



**YUAN GANG**  
**INDUSTRIAL CO., LTD.**

**ISO 9001**  
**Certified**



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**BS 4772/ISO 2531 /BSEN 545 /BSEN 598  
Ductile Cast Iron Pipes and Fittings**



# BS 4772/ISO 2531 /BSEN 545 /BSEN 598

## Specification

PIPES ..... STANDARD K = 9  
 FITTINGS ..... STANDARD K = 14 for Tees  
 K = 12 for other fittings

Pipes, DN 450, DN 1100 are according to the extension of ISO Requirements.

### Hydrostatic Test Pressure

Diameter	Pipes	Fittings
DN 80 to DN 300	50 bar	25 bar
DN 350 to DN 600	40 bar	16 bar
DN 700 to DN 1000	32 bar	10 bar
DN 1100 to DN 1200	25 bar	10 bar
DN 1400 to DN 1600	25 bar	10 bar
DN 1800 to DN 2000	25 bar	10 bar
DN 2100 to DN 2600	18 bar	10 bar

### Tensile Strength, Elongation & Proof Stress

	Pipe		Fittings
	80 to 1000	1100 to 2600	
Tensile Strength	Min. 420 N/mm <sup>2</sup>		Min. 400 N/mm <sup>2</sup>
Elongation	Min. 10%	Min. 7%	Min. 5%
Proof Stress	Min. 300 N/mm <sup>2</sup>		Min. 300 N/mm <sup>2</sup>

\* The proof stress shall only be measured upon special agreement and order conditions which shall be specified in the order.

\*\* 0.102 kgf/mm<sup>2</sup> = 1 N/mm<sup>2</sup>

### Tolerance

- Thickness: + No limit  
 - (1.3 + 0.001 ND) mm  
 (ND: Nominal Diameter)
- Weight: Ø 200mm and under: ± 8%  
 Ø 300mm and over: ± 5%

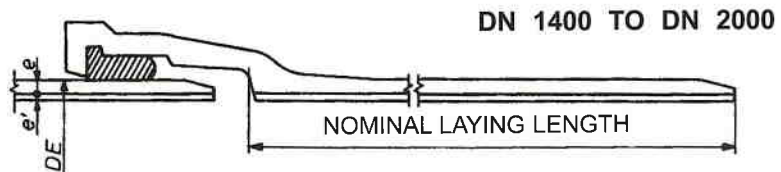
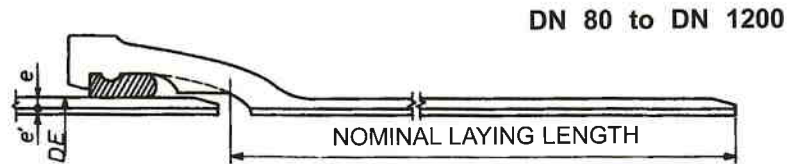
### Coating and Lining Materials

	Pipe	Fitting
Outside (External)	<ul style="list-style-type: none"> <li>Zinc Rich Coating</li> <li>Black Bituminous (Coal-tar Coating)</li> <li>Tar-Epoxy Coating</li> </ul>	<ul style="list-style-type: none"> <li>Zinc Rich Coating (Optional)</li> <li>Black Bituminous (Coal-tar Coating)</li> <li>Tar-Epoxy Coating</li> </ul>
Inside (Internal)	<ul style="list-style-type: none"> <li>Black Bituminous (Coal-tar Coating)</li> <li>Tar-Epoxy Coating</li> <li>Sulphate-Resisting Cement Mortar Lining</li> <li>Cement Mortar Lining With Seal Coating</li> <li>Fusion Bonded Epoxy Lining (Any Colour)</li> </ul>	<ul style="list-style-type: none"> <li>Black Bituminous (Coal-tar Coating)</li> <li>Tar-Epoxy Coating</li> <li>Sulphate-Resisting Cement Mortar Lining</li> <li>Cement Mortar Lining With Seal Coating</li> <li>Fusion Bonded Epoxy Lining (Any Colour)</li> </ul>



# BS 4772/ISO 2531 /BSEN 545 /BSEN 598

## TYTON STYLE PUSH-ON FLEXIBLE JOINT TYPE



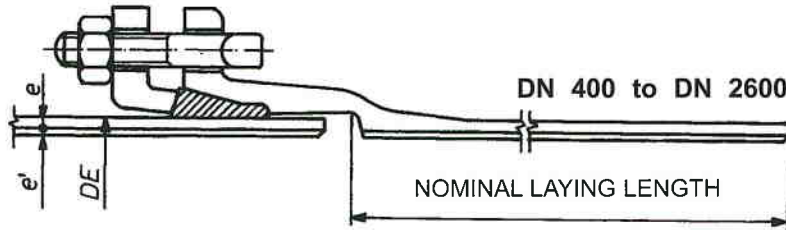
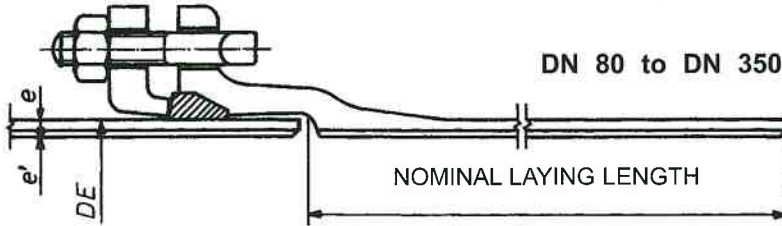
### Standard K-9

Dimension in millimeters

Nominal Diameter D N	Thickness		Outside Diameter D E	Nominal Laying Length	Total Mass (kg)			
	e	e'			Pipe	Cement Mortar Lining		
		BS				ISO	BS	ISO
80	6.0	5	3	98	6000	64.5	14.0	8.5
100	6.1	5	3	118	6000	80.0	17.4	10.5
125	6.2	5	3	144	6000	100.0	22.2	13.5
150	6.3	5	3	170	6000	121.0	26.3	16.0
200	6.4	5	3	222	6000	163.0	35.3	21.0
250	6.8	5	3	274	6000	215.0	44.2	26.0
300	7.2	5	3	326	6000	323.0	63.6	37.8
350	7.7	5	5	378	6000	403.0	73.8	73.8
400	8.1	5	5	429	6000	482.0	84.0	84.0
450	8.6	5	5	480	6000	571.0	94.9	94.9
500	9.0	5	5	532	6000	669.0	105.0	105.0
600	9.9	5	5	635	6000	882.0	125.4	125.4
700	10.8	6	6	738	6000	1123.0	175.8	175.8
800	11.7	6	6	842	6000	1394.0	200.4	200.4
900	12.6	6	6	945	6000	1691.0	225.6	225.6
1000	13.5	6	6	1048	6000	2017.0	250.2	250.2
1100	14.4	6	6	1152	6000	2372.0	278.0	278.0
1200	15.3	6	6	1255	6000	2758.0	300.0	300.0
1400	17.1	9	9	1462	6000	3563.0	525.6	525.6
1500	18.0	9	9	1565	6000	4015.0	567.5	567.5
1600	18.9	9	9	1668	6000	4517.0	600.6	600.6
1800	20.7	9	9	1875	6000	5591.0	675.0	675.0
2000	22.5	9	9	2082	6000	6784.0	750.0	750.0



# BS 4772/ISO 2531 /BSEN 545 /BSEN 598 MECHANICAL JOINT TYPE



## Standard K-9

Dimension in millimeters

Nominal Diameter D N	Thickness			Outside Diameter D E	Nominal Laying Length	Total Mass (kg)		
	e	e'				Pipe	Cement Mortar Lining	
		BS	ISO				BS	ISO
80	6.0	5	3	98	6000	66.2	14.0	8.5
100	6.1	5	3	118	6000	81.6	17.4	10.5
125	6.2	5	3	144	6000	103.0	22.2	13.5
150	6.3	5	3	170	6000	124.0	26.3	16.0
200	6.4	5	3	222	6000	166.0	35.3	21.0
250	6.8	5	3	274	6000	218.0	44.2	26.0
300	7.2	5	3	326	6000	329.0	63.6	37.8
350	7.7	5	5	378	6000	408.0	73.8	73.8
400	8.1	5	5	429	6000	487.0	84.0	84.0
450	8.6	5	5	480	6000	579.0	94.9	94.9
500	9.0	5	5	532	6000	671.0	105.0	105.0
600	9.9	5	5	635	6000	880.0	125.4	125.4
700	10.8	6	6	738	6000	1119.0	175.8	175.8
800	11.7	6	6	842	6000	1381.0	200.4	200.4
900	12.6	6	6	945	6000	1672.0	225.6	225.6
1000	13.5	6	6	1048	6000	1996.0	250.2	250.2
1100	14.4	6	6	1152	6000	2338.0	278.0	278.0
1200	15.3	6	6	1255	6000	2708.0	300.0	300.0
1400	17.1	9	9	1462	6000	3547.0	525.6	525.6
1500	18.0	9	9	1565	6000	3992.0	567.5	567.5
1600	18.9	9	9	1668	6000	4476.0	600.6	600.6
1800	20.7	9	9	1875	6000	5535.0	675.0	675.0
2000	22.5	9	9	2082	6000	6699.0	750.0	750.0
2100	23.4	9	9	2164	5000	6143.0	655.7	655.7
2200	24.3	12	12	2288	5000	6807.0	917.5	917.5
2400	26.1	12	12	2495	4000	6526.0	800.0	800.0
2600	27.9	12	12	2702	4000	7628.0	866.4	866.4

D2

Note

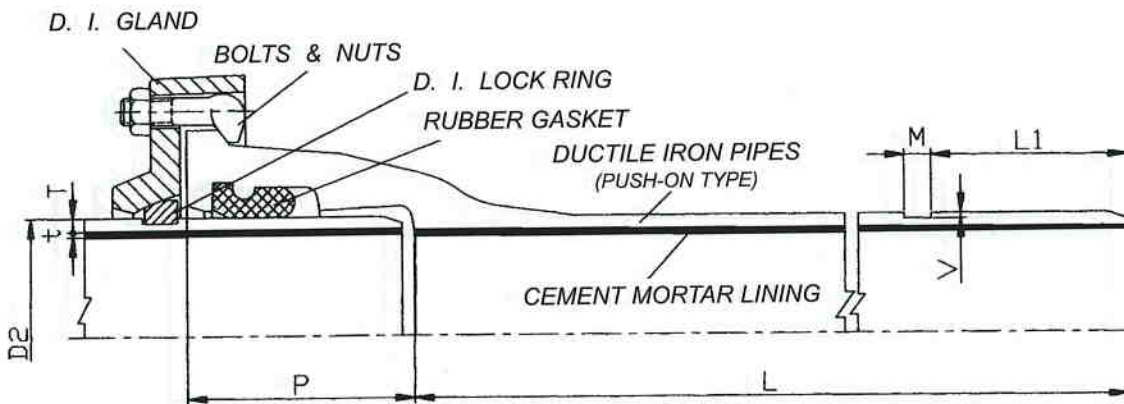
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DN
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**BSEN 545 / BSEN 598**

# BS EN545 / ISO 2531 / ISO 10804-1 RESTRAINED JOINT PIPES (T-Type)



Note: Dimension "V" depends on the pressure requirements & is the average depth.

## Standard K-12 / K-10 / K-9

Dimension in millimeters

DN	D2	T			t	L	L1	P	V			M	Pipe Mass (Kg/pc)		
		K12	K10	K9					K12	K10	K9		K12	K10	K9
80	98	8.5	6.0	6.0	3	6000	90	84	2.5	2	2	15	88	76	76
100	118	8.5	6.0	6.0	3	6000	94	88	2.5	2	2	15	110	94	94
150	170	8.5	6.5	6.0	3	6000	100	94	2.5	2.5	2	15	160	153	138
200	222	8.5	7.0	6.3	3	6000	105	100	2.5	2.5	2.5	15	249	212	192
250	274	9.0	7.5	6.8	3	6000	110	105	2.5	2.5	2.5	15	332	284	257
300	326	9.6	8.0	7.2	3	6000	115	110	3	2.5	2.5	17	427	359	326
350	378	10.2	8.5	7.7	5	6000	115	110	3	3	2.5	17	523	448	406
400	429	10.8	9.0	8.1	5	6000	115	110	3	3	3	17	630	536	486
450	480	11.4	9.5	8.6	5	6000	115	120	3	3	3	17	746	641	581
500	532	12.0	10.0	9.0	5	6000	125	120	4	3	3	22	871	744	674
600	635	13.2	11.0	9.9	5	6000	130	120	4	4	3	32	1144	982	891
700	738	14.4	12.0	10.8	6	6000	155	150	4	4	4	32	1470	1249	1133
800	842	15.6	13.0	11.7	6	6000	165	160	4	4	4	32	1822	1551	1408
900	945	16.8	14.0	12.6	6	6000	180	175	4	4	4	32	2214	1883	1709
1000	1048	18.0	15.0	13.5	6	6000	190	185	5	4	4	32	2632	2245	2039
1100	1152	19.2	16.0	14.4	6	6000	205	200	5	5	4	32	3111	2640	2298
1200	1255	20.4	17.0	15.3	6	6000	220	215	5	5	5	32	3618	3071	2791
1400	1462	22.8	19.0	17.1	6	6000	250	245	5	5	5	32	4724	4087	3722
1500	1565	24.0	20.0	18.0	9	6000	265	260	6	5	5	37	5338	4604	4293
1600	1668	25.2	21.0	18.9	9	6000	280	275	6	5	5	37	6017	5221	4761
1800	1875	27.6	23.0	20.7	9	6000	310	305	6	5	5	37	7383	6476	5910
2000	2082	30.0	25.0	22.5	9	6000	340	335	6	5	5	37	8955	7875	7191



**BSEN 545 / BSEN 598**

**BS 4772/ISO 2531**

**ISO 10804-1**

**Ductile Iron Fittings**

**Ductile Iron Fittings Restrained Joint**

**Wall Thickness of Fittings**

Dimension in millimeters

NOMINAL DIAMETER D N	WALL THICKNESS	
	K = 12	K = 14
80	7.0	8.1
100	7.2	8.4
125	7.5	8.8
150	7.8	9.1
200	8.4	9.8
250	9.0	10.5
300	9.6	11.2
350	10.2	11.9
400	10.8	12.6
450	11.4	13.3
500	12.0	14.0
600	13.2	15.4
700	14.4	16.8
800	15.6	18.2

Dimension in millimeters

NOMINAL DIAMETER D N	WALL THICKNESS	
	K = 12	K = 14
900	16.8	19.6
1000	18.0	21.0
1100	19.2	22.4
1200	20.4	23.8
1400	22.8	26.6
1500	24.0	28.0
1600	25.2	29.4
1800	27.6	32.2
2000	30.0	35.0
2100	31.2	36.4
2200	32.4	37.8
2400	34.8	40.6
2600	37.2	43.4

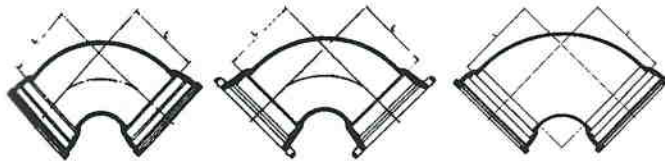
**Double Socket 90° Bend**

**Double Socket 45° Bend**

"T" Type

"K" Type

"RT" Type



"T" Type

"K" Type

"RT" Type



K=12

Dimension in millimeters

NOMINAL DIAMETER D N	L	MASS (kg)		
		T Type	K Type	RT Type
80	100	8.6	12.0	11.8
100	120	11.4	15.6	15.8
125	145	15.7	21.3	20.5
150	170	20.5	27.5	25.7
200	220	33.0	40.0	40.2
250	270	48.5	55.5	53.7
300	320	68.0	81.5	74.4
350	370	97.5	105.0	102
400	420	124.0	134.0	132
450	470	156.0	166.0	169
500	520	193.0	202.0	202
600	620	280.0	290.0	288
700	720	455.0	408.0	468
800	820	605.0	544.0	624
900	920	813.0	720.0	844
1000	1020	1045.0	935.0	1073
1100	1120	1252.6	1168.0	1281
1200	1220	1663.0	1444.0	1609
1400	1220	-	1918.0	2143
1500	1270	-	2230.0	2500
1600	1290	-	2543.0	2823
1800	1320	-	3229.0	3755
2000	1360	-	4033.0	4586

K=12

Dimension in millimeters

NOMINAL DIAMETER D N	L	MASS (kg)		
		T Type	K Type	RT Type
80	55	7.7	11.1	10.9
100	65	10.1	14.3	14.5
125	75	13.6	19.2	18.4
150	85	17.4	24.0	22.6
200	110	27.0	34.0	34.2
250	130	38.5	45.5	43.7
300	150	53.0	66.0	59.4
350	175	70.0	83.5	74.2
400	195	89.0	104.0	97.0
450	220	117.0	127.0	130
500	240	139.0	150.0	148
600	286	202.0	209.0	210
700	330	282.0	289.0	295
800	370	378.0	373.0	397
900	415	496.0	488.0	527
1000	460	635.0	629.0	663
1100	505	855.5	772.0	885
1200	550	986.0	943.0	1108
1400	515	1273.0	1223.0	1448
1500	540	2025.0	1417.0	1687
1600	565	1740.0	1647.0	1927
1800	610	2296.0	2166.0	2692
2000	660	2970.0	2791.0	3344
2100	685	-	3107.0	
2200	710	3762.0	3494.0	
2400	755	4665.0	4272.0	
2600	805	5721.0	5401.0	



**BSEN 545 / BSEN 598**

**BS 4772/ISO 2531**

**ISO 10804-1**

**Ductile Iron Fittings**

**Ductile Iron Fittings Restrained Joint**

Wall Thickness of Fittings

**Double Socket 22<sup>1</sup>/<sub>2</sub>° Bend**

"T" Type



"K" Type



"RT" Type



K=12 Dimension in millimeters

NOMINAL DIAMETER D N	L	MASS (kg)		
		T Type	K Type	RT Type
80	40	7.3	10.7	10.5
100	40	9.3	13.5	13.7
125	50	12.6	18.2	17.4
150	55	15.9	22.5	21.1
200	65	24.0	30.5	31.2
250	75	33.5	40.5	38.7
300	85	44.5	58.0	50.9
350	95	58.0	71.0	62.2
400	110	74.0	88.0	82.0
450	120	95.0	105.0	108
500	130	111.0	123.0	120
600	150	157.0	164.0	165
700	175	217.0	223.0	230
800	195	287.0	281.0	306
900	220	373.0	364.0	404
1000	240	470.0	463.0	498
1100	260	643.0	560.0	673
1200	285	716.0	671.0	836
1400	260	933.0	882.0	1107
1500	270	1627.0	1011.0	1281
1600	280	1259.0	1167.0	1447
1800	305	1663.0	1533.0	2059
2000	330	2144.0	1965.0	2518
2100	340	-	2173.0	-
2200	355	2707.0	2441.0	-
2400	380	3359.0	2986.0	-
2600	400	4087.0	3778.0	-

**Double Socket 11<sup>1</sup>/<sub>4</sub>° Bend**

"T" Type



"K" Type



"RT" Type



K=12 Dimension in millimeters

NOMINAL DIAMETER D N	L	MASS (kg)		
		T Type	K Type	RT Type
80	30	7.1	10.5	10.3
100	30	8.9	13.1	13.3
125	35	11.9	17.5	16.7
150	35	14.8	21.5	20.0
200	40	22.0	29.0	29.2
250	50	30.5	37.5	35.7
300	55	40.5	54.0	46.9
350	60	52.0	65.5	56.2
400	65	65.0	79.0	73.0
450	70	83.5	93.5	96.3
500	75	96.0	108.0	105
600	85	134.0	141.0	142
700	95	181.0	187.0	194
800	110	239.0	234.0	258
900	120	305.0	297.0	336
1000	130	381.0	375.0	409
1100	140	525.4	442.0	555
1200	150	568.0	524.0	689
1400	130	747.0	697.0	922
1500	135	1204.0	794.0	1064
1600	140	1007.0	914.0	1194
1800	155	1331.0	1200.0	1726
2000	165	1702.0	1522.0	2075
2100	185	-	1725.0	-
2200	190	2183.0	1919.0	-
2400	205	2709.0	2345.0	-
2600	215	3290.0	2987.0	-

**Double Socket 5<sup>3</sup>/<sub>8</sub>° Bend**

"T" Type

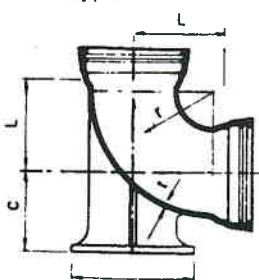


K=12

Nominal Size DN	t	L	r approx	Mass	Extra mass for cement mortar lining
mm	mm	mm	mm	kg	kg
700	14.4	95	1020	235	6
800	15.6	110	1280	295	8
900	16.8	120	1425	393	9
1000	18.0	130	1590	489	11
1100	19.2	140	1730	642	14
1200	20.4	150	1935	757	16
1400	22.8	130	1425	1027	24
1600	25.2	140	1628	1374	30

**Double Socket 90° Duckfoot Bend**

"T" Type



K=12

Nominal Size DN	t	L	r approx	c	d	Mass	Extra mass for cement mortar lining
mm	mm	mm	mm	mm	mm	kg	kg
80	70	100	80	110	180	11.3	0.3
100	72	120	95	125	200	14.8	0.4
150	78	170	145	160	250	28.5	0.9
200	84	220	195	190	300	44.5	1.1
250	90	270	245	225	350	68.5	2.5
300	96	320	290	255	400	100.0	3.4
350	102	370	340	290	450	133.0	8.0
400	108	420	390	320	500	180.0	10.0
450	114	470	435	355	550	230.0	12.0
500	120	520	485	385	600	294.0	15.0
600	132	620	580	450	700	442.0	22.0
700	144	720	655	515	800	618	36
800	156	820	745	580	900	832	46
900	168	920	855	645	1000	1113	58
1000	180	1020	945	710	1100	1435	72
1100	192	1120	1065	775	1200	1781	86
1200	204	1220	1155	840	1300	2153	103



**E**

**I**

Flange Short Bends

165mm  
Tyton



Tyton 'S' Ductile I 150, 225

