



ft ductile



## Ductile Iron Pipe

FT Ductile stocks and supplies a wide range of high quality ductile pipes, fittings and ancillary products to the water industry for both potable and dirty water. Whatever the size of project, we provide a tailor-made solution that includes the supply, delivery, traceability and after-sales service that you demand from your ductile supplier.

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## Technical Specifications for Ductile Iron Pipes and Fittings

We supply ductile iron pipes and fittings from 80mm to 2600mm diameters. Stock items can be delivered next day or we can provide a tailor-made solution for your entire project including sourcing, supply, delivery and after-sales service.

We have a number of exclusive distribution agreements in place and all products conform to DWI standards.

**FT Ductile Ltd is accredited to ISO 9001, ISO 14001 and  
ISO 45001**

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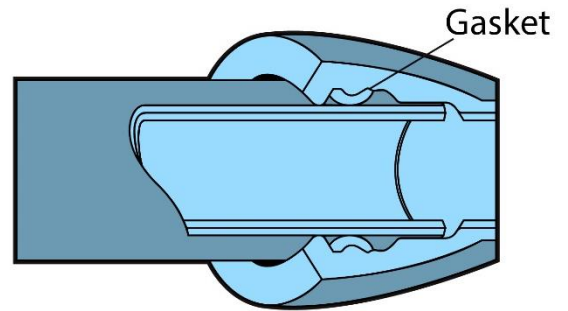
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**EN 545 (WATER PIPE)**

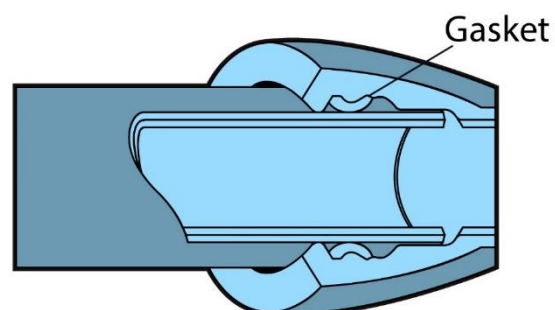
DN mm	Pipe OD mm	Nominal wall thickness	Class	Standard length m**	Weight per pipe kg
80mm–1600mm tyton push fit socket spigot T type joint					
EN 545 : 2010					
80	98	3	40	5.5	69
100	118	3	40	5.5	83
150	170	3	40	5.5	122
200	222	3.1	40	5.5	167
250	274	3.9	40	5.5	235
300	326	4.6	40	5.5	314
350	378	4.7	30	5.5	388
400	429	4.8	30	5.5	454
450	480	5.1	30	5.5	532
500	532	5.6	30	5.5	626
600	635	6.7	30	5.5	846
700	738	6.8	25	5.5	1046
800	842	7.5	25	5.5	1288
900	945	8.4	25	5.5	1573
1000	1048	9.3	25	5.5	1889
1100	1152	10.2	25	5.5	2134
1200	1255	11.1	25	5.5	2482
1400	1462	11.9	25	5.5	3376
1500	1565	13.9	25	5.5	3758
1600	1668	14.8	25	5.5	4668
1800	1875	16.6	25	5.5	6182
2000	2082	18.4	25	5.5	7436
2200	2288	23.8	25	5.5	8790



\*\* Only 5.5m lengths are available from stock. 6m lengths are available to order.

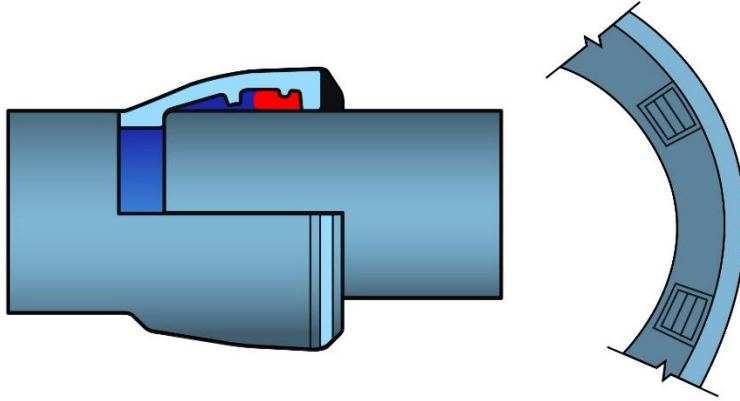
## EN 598 (SEWER PIPE)

DN mm	Pipe OD mm	Nominal wall thickness	Class	Standard length m**	Weight per pipe (kg)
80mm–1600mm tyton push fit socket spigot T type joint					
EN 598 sewer pipe					
80	98	3	40	5.5	69
100	118	3	40	5.5	83
150	170	3	40	5.5	122
200	222	3.1	40	5.5	167
250	274	3.9	40	5.5	235
300	326	4.6	40	5.5	314
350	378	4.7	30	5.5	388
400	429	4.8	30	5.5	454
450	480	5.1	30	5.5	532
500	532	5.6	30	5.5	626
600	635	6.7	30	5.5	846
700	738	6.8	25	5.5	1046
800	842	7.5	25	5.5	1288
900	945	8.4	25	5.5	1573
1000	1048	9.3	25	5.5	1889
1100	1152	10.2	25	5.5	2134
1200	1255	11.1	25	5.5	2482
1400	1462	11.9	25	5.5	3376
1500	1565	13.9	25	5.5	3758
1600	1668	14.8	25	5.5	4201
1800	1875	16.6	25	5.5	6182
2000	2082	18.4	25	5.5	7436
2200	2288	23.8	25	5.5	8790



\*\* Only 5.5m lengths are available from stock. 6m lengths are available to order.

VIP HEINKE TYTON-SIT ANCHOR GASKET

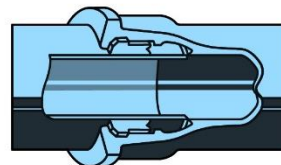


The tyton-sit anchor must only be used with a tyton socket profile joint and cannot be used with a Rapid or AJ type socket profile.

DN mm	Angular deflection	Operating pressure maximum working pressure C class pipe	Maximum test pressure	Class thickness
80	3°	16	35	40
100	3°	16	27	40
150	3°	16	27	40
200	3°	16	27	40
250	3°	16	27	40
300	3°	16	25	40
350	3°	16	25	30
400	3°	16	21	30
450	2°	16	21	30
500	2°	16	21	30
600	2°	16	21	30



Tyton



AJ / Rapid

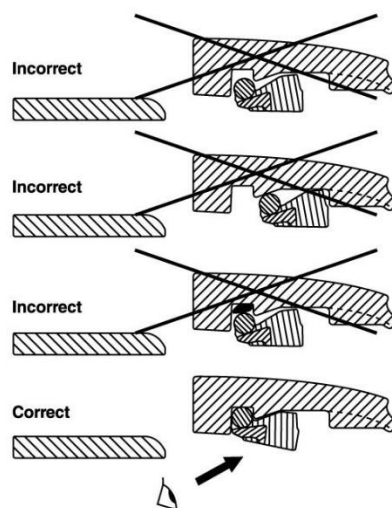
## ASSEMBLY OF GASKET

### Gasket insertion

1. Ensure gasket and socket are clean and lubricate if required with a thin layer of lubricant in the gasket chamber area. (Do not lubricate chamber area when using tyton-sit anchor gasket.)
2. Squeeze the gasket into a heart / loop shape.
3. Insert gasket into the socket ensuring that the hard retaining heel of the gasket is firmly bedded into the seating groove. (On larger diameter gaskets, it will be easier to form additional loop.)
4. Tyton-sit Anchor, care must be taken when forming the heart / loop shape so that the loop is between the stainless steel teeth.
5. Lubricate the spigot end of the pipe and the inside of the surface area of a standard gasket.
6. The gasket must not be protruding over the edge of the centring bead.

Insertion marked by 2 Vertical lines at spigot	Diameter of pipe					
	80mm	100mm	150mm	200mm	250mm	300mm
insertion depth (x)mm	69	73	79	85	90	95
insertion depth (y)mm	82	86	92	98	103	108
	350mm	400mm	450mm	500mm	600mm	
insertion depth (x)mm	95	95	89	105	105	
insertion depth (y)mm	108	108	107	118	148	

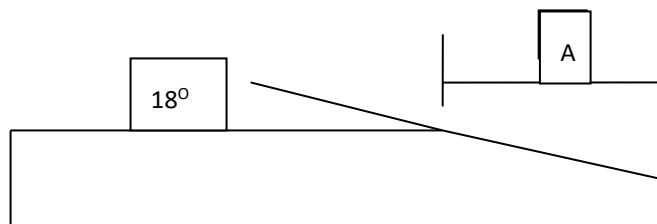
Number of gaskets lubricated with a 1kg tin					
dia	No. of joints	dia	No. of joints	dia	No. of joints
80mm	66	250mm	32	450mm	18
100mm	64	300mm	26	500mm	16
150mm	42	350mm	22	600mm	14
200mm	40	400mm	20		



## PROCEDURE FOR CUTTING PIPES ON SITE

- 
- Pipes cut on site must be chamfered / bevelled and rounded after cutting (see table).
- Re-coat the spigot end after cutting
- All pipes to 300mm diameter are suitable for cutting along the length of the pipe barrel to within 1 metre of the socket joint.
- Pipes over 300mm need to be checked prior to cutting to ensure they are within the tolerances specified and therefore suitable for cutting. Pipes can be supplied suitable for cutting; they need to be ordered separately.
- Pipes ordered suitable for cutting will be marked, usually with a longitudinal line plus a marking on the socket. (Please ensure suitable safety wear is used when cutting pipes on site.)
- Where pipes of a nominal size DN350 to 1000mm are to be cut on site and subsequently jointed into a push fit joint, the following procedures should be carried out (see over).

Chamfer dimensions		
	A	
Dia pipe mm	min	max
80	10	14
100	10	14
150	10	14
200	10	14
250	10	14
300	10	14
350	10	14
400	12	16
450	12	16
500	14	18
600	14	18
700	16	20
800	16	20
900	18	22
1000	20	24



Check the average external diameter of the pipe at the proposed point of the cut. This dimension must comply with the limits specified in table 1 below.

After cutting the pipe, check the cut end; if this is found to be oval, locate and mark the major axis. Only where this exceeds the dimension specified in table 2, will ovality correction be required prior to jointing. (Details on ovality correction are available on request.)

Please note that cut spigots jointed into a push fit joint need to be chamfered.

**Table 1**

Average external diameter of ductile iron pipe						
		Measured circumferentially with a standard tape		Measured circumferentially with a diameter tape		
Dia	Min		Max	Min		Max
Mm	mm		mm	mm		mm
350	1177		1191	374.5		379
400	1337		1351	425.5		430
450	1497		1511	476.5		481
500	1660		1674	528.5		533
600	1983		1998	631		636
700	2306		2321	734		739
800	2632		2648	837.5		843
900	2955		2971	940.5		946
1000	3277		3295	1043		1049

**Table 2**

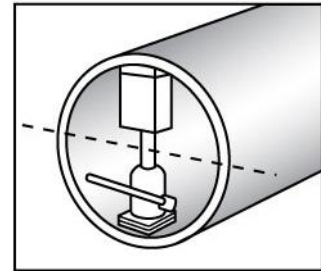
Maximum major axis of spigot end for jointing into a push fit joint			
Dia			
mm		mm	
350		379	
400		430	
450		481	
500		533	
600		636	
700		748	
800		850	
900		960	
1000		1064	

Pipes marked suitable for cutting can be supplied by arrangement.

### Method 1

The use of this is recommended where it is possible to remove the tackle after ovality correction and subsequent jointing.

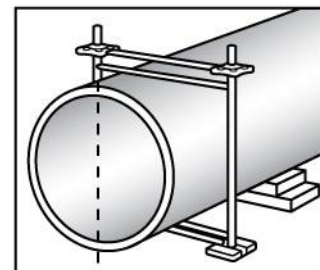
- Position the timber strut and jack (approximately 5 tonne capacity) into the spigot end at 90 degrees to the major axis. (Rubber / timber packing should be placed in position to prevent damage to the pipe lining.)
- Extend the jack until the ovality is within the tolerance detailed in table 2 (on previous page).
- Complete the jointing operation with the major axis of the spigot in the vertical position.
- After jointing remove the tackle.
- When jointing with couplings it may be necessary to use two jacks in order to obtain a round profile.



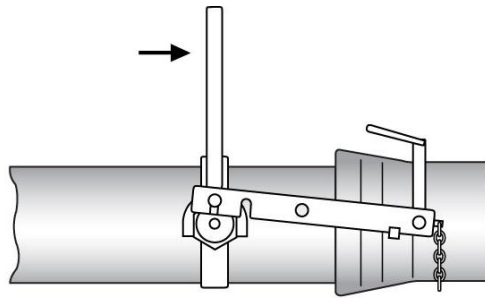
### Method 2

The use of this method is recommended where it is not possible to remove the tackle as described in method 1, after ovality correction and subsequent jointing.

- Place the tackle around the spigot end of the pipe at a position 450mm from end with the major axis of the spigot vertical. Where pipes are wrapped, rubber pads or similar should be placed between the re-rounding tackle and the pipe for protection.
- Tighten the two nuts evenly until the ovality is within the tolerances specified in table 2 (on previous page).
- Complete the jointing operation with the major axis of the spigot in the vertical position.
- After jointing, remove the tackle.



## SMALL PIPE INSTALLATION



### 80mm – 450mm Sidelink tackle

- Insert the gasket and lubricate the joint area as previously instructed (see page 6).
- Support the pipe joint clear of the bottom of the trench.
- Using a pipe pulling tool, pull the spigot into the socket ensuring an even pull on each side to prevent an uneven entry.
- By reversing the jointing tackle, the joint can be separated. If you have installed an anchor gasket, suitable shims will be required to enable the pipe to be separated.

## TRENCH DIGGER INSTALLATION

- Where suitable equipment is available on site, push fit type joints can be made using a trench digger. This method reduces the time required to make a joint.
- Prepare the joint area and place the pipe in position ready for jointing.
- The joint can then be pushed steadily home using the digger bucket against the end of the pipe as shown.
- A substantial piece of timber or steel plate (as shown) should be placed between the pipe end and the bucket of the digger to avoid possible damage to the end of the pipe.



### EN 545

Push-in joint is assembled by pushing the spigot through the gasket in the counter socket. It permits significant angular deflection both during and after installation and also can accept a light offset of the centreline.

**Pipes:** Pipes shall conform to BS EN 545:2010; wall thickness shall be class C40 for the sizes DN 80mm to DN 400mm, class C30 for the sizes DN 450mm to DN 600mm and class C25 for the sizes DN 700mm to DN 2000mm. Suitable for push-on (flexible) jointing in standard lengths of 5.5m. Pipes over DN 2000mm will be class K9 unless otherwise specified.

**Internal Lining:** Pipes shall be centrifugally cement mortar lined as per the requirement of BS EN 545:2010 with blast furnace cement conforming to the requirements of BS EN 197. The pipes shall be epoxy seal coated with a DWI approved epoxy.

**External Coating:** DN 80mm to DN 800mm – pipes shall be externally coated with a zinc/aluminium (ZnAl) pseudo alloy of 400gm/m<sup>2</sup> in the ratio of 85:15 with a finishing layer of 70 microns minimum of blue epoxy as per the requirement of BS EN 545:2010

DN 900mm to DN 2600mm – pipes shall be externally coated with zinc of 200gm/m<sup>2</sup> with a finishing layer of 70 microns minimum of blue epoxy as per the requirement of BS EN 545:2010

**Rubber gasket:** Sealing rings of EPDM quality conforming to the requirement of BS EN 681-1 type WA, and WRAS approved, will be provided suitable for push-on flexible joints.

**Internal socket ends of pipe and external spigot joint area:** DWI approved epoxy.

### EN 598

**Pipes:** Pipes shall conform to BS EN 598:2010; wall thickness shall be class C40 for the sizes DN 80mm to DN 400mm, class C30 for the sizes DN 450mm to DN 600mm and class C25 for the sizes DN 700mm to DN 2000mm. Suitable for push-on (flexible) jointing in standard lengths of 5.5m.

**S&S Sewerage Pipes:** Pipes shall conform to BS EN 598:2007 + A1:2009, suitable for push-on (flexible) jointing in standard lengths of 5.5m.

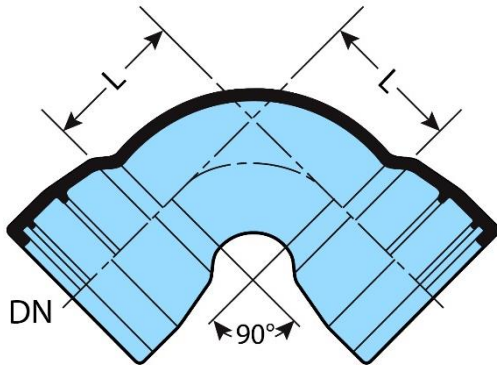
**Internal Lining:** Pipes shall be centrifugally cement mortar lined with high alumina cement, as per the requirement of BS EN 598:2007 + A1:2009.

**External Coating:** DN 80mm to DN 800mm – pipes shall be externally coated with a zinc/aluminium (ZnAl) pseudo alloy of 400gm/m<sup>2</sup> in the ratio of 85:15 with a finishing layer of 70 microns minimum of red epoxy as per the requirement of BS EN598:2007 + A1:2009.

DN 900mm to DN 1000mm – pipes shall be externally coated with zinc of 200gm/m<sup>2</sup> with a finishing layer of 70 microns minimum of red epoxy as per the requirement of BS EN 598:2007.

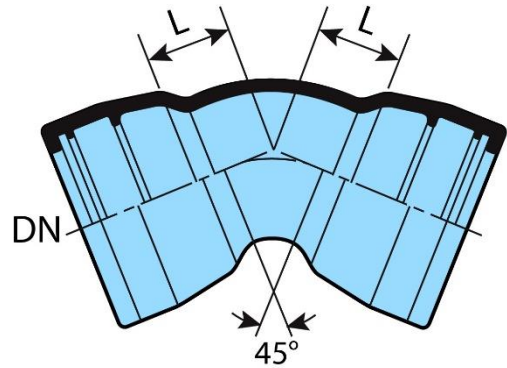
**Rubber gasket:** Sealing rings of EPDM quality conforming to the requirement of BS EN 681-1 type WG will be provided suitable for push-on flexible joints.

90° DOUBLE SOCKET BENDS



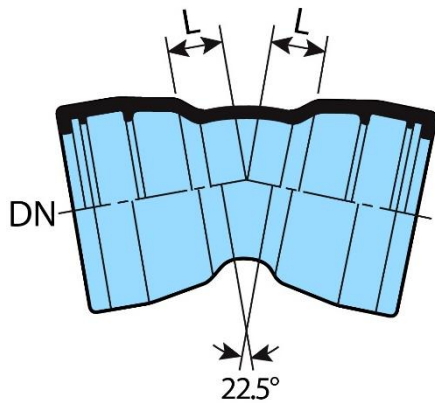
DN	L	Mass (kg)
80	100	8.6
100	120	11.4
150	170	20.5
200	220	33
250	270	48.5
300	320	68
350	370	97.5
400	420	124
450	470	156
500	520	193
600	620	280
700	720	455
800	820	605
900	920	813
1000	1020	1045
1100	1120	1253
1200	1220	1663
1400	1220	1949
1500	1270	2276
1600	1290	2626
1800	1320	3342
2000	1360	4204
The following will be a K type joint		
2200	1400	5884
2400	1460	7205
2600	1520	8705

45° DOUBLE SOCKET BENDS



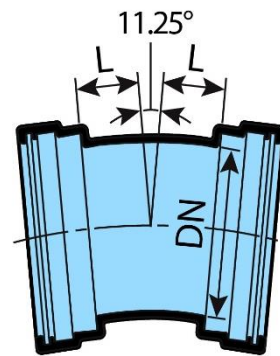
DN	L	Mass (kg)
80	55	7.7
100	65	10.1
150	85	17.4
200	110	27
250	130	38.5
300	150	53
350	175	70
400	195	89
450	220	117
500	240	139
600	285	202
700	330	282
800	370	378
900	415	496
1000	460	635
1100	505	856
1200	550	986
1400	515	1273
1500	540	2025
1600	565	1740
1800	610	2296
2000	660	2970
2200	710	3962
2400	755	4665
2600	805	5721

## 22.5° DOUBLE SOCKET BENDS



DN	L	Mass (kg)
80	40	7.3
100	40	9.3
150	55	15.9
200	65	24
250	75	33.5
300	85	44.5
350	95	58
400	110	74
450	120	105
500	130	111
600	150	157
700	175	217
800	195	287
900	220	373
1000	240	470
1100	260	644
1200	285	716
1400	260	933
1500	270	1627
1600	280	1659
1800	350	1663
2000	330	2144
2200	355	2707
2400	380	3359
2600	400	4087

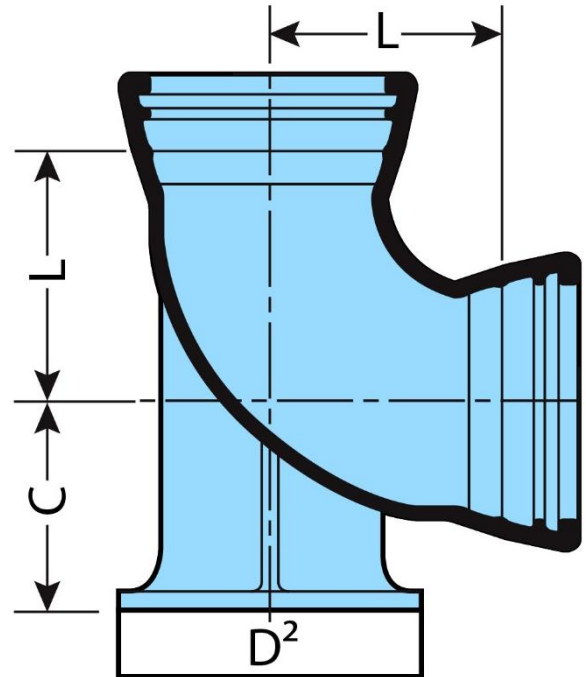
## 11.25° DOUBLE SOCKET BENDS



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	84
500	75	96
600	85	134
700	95	181
800	110	239
900	120	305
1000	130	381
1100	140	525
1200	150	568
1400	130	747
1500	140	1204
1600	140	1007
1800	155	1331
2000	165	1702
2200	190	2183
2400	205	2709
2600	215	3290

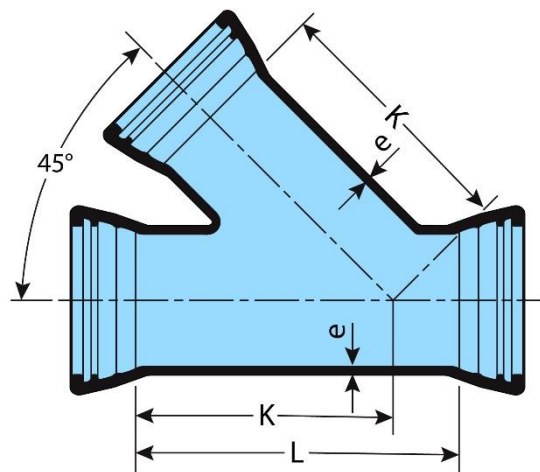
## 90° DOUBLE SOCKET DUCKFOOT BENDS

DN	L	C	D <sup>2</sup>	Mass (kg)
80	100	110	180	11.3
100	120	125	200	14.8
150	170	160	250	28.5
200	220	190	300	44.5
250	270	225	350	68.5
300	320	225	400	100
350	370	290	450	133
400	420	320	500	180
450	470	355	550	230
500	520	385	600	309
600	620	450	700	442
700	720	515	800	618
800	820	580	900	832
900	920	645	1000	1113
1000	1020	710	1100	1435
1100	1120	775	1200	1781
1200	1220	840	1300	2153



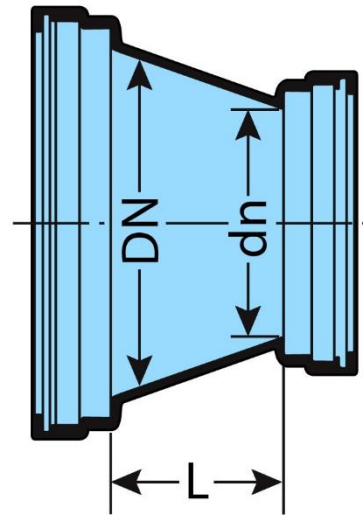
## ALL SOCKET ANGLE BRANCH

DN	L	K	PN16 kg
80	500	375	19
100	540	405	25.5
150	640	480	45.5
200	735	560	71.5
250	830	640	106
300	930	715	151
350	880	790	169
400	970	870	209
450	1060	950	281
500	1140	1025	347
600	1310	1180	511



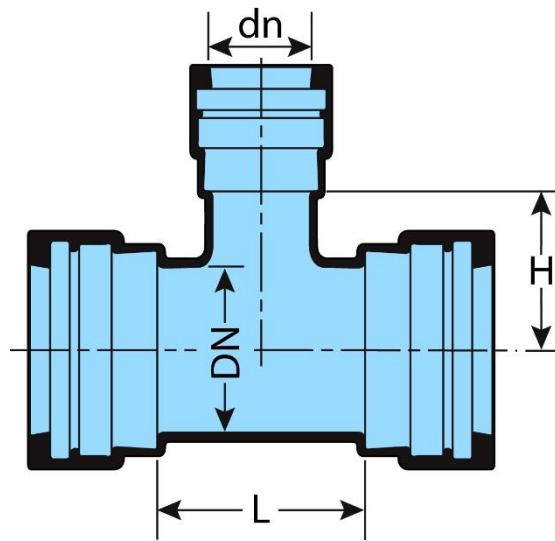
## DOUBLE SOCKET TAPERS

DN	dn	L	Mass (kg)
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	73.5
400	250	360	66
400	300	260	64
400	350	160	62
450	300	360	74.5
450	350	260	69.5
450	400	160	66
500	350	360	98
500	400	260	94
500	450	160	78
600	350	460	148
600	450	360	124
700	500	480	194
700	600	280	178
800	600	480	252
800	700	280	229
900	700	480	318
900	800	280	288
1000	800	480	392
1000	900	280	354
1100	1000	280	457
1200	1000	480	570
1400	1200	360	711
1500	1400	260	742
1600	1400	360	951



Please contact the office for details on diameters above 1600mm.

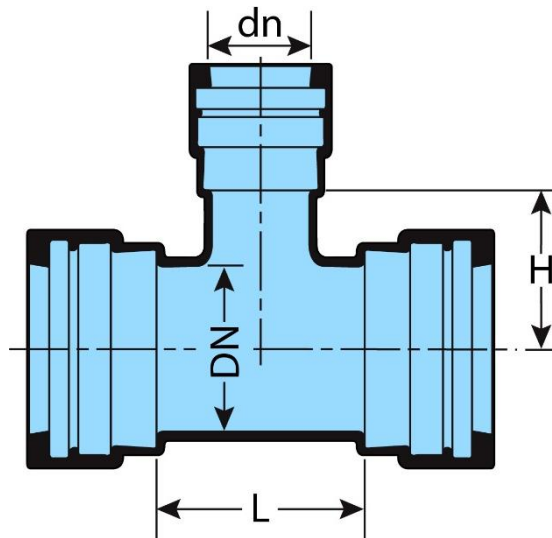
## ALL SOCKET TEES



DN	dn	L	H	Mass (kg)
80	80	170	85	12.4
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	80	180	170	35.5
250	100	200	170	34.5
250	150	260	175	59.5
250	200	315	180	66.5
250	250	375	190	53.5
300	80	220	235	54.5
300	100	205	195	49
300	150	260	200	67.2
300	250	435	220	70.3
300	300	435	260	90.5
350	100	205	260	70.5
350	150	260	265	86.5
350	200	320	270	90.5
350	250	375	275	96.9
350	300	435	285	110
350	350	495	290	124
400	100	210	285	83
400	150	265	290	101
400	200	325	295	105
400	250	375	300	116
400	300	435	310	127
400	350	495	315	137

DN	dn	L	H	Mass (kg)
400	400	560	320	155
450	100	270	320	117
450	150	325	320	121
450	200	375	325	138
450	400	620	350	190
450	450	215	345	115
500	100	275	345	135
500	150	330	345	139
500	200	380	350	161
500	250	450	360	167
500	300	500	365	187
500	350	565	370	198
500	400	620	375	214
500	450	680	380	231
500	500	220	395	169
600	100	285	395	175
600	150	340	395	175
600	200	380	400	205
600	250	455	410	211
600	350	570	420	248
600	400	620	425	280
600	450	685	430	296
600	500	800	440	325
600	600	345	445	224
700	100	395	445	241
700	200	345	445	289
700	300	575	460	326
700	400	575	470	361
700	500	810	480	380
700	600	810	490	461
700	700	925	500	536

## All Socket Tees (cont.)

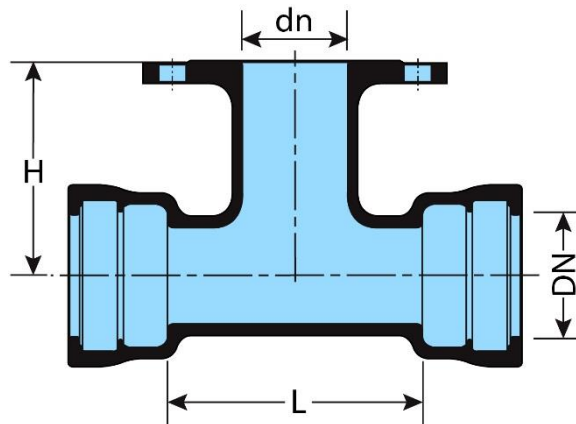


DN	dn	L	H	Mass (kg)
800	100	350	495	287
800	150	350	495	307
800	200	350	495	353
800	300	580	510	399
800	400	580	520	439
800	500	815	530	472
800	600	815	540	629
800	700	1045	550	586
800	800	1045	560	701
900	100	355	545	360
900	150	355	545	386
900	200	355	545	458
900	300	590	570	462
900	400	592	570	556
900	500	820	590	574
900	600	820	590	833
900	700	1050	615	878
900	800	1050	615	903
900	900	1170	625	944
1000	100	360	595	443
1000	150	360	595	474

DN	dn	L	H	Mass (kg)
1000	200	360	595	557
1000	300	595	620	564
1000	400	595	620	672
1000	500	830	640	690
1000	600	830	640	1008
1000	700	1055	665	1081
1000	800	1055	665	1129
1000	900	1290	685	1150
1000	1000	1290	685	1209
1200	100	375	700	648
1200	150	375	700	685
1200	200	375	700	725
1200	300	605	720	816
1200	400	605	720	978
1200	500	840	740	1095
1200	600	840	740	1139
1200	700	1070	765	1390
1200	800	1070	765	1449
1200	900	1300	785	1596
1200	1000	1300	785	1657
1200	1200	1535	805	1900

Please contact the office for details on diameters above 1200mm.

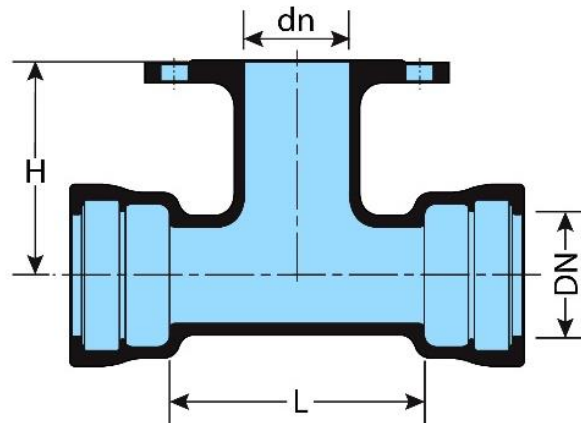
## FLANGE (PN16) ON DOUBLE SOCKET TEES



DN	dn	L	H	Mass (kg)
80	80	170	165	13.5
100	80	170	165	15.8
100	100	190	180	17.7
150	80	170	205	23
150	100	195	210	25
150	150	255	220	30.5
200	80	175	235	31.5
200	100	200	240	34
200	150	255	250	40
200	200	315	260	17.5
250	80	180	270	47
250	100	200	270	48
250	150	260	280	59
250	200	315	290	62.5
250	250	375	300	71.5
300	80	220	300	65
300	100	205	310	78.5
300	150	260	320	81.5
300	250	435	330	94
300	300	435	340	102
350	100	205	330	76.5
350	150	260	340	93
350	200	320	350	96
350	250	375	360	114
350	300	435	370	118
350	350	495	380	129

DN	dn	L	H	Mass (kg)
400	100	210	360	91
400	150	265	370	109
400	200	325	380	113
400	400	560	420	163
450	100	215	395	98.5
450	150	270	400	119
450	200	325	410	122
450	250	375	420	140
450	300	455	430	149
450	350	495	440	169
450	400	560	450	181
450	450	620	460	200
500	100	215	420	116
500	150	275	430	137
500	200	330	440	141
500	250	380	450	165
500	300	450	460	171
500	350	500	470	195
500	450	620	490	228
500	500	680	500	247
600	100	220	780	146

## Flange (NP16) on Double Socket Tees (cont.)

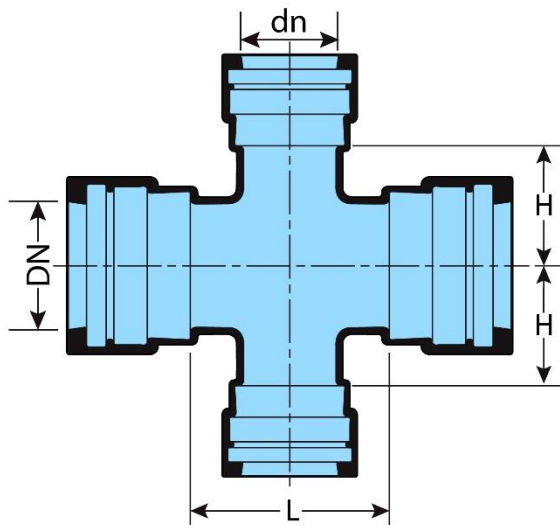


DN	dn	L	H	Mass (kg)
800	100	350	570	304
800	150	350	580	308
800	200	350	585	311
800	300	580	600	371
800	400	580	615	403
800	500	815	630	537
800	600	815	645	605
800	700	1045	660	635
800	800	1045	675	642
900	100	355	630	378
900	150	355	640	381
900	200	355	645	384
900	300	590	660	445
900	400	592	675	495
900	500	820	690	681
900	600	820	705	774
900	700	1050	720	803
900	800	1050	735	823
900	900	1170	750	854

DN	dn	L	H	Mass (kg)
1000	100	360	690	461
1000	150	360	700	451
1000	200	360	705	467
1000	300	595	720	552
1000	400	595	735	596
1000	500	830	750	867
1000	600	830	765	973
1000	700	1055	780	1000
1000	800	1055	795	1021
1000	900	1290	810	1076
1000	1000	1290	825	1086
1200	100	375	810	676
1200	150	375	820	678
1200	200	375	825	682
1200	300	605	840	769
1200	400	605	855	856
1200	500	840	870	973
1200	600	840	885	1027
1200	700	1070	900	1184
1200	800	1070	915	1210
1200	900	1300	930	1427
1200	1000	1300	945	1448
1200	1200	1535	975	1736

Please contact the office for details on diameters above 1200mm.

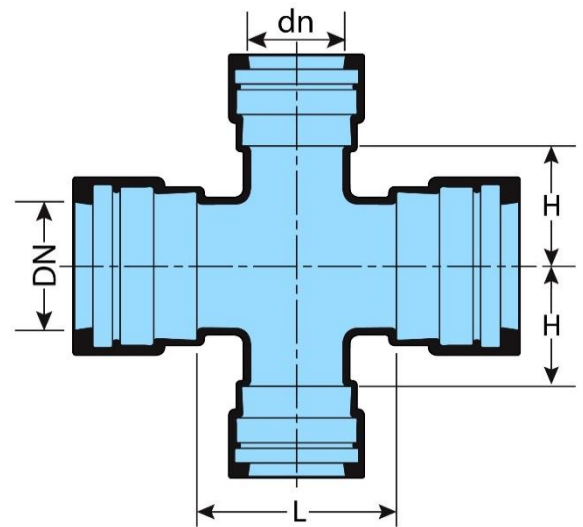
## ALL SOCKET CROSSES



DN	dn	L	H	Mass (kg)
100	100	190	95	19.8
150	100	195	120	26.6
150	150	255	125	33.6
200	100	200	145	34.2
200	150	255	150	41.7
200	200	315	155	50.9
250	100	200	170	44.9
250	150	260	175	57.9
250	200	315	180	64.2
250	250	375	190	75.1
300	100	205	195	55.7
300	150	260	200	71.1
300	200	320	205	77.6
300	250	375	210	93.3
300	300	435	220	101
350	200	320	235	91.7
350	250	380	240	110
350	300	440	245	123
350	350	195	250	187
400	200	325	255	108
400	250	385	265	130
400	350	500	275	157
400	400	560	280	177
500	250	390	315	174
500	300	450	320	191
500	350	505	325	207
500	400	565	330	223
500	500	680	340	272

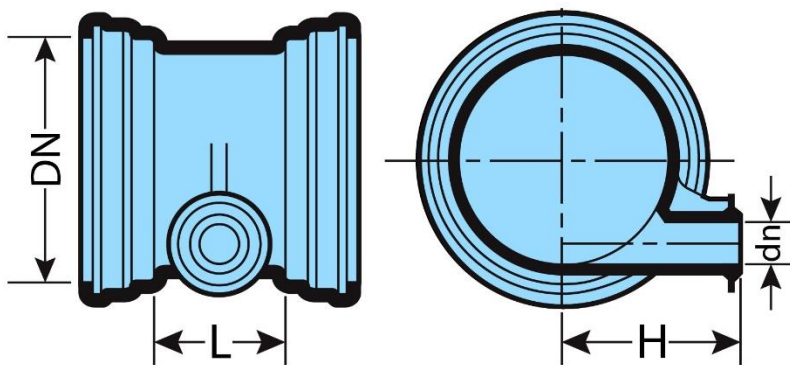
## All Socket Crosses (cont.)

DN	dn	L	H	Mass (kg)
600	300	455	370	249
600	350	510	375	267
600	400	570	380	278
600	500	685	390	330
600	600	800	400	399
700	600	810	450	607
700	700	925	460	712
800	700	930	510	831
800	800	1045	525	963
900	800	1050	575	1105
900	900	1170	585	1262
1000	900	1175	635	1432
1000	1000	1290	645	1612
1200	1000	1300	745	2246
1200	1200	1535	765	2497



Please contact the office for details on other sizes and diameters above 1200mm.

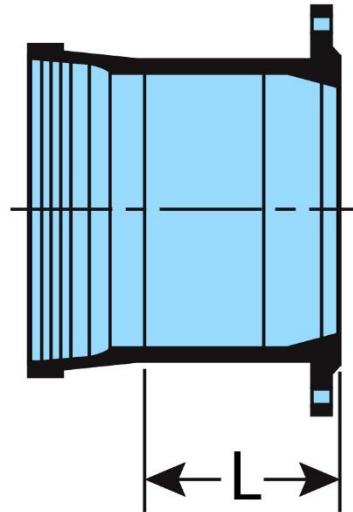
## FLANGE ON DOUBLE SOCKET LEVEL INVERT TEE



DN	dn	L	H	Mass (kg)
150	80	190	220	24
200	80	190	250	33
250	80	220	275	45
250	100	220	275	46
300	80	220	305	50
300	100	220	305	53
400	100	225	365	76

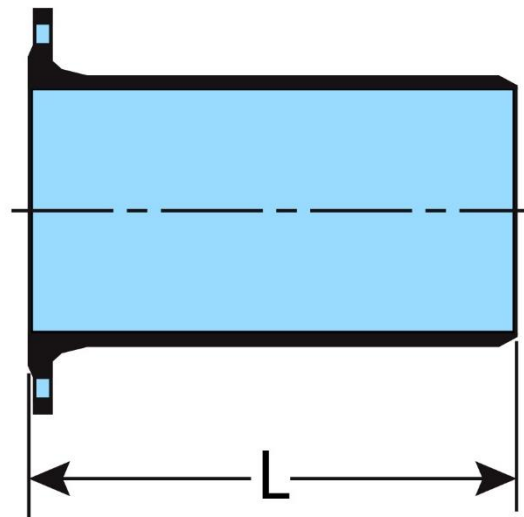
## FLANGED / TYTON SOCKET

DN	L	Mass (kg)
		PN16
80	130	8.3
100	130	10.2
150	135	16.4
200	140	24
250	145	32
300	150	39
350	155	60.5
400	160	64
450	165	78
500	170	96.5
600	180	135
700	190	159
800	200	208
900	210	258
1000	220	324
1100	230	413.8
1200	240	521



## STANDARD FLANGED SPIGOT

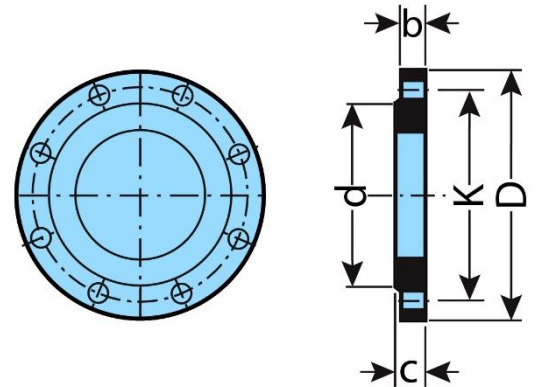
DN	L	Mass (kg)
		PN16
80	350	7.8
100	360	9.6
150	380	15.6
200	400	22.5
250	420	31.5
300	440	42.5
350	460	55
400	480	70
450	500	87
500	520	109
600	560	159
700	600	194
800	600	245
900	600	295
1000	600	369
1100	600	430
1200	600	520



Please contact the office for details on diameters above 1200mm.

### Dimensions of Flange PN16

DN	D	K	d	b	c	Bolt	
						Size	No.
40	150	110	84	16	19	M16	4
50	165	125	99	16	19	M16	4
60	175	135	108	16	19	M16	4
65	185	145	118	16	19	M16	4
80	200	160	132	16	19	M16	8
100	220	180	156	16	19	M16	8
125	250	210	184	16	19	M16	8
150	285	240	211	16	19	M20	8
200	340	295	266	17	20	M20	12
250	400	355	319	19	22	M24	12
300	455	410	370	21.5	24.5	M24	12
350	520	470	429	23.5	26.5	M24	16
400	580	525	480	25	28	M27	16
450	640	585	548	27	30	M27	20
500	715	650	609	28.5	31.5	M30	20
600	840	770	720	33	36	M33	20
700	910	840	794	36.5	39.5	M33	24
800	1025	950	901	40	43	M36	24
900	1125	1050	1001	43.5	46.5	M36	28
1000	1255	1170	1112	47	50	M39	28
1100	1355	1270	1218	50.5	53.5	M39	32
1200	1485	1390	1328	54	57	M45	32
1400	1685	1590	1530	57	60	M45	36
1500	1820	1710	1640	59.5	62.5	M52	36
1600	1930	1820	1750	62	65	M52	40
1800	2130	2020	1950	67	70	M52	44
2000	2345	2230	2150	72	75	M56	48
2200	2555	2440	2370	78	81	M56	52
2400	2765	2650	2570	83	86	M56	56
2600	2965	2850	2780	88	91	M56	60

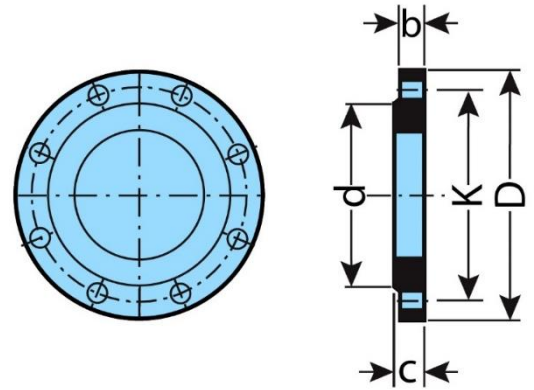


Flanges to EN 1092-1

Sizes up to 2600mm available upon request.

## Dimensions of Flange PN10

DN	D	K	d	b	c	Bolt	
						Size	No.
80	200	160	132	16	19	M16	8
100	220	180	156	16	19	M16	8
150	285	240	211	16	19	M20	8
200	340	295	266	17	20	M20	8
250	400	350	319	19	22	M20	12
300	455	400	370	21.5	24.5	M20	12
350	505	460	429	21.5	24.5	M20	16
400	565	515	480	21.5	24.5	M24	16
450	615	565	530	21.5	24.5	M24	20
500	670	620	582	23.5	26.5	M24	20
600	780	725	682	27	30	M27	20
700	895	840	794	29.5	32.5	M27	24
800	1015	950	901	32	35	M30	24
900	1115	1050	1001	34.5	37.5	M30	28
1000	1230	1160	1112	37	40	M33	28
1100	1340	1270	1218	39.5	42.5	M33	32
1200	1455	1380	1328	42	45	M36	32



## Dimensions of Flange PN25

DN	D	K	d	b	c	Bolt	
						Size	No.
80	200	160	132	16	19	M16	8
100	235	190	156	16	19	M20	8
150	300	250	211	17	20	M24	8
200	360	310	274	19	22	M24	12
250	425	370	330	21.5	24.5	M27	12
300	485	430	389	24.5	27.5	M27	16
350	555	490	448	27	30	M30	16
400	620	550	503	29	32	M33	16
450	670	600	548	31.5	34.5	M33	20
500	730	660	609	33.5	36.5	M33	20
600	845	770	720	39	42	M36	20
700	960	875	820	43.5	46.5	M39	24
800	1085	990	928	48	51	M45	24
900	1185	1090	1028	52.5	55	M45	28
1000	1320	1210	1140	57	60	M52	28
1100	1420	1310	1240	61.5	64.5	M52	32
1200	1530	1420	1350	66	69	M52	32

Flanges to EN 1092-1

Sizes up to 2200mm available upon request.

**DOUBLE FLANGED FABRICATED PIPE (PN16)**

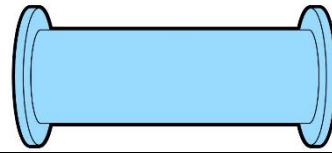
Dia (mm)	Min. length (mm)	Max. length (mm)	Min. length with puddle flange welded on	Min. length with boss
80	120	5200	180	260
100	130	5200	200	280
150	130	5200	200	300
200	140	5200	215	320
250	150	5200	230	340
300	160	5200	245	360
350	170	5200	260	380
400	280	5200	425	400
450	290	5200	440	410
500	300	5200	455	420
600	320	5200	485	460
700	360	5200	545	520
800	360	5000	660	540
900	500	5000	800	600
1000	500	5000	800	800
1200	600	5000	1000	800

**FLANGED SPIGOT FABRICATED PIPE (PN16)**

Dia (mm)	Min. length (mm)	Max. length (mm)	Min. length with puddle flange welded on	Min. length with boss
80	120	5200	215	260
100	130	5200	225	280
150	130	5200	225	300
200	140	5200	235	320
250	150	5200	250	340
300	160	5200	260	360
350	170	5200	260	380
400	280	5200	365	400
450	290	5200	375	410
500	300	5200	385	420
600	320	5200	410	460
700	360	5200	450	520
800	360	5000	450	540
900	500	5000	500	600
1000	500	5000	500	800
1200	600	5000	600	800

Please contact the office for details on diameters above 1200mm.

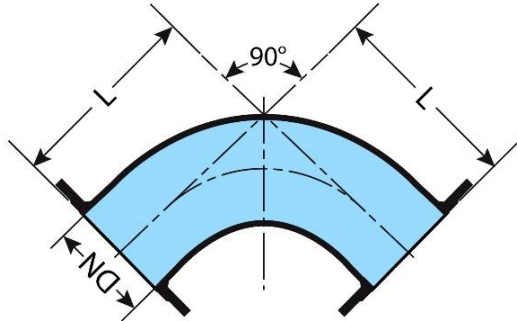
## DOUBLE FLANGED CAST PIPE (PN16)



DN	L	Kgs
		PN16
80	100	7.40
	150	8.20
	200	9.00
	225	9.40
	250	9.90
	300	10.70
	350	11.50
	400	12.30
	450	13.10
	500	14.00
	600	15.50
	700	17.20
	750	18.00
	800	18.80
900	20.40	
1000	22.00	
100	100	8.60
	150	9.60
	200	10.60
	250	11.60
	300	12.60
	350	13.60
	400	14.60
	450	15.60
	500	16.60
	600	18.60
	700	20.60
	750	21.60
800	22.60	
1000	26.60	
150	450	24.00
	500	25.60
	600	28.80
	700	32.00
	750	33.50
	800	35.10
	1000	41.40
200	100	17.60
	150	19.80
	200	22.00
	250	24.20
	300	26.40
	400	30.80
	450	33.00

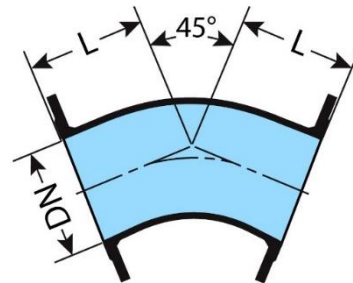
DN	L	Kgs
		PN16
200	500	35.20
	600	39.60
	700	44.00
	750	46.30
	800	48.50
	1000	57.20
250	100	24.30
	150	27.20
	200	30.10
	250	33.00
	300	36.00
	400	41.80
	450	44.80
	500	47.70
	600	53.60
	750	62.40
800	65.30	
1000	77.00	
300	100	32.30
	150	36.00
	200	39.70
	250	43.50
	300	47.20
	450	58.40
	500	62.20
	600	69.60
	750	80.80
	800	84.60
1000	99.50	
350	200	52.70
400	300	83.10
	500	98.80
	800	138.20
	1000	153.80
	1500	215.20
450	500	118.50
500	250	112.00
	300	129.40
	500	150.00
	1000	226.00
600	300	187.00
	400	207.00
	800	287.00
	1000	327.00

**90° DOUBLE FLANGED SHORT RAD BEND (PN16)**



DN	L	Kgs
		PN16
80	165	9.60
100	180	11.90
150	220	20
200	260	30
250	350	49
300	400	70
350	450	96
400	500	127
450	550	163
500	600	211
600	700	325
700	800	416
800	900	572
900	1000	745
1000	1100	990
1100	1200	1234
1200	1300	1562
1400	1350	2062
1600	1450	2841
1800	1500	3572

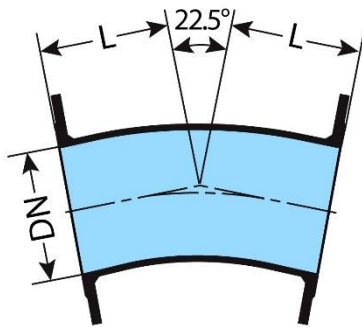
**45° DOUBLE FLANGED BEND (PN16)**



DN	Series	L	Kgs
			PN16
80	A/B	130	9.30
100	A/B	140	11.30
150	A/B	160	18.50
200	A/B	180	27
250	A	350	54
250	B	245	48
300	A	400	77
300	B	275	67
350	A	298	83
350	B	300	83
400	A	325	107
450	A	350	135
500	A	375	175
600	A	425	266
700	A	480	326
800	A	530	442
900	A	580	567
1000	A	630	751
1100	A	695	927
1200	A	750	1178
1400	A	775	1524
1600	A	845	2119
1800	A	910	2717
2000	A	980	3455
2200	A	880	3804
2400	A	945	4719
2600	A	1005	5695

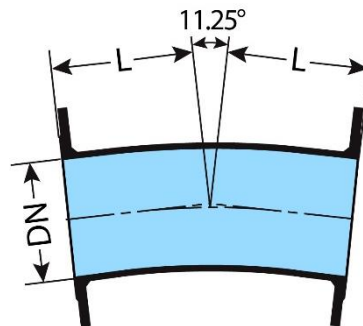
The dimensions of fittings over 600mm will be confirmed when an order is placed.

## 22.5° DOUBLE FLANGED BEND (PN16)



DN	Series	L	Kgs
			PN16
80	A	105	11
80	B	120	10
100	A	110	11.5
100	B	130	12
150	A	109	19
150	B	150	21
200	A	131	27
200	B	170	29
250	A/B	350	54.5
300	A/B	400	77.5
350	A	210	83
350	B	230	90
400	A	239	107
400	B	250	115
450	A	349	135
500	A	375	176
600	A	426	240.8
700	A	478	329.2
800	A	529	447
900	A	581	525.6
1000	A	632	760
1200	A	735	1182.6

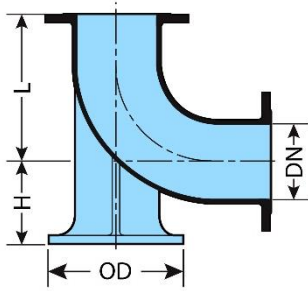
## 11.25° DOUBLE FLANGED BEND (PN16)



DN	Series	L	Kgs
			PN16
80	A	113	11
80	B	110	11
100	A	115	13
150	A	113	18.6
150	B	130	20
200	A	132	28
200	B	145	29
250	A/B	165	39
300	A/B	175	82
350	A	191	72
400	A/B	205	87
450	A	349	135
500	A	375	177
600	A	426	268
700	A	478	343
800	A	529	451
900	A	582	592
1000	A	632	778
1200	A	735	1188

The dimensions of fittings over 600mm will be confirmed when an order is placed.

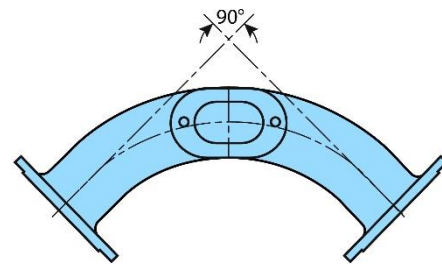
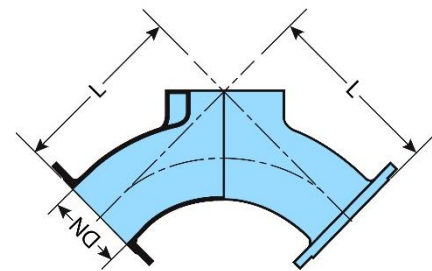
## 90° DOUBLE FLANGED DUCKFOOT BEND (PN16)



DN	L	H	OD	Kgs
				PN16
80	165	110	180	14.1
100	180	125	200	17.8
100x80	180	125	200	17
150	220	160	250	30
150x80	220	160	250	27.8
200	260	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	355	550	261
500	600	385	600	313
600	700	450	700	481
700	800	515	800	566
800	900	580	900	798
900	1000	645	1000	1050
1000	1100	710	1100	1380
1200	1300	840	1300	2709

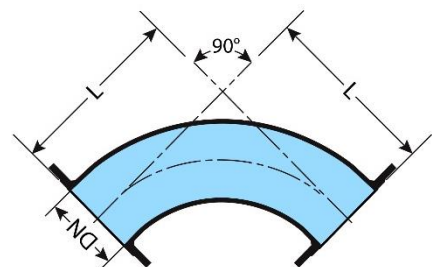
## DOUBLE FLANGED LONG RADIUS ACCESS BEND (PN16)

DN	L	Kgs
		PN16
80	380	25
100	400	30
150	450	54
200	500	77
250	550	105
300	600	135



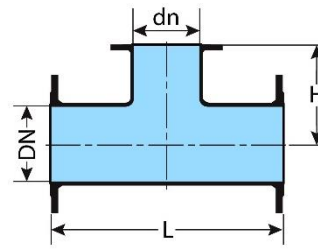
## 90° DOUBLE FLANGED LONG RADIUS BEND (PN16)

DN	L	Kgs
		PN16
80	380	14.5
100	400	18
150	450	30.1
200	500	45.5
250	550	65.2
300	600	89.5
350	650	121
400	700	157.4
450	750	197
500	800	252.6
600	900	379



The dimensions of fittings over 600mm will be confirmed when an order is placed.

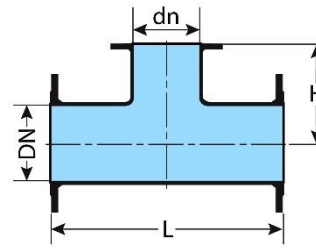
## All Flange Tee (PN16)



DN	dn	EN 545 standard series	L	H	Kgs PN16
80	50		330	160	14
80	80	A/B	330	165	16
100	80	B	330	170	18
		A	360	175	18
100	100	A/B	360	180	19
150	80	B	360	200	28
		A	440	205	29
150	100	B	380	205	28
		A	440	210	30
150	150	A/B	440	220	33
200	80	B	380	225	36
		A	520	235	42
200	100	B	400	230	41
		A	520	240	42
200	150	B	460	245	48
		A	520	250	46
200	200	A/B	520	260	49
250	80	B	405	265	51
		A	700	265	65
250	100	B	425	270	55
		A	700	275	67
250	150	B	485	280	61
		A	700	540	69
250	200	B	540	290	67
		A	700	325	75
250	250	B	600	300	69
		A	700	350	81
300	80	B	425	295	67
		A	800	290	91
300	100	B	450	300	71
		A	800	300	93
300	150	B	505	310	78
		A	800	325	96
300	200	B	565	320	85
		A	800	350	101
300	250	B	620	330	95
		A	800	375	108
300	300	B	680	340	105
		A	800	400	115
350	80	B	445	325	
		B	850	325	91
350	100	B	470	330	
		A	850	325	93
350	150	B	530	340	
		A	850	325	122

DN	dn	EN 545 standard series	L	H	Kgs PN16
350	200	B	585	350	
		A	850	325	128
350	250	B	645	360	
		A	850	325	128
350	300	B	760	380	
		A	850	425	151
350	350	A	850	425	167
400	80	B	470	355	166
		A	900	350	
400	100	B	490	360	154
		A	900	350	
400	150	B	550	370	169
		A	900	350	
400	200	B	610	380	159
		A	900	350	159
400	250	B	665	390	175
		A	900	350	
400	300	B	725	400	177
		A	900	450	
400	350	A	900	450	185
400	400	B	840	420	191
		A	900	450	191
450	80	A	950	375	188
		B	515	390	
450	100	A	950	375	189
		B	570	400	
450	150	A	950	375	190
		B	630	410	
450	200	A	950	345	199
		B	690	420	161
450	250	A	950	375	
		B	745	430	173
450	300	A	950	475	
		B	860	450	
450	350	A	950	475	240
		B	860	450	
450	400	A	950	475	229
		B	920	460	
450	450	A	950	475	237

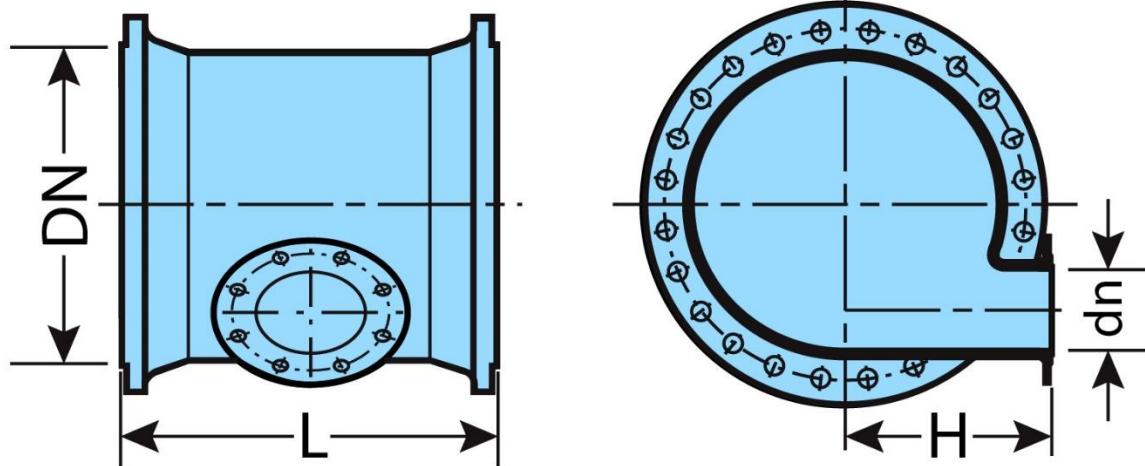
DN	dn	EN 545 standard series	L	H	Kgs PN16
500	80	A	1000	400	241
500	100	B	535	420	
		A	1000	400	241
500	150	A	1000	400	245
500	200	B	650	440	
		A	1000	400	297
500	250	A	1000	400	258
500	300	A	1000	500	264
500	350	A	1000	500	274
500	400	B	885	480	276
		A	1000	500	276
500	450	A	1000	500	298
500	500	A	1000	500	304
600	80	A	1100	450	312
600	100	A	1100	450	350
600	150	A	1100	450	358
600	200	B	700	500	
		A	1100	450	372
600	250	A	1100	450	360
600	300	A	1100	550	379
600	400	B	930	540	
		A	1100	550	387
600	450	A	1100	550	417
600	500	A	1100	550	444
600	600	B	1165	580	
		A	1100	550	491
700	100	A	540	510	295
700	150	A	595	515	296
700	200	A	650	525	298
700	300	A	760	540	342
700	400	A	870	555	379
700	500	A	980	670	481
700	600	A	1200	685	523
700	700	A	1200	600	523
800	100	A	580	570	383
800	150	A	585	575	387
800	200	A	690	585	390
800	300	A	800	600	443
800	400	A	910	615	474
800	500	A	1020	630	599
800	600	A	1350	645	678
800	700	A	1350	660	711
800	800	A	1350	675	715



DN	dn	EN 545 standard series	L	H	Kgs PN16
900	100	A	620	630	476
900	150	A	675	635	780
900	200	A	730	645	484
900	300	A	840	660	596
900	400	A	950	675	594
900	500	A	1060	690	784
900	600	A	1500	705	860
900	700	A	1500	720	901
900	800	A	1560	735	913
900	900	A	1500	750	924
1000	100	A	660	690	572
1000	150	A	715	695	582
1000	200	A	770	705	629
1000	300	A	880	720	739
1000	400	A	990	735	755
1000	500	A	1100	750	1007
1000	600	A	1650	765	1116
1000	700	A	1650	780	1152
1000	800	A	1650	795	1168
1000	900	A	1650	810	1219
1000	1000	A	1650	825	1229
1200	100	A	660	810	1082
1200	150	A	715	815	1084
1200	200	A	775	825	1086
1200	300	A	890	840	1160
1200	400	A	1010	855	1122
1200	500	A	1125	870	1250
1200	600	A	1240	885	1256
1200	700	A	1355	900	1423
1200	800	A	1470	915	1439
1200	900	A	1585	930	1662
1200	1000	A	1700	945	1664
1200	1200	A	1935	975	1970

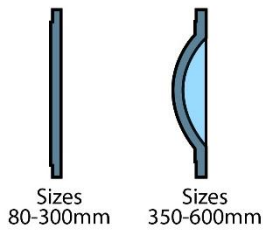
The dimensions of fittings over 600mm will be confirmed when an order is placed.

## ALL FLANGE LEVEL INVERT TEE



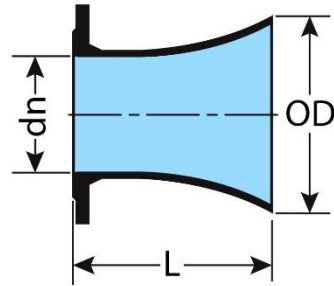
DN	dn	L	H	Kgs
				PN16
100	80	360	195	20
150	80	440	220	30
200	80	520	250	43
250	100	700	275	69
300	80	800	305	92
300	100	800	305	96
300	150	800	305	99
350	150	850	340	140
400	100	900	365	170
400	150	900	365	176
450	100	950	380	189
450	150	950	380	197
500	150	1000	400	267
600	150	1100	450	360
600	200	1100	450	370

## BLANK FLANGE



DN	PN16
40	2
50	2.4
60	2.7
65	3.1
80	3.5
100	4.3
125	5.6
150	7.2
200	10.8
250	16.6
300	23.5
350	33.5
400	44.5
450	63.5
500	79.5
600	125
700	163
800	228
900	299
1000	387
1200	662
1400	994
1600	1409
1800	1858

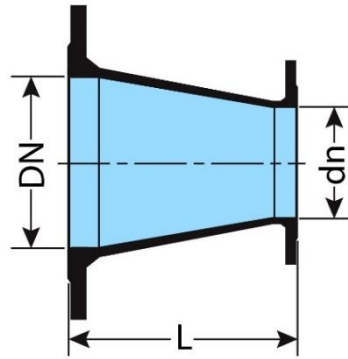
## FLANGED BELLMOUTH (PN16)



dn	L	OD	Kgs
80	135	150	5.2
100	140	175	6.3
150	155	230	10.1
200	170	290	14.8
250	190	345	21
300	210	405	29
350	225	460	39
400	245	520	51
450	260	579	63
500	280	635	82.5
600	300	810	122
700	340	869	154
800	380	980	203
900	420	1095	250
1000	450	1210	331
1200	520	1440	512

The dimensions of fittings over 600mm will be confirmed when an order is placed.

## DOUBLE FLANGED CONCENTRIC TAPER (PN16)

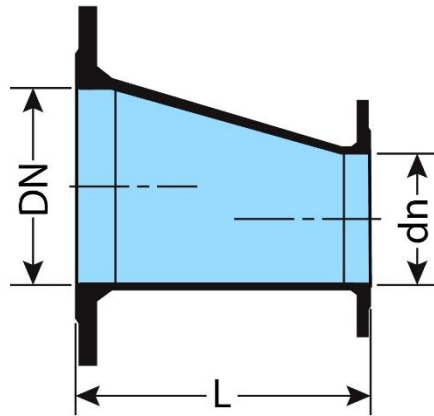


DN	dn	Standard series	L	Kgs
80	50	A	200	7.3
100	80	A	200	9.3
100	80	B	195	9.3
150	80	B	260	13.9
		A	400	16.4
		DIN	200	13
150	100	B	220	14.5
		A	300	15.3
		DIN	200	13
200	80	B	390	21
		A	600	26.7
		DIN	300	19
200	100	B	330	20
		A	600	27.5
		DIN	300	20
200	150	B	235	22
		A	300	24
250	100	B	455	33
		A	600	37.5
		DIN	300	22
250	150	B	345	29.5
		A	600	38
250	200	B	250	29
		A	300	29.5
300	80	A	600	41.3
300	100	B	560	41
		A	600	41.5
		DIN	300	36
300	150	B	470	42
		A	600	46
		DIN	300	35
300	200	B	360	41
		A	600	51.5
		DIN	300	38

DN	dn	Standard series	L	Kgs
300	250	B	265	41
		A	300	41.5
350	200	A	600	60.9
350	250	A	600	67
350	300	B	290	52
		A	300	54.8
400	200	A	600	71
400	250	A	600	77
400	300	A	600	85
400	350	B	305	69.9
		A	300	69
450	200	A	600	87
450	250	A	600	87.5
450	300	A	600	95
450	400	B	320	86
		A	300	86.5
500	250	A	700	114
500	350	A	600	121
500	400	A	600	136.2
500	450	A	300	104
600	400	A	600	172.5
600	450	A	600	175
600	500	A	600	198.8
700	400	A	800	220
700	600	A	600	243
800	500	A	800	284
800	600	A	600	275
800	700	A	600	295
900	700	A	600	333
900	800	A	600	364
1000	800	A	600	448
1000	900	A	600	448
1200	1000	A	790	692

Dimensions of fittings over 600mm will be confirmed when an order is placed.

## DOUBLE FLANGED ECCENTRIC TAPER (PN16)



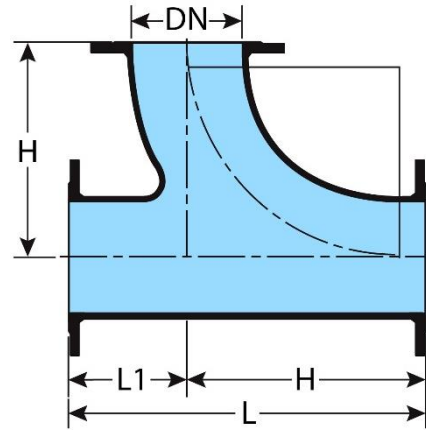
DN	dn	L	Kgs
80	50	200	7.3
80	65	200	7.9
100	50	300	9.4
100	65	200	8.9
100	80	200	9.3
125	100	200	11.3
150	80	400	16.1
150	100	300	15
200	80	600	26.7
200	100	600	27
200	150	300	21.5
200	150	600	38
250	150	600	38
250	200	300	29.5
300	100	600	39.4
300	150	600	46
300	200	600	51
300	250	300	39.5
350	200	600	60.5
350	250	600	67
350	300	300	52
400	200	600	74
400	250	600	77
400	300	600	84

DN	dn	L	Kgs
400	350	300	67
450	250	600	91
450	300	600	95
450	350	600	98
450	400	300	81
500	250	300	118
500	400	300	145
500	450	300	102
600	400	300	157
600	450	300	174
600	500	300	196
700	450	700	220
700	500	600	213
700	600	600	249
800	500	800	295
800	600	600	282
800	700	600	304
900	700	600	340
900	800	600	371
1000	800	600	428
1000	900	600	464
1200	800	1160	758
1200	900	975	726
1200	1000	790	692

Dimensions of fittings over 600mm will be confirmed when an order is placed.

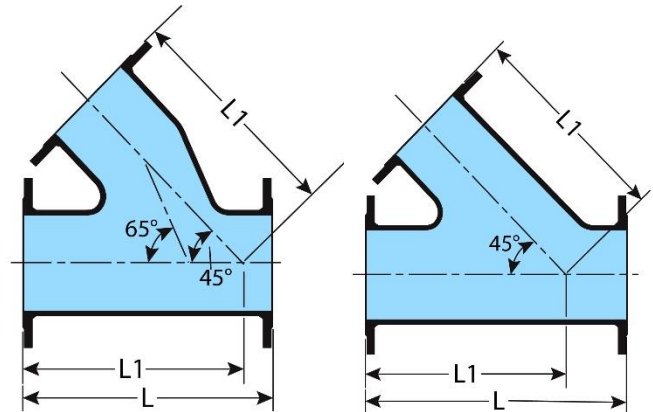
### ALL FLANGED RADIAL TEE (PN16)

DN	L	H	Kgs	L1
80	545	380	23	165
100	580	400	29.5	180
150	670	450	48.5	220
200	760	500	72.5	260
250	900	550	106	350
300	1000	600	146	400
350	1100	650	204	450
400	1200	700	264	500
450	1300	750	332	550
500	1400	800	422	600
600	1600	900	730	700



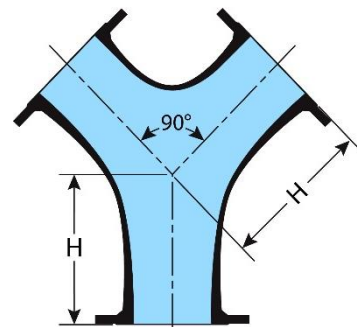
### ALL FLANGED TEE WITH 45° ANGLE BRANCH (PN16)

DN	L	Type	Kgs	L1
80	500	N	21	375
100	540	N	27	405
150	640	N	47	480
200	735	N	71	560
250	830	N	105	640
300	930	N	147	715
350	880	M	168	790
400	970	M	205	870
450	1060	M	277	950
500	1140	M	353	1025
600	1310	M	447	1180



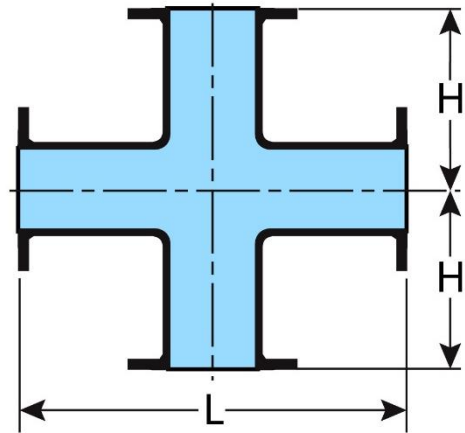
### ALL FLANGED Y (PN16)

DN	H	H	Kgs
80	165	165	15
100	180	180	18
150	220	220	33
200	260	260	48
250	350	350	82
300	400	400	117
350	450	450	166
400	500	500	219
450	550	550	280
500	600	600	364
600	700	700	563



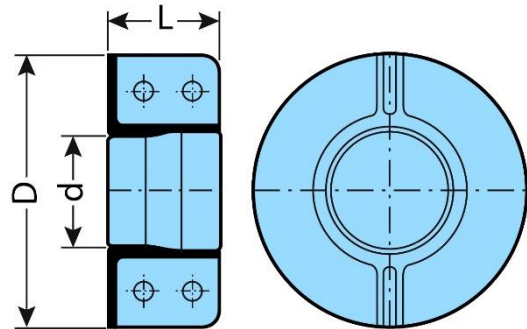
## ALL FLANGED EQUAL CROSS (PN16)

DN	L	H	Kgs
65	330	165	22.8
80	330	165	26.5
100	360	180	32.4
125	400	200	42
150	440	220	52.7
200	520	260	77.4
250	700	350	125
300	800	400	176.2
350	850	425	231.4
400	900	450	292
450	950	475	367.6
500	1000	500	455.8
600	1100	550	668
700	1200	600	769



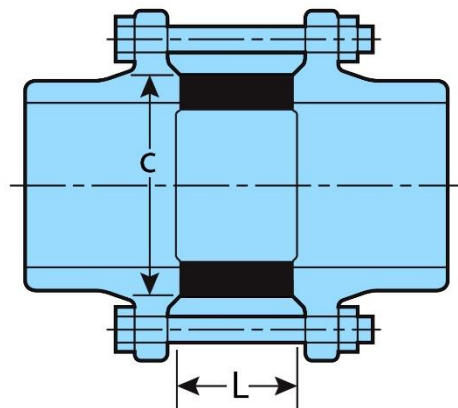
## SPLIT PUDDLE FLANGE

DN	D	L	d	Kgs
80	260	110	100	11.5
100	305	110	120	14.5
150	390	130	172	23
200	430	130	224	28
250	490	130	276	37
300	555	130	329	46
400	660	150	432	62



## PIPE BLOCK

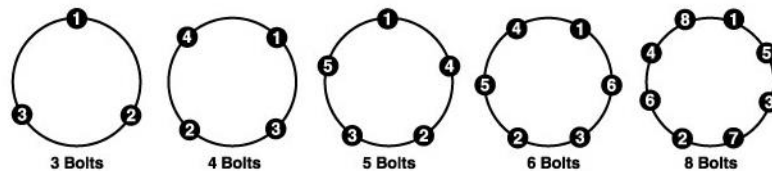
DN	Min. length mm	Max. length mm
80	25	300
100	25	300
150	25	300
200	25	300
250	25	300
300	25	300
350	25	300
400	25	300
450	25	300
500	25	300
600	25	300
700	25	300



## FLANGE JOINTING

Flange joints are a long-established, non-proprietary means of connecting pipes and fittings, usually in above ground situations. This method is well known and needs very little elaboration other than to advise the sequence for tightening the bolts and the recommended torque settings.

When using a Rilsan / Sheraplex protected type joint set, you will no longer need to protect the joint set by using denso tape or similar.



## FLANGE JOINT SETS

PN16 Bolt Sizes						
Dia (mm)	No. of bolts	Ductile size x length	Ductile/Steel size x length	Steel/Steel size x length	Ductile/PE size x length	Spanner size (mm)
50	4	M16 x 65	M16 x 70	M16 x 70	M16 x 90	24
80	8	M16 x 65	M16 x 70	M16 x 70	M16 x 90	24
100	8	M16 x 65	M16 x 70	M16 x 70	M16 x 90	24
150	8	M20 x 70	M20 x 80	M20 x 80	M20 x 90	30
200	12	M20 x 70	M20 x 80	M20 x 80	M20 x 90	30
250	12	M24 x 90	M24 x 110	M24 x 110	M24 x 110	36
300	12	M24 x 90	M24 x 110	M24 x 110	M24 x 110	36
350	16	M24 x 90	M24 x 110	M24 x 110	Details of PE pipe needed to calculate bolt lengths.	36
400	16	M27 x 100	M27 x 110	M27 x 120		41
450	20	M27 x 100	M27 x 110	M27 x 120		41
500	20	M30 x 110	M30 x 120	M30 x 140		46
600	20	M33 x 120	M33 x 140	M33 x 150		50
700	24	M33 x 130	M33 x 150	M33 x 170		50
800	24	M36 x 140	M36 x 170	M36 x 190		55
900	28	M36 x 140	M36 x 170	M36 x 200		55
1000	28	M39 x 160	M39 x 190	M39 x 230		60
1100	32	M39 x 160	M39 x 190	M39 x 230		60
1200	32	M45 x 180	M45 x 200	M45 x 250	70	
1400	36	M45 x 180	M45 x 215	M45 x 260	70	

## FLANGE BOLT TORQUES

The following chart indicates the approximate bolt torque required to seal flanged joints against internal pressure. The torques given are based on using a 3mm thick 70 IRHD rubber gasket.

The torque values are applicable for the type of gasket specified and bolts, nuts and washers should be free from damage, rust, etc.

The relationship between applied torques and the actual load imparted is not precisely predictable, therefore, the values in the table are, of necessity, an approximate guide.

PN16 Flange Joints							
Dia (mm)		To seal at 10 bar		To seal at 16 bar		To seal at 20 bar	To seal at 25 bar
Approximate bolt torque setting Nm							
80		70		70		75	75
100		75		80		80	80
150		115		120		125	135
200		110		115		120	130
250		155		165		175	180
300		165		180		190	210
350		160		175		185	200
400		200		220		235	270
450		195		215		230	260
500		240		270		295	345
600		305		365		425	505

Details on other sizes available on request.

DIMENSIONAL DIFFERENCES DI FITTINGS SERIES A AND B FITTINGS

	Laying length mm				Branch height mm		
	A(2010 std)	A	B	Diff	A	B	diff
<b>80mm</b>							
80 x 90 double socket bend en545/en598		100	85	-15			
80 x 45 double socket bend en545/en598		55	50	-5			
80 x 80 all socket tee en545/en598		170	175	5	85	85	0
80 x 80 flg on double socket tee en545/en598		170	175	5	165	165	0
80 standard flange socket piece en545/en598		130	105	-25			
80 x 22.5 d/flanged bend en545/en598	105	130	120	-10			
80 x 11.25 d/flanged bend en545/en598	113	130	120	-10			
<b>100mm</b>							
100 x 90 double socket bend en545/en598		120	100	-20			
100 x 45 double socket bend en545/en598		65	60	-5			
100 x 22.5 double socket bend en545/en598		40	50	10			
100 x 80 all socket tee en545/en598		170	165	-5	95	90	-5
100 x 100 all socket tee en545/en598		190	195	5	95	100	5
100 x 80 flg on double socket tee en545		170	165	-5	175	170	-5
100 x 100 flg on double socket tee en 545/en598		190	195	5	180	180	0
100 x 80 d/socket concentric taper en545/en598		90	85	-5			
100 standard flange socket piece en545/en598		130	110	-20			
100 x 22.5 d/flanged bend en545/en598	110	140	130	-10			
100 x 11.25 d/flanged bend en545/en598	115	140	115	-25			
100 x 80 all flanged tee en545/en598		360	330	-30	175	170	-5
100 x 80 d/flanged central taper x 200 en545/en598		200	195	-5			
<b>150mm</b>							
150 x 90 double socket bend en545/en598		170	130	-40			
150 x 45 double socket bend en545/en598		85	70	-15			
150 x 22.5 double socket bend en545/en598		55	60	5			
150 x 11.25 double socket bend en545/en598		35	40	5			
150 x 80 all socket tee en545/en598		170	180	10	120	120	0
150 x 100 all socket tee en545/en598		195	200	5	120	125	5
150 x 150 all socket tee en545/en598		225	260	5	125	130	5
150 x 80 flg on double socket tee en545/en598		170	180	10	205	200	-5
150 x 100 flg on double socket tee en545/en598		195	200	5	210	205	-5
150 x 150 flg on double socket tee en545/en598		255	260	5	220	220	0
150 standard flange socket piece en545/en598		135	120	-15			
150 x 22.5 d/flanged bend en545/en598	109	160	150	-10			
150 x 11.25 d/flanged bend en545/en598	113	160	130	-30			
150 x 80 all flanged tee series		440	360	-80	205	200	-5
150 x 100 all flanged tee		440	380	-60	210	205	-5
150 x 80 double flanged central taper		400	260	-140			
150 x 100 double flanged central taper		300	220	-80			
<b>200mm</b>							
200 x 90 double socket bend en545/en598		220	160	-60			



	Laying length mm				branch height mm		
	A(2010 std)	A	B	diff	A	B	diff
<b>300mm</b>							
300 x 90 double socket bend en545/en598		320	280	-40			
300 x 45 double socket bend en545/en598		150	155	5			
300 x 22.5 double socket bend en545/en598		85	90	5			
300 x 100 all socket tee en545/en598		205	210	5	195	220	25
300 x 150 all socket tee en545/en598		260	265	5	200	220	20
300 x 200 all socket tee en545/en598		320	325	5	205	220	15
300 x 250 all socket tee en545/en598		375	380	5	210	220	10
300 x 300 all socket tee en545/en598		435	440	5	220	220	0
300 x 80 flg on double socket tee en545/en598		180	185	5	295	295	0
300 x 100 flg on double socket tee en545/en598		205	210	5	300	300	0
300 x 150 flg on double socket tee en545/en598		260	265	5	310	310	0
300 x 200 flg on double socket tee en545/en598		320	325	5	320	320	0
300 x 250 flg on double socket tee en545/en598		450	380	-70	345	330	-15
300 x 300 flg on double socket tee en545/en598		435	440	5	340	340	0
300 x 150 d/socket concentric taper en545/en598		350	370	20			
300 standard flange socket piece en545/en598		150	130	-20			
<b>300mm</b>							
300 x 45 double flanged bend en545/en598		400	275	-125			
300 x 22.5 d/flanged bend en545/en598	210	400	210	-190			
300 x 11.25 d/flanged bend en545/en598	175	400	175	-225			
300 x 80 all flanged tee en545/en598		800	425	-375	290	295	5
300 x 100 all flanged tee en545/en598		800	450	-350	300	300	0
300 x 150 all flanged tee en545/en598		800	505	-295	325	310	-15
300 x 200 all flanged tee en545/en598		800	565	-235	350	320	-30
300 x 250 all flanged tee en545/en598		800	620	-180	375	330	-45
300 x 300 all flanged tee en545/en598		800	680	-120	400	340	-60
300 x 100 d/flanged central taper en545/en598		600	560	-40			
300 x 150 d/flanged central taper en545/en598		600	470	-130			
300 x 200 d/flanged central taper en545/en598		600	360	-240			
300 x 250 d/flanged central taper en545/en598		300	265	-35			
<b>350mm</b>							
350 x 45 double socket bend en545/en598		175	170	-5			
350 x 22.5 double socket bend en545/en598		95	100	5			
350 x 80 flg on double socket tee en545/en598		225	185	-40	260	325	65
350 x 100 flg on double socket tee en545/en598		225	210	-15	340	310	-30
350 x 150 flg on double socket tee en545/en598		340	270	-70	355	325	-30
350 x 200 flg on double socket tee en545/en598		340	325	-15	360	325	-35
350 x 250 flg on double socket tee en545/en598		515	385	-130	375	360	-15
350 x 350 flg on double socket tee en545/en598		515	425	-90	405	380	-25
<b>350mm</b>							
350 x 45 double flanged bend en545/en598		298	300	2			
350 x 80 all flanged tee en545/en598		850	445	-405	325	325	0
350 x 100 all flanged tee en545/en598		850	470	-380	325	330	5
350 x 150 all flanged tee en545/en598		850	530	-320	325	340	15
350 x 200 all flanged tee en545/en598		850	585	-265	325	350	25
350 x 250 all flanged tee en545/en598		850	645	-205	325	360	35
350 x 300 all flanged tee en545/en598		850	760	-90	425	380	-45
350 x 350 all flanged tee en545/en598		850	760	-90	425	380	-45
350 x 300 d/flanged central taper en545/en598		300	290	-10			

	Laying length mm				Branch height mm		
	A(std 2010)	A	B	diff	A	B	diff
<b>400mm</b>							
400 x 45 double socket bend en545/en598		195	185	-10			
400 x 80 flg on double socket tee en545/en598		225	190	-35	360	355	-5
400 x 100 flg on double socket tee en545/en598		225	210	-15	365	360	-5
400 x 150 flg on double socket tee en545/en598		340	270	-70	380	370	-10
400 x 200 flg on double socket tee en545/en598		340	330	-10	385	380	-5
400 x 250 flg on double socket tee en545/en598		575	385	-190	400	390	-10
400 x 300 flg on double socket tee en545/en598		575	445	-130	415	400	-15
400 x 400 flg on double socket tee en545/en598		575	560	-15	445	420	-25
400 x 250 d/socket concentric taper en545/en598		360	380	20			
400 x 350 d/socket concentric taper en545/en598		160	155	-5			
400 x 45 double flanged bend en545/en598		324	325	1			
400 x 22.5 d/flanged bend en545/en598		239	250	11			
400 x 11.25 d/flanged bend en545/en598		Check manufacturer for dimensions					
400 x 80 all flanged tee en545/en598		900	470	-430	350	355	5
400 x 100 all flanged tee en545/en598		900	490	-410	350	360	10
400 x 150 all flanged tee en545/en598		900	550	-350	350	370	20
400 x 200 all flanged tee en545/en598		900	610	-290	350	380	30
400 x 250 all flanged tee en545/en598		900	665	-235	350	390	40
400 x 300 all flanged tee en545/en598		900	725	-175	450	400	-50
400 x 400 all flanged tee en545/en598		900	840	-60	450	420	-30
400 x 350 d/flanged central taper en545/en598		300	305	5			
<b>450mm</b>							
450 x 45 double socket bend en545/en598		220	200	-20			
450 x 100 flg on double socket tee en545/en598		230	215	-15	385	390	5
450 x 150 flg on double socket tee en545/en598		345	270	-75	410	400	-10
450 x 200 flg on double socket tee en545/en598		345	330	-15	415	410	-5
450 x 250 flg on double socket tee en545/en598		635	390	-245	430	420	-10
450 x 300 flg on double socket tee en545/en598		635	445	-190	445	430	-15
450 x 400 flg on double socket tee en545/en598		635	560	-75	475	450	-25
450 x 450 flg on double socket tee en545/en598		635	620	-15	490	460	-30
450 x 350 d/socket concentric taper en545/en598		260	270	10			
450 x 22.5 d/flanged bend en545/en598		Check manufacturer for dimensions					
450 x 11.25 d/flanged bend en545/en598		Check manufacturer for dimensions					
450 x 100 all flanged tee en545/en598		950	515	-435	375	390	15
450 x 150 all flanged tee en545/en598		950	570	-380	375	400	25
450 x 200 all flanged tee en545/en598		950	630	-320	375	410	35
450 x 250 all flanged tee en545/en598		950	690	-260	375	420	45
450 x 300 all flanged tee en545/en598		950	745	-205	475	430	-45
450 x 400 all flanged tee en545/en598		950	860	-90	475	450	-25
450 x 450 all flanged tee en545/en598		950	920	-30	475	460	-15
450 x 400 d/flanged central taper en545/en598		300	320	20			
<b>500mm</b>							
500 x 100 flg on double socket tee en545/en598		230	215	-15	420	420	0
500 x 200 flg on double socket tee en545/en598		350	330	-20	440	440	0
500 x 400 flg on double socket tee en545/en598		580	565	-15	500	480	-20
500 x 500 flg on double socket tee en545/en598		695	680	-15	530	500	-30

	Laying length mm				Branch height mm		
	A(std 2010)	A	B	diff	A	B	diff
500 x 22.5 d/flanged bend en545/en598		Check manufacturer for dimensions					
500 x 11.25 d/flanged bend en545/en598		Check manufacturer for dimensions					
500 x 100 all flanged tee en545/en598		1000	535	-465	400	420	20
500 x 200 all flanged tee en545/en598		1000	650	-350	400	440	40
500 x 400 all flanged tee en545/en598		1000	885	-115	500	480	-20
<b>600mm</b>							
600 x 200 flg on double socket tee en545/en598		355	340	-15	400	500	100
600 x 400 flg on double socket tee en545/en598		585	570	-15	395	540	145
600 x 600 flg on double socket tee en545/en598		820	800	-20	420	580	160
600 x 22.5 f/flanged bend en545/en598		Check manufacturer for dimensions					
600 x 11.25 d/flanged bend en545/en598		Check manufacturer for dimensions					
600 x 200 all flanged tee en545/en598		1100	700	-400	450	500	50
600 x 400 all flanged tee en545/en598		1100	930	-170	550	540	-10
600 x 600 all flanged tee en545/en598		1100	1165	65	550	580	30

FT Ductile is an authorised stockist of Viking Johnson products in the UK.

**Maxi flange adaptors**



**Large diameter flange adaptors and couplings**



**Restraint flange adaptors & couplings (ductile, steel, PE)  
Flexlock / Ultragrips / Aquafast / Aquagrips**



**Repair clamp fittings**



## DUCTILE PIPE RELEVANT STANDARDS

Please note that the recommendations in this catalogue only highlight the important points of the standards. We can offer pipe to all the standards listed; customers need to confirm which standard they require when ordering.

EN 545	Ductile pipe, fittings, accessories and their joints for water
ISO 2531	International standard ductile pipe, fittings, accessories and their joints for water and gas applications
EN 598	Ductile pipe, fittings, accessories and their joints for sewer applications
ISO 7186	Ductile iron products for sewerage applications
BS 3416	Specification for bitumen based coatings for cold application suitable for use in contact with potable water
ISO 8179	Ductile iron pipes : external zinc coating Part 1 : metallic zinc with finishing layer Part 2 : zinc rich paint with finishing layer
BS 2494	Specification for elastomeric seals for joints in pipework and pipelines
ISO 4633	Rubber seals – joint rings for water supply, drainage and sewerage pipelines – specification for materials
BS 6076	Specification for tubular polyethylene film for use as protective sleeving for buried iron pipelines and fittings
ISO 8180	Ductile iron pipes – polyethylene sleeving
ISO 10802	Ductile iron pipelines – hydrostatic testing after installation
ISO 10803	Design method for ductile iron pipes
EN 1092	Flanges and their joints, circular flanges for pipes, valves, fittings and accessories, PN designated Part 2 : cast iron flanges
EN 1514	Flanges and their joints, dimensions of gaskets for PN-designated flanges Part 1 : non-metallic flat gaskets with or without inserts Part 2 : spiral bound gaskets for use with steel flanges Part 3 : non-metallic PTFE envelope gaskets Part 4 : corrugated, flat or grooved metallic and filled metallic gaskets for use with steel flanges
ISO 7005	Metallic flanges – cast iron flanges
AWWA C151	Ductile iron pipe, centrifugally cast, for water
AWWA C600	Installation of ductile iron water mains and their appurtenances
ISO 9001	Quality management systems



**FT Water Treatment**  
Dual contained chemical dosing hose



**FT Ductile**  
Ductile iron pipes and fittings



# frazer and tabberer group ltd



**FT Gas Control**  
Pressure control systems for natural gas, biogas CNG and hydrogen



**FT Pipeline Systems**  
Suppliers of coated and lined steel water pipes



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