



1st Edition



2nd Edition



3rd Edition



4th Edition



5th Edition

Kejrival CASTINGS LIMITED

CAST IRON PIPES, FITTINGS & SPECIALS

6th EDITION - 2009



Chatterjee International Centre
33A, Chowringhee Road, 11th Floor, Suite # 11, Kolkata 700 071 India
Phone : 2226-2312 / 2313 / 3145 **Fax** : 033 22262314 **E-mail** : info@kejriwalcastings.co
Website : www.kejriwalcastings.com

Factory : NH-6, Chamrail, Howrah, India



An ISO 9001 Certified Company

CERTIFICATE OF REGISTRATION
Quality Management System

This is to certify that:
Kejriwal Castings Private Limited
33A, Chowringhee Road
Chatterjee International Centre
11th Floor, Suite No. 11
Kolkata 700 071
West Bengal
India

Hold Certificate No: FM 81232
and operate a Quality Management System which complies with the requirements of
BS EN ISO 9001:2000 for the following scope:

- I. Manufacture and Supply of Cast Iron & Ductile Iron Castings (Valves Pipes & Fittings);
- II. Machining, Assembly and Supply of Cast Steel Castings (Valves); and
- III. Machining and Supply of Centrifugally Cast (Spun) Iron Pipes for Water, Gas & Sewage Applications

For and on behalf of BSI:

Certificate Manager

Originally registered : 06 Jan 2004 Latest issue : 26 Oct 2005 Page : 1 of 2

CERTIFICATE OF REGISTRATION
Quality Management System

Kejriwal Castings Private Limited

Certificate No. : FM 81232

Location
33A, Chowringhee Road
Chatterjee International Centre
11th Floor, Suite No. 11
Kolkata 700 071
West Bengal
India

Kejriwal Castings Private Limited
P 200, Benaras Road
Netajigarh, Howrah 711 108
West Bengal, India

Kejriwal Castings Private Limited
NH 6, Chamraill
(Near Kona Power Sub-Station)
Kona, Howrah
West Bengal, India

Originally registered : 06 Jan 2004 Latest issue : 26 Oct 2005 Page : 2 of 2

CERTIFICATE OF REGISTRATION
Quality Management System

Kejriwal Castings Private Limited

33A, Chowringhee Road
Chatterjee International Centre
11th Floor, Suite No. 11
Kolkata 700 071
West Bengal, India

Operate a Quality Management System which complies with the requirements of
BS EN ISO 9001:2000
for the activities detailed in the scope of registration.
Certificate No. **FM 81232**


For and on behalf of BSI
Latest issue : 26 Oct 2005

Originally registered : 06 Jan 2004



COMPLETE RANGE OF ISI MARKET PRODUCTS



IS:9523

CM/L-5197373

DUCTILE IRON PIPE FITTINGS

IS:14846

CM/L-5200538

**DUCTILE IRON / CAST IRON
SLUICE VALVES**

IS:5312

CM/L-5199983

**DUCTILE IRON / CAST IRON
NON RETURN VALVES**

IS:1538

CM/L-5120237

**CAST IRON
PIPE FITTINGS**

IS:13382

CM/L-5159971

**CAST IRON
MECHANICAL JOINT FITTINGS**

IS:7181

CM/L-5143754

**CAST IRON DOUBLE FLANGED
HORIZONTALLY CAST PIPES**

IS:1537

CM/L-5158060

**CAST IRON DOUBLE FLANGED
VERTICALLY CAST PIPES**

OUR DUCTILE IRON PIPES / FITTINGS CONFIRMS TO

ISO - 2531

&

BS - EN - 545

DIMENSIONS / REQUIREMENTS



Kejriwal



MISCELLANEOUS

Table : i
Approximate Weight of Water Content in
Cast Iron Pipes in Kg/metre.

Nominal Bore	Kg./mtr.	Nominal Bore	Kg./mtr.
80	5.0	450	161
100	8.2	500	199
125	12.7	600	285
150	18.2	700	388
200	32.2	750	445
250	50.6	800	505
300	72.7	900	645
350	98.7	1000	790
400	128.1	1200	1140

Table : ii
Conversion Factors

Length	
1 Inch	= 25.400 Milimetres (mm)
1 Foot	= 304.800 Milimetres (mm)
1 Yard	= 914.400 Milimetres (mm)
1 Mile	= 1.609 Kilometres (Km)
Weight	
1 Kilogram	= 2.2046 Pound
1 Pound	= 0.4536 Kilogram
Capacity	
1 Gallon (UK)	= 4.546 litres
1 Litre	= 0.219976 gallon (UK)
1 Gallon (US)	= 3.7853 litres
1 Litre	= 0.26418 gallon (US)

Table : iii
Pressure Conversion Table

Kg/cm ³	lbs/ sq.inch	Meter Head	Approx. Feet Head	Kg/cm ³	lbs/ sq.inch	Meter Head	Approx. Feet Head	Kg/cm ³	lbs/ sq.inch	lbs/ sq.inch	Approx. Feet Head
1	14.22	10	32.81	13	184.90	130	426.62	25	355.58	250	820.62
2	28.45	20	65.62	14	199.13	140	459.45	26	369.80	260	853.24
3	42.67	30	98.43	15	213.35	150	492.24	27	384.02	270	886.05
4	56.87	40	131.24	16	227.57	160	525.07	28	398.24	280	918.86
5	71.12	50	164.05	17	241.80	170	557.90	29	412.47	290	951.69
6	85.34	60	196.86	18	256.02	180	590.71	30	426.69	300	984.28
7	99.56	70	229.67	19	270.24	190	623.52	31	440.91	310	1017.31
8	113.79	80	262.47	20	284.47	200	656.38	32	455.14	320	1050.15
9	128.01	90	295.38	21	298.69	210	689.17	33	469.36	330	1082.96
10	142.23	100	328.19	22	312.91	220	721.98	34	483.58	340	1115.77
11	156.46	110	361.00	23	327.14	230	754.81	35	497.80	350	1148.33
12	170.68	120	393.81	24	341.36	240	787.62				

Table iv
Approximate Quantities of Lead and Spun Yarn for Socket & Spigot Joints.

Nominal Bore	Wt. of Lead in Kg	Wt. of Spun Yarn in Kg	Nominal Bore	Wt. of Lead in Kg	Wt. of Spun Yarn in Kg
80	1.8	0.09	450	13.8	0.72
100	2.3	0.12	500	15.4	0.77
125	2.7	0.14	600	20.4	1.04
150	3.2	0.17	700	23.8	1.18
200	4.8	0.26	750	27.7	1.21
250	5.9	0.31	800	29.5	1.14
300	6.8	0.37	900	33.3	1.23
350	8.6	0.47	1000	39.9	1.12
400	10.0	0.53	1100	44.5	1.18
			1200	48.0	1.27

Table : v
Drillings as per BS-10 Table - D

Size	Flange OD		PCD		Hole dia		Flange thickness		No. of Holes	Dia of Bolts	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm		Inch	mm
80	7 ¹ / ₄	185	5 ³ / ₄	146	³ / ₄	19.0	³ / ₄	19.0	4	⁵ / ₈	16
100	8 ¹ / ₂	216	7	178	³ / ₄	19.0	³ / ₄	19.0	4	⁵ / ₈	16
125	10	254	8 ¹ / ₄	210	³ / ₄	19.0	¹³ / ₁₆	21.0	8	⁵ / ₈	16
150	11	280	9 ¹ / ₄	235	³ / ₄	19.0	¹³ / ₁₆	21.0	8	⁵ / ₈	16
200	13 ¹ / ₄	337	11 ¹ / ₂	292	³ / ₄	19.0	⁷ / ₈	22.0	8	⁵ / ₈	16
250	16	406	14	356	⁷ / ₈	22.0	1	25.0	8	³ / ₄	19
300	18	457	16	406	⁷ / ₈	22.0	1	25.0	12	³ / ₄	19
350	20 ³ / ₄	527	18 ¹ / ₂	470	1	25.4	1 ¹ / ₈	28.6	12	⁷ / ₈	22
400	22 ³ / ₄	578	20 ¹ / ₂	521	1	25.4	1 ¹ / ₈	28.6	12	⁷ / ₈	22
450	25 ¹ / ₄	641	23	584	1	25.4	1 ¹ / ₄	31.7	12	⁷ / ₈	22
500	27 ³ / ₄	705	25 ¹ / ₄	641	1	25.4	1 ¹ / ₄	31.7	16	⁷ / ₈	22
600	32 ¹ / ₂	825	29 ¹ / ₄	756	1 ¹ / ₈	28.6	1 ³ / ₈	35.0	16	1	25

End Connection

To join two similar plain ends only.

Use

- i) With CI & DI pipes
- ii) can be manufactured specially to suit all other kinds of pipes such as AC, PVC, uPVC, MS, SS etc.

Working

Tightening of bolts draws the two flanges together compressing the sealing ring in the recess between sleeve and flanges on to the pipe thus effecting a leak tight joint.

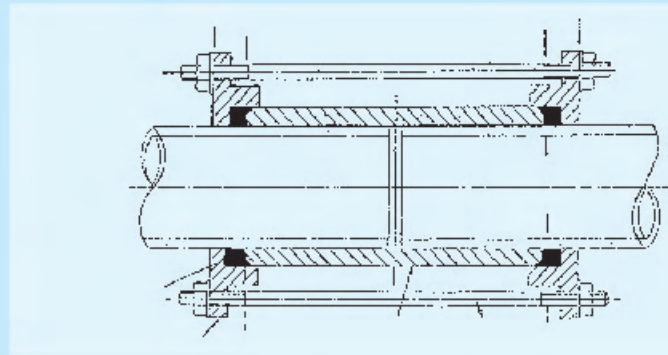
Size 80mm to 1800mm NB.

Material Used Ductile Iron / Cast Iron

Advantages

It can absorb limited expansion, contraction, ground movement and long radius curves.

"KESIN" MECHANICAL COUPLING



End Connection

To join one plain end and other flanged end only.

Use

- i) with CI & DI pipes
- ii) can be manufactured specially to suit all other kinds of pipes such as AC, PVC, uPVC, MS, SS etc.

Working

Tightening of bolts draws compression flange towards spigot end of flanged barrel thereby compressing the sealing rubber ring in the recess between compression flange and the spigot end of flange barrel effecting a leak tight joint.

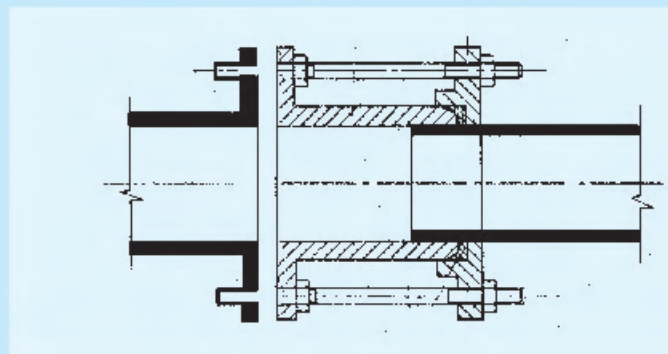
Size 80mm to 1800mm NB.

Material Used Ductile Iron / Cast Iron

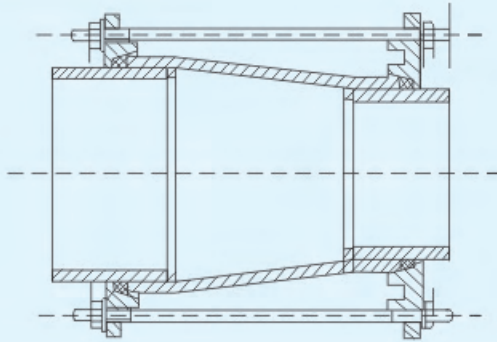
Advantages

It can absorb limited expansion, contraction, ground movement and long radius curves.

"KESIN" FLANGED MECHANICAL ADAPTERS



"KESIN" REDUCING MECHANICAL COUPLING



End Connection

To join two dis-similar plain ends having different outside diameters.

Use

i) with CI, DI, AC, PVC, uPVC, MS, S.S, etc
virtually all kinds of rigid pipes.

Working

Tightening of bolts draws the two flanges together compressing the seal ring in the recess between sleeve and flanges on to the pipe thus effecting a leak tight joint.

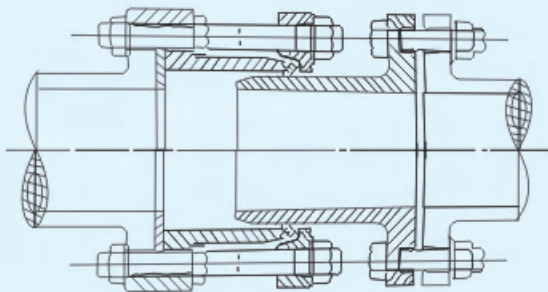
Size 80mm to 1800mm NB.

Material Used Ductile Iron / Cast Iron

Advantages

It can absorb limited expansion, contraction, ground movement and long radius curves.

"KESIN" ADJUSTABLE DISMANTLE JOINTS



End Connection

To join two flanged end.

Use

i) with all kinds of pipes but having flanged ends.
ii) can be manufactured specially to suit all other kinds of pipes such as AC, PVC, uPVC, MS, SS etc.

Working

A flanged spigot of same nominal bore as that of adjoining pipeline slides inside a flanged spigot barrel of higher diameter to create space in the pipeline upto a maximum of 0 to 100 mm.

Size 80mm to 1800mm NB.

Material Used Ductile Iron / Cast Iron

Advantages

i) to create gaps/space in flanged pipeline.
ii) to fill up/adjust gaps/space in flanged pipelines
iii) can absorb limited vibration/expansion contraction

End Connection

To seal the leaking socket joints/ends of pipes having Tyton Rubber Ring Joints or lead caulked Joints.

Use

CI/DI socket-end pipes (Lead or Tyton Rubber Joints)

Working

Compression Ring, Clamp and Rubber rings are supplied in two parts to be joined with nut bolt and J-hook. The compression Ring is pulled towards socket thereby sealing the gap in between the socket and Compression Ring with the help of rubber ring on to the pipe.

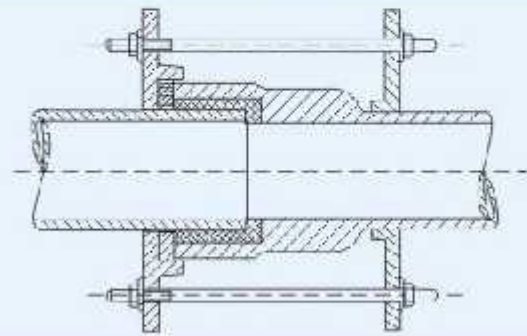
Size 80mm to 1800mm

Material Used Ductile Iron / Cast Iron

Advantages

Leaking socket ends on Running pipeline can be repaired by digging trenches only near the socket ends.

"KESIN" SOCKET LEAK REPAIR JOINT CLAMPS



End Connection

Double flanged end.

Use

To be used as an automatic expansion/contraction absorbing joints between flanged end connections. It can be used on all Rigid pipes like CI, DI, MS, PVC, uPVC, SS but with flanged ends.

Working

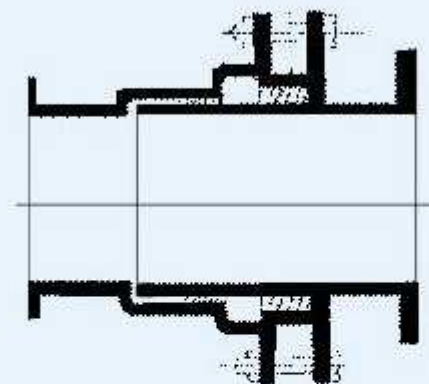
Size 80mm to 1800mm

Material Used Ductile Iron / Cast Iron

Advantages

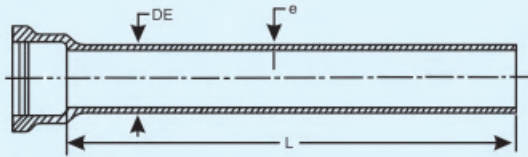
Automatically absorbs expansion/contraction in pipeline thereby prolonging the lifespan of pipeline and reducing chances of bending / zig zag lines.

"KESIN" EXPANSION JOINTS

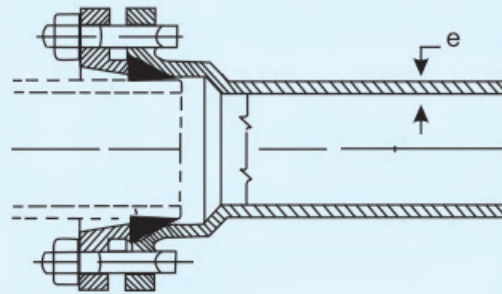




'KESIN' Vertically Sand Cast Pipes



Socket Spigot Pipe suitable for Lead / Tyton Joint



Socket Spigot Pipe suitable for Mechanical Joint

SOCKET AND SPIGOT PIPES CLASS A & B

Nominal Diameter DN	Bare DE mm	Socket Mass Approx. Kg.	BARREL				Total Mass Incl. Socket (L)			
			e		Mass/Mtr		Class A		Class B	
			Class A mm	Class B mm	Class A mm	Class B mm	20 mtr. Kg.	2.5 mtr. Kg.	20 mtr. Kg.	2.5 mtr. Kg.
1100	1152	265.6	26.6	29.0	672.4	739.0	1610.4	1946.6	1743.6	2113.1
1200	1256	313.2	28.4	31.0	783.1	851.6	1879.4	2271.0	2016.4	2442.2
1500	1567	501.1	33.9	37.0	1222.1	1331.1	2945.3	3556.4	3163.3	3828.9

Special Fittings for uPVC Pipes



DOUBLE SOCKET 90° BEND



DOUBLE SOCKET 45° BEND



DOUBLE SOCKET 22.5° BEND



DOUBLE SOCKET 11.25° BEND



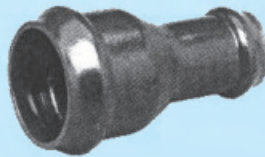
FLANGE SOCKET DUCKFOOT BEND



FLANGED SOCKET



FLANGED SPIGOT



DOUBLE SOCKET REDUCER



ALL SOCKET TEE



END CAPS



END CAPS THREADED BRANCH

Centrifugally Cast Spun Iron Pressure Pipes



CLASSIFICATION

Pipes have been classified in this standard as LA, A, and B according to their thickness. Class LA pipes have been taken as basis for evolving the series of pipes. Class A allows a 10 percent increase in thickness over Class LA. Class B allows a 20 percent increase in thickness over Class LA. For special uses, Classes C, D, or E may be derived after allowing corresponding increases of thickness of 30, 40, or 50 percent respectively. The Cast 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

- a. Socket and Spigot Pipes = ± 100 mm
- b. Plain ended Pipes = ± 100 mm
- c. Flanged Pipes = ± 10 mm

TOLERANCE ON MASS

- a. All Pipes = ± 5 percent

Hydrostatic pressures (kg/cm²)

Nominal Bore	Works Test Pressure				Suggested Maximum Site Pressure							
					Test Pressure				Working Pressure			
	S/S Pipes		D/F Pipes		S/S Pipes		D/F Pipes		S/S Pipes		D/F Pipes	
LA	A	B	B	LA	A	B	B	LA	A	B	B	
80 to 300	35	35	35	25	16	20	25	20	10	12.5	16	15
350 to 600	35	35	35	16	16	20	25	15	10	12.5	16	10
700 to 1000	15	20	25	—	15	20	25	10	10	12.0	15	7

S/S Pipes = Socket/Spigot Pipes
D/F Pipes = Double Flanged Pipes

NOTES :

Cast Iron Fittings to be used with above pipes can be :

1. IS -1538 : Lead joints and Flanged Joints Fittings
2. IS-13382 : Tyton Rubber push on Joints and Mechanical Joint Fittings

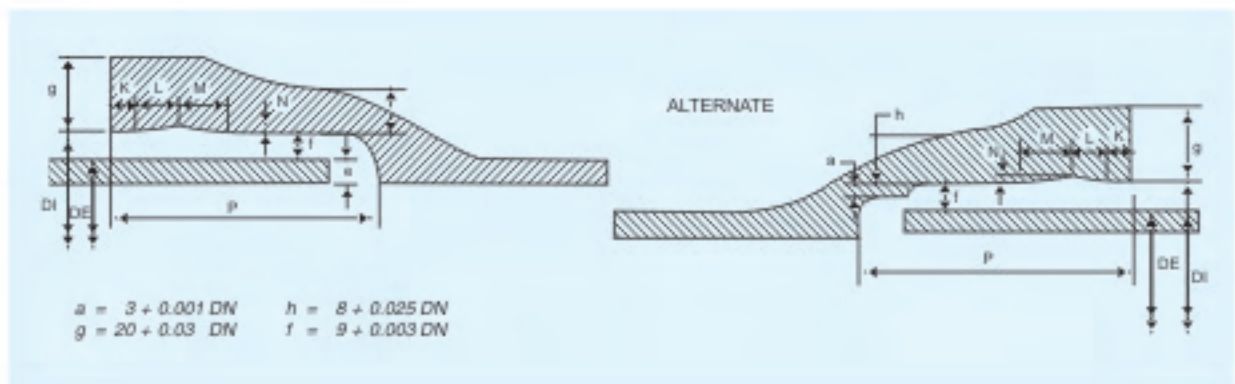


Table-1 : Dimensions of Socket and Spigot of Pipes (Lead Joint)

Nominal Diameter DN	Barrel										Joint Thickness <i>f</i>
	SOCKET DIMENSIONS										
	<i>DE</i>	<i>DI</i>	<i>P</i>	<i>g</i> <i>Min</i>	<i>h</i> <i>Min</i>	<i>a</i> <i>Optional</i>	<i>K</i>	<i>L</i>	<i>M</i>	<i>N</i>	
80	98	116	84	22.5	10.0	3.0	8.5	9	14	3	9.0
100	118	137	88	23.0	10.5	3.0	8.5	9	14	3	9.5
125	144	163	91	24.0	11.0	3.0	8.5	9	14	3	9.5
150	170	189	94	24.5	12.0	3.0	8.5	11	16	3	9.5
200	222	241	100	26.0	13.0	3.0	8.5	12	17	3	9.5
250	274	294	103	27.5	14.5	3.5	8.5	14	18	3	10.0
300	326	346	105	29.0	15.5	3.5	8.5	14	18	3	10.0
350	378	398	107	30.5	17.0	3.5	8.5	14	19	3	10.0
400	429	449	110	32.0	18.0	3.5	8.5	15	20	3	10.0
450	480	501	112	33.5	19.0	3.5	8.5	18	22	3	10.5
500	532	553	115	35.0	20.5	3.5	8.5	20	24	3	10.5
600	635	657	120	38.0	23.0	3.5	8.5	22	25	3	11.0
700	738	760	122	41.0	25.5	3.5	8.5	24	26	3	11.0
750	790	813	123	42.5	27.0	4.0	8.5	25	28	3	11.5
800	842	865	125	44.0	28.0	4.0	8.5	25	28	3	11.5
900	945	968	128	47.0	30.5	4.0	8.5	27	30	3	11.5
1000	1048	1072	128	50.0	33.0	4.0	8.5	28	32	3	12.0
1050	1124	1143	128	52.0	36.0	5.0	8.5	28	32	3	12.0

NOTES :

1. Dimensions K, L, M and N are for guidance only.
2. Dimensional figures 'g' and 'h' do not effect interchangeability, they only indicate minimum permissible thickness
3. For alternate design L = M

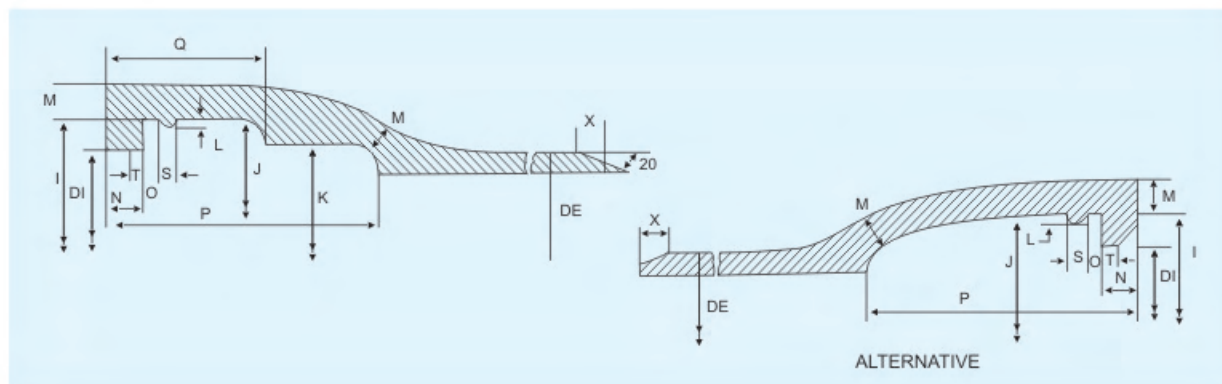
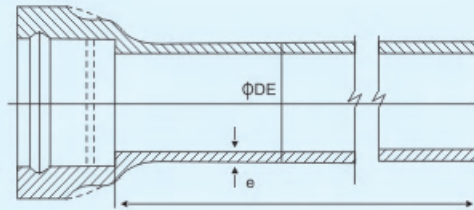


Table-2 : Dimensions of Socket and Spigot of Pipes (Push-on-Joints)

Nominal Diameter DN	Barrel													
	SOCKET DIMENSIONS													
	DE	X	DI	P	Q	I	J	K	N	O	S	T	L	M
	Min													Min
80	95	9	99.0	89	52	121.0	116.0	102	12	5.5	5.0	4.0	3.0	10.8
100	115	9	119.0	92	52	141.0	136.0	122	12	5.5	5.0	4.0	3.0	11.3
125	141	9	145.0	94	52	167.0	162.0	148	12	5.5	5.0	4.0	3.0	12.0
150	167	9	171.0	94	52	193.0	188.0	174	12	5.5	5.0	4.0	3.0	12.7
200	219	9	223.0	102	60	248.0	242.0	226	15	6.5	6.0	5.0	3.5	14.0
250	271	9	275.5	106	62	299.0	296.0	278	15	6.5	6.0	5.0	3.5	15.4
300	323	9	328.0	110	67	355.0	351.0	331	17	8.0	7.0	5.0	4.0	16.7
350	375	14	380.5	110	67	407.0	403.0	383	17	8.0	7.0	5.0	4.0	18.1
400	426	14	431.5	112	74	461.0	454.0	435	19	9.0	8.0	5.0	4.5	19.4
450	477	14	482.5	112	74	512.0	508.0	485	19	9.0	8.0	5.0	4.5	20.8
500	529	14	535.0	117	81	567.5	563.0	538	21	10.0	9.0	5.0	5.0	22.1
600	632	14	638.0	125	86	673.0	669.0	642	21	10.0	10.0	5.0	5.0	24.8
700	735	15	742.5	138	88	780.0	774.0	745	21	11.0	10.0	5.0	5.0	25.0
750	787	15	795.0	143	91	834.0	827.0	797	21	11.0	10.0	5.0	5.0	27.0
800	839	15	846.5	143	91	886.0	879.0	850	22	11.0	10.0	6.0	5.0	28.0
900	942	15	949.5	143	91	989.0	985.0	953	22	12.0	11.0	6.0	6.0	28.0
1000	1045	19	1052.0	143	91	1092.0	1088.0	1056	22	12.0	11.0	6.0	6.0	30.0
1050	1118	19	1125.0	143	91	1165.0	1161.0	1134	23	12.0	11.0	6.0	6.0	32.0

NOTES :

1. Dimensions S, T and L are for guidance only.
2. For Nominal Diameters DN 600 and above the socket may be without centering ring as in the alternative sketch given above.



Class LA : $e = \frac{10}{12} (7 + 0.02 DN)$
 Class A : $e = \frac{11}{12} (7 + 0.02 DN)$
 Class B : $e = \frac{12}{12} (7 + 0.02 DN)$

Table-3 : Socket and Spigot Pipes

Nominal Diameter DN	Barrel OD DE	Socket Mass	CLASS LA			CLASS A			CLASS B		
			e	Mass for 1mtr Barrel	Mass for 5.5 mtr. Barrel with Socket	e	Mass for 1mtr Barrel	Mass for 5.5 mtr. Barrel with Socket	e	Mass for 1mtr Barrel	Mass for 5.5 mtr. Barrel with Socket
80	98	5.5	7.2	14.7	-	7.9	16.0	-	8.6	17.3	-
100	118	7.1	7.5	18.6	109	8.3	20.5	120	9.0	22.0	128
125	144	9.2	7.9	24.2	142	8.7	26.4	155	9.5	28.7	167
150	170	11.5	8.3	30.1	177	9.2	33.2	194	10.0	35.9	209
200	222	16.5	9.2	44.0	259	10.1	48.1	281	11.0	52.1	304
250	274	22.9	10.0	59.3	349	11.0	65.0	380	12.0	70.6	411
300	326	29.8	10.8	76.5	450	11.9	84.0	492	13.0	91.4	533
350	378	37.5	11.7	96.3	567	12.8	105.0	615	14.0	114.5	667
400	429	46.3	12.5	116.9	690	13.8	128.7	754	15.0	139.5	814
450	480	56.0	13.3	141.0	832	14.7	156.0	914	16.0	169.0	986
500	532	66.0	14.2	165.2	974	15.6	181.0	1061	17.0	196.7	1148
600	635	89.3	15.8	219.8	1298	17.4	241.4	1417	19.0	262.9	1535
700	738	116.8	17.5	283.2	1675	19.3	311.6	1830	21.0	338.2	1977
750	790	131.7	18.3	317.2	1876	20.2	348.9	2051	22.0	380.6	2225
800	842	147.8	19.2	354.9	2100	21.1	389.1	2288	23.0	423.1	2475
900	945	182.6	20.8	431.8	2558	22.9	474.3	2791	25.0	516.6	3024
1000	1048	222.3	22.5	518.3	3073	24.8	570.0	3357	27.0	619.2	3621
1050	1124	309.6	23.6	583.4	3518	26.0	641.2	3836	29.0	713.3	4233

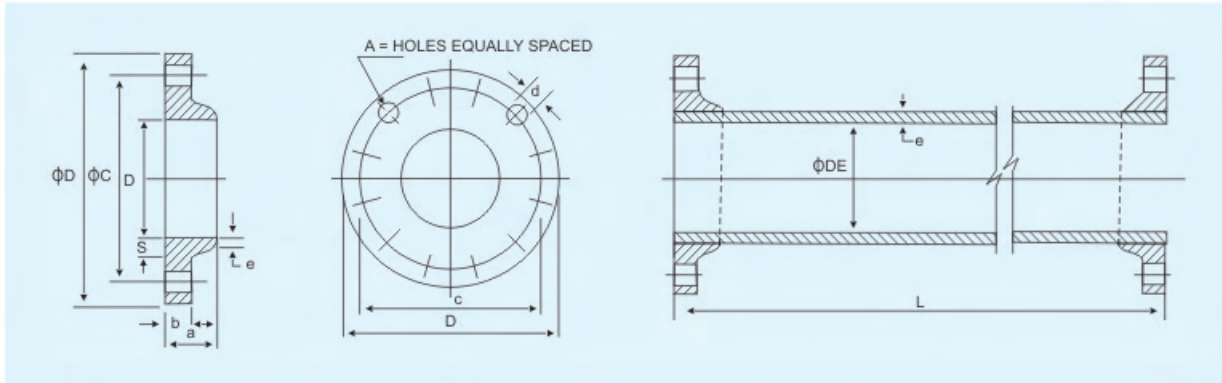


Table-4 : Weights and Dimensions of Screwed Flanges of Pipes & Std. Flange Drilling of Flanged Pipes

Nominal Diameter DN	ID	FLANGE DIMENSIONS						HOLES		Diameter of Bolts	Mass of Flange	Total mass incl. Flange 5.5 mtrs.
		C	D	b	a	r	s	Number A	Diameter d			
80	94	160	200	21.0	42	6	17	4	19	16	4.3	104
100	114	180	220	22.0	44	6	18	8	19	16	5.0	131
125	140	210	250	22.5	45	6	19	8	19	16	6.6	171
150	166	240	285	23.0	46	6	20	8	23	20	8.2	214
200	218	295	340	24.5	49	6	22	8	23	20	11.4	309
250	270	350	395	26.0	52	6	24	12	23	20	14.7	418
300	322	400	445	27.5	55	6	26	12	23	20	18.6	540
350	373	460	505	29.0	58	8	28	16	23	20	21.2	672
400	424	515	565	30.0	61	8	30	16	28	24	27.3	822
450	475	565	615	31.5	64	8	32	16	28	24	32.6	983
500	527	620	670	33.0	67	8	34	20	28	24	38.1	1158
600	630	725	780	36.0	70	8	38	20	31	27	52.4	1551
700	—	840	895	38.5	—	—	—	24	31	27	71.9	2004
750	—	900	960	40.0	—	—	—	24	31	27	84.4	2262
800	—	950	1015	41.5	—	—	—	24	34	30	96.9	2521
900	—	1050	1115	44.0	—	—	—	28	34	30	113.5	3068
1000	—	1160	1230	47.0	—	—	—	28	37	33	134.0	3674
1050	—	1194	1258	48.0	—	—	—	28	37	33	169.9	4263

NOTES :

1. The method of screwing and the exact form of thread is to our discretion as the flanges are never removed after screwing on the barrels of the Pipes
2. Thickness 'e' is equal to the thickness of the Pipe or fitting comprising flange.
3. Dimensions a, r and s do not effect interchangeability and are for guidance only.

'KESIN' Cast Iron Double Flanged Pressure Pipes (Vertically Cast)



AVAILABLE WITH ISI CERTIFICATION MARK



Vertically Cast Iron Pressure Pipes are sand casted generally in Double Flanged version in Class B and in Socket Spigot version in Class A & B. However for special uses Classes C, D, E, etc. may be derived after allowing corresponding increases of thickness of 30, 40, 50, percent extra over class LA.

The flange dimensions confirms to IS-1538/1993. (See page 13, Table 8)

The Socket dimensions confirms to Table - 1 (See page 2)

HYDROSTATIC TEST

For Hydrostatic Test, the Pipes are kept under pressure for 15 seconds. They are struck moderately with a 700 gm hammer, withstanding the pressure test without showing leakage, sweating or other defect of any kind.

DOUBLE FLANGED PIPES CLASS - B (kgf/cm²)

Size	Work Test Pressure Kgf/cm ² S/S Pipes		D/F Pipes	Suggested Maximum Hydraulic Working Pressure including Surge Kgf/cm ²
	A	B	B	
80 to 300	20	25	25	12
350 to 600	20	25	20	10
700 to 1000	15	20	15	6
1100 to 1500	10	15	10	4

TOLERANCE

Tolerance on Length = ± 10 mm
Tolerance on Mass = ± 5 percent

NOTES :

1. The dimensions of pipes only upto 1500 mm dia are given. However Pipes of dia above 1500 mm may also be manufactured to suit specific requirement on request.
2. Similarly to withstand greater pressures than shown above Pipes with greater wall thickness shown, may also be manufactured for specific requirements on request.

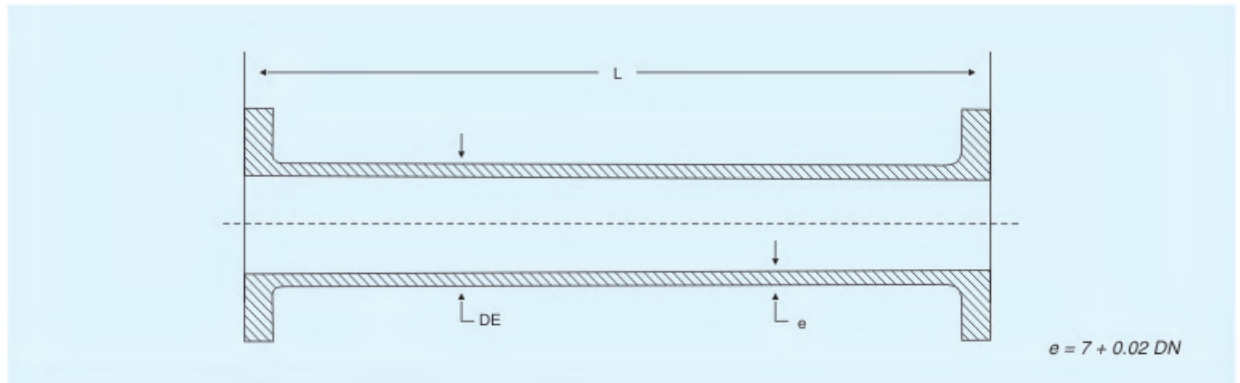


Table-5 : Flanged Pipes Sand Cast - Class B (Vertically Cast)

Nominal Diameter DN	Barrel Outside Diameter	Barrel Thickness	Mass/mtr. Barrel	Mass/Flange	Mass of Pipe including two Flanges (App.)		
	DE	e	(App.)	(App.)	1 mtr.	2 mtr.	2.75 mtr
80	98	8.6	17.3	3.7	24.7	42.0	55.0
100	118	9.0	22.0	4.2	30.4	52.4	68.9
125	144	9.5	28.7	5.3	39.3	68.0	89.5
150	170	10.0	35.9	6.7	49.3	85.2	112.1
200	222	11.0	52.1	9.3	70.7	122.8	161.9
250	274	12.0	70.6	12.0	94.6	165.2	218.2
300	326	13.0	91.4	14.8	121.0	212.4	281.0
350	378	14.0	114.5	19.0	152.5	267.0	352.9
400	429	15.0	139.5	23.4	186.3	325.8	430.4
450	480	16.0	169.0	26.5	222.0	391.0	517.8
500	532	17.0	196.7	32.1	260.9	457.6	605.1
600	635	19.0	262.9	44.0	350.9	613.8	811.0
700	738	21.0	338.2	59.9	458.0	796.2	1050.0
750	790	22.0	380.6	69.8	520.2	900.8	1186.3
800	842	23.0	423.1	80.8	584.7	1007.8	1325.1
900	945	25.0	516.6	94.6	705.8	1222.4	1610.0
1000	1048	27.0	619.2	120.0	859.2	1478.4	1943.0
1100	1152	29.0	739.0	139.0	1017.0	1756.0	2310.3
1200	1256	31.0	851.6	173.0	1197.6	2049.2	2688.0
1500	1567	37.0	1333.1	276.2	1885.5	3214.6	4218.4

'KESIN' Double Flanged Horizontally Cast Iron Pressure Pipes



AVAILABLE WITH ISI CERTIFICATION MARK



These Pipes are horizontally cast in sand moulds.

The flange dimensions of the Pipes confirms to IS-1538/1993. (See page 13, Table 8).

Hydrostatic pressure (kgf/cm²)

Size	Works Test Pressure Kgf/cm ²	Suggested Maximum Hydraulic Working Pressure including Surge Kgf/cm ²
80 to 300	25	12
350 to 600	20	10
700 to 750	15	6

TOLERANCE

Tolerance on length : ± 10 mm

Tolerance on mass : ± 5 percent for DN 200 & above
+ 8 } percent for DN upto 150
- 5 }

The standard working length of Pipes is 2.75 mtr. long (9 feet approx.) upto 600 mm dia and 2 mtr. long above 600 mm dia.

HYDROSTATIC TEST

Pipes are tested hydraulically to prevent leakage, sweating or other defects of any kind. The pressure is applied internally, and steadily maintained for a period of 15 seconds, when pipes are struck moderately with a 700 gm. hammer.

NOTES :

1. The dimension of Pipes only upto 1500 mm dia is given. However Pipes with dia greater than 1500 mm may also be manufactured to suit specific requirement on request.
2. Similarly to withstand greater pressure than shown above, Pipes with greater wall thickness may also be manufactured for specific requirement on request.

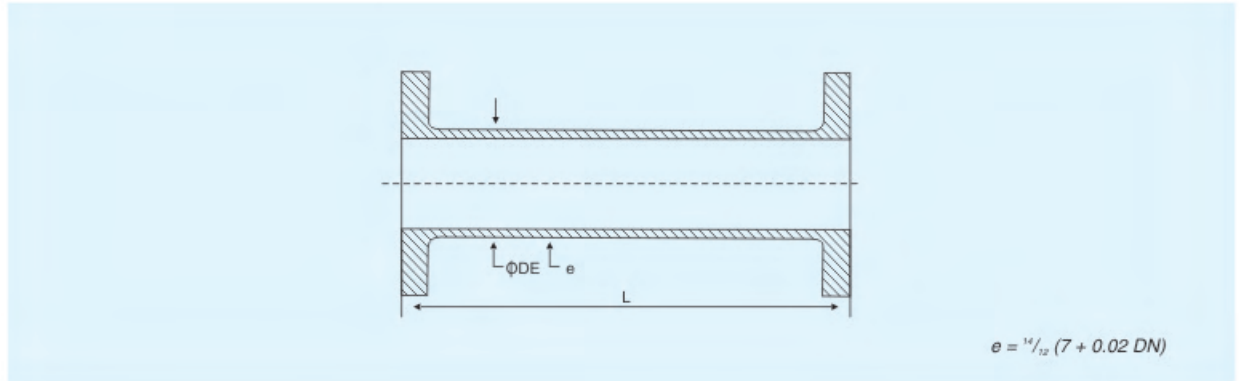


Table-6 : Sizes and Mass of Double Flanged Pipes (Horizontally Cast)

Nominal Diameter Dn	Barrel Outside Diameter	Barrel Thickness	Mass/Mtr. Barrel	Mass/Flange	Mass of Pipe including Flanges (App.)		
	DE	e	App.	App.	1 mtr.	2 mtr.	2.75 mtr.
80	98	10.0	19.8	3.7	27.2	47.0	61.9
100	118	10.5	25.4	4.2	33.8	59.2	78.3
125	144	11.1	33.1	5.3	43.7	76.8	101.6
150	170	11.7	41.6	6.7	55.0	96.6	127.8
200	222	12.8	60.1	9.3	78.7	138.8	183.9
250	274	14.0	81.8	12.0	105.8	187.6	249.0
300	326	15.2	106.1	14.8	135.7	241.8	321.4
350	378	16.3	133.5	19.0	171.5	305.0	405.1
400	429	17.5	162.6	23.4	209.4	372.0	494.0
450	480	18.7	197.0	26.5	250.0	447.0	594.8
500	532	19.8	229.3	32.1	293.5	522.8	694.8
600	635	22.2	306.5	44.0	394.5	701.0	930.9
700	738	24.5	394.3	59.9	514.1	908.4	1204.1
750	790	25.6	443.8	69.7	583.2	1027.0	1359.9

NOTES :

1. The dimension of Pipes only upto 750 mm dia are given. However Pipes with dia greater than 750 mm may also be manufactured to suit specific requirement on request.
2. Similarly to withstand greater pressure than shown above, Pipes with greater wall thickness may also be manufactured for specific requirement on request.

'KESIN' Flanged & Socketted Cast Iron Fittings for Pressure Pipes



AVAILABLE WITH ISI CERTIFICATION MARK



HYDROSTATIC TEST

The fittings are kept under pressure for 15 seconds when they are struck moderately with a 700 gm. hammer. The fittings withstand the pressure test without showing any leakage, sweating or other defect of any kind.

Hydrostatic test pressure for fittings

Size	1. Fitting Without branches 2. Fitting With branches not greater than half the principal diameter	Fittings with branches greater than half the principal diameter
	Kgf/cm ²	Kgf/cm ²
80 to 300	25	25
350 to 600	20	20
700 to 1500	15	10

TOLERANCE

Length

- I. Socket fittings & Tailpieces
 - i) Upto 450 mm ± 20 mm
 - ii) Above 450 mm + 20 mm, -30mm
- II. Flanged fittings
 - All Diameter ± 10 mm

Mass

- I.
 - i) Non Standard fittings
 - ii) Fittings with more than one branch
 - iii) Bends
 } ± 12 percent
- II. Other Standard fittings ± 8 percent

NOTES :

1. Dimensions of fittings only upto 1500 mm dia are given. However fittings with dia greater than 1500 mm may also be manufactured on request to suit specific requirements.
2. Similarly to withstand greater pressure, fittings with greater wall thickness may also be manufactured on request for specific requirement.

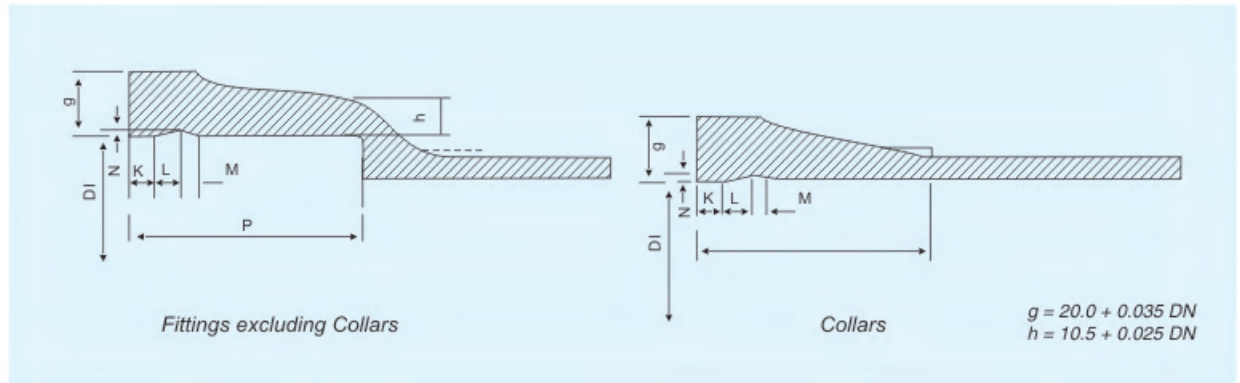


Table-7 : Dimensions of Socket of Fittings (Lead Joint)

Nominal Diameter DN	SOCKET DIMENSIONS							
	DI	P	g Min	h Min	K	L	M	N
80	116	84	23.0	12.0	8.5	9	14	3
100	137	88	23.5	12.5	8.5	9	14	3
125	163	91	24.5	13.0	8.5	9	14	3
150	189	94	25.5	14.0	8.5	11	16	3
200	241	100	27.0	15.0	8.5	12	17	3
250	294	103	29.0	16.5	8.5	14	18	3
300	346	105	30.5	17.5	8.5	14	18	3
350	398	107	32.5	19.0	8.5	14	19	3
400	449	110	34.0	20.0	8.5	15	20	3
450	501	112	36.0	21.0	8.5	18	22	3
500	553	115	37.5	22.5	8.5	20	24	3
600	657	120	41.0	25.0	8.5	22	25	3
700	760	122	44.5	27.5	8.5	24	26	3
750	813	123	46.0	29.0	8.5	25	28	3
800	865	125	48.0	30.0	8.5	25	28	3
900	968	128	51.5	32.5	8.5	27	30	3
1000	1072	130	55.0	35.0	8.5	28	32	3
1050	1143	130	52.0	34.0	8.5	30	34	3
1100	1177	135	58.5	37.5	8.5	30	34	3
1200	1281	140	62.0	40.0	8.5	30	34	3
1500	1594	150	72.5	47.5	8.5	30	34	3

'KESIN' Flange Dimensions - CI Fittings for Pressure Pipes

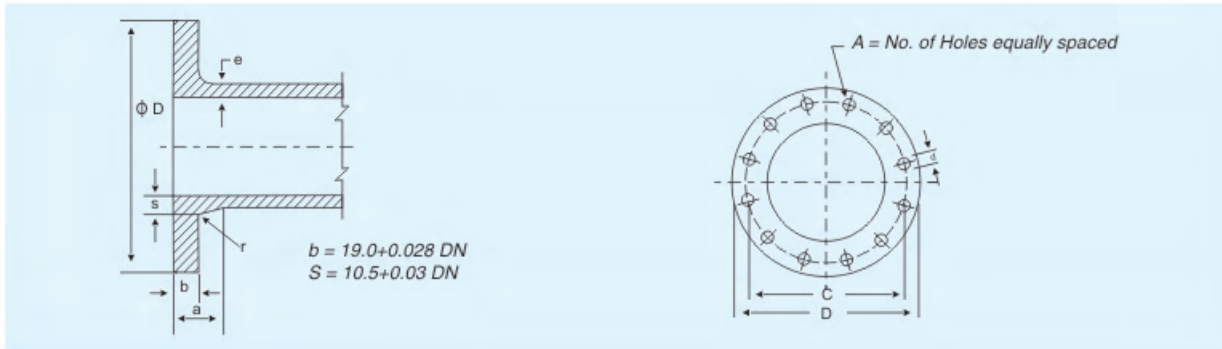


Table-8 : Dimensions, Mass and Flange Drillings of Flanges of Flanged Pipes Fittings and Valves

Nominal Diameter DN	Flange outside Diameter <i>D</i>	Pitch Circle Diameter (PCD) <i>C</i>	Flange Thickness				Holes		Diameter of Bolts	Mass of each Flange <i>(App.)</i>
			<i>a</i>	<i>b</i>	<i>S</i>	<i>r</i>	No	dia		
							<i>A</i>	<i>d</i>		
80	200	160	40.0	21.0	13.0	6	4	19	16	3.7
100	220	180	42.0	22.0	13.5	6	8	19	16	4.2
125	250	210	44.5	22.5	14.5	6	8	19	16	5.3
150	285	240	47.0	23.0	15.0	6	8	23	20	6.7
200	340	295	52.0	24.5	16.5	8	8	23	20	9.3
250	395	350	57.0	26.0	18.0	8	12	23	20	12.0
300	445	400	61.0	27.5	19.5	8	12	23	20	14.8
350	505	460	66.0	29.0	21.0	8	16	23	20	19.0
400	565	515	71.0	30.0	22.5	10	16	28	24	23.4
450	615	565	76.0	31.5	24.0	10	20	28	24	26.5
500	670	620	81.0	33.0	25.5	10	20	28	24	32.1
600	780	725	90.0	36.0	28.5	10	20	31	27	44.0
700	895	840	100.0	38.5	31.5	10	24	31	27	59.9
750	960	900	105.0	40.0	33.0	12	24	31	27	69.7
800	1015	950	110.0	41.5	34.5	12	24	34	30	80.8
900	1115	1050	120.0	44.0	37.5	12	28	34	30	94.6
1000	1230	1160	130.0	47.0	40.5	12	28	37	33	120.0
1050	1258	1194	135.0	48.0	42.0	12	28	37	33	132.0
1100	1340	1270	140.0	50.0	43.5	15	32	37	33	139.0
1200	1455	1380	150.0	53.0	46.5	15	32	40	36	173.0
1500	1800	1710	180.0	61.0	55.5	18	40	43	39	276.2

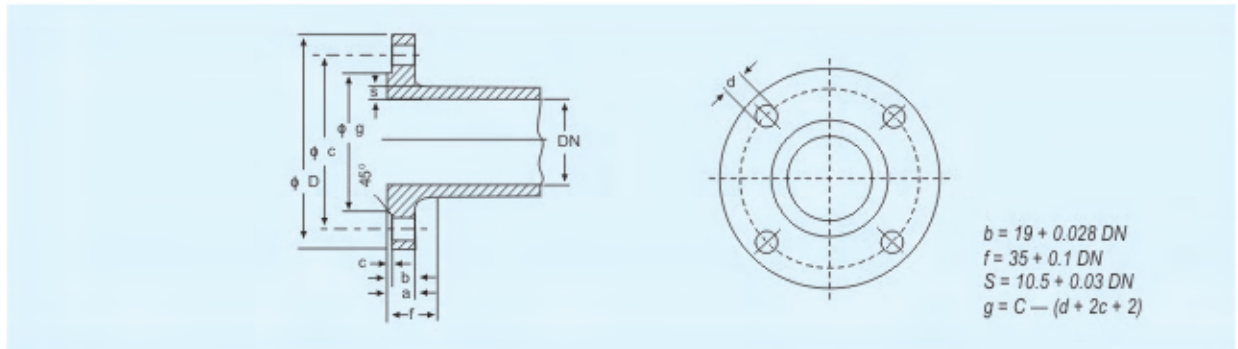


Table-9 : Dimensions of Raised Flanges

Nominal Diameter	D	g	a	b	c	f	s	C	Holes		Diameter of Bolts
									No.	dia	
80	200	133	24.0	21.0	3	43.0	13.0	160	4	19	16
100	220	153	25.0	22.0	3	45.0	13.5	180	8	19	16
125	250	183	25.5	22.2	3	47.5	14.5	210	8	19	16
150	285	209	26.0	23.0	3	50.0	15.0	240	8	23	20
200	340	264	27.5	24.5	3	55.0	16.5	295	8	23	20
250	395	319	29.0	26.0	3	60.0	18.0	350	12	23	20
300	445	367	31.5	27.5	4	65.0	19.5	400	12	23	20
350	505	427	33.0	29.0	4	70.0	21.0	460	16	23	20
400	565	477	34.0	30.0	4	75.0	22.5	515	16	28	24
450	615	527	36.0	32.0	4	80.0	24.0	565	20	28	24
500	670	582	47.0	33.0	4	85.0	25.5	620	20	28	24
600	780	682	41.0	36.0	5	95.0	28.5	725	20	31	27
700	895	797	43.5	38.5	5	105.0	31.5	840	24	31	27
750	960	857	45.0	40.0	5	110.0	33.0	900	24	31	27
800	1015	904	46.5	41.5	5	115.0	34.5	950	24	34	30
900	1115	1004	49.0	44.0	5	125.0	37.5	1050	28	34	30
1000	1230	1111	52.0	47.0	5	135.0	40.5	1160	28	37	33
1050	1258	1145	53.5	48.5	5	140.0	42.0	1194	28	37	33
1100	1340	1221	55.0	50.0	5	145.0	43.5	1270	32	37	33
1200	1455	1328	58.0	53.0	5	155.0	46.5	1380	32	40	36
1500	1800	1745	66.0	61.0	5	185.0	55.5	1710	40	43	39

'KESIN' Flange Socket, Flange Spigot & Collars

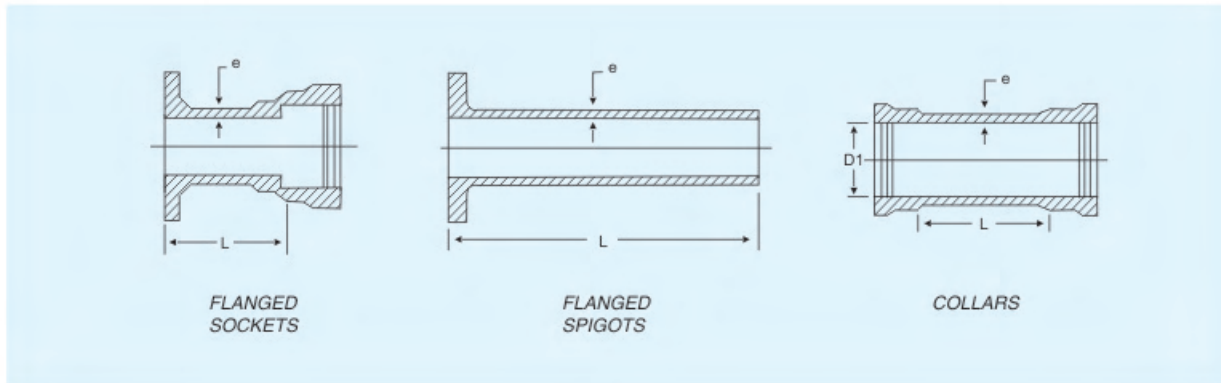


Table-10 : Dimensions & Mass of Flanged Sockets, Flanged Spigots & Collars

Nominal Diameter DN	Flange Socket Flange Spigot <i>e</i>	Collar <i>e</i>	Flange Socket		Flange Spigot		Collar	
			<i>L</i>	Mass (App.)	<i>L</i>	Mass (App.)	<i>L</i>	Mass (App.)
80	10.0	10.9	150	13	400	12	158	14
100	10.5	11.4	150	16	400	14	160	17
125	11.1	12.0	150	20	400	19	163	22
150	11.7	12.6	150	26	400	23	165	28
200	12.8	13.8	150	37	500	39	170	40
250	14.0	15.0	300	62	500	53	175	55
300	15.2	16.2	300	79	500	68	180	71
350	16.3	17.5	300	100	500	85	185	90
400	17.5	18.6	300	123	500	104	190	110
450	18.7	19.8	300	142	500	123	195	133
500	19.8	21.1	300	173	500	146	200	159
600	22.2	23.5	300	234	600	227	210	216
700	24.5	25.9	300	306	600	295	220	283
750	25.6	27.2	300	347	600	334	225	320
800	26.8	28.4	300	391	600	375	230	360
900	29.2	30.8	300	476	600	455	240	448
1000	31.5	33.2	300	580	600	552	250	547
1050	32.6	35.0	500	780	800	745	255	601
1100	33.8	35.6	500	865	800	818	260	655
1200	36.2	38.0	500	1021	800	967	270	779
1500	43.2	45.4	500	1463	800	1456	300	1261

NOTES :

1. For D1 values of Collars See Table 7.

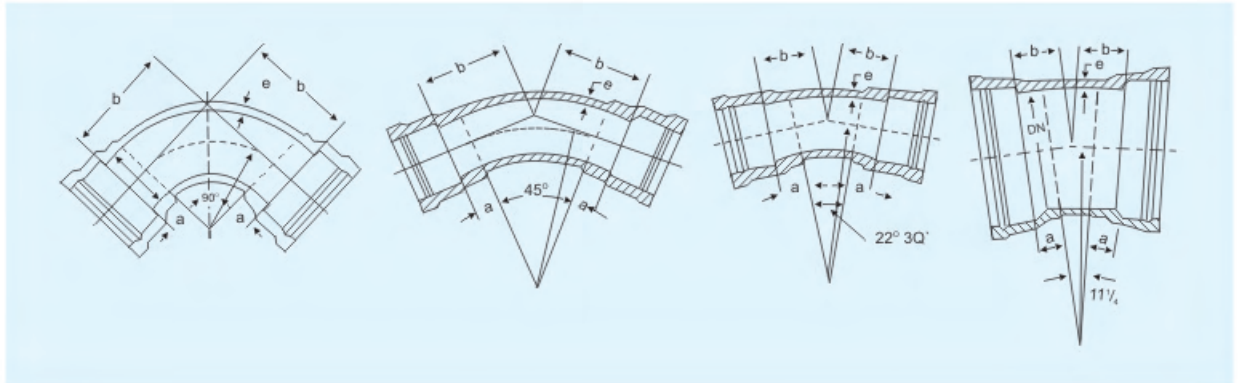


Table-11 : Dimensions & Mass of Double Socket Bends

Nominal Diameter DN	e	r		90°		45°		22 1/2°		11 1/4°		a
		90°	45°	b	Mass	b	Mass	b	Mass	b	Mass	
80	10.0	137.0	280	180	18	159	18	99	16	71	15	43.0
100	10.5	155.0	300	200	24	169	24	105	21	75	19	45.0
125	11.1	177.5	325	225	33	182	32	112	27	80	25	47.5
150	11.7	200.0	350	250	43	195	41	120	35	84	32	50.0
200	12.8	245.0	400	300	67	221	62	135	53	94	48	55.0
250	14.0	290.0	450	350	98	246	89	150	75	104	67	60.0
300	15.2	335.0	500	400	135	272	121	164	100	114	89	65.0
350	16.3	380.0	550	450	181	293	159	179	130	124	115	70.0
400	17.5	425.0	600	500	234	324	202	194	164	134	144	75.0
450	18.7	470.0	650	550	290	349	248	209	197	144	172	80.0
500	19.8	515.0	700	600	370	375	310	224	246	154	215	85.0
600	22.2	605.0	800	700	546	426	448	254	351	174	302	95.0
700	24.5	695.0	900	800	770	478	619	284	478	194	408	105.0
750	25.6	740.0	950	850	899	503	716	299	551	203	469	110.0
800	26.8	785.0	1000	900	1047	529	827	314	632	213	534	115.0
900	29.2	875.0	1100	1000	1389	581	1077	344	813	233	682	125.0
1000	31.5	965.0	1200	1100	1780	632	1368	374	1024	253	852	135.0
1050	32.6	1010.0	1250	1150	2012	660	1540	386	1145	262	950	140.0
1100	33.8	1055.0	1300	1200	2246	683	1706	404	1267	272	1047	145.0
1200	36.2	1145.0	1400	1300	2792	735	2099	433	1547	292	1270	155.0
1500	43.2	1415.0	1700	1600	4951	889	3639	523	2652	352	2158	185.0

'KESIN' All Socket Tee & All Flanged Tee

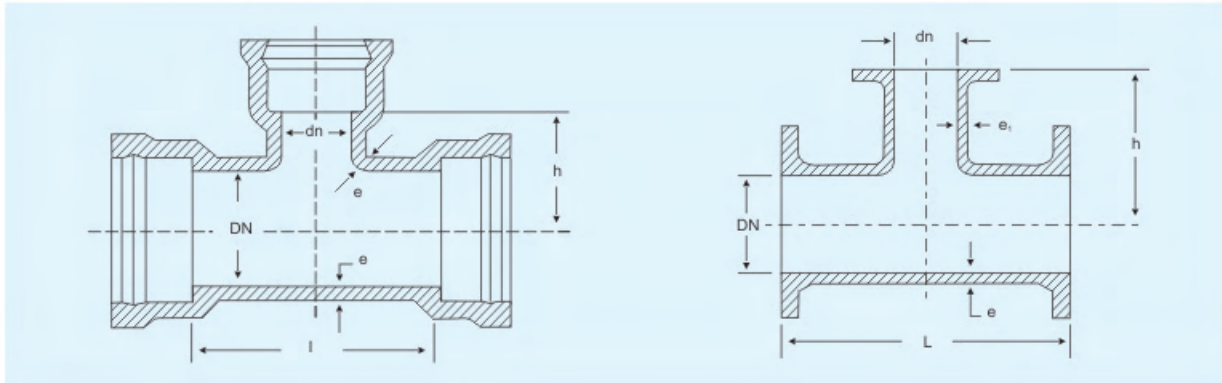


Table-12 : All Socket Tees & All Flanged Tees

Nominal Diameter		ALL SOCKET TEES					ALL FLANGED TEES		
Body DN	Branch dn	e	e ₁	l	h	Mass (App.)	L	h	Mass (App.)
80	80	10.0	10.0	212	106.0	23	360	180.0	21
100	80	10.5	10.5	240	116.0	28	400	190.0	25
100	100	10.5	10.5	240	120.0	30	400	200.0	26
125	80	11.1	11.1	275	128.5	36	450	202.5	32
125	100	11.1	11.1	275	132.5	38	450	212.5	34
125	125	11.1	11.1	275	137.5	41	450	225.0	36
150	80	11.7	11.7	310	141.0	45	500	215.0	41
150	100	11.7	11.7	310	145.0	47	500	225.0	42
150	125	11.7	11.7	310	150.0	50	500	237.5	45
150	150	11.7	11.7	310	155.0	53	500	250.0	47
200	80	12.8	12.8	380	166.0	67	600	240.0	62
200	100	12.8	12.8	380	170.0	69	600	250.0	63
200	125	12.8	12.8	380	175.0	71	600	262.5	66
200	150	12.8	12.8	380	180.0	74	600	275.0	68
200	200	12.8	12.8	380	190.0	81	600	300.0	74
250	80	14.0	13.0	450	191.0	94	700	265.0	89
250	100	14.0	13.5	450	195.0	96	700	275.0	90
250	125	14.0	14.0	450	200.0	99	700	287.5	93
250	150	14.0	14.0	450	205.0	102	700	300.0	96
250	200	14.0	14.0	450	215.0	108	700	325.0	102
250	250	14.0	14.0	450	225.0	116	700	350.0	109

Table-12 : All Socket Tees & All Flanged Tees (contd.)

Nominal Diameter		ALL SOCKET TEES					ALL FLANGED TEES		
Body DN	Branch dn	<i>e</i>	<i>e_r</i>	<i>l_r</i>	<i>h_r</i>	Mass (App.)	<i>L</i>	<i>h</i>	Mass (App.)
300	80	15.2	13.0	520	216	128	800	290	122
300	100	15.2	13.5	520	220	129	800	300	124
300	125	15.2	14.5	520	225	132	800	312.5	126
300	150	15.2	15.0	520	230	134	800	325	129
300	200	15.2	15.2	520	240	142	800	350	136
300	250	15.2	15.2	520	250	150	800	370	143
300	300	15.2	15.2	520	260	159	800	400	151
350	200	16.3	16.3	590	265	182	850	325	169
350	250	16.3	16.3	590	275	190	850	325	173
350	300	16.3	16.3	590	285	199	850	425	188
350	350	16.3	16.3	590	295	209	850	425	195
400	200	17.5	16.5	660	290	229	900	350	211
400	250	17.5	17.5	660	300	237	900	350	215
400	300	17.5	17.5	660	310	246	900	450	232
400	350	17.5	17.5	660	320	256	900	450	239
400	400	17.5	17.5	660	330	268	900	450	246
450	250	18.7	18.0	730	325	295	950	375	260
450	300	18.7	18.7	730	335	304	950	475	277
450	350	18.7	18.7	730	345	314	950	475	284
450	400	18.7	18.7	730	355	324	950	475	290
450	450	18.7	18.7	730	365	337	950	475	296
500	250	19.8	18.0	800	350	356	1000	400	315
500	300	19.8	19.5	800	360	365	1000	500	334
500	350	19.8	19.8	800	370	375	1000	500	342
500	400	19.8	19.8	800	380	386	1000	500	349
500	450	19.8	19.8	800	390	398	1000	500	356
500	500	19.8	19.8	800	400	413	1000	500	363
600	300	22.2	19.5	940	410	521	1100	550	466
600	350	22.2	21.0	940	420	531	1100	550	475
600	400	22.2	22.2	940	430	543	1100	550	485
600	450	22.2	22.2	940	440	556	1100	550	492
600	500	22.2	22.2	940	450	569	1100	550	499
600	600	22.2	22.2	940	470	602	1100	550	516

'KESIN' All Socket Tee & All Flanged Tee



Table-12 : All Socket Tees & All Flanged Tees (contd.)

Nominal Diameter		ALL SOCKET TEES					ALL FLANGED TEES		
Body DN	Branch dn	e	e ₁	l ₁	h ₁	Mass (App.)	L	h	Mass (App.)
700	350	24.5	21.0	1080	470	729	1200	600	642
700	400	24.5	22.5	1080	480	742	1200	600	651
700	450	24.5	24.0	1080	490	756	1200	600	660
700	500	24.5	24.5	1080	500	769	1200	600	669
700	600	24.5	24.5	1080	520	795	1200	600	686
700	700	24.5	24.5	1080	540	832	1200	600	707
750	400	25.6	22.5	1150	505	855	1250	625	746
750	450	25.6	24.0	1150	515	869	1250	625	754
750	500	25.6	25.6	1150	525	884	1250	625	766
750	600	25.6	25.6	1150	545	911	1250	625	779
750	700	25.6	25.6	1150	565	942	1250	625	792
750	750	25.6	25.6	1150	575	965	1250	625	805
800	400	26.8	22.5	1220	530	982	1300	650	858
800	450	26.8	24.0	1220	540	996	1300	650	867
800	500	26.8	25.5	1220	550	1010	1300	650	877
800	600	26.8	26.8	1220	570	1040	1300	650	897
800	700	26.8	26.8	1220	590	1072	1300	650	916
800	750	26.8	26.8	1220	600	1089	1300	650	928
800	800	26.8	26.8	1220	610	1114	1300	650	941
900	450	29.2	24.0	1360	590	1288	1400	700	1091
900	500	29.2	25.5	1360	600	1302	1400	700	1106
900	600	29.2	28.5	1360	620	1337	1400	700	1128
900	700	29.2	29.2	1360	640	1371	1400	700	1149
900	750	29.2	29.2	1360	650	1388	1400	700	1161
900	800	29.2	29.2	1360	660	1405	1400	700	1173
900	900	29.2	29.2	1360	680	1453	1400	700	1190
1000	500	31.5	25.5	1500	650	1648	1500	750	1396
1000	600	31.5	28.5	1500	670	1681	1500	750	1418
1000	700	31.5	31.5	1500	690	1723	1500	750	1446
1000	750	31.5	31.5	1500	700	1741	1500	750	1457
1000	800	31.5	31.5	1500	710	1759	1500	750	1468
1000	900	31.5	31.5	1500	730	1797	1500	750	1484
1000	1000	31.5	31.5	1500	750	1852	1500	750	1513

Table-12 : All Socket Tees & All Flanged Tees (contd.)

Nominal Diameter		ALL SOCKET TEES					ALL FLANGED TEES		
Body DN	Branch dn	e	e_1	l_1	h_1	Mass (App.)	L	h	Mass (App.)
1050	600	32.6	28.5	1570	700	1885	1550	775	1490
1050	700	32.6	29.2	1570	720	1925	1550	775	1545
1050	750	32.6	29.2	1570	725	1950	1550	775	1595
1050	900	32.6	31.5	1570	755	2005	1550	775	1630
1050	1050	32.6	32.6	1570	785	2084	1550	775	1670
1100	600	33.8	28.5	1640	720	2085	1600	800	1722
1100	700	33.8	31.6	1640	740	2126	1600	800	1747
1100	750	33.8	33.1	1640	750	2149	1600	800	1762
1100	800	33.8	33.8	1640	760	2171	1600	800	1774
1100	900	33.8	33.8	1640	780	2210	1600	800	1778
1100	1000	33.8	33.8	1640	800	2253	1600	800	1788
1100	1100	33.8	33.8	1640	820	2316	1600	820	1822
1200	600	36.2	28.5	1780	770	2559	1700	850	2113
1200	700	36.2	31.6	1780	790	2597	1700	850	2137
1200	750	36.2	33.1	1780	800	2620	1700	850	2150
1200	800	36.2	34.7	1780	810	2645	1700	850	2166
1200	900	36.2	36.2	1780	830	2693	1700	850	2179
1200	1000	36.2	36.2	1780	850	2737	1700	850	2190
1200	1100	36.2	36.2	1780	870	2782	1700	870	2207
1200	1200	36.2	36.2	1780	890	2854	1700	890	2260
1500	750	43.2	33.1	2200	950	4499	2000	1000	3606
1500	800	43.2	34.7	2200	960	4521	2000	1000	3619
1500	900	43.2	37.7	2200	980	4572	2000	1000	3635
1500	1000	43.2	40.7	2200	1000	4634	2000	1000	3663
1500	1100	43.2	43.2	2200	1020	4702	2000	1020	3703
1500	1200	43.2	43.2	2200	1040	4754	2000	1040	3737
1500	1500	43.2	43.2	2200	1100	4987	2000	1100	3866

'KESIN' Double Socket Branch Flange Tee

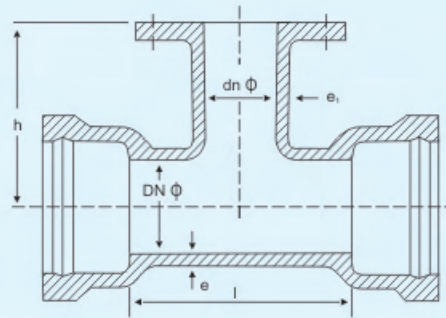
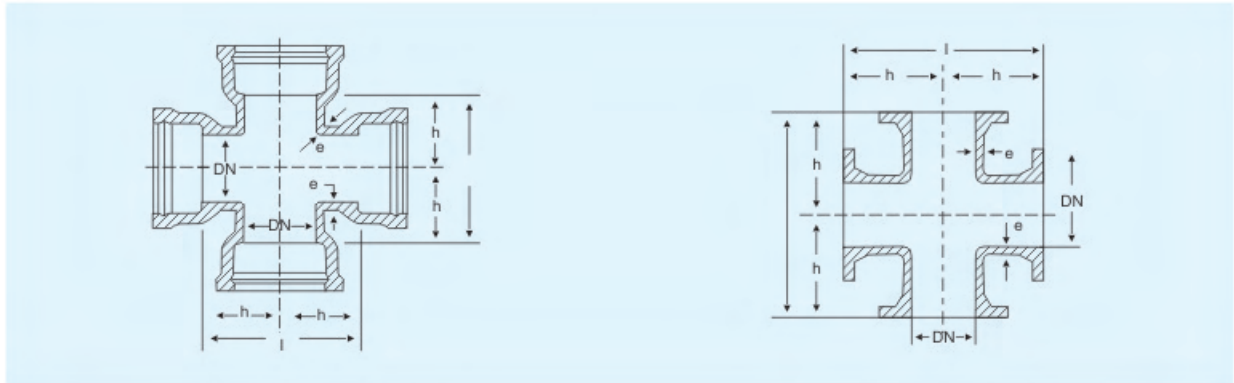


Table-13 : Double Socket Tee with Flanged Branch (For Air Valves & Hydrant Tees)

Nominal Diameter DN	BODY		BRANCH			Mass (App.)
	<i>e</i>	<i>l</i>	Nominal Diameter <i>dn</i>	<i>e</i> ₁	<i>h</i>	
80	10.0	212	80	10.0	180.0	22
100	10.5	240	80	10.5	200.0	28
125	11.1	275	80	11.1	212.5	36
150	11.7	310	80	11.7	225.0	45
200	12.8	380	80	12.8	250.0	67
250	14.0	450	80	13.0	275.0	94
300	15.2	520	80	13.0	300.0	128
300	15.2	520	100	13.5	300.0	129
350	16.3	590	80	13.0	325.0	180
350	16.3	590	100	13.5	325.0	198
400	17.5	660	80	13.0	350.0	205
400	17.5	660	100	13.5	350.0	220
450	18.7	730	100	13.5	350.0	235
500	19.8	800	150	14.0	400.0	280
600	22.2	940	150	15.0	550.0	505
700	24.5	1090	150	15.0	600.0	650
750	25.6	1150	150	15.0	625.0	705
800	26.8	1220	200	16.5	650.0	880
900	29.2	1360	200	16.5	700.0	920
1000	31.5	1500	200	16.5	750.0	1005
1050	32.6	1570	200	16.5	775.0	1070
1100	33.8	1640	250	18.0	800.0	2030
1200	36.2	1780	250	18.0	850.0	2550
1500	43.2	2200	250	18.0	1000.0	2850



ALL SOCKET CROSS

ALL FLANGED CROSS

Table-14 : All Flanged Cross & All Socket Cross

Nominal Diameter DN	e	ALL SOCKET CROSS			ALL FLANGED CROSS		
		l	h	Mass (App.)	l	h	Mass (App.)
80	10.0	212	106.0	30	360	180	27
100	10.5	240	120.0	39	400	200	34
125	11.1	275	137.5	52	450	225	46
150	11.7	310	155.0	67	500	250	60
200	12.8	380	190.0	102	600	300	93
250	14.0	450	225.0	145	700	350	135
300	15.2	520	260.0	197	800	400	180

'KESIN' Double Flanged Tapers & Double Socket Tapers

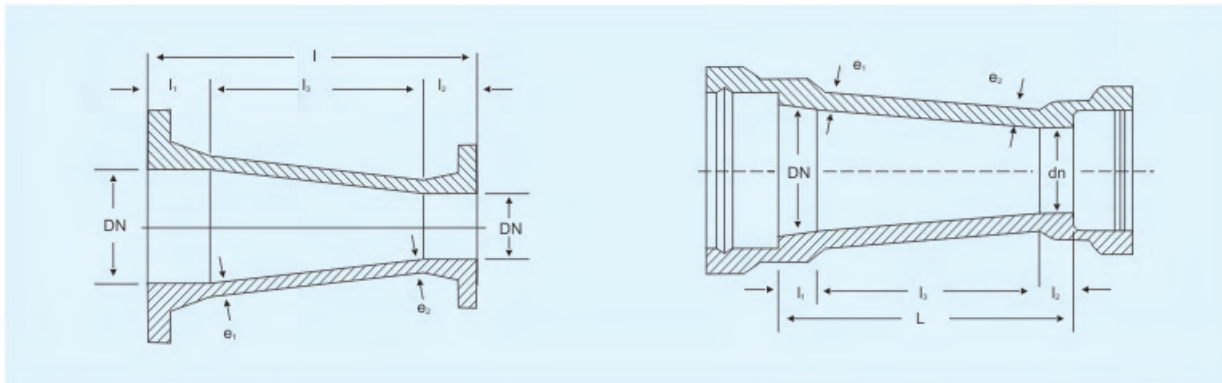


Table-15 : Double Flanged Tapers & Double Socket Tapers

LARGE DIAMETER			SMALL DIAMETER			L_3	L	Double Socket Taper	Double Flanged Taper
Nominal Diameter DN	e_1	L_1	Nominal Diameter dn	e_2	L_2			Mass (App.)	Mass (App.)
100	10.5	45.0	80	10.0	43.0	112.0	200	18	12
125	11.1	47.5	80	10.0	43.0	309.5	400	27	20
125	11.1	47.5	100	10.5	45.0	307.5	400	30	22
150	11.7	50.0	80	10.0	43.0	307.0	400	31	23
150	11.7	50.0	100	10.5	45.0	305.0	400	34	25
150	11.7	50.0	125	11.1	47.5	302.5	400	38	27
200	12.8	55.0	100	10.5	45.0	300.0	400	43	31
200	12.8	55.0	125	11.1	47.5	297.5	400	47	34
200	12.8	55.0	150	11.7	50.0	295.0	400	51	37
250	14.0	60.0	125	11.1	47.5	292.5	400	58	41
250	14.0	60.0	150	11.7	50.0	290.0	400	62	44
250	14.0	60.0	200	12.8	55.0	285.0	400	72	50
300	15.2	65.0	150	11.7	50.0	285.0	400	75	51
300	15.2	65.0	200	12.8	55.0	280.0	400	84	58
300	15.2	65.0	250	14.0	60.0	275.0	400	95	65
350	16.3	70.0	200	12.8	55.0	475.0	600	117	87
350	16.3	70.0	250	14.0	60.0	470.0	600	131	96
350	16.3	70.0	300	15.2	65.0	465.0	600	146	106
400	17.5	75.0	250	14.0	60.0	465.0	600	149	109
400	17.5	75.0	300	15.2	65.0	460.0	600	164	120
400	17.5	75.0	350	16.3	70.0	455.0	600	181	132
450	18.7	80.0	300	16.3	65.0	455.0	600	--	130
450	18.7	80.0	350	17.5	70.0	450.0	600	195	145
450	18.7	80.0	400	17.5	75.0	445.0	600	213	158

Table-15 : Double Socket Tapers & Double Flanged Tapers (contd.)

LARGE DIAMETER			SMALL DIAMETER			L_3	L	Double Socket Taper	Double Flanged Taper
Nominal Diameter DN	e_1	L_1	Nominal Diameter d_n	e_2	L_2			Mass (App.)	Mass (App.)
500	19.8	85	350	16.3	70	445	600	222	160
500	19.8	85	400	17.5	75	440	600	241	174
500	19.8	85	450	18.7	80	435	600	256	186
600	22.2	95	400	18.7	80	425	600	300	210
600	22.2	95	450	18.7	80	425	600	310	222
600	22.2	95	500	19.8	85	420	600	332	239
700	24.5	105	500	19.8	85	410	600	388	281
700	24.5	105	600	22.2	95	400	600	437	317
750	25.7	110	600	22.2	95	395	600	470	338
750	25.7	110	700	24.5	105	395	600	522	380
800	26.8	115	600	22.4	95	390	600	501	368
800	26.8	115	700	24.5	105	380	600	557	410
800	26.8	115	750	25.6	110	375	600	590	428
900	29.2	125	700	24.5	105	370	600	629	458
900	29.2	125	750	25.6	110	365	600	674	478
900	29.2	125	800	26.8	115	360	600	692	508
1000	31.5	135	800	26.8	115	350	600	772	570
1000	31.5	135	900	29.2	125	340	600	843	617
1050	32.6	140	800	26.8	115	345	600	860	680
1050	32.6	140	1000	31.5	135	325	600	920	750
1100	33.8	145	900	29.2	125	330	600	957	684
1100	33.8	145	1000	31.5	135	320	600	978	744
1200	36.2	155	900	29.2	125	320	600	1089	820
1200	36.2	155	1000	31.5	135	310	600	1109	884
1200	36.2	155	1100	33.8	145	300	600	1134	--
1500	43.2	185	1000	31.5	135	280	600	1379	1126
1500	43.2	185	1100	33.8	145	270	600	1477	1198
1500	43.2	185	1200	36.2	155	260	600	1567	--

NOTE :

1. Dimensions for sockets shall be as per Table 7.

'KESIN' Double Flanged Bends

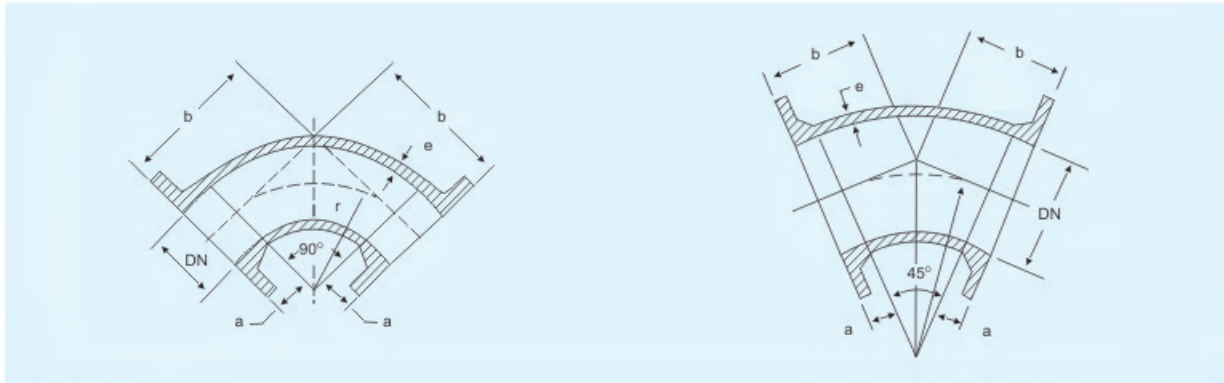


Table-16 : Double Flanged Bends

Nominal Diameter DN	Wall Thickness e	a	90° Bend			45° Bend		
			r (Radius)	b	Mass	r (Radius)	b	Mass
80	10.0	43.0	137.0	180	13	331	180	14
100	10.5	45.0	155.0	200	17	374	200	18
125	11.1	47.5	177.5	225	23	429	225	25
150	11.7	50.0	200.0	250	31	483	250	34
200	12.8	55.0	245.0	300	49	591	300	54
250	14.0	60.0	290.0	350	72	700	350	80
300	15.2	65.0	335.0	400	100	809	400	112
350	16.3	70.0	380.0	450	137	550	298	115
400	17.5	75.0	425.0	500	181	600	324	149
450	18.7	80.0	470.0	550	226	650	349	185
500	19.8	85.0	515.0	600	290	700	375	231
600	22.2	95.0	605.0	700	442	800	426	342
700	24.5	105.0	695.0	800	639	900	478	485
750	25.6	110.0	740.0	850	755	950	503	572
800	26.8	115.0	785.0	900	890	1000	529	667
900	29.2	125.0	875.0	1000	1179	1100	581	868
1000	31.5	135.0	965.0	1100	1544	1200	682	1125
1050	32.6	140.0	1010.0	1150	1760	1250	658	1275
1100	33.8	145.0	1055.0	1200	1968	1300	683	1421
1200	36.2	155.0	1145.0	1300	2474	1400	735	1771
1500	43.2	185.0	1415.0	1600	3423	1700	889	2460

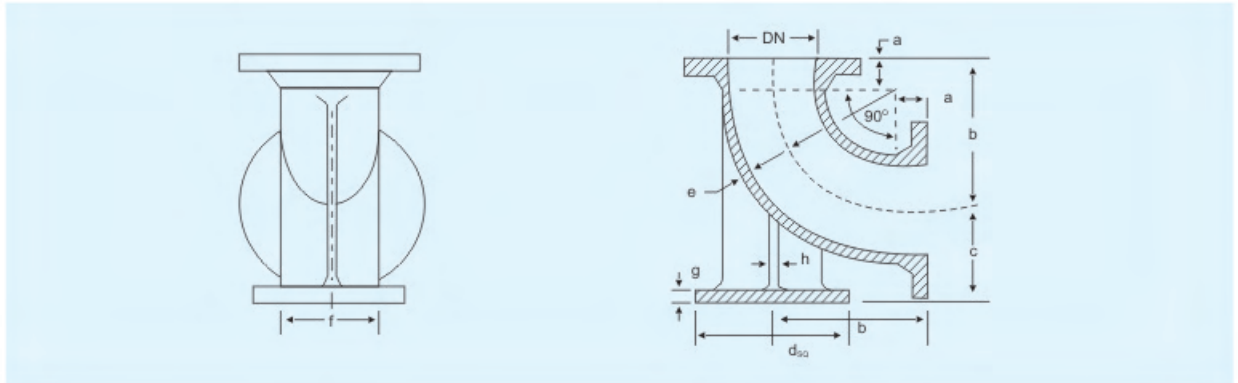


Table-17 : Double Flanged 1/4 Duckfoot Bends

Nominal Diameter DN	e	r	a	b	c	d	f	g	h	Mass (App.)
80	10.0	137.0	43.0	180	108	180	98	19	15	21
100	10.5	155.0	45.0	200	120	200	118	20	16	26
125	11.1	177.5	47.5	225	135	225	144	22	16	36
150	11.7	200.0	50.0	250	150	250	170	22	17	47
200	12.8	245.0	55.0	300	180	300	222	25	18	74
250	14.0	290.0	60.0	350	210	350	274	26	19	111
300	15.2	335.0	65.0	400	240	400	326	26	20	156
350	16.3	380.0	70.0	450	270	450	400	28	21	214
400	17.5	425.0	75.0	500	300	500	450	30	23	281
450	18.7	470.0	80.0	550	330	550	500	30	24	350
500	19.8	515.0	85.0	600	360	600	550	31	25	446
600	22.2	605.0	95.0	700	420	700	650	35	27	677

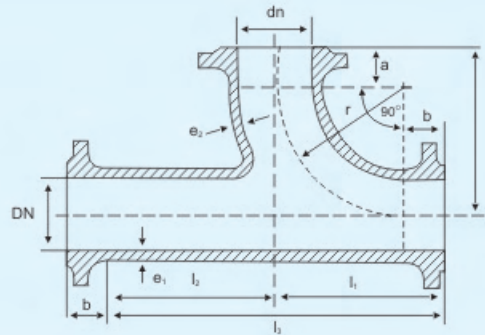


Table-18 : All Flanged Radial Tees

Nominal Diameter		Body				Branch				Mas (App.)
DN	dn	e_1	b	L_3	L_2	e_2	r	a	L_1	
80	80	10.0	43	360	180	10.0	137	43	180	19
100	80	10.5	45	400	218	10.5	137	43	182	21
125	100	11.1	47	450	248	11.1	155	45	202	28
150	100	11.7	50	500	295	11.7	155	45	205	34
200	100	12.8	55	600	390	12.8	155	45	210	67
250	150	14.0	60	700	440	14.0	200	50	260	73
300	150	15.2	65	800	535	15.0	200	50	265	94
350	200	16.3	70	850	535	16.3	245	55	315	128
400	200	17.5	75	900	580	16.5	245	55	320	155
450	300	18.7	80	950	535	17.5	335	65	415	230
500	400	19.8	85	1000	490	19.8	425	75	510	309
600	400	22.2	95	1100	580	22.2	425	75	520	390
700	500	24.5	105	1200	580	24.5	515	85	620	490
750	500	25.6	110	1250	625	25.5	515	85	625	571
800	600	26.8	115	1300	580	26.8	605	95	720	690
900	600	29.2	125	1400	670	28.5	605	95	730	807
1000	600	31.5	135	1500	760	28.5	605	95	740	1128

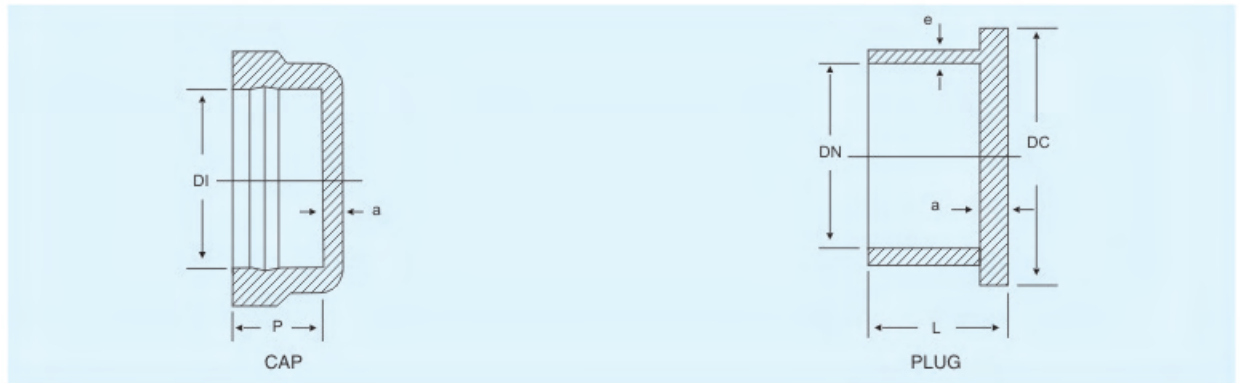


Table-19 : Caps and Plugs

Nominal Diameter DN	a	CAP		PLUG			
		P	Mass	DC	e	L	Mass
80	21.0	84	7	104	10.0	125	3
100	22.0	88	9	124	10.5	130	4
125	22.5	91	12	150	11.1	135	6
150	23.0	94	15	176	11.7	140	9
200	24.5	100	24	228	12.8	150	14
250	26.0	103	34	281	14.0	155	22
300	27.5	105	46	333	15.2	160	30
350	29.0	107	61	385	16.3	165	41
400	30.0	110	77	436	17.5	170	54
450	31.5	112	97	487	18.7	175	69
500	33.0	115	118	539	19.8	180	86
600	36.0	120	171	642	22.2	185	127
700	38.5	122	235	745	24.5	195	180
750	40.0	123	272	798	25.6	200	211
800	41.5	125	314	850	26.8	205	246
900	44.0	128	405	953	29.2	210	321
1000	47.0	130	514	1056	31.5	215	411
1050	48.0	135	576	1132	32.6	220	464
1100	50.0	135	638	1160	33.8	220	518
1200	52.5	140	778	1264	36.2	225	637
1500	61.0	150	1342	1576	43.2	235	1099

NOTE :

1. For DI Value of caps see Table 7

'KESIN' Bellmouth & Blank Flanges

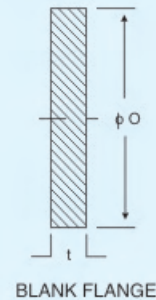
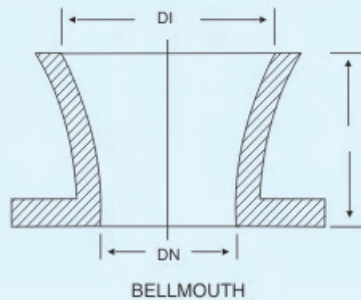


Table-20 : Bellmouth & Blank Flanges

Nominal Diameter DN	BELLMOUTH			BLANK FLANGE		
	Big end diameter DI	h	Mass (App.)	Flange Out side diameter D	Flange Thickness	Mass (App.)
80	125	100	7	200	21.0	5
100	150	150	9	220	22.0	6
125	175	150	12	250	22.5	8
150	200	150	15	285	23.0	11
200	285	200	23	340	24.5	16
250	350	200	31	395	26.0	23
300	450	250	45	445	27.5	32
350	525	250	58	505	29.0	43
400	600	300	80	565	30.0	55
450	650	300	93	615	31.5	67
500	750	350	120	670	33.0	85
600	900	410	201	780	36.0	126
700	1050	470	304	895	38.5	177
750	—	—	—	960	40.0	207
800	1200	520	435	1015	41.5	245
900	1350	590	575	1115	44.0	313
1000	1500	650	792	1230	47.0	406
1050	1550	680	880	1258	48.0	455
1100	1650	710	965	1340	50.0	504
1200	1800	770	1243	1455	52.5	624
1500	2250	950	2092	1800	61.0	1110

'KESIN' Cast Iron Specials for Mechanical Joints



AVAILABLE WITH ISI CERTIFICATION MARK



MECHANICAL JOINT FITTINGS

These fittings comprises of :

- i) The main fitting i.e. Bend, Tee, Reducer etc.
- ii) A follower gland of Cast Iron for each socketted end.
- iii) A rubber ring for each socketted end
- iv) Nuts & bolts for bolting together the follower gland with the main fittings.

HYDROSTATIC TEST

The Castings are kept under pressure for 15 seconds when they are struck moderately with a 700 gm. hammer. They withstand the pressure without showing any kind of leakage, sweating or other defects.

Hydrostatic pressure for casting

Nominal Diameter DN	Casting without branches or with branches not greater than half the principal diameter		Castings with branches greater than half the principal diameter	
	Work test pressure Kg/cm ³	Maximum Suggested working pressure Kg/cm ³	Work test pressure Kg/cm ³	Maximum Suggested working pressure Kg/cm ³
80 to 300	25	12	25	12
350 to 600	20	10	20	10
700 to 1500	15	6	10	4

Tolerance

Length

- a) Socket fittings & Tailpeices : upto 450 mm dia = ± 20 mm
- b) Socket fittings & Tailpeices : Above 450 mm dia = + 20mm, - 30 mm
- c) All flanged fittings : All diameters = ± 10 mm

Mass

- a) Bends
- b) Non Standard fittings ± 12 percent
- c) Fittings with more than one branch
- d) Fittings Other than above ± 8 percent

NOTES :

1. The Dimensions & weight of fittings upto 1500 mm dia are specified here. However fittings of diameters greater than above may also be manufactured on request.

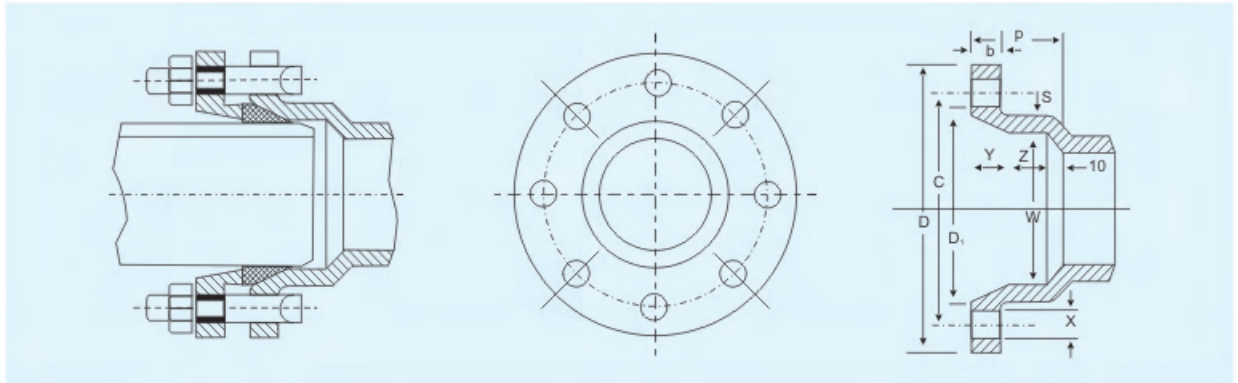


Table-21 : Dimensions of Mechanical Joint - Socket

Nominal Diameter DN	D	C	b	D ₁	W	P	X	Y	Z	S
80	210	170	20	140	105	65	19	27	28	12.0
100	230	190	20	160	125	65	19	27	28	12.5
125	260	220	20	186	151	65	19	27	28	13.0
150	295	250	20	212	177	65	23	27	28	14.0
200	350	305	20	264	229	65	23	27	28	15.0
250	405	360	25	319	282	65	23	27	28	16.5
300	455	410	25	371	334	65	23	27	28	17.5
350	515	470	25	428	386	90	23	28	52	19.0
400	585	530	28	479	437	90	28	28	52	20.0
450	635	580	28	530	488	90	28	28	52	21.0
500	690	635	28	585	540	90	28	28	52	22.5
600	800	740	30	684	645	90	31	33	47	25.0
700	920	860	30	801	748	120	31	33	77	27.5
750	975	915	30	853	800	120	31	33	77	29.0
800	1040	970	35	903	852	120	34	38	72	30.0
900	1145	1075	35	1005	955	120	34	38	72	32.5
1000	1260	1185	35	1108	1060	120	37	38	72	35.0
1050	1325	1250	38	1175	1125	120	37	38	75	35.0
1100	1385	1310	42	1234	1164	140	37	50	80	35.6
1200	1500	1420	45	1337	1267	140	40	55	75	38.0

'KESIN' Dimensions of Follower Gland for M/J

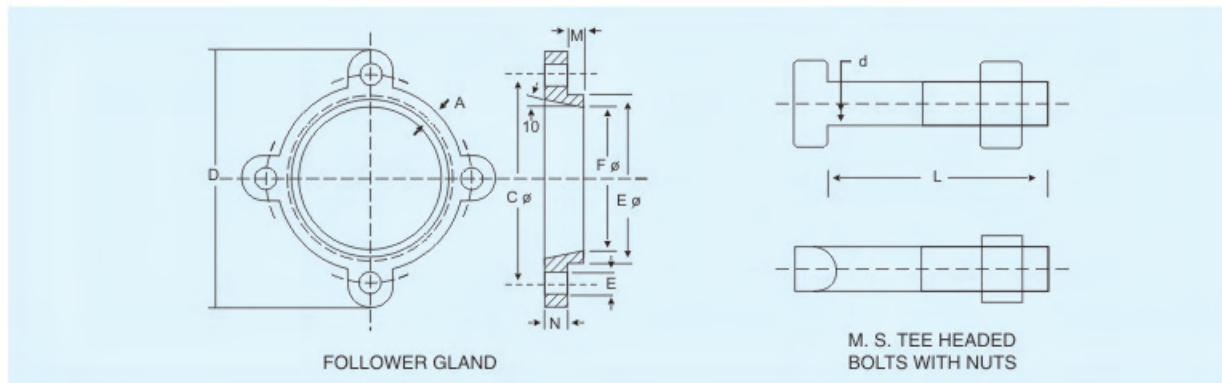


Table-22 : Dimensions of Follower Gland for Mechanical Joint Fittings

Nominal Diameter DN	D	C	E	F	X	N	M	A	Mass (each)	Bolts		
										d	L	No.
80	210	170	125	105	19	20	15	15	2.5	M 16	85	4
100	230	190	145	125	19	20	15	15	3.0	M 16	85	4
125	260	220	171	151	19	20	15	16	3.5	M 16	85	4
150	295	250	197	177	23	20	15	17	4.5	M 20	90	4
200	350	305	249	230	23	20	15	18	5.5	M 20	90	4
250	405	360	302	282	23	25	15	20	7.0	M 20	90	6
300	455	410	354	334	23	25	15	22	10.0	M 20	100	6
350	515	470	411	386	23	25	20	24	15.0	M 20	100	8
400	585	530	458	438	28	28	20	26	17.0	M 24	110	8
450	635	580	513	489	28	28	20	28	19.0	M 24	110	10
500	690	635	563	541	28	28	20	30	23.0	M 24	110	10
600	800	740	668	645	31	30	20	32	30.0	M 27	120	10
700	920	860	781	749	31	30	20	34	45.0	M 27	120	12
750	975	915	833	800	31	30	20	36	60.0	M 27	120	12
800	1040	970	883	850	34	35	20	38	75.0	M 30	120	12
900	1145	1075	983	955	34	35	20	40	85.0	M 30	130	14
1000	1260	1185	1083	1060	37	35	20	42	100.0	M 33	130	14
1050	1325	1250	1150	1125	37	35	20	42	120.0	M 33	130	14
1100	1385	1310	1218	1163	37	40	25	44	140.0	M 33	140	16
1200	1500	1420	1322	1267	40	40	25	46	160.0	M 36	150	16

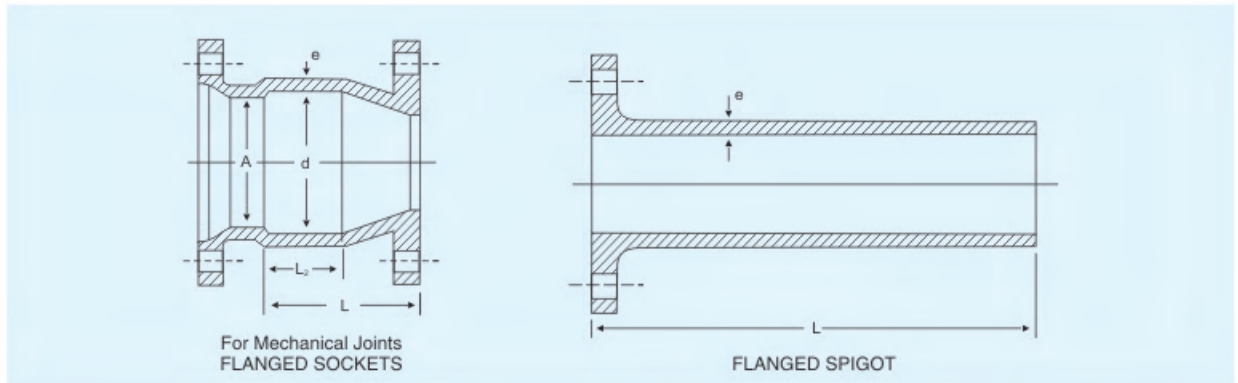


Table-23 : Flanged Sockets and Flanged Spigots (M/J)

Nominal Diameter DN	FLANGED SOCKETS						FLANGED SPIGOT	
	e	A	L	d	Nominal Mass		L	Nominal Mass
					Main Fitting	Complete Set		
80	10.0	110	130	116	13	16	350	11
100	10.5	131	130	137	16	19	360	13
125	11.1	157	130	163	18	22	370	18
150	11.7	183	135	189	25	30	380	23
200	12.8	235	140	241	35	41	400	34
250	14.0	287	145	294	47	54	420	46
300	15.2	339	150	346	61	71	440	62
350	16.3	391	155	398	77	92	460	80
400	17.5	442	160	449	95	112	480	101
450	18.7	494	165	501	113	132	500	125
500	19.8	546	170	553	134	157	520	151
600	22.2	650	180	657	180	210	560	215
700	24.3	753	190	760	240	285	600	295
750	25.7	805	195	813	287	347	600	334
800	26.8	857	200	860	307	382	600	372
900	29.2	960	210	968	378	463	600	448
1000	31.5	1064	220	1072	475	575	600	561
1050	32.6	1135	225	1143	530	659	600	624
1100	33.8	1167	230	1177	565	705	600	655
1200	36.2	1271	240	1281	675	835	600	792

NOTES :

1. The castings may be supplied with a plan or raised flange.
2. Complete set indicates weight of (Fittings + Nut Bolts + Rubberrings + Follower Gland)

'KESIN' Collars (M/J)

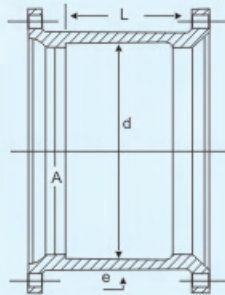


Table-24 : Collars (M/J)

Nominal Diameter DN	e	A	d	OLD DESIGN AS PER IS - 13382 / 1992			NEW DESIGN AS PER IS - 13382 / 2004		
				L	MASS		L	MASS	
					Main Fitting	Complete Set		Main Fitting	Complete Set
80	10.9	110	116	158	14	17	325	18	23
100	11.4	131	137	160	17	20	325	22	28
125	12.0	157	163	163	22	26	325	28	35
150	12.6	183	189	165	28	33	330	35	44
200	13.8	235	241	170	40	46	340	51	62
250	15.0	287	294	175	55	63	355	71	85
300	16.2	339	346	180	71	82	360	91	111
350	17.5	391	398	185	90	107	380	118	148
400	18.6	442	449	190	110	129	400	146	180
450	19.8	494	501	195	133	155	410	177	215
500	21.1	546	553	200	159	185	425	213	259
600	23.5	650	657	210	216	250	450	293	353
700	25.9	753	760	220	283	333	470	387	477
750	27.2	805	813	225	325	390	475	441	561
800	28.4	857	865	230	360	441	480	490	640
900	30.8	960	968	240	448	540	520	625	795
1000	33.2	1064	1072	250	547	655	530	759	959
1050	34.6	1135	1143	255	620	749	550	869	998
1100	35.6	1167	1177	260	670	820	560	938	1218
1200	38.0	1271	1281	270	778	950	570	1089	1409

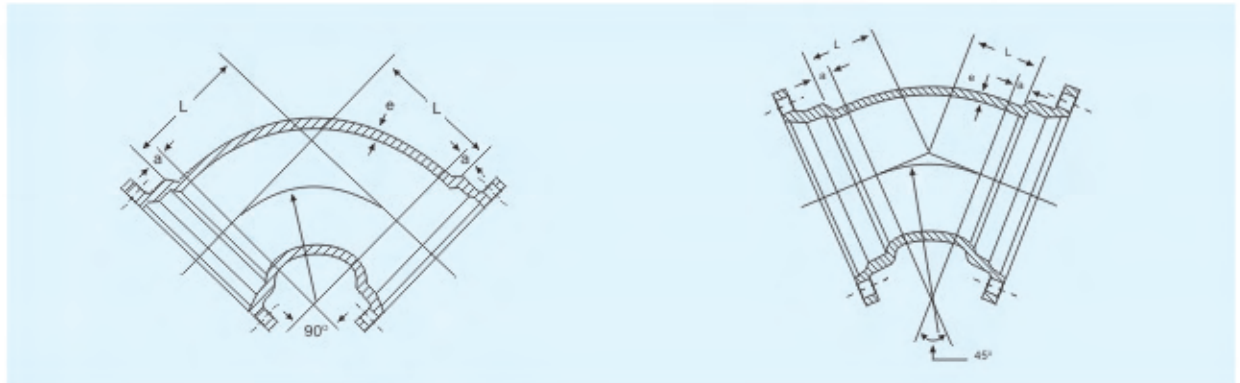


Table-25 : Double Socket Bends (M/J)

Nominal Diameter DN	e	BEND - 90°				BEND - 45°			
		R		Main Fitting	Complete Set	R		Main Fitting	Complete Set
		Approx.	L			Approx.	L		
80	10.0	85	110	17	22	85	60	15	20
100	10.5	105	130	21	27	110	70	19	25
125	11.1	130	155	29	36	135	80	25	32
150	11.7	155	180	36	45	155	90	31	40
200	12.8	205	230	56	67	215	115	47	58
250	14.0	255	280	82	96	265	135	66	80
300	15.2	300	325	114	134	315	155	92	112
350	16.3	350	380	154	184	360	180	119	149
400	17.5	400	430	201	235	410	200	154	188
450	18.7	445	480	255	293	445	220	189	227
500	19.8	495	530	317	363	495	240	231	277
600	22.2	590	630	473	533	590	285	330	390
700	24.5	685	735	666	756	690	335	460	550
750	25.6	735	780	776	896	740	355	528	648
800	26.8	780	830	886	1036	785	375	596	746
900	29.2	875	930	1174	1344	880	420	780	950
1000	31.5	975	1035	1533	1733	980	465	1006	1206
1050	32.6	1025	1080	1735	1864	1030	485	1140	1269
1100	33.8	1070	1130	1915	2195	1075	505	1235	1515
1200	36.2	1165	1230	2382	2702	1170	550	1508	1828

'KESIN' Double Socket Bends (M/J)

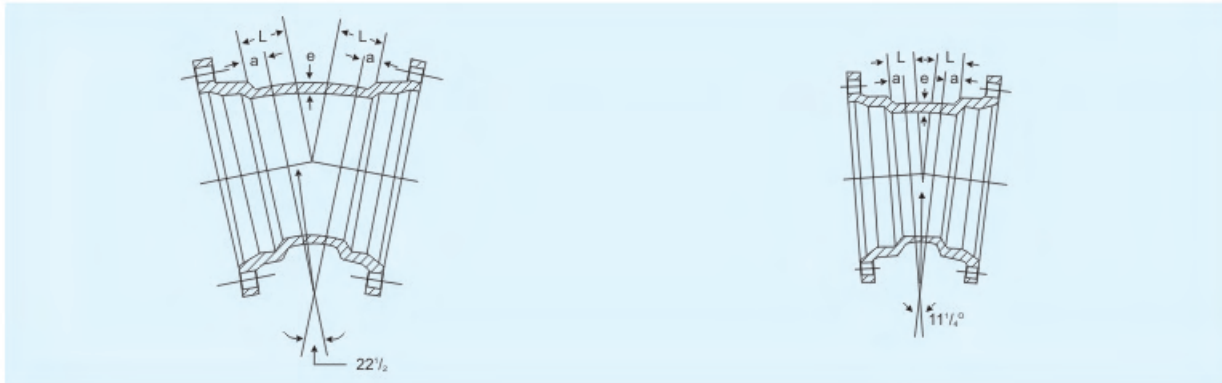
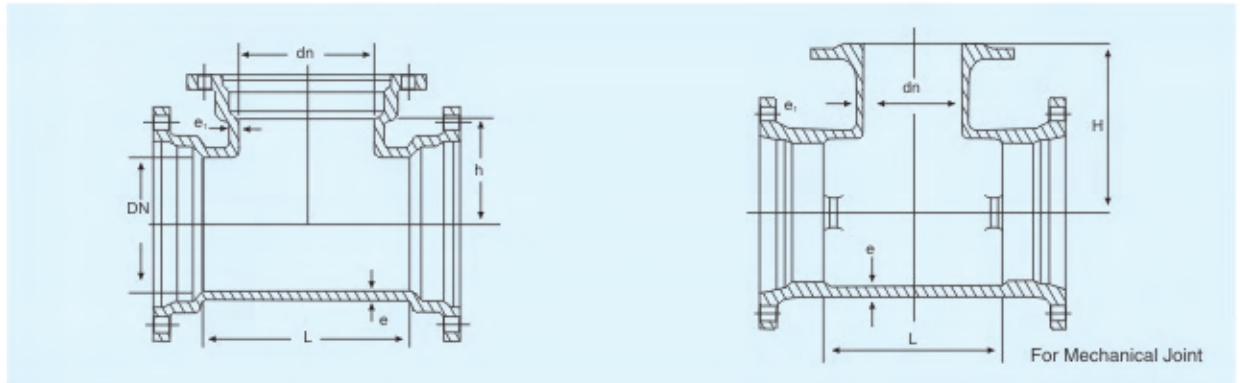


Table-26 : Double Socket Bends (M/J)

Nominal Diameter DN	e	BEND - 22.50°				BEND - 11.25°			
		R		Main Fitting	Complete Set	R		Main Fitting	Complete Set
		Approx.	L			Approx.	L		
80	10.0	75	40	14	19	50	30	14	19
100	10.5	100	45	18	24	100	35	18	24
125	11.1	125	50	23	30	125	38	22	29
150	11.7	150	55	29	38	150	40	27	36
200	12.8	225	70	42	53	255	50	39	50
250	14.0	275	80	58	72	305	55	54	68
300	15.2	325	90	79	99	355	60	73	93
350	16.3	375	105	101	131	405	70	91	121
400	17.5	400	120	126	160	455	75	114	148
450	18.7	450	125	153	191	455	80	136	174
500	19.8	505	135	187	233	510	85	164	210
600	22.2	605	160	256	316	610	100	220	280
700	24.5	705	190	342	432	710	120	286	376
750	25.6	755	200	388	508	760	125	322	442
800	26.8	805	210	435	585	810	130	358	508
900	29.2	880	230	564	734	915	145	454	624
1000	31.5	980	255	718	918	1015	160	577	777
1050	32.6	1030	265	810	939	1065	165	635	764
1100	33.8	1080	275	868	1148	1115	170	680	960
1200	36.2	1180	300	1040	1360	1220	185	806	1126



ALL SOCKET TEE

DOUBLE SOCKET BRANCH FLANGED TEE

Table-27 : All Socket Tee & Double Socket Branch Flanged Tee (M/J)

Size (dia)		ALL SOCKET TEE wt				DOUBLE SOCKET BRANCH FLANGE TEE wt			
DN	dn	l	h	main fitt	Complete Set wt.	l	h	main fitt	Complete Set wt.
80	80	190	95	21	29	180	145	20	25
100	80	190	105	26	35	180	155	25	31
100	100	210	105	28	37	200	160	26	32
125	80	190	117	32	42	180	170	31	38
125	100	210	117	34	44	235	175	34	41
125	125	210	117	36	47	235	180	35	42
150	80	190	130	38	50	205	185	38	47
150	100	210	130	41	53	205	190	39	48
150	125	210	130	43	56	265	195	44	53
150	150	270	135	48	62	265	200	46	55
200	80	210	160	53	67	210	215	53	64
200	100	230	160	57	71	210	220	54	65
200	125	230	160	59	74	265	225	60	71
200	150	280	160	65	81	265	230	62	73
200	200	330	165	73	90	325	235	70	81
250	80	210	185	71	88	210	245	71	85
250	100	230	185	75	92	210	250	72	86
250	125	230	185	78	96	270	255	80	94
250	150	280	185	85	104	270	260	82	96
250	200	340	190	96	116	325	265	92	106
250	250	390	195	106	127	385	275	102	116

'KESIN' All Socket Tee & D/S Branch Flanged Tee



Table-27 : All Socket Tee & Double Socket Branch Flanged Tee (contd.)

Size (dia)		ALL SOCKET TEE wt				DOUBLE SOCKET BRANCH FLANGE TEE wt			
DN	dn	l	h	main fitt	Complete Set wt.	l	h	main fitt	Complete Set wt.
300	80	220	210	115	118	215	275	91	111
300	100	240	210	119	122	215	280	92	112
300	125	240	210	123	126	270	285	101	121
300	150	290	210	132	135	270	290	104	124
300	200	340	220	145	148	330	295	116	136
300	250	390	220	159	163	390	305	128	148
300	300	445	265	179	183	445	310	139	159
350	100	250	235	153	156	215	310	115	145
350	150	300	240	168	171	275	320	129	159
350	250	410	245	199	203	390	335	156	186
350	350	510	255	236	241	505	350	185	215
400	100	250	260	183	188	220	340	140	174
400	200	360	270	218	223	335	355	172	206
400	300	460	275	254	260	450	370	204	238
400	400	570	285	296	302	570	385	239	273
450	100	260	290	270	223	225	370	169	207
450	150	320	290	238	243	280	380	187	225
450	250	420	300	277	283	395	395	224	262
450	350	520	310	323	330	515	410	264	302
450	450	630	315	367	375	630	425	302	340
500	100	270	315	257	263	225	400	197	243
500	200	380	325	301	307	340	415	238	284
500	300	480	325	346	353	460	430	282	328
500	400	590	335	399	407	575	445	327	373
500	500	690	345	447	456	690	460	370	416
600	100	290	365	346	354	230	460	264	324
600	150	340	370	372	380	290	470	291	351
600	250	450	375	421	430	405	485	336	396
600	350	550	385	488	497	520	500	400	460
600	450	650	395	546	556	640	515	458	518
600	600	810	405	638	650	810	535	543	603



'KESIN' All Socket Tee & D/S Branch Flanged Tee

Table-27 : All Socket Tee & Double Socket Branch Flanged Tee (contd.)

Size (dia)		ALL SOCKET TEE wt				DOUBLE SOCKET BRANCH FLANGE TEE wt			
DN	dn	l	h	main fitt	Complete Set wt.	l	h	main fitt	Complete Set wt.
700	150	350	420	492	502	295	530	376	466
700	200	400	425	523	533	355	535	409	499
700	300	510	430	594	605	470	550	476	566
700	400	610	440	666	678	585	565	547	637
700	500	710	450	738	751	700	580	617	707
700	700	920	460	892	907	935	610	765	855
750	150	290	425	543	554	300	555	423	543
750	250	405	425	618	630	415	570	496	616
750	350	520	435	701	713	530	585	572	692
750	450	635	460	787	800	645	600	650	770
750	600	810	475	916	931	820	625	771	891
750	750	985	490	1063	1079	995	645	895	1015
800	150	370	475	662	674	300	590	472	622
800	250	470	480	737	750	420	605	555	705
800	350	580	490	827	841	535	620	639	789
800	450	680	495	910	925	650	635	725	875
800	600	840	510	1045	1061	825	655	857	1007
800	800	1050	525	1250	1268	1055	685	1040	1190
900	200	440	530	849	864	365	655	628	798
900	300	540	535	942	958	480	670	725	895
900	400	650	545	1047	1064	600	685	830	1000
900	500	750	555	1147	1164	715	700	933	1103
900	700	960	565	1362	1381	945	730	1146	1316
900	900	1170	585	1592	1614	1180	760	1360	1530
1000	200	440	585	1015	1031	370	715	759	959
1000	250	500	585	1074	1091	430	725	817	1033
1000	350	600	595	1188	1206	545	740	934	1150
1000	450	700	600	1301	1320	660	755	1054	1254
1000	600	860	615	1484	1504	835	775	1239	1439
1000	800	1070	625	1755	1777	1070	805	1502	1702
1000	1000	1280	640	1996	2020	1300	835	1749	1949

'KESIN' All Socket Tee & D/S Branch Flanged Tee



Table-27 : All Socket Tee & Double Socket Branch Flanged Tee (contd.)

Size (dia)		ALL SOCKET TEE wt				DOUBLE SOCKET BRANCH FLANGE TEE wt			
DN	dn	l	h	main fitt	Complete Set wt.	l	h	main fitt	Complete Set wt.
1050	200	450	600	1023	1287	375	750	966	1223
1050	300	550	625	1136	14054	460	750	1063	1320
1050	400	650	625	1251	1527	575	775	1193	1450
1050	500	750	625	1367	1650	700	800	1334	1591
1050	700	980	650	1633	1940	900	800	1572	1829
1050	900	1200	650	1876	2226	1125	850	1849	2106
1050	1050	1400	675	2160	2546	1350	875	1970	2227
1100	200	470	640	1453	1471	380	775	1090	1370
1100	300	570	645	1577	1596	495	790	1223	1503
1100	400	670	650	1708	1728	610	805	1361	1641
1100	500	780	660	1849	1870	725	820	1502	1782
1100	700	990	675	2138	2162	960	850	1799	2079
1100	900	1200	690	2442	2469	1190	880	2095	2375
1100	1100	1410	705	2841	2870	1420	910	2390	2670
1200	200	480	690	1662	1686	385	835	1243	1563
1200	250	530	695	1731	1756	440	845	1315	1635
1200	350	640	705	1887	1913	560	860	1474	1794
1200	450	740	710	2034	2061	675	875	1633	1953
1200	600	900	725	2272	2300	850	895	1879	2199
1200	800	1110	735	2621	2651	1080	925	2223	2543
1200	1000	1310	750	2935	2967	1310	955	2561	2881
1200	1200	1530	765	3378	3414	1545	985	2902	3222

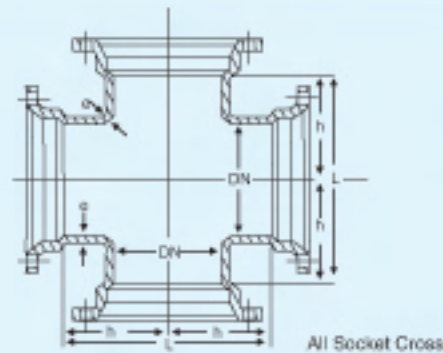


Table-28 : Crosses all Sockets (Mechanical Joint) (M/J)

Nominal Diameter DN		e	L	h	Nominal Mass	
					Main Fittings	Complete Set
80		10.0	212	106.0	30	41
100		10.5	240	120.0	39	53
125		11.1	275	137.5	52	68
150		11.7	310	155.0	67	88
200		12.8	380	190.0	102	127
250		14.0	450	225.0	145	177
300		15.2	520	260.0	197	242
350	Non Std.	16.3	550	275.0	230	296
400	Non Std.	17.5	570	285.0	310	326
450	Non Std.	18.7	630	315.0	350	436
500	Non Std.	19.8	690	345.0	510	614
600	Non Std.	22.2	810	405.0	700	836

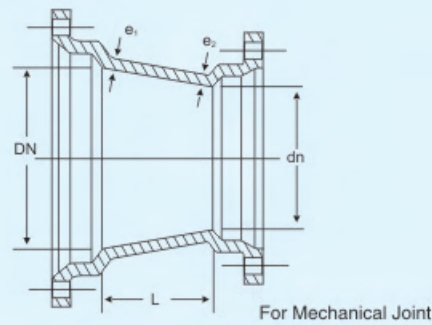


Table-29 : Double Socket Concentric Tapers (M/J)

Nominal Diameter		e_1	e_2	L	Weight	
DN	dn				Main Fitting	Complete Set
100	80	10.5	10.0	95	16	22
150	80	11.7	10.0	180	25	32
150	100	11.7	10.5	150	26	34
200	100	12.8	10.5	235	38	47
200	150	12.8	11.7	155	39	49
250	150	14.0	11.7	235	55	69
250	200	14.0	12.8	160	55	68
300	150	15.2	11.7	320	74	89
300	200	15.2	12.8	240	74	90
300	250	15.2	14.0	160	74	91
350	200	16.3	12.8	330	99	120
350	250	16.3	14.0	245	97	119
350	300	16.3	15.2	165	95	120
400	200	17.5	12.8	410	127	150
400	250	17.5	14.0	330	126	150
400	300	17.5	15.2	245	122	149
400	350	17.5	16.3	170	119	151
450	250	18.7	14.0	415	160	186
450	300	18.7	15.2	335	157	186
450	350	18.7	16.3	255	152	186
450	400	18.7	17.5	175	146	182



'KESIN' D/S Concentric Tapers (M/J)

Table-29 : Double Socket and Double Flanged Concentric Tapers (M/J) (contd.)

Nominal Diameter		e_1	e_2	L	Weight	
DN	dn				Main Fitting	Complete Set
500	250	19.8	14.0	500	198	228
500	300	19.8	15.2	415	193	226
500	350	19.8	16.3	340	190	228
500	400	19.8	17.5	255	182	222
500	450	19.8	18.7	180	176	218
600	300	22.2	15.2	585	288	328
600	350	22.2	16.3	510	284	329
600	400	22.2	17.5	425	275	322
600	450	22.2	18.7	350	269	318
600	500	22.2	19.8	265	255	308
700	350	24.5	16.3	685	407	467
700	400	24.5	17.5	600	397	459
700	450	24.5	18.7	525	390	454
700	500	24.5	19.8	440	375	443
700	600	24.5	22.2	280	343	418
750	400	25.6	17.5	725	486	563
750	450	25.6	18.7	595	455	534
750	500	25.6	19.8	515	440	523
750	700	25.6	24.5	270	407	512
800	400	26.8	17.5	750	539	631
800	450	26.8	18.7	670	528	622
800	500	26.8	19.8	590	513	611
800	600	26.8	22.2	430	478	583
800	700	26.8	24.5	265	430	550
900	450	29.2	18.7	840	710	814
900	500	29.2	19.8	760	692	800
900	600	29.2	22.2	600	654	769
900	700	29.2	24.5	435	604	734
900	800	29.2	26.8	270	538	698
1000	500	31.5	19.8	930	909	1032
1000	600	31.5	22.2	770	867	997
1000	700	31.5	24.5	605	813	958
1000	800	31.5	26.8	440	746	921
1000	900	31.5	29.2	280	665	850

'KESIN' D/S Concentric Tapers (M/J)



Table-29 : Double Socket Concentric Tapers (M/J) (contd.)

Nominal Diameter		e_1	e_2	L	Weight	
DN	dn				Main Fitting	Complete Set
1050	500	32.6	20.0	1030	1114	1269
1050	600	32.6	22.8	930	1116	1279
1050	700	32.6	25.0	770	1067	1246
1050	800	32.6	27.5	605	1004	1214
1050	900	32.6	30.0	445	928	1149
1050	1000	32.6	31.0	280	830	1067
1100	600	33.8	22.2	935	1212	1382
1100	700	33.8	24.5	770	1151	1336
1100	800	33.8	26.8	605	1080	1295
1100	900	33.8	29.2	445	996	1221
1100	1000	33.8	31.5	280	890	1130
1200	600	36.2	22.2	709	503	1740
1200	700	36.2	24.5	781	559	1665
1200	800	36.2	26.8	775	1360	1595
1200	900	36.2	29.2	615	1275	1520
1200	1000	36.2	31.5	450	1167	1427
1200	1100	36.2	33.8	295	1143	1443

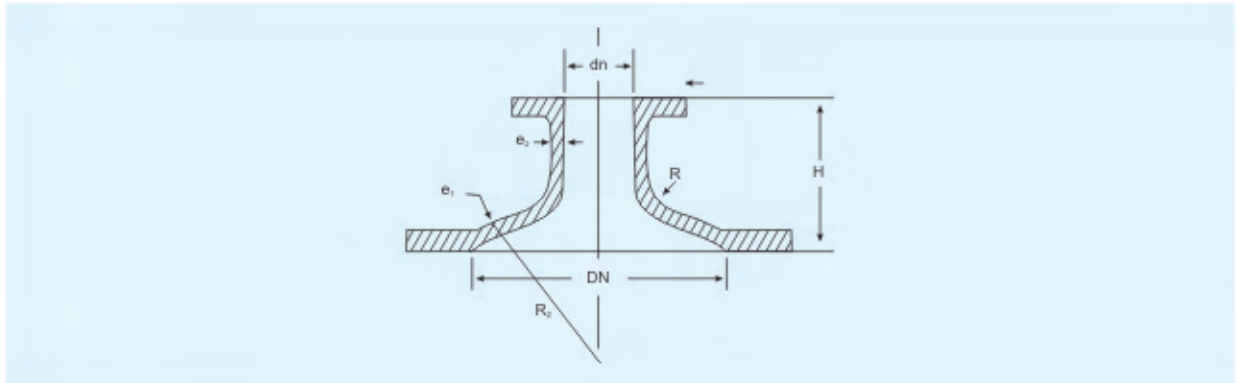


Table-30 : Hat Flange for Air Valve and Hydrant (M/J)

Nominal Diameter		e_1	e_2	H	R_1	R_2	Nominal Mass
Body DN	Opening dn						
350	100	16.3	11	200	80	350	65
400	100	17.5	11	200	80	400	80
450	100	18.7	11	225	80	450	97
450	150	18.7	14	225	100	450	100
500	100	19.8	11	225	80	500	128
500	150	19.8	14	225	100	500	135
600	100	22.2	11	240	80	600	150
600	150	22.2	14	240	100	600	156
700	100	24.5	11	240	80	700	265
700	150	24.5	14	240	100	700	270
750	150	25.6	14	250	100	750	300
800	150	26.8	14	300	100	800	325

'KESIN' Flanged Outlets for Washout

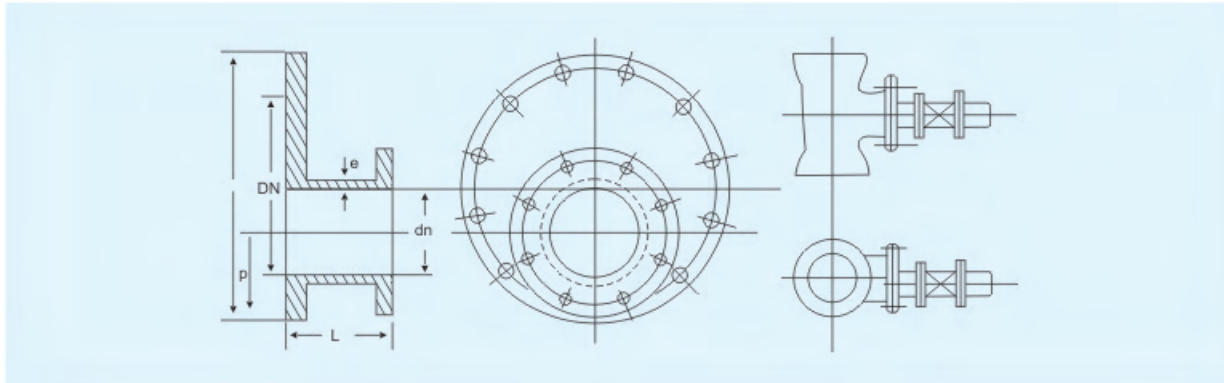


Table-31 : Flanged Outlets for Washout - Mechanical Joint (M/J)

Nominal Diameter		e	D	L	P	Nominal Mass
Body DN	Opening dn					
300	150	12.6	445	150	147.5	39
350	150	12.6	505	150	152.5	50
400	200	13.8	565	200	182.5	65
450	200	13.8	615	200	182.5	77
500	200	13.8	670	200	185.0	94
600	200	13.8	780	200	190.0	134
700	200	13.8	895	200	197.5	185
750	250	15.0	960	250	230.0	218
800	250	15.0	1015	250	232.5	255
900	250	15.0	1135	250	232.5	322
1000	300	16.2	1230	300	265.0	418

Cast Iron Specials for Asbestos Cement Pressure Pipes



Cast Iron Plain Ended Specials are designed to be used with Asbestos Cement pressure pipes having plain ends. These specials are joined with pipes with the help of Cast Iron detachable joints or asbestos cement couplings and/or Iron Mechanical Joint Couplings.

Hydrostatic Test

The specials are kept under pressure for 15 seconds when they are struck moderately with a 700 gm hammer. They should withstand the pressure test without showing any sign of leakage, sweating, or other defects of any kind.

Test & working pressure

Class	Works Test Pressure	Suggested Maximum hydraulic working pressure
kgf/cm ²	kgf/cm ²	kgf/cm ²
5	5	2.5
10	10	5
15	15	7.5
20	20	10
25	25	12.5

Classes

Cast Iron Plain Ended Specials are divided in 5 classes with respect to the hydraulic works test pressure as shown in the above table. Corresponding to each class the barrel wall thickness as well as the machined outside diameter of the plain ends also increases.

Tolerance

Tolerance on Machined Outside diameters : + 1.5 mm

- 1.0 mm

Tolerance on length and height : +15.0 mm

- 10.0 mm

Tolerance on Mass :

a) Bend

b) Non standard Fittings

c) Fittings with more than one branch

d) Other specials than above

} ± 12 percent

± 8 percent

Cast Iron Detachable Joints for use with Asbestos Cement Pressure Pipes



Cast Iron Detachable Joints are designed to be used with Asbestos Cement Pressure Pipes to IS-1592/1970 and Cast Iron Plain Ended Specials to IS-5531/1988.

CLASSES

As in pipes & specials mentioned above Detachable Joints are also manufactured in five classes viz. class 5, 10, 15, 20 & 25.

DETACHABLE JOINT COMPRISES OF :

- a) One Cast Iron Centre collar
- b) Two Cast Iron flanges on either side with holes
- c) Two Rubber Rings
- d) Required number of nuts & bolts for bolting together the two flanges with two Rubber rings in between them.

HYDROSTATIC TEST

Hydrostatic tests are carried out for collars only. For test pressure details kindly refer Page No. 69 showing tests for Plain Ended Specials.

Approximate weights of Detachable Joints upto 600 mm dia only are given. Detachable Joints of dia above 600 mm may also be manufactured upon request.

MASS (Excluding NBW & R/R)

NB	Class – 5	Class – 10	Class – 15	Class – 20	Class – 25
80	3	3	3	3.1	3.2
100	3.8	3.8	3.8	3.9	3.4
125	4.8	4.8	4.8	5.4	5.6
150	6.1	6.1	6.3	6.4	6.8
200	8.6	9.0	9.3	9.7	10.1
250	12.0	12.2	12.5	13.8	14.3
300	14.7	14.9	15.4	17.5	18.1
350	24.8	24.8	26.5	28.1	29.8
400	30.1	30.1	31.4	33.8	35.8
450	35.7	35.7	38	40.6	42.8
500	50.3	50.3	54.1	56.6	60.1
600	80.8	80.8	84.8	91.4	95.5

GRADES AND TYPES

Manhole covers and frames are of the following grades and type.

Grades	Grade Designation	Type/Shape of Cover
Light Duty	LD – 2.5	Rectangular, Square, Circular
Medium Duty	MD – 10	Circular, Rectangular
Heavy Duty	HD – 20	Circular, Lamphole, Square, Rectangular (Scrapper Manhole)
Extra Heavy Duty	EHD – 35	Circular, Square, Rectangular (Scrapper Manhole)

Recommended locations for placement of different grade types/shapes of manhole covers and frames are as under:

LD - 2.5 Rectangular, Square or Circular Solid Type

Suitable for use within residential and institutional complexes/areas with pedestrian but occasional Light Motor Vehicle traffic. These covers are also used for "Inspection Chambers".

MD - 10 Circular or Rectangular Type

Suitable for use in service lanes/roads, or pavement for use under medium-duty vehicular traffic including car parking areas.

HD - 20 Circular, Square or Rectangular (Scrapper Manhole) Type

Suitable for use in institutional / commercial areas / carriageway / city trunk roads / bus terminals, with heavy duty vehicular traffic of wheel loads between 5 to 10 tonnes, like buses, trucks and parking areas and where the manhole chambers are located in between pavement and the middle of the road.

EHD - 35 Circular, Square or Rectangular (Scrapped Manhole) Type

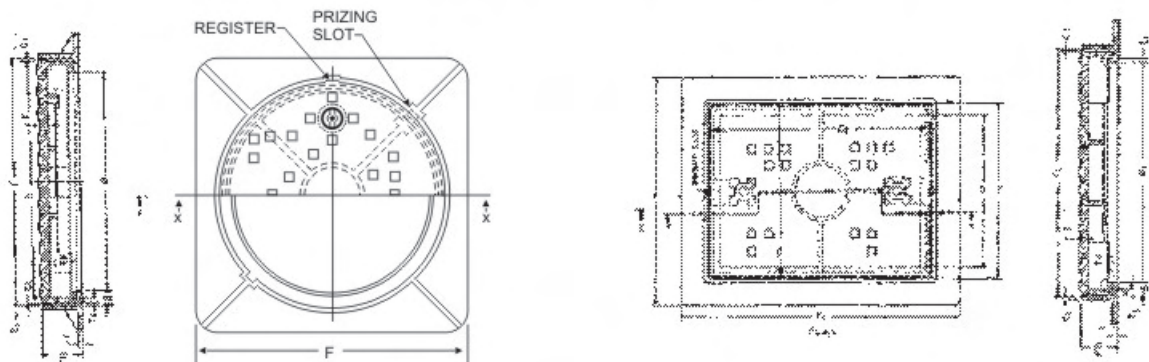
Suitable for use on carriageway in commercial / industrial port areas / near warehouses / godowns where frequent loading and unloading of trucks / trailers are common, with slow to fast moving vehicular traffic of the types having wheel loads up to 11.5 tonnes irrespective of the location of the manhole chambers.

Grade Designation	Type / Shape of Cover	Clear Opening of Frame O O1 mm	Frame		Test Load tonnes
			Depth fd mm	Seating S mm	
LD-2.5	Rectangular	450 x 600	35	50	2.5
	Square	450 x 450	30	50	
		400 x 400	30	50	
	Circular	370 (dia)	45	40	
350 (dia)		45	40		
MD-10	Circular	450 (dia)	60	40	10
		480 (dia)	70	40	
		500 (dia)	80	50	
	Rectangular	450 x 600	80	50	
Hd-20	Circular	500 (dia)	100	50	20
		560 (dia)	110	60	
		600 (dia)	110	75	
	Lamphole cover	350 (dia)	130	25	
	Square	560 x 560	110	75	
	Rectangular	450 x 900	100	60	
	(Scrapped Manhole)				
EHD-35	Circular	560 (dia)	130	60	35
		600 (dia)	140	75	
	Square	560 x 560	130	60	
	Rectangular	600 x 900	120	70	
	Manhole)				

NOTES :

The depth of seating in the frame for the respective test loads may vary depending upon the design of the frame (inside) and the corresponding matching cover.

This seating of 25mm is in case of trapped design of the frame (inside) as also the matching cover.



Respective weight of the manhole covers and frames shall depend upon their design, grade of Cast Iron, quality of manufacture and workmanship. Minimum weight supplied shall be agreed to between the manufacturer and the purchaser, if so desired, provided the requirements shall be strictly maintained as basic acceptance criteria for the manhole cover system.

Dimensions of Manhole covers and frames

Dimensions of manhole covers and frames for the various grades, types and shapes shall be as given in Table below:

Type Shape of Cover	FRAME DIMENSIONS											COVER DIMENSIONS				
	Clear Opening		Outer		Inner ness		Depth C C1		Seat- ing	Thickness (min)		Outer		Thick		Clear
	O	O ₁	F	F ₁	f	f ₁	F _d	f _d	S	t	t ₁	C	C ₁	T	T ₁	C ₁
LD-2.5																
Rectangular	450	600	650	800	550	700	45	35	50	10	10	540	690	10	5	5
Square	400	400	600	600	500	500	40	30	50	10	10	490	490	10	5	5
	450	450	650	650	550	550	40	30	50	10	10	540	540	10	5	5
Circular	370	–	550	550	450	450	55	45	40	10	10	440	–	10	5	5
	350	–	530	530	430	430	55	45	40	10	10	420	–	10	5	5
MD-10																
Circular	450	–	620	620	530	530	70	60	40	10	10	520	–	10	5	5
	480	–	650	650	560	560	80	70	40	10	10	550	–	10	5	5
	500	–	750	750	600	600	90	80	50	15	15	590	–	20	12	5
Rectangle	450	–	600	650	800	550	700	90	80	15	15	540	690	20	12	5
HD-20																
Circular	500	–	750	750	600	600	115	100	50	15	15	588	–	25	15	6
	560	–	820	820	680	680	125	110	60	15	15	668	–	25	15	6
	600	–	900	900	750	750	125	110	75	15	15	735	–	30	15	7.5
Lamp hole cover	350	–	575	575	450	450	145	230	25	15	20	440	–	30	15	5
Rectangle (Scraper Manhole)	450	900	670	1120	570	1020	115	100	60	15	20	560	1010	30	15	5
Square	560	560	800	800	660	660	125	110	60	15	15	648	648	25	15	6
EHD-35																
Circular	600	–	900	900	750	750	155	140	75	15	20	735	–	30	15	7.5
	560	–	830	830	680	680	145	130	60	15	20	668	–	30	15	6
Square	560	560	830	830	680	680	145	130	60	15	20	668	668	30	15	6
Rectangle (Scraper Manhole)	600	900	850	1150	750	1050	135	120	70	15	20	740	1040	30	15	5

	IS Code	Table Nos.	Page Nos.
All Flanged Cross & All Socket Cross	IS 1538-1993	14	22
All Flanged Radial Tees	IS 1538-1993	18	27
All Socket Tee & Double Socket Branch Flanged Tee	IS 13382-1992	27	38
All Socket Tees & All Flanged Tees	IS 1538-1993	12	17
Bellmouth & Blank Flanges	IS 1538-1993	20	29
Caps and Plugs	IS 1538-1993	19	28
Collars (Mechanical Joint M/J)	IS 13382-1992	24	35
Crosses all Sockets (Mechanical Joint) (M/J)	IS 13382-1992	28	42
Detachable Joints	IS 8794-1988	-	51
Double Flanged 1/4 Duckfoot Bends	IS 1538-1993	17	26
Double Flanged Bend	IS 1538-1993	16	25
Double Socket and Double Flanged Concentric Tapers (Mechanical Joint M/J)	IS 13382-1992	29	43
Double Socket Bends - Spigots & Collars - Dimensions & Mass	IS 1538-1993	11	16
Double Socket Bends (Mechanical Joint M/J)	IS 13382-1992	26	37
Double Socket Bends (Mechanical Joint) (M/J)	IS 13382-1992	25	36
Double Socket Tapers & Double Flanged Tapers	IS 1538-1993	15	23
Double Socket Tee with Flanged Branch (For Air Valves & Hydrant Tees)	IS 1538-1993	13	21
Flanged Outlets for Washout - Mechanical Joint (M/J)	IS 13382-1992	31	47
Flanged Pipes Sand Cast - Class B (Vertically Cast)	IS 1537-1976	5	8
Flanged Sockets and Flanged Spigots (Mechanical Joint M/J)	IS 13382-1992	23	34
Flanged Sockets, Flanged Spigots & Collars - Dimensions & Mass	IS 1538-1993	10	15
Flanges of Flanged Pipes Fittings and Valves - Dim., Mass and Flange Drillings	IS 1538-1993	8	13
Follower Gland for Mechanical Joint Fittings - Dimensions	IS 13382-1992	22	33
Hat Flange for Air Valve and Hydrant, (Mechanical Joint M/J)	IS 13382-1992	30	46
Manhole Covers and Frames	IS 1726-1991	-	53
Mechanical Joint - Socket - Dimensions	IS 13382-1992	21	32
Plain Ended Specials for Asbestos Cement Pipes	IS 5531-1988	-	49
Raised Flanges - Dimensions	IS 1538-1993	9	14
Screwed Flanges of Pipes & Std. Flange Drilling of Flanged Pipes - Wt. & Dim.	IS 1536-2001	4	5
Sizes and Mass of Double Flanged Pipes (Horizontal Cast)	IS 7181-1986	6	10
Socket and Spigot of Pipes (Lead Joint) - Dimensions	IS 1536-2001	1	2
Socket and Spigot of Pipes (Push-on-Joints) - Dimensions	IS 1536-2001	2	3
Socket and Spigot Pipes	IS 1536-2001	3	4
Socket of Fittings (Lead Joint) - Dimensions	IS 1538-1993	7	12