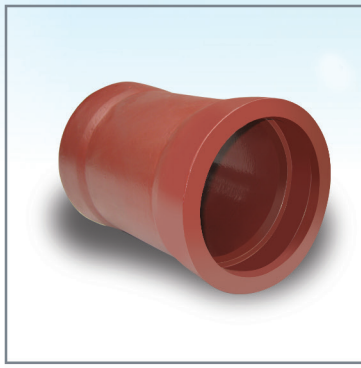
DUCTILE IRON FITTINGS









ELECTROSTEEL CASTINGS LIMITED

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Introduction



Electrosteel Castings Limited is one of the premier manufacturers of Ductile Iron Pipes and Fittings in India. The Ductile Iron Fittings are made in a state-of-the-art plant at Khardah and Haldia (in West Bengal), where the fittings are made with the most modern casting techniques like Vacuum Lost Foam Process (VLFP), High Pressure Moulding Process and 'No bake' Moulding Process. Both these plants are equipped with latest machineries, sophisticated finishing facilities and modern testing laboratories. These facilities are run by experienced engineers and backed by dedicated research and development wings. Since Electrosteel manufactures both pipes and fittings, it is a one stop shop for your pipeline requirement, offering excellent compatibility between pipes and fittings.





Electrosteel- the preferred choice

- Quality as per International benchmarks.
- Catering to over 50 countries around the globe.
- Supplied fittings to over 15,000 projects across the world.
- Product certified by leading international certifying agencies like KITEMARK (UK), DVGW (Germany), ACS (France) etc.
- Most modern casting techniques resulting in high quality fittings.
- High dimensional accuracy leading to proper fitment.
- Varied options for coating and lining depending on external and internal conditions.
- Proven pre-sales and after-sales support.

Product Range









Electrosteel produces fittings in the range DN 80 mm DN 1200 mm in accordance with the following standards.

- ISO 2531/EN 545 for Water
- ISO 7186/EN 598 for Sewerage
- IS 9523 for Water and Sewerage

Range of fittings

Electrosteel produces comprehensive range of fittings and ancillaries like :

- Push on Joint Socketed Fittings
- Flanged Fittings
- Rotating Flange Fittings
- Mechanical Joint Fittings (Regular)
- Mechanical Joint Fittings (Express type)
- Bolted Restrained Joint Fittings
- Boltless Restrained Joint Fittings (Electrolock)

Manufacturing Process

The 'Lost Foam' process used for manufacturing DI fittings is an advanced technique and it scores over other conventional processes.

Lost Foam Technique

- First an exact replica of the fittings is made with Styrofoam popularly known as Thermocol.
- This replica, moulded in special machines, acts as a pattern for the casting. The patterns are then kept in mechanized moulding boxes and then packed with sand.
- When hot metal is poured, the Styrofoam pattern vaporizes and the metal takes the shape of the fittings by filling up the cavity.
- After cooling, castings are taken out, shot blasted, fettled and cleaned.
- After thorough inspection and fettling, the castings (fittings) are subjected to hydrostatic testing.
- Tested fitting are then Zinc coated, cement lined and a bituminous finishing coat is applied from outside. Alternatively fittings are short blasted, Fusion Bonded Epoxy (FBE) coated and lined in our special FBE plant.

Advantages of Lost Foam Technique

- There is no need of core setting. So no core displacement resulting in uneven thickness.
- Much lower chances of having pinhole, slag inclusion or blow hole.
- Maintains high dimensional tolerance, which is so vital for proper fitment.
- The castings have excellent finish, much better than sand moulded fittings.
- Higher productivity because casting process is much faster.

Hydrostatic Testing

DI Fittings are tested at works at the following test pressure as specified in ISO/EN.

Diameter (mm)	Works Test Pressure (Kg/cm^2)
80-300	25
350-600	16
700-1200	10



Loose Flange Fittings

Electrosteel has also introduced fittings with Adjustable Flange or Loose Flange. Unlike 'As cast' Flanged Fittings, in this case, separately cast loose flanges are mounted on the fittings. A loose flanged fittings comprises of a flange ring (in two or more parts bolted together), which can be fixed on the fittings end. This loose flange can be freely rotated around the axis of the fittings.

Advantages

- Since the flanges can be freely rotated, bolt hole alignment with the mating flange becomes easier.
- As it can be fixed and removed easily, dismantling of adjoining accessories becomes easier. Small angles can be adjusted.
- The PN rating of the Fittings can be changed at will, just by changing the loose flange.

Special fittings

Apart from push-on joint and mechanical joint fittings, we also manufacture some special fittings, which are extremely useful for practical applications which would have same wall thickness, material and quality tests of standard fittings. Few of these are mentioned below:

- 4 way Crosses.
- Double Socket Branch Flanged Level Invert Tee (Scour Tee).
- Fittings with one side Flange and one side plain-ended/socketed of a particular length.
- Tees and Reducers with other non-standard DN x dn combinations.

Due to the immense flexibility of our manufacturing process by Lost Foam method, virtually any combination of socket/flange/plain-end is possible.







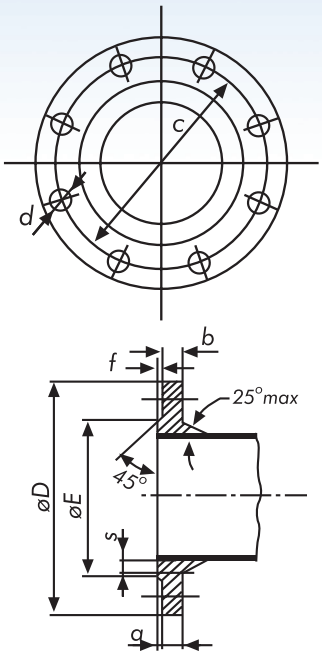
Dimensions



Dimensions of Push-on Joint and Mechanical Joint Fittings

	External Diameter DE (mm)		Wall Thickness, e (mm)	
DN	Nominal	Tolerance	K12	Tolerance
80	98	+1/-2.7	7.0	-2.38
100	118	+1/-2.8	7.2	-2.40
125	144	+1/-2.8	7.5	-2.42
150	170	+1/-2.9	7.8	-2.45
200	222	+1/-3.0	8.4	-2.50
250	274	+1/-3.1	9.0	-2.55
300	326	+1/-3.3	9.6	-2.60
350	378	+1/-3.4	10.2	-2.65
400	429	+1/-3.5	10.8	-2.70
450	480	+1/-3.6	11.4	-2.75
500	532	+1/-3.8	12.0	-2.80
600	635	+1/-4.0	13.2	-2.90
700	738	+1/-4.3	14.4	-3.0
750	790	+1/-4.4	15.0	-3.05
800	842	+1/-4.5	15.6	-3.10
900	945	+1/-4.8	16.8	-3.20
1000	1048	+1/-5.0	18.0	-3.30
1100	1152	+1/-5.4	19.2	-3.40
1200	1255	+1/-5.8	20.4	-3.50

Dimensions of Flange Drilling for Flange Fittings-PN 10

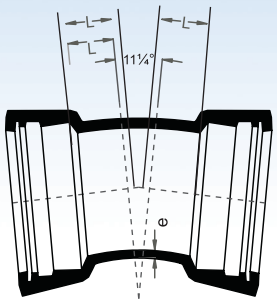


All dimensions in millimeters										
Nominal Dia	Dimensions							Holes		Bolt size metric
DN	D	E	C	b	f	a	s	Nos	Dia (d)	
80	200	132	160	16	3	19	15	4	19	M16
100	220	156	180	16	3	19	15	8	19	M16
125	250	184	210	16	3	19	15	8	19	M16
150	285	211	240	16	3	19	15	8	23	M20
200	340	266	295	17	3	20	15	8	23	M20
250	395	319	350	19	3	22	16	12	23	M20
300	445	370	400	20.5	4	24.5	17.5	12	23	M20
350	505	429	460	20.5	4	24.5	19.5	16	23	M20
400	565	480	515	20.5	4	24.5	19.5	16	28	M24
450	615	530	565	21	4	25.5	20	20	28	M24
500	670	582	620	22.5	4	26.5	21	20	28	M24
600	780	682	725	25	5	30	24	20	31	M27
700	895	794	840	27.5	5	32.5	24	24	31	M27
750	960	857	900	29	5	34	24	24	31	M27
800	1015	901	950	30	5	35	24.5	24	34	M30
900	1115	1001	1050	32.5	5	37.5	26.5	28	34	M30
1000	1230	1112	1160	35	5	40	28	28	37	M33
1100	1340	1231	1270	38	5	43	30	28	37	M33
1200	1455	1328	1380	40	5	45	31.5	32	40	M36

Dimensions of Flange Drilling for Flange Fittings-PN 16

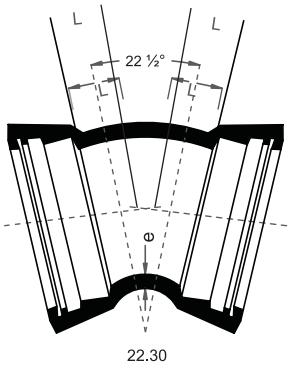
All dimensions in millimeters										
Nominal Dia	Dimensions							Holes		Bolt size metric
DN	D	E	C	b	f	a	s	Nos	Dia (d)	
80	200	132	160	16	3	19	15	8	19	M16
100	220	156	180	16	3	19	15	8	19	M16
125	250	184	210	16	3	19	15	8	19	M16
150	285	211	240	16	3	19	15	8	23	M20
200	340	266	295	17	3	20	16	12	23	M20
250	400	319	355	19	3	22	17.5	12	28	M24
300	455	370	410	20.5	4	24.5	19.5	12	28	M24
350	520	429	470	22.5	4	26.5	21	16	28	M24
400	580	480	525	24	4	28	22.5	16	31	M27
450	640	548	585	26	4	30	24	20	31	M27
500	715	609	650	27.5	4	31.5	25	20	34	M30
600	840	720	770	31	5	36	27	20	37	M33
700	910	794	840	34.5	5	39.5	27.5	24	37	M33
750	970	857	900	36	5	41	28	24	37	M33
800	1025	901	950	38	5	43	30	24	40	M36
900	1125	1001	1050	41	5	46	32.5	28	40	M36
1000	1255	1112	1170	45	5	50	35	28	44	M39
1100	1355	1218	1270	48.5	5	53.5	37.5	32	43	M39
1200	1485	1328	1390	52	5	57	40	32	49	M45





Double Socket 22 1/2 °Bend

Nominal Size	e	L
mm	mm	mm
80	7.0	40
100	7.2	40
150	7.8	55
200	8.4	65
250	9.0	75
300	9.6	85
350	10.2	95
400	10.8	110
450	11.4	120
500	12.0	130
600	13.2	150
700	14.4	175
800	15.6	195
900	16.8	220
1000	18.0	240
1100	19.2	260
1200	20.4	285

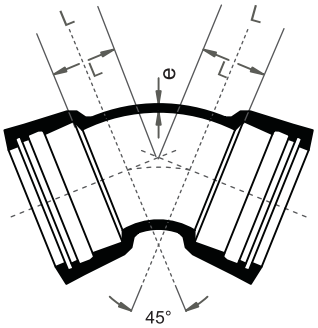


Double Socket 11 1/4 ° Bend

Nominal Size	e	L
mm	mm	mm
80	7.0	30
100	7.2	30
150	7.8	35
200	8.4	40
250	9.0	50
300	9.6	55
350	10.2	60
400	10.8	65
450	11.4	70
500	12.0	75
600	13.2	85
700	14.4	95
800	15.6	110
900	16.8	120
1000	18.0	130
1100	19.2	140
1200	20.4	150





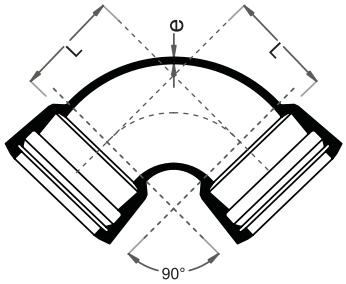


Double Socket 45° Bend

Nominal Size	e	L
mm	mm	mm
80	7.0	55
100	7.2	65
150	7.8	85
200	8.4	110
250	9.0	130
300	9.6	150
350	10.2	175
400	10.8	195
450	11.4	220
500	12.0	240
600	13.2	285
700	14.4	330
800	15.6	370
900	16.8	415
1000	18.0	460
1100	19.2	505
1200	20.4	550

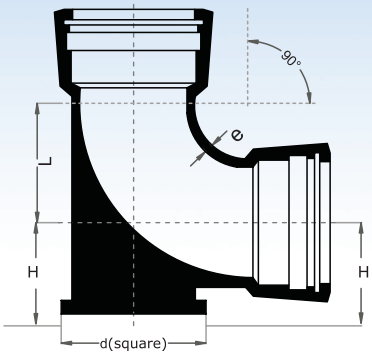
Double Socket 90° Bend

Nominal Size	e	L
mm	mm	mm
80	7.0	100
100	7.2	120
150	7.8	170
200	8.4	220
250	9.0	270
300	9.6	320
350	10.2	370
400	10.8	420
450	11.4	470
500	12.0	520
600	13.2	620
700	14.4	720
800	15.6	820
900	16.8	920
1000	18.0	1020
1100	19.2	1130
1200	20.4	1230







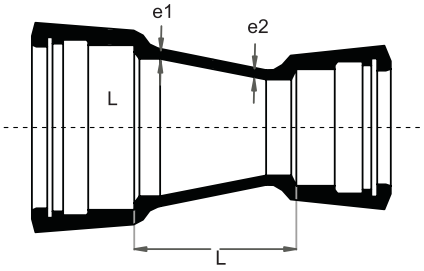


Double Socket 90° Duck Foot Bend

Nominal Size	e	L	H	D
mm	mm	mm	mm	mm
80	7.0	110	110	180
100	7.2	130	125	200
150	7.8	180	160	250
200	8.4	230	190	300
250	9.0	280	225	350
300	9.6	325	255	400
350	10.2	380	290	450
400	10.8	430	320	500
450	11.4	480	355	550
500	12.0	530	385	600
600	13.2	630	450	700
700	14.4	730	515	800
800	15.6	830	580	900
900	16.8	930	645	1000
1000	18.0	1030	710	1100
1100	19.2	1130	775	1200
1200	20.4	1230	840	1300

Double Socket Concentric Reducer

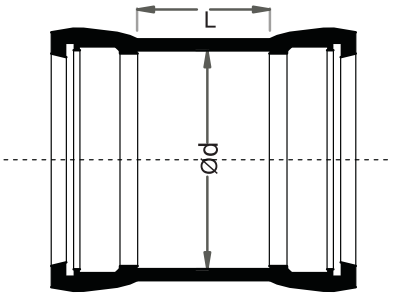
Nominal Diameter (DN)				
Larger End	Smaller End	e_1	e_2	L
mm	mm	mm	mm	mm
100	80	7.2	7.0	90
150	80	7.8	7.0	190
150	100	7.8	7.2	150
200	100	8.4	7.2	250
200	150	8.4	7.8	150
250	150	9.0	7.8	250
250	200	9.0	8.4	150
300	150	9.6	7.8	350
300	200	9.6	8.4	250
300	250	9.6	9.0	150
350	200	10.2	8.4	360
350	250	10.2	9.0	260
350	300	10.2	9.6	160
400	250	10.8	9.0	360
400	300	10.8	9.6	260
400	350	10.8	10.2	160
450	350	11.4	10.2	260
450	400	11.4	10.8	160
500	350	12.0	10.2	360
500	400	12.0	10.8	260
600	400	13.2	10.8	460
600	500	13.2	12.0	260
700	500	14.4	12.0	480
700	600	14.4	13.2	280
800	600	15.6	13.2	480
800	700	15.6	14.4	280
900	700	16.8	14.4	480
900	800	16.8	15.6	280
1000	800	18.0	15.6	480
1000	900	18.0	16.8	280
1100	1000	19.2	18.0	280
1200	1000	20.4	18.0	480





Note : We can make Ecentric and Paddle Reducers of same size

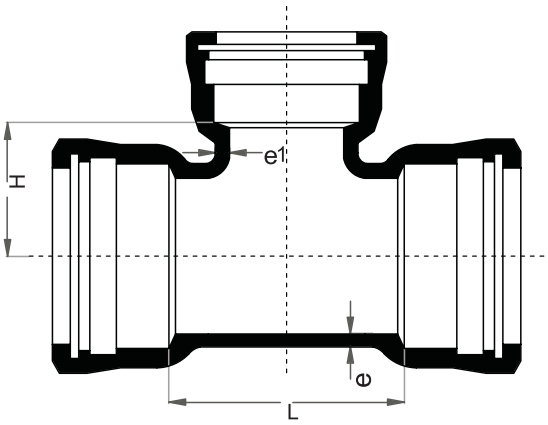




Double Socket Collar

Nominal Dia (DN)	e	L	d
mm	mm	mm	mm
80	7.0	160	109
100	7.2	160	130
150	7.8	165	183
200	8.4	170	235
250	9.0	175	288
300	9.6	180	340
350	10.2	185	393
400	10.8	190	445
450	11.4	195	498
500	12.0	200	550
600	13.2	210	655
700	14.4	220	760
800	15.6	230	865
900	16.8	240	970
1000	18.0	250	1075
1100	19.2	260	1180
1200	20.4	270	1285





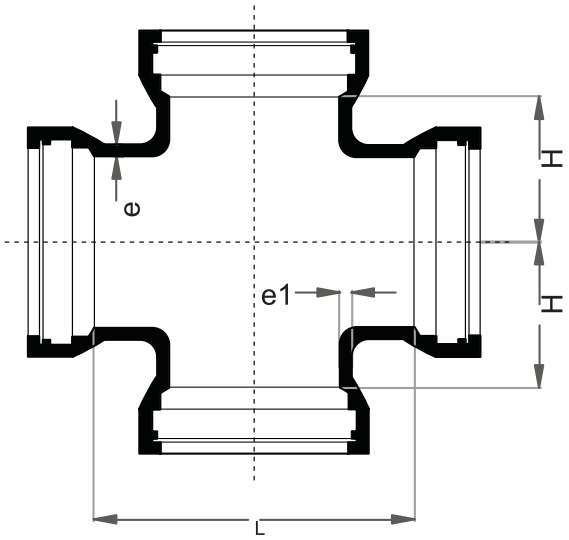
All Socket Tee

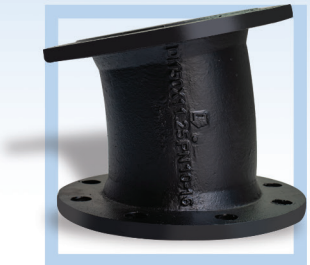
Nominal Diameter (DN) Body mm	Nominal Diameter (DN) Branch mm	e mm	e_1 mm	L mm	H mm
80	80	7.0	7.0	170	85
100	80	7.2	7.0	170	95
100	100	7.2	7.2	190	95
150	100	7.8	7.2	195	120
150	150	7.8	7.8	255	125
200	80	8.4	7.0	175	145
200	100	8.4	7.2	200	145
200	150	8.4	7.8	255	150
200	200	8.4	8.4	315	155
250	80	9.0	7.0	180	170
250	100	9.0	7.2	200	170
250	150	9.0	7.8	260	175
250	200	9.0	8.4	315	180
250	250	9.0	9.0	375	190
300	100	9.6	7.2	205	195
300	150	9.6	7.8	260	200
300	200	9.6	8.4	320	205
300	250	9.6	9.0	380	215
300	300	9.6	9.6	435	220
350	100	10.2	7.2	205	220
350	150	10.2	7.8	265	225
350	200	10.2	8.4	325	230
350	250	10.2	9.0	380	240
350	300	10.2	9.6	440	245
350	350	10.2	10.2	495	250
400	80	10.8	7.0	185	245
400	100	10.8	7.2	210	245
400	150	10.8	7.8	270	250
400	200	10.8	8.4	325	255
400	300	10.8	9.6	440	270
400	400	10.8	10.8	560	280
450	100	11.4	7.2	215	270
450	250	11.4	9.0	385	290
450	450	11.4	11.4	620	310
500	100	12.0	7.2	215	295
500	200	12.0	8.4	330	305
500	400	12.0	10.8	565	330
500	500	12.0	12.0	680	340
600	200	13.2	8.4	340	355
600	400	13.2	10.8	570	380
600	600	13.2	13.2	800	400
700	200	14.4	8.4	345	405
700	400	14.4	10.8	575	430
700	700	14.4	14.4	910	460
800	200	15.6	8.4	350	455
800	400	15.6	10.8	580	480
800	600	15.6	13.2	785	500
800	800	15.6	15.6	990	510
900	200	16.8	8.4	355	505
900	400	16.8	10.8	580	530
900	600	16.8	13.2	785	550
900	900	16.8	16.8	1095	565
1000	200	18.0	8.4	360	555
1000	400	18.0	10.8	580	580
1000	600	18.0	13.2	785	600
1000	1000	18.0	18.0	1200	615
1100	400	19.2	10.8	600	630
1100	600	19.2	13.2	830	650
1200	600	20.4	13.2	840	700
1200	800	20.4	15.6	1070	725
1200	1000	20.4	18.0	1300	745
1200	1200	20.4	20.4	1535	765

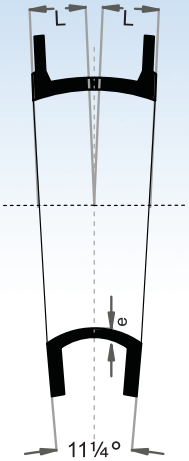
All Socket Cross

SIZE		e	e_1	L	H
Body	Branch				
mm	mm	mm	mm	mm	mm
80	80	7.0	7.0	170	85
100	80	7.2	7.0	170	95
100	100	7.2	7.2	190	95
150	150	7.8	7.8	255	125
200	80	8.4	7.0	175	145
200	100	8.4	7.2	200	145
200	150	8.4	7.8	255	150
200	200	8.4	8.4	315	155
250	80	9.0	7.0	180	170
250	100	9.0	7.2	200	170
250	150	9.0	7.8	260	175
250	200	9.0	8.4	315	180
250	250	9.0	9.0	375	190
300	80	9.6	7.0	180	195
300	100	9.6	7.2	205	195
300	150	9.6	7.8	260	200
300	200	9.6	8.4	320	205
300	250	9.6	9.0	380	215
300	300	9.6	9.6	435	220
350	100	10.2	7.2	205	220
350	150	10.2	7.8	265	225
350	200	10.2	8.4	325	230
350	250	10.2	9.0	380	240
350	300	10.2	9.6	440	245
350	350	10.2	10.2	495	250
400	100	10.8	7.2	210	245
400	150	10.8	7.8	270	250
400	200	10.8	8.4	325	255
400	250	10.8	9.0	385	265
400	300	10.8	9.6	440	270
400	400	10.8	10.8	560	280
500	100	12.0	7.2	215	295
500	150	12.0	7.8	275	300
500	200	12.0	8.4	330	305
500	250	12.0	9.0	390	315
500	300	12.0	9.6	450	320
500	400	12.0	10.8	565	330
500	500	12.0	12.0	680	340
600	200	13.2	8.4	340	355
600	400	13.2	10.8	570	380
600	600	13.2	13.2	800	400
1100	400	19.20	10.80	600	630
1100	600	19.20	13.20	830	650
1100	800	19.20	15.60	1065	675
1100	1000	19.20	18.00	1295	695
1100	1100	19.20	19.20	1410	705
1200	600	20.40	13.20	840	700
1200	800	20.40	15.60	1070	725
1200	1000	20.40	18.00	1300	745
1200	1200	20.40	20.40	1535	765



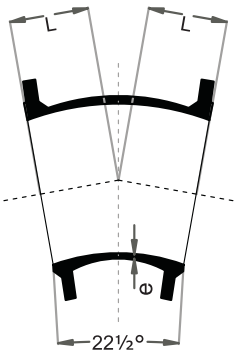






Double Flanged 11 1/4° Bend

Nominal Size (DN)	e	L
mm	mm	mm
80	7.0	113
100	7.2	115
150	7.8	113
200	8.4	132
250	9.0	165
300	9.6	175
350	10.2	191
400	10.8	205
450	11.4	349
500	12.0	375
600	13.2	426
700	14.4	235
800	15.6	265
900	16.8	290
1000	18.0	310
1100	19.2	265
1200	20.4	275

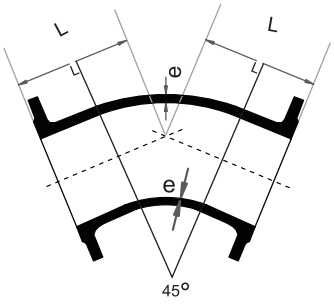




Double Flanged 22 1/2° Bend

Nominal Size (DN)	e	L
mm	mm	mm
80	7.0	105
100	7.2	110
150	7.8	109
200	8.4	131
250	9.0	190
300	9.6	210
350	10.2	210
400	10.8	239
450	11.4	349
500	12.0	375
600	13.2	426
700	14.4	315
800	15.6	350
900	16.8	380
1000	18.0	400
1100	19.2	380
1200	20.4	410

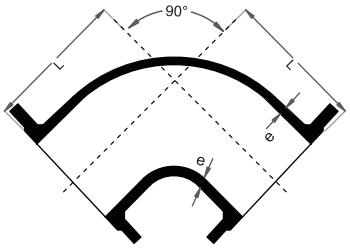




Double Flanged 45° Bend

Nominal Size (DN)	e	L
mm	mm	mm
80	7.0	130
100	7.2	140
150	7.8	160
200	8.4	180
250	9.0	350
300	9.6	400
350	10.2	298
400	10.8	324
450	11.4	350
500	12.0	375
600	13.2	426
700	14.4	478
800	15.6	529
900	16.8	581
1000	18.0	650
1100	19.2	694
1200	20.4	750



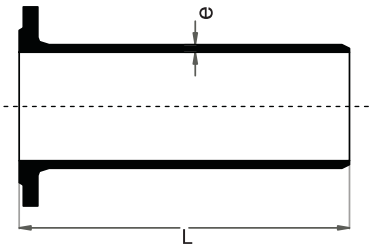


Double Flanged 90° Bend

Nominal Size (DN)	e	L
mm	mm	mm
80	7.0	165
100	7.2	180
150	7.8	220
200	8.4	260
250	9.0	350
300	9.6	400
350	10.2	450
400	10.8	500
450	11.4	550
500	12.0	600
600	13.2	700
700	14.4	800
800	15.6	900
900	16.8	1000
1000	18.0	1100
1100	19.2	1235
1200	20.4	1340

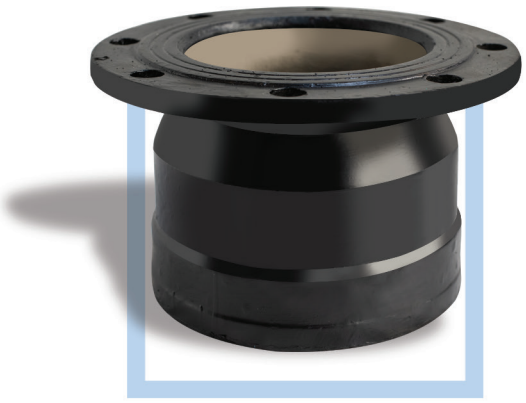
Note : We can also manufacture DF 67.5^0 bends

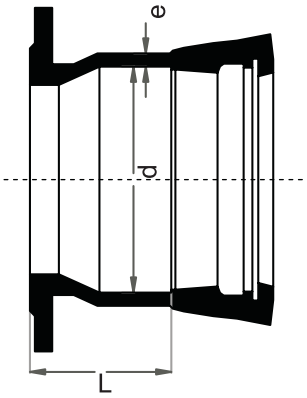




Flanged Spigot

Nominal Dia (DN)	DE	e	L
mm	mm	mm	mm
80	98	7.0	350
100	118	7.2	360
150	170	7.8	380
200	222	8.4	400
250	274	9.0	420
300	326	9.6	440
350	378	10.2	460
400	429	10.8	480
450	480	11.4	500
500	532	12.0	520
600	635	13.2	560
700	738	14.4	600
800	842	15.6	600
900	945	16.8	600
1000	1048	18.0	600
1100	1152	19.2	600
1200	1255	20.4	600

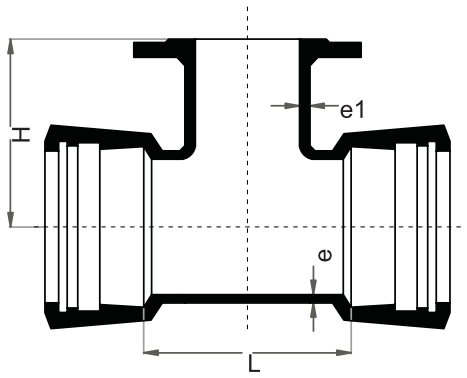




Flanged Socket

Nominal Dia (DN)	e	L	d
mm	mm	mm	mm
80	7.0	130	109
100	7.2	130	130
150	7.8	135	183
200	8.4	140	235
250	9.0	145	288
300	9.6	150	340
350	10.2	155	393
400	10.8	160	445
450	11.4	165	498
500	12.0	170	550
600	13.2	180	655
700	14.4	190	760
800	15.6	200	865
900	16.8	210	970
1000	18.0	220	1075
1100	19.2	230	1180
1200	20.4	240	1285





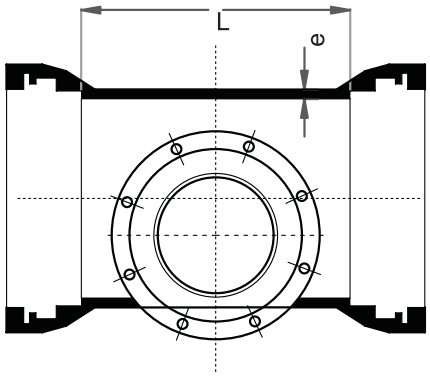
Double Socket Flanged Branch Tee

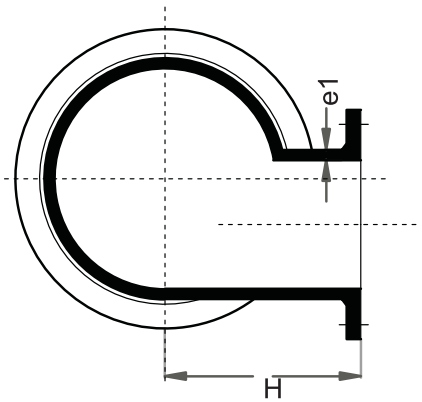
Nominal Diameter (DN)		e	e_1	L	H
Body	Branch				
mm	mm	mm	mm	mm	mm
80	80	7.0	7.0	170	165
100	80	7.2	7.0	170	175
100	100	7.2	7.2	190	180
150	80	7.8	7.0	170	205
150	100	7.8	7.2	195	210
150	150	7.8	7.8	255	220
200	80	8.4	7.0	175	235
200	100	8.4	7.2	200	240
200	150	8.4	7.8	255	250
200	200	8.4	8.4	315	260
250	80	9.0	7.0	180	265
250	100	9.0	7.2	200	270
250	150	9.0	7.8	260	280
250	200	9.0	8.4	315	290
250	250	9.0	9.0	375	300
300	100	9.6	7.2	205	300
300	200	9.6	8.4	320	320
300	250	9.6	9.0	380	330
300	300	9.6	9.6	435	340
350	100	10.2	7.2	205	330
350	200	10.2	8.4	325	350
350	350	10.2	10.2	495	380
400	80	10.8	7.0	185	355
400	100	10.8	7.2	210	360
400	150	10.8	7.8	270	370
400	200	10.8	8.4	325	380
400	300	10.8	9.6	440	400
400	400	10.8	10.8	560	420
450	100	11.4	7.2	215	390
450	250	11.4	9.0	385	420
450	450	11.4	11.4	620	460
500	100	12.0	7.2	215	420
500	400	12.0	10.8	565	480
500	500	12.0	12.0	680	500
600	200	13.2	8.4	340	500
600	400	13.2	10.8	570	540
600	600	13.2	13.2	800	580
700	200	14.4	8.4	345	525
700	400	14.4	10.8	575	555
700	700	14.4	14.4	925	600
800	200	15.6	8.4	350	585
800	400	15.6	10.8	580	615
800	600	15.6	13.2	1045	645
800	800	15.6	15.6	1045	675
900	200	16.8	8.4	355	645
900	400	16.8	10.8	590	675
900	600	16.8	13.2	1170	705
900	900	16.8	16.8	1170	750
1000	200	18.0	8.4	360	705
1000	400	18.0	10.8	595	735
1000	600	18.0	13.2	1290	765
1000	1000	18.0	18.0	1290	825
1100	400	19.2	10.8	600	795
1100	600	19.2	13.2	830	825
1100	1000	19.2	18.0	1295	885
1200	600	20.4	13.2	840	885
1200	800	20.4	15.6	1070	915
1200	1000	20.4	18.0	1300	945

Double Socket Level Invert Tee with Flanged Branch

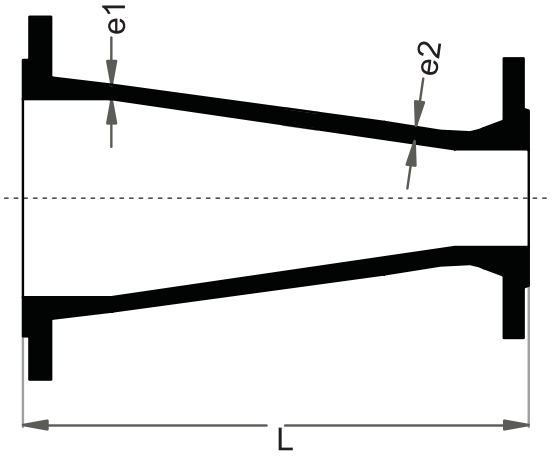
Nominal Diameter (DN)		e	e_1	L	H
Body	Branch				
mm	mm	mm	mm	mm	mm
100	80	7.2	7.0	170	175
150	80	7.8	7.0	170	205
150	100	7.8	7.2	195	210
200	80	8.4	7.0	175	235
200	100	8.4	7.2	200	240
200	150	8.4	7.8	255	250
250	80	9.0	7.0	180	265
250	100	9.0	7.2	200	270
250	150	9.0	7.8	260	280
250	200	9.0	8.4	315	290
300	80	9.6	7.0	180	295
300	100	9.6	7.2	205	300
300	150	9.6	7.8	260	310
300	200	9.6	8.4	320	320
300	250	9.6	9.0	380	330
350	80	10.2	7.0	185	325
350	100	10.2	7.2	205	330
350	150	10.2	7.8	265	340
350	200	10.2	8.4	325	350
350	250	10.2	9.0	380	360
400	80	10.8	7.0	185	355
400	100	10.8	7.2	210	360
400	150	10.8	7.8	270	370
400	200	10.8	8.4	325	380
400	250	10.8	9.0	385	390
400	300	10.8	9.6	440	400
450	80	11.4	7.0	190	385
450	100	11.4	7.2	215	390
450	150	11.4	7.8	270	400
450	200	11.4	8.4	330	410
450	250	11.4	9.0	385	420
450	300	11.4	9.6	445	430
450	400	11.4	10.8	560	450
500	80	12.0	7.0	195	415
500	100	12.0	7.2	215	420
500	150	12.0	7.8	275	430
500	200	12.0	8.4	330	440
500	250	12.0	9.0	390	450
500	300	12.0	9.6	450	460
500	350	12.0	10.2	505	470
500	400	12.0	10.8	565	480
500	450	12.0	11.4	620	490
600	80	13.2	7.0	200	475
600	100	13.2	7.2	220	480
600	150	13.2	7.8	280	490
600	200	13.2	8.4	340	500
600	250	13.2	9.0	395	510
600	300	13.2	9.6	455	520
600	350	13.2	10.2	510	530
600	400	13.2	10.8	570	540
600	450	13.2	11.4	630	550
600	500	13.2	12.0	685	560
700	80	14.4	7.0	205	505
700	100	14.4	7.2	230	510
700	150	14.4	7.8	285	520
700	200	14.4	8.4	345	525
800	150	15.6	7.8	290	580
800	200	15.6	8.4	350	585
900	150	16.8	7.8	300	640
900	200	16.8	8.4	355	645
1000	150	18.0	7.8	305	700
1000	200	18.0	8.4	360	705
1100	150	19.2	7.8	310	760
1100	200	19.2	8.4	370	765
1200	150	20.4	7.8	315	820
1200	200	20.4	8.4	375	825











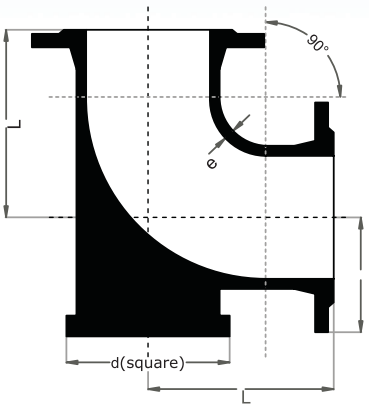
Double Flanged Concentric Reducers

Nominal Diameter (DN)		e_1	e_2	L
Larger End Body	Smaller End Body			
mm	mm	mm	mm	mm
100	80	7.2	7.0	200
150	80	7.8	7.0	230
150	100	7.8	7.2	300
200	80	8.4	7.0	335
200	100	8.4	7.2	290
200	150	8.4	7.8	300
250	80	9.0	7.0	440
250	100	9.0	7.2	400
250	150	9.0	7.8	295
250	200	9.0	8.4	300
300	80	9.6	7.0	550
300	100	9.6	7.2	510
300	150	9.6	7.8	405
300	200	9.6	8.4	300
300	250	9.6	9.0	300
350	80	10.2	7.0	655
350	100	10.2	7.2	615
350	150	10.2	7.8	510
350	200	10.2	8.4	410
350	250	10.2	9.0	305
350	300	10.2	9.6	300
400	100	10.8	7.2	720
400	150	10.8	7.8	615
400	200	10.8	8.4	510
400	250	10.8	9.0	410
400	300	10.8	9.6	300
400	350	10.8	10.2	300
450	150	11.4	7.8	715
450	200	11.4	8.4	610
450	250	11.4	9.0	510
450	300	11.4	9.6	410
450	350	11.4	10.2	305
450	400	11.4	10.8	300
500	200	12.0	8.4	725
500	250	12.0	9.0	625
500	300	12.0	9.6	520
500	350	12.0	10.2	420
500	400	12.0	10.8	600
600	300	13.2	9.6	730
600	350	13.2	10.2	625
600	400	13.2	10.8	525
600	500	13.2	12.0	600
700	600	14.4	13.2	600
800	700	15.6	14.4	600
900	800	16.8	15.6	600
1000	900	18.0	16.8	600
1100	1000	19.2	18.0	600
1200	1000	20.4	18.0	790

Note : We can also make Ecentric and Paddle Reducers of same size

Double Flanged 90° Duck-Foot Bend

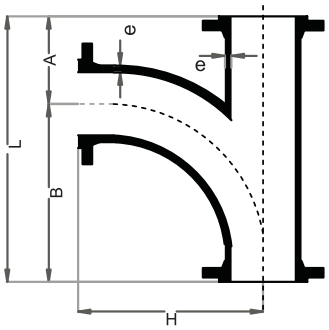
Nominal Size (DN)	e	L	H	D
mm	mm	mm	mm	mm
80	7.0	165	110	180
100	7.2	180	125	200
150	7.8	220	160	250
200	8.4	260	190	300
250	9.0	350	225	350
300	9.6	400	255	400
350	10.2	450	290	450
400	10.8	500	320	500
450	11.4	550	355	550
500	12.0	600	385	600
600	13.2	700	450	700
700	14.4	800	515	800
800	15.6	900	580	900
900	16.8	1000	645	1000
1000	18.0	1100	710	1100
1100	19.2	1235	775	1200
1200	20.4	1340	840	1300





All Flanged Radial Tee

SIZE		e	A	B	H	L
Body	Branch					
mm	mm	mm	mm	mm	mm	mm
80	80	7.0	165	380	380	545
100	100	7.2	180	400	400	580
150	150	7.8	220	450	450	670
200	200	8.4	260	500	500	760
250	250	9.0	350	550	550	900
300	300	9.6	400	600	600	1000
1100	1100	19.2	1200	1400	1400	2600
1200	1200	20.4	1300	1500	1500	2800

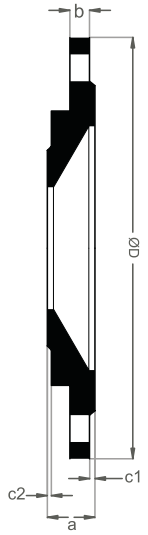




b = 10+0.035DN with a minimum value of 16

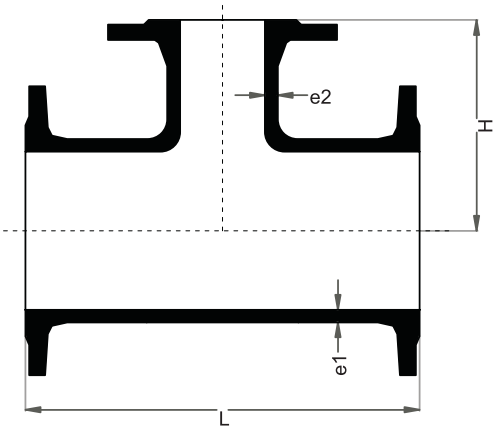
Reducing Flanges

Larger End				Smaller End		
Nominal Dia (DN)	D	b	C1	Nominal Dia (DN)	c2	a
mm	mm	mm	mm	mm	mm	mm
200	340	17.0	3	80	3	40
200	340	17.0	3	100	3	40
350	520	22.5	4	250	3	54
400	580	24.0	4	250	3	54
400	580	24.0	4	300	4	55
700	910	34.5	5	500	4	67
900	1125	41.5	5	700	5	73
1000	1255	45.0	5	700	5	73
1000	1255	45.0	5	800	5	77







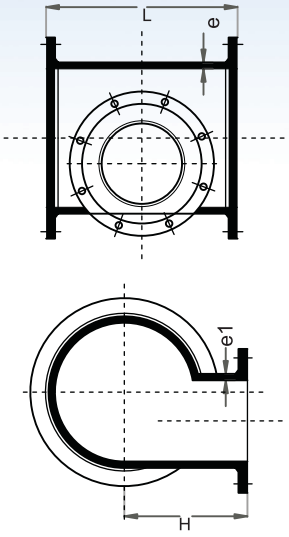


All Flanged Tees

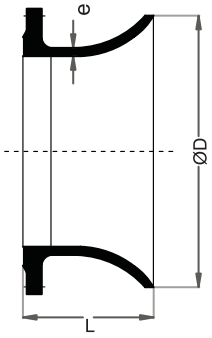
Nominal Diameter		e	e_1	L	H
Body	Branch				
mm	mm	mm	mm	mm	mm
80	80	7.0	7.0	330	165
100	80	7.2	7.0	360	175
100	100	7.2	7.2	360	180
150	80	7.8	7.0	440	205
150	100	7.8	7.2	440	210
150	150	7.8	7.8	440	220
200	80	8.4	7.0	520	235
200	100	8.4	7.2	520	240
200	150	8.4	7.8	520	250
200	200	8.4	8.4	520	260
250	80	9.0	7.0	700	265
250	100	9.0	7.2	700	275
250	150	9.0	7.8	700	300
250	200	9.0	8.4	700	325
250	250	9.0	9.0	700	350
300	80	9.6	7.0	800	290
300	100	9.6	7.2	800	300
300	150	9.6	7.8	800	325
300	200	9.6	8.4	800	350
300	250	9.6	9.0	800	375
300	300	9.6	9.6	800	400
350	80	10.2	7.0	850	325
350	100	10.2	7.2	850	325
350	150	10.2	7.8	850	325
350	200	10.2	8.4	850	325
350	250	10.2	9.0	850	325
350	300	10.2	9.6	850	425
350	350	10.2	10.2	850	425
400	80	10.8	7.0	900	350
400	100	10.8	7.2	900	350
400	150	10.8	7.8	900	350
400	200	10.8	8.4	900	350
400	250	10.8	9.0	900	350
400	300	10.8	9.6	900	450
400	400	10.8	10.8	900	450
450	100	11.4	7.2	950	375
450	150	11.4	7.8	950	375
450	200	11.4	8.4	950	375
450	250	11.4	9.0	950	375
450	300	11.4	9.6	950	475
450	350	11.4	10.2	950	475
450	400	11.4	10.8	950	475
450	450	11.4	11.4	950	475
500	100	12.0	7.2	1000	400
500	150	12.0	7.8	1000	400
500	200	12.0	8.4	1000	400
500	250	12.0	9.0	1000	400
500	300	12.0	9.6	1000	500
500	350	12.0	10.2	1000	500
500	400	12.0	10.8	1000	500
500	500	12.0	12.0	1000	500
600	100	13.2	7.2	1100	450
600	150	13.2	7.8	1100	450
600	200	13.2	8.4	1100	450
600	250	13.2	9.0	1100	450
600	300	13.2	9.6	1100	550
600	350	13.2	10.2	1100	550
600	400	13.2	10.8	1100	550
600	450	13.2	11.4	1100	550
600	500	13.2	12.0	1100	550
600	600	13.2	13.2	1100	550
700	200	14.4	8.4	650	525
700	400	14.4	10.8	870	555
700	700	14.4	14.4	1200	600
800	200	15.6	8.4	690	585
800	400	15.6	10.8	910	615
800	600	15.6	13.2	1350	645
800	800	15.6	15.6	1350	675
900	200	16.8	8.4	730	645
900	400	16.8	10.8	950	675
900	600	16.8	13.2	1500	705
900	900	16.8	16.8	1500	750
1000	200	18.0	8.4	770	705
1000	400	18.0	10.8	990	735
1000	600	18.0	13.2	1650	765
1000	1000	18.0	18.0	1675	825
1100	400	19.2	10.8	980	795
1100	600	19.2	13.2	1210	825
1200	1000	20.4	18.0	1700	945
1200	1200	20.4	20.4	1950	975

All Flanged Level Invert Tees

Nominal Diameter		e	e_1	L	H
Body	Branch				
mm	mm	mm	mm	mm	mm
80	80	7.0	7.0	330	165
100	80	7.2	7.0	360	175
150	80	7.8	7.0	440	205
150	100	7.8	7.2	440	210
200	80	8.4	7.0	520	235
200	100	8.4	7.2	520	240
200	150	8.4	7.8	520	250
250	80	9.0	7.0	700	265
250	100	9.0	7.2	700	275
250	150	9.0	7.8	700	300
250	200	9.0	8.4	700	325
300	80	9.6	7.0	800	290
300	100	9.6	7.2	800	300
300	150	9.6	7.8	800	325
300	200	9.6	8.4	800	350
300	250	9.6	9.0	800	375
350	80	10.2	7.0	850	325
350	100	10.2	7.2	850	325
350	150	10.2	7.8	850	325
350	200	10.2	8.4	850	325
350	250	10.2	9.0	850	325
350	300	10.2	9.6	850	425
400	80	10.8	7.0	900	350
400	100	10.8	7.2	900	350
400	150	10.8	7.8	900	350
400	200	10.8	8.4	900	350
400	250	10.8	9.0	900	350
400	300	10.8	9.6	900	450
450	100	11.4	7.2	950	375
450	150	11.4	7.8	950	375
450	200	11.4	8.4	950	375
450	250	11.4	9.0	950	375
450	300	11.4	9.6	950	475
450	350	11.4	10.2	950	475
450	400	11.4	10.8	950	475
500	80	12.0	7.0	1000	400
500	100	12.0	7.2	1000	400
500	150	12.0	7.8	1000	400
500	200	12.0	8.4	1000	400
500	250	12.0	9.0	1000	400
500	300	12.0	9.6	1000	500
500	350	12.0	10.2	1000	500
500	400	12.0	10.8	1000	500
500	450	12.0	11.4	1000	500
600	80	13.2	7.0	1100	450
600	100	13.2	7.2	1100	450
600	150	13.2	7.8	1100	450
600	200	13.2	8.4	1100	450
600	250	13.2	9.0	1100	450
600	300	13.2	9.6	1100	550
600	350	13.2	10.2	1100	550
600	400	13.2	10.8	1100	550
600	450	13.2	11.4	1100	550
600	500	13.2	12.0	1100	550
700	200	14.4	8.4	650	525
800	200	15.6	8.4	690	585
900	200	16.8	8.4	730	645
1000	300	18.0	9.6	880	720
1100	400	19.2	10.8	980	795
1100	600	19.2	13.2	1210	825
1200	800	20.4	15.6	1470	915
1200	1000	20.4	18.0	1700	945







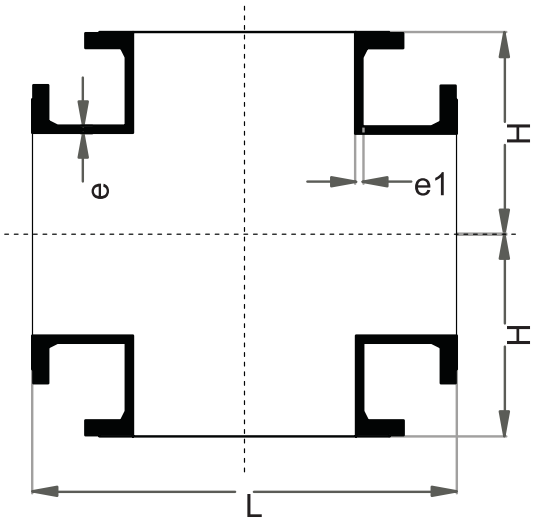


Flanged Bell-mouth

Nominal Size	e	L	D
mm	mm	mm	mm
80	7.0	135	160
100	7.2	140	185
150	7.8	155	245
200	8.4	170	310
250	9.0	190	370
300	9.6	210	435
350	10.2	225	495
400	10.8	245	560
450	11.4	260	620
500	12.0	280	685
600	13.2	300	810
1100	19.2	465	1400
1200	20.4	490	1515

All Flanged Cross

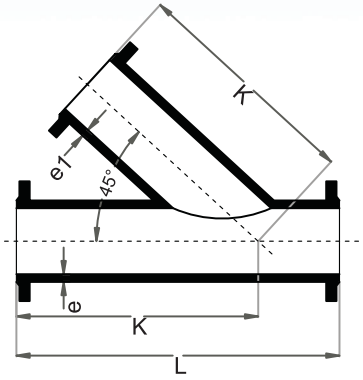




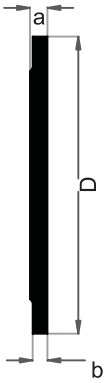
Nominal Diameter		e	e_1	L	H
Body	Branch				
mm	mm	mm	mm	mm	mm
80	80	7.0	7.0	330	165
100	80	7.2	7.0	360	175
100	100	7.2	7.2	360	180
150	80	7.8	7.0	440	205
150	100	7.8	7.2	440	210
150	150	7.8	7.8	440	220
200	80	8.4	7.0	520	235
200	100	8.4	7.2	520	240
200	150	8.4	7.8	520	250
200	200	8.4	8.4	520	260
250	80	9.0	7.0	700	265
250	100	9.0	7.2	700	275
250	150	9.0	7.8	700	300
250	200	9.0	8.4	700	325
250	250	9.0	9.0	700	350
300	80	9.6	7.0	800	290
300	100	9.6	7.2	800	300
300	150	9.6	7.8	800	325
300	200	9.6	8.4	800	350
300	250	9.6	9.0	800	375
300	300	9.6	9.6	800	400
350	100	10.2	7.2	850	325
350	150	10.2	7.8	850	325
350	200	10.2	8.4	850	325
350	250	10.2	9.0	850	325
350	300	10.2	9.6	850	425
350	350	10.2	10.2	850	425
400	100	10.8	7.2	900	350
400	150	10.8	7.8	900	350
400	200	10.8	8.4	900	350
400	250	10.8	9.0	900	350
400	300	10.8	9.6	900	450
400	350	10.8	10.2	900	450
400	400	10.8	10.8	900	450
450	100	11.4	7.2	950	375
450	150	11.4	7.8	950	375
450	200	11.4	8.4	950	375
450	250	11.4	9.0	950	375
450	300	11.4	9.6	950	475
450	350	11.4	10.2	950	475
450	400	11.4	10.8	950	475
450	450	11.4	11.4	950	475
500	100	12.0	7.2	1000	400
500	150	12.0	7.8	1000	400
500	200	12.0	8.4	1000	400
500	250	12.0	9.0	1000	400
500	300	12.0	9.6	1000	500
500	350	12.0	10.2	1000	500
500	400	12.0	10.8	1000	500
500	450	12.0	11.4	1000	500
500	500	12.0	12.0	1000	500
600	100	13.2	7.2	1100	450
600	150	13.2	7.8	1100	450
600	200	13.2	8.4	1100	450
600	250	13.2	9.0	1100	450
600	300	13.2	9.6	1100	550
600	350	13.2	10.2	1100	550
600	400	13.2	10.8	1100	550
600	450	13.2	11.4	1100	550
600	500	13.2	12.0	1100	550
600	600	13.2	13.2	1100	550
700	700	14.4	14.4	1200	600
800	800	15.6	15.6	1350	675
900	900	16.8	16.8	1500	750
1000	1000	18.0	18.0	1650	825
1100	1100	19.20	19.20	1780	890
1200	1200	20.40	20.40	1950	975

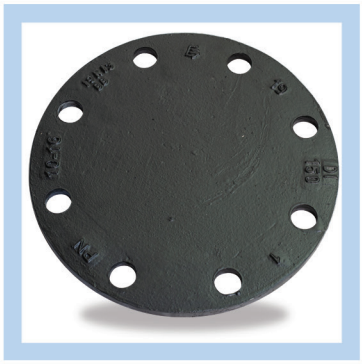
All Flanged 45° Angle Branch

Nominal Diameter Body	Nominal Diameter Branch	e	e_1	K	L
mm	mm	mm	mm	mm	mm
80	80	7.0	7.0	375	500
100	80	7.2	7.0	390	500
100	100	7.2	7.2	405	540
150	80	7.8	7.0	480	590
150	100	7.8	7.2	480	640
150	150	7.8	7.8	480	640
200	80	8.4	7.0	535	635
200	100	8.4	7.2	535	635
200	150	8.4	7.8	560	735
200	200	8.4	8.4	560	735
250	80	9.0	7.0	585	660
250	100	9.0	7.2	610	710
250	150	9.0	7.8	640	830
250	200	9.0	8.4	640	830
250	250	9.0	9.0	640	830
300	80	9.6	7.0	610	685
300	100	9.6	7.2	610	685
300	150	9.6	7.8	660	790
300	200	9.6	8.4	685	865
300	250	9.6	9.0	715	930
300	300	9.6	9.6	715	930
350	100	10.2	7.2	635	685
350	150	10.2	7.8	660	740
350	200	10.2	8.4	710	840
350	250	10.2	9.0	740	880
350	300	10.2	9.6	790	940
350	350	10.2	10.2	790	970
400	100	10.8	7.2	710	760
400	150	10.8	7.8	740	815
400	200	10.8	8.4	760	865
400	250	10.8	9.0	820	970
400	300	10.8	9.6	870	1000
400	350	10.8	10.2	870	1030
400	400	10.8	10.8	870	1070
450	100	11.4	7.2	710	740
450	150	11.4	7.8	760	840
450	200	11.4	8.4	790	890
450	250	11.4	9.0	820	990
450	300	11.4	9.6	900	1040
450	350	11.4	10.2	950	1090
500	150	12.0	7.8	765	790
500	200	12.0	8.4	810	890
500	250	12.0	9.0	840	940
500	300	12.0	9.6	865	990
500	350	12.0	10.2	950	1065
600	150	13.2	7.8	840	890
600	200	13.2	8.4	890	940
600	250	13.2	9.0	915	990
600	300	13.2	9.6	965	1090
700	300	14.4	9.6	1090	1170
800	300	15.6	9.6	1170	1200
900	400	16.8	10.8	1315	1410
1000	400	18.0	10.8	1415	1485
1100	400	19.2	10.8	1515	1560
1100	450	19.2	11.4	1550	1625
1200	450	20.4	11.4	1700	1780
1200	500	20.4	12.0	1750	1880







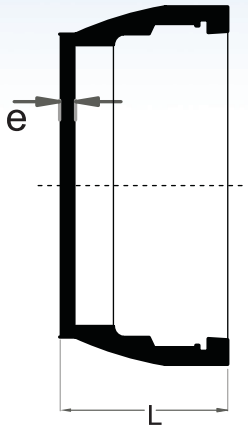


Blank Flanges Type PN 16

(DN) mm	D mm	a mm	b mm	c mm
80	200	19.0	16.0	3
100	220	19.0	16.0	3
150	285	19.0	16.0	3
200	340	20.0	17.0	3
250	400	22.0	19.0	3
300	455	24.5	20.5	4
350	520	26.5	22.5	4
400	580	28.0	24.0	4
450	640	30.0	26.0	4
500	715	31.5	27.5	4
600	840	36.0	31.0	5
700	910	39.5	34.5	5
800	1025	43.0	38.0	5
900	1125	46.5	41.5	5
1000	1255	50.0	45.0	5
1100	1355	53.5	48.5	5
1200	1485	57.0	52.0	5

End Caps

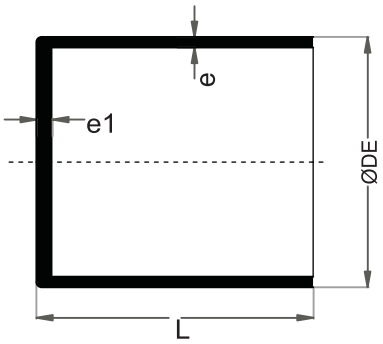




SIZE Body (DN)	e	L
mm	mm	mm
80	18	128
100	18	128
150	18	128
200	18	138
250	20	146
300	23	156
350	24	158
400	25	163
450	26	167
500	27	173
600	30	184
700	31	221
800	33	236
900	35	258
1000	37	270
1100	39	277
1200	41	306

Plug

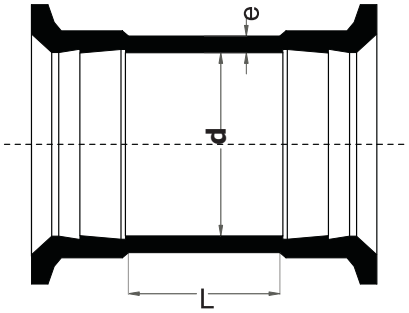




Body(DN)	DE	e	e1	L
mm	mm	mm	mm	mm
80	98	7.0	18	200
100	118	7.2	18	200
150	170	7.8	18	225
200	222	8.4	18	250
250	274	9.0	19.5	250
300	326	9.6	23	275
350	378	10.2	24	275
400	429	10.8	25	275
450	480	11.4	26	275
500	532	12.0	27	275
600	635	13.2	29.5	300
700	738	14.4	31	350
800	842	15.6	33	380
900	945	16.8	35	400
1000	1048	18.0	37	435
1100	1152	19.2	39	375
1200	1255	20.4	41	400

MJ Collar





Nominal Dia (DN)	e	L	d
mm	mm	mm	mm
80	7.0	160	109
100	7.2	160	130
150	7.8	165	183
200	8.4	170	235
250	9.0	175	288
300	9.6	180	340
350	10.2	185	393
400	10.8	190	445
450	11.4	195	498
500	12.0	200	550
600	13.2	210	655
700	14.4	220	760
800	15.6	230	865
900	16.8	240	970
1000	18.0	250	1075
1100	19.2	260	1180
1200	20.4	270	1285

External Protection



Fusion Bonded Epoxy (FBE) Coating and Lining

FBE coating and Lining is applied to the interior and exterior of the Ductile Iron fittings, in a state-of-the-art automated facility, which covers the DI Fittings with powdered epoxy by fusion bonding process. FBE Coating is applied as per EN:14901 with a mean film thickness of 250 micron. Higher film thickness (above 250 micron) can also be applied as per customer requirements. Internal FBE Lining eliminates the need for internal Cement Mortar lining and offers a more stable protection.

Advantages of Fusion Bonded Epoxy Coating

- It provides a chemically inert barrier coating with good chemical resistance.
- Much better resistance to external galvanic/ soil corrosion in aggressive soil.
- High abrasion and scratch resistance.
- Works perfectly for a wide range of liquid parameters.
- Gives glossy and smooth coatings with excellent adhesion.
- A choice of Blue, Black or Red colour for water or sewage applications is available.

Internal Protection



a) Cement Mortar Lining

As per specification, any of the following cement mortar lining may be applied depending on the type of liquid transported.

- Blast furnace slag cement mortar
- Sulphate resistant cement mortar
- High alumina cement mortar

Fittings with bituminous or epoxy seal coat over cement mortar lining is also available.



b) Fusion Bonded Epoxy

Normally, fusion bonded epoxy is applied both on the outer and inner surface of the fittings.

c) Ceramic Epoxy

Ceramic epoxy lining is also applied inside fittings which are to be used with ceramic epoxy lined pipes.



All material coming in contact with potable water are certified by various approving agencies like WRAS, DWI, WRc, DVGW etc.

Head Office:

G K Tower, 19, Camac Street, Kolkata - 700017, India

Ph : +91 33 2283 9990/ 7103 4400

Production Units:

KHARDAH
30, B. T. Road, Khardah, P.O. - Sukchar,
Dist.- 24 Parganas (N), West Bengal, India. Pin - 700115
Ph : +91 33 7101 4300 / 4450

BANSBERIA
Vill - Chak Bansberia, Saptagram Panchayat,
P.O. - Adcconagar, Dist. - Hooghly, West Bengal, India. Pin - 712121
Ph : +91 6292219270

HALDIA
Vill - Kasberia, P.O. - Shibramnagar, Haldia,
Dist. - Purba Medinipur, West Bengal, India. Pin - 721635
Ph : +91 9083280640 / 9434095385

ELAVUR
12/72 GNT Road, P.O.- Elavur, Taluk - Gummidipondi,
Dist. - Tiruvallur, Tamil Nadu, India. Pin - 601201
Ph : +91 44 - 67911800

SRIKALAHASTHI
Vill - Rachagunneri, Mandal-Srikalahasthi
District - Tirupati, Andhra Pradesh , India. Pin - 517641
Ph : +91 8578 286650 - 55

Branch Office

NORTH
Electrosteel Castings Limited
B-47, 2nd Floor, Shiv Mahal, Connaught Place, New Delhi - 110 001
Ph. No. +91 (011) 23412838

WEST
Electrosteel Castings Limited
B-707, Mahavir Icon, Plot No.89-90, Sector 15, CBD Belapur
Navi Mumbai - 400 614
Ph. No. 022 - 2756 1334

SOUTH
Electrosteel Castings Limited
148/150, Luz Church Road, Mylapore, Chennai - 600 004, Tamil Nadu
Ph. No. 044 - 2467 4900, Fax: 044 - 2499 5229

www.electrosteel.com

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