



DUCTILE IRON FLANGED PIPES





INDIAN STANDARD - IS 8329 (2000)

CLASSIFICATION

Pipes have been classified in this standard as K7, K8, K9 and K10 according to their thickness. K7 pipes have minimum wall thickness where K10 has maximum. The Ductile Iron Spun Pipes having screwed on flanges are sealed at the threaded Joints between the pipes and the flange by a suitable sealing compound. The flanges are never removed after screwing on the barrels of the pipes.

TOLERANCE ON LENGTH

- Socket & Spigot and Plain end Pipes = +100 mm
- Flanged Pipes = +10mm

COATINGS

- Pipes are normally externally coated with Black Bituminous paint after zinc primer.
- Suitable cement mortar lining is normally done internally.

S/S Pipes = Socket/Spigot Pipes

D/F Pipes = Double Flanged Pipes

TABLE - 2 MINIMUM CLASS FOR DUCTILE IRON FLANGED PIPES

Nominal Bore	Screwed on Flange minimum			
	PN - 10	PN - 16	PN - 25	PN - 40
80-450	K-9	K-9	K-9	K-9
500-600	K-10	K-10	K-10	K-10
700-1000	K-10	K-10	K-10	x

TABLE - 3 HYDROSTATIC WORKS TEST PRESSURES (kgf/cm²)

Nominal Bore	S/S Pipes			D/F Pipes			
				Welded / Screwed Flanged			
	K-7	K-8	K-9, K-10	PN-10	PN-16	PN-25	PN-40
80 - 300	32	40	50	16	25	32	40
350 - 600	25	32	40	16	25	32	40
700 -1000	18	25	32	16	25	32	x

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DIMENSIONS OF SOCKET & SPIGOT PIPES, CLASSES K7, K8, K9 & K10

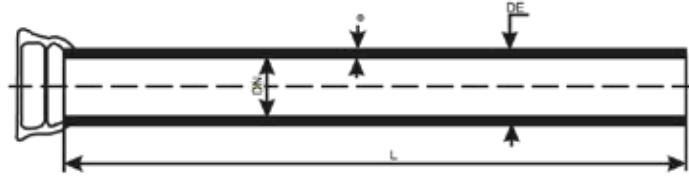


TABLE - 4

Nominal Diameter	External Diameter	Socket Mass	Barrel Wall Thickness 'e'				Approx Mass Per mtr. Including Socket				Approx Mass Per Pc 5.5mtr. Including Socket			
							Tar Coated		Cement Lined		Tar Coated		Cement Lined	
DN	DE		K7	K8	K9	K10	K-7	K-9	K-7	K-9	K-7	K-9	K-7	K-9
80	98	3.4	5	6	6	6	10.91	12.84	12.61	14.54	60	71	69	80
100	118	4.3	5	6	6	6.1	13.29	15.66	15.39	17.76	73	86	85	98
125	144	6.0	5	6	6	6.3	16.43	20.00	20.50	24.27	90	110	113	133
150	170	7.1	5	6	6	6.5	19.55	23.07	22.75	26.27	108	127	125	144
200	222	10.3	5	6	6.3	7	25.89	31.95	30.09	36.15	142	176	165	199
250	274	14.2	5.3	6	6.8	7.5	34.11	42.80	39.31	48.00	188	235	216	264
300	326	18.6	5.6	6.4	7.2	8	43.10	54.19	49.40	60.49	237	298	272	333
350	378	23.8	6	6.8	7.7	8.5	53.72	67.43	66.02	79.73	295	371	363	439
400	429	29.3	6.3	7.2	8.1	9	64.28	80.80	78.28	94.80	354	444	431	521
450	480	36.0	6.6	7.6	8.6	9.5	75.71	95.27	91.41	110.97	416	524	503	610
500	532	42.8	7	8	9	10	89.14	111.98	106.64	129.48	490	616	587	712
600	635	59.3	7.7	8.8	9.9	11	117.71	147.78	138.61	168.63	647	813	762	927
700	738	79.1	8.4	9.6	10.8	12	159.62	188.24	188.92	217.54	878	1035	1039	1196
750	790	90.0	8.7	10	11.3	12.5	184.06	211.30	215.36	242.60	1012	1162	1184	1334
800	842	103	9.1	10.4	11.7	13	210.11	233.70	243.51	267.10	1156	1285	1339	1469
900	945	130	9.8	11.2	12.6	14	255.14	283.69	292.74	321.29	1403	1560	1610	1767
1000	1048	162	10.5	12	13.5	15	304.53	338.49	346.23	380.19	1675	1862	1904	2091
1100	1152	200	11.2	12.8	14.4	16	--	405.00	--	458.0	--	2228	--	2519
1200	1255	238	11.9	13.9	15.3	17	--	460.00	--	520.0	--	2530	--	2860
1400	1462	280	--	--	17.1	--	--	600.00	--	675.0	--	3300	--	3713
1600	1668	380	--	--	18.9	--	--	760.00	--	850.0	--	4180	--	4675
1800	1875	490	--	--	20.7	--	--	930.00	--	1040.0	--	5115	--	5720
2000	2082	626	--	--	22.5	--	--	1120.00	--	1250.0	--	6160	--	6875
2200	2288	784	--	--	24.3	--	--	1350.00	--	1500.0	--	7425	--	8250
2400	2458	966	--	--	26.1	--	--	1610.00	--	1780.0	--	8855	--	9790
2600	2684	1174	--	--	27.9	--	--	1900.00	--	2100.0	--	10450	--	11550

NOTE : No K7 Pipes from 1100 mm Dia onwards is specified.

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DIMENSIONS OF CENTRIFUGALLY CAST DUCTILE IRON PIPES WITH SCREWED / WELDED FLANGES

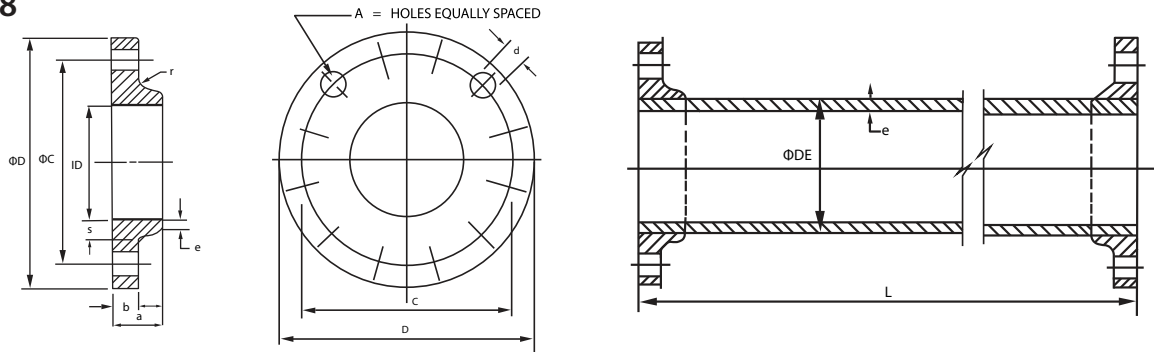


TABLE - 5

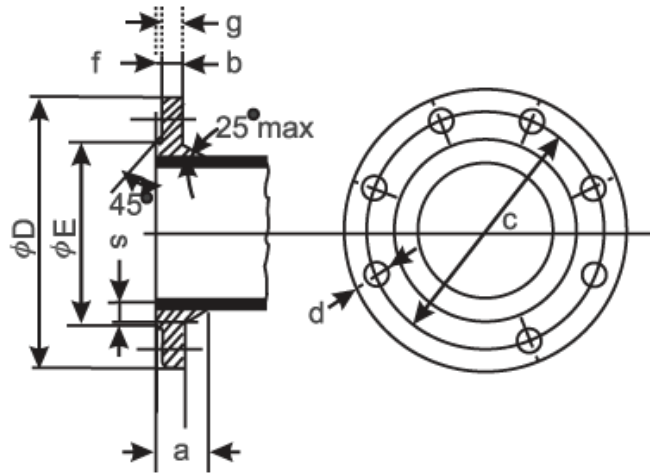
Nominal Diameter	Outside Diameter	Wall Thickness	App. Mass of One Flange		App. Mass of Barrel/mtr.	Approx Mass of One working Length "L" including two flanges					
			PN-10	PN-16		PN - 10			PN - 16		
DN	DE	e	PN-10	PN-16	Non-CML	2.75M	5.0M	5.4M	2.75M	5.0M	5.4M
80	98	6.0	3.5	3.5	12.84	42	71	78	42	71	78
100	118	6.0	3.8	3.8	15.66	51	86	94	51	86	94
125	144	6.0	4.7	4.7	20.00	64	109	119	64	109	119
150	170	6.0	5.8	5.8	23.07	75	127	138	75	127	138
200	222	6.3	8.0	8.0	31.95	104	176	191	104	176	191
250	274	6.8	11.0	12.0	42.80	140	236	256	142	238	258
300	326	7.2	15.0	16.0	54.19	179	301	327	181	303	329
350	378	7.7	18.0	23.0	67.43	221	373	406	231	383	416
400	429	8.1	19.0	26.0	80.80	260	442	480	274	456	494
450	480	8.6	22.0	34.0	95.27	306	520	566	330	544	590
500	532	9.0	28.0	46.0	111.98	364	616	670	400	652	706
600	635	9.9	43.0	73.0	147.78	496	829	900	552	885	956
700	738	10.8	62.0	83.0	188.24	642	1065	1155	684	1107	1196
750	790	11.3	74.0	96.0	211.30	729	1205	1306	773	1249	1350
800	842	11.7	82.0	108.0	233.70	807	1333	1445	859	1385	1495
900	945	12.6	92.0	125.0	283.69	964	1602	1740	1030	1668	1805
1000	1048	13.5	126.0	178.0	338.49	1183	1944	2108	1287	2048	2215
1100	1152	14.4	158.0	210.0	367.80	1327	2155	2332	1431	2259	2435
1200	1255	15.3	190.0	270.0	425.80	1551	2509	2715	1711	2669	2875

NOTE:

1. The method of screwing and the exact form of thread are as per our own discretion as the flanges are never removed after screwing on to the barrel of the pipes.
2. If so required the flanges may be spot welded on the back side after screwing.
3. Alternatively the flanges may be completely welded on to the barrel pipes.
4. Pipes = K9
5. ONLY WELDABLE FLANGES MAY ALSO BE SUPPLIED TO BE WELDED ON TO THE PIPES AS PER SITE REQUIREMENTS
6. PUDDLE flanges (for wall casting) may be welded on pipes as per Customer's requirements.

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DIMENSIONS OF STANDARD FLANGE DRILLING FOR SCREWED FLANGES & WELDED FLANGE (PN 10)



PN-10

TABLE - 6

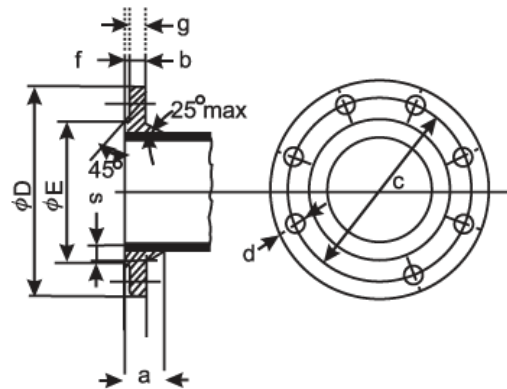
Nominal Diameter	Dimensions								Holes		Bolt Size Metric	Bolt length mm
	DN	D	E	C	b	f	g	a	S	Number		
80	200	132	160	19	3	16	32	15	4	19	M16	80
100	220	156	180	19	3	16	32	15	8	19	M16	70
125	250	184	210	19	3	16	32	15	8	19	M16	80
150	285	211	240	19	3	16	32	15	8	23	M20	80
200	340	266	295	20	3	17	34	15	8	23	M20	80
250	395	319	350	22	3	19	48	16	12	23	M20	90
300	445	370	400	24.5	4	20.5	52	17.5	12	23	M20	90
350	505	429	460	24.5	4	20.5	52	19.5	16	23	M20	100
400	565	480	515	24.5	4	20.5	60	19.5	16	28	M24	100
450	615	530	565	25.5	4	21.5	63	20	20	28	M24	100
500	670	582	620	26.5	4	22.5	68	21	20	28	M24	110
600	780	682	725	30	5	25	75	24	20	31	M27	120
700	895	794	840	32.5	5	27.5	82	24	24	31	M27	120
750	960	857	900	34	5	29	87	24	24	31	M27	130
800	1015	901	950	35	5	30	90	24.5	24	34	M30	130
900	1115	1001	1050	37.5	5	32.5	98	26.5	28	34	M30	150
1000	1230	1112	1160	40	5	35	105	28	28	37	M33	150
1100	1340	1231	1270	43	5	38	114	30	32	37	M33	160
1200	1455	1328	1380	45	5	40	120	31.5	32	40	M36	180

NOTE:

1. The method of screwing and the exact form of thread shall be left to the discretion of the manufacturer as the flanges are never removed after screwing on the barrels of the pipes.
2. If so required the screwed flanges may be spot welded on the back side after screwing.
3. Dimensions 'a' and 'S' are for guidance only.
4. Unless otherwise specified, flanges shall be of ductile iron.

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DIMENSIONS OF STANDARD FLANGE DRILLING FOR SCREWED FLANGES & WELDED FLANGE (PN 16)



PN-16

TABLE - 7

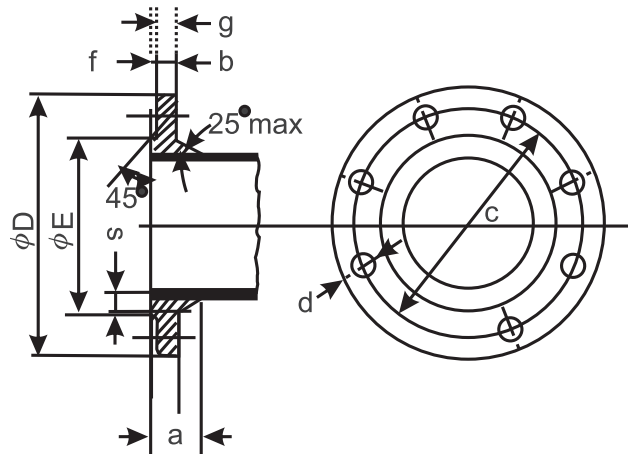
Nominal Diameter	Dimensions								Holes		Bolt Size Metric	Bolt Length mm
	DN	D	E	C	b	f	g	a	S	Number		
80	200	132	160	19	3	16	32	15	8	19	M16	80
100	220	156	180	19	3	16	32	15	8	19	M16	80
125	250	184	210	19	3	16	32	15	8	19	M16	80
150	285	211	240	19	3	16	32	15	8	23	M20	80
200	340	266	295	20	3	17	34	16	12	23	M20	80
250	400	319	355	22	3	19	48	17.5	12	28	M24	90
300	455	370	410	24.5	4	20.5	52	19.5	12	28	M24	100
350	520	429	470	26.5	4	22.5	68	21	16	28	M24	100
400	580	480	525	28	4	24	72	22.5	16	31	M27	110
450	640	548	585	30	4	26	78	24	20	31	M27	110
500	715	609	650	31.5	4	27.5	82	25	20	34	M30	120
600	840	720	770	36	5	31	93	27.5	20	37	M33	130
700	910	794	840	39.5	5	34.5	103	27.5	24	37	M33	140
750	970	857	900	41	5	36	108	28	24	37	M33	140
800	1025	901	950	43	5	38	114	30	24	40	M36	150
900	1125	1001	1050	46	5	41	124	32.5	28	40	M36	160
1000	1255	1112	1170	50	5	45	135	35	28	43	M39	170
1100	1355	1218	1270	53.5	5	48.5	144	37.5	32	43	M39	180
1200	1485	1328	1390	57	5	52	156	40	32	49	M45	200

NOTE:

1. The method of screwing and the exact form of thread shall be left to the discretion of the manufacturer as the flanges are never removed after screwing on the barrels of the pipes.
2. If so required the screwed flanges may be spot welded on the back side after screwing.
3. Dimensions 'a' and 'S' are for guidance only.
4. Unless otherwise specified, flanges shall be of ductile iron

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DIMENSIONS OF STANDARD FLANGE DRILLING FOR SCREWED FLANGES & WELDED FLANGE (PN 25)



PN-25

TABLE - 8

Nominal Diameter	Dimensions								Holes		Bolt Size Mertic	Bolt length mm
	DN	D	E	C	b	f	g	a	S	Number		
80	200	132	160	19	3	16	32	15	8	19	M16	80
100	235	156	190	19	3	16	33	15	8	23	M20	80
125	270	184	220	19	3	16	37	15	8	28	M24	80
150	300	211	250	20	3	17	40	16	8	28	M24	90
200	360	274	310	22	3	19	44	17.5	12	28	M24	90
250	425	330	370	24.5	3	21.5	49	19.5	12	31	M27	100
300	485	389	430	27.5	4	23.5	56	22	16	31	M27	100
350	555	448	490	30	4	26	57	24	16	34	M30	110
400	620	503	550	32	4	28	64	25.5	16	37	M33	120
450	670	548	600	34.5	4	30.5	69	27.5	20	37	M33	130
500	730	609	660	36.5	4	32.5	73	29	20	37	M33	130
600	845	720	770	42	5	37	83	33.5	20	40	M36	150
700	960	820	875	46.5	5	41.5	84	33.5	24	43	M39	150
750	1020	883	940	50	5	45	100	34	24	43	M39	170
800	1085	928	990	51	5	46	102	35.5	24	49	M45	180
900	1185	1028	1090	55.5	5	50.5	112	39	28	49	M45	190
1000	1320	1140	1210	60	5	55	118	42	28	56	M52	210
1100	1420	1240	1310	65.5	5	60.5	120	45	32	56	M52	210
1200	1530	1350	1420	69	5	64	138	48.5	32	56	M52	220

NOTE:

1. The method of screwing and the exact form of thread shall be left to the discretion of the manufacturer as the flanges are never removed after screwing on the barrels of the pipes.
2. If so required the screwed flanges may be spot welded on the back side after screwing.
3. Dimensions 'a' and 'S' are for guidance only.
4. Unless otherwise specified, flanges shall be of ductile iron.

T

It is recommended that the Tyton Rubber Rings to be used with fittings, of **"T" Type** should be purchased from the manufacturer of fittings for best results.

We supply Tyton Rubber Rings in Natural Rubber (NR), Styrene Butadiene Rubber (SBR) and Ethylene Propylene Daimene Modified Rubber (EPDM), sourcing it from our approved vendors under our strict Quality Control Supervision.

However for water works purposes SBR Rubber Rings are highly recommended considering compression, micro bio-degradation, resistance to heat, water and ageing.

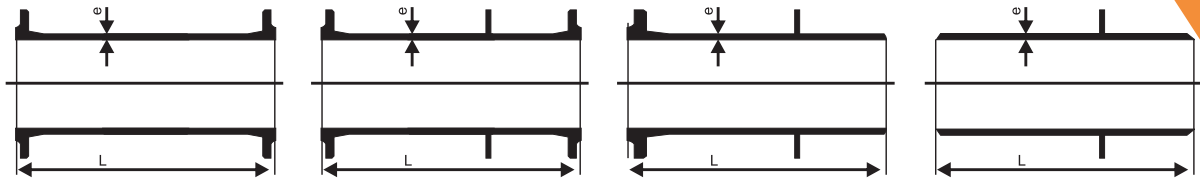
K

Fittings of **"K" Type** are suitable for Mechanical Jointing and are supplied as complete set with Nut, Bolts & Rubber Rings. Natural Rubber Rings (NR), are generally supplied. Upon specific requirement SBR & EPDM Rubber Rings may also be supplied.

Ductile Iron Pipes & Fittings are weldable and should be welded as per standard welding practice with only Ferro Nickel (Fe-Ni) welding rods, if required.

ISO 2531
BS EN 545
BS EN 598

INTEGRALLY CASTED DOUBLE FLANGED PIPE, PUDDLE PIPE (K-12)



Double Flanged Pipe

Double Flanged Puddle Pipe

Flanged Spigot Puddle Pipe

Plain End Puddle Pipe

K-12

TABLE - 36

Nominal Size (DN)	Barrel		Integral Flange		App. Mass (kg)			
	e mm	Mass per meter Kg/m	Unit Mass Per Flg		D/F Pipes PN- 10 Flanges		D/F PuddlePipe PN- 10 Flanges	
			PN 10	PN 16	1.0 mtr.	2.0 mtr.	0.5 mtr	1.0 mtr
80	7.0	14.1	3.0	3.0	20	34	16	23
100	7.2	17.7	3.3	3.3	24	42	19	28
125	7.5	22.7	4.0	4.0	31	53	23	35
150	7.8	28.0	5.1	5.1	38	66	29	43
200	8.4	39.7	7.1	7.1	53	93	41	61
250	9.0	52.8	10.0	10.0	72	125	56	83
300	9.6	67.3	13.0	13.0	93	160	73	106
350	10.2	83.1	14.7	17.4	111	194	86	127
400	10.8	100.0	17.7	22.2	133	233	103	153
450	11.4	118.3	20.2	28.0	159	277	120	179
500	12.0	138.2	24.3	38.0	182	320	141	210
600	13.2	181.8	34.0	48.0	243	425	193	284
700	14.4	230.8	46.0	58.0	312	543	253	369
750	15.0	258.0	55.0	68.0	354	612	294	423
800	15.6	285.5	62.0	77.0	395	681	329	472
900	16.8	345.4	73.0	92.0	474	819	392	565
1000	18.0	410.6	93.0	128.0	573	984	484	690
1100	19.2	482.0	113.0	148.0	707	1189	580	821
1200	20.4	558.0	138.0	193.0	800	1357	693	972
1400	22.8	727.0	175.0	232.0	1022	1749	888	1252
1500	24.0	820.0	202.0	290.0	1222	2041	1016	1425
1600	25.2	917.0	242.0	331.0	1330	2247	1184	1643
1800	27.6	1130.0	282.0	394.0	1602	2731	1411	1975
2000	30.4	1880.0	337.0	475.0	2554	4434	1951	2891
2200	32.4	2220.0	426.0	600.0	3072	5292	2388	3498

NOTE:

1. Puddle Flange will be 10mm thick upto 300 mm dia, 15 mm from 350 to 600 mm & 20 mm from 700 to 1800 mm dia, unless otherwise specified
2. Pipes can be supplied with Flanged ends, Plain ends, Flange Spigot ends and with puddles flanges in all combination and in all length with max limit being 2.0 mtrs.