



L.S.F.B

ANSI CLASS 150# & 300#
ASME B16.5/B16.42



INTRODUCTION

LSFB is a Spanish company located in Zaragoza. It is a young company that has acquired great experience in PTFE piping projects in the Middle East (according to 01-SAMSS-25), North Africa, America and Europe.

Projects with high levels of inspections and requirements.

The PTFE-lined pipes and fittings serves to protect the acid (or other chemical products) conductive structure from corrosion and thus give a long life to the installation as PTFE withstands levels of acidity that neither carbon steel nor stainless steel is able to withstand.

LSFB manufactures and supplies the complete range of products for PTFE/PFA-coated piping systems according to DIN and ANSI standards.

The dimensions in this catalogue are according to ASME B16.5 but we also manufacture according to DIN 2848, with various pressure ratings.

In the case of ASME standard, we have nominal pressures 150# and 300#.

And in DIN standard, PN10/PN16, PN25 and PN40.

In this catalogue you will find a wide range of PTFE/PFA products in different sizes with which you could complete any petrochemical installation.

We also manufacture according to customer specifications.

We can supply shut-off valves and advise you on the most suitable valve for your application.

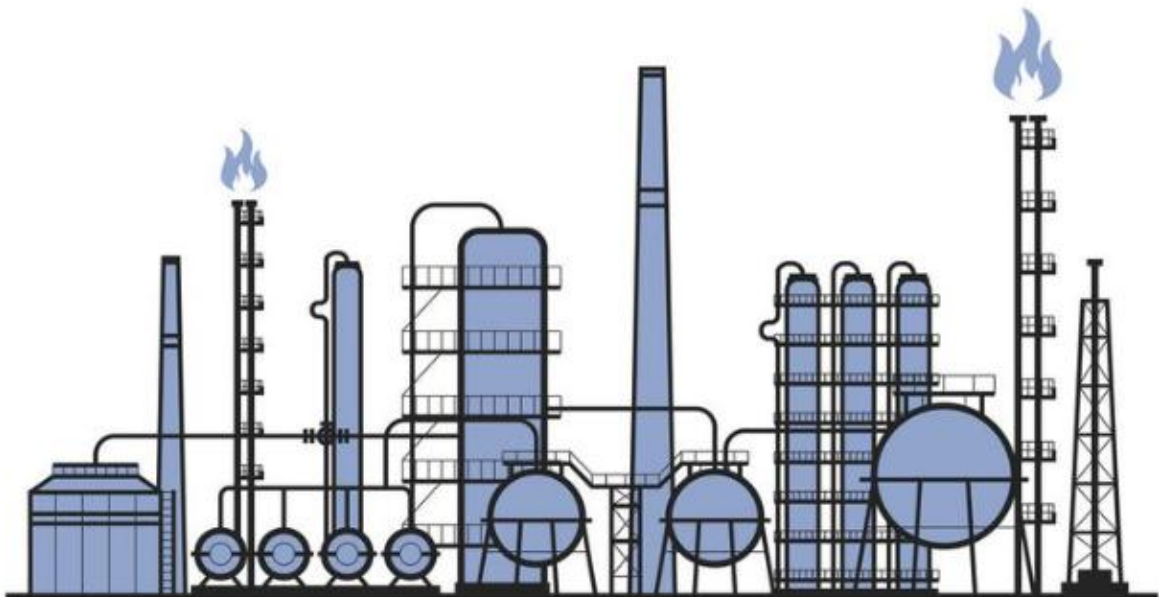




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Standard Specifications for 1/2" (DN 15) - 12" (DN 300) Pipe and Fittings

Pipe and fittings manufactured by **LSFB** are in full compliance with: ASTM F1545-15a, Standard Specification for Plastic-Lined Ferrous Metal Pipe, Fittings, and Flanges as follows.

LINERS:

MATERIAL	DESCRIPTION	STANDART	COMMENTS
PTFE	Polytetrafluoroethylene	ASTM D4894 & D4895	More usual.
PFA	Perfluoroalkoxy	ASTM D3307	

Other materials available on request.

PIPES:

PIPE MATERIAL	STANDART	COMMENTS
Carbon Steel	ASTM A106Gr.B	1"-8" = Sch. 40 10" = Sch. 30 12" = Sch. 20
	ASTM A53 ERW Grade B Type E.	
	API 5L	
Stainless Steel 304LSS or 316LSS	ASTM A312 ERW	

Other schedules available on request.

FLANGES:

FLANGE	STANDART	MATERIAL	COMMENTS
Slip On: NPS 1/2" (DN 25) - NPS 12" (DN 300)	ASTM A395/A536	Ductile Iron	Dimensions per ASME B16.42 Class 150 or Class 300
	ASTM A105	Carbon Steel	Dimensions per ASME B16.5 Class 150 or Class 300
	ASTM A182	Stainless Steel	Dimensions per ASME B16.5 Class 150 or Class 300

Note: Standard flange configuration for spools is one rotating Slip On machined as lap joint and one fixed Slip-On flange.

For most PTFE-lined fittings is fixed Slip-On flange.

Weld neck flanges are available.

FITTINGS:

MATERIAL	STANDART	COMMENTS
Carbon Steel	ASTM A106 Gr.B	For bended elbows up to 2"
	ASTM A587	
	ASTM A53	
	ASTM A234 WPB	
Cast fittings	ASTM A395	
	ASTM A216Gr. WCB	
	ASTM A536	
Stainless Steel	ASTM A403	
	ASTM A312	
Flange Material	ASTM A395	Cast Steel
	ASTM A216 Gr. WCB	Cast Steel
	ASTM A105	Forged Carbon Steel
	ASTM A182	Forged Stainless Steel

FABRICATION: Pipe and Fittings Tolerances per ASTM F1545-15a:

DIMENSION	TOLERANCE (mm)
Length and Centerline Dimensions	± 3.2 mm
Fixed Flange Bolt Hole Alignment	± 1.6 mm
Flange Perpendicularity (with Pipe Centerline)	8 mm/m of nominal pipe diameter

Engineering Support Services

Bill of Material Take-Off for Quotes

LSFB can generate a bill of material from customer isometric drawings or orthographic drawings at no charge. Bills of materials from orthographic drawings will be marked as "budgetary". Drawings can be submitted in PDF.

LSFB can generate a bill of material from customer 3D model (STEP).

Standard and Custom Coatings

Standard Coating

All pipe and fittings are coated with International Coatings Intergard 345, which is a high-solids amine-cured epoxy primer containing zinc phosphate anti-corrosive pigmentation. Color is gray.

Surface preparation is SSPC-SP10 Near-White Blast Cleaning.

Optional High-Performance Coatings: Available on request.

Hydrostatic prove acc. ASTM F1545-15a

According to ASME F1545-15a, PTFE-Pipes and fittings are hydrostatically pressure tested at 30 bar for 3 minutes in order to check if there are any leaks and after every hydrostatic test a **Spark Test (15Kv)** is required in order to further inspect for leaks.

Pressure Ratings and Liner Data

The pressure/temperature ratings of **LSFB** PTFE-Lined Piping Products conform to ASME B16.5 Class 150 per the appropriate flange metallurgy.

Standard 1" - 12" PTFE-lined pipe and fittings are rated for full vacuum at 230 °C continuous. There are a few fittings that are not rated for full vacuum to 230° - the vacuum ratings of all 1" - 12" PTFE-lined fittings are indicated on the product pages in this design manual.

Temperature °F (°C)	Pressure Class and Flange Material			
	Class 150 Ductile Iron psig (barg)	Class 150 Carbon Steel psig (barg)	Class 150 Stainless Steel Type 304L/316L psig (barg)	Class 300 Carbon Steel psig (barg)
0 (-18)	250 (17.2)	285 (19.7)	230 (15.9)	485 (33.4)
50 (10)	250 (17.2)	285 (19.7)	230 (15.9)	485 (33.4)
100 (38)	250 (17.2)	285 (19.7)	230 (15.9)	485 (33.4)
150 (65)	242 (16.7)	275 (19.1)	212 (14.6)	485 (33.4)
200 (93)	235 (16.2)	260 (17.9)	195 (13.4)	475 (32.8)
250 (121)	225 (15.5)	245 (16.9)	185 (12.8)	460 (31.7)
300 (149)	215 (14.8)	230 (15.9)	175 (12.1)	450 (31.1)
350 (177)	207 (14.3)	215 (14.8)	167 (11.5)	440 (30.3)
400 (204)	200 (13.8)	200 (13.8)	160 (11.1)	425 (29.3)
450 (232)	185 (12.8)	185 (12.8)	155 (10.7)	405 (27.9)

Physical Values

Chemical and physical resistance are according to ASME D-543

Property	Unit	Value PTFE- Granulat white	Value PTFE- Paste white	Value PFA
specific gravity	gr / cm3	2,13 – 2,18	2,13 – 2,18	2,13 – 2,16
tensile strength	N / mm2	≥ 25	≥ 26	≥ 21
elongation	%	≥ 270	≥ 275	≥ 250
tensile Modulus	N / mm2	750	750	700
compressive strength :				
1% yield point	N / mm2	4,5	4,5	5
10% yield point	N / mm2	18	18	20
thermal conductivity	W / m x K	0,35	0,35	0,35
coefficient of linear thermal expansion	K ⁻¹	17 x 10 ⁻⁵	17 x 10 ⁻⁵	17,5 x 10 ⁻⁵
surface resistivity		10 ^{12±2}	10 ^{12±2}	5 x 10 ¹⁴
volume resistivity		10 ^{12±2}	10 ^{12±2}	10 ¹⁶
flammability	cm / min	self-extinguishing		
permeability qG	$\frac{\text{cm}^3}{\text{m}^2 \times 24\text{h} \times \text{bar}}$	300 - 1000	300 – 1000	2000
permeability coeff. PG	$\frac{\text{cm}^3}{\text{m} \times \text{sec} \times \text{cmHG}}$	(1-3) x 10 ⁻⁶	(1-3) x 10 ⁻⁶	(1-3) x 10 ⁻⁶

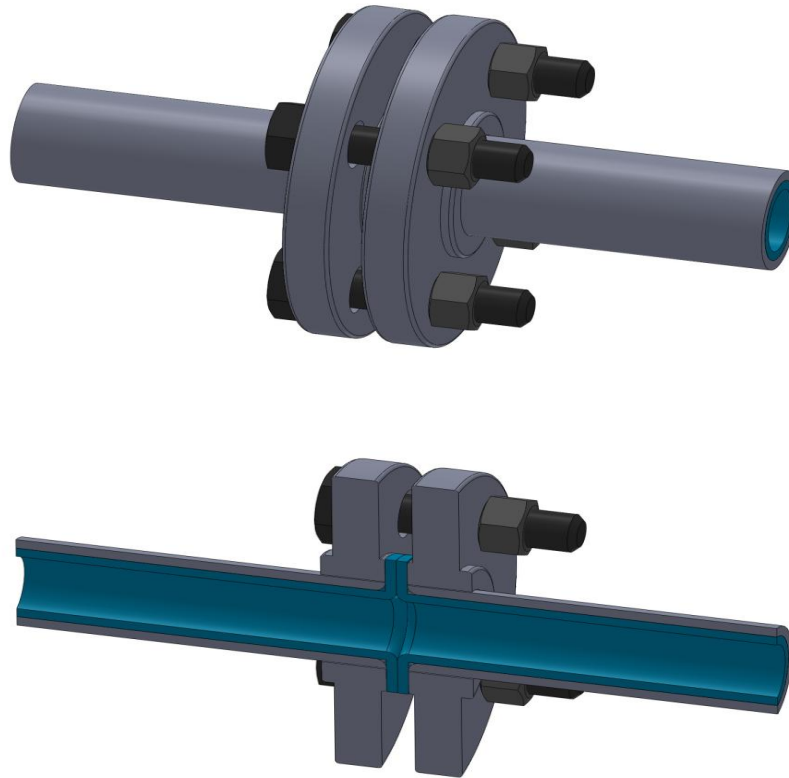
PTFE = polytetrafluoroethylene PFA = perfluoroalkoxy

Traceability

All our products have a fixed stainless-steel plate with this following information:

- 1) Description of the item (Date,size, nominal pressure, length, standard).
- 2) **LSFB** identification code.
- 3) Client code, if available.
- 4) Isometric number (line number).

Torquing recommended for flange mounting



The torque wrench should be used in a cross manner. Tightening torques for other pressure rates available upon request.

Tightening torques (for pressure rating Class 150).

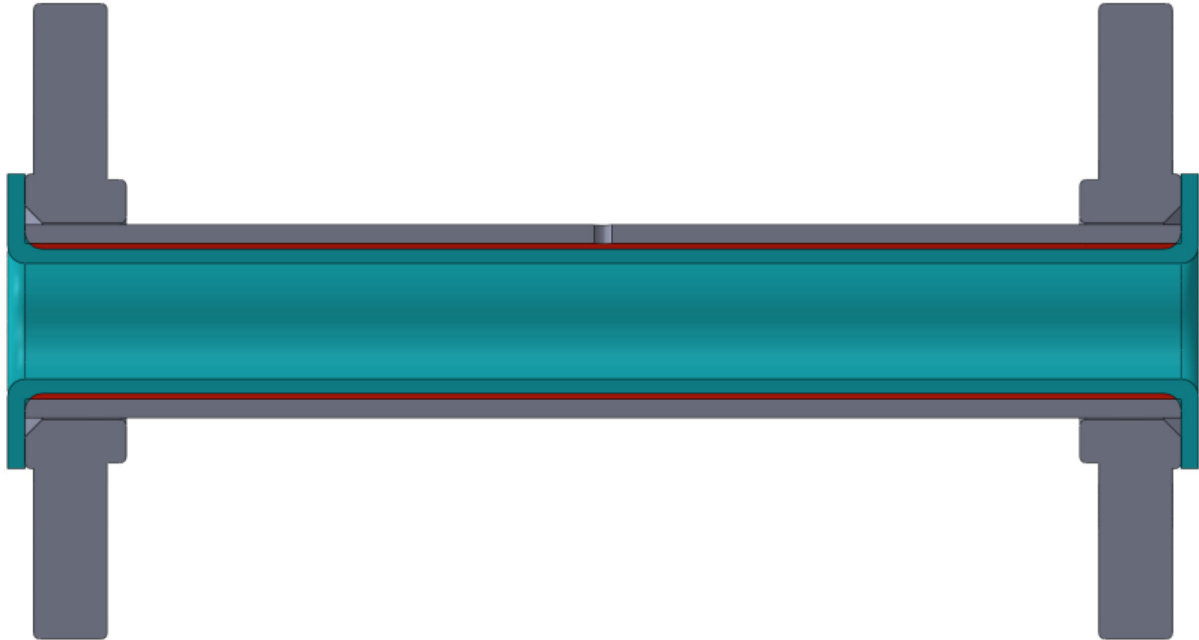
When using smooth-running and greased bolts and nuts we recommend the tightening torques in the table below:

NPS	Bolts	Tightening torquing (Nm)
1/2"	4x1/2"	6
3/4"	4x1/2"	10
1"	4x1/2"	14
1 1/2"	4x1/2"	28
2"	4x5/8"	53
3"	4x5/8"	66
4"	4x5/8"	94
6"	8x3/4"	128
8"	8x3/4"	178
10"	12x7/8"	175
12"	12x7/8"	228
14"	12x1"	285
16"	16x1"	265

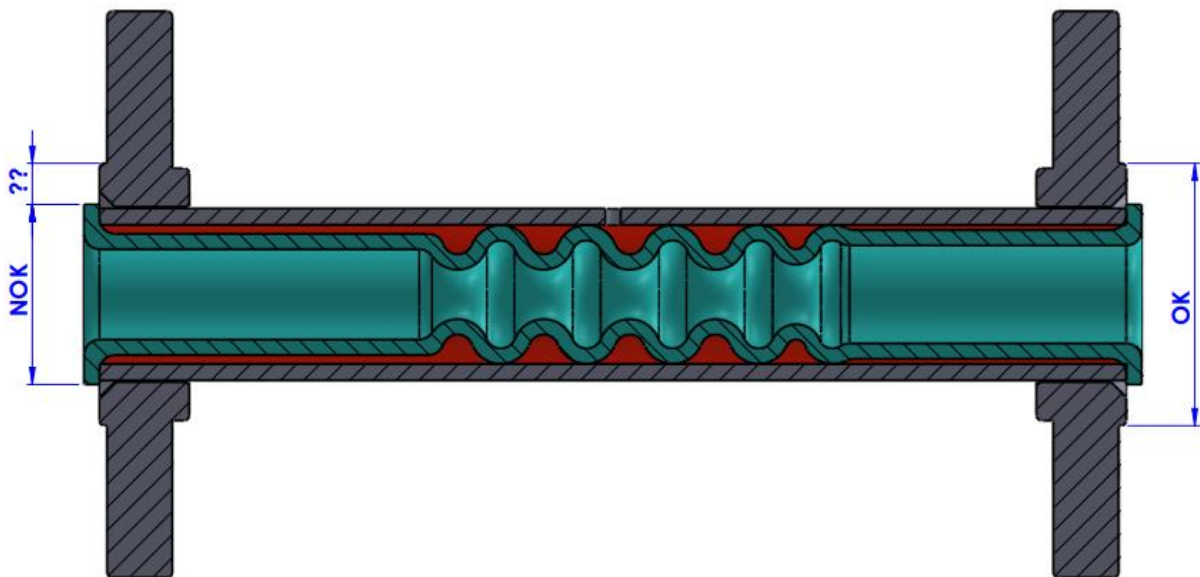
Manufacturing process

Problems in badly PTFE Lined pipes:

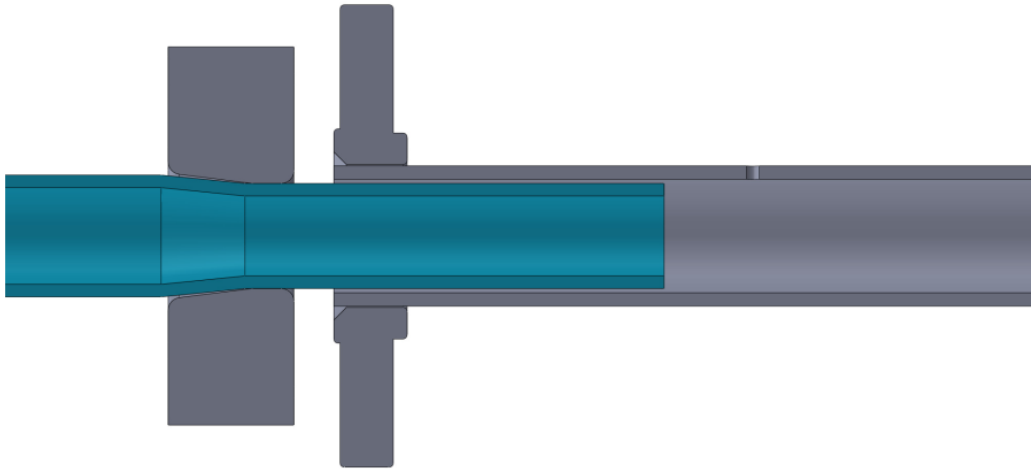
When the PTFE does not fit tightly inside the pipe it leads to this next huge problem:



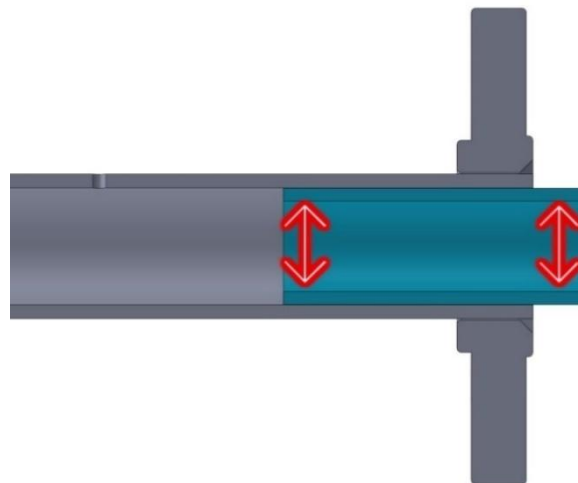
Due to temperature changes, the PTFE expands and wrinkles inside the pipe and loses size at the ends, causing leaks.



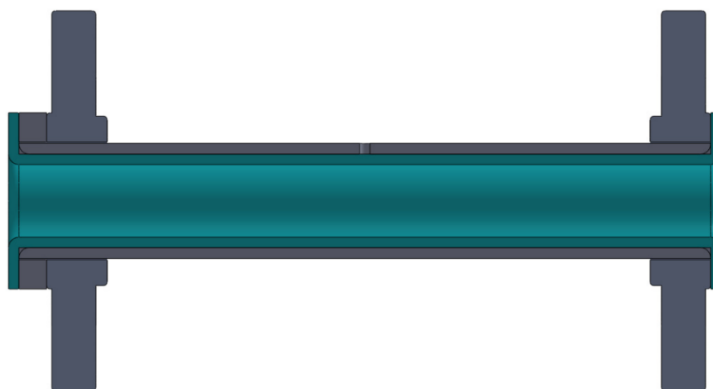
To avoid this problem our company (LSFB) solves it in the following way:
Insert a PTFE of larger diameter than the inside diameter of the pipe.



Reducing the PTFE in a section and introduce it in the pipe then returns to its original size and sticks to the inside walls of the pipe and this ensures that there are no gaps between PTFE and pipe.

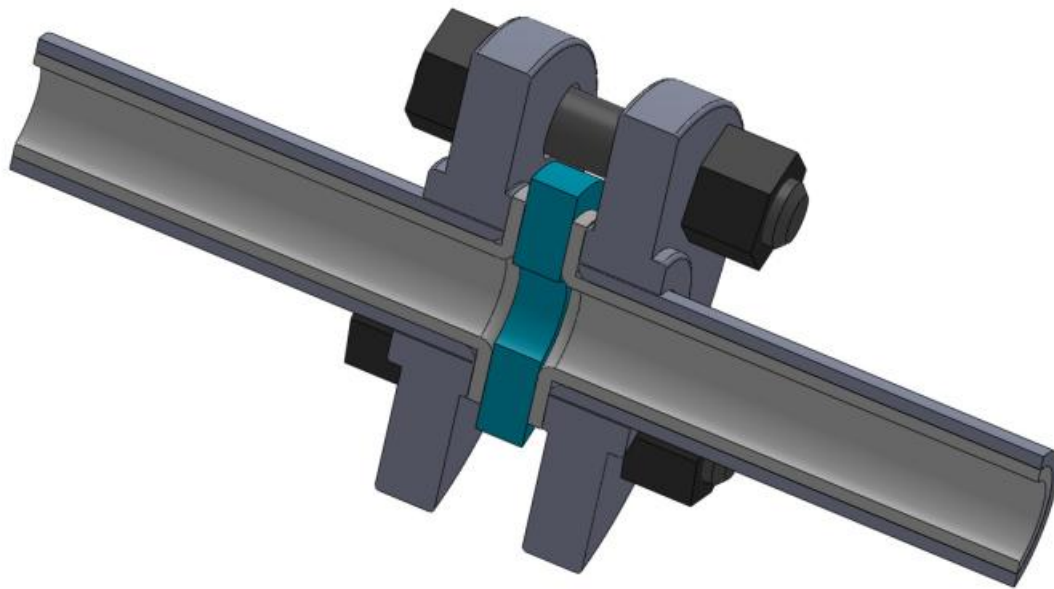
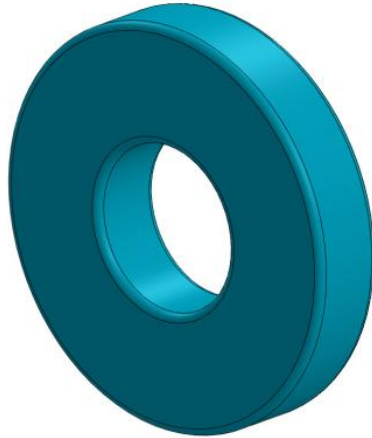


Following this system, we can achieve a perfect Spool or Fitting ↓ ↓ ↓

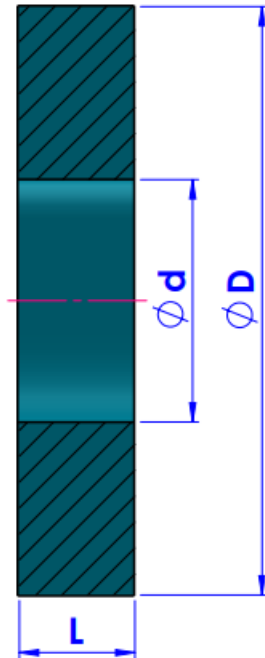


PTFE SOLID SPACER FORM F

PTFE solid spacer type F: this Item is a PTFE washer, The outer diameter fits between the flange screws and the inner diameter corresponds to the inside of a PTFE-lined pipe, It serves to close (correct) small gaps produced during installation assembly.



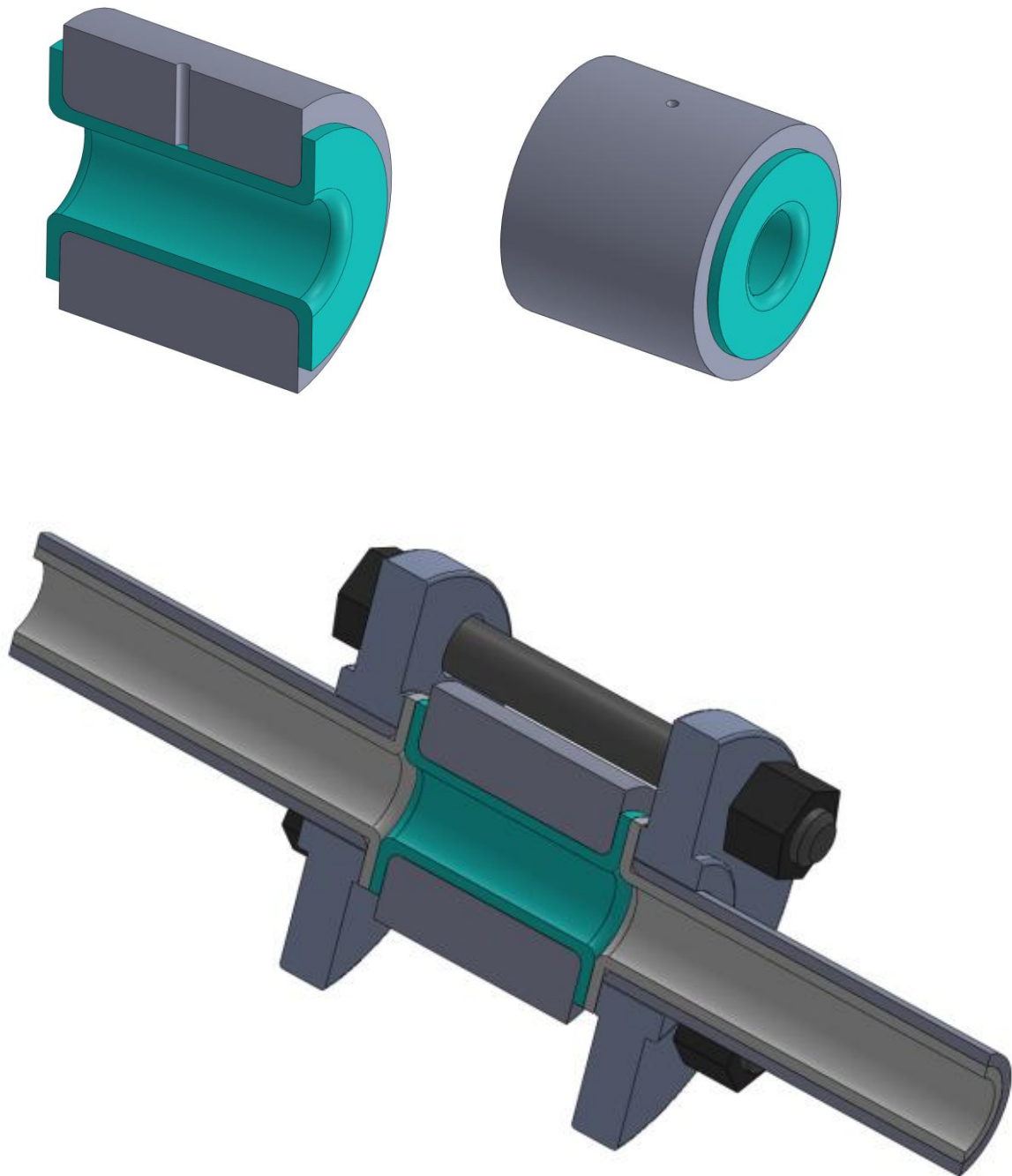
SOLID SPACER FORM F CLASS 150



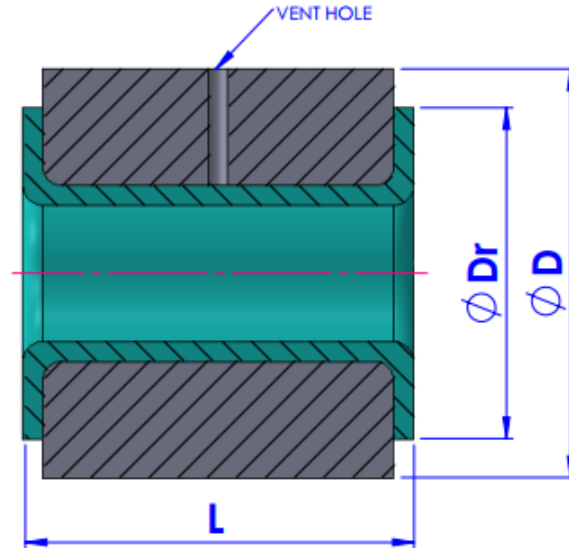
NPS	Max. L (mm)	d (mm)	D (mm)	Weight (kg/m)
½"	20	10	44	0.1
¾"	20	15	54	0.1
1"	20	20	63	0.2
1 ½"	20	35	73	0.3
2"	20	46	101	0.4
3"	25	71	133	0.6
4"	25	93	171	0.75
6"	30	144	219	1.4
8"	30	190	276	2
10"	40	240	336	3.2
12"	40	289	406	4

SOLID SPACER FORM G

Spacer type G: this Item is a machined steel bar and drilled like the inner diameter of a pipe and then PTFE-lined, The outer diameter fits between the flange screws and the inner diameter corresponds to the inside of a PTFE-lined pipe, It serves to close (correct) medium gaps (length) produced during installation assembly.



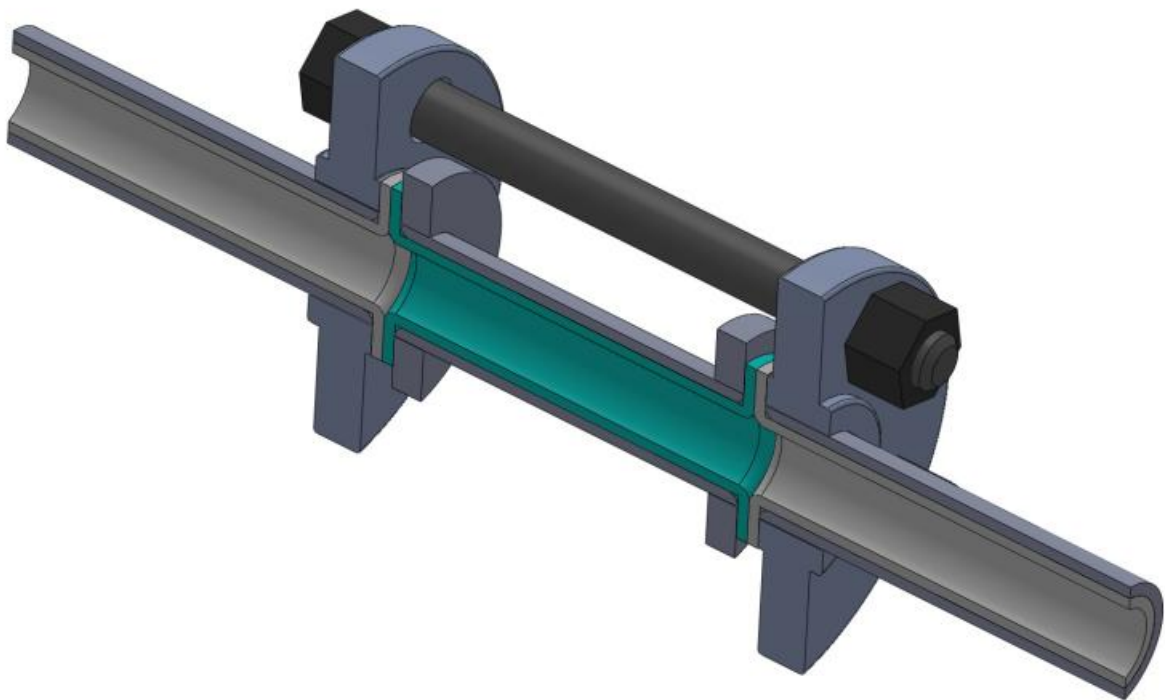
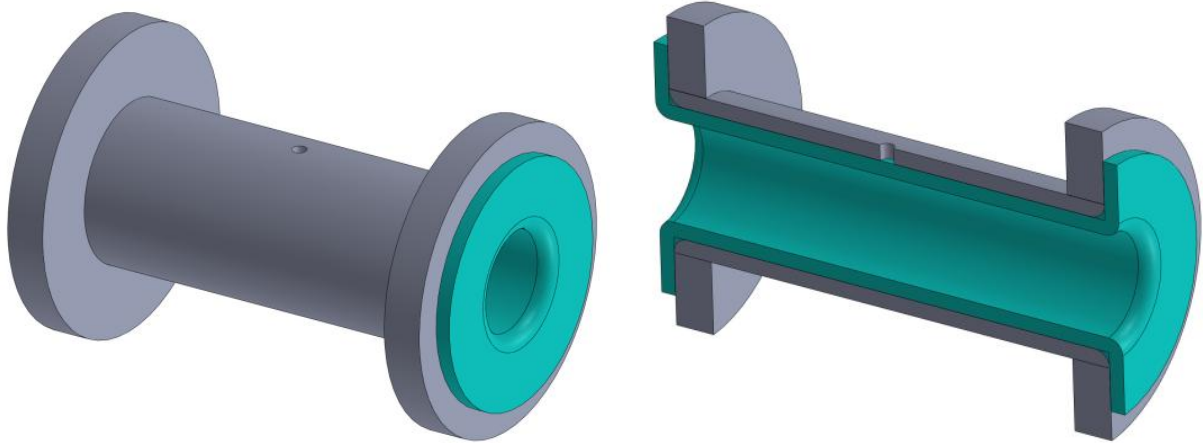
SOLID SPACER FORM G CLASS 150



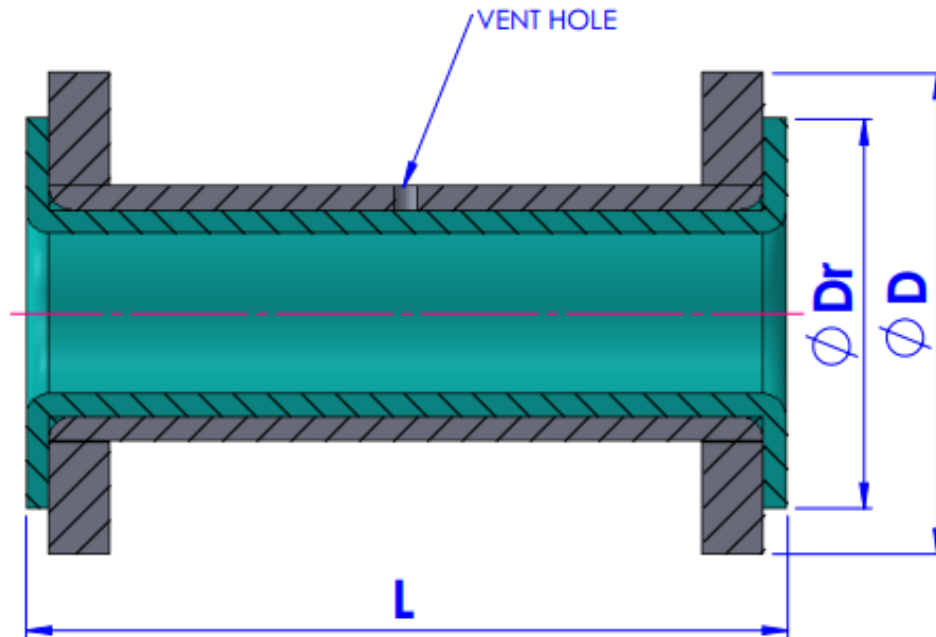
NPS	Minimum Length (mm)	Maximum Length (mm)	Standard Thickness PTFE $S_A \pm 10\%$ (mm)	Dr (mm)	D 150# (mm)	D 300# (mm)	Lined Spacer Weight (Kg/m)
½"	20	60	3	35	44	50	1.5
¾"	20	60	3	43	53	63	1.6
1"	20	65	3	51	63	69	1.8
1 ½"	20	65	3	73	82	91	2.6
2"	20	65	3	92	100	107	3.7
3"	25	70	3,5	127	133	145	5.3
4"	25	70	4,5	158	170	176	9.5
6"	30	70	5	216	218	246	14
8"	30	80	6	270	276	303	18
10"	40	80	7	324	336	357	29
12"	40	90	8	381	406	417	40
14"	40	90	9	412	447	481	50

SOLID SPACER FORM H

Spacer type H: this item is a welded pipe with two callars, The outer diameter fits between the flange screws and the inner diameter corresponds to the inside of a PTFE-lined pipe, It serves to close (correct) long gaps (length) produced during installation assembly.



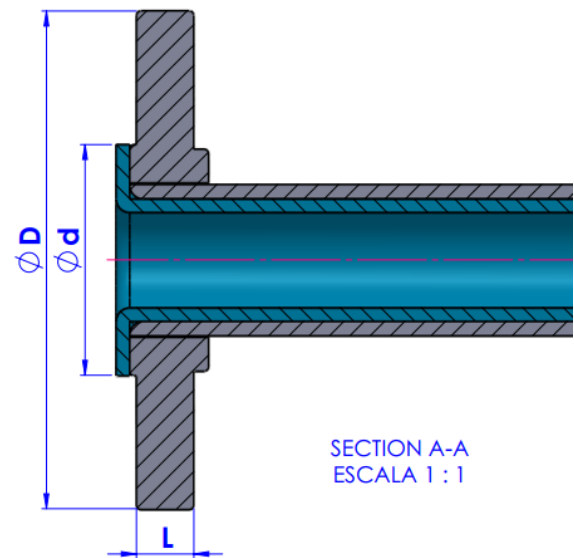
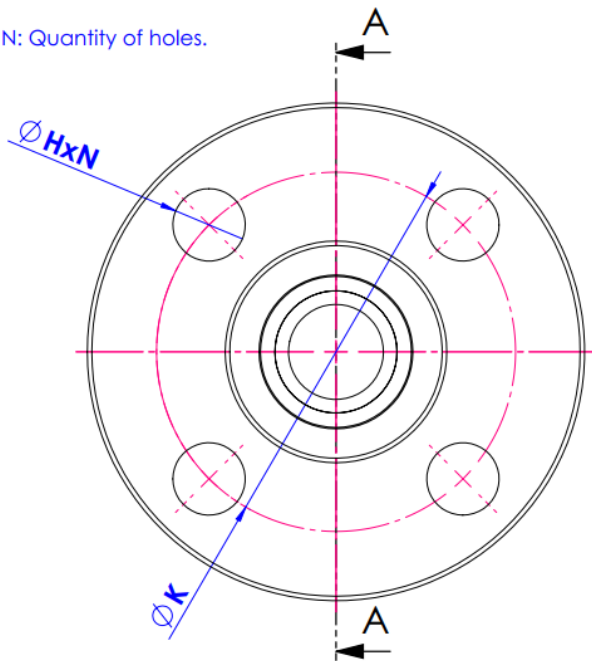
SOLID SPACER FORM H CLASS 150



NPS	Minimum Length (mm)	Maximum Length (mm)	Standard Thickness PTFE $S_A \pm 10\%$ (mm)	Dr (mm)	D 300# (mm)	D 150# (mm)	Lind pipe Weight (Kg/m)
1"	60	100	3	51	69	63	1.8
1 ½"	60	100	3	73	91	82	2.6
2"	60	100	3	92	107	100	3.7
2 ½"	60	100	3	104	112	108	4.5
3"	70	125	3.5	127	145	133	5.3
4"	80	125	4.5	158	176	170	9.5
6"	80	150	5	216	246	218	14
8"	80	200	6.2	270	303	276	18
10"	80	200	7	324	357	336	29
12"	90	200	8	381	417	406	30

PIPE AND FLANGE DIMENSIONS FOR LINED PIPE AND FITTINGS ANSI B16.5 CLASS 150

N: Quantity of holes.

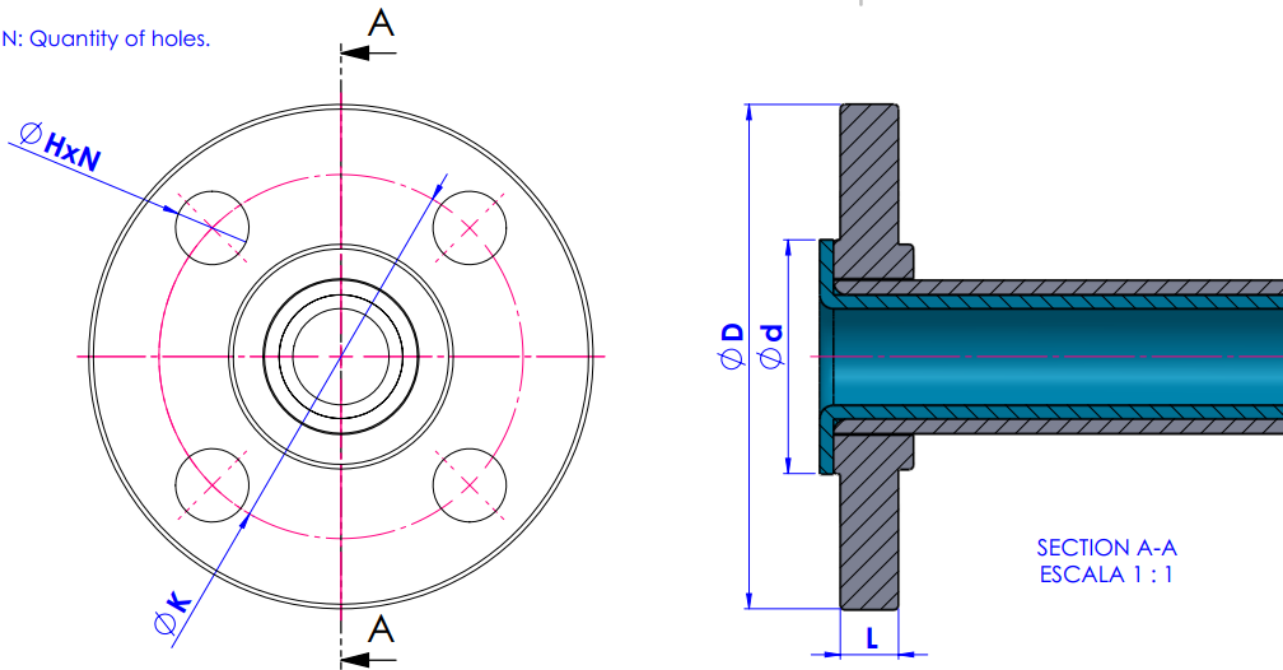


NPS	D	k	d	HxN holes
½"	90	60.3	33	16 x 4
¾"	100	70	43	16 x 4
1"	110	79.4	51	16 x 4
1 ½ "	125	98.4	73	16 x 4
2"	150	120.6	92	19 x 4
3"	190	152.4	127	19 x 4
4"	230	190.5	157.2	19 x 8
6"	280	241.3	216	22 x 8
8"	345	298.4	270	22 x 8
10"	405	362	324	25.4 x 12
12"	485	431.8	381	25.4 x 12
14"	535	476.2	412.8	27 x 12

PIPE AND FLANGE DIMENSIONS FOR LINED PIPE AND FITTINGS

ANSI B16.5 CLASS 300

N: Quantity of holes.



NPS	D	k	d ₄	HxN holes
½"	95	66.7	33	16 x 4
¾"	115	82.6	43	19 x 4
1"	125	88.9	51	19 x 4
1 ½ "	155	114.3	73	22 x 4
2"	165	127	92	19 x 8
3"	210	168.3	127	22 x 8
4"	255	200.0	157.2	22 x 8
6"	320	269.9	216	22 x 12
8"	380	330.2	270	25.5 x 12
10"	445	387.4	324	29 x 16
12"	520	450.8	381	32 x 16
14"	585	514.4	412.8	32 x 16

LINED SPOOL

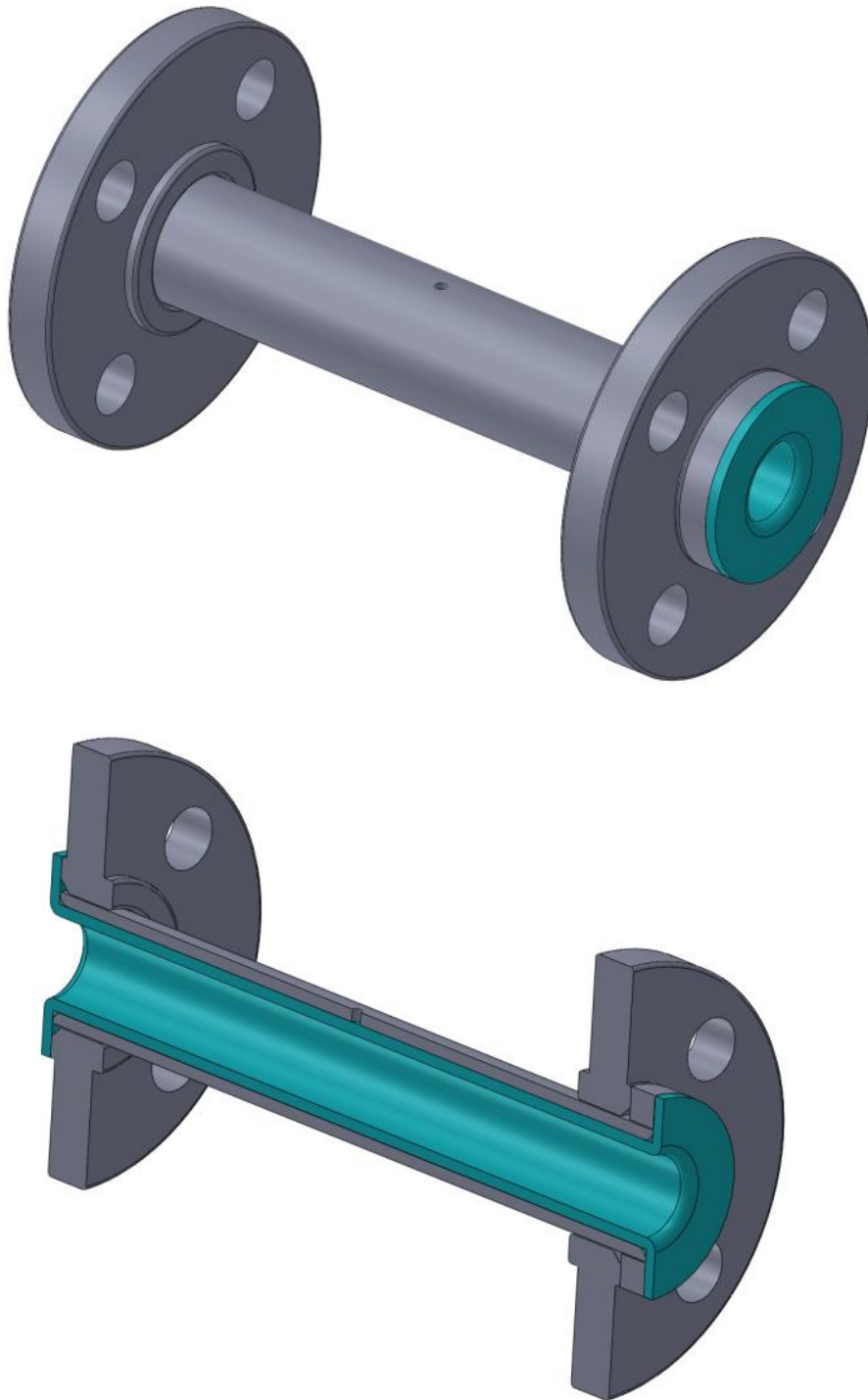
Standard version: One loose flange and one fixed flange.

ASME / ANSI B16.42 & B16.5 Class 150/300

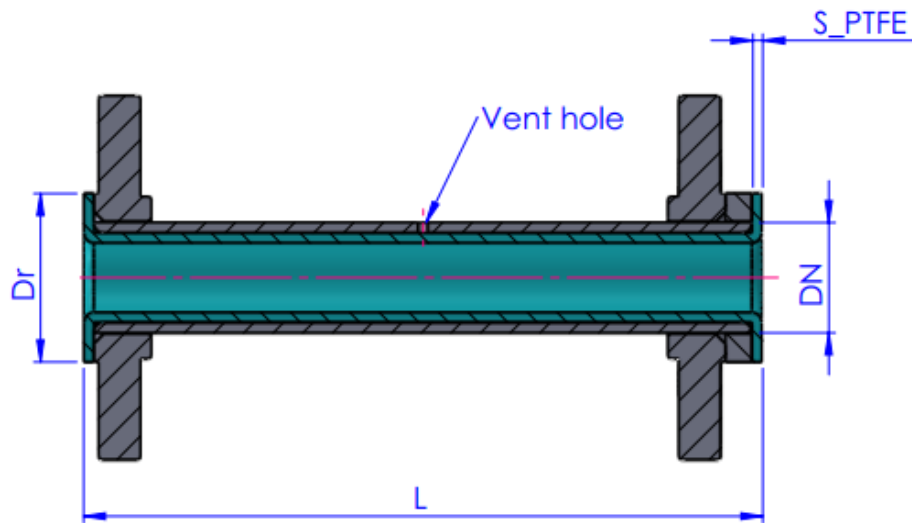
Also available: 2 Loose flanges or two fixed flanges

Also available in stainless steel and other alloys.

Weights are approximate.



PTFE LINED PIPE SPOOL



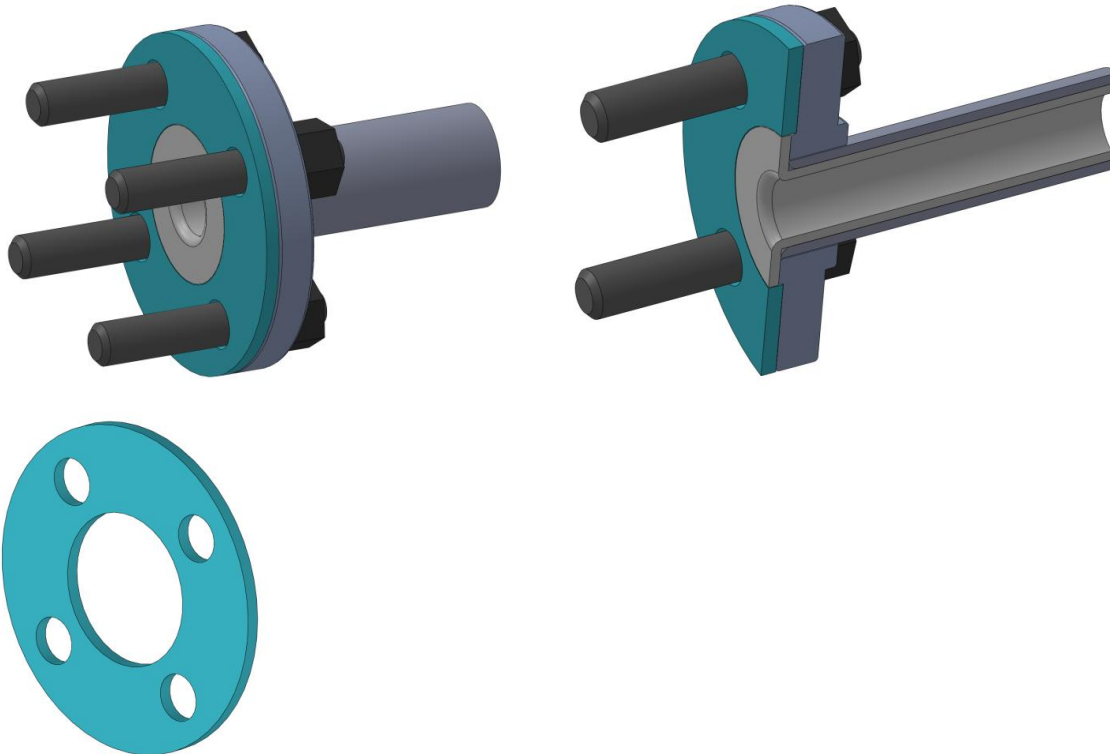
NPS/DN	L Min (mm)	L Max (mm)	Dr (mm)	Standard Thickness S_PTFE $S_A \pm 10\%$ (mm)	Line Pipe weight (Kg/m)
1"	140	6000	51	3	2.5
1 ½"	150	6000	73	3	4.5
2"	155	6000	92	3	6
3"	185	6000	127	3.5	10
4"	200	6000	157	4.5	14
6"	235	6000	216	5	24
8"	265	6000	270	6.2	39
10"	270	4000	324	7	56
12"	285	4000	381	8	74
14"	320	4000	412	9	85

*Welded Supports must be supplied by **LSFB** because the lining must be done after the supports have been welded because the weld temperature can damage the PTFE.

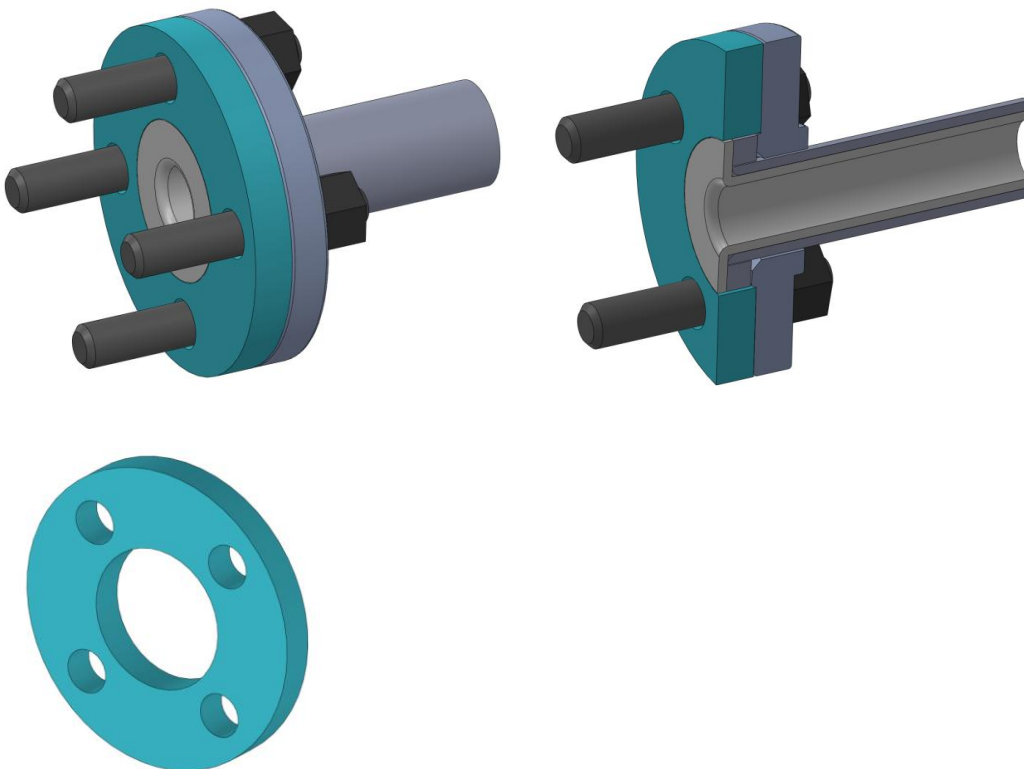
ANNULAR GASKETS

The Annular gaskets serves to achieve a full-face contact when the installation require it.

FOR FIXED FLANGES. The most usual type because the flange is fixed and the annular gasket can't move from its site.

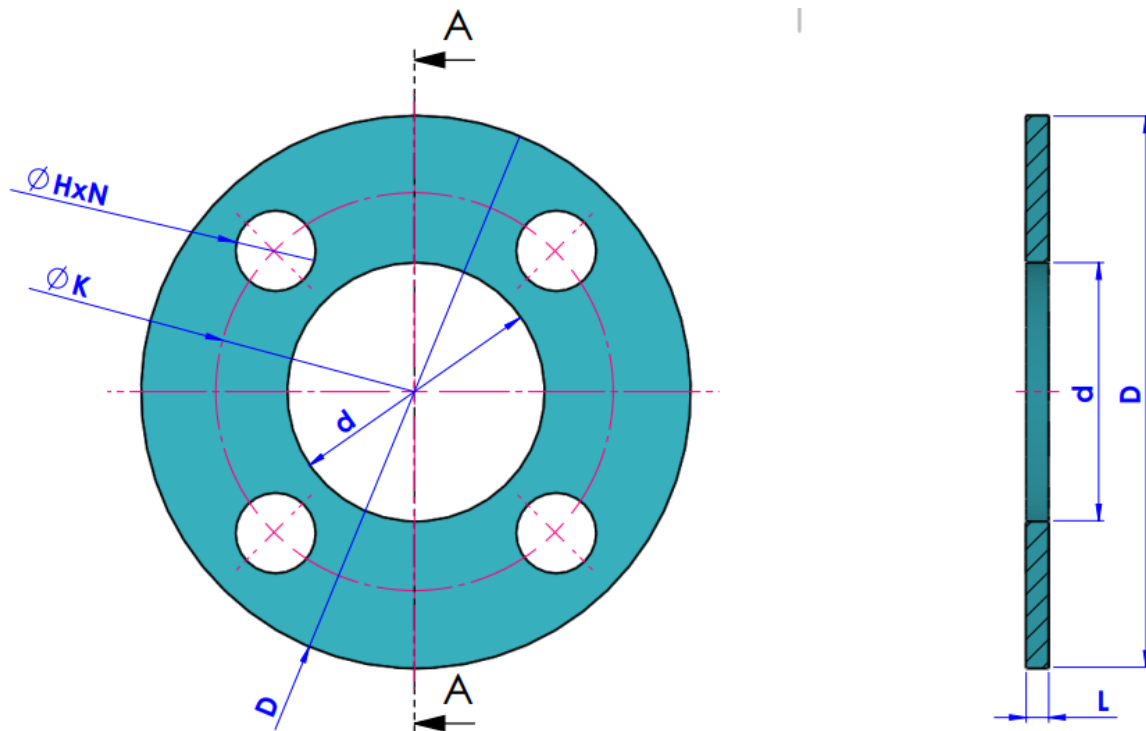


FOR ROTARY FLANGES.



ANNULAR GASKETS

CLASS 150



NPS	D	k	d	L (for fixed flanges)	L (for rotary flanges)	HxN holes
½"	90	60.3	34	4,5	12,5	16 x 4
¾"	100	70	44	4,5	12,5	16 x 4
1"	110	79.4	52	4,5	12,5	16 x 4
1 ½ "	125	98.4	74	4,5	12,5	16 x 4
2"	150	120.6	93	4,5	12,5	19 x 4
3"	190	152.4	128	5	17	19 x 4
4"	230	190.5	158	6	18	19 x 8
6"	280	241.3	217	6,5	24,5	22 x 8
8"	345	298.4	272	7,7	27,7	22 x 8
10"	405	362	326	8,5	28,5	25.4 x 12
12"	485	431.8	383	10,5	30,5	25.4 x 12
14"	535	476.2	414	10,5	30,5	27 x 12

- ANNULAR GASKETS FOR FIXED FLANGES= PTFE thickness+ RF (1,6mm).
- ANNULAR GASKETS FOR ROTARY FLANGES= PTFE thickness+ RF (1,6mm) + Collar thickness.

LINED 90° DEGREE ELBOW

Standard version: 2 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

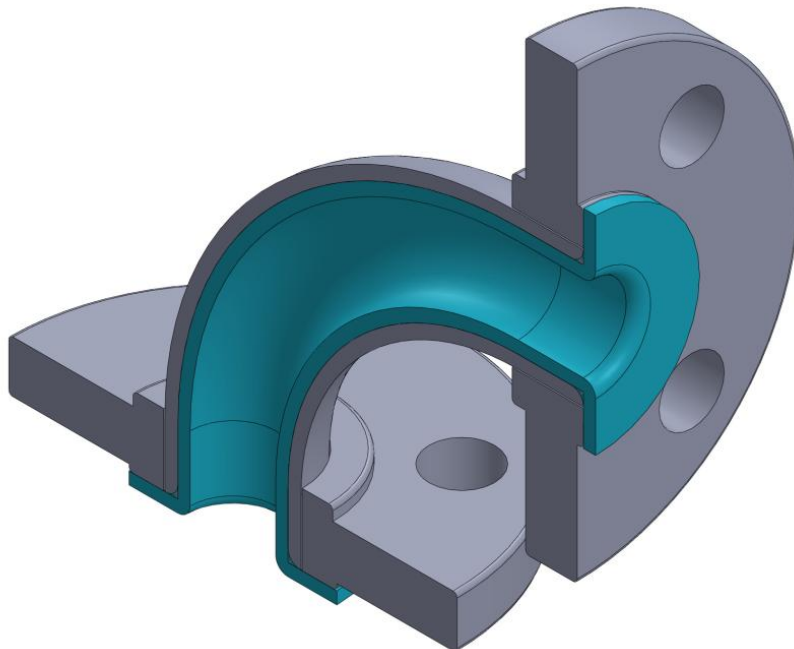
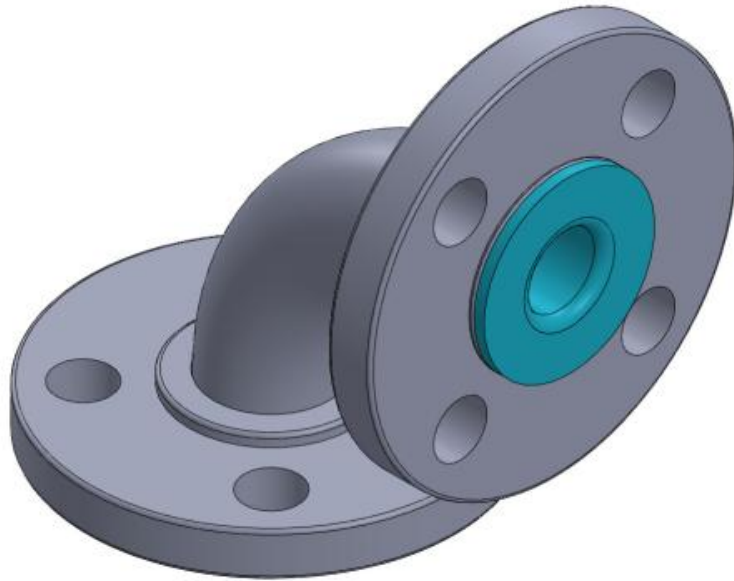
Also available: 2 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel ELBOWS are more economical than fabricated steel.

Also available in stainless steel and other alloys.

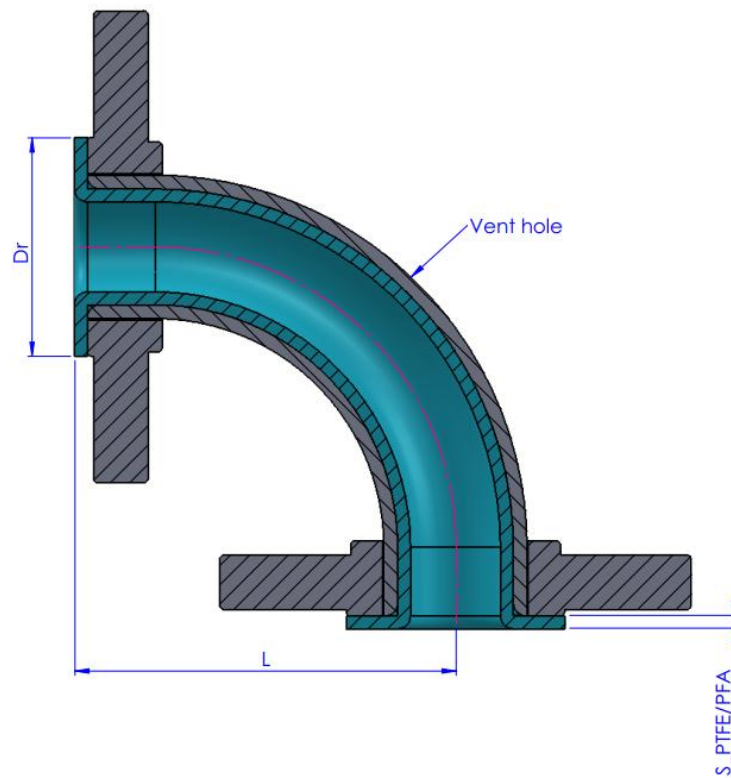
Weights are approximate.



x

LINED 90° DEGREE ELBOW

CLASS 150



NPS	L (mm) SR	L (mm) LR	Dr (mm)	Standard Thickness S_PTFE S _A ±10% (mm)	Lined Thickness PFA S _D ±10% (mm)	Weight (kg)
1"	89	127	51	3	3.5	2.7
1 ½"	102	152	73	3	3.5	4
2"	114	165	92	3	3.5	6.4
3"	140	197	127	3.5	4	12
4"	165	229	157	4.5	4	19
6"	203	292	216	5	5	36
8"	229	356	270	6.2	6	57
10"	279	419	324	7	8	82
12"	305	483	381	8	8	111
14"	356	546	412	9	8	165

LINED 45° DEGREE ELBOW

Standard version: 2 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

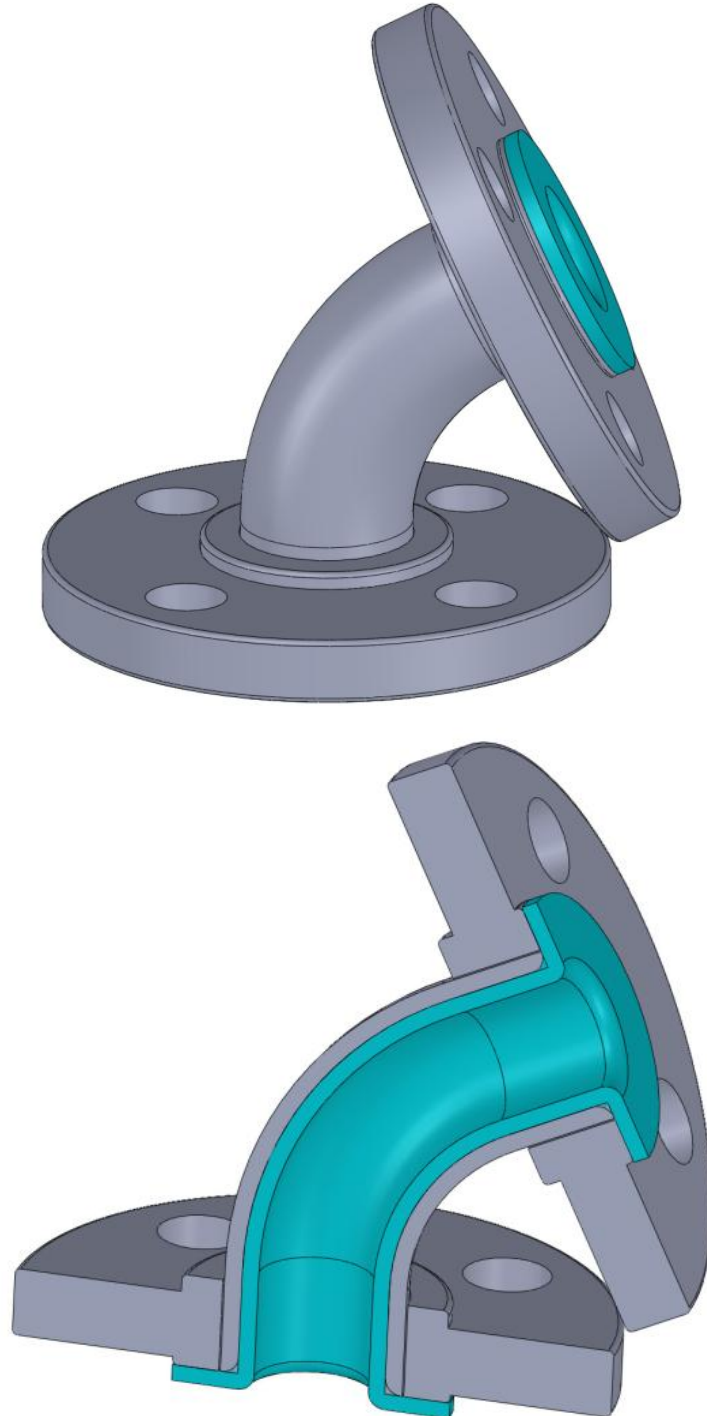
Also available: 2 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel ELBOWS are more economical than fabricated steel.

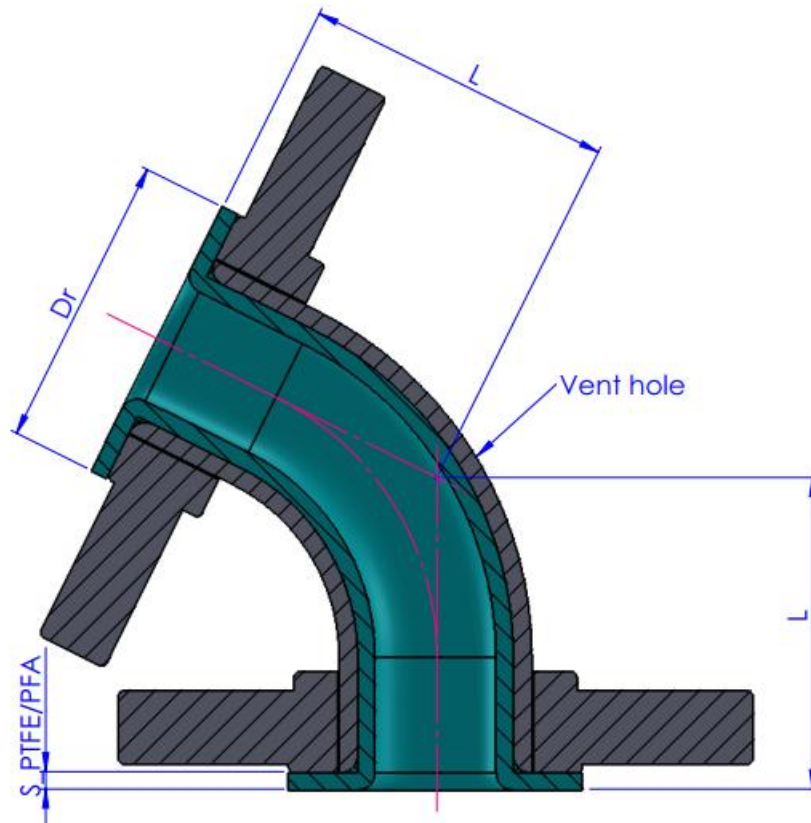
Also available in stainless steel and other alloys.

Weights are approximate.



LINED 45° DEGREE ELBOW

CLASS 150



NPS	L (mm)	Dr (mm)	Standard Thickness S_{PTFE} S_A $\pm 10\%$ (mm)	Lined Thickness PFA S_D $\pm 10\%$ (mm)	Weight (kg)
1"	45	51	3	3.5	3
1 1/2"	57	73	3	3.5	6
2"	64	92	3	3.5	9
3"	76	127	3.5	4	15
4"	102	157	4.5	4	20
6"	127	216	5	5	33
8"	140	270	6.2	6	54
10"	165	324	7	8	75
12"	190	381	8	8	110
14"	285	412	9	8	140

LINED EQUAL TEE

Standard version: 3 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

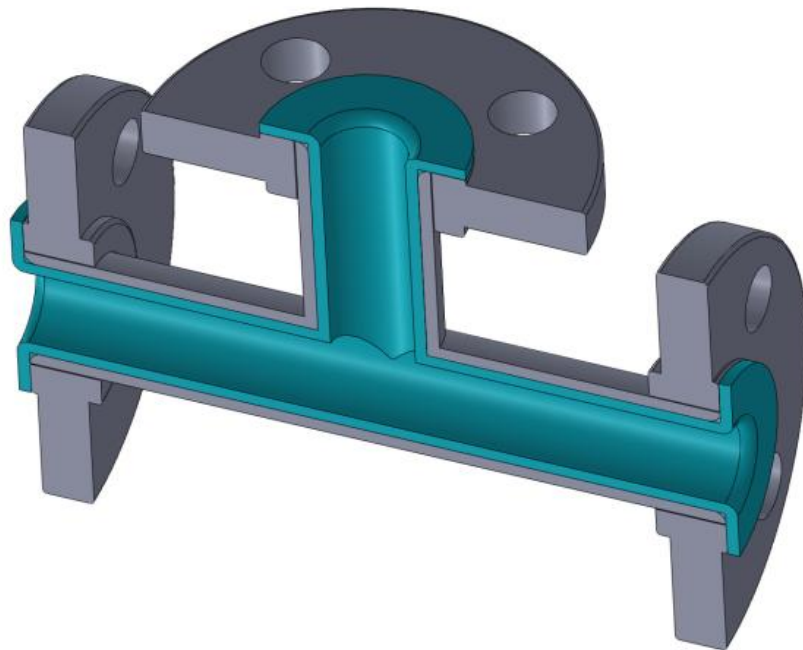
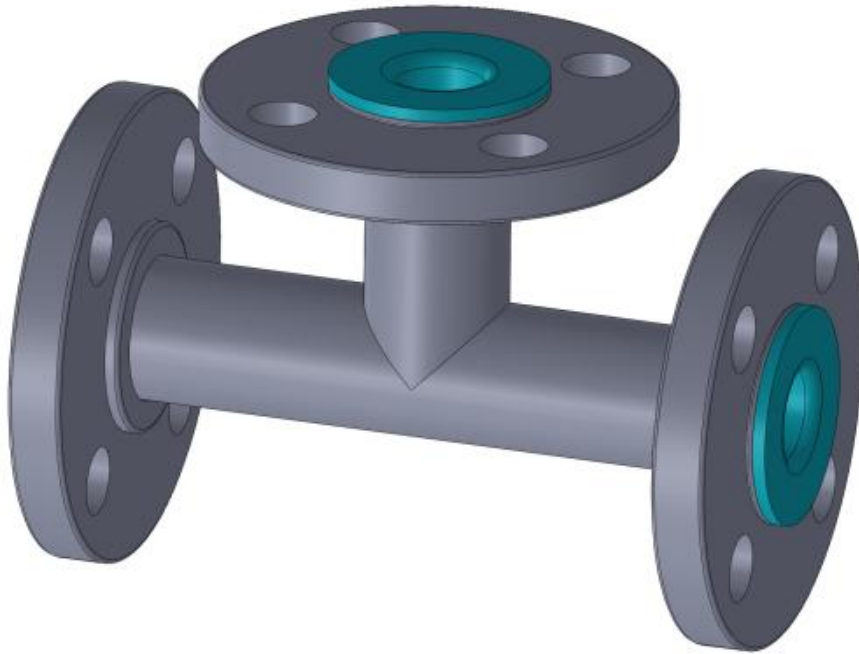
Also available: 3 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel EQUAL TEE are more economical than fabricated steel.

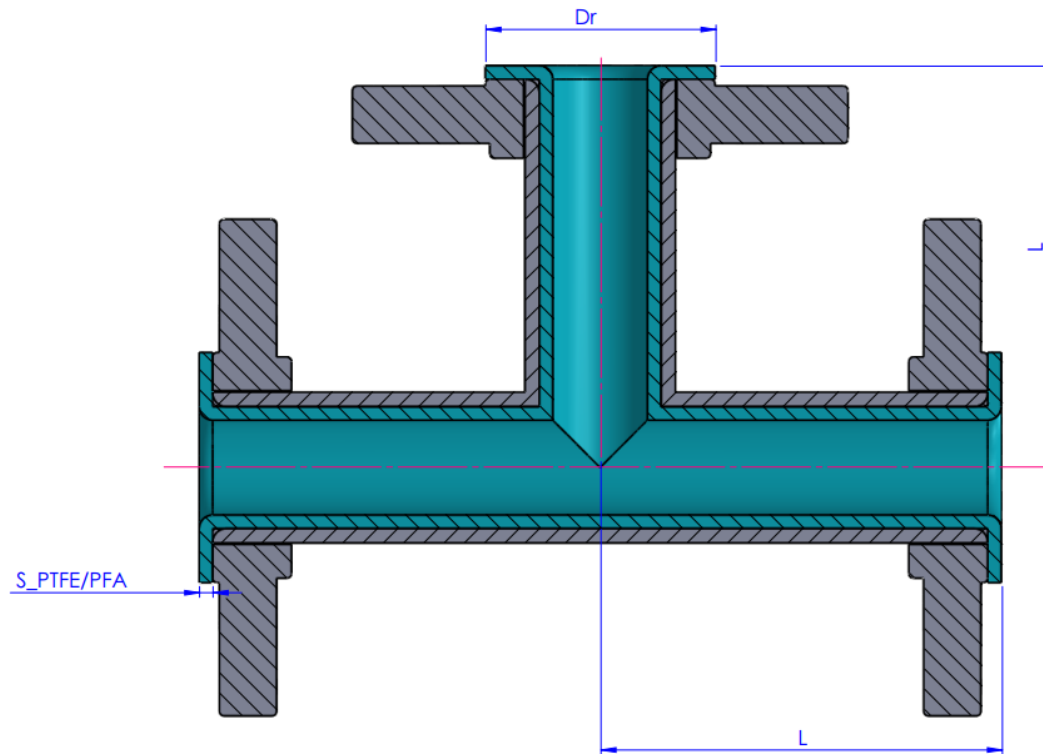
Also available in stainless steel and other alloys.

Weights are approximate.



LINED EQUAL TEE

CLASS 150



NPS	L (mm) CL 150	Dr (mm)	Standard Thickness S_PTFE S _A ±10% (mm)	Lined Thickness PFA S _D ±10% (mm)	Weight (kg)
1"	89	51	3	3,5	5,5
1 ½"	102	73	3	3,5	9,5
2"	114	92	3	3,5	11,5
2 ½"	127	105	3	3,5	14
3"	140	127	3.5	4	19,5
4"	165	157	4.5	4	24
6"	203	216	5	4	45
8"	229	270	6.2	8	72
10"	280	324	7	8	120
12"	305	381	8	8	160
14"	356	412	9	8	312

LINED REDUCING TEE

Standard version: 3 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

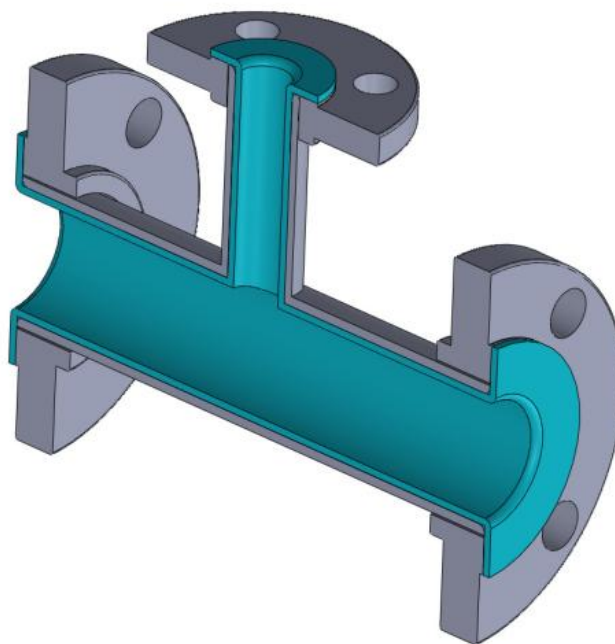
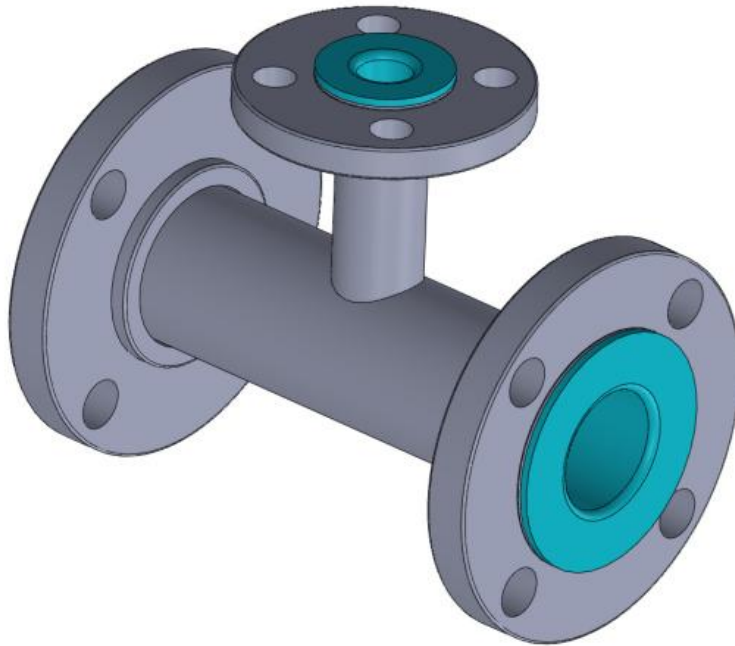
Also available: 3 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel reducing TEE are more economical than fabricated steel.

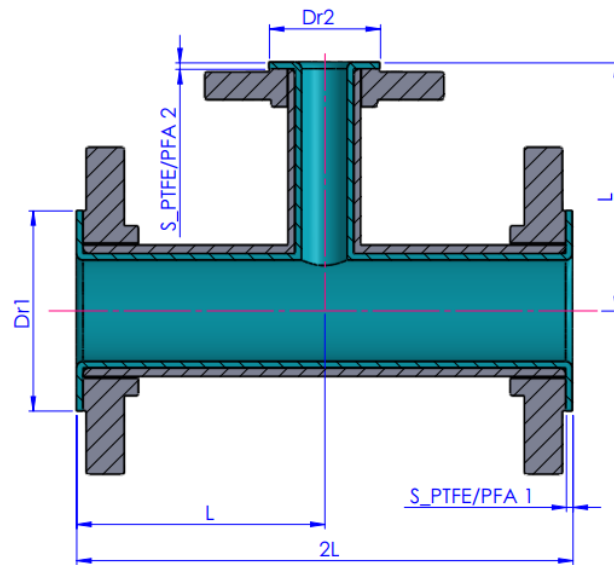
Also available in stainless steel and other alloys.

Weights are approximate.



LINED REDUCING TEE

CLASS 150



NPS ₁	NPS ₂	L (mm) CL150	Dr1 (mm)	Dr2 (mm)	Standard Thickness S_PTFE S ±10% (mm)		Weight (kg)
					S ₁	S ₂	
1"	½"	89	51	35	3.2	3.2	3.7
	¾"			43			4
1 ½"	½"	102	73	35	3.2	3.2	5.3
	¾"			43			5.5
	1"			51	3.2	3.2	8
2"	1"	114	92	51	3.2	3.2	9
	1 ½"			73		3.2	10.5
3"	1"	140	127	51	3.5	3.3	16
	1 ½"			73		3.2	17
	2"			92		3.2	17.5
4"	1 ½"	165	157	73	4.5	3.2	21
	2"			92		3.2	22
	3"			127		3.5	24
6"	2"	203	216	92	5	3.5	30
	3"			127		3.5	34
	4"			157		4.5	35
8"	4"	229	270	157	6.2	4.5	63
	6"			216		5	68
10"	4"	280	324	157	7	4.5	89
	6"			216		5	95
	8"			270		6.2	100
12"	6"	305	381	216	8	5	133
	8"			270		6.2	140
	10"			324		6.8	149
14"	6"	356	412	216	9	5	284
	8"			270		6.2	294
	10"			324		6.8	302
	12"			381		8	312

LINED EQUAL CROSS

Standard version: 4 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

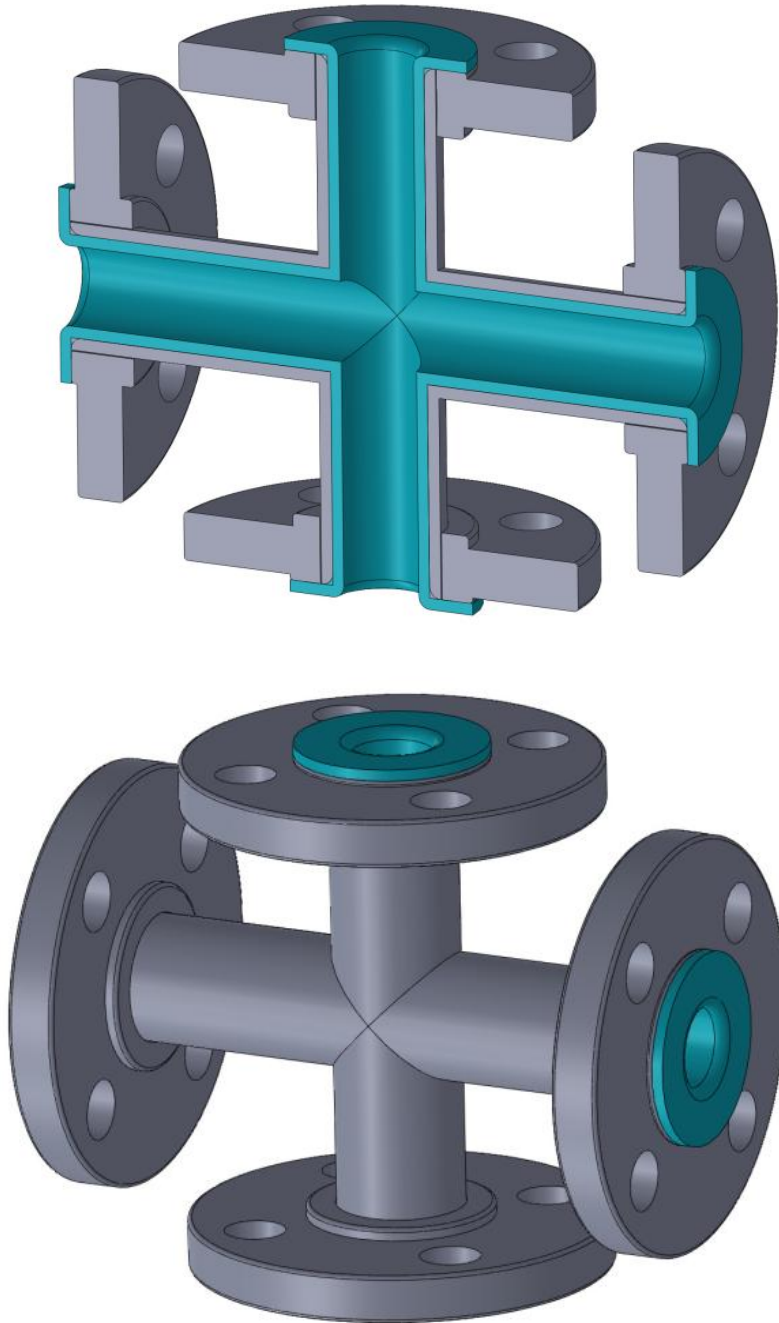
Also available: 4 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel cross are more economical than fabricated steel.

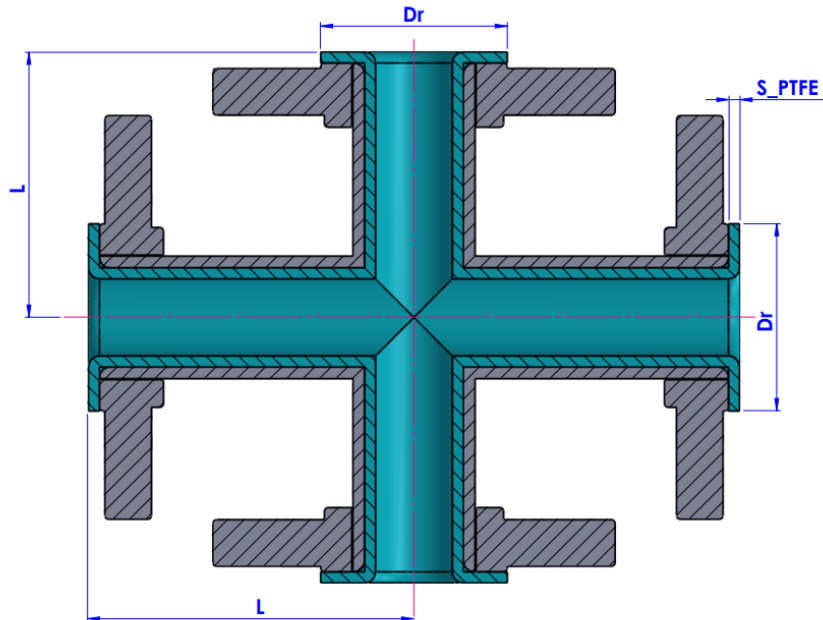
Also available in stainless steel and other alloys.

Weights are approximate.



LINED EQUAL CROSS

CLASS 150/300



NPS	L (mm) CL150	L (mm) CL300	Dr (mm)	Standard Thickness PTFE S ±10% (mm)	Weight (kg)
1"	89	102	51	3	5.5
1 ½"	102	114	73	3	9
2"	114	127	92	3	13
3"	150	152	127	3.5	23
4"	165	178	156	4.5	39
6"	203	216	216	5	66
8"	229	254	270	6.2	99
10"	280	292	324	7	160
12"	305	330	381	8	213

Other diameters, thicknesses and materials subject to request.

LINED INSTRUMENT TEE

Standard version: 1 Fixed flange.

ASME / ANSI B16.42 & B16.5 Class 150/300

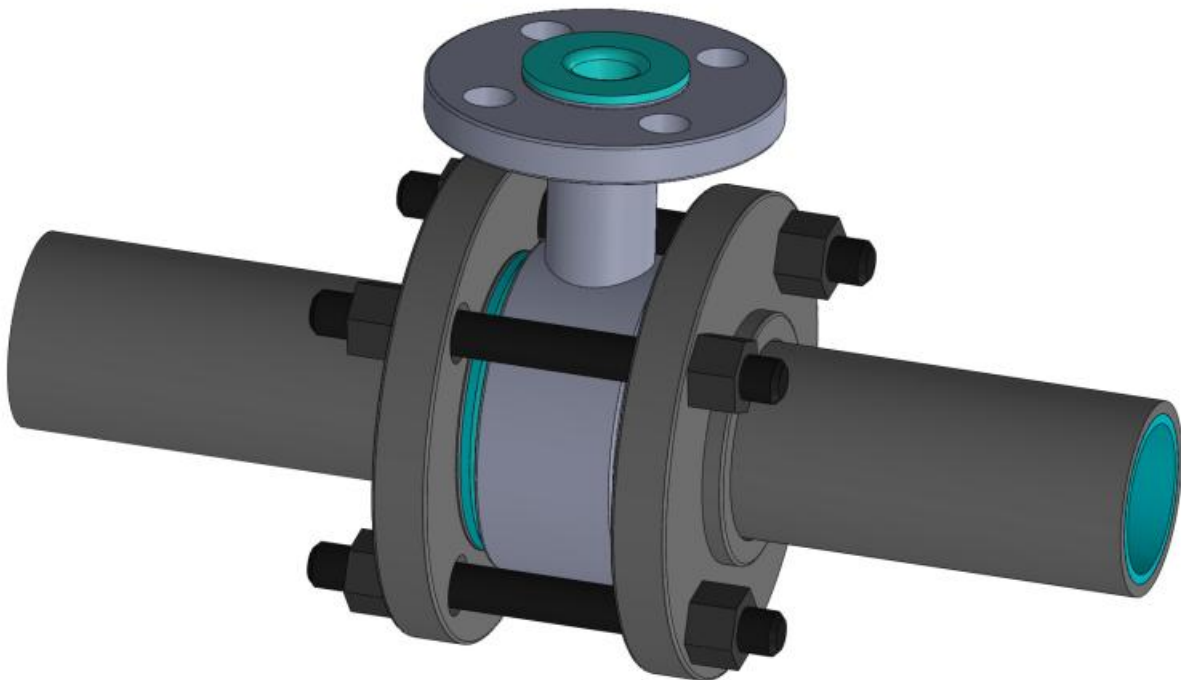
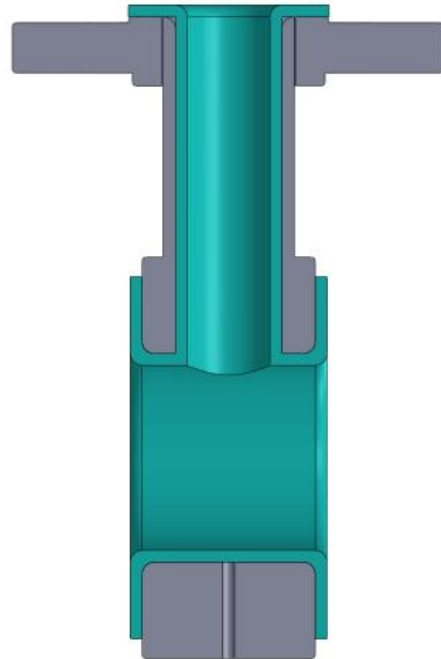
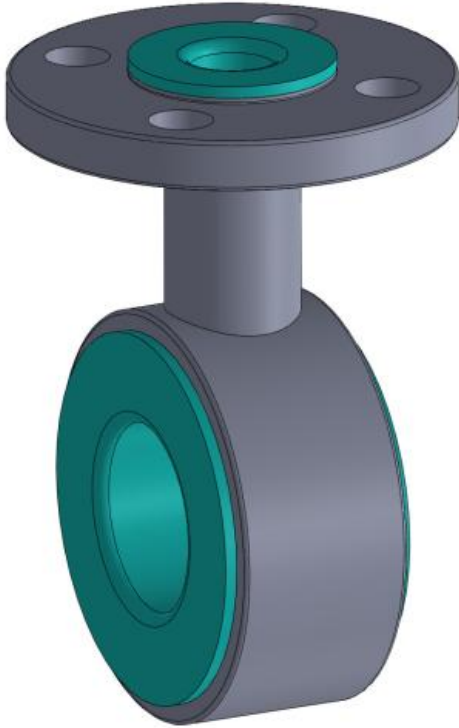
Also available: 1 Loose flange.

Combination of fixed flanges and loose flanges.

Note: Cast steel INSTRUMENT TEE are more economical than fabricated steel.

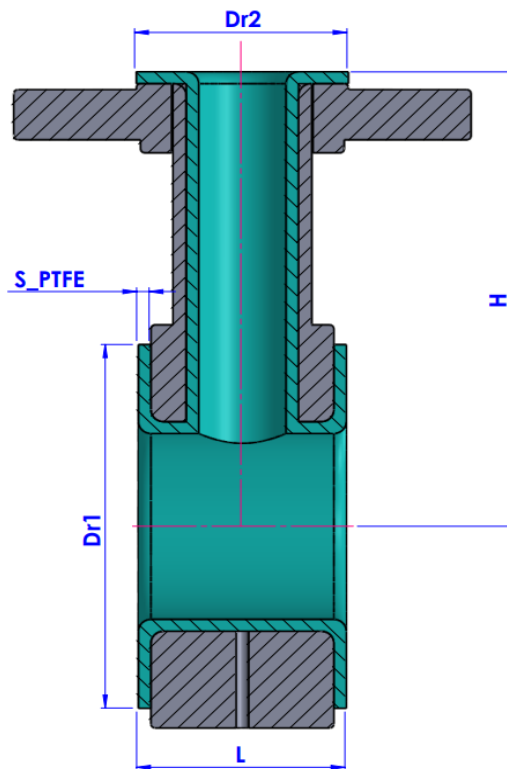
Also available in stainless steel and other alloys.

Weights are approximate.



LINED INSTRUMENT TEE

CLASS 150



NPS ₁	NPS ₂	Dr1 (mm)	Dr2 (mm)	L (mm)	H (mm)	Standard Thickness PFA S ±10% (mm)	Weight (kg)
1"	1"	66.7	51	60	89	3	2.2
1 ½"	1"	85.7	51	60	102	3	3
2"	1"	104.7	51	60	114	3	4
	1 ½"		76	75			6
3"	1"	136.5	51	50	140	5	5
	1 ½"		76	60			8
	2"		92	75			13
4"	1"	174.6	51	60	165	5	6
	1 ½"		76	75			9
	2"		92	92			16
6"	1"	22.3	51	60	203	5	8
	1 ½"		76	75			15
	2"		92	100			22

Other diameters, thicknesses and materials subject to request

LINED EQUAL LATERAL TEE

Standard version: 3 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

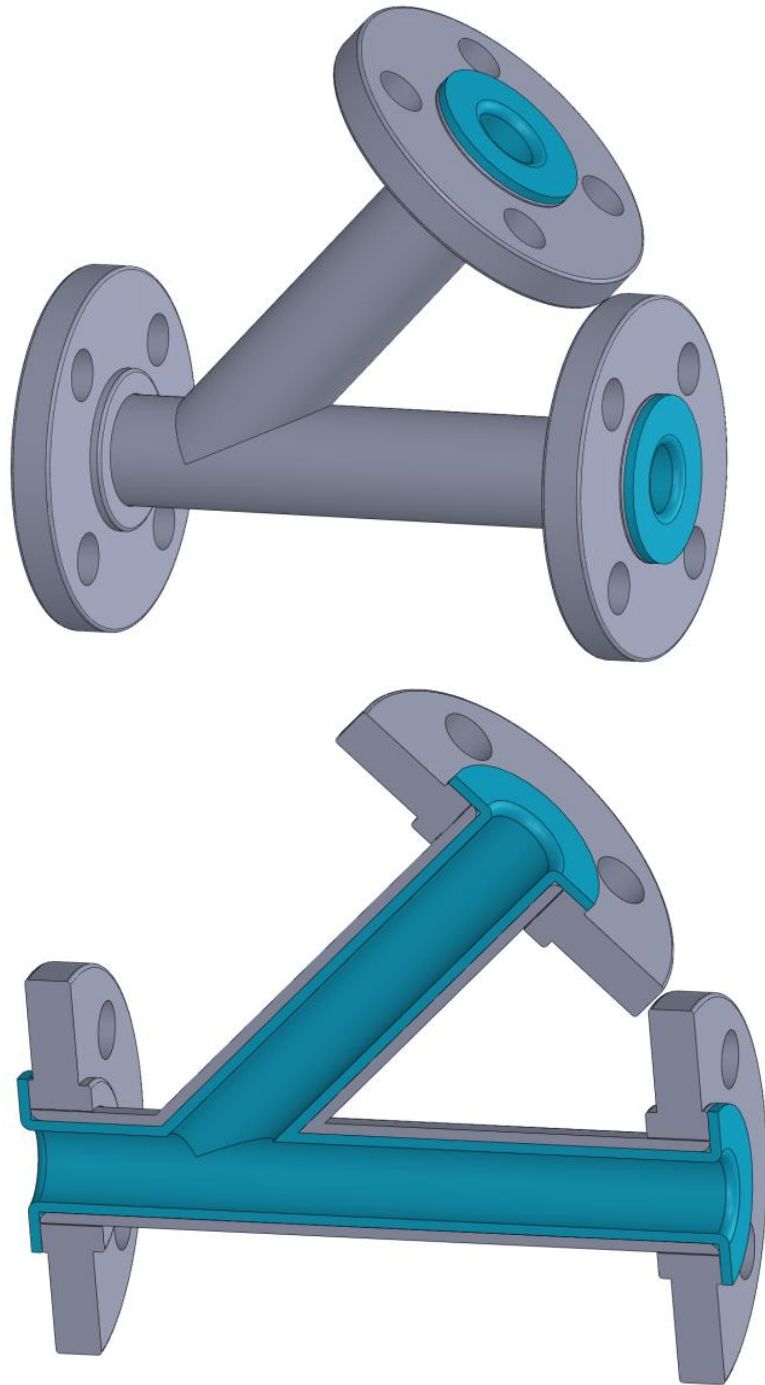
Also available: 3 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel EQUAL LATERAL TEE are more economical than fabricated steel.

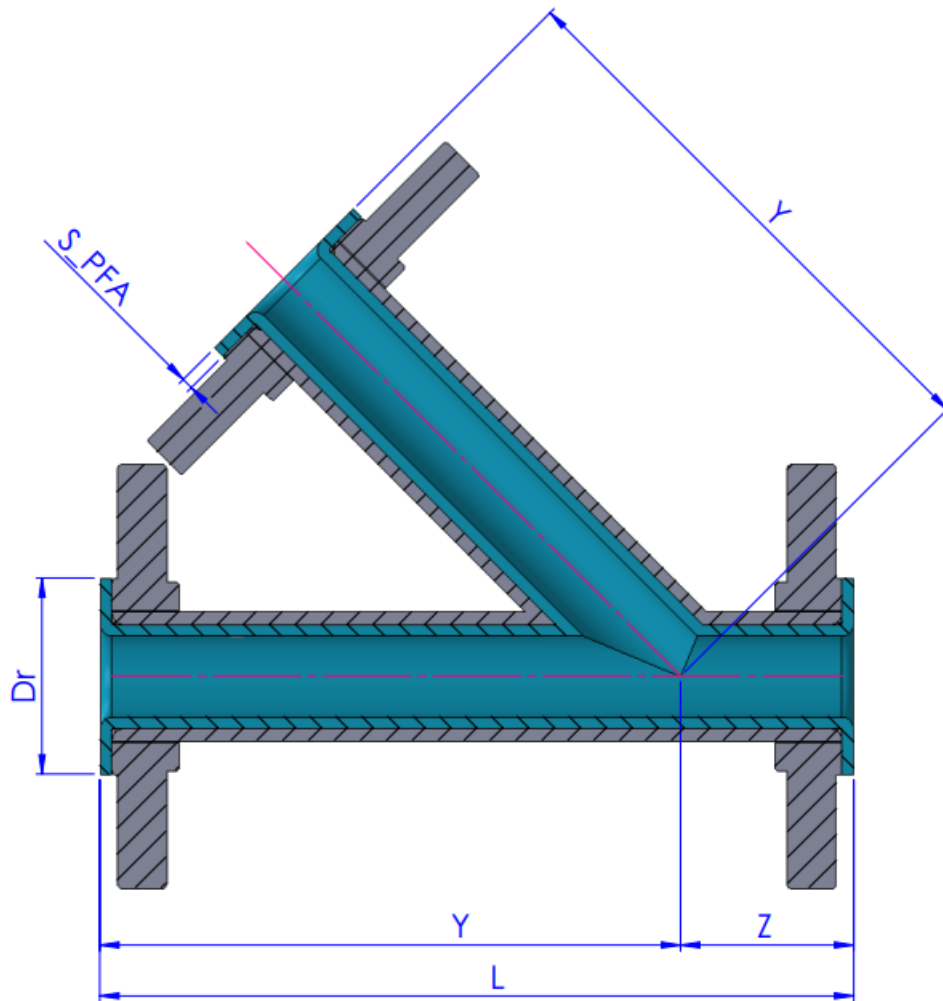
Also available in stainless steel and other alloys.

Weights are approximate.



LINED EQUAL LATERAL TEE

CLASS 150



NPS	L (mm)	Y (mm)	Z (mm)	dr (mm)	Standard Thickness S_PFA ±10% (mm)	Weight (kg)
1"	191	146	45	51	4	5
1 ½"	229	178	51	73	4	8
2"	267	203	64	92	4	11
3"	330	254	76	127	5	24
4"	381	305	76	157	6	44
6"	457	368	89	216	6	66
8"	559	445	114	270	8	100

Other diameters, thicknesses and materials subject to request.

LINED CONCENTRIC REDUCER

Standard version: 2 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

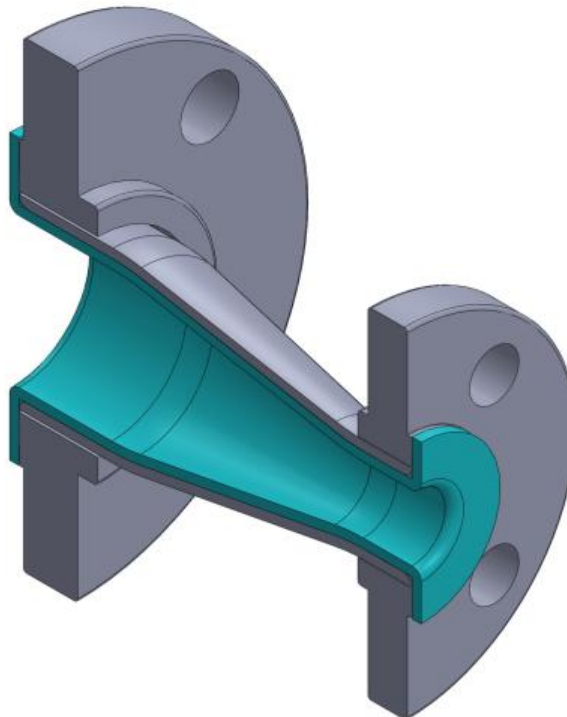
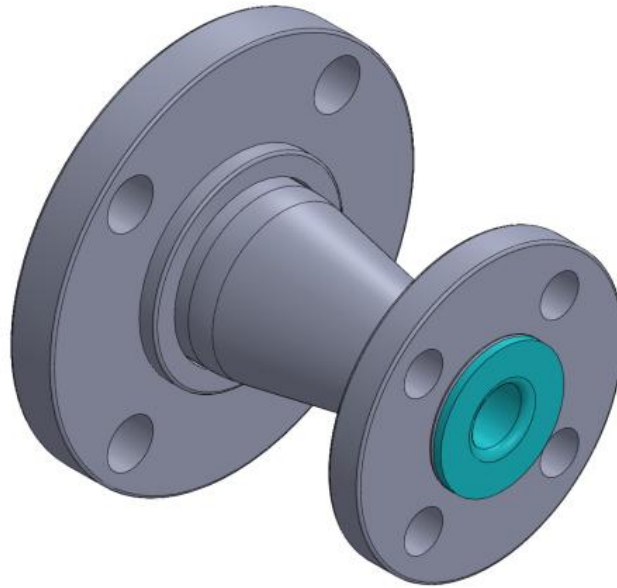
Also available: 2 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel CONCENTRIC REDUCER are more economical than fabricated steel.

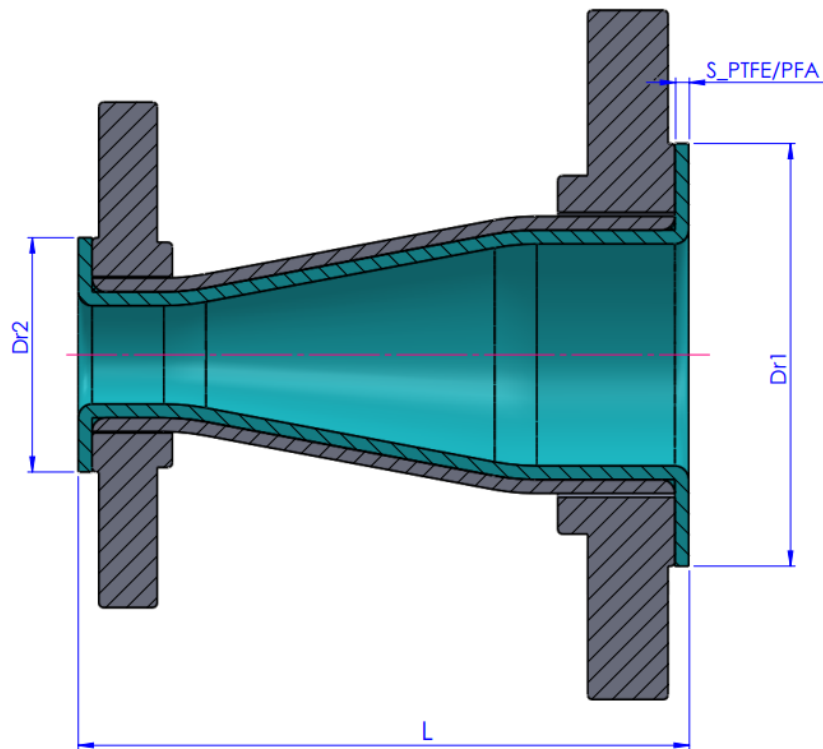
Also available in stainless steel and other alloys.

Weights are approximate.



LINED CONCENTRIC REDUCER

CLASS 150



NPS ₁	NPS ₂	L (mm)	Dr1 (mm)	Dr2 (mm)	Standard Thickness S_PTFE/PFA ±10% (mm)	Weight (kg)
1"	1/2"	114	51	35	3.5	2.2
	3/4"			43	3.5	2.5
1 1/2"	3/4"	114	73	43	3.5	3
	1"			51	3.5	3
2"	1"	127	92	51	3.5	4
	1 1/2"			73	3.5	5
3"	1 1/2"	152	127	73	3.5	7
	2"			92	3.5	8
4"	1"	178	158	51	4.5	10
	1 1/2"			73	4.5	11
	2"			92	4.5	12
	3"			127	4.5	15
6"	2"	229	216	92	5	18
	3"			127	5	20
	4"			158	5	24

LINED CONCENTRIC REDUCER

NPS ₁	NPS ₂	L (mm)	d _{4a} (mm)	d _{4b} (mm)	Standard Thickness PTFE S ±10% (mm)	Weight (kg)
8"	4"	279	270	186	6.2	22
	6"			216	6.2	25
10"	4"	324	324	157	6.8	30
	6"			216	6.8	39
	8"			270	6.8	45
12"	6"	356	381	216	7.2	46
	8"			270	9.6	48
	10"			324	9.6	53
14"	6"	406	412	216	9	59
	8"			270	9	65
	10"			324	9	74
	12"			381	9	80
16"	8"	457	470	270	10	88
	10"			324	10	96
	12"			381	10	105
	14"			412	10	115
18"	10"	483	534	324	10	128
	12"			381	10	138
	14"			412	10	148
	16"			470	10	157

Other diameters, thicknesses and materials subject to request.

LINED ECCENTRIC REDUCER

Standard version: 2 Fixed flanges.

ASME / ANSI B16.42 & B16.5 Class 150/300

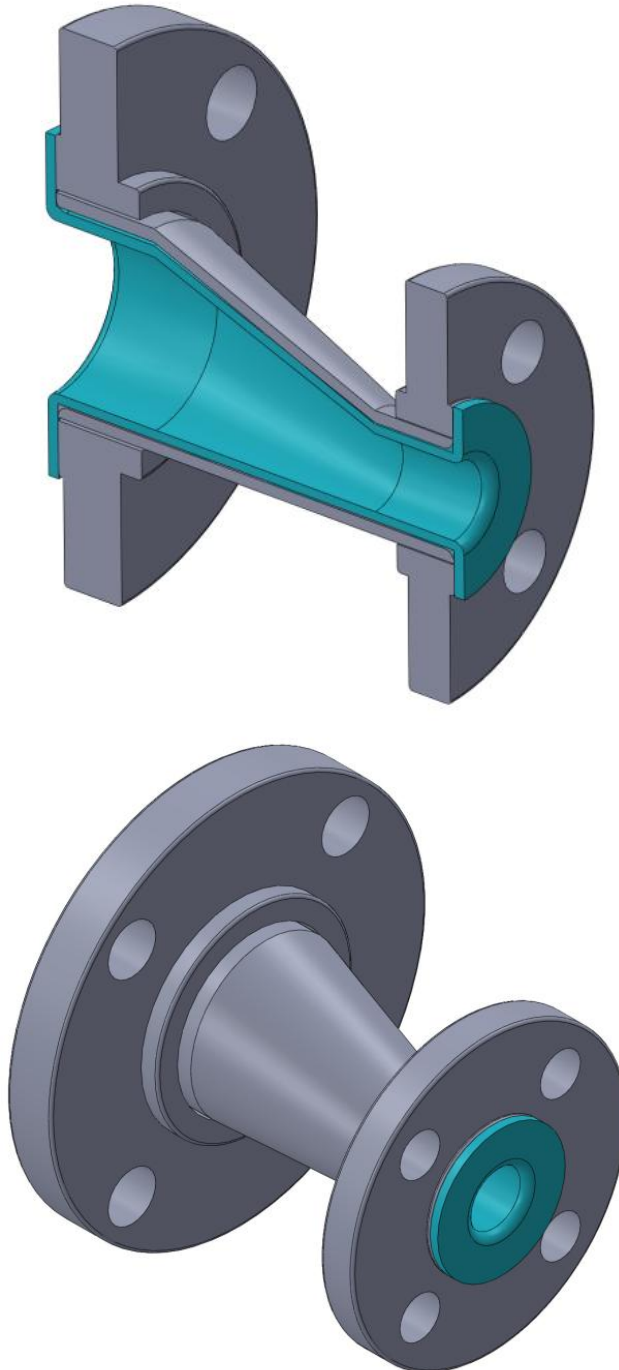
Also available: 2 Loose flanges.

Combination of fixed flanges and loose flanges.

Note: Cast steel ECCENTRIC REDUCER is more economical than fabricated steel.

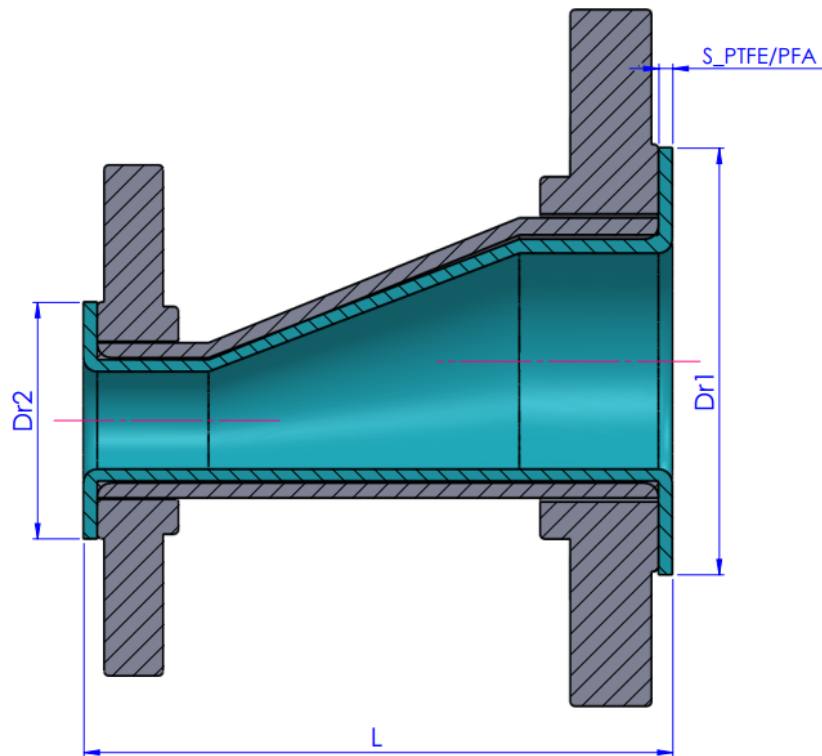
Also available in stainless steel and other alloys.

Weights are approximate.



LINED ECCENTRIC REDUCER

CLASS 150



NPS ₁	NPS ₂	L (mm)	Dr1 (mm)	Dr2 (mm)	Standard Thickness PTFE S ±10% (mm)	Weight (kg)
1"	1/2"	114	51	35	3.5	2.2
	3/4"			43	3.5	2.5
1 1/2"	3/4"	114	73	43	3.5	3
	1"			51	3.5	3
2"	1"	127	92	51	3.5	4
	1 1/2"			73	3.5	5
3"	1"	152	127	51	3.5	6
	1 1/2"			73	3.5	7
	2"			92	3.5	8
4"	1"	178	158	51	4.5	10
	1 1/2"			73	4.5	11
	2"			92	4.5	12
	3"			127	4.5	15
6"	2"	229	216	92	5	18
	3"			127	5	20
	4"			158	5	24

LINED ECCENTRIC REDUCER

NPS ₁	NPS ₂	L (mm)	d _{4a} (mm)	d _{4b} (mm)	Standard Thickness PTFE S ±10% (mm)	Weight (kg)
8"	4"	279	270	186	6	22
	6"			216	6	25
10"	4"	324	324	157	7	30
	6"			216	7	39
	8"			270	7	45
12"	6"	356	381	216	7	46
	8"			270	9	48
	10"			324	9	53
14"	6"	406	412	216	9	59
	8"			270	9	65
	10"			324	9	74
	12"			381	9	80
16"	8"	457	470	270	10	88
	10"			324	10	96
	12"			381	10	105
	14"			412	10	115
18"	10"	483	534	324	10	128
	12"			381	10	138
	14"			412	10	148
	16"			470	10	157

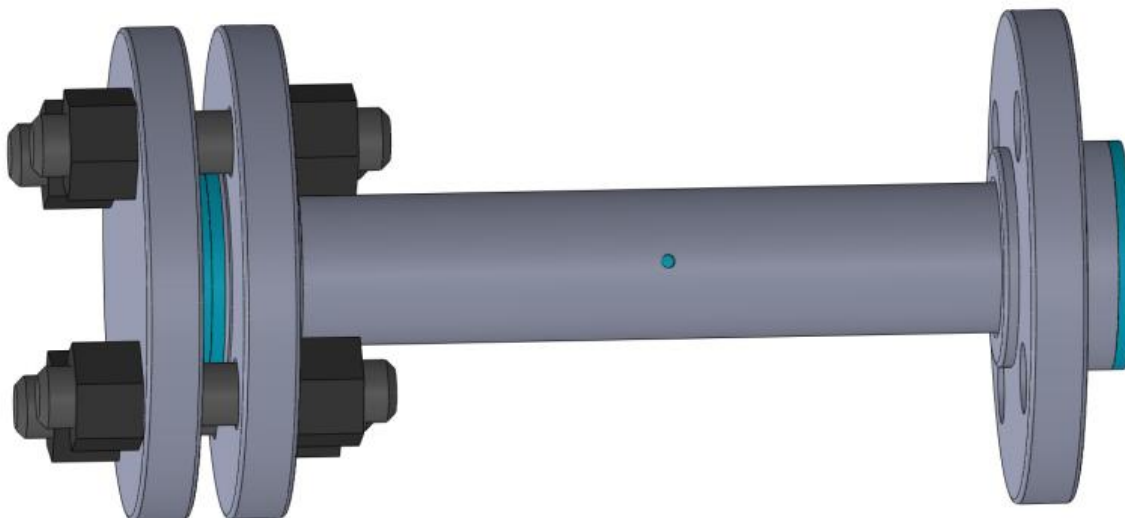
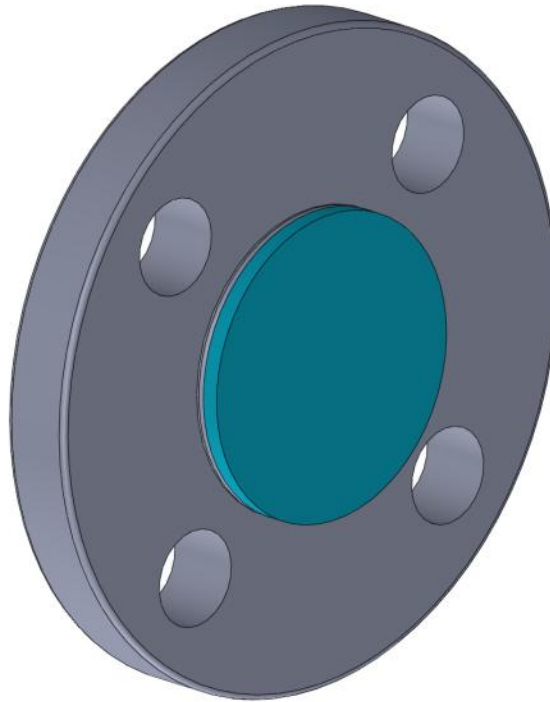
Other diameters, thicknesses and materials subject to request.

BLIND FLANGE

ASME / ANSI B16.42 & B16.5 Class 150/300

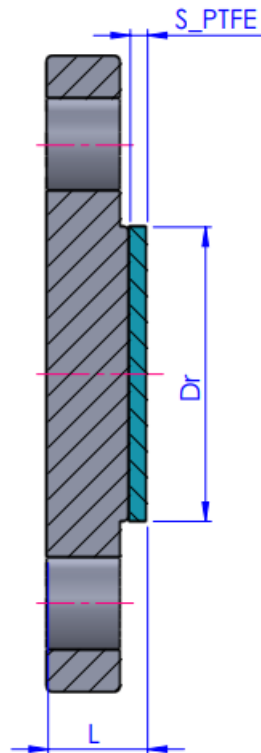
Note:

Available in stainless steel and other alloys.



LINED BLIND FLANGE

CLASS 150



NPS	Class 150			Class 300			Dr
	Standard Thickness PTFE S $\pm 10\%$ (mm)	L (mm)	Weight (kg)	Standard Thickness PTFE S $\pm 10\%$ (mm)	L (mm)	Weight (kg)	
3/4"	3.2	16	1	3.5	19	1.4	43
1"	3.2	17	1.2	3.5	20.5	1.4	51
1 1/2"	3.2	21	2.1	3.5	23.5	2.7	73
2"	3.2	22	3	3.5	25.4	3.2	92
3"	3.5	27	5	3.5	31.9	6.8	127
4"	4.5	28	6	4.5	36.3	11.5	158
6"	5	30	11.8	5	41.6	20.9	216
8"	6.2	35	18	6.2	46	34.3	270
10"	7	37	26	7	52.8	53.3	324
12"	8	40	35	8	55.8	78.8	381

Other diameters, thicknesses and materials subject to request.

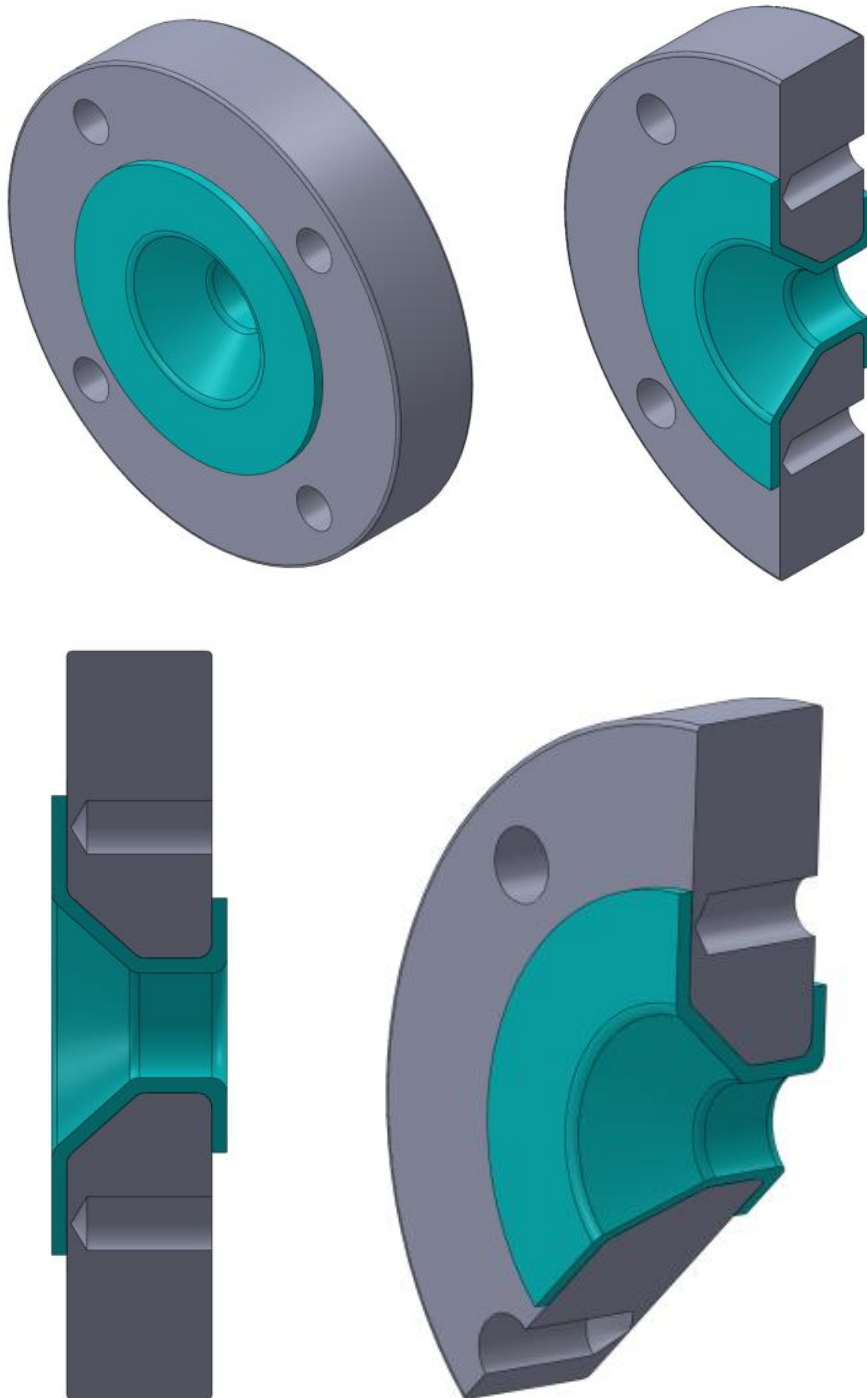
LINED REDUCING FLANGES

ASME / ANSI B16.42 & B16.5 Class 150/300

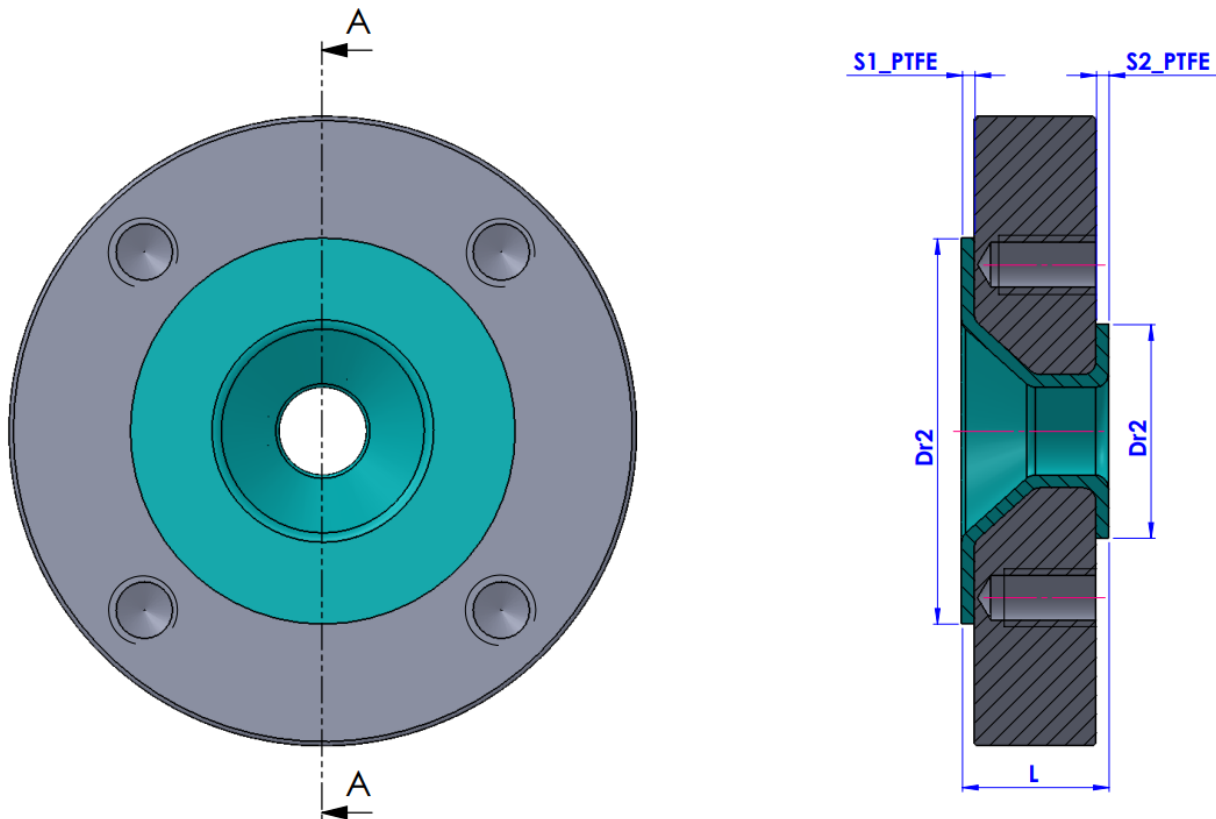
Note:

Available in stainless steel and other alloys.

Weights are approximate.



LINED REDUCING FLANGES



NPS ₁	NPS ₂	L (mm)	Standard Thickness S_PTFE ±10% (mm)	Dr1 (mm)	Dr2 (mm)	Weight (kg)
1"	½"	35	3	51	35	2.1
	¾"		3		43	2.4
1 ½"	¾"	35	3	73	43	4.0
	1"		3		51	4.1
2"	¾"	35	3	92	43	5.0
	1"		3		51	4.9
	1 ½"		3		73	5.1
3"	1"	35	3.5	127	51	6.8
	1 ½"		3.5		73	6.6
	2"		3.5		92	6.4

LINED REDUCING FLANGES

NPS ₁	NPS ₂	L (mm)	Standard Thickness PTFE S ±10% (mm)	D _{r1} (mm)	D _{r2} (mm)	Weight (kg)
4"	1"	45	3	158	51	12
	1 1/2"		3		73	12
	2"		3		92	12
	3"		5		127	10
6"	1"	45	3	216	51	22
	1 1/2"		3		73	20
	2"		3		92	19
	3"		5		127	18
8"	1"	45	3	270	51	29
	2"		3		92	28
	3"		5		127	27
	4"		5		158	25
	6"		5		216	23
10"	2"	45	3	324	92	29
	3"		5		127	28
	4"		6		158	27
	6"		6		216	25
	8"		6		270	23
12"	2"	50	3	381	92	44
	3"		4		127	38
	4"		5		158	36
	6"		5		216	31
	8"		6		270	28
	10"		6		324	24

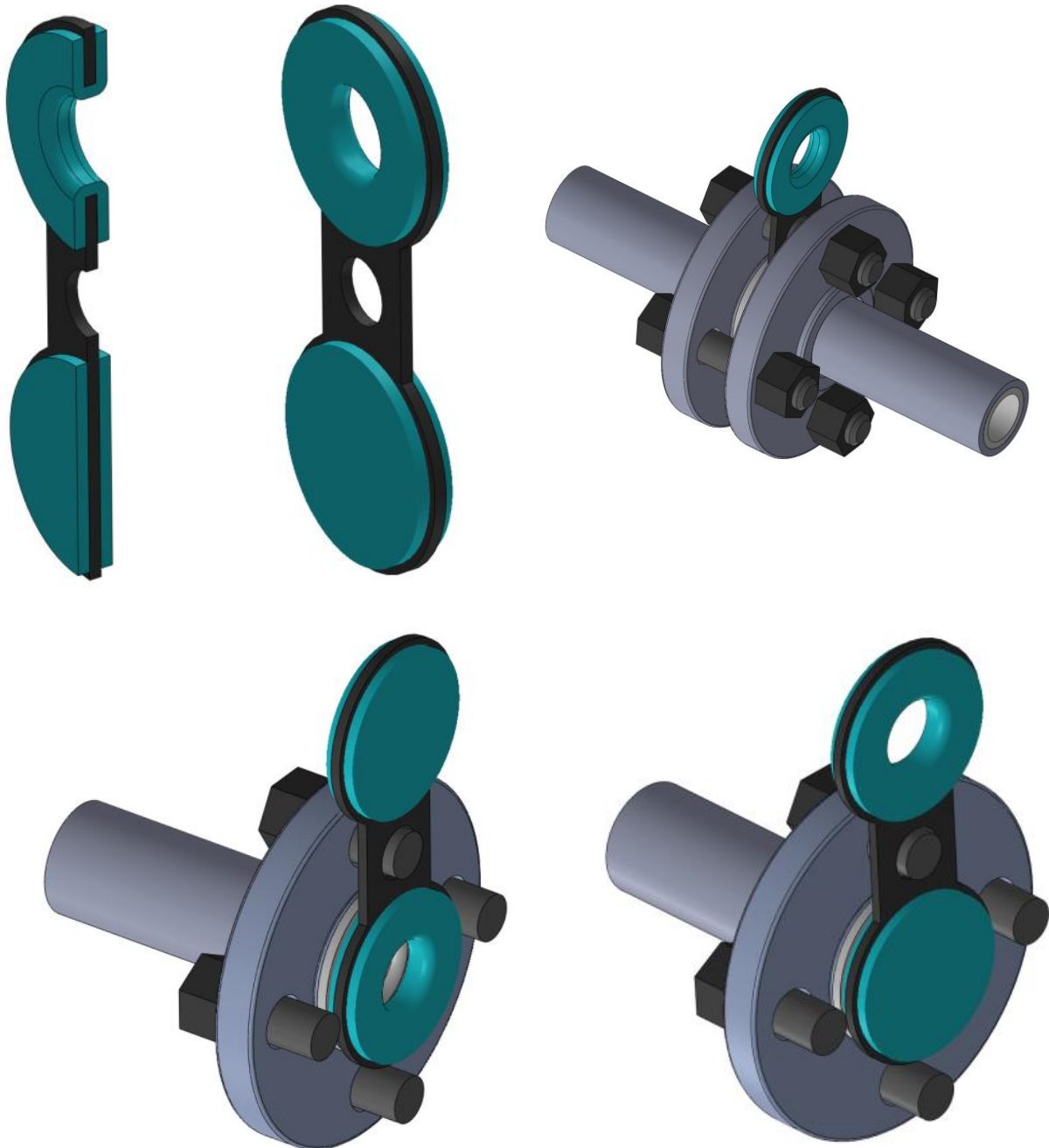
Other diameters, thicknesses and materials subject to request.

PTFE LINED SPECTACLE BLIND

ASME / ANSI B16.42 and B16.5 Class 150/300

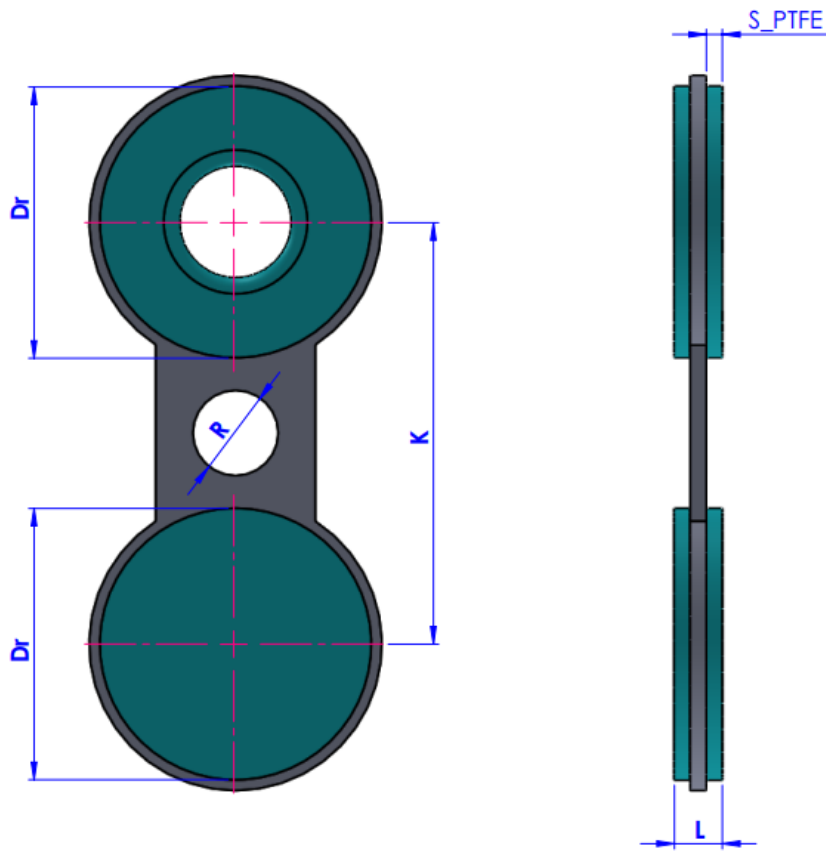
Note:

Also available in stainless steel and other alloys.



PTFE LINED SPECTACLE BLIND

CLASS 150/300

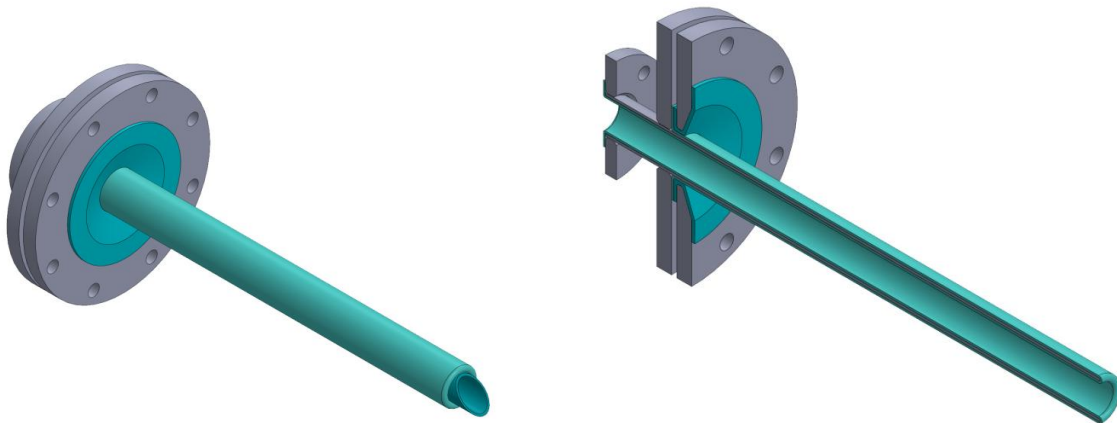


NPS	Class 150					Class 300				
	L (mm)	Standard Thickness S_PTFE S ±10% (mm)	K (mm)	R (mm)	Dr (mm)	L (mm)	Standard Thickness S_PTFE S ±10% (mm)	K (mm)	R (mm)	Dr (mm)
1"	9	3.2	79.4	16	51	9	3	88.9	19	51
1½"	9	3.2	98.4	16	73	9	3	114	19	73
2"	12	3.2	121	19	92	12	3	127	19	92
3"	13	4	152	19	127	13	4	168	22.4	127
4"	19	4	190.5	19	158	19	4	200	22.4	158
6"	22	5	241	22.2	216	22	5	270	22.4	216
8"	25	5	298	22.2	270	25	5	330	25.4	270
10"	29	7	362	25.4	324	29	7	387	28.4	324
12"	36	7	432	25.4	381	36	7	451	32	381
14"	38	7	476	28.6	412	38	7	514	32	412
16"	40	7	540	28.6	470	40	7	572	35	470
18"	45	7	578	32	534	45	7	632	35	534

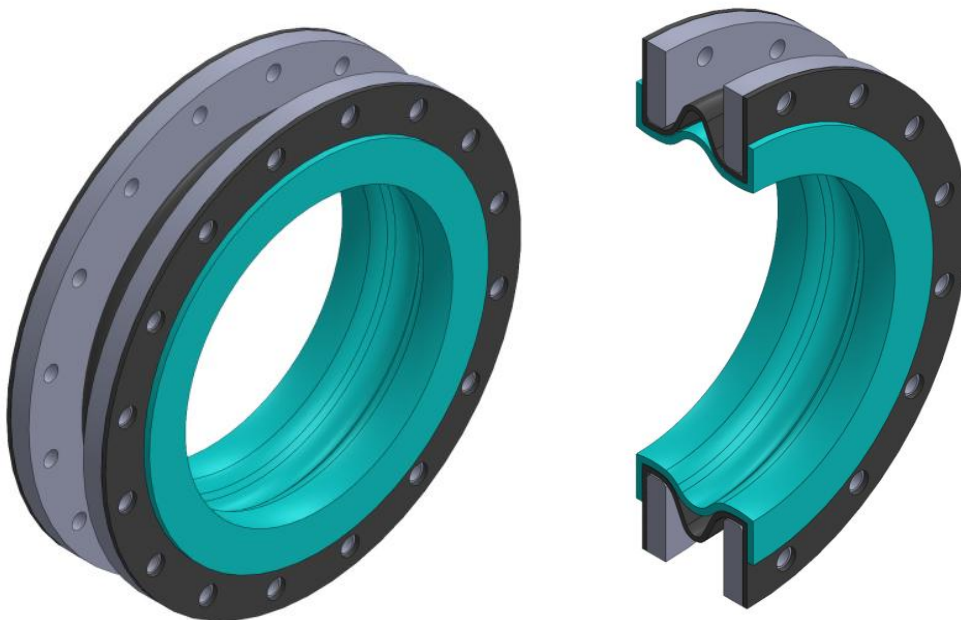
Other type of PTFE lined components.

ASME / ANSI B16.42 and B16.5 Class 150/300 and DIN
Also available in stainless steel and other alloys.

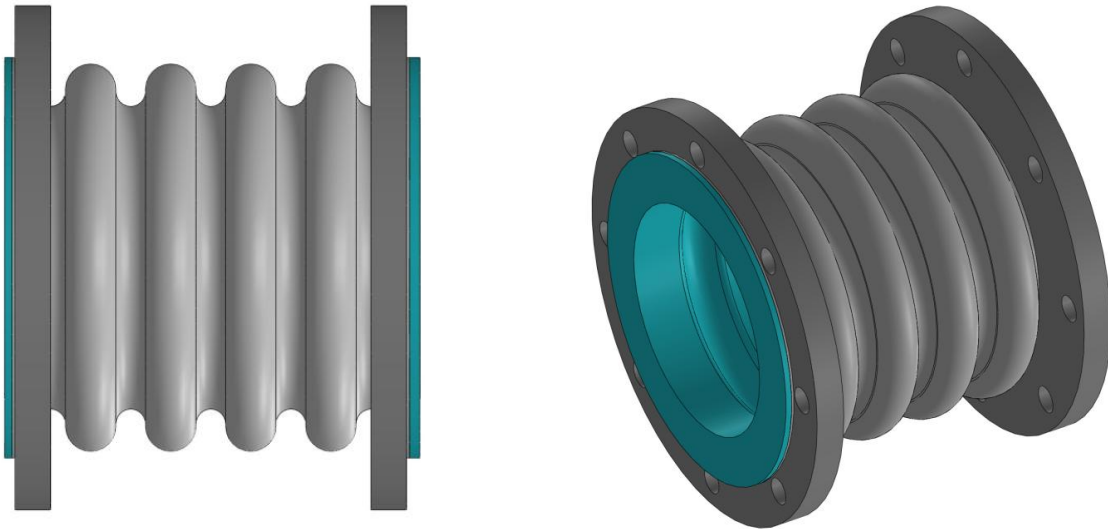
LINED DIP PIPE ARE AVAILABLE IN DIFFERNTS SIZES.



PTFE LINED EXPANSIONS JOINTS.



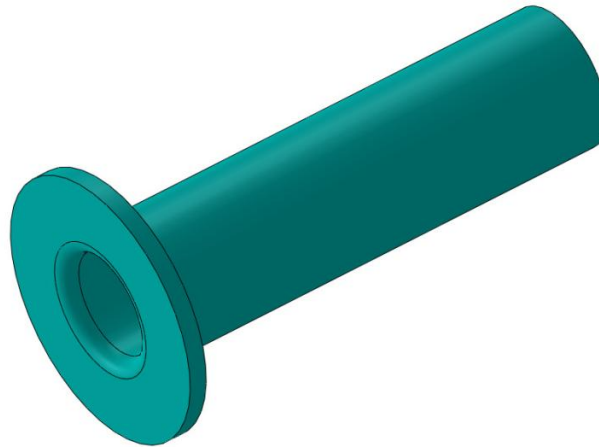
PTFE LINED EXPANSION JOINTS WITH STAINLESS STEEL HOUSING.



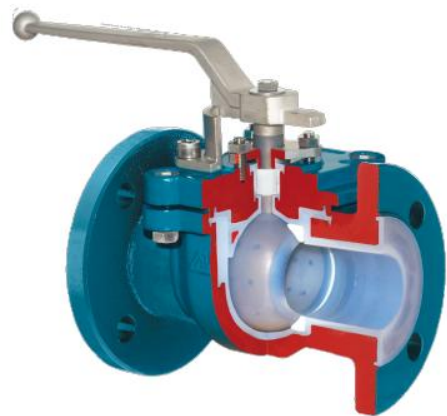
PTFE KAMLOCK.



PTFE NOZZLE.



PTFE/PFA VALVES.



FLANGE COVER.



VALVE COVER.





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