area 100% (mm ²)	NUMBER OF CONDUCTORS & Percent of cross section of conduit for conductors		
			1 53% fill (mm ²)	2 31% fill (mm ²)	Over 2 40% fill (mm ²)
50	53	2 027	1 074	628	811
64	63	3 167	1 678	982	1 267
76	78	4 560	2 417	1 414	1 824
102	103	8 107	4 297	2 513	3 243
127	129	12 668	6 714	3 927	5 067
152	155	18 242	9 668	5 655	7 297



GLOSSARY

BreathSaver® Conduit

BreathSaver® conduit manufactured by FRE Composites. BreathSaver® is a trademark in Canada, United States and elsewhere in the world, and is a recognized name worldwide since 1970's for superior quality advanced composite products.

IPS (Iron Pipe Size)

Dimensional standard widely utilized in North America for both metallic (such as RMC, EMT, IMC) and Rigid Non metallic (RTRC, PVC and HDPE) electrical conduit. This trade size has established its Outside Diameter as the constant value.

ID (Inside Diameter)

Dimensional standard widely utilized in North America for electrical and telecommunication raceways. This trade size has established its Inside Diameter as the constant value.

Standard Wall (SW) conduit for Below Ground (BG) typical Direct Burial (DB) or Encased Burial (EB) installations or for typical Above Ground (AG) exposed applications

Conduit built with a standard nominal wall thickness that varies based on the conduit diameter.

RTRC (Reinforced Thermosetting Resin Conduit)

An industry acronym for conduits that are manufactured using a mineral reinforcement such as fiberglass in a fully cured thermoset resin.

Conduit

Straight section available in 9.84 ft (3m) or 19.68 ft (6m) length, and in standard diameters from ¾" to 8" (21 to 203 mm).

Key Products

Split conduit (Patented design)

Section of FRE® conduit cut completely on its longitudinal axis while being hinged at 180° to the longitudinal cut. It can be opened and closed, allowing its installation over existing cables to protect them without having to remove them. The original Split conduit invention was issued to General Electric of Canada (CGE), our former parent company, under U.S. Patent No. 4175593 and Canadian Patent No. 1043277

H strip

Thermoplastic strip utilized to seal the split side of a split conduit.

T strip

Thermoplastic strip utilized to seal the hinged side of a split conduit.

Sleeve

Oversized section (12" or 305 mm in length) of straight conduit used to repair a damage section of a conduit.

Wobble coupling

Non-watertight fitting allowing for vertical and horizontal movements ($\pm 3^\circ$) of the raceway.

Skew Wobble coupling

Non-watertight fitting allowing for vertical and horizontal movements ($\pm 7.5^\circ$) of the raceway.

O-Ring Expansion Joint

Section of conduit including a deep socket unthreaded female section and a gasketed male section of conduit. It is designed to accommodate the thermal expansion and contraction of long sections of straight conduit resulting from ambient temperature variation. This guarantees the water tightness of the joint and no dislocation of the fitting.

O-Ring Expansion/Deflection Joint

Similar to O-Ring expansion joint described above, but designed to accommodate slight vertical changes in the direction of the incoming conduit by means of a flexible neoprene sleeve located at the exit of the expansion joint.

Hangers (Intermediate or Anchored)

Corrosion protected metallic supports utilized to hang conduit raceways in above ground installations.

Key Technical Descriptions

Glass content

Weight percent of glass fiber present in the conduit, as % of total weight.

Span distance

Distance between conduit supports which varies based on the selected cable weight and conduit trade size.

Deflection

Deformation of conduit due to the weight of the cable installed inside it. Deflection is a function of the diameter and weight of the cables, and of the distance between conduit supports. Measured in inches.

Coefficient of thermal expansion

Ratio representing the change in linear dimension of a section of conduit resulting from changes in temperature (ΔT°).

Coefficient of friction

Ratio of the force tending to maintain contact between two surfaces and the force which opposes the sliding of the surfaces one along the other.

STANDARD CONDUIT PACKAGING

IPS STANDARD WALL (SW)

Size		Length		Weight per Stick		Weight per Crate		Sticks per Crate	Footage per Crate		Crate per Truck	Footage per Truck		Weight per Truck		Width per Crate		Height per Crate	
in	mm	ft	meter	lb	kg	lb	kg		ft	meter		ft	meter	lb	kg	in	mm	in	mm
1	27	9.84	3	2.20	1.00	337	153	150	1 476	450	80	118 080	35 991	26 960	12 229	45	1 143	10	254
1 ¼	35	9.84	3	2.60	1.18	397	180	150	1 476	450	80	118 080	35 991	31 760	14 406	45	1 143	10	254
1 ½	41	9.84	3	3.10	1.41	472	214	150	1 476	450	80	118 080	35 991	37 760	17 128	45	1 143	10	254

ID STANDARD WALL (SW)

Size		Length		Weight per Stick		Weight per Crate		Sticks per Crate	Footage per Crate		Crate per Truck	Footage per Truck		Weight per Truck		Width per Crate		Height per Crate	
in	mm	ft	meter	lb	kg	lb	kg		ft	meter		ft	meter	lb	kg	in	mm	in	mm
2	53	19.68	6	6.81	3.09	519	235	74	1 456	444	40	58 253	17 756	20 758	9 416	45	1 143	10	254
2 ½	63	19.68	6	8.40	3.81	1 317	597	155	3 050	930	16	48 806	14 876	21 072	9 558	45	1 143	24	610
3	78	19.68	6	11.24	5.10	1 139	517	100	1 968	600	16	31 488	9 598	18 224	8 266	45	1 143	24	610
4	103	19.68	6	15.18	6.89	880	399	57	1 122	342	16	17 948	5 471	14 084	6 389	45	1 143	24	610
5	129	19.68	6	25.22	11.44	973	442	38	748	228	16	11 965	3 647	15 574	7 064	45	1 143	24	610
6	155	19.68	6	31.30	14.20	829	376	26	512	156	16	8 187	2 495	13 261	6 015	45	1 143	24	610

Standard Accessories Packaging

Ordering in multiple of standard packaging is highly recommended.

Product	Size		Amount	Package	Product	Size		Amount	Package	Product	Size		Amount	Package
	in	mm				in	mm				in	mm		
Coupling	2	53	20	Bag	O-Ring	2	53	10	Bag	Adapters	2	53	20	Bag
Coupling	3-5	78-129	10	Bag	O-Ring	3-5	78-129	5	Bag	Adapters	3 - 6	78-155	10	Bag
Coupling	6	155	8	Bag	Reducers			10	Bag	Elbows	1-2	27-53	10	Bundle
Wobble	2	53	10	Bag	Expansion JT	2-6	53-129	5	Bundle	Bends	3 - 6	78-155	5	Bundle
Wobble	3-6	78-129	5	Bundle	Adapters	1-1½	27-41	50	Bag	Bell Ends			A/R	Cartons



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