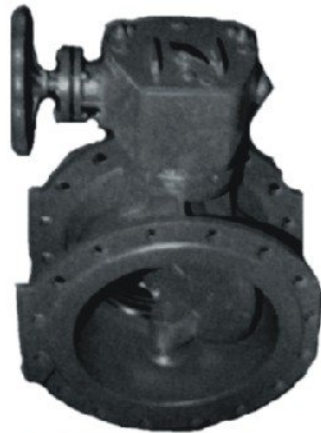




# 1- Valves



*Gate Valves*



*Butterfly valves*



## Gate Valves of ellipsoid Body PN 10

See figure 1 and table 1

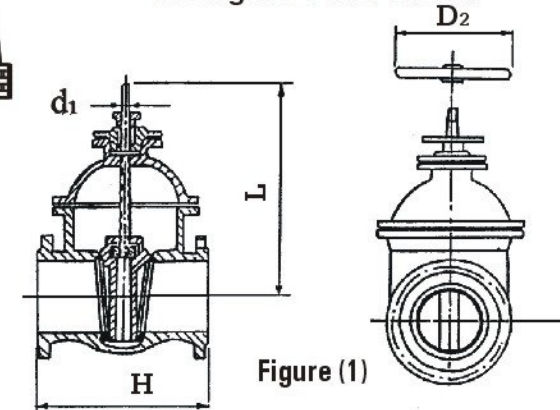


Figure (1)

**Table (1)**

Dn	D	K	t	No of holes	d	D <sub>1</sub>	d <sub>1</sub>	H	L
80	200	160	19	8	19	225	24	225	230
100	220	180	19	8	19	280	26	380	245
125	250	220	19	8	19	320	28	430	275
150	285	240	19	8	23	320	28	500	285
200	340	290	20	8	23	350	32	595	345
250	400	350	21	12	23	400	36	720	400
300	455	400	24	12	23	500	36	820	425
350	505	460	24	16	23	500	40	900	475
400	565	515	24	16	28	640	44	1000	525
500	670	620	26	20	28	720	50	1115	550
600	780	725	30	20	31	720	50	1370	600
700	895	840	33	24	31	800	55	1670	700
800	1015	950	35	24	34	800	60	1740	750
900	1115	1050	38	28	34	800	65	1990	800
1000	1230	1160	40	28	37	900	70	2190	800



### Gate Valves of ellipsoid Body PN 16

See figure 2 and table 2

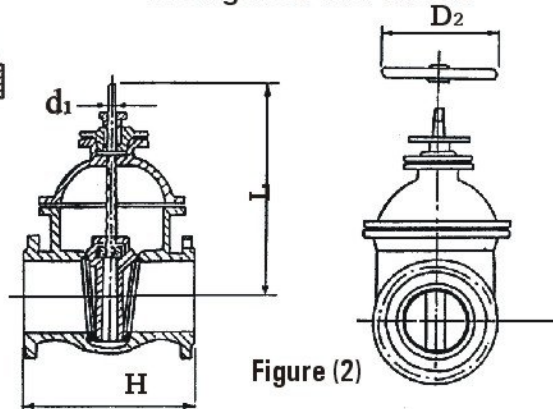


Figure (2)

Table ( 2 )

Dn	D	K	t	No of holes	d	D <sub>1</sub>	d <sub>1</sub>	H	L
80	220	160	19	8	19	225	24	225	230
100	220	180	19	8	19	280	26	380	245
125	250	210	19	8	19	320	28	430	275
150	285	240	19	8	23	320	28	500	285
200	340	295	20	12	23	350	32	595	345
250	400	355	20	12	28	400	36	720	400
300	455	410	25	12	28	500	36	820	425
350	520	470	26	16	28	500	40	900	475
400	580	525	28	16	31	640	44	1000	525
500	715	650	32	20	34	720	50	1115	550
600	840	770	36	20	37	720	50	1370	600
700	910	840	40	24	37	800	55	1670	700
800	1025	950	43	24	40	800	60	1740	750
900	1125	1050	47	28	40	800	65	1990	800
1000	1255	1170	50	28	43	900	70	2190	800



### Gate Valves of Compressed Body PN 10

See figure 3 and table 3

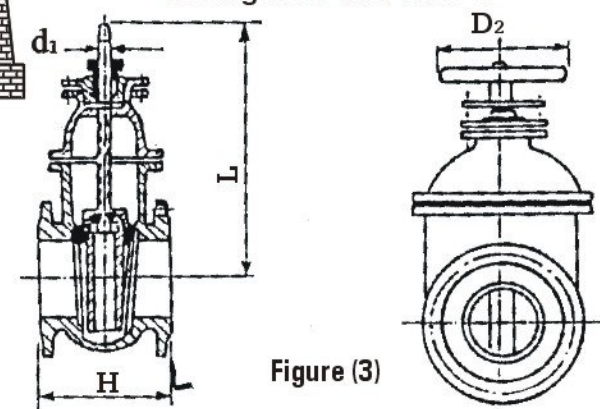


Figure (3)

Table ( 3 )

Dn	D	K	t	No of holes	d	D <sub>1</sub>	d <sub>1</sub>	H	L
80	200	160	19	8	19	160	18	325	180
100	225	180	19	8	19	180	20	345	190
125	250	220	19	8	19	200	22	390	200
150	285	240	19	8	23	200	22	425	210
200	340	290	20	8	23	225	24	525	230
250	400	350	21	12	23	280	26	616	250
300	455	400	24	12	23	320	28	725	270
350	505	460	24	16	23	360	32	830	290
400	565	515	24	16	28	360	32	925	310
500	670	620	26	20	28	500	40	1120	350
600	780	725	30	20	31	500	40	1280	390
700	895	840	33	24	31	640	44	1450	430
800	1015	950	35	24	34	720	50	1640	470
900	1115	1050	38	28	34	800	55	1850	510
1000	1230	1160	40	28	37	800	60	2030	550



### Gate Valves of Compressed Body PN 16

See figure 4 and table 4

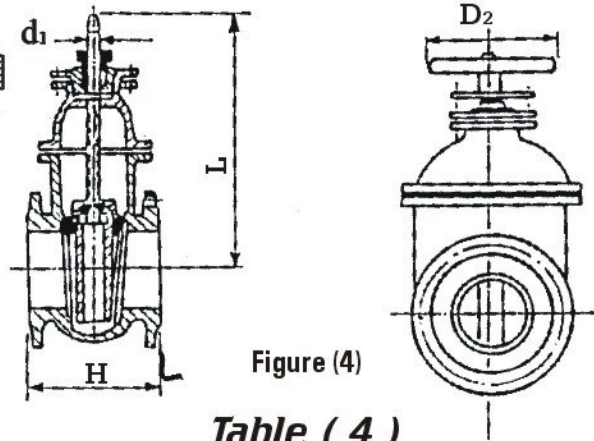


Figure (4)

Table ( 4 )

Dn	D	K	t	No of holes	d	D <sub>1</sub>	d <sub>1</sub>	H	L
80	220	160	19	8	19	160	18	325	180
100	220	180	19	8	19	180	20	345	190
125	250	210	19	8	19	200	22	390	200
150	285	240	19	8	23	200	22	425	210
200	340	295	20	12	23	225	24	525	230
250	400	355	20	12	28	280	26	616	250
300	455	410	25	12	28	320	28	725	270
350	520	470	26	16	28	360	32	830	290
400	580	525	28	16	31	360	32	925	310
500	715	650	32	20	34	500	40	1120	350
600	870	770	36	20	37	500	40	1280	390
700	910	840	40	24	37	640	44	1450	430
800	1025	950	43	24	40	720	50	1640	470
900	1125	1050	47	28	40	800	55	1850	510
1000	1255	1170	50	28	43	800	60	2030	550



### Gate Valves of Circular Body PN 10

See figure 5 and table 5

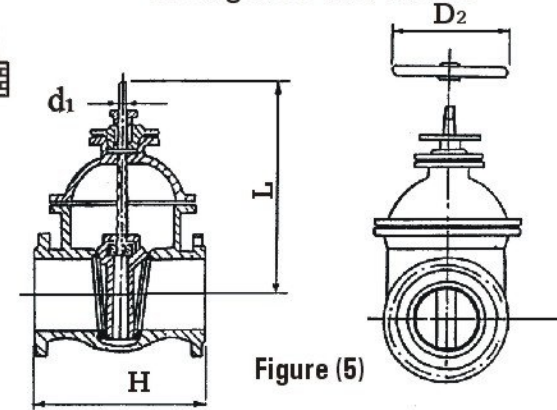


Figure (5)

Table ( 5 )

Dn	D	K	t	No of holes	d	D <sub>1</sub>	d <sub>1</sub>	H	L
80	200	160	19	8	19	280	26	360	280
100	220	180	19	8	19	320	28	405	330
125	250	220	19	8	19	360	32	470	360
150	285	240	19	8	23	360	32	525	390
200	340	290	20	8	23	400	36	635	460
250	400	350	21	12	23	500	40	725	530
300	455	400	24	12	23	640	44	830	630
350	505	460	24	16	23	640	44	940	690
400	565	515	24	16	28	720	50	1070	750
500	670	620	26	20	28	800	55	1260	880
600	780	725	30	20	31	800	60	1480	1000
700	895	840	33	24	31	800	65	1620	1130
800	1015	950	35	24	34	900	70	1820	1250
900	1115	1050	38	28	34	900	80	2020	1380
1000	1230	1160	40	28	37	900	80	2200	1500



### Gate Valves of Circular Body PN 16

See figure 6 and table 6

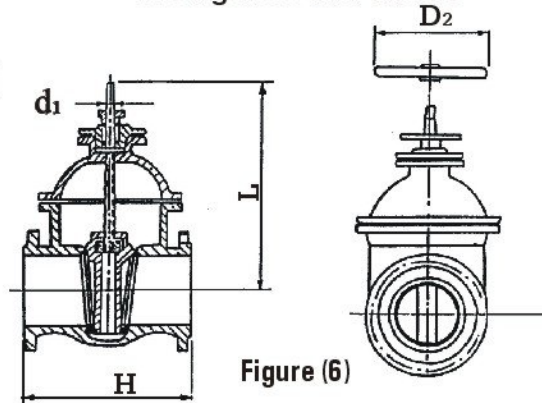


Figure (6)

Table ( 6 )

Dn	D	K	t	No of holes	d	D <sub>1</sub>	d <sub>1</sub>	H	L
80	220	160	19	8	19	280	26	360	280
100	220	180	19	8	19	320	28	405	330
125	250	210	19	8	19	360	32	470	360
150	285	240	19	8	23	360	32	525	390
200	340	295	20	12	23	400	36	635	460
250	400	355	20	12	28	500	40	725	530
300	455	410	25	12	28	640	44	830	630
350	520	470	26	16	28	640	44	940	690
400	580	525	28	16	31	720	50	1070	750
500	715	650	32	20	34	800	55	1260	880
600	840	770	36	20	37	800	60	1480	1000
700	910	840	40	24	37	800	65	1620	1130
800	1025	950	43	24	40	900	70	1820	1250
900	1125	1050	47	28	40	900	80	2020	1380
1000	1255	1170	50	28	43	900	80	2200	1500



### 3- Fire Hydrant



### Vertical Fire Hydrant

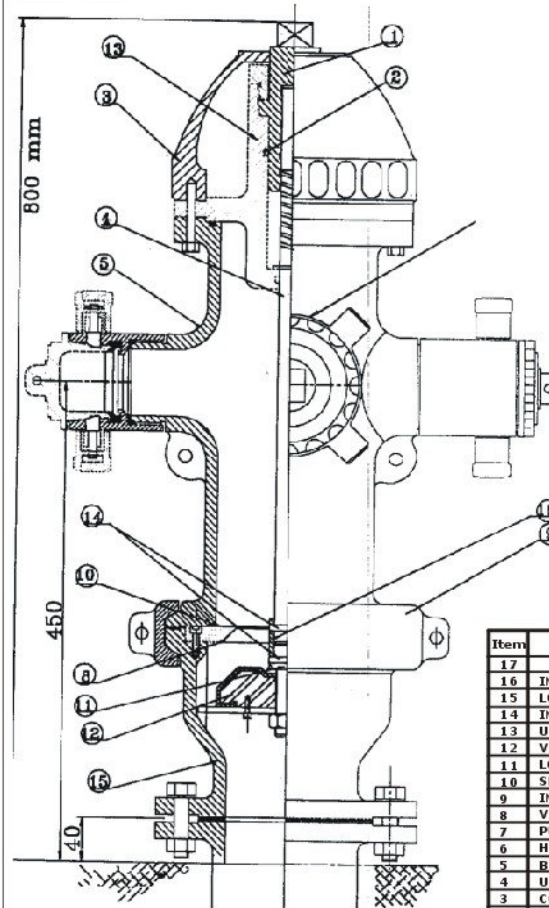


Table (1)

Item	DESCRIPTION	MATERIAL
17		
16	IMPACT SAFETY COUPLING	GGG 25
15	LOWER BODY S.G.Iron	GGG 50
14	IMPACT PINS	ST. ST.
13	UPPER BODY S.G.Iron	GGG 50
12	VALVE DISC	C.I.+NBR
11	LOWER STEM	ST. ST.
10	SEAL RING	NBR
9	IMPACT SAFETY CLAMP	GG 25
8	VALVE SEAT	BRONZE
7	PUMPER NOZZLE 100mmD	BRONZE
6	HOSE NOZZLE 63mmD	BRONZE
5	BODY S.G.Iron	GGG 50
4	UPPER STEM	ST. ST.
3	COVER	C.I.
2	SEAL RING	NBR
1	STEM NUT	BRONZE

Figure (1)



## Under Ground Fire Hydrant

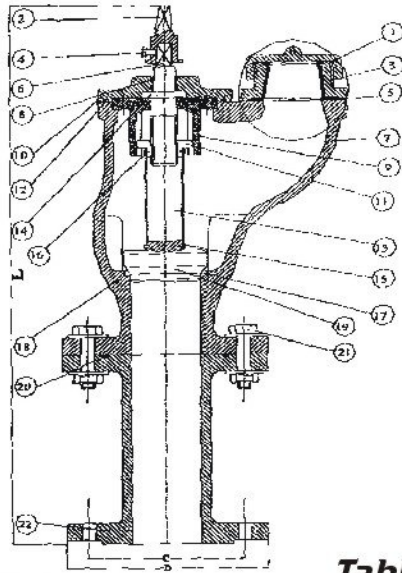


Figure (2)

Table ( 2 )

22	1	Valve Extension	GGG-50	GGG-50
21	8	Hex. Head M16	St.42	St.42
20	1	O-Ring	NBR	NBR
19	1	Valve Seat PL.	C.I.+NBR	C.I.+NBR
18	1	O-Ring	NBR	NBR
17	1	Valve Seat	Bronze	Bronze
16	2	Hex. Head M5x8	St.St.304	St.St.304
15	2	Hex. Head M5x8	St.St.304	St.St.304
14	1	Stem Ring	St.St.304	St.St.304
13	1	Stem Extension	St.St.304	St.St.304
12	1	O-Ring	NBR	NBR
11	1	Stem Nut	Bronze	Bronze
10	1	Cover	GGG-50	GG-25
9	1	Guide Block	GG-25	GG-25
8	2	O-Ring	NBR	NBR
7	1	Body	GGG-50	GG-25
6	1	Stem	St.St.304	St.St.304
5	1	Baked-in Rubber Sleeve	NBR	NBR
4	1	Hex. Head M8x15	St.42	H.T.S.
3	1	Nozzle (Baked)	Bronze/NBR	Bronze/NBR
2	1	Spindle Cap	GGG-50	GG-25
1	1	Nozzle Cover	GG-25	GG-25
POS.No.	QTY	Description	59000000A	59000000H
			Material	



## VERTICAL FIRE HYDRANT 115 cm

See figure 3

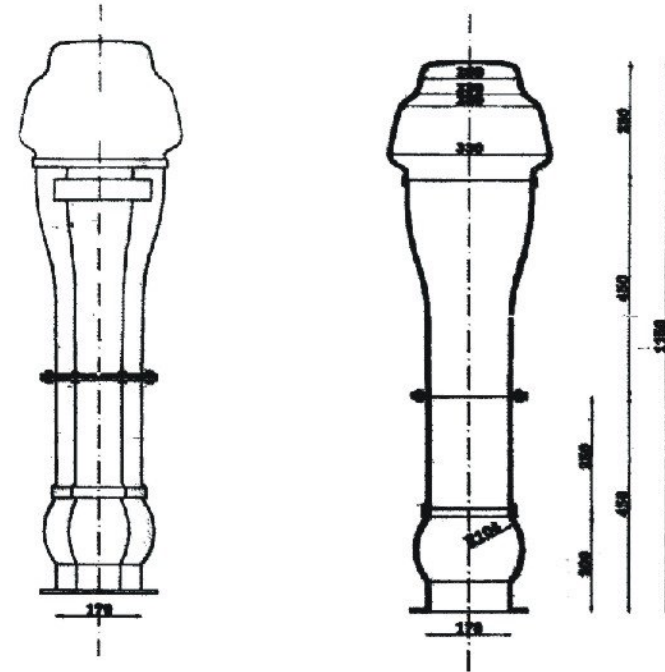


Figure (3)



### VERTICAL FIRE HYDRANT 75 cm

See figure 4

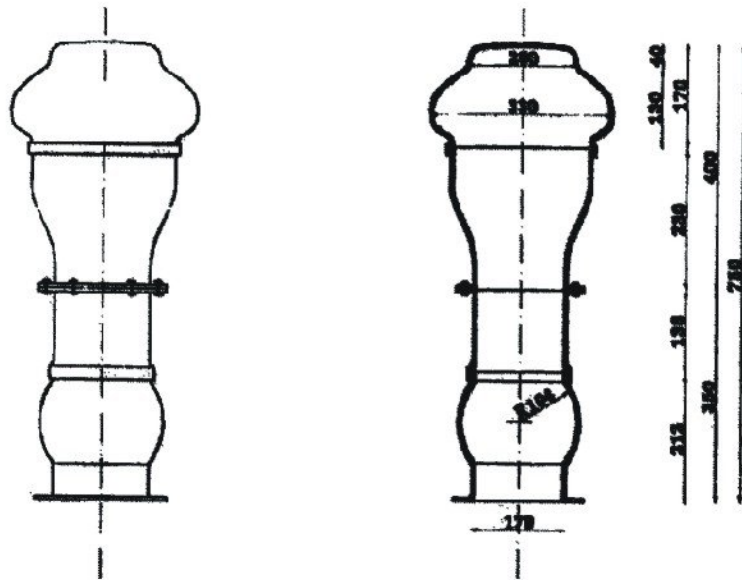
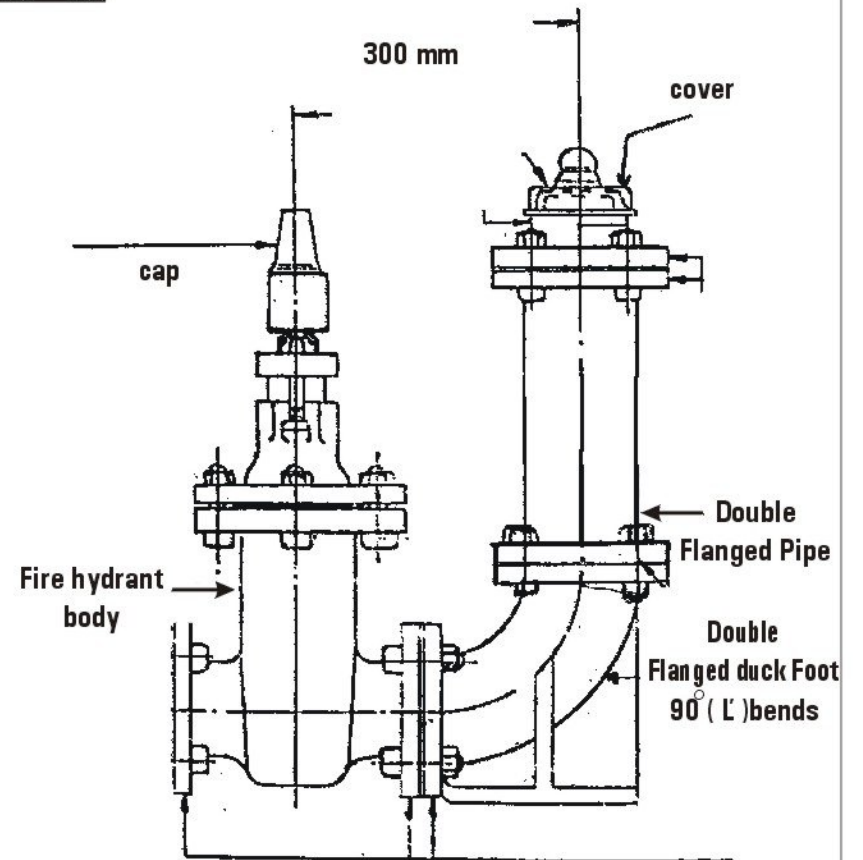


Figure (4)



### Under ground Fire Hydrants Consists of

See figure 5



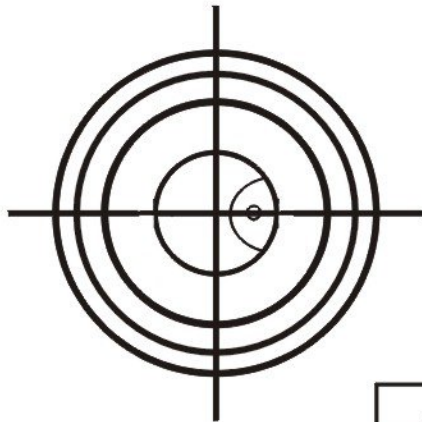
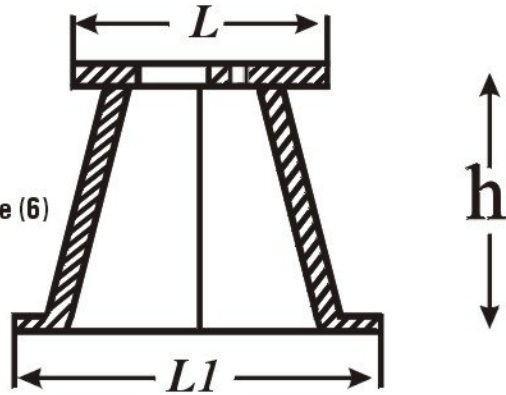
Internal diameter of the Flange is 75 mm

Figure (5)



**Surface Box**  
See figure 6

Figure (6)



**Table ( 3 )**

<i>L</i>	<i>L1</i>	<i>h</i>
146	234	170
135	210	185
190	265	270





## 4- Gates

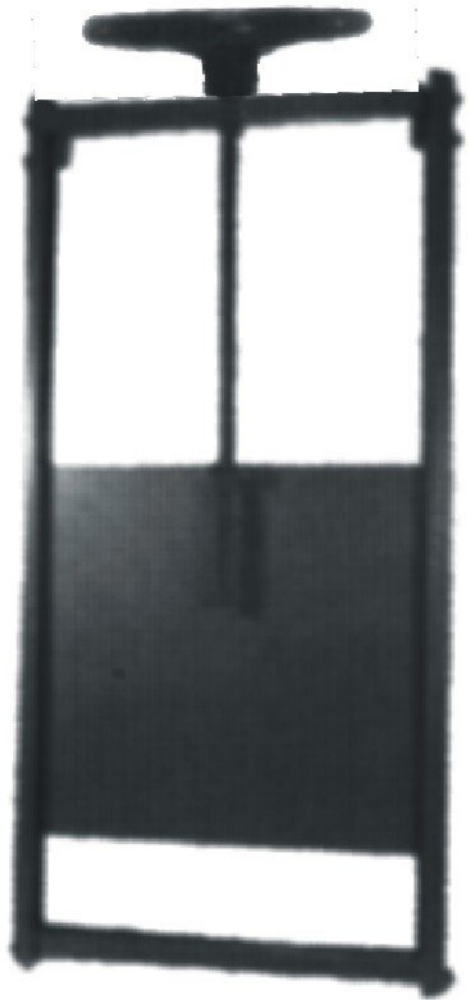


Figure (1)

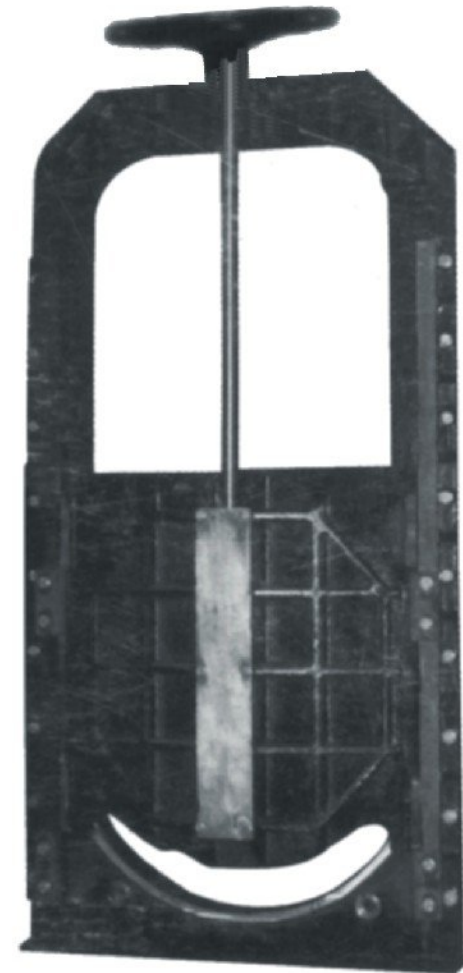


Figure (2)

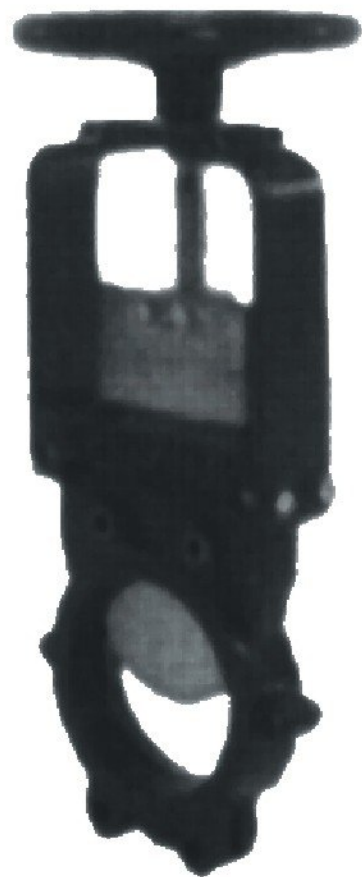


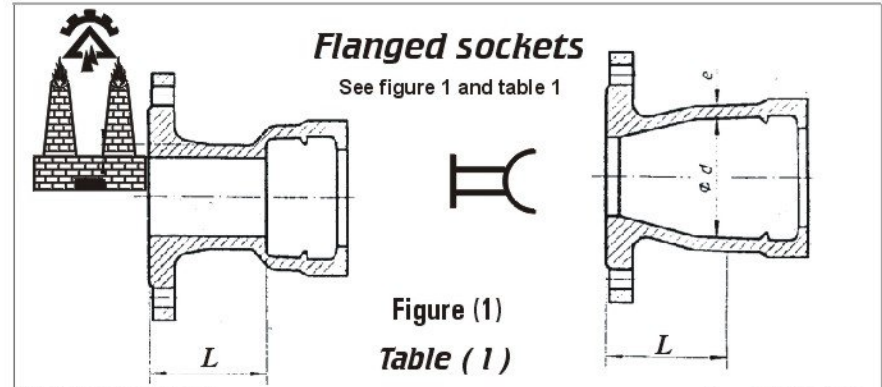
Figure (3)



Figure (4)



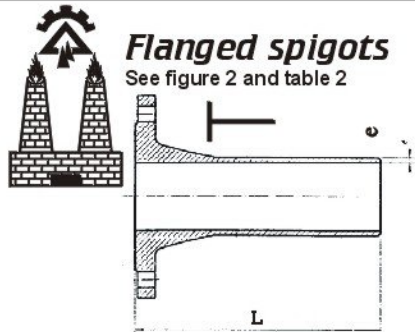
# 4-Ductile Iron Pipes, Fittings Accessories and Their Joints For Water Or gas Applications



Dimensions in millimeters

b) Masses in kg

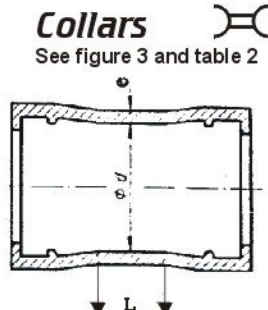
Dn	e	L	d	Kg.	
				Pn 10	Pn 16
40	7	125	67	4.5	4.5
50	7	125	78	5.4	5.4
60	7	125	88	6	6
65	7	125	93	6.4	6.4
80	7	130	109	7.4	7.4
100	7.2	130	130	9	9
125	7.5	135	156	11.5	11.5
150	7.8	135	183	14.2	14.2
200	8.4	140	235	20.5	20
250	9	145	288	28	27
300	9.6	150	340	37	36.5
350	10.2	155	393	45	48
400	10.8	160	445	55	60
450	11.4	165	498	---	---
500	12	170	550	78	93
600	13.2	180	655	108	135
700	14.4	190	760	144	159
800	15.6	200	865	189	208
900	16.8	210	970	235	258
1000	18	220	1075	293	324
1100	19.2	230	1180	---	---
1200	20.4	240	1285	456	521
1400	22.8	310	1477	654	723
1500	24	330	1580	---	---
1600	25.2	330	1683	887	989
1800	27.6	350	1889	1125	1251
2000	30	370	2095	1414	1567
2200	32.4	390	2301	1767	1934
2400	34.8	410	2507	2150	2352
2600	37.2	480	2713	2563	2798



### Flanged spigots

See figure 2 and table 2

Figure (2) Table (2)



### Collars

See figure 3 and table 2

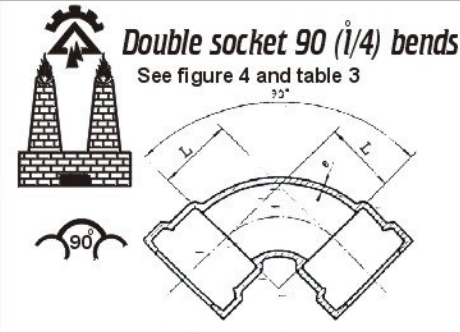
Figure (3)

Dimensions in millimeters

Masses in kg

Masses in kg

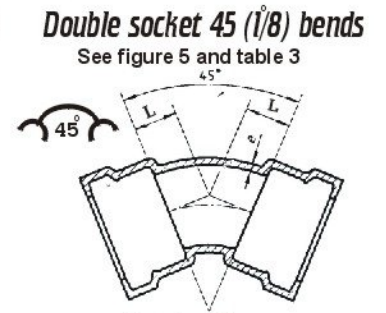
Dn	e	Flanged spigots		Collars			
		L	Kg.		L	d	Kg.
			Pn 10	Pn 16			
40	7	335	4.2	4.2	155	67	4.6
50	7	340	5.2	5.2	155	78	5.4
60	7	345	5.8	5.8	155	88	6.3
65	7	345	6.5	6.5	155	93	6.6
80	7	350	7.8	7.8	160	109	7.9
100	7.2	360	9.6	9.6	160	130	9.9
125	7.5	370	12.4	12.4	165	156	12.9
150	7.8	380	15.6	15.6	165	183	15.9
200	8.4	400	22.5	22.5	170	235	23
250	9	420	32.5	31.5	175	283	31.5
300	9.6	440	43.5	42.5	180	340	41
350	10.2	460	52	55	185	393	52
400	10.8	480	64	70	190	445	64
450	11.4	500	---	---	195	498	---
500	12	520	94	109	200	550	93
600	13.2	560	133	159	210	655	129
700	14.4	600	171	194	220	760	172
800	15.6	600	226	245	230	865	223
900	16.8	600	272	295	240	970	282
1000	18	600	328	369	250	1075	349
1100	19.2	600	---	---	260	1180	---
1200	20.4	600	456	520	270	1285	560
1400	22.8	710	664	732	340	1477	816
1500	24	750	---	---	350	1580	---
1600	25.2	780	922	1024	360	1683	1094
1800	27.6	850	1196	1322	380	1889	1427
2000	30	920	1534	1687	400	2095	1818
2200	32.4	990	1948	2115	420	2301	2272
2400	34.8	1060	24.9	2711	440	2507	2794
2600	37.2	1130	2118	3153	460	2713	3390



### Double socket 90 (1/4) bends

See figure 4 and table 3

Figure (4)



### Double socket 45 (1/8) bends

See figure 5 and table 3

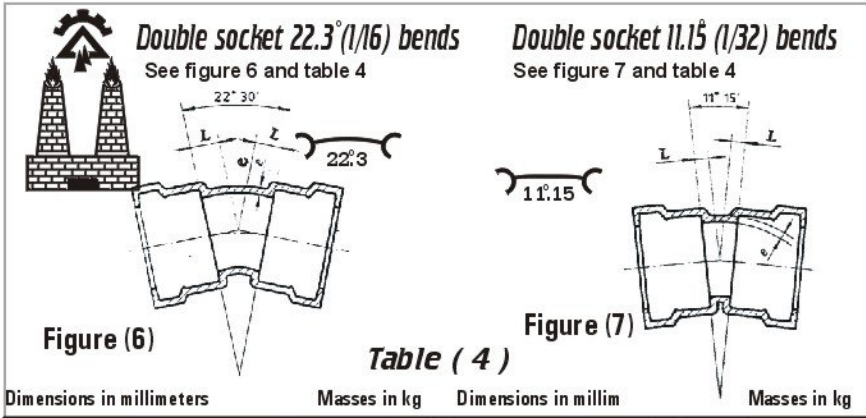
Figure (5)

Dimensions in millimeters

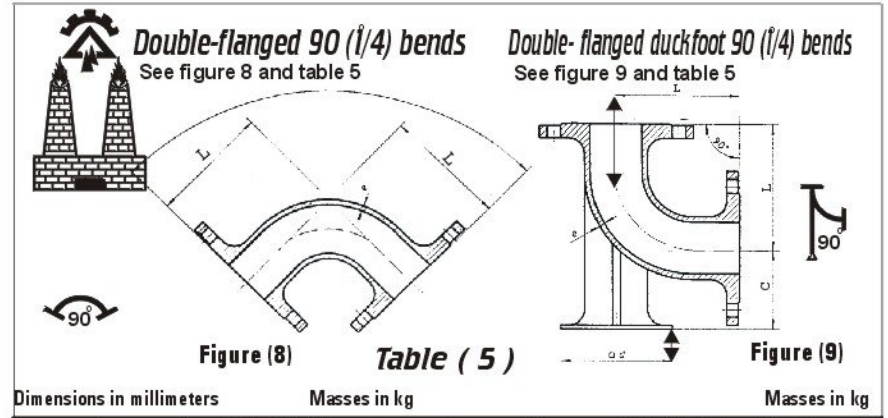
Masses in kg

Masses in kg

Dn	e	90° (1/4) bends		45° (1/8) bends	
		L	Kg.	L	Kg.
50	7	70	5.3	40	5
60	7	80	6.3	45	5.3
65	7	85	6.9	50	6.3
80	7	100	8.6	55	7.7
100	7	120	11.4	65	10.1
125	7.2	145	15.7	75	13.6
150	7.5	170	20.5	85	17.4
200	7.8	220	33	110	27
250	8.4	270	48.5	130	38.5
300	9	320	68	150	53
350	9.6	---	---	175	70
400	10.2	---	---	195	89
450	10.8	---	---	220	---
500	11.4	---	---	240	139
600	12	---	---	285	2.2
700	13.2	---	---	330	282
800	14.4	---	---	370	375
900	15.6	---	---	415	496
1000	16.8	---	---	460	635
1100	18	---	---	505	---
1200	19.2	---	---	550	986
1400	20.4	---	---	515	1273
1500	22.8	---	---	540	---
1600	24	---	---	540	---
1600	25.2	---	---	565	1740
1800	27.6	---	---	610	2296
2000	30	---	---	660	2970
2200	32.4	---	---	710	3762
2400	34.8	---	---	755	4665
2600	37.2	---	---	805	5721



Dn	e	22.30 (1/16)bends		11.15 (1/32)bends	
		L	Kg.	L	Kg.
40		30	3.8	25	3.7
50	7	30	4.8	25	4.7
60	7	35	5.5	25	5.4
65	7	35	6	25	5.9
80	7	40	7.3	30	7.1
100	7	40	9.3	30	8.9
125	7.2	50	12.6	35	11.9
150	7.5	55	15.9	35	14.8
200	7.8	65	24	40	22
250	8.4	75	33.5	50	30.5
300	9	85	44.5	55	40.5
350	9.6	95	58	60	52
400	10.2	110	74	65	62
450	10.8	120	---	70	---
500	11.4	130	111	75	96
600	12	150	157	85	134
700	13.2	175	217	95	181
800	14.4	195	287	110	239
900	15.6	220	373	120	305
1000	16.8	240	470	130	381
1100	18	260	---	140	---
1200	19.2	285	716	150	568
1400	20.4	260	933	130	747
1500	22.8	270	---	140	---
1600	24	280	1251	140	1007
1800	25.2	305	1663	155	1331
2000	27.6	330	2144	165	1702
2200	30	330	2707	190	2183
2400	32.4	355	3359	205	2709
2600	34.8	380	4087	215	3290



Dn	e	90° (1/4)bends			L	C	90° (1/4)duckfoot bends		
		L	Kg.				d	Kg.	
			Pn 10	Pn 16				Pn 10	Pn 16
40	7	140	5.2	5.2	---	---	---	---	
50	7	150	6.5	6.5	150	95	150	9.1	
60	7	160	7.3	7.3	160	100	160	10.1	
65	7	165	8.2	8.2	165	100	165	11.5	
80	7	165	9.6	9.6	165	110	180	14.1	
100	7.2	180	11.9	11.9	180	125	200	17.3	
125	7.5	200	15.6	15.6	200	140	225	23.5	
150	7.8	220	20	20	220	160	250	30	
200	8.4	260	31	30.5	260	190	300	46.5	
250	9	350	50	49.5	350	225	350	75	
300	9.6	400	70	70	400	255	400	106	
350	10.2	450	90	96	450	290	450	139	
400	10.8	500	116	127	500	320	500	178	
450	11.4	550	---	---	550	355	550	---	
500	12	600	181	211	600	385	600	383	
600	13.2	700	272	325	700	450	700	428	
700	14.4	800	386	416	---	---	---	---	
800	15.6	900	533	533	---	---	---	---	
900	16.8	1000	698	745	---	---	---	---	
1000	18	1100	907	990	---	---	---	---	

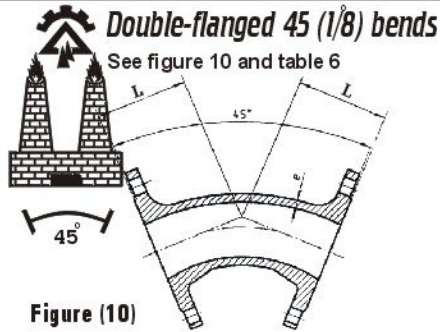


Figure (10)

Table (6)

Dimensions in millimeters      Masses in kg

Dn	e	45° (1/8) bends		
		L	Kg.	
			Pn 10	Pn 16
40	7	140	4.5	4.5
50	7	150	5.6	5.6
60	7	160	6.1	6.1
65	7	165	6.9	6.9
80	7	130	9.3	9.3
100	7.2	140	11.3	11.3
125	7.5	150	14.6	14.6
150	7.8	160	18.5	18.5
200	8.4	180	27.5	27
250	9	350	55	54
300	9.6	400	78	77
350	10.2	300 <sup>(1)</sup>	76	83
400	10.8	325 <sup>(1)</sup>	96	107
450	11.4	350	---	---
500	12	375	145	175
600	13.2	425 <sup>(1)</sup>	212	266
700	14.4	480 <sup>(1)</sup>	299	326
800	15.6	530 <sup>(1)</sup>	403	442
900	16.8	580 <sup>(1)</sup>	519	567
1000	18	630 <sup>(1)</sup>	668	751
1100	19.2	695	---	---
1200	20.4	750	1050	1178
1400	22.3	775	1388	1524
1500	24	810	---	---
1600	25.2	845	1915	2219
1800	27.6	910	2465	2717
2000	30	980	3149	3455
2200	32.4	880	3446	3804
2400	34.8	945	4277	4719
2600	37.2	1005	5175	5695

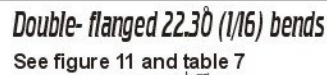


Figure (11)

Table (7)

Masses in kg

Dn	e	90° (1/16) bends		
		L	Kg.	
			Pn 10	Pn 16
80	7	130	9.5	9.5
100	7.2	140	11.9	11.9
125	7.5	150	26	26
150	7.8	160	19.7	19.7
200	8.4	180	29	27.5
250	9	350	41.5	41
300	9.6	400	60	59
350	10.2	298	76	81.5
400	10.8	324	98.5	108
500	12	375	149	177
600	13.2	426	219	269
700	14.4	478	300	330
800	15.6	529	408	447
900	16.8	581	526	578
1000	18	632	677	760

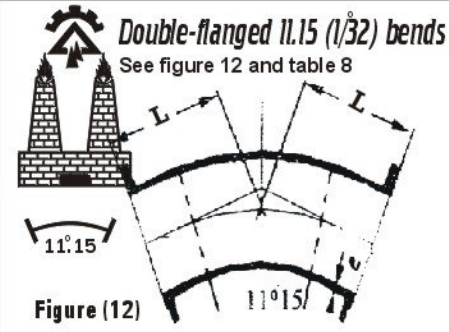


Figure (12)

Table (8)

Dimensions in millimeters      Masses in kg

Dn	e	11.15 (1/32) bends		
		L	Kg.	
			Pn 10	Pn 16
80	7	130	9.5	9.5
100	7.2	140	11.9	11.9
125	7.5	225	26	26
150	7.8	160	19.7	19.7
200	8.4	180	26	25
250	9	210	41.5	41
300	9.6	255	60	59.5
350	10.2	598	79	84.5
400	10.8	324	99	109
500	12	375	150	178
600	13.2	426	217	270
700	14.4	478	301	331
800	15.6	529	412	449
900	16.8	581	529	577
1000	18	632	681	764



Figure (13)

Table (9)

Dimensions in millimeters      Masses in kg

DN x dn	e <sub>1</sub>	e <sub>2</sub>	L	Kg.	
				Pn 10	Pn 16
				50x40	7
60x50	7	7	160	5.9	5.9
65x50	7	7	200	6.7	6.7
80x60	7	7	200	7.5	7.5
80x65	7	7	200	7.9	7.9
100x80	7.2	7	200	7.3	9.3
125x100	7.5	7.2	200	11.3	11.3
150x125	7.8	7.5	200	14	14
200x150	8.4	7.8	300	22	21.5
250x200	9	8.4	300	31.5	29.5
300x250	9.6	9	300	40.5	38.5
350x300	10.2	9.6	300	49.5	52
400x350	10.8	10.2	300	58	67
450x400	11.4	10.8	300	---	---
500x400	12	10.8	600	110	130
600x500	13.2	12	600	149	190
700x600	14.4	13.2	600	195	236
800x700	15.6	14.4	600	250	285
900x800	16.8	15.6	600	308	352
1000x900	18	16.8	600	373	348
1100x1000	19.2	18	600	---	---
1200x1000	20.4	18	790	586	692
1400x1200	22.8	20.4	850	814	947
1500x1400	24	22.8	695	---	---
1600x1400	25.2	22.8	910	1103	1273
1800x1600	27.6	25.2	970	1436	1664
2000x1800	30	27.6	1030	1800	2079
2200x2000	32.4	30	1090	2250	2570
2400x2200	34.8	32.4	1150	2765	3134
2600x2400	37.2	34.8	1210	3311	3748



### Double - socket tapers

See figure 14 and table 10

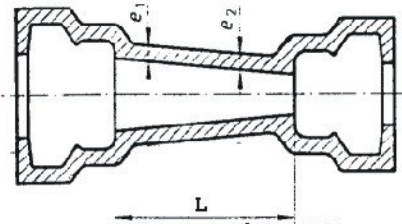


Figure (14)

Table ( 10 )

Dimensions in millimeters					Masses in kg				
DN x dn	e <sub>1</sub>	e <sub>2</sub>	L	Kg.	DN x dn	e <sub>1</sub>	e <sub>2</sub>	L	Kg.
50x40	7	7	70	4.2	600x400	13.2	10.8	460	142
60x50	7	7	70	5.2	600x500	13.2	12	260	131
65x50	7	7	80	5.7					
80x40	7	7	—	—	700x500	14.4	12	480	194
80x60	7	7	90	7.1	700x600	14.4	13.2	280	178
80x65	7	7	80	6.6					
100x60	7.2	7	—	—	800x600	15.6	13.2	480	252
100x80	7.2	7	90	8.5	800x700	15.6	14.4	280	229
125x60	7.5	7	—	—					
125x80	7.5	7	140	10.8	900x700	16.8	14.4	480	318
125x100	7.5	7.2	100	11.1	900x800	16.8	15.6	280	288
150x80	7.8	7	190	13.5					
150x100	7.8	7.2	150	13.8	1000x800	18	15.6	480	392
150x125	7.8	7.5	100	14.1	1000x900	18	16.8	280	354
200x100	8.4	7.2	250	20.5					
200x125	8.4	7.5	200	20.5	1100x1000	19.2	18	280	—
200x150	8.4	7.8	150	21	1200x1000	20.4	18	480	570
250x125	9	7.5	300	29					
250x150	9	7.8	250	29	1400x1200	22.8	20.4	360	711
250x200	9	8.4	150	29	1500x1400	24	22.8	260	—
300x150	9.6	7.8	350	39.5					
300x200	9.6	8.4	250	39.5	1600x1400	25.2	22.8	360	951
300x250	9.6	9	150	38.5	1800x1600	27.6	25.2	360	1235
350x200	10.2	8.4	360	52					
350x250	10.2	9	260	51	2000x1800	30	27.6	360	1266
350x300	10.2	9.6	160	49.5	2200x2000	32.4	30	360	1948
400x250	10.8	9	360	66					
400x300	10.8	9.6	260	64					
400x350	10.8	10.2	160	62					
450x350	11.4	10.2	260	—					
450x400	11.4	10.8	160	—					
500x350	12	10.2	360	98					
500x400	12	10.8	260	94	2400x2200	34.8	32.4	360	2374
					2600x2400	37.2	34.8	360	2877



### All-socket tees

See figure 15 and table 11

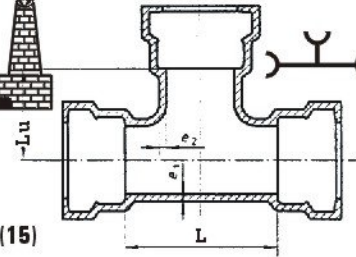


Figure (15)

Table ( 11 )

DN x dn	Body		Branch		
	e <sub>1</sub>	L	e <sub>2</sub>	Lu	Kg.
40x40	7	120	7	60	4.5
50x50	7	130	7	65	5.6
60x60	7	145	7	70	6.9
65x65	7	150	7	75	7.5
80x40	7	120	7	80	10.5
80x80	7	170	7	85	12
100x40	7.2	120	7	90	12
100x60	7.2	145	7	90	13.8
100x80	7.2	170	7	95	14.8
100x100	7.2	190	7.2	95	16.1
125x40	7.5	125	7	100	15.3
125x80	7.5	170	7	105	22
125x100	7.5	195	7.2	110	—
125x125	7.5	225	7.5	110	—
150x40	7.8	125	7	115	18.7
150x80	7.8	170	7	120	21.5
150x100	7.8	195	7.2	120	23.5
150x150	7.8	255	7.8	125	28
200x40	8.4	130	7	140	26.4
200x80	8.4	175	7	145	30
200x100	8.4	200	7.2	145	32
200x150	8.4	255	7.8	150	37
200x200	8.4	315	8.4	155	43
250x80	9	180	7	170	—
250x100	9	200	7.2	170	—
250x150	9	260	7.8	175	—
250x200	9	315	8.4	180	—
250x250	9	375	9	190	66
300x100	9.6	205	7.2	195	—
300x150	9.6	260	7.8	200	—
300x200	9.6	320	8.4	205	—
300x250	9.6	375	9	210	—
300x300	9.6	435	9.6	220	98

### Double - socket tees with flanged branch, DN 40 to DN 250

See figure 16 and table 12

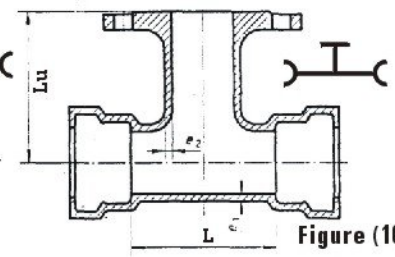


Figure (16)

Table ( 12 )

DN x dn	Body		Branch		Kg.	
	e <sub>1</sub>	L	e <sub>2</sub>	Lu	Pn 10	Pn 16
40x40	7	120	7	130	6.9	6.9
50x50	7	130	7	140	8.6	8.5
60x40	7	—	7	—	—	—
60x60	7	—	7	—	—	—
60x60	7	145	7	150	10	9.9
65x40	7	—	7	—	—	—
65x65	7	150	7	150	10.9	10.8
80x40	7	—	7	—	—	—
80x60	7	—	7	—	—	—
80x80	7	170	7	165	13.5	13.5
100x40	7.2	—	7	—	—	—
100x60	7.2	—	7	—	—	—
100x80	7.2	170	7	175	15.8	15.8
100x100	7.2	190	7.2	180	17.2	17.2
125x40	7.5	—	7	—	—	—
125x60	7.5	—	7	—	—	—
125x80	7.5	170	7	190	19.4	19.4
125x100	7.5	195	7.2	195	21	21
125x125	7.5	225	7.5	200	23	23
150x40	7.8	—	7	—	—	—
150x60	7.8	—	7	—	—	—
150x80	7.8	170	7	205	23	23
150x100	7.8	195	7.2	210	24.5	24.5
150x125	7.8	—	7.5	—	—	—
150x150	7.8	255	7.8	220	29.5	29.5
200x40	8.4	—	7	—	—	—
200x60	8.4	—	7	—	—	—
200x80	8.4	175	7	235	31.5	31.5
200x100	8.4	200	7.2	240	33.5	33.5
200x125	8.4	—	7.5	—	—	—
200x150	8.4	255	7.8	250	39	39
200x200	8.4	315	8.4	260	45.6	46
250x60	9	—	7	—	—	—
250x80	9	180	7	265	—	—
250x100	9	200	7.2	270	43.5	43.5
250x150	9	260	7.8	280	—	—
250x200	9	315	8.4	290	57	57
250x250	9	375	9	300	65	66

Double - socket tees with flanged branch, DN 300 to DN 700  
See figure 16 and table 13

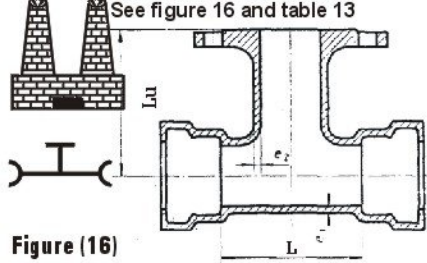


Figure (16)

Double - socket tees with flanged branch, DN 800 to DN 2600  
See figure 16 and table 14

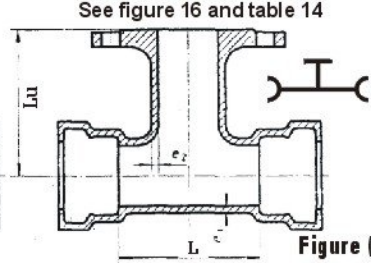


Figure (16)

Table (13) concluded

Table (14) concluded

Dimensions in millimeters

Masses in kg

Dimensions in millimeters

Masses in kg

DN x dn	Body		Branch		Kg.		DN x dn	Body		Branch		Kg.	
	e <sub>1</sub>	L	e <sub>2</sub>	Lu	Pn 10	Pn 16		e <sub>1</sub>	L	e <sub>2</sub>	Lu	Pn 10	Pn 16
300x60	9.6	----	7	----	----	----	800x200	15.6	350	8.4	585	306	306
300x80	9.6	180	7	295	----	----	800x400	15.6	580	10.8	615	398	403
300x100	9.6	205	7.2	300	55	55	800x600	15.6	1045	13.2	645	579	605
300x150	9.6	260	7.8	310	----	----	800x800	15.6	1045	15.6	675	623	642
300x200	9.6	320	8.4	320	71	70	900x200	16.8	355	8.4	645	379	379
300x250	9.6	----	9	----	----	----	900x400	16.8	590	10.8	675	490	495
300x300	9.6	435	9.6	340	89	91	900x600	16.8	1170	13.2	705	748	774
350x60	10.2	----	7	----	----	----	900x900	16.8	1170	16.8	750	814	838
350x80	10.2	----	7	----	----	----	1000x200	18	360	8.4	705	462	462
350x100	10.2	205	7.2	330	68	68	1000x400	18	595	10.8	735	591	596
350x150	10.2	----	7.8	----	----	----	1000x600	18	1290	13.2	765	947	973
350x200	10.2	325	8.4	350	86	86	1000x1000	18	1290	18	825	1044	1086
350x250	10.2	----	9	----	----	----	1100x400	19.2	600	10.8	795	----	----
350x350	10.2	495	10.2	380	117	120	1100x600	19.2	830	13.2	825	----	----
400x80	10.8	185	7	355	----	----	1200x600	20.4	840	13.2	885	1000	1027
400x100	10.8	210	7.2	360	83	83	1200x800	20.4	1070	15.6	915	1190	1210
400x150	10.8	270	7.8	370	----	----	1200x1000	20.4	1300	18	945	1406	1448
400x200	10.8	325	8.4	380	103	102	1400x600	22.8	1030	13.2	980	1478	1505
400x250	10.8	----	9	----	----	----	1400x800	22.8	1260	15.6	1010	1709	1728
400x300	10.8	440	9.6	400	----	----	1400x1000	22.8	1495	18	1040	1955	1996
400x400	10.8	560	10.8	420	150	156	1500x600	24	1035	13.2	1035	----	----
450x100	11.4	215	7.2	390	----	----	1500x1000	24	1500	18	1595	----	----
450x150	11.4	270	7.8	400	----	----	1600x600	25.2	1040	13.2	1090	1908	1934
450x200	11.4	330	8.4	410	----	----	1600x800	25.2	1275	15.6	1120	2192	2211
450x250	11.4	390	9	420	----	----	1600x1000	25.2	1505	18	1150	2480	2522
450x300	11.4	445	9.6	430	----	----	1600x1200	25.2	1740	20.4	1180	2799	2863
450x400	11.4	560	10.8	450	----	----	1800x600	27.6	1055	13.2	1200	2414	2440
450x450	11.4	620	11.4	460	----	----	1800x800	27.6	1285	15.6	1230	2748	2767
500x100	12	215	7.2	420	116	116	1800x1000	27.6	1520	18	1260	3095	3137
500x200	12	330	8.4	440	142	141	1800x1200	27.6	1750	20.4	1290	3460	3534
500x400	12	565	10.8	480	199	205	2000x600	30	1065	13.2	1310	2988	3015
500x500	12	680	12	500	232	247	2000x1000	30	1530	18	1370	3790	3832
600x200	13.2	340	8.4	500	189	189	2000x1400	30	1995	22.8	1430	4645	4713
600x400	13.2	570	10.8	540	258	263	2200x600	32.4	1080	13.2	1420	3647	3647
600x600	13.2	800	13.2	580	340	366	2200x1200	32.4	1775	20.4	1510	5056	5119
700x200	14.4	345	8.4	525	242	242	2200x1800	32.4	2470	27.6	1600	6579	6705
700x400	14.4	575	10.8	555	320	325	2400x600	34.8	1090	13.2	1530	4383	4409
700x700	14.4	925	14.4	600	460	475	2400x1200	34.8	1785	20.4	1620	6005	6069
							2400x1800	34.8	2480	27.6	1710	7734	7860
							2600x600	37.2	1100	13.2	1640	5205	5231
							2600x1400	37.2	2030	22.8	1750	7704	7772
							2600x2000	37.2	2725	30	1850	9713	9866

All - flanged tees, DN 40 to Dn 250  
See figure 17 and table 15

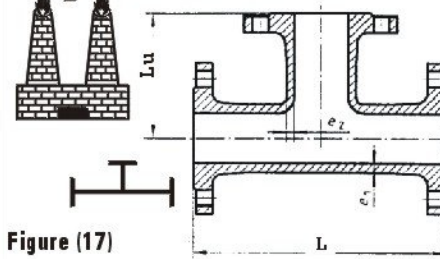


Figure (17)

All - flanged tees, DN 300 to Dn 700  
See figure 17 and table 15

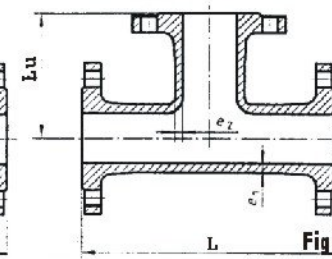


Figure (17)

Table (15)

Table (15) concluded

Dimensions in millimeters

Masses in kg

Dimensions in millimeters

Masses in kg

DN x dn	Body		Branch		Kg.		DN x dn	Body		Branch		Kg.	
	e <sub>1</sub>	L	e <sub>2</sub>	Lu	Pn 10	Pn 16		e <sub>1</sub>	L	e <sub>2</sub>	Lu	Pn 10	Pn 16
40x40	7	280	7	140	8.2	8.2	300x60	9.6	----	7	----	----	----
50x50	7	300	7	150	10.4	10.4	300x80	9.6	----	7	----	----	----
60x40	7	300	7	130	----	----	300x100	9.6	800	7.2	300	84	93
60x60	7	320	7	160	11.8	11.8	300x150	9.6	----	7.8	----	----	----
65x65	7	330	7	165	13.3	13.3	300x200	9.6	800	8.4	350	102	101
80x40	7	----	7	----	----	----	300x250	9.6	----	9	----	----	----
80x60	7	----	7	----	----	----	300x300	9.6	800	9.6	400	116	115
80x80	7	330	7	165	15.6	15.6	350x60	10.2	----	7	----	----	----
100x40	7.2	----	7	----	----	----	350x80	10.2	----	7	----	----	----
100x60	7.2	----	7	----	----	----	350x100	10.2	850	7.2	325	116	122
100x80	7.2	360	7	175	18.4	18.4	350x150	10.2	----	7.8	----	----	----
100x100	7.2	360	7.2	180	19.4	19.4	350x200	10.2	850	8.4	325	128	146
125x40	7.5	----	7	----	----	----	350x250	10.2	----	9	----	----	----
125x60	7.5	----	7	----	----	----	350x350	10.2	850	10.2	425	142	151
125x80	7.5	400	7	190	23	23	400x80	10.8	----	7	----	----	----
125x100	7.5	400	7.2	195	24	24	400x100	10.8	900	7.2	350	143	154
125x125	7.5	400	7.5	200	25.5	25.5	400x150	10.8	----	7.8	----	----	----
150x40	7.8	----	7	----	----	----	400x200	10.8	900	8.4	350	148	159
150x60	7.8	----	7	----	----	----	400x250	10.8	----	9	----	----	----
150x80	7.8	440	7	205	28.5	28.5	400x300	10.8	----	9.6	----	----	----
150x100	7.8	440	7.2	210	29.5	29.5	400x400	10.8	900	10.8	450	174	191
150x125	7.8	440	7.5	215	----	----	450x100	11.4	950	7.2	375	----	----
150x150	7.8	440	7.8	220	32.5	32.5	450x150	11.4	----	7.8	----	----	----
200x40	8.4	----	7	----	----	----	450x200	11.4	950	8.4	375	----	----
200x60	8.4	----	7	----	----	----	450x250	11.4	----	9	----	----	----
200x80	8.4	520	7	235	42	41.5	450x300	11.4	----	9.6	----	----	----
200x100	8.4	520	7.2	240	43	42	450x400	11.4	950	11.4	475	----	----
200x125	8.4	----	7.5	----	----	----	500x100	12	1000	7.2	400	210	241
200x150	8.4	520	7.8	250	46	45.5	500x200	12	1000	8.4	400	215	245
200x200	8.4	520	8.4	260	49.3	49	500x400	12	1000	10.8	500	242	276
250x60	9	----	7	----	----	----	500x500	12	1000	12	500	252	297
250x80	9	----	7	----	----	----	600x200	13.2	1100	8.4	450	305	358
250x100	9	700	7.2	275	68	68	600x400	13.2	1100	10.8	550	329	387
250x150	9	----	7.8	----	----	----	600x600	13.2	1100	13.2	550	355	434
250x200	9	700	8.4	325	76	75	700x200	14.4	650	8.4	525	258	298
250x250	9	700	9	350	82	81	700x400	14.4	870	10.8	555	343	379
							700x700	14.4	1200	14.4	600	477	523





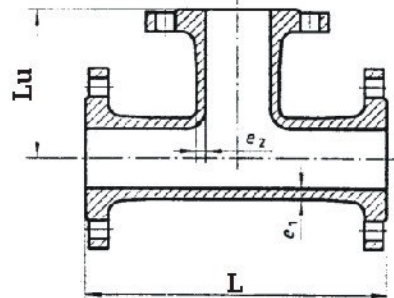
### All-flanged tees, DN 800 to Dn 2600

See figure 17 and table 15



Figure (17)

Table (15) concluded



Dimensions in millimeters

Masses in kg

Dimensions in millimeters

Masses in kg

DN x dn	Body		Branch		Kg.	
	e <sub>1</sub>	L	e <sub>2</sub>	Lu	Pn 10	Pn 16
800x200	15.6	690	8.4	585	352	390
800x400	15.6	910	10.8	615	441	484
800x600	15.6	1350	13.2	645	613	678
800x800	15.6	1350	15.6	675	657	715
900x200	16.8	730	8.4	645	436	484
900x400	16.8	950	10.8	675	541	594
900x600	16.8	1500	13.2	705	787	860
900x900	16.8	1500	16.8	750	853	924
1000x200	18	770	8.4	705	546	429
1000x400	18	990	10.8	735	668	755
1000x600	18	1650	13.2	765	1007	1116
1000x1000	18	1650	18	825	1105	1229
1100x400	19.2	980	8.4	795	---	---
1100x600	19.2	1210	13.2	825	---	---
1200x600	20.4	1240	13.2	885	1101	1256
1200x800	20.4	1470	15.6	915	1291	1439
1200x1000	20.4	1700	18	945	1494	1664
1400x600	22.8	1550	13.2	980	1555	1818
1400x800	22.8	1760	15.6	1010	1886	2041
1400x1000	22.8	2115	18	1040	2131	2201
1500x600	24	1575	13.2	1035	---	---

DN x dn	Body		Branch		Kg.	
	e <sub>1</sub>	L	e <sub>2</sub>	Lu	Pn 10	Pn 16
1500x1000	24	2040	18	1095	---	---
1600x600	25.2	1600	13.2	1090	2167	2318
1600x800	25.2	1835	15.6	1120	2452	2675
1600x1000	25.2	2065	18	1150	2740	2986
1600x1200	25.2	2300	20.4	1180	3058	3327
1800x600	27.6	1655	13.2	1200	2694	3972
1800x800	27.6	1885	15.6	1230	3023	3299
1800x1000	27.6	2120	18	1260	3375	3669
1800x1200	27.6	2350	20.4	1290	3740	4056
2000x600	30	1705	13.2	1310	3309	3642
2000x1000	30	2170	18	1370	4112	4459
2000x1400	30	2635	22.8	1430	4966	5340
2200x600	32.4	1560	13.2	1420	3675	4034
2200x1200	32.4	2220	20.4	1510	5026	5413
2200x1800	32.4	2880	27.6	1600	6474	6934
2400x600	34.8	1620	13.2	1530	4418	4894
2400x1200	34.8	2280	20.4	1620	5963	6432
2400x1800	34.8	2940	27.6	1710	7614	8145
2600x600	37.2	1680	13.2	1640	5214	5711
2600x1400	37.2	2560	22.8	1760	7585	8123
2600x2000	37.2	3220	30	1850	9505	10128



### Blank flanges PN 10

See figure 18 and table 16

### Blank flanges PN 16

See figure 18 and table 16

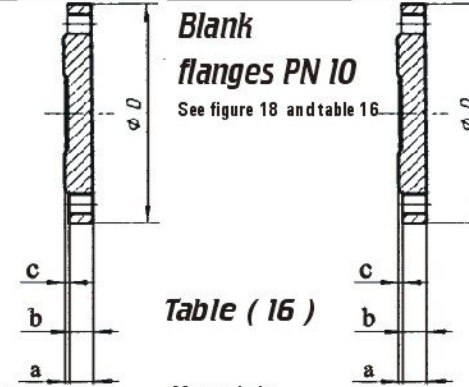


Figure (18)

Table (16)

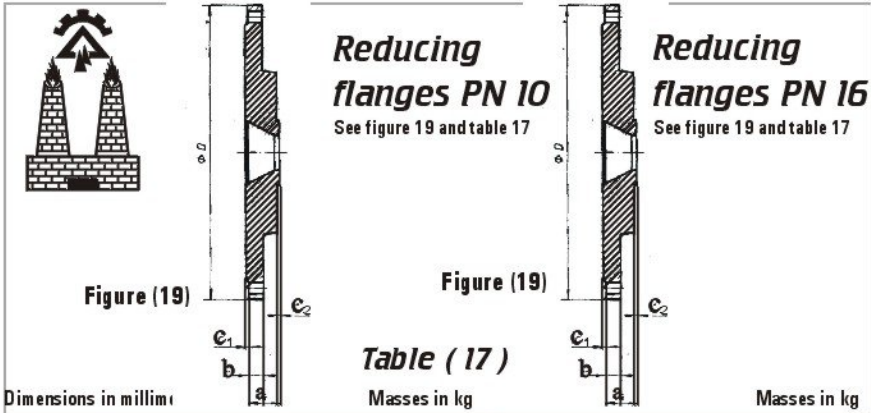
Figure (18)

Dimensions in millimeters

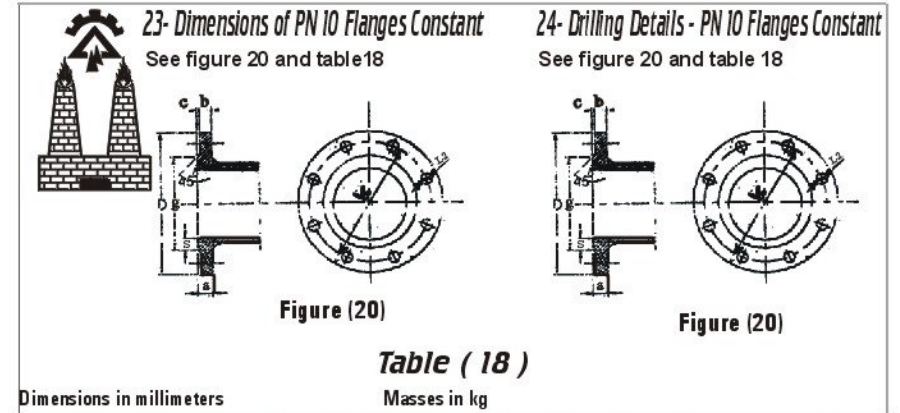
Masses in kg

Masses in kg

DN	PN 10					PN 16				
	D	a	b	c	Kg	D	a	b	c	Kg
40	150	19	16	3	2	150	19	16	3	2
50	165	19	16	3	2.4	165	19	16	3	2.4
60	175	19	16	3	2.7	175	19	16	3	2.7
65	185	19	16	3	3.1	185	19	16	3	3.1
80	200	19	16	3	3.5	200	19	16	3	3.5
100	220	19	16	3	4.5	220	19	16	3	4.3
125	250	19	16	3	5.6	250	19	16	3	5.6
150	285	19	16	3	7.2	285	19	16	3	7.2
200	340	20	17	3	11	340	20	17	3	10.8
250	400	22	19	3	16.9	400	22	19	3	16.6
300	455	24.5	20.5	4	24	455	24.5	20.5	4	23.5
350	505	24.5	20.5	4	29.5	520	26.5	22.5	4	33.5
400	565	24.5	20.5	4	36.5	580	28	24	4	44.5
450	615	25.5	21.5	4	---	640	30	26	4	---
500	670	26.5	22.5	4	56	715	31.5	27.5	4	77
600	780	30	25	5	85	840	36	31	5	121
700	895	32.5	27.5	5	123	910	38.5	34.5	5	156
800	1015	35	30	5	172	1025	42.5	33	5	218
900	1115	37.5	32.5	5	224	1125	46.5	41.5	5	286
1000	1230	40	35	6	293	1255	50	45	5	387
1100	1340	42.5	37.5	6	---	1355	53.5	48.5	5	---
1200	1455	45	40	5	575	1485	57	52	5	662
1400	1675	46	41	5	739	1685	60	55	5	994
1500	1785	47.5	42.5	5	---	1820	62.5	57.5	5	---
1600	1915	49	44	5	1239	1930	65	60	5	1409
1800	2115	52	47	5	1717	2130	70	66	5	1858
2000	2325	55	50	5	2272	2345	75	70	5	2407



DN x dn	PN 10						PN 16					
	D	a	b	C <sub>1</sub>	C <sub>2</sub>	Kg	D	a	b	C <sub>1</sub>	C <sub>2</sub>	Kg
200x80	340	40	17	3	3	13	340	40	17	3	3	13
200x100	340	40	17	3	3	13.2	340	40	17	3	3	13
200x125	340	40	17	3	3	13.5	340	40	17	3	3	13.3
350x250	505	48	20.5	4	3	32	520	54	22.5	4	3	36.5
400x250	565	48	20.5	4	3	31	580	54	24	4	3	46
400x300	565	49	20.5	4	4	38	580	55	24	4	4	44.5
700x500	895	56	27.5	5	4	102	910	67	34.5	5	4	134
900x700	1115	63	32.5	5	5	165	1125	73	41.6	5	5	200
1000x700	1230	63	35	5	5	222	1255	73	45	5	5	285
1000x800	1230	68	35	5	5	209	1255	77	45	5	5	260



DN	D	g	a	b	C	S	Kg	DN	D	K	Holes		Bolts
											No .	Diam.L2	
80	200	132	19	16	3	15	2.9	80	200	160	8	19	M16
100	220	156	19	16	3	15	3.3	100	220	180	8	19	M16
125	250	184	19	16	3	15	4	125	250	210	8	19	M16
150	285	211	19	16	3	15	4.9	150	285	240	8	23	M20
200	340	266	20	17	3	16	6.8	200	340	295	8	23	M20
250	400	319	22	19	3	17.5	9.6	250	400	350	12	23	M20
300	455	370	24.5	20.5	4	19.5	12.8	300	455	400	12	23	M20
350	505	429	24.5	20.5	4	19.5	14.1	350	505	480	16	23	M20
400	565	480	24.5	20.5	4	19.5	16.3	400	565	515	16	28	M24
500	670	582	26.5	22.5	4	21	21.8	500	670	620	20	28	M24
600	780	682	30	25	5	24	30.8	600	780	725	20	31	M27
700	895	794	32.5	27.5	5	23	40.5	700	895	840	24	31	M27
800	1015	901	35	30	5	24.5	54.8	800	1015	950	24	34	M30
900	1115	1001	37.5	32.5	5	26.5	64.3	900	1115	1050	28	34	M30
1000	1230	1112	40	35	5	28	81.4	1000	1230	1160	28	37	M33
1200	1455	1328	45	40	5	31.5	120.9	1200	1455	1380	32	40	M36
1400	1675	1530	46	41	5	32	147.8	1400	1675	1590	36	43	M39
1600	1915	1750	49	44	5	34.5	206.4	1600	1915	1820	40	49	M45
1800	2115	1950	52	47	5	36.5	236.3	1800	2115	2020	44	49	M45
2000	2325	2150	55	50	5	38.5	279.4	2000	2325	2230	48	49	M45



**Dimensions of PN 16 Flanges Constant**

See figure 21 and table 19

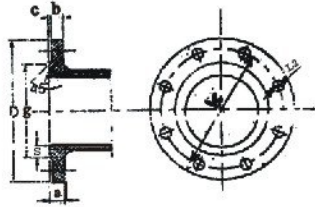


Figure (21)

**Drilling Details - PN 16 Flanges Constant**

See figure 21 and table 19

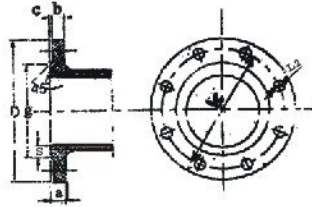


Figure (21)

**Table (19)**

Dimensions in millimeters

Masses in kg

DN	D	g	a	b	C	S	Kg	DN	D	K	Holes		Bolts
											No .	Diam.L2	
80	200	132	19	16	3	15	2.9	80	200	160	8	19	M16
100	220	156	19	16	3	15	3.3	100	220	180	8	19	M16
125	250	184	19	16	3	15	4	125	250	210	8	19	M16
150	285	211	19	16	3	15	4.9	150	285	240	8	23	M20
200	340	266	20	17	3	16	6.6	200	340	295	8	23	M20
250	400	319	22	19	3	17.5	9.2	250	400	360	12	28	M24
300	455	370	24.5	20.5	4	19.5	13.4	300	455	410	12	28	M24
350	520	429	26.5	22.5	4	21	17.2	350	520	470	16	28	M24
400	580	480	28	24	4	22.5	21.9	400	580	525	14	31	M27
500	715	609	31.5	27.5	4	25	37	500	715	650	20	43	M30
600	840	720	36	31	5	29	47.3	600	880	770	20	37	M33
700	910	794	39.5	34.5	5	27.5	55.6	700	910	840	24	37	M33
800	1025	801	43	38	5	30	74	800	1025	950	24	40	M36
900	1125	1001	46.5	41.5	5	32.5	88.2	900	1125	1050	24	40	M36
1000	1125	1112	50	45	5	35	122.9	1000	1255	1170	24	43	M39
1200	1485	1328	57	52	5	40	185.2	1200	1485	1390	32	49	M45
1400	1685	1530	60	55	5	42	215.9	1400	1685	1590	36	49	M45
1600	1930	1750	65	60	5	45.5	308.4	1600	1930	1820	40	56	M52
1800	2130	1950	70	65	5	49	362.2	1800	2130	2030	44	56	M52
2000	2345	2150	75	70	5	52.5	432.2	2000	2345	3230	48	62	M56



**Dimensions of PN 10 Flanges Free**

See figure 22 and table 20

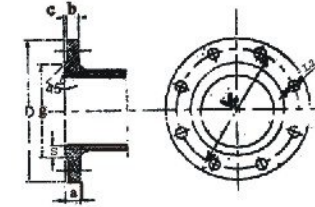


Figure (22)

**Table (20)**

Dimensions in millimeters

Masses in kg

DN	D	g	a	b	C	Kg
100	235	156	23	20	3	3.9
125	270	184	24.5	21.5	3	5.3
150	300	211	26	23	3	5.7
200	360	274	29	26	3	8.2
250	425	330	32	29	3	11.7
300	485	369	36	32	4	15.3
350	555	448	39	35	4	19.5
400	620	503	42	38	4	23.1
500	730	609	48	44	4	33
600	845	720	55	50	5	43.9

**Dimensions of - PN 16 Flanges Free**

See figure 23 and table 21

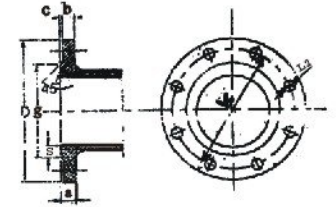


Figure (23)

**Table (21)**

Dimensions in millimeters

Masses in kg

DN	D	G	A	B	C	Kg
100	220	156	23	20	3	3.4
125	250	184	24.5	21.5	3	4.4
150	285	211	26	23	3	5.7
200	340	266	29	26	3	8.1
250	400	319	32	29	3	11.3
300	455	370	36	32	4	14.6
350	520	429	39	35	4	20.3
400	580	482	42	38	4	26.6
500	715	609	48	44	4	46
600	840	720	55	50	5	68.9

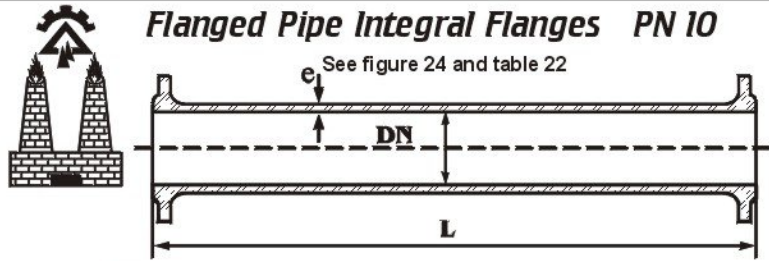


Figure (24)

Table (22)

Dimensions in millimeters

Masses in kg

Mass (Kg) including All agues for the length of mm											e	PN 10	
1000	900	800	700	600	500	400	300	250	200	150	100		DN
27	25	23	21	18.8	17	14.8	12.7	11.7	10.7	9.7	8.6	8.4	100
43	39	36	32.5	29.5	26	23	19.7	18.1	16.5	14.9	13.2	9.1	150
60	55.5	50.5	40	41.5	37	32	27.5	25.5	23	20.5	18.4	9.8	200
81	75	68.5	62.5	56.5	51	44	38	35	32	28	25.4	10.5	250
105	97	88.5	80.5	73	65	57	49.5	45.5	41.5	36.9	34	11.2	300
151	139	127	110	104	93	81	---	---	---	---	---	12.6	400
207	191	175	159	142	127	111	---	---	---	---	---	14	500
277	256	235	213	192	172	105	---	---	---	---	---	15.4	600
357	330	303	270	250	223	---	---	---	---	---	---	16.8	700
450	416	383	350	317	284	---	---	---	---	---	---	18.2	800
541	205	461	420	380	340	---	---	---	---	---	---	19.6	900
653	605	557	510	462	414	---	---	---	---	---	---	21	1000
925	858	793	728	663	598	---	---	---	---	---	---	23.8	1200
1142	---	---	---	---	---	---	---	---	---	---	---	26.6	1400
1480	---	---	---	---	---	---	---	---	---	---	---	29.4	1600
1787	---	---	---	---	---	---	---	---	---	---	---	32.2	1800

Mass (Kg) including All agues for the length of mm											E	PN 10
2000	1900	1800	1700	1600	1500	1400	1300	1200	1100		DN	
688	660	630	600	570	540	510	482	455	422	16.8	1700	
860	825	787	750	714	678	641	604	568	531	18.2	800	
1037	995	984	905	860	817	772	727	685	639	19.6	900	
1244	1195	1140	1086	1035	981	930	876	825	711	21	1000	
1729	1658	1586	1515	1445	1375	1300	1230	1157	1087	23.8	1200	
1987	---	---	---	---	---	---	---	---	---	26.6	1400	
2547	---	---	---	---	---	---	---	---	---	29.4	1600	
3101	---	---	---	---	---	---	---	---	---	32.2	1800	

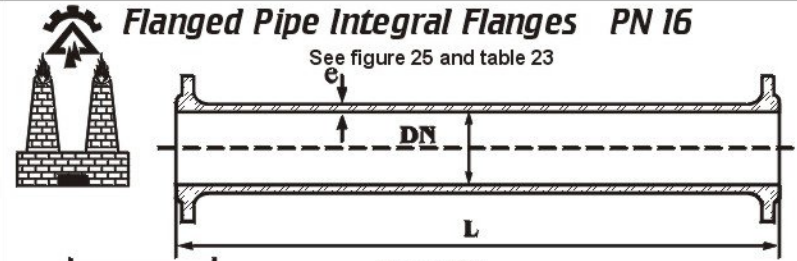


Figure (25)

Table (23)

Dimensions in millimeters

Masses in kg

Mass (Kg) including All agues for the length of mm												e	PN 10
1000	900	800	700	600	500	400	300	250	200	150	100		DN
27	25	23	21	18.8	16.8	14.8	12.7	11.7	10.7	9.7	8.6	8.4	100
425	39	40	35.5	29.5	26	23	19.7	18.1	16.5	14.9	13.2	9.1	150
65	60	55	50	41	36.5	32	27	25.5	22.5	21	18	9.8	200
95	85	75	65	60	49.5	43.5	37	34	31	28	25	10.5	250
115	105	95	85	75	65	56.5	48.5	45.5	41	36.9	33	11.2	300
170	150	140	130	120	102	91	---	---	---	---	---	12.6	400
255	225	210	195	180	160	139	---	---	---	---	---	14	500
335	310	290	275	250	225	200	---	---	---	---	---	15.4	600
395	365	340	320	275	255	---	---	---	---	---	---	16.8	700
495	462	430	395	365	325	---	---	---	---	---	---	18.2	800
610	554	515	475	435	390	---	---	---	---	---	---	19.6	900
750	685	650	600	550	500	---	---	---	---	---	---	21	1000
895	850	780	750	695	640	---	---	---	---	---	---	23.8	1200
1129	---	---	---	---	---	---	---	---	---	---	---	26.6	1400
1684	---	---	---	---	---	---	---	---	---	---	---	29.4	1600
2039	---	---	---	---	---	---	---	---	---	---	---	32.2	1800

Mass (Kg) including All agues for the length of mm											E	PN 10
2000	1900	1800	1700	1600	1500	1400	1300	1200	1100		DN	
725	695	675	630	605	595	585	515	485	451	16.8	700	
905	875	835	795	760	725	695	655	610	575	18.2	800	
1095	1050	1005	1000	920	875	845	785	745	695	19.6	900	
1345	1275	1225	1200	1130	1075	1035	975	925	885	21	1000	
1500	1435	1352	1330	1275	1250	1200	1125	1075	1025	23.8	1200	
2124	---	---	---	---	---	---	---	---	---	26.6	1400	
2571	---	---	---	---	---	---	---	---	---	29.4	1600	
3353	---	---	---	---	---	---	---	---	---	32.2	1800	



**PN 10/16 FLEXIED with threaded through bolt extending over both ends**

See figure 26 and table 24

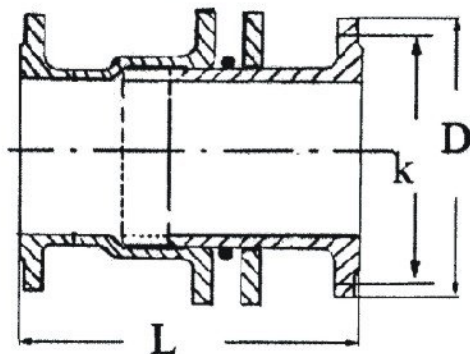


Figure (26)

**PN 10 Table ( 24 )      PN 16 Table ( 24 )**

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

Nominal Size	LI	d2	No Off Holes	K	D	MASS Kg	Nominal Size	LI	d2	No Off Holes	K	D	MASS Kg
80	350	16	8	160	200	25	80	350	16	8	160	200	25
100	350	16	8	180	220	27	100	350	16	8	180	220	27
125	350	16	8	210	250	31	125	350	16	8	210	250	31
150	350	20	8	240	285	40	150	350	20	8	240	285	40
200	350	20	8	295	340	62	200	350	20	12	295	340	62
250	350	20	12	350	395	88	250	350	24	12	355	405	88
300	350	20	12	400	445	102	300	350	24	12	410	460	102
350	350	20	16	460	505	138	350	350	24	16	470	520	138
400	350	24	16	515	565	169	400	350	27	16	525	580	169
500	400	24	20	620	670	285	500	400	30	20	650	715	285
600	400	27	20	725	780	360	600	400	33	20	770	840	360



**PN 10/16 FLEXIED with threaded through bolt extending over both ends**

See figure 27 and table 25

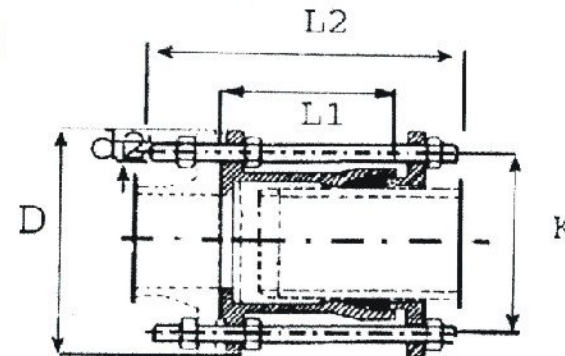


Figure (27)

**PN 10 Table ( 25 )      PN 16 Table ( 25 )**

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

Nominal Size	LI	d2	No Off Holes	K	D	MASS Kg	Nominal Size	LI	d2	No Off Holes	K	D	MASS Kg
80	140	16	8	160	200	14.5	80	140	16	8	160	200	14.5
100	140	16	8	180	220	15.5	100	140	16	8	180	220	15.5
125	140	16	8	210	250	17	125	140	16	8	210	250	17
150	140	20	8	240	285	22	150	140	20	8	240	285	22
200	140	20	12	295	340	34	200	140	20	8	295	340	34
250	140	24	12	355	405	50	250	140	20	12	350	395	50
300	150	24	12	410	460	61	300	150	20	12	400	445	57
350	160	24	16	470	520	83	350	160	20	16	460	505	78
400	160	27	16	525	580	100	400	160	24	16	515	565	92
500	170	30	20	650	715	173	500	170	24	20	620	670	155
600	150	33	20	770	840	210	600	150	27	20	725	780	180



### Flanged Socket For PVC

See figure 28 and table 26

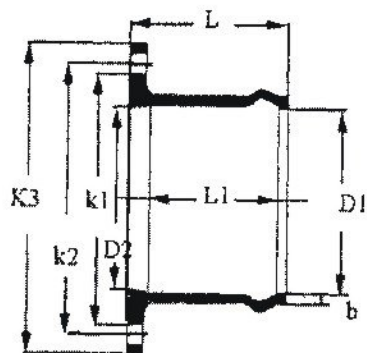


Figure (28)

Table ( 26 )

Dimensions in millimeters

Masses in kg

DN	D1	D2	L	L1	K1	K2		K3		HOLES		b	Kg
						10	16	10	16	Pn10	Pn16		
63	65.5	50	120	100	100	135	175	4	4	8	4		
75	77.3	65	120	100	115	135	185	4	4	8	4.5		
90	92.3	80	120	100	135	160	200	4	8	9	6		
110	112.6	100	125	105	150	180	220	8	8	9	7		
125	128	115	164	141	180	210	250	8	8	9.5	10		
140	143	125	145	110	185	210	250	8	8	10	10.5		
160	163.5	150	145	120	205	240	285	8	8	10	13		
200	203.5	195	184	160	263	295	340	8	12	11	19		
225	228.5	200	190	140	270	295	340	8	12	11	20		
250	253.5	235	210	175	315	350/355	395/405	12	12	12	31		
280	283.5	250	225	195	315	350/355	395/405	12	12	12	32		
315	318.5	300	242	210	355	400/410	445/460	12	12	15	43		
355	358.5	300	265	225	360	400/410	445/460	12	12	16	56		
355	358.5	330	265	225	415	460/470	505/520	16	16	16	60		
400	404	360	260	220	460	515/525	565/580	16	16	18	70		
450	454	400	290	250	470	515/525	565/580	16	16	18	77		
500	504	455	315	275	530	565/585	615/640	20	20	20	91		



### Double Socket 45° (1/16) bends for P.V.C

See figure 29 and table 27

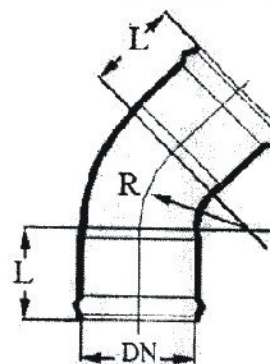


Figure (29)

Table ( 27 )

Dimensions in millimeters

Masses in kg

DN	R	L	Kg
63	50	102.0	2.8
75	60	113.0	4.0
90	80	120.5	.5
110	100	128.5	.5
125	125	133.5	10.3
140	125	139.5	13.0
160	150	149.5	17.0
200	200	165.7	26.0
225	200	186.0	36.0
250	250	204.0	43.0
280	250	208.0	49.5
315	300	219.0	70.5
355	350	227.0	88.0
400	400	234.0	120.0
500	505	244.0	165.0

### Double Socket 90° (1/4) bends for P.V.C

See figure 30 and table 28

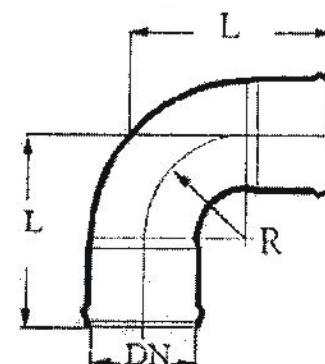


Figure (30)

Table ( 28 )

Dimensions in millimeters

Masses in kg

DN	R	L	Kg
63	50	152	3.0
75	60	173	4.5
90	80	200	5.7
110	100	228	9.2
125	125	258	11.5
140	125	264	15.5
160	150	299	21.0
200	200	365	31.5
225	200	386	39.0
250	250	454	52.0
280	250	458	53.2
315	300	519	92.5
355	350	577	110.0
400	400	634	180.0
500	505	749	245.0



**Double Socket 30°  
(1/12) bends for P.V.C**

See figure 31 and table 29

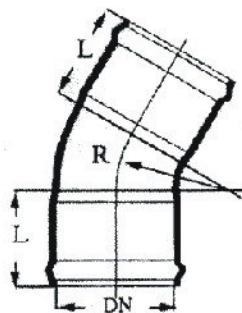


Figure (31)

Table ( 29 )

Dimensions in millimeters      Masses in kg

DN	R	L	Kg
63	50	102.0	2.7
75	60	113.0	3.7
90	80	120.5	5.0
110	100	128.5	7.1
125	125	133.5	9.2
140	125	139.5	11.5
160	150	149.5	15.9
200	200	165.7	24.4
225	200	186.0	31.4
250	250	204.0	39.6
280	250	208.0	43.0
315	300	219.0	63.1

**Double Socket 22°30'  
(1/16) bends for P.V.C**

See figure 32 and table 30

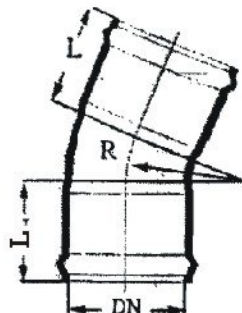


Figure (32)

Table ( 30 )

Dimensions in millimeters      Masses in kg

DN	R	L	Kg
63	50	102.0	2.5
75	60	113.0	3.3
90	80	120.5	4.8
110	100	128.5	6.5
125	125	133.5	8.8
140	125	139.5	11.0
160	150	149.5	15.0
200	200	165.7	23.0
225	200	186.0	35.0
250	250	204.0	36.0
280	250	208.0	45.5
315	300	219.0	59.5



**Double Socket 11°15' (1/32)  
bends for P.V.C**

See figure 33 and table 31

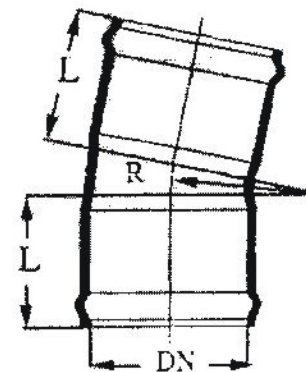


Figure (33)

Table ( 31 )

Dimensions in millimeters      Masses in kg

DN	R	L	Kg
63	50	102.0	2.5
75	60	113.0	3.0
90	80	120.5	5.0
110	100	128.5	6.5
125	125	133.5	8.5
140	125	139.5	10.1
160	150	149.5	—
200	200	165.7	20.8
225	200	186.0	32.0
250	250	204.0	33.0
280	250	208.0	41.7
315	300	219.0	54.0



### Double Socket Tees With Flanged Branch for P.V.C

See figure 34 and table 32

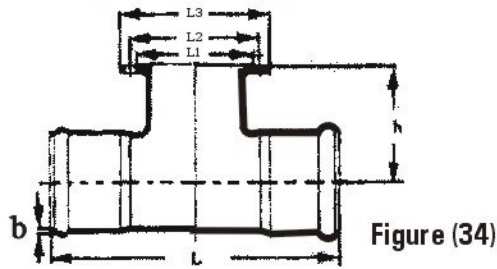


Figure (34)

**Table ( 32 )**

Dimensions in millimeters

Masses in kg

DN x dn	D1	L	h	b	L1	L2	L3	HOLES		Kg
								PN 10	PN 16	
63x50/60	65.3	280	140	8	8	125/135	175	4	4	8
75x50/60	77.3	295	151	8	8	125/135	175	4	4	8.5
90x50/60	92.3	292	160	9	8	125/135	175	4	4	9
90x80	92.3	328	165	9	9	160	200	4	8	12
110x50/60	112.5	326	172	9	8	125/135	175	4	4	13
110x80	112.5	330	172	9	9	160	200	4	8	14
110x100	112.5	355	175	9	9	180	220	8	8	16
125x50/60	128	440	233	9.5	8	125/135	175	4	4	18
125x80	128	440	233	9.5	9	160	200	4	8	18
125x100	128	440	233	9.5	9	180	220	8	8	20
125x125	128	440	235	9.5	9.5	210	250	8	8	22
140x50/60	143.3	350	190	10	8	125/135	175	4	4	17
140x80	143.3	360	200	10	9	160	200	4	8	17
140x100	143.3	370	200	10	9	180	220	8	8	18
140x125	143.3	428	202	10	9.5	210	250	8	8	22
160x50/60	163.5	376	200	10	8	125/135	175	4	4	20
160x80	163.5	376	200	10	9	160	200	4	8	21
160x100	163.5	376	202	10	9	180	202	8	8	22
160x125	163.5	473	206	10	9.5	210	250	8	8	26
160x150	163.5	473	208	10	10	240	285	8	8	30
200x50/60	203.5	480	220	11	8	125/135	175	4	4	29
200x80	203.5	480	220	11	9	160	200	4	8	30
200x100	203.5	480	230	11	9	180	220	8	8	32
200x125	203.5	480	240	11	9.5	210	250	8	8	33
200x150	203.5	530	270	11	10	240	285	8	8	35
200x200	203.5	530	270	11	11	295	340	8	12	50
225x50/60	228.5	490	230	11	8	125/135	175	4	4	36
225x80	228.5	490	230	11	9	160	200	4	8	36
225x100	228.5	490	240	11	9	180	220	8	8	39
225x125	228.5	490	260	11	9.5	210	250	8	8	41
225x150	228.5	490	270	11	10	240	285	8	8	43
225x200	228.5	530	400	11	11	295	340	8	12	55
250x50/60	253.5	535	230	12	8	125/135	175	4	4	50
250x80	253.5	535	230	12	9	160	200	4	8	50



### Double Socket Tees With Flanged Branch for P.V.C

See figure 35 and table 33

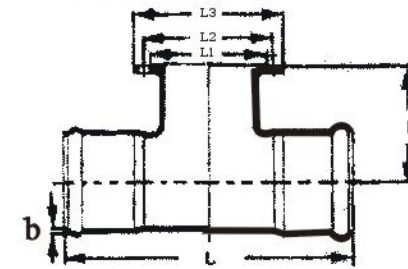


Figure (35)

**Table ( 33 ) concluded**

Dimensions in millimeters

Masses in kg

DN x dn	D1	L	h	b	L1	L2	L3	HOLES		Kg
								PN 10	PN 16	
250x100	254	535	230	12	9	180	220	8	8	50
250x125	254	535	240	12	9.5	210	250	8	8	54
250x150	254	535	240	12	10	240	285	8	8	54
250x200	254	655	250	12	11	295	340	8	12	75
250x250	254	655	250	12	12	350/355	395/405	12	12	78
280x80	284	542	240	12	9	160	200	4	8	52
280x100	284	542	240	12	9	180	220	8	8	58
280x125	284	542	240	12	9.5	210	250	8	8	62
280x150	284	542	240	12	10	240	285	8	8	66
280x200	284	710	270	12	11	295	340	8	12	75
280x250	284	710	270	12	12	350/355	395/405	12	12	77
315x80	319	490	250	9	9	160	200	4	8	55
315x100	319	490	250	9	9	180	220	8	8	57
315x125	319	490	250	9.5	9.5	210	250	8	8	61
315x150	319	490	250	10	10	240	285	8	8	62
315x200	319	600	270	11	11	295	340	8	12	110
315x250	319	600	270	12	12	350/355	295/405	12	12	110
315x300	319	600	280	9	14	400/410	445/480	12	12	110
355x100	359	600	310	9.5	9	180	220	8	8	75
355x125	359	600	310	10	9.5	210	250	8	8	76
355x150	359	600	310	11	10	240	285	8	8	77
355x200	359	480	340	12	11	295	340	8	12	105
355x250	359	480	340	14	12	350/355	395/405	12	12	115
355x300	359	480	350	9	14	400/410	400/460	12	12	122
400x100	404	710	310	9.5	9	180	220	8	8	100
400x125	404	710	310	10	9.5	210	250	8	8	102
400x150	404	710	310	11	10	240	285	8	8	105
40x200	404	880	340	12	11	295	340	8	12	118
400x250	404	880	340	12	12	350/355	395/405	12	12	125
400x300	405	880	350	14	14	400/410	455/460	12	12	135
400x350	405	880	350	14	14	460/470	505/520	16	16	140
500x100	404	710	400	9	9	180	220	8	8	150
500x125	404	710	400	9.5	9.5	210	250	8	8	154
500x150	404	710	400	10	10	240	285	8	8	158



## Double Socket Tees for P.V.C

See figure 36 and table 34

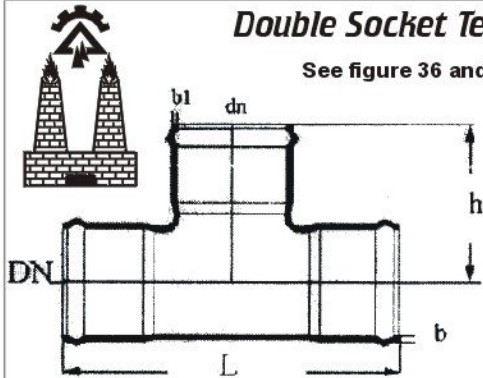


Figure (36)

Table ( 34 )

Dimensions in millimeters				Masses in kg	
DN x dn	L	h	b	B1	Kg
63x63	280	137	8	8	4.8
75x63	295	147	8	8	6
75x75	295	149	8	8	6
90x63	302	149	9	8	7.8
90x75	302	149	9	8	8.2
90x90	328	164	9	9	8.8
110x63	326	158	9	8	10
110x75	326	158	9	8	11
110x90	352	163	9	9	11
110x110	372	186	9	9	12.5
125x63	440	180	9.5	8	15
125x75	440	180	9.5	8	15
125x90	440	190	9.5	9	16
125x110	440	200	9.5	9	17
125x125	440	220	9.5	9.5	18
140x63	350	171	10	8	13
140x75	350	171	10	8	14
140x90	378	186	10	9	1
140x110	398	199	10	9	17
140x125	428	210	10	9.5	18

Dimensions in millimeters				Masses in kg	
DN x dn	L	h	b	B1	Kg
140x140	428	231	10	10	18.5
160x63	376	180	10	8	20
160x75	376	180	10	8	21
160x90	402	195	10	9	21
160x110	422	208	10	9	22
160x125	473	235	10	9.5	24
160x140	473	235	10	10	24
160x160	473	235	10	10	25
200x63-75	480	210	11	8	29
200x90	480	220	11	9	30
200x110	480	235	11	9	31
200x125	480	240	11	9.5	32
200x140	480	250	11	10	32
200x160	530	260	11	10	34
200x200	530	265	11	11	35
225x63-75	490	225	11	8	33
225x90-110	490	230	11	9	34
225x125	490	260	11	9.5	35
225x140	490	260	11	10	36
225x160	540	380	11	10	40

Dimensions in millimeters				Masses in kg	
DN x dn	L	h	b	B1	Kg
225x200	540	380	11	11	46
225x225	540	380	11	11	47
250x63-110	535	230	12	9	45
250x125-160	535	230	12	10	47
250x200-250	655	240	12	12	66
280x63-110	542	240	12	9	50
280x125-160	542	240	12	10	60
280x200-280	710	260	12	12	78
315x110-160	595	250	14	10	68
315x200-225	745	270	14	11	88
315x250-315	745	270	14	14	105
355x110-160	600	310	14	10	75
355x200-250	840	340	14	12	92
355x280-355	840	350	14	14	108
400x1100-160	710	310	16	10	100
400x200-280	880	340	16	12	110
400x315-400	880	340	16	16	150
500x110-160	710	40	18	10	150



## 6 - Cast iron Pipes and Specials for High Pressure Pipe - Lines

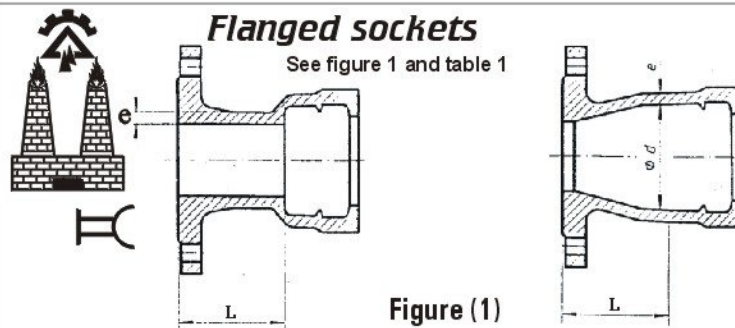


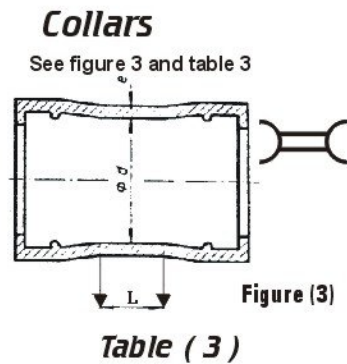
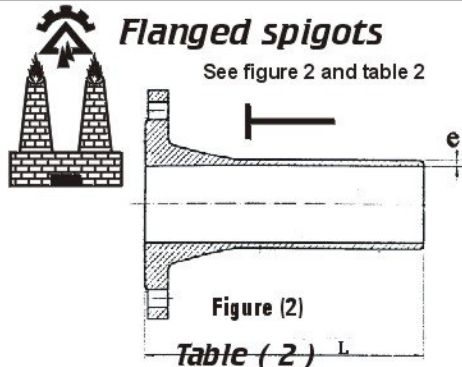
Figure (1)

Table (1)

Dimensions in millimeters

Masses in kg

Dn	e	L	Kg
60	10	150	9
80	10	150	13
100	10.5	150	16
125	11.1	150	20
150	11.7	150	26
200	12.8	150	37
250	14	300	62
300	15.2	300	79
350	16.3	300	100
400	17.5	300	123
500	19.8	300	173
600	22.2	300	234
700	24.5	300	306
800	26.8	300	391
900	29.2	300	476
1000	31.5	300	580



Dimensions in millimeters

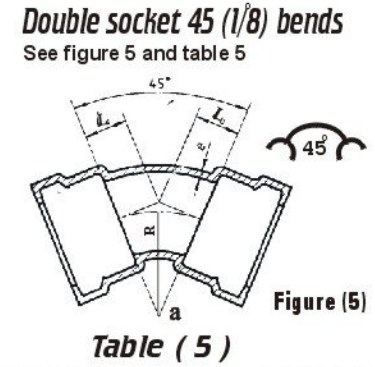
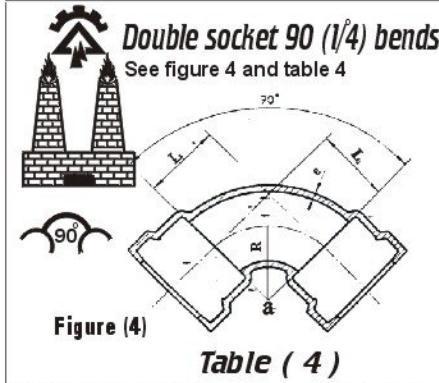
Masses in kg

Dimensions in millimeters

Masses in kg

Dn	e	L	Kg
60	10	400	9
80	10	400	12
100	10.5	400	14
125	11.1	400	19
150	11.7	400	23
200	12.8	500	39
250	14	500	53
300	15.2	500	68
350	16.3	500	58
400	17.5	500	104
500	19.8	500	146
600	22.2	600	217
700	24.5	600	295
800	26.8	600	375
900	29.2	600	455
1000	31.5	600	552

Dn	e	L	Kg
60	10	156	10
80	10.9	152	14
100	11.4	160	17
125	12	163	22
150	12.6	165	28
200	13.8	170	40
250	15	175	55
300	10.2	180	71
350	17.5	185	90
400	18.6	190	110
500	21.1	200	159
600	23.5	210	216
700	25.9	220	283
800	28.4	230	360
900	30.8	240	448
1000	33.2	250	547



Dimensions in millimeters

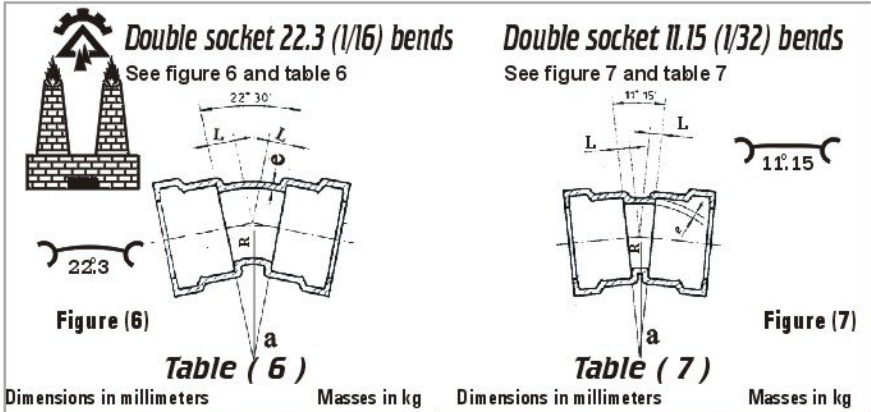
Masses in kg

Dimensions in millimeters

Masses in kg

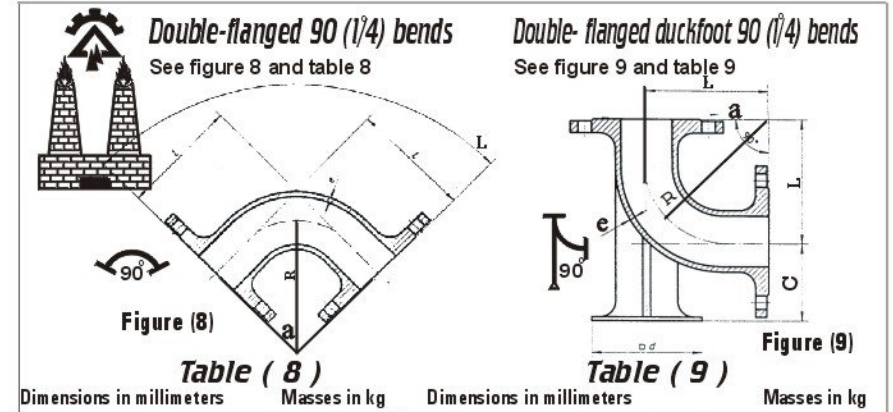
Dn	e	R	a	L	Kg
60	10	119	41	160	13
80	10	137	43	180	18
100	10.5	155	45	200	24
125	11.1	177.5	47.5	225	33
150	11.7	200	50	250	43
200	12.8	245	55	300	67
250	14	290	60	350	98
300	15.2	335	65	400	135

Dn	e	R	a	L	Kg
60	10	260	41	149	13
80	10	280	43	159	18
100	10.5	300	45	169	24
125	11.1	325	47.5	182	32
150	11.7	350	50	195	41
200	12.8	400	55	221	62
250	14	450	60	246	89
300	15.2	500	65	272	121
350	16.3	550	70	298	159
400	17.5	600	75	324	202
500	19.8	700	85	375	310
600	22.2	800	95	426	448
700	24.5	900	105	478	619
800	26.8	1000	115	529	827
900	29.2	1100	125	581	1077
1000	31.5	1200	135	632	1368



Dn	e	R	a	L	Kg
60	10	260	41	93	11
80	10	280	43	99	16
100	10.5	300	45	105	21
125	11.1	325	47.5	112	27
150	11.7	350	50	120	35
200	12.8	400	55	135	53
250	14	450	60	150	75
300	15.2	500	65	164	100
350	16.3	550	70	169	130
400	17.5	600	75	194	164
500	19.8	700	85	224	246
600	22.2	800	95	254	351
700	24.5	900	105	284	478
800	26.8	1000	115	314	632
900	29.2	1100	125	344	813
1000	31.5	1200	135	374	1024

Dn	e	R	a	L	Kg
60	10	260	41	66.5	11
80	10	280	43	71	15
100	10.5	300	45	75	19
125	11.1	325	47.5	80	25
150	11.7	350	50	84	32
200	12.8	400	55	84	48
250	14	450	60	104	67
300	15.2	500	65	114	89
350	16.3	550	70	124	115
400	17.5	600	75	134	144
500	19.8	700	85	154	215
600	22.2	800	95	174	302
700	24.5	900	105	194	408
800	26.8	1000	115	213	534
900	29.2	1100	125	233	682
1000	31.5	1200	135	253	852



Dn	e	R	a	L	Kg
60	10	119	41	160	10
80	10	137	43	180	13
100	10.5	155	45	200	17
125	11.1	177.5	47.5	225	23
150	11.7	200	50	250	31
200	12.8	245	55	300	49
250	14	290	60	350	72
300	15.2	335	65	400	100
350	16.3	380	70	450	137
400	17.5	425	75	500	180
500	19.8	515	85	600	290
600	22.2	605	95	700	442
700	24.5	695	105	800	639
800	26.8	785	115	900	890
900	29.2	875	125	1000	1179
1000	31.5	965	135	1100	1544

Dn	e	R	a	L	C	d	Kg
60	10	119	41	160	96	160	16
80	10	137	43	180	108	180	21
100	10.5	155	45	200	120	200	26
125	11.1	177.5	47.5	225	135	225	36
150	11.7	200	50	250	150	250	47
200	12.8	245	55	300	180	300	74
250	14	290	60	350	210	350	111
300	15.2	335	65	400	240	400	156
350	16.3	380	70	450	270	450	214
400	17.5	425	75	500	300	500	281
500	19.8	515	85	600	360	600	446
600	22.2	605	95	700	420	700	677
700	24.5	695	105	800			
800	26.8	785	115	900			
900	29.2	875	125	1000			
1000	31.5	965	135	1100			



### Double-flanged 45° (1/8) bends

See figure 10 and table 10

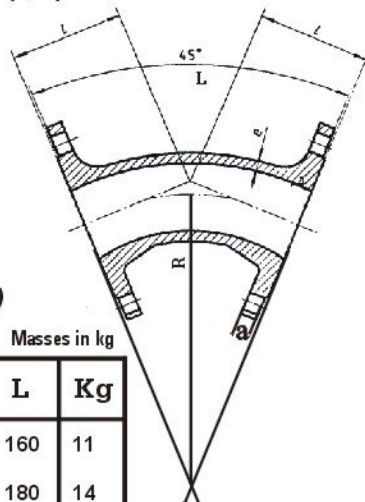


Figure (10)

Table (10)

Dimensions in millimeters

Masses in kg

Dn	e	R	a	L	Kg
60	10	287	41	160	11
80	10	331	43	180	14
100	10.5	374	45	200	18
125	11.1	429	47.5	225	25
150	11.7	483	50	250	34
200	12.8	591	55	300	54
250	14	700	60	350	80
300	15.2	809	65	400	112
350	16.3	550	70	298	115
400	17.5	600	75	324	149
500	19.8	700	85	375	231
600	22.2	800	95	426	342
700	24.5	900	105	478	485
800	26.8	1000	115	529	667
900	29.2	1100	125	581	677
1000	31.5	1200	135	632	1125



### Double - socket tapers

See figure 11 and table 11

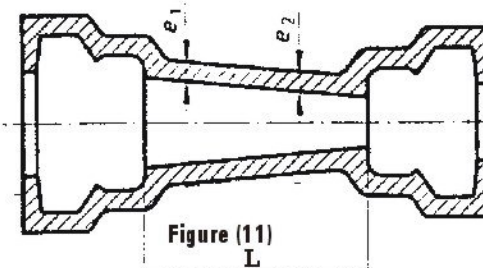


Table (11)

Figure (11)

Dimensions in millimeters

Masses in kg

Dimensions in millimeters

Masses in kg

DN x dn	e <sub>1</sub>	e <sub>2</sub>	L	Kg.	DN x dn	e <sub>1</sub>	e <sub>2</sub>	L	Kg.
80x60	10.5	10	200	15	400x250	17.5	14	600	149
100x60	10.5	10	400	21	400x300	17.5	15.2	600	164
100x80	10.5	10.5	400	24	400x350	17.5	16.3	600	181
125x60	11.1	10	400	25	500x350	19.8	16.3	600	222
125x80	11.1	10.5	400	27	500x400	19.8	17.5	600	241
125x100	11.1	10.5	400	30	600x400	22.2	17.5	600	290
150x60	11.7	10	400	29	600x500	22.2	19.8	600	332
150x80	11.7	10	400	31	700x500	24.5	19.8	600	388
150x100	11.7	10.5	400	34	700x600	24.5	22.2	600	437
150x125	11.7	11.1	400	38	800x600	26.8	22.2	600	501
200x100	12.8	10.5	400	43	800x700	26.8	24.5	600	557
200x125	12.8	11.1	400	47	900x700	29.2	24.5	600	629
200x150	12.8	11.7	400	51	900x800	29.2	26.8	600	692
250x125	14	11.1	400	58	1000x800	31.5	26.8	600	772
250x150	14	11.7	400	62	1000x900	31.5	29.2	600	843
250x200	14	12.8	400	72					
300x150	15.2	11.7	400	57					
300x200	15.2	12.8	400	84					
300x250	15.2	14	400	95					
350x200	16.3	12.8	600	117					
350x250	16.3	14	600	131					
350x300	16.3	15.2	600	146					



### Double - flanged tapers

See figure 12 and table 12

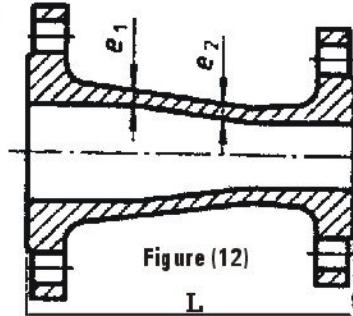


Table ( 12 )

Figure (12)

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

DN x dn	e <sub>1</sub>	e <sub>2</sub>	L	Kg.	DN x dn	e <sub>1</sub>	e <sub>2</sub>	L	Kg.
100x80	10.5	10	200	12	500x400	19.8	17.5	600	174
125x80	11.1	10	400	20	600x400	22.2	17.5	600	210
125x100	11.1	10.5	400	22	600x500	22.2	19.8	600	239
150x80	11.7	10	400	23	700x500	24.5	19.8	600	281
150x100	11.7	10.5	400	25	700x600	24.5	22.2	600	317
150x125	11.7	11.1	400	27	800x600	26.8	22.2	600	368
200x100	12.8	10.5	400	31	800x700	26.8	24.5	600	410
200x125	12.8	11.1	400	34	900x700	29.2	24.5	600	458
200x150	12.8	11.7	400	37	900x800	29.2	26.8	600	508
250x125	14	11.1	400	41	1000x800	31.5	26.8	600	570
250x150	14	11.7	400	44	1000x900	31.5	29.2	600	617
250x200	14	12.8	400	50					
300x150	15.2	11.7	400	51					
300x200	15.2	12.8	400	58					
300x250	15.2	14	400	56					
350x200	16.3	12.8	600	87					
350x250	16.3	14	600	96					
350x300	16.3	15.2	600	106					
400x250	17.5	14	600	109					
400x300	17.5	15.2	600	120					
400x350	17.5	16.3	600	132					



### All-socket tees

See figure 13 and table 13

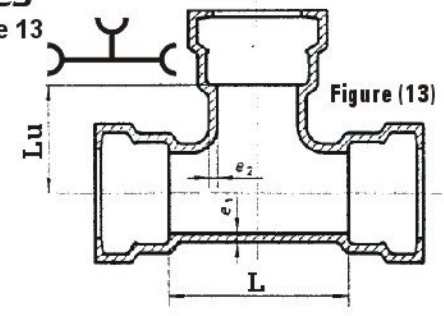


Table ( 13 )

Figure (13)

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

DN x dn	Body		Branch		Kg.	DN x dn	Body		Branch		Kg.
	e <sub>1</sub>	L	e <sub>2</sub>	Lu			e <sub>1</sub>	L	e <sub>2</sub>	Lu	
80x60	10	212	10	102	23	300x80	15.2	520	13	520	
80x80	10	212	10	106	23	300x100	15.2	520	13.5	520	
100x80	10.5	240	10.5	116	28	300x125	15.2	520	14.5	520	
100x100	10.5	240	10.5	120	30	300x150	15.2	520	15	520	
1250x80	11.1	275	11.1	128.5	36	300x200	15.2	520	15.2	520	
125x100	11.1	275	11.1	132.5	38	300x250	15.2	520	15.2	520	
125x125	11.1	275	11.1	137.5	41	300x300	15.2	520	16.3	520	
150x80	11.7	310	11.7	141	45	350x200	16.3	590	16.3	590	
150x100	11.7	310	11.7	145	47	350x250	16.3	590	16.3	590	
150x125	11.7	310	11.7	150	50	350x300	16.3	590	16.3	590	
150x150	11.7	310	11.7	155	53	350x350	16.3	590	16.3	590	
200x80	12.8	380	12.8	166	67	400x200	17.5	660	16.5	660	
200x100	12.8	380	12.8	170	69	400x250	17.5	660	17.5	660	
200x125	12.8	380	12.8	175	71	400x300	17.5	660	17.5	660	
200x150	12.8	380	12.8	180	74	400x350	17.5	660	17.5	660	
200x200	12.8	380	12.8	190	81	500x250	19.8	800	18	800	
250x80	14	450	13	191	94	500x300	19.8	800	19.5	800	
250x100	14	450	13.5	195	96	500x350	19.8	800	19.8	800	
250x125	14	450	14	200	99	500x400	19.8	800	19.8	800	
250x150	14	450	14	205	102	500x500	19.8	800	19.8	800	
250x200	14	450	14	215	108	600x300	22.2	940	19.5	940	
250x250	14	450	14	225	116	600x350	22.2	940	21	940	
						600x400	22.2	940	22.2	940	
						600x500	22.2	940	22.2	940	
						600x600	22.2	940	22.2	940	



### Double - socket tees with flanged branch,

See figure 14 and table 14

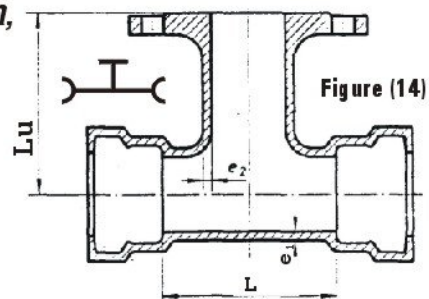


Figure (14)

Table (14)

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

DN x dn	Body		Branch		Kg.	DN x dn	Body		Branch		Kg.
	e <sub>1</sub>	L	e <sub>2</sub>	Lu			e <sub>1</sub>	Lu	e <sub>2</sub>	L	
60x60	10	184	10	160	18	200x200	12.8	380	12.8	250	76
80x60	10.5	212	10.5	180	20	250x60	14	450	12.8	275	93
80x80	10.5	212	10.5	180	22	250x80	14	450	13	275	94
100x60	10.5	240	10.5	200	27	250x100	14	450	13.5	275	95
100x80	10.5	240	10.5	200	28	250x125	14	450	14	275	97
100x100	10.5	240	10.5	200	29	250x150	14	450	14	275	99
125x60	11.1	275	11.1	212.5	34	250x200	14	450	14	275	103
125x80	11.1	275	11.1	212.5	36	250x250	14	450	14	275	107
125x100	11.1	275	11.1	212.5	37	300x60	15.2	520	12.8	300	125
125x125	11.1	275	11.1	212.5	39	300x80	15.2	520	13	300	128
150x60	11.7	310	11.7	225	43	300x100	15.2	520	13.5	300	129
150x80	11.7	310	11.7	225	45	300x125	15.2	520	14.5	300	131
150x100	11.7	310	11.7	225	46	300x150	15.2	520	15	300	133
150x125	11.7	310	11.7	225	48	300x200	15.2	520	15.2	300	137
150x150	11.7	310	11.7	225	50	300x250	15.2	520	15.2	300	141
200x60	12.8	380	12.8	250	66	300x300	15.2	520	15.2	400	156
200x80	12.8	380	12.8	250	67						
200x100	12.8	380	12.8	250	68						
200x125	12.8	380	12.8	250	70						
200x150	12.8	380	12.8	250	72						



### Double - socket tees with flanged branch,

See figure 14 and table 14

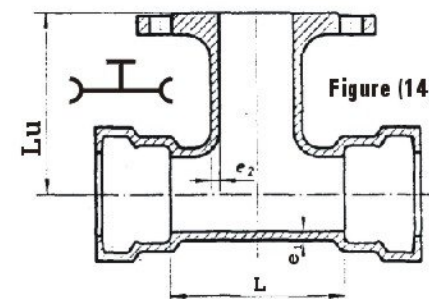


Figure (14)

Table (14) concluded

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

DN x dn	Body		Branch		Kg.	DN x dn	Body		Branch		Kg.
	e <sub>1</sub>	L	e <sub>2</sub>	Lu			e <sub>1</sub>	L	e <sub>2</sub>	Lu	
350x200	16.3	590	16.3	325	178	700x500	24.5	1080	24.5	600	755
350x250	16.3	590	16.3	325	182	700x600	24.5	1080	24.5	600	772
350x300	16.3	590	16.3	325	197	700x700	24.5	1080	24.5	600	793
350x350	16.3	590	16.3	325	204	800x400	26.8	1220	22.5	650	978
400x200	17.5	660	17.5	350	225	800x500	26.8	1220	25.5	650	997
400x250	17.5	660	17.5	350	230	800x600	26.8	1220	26.8	650	1017
400x300	17.5	660	17.5	350	246	800x700	26.8	1220	26.8	650	1036
400x350	17.5	660	17.5	350	253	800x800	26.8	1220	26.8	650	1062
400x400	17.5	660	17.5	350	261	900x500	29.2	1360	25.5	700	1290
500x250	19.8	800	18.8	400	348	900x600	29.2	1360	28.5	700	1313
500x300	19.8	800	19.5	500	367	900x700	29.2	1360	29.2	700	1334
500x350	19.8	800	19	500	375	900x800	29.2	1360	29.2	700	1357
500x400	19.8	800	19.8	500	382	900x900	29.2	1360	29.2	700	1374
500x500	19.8	800	19.8	500	397	1000x500	31.5	1500	25.5	750	1639
600x350	22.2	940	19.5	550	500	1000x600	31.5	1500	28.5	750	1660
600x400	22.2	940	21	550	522	1000x700	31.5	1500	31.5	750	1689
600x500	22.2	940	22.2	550	542	1000x800	31.5	1500	31.5	750	1711
600x600	22.2	940	22.2	550	556	1000x900	31.5	1500	31.5	750	1727
700x350	24.5	1080	21	600	728	1000x1000	31.5	1500	31.5	750	1756
700x400	24.5	1080	22.5	600	731						



### All- flanged tees

See figure 15 and table 15

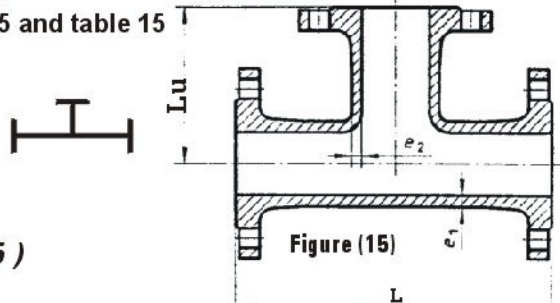


Table ( 15 )

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

DN x dn	Body		Branch		Kg.	DN x dn	Body		Branch		Kg.
	e <sub>1</sub>	L	e <sub>2</sub>	Lu			e <sub>1</sub>	L	e <sub>2</sub>	Lu	
60X60	10	320	10	160	21	250X60	14	700	12.8	255	89
80X60	10	360	10	170	21	250X80	14	700	13	265	89
80X80	10	360	10	180	21	250X100	14	700	13.5	275	90
100X60	10.5	400	10.5	180	24	250X125	14	700	14	287.5	93
100X80	10.5	400	10.5	190	25	250X150	14	700	14	300	96
100X100	10.5	400	10.5	200	26	250X200	14	700	14	325	102
125X60	11.1	450	11.1	192.2	32	250X250	14	700	14	350	109
125X80	11.1	450	11.1	202.5	32	300X80	15.2	800	13	290	122
125X100	11.1	450	11.1	212.5	34	300X100	15.2	800	13.5	300	124
125X125	11.1	450	11.1	225	36	300X125	15.2	800	14.5	312.5	126
150X60	11.7	500	11.7	205	40	300X150	15.2	800	15	325	129
150X80	11.7	500	11.7	215	41	300X200	15.2	800	15.2	350	136
150X100	11.7	500	11.7	225	42	300X250	15.2	800	15.2	375	143
150X125	11.7	500	11.7	237.5	45	300X300	15.2	800	15.2	400	151
150X150	11.7	500	11.7	250	47	350X200	16.3	850	16.3	325	169
200X60	12.8	600	12.8	230	61	350X250	16.3	850	16.3	325	173
200X80	12.8	600	12.8	240	62	350X300	16.3	850	16.3	425	188
200X100	12.8	600	12.8	250	63	350X350	16.3	850	16.3	425	195
200X125	12.8	600	12.8	262.5	66	400X200	17.5	900	16.5	350	211
200X150	12.8	600	12.8	275	68	400X250	17.5	900	17.5	350	215
200X200	12.8	600	12.8	300	74	400X300	17.5	900	17.5	450	232



### All- flanged tees

See figure 15 and table 15

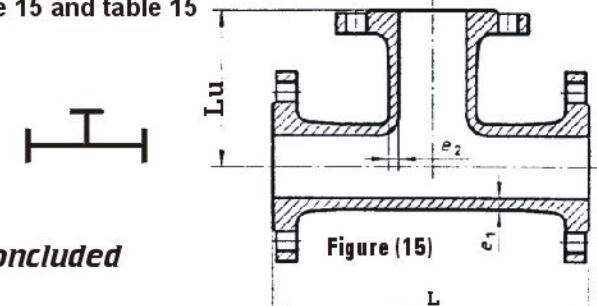


Table ( 15 ) concluded

Dimensions in millimeters      Masses in kg      Dimensions in millimeters      Masses in kg

DN x dn	Body		Branch		Kg.	DN x dn	Body		Branch		Kg.
	e <sub>1</sub>	L	e <sub>2</sub>	Lu			e <sub>1</sub>	L	e <sub>2</sub>	Lu	
400x350	17.5	900	17.5	450	239	800x400	26.8	1300	22.5	650	858
400x400	17.5	900	17.5	450	246	800x500	26.8	1300	25.5	650	897
500x250	19.8	1000	18	400	315	800x600	26.8	1300	26.8	650	897
500x300	19.8	1000	19.5	500	334	800x700	26.8	1300	26.8	650	911
500x350	19.8	1000	19.8	500	342	800x800	26.8	1300	26.8	650	941
500x400	19.8	1000	19.8	500	349	900x500	29.2	1400	25.5	700	1106
500x500	19.8	1000	19.8	500	363	900x600	29.2	1400	28.5	700	1128
600x300	22.2	1100	19.5	550	466	900x700	29.2	1400	29.2	700	1149
600x350	22.2	1100	21	550	475	900x800	29.2	1400	29.2	700	1173
600x400	22.2	1100	22.2	550	485	900x900	29.2	1400	19.2	700	1190
600x500	22.2	1100	22.2	550	499	1000x500	31.5	1500	25.5	750	1396
600x600	22.2	1100	22.2	550	516	1000x600	31.5	1500	28.5	750	1418
700x350	24.5	1200	21	600	642	1000x700	31.5	1500	31.5	750	1446
700x400	24.5	1200	22.5	600	691	1000x800	31.5	1500	31.5	750	1468
700x500	24.5	1200	24.5	600	669	1000x900	31.5	1500	31.5	750	1484
700x600	24.5	1200	24.5	600	686	1000x1000	31.5	1500	31.5	750	1513
700x700	24.5	1200	24.5	600	707						



**All-tees with flanges**  
See figure 16 and table 16

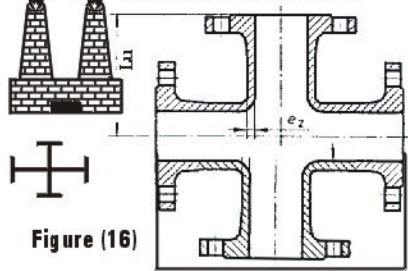


Figure (16)

Table (16)

Dimensions in millimeters      Masses in kg

DN	Lu	L	e	Kg
80	180	360	10	27
100	200	400	10.5	34
125	250	500	11.1	48
200	300	600	11.8	93
250	350	700	14	135
300	400	800	15.2	186

**All-socket tees**  
See figure 17 and table 17

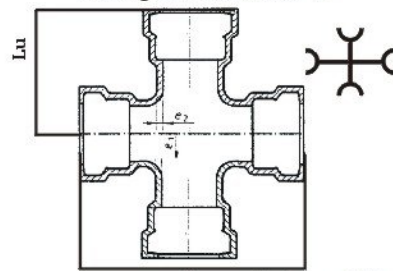


Figure (17)

Table (17)

Dimensions in millimeters      Masses in kg

DN	Lu	L	e	Kg
60	92	184	10	21
80	106	212	10	30
100	120	240	10.5	39
125	137.5	275	11.1	52
150	155	310	11.7	67
200	190	380	12.8	102
250	225	450	14	145
300	260	520	15.2	197

**Blank - flanges**  
See figure 18 and table 18

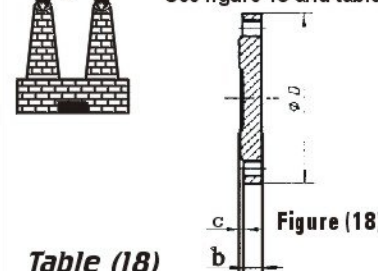


Figure (18)

Table (18)

Dimensions in millimeters      Masses in kg

DN	D	a	b	C	Kg
60	175	23	20	3	4
80	200	24	21	3	5
100	220	25	22	3	6
125	250	25.5	22.5	3	8
150	285	26	23	3	11
200	340	27.5	24.5	3	16
250	395	29	26	3	23
300	445	31.5	27.5	4	32
350	505	33	29	4	43
400	565	34	30	4	55
500	670	37	33	4	85
600	780	41	36	5	126
700	895	43.5	38.5	5	177
800	1015	46	41.5	5	245
900	1115	49	44	5	313
1000	1230	52	47	5	406

**Pipe with Flanges**  
See figure 19 and table 19

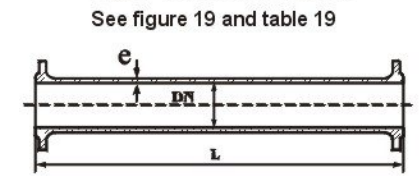


Figure (19)

Table (19)

Dimensions in millimeters      Masses in kg

DN	Body			Flanged
	D	e	Kg <sub>1</sub>	Kg
60	78	8.2	13	3
80	98	8.6	17.3	3.7
100	118	9	22	4.2
125	144	9.5	28.7	5.3
150	170	10	35.9	6.7
200	222	11	52.1	9.3
250	274	12	70.6	12
300	326	13	91.4	14.8
350	378	14	114.5	19
400	429	15	139.5	23.4
500	532	17	196.7	32.1
600	635	19	262.9	44
700	738	21	338.2	59.9
800	842	23	423.1	80.8
900	945	25	516.6	94.6
1000	1048	27	619.2	120



### External plug

See figure 20 and table 20

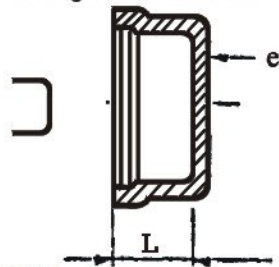


Table ( 20 )

Figure (20)

### Internal plug

See figure 21 and table 21

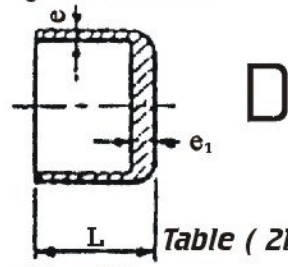


Figure (21)

Table ( 21 )

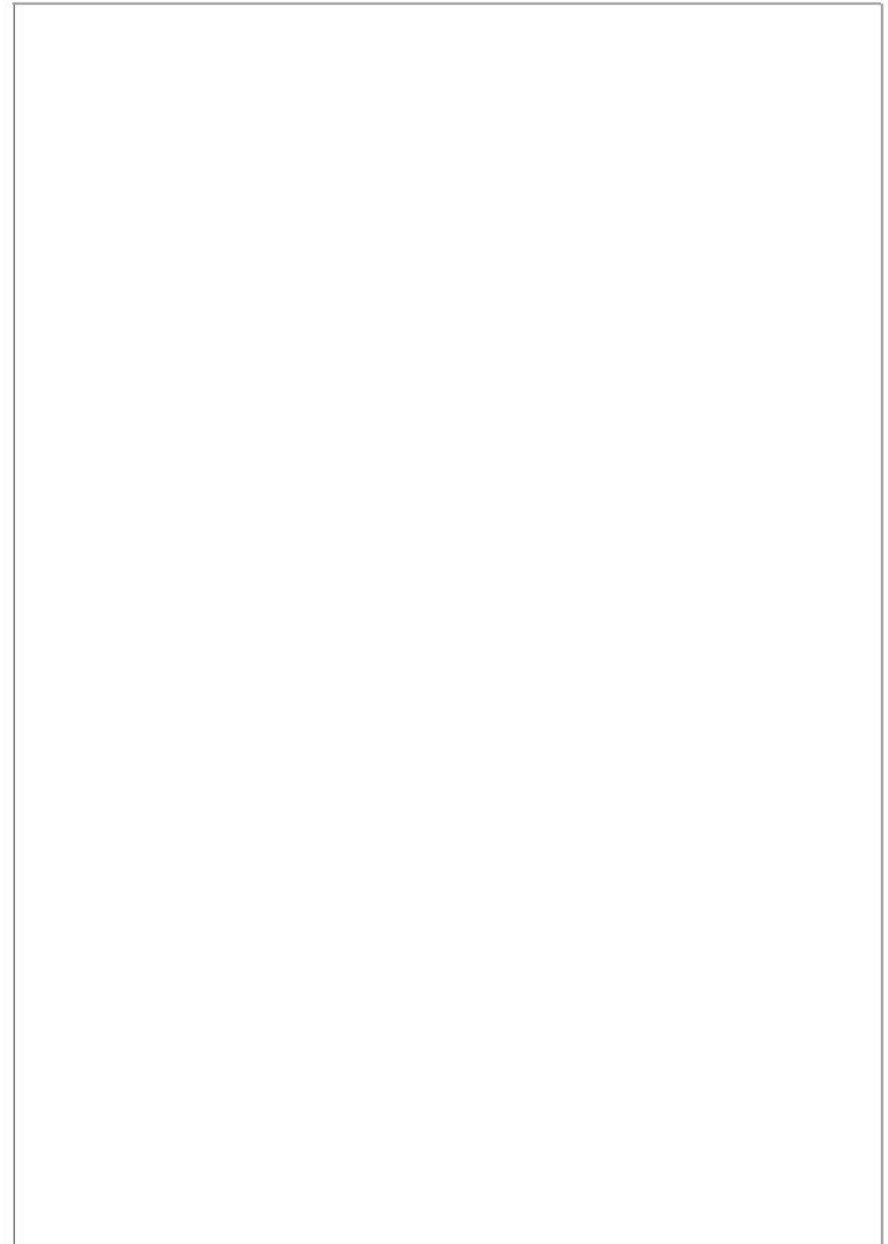
Dimensions in millimeters

Masses in kg

Dimensions in millimeters

Masses in kg

DN	e	L	Kg	DN	e	e <sub>1</sub>	L	Kg
60	20.6	80	5	60	10	20.6	120	2
80	21	84	7	80	10	21	125	3
100	22	88	9	100	10.5	22	130	4
125	22.5	91	12	125	11.1	22.5	135	6
150	23	94	15	150	11.7	23	140	9
200	24.5	100	24	200	12.8	24.5	150	14
250	26	103	34	250	14	26	155	22
300	27.5	105	46	300	15.2	27.5	160	30
350	19	107	61					
400	30	110	77					
500	33	115	118					
600	36	120	171					
700	38.5	122	235					
800	41.5	125	314					
900	44	128	405					
1000	47	130	514					





## 7- manhole tops for vehicular and Pedestrian areas.



## Heavy duty Manhole Frame and Cover

See figure 1 and table 1

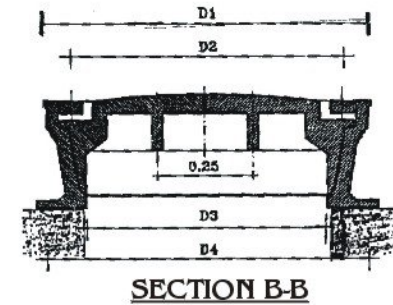


Figure (1)

C.I. COVER HEAVY DUTY DIMENSIONS

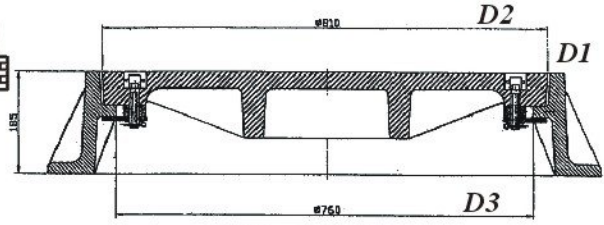
TYPE	A	B
D1	820	920
D2	915	915
D3	600	760
D4	930	1030
W	285	350

Table (1)



**Heavy duty Manhole Frame and Cover**

See figure 2 and table 2



D4

SEC. ( A-A)

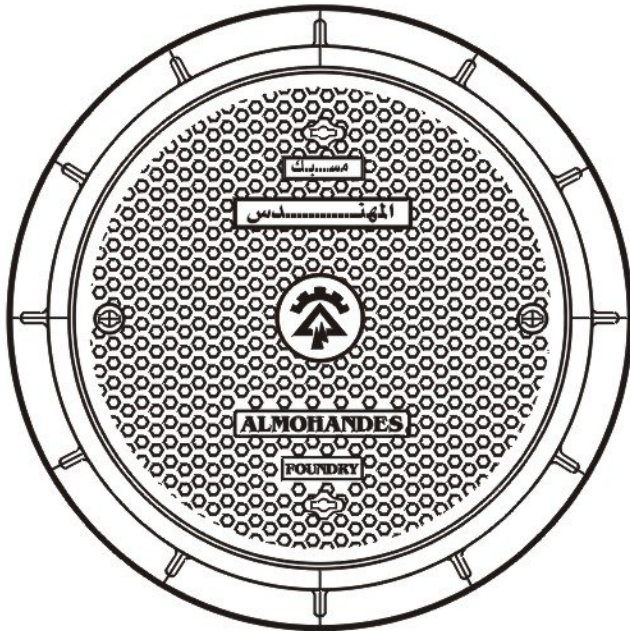


Figure (2)

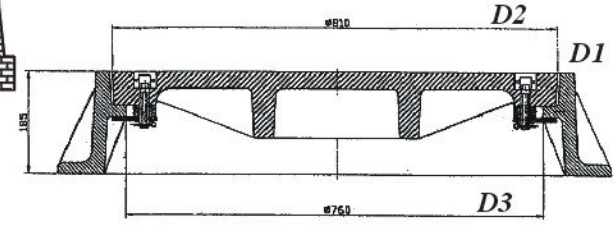
**Table ( 2 )**

D1	D2	D3	D4
850	810	760	1000



**Heavy duty Manhole Frame and Cover**

See figure 3 and table 3



D4

SEC. ( A-A)

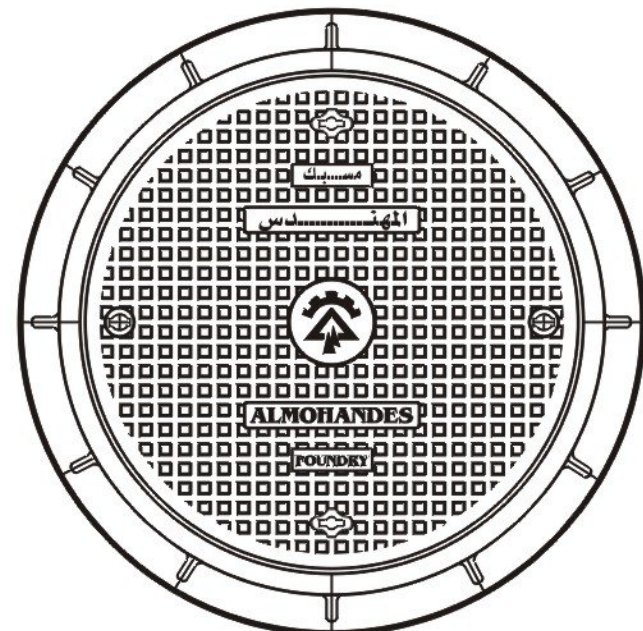


Figure (3)

**Table ( 3 )**

D1	D2	D3	D4
850	810	760	1000



### Heavy duty Manhole Frame and Cover

See figure 4 and table 4



Figure (4)

Table ( 4 )

Type	D
700 x 700	500
700x700	600
800x800	600
1000x1000	600
1000x1000	700
1000 x 1000	800



### Manhole Steps ( Ladders )

See figure 5

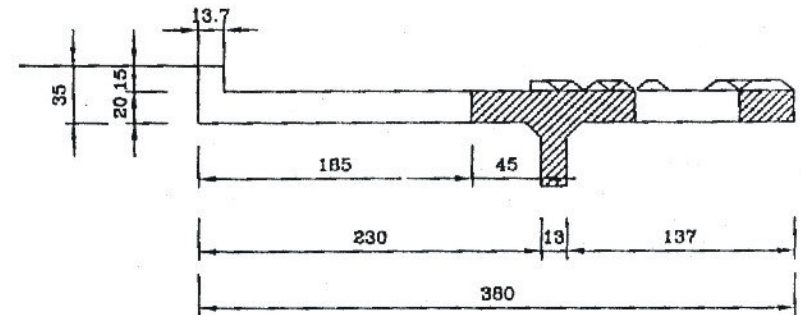
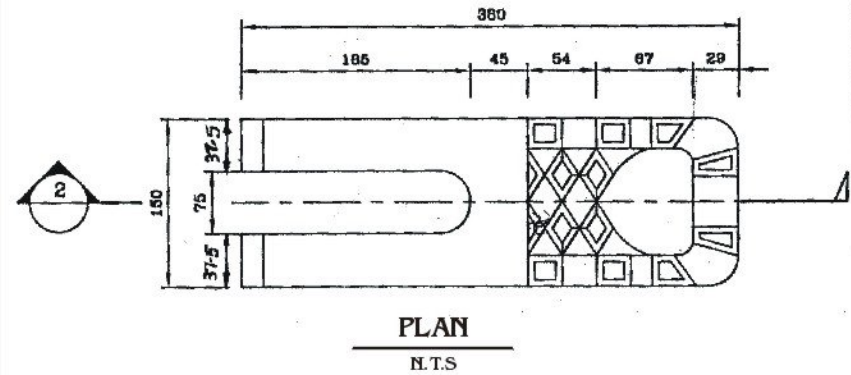


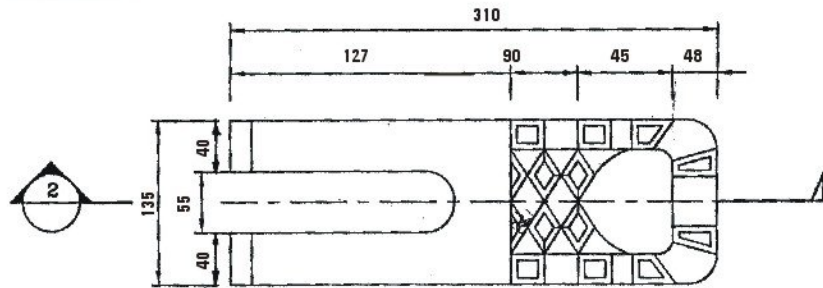
Figure (5)

**SECTION** 2  
N.T.S



### Manhole Steps ( Ladders )

See figure 6



PLAN

N.T.S

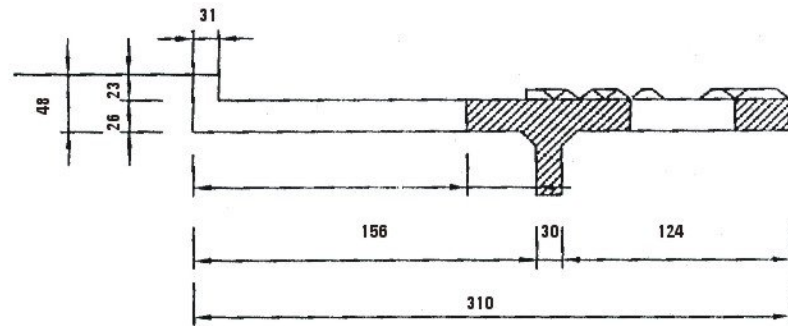


Figure (6)

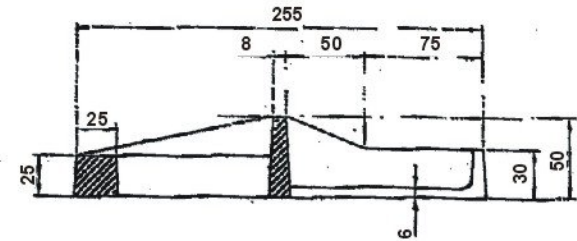
SECTION

N.T.S



### Manhole Steps ( Ladders )

See figure 7



SEC. A-A

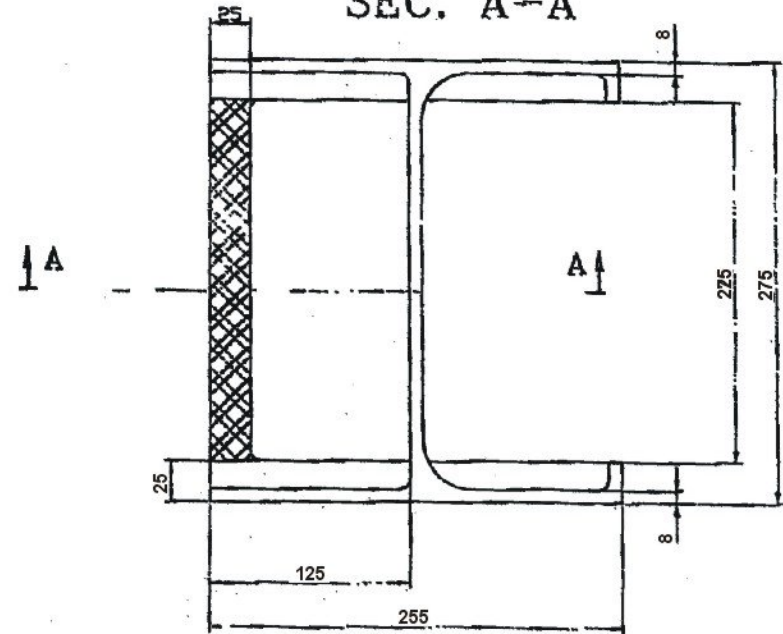


Figure (7)



### Manhole Steps ( Ladders )

See figure 8

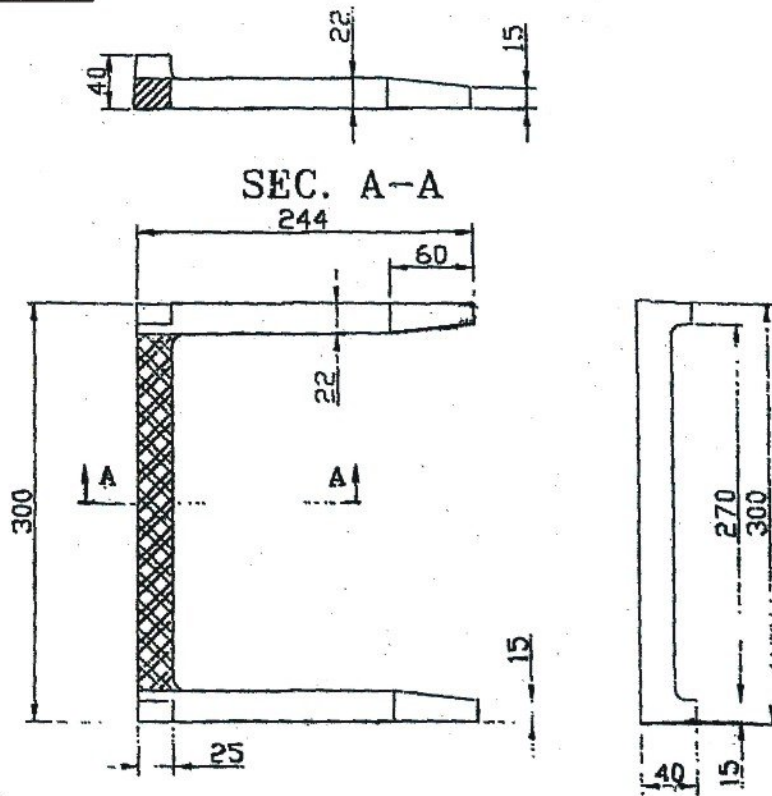
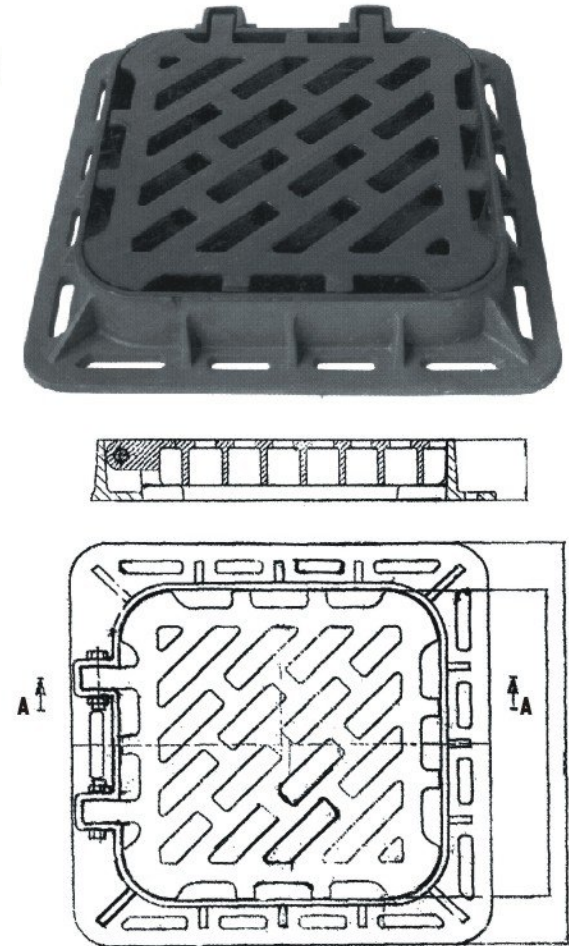


Figure (8)



### Rain Drain Manhole Cover (Storm water)

See figure 9



Heavy duty Cover and frame

50x50

65x65

70x70

Figure (9)



**Rain Drain Manhole Cover (Storm water)**

See figure 10

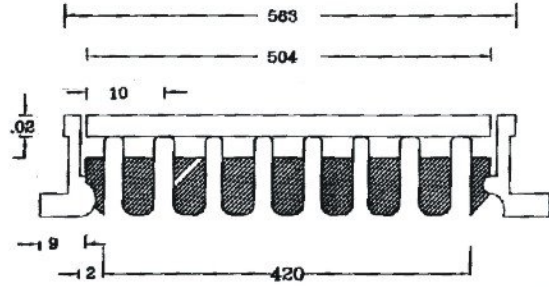
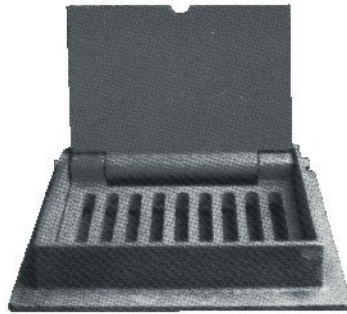
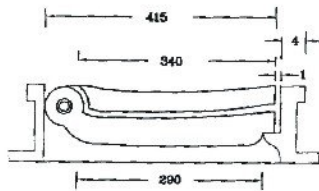


Figure (10)

SECTION X



Heavy duty Cover and frame



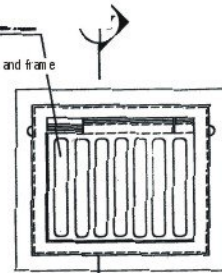
SECTION Y



Heavy duty Cover and frame

68x56

65x55



DETAIL OF GULLY COVER



**Rain Drain Manhole Cover (Storm water)**

See figure 11

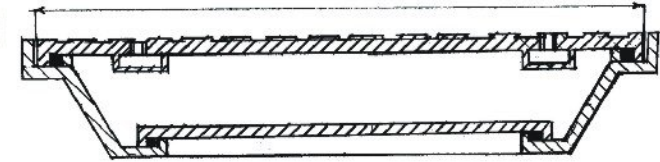
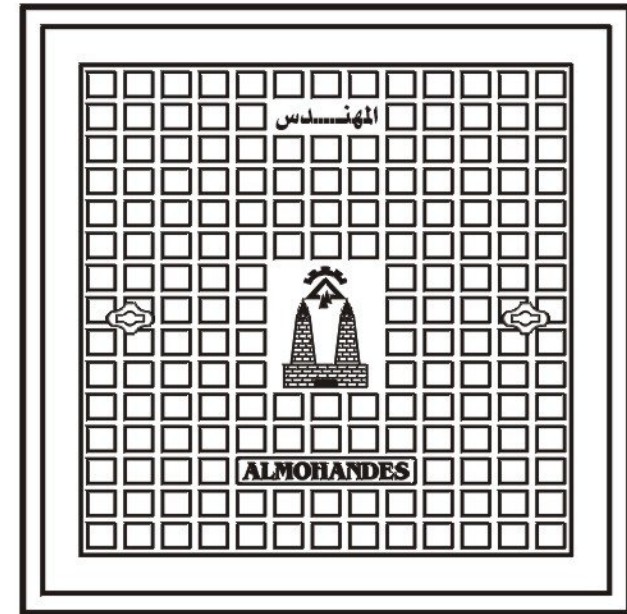


Figure (11)



3 Pieces **L**

600x600

500x500

400x400





### Rain Drain Manhole Cover (Storm water)

See figure 12

550 mm

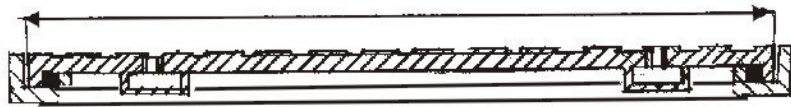
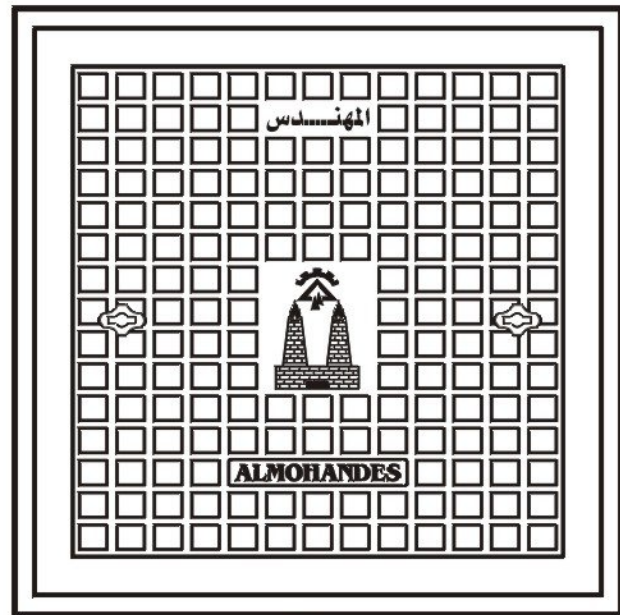


Figure (12)



3 Pieces

**L**

600x600

500x500

400x400



### Light Weight Manhole Frame and Cover



Figure (13)

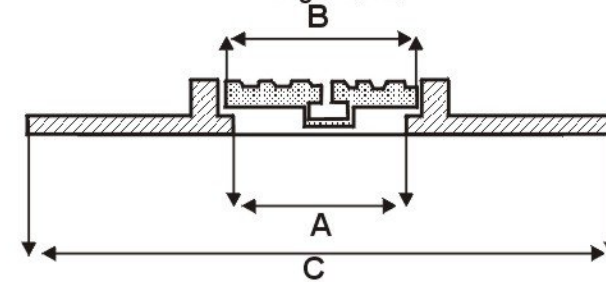


Table ( 5 )

TYPE	A	B	C
200x200	120	135	200
300x300	180	210	300
400x400	245	273	400
500x500	340	372	500
600x600	427	460	600



## Light Weight Manhole Frame and Cover



Figure (14)

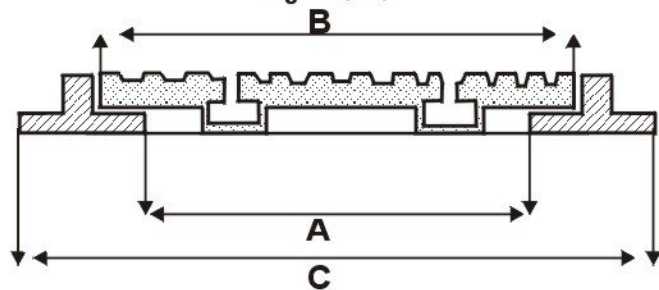


Table ( 6 )

<i>TYPE</i>	<i>A</i>	<i>B</i>	<i>C</i>
200x200	140	160	200
300x300	210	245	300
400x400	320	360	400
500x500	355	400	500
600x600	440	485	600



## 8- Help floor channel and girles and hanged gully trap.



### Hanged Gully Trap

See figure 1 and table 1

Figure (1)

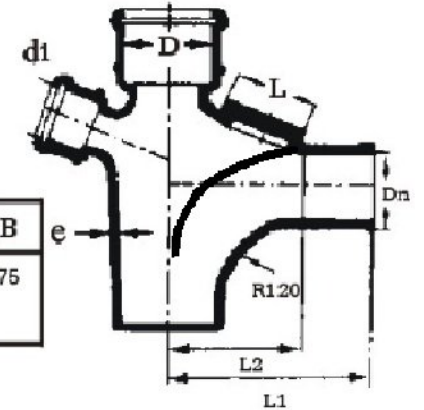


Table (1)

Dn	L	L1	L2	D	d1	e	B
100	480	200	105	132	81	6	75

### Ground Gully Trap .

See figure 2 and table 2

Figure (2)

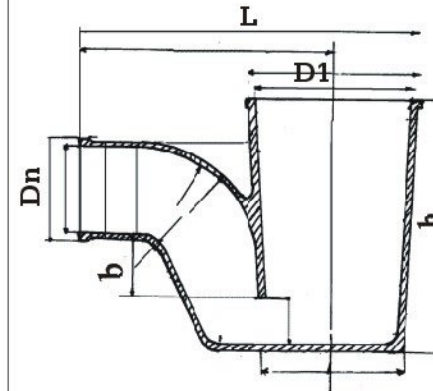
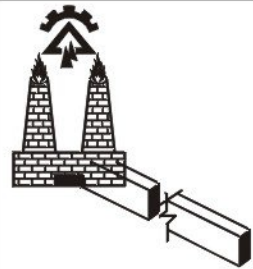


Table (2)

Dn	L	h	D1	b
100	395	300	208	75



### Half floor Channel

See figure 3 and table 3

Figure (3)

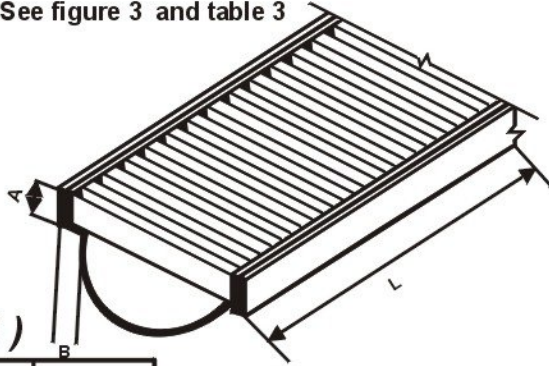


Table (3)

Dn	L	A	B
100	50	25	25
125	50	25	25
150	50	25	25
200	50	30	20

### Girle

See figure4 and table 4

Figure (4)

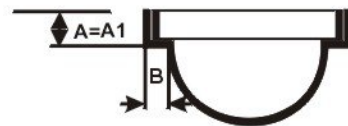


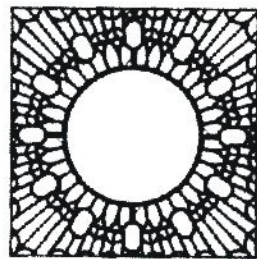
Table (4)

C	L	A
150	50	15
150	50	23
180	50	23
240	50	27
250	50	45
400	50	45





## 9- Tree grills.



## PARTS SQUARE TREE GRILL

See figure 1 and table 1

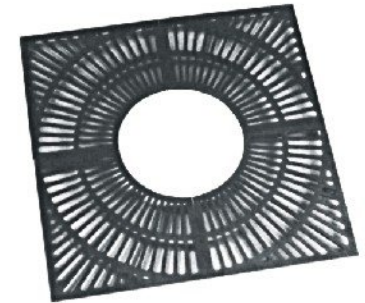


Table ( 1 )

DIMENSIONS (mm)	
ØINTERNAL	EXTERNAL
500	1200
700	1500

Figure (1)

## 4 PARTS SQUARE TREE GRILL

See figure 2 and table 2

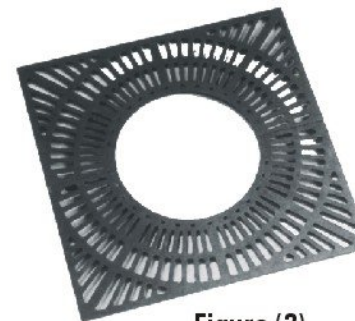


Figure (2)

Table ( 2 )

DIMENSIONS (mm)	
ØINTERNAL	EXTERNAL
500	1000



### PARTS SQUARE TREE GRILL

See figure 3 and table 3

**Table ( 3 )**

DIMENSIONS (mm)	
ØINTERNAL	EXTERNAL
500	1000



Figure (3)

### PARTS SQUARE TREE GRILL

See figure 4 and table 4

**Table ( 4 )**

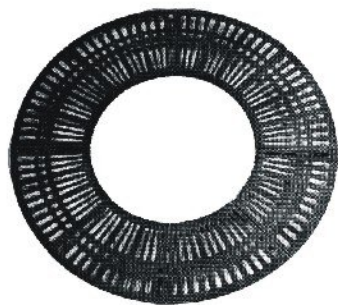


Figure (4)

DIMENSIONS (mm)	
ØINTERNAL	EXTERNAL
400	1070
500	1200
600	1300
700	1400
800	1500
500	2000
600	2000
700	2000
800	2000
900	2000
1000	2000



### PARTS SQUARE TREE GRILL

See figure 5 and table 5

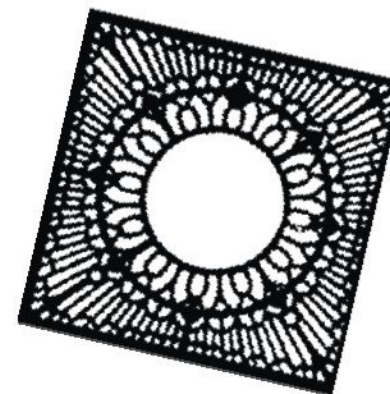


Figure (5)

**Table ( 5 )**

DIMENSIONS (mm)	
ØINTERNAL	EXTERNAL
500	1000



# 10 - Cast-iron Pipes and Fittings Socket Less ( HUBLESS )



## Socket Less pipe

See figure 1 and table 1



Figure (1)  
Table ( 1 )

## 87.30 bend

See figure 2 and table 2

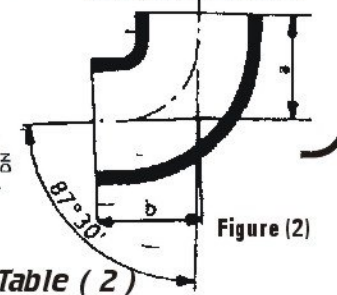


Table ( 2 )

Dimensions in millimeters			Masses in kg		
DN	L	Kg	DN	A	Kg
38	60	5	38	100	10.6
50	180	9	50	100	1.1
75	180	13	75	115	2
100	180	17	100	125	3
125	180	24	125	120	4.5
150	180	28	150	170	7.5

Dimensions in millimeters      Masses in kg

DN	A	Kg
38	70	0.5
50	90	0.9
75	90	1.8
100	115	2.8
125	125	4
150	130	6.5

## 45° bend

See figure 3 and table 3

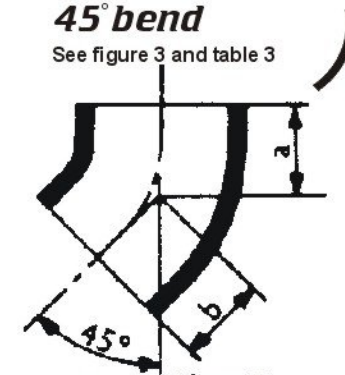


Table ( 3 )

Figure (3)



### 87.30° Single branch

See figure 4 and table 4

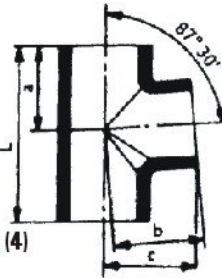


Figure (4)

Table (4)

Dimensions in millimeters

Masses in kg

### 87.30° double branch

See figure 5 and table 5

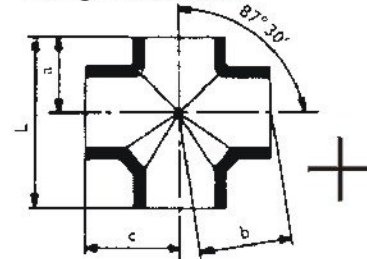


Figure (5)

Table (5)

Dimensions in millimeters

Masses in kg

DN x dn	L	A	B	C
37.5x37.5	150	70	60	65
50x37.5	175	80	75	80
50x50	185	100	75	80
75x50	180	75	130	135
75x75	220	88	135	145
100x50	205	100	140	150
100x75	220	110	145	150
100x100	275	120	150	150
125x50	280	100	160	175
125x75	290	110	170	175
125x100	315	125	175	200
125x125	320	140	180	200
150x50	300	110	145	190
150x75	310	120	155	200
150x100	330	120	155	230
150x125	340	125	160	230
150x150	360	145	170	230

DN x dn	L	A	B	C
37.5x37.5	150	70	80	82
50x37.5	180	80	80	82
50x50	185	100	75	80
75x50	180	75	130	135
75x75	220	88	135	140
100x50	205	100	140	145
100x75	220	110	145	150
100x100	275	120	150	160
125x50	280	100	160	175
125x75	290	110	170	185
125x100	315	125	175	190
125x125	320	140	180	195
150x50	300	110	145	165
150x75	310	120	155	175
150x100	330	120	155	175
150x125	340	125	160	180
150x150	360	145	170	190



### 45° Single branch

See figure 6 and table 6

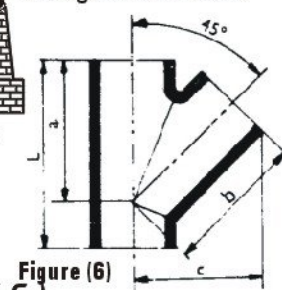


Figure (6)

Table (6)

Dimensions in millimeters

Masses in kg

DN x dn	L	A	B	C
37.5x37.5	180	135	135	110
50x37.5	190	140	140	115
50x50	240	145	145	120
75x50	265	190	190	150
75x75	285	190	190	170
100x50	300	220	220	175
100x75	315	220	220	190
100x100	340	225	225	200
125x50	300	250	250	265
125x75	300	250	250	280
125x100	345	260	260	285
125x125	340	270	270	285
150x50	370	285	285	340
150x75	370	285	285	340
150x100	375	295	295	315
150x125	380	300	300	350
150x150	410	315	315	350

### 45° double branch

See figure 7 and table 7

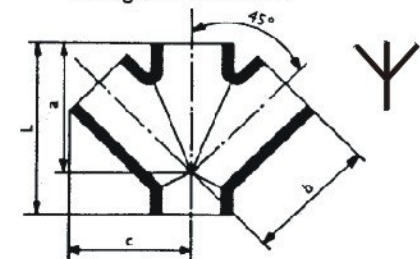


Figure (7)

Table (7)

Dimensions in millimeters

Masses in kg

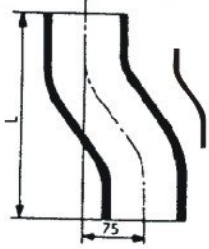
DN x dn	L	A	B	C
37.5x37.5	150	135	135	110
50x37.5	220	140	140	115
50x50	240	145	145	120
75x50	265	190	190	150
75x75	285	190	190	170
100x50	300	220	220	175
100x75	315	220	220	190
100x100	340	225	225	200
125x50	300	250	260	265
125x75	300	250	260	280
125x100	340	260	250	285
125x125	340	260	260	285
150x50	370	320	270	340
150x75	370	285	285	340
150x100	375	295	295	345
150x125	380	300	300	350
150x150	410	315	305	350





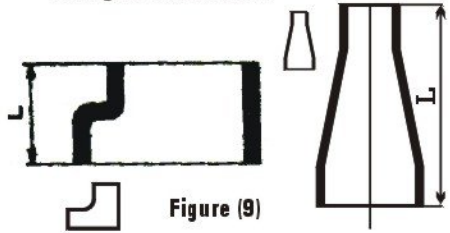
### Bend offset

See figure 8 and table 8



### 9- Diminishing piece ( Taper )

See figure 9 and table 9



**Table ( 8 )** Figure (8)

**Table ( 9 )**

Dimensions in millimeters      Masses in kg

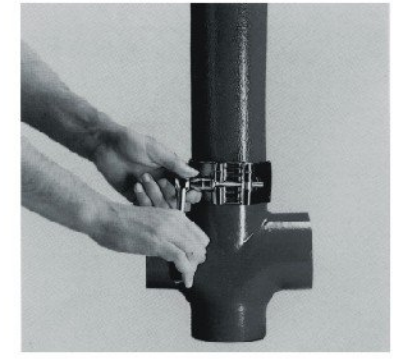
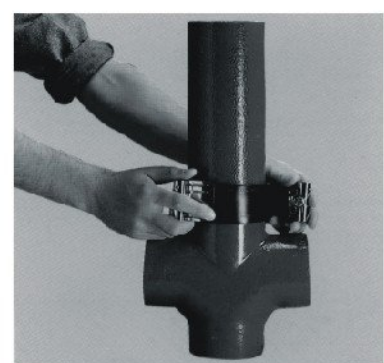
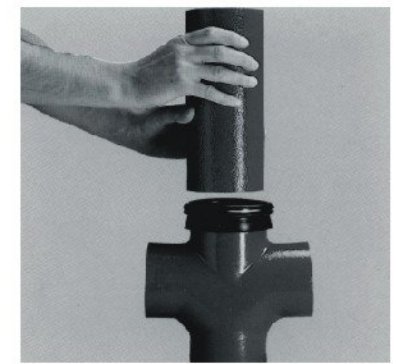
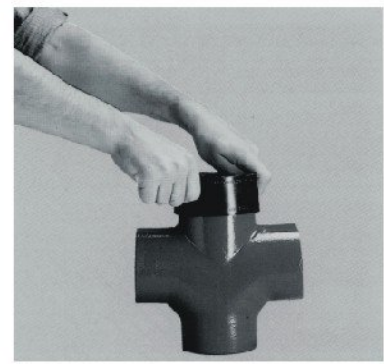
Dimensions in millimeters      Masses in kg

DN	L	A
50	205	84
75	230	55
100	250	101
125	265	109
150	310	90

DN x dn	L	DN x dn	L
50x37.5	90	125x75	175
75x50	170	125x100	175
100x50	170	150x50	180
100x75	170	150x75	190
125x50	175	150x100	195
		150x12	200



### Way of Connection





**Double stack without secondary ventilation**

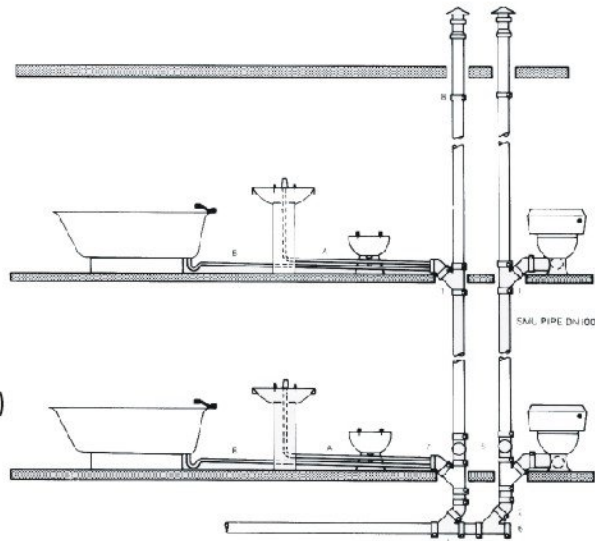


Figure (10)

**Connection for public sanitary appliances**

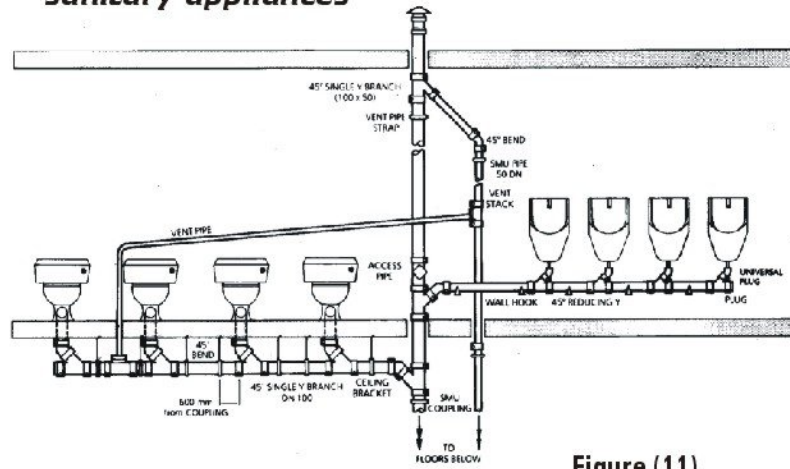


Figure (11)



**Double stack with pipework connected to floor gully buried in slab (multi-storey building)**

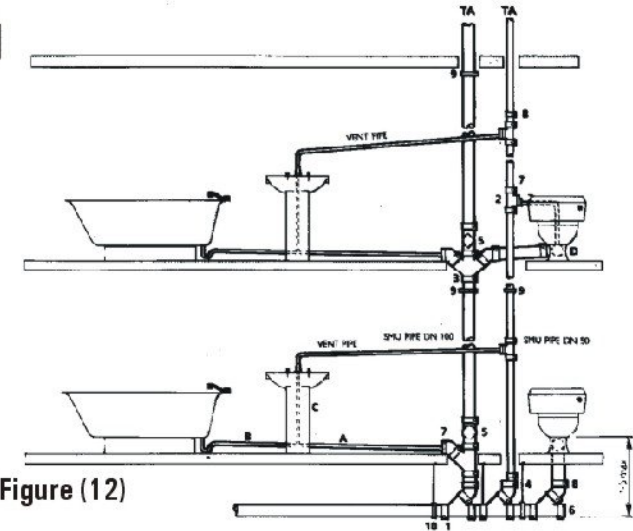


Figure (12)

**Double stack without secondary ventilation**

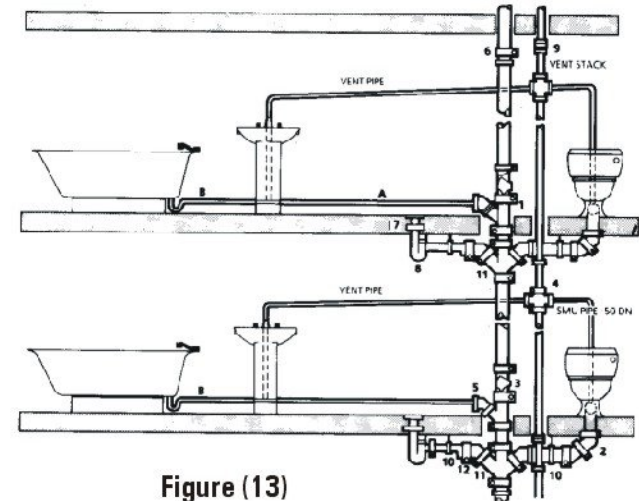


Figure (13)

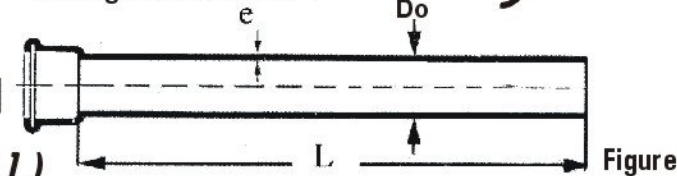


**11- Pipes and pitting with head and tail for drainage works.**



**1- Pipe with socket**

See figure 1 and table 1



**Table (1)**

**Figure (1)**

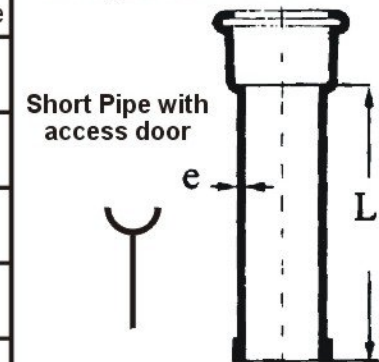
DN	L	e	Do	Kg	Stander Name
50	820	5	60	---	900
	1130	5	60	---	1200
	1730	5	60	12.5	1800
75	825	5	75	---	900
	1125	5	75	---	1200
	1725	5	75	18.7	1800
100	825	6	112	---	900
	1120	6	112	---	1200
	1720	6	112	27	1800
125	815	6	137	---	900
	1215	6	137	---	1200
	1715	6	137	34.5	1800
150	810	6	162	---	900
	1110	6	162	---	1200
	1710	6	162	45	1800

**2- Connector with socket**

**Table (2)**

See figure 2 and table 2

DN	L	e	Stander Name
50	230	5	30
	430	5	50
75	225	5	30
	425	5	50
100	118	6	20
	218	6	30
	418	6	50
125	208	6	30
	408	6	50
150	208	6	30
	408	6	50



**Figure (2)**



### 3- Connection with Vent

See figure 3 and table 3

Table ( 3 )

Dn x dn	L	e	H	Stander Name
100x65	118	6	105	20
100x65	225	6	105	30
100x65	430	6	105	30

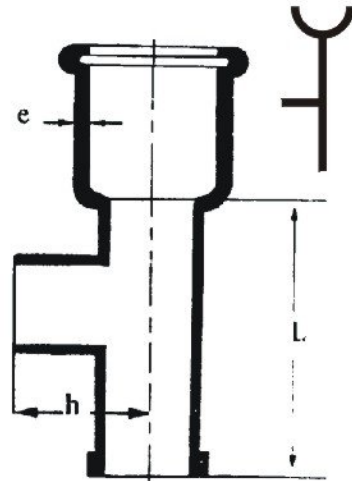


Figure (3)

### 4- socket Tapers

See figure 4 and table 4

Table ( 4 )

Dn x dn	L	e	Stander Name
75x50	230	5	30
100x55	230	6	30
100x75	230	6	30
125x50	235	6	30
125x75	235	6	30
125x100	235	6	30
150x50	430	6	50
150x75	430	6	50
150x100	430	6	50
150x125	430	6	50

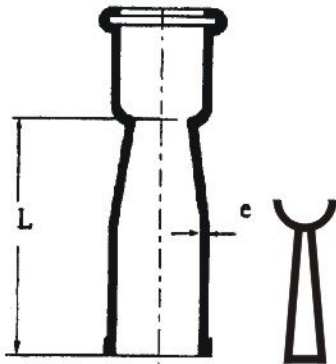


Figure (4)



### 5- Head

See figure 5 and table 5

Table ( 5 )

D	L	e	e <sub>1</sub>	L <sub>1</sub>
50	140	5	---	---
75	150	5	---	---
100	160	6	10	300
125	160	6	---	---
150	160	6	10	350

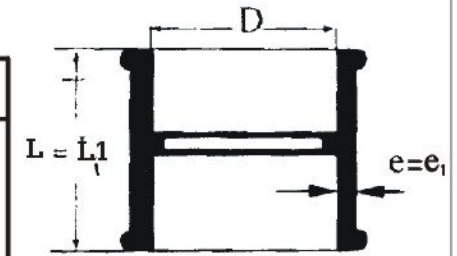


Figure (5)

### 6- All-Socket Tees 87°30'

See figure 6 and table 6

Table ( 6 )

Dn x dn	L	e	h
50x50	250	5	70
75x50	290	5	80
75x75	290	5	85
100x50	310	6	95
100x75	310	6	100
100x100	310	6	115
125x50	310	6	115
125x75	310	6	115
125x100	310	6	150
125x125	310	6	150
150x50	340	6	150
150x75	340	6	155
150x100	340	6	155
150x125	340	6	155
150x150	340	6	155

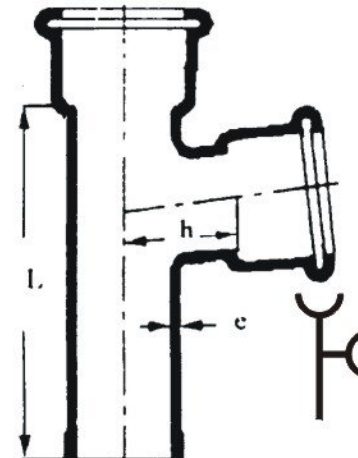


Figure (6)



### 7- All-Socket tees Double Branched

See figure 7 and table 7

Table ( 7 )

Dn x dn	L	h	E
50x50	250	70	5
75x50	290	80	5
75x75	290	85	5
100x50	310	95	6
100x75	310	100	6
100x100	310	115	6
125x50	310	115	6
125x75	310	115	6
125x100	310	150	6
125x125	310	150	6
150x50	340	150	6
150x75	340	155	6
150x100	340	155	6
150x125	340	155	6
150x150	340	155	6

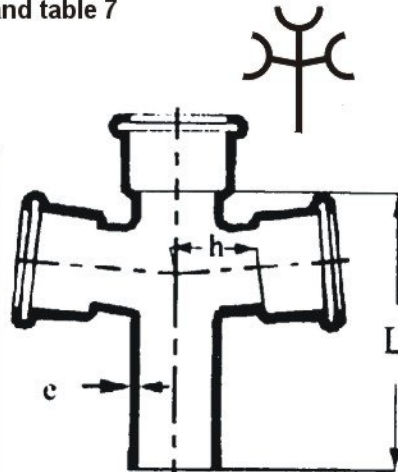


Figure (7)

### 8- All-Socket Tees 45°

See figure 8 and table 8

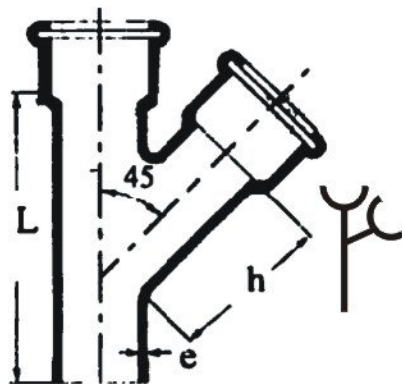


Figure (8)

Table ( 8 )

Dn x dn	L	h	e
50x50	278	125	5
75x50	310	145	5
75x75	310	155	5
100x50	330	180	6
100x75	330	180	6
100x100	335	180	6
125x50	375	185	6
125x75	375	185	6
125x100	375	225	6
125x125	375	230	6
150x50	445	240	6
150x75	450	250	6
150x100	450	270	6
150x125	450	280	6
150x150	450	280	6



### 9- All-Socket tees 45° Double Branched

See figure 9 and table 9

Table ( 9 )

Dn x dn	L	h	e
50x50	278	125	5
75x50	310	145	5
75x75	310	155	5
100x50	330	180	6
100x75	330	180	6
100x100	335	180	6
125x50	375	185	6
125x75	375	185	6
125x100	375	225	6
125x125	375	230	6
150x50	445	240	6
150x75	450	250	6
150x100	450	270	6
150x125	450	280	6
150x150	450	280	6

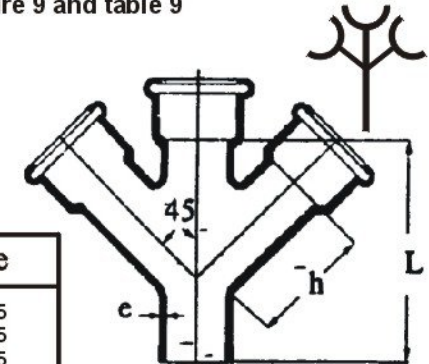


Figure (9)

### 10- All-Socket Tees 135° With Inverted Branch

See figure 10 and table 10

Table ( 10 )

Dn x dn	L	h	e
50x50	260	100	5
75x50	260	110	5
75x75	260	120	5

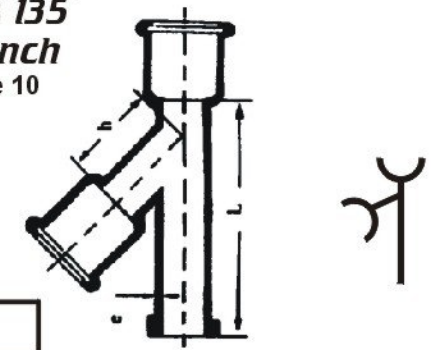


Figure (10)



**11- Inverted tee With Two tails 135°  
And socket**

See figure 11 and table 11

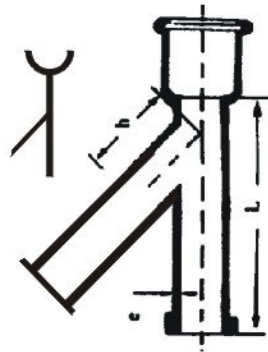


Figure (11)

Table ( 11 )

Dn x dn	L	h	e
50x50	260	252	5
75x50	260	120	5
75x70	260	208	5

**12-Socket- bend 87.30° (Elbow)**

See figure 12 and table 12

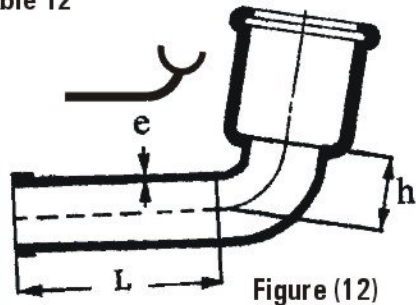


Figure (12)

Table ( 12 )

Dn	L	h	e
50	125	55	5
75	155	65	5
100	140	80	6
125	140	100	6
150	210	130	6



**13-Socket- bend 45° (Elbow)**

See figure 13 and table 13

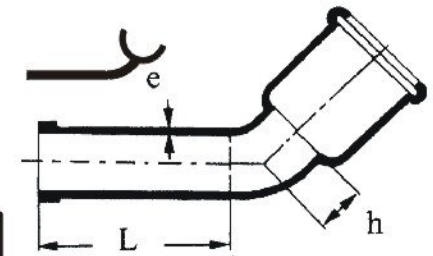


Figure (13)

Table ( 13 )

Dn	L	h	e
50	140	35	5
75	160	50	5
100	170	60	6
125	170	60	6
150	220	80	6

**14-Socket- bend Duct foot (elbow)**

See figure 14 and table 14

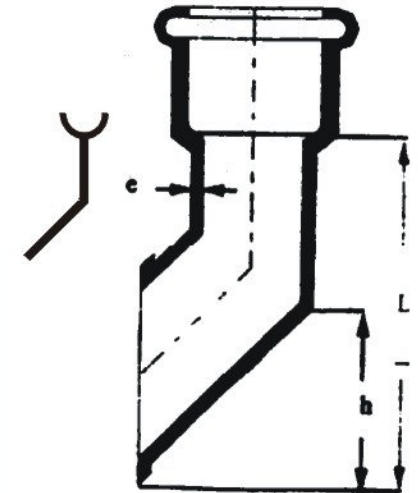


Figure (14)

Table ( 14 )

Dn	L	h	e
75	150	70	5
100	180	85	6
125	220	115	6
150	300	125	6



### 15- Socket- bend Offset (Shift)

See figure 15 and table 15

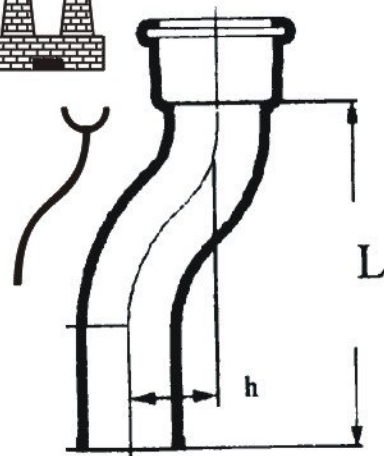


Table ( 15 )

Dn	L	h	e
50	280	75	5
75	280	65	5
100	300	95	6
125	335	110	6
150	350	125	6

Figure (15)

### 16-Trap ( P )

See figure 16 and table 16

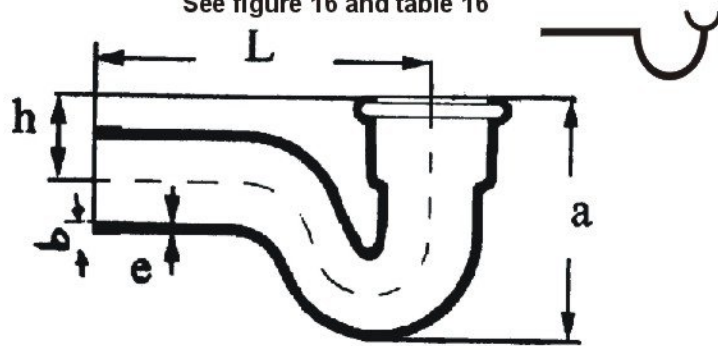


Table ( 16 )

Figure (16)

Dn	L	h	a	e	b
75	320	---	---	---	---
100	320	100	255	6	50



### 17- Gargory

See figure 17 and table 17

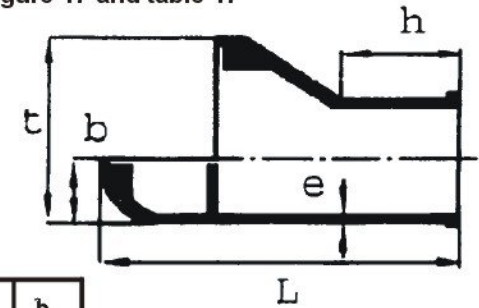


Table ( 17 )

Dn	L	h	e	t	b
75	350	120	5	156	45
100	350	122	6	175	55
125	365	131	6	185	65
150	385	141	6	195	75

Figure (17)

### 18-Roof Out let with Vertical Circular Grating

See figure 18 and table 18

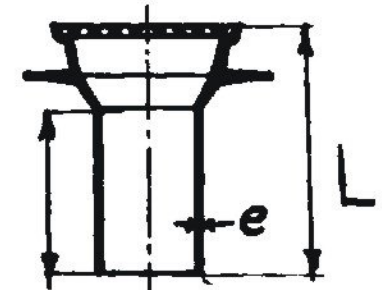
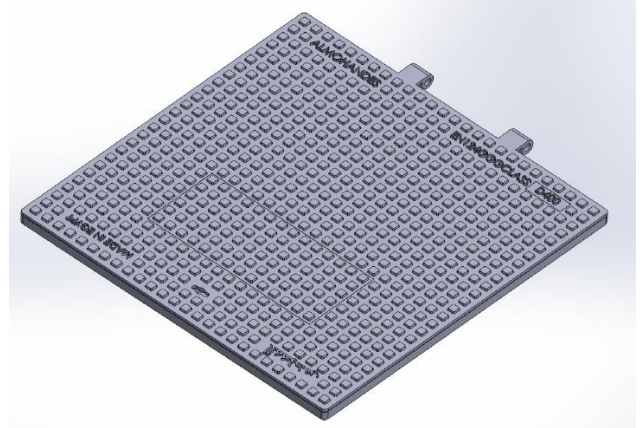
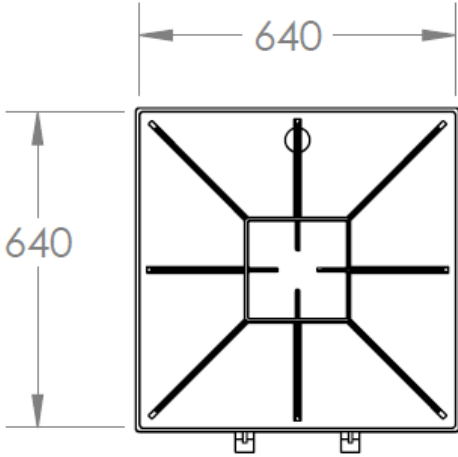


Table ( 18 )

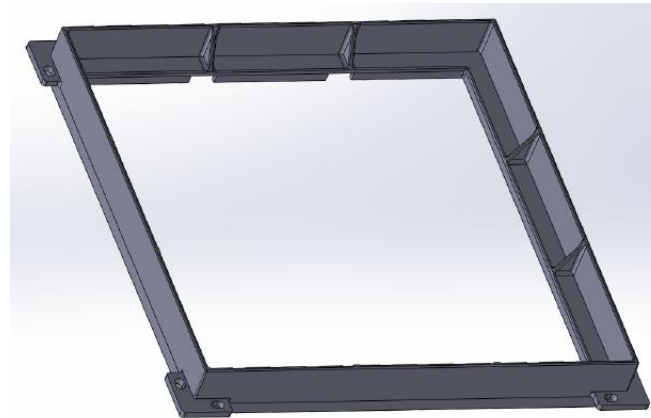
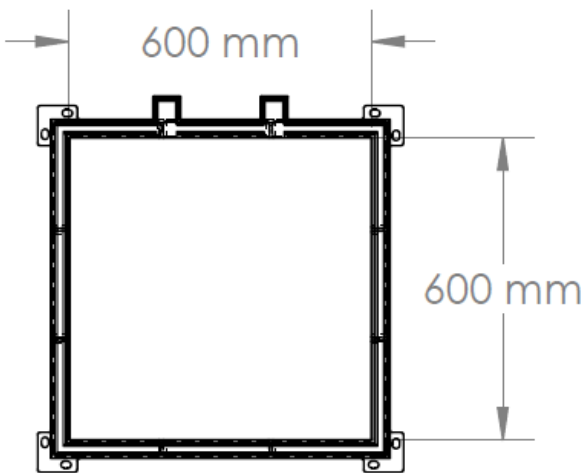
Dn	L	h	e
---	175	110	---
100	185	125	6
125	195	135	6
150	225	155	6

Figure (18)

## 60 X 60 Ductile Iron Manhole Cover



Grade	Load/ Tons
A	1.5
B	12.5
C	25
D	40
E	60
F	90





# Introduction

It is such a pleasure for Al Mohandes foundry in melting and machining metals to introduce himself for all of you as one of the oldest and foundries in Egypt inducting all the Hygienic and engineering castings of grey cast iron GG25 with homogeneous crystals. Which are responsible for the machine from Ductile cast iron GGG50 according to the international properties and Egyptian standards in order to the National organization for potable water and sanitary drainage the product are :-

- 1- Valves
- 2- Sluice (stop valve)
- 3- Fire Hydrant
- 4- Gates
- 5- Ductile iron pipes, fitting, accessories and their joints for water or gas applications.
- 6- Cast iron pipes and specials for high pressure Pipe lines .
- 7- manhole tops for vehicular and Pedestrian areas.
- 8- Help floor channel and gullies and hanged gully trap.
- 9- Tree grills.
- 10- Socket less (Hupless) pipes fitting accessories and their joints for drainage works.
- 11- Pipes and fittings with head and tail for drainage works.

- 1) ES 971-1991 ES 2134-1992  
BSI 5150 ISO 5208  
ISO 5996 ISO 5752  
ISO 2531 BSI 5155
- 2) ES 1098-1995  
BS 1010-1973  
NFEB 200-1989
- 3) ES 253-2003  
BS 750-1984
- 4) ES 3294 / 1998  
ES 3067 / 1996  
ES 2631 / 1994  
ISO 2531 / 1991  
BS 4504 / 1959
- 5) ES 10 / 1995  
ES 2807 / 1995  
ES 1300 / 1976  
ES 3058 / 1996  
DIN 28600 / DIN 28610

- 6) ES 1 2001  
ISO 185 1988
- 7) ES 10 1965  
ISO 13 1978
- 8) ES 7024 2003  
EN 124 / 1994
- 9) ES 648 1997  
BS 3402 1969  
AMD 1989
- 10) ES 3589 2001  
ISO 6594 / 1983
- 11) ES 186 1978  
ISO R 531 1966

More over the needed experiments are done by the foundry in :

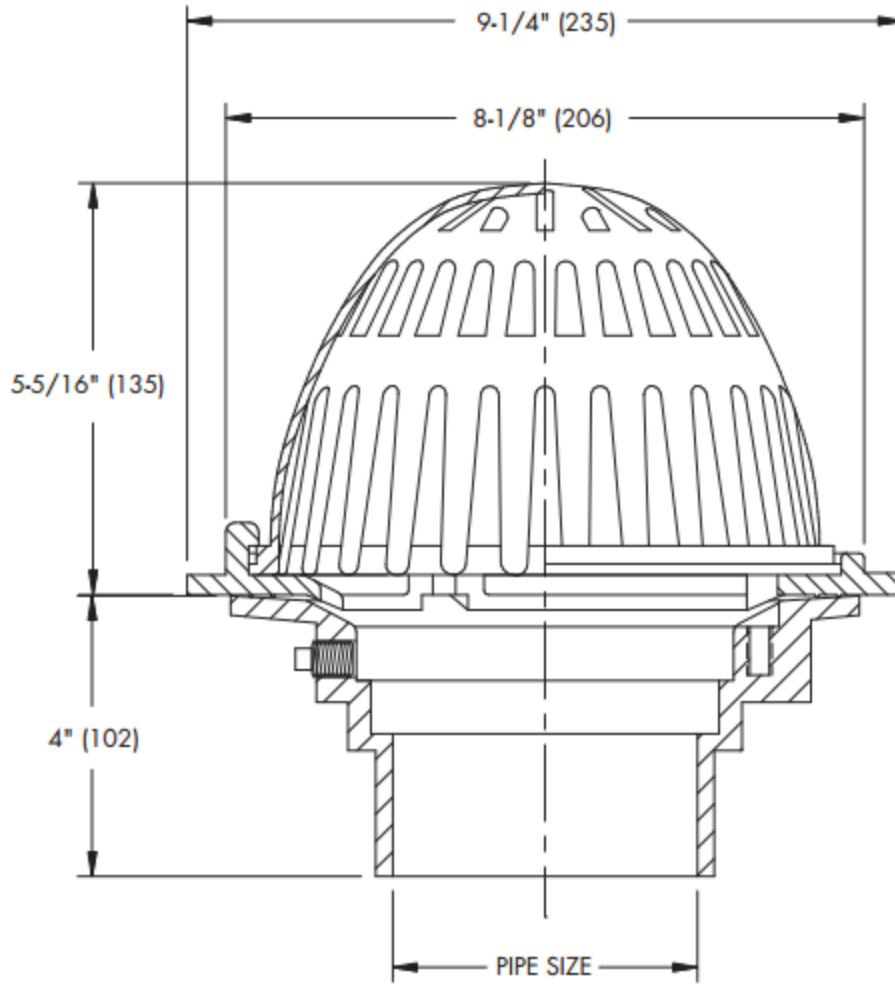
- 1- The foundry's special labs.
- 2- housing and building research center.
- 3- Cairo University.
- 4- Ain Shames University.
- 5- Egyptian organization for standardization and quality control.
- 6- El zagazig University Banha Branch  
- Al Mohandes Foundry in melting and machinery metals.  
- The owner chairman ,  
Engineer Khaled Hussien Kamal.  
- The company's Address : the industrial Elsafa city.  
Abo zaable city Elqalybia Egypt  
Telefax: 0020122750614 - 0105386045 - 0105466509
- The fair's Address : 4 Yossef wah by st., beside Omhat Elmoameneen Mosque and koptus hospital  
El fagala Cairo Egypt  
Tel.: 002 02 7870023
- Head office's Tel.: 002 02 2243568 - 002 02 4727553  
- Head office's Fax : 002 02 4727553

E-mail: mohandescom2003@yahoo.com

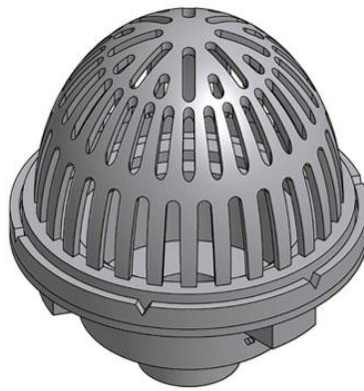
E-mail: info@almohandeseg.com

www.aalmohandeseg.com

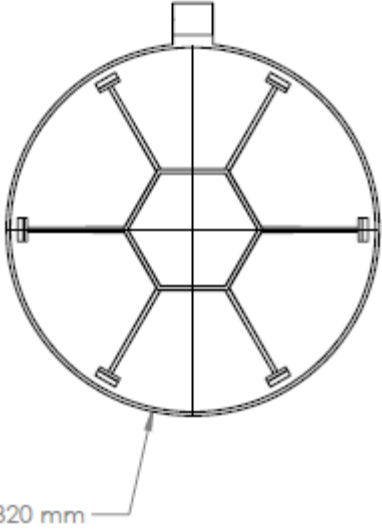
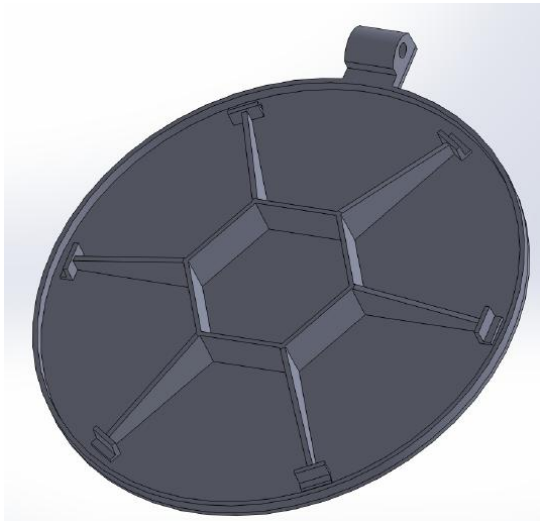
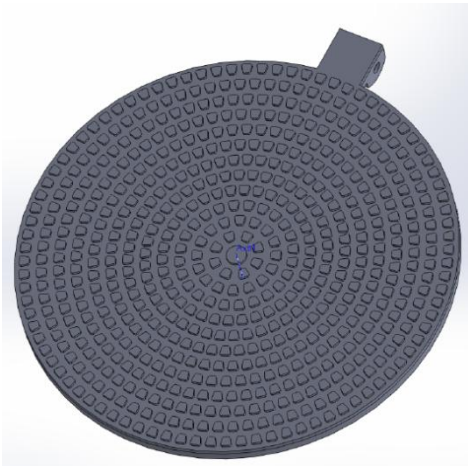
# RD-200



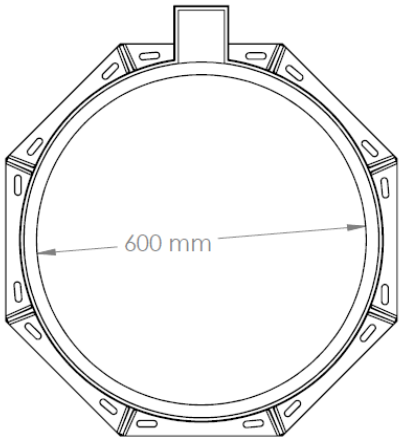
Pipe Size : 75mm, 100mm, 150mm

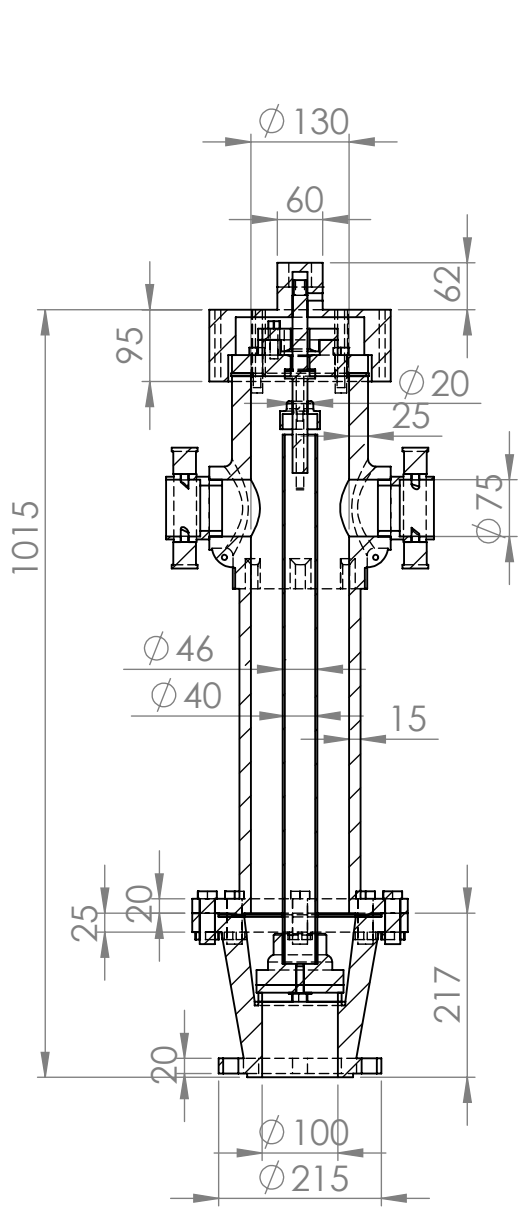


# Round Cover with Hexagonal Frame Manhole Cover

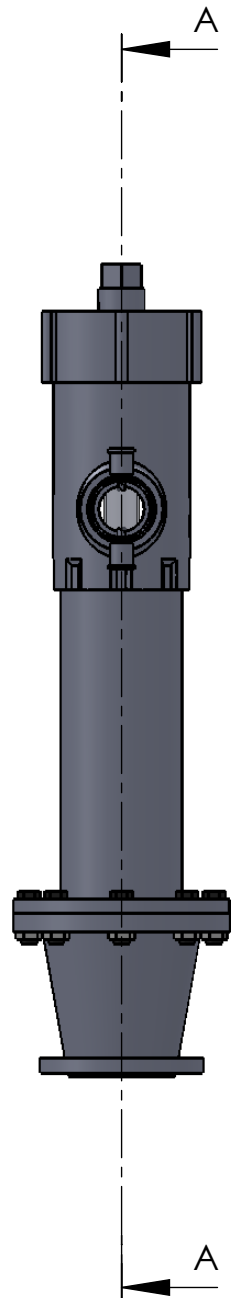


Grade	Load/ Tons
A	1.5
B	12.5
C	25
D	40
E	60
F	90





SECTION A-A



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:				FINISH:	DEBUR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION
NAME	SIGNATURE	DATE				TITLE:	
DRAWN							
CHK'D							
APPV'D							
MFG							
Q.A				MATERIAL:		DWG NO.	Assem1
				WEIGHT:		SCALE:1:10	A4
						SHEET 1 OF 1	