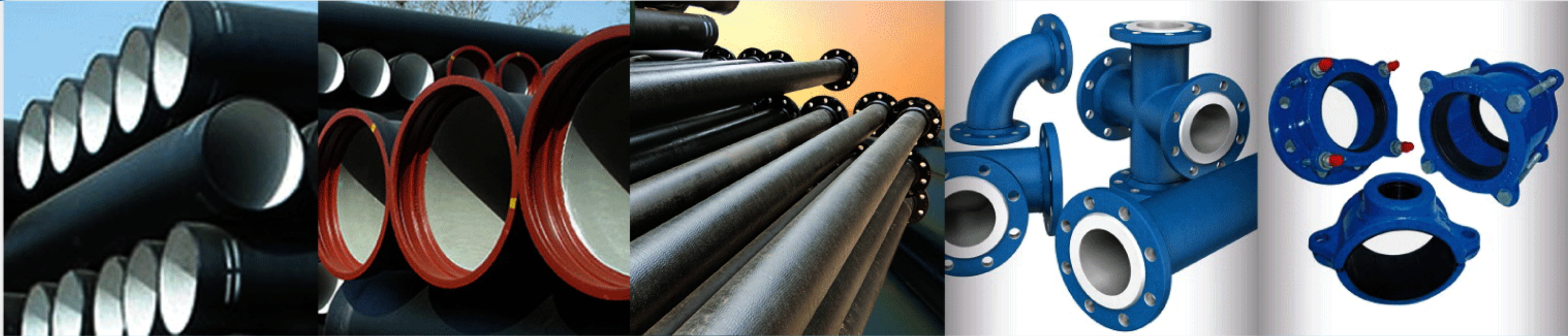


UDI

UNITED DUCTILE INDUSTRIES

Ductile Iron Pipes And Fittings

MS 1919 • BS EN 545 • BS EN 598 • ISO 2531



UDI Ductile Iron socket-spigot pipes for potable water

Durable and reliable piping material for modern water systems that last. Easy to assemble yet with leak-tightness performance even at pipe bursting pressures. Ideal for underground application in restricted space or during adverse weather conditions. Deflection in any direction up to 5 degrees. Reducing pipe laying costs and time while increasing efficiency.

BS EN 545:2010

preferred class
Classes 40, 30, 25.

UDI Ductile Iron socket-spigot pipes for sewerage application

Excellent corrosion resistance coupled with standard cement-mortar lining ensures an exceptional friction coefficient and resistance to scour and cement deterioration from most domestic sewage. Easy to install, ideal for underground application in restricted space or during adverse weather conditions. High material strength resists heavy impact and handles extreme external loadings. Deflection in any direction up to 5 degrees. Reducing pipe laying costs and time while increasing efficiency.

BS EN 598:2007 +A1:2009
high alumina cement, sulphate resisting cement, other options including epoxy or polyurethane coatings

UDI Ductile Iron flanged pipes

Suitable for above ground applications in water and sewage treatment works, pumping stations, fire mains etc. Rigid, self-anchoring joints that provide easy installation and removal of valves, hydrants etc. Also allows pipe sections to be installed or dismantled in-line. Customisation according to your projects' requirement i.e. double-flanged, single-flanged, puddle flanges. Excellent corrosion resistance and high material strength resists heavy impact and handles extreme external loadings.

BS EN 545:2010 or BS EN 598:2007 +A1:2009

UDI Ductile Iron fittings

Designed to integrate seamlessly with all of UDI Ductile Iron pipelines. Available in socketed or flanged joints to suit your requirements. Comprehensive range of Ductile Iron fittings that include:

- bend (90°, 45°, 22.5°, 11.25°)
- tee (equal, reducing, radial, level invert, 45° angle branch, 'Y')
- taper (concentric, flat)
- duckfoot bend (90°)
- long radius bend (90°)
- flanged bellmouth
- blank flange
- flanged spigot
- flanged socket
- socket collar

BS EN 545:2010 or BS EN 598:2007 +A1:2009

UDI Ductile Iron accessories

Complementing the UDI Ductile Iron pipelines for quick connectivity or repair. Assortment of Ductile Iron accessories that includes:

- flange adaptor
- coupling
- saddle
- bell restraint clamp
- socket-spigot tee with socket branch
- socket-spigot duckfoot bend

BS EN 545:2010 or BS EN 598:2007 +A1:2009

Chemical Composition

Carbon	3.4% max.	3.3% min.
Manganese	0.5% max.	0.1% min.
Silicon	2.8% max.	2.2% min.
Phosphate	0.06% max.	0.03% min.
Magnesium	0.05% max.	0.03% min.
Sulphur	0.04% max.	0.02% min.

Mechanical Properties

Tensile Strength	420 N/mm ² min.
Elongation	10% min. (Pipes < DN1000) 7% min. (Pipes > DN1100) 5% min. (Fittings)
Hardness	230HB max. (Pipes) 250HB max. (Fittings)

Physical Properties

Specific Gravity	7.15
Thermal Expansion Coefficient	12.3 x 10 ⁻⁶ cm / cm / °C
Elastic Coefficient	1.7 x 10 ⁴ kg / mm ²

Tolerances

Variation in Length	+70mm	-30mm (Pipes - Spigot Socket)
	±20mm (Fittings - Socketed)	
	±10mm (Pipes & Fittings - Flanged)	
Variation in Thickness <i>(Upper & Lower Limits)</i>	- (1.3 + 0.001DN) max.	-1.3mm min. (Pipes)
	- (2.3 + 0.001DN) max.	-2.3mm min. (Fittings)
Variation in External Diameter (OD)	+1mm	-2.7mm <i>(lower limits)</i>
Variation in Internal Diameter (ID)	-10mm max. (Pipes < DN1000)	
	-0.01DN max. (Pipes > DN1100)	

Standard Coating and Lining

External	Zinc Coating	200g/m ² min. mass (BS EN 545) 130g/m ² min. mass (BS EN 598)
	Bitumen Paint	50um min.

Internal Cement Mortar

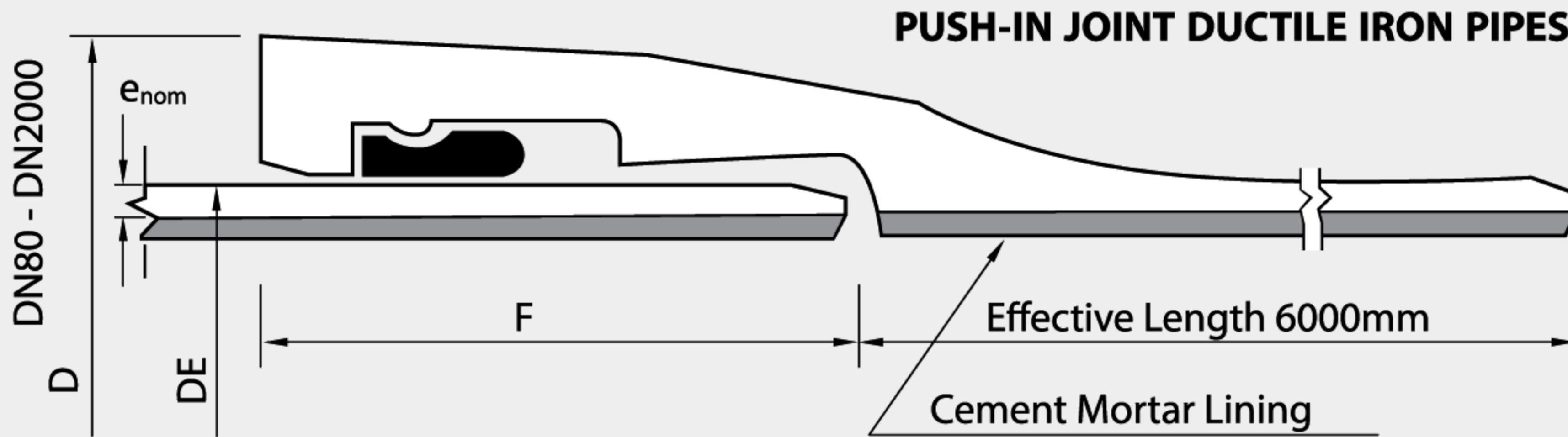
DN80 - 300	DN350 - 600	DN700 - 1000	≥DN1100
4.0mm	5.0mm	6.0mm	9.0mm
(-1.5mm)	(-2.0mm)	(-2.5mm)	(-3.0mm)

Maximum Crack Width and Radial Displacement 0.5mm
Compressive Strength 50 N/mm²

Hydrostatic Test Pressure at Works

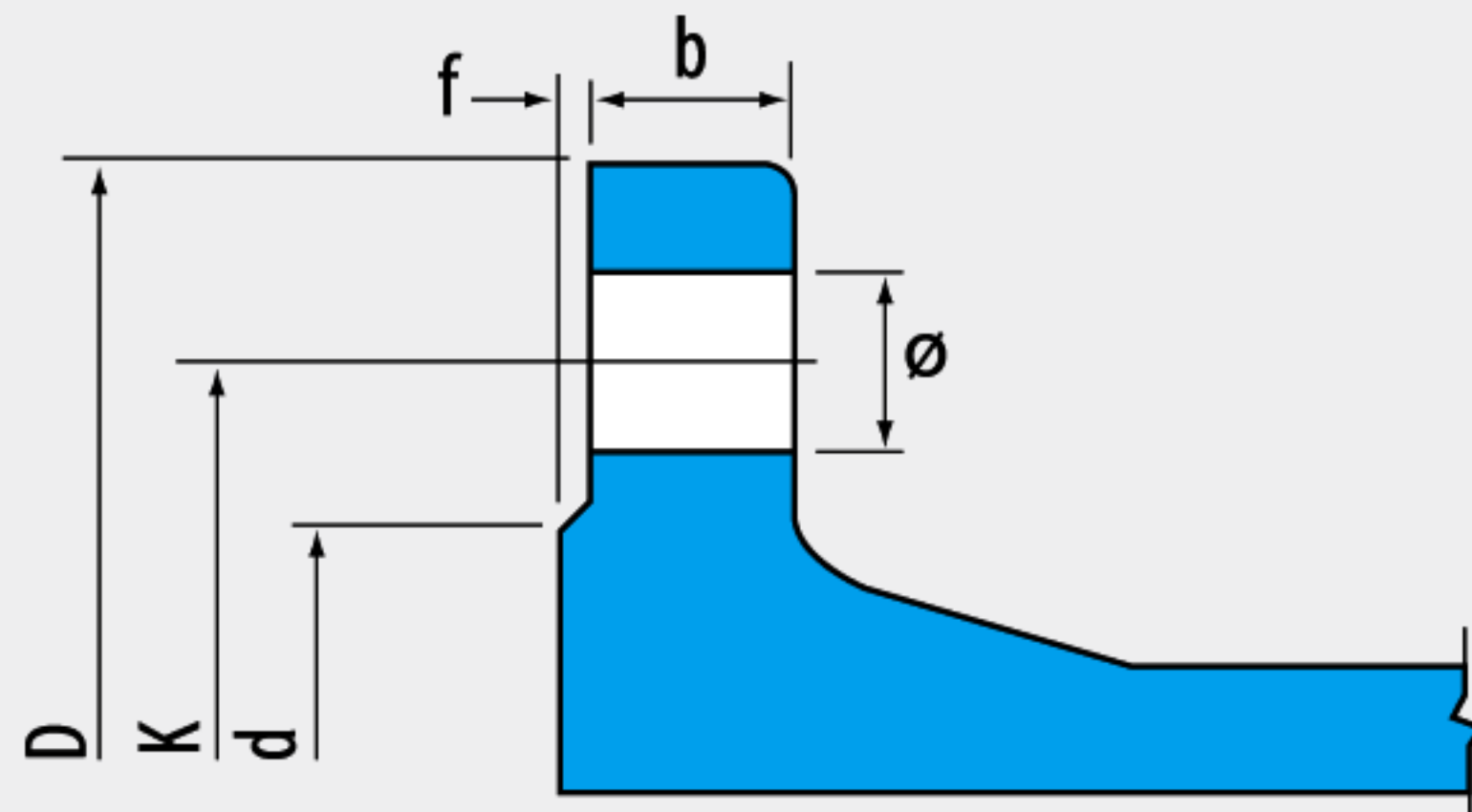
	DN80 - 300	DN350 - 600	DN700 - 1000	≥DN1100
Pipes	equal to the pressure class up to Class 50, and limited to 50 bar for classes above Class 50.			
Fittings	25 bar	16 bar	10 bar	10 bar

BS EN 545:2010 | MS 1919:2013 and BS EN 598:2007 + A1:2009



DN	External Diameter		Dimensions of Socket		Iron Wall Thickness, nominal e_{nom} (minimum e_{min})							
	Nominal DE	Limit Dev.			BS EN 545:2010 MS 1919:2013						BS EN 545:2006 K9	BS EN 598:2007 +A1:2009 Pressure Pipe
			D	F	C25	C30	C40	C50	C64	C100		
80	98	+1/-2.7	140	85			4.4 (3.0)	4.4 (3.5)	4.4 (4.0)	4.8 (4.7)	6.0 (4.7)	4.8 (3.5)
100	118	+1/-2.8	163	88			4.4 (3.0)	4.4 (3.5)	4.4 (4.0)	5.5 (4.7)	6.0 (4.7)	4.8 (3.5)
150	170	+1/-2.9	217	94			4.5 (3.0)	4.5 (3.5)	5.3 (4.0)	7.4 (5.9)	6.0 (4.7)	4.8 (3.5)
200	222	+1/-3.0	278	100			4.7 (3.1)	5.4 (3.9)	6.5 (5.0)	9.2 (7.7)	6.3 (4.8)	4.9 (3.6)
250	274	+1/-3.1	336	105			5.5 (3.9)	6.4 (4.8)	7.8 (6.1)	11.1 (9.5)	6.8 (5.2)	5.3 (3.7)
300	326	+1/-3.3	393	110			6.2 (4.6)	7.4 (5.7)	8.9 (7.3)	12.9 (11.2)	7.2 (5.6)	5.6 (4.0)
350	378	+1/-3.4	448	110		6.3 (4.7)	7.1 (5.3)	8.4 (6.6)	10.2 (8.5)	14.8 (13.0)	7.7 (6.0)	6.0 (4.3)
400	429	+1/-3.5	500	110		6.5 (4.8)	7.8 (6.0)	9.3 (7.5)	11.3 (9.6)	16.5 (14.8)	8.1 (6.4)	6.3 (4.6)
450	480	+1/-3.6	540	120		6.9 (5.1)	8.6 (6.8)	10.3 (8.4)	12.6 (10.7)	18.4 (16.6)	8.6 (6.8)	6.7 (4.9)
500	532	+1/-3.8	604	120		7.5 (5.6)	9.3 (7.5)	11.2 (9.3)	13.7 (11.9)	20.2 (18.3)	9.0 (7.2)	7.0 (5.2)
600	635	+1/-4.0	713	130		8.7 (6.7)	10.9 (8.9)	13.1 (11.1)	16.1 (14.2)	23.8 (21.9)	9.9 (8.0)	7.7 (5.8)
700	738	+1/-4.3	824	150	8.8 (6.8)	9.9 (7.8)	12.4 (10.4)	15.0 (13.0)	18.5 (16.5)		10.8 (8.8)	9.6 (7.6)
800	842	+1/-4.5	943	160	9.6 (7.5)	11.1 (8.9)	14.0 (11.9)	16.9 (14.8)	21.0 (18.8)		11.7 (9.6)	10.4 (8.3)
900	945	+1/-4.8	1052	175	10.6 (8.4)	12.3 (10.0)	15.5 (13.3)	18.8 (16.6)			12.6 (10.4)	11.2 (9.0)
1000	1048	+1/-5.0	1158	185	11.6 (9.3)	13.4 (11.1)	17.1 (14.8)	20.7 (18.4)			13.5 (11.2)	12.0 (9.7)
1100	1152	+1/-6.0	1270	200	12.6 (10.2)	14.6 (12.2)	18.6 (16.2)	22.6 (20.2)			14.4 (12.0)	14.4 (12.0)
1200	1255	+1/-5.8	1378	215	13.6 (11.1)	15.8 (13.3)	20.2 (17.7)	24.5 (22.0)			15.3 (12.8)	15.3 (12.8)
1400	1462	+1/-6.6	1600	239	15.6 (12.9)	18.2 (15.5)					17.1 (14.4)	17.1 (14.4)
1500	1565	+1/-7.0	1710	250	16.7 (13.9)	19.4 (16.6)					18.0 (15.2)	17.9 (15.1)
1600	1668	+1/-7.4	1821	262	17.7 (14.8)	20.6 (17.7)					18.9 (16.0)	18.9 (16.0)
1800	1875	+1/-8.2	2043	297	19.7 (16.6)	23.0 (19.9)					20.7 (17.6)	20.7 (17.6)
2000	2082	+1/-9.0	2262	319	21.7 (18.4)	25.4 (22.1)					22.5 (19.2)	22.5 (19.2)

Dimension of Flanges



Note:

Bolt holes shall be arranged symmetrically about the horizontal centerline through the flange faces.

In the case of tees, this horizontal centerline is defined with the face of the branch flange held parallel to the vertical plane.

dimension in millimeter

PN 10 Flange	NOMINAL DIAMETER DN	D	K	b	f	d	ø	BOLT		MASS(kg)
								SIZE	No	
	80	200	160	16.0	3	132	19	M16X65	8	2.9
	100	220	180	16.0	3	156	19	M16X65	8	3.3
	150	285	240	16.0	3	211	23	M20X70	8	5.1
	200	340	295	17.0	3	266	23	M20X70	8	7.1
	250	400	350	19.0	3	319	23	M20X80	12	9.9
	300	455	400	20.5	4	370	23	M20X80	12	12.9
	350	505	460	20.5	4	429	23	M20X80	16	14.7
	400	565	515	20.5	4	480	28	M24X85	16	17.7
	450	615	565	21.5	4	530	28	M24X85	20	20.2
	500	670	620	22.5	4	582	28	M24X85	20	24.3
	600	780	725	25.0	5	682	31	M27X100	20	33.7
	700	895	840	27.5	5	794	31	M27X100	24	46.3
	800	1015	950	30.0	5	901	34	M30X110	24	62.1
	900	1115	1050	32.5	5	1001	34	M30X120	28	73.0
	1000	1230	1160	35.0	5	1112	37	M33X130	28	92.9
	1100	1340	1270	37.5	5	1218	37	M33X140	32	112.8
	1200	1455	1380	40.0	5	1328	40	M36X140	32	138.0

dimension in millimeter

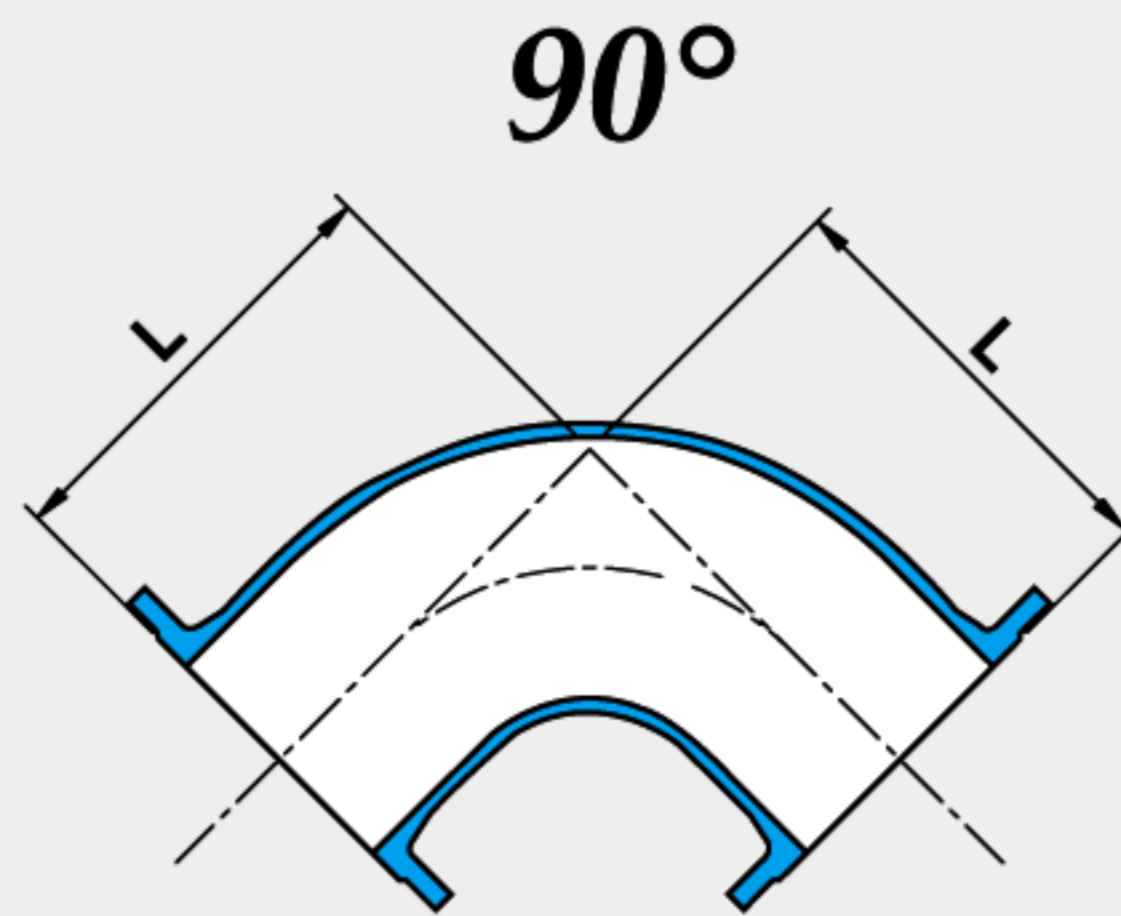
PN 16 Flange	NOMINAL DIAMETER DN	D	K	b	f	d	ø	BOLT		MASS(kg)
								SIZE	No	
	80	200	160	16.0	3	132	19	M16X65	8	2.9
	100	220	180	16.0	3	156	19	M16X65	8	3.3
	150	285	240	16.0	3	211	23	M20X70	8	5.1
	200	340	295	17.0	3	266	23	M20X70	12	6.9
	250	400	355	19.0	3	319	28	M24X85	12	9.6
	300	455	410	20.5	4	370	28	M24X85	12	12.6
	350	520	470	22.5	4	429	28	M24X85	16	17.4
	400	580	525	24.0	4	480	31	M27X100	16	22.2
	450	640	585	26.0	4	548	31	M27X100	20	28.1
	500	715	650	27.5	4	609	34	M30X110	20	37.7
	600	840	770	31.0	5	720	37	M33X120	20	57.4
	700	910	840	34.5	5	794	37	M33X120	24	58.0
	800	1025	950	38.0	5	901	40	M36X140	24	77.0
	900	1125	1050	41.5	5	1001	40	M36X140	28	92.0
	1000	1255	1170	45.0	5	1112	43	M39X150	28	127.4
	1100	1355	1270	48.5	5	1218	43	M39X160	32	148.8
	1200	1485	1390	52.0	5	1328	49	M45X170	32	192.9
	1400	1685	1530	55.0	5	1590	49	M45X180	36	231.5
	1600	1930	1750	60.0	5	1820	56	M52X190	40	331.1
	1800	2130	1950	65.0	5	2020	56	M52X200	44	393.7

dimension in millimeter

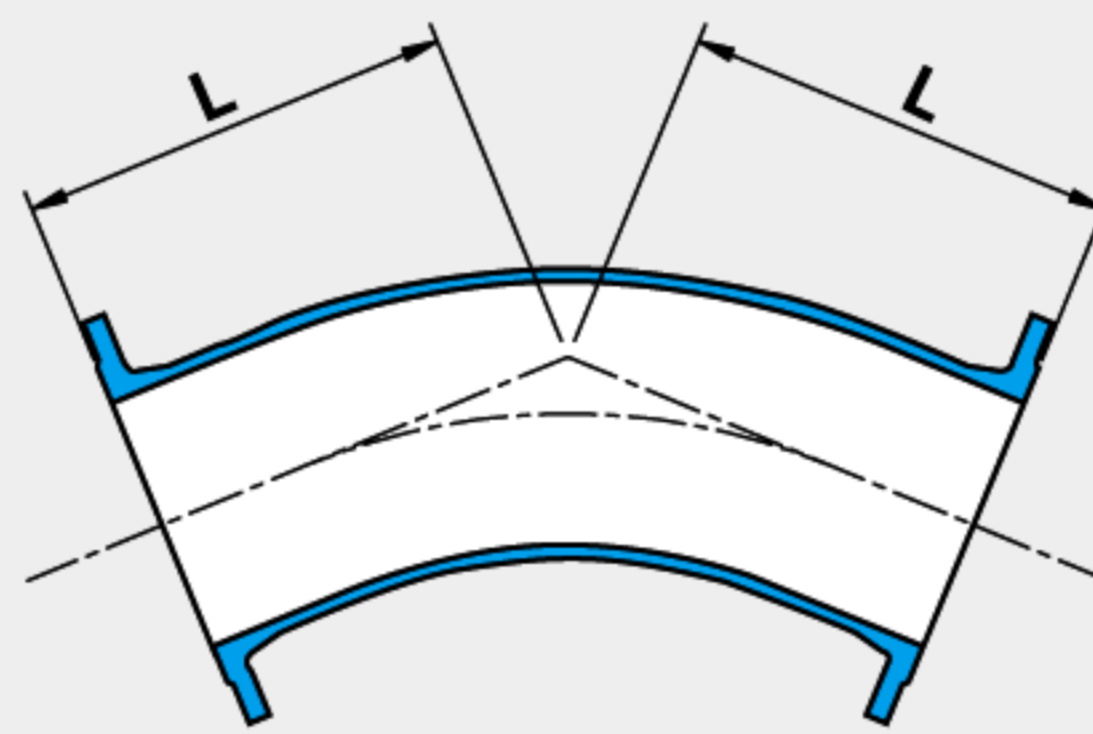
PN 25 Flange	NOMINAL DIAMETER DN	D	K	b	f	d	ø	BOLT		MASS(kg)
								SIZE	No	
	80	200	160	16.0	3	132	19	M16X65	8	2.9
	100	235	190	16.0	3	156	23	M20X65	8	3.8
	150	300	250	17.0	3	211	28	M24X70	8	6.1
	200	360	310	19.0	3	274	28	M24X70	12	8.9
	250	425	370	21.5	3	330	31	M27X80	12	13.2
	300	485	430	23.5	4	389	31	M27X80	16	18.0
	350	555	490	26.0	4	448	34	M30X80	16	25.3
	400	620	550	28.0	4	503	37	M33X85	16	33.2
	450	670	600	30.5	4	548	37	M33X85	20	39.0
	500	730	660	32.5	4	609	37	M33X85	20	48.3
	600	845	770	37.0	5	720	40	M36X100	20	69.2

90°

NOMINAL DIAMETER DN	L	MASS(kg)
		PN16
80	165	9.6
100	180	12
150	220	20
200	260	31
250	350	49.5
300	400	70
350	450	96
400	500	127
450	550	164
500	600	211
600	700	325
700	800	416
800	900	572
900	1000	745
1000	1100	990
1200	1300	1568
1400	1350	2068
1600	1450	2852
1800	1500	3580



45°

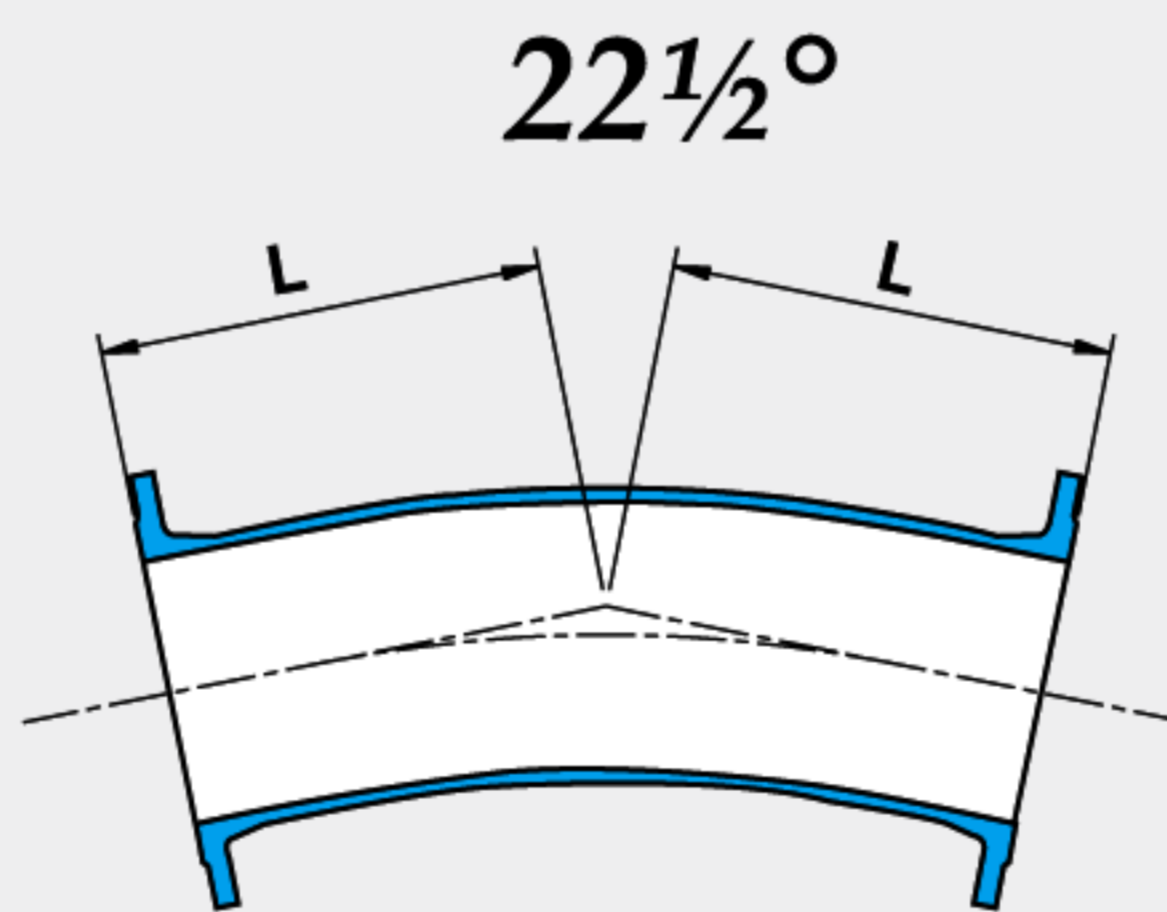


45°

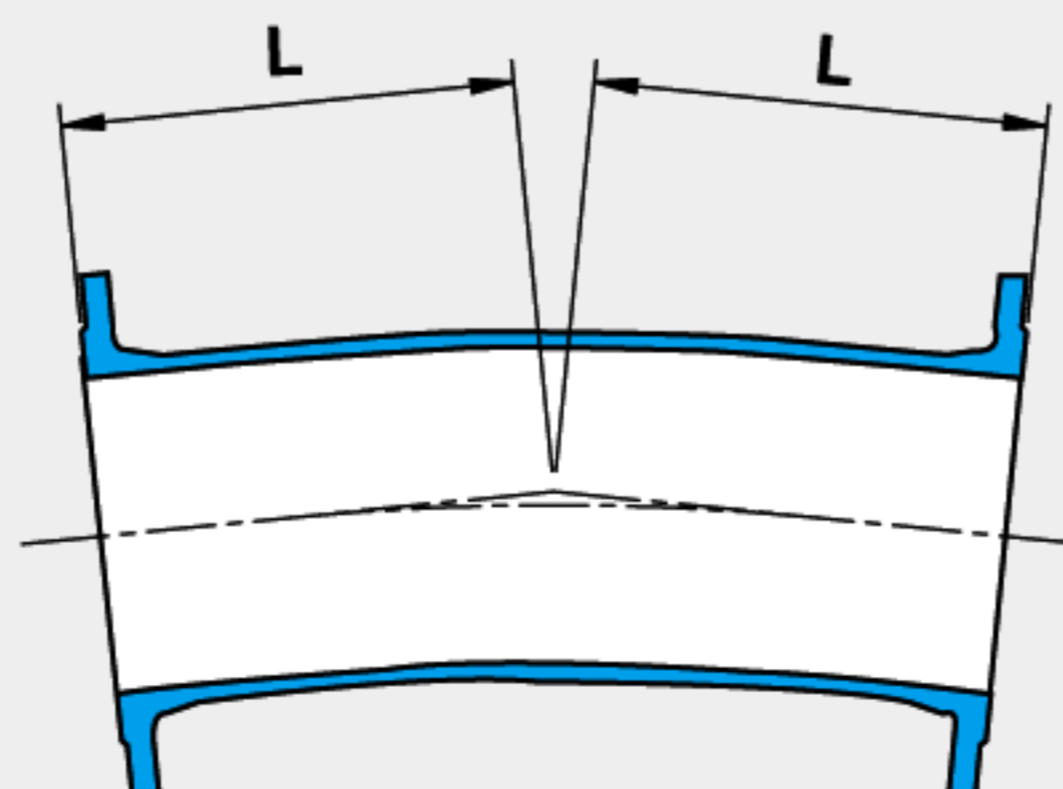
NOMINAL DIAMETER DN	L	MASS(kg)
		PN16
80	130	9.5
100	140	11.5
150	160	18.5
200	180	27
250	245	43
300	275	62
350	298	83
400	324	107
450	349	135
500	375	175
600	426	266
700	478	326
800	529	442
900	581	567
1000	632	751
1200	735	1178
1400	775	1584
1600	845	2119
1800	910	2717

22½°

NOMINAL DIAMETER DN	L	MASS(kg)
		PN16
80	130	9.5
100	140	12
150	160	19.7
200	180	27.5
250	245	43
300	275	62
350	298	81.5
400	324	108
450	349	138
500	375	177
600	426	269
700	478	334
800	529	453
900	581	581
1000	632	769
1200	735	1198
1400	835	1664
1600	940	2369
1800	480	1864



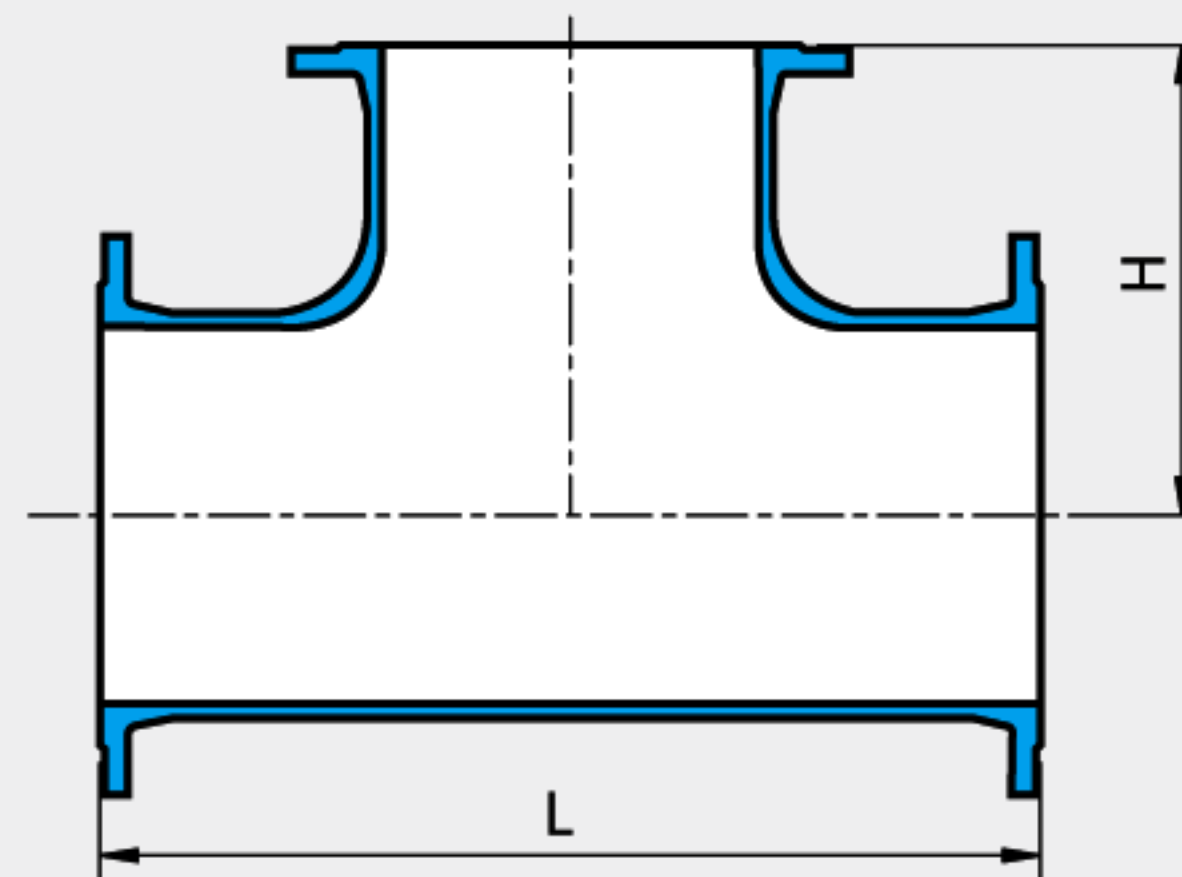
11¼°



11¼°

NOMINAL DIAMETER DN	L	MASS(kg)
		PN16
80	130	9.5
100	140	12
150	160	19.7
200	180	25
250	245	43
300	275	62
350	298	84.5
400	324	109
450	349	129
500	375	178
600	426	257
700	478	336
800	529	455
900	581	584
1000	632	773
1200	735	1204
1400	835	1674
1600	940	2382
1800	345	1566

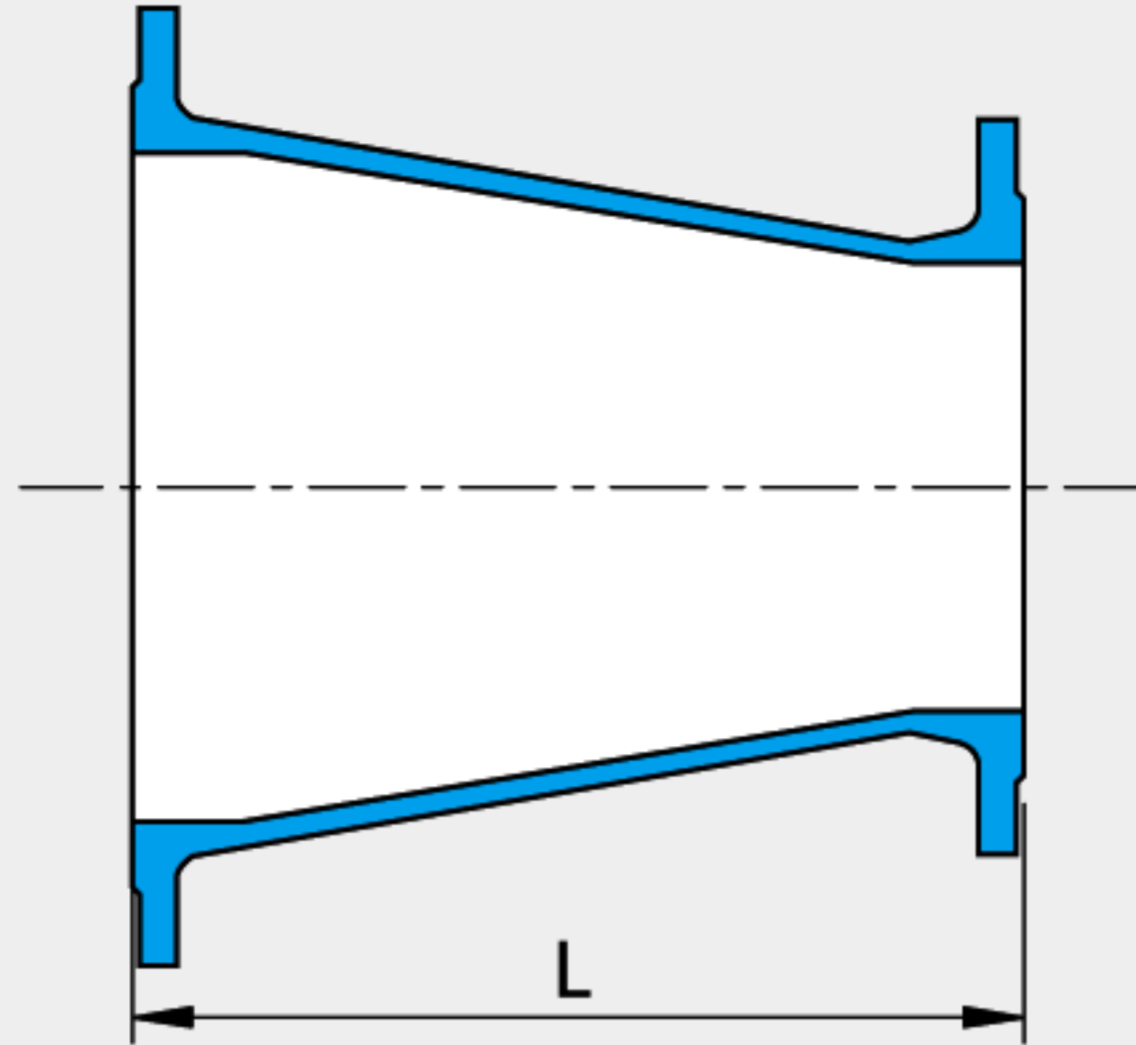
All Flanged Tee



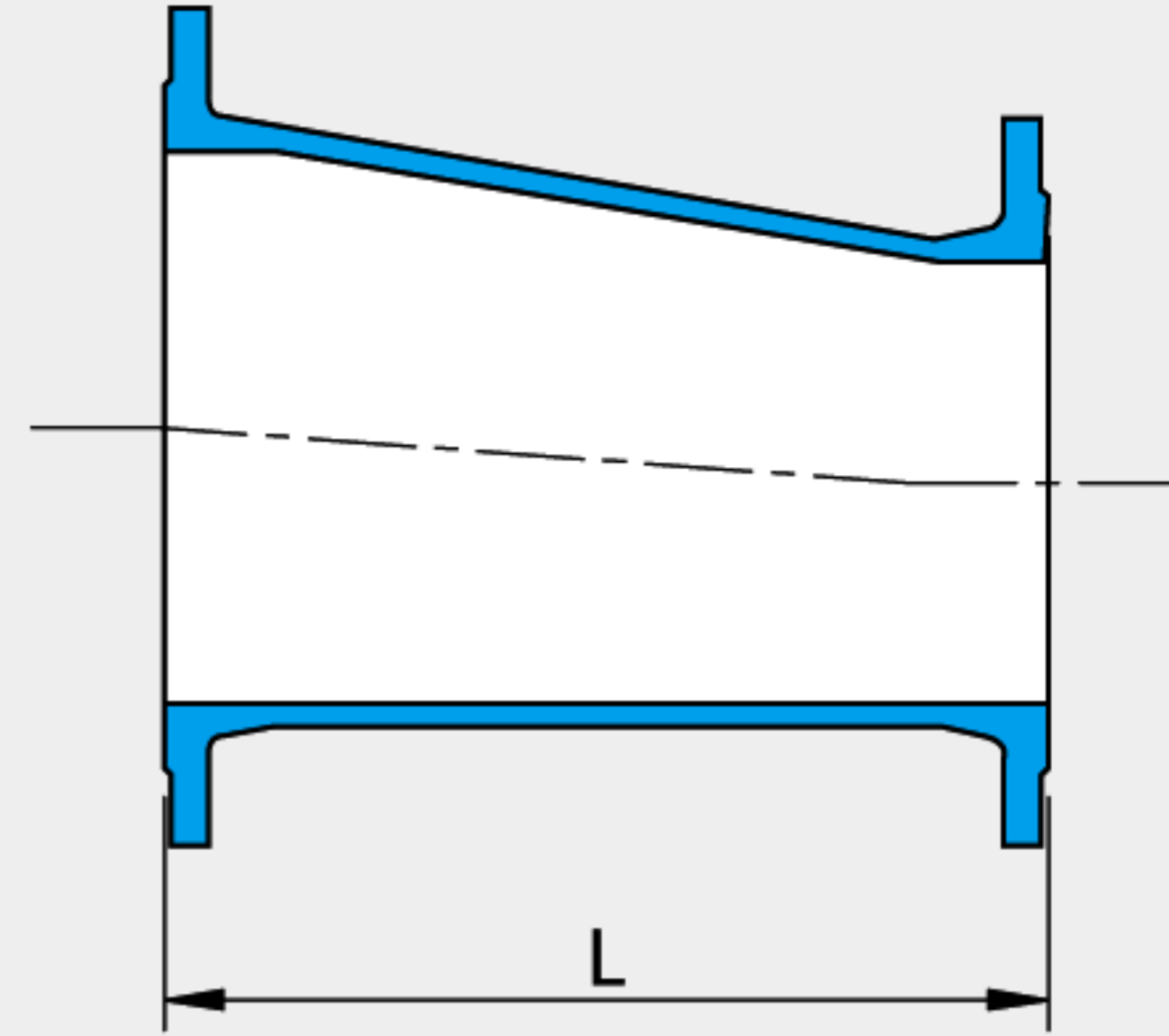
NOMINAL DIAMETER		L	H	MASS(kg)
DN	dn			PN16
80	80	330	165	15.8
100	80	360	175	18.4
100	100	360	180	19.5
150	80	440	205	29
150	100	440	210	30
150	150	440	220	32.5
200	80	520	235	41.5
200	100	520	240	42
200	150	520	250	45.5
200	200	520	260	49
250	100	700	275	67
250	150	700	325	67
250	200	700	325	75
250	250	700	350	81
300	100	800	300	93
300	150	800	350	96
300	200	800	350	101
300	300	800	400	115
350	100	850	325	122
350	150	850	325	125
350	200	850	325	128
350	300	850	425	147
350	350	850	425	151
400	100	900	350	154
400	150	900	350	157
400	200	900	350	159
400	300	900	450	176
400	400	900	450	191
450	100	950	375	193
450	150	950	375	196
450	200	950	375	199
450	300	950	475	215
450	400	950	475	230
450	450	950	475	240
500	100	1000	400	241
500	150	1000	400	244
500	200	1000	400	244
500	300	1000	500	263
500	400	1000	500	276
500	500	1000	500	297
600	150	1100	450	356
600	200	1100	450	358
600	300	1100	550	375
600	400	1100	550	387
600	600	1100	550	434

NOMINAL DIAMETER		L	H	MASS(kg)
DN	dn			PN16
700	200	650	525	298
700	300	760	540	370
700	400	870	555	379
700	600	1200	585	519
700	700	1200	600	523
800	200	690	585	390
800	300	800	600	478
800	400	910	615	484
800	600	1350	645	678
800	800	1350	675	715
900	200	730	645	484
900	400	950	675	594
900	600	1500	705	862
900	800	1500	735	901
900	900	1500	750	924
1000	200	770	705	629
1000	400	990	735	755
1000	600	1650	765	1116
1000	800	1650	795	1191
1000	1000	1650	825	1229
1200	400	1070	855	1131
1200	600	1290	885	1312
1200	800	1510	915	1492
1200	1000	1730	945	1714
1200	1200	1950	975	1970
1400	600	1320	980	1665
1400	800	1540	1010	1884
1400	1000	1760	1040	2143
1400	1200	1980	1070	2431
1400	1400	2200	1100	2715
1600	600	1380	1090	2221
1600	800	1600	1120	2487
1600	1000	1820	1150	2791
1600	1200	2040	1180	8122
1600	1400	2260	1210	3444
1600	1600	2480	1240	3854
1800	600	1440	1200	2768
1800	800	1660	1230	3087
1800	1000	1880	1260	3442
1800	1200	2100	1290	3822
1800	1400	2320	1320	4190
1800	1600	2540	1350	4641
1800	1800	2760	1380	5086

Concentric Type



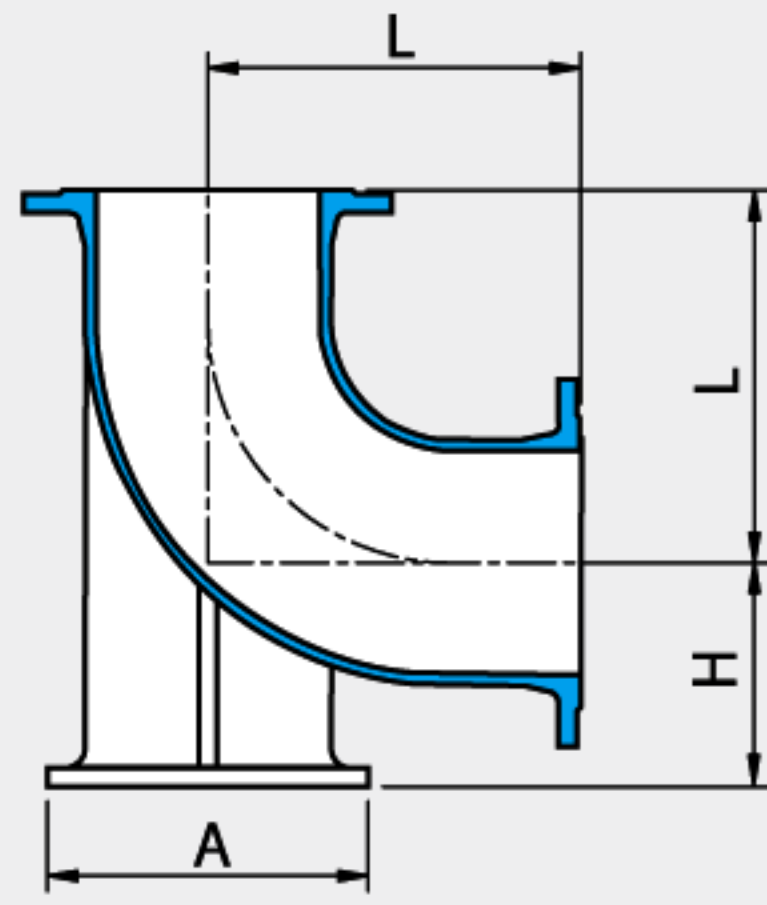
Flat Type



NOMINAL DIAMETER		LENGTH	MASS(kg)
DN	dn	L	PN16
100	80	200	9.5
150	80	400	15.2
150	100	300	15.5
200	100	600	28
200	150	300	21.5
250	150	600	42.5
250	200	300	29.5
300	150	650	55
300	200	600	57
300	250	300	39.5
350	200	650	63.5
350	250	600	70
350	300	300	52
400	200	700	73
400	250	650	83
400	300	600	90
400	350	300	67
450	250	700	87
450	300	650	92
450	350	600	106
450	400	300	85
500	300	700	134
500	350	650	125
500	400	600	130
500	450	300	104
600	350	750	188
600	400	700	191
600	450	650	193
600	500	600	191
700	400	800	212
700	450	750	217
700	500	700	256
700	600	600	236
800	450	900	286
800	500	800	284
800	600	700	298
800	700	600	290

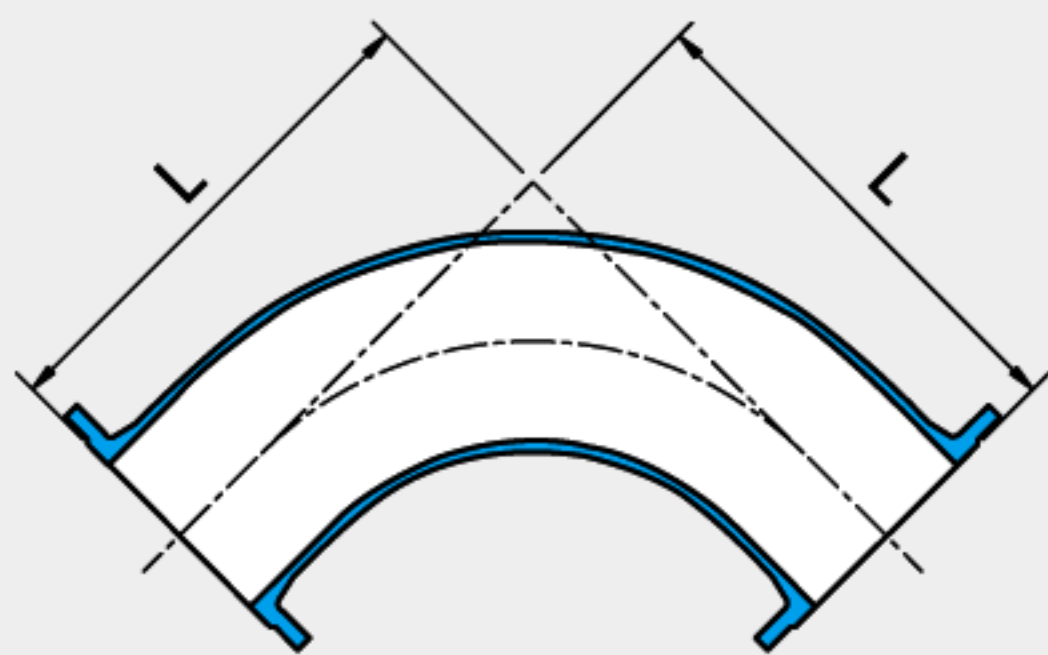
NOMINAL DIAMETER		LENGTH	MASS(kg)
DN	dn	L	PN16
900	500	1000	370
900	600	800	360
900	700	700	352
900	800	600	352
1000	600	1000	490
1000	700	800	442
1000	800	700	448
1000	900	600	438
1200	700	1345	777
1200	800	1160	758
1200	900	975	726
1200	1000	790	692
1200	1100	605	655
1400	800	1590	1105
1400	900	1405	1074
1400	1000	1220	1052
1400	1100	1035	1005
1400	1200	850	947
1600	1000	1650	1547
1600	1100	1460	1502
1600	1200	1280	1468
1600	1400	910	1311
1600	1500	725	1250
1800	1100	1895	2057
1800	1200	1710	2024
1800	1400	1340	1870
1800	1500	1155	1810
1800	1600	970	1664

90° Long Radius Bend, Duckfoot Bend, Bellmouth, Blank Flange



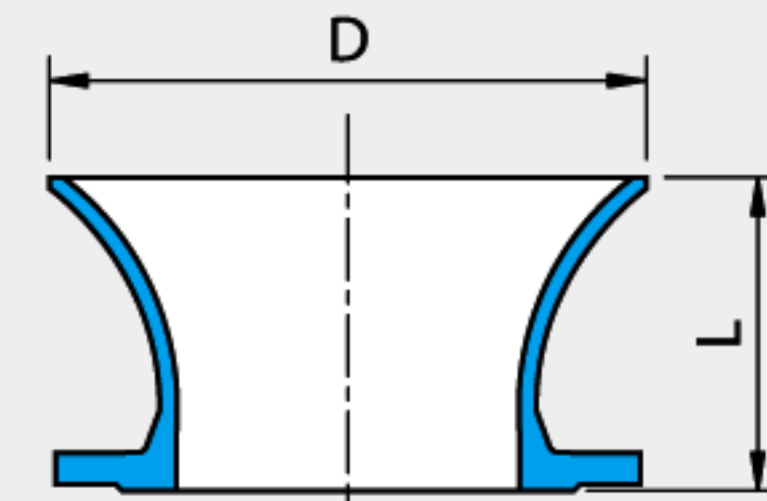
Duckfoot Bend

NOMINAL DIAMETER DN	L	H	A	MASS(kg)
				PN16
80	165	110	180	14.1
100	180	125	200	17.8
150	220	160	250	30
200	250	190	300	46
250	350	225	350	75
300	400	255	400	105
350	450	290	450	145
400	500	320	500	189
450	550	350	550	261
500	600	385	600	313
600	700	450	700	481
700	800	515	800	708
800	900	580	900	974
900	1000	645	1000	1290
1000	1100	710	1100	1698
1200	1300	840	1300	2709



90° Long Radius Bend


NOMINAL DIAMETER DN	L	MASS(kg)
		PN16
80	380	14.5
100	400	18
150	450	30.5
200	500	46
250	550	66
300	600	90.5
350	650	122
400	700	158
450	750	200
500	800	254
600	900	379
700	1000	489
800	1100	661
900	1200	854
1000	1300	1117
1200	1500	1737



Bellmouth

NOMINAL DIAMETER DN	D	L	MASS(kg)
			PN16
80	150	130	5.2
100	175	135	6.2
150	230	150	10.1
200	290	170	14.8
250	345	185	21
300	405	205	29
350	460	220	39
400	520	240	49.5
450	575	255	62
500	635	275	80
600	750	310	120
700	865	345	146
800	980	380	197
900	1095	415	250
1000	1210	450	331
1200	1440	520	512
1400	1670	590	702
1600	1900	660	995
1800	2130	730	1297
2000	2360	800	1668

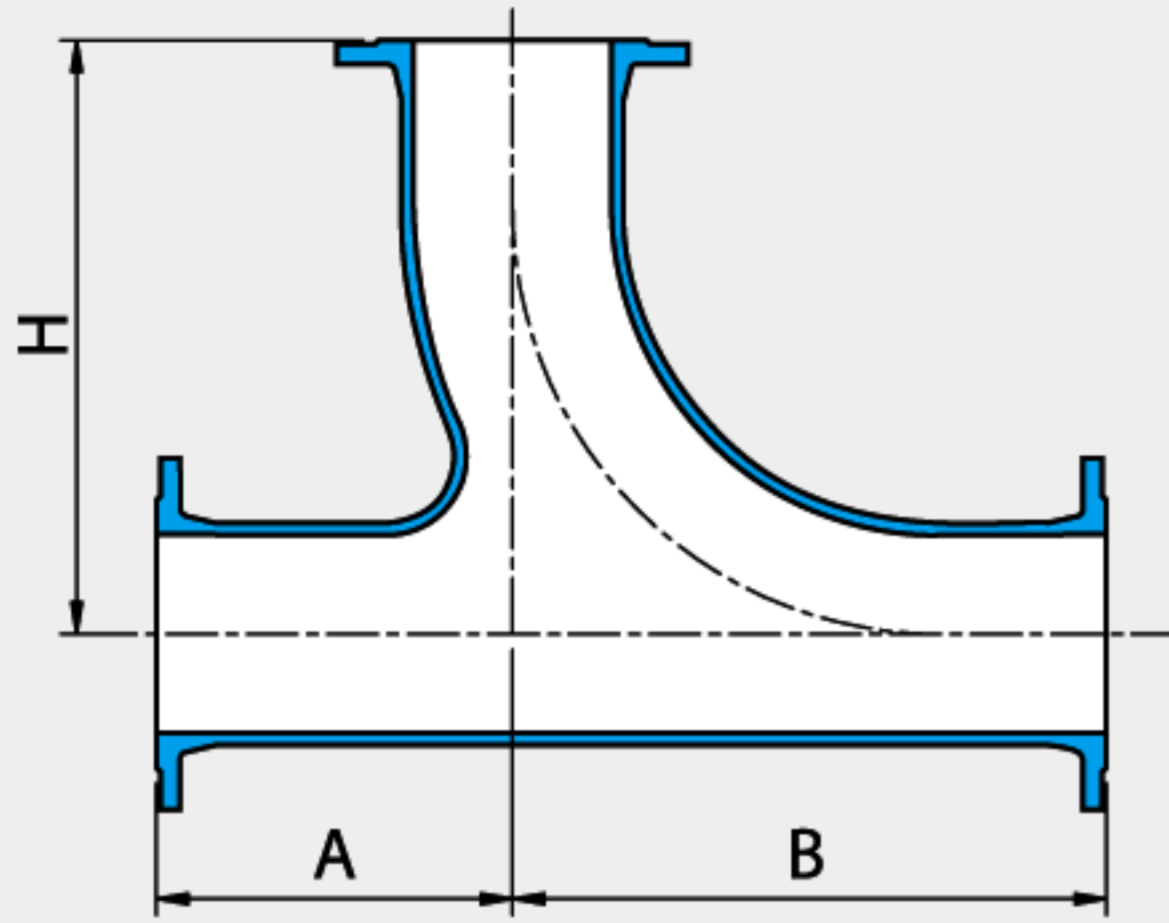
 DN 80 - DN 300

 DN 350 - DN 2000

Blank Flange

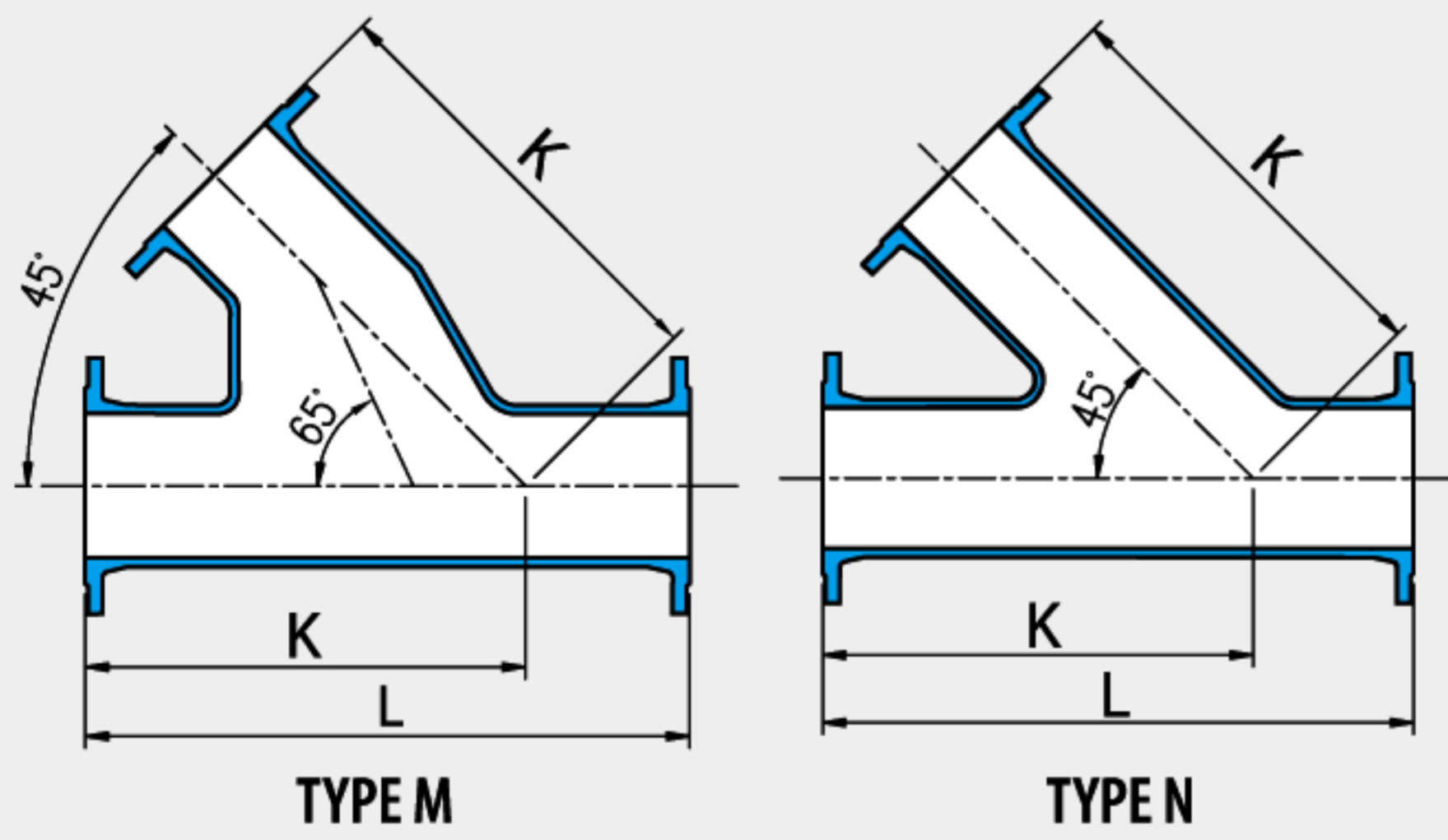
NOMINAL DIAMETER DN	MASS(kg)
	PN16
80	3.5
100	4.3
150	7.2
200	10.8
250	16.6
300	23
350	37
400	48.5
450	63.5
500	83

NOMINAL DIAMETER DN	MASS(kg)
	PN16
600	130
700	169
800	235
900	307
1000	413
1200	659
1400	994
1600	1280
1800	1687



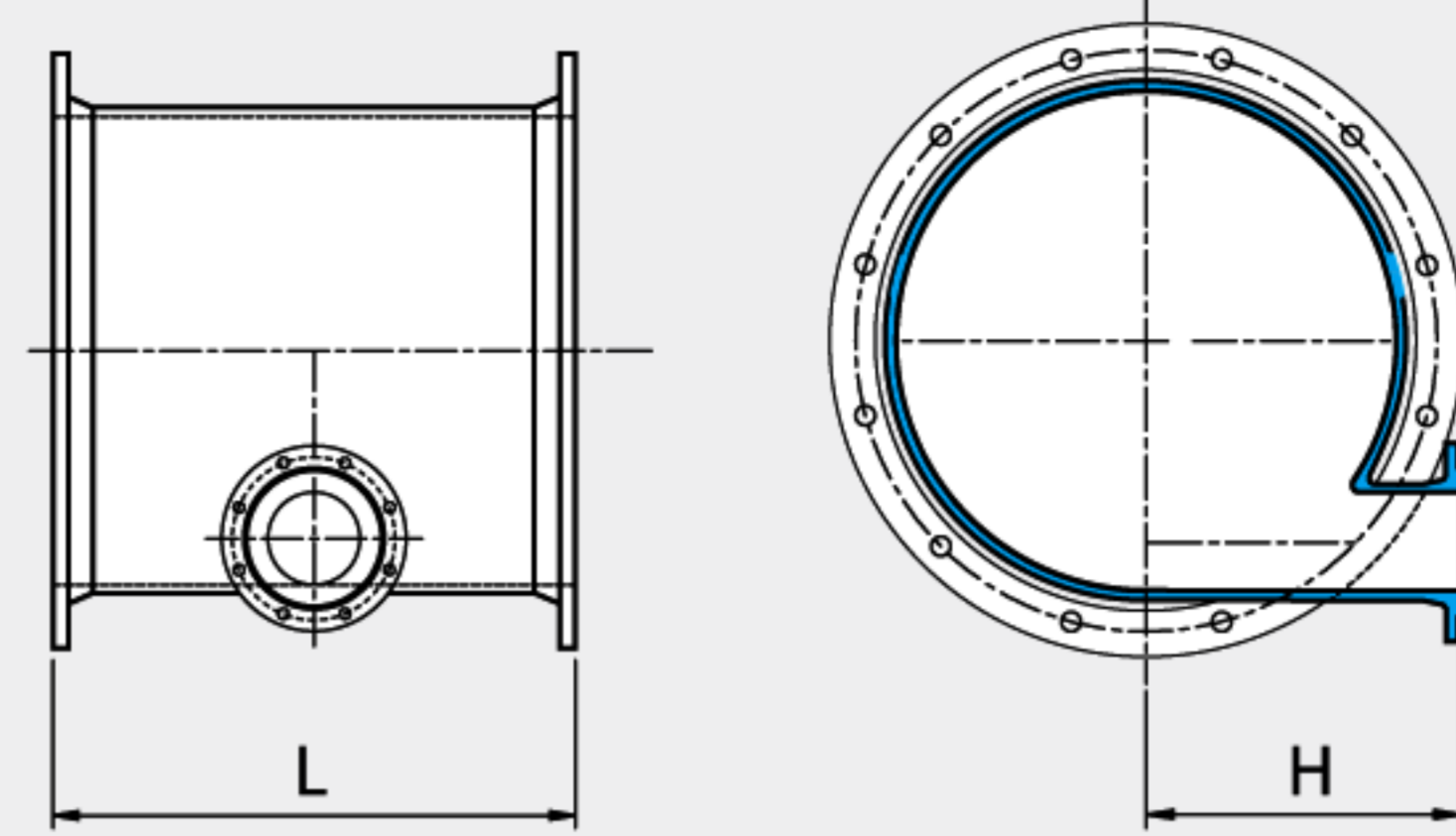
All Flanged Radial Tee

NOMINAL DIAMETER		H	A	B	MASS(kg)
DN	dn				PN16
80	80	545	165	380	23
100	100	580	180	400	29.5
150	150	670	220	450	47.9
200	200	760	260	500	71.6
250	250	900	350	550	104.8
300	300	1000	400	600	144.5
350	350	1100	450	650	203.4
400	400	1200	500	700	263.1
450	450	1300	550	750	332
500	500	1400	600	800	421.9
600	600	1600	700	900	623.7



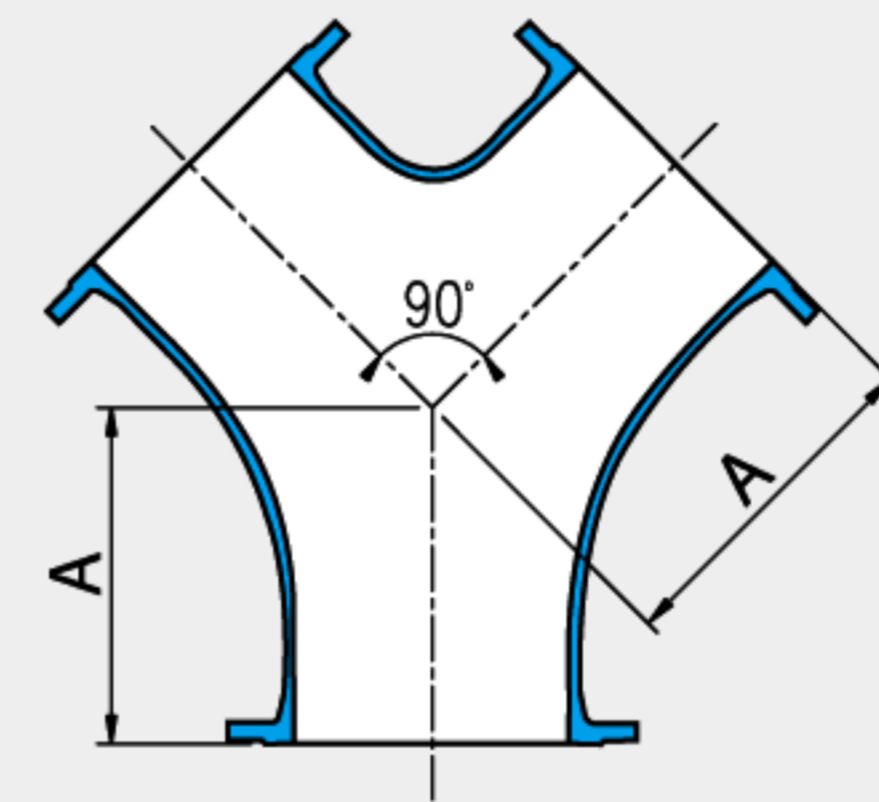
All Flanged 45° Angle Branch

NOMINAL DIAMETER		Type	L	K	MASS(kg)
DN	dn				PN16
80	80	N	500	375	21
100	100	N	540	405	27
150	150	N	640	480	46.4
200	200	N	735	560	70.1
250	250	N	830	640	103.8
300	300	N	930	715	145.5
350	350	M	880	790	167.4
400	400	M	970	870	204.1
450	450	M	1060	950	277
500	500	M	1140	1025	350.9
600	600	M	1310	1180	540.7



All Flanged Level Invert Tee

Nominal Diameter		L	H	MASS(kg)
DN	dn			PN16
150	80	440	220	30
200	80	520	250	43
200	100	520	250	44
250	80	700	275	66
250	100	700	275	69
300	80	800	305	94
300	100	800	305	96
300	150	800	305	99
350	100	850	340	125
350	150	850	340	128
400	100	900	365	156
400	150	900	365	162
450	100	950	380	189
450	150	950	380	197
500	150	1000	400	248
600	150	1100	450	360
600	200	1100	450	370



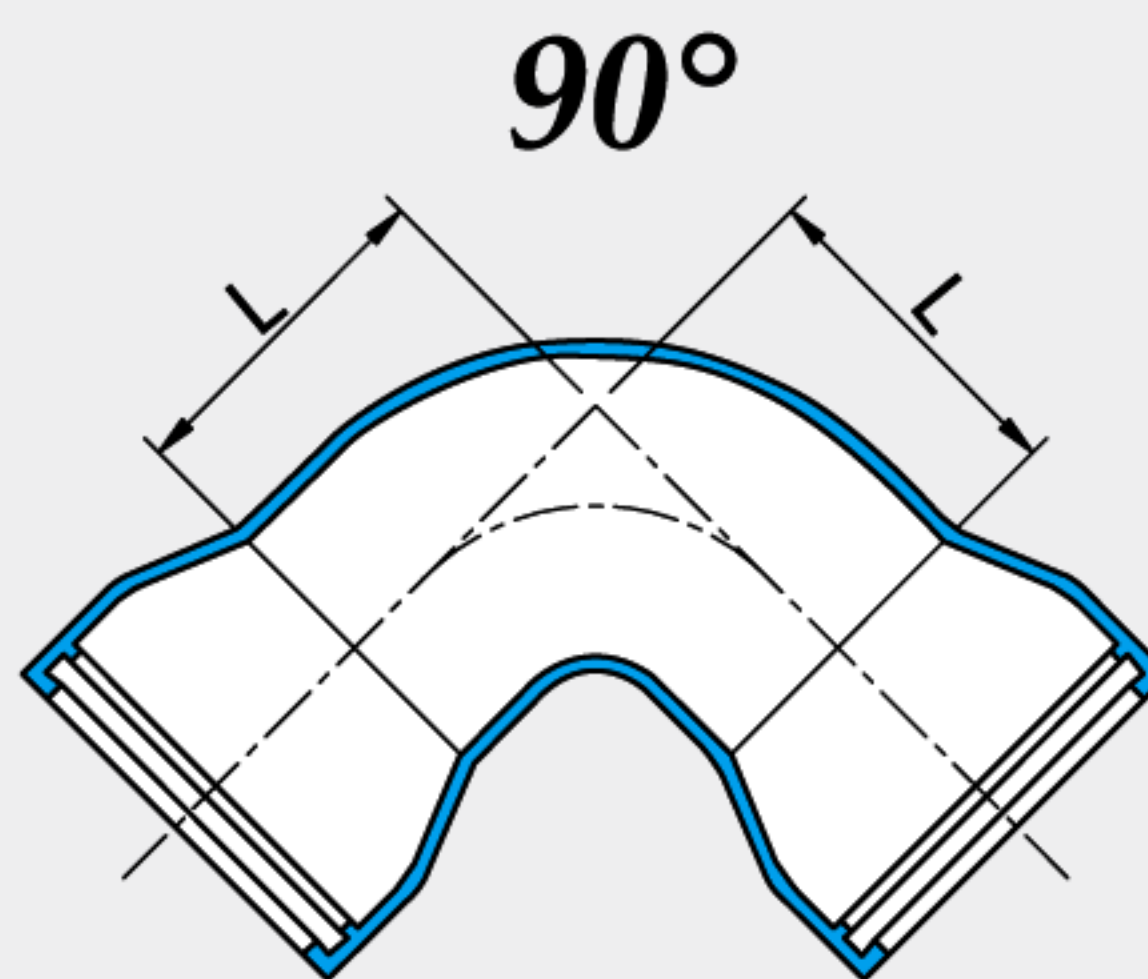
All Flanged "Y" Tee

NOMINAL DIAMETER		A	MASS(kg)
DN	DN		PN16
80		165	15.6
100		180	19.3
150		220	31.9
200		260	48.1
250		350	79.8
300		400	113.5
350		450	165.4
400		500	219.1
450		550	280
500		600	363.9
600		700	562.7

Double Socket Bend

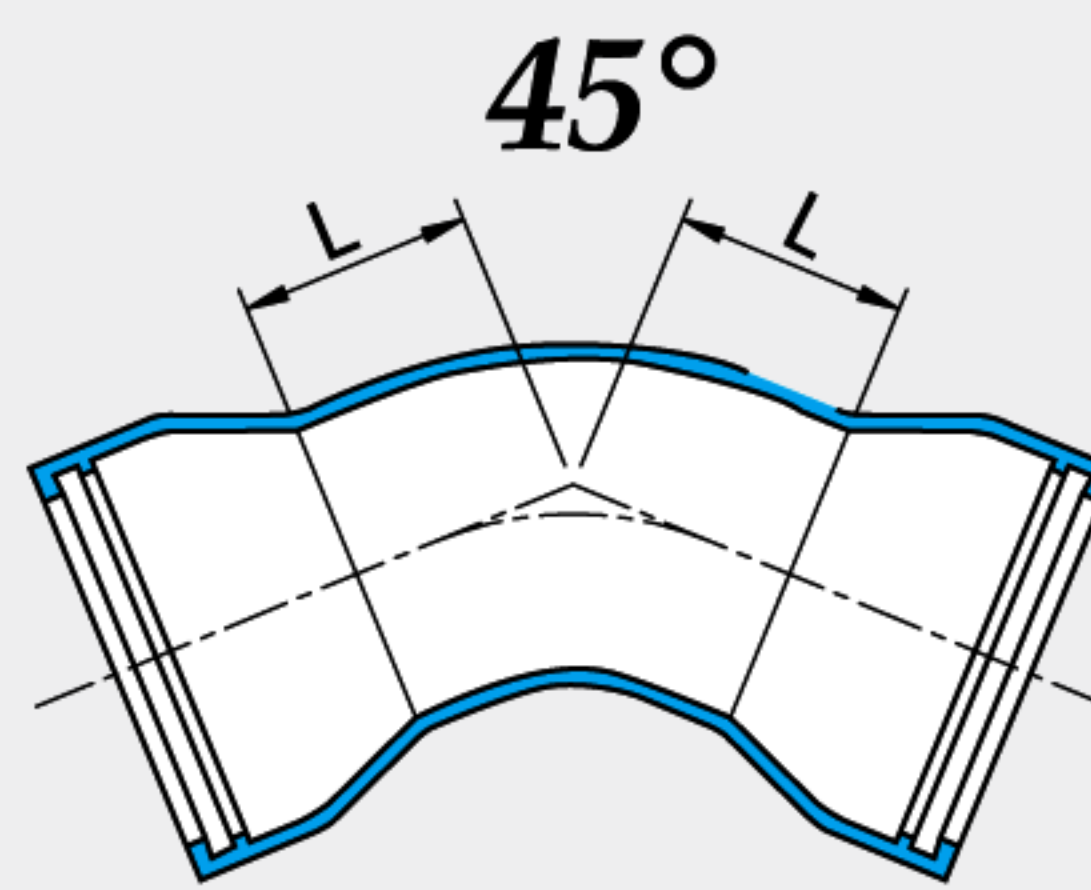
90°

NOMINAL DIAMETER DN	L	MASS(kg)
80	100	8.6
100	120	11.5
150	170	20.5
200	220	33
250	270	48.5
300	320	68
350	370	83
400	420	143
450	470	156
500	520	183
600	620	273
700	720	455
800	820	605
900	920	813
1000	1020	1045
1200	1220	1508
1400	1220	2419
1600	1290	3382
1800	1320	3616
2000	1360	4516



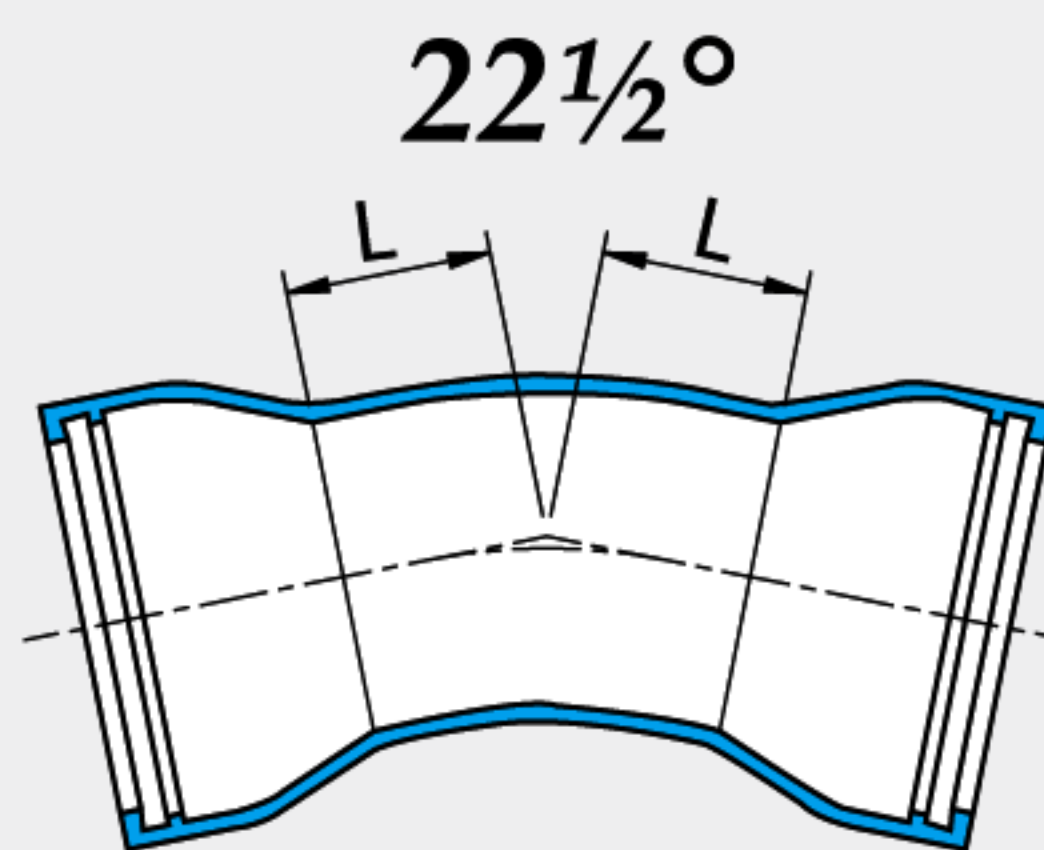
45°

NOMINAL DIAMETER DN	L	MASS(kg)
80	55	7.7
100	65	10.1
150	85	17.5
200	110	27
250	130	38.5
300	150	53
350	175	70
400	195	89
450	220	117
500	240	139
600	285	202
700	330	282
800	370	378
900	415	496
1000	460	635
1200	550	986
1400	515	1273
1600	565	1740
1800	610	2296
2000	660	2970



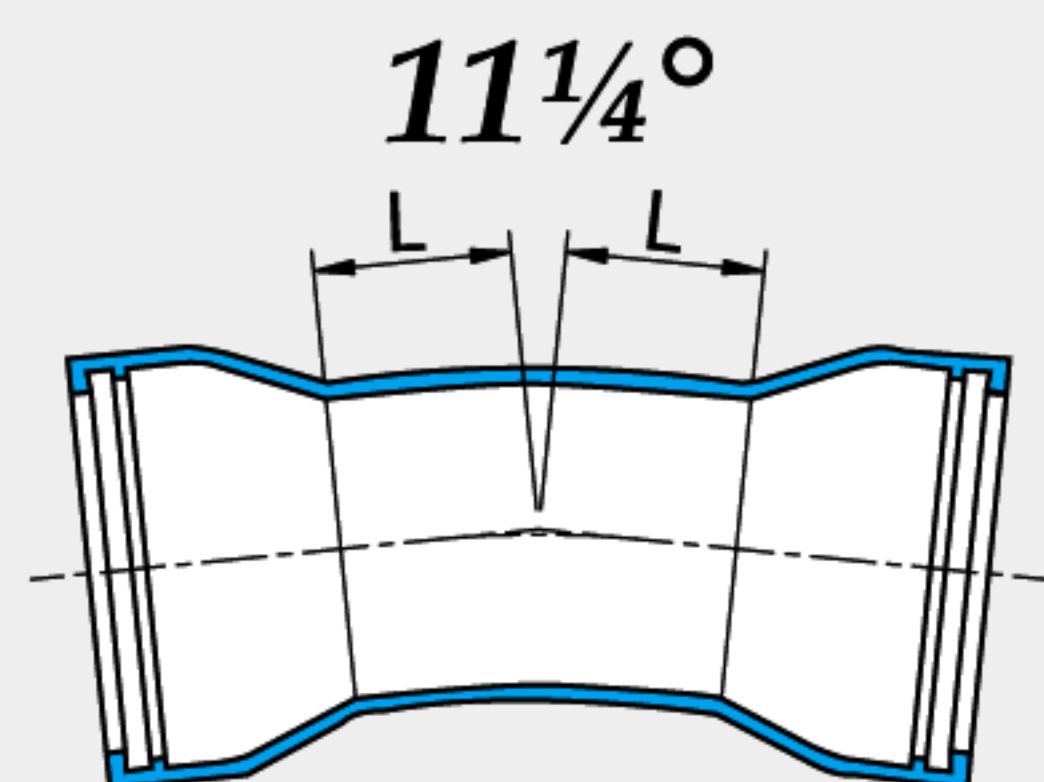
22½°

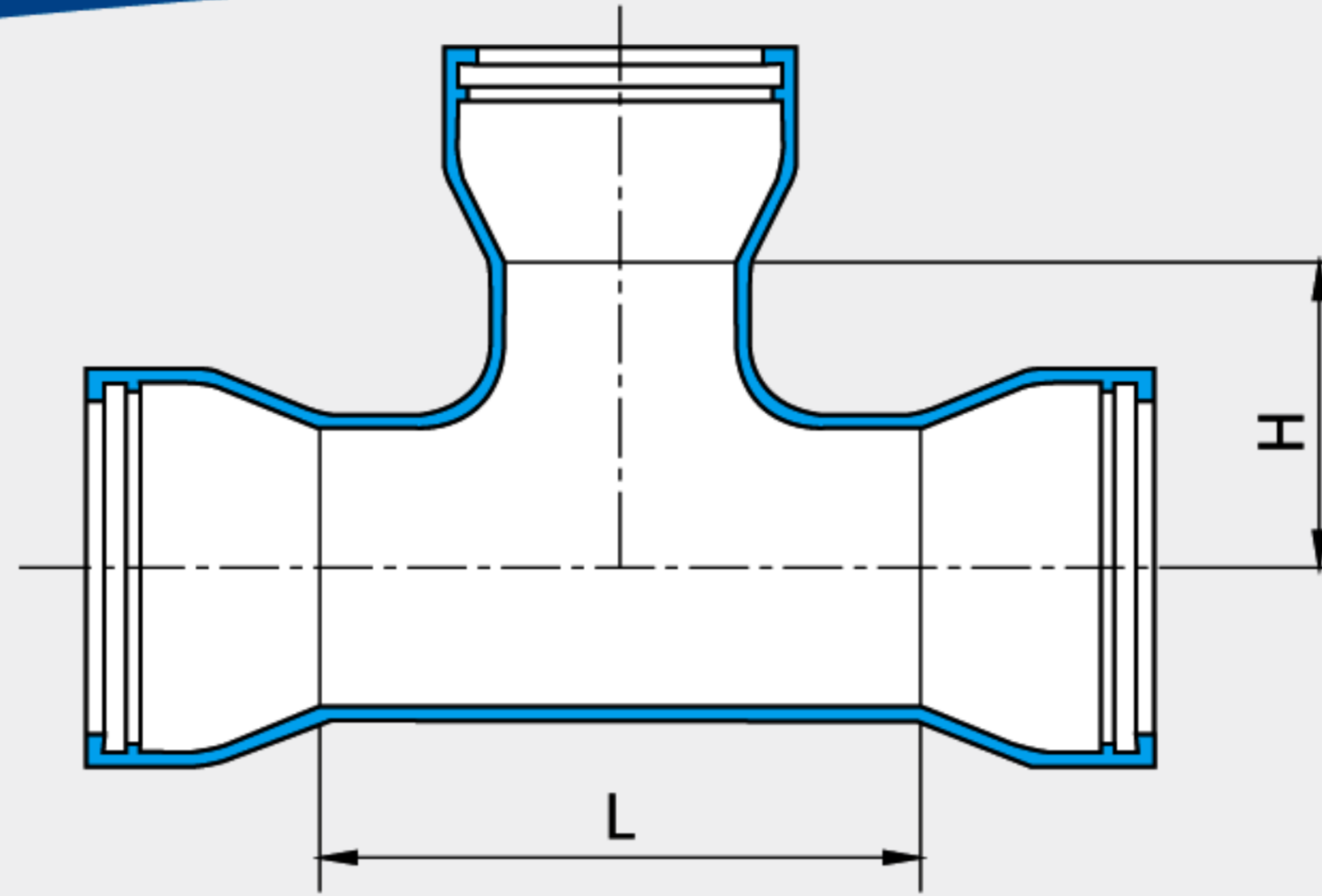
NOMINAL DIAMETER DN	L	MASS(kg)
80	40	7.5
100	40	9.5
150	55	15.9
200	65	24
250	75	33.5
300	85	44.5
350	95	58
400	110	74
450	120	95
500	130	111
600	150	157
700	175	217
800	195	287
900	220	373
1000	240	470
1200	285	716
1400	260	933
1600	280	1259
1800	305	1663
2000	330	2114



11¼°

NOMINAL DIAMETER DN	L	MASS(kg)
80	30	7.1
100	30	8.9
150	35	14.8
200	40	22
250	50	30.5
300	55	40.5
350	60	52
400	65	65
450	70	83.5
500	75	96
600	85	134
700	95	181
800	110	239
900	120	305
1000	130	381
1200	150	568
1400	130	747
1600	140	1007
1800	155	1331
2000	165	1702



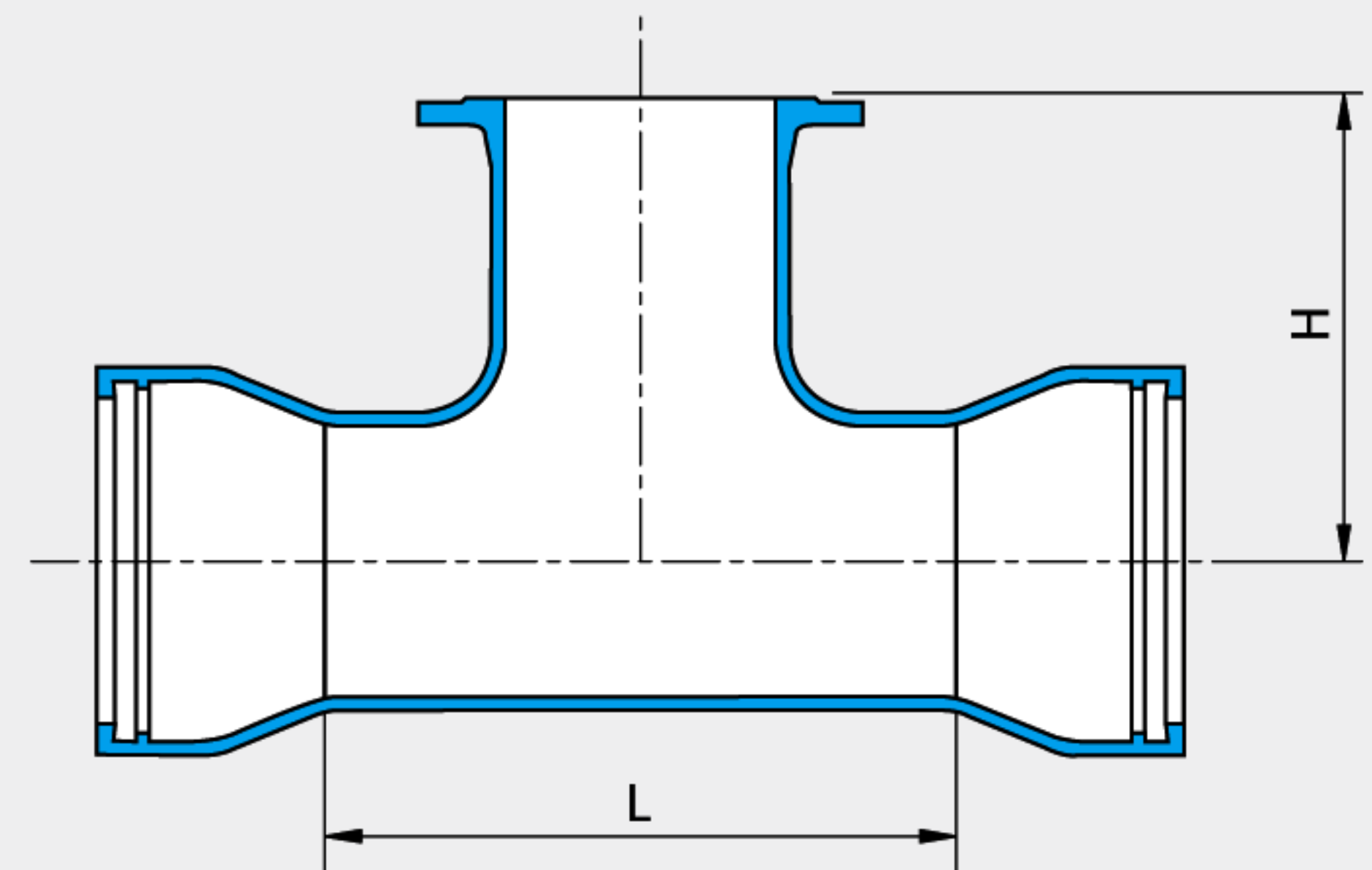


NOMINAL DIAMETER		L	H	MASS(kg)
DN	dn			
80	80	170	85	12.5
100	80	170	95	14.8
100	100	190	95	16.1
150	80	170	120	21.5
150	100	195	120	23.5
150	150	255	125	28
200	80	175	145	30
200	100	200	145	32
200	150	255	150	37
200	200	315	155	43
250	100	200	210	41.9
250	150	315	220	48
250	200	315	220	54.6
250	250	375	230	55
300	100	205	235	59
300	150	320	245	70
300	200	320	245	72
300	300	435	260	81
350	100	205	260	67.5
350	150	325	270	79.6
350	200	325	270	84.9
350	300	440	285	95
350	350	495	290	102
400	100	210	285	81
400	150	325	295	90
400	200	325	295	98
400	300	440	310	119
400	400	560	320	142
450	150	330	320	111
450	200	330	320	122
450	300	445	335	144
450	400	560	345	168
450	450	620	350	181
500	150	330	345	131
500	200	330	345	145
500	300	450	360	165
500	400	565	370	187
500	500	680	380	221
600	150	340	395	188
600	200	340	395	201
600	300	455	410	208
600	400	570	420	243
600	600	800	440	335

NOMINAL DIAMETER		L	H	MASS(kg)
DN	dn			
700	200	345	445	248
700	300	460	460	286
700	400	575	470	328
700	600	810	490	416
700	700	925	500	474
800	200	350	495	309
800	300	465	510	354
800	400	580	520	403
800	600	1045	540	580
800	800	1045	565	632
900	200	355	545	382
900	400	590	570	493
900	600	1170	590	747
900	800	1170	615	795
900	900	1170	625	826
1000	200	360	595	464
1000	400	595	620	592
1000	600	1290	640	943
1000	800	1290	665	988
1000	1000	1290	685	1051
1200	400	605	720	840
1200	600	840	740	1009
1200	800	1070	765	1198
1200	1000	1300	785	1401
1200	1200	1545	805	1644
1400	600	1030	840	1679
1400	800	1260	865	1910
1400	1000	1495	885	2441
1400	1200	1725	905	2795
1400	1400	1960	930	3124
1600	600	1040	940	2245
1600	800	1275	965	2546
1600	1000	1505	985	2851
1600	1200	1740	1010	3663
1600	1400	1970	1030	4066
1600	1600	2200	1050	4474
1800	600	1055	1040	2404
1800	800	1285	1065	2734
1800	1000	1520	1085	3144
1800	1200	1750	1110	3454
1800	1400	1980	1130	3798
1800	1600	2215	1150	4224
1800	1800	2445	1175	4693

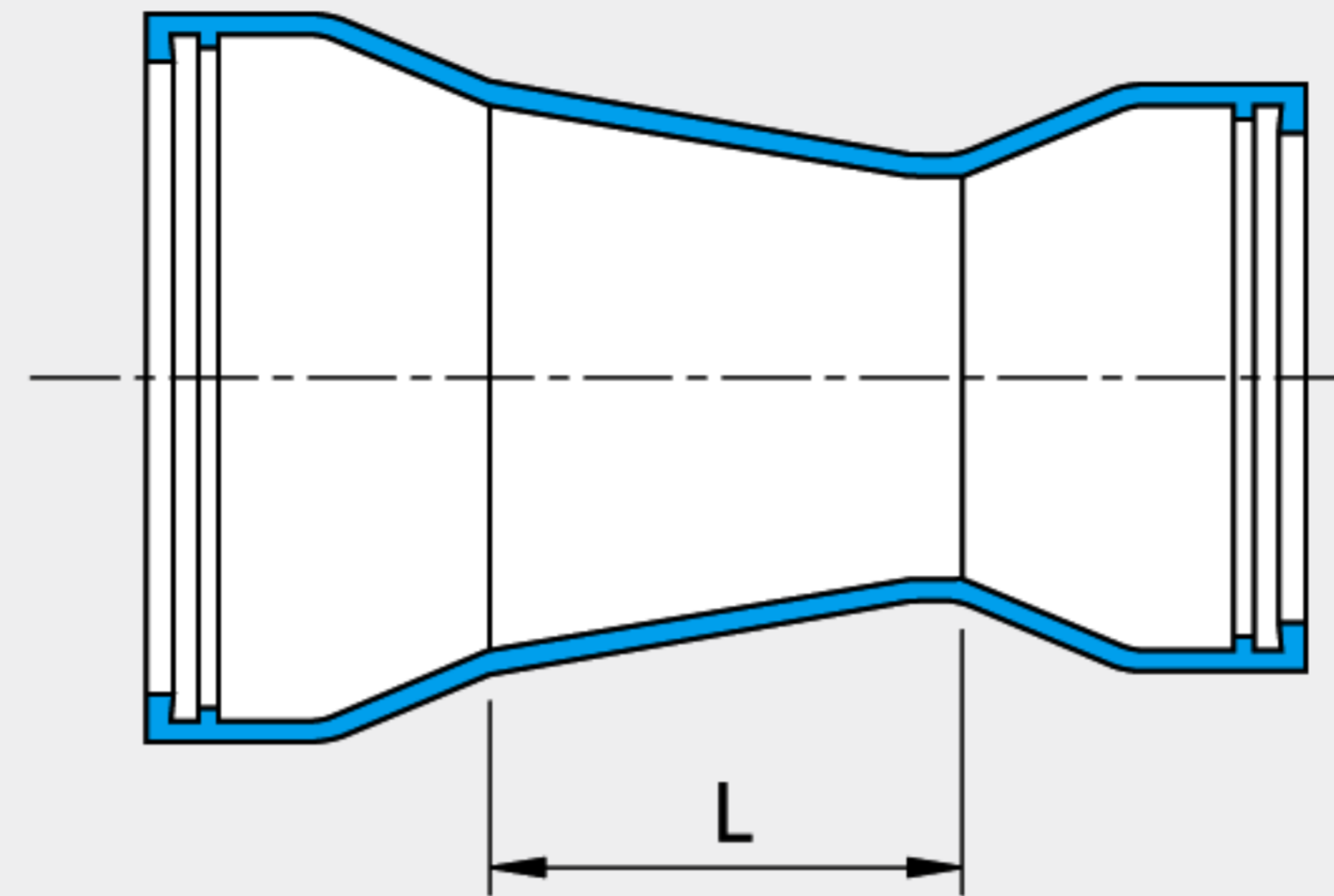
Double Socket Tee With Flanged Branch

NOMINAL DIAMETER		L	H	MASS(kg) PN16
DN	dn			
80	80	170	165	13.5
100	80	170	175	15.8
100	100	190	180	17.5
150	80	170	205	23
150	100	195	210	24.5
150	150	255	220	29.5
200	80	175	235	31.5
200	100	200	240	33.5
200	150	255	250	39
200	200	315	260	46
250	80	200	270	44
250	100	200	270	43.5
250	150	315	290	56.5
250	200	315	290	57
250	250	375	300	66
300	80	205	300	53
300	100	205	300	55
300	150	320	320	64
300	200	320	320	70
300	300	435	340	91
350	80	205	330	70.5
350	100	205	330	71
350	150	325	350	87.5
350	200	325	350	86
350	300	440	370	118
350	350	495	380	120
400	80	210	360	80
400	100	210	360	83
400	150	325	380	88
400	200	325	380	102
400	300	440	400	128
400	400	560	420	156
450	80	215	395	97.5
450	100	215	395	106
450	150	330	410	119
450	200	330	410	122
450	300	445	430	149
450	400	560	450	181
450	450	620	460	200
500	80	215	420	110
500	100	215	420	116
500	150	330	440	126
500	200	330	440	141
500	300	450	460	165
500	400	565	480	205
500	500	680	500	247
600	80	220	480	150
600	100	220	480	159
600	150	340	500	170
600	200	340	500	189
600	300	455	520	235
600	400	570	540	263
600	600	800	580	366
700	100	345	525	240
700	150	345	525	242
700	200	345	525	242
700	400	575	555	325
700	600	810	585	445
700	700	925	600	475



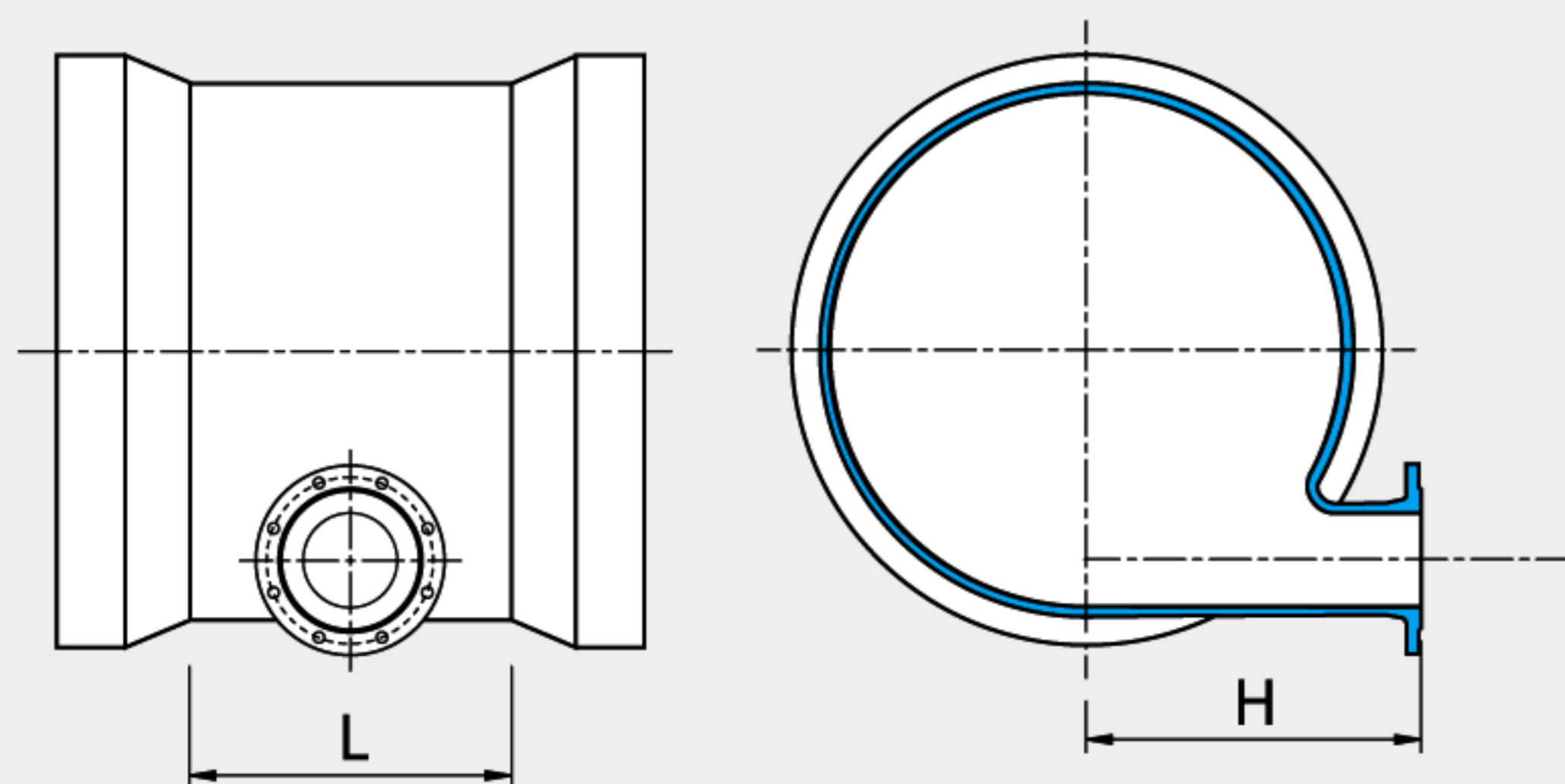
NOMINAL DIAMETER		L	H	MASS(kg) PN16
DN	dn			
800	100	350	585	304
800	150	350	585	308
800	200	350	585	306
800	400	580	615	403
800	600	1045	645	605
800	800	1045	675	642
900	150	355	645	376
900	200	355	645	379
900	400	590	675	495
900	600	1170	705	774
900	800	1170	735	823
900	900	1170	750	838
1000	150	360	705	566
1000	200	360	705	462
1000	400	595	735	596
1000	600	1290	765	973
1000	800	1290	795	1021
1000	1000	1290	825	1086
1200	200	375	825	838
1200	400	605	855	856
1200	600	840	885	1027
1200	800	1070	915	1210
1200	1000	1300	945	1448
1200	1200	1535	975	1736
1400	400	800	950	1368
1400	600	1030	980	1505
1400	800	1260	1010	1728
1400	1000	1495	1040	1996
1400	1200	1725	1070	2439
1400	1400	1960	1100	2765
1600	400	810	1060	1565
1600	600	1040	1090	1936
1600	800	1275	1120	2211
1600	1000	1505	1150	2523
1600	1200	1740	1180	2863
1600	1400	1970	1210	3186
1600	1600	2200	1240	4107
1800	600	1055	1200	2440
1800	800	1285	1230	2767
1800	1000	1520	1260	3137
1800	1200	1750	1290	3524
1800	1400	1980	1320	3800
1800	1600	2215	1350	4200
1800	1800	2445	1380	4700

NOMINAL DIAMETER		L	MASS(kg)
DN	dn		T Type
100	80	90	8.5
150	80	190	13.5
150	100	150	13.8
200	100	250	20.5
200	150	150	21
250	150	250	29
250	200	150	29
300	150	350	39.5
300	200	250	39.5
300	250	150	38.5
350	200	360	52
350	250	260	51
350	300	160	49.5
400	200	460	62
400	250	360	66
400	300	260	64
400	350	160	62
450	250	460	89.5
450	300	360	88.1
450	350	260	86
450	400	160	83.1
500	300	460	97
500	350	360	98
500	400	260	94
500	450	160	99.5
600	350	560	151
600	400	460	142
600	450	360	149
600	500	260	131
700	400	680	126
700	450	580	225
700	500	480	194
700	600	280	178
800	600	480	252
800	700	280	229

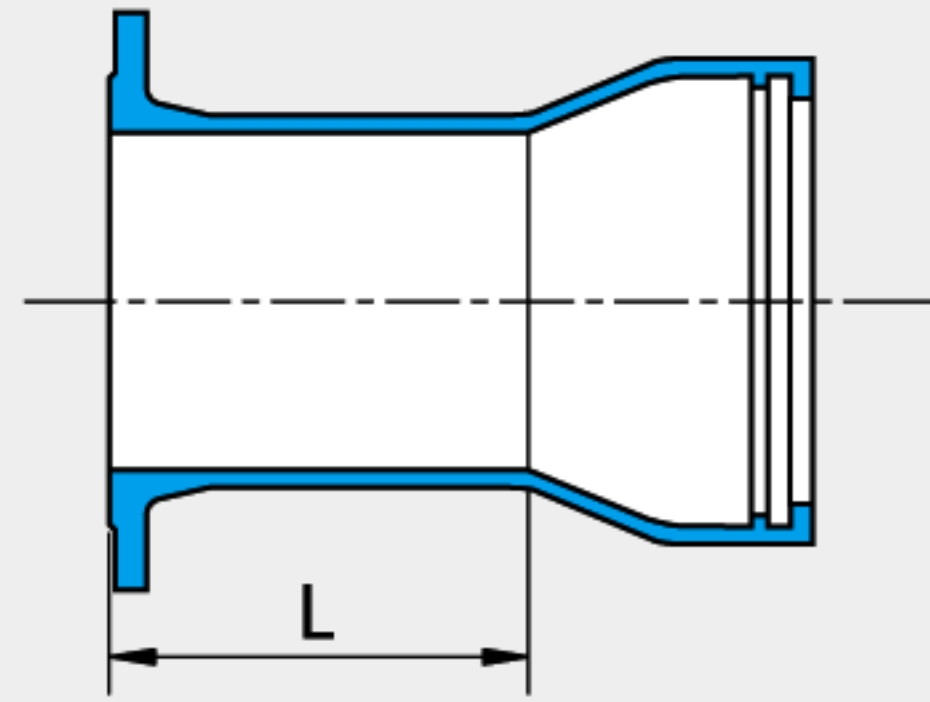


NOMINAL DIAMETER		L	MASS(kg)
DN	dn		T Type
900	500	880	360
900	600	680	341
900	700	480	318
900	800	280	288
1000	600	880	446
1000	700	680	427
1000	800	480	392
1000	900	280	354
1200	700	1080	699
1200	800	880	668
1200	900	680	630
1200	1000	480	570
1400	800	760	768
1400	900	660	764
1400	1000	560	1015
1400	1200	360	711
1600	1000	760	1427
1600	1200	560	1355
1600	1400	360	951
1800	1200	760	1210
1800	1400	560	1114
1800	1600	360	1235

Double Socket Level Invert Tee With Flanged Branch

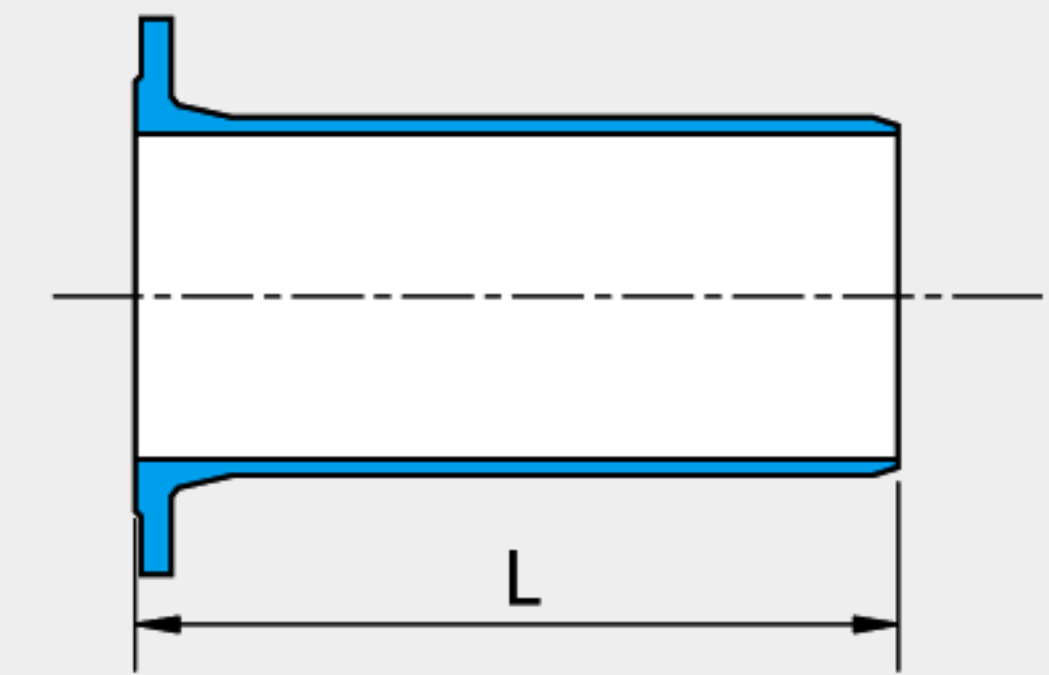


NOMINAL DIAMETER		L	H	MASS(kg)
DN	dn			T Type PN16
200	80	245	250	39.5
250	80	250	275	49.5
300	80	255	300	62
350	100	280	325	83
400	100	280	350	97.5
450	100	285	375	115
500	100	290	400	134
600	100	295	450	173
700	150	360	500	255
800	150	365	550	335
900	150	370	600	383
1000	200	435	650	501
1200	200	445	750	679
1400	200	460	850	939
1600	400	700	950	1476
1800	400	715	1050	1872



Flanged Socket

NOMINAL DIAMETER	L	MASS(kg)
DN		PN16
80	130	7.5
100	130	9
150	135	14.5
200	140	20.5
250	145	28
300	150	37
350	155	48
400	160	60
450	165	80
500	170	93
600	180	135
700	190	159
800	200	208
900	210	258
1000	220	324
1200	240	524
1400	310	723
1600	330	989
1800	350	1251

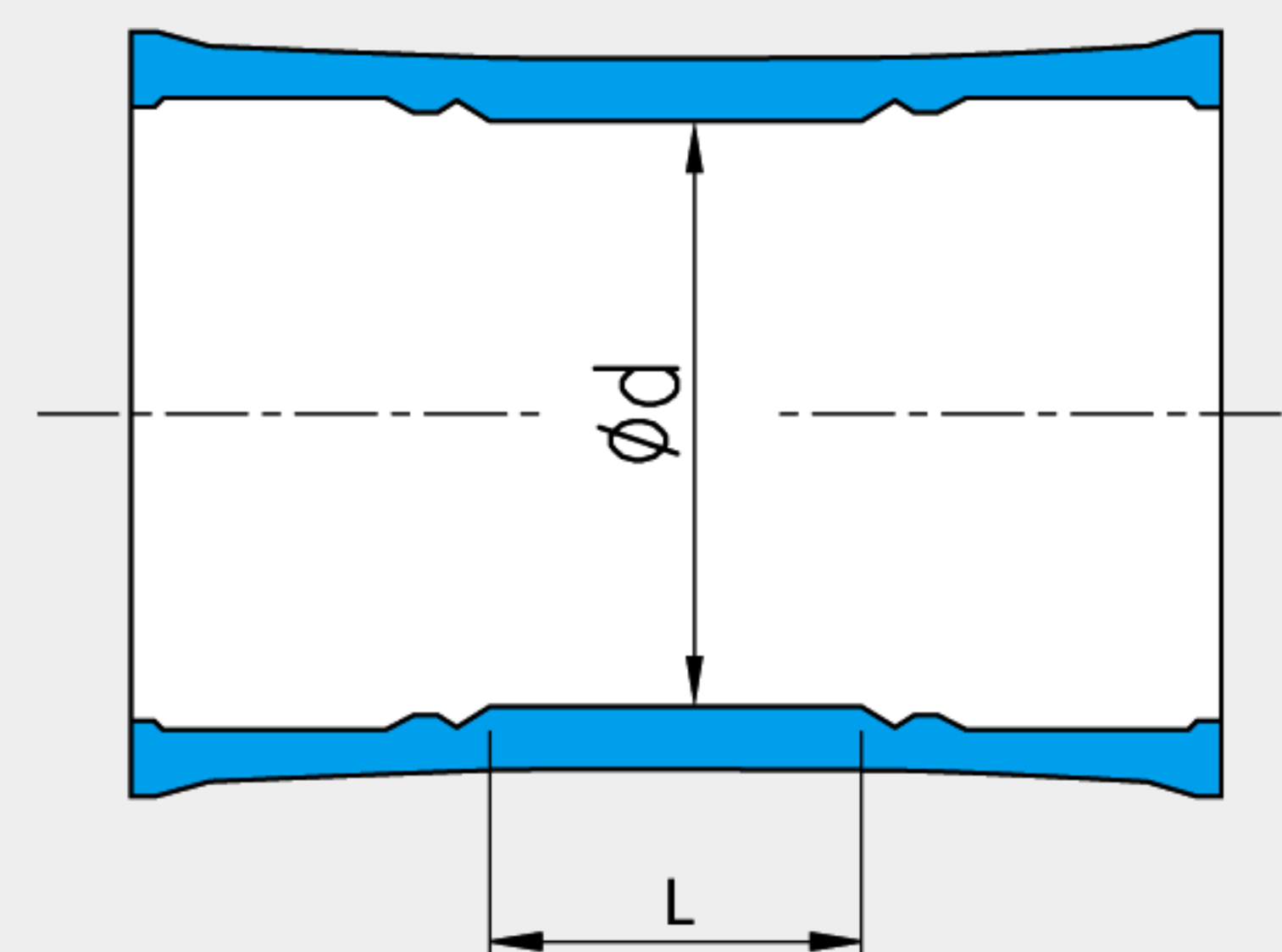


Flanged Spigot

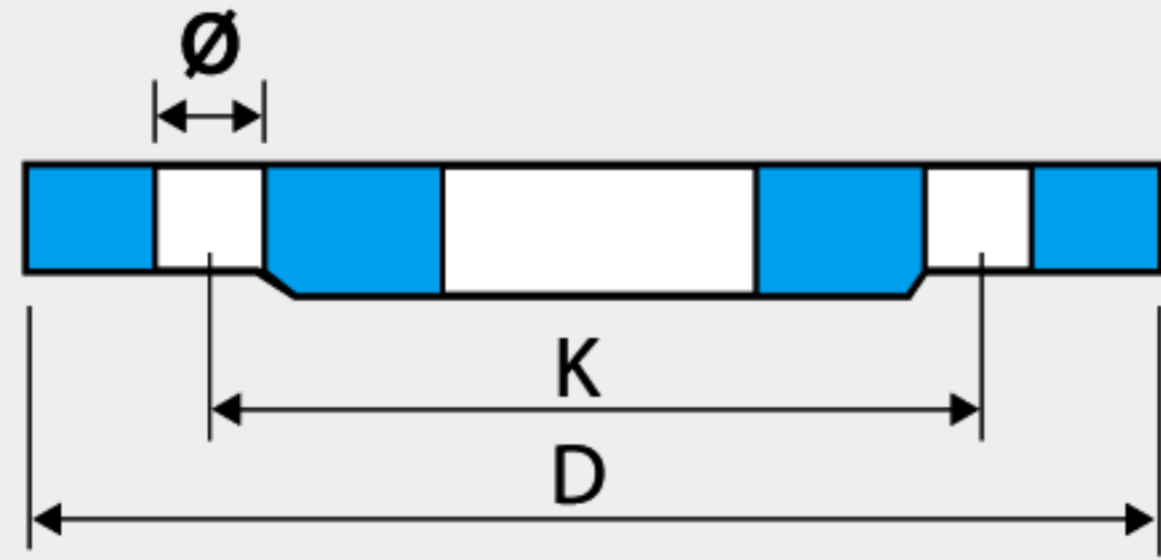
NOMINAL DIAMETER	L	MASS(kg)
DN		PN16
80	350	7.8
100	360	9.7
150	380	15.6
200	400	23
250	420	32
300	440	42.5
350	460	55
400	480	70
450	500	88
500	520	109
600	560	159
700	600	194
800	600	245
900	600	295
1000	600	369
1200	600	520
1400	710	732
1600	780	1024
1800	850	1322

NOMINAL DIAMETER	d	L	MASS(kg)
DN			
80	109	160	7.9
100	130	160	9.9
150	183	165	15.9
200	235	170	23
250	288	175	31.5
300	340	180	41
350	393	185	52
400	445	190	64
450	498	195	91
500	550	200	93
600	655	210	129
700	760	220	172
800	865	230	223
900	970	240	282
1000	1075	250	349
1200	1285	270	560
1400	1477	340	816
1600	1683	360	1094
1800	1889	380	1427

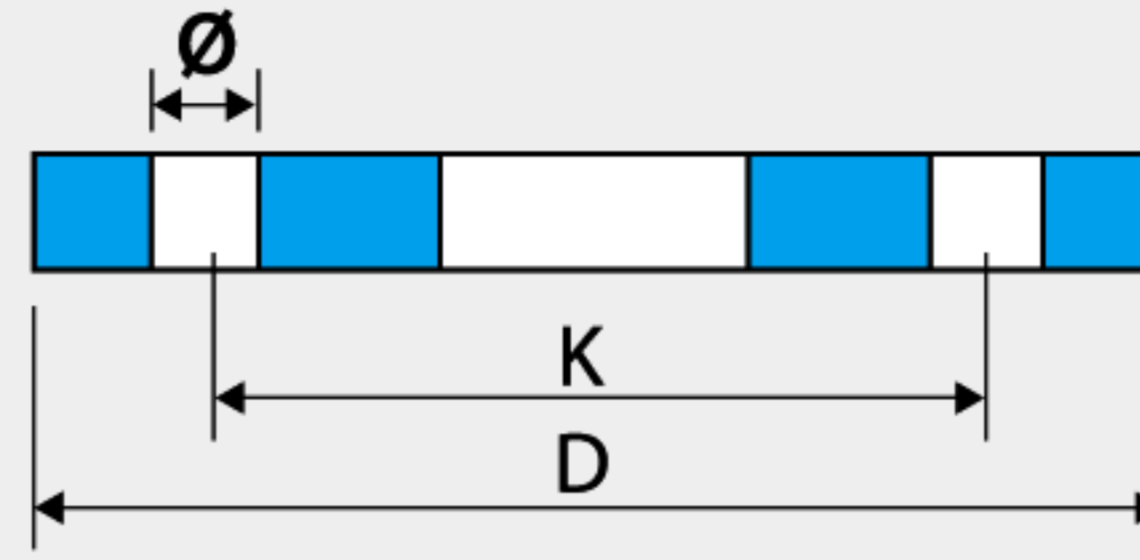
Socket Collar



EN 1092-2 / ANSI 150



BS 10 / ANSI 125 / JIS



NOMINAL SIZES		STANDARD (TABLE)	OUTSIDE DIAMETER OF FLANGE (D)	PITCH CIRCLE DIAMETER (K)	DIAMETER OF BOLT HOLE (Ø)	BOLT	
MM	INCH					SIZE	NO
50	2	EN 1092-2 PN 10/16	165	125	18	16	4
		BS 10 D/E	6 (152)	4-1/2 (114)	11/16 (17)	5/8 (16)	4
		ANSI 125/150	6 (152)	4-3/4 (121)	3/4 (19)	5/8 (16)	4
		JIS 5K	130	105	15	12	4
		JIS 10K	155	120	19	16	4
65	2-1/2	EN 1092-2 PN 10/16	185	145	18	16	4
		BS 10 D/E	6-1/2 (165)	5 (127)	11/16 (17)	5/8 (16)	4
		ANSI 125/150	7 (178)	5-1/2 (140)	3/4 (19)	5/8 (16)	4
		JIS 5K	155	130	15	12	4
		JIS 10K	175	140	19	16	4
80	3	EN 1092-2 PN 10/16	200	160	18	16	8
		BS 10 D/E	7-1/4 (184)	5-3/4 (146)	11/16 (17)	5/8 (16)	4
		ANSI 125/150	7-1/2 (191)	6 (152)	3/4 (19)	5/8 (16)	4
		JIS 5K	180	145	19	16	4
		JIS 10K	185	150	19	16	8
100	4	EN 1092-2 PN 10/16	220	180	18	16	8
		BS 10 D	8-1/2 (216)	7 (178)	11/16 (17)	5/8 (16)	4
		BS 10 E	8-1/2 (216)	7 (178)	11/16 (17)	5/8 (16)	8
		ANSI 125/150	9 (229)	7-1/2 (191)	3/4 (19)	5/8 (16)	8
		JIS 5K	200	165	19	16	8
		JIS 10K	210	175	18	16	8
125	5	EN 1092-2 PN 10/16	250	210	18	16	8
		BS 10 D/E	10 (254)	8-1/4 (210)	11/16 (17)	5/8 (16)	8
		ANSI 125/150	10 (254)	8-1/2 (216)	7/8 (22)	3/4 (19)	8
		JIS 5K	235	200	19	16	8
		JIS 10K	250	210	23	20	8
150	6	EN 1092-2 PN 10/16	285	240	22	20	8
		BS 10 D	11 (280)	9-1/4 (235)	11/16 (17)	5/8 (16)	8
		BS 10 E	11 (280)	9-1/4 (235)	7/8 (22)	3/4 (19)	8
		ANSI 125/150	11 (280)	9-1/2 (241)	7/8 (22)	3/4 (19)	8
		JIS 5K	265	230	19	16	8
		JIS 10K	280	240	23	20	8
200	8	EN 1092-2 PN 10	340	295	22	20	8
		EN 1092-2 PN 16	340	295	22	20	12
		BS 10 D	13-1/4 (337)	11-1/2 (292)	11/16 (17)	5/8 (16)	8
		BS 10 E	13-1/4 (337)	11-1/2 (292)	7/8 (22)	3/4 (19)	8
		ANSI 125/150	13-1/2 (343)	11-3/4 (299)	7/8 (22)	3/4 (19)	8
		JIS 5K	320	280	23	20	8
		JIS 10K	330	290	23	20	12
250	10	EN 1092-2 PN 10	395	350	22	20	12
		EN 1092-2 PN 16	405	355	26	24	12
		BS 10 D	16 (407)	14 (356)	7/8 (22)	3/4 (19)	8
		BS 10 E	16 (407)	14 (356)	7/8 (22)	3/4 (19)	12
		ANSI 125/150	16 (407)	14-1/4 (362)	1 (25)	7/8 (22)	12
		JIS 5K	385	345	23	20	12
		JIS 10K	400	355	25	24	12

Note: BS 4504 is now obsolete and replaced by EN 1092-2.

Flange Comparison Chart

NOMINAL SIZES		STANDARD (TABLE)	OUTSIDE DIAMETER OF FLANGE (D)	PITCH CIRCLE DIAMETER (K)	DIAMETER OF BOLT HOLE (Ø)	BOLT	
MM	INCH					SIZE	NO
300	12	EN 1092-2 PN 10	445	400	22	20	12
		EN 1092-2 PN 16	460	410	26	24	12
		BS 10 D	18 (457)	16 (407)	7/8 (22)	3/4 (19)	12
		BS 10 E	18 (457)	16 (407)	1 (25)	7/8 (22)	12
		ANSI 125/150	19 (483)	17 (432)	1 (25)	7/8 (22)	12
		JIS 5K	430	390	23	20	12
		JIS 10K	445	400	25	24	16
		350	14	EN 1092-2 PN 10	505	460	22
EN 1092-2 PN 16	520			470	26	24	16
BS 10 D/E	20-3/4 (527)			18-1/2 (470)	1 (25)	7/8 (22)	12
ANSI 125/150	21 (534)			18-3/4 (476)	1-1/8 (29)	1 (25)	12
JIS 5K	480			435	25	24	12
JIS 10K	490			445	25	24	16
400	16			EN 1092-2 PN 10	565	515	26
		EN 1092-2 PN 16	580	525	30	27	16
		BS 10 D/E	22-3/4 (578)	20-1/2 (521)	1 (25)	7/8 (22)	12
		ANSI 125/150	23-1/2 (597)	21-1/4 (540)	1-1/8 (29)	1 (25)	16
		JIS 5K	540	495	25	24	16
		JIS 10K	560	510	29	27	16
		450	18	EN 1092-2 PN 10	615	565	26
EN 1092-2 PN 16	640			585	30	27	20
BS 10 D	25-1/4 (642)			23 (584)	1 (25)	7/8 (22)	12
BS 10 E	25-1/4 (642)			23 (584)	1 (25)	7/8 (22)	16
ANSI 125/150	25 (635)			22-3/4 (578)	1-1/4 (32)	1-1/8 (29)	16
500	20			EN 1092-2 PN 10	670	620	26
		EN 1092-2 PN 16	715	650	33	30	20
		BS 10 D/E	27-3/4 (705)	25-1/4 (642)	1 (25)	7/8 (22)	16
		ANSI 125/150	27-1/2 (699)	25 (635)	1-1/4 (32)	1-1/8 (29)	20
		600	24	EN 1092-2 PN 10	780	725	30
EN 1092-2 PN 16	840			770	36	33	20
BS 10 D	32-1/2 (826)			29-3/4 (756)	1-1/8 (29)	1 (25)	16
BS 10 E	32-1/2 (826)			29-3/4 (756)	1-1/4 (32)	1-1/8 (29)	16
ANSI 125/150	32 (813)			29-1/2 (750)	1-3/8 (35)	1-1/4 (32)	20
700	28			EN 1092-2 PN 10	895	840	30
		EN 1092-2 PN 16	910	840	36	33	24
750	30	BS 10 E	39-1/4 (997)	36-1/2 (927)	1-3/8 (35)	1-1/4 (32)	20
800	32	EN 1092-2 PN 10	1015	950	33	30	24
		EN 1092-2 PN 16	1025	950	39	36	24
900	36	EN 1092-2 PN 10	1115	1050	33	30	28
		EN 1092-2 PN 16	1125	1050	39	36	28
1000	40	EN 1092-2 PN 10	1230	1160	36	33	28
		EN 1092-2 PN 16	1255	1170	42	39	28
1200	48	EN 1092-2 PN 10	1455	1380	39	36	32
		EN 1092-2 PN 16	1485	1390	48	45	32

NOMINAL SIZES		Ductile Iron	Mild Steel		Asbestos Cement		uPVC	ABS	PE	AB-3P
		BS EN 545/ BS EN 598	JKR spec	BS 534	MS 712 Class B	MS 712 Class C	MS 628/ BS 3505	MS 1419/ BS 5391	MS 1058/ ISO 4427/437	MS 628/ AS 1477
INCH	MM									
½	15						21.3	21.3	16	21.3
¾	20						26.9	26.9	20	26.9
1	25						33.7	33.7	25	33.7
1¼	32						42.4	42.4	32	42.4
1½	40	56				55.9	48.3	48.3	40	48.3
2	50	66		60.3		69.1	60.3	60.3	50	60.3
2.5	65	82		76.1		82.3		75.1	63	
3	80	98		88.9		95.5	88.9	88.9	75	88.9
3.5	90							90		
4	100	118	121.9	114.3		121.9	114.3	114.3	110	114.3
5	125	144		139.7		149.9	140.2	140.2	125	140.2
6	150	170	177.3	168.3		177.3	168.3	168.3	160	168.3
7	175			193.7		204.7		180		
8	200	222	232.2	219.1		232.2	219.1	219.1	200	219.1
9	225			244.5		259.1		225	225	
10	250	274	286	273		286	273	250	250	273
11	275							280		
12	300	326	345.4	323.9	339.9	345.4	323.9	315	315	323.9
14	350	378	399.3	355.6		399.3	355.6	355	355	355.6
15	375		426.2		413.2	426.2				
16	400	429	453.1	406.4		453.1	406.4	400	400	406.4
18	450	480	506.9	457	492.4	506.9	457	450	450	
20	500	532	560.3	508		560.3	508	500	500	
21	525				571.7	587.2				
22	550			559				560	560	
24	600	635	667	610	650.5	667	610			
26	650		692	660				630	630	
28	700	738	754	711				710	710	
30	750		804	762						
32	800	842	854	813				825.5	800	
34	850		904	864						
36	900	945	954	914					900	
38	950			965						
40	1000	1048	1054	1016					1000	
42	1050		1107	1067						
44	1100	1152	1157	1118						
46	1150		1219	1168						
48	1200	1255	1270	1219						
52	1300		1372	1321						
56	1400	1462	1472	1422						
60	1500	1565	1576	1524						
64	1600	1668	1676	1626						
68	1700		1776	1727						
72	1800	1875	1876	1829						
76	1900		1976	1930						
80	2000	2082	2088	2032						
84	2100	2164	2189	2134						
88	2200	2280	2290	2235						

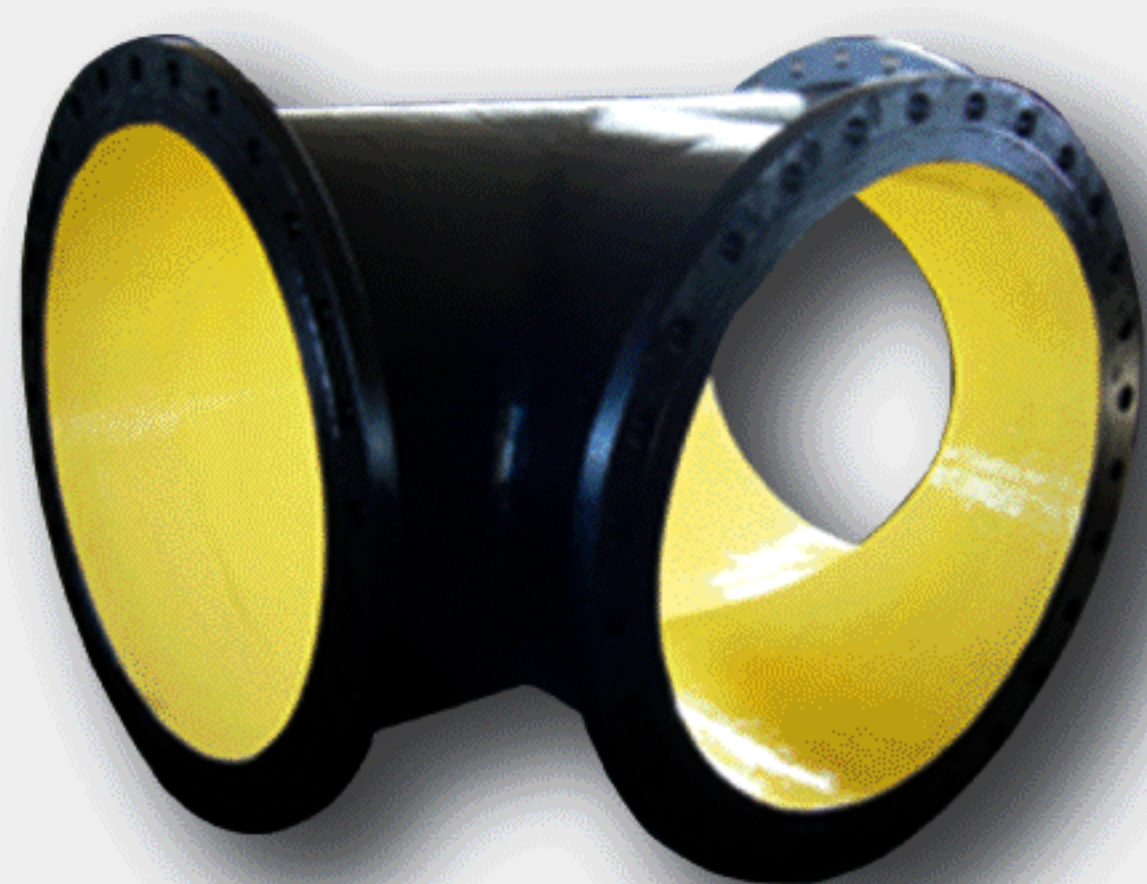
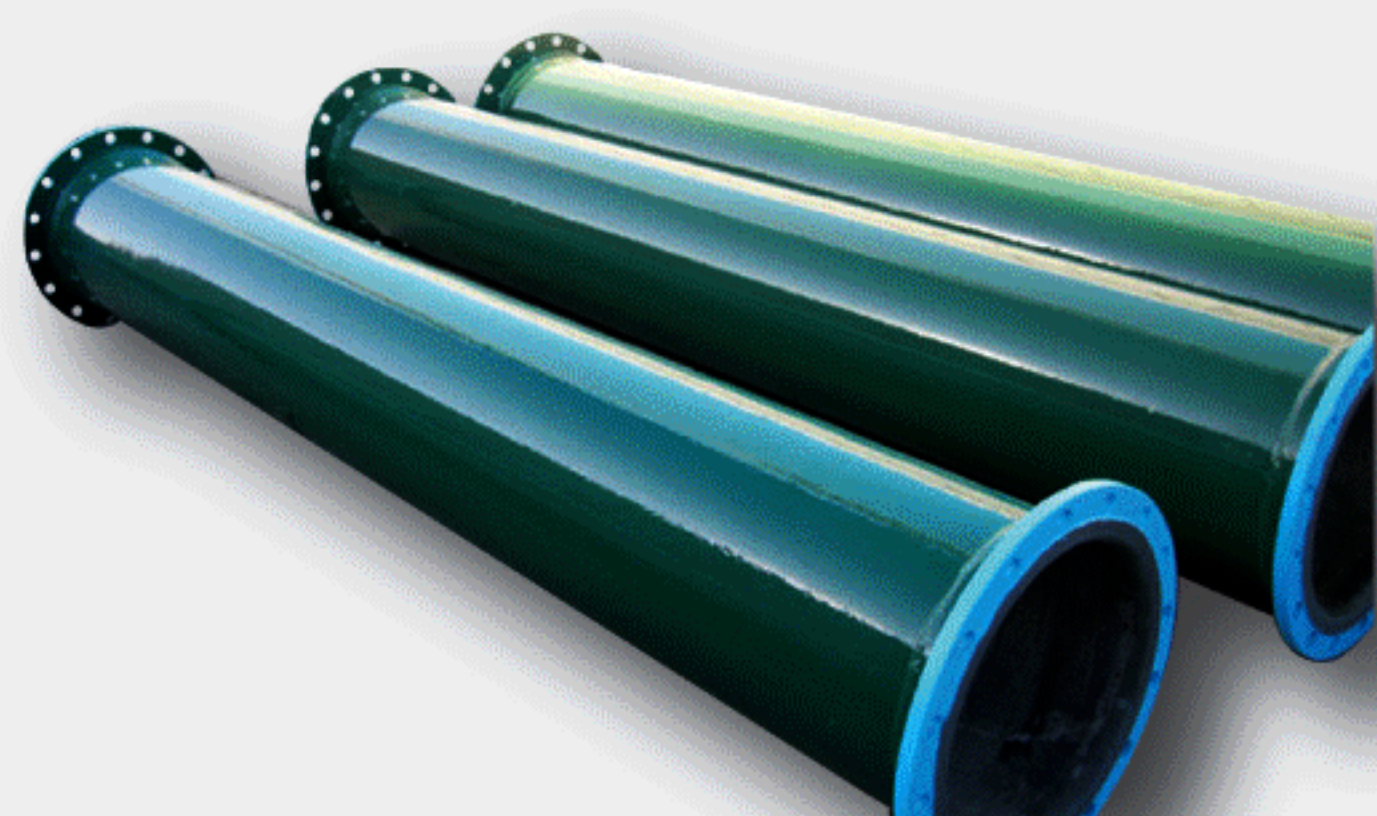
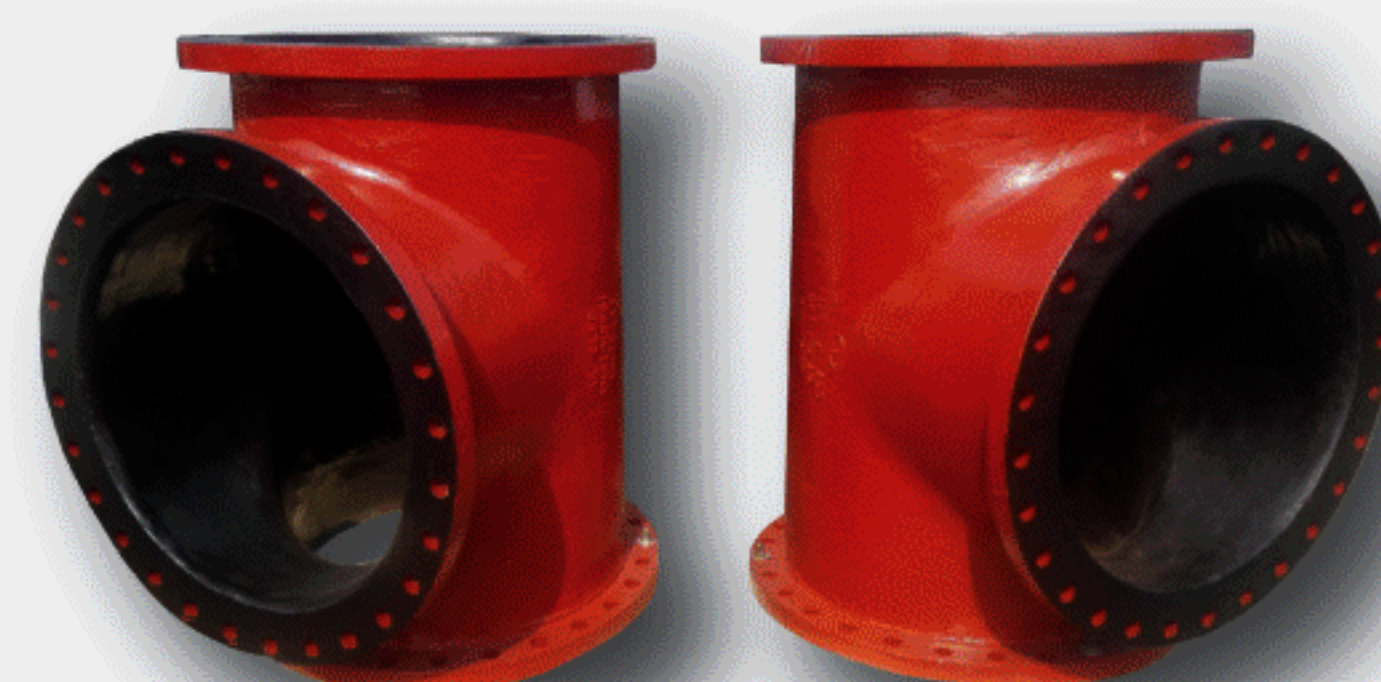
Combining the outstanding abrasion and impact resistance with a significant degree of flexibility, these high performance passive protective coatings completely isolating the Ductile Iron material from extreme corrosive environment.

waterworks

enhanced water quality assurance by ensuring that the water is unaffected (by the alkalinity of cement mortar lining) even after protracted stagnation periods.

other challenging applications

suitable in many different immersion conditions including sea, foul and raw water, also in chemically polluted, marine or underground environments.



polyurethane

fusion bonded epoxy

ceramic epoxy



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